

COMPONENTS

COMPONENTS



Product name Catalog No.	STRAIGHT DOWEL PINS MS	STRAIGHT DOWEL PINS—High precision type— MSV	TAPPED DOWEL PINS—Precision type— MSTP	TAPPED DOWEL PINS—p6-m6— MST MSTM	TAPPED AND TAPERED DOWEL PINS MTT	STRAIGHT DOWEL PINS—h7— MSSH
Page	671	671	671	671 672	672	672



TAPPED STRAIGHT DOWEL PINS—h7— MSTH	DOWEL PINS ECONOMY PACKS 100PACK—MSTH 200PACK—MSTH	SPRING PLUGS FOR PREVENTING DOWEL PIN FALL—OUT SWA SWAL	STEPPED DOWEL PINS MSFW MSFWM	DOWEL PIN EXTRACTORS KNHN KNHN—B KNHN—M	LOCATING DOWEL RINGS DAS DASP
672	673	673	674	674	675



DOWEL BUSHINGS KNLB	DOWEL BUSHING BLANKS KNLB	HEXAGON SOCKET HEAD CAP SCREWS CB	BOX SALES OF HEXAGON SOCKET HEAD CAP SCREWS BOX—CB	HEXAGON SOCKET HEAD CAP SCREWS LB SCB	HEXAGON SOCKET HEAD CAP SCREWS FB FBJ	SPRING WASHERS CBW	LOW HEAD AND ULTRA—LOW HEAD HEXAGON SOCKET HEAD CAP SCREWS CBS CBSST CBSS
676	677	678	679	680	680	680	681



NORD-LOCK LOOSENING PREVENTION WASHERS NLDP	NLDP—B	WASHERS—SPACERS K W T R J SW SRW WSS MSRB LRB SBW	FREE WASHERS FWSS FWSK	—Tapped— FWMS FWMK	—Counterbore type— FWZS FWZK	SCREW PLUGS FOR LOOSENING PREVENTION LMSW
682	683	684	685	685	685	686



SCREW PLUGS MSW MSWA MSWZ	—Short type— MSWS MSWAS MSWZS	—Through hole type— MSWH MSWZH MSWSH MSWZSH	STRIPPER BOLTS, MALE THREADS MSB SMSB	STRIPPER BOLTS, MALE THREADS—Precision L dimension type— MSBL
687	687	688	691	692



STROKE EXTENSION RETAINERS FOR STRIPPER BOLTS MSBE	STRIPPER BOLTS, FEMALE THREADS SBT SBTN SBTC SBTCN SBTL SBTLN SBTK SBTKN	STRIPPER BOLTS, BUSHING TYPE SBTH SBRH SBJH SB	STRIPPER BOLTS, BUSHING TYPE—Thick type— SBWH	STRIPPER PRESSURE PINS HSPP HSPPH
692	693	695	696	697



STRIPPER PRESSURE PINS PWP	STRIPPER PRESSURE PINS SBKP SBKS	LIFTING COLLARS SBT SBK	ADJUSTMENT PINS PIN PIN-N PINH PINH-N	PRESSURE PINS PRPS PRP
697	698	698	699	700



STROKE END BLOCKS SBV SBVH	— Tapped — SBVM	STROKE END BLOCKS SBS SBN SEC	— Square, hardened type — SBVK	CHAINS FOR END BLOCKS RSC
701	702	703	704	704



AIR JET COOLERS FOR DIES PAJC	TUBE COUPLINGS MCPTK	FLUORORESIN TUBES PUTF-PUTFL	AIR TUBES M-UB	ADJUSTMENT HOSES HOSAJ	SPACER LAYER PLATES LHP LHP-H LHP-SET
705	706	706	706	706	707



SHIM TAPE FGSM FGSMW FGSMW	PRECISION MULTIPURPOSE PLATES UTPB UTPL	SPARE PUNCH BOXES PBX100Y PBX150Y	MAGNETS MG MGN HX HXH HXU HXMB
708	709	710	711



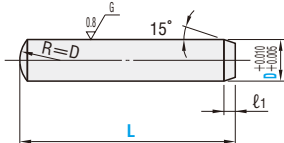
DIE NAME STICKERS KNS	DIE ADHESIVES LOC638 LOC243	STICK TYPE LOC268 LOC248	CLEANING AGENT 6PACK-METACL	DIE CONTACT INSPECTION AGENT (SHINMYOTAN) N-RED SP-RED
713	714	714	714	714

DOWEL PINS

RoHS

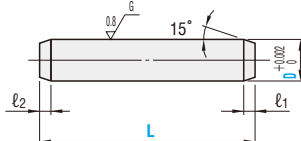


MS (Straight type)



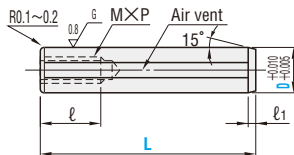
M SUJ2
H 58HRC~

MSV (High precision type)



M SUJ2
H 58HRC~

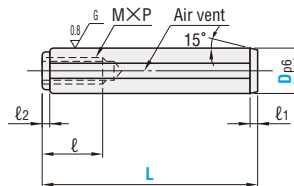
MSTP (Tapped precision type)



⚠ If L dimension is 10 with D5-6, the pilot hole for the tap may go all the way through.

M SUJ2
H 58HRC~

MST (Tapped p6 type)



⚠ If L dimension is 10 with D5-6, the pilot hole for the tap may go all the way through.

(Identifying groove)



M SUJ2
H 45~50HRC

⚠ $\ell_1 \cdot \ell_2$ dimensions are values for reference only. The actual values at the outer diameter grinding process may be larger than the catalog values.

ℓ_1	Catalog No. Type	D	L	Base unit price 1~99 pcs.	Volume discount unit price 100~499 500~1999 2000~4000
0.4	1	6 8 10			
0.6	1.5	6 8 10			
	2	6 8 10 15			
1.0	2.5	6 8 10 15 20			
	3	6 8 10 15 20 25 30			
1.5	3.5	6 8 10 15 20 25 30 35 40			
2.0	4	6 8 10 15 20 25 30 35 40 45 50			
2.5	5	6 8 10 15 20 25 30 35 40 45 50			
3.0	6	6 8 10 15 20 25 30 35 40 45 50 55 60			
3.5	8	6 8 10 15 20 25 30 35 40 45 50 55 60 65 70 80			
	10	6 8 10 15 20 25 30 35 40 45 50 55 60 65 70 80			
	12	6 8 10 15 20 25 30 35 40 45 50 55 60 65 70 80			
	13	6 8 10 15 20 25 30 35 40 45 50 55 60 65 70 80			

Quotation

ℓ_1	ℓ_2	Catalog No. Type	D	L	Base unit price 1~99 pcs.	Volume discount unit price 100~499 500~1999 2000~4000
1.0	0.2	2	6 8 10			
	0.5	3	6 8 10 15 20 25 30			
1.5	0.5	4	6 8 10 15 20 25 30			
2.0	0.5	5	6 8 10 15 20 25 30			
2.5	0.5	6	6 8 10 15 20 25 30			
3.0	0.5	8	6 8 10 15 20 25 30			
	0.5	10	6 8 10 15 20 25 30			

Quotation

⚠ The high-precision dowel pins are measured in a constant temperature chamber.

ℓ_1	ℓ_2	M P	ℓ	D	Catalog No. Type	D	L	Base unit price 1~99 pcs.	Volume discount unit price 100~499 500~1999 2000~4000
1.5	0.3	3	*6		5	10 15 20 25 30			
	0.4	4	*8		6	10 15 25 35 40 50			
2.0	0.5	5	*8		8	15 20 25 35 40 45 50 60			
	0.7	6	*10		10	15 20 25 30 35 45 50 60 70			
2.5	1.0	6	*10		12	20 30 40 50 60 70			
	1.25	8	*15		13	40 50 60 70			
3.0	1.5	10	*18		16	40 50 60 70			

Quotation

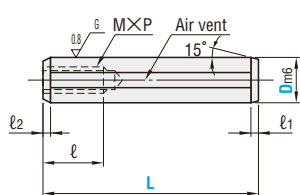
⚠ * If D=5, then $\ell=6$ is a value for reference only. ⚠ * Only if D=6 and L=10, then $\ell=6$.

ℓ_1	ℓ_2	M P	ℓ	Dp6	Catalog No. Type	D	L	Base unit price 1~99 pcs.	Volume discount unit price 100~499 500~1999 2000~4000
1.5	0.5	3	*6	+0.020	5	10 15 20 25 30			
	0.7	4	*8	+0.012	6	10 15 25 35 40 50			
2.0	0.8	5	*8	+0.024	8	15 20 25 35 40 45 50 60			
	1.0	6	*10	+0.015	10	15 20 25 30 35 45 50 60 70			
2.5	1.25	6	*10	+0.029	12	20 30 40 50 60 70			
	1.5	8	*15	+0.018	13	40 50 60 70			
3.0	1.5	10	*18	+0.035	16	40 50 60 70			
	1.5	10	*18	+0.022	20	50 60 70 80			

Quotation

⚠ * If D=5, then $\ell=6$ is a value for reference only. ⚠ * Only if D=6 and L=10, then $\ell=6$.

MSTM (Tapped m6 type)

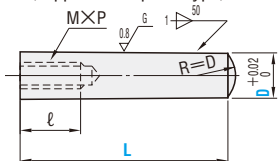


⚠ If L dimension is 10 with D5-6, the pilot hole for the tap may go all the way through.



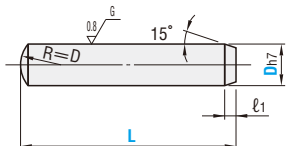
M SUJ2
H 45~50HRC

MTT (Tapped and tapered type)



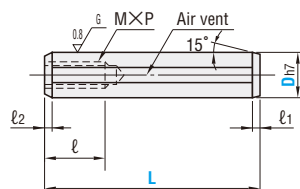
M SUJ2
H 45~50HRC

MSSH (Straight h7 type)



M SUJ2
H 45~50HRC

MSTH (Tapped h7 type)



⚠ If L dimension is 10 with D5-6, the pilot hole for the tap may go all the way through.

M SUJ2
H 45~50HRC

⚠ $l_1 \cdot l_2$ dimensions are values for reference only. The actual values at the outer diameter grinding process may be larger than the catalog values.

l_1	l_2	MXP	l	Dm6	Catalog No. Type	D	L	Base unit price 1~299 pcs.	Volume discount 300~499	unit price 500~1999	unit price 2000~4000
1.5	0.3	3/0.5	*6	+0.012 +0.004	MSTM	5	10 15 20 25 30				
		4/0.7				6	10 15 20 25 30 35 40 50				
2.0	0.5	5/0.8	*8	+0.015 +0.006		8	15 20 25 30 35 40 45 50 60 70 80				
		6/1.0				10	15 20 25 30 35 40 45 50 60 70 80				
2.5	1.0	8/1.25	15	+0.018 +0.007		12	20 30 40 50 60 70 80				
		10/1.5	18	+0.021 +0.008		13	40 50 60 70 80				
3.0	1.5	10/1.5	18	+0.021 +0.008		16	40 50 60 70 80				
						20	50 60 70 80				

Quotation

⚠ * If D=5, then $l=6$ is a value for reference only. * Only if D=6 and L=10, then $l=6$.

MXP	l	Catalog No. Type	D	L	Base unit price 1~299 pcs.	Volume discount 300~499	unit price 500~1999	unit price 2000~4000
5X0.8	9	MTT	8	30 40				
6X1.0	10		10	40 50				
8X1.25	14		12	40 50				
10X1.5	16		13	50 60				
			16	60 70				

Quotation

l_1	Dh7	Catalog No. Type	D	L	Base unit price 1~299 pcs.	Volume discount 300~499	unit price 500~1999	unit price 2000~4000
1.0	0 -0.010	MSSH	2	6 8 10 15				
			3	8 10 15 20				
1.5	0 -0.012		4	10 15 20				

Quotation

l_1	l_2	MXP	l	Dh7	Catalog No. Type	D	L	Base unit price 1~299 pcs.	Volume discount 300~499	unit price 500~1999	unit price 2000~4000
1.5	0.3	3/0.5	*6	0 -0.012	MSTH	5	10 15 20 25 30				
		4/0.7				6	10 15 20 25 30 35 40 50				
2.0	0.5	5/0.8	*8	0 -0.015		8	15 20 25 30 35 40 45 50 60 70 80				
		6/1.0				10	15 20 25 30 35 40 45 50 60 70 80 100 120				
2.5	1.0	8/1.25	15	0 -0.018		12	20 30 40 50 60 70 80 100 120				
		10/1.5	18	0 -0.021		13	40 50 60 70 80 100 120				
3.0	1.5	10/1.5	18	0 -0.021		16	40 50 60 70 80 100 120 150				
						20	60 70 80 100				

Quotation

⚠ * If D=5, then $l=6$ is a value for reference only. * Only if D=6 and L=10, then $l=6$.

⚠ MSTH economy packs P.673



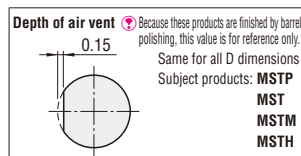
Order

Catalog No. — L
MS2 — 10



Days to Ship

Quotation



DOWEL PINS (ECONOMY PACKS)

SPRING PLUGS FOR PREVENTING DOWEL PIN FALL-OUT

■ **Dowel pins** Tapped h7 type **RoHS**

100PACK—MSTH (100 pins)
200PACK—MSTH (200 pins)

⚠ If L dimension is 10 with D5·D6, the pilot hole for the tap may go all the way through.

■ SUJ2
 □ 45~50HRC

ℓ_1	ℓ_2	$M \times P$	ℓ	D_{h7}	Catalog No.			L			
					Pack	Type	D				
1.5	0.3	3×0.5	*6	0 −0.012	100PACK (100 pins)	MSTH	5	10	15		
2.0	0.3	4×0.7	6				6	10			
2.0	0.5	5×0.8	8	0 −0.015	200PACK (200 pins)		8	15	20	25	30
2.5	0.5	6×1.0	10				10	20	30	40	

* If D=5, then ℓ=6 is a value for reference only.



Order

Catalog No.				
Pack	Type	D	L	
(For 100 pins) 100 PACK —MSTH		6	20	
(For 200 pins) 200 PACK —MSTH		6	20	



Days to Ship

Quotation

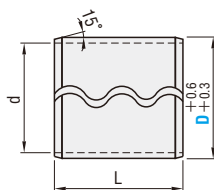


Price

Quotation

■ **Spring plugs for preventing dowel pin fall-out** **RoHS**

SWA (For FC250, SS400, and similar plates)



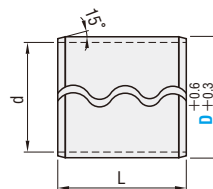
⚠ For D6 only, tolerance is $\begin{smallmatrix} +0.5 \\ +0.3 \end{smallmatrix}$

■ SAE1065

■ **Spring plugs for preventing dowel pin fall-out** **RoHS**



SWAL (For hardened plates)



⚠ For D6 only, tolerance is $\begin{smallmatrix} +0.5 \\ +0.3 \end{smallmatrix}$

⚠ D20 specification is not available. ■ SUS304—CSP—H

SWA		SWAL		L	Catalog No.		Base unit price 1~49 pieces		
* Pullout force N(kgf)	d	* Pullout force N(kgf)	d		Type	D (applicable dowel pin)	SWA	SWAL	
392 { 40}	4.4	245 { 25}	4.8	6	SWA SWAL	6			
1373 {140}	5.6	785 { 80}	6.4	8		8			
2354 {240}	6.4	1275 {130}	7.5	12		10			
1765 {180}	8.0	981 {100}	9.2			12	Quotation		
1716 {175}	9.0	981 {100}	10.2			13			
1422 {145}	11.0	785 { 80}	12.5			16			
1471 {150}	15.0	—			SWA	20			

* Pullout force is the average value of 10 repeated pull-outs from a H7 hole. The pullout force will vary depending on factors including the D dimension tolerance of the spring plugs, and the surface roughness and tolerance of press-fit holes.



Order

Catalog No.

SWA 12



Days to Ship

Quotation

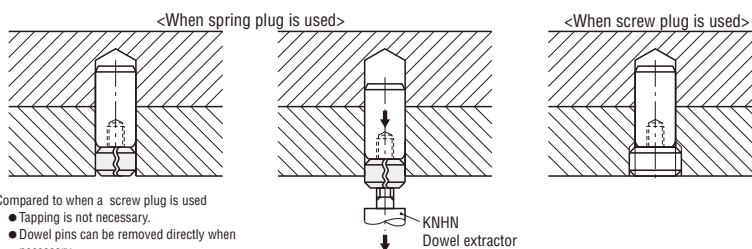


Price

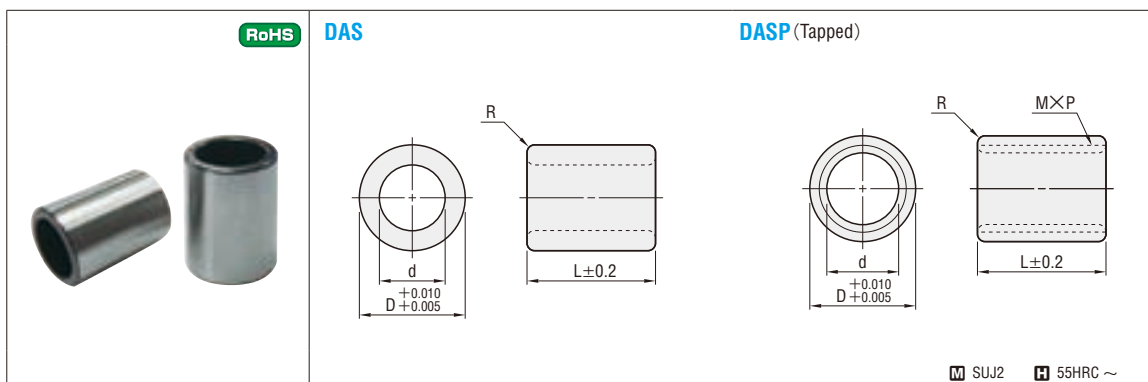
Quotation



Example



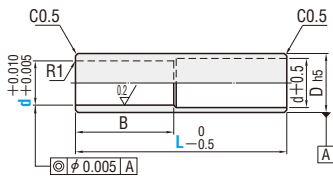
LOCATING DOWEL RINGS



DOWEL PIN BUSHINGS / DOWEL PIN BUSHING BLANKS

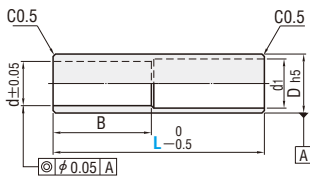


KNLB (Dowel bushings)



■ SUJ2
■ 58 ~ 62HRC

KNLBB (Dowel bushing blanks)



■ SUJ2
■ 58 ~ 62HRC

Dh5		B	Catalog No.		L	Base unit price					
			Type	d		1 ~ 9 pieces					
10	0 -0.006	13	KNLB	6	10 15 20 25	Quotation					
					30 35 40 45						
					50 55 60						
12	0 -0.008	15		8	15 20 25 30		60 65 70 75 80				
					35 40 45 50 55						
14		20		10	20 25 30		60 65 70 75 80				
					35 40 45 50 55						
16	0 -0.008	25		12	25 30		60 65 70 75 80				
					35 40 45 50 55						
18				13	30	60 65 70 75 80					
										35 40 45 50 55	
										60 65 70 75 80	

⚠ If L≤B, then L=B.

■ Attachment method: Loctite adhesive (Henkel Japan No. 638)

Dh5	d	d1	B	Catalog No.		L 0.5mm increments	Base unit price 1 ~ 9 pieces	
				Type	No.			
10	0 -0.006	5.8	6.5	KNLBB (No inner diameter finishing)	6	10 ~ 60	Quotation	
12		7.8	8.5		8	10 ~ 80		
14		9.8	10.5		10			
16		0 -0.008	11.8		12.5			12
18			12.8		13.5			13

🚫 If $L \leq B$, then $L=B$.

■ How to use: Use Loctite adhesive or press-fit, then finish the inner diameter by jig grinding.



Order

Catalog No. — L
KNLB 10 — 50



Price

Quotation



Days to Ship

Quotation



Alterations



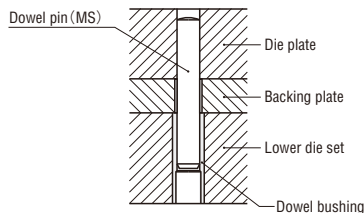
Catalog No. — L(LC) — (DRC)
KNLB8 — LC50.5 — DRC



Quotation



Example

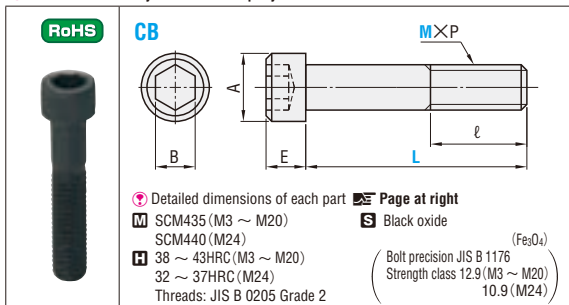


⚠ The recommended clearance when bonding with Loctite is 0.01 ~ 0.03 mm on each side.
 If you are using nearly zero clearance in order to achieve positional accuracy, use alteration DRC.

Alteration	Code	Spec.	1Code
 L LC	LC	L dimension change $10 \leq LC < L_{max}$ 0.5mm increments ⚠ Can be used for KNLB.	Quotation
 5 3 D-0.03 D-0.05 Groove for Loctite	DRC	Addition of grooves for Loctite	

HEXAGON SOCKET HEAD CAP SCREWS

Box sets are money-savers for company stock and when the number of screws used is large.



ℓ	Catalog No.	Base unit price	* Qty.
	Type M—L	≤ Less than Qty. ≥ More than Qty.	
Full thread	CB 3—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
18	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 4—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
20	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 5—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
22	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 6—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
24	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 7—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
26	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 8—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
28	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 9—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
30	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 10—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
32	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 11—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
34	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 12—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
36	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 13—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
38	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 14—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
40	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 15—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
42	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 16—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
44	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 17—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
46	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 18—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
48	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 19—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
50	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 20—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
52	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 21—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
54	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 22—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
56	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 23—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
58	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 24—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
60	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 25—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
62	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 26—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
64	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 27—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
66	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 28—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
68	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 29—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
70	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 30—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
72	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 31—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
74	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 32—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
76	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 33—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
78	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 34—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
80	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 35—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
82	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 36—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
84	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 37—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
86	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 38—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
88	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 39—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
90	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 40—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
92	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 41—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
94	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 42—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
96	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 43—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
98	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 44—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
100	22	Quotation	30
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
Full thread	CB 45—5	Quotation	50
	6		
	8		
	10		
	12		
	14		
	15		
	16		
	18		
	20		
102	22	Quotation	30
	25		
	30		
	35		

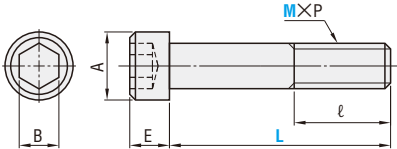
BOX SETS OF HEXAGON SOCKET HEAD CAP SCREWS



RoHS

Type	M	S	H
BOX—CB	SCM—435	Black oxide (Fe ₃ O ₄)	38~43HRC

Strength class 12.9



④ Select the number of boxes when ordering.
For an order quantity of 1, one box will be delivered.

ℓ	Catalog No.		Base unit price		Qty. per box
	Type	M— L	Apx price per piece	Per box	
Full thread	BOX—CB	3— 5			1000 pieces/box
		3— 6			
		3— 8			
		3— 10			
		3— 12			
		3— 15			
		3— 16			
		3— 18			
		3— 20			
		3— 25			
18		3— 30			
Full thread	BOX—CB	4— 5			800 pieces/box
		4— 6			
		4— 8			
		4— 10			
		4— 12			
		4— 15			
		4— 16			
		4— 20			
		4— 25			
		4— 30			
20		4— 35			800 pieces/box
		4— 40			600 pieces/box

ℓ	Catalog No.		Base unit price		Qty. per box
	Type	M— L	Apx price per piece	Per box	
Full thread	BOX—CB	5— 6			1000 pieces/box
		5— 8			
		5— 10			
		5— 12			
		5— 15			
		5— 16			
		5— 18			
		5— 20			
		5— 25			
		5— 30			
22		5— 35			600 pieces/box
		5— 40			
Full thread	BOX—CB	6— 8			1000 pieces/box
		6— 10			
		6— 12			
		6— 15			
		6— 20			
		6— 25			
		6— 30			
		6— 35			
		6— 40			
24		6— 40			400 pieces/box
Full thread	BOX—CB	8— 12			500 pieces/box
		8— 15			400 pieces/box
		8— 20			400 pieces/box
		8— 25			300 pieces/box
		8— 30			300 pieces/box
		8— 35			200 pieces/box
		8— 40			200 pieces/box
28					

CB			
M×P	A	E	B
3×0.5	5.5	3	2.5
4×0.7	7	4	3
5×0.8	8.5	5	4
6×1.0	10	6	5
8×1.25	13	8	6
10×1.5	16	10	8

CB			
M×P	A	E	B
12×1.75	18	12	10
14×2.0	21	14	12
16×2.0	24	16	14
20×2.5	30	20	17
24×3.0	36	24	19

Reference: Dimensions of counterbore and bolt hole for hexagon socket head cap screws P.1125



Order

Catalog No.

CB 6—10
BOX—CB 6—25



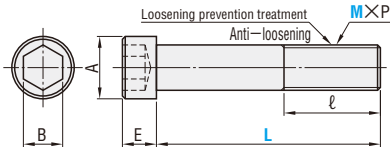
Days to Ship

Quotation

HEXAGON SOCKET HEAD CAP SCREWS

RoHS

LB (With loosening prevention treatment)

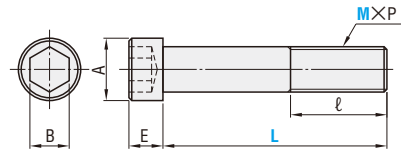


SCM435
38 ~ 43HRC

(JIS B 1176
JIS B 0205 Grade 2
Strength class) 12.9

RoHS

SCB (Stainless steel)



SUSXM7
JIS B 1176
※Strength class A2—70

ℓ	Catalog No.	Base unit price
New JIS	Type M—L	1~49 pcs, 50~200
	LB 4—8	
	10	
Full Thread	12	
	15	
	20	
	25	
20	30	
	LB 5—10	
Full Thread	12	
	15	
	20	
	25	
22	30	
	35	
	LB 6—10	
Full Thread	15	
	20	
	25	
	30	
	35	
24	40	
	45	
	50	

Quotation

ℓ	Catalog No.	Base unit price
New JIS	Type M—L	1~49 pcs, 50~200
	LB 8—15	
Full Thread	20	
	25	
	30	
	35	
	40	
	45	
28	50	
	55	
	60	
	LB 10—20	
Full Thread	25	
	30	
	35	
	40	
	45	
	50	
	55	
32	60	
	LB 12—25	
Full Thread	30	
	35	
	40	
	45	
	50	
	55	
36	60	

Quotation

LB-SCB			
M×P	A	E	B
2.5×0.45	4.5	2.5	2
2.6×0.45	4.5	2.5	2
3×0.5	5.5	3	2.5
4×0.7	7	4	3
5×0.8	8.5	5	4
6×1.0	10	6	5
8×1.25	13	8	6
10×1.5	16	10	8
12×1.75	18	12	10

Reference: Dimensions of counterbore and bolt holes for hexagon socket head cap screws P.1125

Reference: Thread shear strength data P.1129



Order

Catalog No.

LB 10—20

SCB 5—25



Days to Ship

Quotation

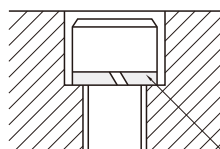


Price

Quotation



Example



Spring washer
CBW P.680

ℓ	Catalog No.	Base unit price	※Qty.
	Type M—L	※ Less than Qty. ※ More than Qty.	
Full thread	SCB 2.5—5		
	8		
	10		
Full thread	SCB 2.6—5		
	8		
	10		
	12		
	15		
24	SCB 3—6		
Full thread	8		
	10		
	12		
	15		
	20		
	25		
18	SCB 4—6		
Full thread	8		
	10		
	12		
	15		
	20		
	25		
	30		
20	SCB 5—8		
Full thread	10		
	12		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		

Quotation

ℓ	Catalog No.	Base unit price	※Qty.
	Type M—L	※ Less than Qty. ※ More than Qty.	
Full thread	SCB 6—10		
	12		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		
24	SCB 8—15		
Full thread	20		
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
28	SCB 10—15		
Full thread	20		
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
32	SCB 12—25		
Full thread	30		
	35		
	40		
	45		
	50		
	55		
	60		
	※ 55		
	60		

Quotation

※ ℓ part is based on JIS B 1176 (2000).

※“Strength class” indicates the tensile strength of the threads.

Example: 12.9 (CB3—20, LB)

— Indicates that the yield point or the minimum proof strength is 90% of the tensile strength.
— Indicates that the minimum tensile strength is 1220N/mm² (124kgf/mm²).

10.9 (CB24)

— Indicates that the yield point or the minimum proof strength is 90% of the tensile strength.
— Indicates that the minimum tensile strength is 980N/mm² (100kgf/mm²).

A2—70 (SCB)

— Indicates that the minimum tensile strength is 700N/mm² (71.4kgf/mm²).
— Steel class A2 (Austenitic stainless steel)

⚠ (Loosening prevention treatment)

A special resin with excellent elasticity, wear resistance, and oil resistance is applied to the thread grooves.

The effectiveness of the treatment is greatest at the initial use. In the case of repeated use, the effectiveness gradually diminishes beginning from the fourth use.

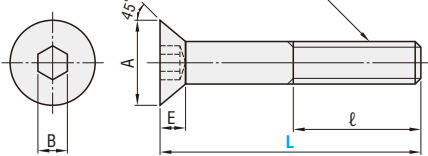
⚠ Loosening prevention treatment is applied to LB only.

HEXAGON SOCKET HEAD CAP SCREWS / SPRING WASHERS



RoHS

FB (Conventional type)
FBJ (JIS type)



M SCM435
H 32~38HRC
S Black oxide (Fe₃O₄)

(JIS B 0205 Grade 2)
(Strength class 10.9)

Conventional type (space-saving E dimension specification)

M×P	A		E		B	ℓ	Catalog No.	Base unit price		*Qty.
	min.	max.	min.	max.			Type M—L	*Less than Qty.	*More than Qty.	
4X0.7	7.64	8.00	2.16	2.30	2.5	Full thread	FB 4—10			200
							15			
							20			
							25			
							30			
						14	35			
5X0.8	9.64	10.00	2.66	2.80	3.0	Full thread	FB 5—10			
							12			
							15			
							16			
							20			
						16	25			
							30			
							35			
							40			
6X1.0	11.57	12.00	3.12	3.30	4.0	Full thread	FB 6—10			100
							12			
							15			
							16			
							20			
						18	25			
							30			
							35			
							40			
							45			
8X1.25	15.57	16.00	4.22	4.40	5.0	Full thread	FB 8—15			
							20			
							25			
							30			
							35			
						22	40			
							45			
							50			
10X1.5	19.48	20.00	5.32	5.50	6.0	Full thread	FB 10—20			

- ⚙ FB conform to the SSS (Japan Socket Screw Industry Cooperative Society) standards.
(Previously there were no JIS standards for hexagon socket head cap screws, and this society created standards on its own.)
- ⚙ With this type, the E dimension is shorter than the JIS standard.

JIS type

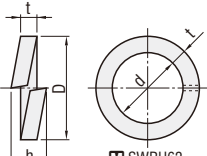
M×P	A		E		B	ℓ	Catalog No.	Base unit price	* Qty.
	min.	max.	min.	max.			Type M—L	* Less than Qty. * More than Qty.	
4×0.7	7.53	8.96	2.23	2.48	2.5	Full thread	FBJ 4—10		200
							15		
							20		
							25		
							30		
							FBJ 5—10		
							12		
							15		
							16		
							20		
5×0.8	9.43	11.20	2.80	3.10	3.0	Full thread	25		
							30		
							35		
							40		
							22		
							FBJ 6—10		
							12		
							15		
							16		
							20		
6×1.0	11.34	13.44	3.30	3.72	4.0	Full thread	25		
							30		
							35		
							40		
							24		
							FBJ 8—15		
							20		
							25		
							30		
							35		
8×1.25	15.24	17.92	4.40	4.96	5.0	Full thread	40		
							45		
							50		
							28		
							10×1.5	19.22	22.40

- ⚙ FBJ conforms to JIS standard JIS B 1194 (2000).
(JIS standards were first created in 2000.)
- ⚙ In JIS only the max. for E dimension is listed.



RoHS

CBW (Spring washer)



M SWRH62
H 42 ~ 50HRC

(D):max. (h):min.

d	(D)	(h)	t	Catalog No.		Base unit price	Volume discount unit price
				Type	No.	1~49 pcs.	50~199/200~499/500~1000
3.1	5.6	2.0	1	CBW	3		
4.1	7	2.4	1.2		4		
5.1	8.8	3.2	1.6		5		
6.1	9.9	3.2	1.6		6		
8.1	12.7	4	2		8		
10.2	16	5	2.5		10		
12.2	18	5	2.5		12		
16.2	24.4	7	3.5		16		
20.2	30.6	9	4.5		20		
24.5	35.9	10	5		24		

(D):max. (h):min.



Order

Catalog No.

FB 5—10
FBJ 8—20
CBW 10



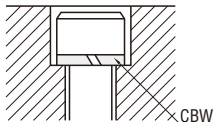
Days to Ship

Quotation



Example

Can be used without enlarging the size of the bolt head counterbore.



LOW HEAD AND ULTRA-LOW HEAD HEXAGON SOCKET HEAD CAP SCREWS

RoHS

CBS (Low head hexagon socket head cap screw)
CBSST (Stainless steel low head hexagon socket head cap screw)

Type	M	H	S	Strength class
CBS	SCM435	32~39HRC	Black oxide (Fe ₃ O ₄)	10.9
CBSST	SUSXM7	—	—	A2-50

RoHS

CBSS (Ultra-low head hexagon socket head cap screws)

M SCM435
H 32~39HRC
S Black oxide (Fe₃O₄)

(Strength class 10.9
 Head strength class M3~M8 5.8
 M10 4.8)

M×P	A	E	B	t max.	ℓ		Catalog No. Type M—L	Base unit price	
					CBS	CBSST		CBS	CBSST
3×0.5	5.5	2	2	1.5	Full thread	Full thread	CBS 3—6 CBSST 8 10 12 16 20		
					12				
4×0.7	7	2.8	2.5	2.3	Full thread	Full thread	CBS 4—6 CBSST 8 10 12 16 20 25		
5×0.8	8.5	3.5	3	2.7	Full thread	Full thread	CBS 5—8 CBSST 10 12 16 20 25 30		
					16	24			
6×1.0	10	4	4	3	Full thread	Full thread	CBS 6—8 CBSST 10 12 16 20 25 30 35 40 45	Quotation	
					18	26			
8×1.25	13	5	5	3.8	Full thread	Full thread	CBS 8—10 CBSST 12 16 20 25 30 35 40 45 50		
					22	30			
10×1.5	16	6	6	4.5	Full thread	Full thread	CBS 10—16 CBSST 20 25 30 35 40 45 50		
					32	36			
12×1.75	18	7	8	5	Full thread	Full thread	CBS 12—20 CBSST 25 30 35 40 45 50		
					30	40			

M×P	A	E	B	t max.	ℓ1 max.	Catalog No.	Base unit price	
							Type M—L	1~49 pcs
3×0.5	6	1.3	1.5	2	1.6	CBSS 3—6		
						8		
						10		
						12		
						16		
4×0.7	8	1.5	2	2.5	1.6	CBSS 4—6		
						8		
						10		
						12		
						16		
5×0.8	9	1.5	3	3	1.6	CBSS 5—8		
						10		
						12		
						16		
						20		
6×1.0	10	1.5	3	4	2.0	CBSS 6—8		
						10		
						12		
						16		
						20		
8×1.25	13	1.5	4	5	2.5	CBSS 8—8		
						10		
						12		
						16		
						20		
10×1.5	16	1.5	5	5	3.0	CBSS10—10		
						12		
						16		
						20		
						25		

For larger orders, ask about prices/delivery.

※“Strength class” indicates the tensile strength of the threads.

Example: 8.8
 — Indicates that the minimum yield point or proof strength is 80% of the tensile strength.
 — Indicates that the minimum tensile strength is 800N/mm² (81.6kgf/mm²).

A2-50
 — Indicates that the minimum tensile strength is 500N/mm² (51kgf/mm²).
 — Steel class A2 (Austenitic stainless steel)



Order

Catalog No.

CBS 4—10
 CBSS5—12



Days to Ship

Quotation



Price

Quotation

Features

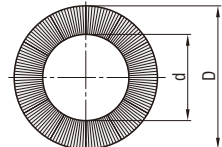
- **Low head hexagon socket head cap screws**
 - Can be used without modification in locations where the heads of conventional hexagon socket head cap screws would cause an obstruction.
- **Ultra-low head hexagon socket head cap screws**
 - Developed in order to reduce the space required for the height of the screw head.
 - Unlike flat head screws, countersinking of the opposite material is not required.

NORD-LOCK LOOSENING PREVENTION WASHERS



RoHS

NLDP




M Equivalent to S20C
H 47HRC
S Thin zinc coating (chrome-free)

❖ 2 of these products form a single pair for use.

Bolt	D	d	t	Catalog No.		Base unit price	
				Type	No.	1 ~ 19 pairs	20 ~ 199 pairs
M 3	7.0	3.4	1.8	NLDP	3	Quotation	
M 4	7.6	4.4	1.8		4		
M 5	9.0	5.4	1.8		5		
M 6	10.8	6.5	1.8		6		
M 8	13.5	8.7	2.5		8		
M10	16.6	10.7	2.5		10		
M12	19.5	13.0	2.5		12		
M16	25.4	17.0	3.4		16		
M20	30.7	21.4	3.4		20		

❖ 2 of these products form a single pair for use.

❖ Prices marked with * apply to orders for 20~99 pairs.



Order

Catalog No.

NLDP 6



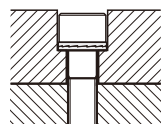
Days to Ship

Quotation



Example

Can be used without enlarging the size of the bolt head counterbore.



Set sales

Catalog No.		Set price	Pairs/set
Type	No.		
NLDP—B	3	Quotation	168 pairs
	4		
	5		
	6		
	8		
	10		
	12		
	16		
	20		84 pairs



Order

Catalog No.

NLDP—B6

❖ Be sure that the quantity is correct when ordering.

Example: An order for one NLDP—B6, will result in the delivery of 200 pairs.



Days to Ship

Quotation

Principle of washers for loosening prevention

Washers for loosening prevention have wedge-shaped cams on the inside and radial ribs on the outside. 2 of these washers form a single pair.

The cam angle (α) is set larger than the thread lead angle (β).

When a force acts to loosen the bolt, the cams of one washer press the cams of the other washer up and away, however due to the wedge effect the washers do not separate by more than the thread pitch.

Installing correctly

2 washers are delivered as a single pair, with adhesive already applied.

Before reusing these washers, check that the raised parts have not been crushed and that there is no cracking. Then use in accordance with the correct installation method shown in the figure at right.

Remove any other washers or similar items before using these products.

Precautions for repeated use

NLDP can be used repeatedly. At this time, be sure to use lubricating oil.

Allowable temperature limit

The maximum allowable temperature for NLDP is 200°C.

Do not use these washers at temperatures above this limit.

Graph of vibration test results (reference)

Tester: Yanker type vibration tester

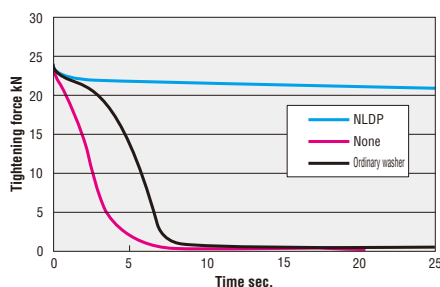
Loosening prevention washer used: NLDP8

Amplitude: ± 0.5 mm

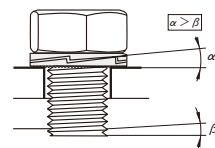
Bolt used: M8 (strength class 12.9)

Frequency: 40 Hz

Clamped material used: Equivalent to S20C (28HRC)



[Fig. 1] Results of vibration tests with and without NLDP washers



Concerning the clamped material

Marks in the shape of the ribs on the outside of the washers will be left on the clamped material. Use only clamped material with a hardness that is no greater than the hardness of the washers for loosening prevention.

Recommended tightening torque and tightening force

When tightening a bolt and using washers for loosening prevention, refer to the recommended values in the table below.

At values that are significantly less than the recommended values, the loosening prevention effects will not be achieved.

At values higher than the recommended values, removing the bolts will be difficult and the loosening prevention washers may crack. Use caution.

[Table: Recommended bolt tightening torques and bolt tightening force when loosening prevention washers are used]

NLDP	Bolt M×P	Bolt strength class 12.9 μ : $\tau=0.12$ Gr=0.75		Bolt strength class 10.9 μ : $\tau=0.14$ Gr=0.71		Bolt strength class 8.8 μ : $\tau=0.14$ Gr=0.71	
		Torque Nm	Tightening force kN	Torque Nm	Tightening force kN	Torque Nm	Tightening force kN
3	3×0.5	2	3.9	1.7	3.2	1.3	2.4
4	4×0.7	4.6	6.7	3.8	5.6	3	4.2
5	5×0.8	9	10.9	7.5	9.1	5.9	6.8
6	6×1.0	15.7	15.4	13.1	12.9	10.3	9.7
8	8×1.3	37.6	28.1	31.3	23.4	24.8	17.6
10	10×1.5	74	44	62	37	49	28
12	12×1.8	127	65	106	54	84	40
16	16×2.0	310	120	258	100	203	75
20	20×2.5	607	188	506	156	398	118

❖ μ : Thread coefficient of friction

❖ Gr: Yield point ratio

WASHERS・SPACERS

RoHS **K・W** (Spacers for stripper bolts with female threads)

2-C0.1~0.3
D-0.1
d
t=5
M S45C
H 48~52HRC

RoHS **T・R** (Spacers for bushing-type stripper bolts)

3-C0.1~0.3
D-0.1
d
t=5
M S45C
H 48~52HRC

RoHS **J** (Spacers with counterbore for bushing-type stripper bolts)

d1±0.1
2-C0.2
C0.2
D±0.1
d
h±0.05
t=5
M S45C
H 48~52HRC

RoHS **SW** (Washers for stripper bolts and coil springs)

2-C0.2~0.3
D±0.1
d
t=0.1
M S45C
H 48~52HRC

t	D	d	Catalog No.	Base unit price 1~49 pieces	Volume discount unit price 50~199 200~499 500~1000
±0.005	10	6	K	10	
	13	8		13	
	16	10		16	
	20	12		20	
±0.01	8	5	W	10	
	11	6		13	
	14	8		16	
	17	10		20	

Quotation

D	d	Catalog No.	Base unit price 1~49 pieces	Volume discount unit price 50~199 200~499 500~1000
11.5	4	T	6.5	
13	5		8	
15	6		10	
18	8		13	
21	10		16	
23	12		20	
16	4	R	6.5-16	
18	4		6.5-18	
18	5		8-18	
20	5		8-20	
22	5		8-22	
20	6		10-20	
22	6		10-22	
25	6		10-25	
27	6		10-27	
25	8		13-25	
27	8		13-27	
30	8		13-30	
30	10		16-30	
35	10		16-35	
40	10		16-40	
35	12		20-35	
40	12		20-40	

Quotation

D	d1	d	h	Catalog No.	Base unit price 1~49 pieces	Volume discount unit price 50~199 200~499 500~1000
12	8	4	9	J	6.5	
14	10	5	10		8	
18	11	6	11		10	
24	14	8	13		13	
27	17.5	10	15		16	
32	19.5	12	17		20	

Quotation

D	d	t	Catalog No.	Base unit price 1~49 pieces	Volume discount unit price 20~49 50~99 100~200
10	4.5	3	SW	10	
12	5.5	3		12	
12	6	3		12-6	
16	6.5	4		16	
20	8	4		20	
22	8	4		22	
25	10	5		25	
25	12	5		25-12	
27	13	8		27	
30	13	8		30	
35	16	8		35	
40	16	8		40	
50	20	10		50	

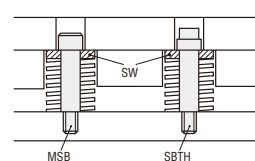
Quotation

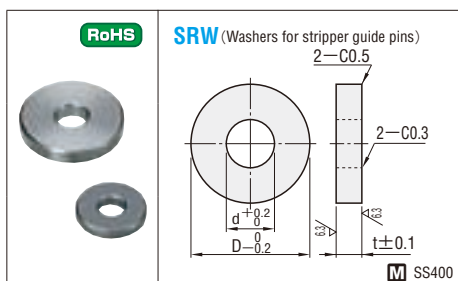


Catalog No.
K 10
W 16
T 10
R 10~20
J 16
SW 25

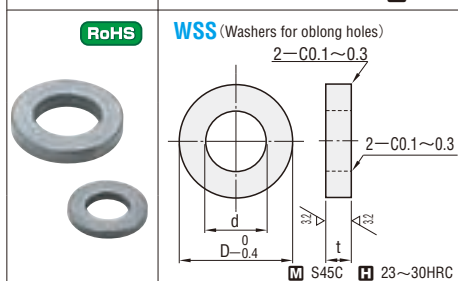


Quotation



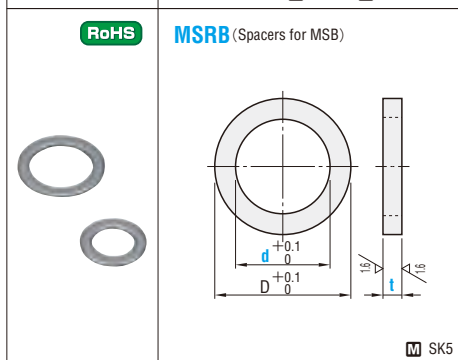


D	d	t	Catalog No.		Base unit price	Volume discount unit price		
					1 ~ 49 pieces	50 ~ 99	100 ~ 499	500 ~ 1000
12	5.3	3	SRW	8				
15				10				
19	6.4	4		13	Quotation			
22				16				
26	8.4	5		20				
30				25				



D	d	t	Catalog No.	Base unit price 1 ~ 49 pieces	Volume discount unit price		
12.5	6.4	2.5	WSS	6			
17	8.4	2.5		8			
21	10.5	3		10			
24	13	4		12			
30	17	5		16			
37	21	5		20			

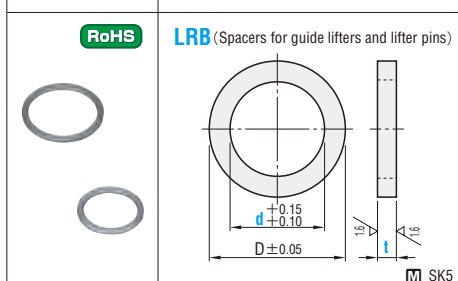
Quotation



t	D	d	Catalog No.	t	Base unit price 1 ~ 49 pcs.	Volume discount unit price		
0.1 ±0.020	6.5	4	MSRB	*4				
0.2 ±0.020	7	4.5		4.5				
0.3 ±0.030	8	5		*5				
0.5 ±0.030	9	5.5		5.5	0.1			
1.0 ±0.040	9	6		*6	0.2			
2.0 ±0.090	10	6.5		6.5	0.3			
	13	8		8	0.5			
	16	10		10	1.0			
	17	12		*12	2.0			
	18	13		13				
	24	16		16				
	27	20		20				

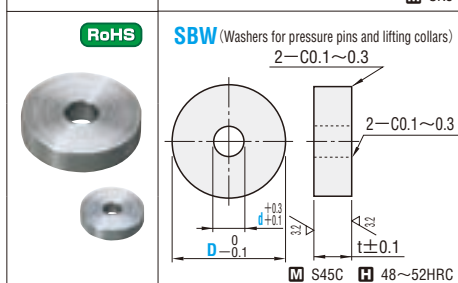
t=2.0 is not available for sizes marked with *.

Quotation



t	D	d	Catalog No.	t	Base unit price 1 ~ 49 pcs.	Volume discount unit price		
0.1 ±0.020	6	4	LRB	4				
0.2 ±0.020	7	5		5	0.1			
0.3 ±0.030	8	6		6	0.2			
0.5 ±0.030	10	8		8	0.3			
1.0 ±0.040	13	10		10	0.5			
	16	13		13	1.0			
	19	16		16				
	23	20		20				

Quotation



t	Catalog No.		d	Base unit price	Volume discount unit price		
	Type	D		1 ~ 49 pcs.	50 ~ 199	200 ~ 499	500 ~ 1000
5	SBW	20	5				
		22	5				
		25	6				
27		5					
30		6					
35		8					

Quotation



•SRW・WSS

Catalog No.
SRW 20
WSS 8

•MSRB・LRB

Catalog No. — t
MSRB 10 — 0.1
LRB 8 — 0.5

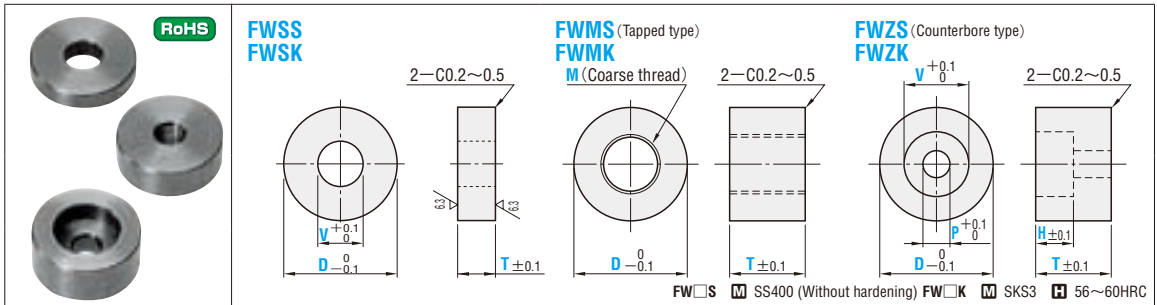
•SBW

Catalog No. — d
SBW 20 — 5



Quotation

FREE WASHERS



Catalog No.	D	V 0.1mm increments	T 0.1mm increments	Base unit price		
				FWSS 1 ~ 9 pieces	FWSK 1 ~ 9 pieces	
FWSS (SS400)	7 ~ 10 (0.5 mm increments)	2.5~55	1.0 ~ 5			
			5.1 ~ 10			
			10.1 ~ 20			
			20.1 ~ 30			
			30.1 ~ 40			
	10.5 ~ 20 (0.5 mm increments)		40.1 ~ 50			
			1.0 ~ 5			
			5.1 ~ 10			
			10.1 ~ 20			
			20.1 ~ 30			
	21 ~ 30 (1mm increments)		30.1 ~ 40			
			40.1 ~ 50			
			31 ~ 40 (1mm increments)	1.0 ~ 5		
				5.1 ~ 10		
				10.1 ~ 20		
	20.1 ~ 30					
	30.1 ~ 40					
	41 ~ 50 (1mm increments)		40.1 ~ 50			
			1.0 ~ 5			
			5.1 ~ 10			
			10.1 ~ 20			
			20.1 ~ 30			
	51 ~ 60 (1mm increments)		30.1 ~ 40			
			40.1 ~ 50			
1.0 ~ 5						
5.1 ~ 10						
10.1 ~ 20						
20.1 ~ 30						
30.1 ~ 40						
40.1 ~ 50						

Quotation

Quotation

Catalog No.	D	M selection	T 0.1mm increments	Base unit price		
				FWMS 1 ~ 9 pieces	FWMK 1 ~ 9 pieces	
(Tapped)	8 ~ 20 (0.5mm increments)	3 (T ≧ 3) 4 (T ≧ 3) 5 (T ≧ 3) 6 (T ≧ 3) 8 (T ≧ 4) 10 (T ≧ 5) 12 (T ≧ 6) 16 (T ≧ 6) 20 (T ≧ 8)	3.0 ~ 5			
			5.1 ~ 10			
			10.1 ~ 20			
			20.1 ~ 30			
			30.1 ~ 40			
	21 ~ 30 (1mm increments)		40.1 ~ 50			
			3.0 ~ 5			
			5.1 ~ 10			
			10.1 ~ 20			
			20.1 ~ 30			
	31 ~ 40 (1mm increments)		30.1 ~ 40			
			40.1 ~ 50			
			3.0 ~ 5			
			5.1 ~ 10			
			10.1 ~ 20			
	41 ~ 50 (1mm increments)		20.1 ~ 30			
			30.1 ~ 40			
			40.1 ~ 50			
			3.0 ~ 5			
			5.1 ~ 10			
				10.1 ~ 20		
				20.1 ~ 30		
				30.1 ~ 40		
				40.1 ~ 50		

Quotation

Quotation

⚠ (D-M)/2 ≥ 2 → Minimum required thickness on each side: 2 mm.
 ⚠ T ≤ M × 8 → The maximum thickness is 8 times the tap diameter.

Catalog No.	D	V 0.1mm increments	P 0.1mm increments	H 0.1mm increments	T 0.1mm increments	Base unit price						
						FWZS 1 ~ 9 pieces	FWZK 1 ~ 9 pieces					
(Counterbore type)	9 ~ 20 (0.5 mm increments)	5 ~ 45	3 ~ 43	1 ~ 48	3.0 ~ 5							
					5.1 ~ 10							
					10.1 ~ 20							
					20.1 ~ 30							
					30.1 ~ 40							
	40.1 ~ 50											
	21 ~ 30 (1mm increments)				3.0 ~ 5							
					5.1 ~ 10							
					10.1 ~ 20							
					20.1 ~ 30							
					30.1 ~ 40							
	31 ~ 40 (1mm increments)				40.1 ~ 50							
					Quotation					3.0 ~ 5		
										5.1 ~ 10		
										10.1 ~ 20		
										20.1 ~ 30		
	30.1 ~ 40											
	41 ~ 50 (1mm increments)				40.1 ~ 50							
					3.0 ~ 5							
					5.1 ~ 10							
					10.1 ~ 20							
					20.1 ~ 30							
									30.1 ~ 40			
									40.1 ~ 50			

Quotation

⚠ (D-V)/2 ≥ 2 → Minimum required thickness on each side: 2 mm
 ⚠ (V-P) ≥ 2 → A step of 1 mm or more on each side is required.
 ⚠ P × 8 ≥ (T-H) ≥ 2 → Diameter length of shaft portion is minimum 2 mm and maximum P × 8.

⚠ (D-V)/2 ≥ 2 Minimum required thickness on each side: 2 mm.



Order

Catalog No.	D	V	M	P	H	T
FWSS	- D20	- V5				- T2.0
FWMS	- D15		- M3			- T3.5
FWZS	- D20	- V10		- P5	- H10	- T20



Days to Ship

Quotation



Price

Quotation



Alterations

Catalog No.	D	V	T	(TKC)
FWSS	- D20	- V5	- T2.0	- TKC2

Alteration	Code	Spec.	1Code
	TKC1	Thickness tolerance change	
	TKC2	Code Tolerance	TKC1
	TKC3	±0.05	TKC2
	TKC3	±0.01	TKC3
	TKC1	Code Tolerance	TKC1
	TKC2	±0.05	TKC2
	TKC3	±0.01	TKC3
	TKC3	±0.005	TKC3

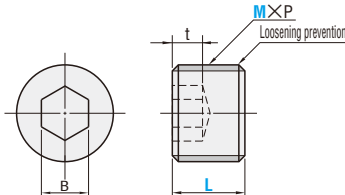
SCREW PLUGS FOR LOOSENING PREVENTION

🔧 M4~M10 coarse thread, M12~M20 fine thread (pitch 1.5)



RoHS

LMSW



M SCM435 (M4~10)
S45C (M12~20)

H 34~43HRC

S Black oxide (Fe₃O₄)
Loosening prevention nylon resin (red)

M×P		L	B	t	Catalog No.		Base unit price	Volume discount unit price		
					Type	M	1～19 pcs.	20～49 pcs.	50～99 pcs.	100～500 pcs.
4	0.7	4	2	1.5	LMSW	4				
5	0.8	5	2.5	2		5				
6	1.0	6	3	3.5		6				
8	1.25	8	4	5		8		Quotation		
10	1.5	10	5	6		10				
12	1.5 (fine thread)		6	5		12				
16			8			16				
20		12	10	6		20				

Quotation



Order

Catalog No.

LMSW 10



Days to Ship

Quotation

Overview

- The screw plug has been coated with a water-based type of loosening prevention agent that is composed primarily of nylon.

Features

- Highly suitable for repeated use.
- Because a double nut is not necessary, it is possible to reduce the number of machining man-hours for dies and other items.
- Re-tightening adjustments can be made at any time.
- Excellent chemical resistance.

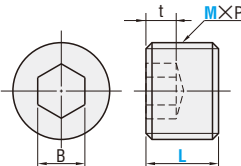
SCREW PLUGS

☞ M2.5 ~ M10 coarse thread, M12 ~ M45 fine thread (pitch 1.5)



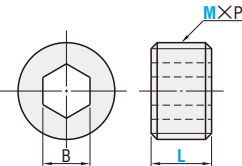
RoHS

MSW
MSWS (Short type)



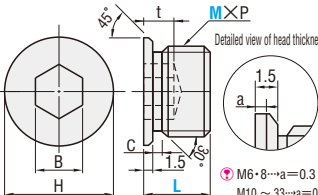
M MSW SCM435 (M2.5 ~ 10)
S45C (M12 ~ 45)
MSWS S45C
H 34 ~ 43HRC
S Black oxide (Fe₃O₄)
(JIS B 0207 Grade 2)

MSWA (Through hole type)
MSWAS (Through hole short type)



M S45C
H 34 ~ 43HRC
S Black oxide (Fe₃O₄)
(JIS B 0207 Grade 2)

MSWZ (Washer face type)
MSWZS (Washer face short type)



M S45C
H 33 ~ 38HRC
S Black oxide (Fe₃O₄)
(JIS B 0207 Grade 2)

☞ M6-8 → a=0.3
M10 ~ 33 → a=0.5

Standard type

M×P	L	B	t	Catalog No. Type	M	Base unit price 1 ~ 299 pcs	Volume discount unit price 300 ~ 499 500 ~ 999 1000 ~ 2000
2.5	0.45	3	1.3	MSW	2.5		
3	0.5	3	1.5		3*		
4	0.7	4	2		4*		
5	0.8	5	2.5		5*		
6	1.0	6	3		6		
8	1.25	8	4		8		
10	1.5		5		10		
12		10	6		12		
14			8		14		
16		8	5.5		16		
18		10			18		
20		12			20		
22			6		22		
24		12			24		
25					25		
26		12	14		26		
27					27		
28					28		
30					30		
33					33		
36					36		
38		17			38		
40			10		40		
42					42		
45					45		

☞ *The ends of MSW3~4~5 are "dimple types". ☞ Page at right)

M×P	L	B	t	Catalog No. Type	M	Base unit price 1 ~ 299 pieces	Volume discount unit price 300 ~ 499 500 ~ 999 1000 ~ 2000
8	1.25	8	4	MSWA (Through hole)	8		
10	1.5		5		10		
12		10	6		12		
14			8		14		
16		8			16		
18		10			18		
20			6		20		
22		12			22		
24					24		
25					25		
26		12	14		26		
27					27		
28					28		
30					30		
33					33		

M×P	L	B	H	t	C	Catalog No. Type	M	Base unit price 1 ~ 99 pieces	Volume discount unit price 100 ~ 199 200 ~ 299 300 ~ 500
6	1.0	8	3	9		MSWZ (Washer face)	6		
8	1.25	10	4	11			8		
10	1.5		5	13			10		
12		12	6	15			12		
14			8	17			14		
16		8	19				16		
18		10	21				18		
20			23				20		
22		12	25				22		
24			27				24		
25							25		
26		15	29				26		
27			30				27		
28			31				28		
30			33				30		
33			36				33		

Short type

M×P	L	B	t	Catalog No. Type	M-L	Base unit price 1 ~ 299 pcs	Volume discount unit price 300 ~ 499 500 ~ 999 1000 ~ 2000
8	1.25	4		MSWS (Short)	8-6		
10	1.5	5			10-6		
12		6	3		12-6		
14		6			14-6		
16		8			16-6		
18		10			18-6		
20			4		20-8		
22		12			22-8		
24					24-8		
25					25-8		
26		14			26-8		
27					27-8		
28					28-8		
30		17			30-8		
33					33-8		

M×P	L	B	t	Catalog No. Type	M-L	Base unit price 1 ~ 299 pieces	Volume discount unit price 300 ~ 499 500 ~ 999 1000 ~ 2000
8	1.25	4		MSWAS (Through hole Short)	8-6		
10	1.5	5			10-6		
12		6			12-6		
14		6			14-6		
16		8			16-6		
18		10			18-6		
20					20-8		
22		12			22-8		
24					24-8		
25					25-8		
26		14			26-8		
27					27-8		
28					28-8		
30		17			30-8		
33					33-8		

M×P	L	B	H	t	C	Catalog No. Type	M-L	Base unit price 1 ~ 99 pieces	Volume discount unit price 100 ~ 199 200 ~ 299 300 ~ 500
10	1.5	5	13			MSWZS (Washer face Short)	10-10		
12		6	15				12-10		
14		8	17				14-10		
16		10	19				16-10		
18		12	21				18-10		
20		14	23				20-10		
22		16	25				22-10		
24		18	27				24-10		
25		20	29				25-10		
26		22	31				26-10		
27		24	33				27-10		
28		26	35				28-10		
30		28	37				30-12		
33		32	40				33-12		

☞ Compared with the standard type, the short type (MSW-MSWA-MSWZ) has a shorter L dimension and fewer threads. When using this type, pay attention to the load that is applied to the screw plug and to the material of the plate where the tap hole will be machined.



Order

Catalog No.

MSW 18
MSWS 18-6



☞ Page at right



Days to Ship

Quotation

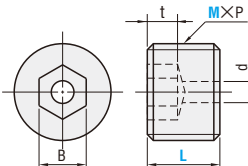
SCREW PLUGS

—HOLE TYPE—



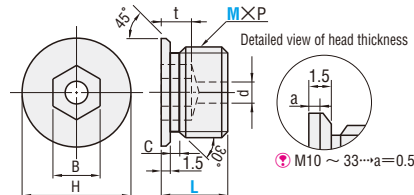
RoHS

**MSWH
MSWSH** (Short type)



M S45C
H 34 ~ 43HRC
S Black oxide (Fe₃O₄)
(JIS B 0207 Grade 2)

**MSWZH
MSWSZH** (Washer face type)
MSWZSH (Washer face short type)



M S45C
H 33 ~ 38HRC
S Black oxide (Fe₃O₄)
(JIS B 0207 Grade 2)

Standard type

M×P	L	B	d	t	Catalog No. Type	Base unit price 1 ~ 299 pcs.	Volume discount unit price 300 ~ 499 500 ~ 999 1000 ~ 2000
12	1.5	10	6	5	MSWH 12		
14			8		14		
16			10		16		
18			12		18		
20		12	14	6	20		
22			16		22		
24			18		24		
25			20		25		
26			22		26		
27			24		27		
28	12	14	5	6	28		
30					30		
33					33		

Short type

M×P	L	B	d	t	Catalog No. Type	Base unit price 1 ~ 299 pcs.	Volume discount unit price 300 ~ 499 500 ~ 999 1000 ~ 2000
12	1.5	6	3	3	MSWSH (Short)		
14			4		14		
16			5		16		
18			6		18		
20		8	7	4	20		
22			8		22		
24			9		24		
25			10		25		
26			11		26		
27			12		27		
28	12	14	5	6	28		
30					30		
33					33		

M×P	L	B	H	d	t	C	Catalog No. Type	Base unit price 1 ~ 99 pcs.	Volume discount unit price 100 ~ 200
10	1.5	12	5	13	3	2.5	MSWZH (Washer face)		
12			6	15			12		
14			8	17			14		
16			10	19			16		
18		14	12	21	5	2.5	18		
20			14	23			20		
22			16	25			22		
24			18	27			24		
25		15	20	29			25		
26			22	31			26		
27			24	33			27		
28	12	14	5	6	2.5	2.5	28		
30							30		
33							33		

M×P	L	B	H	d	t	C	Catalog No. Type	Base unit price 1 ~ 99 pieces	Volume discount unit price 100 ~ 200
10	1.5	12	5	13	3	2.0	MSWZSH (Washer face Short)		
12			6	15			12		
14			8	17			14		
16			10	19			16		
18		14	12	21	5	2.0	18		
20			14	23			20		
22			16	25			22		
24			18	27			24		
25		15	20	29			25		
26			22	31			26		
27			24	33			27		
28	12	14	5	6	2.0	2.0	28		
30							30		
33							33		



Order

Catalog No.

MSWZH 30
MSWSH 18~6



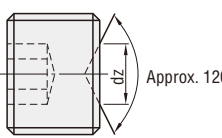
Days to Ship

Quotation



Example

MSW: Shape and dimensions of dimple



Catalog No.	d2 max.
MSW3	1.4
MSW4	2.0
MSW5	2.5

⚠ The ends of MSW3・4・5 are "dimple types". Use caution.

MSW

- The tightening position can be adjusted easily.

Through hole type

- Can be fastened together with MSW, allowing it to be used as a double nut.

Short type

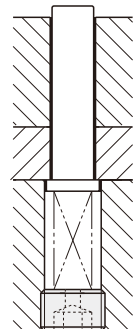
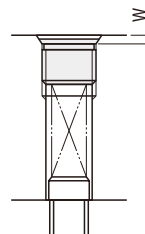
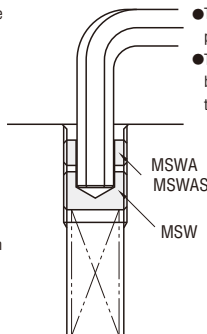
- Because the L dimension is short, this type can be used in locations where there is little space.
- Because the short types have fewer threads, pay attention to the load that is applied to the screw and to the material of the plate where the tap hole will be machined.

Washer face type

- The washer face part is effective in preventing loosening.
- The chamfering depth W can be used to prevent spring over-tightening.

Hole type

- Air and oil escape through the hole, preventing problems with pin operation.



STRIPPER BOLTS

— GUIDE —

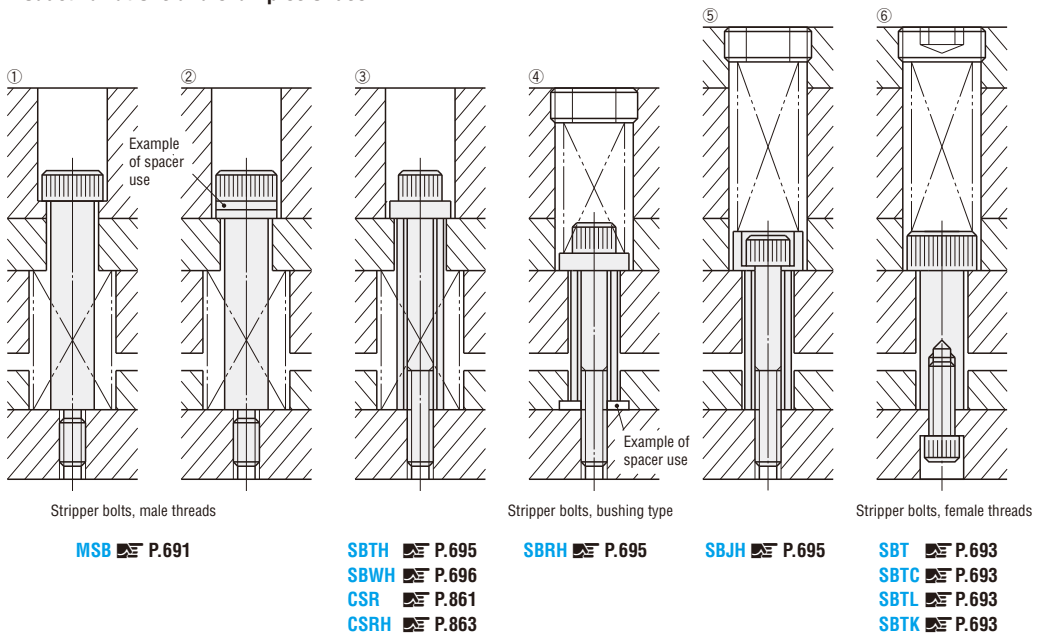
■ What are stripper bolts?

Stripper bolts are usually used to hold stripper plates (or stripper pads). Because the stripper plates function to guide the punch tip, it is necessary to maintain even parallelism, and to use a structure which allows strict control of the stripper bolt full length tolerance.

In addition, a structure which allows die maintenance to be performed without disassembling the die is also needed. MISUMI meets the needs of our customers by offering product variations for these and other purposes.

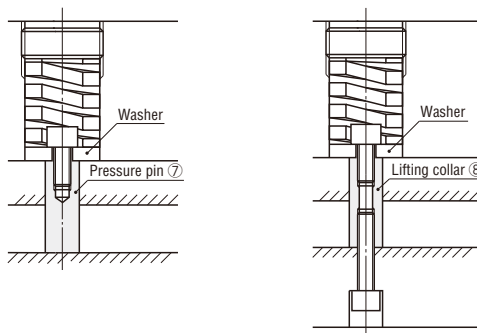


● Product variations and examples of use



- ① and ② show examples of how stripper bolts with male threads are used. For ①, an alteration can be used to select L dimension in increments of 0.1mm.
- ② shows an example of how a spacer (**MSRB** ☞ P.684) is used to compensate after regrounding under the head.
- ③, ④, and ⑤ show product variations and examples of use for bushing type stripper bolts.
- ④ and ⑤ show examples where the coil spring is mounted inside the upper die set.
- ④ and ⑤ can also be used in the same way as ③.
- ④ shows an example of how a spacer is used to adjust the height after regrounding.
- ⑥ shows an example of how a stripper bolt with female threads is used. This allows the stripper plate to be removed easily.

■ Examples of stripper pressure pin and lifting collar use



■ Features

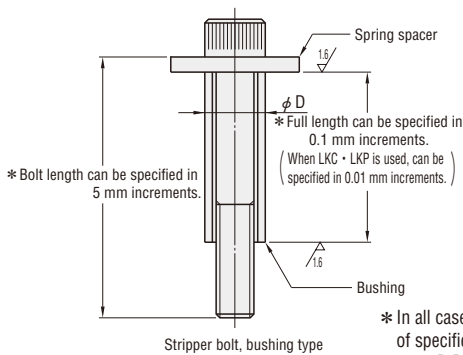
- This makes it possible to use larger springs than an ordinary stripper bolt with female threads.
- This allows the stripper plate to be removed easily.

- ⑦ **SBKP** ☞ P.698
- SBKS** ☞ P.698
- ⑧ **SBKT** ☞ P.698
- SBK** ☞ P.698

■ Half-made standard specification bolts

● Stripper bolts, bushing type

For all types of bolt, the full length can be specified in 0.1mm increments and the bolt length can be selected according to the design specifications. Order bushing type stripper bolts in units of the quantity that is used for a single die. Because the bolts in this unit quantity are ground and finished to the selected dimensions at the same time, there is no need to adjust the height at the time of assembly.

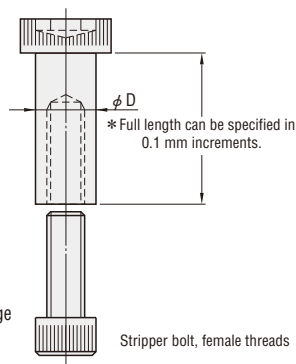


* In all cases, the available range of specifications is set based on ϕD . Dimensions can be specified within this range.

● Stripper bolts, female threads

The full length can be specified in 0.1mm increments. In the same way as for the bushing type, if bolts are ordered in units of the quantity for a single die, they will be ground at the same time before delivery.

Stripper bolts with female threads allow the stripper plate to be removed without disassembling the die, making maintenance work easier.

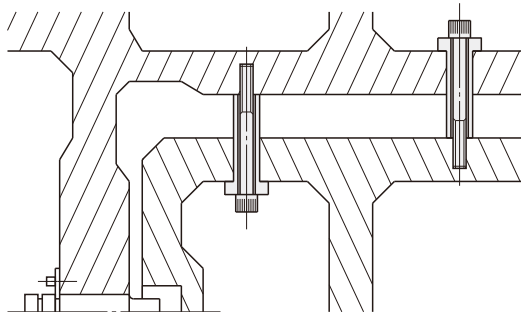
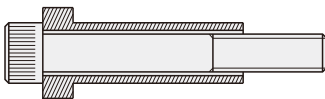


● Full length tolerance

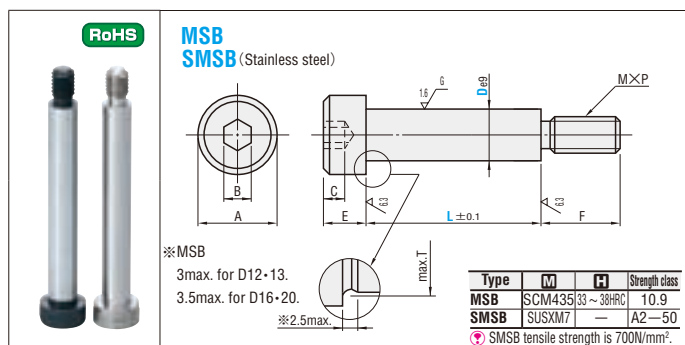
The full length tolerance is $\pm 0.05\text{mm}$ relative to the specified dimension. However because the bolts are ground at the same time (quantities of 40 or less), variation in full length between the individual bolts is eliminated.
(Maximum variation is 0.01mm.)

■ Other types of stripper bolts

As shown in the figure, spool retainers (CSR  P.861), which are primarily used for automobile body dies and similar dies, are also available. These parts also function to hold the stripper pad.



STRIPPER BOLTS, MALE THREADS



D _{e9}	A	B	C	E	F	M×P	T
4	6.5			3	5	2.5×0.45	4.5
4.5	7	2.5	1.6	3.5	6	3×0.5	5
5	8						5.5
5.5	9	3	2.2	4	7	4×0.7	6
6			2				6.5
6.5	10	4	2.5	5	9	5×0.8	7
8	13	5	3	6		6×1.0	8.7
10	16	6	4	8	12	8×1.25	10.8
12	17						12.8
13	18	8	5	10	16	10×1.5	14
16	24	10	7	14	18	12×1.75	17
20	27	14	9	18	24	16×2.0	21

⚡ Red figures in the price column indicate new added spec.

Catalog No.	Type	D	L (SMSB is available only for the sizes marked by *.)															Base unit price	
																		MSB	SMSB
																		1~49 pieces	1~49 pieces
MSB SMSB (Stainless steel)	4	*10	*15	*20	*25	30	35	40	45										
	4.5	*10	*15	*20	*25	*30	*35	*40	45	50									
	5	*10	*15	*20	*25	30	35	40	45	50									
	5.5	*10	*15	*20	*25	*30	*35	*40	45	50	55								
	6	*10	*15	*20	*25	30	35	40	45	50	55	60	65	70					
	6.5	*10	*15	*20	*25	*30	*35	*40	*45	*50	55	60	65	70	75	80			
	8	*10	*15	*20	*25	*30	*35	*40	*45	*50	*55	*60	*65	*70	*75	*80	85	90	
	10	*10	*15	*20	*25	*30	*35	*40	*45	*50	*55	*60	*65	*70	*75	*80	*85	*90	95 100 110 120
	12	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90 95 100	
	13	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90 95 100	
	16		15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90 95 100	
	20					40	50	60	70	80	90	100	110	120	130	140	150		

Quotation



Order

Catalog No. — L

MSB 10 — 50



Days to Ship

Quotation



Price

Quotation



Alterations



Catalog No. — L (LC) — (FC)

MSB 10 — LC50.1 — FC10.5

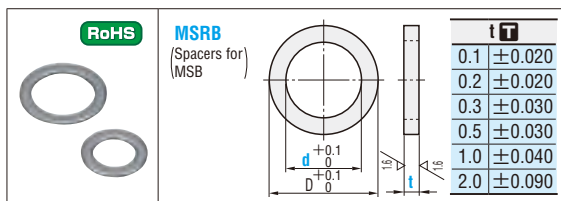


Quotation

⚡ Cannot be used for SMSB.

Alteration	Code	Spec.	1Code
	LC	L dimension change (cutting) Full length (LC) tolerance is ±0.05. Lmin. ≤ LC ≤ Lmax. 0.1mm increments ⚡ F dimension is produced using the standard dimension. To change the F dimension, combine with FC.	D 4 ~ 10 D12 ~ 16 D20
	FC	Thread part length change M ≤ FC ≤ M × 3. 0.5mm increments ⚡ When D=4 only, 3 ≤ FC ≤ 7.5 ⚡ Can be used only when combined with LC.	FC < F FC > F

Quotation



D	d	Catalog No.	t
6.5	4	*4	
7	4.5	4.5	
8	5	*5	
9	5.5	5.5	0.1
9	6	*6	0.2
10	6.5	6.5	0.3
13	8	8	0.5
16	10	10	1.0
17	12	*12	2.0
18	13	13	
24	16	16	
27	20	20	

⚡ t=2.0 is not available for sizes marked with *.

For delivery and prices P.684

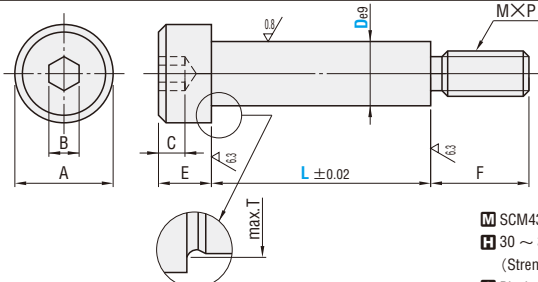
STRIPPER BOLTS, MALE THREADS / STROKE EXTENSION RETAINERS FOR STRIPPER BOLTS

— Precision L dimension type —

Stripper bolts, male threads RoHS



MSBL



M SCM435
H 30 ~ 35HRC
 (Strength class 10.9)
S Black oxide (Fe₃O₄) (head only)

De9	A	B	C	E	F	M×P	T	Catalog No. Type	1mm increments D	Base unit price 1~19
6.5	10	4	2.5	5	9	M 5×0.8	7	MSBL	6.5	10 ~ 70
8	13	5	3	6	9	M 6×1.0	8.7		8	10 ~ 90
10	16	6	4	8	12	M 8×1.25	10.8		10	10 ~ 120
13	18	8	5	10	16	M10×1.5	14		13	10 ~ 130
16	24	10	7	14	18	M12×1.75	17		16	15 ~ 150
20	27	14	9	18	24	M16×2.0	21		20	15 ~ 150
25	33	17	11	19	30	M20×2.5	26		25	30 ~ 160

Quotation

⑨ The head is not knurled.



Order

Catalog No. — **L**

MSBL 10 — **53**



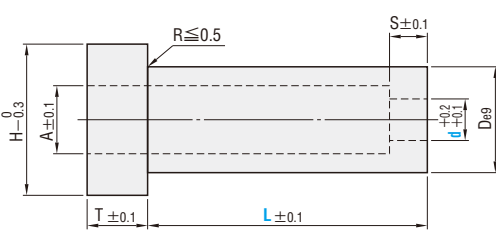
Days to Ship

Quotation

Stroke extension retainers RoHS



MSBE



M SK4
H 53 ~ 58HRC

MSB used										Catalog No. Type	L (Selection)
Size	Shaft diameter (D)	Head diameter (A)	Head thickness (E)	Thread (M)	H	T	A	S	De9	d	
MSB 8	8	13	6	M 6	25	6	14	8	18	8	MSBE
MSB10	10	16	8	M 8	27	8	17	10	22	10	
MSB13	13	18	10	M10	30	10	19	13	25	13	
MSB16	16	24	14	M12	37	15	25	16	32	16	



Order

Catalog No. — **L**

MSBE 8 — **50**



Days to Ship

Quotation

P

Price

Quotation

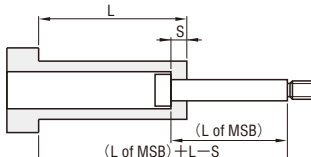
Catalog No. Type	d	L50	L60	L70	L80	L90
MSBE	8					
	10					
	13					
	16					

Quotation

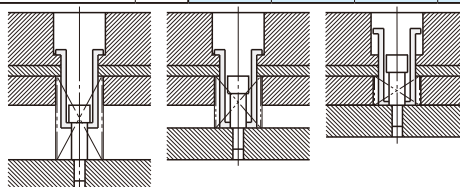
ex

Example

Combined with MSB



L (total length)
 S (stroke extension)
 (L of MSB)
 (L of MSB) + L - S



● The use of MSBE allows a long stripper stroke to be set even when the die height is low.

STRIPPER BOLTS, FEMALE THREADS

Type	Wrench hook	Set	Catalog No.
Fixed dimension type	With	Set of ①+②	SBT
		① only	SBTN
	W/O	Set of ①+②	SBTC
Configurable L dimension type	With	① only	SBTCN
		Set of ①+②	SBTL
	W/O	① only	SBTKN

RoHS

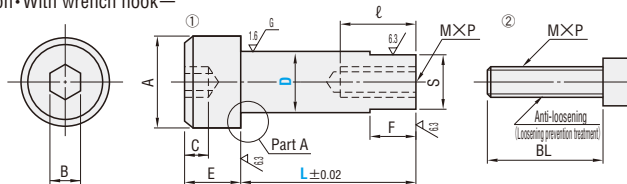


Ⓜ Loosening prevention treatment

A special resin with excellent elasticity, wear resistance, and oil resistance is applied to the thread grooves. The effectiveness of the treatment is greatest at the initial use. In the case of repeated use, the effectiveness gradually diminishes beginning from the fourth use.

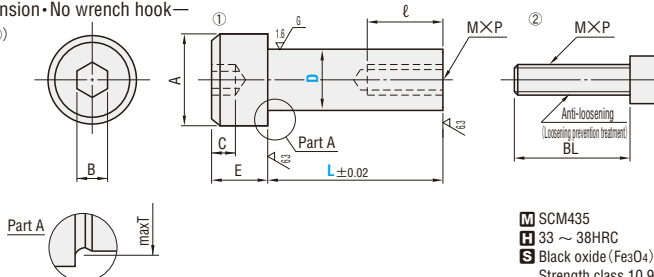
—Fixed L dimension・With wrench hook—

SBT (①+②)
SBTN (①)



—Fixed L dimension・No wrench hook—

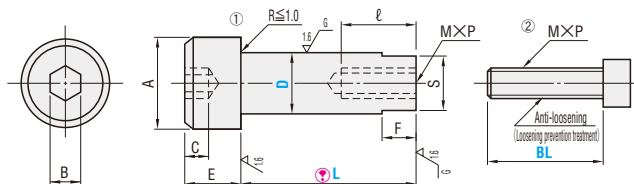
SBTC (①+②)
SBTCN (①)



M SCM435
H 33 ~ 38HRC
S Black oxide (FeSO₄)
Strength class 10.9

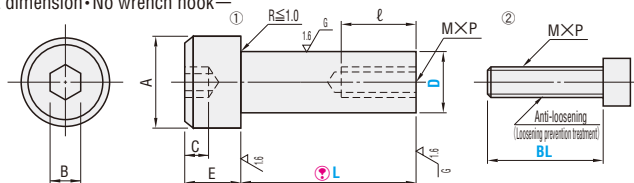
—Configurable L dimension・With wrench hook—

SBTL (①+②)
SBTLN (①)



—Configurable L dimension・No wrench hook—

SBTK (①+②)
SBTKN (①)



If orders are placed in units of the quantity used for a single die (40 or less), they will all be ground at the same time.
Ⓜ In this way, although the L dimension tolerance is ± 0.05 , the variation in the finished L dimension will be 0.01 or less.

M SCM435
H 33 ~ 38HRC
S Black oxide (FeSO₄)
Strength class 10.9

D	A	B	C	E	T	ℓ	BL	SBTC-SBTCN	SBT-SBTN				Catalog No.		L												Base unit price 1 ~ 49 pieces			
								M×P	M×P	F	S	Type	D	SBT													SBTN	SBTC	SBTCN	
10	$\frac{0.025}{0.061}$	16	6	3	6	10.8	15	25	6×1.0	5×0.8	8	8	SBT SBTN SBTC SBTCN	10	20	25	30	35	40	45	50	55	60							
13	$\frac{0.032}{0.075}$	18	8		7	14		8×1.25	6×1.0	10	11	13		20	25	30	35	40	45	50	55	60								
16	$\frac{0.040}{0.092}$	24	10		9	17		10×1.5	8×1.25	12	14	16		25	30	35	40	45	50	55	60									
20	$\frac{0.220}{0.270}$	27	14		11	21		12×1.75	10×1.5	14	17	20		25	30	35	40	45	50	55	60									



Catalog No. — L
SBT 16 — 50
SBTC 16 — 50



Quotation



Quotation

D	A	B	C	E	ℓ	SBTK・SBTKN	SBTL・SBTLN		Catalog No.		L 0.1mm increments	(SBTL・SBTK only)	Base unit price 1 ~ 19 pieces			
						M×P	M×P	F	S	Type		D	BL 5mm increments	SBTL	SBTLN	SBTK
10	$\frac{0.025}{0.061}$	16	6	3	6	17 ⁽¹⁾	6×1.0	5×0.8	8	8	SBTL SBTLN SBTK SBTKN	10	20.0 ~ 65.0	15~35		
13	$\frac{0.032}{0.075}$	18	8		7		8×1.25	6×1.0	10	11		13	20.0 ~ 65.0	15~45		
16		24	10		9		10×1.5	8×1.25	12	14		16	25.0 ~ 65.0	20~45	Quotation	
20	$\frac{0.220}{0.270}$	27	14	11	12×1.75	10×1.5	14	17	20	25.0 ~ 65.0		20~45				

Ⓜ (1) For $\phi 10 \cdot \phi 13$ with $L < 25$, $\ell = 17 - (25 - L)$

Ⓜ (2) For $\phi 16 \cdot \phi 20$ with $L < 30$, $\ell = 20 - (30 - L)$



Catalog No. — L — BL
SBTK 13 — 31.5 — 25
SBTL 13 — 31.5 — 25



Quotation

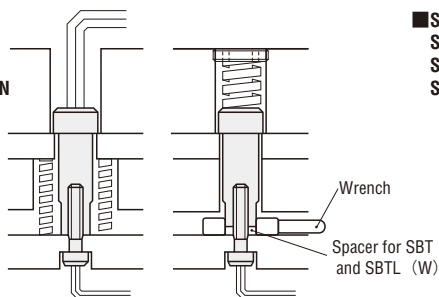


Quotation

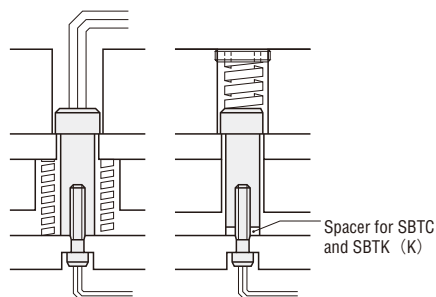


Example

SBT
SBTN
SBTL
SBTLN



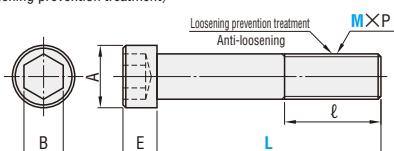
SBTC
SBTCN
SBTK
SBTKN



Hexagon socket head screws for stripper bolts with female threads (with loosening prevention treatment)

RoHS

LB (With loosening prevention treatment)



SCM435 (JIS B 1176 Strength class)
H 38 ~ 43HRC (JIS B 0205 Grade 2 12.9)

LB			
M×P	A	E	B
4×0.7	7	4	3
5×0.8	8.5	5	4
6×1.0	10	6	5
8×1.25	13	8	6
10×1.5	16	10	8
12×1.75	18	12	10

Reference: Dimensions of counterbore and bolt hole for hexagon socket head cap screws **P.1125**

ℓ New JIS	Catalog No. Type M—L
Full thread	LB 4—8
	10
	12
	15
	20
20	25
	30
Full thread	LB 5—10
	12
	15
	20
	25
22	30
	35
Full thread	LB 6—10
	15
	20
	25
	30
24	35
	40
	45
	50

ℓ New JIS	Catalog No. Type M—L
Full thread	LB 8—15
	20
	25
	30
	35
28	40
	45
	50
	55
	60
Full thread	LB 10—20
	25
	30
	35
	40
32	45
	50
	55
	60
Full thread	LB 12—25
	30
	35
	40
	45
36	50
	55
	60

※ “Strength class” indicates the tensile strength of the threads.

Example: 12.9 (LB)

Indicates that the yield point or the minimum proof strength is 90% of the tensile strength.

Indicates that the minimum tensile strength is 1220N/mm² (124kgf/mm²).

<Loosening prevention treatment>

The screw grooves are treated by the application of a special resin with outstanding elasticity, wear resistance and oil resistance. The effectiveness of the treatment is greatest at the initial use.

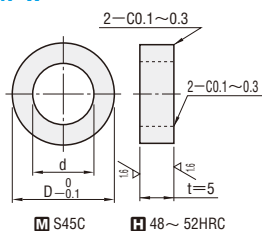
In the case of repeated use, the effectiveness gradually diminishes beginning from the fourth use.

■ For delivery and prices **P.679**

Spacers for stripper bolts with female threads

RoHS

K·W



t	D	d	Catalog No.	Base unit price 1 ~ 49 pieces	Volume discount unit price 50 ~ 199	200 ~ 499	500 ~ 1000
±0.005	10	6	K	10			
	13	8		13			
	16	10		16			
	20	12		20			
±0.01	8	5	W	10			
	11	6		13			
	14	8		16			
	17	10		20			

Quotation



Order

Catalog No.

K 10
W 16



Days to Ship

Quotation

STRIPPER BOLTS, BUSHING TYPE

— HALF-MADE TYPE —

RoHS

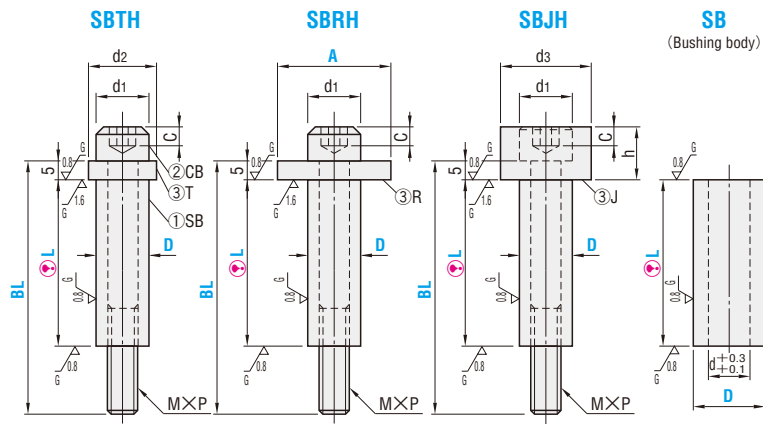


SBTH, SBRH, and SBJH are combinations of the bushing ① + bolt ② + spacer ③.



■ List of bushing type stripper bolt (half-made) combinations

Set name	Bushing body	Spacer
(1) 2 (3)	(1)	(2)
SBTH	SB	CB (P.675)
SBRH	SB	T (P.681)
SBJH	SB	R (P.681)
		J (P.681)



If orders are placed in units of the quantity used for a single die (40 or less), they will all be ground at the same time.
 In this way, although the L dimension tolerance is ± 0.05 , the variation in the finished L dimension will be 0.01 or less.

② M SCM435 (Strength class 12.9)

① ③ M S45C H 48 ~ 52HRC

De9	d1	SBTH d2	SBRH A	SBJH h	SB d3	M P	C min. depth	Catalog No. Type	D	L 0.1mm increments	BL		(SBRH only) A	Base unit price 1 ~ 19 pieces			
											5mm increments	10mm increments		SBTH	SBRH	SBJH	SB
6.5		7	11.5	16·18	9	12	4 0.7	SBTH SBRH SBJH SB	6.5	10.0 ~ 70.0 70.1 ~ 80.0	20 ~ 95	—	16·18				
8	-0.025 -0.061	8.5	13	18·20·22	10	14	5 0.8		8	10.0 ~ 70.0 70.1 ~ 80.0	20 ~ 95	—	18·20·22				
10		10	15	20·22·25·27	11	18	6 1.0		10	10.0 ~ 100.0 100.1 ~ 150.0	20 ~ 95	100 ~ 170	20*·22·25·27				
13	-0.032 -0.075	13	18	25·27·30	13	24	8 1.25		13	10.0 ~ 100.0 100.1 ~ 150.0	20 ~ 95	100 ~ 170	25*·27·30				
16		16	21	30·35·40	15	27	10 1.5		16	10.0 ~ 100.0 100.1 ~ 150.0	20 ~ 95	100 ~ 180	30*·35·40				
20	-0.040 -0.092	18	23	35·40	17	32	12 1.75		20	10.0 ~ 100.0 100.1 ~ 150.0	20 ~ 95	100 ~ 180	35*·40				

Quotation

⚠ The head diameter d1 of bolts marked with * is ground so that it does not interfere with the inner diameter of the spring.



Order

Catalog No.	L	BL	A
SBTH 13	— 34.5	— 50	
SBRH 10	— 27.8	— 45	— 22
SB 13	— 34.5		



Alterations



Catalog No.	L	BL	A	(LKC·LKP)
SBRH 10	— 27.8	— 45	— 22	LKC
SBTH 16	— 35.35	— 90	—	LKP



Days to Ship

Quotation



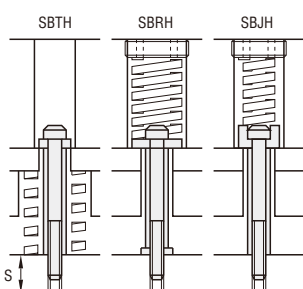
Price

Quotation

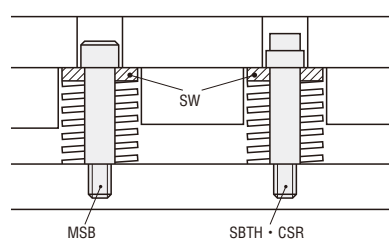
Alteration	Code	Spec.	1Code
L	LKC	L dimension tolerance change $L \pm 0.05 \Rightarrow L +0.02$ ⚠ When LKC is used, L dimension can be selected in 0.01 mm increments.	Quotation
	LKP	L dimension tolerance change $L \pm 0.05 \Rightarrow L +0.01$ ⚠ When LKP is used, L dimension can be selected in 0.01 mm increments.	



Example



When spacer is used



⚠ $BL < S + L + 5$

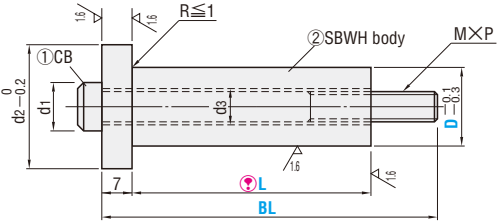
STRIPPER BOLTS, BUSHING TYPE

—THICK TYPE—



RoHS

SBWH



① CB ② SBWH body M×P

Dimensions: $d_2 - 0.2$, d_1 , d_3 , $R \leq 1$, 7 , L , $D \pm 0.1$, BL

If orders are placed in units of the quantity used for a single die (40 or less), they will all be ground at the same time.

⚙ In this way, although the L dimension tolerance is ± 0.05 , the variation in the finished L dimension will be 0.01 or less.

② SK4

③ 53 ~ 58HRC

d ₁	d ₂	d ₃	M×P	Catalog No.		L 0.1mm increments	BL 5mm increments	Base unit price 1 ~ 19 pieces
				Type	D			
8.5	21	5.5	5×0.8	SBWH	13	15.0 ~ 65.0	30 ~ 80	Quotation
10	25	6.5	6×1.0		16	15.0 ~ 65.0	30 ~ 90	
13	30	8.5	8×1.25		20	20.0 ~ 70.0	35 ~ 90-100	



Order

Catalog No. — L — BL
SBWH 13 — 30.0 — 50



Price

Quotation



Days to Ship

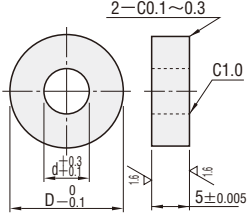
Quotation

■ Spacers and washers for bushing-type stripper bolts



RoHS

T·R (Spacers for bushing-type stripper bolts)



Dimensions: $2 - C0.1 \sim 0.3$, $C1.0$, $d \pm 0.3$, $D \pm 0.1$, 5 ± 0.005

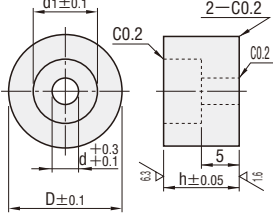
SK S45C

48 ~ 52HRC



RoHS

J (Spacers with counterbore for bushing-type stripper bolts)



Dimensions: $d_1 \pm 0.1$, $C0.2$, $d \pm 0.1$, $D \pm 0.1$, $h \pm 0.05$

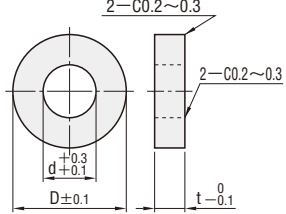
SK S45C

48 ~ 52HRC



RoHS

SW (Coil spring washers for bushing-type stripper bolts)



Dimensions: $2 - C0.2 \sim 0.3$, $d \pm 0.3$, $D \pm 0.1$, $t - 0.1$

SK S45C

48 ~ 52HRC

D	d	Catalog No.	Base unit price 1 ~ 49 pieces	Volume discount unit price 50 ~ 199 / 200 ~ 499 / 500 ~ 1000
11.5	4	T	6.5	
13	5		8	
15	6		10	
18	8		13	
21	10		16	
23	12	R	20	
16	4		6.5-16	
18	4		6.5-18	
18	4		8-18	
20	5		8-20	
22	5		8-22	
20	5		10-20	
22	5		10-22	
25	6		10-25	
27	6		10-27	
25	6		13-25	
27	6		13-27	
30	8		13-30	
30	8		16-30	
35	10		16-35	
40	10		16-40	
35	10		20-35	
40	12		20-40	

D	d ₁	d	h	Catalog No.	Base unit price 1 ~ 49 pieces	Volume discount unit price 50 ~ 199 / 200 ~ 499 / 500 ~ 1000
12	8	4	9	J	6.5	
14	10	5	10		8	
18	11	6	11		10	
24	14	8	13		13	Quotation
27	17	10	15		16	
32	19	12	17		20	



Order

Catalog No.
SW 25

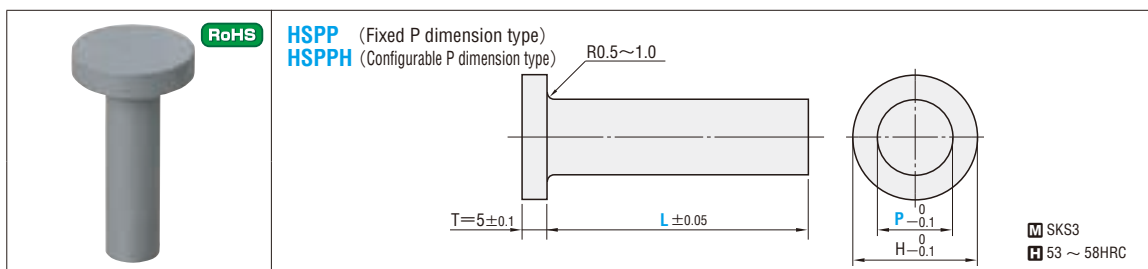


Days to Ship

Quotation

D	d	t	Catalog No.	Base unit price 1 ~ 49 pieces	Volume discount unit price 20 ~ 49 / 50 ~ 99 / 100 ~ 200
10	4.5	3	10		
12	5.5		12		
16	6.5		12-6		
16	6.5	4	16		
20	8		20		
22	8		22		
25	12	5	25		
27	13		25-12		
30	16		27		
35	16	8	30		
40	16		35		
50	20		40		
50	20	10	50		

STRIPPER PRESSURE PINS



H	Catalog No.	L	Base unit price 1 ~ 19 pieces
Type	P	0.1mm increments	L10.0 ~ 40.0 L40.1 ~ 60.0
20	8		
22	10		
25	13	10.0 ~ 60.0	Quotation
27	16		
30	20		
35	25		

H	Catalog No.	L	P	Base unit price 1 ~ 19 pieces
Type	No.	0.1mm increments	0.5mm increments	L10.0 ~ 40.0 L40.1 ~ 60.0
10	10		*5.0 ~ 6.0	
16	16		7.0 ~ 12.0	
20	20		7.0 ~ 16.0	
22	22	10.0 ~ 60.0	8.0 ~ 18.0	Quotation
25	25		9.0 ~ 21.0	
27	27		9.0 ~ 23.0	
30	30		10.0 ~ 26.0	
35	35		16.0 ~ 30.0	

* If P dimension is 5.0, then L dimension is 10.0 ~ 30.0.



Order

Catalog No. — L — P
 HSPH 10 — 31.5
 HSPPH 25 — 35.8 — P16.5



Days to Ship

Quotation



Price

Quotation

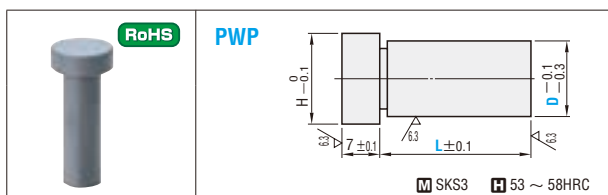
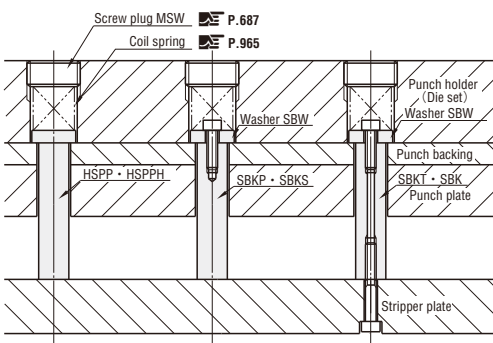


Alterations

Catalog No. — L — P — (HC-TC)
 HSPPH 25 — 35.8 — P16.5 — HC19-TC3

Alteration	Code	Spec.	1Code
	HC	Head diameter change (P+2) ≤ HC < H 0.1mm increments	Quotation
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments	Quotation

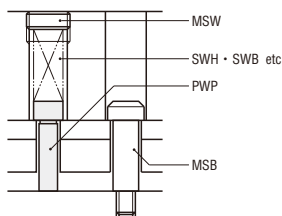
- Features
1. Excellent impact resistance due to the R of 0.5 - 1 under the head
 2. The head diameter is machined to match the coil spring diameter.
 3. Because the shaft diameter dimension (P) can be specified, these products can be used in small spaces. (HSPPH)



H	Catalog No.	L	Base unit price 1 ~ 19 pieces
Type	D	0.1mm increments	L10.0 ~ 40.0 L40.1 ~ 60.0
13	8	15.0 ~ 70.0	
16	10		
21	13	15.0 ~ 100.0	Quotation
25	16		
30	20		



Example



Order

Catalog No. — L
 PWP 16 — 50.0



Days to Ship

Quotation



Price

Quotation



Alterations

Catalog No. — L — (HC-TC)
 PWP 8 — 50.5 — HC10-TC5

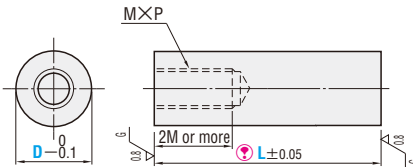
Alteration	Code	Spec.	1Code
	HC	Head diameter change D ≤ HC < H 0.1mm increments	Quotation
	TC	Head thickness change 2 ≤ TC < 7 0.1mm increments	Quotation

STRIPPER PRESSURE PINS AND LIFTING COLLARS

RoHS

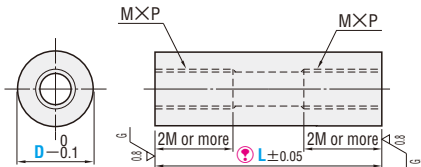


SBKP (Pressure pin)



If orders are placed in units of the quantity used for a single die (40 or less), they will all be ground at the same time.
 In this way, although the L dimension tolerance is ±0.05, the variation in the finished L dimension will be 0.01 or less.

SBKT (Lifting collar)

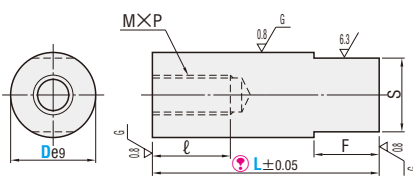


For SBKT, depending on the L dimension, the tap pilot hole may go all the way through.
 When 4M > L, a through-tap is used. (SBKT only)

RoHS

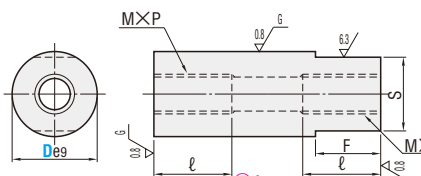


SBKS (Pressure pin)



If orders are placed in units of the quantity used for a single die (40 or less), they will all be ground at the same time.
 In this way, although the L dimension tolerance is ±0.05, the variation in the finished L dimension will be 0.01 or less.

SBK (Lifting collar)



For SBK, depending on the L dimension, the tap pilot hole may go all the way through.
 When 2xℓ > L, ℓ is a through-tap. (SBK only)

Equivalent to SKD11
 53 ~ 58HRC

Equivalent to SCM435
 33 ~ 38HRC

M×P	Catalog No.		 L 0.1mm increments	Base unit price 1~19 pieces	
	Type	D		SBKP	SBKT
5×0.8	SBKP SBKT	8	20.0 ~ 60.0		
		10			
6×1.0		13		Quotation	
		16			
8×1.25		20			

De9	F	ℓ	S	M×P	Catalog No.		L 0.1mm increments	Base unit price 1~19 pieces	
					Type	D		SBKS	SBK
10	8	15	8	5×0.8	SBKS SBK	10	20.0 ~ 60.0		
13				6×1.0		13		Quotation	
16				8×1.25		16			

Order **Catalog No.** — **L**
SBKP 16 — 50.0

Alterations **Catalog No.** — **L** — (LKC·SC)
SBKT 13 — 45.0 — LKC

Days to Ship **Quotation**

Price **Quotation**

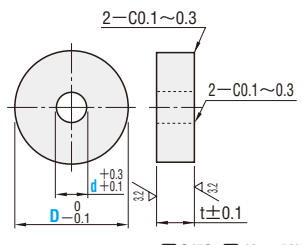
Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change $L \pm 0.05 \rightarrow L \begin{smallmatrix} +0.02 \\ 0 \end{smallmatrix}$ If LKC is used, L dimension can be selected in 0.01mm increments.	Quotation
	SC	Machining of wrench flat. Can be used for SBKP and SBKT. Cannot be used for SBKT8.	

Washers for pressure pins and lifting collars

RoHS



SBW



Material: S45C Heat Treatment: 48 ~ 52HRC

t	Catalog No.		d
	Type	D	
5	SBW	20	5
		22	5
		25	6
7		27	5
		30	6
		35	8

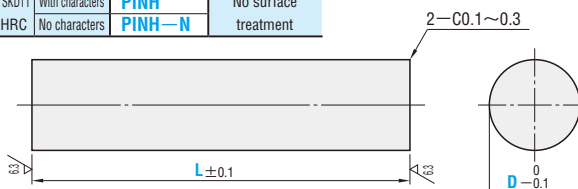
For delivery and prices P.684

ADJUSTMENT PINS

RoHS



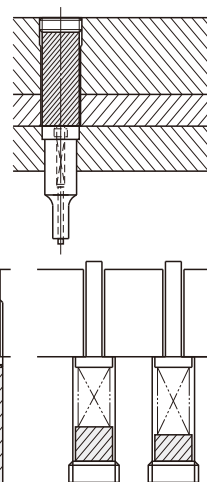
M H	Characters	Catalog No.	S
S45C	With characters	PIN	Black oxide
40 ~ 50HRC	No characters	PIN—N	(Fe ₃ O ₄)
Equivalent to SKD11	With characters	PINH	No surface
58 ~ 60HRC	No characters	PINH—N	treatment



Catalog No.		L	(PIN·PINH only)						
Type	D	0.1mm increments	CHR (characters)						
(With characters) (D5 ~ 30)	3	10.0 ~ 250.0	Identifying markings can be created on the side. <table><tr><th>Character type</th><th>Number of characters</th></tr><tr><td>•Alphabet letters</td><td>1 ~ 8 characters</td></tr><tr><td>•Numbers</td><td>(If L<30.0, then the number of characters is 1 ~ 3.)</td></tr></table> ① The character font is Gothic. ② — (hyphen) and / (slash) cannot be selected.	Character type	Number of characters	•Alphabet letters	1 ~ 8 characters	•Numbers	(If L<30.0, then the number of characters is 1 ~ 3.)
	Character type			Number of characters					
	•Alphabet letters			1 ~ 8 characters					
	•Numbers			(If L<30.0, then the number of characters is 1 ~ 3.)					
	PIN								
4									
5									
6									
7									
8									
9									
(No characters) (D3 ~ 30)	10								
	PIN—N								
	11								
	12								
	13								
High-hardness type	14								
	15								
	16								
	18								
	20								
(With characters) (D5 ~ 30)	22								
	PINH								
	25								
	27								
	30								
(No characters) (D5 ~ 30)	PINH—N								



Example



Order

Catalog No.	L	CHR
PIN 10	60.5	53218A
PINH—N8	156.2	



Alterations



Catalog No.	L	CHR	(LKC·NC)
PINH 8	105.5	A10	LKC
PINH—N 20	125.5		NC



Days to Ship

Quotation



Price

Quotation

Alteration	Code	Spec.	1Code
	LKC	Full length tolerance change L±0.1 ⇨ +0.05/0	Quotation
	NC	No chamfering of either end	

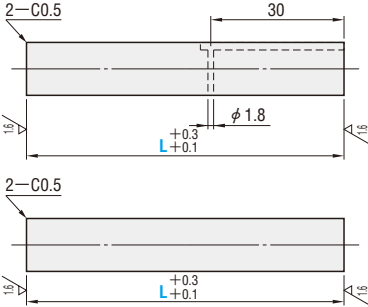
PRESSURE PINS

RoHS



PRPS
(Fall-out prevention type)

PRP



Equivalent to SKD11

58 ~ 60 HRC

(Fall-out prevention stopper)

SWPA

Included for PRPS only.

Catalog No.		L 1mm increments	PRPS Base unit price 1~9 pieces			PRP Base unit price 1~9 pieces		
Type	D		L40.0 ~ 100.0	L100.1 ~ 150.0	L150.1 ~ 200.0	L20.0 ~ 100.0	L100.1 ~ 150.0	L150.1 ~ 200.0
PRPS (L ≥ 40)	8	20 ~ 150						
	10							
	13							
	16							
PRP	20	20 ~ 200						
	25							
	28							

Order

Catalog No. — L

PRPS 20 — 130

Days to Ship

Quotation

Price

Quotation

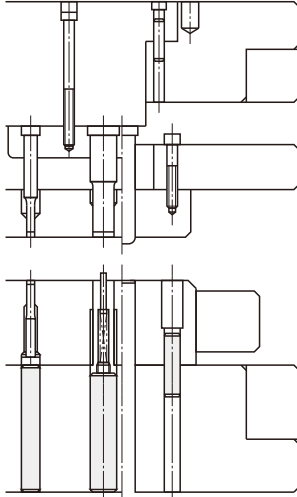
Alterations

Catalog No. — L — (LKC)

PRPS 20 — 130 — LKC

Alteration	Code	Spec.	1Code
	LKC	Full length tolerance change +0.3 ⇨ L20.0 ~ 100.0: +0.03 +0.1 ⇨ L100.1 ~ 150.0: +0.04 L150.1 ~ 200.0: +0.05 ※When LKC is used, L dimension can be selected in 0.1mm increments.	Quotation

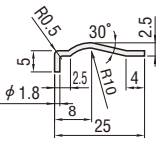
ex Example



Fall-out prevention stopper

PRPS—K

RoHS



SWPA

Catalog No.

Base unit price

Volume discount unit price

PRPS—K

1 ~ 9 pieces

10 ~ 19 20 ~ 49 50 ~ 100

Quotation

Order

Catalog No.

PRPS—K

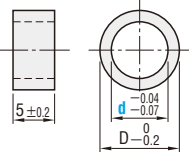
Days to Ship

Quotation

Collars for pressure pins

PRPCC

RoHS



SS400

D	Catalog No.		Base unit price
	Type	d	
11	PRPCC	8	Quotation
13		10	
16		13	
19		16	
24		20	
29		25	
32		28	

Order

Catalog No.

PRPCC 13

Days to Ship

Quotation

Price

Quotation

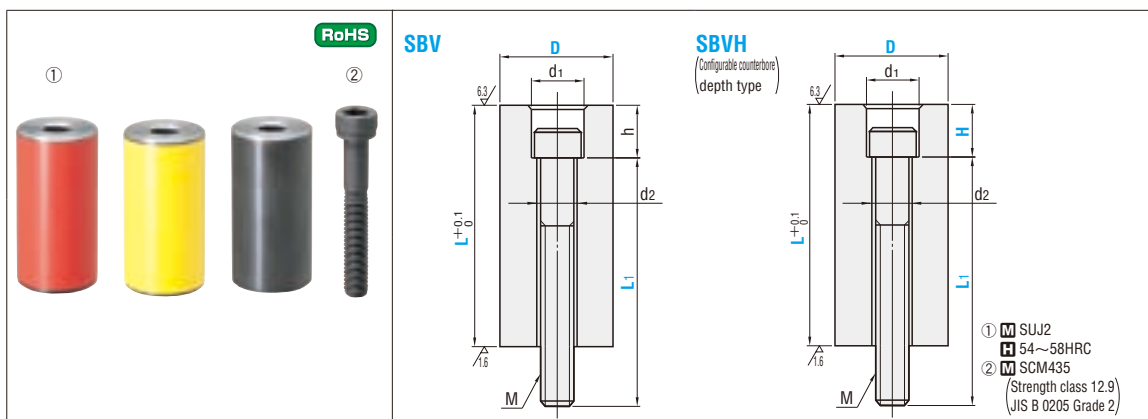
ex Example



Press fit
(Shrinkage)

STROKE END BLOCKS

—HARDENED TYPE—



M×P	d1	d2	h	Catalog No.		Color	Base unit price 1~9 pieces			
				Type	D		L1	~L50.0	L50.1~70.0	L70.1~100.0
M 3×0.5	6	4	5	SBV	10	R (Red) Y (Yellow) N (Normal)	10 ~ 40			
M 4×0.7	8	5	8		12		10 ~ 50			
M 5×0.8	9.5	6	10		14		15 ~ 70			
M 6×1.0	11	7	13		16		15 ~ 85			
M 8×1.25	14	9	15		18		15 ~ 100			
M 10×1.5	17	11	18		20		15 ~ 120			
M 12×1.75	20	13	21		25		20 ~ 120			
					32		25 ~ 150			
					38					
					50					
					60					

① N (Normal) → ② Black oxide (Fe₃O₄)

M×P	d1	d2	Catalog No.		Color	Base unit price 1~9 pieces			
			Type	D		L1	~L50.0	L50.1~70.0	L70.1~
M 6×1.0	11	7	SBVH	20	R (Red) Y (Yellow) N (Normal)	15 ~ 85			
M 8×1.25	14	9		25		15 ~ 120			
M 10×1.5	17	11		32		20 ~ 120			
				38					
				50					

① N (Normal) → ② Black oxide (Fe₃O₄)

③ L—H≥5 (Full length-Counterbore depth) must be 5 mm or more.



Catalog No.		①		②	
Type	D	L	H	Color	L1
SBV	38	100.0		Y	100
SBVH	38	80.0	40	Y	60



Catalog No.		①		②		(LKC-LKP)	
Type	D	L	H	Color	L1		
SBV	38	100.00		Y	100	LKC	
SBVH	38	80.00	40	Y	60	LKP	



Days to Ship

Quotation

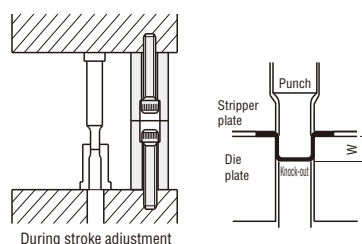


Price

Quotation



Example



Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change L _{+0.1} ₀ ⇔ ±0.01 ① When LKC is used, L dimension can be selected in 0.01mm increments. ② Resulting in variation of the finished L dimension of 0.005 or less.	Quotation
	LKP	L dimension tolerance change L _{+0.1} ₀ ⇔ ±0.01 ① When LKP is used, L dimension can be selected in 0.01mm increments. ② Resulting in variation of the finished L dimension of 0.005 or less.	

● Because these are hardened products, they are ideal for precision dies which gently contact the stroke end block in order to maintain the correct bending or drawing depth (W).

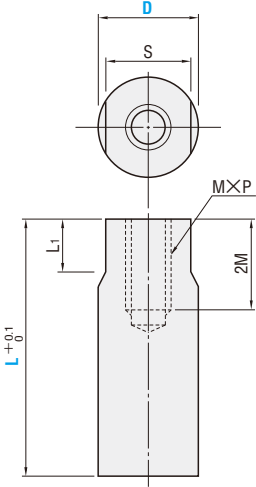
STROKE END BLOCKS

—HARDENED AND TAPPED TYPE—



RoHS

SBVM



SUJ2
 54~58HRC

M×P	S	L ₁	Catalog No.		L 0.1mm increments	Color	Base unit price 1 ~ 9 pieces		
			Type	D			~ L50.0	L50.1 ~ 70.0	L70.1 ~
M 6×1.0	17	12	SBVM	20	20.0 ~ 80.0	R (Red) Y (Yellow) N (Normal)			
M 8×1.25	22			25	22.0 ~ 90.0				
	27	16		32	22.0 ~ 100.0				
M10×1.5	32			38	25.0 ~ 100.0				

⚙ N (Normal) → ⚙ Black oxide (Fe₃O₄)

⚙ Tighten to a depth of 1.5 times the bolt diameter or more when using.



Order

Catalog No.	—	L	—	Color
SBVM 25	—	50.0	—	Y



Price

Quotation



Days to Ship

Quotation



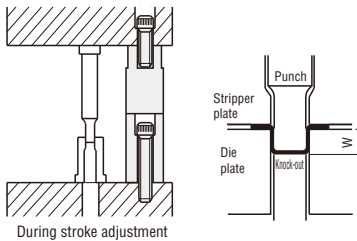
Alterations



Catalog No.	—	L	—	Color	—	(LKC·LKP)
SBVM 32	—	60.00	—	R	—	LKC



Example



- Because these are hardened products, they are ideal for precision dies which gently contact the stroke end block in order to maintain the correct bending or drawing depth (W).

Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change $L_{+0.1}^{+0.1} \Rightarrow \pm 0.01$ ⚙ When LKC is used, L dimension can be selected in 0.01mm increments. ⚙ Resulting in variation of the finished L dimension of 0.005 or less.	Quotation
	LKP	L dimension tolerance change $L_{+0.1}^{+0.1} \Rightarrow \pm 0.01$ ⚙ When LKP is used, L dimension can be selected in 0.01mm increments. ⚙ Resulting in variation of the finished L dimension of 0.005 or less.	

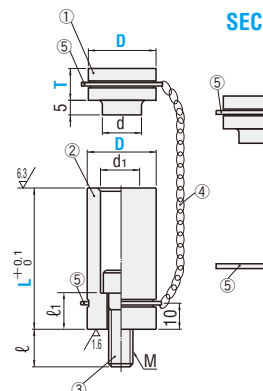
STROKE END BLOCKS

RoHS



Catalog No.	Components				
	①	②	③	④	⑤
SBS	○	○	○	○	○
SBN	○	○	○	○	○
SEC	○	○	○	○	○

- ① ② SS400
 ③ SCM435
 Strength class 12.9
 JIS B 0205 Grade 2
 ④ Chain
 ⑤ C-ring JIS B 2804



Catalog No.	②		①		Base unit price 1 ~ 9 pieces		
Type	D	L 0.1mm increments	T 5mm increments	Color	~ L80.0	L80.1 ~ L120.0	L120.1 ~
SBS ①②③④⑤	14	22.0 ~ 100.0	10 ~ 50	R (Red)			
	16						
	18						
	20						
	25	22.0 ~ 170.0	10 ~ 50	Y (Yellow)			
	32						
	38						
	50			N (Normal)			
SBN ②③	14	22.0 ~ 100.0	10 ~ 50	R (Red)			
	16						
	18						
	20						
	25	22.0 ~ 170.0	10 ~ 50	Y (Yellow)			
	32						
	38						
	50			N (Normal)			

Quotation

③ Bolt size table									
D	d	d1	M×P	ℓ	ℓ1	L	③		
14	7	8	M4 0.7	10	10	22.0 ~ 80.0	M4×20		
16	7	8	M4 0.7	10	35	80.1 ~ 100.0	M4×45		
18	8.5	9.5	M5 0.8	10	10	22.0 ~ 80.0	M5×20		
20	10	11	M6 1.0	11	35	80.1 ~ 100.0	M6×45		
25	13	14	M8 1.25	12	9	22.0 ~ 80.0	M8×20		
32	13	14	M8 1.25	12	31	80.1 ~ 100.0	M8×45		
38	16	17	M10 1.5	17	53	100.1 ~ 120.0	M10×70		
50	18	20	M12 1.75	20	80	120.1 ~ 170.0	M12×100		
60	18	20	M12 1.75	20	30	80.1 ~ 100.0	M12×50		

Catalog No.	①		Base unit price	
Type	D	T 5mm increments	Color	1 ~ 9 pieces
SEC ①④⑤	14	10 ~ 50	R (Red)	
	16			
	18			
	20			
	25	10 ~ 50	Y (Yellow)	
	32			
	38			
	50		N (Normal)	



Example

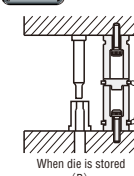


Alterations

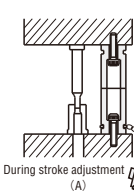
Catalog No.	L	② Color	T	① Color	(LKC, etc.)
SBS 20	80.0	Y	20	R	LKC-80-CHC-100

Express T cannot be used.

- N (Normal) → S Black oxide (Fe₃O₄)
 ● Select colors for the body and spacer cap as needed in order to prevent incidents of forgetting to remove the spacer cap.
 Note: Be sure to specify the color of the spacer cap even when the colors of the body and spacer cap are the same.
 ● When used in cases such as (B), if the SBS body is 30 mm or less, the bolt head and spacer cap may interfere. Be sure that the spacer cap faces upward when it is used.



When die is stored (B)



During stroke adjustment (A)

Order	Catalog No.	L	② Color	T	① Color
	SBS 20	80.0	Y	20	R
	SBN 20	100.0	R		
	SEC 20			10	Y

Days to Ship Quotation

Price Quotation

Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change L ^{+0.1} ₋₀ ± 0.01 When LKC is used, L dimension can be selected in 0.01mm increments. Resulting in variation of the finished L dimension of 0.005 or less. Can be used for SBS and SBN.	
	CHC	Change to standard chain length. L (CHC (Selection)) 22.0 ~ 49.9 50 100 200 50.0 ~ 99.9 100 200 100.0 ~ 200.0 200	Cannot be combined with RS.
	RS	Change from the standard chain to a reinforced chain. Can be used for SBS20 ~ 60 and SEC20 ~ 60. Can be used for SBS and SEC when T ≥ 20. Length is 200 only.	Cannot be combined with CHC.
	NMC	Addition of a groove for height adjustment Can be used for SBS SBN with D32 or larger.	

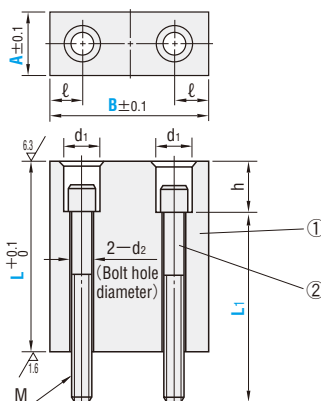
STROKE END BLOCKS / END BLOCK CHAINS

— SQUARE HARDENED TYPE —

Stroke end blocks

RoHS

SBVK



- ① M SKS93
H 54~58HRC
- ② M SCM435
(Strength class 12.9)
(JIS B 0205 Grade 2)

M×P	ℓ	d1	d2	h	Catalog No.		L	Color	L1	Base unit price 1 ~ 9 pieces		
					Type	A				L20.0 ~ 40.0	L40.1 ~ 70.0	L70.1 ~ 100.0
M4×0.7	8 12	8	5	13	SBVK	13	32 50	R (Red) Y (Yellow) N (Normal)	15 ~ 50			
M5×0.8	10 14	9.5	6			16	38 65					
M6×1.0	12 16	11	7			19	50 75					

Quotation

① N (Normal) → ② S Black oxide (Fe₃O₄)



Order

Catalog No. B ① ②
 Type A L Color L1
 SBVK 16 — 38 — 50.0 — Y — 50



Days to Ship

Quotation



Price

Quotation



Alterations

Catalog No. B ① ② (LKC-LKP)
 Type A L Color L1
 SBVK 16 — 38 — 50.00 — Y — 50 — LKC

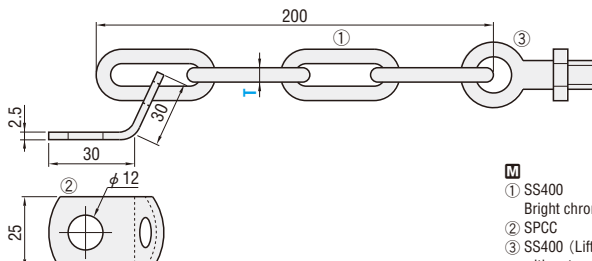
Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change L +0.1 → ±0.01 When LKC is used, L dimension can be selected in 0.01mm increments. Resulting in variation of the finished L dimension of 0.005 or less.	Quotation

Alteration	Code	Spec.	1Code
	LKP	L dimension tolerance change L +0.1 → ±0.01 When LKP is used, L dimension can be selected in 0.01mm increments. Resulting in variation of the finished L dimension of 0.005 or less.	Quotation

End Block Chains

RoHS

RSC



- M SS400
- ① Bright chromate plating
- ② SPCC
- ③ SS400 (Lifting eye bolt M10×20) with nut

Catalog No.		Base unit price 1~9 pieces
Type	T	
RSC	3 5	Quotation



Price

Quotation

⚡ This product (RSC3) is a chain with alteration RS (P.703). (However, it does not include the cap section that is included with alteration RS.)



Order

Catalog No.
RSC 3



Days to Ship

Quotation



Example

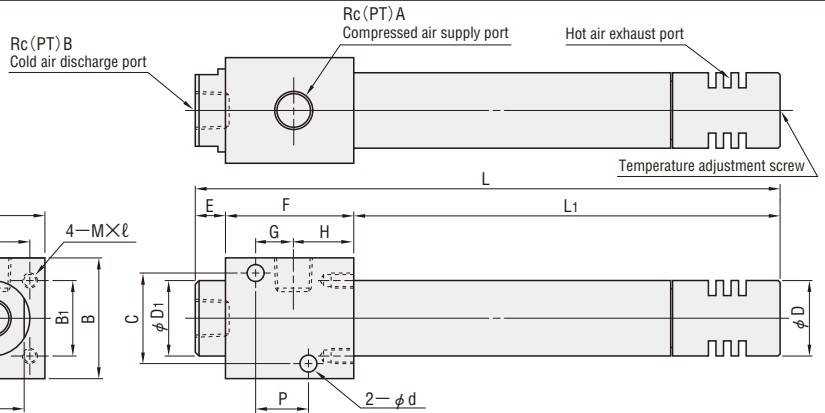


※ This is an example of a combination of RSC and stroke end block (P.835).

AIR JET COOLERS FOR DIES

RoHS

PAJC



L	E	F	L ₁	G	H	C	D	D ₁	P	d	A	A ₁	B	B ₁	M×ℓ	S	Rc (PT) A	Rc (PT) B	Catalog No.		Base unit price
																			Type	No.	1~4 pieces
156	8	34	114	11	15	24	20	20	14	4.5	28	20	32	20	4×6	17	1/8	1/8	PAJC	150	Quotation
218	12	52	154	19	23	36	32	30	24	6.6	40	30	46	30	5×8	26	3/8	3/8		600	



Order

Catalog No.

PAJC150



Days to Ship

Quotation



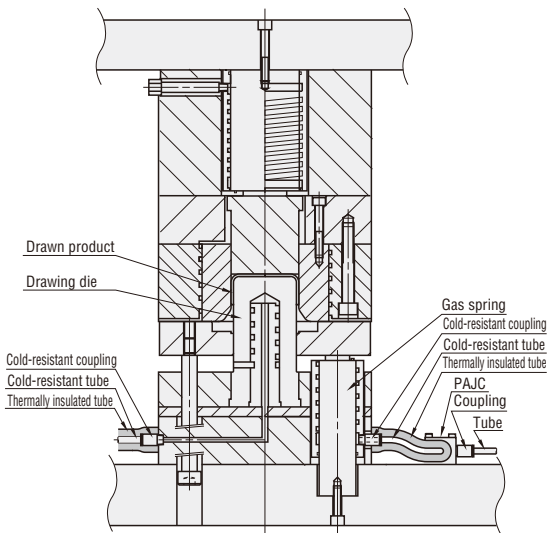
Price

Quotation



Example

- Prevents reduction in die lifetime due to high die temperatures.
- Prevents reduction of the lifetime of pressure-resistant seals due to high gas spring temperatures.
- Prevents die temperature rise during deep drawing.



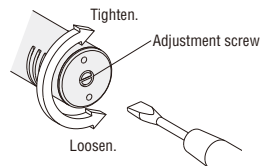
Precautions for use

- Use these products only for their intended purpose and do not use them outside of the designated operating ranges.
- Do not use any gas other than air.
- While the cooler is in use, hot air will be discharged from the exhaust port and the area around the exhaust port will be hot. Take care to avoid getting burned.
- If cooled too much, condensation may occur on the die. Be sure to create a drainage channel.
- When connecting a hose or other tube to the cold air discharge port, use an insulated hose or insulating tape in order to prevent condensation.

Features

- Simply by supplying compressed air, this product generates cold air at a maximum of -70°C below the intake temperature.
- Effective for localized cooling.
- Installation and air temperature adjustment can be done easily.
- The special structure results in an extremely compact cooler unit, allowing this product to be used in confined spaces.

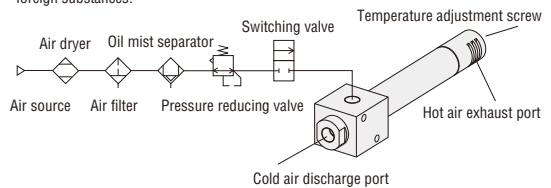
Adjusting the cold air temperature



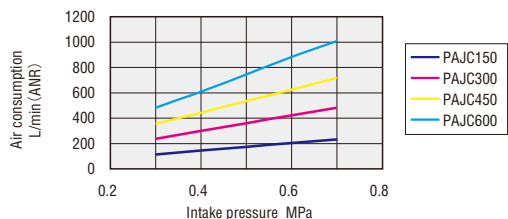
To adjust the cold air temperature, use the adjustment screw located on the side of the unit. Loosening the adjustment screw lowers the cold air temperature and reduces the flow of cold air. Conversely, tightening the adjustment screw raises the cold air temperature and increases the airflow.

How to use

- Use with a supplied pressure in the range of 0.3~0.7MPa.
- Use an air dryer and supply dehumidified air.
- Be sure to install an air filter (filtering to 40 μm or smaller) and an oil mist separator before the air jet cooler in order to prevent the intrusion of foreign substances.



Air consumption



Troubleshooting

- If the cooling effects become diminished, inspect the cooler following the procedure listed below.
 - Re-adjust the temperature adjustment screw.
 - Check to see if the filter and mist separator are clogged, causing a drop in the supplied pressure.
 - Check that the full air consumption shown in the graph above is being supplied.
- Be aware that MISUMI accepts no responsibility for a product that has been disassembled.

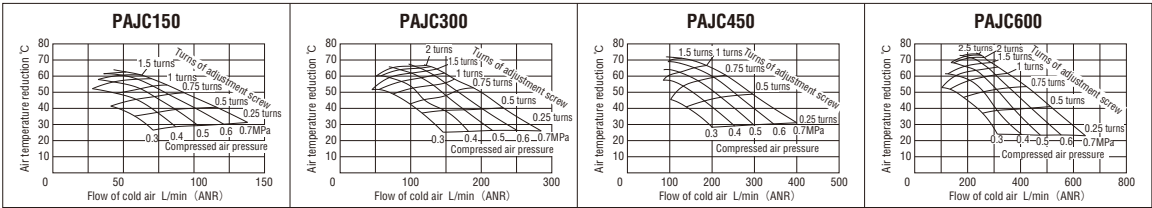
Temperature and heat quantity characteristics

※ The air cooling temperature is the temperature reduction relative to the intake air temperature.

※ The indicated number of turns of the adjustment screw is relative to 0 when the screw is fully tightened.

※ The graphs below show the characteristics of the air jet cooler on its own.

※ The heat quantity (W) is the power for taking heat from the target object by means of the jet of cold air from the discharge port. 1 (W) = 0.86 (kcal/h)



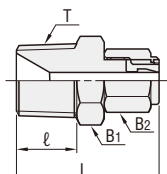
Air jet cooler accessories

Straight coupling for fluororesin tubes



RoHS

MCPTK



M SUS316

Catalog No.		T R (PT) selection	T (PT)	inner dia. of tube used (mm)	L	ℓ	B1 width across flats	B2 width across flats	Base unit price 1~4 pieces
MCPTK	6	1	1/8	4	26	9	12	12	
		2	1/4		28.5	11	14		
		3	3/8		30	12	17		
		4	1/2		32	11	17		
	10	8	3	3/8	33	12	17	17	Quotation
			4	1/2	36	15	22		



Catalog No. — T

MCPTK6 — 1



Quotation

Specifications

Fluid used	Compressed air + water
Service temperature range	Air: -65 ~ 260°C, Water: 0 ~ 100°C
Maximum operating pressure	Determined by the maximum operating pressure of the tube.
Operating vacuum	—100kPa

Fluororesin tube

PUTF

PUTFL

RoHS

M Fluororesin (PFA)
Service temperature range: -65 ~ 260°C

Air tubes

M—UB

RoHS

Usable fluids: Compressed air

Service temperature range: Max. 60°C

M Polyurethane

Usable fluids: Compressed air

Service temperature range: Max. 60°C

Catalog No.	Type	Outer dia. (mm)	Fixed length type (m)	Configurable length type (0.1mm increments)	Inner dia. (mm)	Min. bend radius (mm)	Outer dia. precision (mm)	Max. operating pressure (MPa)	Burst pressure (MPa)	Weight (kg/m)	Fixed length type (1~4 pieces)	Configurable length type (5~9 pieces)
PUTF	(Fixed length type)	6	10	0.5 ~ 20	4	50	±0.1	1.7	7	0.034	Quotation	Quotation
			20									
PUTFL	(Configurable length type)	10	10		8	120	+0.1 -0.15	0.8	3	0.061	Quotation	Quotation
			20									

⚠ The maximum operating pressure and burst pressure shown are those when used at normal temperatures.

Tube outer dia.	Tube inner dia.	Min. bend radius	Operating pressure range	Catalog No.		Full length L (m)	Color	Base unit price 1 ~ 9 pieces		
				Type	No.			L5	L10	L20
6	4	15	0 ~ 700 kPa (0 ~ 7kgf/cm ²)	M—UB	0640	5	B (Black)	Quotation		
10	6.5	27			1065	10	C (Clear)			
						20				

⚠ Full length L is in units of meters.

Catalog No.	L	Color
M—UB 0640	5	B



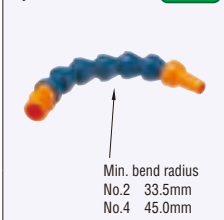
Quotation



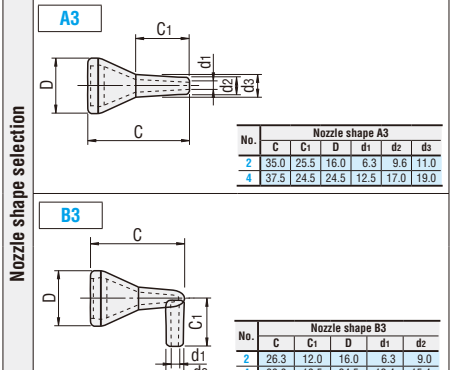
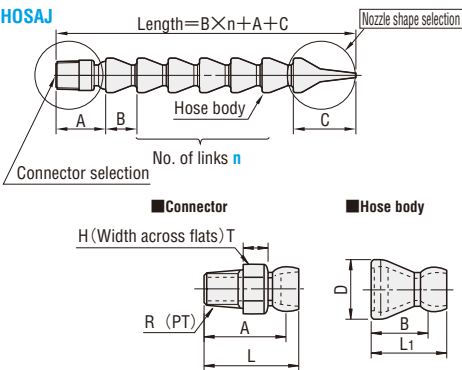
Quotation

Adjustment hoses

RoHS



M Polyacetal (blue)
Heat resistance: 80°C
Pressure resistance: 0.59MPa (6kgf/cm²)



Hose inner dia. (inches)	Catalog No.	Type	No.	Selected No. of links n	Connector selection	Nozzle shape	Hose body	Connector	No.	Link base unit price	Connector base unit price	Nozzle base unit price
1/4	HOSAJ	2	4	0 ~ 30	1 (R1/8) 3 (R3/8)	A3 B3	D B L1 A L H T	26.3 14 7	2	Quotation	Quotation	Quotation
1/2							24.5 20.3 30 28 38.3 18.8 7.5					

Catalog No.	No. of links n	Connector (PT)	Nozzle shape
HOSAJ2	30	1	A3

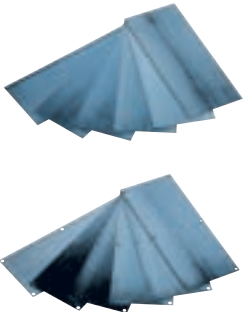


Quotation



Quotation

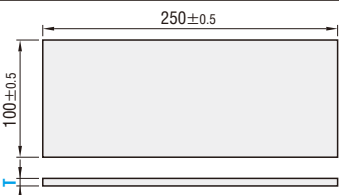
SPACER LAYER PLATES



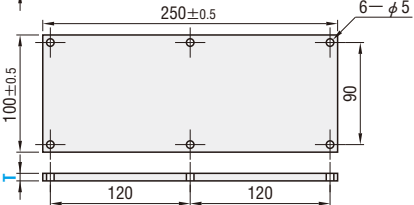
RoHS

The surface is hardened (blue).

LHP
(No-hole type)



LHP-H
(No-hole type)



T	Tolerance	M	H
0.05	±0.005	SK2	51 ~ 54HRC
0.1	±0.01	SK4	48 ~ 52HRC
0.2	±0.015	SK5	
0.3	±0.025		
0.4	±0.03		
0.5	±0.04		
0.6	±0.04	SK5	47 ~ 51HRC
0.7	±0.05		
0.8	±0.05		
0.9	±0.05		
1.0	±0.06		43 ~ 47HRC
1.6	±0.06		

When inserting bolts into the 6-φ5 holes, use M4 bolts.

Catalog No.		Base unit price	
Type	T (thickness)	LHP	LHP-H
LHP (No-hole type)	0.05		
	0.1		
	0.2		
	0.3		
	0.4		
	0.5		
	0.6		
	0.7		
	0.8		
LHP-H (Hole type)	0.9		
	1.0		
	1.6		



Order

Catalog No.

LHP 0.7
LHP-H1.0



Days to Ship

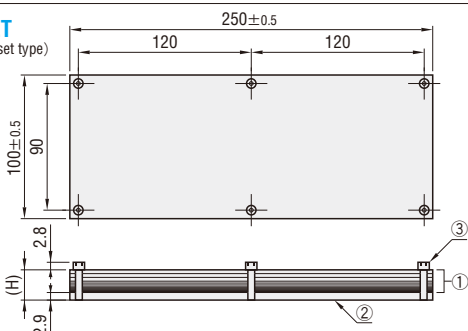
Quotation



RoHS

The surface of the layer plates is hardened (blue).

LHP-SET
(Layer plate set type)



Set components

- Layer plates
The selected type of LHP-H are layered in order of increasing thickness beginning from the top.
- Base plate
SPCC
Includes M4 tap holes for fastening the layer plates.
- Installation bolts
Low head bolt (CBS4)×6

The bolt full length is cut so that it does not protrude below the lower surface of the base plate.

(H)	Catalog No.	①Combinations of layer plate thickness T												Base unit price
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.6	1 ~ 9 sets
4.4	LHP—SET 5	—	○	○	○	○	○	—	—	—	—	—	—	
8.4	LHP—SET10	—	○	○	○	○	○	○	○	○	○	○	—	Quotation
10.1	LHP—SET12	○	○	○	○	○	○	○	○	○	○	○	○	



Order

Catalog No.

LHP-SET10



Days to Ship

Quotation



Price

Quotation



Alterations



Catalog No. — (PPA ~ PPG)

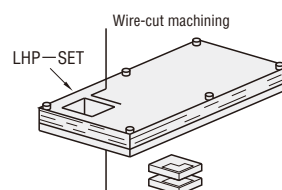
LHP-SET5 — PPA-PPF

Alteration	Code	T (thickness)	Spec.	1Code
	PPA	0.05	The selected LHP-H is added as an additional layer. LHP-SET5: PPA ~ PPG can be selected. LHP-SET10: Only PPA and PPG can be selected. LHP-SET12: Cannot be used. Multiple plates can be selected, however 2 or more of the same plate cannot be added.	Quotation
	PPB	0.6		
	PPC	0.7		
	PPD	0.8		
	PPE	0.9		
	PPF	1.0		
	PPG	1.6		



Example

Because the plates are layered, it is possible to create spacers of different thicknesses but the same shape by using wire cutting. This eliminates the need to produce a new spacer when a die or other item is reground.



SHIM TAPE



RoHS

—Standard type Length 1m—
FGSM (Width=12.7mm)
FGSMW (Width=45.0mm)

—Long type Length 5m—
FGSML (Width=12.7mm)



Type	W
FGSM・FGSML	12.7
FGSMW	45.0

T=0.005/0.015
T=0.01 ~ 0.5

SUS304H
SK material
45 ~ 52HRC

Standard type (length 1m)

Length	Catalog No.		Tolerance	Base unit price 1 ~ 5 pieces	
	Type	T (thickness)		FGSM	FGSMW
1m	FGSM (W=12.7mm)	0.005	±0.0005		
		0.01			
		0.015	±0.003		
		0.02			
		0.03			
		0.04			
		0.05			
		0.06			
		0.07	±0.005		
		0.08			
	FGSMW (W=45.0mm)	0.09			
		0.1			
		0.15			
		0.2			
		0.25			
		0.3			
		0.35	±0.015		
		0.4			
		0.45			
		0.5			

Long type (length 5m)

Length	Catalog No.		Tolerance	Base unit price 1 ~ 5 pieces	
	Type	T (thickness)		FGSML	
5m	FGSML (W=12.7mm)	0.005	±0.0005		
		0.01			
		0.015	±0.003		
		0.02			
		0.03			
		0.04			
		0.05			
		0.06	±0.005		
		0.07			
		0.08			
		0.09			
		0.1			
		0.15			
		0.2	±0.015		

The long type provides savings in the amount of 1m.



Order

Catalog No.

FGSM 0.01
FGSML 0.1



Days to Ship

Quotation



Price

Quotation

PRECISION MULTIPURPOSE PLATES

RoHS

UTPB

Rolling direction

150 ^{+0.3}/₀

W ^{+0.1}/₀

T ^{+0.003}/₀

UTPL

Changing the W dimension tolerance
To change W ^{+0.1}/₀ to W ⁰/_{-0.1},
use alteration WKC1.

SKH51
61 ~ 64HRC

Catalog No.	W	Base unit price	Catalog No.	W	0.1mm increments	Base unit price	1 ~ 19 pieces
Type	T	1 ~ 19 pieces	Type	T	L	L10.0 ~ 19.9	L20.0 ~ 49.9
UTPB	0.3	10 13 16 6,636	UTPL	0.3	10 13 16		
	0.4	10 13 16 4,477		0.4	10 13 16		
	0.5	10 13 16 4,057		0.5	10 13 16		
		20 25 4,981			20 25		
	1	10 13 16 3,797		1	10 13 16		
		20 25 4,662			20 25		
	2	10 13 16 3,259		2	10 13 16		
		20 25 4,150			20 25		
	3	10 13 16 3,377		3	10 13 16		
		20 25 4,326			20 25		
	5	10 13 16 3,662		5	10 13 16		
		20 25 4,788			20 25		

Order

Catalog No. — W — L

UTPB 2 — 16

UTPL 3 — 20 — 50.8

Days to Ship

Quotation

Price

Quotation

Alterations

Catalog No. — W(WC) — L — (TC·WKC1·DNC·WKC)

UTPL 2 — 20 — 50.8 — TC2.002

UTPL 3 — 25 — 45.6 — WKC—X20.5—Y10.2

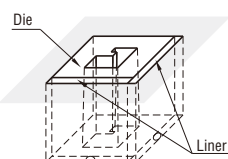
Alteration	Code	Spec.	1Code
	TC	Changes of plate thickness T T—0.02≤TC≤T+0.02 0.001mm increments ☑ Clearance can be adjusted without using shims. ☒ Cannot be used for T0.3 and T0.4.	Quotation
	WC	W dimension change 8≤WC<W 0.1mm increments ☒ Cannot be used for T0.3 and T0.4.	
	WKC1	W dimension tolerance change Changes W ^{+0.1} / ₀ to ⁰ / _{-0.1} . ☒ Cannot be used for T0.3 and T0.4.	
	DNC	Addition of press-in lead ☑ A press-in lead of width 2 mm and depth 0.01 ~ 0.03 is added. ☒ Cannot be used for T0.3 and T0.4.	Quotation
	WKC	A φ 1 start hole for W-EDM is added. 2≤X≤L—2 2≤Y≤W—2 0.1mm increments ☑ Because the hole is machined by discharge machining, the area around the hole will be discolored. ☒ Cannot be used for T0.3 and T0.4.	

Example

● Liner: Makes the installation of a block die easier.
Using the liner together with shim tape allows the clearance to be adjusted.

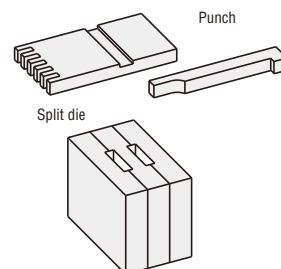
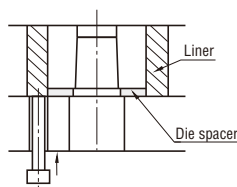
● Die spacer: Can be used as an adjustment plate for regrinding.

● Punches & dies: Because the material is SKH51 (61 ~ 64HRC), these plates can be used for punches and dies.



By changing the plate thickness (TC) of the right and left liners, it is possible to adjust the clearance without using shim tape.

By pushing the liner up with the pin, it can be removed without scratching the die.

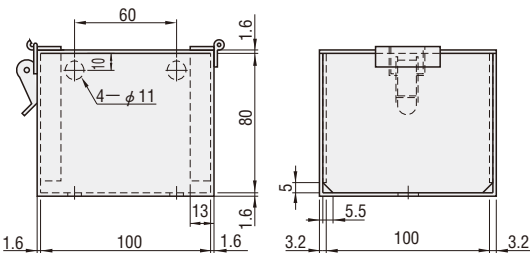


SPARE PUNCH BOXES

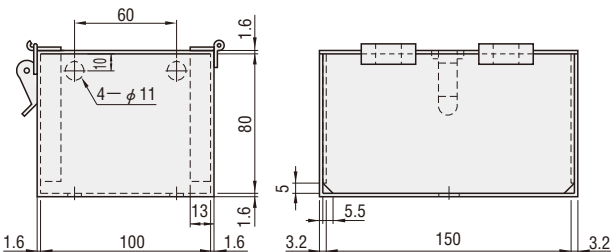
RoHS

PBX100Y

● With 2 bolt holes, 1 on the side and 1 on the bottom, this box can be fastened from either surface.



PBX150Y



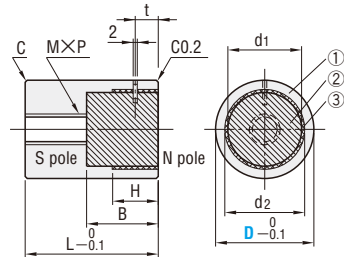
M SPCC
S Baking finish (yellow)

Catalog No.	Base unit price	Order	Catalog No.
	1 ~ 9 pieces		
PBX100Y	Quotation	Days to Ship	PBX100Y
PBX150Y		Price	

MAGNETS

RoHS

MG



- ① M SUM24L
- ② M Alnico magnet
- ③ M Brass (C3604BD) Heat resistance 80°C

L	M×P	* Adhesive force N(kgf)	Surface magnetic flux density Gauss [G]	d ₁	d ₂	B	C	H	t	Catalog No.		Base unit price
										Type	D	1 ~ 19 pieces
15	5×0.8	5.9 {0.6}	1100 ~ 1300	6	8	7	0.5	5	2.5	MG	10	Quotation
15	5×0.8	11.8 {1.2}		8	10.5		1.0				6	
20	6×1.0	15.7 {1.6}	1200 ~ 1400	10	13	10		1.5	9			
25	8×1.25	29.4 {3.0}	1200 ~ 1500	13	16	12	20					
30	8×1.25	44.1 {4.5}	1300 ~ 1700	15.5	18	13		25				
30	8×1.25	78.5 {8.0}	1400 ~ 1700	20	23.5	15			28			

Load [kgf] = Load N×0.101972

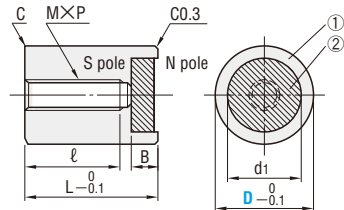
* Adhesive force: Refer to page at right (figure at bottom).

⚠ Because magnets are easily broken, do not use any alterations for them.

⚠ The end face is finished by grinding.

RoHS

MGN (Strong, corrosion-resistant type)



- ① M SUM24L
- S Electroless nickel plating
- ② M Neodymium magnet Heat resistance 80°C

L	M×P	* Adhesive force N(kgf)	Surface magnetic flux density Gauss [G]	d ₁	B	C	ℓ	Catalog No.		Base unit price	
								Type	D	1 ~ 19 pieces	
10	3×0.5	2.9 {0.3}	3000 ~ 3200	4.0	2.0	0.3	6	MGN	6	Quotation	
		5.8 {0.6}	3500 ~ 3700	5.0					8		
15	5×0.8	9.8 {1.0}	3400 ~ 3600	6.0		1.5	0.5		10		10
		15.6 {1.6}	3200 ~ 3400	7.0							13
20	6×1.0	36.2 {3.7}	3500 ~ 3700	9.5	2.0	1.0	12		16		
25	8×1.25	58.8 {6.0}	3100 ~ 3300	12.5			16		20		
30		112.7 {11.5}	3500 ~ 3700	16.5	3.0	1.5	18		25		
		196.1 {20.0}	3300 ~ 3500	18.5					28		

Load [kgf] = Load N×0.101972

* Adhesive force: Refer to page at right (figure at bottom).

⚠ Because magnets are easily broken, do not use any alterations for them.

⚠ The magnetic surface is recessed by 0.1 ~ 0.3 from the case.



Order

Catalog No.

MG 13
HX 20



Days to Ship

Quotation



Price

Quotation

HX
HXH

(For high-temperature use)

	HX	HXH
M ①	SUM24L	
S ②	Cobalt magnet	
Heat resistance	80°C	Raydent treatment 200°C

L	M×P	* Adhesive force N(kgf)	Surface magnetic flux density Gauss [G]	d1	d2	B	H	Catalog No.		Base unit price 1 ~ 19 pieces	
								Type	D	HX	HXH
6	3×0.5	2.9 {0.3}	2100 ~ 2600	4	5	2.0	1.5	HX Heat resistance: 80℃		Quotation	6
		3.9 {0.4}	2200 ~ 2600	5.5	6.5						8
8	4×0.7	9.8 {1.0}	2100 ~ 2300	7	8	1.5	1.1				10
		29.4 {3.0}	2200 ~ 2400	9.5	11						13
10	5×0.8	49.0 {5.0}	2200 ~ 2500	12.5	14	2.0	1.6	HXH Heat resistance: 200℃	16		
		88.3 {9.0}	2300 ~ 2600	16.5	18			20			
13	6×1.0	127.5 {13.0}			21.5	23	3.0	2.6		25	

Load [kgf] = Load N × 0.101972

⚠ Because magnets are easily broken, do not use any alterations for them.

⚠ The magnet and holder are fastened by an adhesive.

⚠ The magnetic surface is recessed by 0.1 ~ 0.3 from the case.

* Adhesive force: Refer to the page at right (figure at bottom).

HXU

① **M** SUM24L
② **M** Cobalt magnet
③ **M** Brass (C3604BD) Heat resistance 80°C

L	M×P	* Adhesive force N(kgf)	Surface magnetic flux density Gauss [G]	d1	d2	B	H	Catalog No.		Base unit price 1 ~ 19 pieces
								Type	D	
8	3×0.5	3.9 {0.4}	2100 ~ 2600	4	5	2	1.6	HXU	6	Quotation
		5.9 {0.6}	2400 ~ 2600	5	6				8	
10	4×0.7	14.7 {1.5}	2700 ~ 2900	7	8	3	2.1		10	
		34.3 {3.5}	2800 ~ 3100	9.5	11	4	3.1		13	
13	5×0.8	58.8 {6.0}	2900 ~ 3300	12.5	14	6	5.1		16	
		98.1 {10.0}	2900 ~ 3400	16.5	18				20	
15	6×1.0	137.3 {14.0}			21.5	23			25	

Load [kgf] = Load N × 0.101972

⚠ Because magnets are easily broken, do not use any alterations for them.

⚠ The magnet and holder are fastened by an adhesive.

⚠ The magnetic surface is recessed by 0.1 ~ 0.3 from the case.

* Adhesive force: Refer to page at right (figure at bottom).

HXMB

M Cobalt magnet Heat resistance 200°C

T	* Adhesive force N(kgf)	Surface magnetic flux density Gauss [G]	Catalog No.		Base unit price 1 ~ 19 pieces	
			Type	D	HXMB	
2	1.0 {0.10}	2000 ~ 2100	HXMB (Heat resistance 200°C)	3	Quotation	
	1.5 {0.15}			4		
	3.9 {0.40}			5		
1.5	6.9 {0.70}	2200 ~ 2400		7		

Load [kgf] = Load N × 0.101972

⚠ Magnets are extremely brittle and easily broken.

⚠ Always use sufficient care when handling them.

⚠ Use adhesive to fasten the magnet in place.

* Adhesive force: Refer to the page at right (figure at bottom).

⚠ Because the magnets are easily damaged, fasten them so that they do not protrude from the holder.

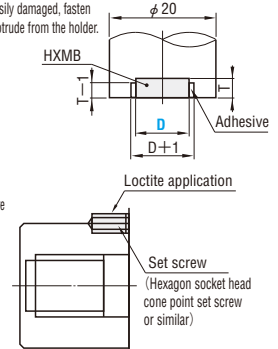
* "Adhesive force" indicates the ability to lift up SS400 material (plate thickness 10 mm, top surface polished).



Installation

After press-fitting, install as shown in the figure in order to prevent the magnet from falling off.

Hole machining (reference)	
DH7	
20	+0.021
25	0
30	
35	+0.025
40	0



DIE NAME STICKERS

KNS

(Die name stickers)

RoHS

70

32

Color

品名 (型名)

製造日 年 月 日 管理No.

材質 板厚 材料幅

送りピッチ 備考

会社名

Seal

PTFE film

Protective film

PP film

Catalog No.	Color	Base unit price
		1~4 sets (1 set=10 stickers)
KNS	R (Red) B (Blue) Y (Yellow)	Quotation

Order

Catalog No.

KNS

Color

R

Days to Ship

Quotation

Price

Quotation

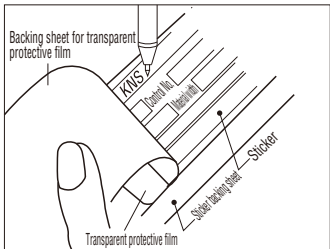
Features

- Can be written on using an oil-based marker or ball-point pen.
- Highly resistant to oil and dirt, and resist peeling.

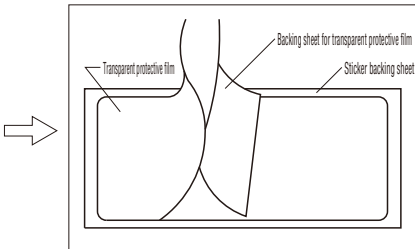
Precautions for use

- Thoroughly wipe off any oil or other substances from the application surface before applying. It is recommended that paint thinner or another solvent be used to fully remove any oil.
- Use at normal temperatures.
- If the sticker is peeled off and replaced, the adhesive force will diminished.

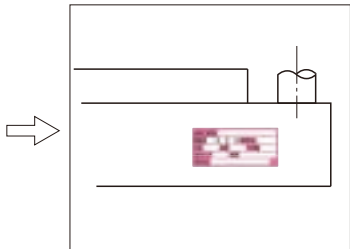
How to use



Use an oil-based marker or ball-point pen to write on the sticker.



Apply the transparent protective film by pressing it tightly onto the seal.



Peel the seal off the backing sheet and apply it to the die.

DIE ADHESIVE / DIE CLEANING AGENT / DIE CONTACT INSPECTION AGENT

—LOCTITE No. 638・243・268・248 / —GENERAL PURPOSE QUICK-DRYING TYPE— / —SHINMYOTAN—

For fitting (high strength) RoHS		For loosening prevention of threads (Medium strength) RoHS		For loosening prevention of threads —Stick type— RoHS	
Loctite No. 638 (High strength)		Loctite No. 243 (Medium strength)		Loctite No. 268 (High strength)	Loctite No. 248 (Medium strength)
LOC638		LOC243		LOC268	LOC248
					
(250mℓ)		(250mℓ)			
(50mℓ)		(50mℓ)			

Fluid color	Main ingredient	Viscosity (CP)	Strength Class	Strength	Maximum allowable clearance (mm)	Hardening time ^{Note (2)} (h at room temp.)		Service temperature range (°C)	Material safety data sheet FAX BOX No.	Catalog No.		Base unit price
						Active surface	Inert surface			Type	Volume (mℓ)	1~4 pieces
Green	Anaerobic resin	2500	High strength	Shear strength 25~35 (N/mm ²)	Max. 0.2 each side ^{Note (1)}	1 ~ 3	3 ~ 6	-55 ~ 125	1034	LOC638	250	Quotation
Blue		1000	Medium strength	Breakage/pull-out torque 12/5 (N/m)	Max. 0.25 each side				1035	LOC243	250	
Red		Waxy semi-solid	High strength	Return torque 40.8N・m (DIN54454)	—	—	—	-55 ~ 150	1083	LOC268	19	
Blue	Waxy semi-solid	Medium strength	Medium strength	Return torque 15.6N・m (DIN54454)	—				1081	LOC248	19	

■Applications

LOC638: Fitting (high strength)

- Can be used as an adhesive for items such as dowel bushings (KNLB・KNLBB), die set bushings (LBB・LDB), and stripper guide bushings (SGBL・SGBZ・SGHZ・SGBF・SGFZ).

LOC243: For loosening prevention of threads (medium strength)

- Can be used as an adhesive for items such as hexagon socket head cap screws (CB), screw plugs (MSW), and stripper bolts with male threads (MSB).

Stick type

- This is a compact stick type, and because it is semi-solid it does not drip.

LOC268: For loosening prevention of threads (high strength)

- Can be removed by localized heating or the use of a tool. Prevents thread loosening caused by vibration, impact, thermal expansion, or other factors.

LOC248: For loosening prevention of threads (medium strength)

- Can be removed by the use of a tool.

■Notes

- (1) In general when press-fitting die components, 0.01~0.03 mm of adhesive is used on each side.

- (2) This is the time required until a serviceable strength (50% hardening) is reached at room temperature.

Active surfaces are steel, copper alloys, aluminum alloys, and similar surfaces. Inert surfaces are stainless steel, zinc, heat-curing resins, plated surfaces, and similar surfaces.

- Degreasing is recommended before application of Loctite adhesives.



Order

Catalog No.	Amount
LOC638	— 50
LOC243	— 250
LOC268	— 19
LOC248	— 19



Days to Ship

Quotation



Price

Quotation

Cleaning agent —General-purpose quick-drying type—

6PACK—METACL

(Pack containing 6 cans)



RoHS

Material safety data sheet	Cans per pack	Catalog No.		Base unit price/Volume discount unit price		
		Type	Volume (mℓ)	1 pack	2 pack	3 packs or more
1009	6 cans	6PACK—METACL	420	Quotation		

- 6PACK—METACL420 is sold only in packs.

- For larger orders, ask about prices/delivery.



Order

Catalog No.

6PACK—METACL 420



Days to Ship

Quotation

■Application

- Washes off oil, grease, and other dirt by means of a chemical cleaning agent and strong gas pressure.

- Evaporates quickly after use, leaving nothing behind.

- Can be used for degreasing prior to Loctite application.

Die inspection agent (Shinmyotan)

RoHS

N—RED

SP—RED



Fluid color	Main ingredient	Material safety data sheet FAX BOX No.	Catalog No.		Base unit price/Volume discount unit price		
			Type	Volume (mℓ)	1~4 pieces	5~9	10 or more
Orange	Zinc oxide	1044	N—RED	250	Quotation		
Orange	Petroleum hydrocarbon	1043	SP—RED	250			

■Application

- Used for aligning a die after product machining. Contains no zinc.

- Can be used straight from the container, eliminating the need to blend the agent with oil.

- SP—RED spreads more easily than N—RED, allowing it to be applied in a thinner layer.



Order

Catalog No.

N—RED 250



Days to Ship

Quotation