



ชิ้นส่วนแม่พิมพ์ปั๊ม

DIE COMPONENTS

STANDARD & CUSTOMIZABLE



"OIL FREE™ standard for die large and small"

Guide and Bush	ไกด์ และ บุษ
Guide Post Sets	ไกด์โพสเซต
Die Sets	ไดเซต
Punches	พินช์
Pilot Punches	ไฟลิตพินช์
Punch Guide Bushes	ไกด์บุชสำหรับพินช์
Button Dies	บัททอนดาย
Retainers	รีเทนเนอร์สำหรับพินช์
Stripper Guide Bushes	สตริปปเปอร์ไกด์และบุช
Locating Components	ชิ้นส่วนหาตำแหน่ง
Die Transfer Systems	ระบบเคลื่อนย้ายแม่พิมพ์
Accessories	ชิ้นส่วนทั่วไป
Cam Slides	แคมสไลด์
Slide Plates	สไลด์เพลท
Die Springs	สปริงแม่พิมพ์
Urethane Springs	ยูรีเทนสปริง
Gas Springs	แก๊สสปริง

LINE @SUNRISEGROUP





ไกด์ และ บุช / GUIDES & BUSHES

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ไกด์โพสเซต / GUIDE POST SETS

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ไดเซต / DIE SETS

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พินซ์ / PUNCHES

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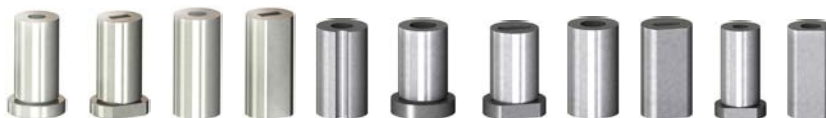
ไพลอตพินซ์ / PILOT PUNCHES

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ไกด์บุชสำหรับพินซ์ / PUNCH GUIDE BUSHES

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บัตทอนดาย / BUTTON DIES

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รีเทนเนอร์ / PUNCH DIE RETAINERS

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Guide & Bush

Guide Post Set

Die Sets

Punches

Pilot Punch

Punch Guide Bush

Button Dies

Retainers

แคตตาล็อกชิ้นส่วนแม่พิมพ์ปั๊ม

Stripper G&B



สตริปเปอร์ไกด์ และ บุช / STRIPPER GUIDES AND BUSHES

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Die Locating



ชิ้นส่วนหาตำแหน่ง / DIE LOCATING COMPONENTS

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Die Transfers



ระบบเคลื่อนย้ายแม่พิมพ์ / DIE TRANSFER SYSTEM

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Die Springs



สปริงแม่พิมพ์ / DIE SPRINGS

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Urethane



ยูรีเทนสปริง / URETHANE SPRINGS

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Gas Springs



แก๊สสปริง / GAS SPRINGS

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การใช้งานแคตตาล็อก – USING THE CATALOG

สัญลักษณ์ และ ความหมาย – Symbol indicators



ข้อมูลน่าสนใจ
Interesting Information



ข้อควรระวัง
Warning Information



ข้อมูลวัสดุ
Material Information

การสอบถามสินค้า และ สั่งซื้อ – Making Inquiry and Ordering

- 1) ทำการสอบถามสินค้าด้วย Order Code ในตาราง หรือผสมโค้ดตามตาราง Order Example เพื่อความรวดเร็วในการค้นหาข้อมูลสินค้าในระบบ และจัดทำใบเสนอราคา
Use Order Code in the table or combine the code from Order Example table when making inquiry for faster quotation.

ORDER EXAMPLE	Model	W - L
	25SGW100-180	

ตัวอย่าง Order Code แบบผสม สินค้าส่วนมากมีขนาดหลากหลายจึงต้องมีการผสม code ซึ่งสามารถดูวิธีผสมได้จากช่อง "Order Example" และนำตัวอักษรมาเรียงตามตัวอย่าง

Example of Combination Order Code. Most products have many combinations, the code needs to be combined to form the Order Code. Look for "Order Example" box on each product page. Plug in each code as example shown.

- 2) ส่วนลดจะปรับตามจำนวนที่สั่งซื้อจริง จึงควรระบุจำนวนที่ต้องการเมื่อทำการขอราคา
Discounts are based on order quantity.
Please state the actual quantity upon making inquiry.

- 3) ช่องทางติดต่อเพื่อ ขอราคาและสั่งซื้อ
Contact channels for sending Inquiries and Purchase Orders



ประเทศไทย
Thailand



ต่างประเทศ
International

Email	sale@sunrisegr.com
Telephone	02-324-3184/ 08-4438-7746(-49)
Fax	02-324-3190 / 02-324-3103
LINE@	@sunrisegroup

Email	export@sunrisegr.com
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การสั่งผลิตตามแบบ – Customization Service

- สินค้าในแคตตาล็อกนี้ท่านสามารถสั่งผลิตตามแบบได้ โปรดแจ้งความประสงค์ผ่านทางฝ่ายขายเรา โดยปกติงานตามแบบจะไม่มีขั้นต่ำในการผลิต
Products in this catalog can be customize to your design. Please contact our sale personals for more details.

นโยบายการให้บริการ – Service Policies

- สินค้าทุกชิ้นชั้นรับประกันคุณภาพการใช้งานตามที่ระบุ
Sun Rise guaranteed all of our products meet the declared quality.
- สินค้าทุกชิ้นรับประกันขั้นต่ำ 6 เดือน พบสินค้าเสียหาย* เรายินดีเปลี่ยนหรือแก้ไขสินค้าให้ทันที
Every item is under at least 6 months warranty; In case of faulty products* contact us to make claim
- รูปภาพและสีของสินค้าในแคตตาล็อกอาจจะไม่ตรงกับสินค้าจริง อาจมีการเปลี่ยนแปลงพัฒนาได้โดยไม่ต้องแจ้ง
Product pictures and colors within the catalog may not reflect the actual product.
- ในบางกรณีที่เราไม่สามารถจัดส่งสินค้าด้วยรถจัดส่งให้ได้ จะมีค่าใช้จ่ายเพิ่มเติมแล้วแต่กรณี
In case we can not send your order by our trucks; an extra delivery cost may occur.

*ความเสียหายต้องไม่เกิดจากการใช้งาน อุบัติเหตุ ภัยธรรมชาติ หรือจากการนำไปใช้งานผิดประเภท
Must not be the damage done by usage, accidents, nature disasters, or wrongly operated.

					
Name	Guide Post	Guide Bush	Guide Post for Press Fit	Guide Post for Press Fit	Guide Bush
Model	25GPME	25GBMF	25GP	25SGPOB / 25SGPSB	25SGBF / 25SGBW
Page	3	3	4	4	5

				
Name	Flange Guide Bush	Flange Guide Bush	Stroke End Block / Guide Bush Locking Block Distant Guide Ring	Ball Guide Post (for Die)
Model	25SGFW	25HBF	25SGEB / 25SDSEB / 25SKEB / 25SHKD	25PKSL / 25PKSLU
Page	5	6	6 - 7	8

					
Name	Ball Guide Post (for Pad)	Oil Free™ Bush	Oil Free™ Washer	Oil Free™ Flange Bush	Oil Free™ Guide Bar
Model	25PKS / 25PKSU	25SBW	25WSBW	25FSBW	25SWGB-W / 25SWGB-I / 25SWGB-S
Page	8	9 - 10	11	12	13

			
Name	Oil Free™ Guide Bar	Oil Free™ Guide Bar	Guide Bar X-Oil Groove
Model	25SGPF	25SGPZ	25SWGZ / 25SWGZ / 25SWGBZ
Page	14	15	16

			
Name	Guide Bar O-Oil Groove	Pad Keepers	Pad Guide Block / Pad Keepers
Model	25SGO / 25SGOA / 25SGOB	25SKPN / 25SKPNZ	25SPWN / 25SKPNP
Page	18	19	20

ตารางการเลือกไกด์และบุช | Guide & Bush Selecting Chart

Guide Diameter	Guide			Bush	
D32 - 80	P.3	25GPME			Guide Bush 25GBMF P.3
D30 - 120	P.4	25GP		 Guide Bush 25SGBF P.5	 Guide Bush 25SGBW P.5
D80 - 120	P.4	25SGPOB		 Flange Guide Bush 25SGFW P.5	 Flange Guide Bush 25HBF P.6



ออยฟรี - OIL FREE™

เป็นประเภทของเฟลนแบร์ริงแบบไม่มีลูกปืน ออยฟรี™ นั้นได้ถูกพัฒนาขึ้นมาให้สามารถใช้ได้ตียิ่งขึ้นโดยไม่ต้องใช้น้ำมัน หรือใช้น้อยลง ช่วยให้อายุการใช้งานและลดเวลาการดูแลรักษาชิ้นส่วนให้น้อยลง เพราะชิ้นส่วนสไลด์ทั่วไปเมื่อน้ำมันแห้งก็จะเกิดความร้อนสูงทำให้เสียหายได้ง่าย จึงต้องมีการเติมน้ำมันอยู่เรื่อยๆ อีกทั้งการออกแบบก็เป็นไปได้ยากเพราะต้องออกแบบให้สามารถเติมน้ำมันได้ง่าย

รูปแบบของออยฟรีนั้นมีทั้งแบบเม็ดกลม และแบบแถบ ทั้งนี้ขึ้นอยู่กับารออกแบบ ซึ่งสามารถเลือกสั่งทำพิเศษได้

An improved plain bearing that can work without or with little oil and grease. By using Oil Free™ products the parts will have increased tool life and reduced maintenance time. Normal oil-groove bearing will have time when grease dry out and damaging the part from overheating. Also it will need constant applying of grease to work.

Oil Free™ come in Plug Type or Strip Type depending on design. We welcome customization on Oil Free™ products.



แบบเม็ดกลม - Plug Type



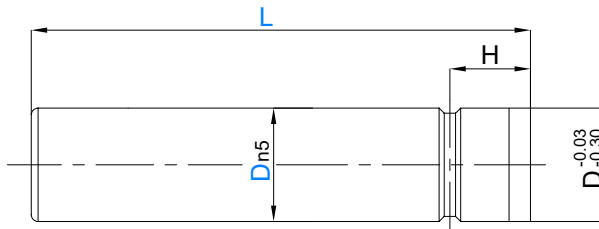
แบบแถบ - Strip Type

ไกด์ และ บุช

Guide Post - ไกด์โพส

Model: 25GPME

FOIL FREE™



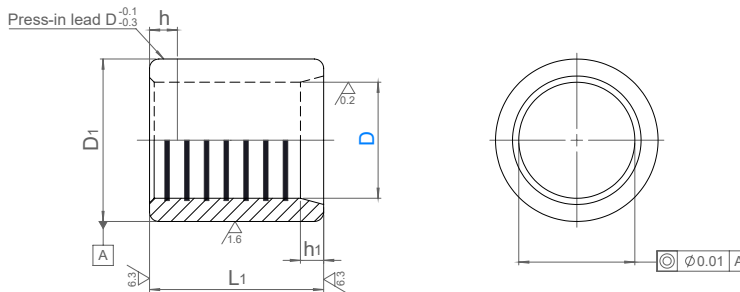
ORDER Model D - L **ใช้ร่วมกับไกด์บุช 25GBMF** **M** S45C
EXAMPLE 25GPME32-200 **Use with 25GBMF Guide Bush** 55HRC-(Induction Harden)

Model	Dn5		L 10 mm increment	H	M
25GPME	32	+0.028 +0.017	90 - 250	20	-
	38		110 - 300	25	
	50		160 - 350	32.5	
	60	+0.033 +0.020	180 - 400	37.5	
	80		250 - 450	50	M12

Guide Bush - ไกด์บุช

Model: 25GBMF

FOIL FREE™



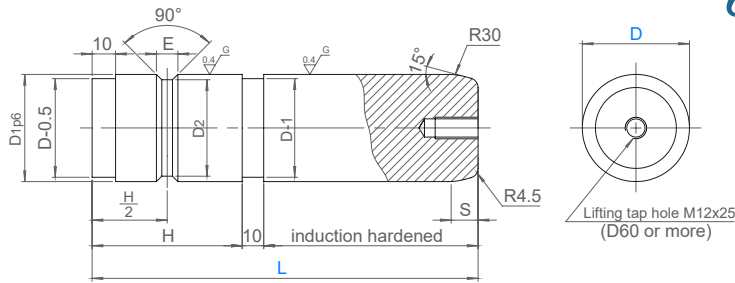
ORDER Model D **ใช้ร่วมกับไกด์โพส 25GPME** **M** FC250
EXAMPLE 25GBMF38 **Use with 25GPME Guide Post** Oil Free™ Solid Lubricant

Model	D		D1	h	h1	L1
25GBMF	32	+0.047 +0.037	52	8	4	48
	38	+0.049 +0.037	60	10	5	55
	50	+0.052 +0.037	70	15	10	75
	60	+0.061 +0.043	80	20		90
	80	+0.063 +0.043	100	25		120

Guide Post for Press Fit - ไกด์โพส สำหรับ สวมอัด

Model: 25GP

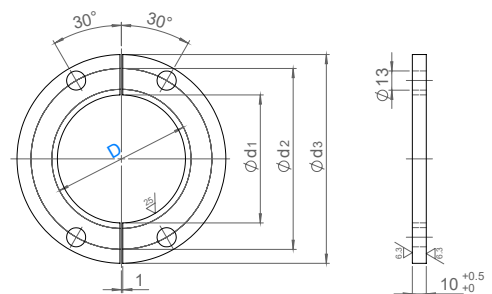
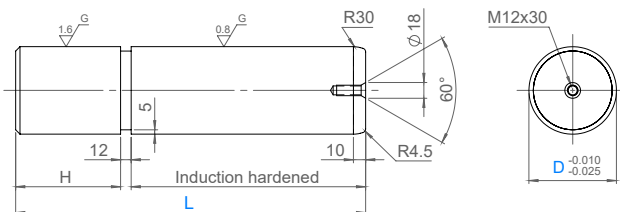
OIL FREE™

ORDER
EXAMPLEModel D - L
25GP50-200S45C
55HRC-(Induction Harden)

Model	D		L										D1 p6		H	M				
25GP	30		100	120	140	160	180									30	+0.035 +0.022	40	-	
	40	-0.005 -0.015		120	140	160	180	200									40	+0.042 +0.026		50
	50						160	180	200		250	300					50			70
	60	-0.010 -0.020						200	220	250	300	350					60	+0.051 +0.032	90	M12
	80									250	300	350	400	450			80		120	
	100	-0.010 -0.025									300	350	400	450	500		100	+0.059 +0.037	150	
	120													400	450	500	550	120		

Guide Post for Press Fit - ไกด์โพส สำหรับ สวมอัด

OIL FREE™

Guide Post
Model: 25SGPOBStopper
Model: 25SGPSBORDER
EXAMPLEModel D - L
25SGPOB80-350S45C
55HRC-(Induction Harden)

Model	D	L	H
25SGPOB	80	350	100
		400	
	100	350	120
		400	
		450	
	120	450	150

ORDER
EXAMPLEModel D
25SGPSB100

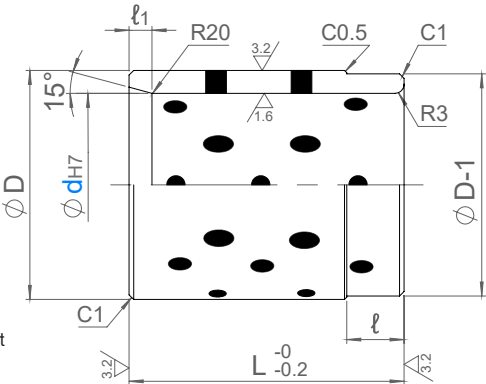
S45C

Model	D	d1	d2	d3
25SGPSB	80	72	110	130
	100	92	130	150
	120	112	156	177.8

ไกด์ และ บุช

Guide Bush - ไกด์บุช

Model: 25SGBF Model: 25SGBW



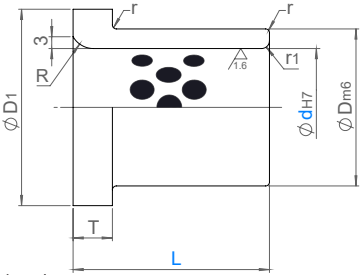
- 25SGBF FC250 Oil Free™ Solid Lubricant
- 25SGBW Copper Alloy Oil Free™ Solid Lubricant

ORDER	Model	d
EXAMPLE	25SGBF50	

Model	d H7		L	D		ℓ	ℓ ₁
25SGBF 25SGBW	25	+0.021 0	40	40	±0.008	10	5
	30		50	50			
	35	+0.025 0	55	60	±0.0095	15	
	40		60			10	
	50		75	70		15	
	60	+0.030 0	90	80	±0.011	20	10
	80		120	100			
	100	+0.035 0	150	120	±0.0125	25	
	120		180	140			

Flange Guide Bush - ไกด์บุชมีขา

Model: 25SGFW



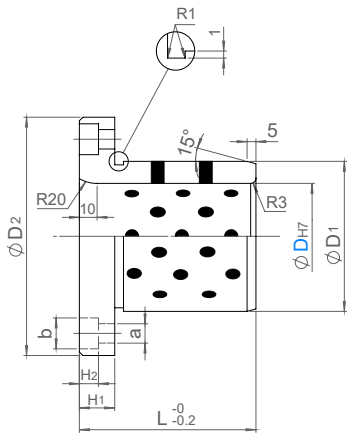
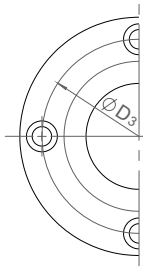
ORDER	Model	d	Copper Alloy Oil Free™ Solid Lubricant
EXAMPLE	25SGFW50		

Model	d H7		L	D m6		D1	T	R	r	r1
25SGFW	25	+0.021 0	40	35	+0.025 +0.009	45	7	10	1	2
	30		50	40		50	10			
	40	+0.025 0	70	55	+0.030 +0.011	65		20		
	50		80	65		75			2	
	60	75		85						
	65	+0.030 0	120	80		+0.035 +0.013			90	
	80				100				110	
			140	100	130					
	100	+0.035 0	100	125					10	
	140									

Flange Guide Bush - ไคด์บุชมีปาก

Oil Free™

Model: 25HBF



FC250
Oil Free™ Solid Lubricant
มีสกรูในชุด
Mounting Bolts Included

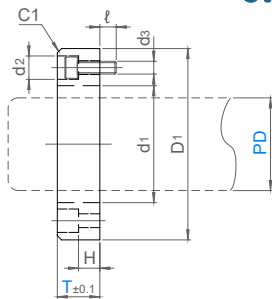
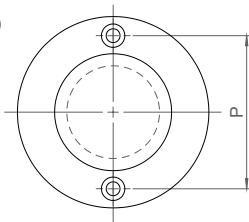
ORDER
EXAMPLE Model D
25HBF50

Model	D H7		L	D1		D2	H1	D3	a	b	H2
25HBF	30	+0.021 0	50	50	±0.008	90	20	70	11	17.5	10.8
	40	+0.025 0	65	60	±0.0095	100		80			
	50		80	75		125		100			
	60	+0.030 0	100	85	±0.011	135	25	110	14	20	13
	80		130	110		170		140			
	100	+0.035 0	160	130	±0.0125	190		160			

Stroke End Block - สโตรคเอนบล็อก สำหรับไคด์โพส

Oil Free™

Model: 25SGEB / 25SDSEB



ORDER
EXAMPLE Model PD - T - Color
25SGEB50-40-R

SS400
Black Oxide (Fe304)

มีสกรูในชุด
Mounting Bolts Included

Model	PD	T	Color	D1	P	d1	d2	d3	H	ℓ	Mounting Bolt
25SGEB	38	20, 25, 30	R (สีแดง/Red)	75	60	43	10	5.5	10	10	24CB5x20
	50	20, 25		90	72	55	11	6.5	10		24CB6x20
		30, 35, 40							20		24CB6x30
	60	20, 25	Y (สีเหลือง/Yellow)	120	92	65	14	9	8	12	24CB8x20
		30, 35, 40							18		24CB8x30
	80	20, 25	N (สีกรมดำ/Blacken)	150	116	88			8		24CB8x20
		30, 35, 40							18		24CB8x30

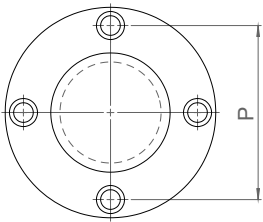
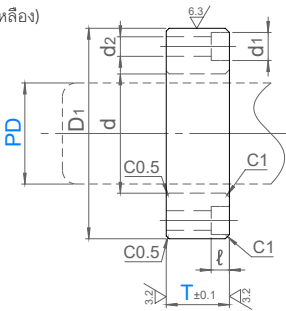
Model	PD	T	Color	D1	P	d1	d2	d3	H	ℓ	Mounting Bolt
25SDSEB (Oversized)	50	15	R (สีแดง/Red)	120	100	54	14	9	5	15	24CB8x20
		20							10	10	
	60	15	Y (สีเหลือง/Yellow)	140	120	64			5	15	
		20							10	10	

ไกด์ และ บุช

Guide Bush Locking Block - ไกด์บุชล็อกคบล็อค

Model: 25SKEB

FOIL FREE™



T	L
20	25
25	30
30	35
35	40
40	45
45	50
50	55
55	60

PD = 30 - 60 PD = 80 - 100

SS400 Black Oxide (Fe304)

T = 20, l = 12

ORDER Model PD - T - Color
EXAMPLE 25SKEB50-40-R

มีสกรูในชุด Mounting Bolts Included

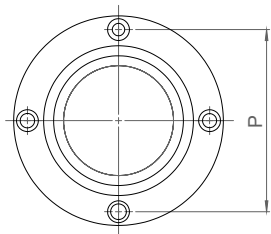
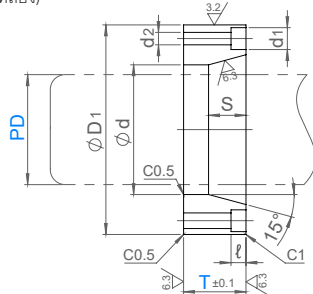
ความยาวสกรูเปลี่ยนตามค่า T Bolt Length change depend on T

Model	PD	T (5mm. increment)	Color	D1	d	P	d1	d2	ℓ	Mounting Bolt
25SKEB	30	20 ~ 30	R (สีแดง/Red)	96	35	72	17.5	11	15	24CB10xL
	40	20 ~ 40		106	45	82				
	50	20 ~ 55		116	55	92				
	60		Y (สีเหลือง/Yellow)	126	65	102	20	14	24CB12xL	
	80			N (สีกรมดำ/Blacken)	150	85				124
	100	170			105	144				

Distant Guide Ring - ไกด์ริงกั้นระยะ

Model: 25SHKD

FOIL FREE™



PD = 30 - 60 PD = 80 - 100

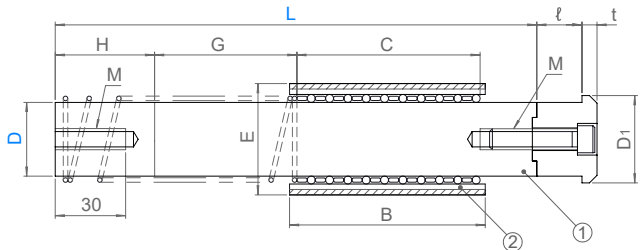
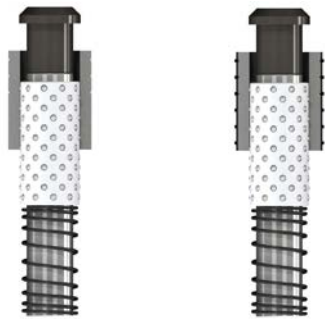
SS400 Black Oxide (Fe304)

ORDER Model PD - T - Color
EXAMPLE 25SHKD-50-R

Model	PD	T (5mm. increment)	Color	D1	d	P	S		d1	d2	ℓ	D2	D3
							T = 25	T ≥ 30					
25SHKD	38	25 - 55	R (สีแดง/Red)	108	54	88	23	28	17.5	11	15	38	50
	50			118	64	98						50	60
	60		Y (สีเหลือง/Yellow)	148	84	126						60	80
	80			168	104	146						80	100
	100		N (สีกรมดำ/Blacken)	188	124	166			20	14		100	-

Ball Guide Post (For Die) - ไกด์โพสลูกปืน สำหรับตาย

Model: 25PKSL Model: 25PKSLU



ORDER
EXAMPLE Model D - L
25PKSL50-280

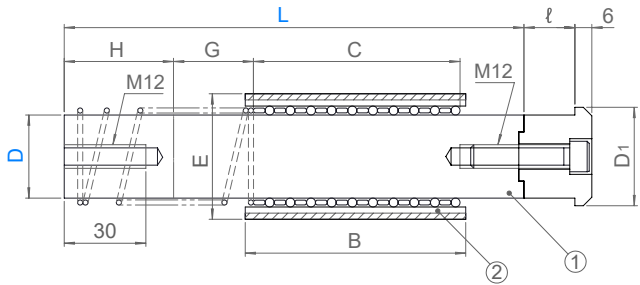
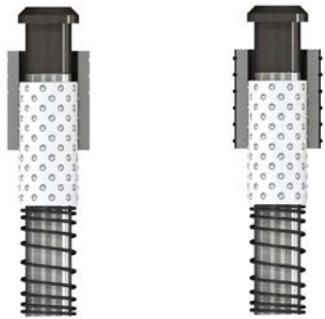
25PKSL
① ② SUJ2 58HRC-

25PKSLU (with Urethane)
① SUJ2 58HRC- ② SUJ2 58HRC- Urethane Shore A90

Model	D		L	E	E tolerance		B	C	ℓ	M	t	D1	G Min	H
					25PKSL	25PKSLU								
25PKSL 25PKSLU	50	+0.035 +0.030	240	83	0 -0.010	+0.100 0	120	110	40	12	10	58	30	60
			280						20					
	60		260	95			130	120	50			68		80
			300						30					
	80	300	120	140	130	50	88	100						
		340				30								
	100	+0.040 +0.032	350	145	0 -0.012	160	150	50	16	15	108	40	120	
			400					30						
			450					10						

Ball Guide Post (For Pad) - ไกด์โพสลูกปืน สำหรับแพด

Model: 25PKS Model: 25PKSU



ORDER
EXAMPLE Model D - L
25PKSU50-160

25PKS
① ② SUJ2 58HRC-

25PKSU (with Urethane)
① SUJ2 58HRC- ② SUJ2 58HRC- Urethane Shore A90

Model	D		L (10mm increment)	E	E tolerance		B	C	ℓ	D1	G Min	H
					25PKS	25PKSU						
25PKS 25PKSU	38	+0.030 +0.025	130 - 160	64	0 -0.008	+0.100 0	80	50	20	46	20	40
			170 - 200					75	30		25	
	50	+0.035 +0.030	150 - 190	83	0 -0.010		100	60	20	58	30	50
			200 - 240					90	30			
	60		170 - 210	95				70	20	68	30	60
			220 - 260					90	30			
	80		260 - 300	120						88	20	80

Oil Free™ Bush (Universal) - บุชออยฟรี™

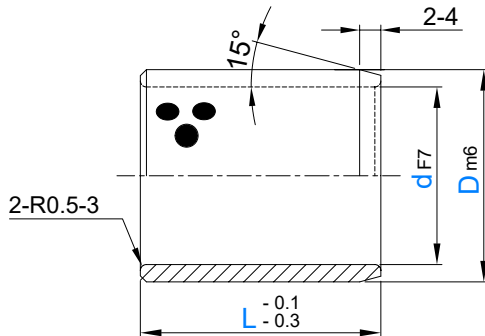


บุชทองเหลืองออยฟรี สำหรับนำไปใช้ได้หลากหลายอุตสาหกรรม เช่น แม่พิมพ์ ปัม/ฉีด, ชิ้นส่วนเครื่องจักร, ระบบอัตโนมัติ, งานก่อสร้าง, ยานยนต์ สามารถหล่อขึ้นได้โดยไม่ต้องเติมน้ำมันขณะใช้งาน



Oil Free bush for universal use in many dry application such as die/mold, machinery, automation, construction, automobile. The Oil Free bush is self lubrication and work without grease.

Model: 25SBW



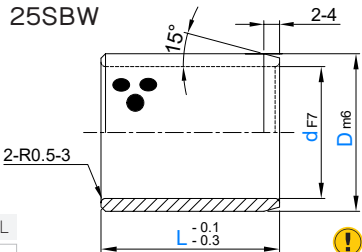
ORDER 25SBW d - D - L **Temperature Resistance** -40° C ~ 300° C **Copper Alloy** Oil Free™ Solid Lubricant

d F7		D m6		L															
5	+0.022	9	+0.015	8	10	12	15												
6	+0.010	10	+0.006	8	10	12	15	16	20										
8	+0.028	12	+0.018 +0.007	8	10	12	15	16	20	25									
10	+0.013	14		8	10	12	15	16	20	25	30								
12	+0.034 +0.016	18	+0.021 +0.008	8	10	12	15	16	20	25	30	35							
13		19		10	12	15	16	20	25	30	35								
14		20		10	12	15	16	20	25	30	35								
15		21		10	12	15	16	20	25	30	35	40							
16		22		10	12	15	16	20	25	30	35	40							
17		23					15				30	35							
18	+0.041 +0.020	24	+0.025 +0.009	10	12	15	16	20	25	30	35	40							
19		26					15		20										
20		28		10	12	15	16	20	25	30	35	40	50	60	70				
		30					16	20	25	30	35	40	50	60	70		100		
22		32				12	15		20	25									
25		33				12	15	16	20	25	30	35	40	50	60				
	+0.050 +0.025	35				12	15	16	20	25	30	35	40	50	60	70	80		
28		38							20	25	30		40						
30		38				12	15	16	20	25	30	35	40	50	60	70	80		
		40				12	15	16	20	25	30	35	40	50	60				
31.5		40								30		40							
32		42						20		30		40							

Oil Free™ Bush (Universal) - บูชออยฟรี™



Model: 25SBW



ORDER
EXAMPLE 25SBW d - D - L
25SBW25-35-50

⚠ Temperature Resistance
-40° C ~ 300°C

Ⓜ Copper Alloy
Oil Free™ Solid Lubricant

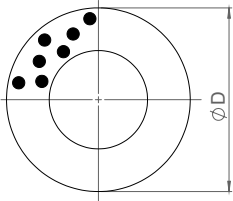
d F7		D m6		L												
35	+0.050 +0.025	44	+0.025 +0.009	20 25 30 35 40 50 60 70												
		45		20 25 30 35 40 50 60 70												
38		48		30 40												
40		50		15 20 25 30 35 40 50 60 70 80												
		55	+0.030 +0.011	15 25 30 35 40 50 60												
45		55		30 35 40 50 60												
		56		30 35 40 50 60 70 80												
		60		60	30 35 40 50 60 70 80											
				60	20 30 35 40 50 60 70 80											
50		62		30 35 40 50 60 70 80												
	65	30 40 50 60 70 80 100														
55	+0.060 +0.030	70		40 50 60 70												
60		74		30 35 40 50 60 70 80 100												
		75		30 35 40 50 60 70 80 100												
63		75	60 70 80													
65		80	40 50 60 70 80													
70		85	+0.035 +0.013	30 35 40 50 60 70 80 100												
		90		50 60 70 80 100												
75		90		50 60 70 80 100												
		95		60 70 80 100												
80		96		40 50 60 70 80 100 120												
	100	40 50 60 70 80 100 120 140														
85	+0.071 +0.036	100		60 80												
90		110		30 50 60 70 80 90 100 120												
100		120		50 60 70 80 100 120 140												
110		130		50 70 80 100 120												
120		140	70 80 90 100 120 140													
125		145	+0.040 +0.015	100 120												
130		150		80 100 130												
140		160		100 140												
150		170		80 100 150												
160		+0.083 +0.043		180	80 100 150											

โถง และ บุช

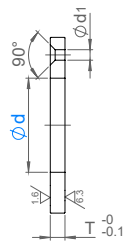
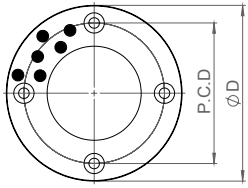
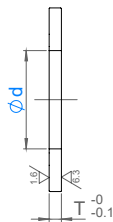
Oil Free™ Washer (Universal) - แหวนออยฟรี™



ไม่มีรูยึดสกรู
No bolt holes
Model: 25WSBW-N



มีรูยึดสกรู
With bolt holes
Model: 25WSBW



ORDER
EXAMPLE

Model - No.
25WSBW-25

⚠ Temperature Resistance
-40° C ~ 300°C

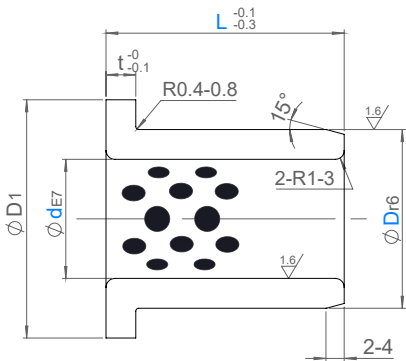
Ⓜ Copper Alloy
Oil Free™ Solid Lubricant

Model	No.	d	D	T	P.C.D	Number of Holes	Flat Head Screw	d1
25WSBW (with holes) 25WSBW-N (no holes)	6	6.2	25	3	15	2	M3	3.5
	8	8.2	28		18			
	10	10.2	30		20			
	12	12.2	40		28			
	13	13.2						
	14	14.2						
	15	15.2	50		35			
	16	16.2						
	18	18.2						
	20	20.2						
	25	25.2	55	5	40	M5	6	
	30	30.2	60		45			
	35	35.2	70		50			
	40	40.2	80	7	60	M6	7	
	45	45.3	90		67.5			
	50	50.3	100	8	75	4	M8	9
	55	55.3	110		85			
	60	60.3	120		90			
	65	65.3	125		95			
	70	70.3	130	10	100	4	M10	11
	75	75.3	140		110			
	80	80.3	150		120			
	90	90.5	170		140			
	100	100.5	190		160			
	120	120.5	200		175			

Oil Free™ Flange Bush (Universal) - บุชมีป่าออยฟรี™



Model: 25FSBW



ORDER
EXAMPLE

25FSBW
25FSBW25-35-50

d - D - L

Temperature Resistance
-40° C ~ 300°C

Copper Alloy
Oil Free™ Solid Lubricant

d E7		D r6		L							D1	t	
5	+0.032 +0.020	9	+0.028 +0.019	10 12							14	2	
6		10		10 12 15							16		
8	+0.040 +0.025	12	+0.034 +0.023	10 12 15 20							20		
10		14		10 12 15 20 25 30							22		
12	+0.050 +0.032	18		10 12 15 20 25 30							25	3	
13		19		10 12 15 17 20 25 30							26		
14		20		15 20 25 30							27		
15		21		10 12 15 20 25 30							28		
16		22	+0.041 +0.028	12 15 20 25 30 35 40							29		
18		24		15 20 25 30 35 40							32		
20		30		15 20 25 30 35 40							40		5
25		+0.061 +0.040		35	15 20 25 30 35 40 50								
30	40		20 25 30 35 40 50							50			
31.5	+0.075 +0.050	+0.050 +0.034	20 25 30 35 40 50							60			
35			45	20 25 30 35 40 50									
40			50	20 25 30 35 40 50									
45			55	20 25 30 35 40 50 60							70		
50		60	+0.060 +0.041	20 25 30 35 40 50 60							75		
55		65		30 35 40 60							80	7.5	
60	+0.090 +0.060	75	+0.062 +0.043	30 35 40 50 60 80							90		
70		85		50 60 80							105		
75		90	+0.073 +0.051	60 80							110		
80		100		60 80 100							120	10	
90	+0.107 +0.072	110	+0.076 +0.054	60 80 100							130		
100		120		80 100							150		
120		140	+0.088 +0.063	80 100							170		

ไกด์ และ บุช

Oil Free™ Guide Bar - ไกด์บาร์ออยฟรี™

NEW

รุ่นใหม่ สามารถเปลี่ยนแผ่นสไลด์ได้
New type that can change the slide plate.

FOIL FREE™

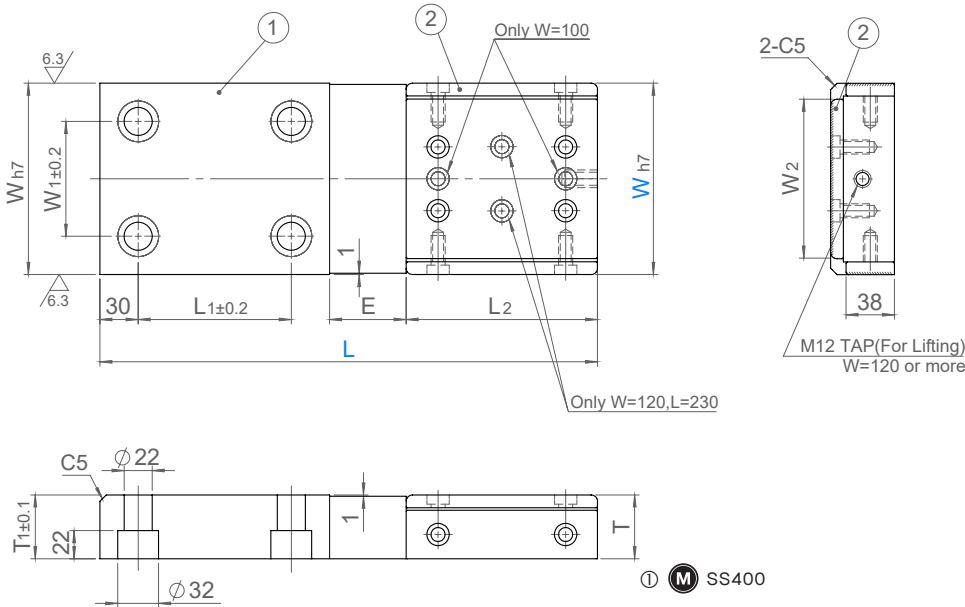
Model 25SWGB-W
ทองเหลือง Copper Alloy



Model 25SWGB-I
เหล็กเหนียว Steel



Model 25SWGB-S
แผ่นซินเตอร์ Sintered



① (M) SS400

25SWGB-W ② (M) Copper Alloy + Oil Free™ Solid Lubricant

25SWGB-I ② (M) Steel + Oil Free™ Solid Lubricant

25SWGB-S ② (M) Sintered + Oil Free™ Solid Lubricant

ORDER
EXAMPLE Model W - L
25SWGB-W100-230

Model	W h7		L	L1	L2	W1	W2	T	E		
25SWGB-W 25SWGB-I 25SWGB-S	100	0 -0.035	230	60	75	60	75	45	35		
			280		125				45		
			330	100	150		60				
			390	120	150		60				
	120		230	60	75		100		35		
			280		125					45	
			330	100	150					60	
			390	120	150					60	
	150	0 -0.040	280	60	125	90		125		50	35
			330		100						45
			390	120	150						60
			430	140							80

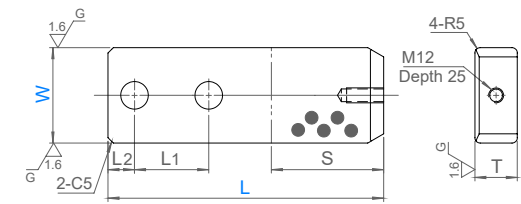
Oil Free™ Guide Bar - ไกด์บาร์ออยฟรี™



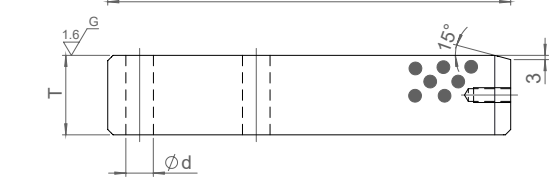
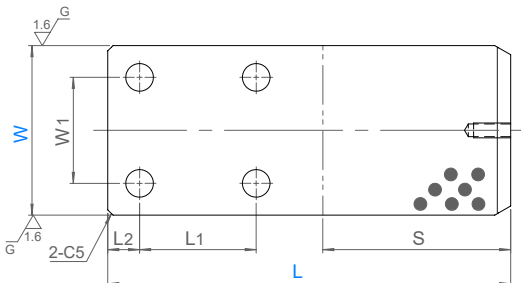
Model: 25SGPF



⚠ W = 80 - 90



⚠ W = 120



ORDER
EXAMPLE

Model W - L
25SGPF120-280



FC250
Oil Free™ Solid Lubricant

Model	W		L	L1	L2	W1	S	d	T	
25SGPF	80	0 -0.025	220	60	25	-	80	22	40	
			260	70						
			300	70						
	90		0 -0.025	220						60
				260						70
				300						70
	120	0 -0.035	280	80		70	120	22	60	
			340	100						
			380	100						
	130		0 -0.035	280						80
				340						100
				380						100
	150	0 -0.040	340	110	30	100	130	26	75	
			380							
			430							
	160		0 -0.040							340
										380
										430
	180	0 -0.046	340	130		120	140	26	90	
			380	380						
			430	430						
	190		0 -0.046	340						340
				380						380
				430						430

ไกด์ และ บุช

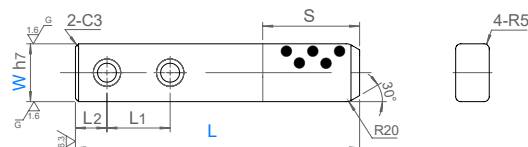
Oil Free^(TM) Guide Bar - ไกด์บาร์ออยฟรี^(TM)

Model: 25SGPZ

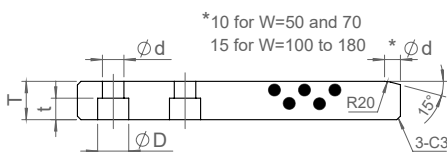
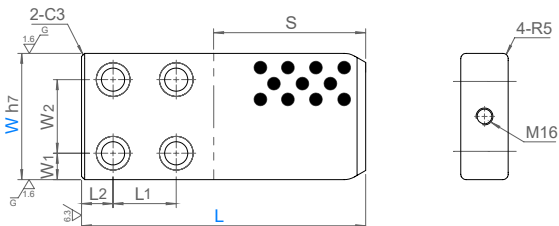
FOIL FREETM



! W = 50 - 70



! W = 100 - 150



M S45C
Oil Free^(TM) Solid Lubricant

! W = 180

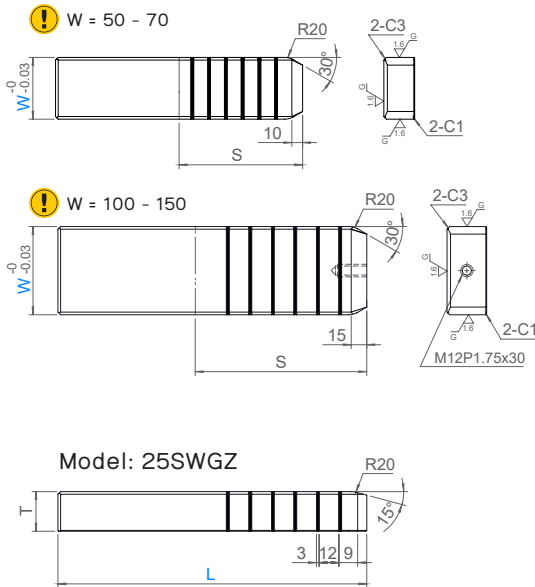
S Area **M** 55HRC-(Induction Harden)

ORDER
EXAMPLE Model W - L
25SGPZ100-280

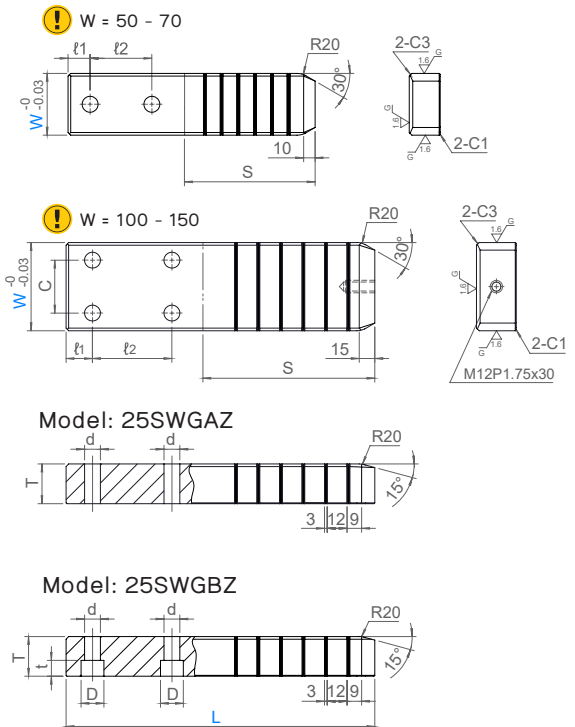
Model	W h7		L	L1	L2	L3	W1	W2	D	d	t	T	S										
25SGPZ	50	0 -0.025	160	20	50				26	18	18	30	60										
			200		80								120										
			260																				
	70	0 -0.030	230	25	60										26	18	18	35	100				
			260		75														160				
			300		150														150				
			350																				
	100	0 -0.035	230	30	60								20						45	100			
			280		100															160			
			330		120	200																	
			390		60	100																	
	120		230		100	160																	
			280		120	200																	
			330		140	190																	
			390		180																		
	150	0 -0.040	280		60		60				32	22	22	50	160								
			330		80																		
			390		140																		
			430		180																		
	180		280		60									70		120						55	160
			330		80									100									190
			390		140									120									200
			430		180									130									250
480			200																				
550			225	142.5																			



แบบไม่มีรูสกรู
Without bolt holes
Model: 25SWGZ



แบบมีรูสกรู
With bolt holes
Model: 25SWGZ / 25SWGBZ



M S45C
Oil FreeTM Solid Lubricant

S Area **M** 55HRC-(Induction Harden)

ORDER Model W - L
EXAMPLE 25SWGZ100-300

Model	W	L	T	Grooves	S	ℓ ₁	ℓ ₂	C	d	D	t
25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ 25SWGZ	50	160	30	3	60	20	50	-	18	26	18
		190		5	90						
		220		7	120						
	70	230	35	6	100	25	60				
		270		9	140						
		310		11	180						
	100	300	45	8	130	30	90	60			
		350		11	180						
		400		14	230						
	130	350	50	9	150	30	120	80	22	32	22
		400		12	200						
		450		16	250						
150	420	60	11	180	35	150	100				
	470		14	230							
	520		18	280							



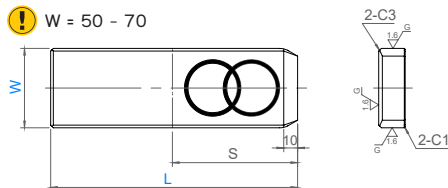
17

Guide Bar O-Oil Groove - ไกด์บาร์ ร่องน้ำมันตัว O

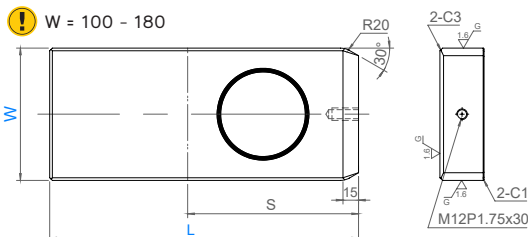


แบบไม่มีรูสกรู
Without bolt holes
Model: 25SGO

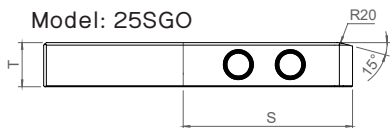
! W = 50 - 70



! W = 100 - 180



Model: 25SGO



M S45C

S Area M 55HRC-(Induction Harden)

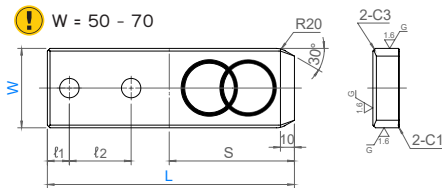
ORDER
EXAMPLE

Model W - L
25SGO100-160

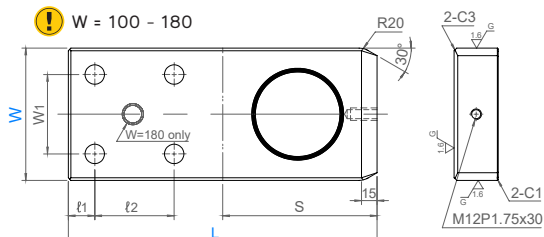


แบบมีรูสกรู
With bolt holes
Model: 25SGOA / 25SGOB

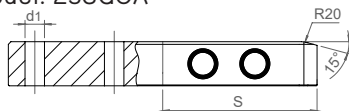
! W = 50 - 70



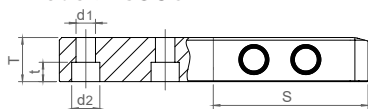
! W = 100 - 180



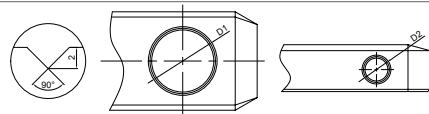
Model: 25SGOA



Model: 25SGOB

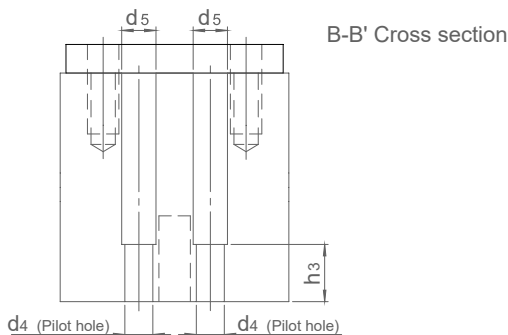


รู่องน้ำมัน
Oil Grooves

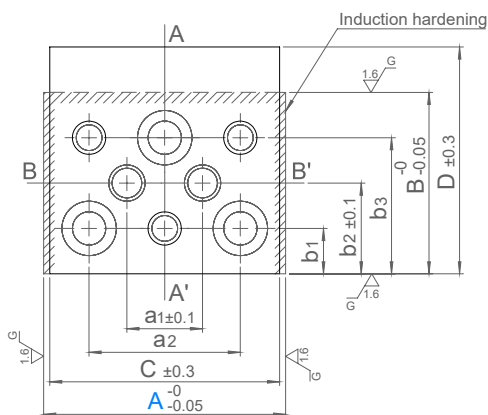


Model	W		L	T	S	l1	l2	W1	d1	d2	t	Oil Grooves	
												qty x D1	qty x D2
25SGO	70	0 -0.030	230	35	100	25	60	-	18	26	18	2 x 50	2 x 20
			260		160		75						3 x 20
			300		160		75						3 x 20
	100	0 -0.035	230	45	100	30	60	60	22	32	22	1 x 63	2 x 20
			280		160		100					2 x 63	3 x 20
			330		100		100					2 x 50	2 x 20
	120	0 -0.035	230	45	100		60	60	22	32	22	2 x 50	2 x 20
			280		160		100					4 x 50	3 x 20
			330		200		120					4 x 50	4 x 20
	150	0 -0.040	280	50	160		60	90	22	32	22	4 x 63	3 x 20
			330		190		80					4 x 63	3 x 20
			390		160		140					4 x 63	3 x 20
25SGOB	180	0 -0.040	280	55	160	30	60	120	22	32	22	5 x 50	4 x 20
			330		190		80					5 x 50	3 x 20
			390		190		140					5 x 50	3 x 20
	180	0 -0.040	280	55	160		60	120	22	32	22	5 x 50	4 x 20
			330		190		80					5 x 50	3 x 20
			390		190		140					5 x 50	3 x 20

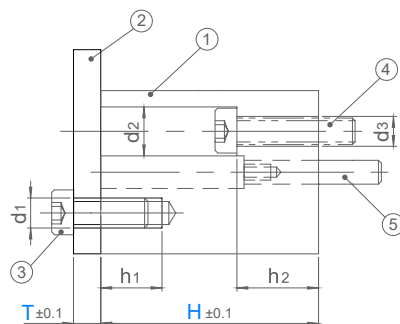
Model: 25SKPN



Model: 25SKPNZ



A-A' Cross section



	A = 80	A = 100
T=10	24CB10-30 3 pcs	24CB12-35 3 pcs
③ T=15	24CB10-35 3 pcs	24CB12-40 3 pcs
T=20	-	24CB12-45 3 pcs
④	24CB10-50 3 pcs	24CB12-55 3 pcs
⑤	Dowel 10-40 2 pcs	Dowel 13-50 2 pcs

ORDER	Model	A - H - T	④ S45C
EXAMPLE	25SKPN80-50-10		45HRC-(Induction Harden)

Model	A	H	T	B	a1	a2	b1	b2	b3	d1	d2	d3	d4	d5	h1	h2	h3	MxP	C	D
25SKPN	80	50	10	60	25	50	15	30	45	11	18	11	9.8	12	25	30	20	10 x 1.5	76	75
		60																		
		70																		
		80																		
		100																		
25SKPNZ	100	60	10	70	30	60	20	35	50	13	20	13	12.8	15	30	25	25	12 x 1.75	96	85
		70																		
		80																		
		100																		
		120																		

OPTION	Model	A - H (HC) - T - (NC)
EXAMPLE	25SKPN80-HC65-10-NC	

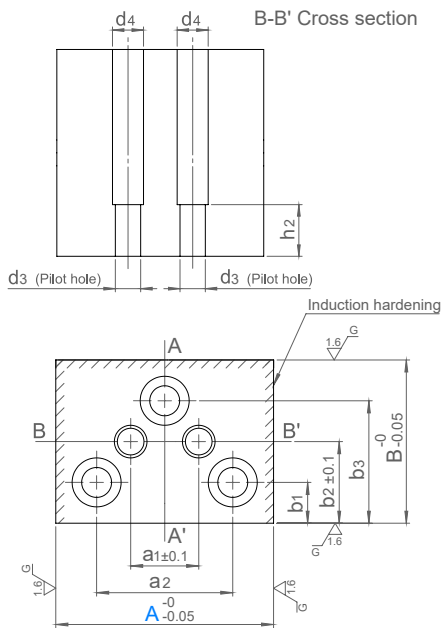
การปรับแต่งเสริม | Options

Options	Code	Description	Options	Code	Description
	HC	Hmin < HC < Hmax if H-HC < 10, h2 and h3 will be smaller by H-HC if 10 ≤ H-HC < 20, h2 and h3 will be smaller by H-HC-10		NC	add holes for removing bolts and dowel pins on the plate for removing the set while the plate is still on the block

Pad Guide Block - แพ้ทไกด์บล็อก

FOIL FREE™

Model: 25SPWN



A = 80	A = 100
24CB10-50 3 pcs	24CB12-55 3 pcs
Dowel 10-40 2 pcs	Dowel 13-50 2 pcs

S45C
45HRC-(Induction Harden)

ORDER EXAMPLE	Model	A - H
	25SPWN80-100	

Model	A	H	B	a1	a2	b1	b2	b3	d1	d2	d3	d4	h1	h2
25SPWN	80	50	60	25	50	15	30	45	18	11	9.8	12	30	20
		60												
		70												
		80												
		100												
	100	60	70	30	60	20	35	50	20	13	12.8	15		25
		70												
		80												
		100												
		120												

OPTION EXAMPLE	Model	A - H (HC) - (CC)
	25SKPWN80-HC55-CC	

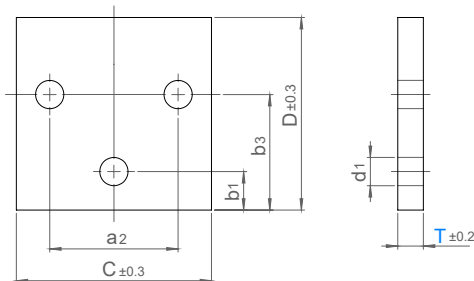
การปรับแต่งเสริม | Options

Options	Code	Description	Options	Code	Description
	HC	Hmin < HC < Hmax if H-HC < 10, h2 and h3 will be smaller by H-HC if 10 ≤ H-HC < 20, h2 and h3 will be smaller by H-HC-10		CC	Add C5 to all the corner

Pad Keepers - แพ้ทคิปเปอร์

FOIL FREE™

Model: 25SKPNP



ORDER EXAMPLE	Model	A - T
	25SKPNP80-10	

Model	A	T	C	D	a2	b1	b3	d1
25SKPNP	80	10	76	75	50	15	45	11
		15						
	100	10	96	85	60	20	50	13
		15						

NEW



Name	Integrated Guide Post Set	Integrated Oil Free™	Guide Post Set	Oil Free™ Guide Post Set	Ball Guide Post Set	Movable Stopper
Model	25N-SYP	25N-SYZP	25SYP	25SYZP	25SYAP	25SYJP
Page	22	22	23	23	24	24

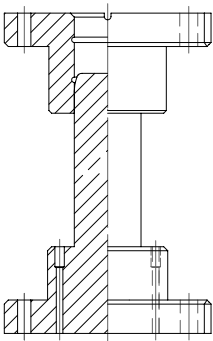


Name	Ball Guide Post Set Fixed Stopper		Flat Stroke End Blocks
Model	25SYKP	25SJKP	25SEBY / 25SEBA / 25SSBY / 25SSBA
Page	25	25	26



Name	Stroke End Blocks	Chain for Stroke End Block
Model	25SEB / 25SSB	25RSC
Page	27	28

ข้อดีของการเปลี่ยนมาใช้โกดโพสรุ่นใหม่ ยึดติดแน่นกับฐาน Why change to the new Integrated Guide Post Set Type



- ✓ แข็งแรงยิ่งขึ้น ส่วนฐานและเสายึดติดแน่น
Stronger due to integration of the base and guide post.
- ✓ ฐานผลิตจากเหล็ก S45C แทนเหล็กหล่อ
Steel base instead of cast iron.
- ✓ ยังสามารถเลือกแบบออยฟรี™ เป็นสารหล่อลื่นได้เหมือนเดิม
Can still choose to use Oil Free™ as lubricant.
- ✓ โดยรวมแล้วประหยัดคํ่ากว่าแบบเดิม
Better value and cost saving overall.

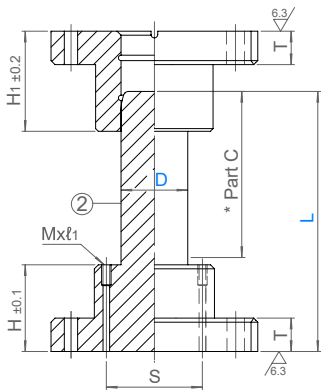
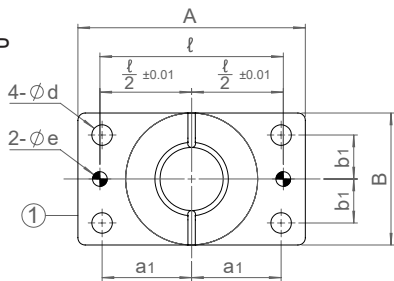
Integrated Guide Post Set - ไกด์โพสเซ็ท รุ่นยึดติดแน่นกับฐาน

ΔF OIL FREE™

NEW



Model
25N-SYP



เสากับฐานยึดติดแน่น เพิ่มความทนทาน
Integrated guide and holder
for longer tool life.

① (M) FC250

② (M) S45C
Part C 55HRC-
(Induction Harden)

ORDER
EXAMPLE

25N-SYP D - L
25N-SYP32-150

D	L												A	B	d	H	H1	T	ℓ	a1	b1	S	M	ℓ1	e H7	Bolts	Dowel Pin
25	90	100	110	120	130	140	150	160	170	180	200		84	48	9	30	45		66	33	15	37	4	12	8	24CB8x35	8-30
32		100	110	120	130	140	150	160	170	180	200		100	58		40	50	20	76	38	18	45	4	12		24CB10x40	
38			120	130	140	150	160	170	180	200	220	250	130	75	11	50	60	25	100	50	22	60	5	15	+0.015 0	24CB10x45	10-40
50							160	170	180	200	220	250	155	90		65	85		125	62.5	30	72	6	15	10	24CB12x50	

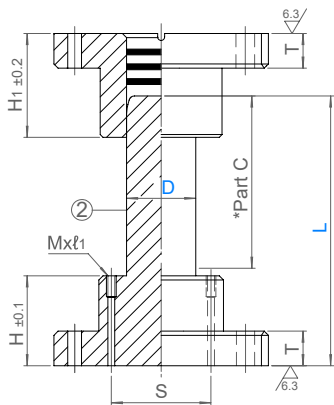
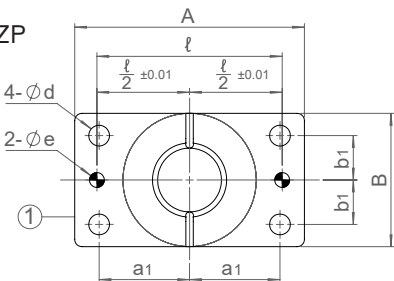
Integrated Oil Free™ Guide Post Set - ไกด์โพสเซ็ท ระบบออยฟรี™ รุ่นยึดติดแน่นกับฐาน

ΔF OIL FREE™

NEW



Model
25N-SYZP



เสากับฐานยึดติดแน่น เพิ่มความทนทาน
Integrated guide and holder
for longer tool life.

① (M) FC250
Oil Free™ solid lubricant

② (M) S45C
Part C 55HRC-
(Induction Harden)

ORDER
EXAMPLE

25N-SYZP D - L
25N-SYZP38-150

D	L												A	B	d	H	H1	T	ℓ	a1	b1	S	M	ℓ1	e H7	Bolts	Dowel Pin
25	90	100	110	120	130	140	150	160	170	180	200		84	48	9	30	45		66	33	15	37	4	12	8	24CB8x35	8-30
32		100	110	120	130	140	150	160	170	180	200		100	58		40	50	20	76	38	18	45	4	12		24CB10x40	
38			120	130	140	150	160	170	180	200	220	250	130	75	11	50	60	25	100	50	22	60	5	15	+0.015 0	24CB10x45	10-40
50							160	170	180	200	220	250	155	90		65	85		125	62.5	30	72	6	15	10	24CB12x50	
60								180	200	220	250	280	190	120		75	100	30	150	75	40	92	8	20	+0.018 0	24CB16x60	13-50

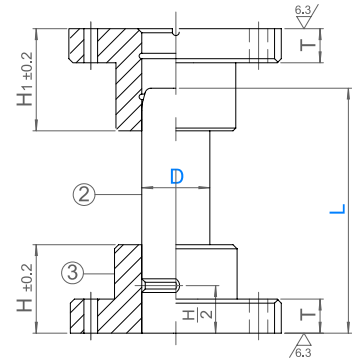
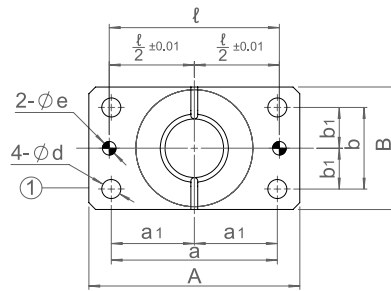
ไกด์โพสซีต

Guide Post Set - ไกด์โพสซีต มีรูโดเวลพิน แบบธรรมดา

FOIL FREE™



Model
25SYP



- ① **M** FC250
② **M** S45C 55HRC- (Induction Harden)
③ FC250

ORDER
EXAMPLE 25SYP D - L
25SYP32-150

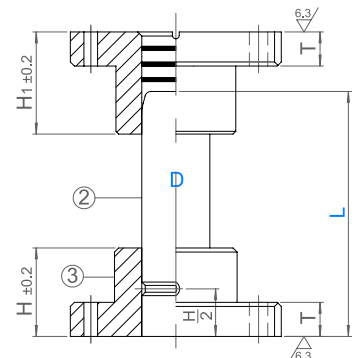
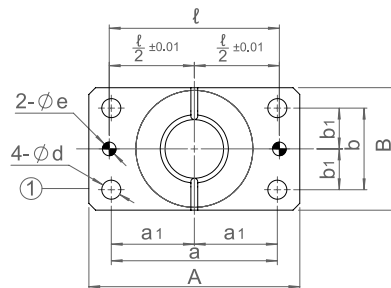
D	L																A	B	a	b	d	H	H1	T	ℓ	a1	b1	e	H7	Bolts 24CB	Dowel Pin		
20	80	90	100	110	120	130	140	150	160								74	44	56	30	6.6	30	40	15	56	28	15	6	+0.012 0	6x30	6-20		
25	80	90	100	110	120	130	140	150	160	170	180	200				84	48	66	9		45		20	66	33	8						+0.015 0	8x35
32		90	100	110	120	130	140	150	160	170	180	200	220	250				100	58	76	36	40		50	76		38	18	10	+0.018 0	10x40		
38				110	120	130	140	150	160	170	180	200	220	250	280	300				130	75	100	44	11	50	60	25	100				50	22
50									160	170	180	200	220	250	280	300	350				155	90	125		60	14		65	85	125	62.5	30	
60											180	200	220	250	280	300	350	400	190	120	150	80	18	75	100	30	150	75	40	13	+0.018 0	16x60	13-50

Oil Free™ Guide Post Set - ไกด์โพสซีต มีรูโดเวลพิน ระบบออยฟรี™

FOIL FREE™



Model
25SYZP



- ① **M** FC250
Oil Free™ solid lubricant
② **M** S45C 55HRC- (Induction Harden)
③ FC250

ORDER
EXAMPLE 25SYZP D - L
25SYZP38-200

D	L																A	B	a	b	d	H	H1	T	ℓ	a1	b1	e	H7	Bolts 24CB	Dowel Pin			
20	80	90	100	110	120	130	140	150	160								74	44	56	30	6.6	30	40	15	56	28	15	6	^{+0.012} ₀	6x30	6-20			
25	80	90	100	110	120	130	140	150	160	170	180	200				84	48	66	9			45		66	33	8		^{+0.015} ₀		8x35	8-30			
32		90	100	110	120	130	140	150	160	170	180	200	220	250				100	58	76	36	11	40	50			20		76	76		18	10	^{+0.018} ₀
38				110	120	130	140	150	160	170	180	200	220	250	280	300			130	75	100		44	50	60		25	100	50	22	10	^{+0.018} ₀		
50									160	170	180	200	220	250	280	300	350			155	90	125	60	14	65	85		125	125	30			13	^{+0.018} ₀
60											180	200	220	250	280	300	350	400	190	120	150	80	18	75	100	30	150	75	40	13	^{+0.018} ₀	16x60		

Ball Guide Post Set Movable Stopper - ไกด์โพสเซต ลูกปืน ฝายยับได้



ปลอกลูกปืนอลูมิเนียม

Aluminum Ball Retainer

Model: 25SYAP



- ① ⑤ **M** FC250
- ② **M** SUJ2 58HRC-
- ③ **M** Aluminum
- ④ **M** SUJ2 58HRC- (Induction Harden)

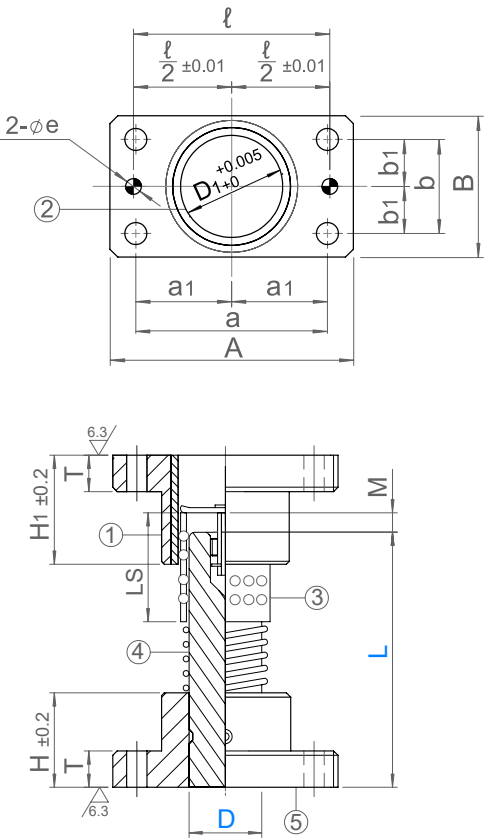
ปลอกลูกปืนเรซิน

Resin Ball Retainer

Model: 25SYJP



- ① ⑤ **M** FC250
- ② **M** SUJ2 58HRC-
- ③ **M** POM
- ④ **M** SUJ2 58HRC- (Induction Harden)



ORDER Model D - L
EXAMPLE 25SYAP38-150

D	L														M (Stopper Distance)		
25	90	100	110	120	130	140	150	160							0 - 20		
32	90	100	110	120	130	140	150	160	170	180	200						
38			110	120	130	140	150	160	170	180	200	220	240	260			0 - 25
50					130	140	150	160	170	180	200	220	240	260	300		0 - 29
60								170	180	200	220	240	260	300	350	0 - 42	

D1	A	B	a	b	d	H	H1	T	Ls	ℓ	a1	b1	e H7	Bolts	Dowel Pin
31	84	48	66	30	9	30	50	20	50	66	33	15	8	24CB8x35	8-30
40	100	58	76	36	11	40	60	20	60	76	38	18		24CB10x40	
48	130	75	100	44	11	50	70	25	70	100	50	22	10	24CB10x45	10-40
60	155	90	125	60	14	65	90	25	90	125	62.5	30		24CB12x50	
70	190	120	150	80	18	75	100	30	100	150	75	40	13	24CB16x60	13-50

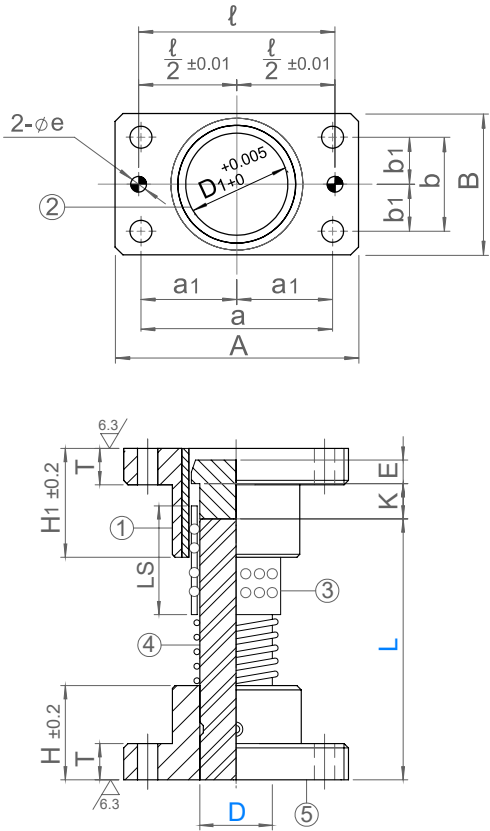
ปลอกลูกปืนอลูมิเนียม
Aluminum Ball Retainer
Model: 25SYKP

ปลอกลูกปืนเรซิน
Resin Ball Retainer
Model: 25SJKP



- ① ⑤ (M) FC250
② (M) SUJ2 58HRC-
③ (M) Aluminum
④ (M) SUJ2 58HRC- (Induction Harden)

- ① ⑤ (M) FC250
② (M) SUJ2 58HRC-
③ (M) POM
④ (M) SUJ2 58HRC- (Induction Harden)

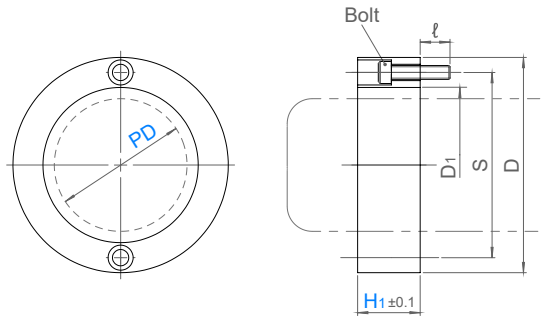
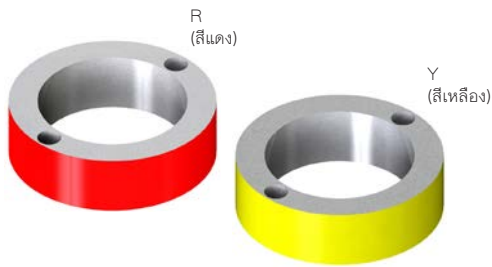


ORDER Model D - L
EXAMPLE 25SYKP38-150

D	L															K (Fixed Stopper)	
25	90	100	110	120	130	140	150	160	170	180	200					20	
32			110	120	130	140	150	160	170	180	200	220	240	260	25		
38					130	140	150	160	170	180	200	220	240	260	300	30	
50									170	180	200	220	240	260	300	350	40
60											200	220	240	260	300	350	50

D1	A	B	a	b	d	H	H1	T	E	Ls	ℓ	a1	b1	e H7	Bolts	Dowel Pin
31	84	48	66	30	9	30	50	20	5	50	66	33	15	8	24CB8x35	8-30
40	100	58	76	36	11	40	60	20	5	60	76	38	18		24CB10x40	
48	130	75	100	44	11	50	70	25	10	70	100	50	22	10	24CB10x45	10-40
60	155	90	125	60	14	65	90	25	10	90	125	62.5	30		24CB12x50	
70	190	120	150	80	18	75	100	30	15	100	150	75	40	13	24CB16x60	13-50

Flat Stroke End Blocks - สโตรคเอ็นบล็อกแบบหน้าเรียบ



ใช้กับชุดไกด์โพสปกติ
for Guide Post Sets
Model: 25SEBY

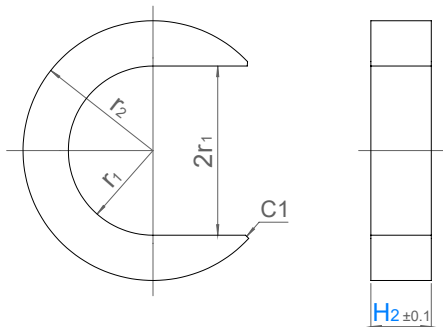
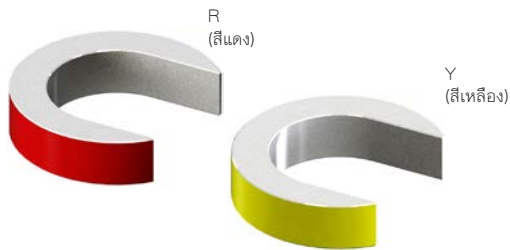
ใช้กับชุดไกด์โพสลูกปืน
for Ball Guide Post Sets
Model: 25SEBA

ORDER	Model	PD	- H1 -	Color (R,Y)
EXAMPLE	25SEBY38-45-R			

M SS400
2pcs Bolt

i ดูวิธีสั่งเป็นชุดในหน้า 28
Ordering as a set see page 28

Model	PD	H1 5mm increment	Color	D	D1	S	l	Bolts
25SEBY 25SEBA	25	10 - 50	R (สีแดง/Red)	46	29	37	10	M4 x 0.7
	32	10 - 50		56	37	45		
	38	15 - 50		72	43	60		M5 x 0.8
	50	20 - 50	Y (สีเหลือง/Yellow)	86	56	72	12	M6 x 1.0
	60	20 - 50		112	66	92		M8 x 1.25
	80	20 - 50		140	88	116		



ใช้กับชุดไกด์โพสปกติ
for Guide Post Sets
Model: 25SSBY

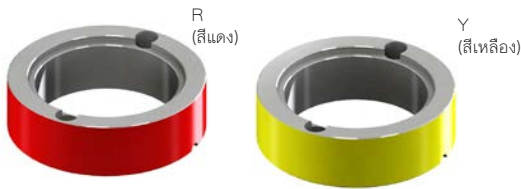
ใช้กับชุดไกด์โพสลูกปืน
for Ball Guide Post Sets
Model: 25SSBA

ORDER	Model	PD	- H2 -	Color (R,Y)
EXAMPLE	25SSBY38-45-R			

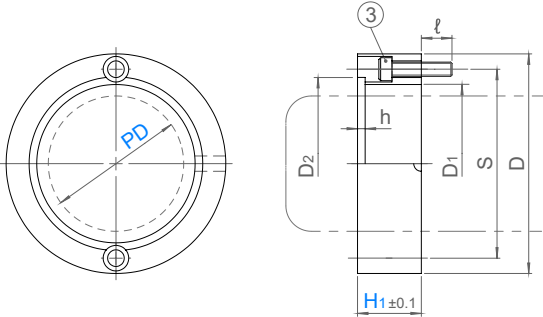
M SS400

i ดูวิธีสั่งเป็นชุดในหน้า 28
Ordering as a set see page 28

Model	PD	H2 5mm increment	Color	D	r1	r2
25SSBY 25SSBA	25	10 - 40	R (สีแดง/Red)	46	14.5	23
	32	10 - 40		56	18.5	28
	38	10 - 50		72	21.5	36
	50	10 - 50	Y (สีเหลือง/Yellow)	86	28	43
	60	10 - 50		112	33	56
	80	10 - 50		140	44	70



25SEB



ORDER
EXAMPLE

Model PD - H1 - Color (R,Y)
25SEB38-45-R

SS400

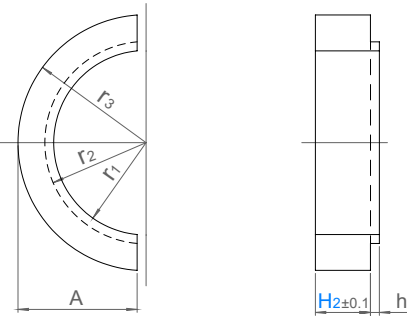
คู่มือสั่งเป็นชุดในหน้า 28
Ordering as a set see page 28

2pcs Bolt

Model	PD	H1 5mm increment	Color	D	D1	D2	S	h	ℓ	Bolts
25SEB	25	10 - 50	R (สีแดง/Red)	46	31.5	36	37	2	10	M4 x 0.7
	32	10 - 60		56	41	45	45			
	38	15 - 70		72	49	56	60			
	50	20 - 80	Y (สีเหลือง/Yellow)	86	62	68	72	3	12	M6 x 1.0
	60	20 - 80		112	76	84	92			
	80	20 - 80		140	100	108	116			



25SSB



ORDER
EXAMPLE

Model PD - H2 - Color (R,Y)
25SSB38-45-R

SS400

คู่มือสั่งเป็นชุดในหน้า 28
Ordering as a set see page 28

Model	PD	H2 5mm increment	Color	D	r1	r2	r3	h	A
25SSB	25	10 - 40	R (สีแดง/Red)	46	15.75	18	23	2	22
	32	10 - 40		56	20.5	22.5	28		27
	38	10 - 50		72	24.5	28	36		35
	50	10 - 50	Y (สีเหลือง/Yellow)	86	31	34	43	3	42
	60	10 - 50		112	38	42	56		55
	80	10 - 50		140	50	54	70		69

การสั่งสโตรคเอ็นบล็อด แบบเป็นชุด | Ordering Stroke End Block as set

แบบหน้าเรียบ | Flat Type

OPTION
EXAMPLE

Model PD - H1 Color - H2 Color - (Chain)
25SEBY-S50-30R-40Y-RS



โซ่เป็นออฟชั่นเสริม
Chain is optional

Model	PD	H1 5mm increment	Color สี	H2 5mm increment	Color สี	Chain Type ประเภทโซ่
25SEBY-S (Guide Post Set)	25	10 - 50	R (สีแดง/Red)	10 - 40	R (สีแดง/Red)	S (normal)
	32	10 - 50		10 - 40		
	38	15 - 50		10 - 50		
25SEBA-S (Ball Guide Post)	50	20 - 50	Y (สีเหลือง/Yellow)	10 - 50	Y (สีเหลือง/Yellow)	RS (Strong Chain)
	60	20 - 50		10 - 50		
	80	20 - 50		10 - 50		

แบบไม่เรียบ | Step Type

OPTION
EXAMPLE

Model PD - H1 Color - H2 Color - (Chain)
25SEB-S50-30R-40Y-RS



โซ่เป็นออฟชั่นเสริม
Chain is optional

25SEB-S (มี 25SSB 1ชิ้น | 1pc of 25SSB)



โซ่เป็นออฟชั่นเสริม
Chain is optional

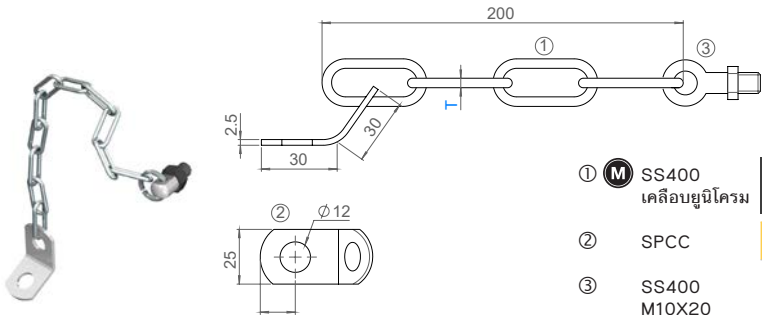
25SEB-W (มี 25SSB 2ชิ้น | 2pcs of 25SSB)



โซ่เป็นออฟชั่นเสริม
Chain is optional

Model	PD	H1 5mm increment	Color	H2 5mm increment	Color	Chain Type ประเภทโซ่
25SEB-S (25SSB x1)	25	10 - 50	R (สีแดง/Red)	10 - 40	R (สีแดง/Red)	S (normal)
	32	10 - 60		10 - 40		
	38	15 - 70		10 - 50		
25SEB-W (25SSB x2)	50	20 - 80	Y (สีเหลือง/Yellow)	10 - 50	Y (สีเหลือง/Yellow)	RS (Strong Chain)
	60	20 - 80		10 - 50		
	80	20 - 80		10 - 50		

Strong Chain for Stroke End Blocks - โซ่รุ่นแข็งแรง สำหรับ สโตรคเอ็นบล็อด



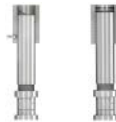
① M SS400 เคสือบยูนิโครม	ORDER EXAMPLE	Model T 25RSC5
② SPCC	Model T	
③ SS400 M10X20	25RSC	3 5



Name	Steel Die Set (SB)	Steel Die Set (SC)	Steel Die Set (SD)	Steel Die Set (SF)
Model	25SB	25SC	25SD	25SF
Page	31	33	35	37



Name	Press-Fit Ball Guide Post for Die Set	Removable Ball Guide Post for Die Set
Model	25PB / 25PM / 25PK / 25GB / 25GM / 25GK	25RB / 25RM / 25RK / 25QB / 25QM / 25QK
Page	39	40



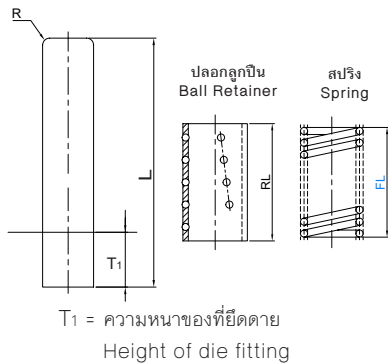
Name	Press-Fit Guide Post for Die Set	Removable Guide Post for Die Set
Model	25PD / 25PZ	25RD / 25RZ
Page	41	42

สูตรคำนวณค่า FL สำหรับไกด์โพสบล็อกลูกปืน Calculation Guide for Ball Guide Post 'FL'

⚠ สำหรับเสาไกด์แบบมีสต็อปเปอร์ ค่า FL ควรมีค่าเท่ากับ 1.1 ถึง 1.2 เท่าของค่าที่ได้จากการคำนวณ
For guide with stoppers. FL should be 1.1 to 1.2 times the result of calculation.

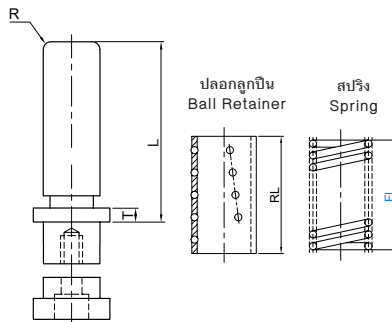
i แบบสวมอัด
Press-Fit Type

$$FL = L - (T_1 + R + (RL/2))$$



i แบบถอดได้
Removable Type

$$FL = L - (T + R + (RL/2))$$



ตารางการเลือกไดเซต | Die Sets selecting chart

Type		No. Guides	Page
25SB		2	P 31
25SC		2	P 33
25SD		2	P 35
25SF		4	P 37

ขั้นตอนการเลือกไดเซต
Steps in choosing Die Sets

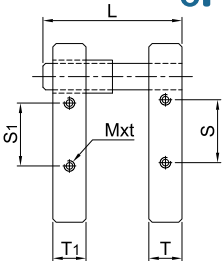
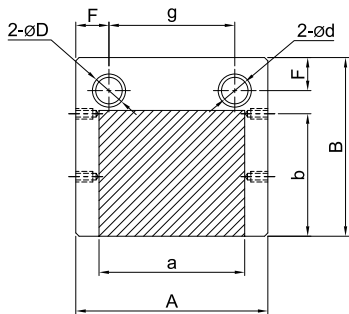
- เลือกประเภทของไดเซตที่ต้องการ ซึ่งจะแตกต่างกันในตำแหน่งการวางเสา และจำนวนเสาของไดเซต (ตารางซ้ายมือ)
 - เลือกขนาดของไดเซตตามพื้นที่การใช้งานที่ต้องการ (a x b)
 - เลือกประเภทของเสาไกด์ที่ต้องการว่าต้องการแบบยึดตายหรือแบบถอดเปลี่ยนได้ (ตารางด้านล่าง)
 - เลือกประเภทบุช และปลอกลูกปืนหากเลือกบุชลูกปืน (ตารางด้านล่าง)
 - เลือกความสูง L (ขึ้นลงทีละ 10 มม.) ซึ่งจะถูกกำหนดตามขนาดของค่าขนาดเสา d ในตารางสเปคสินค้า
 - เลือกความยาวบุช L1 ซึ่งมีผลต่อความสูงของไดเซตตอนปิด
-
- Choose die set type (left table) they are different in guide position and number of guides.
 - Choose die set size from working area (a x b)
 - Choose guide type (lower table)
 - Choose bush and ball retainer types (lower tables)
 - Choose height 'L' (10mm increment) which is limited by guide diameter 'd' in the spec table.
 - Choose bush length 'L1'

เสาไกด์ และ บุช | Guide and Bush

ประเภทของไกด์ Guide Type		Code	ประเภทของบุช Bush Type		Code
เสายึดตาย Fixed Guide		FG	บุชเหล็ก Steel Bush		SB
			บุชออยฟรี Oil Free Bush		OB
			บุชลูกปืน ไม่มีฝาครอบ Ball Retainer No Stopper		NB
เสาถอดได้ Detachable Guide		DG	บุชลูกปืน ฝาครอบเลื่อนได้ Ball Retainer Movable Stopper		MB
			บุชลูกปืน ฝาครอบตายตัว Ball Retainer Fixed Stopper		FB

ปลอกลูกปืน | Ball Retainers

Ball Retainer Type		Usage	Code	Ball Retainer Type		Usage	Code
อลูมิเนียม Aluminum		แข็งแรง เหมาะกับการใช้งานโดยทั่วไป Strong, good for most usage	BA	เรซิน Resin		น้ำหนักเบา เหมาะกับการงานพรีซิชั่น Lighter, good for precision die	BS



Model: 25SB

ORDER

EXAMPLE

Model

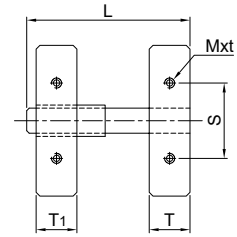
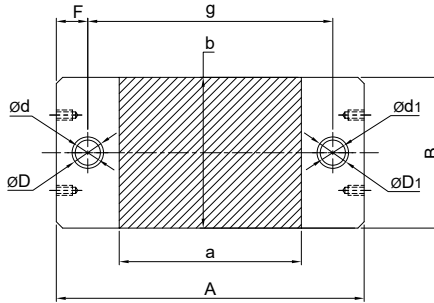
a - b - Guide - Bush - (Ball Retainer) - d - L - L1

25SB200-125-DG-OB-25-150-60

ดูตารางเพิ่มเติมในหน้าต่อไป
See addition table in the next page

Model	a	b	Guide	Bush	(Ball Retainer) Type	d	A	B	F	g	T1	T	M x t	S	S1
25SB	100	100	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	22	140	160	30	80	30	35	-	-	
	125					160	100								
	160					28	200	170	35	130	35	40	M10 x 20	135	-
	180						220			150					
	200						250			180					
	230						280			210					
	250						300			230					
	300						350			280					
	125	125				28	160	200	35	90	35	40	M10 x 20	80	60
	160						200			130					
	180						220			150					
	200						250			180					
	230						280			210					
	250						300			230					
	300					350	280								
	350					38	420	210	40	340	40	50		175	-
	400	480					400								
	160	160				28	200	230	35	130	35	40	M12 x 25	80	80
	180						220			150					
	200						250			180					
	230						280			210					
	250					38	300	240	40	230	40	50		90	70
	300						350			270					
	350						420			340					
	400						480			400					
	450					550		470							
	180	180				28	220	250	35	150	35	40	M12 x 25	110	110
	200						250			180					
	230					38	280	260	40	210	40	50		90	90
	250						300			220					
	300						350			270					
	350						420			340					
	400	200				38	480	280	40	400	40	50	M12 x 25	120	120
	200						250			170					
	250						300			220					
	300						350			270					
	350					45	420	300	50	340	45	60		100	100
	400						480			400					
	450					550		450							
	500					600		500							

Model	a	b	Guide	Bush	(Ball Retainer) Type	d	A	B	F	g	T1	T	M x t	S	S1									
25SB	230	230	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	38	280	310	40	200	40	50	M12 x 25	140	140									
	250						300			220														
	300						350			270														
	350						420			340														
	400						480			380														
	250	250				38	300	330	40	220	40	50	M12 x 25	160	160									
	300						350			270														
	350						420			340														
	400						480			380														
	450						550			450														
	500	300				45	600	350	50	500	45	60	M12 x 25	150	150									
	550						650			550														
	300						350			250						45	400	50	320	45	60	M12 x 25	200	200
	350						420			320														
	400						480			380														
	450	550				450																		
	500	600				500																		
	550	350				50	650	410	55	540	50	M16 x 30	190	190										
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350			420			320																		
400			480			380																		
450			550			450																		
500			600			490																		
550	350	50	650	460	55	540	50	M16 x 30	220															
350			420			320																		
400			480			380																		
450			550			450																		
500			600			490																		
550	350	50	650	460	55	540	50	M16 x 30	220															
350			420			320																		
400			480			380																		
450			550			450																		
500			600			490																		
550	350	50	650	460	55	540	50	M16 x 30	220															
350			420			320																		
400			480			380																		
450			550			450																		
500			600			490																		
550	350	50	650	460	55	540	50	M16 x 30	220															
350			420			320																		
400			480			380																		
450			550			450																		
500			600			490																		
550	350	50	650	460	55	540	50	M16 x 30	220															
350			420			320																		
400			480			380																		



Model: 25SC

ORDER	Model	a - b - Guide - Bush - (Ball Retainer) - d - L - L1
EXAMPLE	25SC200-125-DG-OB-25-150-60	

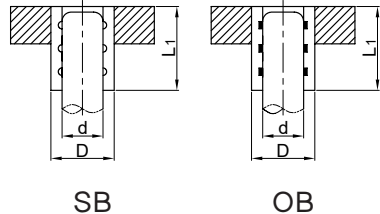
ดูตารางเพิ่มเติมในหน้าต่อไป
See addition table in the next page

a	b	Guide	Bush	(Ball Retainer) Type	d	d1	A	B	F	g	T1	T	M x t	S					
100	100	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	20	22	210	100	30	150	30	35	-	-					
125							230		30	170									
160					25	28	280		35	210	35	230			35	40			
180							300										35	250	
200							320										35	280	
230							350										35	310	
250							380										35	350	
300							420										35	350	
125	125				FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	25	28	250	125	35	180	35	40	-	-		
160										280		35	210						
180										300		35	230						
200										320		35	250						
230								350	35	280									
250								380	35	310									
300								420	35	350									
350								500	40	420		40	50						
400	550	40	470																
160	160	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)				25	28	280	160	35	210	35	40	M12 x 25	90		
180										300		35	230						
200										320		35	250						
230										350		35	280						
250								380	35	310									
300								450	40	370		40	50						
350								500	40	420									
400					550	40	470												
450	600				40	520													
180	180				FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	25	28	300	180	35	230	35	40	M12 x 25	110		
200										320		35	250						
230										350		35	280						
250								32	38	400		40	320	40	50				
300										450								40	370
350										500								40	420
400	200							FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	32	38	550	200	40	470	40	50	M12 x 25
450		600	40	520															
200		350	40	270															
250		400	40	320															
300		450	40	370															
350		500	40	420															
400	38	45	550	40							550	45	60						
450			650											50	600				
500			700											50	600				

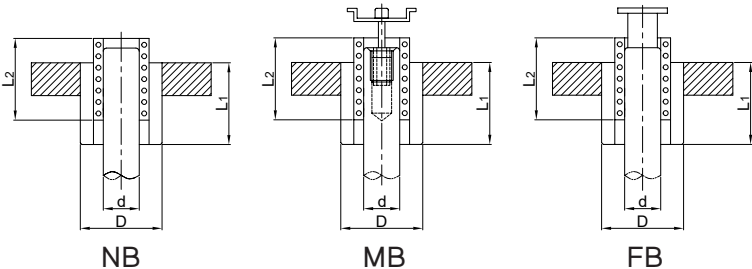
a	b	Guide	Bush	(Ball Retainer) Type	d	d1	A	B	F	g	T1	T	M x t	S					
230	230	FG (fixed)	SB (steel)	BA (Aluminum)	32	38	380	230	40	300	40	50	M12 x 25	130					
250							400		40	320									
300							450		40	370									
350							500		40	420									
400							600		50	500	45	60							
250	250				FG (fixed)	SB (steel)	BA (Aluminum)	32	38	400	250	40	320	40	50	M12 x 25	150		
300										450		40	370						
350										500		40	420						
400										600		50	500					45	60
450										650		50	550						
500	300		OB (oilfree)	BS (Resin)				32	38	700	300	50	600	M12 x 25	180				
550										750		50	650						
300	DG (detachable)									500		50	400			45	60		
350										550		50	450	M12 x 25	180				
400										600		50	500						
450	350		MB (movable ball)			38	45	650	50	550									
500								700	50	600									
550					750			55	640	50		60	M16 x 30	210					
350			FB (fixed ball)		45	50	550	350	50	450									
400							600		50	500									
450							650		50	550									
500							700		55	590									
550							750		55	640									

Die Sets

บุชเหล็ก
Steel Bush



บุชปลอกลูกปืน
Ball Retainer Bush

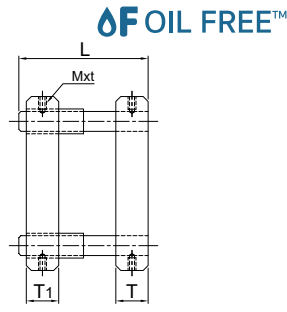
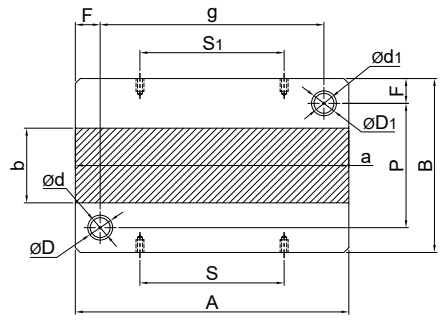
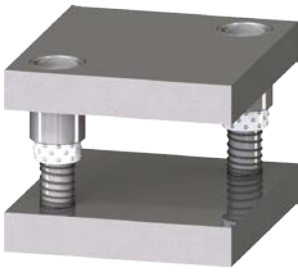


ORDER
EXAMPLE

Model a - b - Guide - Bush - (Ball Retainer) - d - L - L1
25SC200-125-DG-OB-25-150-60

เลือกค่าความยาวเสา L และ ความสูงบุช L1
Choose overall guide length L and bush height L1

d	d1	L (10mm increment)	For Steel Bush (SB, OB)			For Ball Retainer Bush (NB, MB, FB)			
			D	D1	L1	DR	DR1	L1	L2
20	22	120 - 180	31	34	50	37	40	50	50
25	28	140 - 180	37	42	60	45	50	60	60
					80			80	75
32	38	180 - 240	46	54	80	55	64	80	75
					100			100	90
38	45	180 - 260	54	62	100	64	74	100	90
45	50	200 - 260	62	70	100	74	83	100	90
					120			120	110



FOIL FREE™

Model: 25SD

ORDER MODEL a - b - Guide - Bush - (Ball Retainer) - d - L - L1
EXAMPLE 25SD200-125-DG-OB-25-150-60

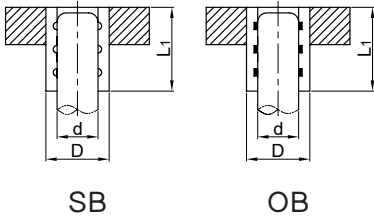
ดูตารางเพิ่มเติมในหน้าต่อไป
See addition table in the next page

a	b	Guide	Bush	(Ball Retainer) Type	d	d1	A	B	F	g	P	T1	T	M x t	S	S1							
100	100	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	20	22	100	210	30	40	150	30	35	-	-	-							
125							125			65													
160							160			90					135								
180							180			110					155								
200					25	28	200	220	35	130		35	40	M10 x 20	80	60							
230							230			160					90	90							
250							250			180				M12 x 25	110	110							
300							300			230					160	160							
125	125				25	28	125	250	35	55	180	35	40	-	-	M10 x 20	135	-					
160							160			90							155	-					
180							180			110				80	60								
200							200			130				90	90								
230					32	38	230	40	160	200	40	50	M12 x 25	110	110								
250							250		180					160	160								
300							300		230				190	190									
350							350		270				240	240									
400	160				32	38	400	40	320	210	35	40	50	M10 x 20	135	-							
160							160		110						155	60							
180							180		130					80	60								
200							200		160					90	90								
230					32	38	230	310	40	180	230	40	50	M12 x 25	110	110							
250							250			220					140	140							
300							300			270				190	190								
350							350			320				240	240								
400	180				32	38	400	330	40	370	250	40	50	M10 x 20	270	270							
450							450			110					155	-							
180							25			28				180	310	35	130	240	35	40	M12 x 25	80	60
200														200			160					90	90
230					230	170		90	90														
250					250	220		140	140														
300					32	38	300	350	40	270	270	40	50	M12 x 25	190	190							
350							350			320					240	240							
400	400						120			280				45	60	M10 x 20	175	-					
450	450						170										90	90					
200	32				38	200	350	40	220		M12 x 25	140	140										
250						250			270			190	190										
300						300			320			240	240										
350						350			250			250											
400	38				45	400	380	50	350		400	280	45				60	M12 x 25	250	250			
450						450			300										300				
500						500			300	300													

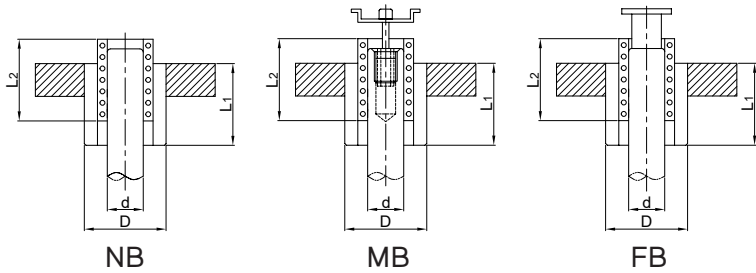
a	b	Guide	Bush	(Ball Retainer) Type	d	d1	A	B	F	g	P	T1	T	M x t	S	S1												
230	230	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	32	38	230	380	40	150	300	40	50	M12 x 25	90	70												
250							250			170					90	90												
300							300			220					140	140												
350							350			270					190	190												
400					38	45	400	420	50	300	320	45	60		200	200												
250	250				FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	32	38	250	400	40	170	320	40	50	M12 x 25	90	90									
300										300			220					140	140									
350										350			270					190	190									
400										38			45					400	450	50	300	350	45	60	200	200		
450								450	450	50	350	350	45	60	250	250												
500	300							FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	38	45	500	450	50	400	350	45	60	M16 x 30	300	300						
550													550			450					330	330						
300													38			45					300	200	380	45	60	M12 x 25	100	100
350																					350	250					150	150
400											400	300		200	200													
450	450										350	250		250														
500	500										400	300		300														
550	350										FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	45	50	550	500	55	440	390	50	M16 x 30	320	320				
350														38	45	350	550	50	250	450	45		60	M12 x 25	150	150		
400																400			300						200	200		
450																450			350						250	250		
500																500			400						300	300		
550	45															50			550			55			440	440	50	M16 x 30
350														350	320		320											
400														400	320		320											
450														450	320		320											
500														500	320		320											

Die Sets

บุชเหล็ก
Steel Bush



บุชปลอกลูกปืน
Ball Retainer Bush

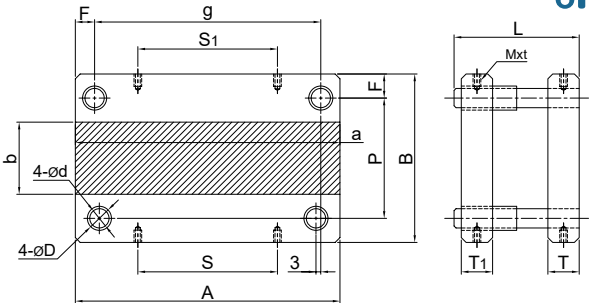


ORDER
EXAMPLE

Model a - b - Guide - Bush - (Ball Retainer) - d - L - L1
25SD200-125-DG-OB-25-150-60

! เลือกค่าความยาวเสา L และ ความสูงบุช L1
Choose overall guide length L and bush height L1

d	d1	L (10mm increment)	For Steel Bush (SB, OB)			For Ball Retainer Bush (NB, MB, FB)			
			D	D1	L1	DR	DR1	L1	L2
20	22	120 - 180	31	34	50	37	40	50	50
25	28	140 - 180	37	42	60	45	50	60	60
					80			80	75
32	38	180 - 240	46	54	80	55	64	80	75
					100			100	90
38	45	180 - 260	54	62	100	64	74	100	90
45	50	200 - 260	62	70	100	74	83	100	90
					120			120	110



Model: 25SF

ORDER	Model a - b - Guide - Bush - (Ball Retainer) - d - L - L1
EXAMPLE	25SF200-125-DG-OB-25-150-60

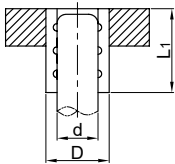
ดูตารางเพิ่มเติมในหน้าต่อไป
See addition table in the next page

a	b	Guide	Bush	(Ball Retainer) Type	d	A	B	F	g	P	T1	T	M x t	S	S1						
125	100	FG (fixed) DG (detachable)	SB (steel)	BA (Aluminum)	20	125	210	30	65	150	30	35	-	-	-						
160						160			100				-	-	-						
180						180			120				75	-	-						
200						200			140				M10 x 20	75	75						
230						230			170					105	105						
250					25	250	220	35	180	150	35	40	M12 X 25	110	110						
300						300			230					160	160						
350						350			280					210	210						
400						400			330					240	240						
125						125			65					-	-	-					
160	20				160	230	30	100	170	30	35	M10 x 20	55	-							
180					180			120					75	-	-						
200					25			200					250	35	130	180	35	40	M12 x 25	80	60
230								230							160					90	90
250								250							180					110	110
300	300					230	160	160													
350	350					280	210	210													
400	400				330	240	240														
450	450				380	270	270														
500	32		500	280	40	420	200	40	50	M10 x 20	300	300									
550			550			470					330	330									
160			25			160					280	35	90	210	35	40	M12 x 25	135	-		
180						180							110					155	-	-	
200						200							130					80	60		
230	230			160	90	90															
250	250			180	110	110															
300	32		300	300	40	230	220	40	50	M10 x 20	160	160									
350			350			280					210	210									
400			400			320					240	240									
450			450			370					270	270									
500			500			420					300	300									
550	180		550	320	40	470	240	40	50	M12 x 25	330	330									
600			600			520					360	360									
180			25			180					300	35	110	230	35	40	M10 x 20	155	-		
200						200							130					80	60		
230						230							160					90	90		
250	250			180	110	110															
300	300			230	160	160															
350	32		350	320	40	270	240	40	50	M12 x 25	190	190									
400			400			320					240	240									
200			25			200					320	35	130	250	35	40	M10 x 20	110	110		
250						250							180					80	60		
300						300							220					140	140		
350	350			270	190	190															
400	32			400	350	40	320	270	40	50			M12 x 25					240	240		
450			450	370			270				270										
500			500	420			300				300										
550			550	470			330				330										
600			38	600			380				50	500		280	45	60	M16 x 30	360	360		
700	700			600	420	420															

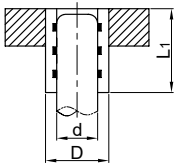
a	b	Guide	Bush	(Ball Retainer) Type	d	A	B	F	g	P	T1	T	M x t	S	S1	
230	230	FG (fixed) DG (detachable)	SB (steel) OB (oilfree) NB (no cap ball) MB (movable ball) FB (fixed ball)	BA (Aluminum) BS (Resin)	25	230	350	35	160	280	35	40	M12 x 25	90	90	
250						250			180					110	110	
300						300			220					140	140	
350						350	380	40	270	300	40	50		190	190	
400						400			320					240	240	
250	250				32	250			170				M12 x 25	90	90	
300						300			220					140	140	
350						350	400	40	270	320	40	50		190	190	
400						400			320					240	240	
450						450			370					270	270	
500					38	500			400				M16 x 30	300	300	
550						550	450	50	450	350	45	60		330	330	
600						600			500					360	360	
700						700			600					420	420	
300	300				32	300	450	40	220	370	40	50	M12 X 25	140	98	
350						350			270					190	114	
400						400			300					200	163	
450						450			350					250	183	
500						500			400					300	203	
550					38	550	480	50	450	380	45	60	M16 x 30	330	223	
600						600			500					360	242	
700						700			600					420	282	
800						800			700					480	321	
350	350				38	350			250				M12 x 25	150	164	
400						400			300					200	186	
450						450	550	50	350	450	45	60	M16 x 30	250	209	
500						500			400					300	232	
550						550			450					330	254	
600					600			500				360		277		
700	50				700	550	55	590	440	50	60	M20 x 35	420	342		
800					800			690					480	389		
600					400					600				490		
700	400				50	700	600	55	590	490	50	60	M20 x 35	420	372	
800						800			690					480	424	
800	500							50	800	700	55	690	590	50	60	M20 x 35

บุชเหล็ก
Steel Bush

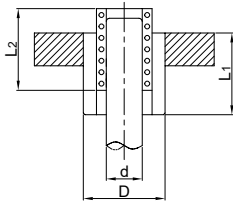
บุชปลอกลูกปืน
Ball Retainer Bush



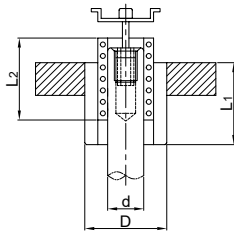
SB



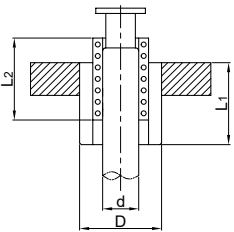
OB



NB



MB

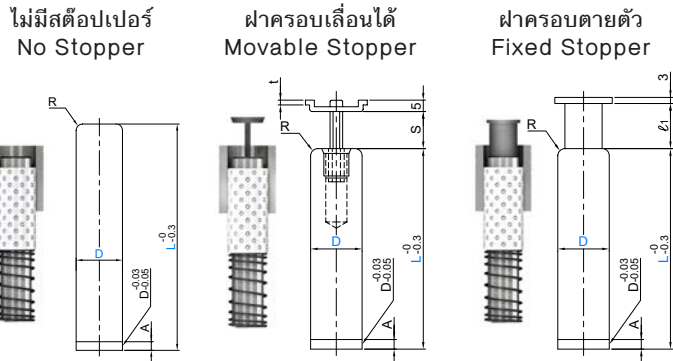


FB

ORDER EXAMPLE	Model	a - b - Guide - Bush - (Ball Retainer) - d - L - L1
		25SF200-125-DG-OB-25-150-60

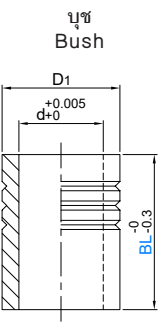
⚠ เลือกค่าความยาวเสา L และ ความสูงบุช L1
Choose overall guide length L and bush height L1

d	L (10mm increment)	For Steel Bush (SB, OB)		For Ball Retainer Bush (NB, MB, FB)		
		D	L1	D	L1	L2
20	100 - 180	31	50	37	50	50
25	120 - 180	37	60	45	60	60
			80		80	75
32	160 - 240	46	80	55	80	75
			100		100	90
38	180 - 260	54	80	64	80	75
			100		100	90
50	200 - 260	70	100	83	100	90
			120		120	110



Ball Retainer Material	Model		
Aluminum	25PB	25PM	25PK
Resin	25GB	25GM	25GK

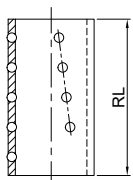
D	A	R	t
20	4	2.0	1.6
22		3.0	
25		3.0	
28	5	3.5	2.0
32		3.5	
38	6	4.0	
45	7	5.0	2.0
50		5.0	
60		5.0	



ติดตั้งบุชด้วยกาว ห้ามสวมอัด
Install bush with glue only.
Do not use press-fit method.

d	D1	
26	37	0.000 -0.007
28	40	
31	45	
36	50	
40	55	0.000 -0.008
48	64	
55	74	
60	83	0.000 -0.010
70	95	

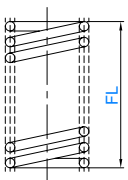
บล็อกลูกปืน
Ball Retainer



RL	S	L1
50	0 - 19	15
60	0 - 23	20
75	0 - 30	25
90	0 - 37	30
110	0 - 47	35

ดูวิธีคำนวณค่า FL ได้จากหน้า 29
See FL calculation guide on page 29

สปริง
Spring

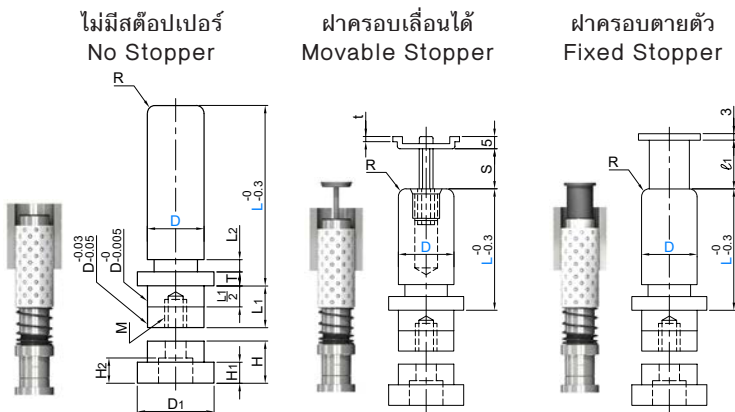


ORDER MODEL D - L - BL - FL
EXAMPLE 25PB25-120-60-100

เลือกโมเดลตามรูปแบบสตั๊ปเปอร์และวัสดุบล็อกลูกปืน
Choose model from stopper type and Ball Retainers material

D		L										BL	FL 10mm increments	RL				
20	+0.020 +0.015	100	110	120	130	140	150	160	170	180					50	40 - 140	50	
22				120	130	140	150	160	170	180					50	40 - 140	50	
															60		60	
25				120	130	140	150	160	170	180					60	40 - 150	60	
															80		75	
28	+0.025 +0.020					140	150	160	170	180	190	200			60	50 - 150	60	
															80		75	
32								160	170	180	190	200	220	240		80	70 - 190	75
																100		90
38		+0.030 +0.025									180	190	200	220	240	260	80	80 - 190
	100																90	
45									180	190	200	220	240	260	100	80 - 190	90	
															120		110	
50	+0.035 +0.030												200	220	240	260	100	80 - 190
		120															110	
60												200	220	240	260	100	80 - 190	90
																120		110

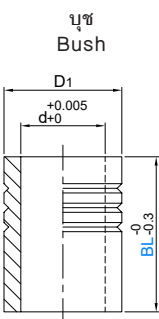
Removable Ball Guide Post for Die Set - โกดโพสลูกปืนสำหรับไดเซต แบบถอดได้



D	D1	L1	L2	H	H1	H2
20		28	15	10	14	7
22	+0.020 +0.015	30	16		7	8.5
25		35	18		16	8
28	+0.025 +0.020	36	20	12	10	12.5
32		40	23		18	10
38	+0.030 +0.025	49	27		20	12
45		55	32	15	12	14.5
50	+0.035 +0.030	62	35			
60		72	42			

D	T	t	M	R	Bolt
20		5	8x18	2.0	24CB8x25
22	+0.020 +0.015	8		3.0	
25		1.6			
28	+0.025 +0.020	10	10x22	3.5	24CB10x30
32					
38	+0.030 +0.025	12		4.0	
45		2.0	12x27		24CB12x35
50	+0.035 +0.030				
60					
		15	14x31	4.5	24CB14x40

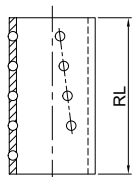
Ball Retainer Material	Model		
Aluminum	25RB	25RM	25RK
Resin	25QB	25QM	25QK



ติดตั้งบุชด้วยกาว ห้ามสวมอัด
Install bush with glue only.
Do not use press-fit method.

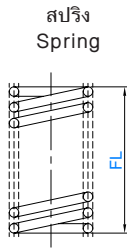
d	D1	
26	37	0.000 -0.007
28	40	
31	45	
36	50	
40	55	0.000 -0.008
48	64	
55	74	
60	83	0.000 -0.010
70	95	

ปลอกลูกปืน
Ball Retainer



RL	S	L1
50	0 - 19	15
60	0 - 23	20
75	0 - 30	25
90	0 - 37	30
110	0 - 47	35

ดูวิธีคำนวณค่า FL ได้จากหน้า 29
See FL calculation guide on page 29



ORDER EXAMPLE	Model	D - L - BL - FL
	25RB25-100-60-100	

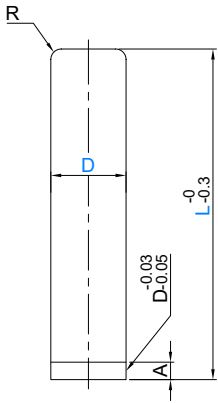
เลือกโมเดลตามรูปแบบสตั๊ปปเปอร์และวัสดุปลอกลูกปืน
Choose model from stopper type and Ball Retainers material

D		L								BL	FL 10mm increments	RL
20	+0.020 +0.015	80	90	100	110	120				50	40 - 140	50
22		80	90	100	110	120				50	40 - 140	50
25		80	90	100	110	120	130			60	40 - 150	60
28	+0.025 +0.020			100	110	120	130	140	150	160	50 - 150	60
32						120	130	140	150	160	70 - 190	75
38								140	150	160	80 - 190	90
45	+0.030 +0.025							140	150	160	80 - 190	90
50									160	170	80 - 190	110
60									160	170	80 - 190	110

บุชร่องน้ำมัน
Oil Groove Bush
Model: 25PD



บุชออยฟรี
Oil Free™ Bush
Model: 25PZ



ไกด์ | Guide

D		A	R
20	+0.020 +0.015	4	2.0
22			3.0
25			
28	+0.025 +0.020	5	3.5
32			
38	+0.030 +0.025	6	4.0
45			
50	+0.035 +0.030	7	4.5
60			

บุช | Bush

L1	d	D1	
10	20	31	0.000 -0.007
	22	34	
	25	37	
	28	42	
15	32	46	0.000 -0.008
	38	54	
	45	62	
	50	70	
	60	80	0.000 -0.010

ORDER Model D - L - BL
EXAMPLE 25PD25-120-60



ติดตั้งบุชด้วยกาว ห้ามสวมอัด

Install bush with glue only. Do not use press-fit method.

Model	D		L												BL			
25PD 25PZ	20	+0.020 +0.015	100	110	120	130	140	150	160	170	180					50		
	22				120	130	140	150	160	170	180				50			
															60			
	25				120	130	140	150	160	170	180				60			
		80																
	28	+0.025 +0.020					140	150	160	170	180	190	200			60		
																80		
	32								160	170	180	190	200	220	240		80	
																	100	
	38	+0.030 +0.025										180	190	200	220	240	260	80
																		100
	45											180	190	200	220	240	260	100
120																		
50	+0.035 +0.030											200	220	240	260	100		
																120		
60												200	220	240	260	100		
																120		

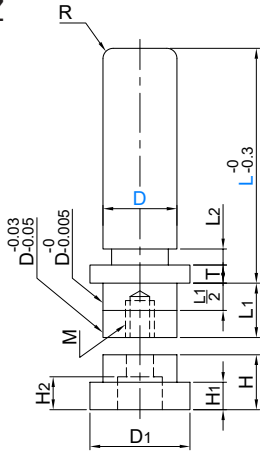
Removable Guide Post for Die Set - ไกด์โพสสำหรับไดเซต แบบถอดได้



บุชร่องน้ำมัน
Oil Groove Bush
Model: 25RD



บุชออยฟรี
Oil Free™ Bush
Model: 25RZ



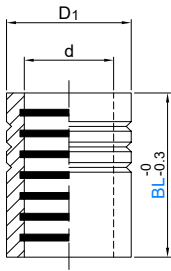
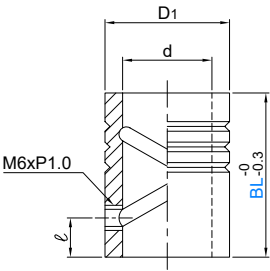
ไกด์ | Guide

D	D1	L1	L2	H	H1	H2
20		28	15	10	14	7
22	+0.020 +0.015	30	16			
25		35	18			
28	+0.025	36	20	12	16	8
32	+0.020	40	23			
38	+0.030	49	27			
45	+0.025	55	32	15	18	10
50	+0.035	62	35			
60	+0.030	72	42			

D	T	t	M	R	Bolt
20	5	1.6	8x18	2.0	24CB8x25
22	8			3.0	
25	10			3.5	
28	12	2.0	10x22	3.5	24CB10x30
32					
38					
45	15	4.5	12x27	4.0	24CB12x35
50					
60					

บุช | Bush

L1	d	D1
10	20	31
	22	34
	25	37
	28	42
15	32	46
	38	54
	45	62
	50	70
	60	80



ORDER
EXAMPLE

Model D - L - BL
25RD25-120-60



ติดตั้งบุชด้วยกาว ห้ามสวมอัด
Install bush with glue only. Do not use press-fit method.

Model	D		L										BL			
25RD 25RZ	20	+0.020 +0.015	80	90	100	110	120							50		
	22		80	90	100	110	120							50		
	25		80	90	100	110	120	130						60		
	28	+0.025 +0.020			100	110	120	130	140	150	160			60		
	32						120	130	140	150	160			80		
	38	+0.030 +0.025							140	150	160	170	180		80	
	45								140	150	160	170	180		100	
	50										160	170	180	200	100	
	60	+0.035 +0.030										160	170	180	200	100
												160	170	180	200	120



Name	Shoulder Punch	Double Step	Flat	w/ Dowel	Heavy Load	Heavy Load w/ Dowel
Model	25SP	25SPTW	25G-SP	25SP-C	25AP	25AP-C
Page	45	46	47	48	49	50



Name	Double Step Heavy Load	Taper Head	Flange Stopper	Tapped	Double Step Tapped	Flat Tapped	Key Groove
Model	25APTW	25TSSHAS	25PHTAL	25MP	25MPTW	25G-MP	25SK
Page	51	52	52	53	54	55	56



Name	Straight Punch	Tapped Straight	Straight Heavy Load	Blanking Punch
Model	25SPC	25MSPC	25AHC	25SPCPD
Page	57	57	58	58

ตารางผิวชุบ | Coating Chart

Coating	Color	Surface Hardness	Method	Usage
TiN	ทอง Gold	2,300 - 2,500 HV	PVD	ชุบโค้ตติ้งสีทองเพื่อยืดอายุการใช้งานของทูล Used for precision tooling works which required improved wear resistance and tool life.
TiCN	น้ำเงินเทา Blue Grey	3,000 HV	PVD	ชุบโค้ตติ้งสีน้ำเงินเทาเพื่อยืดอายุการใช้งานของทูล ความแข็งแรงและการใช้งานสูงกว่าการชุบ TiN Used for precision tooling work which required higher wear resistance and tool life higher than TiN.
TiC	ผิวเงา Gloss Finish	3,500 HV	CVD	ชุบโค้ตติ้งผิวเงาเหมาะกับพินช์และฟอร์มมิ่ง TiC มีชั้นโค้ตติ้งที่หนากว่าการชุบด้วยวิธี PVD ทำให้มีอายุการใช้งานที่สูงกว่า แต่ด้วยเทคนิคการโค้ตติ้งแบบ CVD ที่ใช้ความร้อนสูง ทำให้อาจสูญเสียความเที่ยงของทูล Used for punching and especially well in forming. This coating provides superior wear resistance higher than other PVD coatings. However due to high temperature processing of CVD, the precision of tooling is affected while providing thicker coating.
TD	เทาเข้ม Dark Grey	3,200 - 3,700 HV	TD	การชุบโค้ตติ้งแบบพิเศษที่มีความแข็งแรงและอายุการใช้งานที่สูง เหมาะกับงานพินช์โลหะหนาและงาน deep drawing การโค้ตติ้งด้วยวิธี TD มีความพิเศษที่อายุของผิวโค้ตติ้งติดทนอยู่ได้นานกว่า This premium coating is used in demanding applications where wear resistance is critical, such as: deep drawing and thick steel punching. This process provides higher hardness than TiC and also better adhesiveness to the base metal.

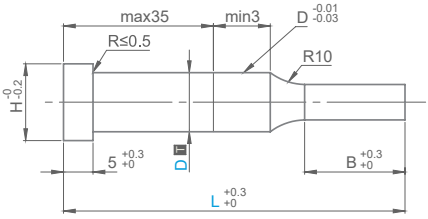
ตารางการเลือกพUNCH | Punches selecting chart

Shape		Material	Page	Shape		Material	Page		
Shoulder Punch		SKD11	P. 45	Tapped Punch		SKD11	P. 53		
		SKD11+				SKD11+			
		SKH51				SKH51			
		P-HSS				P-HSS			
Double Step Shoulder Punch		SKD11	P. 46	Double Step Tapped Punch		SKD11	P. 54		
		SKD11+				SKD11+			
		SKH51				SKH51			
		P-HSS				P-HSS			
Shoulder Punch with Flat		SKD11	P. 47	Tapped Punch with Flat		SKD11	P. 55		
		SKD11+				SKD11+			
		SKH51				SKH51			
		P-HSS				P-HSS			
Punch with Dowel		SKD11	P. 48	Punch with Key Groove		SKD11	P. 56		
		SKD11+				SKD11+			
		SKH51				SKH51			
		P-HSS				P-HSS			
Punch for Heavy Load		SKH51	P. 49	Straight Punch		SKD11	P. 57		
		P-HSS				SKD11+			
Heavy Load with Dowel		SKH51	P. 50			SKH51			
		P-HSS				P-HSS			
Double Step Heavy Load		SKH51	P. 51	Tapped Straight Punch		SKD11	P. 57		
		P-HSS				SKD11+			
Tapered Head Punch		SKH51	P. 52			SKH51			
		P-HSS				P-HSS			
Flange Stopper Punch		SKH51	P. 52			SKD11	P. 58		
		P-HSS				SKD11+			
						SKH51			
						P-HSS			

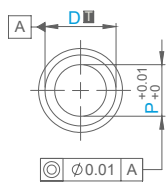
ตารางวัสดุพUNCH | Punch Material Chart

Material	Hardness	Usage
 SKD11	60-63 HRC	วัสดุที่ใช้ทั่วไปในงานพUNCH สำหรับงานแผ่นโลหะบาง A general purpose cold work tool steel for punching and forming of thin material.
 SKD11+	62-63 HRC	วัสดุที่ถูกพัฒนาขึ้นมาสำหรับงานพUNCH ฟอรั่มมิ่ง และ deep forming สำหรับงานแผ่นโลหะบางถึงหนา ด้วยคุณสมบัติที่ดีกว่า ทำให้ SKD11+ ลดการแตกและมียาวการใช้งานที่ยืนยาวคุ้มค่ากว่าวัสดุ SKD11 ทั่วไป An improved general purpose cold work tool steel for punch, forming, and deep-forming of thin to thick material. It is less prone to chipping, cracking, and has superior wear resistance than normal SKD11, making SKD11+ a value choice.
 SKH51	61-64 HRC	เหล็กไฮสปีดสำหรับงานพUNCHและฟอรั่มมิ่ง ใช้กับวัสดุตีบประเภทเหล็กคาร์บอนและวัสดุ abrasive วัสดุ SKH51 มีความทนทานสูง และความแข็งที่สูง สามารถนำไปชุบได้ทั้ง PVD เพิ่มอายุการใช้งานได้เป็นอย่างดี High-Speed Steel for punching and forming of carbon steel or other abrasive materials. This steel grade provides higher wear resistance and compressive strength than other cold work tool steels. It accepts PVD surface treatment very well.
 P-HSS Powder High-Speed Steel	64-67 HRC	วัสดุตัวนี้คล้ายกับวัสดุ SKH51 เกือบทุกประการ แต่จากการผลิตด้วยเทคนิคเฉพาะ ทำให้มีความแข็งสูงกว่า SKH51 มาก This powered High-Speed Steel provides the similar benefits as SKH51 steel. However, due to the powder metallurgy process of this steel, it has higher the toughness of SKH51.

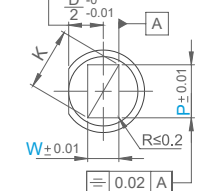
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



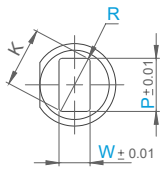
Shape A



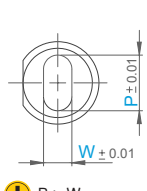
Shape D



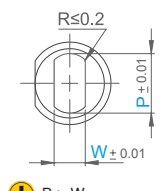
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

! $P > W$

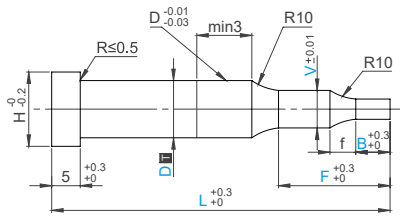
ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25DSPAL13-70-P10.50

- !** 1. เลือก วัสดุพินซ์ และ วัสดุชุบ 2. เลือกทรงและความยาวปลาย 3. เลือกขนาด
1. Choose material and coating 2. Choose tip shape & length 3. Choose dimensions

Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	SP	L-SP	TN-SP	H-SP	TC-SP	-	S : Short
SKD11+	62-63HRC	DSP	L-DSP	TN-DSP	H-DSP	TC-DSP	TD-DSP	L : Long
SKH51	61-64HRC	HSP	L-HSP	TN-HSP	H-HSP	TC-HSP	-	X : Extra
P-HSS	64-67HRC	PSP	L-PSP	TN-PSP	H-PSP	TC-PSP	-	

Order Code					L 10mm increment	0.01mm increment			b	H
						Shape A	Shape D R E G			
Model	Tip Shape	Tip Length	D m5			P	P.K Max	P.W Min		
Model Code	A D R E G		10	+0.012 +0.006	40 - 100	3.00 - 9.99	9.97	2.50	13 (L40 B=8)	13
			13	+0.015 +0.007	40 - 100	6.00 - 12.99	12.97	3.00		16
			16		40 - 100	10.00 - 15.99	15.97	4.00	19 (L40 B=8)	19
			20	+0.017 +0.008	40 - 100	13.00 - 19.99	19.97	5.00		23
			25		40 - 100	18.00 - 24.99	24.97	6.00		28
			10	+0.012 +0.006	50 - 100	3.00 - 9.99	9.97	2.50	19	13
			13	+0.015 +0.007	50 - 100	6.00 - 12.99	12.97	3.00		16
			16		60 - 100	10.00 - 15.99	15.97	4.00	25	19
			20	+0.017 +0.008	60 - 100	13.00 - 19.99	19.97	5.00		23
			25		60 - 100	18.00 - 24.99	24.97	6.00		28
			10	+0.012 +0.006	60 - 100	3.00 - 9.99	9.97	5.00	30	13
			13	+0.015 +0.007	60 - 100	6.00 - 12.99	12.97	5.00		16
			16		70 - 100	10.00 - 15.99	-		40	19
			20	+0.017 +0.008	70 - 100	13.00 - 19.99	-			23
			25		70 - 100	18.00 - 24.99	-			28

Double Step Shoulder Punch - พ้นซ์มีป้าสองระดับ

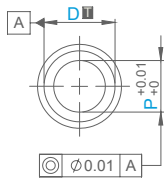


FOIL FREE™

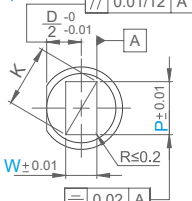
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



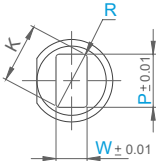
Shape A



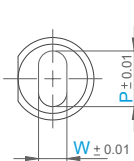
Shape D



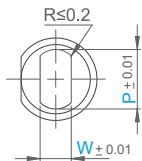
Shape R



Shape E



Shape G



$P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

$P > W$

$P > W$

ORDER
EXAMPLE

25 + Order Code - L - P - W - B - V - F - R
25SPTWR10-80-P10.50-W7.34-B25-V12.00-F45-R0.5

1. เลือก วัสดุพ่นซ์ และ วัสดุชุบ
2. เลือกทรงและความยาวปลาย
3. เลือกขนาด

1. Choose material and coating
2. Choose tip shape & length
3. Choose dimensions

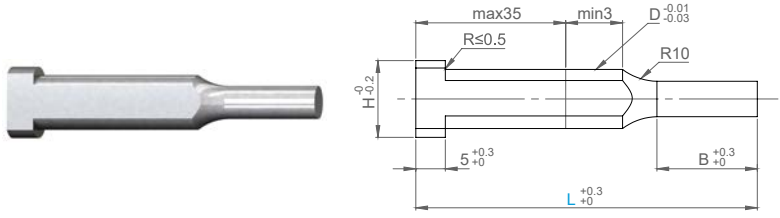
Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	SPTW	L-SPTW	TN-SPTW	H-SPTW	TC-SPTW	-
SKD11+	62-63HRC	DSPTW	L-DSPTW	TN-DSPTW	H-DSPTW	TC-DSPTW	TD-DSPTW
SKH51	61-64HRC	HSPTW	L-HSPTW	TN-HSPTW	H-HSPTW	TC-HSPTW	-
P-HSS	64-67HRC	PSPTW	L-PSPTW	TN-PSPTW	H-PSPTW	TC-PSPTW	-

Order Code				L 10mm increment	0.01mm increment						H	
					Shape A		Shape D R E G			V		F
Model	Tip Shape	D m5			P	B	P,K Max	P,W Min	B			
Model Code	A D R E G	10	+0.012 +0.006	40 - 100	1.50 - 1.99	2.0 - 20.0	9.96	1.25 - 1.49	2.0 - 8.0	Shape A: D > V > P+0.01 Shape D R E G: D > V > K+0.03	B+f+2 < F ≤ Fmax where, f = √X * (20-X) X = (V-P)/2	13
					2.00 - 3.99	2.0 - 35.0		1.50 - 1.99	2.0 - 13.0			
					4.00 - 5.99	2.0 - 45.0		2.00 - 3.49	2.0 - 19.0			
					6.00 - 9.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 9.98	2.0 - 60.0		5.00 - 9.96	2.0 - 30.0			
		13	+0.015 +0.007	40 - 100	3.00 - 3.99	2.0 - 35.0	12.96	1.50 - 1.99	2.0 - 13.0			16
					4.00 - 5.99	2.0 - 45.0		2.00 - 3.49	2.0 - 19.0			
					6.00 - 12.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 12.98	2.0 - 60.0		5.00 - 12.96	2.0 - 30.0			
		16		40 - 100	5.00 - 5.99	2.0 - 45.0	15.96	2.00 - 3.49	2.0 - 19.0		19	
					6.00 - 15.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 15.98	2.0 - 60.0		5.00 - 15.96	2.0 - 30.0			
		20		40 - 100	6.50 - 19.98	2.0 - 60.0	19.96	2.50 - 3.49	2.0 - 19.0		23	
					6.50 - 19.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.50 - 19.98	2.0 - 60.0		5.00 - 19.96	2.0 - 30.0			
		25	+0.017 +0.008	40 - 100	9.00 - 24.98	2.0 - 60.0	24.96	3.00 - 3.49	2.0 - 19.0		28	
					9.00 - 24.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					9.00 - 24.98	2.0 - 60.0		5.00 - 24.96	2.0 - 30.0			

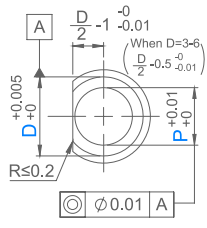
Shoulder Punch with Flat - พินซ์มีบ่าเจียรบ่าลัด

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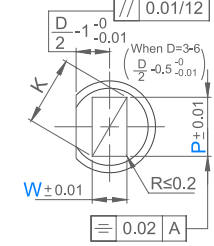
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



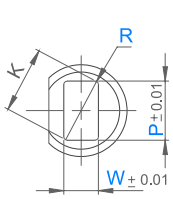
Shape A



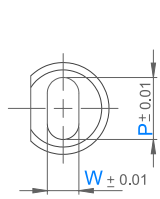
Shape D



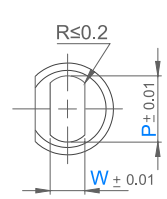
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

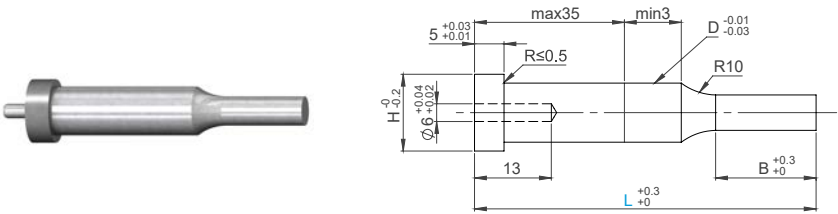
ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25G-SPDL13-80-P10.50-7.34

1. เลือก วัสดุพินซ์ และ วัสดุชุบ
2. เลือกทรงและความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip shape & length
3. Choose dimensions

Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	G-SP	L-G-SP	TN-G-SP	H-G-SP	TC-G-SP	-	S : Short
SKD11+	62-63HRC	DG-SP	L-DG-SP	TN-DG-SP	H-DG-SP	TC-DG-SP	TD-DG-SP	L : Long
SKH51	61-64HRC	HG-SP	L-HG-SP	TN-HG-SP	H-HG-SP	TC-HG-SP	-	X : Extra
P-HSS	64-67HRC	PG-SP	L-PG-SP	TN-PG-SP	H-PG-SP	TC-PG-SP	-	

Order Code					L 10mm increment	0.01mm increment				B	H
						Shape A	Shape D R E G				
Model	Shape	Tip Length	D m5			P	P,K Max	P,W Min	W Max		
Model Code	A D R E G		10	+0.012 +0.006	40 – 100	3.00 – 7.80	9.97	2.50	7.80	13 (L40 B=8)	13
			13	+0.015 +0.007	40 – 100	6.00 – 10.80	12.97	3.00	10.80		16
			16		40 – 100	10.00 – 13.80	15.97	4.00	13.80	19 (L40 B=8)	19
			20	+0.017 +0.008	40 – 100	13.00 – 17.80	19.97	5.00	17.80		23
			25		40 – 100	18.00 – 22.80	24.97	6.00	22.80		28
			10	+0.012 +0.006	50 – 100	3.00 – 7.80	9.97	2.50	7.80	19	13
			13	+0.015 +0.007	50 – 100	6.00 – 10.80	12.97	3.00	10.80		16
			16		60 – 100	10.00 – 13.80	15.97	4.00	13.80	25	19
			20	+0.017 +0.008	60 – 100	13.00 – 17.80	19.97	5.00	17.80		23
			25		60 – 100	18.00 – 22.80	24.97	6.00	22.80		28
			10	+0.012 +0.006	60 – 100	3.00 – 7.80	9.97	5.00	7.80	30	13
			13	+0.015 +0.007	60 – 100	6.00 – 10.80	12.97	5.00	10.80		16
			16		70 – 100	10.00 – 13.80	-			40	19
			20	+0.017 +0.008	70 – 100	13.00 – 17.80	-				23
			25		70 – 100	18.00 – 22.80	-				28

Punch with Dowel - พันทึมีบ่าแบบมีรูโดเวล

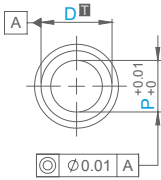


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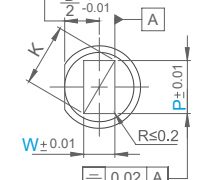
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



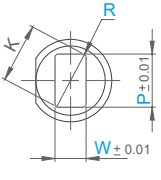
Shape A



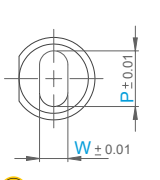
Shape D



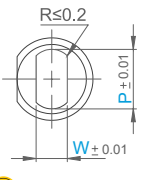
Shape R



Shape E



Shape G



$P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

$P > W$

$P > W$

ORDER
EXAMPLE

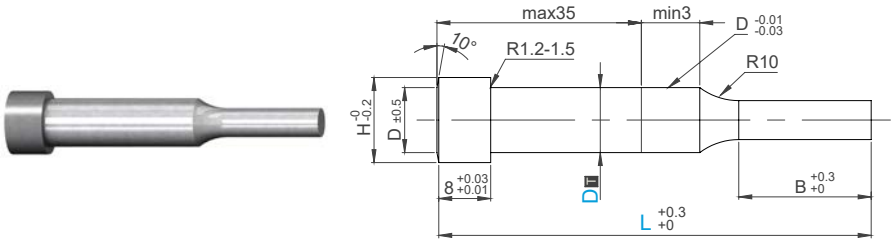
25 + Order Code - L - P - W - R
25SPAS-C25-100-P18.05

- 1. เลือก วัสดุพันทึ และ วัสดุชุบ
 - 2. เลือกทรงและ ความยาวปลาย
 - 3. เลือกขนาด
- 1. Choose material and coating
 - 2. Choose tip shape & length
 - 3. Choose dimensions

Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TICN Coating	TIC Coating	TD Coating	
SKD11	60-63HRC	SP	L-SP	TN-SP	H-SP	TC-SP	-	S : Short
SKD11+	62-63HRC	DSP	L-DSP	TN-DSP	H-DSP	TC-DSP	TD-DSP	L : Long
SKH51	61-64HRC	HSP	L-HSP	TN-HSP	H-HSP	TC-HSP	-	
P-HSS	64-67HRC	PSP	L-PSP	TN-PSP	H-PSP	TC-PSP	-	X : Extra

Order Code					L 10mm Increment	0.01mm increment				B	H
Model	Shape	Tip Length	Dowel Type	D m5		Shape A	Shape D R E G				
						P	P,K Max	P,W Min			
Model Code	A <										

Punch for Heavy Load - พินซ์สำหรับงานหนัก

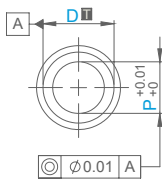


FOIL FREE™

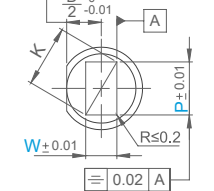
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Shape A

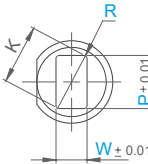


Shape D



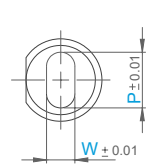
$P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

Shape R



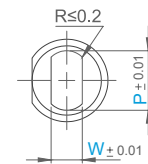
$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

Shape E



$P > W$

Shape G



$P > W$

ORDER	25 + Order Code - L - P - W - R
EXAMPLE	25APAS20-80-P15.00

1. เลือก วัสดุพินซ์ และ วัสดุชุบ

2. เลือกทรงและความยาวปลาย

3. เลือกขนาด
1. Choose material and coating

2. Choose tip shape & length

3. Choose dimensions

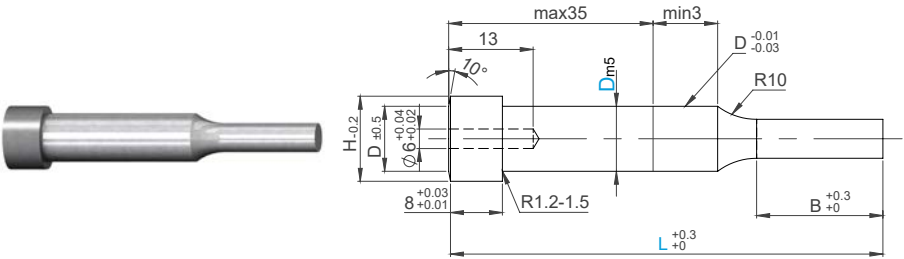
Material	Hardness	Model					Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	
SKH51	61-64HRC	AP	L-AP	TN-AP	H-AP	TC-AP	S : Short L : Long
P-HSS	64-67HRC	PAP	L-PAP	TN-PAP	H-PAP	TC-PAP	

Order Code					L 10mm increment	0.01mm increment			B	H
Model	Shape	Tip Length	D m5			Shape A	Shape D R E G			
						P	P,K Max	P,W Min		
Model Code	A D R E G		10	+0.012 +0.006	50 - 130	3.00 - 9.99	9.97	2.50	13 (L50 B=8)	15
			13	+0.015 +0.007	50 - 130	6.00 - 12.99	12.97	3.00		18
			16		50 - 130	10.00 - 15.99	15.97	4.00	19 (L50 B=8)	21
			20		+0.017 +0.008	50 - 130	13.00 - 19.99	19.97		5.00
			25	50 - 130		18.00 - 24.99	24.97	6.00		30
			10	+0.012 +0.006	60 - 130	3.00 - 9.99	9.97	2.50	19	15
			13	+0.015 +0.007	60 - 130	6.00 - 12.99	12.97	3.00		18
			16		70 - 130	10.00 - 15.99	15.97	4.00	25	
			20		+0.017 +0.008	70 - 130	13.00 - 19.99	19.97		5.00
			25	70 - 130		18.00 - 24.99	24.97	6.00		30

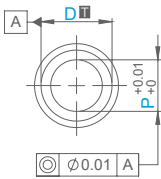
Heavy Load with Dowel - พUNCHสำหรับงานหนักแบบมีรูโดเวล

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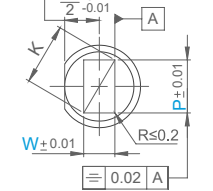
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Shape A

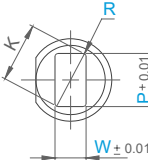


Shape D



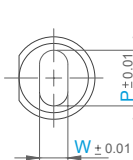
$P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

Shape R



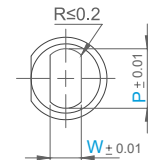
$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

Shape E



$P > W$

Shape G



$P > W$

ORDER
EXAMPLE

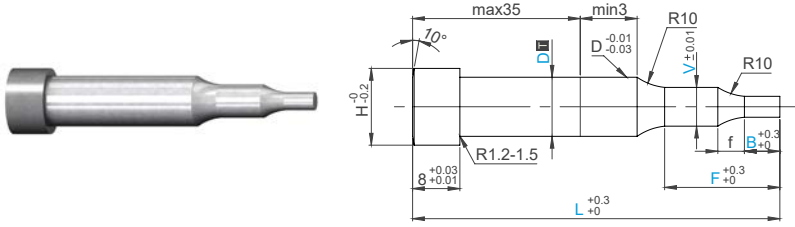
25 - Order Code - L - P - W - R
25APAS-C20-80-P15.00

1. เลือก วัสดุพUNCH และ วัสดุชุบ
2. เลือกทรงและความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip shape & length
3. Choose dimensions

Material	Hardness	Model					Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	
SKH51	61-64HRC	AP	L-AP	TN-AP	H-AP	TC-AP	S : Short L : Long
P-HSS	64-67HRC	PAP	L-PAP	TN-PAP	H-PAP	TC-PAP	

Order Code						L 10mm increment	0.01mm increment			B	H
Model	Shape	Tip Length	Dowel Type	D m5	Shape A		Shape D R E G				
					P		P,K Max	P,W Min			
Code	A D R E G		-C	10	+0.012 +0.006	50 - 150	3.00 - 9.99	9.97	2.50	13 (L50 B=8)	15
				13		50 - 150	6.00 - 12.99	12.97	3.00		18
				16	+0.015 +0.007	50 - 150	10.00 - 15.99	15.97	4.00		21
				20		50 - 150	13.00 - 19.99	19.97	5.00	19 (L50 B=8)	25
				25	+0.017 +0.008	50 - 150	18.00 - 24.99	24.97	6.00		30
				10	+0.012 +0.006	60 - 150	3.00 - 9.99	9.97	2.50	19	15
				13		60 - 150	6.00 - 12.99	12.97	3.00		18
				16	+0.015 +0.007	70 - 150	10.00 - 15.99	15.97	4.00		21
				20		70 - 150	13.00 - 19.99	19.97	5.00	25	25
				25	+0.017 +0.008	70 - 150	18.00 - 24.99	24.97	6.00		30

Double Step Heavy Load - พินซ์สองระดับสำหรับงานหนัก

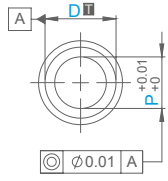


FOIL FREE™

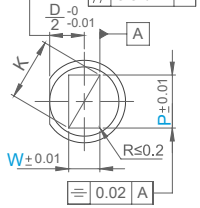
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



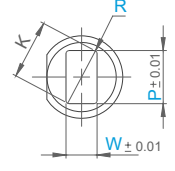
Shape A



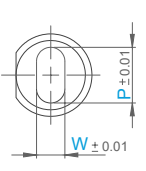
Shape D



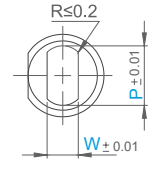
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

ORDER 25 - Order Code - L - P - W - R - B - V - F - R
EXAMPLE 25APTWR10-80-P10.50-W7.34-B25-V12.00-F35-R0.5

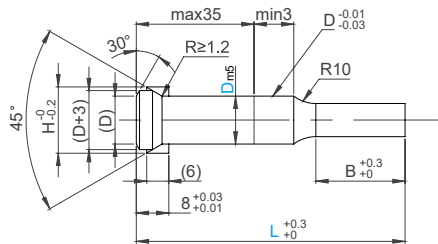
1. เลือก วัสดุพินซ์ และ วัสดุชุบ
2. เลือกทรงและขนาดปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip shape & length
3. Choose dimensions

Material	Hardness	Model				
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating
SKH51	61-64HRC	APTW	L-APTW	TN-APTW	H-APTW	TC-APTW
P-HSS	64-67HRC	PAPTW	L-PAPTW	TN-PAPTW	H-PAPTW	TC-PAPTW

Order Code				L 10mm increment	Shape A		Shape D R E G			V 0.01 mm increment	F 0.1 mm increment	H
Model	Shape	D m5			P 0.01 mm increment	B 0.01 mm increment	K Max 0.01 mm increment	P.W 0.01 mm increment	B 0.01 mm increment			
Model Code	A D R E G	10	+0.012 +0.006	50 - 100	1.50 - 1.99	2.0 - 20.0	9.96	1.25 - 1.49	2.0 - 8.0	Shape A: D > V > P+0.01 Shape D R E G: D > V > K+0.03 Shape A: F ≤ L-25 Shape D R E G: F ≤ L-30	B+f+2 < F ≤ Fmax where, f = $\sqrt{X} \cdot (20-X)$ X = (V-P)/2	15
					2.00 - 3.99	2.0 - 35.0		1.50 - 1.99	2.0 - 13.0			
					4.00 - 5.99	2.0 - 45.0		2.00 - 3.49	2.0 - 19.0			
					6.00 - 9.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 9.98	2.0 - 60.0		5.00 - 9.96	2.0 - 30.0			
		13	+0.015 +0.007	50 - 100	3.00 - 3.99	2.0 - 35.0	12.96	1.50 - 1.99	2.0 - 13.0			18
					4.00 - 5.99	2.0 - 45.0		2.00 - 3.49	2.0 - 19.0			
					6.00 - 12.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 12.98	2.0 - 60.0		5.00 - 12.96	2.0 - 30.0			
					16			50 - 100	5.00 - 5.99			
	6.00 - 15.98	2.0 - 60.0	3.50 - 4.99	2.0 - 25.0								
	6.00 - 15.98	2.0 - 60.0	5.00 - 15.96	2.0 - 30.0								
	20		50 - 100	6.50 - 19.98	2.0 - 60.0	19.96	2.50 - 3.49	2.0 - 19.0	25			
				6.50 - 19.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0				
				6.50 - 19.98	2.0 - 60.0		5.00 - 19.96	2.0 - 30.0				
	25	+0.017 +0.008	50 - 100	9.00 - 24.98	2.0 - 60.0	24.96	3.00 - 3.49	2.0 - 19.0	30			
				9.00 - 24.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0				
				9.00 - 24.98	2.0 - 60.0		5.00 - 24.96	2.0 - 30.0				

Tapered Head Punch - พ้นซ์หัวเทเปอร์

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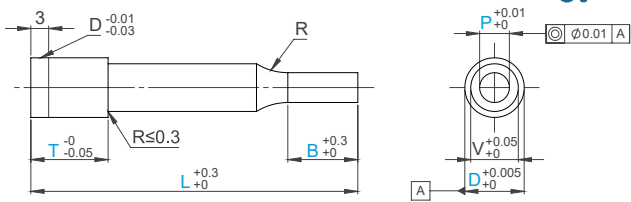
ORDER 25 - Order Code - L - P
EXAMPLE 25TSSHAS20-80-P15.00

Material	Hardness	Model					Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	
SKH51	61-64HRC	TSSHA	L-TSSHA	TN-TSSHA	H-TSSHA	TC-TSSHA	S : Short L : Long
P-HSS	64-67HRC	PTSSHA	L-PTSSHA	TN-PTSSHA	H-PTSSHA	TC-PTSSHA	

Order Code				L 10mm increment	P 0.01mm increment	B	H
Model	Tip Length	D m5					
Model Code		10	+0.012 +0.006	60 - 100	3.00 - 9.99	13	15
		13	+0.015 +0.007	60 - 100	6.00 - 12.99		18
		16		60 - 100	10.00 - 15.99	19	21
		20	+0.017 +0.008	60 - 100	13.00 - 19.99		25
		25		60 - 100	18.00 - 24.99		30
		10	+0.012 +0.006	60 - 100	3.00 - 9.99	19	15
		13	+0.015 +0.007	60 - 100	6.00 - 12.99		18
		16		60 - 100	10.00 - 15.99	25	21
		20	+0.017 +0.008	60 - 100	13.00 - 19.99		25
		25		60 - 100	18.00 - 24.99		30

Flange Stopper Punch - พ้นซ์แบบมีปัสต้อปเปอร์

FOIL FREE™

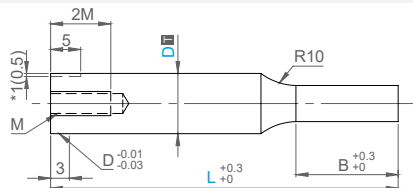


ORDER 25 + Order Code - L - P - T - B
EXAMPLE 25PHTAL5-60-P3.00-T20-B5

Material	Hardness	Model					Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	
SKH51	61-64HRC	PHTAL	L-PHTAL	TN-PHTAL	H-PHTAL	TC-PHTAL	S : Short L : Long
P-HSS	64-67HRC	PPHTAL	L-PPHTAL	TN-PPHTAL	H-PPHTAL	TC-PPHTAL	

Order Code		L 10mm increment	P 0.01mm increment	T	B 1mm increment	V	R
Model	D						
Model Code	10	40 - 70	3.00 - 8.00	13	2 - 13 (2-10 when, L=40)	8	10
	13	40 - 70	3.00 - 10.00	16		11	
	16	40 - 70	6.00 - 13.00	20		14	
	20	40 - 70	10.00 - 16.00	25		18	
	25	40 - 70	13.00 - 23.00	(L>40)		23	

Tapped Punch - พินช์มีรูตัดเกลียว

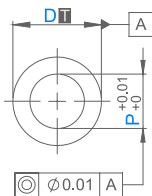


FOIL FREE™

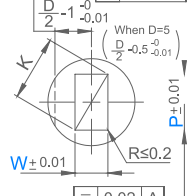
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



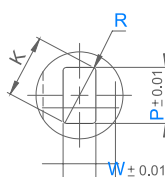
Shape A



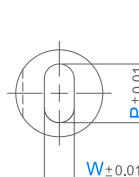
Shape D



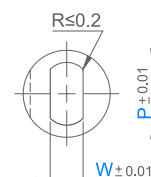
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

! $P > W$

ORDER
EXAMPLE

25 + Order Code - L - P - W - R
25MPAL13-80-P8.24

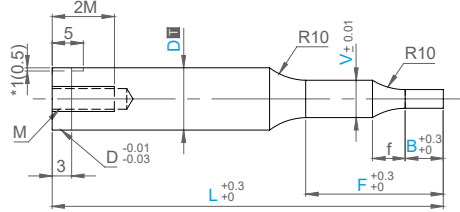
- เลือก วัสดุพินช์ และ วัสดุชุบ
- เลือกทรงและความยาวปลาย
- เลือกขนาด

- Choose material and coating
- Choose tip shape & length
- Choose dimensions

Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	MP	L-MP	TN-MP	H-MP	TC-MP	-	S : Short L : Long X : Extra
SKD11+	62-63HRC	DMP	L-DMP	TN-DMP	H-DMP	TC-DMP	TD-DMP	
SKH51	61-64HRC	HMP	L-HMP	TN-HMP	H-HMP	TC-HMP	-	
P-HSS	64-67HRC	PMP	L-PMP	TN-PMP	H-PMP	TC-PMP	-	

Order Code					L 10mm increment	0.01mm increment			B	M
Model	Shape	Tip Length	D m5	Shape A		Shape D R E G				
				P		P,K Max	P,W Min			
Model Code	A D R E G		10	+0.012 +0.006	40 - 100	3.00 - 9.99	9.97	2.50	13 (L40 B=8)	5
			13	+0.015 +0.007	40 - 100	6.00 - 12.99	12.97	3.00		19 (L40 B=8)
			16		40 - 100	10.00 - 15.99	15.97	4.00		
			20		+0.017 +0.008	40 - 100	13.00 - 19.99	19.97	5.00	
			25	40 - 100		18.00 - 24.99	24.97	6.00		
			10	+0.012 +0.006	50 - 100	3.00 - 9.99	9.97	2.50	19	5
			13	+0.015 +0.007	50 - 100	6.00 - 12.99	12.97	3.00		25
			16		60 - 100	10.00 - 15.99	15.97	4.00		
			20		+0.017 +0.008	60 - 100	13.00 - 19.99	19.97	5.00	
			25	60 - 100		18.00 - 24.99	24.97	6.00		
		10	+0.012 +0.006	60 - 100	3.00 - 9.99	9.97	5.00	30	5	
		13	+0.015 +0.007	60 - 100	6.00 - 12.99	12.97	5.00		40	6
		16		70 - 100	10.00 - 15.99	-				
		20		+0.017 +0.008	70 - 100	13.00 - 19.99	-			
		25	70 - 100		18.00 - 24.99	-				

Double Step Tapped Punch - พ้นซ์มีรูตีปเกลียวสองระดับ

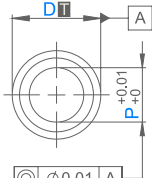


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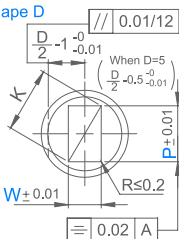
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



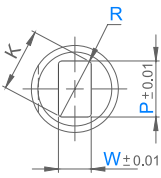
Shape A



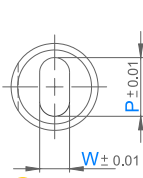
Shape D



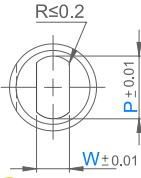
Shape R



Shape E



Shape G



$P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

ORDER
EXAMPLEV

25 + Order Code - L - P - W - B - V - F - R
25MPTWR10-80-P10.50-W7.34-B25-V12.00-F45-R0.5

- 1. เลือก วัสดุพื้นซ์ และ วัสดุชุบ
- 2. เลือกทรงและความยาวปลาย
- 3. เลือกขนาด

- 1. Choose material and coating
- 2. Choose tip shape & length
- 3. Choose dimensions

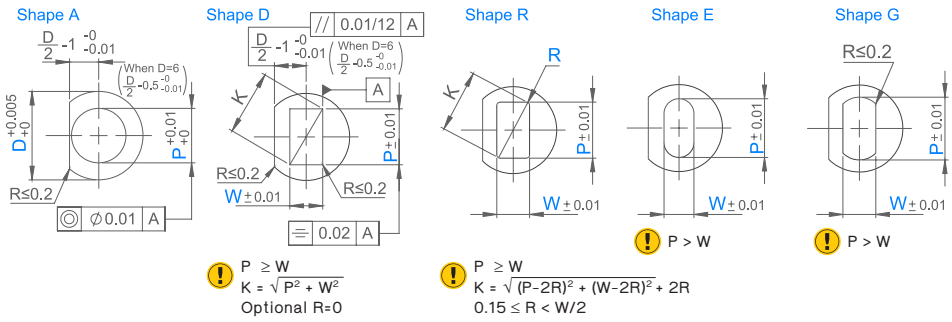
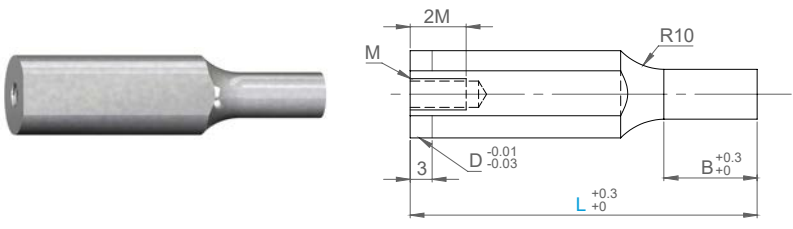
Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	MPTW	L-MPTW	TN-MPTW	H-MPTW	TC-MPTW	-
SKD11+	62-63HRC	DMPTW	L-DMPTW	TN-DMPTW	H-DMPTW	TC-DMPTW	TD-DMPTW
SKH51	61-64HRC	HMPTW	L-HMPTW	TN-HMPTW	H-HMPTW	TC-HMPTW	-
P-HSS	64-67HRC	PMPTW	L-PMPTW	TN-PMPTW	H-PMPTW	TC-PMPTW	-

Order Code				L 10mm increment	Shape A		Shape D R E G			V 0.01 mm increment	F 0.1 mm increment	M
Model	Shape	D m5			P 0.01 mm increment	B 0.1 mm increment	K Max 0.01 mm increment	P.W 0.01 mm increment	B 0.01 mm increment			
Model Code	A D R E G	10	+0.012 +0.006	40 - 100	1.50 - 1.99	2.0 - 20.0	9.96	1.25 - 1.49	2.0 - 8.0	Shape A: D > V > P+0.01 Shape D R E G: D > V > K+0.03	B+f+2 < F ≤ Fmax where, f = $\sqrt{X} \cdot (20-X)$ X = (V-P)/2	5
					2.00 - 3.99	2.0 - 35.0		1.50 - 1.99	2.0 - 13.0			
					4.00 - 5.99	2.0 - 45.0		2.00 - 3.49	2.0 - 19.0			
					6.00 - 9.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 9.98	2.0 - 60.0		5.00 - 9.96	2.0 - 30.0			
		13	+0.015 +0.007	40 - 100	3.00 - 3.99	2.0 - 35.0	12.96	1.50 - 1.99	2.0 - 13.0			
					4.00 - 5.99	2.0 - 45.0		2.00 - 3.49	2.0 - 19.0			
					6.00 - 12.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0			
					6.00 - 12.98	2.0 - 60.0		5.00 - 12.96	2.0 - 30.0			
		16	40 - 100	5.00 - 5.99	2.0 - 45.0	15.96	2.00 - 3.49	2.0 - 19.0				
				6.00 - 15.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0				
				6.00 - 15.98	2.0 - 60.0		5.00 - 15.96	2.0 - 30.0				
		20	40 - 100	6.50 - 19.98	2.0 - 60.0	19.96	2.50 - 3.49	2.0 - 19.0				
				6.50 - 19.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0				
				6.50 - 19.98	2.0 - 60.0		5.00 - 19.96	2.0 - 30.0				
		25	40 - 100	9.00 - 24.98	2.0 - 60.0	24.96	3.00 - 3.49	2.0 - 19.0				
				9.00 - 24.98	2.0 - 60.0		3.50 - 4.99	2.0 - 25.0				
				9.00 - 24.98	2.0 - 60.0		5.00 - 24.96	2.0 - 30.0				

Tapped Punch with Flat - พินซ์มีรูตัดาปเกลียวเจียรบ่าล๊อค

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วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



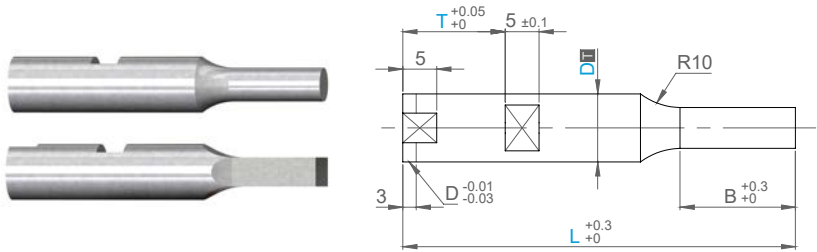
ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25G-MPDS13-60-P10.65-W6.55

- 1. เลือก วัสดุพินซ์ และ วัสดุชุบ
 - 2. เลือกทรงและความยาวปลาย
 - 3. เลือกขนาด
1. Choose material and coating
2. Choose tip shape & length
3. Choose dimensions

Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	G-MP	L-G-MP	TN-G-MP	H-G-MP	TC-G-MP	-	S : Short
SKD11+	62-63HRC	DG-MP	L-DG-MP	TN-DG-MP	H-DG-MP	TC-DG-MP	TD-DG-MP	L : Long
SKH51	61-64HRC	HG-MP	L-HG-MP	TN-HG-MP	H-HG-MP	TC-HG-MP	-	X : Extra
P-HSS	64-67HRC	PG-MP	L-PG-MP	TN-PG-MP	H-PG-MP	TC-PG-MP	-	

Order Code					L 10mm increment	Shape A	Shape D R E G		B	M
Model	Shape	Tip Length	D m5			P 0.01 mm increment	P,K Max 0.01 mm increment	P,W 0.01 mm increment		
Model Code	A 									

Punch with Key Groove - พันทึที่มีร่องลิ้น

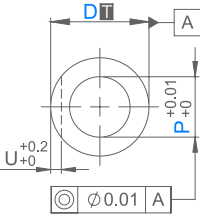


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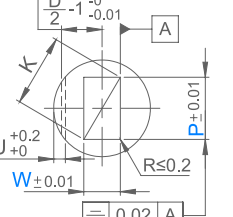
วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



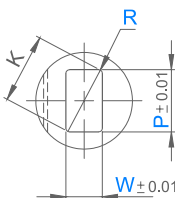
Shape A



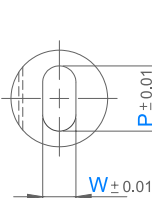
Shape D



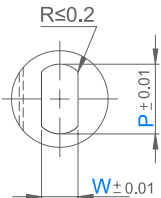
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$
Optional R=0

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

ORDER
EXAMPLE

25 + Order Code - L - P - W - R - T
25SKEL16-70-P12.00-W6.00-T20.1

1. เลือก วัสดุพื้นๆ และ วัสดุชุบ
2. เลือกทรงและความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip shape & length
3. Choose dimensions

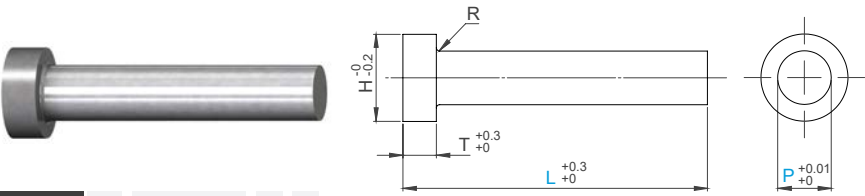
Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	SK	L-SK	TN-SK	H-SK	TC-SK	-	S : Short
SKD11+	62-63HRC	DSK	L-DSK	TN-DSK	H-DSK	TC-DSK	TD-DSK	L : Long
SKH51	61-64HRC	HSK	L-HSK	TN-HSK	H-HSK	TC-HSK	-	X : Extra
P-HSS	64-67HRC	PSK	L-PSK	TN-PSK	H-PSK	TC-PSK	-	

Order Code					L 10mm increment	Shape A		Shape D R E G		T 0.1 mm increment	B	Key Groove Depth
Model	Shape	Tip Length	D m5			P 0.01 mm increment	P.K Max 0.01 mm increment	P.W Min 0.01 mm increment				
Model Code	A D R E G		10	+0.012 +0.006	40 - 100	3.00 - 9.99	9.97	2.50	T > 5.0	13 (L40 B=8)	1.5	
			13	+0.015 +0.007	40 - 100	6.00 - 12.99	12.97	3.00				
			16	+0.015 +0.007	40 - 100	10.00 - 15.99	15.97	4.00				
			10	+0.012 +0.006	50 - 100	3.00 - 9.99	9.97	2.50		19 (L40 B=8)	1.5	
			13	+0.015 +0.007	50 - 100	6.00 - 12.99	12.97	3.00				
			16	+0.015 +0.007	60 - 100	10.00 - 15.99	15.97	4.00				
			10	+0.012 +0.006	60 - 100	3.00 - 9.99	9.97	5.00	25	1.5		
			13	+0.015 +0.007	60 - 100	6.00 - 12.99	12.97	5.00				
			16	+0.015 +0.007	70 - 100	10.00 - 15.99	-					
			10	+0.012 +0.006	60 - 100	3.00 - 9.99	9.97	5.00	30	1.5		
			13	+0.015 +0.007	60 - 100	6.00 - 12.99	12.97	5.00				
			16	+0.015 +0.007	70 - 100	10.00 - 15.99	-					

พินช์

Straight Punch - พินช์ตรง

FOIL FREE™



วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



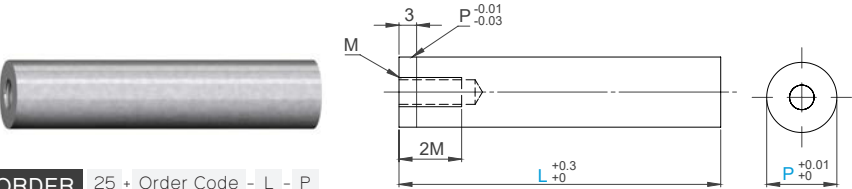
ORDER 25 + Order Code - L - P
EXAMPLE 25SPC6-40-P5.00

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	SPC	L-SPC	TN-SPC	H-SPC	TC-SPC	-
SKD11+	62-63HRC	DSPC	L-DSPC	TN-DSPC	H-DSPC	TC-DSPC	TD-DSPC
SKH51	61-64HRC	HSPC	L-HSPC	TN-HSPC	H-HSPC	TC-HSPC	-
P-HSS	64-67HRC	PSPC	L-PSPC	TN-PSPC	H-PSPC	TC-PSPC	-

Order Code		L										P	T	H
Model	No.											0.01mm increment		
Model Code	10	40	50	60	70	80	90	100				8.00 - 10.00	5	13
	13	40	50	60	70	80	90	100	110	120		10.00 - 13.00		16
	16	40	50	60	70	80	90	100	110	120		13.00 - 16.00		19
	20	40	50	60	70	80	90	100	110	120		16.00 - 20.00		23
	25	40	50	60	70	80	90	100	110	120		20.00 - 25.00		28

Tapped Straight Punch - พินช์มีรูเกลียวแบบตรง

FOIL FREE™



วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating

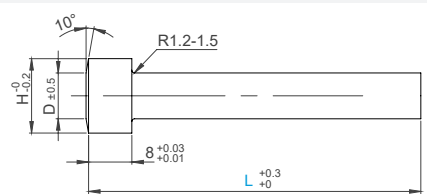


ORDER 25 + Order Code - L - P
EXAMPLE 25MSPC16-70-P14.73

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	MSPC	L-MSPC	TN-MSPC	H-MSPC	TC-MSPC	-
SKD11+	62-63HRC	DMSPC	L-DMSPC	TN-DMSPC	H-DMSPC	TC-DMSPC	TD-DMSPC
SKH51	61-64HRC	HMSPC	L-HMSPC	TN-HMSPC	H-HMSPC	TC-HMSPC	-
P-HSS	64-67HRC	PMSPC	L-PMSPC	TN-PMSPC	H-PMSPC	TC-PMSPC	-

Order Code		L				P	M
Model	No.	10mm increment				0.01mm increment	
Model Code	10	40 - 100				8.00 - 10.00	4
	13					10.00 - 13.00	6
	16					13.00 - 16.00	
	20					16.00 - 20.00	
	25					20.00 - 25.00	

Straight Punch for Heavy Load - พ้นซ์ตรงสำหรับงานหนัก



FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



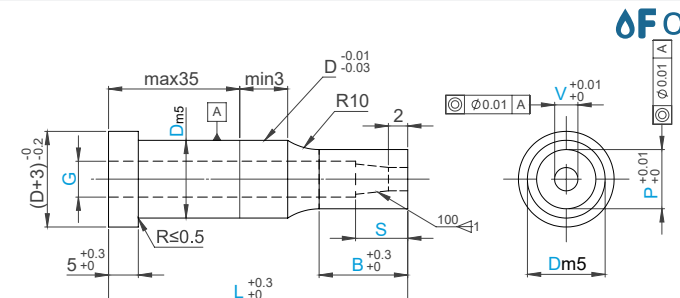
ORDER 25 + Order Code - L - P

EXAMPLE 25AHC6-40-P5.50

Material	Hardness	Model				
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating
SKH51	61-64HRC	AHC	L-AHC	TN-AHC	H-AHC	TC-AHC
P-HSS	64-67HRC	PAHC	L-PAHC	TN-PAHC	H-PAHC	TC-PAHC

Order Code		L										P 0.01mm increment	H
Model	No.												
Model Code	10	40	50	60	70	80	90	100				8.00 - 10.00	15
	13	40	50	60	70	80	90	100	110	120		10.00 - 13.00	18
	16	40	50	60	70	80	90	100	110	120		13.00 - 16.00	21
	20	40	50	60	70	80	90	100	110	120		16.00 - 20.00	25
	25	40	50	60	70	80	90	100	110	120		20.00 - 25.00	30

Blanking Punch - พ้นซ์สำหรับงานแบลงคัก



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ORDER 25 + Order Code - L - P - V - B - S - G

EXAMPLE 25SPCPD20-55.0-P14.65-V7.35-B8-S10-G8.5

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	SPCPD	L-SPCPD	TN-SPCPD	H-SPCPD	TC-SPCPD	-
SKD11+	62-63HRC	DSPCPD	L-DSPCPD	TN-DSPCPD	H-DSPCPD	TC-DSPCPD	TD-DSPCPD
SKH51	61-64HRC	HSPCPD	L-HSPCPD	TN-HSPCPD	H-HSPCPD	TC-HSPCPD	-
P-HSS	64-67HRC	PSPCPD	L-PSPCPD	TN-PSPCPD	H-PSPCPD	TC-PSPCPD	-

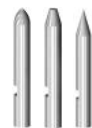
Order Code			L 0.1 mm increment	P 0.01 mm increment	V 0.01 mm increment	B 0.1 mm increment	S 0.1 mm increment	G	
Model	D m5								
Model Code	10	+0.012 +0.006	35.0 - 60.0	4.80 - 9.99	1.50 - (G-0.5)	4.0 ≤ B ≤ 19.0 and B ≤ L-27	3 - 10 (if V ≤ 1.99, S = 3 - 4)	G ≤ Px0.6 and (P-G)/2 ≥ 1.20	0.2 mm increment
	13	+0.015 +0.007		5.80 - 12.99		2.50 - (G-0.5)			4.0 ≤ B ≤ 25.0 and B ≤ L-27
	16			9.80 - 15.99	3.50 - (G-0.5)	4.0 ≤ B ≤ 25.0 and B ≤ L-27			
	20	+0.017 +0.008	12.80 - 19.99	4.00 - (G-0.5)	4.0 ≤ B ≤ 25.0 and B ≤ L-32				
	25		40.0 - 60.0	17.80 - 24.99	7.50 - (G-0.5)				
	32			+0.020 +0.009	19.80 - 31.99				



Name	Pilot Punch	Pilot Punch With Dowel Hole	Pilot Punch With Tapped Hole
Model	25STA / 25TPA / 25ATA	25STA-C / 25TPA-C / 25ATA-C	25STMA / 25TPMA / 25ATMA
Page	61	63	65



Name	Pilot Punch With Key Groove	Straight Pilot Punch	Straight Pilot Punch With Tapped Hole
Model	25STKA / 25TPKA / 25ATKA	25STC / 25TTC / 25ATC	25STMC / 25TPMC / 25ATMC
Page	67	69	70



Name	Straight Pilot Punch Key Groove	For Stripper Plate	Straight For Stripper Plate	Ejector Bushing
Model	25STKC / 25TPKC / 25ATKC	25SPT / 25TPT / 25APT	25SPTP / 25TPTP / 25APT	25MEG
Page	71	72	73	74

ตารางผิวชุบ | Coating Chart

Coating	Color	Surface Hardness	Method	Usage
TiN	ทอง Gold	2,300 - 2,500 HV	PVD	ชุบโค้ตติ้งสีทองเพื่อยืดอายุการใช้งานของทูล Used for precision tooling works which required improved wear resistance and tool life.
TiCN	น้ำเงินเทา Blue Grey	3,000 HV	PVD	ชุบโค้ตติ้งสีน้ำเงินเทาเพื่อยืดอายุการใช้งานของทูล ความแข็งแรงและการใช้งานสูงกว่าการชุบ TiN Used for precision tooling work which required higher wear resistance and tool life higher than TiN.
TiC	ผิวเงา Gloss Finish	3,500 HV	CVD	ชุบโค้ตติ้งผิวเงาเหมาะกับพื้นที่และฟอร์มมิ่ง TiC มีชั้นโค้ตติ้งที่หนากว่าการชุบด้วยวิธี PVD ทำให้มีอายุการใช้งานที่สูงกว่า แต่ด้วยเทคนิคการโค้ตติ้งแบบ CVD ที่ใช้ความร้อนสูง ทำให้อาจสูญเสียความเที่ยงของทูล Used for punching and especially well in forming. This coating provides superior wear resistance higher than other PVD coatings. However due to high temperature processing of CVD, the precision of tooling is affected while providing thicker coating.
TD	เทาเข้ม Dark Grey	3,200 - 3,700 HV	TD	การชุบโค้ตติ้งแบบพิเศษที่มีความแข็งแรงและอายุการใช้งานที่สูง เหมาะกับงานพื้นที่โลหะหนาและงาน deep drawing การโค้ตติ้งด้วยวิธี TD มีความพิเศษที่อายุของผิวโค้ตติ้งติดทนอยู่ได้นานกว่า This premium coating is used in demanding applications where wear resistance is critical, such as: deep drawing and thick steel punching. This process provides higher hardness than TiC and also better adhesiveness to the base metal.

ตารางการเลือกไฟลด์พ่นซ์ | Pilot Punches selecting chart

Shape		Material	Page	Shape		Material	Page			
Normal Shape		SKD11	P. 61	Straight With Tapped Hole		SKD11	P. 70			
		SKD11+				SKD11+				
		SKH51				SKH51				
		P-HSS				P-HSS				
With Dowel Pin Hole		SKD11	P. 63	Straight With Key Groove		SKD11	P. 71			
		SKD11+				SKD11+				
With Tapped Hole		SKD11	P. 65			For Stripper Plate			SKD11	P. 72
		SKD11+							SKD11+	
		SKH51		SKH51						
		P-HSS		P-HSS						
With Key Groove		SKD11	P. 67	Straight For Stripper Plate		SKD11	P.73			
		SKD11+				SKD11+				
		SKH51				SKH51				
		P-HSS				P-HSS				
Straight		SKD11	P. 69							
		SKD11+								
		SKH51								
		P-HSS								

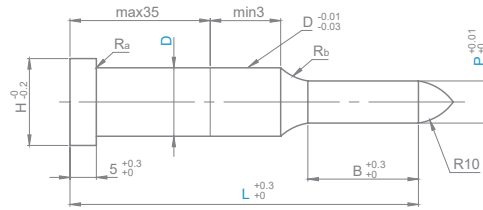
ตารางวัสดุพ่นซ์ | Punch Material Chart

Material	Hardness	Usage
 SKD11	60-63 HRC	วัสดุที่ใช้ทั่วไปในงานพ่นซ์ สำหรับงานแผ่นโลหะบาง A general purpose cold work tool steel for punching and forming of thin material.
 SKD11+	62-63 HRC	วัสดุที่ถูกพัฒนาขึ้นมาสำหรับงานพ่นซ์ ฟอรั่มมิ่ง และ deep forming สำหรับงานแผ่นโลหะบางถึงหนา ด้วยคุณสมบัติที่ดีกว่า ทำให้ SKD11+ ลดการแตกและมียอายุการใช้งานที่ยืนยาวคุ้มค่ากว่าวัสดุ SKD11 ทั่วไป An improved general purpose cold work tool steel for punch, forming, and deep-forming of thin to thick material. It is less prone to chipping, cracking, and has superior wear resistance than normal SKD11, making SKD11+ a value choice.
 SKH51	61-64 HRC	เหล็กไฮสปีดสำหรับงานพ่นซ์และฟอรั่มมิ่ง ใช้กับวัสดุตีบประเภทเหล็กคาร์บอนและวัสดุ abrasive วัสดุ SKH51 มีความทนทานสูง และความแข็งที่สูง สามารถนำไปชุบโค้ดติ้ง PVD เพิ่มอายุการใช้งานได้เป็นอย่างดี High-Speed Steel for punching and forming of carbon steel or other abrasive materials. This steel grade provides higher wear resistance and compressive strength than other cold work tool steels. It accepts PVD surface treatment very well.
 P-HSS Powder High-Speed Steel	64-67 HRC	วัสดุตัวนี้คล้ายกับวัสดุ SKH51 เกือบทุกประการ แต่จากการผลิตด้วยเทคนิคเฉพาะ ทำให้มีความแข็งแรงสูงกว่า SKH51 มาก This powered High-Speed Steel provides the similar benefits as SKH51 steel. However, due to the powder metallurgy process of this steel, it has higher the toughness of SKH51.

ไพลอตพินซ์

Pilot Punch - ไพลอตพินซ์

ปลายมน
Radius Tip



FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating

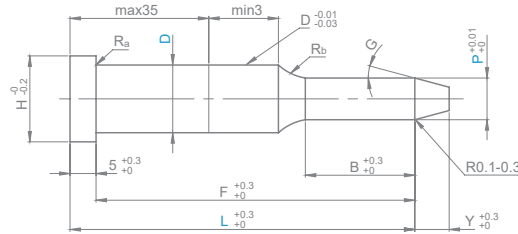


1. เลือก วัสดุพินซ์ และ วัสดุชุบ
2. เลือกความยาวปลาย
3. เลือกขนาด

1. Choose material and coating
2. Choose tip length
3. Choose dimensions

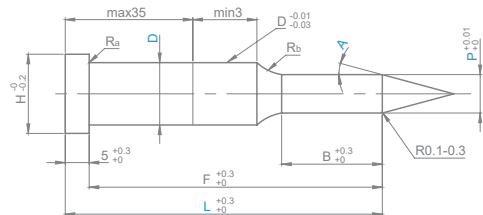
Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	STA	L-STA	TN-STA	H-STA	TC-STA	-	S : Short
SKD11+	62-63HRC	DSTA	L-DSTA	TN-DSTA	H-DSTA	TC-DSTA	TD-DSTA	
SKH51	61-64HRC	HSTA	L-HSTA	TN-HSTA	H-HSTA	TC-HSTA	-	
P-HSS	64-67HRC	PSTA	L-PSTA	TN-PSTA	H-PSTA	TC-PSTA	-	X : Extra

ปลายเรียว
Taper Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	TPA	L-TPA	TN-TPA	H-TPA	TC-TPA	-	S : Short
SKD11+	62-63HRC	DTPA	L-DTPA	TN-DTPA	H-DTPA	TC-DTPA	TD-DTPA	
SKH51	61-64HRC	HTPA	L-HTPA	TN-HTPA	H-HTPA	TC-HTPA	-	
P-HSS	64-67HRC	PTPA	L-PTPA	TN-PTPA	H-PTPA	TC-PTPA	-	X : Extra

ปลายแหลม
Point Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	ATA	L-ATA	TN-ATA	H-ATA	TC-ATA	-	S : Short
SKD11+	62-63HRC	DATA	L-DATA	TN-DATA	H-DATA	TC-DATA	TD-DATA	
SKH51	61-64HRC	HATA	L-HATA	TN-HATA	H-HATA	TC-HATA	-	
P-HSS	64-67HRC	PATA	L-PATA	TN-PATA	H-PATA	TC-PATA	-	X : Extra

ORDER 25 + Order Code - L - P - A
EXAMPLE 25STA-S10-72-P9.19
25H-DATA-L13-62-P11.99-A25

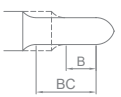
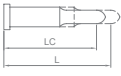
⚠ คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only

⚠ A(10) available for P < 6.0mm
A(15) available for P < 15.0mm
A(20) available for P < 20.0mm

Order Code				L							P 0.01 mm increment	A	B	H	Y
Model	Tip Length	D m5													
Model Code		10	+0.012 +0.006	42	52	62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	15 (L42 B=10)	13	5
		13	+0.015 +0.007	42	52	62	72	82	92	102	6.00 - 12.99			16	8
		16		42	52	62	72	82	92	102	10.00 - 15.99		21 (L42 B=10)	19	
		20	+0.017 +0.008	42	52	62	72	82	92	102	13.00 - 19.99			23	
		25		42	52	62	72	82	92	102	18.00 - 24.99			28	
		10	+0.012 +0.006		52	62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	21	13	5
		13	+0.015 +0.007		52	62	72	82	92	102	6.00 - 12.99			16	8
		16				62	72	82	92	102	10.00 - 15.99		27	19	
		20	+0.017 +0.008			62	72	82	92	102	13.00 - 19.99			23	
		25				62	72	82	92	102	18.00 - 24.99			28	
		10	+0.012 +0.006			62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	32	13	5
		13	+0.015 +0.007			62	72	82	92	102	6.00 - 12.99			16	8
		16					72	82	92	102	10.00 - 15.99		42	19	
		20	+0.017 +0.008				72	82	92	102	13.00 - 19.99			23	
		25					72	82	92	102	18.00 - 24.99			28	

การปรับแต่งเสริมพื้นฐาน | Basic Options

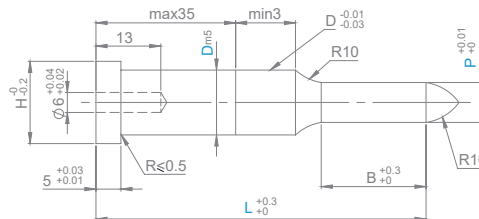
OPTION 25 + Order Code - L (LC) - P (PC) - A - BC
EXAMPLE 25STA-S10-LC75-PC2.90-BC15.5

Options			ปลายมน Radius Tip	ปลายเรียว Taper Tip	ปลายแหลม Point Tip																							
ปรับแต่งค่า P Change P		PC	$PC \geq Pmin/2$ (0.01mm increment)	$PC \geq Pmin/2 \geq 1.00$ (0.01mm increment)	<table><tr><th>P (PC)</th><th>Bmax.</th></tr><tr><td>1.00 - 1.19</td><td>15</td></tr><tr><td>1.20 - 1.49</td><td>20</td></tr><tr><td>1.50 - 1.99</td><td>20</td></tr><tr><td>2.00 - 2.49</td><td>30</td></tr><tr><td>2.50 - 2.99</td><td>30</td></tr><tr><td>3.00 - 3.49</td><td>35</td></tr><tr><td>3.50 - 3.99</td><td>35</td></tr><tr><td>4.00 - 4.99</td><td>45</td></tr><tr><td>5.00 - 5.99</td><td>45</td></tr><tr><td>6.00 +</td><td>60</td></tr></table>		P (PC)	Bmax.	1.00 - 1.19	15	1.20 - 1.49	20	1.50 - 1.99	20	2.00 - 2.49	30	2.50 - 2.99	30	3.00 - 3.49	35	3.50 - 3.99	35	4.00 - 4.99	45	5.00 - 5.99	45	6.00 +	60
					P (PC)	Bmax.																						
					1.00 - 1.19	15																						
					1.20 - 1.49	20																						
					1.50 - 1.99	20																						
2.00 - 2.49	30																											
2.50 - 2.99	30																											
3.00 - 3.49	35																											
3.50 - 3.99	35																											
4.00 - 4.99	45																											
5.00 - 5.99	45																											
6.00 +	60																											
ปรับแต่งค่า B Change B		BC	$2 \leq BC \leq Bmax$ 0.1mm increment	$2 \leq BC \leq Bmax$ 0.1mm increment	<table><tr><td>2.00 - 3.99</td><td>35</td></tr><tr><td>4.00 - 5.99</td><td>45</td></tr><tr><td>6.00 +</td><td>60</td></tr></table>		2.00 - 3.99	35	4.00 - 5.99	45	6.00 +	60																
					2.00 - 3.99	35																						
					4.00 - 5.99	45																						
					6.00 +	60																						
ปรับแต่งค่า L Change L		LC	$25+B(BC) \leq LC < L$ (0.1mm increment)																									

โฟลตพินช์

Pilot Punch With Dowel Hole - โฟลตพินช์ มีรูโดเวลพิน

ปลายมน
Radius Tip



FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



1. เลือก วัสดุพินช์ และ วัสดุชุบ

2. เลือกความยาวปลาย

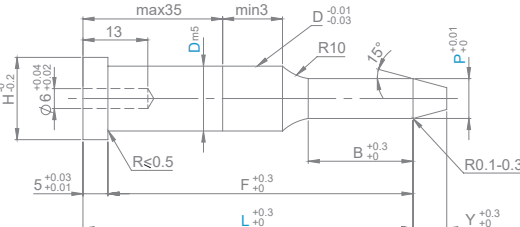
3. เลือกขนาด
1. Choose material and coating

2. Choose tip length

3. Choose dimensions

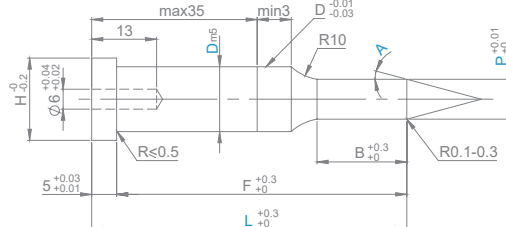
Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	STA	L-STA	TN-STA	H-STA	TC-STA	-	S : Short
SKD11+	62-63HRC	DSTA	L-DSTA	TN-DSTA	H-DSTA	TC-DSTA	TD-DSTA	L : Long X : Extra

ปลายเรียว
Taper Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	TPA	L-TPA	TN-TPA	H-TPA	TC-TPA	-	S : Short
SKD11+	62-63HRC	DTPA	L-DTPA	TN-DTPA	H-DTPA	TC-DTPA	TD-DTPA	L : Long X : Extra

ปลายแหลม
Point Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	ATA	L-ATA	TN-ATA	H-ATA	TC-ATA	-	S : Short
SKD11+	62-63HRC	DATA	L-DATA	TN-DATA	H-DATA	TC-DATA	TD-DATA	L : Long X : Extra

Pilot Punch With Dowel Hole - ไพลอตพังก์ มีรูโดเวลพิน

OIL FREE™

ORDER
EXAMPLE

25 + Order Code - L - P - A

25STA-S-C10-72-P9.19

25H-DATA-L-C10-62-P9.99-A20

! คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only! A(10) available for P < 9.0mm
A(15) available for P < 15.0mm
A(20) available for P < 20.0mm

Order Code				L											P 0.01 mm increment	A	B	H	Y	
Model	Tip Length	Dowel	D m5																	
Model Code		-C	10	+0.012 +0.006	42	52	62	72	82	92	102	112	122	132	142	3.00 - 9.99	(10) (15) (20) 25 30	15 (L42 B=10)	13	5
			13	+0.015 +0.007												6.00 - 12.99		16	8	
			16	+0.015 +0.007												10.00 - 15.99		21 (L42 B=10)	19	
			20	+0.017 +0.008												13.00 - 19.99			23	
			25	+0.017 +0.008												18.00 - 24.99			28	
			10	+0.012 +0.006	52	62	72	82	92	102	112	122	132	142	3.00 - 9.99	(10) (15) (20) 25 30	21	13	5	
			13	+0.015 +0.007											6.00 - 12.99			16	8	
			16	+0.015 +0.007	52	62	72	82	92	102	112	122	132	142	10.00 - 15.99		27	19		
			20	+0.017 +0.008											13.00 - 19.99			23		
			25	+0.017 +0.008											18.00 - 24.99			28		
			10	+0.012 +0.006		62	72	82	92	102	112	122	132	142	3.00 - 9.99	(10) (15) (20) 25 30	32	13	5	
			13	+0.015 +0.007											6.00 - 12.99			16	8	
			16	+0.015 +0.007		72	82	92	102	112	122	132	142	10.00 - 15.99	42		19			
			20	+0.017 +0.008										13.00 - 19.99			23			
			25	+0.017 +0.008										18.00 - 24.99			28			

การปรับแต่งเสริม | Options

OPTION
EXAMPLE

25 + Order Code - L (LC) - P (PC) - A - (R0,RT0) - (Others)

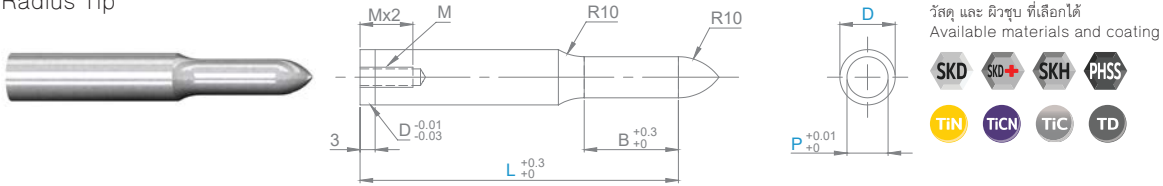
25STA-S-C10-LC76-PC2.90-RT0-KC

Options	Code	ปลายมน Radius Tip	ปลายเรียว Taper Tip	ปลายแหลม Point Tip
ปรับแต่งค่า P Change P	PC	PC ≥ Pmin/2 0.01mm increment P (PC) Bmax 1.00 - 1.99 20 2.00 - 3.99 35	PC ≥ Pmin/2 ≥ 1.00 0.01mm increment P (PC) Bmax 1.50 - 1.99 20 2.00 - 2.99 30	
ปรับแต่งค่า B Change B	BC	4.00 - 5.99 45 6.00 + 60	3.00 - 3.99 35 4.00 - 5.99 45 6.00 + 60	
ไม่ลบมุมปลาย No Rounding	RT0	Only for P<8	-	Available for all sizes
ไม่มี R No R	R0	-	Available for all sizes	
ปลายมนเรียบ Flatten tip	RLC	2 ≤ RLC < √P(10-P/4) 0.1mm increment (only for P<8)	-	
ปรับแต่งค่า Y Change Y	YC	-	1 ≤ YC ≤ Ymax 0.1mm increment	-
ปรับพิทกั P P tolerance	PKC	P ^{+0.01} ₀ ⇒ +0.005 0		
ปรับแต่งค่า L Change L	LC	25+B(BC) ≤ LC < L 0.1mm increment		
ปรับพิทกั L L tolerance	LKC	-	P ^{+0.3} ₀ ⇒ +0.05 0 (can not use with FKC)	
ปาล็อค Side Lock	KC	เจาะปาล็อคข้างเดียว locking position on one side		
	WKC	เจาะปาล็อคสองข้างขนานกัน locking position on two parallel sides		
ปรับแต่งค่า H Change H	HC	D ≤ HC < H 0.1mm increment		
ความหนา Flange Length	TC	2 ≤ TC < 5 0.1mm increment *L will be shorter by 5-TC. if order with LC overall length equal LC		
ปรับพิทกั F F tolerance	FKC	-	F ^{+0.3} ₀ ⇒ +0.05 0 (can not use with LKC)	
ไม่มีนำสวม No press lead	NDC	ℓ ≥ 3 ⇒ ℓ = 0		

โฟลตพั่นซ์

Pilot Punch With Tapped Hole - โฟลตพั่นซ์ มีรูตัวปเกลียว

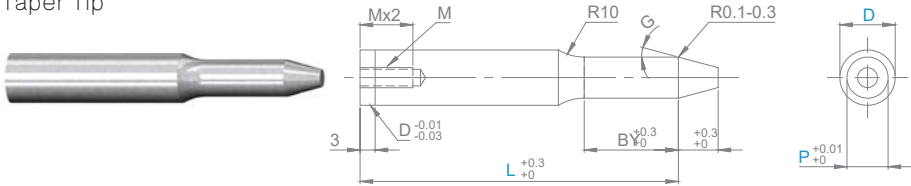
ปลายมน
Radius Tip



1. เลือก วัสดุพั่นซ์ และ วัสดุชุบ 1. Choose material and coating
2. เลือกความยาวปลาย 2. Choose tip length
3. เลือกขนาด 3. Choose dimensions

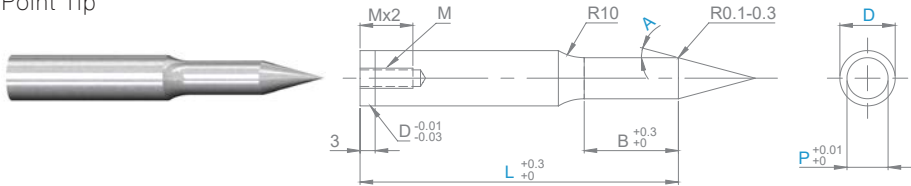
Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	STMA	L-STMA	TN-STMA	H-STMA	TC-STMA	-	S : Short 
SKD11+	62-63HRC	DSTMA	L-DSTMA	TN-DSTMA	H-DSTMA	TC-DSTMA	TD-DSTMA	L : Long 
SKH51	61-64HRC	HSTMA	L-HSTMA	TN-HSTMA	H-HSTMA	TC-HSTMA	-	X : Extra 
P-HSS	64-67HRC	PSTMA	L-PSTMA	TN-PSTMA	H-PSTMA	TC-PSTMA	-	

ปลายเรียว
Taper Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	TPMA	L-TPMA	TN-TPMA	H-TPMA	TC-TPMA	-	S : Short 
SKD11+	62-63HRC	DTPMA	L-DTPMA	TN-DTPMA	H-DTPMA	TC-DTPMA	TD-DTPMA	L : Long 
SKH51	61-64HRC	HTPMA	L-HTPMA	TN-HTPMA	H-HTPMA	TC-HTPMA	-	X : Extra 
P-HSS	64-67HRC	PTPMA	L-PTPMA	TN-PTPMA	H-PTPMA	TC-PTPMA	-	

ปลายแหลม
Point Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	ATMA	L-ATMA	TN-ATMA	H-ATMA	TC-ATMA	-	S : Short 
SKD11+	62-63HRC	DATMA	L-DATMA	TN-DATMA	H-DATMA	TC-DATMA	TD-DATMA	L : Long 
SKH51	61-64HRC	HATMA	L-HATMA	TN-HATMA	H-HATMA	TC-HATMA	-	X : Extra 
P-HSS	64-67HRC	PATMA	L-PATMA	TN-PATMA	H-PATMA	TC-PATMA	-	

Pilot Punch With Tapped Hole - ไพลอตพังก์ มีรูต๊าปเกลียว

ORDER 25 + Order Code - L - P - A
EXAMPLE 25STMA-S10-52-P5.00

OF OIL FREE™

! คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only

! A(10) available for P < 6.0mm
A(15) available for P < 15.0mm
A(20) available for P < 20.0mm

Order Code				L							P 0.01 mm increment	A	B	H	Y
Model	Tip Length	D m5													
Model Code		10	+0.012 +0.006	42	52	62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	15 (L42 B=10)	5	5
		13	+0.015 +0.007	42	52	62	72	82	92	102	6.00 - 12.99				
		16		42	52	62	72	82	92	102	10.00 - 15.99				
		20		+0.017 +0.008	42	52	62	72	82	92	102		13.00 - 19.99		
		25	42		52	62	72	82	92	102	18.00 - 24.99				
		10	+0.012 +0.006		52	62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	21	5	5
		13	+0.015 +0.007		52	62	72	82	92	102	6.00 - 12.99				
		16			62	72	82	92	102	10.00 - 15.99	27		6	8	
		20	+0.017 +0.008			62	72	82	92	102					13.00 - 19.99
		25			62	72	82	92	102	18.00 - 24.99					
		10	+0.012 +0.006			62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	32	5	5
		13	+0.015 +0.007			62	72	82	92	102	6.00 - 12.99				
		16				72	82	92	102	10.00 - 15.99	42		6	8	
		20	+0.017 +0.008			72	82	92	102	13.00 - 19.99					
		25				72	82	92	102	18.00 - 24.99					

การปรับแต่งเสริม | Options

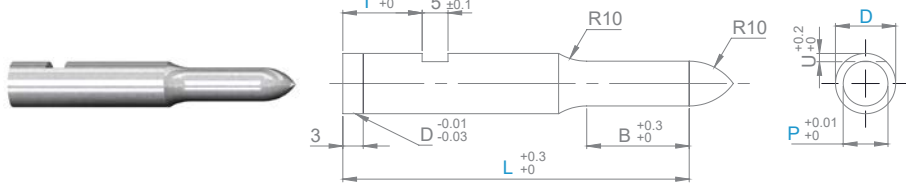
OPTION Order Code - L (LC) - P (PC) - A - (R0,RT0) - (Others)
EXAMPLE 25STAMA-S10-LC76-PC2.90-RT0-SKC

Options	Code	ปลายมน Radius Tip	ปลายเรียว Taper Tip	ปลายแหลม Point Tip
ปรับแต่งค่า P Change P	PC	PC ≥ Pmin/2 0.01mm increment P (PC) Bmax: 1.00 - 1.99 20 2.00 - 3.99 35	PC ≥ Pmin/2 ≥ 1.00 0.01mm increment P (PC) Bmax: 1.00 - 1.19 15 1.20 - 1.99 20 2.00 - 2.99 30	
ปรับแต่งค่า B Change B	BC	4.00 - 5.99 45 6.00 + 60	3.00 - 3.99 35 4.00 - 5.99 45 6.00 + 60	
ไม่ลบมุมปลาย No Rounding	RT0	Only for P<8	-	Available for all sizes
ไม่มี R No R	R0	-	Available for all sizes	
ปลายมนเรียบ Flatten tip	RLC	2 ≤ BC ≤ √P(10-P/4) 0.1mm increment (only for P<8)	-	
ปรับแต่งค่า Y Change Y	YC	-	1 ≤ YC ≤ Ymax 0.1mm increment	-
ปรับพิทัด P P tolerance	PKC	P ^{+0.01} ₀ ⇒ +0.005 0		
ปรับแต่งค่า L Change L	LC	25-(B)(BC) ≤ LC < L 0.1mm increment		
ปรับพิทัด L L tolerance	LKC	-	P ^{+0.3} ₀ ⇒ +0.05 0 (can not use with FK)	
บล็อกล็อค Side Lock	KC	Only for D > 5		
	WK	Only for D > 5		
เจียรบ่างตัว Side Lock on whole body	SKC	P ≤ D - 2.2 Only for D > 6		

โฟลตพินช์

Pilot Punch With Key Groove - โฟลตพินช์ มีร่องลิ้น

ปลายมน
Radius Tip



FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



1. เลือก วัสดุพินช์ และ วัสดุชุบ

2. เลือกความยาวปลาย

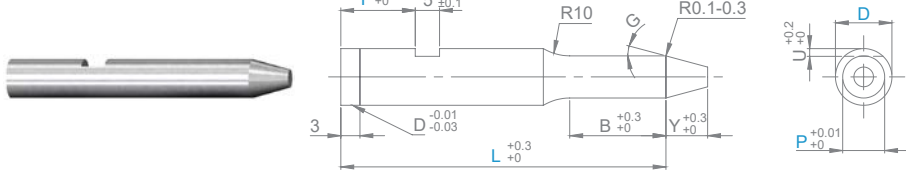
3. เลือกขนาด
1. Choose material and coating

2. Choose tip length

3. Choose dimensions

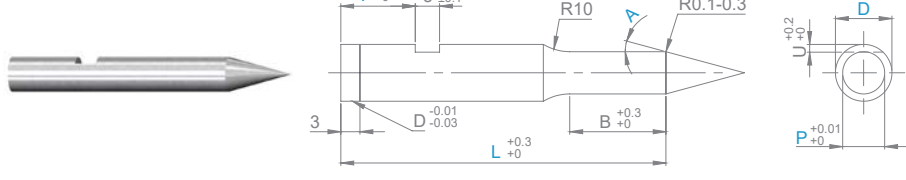
Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	25STKA	25L-STKA	25TN-STKA	25H-STKA	25TC-STKA	-	S : Short  L : Long  X : Extra 
SKD11+	62-63HRC	25DSTKA	25L-DSTKA	25TN-DSTKA	25H-DSTKA	25TC-DSTKA	25TD-DSTKA	
SKH51	61-64HRC	25HSTKA	25L-HSTKA	25TN-HSTKA	25H-HSTKA	25TC-HSTKA	-	
P-HSS	64-67HRC	25PSTKA	25L-PSTKA	25TN-PSTKA	25H-PSTKA	25TC-PSTKA	-	

ปลายเรียว
Taper Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	25TPKA	25L-TPKA	25TN-TPKA	25H-TPKA	25TC-TPKA	-	S : Short  L : Long  X : Extra 
SKD11+	62-63HRC	25DTPKA	25L-DTPKA	25TN-DTPKA	25H-DTPKA	25TC-DTPKA	25TD-DTPKA	
SKH51	61-64HRC	25HTPKA	25L-HTPKA	25TN-HTPKA	25H-HTPKA	25TC-HTPKA	-	
P-HSS	64-67HRC	25PTPKA	25L-PTPKA	25TN-PTPKA	25H-PTPKA	25TC-PTPKA	-	

ปลายแหลม
Point Tip



Material	Hardness	Model						Tip Length (ความยาวปลาย)
		Normal (No Coating)	Lapping Finish	TIN Coating	TiCN Coating	TiC Coating	TD Coating	
SKD11	60-63HRC	25ATKA	25L-ATKA	25TN-ATKA	25H-ATKA	25TC-ATKA	-	S : Short  L : Long  X : Extra 
SKD11+	62-63HRC	25DATKA	25L-DATKA	25TN-DATKA	25H-DATKA	25TC-DATKA	25TD-DATKA	
SKH51	61-64HRC	25HATKA	25L-HATKA	25TN-HATKA	25H-HATKA	25TC-HATKA	-	
P-HSS	64-67HRC	25PATKA	25L-PATKA	25TN-PATKA	25H-PATKA	25TC-PATKA	-	

Pilot Punch With Key Groove - ไพลอตพังก์ มีร่องลิ้น

OIL FREE™

ORDER
EXAMPLE

25 + Order Code - L - P - A

25STKA-S10-72-P9.19

25H-DATKA-L10-62-P9.10-A20

! ค่า A สำหรับปลายแหลมเท่านั้น
A for point tip only! A(10) available for P < 6.0mm
A(15) available for P < 15.0mm

Order Code				L							P 0.01 mm increment	A	T 0.1mm increment	B	Y	U
Model	Tip Length	D m5														
Model Code		10	+0.012 +0.006	42	52	62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	T > 5.0	15 (L42 B=10)	5	1.5
		13	+0.015 +0.007	42	52	62	72	82	92	102	6.00 - 12.99			21 (L42 B=10)	8	
		16		42	52	62	72	82	92	102	10.00 - 15.99					
		10	+0.012 +0.006		52	62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	T > 5.0	21	5	1.5
		13	+0.015 +0.007		52	62	72	82	92	102	6.00 - 12.99			27	8	
		16				62	72	82	92	102	10.00 - 15.99					
		10	+0.012 +0.006			62	72	82	92	102	3.00 - 9.99	(10) (15) (20) 25 30	T > 5.0	32	5	1.5
		13	+0.015 +0.007			62	72	82	92	102	6.00 - 12.99			42	8	
		16					72	82	92	102	10.00 - 15.99					

การปรับแต่งเสริม | Options

OPTION
EXAMPLE

Order Code - L (LC) - P (PC) - A - (R0,RT0) - (Others)

25STKA-S10-LC76-PC2.90-RT0-WKD

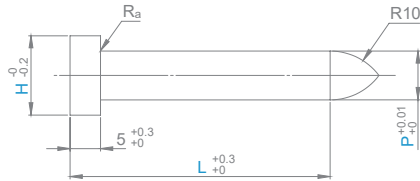
Options	Code	ปลายมน Radius Tip	ปลายเรียว Taper Tip	ปลายแหลม Point Tip
ปรับแต่งค่า P Change P		PC	PC ≥ Pmin/2 0.01mm increment	
			PC ≥ Pmin/2 ≥ 1.00 0.01mm increment	
			P (PC)	Bmax
			0.50 - 0.99	10
ปรับแต่งค่า B Change B		BC	2 ≤ BC ≤ Bmax 0.1mm increment (only for L(LC) ≥ BC*25)	
			P (PC)	Bmax
			1.00 - 1.99	20
			2.00 - 2.99	30
ไม่ลบมุมปลาย No Rounding		RT0	Only for P<8	
			-	
			Available for all sizes	
			-	
ไม่มี R No R		R0	-	
			Available for all sizes	
			-	
			-	
ปลายมนเรียบ Flatten tip		RLC	2 ≤ RLC ≤ √P(10-P/4) 0.1mm increment (only for P<8)	
			-	
			-	
			-	

Options	Code	ปลายมน Radius Tip	ปลายเรียว Taper Tip	ปลายแหลม Point Tip								
ปรับแต่งค่า Y Change Y	YC	-	$1 \leq YC \leq Y_{max}$ 0.1mm increment	-								
ปรับพิทัด P P tolerance	PKC	$P^{+0.01}_0 \Rightarrow +0.005_0$										
ปรับแต่งค่า L Change L	LC	$25+B(BC) \leq LC < L$ 0.1mm increment										
ปรับพิทัด L L tolerance	LKC	-	$P^{+0.3}_0 \Rightarrow +0.05_0$ (can not use with FKC)									
ลิ้นสองข้าง Two Keys	WKD	ลิ้นสองข้างขนานกัน Two sides parallel key grooves										
ปรับพิทัด T T tolerance	TKC	$T^{+0.05}_0 \Rightarrow +0_{-0.02}$										
ปรับความลึกลิ้น Change key depth	UK	<table><tr><th>D</th><th>UK</th></tr><tr><td>4 - 5</td><td>0.7</td></tr><tr><td>6</td><td>1.2</td></tr><tr><td>8 - 16</td><td>1.7</td></tr></table>			D	UK	4 - 5	0.7	6	1.2	8 - 16	1.7
D	UK											
4 - 5	0.7											
6	1.2											
8 - 16	1.7											

ไฟลอปันช์

Straight Pilot Punch - ไฟลอปันช์ แบบตรง

ปลายมน
Radius Tip



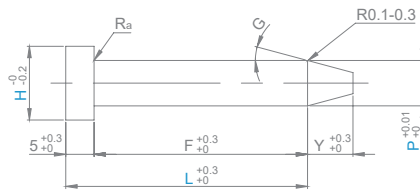
FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	STC	L-STC	TN-STC	H-STC	TC-STC	-
SKD11+	62-63HRC	DSTC	L-DSTC	TN-DSTC	H-DSTC	TC-DSTC	TD-DSTC
SKH51	61-64HRC	HSTC	L-HSTC	TN-HSTC	H-HSTC	TC-HSTC	-
P-HSS	64-67HRC	PSTC	L-PSTC	TN-PSTC	H-PSTC	TC-PSTC	-

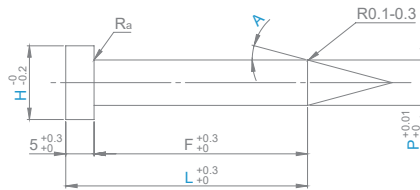
ปลายเรียว
Taper Tip



1. เลือก วัสดุพันช์ และ วัสดุชุบ
2. เลือกความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip length
3. Choose dimensions

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	TTC	L-TTC	TN-TTC	H-TTC	TC-TTC	-
SKD11+	62-63HRC	DTTC	L-DTTC	TN-DTTC	H-DTTC	TC-DTTC	TD-DTTC
SKH51	61-64HRC	HTTC	L-HTTC	TN-HTTC	H-HTTC	TC-HTTC	-
P-HSS	64-67HRC	PTTC	L-PTTC	TN-PTTC	H-PTTC	TC-PTTC	-

ปลายแหลม
Point Tip



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	ATC	L-ATC	TN-ATC	H-ATC	TC-ATC	-
SKD11+	62-63HRC	DATC	L-DATC	TN-DATC	H-DATC	TC-DATC	TD-DATC
SKH51	61-64HRC	HATC	L-HATC	TN-HATC	H-HATC	TC-HATC	-
P-HSS	64-67HRC	PATC	L-PATC	TN-PATC	H-PATC	TC-PATC	-

ORDER 25 + Order Code - L - P - A
EXAMPLE 25STC10-72-P9.19

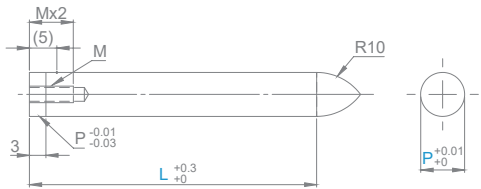
! คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only

! A(10) available for P < 6.0mm
A(15) available for P < 15.0mm
A(20) available for P < 20.0mm

Order Code		L							P 0.01 mm Increment	A	T	Y	H
Model	No.												
Model Code	10	42	52	62	72	82	92	102	8.00 - 10.00	(10) (15) (20) 25 30	5	8	13
	13	42	52	62	72	82	92	102	10.00 - 13.00				16
	16	42	52	62	72	82	92	102	13.00 - 16.00				19
	20		52	62	72				16.00 - 20.00				23
	25		52	62	72				20.00 - 25.00				28

Straight Pilot Punch With Tapped Hole - ไพลอตพังก์ แบบตรงมีรูตัดปลายเกลียว

ปลายมน
Radius Tip



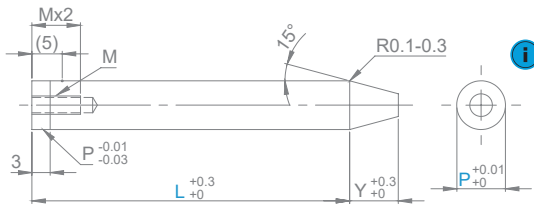
FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	STMC	L-STMC	TN-STMC	H-STMC	TC-STMC	-
SKD11+	62-63HRC	DSTMC	L-DSTMC	TN-DSTMC	H-DSTMC	TC-DSTMC	TD-DSTMC
SKH51	61-64HRC	HSTMC	L-HSTMC	TN-HSTMC	H-HSTMC	TC-HSTMC	-
P-HSS	64-67HRC	PSTMC	L-PSTMC	TN-PSTMC	H-PSTMC	TC-PSTMC	-

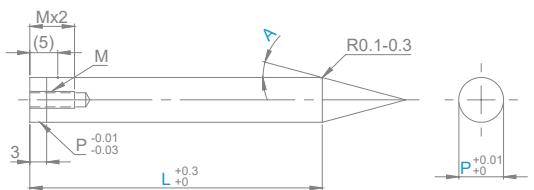
ปลายเรียว
Taper Tip



1. เลือก วัสดุพังก์ และ วัสดุชุบ
2. เลือกความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip length
3. Choose dimensions

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	TPMC	L-TPMC	TN-TPMC	H-TPMC	TC-TPMC	-
SKD11+	62-63HRC	DTPMC	L-DTPMC	TN-DTPMC	H-DTPMC	TC-DTPMC	TD-DTPMC
SKH51	61-64HRC	HTPMC	L-HTPMC	TN-HTPMC	H-HTPMC	TC-HTPMC	-
P-HSS	64-67HRC	PTPMC	L-PTPMC	TN-PTPMC	H-PTPMC	TC-PTPMC	-

ปลายแหลม
Point Tip



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	ATMC	L-ATMC	TN-ATMC	H-ATMC	TC-ATMC	-
SKD11+	62-63HRC	DATMC	L-DATMC	TN-DATMC	H-DATMC	TC-DATMC	TD-DATMC
SKH51	61-64HRC	HATMC	L-HATMC	TN-HATMC	H-HATMC	TC-HATMC	-
P-HSS	64-67HRC	PATMC	L-PATMC	TN-PATMC	H-PATMC	TC-PATMC	-

ORDER
EXAMPLE 25 + Order Code - L - P - A
25STMC10-72-P9.19

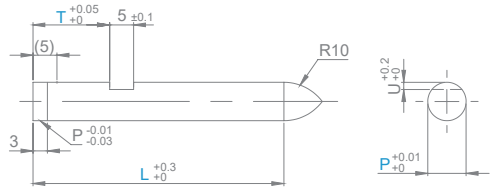
⚠ คำ A สำหรับปลายแหลมเท่านั้น ⚠ A(15) available for P < 15.0 mm.
A for point tip only A(20) available for P < 20.0 mm.

Order Code		L						P 0.01 mm increment	A	Y	M
Model	No.										
Model Code	10	42	52	62	72	82	92	8.00 - 10.00	(15) (20) 25 30	5	4
	13							10.00 - 13.00			
	16							13.00 - 16.00		8	6
	20							16.00 - 20.00			
	25							20.00 - 25.00			

โฟลตพั่นซ์

Straight Pilot Punch With Key Groove - โฟลตพั่นซ์ แบบตรงมีร่องลิ้น

ปลายมน
Radius Tip



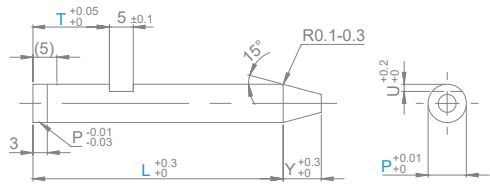
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วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	STKC	L-STKC	TN-STKC	H-STKC	TC-STKC	-
SKD11+	62-63HRC	DSTKC	L-DSTKC	TN-DSTKC	H-DSTKC	TC-DSTKC	TD-DSTKC
SKH51	61-64HRC	HSTKC	L-HSTKC	TN-HSTKC	H-HSTKC	TC-HSTKC	-
P-HSS	64-67HRC	PSTKC	L-PSTKC	TN-PSTKC	H-PSTKC	TC-PSTKC	-

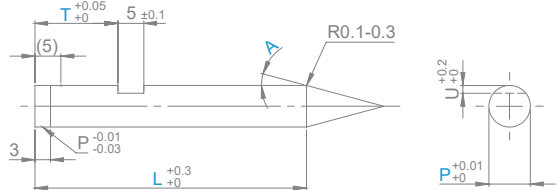
ปลายเรียว
Taper Tip



1. เลือก วัสดุพั่นซ์ และ วัสดุชุบ
2. เลือกความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip length
3. Choose dimensions

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	TPKC	L-TPKC	TN-TPKC	H-TPKC	TC-TPKC	-
SKD11+	62-63HRC	DTPKC	L-DTPKC	TN-DTPKC	H-DTPKC	TC-DTPKC	TD-DTPKC
SKH51	61-64HRC	HTPKC	L-HTPKC	TN-HTPKC	H-HTPKC	TC-HTPKC	-
P-HSS	64-67HRC	PTPKC	L-PTPKC	TN-PTPKC	H-PTPKC	TC-PTPKC	-

ปลายแหลม
Point Tip



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	ATKC	L-ATKC	TN-ATKC	H-ATKC	TC-ATKC	-
SKD11+	62-63HRC	DATKC	L-DATKC	TN-DATKC	H-DATKC	TC-DATKC	TD-DATKC
SKH51	61-64HRC	HATKC	L-HATKC	TN-HATKC	H-HATKC	TC-HATKC	-
P-HSS	64-67HRC	PATKC	L-PATKC	TN-PATKC	H-PATKC	TC-PATKC	-

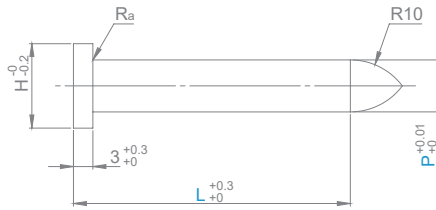
ORDER 25 + Order Code - L - P - A
EXAMPLE 25STKC10-72-P9.19-T20

! คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only
! A(10) available for P < 6.0 mm.
A(15) available for P < 15.0 mm.

Order Code		L						P 0.01 mm increment	A	T 0.1 mm increment	Y	U
Model	No.											
Model Code	10	42	52	62	72	82	92	8.00 - 10.00	(10) (15) 20 25 30	T > 5.0	5	1.5
	13	42	52	62	72	82	92	10.00 - 13.00			8	
	16	42	52	62	72	82	92	13.00 - 16.00				

Pilot Punch For Stripper Plate - ไพลอดพังก์ สำหรับยึดกับแผ่นสตริปเปอร์

ปลายมน
Radius Tip



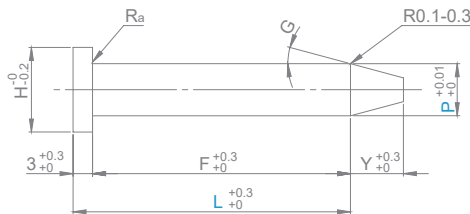
OF OIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	SPT	L-SPT	TN-SPT	H-SPT	TC-SPT	-
SKD11+	62-63HRC	DSPT	L-DSPT	TN-DSPT	H-DSPT	TC-DSPT	TD-DSPT
SKH51	61-64HRC	HSPT	L-HSPT	TN-HSPT	H-HSPT	TC-HSPT	-
P-HSS	64-67HRC	PSPT	L-PSPT	TN-PSPT	H-PSPT	TC-PSPT	-

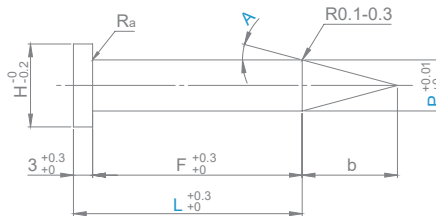
ปลายเรียว
Taper Tip



- i** 1. เลือก วัสดุพังก์ และ วัสดุชุบ
2. เลือกความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip length
3. Choose dimensions

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	TPT	L-TPT	TN-TPT	H-TPT	TC-TPT	-
SKD11+	62-63HRC	DTPT	L-DTPT	TN-DTPT	H-DTPT	TC-DTPT	TD-DTPT
SKH51	61-64HRC	HTPT	L-HTPT	TN-HTPT	H-HTPT	TC-HTPT	-
P-HSS	64-67HRC	PTPT	L-PTPT	TN-PTPT	H-PTPT	TC-PTPT	-

ปลายแหลม
Point Tip



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TiN Coating	TiCN Coating	TiC Coating	TD Coating
SKD11	60-63HRC	APT	L-APT	TN-APT	H-APT	TC-APT	-
SKD11+	62-63HRC	DAPT	L-DAPT	TN-DAPT	H-DAPT	TC-DAPT	TD-DAPT
SKH51	61-64HRC	HAPT	L-HAPT	TN-HAPT	H-HAPT	TC-HAPT	-
P-HSS	64-67HRC	PAPT	L-PAPT	TN-PAPT	H-PAPT	TC-PAPT	-

ORDER 25 + Order Code - L - P - A
EXAMPLE 25SPT10-30-P9.19

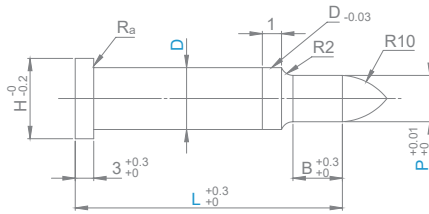
! คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only

Order Code		L 0.1 mm increment	P 0.01 mm increment	A	Y	H
Model	No.					
Model Code	10	10.0 - 40.0	8.00 - 10.00	15	5	13
	13		10.00 - 13.00	20	8	16
	16		13.00 - 16.00	25		19

โฟลตพินช์

Straight Pilot Punch For Stripper Plate - โฟลตพินช์ แบบตรง สำหรับยึดกับแผ่นสตริปเปอร์

ปลายมน
Radius Tip



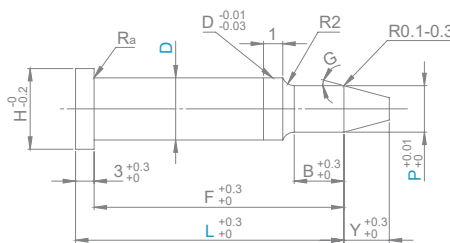
FOIL FREE™

วัสดุ และ ผิวชุบ ที่เลือกได้
Available materials and coating



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TIN Coating	TICN Coating	TIC Coating	TD Coating
SKD11	60-63HRC	SPTP	L-SPTP	TN-SPTP	H-SPTP	TC-SPTP	-
SKD11+	62-63HRC	DSPTP	L-DSPTP	TN-DSPTP	H-DSPTP	TC-DSPTP	TD-DSPTP
SKH51	61-64HRC	HSPTP	L-HSPTP	TN-HSPTP	H-HSPTP	TC-HSPTP	-
P-HSS	64-67HRC	PSPTP	L-PSPTP	TN-PSPTP	H-PSPTP	TC-PSPTP	-

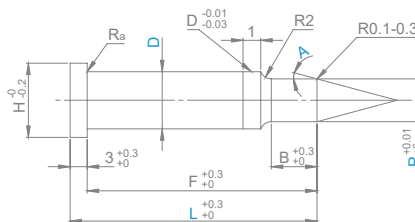
ปลายเรียว
Taper Tip



1. เลือก วัสดุพินช์ และ วัสดุชุบ
2. เลือกความยาวปลาย
3. เลือกขนาด
1. Choose material and coating
2. Choose tip length
3. Choose dimensions

Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TIN Coating	TICN Coating	TIC Coating	TD Coating
SKD11	60-63HRC	TPTP	L-TPTP	TN-TPTP	H-TPTP	TC-TPTP	-
SKD11+	62-63HRC	DTPTP	L-DTPTP	TN-DTPTP	H-DTPTP	TC-DTPTP	TD-DTPTP
SKH51	61-64HRC	HTPTP	L-HTPTP	TN-HTPTP	H-HTPTP	TC-HTPTP	-
P-HSS	64-67HRC	PTPTP	L-PTPTP	TN-PTPTP	H-PTPTP	TC-PTPTP	-

ปลายแหลม
Point Tip



Material	Hardness	Model					
		Normal (No Coating)	Lapping Finish	TIN Coating	TICN Coating	TIC Coating	TD Coating
SKD11	60-63HRC	APTP	L-APTP	TN-APTP	H-APTP	TC-APTP	-
SKD11+	62-63HRC	DAPTP	L-DAPTP	TN-DAPTP	H-DAPTP	TC-DAPTP	TD-DAPTP
SKH51	61-64HRC	HAPTP	L-HAPTP	TN-HAPTP	H-HAPTP	TC-HAPTP	-
P-HSS	64-67HRC	PAPTP	L-PAPTP	TN-PAPTP	H-PAPTP	TC-PAPTP	-

ORDER 25 + Order Code - L - P - A
EXAMPLE 25SPTP10-30.5-P9.19

คำ A สำหรับปลายแหลมเท่านั้น
A for point tip only

Order Code			L 0.1 mm increment	P 0.01 mm increment	A	B	Y	H
Model	D m5							
Model Code	10	+0.012 +0.006	10.0 - 40.0	7.00 - 9.99	(10)	4	5	13
	13	+0.015 +0.007		10.00 - 12.99	15		8	16
	16			13.00 - 15.99	20 25 30			19

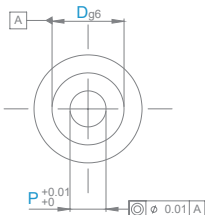
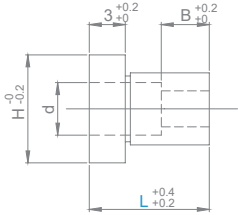
Pilot Ejector Bushing - บุชสำหรับ ไพลอต



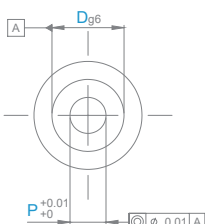
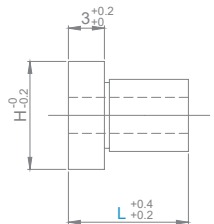
Model: 25MEG



D = 4 ~ 5



D = 6 ~ 10



ORDER
EXAMPLE

Order Code - L - P
25MEG6-10-4.00

SKD11 หรือเทียบเท่า
60-63HRC

Order Code		L	P 0.01mm increments	B	d	H
Model	D					
25MEG	4	10	1.00 - 2.00	2	2.4	5
	5		1.00 - 3.00	4	3.2	6
	6		2.50 - 4.00	10	-	9
	8		3.00 - 6.00			11
	10		5.00 - 8.00			13

การปรับแต่งเสริม | Options

OPTION
EXAMPLE

Order Code - L - P - HC / PKC / PC
25MEG10-10-7.01-HC

Options			Details
ปรับแต่งค่า P Change P		PC	$2.5 \leq PC < P$ 0.01mm increment ใช้กับ D4-6 ไม่ได้ Can not use with D4-6
ปรับพิทัด P P tolerance		PKC	$P^{+0.01}_{0} \Rightarrow ^{+0.005}_{0}$
ปรับแต่งค่า H Change H		HC	$D \leq HC < H$ 0.1mm increment



Name	Punch Guide Bush		Long Punch Guide Bush		X-Long Punch Guide Bush	
Model	25MHG / 25MSG		25LMHG / 25LMSG		25SLMHG / 25SLMSG	
Page	76	77	78	79	80	



Name	Double Step Punch Guide Bush				
Model	25FMHG / 25FMSG				
Page	80				

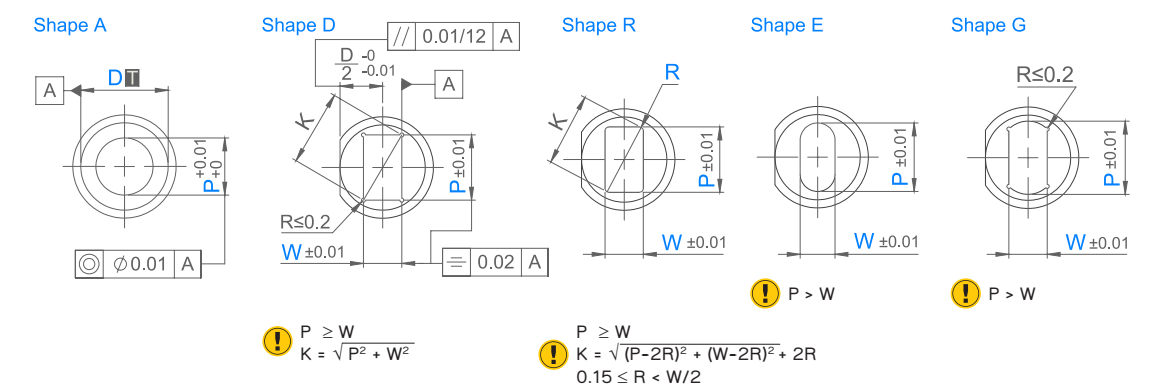
ตารางการเลือกไกด์บุชสำหรับพินช์ | Punch Guide Bushs selecting chart

Type			Material	Sizes	Page
Normal	แบบมีป้า Shoulder Type		SKD11 60-63HRC	Ø 3-16	P. 76 - 77
	แบบตรง Straight Type		SKD11 60-63HRC		
Long	แบบมีป้า Shoulder Type		SKD11 60-63HRC	Ø 3-16	P. 78 - 79
	แบบตรง Straight Type		SKD11 60-63HRC		
X-Long	แบบมีป้า Shoulder Type		SKD11 60-63HRC	Ø 4-10	P. 80
	แบบตรง Straight Type		SKD11 60-63HRC		
Double Stepped	แบบมีป้า Shoulder Type		SKD11 60-63HRC	Ø 3-8	P. 80
	แบบตรง Straight Type		SKD11 60-63HRC		

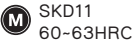
Punch Guide Bush Shoulder Type - พันทึไกด์บุช แบบมีบ่า



แบบมีบ่า
Shoulder Type



ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25MHG8-20-P3.01



Type		Model															
		Shape A				Shape D				Shape R			Shape E		Shape G		
Shoulder		MHG				HGD				HGR			HGE		HGG		
Order Code				L						Shape A	Shape D R E G			B	d	H	
Model	D	m5	n5							P 0.01 mm increment	P,K Max 0.01 mm increment		P,W Min 0.01 mm increment				
Model Code	8	+0.012 +0.006	+0.016 +0.010	10	13	16	20	22	25	1.00 - 4.00	4.0	1.0	4	4.4	11		
	10	+0.002	+0.002	10	13	16	20	22	25	2.00 - 6.00	6.0	1.2		6.4	13		
	13	+0.015 +0.007	+0.020 +0.012	10	13	16	20	22	25	3.00 - 8.00	8.0	1.5	6	8.4	16		
	16			10	13	16	20	22	25	3.00 - 10.00	10.0	2.0		10.6	19		

Punch
Guide Bush

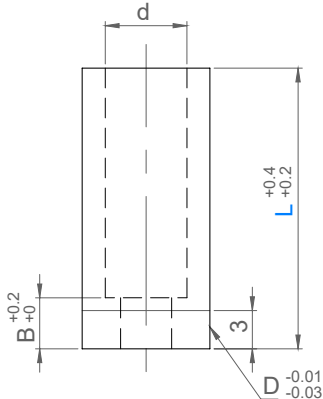
แบบตรง

Straight Type

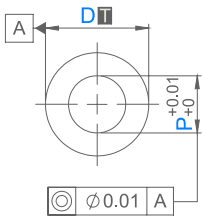
Shape A



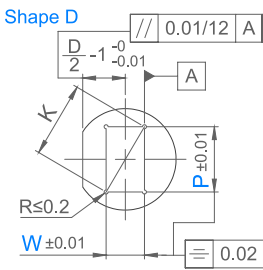
Shape D/R/E/G



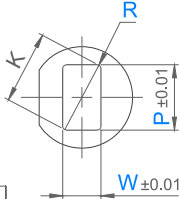
Shape A



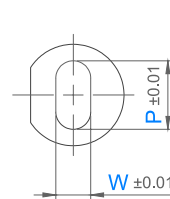
Shape D



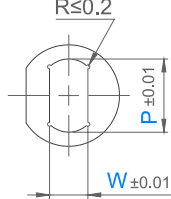
Shape R



Shape E



Shape G



$P \geq W$
 $K = \sqrt{P^2 + W^2}$

$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

! $P > W$

ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25SGR13-16-P7.22-W3.22-R0.15

SKD11
60-63HRC

Type	Model				
	Shape A	Shape D	Shape R	Shape E	Shape G
Straight	MSG	SGD	SGR	SGE	SGG

Order Code				L						Shape A	Shape D R E G		B	d	H
Model	D	m5	n5							P 0.01 mm increment	P.K Max 0.01 mm increment	P.W Min 0.01 mm increment			
Model Code	8	+0.012 +0.006	+0.016 +0.010	10	13	16	20	22	25	1.00 - 4.00	4.0	1.0	4	4.4	11
	10	+0.002	+0.002	10	13	16	20	22	25	2.00 - 6.00	6.0	1.2		6.4	13
	13	+0.015 +0.007	+0.020 +0.012	10	13	16	20	22	25	3.00 - 8.00	8.0	1.5	6	8.4	16
	16			10	13	16	20	22	25	3.00 - 10.00	10.0	2.0		10.6	19

Long Punch Guide Bush Shoulder Type - พันทึไกด์บุชร่นยาว แบบมีป๋า

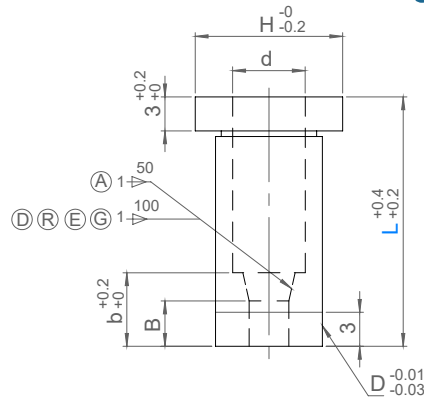
FOIL FREE™

แบบมีป๋า Shoulder Type

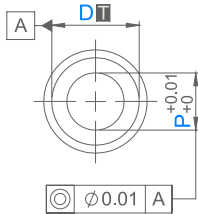
Shape A



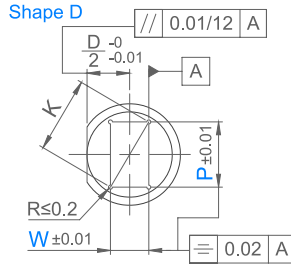
Shape D/R/E/G



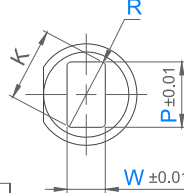
Shape A



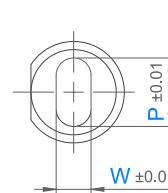
Shape D



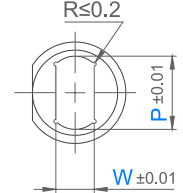
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

ORDER
EXAMPLE

25 + Order Code - L - P - W - R
25LMHG8-20-P3.01

SKD11
60-63HRC

Type		Model																		
		Shape A				Shape D				Shape R				Shape E			Shape G			
Shoulder		LMHG				LHGD				LHGR				LHGE			LHGG			
Order Code				L						Shape A		Shape D R E G			B	b	d	H		
Model	D	m5	n5							P 0.01 mm increment		P,K Max 0.01 mm increment		P,W Min 0.01 mm increment						
Model Code	8	+0.012 +0.006	+0.016 +0.010	10	13	16	20	22	25	1.00 - 4.00	4.0	1.0	4	8	4.4	11				
	10	+0.002	+0.002	10	13	16	20	22	25	2.00 - 6.00	6.0	1.2			6.4	13				
	13	+0.015 +0.007	+0.020 +0.012	10	13	16	20	22	25	3.00 - 8.00	8.0	1.5	6		8.4	16				
	16			10	13	16	20	22	25	3.00 - 10.00	10.0	2.0			10.6	19				

ไกด์บุชสำหรับพินซ์

Long Punch Guide Bush Straight Type - พินซ์ไกด์บุชรู้นยาว แบบตรง



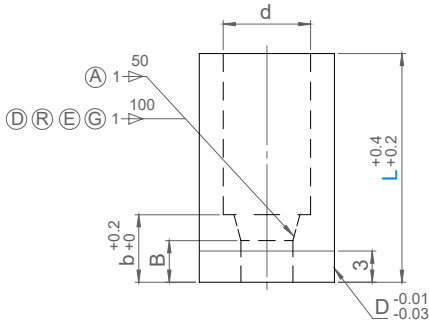
แบบตรง

Straight Type

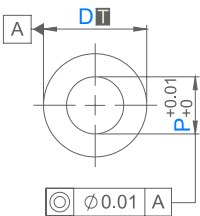
Shape A



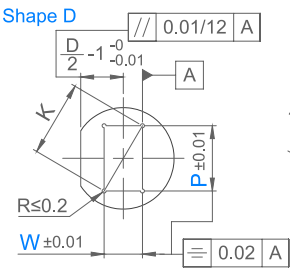
Shape D/R/E/G



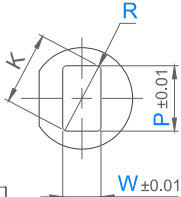
Shape A



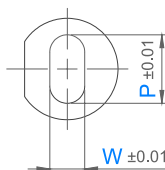
Shape D



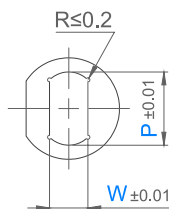
Shape R



Shape E



Shape G



$P \geq W$
 $K = \sqrt{P^2 + W^2}$

$P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

! $P > W$

ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25LMSG8-20-P3.01

SKD11
60-63HRC

Type	Model				
	Shape A	Shape D	Shape R	Shape E	Shape G
Straight	LMSG	LSGD	LSGR	LSGE	LSGG

Order Code				L						Shape A	Shape D R E G		B	b	d	H
Model	D	m5	n5							P 0.01 mm increment	P,K Max 0.01 mm increment	P,W Min 0.01 mm increment				
Model Code	8	+0.012 +0.006	+0.016 +0.010	10	13	16	20	22	25	1.00 - 4.00	4.0	1.0	4	8	4.4	11
	10	+0.002	+0.002	10	13	16	20	22	25	2.00 - 6.00	6.0	1.2			6.4	13
	13	+0.015 +0.007	+0.020 +0.012	10	13	16	20	22	25	3.00 - 8.00	8.0	1.5	6		8.4	16
	16			10	13	16	20	22	25	3.00 - 10.00	10.0	2.0			10.6	19

X-Long Punch Guide Bush - พันซ์ไกด์บุชรุ่นยาวพิเศษ

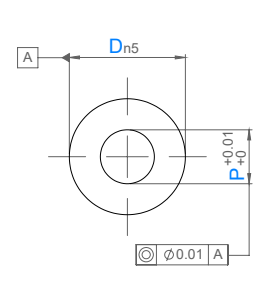
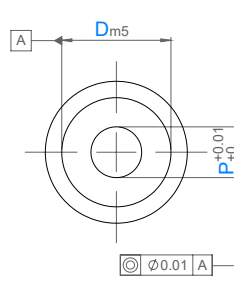
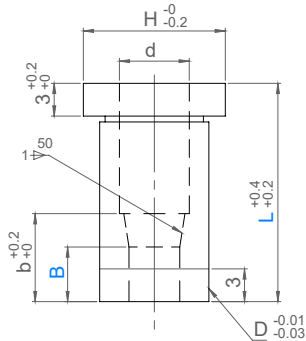
แบบมีบ่า
Shoulder Type
Model: 25SLMHG



แบบตรง
Straight Type
Model: 25SLMSG



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**ORDER
EXAMPLE**

Order Code - L - P - B
25SLMHG4-16-P0.80-B3.5



SKD11
60-63HRC

Order Code				L			P 0.01 mm increment	B 0.1 mm increment	b	d	H
Model	D	m5	n5								
(Shoulder) 25SLMHG	6	+0.009 +0.004	+0.013 +0.008	16	20	25	1.00 - 2.50	2 ≤ B ≤ b and B ≤ P×5	12	3.4	9
(Straight) 25SLMSG	8	+0.012 +0.006	+0.016 +0.010	16	20	25	1.00 - 3.50		14	4.4	11
	10			16	20	25	2.00 - 5.50			6.4	13

Double-Stepped Punch Guide Bush - พันซ์ไกด์บุชสองระดับ

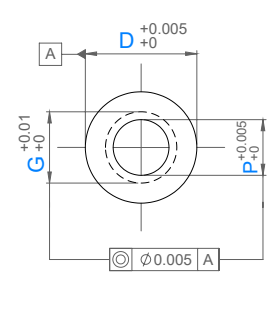
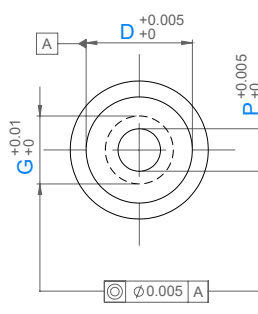
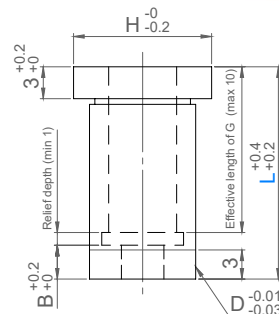
แบบมีบ่า
Shoulder Type
Model: 25FMHG



แบบตรง
Straight Type
Model: 25FMSG



FOIL FREE™



**ORDER
EXAMPLE**

Order Code - L - P - G
25FMHG3-10-P0.80-G2.00



SKD11
60-63HRC

Order Code				L			P 0.01 mm increment	G 0.01 mm increment	B	H
Model	D									
(Shoulder) 25FMHG	6	10	13	16	20		0.80 - 3.38	3.00 - 3.40	3	9
(Straight) 25FMSG	8	10	13	16	20		0.80 - 4.38	3.00 - 4.40	4	11

บัททอนดาย
 BUTTON DIE



Button Dies Headed Type



Button Dies Straight Type



Button Dies
 Dowel Type



Angular Button Dies
 Headed Type

Name	Button Dies Headed Type	Button Dies Straight Type	Button Dies Dowel Type	Angular Button Dies Headed Type
Model	25BDH_	25BD_	25BD_-K	25BDH_-A
Page	82	83	84	85



Angular Button Dies
 Straight Type



Deep Hole Button
 Dies Headed Type



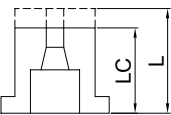
Deep Hole Button Dies
 Straight Type

Name	Angular Button Dies Straight Type	Deep Hole Button Dies Headed Type	Deep Hole Button Dies Straight Type
Model	25BD_-A	25S-BDH_	25S-BD_
Page	86	87	88

ตารางการเลือกบัททอนดาย | Button Dies selecting chart

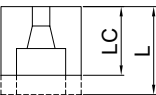
Type	Material	Page
Headed Type	SKD11 60-63HRC	P. 82
	PHSS (Powder High Speed) 64-67HRC	
Straight Type	SKD11 60-63HRC	P. 83
	PHSS (Powder HSS) 64-67HRC	
Dowel Type	SKD11 60-63HRC	P. 84
Angular Headed Type	SKD11 60-63HRC	P. 85
	PHSS (Powder HSS) 64-67HRC	
Angular Straight Type	SKD11 60-63HRC	P. 86
	PHSS (Powder HSS) 64-67HRC	
Deep Hole Headed Type	SKD11 60-63HRC	P. 87
Deep Hole Straight Type	SKD11 60-63HRC	P. 88

ⓘ การปรับแต่งความยาวรวม L และผลกระทบต่อความยาวปลาย b
 Changing overall length L and effect to tip length b



รุ่นมีบ่า | Headed Type

เนื่องจากส่วนความสูงบ่าถูกกำหนดไว้แล้ว
 ความสูงส่วนปลายจึงถูกตัดลงทำให้ค่า b ลด
 ลงไปด้วย
 Since shoulder height is fixed.
 Changing overall length will also
 lower b length.



รุ่นตรง | Straight Type

การปรับความสูงไม่มีผลกระทบต่อค่า b
 Changing overall length do not af-
 fect b length.

ⓘ สัญลักษณ์ระบุค่าเทเปอร์
 Taper symbol

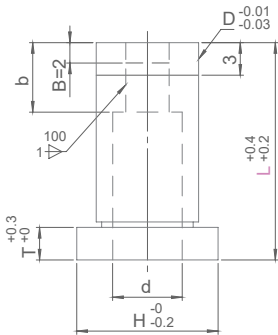
$1 \begin{smallmatrix} \nearrow \\ \searrow \end{smallmatrix} 50$ Taper 1/50 = 1.146°

$1 \begin{smallmatrix} \nearrow \\ \searrow \end{smallmatrix} 100$ Taper 1/100 = 0.573°

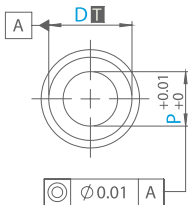
$1 \begin{smallmatrix} \nearrow \\ \searrow \end{smallmatrix} 150$ Taper 1/150 = 0.328°

Button Dies Headed Type - บั๊ททอนด้ายมีป๋า

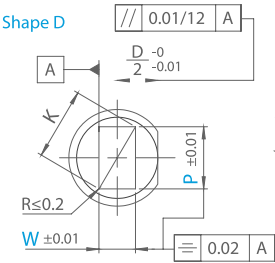
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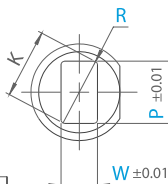
Shape A



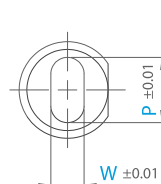
Shape D



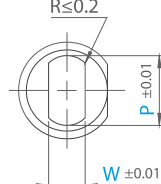
Shape R



Shape E



Shape G



$$P \geq W$$

$$K = \sqrt{P^2 + W^2}$$

$$P \geq W$$

$$K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$$

$$0.15 \leq R < W/2$$

ORDER EXAMPLE 25 + Order Code - L - P - W - R
 25BDHA13-30-P7.00

Material		Model				
		Shape A	Shape D	Shape R	Shape E	Shape G
SKD11	60-63HRC	BDHA	BDHD	BDHR	BDHE	BDHG
PHSS	64-67HRC	PBDHA	PBDHD	PBDHR	PBDHE	PBDHG

Order Code			L										Shape A	Shape D R E G			b	d	H	T
Model	D m5												P 0.01 mm increment	P,K Max 0.01 mm increm ent	P,W Min 0.01 mm increment					
Model Code	8	+0.012 +0.006	16	20	22	25	28	30	32	35	40		1.00 – 4.00	4.00	1.00	4	4.4	11	5	
	10		16	20	22	25	28	30	32	35	40	45	2.00 – 6.00	6.00	1.20		6	6.4		13
	13	+0.015 +0.007	16	20	22	25	28	30	32	35	40	45	3.00 – 8.00	8.00	1.50	8		8.4		16
	16		16	20	22	25	28	30	32	35	40	45	5.00 – 10.00	10.00	2.00		10.6	19		
	20	+0.017 +0.008	16	20	22	25	28	30	32	35	40	45	7.00 – 12.00	12.00	3.00		12.6	23		
	22		16	20	22	25	28	30	32	35	40	45	8.00 – 14.00	14.00	3.00		14.6	25		
	25	+0.020 +0.009	16	20	22	25	28	30	32	35	40	45	10.00 – 16.00	16.00	3.00		16.6	28		
	32		16	20	22	25	28	30	32	35		15.00 – 20.00	20.00	4.00	20.6		35			
	38		16	20	22	25		30		35		19.00 – 26.00	26.00	5.00	26.6		41			
	45			20	22	25		30		35		25.00 – 35.00	35.00	6.00	36.0		48			
	50			20	22	25		30		35		33.00 – 40.00	40.00	7.00	41.0		53			
	56		+0.024 +0.011		20	22	25		30		35		38.00 – 45.00	45.00	8.00		46.0	59		

Button Dies

ปั๊มทอนด้าย

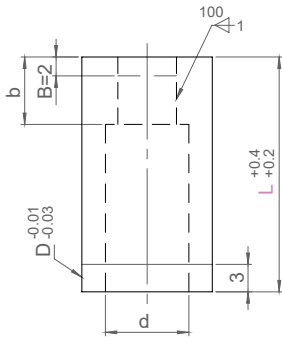
Button Dies Straight Type - ปั๊มทอนด้ายตรง

FOIL FREE™

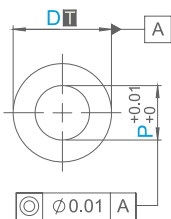
Shape A



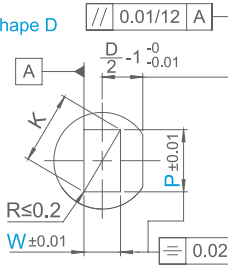
Shape D/R/E/G



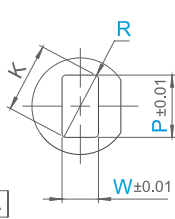
Shape A



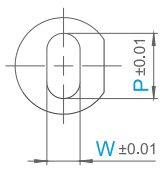
Shape D



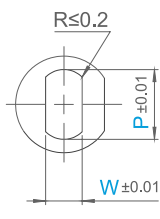
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

! $P > W$

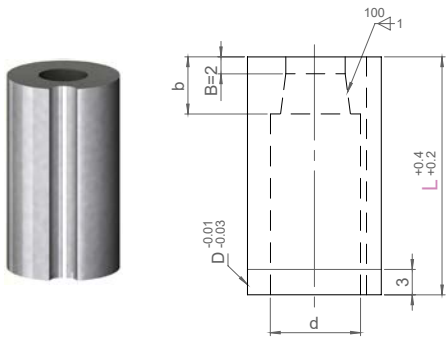
ORDER	25 + Order Code - L - P - W - R
EXAMPLE	25BDA13-30-P7.00

Material	Model				
	Shape A	Shape D	Shape R	Shape E	Shape G
SKD11 60-63HRC	BDA	BDD	BDR	BDE	BDG
PHSS 64-67HRC	PBDA	PBDD	PBDR	PBDE	PBDG

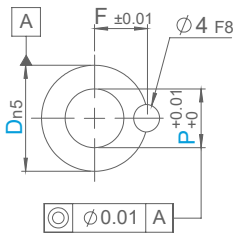
Order Code			L									Shape A	Shape D R E G			b	d
Model	D m5											P 0.01 mm increment	P,K Max 0.01 mm increment	P,W Min 0.01 mm increment			
Model Code	8	+0.012 +0.006	16	20	22	25	28	30	32	35		1.00 - 4.00	4.00	1.00	4	4.4	
	10		16	20	22	25	28	30	32	35	40	2.00 - 6.00	6.00	1.20	6	6.4	
	13	+0.015 +0.007	16	20	22	25	28	30	32	35	40	3.00 - 8.00	8.00	1.50	8	8.4	
	16		16	20	22	25	28	30	32	35	40	5.00 - 10.00	10.00	2.00		10.6	
	20	+0.017 +0.008	16	20	22	25	28	30	32	35	40	7.00 - 12.00	12.00	3.00		12.6	
	22		16	20	22	25	28	30	32	35	40	8.00 - 14.00	14.00	3.00		14.6	
	25		16	20	22	25	28	30	32	35	40	10.00 - 16.00	16.00	3.00		16.6	
	32	+0.020 +0.009	16	20	22	25	28	30	32	35		15.00 - 20.00	20.00	4.00		20.6	
	38		16	20	22	25		30		35		19.00 - 26.00	26.00	5.00		26.6	
	45			20	22	25		30		35		25.00 - 35.00	35.00	6.00		36.0	
	50			20	22	25		30		35		33.00 - 40.00	40.00	7.00		41.0	
	56		+0.024 +0.011		20	22	25		30		35		38.00 - 45.00	45.00		8.00	46.0

Button Dies

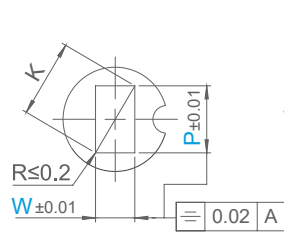
Button Dies Dowel Type - บัตทอนตาย แบบมีร่องโดเวลพิน



Shape A



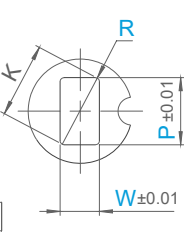
Shape D



$$P \geq W$$

$$K = \sqrt{P^2 + W^2}$$

Shape R

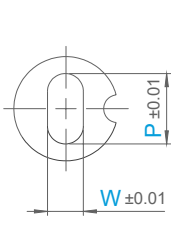


$$P \geq W$$

$$K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$$

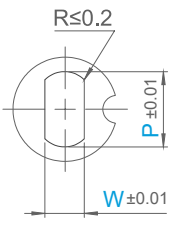
$$0.15 \leq R < W/2$$

Shape E



$$P > W$$

Shape G



$$P > W$$

Shape	Model
	SKD11 60-63HRC
A	BDA-K
D	BDD-K
R	BDR-K
E	BDE-K
G	BDG-K

ORDER EXAMPLE 25 + Order Code - L - P - W - R
 25BDA-K13-20-P6.00

หมายเหตุมีโดเวลพิน 25MS4-15
 Dowel Pin included

Order Code			L								Shape A	Shape D R E G		b	d	F
Model	D m5										P 0.01 mm increment	P,K Max 0.01 mm increm ent	P,W Min 0.01 mm increment			
Code	10	+0.012 +0.006	16	20	22	25	28	30	32	35	2.00 - 6.00	6.00	1.20	6	6.4	6.0
	13	+0.015 +0.007	16	20	22	25	28	30	32	35	3.00 - 8.00	8.00	1.50	8	8.4	7.5
	16		16	20	22	25	28	30	32	35	5.00 - 10.00	10.00	2.00		10.6	8.0
	20	+0.017 +0.008	16	20	22	25	28	30	32	35	7.00 - 12.00	12.00	3.00		12.6	10.0
	22		16	20	22	25	28	30	32	35	8.00 - 14.00	14.00	3.00		14.6	11.0
	25		16	20	22	25	28	30	32	35	10.00 - 16.00	16.00	3.00		16.6	12.5
	32	+0.020 +0.009	16	20	22	25	28	30	32	35	15.00 - 20.00	20.00	4.00		20.6	16.0
	38		16	20	22	25		30		35	19.00 - 26.00	26.00	5.00		26.6	19.0
	45			20	22	25		30		35	25.00 - 35.00	35.00	6.00		36.0	22.5
	50			20	22	25		30		35	33.00 - 40.00	40.00	7.00		41.0	25.0
56	+0.024 +0.011		20	22	25		30		35	38.00 - 45.00	45.00	8.00		46.0	28.0	

ปัตทอนด้าย

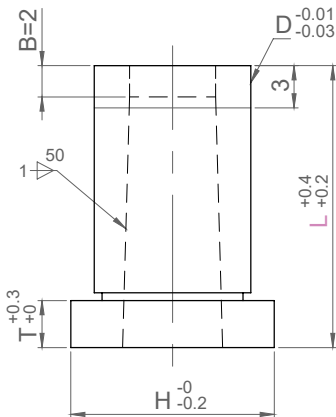
Angular Button Dies Headed Type - ปัตทอนด้ายมีปาก แบบรูค้ายเทเปอร์

FOIL FREE™

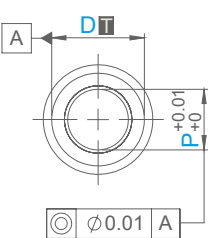
Shape A



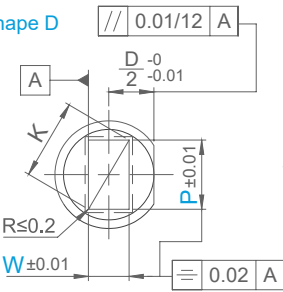
Shape D/R/E/G



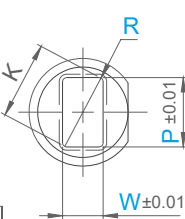
Shape A



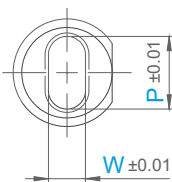
Shape D



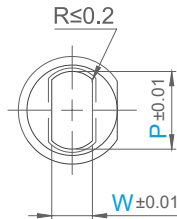
Shape R



Shape E



Shape G



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

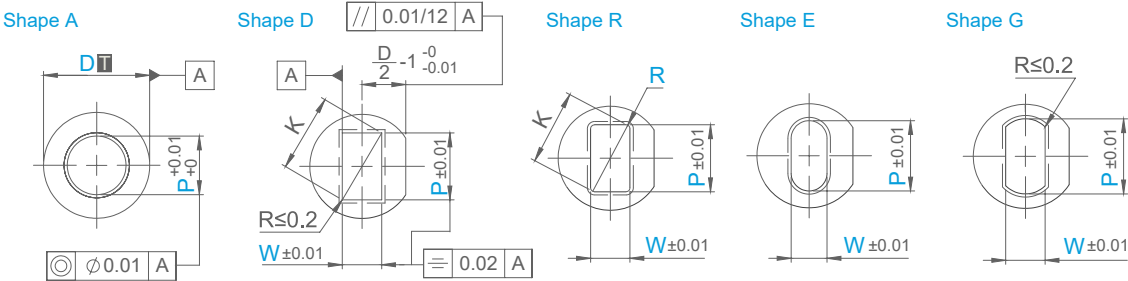
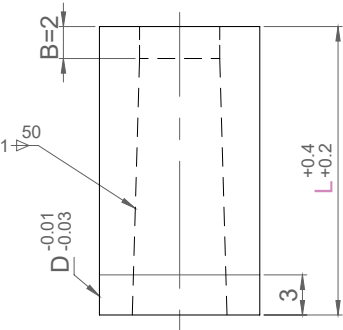
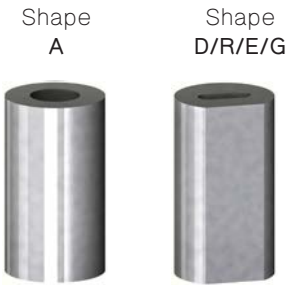
! $P > W$

Shape	Model	
	SKD11 60-63HRC	Powder High-Speed 64-67HRC
A	BDHA-A	PBDHA-A
D	BDHD-A	PBDHD-A
R	BDHR-A	PBDHR-A
E	BDHE-A	PBDHE-A
G	BDHG-A	PBDHG-A

ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25BDHR-A13-25-P6.20-W2.00-R0.50

Order Code		L							Shape A	Shape D R E G			H	T
Model	D m5								P 0.01 mm increment	P,K Max 0.01 mm increment	P,W Min 0.01 mm increment			
Model Code	8	+0.012 +0.006	16	20	22	25	30	35	1.00 - 4.00	4.00	1.00	11	5	
	10		16	20	22	25	30	35	2.00 - 6.00	6.00	1.20	13		
	13	+0.015 +0.007	16	20	22	25	30	35	3.00 - 8.00	8.00	1.50	16		
	16		16	20	22	25	30	35	4.00 - 10.00	10.00	2.00	19		
	20	+0.017 +0.008	16	20	22	25	30	35	7.00 - 12.00	12.00	3.00	23		
	25		16	20	22	25	30	35	10.00 - 16.00	16.00	3.00	28		

Angular Button Dies Straight Type - บัตตอนด้าย แบบรูคายนเทเปอร์



! $P \geq W$
 $K = \sqrt{P^2 + W^2}$

! $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R < W/2$

! $P > W$

! $P > W$

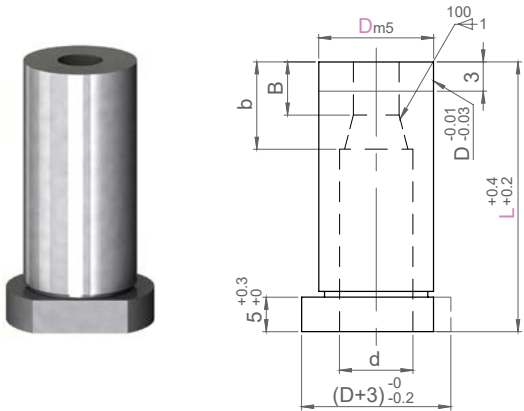
ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25ASDE8-20-P3.80-W2.00

Shape	Model	
	SKD11 60-63HRC	Powder High-Speed 64-67HRC
A	BDA-A	PBDA-A
D	BDD-A	PBDD-A
R	BDR-A	PBDR-A
E	BDE-A	PBDE-A
G	BDG-A	PBDG-A

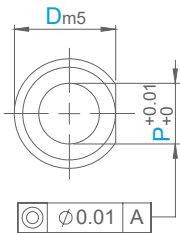
Order Code			L						Shape A	Shape D R E G	
Model	D m5								P 0.01 mm increment	P.K Max 0.01 mm increm ent	P.W Min 0.01 mm increment
Model Code	8	+0.012 +0.006	16	20	22	25	30	35	1.00 - 4.00	4.00	1.00
	10		16	20	22	25	30	35	2.00 - 6.00	6.00	1.20
	13	+0.015 +0.007	16	20	22	25	30	35	3.00 - 8.00	8.00	1.50
	16		16	20	22	25	30	35	5.00 - 10.00	10.00	2.00
	20	+0.017 +0.008	16	20	22	25	30	35	7.00 - 12.00	12.00	3.00
	25		16	20	22	25	30	35	10.00 - 16.00	16.00	3.00

บัททอนดาย

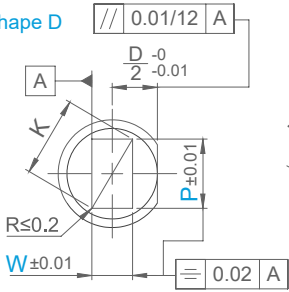
Deep Hole Button Dies Headed Type - บัททอนดายมีบ่า แบบปลายรูลึก



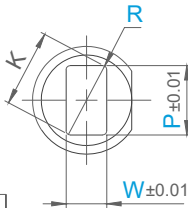
Shape A



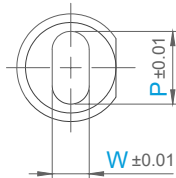
Shape D



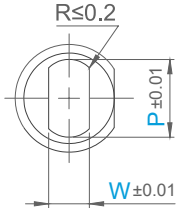
Shape R



Shape E



Shape G



$$P \geq W$$

$$K = \sqrt{P^2 + W^2}$$

$$P \geq W$$

$$K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$$

$$0.15 \leq R < W/2$$

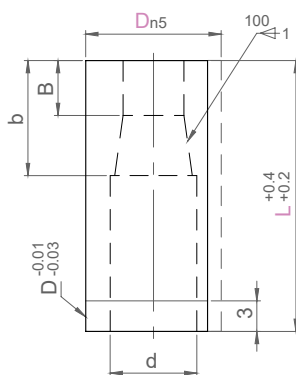
$$P > W$$

$$P > W$$

Shape	Model
	SKD11 60-63HRC
A	S-BDHA
D	S-BDHD
R	S-BDHR
E	S-BDHE
G	S-BDHG

ORDER EXAMPLE 25 + Order Code - L - P - W - R
 25S-BDHA20-40-P8.00

Order Code			L	Shape A	Shape D R E G		B	b	d
Model	D m5			P 0.01 mm increment	P,K Max 0.01 mm increm ent	P,W Min 0.01 mm increment			
Code	10	+0.012 +0.006	40	2.00 - 6.00	6.00	1.20	6	10	6.4
	13	+0.015 +0.007		3.00 - 8.00	8.00	1.50			8.4
	16			5.00 - 10.00	10.00	2.00			10.6
	20	+0.017 +0.008		7.00 - 12.00	12.00	3.00	8	12	12.6
	25			10.00 - 16.00	16.00	3.00			16.6
	32	+0.020 +0.009		15.00 - 20.00	20.00	4.00	10	15	20.6
	38			19.00 - 26.00	26.00	5.00			26.6
	45			25.00 - 35.00	35.00	6.00	14	20	36.0
	50			33.00 - 40.00	40.00	7.00			41.0
	56			+0.024 +0.011	38.00 - 45.00	45.00			8.00



Technical drawing of a hole in a plate. The hole diameter is $\frac{D}{2}$ with a tolerance of $-1^{+0}_{-0.01}$. The hole is located at a distance of D_{n5} from the left edge. The hole is located at a distance of $+0.01^{+0}_{-0}$ from the bottom edge. The hole is located at a distance of $\phi 0.01$ from the center of the hole. The hole is located at a distance of A from the right edge.

Technical drawing of a shaft with a hole. The drawing shows a cross-section of the shaft with a central hole. The hole is labeled with the dimension $P \pm 0.01$. The shaft is labeled with the dimension $W \pm 0.01$.

! $P \geq W$
 $K = \sqrt{P^2 + W^2}$

 $P \geq W$
 $K = \sqrt{(P-2R)^2 + (W-2R)^2} + 2R$
 $0.15 \leq R \leq W/2$

! $P > W$

! $P > W$

Shape	Model
	SKD11 60-63HRC
A	S-BDA
D	S-BDD
R	S-BDR
E	S-BDE
G	S-BDG

ORDER 25 + Order Code - L - P - W - R
EXAMPLE 25S-BDA20-35-P8.00

Order Code			L							Shape A	Shape D R E G			B	b	d
Model	D m5									P 0.01 mm increment	P,K Max 0.01 mm increment	P,W Min 0.01 mm increment				
Code	10	+0.012 +0.006	16	20	22	25	30	35	40	2.00 - 6.00	6.00	1.20	6	10	6.4	
	13	+0.015 +0.007	16	20	22	25	30	35	40	3.00 - 8.00	8.00	1.50			8.4	
	16		16	20	22	25	30	35	40	5.00 - 10.00	10.00	2.00			10.6	
	20	+0.017 +0.008	16	20	22	25	30	35	40	7.00 - 12.00	12.00	3.00	8	12	12.6	
	25		16	20	22	25	30	35	40	10.00 - 16.00	16.00	3.00			16.6	
	32	+0.020 +0.009	16	20	22	25	30	35	40	15.00 - 20.00	20.00	4.00	10	15	20.6	
	38		16	20	22	25	30	35	40	19.00 - 26.00	26.00	5.00			26.6	
	45			20	22	25	30	35	40	25.00 - 35.00	35.00	6.00	14	20	36.0	
	50			20	22	25	30	35	40	33.00 - 40.00	40.00	7.00			41.0	
	56		+0.024 +0.011		20	22	25	30	35	40	38.00 - 45.00	45.00			8.00	46.0

				
Name	Retainer Backing Plate	End Retainers	Heavy Load End Retainers	Triangle End Retainers
Model	25EBP	25ERAN / 25ERFN	25APAN / 25APFN	25DRAN / 25DRFN
Page	89	91	92	93 - 94

			
Name	Square Retainers	Space-Saving End Retainers	Heavy Duty End Retainers
Model	25SRN / 25SFN / 25ASRN / 25ASFN	25TRAN / 25TRFN	25HERAN / 25HERFN / 25HAPAN / 25HAPFN
Page	95	96	97 - 98

			
Name	Heavy Duty Square Retainers	Select Retainer Sets (Air Type)	Compact Select Retainer Sets (Air Type)
Model	25HSRN / 25HSFN / 25HASRN / 25HASFN	25SLS	25SLC
Page	99	100	101

			
Name	Heavy Load Select Retainer Sets (Air Type)	Select Retainer Sets (Manual Type)	Punch Stripper Unit
Model	25SLA (A)	25SLA (H)	25PSUA / 25PSUB / 25PSUE / 25PSUR
Page	102	103	104

Retainer Backing Plate - แผ่นรองรีเทนเนอร์



⚠ สำหรับรีเทนเนอร์ที่ใช้กับพังก์ซ์
For punch retainer type

Ⓜ SCM440
56-60HRC

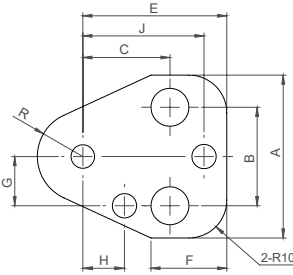
ORDER

EXAMPLE

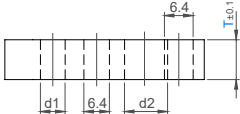
Model

No. - T

25EBP20-10

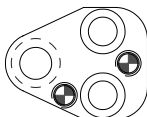
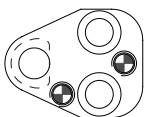
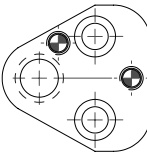
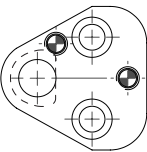
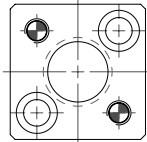
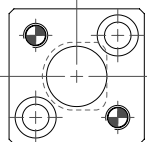
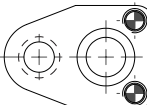
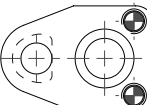
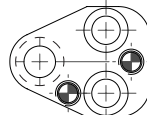
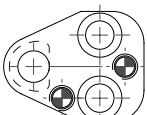
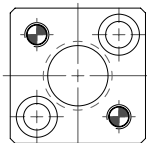
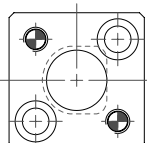


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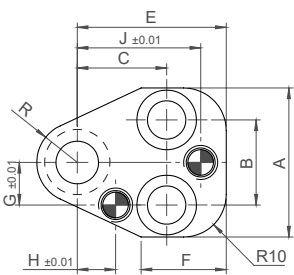


Model	No.	T	A	B	C	E	F	G	H	J	R	d1	d2
25EBP	10	6 7 8 9 10	37	20	21	35	20	10	9	29	9.5	6.2	10
	13		43	26	23	38		13	11	32	12.0		
	16		44	24	26	40			12	34	14.0		
	20		48	28	27	42		16	14	36	17.0	6.2	12
	25		50	30	30	46		18	17	39	19.5		
	32		54		33	48		21	20	42	23.0		
	38		58		35	52		23	23	46	26.0	10.2	14
	45		64	34	38	56		26	26	50	29.5		

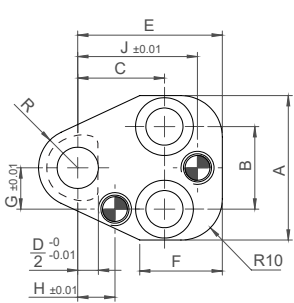
ตารางการเลือกกรีเทนเนอร์ | Retainer selecting chart

Type	Punch Type				Thickness	Page
	Round Punch		Shape Punch			
End Retainers (2 Bolts)		25ERAN		25ERFN	30	P. 91
Heavy Load End Retainers (2 Bolts)		25APAN		25APFN	30	P. 92
Triangle End Retainers		25DRAN25		25DRFN25	25	P. 93
		25DRAN32		25DRFN32	32	P. 94
Square Retainers		25SRN		25SFN	30	P. 95
Square Retainers (Heavy-Load Punch)		25ASRN		25ASFN	30	P. 95
Space-Saving End Retainers (1 Bolt)		25TRAN		25TRFN	25	P. 96
Heavy Duty End Retainers (2 Bolts)		25HERAN		25HERFN	30	P. 97
		25HAPAN		25HAPFN	35	P. 98
Heavy Duty Square Retainers		25HSRN		25HSFN	30	P. 99
Heavy Duty Square Retainers (Heavy-Load Punch)		25HASRN		25HASFN	35	P. 99

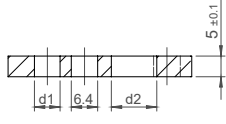
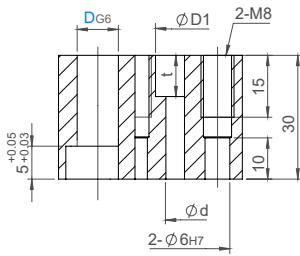
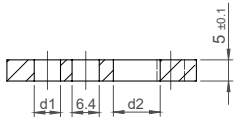
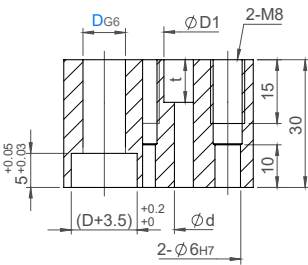
Retainers



สำหรับพินกลม
for Round Punch
Model: 25ERAN



สำหรับพินรูปร่าง
for Shaped Punch
Model: 25ERFN



Model		Components			
Round	Shape	①	② Punch	② Die	③
25ERAN	25ERFN	✓			
25ERAN-P	25ERFN-P	✓	✓		
25ERAN-D	25ERFN-D	✓		✓	
25ERAN-S	25ERFN-S	✓			✓
25ERAN-PS	25ERFN-PS	✓	✓		✓
25ERAN-DS	25ERFN-DS	✓		✓	✓

ORDER Model D
EXAMPLE 25ERAN13

- ① M S45C
รมดำ / Black Oxide (Fe3O4)
- ② M SCM440
56-60HRC
- ③ i สกรูหกเหลี่ยมหัวจม
Hexagon Socket Head Bolt

D G6		A	B	C	E	F	G	H	J	R	D1	d	t	d2	d1		Components		
															Punch	Die	Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	6.2	7.4	24CB8x40	M8	25SDTM06-30
13	+0.017 +0.006	43	26	23	38		13	11	32	12						9.4			
16		44	24	26	40						17	11	12	12		11.6	24CB10x40		
20	+0.020 +0.007	48	28	27	42		16	14	36	17						13.6			
25		50	30	46	18		17	39	19.5	19	13	14	14	10.2	21.6	24CB12x40			
32	+0.025 +0.009	54			33		48	21	20						42		23		
38		58	35	52	23		23	46	26						37.0				
45		64			34		38	56	26						27	50	29.5		

Heavy Load End Retainers - เ็นรีเทนเนอร์ สำหรับงานหนัก

Oil Free™



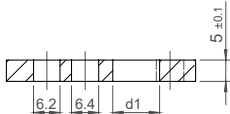
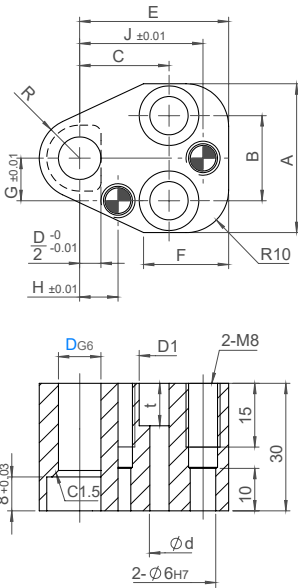
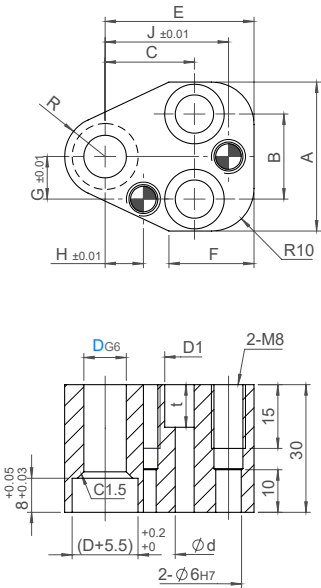
①

สำหรับพินกลม
for Round Punch
Model: 25APAN



①

สำหรับพินรูปร่าง
for Shaped Punch
Model: 25APFN



②



③

Model		Components		
Round	Shape	①	② Punch	③
25APAN	25APFN	✓		
25APAN-P	25APFN-P	✓	✓	
25APAN-S	25APFN-S	✓		✓
25APAN-PS	25APFN-PS	✓	✓	✓

ORDER Model D
EXAMPLE 25APAN20

- ① **M** S45C
รมดำ / Black Oxide (Fe3O4)
- ② **M** SCM440
56-60HRC
- ③ **i** สกรูหกเหลี่ยมหัวจม
Hexagon Socket Head Bolt

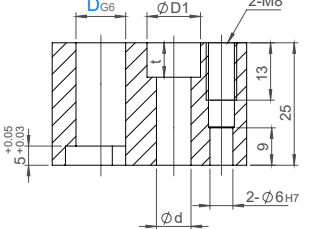
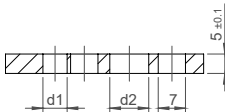
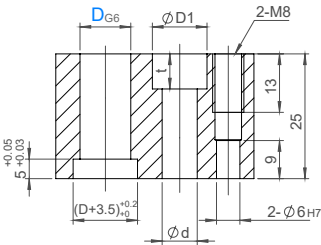
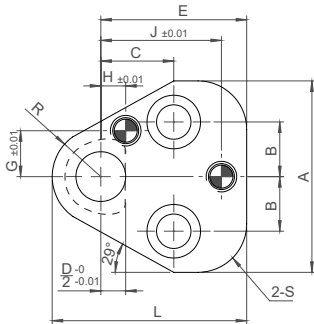
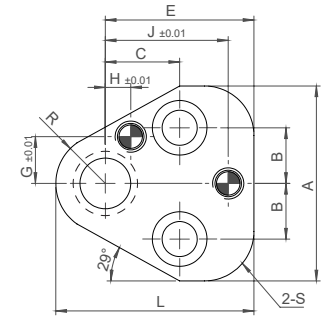
D G6		A	B	C	E	F	G	H	J	R	D1	d	t	d1	Components		
															Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	24CB8x40	M8	25SDTM06-30
13	+0.017 +0.006	43	26	23	38		13	11	32	12							
16		44	24	26	40			12	34	14	17	11	12	12	24CB10x40		
20	+0.020 +0.007	48	28	27	42		16	14	36	17							
25		50	30	30	46		18	17	39	19.5							



สำหรับพันชักกลม
for Round Punch
Model: 25DRAN25



สำหรับพันรูปร่าง
for Shaped Punch
Model: 25DRFN25



Model		Components			
Round	Shape	①	② Punch	② Die	③
25DRAN25	25DRFN25	✓			
25DRAN25-P	25DRFN25-P	✓	✓		
25DRAN25-D	25DRFN25-D	✓		✓	
25DRAN25-S	25DRFN25-S	✓			✓
25DRAN25-PS	25DRFN25-PS	✓	✓		✓
25DRAN25-DS	25DRFN25-DS	✓		✓	✓

ORDER Model - D
EXAMPLE 25DRAN25-20

① M S45C
รมดำ / Black Oxide (Fe3O4)

② M SCM440
56-60HRC

③ i สกรูหกเหลี่ยมหัวจม
Hexagon Socket Head Bolt

D G6		A	B	C	E	G	H	J	L	R	S	D1	d	t	d2	d1		Components		
																DBP	DBD	Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	43.7	11.12	19.05	35.0	9.0	7.5	26.925	44.5	9.5	12.0	14	9	9	10	6.2	7.4	24CB8x35	M8	25SDTM06-30
13	+0.017 +0.006	50.0	14.27		38.1	12.0	6.5	29.970	50.8	12.7	15.2						9.4			
16		53.2	15.87		39.7	13.5	6.0	31.750	54.0	14.3	16.8						11.6			
20	+0.020 +0.007	59.5	17.47		42.8	16.5	5.0	33.530	60.3	17.5	20.0						17			
25		69.1	19.84	23.82	47.7	22.0	7.0	40.640	69.9	22.2	24.7	19	13	14	14		17.6			

Triangle End Retainers (32mm Thickness) - เ็นรีเทนเนอร์สามเหลี่ยม (สูง 32มม)

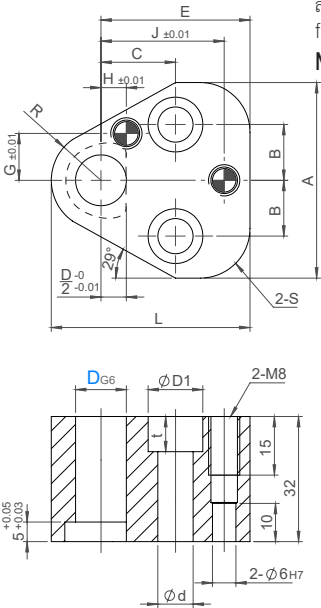
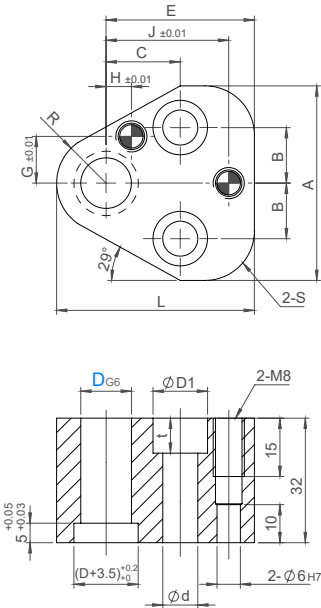
Oil Free™



สำหรับพันทัดกลม
for Round Punch
Model: 25DRAN32



สำหรับพันทัดรูปร่าง
for Shaped Punch
Model: 25DRFN32



Model		Components			
Round	Shape	①	② Punch	② Die	③
25DRAN32	25DRFN32	✓			
25DRAN32-P	25DRFN32-P	✓	✓		
25DRAN32-D	25DRFN32-D	✓		✓	
25DRAN32-S	25DRFN32-S	✓			✓
25DRAN32-PS	25DRFN32-PS	✓	✓		✓
25DRAN32-DS	25DRFN32-DS	✓		✓	✓

ORDER Model - D
EXAMPLE 25DRAN32-20

① M S45C
รมดำ / Black Oxide (Fe3O4)

② M SCM440
56-60HRC

③ ๓กรูหกเหลี่ยมหัวจม
Hexagon Socket Head Bolt

D G6		A	B	C	E	G	H	J	L	R	S	D1	d	t	d2	d1		Components		
																DBP	DBD	Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	43.7	11.12	19.05	35.0	9.0	7.5	26.925	44.5	9.5	12.0	14	9	9	10	6.2	7.4	24CB8x40	M8	25SDTM06-30
13	+0.017 +0.006	50.0	14.27		38.1	12.0	6.5	29.970	50.8	12.7	15.2						9.4			
16		53.2	15.87		39.7	13.5	6.0	31.750	54.0	14.3	16.8						11.6			
20	+0.020 +0.007	59.5	17.47		42.8	16.5	5.0	33.530	60.3	17.5	20.0						17			
25		69.1	19.84	23.82	47.7	22.0	7.0	40.640	69.9	22.2	24.7	19	13	14	14	17.6	24CB12x40			

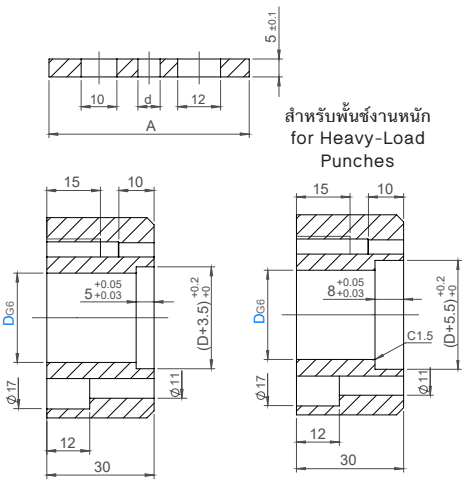
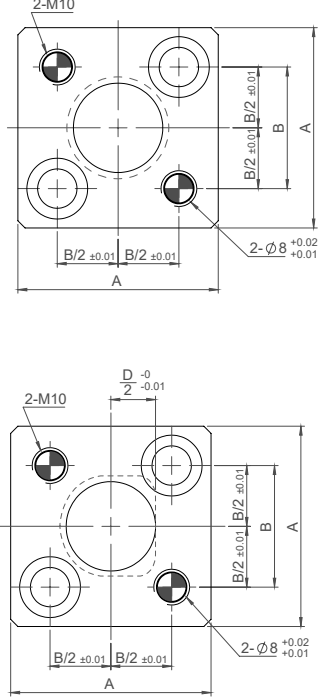


สำหรับพินชกลม
for Round Punch
Model: 25SRN

สำหรับพินชกลม (งานหนัก)
for Round Punch (Heavy-Load)
Model: 25ASRN

สำหรับพินชรูปร่าง
for Shaped Punch
Model: 25SFN

สำหรับพินชรูปร่าง (งานหนัก)
for Shaped Punch (Heavy-Load)
Model: 25ASFN



Model				Components			
Round	Round Heavy	Shape	Shape Heavy	①	② Punch	③ Die	④
25SRN	25ASRN	25SFN	25ASFN	✓	✓		
25SRN-P	25ASRN-P	25SFN-P	25ASFN-P	✓	✓		
25SRN-D	-	25SFN-D	-	✓		✓	
25SRN-S	25ASRN-S	25SFN-S	25ASFN-S	✓			✓
25SRN-PS	25ASRN-PS	25SFN-PS	25ASFN-PS	✓	✓		✓
25SRN-DS	-	25SFN-DS	-	✓		✓	✓

ORDER
EXAMPLE

Model D
25SRN16

① S45C
 รมดำ / Black Oxide (Fe3O4)

② SCM440
 56-60HRC

③ สกรูหกเหลี่ยมหัวจม
 Hexagon Socket Head Bolt

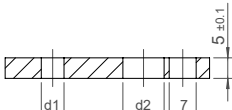
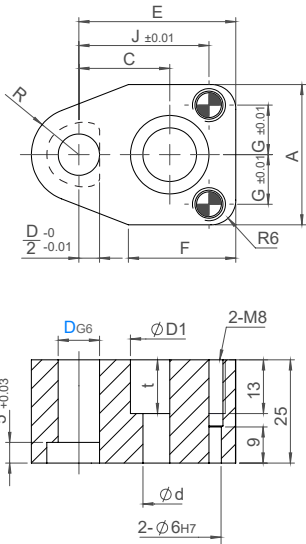
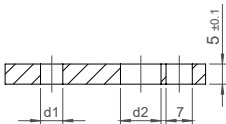
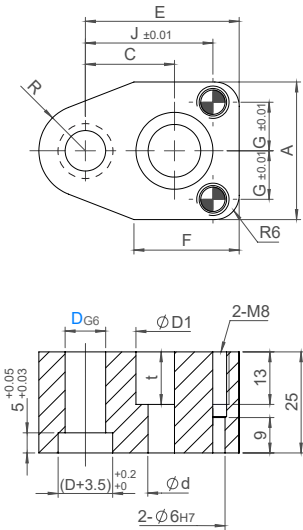
D G6		A	B	d		Components		
				DBP	DBD	Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	45	23	6.2	7.4	24CB10x40	M10	25SDTM08-30
13	+0.017 +0.006				9.4			
16		52	30		11.6			
20	+0.020 +0.007				56			
25		17.6						
32	+0.025 +0.009	65	43	21.6				
38				10.2	27.6			

Retainers



สำหรับพunchกลม
for Round Punch
Model: 25TRAN

สำหรับพunchรูปร่าง
for Shaped Punch
Model: 25TRFN



Model		Components			
Round	Shape	①	② Punch	② Die	③
25TRAN	25TRFN	✓			
25TRAN-P	25TRFN-P	✓	✓		
25TRAN-D	25TRFN-D	✓		✓	
25TRAN-S	25TRFN-S	✓			✓
25TRAN-PS	25TRFN-PS	✓	✓		✓
25TRAN-DS	25TRFN-DS	✓		✓	✓

ORDER Model D
EXAMPLE 25TRAN13

- ① S45C
 มดำ / Black Oxide (Fe3O4)
- ② SCM440
 56-60HRC
- ③ สกรูหกเหลี่ยมหัวจม
 Hexagon Socket Head Bolt

D G6		A	C	E	F	G	J	R	D1	d	t	d1	d2	Components		
														Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	34	22	38	26		31.5	11.5	19	13	13		14	24CB12x35	M8	25SDTM06-30
13	+0.017 +0.006					12						6.2				
16		36	26	45	33		39	14	25	17	17		18	24CB16x35		

Heavy Duty End Retainers (30mm Thickness) - เอ็นรีเทนเนอร์ สำหรับงานหนัก (สูง 30 มม)

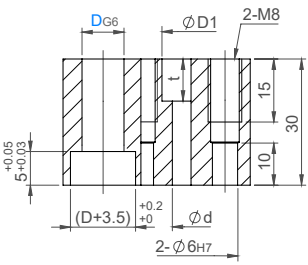
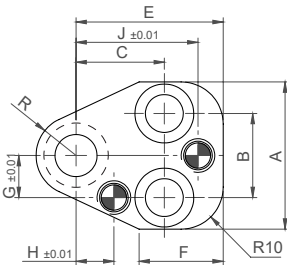
ใช้ร่วมกับพินชี้รูโดเวลพิน
For punches with locating dowel pin

FOIL FREE™



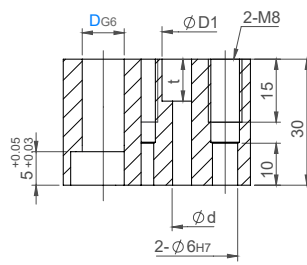
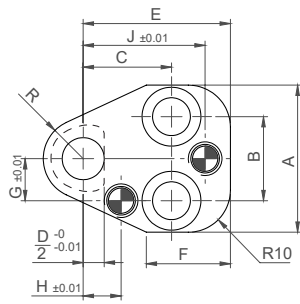
①

สำหรับพินชี้กลม
for Round Punch
Model: 25HERAN



①

สำหรับพินชี้รูปร่าง
for Shaped Punch
Model: 25HERFN



②



③

Model		Components			
Round	Shape	①	② Punch	② Die	③
25HERAN	25HERFN	✓			
25HERAN-P	25HERFN-P	✓	✓		
25HERAN-D	25HERFN-D	✓		✓	
25HERAN-S	25HERFN-S	✓			✓
25HERAN-PS	25HERFN-PS	✓	✓		✓
25HERAN-DS	25HERFN-DS	✓		✓	✓

ORDER Model D
EXAMPLE 25HERAN20
① SCM440
36-44HRC
รมดำ / Black Oxide (Fe3O4)
② SCM440
56-60HRC
③ สกรูหกเหลี่ยมหัวจม
Hexagon Socket Head Bolt

D G6		A	B	C	E	F	G	H	J	R	D1	d	t	d1	Components		
															Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	24CB8x40	M8	25SDTM06-30
13	+0.017 +0.006	43	26	23	38		13	11	32	12					17		
16		44	24	26	40			12	34	14							
20	+0.020 +0.007	48	28	27	42		16	14	36	17							
25		50	30	30	46		18	17	39	19.5							

Retainers

Heavy Duty End Retainers (35mm Thickness) - เอ็นรีเทนเนอร์ สำหรับงานหนัก (สูง 35 มม)

ใช้ร่วมกับพินชรูว์ใช้งานหนัก
For heavy load punches

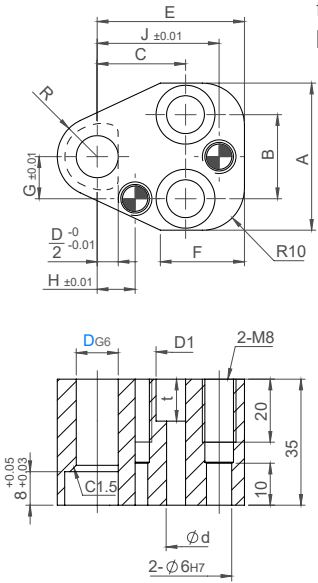
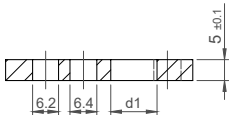
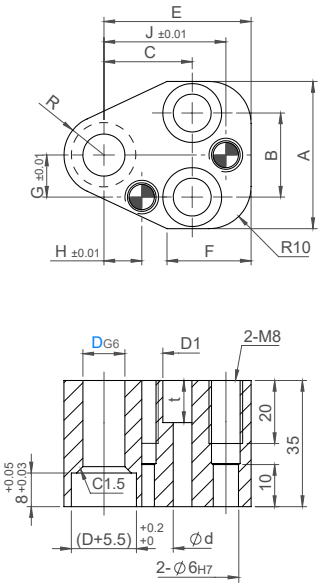
Oil Free™



สำหรับพินชกลม
for Round Punch
Model: 25HAPAN



สำหรับพินชรูปร่าง
for Shaped Punch
Model: 25HAPFN

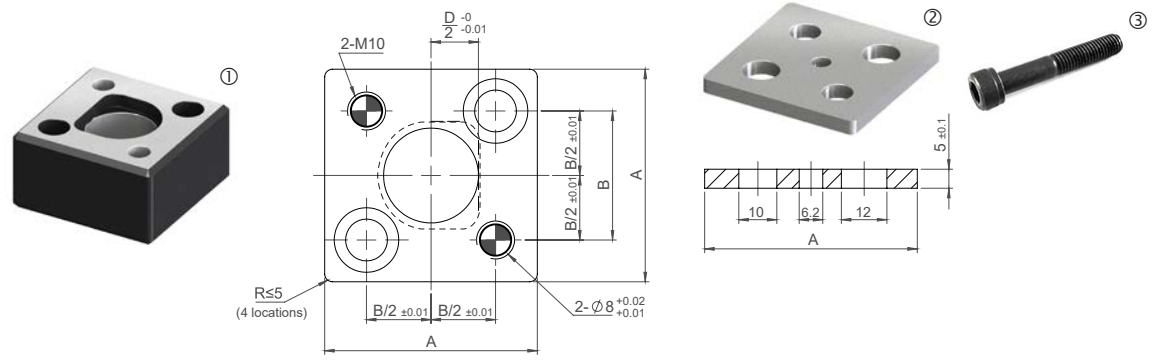


ORDER Model D
EXAMPLE 25HAPAN20

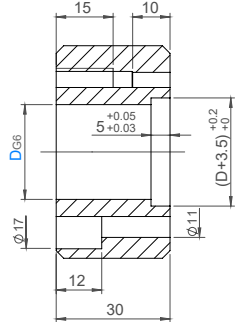
Model		Components		
Round	Shape	①	② Punch	③
25HAPAN	25HAPFN	✓		
25HAPAN-P	25HAPFN-P	✓	✓	
25HAPAN-S	25HAPFN-S	✓		✓
25HAPAN-PS	25HAPFN-PS	✓	✓	✓

- ① **M** SCM440
36-44HRC
รมดำ / Black Oxide (Fe3O4)
- ② **M** SCM440
56-60HRC
- ③ **i** สกรูหกเหลี่ยมหัวจม
Hexagon Socket Head Bolt

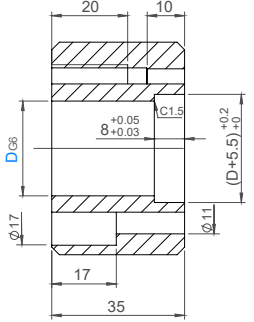
D G6		A	B	C	E	F	G	H	J	R	D1	d	t	d1	Components		
															Socket Cap Screw	Plug Screw	Dowel Pin
10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	15	10	24CB8x40	M8	25SDTM06-30
13	+0.017 +0.006	43	26	23	38		13	11	32	12					24CB10x40		
16		44	24	26	40						17	11	19	12			
20	+0.020 +0.007	48	28	27	42		16	14	36	17							
25		50	30	30	46		18	17	39	19.5							



สำหรับพินกลม
for Round Punch
Model: 25HSRN
สำหรับพินรูปร่าง
for Shaped Punch
Model: 25HSFN



สำหรับพินงานหนัก
for Heavy-Load Punches
สำหรับพินกลม
for Round Punch
Model: 25HASRN
สำหรับพินรูปร่าง
for Shaped Punch
Model: 25HASFN



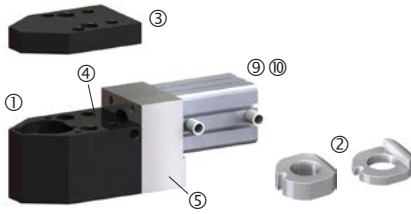
Model				Components			
Round	Round Heavy	Shape	Shape Heavy	①	② Punch	② Die	③
25HSRN	25HASRN	25HSFN	25HASFN	✓			
25HSRN-P	25HASRN-P	25HSFN-P	25HASFN-P	✓	✓		
25HSRN-D	-	25HSFN-D	-	✓		✓	
25HSRN-S	25HASRN-S	25HSFN-S	25HASFN-S	✓			✓
25HSRN-PS	25HASRN-PS	25HSFN-PS	25HASFN-PS	✓	✓		✓
25HSRN-DS	-	25HSFN-DS	-	✓		✓	✓

ORDER Model D
EXAMPLE 25HSRN10
① (M) SCM440 36-44HRC
 รมดำ / Black Oxide (Fe3O4)
② (M) SCM440 56-60HRC
③ (i) สกรูหกเหลี่ยมหัวจม
 Hexagon Socket Head Bolt

D G6		A	B	Components		
				Socket Cap Screw	Screw	Dowel Pin
10	+0.014 +0.005	45	23	24CB10x40	M10	25SDTM08-30
13	+0.017 +0.006					
16		52	30			
20	+0.020 +0.007					
25						

Retainers

Select Retainer Sets (Air Type) - ซีล็ครีเทนเนอร์ (แบบใช้ลม)



สำหรับพื้นที่กลม
for Round Punch

Model: 25SLS-EA

สำหรับพันซ์กลม (มีเซ็นเซอร์)
for Round Punch (sensor switch)

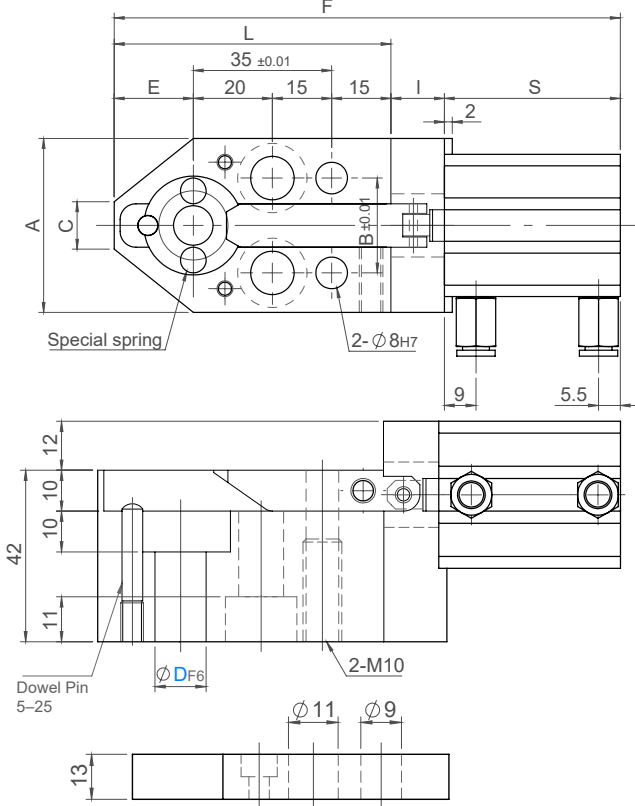
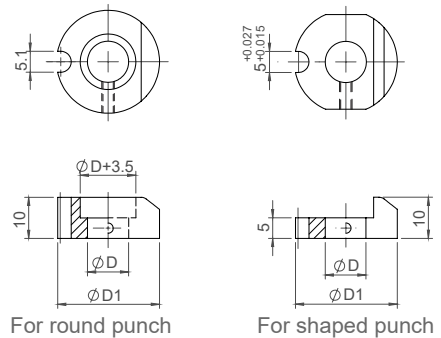
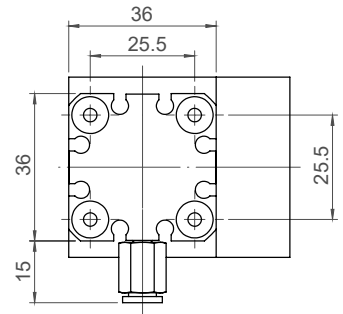
Model: 25SLS-SEA

สำหรับพันธุ์รูปร่าง
for Shaped Punch

Model: 25SLS-FA

สำหรับปั๊มรูปร่าง (มีเซ็นเซอร์)
for Shaped Punch (sensor switch)

Model: 25SLS-SFA



- ① ② ③ ④ ⑤ ⑥
- (M) SCM415
55-58HRC (1mm depth)
รมดำ - Black Oxide (Fe_3O_4)
- ② ③ ④ ⑤ ⑥
- (M) SCM440
56-60HRC
- ⑤ ⑥
- (M) S45C
- ⑨ ⑩
- (M) รายละเอียดของกระบอกลม
(SMC : ชุดอุปกรณ์ CQS)
วิธีการทำงาน สองทิศทาง
แรงกดในการทำงาน 0.4-1.0MPa
(4.1-10.2kgf/cm²)
เส้นผ่านศูนย์กลางภายในกระบอกลม Ø 20
- ⑩ คอนแทคสวิตช์แบบ 2 แถว
แบบ D-A93L (SMC)
แรงดันไฟฟ้า DC24V / AC100V
ความยาวสายไฟ 3m

ORDER EXAMPLE

Model	D
25SLS-EA16	



มาพร้อมสกรูและโดเวลพินครบชุด
Come complete with screws and dowelpins

Model	D	A	B	C	E	L	I	D1	Without Sensor		With Sensor		Components		
									S	F	S	F	Socket Cap Screw	Plug Screw	Dowel Pin
25SLS-EA 25SLS-FA 25SLS-SEA 25SLS-SFA	10	44	24	12	20	70	13.5	25	49.5	133	59.5	143	24CB10x60	M10 + M3	25SDTM08-45
	13						16.5	31		139		149			
	16	48	28	15	23	73	21.5		54.5	149	64.5	159			
	20	50	30	20	25	75	28.5	35	59.5	163	69.5	173			
	25	58	38	25	27	77	31.5	40		168		178			
	32	68	48	32	31	81	44.5	47	69.5	195	79.5	205			

รีเทนเนอร์

Compact Select Retainer Sets (Air Type) - ซีเล็ครีเทนเนอร์ ขนาดกะทัดรัด(แบบใช้ลม)

FOIL FREE™

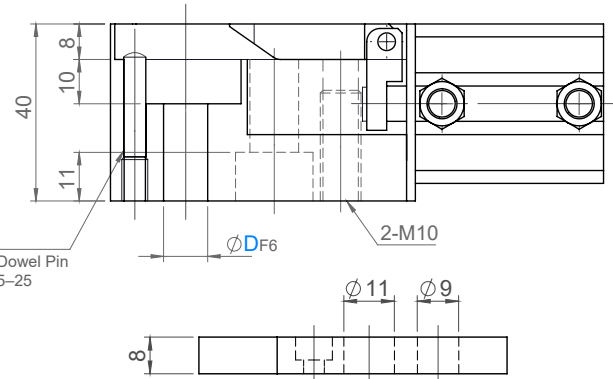
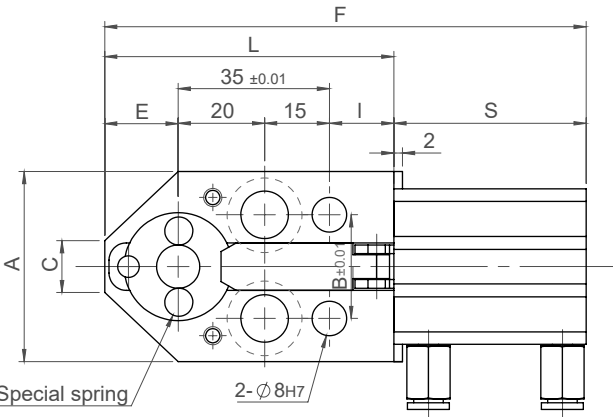


สำหรับพันชักกลม
for Round Punch
Model: 25SLC-EA

สำหรับพันชักกลม (มีเซ็นเซอร์)
for Round Punch (sensor switch)
Model: 25SLC-SEA

สำหรับพันชักรูปร่าง
for Shaped Punch
Model: 25SLC-FA

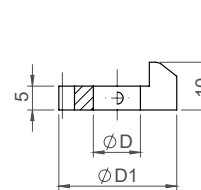
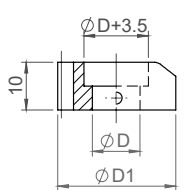
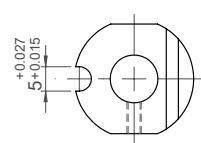
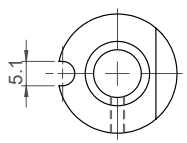
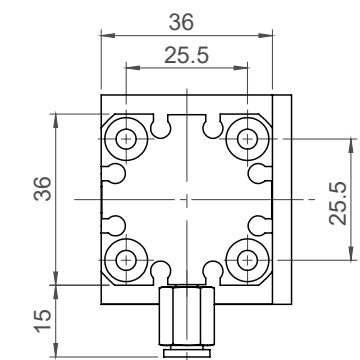
สำหรับพันชักรูปร่าง (มีเซ็นเซอร์)
for Shaped Punch (sensor switch)
Model: 25SLC-SFA



ORDER Model D
EXAMPLE 25SLC-EA16

มาพร้อมสกรูและโดเวลพินครบชุด
Come complete with screws and dowelpins

Model	D	A	B	C	E	L	I	D1	Without Sensor		With Sensor		Component		
									S	F	S	F	Socket Cap Screw	Plug Screw	Dowel Pin
25SLC-EA 25SLC-FA 25SLC-SEA 25SLC-SFA	10	44	24	12	17	67	15	25	44.5	111.5	54.5	121.5	24CB10x55	M10 + M3	25SDTM08-40
	13	48	28	15	17.5	69.5	17	31	44.5	114.0	54.5	124.0			
	16				20	78	23	31	49.5	127.5	59.5	137.5			
	20				22	87	30	35	54.5	141.5	64.5	151.5			

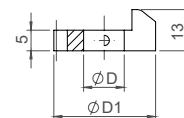
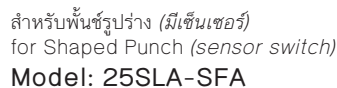


For round punch

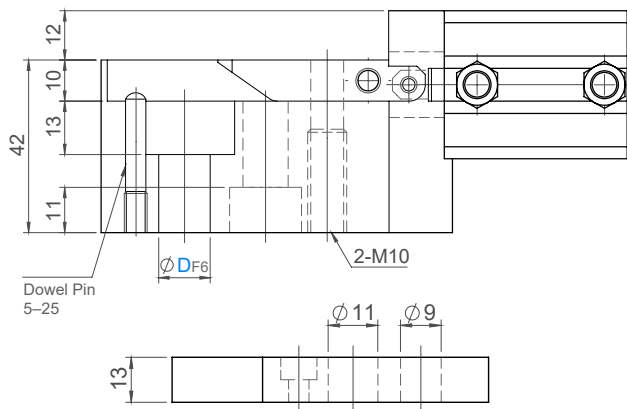
For shaped punch

- ① ② SCM415
55-58HRC (1mm depth)
รมดำ - Black Oxide (Fe3O4)
- ③ ④ SCM440
56-60HRC
- ⑧ ⑨ รายละเอียดของกระบอกลม
(SMC : ชุดอุปกรณ์ CQS)
วิธีการทำงาน สองทิศทาง
แรงกดในการทำงาน 0.4-1.0MPa
(4.1-10.2kgf/cm²)
เส้นผ่านศูนย์กลางภายในกระบอกลม Ø 20
- ⑨ คอนแทคสวิตช์แบบ 2 แฉก
แบบ D-A93L (SMC)
แรงดันไฟฟ้า DC24V / AC100V
ความยาวสายไฟ 3m

Oil Free™



For shaped punch



-  มาพร้อมสกรูและโดเวลพินครบชุด
Come complete with screws and dowelpins

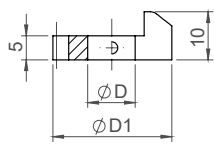
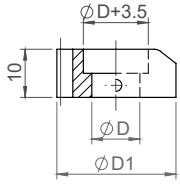
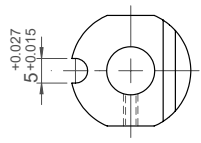
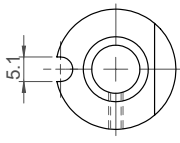
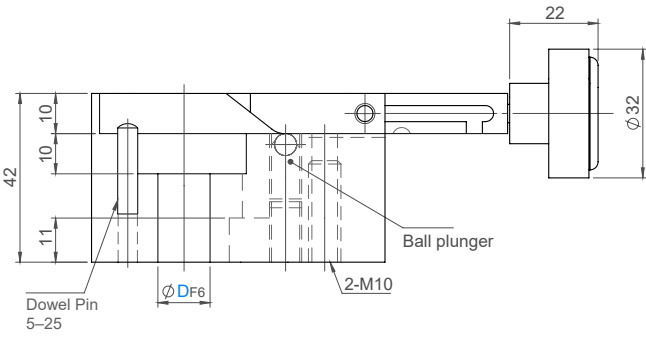
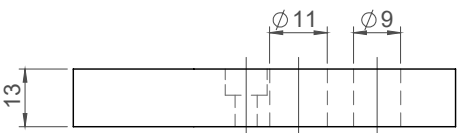
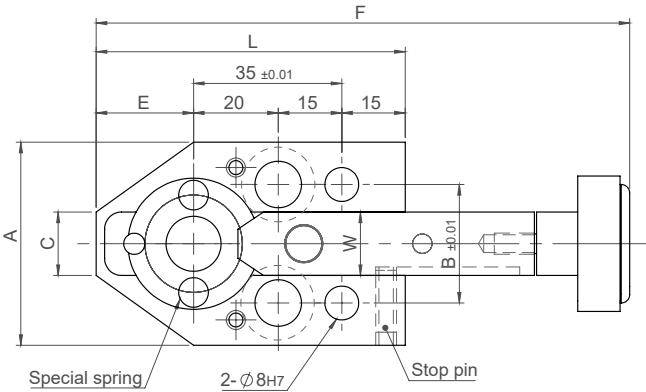


SUN RISE
technologies



สำหรับพUNCHกลม
for Round Punch
Model: 25SLA-EH

สำหรับพUNCHรูปร่าง
for Shaped Punch
Model: 25SLA-FH



For round punch

For shaped punch

ORDER EXAMPLE Model D 25SLS-EH16

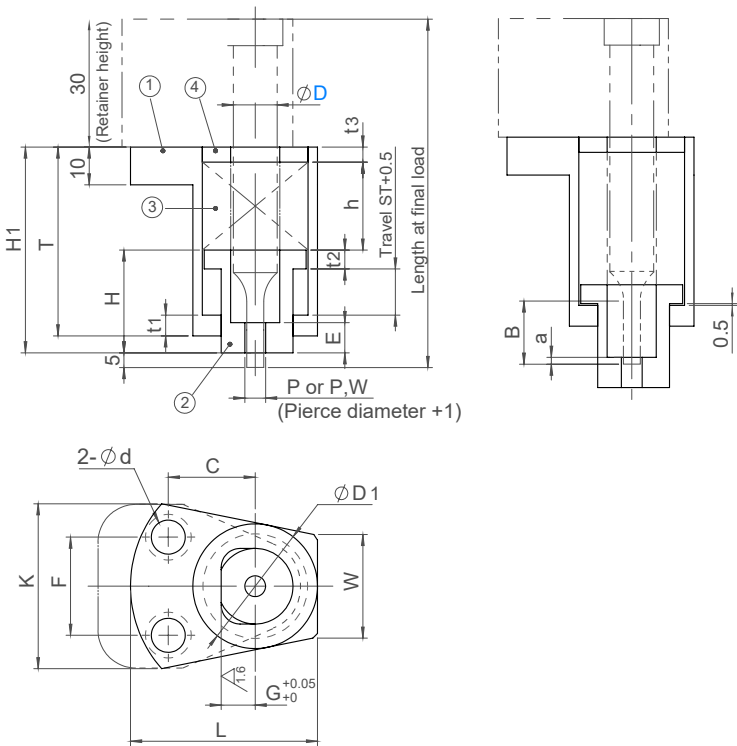
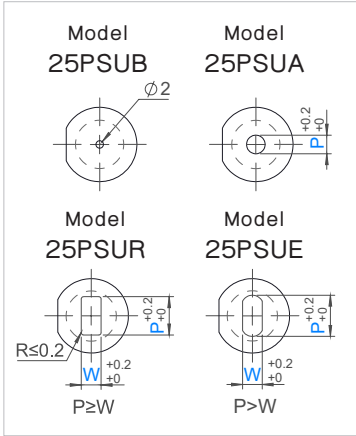
มาพร้อมสกรูและโดเวลพินครบชุด
Come complete with screws and dowelpins

- ① ② SCM415 55-58HRC (1mm depth) รถมดำ - Black Oxide (Fe3O4)
- ③ ④ SCM440 56-60HRC

Model	D	A	B	C	E	L	W	D1	F	Component		
										Socket Cap Screw	Plug Screw	Dowel Pin
25SLS-EH	10	44	24	12	20	70	11	25	94 - 124	24CB10x60	M10 + M3	25SDTM08-45
	13	48	28	15	23	73	15	31	97 - 127			
	16								97 - 132			
25SLS-FH	20	50	30	20	25	75	17	35	99 - 139			
	25	58	38	25	27	77	23	40	101 - 141			
	32	68	48	32	31	81	30	47	105 - 155			

Retainers

Punch Stripper Unit - ชุดพันซ์stripper



ORDER
EXAMPLE

Model D - Punch Length - P - W
25PSUA10-80-P8.2
25PSUE13-90-P10-W4.5

- ① SS400 รถมดำ - Black Oxide
② S45C
③ สปริง - Die Spring
④ SS400

Model	D	Punch Length	25PSUA		25PSUR			25PSUE	
			P 0.1mm increment		P 0.1mm increment	W 0.1mm increment		P 0.1mm increment	W 0.1mm increment
25PSUB	10	80	3.0 - 11.0		3.0 - 8.0	3.0 - 8.0		3.1 - 11.0	3.0 - 10.8
25PSUA		90							
25PSUR	13	80	3.0 - 14.0		3.0 - 10.1	3.0 - 10.1		3.1 - 14.0	3.0 - 13.8
25PSUE		90							
25PSUE	16	90	3.0 - 17.0		3.0 - 12.3	3.0 - 12.3		3.1 - 17.0	3.0 - 16.8

D	Punch Length	ST	T	t1	H	t2	H1	E	h	t3	C	F	G	D1	K	L	W	d	B	a	Spring	Capped Screw
10	80	12	44	4.5	23	5	45	9	18	4	21	20	9	33	44	49.5	27	9	13	1.5	19SL27-030	24CB8x60
	90	11.2	50	5.5	27.2		55	8	23.8											1.3	19SM27-035	
13	80	12	44	4.5	23	5	45	9	18	4	23	26	9	33	44	49.5	27	9	13	1.5	19SL27-030	
	90	11.2	50	5.5	27.2		55	8	23.8											1.3	19SM27-035	
16	90	16	53	5	28	4.5	55	13	24	3	26	24	13.5	41	50	60.5	36	11	19	1.5	19SL35-040	24CB10x60



Name	Stripper Guide Pins (Headed)
Model	25STPH / 25STOH
Page	107



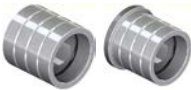
Name	Stripper Guide Pins (Straight)
Model	25STPN / 25STON
Page	108



Name	Stripper Guide Pins (Detachable)
Model	25STGR / 25STOR / 25STPW
Page	109 - 110



Name	Stripper Guide Bush (Press-Fit)
Model	25SPBA / 25SPBH
Page	110



Name	Stripper Guide Bushes (Adhesive)
Model	25SGTA / 25SGTB
Page	111



Name	Stripper Guide Bushes (Adhesive)
Model	25SGSB / 25SGHB
Page	111



Name	Oil Free™ Stripper Guide Bushes (Press-Fit)
Model	25SGBC / 25SGHC
Page	112



Name	Oil Free™ Stripper Guide Bushes (Press-Fit)
Model	25SGCC / 25SGFC
Page	112

ตารางการเลือกสตริปเปอร์ไกด์ | Stripper Guide selecting chart

Guide Type		Model	Page	Bush Type		Model	Page
Headed Type	Plain		P. 107	Press-Fit	Oil Groove		P. 110
	Oil Groove				Oil Groove		P. 111
Straight Type	Plain		P. 108	Adhesive	Copper Alloy + Oil Groove		
	Oil Groove				Oil Free		
Removable Type	Plain		P. 109			Copper Alloy + Oil Free	
	Oil Groove						
2Side-Tapped Removable Type	Plain		P. 110				

การติดตั้งสตริปเปอร์ไกด์บุช | Stripper Guide Bush installation

Fitting Type		Clearance of guide & bush Before installation	Clearance of guide & bush After installation
Press-Fit	Straight	10μ ~ 20μ	2μ ~ 17μ
	Flange	5μ ~ 15μ	2μ ~ 14μ
Adhesive (Loctite No.638)	Straight	2μ ~ 12μ	2μ ~ 12μ
	Flange	2μ ~ 12μ	2μ ~ 12μ

สตริปเปอร์ไกด์ และ บุษ

Stripper G&B

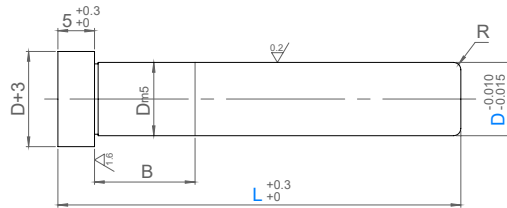
Stripper Guide Pins (Headed Type) - สตริปเปอร์ไกด์พิน (แบบมีป้า)

FOIL FREE™

ไกด์แบบเรียบ
Plain guide

Model: 25STPH

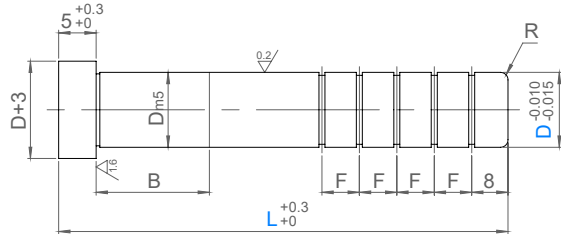
(M) SUJ2 58HRC-



ไกด์มีร่องน้ำมัน
Oil-Grooves guide

Model: 25STOH

(M) SUJ2 58HRC-



ORDER
EXAMPLE Model D - L
25STPH16-100

L	40+	50+	70+	80+	90+	120+	160+	180+
No. Grooves	2	3	4	5	6	6	7	8
F	8	8	8	8	8	10	10	10

Model	D m5		L												R	B
25STPH	8	+0.012 +0.006	40	50	60	70	80								1.0	10
	10		40	50	60	70	80	90	100							13
	13	+0.015 +0.007	40	50	60	70	80	90	100	110	120				1.5	16
25STOH	16			50	60	70	80	90	100	110	120	130	140			20
	20	+0.017 +0.008			60	70	80	90	100	110	120	130	140		2.0	25
	25					70	80	90	100	110	120	130	140			28

การปรับแต่งเสริม | Options

OPTION
EXAMPLE Model D - LC - (Others)
25STPH16-LC95-BC15

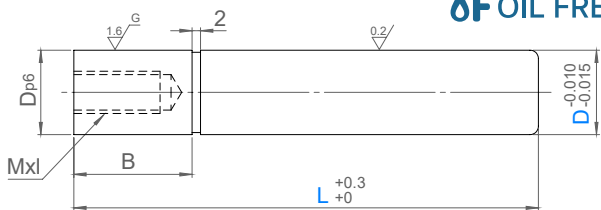
Options	Code	Spec.	Options	Code	Spec.																			
	LC	STPH 20 ≤ LC ≤ Lmax STOH 40 ≤ LC ≤ Lmax 0.5mm increment *If LC shorter than standard L then BC is required		GC	<table><tr><th>D</th><th>Y</th></tr><tr><td>8</td><td rowspan="2">3</td></tr><tr><td>10</td></tr><tr><td>13</td><td rowspan="3">5</td></tr><tr><td>16</td></tr><tr><td>20</td></tr><tr><td>25</td><td></td></tr></table>	D	Y	8	3	10	13	5	16	20	25									
D	Y																							
8	3																							
10																								
13	5																							
16																								
20																								
25																								
	LC	<table><tr><th>D</th><th>Lmax</th><th>D</th><th>Lmax</th></tr><tr><td>8</td><td>120</td><td>16</td><td>200</td></tr><tr><td>10</td><td>150</td><td>20</td><td>200</td></tr><tr><td>13</td><td>180</td><td>25</td><td>200</td></tr></table>	D	Lmax	D	Lmax	8	120	16	200	10	150	20	200	13	180	25	200		TKC	<table><tr><td>+0.3 T 0</td><td>=></td><td>+0.02 T 0</td></tr></table>	+0.3 T 0	=>	+0.02 T 0
D	Lmax	D	Lmax																					
8	120	16	200																					
10	150	20	200																					
13	180	25	200																					
+0.3 T 0	=>	+0.02 T 0																						
	BC	0 ≤ BC ≤ Dx2 1mm increment		RC	<table><tr><th>D</th><th>RC</th></tr><tr><td>8</td><td rowspan="2">1.5 , 2.0</td></tr><tr><td>10</td></tr><tr><td>13</td><td rowspan="2">2.0 , 2.5</td></tr><tr><td>16</td></tr><tr><td>20</td><td rowspan="2">2.5 , 3.0</td></tr><tr><td>25</td></tr></table>	D	RC	8	1.5 , 2.0	10	13	2.0 , 2.5	16	20	2.5 , 3.0	25								
D	RC																							
8	1.5 , 2.0																							
10																								
13	2.0 , 2.5																							
16																								
20	2.5 , 3.0																							
25																								
	TC	2 ≤ TC < 5 0.1mm increment *L will be shorter by 5-TC if order with LC, L=LC																						

Stripper Guide Pins (Straight Type) - สตรีปเปอร์ไกด์พิน (แบบตรง)

ไกด์แบบเรียบ
Plain guide

Model: 25STPN

SUJ2 58HRC-



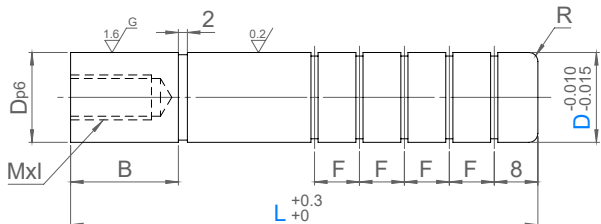
OIL FREE™

ไกด์มีร่องน้ำมัน

Oil-Grooves guide

Model: 25STON

SUJ2 58HRC-



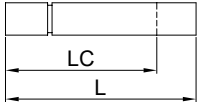
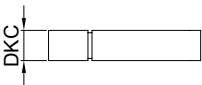
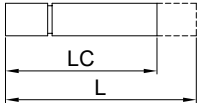
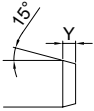
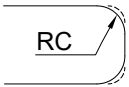
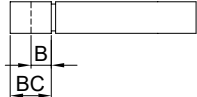
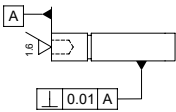
ORDER
EXAMPLE Model D - L
25STPN16-100

L	40+	50+	70+	80+	90+	120+	160+	180+
No. Grooves	2	3	4	5	6	6	7	8
F	8	8	8	8	8	10	10	10

Model	D p6		L										R	B	M x I
25STPN	8	+0.024 +0.015	40	50	60	70	80						1.0	10	M5x12 P0.8
	10		40	50	60	70	80	90	100					13	
25STON	13	+0.029 +0.018	40	50	60	70	80	90	100	110	120		1.5	16	M6x15 P1.0
	16			50	60	70	80	90	100	110	120			20	
	20	+0.035 +0.022			60	70	80	90	100	110	120	130	2.0	25	M8x20 P1.25
	25					70	80	90	100	110	120	130		28	

การปรับแต่งเสริม | Options

OPTION
EXAMPLE Model D - LC - (Others)
25STPN16-LC95-BC15

Options	Code	Spec.	Options	Code	Spec.																									
	LC	STPN $20 \leq LC \leq L_{max}$ STON $40 \leq LC \leq L_{max}$ 0.5mm increment *If LC shorter than standard L then BC is required *If $LC \leq 25$ then Tapped Hole may go through another side		DKC	Change Dp6 to Dm5																									
		<table><tr><th>D</th><th>Lmax</th><th>D</th><th>Lmax</th></tr><tr><td>8</td><td>120</td><td>16</td><td>200</td></tr><tr><td>10</td><td>150</td><td>20</td><td>200</td></tr><tr><td>13</td><td>180</td><td>25</td><td>200</td></tr></table>	D	Lmax	D	Lmax	8	120	16	200	10	150	20	200	13	180	25	200		GC	Taper at the tip <table><tr><th>D</th><th>Y</th></tr><tr><td>8</td><td rowspan="3">3</td></tr><tr><td>10</td></tr><tr><td>13</td></tr><tr><td>16</td><td rowspan="3">5</td></tr><tr><td>20</td></tr><tr><td>25</td></tr></table>	D	Y	8	3	10	13	16	5	20
D	Lmax	D	Lmax																											
8	120	16	200																											
10	150	20	200																											
13	180	25	200																											
D	Y																													
8	3																													
10																														
13																														
16	5																													
20																														
25																														
				RC	Change R at the tip <table><tr><th>D</th><th>RC</th></tr><tr><td>8</td><td rowspan="2">1.5 , 2.0</td></tr><tr><td>10</td></tr><tr><td>13</td><td rowspan="2">2.0 , 2.5</td></tr><tr><td>16</td></tr><tr><td>20</td><td rowspan="2">2.5 , 3.0</td></tr><tr><td>25</td></tr></table>	D	RC	8	1.5 , 2.0	10	13	2.0 , 2.5	16	20	2.5 , 3.0	25														
D	RC																													
8	1.5 , 2.0																													
10																														
13	2.0 , 2.5																													
16																														
20	2.5 , 3.0																													
25																														
	BC	$0 \leq BC \leq D \times 2$ 1mm increment *If $BC=0$ then 2mm slot will not exist		TGC	Tapped End will be polish, the perpendicularity is 0.01																									

สตริปปเปอร์ไกด์ และ บุษ

Stripper G&B

Stripper Guide Pins (Removable Type) - สตริปปเปอร์ไกด์พิน (แบบถอดได้)

ไกด์แบบเรียบ
Plain guide

Model: 25STGR

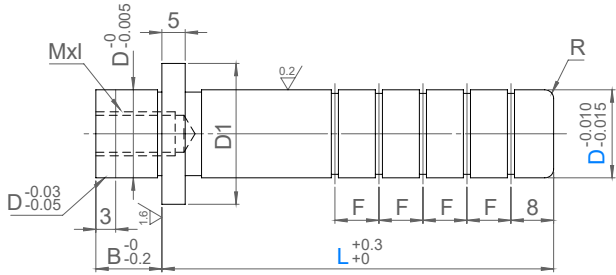
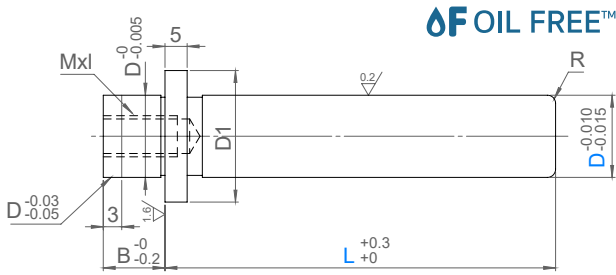
M SUJ2 58HRC-



ไกด์มีร่องน้ำมัน
Oil-Grooves guide

Model: 25STOR

M SUJ2 58HRC-



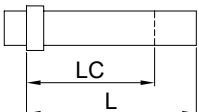
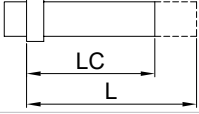
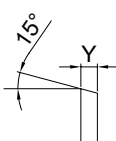
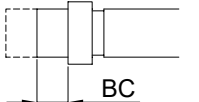
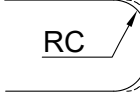
ORDER	Model	D - L
EXAMPLE	25STGR16-100	

L	40+	50+	70+	80+	90+	120+
No. Grooves	2	3	4	5	6	6
F	8	8	8	8	8	10

Model	D	L										R	B	D1	M x I
25STGR	8	30	40	50	60	70						1.0	8	13	M5x12 P0.8
	10	30	40	50	60	70	80							16	
	13		40	50	60	70	80	90	100			1.5	10	20	M6x15 P1.0
25STOR	16		40	50	60	70	80	90	100	110	120			23	
	20			50	60	70	80	90	100	110	120			27	
	25				60	70	80	90	100	110	120	2.0	16	32	M8x20 P1.25

การปรับแต่งเสริม | Options

OPTION	Model	D - LC - (Others)
EXAMPLE	25STGR16-LC95-GC	

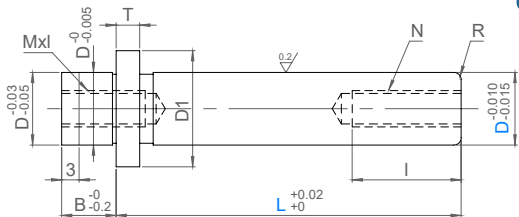
Options	Code	Spec.	Options	Code	Spec.																								
 	LC	<table><thead><tr><th>D</th><th>Lmax</th></tr></thead><tbody><tr><td>8</td><td>80</td></tr><tr><td>10</td><td>100</td></tr><tr><td>13</td><td>120</td></tr><tr><td>16</td><td>140</td></tr><tr><td>20</td><td>140</td></tr><tr><td>25</td><td>140</td></tr></tbody></table> $30 \leq LC \leq L_{max}$ 0.5mm increment	D	Lmax	8	80	10	100	13	120	16	140	20	140	25	140		GC	<table><thead><tr><th>D</th><th>Y</th></tr></thead><tbody><tr><td>8</td><td rowspan="3">3</td></tr><tr><td>10</td></tr><tr><td>13</td></tr><tr><td>16</td><td rowspan="3">5</td></tr><tr><td>20</td></tr><tr><td>25</td></tr></tbody></table> Taper at the tip	D	Y	8	3	10	13	16	5	20	25
D	Lmax																												
8	80																												
10	100																												
13	120																												
16	140																												
20	140																												
25	140																												
D	Y																												
8	3																												
10																													
13																													
16	5																												
20																													
25																													
	BC	$5 \leq BC < B$ 1mm increment *Tapped hole will be shorter by B-BC		RC	<table><thead><tr><th>D</th><th>RC</th></tr></thead><tbody><tr><td>8</td><td rowspan="2">1.5 . 2.0</td></tr><tr><td>10</td></tr><tr><td>13</td><td rowspan="2">2.0 . 2.5</td></tr><tr><td>16</td></tr><tr><td>20</td><td rowspan="2">2.5 . 3.0</td></tr><tr><td>25</td></tr></tbody></table> Change R at the tip	D	RC	8	1.5 . 2.0	10	13	2.0 . 2.5	16	20	2.5 . 3.0	25													
D	RC																												
8	1.5 . 2.0																												
10																													
13	2.0 . 2.5																												
16																													
20	2.5 . 3.0																												
25																													

Tapped Stripper Guide Pins (Removable Type) - สตริปปเปอร์ไกด์พิน มีรูตัดเกลียว (แบบถอดได้)

FOIL FREE™



Model: 25STPW



ORDER
EXAMPLE

Model D - L
25STPW20-110

M SUJ2 58HRC-

Model	D	L 5mm increment	R	T	B	D1	I	N	M x I	
25STPW	8	25 - 70	1.0	3	8	12	8 - 13	M4 P0.7	M4x12 P0.7	
	10					14				
	13	30 - 75	1.5	5	10	17	10 - 15	M5 P0.8	M5x12 P0.8	
	16	40 - 100				23		M6 P1.0	M6x15 P1.0	
	20	60 - 120	2.0		13	27	16 - 21	M8 P1.25	M8x20 P1.25	
	25				16	32				

การปรับแต่งเสริม | Options

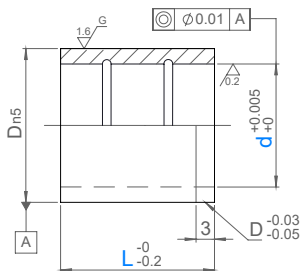
OPTION
EXAMPLE

Model D - LC - BC
25STPW10-LC54-BC6

Options	Code	Spec.	Options	Code	Spec.
	LC	For D = 8-13, 25 ≤ LC < L For D = 16-25, Lmin - 5 ≤ LC < L 0.5mm increment		BC	5 ≤ BC < B 1mm increment *Tapped hole will be shorter by B-BC

Stripper Guide Bushes (Press-Fit) - สตริปปเปอร์ไกด์บุช (แบบสวมอัด)

FOIL FREE™



M SUJ2 58HRC-

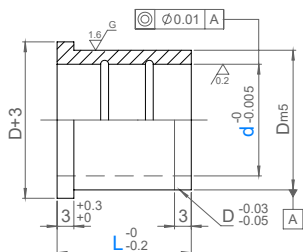
ORDER
EXAMPLE

Model d - L
25SPBA16-25

Model	d	L						D n5	
25SPBA	8	10	13	16	20			12	+0.020 +0.012
	10	10	13	16	20	25		14	
	13		13	16	20	25		18	+0.024 +0.015
	16			16	20	25	30	22	
	20				20	25	30	25	
	25					25	30	32	

Flange Stripper Guide Bushes (Press-Fit) - สตริปปเปอร์ไกด์บุชมีฟลา (แบบสวมอัด)

FOIL FREE™



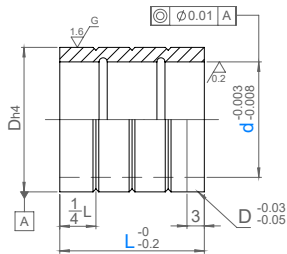
M SUJ2 58HRC-

ORDER
EXAMPLE

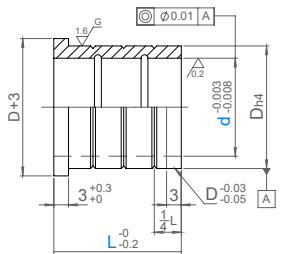
Model d - L
25SPBH16-25

Model	d	L						D m5	
25SPBH	8	10	13	16	20			12	+0.015 +0.007
	10	10	13	16	20	22	25	14	
	13		13	16	20	22	25	30	+0.017 +0.008
	16		13	16	20	22	25	30	
	20			16	20	22	25	30	
	25				20	22	25	30	

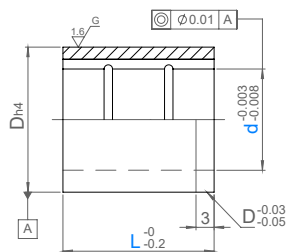
Stripper G&B



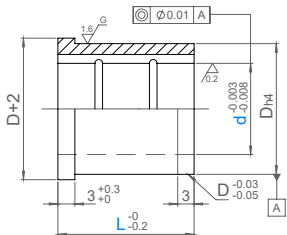
ORDER
EXAMPLE



ORDER EXAMPLE	Model	d - L
	25SGTB16-25	



ORDER
EXAMPLE

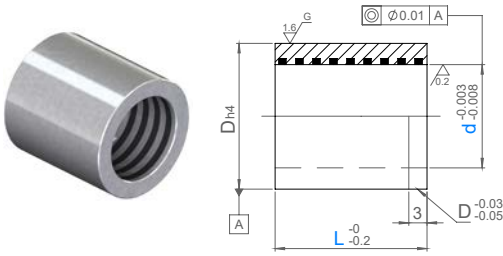


ORDER EXAMPLE	Model	d - L
	25SGHB16-25	

Tel: +662-324-3184-(89) Fax: +662-324-3190 / +662-324-3103
Website: www.sunrisegr.com Email: sale@sunrisegr.com

Oil Free Guide Bushes (Adhesive) - ออยฟรี สตรีปเปอร์ไกด์บุช (แบบใช้กาว)

ΔF OIL FREE™



Model	d								L		D h4	
25SGBC	8	10	13	16	20						13	0 -0.005
	10	10	13	16	20	22	25				16	
	13		13	16	20	22	25	30			20	0 -0.006
	16			16	20	22	25	30	35		24	
	20				16	20	22	25	30	35	28	
	25					20	22	25	30	35	34	0 -0.007

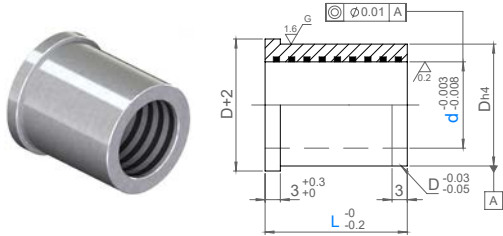
FC250
Oil Free™ Solid Lubricant

ORDER
EXAMPLE

Model d - L
25SGBC16-25

Flange Oil Free Guide Bushes (Adhesive) - ออยฟรี สตรีปเปอร์ไกด์บุชมีปาก (แบบใช้กาว)

ΔF OIL FREE™



Model	d								L		D h4	
25SGHC	8	10	13	16	20						13	0 -0.005
	10	10	13	16	20	22	25				16	
	13		13	16	20	22	25	30			20	0 -0.006
	16			16	20	22	25	30	35		24	
	20				16	20	22	25	30	35	28	
	25					20	22	25	30	35	34	0 -0.007

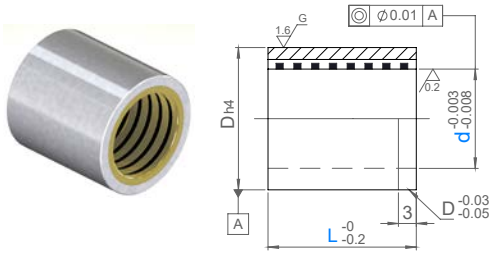
FC250
Oil Free™ Solid Lubricant

ORDER
EXAMPLE

Model d - L
25SGHC16-25

Oil Free Copper Alloy (Adhesive) - ออยฟรี ไกด์บุชทองเหลือง (แบบใช้กาว)

ΔF OIL FREE™



Model	d								L		D h4	
25SGCC	10	10	13	16	20	22	25				16	0 -0.005
	13		13	16	20	22	25	30			20	
	16			16	20	22	25	30	35		24	0 -0.006
	20				16	20	22	25	30	35	28	
	25					20	22	25	30	35	34	0 -0.007

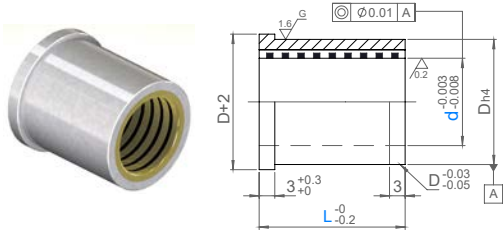
SUJ2 + Copper Alloy
Oil Free™ Solid Lubricant
45HRC

ORDER
EXAMPLE

Model d - L
25SGCC16-25

Flange Oil Free Copper Alloy (Adhesive) - ออยฟรี ไกด์บุชทองเหลืองมีปาก (แบบใช้กาว)

ΔF OIL FREE™



Model	d								L		D h4	
25SGFC	10	10	13	16	20	22	25				16	0 -0.005
	13		13	16	20	22	25	30			20	
	16			16	20	22	25	30	35		24	0 -0.006
	20				16	20	22	25	30	35	28	
	25					20	22	25	30	35	34	0 -0.007

SUJ2 + Copper Alloy
Oil Free™ Solid Lubricant
45HRC

ORDER
EXAMPLE

Model d - L
25SGFC16-25



Name	Disappearing Gauge	Disappearing Gauge	Disappearing Gauge	Disappearing Gauge	Disappearing Gauge	Side Gauge	Side Gauge (Cam Type)
Model	25SODA-BT	25SODA-B	25PKDGM	25SODA-RT	25PRDG	25SGAD	25SGCT
Page	115	116	117	118	119	120	121



Name	Panel Input Detector Gauge	Panel Input Detector Gauge	Sheet Support Gauge	Sheet Support Gauge	Rough Guides	Nest Guides (Upper Die Relief)
Model	25HKFM	25PADG-B	25SSGNW	25SSGW	25SRG / 25SRG-R / 25SRG-L	25SNGU
Page	122	123	124	125	126	127



Name	Nest Guides	Nest Guides (No Dowel Hole)	Configurable Nest Guides	Configurable Nest Guides (Economy)
Model	25SNGN / 25ENGB	25SNGG	25SNGA / 25SNGC	25SNSTA / 25SNSTC / 25TSTD
Page	128	129	130	131



Name	Length Configurable Nest Guides	Special Configurable Nest Guides	Nest Guides Blank Parts
Model	25SNGNX / 25SENGX	25SNGW / 25SNGWK / 25SNGWS	25NBB / 25NBBCL / 25TE(A,B,C,E,L)
Page	132	133	134



Name	Nest Guide with Surface Support	Locating Pilot Pins
Model	25SNTFA / 25SNTFB	25SLTL / 25SLPS / 25SNST / 25SDST / 25SDKL / 25SKSTH / 25SFSTH / 25PST / 25PSTM / 25RFPF
Page	135	135 - 139



Name	Locating Pilot Punches	Locating Pins
Model	25RTP / 25T-RTP / 25RTP / 25T-RTPE	25DIKPA / 25DIKPB / 25DLPA / 25TLPA / 25TLPB / 25TLPC / 25LPU / 25LPL
Page	140	141 - 142



Name Locating Pins
Model 25IKPD(A,B,C,E)
Page 142



Name Pre-Holding Push Pin Sets
Model 25S-PAP(-U)
Page 143



Name Push Pin Sets (Economy)
Model 25S-PAP-E(U)
Page 144



Name Push Pin Sets (Long Stroke)
Model 25SD-PAP-(S,U) / 25SD-PAGP-(S,U)
Page 145



Name Push Pin Sets (Lock Mechanism)
Model 25SD-PAP-Z-(S,U,P)
Page 146



Name Push Pin Sets (Air Hole)
Model 25SD-PAEA-(S,U)
Page 147



Name Pushing Pin Sets
Model 25S-PSPH / 25S-PSH
Page 148



Name Push Out Pins
Model 25POP / 25HPOP
Page 149



Name Drawing Jector Pins
Model 25DHPA / 25DHPF100
Page 149



Name Skid Brackets
Model 25STB / 25STBY / 25MRTB / 25MRTBY
Page 150

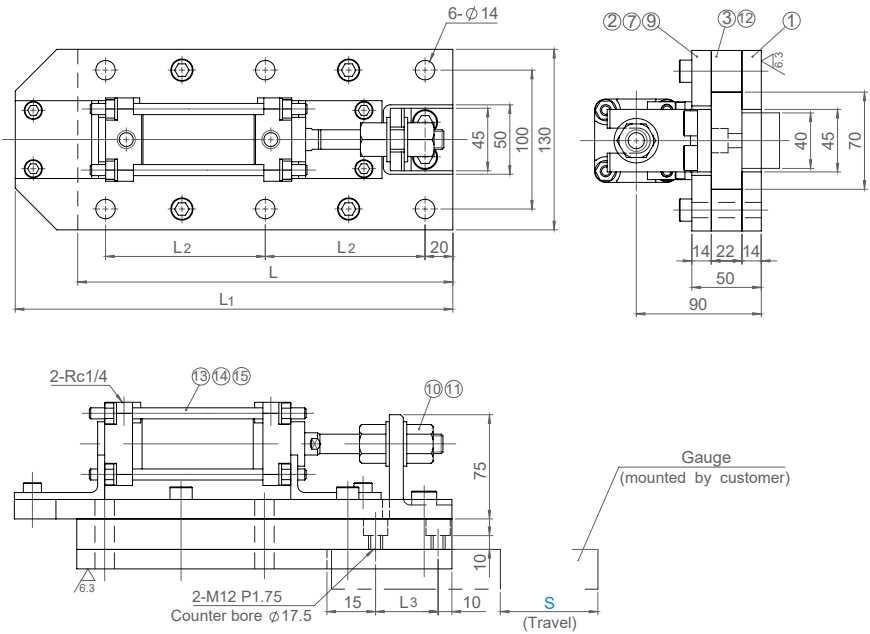
ชิ้นส่วนหัวตำแหน่ง

Disappearing Gauge - ดีเอเกจ

รางสไลด์แบบ ออยฟรี
Oil Free™ sliding type



Model: 25SODA-BT



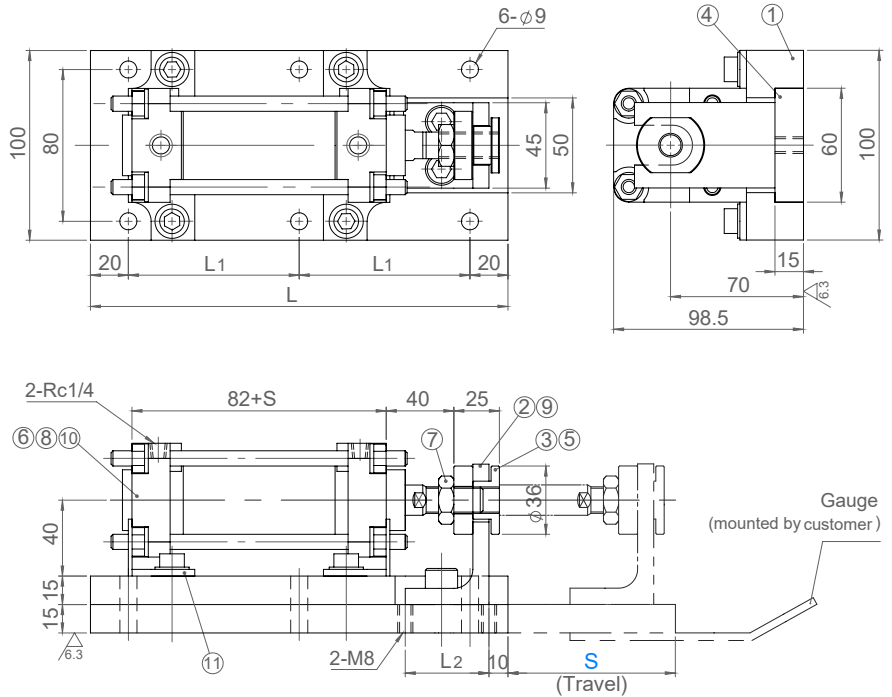
No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400	9	Spring Washer	4	For M10
2	Cover Plate	1	SS400	10	Washer	2	
3	Silde Plate	2	SS400	11	Lock Nut	1	U Nut
4	Silde Plate	1	S45C Oil Free Type	12	Dowel Pin	4	Ø10 X 30
5	Collar	1	SS400	13	Spring Pin	1	Ø6 X 15
6	Arm	1	SS400	14	Hexagon Socket Head Bolt	4	SCM435 M8 X 16
7	Hexagon Socket Head Bolt	4	SCM435 M10 X 50	15	Air Cylinder	1	CA2L40 by SMC
8	Hexagon Socket Head Bolt	2	SCM435 M12 X 25				

ORDER Model S
EXAMPLE 25SODA-BT100

Model	S	L	L1	L2	L3	Weight (kg)
25SODA-BT	50	220	265	90	25	13.5
	100	270	315	115	45	15.9
	150	320	365	140	95	18.3
	200	370	415	165	145	21.0



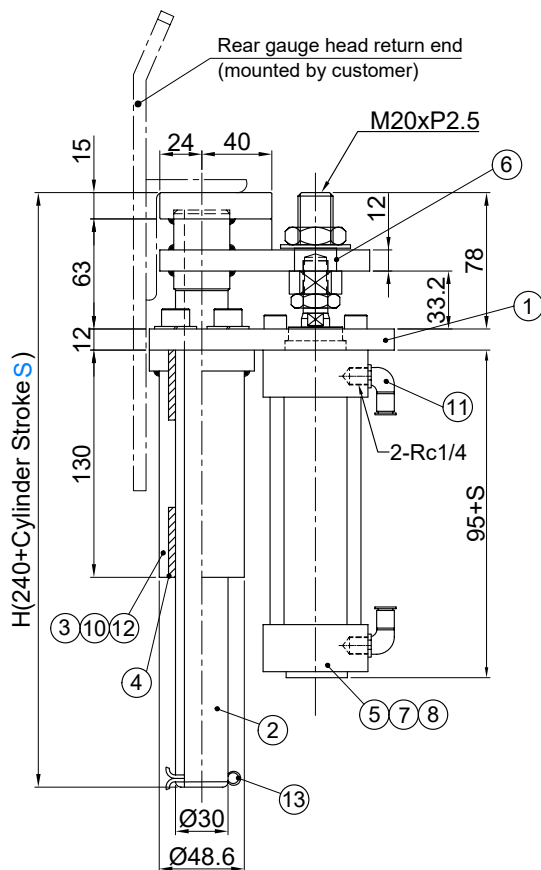
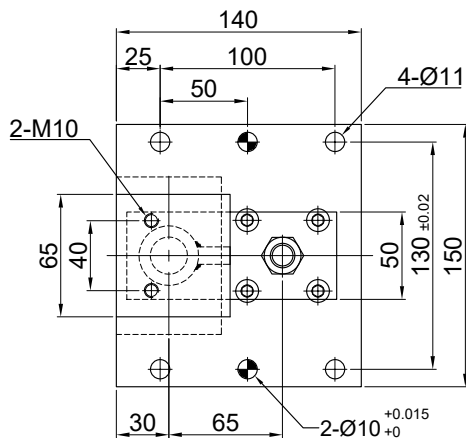
Model: 25SODA-B



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
1	Cover Plate	1	FC250	7	Hexagon Nut	1	For M14
2	Arm	1	SS400	8	Hexagon Socket Head Bolt	4	SCM435 M8 X 20
3	Cylinder Head Block	1	SS400	9	Hexagon Socket Head Bolt	2	SCM435 M12 X 20
4	Slide Plate	1	S45C	10	Spring Washer	4	For M8
5	Split Plate	1	SWRM10 Ø3 X 45	11	Angle	1	SS400
6	Air Cylinder	1	CA2B40 by SMC	12	Angle	1	SS400

ORDER Model S
EXAMPLE 25SODA-B100

Model	S	L	L1	L2	Weight (kg)
25SODA-B	50	220	90	25	11.2
	100	270	115	45	13.5
	150	320	140	95	16.0
	200	370	165	145	18.7



No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400
2	Guide Post	1	STKM
3	Bushing Holder	1	SS400
4	Oil Free Bushing	2	Copper Alloy with Graphite
5	Air Cylinder	1	MBB40 by SMC
6	Collar	1	STKM
7	Flat Washer	2	For M20
8	U Nut	1	SCM435 M20
10	Hexagon Socket Head Bolt	4	SCM435 M10 X 25
11	Elbow	2	21SPLL10-02PT
12	Spring Washer	4	For M10
13	Cotter Pin	1	Ø5 X 40

ORDER EXAMPLE

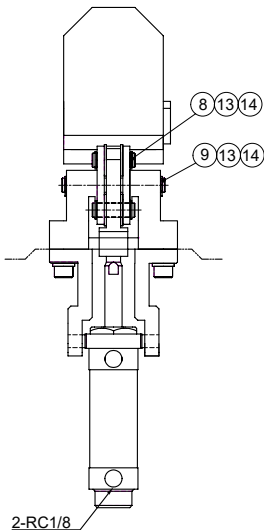
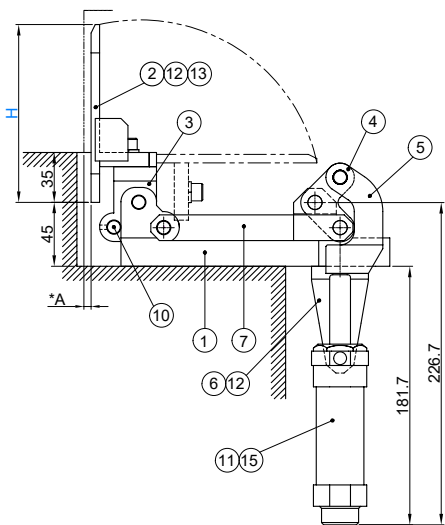
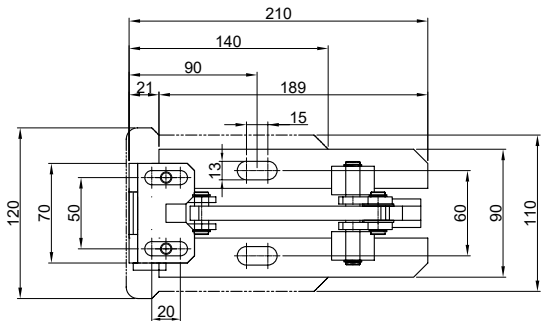
Model	S
25PKDGM100	

Model	Cylinder Stroke S	H	Weight (kg)
25PKDGM	100	340	6.7
	150	390	7.1
	200	440	7.4

Disappearing Gauge - ดีเอเกจ



Model: 25SODA-RT

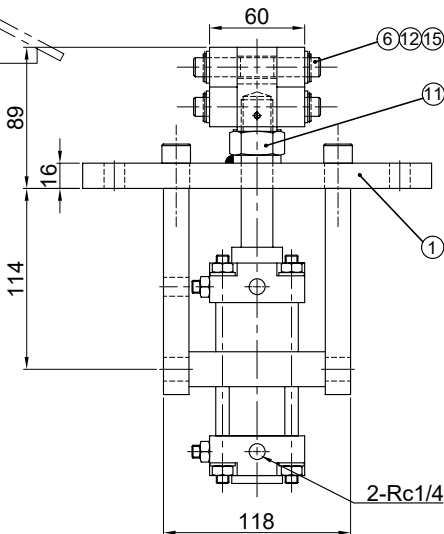
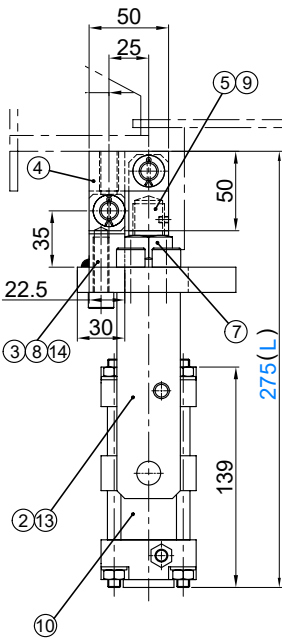
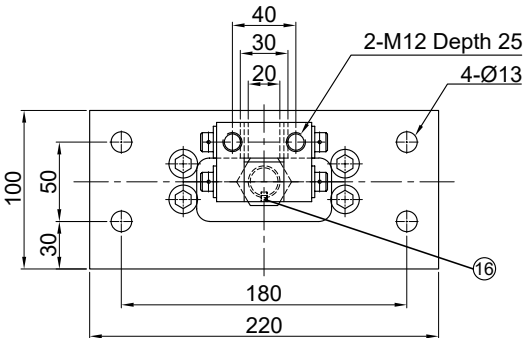


No.	Description	Qty	Material and Remark
1	Gauge Base	1	S50C
2	Stopper Plate	1	SS400
3	Gauge Bracket	1	S50C
4	Joint	1	S50C
5	Arm	1	S50C
6	Cylinder Support	2	S50C
7	Rod	1	SS400
8	Joint Pin (S)	3	S45C
9	Joint Pin (L)	2	S45C
10	Stopper Pin	1	SCM435
11	Air Cylinder	1	CM2U32-35AZ by SMC
12	Hexagon Socket Head Bolt	6	SCM435 M8 X 25
13	Washer	5	For M8
14	Split Pin	1	Ø2 X 16
15	Split Pin	1	Ø3 X 30

ORDER Model H
EXAMPLE 25SODA-RT100

Model	H
25SODA-RT	75
	100
	125
	150
	175
	200
	225
	250

Model: 25PRDG

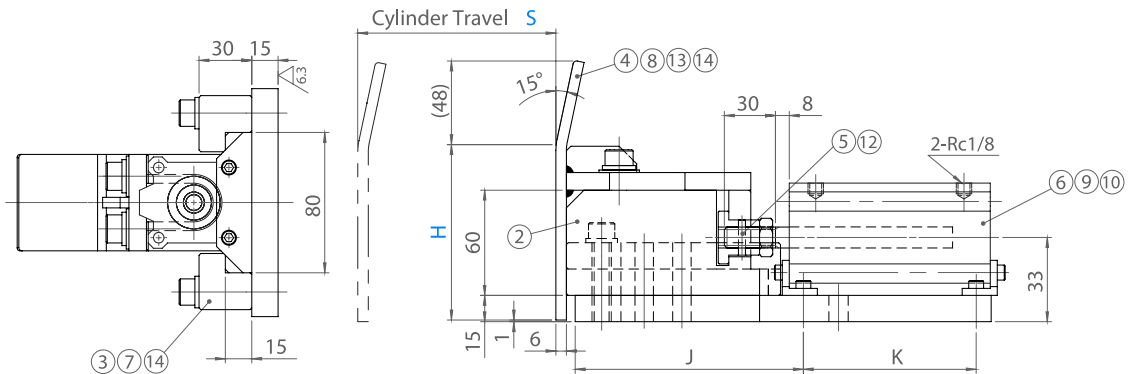
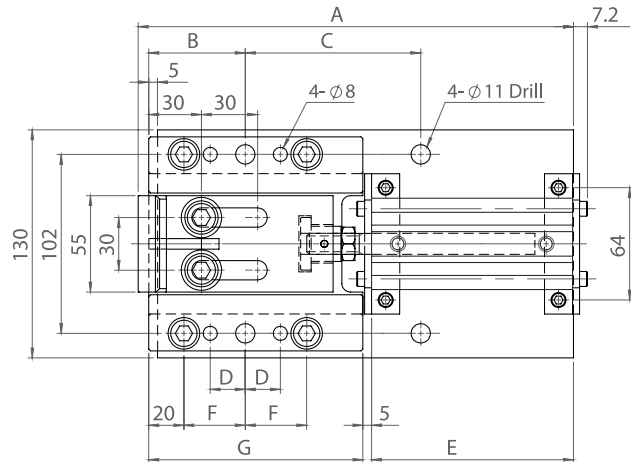


No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400
2	Cylinder Support	2	SS400
3	Gauge Bracket Support	1	SS400
4	Gauge Bracket	1	SS400
5	Joint	1	SS400
6	Joint Pin	2	S45C HRC55-60
7	Turning Lock Plate	1	SPPC T=0.8
8	Bushing	1	25SMB012-020

No.	Description	Qty	Material and Remark
9	Bushing	1	25SMB012-020
10	Air Cylinder	1	CA2T40-50Z by SMC
11	Hexagon Nut	1	M20 X 15
12	Cotton Pin	4	3 X 18
13	Hexagon Socket Head Bolt	4	SCM435 M12 X 40
14	Hexagon Socket Head Bolt	1	SCM435 M10 X 35
15	Washer	4	For Ø12
16	Hexagon Socket Head Screw	1	M4 X 6

ORDER EXAMPLE	Model	L		
	25PRDG275		Model	L
			25PRDG	275

Model: 25SGAD



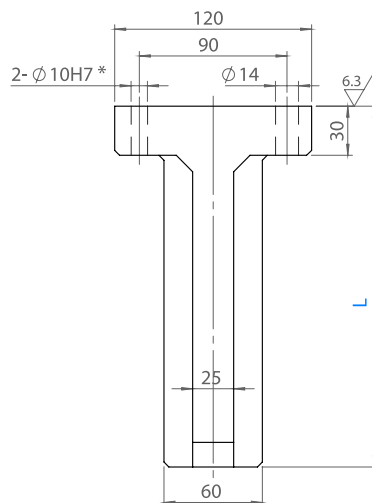
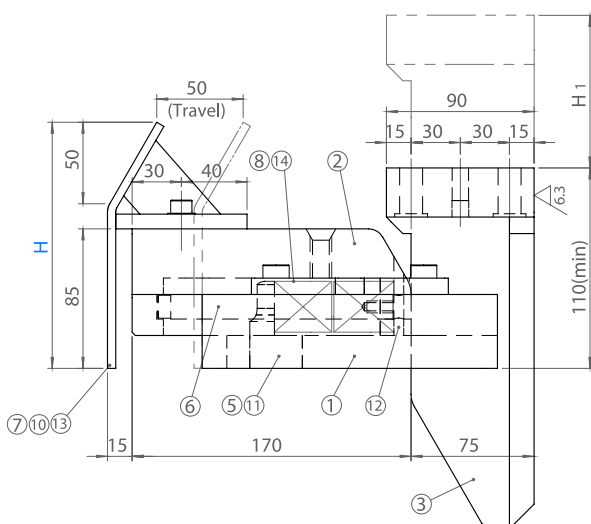
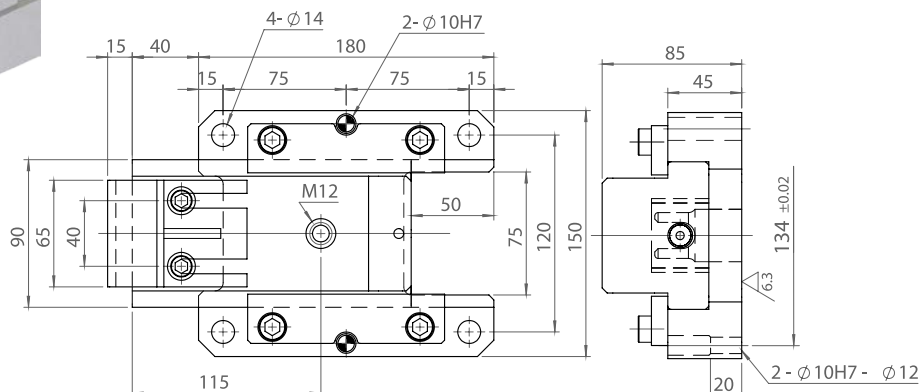
No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400	8	Hexagon Socket Head Bolt	2	SCM435 M10 X 35
2	Slide Holder	1	FC250 with Graphine	9	Hexagon Socket Head Bolt	4	SCM435 M6 X 16
3	Guide Plate	2	Bronze with Graphite (SO#50 SP2)	10	Spring Washer	4	S25CD For M6
4	Gauge Plate	1	SS400	11	Spring Pin	4	Ø8 X 40
5	Pusher Boss	1	S45C	12	Split Pin	1	Ø4 X 30
6	Air Cylinder	1	CQ2L40 by SMC (Special order Cylinder)	13	Spring Washer	2	For M10
7	Hexagon Socket Head Bolt	4	SCM435 M10 X 45	14	Washer	6	For M10

**ORDER
EXAMPLE**

Model S - H
25SGAD50-75

i เลือกค่า H หากต้องการแผ่นเกจ
Choose H for gauge attachment

Model	Cylinder Travel S	H	A	B	C	D	E	F	G	J	K
25SGAD	30	75	163	50	60	15	60	30	92	100	43.5
		100									
	50	150	183	50	80	15	80	30	92	100	63.5
		200									
	75	250	248	55	100	20	115	35	122	130	98.5
		300									



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
1	Base	1	FC250	8	Spring	2	19SF30-65
2	Silde	1	FC250 with Graphine	9	Hexagon Socket Head Bolt	4	SCM435 M10 X 25
3	Driver	1	FC250	10	Hexagon Socket Head Bolt	2	SCM435 M8 X 20
4	Upper Plate	2	SS400	11	Set Bolt	1	SCM435 M6 X 10
5	Spring Stopper	1	SS400	12	Split Pin	1	SUJ2 Ø6(m6) X 30
6	Spring Guide Pin	1	SS400	13	Washer	2	For M8
7	Gauge Plate	1	SS400	14	Washer	1	S45C

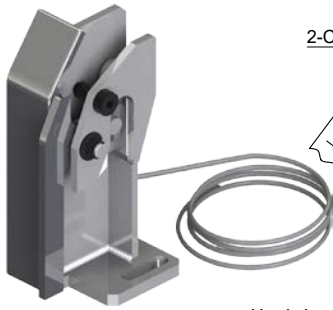
ORDER
EXAMPLE Model S - H
25SGCT220-150

 เลือกค่า H หากต้องการแผ่นเกจ
Choose H for gauge attachment

Model	L	H	H1	Spring	
				Initial Load (N)	Final Load (N)
25SGCT	220	150	168.66	141.4	685.3
		200			
		250			
	300	150	248.66		
		200			
		250			

Panel Input Detector Gauge - ระบบเช็คแผ่นเหล็ก

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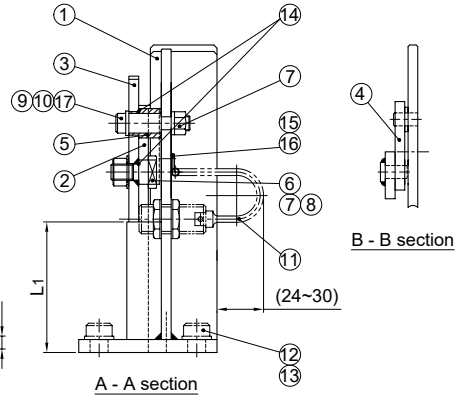
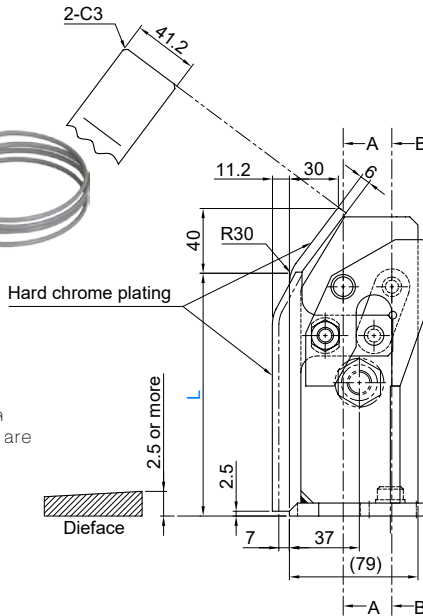


Models:

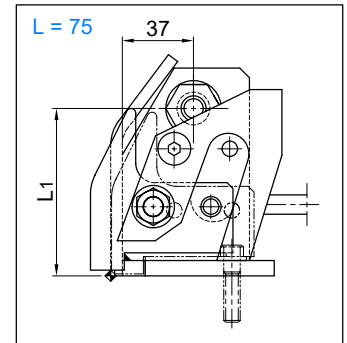
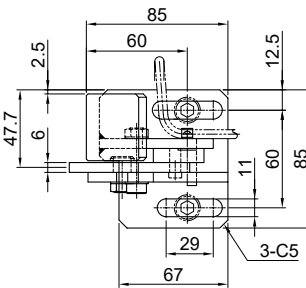
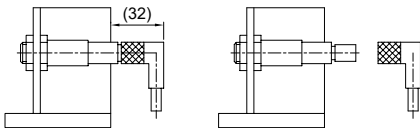
25HKFM-L (Left Hand)

25HKFM-R (Right Hand)

แผ่นเพลทชุบฮาร์ดโครมทั้งสองโมเดล
Both models's panel contact are hard chrome plated



1 การต่อสวิตช์
Switch mounting



No.	Description	Qty	Material and Remark
1	Gauge	1	SS400 Hard chrome plating
2	Detection Lever	1	SS400 Hard chrome plating
3	F Link	1	SS400
4	R Link	1	SS400
5	Collar	1	S45C
6	Pin	1	S45C
7	Hexagon Nut	2	For M8
8	Washer	1	For M8
9	Spring Washer	1	For M8
10	Hexagon Socket Head Bolt	1	M8 X 40

No.	Description	Qty	Material and Remark
11	Proximity Switch (for AC)	(1)	E2E-X5Y1-5M by Omron
	Proximity Switch (for DC)	(1)	E2E-X5E1-5M by Omron
	Proximity Switch (for EC)	(1)	IG0348 by EFECTOR
12	Hexagon Socket Head Bolt	2	M10 X 25 (Accessory)
13	Flat Washer	2	For M10 (Accessory)
14	Shim Ring	2	T = 0.2
15	Round Head Screw	1	M4 X 8
16	Cable clip	1	UC-1
17	Flat Washer	1	for M8

ORDER EXAMPLE Model L - Switch Type
25HKFM-L100-AC

Model	L	Switch Type	L1
25HKFM-L 25HKFM-R	75	AC (24 - 240V)	85
	100	DC (24V)	30
	150	EC (EFECTOR Connector) SN (without switch)	80

ชิ้นส่วนหาตำแหน่ง

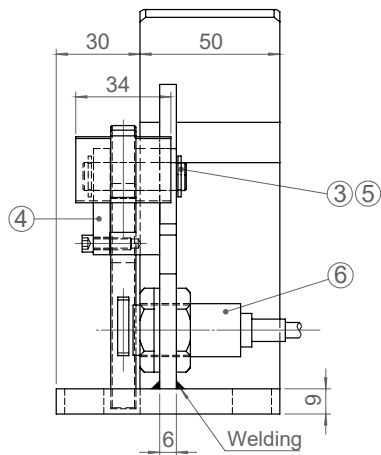
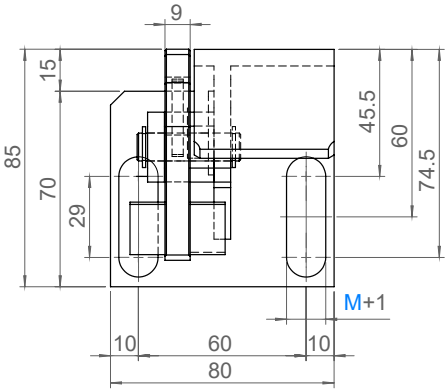
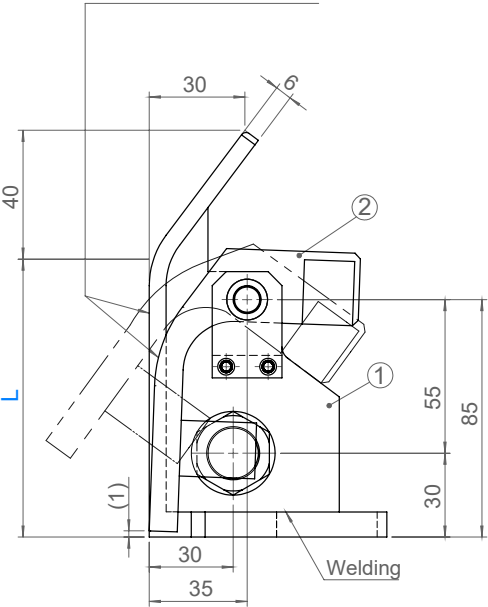
Panel Input Detector Gauge - ระบบเช็คแผ่นเหล็ก

FOIL FREE™

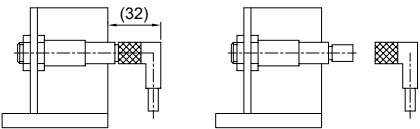
Models:
25PADG-BL (Left Hand)
25PADG-BR (Right Hand)

แผ่นเพลทชุบฮาร์ดโครมทั้งสองโมเดล
Both models's panel contact are
hard chrome plated

Panel contact surface
Hard chrome plating (10~30 µm)
(Plated)



การต่อสวิตช์
Switch mounting

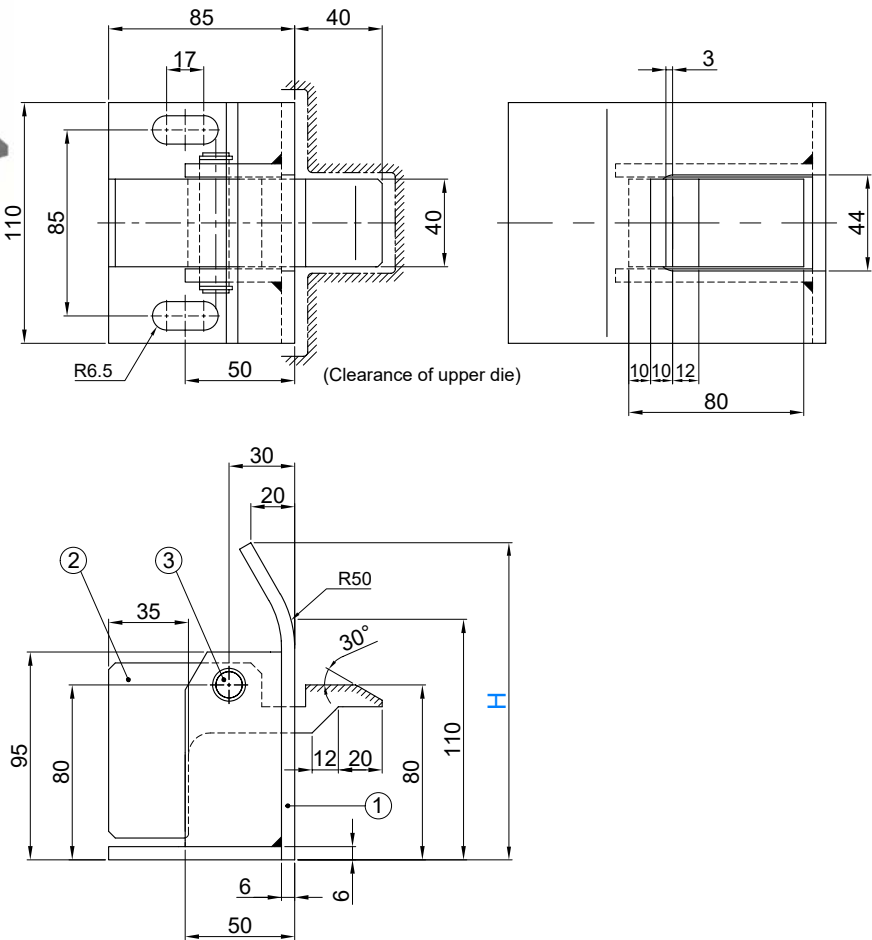


No.	Description	Qty	Material and Remark
①	Body of front gauge	1	SS400
②	Panel detection lever	1	SS400
③	Lever Pin	1	S45C
④	Support Plate	1	SS400
⑤	Snap Ring (C Type)	2	-
⑥	Proximity Switch (for AC)	(1)	E2E-X5Y1-5M by Omron
	Proximity Switch (for DC)	(1)	E2E-X5E1-5M by Omron

ORDER Model L - Switch Type - M
EXAMPLE 25PADG-BL100-AC-M10

Model	L	Switch Type	Mounting Bolt M
25PADG-BL 25PADG-BR	75	AC (100V) DC (24V)	M10
	100		M12
	150		M12

Model: 25SSGNW



ORDER
EXAMPLE

Model H
25SSGNW145

Model	H
25SSGNW	145

No.	Description	Qty	Material and Remark
①	Gauge (with base)	1	SS400
②	Support Plate	1	S45C
③	Hinge Pin	1	S45C with retaining ring

ชิ้นส่วนหาตำแหน่ง

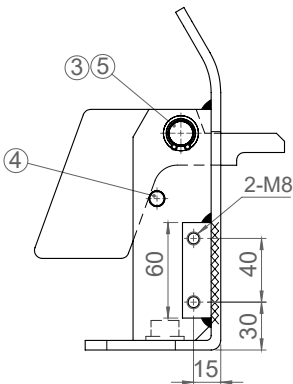
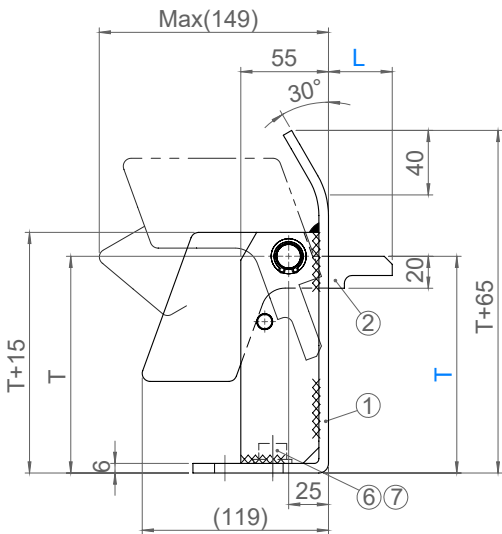
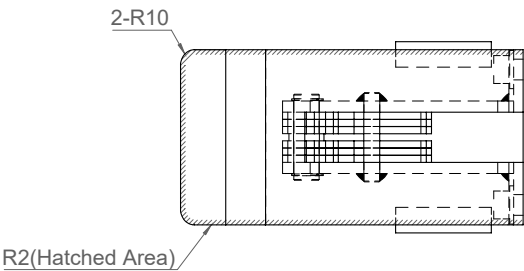
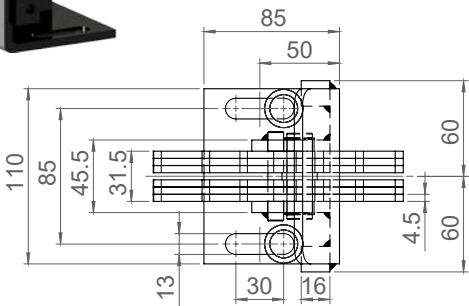
Sheet Support Gauge - ซีทซัพพอร์ต

FOIL FREE™

Die Locating



Model: 25SSGW



ORDER EXAMPLE	Model	T - L
	25SSGW120-20	

Model	T	L
25SSGW	90	20 40
	120	
	150	
	180	

② Support Plate

ORDER EXAMPLE	Model	T
	25SSGW-P20	

Model	L
25SSGW-P	20
	40

No.	Description	Qty	Material and Remark
①	Gauge	1	SPC
②	Support Plate	6	SPC
③	Support Point Hinge Pin	1	S45C
④	Collar	5	SGP (1 piece is assembled 4 piece are accompanied)
⑤	C Type Retaining Ring	2	For Ø6 shaft
⑥	Hexagon Socket Head Bolt	2	SCM435 M12 X 30 (Accessory)
⑦	Washer	2	For M12 (Accessory)



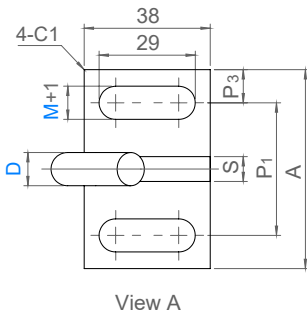
Model: 25SRG
เสาด้านกลาง
Center Type



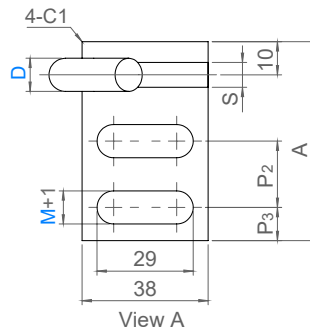
Model: 25SRG-L
เสาด้านซ้าย
Left Hand Type



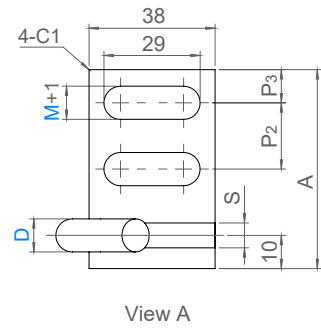
Model: 25SRG-R
เสาด้านขวา
Right Hand Type



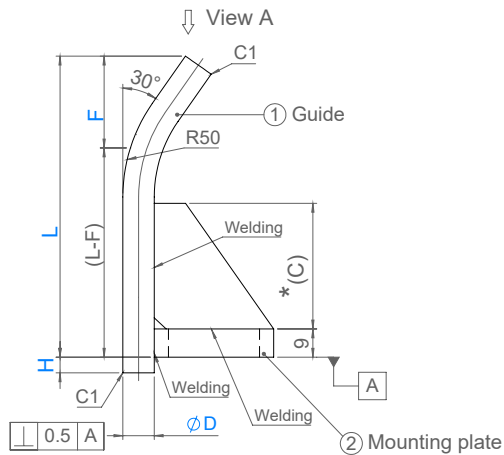
View A



View A



View A



ORDER
EXAMPLE

Model D - L - F - H - M
25SRG-R18-100-20-50-M10

① S45C (เส้า / rod)
② SS400

Model	D	5mm increments			M	A	P1	P2	P3	S
		L	F	H						
25SRG 25SRG-L 25SRG-R	8	60 - 300	10 - 50 F ≤ L - 50	0 - 80	M10 M12	60	40	20	10	6
	10									9
	12									
	16									
	20				M10	75	50	25	12.5	16

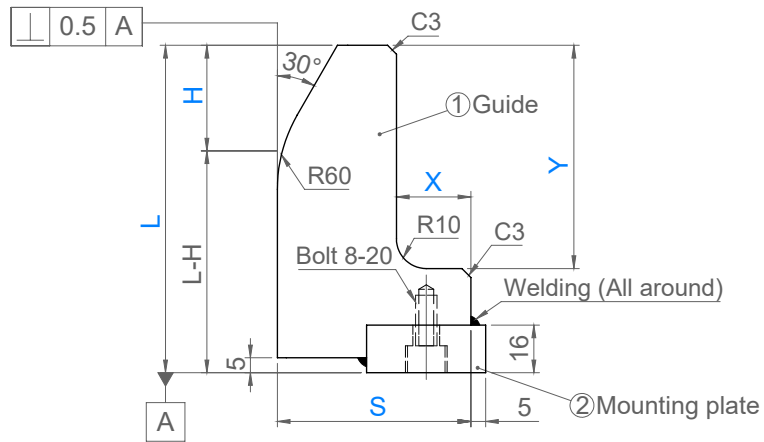
ชิ้นส่วนหาตำแหน่ง

Nest Guides (Upper Die Relief) - เนสต์ไกด์

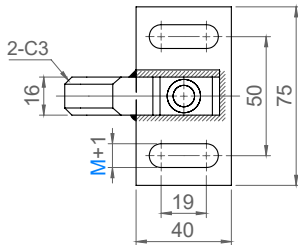
FOIL FREE™



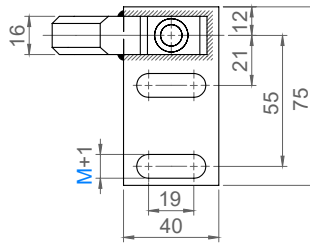
Model: 25SNGU



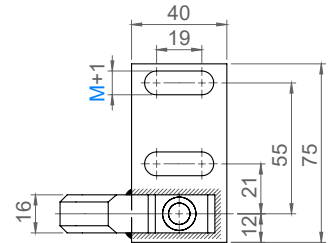
Model: 25SNGU



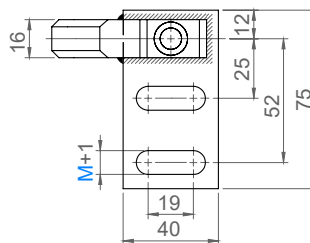
Model: 25SNGU-R



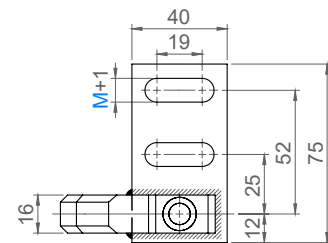
Model: 25SNGU-L



Model: 25SNGU-RN



Model: 25SNGU-LN

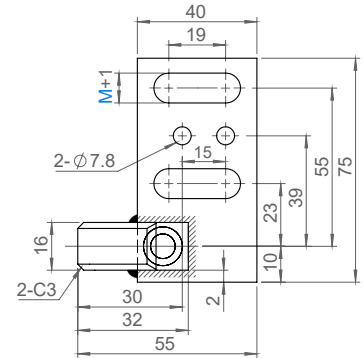
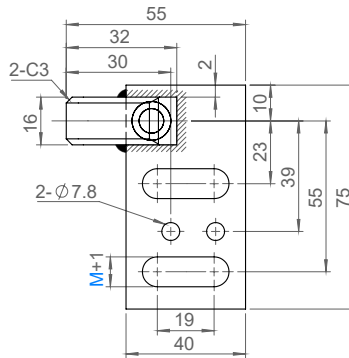
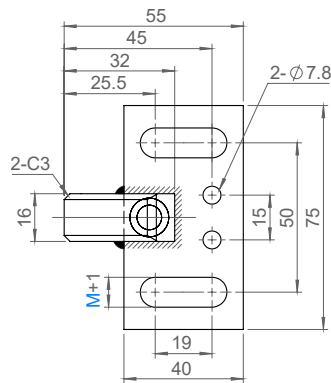
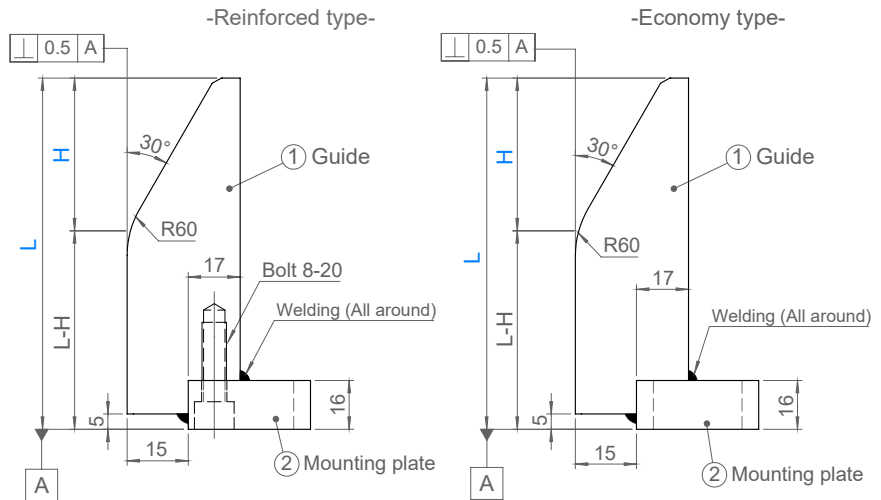


ORDER
EXAMPLE

Model L - H - S - X - Y - M
25SNGU105-30-60-20-65-M10

① S45C (เสาคู่มือ / guide)
② SS400

Model	5mm increments					Mounting Bolt M
	L	H	S	X (S - X) ≥ 30	Y (L - Y) ≥ 40	
25SNGU	75 - 100	20 - 40	50 - 100	20 - 70	35 - 60	M10 M12
25SNGU-R	105 - 150				65 - 110	
25SNGU-L	155 - 200				115 - 160	



Reinforced 25SNGN

25SNGN-R

25SNGN-L

Economy 25ENGB

25ENGB-R

25ENGB-L

แบบแข็งแรง

Reinforced Type

ORDER
EXAMPLE

Model L - H - S
25SNGN100-30-M12



① S45C (เสานัด / guide)
② SS400

แบบประหยัด

Economy Type

ORDER
EXAMPLE

Model L - H - S
25ENGB100-30-M12



① SS400 (เสานัด / guide)
② SS400

Model	5mm increments		Mounting Bolt M
	L	H	
25SNGN 25SNGN-L 25SNGN-R	65 - 200	20 - 40	M10 M12

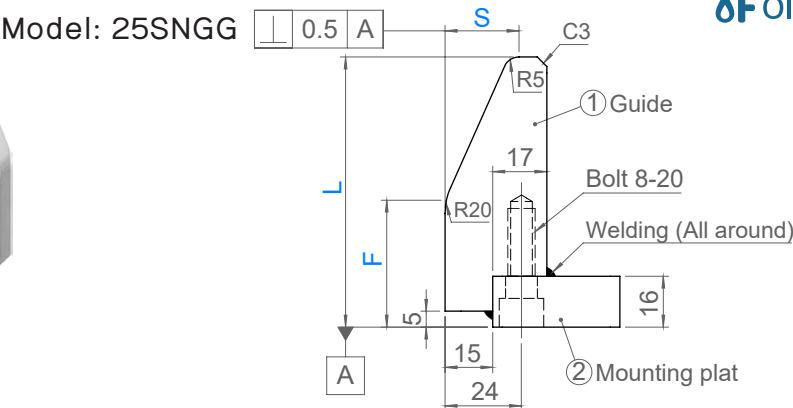
Model	5mm increments		Mounting Bolt M
	L	H	
25ENGB 25ENGB-L 25ENGB-R	65 - 350	20 - 40	M10 M12

ชิ้นส่วนหาตำแหน่ง

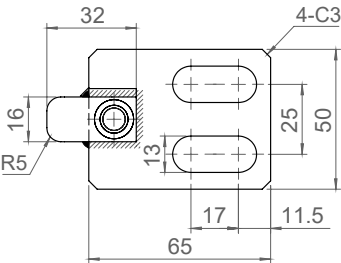
Nest Guides (No Dowel Pilot Hole) - เนสต์ไกด์

FOIL FREE™

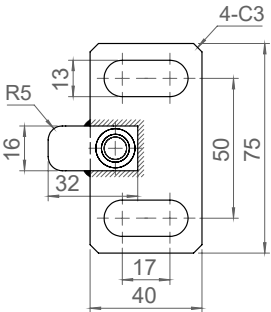
Die Locating



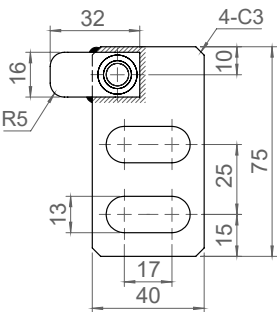
Model: 25SNGG



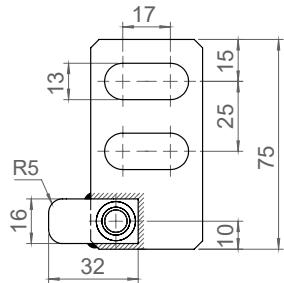
Model: 25SNGGC



Model: 25SNGGC-R



Model: 25SNGGC-L



ORDER Model L - F - S
EXAMPLE 25SNGG100-50-15



① S45C (เสาคู่มือ / guide)
② SS400

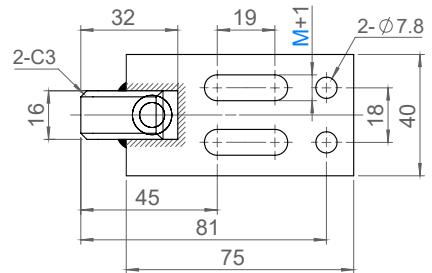
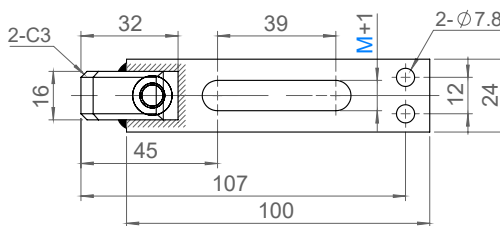
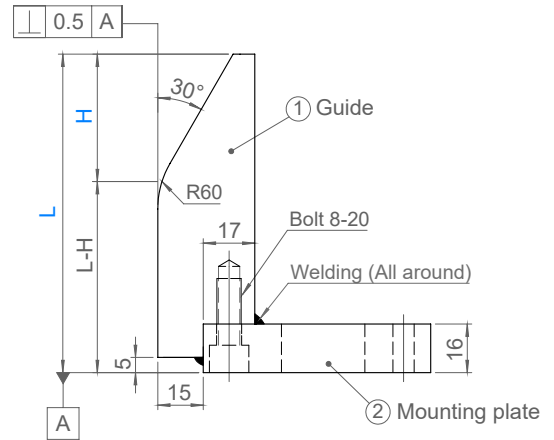
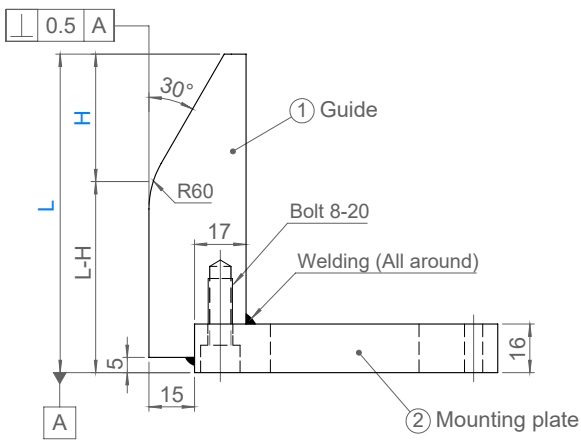
Model	L	F 10mm increments	S
25SNGG 25SNGGC 25SNGGC-R 25SNGGC-L	60	20 - 50	15 20
	80	20 - 70	
	100	20 - 90	
	120	20 - 110	
	140	20 - 130	
	160	20 - 150	
	180	20 - 170	
	200	20 - 190	



Model: 25SNGA



Model: 25SNGC



ORDER
EXAMPLE

Model L - H - M
25SNGA100-30-M10



① S45C (เสาคู๊ต / guide)
② SS400

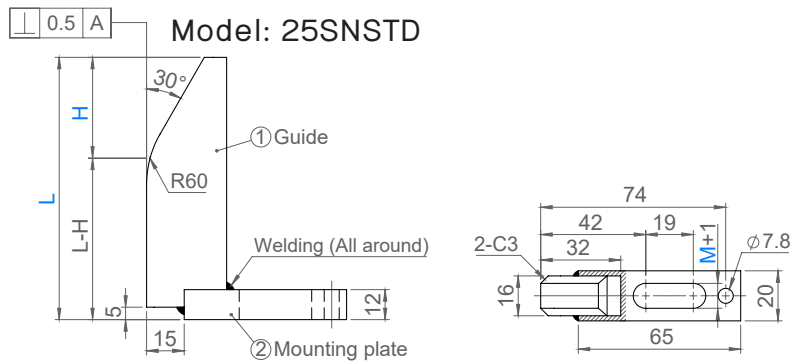
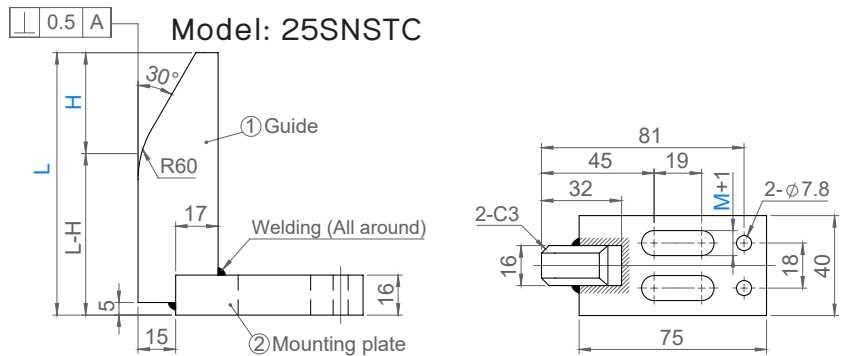
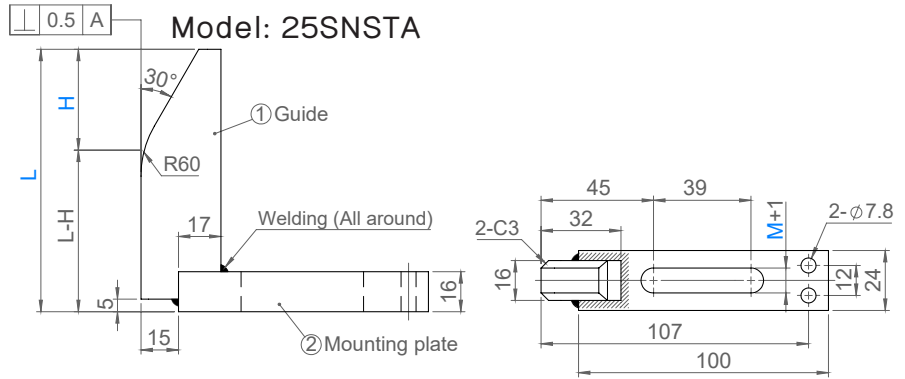
Model	5mm increments		Mounting Bolt M
	L	H	
25SNGA	65 - 200	20 - 40	M10 / M12
25SNGC	65 - 200	20 - 40	M10

ชิ้นส่วนหาตำแหน่ง

Configurable Shape Nest Guides (Economy) - เนสต์ไกด์ แบบปรับแต่งได้

FOIL FREE™

Die Locating



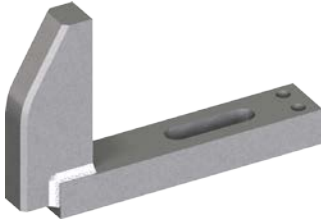
ORDER
EXAMPLE

Model L - H - M
25SNSTA100-30-M10



① SS400 (เสาคู่มือ / guide)
② SS400

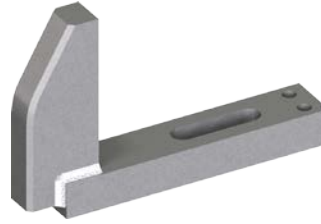
Model	5mm increments		Mounting Bolt M
	L	H	
25SNSTA	65 - 200	20 - 40	M10 / M12
25SNSTC 25SNSTD	65 - 200	20 - 40	M10



Model: 25SNGNX

แบบแข็งแรง

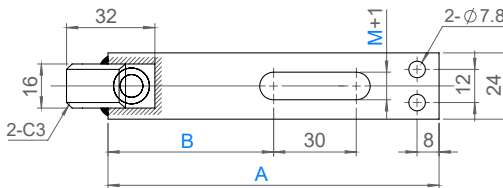
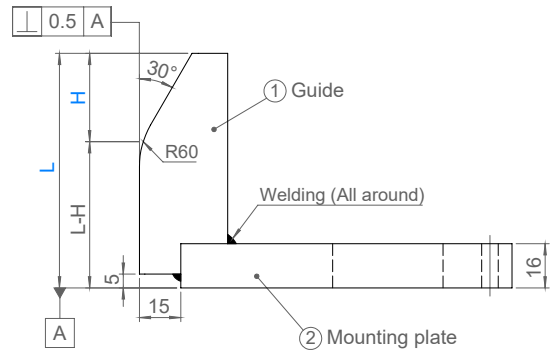
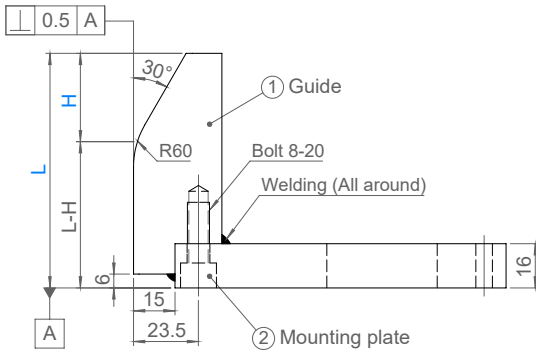
Reinforced Type



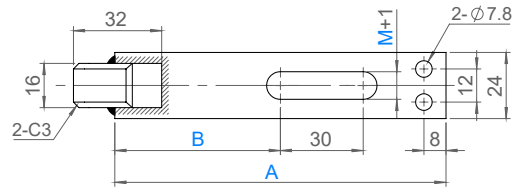
Model: 25SENGX

แบบประหยัด

Economy Type



- ① S45C (เสากลไก / guide)
② SS400



- ① SS400 (เสากลไก / guide)
② SS400

ORDER
EXAMPLE

Model L - H - M
25SNSTA100-30-M10

Model	5mm increments		A 10mm Increments	B 5mm Increments	Mounting Bolt M
	L	H			
25SNGNX 25SENGX	65 - 200	20 - 40	100 - 200	$35 \leq B \leq A - 50$	M10 M12

ชิ้นส่วนหาตำแหน่ง

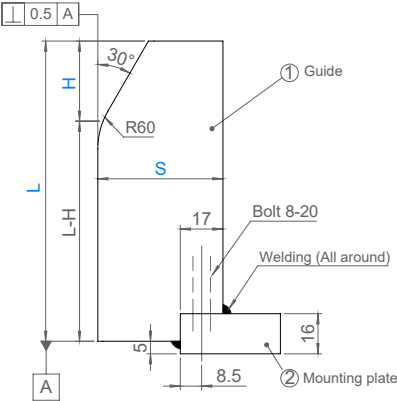
Special Configurable Nest Guides - เนสต์ไกด์ แบบปรับแต่งพิเศษ

FOIL FREE™



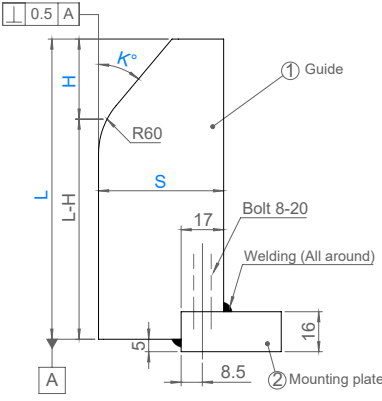
Model: 25SNGW

รุ่นปรับความกว้าง
Wide Config Type



Model: 25SNGWK

รุ่นปรับมุมแผ่นไกด์
Angle Config Type

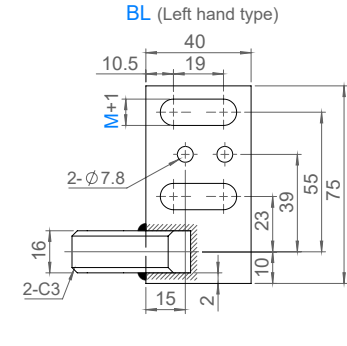
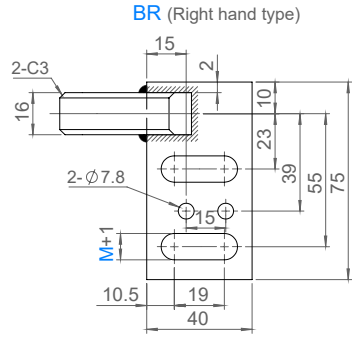
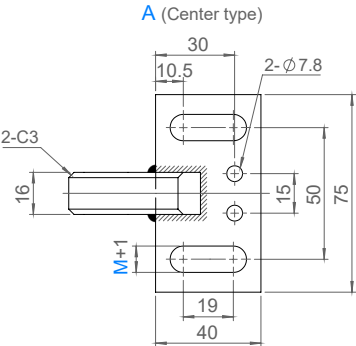
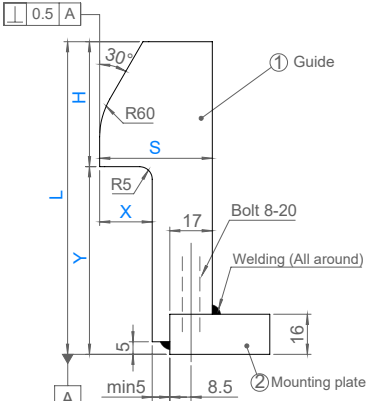


*S ≥ 10+Hxtan K°



Model: 25SNGWS

รุ่นหัวตะขอ (รอยบาก)
Notched Guide Type



ORDER Model L - H - S - K - X - Y - M
EXAMPLE 25SNGWBR100-30-50-M12

① S45C (เสาคู๊ด / guide)
② SS400

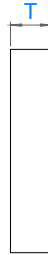
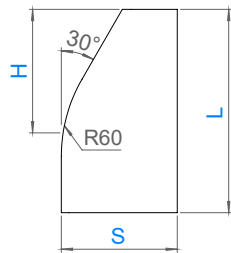
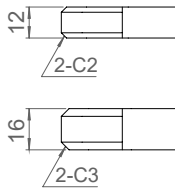
Model	Mounting Orientation	5mm increments			Mounting Bolt M
		L	H	S	
25SNGW	A (Center Type) BR (R Type) BL (L Type)	65 - 200	20 - 40	35 - 100	M10 M12

Model	Mounting Orientation	5mm increments				Mounting Bolt M
		L	H	S	K	
25SNGWK	A (Center Type) BR (R Type) BL (L Type)	65 - 200	20 - 40	32 35 - 100	15 ≤ K ≤ 60	M10 M12

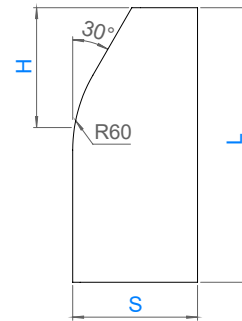
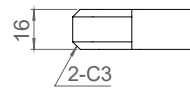
Model	Mounting Orientation	5mm increments			X 1mm increments	Y 5mm increments	Mounting Bolt M
		L	H	S			
25SNGWS	A (Center Type) BR (R Type) BL (L Type)	65 - 200	20 - 40	32 35 - 100	X ≤ S - 22	Y ≤ L - H - 15	M10 M12



M 25NBB: SS400
25NBBC: S45C



M S45C



**ORDER
EXAMPLE**

Model T - S - L - H
25NBB16-50-100-30

Model	Thickness T	S	L 5mm increments	H
25NBB	12	32 50 75 100	65 - 200	30
	16			40
25NBBC	16			

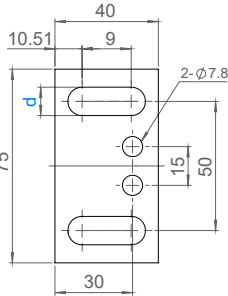
**ORDER
EXAMPLE**

Model T - S - L - H
25NBBC16-50-100-30

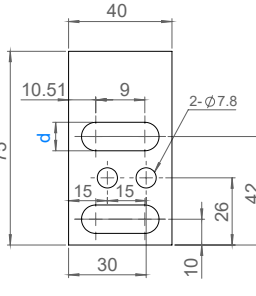
Model	Thickness T	S	10mm increments	
			L	H
25NBBC1	16	50	200 - 350	20 - 60



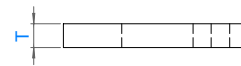
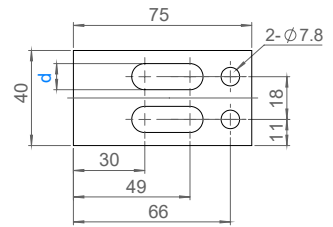
25TEA



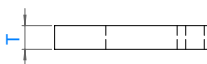
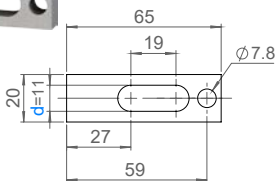
25TEB



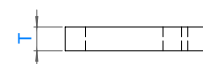
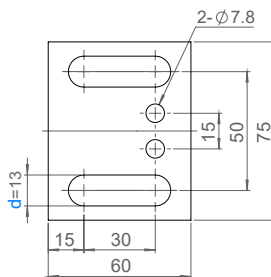
25TEC



25TEE



25TEL



M S45C

**ORDER
EXAMPLE**

Model T - d
25TEA16-13

Model	Thickness T	d
25TEA 25TEB	12	11
		13
25TEC	16	11
		13
25TEE	12	11
25TEL	16	13

ชิ้นส่วนหาตำแหน่ง

Nest Guide with Surface Support - เนสต์ไกด์ แบบมีหน้าสัมผัสกว้าง

FOIL FREE™



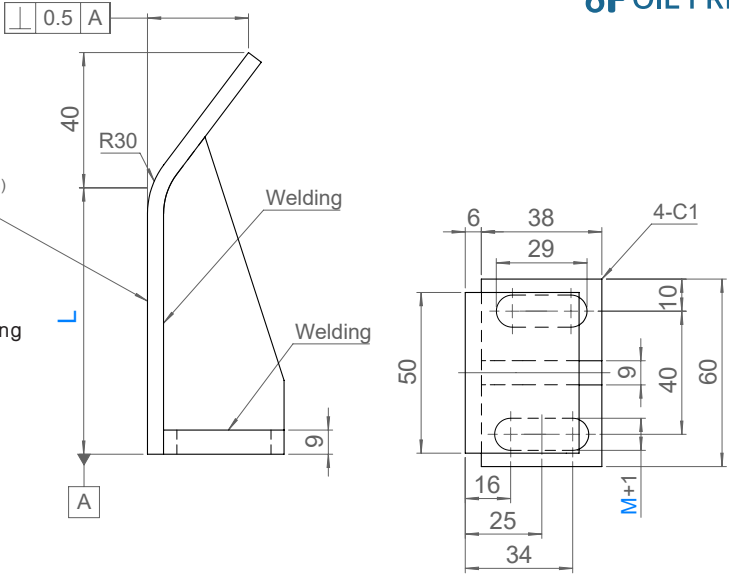
Die Locating

SS400

Panel contact face
Hard chrome plating (10-30 µm)
(plated)

Model: 25SNTFA
ไม่มีการชุบผิว
Non-Hard Chrome Plating

Model: 25SNTFB
มีการชุบผิว
Hard Chrome Plating



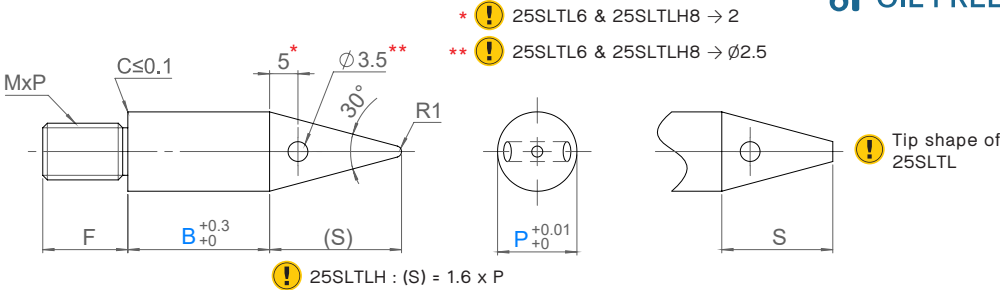
ORDER
EXAMPLE

Model L - M
25SNTFA100-M10

Model	L 5mm increments	Mounting Bolt M	Type
25SNTFA	75 - 150	M10 / M12	ไม่ชุบผิว / non-plated
25SNTFB			ชุบผิว / plated

Locating Pilot Pins - ไพลัดพินล๊อคตำแหน่ง

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* 25SLTL6 & 25SLTLH8 → 2

** 25SLTL6 & 25SLTLH8 → Ø2.5

ORDER
EXAMPLE

Model P - B
25SLTL10-10

SKS3
37 - 43HRC

Model: 25SLTL ขนาด P ตามตัว
Fixed P dimension

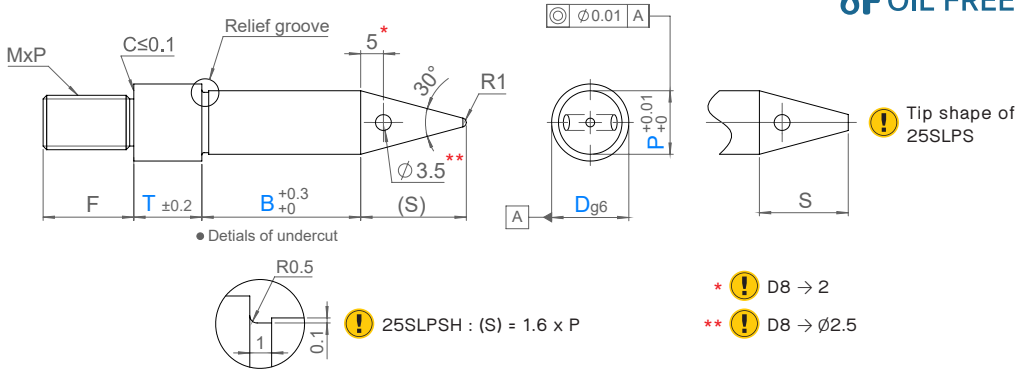
Model	P	B	MxP	F	S
25SLTL	6	5 10	5x0.8	12	10
	8		6x1.0		
	9	10 15	6x1.0	12	10
	10		8x1.25		
	12	15 20	10x1.5	15	15
	14		12x1.75		
	15	20 25	12x1.75	15	17
	16		12x1.75		
	20	25 30	16x2.0	25	20

Model: 25SLTLH กำหนดขนาด P และ B ได้
Config P and B

Model	P 0.01 increments	B 1 increments	MxP	F
25SLTLH	8	5 - 50	5x0.8	12
	10		6x1.0	
	12		8x1.25	15
	14		10x1.5	
	16		12x1.75	
	20		16x2.0	

Locating Pilot Pins - ไพล็อตพินล๊อคตำแหน่ง

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ORDER
EXAMPLE

Model D - P - B - T
25SLPSH10-9.05-10-10

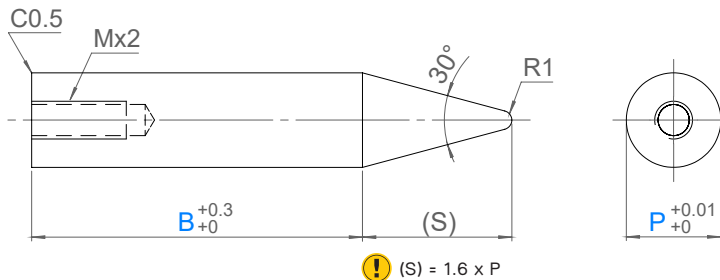
SKS3
37 ~ 43HRC

Model: 25SLPS ขนาด P ตามตัว
Fixed P dimension

Model	D	MxP	F	P	B	T	S
25SLPS	8	6x1.0	12	6	5	3	10
	10	8x1.25	15	8		5	10
	13	12x1.75	15	10		15	15
	16			13	10	17	17
	20	16x2.0	25	16		20	20
	25			20		25	25

Model: 25SLPSH กำหนดขนาด P B และ T ได้
Config P B and T

Model	D	P 0.01 increments	B 1 increments	T 1 increments	MxP	F
25SLPSH	8	6.00 - 8.00	5 - 60	3 - 15	6x1.0	12
	10	8.00 - 10.00			8x1.25	15
	13	10.00 - 12.00			12x1.75	
	16	12.00 - 14.00				
	20	14.00 - 16.00			16x2.0	25
	25	16.00 - 20.00				



ORDER
EXAMPLE

Model P - B
25SNSTH10-9.05-10.5

SKS3
60 ~ 63HRC

Model: 25SNST ขนาด P ตามตัว
Fixed P dimension

Model	P	B	MxP
25SNST	6	10 15	4x0.7
	8		5x0.8
	10	15 20	
	12		6x1.0
	13	20 30	
	15		
	16	30 40	
	20	40 50	8x1.25

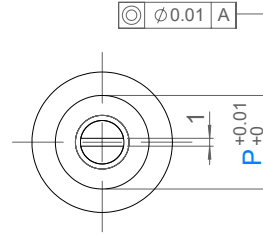
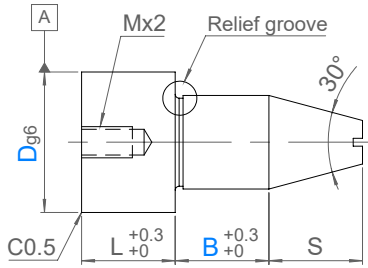
Model: 25SNSTH กำหนดขนาด P และ B ได้
Config P and B

Model	P 0.01 increments	B 0.1 increments	MxP
25SNSTH	6	10 - 80	4x0.7
	8		5x0.8
	10		
	12		6x1.0
	13		
	15		
	16		
	20		8x1.25

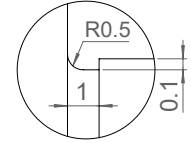
ชิ้นส่วนหัวตำแหน่ง

Locating Pilot Pins - ไพล็อตพินล๊อคตำแหน่ง

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• Details of undercut



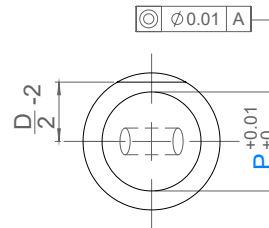
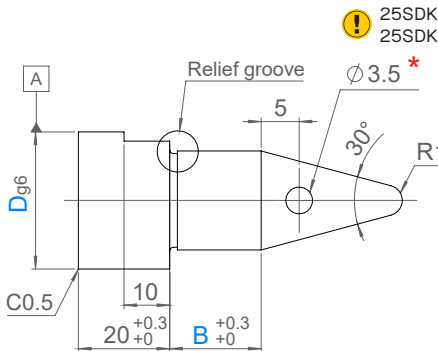
ORDER Model D - P - B
EXAMPLE 25SDSTH10-8.05-3.1 SKS3 60 - 63HRC

Model: 25SDST ขนาด P ตามตัว
Fixed P dimension

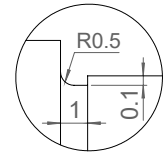
Model	D g6	MxP	P	L	S	B
25SDST	8	-0.005 -0.014	5x0.8	6	15	10
	10	-0.005 -0.014	6x1.0	8	8	
	13	-0.006 -0.017	8x1.25	10	20	12
	16	-0.006 -0.017	10x1.5	12	17	
	20	-0.007 -0.020	12x1.75	16	20	15

Model: 25SDSTH กำหนดขนาด P และ B ได้
Config P and B

Model	D g6	P 0.01 increments	B 0.1 increments	MxP	L	S
25SDSTH	8	-0.005 -0.014	6.00 - 7.00	5x0.8	15	6
	10	-0.005 -0.014	7.00 - 9.00	6x1.0	8	
	13	-0.006 -0.017	9.00 - 12.00	8x1.25	20	12
	16	-0.006 -0.017	12.00 - 15.00	10x1.5	17	
	20	-0.007 -0.020	15.00 - 18.00		20	15



• Details of undercut



ORDER Model D - P - B
EXAMPLE 25SDKLH13-7.05-5.1 SKS3 60 - 63HRC

Model: 25SDKL ขนาด P ตามตัว
Fixed P dimension

Model	D g6	P	B
25SDKL	10	-0.005 -0.014	6
	13	-0.006 -0.017	8
	16	-0.006 -0.017	10
	20	-0.007 -0.020	12
	25	-0.007 -0.020	16

Model: 25SDKLH กำหนดขนาด P และ B ได้
Config P and B

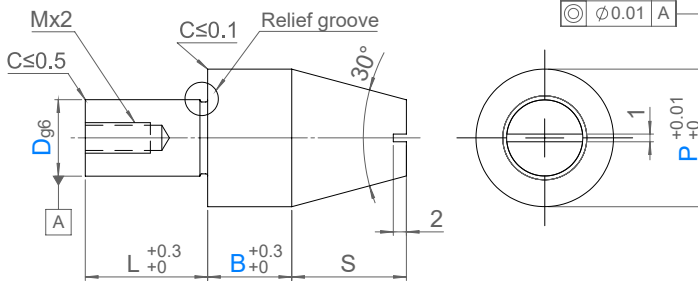
Model	D g6	P 0.01 increments	B 0.1 increments
25SDKLH	10	-0.005 -0.014	6.00 - 7.00
	13	-0.006 -0.017	7.00 - 9.00
	16	-0.006 -0.017	9.00 - 12.00
	20	-0.007 -0.020	12.00 - 15.00
	25	-0.007 -0.020	15.00 - 20.00

Locating Pilot Pins - โพล็อตพินล๊อคตำแหน่ง

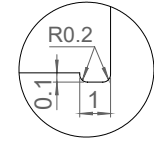
FOIL FREE™



Model: 25SKSTH



• Details of undercut



ORDER
EXAMPLE

Model D - P - B
25SKSTH10-15.05-2

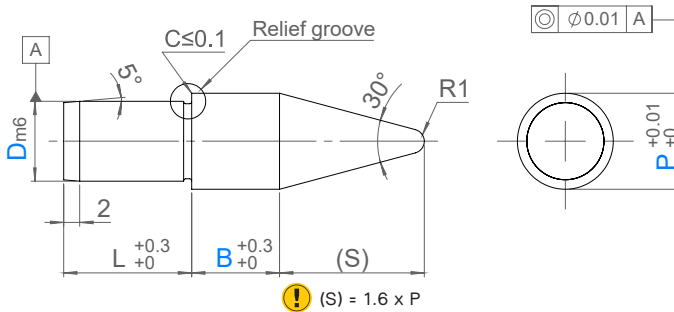


SKS3
60 - 63HRC

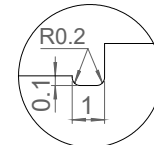
Model	D g6		P 0.01 increments	B 0.1 increments	M	L	S
25SKSTH	5	-0.004 -0.012	8.00 - 8.99	1.00 - 12.00	3	12	8
			9.00 - 10.00				10
	6	-0.005 -0.014	10.00 - 10.99	1.00 - 15.00	3	12	10
			11.00 - 12.00				12
	8	-0.006 -0.017	12.00 - 12.99	1.00 - 15.00	4	15	15
			13.00 - 16.00				17
	10	-0.006 -0.017	14.00 - 14.99	1.00 - 20.00	5	15	17
			15.00 - 20.00				20
	13	-0.006 -0.017	16.00 - 16.99	1.00 - 20.00	6	20	20
			17.00 - 20.00				25
	16		18.00 - 20.00	1.00 - 20.00	8	24	25



Model: 25SFSTH



• Details of undercut



! (S) = 1.6 x P

ORDER
EXAMPLE

Model D - P - B
25SFSTH10-15.05-2



SKS3
60 - 63HRC

Model	D m6		P 0.01 increments	B 0.1 increments	L
25SFSTH	4	+0.012 +0.004	4.00 - 8.00	1.00 - 12.00	12
	5		5.00 - 10.00	1.00 - 12.00	
	6		6.00 - 12.00	1.00 - 15.00	
	8	+0.015 +0.006	8.00 - 14.00	1.00 - 15.00	15
	10		10.00 - 16.00	1.00 - 20.00	
	13	+0.018 +0.007	13.00 - 18.00	1.00 - 20.00	20
	16		16.00 - 20.00	1.00 - 20.00	

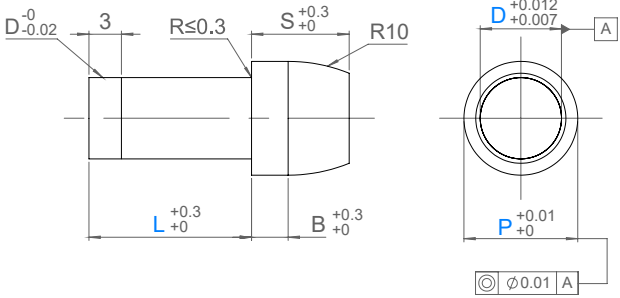
ชิ้นส่วนหาตำแหน่ง

Locating Pilot Pins - ไพล์ลิตพินล๊อคตำแหน่ง

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Model: 25PST



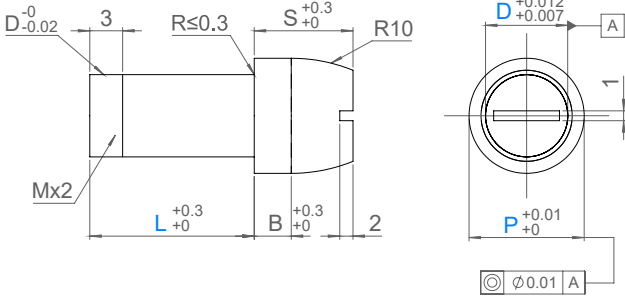
ORDER Model D - L - P
EXAMPLE 25PST5-15-7.05

SKS3
60 - 63HRC

Model	D	L	P 0.01 increments	B	S
25PST	1	12	1.50 - 3.00	1	4
	2	12	2.50 - 4.00		5
	3		4.00 - 6.00		6
	4		5.00 - 7.00	2	7
	5		6.00 - 8.00		8
	6	15	7.00 - 9.00		
	8		9.00 - 13.00	3	9
	10		11.00 - 15.00		



Model: 25PSTM

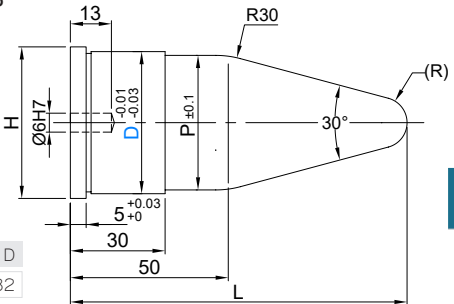


ORDER Model D - L - P
EXAMPLE 25PSTM8-15-9.05

SKS3
60 - 63HRC

Model	D	L	P 0.01 increments	B	S	M
25PSTM	5	12	6.00 - 8.00	2	7	3
	6	15	7.00 - 9.00		8	
	8	15	9.00 - 13.00	3	9	4
	10	18	11.00 - 15.00			5

Model: 25RFPP



ORDER Model D
EXAMPLE 25RFPP32

SK3
55HRC ~

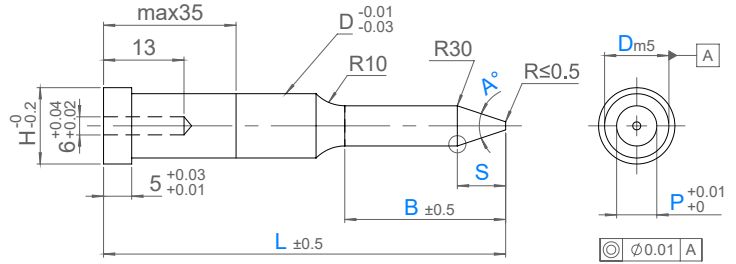
Model	D	H	L	R	P
25RFPP	32	35	90	5	29.5
	45	48	110	8	44.5

Locating Pilot Punches - โพลีออดฟันซ์ล็คคตำแหน่ง

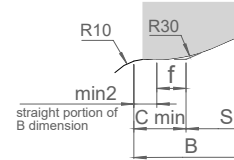
FOIL FREE™



Model	Material		Coating
25RTP	SKD11	60 - 63HRC	-
25T-RTP	SKD11	60 - 63HRC	3000HV



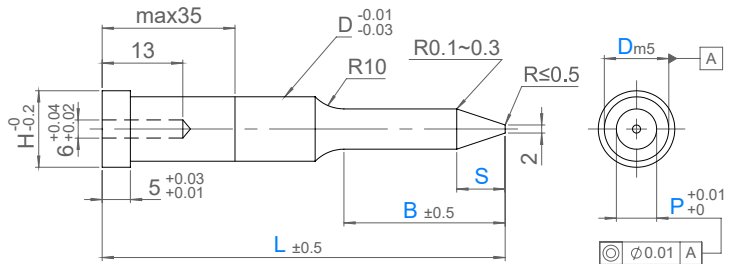
Details of ○



A	f	Cmin.
20°	2.624	5
30°	3.950	6
40°	5.967	8



Model	Material		Coating
25RTPE	SKD11	60 - 63HRC	-
25T-RTPE	SKD11	60 - 63HRC	3000HV



ORDER EXAMPLE

Model D - L - P - B - S - A
25RTP13-100-P10.05-B30-S10-A20

Model	D	L 1mm increments	P 0.01 increments	B 1mm increments	S 1mm increments	A	H
25RTP	10	70 - 200	6.00 - 9.99	20 - 100	10 - 50 S ≤ B - Cmin.	20 30 45	13
25RTP 25T-RTP	13		6.00 - 12.99				16
	16		8.00 - 15.99				19
	20		11.00 - 19.99				23
	25		16.00 - 24.99				28
25RTP	32		18.00 - 31.99				35

Model	D	L 1mm increments	P 0.01 increments	B 1mm increments	S 1mm increments	A	H
25RTPE	10	70 - 150	6.00 - 9.99	10 - 50	8 - 45 S ≤ B - 2	20 30 45	13
25RTPE 25T-RTPE	13		6.00 - 12.99				16
	16		8.00 - 15.99				19
	20		11.00 - 19.99				23
	25		16.00 - 24.99				28
25RTPE	32		18.00 - 31.99				35

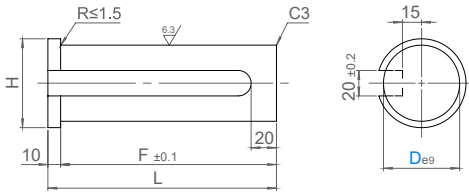
ชิ้นส่วนหาตำแหน่ง

Locating Pins - พินล๊อคตำแหน่ง

FOIL FREE™



Model:
25DIKPA
S45C

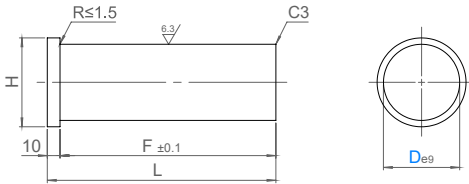


ORDER
EXAMPLE Model D
25DIKPA60

Model	D e9		H	F	L
25DIKPA	60	$\begin{smallmatrix} -0.060 \\ -0.134 \end{smallmatrix}$	70	170	180



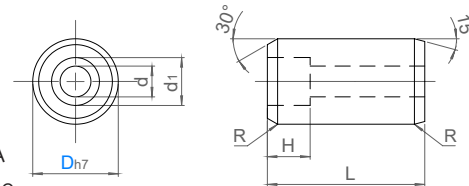
Model:
25DIKPB
S45C



Model	D e9		H	F	L
25DIKPB	50	$\begin{smallmatrix} -0.050 \\ -0.112 \end{smallmatrix}$	60	145	155
	60	$\begin{smallmatrix} -0.060 \\ -0.134 \end{smallmatrix}$	70	170	180



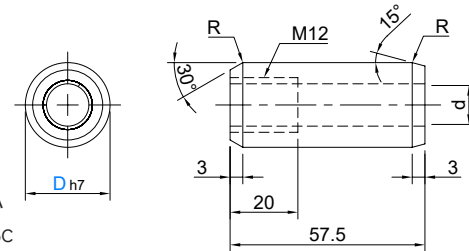
Model:
25DLP A
S45C
40 ~ 45HRC



Model	D h7		L	R	d	d1	H
25DLP A	20	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	46	3	11	-	-
	25	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	56	5		17.5	12
	32	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	70	5		17.5	24



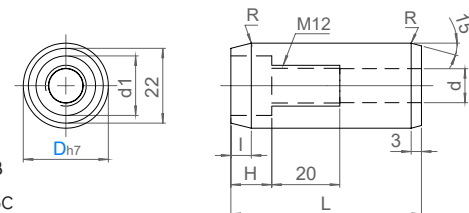
Model:
25TLPA
S45C
40 ~ 45HRC



Model	D h7		L	R	d
25TLPA	20	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	45	3	10.5



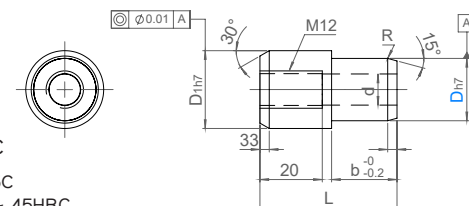
Model:
25TLPB
S45C
40 ~ 45HRC



Model	D h7		L	R	d	d1	H	ℓ
25TLPB	25	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	56	3	10.5	17.5	12	6
	32	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	65	5			24	10



Model:
25TLPC
S45C
40 ~ 45HRC



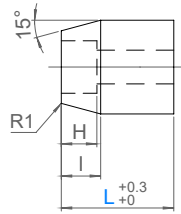
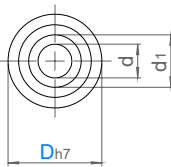
Model	D h7		D1 h7		L	R	d	b
25TLPC	20	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	25	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	44	3	10.5	21

Locating Pins - พินล๊อคตำแหน่ง

FOIL FREE™



Model:
25LPU



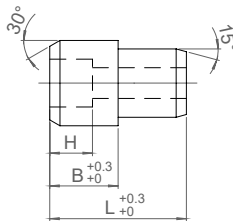
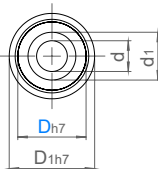
M S45C

ORDER Model D - L
EXAMPLE 25LPU32-30

Model	D h7		L	I	d	d1	H
25LPU	25	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	25	12	9	14	11
			30				
	32	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	30	15	11	17.5	13
			35				
40	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	35	18	14	20	15
			40				



Model:
25LPL



M S45C
40 ~ 45HRC

ORDER Model D
EXAMPLE 25LPL32

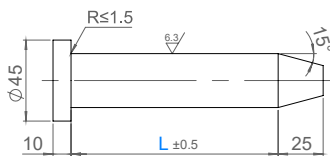
Model	D h7		D1 h7		L	B	d	d1	H
25LPL	20	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	25	$\begin{smallmatrix} 0 \\ -0.021 \end{smallmatrix}$	40	20	9	14	11
	25	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	32	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	50	25	11	17.5	12
	32	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	40	$\begin{smallmatrix} 0 \\ -0.025 \end{smallmatrix}$	70	35	11	17.5	24

Locating Pins - พินล๊อคตำแหน่ง

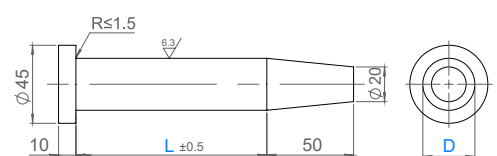
FOIL FREE™



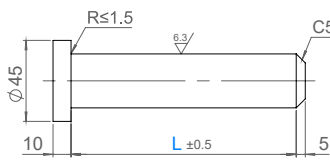
Model: 25IKPDA



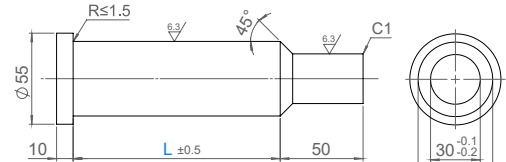
Model: 25IKPDB



Model: 25IKPDC



Model: 25IKPE



ORDER Model D - L
EXAMPLE 25IKPDA30-150

M S45C

Model	D		L 5mm increments
25IKPDA 25IKPDB 25IKPDC	30	$\begin{smallmatrix} -0.1 \\ -0.2 \end{smallmatrix}$	110 - 200
25IKPE	45	$\begin{smallmatrix} -0.1 \\ -0.2 \end{smallmatrix}$	110 - 200

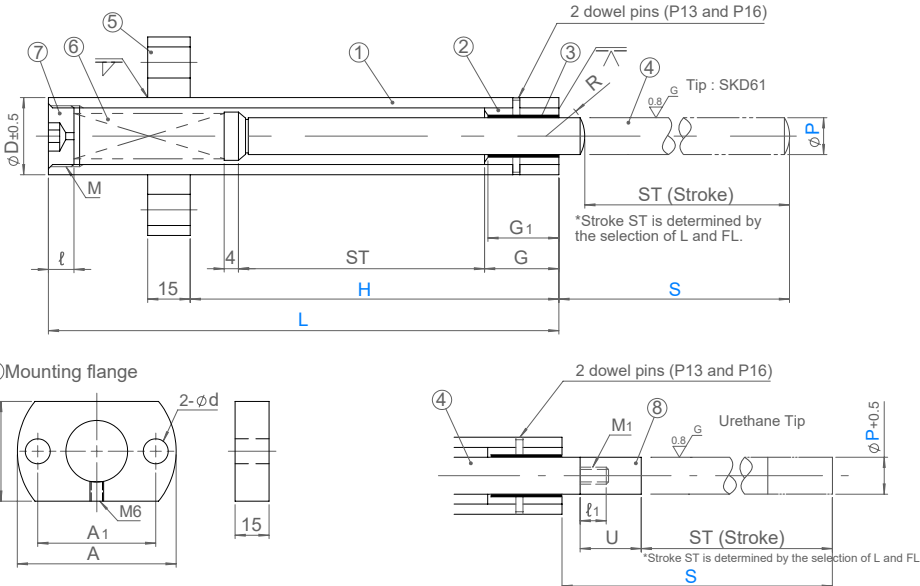
ชิ้นส่วนหัวตำแหน่ง

Pre-Holding Push Pin Sets - ชุดพรีโฮลด์ดันพิน

FOIL FREE™



Model: 25S-PAP Model: 25S-PAP-U
ปลายเหล็กเหนียว ปลายยูรีเทน
Steel Tip Urethane Tip



- ① ② ⑤ (M) SS400
- ③ Oil Free™ Bush
- ④ (M) SKD61 + Nitrile Coating 40 ~ 50HRC 900HV ~ (surface)
- ⑥ (M) SWP-A
- ⑦ (M) S45C
- ⑧ (M) Urethane (A90)

ORDER EXAMPLE Model P - S - L - H - FL
25S-PAP16-150-220-190-200

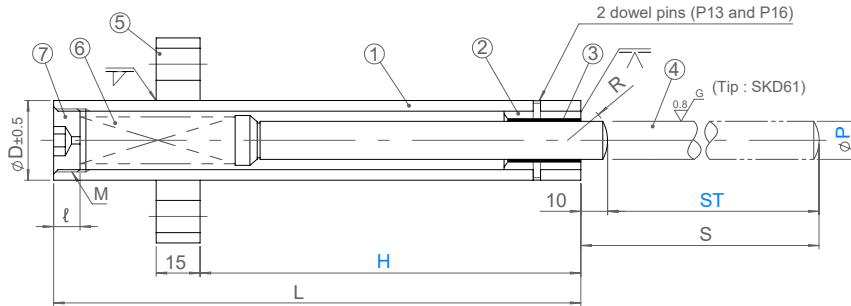
Model	P	S	L 10mm increments	H 10mm increments	Spring FL	Case					Pushing Pin				Mounting Flange			
						D	G	G1	ℓ	M	R	U	M1	ℓ1	A	A1	B	d
25S-PAP 25S-PAP-U	13	100	150 - 250	0 ≤ H ≤ L - 20	90	27.2	22	20	10	22	20	15	M6	9	70	52	40	11
		150			125													
		200			150													
		250			175													
	16	100	150 - 350	0 ≤ H ≤ L - 20	90	34	27	25	10	26	25	20	M8	12	80	60	50	11
		150			125													
		200			150													
		250			175													
		300			200													
	20	100	180 - 500	0 ≤ H ≤ L - 20	90	42.7	32	30	12	33	30	25	M10	15	90	70	60	13
		150			150													
		200			175													
		250			200													
		300			250													
		350			300													
		400			350													
		450			400													
		500			425													
		550			450													



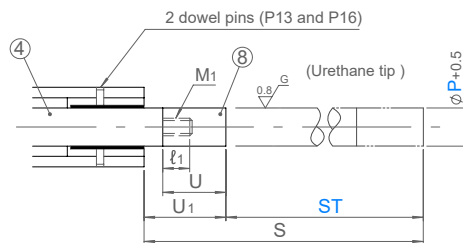
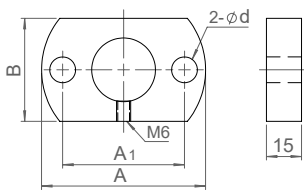
Model: 25S-PAP-E Model: 25S-PAP-EU

ปลายเหล็กเหนียว
Steel Tip

ปลายยูรีเทน
Urethane Tip



⑤ Mounting flange



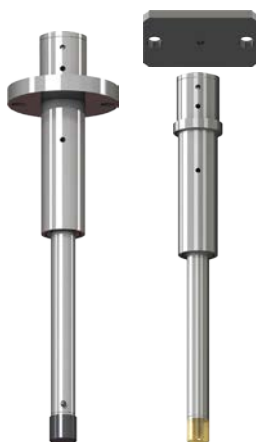
- ① ② ⑤ (M) SS400
- ③ Oil Free™ Bush
- ④ (M) SKD61 + Nitrile Coating 40 ~ 50HRC 900HV ~ (surface)
- ⑥ (M) SWP-A
- ⑦ (M) S45C
- ⑧ (M) Urethane (A90)

ORDER
EXAMPLE

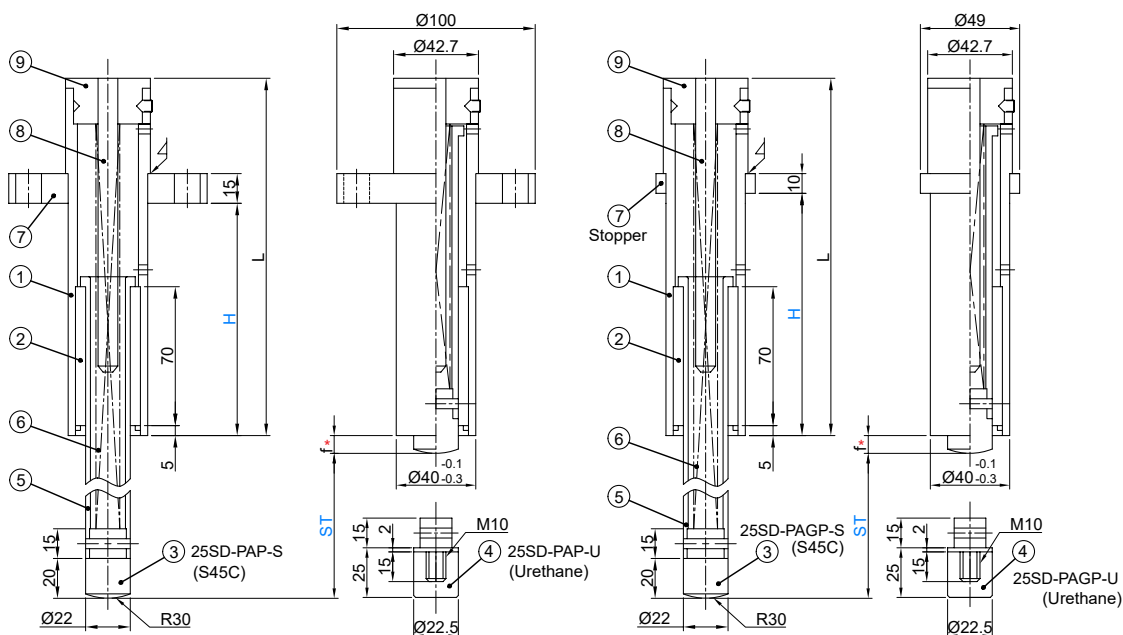
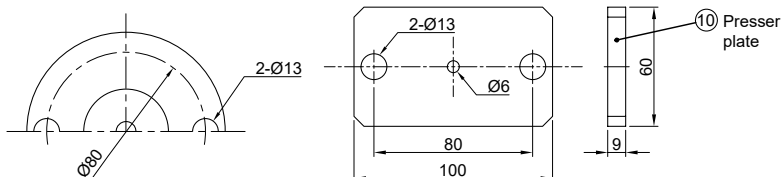
Model P - ST - H
25S-PAP-E16-50-90

P	ST	H 1mm increments	Case			Pushing Pin					Mounting Flange				FL	Spring Constant N/mm (kgf/mm)	Initial Load Max Load		S		L
			D	ℓ	M	R	U	U1	M1	ℓ1	A	A1	B	d			N (kgf)		Steel	Urethane	
13	50	0 - 95	27.2	10	22	20	15	20	M6	9	70	52	40	11	90	0.63 (0.064)	7.8 (0.8)	39.2 (4.0)	60	70	115
	100	0 - 170													175	0.32 (0.033)			110	120	190
	150	0 - 250													270	0.21 (0.021)			160	170	270
16	50	0 - 100	34	10	26	25	20	25	M8	12	80	60	50	11	90	0.80 (0.082)	9.8 (1.0)	49 (5.0)	60	75	120
	100	0 - 175													175	0.39 (0.040)			110	125	195
	150	0 - 255													270	0.26 (0.027)			160	175	275
	200	0 - 330													350	0.20 (0.020)			210	225	350
20	50	0 - 110	42.7	12	33	30	25	30	M10	15	90	70	60	13	90	0.95 (0.097)	9.8 (1.0)	58.8 (6.0)	60	80	130
	100	0 - 185													175	0.48 (0.049)			110	130	205
	150	0 - 260													260	0.32 (0.033)			160	180	280
	200	0 - 340													330	0.23 (0.024)			210	230	360
	250	0 - 410													425	0.20 (0.020)			260	280	430

FOIL FREE™



Model: 25SD-PAGP-U



Tip	f
S45C	10
Urethane	15

④ **M** Urethane (A90)
⑥ **M** SWP-A
⑦ **M** S45C

ORDER EXAMPLE	Model	ST- H
	25SD-PAP-S200-200	

145



ปลายเหล็กเหนียว
Steel Tip

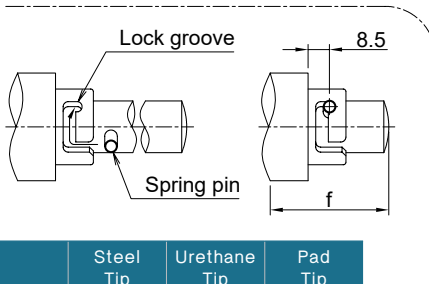
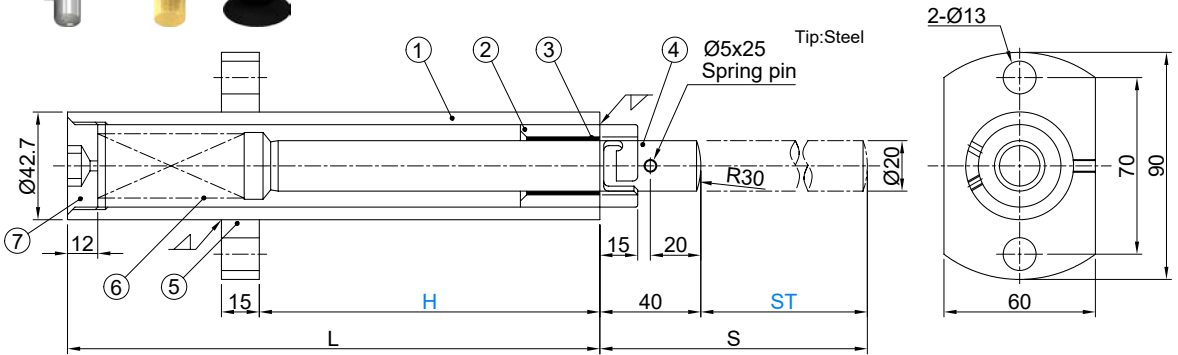
Model: 25SD-PAP-Z-S

ปลายยูรีเทน
Urethane Tip

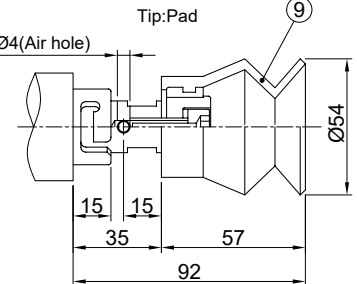
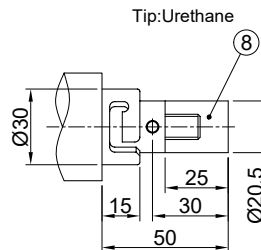
Model: 25SD-PAP-Z-U

ปลายแป้ด
Pad Tip

Model: 25SD-PAP-Z-P



	Steel Tip	Urethane Tip	Pad Tip
f	28.5	38.5	80.5



① ② ⑤ ⑦ (M) SS400

③ Oil Free™ Bush

④ (M) SKD61+Nitrile Coating
40 - 50HRC
900HV (Surface)

⑥ (M) SWP-A

⑧ (M) S45C

⑨ (M) Urethane (A90)

⑩ (M) NBR

ORDER
EXAMPLE

Model No-ST-H
25SD-PAP-Z-S20-100-120

Model	No.	ST	H 1mm increments	Spring Constant N/mm (kgf/mm)	Initial Load	Max Load	S		L
					N (kgf)		Steel	Urethane	
25SD-PAP-Z-S (Steel Tip)	20	50	0 - 130	0.88 (0.090)	0	44.1 (4.5)	90	100	150
		100	0 - 190	0.49 (0.050)		49.0 (5.0)	140	150	210
25SD-PAP-Z-U (Urethane Tip)		150	0 - 265	0.32 (0.033)		49.0 (5.0)	190	200	285
25SD-PAP-Z-P (Pad Tip)		200	0 - 335	0.28 (0.029)		55.9 (5.7)	240	250	355
		250	0 - 395	0.24 (0.024)		54.9 (5.6)	290	300	415

ชิ้นส่วนหาตำแหน่ง

Pre-Holding Push Pin Sets (Air Hole) - ชุดพรีโฮลด์ดึงพุดพิน

FOIL FREE™

Die Locating

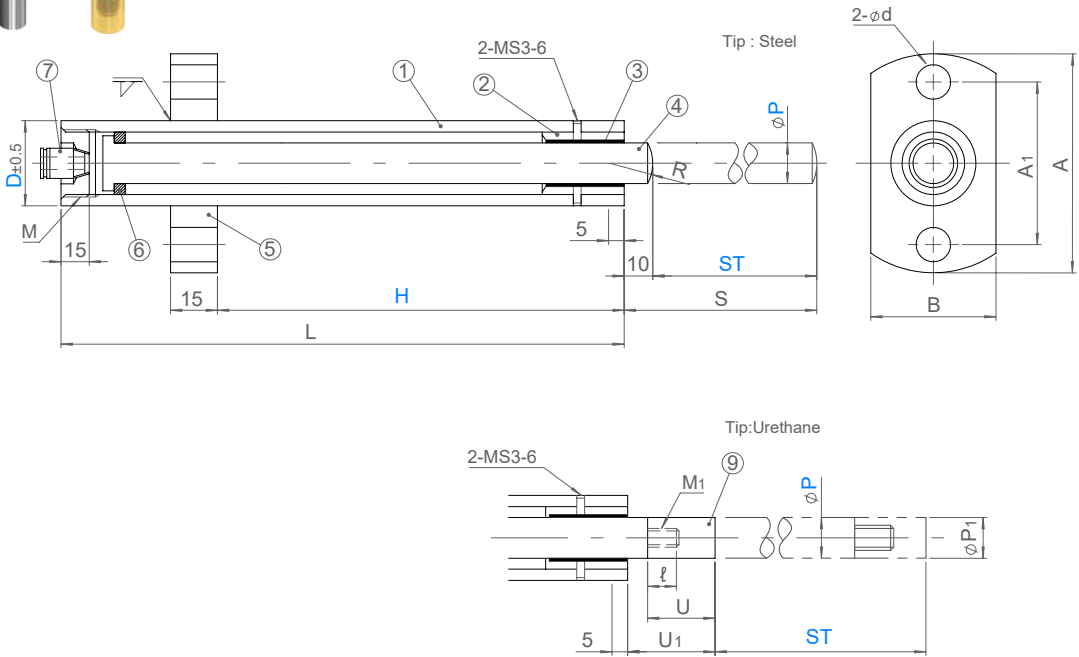


ปลายเหล็กเหนียว
Steel Tip

Model: 25SD-PAEA-S

ปลายยูรีเทน
Urethane Tip

Model: 25SD-PAEA-U



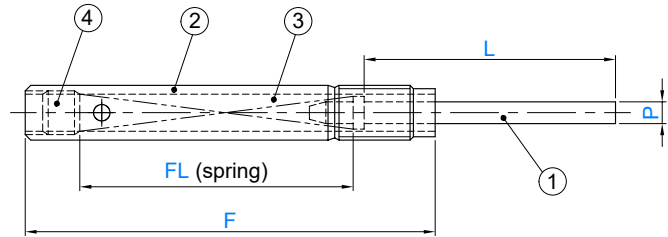
- ① ② ⑤ (M) SS400
③ Oil Free™ Bush
④ (M) SKD61+Nitrile Coating
40 ~ 50HRC
900HV (Surface)
⑥ ⑨ (M) Urethane (A90)
⑦ Air Quick Fitting Joint

ORDER
EXAMPLE Model P-ST-H
25SD-PAEA-S13-100-100

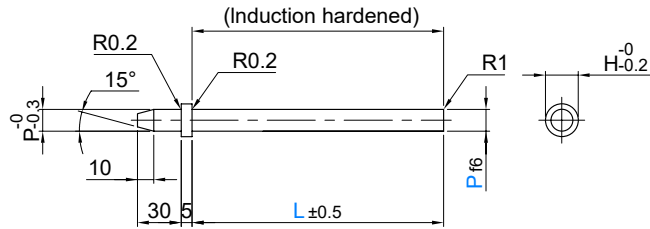
P	ST	H 1mm increments	Case			Pushing Pins						Mounting Flange				Pressing Load N (kgf)			S		L
			D	M	G	R	U	U1	I	M1	P1	A	A1	B	d	0.3MPa	0.4MPa	0.5MPa	Steel	Urethane	
13	50	0 ~ 80																	60	70	100
	100	0 ~ 130	27.2	22	22	20	15	20	9	M6	13.5	70	52	40	11	41.2 (4.2)	54.9 (5.6)	66.7 (6.8)	110	120	150
	150	0 ~ 180																	160	170	200
16	50	0 ~ 85																	60	75	105
	100	0 ~ 135																	110	125	155
	150	0 ~ 185	34	26	27	25	20	25	12	M8	16.5	80	60	50	11	63.7 (6.5)	83.4 (8.5)	103 (10.5)	160	175	205
	200	0 ~ 235																	210	225	235



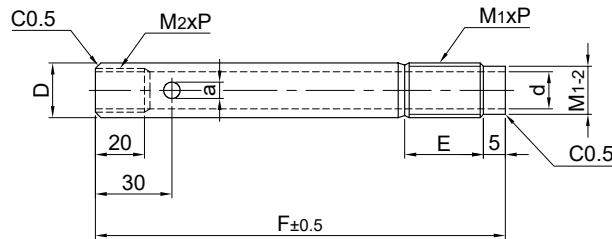
Model: 25S-PSPH
(①②③④)



Model: 25S-PSH
(①)



② (Spring case)



- ① S45C
50HRC -
(Induction Hardened)
- ② Steel Tube

ORDER
EXAMPLE

Model P - L - F - FL
25S-PSPH10-100-150-100

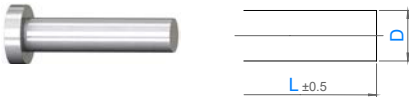
Model	P f6		L	F	FL	H	Spring Case					
							D	M1xP	E	M2xP	a	d
25S-PSPH 25S-PSH	8	-0.013 -0.022	100 150 200	150 200 250 300	100	13	21.7	22x1.5	35	16x1.5	7	14.3
	125				16	27.2	27x1.5	40	22x1.5	10	19.4	
	150	20			32	30x1.5	45	24x1.5	10	22		
	175	23			34	33x1.5	50	28x1.5	12	26.2		
	13	-0.016 -0.027		200	200							
16	250											
				300	300							

ชิ้นส่วนหาตำแหน่ง

Push Out Pins - พุชเอาท์พิน

FOIL FREE™

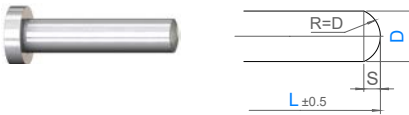
N (ทรงปกติ / Normal Shape)



ปลายเหล็กเหนียว
Steel Tip

Model: 25POP

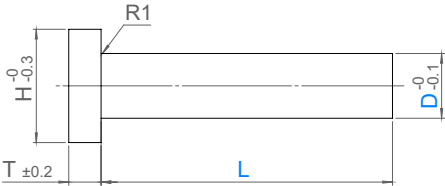
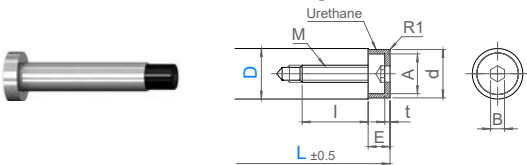
R (ทรงมน / Round Shape)



ปลายชุบแข็ง
Induction Hardened Tip

Model: 25HPOP

U (ปลายยูรีเทน/ Urethane Tip)



D	M	ℓ	t	d	A	B	E
8	3	5	3	7.5	5.5	2.5	6
10	4	6	3	9.5	7	3	7
13	5	7	4	12.5	8.5	4	9
16	6	8	4	15	10	5	10
20	8	10	5	19	13	6	13
25	10	12	5	24	16	8	15

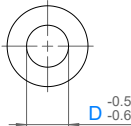
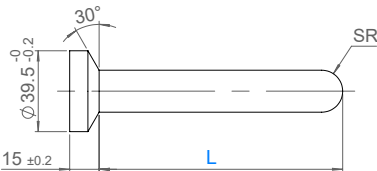
ORDER EXAMPLE Model Tip- D - L 25HPOP20-100 25POP : S45C 20 - 25HRC 25HPOP : S45C 50HRC ~

Model	Tip Shape	D	L 10mm increments	H	T
25POP	N	8	30 - 120	18	8
	R	10	40 - 150	25	
	U	13	50 - 180	28	
25HPOP (Induction Hardened)		16	50 - 180	30	
		20	50 - 200	35	10
		25	50 - 200	40	

Drawing Jector Pins - พุชเอาท์พินสำหรับงานขึ้นรูป

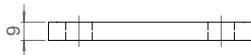
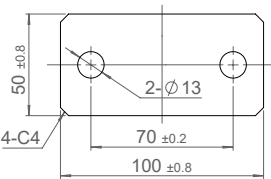
FOIL FREE™

Model: 25DHPA



S45C 55HRC ~ (Induction Hardened)

Model: 25DHPF100



SS400

ORDER EXAMPLE Model D - L 25DHPA20-170

Model	D	L
25DHPA	20	120
		170
		220
	26	200

Order Code

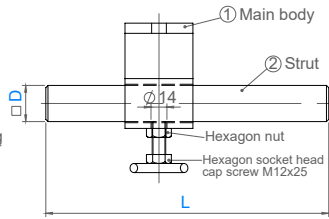
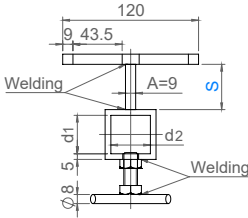
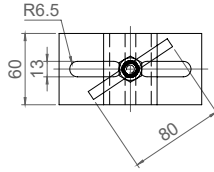
25DHPF100

Skid Brackets - ตัวยึดกันเลื่อน

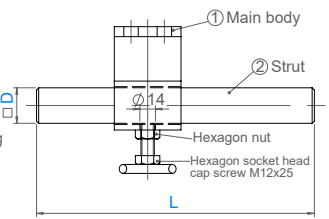
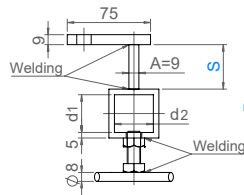
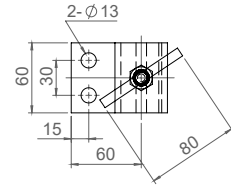
FOIL FREE™



Model:
25STB (①+②)
25STB-N (①)



Model:
25STBY (①+②)
25STBY-N (①)



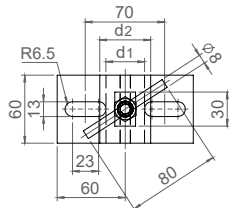
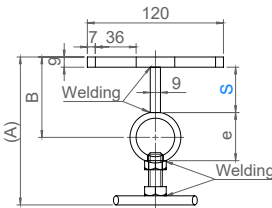
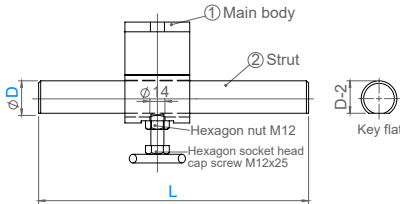
ORDER EXAMPLE Model D - L - S
25STB20-100-100

SS400
Blacken (Fe304)

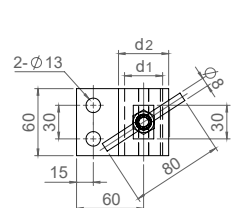
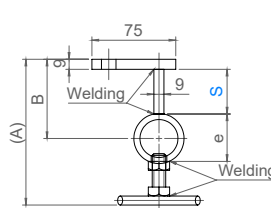
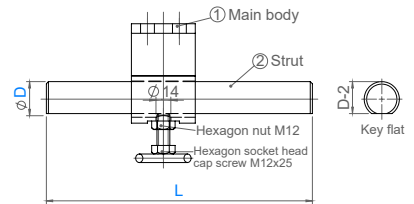
Model	D	10mm increments		d1	d2
		L	S		
25STB 25STB-N 25STBY 25STBY-N	20	100 - 300	0 - 150	33	33
	32			45	44



Model:
25MRTB (①+②)
25MRTB-N (①)



Model:
25MRTBY (①+②)
25MRTBY-N (①)



ORDER EXAMPLE Model D - L - S
25MRTB20-100-100

SS400
Blacken (Fe304)

Model	D	10mm increments		e	d1	d2
		L	S			
25MRTB 25MRTB-N 25MRTBY 25MRTBY-N	20	100 - 300	0 - 150	26	21	30
	30			37.5	32	40



Name	Material Guides	Material Guide Roller Sets	Stock Lifter	Material Feeder	Sheet Lifter
Model	25STG / 25STGN / 25STGE	25SGDRT(A,B) / 25SEGDR	25SSRL	25ZORW	25SLC / 25SLCE
Page	153	154	155	155	156



Name	Guide Lifters	Lifter Pins	Block Guide Lifters
Model	25GLP / 25GLH / 25GLR / 25AGL / 25GLSZ	25LPAH / 25LHAH	25GLB / 25GLBK
Page	157 - 159	159	160



Name	Guide Lifters w/ Air Hole	Block Lifter	Lifter Pins	Resin Lifter Pins	Lifter Pins with Relief Hole
Model	25GLJS / 25LJS	25BLR	25LPH	25JLP	25LHH / 25LHHV
Page	161	161	162	162	163



Name	Block Lifters	Knockout Pins	Push Pins	Material Guide Units
Model	25BLL / 25BLH / 25BLLF	25KOP	25JPWH	25ZGUA / 25ZGUB / 25SUK-A / 25SUK-B
Page	164	165	165	166 - 168



Name	Stock Guide	Lifter Units	H-Type Lifter Unit	Mini Lifter Unit
Model	25SBM / 25SBA	25LTHS / 25CLTH	25SHGC / 25SHGT / 25SHGF / 25SHLS	25MLGT
Page	169	170	171 - 176	177



Name	Embed Lifter Units	Lifter Guide Post Sets
Model	25SFL / 25SFLK / 25SFLG / 25SKIL / 25LGIL / 25PGLI	25LGPS / 25LGPPS
Page	178 - 183	184



Name	Lifter Components	Bell Crank Lifter Parts
Model	25SKIL-B / 25SFSG / 25SFRG / 25SSFLPA	25SBCR / 25SBCB / 25SBCBC / 25SBCL / 25SBCS / 25SBCJP / 25SBCBH / 25SBCEP / 25SBCCR
Page	185 - 186	187 - 192



Name	Pusher Units	Pusher Unit Components	Shredder Units
Model	25SODP / 25SOSP / 25APSG-B / 25APSG	25ADR / 25SO-PSH / 25CNP-APSG	25SDA / 25SDB
Page	193 - 195	196	197 - 198



Name	Hook for Transport	Lifting Bars	Cast-in Lifting Bolts	Bolt Die Hooks	Plate Type Die Hooks
Model	25DKLH / 25DVJ	25HLFB	25CSN	25HBT / 25HBTl	25HPT / 25HPTL
Page	199	199	200	200	201 - 202



Name	Roller Carriers	Roller Carriers Fit Type	Ball Roller Carriers
Model	25BCR	25BCRP	25CHI
Page	203	203	204

Material Guides - ไกด์แผ่นวัตถุดิบ



รูกลม
Round Holes

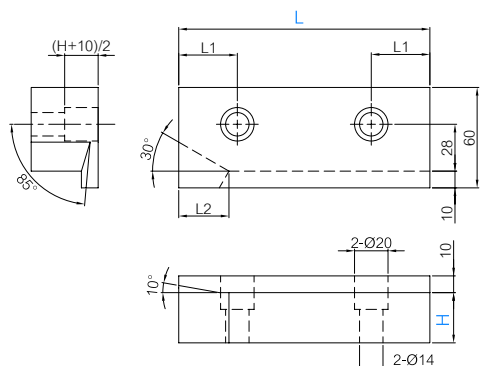
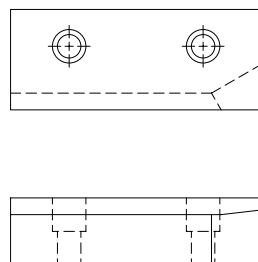
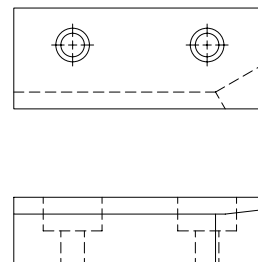
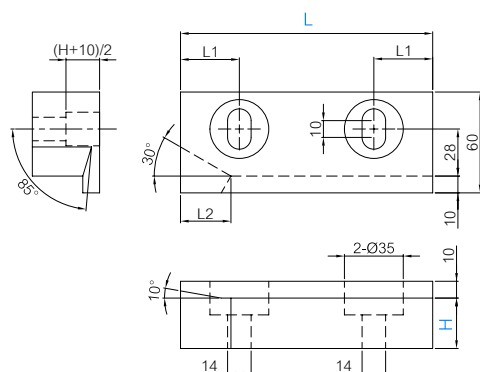
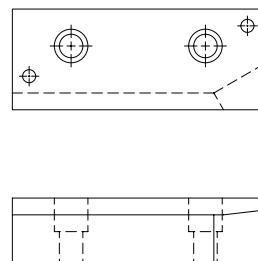


รูกลม มีรูโดเวลพิน
Round Holes w/ Dowel Holes



รูสล็อต
Slot Holes

L (ซ้าย)
Direction

R (ขวา)
Direction[illegible]

ORDER EXAMPLE

Model	Direction	L	H
25STG-L-100-60			

M S45C (55HRC~)
Induction Harden

1. เลือกแบบบรรจุ
2. เลือกด้านซ้าย (L) หรือ ขวา (R)
3. เลือกความยาว และความสูง

1. Choose mounting hole type
2. Choose direction (L) or (R)
3. Choose Length and Height

Model	Direction	L	H						L1	L2
25STG 25STGN 25STGE	L R	100	20	30	40	50	60	70	25	30
		150	20	30	40	50	60	70	35	30

Material Guide Roller Sets - ชุดไกด์โรลเลอร์

Oil Free™

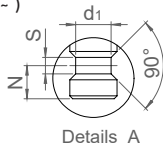


รุ่นลูกปืน
Bearing Type

① **M** SCM415 (55HRC-)

② **M** SS400

Bolt Included



Details A



รุ่นออยฟรี
OIL FREE™ Type

① **M** SCM415 (55HRC-)

② Sprue Retainer

③ Bolt

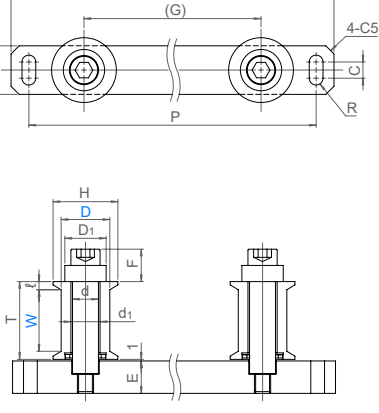
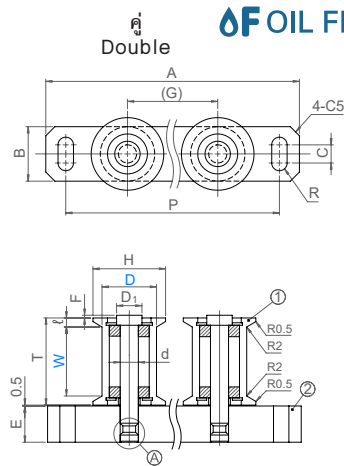
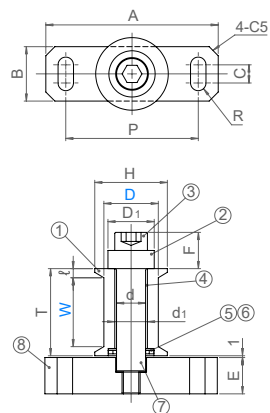
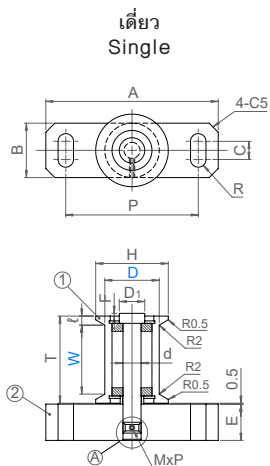
④ Bushing

⑤ C Snap Ring

⑥ Spacer

⑦ Spring Washer

⑧ **M** SS400

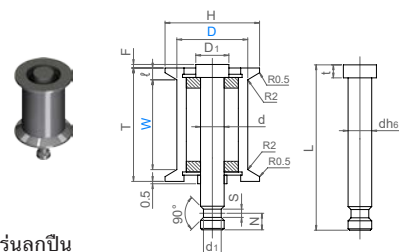


ประเภท Type		แบบเดี่ยว Single Model	แบบคู่ Double Model	เฉพาะล้อ Wheel Only
Bearing	Needle Bearing	25SGDRTA	25SGDRTAW	25SGDRTAT
	Ball Bearing	25SGDRTB	25SGDRTBW	25SGDRTBT
OIL FREE™		Bushing	25SEGDR	25SEGDRW
				25SEGDRW
				25SEGDRW

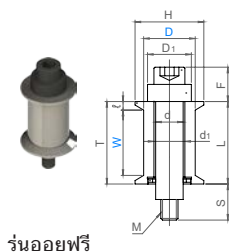
ORDER
EXAMPLE

Model D - W
25SGDRTA55-38

Model	D	W	T	H	f	d	A		B	C	P		R	E	F	G	D1
							Single	Double			Single	Double					
25SGDRTA 25SGDRTAW	30	38	48	40	5	10	95	395	30	10	73	373	5.5	20	1.5	300	14
	55	38	54	75	8	25	145	445	55	20	115	415	6.5	35	5.5	300	32
	55	70	86	75	8	25	145	445	55	20	115	415	6.5	35	5.5	300	32
25SGDRTB 25SGDRTBW	30	38	48	40	5	9	95	395	30	10	73	373	5.5	20	1.5	300	12
	55	38	54	75	8	20	145	445	55	20	115	415	6.5	35	5.5	300	32
	55	70	86	75	8	20	145	445	55	20	115	415	6.5	35	5.5	300	32
25SEGDR 25SEGDRW	30	38	48	40	5	16	95	395	30	10	73	373	5.5	20	19	300	24
	55	38	54	75	8	25	145	445	55	20	115	415	6.5	35	30.5	300	36
	55	70	86	75	8	25	145	445	55	20	115	415	6.5	35	30.5	300	36



รุ่นลูกปืน
Bearing Type



รุ่นออยฟรี
OIL FREE™ Type

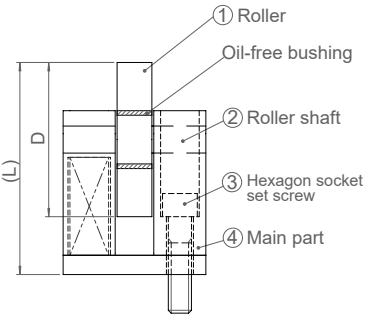
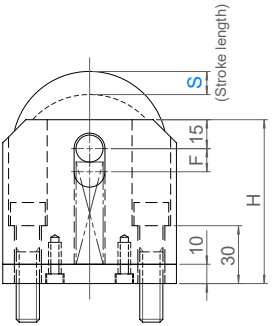
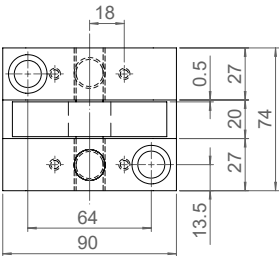
Model	D	W	L	t	d1	S	N	M
25SGDRTAT	30	38	67	5.5	8	2.5	7	-
	55	38	92	9.5	22	5	17	-
	55	70	124	9.5	22	5	17	-
25SGDRTBT	30	38	67	5.5	7	2.5	7	-
	55	38	92	9.5	17	5	17	-
	55	70	124	9.5	17	5	17	-
25SEGDR	30	38	52	-	18	15	7	M10
	55	38	61	-	28	26	17	M16
	55	70	93	-	28	24	17	M16

ระบบเคลื่อนย้ายแม่พิมพ์

Stock Lifter Unit - สต็อคลิฟเตอร์

FOIL FREE™

Model: 25SSRL



- ① **M** SKS3 (55-58HRC)
- ② SUJ2 (55-58HRC)
- ③ Bolt 12-50 (x2)
- ④ **M** SS400
- ⑤ SS400
- ⑥ Bolt 6-15 (x4)
- ⑦ Coil Spring

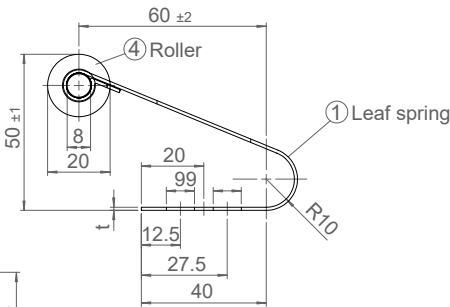
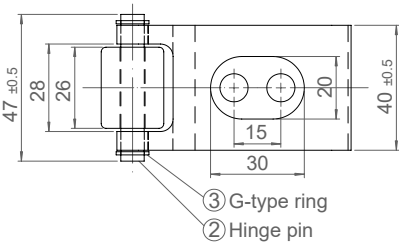
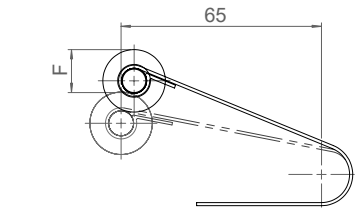
ORDER	Model	S
EXAMPLE	25SSRL20	

Model	S	D	H	F	L	Min Load		Max Load	
						N	kgf	N	kgf
25SSRL	10	60	75	12	90	165N	16.8kgf	439N	44.8kgf
	20	80	95	22	120	108N	11kgf	469N	47.8kgf

Material Feeder Unit - ชุดฟีดวัสดุ

FOIL FREE™

Model: 25ZORW



- ① **M** SK5M
- ② S45C
- ③ G-8 Ring
- ④ Wheel (Steel or Resin)

Type	Order Code	t	Load	
			N/mm	kgf/mm
ล้อโลหะ Steel Wheel (S45C 45HRC-)	25ZORWMS	1.4	5.88N/mm	0.60kgf/mm
	25ZORWHS	1.6	8.43N/mm	0.86kgf/mm
ล้อเรซิน Resin Wheel (POM)	25ZORWMP	1.4	5.88N/mm	0.60kgf/mm
	25ZORWHP	1.6	8.43N/mm	0.86kgf/mm

Sheet Lifters - ซีทลิฟเตอร์

FOIL FREE™



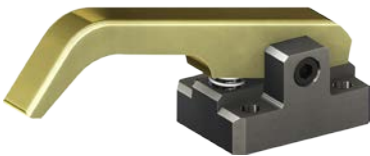
Model: 25SLCE-I

① (M) S45C



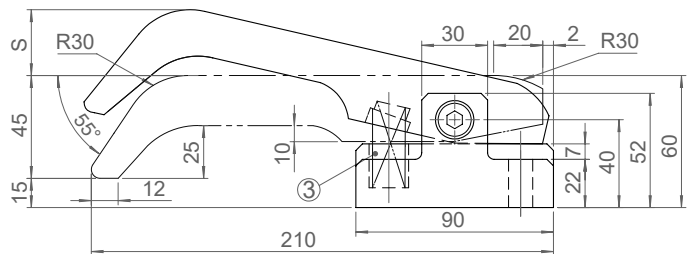
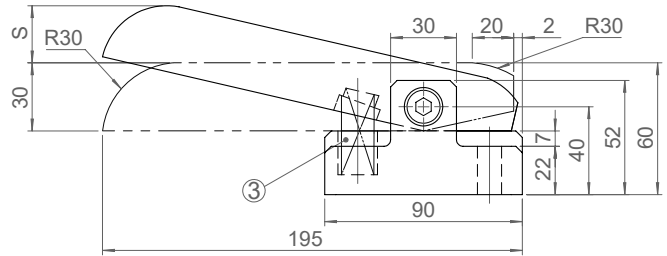
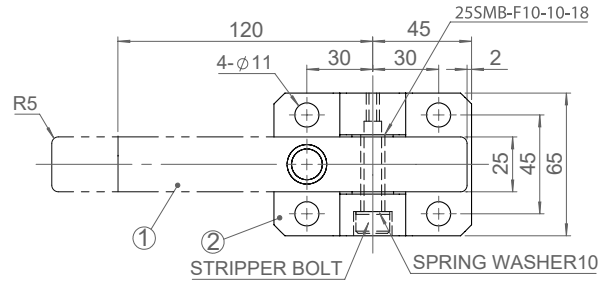
Model: 25SLCE-W

① (M) Copper Alloy



Model: 25SLC-W

① (M) Copper Alloy



ORDER EXAMPLE Model # ② (M) FC250 ③ Coil Spring

Model	#	Coil Spring		Stroke S	Min Lifting Load		Max Lifting Load		Min Spring Load		Max Spring Load	
		DxL	Color		N	kgf	N	kgf	N	kgf	N	kgf
25SLCE-I 25SLCE-W 25SLC-W	20U	17x50	Light Blue	20	18.3N	1.9kgf	24.5N	2.5kgf	73N	7.5kgf	98N	10kgf
	20R	17x50	Ivory			3kgf	39.2N	4kgf	117N	12kgf	157N	16kgf
	20S	17x50	Orange		54.9N	5.6kgf	73.5N	7.5kgf	220N	22.5kgf	294N	30kgf
	25U	17x50	Light Blue	25	16.9N	1.7kgf	24.5N	2.5kgf	67N	6.9kgf	98N	10kgf
	25R	17x50	Ivory		27N	2.8kgf	39.2N	4kgf	108N	11kgf	157N	16kgf
	25S	17x50	Orange		51N	5.2kgf	73.5N	7.5kgf	202N	20.6kgf	294N	30kgf

การปรับแต่งเสริม | Options

OPTION EXAMPLE Model # - Option 25SLCE-I20U-HTC

⚠ สำหรับวัสดุ S45C เท่านั้น
Only for S45C material model

Description	Location	Option
Induction Harden	Sheet Bar	HTC
Nickle Plating	Sheet Bar	HTM

ระบบเคลื่อนย้ายแม่พิมพ์

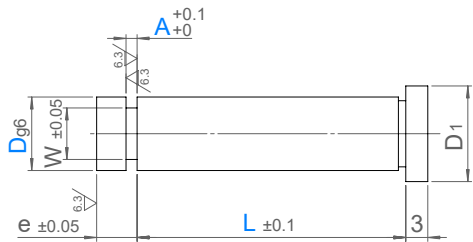
Guide Lifter - ไกด์ลิฟเตอร์

FOIL FREE™



SKS3
53-58HRC

Sub part harden up to 45HRC
Head part harden up to 45HRC



ORDER
EXAMPLE Model D - L - A
25GLP8-25-2.0

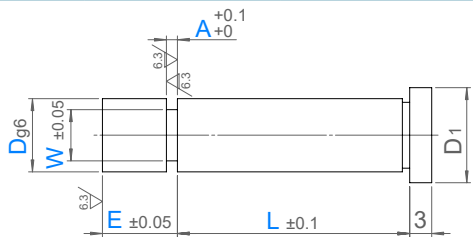
Model: 25GLP แบบมาตรฐาน เลือกเฉพาะค่า L / A
Standard Type, choose only L / A

Model	D g6		L																A		e	W	D1
25GLP	4	-0.004 -0.012	10	15	20	22	25	28	30	33	35	36	40	45	50				0.5 / 0.8 / 1.0	5	2	6	
	6		10	15	20	22	25	28	30	33	35	36	40	45	50				0.5 / 0.8 / 1.0 / 1.6	7	3.6	8	
	8	-0.005 -0.014	10	15	20	22	25	28	30	33	35	36	40	45	50	55	60		1.0 / 1.6 / 2.0		5	10	
	10			20	22	25	28	30	33	35	36	40	45	50	55	60		1.6 / 2.0 / 2.5	6		13		
	13	-0.006 -0.017			20	22	25	28	30	33	35	36	40	45	50	55	60		2.0 / 2.5 / 3.6	7	16		
	16								30	33	35	36	40	45	50	55	60	70	2.0 / 2.5 / 4.0	12	8	19	
	20	-0.007 -0.020								33	35	36	40	45	50	55	60	70	3.6 / 5.0		10	23	

ORDER
EXAMPLE Model D - L - A
25GLH8-50.5-2.5

Model: 25GLH แบบเลือกค่า L / A ขึ้นทีละ 0.1 มม.
Increment Type, choose L / A increment by 0.1mm

Model	D	g6	0.1mm increment		e	W	D1
			L	A			
25GLH	4	-0.004	10.0 - 55.0	0.5 - 2.0	5	2	6
	6	-0.012	10.0 - 75.0	0.5 - 3.0	7	3.6	8
	8	-0.005	10.0 - 75.0	0.7 - 4.5		5	10
	10	-0.014	10.0 - 90.0	0.7 - 4.5		6	13
	13	-0.006	10.0 - 90.0	1.0 - 6.0		7	16
	16	-0.017	10.0 - 100.0	1.0 - 6.0	12	8	19
	20	-0.007	15.0 - 100.0	1.0 - 6.0		10	23
	25	-0.020	15.0 - 100.0	1.0 - 6.0		13	28



SKS3
53-58HRC

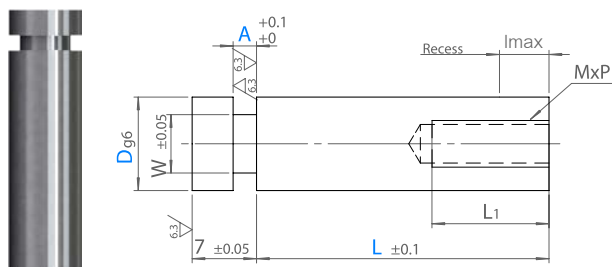
Sub part harden up to 45HRC
Head part harden up to 45HRC

ORDER
EXAMPLE Model D - L - A - E - W
25GLK10-45.5-4.1-5.5-5.5

Model: 25GLK แบบเลือกค่า L / A / E / W ขึ้นทีละ 0.1 มม.
Increment Type, choose L / A / E / W increment by 0.1mm

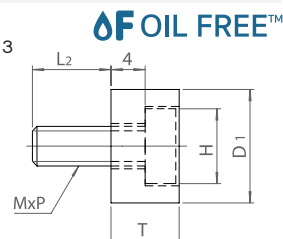
Model	D	g6	0.1mm increment				D1
			L	A	E	W	
25GLK	4	-0.004	15.0 - 45.0	0.5 - 2.0	5.0 - 10.0	1.5 - 2.2	6
	6	-0.012	15.0 - 72.0	0.5 - 3.0	5.0 - 10.0	2.5 - 4.6	8
	8	-0.005	15.0 - 72.0	0.7 - 4.5	5.0 - 10.0	3.5 - 6.0	10
	10	-0.014	15.0 - 82.0	0.7 - 4.5	5.0 - 15.0	5.0 - 8.0	13
	13	-0.006	20.0 - 82.0	1.0 - 6.0	5.0 - 15.0	6.0 - 11.0	16
	16	-0.017	20.0 - 82.0	1.0 - 6.0	10.0 - 20.0	6.0 - 14.0	19
	20	-0.007	20.0 - 82.0	1.0 - 6.0	10.0 - 20.0	10.0 - 18.0	23
	25	-0.020	20.0 - 82.0	1.0 - 6.0	10.0 - 20.0	13.0 - 22.0	28

Detachable Guide Lifter - ไคต์ลิฟเตอร์ แบบถอดได้

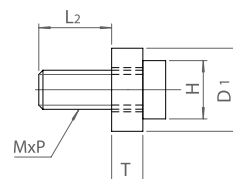


Model: 25GLR

! D = 10 ~ 13



! D = 6 ~ 8



ORDER
EXAMPLE

Model D - L - A
25GLR10-26.5-1.5

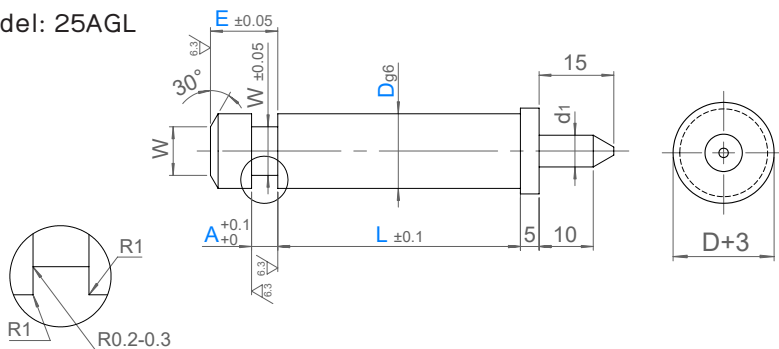
SKS3
53-58HRC

Model	D g6		0.1mm increment		W	D1	T	MxP	H	L1	L2	lmax
			L	A								
25GLR	6	-0.004 -0.012	20.0 - 60.0	0.5 - 3.0	3.6	8	3	M3x0.5	5.5	15	9	6
	8	-0.005 -0.014	20.0 - 60.0	0.7 - 4.0	5	10	3	M4x0.7	7			
	10	-0.005 -0.014	26.0 - 70.0	0.7 - 4.0	6	13	8	M4x0.7	7	21	11	10
	13	-0.006 -0.017	26.0 - 80.0	1.0 - 6.0	7	16	9	M5x0.8	8.5			

Heavy Load Guide Lifter - ไคต์ลิฟเตอร์ สำหรับงานหนัก



Model: 25AGL



ΔF OIL FREE™

SKS3
53-58HRC

ORDER
EXAMPLE

Model D - L - A - E
25AGL16-35.5-3.5-15.5

! ชูแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

Model	D g6		0.1mm increment			W	d1
			L	A	E		
25AGL	13	-0.006 -0.017	30.0 - 80.0	3.0 - 10.0	7.0 - 18.0	8	6
	16		30.0 - 80.0	3.0 - 12.0	10.0 - 20.0	10	9.5
	20	-0.017 -0.020	30.0 - 90.0	3.0 - 15.0	10.0 - 23.0	13	9.5
	25		30.0 - 100.0	3.0 - 18.0	12.0 - 25.0	16	12

ระบบเคลื่อนย้ายแม่พิมพ์

Guide Lifter with Spring Hole - ไกด์ลิฟเตอร์แบบมีรูสปริง

FOIL FREE™

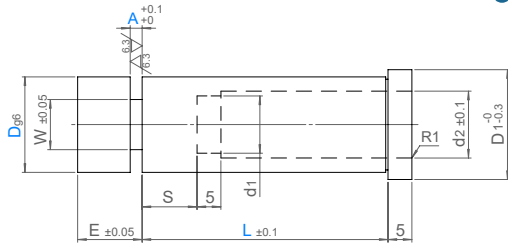


Model: 25GLSZ

SKS3
53-58HRC

ชุบแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

ORDER Model D - L - A
EXAMPLE 25GLSZ20-50-5.0



Model	D g6		L										A			E	W	d1	d2	S	D1	
25GLSZ	13	-0.006 -0.017	30	35	40	45	50	55	60					2.0	2.5	3.6	7	7	6.5	8	10	16
	16		30	35	40	45	50	55	60					2.0	2.5	4.0		8	10.5	11	10	19
	20	-0.007 -0.020			40	45	50	55	60	65	70			3.6	4.0	5.0	12	10	13.5	14	12	23
	25				40	45	50	55	60	65	70	75	80	3.6	4.0	5.0		11	18.5	19	15	28
	32	-0.009 -0.025			40	45	50	55	60	65	70	75	80	5.0	6.0	7.0	17	13	25.5	26	18	35

Lifter Pin with Spring Hole - ลิฟเตอร์พินแบบมีรูสปริง

FOIL FREE™

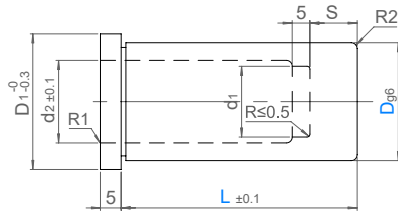


Model: 25LPAH

SKS3
53-58HRC

ชุบแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

ORDER Model D - L
EXAMPLE 25LPAH20-50



Model	D g6		L											d1	d2	S	D1
25LPAH	13	-0.006 -0.017	30	35	40	45	50	55	60					6	8	10	16
	16		30	35	40	45	50	55	60					10	11	10	19
	20	-0.007 -0.020			40	45	50	55	60	65	70			13	14	12	23
	25				40	45	50	55	60	65	70	75	80	18	19	15	28
	32	-0.009 -0.025			40	45	50	55	60	65	70	75	80	25	26	18	35

Lifter Pin with Spring & Pilot Hole - ลิฟเตอร์พินแบบมีรูสปริง และ โพ๊ทพิ้น

FOIL FREE™

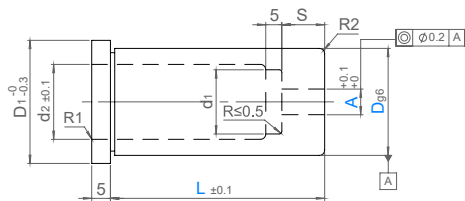


Model: 25LHAH

SKS3
53-58HRC

ชุบแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

ORDER Model D - L
EXAMPLE 25LHAH20-50



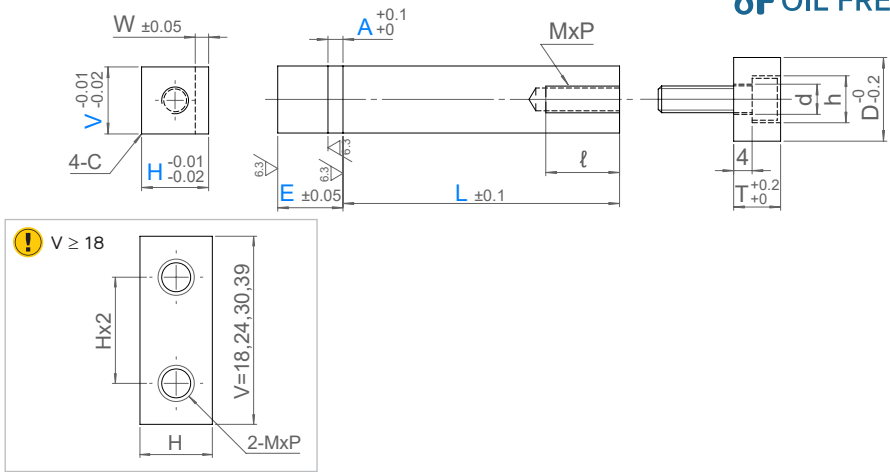
Model	D g6		L										d1	d2	S	D1
25LHAH	16	-0.006 -0.017	30	40	45	50	55	60					10	11	10	19
	20			40	45	50	55	60	65	70			13	14	12	23
	25	-0.007 -0.020		40	45	50	55	60	65	70	75	80	18	19	15	28
	32	-0.009 -0.025		40	45	50	55	60	65	70	75	80	25	26	18	35

Block Guide Lifters - บล็อกไกด์ลิฟเตอร์

FOIL FREE™



Model 25GLB



ORDER
EXAMPLE

Model V H - L - A - E
25GLB0808-20.5-0.7-1.5

SKS3
53-58HRC

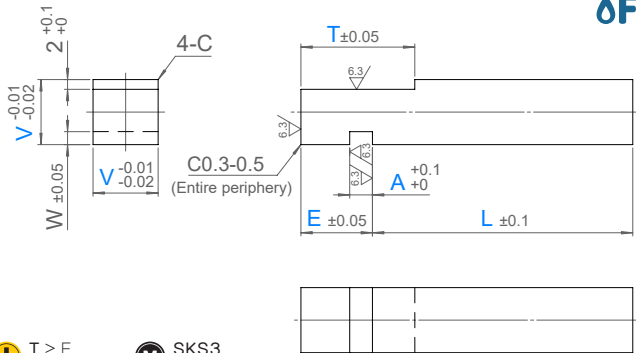
Model	V	H	0.1mm increment			W	C	MxP	ℓ	D	d	T	h
			L	A	E								
25GLB	05	05	20.0 - 60.0	0.5 - 3.6	5.0 - 15.0	1.5	0.5	M3 x 0.5	9	10	4	7	6.5
	06	06											
	18	06											
	08	08											
	24	08	26.0 - 80.0	0.5 - 3.6	5.0 - 15.0	2.0	0.8	M4 x 0.7	12	14	5	8	8
	10	10											
	30	10											
	13	13				2.5	0.8	M5 x 0.8	15	18	6	9	9.5
	39	13											

Block Guide Lifters Fixed Type - บล็อกไกด์ลิฟเตอร์ แบบร่องตายตัว

FOIL FREE™



Model 25GLBK



ORDER
EXAMPLE

Model V - L - A - E - T
25GLBK10-35-1.5-5.5-30.5

SKS3
53-58HRC

Model	V	5mm increment	0.1mm increment			W	C
		L	A	E	T		
25GLBK	6	30 - 80	0.5 - 4.0	5.0 - 25.0	5.0 - 50.0	1.5	0.5
	8					2.0	0.8
	10						
	13					2.5	

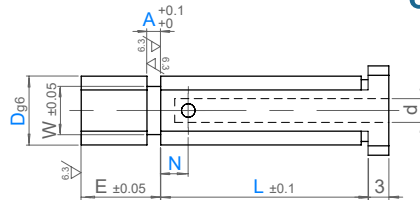
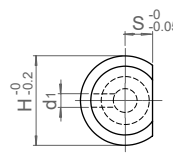
ระบบเคลื่อนย้ายแม่พิมพ์

Guide Lifters with Air Hole - ไกด์ลิฟเตอร์ แบบมีช่องอากาศ

FOIL FREE™



Model: 25GLJS



ORDER	Model	D - L - N - A
EXAMPLE	25GLJS8-30-3-1.6	

SKS3
53-58HRC

! ชูแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

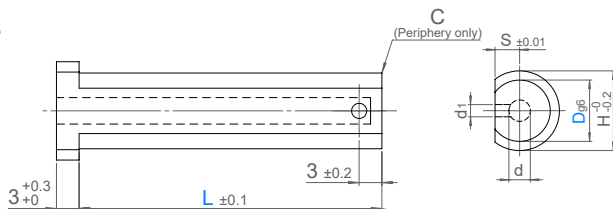
D g6	L	N 1mm increment	A	W	H	E	d	d1	S
4	-0.004	10 15 20 22 25 28 30 33 35 36 40 45 50	0.5 / 0.8 / 1.0	2.0	6	5	2.0	1.5	1.75
6	-0.012	10 15 20 22 25 28 30 33 35 36 40 45 50	0.5 / 0.8 / 1.0 / 1.6	3.6	8		2.5	2	
8	-0.005	15 20 22 25 28 30 33 35 36 40 45 50 55	1.0 / 1.6 / 2.0	5.0	10	12	3.5	2.0	3
10	-0.014	20 22 25 28 30 33 35 36 40 45 50 55	1.6 / 2.0 / 2.5	6.0	13		4.5	2.5	4
13	-0.006	20 22 25 28 30 33 35 36 40 45 50 55	2.0 / 2.5 / 3.6	7.0	16				5
16	-0.017	30 33 35 36 40 45 50 55 60 70	2.0 / 2.5 / 4.0	8.0	19	12			6

Lifter Pins with Air Hole - ลิฟเตอร์พิน แบบมีช่องอากาศ

FOIL FREE™



Model: 25LJS



ORDER	Model	D - L
EXAMPLE	25LJS8-30	

SKS3
53-58HRC

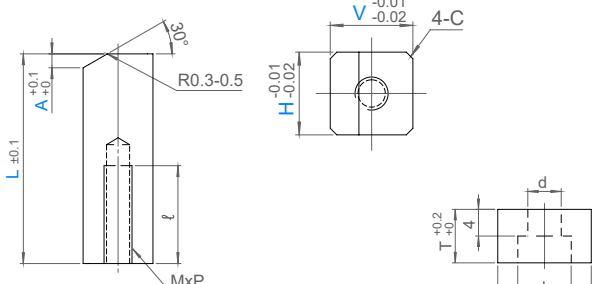
Model	D g6	L	H	d	d1	S	C
25LJS	4	-0.004	6	2.0	1.5	1.75	0.3
	6	-0.012	8	2.5		2	
	8	-0.005	10	3.5	2.0	3	0.5
	10	-0.014	13			4	

Block Lifter - บล็อกลิฟเตอร์

FOIL FREE™



Model: 25BLR



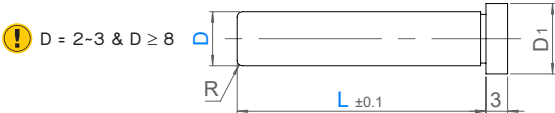
ORDER	Model	V H - L - A
EXAMPLE	25BLR0808-40.5-1.5	

! V - 1.73 x A ≥ 2 SKS3 (53-58HRC)

Model	V	H	L 0.1mm increment	A 0.1mm increment	C	MxP	ℓ	D	d	T	h	Bolt
25BLR	06	06	20.0 - 60.0	0.5 - 3.6	0.5	M3 x 0.5	9	10	4	7	6.5	24CB3x10
	08	08				M4 x 0.7	12	14	5	8	8.0	24CB4x12
	10	10				M5 x 0.8	15	18	6	9	9.5	24CB5x15
	13	13										

Lifter Pins - ลิฟเตอร์พิน

ΔF OIL FREE™



SKS3
53-58HRC

ชุบแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

ORDER
EXAMPLE Model D - L
25LP10-50

Model: 25LP แบบมาตรฐาน เลือกเฉพาะค่า L
Standard Type, choose only L

Model	D		L																D1	D2	R	
25LP	2	0 -0.05	10	15														3	-	0.3		
	3		10	15	20	22	25	28	30	33	35	36	40					4				
	4		10	15	20	22	25	28	30	33	35	36	40	45	50			6			3	
	6		10	15	20	22	25	28	30	33	35	36	40	45	50	55	60		8	4.6	-	0.5
	8		10	15	20	22	25	28	30	33	35	36	40	45	50	55	60		10			
	10				20	22	25	28	30	33	35	36	40	45	50	55	60		13	2.0		
	13				20	22	25	28	30	33	35	36	40	45	50	55	60		16			
	16								30	33	35	36	40	45	50	55	60	70	19			
	20								30	33	35	36	40	45	50	55	60	70	23			

ORDER
EXAMPLE Model D - L
25LPH10-55.5

Model: 25LPH แบบเลือกค่า L ขั้นทีละ 0.1 มม.
Increment Type, choose L increment by 0.1mm

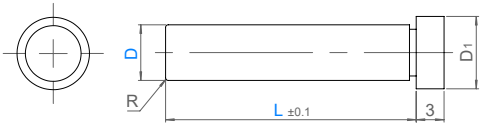
Model	D g6		L 0.1mm increment		D1	D2	R
25LPH	2	-0.002	10.0 - 40.0		3	-	0.3
	3	-0.008	10.0 - 50.0		4		
	4	-0.004	10.0 - 50.0		6	3	
	6	-0.012	10.0 - 60.0		8	4.6	
	8	-0.005	10.0 - 80.0		10	-	0.5
	10	-0.014	10.0 - 80.0		13		
	13	-0.006	20.0 - 90.0		16		2.0
	16	-0.017	20.0 - 100.0		19		
	20	-0.007	25.0 - 100.0		23		
	25	-0.020	30.0 - 100.0		28		

Resin (POM) Lifter Pins - ลิฟเตอร์พิน แบบเรซิน (POM)

ΔF OIL FREE™



Model: 25JLP



ORDER
EXAMPLE Model D - L
25JLP10-10.5

Ⓜ POM

Model	D		L 0.1mm increment	D1	R
25JLP	2	0 -0.05	10.0 - 30.0	3	0.3
	3		10.0 - 30.0	4	
	4		10.0 - 40.0	6	
	6		10.0 - 50.0	8	0.5
	8		10.0 - 60.0	10	
	10		10.0 - 60.0	13	

ระบบเคลื่อนย้ายแม่พิมพ์

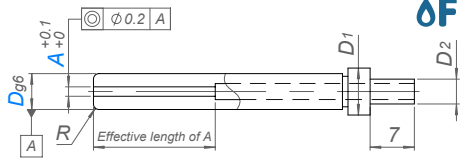
Lifter Pins with Pilot Punch Relief Hole - ลิฟเตอร์พิน แบบมีช่องไฟลัดพื้นซ์

FOIL FREE™



Model: 25LHH

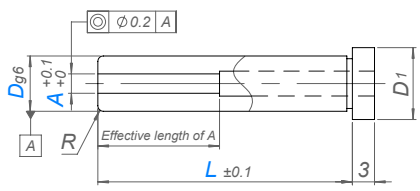
! D = 4-6



SKS3
53-58HRC

! ชูบแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

! D = 3-5 & D ≥ 10



ORDER Model D - L - A
EXAMPLE 25LHH10-20.5-1.7

Model	D g6		L 0.1mm increment	A	D1	D2	min. effective length of A	R
25LHH	3	-0.002 -0.008	20.0 - 30.0	0.8 - 1.4 (0.1mm increment)	4	-	2	0.3
	4	-0.004 -0.012	20.0 - 50.0	1.0 - 2.3 (0.1mm increment)	6	3	2	
	5		20.0 - 50.0	1.4 - 3.0 (0.1mm increment)	6.4	-	3	
	6		20.0 - 50.0	1.4 - 3.5 (0.1mm increment)	8	4.6		
	8	-0.005 -0.014	20.0 - 50.0	1.4 - 5.3 (0.3mm increment)	10	-	4	0.5
	10		20.0 - 60.0	1.4 - 5.3 (0.3mm increment)	13		5	
				5.5 / 5.8 / 6.0 / 6.3 / 6.8				
	13	-0.006 -0.017	20.0 - 60.0	1.8 - 9.3 (0.5mm increment)	16		6	
	16		20.0 - 60.0	2.0 - 11.5 (0.5mm increment)	19		8	
	20		-0.007 -0.020	20.0 - 60.0	2.0 - 15.5 (0.5mm increment)		23	

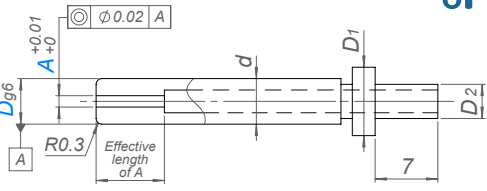
Lifter Pins with Pilot Punch Relief Hole - ลิฟเตอร์พิน แบบมีช่องไฟลัดพื้นซ์

FOIL FREE™

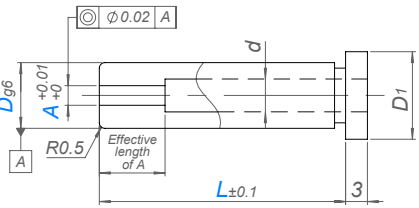


Model: 25LHHV

! D = 4-6



! D = 8



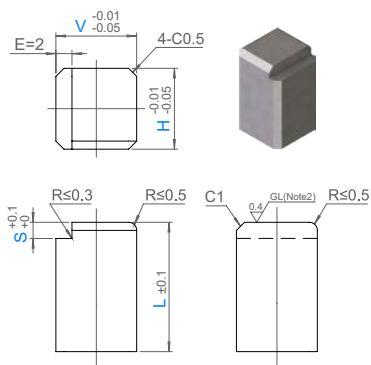
SKS3
53-58HRC

! ชูบแข็งส่วนหัว สูงสุด 45HRC
Head part harden up to 45HRC

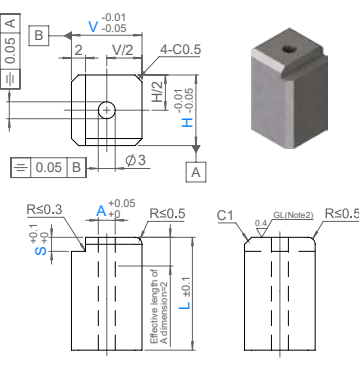
ORDER Model D - L - A
EXAMPLE 25LHHV8-35-2.45

Model	D g6		L							A 0.01mm increment	D1	D2	min. effective length of A	d
25LHHV	4	-0.004 -0.012	20	22	25	30				1.00 - 1.60	6	3	2	2.2
	6				25	30	33	35		1.00 - 3.00	8	4.6	3	3.4
	8	-0.005 -0.014				30	33	35	40	1.00 - 4.00	10	-	4	4.4

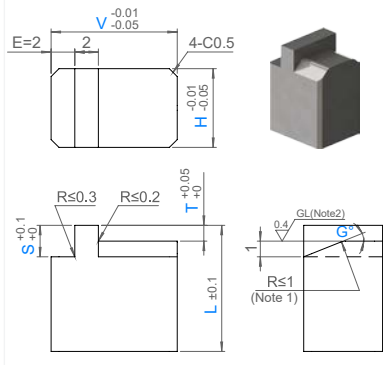
Model: 25BLL-L



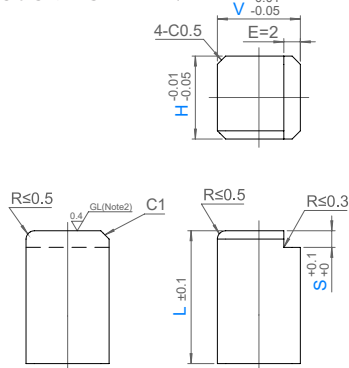
Model: 25BLH-L



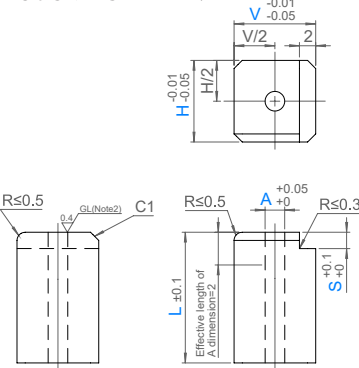
Model: 25BLLF-L



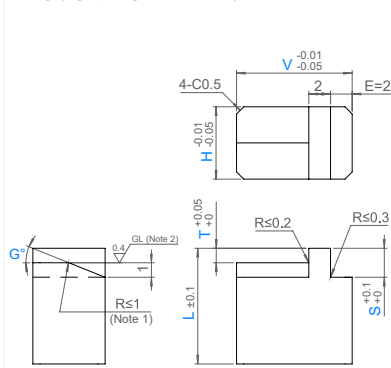
Model: 25BLL-R



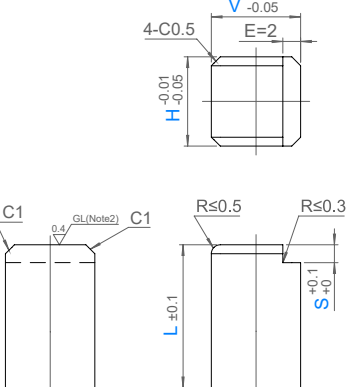
Model: 25BLH-R



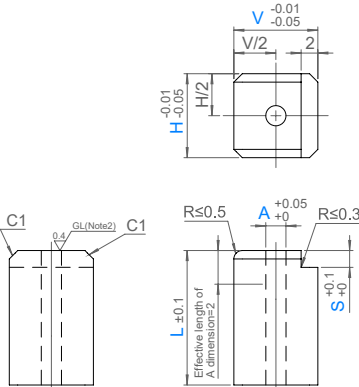
Model: 25BLLF-R



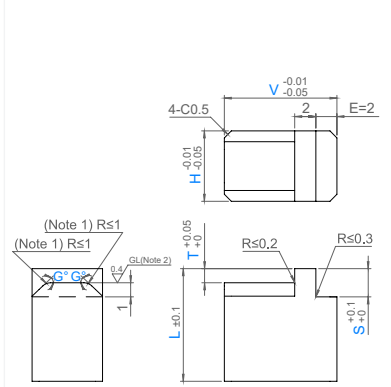
Model: 25BLL-W



Model: 25BLH-W



Model: 25BLLF-W



ORDER
EXAMPLE

Model V - H - L - S - A - T - G
25BLL-L8-6-10-2-0.5-30



SKD11
60-63HRC

Model	V	H	L	S	T 0.1mm increment	G
25BLL-L 25BLL-R 25BLL-W 25BLLF-L 25BLLF-R 25BLLF-W	5	5	10	1	-	-
	6	6		2		
	8	6	10	1	0.1 - 2.5	
		8				
	10	6	13	1	0.1 - 3.0	30
		8		2		
		10		3		
	13	6	25		0.1 - 3.5	45
		8				
		10				

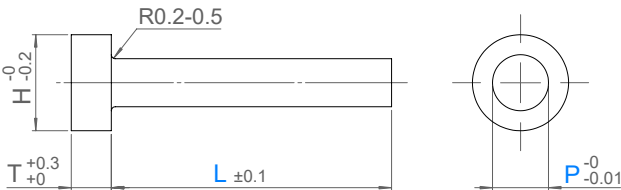
Model	V	H	L	S	A 0.1mm increment
25BLH-L 25BLH-R 25BLH-W	6	6	8 10	1 2	0.8 - 1.8
	8	8			1.0 - 3.5
	10	10			1.0 - 5.0

ระบบเคลื่อนย้ายแม่พิมพ์

Knockout Pin - น็อคเอาท์พิน



Model: 25KOP



ORDER EXAMPLE	Model	No.	L	P
	25KOP10-50.5-5.05			

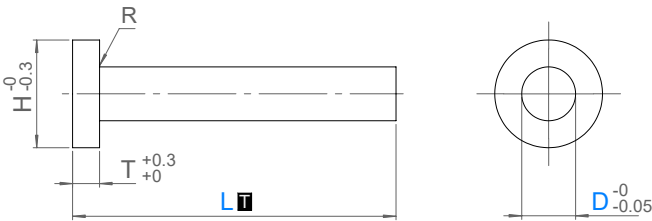
 SKS3
53-58HRC

Model	No.	L 0.1mm increment	P 0.01mm increment	T	H
25KOP	4	7.0 - 60.0	1.00 - 4.00	3	6
	6		1.00 - 6.00		8
	8		2.00 - 8.00	5	10
	10		3.00 - 10.00		12
	12		4.00 - 12.00		14
	13		6.00 - 13.00		16

Push Pins - พูชพิน



Model: 25JPWH



ORDER EXAMPLE	Model	D	L
	25JPWH5-10.1		

 SKD61
50HRC-

Model	D	L 0.1mm increment	R	T	H
25JPWH	2	10.0 - 100.0	0.5 ≤ R ≤ 1.0	5	5
	3				8
	4				10
	5				12
	6				14
	8				16
	10				18

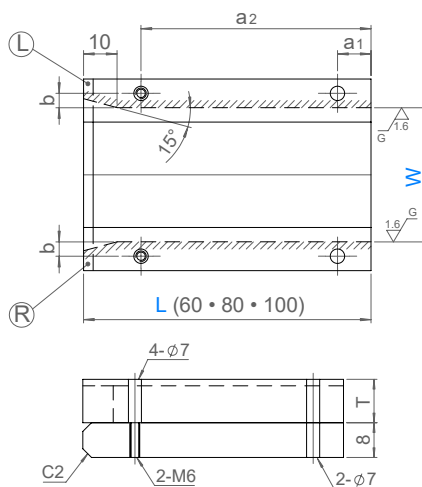
Material Guide Units - ชุดประกอบไกด์

A Type Model: 25ZGUA

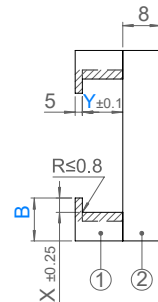
แบบติดตั้งกับไดเซต
Fixed to Die Set



Model		L	a1	a2
25ZGUA	Unit	60		45
25ZGUA-R	Rail (R)	80	10	65
25ZGUA-L	Rail (L)	100		75



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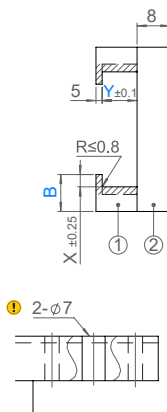
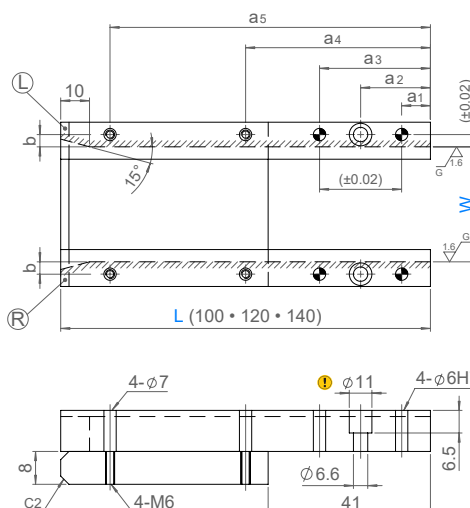


B Type Model: 25ZGUB

แบบติดตั้งกับคานาเหล็ก
Fixed to Die Plate



Model		L	a1	a2	a3	a4	a5
25ZGUB	Unit	100					85
25ZGUB-R	Rail (R)	120	8	20	32	50	105
25ZGUB-L	Rail (L)	140					115



ORDER
EXAMPLE

Model D - L - Y - W
25ZGUA16-80-10-100.5



S50C (55HRC-)

Induction Harden

! If B=13 or Y ≤ 4, φ7 through hole

Model	D	L	Y 1mm increment	W 0.1mm increment	b	X
25ZGUA	13	60	1 - 30	10.0 - 160.0	5	3
	16	80			7	3
	20	100			8	5
25ZGUB	13	100	1 - 30	10.0 - 160.0	5	3
	16	120			7	3
	20	140			8	5

Model	D	L	Y 1mm increment	b	X
25ZGUA-R 25ZGUA-L	13	60	1 - 30	5	3
	16	80		7	3
	20	100		8	5
25ZGUB-R 25ZGUB-L	13	100	1 - 30	5	3
	16	120		7	3
	20	140		8	5

ระบบเคลื่อนย้ายแม่พิมพ์

Material Guide Units - ชุดประกอบไกด์

FOIL FREE™

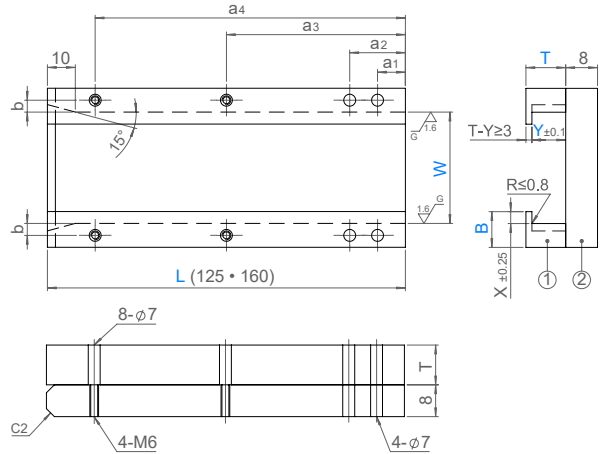
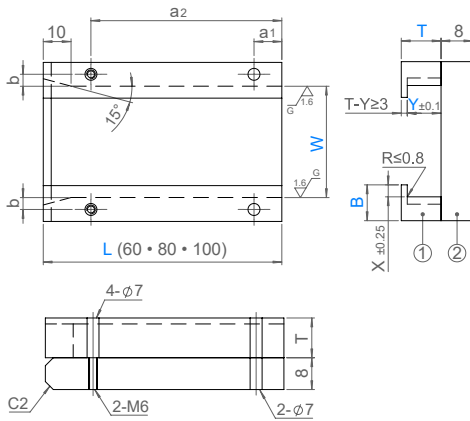
A Type

Model: 25SUK-A

แบบติดตั้งกับโตเช็ต
Fixed to Die Set

! L = 60 / 80 / 100

! L = 125 / 160



① (M) SKS3 ② (M) S50C

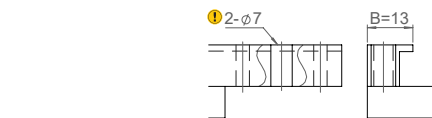
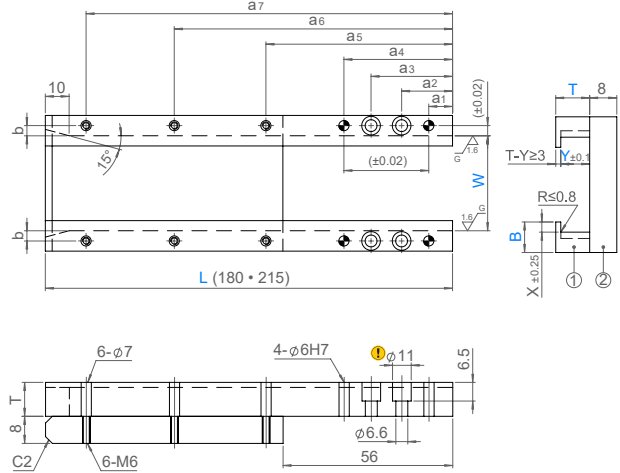
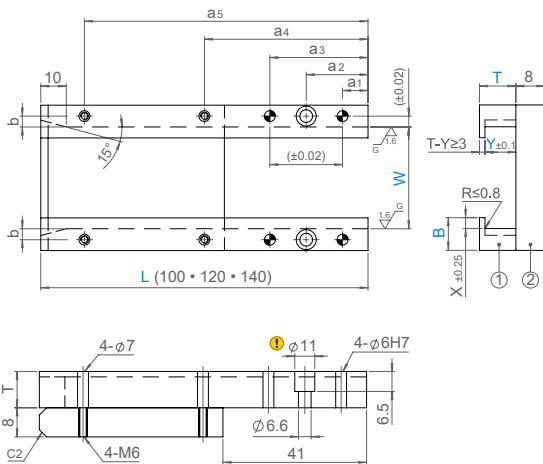
B Type

Model: 25SUK-B

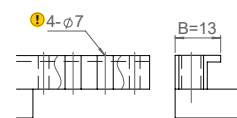
แบบติดตั้งกับตายเฟลท
Fixed to Die Plate

! L = 100 / 120 / 140

! L = 180 / 215



! If B=13 or T = 6-8, Ø7 through hole



! if B=13 or T = 6-8, Ø7 through hole

① (M) SKS3 ② (M) S50C

ORDER EXAMPLE	Model	B	-	T	-	L	-	Y	-	W
	25SUK-A13-8-100-5.0-120.5									

Model	B	T					L	Y 0.1mm. Increment	W 0.1mm. Increment	a1	a2	a3	a4	a5	a6	a7	b	X
25SUK-A	13	6	8	10			60	1.0 - T-3.0	7.0 - 160.0	10	45	-	-				5	3
							80				65							
							100				75							
							125				25	60	100					
	16	6	8	10	13		60			10	45	-	-				7	3
							80				65							
							100				75							
							125				25	60	100					
	20		8	10	13	16	60			10	45	-	-	-	-	-	8	5
							80				65							
							100				75							
							125				25	60	100					
	25		8	10	13	16	60			10	45	-	-				10	5
							80				65							
							100				75							
							125				25	60	100					
							160				25	60	135					
25SUK-B	13	6	8	10			100			8	20		50	85	-	-	5	3
							120							105				
							140							115				
							180							35	47	75	115	115
	16	6	8	10	13		100			8	20		50	85	-	-	7	3
							120							105				
							140							115				
							180							35	47	75	115	115
	20		8	10	13	16	100			8	20		50	85	-	-	8	5
							120							105				
							140							115				
							180							75	115	115		
	25		8	10	13	16	215							75	130	190		
							100			8	20		50	85	-	-	10	5
							120							105				
							140							115				
							180							75	115	115		
							215							75	130	190		

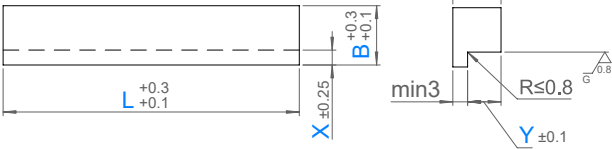
Die Transfers

ระบบเคลื่อนย้ายแม่พิมพ์

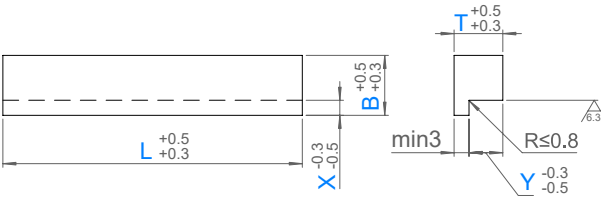
Stock Guide Plate - แผ่นสต็อคไกด์



Model: 25SBM



Model: 25SBA



Die Transfers

ORDER
EXAMPLE

Model B - T - L - X - Y
25SBM13-6-150-3.2-2.8

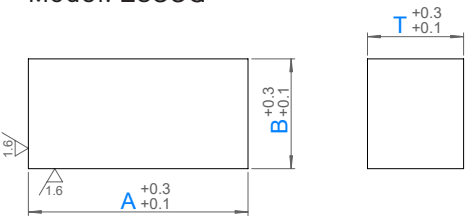
SKS3
37-41HRC

Model	B	T	L 1mm increment	X 0.1mm increment	Y 0.1mm increment
25SBM 25SBA	13	6 , 8 , 10	10 - 200	1.0 - 5.0	1.0 - T-3.0
	16	6 , 8 , 10 , 13	10 - 200		
	20	8 , 10 , 13 , 16	10 - 200		
	25	8 , 10 , 13 , 16	10 - 200		

Spacer for Stock Guide - สเปเซอร์สำหรับสต็อคไกด์



Model: 25SSG



ORDER
EXAMPLE

Model - A - B - T
25SSG-100-40-55

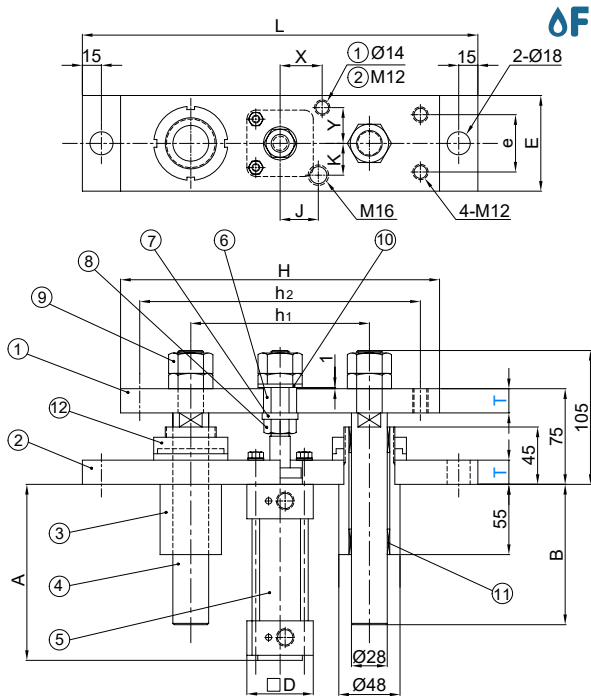
SS400

Model	A	B	T 1mm increment
25SSG	60	25	5 - 60
	80		
	100		
	125	40	
	160		
	200		

Lifter Units - ลิฟเตอร์ยูนิต



Model:
25LTHS
25CLTH



FOIL FREE™

Die Transfers

No.	Description	qty	Material and Remark	⑤ Air Cylinder	SMC
1	Lifter Plate	1	SS400	Cylinder Tube Inner Diameter	ø40, ø63
2	Base Plate	1	SS400	Model	MB
3	Guide Holder	2	STKM13A	Operation Method	Double Acting Side Load
4	Guide Pin	2	S45C (55-60HRC)	Gauranteed Pressure Resistance	1.5MPa (15.3kgf/cm²)
5	Air Cylinder	1	SMC	Maximum Use Pressure	1.0MPa (10.2kgf/cm²)
6	Collar	1	STKM13A	Minimum Use Presssure	0.05MPa (0.5kgf/cm²)
7	Spacer	1	SS400	Ambient Temp and Air Temp During Use	-5-60°C
8	Hex Nuts	1	SS400 M20XP2.5	Piston Speed	50-1000MM/S
9	Hard Lock Nut	3	SS400 M20XP2.5	Stroke Length Tolerance	+1.0 +0
10	Flat Washers	1	SS400 for M20	Cushion	Both Side (Air Cushion)
11	Oil Free Bush	4	PTFE Type Bushing	Connection Opening Diameter	ø40: Rc (PT) 1/4, ø63: Rc (PT) 3/8
12	Hard Lock Nut	2	M40XP1.5	Installation Instruction	Basic Form

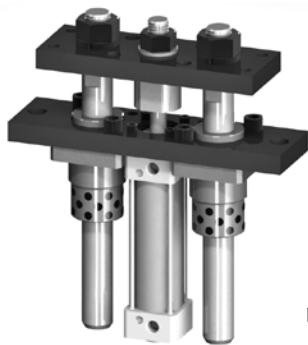
ORDER	Model	D - S - T
EXAMPLE	25LTHS40-50-16	

Model	Cylinder Inner D	Stroke S	T	H	h1	h2	L	E	e	D	J	K	X	Y	A	B
25LTHS (Standard)	40	50	16	250	160	220	310	75	45	52	30	25	33	28	138	110
		75	19												163	135
		100	19												188	160
	63	50	16	270	160	240	330	90	70	75	35	30	48	32	148	110
		75	19												173	135
		100	19												198	160
25CLTH (Compact)	40	50	16	215	115	185	270	75	45	52	30	25	33	28	138	110
		75	19												163	135
		100	19												188	160
	63	50	16	240	135	210	295	90	70	75	35	30	48	32	148	110
		75	19												173	135
		100	19												198	160

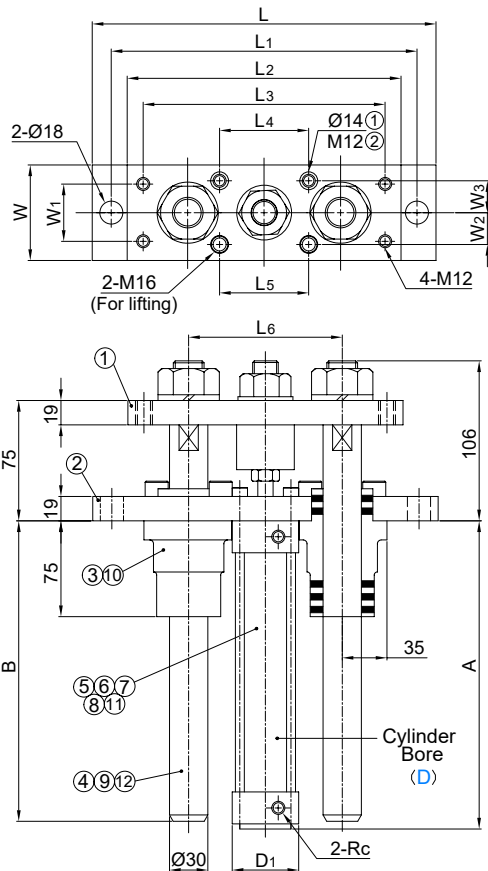
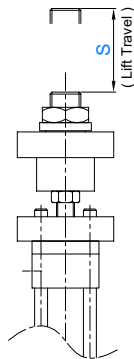
ระบบเคลื่อนย้ายแม่พิมพ์

H-Type Lifter Unit - ลิฟต์เดอรียูนิต (H-Type)

FOIL FREE™



Model: 25SHGC



ORDER	Model	D - S
EXAMPLE	25SHGC40-50	

Cylinder Bore D	Stroke S	A	B	Rc	D1	L	L1	L2	L3	L4	L5	L6	W	W1	W2	W3
40	50	138	130													
	75	163	155													
	100	188	180													
	125	213	205													
	150	238	230													
	175	263	255	1/4	52	270	240	215	190	66	60	120	75	45	25	28
	200	288	280													
	225	313	305													
	250	338	330													
	275	363	355													
	300	388	380													
63	50	148	110													
	75	173	135													
	100	198	160													
	125	223	205													
	150	248	230													
	175	273	255	3/8	75	290	260	235	215	96	70	145	90	70	30	32
	200	298	280													
	225	323	305													
	250	348	330													
	275	373	355													
	300	398	380													

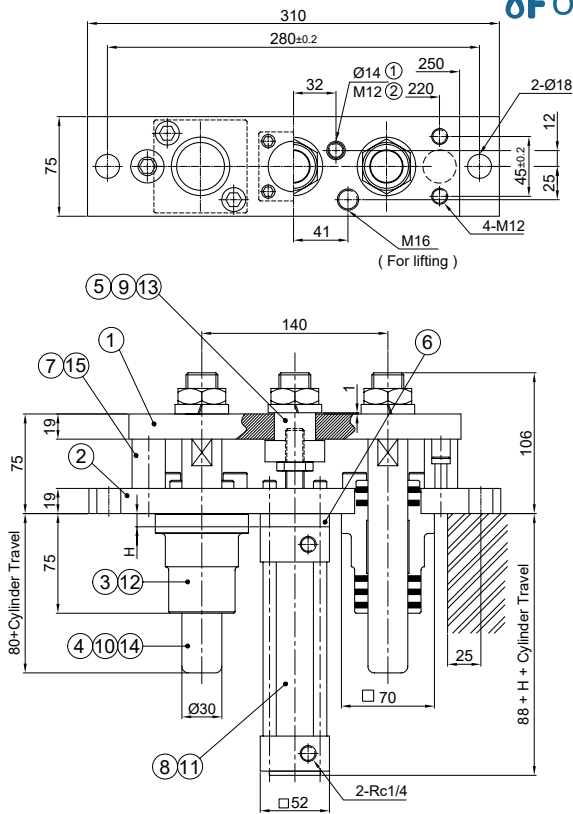
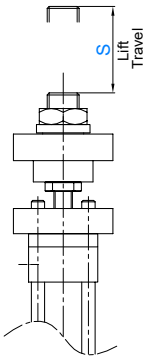
No.	Description	qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder plate	1	SS400
3	Guide Holder	2	FC250 with Graphite
4	Guide Pin	2	S45C HRC50 - 60
5	Air Cylinder	1	SMC MB40 or MB63
6	Joint	1	SS400
7	Hex Socket Bolt	4	M6 or M8
8	U Nut	1	M20
9	U Nut	2	M24
10	Hex Socket Bolt	4	M12 x 35
11	Flat Washer	1	for M20
12	Spring Washer	2	for M24

H-Type Lifter Unit - ลิฟเตอร์ยูนิต (H-Type)

Oil Free™



Model: 25SHGT40



ORDER
EXAMPLE Model D - S
25SHGT40-50

Model	Cylinder Bore D	Stroke S	H	Cylinder Travel
25SHGT	40	10	40	50
		20	30	
		30	20	
		40	10	
		50	0	
		60	40	100
		70	30	
		80	20	
		90	10	
		100	0	
		110	40	150
		120	30	
		130	20	
		140	10	
		150	0	
		160	40	200
		170	30	
		180	20	
		190	10	
		200	0	
		210	40	250
		220	30	
		230	20	
		240	10	
		250	0	

No.	Description	qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder Plate	1	SS400
3	Guide Holder	2	FC250 with Graphite
4	Guide Pin	2	S45C HRC50 - 60
5	Joint	1	SS400
6	Block	1	SS400
7	Stopper	2	Urethane
8	Air Cylinder	1	SMC MB40
9	U Nut	1	M20
10	U Nut	2	M24
11	Hex Socket Head Bolt	4	M6
12	Hex Socket Head Bolt	4	M12 x 35
13	Flat Washer	1	for M20
14	Spring Washer	2	for M24
15	Shoulder Bolt	2	M8 x 20

ชิ้นส่วนประกอบ | Accessory Parts

6) Block

Model	D	H
25HLSPC	40	10
		20
		30
		40
		50

ORDER
EXAMPLE Model D - H
25HLSPC40-30

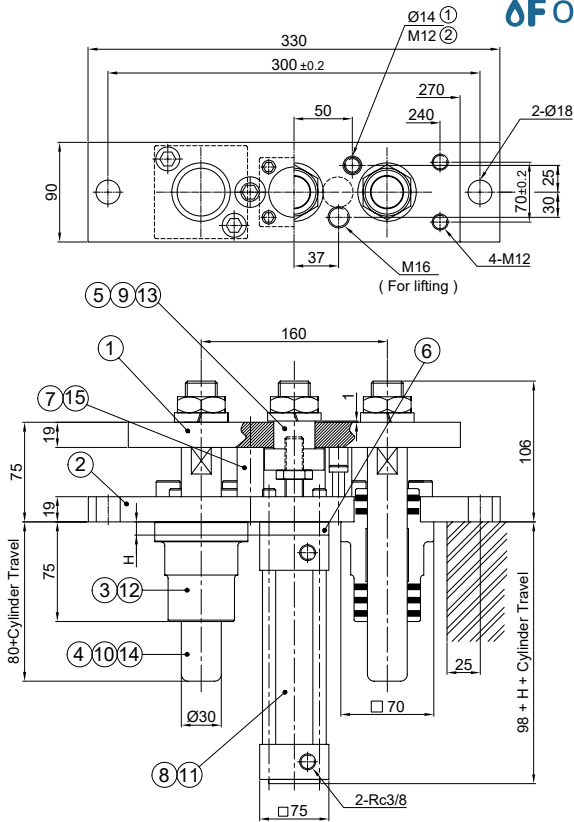
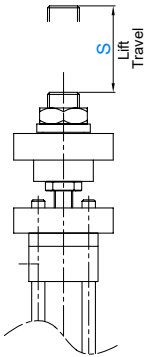
ระบบเคลื่อนย้ายแม่พิมพ์

H-Type Lifter Unit - ลิฟเตอร์ยูนิต (H-Type)

FOIL FREE™



Model: 25SHGT63



ORDER	Model	D - S
EXAMPLE	25SHGT63-50	

Model	Cylinder Bore D	Stroke S	H	Cylinder Travel
25SHGT	63	10	40	50
		20	30	
		30	20	
		40	10	
		50	0	
		60	40	100
		70	30	
		80	20	
		90	10	
		100	0	
		110	40	150
		120	30	
		130	20	
		140	10	
		150	0	
		160	40	200
		170	30	
		180	20	
		190	10	
		200	0	
		210	40	250
		220	30	
		230	20	
		240	10	
		250	0	

No.	Description	qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder Plate	1	SS400
3	Guide Holder	2	FC250 with Graphite
4	Guide Pin	2	S45C HRC50 - 60
5	Joint	1	S45C
6	Block	1	SS400
7	Stopper	2	Urethane
8	Air Cylinder	1	SMC MB63
9	U Nut	1	M20
10	U Nut	2	M24
11	Hex Socket Head Bolt	4	M6
12	Hex Socket Head Bolt	4	M12 x 35
13	Flat Washer	1	for M20
14	Spring Washer	2	for M24
15	Shoulder Bolt	2	M8 x 20

ชิ้นส่วนประกอบ | Accessory Parts

6) Block

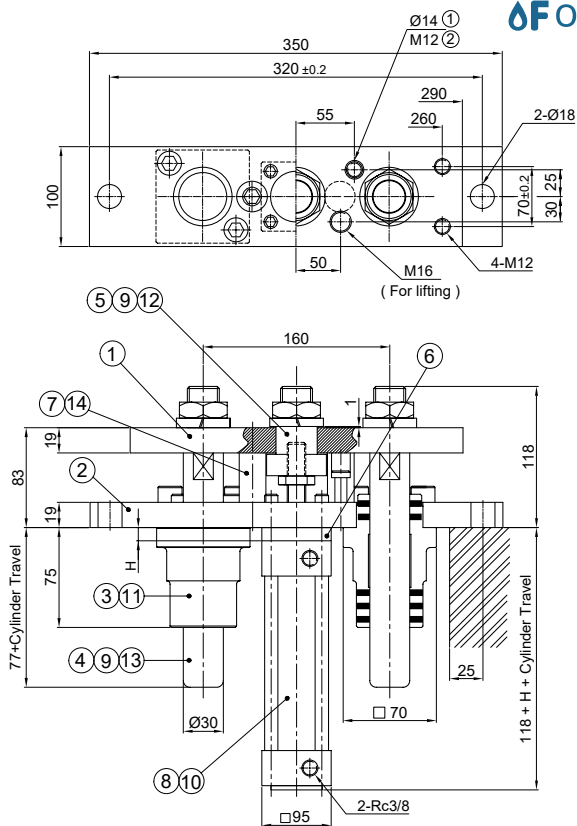
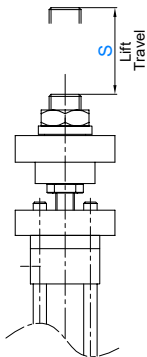
Model	D	H	ORDER	Model	D - H
25HLSPC	63	10	EXAMPLE	25HLSPC63-30	
		20			
		30			
		40			

H-Type Lifter Unit - ลิฟเตอร์ยูนิต (H-Type)

FOIL FREE™



Model: 25SHGT80



ORDER
EXAMPLE Model D - S
25SHGT80-50

Model	Cylinder Bore D	Stroke S	H	Cylinder Travel
25SHGT	80	10	40	50
		20	30	
		30	20	
		40	10	
		50	0	
		60	40	100
		70	30	
		80	20	
		90	10	
		100	0	
		110	40	150
		120	30	
		130	20	
		140	10	
		150	0	
		160	40	200
		170	30	
		180	20	
		190	10	
		200	0	
		210	40	250
		220	30	
		230	20	
		240	10	
		250	0	

No.	Description	qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder	1	SS400
3	Guide Holder	2	FC250 with Graphite
4	Guide Pin	2	S45C HRC50 - 60
5	Joint	1	S45C
6	Block	1	SS400
7	Stopper	2	Urethane
8	Air Cylinder	1	SMC MB80
9	U Nut	3	M24
10	Hex Socket Bolt	4	M6
11	Hex Socket Bolt	4	M12 x 35
12	Flat Washer	1	for M20
13	Spring Washer	2	for M24
14	Shoulder Bolt	2	M8 x 20

ชิ้นส่วนประกอบ | Accessory Parts

6) Block

Model	D	H
25HLSPC	80	10
		20
		30
		40

ORDER
EXAMPLE Model D - H
25HLSPC80-30

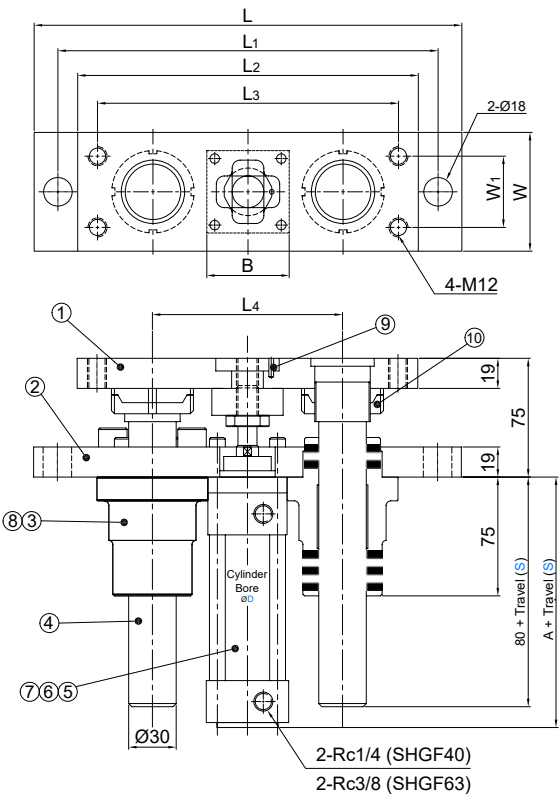
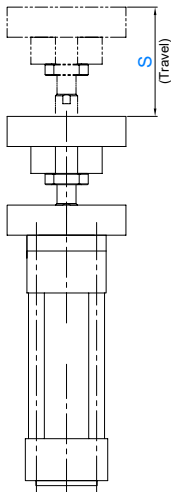
ระบบเคลื่อนย้ายแม่พิมพ์

H-Type Lifter Unit - ลิฟเตอร์ยูนิต (H-Type)

FOIL FREE™



Model: 25SHGF



ORDER	Model	D - S
EXAMPLE	25SHGF40-50	

Cylinder Inner D	Stroke S	A	B	Rc	L	L1	L2	L3	L4	W	W1
40	50										
	75										
	100										
	125										
	150										
	175	88	52	1/4	270	240	215	190	120	75	45
	200										
	225										
	250										
	275										
	300										
63	50										
	75										
	100										
	125										
	150										
	175	98	75	3/8	290	260	235	215	145	90	70
	200										
	225										
	250										
	275										
	300										

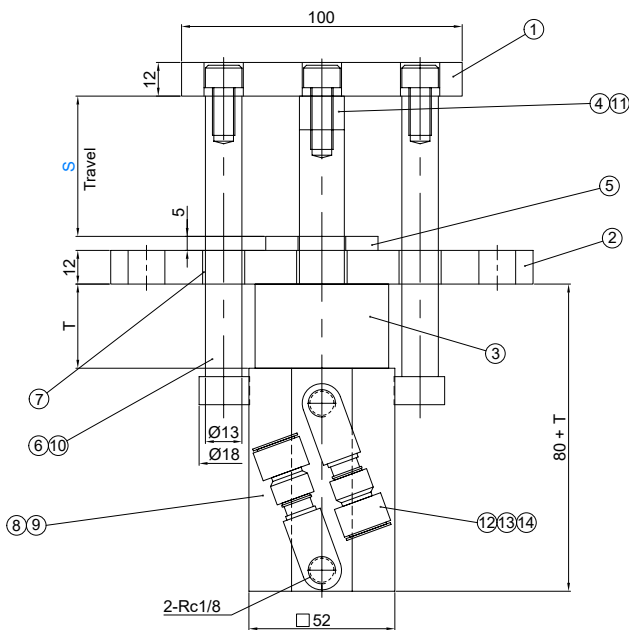
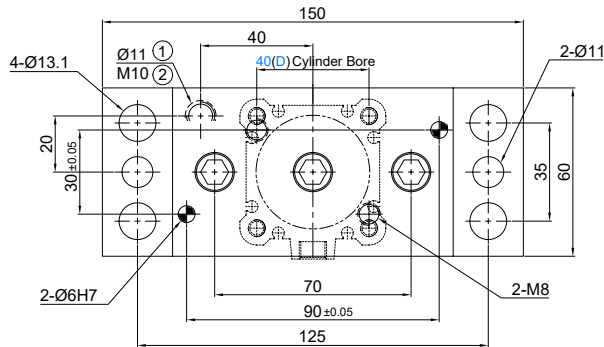
No.	Description	qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder Plate	1	SS400
3	Guide Holder	2	FC250 with Graphite
4	Guide Pin	2	S45C HRC50 - 60
5	Air Cylinder	1	SMC MB40 or MB63
6	Joint	1	S45C
7	Hex Socket Head Bolt	4	M6x35 (D=40) M8x35 (D=63)
8	Hex Socket Head Bolt	4	M12 x 35
9	Spring Pin	1	Ø6 x 12
10	Hard Lock Nut	2	M35

H-Type Lifter Unit - ลิฟเตอร์ยูนิต (H-Type)

FOIL FREE™



Model: 25SHLS



No.	Description	Qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder Plate	1	SS400
3	Block	1	SS400
4	Collar	1	STKM Ø16X3.5t
5	Stopper	1	Urethane Ø40X5t
6	Guide Pin	2	SUJ2 Ø13X70
7	Bushing	2	25SMB013-010

No.	Description	Qty	Material and Remark
8	Air Cylinder	1	CQ2A40-50Z SMC
9	Hexagon Socket Head Bolt	4	SCM435 M6
10	Hexagon Socket Head Bolt	2	SCM435 M8X20
11	Hexagon Socket Head Bolt	1	SCM435 M8X25
12	Elbow	2	KQ2L10-01A SMC
13	Irregular Diameter Union	2	KQ2H10-12A SMC
14	Tube	2	Ø10X35

ORDER
EXAMPLE Model D - S
25SHLS40-20

Model	Cylinder Bore D	Stroke S
25SHLS	40	20
		30

Stroke S	20	30
Block height T	30	20
Cylinder Travel	50	

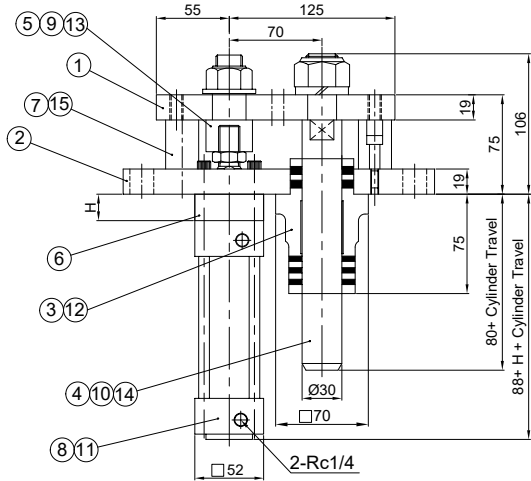
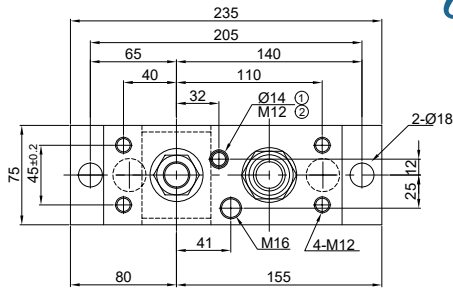
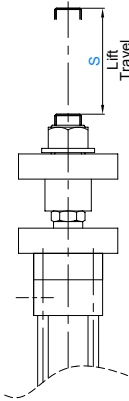
ระบบเคลื่อนย้ายแม่พิมพ์

Mini Lifter Unit - ลิฟเตอร์ยูนิต (Mini-Type)

FOIL FREE™



Model: 25MLGT



ORDER	Model	D - S
EXAMPLE	25MLGT40-50	

Model	Cylinder Inner D	Stroke S	H	Cylinder Travel
25MLGT	40	10	40	50
		20	30	
		30	20	
		40	10	
		50	0	
		60	40	100
		70	30	
		80	20	
		90	10	
		100	0	
		110	40	150
		120	30	
		130	20	
		140	10	
		150	0	
		160	40	200
		170	30	
		180	20	
		190	10	
		200	0	
		210	40	250
		220	30	
		230	20	
		240	10	
		250	0	

No.	Description	Qty	Material and Remark
1	Lifter Plate	1	SS400
2	Cylinder Holder Plate	1	SS400
3	Guide Holder	1	FC250 with Graphite
4	Guide Pin	1	S45C (HRC55 - 60)
5	Joint	1	SS400
6	Block	1	SS400
7	Stopper	2	Urethane
8	Air Cylinder	1	MB40 (for S) by SMC
9	U Nut	1	M20
10	U Nut	1	M24
11	Hexagon Socket Head Bolt	4	M6
12	Hexagon Socket Head Bolt	2	M12x35
13	Flat Washer	1	for M20
14	Spring Washer	1	for M24
15	Shoulder Bolt	2	SCM435 M8x20

ชิ้นส่วนประกอบ
Accessory Parts

⑥ Block

ORDER	Model	D - S
EXAMPLE	25HLSPC40-20	

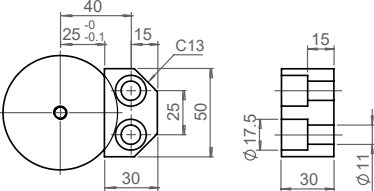
Model	D	H
25HLSPC	40	10
		20
		30
		40

Embed Lifter Unit - ลิฟเตอร์ยูนิตแบบฝัง

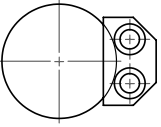
Oil Free™



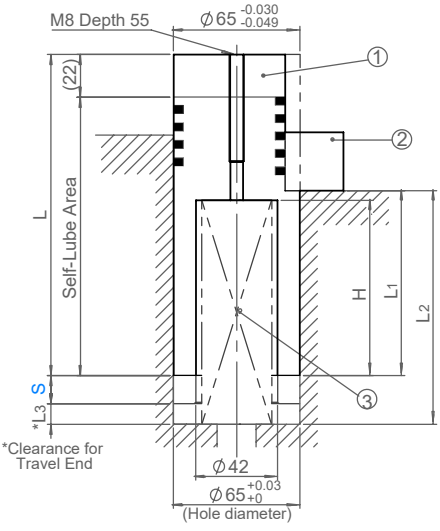
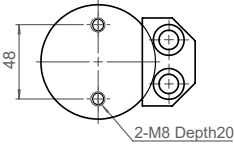
Model: 25SFL



Model: 25SFLN



Model: 25SFLT



Spring SF40 | SL40

No.	Description	Qty	Material and Remark
①	Silide Pin	1	FC250 with Graphite
②	Stopper	1	SKS3 (HRC58-)
③	Coil Spring	1	SF40 or SL40 spring

ORDER EXAMPLE	Model	S - Spring
	25SFLN40-SF	

Model	Stroke S	Spring Type	H	L	L1	SF Type						
						L2	L3	Spring	Initial		Final	
								Free Length	Length	Load (N)	Length	Load (N)
25SFL	15	SF	96	170	100	125	10	150	121	485	106	735
25SFLN	40				75			175	146	415		988
25SFLT	60				55			200	166	428		1178

Model	Stroke S	Spring	H	L	L1	SL Type						
						L2	L3	Spring	Initial		Final	
								Free Length	Length	Load (N)	Length	Load (N)
25SFL	15	SL	96	170	100	125	10	150	121	1022	106	1551
25SFLN	40				75	125	10	175	146	876	106	2084
25SFLT	60				55	140	25	200	181	502	121	2088

ชิ้นส่วนประกอบ
Accessory Parts

① Silde Pin		
ORDER EXAMPLE	Model	S
	25SFL-P40	

Model	Stroke S
25SFL-P (for 25SFL)	15
25SFLN-P (for 25SFLN)	40
25SFLT-P (for 25SFLT)	60

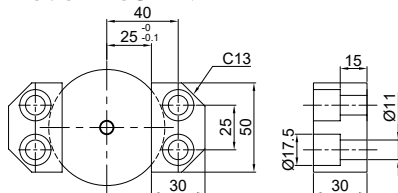
② Stopper
Order Code
25SFL-S

ระบบเคลื่อนย้ายแม่พิมพ์

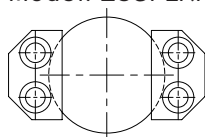
Embed Lifter Unit - ลิฟเตอร์ยูนิตแบบฝัง



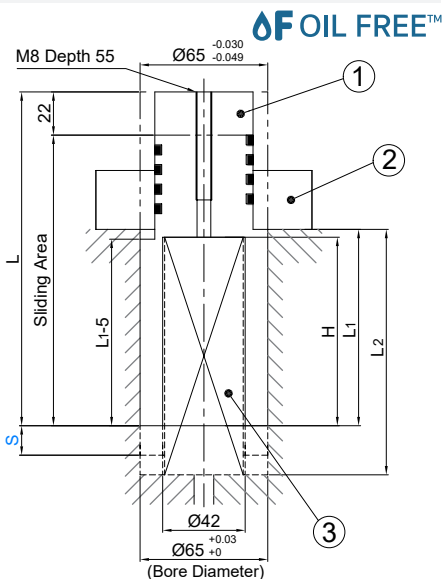
Model: 25SFLK



Model: 25SFLKN



Spring SF40 | SL40



No.	Description	Qty	Material and Remark
①	Silde Pin	1	FCD450 with Graphite
②	Stopper	2	SKS3 (HRC58-)
③	Coil Spring	1	SF40 or SL40 spring

ORDER EXAMPLE	Model	S - Spring
	25SFLK40-SF	

Model	Stroke S	Spring	H	L	L1	SF Type						
						L2	L3	Spring	Initial		Final	
								Free Length	Length	Load (N)	Length	Load (N)
25SFLK 25SFLKN	15	SF	96	170	100	125	10	150	121	485	106	735
	75				175			146	415	988		
	55				200			166	428	1178		
	80		120	200	65	155	10		210	401	130	1204
	55				250			220	301			
	45							230	201			

Model	Stroke S	Spring	H	L	L1	SL Type						
						L2	L3	Spring	Initial		Final	
								Free Length	Length	Load (N)	Length	Load (N)
25SFLK 25SFLKN	15	SL	96	170	100	125	10	150	121	1022	106	1551
	40				75	125	10	175	146	876	106	2084
	60				55	140	25	200	181	502	121	2088
	80		120	200	65	205	60	300	260	705	180	2114
	90				55				270	529		
	100				45				280	352		

ชิ้นส่วนประกอบ

Accessory Parts

① Silde Pin

ORDER EXAMPLE	Model	S
	25SFLK-P40	

Model	Stroke S
25SFLK-P (for 25SFLK) 25SFLKN-P (for 25SFLKN)	15
	40
	60
	80
	90
	100

② Stopper

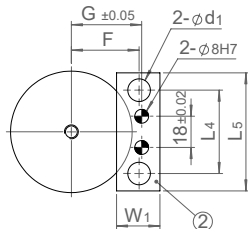
Order Code

25SFL-S

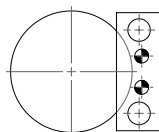
Embed Lifter Unit - ลิฟเตอร์ยูนิตแบบฝัง

Oil FREE™

Model: 25SFLG

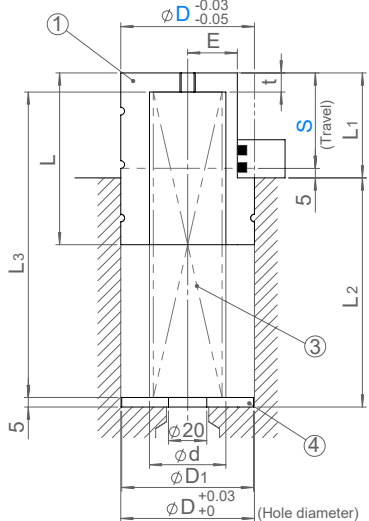
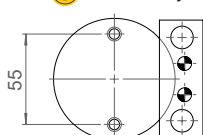


Model: 25SFLGN



Model: 25SFLGT

! D = 80 only



No.	Description	Qty	Material and Remark
①	Silde Pin	1	FC250
②	Stopper	1	S45C with Graphite
③	Coil Spring	1	SF or SL spring
④	Washer	1	S45C

Spring SF | SL

ORDER	Model	D - S - Spring
EXAMPLE	25SFLG65-15-SF	

Model	D	Stroke S	Spring	L	L1	t	d	E	F	G	Spring OD
25SFLG	65	15	SF SL	90	55	10	37	25	39	40	35
25SFLGN	80	40		140	85	15	53	32	49	49	50
25SFLGT		60		180	125	30					

D	Stroke S	SF Type							SL Type						
		L2	L3	Spring	Initial		Final		L2	L3	Spring	Initial		Final	
				Free Length	Length	Load (N)	Length	Load (N)			Free Length	Length	Load (N)	Length	Load (N)
65	15	115	155	175	155	219	105	767	115	155	175	155	464	105	1623
80	40	165	230	250	230	314	150	1569	165	230	250	230	662	150	3311
	60	195	285	300	285	196	165	1764	240	330	350	330	473	210	3311

ชิ้นส่วนประกอบ Accessory Parts

① Silde Pin

ORDER	Model	D - S
EXAMPLE	25SFLG-P65-15	

Model	D	Stroke S
25SFLG-P (for 25SFLG)	65	15
25SFLGN-P (for 25SFLGN)	80	40
		60

② Stopper

ORDER	Model	D
EXAMPLE	25SFLG-S	

Model	D	W1	L5	h	L4	d1
25SFLG-S	65	25	68	20	48	13
	80	30	80	50	54	18

③ Washer

ORDER	Model	D
EXAMPLE	25SFLG-W65	

Model	D	D1
25SFLG-W	65	63
	80	78

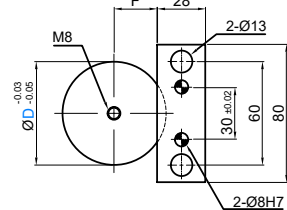
ระบบเคลื่อนย้ายแม่พิมพ์

Embed Lifter Unit - ลิฟเตอร์ยูนิตแบบฝัง

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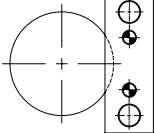


Model: 25SKIL

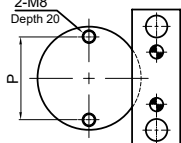


Model: 25SKILN

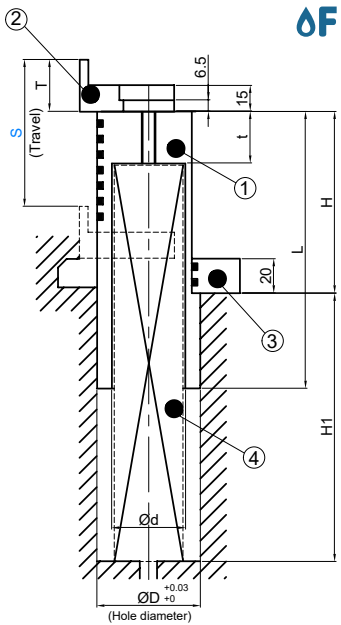
❗ ไม่ยึดกับลิฟท์บล็อก
Not attached to Liftblock



Model: 25SKILT



Spring SF | SL



No.	Description	Qty	Material and Remark
①	Silde Pin	1	S20C with Graphite
②	Stopper	1	SKS3
③	Coil Spring	1	SF or SL spring
④	Washer	1	S45C (HRC18 - 22)

ORDER EXAMPLE	Model	D - S - Spring
	25SKILT50-55-SF	

Model	D	Stroke S	Spring Type	L	d	F	t	H	H1	P	Spring OD
25SKIL	50	50	SF SL	110	33	19	25	75	105	39	30
25SKILN	60	80		160	43	25	30	105	155	48	40
25SKILT	75	100		200	53	30	40	125	195	55	50

D	Stroke S	SF Type					SL Type				
		Spring	Initial		Final		Spring	Initial		Final	
		Free Length	Length	Load (N)	Length	Load (N)	Free Length	Length	Load (N)	Length	Load (N)
50	50	175	155	162	105	566	175	155	339	105	1188
60	80	250	230	201	150	1003	250	230	423	150	2114
75	100	300	280	261	180	1568	300	280	552	180	3311

ชิ้นส่วนประกอบ

Accessory Parts

① Silde Pin

ORDER EXAMPLE	Model	D - S
	25SKIL-P50-50	

Model	D	Stroke S
25SKIL-P (for 25SKIL)	50	50
25SKILN-P (for 25SKILN)	60	80
25SKILT-P (for 25SKILT)	75	100

③ Stopper

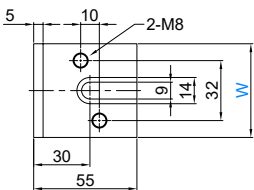
Order Code
25SKIL-S

② Lift Block

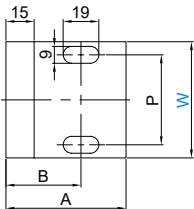
ORDER EXAMPLE	Model	W
	25SKIL-BA45	

Model	W	Slide Pin D	T	A	B	P
25SKIL-BA	45	50	30	-	-	-
	50	60				
	60	75				
25SKIL-BB	52	50	40	58	40	39
	62	60		64	40	48
	75	75		80	55	55

Model: 25SKIL-BA

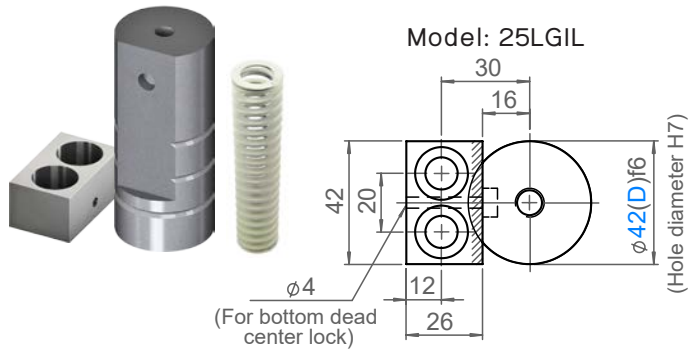


Model: 25SKIL-BB

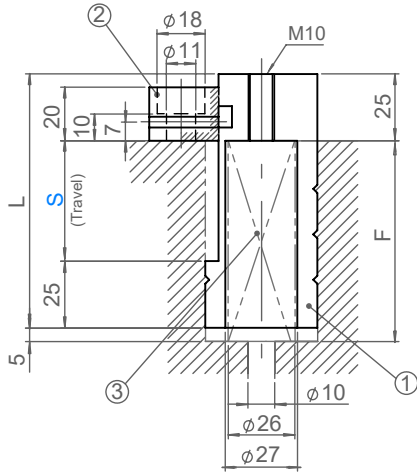


Embed Lifter Unit - ลิฟเตอร์ยูนิตแบบฝัง

Oil Free™



Model: 25LGILN



No.	Description	Qty	Material and Remark
①	Silde Pin	1	S45C
②	Stopper	1	S45C (HRC50-)
③	Coil Spring	1	SSR26 spring

ORDER	Model	D - S
EXAMPLE	25LGIL42-40	

Model	D	Stroke S	F	L	Spring		
					OdxL	Initial Load (N)	Final Load (N)
25LGIL	42	40	70	90	26x125	97	355
25LGILN		60	90	110	26x175	115	392

ชิ้นส่วนประกอบ
Accessory Parts

① Silde Pin

ORDER	Model	D - S
EXAMPLE	25LGIL-P42-40	

Model	D	Stroke S
25LGIL-P (for 25LGIL)	42	40
25LGILN-P (for 25LGILN)		60

② Stopper

Order Code
25LGP-T

ระบบเคลื่อนย้ายแม่พิมพ์

Embed Lifter Unit for Progressive Die - ลิฟเตอร์ยูนิตแบบฝัง

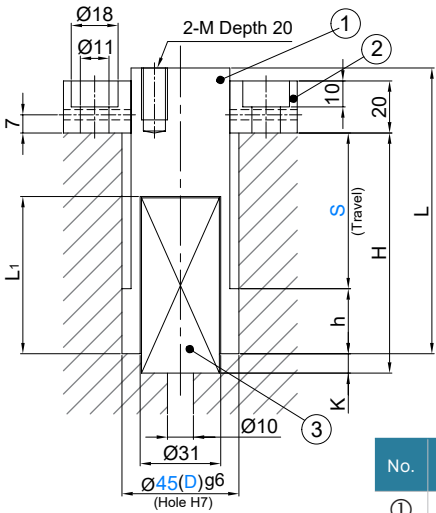
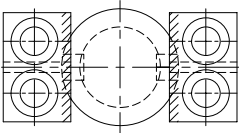
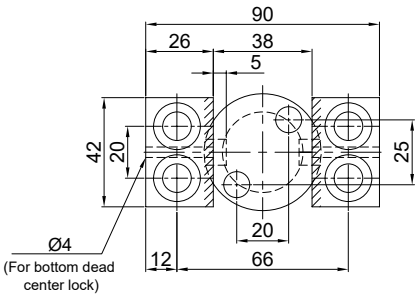


Die Transfers



Model: 25PGLI

Model: 25PGLIN



ORDER	Model	D - S
EXAMPLE	25PGLI45-60	

No.	Description	Qty	Material and Remark
①	Silde Pin	1	S45C
②	Stopper	2	S45C HRC50-
③	Coil Spring	1	SF spring

Model	D	Stroke S	H	K	L	L1	h	Spring		
								OdxL	Initial Load (N)	Final Load (N)
25PGLI 25PGLIN	45	40	74	9	90	60	25	30x125	181	637
		60	92.5	7.5	110	75	25	30x150	71	
		80	120	5	140	105	35	30x200	71	

ชิ้นส่วนประกอบ
Accessory Parts

① Silde Pin

ORDER	Model	D - S
EXAMPLE	25PGL-P45-60	

Model	D	Stroke S
25PGLI-P (for 25PGLI) 25PGLIN-P (for 25PGLIN)	45	40
		60
		80

Lifter Guide Post Set - ชุดลิฟเตอร์ไกด์โพสต์

FOIL FREE™

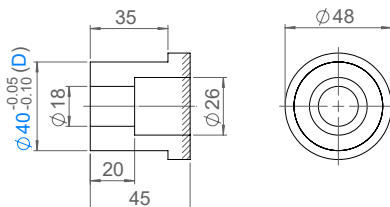


Model: 25LGPS

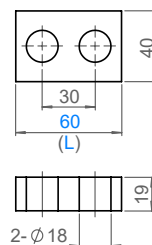
Whole Set

(Guide Post + Stopper Block + Stopper Plate)

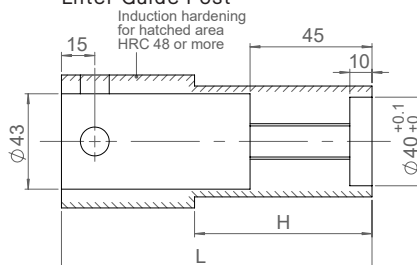
Model: 25LSB
Stopper Block



Model: 25LGPP-T
Stopper Plate



Model: 25LGP-T
Lifter Guide Post



ORDER	Model	D
EXAMPLE	25LSB40	
	25LSB	40

ORDER	Model	L
EXAMPLE	25LGPP-T60	
	25LGPP-T	60

ORDER	Model	S
EXAMPLE	25LGPS60	

Model	Stroke S	L	H
25LGPS	40	120	80
25LGP-T	60	140	100
	80	160	120

Model	Qty	Material and Remark
25LGP-T	1	S45C (HRC48+)
25LSB	1	S45C with Bolts
25LGPP-T	2	S45C

Lifter Guide Post Set - ชุดลิฟเตอร์ไกด์โพสต์

FOIL FREE™

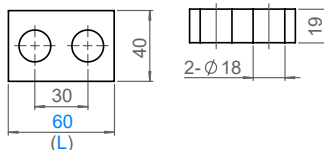


Model: 25LGPPS

Whole Set

(Guide Post + Stopper Plate)

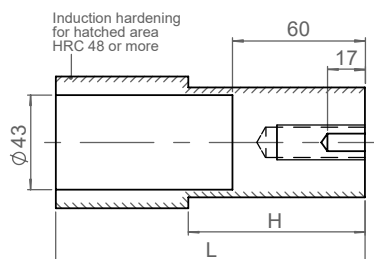
Model: 25LGPP-T
Stopper Plate



ORDER	Model	L
EXAMPLE	25LGPP-T60	

Model	L
25LGPP-T	60

Model: 25LGPP-P
Lifter Guide Post



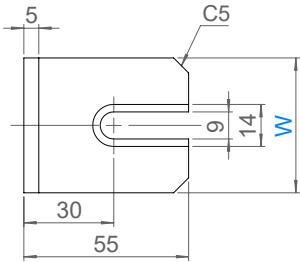
ORDER	Model	S
EXAMPLE	25LGPPS60	

Model	Stroke S	L	H
25LGPPS	40	140	80
25LGPP-P	60	160	100

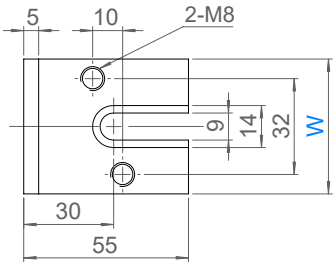
Model	Qty	Material and Remark
25LGPP-P	1	S45C (HRC48+)
25LGPP-T	2	S45C



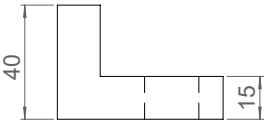
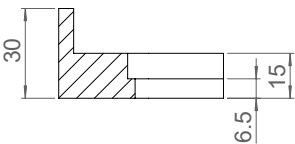
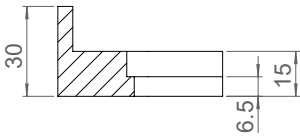
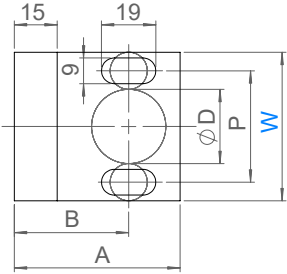
Model: 25SKIL-B
Lift Block



Model: 25SKIL-BA
Lift Block w/ hole (A)



Model: 25SKIL-BB
Lift Block w/ hole (B)

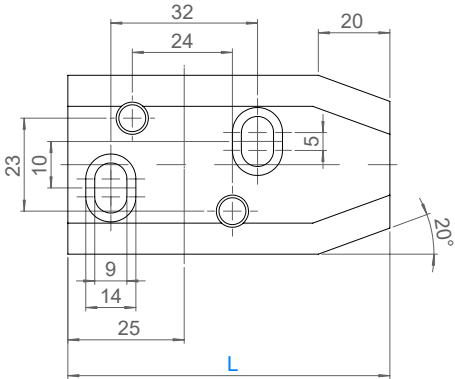
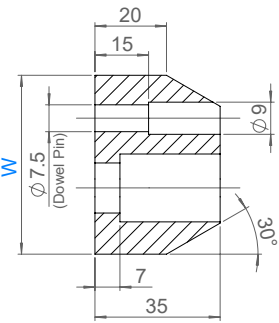


ORDER EXAMPLE Model W M SKS3
25SKIL-BB52

Model	W
25SKIL-B 25SKIL-BA	45
	50
	60

Model	W	A	B	P	D
25SKIL-BB	52	58	40	39	26
	62	64	40	48	35
	75	80	55	55	42

Model: 25SFSG
Side Gauge



M S45C

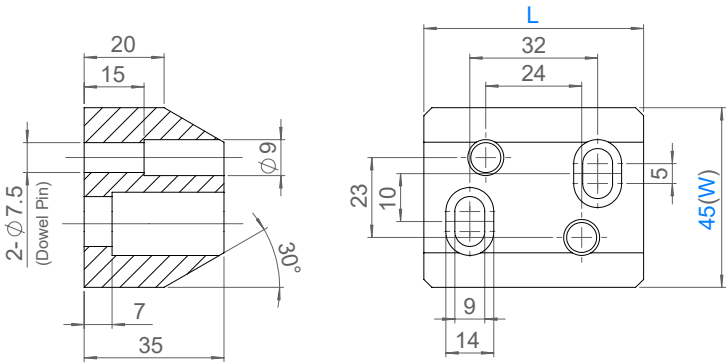
ORDER EXAMPLE Model W - L
25SFSG45-75

Model	W	L
25SFSG	45	75

Lifter Components - ชิ้นส่วนลิฟเตอร์



Model: 25SFRG
Rear Gauge

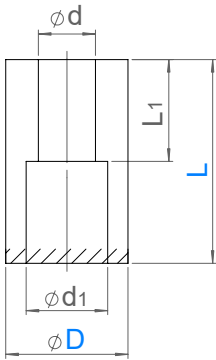


M S45C

ORDER Model W - L
EXAMPLE 25SFRG45-55

Model	W	L
25SFRG	45	50
		55

Model: 25SFLPA
Advance Pin



ORDER Model D - L
EXAMPLE 25SFLPA30-80

M S45C

Induction Harden

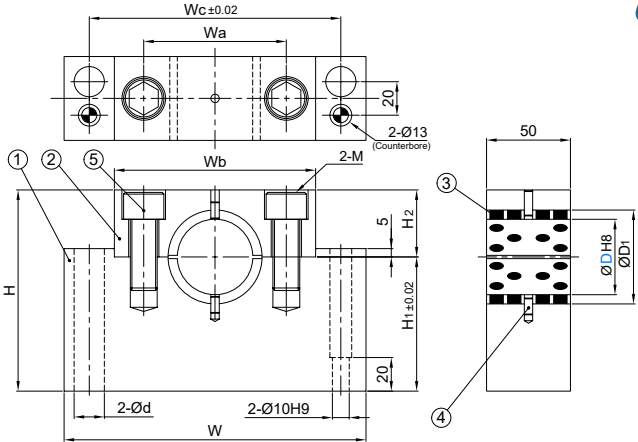
Model	D	L 10mm increment	d	d1	L1	Recommended Bolt	Lift Block	
							W	D
25SFLPA	25	40 - 60	9	14	20	M8x35	52	26
		70 - 100			40	M8x55		
	30	50 - 60	13	20	25	M12x50	62	35
		70 - 100			45	M12x70		
		70 - 100			65	M12x90		
	35	50 - 60	13	20	25	M12x50	75	42
		70 - 100			45	M12x70		
		70 - 100			65	M12x90		

ระบบเคลื่อนย้ายแม่พิมพ์

Bell Crank Lifter Parts (Bearing Set) - ชุดแบริ่งสำหรับ Bell Crank



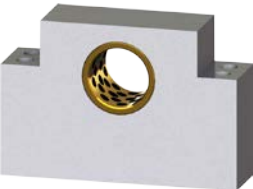
Model: 25SBCRA
Iron Bushing



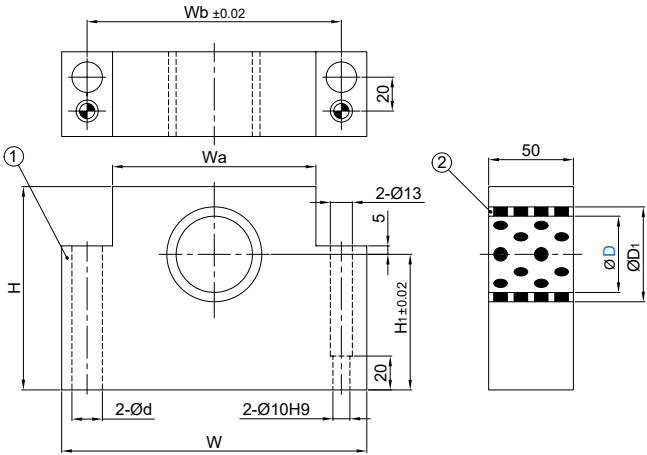
No.	Description	Qty	Material and Remark
①	Case Body	1	SS400
②	Cap	1	SS400
③	Bushing (half)	1	FC250 with Graphite
④	Dowel Pin	2	SUJ2 Ø5 X 10
⑤	Hexagon Socket Head Bolt	2	SCM435

ORDER EXAMPLE	Model	D
	25SBCRA35	

Model	D H8		W	Wa	Wb	Wc	H	H1	H2	D1	d	M
25SBCRA	25	+0.033 0	130	80	55	105	85	60	25	33	13	12
	35	+0.039 0	170	110	75	140	105	70	35	44	18	16
	45		180	120	85	150	120	80	40	56	18	16



Model: 25SBCRB
Copper Alloy Bushing



No.	Description	Qty	Material and Remark
①	Case Body	1	SS400
②	Bushing	1	Copper Alloy with Graphite

ORDER EXAMPLE	Model	D
	25SBCRB35	

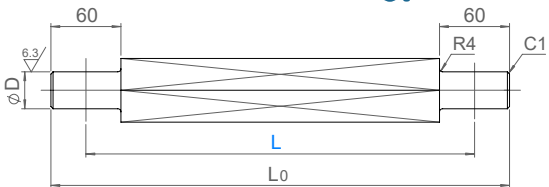
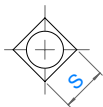
Model	D Tolerance		W	Wa	Wb	H	H1	D1	d
25SBCRB	25	+0.025 0	130	80	105	85	60	33	13
	35	+0.030 0	170	110	140	105	70	44	18
	45		180	120	150	120	80	56	18

Bell Crank Lifter Parts (Shaft) - ชาฟสำหรับ Bell Crank

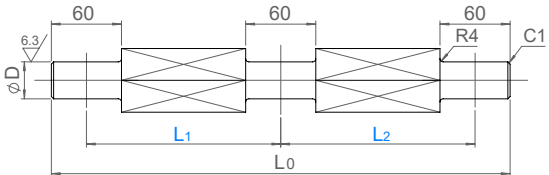
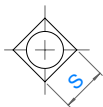
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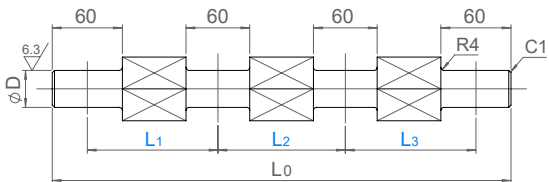
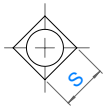
Model:
25SBCHA



Model:
25SBCHB



Model:
25SBCHC



ORDER
EXAMPLE

Model S - L - L1 - L2 - L3
25SBCHB28-500-600

SS400

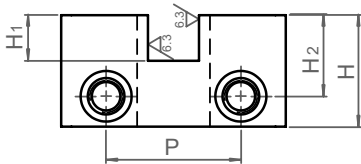
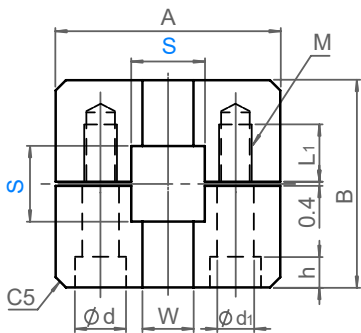
Model	S Tolerance		L, L1, L2, L3	D Tolerance		L0
25SBCHA 25SBCHB 25SBCHC	28	0 -0.2	1mm increment The sum must not exceed L0	25	-0.065	25SBCHA L0 ≤ 1600
	38			35	-0.117	
	50			45	-0.080 -0.142	25SBCHB & 25SBCHC L0 ≤ 2000

Bell Crank Lifter Parts (Arm Block) - ชิ้นส่วนสำหรับ Bell Crank

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Model: 25SBCBC



ORDER
EXAMPLE

Model D
25SBCBC38

SS400

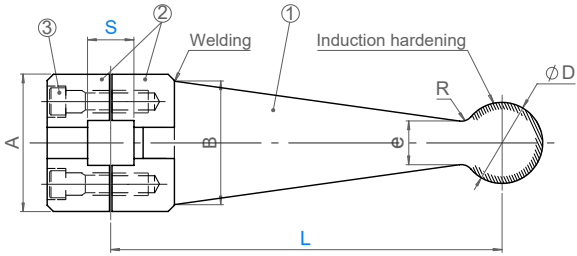
Model	S		A	B	W		d	d1	h	M	L1	H	H1	H2	P
25SBCBC	28	+0.013 0	75	70	20	+0.052 0	20	13	13	12	25	50	20	35	50
	38	90	80	30	30						65				
	50	+0.016 0	110	100	40	+0.062 0	26	18	18	16	35	55	25	40	80

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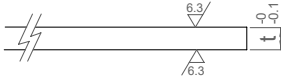
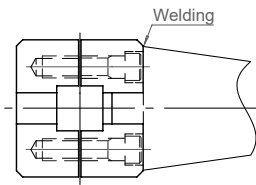
Bell Crank Lifter Parts (Lifter Arm) - แขนยกสำหรับ Bell Crank



Model:
25SBCLA



Model:
25SBCLB



ORDER EXAMPLE	Model	S - L
	25SBCLA38-150	

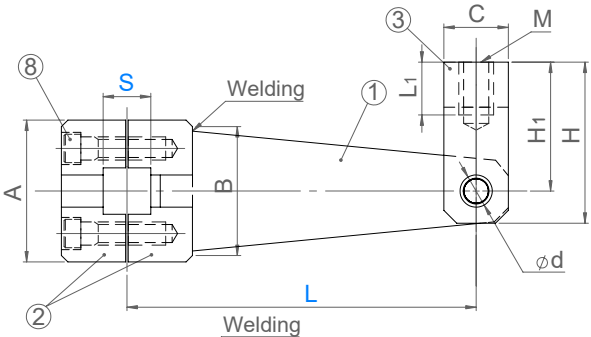
No.	Description	Qty	Material and Remark
①	Lifter Arm	1	S45C
②	Arm Block	1	SS400
③	Hexagon Socket Head Bolt	2	SCM435

Model	S	L 10mm increment	A	B	D	e	R	t
25SBCLA	28	100 - 300	75	60	40	25	10	15
25SBCLB	38	100 - 400	90	80	50	30	20	20
	50	100 - 600	110	100	50	30	20	20

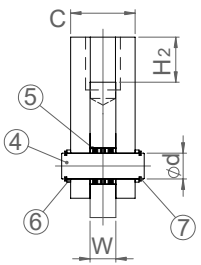
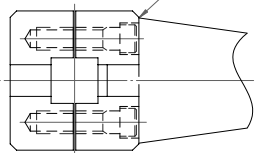
Bell Crank Lifter Parts (Shaft Arm) - ชุดแบริ่งสำหรับ Bell Crank



Model:
25SBCSA



Model:
25SBCSB



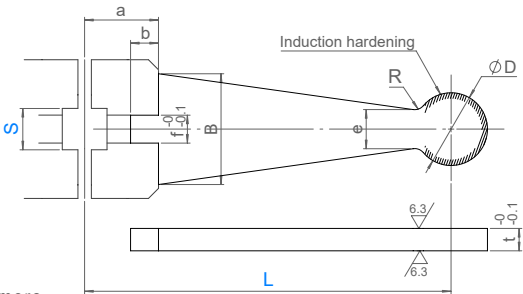
No.	Description	Qty	Material and Remark
①	Shaft Arm	1	SS400
②	Arm Block	1	SS400
③	Joint	1	S45C
④	Joint Pin	1	S45C

No.	Description	Qty	Material and Remark
⑤	Oilless Bushing	1	Copper Alloy with Graphite
⑥	Washer	2	
⑦	C type Retaining Ring	2	
⑧	Hexagon Socket Head Bolt	2	SCM435

ORDER EXAMPLE	Model	S - L - Screw Thread
	25SBCSA38-110-R	

Model	S	L 10mm increment	Screw Thread (joint area)	A	B	C	H	H1	H2	L1	d	W	M	t
25SBCSA	28	100 - 300	R (Right Hand)	75	60	40	95	75	25	30	16	16	M20x2.5	15
25SBCSB	38	100 - 400	L (Left Hand)	90	80	50	110	85	35	40	20	20	M24x3.0	20
	50	100 - 600		110	100	50	110	85	35	40	20	20	M27x3.0	20

Bell Crank Lifter Parts (Arm & Joint) - แขนยกสำหรับ Bell Crank

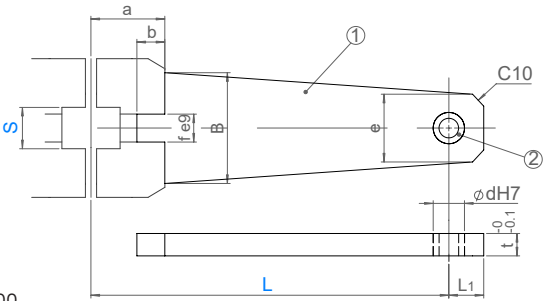


Model: 25SBCL

ORDER Model S - L
EXAMPLE 25SBCL38-110

① S45C
② HRC55 or more

Model	S	L 10mm increment	a	b	B	e	f	D	R	t
25SBCL	28	100 - 300	35	15	60	25	20	40	10	15
	38	100 - 400	40	15	80	30	30	50	20	20
	50	100 - 600	50	20	100	30	40	50	20	20

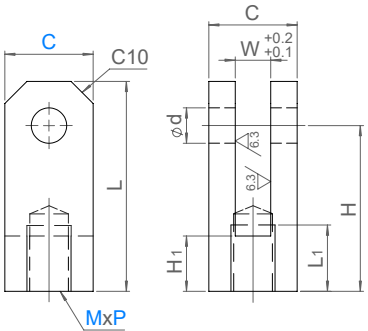


Model: 25SBCS

ORDER Model S - L
EXAMPLE 25SBCS38-110

① SS400
② Copper Alloy with Graphite

Model	S	L 10mm Increment	a	b	B	e	f e9		d H7		L1	t
25SBCS	28	100 - 300	35	15	60	40	20	-0.04 -0.092	22	-0.04 -0.092	20	16
	38	100 - 400	40	15	80	45	30	-0.04 -0.092	28	-0.04 -0.092	22.5	20
	50	100 - 600	50	20	100	50	40	-0.05 -0.112	28	-0.05 -0.112	25	20



Model: 25SBCJ

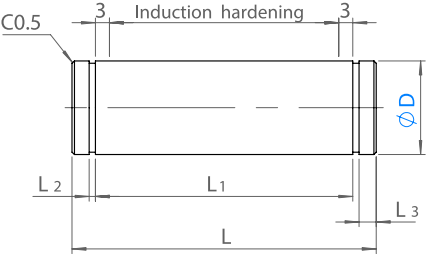
① SS400

ORDER Model C - M - P - Screw Thread
EXAMPLE 25SBCJ40-18-1.5-R

Model	C	M	P	Screw Thread (joint area)	L1	L	H	H1	d	W	For Cylinder Diameter	
25SBCJ	40	18	1.5	R (Right Hand) L (Left Hand)	30	95	75	25	16	+0.018 0	16	D63
		20	2.5									
	50	22	1.5		40	110	85	35	20	+0.021 0	20	D80 D100
		24	3.0									
		27	1.5									D125
			3.0									

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Bell Crank Lifter Parts (Joint Pin) - จ๊อยพินสำหรับ Bell Crank



Model: 25SBCJP

ORDER Model D S45C
EXAMPLE 25SBCJP20 HRC55 or more

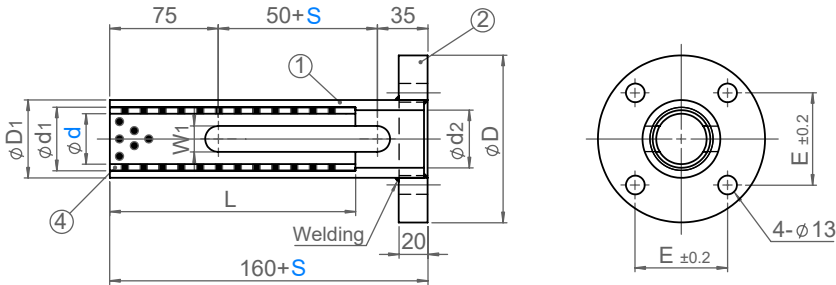
Model	D		d		L	L1	L2		L3	For Cylinder Diameter
25SBCJP	16	$\begin{smallmatrix} 0 \\ -0.027 \end{smallmatrix}$	15.2	$\begin{smallmatrix} 0 \\ -0.11 \end{smallmatrix}$	53	46.5	1.15	$\begin{smallmatrix} +0.14 \\ 0 \end{smallmatrix}$	2.7	D63
	20	$\begin{smallmatrix} 0 \\ -0.033 \end{smallmatrix}$	19	$\begin{smallmatrix} 0 \\ -0.21 \end{smallmatrix}$	65	56.5	1.35	$\begin{smallmatrix} +0.14 \\ 0 \end{smallmatrix}$	2.9	D80, D100, D125

Die Transfers

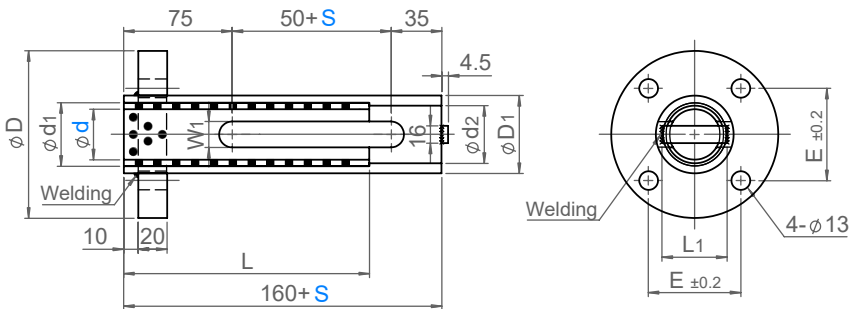
Bell Crank Lifter Parts (Bush Holder) - บุชโหลเดอร์สำหรับ Bell Crank



Model: 25SBCBHA



Model: 25SBCBHB



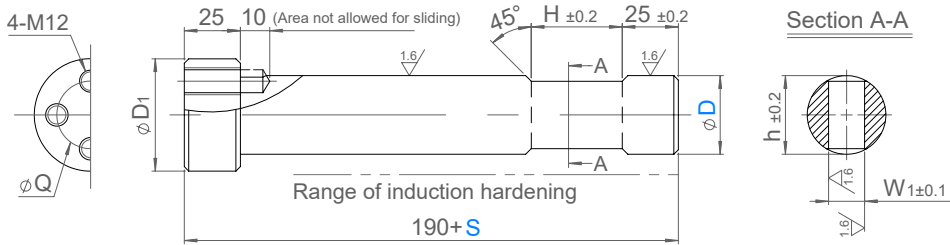
ORDER Model d - S STB33
EXAMPLE 25SBCBHA35-125 SS400
FC250 with Graphite

Model	d		Stroke S 1mm Increment	D	D1	d1	d2	L		W1	E	L1
								S ≤ 200	200 < S ≤ 350			
25SBCBHA	35	+0.10	S ≤ 350	116	54	44	40	150	200	18	64	45
25SBCBHB	50	+0.05		135	76.2	62	60.2			23	78	70

Bell Crank Lifter Parts (Guide Post) - ไกด์โพสสำหรับ Bell Crank



Model: 25SBCP



ORDER
EXAMPLE

Model D - S
25SBCP35-200



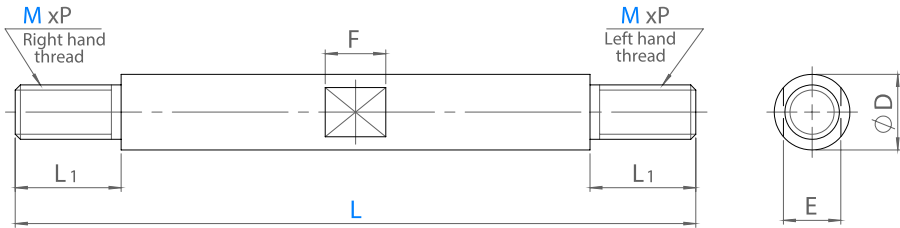
S45C
HRC55 or more

Model	D		Stroke S 1mm increment	D1	Q	H	W1	h
25SBCP	35	-0.050 -0.112	S ≤ 400	50	30	40.5	16	30
	50			65	45	50.5	21	42

Bell Crank Lifter Parts (Connecting Rod) - คอนเนคเตอร์สำหรับ Bell Crank



Model: 25SBCCR



ORDER
EXAMPLE

Model D - S
25SBCCR24-300



SS400

Model	M	L 1mm increment	D	P	L1	E	F
25SBCCR	20	L ≤ 350	25	2.5	30	19	20
	24		30	3	40	24	25
	27		35	3	40	30	30

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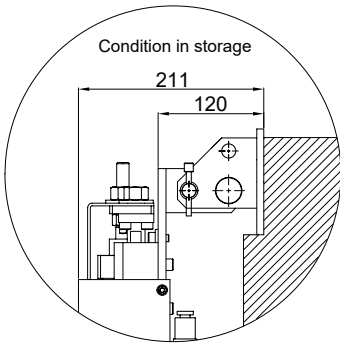
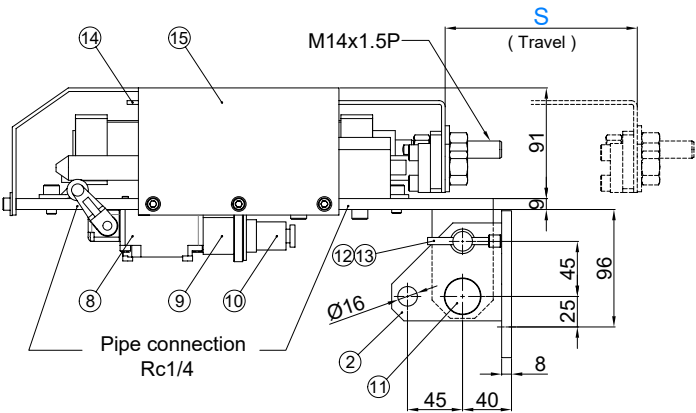
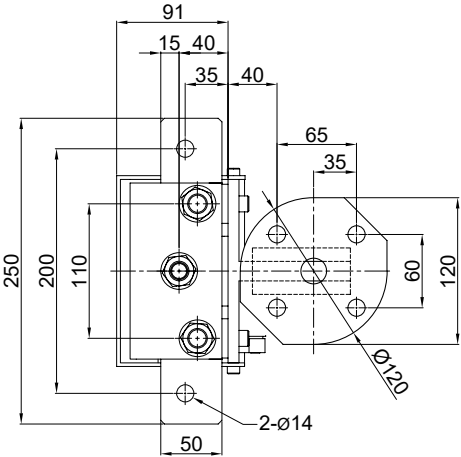
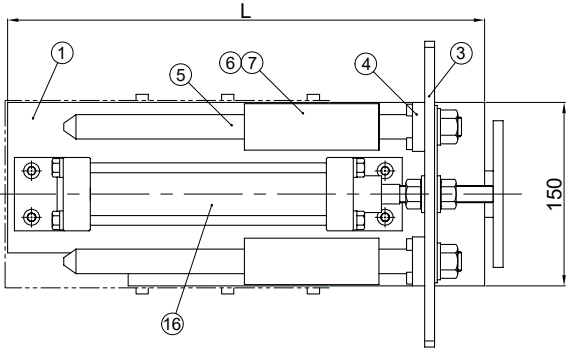
Pusher Unit - พูชเชอร์ยูนิต

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Model: 25SODP

Die Transfers



No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400
2	Bracket	1	SS400
3	Connector Plate	1	SS400
4	Set Plate	2	SS400
5	Guide Pin	2	S45C
6	Bushing Holder	2	SS400
7	Guide Bushing	4	FC250 with Graphite
8	Limit Switch	1	WLCA2 Omron

No.	Description	Qty	Material and Remark
9	Connector Holder	1	SS400
10	Connector	1	NCS-252P/R Nanaboshi
11	Joint Pin	1	S45C
12	Stopper Pin	1	S45C
13	Chain	1	Height : 200 mm
14	Cover	1	SPC
15	Cover	1	SPC
16	Air Cylinder	1	SCA2-LB-40B CKD

ORDER
EXAMPLE

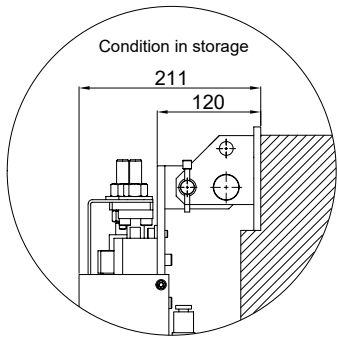
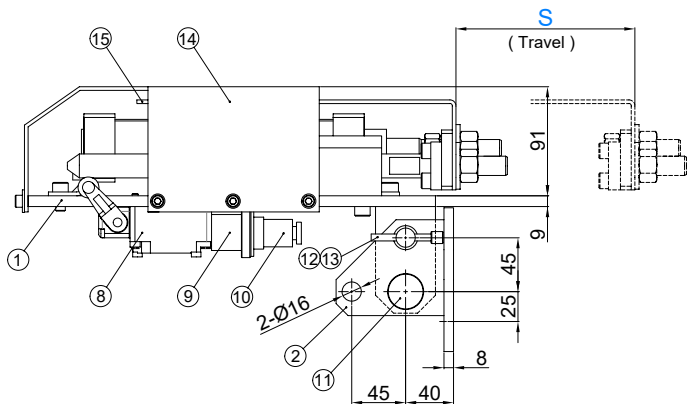
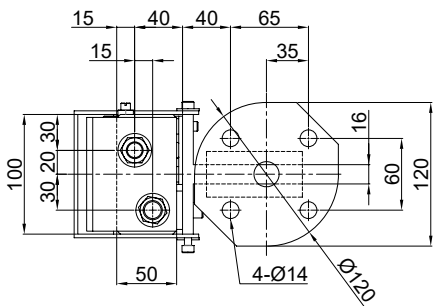
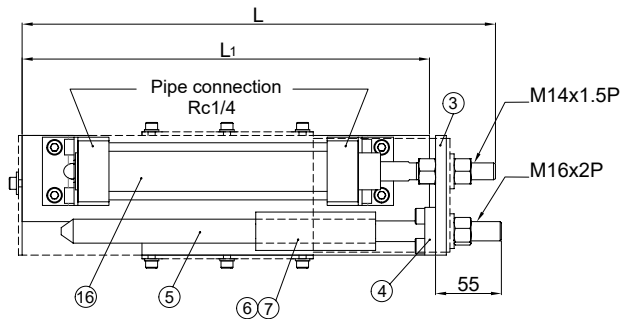
Model S - L
25SODP150-390

Model	Stroke S	L
25SODP	150	390
	250	490

Pusher Unit - พูชเชอร์ยูนิต

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Model: 25SOSP



No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400
2	Bracket	1	SS400
3	Connector Plate	1	SS400
4	Set Plate	1	SS400
5	Guide Pin	1	S45C
6	Bushing Holder	1	SS400
7	Guide Bushing	2	FC250 with Graphite
8	Limit Switch	1	WLCA2 Omron

No.	Description	Qty	Material and Remark
9	Connector Holder	1	SS400
10	Connector	1	NCS-252P/R Nanaboshi
11	Joint Pin	1	S45C
12	Stopper Pin	1	S45C
13	Chain	1	Height : 200 mm
14	Cover	1	SPC
15	Cover	1	SPC
16	Air Cylinder	1	SCA2-LB-40B CKD

ORDER
EXAMPLE

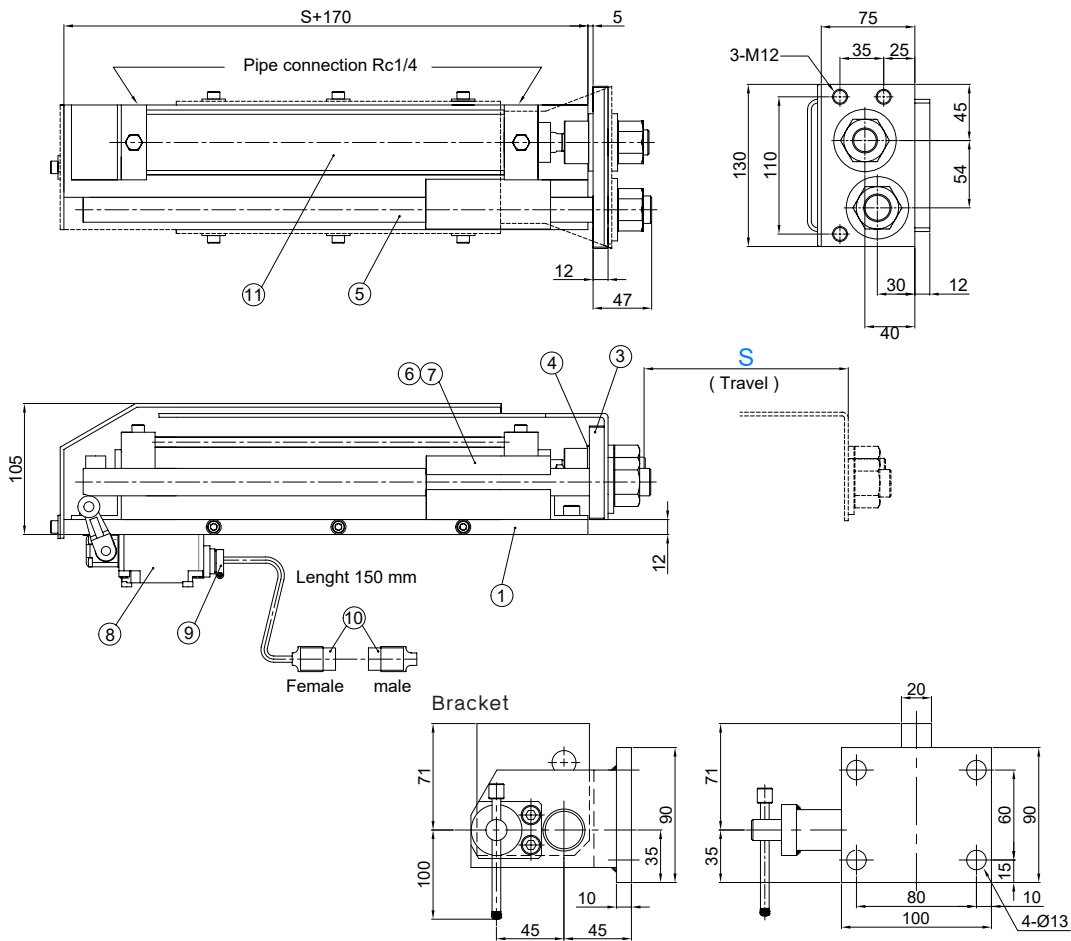
Model S
25SOSP150

Model	Stroke S	L	L1
25SOSP	150	395	340
	250	495	440



Model: 25APSG

Model	Type
25APSG-B	with bracket
25APSG	without bracket



No.	Description	Qty	Material and Remark
1	Base Plate	1	SS400
2	Bracket	1	SS400
3	Connector Plate Mounting	1	SS400
4	Collar	1	SS400
5	Guide Pin	1	S45C Ø22
6	Guide Holder (upper)	1	Copper Alloy with Graphite

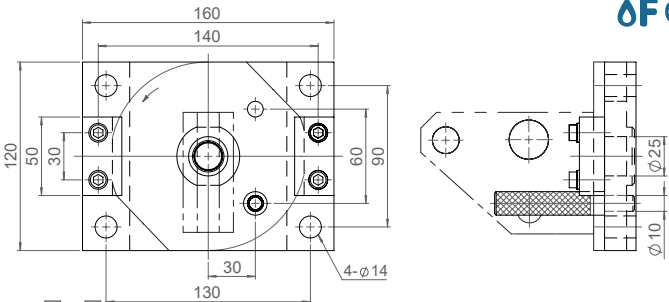
No.	Description	Qty	Material and Remark
7	Guide Holder (lower)	1	Copper Alloy with Graphite
8	Limit Switch	1	WLCA2 Omron
9	Cable Clamp	1	KB-01
10	Nylon Connector Set	1	
11	Air Cylinder	1	CA2L40

ORDER
EXAMPLE Model S
25APSG-B200

Model	Stroke S
25APSG-B (with bracket) 25APSG (without bracket)	150 / 200 / 250 / 300 / 350 / 400 / 500

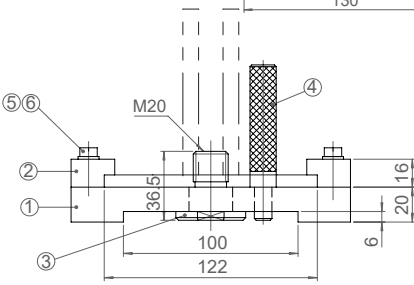
Swivel Adapter for Pusher Unit - แอดปเตอร์สำหรับพุกเซอร์ยูนิต

FOIL FREE™



Model: 25ADR

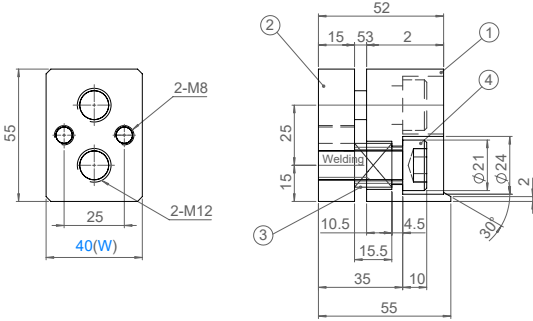
Order Code
25ADR



No.	Description	Qty	Material and Remark
①	Base Plate	1	SS400
②	Slid Guide	2	SS400
③	Support Pin	1	SS45C
④	Fixed Pin	1	SS45C
⑤	Hexagon Socket Head Bolt	4	SCM435 M8 X 35
⑥	Spring Washer	4	SCM435 For M8

Spring Head for Pusher Unit - ชิ้นส่วนหัวพุกเซอร์ยูนิต

FOIL FREE™



Model: 25SO-PSH

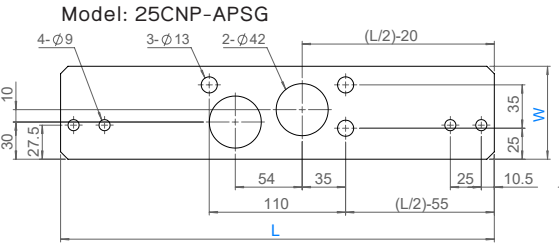
ORDER	Model	W
EXAMPLE	25SO-PSH40	

Model	W	Load N (kgf)	
		min	max
25SO-PSH	40	37.8 (3.9)	79.8 (8.1)

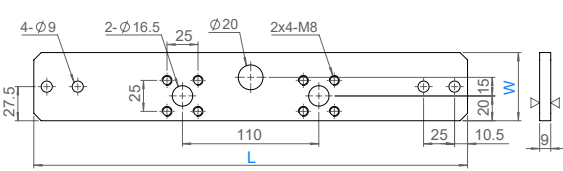
No.	Description	Qty	Material and Remark
①	Pusher Plate	1	SS400
②	Connector Plate	1	SS400
③	Spring	2	SWPA ø20 X L20
④	Hanger Bolt	2	SCM435 with Bushing
⑤	Dowel Pin	2	S45 ø4 X 8

Pusher Unit Connector Plate - เพลทสำหรับพุกเซอร์ยูนิต

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Model: 25CNP-SODP



ORDER	Model	W	L
EXAMPLE	25CNP-APSG75-225		

SS400

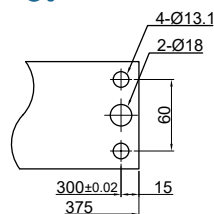
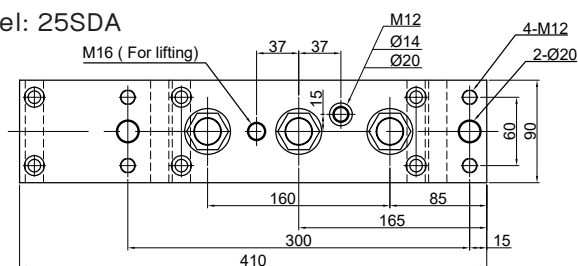
Model	W	L 1mm increment
25CNP-APSG	75	220 - 600
25CNP-SODP	55	250 - 600

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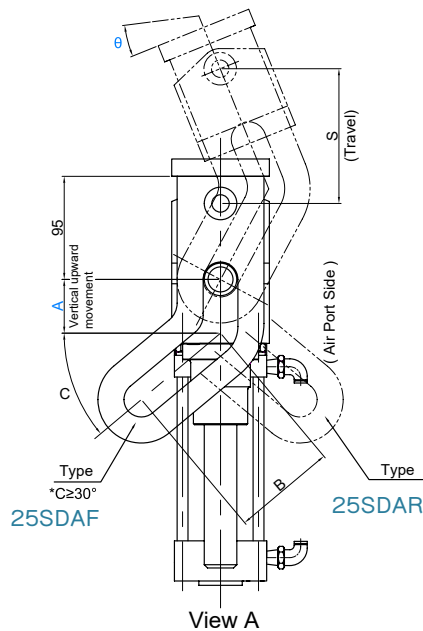
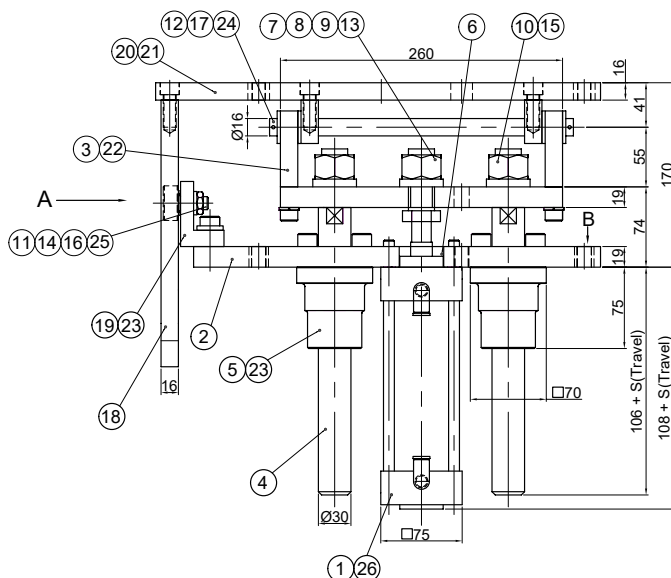
Shredder Unit - เซอร์ริตเตอร์ยูนิต



Model: 25SDA



View B



No.	Description	Qty	Material and Remark
1	Air Cylinder	1	MB63 SMC
2	Cylinder Holder Plate	1	SS400
3	Lifter Plate	1	SS400
4	Guide Pin	2	S45C HRC55 to 60
5	Guide Holder	2	FC250 with Graphite
6	Collar	1	STKM
7	Spacer	1	SS400
8	Hexagon Nut	1	M20
9	Hexagon Nut (3 Types)	2	M20
10	Hexagon Nut	2	M24
11	Flat Washer	1	For M12
12	Flat Washer	4	For M16
13	Flat Washer	1	For M20

No.	Description	Qty	Material and Remark
14	Spring Washer	1	For M12
15	Spring Washer	2	For M24
16	Cam Follower	1	KR32LL By NTN
17	Straight Pin	1	S45C HRC55 to 60
18	Shedder	1	SS400
19	Bracket	1	SS400
20	Head Plate	1	SS400
21	Sun Rise TechBolt	6	M10X25
22	Sun Rise TechBolt	4	M10X40
23	Sun Rise TechBolt	6	M12X30
24	Cotter Pin	2	ø3X32
25	Hexagon Nut	1	M12X1.5 (3 Types)
26	Elbow	2	

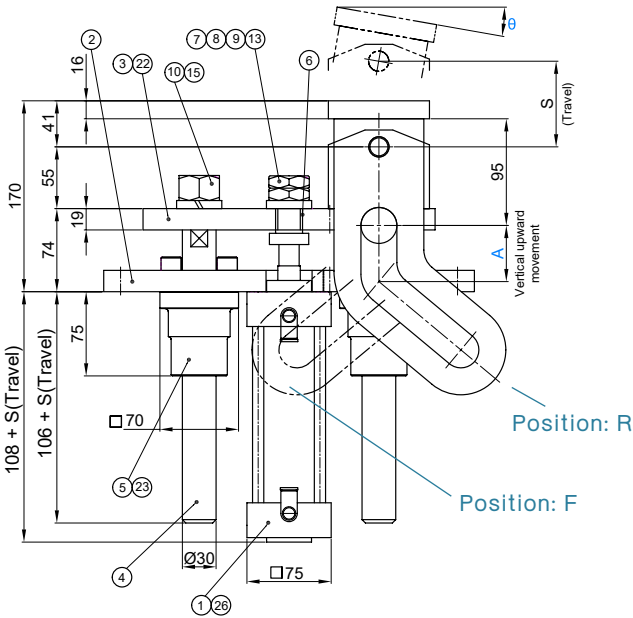
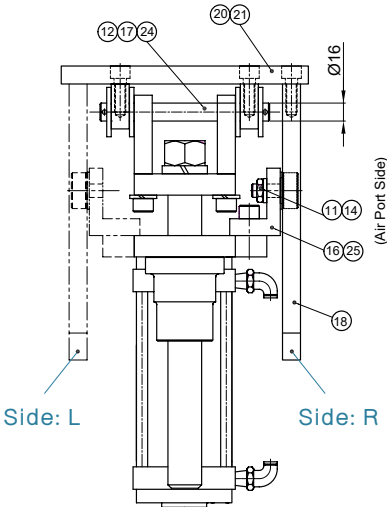
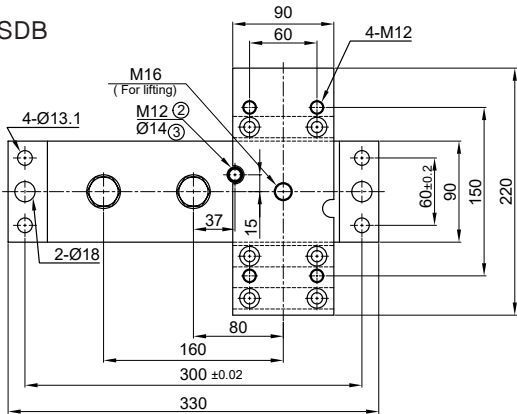
ORDER EXAMPLE	Model	ST - A -	Angle
	25SDAF125-60-10		

Model	ST 25mm increments	A 10mm increment	Angle 1° increment
25SDAF 25SDAR	100 - 300	50 - 200	10° - 25°

Shredder Unit - เซอร์คิเดอ์ยูนิต

FOIL FREE™

Model: 25SDB



No.	Description	Qty	Material and Remark
1	Air Cylinder	1	MB63 SMC
2	Cylinder Holder Plate	1	SS400
3	Lifter Plate	1	SS400
4	Guide Pin	2	S45C HRC55 to 60
5	Guide Holder	2	FC250 with Graphite
6	Collar	1	STKM
7	Spacer	1	SS400
8	Hexagon Nut	1	M20
9	Hexagon Nut (3 Types)	2	M20
10	Hexagon Nut	2	M24
11	Flat Washer	1	For M12
12	Flat Washer	4	For M16
13	Flat Washer	1	For M20

No.	Description	Qty	Material and Remark
14	Spring Washer	1	For M12
15	Spring Washer	2	For M24
16	Cam Follower	1	KR32LL By NTN
17	Straight Pin	1	S45C HRC55 to 60
18	Shredder	1	SS400
19	Bracket	1	SS400
20	Head Plate	1	SS400
21	Sun Rise TechBolt	6	M10X25
22	Sun Rise TechBolt	4	M10X40
23	Sun Rise TechBolt	6	M12X30
24	Cotter Pin	2	Ø3X32
25	Hexagon Nut	1	M12X1.5 (3 Types)
26	Elbow	2	

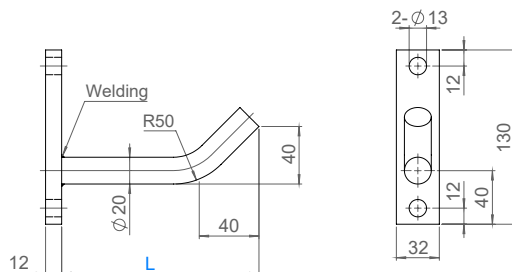
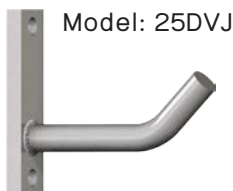
ORDER
EXAMPLE

Model ST - A - Angle
25SDBRF125-60-10

Model	Side	Position	ST 25mm increment	A 10mm increment	Angle 1° increment
25SDB	L R	F R	100 - 300	50 - 200	10° - 25°

Hook for Transport - หูหิ้วขนส่ง

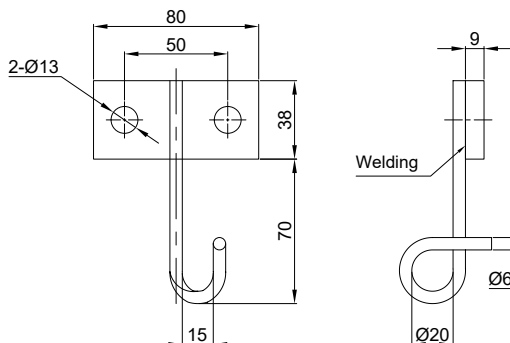
Ⓜ SS400



ORDER
EXAMPLE

Model	L
25DVJ	100
	150

Model: 25DKLH



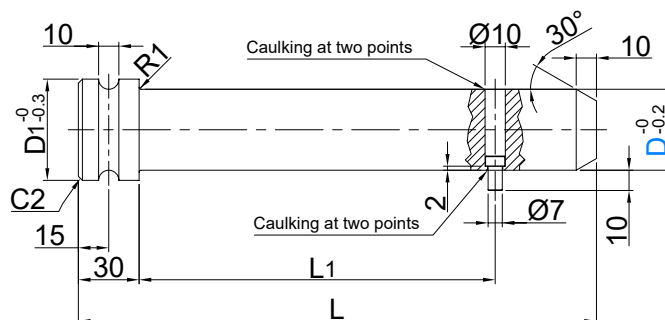
● SS400

ORDER EXAMPLE	Model	No.
	25DKLH80	

Model	No.
25DKLH	80

Lifting Bars - ลิฟต์บาร์

Model: 25HLFB



ORDER EXAMPLE	Model	D
	25HLEFB35	

M S45C
Come with Stopper

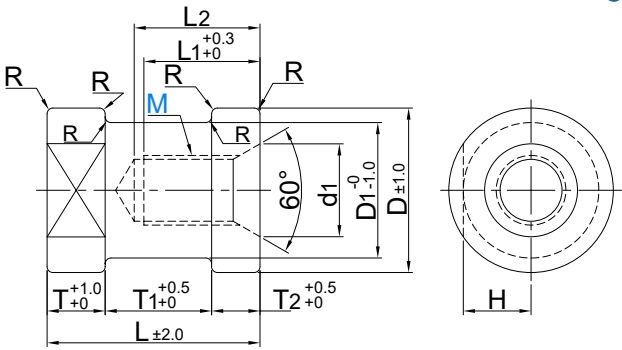
 ให้สต็อปเปอร์หันลงเสมอ และอย่าให้บาร์ยื่นออกมาเกินตัวตาย
Stopper must face downward and the bar must not protrude out.

Model	D	D1	L	L1	Max Allowable Load (4 bars are used)	
					N	kgf
25HLFB	25	34	185	135	29420	3000
	35	44	240	190	49033	5000
	40	50	260	210	88260	9000
	50	60	290	240	137293	14000
	65	75	335	285	166712	17000

Cast-In Lifting Bolts - ลิฟติงโบลท์ แบบล๊อคเข้ากับแม่พิมพ์

FOIL FREE™

Model: 25CSN



ORDER EXAMPLE Model D M S35C 25CSN20

Model	M	Thread MxP	D	D1	d1	L1	L2	L	T	T1	T2	H	R	Max Allowable Load (2 Lifting Bolts)	
														N	kgf
25CSN	12	M12x1.75	38	28	18	30	40	55	10	30	15	14	2	3730	380
	16	M16x2.0	46	36	22	35	45	55	10	30	15	18	2	6620	675
	20	M20x2.5	48	38	28	45	55	70	15	35	20	19	2	8830	900
	24	M24x3.0	55	45	36	55	65	85	20	45	20	22.5	2	13340	1360
	30	M30x3.5	65	52	42	65	75	95	25	50	20	26	3	19810	2020
	36	M36x4.0	85	70	48	75	90	110	30	55	25	35	3	58450	5960

Bolt Die Hooks - หูหัวแม่พิมพ์ แบบโบลท์

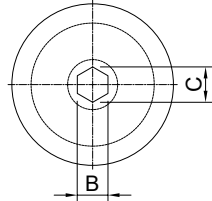
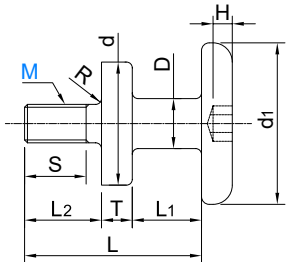
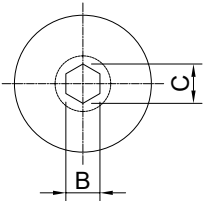
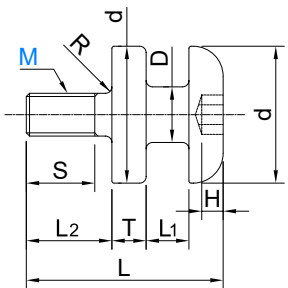
FOIL FREE™



Model: 25HBT



Model: 25HBTL



ORDER EXAMPLE Model D M S45C Blackening ! คำโหลดสำหรับเหล็กเหนียว คำ Safety Factor 10 The Max Allowable Load is for Steel, Safety Factor 10 25HBT20

Model	M	Thread MxP	D	d	d1	L1		L2	S	T	L		R	H	B	C	Max Allowable Load	
						25HBT	25HBTL				25HBT	25HBTL					N	kgf
25HBT 25HBTL	10	M10x1.5	13	32	42	10	18	20	16	8	46	54	1.5	5	8	9.2	2452	250
	12	M12x1.75	16	36	48	13	20	24	20	10	57	64	1.5	6	10	11.7	3530	360
	16	M16x2.0	20	40	52	18	25	30	25	13	75	82	2	9	14	16.3	6669	680
	20	M20x2.5	25	48	62	20	28	37	32	16	90	98	2	12	17	19.8	10395	1060
	24	M24x3.0	32	58	6	25	33	47	40	20	111	119	2.5	13	19	22.1	15004	1530
	30	M30x3.5	36	68	88	30	40	56	48	22	131	141	3	16	22	25.6	23830	2430
	36	M36x4.0	40	78	100	30	40	68	58	25	148	158	3	18	27	31	34814	3550

ระบบเคลื่อนย้ายแม่พิมพ์

Plate Type Die Hooks - หัวแม่พิมพ์ แบบเพลท

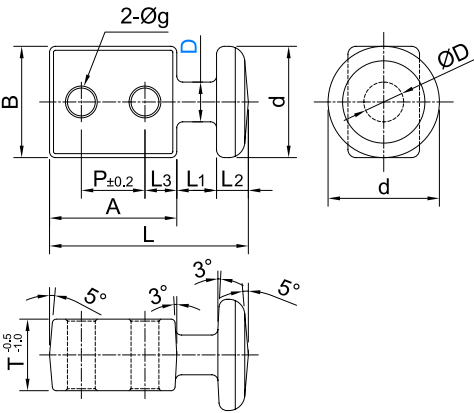
FOIL FREE™

Model: 25HPT

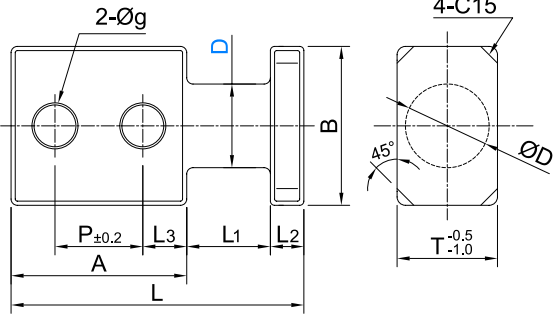


Die Transfers

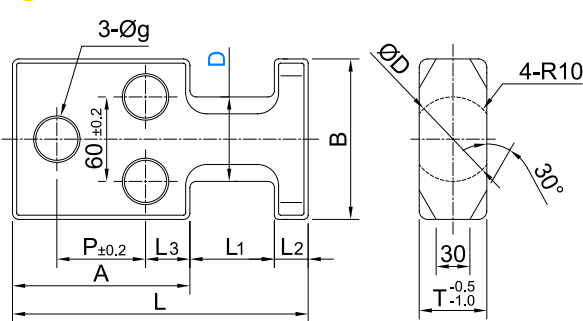
! D = 10 - 40



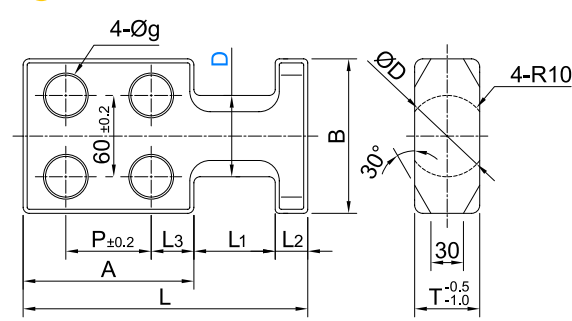
! D = 50



! D = 63



! D = 80



ORDER Model D
EXAMPLE 25HPT25

SS400

! ค่าโหลดสำหรับเหล็กเหนียว ค่า Safety Factor 10
The Max Allowable Load is for Steel, Safety Factor 10

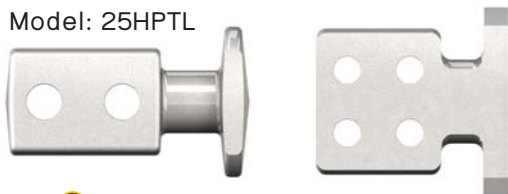
! ใช้โบลท์รุ่น 24CB
Use with bolt 24CB

Model	D	d	B	T	L	A	L1	L2	L3	P	g	Max Allowable Load	
												N	kgf
25HPT	10	28	28	18	50	32	10	8	8	16	7	1569	160
	12	32	32	20	56	38	10	8	10	18	9	3530	360
	16	36	36	24	67	46	13	8	12	22	11	4511	460
	20	40	40	26	88	60	18	10	15	30	14	5492	560
	25	48	48	35	92	60	20	12	15	30	14	6570	670
	32	55	55	40	118	80	25	13	20	40	18	12160	1240
	40	70	70	50	138	93	30	15	24	45	22	19123	1950
	50	-	90	50	170	115	35	20	30	55	26	27459	2800
	63	-	115	50	175	115	40	20	30	55	26	39227	4000
	80	-	140	50	185	120	40	25	30	60	26	50995	5200

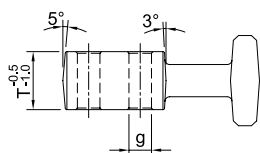
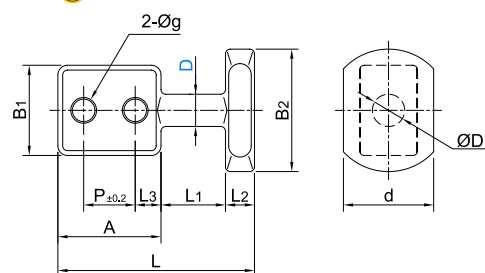
Large Head Plate Type Die Hooks - หูหัวแม่พิมพ์ แบบเพลท หัวใหญ่

FOIL FREE™

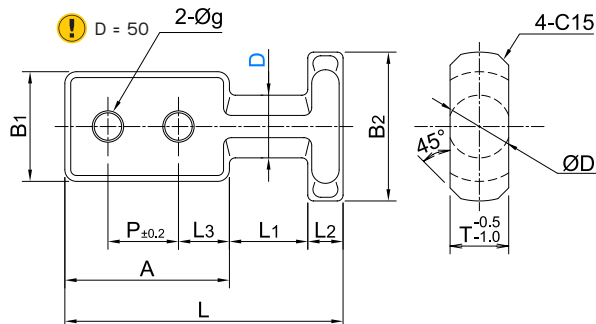
Model: 25HPTL



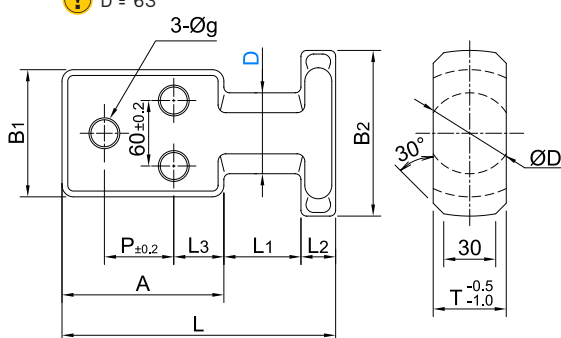
! D = 10 ~ 40



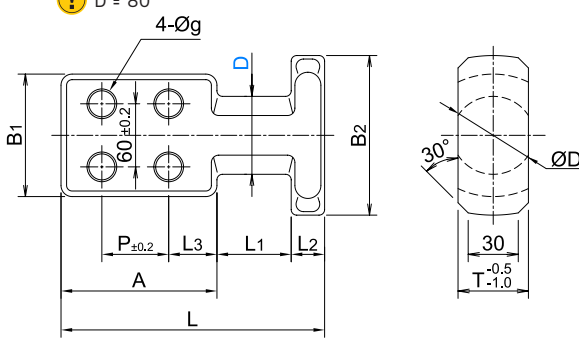
! D = 50



! D = 63



! D = 80



ORDER
EXAMPLE

Model D
25HPTL25

SS400

! คำโหลดสำหรับเหล็กเหนียว ค่า Safety Factor 10
The Max Allowable Load is for Steel, Safety Factor 10

! ใช้โบลตรุ่น 24CB
Use with bolt 24CB

Model	D	d	B1	B2	T	L	A	L1	L2	L3	P	g	Max Allowable Load	
													N	kgf
25HPTL	10	28	28	38	18	61	32	20	9	8	16	7	1569	160
	12	32	32	44	20	67	38	20	9	10	18	9	3530	360
	16	36	36	50	24	78	46	20	12	12	22	11	4511	460
	20	40	40	56	26	97	60	25	12	15	30	14	5492	560
	25	48	48	68	35	98	60	25	13	15	30	14	6570	670
	32	55	55	77	40	125	80	30	15	20	40	18	12160	1240
	40	70	70	100	50	143	93	35	15	24	45	22	19123	1950
	50	-	90	120	50	170	115	35	20	30	55	26	27459	2800
	63	-	115	155	50	175	115	40	20	30	55	26	39227	4000
	80	-	140	180	50	185	120	40	25	30	60	26	50995	5200

ระบบเคลื่อนย้ายแม่พิมพ์

Roller Carriers - รางโรลเลอร์

FOIL FREE™

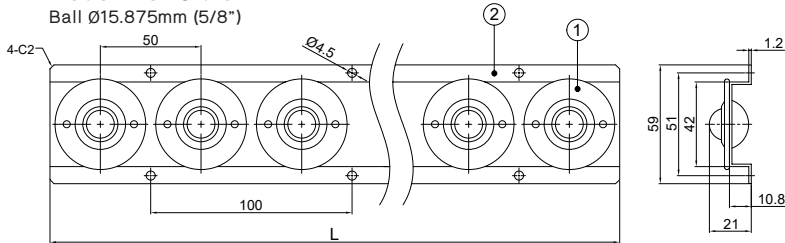


ORDER
EXAMPLE

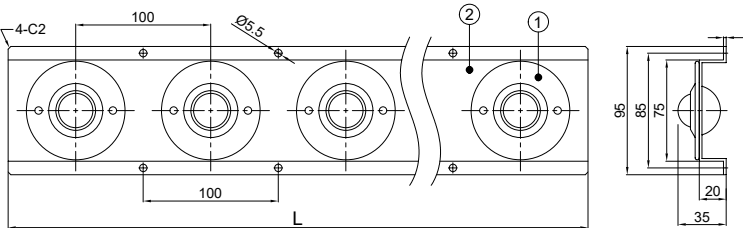
Model - A
25BCR16-10

- ① Ball Roller Unit
② M SPC

Model: 25BCR16
Ball Ø15.875mm (5/8")



Model: 25BCR25
Ball Ø25.4mm (1")



ชิ้นส่วนทดแทน
Replacement Parts



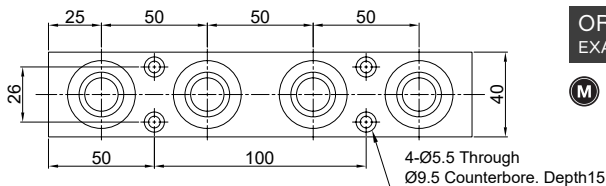
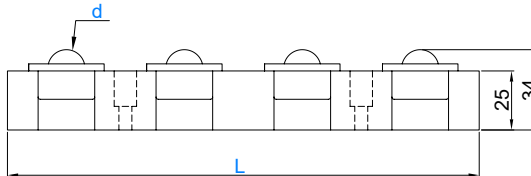
Order Code	Ball d
25SSBRS16	15.875mm 5/8"
25SSBRS25	25.4mm 1"

Model	A No. Rollers	L
25BCR16	4	200
	6	300
	8	400
	10	500
	12	600
	14	700
	16	800
	18	900
	20	1000
	22	1100
	24	1200

Model	A No. Rollers	L
25BCR25	6	600
	8	800
	10	1000
	12	1200
	14	1400
	16	1600
	18	1800

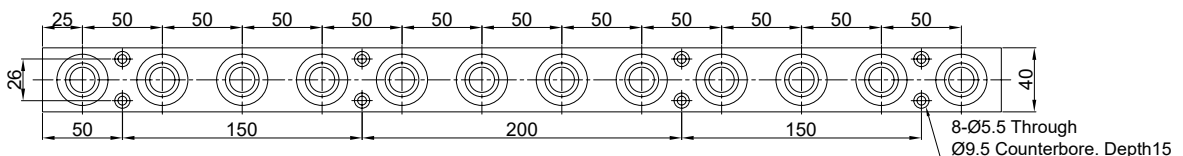
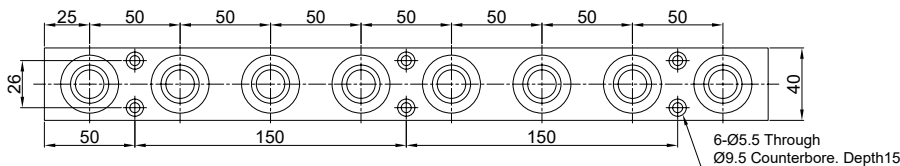
Roller Carriers (Fit Type) - รางโรลเลอร์แบบฝัง

Model:
25BCRP16



ORDER
EXAMPLE Model d - L
25BCRP16-400

M Aluminum
Ball Bearing



FOIL FREE™

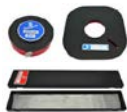
ชิ้นส่วนทดแทน
Replacement Parts



Order Code
25SSBRP16

Model	d	L	Ball No.
25BCRP	16	200	4
		400	8
		600	12

204



Name	Quick Fitting Joint	Adjustable Hoses	Precision Shim Tape	Precision Shim Stock	Shim Rings	C Shims	Socket Head Cap Bolts
Model	21SP_	136_	17R376_	17ST / 17BR	17WST	17RST	24CB
Page	206	206	207	208	209	209	210



Name	Ball Retainers	Stroke End Blocks (hardened)	Stroke End Blocks Sets	Square Stroke End Blocks
Model	25SB-A / 25SB-J	25SBV / 25SBVH / 25SBVM	25SBS / 25SBN / 25SEC	25SBVK
Page	211	212	213	214



Name	Spool Retainers	Spool Retainer Collars	Urethane Washer	Spool Retainers Thick Type	Spool Retainers Large Flange
Model	25SCSR	25SCSRE	25SCSRUR	25SSRH / 25SSRT	25SSRTA / 25SSRTB
Page	214	215	215	216	216



Name	Spool Retainers Counterbore	Blank Holder Stopper Bolt	Round Distant Plate	Round Distant Shim	Square Distant Plate
Model	25SSRZ	25SCBH	25STPM / 25STPY / 25STPME / 25STPYE	25STPMS	25STPK / 25STPB
Page	217	217	218	218	219



Name	Square Distant Shim	Locating Keys	Backup Keys	Washer Die Fastening	Cushion Pins
Model	25STPKS	25SLK	25SUKE	25KWN / 25WSS	25CPR / 25CPM / 25CPH / 25CPL
Page	219	220	220	220	221 - 222



Name	Lifter Cushion Pins	Lifter Cushion Pins Bushing	Plate Lifter Pins	Lifter Plate Stopper
Model	25TCPA / 25TCPB	25STGF / 25STGW	25PLP	25LPE
Page	223	223	224	224

Quick Fitting Joints - ข้อต่อสวมเร็ว

FOIL FREE™

ORDER
EXAMPLE

Model D - Nominal
21SPC8-02PT

Model: 21SPC
เกลียวตัวผู้
Male Thread



Model	Matching Tube O.D.	Thread Size	
		D	R(PT)
21SPC	4	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
	6	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
	8	04PT	1/2PT
		01PT	1/8PT
		02PT	1/4PT
	10	03PT	3/8PT
		04PT	1/2PT
		01PT	1/8PT
21SPCF	8	02PT	1/4PT
		03PT	3/8PT
		04PT	1/2PT
	10	02PT	1/4PT
		03PT	3/8PT
		04PT	1/2PT
21SPLL	12	02PT	1/4PT
		03PT	3/8PT
		04PT	1/2PT
	16	03PT	3/8PT
		04PT	1/2PT
		06PT	3/4PT

Model: 21SPCF
เกลียวตัวเมีย
Female Thread



Model	Matching Tube O.D.	ThreadSize	
		D	R(PT)
21SPCF	4	01PT	1/8PT
		02PT	1/4PT
		01PT	1/8PT
	6	02PT	1/4PT
		03PT	3/8PT
		01PT	1/8PT
	8	02PT	1/4PT
		03PT	3/8PT
		04PT	1/2PT
	10	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
21SPLL	12	04PT	1/2PT
		02PT	1/4PT
		03PT	3/8PT
	16	04PT	1/2PT
		02PT	1/4PT
		03PT	3/8PT

Model: 21SPLL
เกลียวตัวผู้
Male Thread



Model	Matching Tube O.D.	Thread Size	
		D	R(PT)
21SPLL	4	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
	6	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
	8	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
	10	04PT	1/2PT
		01PT	1/8PT
		02PT	1/4PT
21SPLFL	12	03PT	3/8PT
		04PT	1/2PT
		02PT	1/4PT
	16	03PT	3/8PT
		04PT	1/2PT
		06PT	3/4PT

Model: 21SPLFL
เกลียวตัวเมีย
Female Thread

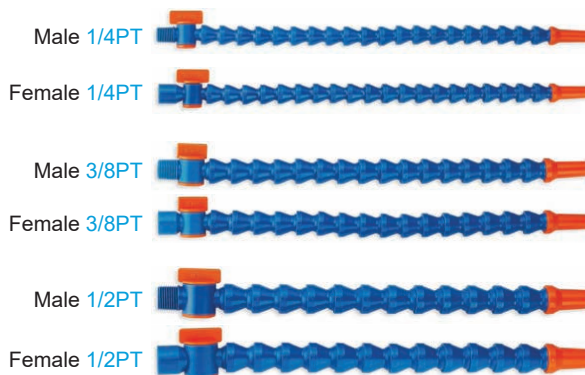


Code	Matching Tube O.D.	ThreadSize	
		D	R(PT)
21SPLFL	4	01PT	1/8PT
		02PT	1/4PT
		01PT	1/8PT
	6	02PT	1/4PT
		03PT	3/8PT
		01PT	1/8PT
	8	02PT	1/4PT
		03PT	3/8PT
		04PT	1/2PT
	10	01PT	1/8PT
		02PT	1/4PT
		03PT	3/8PT
21SPLFL	12	04PT	1/2PT
		02PT	1/4PT
		03PT	3/8PT
	16	04PT	1/2PT
		02PT	1/4PT
		03PT	3/8PT

Adjustable Coolant & Air Hose - ท่อฉีดน้ำหล่อเย็นและลม

JETON®

📌 ท่อฉีดสามารถถอดเปลี่ยนแปลงได้ ด้วยชุดประกอบของท่อฉีดน้ำหล่อเย็น
The hose can be customized with adjustable coolant hose packs



Order Code	Hose System	Hose Length	Thread		Nozzle Head
1362720	1/4	33CM	male	1/4PT	1/4"
1362721	1/4	33CM	female	1/4PT	1/4"
1363720	3/8	36CM	male	3/8PT	3/8"
1363721	3/8	36CM	female	3/8PT	3/8"
1364720	1/2	33CM	male	1/2PT	1/2"
1364721	1/2	33CM	female	1/2PT	1/2"

ชิ้นส่วนทั่วไป

Precision Shim Tapes - แผ่นชิมแบบกล่อง

Model: 17R376



Shim Tape



Shim Box

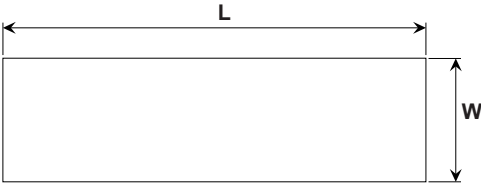
Hasberg Shim Tape & Box

ตัวอักษรดำ | Black Text : Carbon Steel (Shim Grade)
ตัวอักษรฟ้า | Blue Text : Stainless Steel (Shim Grade)

Thickness (mm)	Order Code						Tolerance
	Precision Shim Tape					Shim Box (10pc/box)	
	12.7mm x 2m	12.7mm x 5m	25mm x 5m	50mm x 5m	100mm x 5m	50mm x 300mm	
0.005	17R376-G5B						±0.001
0.01	17R376-01B					17R376-01K	±0.002
0.02	17R376-02B			17R376-02G		17R376-02K	
0.03	17R376-03B		17R376-03F	17R376-03G		17R376-03K	
0.04	17R376-04B					17R376-04K	±0.003
0.05	17R376-05B		17R376-05F	17R376-05G	17R376-05H	17R376-05K	
0.06	17R376-06B					17R376-06K	
0.07	17R376-07B					17R376-07K	±0.004
0.08	17R376-08B					17R376-08K	
0.09	17R376-09B					17R376-09K	
0.10	17R376-10B	17R376-10C	17R376-10F	17R376-10G	17R376-10H	17R376-10K	
0.12	17R376-12B						±0.005
0.15	17R376-15B						
0.18	17R376-18B						
0.20	17R376-20B		17R376-20F	17R376-20G	17R376-20H	17R376-20K	±0.006
0.25	17R376-25B						±0.007
0.30	17R376-30B		17R376-30F	17R376-30G	17R376-30H	17R376-30K	
0.35	17R376-35B						±0.008
0.40	17R376-40B			17R376-40G	17R376-40H	17R376-40K	±0.009
0.45	17R376-45B						
0.50	17R376-50B	17R376-50C	17R376-50F	17R376-50G	17R376-50H	17R376-50K	±0.01
0.60	17R376-60B					17R376-60K	
0.70	17R376-70B					17R376-70K	±0.012
0.80	17R376-80B					17R376-80K	
0.90	17R376-90B					17R376-90K	±0.013
1.00	17R376-A0B				17R376-A0H	17R376-A0K	

Accessories

Precision Shim Stock - แผ่นซิมแบบแผ่น



ORDER
EXAMPLE

Model Thickness x W x L
17ST0.05x300x2M

Model: 17ST สแตนเลสสตีล เกรดแผ่นซิม
Stainless Steel (Shim Grade)

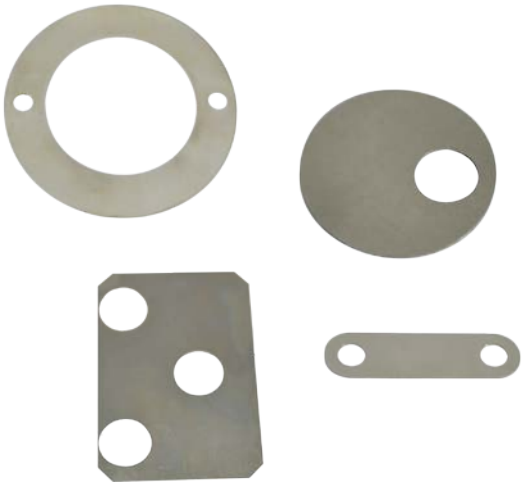
Thickness (mm)	W (mm)	L (M)	
0.01	100	1M	2M
0.02	150	1M	
	300	1M	2M
0.03	150	1M	
	300	1M	2M
0.04	150	1M	
	300	1M	2M
0.05	150 , 300	1M	2M
0.06	300	1M	2M
0.07	300	1M	2M
0.08	300	1M	2M
0.09	300	1M	2M
0.10	150 , 300	1M	2M
0.20	150 , 300	1M	2M
0.25	280	1M	2M
0.30	150 , 300	1M	2M
0.40	150 , 300	1M	2M
0.50	150 , 300	1M	2M
0.60	150	1M	
0.80	150	1M	
	300	1M	2M
1.00	150 , 300	1M	2M
1.20	150	1M	
1.50	150	1M	
2.00	150 , 300	1M	2M
3.00	150	1M	
4.00	150	1M	
5.00	150	1M	

Model: 17BR ทองเหลือง เกรดแผ่นซิม
Brass (Shim Grade)

Thickness (mm)	W (mm)	L (M)	
0.05	150 , 300	1M	2M
0.10	150 , 300	1M	2M
0.20	150 , 300	1M	2M
0.30	150 , 300	1M	2M
0.40	150 , 300	1M	2M
0.50	150 , 300	1M	2M
0.80	150	1.2M	
1.00	150	1M	

Customizable!

แผ่นซิมสามารถตัดตามแบบได้ เพียงส่งแบบมาให้เรา
Shims can be cut to your drawing

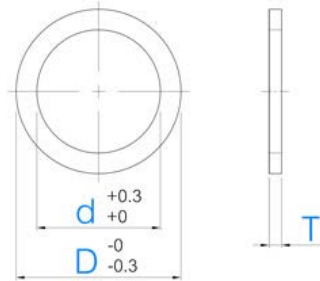


ชิ้นส่วนทั่วไป

Shim Rings - แผ่นชิมแหวน



Model: 17WST



ORDER
EXAMPLE

Model d x D x T
17WST10x15x0.10



สแตนเลสสตีล เกรดแผ่นชิม
Stainless Steel (Shim Grade)



ขนาดบรรจุ 10ชิ้น/แพ็ก
Sold in pack of 10 pieces

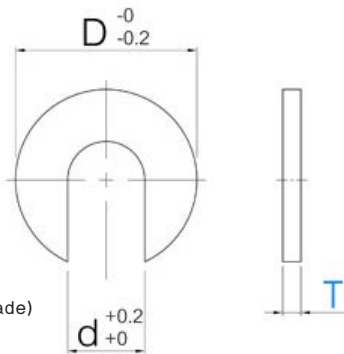
Model	d	D																								T		
17WST	2	4	5	6																							0.05 0.10 0.20 0.30 0.40 0.50 1.00 2.00	
	3		5	6	7	8	9	10																				
	4			6	7	8	9	10	12	13																		
	5				7	8	9	10	12	13	14	15	16															
	6					8	9	10	12	13	14	15	16	18														
	8							10	12	13	14	15	16	18	20													
	10								12	13	14	15	16	18	20													
	12											15	16	18	20	21	22											
	15													18	20	21	22	24										
	16														20	21	22	24	28									
	17														20	21	22	24	28	30	32							
	20																	24	28	30	32	35	40					
	22																		28	30	32	35	40					
	25																			30	32	35	40	42				
	28																				32	35	40	42	45			
	30																					35	40	42	45	50		
	35																							42	45	50		55
	40																								45	50		55
	45																									50		55

Accessories

C Shims - แผ่นชิมรูปตัวซี



Model: 17RST



สแตนเลสสตีล เกรดแผ่นชิม
Stainless Steel (Shim Grade)



ขนาดบรรจุ 10ชิ้น/แพ็ก
Sold in pack of 10 pieces

ORDER
EXAMPLE

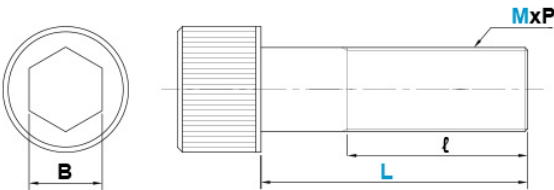
Model No x D
17RST10x0.10

Order Code	No.	T	d	D
17RST	6	0.05 0.10 0.20 0.30 0.40 0.50 1.00 2.00	6.5	12
	8		8.5	15
	10		10.5	20
	12		13	25
	16		17	30
	20		21	35
	24		25	40
	30		31	50

Socket Head Cap Bolts - สกรูหัวจมทกเหลี่ยมรดำ



Model: 24CB



ORDER
EXAMPLE

Model M x L
24CB10x150

M 12.9 Grade, SCM435
38 ~ 43HRC, Blacken Treatment

i Standard:
DIN 912 / ISO 4762
ANSI 18.3.1M / JIS B 1176

M	L																	MxP	B	Max I	
1.6	4	6	8	10	12													M1.6x0.35	1.5	12	
2	4	6	8	10	12	16	20	25										M2.0x0.40	1.5	16	
2.5	4	6	8	10	12	16	20	25										M2.5x0.45	2	17	
3	4	6	8	10	12	16	20	25	30	35	40	45	50					M3.0x0.50	2.5	18	
4	4	6	8	10	12	16	20	25	30	35	40	45	50	55	60	65	70	75	M4.0x0.70	3	20
	80	90	100	110																	
5	4	6	8	10	12	16	20	25	30	35	40	45	50	55	60	65	70	75	M5.0x0.80	4	22
	80	90	100	110	120	130	140	150													
6	4	6	8	10	12	16	20	25	30	35	40	45	50	55	60	65	70	75	M6.0x1.00	5	24
	80	90	100	110	120	130	140	150													
8	10	12	16	20	25	30	35	40	45	50	55	60	65	70	75	80	90	100	M8.0x1.25	6	28
	110	120	130	140	150	160	180	200	230	250	280	300									
10	16	20	25	30	35	40	45	50	55	60	65	70	75	80	90	100	110	120	M10x1.50	8	32
	130	140	150	160	170	180	190	200	230	250	280	300									
12	16	20	25	30	35	40	45	50	55	60	65	70	75	80	90	100	110	120	M12x1.75	10	36
	130	140	150	160	170	180	190	200	210	220	230	240	250	280	300						
14	25	30	35	40	45	50	55	60	65	70	75	80	90	100	110	120	130	140	M14x2.00	12	40
	150	160	170	180	190	200	230	250													
16	25	30	35	40	45	50	55	60	65	70	75	80	90	100	110	120	130	140	M16x2.00	14	44
	150	160	170	180	190	200	210	220	230	240	250	280	300	320	340	360	380	400			
18	40	45	50	55	60	65	70	75	80	90	100	110	120	130	140	150	160	170	M18x2.50	14	48
	180	190	200	230	250	280	300	320	340	360	380	400									
20	40	45	50	55	60	65	70	75	80	90	100	110	120	130	140	150	160	170	M20x2.50	17	52
	180	190	200	210	220	230	240	250	280	300	320	340	360	380	400						
22	50	55	60	65	70	75	80	90	100	110	120	130	140	150	180	200	180	230	M22x2.50	17	56
	250	280	300	320	340	360	380	400	320	340	360	380	400								
24	50	55	60	65	70	75	80	90	100	110	120	130	140	150	160	170	180	190	M24x3.00	19	60
	200	210	220	230	240	250	280	300	320	340	360	380	400								
27	50	55	60	65	70	75	80	90	100	110	120	130	140	150	160	170	180	190	M27x3.00	19	66
	200	210	220	230	240	250	280	300	320	340	360	380	400								
30	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	230	250	M30x3.50	22	72
	280	300	320	340	360	380	400														
33	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	M33x3.50	22	84
	280	300	320	340	360	380	400														
36	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	M36x4.00	27	96
	280	300	320	340	360	380	400														

ชิ้นส่วนทั่วไป

Ball Retainers - ปลอกลูกปืน

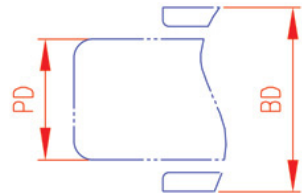
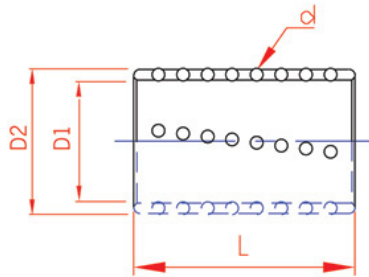
FOIL FREE™



Model:
25SB-A
(Aluminum)



Model:
25SB-J
(Resin, POM)



ORDER
EXAMPLE

Model PD - L
25SB-A25-50

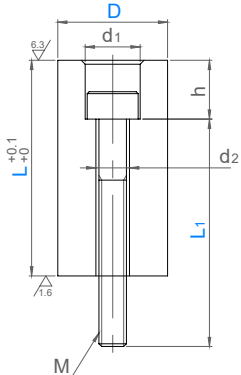
M 25SB-A : Aluminum Body
25SB-J : Resin (POM) Body
Ball : SUJ2 (62-67HRC)
Ball Sphericity : 0.25µm

Model	PD (Post Diameter)	L	D1	D2	d	Number of Balls
25SB-A (Aluminum) 25SB-J (Resin)	19	60	19.4	24.4	3	120
	20	50	20.4	25.4		96
		60				120
	22	50	22.4	27.4		112
		60				140
	25	50	25.4	30.4		128
		60				160
		75				208
	28	75	28.4	35.4	4	154
	30	60	30.4	37.4		112
		75				154
		90				208
	32	60	32.4	39.4		176
		90				208
	36	80	36.4	43.4		176
		90				208
	38	70	38.4	47.4	5	128
		90				176
	40	90	40.4	49.4		176
	45	90	45.4	54.4		198
		110				234
	50	90	50.4	59.4		220
		110				260
	60	90	60.4	69.4		242
		100				264
		110				286

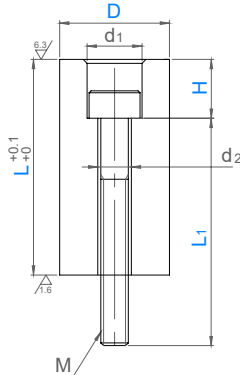
Accessories

Stroke End Blocks (Harden) - สโตรคเอ็นบล็อก (ชุบแข็ง)

FOIL FREE™



Model: 25SBV



Model: 25SBVH
ปรับค่า H ได้
H configurable

ORDER
EXAMPLE

Model D - L - H - Color - L1
25SBVH38-80.5-40-Y-60

- ① SUJ2
54-58HRC
② Socket Head Cap Bolt

Model	D	L 0.1mm increment	Color	L1 5mm increment	h	MxP	d1	d2
25SBV	10	10.0 - 40.0	R (Red)	10 - 40	5	M3 x 0.5	6	4
	12			10 - 50	8	M4 x 0.7	8	5
	14				10	M5 x 0.8	9.5	6
	16	15.0 - 50.0		15 - 70	13	M6 x 1.0	11	7
	18	Y (Yellow)	15 - 85	15	M8 x 1.25	14	9	
	20		20.0 - 80.0		15 - 100	18	M10 x 1.5	17
	25	N (Normal)	22.0 - 100.0	20 - 120				
	32		22.0 - 120.0	25 - 150				
	38		25.0 - 120.0					
	50							
60	30.0 - 150.0							

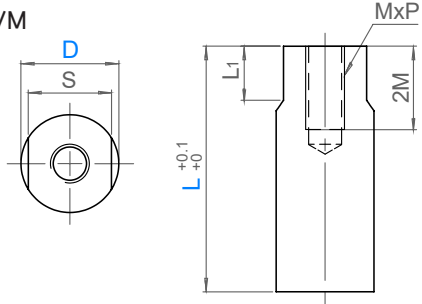
Model	D	L 0.1mm increment	H 1mm increment	Color	L1 5mm increment	MxP	d1	d2
25SBVH	20	15.0 - 100.0	10 - 40	R (Red)	15 - 85	M6 x 1.0	11	7
	25	15.0 - 120.0		Y (Yellow)	15 - 120	M8 x 1.25	14	9
	32				20 - 120	M10 x 1.5	17	11
	38	15 - 40						
	50							

Stroke End Blocks (Harden & Tapped) - สโตรคเอ็นบล็อก (ชุบแข็ง และมีรูเกลียว)

FOIL FREE™



Model: 25SBVM



ORDER
EXAMPLE

Model D - L - Color
25SBVM20-50.1-Y

- SUJ2
54-58HRC

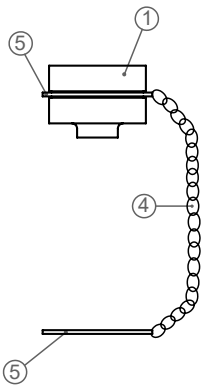
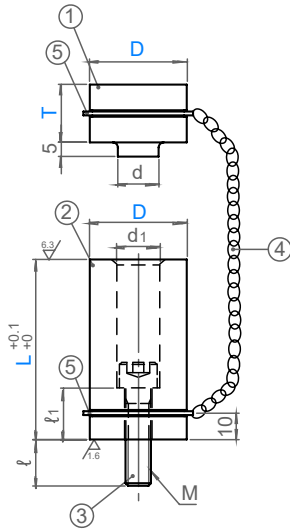
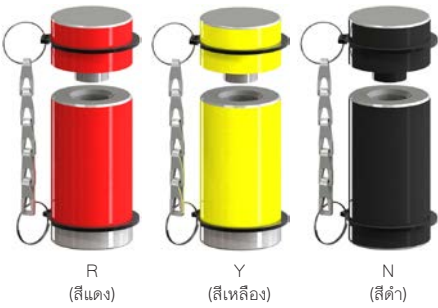
Model	D	L 0.1mm increment	Color	L1	MxP	S
25SBVM	20	20.0 - 80.0	R (Red)	12	M6 x 1.0	17
	25	22.0 - 90.0	Y (Yellow)		M8 x 1.25	22
	32	22.0 - 100.0	N (Normal)	16		M10 x 1.5
	38	25.0 - 100.0			M10 x 1.5	32

ชิ้นส่วนทั่วไป

Stroke End Block Sets - ชุดสโตรคเอนด์บล็อก

FOIL FREE™

Model: 25SBS



Model	①	②	③	④	⑤
25SBS	✓	✓	✓	✓	✓
25SBN		✓	✓		
25SEC	✓			✓	✓

Model	D - L - Color (2) - T - Color (1)
25SBS20-90.5-R-25-Y	

- ① ② M SS400
③ Socket Head Cap Bolt
④ Chain
⑤ Washer JIS B 2804

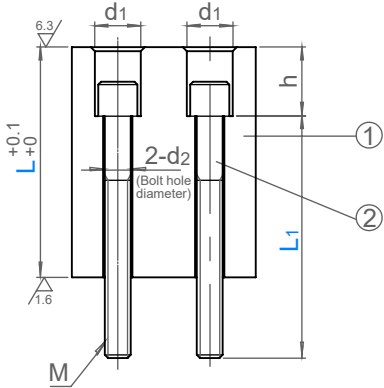
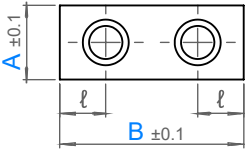
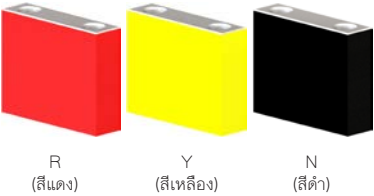


Model	D	L 0.1mm increment	Color (2)	T 5mm increment	Color (1)	MxP	d	d1	ℓ	ℓ1	
25SBS 25SBN 25SEC	14	22.0 - 80.0	R (Red) Y (Yellow) N (Normal)	10 - 50	R (Red) Y (Yellow) N (Normal)	M4 x 0.7	7	8	10	10	
		80.1 - 100.0								35	
	16	22.0 - 80.0				M4 x 0.7	7	8	10	10	
		80.1 - 100.0								35	
	18	22.0 - 80.0				M5 x 0.8	8.5	9.5	10	10	
		80.1 - 100.0								35	
	20	22.0 - 80.0				M6 x 1.0	10	11	11	9	
		80.1 - 100.0								34	
		100.1 - 120.0								54	
	25	22.0 - 80.0				M8 x 1.25	13	14	12	8	
		80.1 - 100.0							14	31	
		100.1 - 120.0								51	
		120.1 - 170.0								76	
	32	22.0 - 80.0				M8 x 1.25	13	14	12	8	
		80.1 - 100.0							14	31	
		100.1 - 120.0								51	
		120.1 - 170.0								76	
	38	25.0 - 80.0				M10 x 1.5	16	17	16	9	
		80.1 - 100.0							17	33	
		100.1 - 120.0								53	
		120.1 - 200.0								83	
	50	25.0 - 80.0		10 - 100		M12 x 1.75	18	20	18	7	
		80.1 - 100.0							20	30	
		100.1 - 120.0								50	
		120.1 - 200.0								80	
	60	25.0 - 80.0				M12 x 1.75	18	20	18	7	
		80.1 - 100.0							20	30	
		100.1 - 120.0								50	
		120.1 - 200.0								80	

Square Stroke End Blocks - สโตรคเอ็นบล็อกสี่เหลี่ยม

Oil Free™

Model: 25SBVK



ORDER EXAMPLE Model A - B - L - Color - L1 ① M SKS93 54-58HRC Socket Head Cap Bolt ②

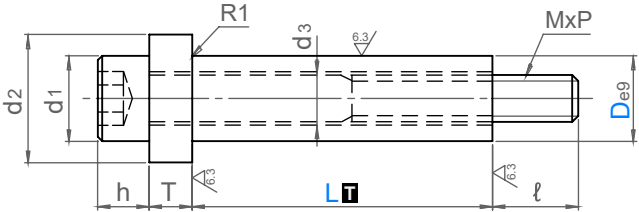
Model	A	B	Body		Bolt L1 5mm increment	MxP	ℓ	D1	D2	h
			L 0.1mm increment	Color						
25SBVK	13	32	20.0 - 50.0	R (red)	15 - 50	M4x0.7	8	8	5	13
		50					12			
	16	38	20.0 - 80.0	Y (yellow)	15 - 80	M5x0.8	10	9.5	6	13
		65					14			
	19	50	20.0 - 100.0	N (black)	15 - 100	M6x1.0	12	11	7	13
		75					16			

Spool Retainers - สปูลรีเทนเนอร์

Oil Free™



Model: 25SCSR



① M Socket Head Cap Bolt

ORDER EXAMPLE Model D - L ② M Retainer: S45C 38-43HRC Blacken

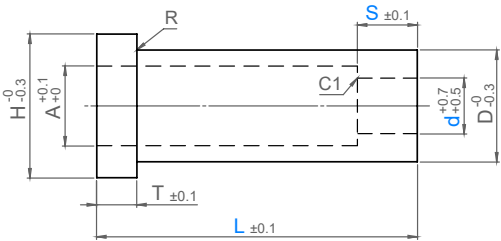
Model	D e9		L		d1	d2	d3	MxP	h	T	ℓ
			5mm increment	10mm increment							
25SCSR	10	-0.025 -0.061	10 - 85	90 - 100	10	15	6.3	M6x1.0	6	5	10
	13	-0.032 -0.075	15 - 85	90 - 120	13	18	8.4	M8x1.25	8	5	15
	16		20 - 85	90 - 180	16	24	10.6	M10x1.5	10	8	22
	20	-0.040 -0.092	30 - 85	90 - 180	18	28	12.6	M12x1.75	12	10	20
	25		40 - 85	90 - 200	24	36	16.8	M16x2.0	16	13	27
	32	-0.050 -0.112	-	60 - 200	30	45	20.8	M20x2.5	20	16	34

ชิ้นส่วนทั่วไป

Spool Retainer Collars - เสือสปูลรีเทนเนอร์



Model: 25SCSRE



ORDER Model d - L - S
EXAMPLE 25SCSRE20-80-20 SS400 Blackening

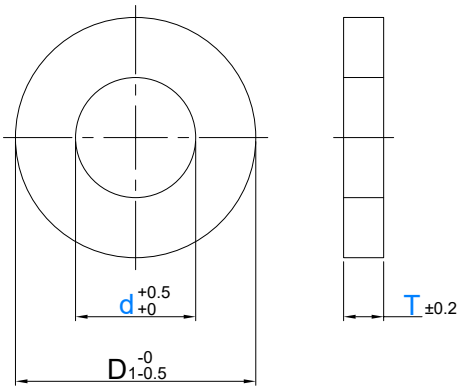
Model	d	L 10mm increment	S 5mm increment	H	T	A	D	R	Use with 25SCSR D
25SCSRE	10	50 - 100	10 - 25	36	5	16	28	1	10
	13			40	5	19	30		13
	16			46	8	25	36		16
	20			55	10	29	44		20
	25	60 - 100	10 - 25	60	13	37	50	1	25
	32			70	16	46	60	1.5	32

Accessories

Spool Retainer Urethane Washer - ยูรีเทนวอชเชอร์สำหรับสปูลรีเทนเนอร์



Model: 25SCSRUR



ORDER Model d - T
EXAMPLE 25SCSRUR20-10 Urethane (Shore A90)

Model	d	T			D1	Use with 25SCSR D
25SCSRUR	16	5	10	-	24	16
	20				28	20
	25				36	25
	32	-	10	15	45	32

Spool Retainers Thick Type - สปูลรีเทนเนอร์ แบบหนา

FOIL FREE™



Model: 25SSRH

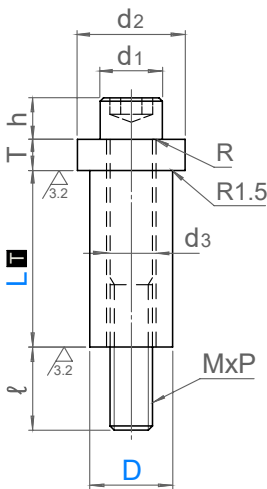
Model: 25SSRT

สกรูทากากันคล้าย
Adhesive on bolt (Tech Bolt)



- ① **M** Socket Head Cap Bolt
SCM435
Hardness 12.9 (M10-20)
10.9 (M24)

- ② **M** S45C
25-30HRC
Blackening



ORDER
EXAMPLE

Model D - L
25SSRH22-70

Model	D e9		L 10mm increment	d1	d2	d3	MxP	R	h	T	ℓ
25SSRH 25SSRT	18	-0.032 -0.075	60 - 150	16	27	10.7	M10x1.5	1	10	8	22
	22	-0.040 -0.092	60 - 150	18	33	12.7	M12x1.75	1	12	10	20
	30		60 - 180	24	44	16.7	M16x2.0	1.5	16	13	27
	36	-0.050 -0.112	80 - 180	30	53	20.7	M20x2.5	1.5	20	16	34
	44		80 - 180	36	64	24.7	M24x3.0	1.5	24	18	42

Spool Retainers Large Flange - สปูลรีเทนเนอร์ บ้าขนาดใหญ่

FOIL FREE™



Model: 25SSRTA

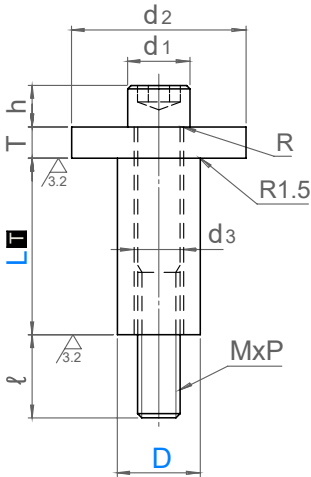
Model: 25SSRTB

สกรูทากากันคล้าย
Adhesive on bolt (Tech Bolt)



- ① **M** Socket Head Cap Bolt
SCM435
Hardness 12.9 (M10-20)
10.9 (M24)

- ② **M** S45C
25-30HRC
Blackening



ORDER
EXAMPLE

Model D - L
25SSRTA30-90

Model	D e9		L 10mm increment	d1	d2	d3	MxP	R	h	T	ℓ
25SSRTA 25SSRTB	22	-0.040 -0.092	80 - 130	18	50	12.7	M12x1.75	1	12	10	20
	30		80 - 130	24	60	16.7	M16x2.0	1.5	16	13	27
	36	-0.050 -0.112	100 - 150	30	70	20.7	M20x2.5	1.5	20	16	34
	44		100 - 150	36	80	24.7	M24x3.0	1.5	24	18	42

ชิ้นส่วนทั่วไป

Spool Retainers (Counterbore) - สปูลรีเทนเนอร์

FOIL FREE™



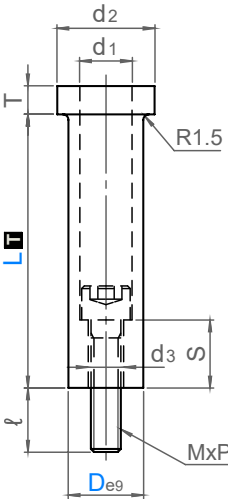
Model: 25SSRZ



① Socket Head Cap Bolt

SCM435
Hardness 12.9 (M10-20)
10.9 (M24)

② S45C
25-30HRC
Blackening



ORDER
EXAMPLE Model D - L
25SSRZ28-70

Model	D e9		L 10mm increment	d1	d2	d3	MxP	Bolt Length	T	S	l
25SSRZ	20	-0.040 -0.092	40 - 90	15	26	9	M8x1.25	35	6	20	15
	24		50 - 100	18	33	11	M10x1.5	45	6	25	20
	28		50 - 110	20	37	13	M12x1.75	50	8	30	20
	35	-0.050 -0.112	60 - 130	26	47	17	M16x2.0	60	8	35	25
	44		70 - 130	32	57	21	M20x2.5	70	8	40	30

Blank Holder Stopper Bolts - แบลงค์โฮลเดอร์สต็อปเปอร์โบลท์

FOIL FREE™

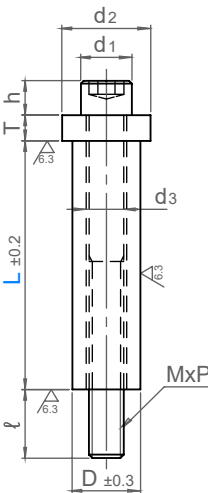


Model: 25SCBH



① Socket Head Cap Bolt
SCM435
Hardness 12.9

② ③ S45C
Blackening



ORDER
EXAMPLE Model No - L
25SCBH32-110

Model	No.	L		D	d1	d2	d3	h	T	MxP	l
		10mm increment	20mm increment								
25SCBH	25	100 - 250	260 - 300	25.4	24	36	17.4	16	13	M16x2.0	27
	32	100 - 250	260 - 300	31.8	30	45	21.8	20	16	M20x2.5	34

Round Distance Plate - เฟลทก้นระยะ กลม

FOIL FREE™

ORDER	Model	D	T	Color
EXAMPLE	25STPM55-30-R			

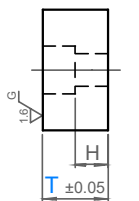
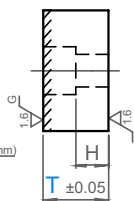
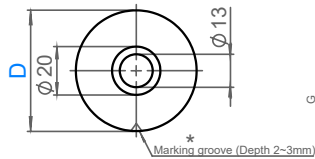
Ⓜ S45C

Model: 25STPM 25STPY 25STPME 25SPTYE

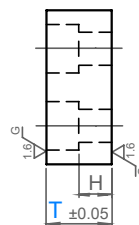
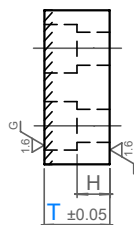
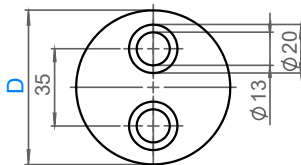
Induction hardened part

Not hardened

-One hole type-
D=45•55•65•90



-Two hole type-
D=65•80•90



* A marking groove is not provided for D45,55.

Model	D	T	Color	H	No. Bolt Hole
25STPM 25STPY	45	20	R (Red)	6	1
		30		15	
		40			
	55	20		6	
		30		15	
		40			
	65	30	Y (Yellow)	15	2
		40			
		50			
	80	100			
		30		15	
		40			
25STPME 25SPTYE	90	50	N (No Color)	15	1
		30			
		40			
	65	30		15	
		50			
		90		15	

Accessories

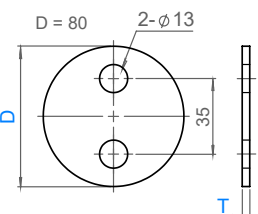
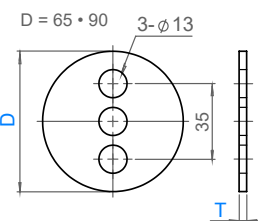
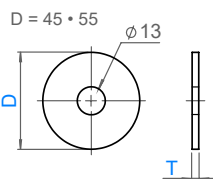
Round Distance Plate Shim - ชิม สำหรับเฟลทก้นระยะ กลม

FOIL FREE™

ORDER	Model	D	T
EXAMPLE	25STPMS55-0.30		

Ⓜ Stainless Steel (Shim Grade)

Model: 25STPMS



Model	D	T	Model	D	T
25STPMS	45	0.05	25STPMS	80	0.05
		±0.004			±0.004
		0.10			±0.005
		±0.005			0.20
		±0.006			±0.006
		0.30			±0.007
		±0.007			0.40
		±0.009			±0.009
		0.40			±0.010
		±0.010			1.00
	55	±0.010		90	±0.010
		1.00			±0.020
		±0.020			0.05
		0.05			±0.004
		±0.004			0.10
		±0.005			±0.005
		0.20			±0.006
		±0.006			0.30
		±0.007			±0.007
		0.40			±0.009
	65	±0.009			±0.010
		0.50			±0.020
		±0.010			0.05
		1.00			±0.004
		±0.004			0.10
		±0.005			±0.005
		0.20			±0.006
		±0.006			0.30
		±0.007			±0.007
		0.40			±0.009

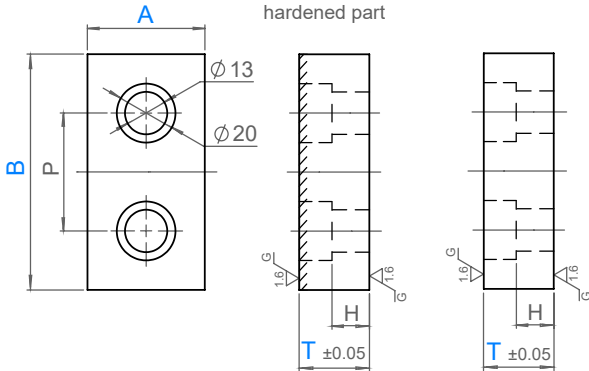
ชิ้นส่วนทั่วไป

Square Distance Plate - เหล็กกันกระยะ สี่เหลี่ยม



Model: 25STPK
Induction hardened part

25STPB
Not hardened



M S45C

FOIL FREE™

ORDER
EXAMPLE Model A - B - T - Color
25STPK50-60-30-R

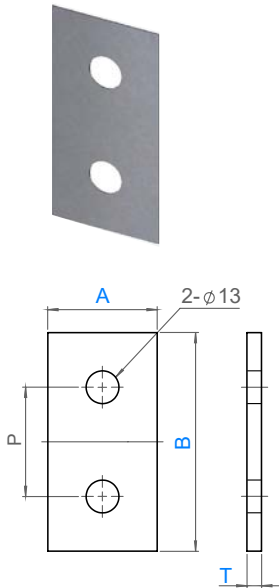
Model	A	B	T	Color	H	P
25STPK 25STPB	38	60	20	R (Red) Y (Yellow) N (No Color)	6	30
			30		15	
			40		6	
		80	20		15	55
			30		6	
			40		15	
	50	60	20		6	30
			30		15	
			40		6	
		80	20		15	55
			30		6	
			40		15	
	60	80	20		6	55
			30		15	
			40		6	
		100	20		15	70
			30		6	
			40		15	
	80	100	20		6	70
			30		15	
			40		6	
		120	20		15	85
			30		6	
			40		15	

Square Distance Plate Shim - ชิม สำหรับเหล็กกันกระยะ สี่เหลี่ยม

Model: 25STPKS

ORDER
EXAMPLE Model A - B - T
25STPKS38-80-0.30 M Stainless Steel (Shim Grade)

FOIL FREE™

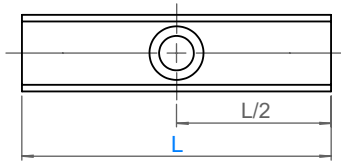
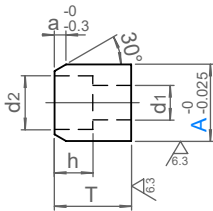


Model	A	B	T	P	Model	A	B	T	P
25STPKS	38	60	0.05	±0.004	25STPKS	60	80	0.05	±0.004
			0.10	±0.005				0.10	±0.005
			0.20	±0.006				0.20	±0.006
			0.30	±0.007				0.30	±0.007
			0.50	±0.010				0.50	±0.010
			1.00	±0.020				1.00	±0.020
		80	0.05	±0.004			100	0.05	±0.004
			0.10	±0.005				0.10	±0.005
			0.20	±0.006				0.20	±0.006
			0.30	±0.007				0.30	±0.007
			0.50	±0.010				0.50	±0.010
			1.00	±0.020				1.00	±0.020
	50	60	0.05	±0.004		80	100	0.05	±0.004
			0.10	±0.005				0.10	±0.005
			0.20	±0.006				0.20	±0.006
			0.30	±0.007				0.30	±0.007
			0.50	±0.010				0.50	±0.010
			1.00	±0.020				1.00	±0.020
		80	0.05	±0.004			120	0.05	±0.004
			0.10	±0.005				0.10	±0.005
			0.20	±0.006				0.20	±0.006
			0.30	±0.007				0.30	±0.007
			0.50	±0.010				0.50	±0.010
			1.00	±0.020				1.00	±0.020

Locating Keys - โลเคตติ้งคีย์



Model: 25SLK



ORDER
EXAMPLE

Model A - L
25SLK25-100

Ⓜ S45C

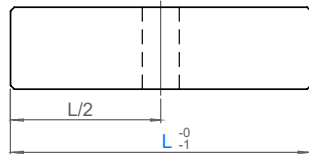
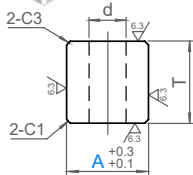
FOIL FREE™

Model	A	L	T	d1	d2	h	a
25SLK	20	60	20	9	14	10	3
		80					
	25	60	25	11	18	12	4
		80					
		100					
	28	60	25	11	18	12	4
		80					
		100					
	32	60	25	11	18	12	5
		80					
		100					

Backup Keys - แบ็คอัพคีย์



Model: 25SUKE



ORDER
EXAMPLE

Model A - L
25SUKE25-150

Ⓜ SS400

FOIL FREE™

Model	A	L	T	d
25SUKE	20	120	20	11
	25	150	25	13
	30	100	25	13
		125		
		150		

Washers for Die Fastening & Oblong Hole - วอชเชอร์สำหรับตาย และ รูคีย์

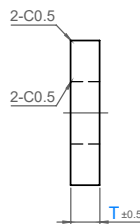
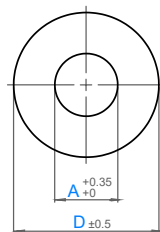
Model: 25KWN

ORDER
EXAMPLE

Model D - A - T
25KWN60-26-10

Ⓜ S45C
25-30HRC
Blackening

FOIL FREE™



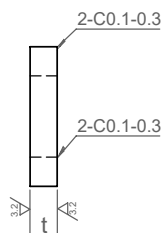
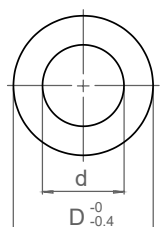
Model	D	A	T
25KWN	50	22	10
			15
	60	26	10
			15
	70	26	10
			15
	80	26	10
			15

Model: 25WSS

ORDER
EXAMPLE

Model No
25WSS10

Ⓜ S45C
23-30HRC



Model	No.	D	d	t
25WSS	6	12.5	6.4	2.5
	8	17	8.4	2.5
	10	21	10.5	3
	12	24	13	4
	16	30	17	5
	20	37	21	5

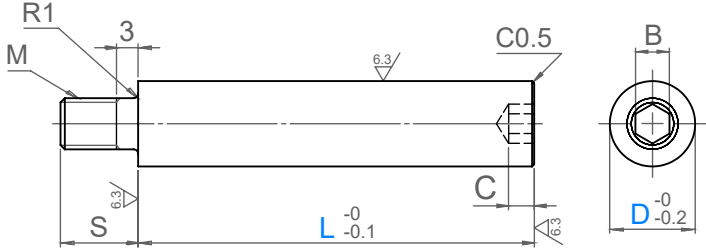
ชิ้นส่วนทั่วไป

Cushion Pins Male Thread Type - คูชันพิน แบบมีเกลียวตัวผู้

FOIL FREE™



Model: 25CPR



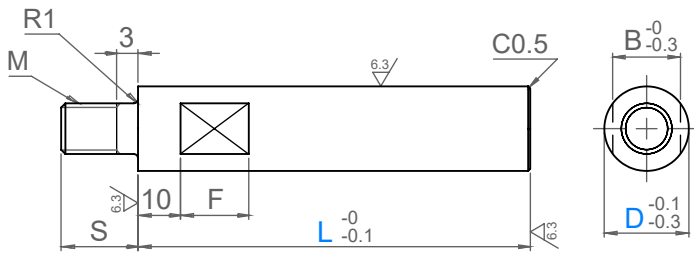
ORDER Model D - L
EXAMPLE 25CPR20-100

S45C
50HRC-
Induction Harden

Model	D	L 10mm increments	MxP	S	B	C
25CPR	16	50 - 200	M10x1.5	15	8	5
	20	50 - 250	M12x1.75	18	10	6
	25	50 - 250	M16x2.0	24	14	9
	32	50 - 250	M20x2.5	30	17	12



Model: 25CPM



ORDER Model D - L
EXAMPLE 25CPM20-100

S45C
50HRC-
Induction Harden

Model	D	L 10mm increments	MxP	S	B	F
25CPM	16	50 - 250	M10x1.5	12	13	16
	20	50 - 250	M12x1.75	15	16	16
	25	50 - 250	M16x2.0	18	18	16
	32	50 - 250	M20x2.5	24	21	16

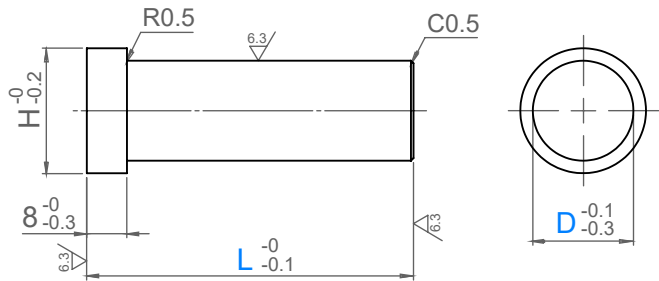
Accessories

Cushion Pins Head Type - คูลชั่นพินมีป้า

FOIL FREE™



Model: 25CPH



ORDER
EXAMPLE

Model D - L
25CPH20-100

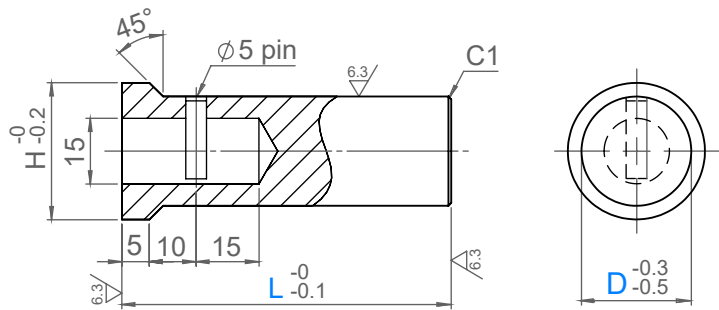


S45C
50HRC-
Induction Harden

Model	D	L	H
		10mm increments	
25CPH	10	50 - 200	15
	13	50 - 250	18
	16	50 - 250	21
	20	50 - 250	25
	25	50 - 250	30
	32	50 - 250	37



Model: 25CPL



ORDER
EXAMPLE

Model D - L
25CPL32-120



S45C
50HRC-
Induction Harden

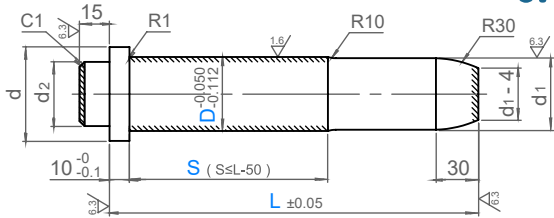
Model	D	L	H
		20mm increments	
25CPL	25	80 - 240	30
	32	100 - 240	40
	38	100 - 280	45
	50	160 - 300	60

ชิ้นส่วนทั่วไป

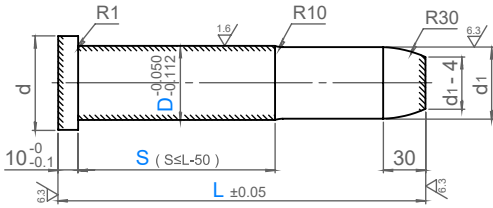
Lifter Cushion Pins - ลิฟเตอร์คัชชั่นพิน



Model: 25TCPA



Model: 25TCPB



ORDER
EXAMPLE

Model D - L - S
25TCPA30-180-100

S45C
50HRC-
 Induction Harden Area

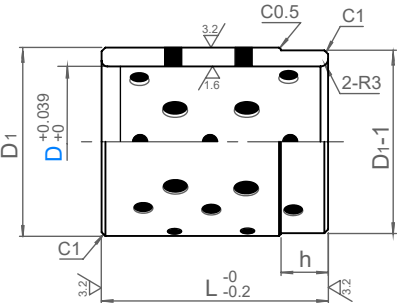
Model	D	L	S	d	d1	d2
		5mm increments	5mm increments			
25TCPA 25TCPB	30	100 - 160	50 - 110	38	29	26
		165 - 240	50 - 190			
		245 - 275	50 - 225			
	40	100 - 160	50 - 110	48	39	36
		165 - 280	50 - 230			
		285 - 360	50 - 310			
	50	365 - 460	50 - 410	58	49	46
		160 - 220	50 - 170			
		225 - 300	50 - 250			
		305 - 410	50 - 360			
		415 - 460	50 - 410			

Accessories

Lifter Cushion Pin Bushings - บุช สำหรับ ลิฟเตอร์คัชชั่นพิน



Model: 25STGF Model: 25STGW



25STGF FC250
Oil Free™
Solid Lubricant

ORDER
EXAMPLE

Model D
25STGF50

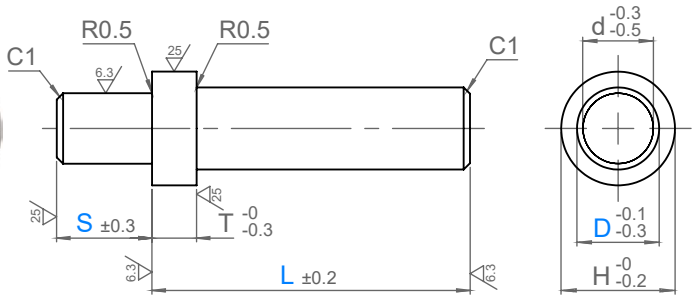
25STGW Copper Alloy
Oil Free™
Solid Lubricant

Model	D	D1		h	L
25STGF 25STGW	30	50	±0.008	10	60
	40	60	±0.0095	15	80
	50	70		15	100

Plate Lifter Pins - เพลทลิฟเตอร์พิน

FOIL FREE™

Model: 25PLP



ORDER
EXAMPLE

Model D - L
25PLP32-120

S45C
50HRC-
Induction Harden

Model	D	L 10mm increments	S 1mm increments	d	T	H
25PLP	13	100 - 250	10 - 20	10	8	18
	16	100 - 300	10 - 20	13	8	21
	20	100 - 400	15 - 30	16	8	25
	25	100 - 500	15 - 40	20	8	30
	32	100 - 500	15 - 50	25	8	40

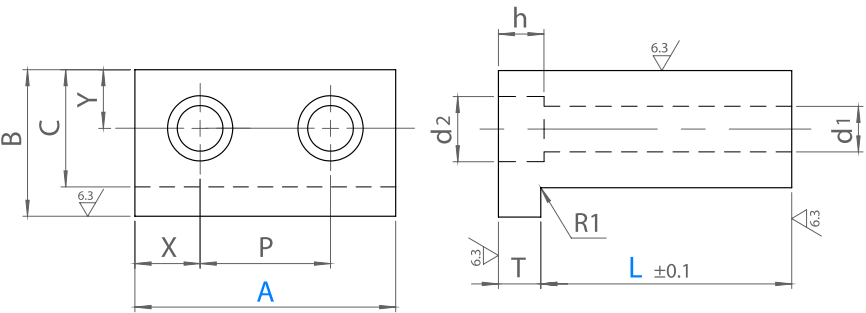
Accessories

Lifter Plate Stopper - ลิฟเตอร์เพลทสตอปเปอร์

FOIL FREE™



Model: 25LPE



ORDER
EXAMPLE

Model A - L
25LPE80-100

S45C

Model	A	L 1mm increments	B	T	C	X	Y	P	d1	d2	h
25LPE	60	40 - 80	38	10	30	15	15	30	11	18	12
	80	50 - 100	45	13	36	20	18	40	14	20	14
	100	60 - 100	60	15	50	25	25	50	18	26	18



Copper Alloy Wear Plate
(20mm)



Copper Alloy Wear Plate
(10mm)



Copper Alloy Wear Plate
(5mm)

Name	Copper Alloy Wear Plate (20mm)	Copper Alloy Wear Plate (10mm)	Copper Alloy Wear Plate (5mm)
Model	25SWW / 25SWWD	25STWW / 25STWWD	25UTWW
Page	227	228	229



Copper Alloy Wear Plate
(Compact)



Cast Iron Wear Plate
(20mm)



Steel Wear Plate
(20mm)

Name	Copper Alloy Wear Plate (Compact)	Cast Iron Wear Plate (20mm)	Steel Wear Plate (20mm)
Model	25MSTS	25SWF / 25SWFD	25SWI
Page	230	231	232



Steel Wear Plate
(10mm)



Shims for
Wear Plate



Steel Slide Plate
(20mm)



Slide Plate
L-Shape

Name	Steel Wear Plate (10mm)	Shims for Wear Plate	Steel Slide Plate (20mm)	Slide Plate L-Shape
Model	25STWI	25SMP	25SLSPH	25SOLW
Page	233	234	235	236



เปลี่ยนวัสดุจาก ทองเหลืองคอปเปอร์อัลลอย เป็น ซินเตอร์อัลลอยได้ Switching material from Copper Alloy to Sintered Alloy

สามารถเลือกเปลี่ยนสเปคแวร์เพลทจากวัสดุทองเหลืองคอปเปอร์อัลลอย ผัง เม็ดกราไฟต์ออยฟรี เป็น วัสดุพิเศษ ซินเตอร์อัลลอยที่มี การรวมสารหล่อลื่นออยฟรีเอาไว้แล้วบนหน้าสไลด์ได้ โปรดสอบถามฝ่ายขายของเรา

Wearplate with Copper Alloy and Oil Free solid lubricant can switch the base material to special Sintered Alloy material. For the Sintered Alloy material wearplate please ask our sale personals.

Copper Alloy
Wear Plate



Sintered Alloy
Wear Plate

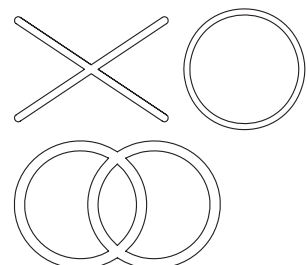


เพิ่มรอยบาก / ร่องน้ำมัน Adding oil grooves

หากท่านอาจต้องการเพิ่มรอยบาก หรือ ร่องน้ำมัน บนแผ่นแวร์เพลท เราสามารถทำได้ โปรดสอบถามฝ่ายขายของเรา

We can add oil grooves to the wear plates.
Please ask our sale personals for details.

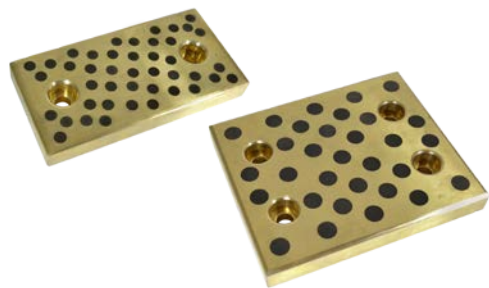
Example of
Oil-Grooves



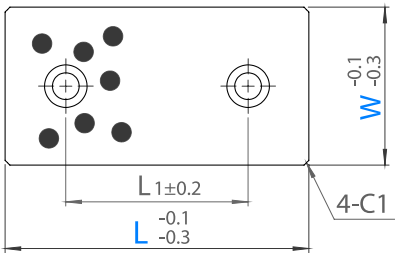
ตารางการเลือกสไลด์เพลท | Slide Plate Selection Table

Body Material	ความหนา Thickness	Model	ความกว้าง Width min - max	ความยาว Length min - max	Page
ทองเหลือง คอปเปอร์อัลลอย เกรดรับงานหนัก และ เม็ดยหล่อลื่นฟรี™ Copper Alloy + Oil Free™ Solid Lubricant	20mm	25SWW 25SWWD 	28 - 150	75 - 350	227
	10mm	25STWW 25STWWD 	28 - 150	75 - 250	228
		25MSTS (Compact) 	15 - 22	30 - 75	230
	5mm	25UTWW 	18 - 100	50 - 150	229
	20mm 30mm 45mm	25SOLW (L-Shape) 	26 - 50	100 - 350	236
Cast Iron FC250 + Oil Free™ Solid Lubricant	20mm	25SWF 25SWFD 	28 - 200	75 - 300	231
Steel S45C + Oil Free™ Solid Lubricant	20mm	25SWI 	48 - 150	75 - 250	232
Steel SKS3 + Oil Free™ Solid Lubricant	10mm	25STWI 	28 - 125	75 - 150	233
Steel Induction Harden	20mm	25SLSPH 	28 - 150	75 - 300	235

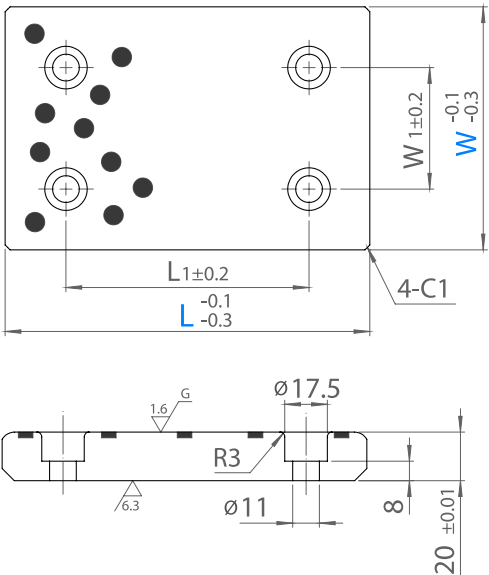
Slide Plates



Model: 25SWW ⚠ W = 28 - 75
25SWWD



Model: 25SWW ⚠ W = 100 - 150



Ⓜ Copper Alloy
+ Oil Free™ Solid Lubricant

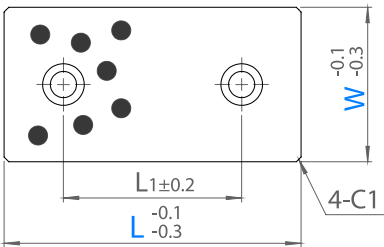
ORDER Model W - L
EXAMPLE 25SWW75-100

Model	W	L	L1	W1
25SWW	28	75	45	-
		100	50	
		150	100	
	38	75	45	-
		100	50	
		150	100	
	48	75	45	-
		100	50	
		125	75	
		150	100	
	58	75	45	-
		100	50	
		150	100	
	75	75	25	-
		100	50	
		125	75	
		150	100	
25SWW 25SWWD	100	100	50	50
		125	75	
		150	100	
		200	150	
		250	200	
	125	125	75	50
		150	100	
		200	150	
		250	200	
		300	200	
		350	200	
	150	150	100	100
		200	150	
		250	200	

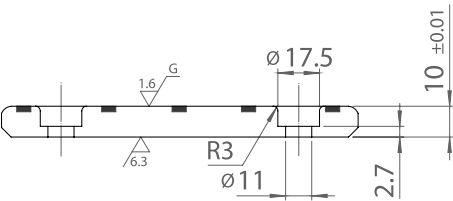
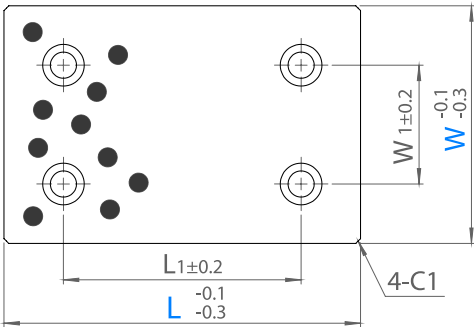
Copper Alloy Wear Plate (10mm) - แวร์เพลททองเหลืองคอปเปอร์อัลลอย (รุ่นหนา 10 มม)



Model: 25STWW ⚠ W = 28 - 75
25STWWD



Model: 25STWW ⚠ W = 100 - 150

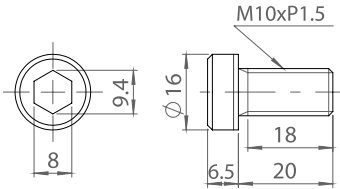


Ⓜ Copper Alloy
+ Oil Free[™] Solid Lubricant

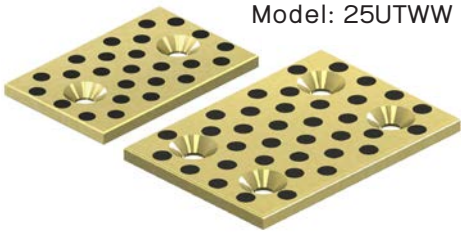
ⓘ มีสกรูในชุด
Mounting Bolts Included

ORDER Model W - L
EXAMPLE 25STWW75-100

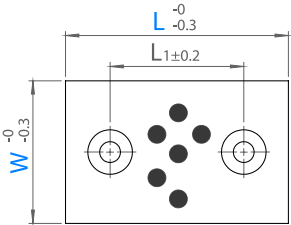
Model	W	L	L1	W1
25STWW	28	75	45	-
		100	50	
		125	75	
		150	100	
	38	75	45	-
		100	50	
		125	75	
		150	100	
	48	75	45	-
		100	50	
		125	75	
		150	100	
	58	75	45	-
		100	50	
		150	100	
	75	75	25	-
		100	50	
		125	75	
		150	100	
25STWW 25STWWD	100	100	50	50
		125	75	
		150	100	
		200	150	
	125	250	200	50
		150	100	
		200	150	
		250	200	
	150	150	100	100
		200	150	



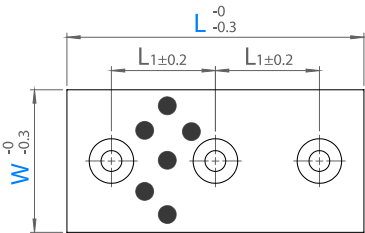
Model: 25UTWW



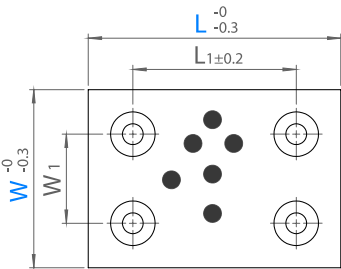
! W = 18 - 38 L = 50 - 100
W = 48 L = 75 - 125



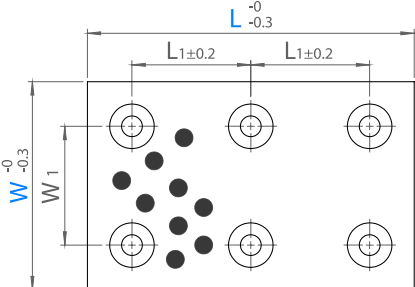
! W = 18 - 48 L = 150



! W = 75 L = 75 - 125
W = 100 L = 100 - 125



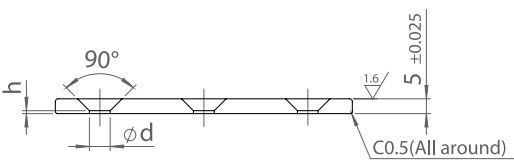
! W = 75 - 100 L = 150



Ⓜ Copper Alloy
+ Oil Free™ Solid Lubricant
มีสกรูในชุด Mounting Bolts Included

ORDER
EXAMPLE Model W - L
25UTWW75-100

Model	W	L	L1	W1	d	h	Mounting Bolts
25UTWW	18	50	20	-	6.5	1.5	M6
		75	45				
		100	70				
		150	60				
	28	50	20	-	10	0.8	M8
		75	45				
		100	70				
		150	60				
	38	50	20	-	10	0.8	M8
		75	45				
		100	70				
		150	60				
	48	75	45	-	10	0.8	M8
		100	70				
		125	95				
		150	60				
	75	75	45	45	10	0.8	M8
		100	70				
		125	95				
		150	60				
	100	100	70	70	10	0.8	M8
		125	95				
		150	60				



Compact Copper Alloy Wear Plate - แวร์เพลทคอปเปอร์อัลลอย ขนาดคอมแพ็ค

Model: 25MSTS

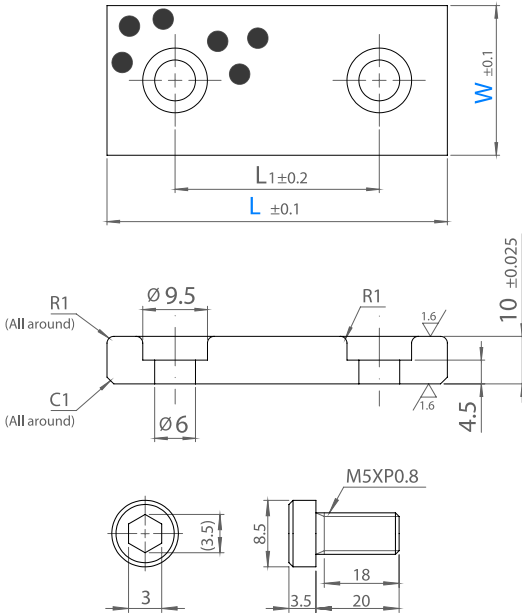
OIL FREE™



M Copper Alloy
+ Oil Free™ Solid Lubricant

ORDER Model W - L
EXAMPLE 25MSTS18-50

Model	W	L	L1
25MSTS	15	30	14
		40	20
		50	30
		75	50
	18	30	14
		40	20
		50	30
		75	50
	22	30	14
		40	20
		50	30
		75	50



เปลี่ยนวัสดุจาก ทองเหลืองคอปเปอร์อัลลอย เป็น ซินเตอร์อัลลอยได้ Switching material from Copper Alloy to Sintered Alloy

สามารถเลือกเปลี่ยนสเปคแวร์เพลทจากวัสดุทองเหลืองคอปเปอร์อัลลอย ผัง เม็ดกราไฟต์ออยฟรี เป็น วัสดุพิเศษ ซินเตอร์อัลลอยที่มีการรวมสารหล่อลื่นออยฟรีเอาไว้แล้วบนหน้าสไลด์ได้ โปรดสอบถามฝ่ายขายของเรา

Wearplate with Copper Alloy and Oil Free solid lubricant can switch the base material to special Sintered Alloy material. For the Sintered Alloy material wearplate please ask our sale personals.

Copper Alloy
Wear Plate



Sintered Alloy
Wear Plate



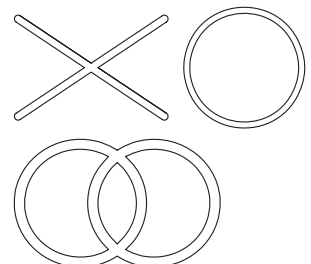
เพิ่มรอยบาก / ร่องน้ำมัน Adding oil grooves

หากท่านต้องการเพิ่มรอยบาก หรือ ร่องน้ำมัน บนแผ่นแวร์เพลท เราสามารถทำได้ โปรดสอบถามฝ่ายขายของเรา

We can add oil grooves to the wear plates.

Please ask our sale personals for details.

Example of
Oil-Grooves

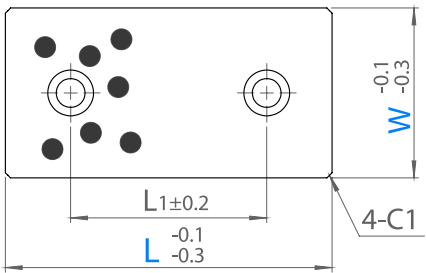


สไลด์ไวน

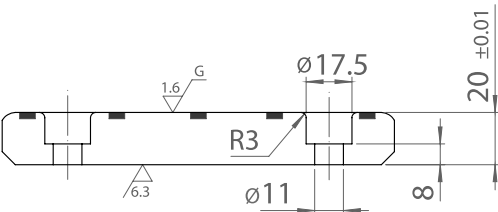
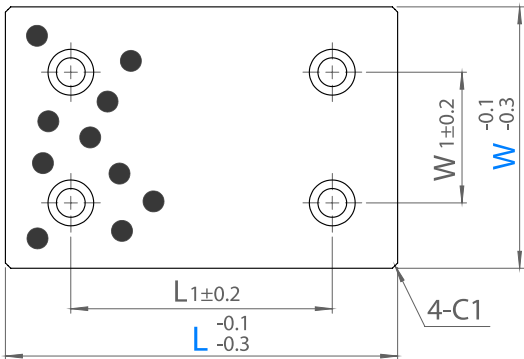
Cast Iron Wear Plate (20mm) - แวร์เพลทเหล็กหล่อ (รุ่นหนา 20 มม)



Model: 25SWF  W = 28 - 75
25SWFD



Model: 25SWF  W = 100 - 150



ORDER Model W - L
EXAMPLE 25SWF75-100  FC250
+ Oil Free™ Solid Lubricant

Model	W	L	L1	W1
25SWF	28	75	45	-
		100	50	
		125	75	
		150	100	
		200	150	
	38	75	45	-
		100	50	
		125	75	
		150	100	
	48	75	45	-
		100	50	
		125	75	
		150	100	
	58	75	45	-
		100	50	
		125	75	
		150	100	
	75	75	25	-
		100	50	
		125	75	
		150	100	
		200	150	
25SWF 25SWFD	100	100	50	50
		125	75	
		150	100	
		200	150	
		250	200	
	125	300	100	50
		125	75	
		150	100	
		200	150	
		250	200	
	150	300	200	100
		150	100	
		200	150	
		250	200	
		300	250	
25SWF	200	200	150	150
		250	200	
		300	250	

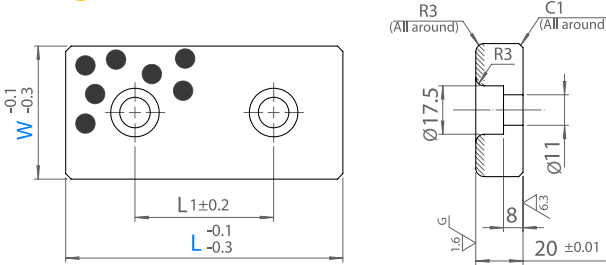
Steel Wear Plate (20mm) - แวร์เพลทเหล็กกล้า (รุ่นหนา 20 มม)

Oil Free™

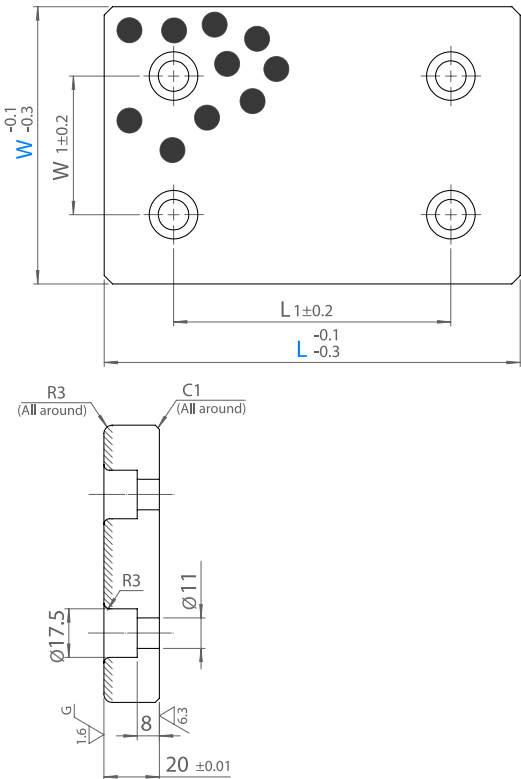
Model: 25SWI



W = 48 - 75



W ≥ 100



- M S45C (HRC40 or more)
+ Oil Free™ Solid Lubricant
- 58-62HRC (Induction Harden)

ORDER Model W - L
EXAMPLE 25SWI75-100

Model	W	L	L1	W1
25SWI	48	75	45	-
		100	50	
		125	75	
		150	100	
		200	150	
	75	75	25	-
		100	50	
		125	75	
		150	100	
		200	150	
	100	100	50	50
		125	75	
		150	100	
		200	150	
		250	200	
	125	125	75	50
		150	100	
		200	150	
		250	200	
		300	250	
	150	150	100	100
		200	150	
		250	200	

Slide Plates



Model: 25STWI

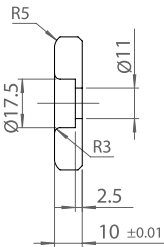
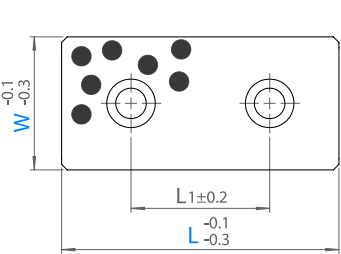
- SKS3 (HRC45 ~ 55)
+ Oil Free™ Solid Lubricant
- มีสกรูในชุด
Mounting Bolts Included

ORDER
EXAMPLE Model W - L
25STWI75-100

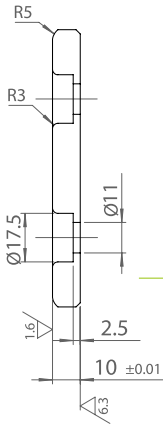
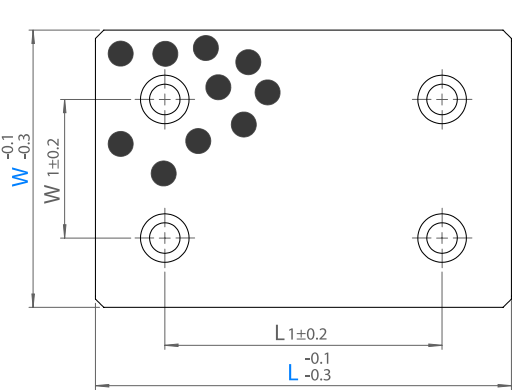
Model	W	L	L1	W1
25STWI	28	75	45	-
		100	50	
		125	75	
		150	100	
	38	75	45	-
		100	50	
		125	75	
		150	100	
	48	75	45	-
		100	50	
		125	75	
		150	100	
	75	75	25	-
		100	50	
		125	75	
		150	100	
	100	100	50	50
		125	75	
		150	100	
		200	150	
	125	125	75	50
		150	100	

W = 28 - 75

R2 สำหรับ W = 28 เท่านั้น
R2 only for W = 28

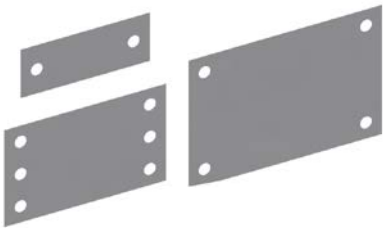


W ≥ 100



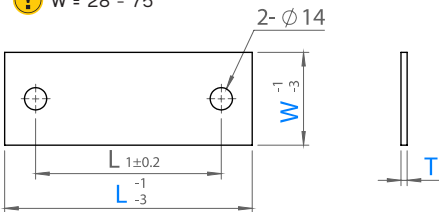
Shims for Wear Plate - แผ่นชิม สำหรับแบริ่งเพลท

FOIL FREE™

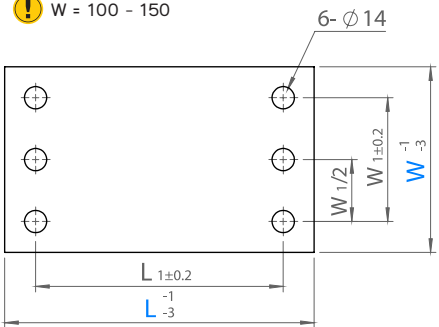


Model: 25SMP

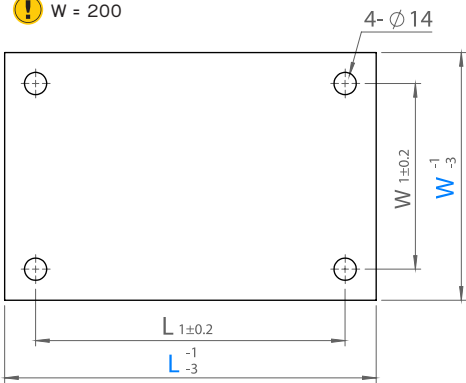
! W = 28 - 75



! W = 100 - 150



! W = 200



ORDER EXAMPLE		Model W - L - T		M Stainless Steel (Shim Grade)	
		25SMP75-100-0.10			
Model	W	L	T	L1	W1
28		75		45	-
		100		50	
		125		75	
		150		100	
		200		150	
38		75		45	-
		100		50	
		125		75	
		150		100	
		200		150	
48		75		45	-
		100		50	
		125		75	
		150		100	
		200		150	
58		75		45	-
		100		50	
		150		100	
75		75	0.05 0.10 0.20 0.30 0.40 0.50 1.00 2.00	45	-
		100		50	
		125		75	
		150		100	
		200		150	
		100		50	
		125		75	
100		150		100	50
		200		150	
		250		200	
		300		200	
		350		200	
125		125		75	50
		150		100	
		200		150	
		250		200	
		300		200	
150		150		100	100
		200		150	
		250		200	
		300		250	
200		200		150	150
		250		200	
		300		250	

Slide Plates

Model: 25SLSPH



M S45C (HRC55 or more)

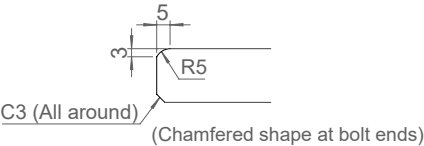
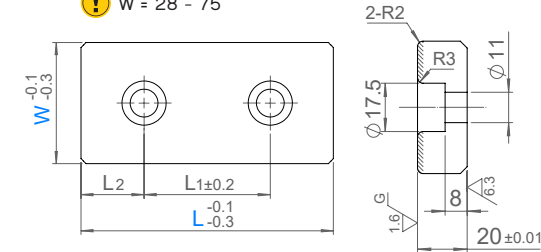
58-62HRC (Induction Harden)

ORDER
EXAMPLE

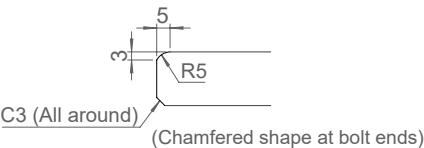
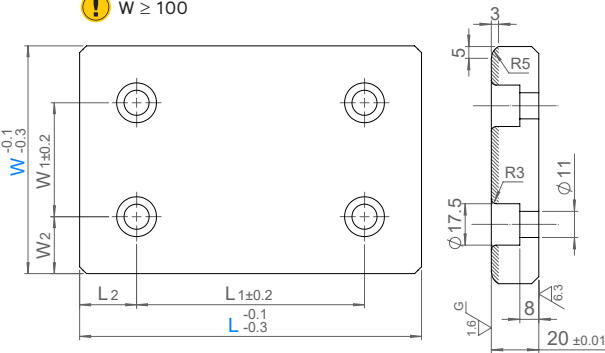
Model W - L
25SLSPH75-100

Model	W	L	W1	W2	L1	L2
25SLSPH	28	75	-	-	45	15
		100			50	25
		150			100	
	38	75	-	-	45	15
		100			50	25
		150			100	
	48	75	-	-	45	25
		100			50	
		150			100	
		125			75	
		200			150	
		250			200	
	58	75	-	-	45	25
		100			50	
		150			100	
	75	75	-	-	45	25
		100			50	
		125			75	
		150			100	
		200			150	
		250			200	
	100	100	50	25	50	25
		125			75	
		150			100	
		200			150	
		250			200	
		300			200	
	125	125	50	37.5	75	25
		150			100	
		200			150	
		250			200	
		300			200	
		350			200	
	150	150	100	25	100	25
		200			150	
		250			200	

! W = 28 - 75



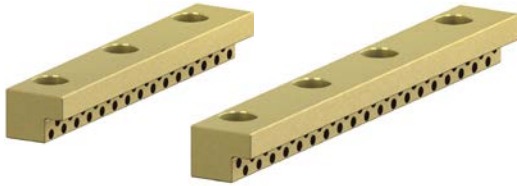
! W ≥ 100



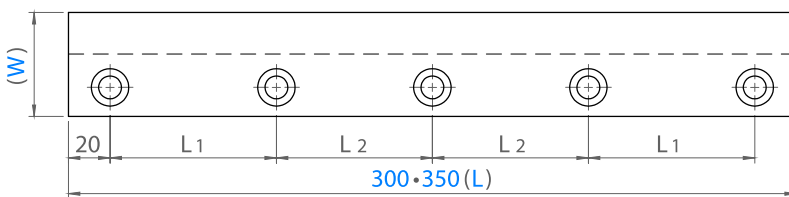
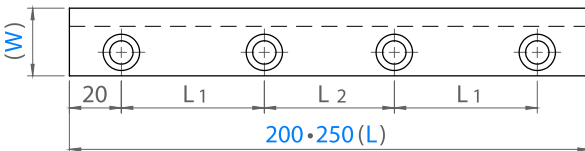
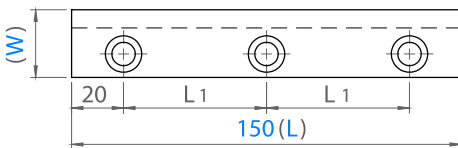
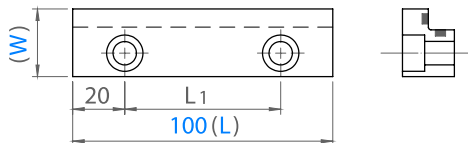
Slide Plate L-Shape - สไลด์เพลทตัวแอล

Model: 25SOLW

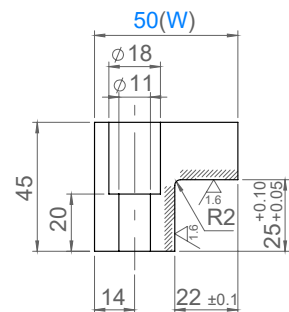
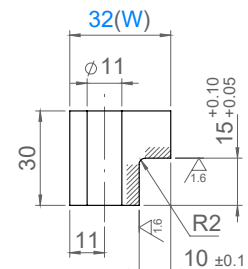
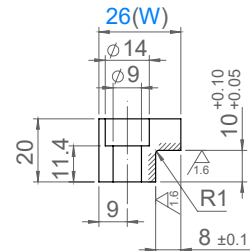
OF OIL FREE™



! แบบตามด้านยาว (L)
Drawing for each length (L)



! แบบตามด้านกว้าง (W)
Drawing for each width (W)



ORDER EXAMPLE Model W - L Copper Alloy + Oil Free™ Solid Lubricant

25SOLW32-100

Model	W	L	L1	L2	Mounting Bolts	
					Size	No.
25SOLW	26	100	60	-	M8	2
		150	55			3
		200		50		4
	32	100	60	-	M10	2
		150	55			3
		200		50		4
		250	70	70		
	50	200	55	50	M10	4
		250	70	70		
		300	65	65		5
		350	80	75		



Name	CAM Upper Plate	Steel CAM Upper	Copper Alloy CAM Upper	Steel CAM Upper
Model	25SCU(W,F,I,S) / 25CUP(W,F,I,S)	25CUPH	25CSDPW	25SCPAH
Page	239 - 240	241	241	242



Name	Steel CAM Upper	CAM Side Block	CAM V Guide	CAM V Guide
Model	25SCPH	25MSRGW / 25MSRGF	25CGW / 25CGI	25CGWL / 25CGIL
Page	242	243	244	245



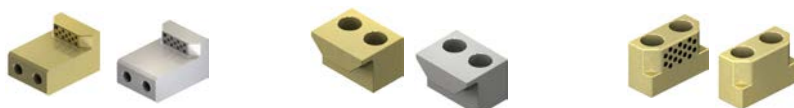
Name	CAM Center Key	Steel CAM Center Key	CAM Center Key	15Degree CAM Dwell Plate
Model	25CKB	25SFCI / 25SFCIB	25CKBF / 25CKBI / 25CKBW	25CDPWS / 25CDPIS
Page	246	246	247	248



Name	30Degree CAM Dwell Plate	45Degree CAM Dwell Plate	Compact CAM Dwell Plate
Model	25CDPW / 25CDPI / 25CMCSA	25CDPQW / 25CDPQI	25CDPWL / 25CDPIL
Page	249	250	251



Name	CAM Pad Guide Plate	CAM Positive Return Follower	CAM Positive Return Follower	CAM Positive Return Follower
Model	25CPGPW	25CPRIH / 25CPRI	25CPRIE / 25CPRIF	25CKRZW
Page	252	253	254	255



Name	CAM Positive Return Follower	CAM Positive Return Follower	CAM Positive Return Follower
Model	25CKRLW / 25CKRLI	25CPKW / 25CPKI / 25CPKH	25CPBW / 25CPBWS
Page	255	256	256

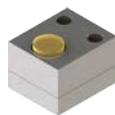
CAM SLIDES COMPONENTS



CAM Positive
Return Plate



CAM Stoppper



Shock Absorb
Stopper

Name	CAM Positive Return Plate	CAM Stoppper	Shock Absorb Stopper
Model	25CRPW / 25CRPWR / 25CRPWL	25CSTA / 25CSTU	25UCST
Page	257	258	258



Spring Unit for Cam Return

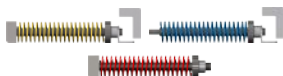


Spring Unit for Cam Return



Double Spring Unit for Cam Return

Model	25STOKSL / 25STOKSF / 25TRP	25SUL / 25SUM (40,50,60)	25SWUL / 25SWUM (50,60)
Page	259 - 260	261 - 266	267 - 268



CAM Return Units

Name	CAM Return Units
Model	25SUKI / 25SUKE / 25SUKA / 25SUKSA / 25SUKFP / 25SUKFA
Page	269 - 270

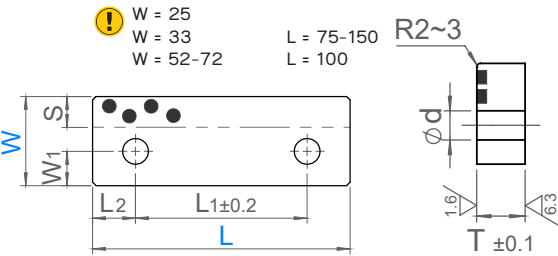
ชิ้นส่วนแคมสไลด์

CAM Upper Plate - แคมอัปเปอร์เพลท

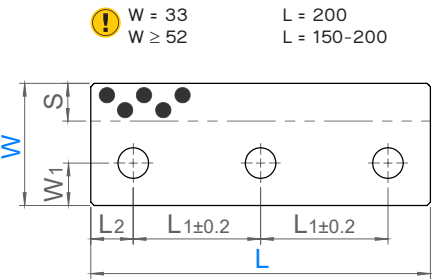


- 25SCUW Copper Alloy + Oil FreeTM Solid Lubricant
- 25SCUF FC250 + Oil FreeTM Solid Lubricant
- 25SCUI S45C + Oil FreeTM Solid Lubricant
- 25SCUS Sintered Alloy
- S Area 40HRC-(Induction Harden)

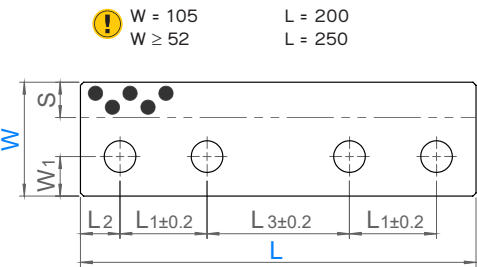
ORDER Model W - L
EXAMPLE 25SCUW52-200



! W = 25
W = 33
W = 52-72
L = 75-150
L = 100



! W = 33
W ≥ 52
L = 200
L = 150-200



! W = 105
W ≥ 52
L = 200
L = 250



Model	W	L	T	L1	L2	L3	W1	S	d	
25SCUW 25SCUI	25	75	10	45	15	25	8	7.5	9	
		100		50						
		125		75						
	33	75	10	45	15	25	12.5	9	11	
		100		50						
		125		75						
		150		100						
		200		75						
25SCUW 25SCUF 25SCUI 25SCUS	52	100	20	50	25	-	20	13	13	
		150		50						
		200		75						
		250		75		50				
	72	100	30	50	25	-	25	22	18	
		150		50						
		200		75						
		250		75		50				
	77	150	35	50	25	-	25	27	18	
		200		75						
		250		75		50				
	82	150	40	50	25	-	25	32	18	
		200		75						
		250		75		50				
	25SCUW 25SCUF 25SCUI	105	150	40	50	25	-	25	32	18
			200		50					
250			75		50					

CAM Upper Plate - แคมอัฟเปอร์เพลท

Oil Free™



25CUPW **(M)** Copper Alloy + Oil Free™ Solid Lubricant

25CUPF **(M)** FC250 + Oil Free™ Solid Lubricant

25CUPI **(M)** S45C + Oil Free™ Solid Lubricant

25CUPS **(M)** Sintered Alloy

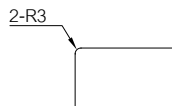
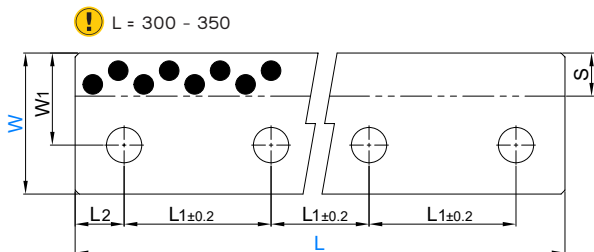
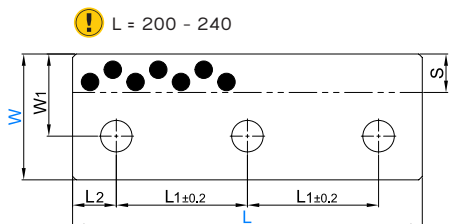
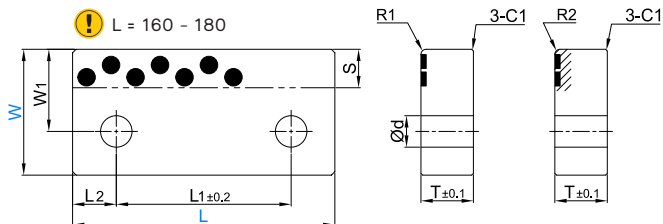
S Area **(M)** 40HRC-(Induction Harden)

ORDER

Model W - L

EXAMPLE

25CUPW70-200



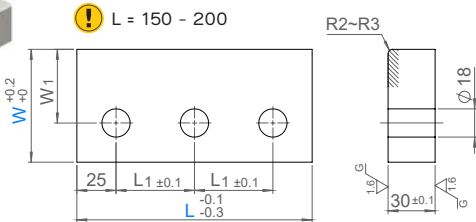
Model	W	L	T	W1	L1	L2	d	S
25CUPW 25CUPF 25CUPS 25CUPI	55	180	25	37.5	120	30	18	24
	70	160		50	110	25	18	25
		200			75	25		25
		240			90	30		30
	85	200	28	60	75	25	22	30
		240			90	30		
		300			80	30		
		350			90	40		
	100	200			75	25		
		240			90	30		
		300			80	30		
		350			90	40		

ชิ้นส่วนแคมสไลด์

Steel CAM Upper Plate - แคมอัพเปอร์เพลท เหล็กกล้า



Model: 25CUPH



Ⓜ S45C
55HRC-(Induction Harden)

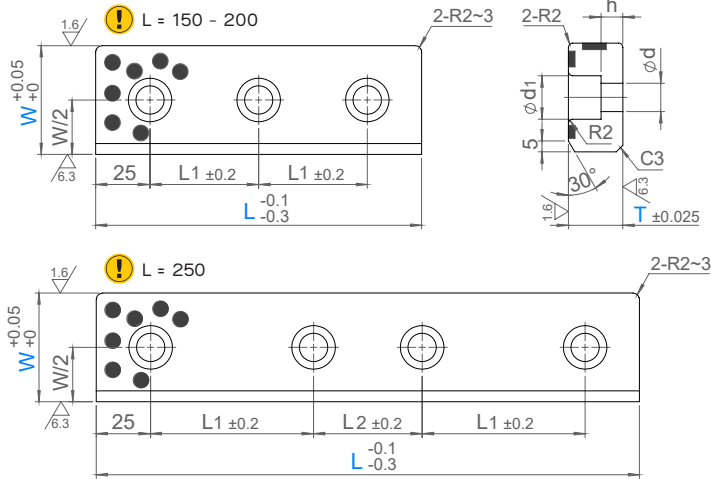
ORDER
EXAMPLE Model W - L
25CUPH67-150

Model	W	L	W1	L1	L2
25CUPH	67	150	42	50	-
		200		75	50
		250		75	50
	82	150	57	50	-
		200		75	50
		250		75	50

Copper Alloy CAM Slide Plate - แคมอัพเปอร์เพลท คอปเปอร์อัลลอย



Model: 25CSDPW



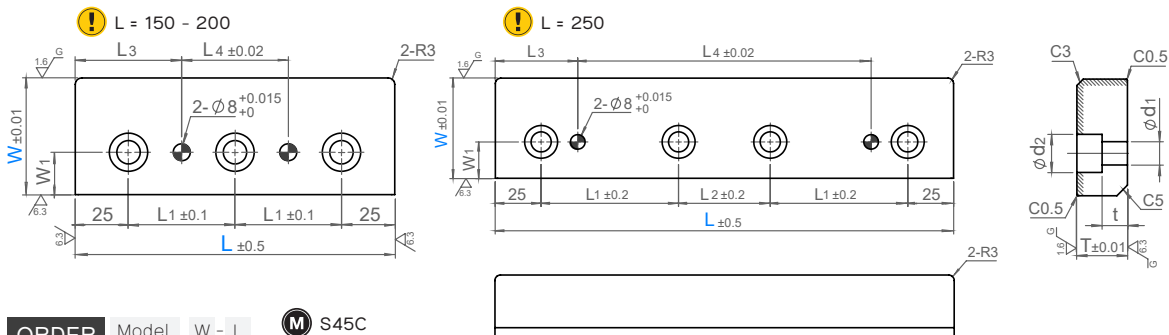
ORDER
EXAMPLE Model W - L
25CSDPW50-200 Ⓜ Copper Alloy + Oil Free[™] Solid Lubricant

Model	W	L	T	L1	L2	d	d1	h
25CSDPW	50	150	20	50	-	11	17.5	8
		200		75	50			
		250		75	50			
		150	35	50	-	13	20	20
		200		75	50			
		250		75	50			
	75	150	20	50	-	11	17.5	8
		200		75	50			
		250		75	50			
		150	35	50	-	13	20	20
		200		75	50			
		250		75	50			

Steel CAM Upper Plate - แคมอัปเปอร์เพลท เหล็กกล้า

Model: 25SCPAH

FOIL FREE™



ORDER
EXAMPLE

Model W - L
25SCPAH55-200

Ⓜ S45C

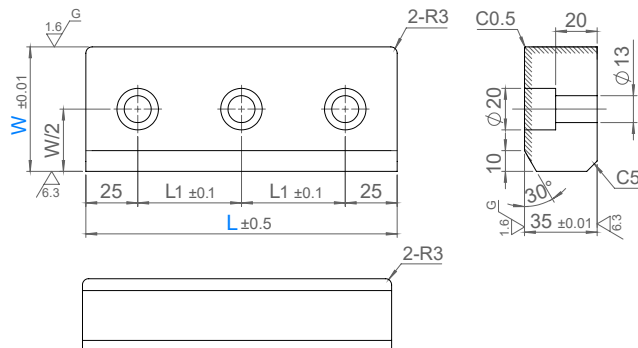
55HRC-(Induction Harden)

Model	W	L	T	L1	L2	L3	L4	W1	t	d1	d2
25SCPAH	55	150	20	50	-	45	60	20	8	11	18
		200		75			110				
		250		75			160				
	80	150	35	50	-	50	50	25	21	13	20
		200		75			100				
		250		75			150				
	95	150	50	50	-	55	40	35	32	18	26
		200		75			90				
		250		75			140				

Steel CAM Upper Plate - แคมอัปเปอร์เพลท เหล็กกล้า

Model: 25SCPH

FOIL FREE™



Ⓜ S45C

55HRC-(Induction Harden)

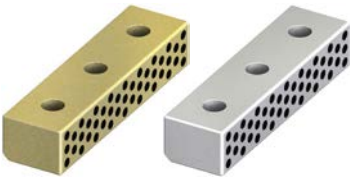
ORDER
EXAMPLE

Model W - L
25SCPH60-200

Model	W	L	L1
25SCPH	60	150	50
		200	75
		250	100
	80	150	50
		200	75
		250	100

ชิ้นส่วนแคมสไลด์

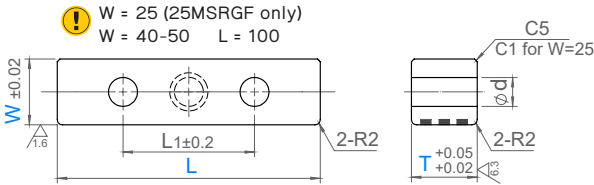
CAM Side Block - แคมไซด์บล็อก



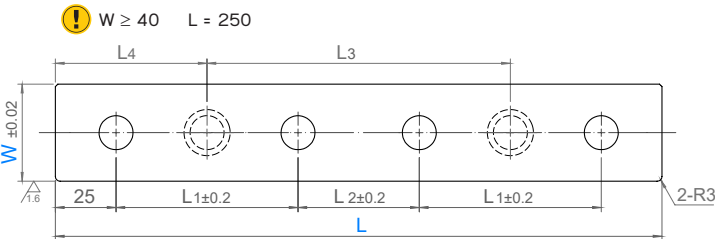
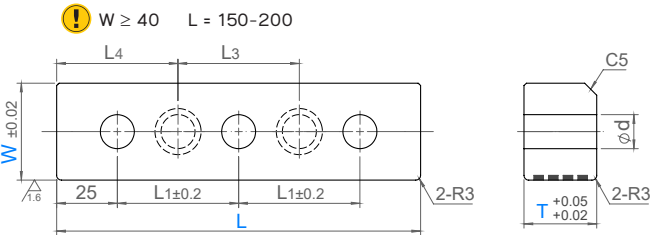
25MSRGW Copper Alloy
+ Oil Free™ Solid Lubricant

25MSRGF FC250
+ Oil Free™ Solid Lubricant

ORDER
EXAMPLE Model W - L - T
25MSRGW40-200-30



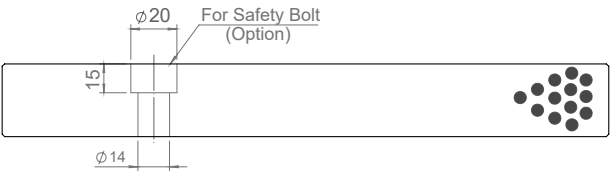
* Holes for safety bolt are optional for W=40 and 50 only



Model	W	L	T	L1	L2	d
25MSRGF	25	75	25	45	-	11
		100		50		
		125		75		
		150		100		
25MSRGW 25MSRGF	40	100	30	50	-	14
		150		75		
		200		50		
		250		50		
		100	40	50	-	14
		150		75		
		200		50		
		250		50		
25MSRGW 25MSRGF	50	100	45	50	-	20
		150		75		
		200		50		
		250		50		
		100	55	50	-	20
		150		75		
		200		50		
		250		50		
		150	60	50	-	20
		200		75		
		250		50		
		250		50		

การปรับแต่งเสริม | Options

OPTION Model W - L - T - ZA
EXAMPLE 25MSRGW40-200-30-ZA

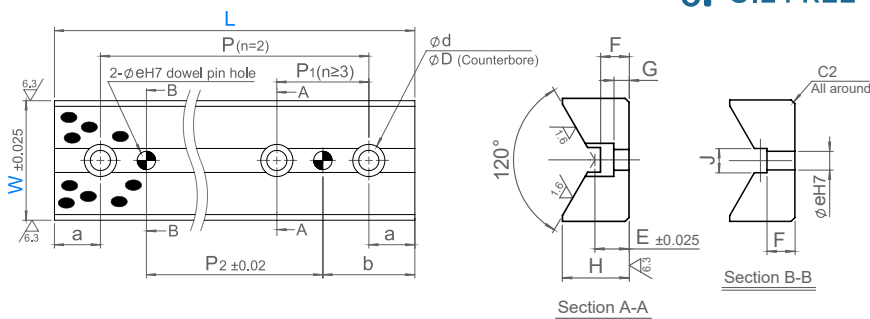
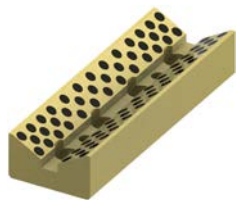


Option	Description	L	L3	L4
ZA	เจาะรูยึดสลัก Safety Bolt Holes (W = 40 & 50 only)	150	50	50
		200	75	62.5
		250	125	62.5

CAM V Guide - แคมไทดัดตัว

OF OIL FREE™

Model: 25CGW



ORDER
EXAMPLE

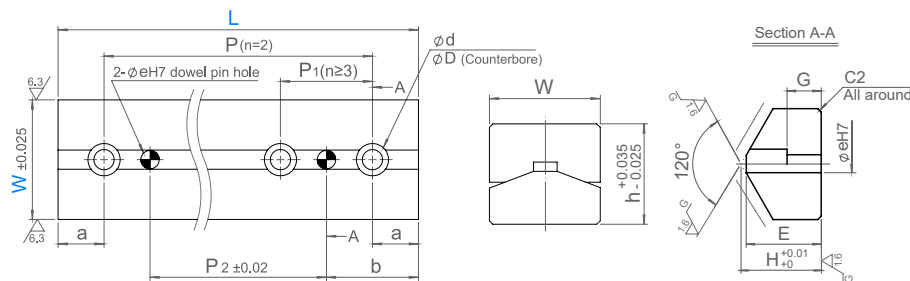
Model W - L
25CGW50-100



Copper Alloy + Oil Free™ Solid Lubricant

Model	W	L	H	a	b	P	P1	No. Bolt Holes n	e	P2	E	F	G	J	d	D	
25CGW	35	75	24	15	30	45	-	2	8	15	15	15	4	11	9	14	
		100		20	40	60				20							
		125				85				45							
		150				110				70							
	50	75	31	15	30	45	-	2	10	15	18	15	8	13	11	17.5	
		100		20	40	60				20							
		125		25	50	75				25							
		150		25	50	100				50							
	65	100	35	20	40	60	-	2	10	20	18	15	8	10	11	17.5	
		150		25	50	-		50		3							50
		200								4							100
		250								5							150
		300								6							200

Model: 25CGI



ORDER
EXAMPLE

Model W - L
25CGI50-100



S45C
55HRC-

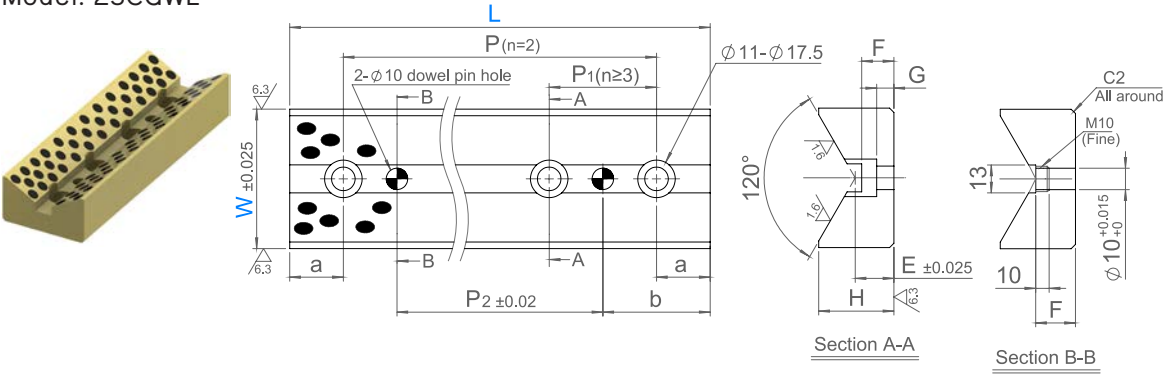
Model	W	L	H	a	b	P	P1	No. Bolt Holes n	e	P2	E	G	d	D	h
25CGI	35	75	20	15	30	45	-	2	8	15	17	4	9	14	35
		100		20	40	60				20					
		125				85				45					
		150				110				70					
	50	75	32	15	30	45	-	2	10	15	29	10	11	17.5	50
		100		20	40	60				20					
		125		25	50	75				25					
		150				100				50					
	65	100	47	20	40	60	-	2	10	20	44	20	11	17.5	65
		150		25	50	-	50	3		50					
		200						4		100					
		250						5		150					
		300						6		200					

ชิ้นส่วนแคมสไลด์

CAM V Guide - แคมไกด์ตัววี



Model: 25CGWL



ORDER
EXAMPLE

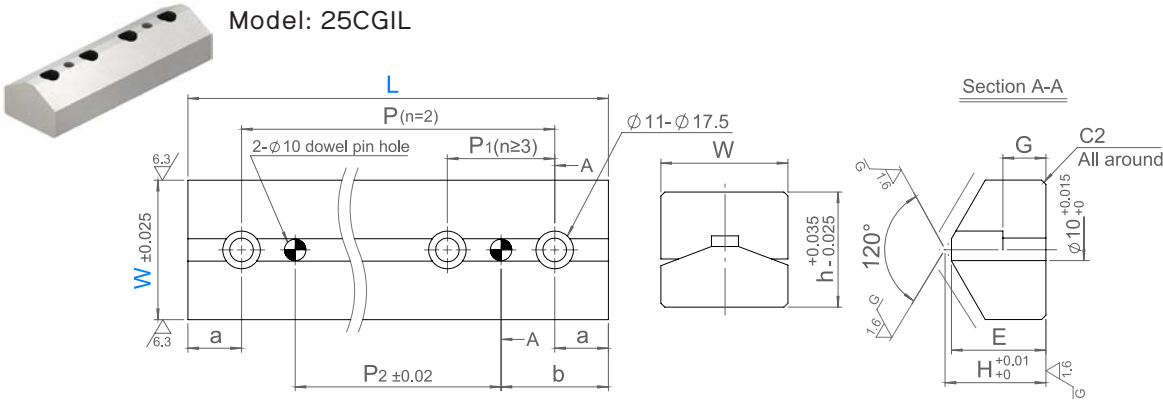
Model W - L
25CGWL65-100

Copper Alloy + Oil Free™ Solid Lubricant

Model	W	L	H	a	b	P	P1	No. Bolt Holes n	P2	E	F	G
25CGWL	65	100	37	20	40	60	-	2	20	20	20	10
		125		25	50	75			25			
		150				100			50			
		200				-	75	3	100			
		250					100		150			
		300					125		200			

Cam Slides

Model: 25CGIL



ORDER
EXAMPLE

Model W - L
25CGIL65-100

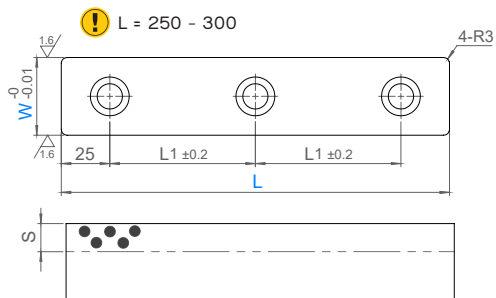
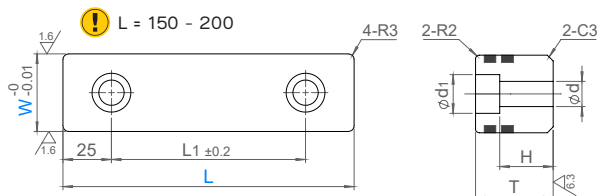
S45C
55HRC-

Model	W	L	H	h	a	b	P	P1	No. Bolt Holes n	P2	E	G
25CGIL	65	100	30	50	20	40	60	-	2	20	26	10
		125			25	50	75			25		
		150					100			50		
		200					-	75	3	100		
		250						100		150		
		300						125		200		

CAM Center Key - แคมเซ็นเตอร์คีย์

Model: 25CKB

FOIL FREE™



FC250 + Oil Free™ Solid Lubricant

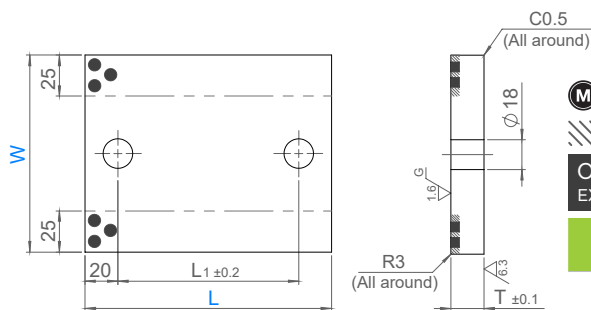
ORDER Model W - L
EXAMPLE 25CKB40-200

Model	W	L	T	L1	S	d	d1	H
25CKB	40	150	45	100	15	13	20	30
		200		150				
		250		100				
	60	150	60	100	20	18	32	38
		200		150				
		250		100				
		300		125				

Steel CAM Center Block - แคมเซ็นเตอร์ เหล็กกล้า

Model: 25SFCI

FOIL FREE™



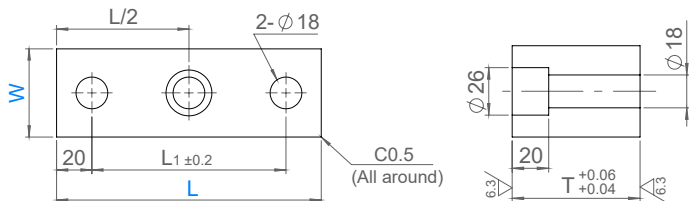
S45C

40-45HRC-(Induction Harden)

ORDER Model W - L
EXAMPLE 25SFCI120-100

Model	W	L	T	L1
25SFCI	120	100	25	60
		150		110

Model: 25SFCIB



SS400

ORDER Model W - L
EXAMPLE 25SFCIB50-100

Model	W	L	T	L1
25SFCIB	50	100	80	60
		150		110

ชิ้นส่วนแคมสไลด์

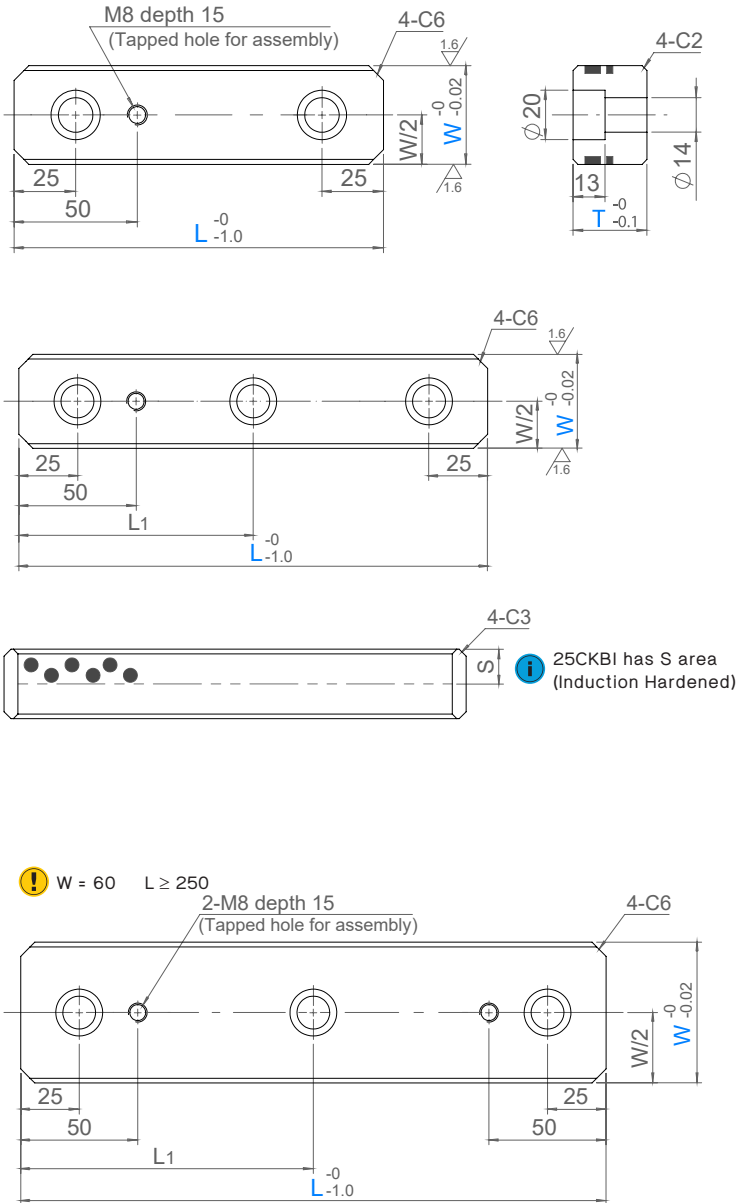
CAM Center Key - แคมเซ็นเตอร์คีย์

FOIL FREE™



- 25CKBF FC250
+ Oil Free™ Solid Lubricant
- 25CKBI S50C
+ Oil Free™ Solid Lubricant
- 25CKBW Copper Alloy
+ Oil Free™ Solid Lubricant
- S Area 40-45HRC-(Induction Harden)

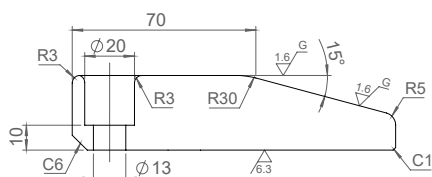
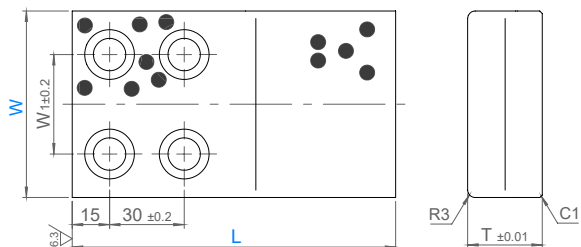
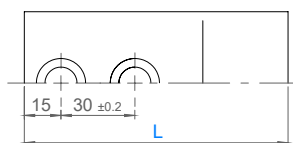
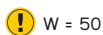
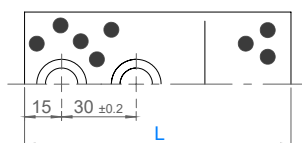
ORDER Model W - L
EXAMPLE 25CKBF30-100



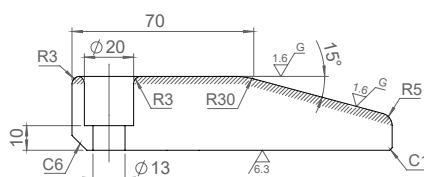
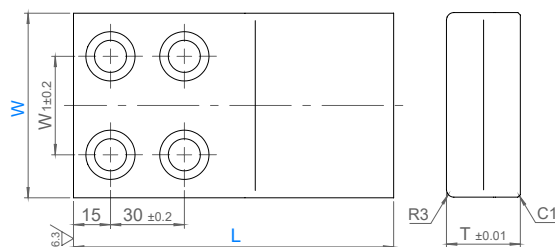
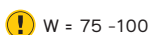
Model	W	L	T	L1	S
25CKBF 25CKBI	30	100	30	-	15
		150		-	
		200		100	
		250		125	
		300		150	
		350		175	
25CKBF 25CKBI 25CKBW	40	100	30	-	15
		150		-	
		200		100	
		250		125	
		300		150	
		350		175	
25CKBF 25CKBI 25CKBW	40	100	40	-	20
		150		-	
		200		100	
		250		125	
		300		150	
		350		175	
25CKBW	60	100	40	-	25
		250		125	
		300		150	
		350		175	

15Deg CAM Dwell Plate - แคมดเวลเพลท 15องศา

! W = 50



M Copper Alloy + Oil Free™ Solid Lubricant



 S45C
 55HRC-(Induction Harden)

ORDER EXAMPLE	Model	W - L
	25CDPWS50-110	

Model	W	L	T	W1
25CDPWS 25CDPIS	50	110	25	-
		130	30	
	75	110	25	40
		130	30	
	100	110	25	60
		130	30	

ชิ้นส่วนแคมสไลด์

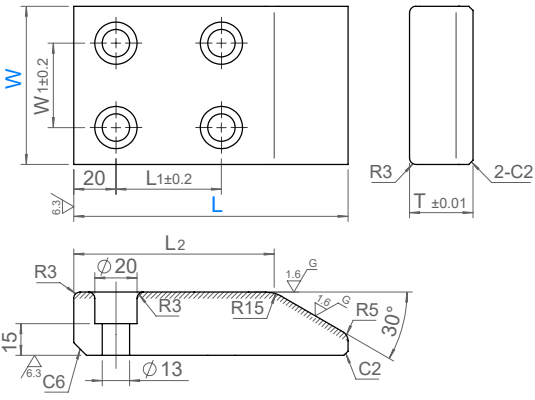
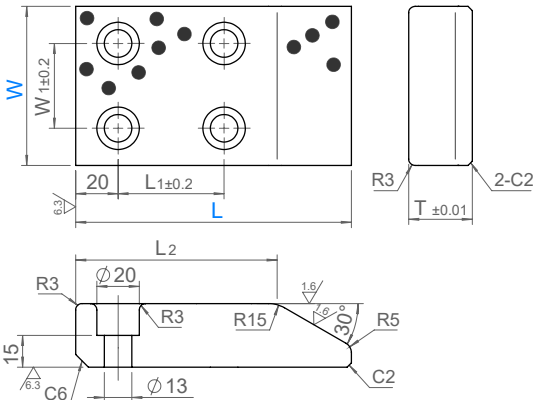
30Deg CAM Dwell Plate - แคมดเวลเพลท 30องศา



Model: 25CDPW



Model: 25CDPI



ORDER Model W - L
EXAMPLE 25CDPW100-150

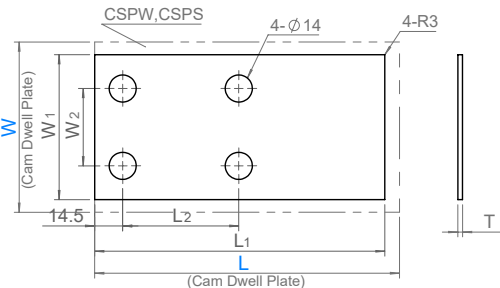
(M) Copper Alloy
+ Oil Free™ Solid Lubricant

(M) S45C
55HRC-(Induction Harden)

Model	W	L	T	W1	L1	L2
25CDPW 25CDPI	75	130	30	40	50	95
		150	45		45	90
	100	130	30	60	50	95
		150	45		45	90
		170	60		75	120
		200			75	120
	125	130	30	85	50	95
		150	45		45	90
		170	60		75	120
		200			75	120
	150	130	30	110	50	95
		150	45		45	90
		170	60		75	120
		200			75	120

ORDER Model W - L - T
EXAMPLE 25CMCSA100-150-0.10

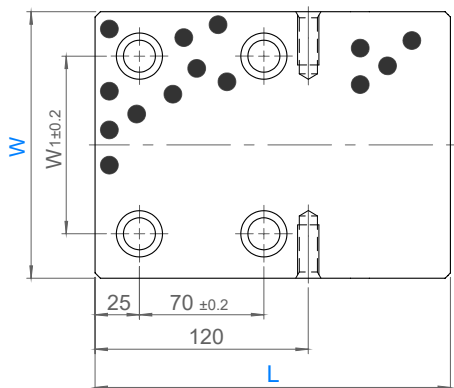
(M) Stainless Steel (Shim Grade)



Model	W	L	T	W1	L1	W2	L2
25CMCSA	75	130	0.05 0.10	65	120	40	50
		150			140		45
	100	130		90	120	60	50
		150			140		45
		170			160		75
		200			190		75
	125	130		115	120	85	50
		150			140		45
		170			160		75
		200			190		75
	150	130		140	120	110	50
		150			140		45
		170			160		75
		200			190		75



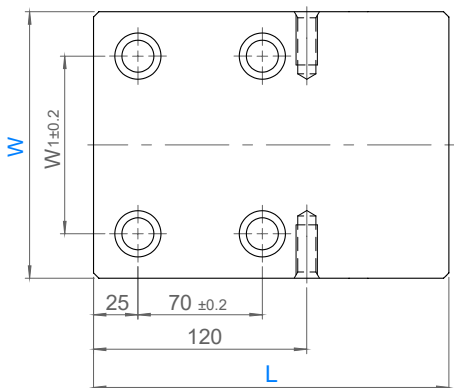
Model: 25CDPQW



(M) Copper Alloy + Oil Free™ Solid Lubricant



Model: 25CDPQI



(M) S45C
 55HRC-(Induction Harden)

**ORDER
EXAMPLE**

Model W - L
 25CDPQW150-170

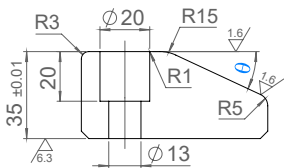
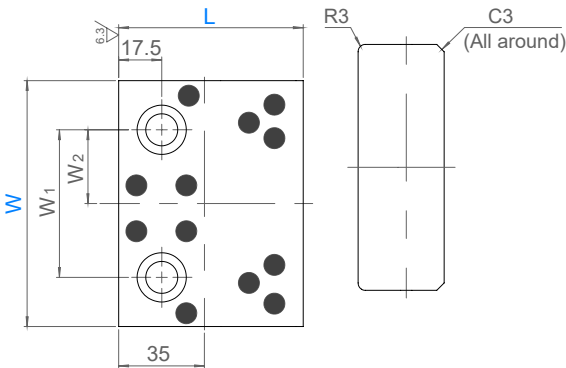
Model	W	L	T	W1
25CDPQW 25CDPQI	150	170	60	100
		200	90	
	200	170	60	140
		200	90	

ชิ้นส่วนแคมสไลด์

Compact CAM Dwell Plate - แคมดเวลเพลท รุ่นคอมแพค



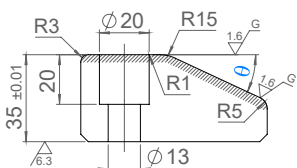
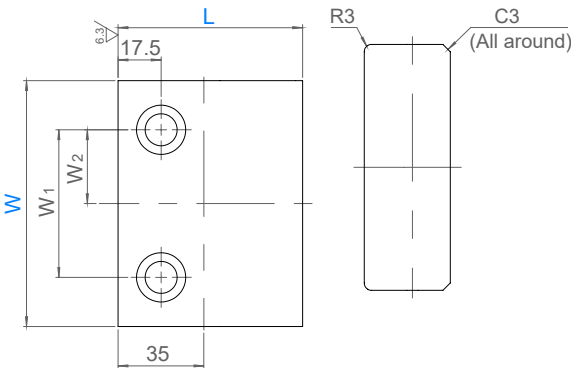
Model: 25CDPWL



Copper Alloy + Oil Free™ Solid Lubricant



Model: 25CDPIL



SK5
 58-62HRC (Induction Harden)

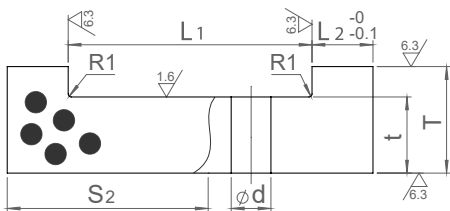
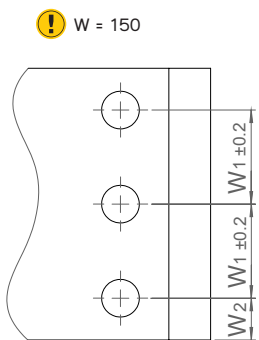
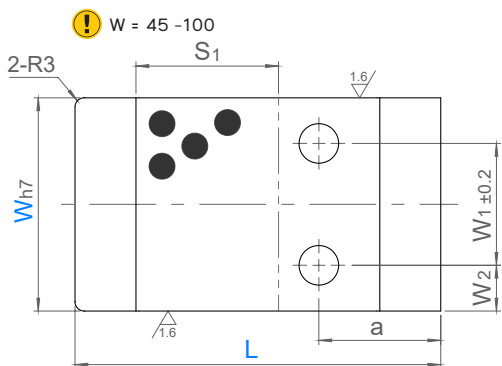
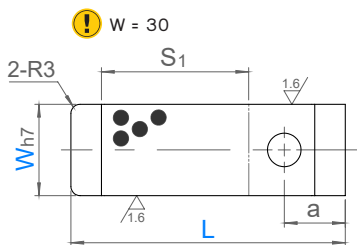
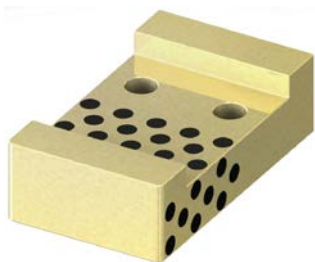
ORDER EXAMPLE	Model	W - L
	25CDPWL100-75	

Model	W	L	θ	W1	Mounting Bolts
25CDPWL 25CDPIL	100	75	25	60	M12x40 (x2pcs)
			30		
	150		25	110	
			30		

CAM Pad Guide Plate - แคมแพทไกด์เพลท

FOIL FREE™

Model: 25CPGPW



ORDER
EXAMPLE

Model W - L
25CPGPW45-70

Copper Alloy + Oil Free™ Solid Lubricant

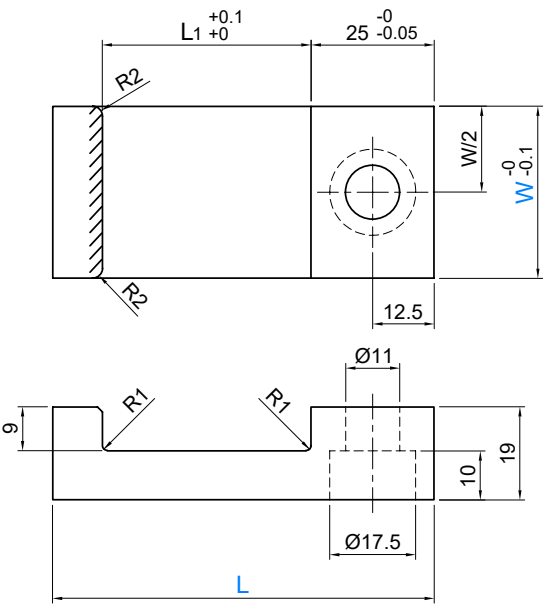
Model	W	L	T	W1	W2	L1	L2	t	a	d	S1	S2	W h7	
25CPGPW	30	70	17	-	-	50	10	12	20	11	30	40	30	0 -0.021
		90				70					50	60		
	45	70	25	22	11.5	50	10	15	20	11	30	40	45	0 -0.025
		90				70					50	60		
	60	120	35	30	15	80	20	25	40	13	40	60	60	0 -0.030
		140				100					60	80		
		160				120					80	100		
	100	120	35	70	15	80	20	25	40	18	40	60	100	0 -0.035
		140				100					60	80		
		160				120					80	100		
	150	120	35	60	15	80	20	25	40	18	40	60	100	0 -0.040
		140				100					60	80		
		160				120					80	100		
		180				140					100	120		

ชิ้นส่วนแคมสไลด์

CAM Positive Return Follower - แคมโพซิทีฟรีเทอว์น



Model: 25CPRIH



ORDER
EXAMPLE

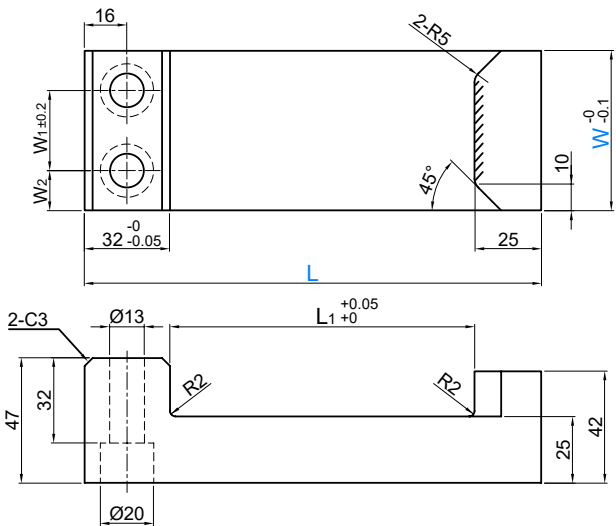
Model W - L
25CPRIH30-67.5

S45C

50-60HRC (Induction Harden)

Model	W	L	L1
25CPRIH	30	67.5	32.4
	35	77.5	42.4

Model: 25CPRI



ORDER
EXAMPLE

Model W - L
25CPRI60-191

S45C

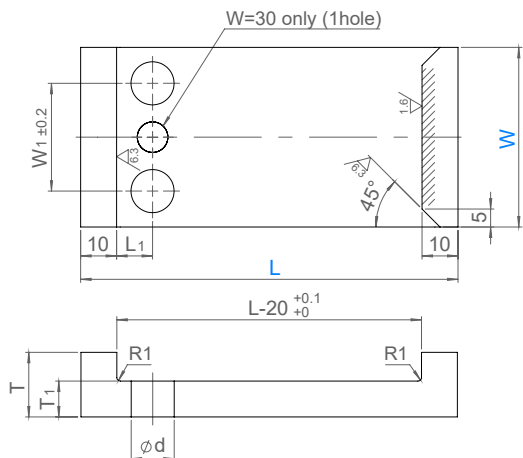
55HRC-(Induction Harden)

Model	W	L	L1	W1	W2
25CPRI	60	171	114	30	15
		191	134		
	80	171	114	40	20
		191	134		

CAM Positive Return Follower - แคมโพสิทีฟรีเทอว์น

OF OIL FREE™

Model: 25CPRIE



ORDER
EXAMPLE

Model W - L
25CPRIE30-55



S45C

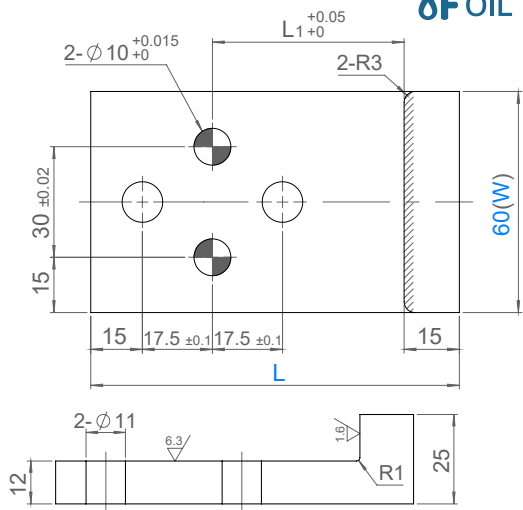
55HRC-(Induction Harden)

Model	W	L	W1	L1	d (Bolt Size)	T	T1	No. Bolt Holes
25CPRIE	30	55	-	7.5	10 (M8)	16	8	1
		75						
	50	65	30	10	12 (M10)	18	10	2
		85						
		105						

CAM Positive Return Follower - แคมโพสิทีฟรีเทอว์น

OF OIL FREE™

Model: 25CPRIF



ORDER
EXAMPLE

Model W - L
25CPRIF60-100



SK5

55HRC-(Induction Harden)

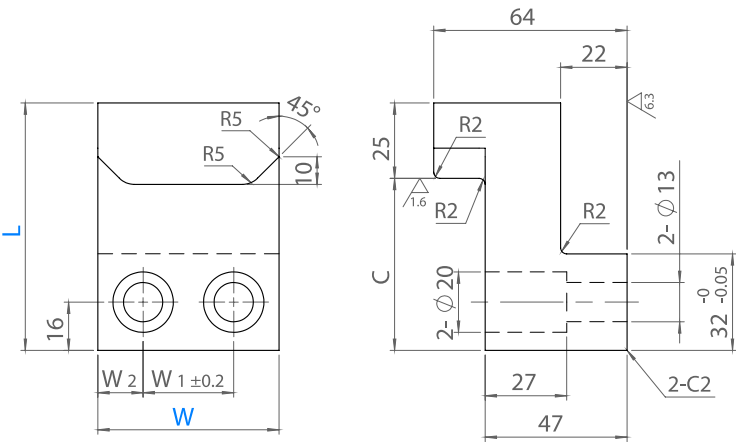
Model	W	L	L1
25CPRIF	60	100	52.5
		120	72.5

ชิ้นส่วนแคมสไลด์

CAM Positive Return Follower - แคมโพซิทีฟรีเทิร์น



Model: 25CKRZW



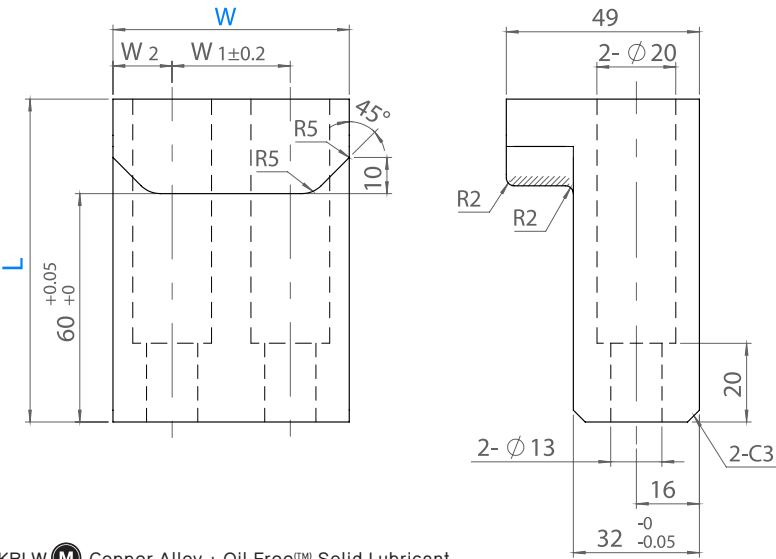
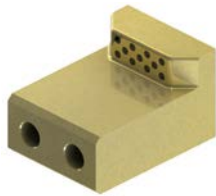
ORDER Model W - L
EXAMPLE 25CKRZW60-82 Copper Alloy
+ Oil Free™ Solid Lubricant

Model	W	L	W1	W2	C
25CKRZW	60	82	30	15	57
		102			77
		112			87
	80	82	40	20	57
		102			77
		112			87

CAM Positive Return Follower - แคมโพซิทีฟรีเทิร์น



Model: 25CKRLW



Model: 25CKRLI

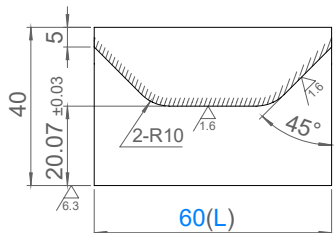
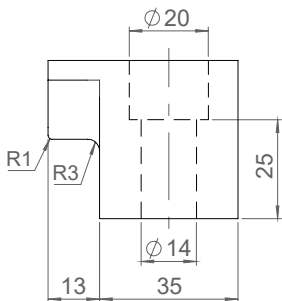
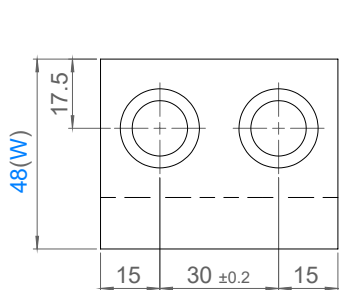
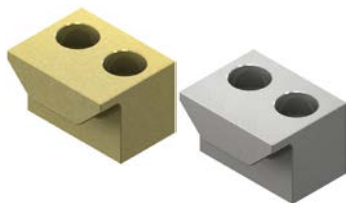


ORDER Model W - L
EXAMPLE 25CKRLW60-85 25CKRLI S45C + Oil Free™ Solid Lubricant 55HRC-(Induction Harden)

Model	W	L	W1	W2
25CKRLW	60	85	30	15
25CKRLI	80		40	20

CAM Positive Return Follower - แคมโพสิทีฟรีเทิร์น

Oil Free™



- 25CPKW Copper Alloy + Oil Free™ Solid Lubricant
 25CPKI SS400
 25CPKH S45C + Oil Free™ Solid Lubricant
 55HRC-(Induction Harden)

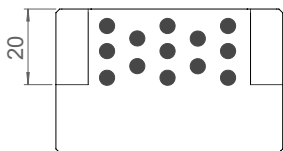
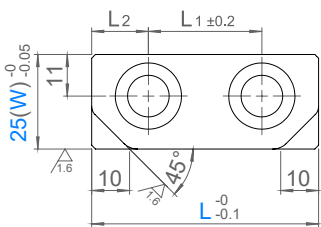
ORDER EXAMPLE Model W - L
 25CPKW48-60

Model	W	L
25CPKW 25CPKS 25CPKK	48	60

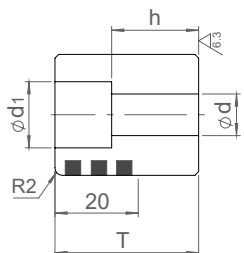
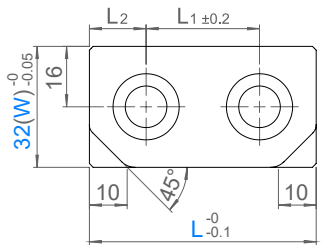
CAM Positive Return Follower - แคมโพสิทีฟรีเทิร์น

Oil Free™

Model: 25CPBW



Model: 25CPBWS



ORDER EXAMPLE Model W - L 25CPBW Copper Alloy + Oil Free™ Solid Lubricant
 25CPBWS Copper Alloy

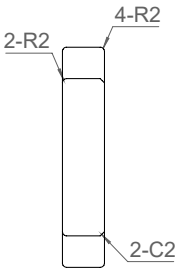
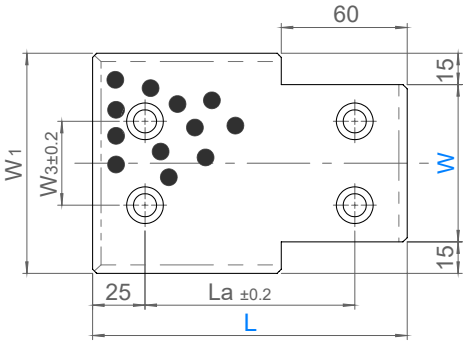
Model	W	L	T	L1	L2	d	d1	h
25CPBW 25CPBWS	25	60	30	30	15	11	17.5	18
	32	60	38	30	15	13	20	23
		80		40	20			

ชิ้นส่วนแคมสไลด์

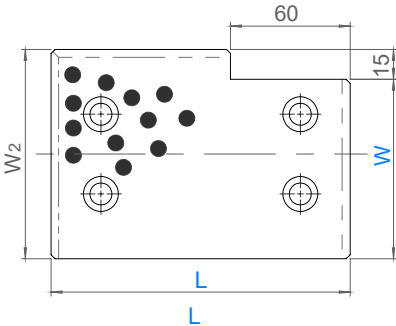
CAM Positive Return Plate - แคมโพสิทีฟรีเทอรันเพลท



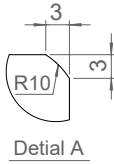
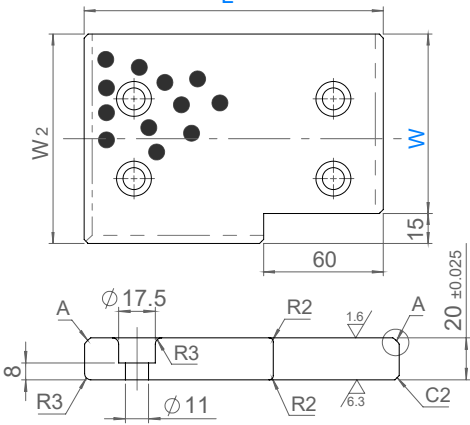
Model: 25CRPW



Model: 25CRPWL



Model: 25CRPWR



ORDER	Model	W - L
EXAMPLE	25CRPW75-100	

Copper Alloy + Oil Free™ Solid Lubricant

Model	W	L	W1	W2	W3	La
25CRPW 25CRPWR 25CRPWL	75	100	105	90	40	50
		125				75
		150				100
	100	125	130	115	50	75
		150				100
		150				100
	125	150	155	140	75	100
		200				150
		250				200
	150	200	180	165	100	150
		250				200

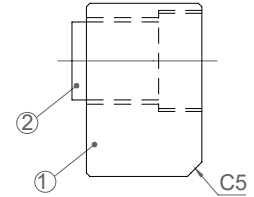
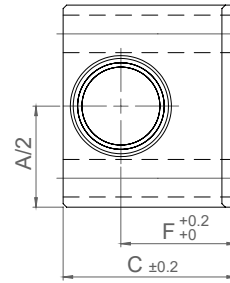
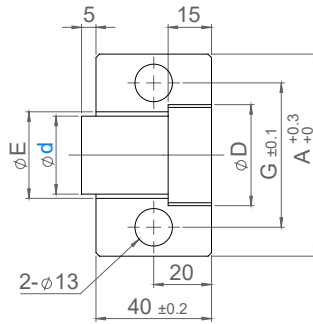
CAM Stopper - ชุดหยุดแคม

OF OIL FREE™



Model: 25CSTA

- ① **(M)** SS400
- ② Urethane
- Polyester Based
- Hardness : Shore A90



ORDER
EXAMPLE

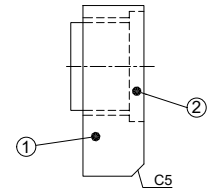
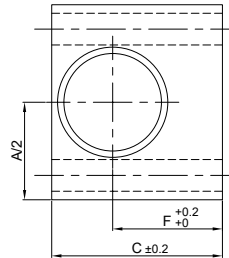
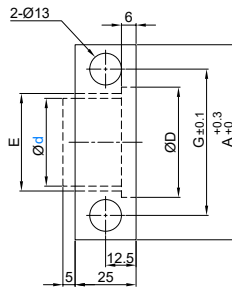
Model d
25CSTA27

Model	d	A	C	D	E	F	G	Load N
25CSTA	27	70	60	35	30	40	50	5200
	36	80	70	45	40	45	60	9800



Model: 25CSTU

- ① **(M)** SS400
- ② Urethane
- Polyester Based
- Hardness : Shore A90



ORDER
EXAMPLE

Model d
25CSTU27

Model	d	A	C	D	E	F	G	Load N
25CSTU	27	70	60	35.2	30	40	50	2100
	36	80	70	45.2	40	45	60	4200

Cam Slides

Shock Absorbing Stopper - ชุดรับแรงกระแทก

OF OIL FREE™

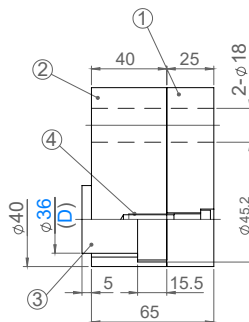
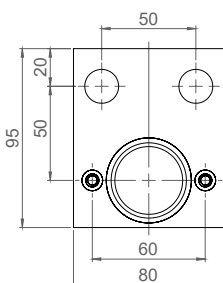


Model: 25UCST

ORDER
EXAMPLE

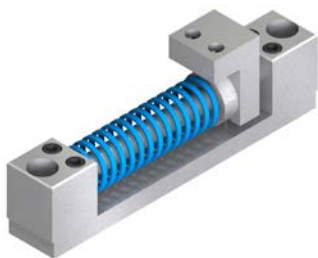
Model D
25UCST36

Model	D
25UCST	36

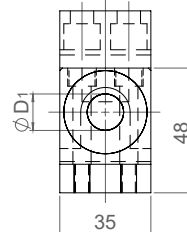


No.	Description	Qty	Material and Remark
①	Set Plate	1	SS400
②	Holder Plate	1	SS400
③	Urethane Support	1	Urethane Shore A90
④	Hexagon Socket Head Bolt	2	SCM435 M6 X 30

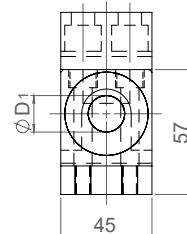
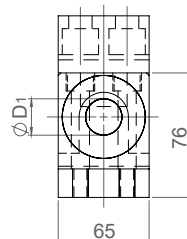
Spring Unit for Cam Return - ชุดสปริงรีเทิร์น



Technical drawing of a shaft-hub assembly. The drawing shows a shaft (1) with a central section of length $L+105$ and a total length of $L+85$. The shaft has a diameter of $\varnothing 30(D)$ in the central section and $\varnothing 32$ in the outer sections. The shaft is supported by two bearings (2, 7) and has a sliding surface (5) on the right side. The assembly is shown in a cross-sectional view with dimensions in millimeters. Key dimensions include: 35, 10, 10, 2- $\varnothing 18$, 35, 31, 6.3, 2- $\varnothing 11$, 10, 25, 15, 24, 11, 12, 2- $\varnothing 12$, and 10. Callouts 1 through 7 identify specific components: 1 (shaft), 2 (bearing), 3 (key), 4 (key), 5 (sliding surface), 6 (key), and 7 (bearing).



Technical drawing of a shaft assembly. The drawing shows a shaft with a central section of length $L+95$ and a total length of $L+75$. The shaft has a diameter of $\varnothing 40(D)$ in the central section and $\varnothing 42$ in the outer sections. The shaft is supported by bearings (1) and (2) and has a sliding surface (3) on the right side. The drawing includes various dimensions: 30, 10, 10, 10, 25, 20, 29, 11, 12, 45, 36, 6.3, 2- $\varnothing 18$, 2- $\varnothing 11$, 2- $\varnothing 12$, and 2- $\varnothing 18$. Callouts 1 through 7 identify specific components or features.

[illegible]

No.	Description	Qty	Material and Remark
①	Base Plate	1	SS400
②	Spring Block	2	SS400
③	Spring	1	19SL / 19SF
④	Spring Guide Pin	1	S45C

No.	Description	Qty	Material and Remark
⑤	Return Plate	1	SS400
⑥	Washer	1	FC250
⑦	Hexagon Socket Head Bolt	4	SCM435

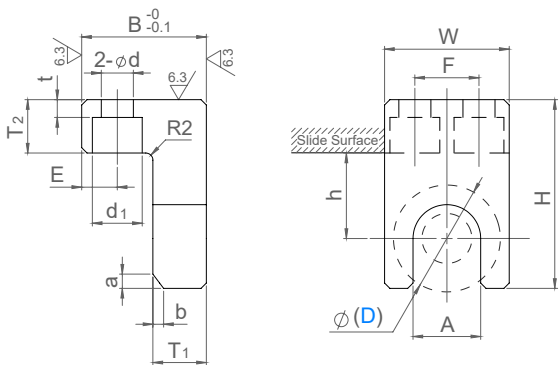
Spring Unit for Cam Return - ชุดสปริงรีเทิร์น

FOIL FREE™

ORDER Model D - L
EXAMPLE 25TOKSL40-90

Model	Spring DxL		Spring Color	Spring (1M Strokes)		Spring (300K Strokes)		Spring Constant (N/mm)	D1
	D	L		Stroke	Load N	Stroke	Load N		
25TOKSL	30	100	Blue	32	951	40	1187	29.69	14
		125		40		50		23.76	
		150		48		60		19.80	
		175		56		70		16.97	
25TOKSF	40	90	Yellow	36	1000	45	1255	27.85	20
		125		50		62.5		20.05	
		150		60		75		16.71	
25TOKSL	40	125	Blue	40	1697	50	2120	42.29	19
		150		48		60		35.24	
		175		56		70		30.21	
		200		64		80		26.43	
		250		80		100		21.14	
25TOKSF	60	125	Yellow	50	2260	62.5	2820	45.16	31.8
		150		60		75		37.63	
		175		70		87.5		32.25	
		200		80		100		28.22	
		250		100		125		22.58	
		300		120		150		18.81	
25TOKSL	60	125	Blue	40	3810	50	4770	95.33	28.6
		150		48		60		79.44	
		175		56		70		68.1	
		200		64		80		59.58	
		250		80		100		47.67	
		300		96		120		39.72	

Model: 25TRP



ORDER Model D
EXAMPLE 25TRP40

M SS400

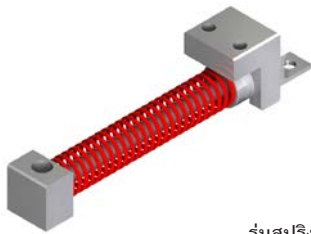
Model	D	W	B	H	A	h	T1	T2	F	E	d	d1	a	b	t
25TRP	30	35	35	53	21	24	15	15	18	10	9	14	4	3	5
	40	45	40	69	25	29	15	20	25	10	9	14	5	3	10
	60	65	50	94	37	39	20	25	4	15	13	20	10	5	10

ชิ้นส่วนแคมสไลด์

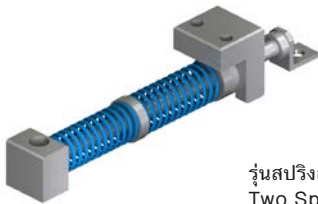
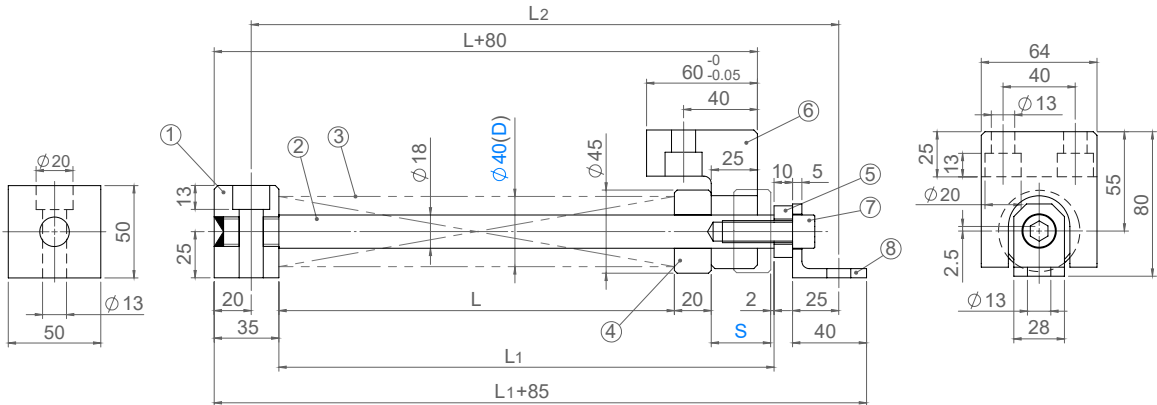
Spring Unit for Cam Return (Spring 40mm) - ชุดสปริงรีเทิร์น สปริงขนาด 40 มม

FOIL FREE™

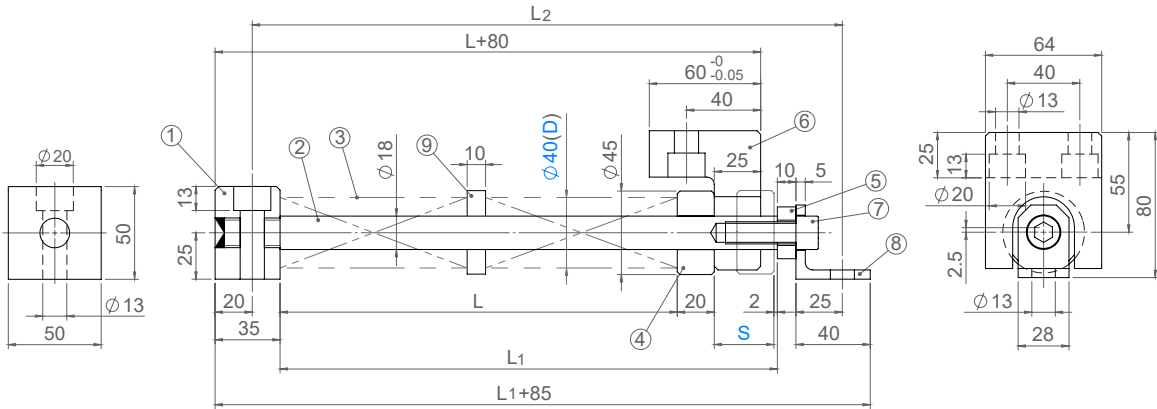
Model: 25SUL40
25SUM40



รุ่นสปริงขึ้นเดียว
One Spring Type



รุ่นสปริงสองขึ้น
Two Spring Type



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
①	Spring Block	1	SS400	⑥	Return Plate	1	SS400
②	Spring Guide Pin	1	S45C Hardness : HRC55 or more	⑦	Hexagon Socket Head Bolt	1	SCM435 M12 X 40
③	Spring	1(2)	Refer to the standard table	⑧	Angle	1	SS400
④	Spring Retainer	1	FC250	⑨	Collar	1	FC250
⑤	Washer	1	SS400				

Spring Unit for Cam Return (Spring 40mm) - ชุดสปริงรีเทิร์น สปริงขนาด 40 มม



ORDER EXAMPLE	Model	D - S
	25SUL40-50	

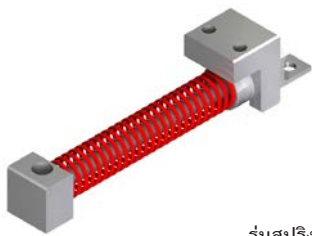
Model	D	Stroke S	Spring Size (DiaxLenght)	Spring No.	Spring Color	Load (N)		L	L1	L2
						min	max			
25SUL	40	20	40x100	1	Blue	635	1695	68	110	160
		25	40x125			632		85	132	182
		30	40x150			635		102	154	204
		35	40x150			459		102	159	209
		40	40x175			485		119	181	231
		45	40x200			503		136	203	253
		50	40x250			647		170	242	292
		55	40x250			539		170	247	297
		60	40x150	627		214		296	346	
		65	40x150	547		214		301	351	
		70	40x175	633		248		340	390	
		75	40x175	562		248		345	395	
		80	40x200	635		282		384	434	
		85	40x200	568		282		389	439	
		90	40x200	503		282		394	444	
		95	40x200	436		282		399	449	
		100	40x250	647		350		472	522	
		105	40x250	593		350		477	527	
		110	40x250	539		350		482	532	
25SUM	40	20	40x125	1	Red	940	2510	93	135	185
		25	40x150			914		111	158	208
		30	40x200			1027		149	201	251
		35	40x225			957		168	225	275
		40	40x250			938		186	248	298
		45	40x300			1012		224	291	341
		50	40x175	1119		270		342	392	
		55	40x175	979		270		347	397	
		60	40x200	1027		308		390	440	
		65	40x200	905		308		395	445	
		70	40x225	1001		344		436	486	
		75	40x250	1039		382		479	529	
		80	40x250	941		382		484	534	

ชิ้นส่วนแคมสไลด์

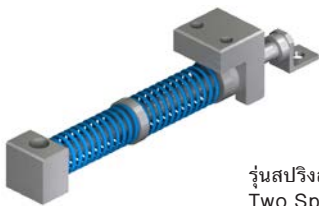
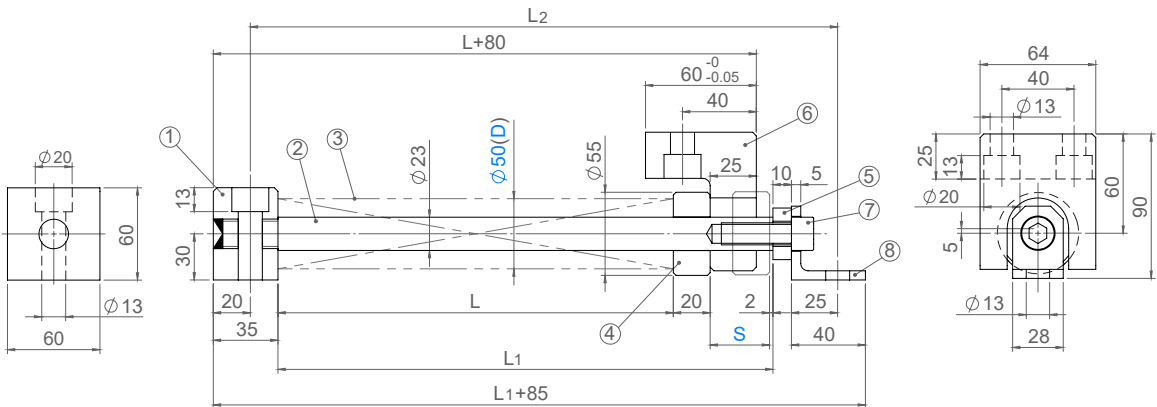
Spring Unit for Cam Return (Spring 50mm) - ชุดสปริงรีเทิร์น สปริงขนาด 50มม

FOIL FREE™

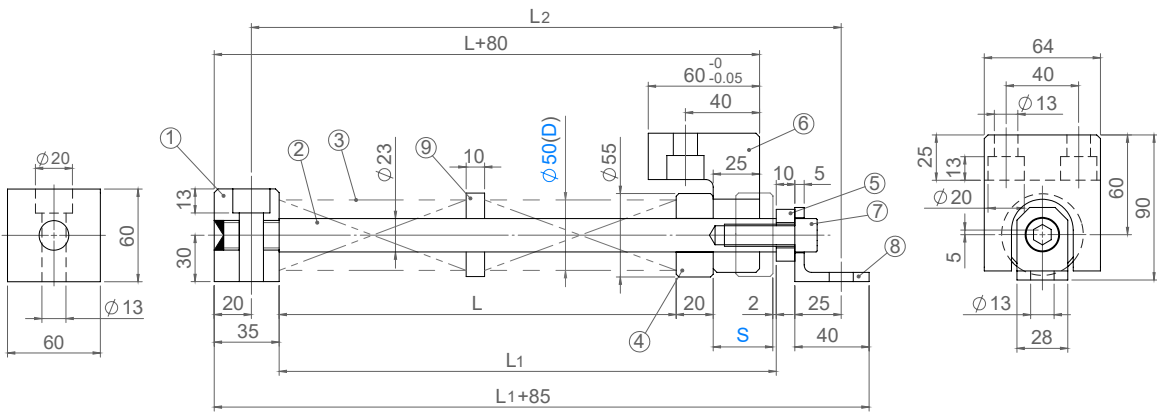
Model: 25SUL50
25SUM50



รุ่นสปริงขึ้นเดียว
One Spring Type



รุ่นสปริงสองขึ้น
Two Spring Type



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
①	Spring Block	1	SS400	⑥	Return Plate	1	SS400
②	Spring Guide Pin	1	S45C Hardness : HRC55 or more	⑦	Hexagon Socket Head Bolt	1	SCM435 M12 X 40
③	Spring	1(2)	Refer to the standard table	⑧	Angle	1	SS400
④	Spring Retainer	1	FC250	⑨	Collar	1	FC250
⑤	Washer	1	SS400				

Spring Unit for Cam Return (Spring 50mm) - ชุดสปริงรีเทิร์น สปริงขนาด 50 มม



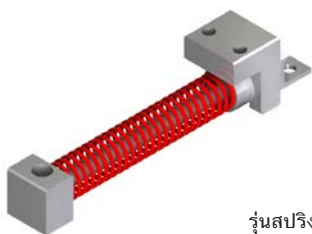
ORDER EXAMPLE	Model	D - S
	25SUL50-75	

Model	D	Stroke S	Spring Size (DiaxLenght)	Spring No.	Spring Color	Load (N)		L	L1	L2
						min	max			
25SUL	50	20	50x100	1	Blue	1020	2700	68	110	160
		25	50x125			1020		85	132	182
		30	50x150			1080		102	154	204
		35	50x150			728		102	159	209
		40	50x175			768		119	181	231
		45	50x200			798		136	203	253
		50	50x250			1020		170	242	292
		55	50x250			850		170	247	297
		60	50x300			1010		214	296	346
		65	50x300			868		214	301	351
		70	50x300			728		248	340	390
		75	50x175	888		248		345	395	
		80	50x200	1010		282		384	434	
		85	50x200	903		282		389	439	
		90	50x200	798		282		394	444	
		95	50x200	693		282		399	449	
		100	50x250	1020		350		472	522	
		105	50x250	935		350		477	527	
		110	50x250	850		350		482	532	
		115	50x250	765		350		487	537	
		120	50x300	1010		418		560	610	
		125	50x300	938		418		565	615	
		130	50x300	868		418		570	620	
		135	50x300	798		418		575	625	
		140	50x300	728		418		580	630	
		145	50x300	658		418		585	635	
		150	50x300	588		418		590	640	
25SUM	50	20	50x125	1	Red	1470	3920	93	135	185
		25	50x150			1428		111	158	208
		30	50x200			1607		149	201	251
		35	50x225			1496		168	225	275
		40	50x250			1470		186	248	298
		45	50x300			1580		224	291	341
		50	50x350			1705		270	342	392
		55	50x350			1486		270	347	397
		60	50x200	1990		308		390	440	
		65	50x200	1799		308		395	445	
		70	50x225	1904		344		436	486	
		75	50x250	1929		382		479	529	
		80	50x250	1776		382		484	534	

Cam Slides

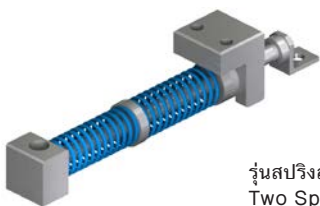
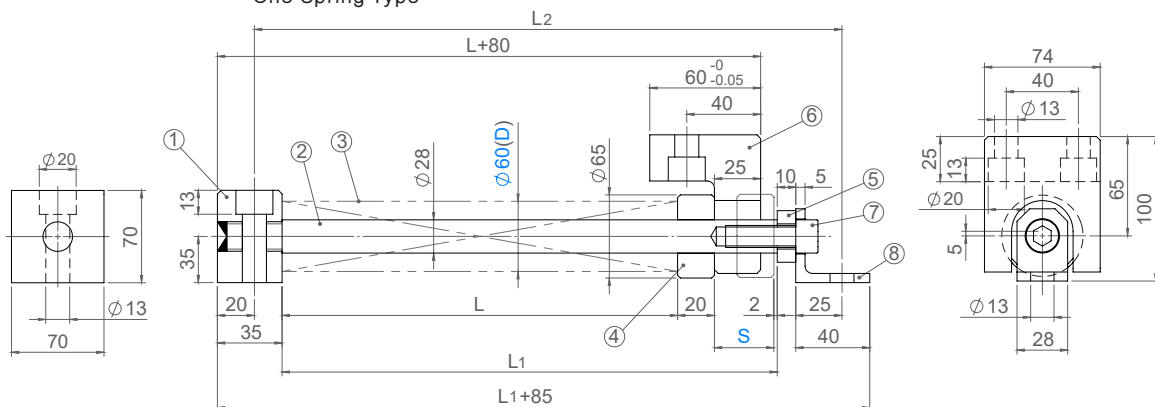
ชั้นส่วนแคมสไลด์

Spring Unit for Cam Return (Spring 60mm) - ชุดสปริงรีเทิร์น สปริงขนาด 60 มม

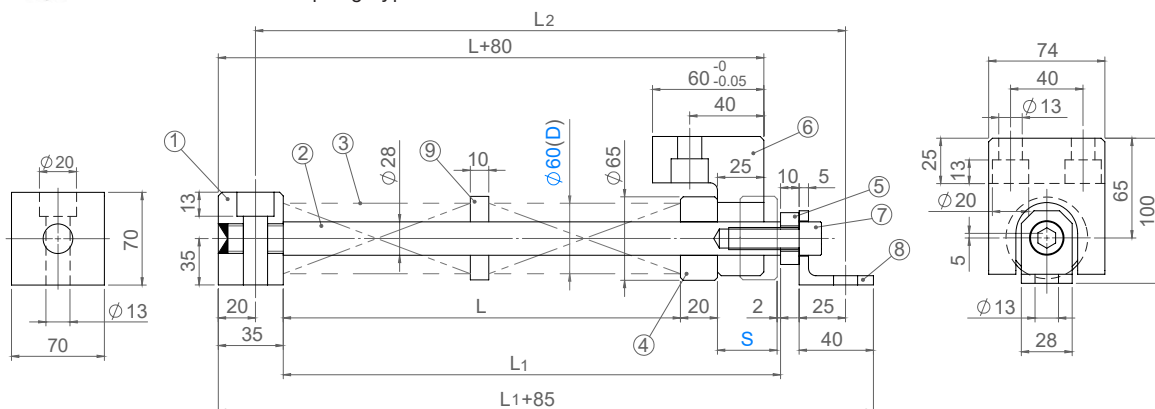


Model: 25SUL60
25SUM60

รุ่นสปริงขึ้นเดียว
One Spring Type



รุ่นสปริงสองชั้น
Two Spring Type



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
①	Spring Block	1	SS400	⑥	Return Plate	1	SS400
②	Spring Guide Pin	1	S45C Hardness : HRC55 or more	⑦	Hexagon Socket Head Bolt	1	SCM435 M12 X 40
③	Spring	1(2)	Refer to the standard table	⑧	Angle	1	SS400
④	Spring Retainer	1	FC250	⑨	Collar	1	FC250
⑤	Washer	1	SS400				

Spring Unit for Cam Return (Spring 60mm) - ชุดสปริงรีเทิร์น สปริงขนาด 60 มม



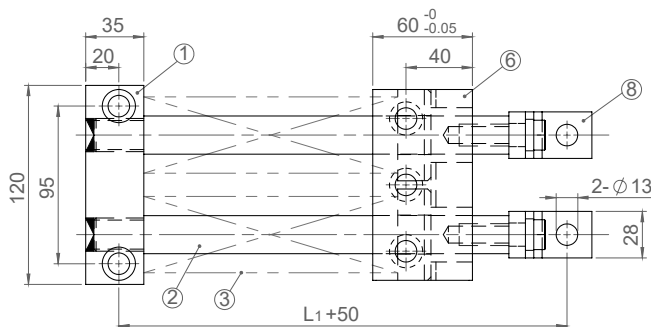
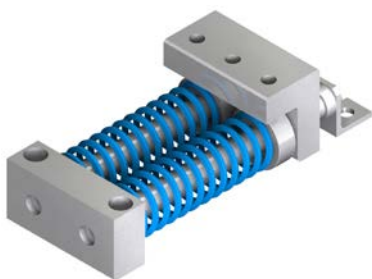
ORDER EXAMPLE	Model	D - S
	25SUL60-75	

Model	D	Stroke S	Spring Size (DiaxLenght)	Spring No.	Spring Color	Load (N)		L	L1	L2
						min	max			
25SUL	60	20	60x100	1	Blue	1464	3890	68	110	160
		25	60x125			1455		85	132	182
		30	60x150			1458		102	154	204
		35	60x150			1053		102	159	209
		40	60x175			1104		119	181	231
		45	60x200			1159		136	203	253
		50	60x250			1470		170	242	292
		55	60x250			1225		170	247	297
		60	60x300			1476		214	296	346
		65	60x300			1271		214	301	351
		70	60x300			1066		248	340	390
		75	60x175			1276		248	345	395
		80	60x200	1464		282		384	434	
		85	60x200	1331		282		389	439	
		90	60x200	1159		282		394	444	
		95	60x200	1006		282		399	449	
		100	60x250	1470		350		472	522	
		105	60x250	1347		350		477	527	
		110	60x250	1225		350		482	532	
		115	60x250	1103		350		487	537	
		120	60x300	1476		418		560	610	
		125	60x300	1373		418		565	615	
		130	60x300	1271		418		570	620	
		135	60x300	1168		418		575	625	
		140	60x300	1066		418		580	630	
		145	60x300	963		418		585	635	
		150	60x300	861		418		590	640	
25SUM	60	20	60x125	1	Red	2116	5640	93	135	185
		25	60x150			2057		111	158	208
		30	60x200			2313		149	201	251
		35	60x225			2154		168	225	275
		40	60x250			2116		186	248	298
		45	60x300			2275		224	291	341
		50	60x350			2454		261	333	383
		55	60x350			2139		261	338	388
		60	60x200	2864		298		380	430	
		65	60x200	2589		298		385	435	
		70	60x225	2741		334		426	476	
		75	60x250	2775		372		469	519	
		80	60x250	2555		372		474	524	

ขั้นตอนแคมสไลด์

Double Spring Unit for Cam Return (Spring 50mm) - ชุดสปริงรีเทิร์นคู่ สปริงขนาด 50 มม

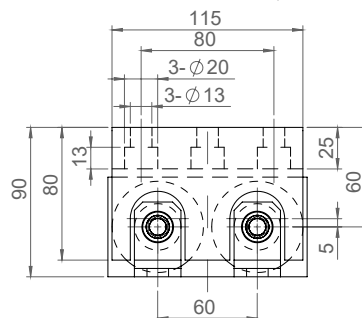
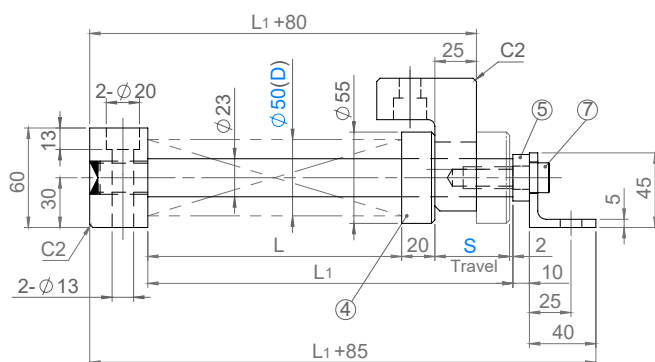
FOIL FREE™



Model:

25SWUL50 (สีฟ้า Light Load)

25SWUM50 (สีแดง Medium Load)



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
①	Spring Block	1	SS400	⑤	Washer	2	SS400
②	Spring Guide Pin	2	S45C HRC55 -	⑥	Return Plate	1	SS400
③	Spring	2(4)	standard table	⑦	Hexagon Socket Bolt	2	SCM435 M12 X 40
④	Spring Retainer	2	FC250	⑧	Angle	2	SS400

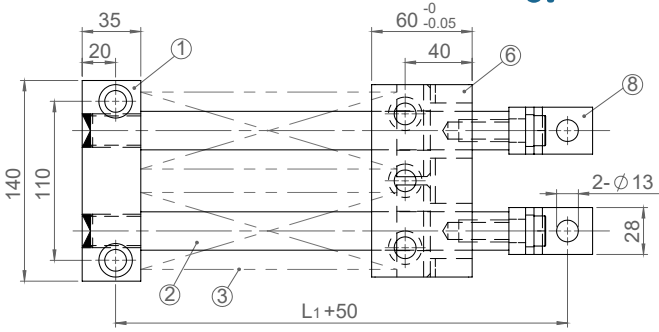
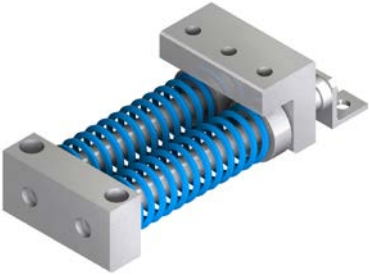
ORDER
EXAMPLE

Model	D	Stroke S	Spring Color	L	L1	Spring Size (DiaxLength)	Spring No.	Spring Load (N)	
								initial	end
25SWUL	50	20	Blue	68	110	50x100	2	2040	5400
		25		85	132	50x125		2040	
		30		102	154	50x150		2160	
		35			159	50x150		1456	
		40		119	181	50x175		1536	
		45		136	203	50x200		1596	
		50		170	242	50x250		2040	
		55			247	50x250		1700	
		60		204	286	50x300		2020	
		65			291	50x300		1736	
		70			296	50x300		1456	
25SWUM	50	20	Red	93	135	50x125	2	2940	7840
		25		111	158	50x150		2857	
		30		149	201	50x200		3215	
		35		168	225	50x225		2993	
		40		186	248	50x250		2940	
		45		224	291	50x300		3160	
		50		261	333	50x350		3409	
		55			338	50x350	2972		
		60		298	380	50x200	4	3980	
		65			385	50x200		3597	
		70		334	426	50x225	3809		

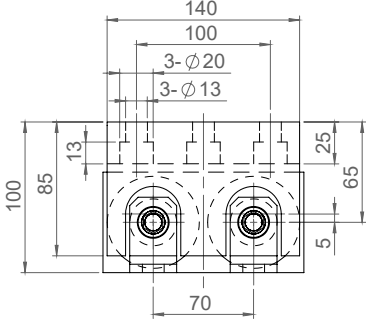
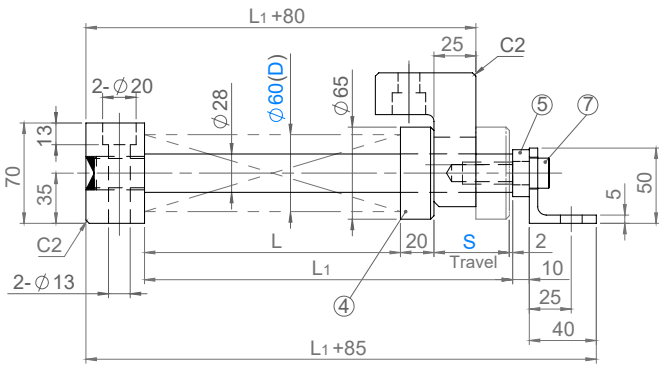
CAM SLIDES COMPONENTS

Double Spring Unit for Cam Return (Spring 60mm) - ชุดสปริงรีเทิร์นคู่ สปริงขนาด 60 มม

Oil Free™



Model:
25SWUL60 (สีฟ้า Light Load)
25SWUM60 (สีแดง Medium Load)



No.	Description	Qty	Material and Remark	No.	Description	Qty	Material and Remark
①	Spring Block	1	SS400	⑤	Washer	2	SS400
②	Spring Guide Pin	2	S45C HRC55 -	⑥	Return Plate	1	SS400
③	Spring	2(4)	standard table	⑦	Hexagon Socket Bolt	2	SCM435 M12 X 40
④	Spring Retainer	2	FC250	⑧	Angle	2	SS400

ORDER
EXAMPLE Model D - S
25SWUL60-50

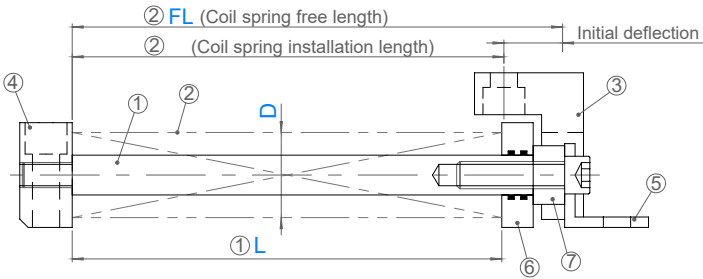
Model	D	Stroke S	Spring Color	L	L1	Spring Size (DiaxLenght)	Spring No.	Spring Load (N)				
								initial	end			
25SWUL	60	20	Blue	68	110	60x100	2	2928	7780			
		25		85	132	60x125		2910				
		30		102	154	60x150		2916				
		35			159	60x150		2106				
		40		119	181	60x175		2208				
		45		136	203	60x200		2318				
		50		170	242	60x250		2940				
		55			247	60x250		2450				
		60		204	286	60x300		2952				
		65			291	60x300		2542				
		70			296	60x300		2132				
25SWUM	60	20	Red	93	135	60x125	2	4231	11280			
		25		111	158	60x150		4113				
		30		149	201	60x200		4626				
		35		168	225	60x225		4308				
		40		186	248	60x250		4229				
		45		224	291	60x300		4551				
		50		261	333	60x350		4907				
		55			338	60x350		4278				
		60		298	380	60x200	4	5728				
		65			385	60x200		5177				
		70			334	426		60x225		5483		

ชิ้นส่วนแคมสไลด์

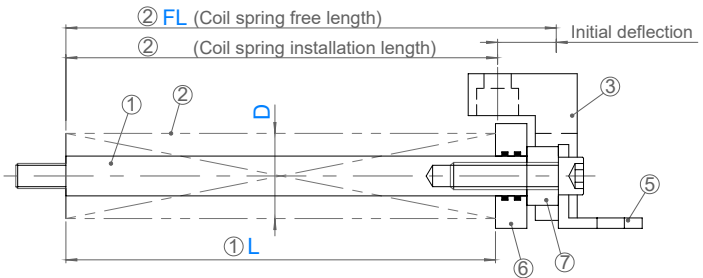
CAM Return Units - ชุดรีเทิร์นของแคม



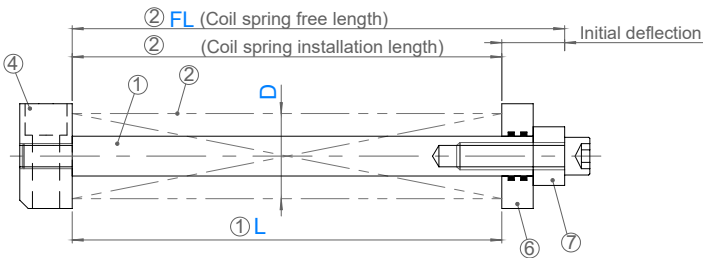
Model: 25SUKI (ชุดเต็ม Complete Set)



Model: 25SUKS (with Slide Angle)



Model: 25SUKA (with Fixed Plate)



- ① **M** Guide Pin
S45C
50HRC-
(Induction Harden)
- ② Coil Spring
- ③ **M** Slide Angle
SS400
- ④ **M** Fixed Plate
SS400
Hex Socket Head Bolt
- ⑤ **M** Support Angle
SS400
- ⑥ **M** Separate Disk
FC250
Oil Free™ Solid Lubricant
- ⑦ **M** Pressure Disk
SS400

i ข้อมูลขนาดอื่นๆในหน้าถัดไป
Other dimensions in next page

Cam Slides

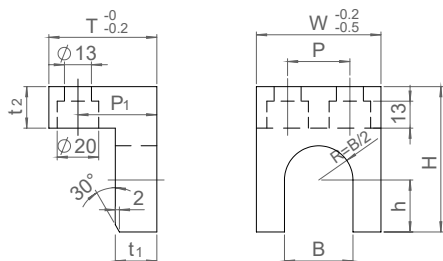
ORDER	Model	D - Spring Type - FL - L
EXAMPLE	25SUKI60-F-150-L140	

! ความยาว FL 400 ขึ้นไปมีเฉพาะสปริงแบบ F เท่านั้น
FL 400 and over only available for Spring Type F

D	Spring Type	FL	L (1mm increments)											
			FL 90	FL 100	FL 125	FL 150	FL 175	FL 200	FL 250	FL 300	FL 350	FL *400	FL *450	FL *500
40	F (Yellow) L (Blue)	90	68 - 90	80 - 100	90 - 125	105 - 150	130 - 175	145 - 200	195 - 250	-	-	-	-	-
50		100			95 - 125	110 - 150	120 - 175	135 - 200	185 - 250	225 - 300	275 - 350	325 - 400	375 - 450	425 - 500
60		125												
70		150												
		175												
40	M (Red) H (Green)	200	68 - 90	80 - 100	90 - 125	105 - 150	130 - 175	145 - 200	195 - 250	-	-	-	-	-
50		250												
60		300												
		350												

D	① Guide Pin						③ Slide Angle										④ Fixed Plate					⑤ Support Angle			
	D1	D2	D3	MxP	ℓ	H	h	W	B	P	T	t1	t2	P1	T1	A	P2	H1	t3	a	H2	h1	d		
40	19	50	28	12x1.75	24	70	25	60	33	30	50	20	20	35	25	55	30	50	15	27	40	25	19		
50	24	60	36	16x2.0	28	85	30	70	41	40	60	25	25	40	32	60	35	60	20	35	48	30	25		
60	29	70	43			95	35	80	48	50						70	40	70	30	42	56	35			
70	35	80	48	20x2.5	33	97	27	90	54	50	63	28	28	43	35	80	45	80	30	43	65	40	31		

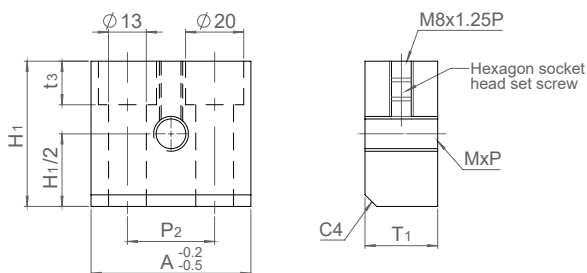
③ Model: 25SUKSA (Slide Angle)



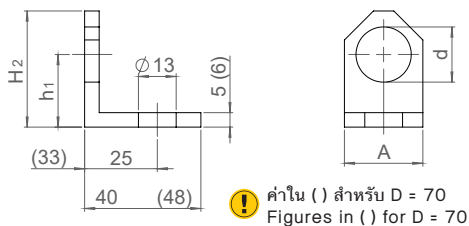
ORDER Model D
EXAMPLE 25SUKSA50

Model	D	Spring OD
25SUKSA 25SUKFP 25SUKFA	40	40
	50	50
	60	60
	70	70

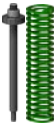
④ Model: 25SUKFP (Fixed Plate)



⑤ Model: 25SUKFA (Support Angle)



							
Name	Ultra High Deflection	Super High Deflection	High Deflection	Medium Deflection	Lightest Load	Light Load	Medium Load
Model	19SSY	19SSU	19SSR	19SSS	19SF	19SL	19SM
Page	273-274	275-276	277-278	279	280-284	285-290	291-296

							
Name	Heavy Load	Extra Heavy Load	Super Heavy Load	Spring Guide Unit	Spring Guide Flange	Spring Guide Pins	Spring Guide Retainers
Model	19SH	19SB	19SG	25SUK	25WUNT	25SGA	25SGR
Page	297-302	303-307	308-311	312-313	314	314	315-316

! ข้อควรระวังในการใช้สปริง | Spring Usage Precautions



- ควรใช้ร่วมกับสปริงไกด์ เพื่อยืดอายุการใช้งานสปริง และลดอุบัติเหตุจากการทำงาน
Use with Spring Guide to increase spring life time and reduce accident
- ขนาดของแกนไกด์ควรเล็กกว่าค่ารูในของสปริง 1 มม ($d - 1$)
Guide diameter should be 1mm smaller than spring inside diameter ($d - 1$)
- ขนาดของช่องสวมสปริงควรโตกว่าค่าไดนอกของสปริง 1.5 มม ($D + 1$)
Spring housing should be 1.5mm larger than the spring outer diameter ($D + 1$)
- ความยาวไกด์ขั้นต่ำอยู่ที่ 150% ของความสูงเริ่มต้น และแกนไกด์ควรทำแชมเฟอร์ที่ระดับ C3
Guide length minimum at 150% of initial set height, and should be C3 chamfer
- กำหนดค่ายุบตัวเริ่มต้น เพื่อรักษาสภาพส่วนหัวและท้ายของสปริง
Setting an initial deflection to stabilize the top and bottom ends of the spring
- สปริงแต่ละตัวควรวางในตำแหน่งของด้ายที่ขนาดกัน
The mounting surface of springs should be sufficient parallel
- ไม่ควรใช้สปริงเกินค่าขีดจำกัด
Do not use spring over their allow limits
- ไม่ควรใช้งานเมื่อมีสิ่งแปลกปลอมเข้าไปติดค้างในสปริง
Do not use when foreign objects are caught in the spring
- ไม่ควรรนำสปริงมาต่อกันด้านหัวท้าย ควรเลือกความยาวที่ถูกต้องหรือสอบถามเพื่อสั่งทำขนาดพิเศษ
Do not stack springs to increase length, choose the right length or ask for customize length
- ไม่ควรรนำสปริงมาซ้อนกันสองชั้น (ตัวเล็กในตัวใหญ่)
Do not use spring inside another spring
- ไม่ควรรนำสปริงในแนวนอน
Do not use spring horizontally

ตารางการเลือกสปริง
Spring Selection Chart



Type		Model	Color	Outer Diameter		Free Length		1,000,000 Free Length %	Load N (kgf)	
				Min	Max	Min	Max		Min	Max
Ultra High Deflection		19SSY	Light Green	ø11	ø42	20	300	65.0%	29.4 (3.0)	392.3 (40.0)
Super High Deflection		19SSU	Light Blue	ø10.5	ø43	15	300	60.0%	68.6 (7.0)	588.4 (60.0)
High Deflection		19SSR	Ivory White	ø10.5	ø46	15	300	50.0%	127.5 (13)	3579.4 (110)
Medium Deflection		19SSS	Orange	ø10.5	ø46	30	300	40.0%	976.15 (30)	4230.2 (130)
Lightest Load		19SF	Yellow	ø6	ø70	10	500	40.0%	58.8 (6)	2255.5 (230)
Light Load		19SL	Dark Blue	ø6	ø70	10	500	32.0%	78.5 (8)	3814.4 (389)
Medium Load		19SM	Red	ø6	ø70	10	350	25.6%	107.9 (11)	5638.8 (525)
Heavy Load		19SH	Dark Green	ø6	ø70	10	350	19.2%	166.7 (17)	8472.9 (864)
Extra Heavy Load		19SB	Brown	ø6	ø70	10	350	16.0%	255.0 (26)	11297.3 (152)
Super Heavy Load		19SG	Grey	ø10	ø50	15	300	16.0%	392.3 (40)	10101.2 (1040)

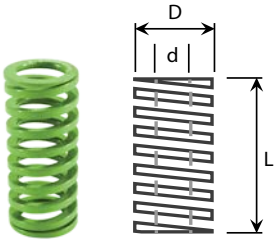
Spring Tolerance

Outer Dia	Inner Dia	Free Length		Load (kgf)	Coil Direction
		< 50mm	> 55mm		
+ 0mm - 0mm	+ 0.7mm - 0.1mm	±0.5mm	±1%	±10%	Right



วิธีคำนวณค่ารับแรงกดของสปริง
Spring force calculation

$Force = Spring\ Constant \times Deflection$
 $N = N/mm \times Deflection$
 $kgf = kgf/mm \times Deflection$



สปริงสีเขียวอ่อน
Light Green Spring
Model: 19SSY



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 3° or less

ระยะเพื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1.5%

ORDER
EXAMPLE Model D - L
19SSY12.5-050

SAE9245
JIS Standard

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					65% Deflection	Load N (kgf)
11	20	7	5.0	2.26 (0.23)	13.0	29.4 (3.0)
	25		6.3	1.81 (0.18)	16.3	
	30		7.5	1.51 (0.15)	19.5	
	35		8.8	1.29 (0.13)	22.8	
	40		10.0	1.13 (0.12)	26.0	
	45		11.3	1.01 (0.10)	29.3	
	50		12.5	0.91 (0.092)	32.5	
	55		13.8	0.82 (0.084)	35.8	
	60		15.0	0.75 (0.077)	39.0	
	65		16.3	0.70 (0.071)	42.3	
	70		17.5	0.65 (0.066)	45.5	
	75		18.8	0.60 (0.061)	48.8	
12.5	80	6.5	20.0	0.57 (0.058)	52.0	40.2 (4.1)
	85		21.3	0.52 (0.052)	55.3	
	90		22.5	0.50 (0.051)	58.8	
	95		23.8	0.46 (0.046)	62.2	
	100		25.0	0.45 (0.046)	65.0	
	105		26.3	0.41 (0.041)	68.3	
	110		27.5	0.39 (0.039)	71.5	
	115		28.8	0.36 (0.036)	74.8	
	120		30.0	0.34 (0.034)	78.0	
	125		31.3	0.32 (0.032)	81.3	
	130		32.5	0.30 (0.030)	84.5	
	135		33.8	0.28 (0.028)	87.8	
	140		35.0	0.26 (0.026)	91.0	
	145		36.3	0.24 (0.024)	94.3	
	150		37.5	0.23 (0.023)	97.5	
	155		38.8	0.21 (0.021)	100.8	
	160		40.0	0.20 (0.020)	104.0	
	165		41.3	0.19 (0.019)	107.3	
	170		42.5	0.18 (0.018)	110.5	
	175		43.8	0.17 (0.017)	113.8	
	180		45.0	0.16 (0.016)	117.0	
	185		46.3	0.15 (0.015)	120.3	
	190		47.5	0.14 (0.014)	123.5	
	195		48.8	0.13 (0.013)	126.8	
	200		50.0	0.12 (0.012)	130.0	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					65% Deflection	Load N (kgf)
16.5	20	10.5	5.0	7.02 (0.72)	13.0	91.2 (9.3)
	25		6.3	5.61 (0.57)	16.3	
	30		7.5	4.68 (0.48)	19.5	
	35		8.8	4.01 (0.41)	22.8	
	40		10.0	3.51 (0.36)	26.0	
	45		11.3	3.12 (0.32)	29.3	
	50		12.5	2.81 (0.29)	32.5	
	55		13.8	2.55 (0.26)	35.8	
	60		15.0	2.34 (0.24)	39.0	
	65		16.3	2.16 (0.22)	42.3	
	70		17.5	2.00 (0.20)	45.5	
	75		18.8	1.87 (0.19)	48.8	
20.5	80	13.5	20.0	1.75 (0.18)	52.0	108.9 (11.1)
	85		21.3	1.61 (0.16)	55.3	
	90		22.5	1.56 (0.16)	58.5	
	95		23.8	1.44 (0.14)	61.8	
	100		25.0	1.40 (0.14)	65.0	
	105		26.3	1.28 (0.13)	68.3	
	110		27.5	1.28 (0.13)	71.5	
	115		28.8	1.17 (0.12)	74.8	
	120		30.0	1.17 (0.12)	78.0	
	125		31.3	1.12 (0.11)	81.3	
	130		32.5	1.09 (0.11)	84.5	
	135		33.8	0.94 (0.10)	87.8	
	140		35.0	0.94 (0.10)	91.0	
	145		36.3	0.87 (0.087)	94.3	
	150		37.5	0.87 (0.087)	97.5	
	155		38.8	0.80 (0.080)	100.8	
	160		40.0	0.78 (0.078)	104.0	
	165		41.3	0.75 (0.075)	107.3	
	170		42.5	0.72 (0.072)	110.5	
	175		43.8	0.70 (0.070)	113.8	
	180		45.0	0.68 (0.068)	117.0	
	185		46.3	0.66 (0.066)	120.3	
	190		47.5	0.64 (0.064)	123.5	
	195		48.8	0.62 (0.062)	126.8	
	200		50.0	0.60 (0.060)	130.0	

Ultra-High Deflection Spring - สปริงยวบตัวได้สูงมากพิเศษ

ORDER
EXAMPLE

Model D - L
19SSY12.5-050

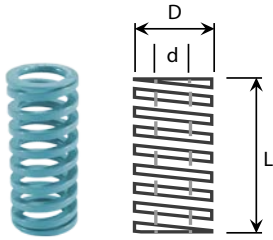
สปริงสีเขียวอ่อน
Light Green Spring
Model: 19SSY



D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					65% Deflection	Load N (kgf)
24.5	30	16.5	7.5	6.99 (0.71)	19.5	136.3 (13.9)
	35		8.8	5.99 (0.61)	22.8	
	40		10.0	5.24 (0.53)	26.0	
	45		11.3	4.66 (0.48)	29.3	
	50		12.5	4.19 (0.43)	32.5	
	55		13.8	3.81 (0.39)	35.8	
	60		15.0	3.50 (0.36)	39.0	
	65		16.3	3.23 (0.33)	42.3	
	70		17.5	3.00 (0.31)	45.5	
	75		18.8	2.80 (0.29)	48.8	
	80		20.0	2.62 (0.27)	52.0	
	90		22.5	2.33 (0.24)	58.5	
	100		25.0	2.10 (0.21)	65.0	
	110		27.5	1.91 (0.19)	71.5	
	120		30.0	1.75 (0.18)	78.0	
	125		31.3	1.68 (0.17)	81.3	
	130		32.5	1.61 (0.16)	84.5	
	140		35.0	1.50 (0.15)	91.0	
30	150		37.5	1.40 (0.14)	97.5	200.1 (20.4)
	175		43.8	1.20 (0.12)	113.8	
	200		50.0	1.05 (0.11)	130.0	
	35	21	8.8	8.79 (0.90)	22.8	
	40		10.0	7.69 (0.78)	26.0	
	45		11.3	6.84 (0.70)	29.3	
	50		12.5	6.16 (0.63)	32.5	
	55		13.8	5.60 (0.57)	35.8	
	60		15.0	5.13 (0.52)	39.0	
	65		16.3	4.74 (0.48)	42.3	
	70		17.5	4.40 (0.45)	45.5	
	75		18.8	4.10 (0.42)	48.8	
	80		20.0	3.85 (0.39)	52.0	
	90		22.5	3.42 (0.35)	58.5	
	100		25.0	3.08 (0.31)	65.0	
	110		27.5	2.80 (0.29)	71.5	
	120		30.0	2.56 (0.26)	78.0	
	125		31.3	2.46 (0.25)	81.3	
	130		32.5	2.37 (0.24)	84.5	
	140		35.0	2.20 (0.22)	91.0	
	150		37.5	2.05 (0.21)	97.5	
	160		40.0	1.92 (0.20)	104.0	
	170		42.5	1.81 (0.18)	110.5	
	175		43.8	1.76 (0.18)	113.8	
	180		45.0	1.71 (0.17)	117.0	
	190		47.5	1.62 (0.17)	123.5	
	200		50.0	1.54 (0.16)	130.0	
	250		62.5	1.23 (0.13)	162.5	
	300		75.0	1.03 (0.10)	195.0	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					65% Deflection	Load N (kgf)
37	40	26	10.0	11.32 (1.15)	26.0	294.2 (30.0)
	45		11.3	10.06 (1.03)	29.3	
	50		12.5	9.05 (0.92)	32.5	
	55		13.8	8.23 (0.84)	35.8	
	60		15.0	7.54 (0.77)	39.0	
	65		16.3	6.96 (0.71)	42.3	
	70		17.5	6.47 (0.66)	45.5	
	75		18.8	6.03 (0.62)	48.8	
	80		20.0	5.66 (0.58)	52.0	
	90		22.5	5.03 (0.51)	58.5	
	100		25.0	4.53 (0.46)	65.0	
	110		27.5	4.11 (0.42)	71.5	
	120		30.0	3.77 (0.38)	78.0	
	130		32.5	3.48 (0.36)	84.5	
	140		35.0	3.23 (0.33)	91.0	
	150		37.5	3.02 (0.31)	97.5	
	160		40.0	2.83 (0.29)	104.0	
	170		42.5	2.66 (0.27)	110.5	
42	180		45.0	2.51 (0.26)	117.0	392.3 (40.0)
	190		47.5	2.38 (0.24)	123.5	
	200		50.0	2.26 (0.23)	130.0	
	225		56.3	2.01 (0.21)	146.3	
	250		62.5	1.81 (0.18)	162.5	
	275		68.8	1.65 (0.17)	178.8	
	300		75.0	1.51 (0.15)	195.0	
	50	31	12.5	12.07 (1.23)	32.5	
	60		15.0	10.06 (1.03)	39.0	
	70		17.5	8.62 (0.88)	45.5	
	80		20.0	7.54 (0.77)	52.0	
	90		22.5	6.71 (0.68)	58.5	
	100		25.0	6.03 (0.62)	65.0	
	110		27.5	5.49 (0.56)	71.5	
	120		30.0	5.03 (0.51)	78.0	
	130		32.5	4.64 (0.47)	84.5	
	140		35.0	4.31 (0.44)	91.0	
	150		37.5	4.02 (0.41)	97.5	
	160		40.0	3.77 (0.38)	104.0	
	170		42.5	3.55 (0.36)	110.5	
	180		45.0	3.35 (0.34)	117.0	
	190		47.5	3.18 (0.32)	123.5	
	200		50.0	3.02 (0.31)	130.0	
	225		56.3	2.68 (0.27)	146.3	
	250		62.5	2.41 (0.25)	162.5	
	275		68.8	2.19 (0.22)	178.8	
	300		75.0	2.01 (0.21)	195.0	

Die Springs



สปริงสีฟ้าอ่อน
Light Blue Spring
Model: 19SSU

Spring Load Chart



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 3° or less

ระยะเพื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1.5%

ORDER
EXAMPLE

Model D - L
19SSU12.5-050



SAE9245



JIS Standard

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					60% Deflection	Load N (kgf)
10.5	6	6	4.5	7.63 (0.78)	9	68.6 (7.0)
			6.0	5.72 (0.58)	12	
			7.5	4.58 (0.47)	15	
			9.0	3.81 (0.39)	18	
			10.5	3.27 (0.33)	21	
			12.0	2.86 (0.29)	24	
			13.5	2.54 (0.26)	27	
			15.0	2.29 (0.23)	30	
			16.5	2.08 (0.21)	33	
			18.0	1.91 (0.19)	36	
			19.5	1.76 (0.18)	39	
			21.0	1.63 (0.17)	42	
12.5	7	7	4.5	8.72 (0.89)	9	78.5 (8.0)
			6.0	6.54 (0.67)	12	
			7.5	5.23 (0.53)	15	
			9.0	4.36 (0.44)	18	
			10.5	3.74 (0.38)	21	
			12.0	3.27 (0.33)	24	
			13.5	2.91 (0.30)	27	
			15.0	2.62 (0.27)	30	
			16.5	2.38 (0.24)	33	
			18.0	2.18 (0.22)	36	
			19.5	2.01 (0.21)	39	
			21.0	1.87 (0.19)	42	
14.5	8.5	8.5	4.5	10.90 (1.11)	9	98.1 (10.0)
			6.0	8.17 (0.83)	12	
			7.5	6.54 (0.67)	15	
			9.0	5.45 (0.56)	18	
			10.5	4.67 (0.48)	21	
			12.0	4.09 (0.42)	24	
			13.5	3.63 (0.37)	27	
			15.0	3.27 (0.33)	30	
			16.5	2.97 (0.30)	33	
			18.0	2.72 (0.28)	36	
			19.5	2.51 (0.26)	39	
			21.0	2.33 (0.24)	42	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					60% Deflection	Load N (kgf)
17	10.5	10.5	6.0	12.26 (1.25)	12	147.1 (15.0)
			7.5	9.81 (1.00)	15	
			9.0	8.17 (0.83)	18	
			10.5	7.00 (0.71)	21	
			12.0	6.13 (0.63)	24	
			13.5	5.45 (0.56)	27	
			15.0	4.90 (0.50)	30	
			16.5	4.46 (0.45)	33	
			18.0	4.09 (0.42)	36	
			19.5	3.77 (0.38)	39	
			21.0	3.50 (0.36)	42	
			22.5	3.27 (0.33)	45	
21	13.5	13.5	24.0	3.06 (0.31)	48	225.6 (23.0)
			27.0	2.72 (0.28)	54	
			30.0	2.45 (0.25)	60	
			33.0	2.23 (0.23)	66	
			36.0	2.04 (0.21)	72	
			37.5	1.96 (0.20)	75	
			45.0	1.63 (0.17)	90	
			52.5	1.40 (0.14)	105	
			7.5	15.04 (1.53)	15	
			9.0	12.53 (1.28)	18	
			10.5	10.74 (1.10)	21	
			12.0	9.40 (0.96)	24	

Super-High Deflection Spring - สปริงยวบตัวได้สูงมาก

ORDER
EXAMPLE

Model D - L
19SSU12.5-050

สปริงสีฟ้าอ่อน
Light Blue Spring
Model: 19SSU



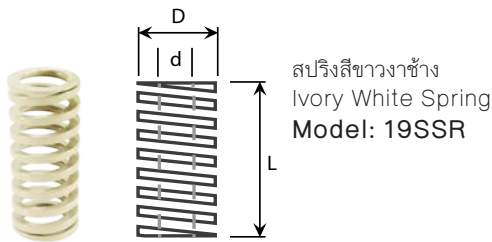
D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					60% Deflection	Load N (kgf)
26	30	16.5	9.0	16.34 (1.67)	18	294.2 (30.0)
	35		10.5	14.01 (1.43)	21	
	40		12.0	12.26 (1.25)	24	
	45		13.5	10.90 (1.11)	27	
	50		15.0	9.81 (1.00)	30	
	55		16.5	8.92 (0.91)	33	
	60		18.0	8.17 (0.83)	36	
	65		19.5	7.54 (0.77)	39	
	70		21.0	7.00 (0.71)	42	
	75		22.5	6.54 (0.67)	45	
	80		24.0	6.13 (0.63)	48	
	90		27.0	5.45 (0.56)	54	
	100		30.0	4.90 (0.50)	60	
	110		33.0	4.46 (0.45)	66	
	120		36.0	4.09 (0.42)	72	
	125		37.5	3.92 (0.40)	75	
	130		39.0	3.77 (0.38)	78	
	140		42.0	3.50 (0.36)	84	
31	150	21	45.0	3.27 (0.33)	90	372.7 (38.0)
	175		52.5	2.80 (0.29)	105	
	200		60.0	2.45 (0.25)	120	
	225		67.5	2.18 (0.22)	135	
	250		75.0	1.96 (0.20)	150	
	35		10.5	17.75 (1.81)	21	
	40		12.0	15.53 (1.58)	24	
	45		13.5	13.80 (1.41)	27	
	50		15.0	12.42 (1.27)	30	
	55		16.5	11.29 (1.15)	33	
	60		18.0	10.35 (1.06)	36	
	65		19.5	9.56 (0.97)	39	
	70		21.0	8.87 (0.90)	42	
	75		22.5	8.28 (0.84)	45	
	80		24.0	7.76 (0.79)	48	
	90		27.0	6.90 (0.70)	54	
	100		30.0	6.21 (0.63)	60	
31	110		33.0	5.65 (0.58)	66	
	120		36.0	5.18 (0.53)	72	
	125		37.5	4.97 (0.51)	75	
	130		39.0	4.78 (0.49)	78	
	140		42.0	4.44 (0.45)	84	
	150		45.0	4.14 (0.42)	90	
	160		48.0	3.88 (0.40)	96	
	170		51.0	3.65 (0.37)	102	
	175		52.5	3.55 (0.36)	105	
	180		54.0	3.45 (0.35)	108	
	190		57.0	3.27 (0.33)	114	
	200		60.0	3.11 (0.32)	120	
	250		75.0	2.48 (0.25)	150	
	300		90.0	2.07 (0.21)	180	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					60% Deflection	Load N (kgf)
37	40	26	12.0	19.20 (1.96)	24	460.9 (47.0)
	45		13.5	17.07 (1.74)	27	
	50		15.0	15.36 (1.57)	30	
	55		16.5	13.97 (1.42)	33	
	60		18.0	12.80 (1.31)	36	
	65		19.5	11.82 (1.21)	39	
	70		21.0	10.97 (1.12)	42	
	75		22.5	10.24 (1.04)	45	
	80		24.0	9.60 (0.98)	48	
	90		27.0	8.54 (0.87)	54	
	100		30.0	7.68 (0.78)	60	
	110		33.0	6.98 (0.71)	66	
	120		36.0	6.40 (0.65)	72	
	130		39.0	5.91 (0.60)	78	
	140		42.0	5.49 (0.56)	84	
	150		45.0	5.12 (0.52)	90	
	160		48.0	4.80 (0.49)	96	
	170		51.0	4.52 (0.46)	102	
43	180		54.0	4.27 (0.44)	108	588.4 (60.0)
	190		57.0	4.04 (0.41)	114	
	200		60.0	3.84 (0.39)	120	
	225		67.5	3.41 (0.35)	135	
	250		75.0	3.07 (0.31)	150	
	275		82.5	2.79 (0.28)	165	
	300		90.0	2.56 (0.26)	180	
	50	31	15.0	19.61 (2.00)	30	
	60		18.0	16.34 (1.67)	36	
	70		21.0	14.01 (1.43)	42	
	80		24.0	12.26 (1.25)	48	
	90		27.0	10.90 (1.11)	54	
	100		30.0	9.81 (1.00)	60	
	110		33.0	8.92 (0.91)	66	
	120		36.0	8.17 (0.83)	72	
	130		39.0	7.54 (0.77)	78	
	140		42.0	7.00 (0.71)	84	
	150		45.0	6.54 (0.67)	90	
	160		48.0	6.13 (0.63)	96	
	170		51.0	5.77 (0.59)	102	
	180		54.0	5.45 (0.56)	108	
	190		57.0	5.16 (0.53)	114	
	200		60.0	4.90 (0.50)	120	
	225		67.5	4.36 (0.44)	135	
43	250		75.0	3.92 (0.40)	150	
	275		82.5	3.57 (0.36)	165	
	300		90.0	3.27 (0.33)	180	

Die Springs

สปริงแม่พิมพ์

High Deflection Spring - สปริงยวบตัวได้สูง



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 3° or less

ระยะเพื่อความยาว Free Length ≤ 50 ±0.5mm ≥ 55 ±1.5%

ORDER
EXAMPLE

Model D - L
19SSR12.5-050

SAE9245
JIS Standard

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					50% Deflection	Load N (kgf)
10.5	15	6	6	10.46 (1.07)	7.5	78.5 (8.0)
	20		8	7.85 (0.80)	10.0	
	25		10	6.28 (0.64)	12.5	
	30		12	5.23 (0.53)	15.0	
	35		14	4.48 (0.46)	17.5	
	40		16	3.92 (0.40)	20.0	
	45		18	3.49 (0.36)	22.5	
	50		20	3.14 (0.32)	25.0	
	55		22	2.85 (0.29)	27.5	
	60		24	2.62 (0.27)	30.0	
	65		26	2.41 (0.25)	32.5	
	70		28	2.24 (0.23)	35.0	
12.5	75		30	2.09 (0.21)	37.5	88.3 (9.0)
	80		32	1.96 (0.20)	40.0	
	15	7	6	11.77 (1.20)	7.5	
	20		8	8.83 (0.90)	10.0	
	25		10	7.06 (0.72)	12.5	
	30		12	5.88 (0.60)	15.0	
	35		14	5.04 (0.51)	17.5	
	40		16	4.41 (0.45)	20.0	
	45		18	3.92 (0.40)	22.5	
	50		20	3.53 (0.36)	25.0	
	55		22	3.21 (0.33)	27.5	
	60		24	2.94 (0.30)	30.0	
	65		26	2.72 (0.28)	32.5	
	70		28	2.52 (0.26)	35.0	
	75		30	2.35 (0.24)	37.5	
	80		32	2.21 (0.23)	40.0	
	90		36	1.96 (0.20)	45.0	
	100		40	1.77 (0.18)	50.0	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					50% Deflection	Load N (kgf)
14.5	15	8.5	6	17.00 (1.73)	7.5	127.5 (13.0)
	20		8	12.75 (1.30)	10.0	
	25		10	10.20 (1.04)	12.5	
	30		12	8.50 (0.87)	15.0	
	35		14	7.28 (0.74)	17.5	
	40		16	6.37 (0.65)	20.0	
	45		18	5.67 (0.58)	22.5	
	50		20	5.10 (0.52)	25.0	
	55		22	4.64 (0.47)	27.5	
	60		24	4.25 (0.43)	30.0	
	65		26	3.92 (0.40)	32.5	
	70		28	3.64 (0.37)	35.0	
17	75		30	3.40 (0.35)	37.5	196.1 (20.0)
	80		32	3.19 (0.33)	40.0	
	90	10.5	36	2.83 (0.29)	45.0	
	100		40	2.55 (0.26)	50.0	
	125		50	2.04 (0.21)	62.5	
	150		60	1.70 (0.17)	75.0	
	25		10	15.69 (1.60)	12.5	
	30		12	13.08 (1.33)	15.0	
	35		14	11.21 (1.14)	17.5	
	40		16	9.81 (1.00)	20.0	
	45		18	8.72 (0.89)	22.5	
	50		20	7.85 (0.80)	25.0	
	55		22	7.13 (0.73)	27.5	
	60		24	6.54 (0.67)	30.0	
	65		26	6.03 (0.62)	32.5	
	70		28	5.60 (0.57)	35.0	
	75		30	5.23 (0.53)	37.5	
	80		32	4.90 (0.50)	40.0	
	90		36	4.36 (0.44)	45.0	
	100		40	3.92 (0.40)	50.0	
	125		50	3.14 (0.32)	62.5	
	150		60	2.62 (0.27)	75.0	
	175		70	2.24 (0.23)	87.5	

High Deflection Spring - สปริงยุบตัวได้สูง

ORDER
EXAMPLE

Model D - L
19SSR12.5-050

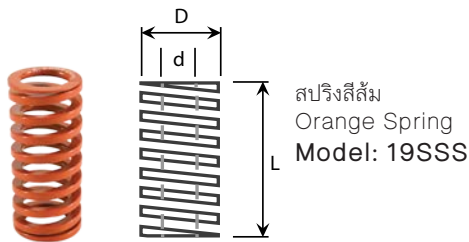
สปริงสีขาวข้าง
Ivory White Spring
Model: 19SSR



D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					50% Deflection	Load N (kgf)
21	25	13.5	10	23.54 (2.40)	12.5	294.2 (30.0)
	30		12	19.61 (2.00)	15.0	
	35		14	16.81 (1.71)	17.5	
	40		16	14.71 (1.50)	20.0	
	45		18	13.08 (1.33)	22.5	
	50		20	11.77 (1.20)	25.0	
	55		22	10.70 (1.09)	27.5	
	60		24	9.81 (1.00)	30.0	
	65		26	9.05 (0.92)	32.5	
	70		28	8.41 (0.86)	35.0	
	75		30	7.85 (0.80)	37.5	
	80		32	7.35 (0.75)	40.0	
	90		36	6.54 (0.67)	45.0	
	100		40	5.88 (0.60)	50.0	
	110		44	5.35 (0.55)	55.0	
	120		48	4.90 (0.50)	60.0	
	125		50	4.71 (0.48)	62.5	
	130		52	4.53 (0.46)	65.0	
	140		56	4.20 (0.43)	70.0	
	150		60	3.92 (0.40)	75.0	
26	175	16.5	70	3.36 (0.34)	87.5	392.3 (40.0)
	200		80	2.94 (0.30)	100.0	
	25		10	31.38 (3.20)	12.5	
	30		12	26.15 (2.67)	15.0	
	35		14	22.42 (2.29)	17.5	
	40		16	19.61 (2.00)	20.0	
	45		18	17.43 (1.78)	22.5	
	50		20	15.69 (1.60)	25.0	
	55		22	14.26 (1.45)	27.5	
	60		24	13.08 (1.33)	30.0	
	65		26	12.07 (1.23)	32.5	
	70		28	11.21 (1.14)	35.0	
	75		30	10.46 (1.07)	37.5	
	80		32	9.81 (1.00)	40.0	
	90		36	8.72 (0.89)	45.0	
	100		40	7.85 (0.80)	50.0	
	110		44	7.13 (0.73)	55.0	
	120		48	6.54 (0.67)	60.0	
	125		50	6.28 (0.64)	62.5	
	130		52	6.03 (0.62)	65.0	
31	140	21	56	5.60 (0.57)	70.0	490.3 (50.0)
	150		60	5.23 (0.53)	75.0	
	175		70	4.48 (0.46)	87.5	
	200		80	3.92 (0.40)	100.0	
	225		90	3.49 (0.36)	112.5	
	250		100	3.14 (0.32)	125.0	
	35		14	28.02 (2.86)	17.5	
	40		16	24.52 (2.50)	20.0	
	45		18	21.79 (2.22)	22.5	
	50		20	19.61 (2.00)	25.0	
	55		22	17.83 (1.82)	27.5	
	60		24	16.34 (1.67)	30.0	
	65		26	15.09 (1.54)	32.5	
	70		28	14.01 (1.43)	35.0	
	75		30	13.08 (1.33)	37.5	
	80		32	12.26 (1.25)	40.0	
	90		36	10.90 (1.11)	45.0	
	100		40	9.81 (1.00)	50.0	
	110		44	8.92 (0.91)	55.0	
	120		48	8.17 (0.83)	60.0	
	125		50	7.85 (0.80)	62.5	
31	130		52	7.54 (0.77)	65.0	
	140		56	7.00 (0.71)	70.0	
	150		60	6.54 (0.67)	75.0	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					50% Deflection	Load N (kgf)
31	160	21	67	6.13 (0.63)	80.0	490.3 (50.0)
	170		68	5.77 (0.59)	85.0	
	175		70	5.60 (0.57)	87.5	
	180		72	5.45 (0.56)	90.0	
	190		76	5.16 (0.53)	95.0	
	200		80	4.90 (0.50)	100.0	
	250		100	3.92 (0.40)	125.0	
	300		120	3.27 (0.33)	150.0	
	35		14	33.62 (3.43)	17.5	
	40		16	29.42 (3.00)	20.0	
39	45	26	18	26.15 (2.67)	22.5	588.4 (60.0)
	50		20	23.54 (2.40)	25.0	
	55		22	21.40 (2.18)	27.5	
	60		24	19.61 (2.00)	30.0	
	65		26	18.10 (1.85)	32.5	
	70		28	16.81 (1.71)	35.0	
	75		30	15.69 (1.60)	37.5	
	80		32	14.71 (1.50)	40.0	
	90		36	13.08 (1.33)	45.0	
	100		40	11.77 (1.20)	50.0	
46	110	33	44	10.70 (1.09)	55.0	1079 (110)
	120		48	9.81 (1.00)	60.0	
	125		50	9.41 (0.96)	62.5	
	130		52	9.05 (0.92)	65.0	
	140		56	8.41 (0.86)	70.0	
	150		60	7.85 (0.80)	75.0	
	160		64	7.35 (0.75)	80.0	
	170		68	6.92 (0.71)	85.0	
	175		70	6.72 (0.69)	87.5	
	180		72	6.54 (0.67)	90.0	
46	190	33	76	6.19 (0.63)	95.0	1079 (110)
	200		80	5.88 (0.60)	100.0	
	250		100	4.71 (0.48)	125.0	
	300		120	3.92 (0.40)	150.0	
	50		20	43.15 (4.40)	25.0	
	60		24	35.96 (3.67)	30.0	
	70		28	30.82 (3.14)	35.0	
	80		32	26.97 (2.75)	40.0	
	90		36	23.97 (2.44)	45.0	
	100		40	21.57 (2.20)	50.0	
46	110	33	44	19.61 (2.00)	55.0	1079 (110)
	120		48	17.98 (1.83)	60.0	
	125		50	17.26 (1.76)	62.5	
	130		52	16.60 (1.69)	65.0	
	140		56	15.41 (1.57)	70.0	
	150		60	14.38 (1.47)	75.0	
	175		70	12.33 (1.26)	87.5	
	200		80	10.79 (1.10)	100.0	
	225		90	9.59 (0.98)	112.5	
	250		100	8.63 (0.88)	125.0	
46	275	33	110	7.85 (0.80)	137.5	1079 (110)
	300		120	7.19 (0.73)	150.0	

Die Springs



แรงกด Load +20% -10%

ความได้ฉาก Perpendicularity 3° or less

ระยะเพื่อความยาว Free Length ±2%

ORDER
EXAMPLE

Model D - L
19SSS21-050



SAE9245

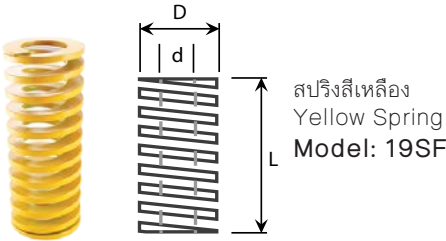


JIS Standard

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					40% Deflection	Load N (kgf)
17	30	10.5	15.0	24.52 (2.50)	12	294.2 (30.0)
	40		20.0	18.39 (1.88)	16	
	50		25.0	14.71 (1.50)	20	
	60		30.0	12.26 (1.25)	24	
	70		35.0	10.51 (1.07)	28	
	80		40.0	9.19 (0.94)	32	
	90		45.0	8.17 (0.83)	36	
	100		50.0	7.35 (0.75)	40	
21	30	13.5	15.0	35.17 (3.59)	12	422.0 (43.0)
	40		20.0	26.38 (2.69)	16	
	50		25.0	21.10 (2.15)	20	
	60		30.0	17.58 (1.79)	24	
	70		35.0	15.07 (1.54)	28	
	80		40.0	13.19 (1.34)	32	
	90		45.0	11.72 (1.20)	36	
	100		50.0	10.55 (1.08)	40	
26	30	16.5	15.0	47.42 (4.84)	12	569.0 (58.0)
	40		20.0	35.56 (3.63)	16	
	50		25.0	28.45 (2.90)	20	
	60		30.0	23.71 (2.42)	24	
	70		35.0	20.32 (2.07)	28	
	80		40.0	17.78 (1.81)	32	
	90		45.0	15.81 (1.61)	36	
	100		50.0	14.23 (1.45)	40	
	110		55.0	12.93 (1.32)	44	
	125		62.5	11.38 (1.16)	50	
	150		75.0	9.48 (0.97)	60	

D	L	d	Solid Length	Spring Constant N/mm (kgf/mm)	1,000,000 times	
					40% Deflection	Load N (kgf)
31	40	21	20.0	49.00 (5.00)	16	784.0 (79.9)
	50		25.0	39.20 (4.00)	20	
	60		30.0	32.67 (3.33)	24	
	70		35.0	28.00 (2.86)	28	
	80		40.0	24.50 (2.50)	32	
	90		45.0	21.78 (2.22)	36	
	100		50.0	19.60 (2.00)	40	
	110		55.0	17.82 (1.82)	44	
37	125	26	62.5	15.68 (1.60)	50	834.0 (85.0)
	150		75.0	13.07 (1.33)	60	
	175		87.5	11.20 (1.14)	70	
	200		100.0	9.80 (1.00)	80	
	40		20.0	52.13 (5.32)	16	
	50		25.0	41.70 (4.25)	20	
	60		30.0	34.75 (3.54)	24	
	70		35.0	29.79 (3.04)	28	
46	80	33	40.0	26.06 (2.66)	32	1275 (130)
	90		45.0	23.17 (2.36)	36	
	100		50.0	20.85 (2.13)	40	
	110		55.0	18.95 (1.93)	44	
	125		62.5	16.68 (1.70)	50	
	150		75.0	13.90 (1.42)	60	
	175		87.5	11.91 (1.21)	70	
	200		100.0	10.43 (1.06)	80	
	50		25.0	63.74 (6.50)	20	
	60		30.0	53.12 (5.42)	24	
	70		35.0	45.53 (4.64)	28	
	80		40.0	39.84 (4.06)	32	
	90		45.0	35.41 (3.61)	36	
	100		50.0	31.87 (3.25)	40	
	110		55.0	28.97 (2.95)	44	
	125		62.5	25.50 (2.60)	50	
	150		75.0	21.25 (2.17)	60	
	175		87.5	18.21 (1.86)	70	
	200		100.0	15.94 (1.63)	80	
	250		125.0	12.75 (1.30)	100	
	300		150.0	10.62 (1.08)	120	

Lightest Load Spring - สปริงรับแรงกดที่มีค่าน้อยมาก



แรงกด Load ±10%
ความได้ฉาก Perpendicularity 2° or less
ระยะเพื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1

ORDER
EXAMPLE

Model D - L
19SF25-050

SAE9245
JIS Standard

D	L	d	Spring Constant (kg/mm)	300,000 times		500,000 times		1,000,000 times	
				50% Deflection	Load N (kgf)	45% Deflection	Load N (kgf)	40% Deflection	Load N (kgf)
6	15	3	0.80	7.5	59 (6)	6.8	53 (5.4)	6.0	47 (4.8)
	20		0.60	10.0		9.0		8.0	
	25		0.48	12.5		11.3		10.0	
	30		0.40	15.0		13.5		12.0	
	35		0.34	17.5		15.8		14.0	
	40		0.30	20.0		18.0		16.0	
	45		0.27	22.5		20.3		18.0	
	50		0.24	25.0		22.5		20.0	
	55		0.22	27.5		24.8		22.0	
	60		0.20	30.0		27.0		24.0	
8	10	4	1.56	5.0	79 (8)	4.5	71 (7.2)	4.0	63 (6.4)
	15		1.04	7.5		6.8		6.0	
	20		0.78	10.0		9.0		8.0	
	25		0.62	12.5		11.2		10.0	
	30		0.52	15.0		13.5		12.0	
	35		0.44	17.5		15.7		14.0	
	40		0.39	20.0		18.0		16.0	
	45		0.35	22.5		20.2		18.0	
	50		0.31	25.0		22.5		20.0	
	55		0.28	27.5		24.7		22.0	
	60		0.26	30.0		27.0		24.0	
	65		0.24	32.5		29.2		26.0	
	70		0.22	35.0		31.5		28.0	
	75		0.21	37.5		33.7		30.0	
10	80	5	0.20	40.0	98 (10)	36.0	88 (9)	32.0	78 (8)
	90		0.17	45.0		40.5		36.0	
	100		0.16	50.0		45.0		40.0	
	10		2.00	5.0		4.5		4.0	
	15		1.32	7.5		6.8		6.0	
	20		1.00	10.0		9.0		8.0	
	25		0.80	12.5		11.2		10.0	
	30		0.67	15.0		13.5		12.0	
	35		0.57	17.5		15.7		14.0	
	40		0.50	20.0		18.0		16.0	
	45		0.44	22.5		20.2		18.0	
	50		0.40	25.0		22.5		20.0	
	55		0.36	27.5		24.7		22.0	
	60		0.33	30.0		27.0		24.0	
	65		0.31	32.5		29.2		26.0	
	70		0.29	35.0		31.5		28.0	
	75		0.27	37.5		33.7		30.0	
	80		0.25	40.0		36.0		32.0	
	90		0.22	45.0		40.5		36.0	
	100		0.20	50.0		45.0		40.0	
	125		0.16	62.5		56.2		50.0	

Die Springs

Lightest Load Spring - สปริงรับแรงกดที่มีค่าน้อยมาก

ORDER
EXAMPLE

Model D - L
19SF25-050

สปริงสีเหลือง
Yellow Spring
Model: 19SF



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				50% Deflection	Load N (kgf)	45% Deflection	Load N (kgf)	40% Deflection	Load N (kgf)
12	20	6	1.40	10.0	137 (14)	9.0	124 (13)	8.0	110 (11)
	25		1.12	12.5		11.2		10.0	
	30		0.93	15.0		13.5		12.0	
	35		0.80	17.5		15.7		14.0	
	40		0.70	20.0		18.0		16.0	
	45		0.62	22.5		20.2		18.0	
	50		0.56	25.0		22.5		20.0	
	55		0.51	27.5		24.7		22.0	
	60		0.47	30.0		27.0		24.0	
	65		0.43	32.5		29.2		26.0	
	70		0.40	35.0		31.5		28.0	
	75		0.37	37.5		33.7		30.0	
	80		0.35	40.0		36.0		32.0	
	90		0.31	45.0		40.5		36.0	
	100		0.28	50.0		45.0		40.0	
14	20	7	1.78	10.0	177 (18)	9.0	159 (16)	8.0	141 (14)
	25		1.44	12.5		11.2		10.0	
	30		1.20	15.0		13.5		12.0	
	35		1.03	17.5		15.7		14.0	
	40		0.90	20.0		18.0		16.0	
	45		0.80	22.5		20.2		18.0	
	50		0.72	25.0		22.5		20.0	
	55		0.65	27.5		24.7		22.0	
	60		0.60	30.0		27.0		24.0	
	65		0.55	32.5		29.2		26.0	
	70		0.51	35.0		31.5		28.0	
	75		0.48	37.5		33.7		30.0	
	80		0.45	40.0		36.0		32.0	
	90		0.40	45.0		40.5		36.0	
	100		0.36	50.0		45.0		40.0	
16	20	8	2.11	10.0	206 (21)	9.0	185 (19)	8.0	165 (17)
	25		1.68	12.5		11.2		10.0	
	30		1.40	15.0		13.5		12.0	
	35		1.20	17.5		15.7		14.0	
	40		1.05	20.0		18.0		16.0	
	45		0.94	22.5		20.2		18.0	
	50		0.84	25.0		22.5		20.0	
	55		0.77	27.5		24.7		22.0	
	60		0.70	30.0		27.0		24.0	
	65		0.65	32.5		29.2		26.0	
	70		0.60	35.0		31.5		28.0	
	75		0.56	37.5		33.7		30.0	
	80		0.53	40.0		36.0		32.0	
	90		0.47	45.0		40.5		36.0	
	100		0.42	50.0		45.0		40.0	
18	20	9	2.56	10.0	255 (26)	9.0	229 (23)	8.0	204 (21)
	25		2.08	12.5		11.2		10.0	
	30		1.74	15.0		13.5		12.0	
	35		1.49	17.5		15.7		14.0	
	40		1.30	20.0		18.0		16.0	
	45		1.16	22.5		20.2		18.0	
	50		1.04	25.0		22.5		20.0	
	55		0.95	27.5		24.7		22.0	
	60		0.87	30.0		27.0		24.0	
	65		0.80	32.5		29.2		26.0	
	70		0.74	35.0		31.5		28.0	
	75		0.70	37.5		33.7		30.0	
	80		0.65	40.0		36.0		32.0	
	90		0.58	45.0		40.5		36.0	
	100		0.52	50.0		45.0		40.0	
18	125		0.42	62.5		56.2		50.0	
	150		0.34	75.0		67.5		60.0	

Die Springs

Lightest Load Spring - สปริงรับแรงกดที่มีค่าน้อยมาก

ORDER
EXAMPLE

Model D - L
19SF25-050

สปริงสีเหลือง
Yellow Spring
Model: 19SF



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				50% Deflection	Load N (kgf)	45% Deflection	Load N (kgf)	40% Deflection	Load N (kgf)
20	20	11	3.22	10.0	314 (32)	9.0	282 (29)	8.0	251 (26)
	25		2.56	12.5		11.2		10.0	
	30		2.13	15.0		13.5		12.0	
	35		1.83	17.5		15.7		14.0	
	40		1.60	20.0		18.0		16.0	
	45		1.42	22.5		20.2		18.0	
	50		1.28	25.0		22.5		20.0	
	55		1.16	27.5		24.7		22.0	
	60		1.07	30.0		27.0		24.0	
	65		0.98	32.5		29.2		26.0	
	70		0.91	35.0		31.5		28.0	
	75		0.85	37.5		33.7		30.0	
	80		0.80	40.0		36.0		32.0	
	90		0.71	45.0		40.5		36.0	
	100		0.64	50.0		45.0		40.0	
	125		0.51	62.5		56.2		50.0	
	150		0.43	75.0		67.5		60.0	
	175		0.37	87.5		78.7		70.0	
22	25	11	3.20	12.5	392 (40)	11.2	353 (36)	10.0	314 (32)
	30		2.67	15.0		13.5		12.0	
	35		2.29	17.5		15.7		14.0	
	40		2.00	20.0		18.0		16.0	
	45		1.78	22.5		20.2		18.0	
	50		1.60	25.0		22.5		20.0	
	55		1.46	27.5		24.7		22.0	
	60		1.33	30.0		27.0		24.0	
	65		1.23	32.5		29.2		26.0	
	70		1.14	35.0		31.5		28.0	
	75		1.07	37.5		33.7		30.0	
	80		1.00	40.0		36.0		32.0	
	90		0.89	45.0		40.5		36.0	
	100		0.80	50.0		45.0		40.0	
	125		0.64	62.5		56.2		50.0	
	150		0.53	75.0		67.5		60.0	
	175		0.46	87.5		78.7		70.0	
25	25	13.5	4.00	12.5	490 (50)	11.2	441 (45)	10.0	392 (40)
	30		3.33	15.0		13.5		12.0	
	35		2.85	17.5		15.7		14.0	
	40		2.50	20.0		18.0		16.0	
	45		2.22	22.5		20.2		18.0	
	50		2.00	25.0		22.5		20.0	
	55		1.82	27.5		24.7		22.0	
	60		1.67	30.0		27.0		24.0	
	65		1.54	32.5		29.2		26.0	
	70		1.43	35.0		31.5		28.0	
	75		1.33	37.5		33.7		30.0	
	80		1.25	40.0		36.0		32.0	
	90		1.11	45.0		40.5		36.0	
	100		1.00	50.0		45.0		40.0	
	125		0.80	62.5		56.2		50.0	
	150		0.67	75.0		67.5		60.0	
	175		0.57	87.5		78.7		70.0	
	200		0.50	100.0		90.0		80.0	
27	25	13.5	4.80	12.5	588 (60)	11.2	530 (54)	10.0	471 (48)
	30		4.00	15.0		13.5		12.0	
	35		3.43	17.5		15.7		14.0	
	40		3.00	20.0		18.0		16.0	
	45		2.67	22.5		20.2		18.0	
	50		2.40	25.0		22.5		20.0	
	55		2.18	27.5		24.7		22.0	
	60		2.00	30.0		27.0		24.0	
	65		1.85	32.5		29.2		26.0	
	70		1.71	35.0		31.5		28.0	
	75		1.60	37.5		33.7		30.0	
	80		1.50	40.0		36.0		32.0	
	90		1.33	45.0		40.5		36.0	
	100		1.20	50.0		45.0		40.0	
	125		0.96	62.5		56.2		50.0	
	150		0.80	75.0		67.5		60.0	
	175		0.96	87.5		78.7		70.0	
	200		0.60	100.0		90.0		80.0	

Lightest Load Spring - สปริงรับแรงกดที่มีค่าน้อยมาก

ORDER Model D - L
EXAMPLE 19SF25-050
สปริงสีเหลือง
Yellow Spring
Model: 19SF



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				50% Deflection	Load N (kgf)	45% Deflection	Load N (kgf)	40% Deflection	Load N (kgf)
30	25	16	5.80	12.5	760 (72)	11.2	635 (65)	10.0	565 (58)
	30		4.83	15.0		13.5		12.0	
	35		4.13	17.5		15.7		14.0	
	40		3.60	20.0		18.0		16.0	
	45		3.21	22.5		20.2		18.0	
	50		2.88	25.0		22.5		20.0	
	55		2.63	27.5		24.7		22.0	
	60		2.40	30.0		27.0		24.0	
	65		2.22	32.5		29.2		26.0	
	70		2.05	35.0		31.5		28.0	
	75		1.93	37.5		33.7		30.0	
	80		1.80	40.0		36.0		32.0	
	90		1.60	45.0		40.5		36.0	
	100		1.44	50.0		45.0		40.0	
	125		1.15	62.5		56.2		50.0	
	150		0.96	75.0		67.5		60.0	
35	175	19	0.82	87.5	768 (78)	78.7	864 (88)	70.0	768 (78)
	200		0.72	100.0		90.0		80.0	
	35		5.60	17.5		15.7		14.0	
	40		4.90	20.0		18.0		16.0	
	45		4.36	22.5		20.2		18.0	
	50		3.92	25.0		22.5		20.0	
	55		3.56	27.5		24.7		22.0	
	60		3.26	30.0		27.0		24.0	
	65		3.02	32.5		29.2		26.0	
	70		2.80	35.0		31.5		28.0	
	75		2.61	37.5		33.7		30.0	
	80		2.45	40.0		36.0		32.0	
40	90	22	2.17	45.0	1254 (128)	40.5	1129 (115)	36.0	1003 (102)
	100		1.96	50.0		45.0		40.0	
	125		1.57	62.5		56.2		50.0	
	150		1.30	75.0		67.5		60.0	
	175		1.12	87.5		78.7		70.0	
	200		0.98	100.0		90.0		80.0	
	40		6.38	20.0		18.0		16.0	
	45		5.67	22.5		20.2		18.0	
	50		5.12	25.0		22.5		20.0	
	55		4.64	27.5		24.7		22.0	
	60		4.26	30.0		27.0		24.0	
	65		3.93	32.5		29.2		26.0	
	70		3.65	35.0		31.5		28.0	
	75		3.40	37.5		33.7		30.0	
	80		3.20	40.0		36.0		32.0	
	90		2.84	45.0		40.5		36.0	
	100		2.56	50.0		45.0		40.0	
	125		2.04	62.5		56.2		50.0	
	150		1.70	75.0		67.5		60.0	
	175		1.46	87.5		78.7		70.0	
	200		1.28	100.0		90.0		80.0	
	225		1.13	112.5		101.2		90.0	
	250		1.02	125.0		112.5		100.0	
	275		0.93	137.5		123.7		110.0	
	300		0.85	150.0		135.0		120.0	

Die Springs

Lightest Load Spring - สปริงรับแรงกดที่มีค่าน้อยมาก

ORDER
EXAMPLE

Model D - L
19SF25-050

สปริงสีเหลือง
Yellow Spring
Model: 19SF

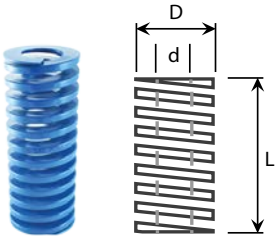


D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				50% Deflection	Load N (kgf)	45% Deflection	Load N (kgf)	40% Deflection	Load N (kgf)
50	50	27.5	8.00	25.0	1960 (200)	22.5	1764 (180)	20.0	1568 (160)
	55		7.27	27.5		24.7		22.0	
	60		6.66	30.0		27.0		24.0	
	65		6.15	32.5		29.2		26.0	
	70		5.71	35.0		31.5		28.0	
	75		5.33	37.5		33.7		30.0	
	80		5.00	40.0		36.0		32.0	
	90		4.44	45.0		40.5		36.0	
	100		4.00	50.0		45.0		40.0	
	125		3.20	62.5		56.2		50.0	
	150		2.66	75.0		67.5		60.0	
	175		2.28	87.5		78.7		70.0	
	200		2.00	100.0		90.0		80.0	
	225		1.78	112.5		101.2		90.0	
	250		1.60	125.0		112.5		100.0	
	275		1.45	137.5		123.7		110.0	
	300		1.33	150.0		135.0		120.0	
	350		1.14	175.0		157.5		140.0	
	400		1.00	200.0		180.0		160.0	
	450		0.89	225.0		202.5		180.0	
	500		0.80	250.0		225.0		200.0	
60	60	33	9.59	30.0	2820 (288)	27.0	2538 (259)	24.0	2256 (230)
	70		8.22	35.0		31.5		28.0	
	80		7.19	40.0		36.0		32.0	
	90		6.40	45.0		40.5		36.0	
	100		5.76	50.0		45.0		40.0	
	125		4.60	62.5		56.2		50.0	
	150		3.84	75.0		67.5		60.0	
	175		3.29	87.5		78.7		70.0	
	200		2.88	100.0		90.0		80.0	
	225		2.56	112.5		101.3		90.0	
	250		2.30	125.0		112.5		100.0	
	275		2.09	137.5		123.8		110.0	
	300		1.92	150.0		135.0		120.0	
	350		1.65	175.0		157.5		140.0	
	400		1.44	200.0		180.0		160.0	
	450		1.28	225.0		202.5		180.0	
	500		1.15	250.0		225.0		200.0	
70	70	38.5	11.43	35.0	3920 (400)	31.5	3528 (360)	28.0	3136 (320)
	80		10.00	40.0		36.0		32.0	
	90		8.89	45.0		40.5		36.0	
	100		8.00	50.0		45.0		40.0	
	125		6.40	62.5		56.2		50.0	
	150		5.33	75.0		67.5		60.0	
	175		4.57	87.5		78.7		70.0	
	200		4.00	100.0		90.0		80.0	
	225		3.56	112.5		101.3		90.0	
	250		3.20	125.0		112.5		100.0	
	275		2.91	137.5		123.8		110.0	
	300		2.67	150.0		135.0		120.0	
	350		2.29	175.0		157.5		140.0	

Die Springs

สปริงแม่พิมพ์

Light Load Spring - สปริงรับแรงกดที่มีค่าน้อย



สปริงสีน้ำเงิน
Blue Spring
Model: 19SL



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 2° or less

ระยะเผื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1

ORDER
EXAMPLE

Model D - L
19SL25-050

SAE9245

JIS Standard

D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				40% Deflection	Load N (kgf)	36% Deflection	Load N (kgf)	32% Deflection	Load N (kgf)
6	15	3	1.33	6.0	78 (8)	5.4	71 (7.2)	4.8	63 (64)
	20		1.00	8.0		7.2		6.4	
	25		0.80	10.0		9.0		8.0	
	30		0.67	12.0		10.8		9.6	
	35		0.57	14.0		12.6		11.2	
	40		0.50	16.0		14.4		12.8	
	45		0.44	18.0		16.2		14.4	
	50		0.40	20.0		18.0		16.0	
	55		0.36	22.0		19.8		17.6	
	60		0.33	24.0		21.6		19.2	
8	10	4	2.50	40.0	98 (10)	3.6	88 (9)	3.2	78 (8)
	15		1.67	6.0		5.4		4.8	
	20		1.25	8.0		7.2		6.4	
	25		1.00	10.0		9.0		8.0	
	30		0.83	12.0		10.8		9.6	
	35		0.71	14.0		12.6		11.2	
	40		0.63	16.0		14.4		12.8	
	45		0.56	18.0		16.2		14.4	
	50		0.50	20.0		18.0		16.0	
	55		0.46	22.0		19.8		17.6	
	60		0.42	24.0		21.6		19.2	
	65		0.38	26.0		23.4		20.8	
	70		0.36	28.0		25.2		22.4	
	75		0.33	30.0		27.0		24.0	
	80		0.31	32.0		28.8		25.6	
	90		0.28	36.0		32.4		28.8	
	100		0.25	40.0		36.0		32.0	
10	10	5	3.61	4.0	137 (14)	3.6	124 (13)	3.2	110 (11)
	15		2.41	6.0		5.4		4.8	
	20		1.81	8.0		7.2		6.4	
	25		1.45	10.0		9.0		8.0	
	30		1.21	12.0		10.8		9.6	
	35		1.03	14.0		12.6		11.2	
	40		0.90	16.0		14.4		12.8	
	45		0.80	18.0		16.2		14.4	
	50		0.73	20.0		18.0		16.0	
	55		0.66	22.0		19.8		17.6	
	60		0.60	24.0		21.6		19.2	
	65		0.55	26.0		23.4		20.8	
	70		0.51	28.0		25.2		22.4	
	75		0.48	30.0		27.0		24.0	
	80		0.45	32.0		28.8		25.6	
	90		0.40	36.0		32.4		28.8	
	100		0.36	40.0		36.0		32.0	
	125		0.28	50.0		45.0		40.0	

Light Load Spring - สปริงรับแรงกดที่มีค่าน้อย

ORDER
EXAMPLE

Model D - L
19SL25-050

สปริงสีน้ำเงิน
Blue Spring
Model: 19SL



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				40% Deflection	Load N (kgf)	36% Deflection	Load N (kgf)	32% Deflection	Load N (kgf)
12	20	6	2.63	8.0	206 (21)	7.2	185 (19)	6.4	165 (17)
	25		2.10	10.0		9.0		8.0	
	30		1.75	12.0		10.8		9.6	
	35		1.50	14.0		12.6		11.2	
	40		1.32	16.0		14.4		12.8	
	45		1.17	18.0		16.2		14.4	
	50		1.05	20.0		18.0		16.0	
	55		0.96	22.0		19.8		17.6	
	60		0.88	24.0		21.6		19.2	
	65		0.81	26.0		23.4		20.8	
	70		0.75	28.0		25.2		22.4	
	75		0.70	30.0		27.0		24.0	
	80		0.66	32.0		28.8		25.6	
	90		0.58	36.0		32.4		28.8	
	100		0.53	40.0		36.0		32.0	
14	20	7	3.47	8.0	275 (28)	7.2	247 (25)	6.4	220 (22)
	25		2.80	10.0		9.0		8.0	
	30		3.34	12.0		10.8		9.6	
	35		2.00	14.0		12.6		11.2	
	40		1.75	16.0		14.4		12.8	
	45		1.56	18.0		16.2		14.4	
	50		1.40	20.0		18.0		16.0	
	55		1.27	22.0		19.8		17.6	
	60		1.17	24.0		21.6		19.2	
	65		1.08	26.0		23.4		20.8	
	70		1.00	28.0		25.2		22.4	
	75		0.93	30.0		27.0		24.0	
	80		0.87	32.0		28.8		25.6	
	90		0.77	36.0		32.4		28.8	
	100		0.70	40.0		36.0		32.0	
16	20	8	4.44	8.0	343 (35)	7.2	309 (32)	6.4	275 (28)
	25		3.50	10.0		9.0		8.0	
	30		2.92	12.0		10.8		9.6	
	35		2.50	14.0		12.6		11.2	
	40		2.19	16.0		14.4		12.8	
	45		1.95	18.0		16.2		14.4	
	50		1.75	20.0		18.0		16.0	
	55		1.60	22.0		19.8		17.6	
	60		1.46	24.0		21.6		19.2	
	65		1.35	26.0		23.4		20.8	
	70		1.25	28.0		25.2		22.4	
	75		1.17	30.0		27.0		24.0	
	80		1.10	32.0		28.8		25.6	
	90		0.98	36.0		32.4		28.8	
	100		0.88	40.0		36.0		32.0	
18	20	9	5.56	8.0	429 (44)	7.2	389 (40)	6.4	340 (35)
	25		4.44	10.0		9.0		8.0	
	30		3.70	12.0		10.8		9.6	
	35		3.11	14.0		12.6		11.2	
	40		2.67	16.0		14.4		12.8	
	45		2.33	18.0		16.2		14.4	
	50		2.00	20.0		18.0		16.0	
	55		1.78	22.0		19.8		17.6	
	60		1.60	24.0		21.6		19.2	
	65		1.48	26.0		23.4		20.8	
	70		1.37	28.0		25.2		22.4	
	75		1.28	30.0		27.0		24.0	
	80		1.20	32.0		28.8		25.6	
	90		1.07	36.0		32.4		28.8	
	100		0.96	40.0		36.0		32.0	

Die Springs

สปริงแม่พิมพ์

Light Load Spring - สปริงรับแรงกดที่มีค่าน้อย

ORDER
EXAMPLE

Model D - L
19SL25-050

สปริงสีน้ำเงิน
Blue Spring
Model: 19SL

Spring Load Chart
Light <  > Heavy



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				40% Deflection	Load N (kgf)	36% Deflection	Load N (kgf)	32% Deflection	Load N (kgf)
18	20	9	5.42	8.0	422 (43)	7.2	380 (39)	6.4	337 (34)
	25		4.30	10.0		9.0		8.0	
	30		3.58	12.0		10.8		9.6	
	35		3.07	14.0		12.6		11.2	
	40		2.69	16.0		14.4		12.8	
	45		2.39	18.0		16.2		14.4	
	50		2.15	20.0		18.0		16.0	
	55		1.96	22.0		19.8		17.6	
	60		1.79	24.0		21.6		19.2	
	65		1.66	26.0		23.4		20.8	
	70		1.54	28.0		25.2		22.4	
	75		1.44	30.0		27.0		24.0	
	80		1.35	32.0		28.8		25.6	
	90		1.20	36.0		32.4		28.8	
	100		1.07	40.0		36.0		32.0	
20	125		0.86	50.0		45.0		40.0	
	20	10	6.81	8.0	530 (54)	7.2	477 (48)	6.4	424 (43)
	25		5.40	10.0		9.0		8.0	
	30		4.50	12.0		10.8		9.6	
	35		3.86	14.0		12.6		11.2	
	40		3.38	16.0		14.4		12.8	
	45		3.00	18.0		16.2		14.4	
	50		2.70	20.0		18.0		16.0	
	55		2.45	22.0		19.8		17.6	
	60		2.25	24.0		21.6		19.2	
	65		2.08	26.0		23.4		20.8	
	70		1.93	28.0		25.2		22.4	
	75		1.80	30.0		27.0		24.0	
	80		1.69	32.0		28.8		25.6	
	90		1.50	36.0		32.4		28.8	
	100		1.35	40.0		36.0		32.0	
22	125		1.08	50.0		45.0		40.0	
	150		0.90	60.0		54.0		48.0	
	175		0.77	70.0		63.0		56.0	
	25	11	6.70	10.0	657 (67)	9.0	591 (60)	8.0	526 (54)
	30		5.60	12.0		10.8		9.6	
	35		4.80	14.0		12.6		11.2	
	40		4.20	16.0		14.4		12.8	
	45		3.72	18.0		16.2		14.4	
	50		3.35	20.0		18.0		16.0	
	55		3.05	22.0		19.8		17.6	
	60		2.80	24.0		21.6		19.2	
	65		2.58	26.0		23.4		20.8	
	70		2.40	28.0		25.2		22.4	
	75		2.23	30.0		27.0		24.0	
	80		2.10	32.0		28.8		25.6	
	90		1.86	36.0		32.4		28.8	
	100		1.68	40.0		36.0		32.0	
	125		1.34	50.0		45.0		40.0	
	150		1.12	60.0		54.0		48.0	
	175		0.96	70.0		63.0		56.0	

Die Springs

Light Load Spring - สปริงรับแรงกดที่มีค่าน้อย

ORDER
EXAMPLE

Model D - L
19SL25-050

สปริงสีน้ำเงิน
Blue Spring
Model: 19SL



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				40% Deflection	Load N (kgf)	36% Deflection	Load N (kgf)	32% Deflection	Load N (kgf)
25	25	12.5	8.40	10.0	824 (84)	9.0	741 (76)	8.0	659 (67)
	30		7.00	12.0		10.8		9.6	
	35		6.00	14.0		12.6		11.2	
	40		5.25	16.0		14.4		12.8	
	45		4.67	18.0		16.2		14.4	
	50		4.20	20.0		18.0		16.0	
	55		3.82	22.0		19.8		17.6	
	60		3.50	24.0		21.6		19.2	
	65		3.23	26.0		23.4		20.8	
	70		3.00	28.0		25.2		22.4	
	75		2.80	30.0		27.0		24.0	
	80		2.63	32.0		28.8		25.6	
	90		2.33	36.0		32.4		28.8	
	100		2.10	40.0		36.0		32.0	
	125		1.68	50.0		45.0		40.0	
	150		1.40	60.0		54.0		48.0	
27	25	13.5	10.00	10.0	981 (100)	9.0	883 (90)	8.0	785 (80)
	30		8.33	12.0		10.8		9.6	
	35		7.14	14.0		12.6		11.2	
	40		6.25	16.0		14.4		12.8	
	45		5.56	18.0		16.2		14.4	
	50		5.00	20.0		18.0		16.0	
	55		4.55	22.0		19.8		17.6	
	60		4.17	24.0		21.6		19.2	
	65		3.85	26.0		23.4		20.8	
	70		3.57	28.0		25.2		22.4	
	75		3.33	30.0		27.0		24.0	
	80		3.13	32.0		28.8		25.6	
	90		2.78	36.0		32.4		28.8	
	100		2.50	40.0		36.0		32.0	
	125		2.00	50.0		45.0		40.0	
	150		1.67	60.0		54.0		48.0	
30	25	15	12.11	10.0	1186 (121)	9.0	1067 (109)	8.0	949 (97)
	30		10.08	12.0		10.8		9.6	
	35		8.65	14.0		12.6		11.2	
	40		7.56	16.0		14.4		12.8	
	45		6.73	18.0		16.2		14.4	
	50		6.05	20.0		18.0		16.0	
	55		5.50	22.0		19.8		17.6	
	60		5.04	24.0		21.6		19.2	
	65		4.65	26.0		23.4		20.8	
	70		4.32	28.0		25.2		22.4	
	75		4.03	30.0		27.0		24.0	
	80		3.78	32.0		28.8		25.6	
	90		3.36	36.0		32.4		28.8	
	100		3.02	40.0		36.0		32.0	
	125		2.42	50.0		45.0		40.0	
	150		2.01	60.0		54.0		48.0	
30	175		1.72	70.0		63.0		56.0	
	200		1.51	80.0		72.0		64.0	

Die Springs

สปริงแม่พิมพ์

Light Load Spring - สปริงรับแรงกดที่มีค่าน้อย

ORDER
EXAMPLE

Model D - L
19SL25-050

สปริงสีน้ำเงิน
Blue Spring
Model: 19SL

Spring Load Chart
Light <  > Heavy



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				40% Deflection	Load N (kgf)	36% Deflection	Load N (kgf)	32% Deflection	Load N (kgf)
35	35	17.5	11.78	14.0	1617 (165)	12.6	1455 (148)	11.2	1294 (132)
	40		10.31	16.0		14.4		12.8	
	45		9.17	18.0		16.2		14.4	
	50		8.25	20.0		18.0		16.0	
	55		7.50	22.0		19.8		17.6	
	60		6.87	24.0		21.6		19.2	
	65		6.35	26.0		23.4		20.8	
	70		5.89	28.01		25.2		22.4	
	75		5.50	30.0		27.0		24.0	
	80		5.15	32.0		28.8		25.6	
	90		4.58	36.0		32.4		28.8	
	100		4.12	40.0		36.0		32.0	
	125		3.30	50.0		45.0		40.0	
	150		2.75	60.0		54.0		48.0	
	175		2.35	70.0		63.0		56.0	
	200		2.06	80.0		72.0		64.0	
40	40	20	13.50	16.0	2117 (216)	14.4	1905 (194)	12.8	1694 (173)
	45		12.00	18.0		16.2		14.4	
	50		10.80	20.0		18.0		16.0	
	55		9.82	22.0		19.8		17.6	
	60		9.00	24.0		21.6		19.2	
	65		8.31	26.0		23.4		20.8	
	70		7.71	28.0		25.2		22.4	
	75		7.20	30.0		27.0		24.0	
	80		6.70	32.0		28.8		25.6	
	90		6.00	36.0		32.4		28.8	
	100		5.40	40.0		36.0		32.0	
	125		4.32	50.0		45.0		40.0	
	150		3.60	60.0		54.0		48.0	
	175		3.08	70.0		63.0		56.0	
	200		2.70	80.0		72.0		64.0	
	225		2.40	90.0		81.0		72.0	
	250		2.16	100.0		90.0		80.0	
	275		1.96	110.0		99.0		88.0	
	300		1.80	120.0		108.0		96.0	
50	50	25	16.89	20.0	3312 (338)	18.0	2981 (304)	16.0	2650 (270)
	55		15.35	22.0		19.8		17.6	
	60		14.08	24.0		21.6		19.2	
	65		12.99	26.0		23.4		20.8	
	70		12.07	28.0		25.2		22.4	
	75		11.26	30.0		27.0		24.0	
	80		10.56	32.0		28.8		25.6	
	90		9.38	36.0		32.4		28.8	
	100		8.45	40.0		36.0		32.0	
	125		6.76	50.0		45.0		40.0	
	150		5.63	60.0		54.0		48.0	
	175		4.82	70.0		63.0		56.0	
	200		4.22	80.0		72.0		64.0	
	225		3.75	90.0		81.0		72.0	
	250		3.38	100.0		90.0		80.0	
	275		3.07	110.0		99.0		88.0	
	300		2.81	120.0		108.0		96.0	
	350		2.41	140.0		126.0		112.0	
	400		2.11	160.0		144.0		128.0	
	450		1.88	180.0		162.0		144.0	
	500		1.69	200.0		180.0		160.0	

Die Springs

Light Load Spring - สปริงรับแรงกดที่มีค่าน้อย

ORDER
EXAMPLE

Model D - L
19SL25-050

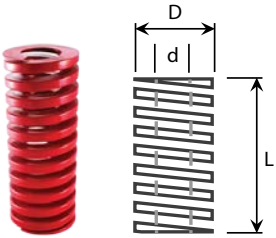
สปริงสีน้ำเงิน
Blue Spring
Model: 19SL



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				40% Deflection	Load N (kgf)	36% Deflection	Load N (kgf)	32% Deflection	Load N (kgf)
60	60	30	20.25	24.0	4770 (486)	21.6	4293 (438)	19.2	3816 (389)*
	70		17.35	28.0		25.2		22.4	
	80		15.18	32.0		28.8		25.6	
	90		13.50	36.0		32.4		28.8	
	100		12.15	40.0		36.0		32.0	
	125		9.72	50.0		45.0		40.0	
	150		8.10	60.0		54.0		48.0	
	175		6.94	70.0		63.0		56.0	
	200		6.07	80.0		72.0		64.0	
	225		5.40	90.0		81.0		72.0	
	250		4.86	100.0		90.0		80.0	
	275		4.42	110.0		99.0		88.0	
	300		4.05	120.0		108.0		96.0	
	350		3.47	140.0		126.0		112.0	
	400		3.04	160.0		144.0		128.0	
	450		2.70	180.0		162.0		144.0	
	500		2.43	200.0		180.0		160.0	
70	70	38.5	21.79	28.0	5978 (610)	25.2	5380 (549)	22.4	4782 (488)
	80		19.06	32.0		28.8		25.6	
	90		16.94	36.0		32.4		28.8	
	100		15.25	40.0		36.0		32.0	
	125		12.20	50.0		45.0		40.0	
	150		10.17	60.0		54.0		48.0	
	175		8.71	70.0		63.0		56.0	
	200		7.62	80.0		72.0		64.0	
	225		6.78	90.0		81.0		72.0	
	250		6.10	100.0		90.0		80.0	
	275		5.55	110.0		99.0		88.0	
	300		5.08	120.0		108.0		96.0	
	350		4.36	140.0		126.0		112.0	

สปริงแม่พิมพ์

Medium Load Spring - สปริงรับแรงกดที่มีค่าปานกลาง



สปริงสีแดง
Red Spring
Model: 19SM



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 2° or less

ระยะเพื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1

ORDER EXAMPLE Model D - L 19SM25-050

SAE9245 JIS Standard

D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				32% Deflection	Load N (kgf)	28.8% Deflection	Load N (kgf)	25.6% Deflection	Load N (kgf)
6	15	3	2.08	4.8	98 (10)	4.3	88 (9)	3.8	79 (8)
	20		1.56	6.4		5.8		5.1	
	25		1.25	8.0		7.2		6.4	
	30		1.04	9.6		8.6		7.7	
	35		0.89	11.2		10.1		9.0	
	40		0.78	12.8		11.5		10.2	
	45		0.69	14.4		13.0		11.5	
	50		0.63	16.0		14.4		12.8	
	55		0.57	17.6		15.8		14.1	
	60		0.52	19.2		17.3		15.4	
8	10	4	4.34	3.2	137 (14)	2.9	123 (13)	2.6	110 (11)
	15		2.89	4.8		4.3		3.8	
	20		2.17	6.4		5.8		5.1	
	25		1.74	8.0		7.2		6.4	
	30		1.45	9.6		8.6		7.7	
	35		1.24	11.2		10.1		9.0	
	40		1.09	12.8		11.5		10.2	
	45		0.97	14.4		13.0		11.5	
	50		0.87	16.0		14.4		12.8	
	55		0.79	17.6		15.8		14.1	
	60		0.72	19.2		17.3		15.4	
	65		0.67	20.8		18.7		16.6	
	70		0.62	22.4		20.2		17.9	
	75		0.58	24.0		21.6		19.2	
	80		0.54	25.6		23.0		20.5	
	90		0.48	28.8		25.9		23.0	
	100		0.44	32.0		28.8		25.6	
10	10	5	6.21	3.2	196 (20)	2.9	176 (18)	2.6	157 (16)
	15		4.09	4.8		4.4		3.8	
	20		3.13	6.4		5.8		5.1	
	25		2.50	8.0		7.2		6.4	
	30		2.08	9.6		8.6		7.7	
	35		1.78	11.2		10.1		9.0	
	40		1.56	12.8		11.5		10.2	
	45		1.38	14.4		13.0		11.5	
	50		1.25	16.0		14.4		12.8	
	55		1.13	17.6		15.8		14.1	
	60		1.04	19.2		17.3		15.4	
	65		0.96	20.8		18.7		16.6	
	70		0.89	22.4		20.2		17.9	
	75		0.83	24.0		21.6		19.2	
	80		0.78	25.6		23.0		20.5	
	90		0.70	28.8		25.9		23.0	
	100		0.63	32.0		28.8		25.6	
	125		0.50	40.0		36.0		32.0	

Medium Load Spring - สปริงรับแรงกดที่มีค่าปานกลาง

ORDER
EXAMPLE

Model D - L
19SM25-050

สปริงสีแดง
Red Spring
Model: 19SM



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				32% Deflection	Load N (kgf)	28.8% Deflection	Load N (kgf)	25.6% Deflection	Load N (kgf)
12	20	6	4.53	6.4	284 (29)	5.8	256 (26)	5.1	227 (23)
	25		3.62	8.0		7.2		6.4	
	30		3.02	9.6		8.6		7.7	
	35		2.58	11.2		10.1		9.0	
	40		2.27	12.8		11.5		10.2	
	45		2.01	14.4		13.0		11.5	
	50		1.81	16.0		14.4		12.8	
	55		1.64	17.6		15.8		14.1	
	60		1.51	19.2		17.3		15.4	
	65		1.39	20.8		18.7		16.6	
	70		1.29	22.4		20.2		17.9	
	75		1.20	24.0		21.6		19.2	
	80		1.13	25.6		23.0		20.5	
	90		1.01	28.8		25.9		23.0	
	100		0.91	32.0		28.8		25.6	
	125		0.72	40.4		36.0		32.0	
14	20	7	6.03	6.4	383 (39)	5.8	345 (35)	5.1	306 (31)
	25		4.87	8.0		7.2		6.4	
	30		4.06	9.6		8.6		7.7	
	35		3.48	11.2		10.1		9.0	
	40		3.04	12.8		11.5		10.2	
	45		2.70	14.4		13.0		11.5	
	50		2.43	16.0		14.4		12.8	
	55		2.21	17.6		15.8		14.1	
	60		2.03	19.2		17.3		15.4	
	65		1.87	20.8		18.7		16.6	
	70		1.74	22.4		20.2		17.9	
	75		1.62	24.0		21.6		19.2	
	80		1.52	25.6		23.0		20.5	
	90		1.35	28.8		25.9		23.0	
	100		1.22	32.0		28.8		25.6	
	125		0.97	40.0		36.0		32.0	
16	20	8	7.93	6.4	500 (51)	5.8	450 (46)	5.1	400 (41)
	25		6.39	8.0		7.2		6.4	
	30		5.32	9.6		8.6		7.7	
	35		4.55	11.2		10.1		9.0	
	40		3.98	12.8		11.5		10.2	
	45		3.54	14.4		13.0		11.5	
	50		3.18	16.0		14.4		12.8	
	55		2.89	17.6		15.8		14.1	
	60		2.65	19.2		17.3		15.4	
	65		2.45	20.8		18.7		16.6	
	70		2.27	22.4		20.2		17.9	
	75		2.11	24.0		21.6		19.2	
	80		1.99	25.6		23.0		20.5	
	90		1.77	28.8		25.9		23.0	
	100		1.59	32.0		28.8		25.6	
	125		1.28	40.0		36.0		32.0	

Die Springs

Medium Load Spring - สปริงรับแรงกดที่มีค่าปานกลาง

ORDER
EXAMPLE

Model D - L
19SM25-050

สปริงสีแดง
Red Spring
Model: 19SM



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				32% Deflection	Load N (kgf)	28.8% Deflection	Load N (kgf)	25.6% Deflection	Load N (kgf)
18	20	9	10.00	6.4	637 (65)	5.8	574 (59)	5.1	510 (52)
	25		8.12	8.0		7.2		6.4	
	30		6.77	9.6		8.6		7.7	
	35		5.80	11.2		10.1		9.0	
	40		5.07	12.8		11.5		10.2	
	45		4.51	14.4		13.0		11.5	
	50		4.06	16.0		14.4		12.8	
	55		3.69	17.6		15.8		14.1	
	60		3.38	19.2		17.3		15.4	
	65		3.12	20.8		18.7		16.6	
	70		2.90	22.4		20.2		17.9	
	75		2.70	24.0		21.6		19.2	
	80		2.53	25.6		23.0		20.5	
	90		2.25	28.8		25.9		23.0	
	100		2.02	32.0		28.8		25.6	
	125		1.62	40.0		36.0		32.0	
20	20	10	12.41	6.4	784 (80)	5.8	706 (72)	5.1	628 (64)
	25		10.00	8.0		7.2		6.4	
	30		8.33	9.6		8.6		7.7	
	35		7.14	11.2		10.1		9.0	
	40		6.25	12.8		11.5		10.2	
	45		5.55	14.4		13.0		11.5	
	50		5.00	16.0		14.4		12.8	
	55		4.54	17.6		15.8		14.1	
	60		4.16	19.2		17.3		15.4	
	65		3.84	20.8		18.7		16.6	
	70		3.57	22.4		20.2		17.9	
	75		3.33	24.0		21.6		19.2	
	80		3.12	25.6		23.0		20.5	
	90		2.77	28.8		25.9		23.0	
	100		2.50	32.0		28.8		25.6	
	125		2.00	40.0		36.0		32.0	
22	150	11	1.67	48.0	951 (97)	43.2	856 (87)	38.4	761 (78)
	175		1.43	56.0		50.4		44.8	
	25		12.13	8.0		7.2		6.4	
	30		10.10	9.6		8.6		7.7	
	35		8.65	11.2		10.1		9.0	
	40		7.57	12.8		11.5		10.2	
	45		6.74	14.4		13.0		11.5	
	50		6.06	16.0		14.4		12.8	
	55		5.50	17.6		15.8		14.1	
	60		5.05	19.2		17.3		15.4	
	65		4.66	20.8		18.7		16.6	
	70		4.33	22.4		20.2		17.9	
	75		4.04	24.0		21.6		19.2	
	80		3.78	25.6		23.0		20.5	
	90		3.36	28.8		25.9		23.0	
	100		3.03	32.0		28.8		25.6	
	125		2.42	40.0		36.0		32.0	
	150		2.01	48.0		43.2		38.4	
	175		1.73	56.0		50.4		44.8	

Die Springs

Medium Load Spring - สปริงรับแรงกดที่มีค่าปานกลาง

ORDER
EXAMPLE

Model D - L
19SM25-050

สปริงสีแดง
Red Spring
Model: 19SM



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				32% Deflection	Load N (kgf)	28.8% Deflection	Load N (kgf)	25.6% Deflection	Load N (kgf)
25	25	12.5	15.63	8.0	1225 (125)	7.2	1103 (113)	6.4	981 (100)
	30		13.02	9.6		8.6		7.7	
	35		11.20	11.2		10.1		9.0	
	40		9.76	12.8		11.5		10.2	
	45		8.68	14.4		13.0		11.5	
	50		7.81	16.0		14.4		12.8	
	55		7.10	17.6		15.8		14.1	
	60		6.51	19.2		17.3		15.4	
	65		6.00	20.8		18.7		16.6	
	70		5.58	22.4		20.2		17.9	
	75		5.21	24.0		21.6		19.2	
	80		4.88	25.6		23.0		20.5	
	90		4.34	28.8		25.9		23.0	
	100		3.90	32.0		28.8		25.6	
	125		3.12	40.0		36.0		32.0	
	150		2.60	48.0		43.2		38.4	
	175		2.23	56.0		50.4		44.8	
	200		1.95	64.0		57.6		51.2	
27	25	13.5	18.25	8.0	1431 (146)	7.2	1288 (131)	6.4	1145 (117)
	30		15.20	9.6		8.6		7.7	
	35		13.04	11.2		10.1		9.0	
	40		11.40	12.8		11.5		10.2	
	45		10.14	14.4		13.0		11.5	
	50		9.12	16.0		14.4		12.8	
	55		8.30	17.6		15.8		14.1	
	60		7.60	19.2		17.3		15.4	
	65		7.00	20.8		18.7		16.6	
	70		6.51	22.4		20.2		17.9	
	75		6.08	24.0		21.6		19.2	
	80		5.70	25.6		23.0		20.5	
	90		5.06	28.8		25.9		23.0	
	100		4.56	32.0		28.8		25.6	
	125		3.65	40.0		36.0		32.0	
	150		3.04	48.0		43.2		38.4	
	175		2.61	56.0		50.4		44.8	
	200		2.28	64.0		57.6		51.2	
30	25	15	22.50	8.0	1765 (180)	7.2	1589 (162)	6.4	1412 (144)
	30		18.75	9.6		8.6		7.7	
	35		16.10	11.2		10.1		9.0	
	40		14.06	12.8		11.5		10.2	
	45		12.50	14.4		13.0		11.5	
	50		11.25	16.0		14.4		12.8	
	55		10.23	17.6		15.8		14.1	
	60		9.37	19.2		17.3		15.4	
	65		8.65	20.8		18.7		16.6	
	70		8.03	22.4		20.2		17.9	
	75		7.50	24.0		21.6		19.2	
	80		7.03	25.6		23.0		20.5	
	90		6.25	28.8		25.9		23.0	
	100		5.62	32.0		28.8		25.6	
	125		4.50	40.0		36.0		32.0	
	150		3.75	48.0		43.2		38.4	
	175		3.21	56.0		50.4		44.8	
	200		2.81	64.0		57.6		51.2	

Die Springs

สปริงแม่พิมพ์

Medium Load Spring - สปริงรับแรงกดที่มีค่าปานกลาง

ORDER
EXAMPLE

Model D - L
19SM25-050

สปริงสีแดง
Red Spring
Model: 19SM



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				32% Deflection	Load N (kgf)	28.8% Deflection	Load N (kgf)	25.6% Deflection	Load N (kgf)
35	35	17.5	21.87	11.2	2401 (245)	10.1	2161 (220)	9.0	1921 (196)
	40		19.14	12.8		11.5		10.2	
	45		17.01	14.4		13.0		11.5	
	50		15.31	16.0		14.4		12.8	
	55		13.92	17.6		15.8		14.1	
	60		12.76	19.2		17.3		15.4	
	65		11.77	20.8		18.7		16.6	
	70		10.93	22.4		20.2		17.9	
	75		10.20	24.0		21.6		19.2	
	80		9.57	25.6		23.0		20.5	
	90		8.50	28.8		25.9		23.0	
	100		7.65	32.0		28.8		25.6	
	125		6.12	40.0		36.0		32.0	
	150		5.10	48.0		43.2		38.4	
	175		4.37	56.0		50.4		44.8	
	200		3.82	64.0		57.6		51.2	
40	40	20	25.02	12.8	3138 (320)	11.5	2824 (288)	10.2	2510 (256)
	45		22.26	14.4		13.0		11.5	
	50		20.00	16.0		14.4		12.8	
	55		18.15	17.6		15.8		14.1	
	60		16.60	19.2		17.3		15.4	
	65		15.40	20.8		18.7		16.6	
	70		14.28	22.4		20.2		17.9	
	75		13.34	24.0		21.6		19.2	
	80		12.50	25.6		23.0		20.5	
	90		11.11	28.8		25.9		23.0	
	100		10.00	32.0		28.8		25.6	
	125		8.00	40.0		36.0		32.0	
	150		6.66	48.0		43.2		38.4	
	175		5.71	56.0		50.4		44.8	
	200		5.00	64.0		57.6		51.2	
	225		4.44	72.0		64.8		57.6	
50	250	25	4.00	80.0	4900 (500)	72.0	4410 (450)	64.0	3920 (400)
	275		3.64	88.0		79.2		70.4	
	300		3.33	96.0		86.4		76.8	
	50		31.25	16.0		14.4		12.8	
	55		28.41	17.6		15.8		14.1	
	60		26.04	19.2		17.3		15.4	
	65		24.04	20.8		18.7		16.6	
	70		22.32	22.4		20.2		17.9	
	75		20.83	24.0		21.6		19.2	
	80		19.53	25.6		23.0		20.5	
	90		17.36	28.8		25.9		23.0	
	100		15.62	32.0		28.8		25.6	
	125		12.50	40.0		36.0		32.0	
	150		10.41	48.0		43.2		38.4	
	175		8.92	56.0		50.4		44.8	
	200		7.81	64.0		57.6		51.2	
	225		6.94	72.0		64.8		57.6	
	250		6.25	80.0		72.0		64.0	
	275		5.68	88.0		79.2		70.4	
	300		5.20	96.0		86.4		76.8	
	350		4.46	112.0		100.8		89.6	

Medium Load Spring - สปริงรับแรงกดที่มีค่าปานกลาง

ORDER
EXAMPLE

Model D - L
19SM25-050

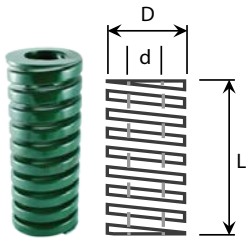
สปริงสีแดง
Red Spring
Model: 19SM



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				32% Deflection	Load N (kgf)	28.8% Deflection	Load N (kgf)	25.6% Deflection	Load N (kgf)
60	60	30	37.40	19.2	7056 (720)	17.3	6350 (648)	15.4	5645 (576)
	70		32.10	22.4		20.2		17.9	
	80		28.12	25.6		23.0		20.5	
	90		25.00	28.8		25.9		23.0	
	100		22.50	32.0		28.8		25.6	
	125		18.00	40.0		36.0		32.0	
	150		15.00	48.0		43.2		38.4	
	175		12.85	56.0		50.4		44.8	
	200		11.25	64.0		57.6		51.2	
	225		10.00	72.0		64.8		57.6	
	250		9.00	80.0		72.0		64.0	
	275		8.18	88.0		79.2		70.4	
	300		7.50	96.0		86.4		76.8	
	350		6.43	112.0		100.8		89.6	
70	70	38.5	37.9	22.4	8330 (850)	20.2	7497 (764)	17.9	6664 (680)
	80		33.2	25.6		23.0		20.5	
	90		29.5	28.8		25.9		23.0	
	100		26.6	32.0		28.8		25.6	
	125		21.3	40.0		36.0		32.0	
	150		17.7	48.0		43.2		38.4	
	175		15.2	56.0		50.4		44.8	
	200		13.3	64.0		57.6		51.2	
	225		11.8	72.0		64.8		57.6	
	250		10.6	80.0		72.0		64.0	
	275		9.7	88.0		79.2		70.4	
	300		8.9	96.0		86.4		76.8	
	350		7.6	112.0		100.8		89.6	

สปริงแม่พิมพ์

Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูง



สปริงสีเขียวเข้ม
Dark Green Spring
Model: 19SH



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 2° or less

ระยะเพื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1

ORDER EXAMPLE Model D - L
19SH25-050

SAE9245
JIS Standard

D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				24% Deflection	Load N (kgf)	21.6% Deflection	Load N (kgf)	19.5% Deflection	Load N (kgf)
6	15	3	3.90	3.6	137 (14)	3.2	123 (13)	2.9	110 (11)
	20		2.90	4.8		4.3		3.8	
	25		2.30	6.0		5.4		4.8	
	30		1.90	7.2		6.5		5.8	
	35		1.70	8.4		7.6		6.7	
	40		1.50	9.6		8.6		7.7	
	45		1.30	10.8		9.7		8.6	
	50		1.20	12.0		10.8		9.6	
	55		1.10	13.2		11.9		10.6	
	60		1.00	14.4		13.0		11.5	
8	10	4	8.80	2.4	206 (21)	2.2	185 (19)	1.9	165 (17)
	15		5.86	3.6		3.2		2.9	
	20		4.40	4.8		4.3		3.8	
	25		3.52	6.0		5.4		4.8	
	30		2.93	7.2		6.5		5.8	
	35		2.51	8.4		7.6		6.7	
	40		2.20	9.6		8.6		7.7	
	45		1.95	10.8		9.7		8.6	
	50		1.76	12.0		10.8		9.6	
	55		1.60	13.2		11.9		10.6	
	60		1.47	14.4		13.0		11.5	
	65		1.35	15.6		14.0		12.5	
	70		1.26	16.8		15.1		13.4	
	75		1.17	18.0		16.2		14.4	
	80		1.10	19.2		17.3		15.4	
	90		0.98	21.6		19.4		17.3	
	100		0.87	24.0		21.6		19.2	
10	10	5	12.27	2.4	294 (30)	2.2	265 (27)	1.9	235 (24)
	15		8.18	3.6		3.3		2.9	
	20		6.25	4.8		4.3		3.8	
	25		5.00	6.0		5.4		4.8	
	30		4.16	7.2		6.5		5.8	
	35		3.57	8.4		7.6		6.7	
	40		3.15	9.6		8.6		7.7	
	45		2.77	10.8		9.7		8.6	
	50		2.50	12.0		10.8		9.6	
	55		2.27	13.2		11.9		10.6	
	60		2.08	14.4		13.0		11.5	
	65		1.92	15.6		14.0		12.5	
	70		1.79	16.8		15.1		13.4	
	75		1.67	18.0		16.2		14.4	
	80		1.56	19.2		17.3		15.4	
	90		1.39	21.6		19.4		17.3	
	100		1.25	24.0		21.6		19.2	
	125		1.00	30.0		27.0		24.0	

Die Springs

Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูง

ORDER
EXAMPLE

Model D - L
19SH25-050

สปริงสีเขียวเข้ม
Dark Green Spring
Model: 19SH



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				24% Deflection	Load N (kgf)	21.6% Deflection	Load N (kgf)	19.5% Deflection	Load N (kgf)
12	20	6	8.90	4.8	421 (43)	4.3	379 (38)	3.8	337 (34)
	25		7.10	6.0		5.4		4.8	
	30		5.97	7.2		6.5		5.8	
	35		5.11	8.4		7.6		6.7	
	40		4.47	9.6		8.6		7.7	
	45		3.98	10.8		9.7		8.6	
	50		3.58	12.0		10.8		9.6	
	55		3.25	13.2		11.9		10.6	
	60		2.98	14.4		13.0		11.5	
	65		2.74	15.6		14.0		12.5	
	70		2.54	16.8		15.1		13.4	
	75		2.37	18.0		16.2		14.4	
	80		2.21	19.2		17.3		15.4	
	90		1.98	21.6		19.4		17.3	
	100		1.78	24.0		21.6		19.2	
	125		1.42	30.0		27.0		24.0	
14	20	7	12.05	4.8	578 (59)	4.4	520 (53)	3.8	462 (47)
	25		9.83	6.0		5.4		4.8	
	30		8.19	7.2		6.5		5.8	
	35		7.02	8.4		7.6		6.7	
	40		6.14	9.6		8.6		7.7	
	45		5.46	10.8		9.7		8.6	
	50		4.91	12.0		10.8		9.6	
	55		4.46	13.2		11.9		10.6	
	60		4.09	14.4		13.0		11.5	
	65		3.78	15.6		14.0		12.5	
	70		3.51	16.8		15.1		13.4	
	75		3.27	18.0		16.2		14.4	
	80		3.07	19.2		17.3		15.4	
	90		2.72	21.6		19.4		17.3	
	100		2.46	24.0		21.6		19.2	
	125		1.97	30.0		27.0		24.0	
16	20	8	15.68	4.8	755 (77)	4.4	680 (690)	3.8	604 (62)
	25		12.83	6.0		5.4		4.8	
	30		10.69	7.2		6.5		5.8	
	35		9.16	8.4		7.6		6.7	
	40		8.02	9.6		8.6		7.7	
	45		7.12	10.8		9.7		8.6	
	50		6.41	12.0		10.8		9.6	
	55		5.83	13.2		11.9		10.6	
	60		5.34	14.4		13.0		11.5	
	65		4.93	15.6		14.0		12.5	
	70		4.58	16.8		15.1		13.4	
	75		4.28	18.0		16.2		14.4	
	80		4.01	19.2		17.3		15.4	
	90		3.57	21.6		19.4		17.3	
	100		3.21	24.0		21.6		19.2	
	125		2.57	30.0		27.0		24.0	

Die Springs

Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูง

ORDER
EXAMPLE

Model D - L
19SH25-050

สปริงสีเขียวเข้ม
Dark Green Spring
Model: 19SH



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				24% Deflection	Load N (kgf)	21.6% Deflection	Load N (kgf)	19.5% Deflection	Load N (kgf)
18	20	9	19.77	4.8	951 (97)	4.4	856 (87)	3.8	761 (78)
	25		16.16	6.0		5.4		4.8	
	30		13.47	7.2		6.5		5.8	
	35		11.54	8.4		7.6		6.7	
	40		10.10	9.6		8.6		7.7	
	45		8.98	10.8		9.7		8.6	
	50		8.08	12.0		10.8		9.6	
	55		7.34	13.2		11.9		10.6	
	60		6.73	14.4		13.0		11.5	
	65		6.21	15.6		14.0		12.5	
	70		5.77	16.8		15.1		13.4	
	75		5.39	18.0		16.2		14.4	
	80		5.05	19.2		17.3		15.4	
	90		4.50	21.6		19.4		17.3	
	100		4.04	24.0		21.6		19.2	
	125		3.23	30.0		27.0		24.0	
20	20	10	24.55	4.8	1176 (120)	4.4	1058 (108)	3.7	941 (96)
	25		20.00	6.0		5.4		4.8	
	30		16.66	7.2		6.5		5.8	
	35		14.28	8.4		7.6		6.7	
	40		12.50	9.6		8.6		7.7	
	45		11.11	10.8		9.7		8.6	
	50		10.00	12.0		10.8		9.6	
	55		9.09	13.2		11.9		10.6	
	60		8.33	14.4		13.0		11.5	
	65		7.69	15.6		14.0		12.5	
	70		7.14	16.8		15.1		13.4	
	75		6.67	18.0		16.2		14.4	
	80		6.25	19.2		17.3		15.4	
	90		5.55	21.6		19.4		17.3	
	100		5.00	24.0		21.6		19.2	
	125		4.00	30.0		27.0		24.0	
	150		3.33	36.0		32.4		28.8	
	175		2.86	42.0		37.8		33.6	
22	25	11	24.16	6.0	1421 (145)	5.4	1279 (130)	4.8	1137 (116)
	30		20.13	7.2		6.5		5.8	
	35		17.30	8.4		7.6		6.7	
	40		15.10	9.6		8.6		7.7	
	45		13.40	10.8		9.7		8.6	
	50		12.08	12.0		10.8		9.6	
	55		10.94	13.2		11.9		10.6	
	60		10.06	14.4		13.0		11.5	
	65		9.28	15.6		14.0		12.5	
	70		8.63	16.8		15.1		13.4	
	75		8.04	18.0		16.2		14.4	
	80		7.55	19.2		17.3		15.4	
	90		6.71	21.6		19.4		17.3	
	100		6.04	24.0		21.6		19.2	
	125		4.83	30.0		27.0		24.0	
	150		4.02	36.0		32.4		28.8	
	175		3.45	42.0		37.8		33.6	

Die Springs

Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูง

ORDER
EXAMPLE

Model D - L
19SH25-050

สปริงสีเขียวเข้ม
Dark Green Spring
Model: 19SH



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				24% Deflection	Load N (kgf)	21.6% Deflection	Load N (kgf)	19.5% Deflection	Load N (kgf)
25	25	12.5	31.20	6.0	1833 (187)	5.4	1650 (168)	4.8	1466 (150)
	30		25.97	7.2		6.5		5.8	
	35		22.38	8.4		7.6		6.7	
	40		19.47	9.6		8.6		7.7	
	45		17.40	10.8		9.7		8.6	
	50		15.58	12.0		10.8		9.6	
	55		14.20	13.2		11.9		10.6	
	60		12.98	14.4		13.0		11.5	
	65		12.00	15.6		14.0		12.5	
	70		11.13	16.8		15.1		13.4	
	75		10.40	18.0		16.2		14.4	
	80		9.73	19.2		17.3		15.4	
	90		8.65	21.6		19.4		17.3	
	100		7.79	24.0		21.6		19.2	
	125		6.23	30.0		27.0		24.0	
	150		5.20	36.0		32.4		28.8	
	175		4.46	42.0		37.8		33.6	
	200		3.90	48.0		43.2		38.4	
27	25	13.5	36.40	6.0	2146 (219)	5.4	1931 (197)	4.8	1717 (175)
	30		30.41	7.2		6.5		5.8	
	35		26.20	8.4		7.6		6.7	
	40		22.81	9.6		8.6		7.7	
	45		20.30	10.8		9.7		8.6	
	50		18.25	12.0		10.8		9.6	
	55		16.50	13.2		11.9		10.6	
	60		15.20	14.4		13.0		11.5	
	65		14.00	15.6		14.0		12.5	
	70		13.03	16.8		15.1		13.4	
	75		12.10	18.0		16.2		14.4	
	80		11.40	19.2		17.3		15.4	
	90		10.13	21.6		19.4		17.3	
	100		9.12	24.0		21.6		19.2	
	125		7.30	30.0		27.0		24.0	
	150		6.08	36.0		32.4		28.8	
	175		5.21	42.0		37.8		33.6	
	200		4.56	48.0		43.2		38.4	
30	25	15	45.00	6.0	2646 (270)	5.4	2381 (243)	4.8	2117 (216)
	30		37.50	7.2		6.5		5.8	
	35		32.26	8.4		7.6		6.7	
	40		28.12	9.6		8.6		7.7	
	45		25.00	10.8		9.7		8.6	
	50		22.50	12.0		10.8		9.6	
	55		20.40	13.2		11.9		10.6	
	60		18.75	14.4		13.0		11.5	
	65		17.30	15.6		14.0		12.5	
	70		16.07	16.8		15.1		13.4	
	75		15.00	18.0		16.2		14.4	
	80		14.06	19.2		17.3		15.4	
	90		12.50	21.6		19.4		17.3	
	100		11.25	24.0		21.6		19.2	
	125		9.00	30.0		27.0		24.0	
	150		7.50	36.0		32.4		28.8	
	175		6.42	42.0		37.8		33.6	
	200		5.62	48.0		43.2		38.4	

Die Springs

สปริงแม่พิมพ์

Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูง

ORDER
EXAMPLE

Model D - L
19SH25-050

สปริงสีเขียวเข้ม
Dark Green Spring
Model: 19SH



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				24% Deflection	Load N (kgf)	21.6% Deflection	Load N (kgf)	19.5% Deflection	Load N (kgf)
35	35	17.5	43.68	8.4	3597 (367)	7.6	3237 (330)	6.7	2878 (293)
	40		38.22	9.6		8.6		7.7	
	45		33.98	10.8		9.7		8.6	
	50		30.58	12.0		10.8		9.6	
	55		27.80	13.2		11.9		10.6	
	60		25.48	14.4		13.0		11.5	
	65		23.53	15.6		14.0		12.5	
	70		21.84	16.8		15.1		13.4	
	75		20.39	18.0		16.2		14.4	
	80		19.11	19.2		17.3		15.4	
	90		16.99	21.6		19.4		17.3	
	100		15.29	24.0		21.6		19.2	
	125		12.23	30.0		27.0		24.0	
	150		10.19	36.0		32.4		28.8	
	175		8.73	42.0		37.8		33.6	
	200		7.64	48.0		43.2		38.4	
40	40	20	50.00	9.6	4704 (480)	8.6	4234 (432)	7.7	3763 (384)
	45		44.44	10.8		9.7		8.6	
	50		40.00	12.0		10.8		9.6	
	55		36.36	13.2		11.9		10.6	
	60		33.33	14.4		13.0		11.5	
	65		30.77	15.6		14.0		12.5	
	70		28.57	16.8		15.1		13.4	
	75		26.67	18.0		16.2		14.4	
	80		25.00	19.2		17.3		15.4	
	90		22.22	21.6		19.4		17.3	
	100		20.00	24.0		21.6		19.2	
	125		16.00	30.0		27.0		24.0	
	150		13.33	36.0		32.4		28.8	
	175		11.42	42.0		37.8		33.6	
	200		10.00	48.0		43.2		38.4	
	225		8.89	54.0		48.6		43.2	
50	250		8.00	60.0		54.0		48.0	
	275		7.27	66.0		59.4		52.8	
	300		6.67	72.0		64.8		57.6	
	50	25	62.50	12.0	7350 (750)	10.8	6615 (675)	9.6	5880 (600)
	55		56.82	13.2		11.9		10.6	
	60		52.08	14.4		13.0		11.5	
	65		48.08	15.6		14.0		12.5	
	70		44.64	16.8		15.1		13.4	
	75		41.67	18.0		16.2		14.4	
	80		39.06	19.2		17.3		15.4	
	90		34.72	21.6		19.4		17.3	
	100		31.25	24.0		21.6		19.2	
	125		25.00	30.0		27.0		24.0	
	150		20.83	36.0		32.4		28.8	
	175		17.85	42.0		37.8		33.6	
	200		15.62	48.0		43.2		38.4	
	225		13.89	54.0		48.6		43.2	
	250		12.50	60.0		54.0		48.0	
	275		11.36	66.0		59.4		52.8	
	300		10.41	72.0		64.8		57.6	
	350		8.93	84.0		75.6		67.2	

Die Springs

Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูง

ORDER
EXAMPLE

Model D - L
19SH25-050

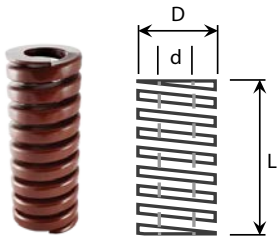
สปริงสีเขียวเข้ม
Dark Green Spring
Model: 19SH



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				24% Deflection	Load N (kgf)	21.6% Deflection	Load N (kgf)	19.5% Deflection	Load N (kgf)
60	60	30	75.00	14.4	10584 (1079)	13.0	9526 (971)	11.5	8467 (863)
	70		64.28	16.8		15.1		13.4	
	80		56.25	19.2		17.3		15.4	
	90		50.00	21.6		19.4		17.3	
	100		45.00	24.0		21.6		19.2	
	125		36.00	30.0		27.0		24.0	
	150		30.00	36.0		32.4		28.8	
	175		25.71	42.0		37.8		33.6	
	200		22.50	48.0		43.2		38.4	
	225		20.00	54.0		48.6		43.2	
	250		18.00	60.0		54.0		48.0	
	275		16.36	66.0		59.4		52.8	
	300		15.00	72.0		64.8		57.6	
	350		12.86	84.0		75.6		67.2	
70	70	38.5	76.2	16.8	12557 (1280)	15.1	11301 (1152)	13.4	10046 (1024)
	80		66.7	19.2		17.3		15.4	
	90		59.3	21.6		19.4		17.3	
	100		53.3	24.0		21.6		19.2	
	125		42.7	30.0		27.0		24.0	
	150		35.6	36.0		32.4		28.8	
	175		30.5	42.0		37.8		33.6	
	200		26.7	48.0		43.2		38.4	
	225		23.7	54.0		48.6		43.2	
	250		21.3	60.0		54.0		48.0	
	275		19.4	66.0		59.4		52.8	
	300		17.8	72.0		64.8		57.6	
	350		15.2	84.0		75.6		67.2	

สปริงแม่พิมพ์

Extra Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงพิเศษ



สปริงสีน้ำตาล
Brown Spring
Model: 19SB



แรงกด Load ±10%

ความได้ฉาก Perpendicularity 2° or less

ระยะเผื่อความยาว Free Length ≤ 50 ±0.5mm
≥ 55 ±1

ORDER EXAMPLE Model D - L 19SB25-050

SAE9245

JIS Standard

D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
6	15	3	6.00	3.0	177 (18)	2.7	159 (16.2)	2.4	141 (14.4)
	20		4.50	4.0		3.6		3.2	
	25		3.60	5.0		4.5		4.0	
	30		3.00	6.0		5.4		4.8	
	35		2.60	7.0		6.3		5.6	
	40		2.30	8.0		7.2		6.4	
	45		2.00	9.0		8.1		7.2	
	50		1.80	10.0		9.0		8.0	
	55		1.60	11.0		9.9		8.8	
	60		1.50	12.0		10.8		9.6	
8	10	4	16.94	2.0	324 (33)	1.8	294 (30)	1.6	255 (26)
	15		11.30	3.0		2.7		2.4	
	20		8.47	4.0		3.6		3.2	
	25		6.78	5.0		4.5		4.0	
	30		5.65	6.0		5.4		4.8	
	35		4.84	7.0		6.3		5.6	
	40		4.24	8.0		7.2		6.4	
	45		3.77	9.0		8.1		7.2	
	50		3.39	10.0		9.0		8.0	
	55		3.08	11.0		9.9		8.8	
	60		2.82	12.0		10.8		9.6	
	65		2.61	13.0		11.7		10.4	
	70		2.42	14.0		12.6		11.2	
	75		2.26	15.0		13.5		12.0	
	80		2.12	16.0		14.4		12.8	
	90		1.88	18.0		16.2		14.4	
	100		1.65	20.0		18.0		16.0	
10	10	5	22.78	2.0	441 (45)	1.8	402 (41)	1.6	353 (36)
	15		15.19	3.0		2.7		2.4	
	20		11.25	4.0		3.6		3.2	
	25		9.00	5.0		4.5		4.0	
	30		7.50	6.0		5.4		4.8	
	35		6.43	7.0		6.3		5.6	
	40		5.63	8.0		7.2		6.4	
	45		5.00	9.0		8.1		7.2	
	50		4.50	10.0		9.0		8.0	
	55		4.09	11.0		9.9		8.8	
	60		3.75	12.0		10.8		9.6	
	65		3.47	13.0		11.7		10.4	
	70		3.21	14.0		12.6		11.2	
	75		3.00	15.0		13.5		12.0	
	80		2.82	16.0		14.4		12.8	
	90		2.50	18.0		16.2		14.4	
	100		2.25	20.0		18.0		16.0	
	125		1.80	25.0		22.5		20.0	

Die Springs

Extra Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงพิเศษ

ORDER
EXAMPLE

Model D - L
19SB25-050

สปริงสีน้ำตาล
Brown Spring
Model: 19SB



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
12	20	6	14.50	4.0	569 (58)	3.6	510 (52)	3.2	451 (46)
	25		11.60	5.0		4.5		4.0	
	30		9.67	6.0		5.4		4.8	
	35		8.29	7.0		6.3		5.6	
	40		7.25	8.0		7.2		6.4	
	45		6.44	9.0		8.1		7.2	
	50		5.80	10.0		9.0		8.0	
	55		5.27	11.0		9.9		8.8	
	60		4.83	12.0		10.8		9.6	
	65		4.44	13.0		11.7		10.4	
	70		4.13	14.0		12.6		11.2	
	75		3.85	15.0		13.5		12.0	
	80		3.61	16.0		14.4		12.8	
	90		3.22	18.0		16.2		14.4	
	100		2.90	20.0		18.0		16.0	
14	125		2.30	25.0		22.5		20.0	
	20	7	18.89	4.0	736 (75)	3.6	667 (68)	3.2	589 (60)
	25		15.00	5.0		4.5		4.0	
	30		12.50	6.0		5.4		4.8	
	35		10.72	7.0		6.3		5.6	
	40		9.38	8.0		7.2		6.4	
	45		8.34	9.0		8.1		7.2	
	50		7.50	10.0		9.0		8.0	
	55		6.82	11.0		9.9		8.8	
	60		6.25	12.0		10.8		9.6	
	65		5.77	13.0		11.7		10.4	
	70		5.36	14.0		12.6		11.2	
	75		5.00	15.0		13.5		12.0	
	80		4.69	16.0		14.4		12.8	
	90		4.17	18.0		16.2		14.4	
	100		3.75	20.0		18.0		16.0	
16	125		3.00	25.0		22.5		20.0	
	20	8	25.00	4.0	981 (100)	3.6	883 (90)	3.2	785 (80)
	25		20.00	5.0		4.5		4.0	
	30		16.67	6.0		5.4		4.8	
	35		14.29	7.0		6.3		5.6	
	40		12.50	8.0		7.2		6.4	
	45		11.11	9.0		8.1		7.2	
	50		10.00	10.0		9.0		8.0	
	55		9.09	11.0		9.9		8.8	
	60		8.34	12.0		10.8		9.6	
	65		7.69	13.0		11.7		10.4	
	70		7.14	14.0		12.6		11.2	
	75		6.67	15.0		13.5		12.0	
	80		6.25	16.0		14.4		12.8	
	90		5.56	18.0		16.2		14.4	
	100		5.00	20.0		18.0		16.0	
18	125		4.00	25.0		22.5		20.0	
	20	9	31.39	4.0	1226 (125)	3.6	1108 (113)	3.2	981 (100)
	25		25.00	5.0		4.5		4.0	
	30		20.84	6.0		5.4		4.8	
	35		17.86	7.0		6.3		5.6	
	40		15.63	8.0		7.2		6.4	
	45		13.89	9.0		8.1		7.2	
	50		12.50	10.0		9.0		8.0	
	55		11.37	11.0		9.9		8.8	
	60		10.42	12.0		10.8		9.6	
	65		9.62	13.0		11.7		10.4	
	70		8.93	14.0		12.6		11.2	
	75		8.34	15.0		13.5		12.0	
	80		7.82	16.0		14.4		12.8	
	90		6.95	18.0		16.2		14.4	
	100		6.26	20.0		18.0		16.0	
	125		5.00	25.0		22.5		20.0	

Die Springs

สปริงแม่พิมพ์

Extra Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงพิเศษ

ORDER
EXAMPLE

Model D - L
19SB25-050

สปริงสีน้ำตาล
Brown Spring
Model: 19SB

Spring Load Chart
Light < > Heavy



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
20	20	10	40.00	4.0	1569 (160)	3.6	1412 (144)	3.2	1255 (128)
	25		32.00	5.0		4.5		4.0	
	30		26.67	6.0		5.4		4.8	
	35		22.86	7.0		6.3		5.6	
	40		20.00	8.0		7.2		6.4	
	45		17.78	9.0		8.1		7.2	
	50		16.00	10.0		9.0		8.0	
	55		14.55	11.0		9.9		8.8	
	60		13.33	12.0		10.8		9.6	
	65		12.31	13.0		11.7		10.4	
	70		11.43	14.0		12.6		11.2	
	75		10.67	15.0		13.5		12.0	
	80		10.00	16.0		14.4		12.8	
	90		8.89	18.0		16.2		14.4	
	100		8.00	20.0		18.0		16.0	
	125		6.40	25.0		22.5		20.0	
	150		5.33	30.0		27.0		24.0	
	175		4.57	35.0		31.5		28.0	
22	25	11	39.00	5.0	1912 (195)	4.5	1726 (176)	4.0	1530 (156)
	30		32.50	6.0		5.4		4.8	
	35		27.86	7.0		6.3		5.6	
	40		24.38	8.0		7.2		6.4	
	45		21.67	9.0		8.1		7.2	
	50		19.50	10.0		9.0		8.0	
	55		17.73	11.0		9.9		8.8	
	60		16.25	12.0		10.8		9.6	
	65		15.00	13.0		11.7		10.4	
	70		13.93	14.0		12.6		11.2	
	75		13.00	15.0		13.5		12.0	
	80		12.19	16.0		14.4		12.8	
	90		10.83	18.0		16.2		14.4	
	100		9.75	20.0		18.0		16.0	
	125		7.80	25.0		22.5		20.0	
	150		6.50	30.0		27.0		24.0	
	175		5.57	35.0		31.5		28.0	
25	25	12.5	49.00	5.0	2403 (245)	4.5	2167 (221)	4.0	1922 (196)
	30		40.80	6.0		5.4		4.8	
	35		35.00	7.0		6.3		5.6	
	40		30.60	8.0		7.2		6.4	
	45		27.20	9.0		8.1		7.2	
	50		24.50	10.0		9.0		8.0	
	55		22.30	11.0		9.9		8.8	
	60		20.40	12.0		10.8		9.6	
	65		18.80	13.0		11.7		10.4	
	70		17.50	14.0		12.6		11.2	
	75		16.30	15.0		13.5		12.0	
	80		15.30	16.0		14.4		12.8	
	90		13.60	18.0		16.2		14.4	
	100		12.30	20.0		18.0		16.0	
	125		9.80	25.0		22.5		20.0	
	150		8.17	30.0		27.0		24.0	
	175		7.00	35.0		31.5		28.0	
	200		6.13	40.0		36.0		32.0	

Die Springs

Extra Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงพิเศษ

ORDER
EXAMPLE

Model D - L
19SB25-050

สปริงสีน้ำตาล
Brown Spring
Model: 19SB



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
27	25	13.5	58.00	5.0	2844 (290)	4.5	2560 (261)	4.0	2275 (232)
	30		48.33	6.0		5.4		4.8	
	35		41.43	7.0		6.3		5.6	
	40		36.25	8.0		7.2		6.4	
	45		32.22	9.0		8.1		7.2	
	50		29.00	10.0		9.0		8.0	
	55		26.36	11.0		9.9		8.8	
	60		24.17	12.0		10.8		9.6	
	65		22.31	13.0		11.7		10.4	
	70		20.71	14.0		12.6		11.2	
	75		19.33	15.0		13.5		12.0	
	80		18.13	16.0		14.4		12.8	
	90		16.11	18.0		16.2		14.4	
	100		14.50	20.0		18.0		16.0	
	125		11.60	25.0		22.5		120.0	
	150		9.67	30.0		27.0		24.0	
	175		8.28	35.0		31.5		28.0	
	200		7.25	40.0		36.0		32.0	
30	25	15	72.00	5.0	3530 (360)	4.5	3177 (324)	4.0	2824 (288)
	30		60.00	6.0		5.4		4.8	
	35		51.43	7.0		6.3		5.6	
	40		45.00	8.0		7.2		6.4	
	45		40.00	9.0		8.1		7.2	
	50		36.00	10.0		9.0		8.0	
	55		32.72	11.0		9.9		8.8	
	60		30.00	12.0		10.8		9.6	
	65		27.69	13.0		11.7		10.4	
	70		25.71	14.0		12.6		11.2	
	75		24.00	15.0		13.5		12.0	
	80		22.50	16.0		14.4		12.8	
	90		20.00	18.0		16.2		14.4	
	100		18.00	20.0		18.0		16.0	
	125		14.40	25.0		22.5		20.0	
	150		12.00	30.0		27.0		24.0	
	175		10.28	35.0		31.5		28.0	
	200		9.00	40.0		36.0		32.0	
35	35	17.5	569.94	7.0	4805 (490)	6.3	4325 (441)	5.6	3844 (392)
	40		61.25	8.0		7.2		6.4	
	45		54.44	9.0		8.1		7.2	
	50		49.00	10.0		9.0		8.0	
	55		44.54	11.0		9.9		8.8	
	60		40.83	12.0		10.8		9.6	
	65		37.69	13.0		11.7		10.4	
	70		35.00	14.0		12.6		11.2	
	75		32.67	15.0		13.5		12.0	
	80		30.62	16.0		14.4		12.8	
	90		27.22	18.0		16.2		14.4	
	100		24.50	20.0		18.0		16.0	
	125		19.60	25.0		22.5		20.0	
	150		16.33	30.0		27.0		24.0	
	175		14.00	35.0		31.5		28.0	
	200		12.25	40.0		36.0		32.0	

Die Springs

Extra Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงพิเศษ

ORDER
EXAMPLE

Model D - L
19SB25-050

สปริงสีน้ำตาล
Brown Spring
Model: 19SB

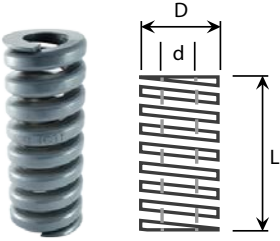
Spring Load Chart
Light <  > Heavy



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
40	40	20	80.00	8.0	6276 (640)	7.2	5649 (576)	6.4	5021 (512)
	45		71.11	9.0		8.1		7.2	
	50		64.00	10.0		9.0		8.0	
	55		58.18	11.0		9.9		9.8	
	60		53.33	12.0		10.8		9.6	
	65		49.23	13.0		11.7		10.4	
	70		45.71	14.0		12.6		11.2	
	75		42.67	15.0		13.5		12.0	
	80		40.00	16.0		14.4		12.8	
	90		35.56	18.0		16.2		14.4	
	100		32.00	20.0		18.0		16.0	
	125		25.60	25.0		22.5		20.0	
	150		21.33	30.0		27.0		24.0	
	175		18.28	35.0		31.5		28.0	
	200		16.00	40.0		36.0		32.0	
	225		14.22	45.0		40.5		36.0	
50	250	25	12.80	50.0	9807 (1000)	45.0	8826 (900)	40.0	7845 (800)
	275		11.64	55.0		49.5		44.0	
	300		10.67	60.0		54.0		48.0	
	50		100.00	10.0		9.0		8.0	
	55		90.91	11.0		9.9		8.8	
	60		83.33	12.0		10.8		9.6	
	65		76.92	13.0		11.7		10.4	
	70		71.42	14.0		12.6		11.2	
	75		66.67	15.0		13.5		12.0	
	80		62.50	16.0		14.4		12.8	
	90		55.56	18.0		16.2		14.4	
	100		50.00	20.0		18.0		16.0	
	125		40.00	25.0		22.5		20.0	
	150		33.33	30.0		27.0		24.0	
	175		28.57	35.0		31.5		28.0	
	200		25.00	40.0		36.0		32.0	
60	225	30	22.22	45.0	14122 (1440)	40.5	12709 (1296)	36.0	11297 (1152)
	250		20.00	50.0		45.0		40.0	
	275		18.18	55.0		49.5		44.0	
	300		16.66	60.0		54.0		48.0	
	350		14.29	70.0		63.0		56.0	
	60		120.00	12.0		10.8		9.6	
	70		102.86	14.0		12.6		11.2	
	80		90.00	16.0		14.4		12.8	
	90		80.00	18.0		16.2		14.4	
	100		72.00	20.0		18.0		16.0	
	125		57.60	25.0		22.5		20.0	
	150		48.00	30.0		27.0		24.0	
	175		41.14	35.0		31.5		28.0	
	200		36.00	40.0		36.0		32.0	
	225		32.00	45.0		40.5		36.0	
70	250	38.5	28.80	50.0	17652 (1800)	45.0	15887 (1620)	40.0	14122 (1440)
	275		26.18	55.0		49.5		44.0	
	300		24.00	60.0		54.0		48.0	
	350		20.57	70.0		63.0		56.0	
	70		124.3	14.0		12.6		11.2	
	80		108.8	16.0		14.4		12.8	
	90		96.7	18.0		16.2		14.4	
	100		87.0	20.0		18.0		16.0	
	125		69.6	25.0		22.5		20.0	
	150		58.0	30.0		27.0		24.0	
	175		49.7	35.0		31.5		28.0	
	200		43.5	40.0		36.0		32.0	
	225		38.7	45.0		40.5		36.0	
	250		34.8	50.0		45.0		40.0	
	275		31.6	55.0		49.5		44.0	
	300		29.0	60.0		54.0		48.0	
	350		24.9	70.0		63.0		56.0	

Die Springs

Super Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงมาก



สปริงสีเทา
Grey Spring
Model: 19SG



แรงกด Load $\pm 10\%$
ความได้ฉาก Perpendicularity 2° or less
ระยะเพื่อความยาว Free Length $\leq 50 \pm 0.5\text{mm}$
 $\geq 55 \pm 1$

ORDER
EXAMPLE

Model D - L
19SG25-050

SAE9245
JIS Standard

D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
10	15	5	16.67	3.0	490 (50)	2.7	441 (45)	2.4	392 (40)
	20		12.50	4.0		3.6		3.2	
	25		10.00	5.0		4.5		4.0	
	30		8.33	6.0		5.4		4.8	
	35		7.14	7.0		6.3		5.6	
	40		6.25	8.0		7.2		6.4	
	45		5.56	9.0		8.1		7.2	
	50		5.00	10.0		9.0		8.0	
	55		4.55	11.0		9.9		8.8	
	60		4.17	12.0		10.8		9.6	
	65		3.85	13.0		11.7		10.4	
	70		3.57	14.0		12.6		11.2	
	75		3.33	15.0		13.5		12.0	
12	80	6	3.13	16.0	736 (75)	14.4	662 (67.5)	12.8	588 (60)
	90		2.78	18.0		16.2		14.4	
	100		2.50	20.0		18.0		16.0	
	20		18.75	4.0		3.6		3.2	
	25		15.00	5.0		4.5		4.0	
	30		12.50	6.0		5.4		4.8	
	35		10.71	7.0		6.3		5.6	
	40		9.38	8.0		7.2		6.4	
	45		8.33	9.0		8.1		7.2	
	50		7.50	10.0		9.0		8.0	
	55		6.82	11.0		9.9		8.8	
	60		6.25	12.0		10.8		9.6	
	65		5.77	13.0		11.7		10.4	
14	70	7	5.36	14.0	951 (97)	12.6	853 (87)	11.2	761 (77.6)
	75		5.00	15.0		13.5		12.0	
	80		4.69	16.0		14.4		12.8	
	90		4.17	18.0		16.2		14.4	
	100		3.75	20.0		18.0		16.0	
	20		24.25	4.0		3.6		3.2	
	25		19.40	5.0		4.5		4.0	
	30		16.17	6.0		5.4		4.8	
	35		13.86	7.0		6.3		5.6	
	40		12.13	8.0		7.2		6.4	
	45		10.78	9.0		8.1		7.2	
	50		9.70	10.0		9.0		8.0	
	55		8.82	11.0		9.9		8.8	
	60		8.08	12.0		10.8		9.6	
	65		7.46	13.0		11.7		10.4	
	70		6.93	14.0		12.6		11.2	
	75		6.47	15.0		13.5		12.0	
	80		6.06	16.0		14.4		12.8	
	90		5.39	18.0		16.2		14.4	
	100		4.85	20.0		18.0		16.0	

Die Springs

Super Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงมาก

ORDER
EXAMPLE

Model D - L
19SG25-050

สปริงสีเทา
Grey Spring
Model: 19SG

Spring Load Chart
Light <  > Heavy



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
16	20	8	32.25	4.0	1275 (130)	3.6	1147 (117)	3.2	1020 (104)
	25		25.80	5.0		4.5		4.0	
	30		21.50	6.0		5.4		4.8	
	35		18.43	7.0		6.3		5.6	
	40		16.13	8.0		7.2		6.4	
	45		14.33	9.0		8.1		7.2	
	50		12.90	10.0		9.0		8.0	
	55		11.73	11.0		9.9		8.8	
	60		10.75	12.0		10.8		9.6	
	65		9.92	13.0		11.7		10.4	
	70		9.21	14.0		12.6		11.2	
	75		8.60	15.0		13.5		12.0	
	80		8.06	16.0		14.4		12.8	
	90		7.17	18.0		16.2		14.4	
18	20	9	40.25	4.0	1569 (160)	3.6	1412 (144)	3.2	1255 (128)
	25		32.20	5.0		4.5		4.0	
	30		26.83	6.0		5.4		4.8	
	35		23.00	7.0		6.3		5.6	
	40		20.13	8.0		7.2		6.4	
	45		17.89	9.0		8.1		7.2	
	50		16.10	10.0		9.0		8.0	
	55		14.64	11.0		9.9		8.8	
	60		13.42	12.0		10.8		9.6	
	65		12.38	13.0		11.7		10.4	
	70		11.50	14.0		12.6		11.2	
	75		10.73	15.0		13.5		12.0	
	80		10.06	16.0		14.4		12.8	
	90		8.94	18.0		16.2		14.4	
20	20	10	51.50	4.0	2059 (210)	3.6	1853 (189)	3.2	1648 (168)
	25		41.20	5.0		4.5		4.0	
	30		34.33	6.0		5.4		4.8	
	35		29.43	7.0		6.3		5.6	
	40		25.75	8.0		7.2		6.4	
	45		22.89	9.0		8.1		7.2	
	50		20.60	10.0		9.0		8.0	
	55		18.73	11.0		9.9		8.8	
	60		17.17	12.0		10.8		9.6	
	65		15.85	13.0		11.7		10.4	
	70		14.71	14.0		12.6		11.2	
	75		13.73	15.0		13.5		12.0	
	80		12.88	16.0		14.4		12.8	
	90		11.44	18.0		16.2		14.4	
22	25	11	50.20	5.0	2354 (240)	4.5	2118 (216)	4.0	1883 (192)
	30		41.83	6.0		5.4		4.8	
	35		35.86	7.0		6.3		5.6	
	40		31.38	8.0		7.2		6.4	
	45		27.89	9.0		8.1		7.2	
	50		25.10	10.0		9.0		8.0	
	55		22.82	11.0		9.9		8.8	
	60		20.92	12.0		10.8		9.6	
	65		19.31	13.0		11.7		10.4	
	70		17.93	14.0		12.6		11.2	
	75		16.73	15.0		13.5		12.0	
	80		15.69	16.0		14.4		12.8	
	90		13.94	18.0		16.2		14.4	
	100		12.55	20.0		18.0		16.0	
	125		10.04	25.0		22.5		20.0	

Die Springs

Super Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงมาก

ORDER
EXAMPLE

Model D - L
19SG25-050

สปริงสีเทา
Grey Spring
Model: 19SG



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
25	25	12.5	63.00	5.0	3040 (310)	4.5	2736 (279)	4.0	2432 (248)
	30		52.50	6.0		5.4		4.8	
	35		45.00	7.0		6.3		5.6	
	40		39.38	8.0		7.2		6.4	
	45		35.00	9.0		8.1		7.2	
	50		31.50	10.0		9.0		8.0	
	55		28.64	11.0		9.9		8.8	
	60		26.25	12.0		10.8		9.6	
	65		24.23	13.0		11.7		10.4	
	70		22.50	14.0		12.6		11.2	
	75		21.00	15.0		13.5		12.0	
	80		19.69	16.0		14.4		12.8	
	90		17.50	18.0		16.2		14.4	
	100		15.75	20.0		18.0		16.0	
	125		12.60	25.0		22.5		20.0	
	150		10.50	30.0		27.0		24.0	
27	25	13.5	74.60	5.0	3628 (370)	4.5	3265 (333)	4.0	2903 (296)
	30		62.17	6.0		5.4		4.8	
	35		53.29	7.0		6.3		5.6	
	40		46.63	8.0		7.2		6.4	
	45		41.44	9.0		8.1		7.2	
	50		37.30	10.0		9.0		8.0	
	55		33.91	11.0		9.9		8.8	
	60		31.08	12.0		10.8		9.6	
	65		28.69	13.0		11.7		10.4	
	70		26.64	14.0		12.6		11.2	
	75		24.87	15.0		13.5		12.0	
	80		23.31	16.0		14.4		12.8	
	90		20.72	18.0		16.2		14.4	
	100		18.65	20.0		18.0		16.0	
	125		14.92	25.0		22.5		20.0	
	150		12.43	30.0		27.0		24.0	
30	25	15	92.80	5.0	4707 (480)	4.5	4236 (432)	4.0	3765 (384)
	30		77.33	6.0		5.4		4.8	
	35		66.29	7.0		6.3		5.6	
	40		58.00	8.0		7.2		6.4	
	45		51.56	9.0		8.1		7.2	
	50		46.40	10.0		9.0		8.0	
	55		42.18	11.0		9.9		8.8	
	60		38.67	12.0		10.8		9.6	
	65		35.69	13.0		11.7		10.4	
	70		33.14	14.0		12.6		11.2	
	75		30.93	15.0		13.5		12.0	
	80		29.00	16.0		14.4		12.8	
	90		25.78	18.0		16.2		14.4	
	100		23.20	20.0		18.0		16.0	
	125		28.56	25.0		22.5		20.0	
	150		15.47	30.0		27.0		24.0	
	175		13.26	35.0		31.5		28.0	
	200		11.60	40.0		36.0		32.0	
35	35	17.5	90.14	7.0	6178 (630)	6.3	5560 (567)	5.6	4942 (504)
	40		78.88	8.0		7.2		6.4	
	45		70.11	9.0		8.1		7.2	
	50		63.10	10.0		9.0		8.0	
	55		57.36	11.0		9.9		8.8	
	60		52.58	12.0		10.8		9.6	
	65		48.54	13.0		11.7		10.4	
	70		45.07	14.0		12.6		11.2	
	75		42.07	15.0		13.5		12.0	
	80		39.44	16.0		14.4		12.8	
	90		35.06	18.0		16.2		14.4	
	100		31.55	20.0		18.0		16.0	
	125		25.24	25.0		22.5		20.0	
	150		21.03	30.0		27.0		24.0	
	175		18.03	35.0		31.5		28.0	
	200		15.78	40.0		36.0		32.0	

Die Springs

Super Heavy Load Spring - สปริงรับแรงกดที่มีค่าสูงมาก

ORDER
EXAMPLE

Model D - L

19SG25-050

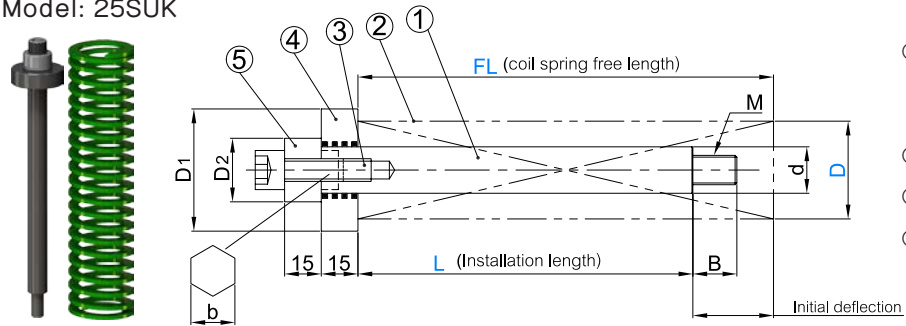
สปริงสีเทา
Grey Spring
Model: 19SG



D	L	d	Spring Constant (kgf/mm)	300,000 times		500,000 times		1,000,000 times	
				20% Deflection	Load N (kgf)	18% Deflection	Load N (kgf)	16% Deflection	Load N (kgf)
40	40	20	103.00	8.0	8041 (820)	7.2	7237 (738)	6.4	6433 (656)
	45		91.56	9.0		8.1		7.2	
	50		82.40	10.0		9.0		8.0	
	55		74.91	11.0		9.9		8.8	
	60		68.67	12.0		10.8		9.6	
	65		63.38	13.0		11.7		10.4	
	70		58.86	14.0		12.6		11.2	
	75		54.93	15.0		13.5		12.0	
	80		51.50	16.0		14.4		12.8	
	90		45.78	18.0		16.2		14.4	
	100		41.20	20.0		18.0		16.0	
	125		32.96	25.0		22.5		20.0	
	150		27.47	30.0		27.0		24.0	
	175		23.54	35.0		31.5		28.0	
	200		20.60	40.0		36.0		32.0	
50	50	25	128.80	10.0	12258 (1250)	9.0	11033 (1125)	8.0	9807 (1000)
	55		117.09	11.0		9.9		8.8	
	60		107.33	12.0		10.8		9.6	
	65		99.08	13.0		11.7		10.4	
	70		92.00	14.0		12.6		11.2	
	75		85.87	15.0		13.5		12.0	
	80		80.50	16.0		14.4		12.8	
	90		71.56	18.0		16.2		14.4	
	100		64.40	20.0		18.0		16.0	
	125		51.52	25.0		22.5		20.0	
	150		42.93	30.0		27.0		24.0	
	175		36.80	35.0		31.5		28.0	
	200			40.0		36.0		32.0	

Spring Guide Unit - สปริงไกด์ยูนิต

Model: 25SUK



- ① (M) Guide Pin S45C 50HRC- (Induction Harden)
- ② Coil Spring
- ③ Hex Socket Head Bolt
- ④ (M) Separate Disk FC250 Oil Free™ Solid Lubricant
- ⑤ (M) Pressure Disk SS400

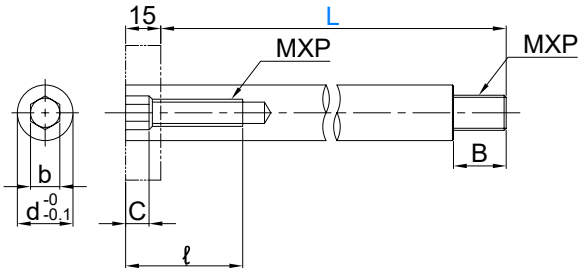
ORDER EXAMPLE	Model	Spring Type	- D - FL - L
	25SUKF50-200-150		

! *ขนาด 400 หรือมากกว่า สำหรับสปริงสีเหลือง (F) เท่านั้น
*Size 400 and over for yellow springs (F) only

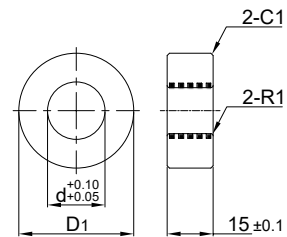
Model	Spring Type	D	FL	L 1mm increments											d	D1	D2	MxP	B	b			
				FL																			
				90	100	125	150	175	200	250	300	350	*400	*450	*500								
25SUK	F (Yellow) L (Blue) M (Red) H (Green)	40	90 100 125 150	68 - 90	80 - 100	90 - 125	105 - 150	130 - 175	145 - 200	195 - 250	240 - 300	-	-	-	-	19	50	28	12x1.75	24	12		
		50	175 200 250												325 - 400	375 - 450	425 - 500	24	60	36	16x2.0	28	17
		60	300 350 400 450 500					95 - 125	110 - 150	120 - 175	135 - 200	185 - 250	225 - 300	275 - 350				29	70	43			
		70																	35	80	48	20x2.5	33

ORDER EXAMPLE	Model	Spring OD	- FL - L
	25SUKGP60-250-200		

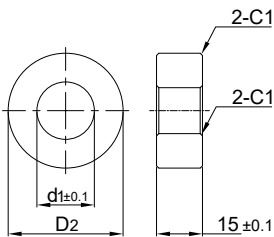
Coil Spring OD	L											
	Coil Spring Free Length (FL)											
	90	100	125	150	175	200	250	300	350	*400	*450	*500
40	55	65	75	85	85	95	95	110				
50	60	70	80	90	90	100	100	110	110	110	110	110
60	60	70	80	90	90	100	100	110	110	110	110	110
70	60	70	80	90	90	100	100	110	110			



Model	Coil Spring OD	FL	L 1mm increments												d	b	C	MxP	B
			FL																
			90	100	125	150	175	200	250	300	350	*400	*450	*500					
25SUKGP	40	90 100 125 150	68 - 90	80 - 100	90 - 125	105 - 150	130 - 175	145 - 200	195 - 250	240 - 300	-	-	-	-	19	12	7	12x1.75	24
	50	175 200 250			95 - 125	110 - 150	120 - 175	135 - 200	185 - 250	225 - 300	275 - 350	325 - 400	375 - 450	425 - 500	24	17	10	16x2.0	28
	60	300 350 400 450 500										-	-	-	29	17	10		
	70	-										-	-	35	22	10	20x2.5		

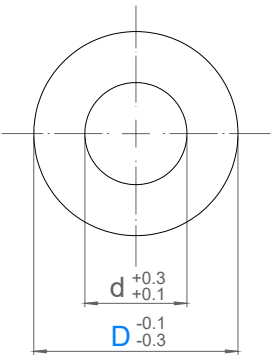


Model	Coil Spring OD	D1	d
25SUKSD	40	50	19
	50	60	24
	60	70	29
	70	80	35



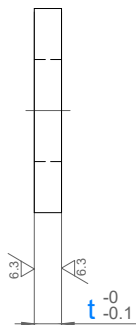
Model	Coil Spring OD	D2	d1
25SUKPD	40	28	13
	50	36	17
	60	43	
	70	48	21

Model: 25SSWA



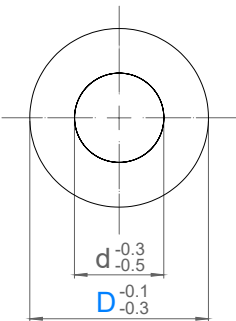
ORDER	Model	D - t
EXAMPLE	25SSWA13-2.0	

SS400



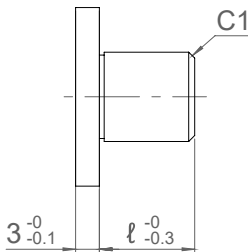
Model	D	t	D	Spring OD
25SSWA	5	1.0 2.0 3.0 4.0 5.0	3.0	6
	7		5.0	8
	9		6.0	10
	11.5		7.0	12
	13		8.0	14
	15		9.0	16
	17		10.0	18
	19		12.0	20
	21		12.0	22
	24		14.5	25
	26		15.0	27
	29		17.0	30
	34		20.0	35
	39		23.0	40

Model: 25SSWB



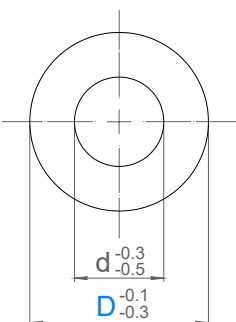
ORDER	Model	D
EXAMPLE	25SSWB13	

SS400



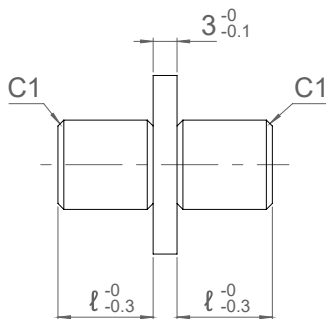
Model	D	d	l	Spring OD
25SSWB	7	3.5	4.0	8
	9	4.5	5.0	10
	11	5.5	6.0	12
	13	6.5	7.0	14
	15	7.5	8.0	16
	17	8.5	9.0	18
	19	9.5	10.0	20
	21	10.5	11.0	22
	24	12.0	12.0	25
	26	13.0	13.0	27
	29	14.5	15.0	30
	34	17.0	17.0	35
	39	19.5	20.0	40

Model: 25SSWC



ORDER	Model	D
EXAMPLE	25SSWC13	

SS400



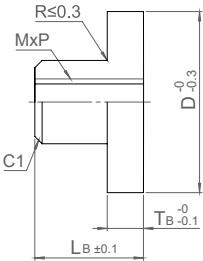
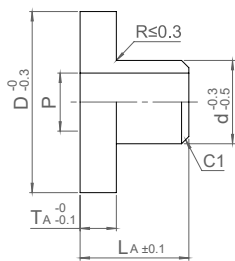
Model	D	d	l	Spring OD
25SSWC	7	3.5	4.0	8
	9	4.5	5.0	10
	11	5.5	6.0	12
	13	6.5	7.0	14
	15	7.5	8.0	16
	17	8.5	9.0	18
	19	9.5	10.0	20
	21	10.5	11.0	22
	24	12.0	12.0	25
	26	13.0	13.0	27
	29	14.5	15.0	30
	34	17.0	17.0	35
	39	19.5	20.0	40

Spring Unit Flanges - แฟล่งสำหรับชุดประคองสปริง

FOIL FREE™



Model: 25WUNT



ORDER
EXAMPLE

Model Spring OD - L1
25WUNT30-13



S45C
Fe304 (Blackening)

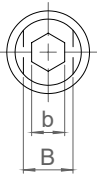
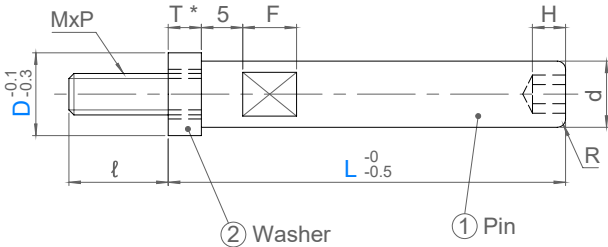
Model	Spring OD	LA	LB	P	MxP	TA	TB	D	d
25WUNT	25	10	10	8	6x1.0	5	5	26	12
	27	11	11					28	13
	30	11	11	10	8x1.25			31	14
		13	13					36	17
	35	13	13	12				41	19
	40	13	13						

Spring Guide Pins - สปริงไกด์พิน

FOIL FREE™



Model: 25SGA



② Washer

① Pin

ORDER
EXAMPLE

Model D - L
25SGA15-100



S45C
20-25HRC
Fe304 (Blackening)



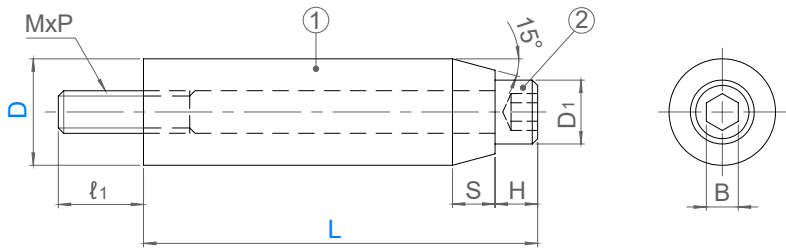
*ขนาด T เปลี่ยนตามขนาด L
T change with L

Model	D	L	MxP	ℓ	b	H	B	F	R	T	d	Spring OD	
		5mm increments										Yellow	Load > Yellow
25SGA	7	20 - 50	4x0.7	7	3	3	4	8	1	3	6	14	14
	8											16	16
	9	20 - 75	5x0.8	8	4	3	6	8	2	4	8	18	18
	10											-	20
	11	20 - 85	6x1.0	10	5	4	8	8	2	5	10	20 22	22
	12.5											-	25
	13.5	20 - 125	8x1.25	17 (12)	6	4	11	10	3	5 (10)	13	25 - 27	27
	15											-	30
	16											30	-
	17.5											-	35
	19	30 - 185	10x1.5	20 (15)	8	5	14	12	3	5 (10)	16	35	-
	20											-	40
	22	30 - 215	12x1.75	23 (18)	10	6	17	14	3	5 (10)	20	40	-
	25											-	50
	27.5											50	-
	30											-	60
	33	50 - 215	16x2.0	27 (22)	14	8	22	16	3	5 (10)	25	60	-

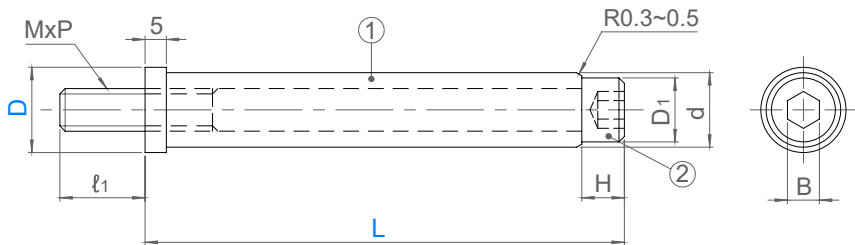
สปริงแม่พิมพ์

Spring Guide Retainers - สปริงไกด์รีเทนเนอร์

Model: 25SGR



⚠️ รุ่นที่มีค่า d ในตาราง
Model with d dimension in the table



ORDER Model D - L ① ② AISI1215 or equivalent
EXAMPLE 25SGR8-30 SCM435

D	L	d	D1	B	MxP	H	S	l1	Spring OD	
									Yellow	Load > Yellow
6	18	-	4.5	2	2.5x0.45	2.5	2	9.5	14 16	14 16
	23									
	28									
8	20	-	5.5	2.5	3x0.5	3	3	8	18	18 20
	30									
	40									
10	50	-	7	3	4x0.7	4	4	9	20 22	22 25
	20									
	30									
	40									
12	50	-	8.5	4	5x0.8	5	4	10	25 27	27
	20									
	30									
	40									
14	50	-	10	5	6x1.0	5	4	11	30	30
	20									
	30									
	40									
	60									

Spring Guide Retainers - สปริงไกด์รีเทนเนอร์



ORDER
EXAMPLE

Model D - L
25SGR20-40

①



AISI1215 or equivalent
SCM435

D	L	d	D1	B	MxP	H	S	t1	Spring OD						
									Yellow	Load > Yellow					
16	18	-	13	6	8x1.25	8	5	15	35	35					
	30														
	60														
	80														
19	28	-	16	8	10x1.5	10	5	17	-	40					
	40														
	60														
	80														
	100	17					-	17	40	-					
20	23	-					5				20				
	40														
	60														
	80														
100	17	-													
23	30	-	18	10	12x1.75	12	8	22	-	50					
	40														
	60														
	80														
	100														
	120	20					-	24	50	-					
26	28	-					8				22				
	60														
	80														
	100														
120	21	-													
28	30	-					18	10	12x1.75	12	12	22	-	60	
	40														
	60														
	80														
	100														
	120	23									-	12	60	-	
31	28	-									12				22
	40														
	60														
	80														
100	25	-									-				
120															
36	40	-									15	22	70	70	
	60														
	80														
	100	30													-
	120														

Die Springs



Economy Urethane



Heavy Load Urethane



Heavy Duty Urethane

Name	Economy Urethane	Heavy Load Urethane	Heavy Duty Urethane
Model	23UA-E / 23UC-E	23UA-H / 23UC-H	23UA-ES / 23UC-ES
Page	317	318	318



Heavy Load Urethane



Economy Urethane Sheet



Heavy Load Urethane Sheet

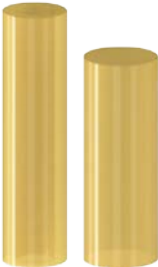


Urethane for Stock Block

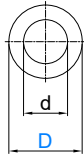
Model	23UAX	23US-E	23US-H	23UA-H-S(B) / 23UA-H-U(B)
Page	319	319	320	320

Economy Urethane - ยูรีเทนรุ่นประหยัด

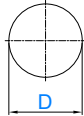
FOIL FREE™



Model 23UA-E
มีรูใน / Internal Diameter



Model 23UC-E
ตัน / No Internal Diameter



ORDER	Model	D - d - L
EXAMPLE	23UA-E20-8.5-100	
	23UC-E20-100	

Shore A90

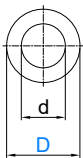
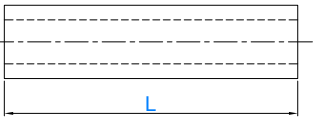
รุ่นตันไม่ต้องระบุค่า d เวลาสั่ง
No Internal Diameter model skip d value when order

Model	D		d		L (1mm increment)	
23UA-E 23UC-E	8	±0.2	-	-	10 - 200	±0.3
	10		-	-		
	15		7	±0.2		
	20		8.5			
	25		11			
	30	14				
	40					
	50					
	60	±0.3				±0.5

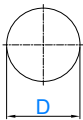
Urethane for Heavy Load - ยูรีเทนสำหรับงานหนัก



Model 23UA-H
มีรูใน / Internal Diameter



Model 23UC-H
ตัน / No Internal Diameter



ORDER
EXAMPLE

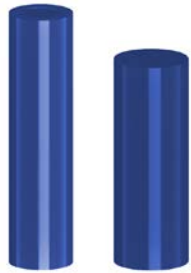
Model	D	d	L
23UA-H20-8.5-100			
23UC-H20-100			

Shore A90

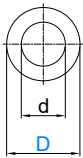
รุ่นตันไม่ต้องระบุค่า d เวลาสั่ง
No Internal Diameter model skip d value when order

Model	D		d		L (1mm increment)	
23UA-H 23UC-H	8	±0.2	-	-	10 - 200	±0.3
	10		-	-		
	15		7	±0.2		
	20		8.5			
	25		11			
	30	14				
	40					
	50					
	60					
	70	±0.3	10 - 500		±0.5	
	70					
	80					22
	90					
	100					
	110					
	± 0.4					

Heavy Duty Urethane for Heavy Load - ยูรีเทนใช้งานหนัก สำหรับงานหนัก



Model 23UA-ES
มีรูใน / Internal Diameter



Model 23UC-ES
ตัน / No Internal Diameter



ORDER
EXAMPLE

Model	D	d	L
23UA-ES20-8.5-100			
23UC-ES20-100			

Shore A90

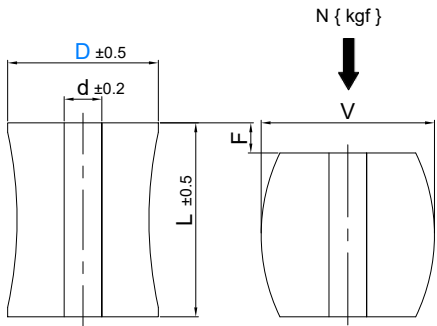
รุ่นตันไม่ต้องระบุค่า d เวลาสั่ง
No Internal Diameter model skip d value when order

Model	D		d		L (1mm increment)	
23UA-ES 23UC-ES	15	±0.4	7	±0.2	10 - 200	±0.5
	20		8.5			
	25		11			
	30		14		10 - 500	
	40					
	50					
	60					
	70					
	70		22			
	80					
	90					
	100					
	110					

Urethane

ยูรีเทนสปริง

Urethane for Heavy Load - ยูรีเทนสำหรับงานหนัก



ORDER	Model	D - d - L
EXAMPLE	23UAX50-14-62	

(M) Shore A90

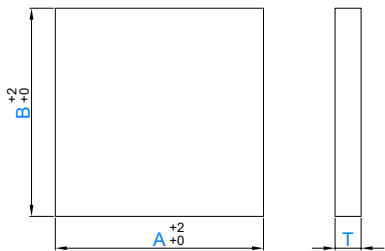
Model	D	d	L
23UAX	50	14	62
			82
	60	20	62
			82
	80	20	82
			103
	100	20	82
			103
			123

Economy Urethane Sheets - แผ่นยูรีเทนรุ่นประหยัด



ORDER	Model	T - A - B
EXAMPLE	23US-E10-100-100	

(M) Shore A90



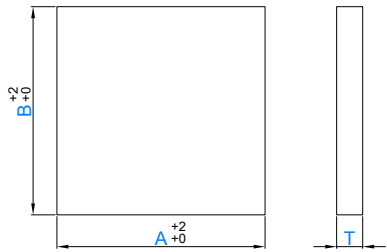
Model	T		A (1mm increment)	B (1mm increment)
23US-E	1	±0.3	20 - 500	20 - 500
	2			
	3			
	4			
	5	±0.4		
	6			
	8			
	10			
	15	±0.5		
	20			
	25			
	30			
	40	±1.0		
	50			

Urethane Sheets for Heavy Load - แผ่นยูรีเทนสำหรับงานหนัก



M Shore A90

ORDER Model - T - A - B
EXAMPLE 23US-H10-100-100

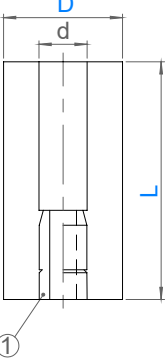


Model	T		A (1mm increment)	B (1mm increment)						
23US-H	1	±0.3	20 - 500	20 - 500						
	2									
	3									
	4									
	5	±0.4			20 - 500	20 - 500				
	6									
	8									
	10									
	15	±0.5					20 - 500	20 - 500		
	20									
	25									
	30									
	40	±1.0							20 - 500	20 - 500
	50									

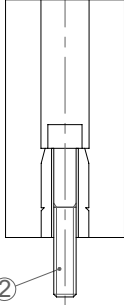
Urethane for Stock Block - ยูรีเทนชุดสตัคบล็อก



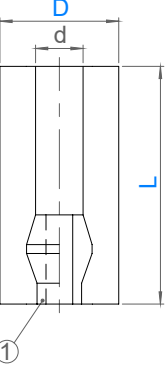
Model 23UA-H-S
Bush Only



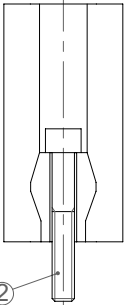
Model 23UA-H-SB
Bush + Bolt



Model 23UA-H-U
Bush Only



Model 23UA-H-UB
Bush + Bolt



① Bush
② Bolt

ORDER Model - D - d - L
EXAMPLE 23UA-H-S50-14-110

M Shore A90

Model	D	d	L	Bolt
23UA-H-S 23UA-H-SB	40	14	80	8 x 45
	50	14	110	
	70	14	140	
		22	110	12 x 55
	90	22	140	
			120	
			140	
	100	22	140	
23UA-H-U 23UA-H-UB	40	14	80	8 x 45
	70	22	110	12 x 55
			140	
			140	

Urethane

แก๊สสปริง
GAS SPRINGS



Name	TSX Gas Spring	TSX Gas Spring	TST Gas Spring	TSM Gas Spring	TSS Gas Spring	TSL Gas Spring
Model	18TSP	18TSX	18TST	18TSM	18TSS	18TSL
Page	323-333	334-341	342-346	347-356	357-360	361-367



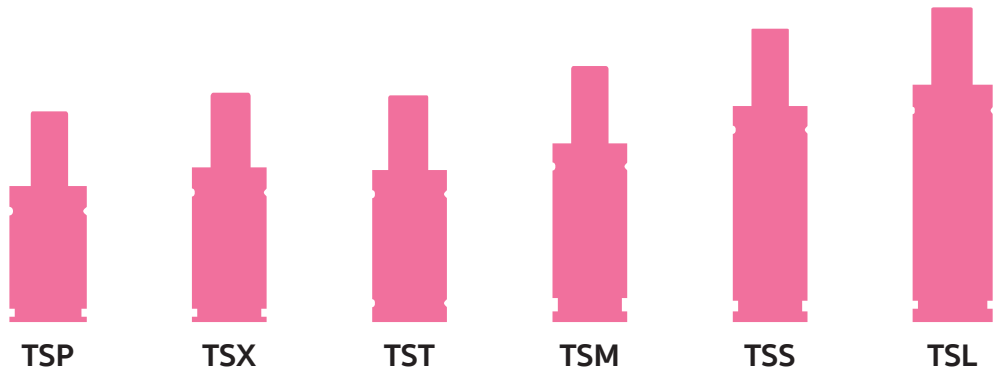
Name	Control Panel		Multi Panel	Distribution Block & Fittings
Model	18PAN3	18PAN6	18PSS	18HB / 18CB / Fitting Types
Page	368	368	369	370-372



Name	Mountings				
Model	S / X / T / M types				
Page	373-376				



แก๊สสปริง | TOSS Gas Spring



18TSP0170	18TSX0350	18TST1000	18TSM50	18TSS0750	18TSL0500
18TSP0320	18TSX0500	18TST2400	18TSM70	18TSS1500	18TSL0750
18TSP0350	18TSX0750	18TST4200	18TSM90	18TSS3000	18TSL1500
18TSP0500	18TSX1000	18TST6600	18TSM0150	18TSS5000	18TSL3000
18TSP0750	18TSX1500	18TST9500	18TSM0300		18TSL5000
18TSP1000	18TSX2400		18TSM0500		18TSL7500
18TSP1500	18TSX4200		18TSM0750		18TSL10000
18TSP2400	18TSX6600		18TSM1500		
18TSP4200			18TSM3000		
18TSP6600			18TSM5000		
18TSP9500					

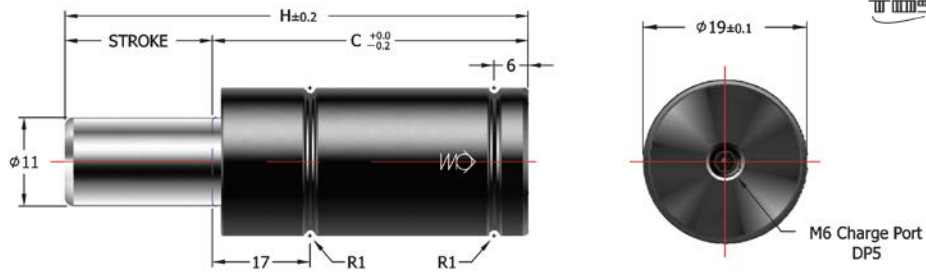
ตารางการเลือกแก๊สสปริง | Gas Spring selecting chart

Type		Model	Stroke	Body Dia	Rod Dia	Force (N)		Page
						Initial	End	
XTRA HIGH POWER		18TSP0170	7 - 125	19	11	1,700	2,800	323
		18TSP0320	7 - 125	25	15	3,200	5,500	324
		18TSP0350	10 - 125	32	16	3,600	5,400	325
		18TSP0500	10 - 125	38	20	4,700	7,200	326
		18TSP0750	10 - 125	45	25	7,400	11,700	327
		18TSP1000	13 - 125	50	28	9,200	14,900	328
		18TSP1500	13 - 125	63	36	15,200	24,100	329
		18TSP2400	16 - 125	75	45	23,500	38,400	330
		18TSP4200	16 - 125	95	60	42,200	70,900	331
		18TSP6600	16 - 125	120	75	66,000	108,700	332
		18TSP9500	20 - 125	150	90	95,000	149,100	333
STABLE XTRA HIGH POWER		18TSX0350	10 - 125	32	16	3,600	5,400	334
		18TSX0500	10 - 125	38	20	4,700	7,200	335
		18TSX0750	10 - 125	45	25	7,400	11,700	336
		18TSX1000	13 - 125	50	28	9,200	14,600	337
		18TSX1500	13 - 125	63	36	15,200	23,900	338
		18TSX2400	16 - 125	75	45	23,800	38,100	339
		18TSX4200	16 - 125	95	60	42,200	69,200	340
		18TSX6600	16 - 125	120	75	66,000	105,600	341
STABLE XTRA HIGH POWER		18TST1000	13 - 125	50	28	9,200	14,600	342
		18TST2400	16 - 125	75	45	23,800	38,100	343
		18TST4200	16 - 125	95	60	42,200	69,200	344
		18TST6600	16 - 125	120	75	66,000	105,600	345
		18TST9500	20 - 125	150	90	95,000	149,100	346
COMPACT		18TSM50	7 - 125	12	6	130 - 500	200 - 800	347
		18TSM70	7 - 125	15	7	180 - 700	200 - 1100	348
		18TSM90	7 - 125	19	8	300 - 900	400 - 1200	349
		18TSM0150	10 - 125	25	12	500 - 2000	700 - 2900	350
		18TSM0300	10 - 125	38	16	3,000	4,200	351
		18TSM0500	10 - 125	45	20	4,650	6,500	352
		18TSM0750	10 - 125	50	25	7,350	12,000	353
		18TSM1500	10 - 200	75	36	15,150	22,100	354
		18TSM3000	10 - 200	95	50	29,400	47,600	355
		18TSM5000	10 - 200	120	65	49,650	84,100	356
TOSS STANDARD		18TSS0750	10 - 200	50	25	7,350	11,800	357
		18TSS1500	10 - 300	75	36	15,150	22,000	358
		18TSS3000	10 - 300	95	50	29,400	47,000	359
		18TSS5000	10 - 300	120	65	49,650	84,300	360
ISO STANDARD 		18TSL0500	10 - 160	45	20	4,650	6,200	361
		18TSL0750	10 - 300	50	25	7,350	11,500	362
		18TSL1500	10 - 300	75	36	15,150	22,100	363
		18TSL3000	10 - 300	95	50	29,400	47,300	364
		18TSL5000	10 - 300	120	65	49,650	83,900	365
		18TSL7500	15 - 300	150	80	75,300	123,900	366
		18TSL10000	20 - 300	195	95	106,200	156,600	367

แก๊สสปริง

TSP Gas Spring

Model: 18TSP0170

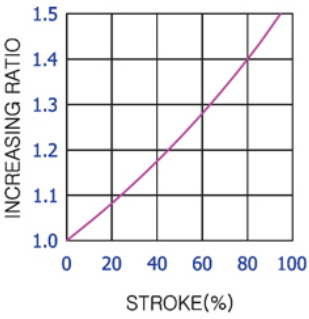
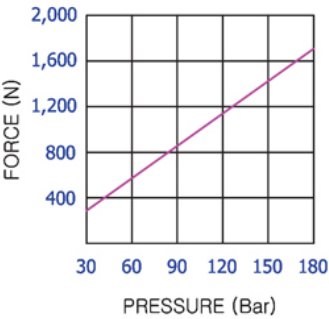


ORDER Model S - Charging Pressure
EXAMPLE 18TSP0170-050-180

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 180Bar
Charging Pressure if not mention is 180Bar

S	H	C	Force (180Bar)		Gas Volumn (cm³)	Weight (kg)
			Initial (N)	End (N)		
007	44	37	1,700	2,500	2.2	0.06
010	50	40		2,500	2.9	0.06
013	56	43		2,600	3.6	0.07
016	62	46		2,600	4.4	0.07
020	70	50		2,700	5.3	0.08
025	80	55		2,700	6.5	0.08
030	90	60		2,700	7.7	0.09
035	100	65		2,700	8.9	0.10
038	106	68		2,700	9.6	0.11
040	110	70		2,700	10.1	0.11
045	120	75		2,800	11.3	0.12
050	130	80		2,800	12.5	0.12
060	150	90		2,800	14.9	0.14
063	156	93		2,800	15.6	0.14
070	175	105		2,800	17.3	0.15
075	185	110		2,800	18.5	0.15
080	195	115		2,800	19.7	0.16
090	215	125		2,800	22.1	0.18
100	235	135		2,800	24.5	0.20
125	285	160		2,800	30.4	0.22

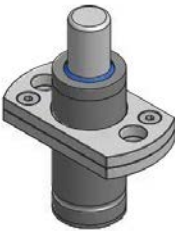
Charging Pressure



ORDER Model
EXAMPLE 18XG0170

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18SG0170



Mounting Model:
18SC0170

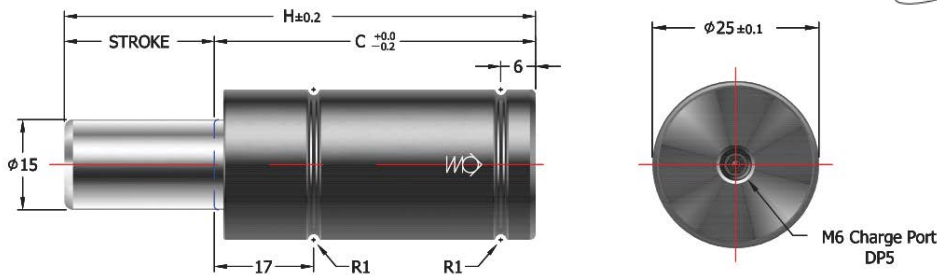


Mounting Model:
18SP0170



TSP Gas Spring

Model: 18TSP0320



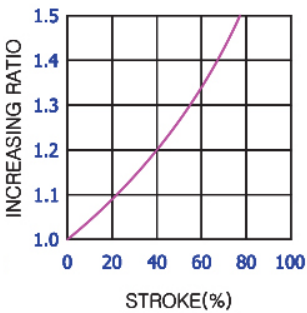
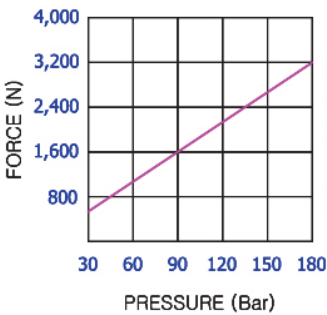
ORDER
EXAMPLE

Model S - Charging Pressure
18TSP0320-050-180

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is **180Bar**

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
007	44	37	3,200	5,000	3.7	0.09
010	50	40		5,000	4.9	0.11
013	56	43		5,100	6.2	0.11
016	62	46		5,200	7.4	0.12
020	70	50		5,200	9	0.14
025	80	55		5,300	11.1	0.15
030	90	60		5,300	13.1	0.16
035	100	65		5,400	15.2	0.18
038	106	68		5,400	16.4	0.18
040	110	70		5,400	17.2	0.19
045	120	75		5,400	19.3	0.21
050	130	80		5,400	21.3	0.22
060	150	90		5,500	25.4	0.25
063	156	93		5,500	26.6	0.26
070	175	105		5,500	29.5	0.28
075	185	110		5,500	31.6	0.28
080	195	115		5,500	33.6	0.32
090	215	125		5,500	37.7	0.33
100	235	135		5,500	41.8	0.36
125	285	160		5,500	52	0.43

Charging Pressure

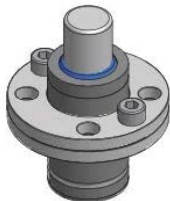


ORDER
EXAMPLE

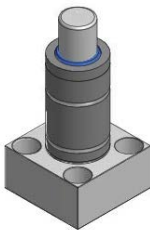
Model
18XR0320

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18XR0320(XR0150)



Mounting Model:
18XB0320(XB0150)

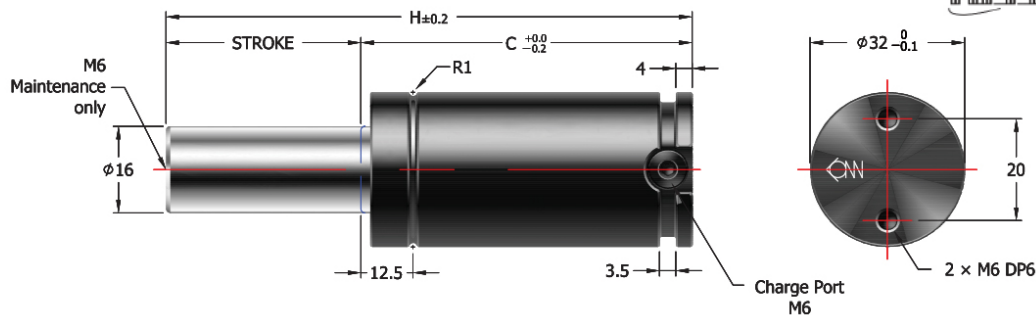


Mounting Model:
18XG0320(SG0150)



TSP Gas Spring

Wang et al.

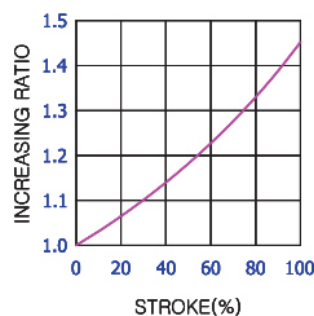
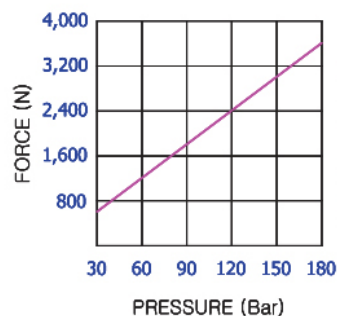


 ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

180Bar

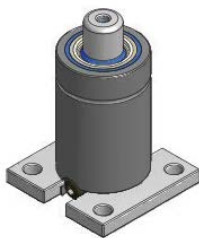
S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
010	50	40	3,600	5,000	7.2	0.20
013	56	43		5,100	9.0	0.21
016	62	46		5,200	10.8	0.21
020	70	50		5,200	13.3	0.23
025	80	55		5,200	16.3	0.25
030	90	60		5,300	19.4	0.26
035	100	65		5,300	22.4	0.28
038	106	68		5,300	24.2	0.29
040	110	70		5,300	25.4	0.29
045	120	75		5,300	28.5	0.32
050	130	80		5,300	31.5	0.33
060	150	90		5,300	37.6	0.37
063	156	93		5,300	39.5	0.37
070	170	100		5,300	43.7	0.40
075	180	105		5,300	46.8	0.41
080	190	110		5,300	49.8	0.43
090	210	120	5,300	55.9	0.46	
100	230	130	5,400	62.5	0.49	
125	280	155	5,400	77.2	0.58	

Charging Pressure



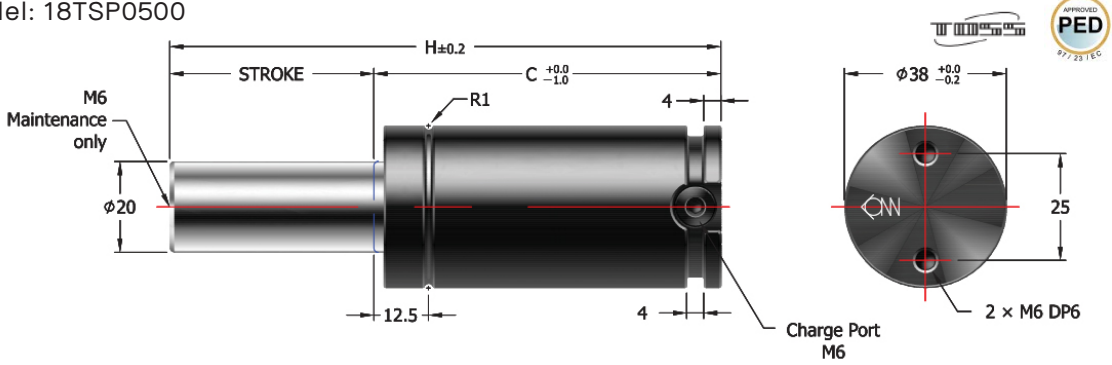
 รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18XR0350



TSP Gas Spring

Model: 18TSP0500

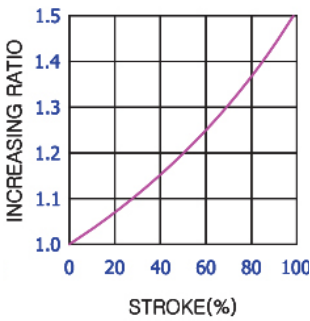
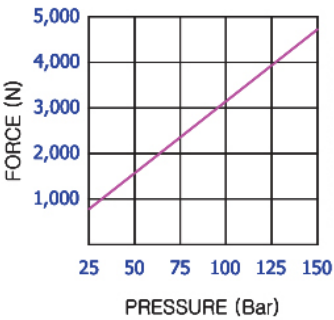


ORDER EXAMPLE	Model	S - Charging Pressure
	18TSP0500-050-150	

⚠ ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is 150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
010	50	40	4,700	6,700	10.4	0.26
013	56	43		6,800	13.1	0.28
016	62	46		6,900	15.7	0.29
020	70	50		7,000	19.3	0.31
025	80	55		7,000	23.7	0.33
030	90	60		7,100	28.2	0.36
035	100	65		7,100	32.6	0.38
038	106	68		7,100	35.3	0.39
040	110	70		7,100	37.0	0.41
045	120	75		7,100	41.5	0.43
050	130	80		7,200	45.9	0.46
060	150	90		7,200	54.8	0.51
063	156	93		7,200	57.4	0.52
070	170	100		7,200	63.6	0.55
075	180	105		7,200	68.1	0.57
080	190	110		7,200	72.5	0.60
090	210	120		7,200	81.4	0.65
100	230	130		7,200	90.3	0.70
125	280	155		7,200	112.4	0.82

Charging Pressure



ORDER EXAMPLE	Model
	18XP0500

📄 รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18XP0500(XP0300)



Mounting Model:
18XR0500(XR0300)



Mounting Model:
18XT0500(XT0300)



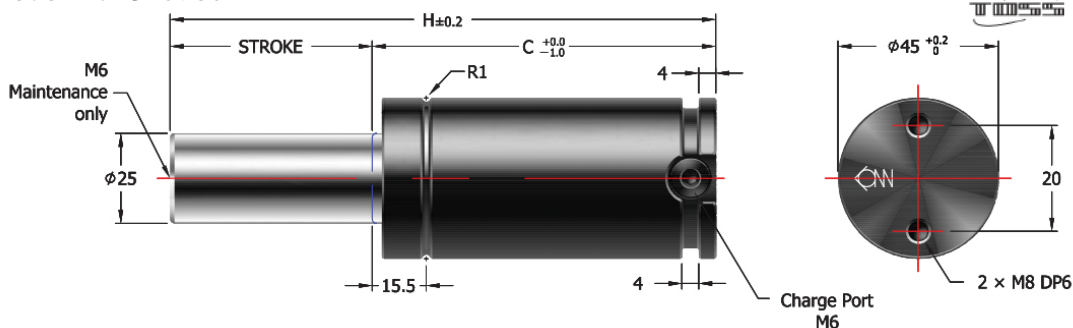
Mounting Model:
18XC0500(XC0300)



แก๊สสปริง

TSP Gas Spring

Model: 18TSP0750



ORDER Model S - Charging Pressure
EXAMPLE 18TSP0750-050-150

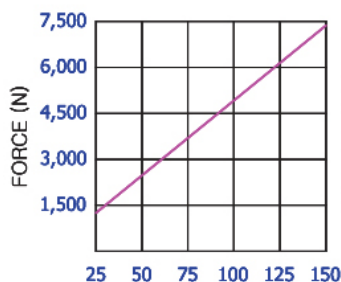


ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

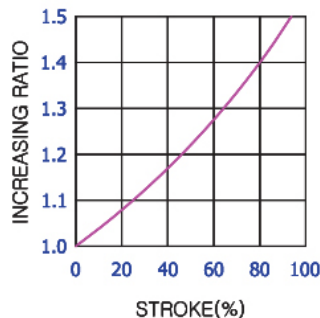
150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
010	52	42	7,400	10,600	15.9	0.40
013	58	45		10,900	19.8	0.42
016	64	48		11,000	23.7	0.44
020	72	52		11,100	28.9	0.47
025	82	57		11,300	35.4	0.50
030	92	62		11,300	41.9	0.53
035	102	67		11,400	48.4	0.56
038	108	70		11,400	52.3	0.58
040	112	72		11,400	55.0	0.59
045	122	77		11,500	61.5	0.63
050	132	82		11,500	68.0	0.66
060	152	92		11,600	81.0	0.72
063	158	95		11,600	84.9	0.74
070	172	102		11,600	94.0	0.79
075	182	107		11,600	100.5	0.82
080	192	112		11,600	107.0	0.85
090	212	122		11,600	120.0	0.92
100	232	132		11,700	133.0	0.98
125	282	157		11,700	165.6	1.14

Charging Pressure



PRESSURE (Bar)



ORDER Model
EXAMPLE 18XP0750



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้

Mounting specification please see at the back of this category

Mounting Model:

18XP0750(SP0500)

Mounting Model:

18XR0750(SR0500)

Mounting Model:

18XT0750(ST0500)

Mounting Model:

18XB0750(SB0500)

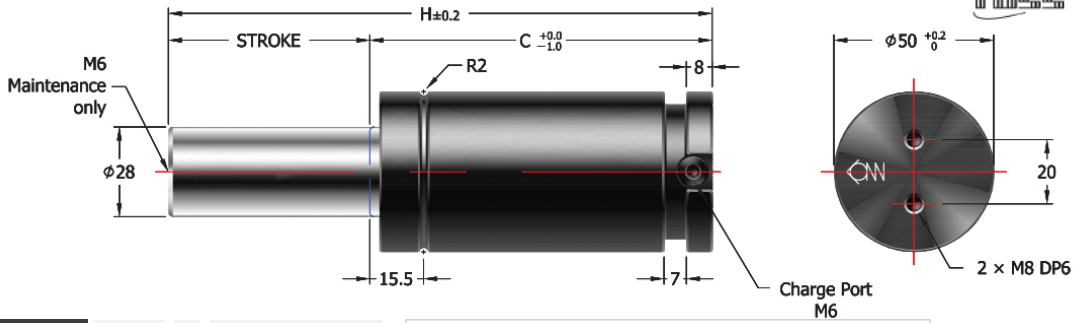
Mounting Model:

18XP0500(XP0300)



TSP Gas Spring

Model: 18TSP1000



ORDER
EXAMPLE

Model S - Charging Pressure
18TSP1000-050-150

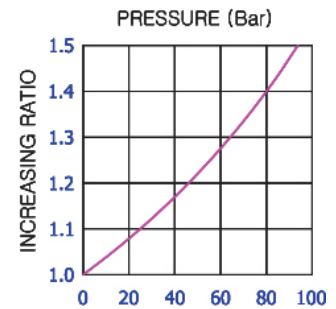
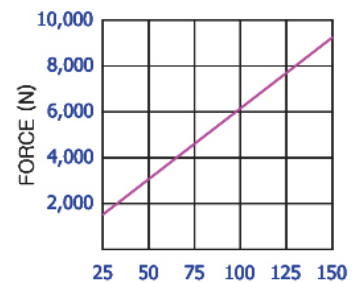


ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
013	64	51	9,200	13,300	27.3	0.58
016	70	54		13,600	32.0	0.61
020	78	58		13,800	38.3	0.64
025	88	63		14,000	46.2	0.68
030	98	68		14,200	54.0	0.72
035	108	73		14,300	61.9	0.76
038	114	76		14,400	66.6	0.78
040	118	78		14,400	69.7	0.80
045	128	83		14,500	77.6	0.80
050	138	88		14,600	85.4	0.89
060	158	98		14,600	101.1	0.96
063	164	101		14,700	105.8	0.98
070	178	108		14,700	116.8	1.04
075	188	113		14,700	124.7	1.09
080	198	118		14,800	132.5	1.12
090	218	128		14,800	148.2	1.21
100	238	138		14,900	163.8	1.29
125	288	163		14,900	203.2	1.49

Charging Pressure



STROKE(%)

ORDER
EXAMPLE

Model
18XP1000



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

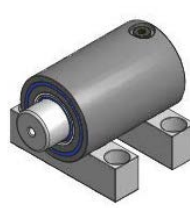
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP1000(SPO750)



Mounting Model:
18XB1000(SBO750)



Mounting Model:
18XT1000(STO750)



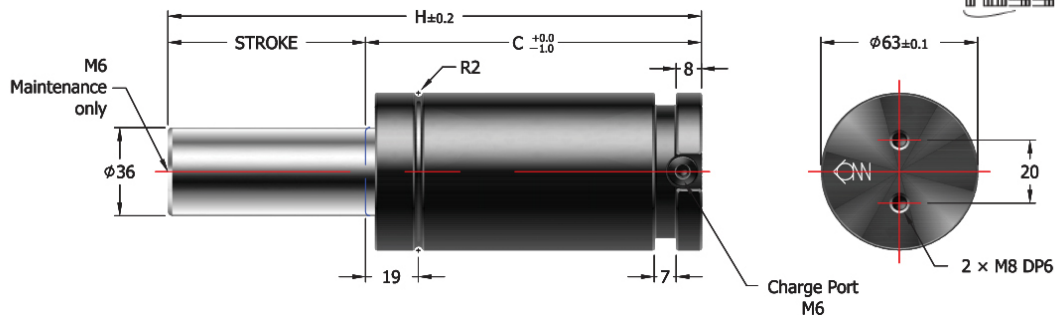
Mounting Model:
18XR1000(SRO750)



Mounting Model:
18XC1000(SCO750)



Model: 18TSP1500

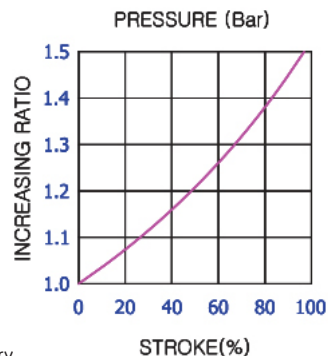
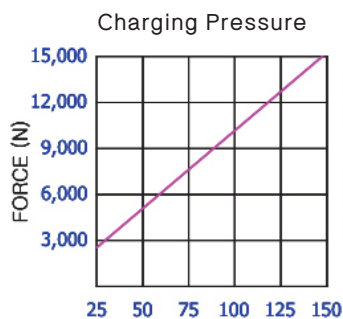


ORDER EXAMPLE Model S - Charging Pressure
18TSP1500-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
013	70	57	15,200	20,900	48.8	1.04
016	76	60		21,400	56.8	1.08
020	84	64		21,900	67.4	1.13
025	94	69		22,300	80.7	1.20
030	104	74		22,600	93.9	1.27
035	114	79		22,900	107.2	1.34
038	120	82		23,000	115.2	1.37
040	124	84		23,000	120.5	1.40
045	134	89		23,200	133.7	1.47
050	144	94		23,300	147.0	1.58
060	164	104		23,500	173.5	1.66
063	170	107		23,600	181.5	1.71
070	184	114		23,700	200.1	1.80
075	194	119		23,800	213.3	1.87
080	204	124		23,800	226.3	1.93
090	224	134		23,900	252.9	2.07
100	244	144		24,000	279.5	2.19
125	294	169		24,100	346.0	2.53



ORDER EXAMPLE Model
18XP1500

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

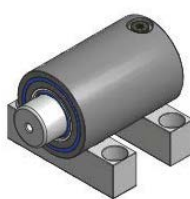
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP1500



Mounting Model:
18XB1500



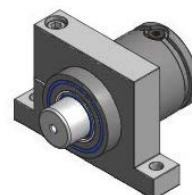
Mounting Model:
18XT1500



Mounting Model:
18XR1500

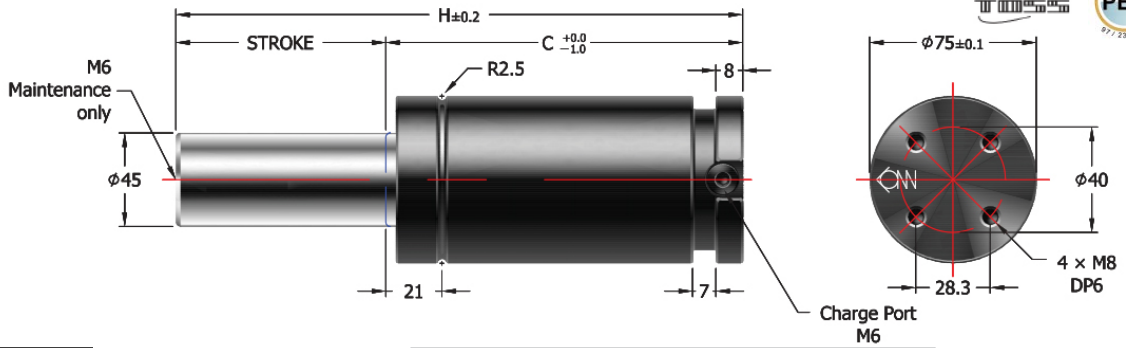


Mounting Model:
18XC1500



TSP Gas Spring

Model: 18TSP2400



ORDER
EXAMPLE

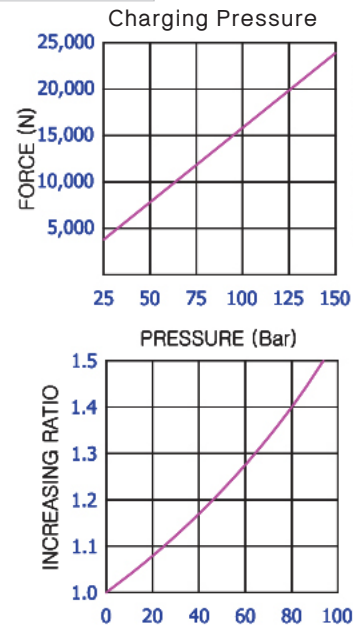
Model S - Charging Pressure
18TSP2400-050-150



ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	77	61	23,800	33,800	86.3	1.58
020	85	65		34,600	102.4	1.65
025	95	70		35,300	122.5	1.73
030	105	75		35,800	142.6	1.81
035	115	80		36,200	162.7	1.89
038	121	83		36,400	174.8	1.94
040	125	85		36,600	182.8	1.97
045	135	90		36,800	203.0	2.05
050	145	95		37,000	223.1	2.13
060	165	105		37,400	263.3	2.30
063	171	108		37,500	275.4	2.34
070	185	115		37,600	303.5	2.47
075	195	120		37,700	323.6	2.55
080	205	125		37,800	343.8	2.63
090	225	135		38,000	384.0	2.79
100	245	145		38,100	424.2	2.95
125	295	170		38,400	524.8	3.37



ORDER
EXAMPLE

Model
18XP2400



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

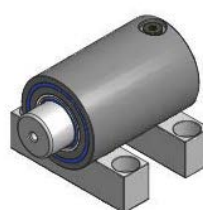
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP2400(SP1500)



Mounting Model:
18XB2400(SB1500)



Mounting Model:
18XT2400(ST1500)



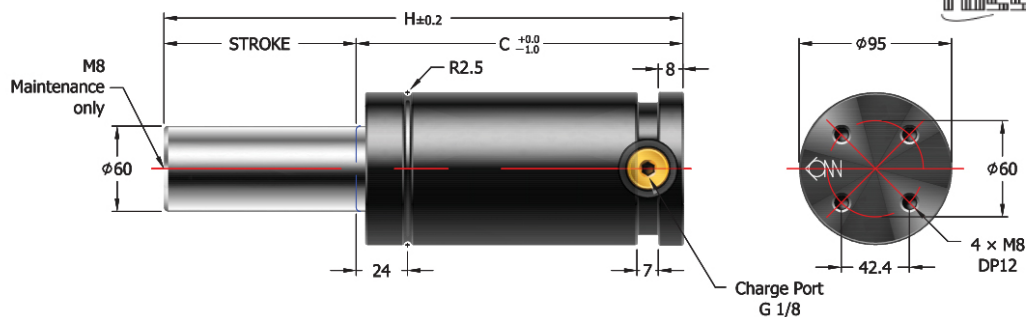
Mounting Model:
18XR2400(SR1500)



Mounting Model:
18XC2400(SC1500)



Model: 18TSP4200

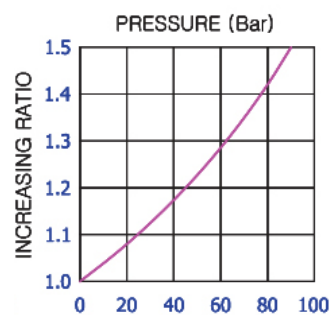
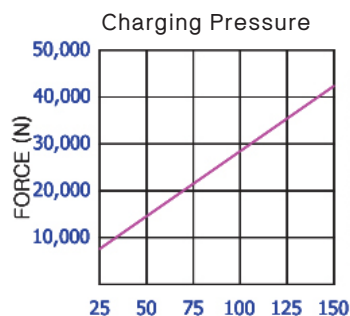


ORDER EXAMPLE Model S - Charging Pressure
18TSP4200-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	90	74	42,200	60,600	150.5	3.21
020	98	78		62,300	177.8	3.32
025	108	83		63,800	212.0	3.46
030	118	88		65,000	246.2	3.60
035	128	93		65,900	280.3	3.75
038	134	96		66,400	300.8	3.82
040	138	98		66,600	314.5	3.88
045	148	103		67,200	348.7	4.02
050	158	108		67,700	382.8	4.16
060	178	118		68,500	451.2	4.44
063	184	121		68,700	471.7	4.52
070	198	128		69,100	519.5	4.72
075	208	133		69,400	553.6	4.86
080	218	138		69,600	587.8	5.00
090	238	148		70,000	656.1	5.27
100	258	158		70,300	724.5	5.56
125	308	183		70,900	895.3	6.25



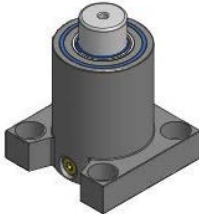
ORDER EXAMPLE Model 18XP4200

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

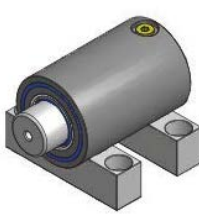
Mounting Model:
18MD



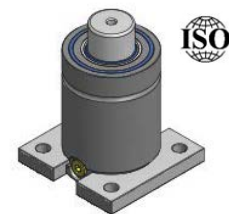
Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP4200(SP3000)



Mounting Model:
18XB4200(SB3000)



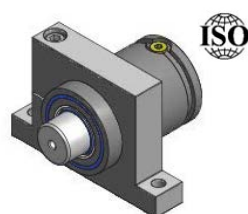
Mounting Model:
18XT4200(ST3000)



Mounting Model:
18XR4200(SR3000)

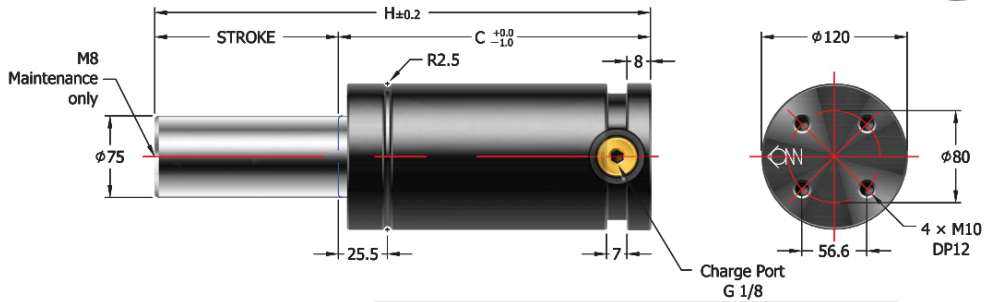


Mounting Model:
18XC4200(SC3000)



TSP Gas Spring

Model: 18TSP6600



ORDER
EXAMPLE

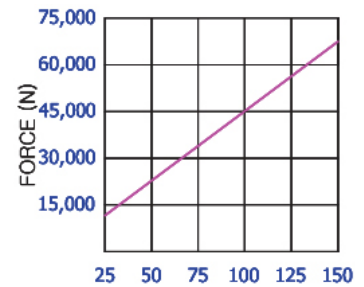
Model S - Charging Pressure
18TSP6600-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

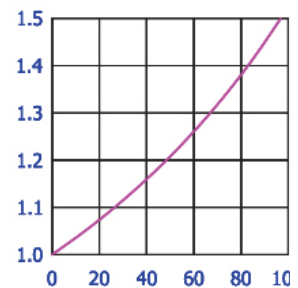
150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	100	84	66,000	91,900	272.3	6.01
020	108	88		93,700	315.7	6.19
025	118	93		96,200	370.1	6.42
030	128	98		98,200	424.4	6.65
035	138	103		99,700	478.7	6.87
038	144	106		100,500	511.3	7.01
040	148	108		101,000	533.1	7.11
045	158	113		102,100	587.4	7.33
050	168	118		103,000	641.8	7.56
060	188	128		104,400	750.4	8.01
063	194	131		104,800	783.0	8.15
070	208	138		105,500	859.1	8.47
075	218	143		105,900	913.4	8.70
080	228	148		106,400	967.8	8.93
090	248	158		107,100	1076.5	9.38
100	268	168		107,600	1185.1	9.84
125	318	193		108,700	1456.8	10.98

Charging Pressure



PRESSURE (Bar)



STROKE(%)

ORDER
EXAMPLE

Model
18XP6600

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

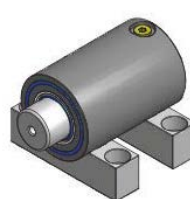
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP6600(SP5000)



Mounting Model:
18XB6600(SB5000)



Mounting Model:
18XT6600(ST5000)



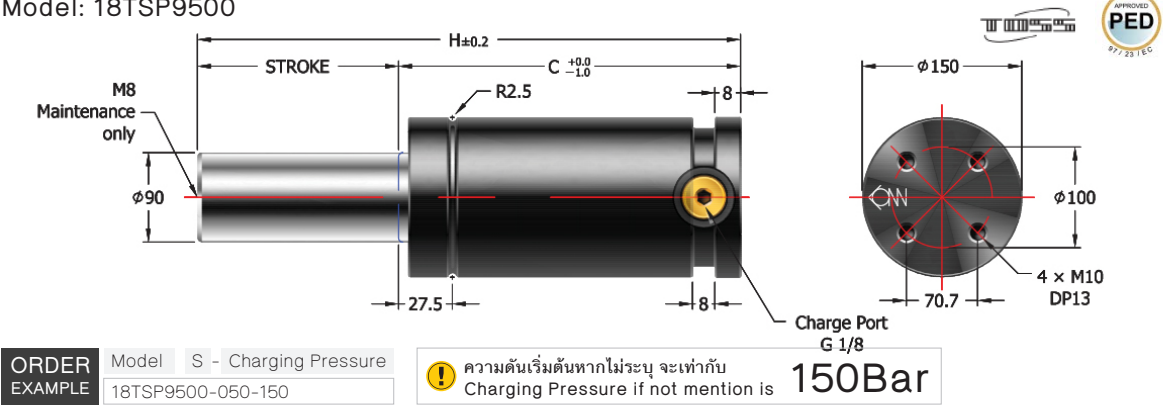
Mounting Model:
18XR6600(SR5000)



Mounting Model:
18XC6600(SC5000)



Model: 18TSP9500

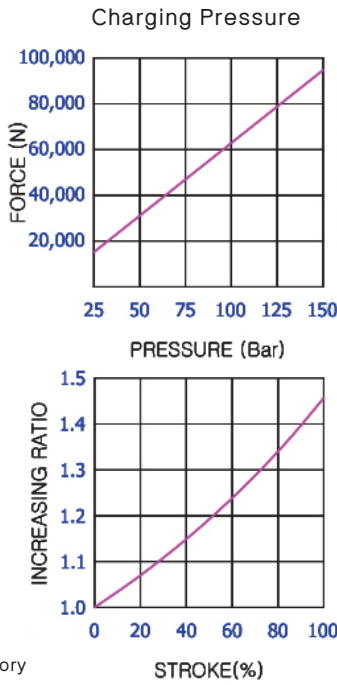


ORDER EXAMPLE Model S - Charging Pressure 18TSP9500-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ Charging Pressure if not mention is

150Bar

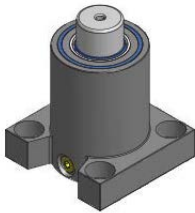
S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
020	118	98	95,000	127,600	509.9	10.78
025	128	103		131,000	591.6	11.10
030	138	108		133,700	673.3	11.60
035	148	113		135,900	755.0	12.84
038	154	116		137,000	804.0	13.18
040	158	118		137,700	836.6	13.24
045	168	123		139,200	918.3	14.48
050	178	128		140,500	1000.0	14.70
060	198	138		142,600	1163.3	15.50
063	204	141		143,100	1212.3	15.64
070	218	148		144,200	1326.7	16.20
075	228	153		144,900	1408.4	17.30
080	238	158		145,500	1490.0	18.10
090	258	168		146,500	1653.4	19.60
100	278	178		147,400	1816.7	20.44
125	328	203		149,100	2225.1	21.20



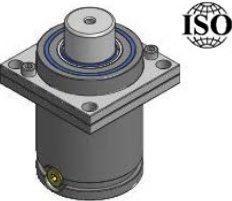
ORDER EXAMPLE Model 18XP9500

! รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้ Mounting specification please see at the back of this category

Mounting Model: 18MS



Mounting Model: 18XT9500(ST7500)



Mounting Model: 18XB9500(SB7500)



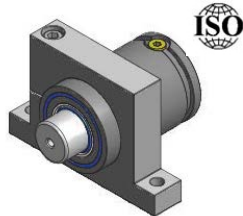
Mounting Model: 18XP9500(SP7500)



Mounting Model: 18XR9500(SR7500)

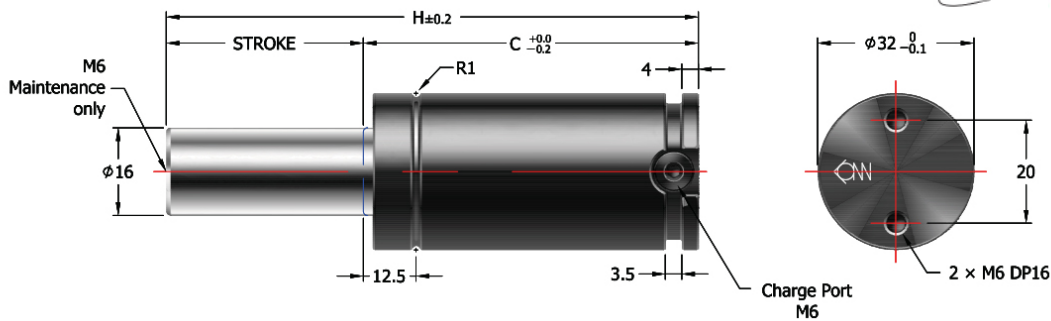


Mounting Model: 18XC9500(SC7500)



TSX Gas Spring

Model: 18TSX0350



ORDER
EXAMPLE

Model S - Charging Pressure
18TSX0350-050-180

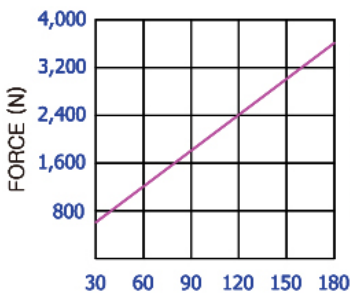


ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

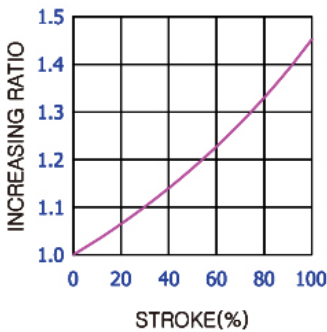
180Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
010	60	50	3,600	5,000	7.2	0.26
013	66	53		5,100	9.0	0.27
016	72	56		5,200	10.8	0.27
020	80	60		5,200	13.3	0.29
025	90	65		5,200	16.3	0.31
030	100	70		5,300	19.4	0.32
035	110	75		5,300	22.4	0.34
038	116	78		5,300	24.2	0.35
040	120	80		5,300	25.4	0.35
045	130	85		5,300	28.5	0.38
050	140	90		5,300	31.5	0.39
060	160	100		5,300	37.6	0.43
063	166	103		5,300	39.5	0.43
070	180	110		5,300	43.7	0.46
075	190	115		5,300	46.8	0.47
080	200	120		5,300	49.8	0.49
090	220	130		5,300	55.9	0.52
100	240	140		5,400	62.5	0.55
125	290	165		5,400	77.2	0.64

Charging Pressure



PRESSURE (Bar)



STROKE(%)

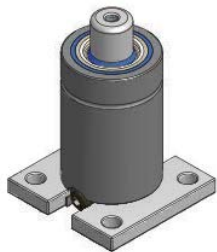
ORDER
EXAMPLE

Model
18XP0350



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18XP0350



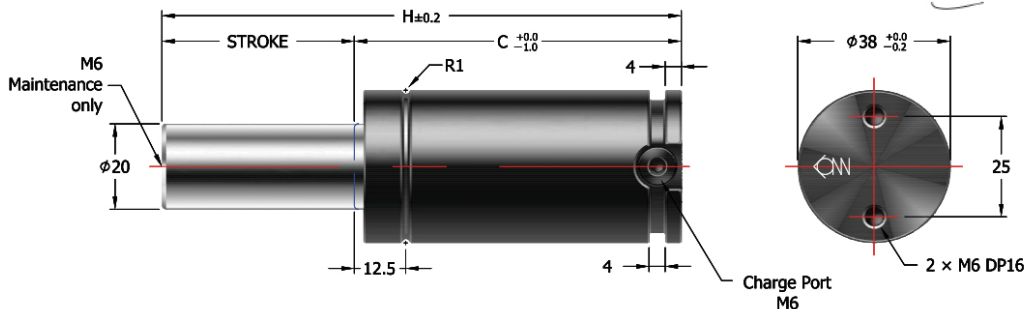
Mounting Model:
18XR0350



แก๊สสปริง

TSX Gas Spring

Model: 18TSX0500



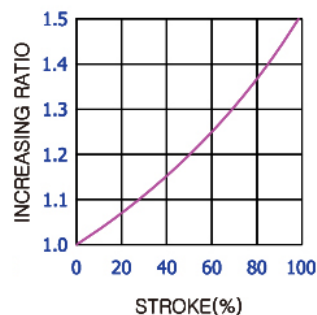
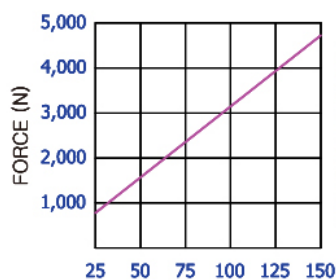
ORDER EXAMPLE Model S - Charging Pressure
18TSX0500-050-150

⚠ ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
010	60	50	4,700	6,700	10.4	0.35
013	66	53		6,800	13.1	0.37
016	72	56		6,900	15.7	0.38
020	80	60		7,000	19.3	0.40
025	90	65		7,000	23.7	0.42
030	100	70		7,100	28.2	0.45
035	110	75		7,100	32.6	0.47
038	116	78		7,100	35.3	0.48
040	120	80		7,100	37.0	0.50
045	130	85		7,100	41.5	0.52
050	140	90		7,200	45.9	0.55
060	160	100		7,200	54.8	0.60
063	166	103		7,200	57.4	0.61
070	180	110		7,200	63.6	0.64
075	190	115		7,200	68.1	0.66
080	200	120		7,200	72.5	0.69
090	220	130		7,200	81.4	0.74
100	240	140		7,200	90.3	0.79
125	290	165		7,200	112.4	0.91

Charging Pressure



ORDER EXAMPLE Model
18XP0500

📄 รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18XP0500(XP0300)



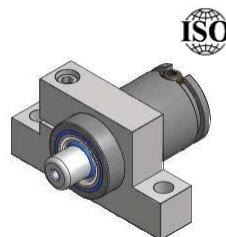
Mounting Model:
18XR0500(XR0300)



Mounting Model:
18XT0500(XT0300)

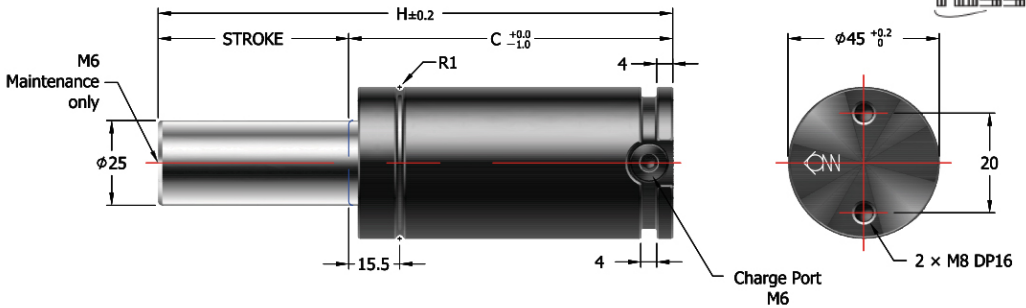


Mounting Model:
18XC0500(XC0300)



TSX Gas Spring

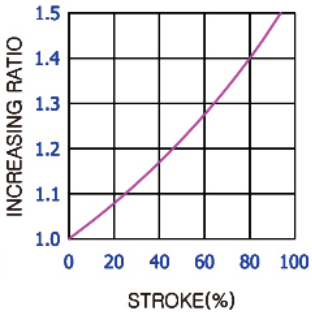
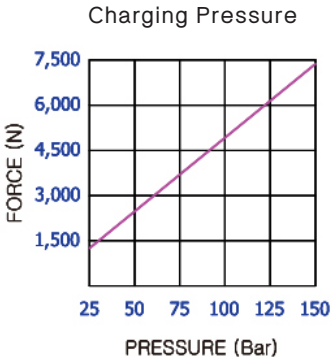
Model: 18TSX0750



ORDER EXAMPLE Model S - Charging Pressure 18TSX0750-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar Charging Pressure if not mention is 150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
010	67	57	7,400	10,200	17.9	0.55
013	73	60		10,500	21.8	0.57
016	79	63		10,600	25.7	0.59
020	87	67		10,800	30.9	0.62
025	97	72		11,000	37.4	0.65
030	107	77		11,100	43.9	0.68
035	117	82		11,200	50.4	0.71
038	123	85		11,300	54.3	0.73
040	127	87		11,300	57.0	0.74
045	137	92		11,300	63.5	0.78
050	147	97		11,400	70.0	0.81
060	167	107		11,500	83.0	0.87
063	173	110		11,500	86.9	0.89
070	187	117		11,500	96.0	0.94
075	197	122		11,500	102.5	0.97
080	207	127		11,600	109.0	1.00
090	227	137		11,600	122.0	1.07
100	247	147		11,600	135.0	1.13
125	297	172		11,700	167.6	1.29

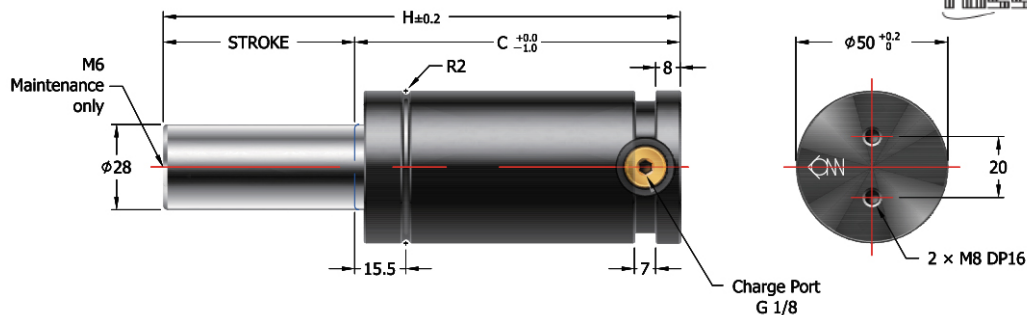


ORDER EXAMPLE Model 18XP0750 รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้ Mounting specification please see at the back of this category

Mounting Model: 18XP0750(SP0500) Mounting Model: 18XR0750(SR0500) Mounting Model: 18XT0750(ST0500) Mounting Model: 18XB0750(SB0500) Mounting Model: 18XC0750(SC0500)



Model: 18TSX1000

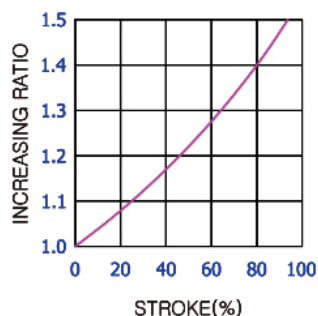
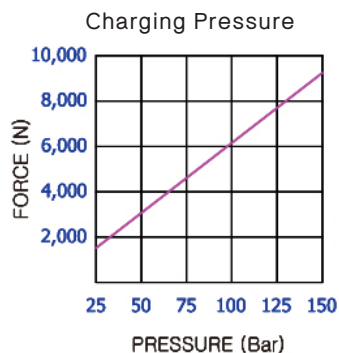


ORDER EXAMPLE Model - S - Charging Pressure
18TSX1000-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
013	78	65	9,200	12,200	32.7	0.71
016	84	68		12,500	37.4	0.74
020	92	72		12,800	43.7	0.77
025	102	77		13,200	51.6	0.81
030	112	82		13,400	59.4	0.65
035	122	87		13,600	67.3	0.89
038	128	90		13,700	72.0	0.91
040	132	92		13,700	75.1	0.93
045	142	97		13,900	83.0	0.97
050	152	102		14,000	90.8	1.02
060	172	112		14,100	106.5	1.09
063	178	115		14,200	111.2	1.11
070	192	122		14,300	122.2	1.17
075	202	127		14,300	130.1	1.22
080	212	132		14,400	137.9	1.25
090	232	142		14,400	153.6	1.34
100	252	152		14,500	169.2	1.42
125	302	177		14,600	208.6	1.62



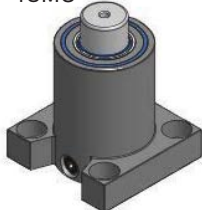
ORDER EXAMPLE Model
18XP1000

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

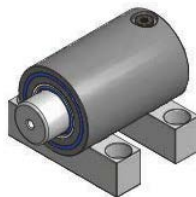
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP1000(SP0750)



Mounting Model:
18XB1000(SB0750)



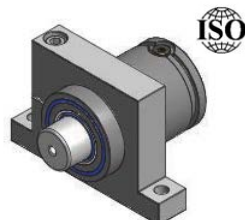
Mounting Model:
18XT1000(ST0750)



Mounting Model:
18XR1000(SR0750)

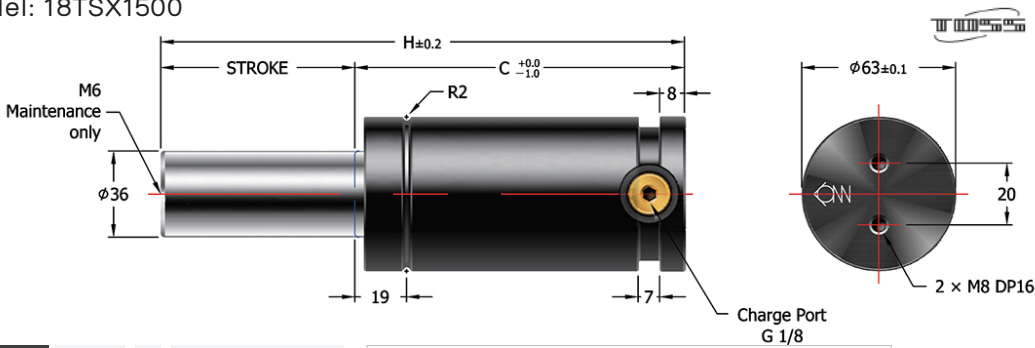


Mounting Model:
18XC1000(SC0750)



TSX Gas Spring

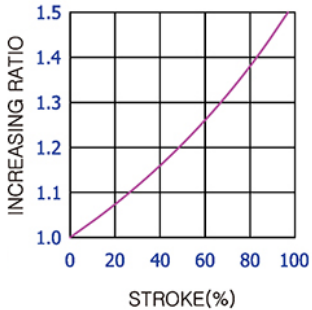
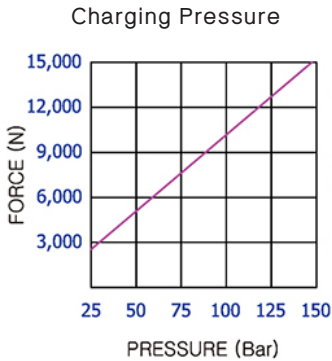
Model: 18TSX1500



ORDER EXAMPLE	Model - S - Charging Pressure
	18TSX1500-050-150

⚠ ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is 150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
013	78	65	15,200	20,500	50.7	1.20
016	84	68		21,000	58.7	1.24
020	92	72		21,500	69.3	1.29
025	102	77		21,900	82.6	1.36
030	112	82		22,200	95.8	1.43
035	122	87		22,500	109.1	1.50
038	128	90		22,600	117.1	1.53
040	132	92		22,700	122.4	1.56
045	142	97		22,900	135.6	1.63
050	152	102		23,000	148.9	1.74
060	172	112		23,200	175.4	1.82
063	178	115		23,300	183.4	1.87
070	192	122		23,400	202.0	1.96
075	202	127		23,500	215.2	2.03
080	212	132		23,500	228.2	2.09
090	232	142		23,600	254.8	2.23
100	252	152		23,700	281.4	2.35
125	302	177		23,900	347.9	2.69



ORDER EXAMPLE	Model	รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่ Mounting specification please see at the back of this category
	18XP1500	

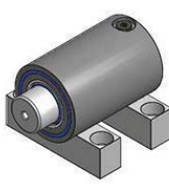
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP1500



Mounting Model:
18XB1500



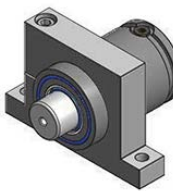
Mounting Model:
18XT1500

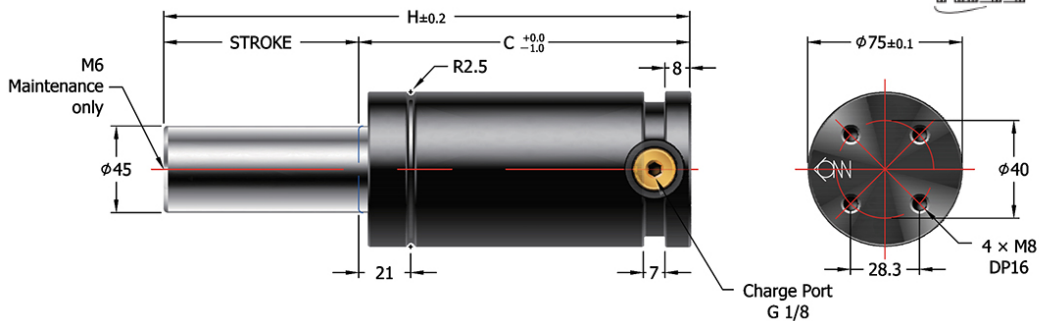


Mounting Model:
18XR1500



Mounting Model:
18XC1500





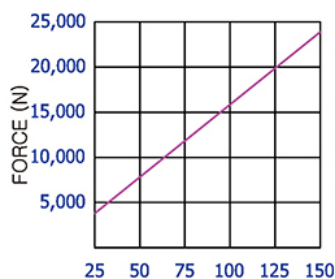
ORDER EXAMPLE Model - S - Charging Pressure
18TSX2400-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

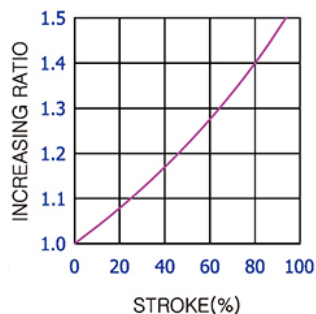
150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	91	75	23,800	33,000	91.5	1.96
020	99	79		33,800	107.6	2.03
025	109	84		34,600	127.7	2.11
030	119	89		35,100	147.8	2.19
035	129	94		35,600	167.9	2.27
038	135	97		35,800	180.0	2.32
040	139	99		36,000	188.0	2.35
045	149	104		36,300	208.2	2.43
050	159	109		36,500	228.3	2.51
060	179	119		36,900	268.5	2.68
063	185	122		37,000	280.6	2.72
070	199	129		37,200	308.7	2.85
075	209	134		37,300	328.8	2.93
080	219	139		37,400	349.0	3.01
090	239	149		37,600	389.2	3.17
100	259	159		37,800	429.4	3.33
125	309	184		38,100	530.0	3.75

Charging Pressure



PRESSURE (Bar)



STROKE(%)

ORDER EXAMPLE Model
18XP2400

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

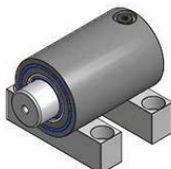
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP2400(SP1500)



Mounting Model:
18XB2400(SB1500)



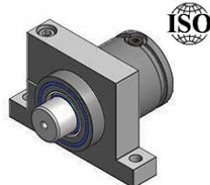
Mounting Model:
18XT2400(ST1500)



Mounting Model:
18XR2400(SR1500)

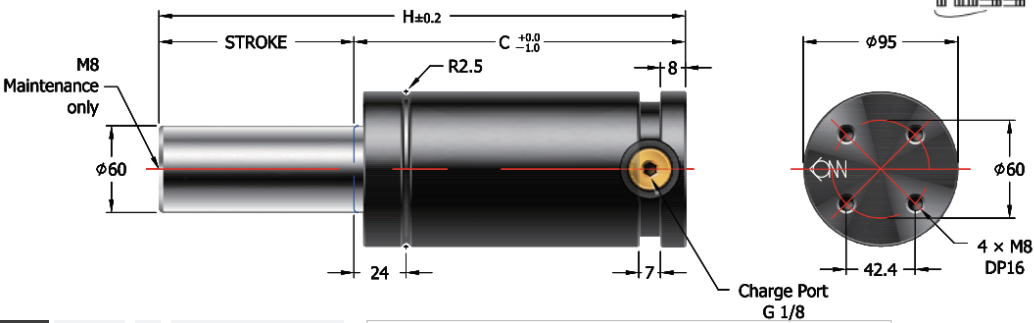


Mounting Model:
18XC2400(SC1500)



TSX Gas Spring

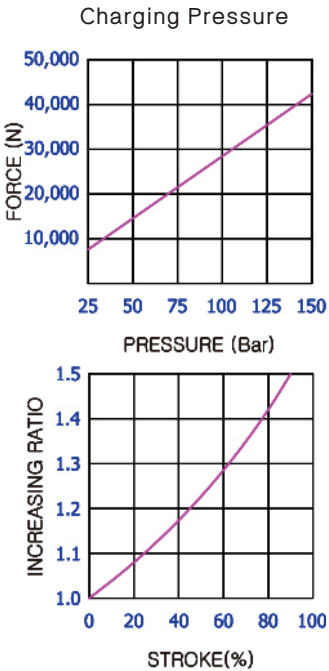
Model: 18TSX4200



ORDER EXAMPLE	Model - S - Charging Pressure
	18TSX4200-050-150

⚠ ความดันเริ่มดันหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is 150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	94	78	42,200	59,000	158.4	3.27
020	102	82		60,600	185.7	3.38
025	112	87		62,100	219.9	3.52
030	122	92		63,300	254.1	3.66
035	132	97		64,200	288.2	3.81
038	138	100		64,600	308.7	3.88
040	142	102		64,900	322.4	3.94
045	152	107		65,500	356.6	4.08
050	162	112		66,000	390.7	4.22
060	182	122		66,800	459.1	4.50
063	188	125		67,000	479.6	4.58
070	202	132		67,400	527.4	4.78
075	212	137		67,700	561.5	4.92
080	222	142		67,900	595.7	5.06
090	242	152		68,300	664.0	5.33
100	262	162		68,600	732.4	5.62
125	312	187		69,200	903.2	6.31



ORDER EXAMPLE	Model
	18XP4200

ⓘ รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

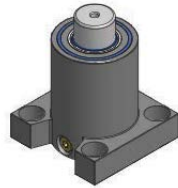
Mounting Model:
18MD



Mounting Model:
18XB4200(SB3000)



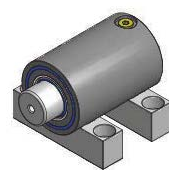
Mounting Model:
18MS



Mounting Model:
18XT4200(ST3000)



Mounting Model:
18MK



Mounting Model:
18XR4200(SR3000)



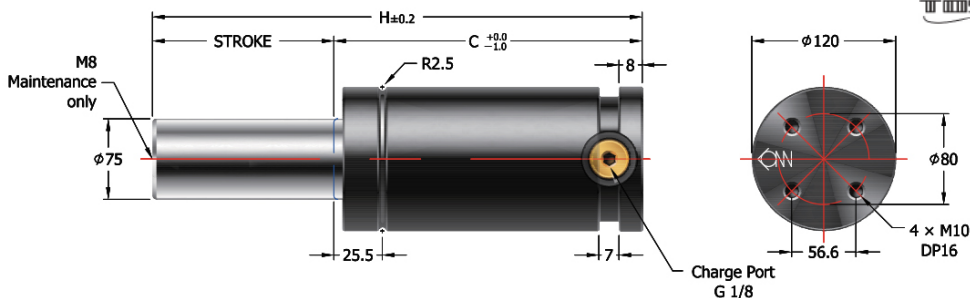
Mounting Model:
18XP4200(SP3000)



Mounting Model:
18XC4200(SC3000)



Model: 18TSX6600

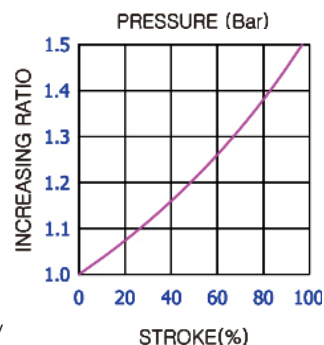
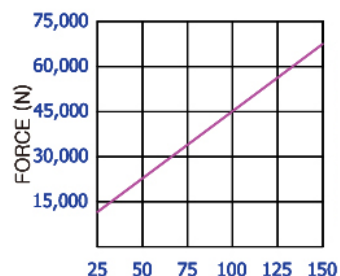


ORDER EXAMPLE Model - S - Charging Pressure
18TSX6600-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ **150Bar**
Charging Pressure if not mention is

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	104	88	66,000	87,600	285.7	6.11
020	112	92		90,200	329.1	6.29
025	122	97		92,600	383.5	6.52
030	132	102		94,600	437.8	6.75
035	142	107		96,200	492.1	6.97
038	148	110		97,000	524.7	7.11
040	152	112		97,500	546.5	7.21
045	162	117		98,600	600.8	7.43
050	172	122		99,500	655.2	7.66
060	192	132		101,000	763.8	8.11
063	198	135		101,400	796.4	8.25
070	212	142		102,100	872.5	8.57
075	222	147		102,600	926.8	8.80
080	232	152		103,100	981.2	9.03
090	252	162		103,800	1089.9	9.48
100	272	172		104,400	1198.5	9.94
125	322	197		105,600	1470.2	11.08

Charging Pressure



ORDER EXAMPLE Model
18XP6600

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

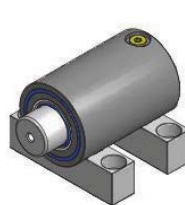
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18XP6600(SP5000)



Mounting Model:
18XB6600(SB5000)



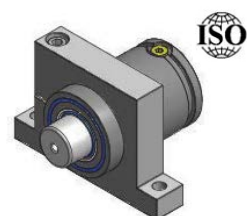
Mounting Model:
18XT6600(ST5000)



Mounting Model:
18XR6600(SR5000)

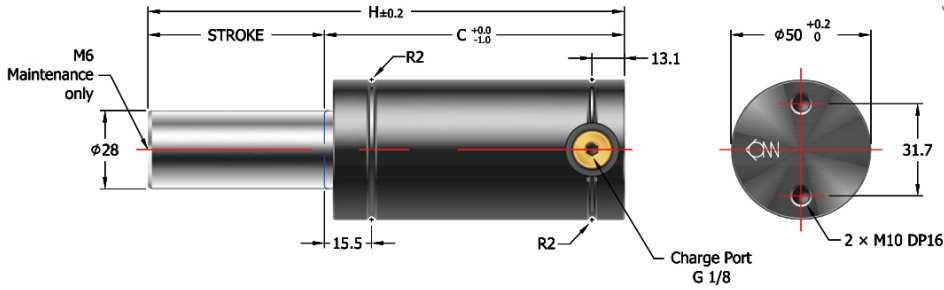


Mounting Model:
18XC6600(SC5000)



TST Gas Spring

Model: 18TST1000



ORDER
EXAMPLE

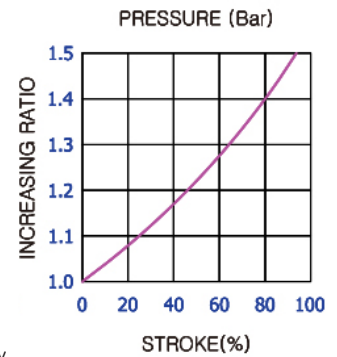
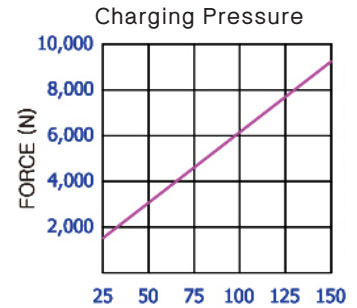
Model - S - Charging Pressure
18TST1000-050-150



! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
013	78	65	9,200	12,200	32.7	0.71
016	84	68		12,500	37.4	0.74
020	92	72		12,800	43.7	0.77
025	102	77		13,200	51.6	0.81
030	112	82		13,400	59.4	0.65
035	122	87		13,600	67.3	0.89
038	128	90		13,700	72.0	0.91
040	132	92		13,700	75.1	0.93
045	142	97		13,900	83.0	0.97
050	152	102		14,000	90.8	1.02
060	172	112		14,100	106.5	1.09
063	178	115		14,200	111.2	1.11
070	192	122		14,300	122.2	1.17
075	202	127		14,300	130.1	1.22
080	212	132		14,400	137.9	1.25
090	232	142		14,400	153.6	1.34
100	252	152		14,500	169.2	1.42
125	302	177		14,600	208.6	1.62



ORDER
EXAMPLE

Model
18TB1000



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

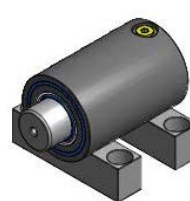
Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18TB1000



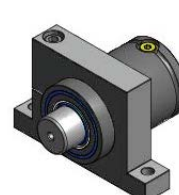
Mounting Model:
18XT1000(ST0750)



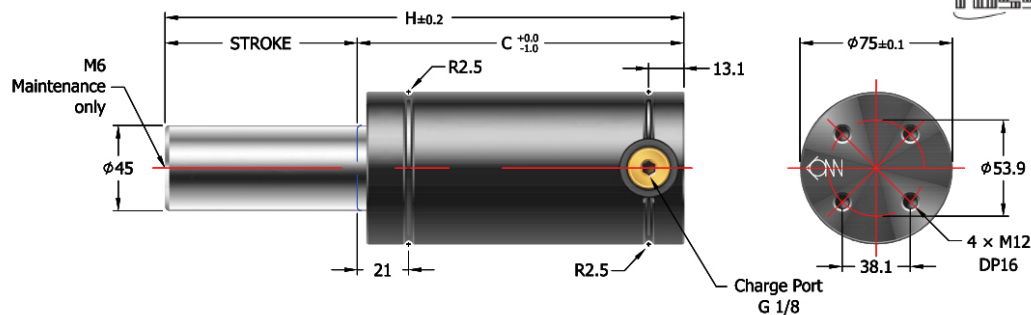
Mounting Model:
18XR1000(SR0750)



Mounting Model:
18XC1000(SC0750)



Model: 18TST2400

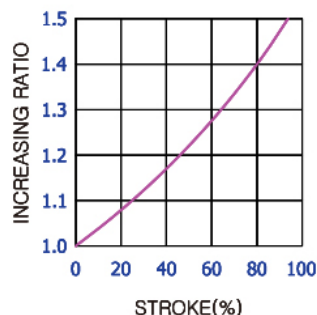
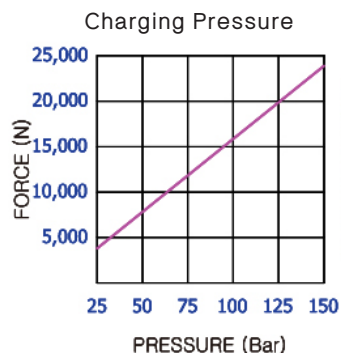


ORDER EXAMPLE Model - S - Charging Pressure
18TST2400-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
013	78	65	23,800	12,200	32.7	0.71
016	84	68		12,500	37.4	0.74
020	92	72		12,800	43.7	0.77
025	102	77		13,200	51.6	0.81
030	112	82		13,400	59.4	0.65
035	122	87		13,600	67.3	0.89
038	128	90		13,700	72.0	0.91
040	132	92		13,700	75.1	0.93
045	142	97		13,900	83.0	0.97
050	152	102		14,000	90.8	1.02
060	172	112		14,100	106.5	1.09
063	178	115		14,200	111.2	1.11
070	192	122		14,300	122.2	1.17
075	202	127		14,300	130.1	1.22
080	212	132		14,400	137.9	1.25
090	232	142		14,400	153.6	1.34
100	252	152		14,500	169.2	1.42
125	302	177		14,600	208.6	1.62



ORDER EXAMPLE Model
18TB2400

! รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18TB2400



Mounting Model:
18XT2400(ST1500)



Mounting Model:
18XR2400(SR1500)

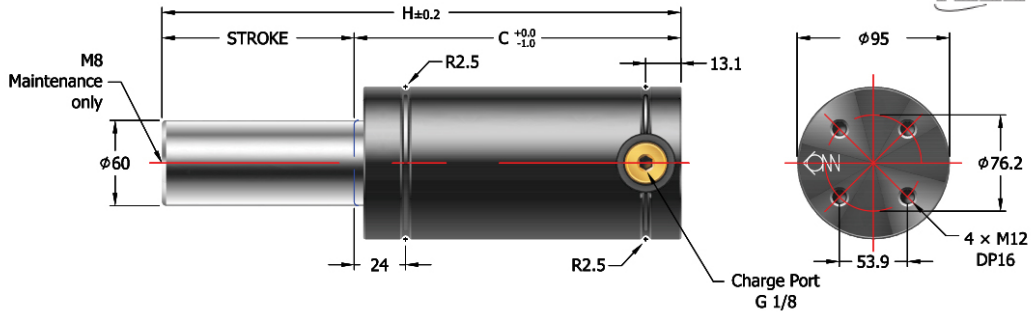


Mounting Model:
18XC2400(SC1500)



TST Gas Spring

Model: 18TST4200

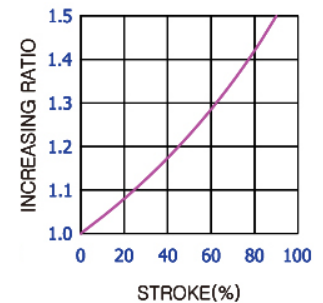
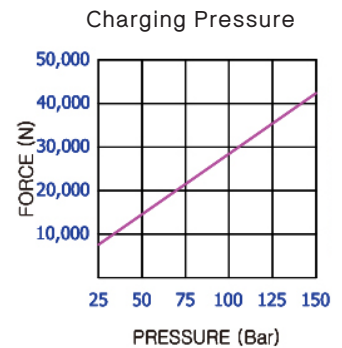


ORDER EXAMPLE Model - S - Charging Pressure
18TST4200-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ Charging Pressure if not mention is

150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	94	78	42,200	59,000	158.4	3.27
020	102	82		60,600	185.7	3.38
025	112	87		62,100	219.9	3.52
030	122	92		63,300	254.1	3.66
035	132	97		64,200	288.2	3.81
038	138	100		64,600	308.7	3.88
040	142	102		64,900	322.4	3.94
045	152	107		65,500	356.6	4.08
050	162	112		66,000	390.7	4.22
060	182	122		66,800	459.1	4.50
063	188	125		67,000	479.6	4.58
070	202	132		67,400	527.4	4.78
075	212	137		67,700	561.5	4.92
080	222	142		67,900	595.7	5.06
090	242	152		68,300	664.0	5.33
100	262	162		68,600	732.4	5.62
125	312	187		69,200	903.2	6.31



ORDER EXAMPLE Model
18TB4200

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18TB4200



Mounting Model:
18XT4200(ST3000)



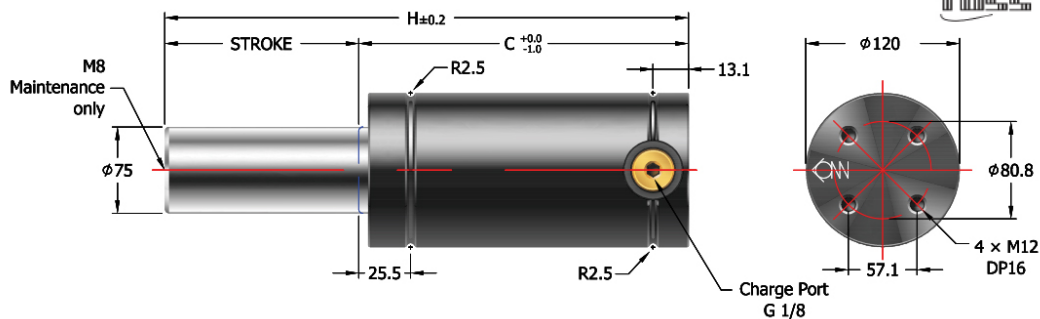
Mounting Model:
18XR4200(SR3000)



Mounting Model:
18XC4200(SC3000)



Model: 18TST6600



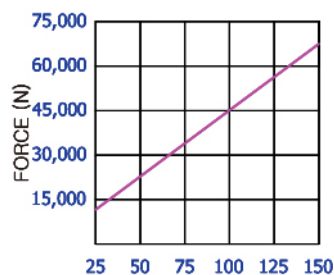
ORDER EXAMPLE Model - S - Charging Pressure
18TST6600-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

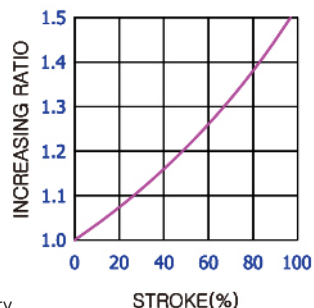
150Bar

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
016	104	88	66,000	87,600	285.7	3.27
020	112	92		90,200	329.1	3.38
025	122	97		92,600	383.5	3.52
030	132	102		94,600	437.8	3.66
035	142	107		96,200	492.1	3.81
038	148	110		97,000	524.7	3.88
040	152	112		97,500	546.5	3.94
045	162	117		98,600	600.8	4.08
050	172	122		99,500	655.2	4.22
060	192	132		101,000	763.8	4.50
063	198	135		101,400	796.4	4.58
070	212	142		102,100	872.5	4.78
075	222	147		102,600	926.8	4.92
080	232	152		103,100	981.2	5.06
090	252	162		103,800	1089.9	5.33
100	272	172		104,400	1198.5	5.62
125	322	197		105,600	1470.2	6.31

Charging Pressure



PRESSURE (Bar)



ORDER EXAMPLE Model
18TB6600

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MK



Mounting Model:
18TB6600



Mounting Model:
18XT6600(ST5000)



Mounting Model:
18XR6600(SR5000)

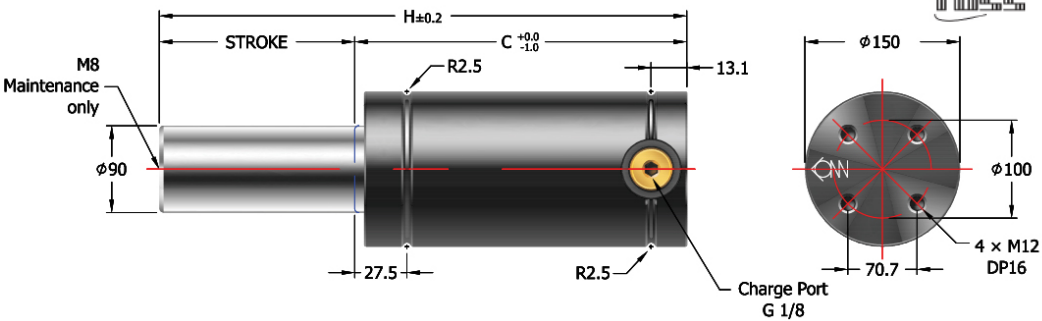


Mounting Model:
18XC6600(SC5000)



TST Gas Spring

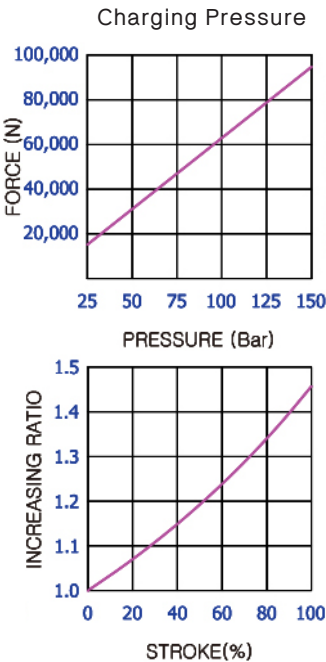
Model: 18TST9500



ORDER EXAMPLE Model - S - Charging Pressure 18TST9500-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar Charging Pressure if not mention is

S	H	C	Force		Gas Vol. (cm3)	Weight (kg)
			Initial (N)	End (N)		
020	118	98	95,000	127,600	509.9	10.78
025	128	103		131,000	591.6	11.10
030	138	108		133,700	673.3	11.60
035	148	113		135,900	755.0	12.84
038	154	116		137,000	804.0	13.18
040	158	118		137,700	836.6	13.24
045	168	123		139,200	918.3	14.48
050	178	128		140,500	1000.0	14.70
060	198	138		142,600	1163.3	15.50
063	204	141		143,100	1212.3	15.64
070	218	148		144,200	1326.7	16.20
075	228	153		144,900	1408.4	17.30
080	238	158		145,500	1490.0	18.10
090	258	168		146,500	1653.4	19.60
100	278	178		147,400	1816.7	20.44
125	328	203		149,100	2225.1	21.20



ORDER EXAMPLE Model 18TB9500

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้ Mounting specification please see at the back of this category

Mounting Model: 18MS Mounting Model: 18TB9500 Mounting Model: 18XR9500(SR7500) Mounting Model: 18XT9500(ST7500) Mounting Model: 18XC9500(SC7500)

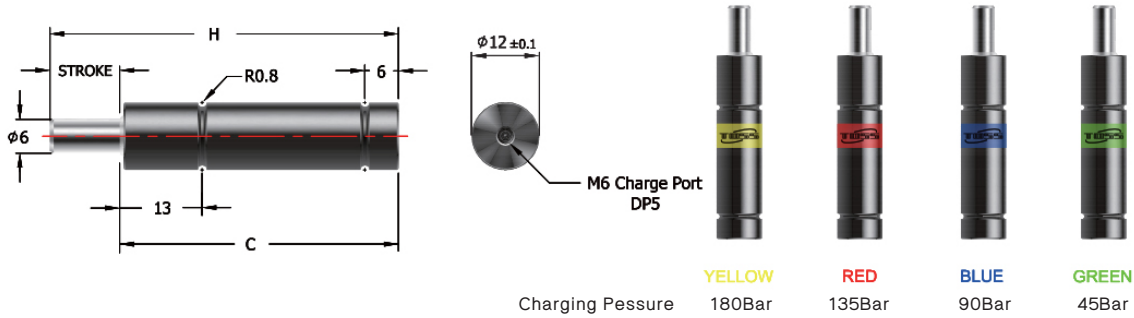


TSM Gas Spring

Model: 18TSM0050

รุ่นนี้มีสีที่กระบอกตามค่าความดัน

This model body color response to charging pressure



ORDER EXAMPLE Model - S - Charging Pressure
18TSM0050-050-135



ระบุความดันเริ่มต้น หรือสีที่ต้องการ
Specify Charging Pressure or color



เกลียวด้านล่างสำหรับรุ่น strokes 7-25 มม.
Bottom thread only for strokes 7-25mm

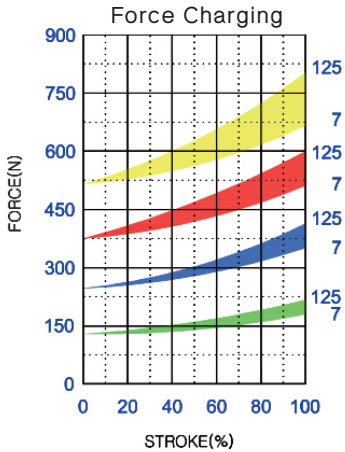
S	H	C	Force (Yellow)		Force (Red)		Force (Blue)		Force (Green)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)		
007	56	49	180	700	135	500	400	400	45	200	0.8	0.03
010	62	52		700						200	1.1	0.03
013	67.4	54.7		800						200	1.3	0.03
015	72	57		800						200	1.5	0.03
019	80	61		800						200	1.8	0.04
025	92	67		800						200	2.2	0.04
038	118	80		800						200	3.3	0.04
050	142	92		800						200	4.2	0.05
064	172	108.5		800						200	5.5	0.06
075	195	120		800						200	6.4	0.06
080	205	125	180	800	135	600	400	400	45	200	6.8	0.07
100	245	145		800						200	8.4	0.07
125	295	170		800						200	10.3	0.09

ORDER EXAMPLE Model
18SG50



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

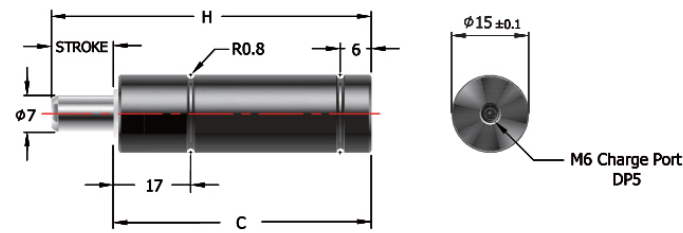
Mounting Model:
18SG50



TSM Gas Spring

Model: 18TSM0070

รุ่นนี้สีที่กระบอกตามค่าความดัน
This model body color response to charging pressure



Charging Pressure **YELLOW** 180Bar **RED** 135Bar **BLUE** 90Bar **GREEN** 45Bar

ORDER EXAMPLE Model - S - Charging Pressure
18TSM0070-050-135

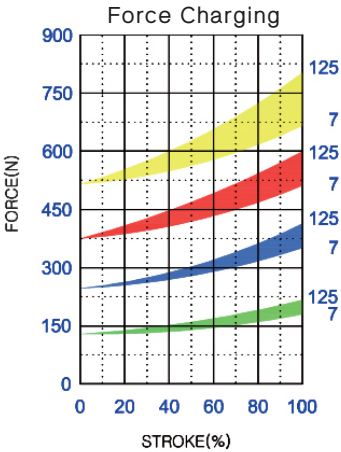
! ระบุความดันเริ่มต้น หรือสีที่ต้องการ **i** เกยตัวด้านล่างสำหรับรุ่น strokes 7-25mm.
Specify Charging Pressure or color Bottom thread only for strokes 7-25mm

S	H	C	Force (Yellow)		Force (Red)		Force (Blue)		Force (Green)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)		
007	56	49	700	900	500	700	350	500	180	200	1.2	0.05
010	62	52		1,000						200	1.5	0.05
013	68	55		1,000						200	1.9	0.05
015	72	57		1,000						300	2.1	0.05
019	80	61		1,000						300	2.5	0.05
025	92	67		1,000						300	3.2	0.06
038	118	80		1,100						300	4.7	0.07
050	142	92		1,100						300	6.0	0.08
064	172	108.5		1,100						300	7.9	0.09
075	195	120		1,100						300	9.2	0.10
080	205	125		1,100						300	9.8	0.11
100	245	145		1,100						300	12.0	0.12
125	295	170		1,100						300	14.9	0.14

ORDER EXAMPLE Model
18SG50

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18SG70



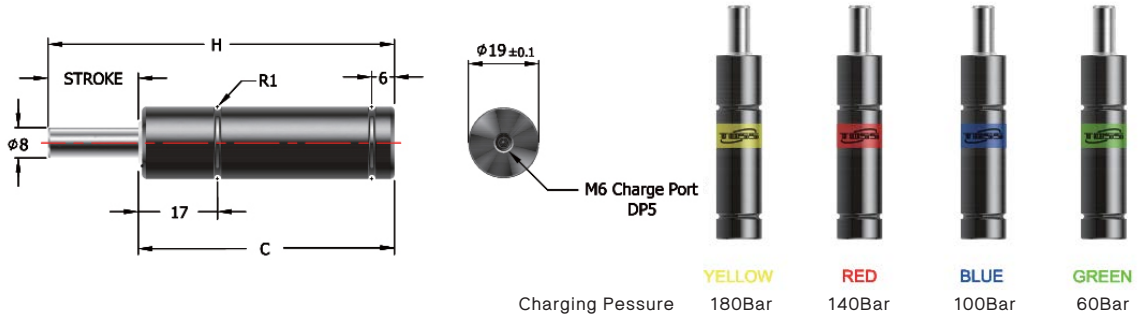
แก๊สสปริง

TSM Gas Spring

Model: 18TSM0090

รุ่นนี้มีสีที่กระบอกตามค่าความดัน

This model body color response to charging pressure



ORDER EXAMPLE Model - S - Charging Pressure
18TSM0090-050-135



ระบุความดันเริ่มต้น หรือสีที่ต้องการ
Specify Charging Pressure or color



เกลียวด้านล่างสำหรับรุ่น strokes 7-25 มม.
Bottom thread only for strokes 7-25mm

S	H	C	Force (Yellow)		Force (Red)		Force (Blue)		Force (Green)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)		
007	56	49	900	1,100	700	900	500	600	300	400	2.3	0.07
010	62	52		1,100						400	2.9	0.08
013	67.4	54.7		1,100						400	3.5	0.08
015	72	57		1,100						400	3.9	0.08
019	80	61		1,100						400	4.7	0.08
025	92	67		1,100						400	5.9	0.10
038	118	80		1,200						400	8.5	0.10
050	142	92		1,200						400	11.0	0.12
064	172	108.5	900	1,200	700	900	500	600	300	400	14.3	0.13
075	195	120		1,200						400	16.6	0.14
080	205	125		1,200						400	17.6	0.14
100	245	145		1,200						400	21.6	0.17
125	295	170		1,200						400	26.6	0.20

ORDER EXAMPLE Model
18SG90



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

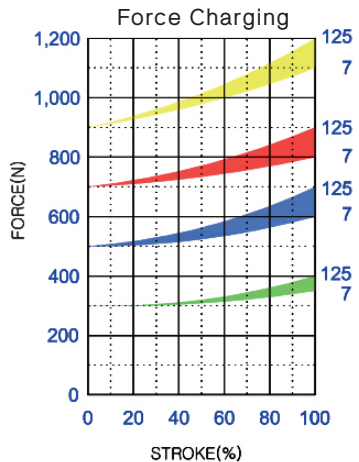
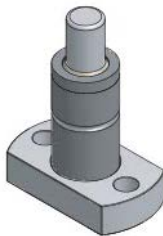
Mounting Model:
18SG90



Mounting Model:
18SC90



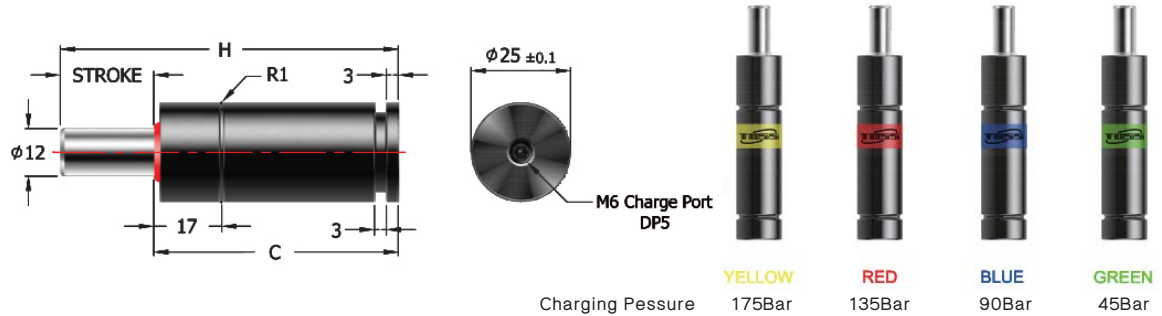
Mounting Model:
18SP90



TSM Gas Spring

Model: 18TSM0150

รุ่นนี้มีสีที่กระบอกตามค่าความดัน
This model body color response to charging pressure



ORDER EXAMPLE Model - S - Charging Pressure
18TSM0150-050-135

⚠ ระบุความดันเริ่มต้น หรือสีที่ต้องการ
Specify Charging Pressure or color

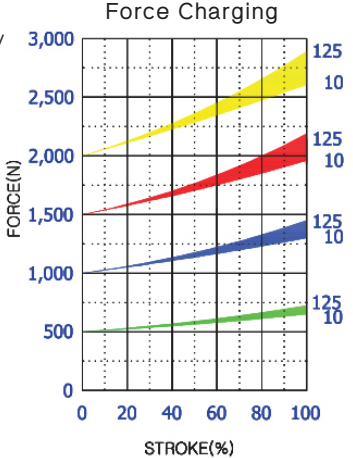
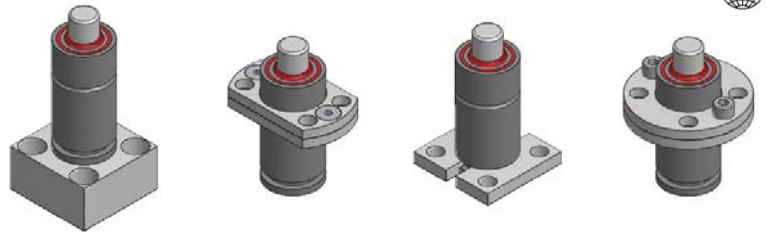
ℹ เกลียวด้านล่างสำหรับรุ่น strokes 7-25mm.
Bottom thread only for strokes 7-25mm

S	H	C	Force (Yellow)		Force (Red)		Force (Blue)		Force (Green)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)	Start (N)	End (N)		
010	62	52	2,000	2,600	1,500	2,000	1,000	1,300	500	700	4.7	0.14
013	68	55		2,700							5.7	0.15
015	72	57		2,700							6.4	0.16
016	74	58		2,700							6.8	0.16
020	82	62		2,700							8.1	0.17
025	92	67		2,800							9.9	0.18
030	102	72		2,800							11.6	0.19
035	112	77		2,800							13.3	0.20
038	118	80		2,800							14.4	0.21
040	122	82		2,800							15.1	0.22
045	132	87		2,800							16.8	0.23
050	142	92		2,800							18.5	0.24
060	165	105		2,800							22.0	0.27
063	172	109		2,800							23.4	0.27
070	185	115		2,900							25.4	0.29
080	205	125		2,900							28.9	0.32
100	245	145		2,900							35.8	0.36
125	295	170		2,900							44.5	0.40

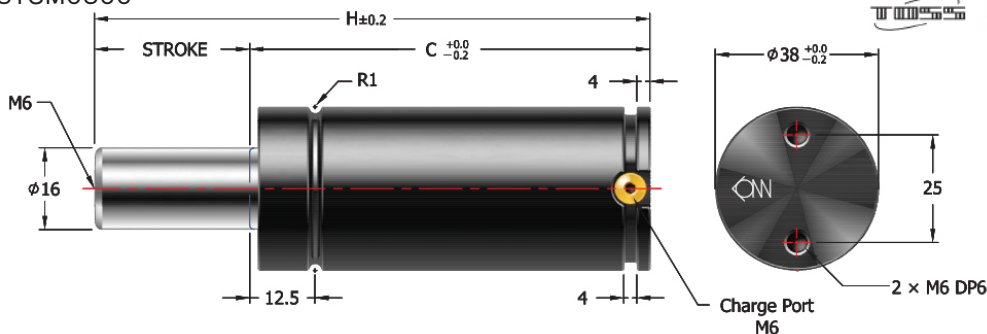
ORDER EXAMPLE Model 18SG150

ℹ รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model: 18XP0150 Mounting Model: 18XR0150 Mounting Model: 18XB0150 Mounting Model: 18SG0150



Model: 18TSM0300



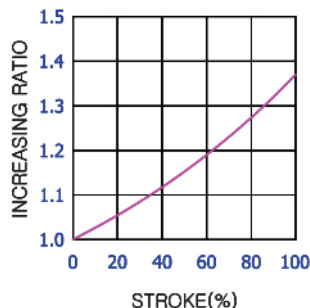
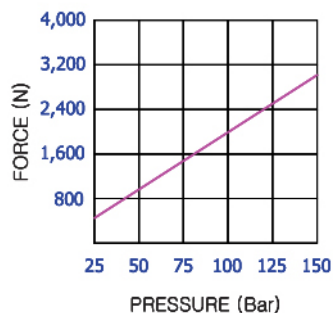
ORDER
EXAMPLE Model - S - Charging Pressure
18TSM0300-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	70	60	3,000	3,900	8.5	0.44
015	80	65		4,000	12.0	0.46
020	90	70		4,000	15.5	0.50
025	100	75		4,100	19.1	0.52
030	110	80		4,100	22.6	0.56
035	120	85		4,100	26.1	0.58
038	126	88		4,100	28.3	0.58
040	130	90		4,100	29.7	0.60
045	140	95		4,100	33.2	0.62
050	150	100		4,100	36.7	0.66
060	170	110		4,100	43.8	0.70
063	176	113		4,100	45.9	0.72
070	190	120		4,100	50.9	0.76
080	210	130		4,100	57.9	0.80
090	230	140		4,100	65.0	0.84
100	250	150		4,200	72.1	0.90
110	270	160		4,200	79.1	0.96
120	290	170		4,200	86.2	1.00
125	300	175		4,200	89.7	1.04

Charging Pressure



ORDER
EXAMPLE Model
18XP0300

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18XP0300



Mounting Model:
18XR0300



Mounting Model:
18XT0300



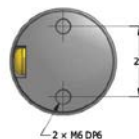
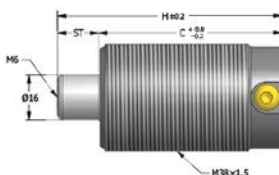
Mounting Model:
18XC0300



Mounting Model:
18SG0300 For TTM0300

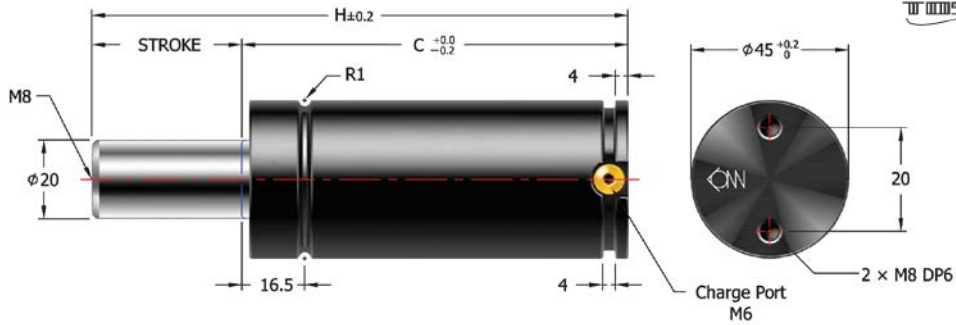


Mounting Model:
18TTM0300 (Threaded Option)



TSM Gas Spring

Model: 18TSM0500



ORDER EXAMPLE

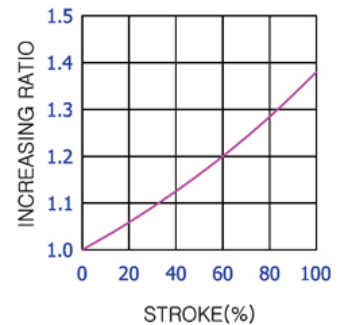
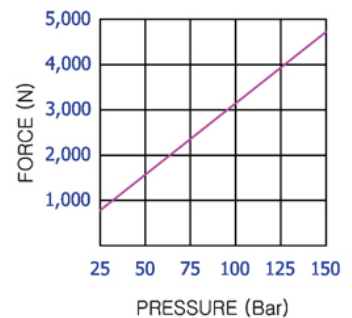
Model - S - Charging Pressure
18TSM0500-050-150

 ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	70	60	4,650	6,100	12.9	0.60
015	80	65		6,200	18.3	0.64
020	90	70		6,300	23.6	0.68
025	100	75		6,300	29.0	0.72
030	110	80		6,400	34.4	0.76
035	120	85		6,400	39.8	0.80
038	126	88		6,400	43.0	0.81
040	130	90		6,400	45.1	0.82
045	140	95		6,400	50.5	0.86
050	150	100		6,500	55.9	0.89
060	170	110		6,500	66.6	0.96
063	176	113		6,500	69.9	0.98
070	190	120		6,500	77.4	1.01
080	210	130		6,500	88.1	1.09
090	230	140		6,500	98.9	1.16
100	250	150		6,500	109.6	1.23
110	270	160	6,500	120.4	1.30	
120	290	170	6,500	131.1	1.35	
125	300	175	6,500	136.5	1.39	

Charging Pressure



ORDER EXAMPLE

Model	18SP0500
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รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18SP0500



Mounting Model:
18SR0500



Mounting Model:
18ST0500



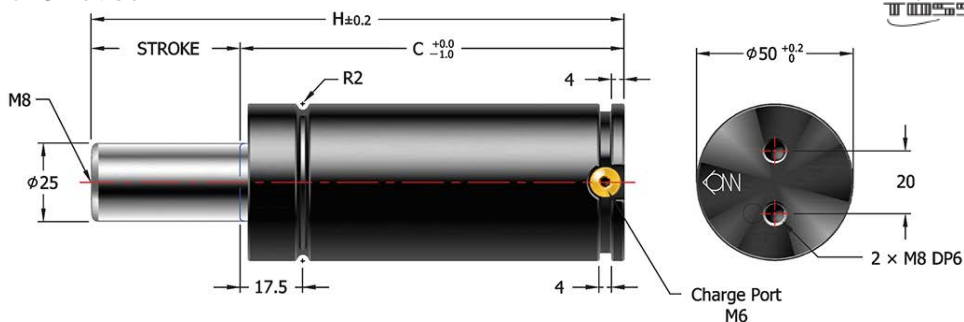
Mounting Model:
18SB0500



Mounting Model:
18SC0500



Model: 18TSM0750



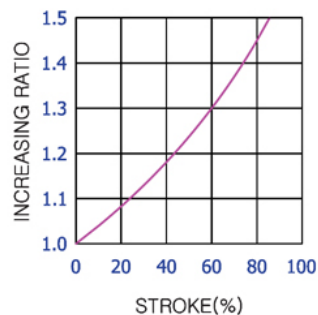
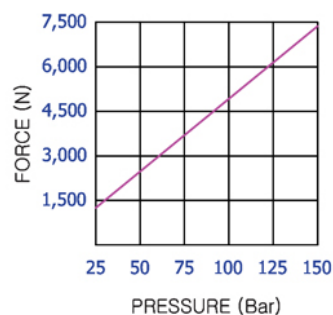
ORDER Model - S - Charging Pressure
EXAMPLE 18TSM0750-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	70	60	7,350	11,700	13.2	0.75
012.7	75.4	62.7		11,800	16.6	0.78
015	80	65		11,800	19.5	0.80
020	90	70		11,900	25.7	0.86
025	100	75		11,900	32.0	0.92
030	110	80		11,900	38.3	0.94
035	120	85		11,900	44.6	1.02
038	126	88		12,000	48.4	1.04
040	130	90		12,000	50.9	1.06
045	140	95		12,000	57.1	1.10
050	150	100		12,000	63.4	1.14
060	170	110		12,000	76.0	1.24
063	176	113		12,000	79.8	1.26
070	190	120		12,000	88.5	1.34
075	200	125		12,000	94.8	1.38
080	210	130		12,000	101.1	1.43
090	230	140		12,000	113.7	1.53
100	250	150		12,000	126.2	1.62
125	300	175		12,000	157.6	1.84

Charging Pressure



ORDER Model
EXAMPLE 18SB0750

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



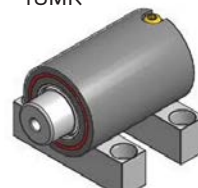
Mounting Model:
18MT



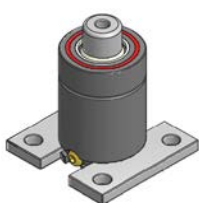
Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP0750M



Mounting Model:
18SB0750 ISO



Mounting Model:
18ST0750 ISO



Mounting Model:
18SR0750 ISO

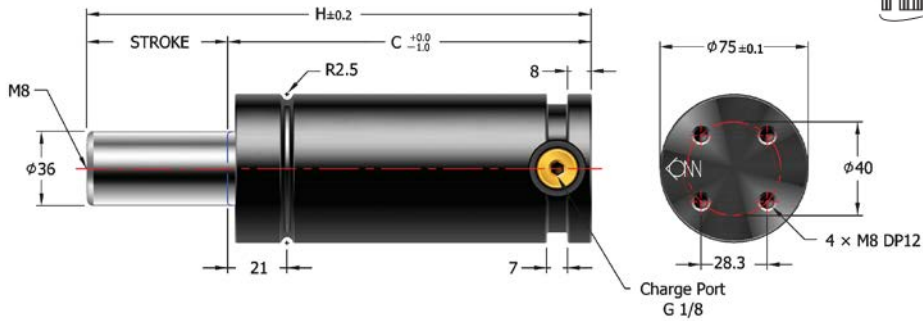


Mounting Model:
18SC0750 ISO



TSM Gas Spring

Model: 18TSM1500



ORDER EXAMPLE

Model	- S -	Charging Pressure
18TSM1500-050-150		

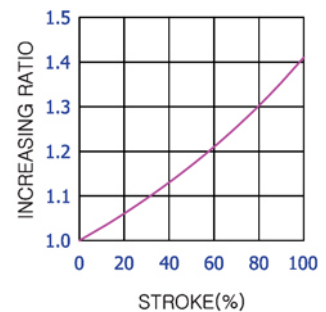
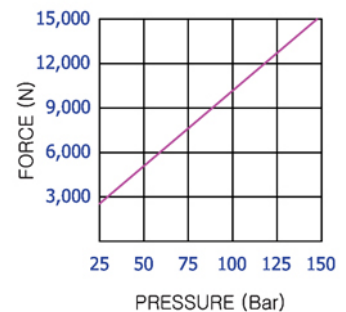


ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	114	104	15,150	19,000	49.9	2.00
013	120	107		19,500	59.2	2.95
015	124	109		19,700	65.4	3.02
020	134	114		20,200	81.0	3.13
025	144	119		20,500	96.6	3.20
030	154	124		20,800	112.2	3.32
035	164	129		20,900	127.7	3.38
038	170	132		21,000	137.1	3.47
040	174	134		21,100	143.3	3.49
045	184	139		21,200	158.9	3.58
050	194	144		21,300	174.5	3.65
060	214	154		21,500	205.6	3.83
063	220	157		21,500	215.0	3.88
070	234	164		21,600	236.8	4.05
075	244	169		21,600	252.4	4.17
080	254	174		21,700	267.9	4.24
090	274	184		21,800	299.1	4.34
100	294	194		21,800	330.3	4.60
125	344	219		21,900	408.2	5.06
150	394	244		22,000	486.0	5.54
160	414	254	22,000	517.2	5.83	
175	444	269	22,100	563.9	6.11	
200	494	294	22,100	641.8	6.46	

Charging Pressure



ORDER EXAMPLE

Model	18SP1500
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รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP1500 



Mounting Model:
18SB1500 



Mounting Model:
18ST1500 



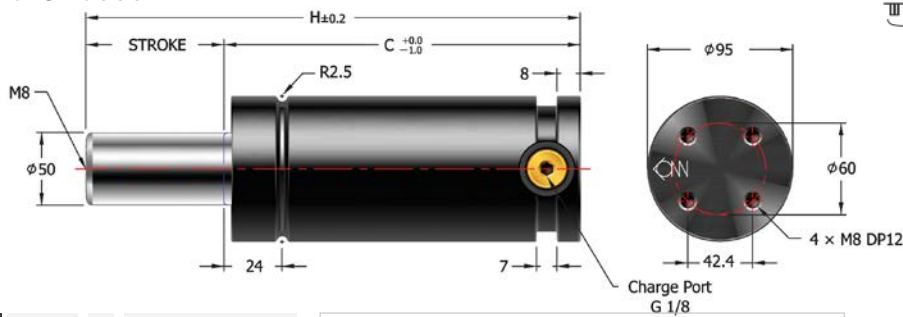
Mounting Model:
18SR1500 



Mounting Model:
18SC1500 



Model: 18TSM3000



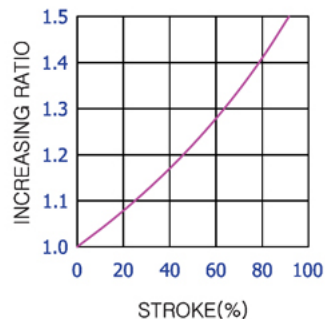
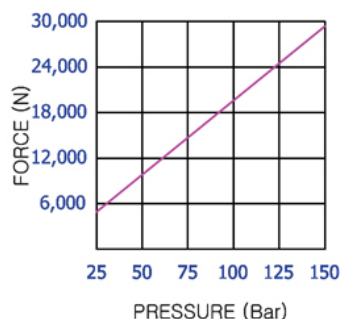
ORDER EXAMPLE Model - S - Charging Pressure
18TSM3000-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	114	104	29,400	40,800	70.3	4.79
013	120	107		41,900	85.4	4.96
015	124	109		42,500	95.5	4.96
020	134	114		43,600	120.6	5.09
025	144	119		44,300	145.7	5.29
030	154	124		44,800	170.8	5.38
035	164	129		45,200	195.9	5.53
038	170	132		45,400	211.0	5.62
040	174	134		45,600	221.1	5.68
045	184	139		45,800	246.2	5.83
050	194	144		46,000	271.3	5.98
060	214	154		46,400	321.5	6.27
063	220	157		46,400	336.6	6.36
070	234	164		46,600	371.8	6.57
075	244	169		46,700	396.9	6.72
080	254	174		46,800	422.0	7.07
090	274	184		46,900	472.3	7.40
100	294	194		47,000	522.5	7.76
125	344	219		47,300	648.1	8.48
150	394	244		47,400	773.7	8.93
160	414	254		47,500	823.9	9.23
175	444	269		47,500	899.3	10.11
200	494	294		47,600	1024.9	10.41

Charging Pressure



ORDER EXAMPLE Model
18SP3000

! รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP3000 ISO



Mounting Model:
18SB3000 ISO



Mounting Model:
18ST3000 ISO



Mounting Model:
18SR3000 ISO

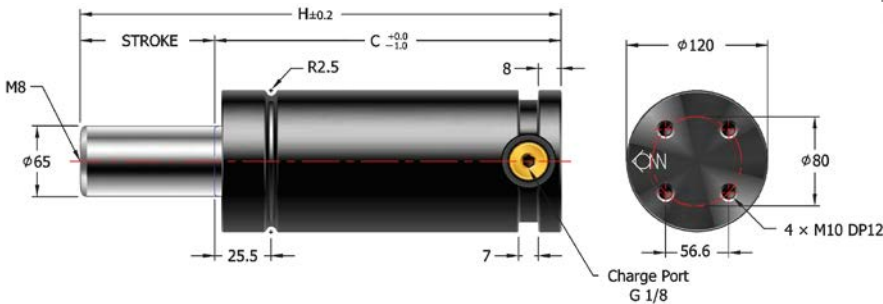


Mounting Model:
18SC3000 ISO



TSM Gas Spring

Model: 18TSM5000

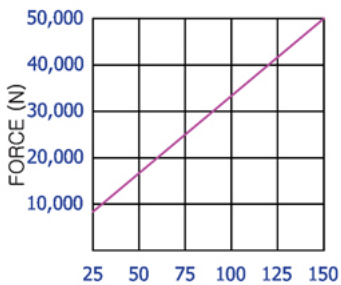


ORDER EXAMPLE	Model - S - Charging Pressure
	18TSM5000-050-150

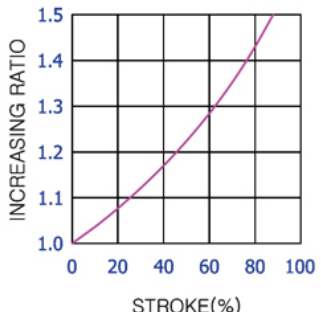
⚠ ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is 150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	117	107	49,650	67,400	125.6	7.78
013	123	110		69,800	149.2	7.92
015	127	112		71,000	164.9	8.01
020	137	117		73,500	204.1	8.24
025	147	122		75,200	243.4	8.48
030	157	127		76,500	282.6	8.71
035	167	132		77,600	321.9	8.95
038	173	135		78,100	345.4	9.09
040	177	137		78,400	361.1	9.18
045	187	142		79,100	400.4	9.41
050	197	147		79,600	439.6	9.65
060	217	157		80,500	518.1	10.11
063	223	160		80,700	541.7	10.25
070	237	167		81,200	596.6	10.58
075	247	172		81,400	635.9	10.81
080	257	177		81,700	675.1	11.05
090	277	187		82,100	753.6	11.51
100	297	197		82,400	832.1	11.98
125	347	222		83,100	1028.4	13.15
150	397	247		83,500	1224.6	14.32
160	417	257		83,600	1303.1	14.79
175	447	272		83,800	1420.9	15.49
200	497	297		84,100	1617.1	16.65

Charging Pressure



INCREASING RATIO



ORDER EXAMPLE	Model
	18SP5000

ⓘ รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



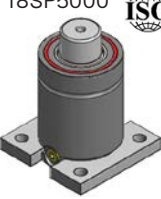
Mounting Model:
18MR



Mounting Model:
18MK



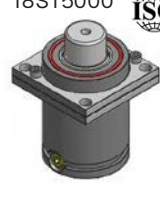
Mounting Model:
18SP5000



Mounting Model:
18SB5000



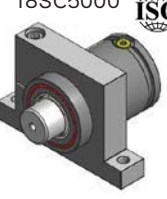
Mounting Model:
18ST5000



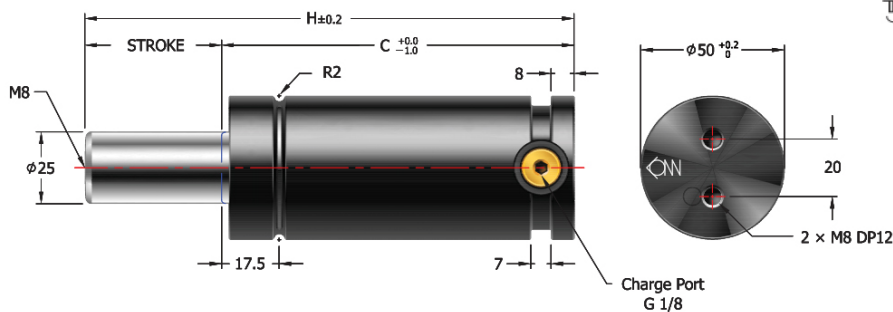
Mounting Model:
18SR5000



Mounting Model:
18SC5000



Model: 18TSS0750



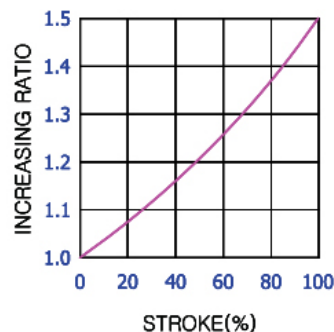
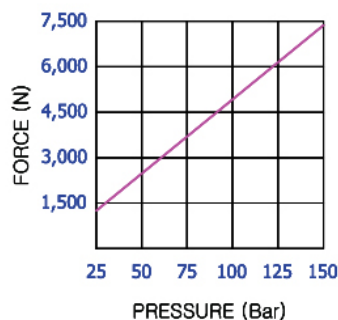
ORDER Model - S - Charging Pressure
EXAMPLE 18TSS0750-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	90	80	7,350	9,500	21.4	1.00
012.7	95.4	82.7		9,800	24.7	1.00
015	100	85		10,000	27.6	1.02
020	110	90		10,300	33.9	1.06
025	120	95		10,600	40.2	1.12
030	130	100		10,800	46.5	1.16
035	140	105		10,900	52.8	1.20
038	146	108		11,000	56.5	1.24
040	150	110		11,000	59.0	1.26
045	160	115		11,100	65.3	1.30
050	170	120		11,200	71.6	1.36
060	190	130		11,300	84.2	1.45
063	196	133		11,300	87.9	1.48
070	210	140		11,400	96.7	1.52
075	220	145		11,400	103.0	1.60
080	230	150		11,500	109.3	1.64
090	250	160		11,500	121.8	1.74
100	270	170		11,600	134.4	1.82
125	320	195		11,700	165.8	2.04
150	370	220		11,700	197.2	2.30
160	390	230		11,700	209.8	2.37
175	420	245		11,800	228.6	2.53
200	470	270		11,800	260.0	2.76

Charging Pressure



ORDER Model
EXAMPLE 18SP0750

! รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP0750



Mounting Model:
18SB0750



Mounting Model:
18ST0750



Mounting Model:
18SR0750

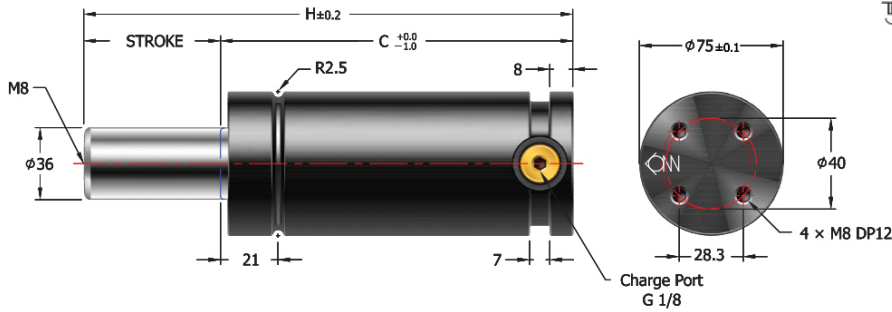


Mounting Model:
18SC0750



TSS Gas Spring

Model: 18TSS1500



ORDER
EXAMPLE

Model - S - Charging Pressure
18TSS1500-050-150

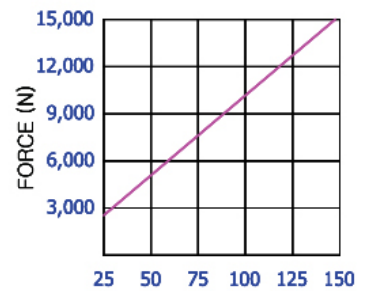


! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

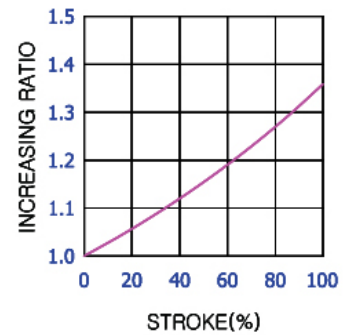
150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	122	112	15,150	17,800	68.5	3.06
013	127.4	114.4		18,300	76.0	3.09
015	132	117		18,500	84.1	3.13
020	142	122		19,000	99.7	3.24
025	152	127		19,400	115.3	3.33
030	162	132		19,700	130.9	3.42
035	172	137		20,000	146.4	3.50
038	178	140		20,100	155.8	3.59
040	182	142		20,200	162.0	3.62
045	192	147		20,400	177.6	3.70
050	202	152		20,500	193.2	3.80
060	222	162		20,800	224.3	3.99
063	228	165		20,800	233.7	4.06
070	242	172		20,900	255.5	4.16
075	252	177		21,000	271.1	4.28
080	262	182		21,100	286.6	4.34
090	282	192		21,200	317.8	4.56
100	302	202		21,300	349.0	4.73
125	352	227		21,500	426.8	5.20
150	402	252		21,600	504.7	5.62
160	422	262		21,700	535.9	5.80
175	452	277		21,700	582.6	6.16
200	502	302		21,800	660.5	6.50
250	602	352		21,900	816.3	7.39
300	702	402		22,000	972.1	8.27

Charging Pressure



PRESSURE (Bar)



STROKE(%)

ORDER
EXAMPLE

Model
18SP1500



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



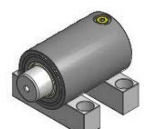
Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP1500



Mounting Model:
18SB1500



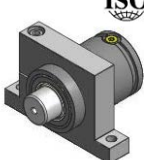
Mounting Model:
18ST1500

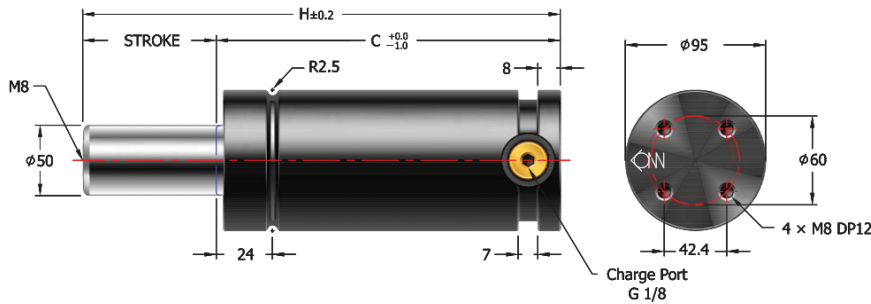


Mounting Model:
18SR1500



Mounting Model:
18SC1500





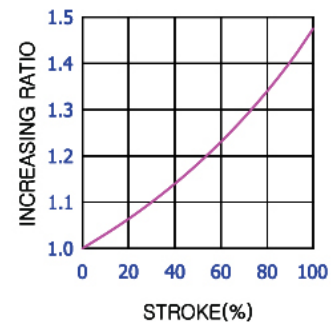
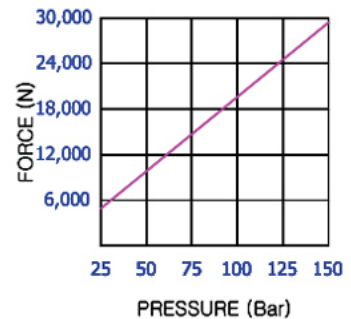
ORDER Model - S - Charging Pressure
EXAMPLE 18TSS3000-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)
			Start (N)	End (N)		
010	122	112		35,700	110.5	5.07
013	127.5	114.5		37,100	123.1	5.08
015	132	117		37,500	135.6	5.18
020	142	122		38,900	160.8	5.38
025	152	127		39,900	185.9	5.54
030	162	132		40,800	211.0	5.69
035	172	137		41,400	236.1	5.85
038	178	140		41,800	251.2	5.90
040	182	142		42,000	261.2	5.93
045	192	147		42,500	286.4	6.16
050	202	152		42,900	311.5	6.22
060	222	162		43,600	361.7	6.52
063	228	165		43,700	376.8	6.70
070	242	172		44,100	412.0	6.94
075	252	177		44,300	437.1	7.10
080	262	182		44,500	462.2	7.26
090	282	192		44,800	512.4	7.51
100	302	202		45,100	562.7	7.86
125	352	227		45,600	688.3	8.66
150	402	252		46,000	813.9	9.45
160	422	262		46,100	864.1	9.76
175	452	277		46,300	939.5	10.23
200	502	302		46,500	1065.1	11.01
250	602	352		46,800	1316.3	12.53
300	702	402		47,000	1567.5	14.14

Charging Pressure



ORDER Model
EXAMPLE 18SP3000

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP3000



Mounting Model:
18SB3000



Mounting Model:
18ST3000



Mounting Model:
18SR3000

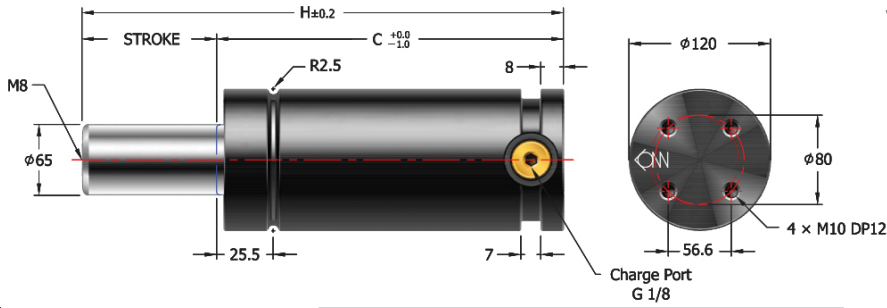


Mounting Model:
18SC3000



TSS Gas Spring

Model: 18TSS5000



ORDER
EXAMPLE

Model - S - Charging Pressure
18TSS5000-050-150

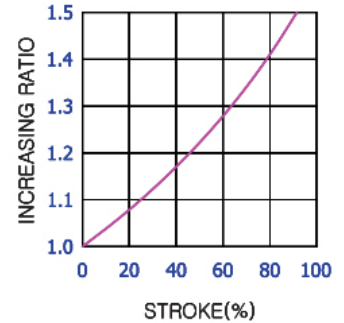
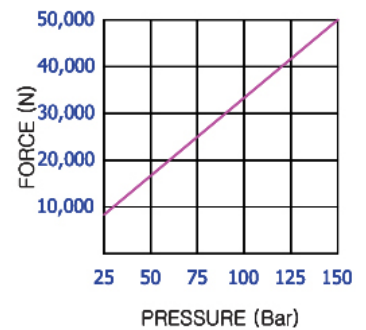


! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm ³)	Weight (kg)
			Start (N)	End (N)		
010	121.5	111.5	49,650	65,400	137.4	8.22
013	127.5	114.5		67,800	160.9	8.37
015	132	117		68,500	180.6	8.47
020	142	122		71,000	219.8	8.72
025	152	127		73,000	259.1	9.00
030	162	132		74,400	298.3	9.21
035	172	137		75,600	337.6	9.68
038	178	140		76,200	361.1	9.71
040	182	142		76,500	376.8	9.71
045	192	147		77,300	416.1	9.95
050	202	152		78,000	455.3	10.34
060	222	162		79,100	533.8	10.69
063	228	165		79,300	557.4	10.84
070	242	172		79,900	612.3	11.19
075	252	177		80,200	651.6	11.44
080	262	182		80,500	690.8	11.97
090	282	192		81,000	769.3	12.18
100	302	202		81,400	847.8	12.67
125	352	227		82,200	1044.1	13.91
150	402	252		82,800	1240.3	15.14
160	422	262		83,000	1318.8	15.63
175	452	277		83,200	1436.6	16.38
200	502	302		83,500	1632.8	17.61
250	602	352		84,000	2025.3	20.08
300	702	402		84,300	2417.8	22.55

Charging Pressure



ORDER
EXAMPLE

Model
18SP5000



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP5000



Mounting Model:
18SB5000



Mounting Model:
18ST5000



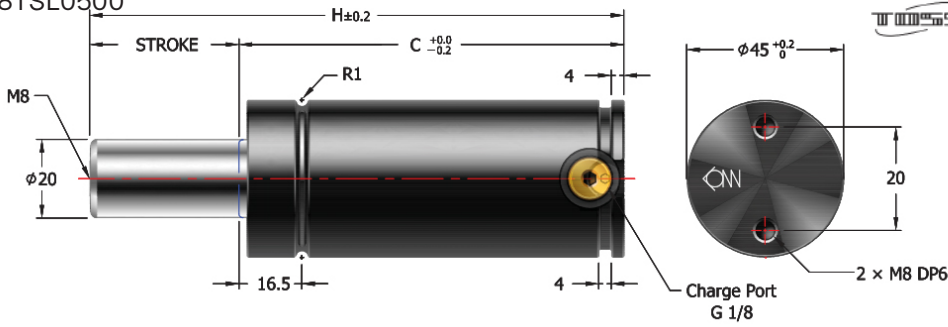
Mounting Model:
18SR5000



Mounting Model:
C5000



Model: 18TSL0500

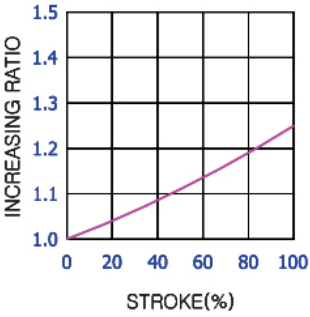
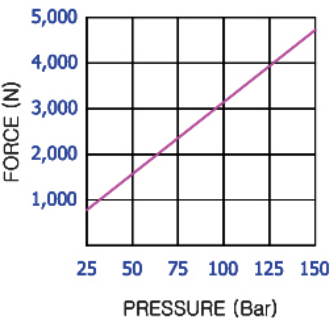


ORDER Model - S - Charging Pressure
EXAMPLE 18TSL0500-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
010	105	95	4,650	5,100	33.9	0.89	
015	115	100		5,300	39.2	0.94	
020	125	105		5,400	44.6	0.98	
025	135	110		5,500	50.0	0.98	
030	145	115		5,600	55.3	1.10	
035	155	120		5,700	60.7	1.13	
038	161	123		5,700	63.9	1.16	ISO
040	165	125		5,700	66.1	1.16	
045	175	130		5,800	71.5	1.19	
050	185	135		5,800	76.8	1.21	
060	205	145		5,900	87.6	1.23	
063	211	148		5,900	90.8	1.25	ISO
070	225	155		6,000	98.3	1.31	
080	245	165		6,000	109.1	1.38	
090	265	175		6,100	119.8	1.45	
100	285	185		6,100	130.6	1.51	
110	305	195		6,100	141.3	1.58	
120	325	205		6,200	152.1	1.64	
125	335	210		6,200	157.4	1.67	
160	405	245		6,200	195.1	1.89	

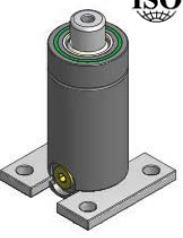
Charging Pressure



ORDER Model
EXAMPLE 18SP0500

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18SP0500



Mounting Model:
18SR0500



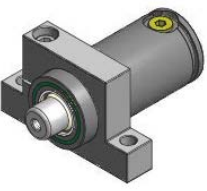
Mounting Model:
18ST0500



Mounting Model:
18SB0500

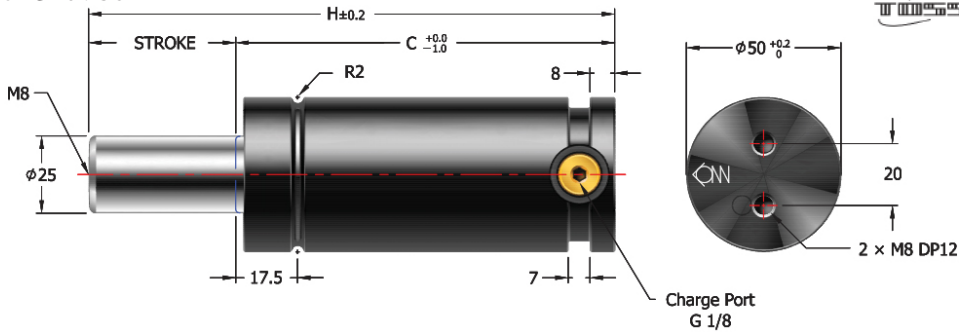


Mounting Model:
18SC0500



TSL Gas Spring

Model: 18TSL0750

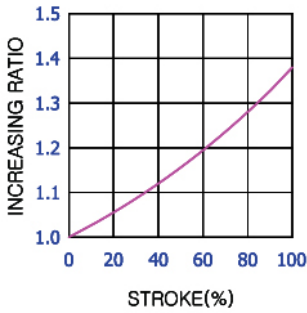
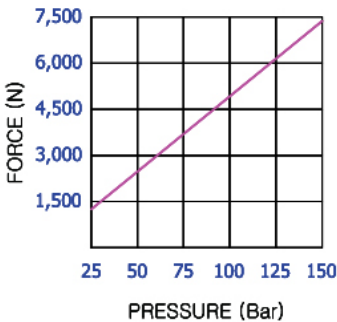


ORDER EXAMPLE Model - S - Charging Pressure
18TSL0750-050-150

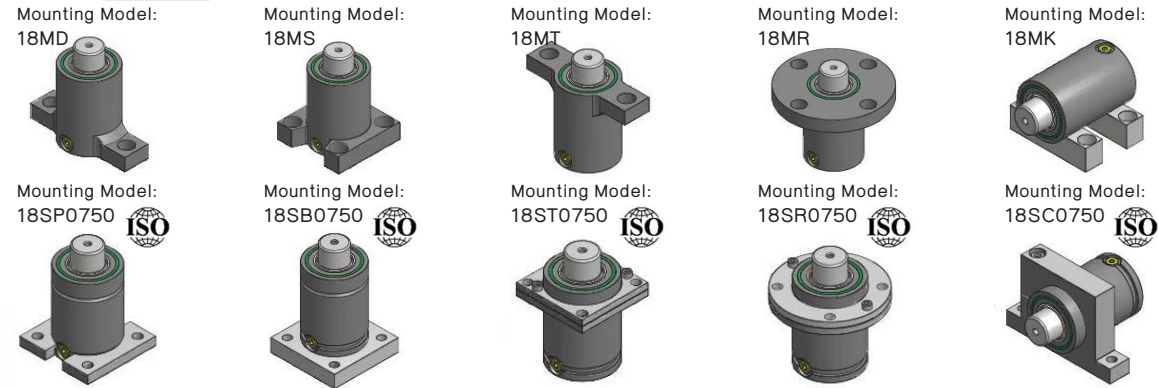
! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is 150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
010	115	105	7,350	8,400	40.2	1.32	ISO
012.7	120.4	107.7		8,600	43.6	1.34	
015	125	110		8,700	46.5	1.35	
020	135	115		9,000	52.8	1.40	
025	145	120		9,300	59.0	1.44	
030	155	125		9,500	65.3	1.50	
035	165	130		9,700	71.6	1.54	
038	171	133		9,800	75.4	1.58	
040	175	135		9,800	77.9	1.59	
045	185	140		10,000	84.2	1.64	
050	195	145		10,100	90.4	1.68	ISO
060	215	155		10,300	103.0	1.78	
063	222	158		10,300	106.8	1.82	
070	235	165		10,500	115.6	1.87	
075	245	170		10,500	121.8	1.91	
080	255	175		10,600	128.1	1.98	
090	275	185		10,700	140.7	2.06	
100	295	195		10,800	153.2	2.14	
125	345	220		11,000	184.6	2.30	
150	395	245		11,100	216.0	2.61	
160	415	255		11,200	228.6	2.72	ISO
175	445	270		11,200	247.4	2.84	
200	495	295		11,300	278.8	3.08	
250	595	345		11,300	341.6	3.60	
300	695	395		11,300	404.4	4.07	

Charging Pressure



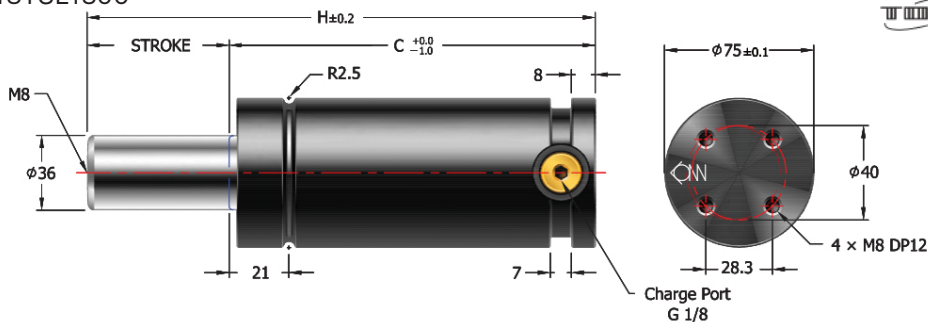
ORDER EXAMPLE Model 18SP0750
! รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category



แก๊สสปริง

TSL Gas Spring

Model: 18TSL1500

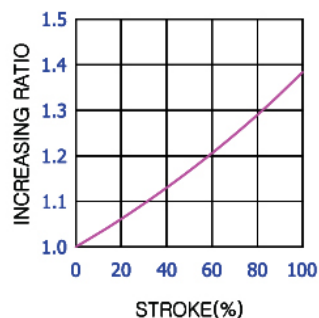
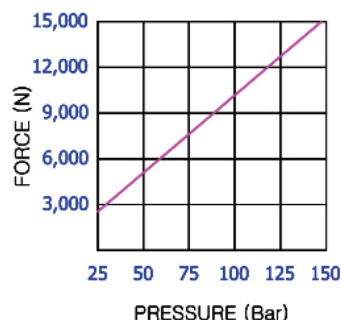


ORDER Model - S - Charging Pressure
EXAMPLE 18TSL1500-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ **150Bar**
Charging Pressure if not mention is

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
010	130	120		18,500	56.1	3.40	
013	135.4	122.4		19,100	63.6	3.45	
015	140	125		19,200	71.7	3.48	
020	150	130		19,700	87.2	3.58	
025	160	135		20,100	102.8	3.66	ISO
030	170	140		20,400	118.4	3.78	
035	180	145		20,600	134.0	3.86	
038	186	148		20,700	143.3	3.92	
040	190	150		20,800	149.6	4.00	
045	200	155		20,900	165.1	4.04	
050	210	160		21,000	180.7	4.16	ISO
060	230	170		21,200	211.9	4.36	
063	237	174	15,150	21,100	224.3	4.40	
070	250	180		21,400	243.0	4.47	
075	260	185		21,400	258.6	4.60	
080	270	190		21,500	274.2	4.67	ISO
090	290	200		21,600	305.3	4.85	
100	310	210		21,600	336.5	5.03	ISO
125	360	235		21,800	414.4	5.47	ISO
150	410	260		21,900	492.3	5.92	
160	430	270		21,900	523.4	6.22	ISO
175	460	285		22,000	570.2	6.37	
200	510	310		22,000	648.1	6.82	
250	610	360		22,100	803.8	7.90	
300	710	410		22,100	959.6	8.68	

Charging Pressure



ORDER Model
EXAMPLE 18SP1500

i รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



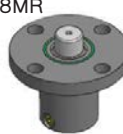
Mounting Model:
18MS



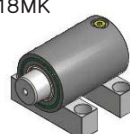
Mounting Model:
18MT



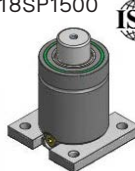
Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP1500



Mounting Model:
18SB1500



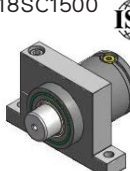
Mounting Model:
18ST1500



Mounting Model:
18SR1500

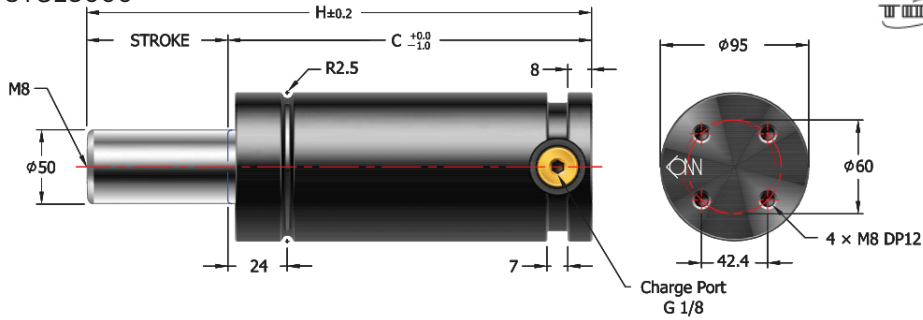


Mounting Model:
18SC1500



TSL Gas Spring

Model: 18TSL3000



ORDER
EXAMPLE

Model - S - Charging Pressure
18TSL3000-050-150

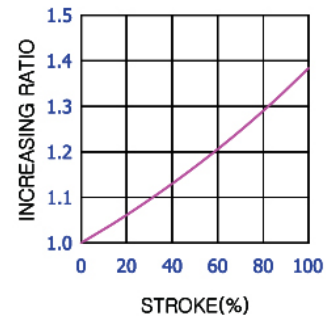
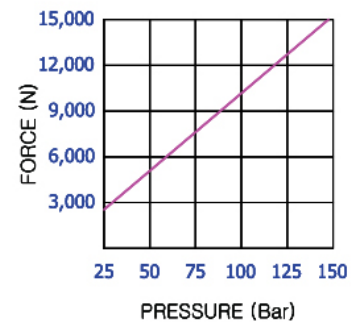


ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
010	140	130	29,400	37,000	95.5	5.74	ISO
013	145.5	132.5		38,500	108.0	5.84	
015	150	135		38,900	120.6	5.92	
020	160	140		40,200	145.7	6.09	
025	170	145		41,200	170.8	6.48	
030	180	150		42,000	195.9	6.55	
035	190	155		42,600	221.1	6.62	
038	196	158		42,900	236.1	6.73	
040	200	160		43,100	246.2	6.80	
045	210	165		43,600	271.3	6.98	
050	220	170		43,900	296.4	7.15	ISO
060	240	180		44,500	346.7	7.51	
063	247	184		44,300	366.8	7.68	
070	260	190		44,900	396.9	7.86	
075	270	195		45,100	422.0	8.04	
080	280	200		45,300	447.1	8.27	
090	300	210		45,600	497.4	8.58	
100	320	220		45,800	547.6	8.85	
125	370	245		46,200	673.2	9.65	
150	420	270		46,500	798.8	10.69	
160	440	280		46,600	849.1	11.05	
175	470	295		46,700	924.4	11.58	
200	520	320		46,900	1050	12.46	
250	620	370		47,200	1301.2	14.23	
300	720	420		47,300	1552.4	16.00	

Charging Pressure



ORDER
EXAMPLE

Model
18SP3000



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP3000



Mounting Model:
18SB3000



Mounting Model:
18ST3000



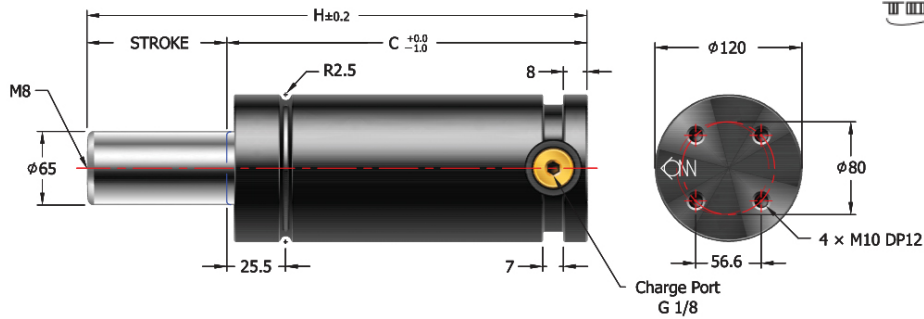
Mounting Model:
18SR3000



Mounting Model:
18SC3000



Model: 18TSL5000

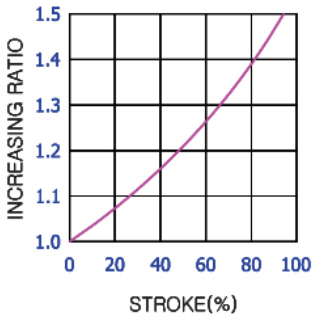
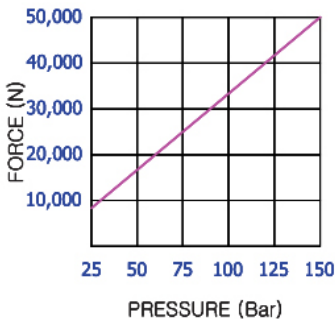


ORDER Model - S - Charging Pressure
EXAMPLE 18TSL5000-050-150

! ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ 150Bar
Charging Pressure if not mention is

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
010	159.5	149.5	49,650	63,300	153.1	10.32	
013	165.5	152.5		65,600	176.6	10.71	
015	170	155		66,500	196.3	11.10	
020	180	160		69,100	235.5	11.49	
025	190	165		71,000	274.8	11.88	
030	200	170		72,600	314.0	12.27	ISO
035	210	175		73,900	353.3	12.66	
038	216	178		74,500	376.8	13.00	
040	220	180		74,900	392.5	13.44	
045	230	185		75,800	431.8	13.83	
050	240	190		76,500	471.0	14.22	ISO
060	260	200		77,800	549.5	14.68	
063	266	203		78,100	573.1	15.07	
070	280	210		78,700	628.0	15.46	
075	290	215		79,100	667.3	15.85	
080	300	220		79,400	706.5	16.24	ISO
090	320	230		80,000	785.0	16.94	
100	340	240		80,500	863.5	17.66	
125	390	265		81,400	1059.8	18.05	
150	440	290		82,100	1256.0	18.44	
160	460	300		82,300	1334.5	18.83	ISO
175	490	315		82,600	1452.3	19.22	
200	540	340		83,000	1648.5	19.61	
250	640	390		83,500	2041	20.31	
300	740	440		83,900	2433.5	21.01	

Charging Pressure



ORDER Model
EXAMPLE 18SP5000

! รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้
Mounting specification please see at the back of this category

Mounting Model:
18MD



Mounting Model:
18MS



Mounting Model:
18MT



Mounting Model:
18MR



Mounting Model:
18MK



Mounting Model:
18SP5000



Mounting Model:
18SB5000



Mounting Model:
18ST5000



Mounting Model:
18SR5000

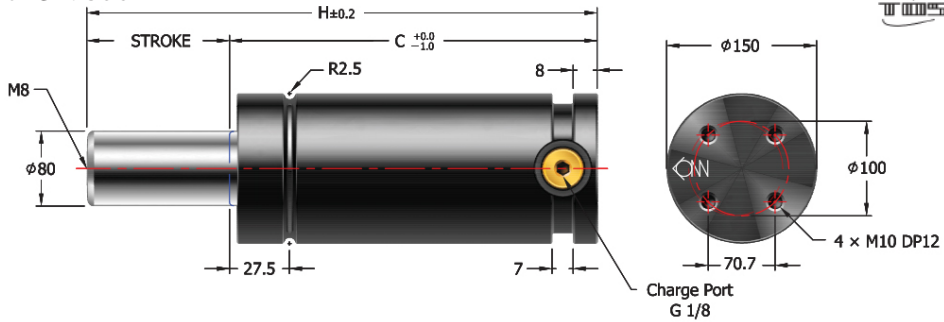


Mounting Model:
18SC5000



TSL Gas Spring

Model: 18TSL7500



ORDER
EXAMPLE

Model - S - Charging Pressure
18TSL7500-050-150



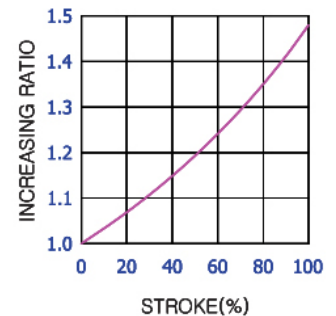
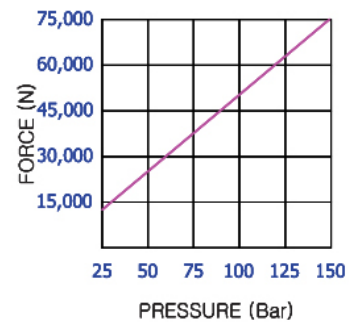
ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ

Charging Pressure if not mention is

150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
015	185	170		96,400	343.4	16.80	
020	195	175		100,100	404.8	18.40	
025	205	180		103,000	466.1	21.20	ISO
030	215	185		105,400	527.4	22.45	
035	225	190		107,300	588.8	23.20	
038	231	193		108,300	625.5	24.20	
040	235	195		109,000	650.1	25.20	
045	245	200		110,300	711.4	26.90	
050	255	205		111,500	772.7	27.90	ISO
060	275	215		113,500	895.4	29.50	
063	282	219		113,200	944.5	30.50	
070	295	225	75,300	115,000	1018.0	31.80	
075	305	230		115,600	1079.4	33.20	
080	315	235		116,200	1140.7	34.40	ISO
090	335	245		117,200	1263.4	35.40	
100	355	255		118,100	1386.0	36.50	ISO
125	405	280		119,700	1692.7	37.40	ISO
150	455	305		120,800	1999.3	38.50	
160	475	315		121,200	2122.0	39.40	ISO
175	505	330		121,600	2305.9	40.40	
200	555	355		122,300	2612.6	41.70	
250	655	405		123,200	3255.9	42.60	
300	755	455		123,900	3839.1	43.70	

Charging Pressure



ORDER
EXAMPLE

Model
18SP7500



รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่

Mounting specification please see at the back of this category

Mounting Model:
18MS



Mounting Model:
18SB7500



Mounting Model:
18SR7500



Mounting Model:
18ST7500



Mounting Model:
18SP7500



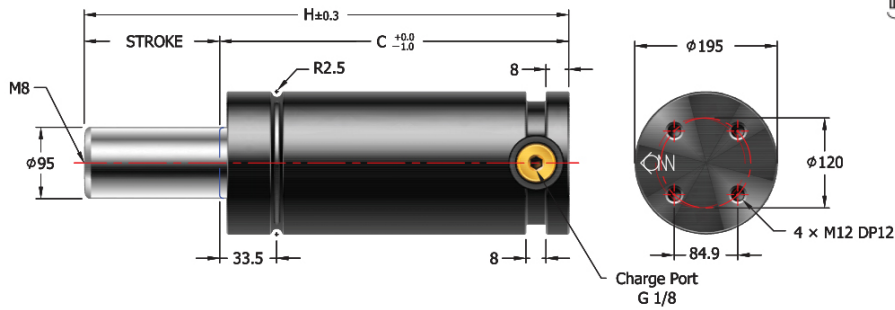
Mounting Model:
18SC7500



แก๊สสปริง

TSL Gas Spring

Model: 18TSL10000



ORDER EXAMPLE

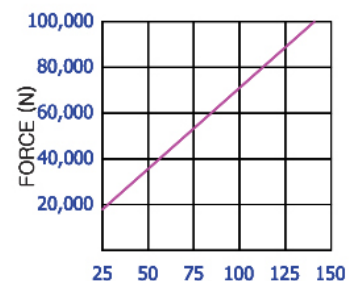
Model	- S -	Charging Pressure
18TSL10000-050-150		

ความดันเริ่มต้นหากไม่ระบุ จะเท่ากับ
Charging Pressure if not ment

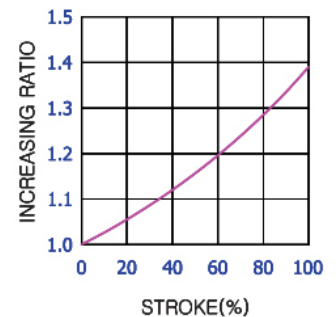
150Bar

S	H	C	Force (Yellow)		Gas Vol. (cm3)	Weight (kg)	ISO Standard
			Start (N)	End (N)			
020	200	180	106.200	137,600	619.8	36.20	
025	210	185		140,400	726.6	38.50	
030	220	190		142,500	833.5	40.20	
035	230	195		144,200	940.4	42.50	
038	236	198		145,100	1004.5	44.10	
040	240	200		145,600	1047.2	45.60	
045	250	205		146,700	1154.1	47.90	
050	260	210		147,700	1260.9	48.80	ISO
060	280	220		149,200	1474.6	50.90	
063	287	223		149,600	1538.8	51.70	
070	300	230		150,300	1688.4	53.20	
075	310	235		150,800	1795.2	55.45	
080	320	240		151,200	1902.1	57.00	ISO
090	340	250		152,000	2115.8	59.50	
100	360	260		152,600	2329.5	61.80	ISO
125	410	285		153,700	2863.8	64.50	ISO
150	460	310		154,500	3398.1	67.20	
160	480	320		154,700	3611.8	69.00	ISO
175	510	335		155,100	3932.4	72.30	
200	560	360		155,500	4466.7	74.50	ISO
250	660	410	156,100	5535.3	80.50	ISO	
300	760	460	156,600	6603.8	86.50	ISO	

Charging Pressure



PRESSURE (Bar)



ORDER EXAMPLE

Model
18SP10000

รายละเอียดโปรดดูหน้า Mounting ด้านหลังหมวดหมู่นี้

Mounting specification please see at the back of this category

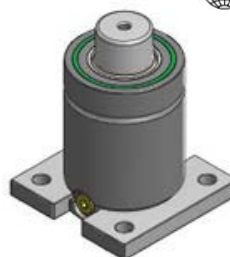
Mounting Model:
18MD



Mounting Model:
18SB10000



Mounting Model:
18SP10000

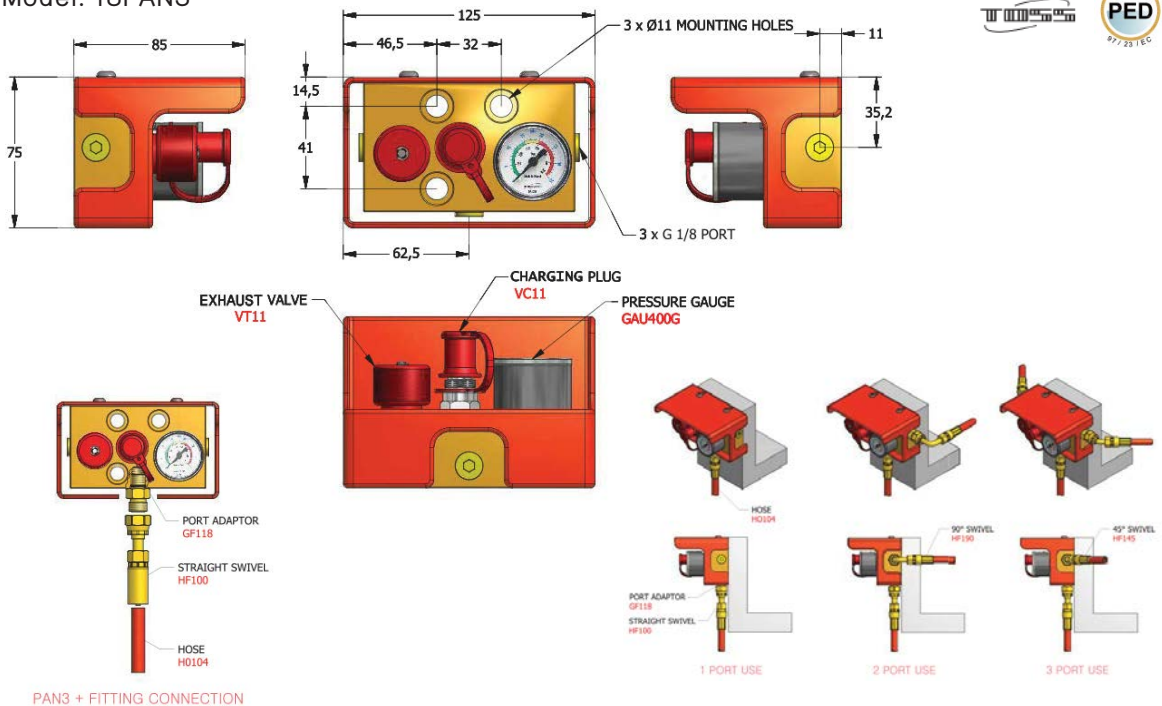


Mounting Model:
18ST10000

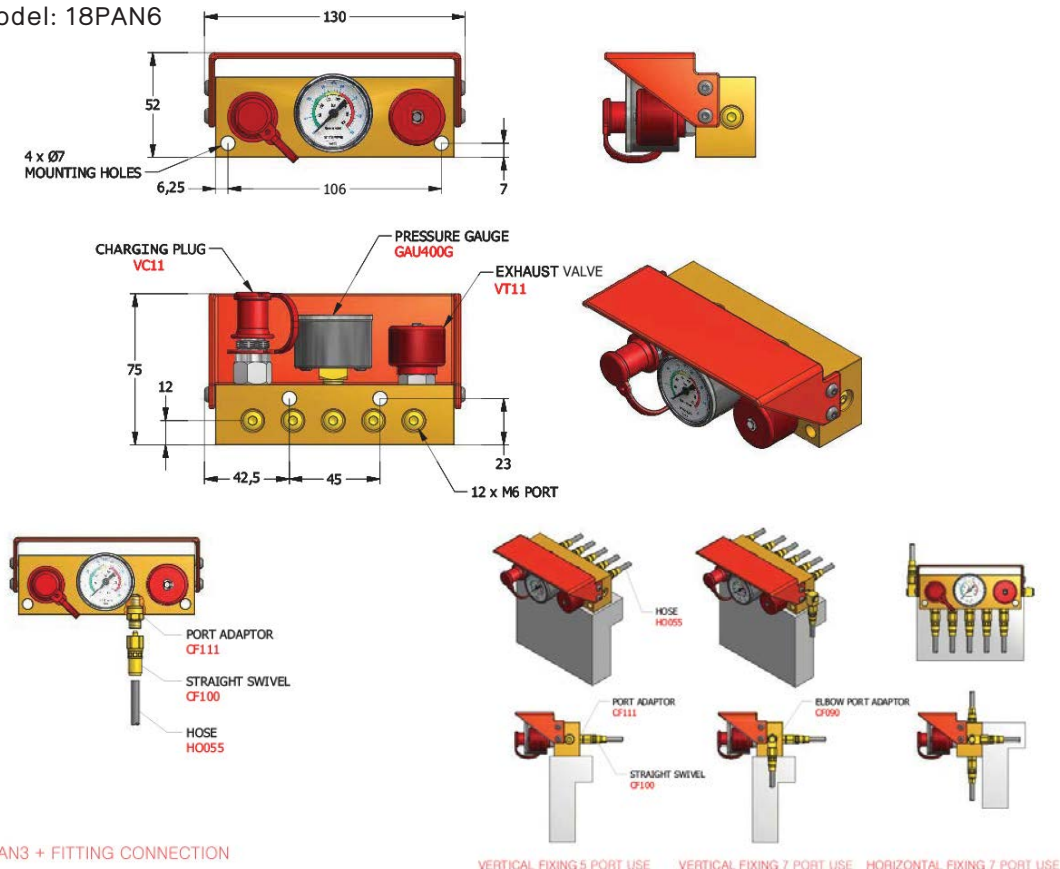


Control Panel

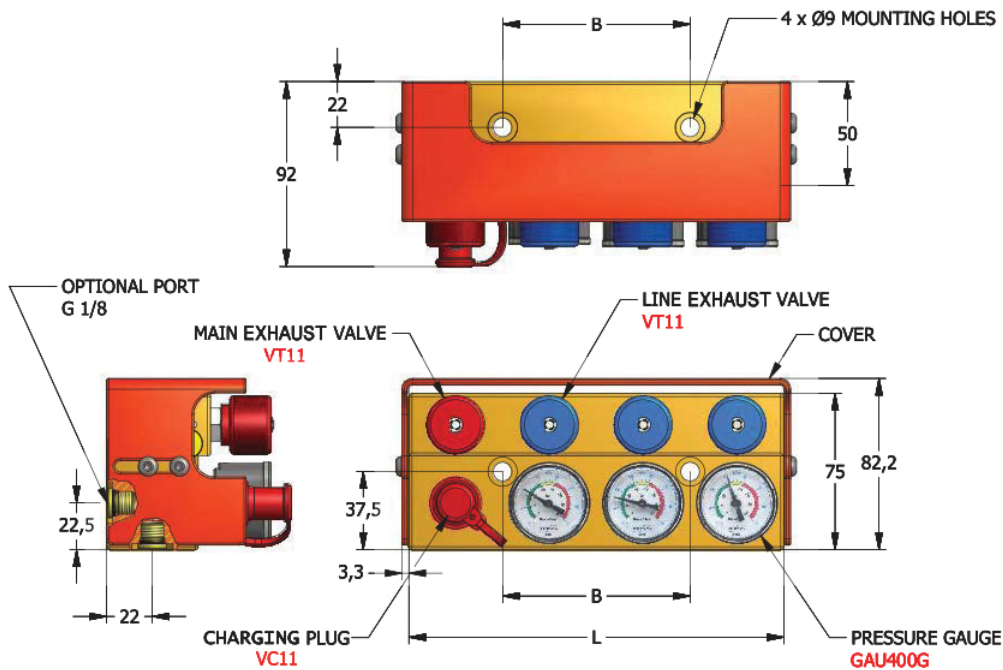
Model: 18PAN3



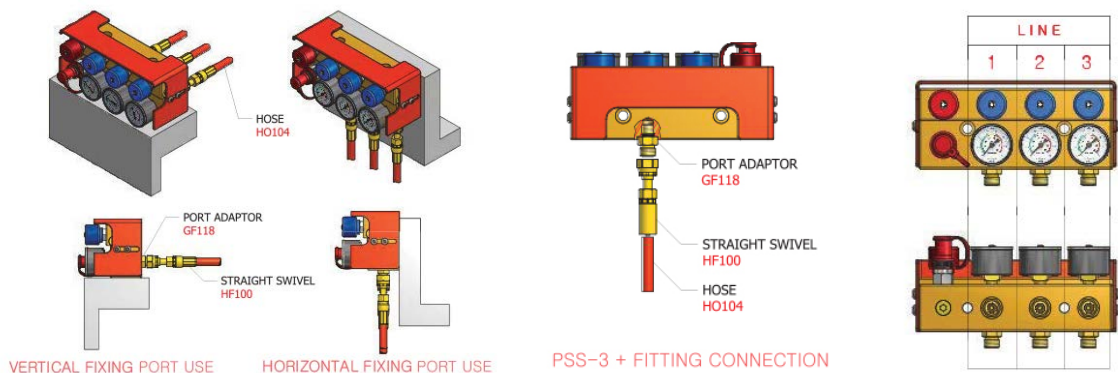
Model: 18PAN6



Model: 18PSS



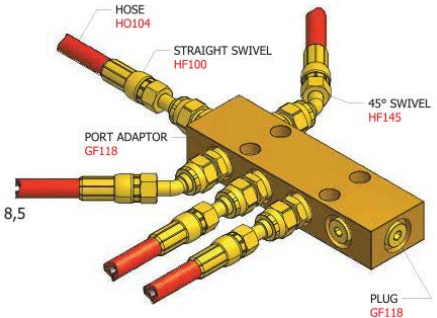
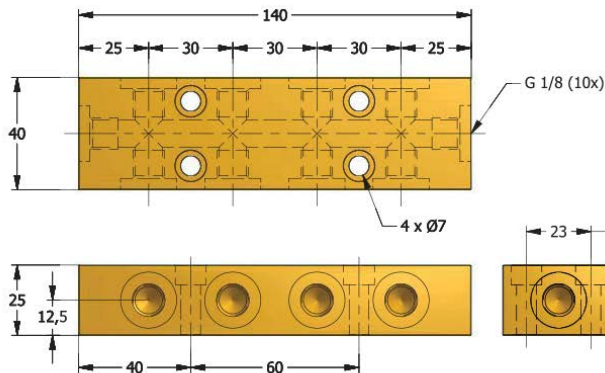
Order Code	L	B
18PSS-2	135	45
18PSS-3	180	90
18PSS-4	225	135
18PSS-5	270	180
18PSS-6	315	225
18PSS-7	360	270
18PSS-8	405	315



Distribution Block

Model: 18HB-10

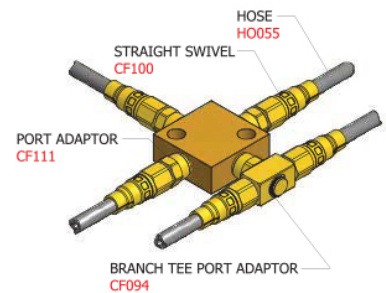
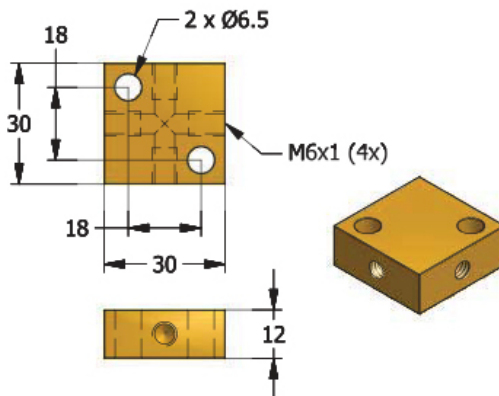
Distribution 10 Port Block



HB-10 USE EXAMPLE

Model: 18CB-4

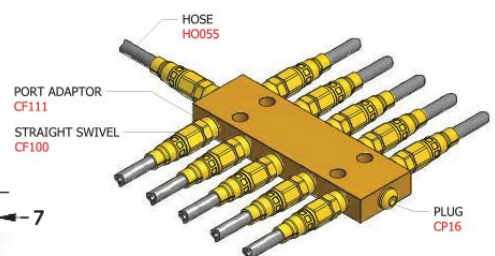
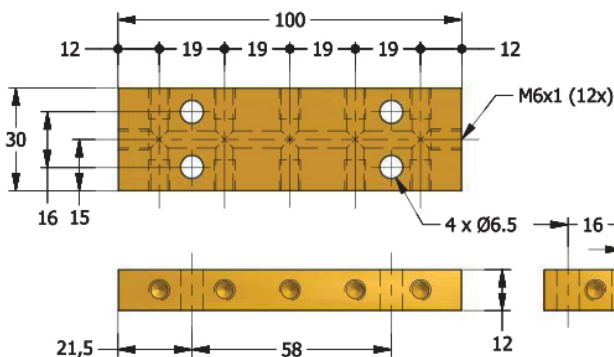
Compact 4 Block



CB-4 USE EXAMPLE

Model: 18CB-12

Compact 12 Block



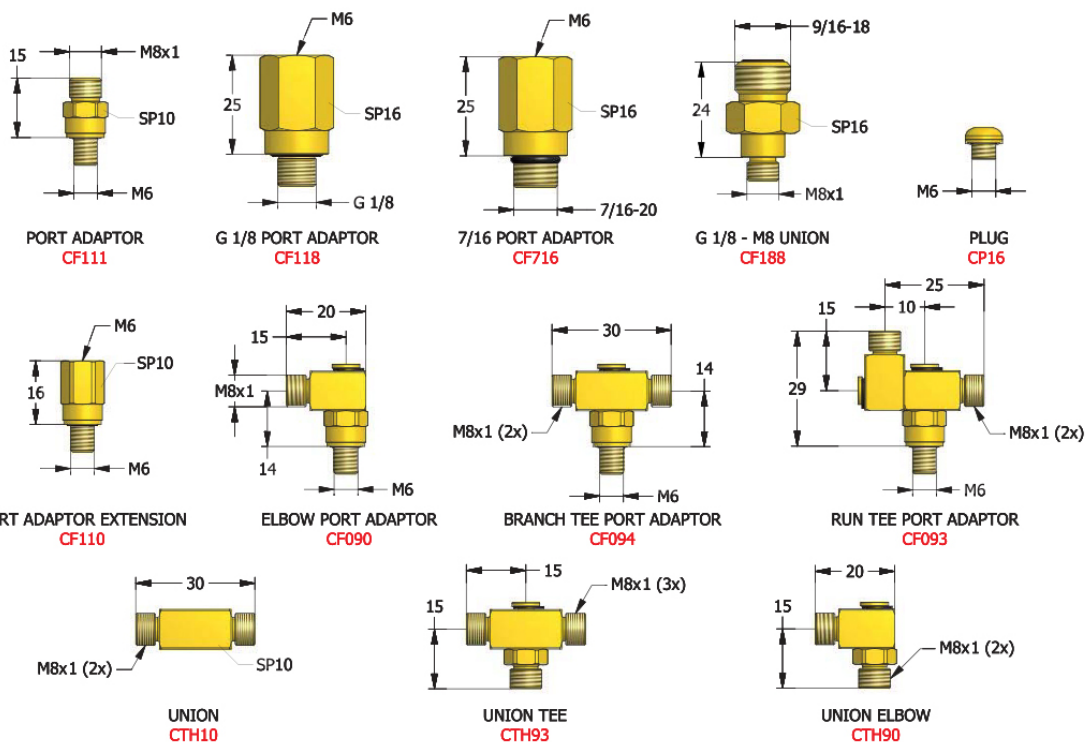
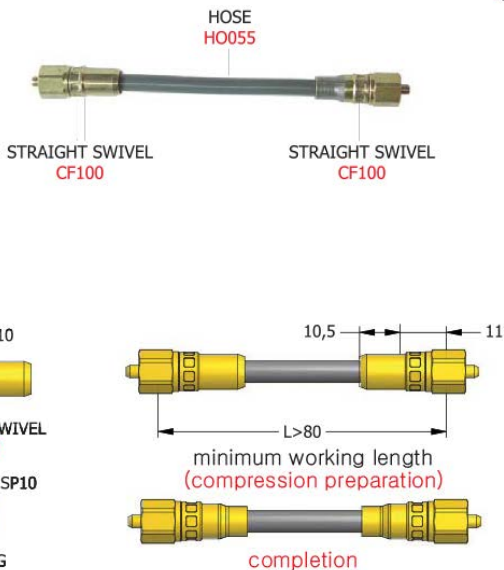
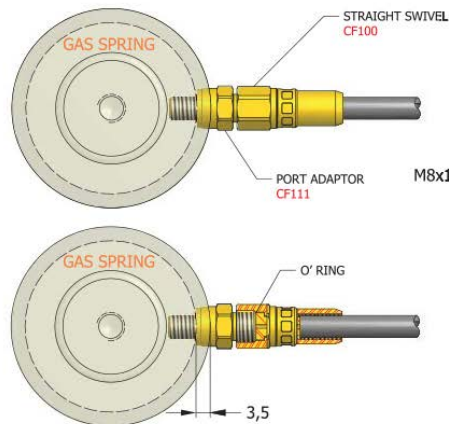
CB-12 USE EXAMPLE

Compact Fittings

ORDER 18 - Model ใช้ในพื้นที่แคบ
EXAMPLE 18CP18 Use in small area



- Working Pressure: 200bar
- Burst Pressure: 800bar
- Hose Minimum Bend Radius: R15
- Hose Outer Diameter: D5.5mm



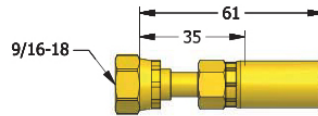
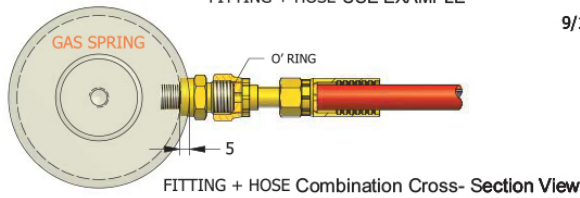
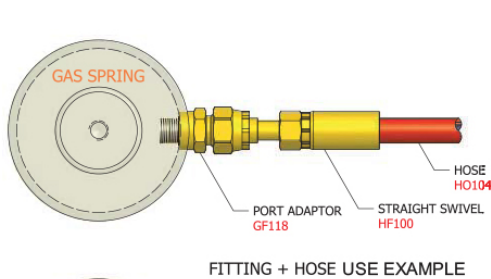
GF Fittings

ORDER
EXAMPLE

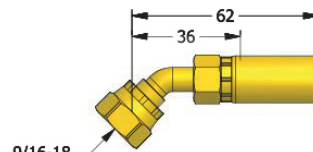
18 - Model
18GP111

รุ่นที่ใช้ทั่วไป
Common usage type

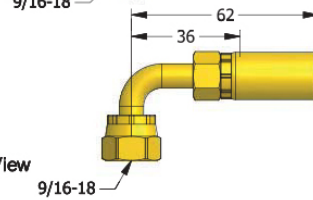
i Working Pressure: 200bar
Burst Pressure: 700bar
Hose Minimum Bend Radius: R30
Hose Outer Diameter: D10.4mm



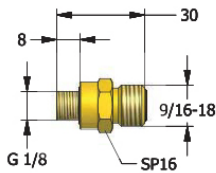
**STRAIGHT SWIVEL
HF100**



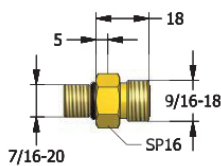
**45° SWIVEL
HF145**



**90° SWIVEL
HF190**



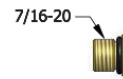
**PORT ADAPTOR
GF118**



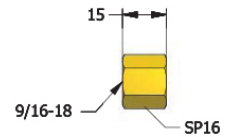
**PORT ADAPTOR
GF111**



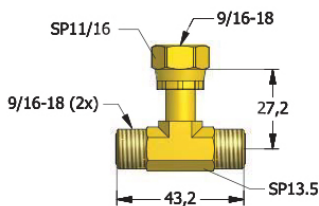
**PLUG
GP118**



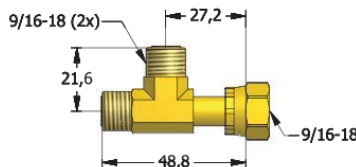
**PLUG
GP716**



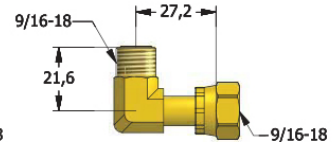
**END PLUG
GP100**



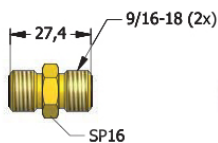
**SWIVEL NUT BRANCH TEE
FS094**



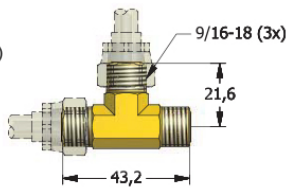
**SWIVEL NUT RUN TEE
FS093**



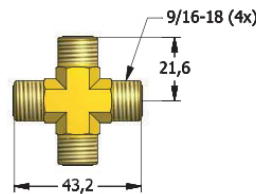
**90° SWIVEL NUT ELBOW
FS090**



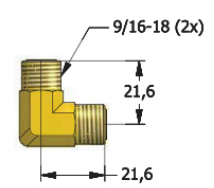
**UNION
HTH10**



**UNION TEE
HTH93**



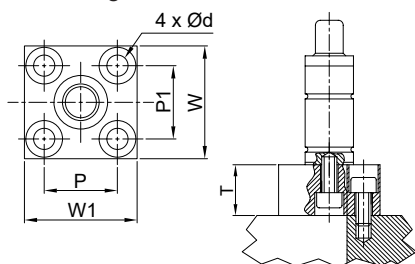
**UNION CROSS
HTH94**



**UNION ELBOW
HTH90**

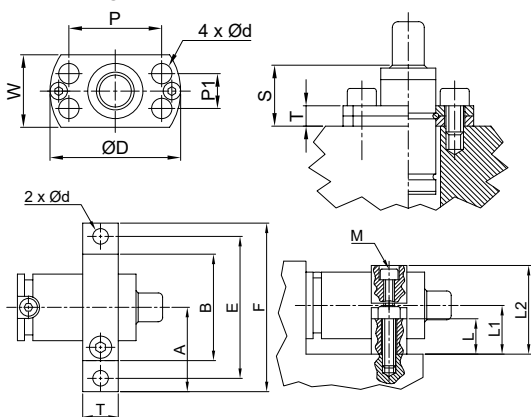


Mounting Model: 18SB



Mounting Model	W	W1	P	P1	d	T
18SB0500	70	70	50	50	9	20
18SB0750	75	75	56.5	56.5	9	20
18SB1500	100	100	73.5	73.5	11	20
18SB3000	120	120	92	92	13.5	20
18SB5000	140	140	109.5	109.5	13.5	20
18SB7500	190	190	138	138	17.5	25
18SB10000	210	210	170	170	17.5	25

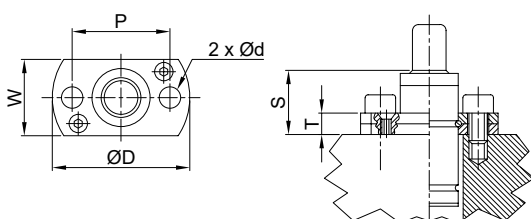
Mounting Model: 18SC



Mounting Model	D	W	P	P1	d	S	T
18SC0090	45	25	30	12	7	21.5	9
18SC0170	45	25	32	12	7	20.5	7

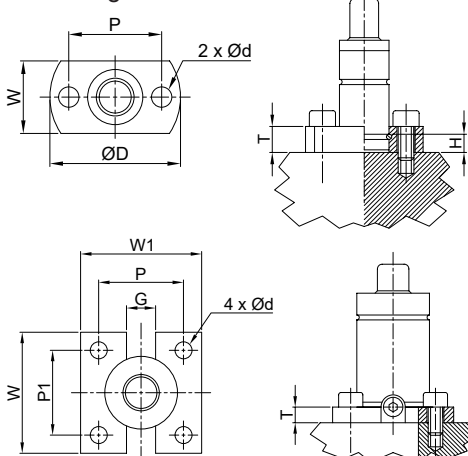
Mounting Model	A	B	E	F	d	T	M	L	L1	L2
18SC0500	54	66	82	100	9	20	M8	20	30	60
18SC0750	70	90	110	130	9	30	M8	20	40	80
18SC1500	85	115	137	160	11	30	M10	20	52.5	105
18SC3000	102.5	145	170	195	13	30	M12	20	62.5	125
18SC5000	115	165	195	220	13	30	M12	20	74	148
18SC7500	135	200	230	260	13	30	M12	20	100	200

Mounting Model: 18SG



Mounting Model	D	W	P	d	S	T
18SG0050	34	21	24	6.6	17.5	9
18SG0070	37	24	27	6.6	21.5	9
18SG0090	45	25	32	7	20.5	7
18SG0150	50	30	34	7	21.5	9
18SG0170	45	25	32	7	20.5	7
18SG0300	75	50	50	9	-	12

Mounting Model: 18SP



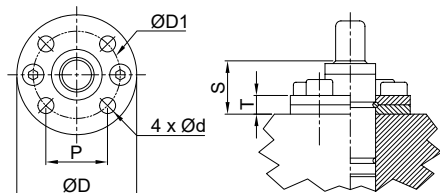
Mounting Model	D	W	P	d	T	H
18SP0090	45	25	32	7	10	7
18SP0170	45	25	32	7	10	7

Mounting Model	W	W1	P	P1	G	d	T
18SP0500	70	70	50	50	20	9	6.5
18SP0750	75	75	56.5	56.5	24	9	12
18SP0750M	75	75	56.5	56.5	24	9	6.5
18SP1500	100	100	73.5	73.5	24	11	12
18SP3000	120	120	92	92	24	13.5	12
18SP5000	140	140	109.5	109.5	24	13.5	12
18SP7500	190	190	138	138	24	17.5	12
18SP10000	210	210	170	170	24	17.5	13

Mounting

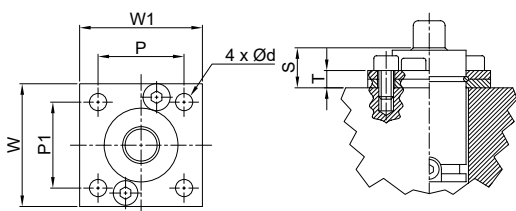


Mounting Model: 18SR



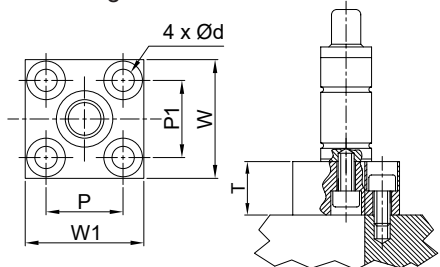
Mounting Model	D	D1	P	d	S	T
18SR0500	86	70.7	50	9	23	13
18SR0750	95	80	56.5	9	24	13
18SR1500	122	104	73.5	11	29	16
18SR3000	150	130	92	13.5	33	18
18SR5000	175	155	109.5	13.5	36	21
18SR7500	220	195	138	17.5	41	27

Mounting Model: 18ST



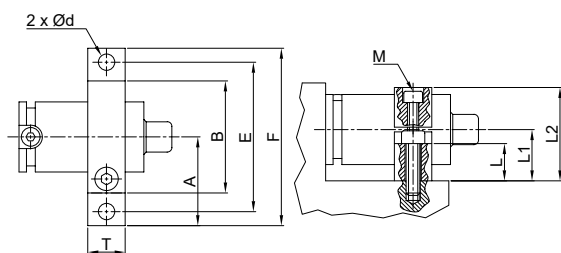
Mounting Model	W	W1	P	P1	d	S	T
18ST0500	64	64	50	50	9	23	13
18ST0750	70	70	56.5	56.5	9	24	13
18ST1500	90	90	73.5	73.5	11	29	16
18ST3000	110	110	92	92	13.5	33	18
18ST5000	130	130	109.5	109.5	13.5	36	21
18ST7500	162	162	138	138	17.5	41	27
18ST10000	210	210	170	170	17.5	47	27

Mounting Model: 18XB



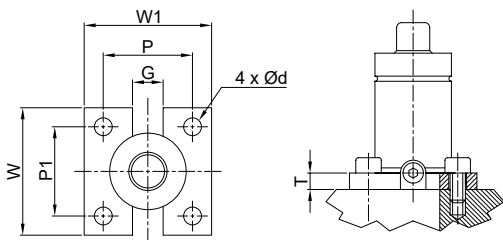
Mounting Model	W	W1	P	P1	d	T
18XB0150	40	40	28	28	7	20
18XB0320	40	40	28	28	7	20
18XB0750	70	70	50	50	9	20
18XB1000	75	75	56.5	56.5	9	20
18XB1500	100	100	73.5	73.5	11	20
18XB2400	100	100	73.5	73.5	11	20
18XB4200	120	120	92	92	13.5	20
18XB6600	140	140	109.5	109.5	13.5	20
18XB9500	190	190	138	138	17.5	25

Mounting Model: 18XC



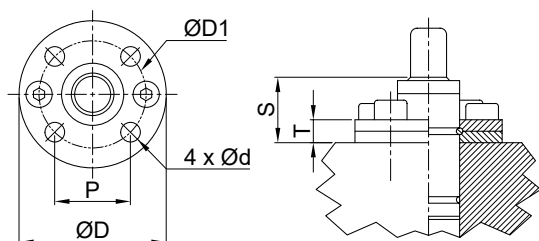
Mounting Model	A	B	E	F	d	T	M	L	L1	L2
18XC0300	53	59	77	95	9	20	M6	20	27.5	50.3
18XC0500	53	59	77	95	9	20	M6	20	27.5	50.3
18XC0750	54	66	82	100	9	20	M8	20	30	60
18XC1000	70	90	110	130	9	30	M8	20	40	80
18XC1500	85	102	123	146	11	30	M8	20	45	90
18XC2400	85	115	137	160	11	30	M10	20	52.5	105
18XC4200	102.5	145	170	195	13	30	M12	20	62.5	125
18XC6600	115	165	195	220	13	30	M12	20	74	148
18XC9500	135	200	230	260	13	30	M12	20	100	200

Mounting Model: 18XP



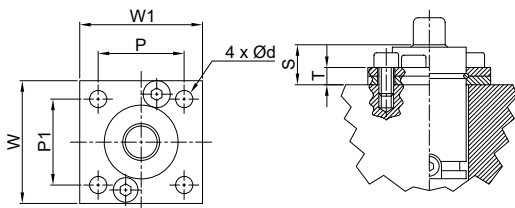
Mounting Model	W	W1	P	P1	G	d	T
18XP0150	40	40	28	28	5	7	5.5
18XP0300	55	55	40	40	12	7	6.5
18XP0350	50	50	35	35	12	7	6.5
18XP0500	55	55	40	40	12	7	6.5
18XP0750	70	70	50	50	20	9	6.5
18XP1000	75	75	56.5	56.5	24	9	12
18XP1500	85	85	60	60	24	11	12
18XP2400	100	100	73.5	73.5	24	11	12
18XP4200	120	120	92	92	24	13.5	12
18XP9500	190	190	138	138	24	17.5	12

Mounting Model: 18XR



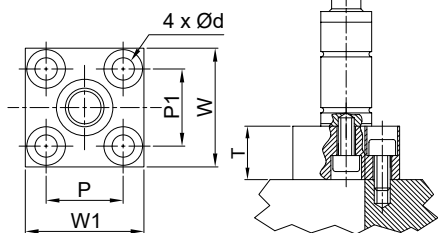
Mounting Model	D	D1	P	d	S	T
18XR0150	50	38	26.9	7	21.5	9
18XR0300	68	56.5	40	7	17	9
18XR0320	50	38	26.9	7	21.5	9
18XR0350	60	49.5	35	7	17	9
18XR0500	68	56.5	40	7	17	9
18XR0750	86	70.7	50	9	22	13
18XR1000	95	80	56.5	9	22	13
18XR1500	105	85	60.1	11	27	16
18XR2400	122	104	73.5	11	29	16
18XR4200	150	130	92	13.5	33	18
18XR6600	175	155	109.5	13.5	36	21
18XR9500	220	195	138	17.5	41	27

Mounting Model: 18XT



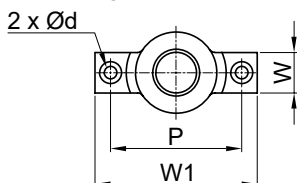
Mounting Model	W	W1	P	P1	d	S	T
18XT0300	52	52	40	40	7	17	9
18XT0500	52	52	40	40	7	17	9
18XT0750	64	64	50	50	9	22	13
18XT1000	70	70	56.5	56.5	9	22	13
18XT1500	90	90	73.5	73.5	11	27	16
18XT2400	90	90	73.5	73.5	11	29	16
18XT4200	110	110	92	92	13.5	33	18
18XT6600	130	130	109.5	109.5	13.5	36	21
18XT9500	162	162	138	138	17.5	41	27

Mounting Model: 18TB



Mounting Model	W	W1	P	P1	d	T
18TB1000	75	75	56.5	56.5	9	20
18TB2400	100	100	73.5	73.5	11	20
18TB4200	120	120	92	92	13.5	20
18TB9500	190	190	138	138	17.5	25

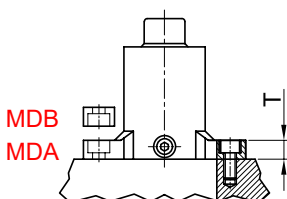
Mounting Model: 18MD



⚠ เชื่อมติดกับแก๊สสปริง
Welded

⚠ For Models:
18TSP
18TSX
18TST

Mounting Model	W	W1	P	d	T
18MD_1000	30	111	89	11	20
18MD_1500	30	122	102	11	20
18MD_2400	38	152	120	13	20
18MD_3000	38	178	146	13	20
18MD_4200	38	178	146	13	20
18MD_6600	38	197	165	13	20



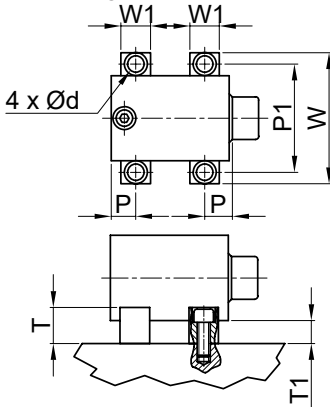
⚠ For Models:
18TSM
18TSS
18TSL

Mounting Model	W	W1	P	d	T
18MD_0750	30	111	89	11	20
18MD_1500	38	152	120	13	20
18MD_3000	38	178	146	13	20
18MD_5000	38	197	165	13	20

Mounting



Mounting Model: 18MK



⚠ เชื่อมติดกับแก๊สสปริง Welded

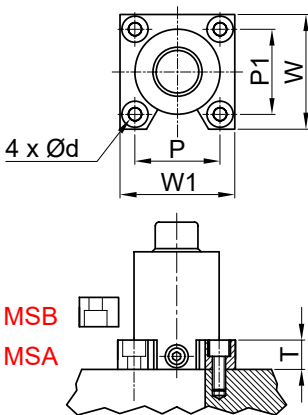
⚠ For Models:
18TSP
18TSX
18TST

⚠ For Models:
18TSM
18TSS
18TSL

Mounting Model	W	W1	P	P1	d	T	T1
18MK1000	89	24	17	68	11	20	12.7
18MK1500	105	26	21	83	13	30	17
18MK2400	118	26	23	95	13	32	19
18MK4200	137	26	23	115	13	32	19
18MK6600	174	32	26	146	17	32	19

Mounting Model	W	W1	P	P1	d	T	T1
18MK0750	89	24	17	68	11	20	12.7
18MK1500	118	26	23	95	13	32	19
18MK3000	137	26	23	115	13	32	19
18MK5000	174	32	26	146	17	32	19

Mounting Model: 18MS



⚠ เชื่อมติดกับแก๊สสปริง Welded

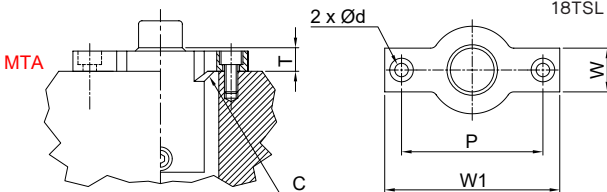
⚠ For Models:
18TSP
18TSX
18TST

⚠ For Models:
18TSM
18TSS
18TSL

Mounting Model	W	W1	P	P1	d	T
18MS_1000	76	76	54	54	11	25
18MS_1500	85	85	64	64	11	25
18MS_2400	102	102	76	76	13	25
18MS_4200	127	127	98	98	13	25
18MS_6600	140	140	114	114	13	25
18MS_9500	178	178	140	140	17.5	25

Mounting Model	W	W1	P	P1	d	T
18MS_0750	76	76	54	54	11	25
18MS_1500	102	102	76	76	13	25
18MS_3000	127	127	98	98	13	25
18MS_5000	140	140	114	114	13	25
18MS_7500	178	178	140	140	17.5	25
18MS_10000	224	224	178	178	21	25

Mounting Model: 18MT

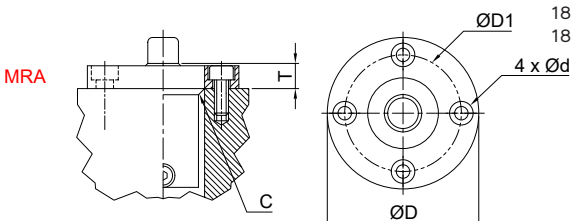


⚠ เชื่อมติดกับแก๊สสปริง Welded

⚠ For Models:
18TSM
18TSS
18TSL

Mounting Model	W	W1	P	d	C	T
18MT0750	30	111	89	11	7	19
18MT1500	38	152	120	13	9	19
18MT3000	38	178	146	13	10	19
18MT5000	38	197	165	13	10	19

Mounting Model: 18MR



⚠ เชื่อมติดกับแก๊สสปริง Welded

⚠ For Models:
18TSM
18TSS
18TSL

Mounting Model	D	D1	d	C	T
18MR0750	110	90	11	7	19
18MR1500	152	120	13	9	19
18MR3000	171	140	13	10	25
18MR5000	197	165	17	10	25

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ชิ้นส่วนแม่พิมพ์ปั๊ม

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Urethane Springs	ยูรีเทนสปริง
Gas Springs	แก๊สสปริง



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