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	801	801	801	801 802	802	802

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	-ROTATION TYPE- MSFM MSFL
802	803	803	804	804	805 806

LOCATING DOWEL RINGS DAS DASP	DOWEL BUSHINGS KNLB	DOWEL BUSHING BLANKS KNLBB	HEXAGON SOCKET HEAD CAP SCREWS CB	BOX SALES OF HEXAGON SOCKED HED CAP SCREWS BOX—CB	HEXAGON SOCKET HEAD CAP SCREWS LB SCB	HEXAGON SOCKET HEAD CAP SCREWS FB FBJ	SPRING WASHERS CBW
807	808		809	810	811	812	812

LOW HEAD AND ULTRA-LOW HEAD HEXAGON SOCKET HEAD CAP SCREWS- CBS CBSST CBSS	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
813	814	815	816	817	817

SCREW PLUGS FOR LOOSENING PREVENTION LMSW	SCREW PLUGS MSW MSWA MSWZ	-Short type- MSWS MSWAS MSWZS	-Through hole type- MSWH MSWZH	-Short type with through hole- MSWSH MSWZSH	STRIPPER BOLTS,MALE THREADS MSB SMSB
818	819	819	820		823

STRIPPER BOLTS,MALE THREADS -Pression L dimension type- MSBL	STROKE EXTENSION RETAINERS FOR STRIPPERS 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
824	824	825	827	828

STRIPPER PRESSURE PINS HSPP HSPPH	STRIPPER PRESSURE PINS PWP	STRIPPER PRESURE PINS SBKP SBKS	LIFTING COLLARS SBKT SBK	ADJUSTMENT PINS PIN PIN—N PINH PINH—N
829	829	830	830	831

PRESSURE PINS PRPS PRP	STROKE END BLOCKS SBV SBVH	-Tapped- SBVM	STROKE END BLOCKS SBS SBN SEC	-Square,hardened type- SBVK
832	833	834	835	836

CHAINS FOR END BLOCKS RSC	AIR JET COOLERS FOR DIES PAJC	TUBE COUPLINGS MCPTK	FLUORORESIN TUBES PUTF・PUTFL	AIR TUBES M—UB	ADJUSTMENT HOSES HOSAJ
836	837	838	838	838	838

SPACER LAYER PLATES LHP LHP-H LHP-SET	SHIM TAPE FGSM FGSMW FGSML	PRECISION MULTIPURPOSE PLATES UTPB UTPL	SPARE PUNCH BOXERS PBX100Y PBX150Y
839	840	841	842

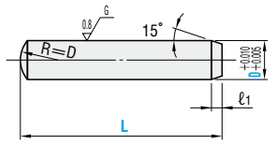
DIE NAME STICKERS KNS	MAGNETS MG MGN HX HXH	MAGNETS HXU HXMB	MILLION GREASE MGS
842	843	844	845

CLEANING AGENT 6PACK—METACL	DIE CONTACT INSPECTION AGENT (SHINMYOTAN) N—RED SP—RED	DIE ADHESIVE LOC638 LOC243	STICK TYPE LOC268 LOC248
845	845	846	846

DOWEL PINS

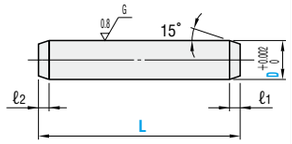
RoHS

MS (Straight type)



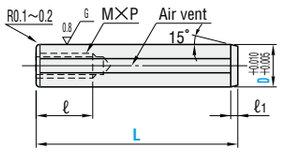
M SUJ2
H 58HRC～

MSV (High precision type)



M SUJ2
H 58HRC～

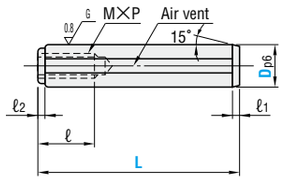
MSTP (Tapped precision type)



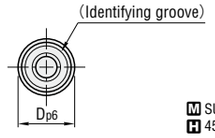
If L dimension is 10 with D5·6, the pilot hole for the tap may go all the way through.

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.



M SUJ2
H 45～50HRC

ℓ1・ℓ2 dimensions are values for reference only. The actual values at the outer diameter grinding process may be larger than the catalog values.

ℓ1	Catalog No. Type	D	L	Base unit price 1～99 pcs.	Volume discount unit price 100～499	500～1999	2000～4000
0.4	MS	1	6 8 10				
0.6		1.5	6 8 10				
1.0		2	10 15				
			6 8 20				
		2.5	8 10 15 20				
			6 25 30				
		3	10 15 20				
			6 8 25 30 35 40				
1.5		4	10 15 20				
			8 25 30 35 40 45 50				
		5	10 15 20 25 30				
			8 35 40 45 50				
2.0		6	15 20 25 30				
			8 10 35 40 45 50 55 60				
2.5		8	30 40 50				
			10 15 20 25 35 45 55 60 65 70 80				
3.0		10	40 50 60				
			15 20 25 30 35 45 55 65 70 80				
3.5		12	40 50 60				
			20 25 30 35 45 55 70 80				
		13	40 50 60				
			30 70 80				

Quotation

ℓ1	ℓ2	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	MSV	2	6 8 10				
	0.5		3	8 10 15 20 25 30				
1.5			4	10 15 20 25 30				
			5	10 15 20 25 30				
2.0			6	10 15 20 25 30				
2.5			8	20 30 40				
3.0			10	30 40 50 60				

Quotation

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

ℓ1	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	3×0.5	*6	+0.010 +0.005	MSTP	5	10 15 20 25 30				
2.0	4×0.7	*8			6	10 15 20 25 30 35 40 50				
	5×0.8				8	15 20 25 30 35 40 45 50 60 70 80				
2.5	6×1.0	10			10	15 20 25 30 35 40 45 50 60 70 80				
					12	20 30 40 50 60 70 80				
	8×1.25	15			13	40 50 60 70 80				
3.0					16	40 50 60 70				

Quotation

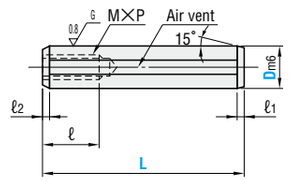
∗If D=5, then ℓ=6 is a value for reference only. ∗Only if D=6 and L=10, then ℓ=6.

ℓ1	ℓ2	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	3×0.5	*6	+0.020 +0.012	MST	5	10 15 20 25 30				
		4×0.7				6	10 15 20 25 30 35 40 50				
2.0	0.7	5×0.8	*8	+0.024 +0.015		8	15 20 25 30 35 40 45 50 60 70 80				
		6×1.0	10			10	15 20 25 30 35 40 45 50 60 70 80				
2.5	1.0			+0.029 +0.018		12	20 30 40 50 60 70 80				
		8×1.25	15			13	40 50 60 70 80				
						16	40 50 60 70 80				
3.0		10×1.5	18	+0.035 +0.022		20	50 60 70 80				

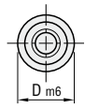
Quotation

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

MSTM (Tapped m6 type)

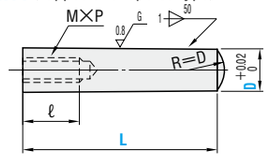


If L dimension is 10 with D5·6, the pilot hole for the tap may go all the way through.



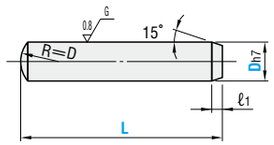
M SUJ2
H 45～50HRC

MTT (Tapped and tapered type)



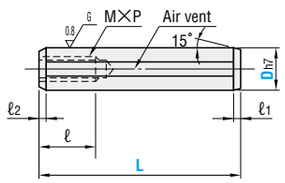
M SUJ2
H 45～50HRC

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

ℓ1・ℓ2 dimensions are values for reference only. The actual values at the outer diameter grinding process may be larger than the catalog values.

ℓ1	ℓ2	M×P	ℓ	Dm6	Catalog No. Type	D	L	Base unit price 1～299 pcs.	Volume discount unit price 300～499	500～1999	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			10	15 20 25 30 35 40 45 50 60 70 80				
2.5				+0.018 +0.007		12	20 30 40 50 60 70 80				
	1.0	8×1.25	15			13	40 50 60 70 80				
3.0	1.5					16	40 50 60 70 80				
		10×1.5	18	+0.021 +0.008		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.

M×P	ℓ	Catalog No. Type	D	L	Base unit price 1～299 pcs.	Volume discount unit price 300～499	500～1999	2000～4000
5×0.8	9	MTT	8	30 40				
6×1.0	10		10	40 50				
			12	40 50				
8×1.25	14		13	50 60				
10×1.5	16		16	60 70				

Quotation

ℓ1	Dh7	Catalog No. Type	D	L	Base unit price 1～299 pcs.	Volume discount unit price 300～499	500～1999	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

ℓ1	ℓ2	M×P	ℓ	Dh7	Catalog No. Type	D	L	Base unit price 1～299 pcs.	Volume discount unit price 300～499	500～1999	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			10	15 20 25 30 35 40 45 50 60 70 80 100 120				
2.5	1.0			0 −0.018		12	20 30 40 50 60 70 80 100 120				
		8×1.25	15			13	40 50 60 70 80 100 120				
3.0	1.5					16	40 50 60 70 80 100 120 150				
		10×1.5	18	0 −0.021		20	60 70 80 100				

Quotation

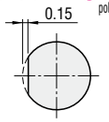
∗If D=5, then ℓ=6 is a value for reference only. ∗Only if D=6 and L=10, then ℓ=6. MSTH economy packs P.803

Order

Catalog No.	—	L
MS2	—	10

Days to Ship Quotation

Depth of air vent Because these products are finished by barrel polishing, this value is for reference only.



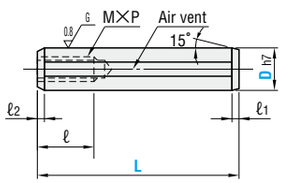
Same for all D dimensions
Subject products: MSTP
MST
MSTM
MSTH

COMPONENTS

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.

M SUJ2
H 45～50HRC

ℓ1	ℓ2	M×P	ℓ	D_{h7}	Catalog No. Pack	Type	D	L
1.5	0.3	3×0.5	*6	0 −0.012	100PACK (100 pins) 200PACK (200 pins)	MSTH	5	10 15
2.0	0.3	4×0.7	6				6	10
			8					15 20 25 30
2.0	0.5	5×0.8	8	0 −0.015			8	20 30 40
2.5	0.5	6×1.0	10				10	30 40

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

Order

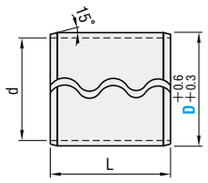
Catalog No. Pack	Type	D	—	L
(For 100 pins) 100 PACK	—MSTH	6	—	20
(For 200 pins) 200 PACK	—MSTH	6	—	20

Days to Ship　Quotation

Price　Quotation

■Spring plugs for preventing dowel pin fall-out　RoHS

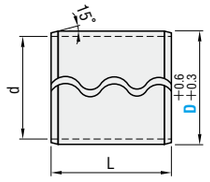
SWA（For FC250, SS400, and similar plates）



For D6 only, tolerance is +0.5 +0.3.　M SAE1065

■Spring plugs for preventing dowel pin fall-out　RoHS

SWAL（For hardened plates）



For D6 only, tolerance is +0.5 +0.3.　M SUS304—CSP—H
D20 specification is not available.

SWA ＊Pullout force N(kgf)		d	SWAL ＊Pullout force N(kgf)		d	L	Catalog No. Type	D (applicable dowel pin)	Base unit price 1～49 pieces 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.

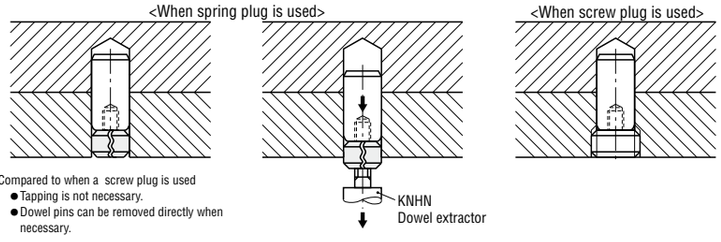
Order

Catalog No.
SWA 12

Days to Ship　Quotation

Price　Quotation

Example

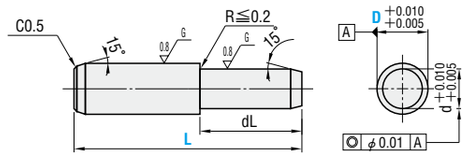


Compared to when a screw plug is used
- Tapping is not necessary.
- Dowel pins can be removed directly when necessary.

STEPPED DOWEL PINS / DOWEL PIN EXTRACTORS

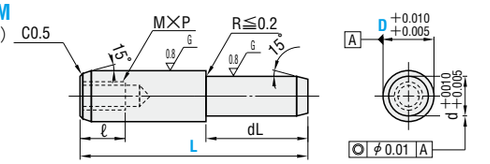
■Stepped dowel pins　RoHS

MSFW



M SUJ2
H 58HRC～

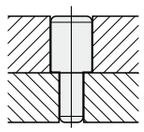
MSFWM（Tapped）



M SUJ2
H 58HRC～

MSFWM only M×P	ℓ	d	dL	Catalog No. Type	D	L	Base unit price 1～49 pieces MSFW	MSFWM
—	—	4	5	MSFW MSFWM (Tapped)	5	15		
			10			25		
—	—	5	10		6	20		
3×0.5	6		15			30		
4×0.7	8	6	10		8	25		
			15			35	Quotation	
5×0.8		8	15		10	35		
			15			40		
6×1.0	10	10	20		13	45		
			25			55		
			30			70		

Example



Useful for fall-out prevention and correction.

Order

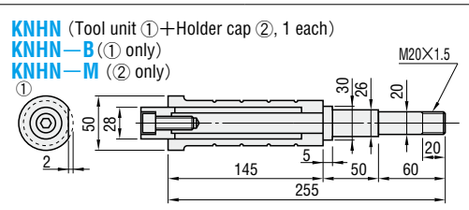
Catalog No.	—	L
MSFW 10	—	35

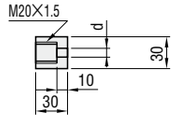
Price　Quotation

Days to Ship　Quotation

■Dowel pin extractors　RoHS

KNHN（Tool unit ①+Holder cap ②, 1 each）
KNHN—B（① only）
KNHN—M（② only）





①Tool unit
M S45C
H 38～42HRC
②Holder cap
For M4・M5・M6・M8・M10

Catalog No.	Base unit price 1～9 sets	Volume discount unit price 10～20
KNHN (①+②)	Quotation	

Catalog No.	Base unit price 1～9 pieces	Volume discount unit price 10～20
KNHN—B (① only)	Quotation	

d	Catalog No. Type	No.	Base unit price 1～9 pieces	Volume discount unit price 10～20
4.2	KNHN—M (② only)	4		
5.2		5		
6.3		6	Quotation	
8.5		8		
10.5		10		

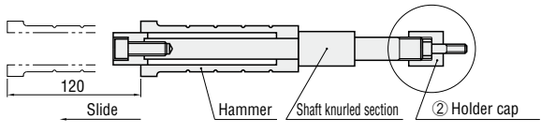
Order

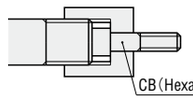
Catalog No.
KNHN
KNHN—M 5
KNHN—B

Days to Ship　Quotation

■Features
- The flange machining of the shaft knurled section allows these products to be used safely when the operator uses both hands, preventing hands from being caught between the shaft knurled section and hammer.
- The hammer part is shot blasted, making slipping less likely.
- A flat is cut on the hammer part in order to prevent it from turning.
- Loctite is used on the holder cap threads in order to prevent thread loosening.

■How to use
1. Insert a hexagon socket head cap screw（CB）into the holder cap.
2. Install the holder cap ② onto the end of the tool body.
3. Turn the shaft knurled section in order to insert the end of the screw into the dowel pin.
4. Slide the hammer and pull out the dowel pin.





CB（Hexagon socket head cap screw）P.809

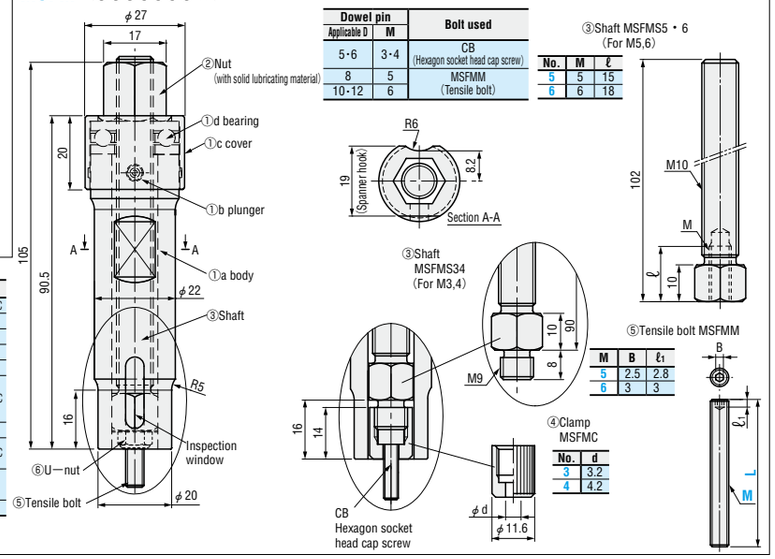
COMPONENTS

DOWEL PIN EXTRACTORS
—ROTATION TYPE—（APPLICABLE DOWEL PINS：D5 ～ 12）

RoHS

⑦MSFMB（201×149×39）

MSFM（①②③④⑤⑥⑦ set）



Dowel pin Applicable D	Dowel pin M	Bolt used
5・6	3・4	CB (Hexagon socket head cap screw)
8	5	MSFMM (Tensile bolt)
10・12	6	

No.	M	ℓ
5	5	15
6	6	18

M	B	ℓ1
5	2.5	2.8
6	3	3

No.	d
3	3.2
4	4.2

■Components

No.	Name		Type		M	H
①	Holder	a: body	MSFMH		SUS	45～50HRC
		b: plunger			SUS,SUJ2	—
		c: cover			SUS	—
		d: bearing			SUJ2	—
②	Nut		MSFMT		SUS303	—
③	Shaft		MSFMS	34	SCM435	38～43HRC
				5		
				6		
④	Clamp		MSFMC		SUS	—
⑤	Tensile bolt		MSFMM	5—30	SCM435	38～43HRC
				6—40		
⑥	U—nut		UNUTZ	5	SS400 or equivalent	—
				6		
⑦	Case		MSFMB		PP	—

Accessory：CB3—15 , CB4—20

■Dowel pin extractor set（①②③④⑤⑥⑦）

Catalog No.
MSFM

Accessory：CB3—15、CB4—20

■Single tensile bolt（⑤ only）

Catalog No. Type	M	L				
MSFMM	5	25	30	40	50	
	6		30	40	50	60

MSFM set is provided with MSFMM5—30 and MSFMM6—40.

■Ultra—long socket（Separately sold）

Catalog No.
4NV—17L100

Use for impact wrench（insertion angle：12.7）

Can be stored in ⑦ Case by inserting the shaft in the ultra—long socket.

Order — Catalog No. — L
MSFM
MSFMM5 — 50
4NV—17L100

Days to Ship: Quotation

Price: Quotation

■Other single components

Name	Catalog No. Type	No.
①Holder	MSFMH	
②Nut（with solid lubricating material）	MSFMT	
③Shaft	MSFMS	34
		5
		6
④Clamp（For shaft MSFMS34）	MSFMC	3
		4
⑦Case	MSFMB	

Order — Catalog No. MSFMH MSFMS6

Days to Ship: Quotation

Price: Quotation

■Features

- The rotation of the bolt and nut help the dowel pin be extracted smoothly.
- The compact shape make it possible to remove the dowel pin without demounting the die sets from the press machines.
- Because this structure reduces the shock during extraction, it solve those problems as shifting of peripheral components due to damage of bolt or vibration.

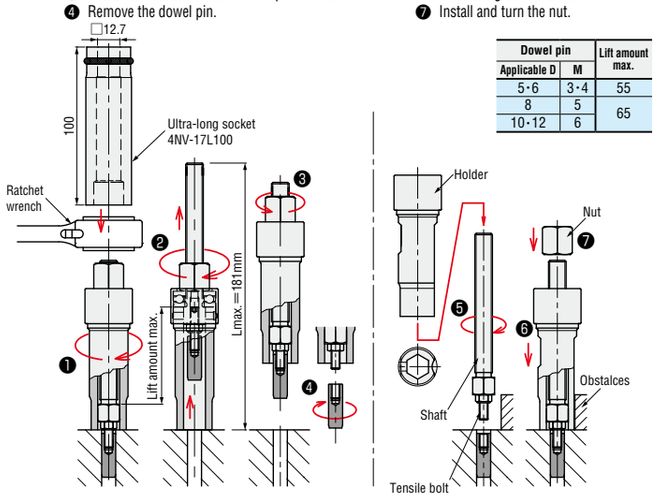
Example The dowel pin can be either extracted by applying ratchet wrench or spanner to the nut, or removed by usng impact wrench after changing the nut to the separately sold ultra-long socket 4NV—17L100.

—Without obstalces—

❶ By using the nut adjust the tensile bolts to extends about M×1.2mm from the holder. Turn the holder and screw the tensile bolt into the dowel pin.（Return about 1/2 rotation when the tensile bolt reached the incomplete thread of the dowel pin.）
❷ Turn the nut and extract the dowel pin.
❸ Rotate the nut and out the dowel pin from the holder.
❹ Remove the dowel pin.

—With obstacles nearby—

❺ Screw the shaft into the dowel pin by more than 5 threads.（Return about 1/2 rotation when the tensile bolt reached the incomplete thread of the dowel pin.）
❻ Insert the cut face of the holder into the shaft along the obstraction.
❼ Install and turn the nut.



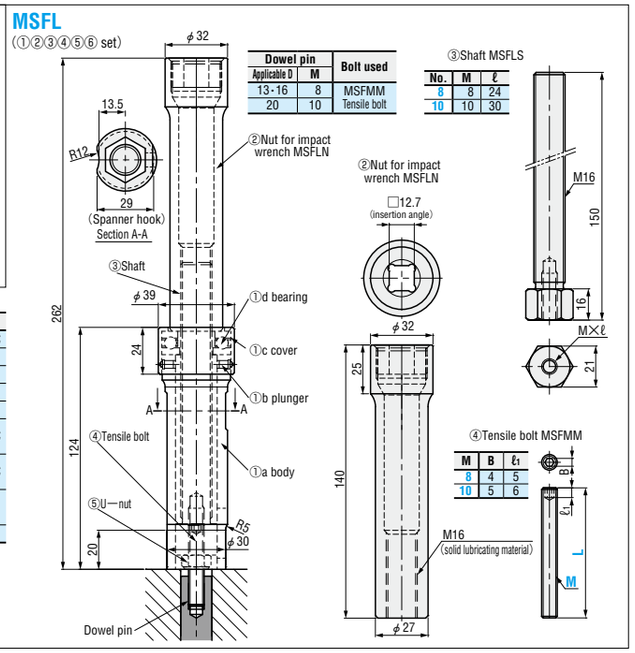
Dowel pin Applicable D	Dowel pin M	Lift amount max.
5・6	3・4	55
8	5	65
10・12	6	

DOWEL PIN EXTRACTORS
—ROTATION TYPE—（APPLICABLE DOWEL PINS：D13 ～ 20）

RoHS

⑥MSFLB（321×158×48）

MSFL（①②③④⑤⑥ set）



Dowel pin Applicable D	Dowel pin M	Bolt used
13・16	8	MSFMM Tensile bolt
20	10	

No.	M	ℓ
8	8	24
10	10	30

M	B	ℓ1
8	4	5
10	5	6

■Components

No.	Name		Type		M	H
①	Holder	a: body	MSFLH		SUS	45 ～ 50HRC
		b: plunger			SUS,SUJ2	—
		c: cover			SUS	—
		d: bearing			SUJ2	—
②	Nut for impact wrench		MSFLN		SUS303	—
③	Shaft		MSFLS	8	SCM435	38 ～ 43HRC
				10		
④	Tensile bolt		MSFMM	8—40	SCM435	38 ～ 43HRC
				10—50		
⑤	U—nut		UNUTZ	8	SS400 or equivalent	—
				10		
⑥	Case		MSFLB		Steel	—

※Reserved space：One more set can be stored by purchasing single nut components for ① Holder and ② Impact wrench.

■Dowel pin extractor set（①②③④⑤⑥）

Catalog No.
MSFL

■Single tensile bolt（④ only）

Catalog No. Type	M	L				
MSFMM	8	40	50	60	80	100
	10	40	50	60	80	100
						120

MSFL set is provided with MSFMM8—40 and MSFMM10—50.

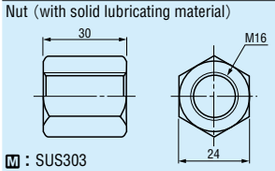
Order — Catalog No. — L
MSFL
MSFMM8 — 100

Days to Ship: Quotation

Price: Quotation

■Other single components

Name	Catalog No. Type	No.
①Holder	MSFLH	
②Nut for impact wrench	MSFLN	
③Shaft	MSFLS	8
		10
⑥Case	MSFLB	
Nut（with solid lubricating material）	MSFLT	



M：SUS303

MSFL（dowel pin extractor set）is not provided with MSFLT（nut）.

If nuts for ① Holder and ② Impact wrench are newly purchased, they can be dedicated for use with M8 and M10.

Order — Catalog No. MSFLH MSFLN

Days to Ship: Quotation

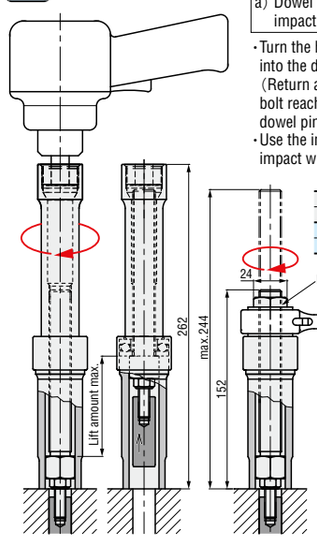
Price: Quotation

■Features

- The rotation of the bolt and nut help the dowel pin be extracted smoothly.
- It solves the problems that could easily occur with the traditional hammer-type dowel pin extractor used in large-diameter dowel pin, such as pinching of fingers and fallover due to damage of bolt and welded part.
- Extraction is easy even for dowel pin of tight engagement like MST（p6 tolerance）.
- Because this structure reduces the shock during extraction, it solve those problems as shifting of peripheral components due to damage of bolt or vibration.

Example Two removal modes are available depending on application.

a）Dowel pin can be easily removed with impact wrench（insertion angle：12.7）.
- Turn the holder and screw the tensile bolt into the dowel pin by more than 5 threads.（Return about 1/2 rotation when the tensile bolt reached the incomplete thread of the dowel pin.）
- Use the impact wrench to turn the nut for impact wrench, and remove the dowel pin.



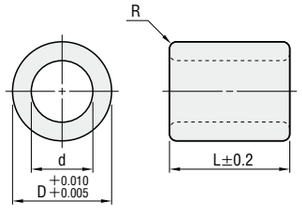
Dowel pin Applicable D	Dowel pin M	Lift amount max.
13・16	8	86
20	10	85

b）With the separately sold nut MSFLT, removal can be done using ratchet wrench and spanner, and application is possible in narrow space not accessible to impact wrench.

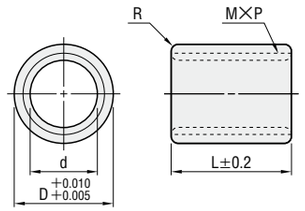
COMPONENTS

RoHS

DAS



DASP (Tapped)



M SUJ2 H 55HRC ~

D	L	d	R	M×P (Lift-out tap hole)	Catalog No. Type	Catalog No. No.	Base unit price DAS 1 ~ 49 pieces	Base unit price DASP 1 ~ 49 pieces
6	8	4.2	0.4	—	DAS DASP	※4	Quotation	Quotation
8	10	5.2	0.4	6×1.0		5		
10	12	6.3	0.6	8×1.25		6		
12	16	8.4	0.7	10×1.5		8		
14	20	10.4	0.8	12×1.75		10		
18	24	12.5	0.8	14×2.0		12		

※No. 4 is available for DAS only.
DASP is thinner than DAS. Therefore use DAS or else one size larger DASP at locations where rigidity is required.

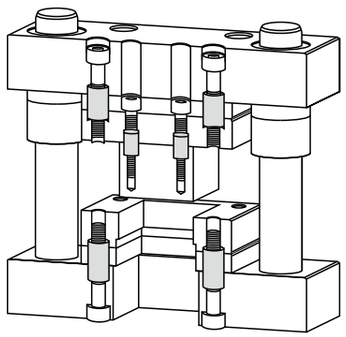
Order

Catalog No.
DAS 6

Days to Ship Quotation

Price Quotation

Example



Locating dowel rings

■Features

- Allows positioning to the same degree as a dowel pin.
- Positioning and clamping are achieved by a single operation, saving space.
- Detarminating location of three plates is possible.
- Elastic deformation of dowel rings may occur during press-fit to the plate.

■Installing the locating dowel ring

(1) **Dimensions of holes to be machined in plate**

Machining of hole on fixed plate (press-fit hole)

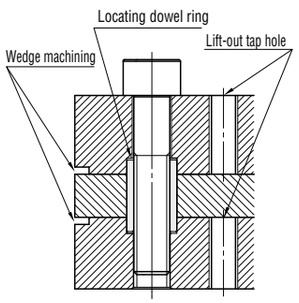
Actual outer diameter of locating dowel ring $^{0}_{-0.015}$

Machining of hole on removable plate (clearance-fit or transition-fit hole)

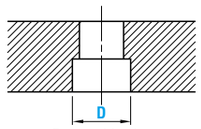
Actual outer diameter of locating dowel ring $^{+0.015}_{0}$

The hole machining dimensions vary depending on factors such as the plate material and hardness, and the application. The values here should be used only as an approximate guide.

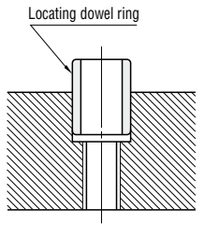
(2) When position accuracy is necessary and both ends are press-fit, create a lift-out tap hole or counterbore in order to facilitate removal.



Example of installation



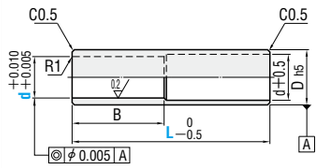
Removable plate



Fixed plate

RoHS

KNLB (Dowel bushings)

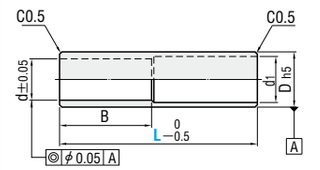


M SUJ2
H 58 ~ 62HRC

Dh5		B	Catalog No. Type	Catalog No. d	L	Base unit price 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	
					35 40 45 50 55	
					60 65 70 75 80	
14		20		10	20 25 30	
					35 40 45 50 55	
					60 65 70 75 80	
16		25		12	25 30	
					35 40 45 50 55	
					60 65 70 75 80	
18				13	30	
					35 40 45 50 55	
					60 65 70 75 80	

If L≦B, then L=B.
■Attachment method: Loctite adhesive (Henkel Japan No. 638)

KNLBB (Dowel bushing blanks)



M SUJ2
H 58 ~ 62HRC

Dh5		d	d1	B	Catalog No. Type	Catalog No. No.	L 0.5mm increments	Base unit price 1 ~ 9 pieces
10	0 −0.006	5.8	6.5	13	KNLBB (No inner diameter finishing)	6	10 ~ 60	Quotation
12	0 −0.008	7.8	8.5	15		8	10 ~ 80	
14		9.8	10.5	20		10		
16		11.8	12.5	25		12		
18		12.8	13.5			13		

If L≦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

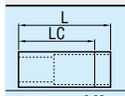
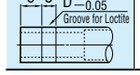
Days to Ship Quotation

Price Quotation

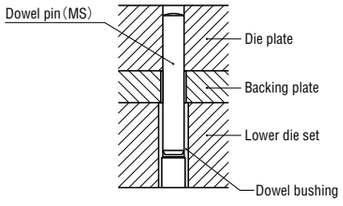
Alterations

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

Quotation

Alteration	Code	Spec.	1Code
	LC	L dimension change 10≦LC<Lmax. 0.5mm increments Can be used for KNLB.	Quotation
	DRC	Addition of grooves for Loctite	

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.

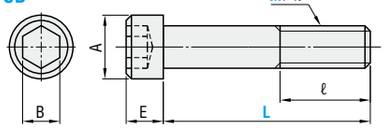
COMPONENTS

HEXAGON SOCKET HEAD CAP SCREWS

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

RoHS

CB



Detailed dimensions of each part Page at right

M SCM435 (M3 ~ M20)
SCM440 (M24)

H 38 ~ 43HRC (M3 ~ M20)
32 ~ 37HRC (M24)

Threads: JIS B 0205 Grade 2

S Black oxide (Fe_3O_4)

Bolt precision JIS B 1176
Strength class 12.9 (M3 ~ M20)
10.9 (M24)

ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	＊More than Qty.	＊Qty.
Full thread	CB 3— 5	Quotation		50
	6			
	8			
	10			
	12			
	14			
	15			
	16			
	18			
	20			
18	22			
	25			
	30			
	35			
	40			
	45			
	50			
	55			30
	60			
	65			
Full thread	CB 4— 5			50
	6			
	8			
	10			
	12			
	14			
	15			
	16			
	18			
	20			
20	22			
	25			
	30			
	35			
	40			
	45			
	50			
	55			
	60			
	65			30
	70			
	75			
Full thread	CB 5— 5			50
	6			
	8			
	10			
	12			
	14			
	15			
	16			
	18			
	20			
	22			
22	25			
	30			
	35			
	40			
	45			
	50			
	55			
	60			
	65			
	70			

ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	＊More than Qty.	＊Qty.
22	CB 5—75	Quotation		50
	80			
	85			
	90			
	95			
	100			30
	110			
	120			
	130			
	140			
Full thread	CB 6— 6			
	8			
	10			
	12			
	14			
	15			
	16			
	18			
	20			
	22			
24	25			
	30			
	35			
	40			
	45			
	50			
	55			
	60			
	65			
	70			
	75			
	80			
	85			
	90			
	95			
	100			
	110			30
	120			
	130			
	140			10
	150			
Full thread	CB 8— 8			
	10			
	12			
	15			
	16			
	18			
	20			
	22			
	25			
	30			
	35			
	40			
	45			
	50			
	55			
	60			
	65			
	70			
	75			
	80			
	85			
	90			
28	95			
	100			
	110			
	120			
	130			
	140			
	150			
	160			
	170			
	180			
	190			
	200			
	210			

ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	＊More than Qty.	＊Qty.
Full thread	CB 8— 95	Quotation		30
	100			
	110			
	120			
	130			
	140			
	150			
	160			
	200			5
Full thread	CB 10— 10			
	12			
	15			
	20			
	25			
	30			
	35			50
	40			
32	45			
	50			
	55			
	60			
	65			
	70			
	75			
	80			
	85			
	90			
	95			
	100			30
	110			
	120			
	130			
	140			
	150			
	160			10
	170			
	180			
	190			
	200			
	210			5
Full thread	CB 12— 15			
	20			
	25			
	30			50
	35			
	40			
	45			
	50			
	55			
	60			
	65			
	70			
	75			
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	85			
	90			
	95			
	100			
	110			
	120			
	130			
	140			
36	150			
	160			
	170			
	180			
	190			30
	200			
	210			
	220			
	230			
	240			
	250			
	260			
	270			
	280			10
	290			
40				5
Full thread	CB 14— 30			50
	35			
	40			

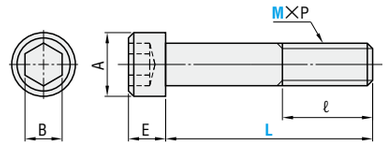
ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	＊More than Qty.	＊Qty.
Full thread	CB 16— 20			
	25			
	30			
	35			
	40			
	45			
	50			
	55			
	60			
	65			30
	70			
	75			
	80			
	85			
	90			
	95			
	100			
	110			
	120			
	130			
	140			
	150			
	160			
	170			
	180			
	190			
	200			
	210			
44	220			
	230			
	240			
	250			
	260			
	270			5
	280			
	290			
50	300			
48	310			
60	320			
Full thread	CB 20— 40			
	45			
	50			
	55			30
	60			
	65			
	70			
	75			
	80			
	85			
	90			
	95			
	100			10
	110			
	120			
	130			
	140			
52	150			
	160			
	170			
	180			
	190			
	200			5
	210			
	220			
	230			
	240			
	250			
Full thread	CB 24— 50			
	60			
	70			
	80			10
	90			
	100			
	110			
	120			
60	130			
	140			
	150			5

BOX SETS OF HEXAGON SOCKET HEAD CAP SCREWS

RoHS

Type	M	S	H
BOX—CB	SCM—435	Black oxide (Fe_3O_4)	38~43HRC

Strength class 12.9



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

ℓ	Catalog No. Type M— L	Base unit price Apx price per piece	Per box	Qty. per box
Full thread	BOX-CB 3— 5			
	3— 6			
	3— 8			
	3— 10			
	3— 12			
	3— 15			
	3— 16			
	3— 18			
	3— 20			
	3— 25			
18	3— 30			1000 pieces/box
Full thread	BOX-CB 4— 5			
	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. Type M— L	Base unit price Apx price per piece	Per box	Qty. per box
Full thread	BOX-CB 5— 6			
	5— 8			
	5— 10			
	5— 12			1000 pieces/box
	5— 15			
	5— 16			
	5— 18			
	5— 20			
	5— 25			800 pieces/box
	5— 30			
22	5— 35			600 pieces/box
	5— 40			
Full thread	BOX-CB 6— 8			
	6— 10			1000 pieces/box
	6— 12			
	6— 15			800 pieces/box
	6— 20			
	6— 25			600 pieces/box
	6— 30			
24	6— 35			400 pieces/box
	6— 40			
Full thread	BOX-CB 8— 12			500 pieces/box
	8— 15			400 pieces/box
	8— 20			
	8— 25			300 pieces/box
	8— 30			
	8— 35			200 pieces/box
28	8— 40			

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.1641

Order

Catalog No.
CB 6—10
BOX—CB 6—25

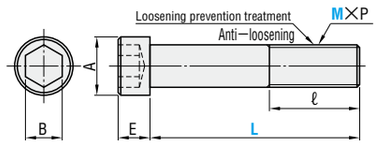
Days to Ship

Quotation

COMPONENTS

RoHS

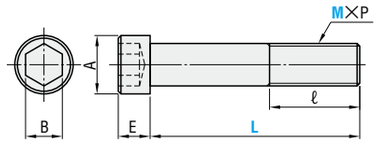
LB (With loosening prevention treatment)



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

RoHS

SCB (Stainless steel)



M SUSXM7
JIS B 1176 ※Strength class A2—70

ℓ New JIS	Catalog No. Type M— L	Base unit price 1~49 pcs.	Base unit price 50~200
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		

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

ℓ New JIS	Catalog No. Type M— L	Base unit price 1~49 pcs.	Base unit price 50~200
Full Thread	LB 8—15		
	20		
	25		
	30		
	35		
	40		
28	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		

Quotation

Reference: Dimensions of counterbore and bolt holes for hexagon socket head cap screws P.1641

Reference: Thread shear strength data P.1645

ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	Base unit price ＊More than Qty.	＊Qty.
Full thread	SCB 2.5— 5			
	8			
	10			
Full thread	SCB 2.6— 5			
	8			
	10			
	12			
	15			
Full thread	SCB 3— 6			
	8			
	10			
	12			
	15			
	20			
18	25			
	30			
Full thread	SCB 4— 6			
	8			
	10			
	12			
	15			
	20			
	25			
20	30			
	35			
	40			
Full thread	SCB 5— 8			
	10			
	12			
	15			
	20			
	25			
	30			
22	35			
	40			
	45			
	50			

Quotation

ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	Base unit price ＊More than Qty.	＊Qty.
Full thread	SCB 6—10			
	12			
	15			
	20			
	25			
	30			
	35			
	40			
24	45			
	50			
Full thread	SCB 8—15			
	20			
	25			
	30			
	35			
	40			
	45			
28	50			
	55			
	60			
Full thread	SCB 10—15			
	20			
	25			
	30			
	35			
	40			
	45			
32	50			
	55			
	60			
Full thread	SCB 12—25			
	30			
	35			
	40			
	45			
	＊50			
36	55			
	60			

Quotation

100

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

Order

Catalog No.
LB 10—20
SCB 5—25

Days to Ship: Quotation

Price: Quotation

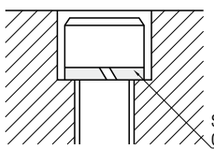
※"Strength class" indicates the tensile strength of the threads.

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)

Example



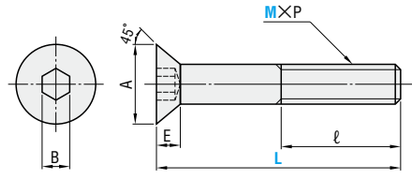
P.812

〈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.

RoHS

FB (Conventional type)
FBJ (JIS type)



M SCM435
H 32～38HRC
S Black oxide (Fe_3O_4)
(JIS B 0205 Grade 2 Strength class 10.9)

■Conventional type (space-saving E dimension specification)

M×P	A min.	A max.	E min.	E max.	B	ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	Base unit price ＊More than Qty.	＊Qty.
4×0.7	7.64	8.00	2.16	2.30	2.5	Full thread	FB 4—10			200
							15			
							20			
							25			
						14	30			
							35			
5×0.8	9.64	10.00	2.66	2.80	3.0	Full thread	FB 5—10			
							12			
							15			
							16			
							20			
							25			
							30			
						16	35			
							40			
6×1.0	11.57	12.00	3.12	3.30	4.0	Full thread	FB 6—10			100
							12			
							15			
							16			
							20			
							25			
							30			
							35			
							40			
						18	45			
8×1.25	15.57	16.00	4.22	4.40	5.0	Full thread	FB 8—15			
							20			
							25			
							30			
							35			
							40			
							45			
						22	50			
10×1.5	19.48	20.00	5.32	5.50	6.0	Full thread	FB 10—20			

Quotation

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 min.	A max.	E min.	E max.	B	ℓ	Catalog No. Type M—L	Base unit price ＊Less than Qty.	Base unit price ＊More than Qty.	＊Qty.
4×0.7	7.53	8.96	2.23	2.48	2.5	Full thread	FBJ 4—10			200
							15			
							20			
							25			
						20	30			
							35			
5×0.8	9.43	11.20	2.80	3.10	3.0	Full thread	FBJ 5—10			
							12			
							15			
							16			
							20			
							25			
							30			
						22	35			
							40			
6×1.0	11.34	13.44	3.30	3.72	4.0	Full thread	FBJ 6—10			100
							12			
							15			
							16			
							20			
							25			
							30			
							35			
						24	40			
							45			
8×1.25	15.24	17.92	4.40	4.96	5.0	Full thread	FBJ 8—15			
							20			
							25			
							30			
							35			
							40			
							45			
						28	50			
10×1.5	19.22	22.40	5.50	6.20	6.0	Full thread	FBJ 10—20			

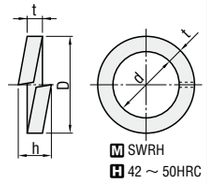
Quotation

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 SWRH
H 42 ～ 50HRC

d	(D)	(h)	t	Catalog No. Type	Catalog No. No.	Base unit price 1~49 pcs.	Volume discount unit price 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				

Quotation

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

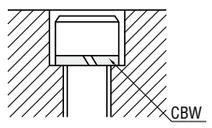
Order

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.

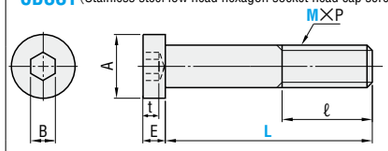


COMPONENTS

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)



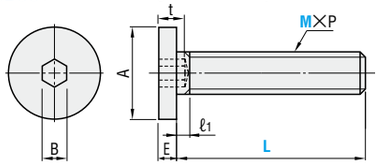
Type	M	H	S	Strength class
CBS	SCM435	32～39HRC	Black oxide (Fe_3O_4)	10.9
CBSST	SUSXM7	—	—	A2—50

M×P	A	E	B	t max.	ℓ CBS	ℓ CBSST	Catalog No. Type M—L	Base unit price CBS 1～99 pcs.	CBS 100～300	CBSST 1～99 pcs.	CBSST 100～300
3×0.5	5.5	2	2	1.5	Full thread	Full thread	CBS 3—6				
							CBSST 8				
							10				
							12				
							16				
					12		20				
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				
					16	24	30				
6×1.0	10	4	4	3	Full thread	Full thread	CBS 6—8				
							CBSST 10				
							12				
							16				
							20				
							25				
					18	26	30				
							35				
							40				
							45				
8×1.25	13	5	5	3.8	Full thread	Full thread	CBS 8—10				
							CBSST 12				
							16				
							20				
							25				
							30				
							35				
					22	30	40				
							45				
							50				
10×1.5	16	6	6	4.5	Full thread	Full thread	CBS 10—16				
							CBSST 20				
							25				
							30				
							35				
							40				
					32	36	45				
							50				
12×1.75	18	7	8	5	Full thread	Full thread	CBS 12—20				
							CBSST 25				
							30				
							35				
							40				
							45				
					30	40	50				

Quotation

RoHS

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



M SCM435
H 32～39HRC
S Black oxide (Fe_3O_4)

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

M×P	A	E	B	t max.	ℓ1 max.	Catalog No. Type M—L	Base unit price 1～49 pcs.	50～300
3×0.5	6	1.3	1.5	2	1.6	CBSS 3—6		
						8		
						10		
4×0.7	8	1.5	2	2.5	1.6	CBSS 4—6		
						8		
						10		
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		
						25		
8×1.25	13	1.5	4	5	2.5	CBSS 8—8		
						10		
						12		
						16		
						20		
						25		
						30		
10×1.5	16	1.5	5	5	3.0	CBSS10—10		
						12		
						16		
						20		
						25		
						30		

Quotation

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

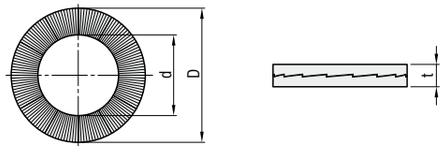
■Features

- **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.

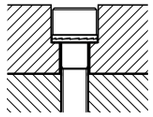
Bolt	D	d	t	Catalog No. Type	No.	Base unit price 1～19 pairs	Volume discount unit price 20～199 pairs
M 3	7.0	3.4	1.8	NLDP	3	Quotation	
M 4	7.6	4.4	1.8		4		
M 5	9.0	5.4	1.8		5		
M 6	10.8	6.5	1.8		6		
M 8	13.5	8.7	2.5		8		
M10	16.6	10.7	2.5		10		
M12	19.5	13.0	2.5		12		
M16	25.4	17.0	3.4		16		
M20	30.7	21.4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



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

■Set sales

Catalog No. Type	No.	Set price	Pairs/set
NLDP—B	3	Quotation	200 pairs
	4		
	5		
	6		
	8		
	10		
	12		100 pairs
	16		
	20		

Order

■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

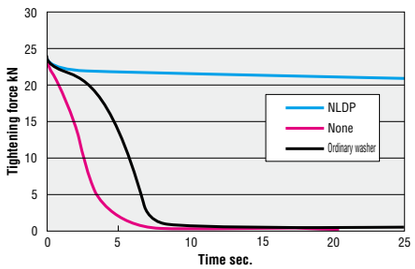
NLDP can be used repeatedly.At this time, be sure to use lubricating oil.

■Allowable temperature limit

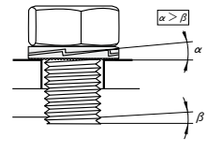
The maximum allowable temperature for NLDP is 200℃.
Do not use these washers at temperatures above this limit.

■Graph of vibration test results (reference)

Tester: Yanker type vibration tester
Amplitude: ±0.5mm
Frequency: 40 Hz
Loosening prevention washer used: NLDP8
Bolt used: M8 (strength class 12.9)
Clamped material used: Equivalent to S20C (28HRC)



[Fig.] 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

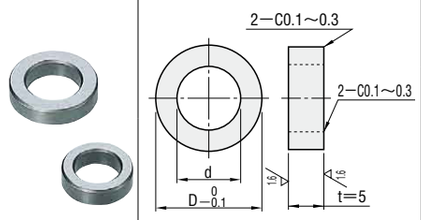
NLDP	Bolt M×P	Bolt strength class 12.9 μT=0.12 GF=0.75 Torque Nm	Tightening force kN	Bolt strength class 10.9 μT=0.14 GF=0.71 Torque Nm	Tightening force kN	Bolt strength class 8.8 μT=0.14 GF=0.71 Torque Nm	Tightening force kN
3	3×0.5	2	3.9	1.7	3.2	1.3	2.4
4	4×0.7	4.6	6.7	3.8	5.6	3	4.2
5	5×0.8	9	10.9	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

μT: Thread coefficient of friction
GF: Yield point ratio

COMPONENTS

RoHS

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



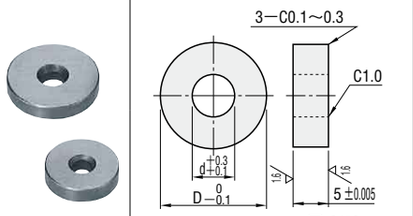
M S45C
H 48 ~ 52HRC

t T	D	d T		Catalog No.		Base unit price 1 ~ 49 pieces	Volume discount unit price 50 ~ 199	200 ~ 499	500 ~ 1000
±0.005	10	6	+0.3 +0.1	K	10				
	13	8			13				
	16	10			16				
	20	12			20				
±0.01	8	5	+0.2 +0.1	W	10				
	11	6			13				
	14	8			16				
	17	10			20				

Quotation

RoHS

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



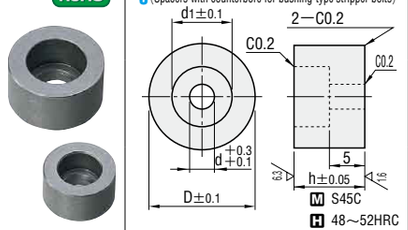
M S45C
H 48 ~ 52HRC

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		20				
16	4	R	6.5—16				
18			6.5—18				
18	5		8—18				
20			8—20				
22			8—22				
20	6		10—20				
22			10—22				
25			10—25				
27			10—27				
25	8		13—25				
27			13—27				
30			13—30				
30	10		16—30				
35			16—35				
40			16—40				
35	12		20—35				
40			20—40				

Quotation

RoHS

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



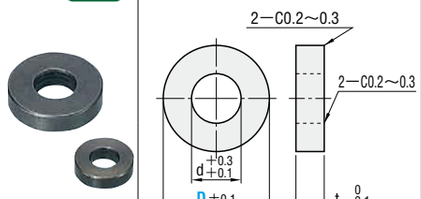
M S45C
H 48~52HRC

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				
27	17.5	10	15		16				
32	19.5	12	17		20				

Quotation

RoHS

SW (Washers for stripper bolts and coil springs)



M S45C
H 48~52HRC

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			12				
	6			12—6				
16	6.5	4		16				
20	8	5		20				
22	10			22				
25				25				
	12			25—12				
27	13	8		27				
30				30				
35	16			35				
40				40				
50	20	10		50				

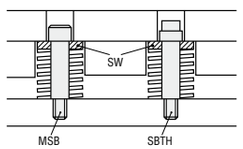
Quotation

Order

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

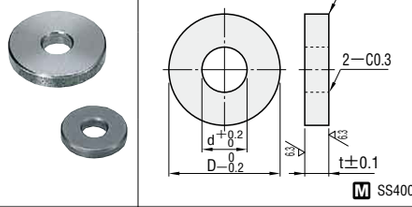
Days to Ship **Quotation**

Example



RoHS

SRW (Washers for stripper guide pins)



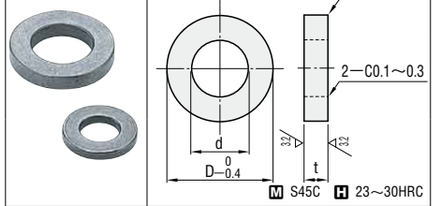
M SS400

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

Quotation

RoHS

WSS (Washers for oblong holes)



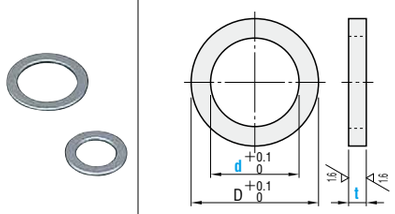
M S45C H 23~30HRC

D	d T		t T		Catalog No.		Base unit price 1 ~ 49 pieces	Volume discount unit price 50 ~ 99	100 ~ 499	500 ~ 1000
12.5	6.4	+0.25 0	2.5	±0.25	WSS	6				
17	8.4					8				
21	10.5	+0.3 0	3	±0.3		10				
24	13		4	±0.4		12				
30	17		5	±0.5		16				
37	21					20				

Quotation

RoHS

MSRB (Spacers for MSB)



M SK5

t T	
0.1	±0.020
0.2	±0.020
0.3	±0.030
0.5	±0.030
1.0	±0.040
2.0	±0.090

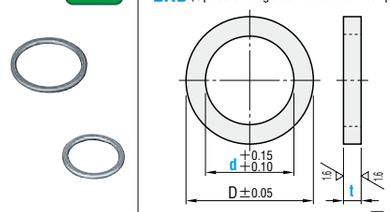
D	d	Catalog No.		t	Base unit price 1 ~ 49 pcs.	Volume discount unit price 50 ~ 99	100 ~ 499	500 ~ 1000
6.5	4	MSRB	＊4					
7	4.5		4.5					
8	5		＊5					
9	5.5		5.5	0.1				
9	6		＊6	0.2				
10	6.5		6.5	0.3				
13	8		8	0.5				
16	10		10	1.0				
17	12		＊12	2.0				
18	13		13					
24	16		16					
27	20		20					

Quotation

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

RoHS

LRB (Spacers for guide lifters and lifter pins)



M SK5

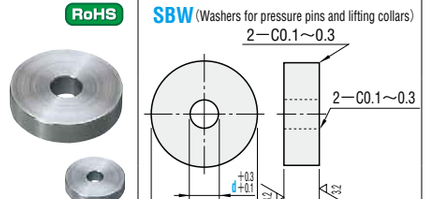
t T	
0.1	±0.020
0.2	±0.020
0.3	±0.030
0.5	±0.030
1.0	±0.040

D	d	Catalog No.		t	Base unit price 1 ~ 49 pcs.	Volume discount unit price 50 ~ 99	100 ~ 499	500 ~ 1000
6	4	LRB	4	0.1 0.2 0.3 0.5 1.0				
7	5		5					
8	6		6					
10	8		8					
13	10		10					
16	13		13					
19	16		16					
23	20		20					

Quotation

RoHS

SBW (Washers for pressure pins and lifting collars)



M S45C H 48~52HRC

t	Catalog No. Type	D	d	Base unit price 1 ~ 49 pcs.	Volume discount unit price 50 ~ 199	200 ~ 499	500 ~ 1000
5	SBW	20	5				
		22	5				
		25	6				
7		27	5				
		30	6				
		35	8				

Quotation

Order

	Catalog No.		t
•SRW・WSS	SRW 20 WSS 8		
•MSRB・LRB	MSRB 10 LRB 8	— —	0.1 0.5
•SBW	SBW 20	—	5

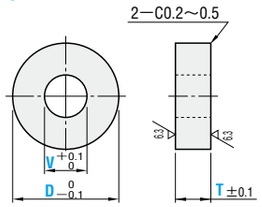
Days to Ship **Quotation**

COMPONENTS

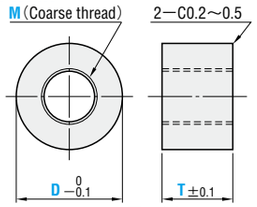
FREE WASHERS

RoHS

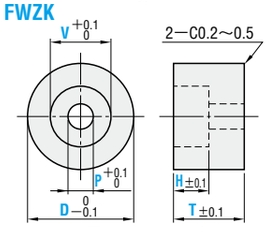
FWSS
FWSK



FWMS (Tapped type)
FWMK



FWZS (Counterbore type)
FWZK



FW□S M SS400 (Without hardening) FW□K M SKS3 H 56～60HRC

Catalog No.	D	V 0.1mm increments	T 0.1mm increments	Base unit price FWSS 1～9 pieces	Base unit price FWSK 1～9 pieces
FWSS (SS400) / FWSK (SKS3)	7～10 (0.5 mm increments)	2.5～55	1.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			30.1～40		
			40.1～50		
	10.5～20 (0.5 mm increments)		1.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			30.1～40		
			40.1～50		
	21～30 (1mm increments)		1.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			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		
			40.1～50		
	41～50 (1mm increments)		1.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			30.1～40		
			40.1～50		
	51～60 (1mm increments)		1.0～5		
			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.

Catalog No.	D	M selection	T 0.1mm increments	Base unit price FWMS 1～9 pieces	Base unit price FWMK 1～9 pieces
(Tapped) FWMS (SS400) / FWMK (SKS3)	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		
			40.1～50		
	21～30 (1mm increments)		3.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			30.1～40		
			40.1～50		
	31～40 (1mm increments)		3.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			30.1～40		
			40.1～50		
	41～50 (1mm increments)		3.0～5		
			5.1～10		
			10.1～20		
			20.1～30		
			30.1～40		
			40.1～50		

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	Base unit price FWZK 1～9 pieces
(Counterbore type) FWZS (SS400) / FWZK (SKS3)	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		
					40.1～50		
	31～40 (1mm increments)				3.0～5		
					5.1～10		
					10.1～20		
					20.1～30		
					30.1～40		
					40.1～50		
	41～50 (1mm increments)				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.

Order

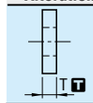
Catalog No.	D	V	M	P	H	T
FWSS	D20	V5				T2.0
FWMS	D15		M3			T3.5
FWZS	D20	V10		P5	H10	T20

Days to Ship Quotation

Price Quotation

Alterations

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

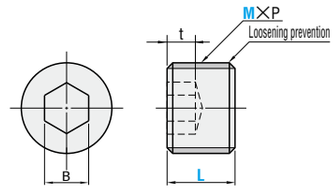
Alteration	Code	Spec.	1Code
	TKC1 TKC2 TKC3	Thickness tolerance change: TKC1 ±0.05; TKC2 ±0.01; TKC3 ±0.005	TKC1; TKC2 Quotation; TKC3

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 (Fe_3O_4)
Loosening prevention nylon resin (red)

M×P		L	B	t	Catalog No. Type	Catalog No. M	Base unit price 1～19 pcs.	Volume discount unit price 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				
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

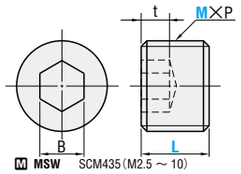
- Highly suitable for repeated use.
- Because a double nut is not necessary, it is possible to reduce the number of machining man-hours for dies and other items.
- Re-tightening adjustments can be made at any time.
- Excellent chemical resistance.

COMPONENTS

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

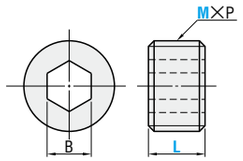
RoHS

MSW
MSWS (Short type)



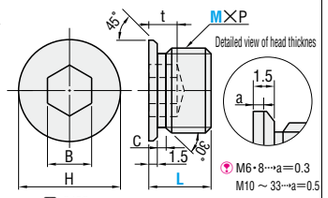
M **MSW** SCM435 (M2.5 ～ 10)
S45C (M12 ～ 45)
MSWS S45C
H 34 ～ 43HRC
S Black oxide (Fe_3O_4)
(JIS B 0207 Grade 2)

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



M S45C
H 34 ～ 43HRC
S Black oxide (Fe_3O_4)
(JIS B 0207 Grade 2)

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



M6・8…a=0.3
M10 ～ 33…a=0.5

M S45C
H 33 ～ 38HRC
S Black oxide (Fe_3O_4)
(JIS B 0207 Grade 2)

■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	1.2	MSW	2.5				
3	0.5	3	1.5			3 *				
4	0.7	4	2	1.5		4 *				
5	0.8	5	2.5	2		5 *				
6	1.0	6	3	3.5		6				
8	1.25	8	4	5		8				
10	1.5	10	5	6		10				
12	1.5 (fine thread)		6	5.5		12				
14						14				
16			8			16				
18			10			18				
20		12		6		20				
22			12			22				
24			14			24				
25						25				
26						26				
27						27				
28						28				
30			17			30				
33						33				
36		18		10		36				
38						38				
40						40				
42						42				
45						45				

Quotation

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

M×P		L	B	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	10	5		10				
12	1.5 (fine thread)		6		12				
14					14				
16			8		16				
18			10		18				
20		12			20				
22			12		22				
24			14		24				
25					25				
26					26				
27					27				
28					28				
30			17		30				
33					33				

Quotation

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	5	2.5	MSWZ (Washer face)	6				
8	1.25	10	4	11				8				
10	1.5	12	5	13				10				
12	1.5 (fine thread)		6	15				12				
14				17				14				
16			8	19				16				
18			10	21				18				
20				23				20				
22			12	25				22				
24		15	14	27				24				
25				28				25				
26				29				26				
27				30				27				
28				31				28				
30			17	33				30				
33				36				33				

Quotation

■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	6	4	3	MSWS (Short)	8—6				
10	1.5		5			10—6				
12	1.5 (fine thread)		6			12—6				
14						14—6				
16			8			16—6				
18			10			18—6				
20		8		4		20—8				
22			12			22—8				
24			14			24—8				
25						25—8				
26						26—8				
27						27—8				
28						28—8				
30			17			30—8				
33						33—8				

Quotation

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

Quotation

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	10	5	13	4	2.0	MSWZS (Washer face Short)	10—10				
12	1.5 (fine thread)		6	15				12—10				
14				17				14—10				
16			8	19				16—10				
18			10	21				18—10				
20				23				20—10				
22			12	25				22—10				
24		14		27				24—10				
25				28				25—10				
26				29				26—10				
27				30				27—10				
28				31				28—10				
30		12	17	33	5			30—12				
33				36				33—12				

Quotation

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

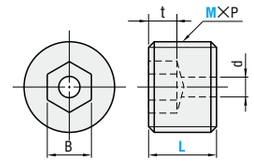
Catalog No.
MSW 18
MSWS 18—6

Page at right

Days to Ship Quotation

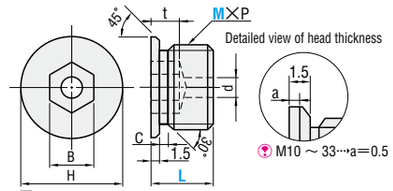
RoHS

MSWH
MSWSH (Short type)



M S45C
H 34 ～ 43HRC
S Black oxide (Fe_3O_4)
(JIS B 0207 Grade 2)

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



M10 ～ 33…a=0.5

M S45C
H 33 ～ 38HRC
S Black oxide (Fe_3O_4)
(JIS B 0207 Grade 2)

■Standard type

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

Quotation

M×P	L	B	H	d	t	C	Catalog No. Type	M	Base unit price 1 ～ 99 pcs.	Volume discount unit price 100 ～ 200
10	1.5	5	13	3	5	2.5	MSWZH (Washer face)	10		
12		6	15					12		
14			17					14		
16		8	19					16		
18		10	21					18		
20			23					20		
22		12	25					22		
24		14	27	5				24		
25			28					25		
26			29					26		
27			30					27		
28			31					28		
30		17	33					30		
33			36					33		

Quotation

■Short type

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

Quotation

M×P	L	B	H	d	t	C	Catalog No. Type	M—L	Base unit price 1 ～ 99 pieces	Volume discount unit price 100 ～ 200
10	1.5	10	5	13	3	4	2.0	MSWZSH (Washer face Short)	10—10	
12			6	15					12—10	
14				17					14—10	
16			8	19					16—10	
18			10	21					18—10	
20				23					20—10	
22			12	25					22—10	
24			14	27	5				24—10	
25				28					25—10	
26				29					26—10	
27				30					27—10	
28				31					28—10	
30		12	17	33		5			30—12	
33				36					33—12	

Quotation

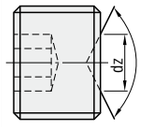
Order

Catalog No.
MSWZH 30
MSWSH 18—6

Days to Ship Quotation

Example

■MSW: Shape and dimensions of dimple



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

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

■MSW

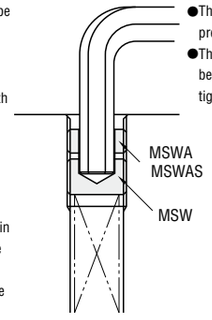
- The tightening position can be adjusted easily.

■Through hole type

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

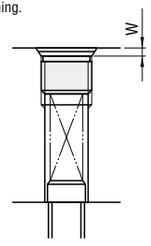
■Short type

- 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.



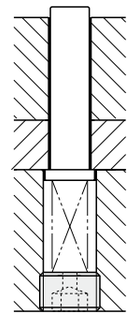
■Washer face type

- 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.



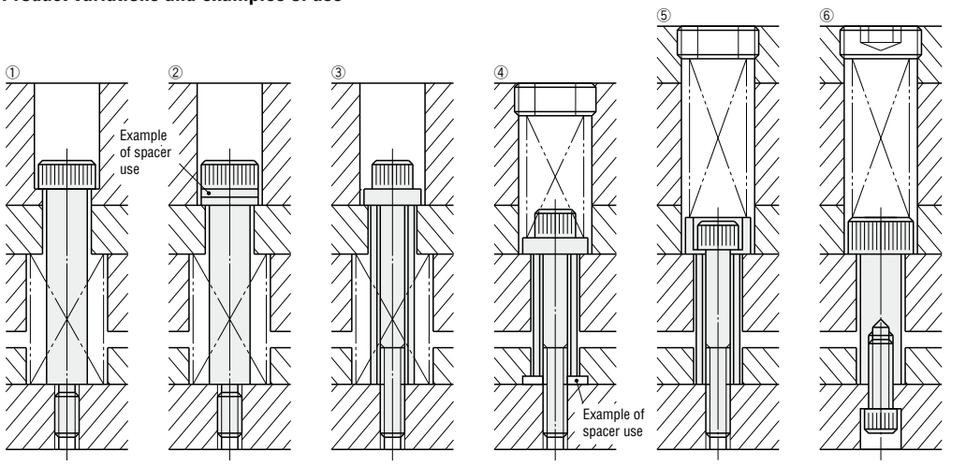
COMPONENTS

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



Stripper bolts, male threads — Stripper bolts, bushing type — Stripper bolts, female threads

MSB P.823

SBTH P.827
SBWH P.828
CSR P.1001
CSRH P.1003

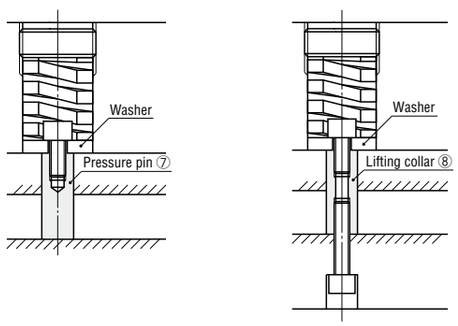
SBRH P.827

SBJH P.827

SBT P.825
SBTC P.825
SBTL P.825
SBTK P.825

■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.816**) is used to compensate after regrinding 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 regrinding.
■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.

⑦SBKP P.830
SBKS P.830
⑧SBKT P.830
SBK P.830

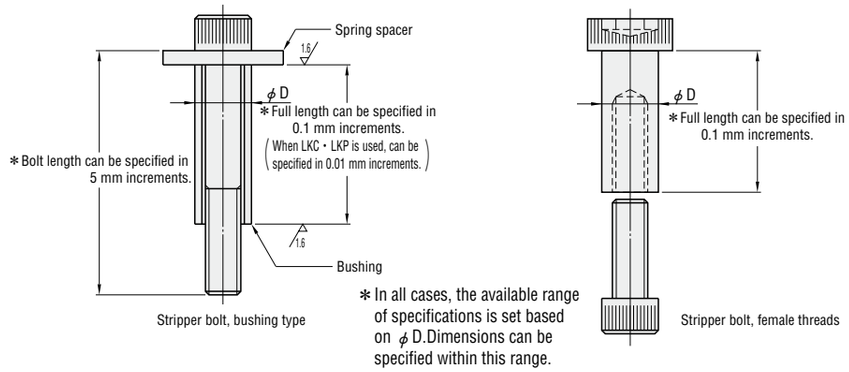
■Half-made standard specification bolts

●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.

●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.



Stripper bolt, bushing type

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

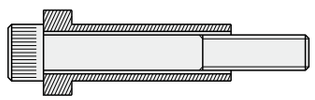
Stripper bolt, female threads

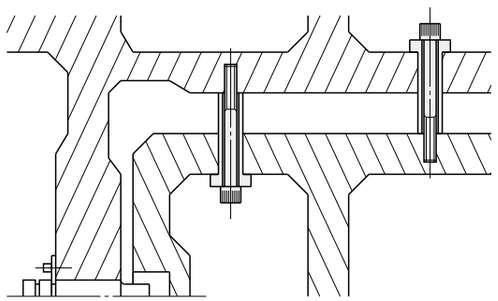
●Full length tolerance

The full length tolerance is ±0.05mm 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.1001**), which are primarily used for automobile body dies and similar dies, are also available.These parts also function to hold the stripper pad.

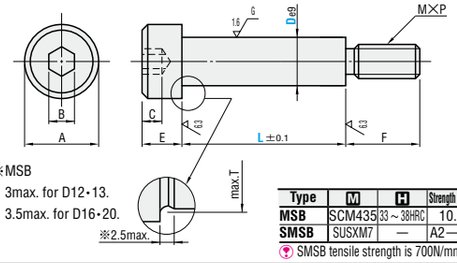




COMPONENTS

RoHS

MSB
SMSB (Stainless steel)



※MSB
3max. for D12・13.
3.5max. for D16・20.
※2.5max.

Type	M	H	Strength class
MSB	SCM435	33 ~ 38HRC	10.9
SMSB	SUSXM7	—	A2—50

SMSB tensile strength is 700N/mm².

Deg		A	B	C	E	F	M×P	T
4	−0.020 −0.050	6.5	2.5	1.6	3	5	2.5×0.45	4.5
4.5		7				6	3×0.5	5
5		8			3.5			5.5
5.5		9	3	2.2	4	7	4×0.7	6
6				2				6.5
6.5	−0.025 −0.061	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	−0.032 −0.075	17						12.8
13		18	8	5	10	16	10×1.5	14
16		24	10	7	14	18	12×1.75	17
20	−0.040 −0.092	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 1 ~ 49 pieces	Base unit price SMSB 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 95 100 110 120		
	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 95 100 110 120 130		
	16	15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100 110 120 130 140 150		
	20	40 50 60 70 80 90 100 110 120 130 140 150		

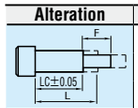
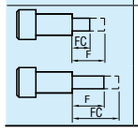
Quotation

Order: Catalog No. — L
MSB 10 — 50

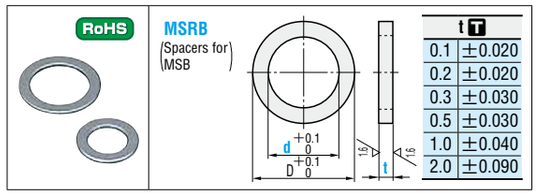
Days to Ship: Quotation

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	Quotation
	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



RoHS

MSRB
(Spacers for MSB)

t T	
0.1	±0.020
0.2	±0.020
0.3	±0.030
0.5	±0.030
1.0	±0.040
2.0	±0.090

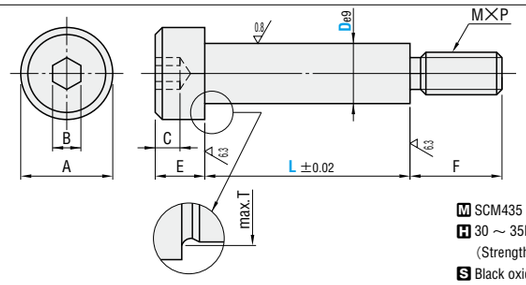
D	d	Catalog No.	t
6.5	4	MSRB ＊4	0.1
7	4.5	4.5	0.2
8	5	＊5	0.3
9	5.5	5.5	0.5
9	6	＊6	1.0
10	6.5	6.5	2.0
13	8	8	
16	10	10	
17	12	＊12	
18	13	13	
24	16	16	
27	20	20	

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

For delivery and prices P.816

Stripper bolts, male threads RoHS

MSBL



M SCM435
H 30 ~ 35HRC
(Strength class 10.9)
S Black oxide (Fe_3O_4) (head only)

Deg		A	B	C	E	F	M×P	T	Catalog No. Type	D	1mm increments L	Base unit price 1~19
6.5	−0.025 −0.061	10	4	2.5	5	9	M 5×0.8	7	MSBL	6.5	10 ~ 70	Quotation
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	−0.032 −0.075	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	−0.040 −0.092	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	

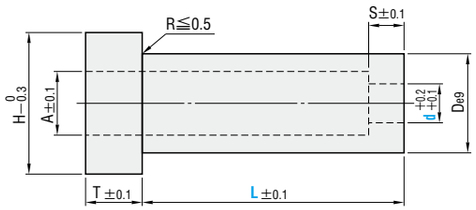
The head is not knurled.

Order: Catalog No. — L
MSBL 10 — 53

Days to Ship: Quotation

Stroke extension retainers RoHS

MSBE



M SK4
H 53 ~ 58HRC

MSB used Size	Shaft diameter (D)	Head diameter (A)	Head thickness (E)	Thread (M)	H	T	A	S	Deg	Catalog No. Type	d	L (Selection)
MSB 8	8	13	6	M 6	25	6	14	8	18 −0.032 −0.075	MSBE	8	50 60 70 80 90
MSB10	10	16	8	M 8	27	8	17	10	22 −0.04		10	
MSB13	13	18	10	M10	30	10	19	13	25 −0.092		13	
MSB16	16	24	14	M12	37	15	25	16	32 −0.05 −0.112		16	

Order: Catalog No. — L
MSBE 8 — 50

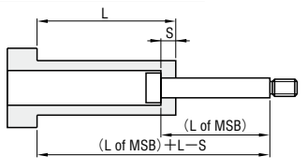
Days to Ship: Quotation

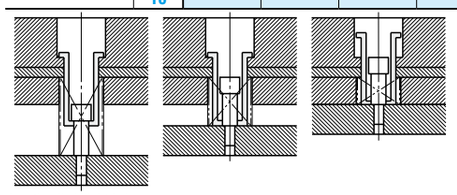
Price: Quotation

Catalog No. Type	d	Base unit price 1 ~ 9 pieces L50	L60	L70	L80	L90
MSBE	8					
	10					
	13					
	16					

Quotation

Example: Combined with MSB





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

COMPONENTS

STRIPPER BOLTS, FEMALE THREADS

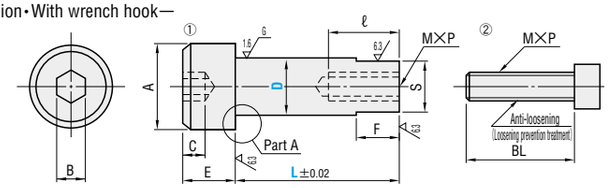
Type	Wrench hook	Set	Catalog No.
Fixed dimension type	With	Set of ①+②	SBT
		① only	SBTN
	W/O	Set of ①+②	SBTC
		① only	SBTCN
Configurable L dimension type	With	Set of ①+②	SBTL
		① only	SBTLN
	W/O	Set of ①+②	SBTK
		① only	SBTKN

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.

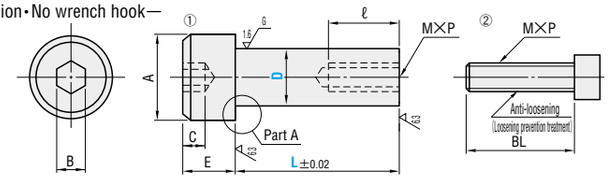
—Fixed L dimension・With wrench hook—

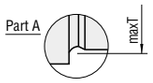
SBT (①+②)
SBTN (①)



—Fixed L dimension・No wrench hook—

SBTC (①+②)
SBTCN (①)

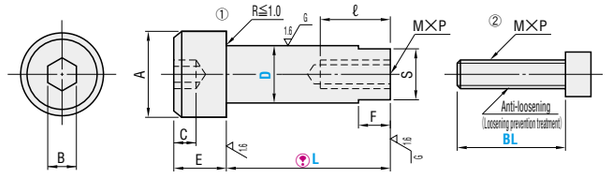




M SCM435
H 33 ~ 38HRC
S Black oxide (Fe_3O_4)
Strength class 10.9

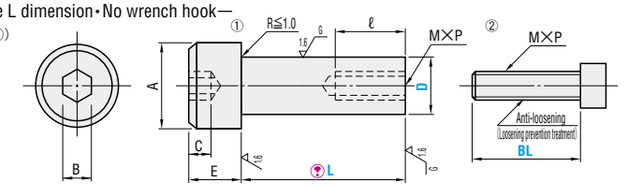
—Configurable L dimension・With wrench hook—

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 (Fe_3O_4)
Strength class 10.9

D		A	B	C	E	T	ℓ	BL	SBTC・SBTCN M×P	SBT・SBTN M×P	SBT・SBTN F	SBT・SBTN S	Catalog No. Type	Catalog No. D	L	Base unit price 1 ~ 49 pieces SBT	SBTN	SBTC	SBTCN
10	−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	Quotation			
13	−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		24	10		9	17	20	30	10×1.5	8×1.25	12	14		16	25 30 35 40 45 50 55 60				
20	−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

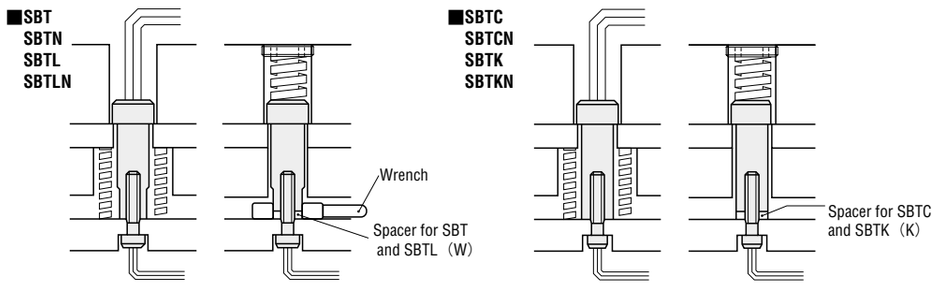
D		A	B	C	E	ℓ	SBTK・SBTKN M×P	SBTL・SBTLN M×P	SBTL・SBTLN F	SBTL・SBTLN S	Catalog No. Type	Catalog No. D	L 0.1mm increments	(SBTL・SBTK only) BL 5mm increments	Base unit price 1 ~ 19 pieces SBTL	SBTLN	SBTK	SBTKN
10	−0.025 −0.061	16	6	3	6	17(1)	6×1.0	5×0.8	8	8	SBTL SBTLN SBTK SBTKN	10	20.0 ~ 65.0	15~35	Quotation			
13	−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	22(2)	10×1.5	8×1.25	12	14		16	25.0 ~ 65.0	20~45				
20	−0.220 −0.270	27	14		11		12×1.75	10×1.5	14	17		20	25.0 ~ 65.0	20~45				

(1) For ϕ10・ϕ13 with L<25, ℓ=17−(25−L)
(2) For ϕ16・ϕ20 with L<30, ℓ=20−(30−L)

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

Quotation　Quotation

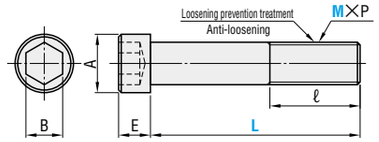
Example



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

RoHS

LB (With loosening prevention treatment)



M SCM435 (JIS B 1176)
H 38 ~ 43HRC (JIS B 0205 Grade 2)
Strength class 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.1641

ℓ New JIS	Catalog No. Type M—L
Full thread	LB 4— 8
	10
	12
	15
	20
	25
20	30
Full thread	LB 5— 10
	12
	15
	20
	25
22	30
	35
Full thread	LB 6— 10
	15
	20
	25
	30
	35
24	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)
- 12 — Indicates that the yield point or the minimum proof strength is 90% of the tensile strength.
- 9 — Indicates that the minimum tensile strength is 1220N/mm² (124kgf/mm²).

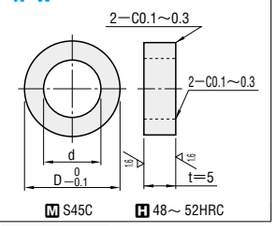
<Loosening prevention treatment>
The screw grooves are treated by the application of a special resin with outstanding elasticity, wear resistance and oil resistance. The effectiveness of the treatment is greatest at the initial use. In the case of repeated use, the effectiveness gradually diminishes beginning from the fourth use.

■For delivery and prices P.811

■Spacers for stripper bolts with female threads

RoHS

K・W



M S45C　H 48~ 52HRC

t T	D	d T		Catalog No.		Base unit price 1 ~ 49 pieces	Volume discount unit price 50 ~ 199	200 ~ 499	500 ~ 1000
±0.005	10	6	+0.3 +0.1	K	10	Quotation			
	13	8			13				
	16	10			16				
	20	12			20				
±0.01	8	5	+0.2 +0.1	W	10				
	11	6			13				
	14	8			16				
	17	10			20				

Order　Catalog No. K 10 / W 16　Days to Ship　Quotation

COMPONENTS

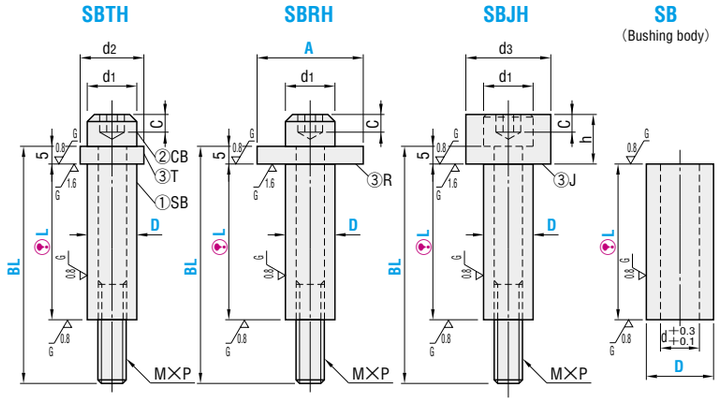
STRIPPER BOLTS, BUSHING TYPE
—HALF-MADE TYPE—

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	Hexagon socket head cap screw	Spacer
①②③	①	②	③
SBTH	SB	CB (P.675)	T (P.815)
SBRH			R (P.815)
SBJH			J (P.815)



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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)

①③ M S45C
H 48 ~ 52HRC

De9		d1	SBTH d2	SBRH A	SBJH h	SBJH d3	SB d	M×P	C min. depth	Catalog No. Type	Catalog No. D	L 0.1mm increments	BL 5mm increments	BL 10mm increments	(SBRH only) A	Base unit price 1 ~ 19 pieces SBTH	SBRH	SBJH	SB
6.5	−0.025 −0.061	7	11.5	16·18	9	12	4	4×0.7	2	SBTH SBRH SBJH SB	6.5	10.0 ~ 70.0	20 ~ 95	—	16·18	Quotation			
												70.1 ~ 80.0							
8		8.5	13	18·20·22	10	14	5	5×0.8	2.5		8	10.0 ~ 70.0	20 ~ 95	—	18·20·22				
												70.1 ~ 80.0							
10		10	15	20·22·25·27	11	18	6	6×1.0	3		10	10.0 ~ 100.0	20 ~ 95	100 ~ 170	20*·22·25·27				
												100.1 ~ 150.0							
13	−0.032 −0.075	13	18	25·27·30	13	24	8	8×1.25	4		13	10.0 ~ 100.0	20 ~ 95	100 ~ 170	25*·27·30				
												100.1 ~ 150.0							
16		16	21	30·35·40	15	27	10	10×1.5	5		16	10.0 ~ 100.0	20 ~ 95	100 ~ 180	30*·35·40				
												100.1 ~ 150.0							
20	−0.040 −0.092	18	23	35·40	17	32	12	12×1.75	6		20	10.0 ~ 100.0	20 ~ 95	100 ~ 180	35*·40				
												100.1 ~ 150.0							

The head diameter d_1 of bolts marked with * is ground so that it does not interfere with the inner diameter of the spring.

Order

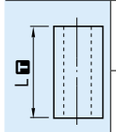
Catalog No.	L	BL	A
SBTH 13	34.5	50	
SBRH 10	27.8	45	22
SB 13	34.5		

Days to Ship Quotation

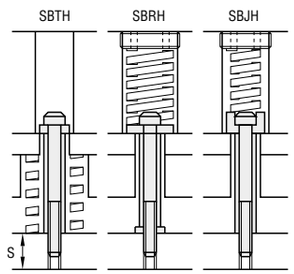
Price Quotation

Alterations

Catalog No.	L	BL	A	(LKC·LKP)
SBRH 10	27.8	45	22	LKC
SBTH 16	55.85	90		LKP

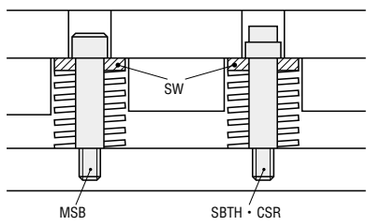
Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change L±0.05 ⇨ L +0.02 0 When LKC is used, L dimension can be selected in 0.01 mm increments.	Quotation
	LKP	L dimension tolerance change L±0.05 ⇨ L +0.01 0 When LKP is used, L dimension can be selected in 0.01 mm increments.	

Example



BL<S+L+5

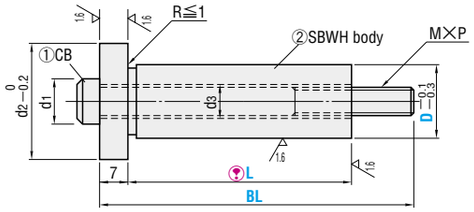
When spacer is used



STRIPPER BOLTS, BUSHING TYPE
—THICK TYPE—

RoHS

SBWH



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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 SK4
H 53 ~ 58HRC

d1	d2	d3	M×P	Catalog No. Type	Catalog No. D	L 0.1mm increments	BL 5mm increments	Base unit price 1 ~ 19 pieces
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

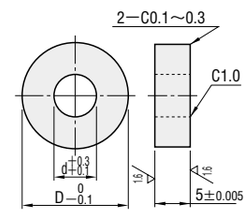
Price Quotation

Days to Ship Quotation

■Spacers and washers for bushing-type stripper bolts

RoHS

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

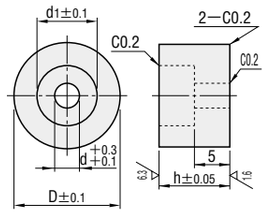


M S45C H 48 ~ 52HRC

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	Quotation			
13	5		8				
15	6		10				
18	8		13				
21	10		16				
23	12		20				
16	4	R	6.5−16				
18			6.5−18				
18	5		8−18				
20			8−20				
22			8−22				
20	6		10−20				
22			10−22				
25			10−25				
27			10−27				
25	8		13−25				
27			13−27				
30			13−30				
30	10		16−30				
35			16−35				
40			16−40				
35	12		20−35				
40			20−40				

RoHS

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



M S45C H 48 ~ 52HRC

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	Quotation			
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				

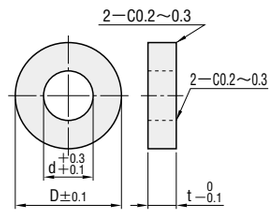
Order

Catalog No.
SW 25

Days to Ship Quotation

RoHS

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



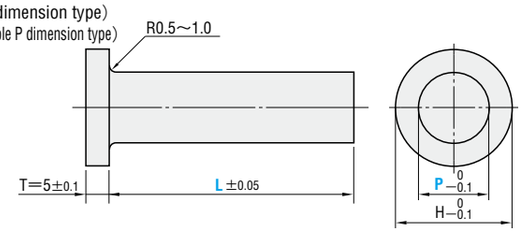
M S45C H 48 ~ 52HRC

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	Quotation			
12	5.5			12				
	6			12−6				
16	6.5	4		16				
20	8	5		20				
22	10			22				
25				25				
	12			25−12				
27	13	8		27				
30				30				
35	16			35				
40				40				
50	20	10		50				

COMPONENTS

RoHS

HSPP (Fixed P dimension type)
HSPPH (Configurable P dimension type)



M SKS3
H 53 ~ 58HRC

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

H	Catalog No. Type	No.	L 0.1mm increments	P 0.5mm increments	Base unit price 1 ~ 19 pieces L10.0 ~ 40.0	L40.1 ~ 60.0
10	HSPPH	10	10.0 ~ 60.0	*5.0 ~ 6.0	Quotation	
16		16		7.0 ~ 12.0		
20		20		7.0 ~ 16.0		
22		22		8.0 ~ 18.0		
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
HSPP 10	—	31.5		
HSPPH 25	—	35.8	—	P16.5

Days to Ship Quotation

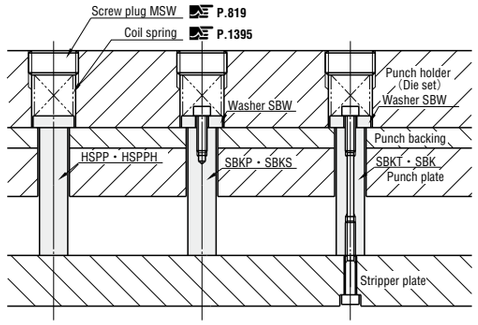
Price Quotation

Alterations

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

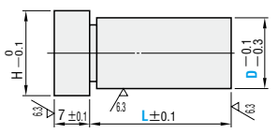
Alteration	Code	Spec.	1Code
HC	HC	Head diameter change (P+2)≦HC<H 0.1mm increments	Quotation
TC	TC	Head thickness change 2≦TC<5 0.1mm increments	

■**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)



RoHS

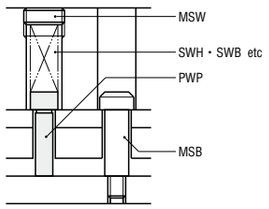
PWP



M SKS3 H 53 ~ 58HRC

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

Example



Order

Catalog No.	—	L
PWP 16	—	50.0

Days to Ship Quotation

Price Quotation

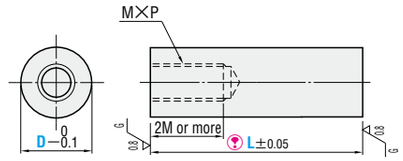
Alterations

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

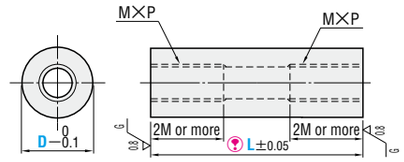
Alteration	Code	Spec.	1Code
HC	HC	Head diameter change D≦HC<H 0.1mm increments	Quotation
TC	TC	Head thickness change 2≦TC<7 0.1mm increments	

RoHS

SBKP (Pressure pin)



SBKT (Lifting collar)



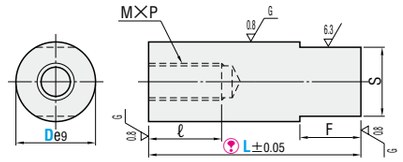
If orders are placed in units of the quantity used for a single die (40 or less), they will all be ground at the same time.
In this way, although the L dimension tolerance is±0.05, the variation in the finished L dimension will be 0.01 or less.

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)

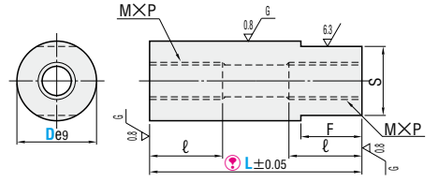
M SKS3
H 53 ~ 58HRC

RoHS

SBKS (Pressure pin)



SBK (Lifting collar)



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.

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

M SCM435
H 33 ~ 38HRC

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

De9		F	ℓ	S	M×P	Catalog No. Type	D	L 0.1mm increments	Base unit price 1~19 pieces SBKS	SBK
10	−0.025 −0.061	8	15	8	5×0.8	SBKS SBK	10	20.0 ~ 60.0	Quotation	
13	−0.032 −0.075	10		11	6×1.0		13			
16		12	20	14	8×1.25		16			

Order

Catalog No.	—	L
SBKP 16	—	50.0

Days to Ship Quotation

Price Quotation

Alterations

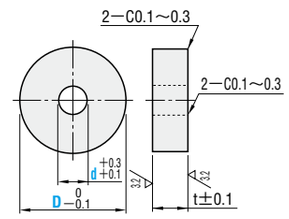
Catalog No.	—	L	—	(LKC・SC)
SBKT 13	—	45.0	—	LKC

Alteration	Code	Spec.	1Code
L T	LKC	L dimension tolerance change L±0.05 ⇨ L +0.02 0 If LKC is used, L dimension can be selected in 0.01mm increments.	Quotation
S F	SC	Machining of wrench flat Can be used for SBKP and SBKT. Cannot be used for SBKT8. (D 8 10 13 16 20; F 6 7 8 9 11; S 7 8 11 14 18)	

■**Washers for pressure pins and lifting collars**

RoHS

SBW



M S45C H 48 ~ 52HRC

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

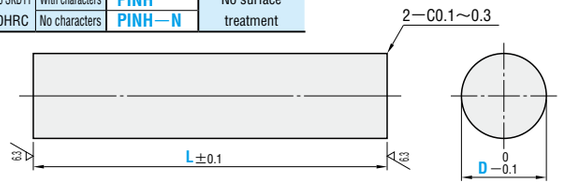
■For delivery and prices P.816

COMPONENTS

ADJUSTMENT PINS

RoHS

M H	Characters	Catalog No.	S
SKS3	With characters	PIN	Black oxide (Fe_3O_4)
58 ~ 60HRC	No characters	PIN—N	
Equivalent to SKD11	With characters	PINH	No surface treatment
58 ~ 60HRC	No characters	PINH—N	



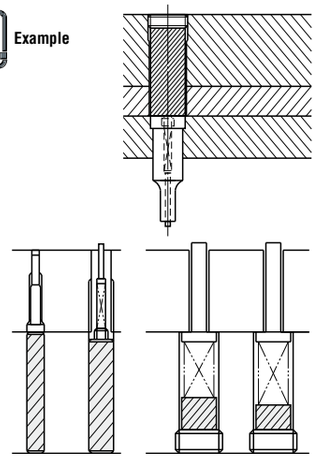
Catalog No. Type	D	L 0.1mm increments	(PIN·PINH only) CHR (characters)
(With characters D5 ~ 30) PIN	3	10.0 ~ 250.0	
	4		
	5		
	6		
	7		
	8		
(No characters D3 ~ 30) PIN—N	9		
	10		
	11		
	12		
High-hardness type	13		
	14		
(With characters D5 ~ 30) PINH	15		
	16		
	18		
(No characters D5 ~ 30) PINH—N	20		
	22		
	25		
	27		
	30		

Identifying markings can be created on the side.

Character type	Number of characters
·Alphabet letters ·Numbers	1 ~ 8 characters (If L<30.0, then the number of characters is 1 ~ 3.)

The character font is Gothic.
— (hyphen) and / (slash) cannot be selected.

Example



Order

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

Days to Ship: Quotation

Price: Quotation

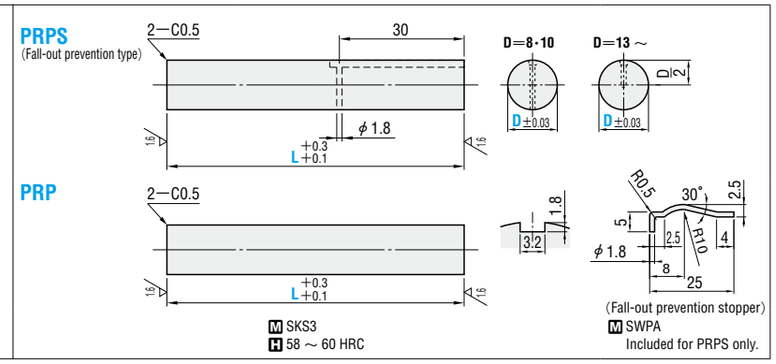
Alterations

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

Alteration	Code	Spec.	1Code
L T	LKC	Full length tolerance change L±0.1 ⇨ +0.05 0	Quotation
2—C0	NC	No chamfering of either end	

PRESSURE PINS

RoHS



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

Quotation

Order

Catalog No.	L
PRPS 20	130

Days to Ship: Quotation

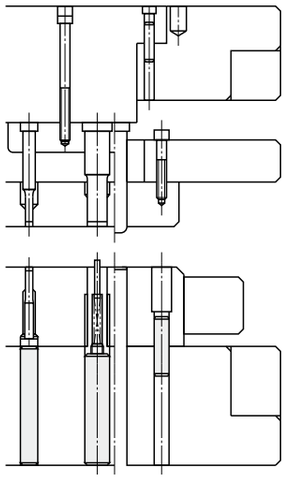
Price: Quotation

Alterations

Catalog No.	L	(LKC)
PRPS 20	130	LKC

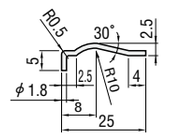
Alteration	Code	Spec.	1Code
L T	LKC	Full length tolerance change +0.3 +0.1 ⇨ L20.0 ~ 100.0: +0.03 0 L100.1 ~ 150.0: +0.04 0 L150.1 ~ 200.0: +0.05 0 ※When LKC is used, L dimension can be selected in 0.1mm increments.	Quotation

Example



■Fall-out prevention stopper

PRPS—K RoHS



M SWPA

Catalog No.	Base unit price 1 ~ 9 pieces	Volume discount unit price 10 ~ 19	20 ~ 49	50 ~ 100
PRPS—K		Quotation		

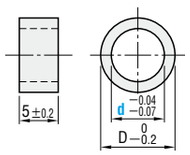
Order

Catalog No.
PRPS—K

Days to Ship: Quotation

■Collars for pressure pins

PRPCC RoHS



M SS400

D	Catalog No. Type	d	Base unit price 1 ~ 9 pieces
11	PRPCC	8	Quotation
13		10	
16		13	
19		16	
24		20	
29		25	
32		28	

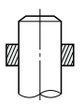
Order

Catalog No.
PRPCC 13

Days to Ship: Quotation

Price: Quotation

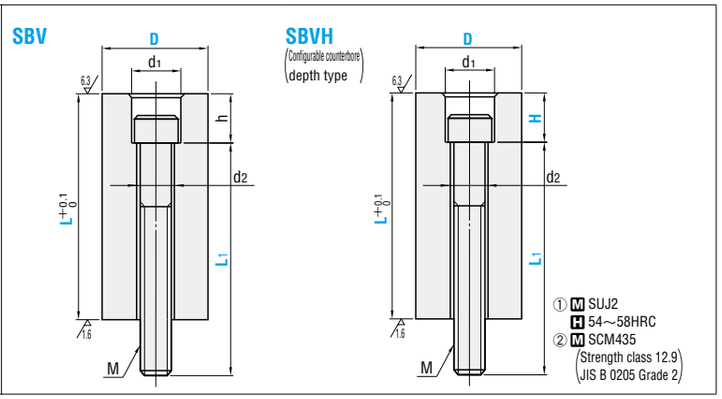
Example



Press fit (Shininkage)

COMPONENTS

STROKE END BLOCKS
—HARDENED TYPE—



M×P	d1	d2	h	Catalog No. Type	D	① L 0.1mm increments	Color	② L1 5mm increments	Base unit price 1~9 pieces ~L50.0	L50.1~70.0	L70.1~100.0	L100.1~
M 3×0.5	6	4	5	SBV	10	10.0 ~ 40.0	R (Red) Y (Yellow) N (Normal)	10 ~ 40	Quotation			
					12							
M 4×0.7	8	5	8		14	15.0 ~ 50.0		10 ~ 50				
					16							
M 5×0.8	9.5	6	10		18	20.0 ~ 70.0		15 ~ 70				
M 6×1.0	11	7	13		20	20.0 ~ 80.0		15 ~ 85				
M 8×1.25	14	9	15		25	22.0 ~ 100.0		15 ~ 100				
					32	22.0 ~ 120.0		15 ~ 120				
M10×1.5	17	11	18		38	25.0 ~ 120.0		20 ~ 120				
					50							
M12×1.75	20	13	21		60	30.0 ~ 150.0		25 ~ 150				

N (Normal) ··· S Black oxide (Fe_3O_4)
About products with D size of 20 or more of SBV/SBVH/SBVN, We offer products larger 0.3 mm than the notation.

M×P	d1	d2	Catalog No. Type	D	① L 0.1mm increments	H 1mm increments	Color	② L1 5mm increments	Base unit price 1~9 pieces ~L50.0	L50.1~70.0	L70.1~
M 6×1.0	11	7	SBVH	20	15.0 ~ 100.0	10 ~ 40	R (Red) Y (Yellow) N (Normal)	15 ~ 85	Quotation		
M 8×1.25	14	9		25	15.0 ~ 120.0	10 ~ 40		15 ~ 120			
				32							
M10×1.5	17	11		38	20.0 ~ 120.0	15 ~ 40		20 ~ 120			
				50							

N (Normal) ··· S Black oxide (Fe_3O_4) L—H≧5 (Full length-Counterbore depth) must be 5 mm or more.

Order

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

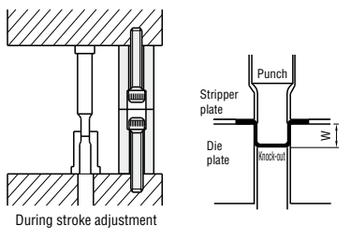
Catalog No.	—	①	—	②	— (LKC·LKP)
Type	D	L	H	Color	L1	
SBV	38	100.00		Y	100	LKC
SBVH	38	80.00	40	Y	60	LKP

Days to Ship Quotation

Price Quotation

Alteration	Code	Spec.	1Code
L	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.	Quotation
L	LKP	L dimension tolerance change $L^{+0.1}_{0}$ ⇨ $^{+0.01}_{0}$ 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.	

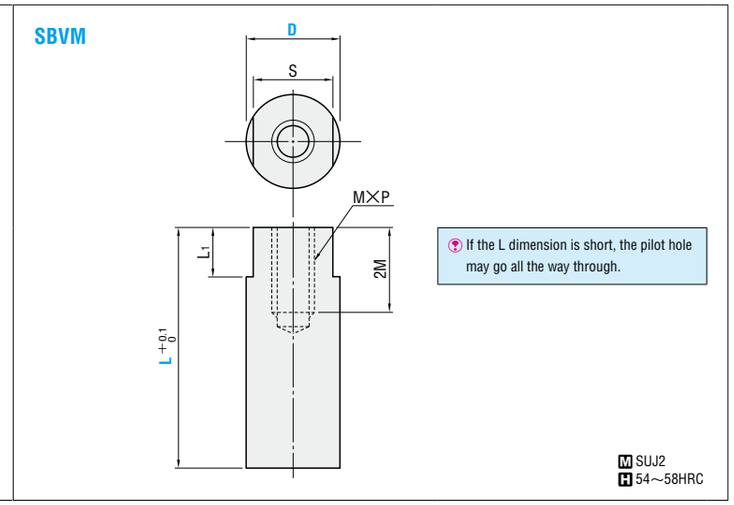
Example



During stroke adjustment

● 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—



M×P	S	L1	Catalog No. Type	D	L 0.1mm increments	Color	Base unit price 1 ~ 9 pieces ~ 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)	Quotation		
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) ··· S Black oxide (Fe_3O_4)
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

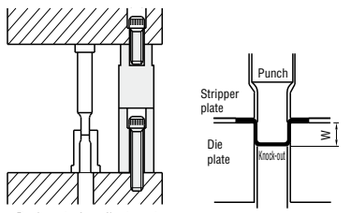
Days to Ship Quotation

Alterations

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

Alteration	Code	Spec.	1Code
L	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.	Quotation
L	LKP	L dimension tolerance change $L^{+0.1}_{0}$ ⇨ $^{+0.01}_{0}$ 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.	

Example



During stroke adjustment

● 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).

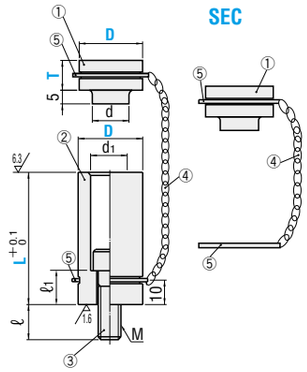
COMPONENTS

RoHS

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

①② M S45C
③ M SCM435
Strength class 12.9
JIS B 0205 Grade 2
④ Chain
⑤ C-ring JIS B 2804

SEC



Catalog No. Type	D	② L 0.1mm increments	Color	① T 5mm increments	Color	Base unit price 1 ~ 9 pieces ~ L80.0	L80.1 ~ L120.0	L120.1 ~
SBS ①②③④⑤	14	22.0 ~ 100.0	R (Red) Y (Yellow) N (Normal)	10 ~ 50	R (Red) Y (Yellow) N (Normal)	Quotation		
	16							
	18							
	20	22.0 ~ 120.0						
	25	22.0 ~ 170.0						
	32							
	38	25.0 ~ 200.0						
	50			10 ~ 50				
				55 ~ 100				
	60			10 ~ 50				
				55 ~ 100				
SBN ②③	14	22.0 ~ 100.0	R (Red) Y (Yellow) N (Normal)	—	—			
	16							
	18							
	20	22.0 ~ 120.0						
	25	22.0 ~ 170.0						
	32							
	38	25.0 ~ 200.0						
	50							
	60							

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	M 4× 20
					35	80.1~ 100.0	M 4× 45
16	7	8	M4 × 0.7	10	10	22.0~ 80.0	M 4× 20
					35	80.1~ 100.0	M 4× 45
18	8.5	9.5	M5 × 0.8	10	10	22.0~ 80.0	M 5× 20
					35	80.1~ 100.0	M 5× 45
20	10	11	M6 × P1.0	11	9	22.0~ 80.0	M 6× 20
					34	80.1~ 100.0	M 6× 45
					54	100.1~ 120.0	M 6× 65
25	13	14	M8 × P1.25	12	8	22.0~ 80.0	M 8× 20
				14	31	80.1~ 100.0	M 8× 45
					51	100.1~ 120.0	M 8× 65
					76	120.1~ 170.0	M 8× 90
32	13	14	M8 × P1.25	12	8	22.0~ 80.0	M 8× 20
				14	31	80.1~ 100.0	M 8× 45
					51	100.1~ 120.0	M 8× 65
					76	120.1~ 170.0	M 8× 90
38	16	17	M10 × P1.5	16	9	25.0~ 80.0	M10× 25
				17	33	80.1~ 100.0	M10× 50
					53	100.1~ 120.0	M10× 70
					83	120.1~ 200.0	M10×100
50	18	20	M12 × P1.75	18	7	25.0~ 80.0	M12× 25
				20	30	80.1~ 100.0	M12× 50
					50	100.1~ 120.0	M12× 70
					80	120.1~ 200.0	M12×100
60	18	20	M12 × P1.75	18	7	25.0~ 80.0	M12× 25
				20	30	80.1~ 100.0	M12× 50
					50	100.1~ 120.0	M12× 70
					80	120.1~ 200.0	M12×100

Catalog No. Type	D	① T 5mm increments	Color	Base unit price 1 ~ 9 pieces
SEC ①④⑤	14	10 ~ 50	R (Red) Y (Yellow) N (Normal)	Quotation
	16			
	18			
	20			
	25			
	32			
	38			
	50	10 ~ 50		
		55 ~ 100		
	60	10 ~ 50		
		55 ~ 100		

N (Normal) ···S Black oxide (Fe_3O_4)

- 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.

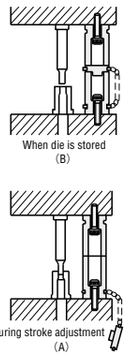
Order

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

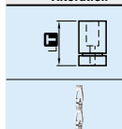
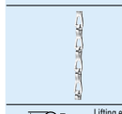
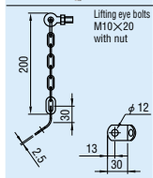
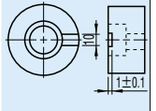
Example



Alterations

Catalog No. — L — ②Color — T — ①Color — (LKC, etc.)
SBS 20 — 80.00 — Y — 20 — R — LKC·RS·CHC100

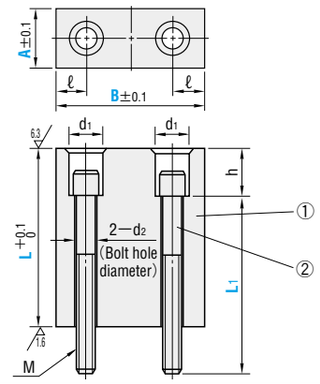
⊗ Express T cannot be used.

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.	
 Lifting eye bolts M10×20 with nut	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.	Quotation
	NMC	Addition of a groove for height adjustment Can be used for SBS SBN with D32 or larger.	

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. Type	A	B	① L 0.1mm increments	Color	② L1 5mm increments	Base unit price 1 ~ 9 pieces L20.0 ~ 40.0	L40.1 ~ 70.0	L70.1 ~ 100.0
M4×0.7	8	8	5	13	SBVK	13	32	20.0 ~ 50.0	R (Red) Y (Yellow) N (Normal)	15 ~ 50	Quotation		
	12						50						
M5×0.8	10	9.5	6			16	38	20.0 ~ 80.0		15 ~ 80			
	14						65						
M6×1.0	12	11	7			19	50	20.0 ~ 100.0		15 ~ 100			
	16						75						

N (Normal) ···S Black oxide (Fe_3O_4)

Order

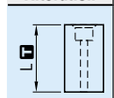
Catalog No.									
Type	A	B	① L	Color	② L1
SBVK	16	38	50.0	Y	50

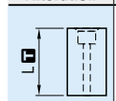
Days to Ship Quotation

Price Quotation

Alterations

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

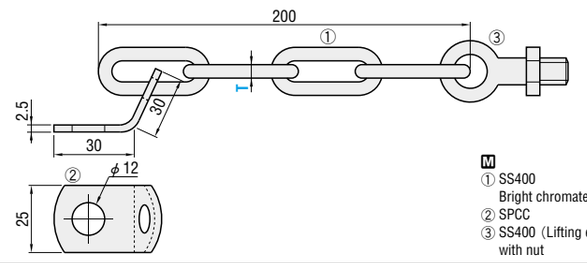
Alteration	Code	Spec.	1Code
	LKC	L dimension tolerance change $L^{+0.1}_{0}$ ⇨±0.01 When LKC is used, L dimension can be selected in 0.01mm increments. Resulting in variation of the finished L dimension of 0.005 or less.	Quotation

Alteration	Code	Spec.	1Code
	LKP	L dimension tolerance change $L^{+0.1}_{0}$ ⇨$^{+0.01}_{0}$ 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
① SS400
Bright chromate plating
② SPCC
③ SS400 (Lifting eye bolt M10×20) with nut

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

This product (RSC3) is a chain with alteration RS (P.835). (However, it does not include the cap section that is included with alteration RS.)

Order

Catalog No.
RSC 3

Days to Ship Quotation

Price Quotation

Example

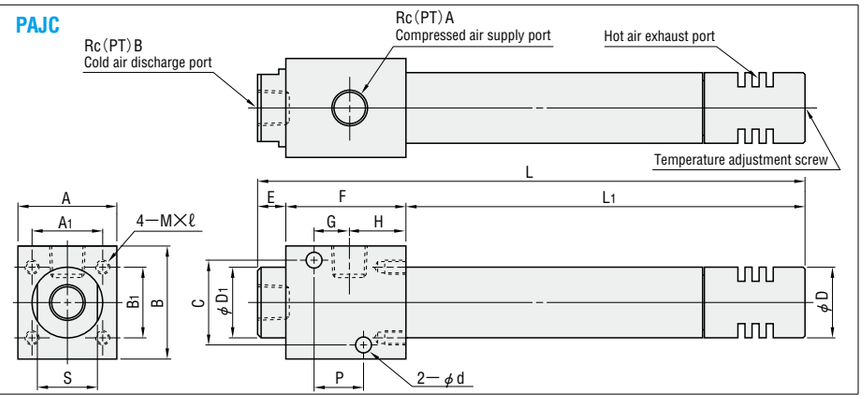
※This is an example of a combination of RSC and stroke end block (P.967).

COMPONENTS

AIR JET COOLERS FOR DIES

RoHS

PAJC



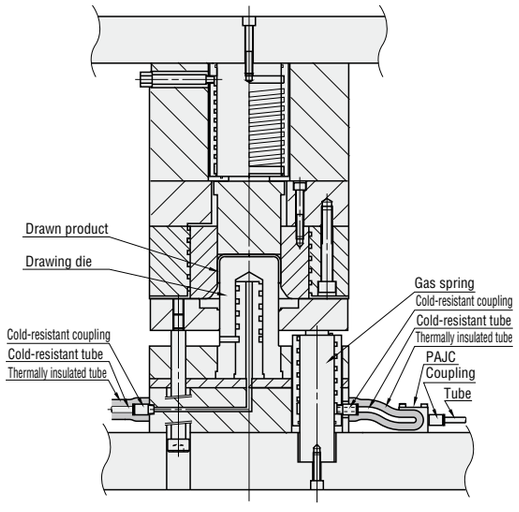
L	E	F	L_1	G	H	C	D	D_1	P	d	A	A_1	B	B_1	M×ℓ	S	Rc(PT)A	Rc(PT)B	Catalog No. Type	Catalog No. No.	Base unit price 1~4 pieces
156	8	34	114	11	15	24	20	20	14	4.5	28	20	32	20	4×6	17	1/8	1/8	PAJC	150	Quotation
218	12	52	154	19	23	36	32	30	24	6.6	40	30	46	30	5×8	26	3/8	3/8		600	

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.



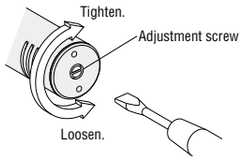
■Precautions for use

- 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℃ 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.

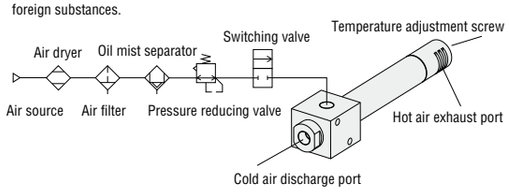
■Adjusting the cold air temperature



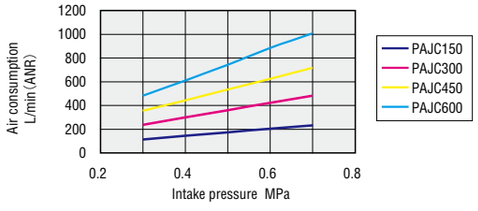
To adjust the cold air temperature, use the adjustment screw located on the side of the unit. Loosening the adjustment screw lowers the cold air temperature and reduces the flow of cold air. Conversely, tightening the adjustment screw raises the cold air temperature and increases the airflow.

■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

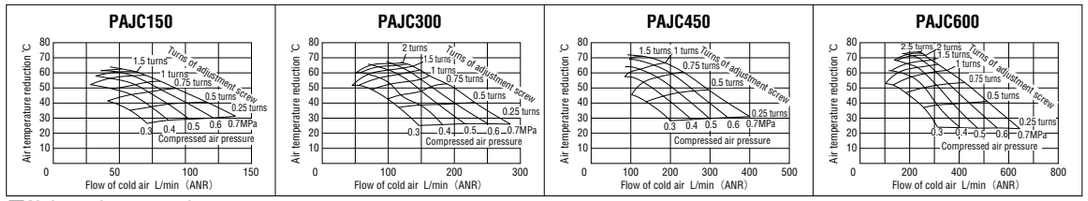


■Troubleshooting

- If the cooling effects become diminished, inspect the cooler following the procedure listed below.
  ①Re-adjust the temperature adjustment screw.
  ②Check to see if the filter and mist separator are clogged, causing a drop in the supplied pressure.
  ③Check 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)

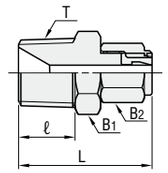


■Air jet cooler accessories

■Straight coupling for fluororesin tubes

RoHS

MCPTK



M SUS316

Catalog No. Type	Outer dia. of tube used (mm)	T R(PT) selection	T R(PT)	Inner dia. of tube used (mm)	L	ℓ	B_1 (width across flats)	B_2 (width across flats)	Base unit price 1~4 pieces
MCPTK	6	1	1/8	4	26	9	12	12	Quotation
		2	1/4		28.5	11	14		
		3	3/8		30	12	17		
	10	2	1/4	8	32	11	17	17	
		3	3/8		33	12	17		
		4	1/2		36	15	22		

For larger orders, ask about prices/delivery.

Order — Catalog No. MCPTK6 — T 1

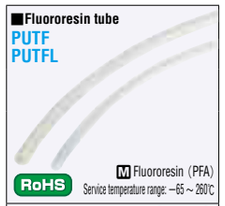
Days to Ship — Quotation

■Specifications

Fluid used	Compressed air・water
Service temperature range	Air: −65 ~ 260℃ , Water: 0 ~ 100℃
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℃

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: Base unit price 1~4 pieces	Fixed length type: Volume discount unit price 5~9 pieces	Configurable length type: Base unit price per meter 1~4 pieces	Configurable length type: Volume discount unit price per meter 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				
		20											

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

Air tubes

RoHS

M−UB

M Polyurethane
Usaable fluids: Compressed air Service temperature range: Max. 60℃

Tube outer dia.	Tube inner dia.	Min. bend radius	Operating pressure range	Catalog No. Type	Catalog No. No.	Full length L (M)	Color	Base unit price 1 ~ 9 pieces
6	4	15	0 ~ 700 kPa (0~7kgf/cm²)	M−UB	0640	20	B (Black) C (Clear)	Quotation
10	6.5	27			1065			

Full length L is in units of meters.

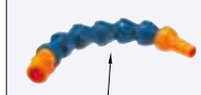
Catalog No. — L — Color
M− UB 0640 — 20 — B

Quotation

Quotation

Adjustment hoses

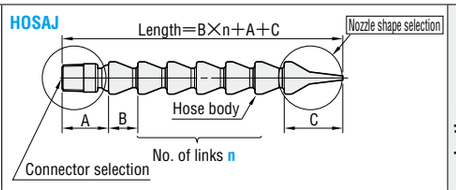
RoHS



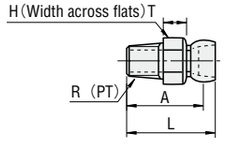
Min. bend radius
No.2 33.5mm
No.4 45.0mm

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

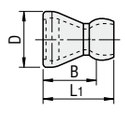
HOSAJ



■Connector

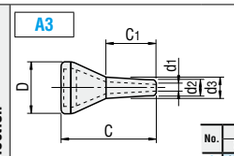


■Hose body



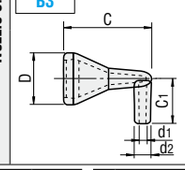
Nozzle shape selection

A3



No.	Nozzle shape A3 C	C1	D	d1	d2	d3
2	35.0	25.5	16.0	6.3	9.6	11.0
4	37.5	24.5	24.5	12.5	17.0	19.0

B3



No.	Nozzle shape B3 C	C1	D	d1	d2
2	26.3	12.0	16.0	6.3	9.0
4	39.0	19.5	24.5	12.4	15.4

Hose inner dia. (inches)	Catalog No. Type	Catalog No. No.	Selected No. of links n	Connector selection	Nozzle shape	Hose body D	Hose body B	Hose body L_1	Connector A	Connector L	Connector H	Connector T
1/4	HOSAJ	2	0 ~ 30	1(R1/8)	A3	16	14.5	20.7	23	26.3	14	7
1/2		4		3(R3/8)	B3	24.5	20.3	30	28	38.3	18.8	7.5

No.	Link base unit price	Connector base unit price	Nozzle base unit price A3 shape	Nozzle base unit price B3 shape
2		Quotation		
4				

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

Quotation

Quotation

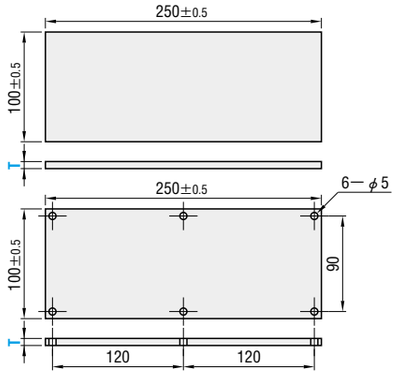
COMPONENTS

SPACER LAYER PLATES

RoHS

The surface is hardened (blue).

LHP (No—hole type)



LHP—H (No—hole type)

T	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			47 ～ 51HRC
0.6	±0.04		
0.7			
0.8			
0.9	±0.05		
1.0			
1.6	±0.06		43 ～ 47HRC

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) / LHP—H (Hole type)	0.05		
	0.1		
	0.2		
	0.3		
	0.4		
	0.5	Quotation	
	0.6		
	0.7		
	0.8		
	0.9		
	1.0		
	1.6		

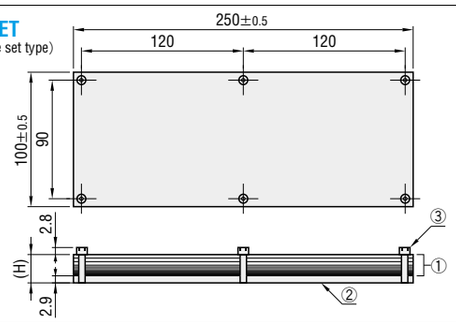
Order — Catalog No. LHP 0.7 / LHP—H1.0

Days to Ship — Quotation

RoHS

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

LHP—SET (Layer plate set type)



Set components

① Layer plates
The selected type of LHP—H are layered in order of increasing thickness beginning from the top.

② Base plate
M SPCC
Includes M4 tap holes for fastening the layer plates.

③ 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.

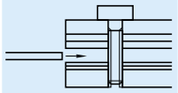
(H)	Catalog No.	①Combinations of layer plate thickness T												Base unit price
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.6	1 ～ 9 sets
4.4	LHP—SET 5	—	○	○	○	○	○	—	—	—	—	—	—	
8.4	LHP—SET10	—	○	○	○	○	○	○	○	○	○	○	—	Quotation
10.1	LHP—SET12	○	○	○	○	○	○	○	○	○	○	○	○	

Order — Catalog No. LHP—SET10

Days to Ship — Quotation

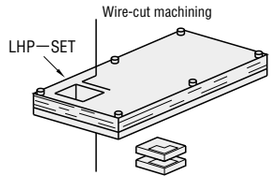
Price — Quotation

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.

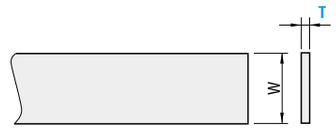


SHIM TAPE

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

M T=0.005/0.015 SUS304H
T=0.01 ～ 0.5 SK material
H T=0.01 ～ 0.5 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) / FGSMW (W=45.0mm)	0.005	±0.0005		
		0.01	±0.003		
		0.015			
		0.02			
		0.03	±0.005		
		0.04			
		0.05			
		0.06			
		0.07		Quotation	
		0.08			
		0.09			
		0.1			
		0.15			
		0.2	±0.015		
		0.25			
		0.3			
		0.35			
		0.4			
		0.45			
		0.5			

■Long type (length 5m)

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

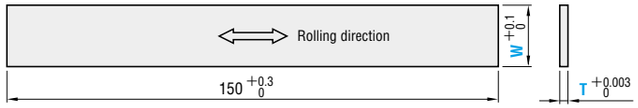
Days to Ship — Quotation

Price — Quotation

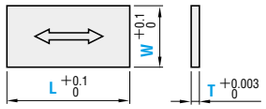
COMPONENTS

RoHS

UTPB



UTPL



Changing the W dimension tolerance
To change W +0.1 0 to W 0 −0.1, use alteration WKC1.

M SKH51
H 61 ~ 64HRC

Catalog No. Type	T	W	Base unit price 1 ~ 19 pieces
UTPB	0.3	10 13 16	6,636
	0.4	10 13 16	4,477
	0.5	10 13 16	4,057
		20 25	4,981
	1	10 13 16	3,797
		20 25	4,662
	2	10 13 16	3,259
		20 25	4,150
	3	10 13 16	3,377
		20 25	4,326
	5	10 13 16	3,662
		20 25	4,788

Catalog No. Type	T	W	0.1mm increments L	Base unit price 1 ~ 19 pieces L10.0 ~ 19.9	L20.0 ~ 49.9	L50.0 ~ 79.9	L80.0 ~ 99.9	L100.0 ~ 124.9	L125.0 ~ 150.0
UTPL	0.3	10 13 16	10.0 ~ 150.0	Quotation					
	0.4	10 13 16							
	0.5	10 13 16							
		20 25							
	1	10 13 16							
		20 25							
	2	10 13 16							
		20 25							
	3	10 13 16							
		20 25							
	5	10 13 16							
		20 25							

Order

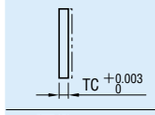
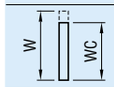
Catalog No.	—	W	—	L
UTPB 2	—	16		
UTPL 3	—	20	—	50.8

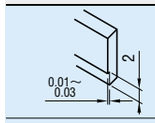
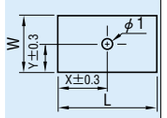
Days to Ship Quotation

Price Quotation

Alterations

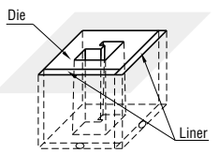
Catalog No.	—	W(WC)	—	L	— (TC・WKC1・DNC・WHC)
UTPL 2	—	20	—	50.8	— TC2.002
UTPL 3	—	25	—	45.6	— WHC—X20.5—Y10.2

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.	

Alteration	Code	Spec.	1Code
	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
	WHC	A φ1 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.	

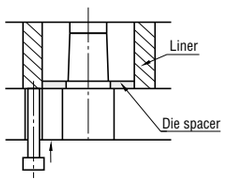
Example

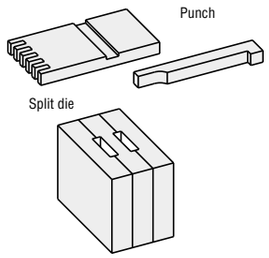
- Liner: Makes the installation of a block die easier. Using the liner together with shim tape allows the clearance to be adjusted.
- Die spacer: Can be used as an adjustment plate for regrinding.
- Punches & dies: Because the material is SKH51 (61 ~ 64HRC), these plates can be used for punches and dies.



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

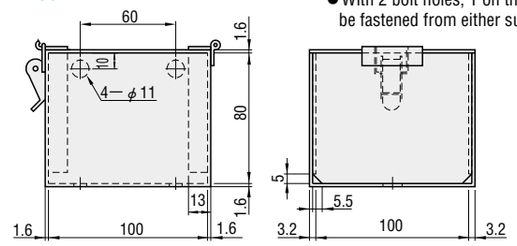
By pushing the liner up with the pin, it can be removed without scratching the die.





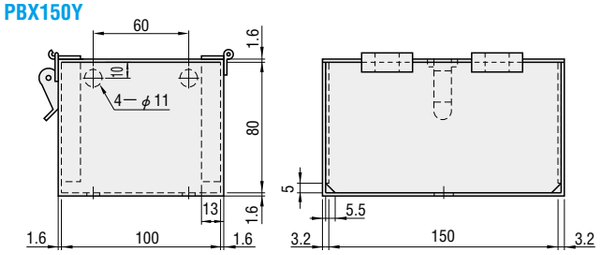
RoHS

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)

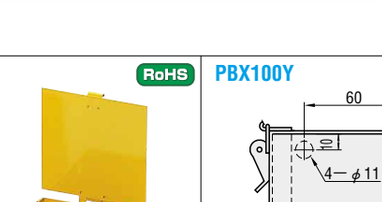
Catalog No.	Base unit price 1 ~ 9 pieces
PBX100Y	Quotation
PBX150Y	

Order Catalog No. PBX100Y

Days to Ship Quotation

Price Quotation

KNS (Die name Stichers) RoHS



M 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

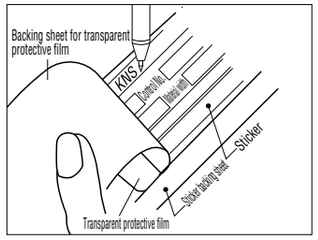
■**Features**

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

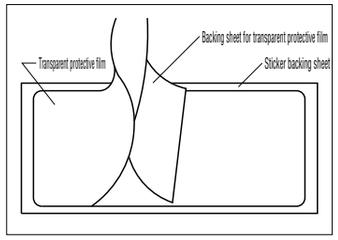
■**Precautions for use**

- 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.

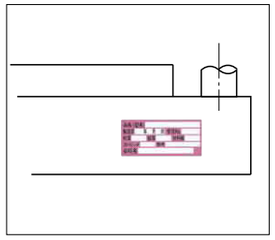
■**How to use**



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.

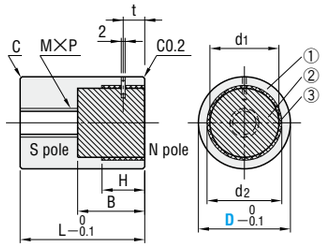


Peal the seal off the backing sheet and apply it to the die.

COMPONENTS

RoHS

MG



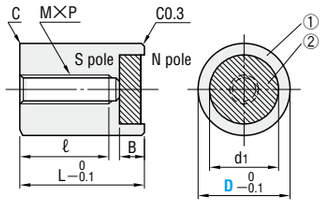
① M SUM24L
② M Alnico magnet
③ M Brass (C3604BD) Heat resistance 80℃

L	M×P	＊Adhesive force N{kgf}	Surface magnetic flux density Gauss [G]	d1	d2	B	C	H	t	Catalog No. Type	Catalog No. D	Base unit price 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				13	
20	6×1.0	15.7 {1.6}	1200 ～ 1400	10	13	10		6	3.5		16	
25	8×1.25	29.4 {3.0}	1200 ～ 1500	13	16	12	1.5	9	6.5		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.
Adsorption power and surface magnetic flux density are reference valus.
The end face is finished by grinding.

RoHS

MGN (Strong, corrosion-resistant type)



① M SUM24L
S Electroless nickel plating
② M Neodymium magent Heat resistance 80℃

L	M×P	＊Adhesive force N{kgf}	Surface magnetic flux density Gauss [G]	d1	B	C	ℓ	Catalog No. Type	Catalog No. D	Base unit price 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		0.5	10		10	
		15.6 {1.6}	3200 ～ 3400	7.0	1.5				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.
Adsorption power and surface magnetic flux density are reference valus.
The magnetic surface is recessed by 0.1 ～ 0.3 from the case.

Order

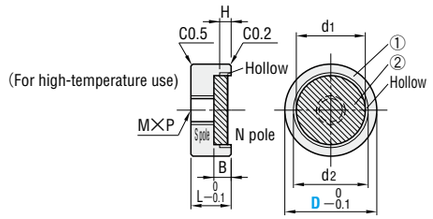
Catalog No.	
MG	13
HX	20

Days to Ship Quotation

Price Quotation

RoHS

HX
HXH



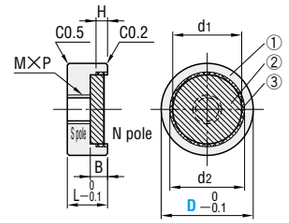
		HX	HXH
M	①	SUM24L	
	②	Cobalt magnet	
S		—	Black chrome plating
Heat resistance		80℃	200℃

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

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.
Adsorption power and surface magnetic flux density are reference valus.
The magnet and holder are fastened by an adhesive.
The magnetic surface is recessed by 0.1 ～ 0.3 from the case.

RoHS

HXU



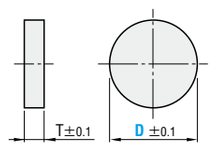
① M SUM24L
② M Cobalt magnet
③ M Brass (C3604BD) Heat resistance 80℃

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

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.
Adsorption power and surface magnetic flux density are reference valus.
The magnet and holder are fastened by an adhesive.
The magnetic surface is recessed by 0.1 ～ 0.3 from the case.

RoHS

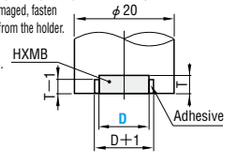
HXMB



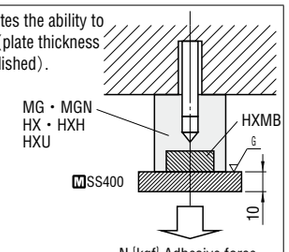
M Cobalt magnet Heat resistance 200℃

T	＊Adhesive force N{kgf}	Surface magnetic flux density Gauss [G]	Catalog No. Type	Catalog No. D	Base unit price 1 ～ 19 pieces
2	1.0 {0.10}	2000 ～ 2100	HXMB (Heat resistance 200℃)	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
＊Adhesive force: Refer to the page at right (figure at bottom).
Magnets are extremely brittle and easily broken. Always use sufficient care when handling them.
Because the magnets are easily damaged, fasten them so that they do not protrude from the holder.
Use adhesive to fasten the magnet in place.
Adsorption power and surface magnetic flux density are reference valus.



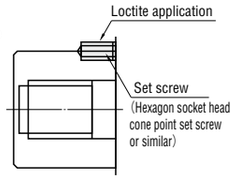
＊"Adhesive force" indicates the ability to lift up SS400 material (plate thickness 10 mm, top surface polished).



Example

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

Hole machining (reference) D H7	
20 25 30	+0.021 0
35 40	+0.025 0



COMPONENTS

MILLION GREASE/DIE CLEANING AGENT/DIE CONTACT INSPECTION AGENT

—POLYUREA EP GREASE/GENERAL PURPOSE QUICK-DRYING TYPE/SHINMYOTAN—

MILLION GREASE (Polyurea EP grease) RoHS

MGS—80 (80g)
MGS—400 (400g)

Ingredients

Material name	Composition ratio
Base oil: refined mineral oil	Approx. 75%
Thickener: polyurea	Approx. 10%
Additive	Approx. 15%

Volume (g)	Exterior	Service temperature range	Consistency (25℃)	Catalog No.	¥Base unit price 1piece	¥Volume discount unit price 2piece ～
80	Yellow threads	—20 ～ 150℃	320	MGS—80	Quotation	
400				MGS—400		

Order — Catalog No. MGS—80

Days to Ship — Quotation

Price — Quotation

■**Application**
- For lubrication of guide units of punch die and forming die.
- For lubrication of mechanical sliding part.

■**Features**
- It is a polyurea EP grease composed of molybdenum, EP additive, polymer, antioxidant and antirust agent, which uses polyurea EP thickener and refined mineral oil having good thermal stability as its base oil.
- It has superior oxidation stability, water-proof performance, adhensiveness, heat resistance, mechanical stability, and particularly excellent extreme pressure (EP) property due to specially added molybdenum.
- Because special polymer is added, it is highly adhensive, waterproof and retentive so that it can be applied to where grease dips easily (such as vertical sliding surface).

■**Precautions for use**
- Inflammation may occur if it enters eyes, be sure to wear goggles when it is used.
- Skin contact may cause inflammation, be sure to wear protective gloves when it is used.
- Be sure to wear protective gloves in order to prevent hands from being hurt by container falling-down.

Be sure to read above-mentioned precautions before use.

Cleaning agent —General-purpose quick-drying type— RoHS

6PACK—METACL
(Pack containing 6 cans)

Material safety data sheet	Cans per pack	Catalog No. Type	Catalog No. Volume (mℓ)	Base unit price 1 pack	Volume discount unit price 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. Type	Catalog No. Volume (mℓ)	Base unit price 1～4 pieces	Volume discount unit price 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

DIE ADHESIVE

—LOCTITE No.638・243・268・248—

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) (50mℓ)

(250mℓ) (50mℓ)

Fluid color	Main ingredient	Viscosity (CP)	Strength Class	Strength	Maximum allowable clearance (mm)	Hardening time Note(2) (h at room temp.) Active surface	Inert surface	Service temperature range (℃)	Material safety data sheet FAX BOX No.	Catalog No. Type	Catalog No. Volume (mℓ)	Base unit price 1～4 pieces
Green	Anaerobic resin	2500	High strength	Shear strength 25each side (N/mm²)	Max. 0.2 each side Note(1)	1 ～ 3	3 ～ 6	—55 ～ 125	1034	LOC638	250	Quotation
											50	
Blue		2150	Medium strength	Breakage/pull-out torque 26/5 (N/m)	Max. 0.25 each side			—55 ～ 150	1035	LOC243	250	
											50	
Green		2500	High strength	Return torque 40.8N・m (DIN54454)	—	—	—		1083	LOC268	19	
Green		2500	Medium strength	Return torque 15.6N・m (DIN54454)	—				1081	LOC248		

■**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

COMPONENTS