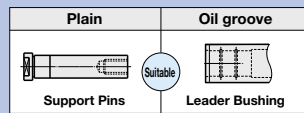


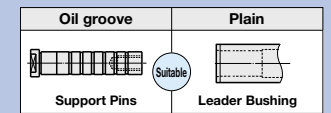
SUPPORT PINS

—PLAIN TYPE—



SUPPORT PINS

—OIL GROOVE TYPE—



Ⓜ Non JIS material definition is listed on P.1351 - 1352

RoHS

Type	Part Number	M	H
Press-fit length designation	SPP	SUJ2	58HRC~ Induction hardening

Ⓜ There may be a center hole on the end.
Ⓜ Designate N=8 when no press-fit section is required.

Dimension	Tolerance
D13 · 16	+0.012 / +0.001
D20~30	+0.015 / +0.002
D32~40	+0.018 / +0.002

Sliding parts D ₁₆	Press-fit section D _{k6}	F	H	M (Coarse thread)		Part Number Type	D	L		N	U/Price 1~9
				M×Pitch	ℓ			5mm increments	1mm increments		
13	-0.016	13	12	16	M 6×1.0	SPP (Press-fit D _{k6})	13	60~90	12	8~60	Quotation
	-0.027							95~120			
16	+0.012 +0.001	16	14	19	M10×1.5	SPP (Press-fit D _{k6})	16	80~110	20	8~60	Quotation
								115~150			
20	+0.015 +0.002	20	19	23	M12×1.75	SPP (Press-fit D _{k6})	20	185~210	24	8~60	Quotation
								90~130			
25	-0.020 -0.033	25	22	28	M16×2.0	SPP (Press-fit D _{k6})	25	135~170	32	8~60	Quotation
								175~210			
28	+0.018 +0.002	28	27	31	M16×2.0	SPP (Press-fit D _{k6})	28	215~250	32	8~60	Quotation
								255~300			
30	+0.018 +0.002	30	29	35	M16×2.0	SPP (Press-fit D _{k6})	30	100~140	32	8~60	Quotation
								145~190			
32	-0.025 -0.041	32	30	35	M16×2.0	SPP (Press-fit D _{k6})	32	195~250	32	8~60	Quotation
								255~300			
35	+0.018 +0.002	35	32	40	M16×2.0	SPP (Press-fit D _{k6})	35	100~150	32	8~60	Quotation
								150~200			
36	+0.018 +0.002	36	36	41	M16×2.0	SPP (Press-fit D _{k6})	36	205~250	32	8~60	Quotation
								255~300			
40	+0.018 +0.002	40	45	45	M16×2.0	SPP (Press-fit D _{k6})	40	150~200	32	8~60	Quotation
								205~250			
								305~350			

Order **Part Number** - **L** - **N**
SPP25 - 190 - N50

Days to Ship **Quotation**

Price **Quotation**

Alterations **Part Number** - **L(LC)** - **N** - (SOF)
SPP25 - LC152 - N50

Alteration	Code	Spec.	1Code
	LC	Changes the full length. LC=1mm increments Lmin < LC < Lmax. The tap depth becomes shorter by (standard L-LC) since this alteration cuts a standard length piece (5mm increments).	Quotation
	SOF	Spiral groove processing (designation) SOF=1mm increments L-N ≥ SOF Alteration details P.880	Quotation

RoHS

Type	Part Number	M	H
Press-fit length designation	SPP-OC	SUJ2	58HRC~ Induction hardening

Ⓜ Oil grooves P.909 Ⓜ Oil groove part might not be colored by heat treatment.
Ⓜ There may be a center hole on the end.
Ⓜ Designate N=8 when press-fit processing is not required.

Dimension	Tolerance
D13 · 16	+0.012 / +0.001
D20~30	+0.015 / +0.002
D32~40	+0.018 / +0.002

Sliding parts D ₁₆	Press-fit section D _{k6}	F	H	M (Coarse thread)		Part Number Type	D	L		N	U/Price 1~9
				M×Pitch	ℓ			5mm increments	1mm increments		
13	+0.012 +0.001	13	12	16	M 6×1.0	SPP-OC (Press-fit D _{k6})	13	60~90	12	8~60	Quotation
								95~120			
16	+0.012 +0.001	16	14	19	M10×1.5	SPP-OC (Press-fit D _{k6})	16	80~110	20	8~60	Quotation
								115~150			
20	+0.015 +0.002	20	19	23	M12×1.75	SPP-OC (Press-fit D _{k6})	20	185~210	24	8~60	Quotation
								90~130			
25	-0.020 -0.033	25	22	28	M16×2.0	SPP-OC (Press-fit D _{k6})	25	135~170	32	8~60	Quotation
								175~210			
28	+0.015 +0.002	28	27	31	M16×2.0	SPP-OC (Press-fit D _{k6})	28	215~250	32	8~60	Quotation
								255~300			
30	+0.015 +0.002	30	29	35	M16×2.0	SPP-OC (Press-fit D _{k6})	30	100~140	32	8~60	Quotation
								145~190			
32	+0.018 +0.002	32	30	35	M16×2.0	SPP-OC (Press-fit D _{k6})	32	195~250	32	8~60	Quotation
								255~300			
35	+0.018 +0.002	35	32	40	M16×2.0	SPP-OC (Press-fit D _{k6})	35	100~150	32	8~60	Quotation
								150~200			
36	+0.018 +0.002	36	36	41	M16×2.0	SPP-OC (Press-fit D _{k6})	36	205~250	32	8~60	Quotation
								255~300			
40	+0.018 +0.002	40	45	45	M16×2.0	SPP-OC (Press-fit D _{k6})	40	150~200	32	8~60	Quotation
								205~250			
								305~350			

Order **Part Number** - **L** - **N**
SPP-OC25 - 190 - N30

Days to Ship **Quotation**

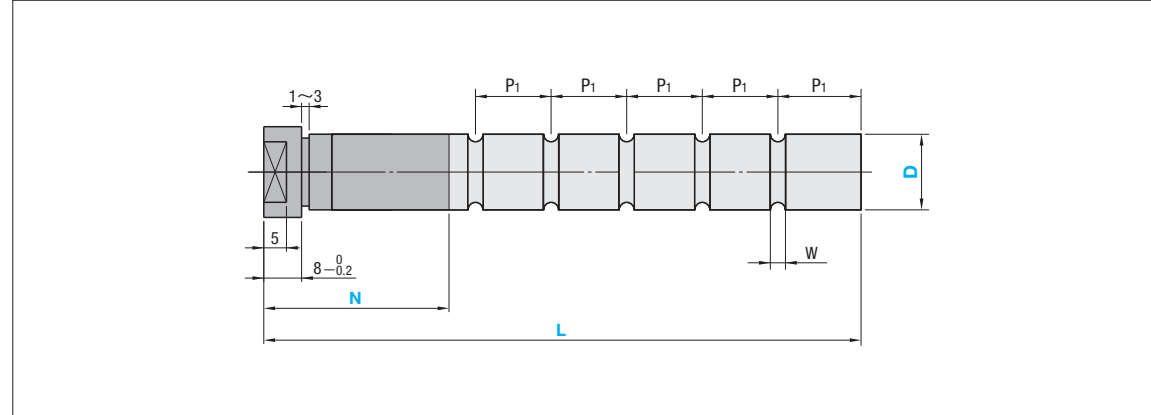
Price **Quotation**

Alteration	Code	Spec.	1Code
	LC	Changes the full length. LC=1mm increments Lmin < LC < Lmax. The tap depth becomes shorter by (standard L-LC) since this alteration cuts a standard length piece (5mm increments).	Quotation

SUPPORT PINS

— OIL GROOVE TYPE OIL GROOVE PROCESSING GUIDE — / — EXAMPLE —

Support Pins — Oil groove type — Oil groove processing guide



Adds an oil groove

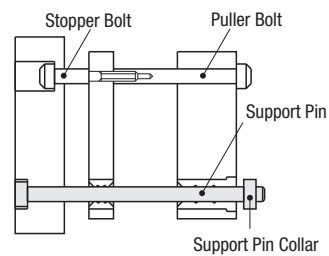
An oil groove with W width is processed at first on the position (N+10), followed by further grooves being processed at P1 intervals to E1.

Nmax.: Maximum Value of press-fit length
 P1: Interval of oil groove
 W: Oil groove width

D	Nmax.	P1	W
13 · 16	30	20	3
20		25	
25		40	
28 · 30	50	30	5
32 · 35 · 36	60	35	
40			



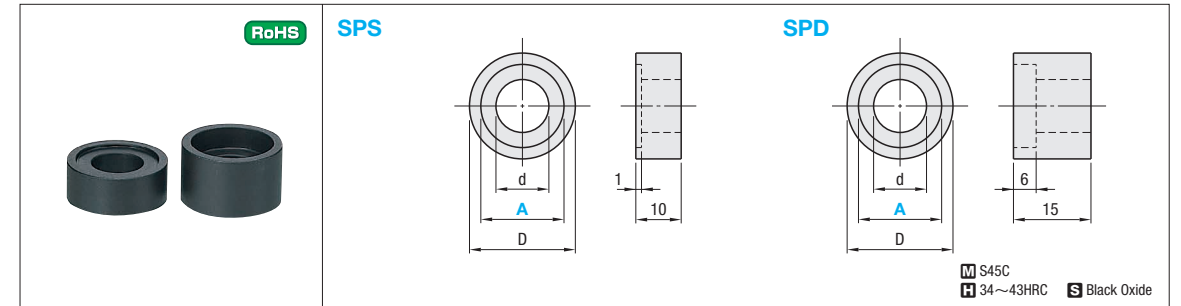
Example



Receiving the weight of a die plate on their tips, support pins may deflect due to a large amount of bending moment and eventually break due to resulting cracks. Usage of leader bushing is recommended.

SUPPORT PIN COLLARS

Ⓜ Non JIS material definition is listed on P.1351 - 1352



Applicable support pins (D)	D	d	Part Number		SPS U/Price				SPD U/Price				
			Type	A	1~9	10~29	30~99	100~200	1~9	10~29	30~99	100~200	
13	18	6.5	SPS SPD	13									
16	21	10.5		16									
20	25	12.5		20									
25	30	16.5		25									
28	33			28									
30	35			30									
32	37			32									
35	40			35									
36	41			36									
40	45	40											

Quotation

Ⓜ To be quoted on price & lead time above Max. Q'ty.



Order

Part Number
SPS16

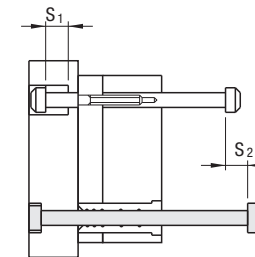


Days to Ship

Quotation



Example

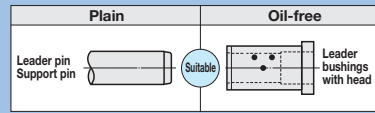


Use the support pin collars to prevent from such accidents as puller bolt or stopper bolt breakage. Use a support pin in accordance with the S2 amount in left figure.

- Although a stopper bolt is sufficient to control the stroke amount (S) of a runner stripper plate (S2 > S1), we recommend that you use a support collar as a guard for the underhead of the support pin.

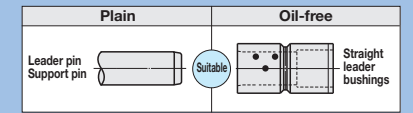
OIL-FREE LEADER BUSHINGS

—COPPER ALLOY WITH HEAD—



OIL-FREE LEADER BUSHINGS

—COPPER ALLOY STRAIGHT TYPE—



Ⓜ Non JIS material definition is listed on P.1351 - 1352

RoHS **GBHDZ**

• Usable temperature range for the special solid lubricant: up to 150°C

Grade-4 high strength brass (CAC304)
(Old JIS: HBS-C4)
Special solid lubricant
Graphite (embedded)

RoHS **GBSDZ**

• Usable temperature range for the special solid lubricant: up to 150°C

Grade-4 high strength brass (CAC304)
(Old JIS: HBS-C4)
Special solid lubricant
Graphite (embedded)

d _{G6}	T	D _{m5}	H	ℓ																					
				L15	L20	L25	L30	L35	L40	L50	L60	L70	L80	L90	L100	L110	L120	L130	L150						
8	+0.014	5	12	14	—	15	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
10	+0.005		14	+0.015	16	15	20	20	20	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
12	+0.017		18	+0.007	22	15	20	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
13	+0.017	6	20	25	15	20	25	25	25	25	25	—	—	—	—	—	—	—	—	—	—	—	—	—	
16	+0.006		25	+0.017	30	15	20	25	30	35	30	30	—	—	—	—	—	—	—	—	—	—	—	—	—
20	+0.020		30	+0.008	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25	+0.007	8	35	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
30	+0.020		42	+0.009	47	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35	+0.027		48	+0.009	54	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40	+0.025	10	55	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
50	+0.009		70	+0.024	75	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	+0.029		80	+0.011	86	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	+0.010																								

Part Number		U/Price 1~9															
Type	d	L15	L20	L25	L30	L35	L40	L50	L60	L70	L80	L90	L100	L110	L120	L130	L150
GBHDZ	8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	10	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	13	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	30	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Order: Part Number **GBHDZ13** — L **40**

Days to Ship: **Quotation**

Price: **Quotation**

• Oil-free type.....Special solid lubricant eliminates the need for lubrication.
(Applying initial running-in oil prior to use can enhance the product's durability furthermore.)
Please note that oil oozes out from the solid lubricant at 80°C.

d _{G6}	t	D _{m5}	ℓ																						
			L10	L15	L20	L25	L30	L35	L40	L50	L60	L70	L80	L100	L120										
8	+0.014	6	12	10	15	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
10	+0.005		14	+0.015	10	15	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
12	+0.017		18	+0.007	10	15	20	25	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
13	+0.017	6	20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
16	+0.006		25	+0.017	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
20	+0.020		30	+0.008	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
25	+0.007	8	35	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
30	+0.020		42	+0.009	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
35	+0.027		48	+0.009	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
40	+0.025	10	55	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
50	+0.009		70	+0.024	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
60	+0.029		80	+0.011	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Part Number		U/Price 1~9												
Type	d	L10	L15	L20	L25	L30	L35	L40	L50	L60	L70	L80	L100	L120
GBSDZ	8	—	—	—	—	—	—	—	—	—	—	—	—	—
	10	—	—	—	—	—	—	—	—	—	—	—	—	—
	12	—	—	—	—	—	—	—	—	—	—	—	—	—
	13	—	—	—	—	—	—	—	—	—	—	—	—	—
	16	—	—	—	—	—	—	—	—	—	—	—	—	—
	20	—	—	—	—	—	—	—	—	—	—	—	—	—
	25	—	—	—	—	—	—	—	—	—	—	—	—	—
	30	—	—	—	—	—	—	—	—	—	—	—	—	—
	35	—	—	—	—	—	—	—	—	—	—	—	—	—
	40	—	—	—	—	—	—	—	—	—	—	—	—	—
	50	—	—	—	—	—	—	—	—	—	—	—	—	—
	60	—	—	—	—	—	—	—	—	—	—	—	—	—

Order: Part Number **GBSDZ35** — L **60**

Days to Ship: **Quotation**

Price: **Quotation**

EX Example

■ Stopper for The Straight Leader Bushing

Screw plugs are commonly used as a stopper to hold straight leader bushings. The bushing is provided with a groove on its outer circumference where the screw plug is locked in. Since the screw plug does not directly hold the bushing's thin wall, deflection of its internal diameter can be minimized. When L=10 (d=8~20) or L=15 (d=25), screw plug is the value in ().

Leader bushing's internal diameter (d)	Applicable screw plugs
8~20	MSW 6 (4)
25~60	MSW 8 (6)

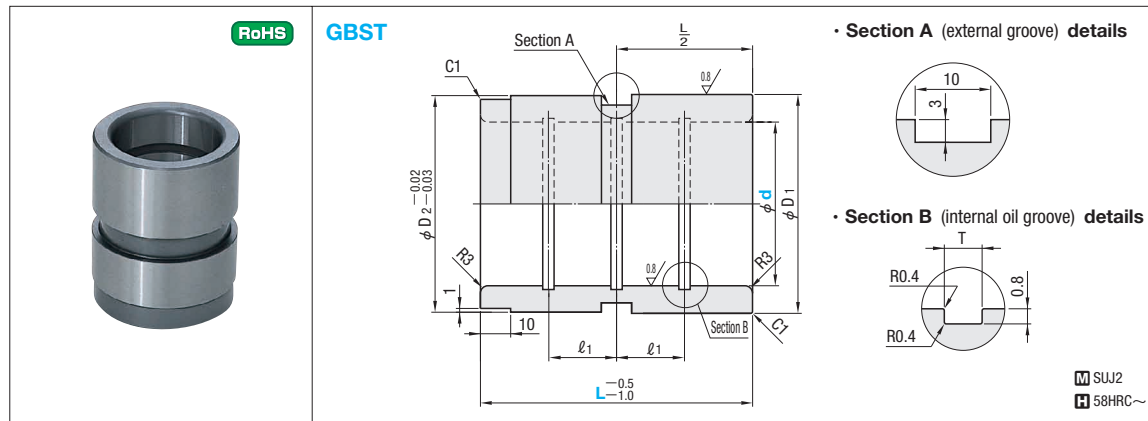
LEADER BUSHINGS FOR MIDDLE · LARGE MOLD/STOPPER PLATES FOR LEADER BUSHINGS FOR LARGE MOLD

—STRAIGHT TYPE—

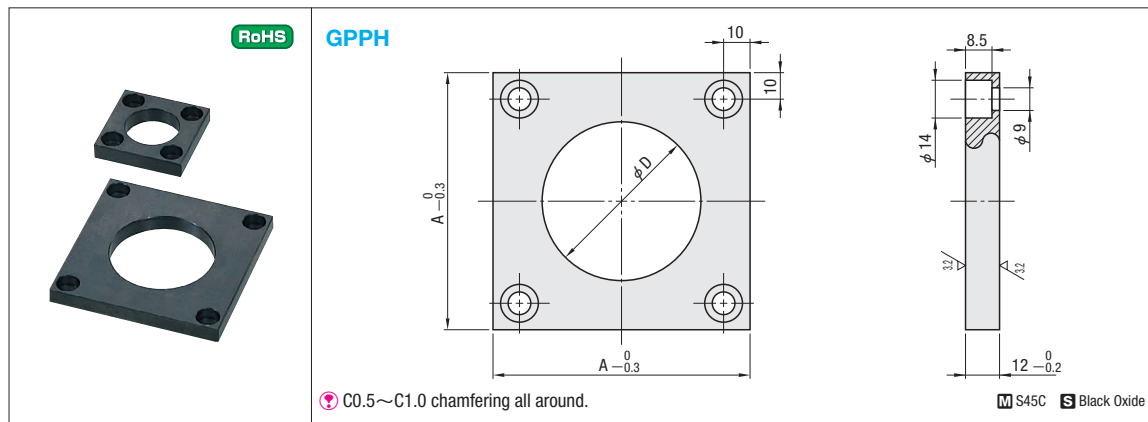
LEADER PINS FOR RUBBER MOLD/LEADER BUSHINGS FOR RUBBER MOLD

—TAPER TYPE · SPHERICAL TYPE—

Ⓜ Non JIS material definition is listed on P.1351 - 1352



D1	D2	d	l1	T	Part Number Type	d	L	U/Price 1~9
55	+0.05 +0.04	55	-0.02 -0.03	4	GBST	40	70	Quotation
70	+0.07 +0.06	70				50	80	
80	+0.08 +0.07	80				60	100	
100	+0.10 +0.08	100				80	120	



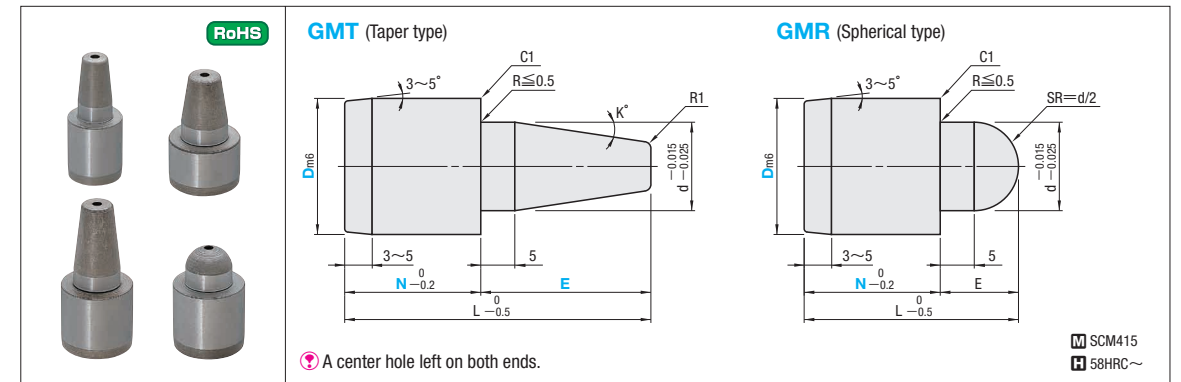
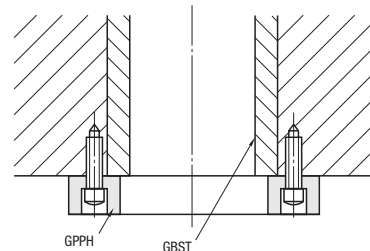
A	D	Applicable leader pin bushings Internal diameter d	External diameter D	Part Number Type	No.	U/Price 1~9
80	45	40	55	GPPH	40	Quotation
100	55	50	70		50	
110	65	60	80		60	
140	85	80	110		80	

Order Part Number — L
GBST40 — 70
GPPH40

Days to Ship Quotation

Price Quotation

EX Example



■ Taper type

Press-fit section Dm6	d	L	K°	Part Number Type	D	N	E	U/Price 1~9
16	+0.018 +0.007	10		GMT	16	14	14	Quotation
						19	14	
						19	14	
20	+0.021 +0.008	13		GMT	20	14	14	Quotation
						19	14	
						24	14	
						29	14	
						34	14	
						19	19	
						24	19	
						29	19	
						34	19	
						34	19	

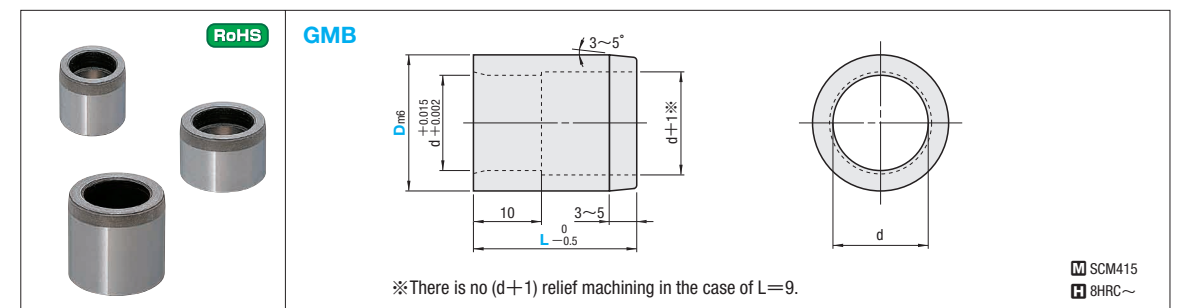
■ Spherical type

Press-fit section Dm6	d	L	E	Part Number Type	D	N	U/Price 1~9
16	+0.018 +0.007	10	29	GMR	16	19	Quotation
						20	
20	+0.021 +0.008	13	30	GMR	20	19	Quotation

Order Part Number — N — E
GMT20 — 14 — 19
GMR16 — 19

Days to Ship Quotation

Price Quotation



■ Example of leader pins and bushings

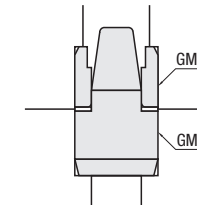
Press-fit section Dm6	d	Part Number Type	D	L	U/Price 1~9
16	+0.018 +0.007	GMB	16	9	Quotation
				14	
				19	
20	+0.021 +0.008	GMB	20	9	Quotation
				14	
				19	
				24	
				29	

Order Part Number — L
GMB16 — 19

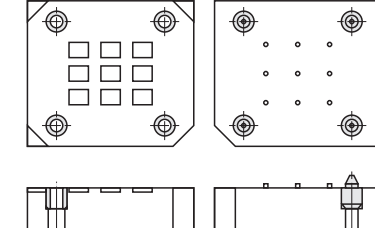
Days to Ship Quotation

Price Quotation

EX Example



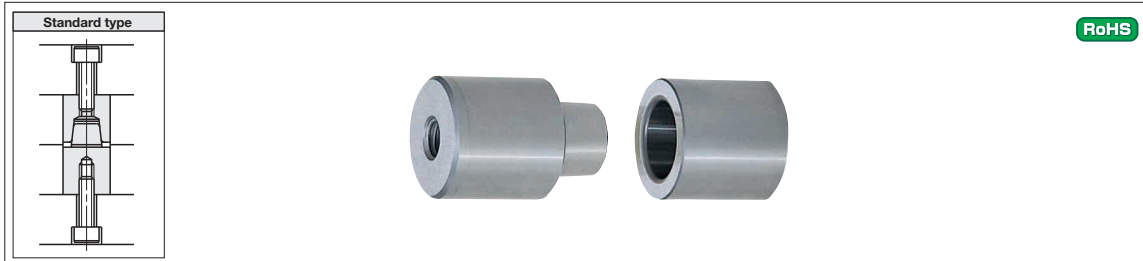
■ Example of leader pins and bushings



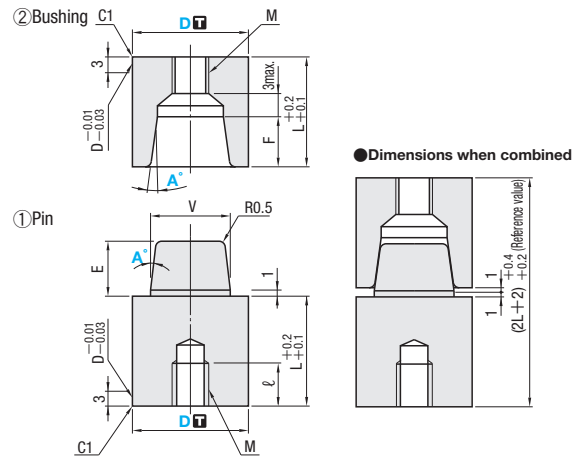
TAPERED PIN SET

—STANDARD TYPE—

ⓘ Non JIS material definition is listed on P.1351 - 1352



Group	Part Number			D	Components concentricity of tapered section to the diameter of pin and bushing	M	H
	Set	Pin only	Bushing only				
Standard	TPN	—	—	D _{k6}	(Match mark type)	SKD11 equivalent	58~62HRC
Precision	TPNV	TPNVP	TPNVB	D ^{+0.005} ₀	0.01 or less		
Extra Precision	VTPN	VTPNP	VTPNB		0.005 or less		
	ZTPN	ZTPNP	ZTPNB		0.003 or less		



D	L	V	E	F	① Pin		② Setting	
					M	ℓ	tap for bushing	
8	13	5	6	5	M 3	7.5	M 3	
10	14	7	6	5	M 4	10	M 4	
13	14	7	6	5	M 4	10	M 4	
16	14	10	6	5	M 5	10	M 5	
20	19	13	9	8	M 6	12	M 6	
25	24	16	12	11	M 8	16	M 8	
30	29	20	15	14	M10	20	M10	
32	29	20	15	14	M10	20	M10	
35	34	24	18	17	M12	24	M12	
42	39	30	24	23	M12	24	M12	

■ Standard D_{k6} · match mark type

D _{k6}	Part Number Type	D	A°	U/Price 1~9 Set
13	TPN	13	1	Quotation
16		16		
20		20		
25		25		
30		30		
32		32		
35		35		
42		42		

■ Standard D_{k6} · component concentricity 0.01 or less

D _{k6}	Part Number Type	D	A°	U/Price 1~9 (①+②) Set	① Pin	② Bushing
10	TPNV (①+② Set)	10	1	Quotation		
13		13				
16		16				
20		20				
25		25				
30		30				
32		32				
35		35				

■ Precision D^{+0.005}₀ · component concentricity 0.005 or less

D tolerance	Part Number Type	D	A°	U/Price 1~9 (①+②) Set	① Pin	② Bushing
+0.005 0	VTPN (①+② Set)	8	1	Quotation		
		10				
		13				
		16				
		20				
		25				

■ Extra Precision D^{+0.005}₀ · component concentricity 0.003 or less

D tolerance	Part Number Type	D	A°	U/Price 1~9 (①+②) Set	① Pin	② Bushing
+0.005 0	ZTPN (①+② Set)	8	1	Quotation		
		10				
		13				
		16				
		20				

ⓘ ※A° (0.5) is only available for the set (ZTPN) sale.

- Before using a TPN (match mark type), align the match marks.
- When selecting a pin independently, use a combination of a pin and bushing of the same accuracy.

Order **Part Number** — **A**
TPN16 — 3

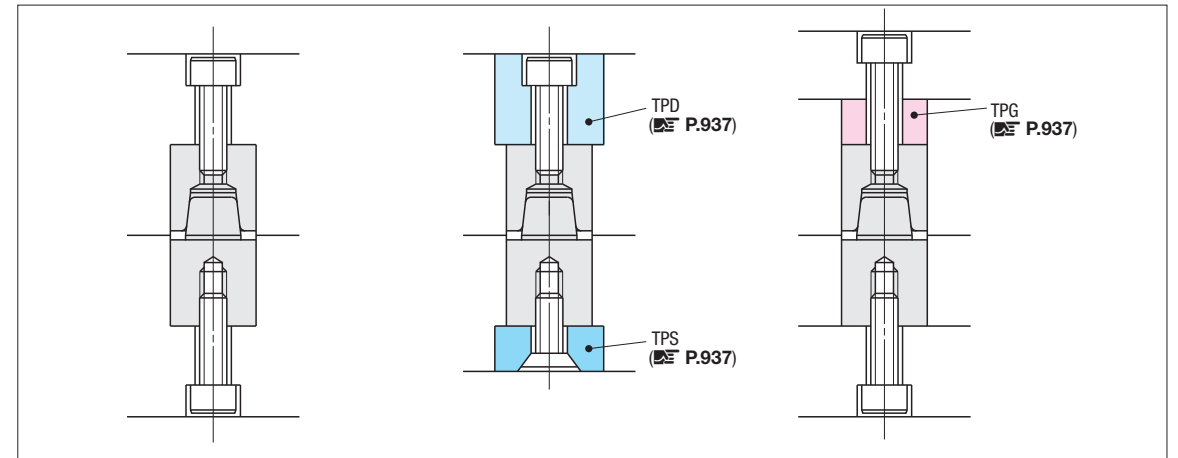
Price **Quotation**

Days to Ship **Quotation**

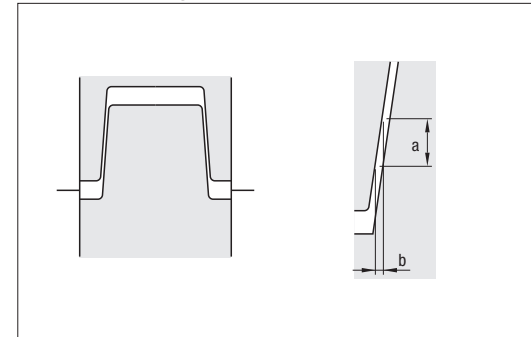
Alterations **Part Number** — **A** — (BLC · PLC · AC · BLK · PLK)
TPN16 — 3 — BLC12.0—PLC12.0—AC—BLK—PLK **Quotation**

Alterations	Code	Spec.	1Code	Alterations	Code	Spec.	1Code
	BLC	Shortens the bushing's L dimension. BLC=0.1mm increments L-2≤BLC<L ⓘ The tap depth becomes shorter by (L-BLC) ⓘ Available also for a set. To change the pin length as well, combine with PLC.	Quotation		BLK	Changes the bushing's L dimension tolerance. L ^{+0.2} _{+0.1} → L ^{+0.02} ₀ ⓘ Available also for a set. To change the pin length (L) tolerance as well, combine with alteration PLK. ⓧ Not applicable to the L dimension tolerance (reference valve) for a set.	Quotation
	PLC	Shortens the pin's L dimension. PLC=0.1mm increments L-5≤PLC<L ⓘ The tap depth becomes shorter by (L-PLC) ⓘ Available also for a set. To change the bushing length as well, combine with BLC.			PLK	Changes the pin's L dimension tolerance. L ^{+0.2} _{+0.1} → L ^{+0.02} ₀ ⓘ Available also for a set. To change the bushing length (L) tolerance as well, combine with alteration BLK. ⓧ Not applicable to the L dimension tolerance (reference valve) for a set.	
	AC	Air vent processing (single) A 0.3mm deep flat cutting is performed in parallel to the cone angle.					

How to Mount



When using



When the matching cone angle is large, the height of tapered pin and bushing must be adjusted so that they fit more tightly. On the other hand, it is necessary to take possible sticking of the pin and bushing into consideration when the angle is small. At 0.5° and 1° taper (also 3° taper in some cases), sticking can be avoided by setting them slightly afloat as shown in the figure.

When the angle is small, the creep of the height (a in the left drawing) against the width (b in the left drawings) also small so that there is no need to worry about positioning inaccuracies.

(Value b to error a) *For 0.5°, slightly afloat setting is especially recommended.

Angled	a	0.1	0.3	0.5
0.5°		0.0009	0.0026	0.0044
1°		0.0018	0.005	0.009
3°		0.005	0.016	0.026

POSITIONING STRAIGHT PIN SETS

—BUSHING PL INSTALLATION TYPE—

POSITIONING STRAIGHT PIN SETS

—PIN • BUSHING PL INSTALLATION TYPE—

ⓘ Non JIS material definition is listed on P.1351 - 1352

Bushing PL installation type

TPNFC (Set)
TPNFCP (Pin only)
TPNFCB (Bushing only)

When positioning is begun Mold closed

② Bushing

① Pin

SKD11 equivalent
58~62HRC

Installation bolt size	M	ℓ	N (Tap)	V	ℓ ₁	R ₁	R ₂	H	F	L	S (Effective holding amount)	Part Number		U/Price 1~9				
												Type	D	E	TPNFC (①+②)Set	TPNFCP (①)Pin TPNFCB (②)Bushing		
M4	4	10	M 5	7	1.0	0.5	0.8	5	6	14.5	4.5	TPNFC (①+②)Set TPNFCP (①)Pin TPNFCB (②)Bushing	13	7	Quotation			
			10															
M5	5		M 6	13										6		9	19.5	7.5
M6	6	12	M 8	16										8		11	24.5	9.5
M8	8	16	M10	20	2.0	1.0	1.5	11	17	34	14.0		30	18				

Order **Part Number** — **E** — **TPNFC20** — **10** **Days to Ship** **Quotation**

P Price **Quotation**

Alterations **Part Number** — **E** — (PLC...etc.) **TPNFC16** — **7** — **BLK** **Quotation**

Alterations	Code	Spec.	1Code
	PLC	Shortens the pin's L dimension. PLC=0.1mm increments L-5 ≤ PLC < L ⓘ The tap depth becomes shorter by (L-PLC) ⓘ Available also for a set. To change the bushing length as well, combine with BLC.	Quotation
	BLK	Changes the bushing's L dimension tolerance. L+0.2 → L+0.02 L+0.1 → L+0 ⓘ Available also for a set. To change the pin length (L) tolerance as well, combine with alteration PLK.	
	PLK	Changes the pin's L dimension tolerance. L+0.2 → L+0.02 L+0.1 → L+0 ⓘ Available also for a set. To change the bushing length (L) tolerance as well, combine with alteration BLK.	

- Characteristics**
- Suitable for positioning in precision molds such as connector and electronic device.
 - It is capable of preventing wear and damage in core pins, since it can be positioned before core pins are inlaid.
 - Bushing PL installation type: Makes the maintenance easier because it can be installed and removed from PL side.

- When using**
- Contacting the pin and bushing when mold is closed may cause damage. Please leave a clearance of about 1mm on PL.
 - Use precision leader pins since clearance is fairly small.

■ How to Mount

• About N dimension (Dismounting tap hole)

As shown in the figure above, the bushing can be easily removed by screwing a bolt into its tap (N) and extracting it.

PL installation type

TPNFCX (Set)
TPNFCXP (Pin only)
TPNFCXB (Bushing only)

When positioning is begun Mold closed

② Bushing

① Pin

SKD11 equivalent
58~62HRC

Installation bolt size	d	E ₁	N (Tap)	V	ℓ ₁	R ₁	R ₂	H	F	L	n (Escape hole on pin bottom)	J (Escape hole diameter on pin bottom)	Part Number		U/Price 1~9					
													Type	D	E	TPNFCX (①+②)Set	TPNFCXP (①)Pin TPNFCXB (②)Bushing			
M3	6.5	3.3	M4	10	1.0	0.5	0.8	4	6	14.5	10.2	4.4	TPNFCX (①+②)Set TPNFCXP (①)Pin TPNFCXB (②)Bushing	13	7	Quotation				
M5	9.5	5.4	M6	13											6		9	19.5	12.1	6.4
M6	11	6.5	M8	20										2.0	1.0		1.5	8	17	34

Order **Part Number** — **E** — **TPNFCX 20** — **10** **Days to Ship** **Quotation**

P Price **Quotation**

Alterations **Part Number** — **E** — (PLC...etc.) **TPNFC16** — **7** — **BLK** **Quotation**

- Characteristics**
- Makes the maintenance easier because it can be installed and removed from PL side.
 - It is capable of preventing wear and damage in core pins, since it can be positioned before core pins are inlaid.
- When using**
- Contacting the pin and bushing when mold is closed may cause damage. Please leave a clearance of about 1mm on PL.
 - Use precision leader pins since clearance is fairly small.
- How to Mount**
- About N dimension (Dismounting tap hole)**
-
- As shown in the figure above, the bushing can be easily removed by screwing a bolt into its tap (N) and extracting it.


Components for Positioning

SPACERS FOR TAPERED PIN SET

SPACERS FOR TAPERED PIN SET

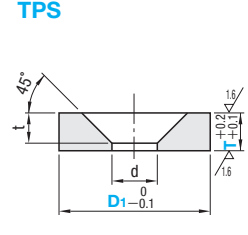
—THICKNESS DESIGNATION TYPE—

Ⓜ Non JIS material definition is listed on P.1351 - 1352

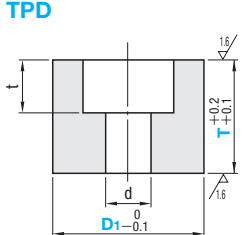


RoHS

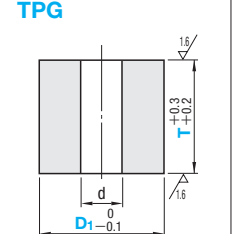
TPS



TPD




TPG



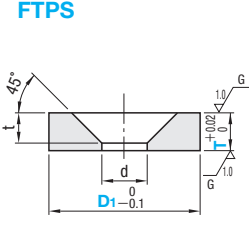
Ⓜ Bolt is attached to **TPS** and **TPD** as accessories.

Ⓜ S45C
Ⓜ 46~50HRC

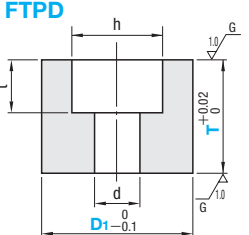


RoHS

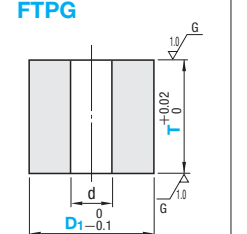
FTPS



FTPD



FTPG



Ⓜ Select an appropriate bolt for **FTPS** and **FTPD** after referring to **FB(P.1189)**, **CB(P.1185)** and **CBS(P.1187)**.

Ⓜ S45C
Ⓜ 46~50HRC

Applicable tapered pin D	Plate thickness	d	t	Supplied bolts	Part Number Type	D ₁	T	U/Price 1~9 pcs.	
13	20	4.5	3.0	FB 4-10	TPS	16	5		
	25						10		
16	20	5.5	3.0	FB 5-12		20	5		
	25						10		
20	25	6.5	4.0	FB 6-12		25	5		
	30						10		
25	30	8.5	4.5	FB 8-15		32	5		
	35						10		
30	40	10.5	7.5	FB 10-20		35	10		
	32						10		
10	25	4.5	6	CB 4-10	TPD	13	10		
	30						15		
	35						20		
	40						25		
13	25	4.5	6	CB 4-25		16	10		
	30						15		
	35						20		
	40						25		
16	25	5.5	7	CB 5-10		TPD	20	10	
	30							15	
	35				20				
	40				25				
20	30	6.5	9	CB 6-16	25		10		
	35						15		
	40						20		
	45						25		
25	40	8.5	10	CB 8-15	32		15		
	45						20		
	50					25			
	60					30			
30	50	10.5	12	CB 10-20	35	20			
	60					30			
	70					40			
	80					50			
32	60	12.5	14	CB 10-30	38	30			
	70					40			
	80					50			
	80					*50			
35	50	12.5	9	CBS 12-25	42	15			
	60					25			
42	60	12.5	14	CB 12-25	48	20			
	70					30			

Applicable tapered pin D	Plate thickness	d	Applicable bolts M	Part Number Type	D ₁	T	U/Price 1~9 pcs.
8	20	3.5	M 3	TPG	8	5	
	25					10	
10	20	4.5	M 4		10	5	
	25					10	
16	20	5.5	M 5		16	5	
	25					10	
	30					15	
	35					20	
20	30	6.5	M 6		20	5	
	35					10	
	40			15			
	45			20			
25	30	8.5	M 8	25	5		
	35				10		
	40				15		
	45				20		
30	35	10.5	M10	30	5		
	40				10		
	45				15		
	50				20		
32	40	12.5	M12	32	5		
	45				10		
	50				15		
	60				20		
42	45	12.5	M12	42	5		
	50				10		

Ⓜ Sizes marked* are discontinued at April 2010.

Ⓜ Sizes marked* are discontinued at April 2010.

Order **Part Number** — **T**
TPS20 — 10

P Price **Quotation**

Days to Ship **Quotation**

Applicable tapered pin D	h	d	t	Applicable bolts	Part Number Type	D ₁	T	U/Price 1~9 pcs.
13	—	4.5	3.0	FB4	FTPS	16	5.0~10.0	
							20	5.0~10.0
							25	6.0~10.0
							32	6.5~10.0
							32	6.5~10.0
10	8	4.5	6	CB4	FTPD	13	10.0~14.9	
							15.0~19.9	
							20.0~25.0	
							10.0~14.9	
							15.0~19.9	
							20.0~25.0	
							10.0~14.9	
							15.0~19.9	
							20.0~24.9	
							25.0~29.9	
16	9.5	5.5	7	CB5	FTPD	20	20.0~24.9	
							25.0~29.9	
							30.0~35.0	
							10.0~14.9	
							15.0~19.9	
							20.0~24.9	
							25.0~29.9	
							30.0~35.0	
							10.0~14.9	
							15.0~19.9	
20	11	6.5	9	CB6	FTPD	25	20.0~24.9	
							25.0~29.9	
							30.0~39.9	
							40.0~50.0	
							15.0~19.9	
							20.0~24.9	
							25.0~34.9	
							35.0~44.9	
							45.0~55.0	
							20.0~29.9	
25	14	8.5	10	CB8	FTPD	32	15.0~19.9	
							20.0~24.9	
							25.0~34.9	
							35.0~44.9	
							45.0~55.0	
							20.0~24.9	
							30.0~39.9	
							40.0~50.0	
							20.0~29.9	
							30.0~39.9	
30	17.5	10.5	12	CB10	FTPD	35	30.0~39.9	
							40.0~50.0	
							20.0~29.9	
							30.0~39.9	
							40.0~50.0	
							20.0~29.9	
							30.0~39.9	
							40.0~50.0	
							15.0~24.9	
							25.0~34.9	
35	20	12.5	14	CBS12	FTPD	42	15.0~24.9	
							25.0~34.9	
42	20	12.5	14	CB12	FTPD	48	20.0~29.9	
							30.0~40.0	

Applicable tapered pin D	d	Applicable bolts M	Part Number Type	D ₁	T	U/Price 1~9 pcs.
8	3.5	M 3	FTPG	8	1.0~10.0	
					10	1.0~10.0
					13	1.0~10.0
					13	1.0~9.9
10	4.5	M 4		16	10.0~14.9	
					15.0~19.9	
					20.0~24.9	
					25.0~29.9	
16	5.5	M 5		20	1.0~9.9	
					10.0~14.9	
			15.0~19.9			
			20.0~24.9			
20	6.5	M 6	25	20.0~24.9		
				25.0~29.9		
				30.0~39.9		
				40.0~50.0		
25	8.5	M 8	30	1.0~9.9		
				10.0~14.9		
				15.0~19.9		
				20.0~24.9		
30	10.5	M10	32	10.0~14.9		
				15.0~19.9		
				20.0~29.9		
				30.0~39.9		
35	12.5	M12	35	1.0~9.9		
				15.0~24.9		
				25.0~34.9		
				35.0~45.0		
42	12.5	M12	42	1.0~9.9		
				10.0~19.9		

Order **Part Number** — **T**
FTPS20 — 9.8

P Price **Quotation**

Days to Ship **Quotation**

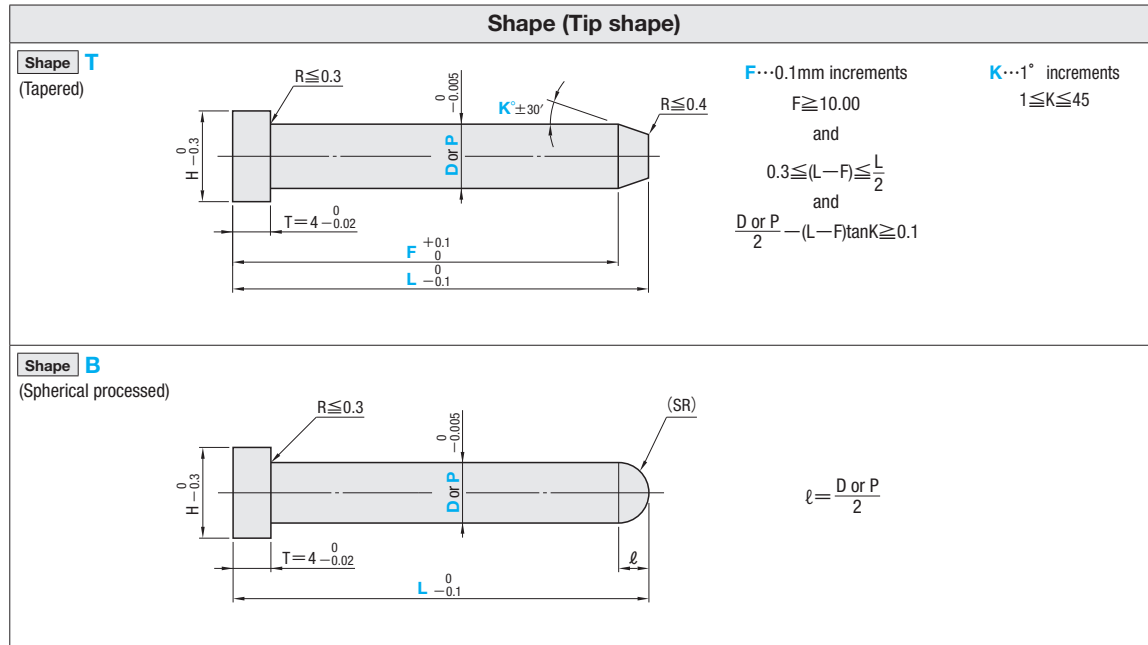
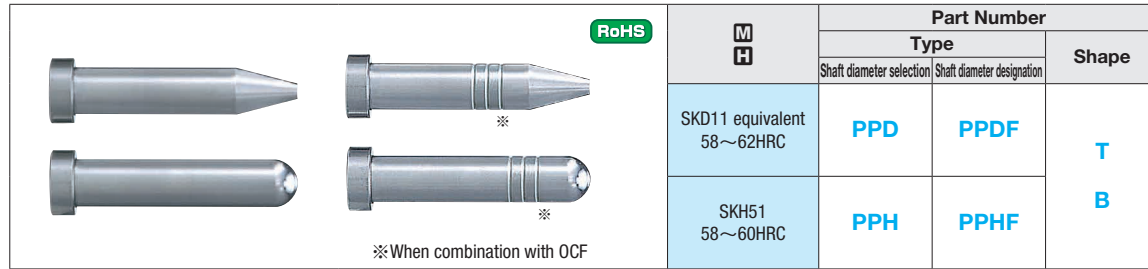
Components for Positioning

Quotation

POSITIONING PINS

—SHAFT DIAMETER (D) SELECTION TYPE/SHAFT DIAMETER (P) DESIGNATION 0.01mm INCREMENTS TYPE—

Ⓜ Non JIS material definition is listed on P.1351 - 1352



Alterations Part Number - L - P - Tip size F · K - (KC · WKC...etc.)
 PPDB 5 - 30.0 - HC 7.0
 PPHFT 6 - 40.0 - P5.80 - F35.0 - K30 - OCF2-E10-G3

Alterations	Code	Spec.	tCode
	KC	Single flat cutting (DorP)/2 ≤ KC < H/2	
	WKC	Two flats cutting (DorP)/2 ≤ WKC < H/2	
	OCF	Adds an oil groove (free designation) Designation method OCF2-E10-G3 (Two grooves) OCF3-E10-G3 (Three grooves) OCF=No. of grooves (2 or 3) E=1mm increments Ⓜ When [Shape] T, L-F+1 < E < L-T - (GX(No. of grooves-1))-5 Ⓜ When [Shape] B, L+1 < E < L-T - (GX(No. of grooves-1))-5 G=1mm increments 1 ≤ G ≤ 10	Quotation
	HC	Head diameter change HC=0.1mm increments (DorP) ≤ HC < H Ⓜ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft.	
	HCC	Head diameter change (precision) HCC=0.1mm increments (DorP)+0.5 ≤ HCC < H-0.3	
	TC	Head thickness change TC=0.1mm increments 1.5 ≤ TC < 4 (Dimension L remains unchanged.) 4-TC ≤ Lmax. -L	Quotation
	TRN	Relief under the head (No need for plate chamfering)	
	NHC	Numbering on the head How to order P.396 Ⓜ Express services not available	

Ⓜ Unit of designation for key flat cutting (KC and WKC)
 (1) When specifying key flat cutting according to the shaft diameter
 [Unit of designation] Shaft diameter (D) selection 0.05mm increments is possible,
 and shaft diameter (P) designation 0.005mm increments is possible.
 (2) When freely specifying key flat cutting
 [Unit of designation] 0.1mm increments

Shaft diameter (D) selection type

H	Part Number			L 0.1mm increments	Shape (Tip size)	U/Price 1~4			
	Type	Shape	D			PPD		PPH	
8	PPD	T	5	25.0~60.0	Shape T only F...0.1mm increments K...1° increments	Quotation			
9			6						
10			7						
11			8						
15			10						

Shaft diameter (P) designation 0.01mm increments type

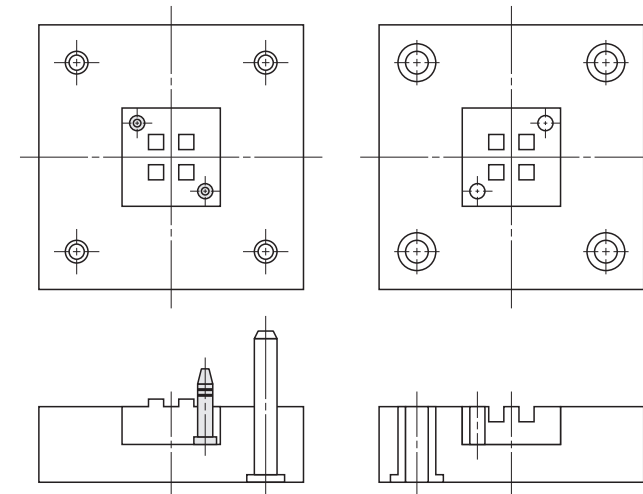
H	Part Number			L 0.1mm increments	P 0.01mm increments	Shape (Tip size)	U/Price 1~4			
	Type	Shape	No.				PPDF		PPHF	
8	PPDF	T	5	25.0~60.0	Shape T only F...0.1mm increments K...1° increments	Quotation				
9			6							
11			8							
15			10							

Order Part Number - L - P - Tip size F · K
 PPDB 8 - 60.0
 PPHFT 5 - 50.0 - P4.80 - F45.0 - K20

Days to Ship Quotation

Price Quotation

Example



- Can also be used for determining the position of the cavity insert. Effective for a small mold with little space.
- Material equivalent to SKD11, and also SKH51, are both tempered at high temperature.
- When reducing the positioning clearance, use a precision guide pin.

TAPERED LEADER PIN SETS

POSITIONING PINS FOR INSERT MOLDING

Ⓜ Non JIS material definition is listed on P.1351 - 1352

RoHS

TGPS

① Leader Bushing
 M SUJ2
 H 58~60HRC
 ② Guide pin
 M SUJ2
 H 58~60HRC
 ③ Spacers
 M S45C
 H 38~43HRC
 S Black Oxide (Fe3O4)

D ₁	D ₂	D ₃	A	H	T	M	ℓ ₁	H ₁	ℓ ₂	T ₁	d ₁	d ₂	t ₁	Part Number	L				
														Type	D				
14	8	9.8	12.4	16	4	4	8	14	8	4.5	4.4	7.6	4.5	TGPS	10	20 25			
18	10	11.6	17	20	4	5	8	16	8	4	6	9	5.5		12	20 25 30			
25	14	15.9	21	30	6			20		5	8.2	13.5	8.2		16	20 25 30 35 40 50 60			
30	18	19.1	26	35	8	8	15	24	14	6	8.5	14	9		20	25 30 35 40 50 60			
35	23	24.1	30	40	8	8	15	30	14	6	8.5	14	9		25	30 40 50 60			

Ⓜ TGPS16—20 → ℓ₁=10, M8×10

Order **Part Number** — **L**
 TGPS16 — 40

Price **Quotation**

Days to Ship **Quotation**

Characteristics

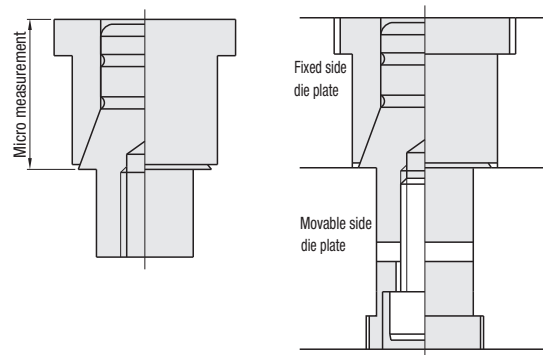
It has the positioning functions of Leader Pin/Leader Bushing/Tapered Pin Sets. It saves space and functions in positioning itself with the tapered section.

When using

A set of a pin, bushing and spacer. Make sure to use the pin and bushing in this combination.

How to Mount the Tapered Leader Pin Set

1. Create a hole for the leader pin and bushing in about ± 0.01 tolerance.
2. Set the leader pin and bushing in slightly tight, and measure the distance between the top of the bushing and the bottom of the pin's tapered flange using a micrometer. (Right drawing)
3. Finish the fixed die plate with a tolerance of $-0.01 \sim -0.03$ of the value obtained in 2, above.
4. Press fit the leader bushing into the fixed die plate.
5. Set the leader pin on the movable die plate and hold it by attaching the spacer from the rear and fastening it with a bolt.
6. Set the die plates on a molding machine and close them. This should make the leader pin's flange slightly bite into the die plate and completely align it with the bushing.



RoHS

PPI (Tip tapered type)

PPIR (Tip R type)

*ℓ = √(P(10-P/4))

Ⓜ SKH51
 H 58~60HRC

H	Part Number		L	P	G°	U/Price					
	Type	No.				0.1mm increments	0.01mm increments	1~4 pcs.	5~19	20~49	50~100
4	PPI PPIR	2	10.0~40.0	0.80~1.49 1.50~1.99	10	Quotation					
5		2.5					1.50~2.49				
6		3					2.00~2.99				
7		4					3.00~3.99				

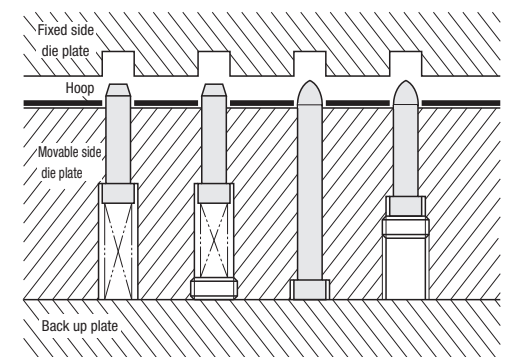
Order **Part Number** — **L** — **P** — **G** — (No rounding)
 PPI 3 — 20.0 — P2.60 — G15 — R0
 PPIR2.5 — 18.0 — P2.00

Days to Ship **Quotation**

Alterations **Part Number** — **L** — **P** — **G** — (LKC · PKC · KC · etc.)
 PPI3 — 20.00 — P2.60 — G15 — LKC

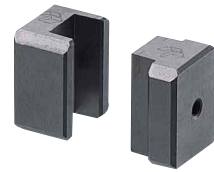
ex Example Use for hoop positioning in insert molding process.

Alterations	Code	Spec.	1Code
	LKC	Changes the tolerance. $L +0.1 \dots +0.05$ When using LKC, L dimension can be designated in 0.01mm increments.	Quotation
	PKC	Changes shaft diameter tolerance [Designation method] PKC $P -0.01 \dots -0.005$	
	KC	KC=0.1mm increments $KC = P/2 \dots 0.005$ mm increments possible When $KC = P/2$ $KC -0.1 \dots -0.02$ Ⓜ $P/2 \leq KC < H/2$	
	WKC	WKC=0.1mm increments $WKC = P/2 \dots 0.005$ mm increments possible When $WKC = P/2$ $WKC -0.1 \dots -0.02$ Ⓜ $P/2 \leq WKC < H/2$	
	HC	HC=0.1mm increments $P \leq HC < H$ Ⓜ In relation to the diameter tolerance, alteration may create a straight piece with little diameter difference between the head and shaft.	



TAPERED BLOCK SETS

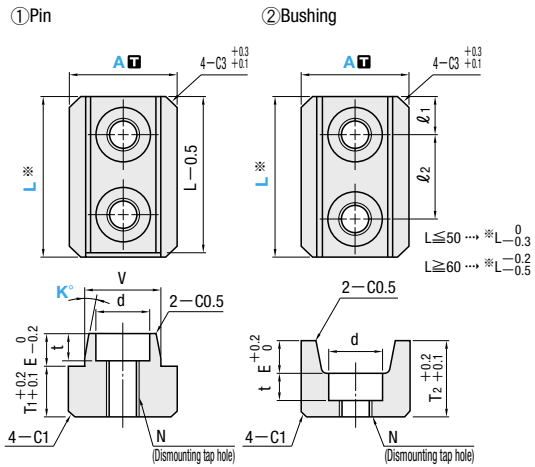
Ⓜ Non JIS material definition is listed on P.1351 - 1352



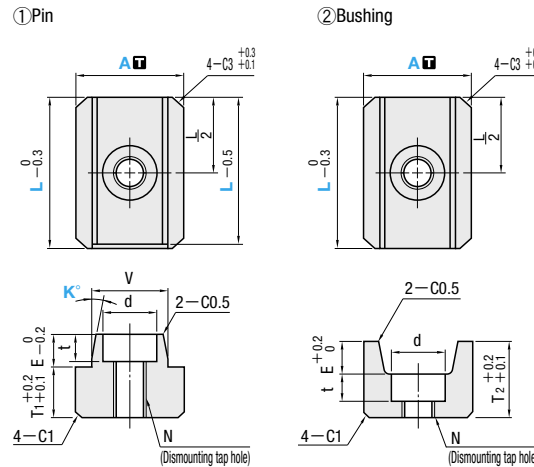
RoHS

Group	Part Number			A	V dimension symmetry against A plane	M	H
	Set	Pin only	Bushing only				
Standard	TBS	-	-	+0.02 0	(Match mark type) To add fitting processing, not applicable to combination with other than sets.	SKD11	58~62HRC
Precision	VTBS	VTBSP	VTBSB	0 -0.005	0.005 or less (It can be used without caring set combination or direction.ex) -color molding, insert molding, etc.	equivalent	

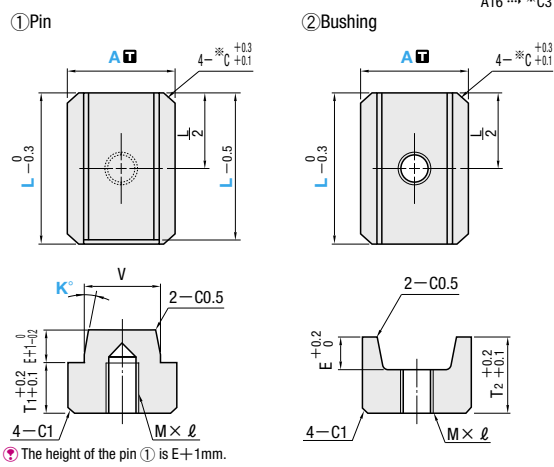
Mounting bolt hole: 2 (L30~120)



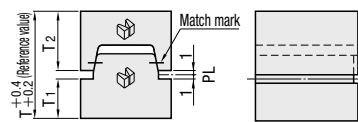
Mounting bolt hole: 1 (L20~25, except A12 and A16)



Mounting bolt hole: 1 (A12 and A16 only)



Dimensions when combined



- There is a match mark on the Misumi logo side, facilitating position alignment.
- Set the blocks so that the 'MISUMI' logo is visible from outside of the die.
- Ⓜ TBS must be used in set combination and direction being preset upon delivery.
- Ⓜ VTBS has only the Misumi logo. It does not have a match mark.

Order **Part Number** - **L** - **K**

TBS35 - 40 - 3

VTBS25 - 30 - 1

Days to Ship **Quotation**

Price **Quotation**

Standard Match mark type

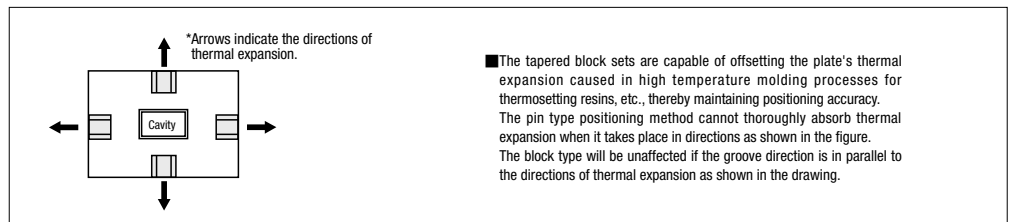
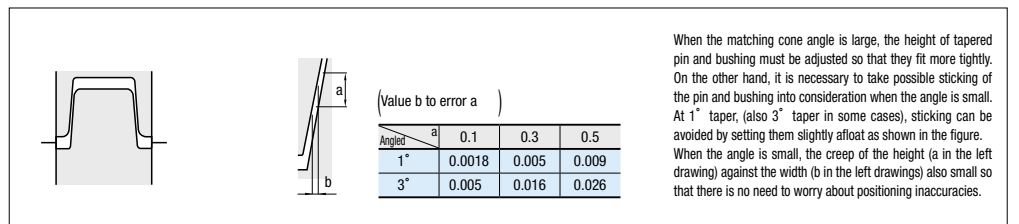
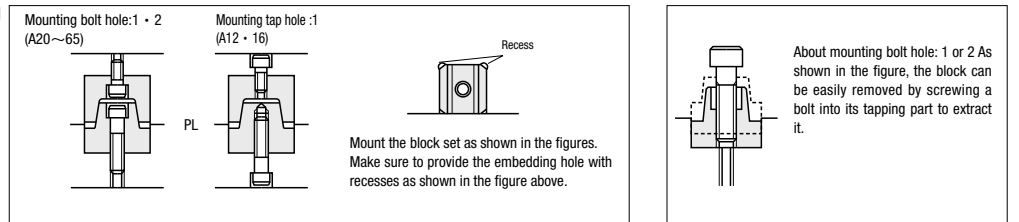
V	E	T	T1	T2	Bolt hole				Installation bolts	Tap N	Tap hole M×ℓ	No. of bolt holes	Part Number		L Selection	K° Selection	U/Price 1~9 Set	
					ℓ1	ℓ2	d	t					Type	A				
7	*5								M3 bolt	M 3	M3×6	1 (Tap hole)	TBS	12	15	1	Quotation	
9		23	7	14					M4 bolt	M 4	M4×6	1 (Tap hole)		16	20			3
12	*7								M3 bolt	M 4		1		20	25			
					7.5	15	6.5	3.5				2		20	30			
					10	20						1		25	20			
15		28	9	17					M4 bolt	M 5		1		25	30			
					7.5	15						2		30	40			
					10	20						1		25	30			
17		32	10	20					M5 bolt	M 6		1		30	40			
					7.5	15						2		30	40			
					10	20						1		30	40			
20		35	11	22					M6 bolt	M 8		2		35	40			
					10	30						1	40	50				
					20	60						2	40	50				
25		45	14	29					M6 bolt	M 8		2	45	50				
					17.5	40						1	50	75				
					20	60						2	50	100				
					15	30						1	60	90				
35		60	19	39					M8 bolt	M10		2	65	90				
					30	60						1	90	120				

Ⓜ The height of the pin is E+1mm for A12 and A16.

Precision

V	E	T	T1	T2	Bolt hole				Installation bolts	Tap N	No. of bolt holes	Part Number		L Selection	K° Selection	U/Price 1~9		
					ℓ1	ℓ2	d	t				Type	A			VTBS (1+2)	VTBSP (1) Pin	VTBSB (2) Bushing
12	7	23	7	14					M3 bolt	M4	1	VTBS (1+2 Set)	20	25	1	Quotation		
					7.5	15	6.5	3.5			2		25	30				
15	8	28	9	17					M4 bolt	M5	1	VTBSP (1) Pin	25	25	3	Quotation		
					7.5	15	8	5			1		30	30				
17	8	32	10	20					M5 bolt	M6	2	VTBSB (2) Bushing	30	40	5	Quotation		
20	10	35	11	22	10	20	9	6	M6 bolt	M8	2		35	40				

When using



Components for Positioning

SIDE STRAIGHT BLOCK SETS

— SIDE INSTALLATION TYPE / OIL GROOVE TYPE SIDE INSTALLATION TYPE —

EXTRA PRECISION SIDE STRAIGHT BLOCK SETS

— SIDE INSTALLATION TYPE —

Ⓜ Non JIS material definition is listed on P.1351 - 1352

TSSB

TSSBM

TSSB (with oil groove)

• A30~80

① Pin

② Bushing

Ⓜ SKD11
Ⓜ 58~62HRC

① Pin	② Bushing	Positioning precision (Clearance)		V dimension symmetry against A/B plane
		Pin	Bushing	
0	+0.01	0.005	0.003 or less	
-0.005	+0.005	0.015		

VTSSB

• A30~40

① Pin

② Bushing

Ⓜ SKD11
Ⓜ 58~62HRC

① Pin	② Bushing	Positioning precision (Clearance)		V dimension symmetry against A/B plane
		Pin	Bushing	
0	+0.005	0.002	0.003 or less	
-0.003	+0.002	0.008		

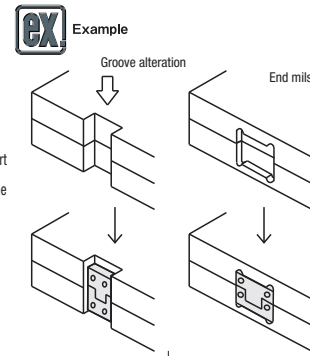
V	T ₁	T ₂	ℓ	R _a	C _a	Bolt hole				Installation bolts	L	L ₁	Part Number Type	A	E	U/Price 1~9 pcs.
						P	Q	d ₁	d ₂							
7		17	1	1	0.5					M4 bolt	8	3	TSSB	16	6	Quotation
8	11	19				5	8	4.5						20	6	
10														25	8	
12	14	22	1	1	0.5	16	6	9.5	5.5	M5 bolt	10	4	TSSB	30	8	Quotation
		34	2	2	1											
		28	1	1	0.5											
15	18	43	2	2	1	22	7	11	6.6	M6 bolt	13	6	TSSB	40	25	Quotation
		50														
		65														
25	30	70	2	2	1	36	12	14	8.6	M8 bolt	20	11	TSSB	60	20	Quotation
		85														
30	40					52	14	18	11	M10 bolt	25	14	TSSB	80	30	Quotation

V	T ₁	T ₂	ℓ	R _a	C _a	Bolt hole				Installation bolts	L	L ₁	Part Number Type	A	E	U/Price 1~9 pcs.
						P	Q	d ₁	d ₂							
12	14	22	1	1	0.5	16	6	9.5	5.5	M5 bolt	10	4	TSSBM (with oil groove)	30	8	Quotation
15	18	28	1	1	0.5	22	7	11	6.6	M6 bolt	13	6		40	10	

Order **Part Number** — **E**
TSSB20 — 6

Days to Ship **Quotation**

Price **Quotation**



Characteristics

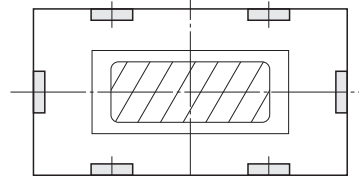
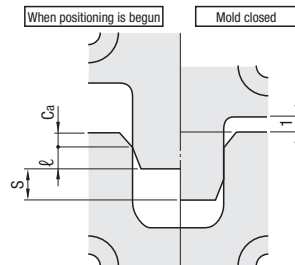
- Suitable for positioning in precision molds such as connector and electronic device. It is capable of preventing wear and damage in core pins since it can be positioned before core pins are inlaid on cavity.
- Positioning is easily performed by simultaneously processing plates in piles (refer to drawing on the right)
- Use precision leader pins since clearance is fairly small.

- Oil groove type (TSSBM) is obtained by attaching oil groove at the sliding part of the side straight block set (TSSB) and two places on both sides of the pin.
- The oil grooves ensure that oil is fed to the sliding part, thus preventing the straight locating block set from scuffing or seizing.

When using

- When a convex side and a concave side knock against each other, it causes damage. Please make a 1mm gap and use it.

E	S (Effective length max.)
6	3.5
8	5.5
10	7.5
20	16.0
25	21.0
30	26.0
35	31.0
45	41.0



A relatively large sized mold can be positioned more precisely using 2 of the block set at each side in longitudinal direction of the mold base.

V	T ₁	T ₂	ℓ	R _a	C _a	Bolt hole				Installation bolts	L	L ₁	Part Number Type	A	E	U/Price 1~9 pcs.
						P	Q	d ₁	d ₂							
7		17	1	1	0.5					M4 bolt	8	3	VTSSB	16	6	Quotation
8	11	19				5	8	4.5								
10																
12	14	22	1	1	0.5	16	6	9.5	5.5	M5 bolt	10	4	VTSSB	30	8	Quotation
		34	2	2	1											
		28	1	1	0.5											
15	18	43	2	2	1	22	7	11	6.6	M6 bolt	13	6	VTSSB	40	10	Quotation
		50														
		65														

Order **Part Number** — **E**
VTSSB20 — 6

Price **Quotation**

Days to Ship **Quotation**

ex Example

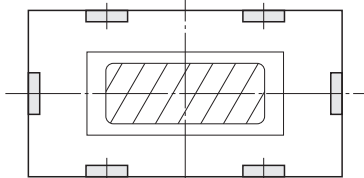
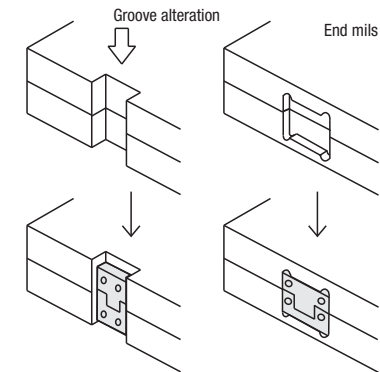
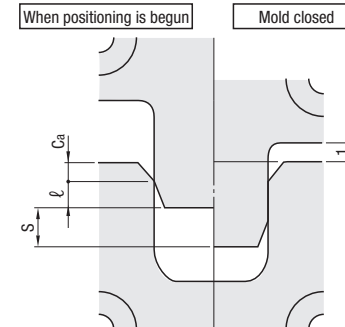
Characteristics

- Suitable for positioning in precision molds such as connector and electronic device. It is capable of preventing wear and damage in core pins since it can be positioned before core pins are inlaid on cavity.
- Positioning is easily performed by simultaneously processing plates in piles (refer to drawing on the right)
- Use precision leader pins since clearance is fairly small.

When using

- When a convex side and a concave side knock against each other, it causes damage. Please open about 1mm and use it.

E	S (Effective length max.)
6	3.5
8	5.5
10	7.5



A relatively large sized mold can be positioned more precisely using 2 of the block set at each side in longitudinal direction of the mold base.

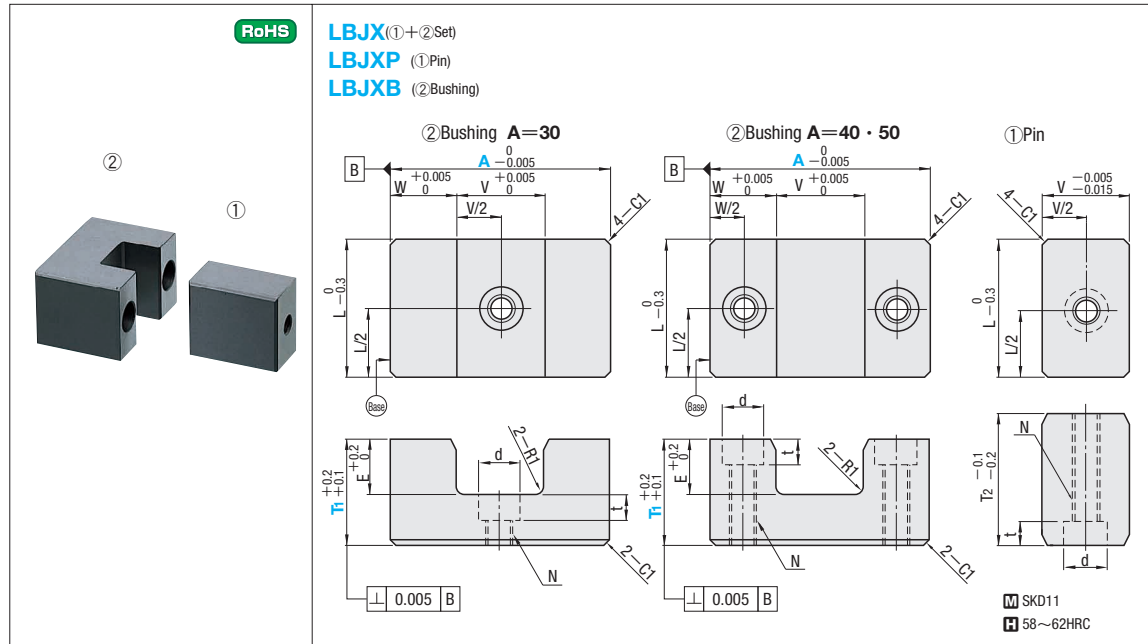
Components for Positioning

POSITIONING BLOCK SETS

—STRAIGHT TYPE—

SIDE COTTER BLOCK

⚠ Non JIS material definition is listed on P.1351 - 1352

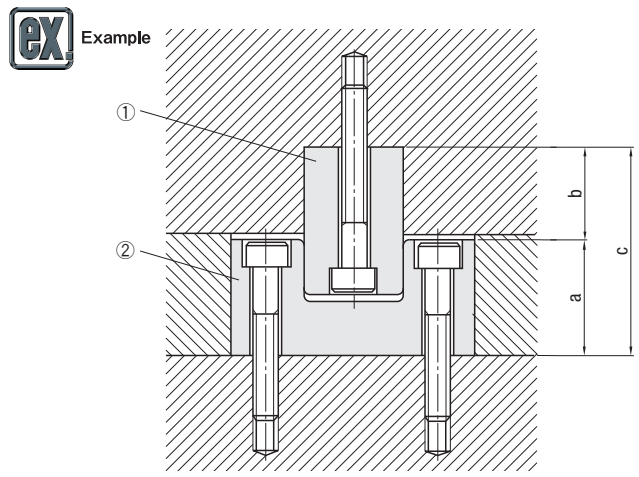


W	V	E	T ₂	d	t	Installation bolts	Tap N	L	Part Number		U/Price 1~9		Part Number	U/Price 1~9
									Type	A	T ₁	LBJX (①+②Set)		
9	12	6	18	8	4.5	M4	M5	20	LBJX	30	14		LBJXP (①Pin)	30
12	16	10	25					25	LBJXB	40	24			40
15	20	15	35	11	6.5	M6	M8	30		50	29			50
											34			

Order **Part Number** — **T₁**
 LBJX 40 — 19
 LBJXP30 — 19
 LBJXB50 — 29

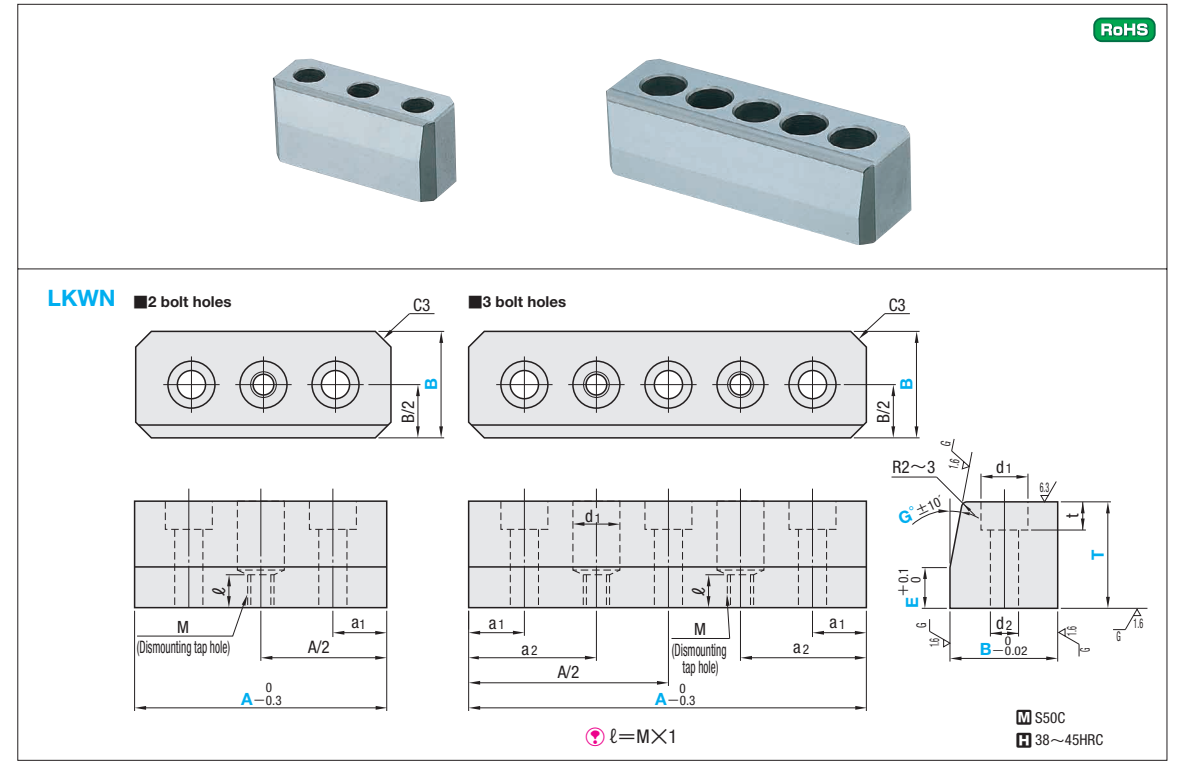
P Price **Quotation**

Days to Ship **Quotation**

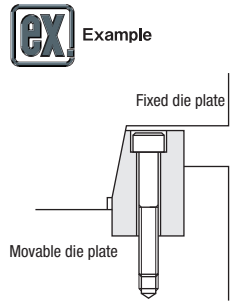


Part Number	T ₁	a	b	c
LBJX 30-14	14	14	13	27
LBJX 30-19	19	14	13	32
LBJX 40-19	19	19	16	35
LBJX 40-24	24	19	16	40
LBJX 50-29	29	24	21	50
LBJX 50-34	34	24	21	55

• ②(Bushing) in LBJX30 and LBJXB30 are to be installed by one bolt.



M	d ₁	d ₂	t	a ₁	a ₂	No. of bolt holes	Part Number		T	A	E	G°	U/Price 1~9 pcs.
							Type	B					
M 6	11	6.6	6.5	10	25	3	LKWN	20	14	60	5	5	Quotation
									29	80			
									39	100			
M 5	9.5	5.5	6	10	30	3	LKWN	25	14	60	15	15	Quotation
									29	80			
									39	100			
M 6	11	6.6	6.5	15	32.5	3	LKWN	30	29	100	10	15	Quotation
									39	150			
									49	200			
M 8	14	8.6	8.6	20	47.5	3	LKWN	40	29	150	15	10	Quotation
									39	200			
									49	250			
M 10	18	11	11	25	72.5	3	LKWN	50	39	100	20	10	Quotation
									49	150			
									59	200			
M 12	20	13	13	30	72.5	3	LKWN	50	44	100	20	10	Quotation
									59	150			
									69	200			



Order **Part Number** — **T** — **A** — **E** — **G**
 LKWN30 — 29 — A100 — E15 — G5

P Price **Quotation**

Days to Ship **Quotation**

Alterations **Part Number** — **T** — **A** — **E** — **G** — (GC)
 LKWN 30 — 29 — A100 — E15 — G5 — GC

Alteration	Code	Spec.	1Code
	GC	Tapers on both side(in angle G against B dimension).	Quotation

Components for Positioning

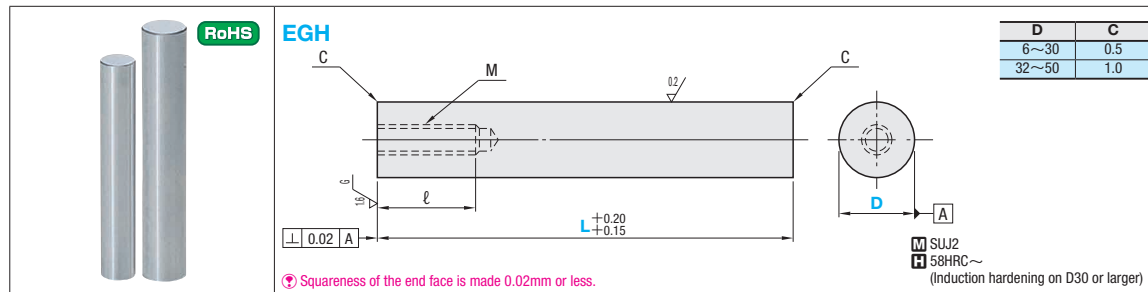
PRECISION EJECTOR LEADER PINS

—INLAY TYPE—

PRECISION EJECTOR LEADER PINS

—STRIKING TYPE—

Ⓜ Non JIS material definition is listed on P.1351 - 1352



D	M Pitch	ℓ	Part Number Type	D	L 5mm increments	U/Price 1~9
6	-0.010 -0.015	M4 × 0.7	EGH	6	30~70 75~80	
8	-0.015 -0.020	M5 × 0.8		8	30~70 75~100	
10				10	30~70 75~100	
12				12	40~70 75~100	
13	-0.020 -0.025	M6 × 1.0		13	40~70 75~100 105~125 130~150	
16				16	40~70 75~100 105~125 130~150	
20		M8 × 1.25		20	40~70 75~90 95~110 115~130 135~150 155~175	
25				25	50~70 75~90 95~110 115~130 135~150 155~170 175~200 205~225 230~250	
30	-0.025 -0.030			30	50~70 75~90 95~110 115~130 135~150 155~170 175~200 205~225 230~250	
32		M10 × 1.5		32	50~70 75~90 95~110 115~130 135~150 155~170 175~200 205~225 230~250 255~275 280~300	

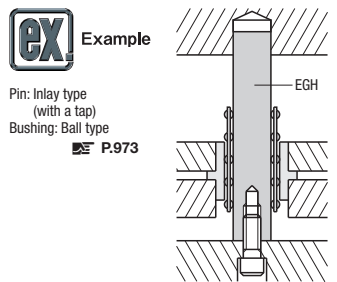
D	M Pitch	ℓ	Part Number Type	D	L 5mm increments	U/Price 1~9
35			EGH	35	50~70 75~90 95~110 115~130 135~150 155~170 175~200 205~225 230~250 255~275	
40	-0.025 -0.030	M10 × 1.5		40	50~70 75~90 95~110 115~130 135~150 155~170 175~200 205~225 230~250 255~275 280~300 305~325 330~350	
50				50	50~70 75~90 95~110 115~130 135~150 155~170 175~200 205~225 230~250 255~275 280~300 305~325 330~350	

Order **Part Number** - **L**
EGH25 - 75

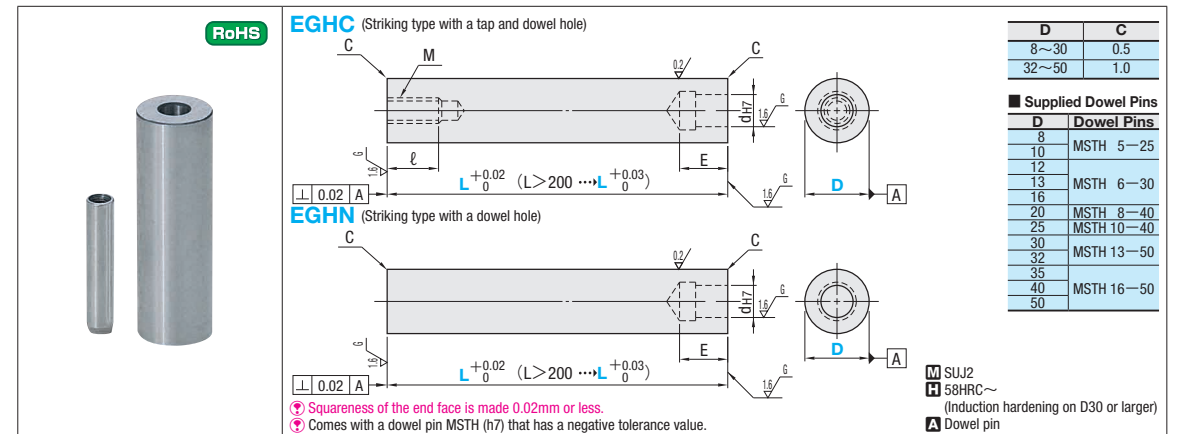
Days to Ship **Quotation**

Price **Quotation**

Alterations **Part Number** - **L (LC)** - (LKC · LKV · AVC)
EGH30 - LC129.9 - LKC



Alterations	Code	Spec.	1Code
	LC	Changes the full length. LC=0.1mm increments Ⓜ Lmin.<LC<Lmax.	Quotation
	LKC	Changes the full length tolerance. L +0.20 ... L ≤ 200 ... +0.02 L +0.15 ... 200 < L ≤ 350 ... +0.03	
	LKV	Changes the full length tolerance. L +0.20 ... +0.01 Ⓜ Not applicable to L > 150 Ⓜ Combining LC makes designation of LC0.01mm increments possible.	
	AVC	Air vent machining All D dimensions → Groove depth: 0.5±0.1 Groove width: 10±0.5	



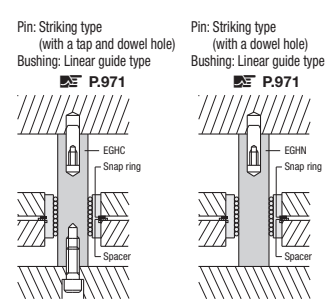
D	M Pitch	ℓ	dH7	E	Part Number Type	L 5mm increments	U/Price 1~9
8	-0.015 -0.020	M5 × 0.8	10	5	EGHC	40~70 75~80	
10				12		40~70 75~100	
12				15		40~70 75~100	
13	-0.020 -0.025	M6 × 1.0	12	6		40~70 75~100 105~125 130~150	
16				15		40~70 75~100 105~125 130~150	
20		M8 × 1.25	8	8		40~70 75~100 95~120 125~150 155~175	
25			10	20		50~90 95~120 125~150 155~200 205~230 235~250	
30	-0.025 -0.030	M10 × 1.5	16	20		50~90 95~120 125~150 155~200 205~230 235~250 255~275 280~300	
32			13	25		50~120 125~150 155~220 225~250 255~275 280~300 305~325 330~350	
35			16	25		50~120 125~150 155~220 225~250 255~275 280~300 305~325 330~350	
40	-0.025 -0.030	M10 × 1.5	20	25		50~120 125~150 155~220 225~250 255~275 280~300 305~325 330~350	
50			25	25		50~120 125~150 155~220 225~250 255~275 280~300 305~325 330~350	

Order **Part Number** - **L**
EGHC30 - 130

Days to Ship **Quotation**

Price **Quotation**

Alterations **Part Number** - **L (LC)** - (SC · LKV)
EGHC30 - LC129.9 - SC



Alterations	Code	Spec.	1Code
	SC	Adds grooves for wrenching. Ⓜ Available for D ≥ 10	Quotation
	LC	Changes the full length. LC=0.1mm increments Ⓜ Lmin.<LC<Lmax. The tap length becomes shorter by (standard L-LC) since this alteration cuts a standard length piece (5mm increments).	
	LKV	Changes the full length tolerance. L +0.02 ... +0.01 Ⓜ Not applicable to L > 150 Ⓜ Combining LC makes designation of LC0.01mm increments possible.	


EJECTOR LEADER PINS FOR MIDDLE · LARGE MOLD

—STEPPED TYPE/BOLT HOLE TYPE—

EJECTOR LEADER BUSHINGS

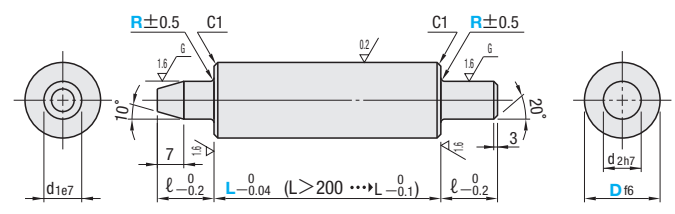
—PLAIN/LONG S DIMENSION TYPE—

Ⓜ Non JIS material definition is listed on P.1351 - 1352




RoHS

EGPDX (Df6)

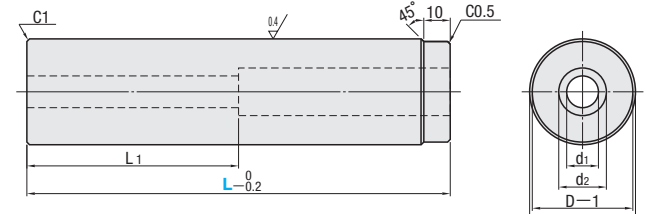


Ⓜ SUJ2 Ⓜ L dimension part 58HRC~ (Induction hardening)



RoHS

EGPDHE (De7)
EGPDPHF (Df6)



Ⓜ SUJ2 Ⓜ 58HRC~ (Induction hardening) Ⓜ Mounting bolt (CB) 1Pc.

Df6	d1e7	d2h7	ℓ	Part Number		L	R	U/Price
				Type	D			
30	20	20	20	EGPDX	30	150~200	1	Quotation
					30	205~250		
					30	255~300		
40	30	30	30	EGPDX	40	150~200	2	Quotation
					40	205~250		
					40	255~300		
50	30	30	30	EGPDX	50	150~200	1	Quotation
					50	205~250		
					50	255~300		

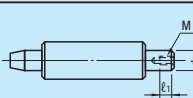
D	D tolerance		d1	d2	L1	A	Part Number		L
	EGPDHE (De7)	EGPDPHF (Df6)					Type	D	
25	-0.040 -0.061	-0.020 -0.033	9	14	75	CB 8-90	EGPDHE (De7)	25	150~200
									205~250
									255~300
									305~350
35	-0.050 -0.075	-0.025 -0.041	11	18	80	CB10-100	EGPDHE (De7)	35	150~200
									205~250
									255~300
									305~350
40	-0.050 -0.075	-0.025 -0.041	11	18	80	CB10-100	EGPDPHF (Df6)	40	150~200
									205~250
									255~300
									305~350
50	-0.050 -0.075	-0.025 -0.041	14	20	110	CB12-130	EGPDPHF (Df6)	50	205~250
									255~300
									305~350
									355~400

Order **Part Number** — **L** — **R**
EGPDX30 — 155 — 2

Price **Quotation**

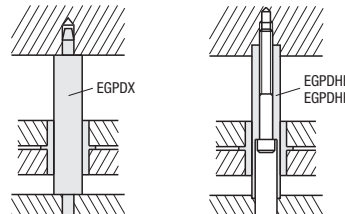
Days to Ship **Quotation**


Alterations **Part Number** — **L** — **R** — (MC)
EGPDX30 — 150 — 2 — MC

Alteration	Code	Spec.	1Code
	MC	Adds a tap for extracting. d2 M ℓ1 20 M10 15 30 M12 18 Ⓜ Available for EGPDX	Quotation

ex Example

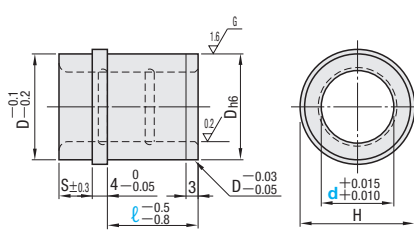
Pin : Two sides stepped type
Bushing : Plain type
(☞ Right page)






RoHS

EGBH (Plain type)

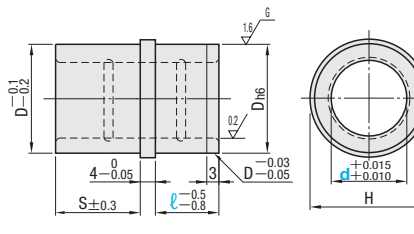


Ⓜ SUJ2 Ⓜ 58HRC~



RoHS

EGBN (Long S dimension type)



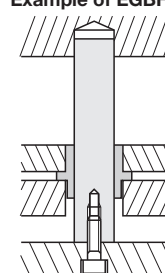
Ⓜ SUJ2 Ⓜ 58HRC~

Order **Part Number** — **ℓ**
EGBH8 — 10
EGBN13 — 10

Days to Ship **Quotation**

ex Example

Example of EGBH Usage



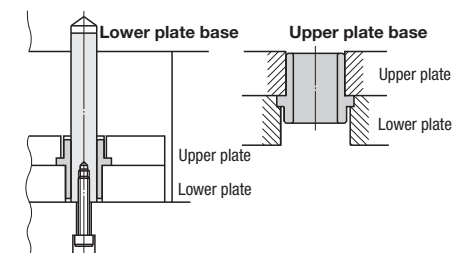
S	H	Dh6	Part Number		ℓ	U/Price
			Type	d		
8	19	16	0	EGBH	8	10 13
					8	15
					8	20
10	23	20	0	EGBH	10	10 13
					10	15 20
					10	25
10	25	22	0	EGBH	13	10 13 15
					13	20 25
					13	30
10	28	25	-0.013	EGBH	16	10 13 15
					16	20 25
					16	30
10	33	30	0	EGBH	20	10 13 15
					20	20 25 30
					20	35
10	38	35	0	EGBH	25	13 15
					25	20 25 30
					25	35
15	43	40	0	EGBH	30	13 15 20 25 30
					30	35
					30	40
15	45	42	-0.016	EGBH	32	15 20 25 30
					32	35
					32	40
20	48	45	0	EGBH	35	20 25 30
					35	35
					35	40
20	55	52	0	EGBH	40	20 25 30
					40	35
					40	40
20	65	62	-0.019	EGBH	50	25 30
					50	35
					50	40

S	H	Dh6	Part Number		ℓ	U/Price
			Type	d		
25	22	22	0	EGBN	13	10
					13	15 20
					13	25
28	25	25	-0.013	EGBN	16	10
					16	15 20
					16	25
33	30	30	0	EGBN	20	10 15
					20	20 25
					20	30
38	35	35	0	EGBN	25	10
					25	15 20 25
					25	30
43	40	40	-0.016	EGBN	30	20 25 30
					30	35
					30	40
48	45	45	0	EGBN	35	20 25 30
					35	35
					35	40
55	52	52	0	EGBN	40	20 25 30
					40	35
					40	40
65	62	62	-0.019	EGBN	50	20 25 30
					50	35
					50	40

Price **Quotation**

Example of EGBN Usage

• To use in commercial mold base, there are two ways—whether to make the counterbore on the upper or lower plate. In contrast to the short guide type EGBH ejector leader bushings, EGBN and EGBNZ/EGBZ/EGBSK (P.970) provide a longer leading distance regardless of which plate the counterbore is based.



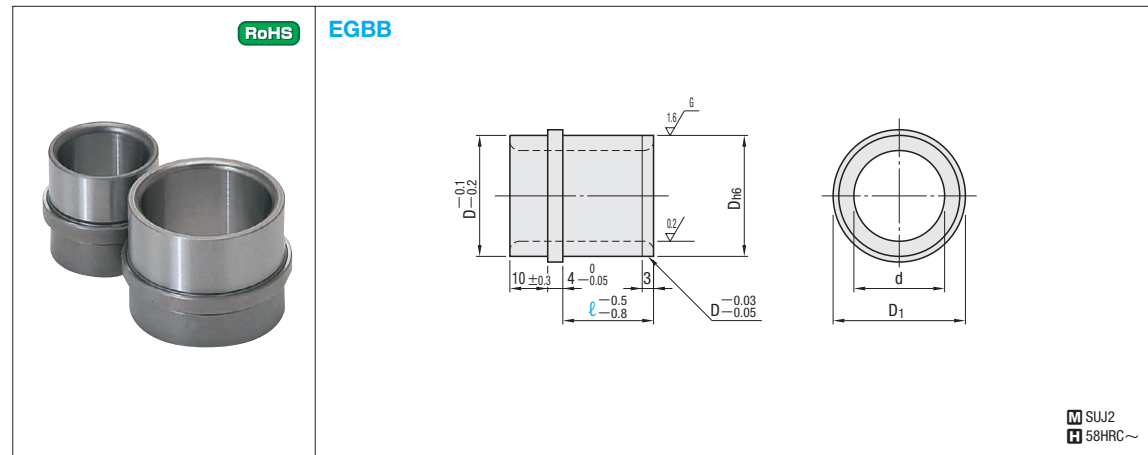
Components of Ejector Space

EJECTOR LEADER BUSHINGS

—BALL TYPE—

BALL RETAINERS

ⓘ Non JIS material definition is listed on P.1351 - 1352



D1	Dh6	d	Part Number		l	U/Price 1~9
			Type	No.		
19	16	0	EGBB	8	13 15	Quotation
21	18	-0.011		10	13 15	
25	22	0		13	13 15	
28	25			-0.013	16	
33	30	0		20	13 15	
38	35			-0.013	25	
43	40	-0.016		30	13 15	

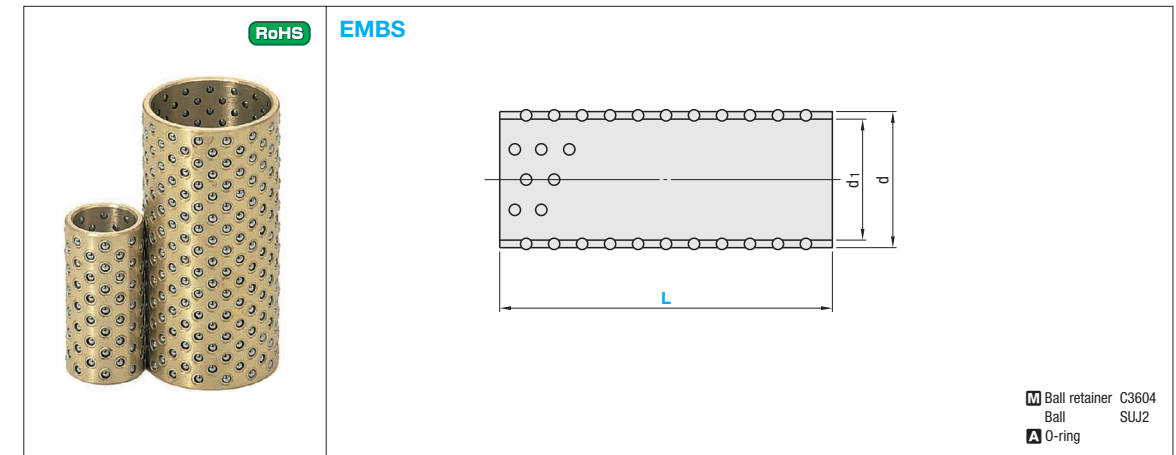
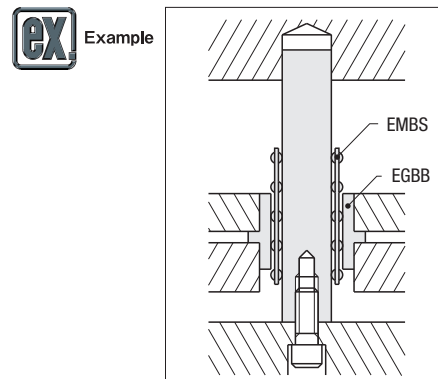
Order Part Number — l
EGBB16 — 20

Price Quotation

Days to Ship Quotation

Notes

- Please use precision pins (EGH · EGHC · EGHN · EGZA · EGHA ☞ P.961 · 962 · 965 · 966)
- It also provides a higher dynamic load rating than the linear guide type bushings.



Ball Dia.	d1	d	Part Number		L	U/Price 1~9		
			Type	No.				
2	8.5	11.5	EMBS	8	25 30	Quotation		
					35			
		10.5			13.5		25 30	
							35 40	
		13.5			16.5		35 40	
							45 50	
	16.5	19.5		55 60				
				70				
	20.5	23.5		16	16		35 40	
							45 50	
		25.5					28.5	55 60
								65 70
30.5		33.5	35 40					
			45 50					
55 60								
65 70								

- ⓘ For details of ball retainer length selection, ☞ P.975
- ⓘ An accessory O-ring fixes the ball retainer's position. Please use it when you install the ball retainer in the mold. Installation method ☞ P.1137

Order Part Number — L
EMBS20 — 45

Price Quotation

Days to Ship Quotation

Notes

- The ball (SUJ2) of the ball retainer undergoes thermal expansion, so use it at a temperature of no more than 100°C as a rough guide.

Components of Ejector Space

RETURN PINS

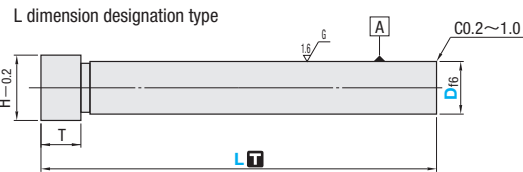
—L DIMENSION DESIGNATION TYPE—

Ⓢ Non JIS material definition is listed on P.1351 - 1352

RoHS



Type	head (T)	T	L	Squareness of the head
RP4TL	4mm	0 -0.05	+0.5 +0.1	
RP8TL	8mm	0 -0.1		
RP10TL	10mm	0 -0.1		
RP4TV	4mm	0 -0.05	L ≤ 200 ... +0.2 L > 200 ... +0.3	
RP8TV	8mm	0 -0.1		
RP4TZ	4mm	0 -0.05	L ≤ 200 ... +0.02 L > 200 ... +0.05	
RP8TZ	8mm	0 -0.1		



Ⓢ SUJ2
Ⓢ 58HRC~
Induction hardening

Ⓢ A center hole may be left on one or both ends.

H	Dφ6	Part Number			
		Type	L		
11	8	-0.013	4mm head RP4TL (Squareness of the head: 0.1)	8	35.0~250.0
				10	35.0~300.0
				12	35.0~300.0
18	13	-0.016	RP4TV (Squareness of the head: 0.05)	13	35.0~300.0
				15	35.0~350.0
				16	35.0~350.0
25	20	-0.020	RP8TL (Squareness of the head: 0.1)	20	50.0~400.0
				25	50.0~450.0
				30	50.0~450.0
30	25	-0.033	RP8TV (Squareness of the head: 0.05)	30	50.0~450.0
				32	50.0~450.0
				37	50.0~450.0
15	10	-0.027	8mm head RP8TL (Squareness of the head: 0.1)	10	35.0~300.0
				12	35.0~300.0
				13	35.0~300.0
20	15	-0.027	RP8TZ (Squareness of the head: 0.02)	15	35.0~350.0
				16	35.0~350.0
				20	50.0~400.0
25	20	-0.020	RP8TV (Squareness of the head: 0.05)	25	50.0~450.0
				30	50.0~450.0
				32	50.0~450.0
30	25	-0.033	RP8TZ (Squareness of the head: 0.02)	30	50.0~450.0
				35	50.0~450.0
				37	50.0~450.0
40	35	-0.025	10mm head RP10TL (Squareness of the head: 0.1)	20	50.0~300.0
				25	50.0~400.0
				32	50.0~700.0
45	40	-0.041	RP8TV (Squareness of the head: 0.05)	40	100.0~700.0
				50	100.0~700.0
				55	100.0~700.0
25	20	-0.020	RP8TV (Squareness of the head: 0.05)	20	50.0~300.0
				30	50.0~450.0
				37	50.0~700.0

H	Dφ6	Part Number			
		Type	L		
11	8	-0.013	4mm head RP4TL (Squareness of the head: 0.1)	8	35.0~250.0
				10	35.0~300.0
				12	35.0~300.0
18	13	-0.016	RP4TV (Squareness of the head: 0.05)	13	35.0~300.0
				15	35.0~350.0
				16	35.0~350.0
25	20	-0.020	RP8TL (Squareness of the head: 0.1)	20	50.0~400.0
				25	50.0~450.0
				30	50.0~450.0
30	25	-0.033	RP8TV (Squareness of the head: 0.05)	30	50.0~450.0
				32	50.0~450.0
				37	50.0~450.0
15	10	-0.027	8mm head RP8TL (Squareness of the head: 0.1)	10	35.0~300.0
				12	35.0~300.0
				13	35.0~300.0
20	15	-0.027	RP8TZ (Squareness of the head: 0.02)	15	35.0~350.0
				16	35.0~350.0
				20	50.0~400.0
25	20	-0.020	RP8TV (Squareness of the head: 0.05)	25	50.0~450.0
				30	50.0~450.0
				32	50.0~450.0
30	25	-0.033	RP8TZ (Squareness of the head: 0.02)	30	50.0~450.0
				35	50.0~450.0
				37	50.0~450.0

Ⓢ (400.0)*: RP8TV, When D20, L=50.0~400.0.
Ⓢ (450.0)*: RP8TV, When D25~32, L=50.0~450.0.

Order **Part Number** — **L**
RP4TL 20 — 199.0

Days to Ship **Quotation**



Price

Quotation



Alterations

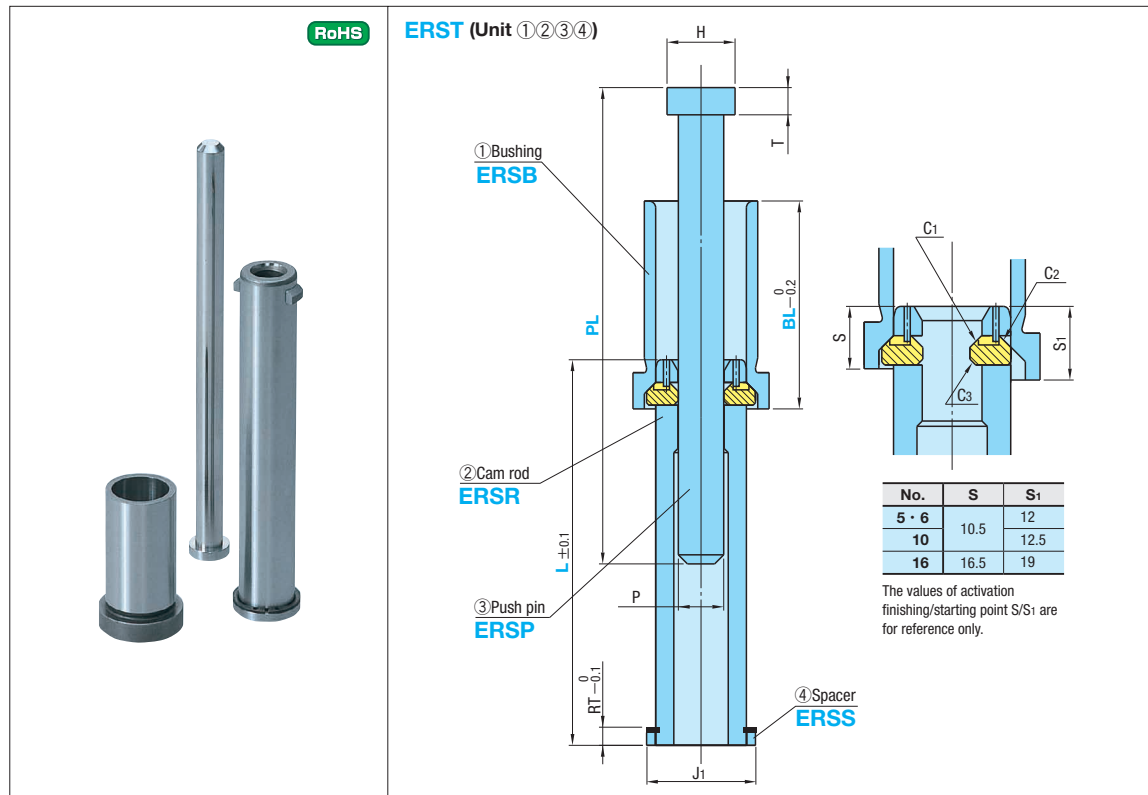
Part Number — **L** — (MMC · SC · LMC · SOF)
RP4TL 20 — 199.0 — MMC8

Alterations	Code	Spec.				1Code									
		D	Tap M selection	D	Tap M selection										
	MMC	Adds a tap on the head. Tap M selection $\ell = M \times 2$													
		8	4	25	8 · 10										
		10	4 · 5	30											
		12		32											
		13		35											
	SC	Adds two parallel flats on the head as shown in the figure (Spanner groove width alteration).													
		φ D	8	10	12	13	15	16	20	25	30	32	35	40	50
		B	8	10	13	13	17	17	22	27	32	32	35	40	50
	LMC	Changes the full length tolerance. Changes the full length tolerance to negative tolerance shown in the right table.													
		L ≤ 200	-0.1	-0.2	0										
L > 200	-0.5	-0.3	-0.05												

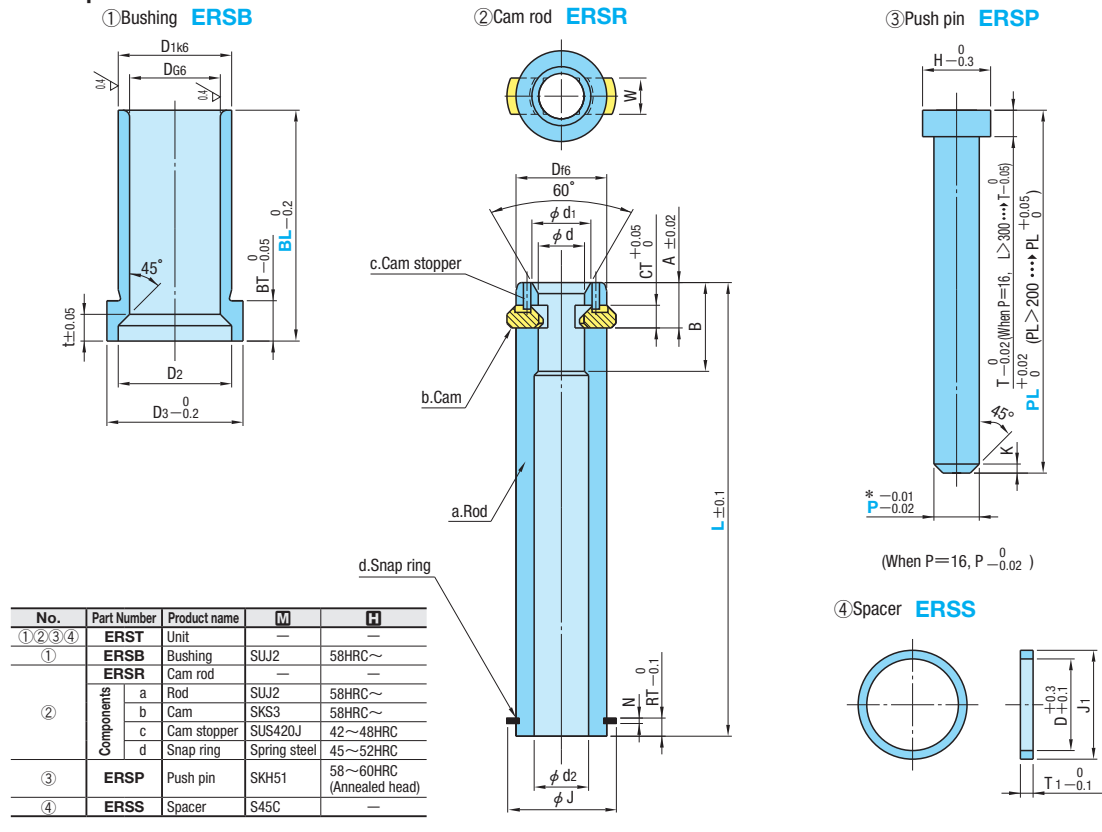
Components of Ejector Space

EARLY RETURN UNITS FOR EJECTOR PLATE

Ⓜ Non JIS material definition is listed on P.1351 - 1352



Components



Part Number	① Bushing										② Cam rod (Set of a, b, c, and d)														
	Type	No.	D _{G6}	D _{1k6}	D ₂	D ₃	BT	t	d	d ₁	d ₂	D _{f6}	C ₁	C ₂	C ₃	J	N	RT	CT	A	B	W			
ERST	5	12	+0.017 +0.006	16	+0.015 +0.002	16	19	8	5.5	5	6.8	7	12	-0.016 -0.027	1.5	1.5	1	16	1	4	5	10	15	4.4	
	6	15	+0.017 +0.006	20	+0.015 +0.002	19	24		15	8	8	8	15	-0.016 -0.027	2	2	1	18.6		1.2	4	5	18	5.6	
	10	20	+0.020 +0.007	25	+0.015 +0.002	25	30		20	10	12	12	20	-0.020 -0.033	2.5	2.5	1.5	24.5		1.5	8	8	16	32	14
	16	30	+0.020 +0.007	40	+0.018 +0.002	36	46		13	8.5	16	19	18	30	-0.020 -0.033	2.5	2.5	1.5		35.5	1.5	8	8	16	32

P	H	T	K	③ Push pin		④ Spacer		Part Number	Type	No.	① Length of bushing	② Length of cam rod	③ Length of push pin
				BL	L	PL	L				PL		
5	8	6	1.5	12	16	3	ERST	5	20~50	50.0~100.0	50.0~100.0	50.0~150.00	
6	10	6	2	15	18.8	3		6	25~60	50.0~100.0	50.0~100.0	50.0~200.00	
								10	35~100	60.0~100.0	50.0~300.00		
10	15	8	2	20	24.5	2.8		10	41~60	100.5~125.0	100.5~125.0	50.0~300.00	
								10	35~40	60.0~100.0	50.0~300.00		
								10	41~60	100.5~160.0	50.0~300.00		
								10	61~80	60.0~100.0	50.0~300.00		
16	21	8	4	30	35.5	6.5		16	81~100	100.5~160.0	100.5~160.0	50.0~350.00	
								16	40	60.0~100.0	50.0~350.00		
								16	41~60	100.5~160.0	50.0~350.00		
								16	61~80	60.0~100.0	50.0~350.00		
								16	81~100	100.5~160.0	50.0~350.00		
								16	100.5~160.0	100.5~160.0	50.0~350.00		

Units (①②③④)

Part Number	Type	No.	BL	L	PL	U/Price/1~9															
						50.00~150.00	150.01~250.00*1	250.01~350.00*2													
ERST	5	5	20~50	50.0~100.0	50.0~100.0	50.00~150.00	150.01~250.00*1	250.01~350.00*2													
									6	6	25~40	100.5~125.0	100.5~125.0	100.5~125.0							
															10	10	35~40	60.0~100.0	60.0~100.0	60.0~100.0	
																					10
	10	10	41~60	60.0~100.0	60.0~100.0	60.0~100.0	60.0~100.0	60.0~100.0													
									16	16	40	100.5~160.0	100.5~160.0	100.5~160.0	100.5~160.0						
																16	16	41~60	100.5~160.0	100.5~160.0	100.5~160.0
	16	16	81~100	100.5~160.0	100.5~160.0	100.5~160.0	100.5~160.0														
								16	16	100.5~160.0	100.5~160.0	100.5~160.0	100.5~160.0	100.5~160.0							

Components (Unit)

① Bushing				③ Push pin			
Part Number	Type	No.	BL	Part Number	Type	No.	BL
ERSB	5	20~50	BL25~40	ERSP	5	50.00~150.00	PL50.00~150.00
ERSB	6	25~60	BL41~60*	ERSP	6	50.00~200.00	PL150.01~250.00*1
ERSB	10	35~100	BL61~80	ERSP	10	50.00~300.00	PL250.01~350.00*2
ERSB	16	40~100	BL81~100	ERSP	16	50.00~350.00	PL250.01~350.00*2

② Cam rod (Set of a, b, c, and d)

Part Number	Type	No.	L	U/Price
ERSR	5	50.0~100.0	L50.0~100.0	L50.0~100.0
ERSR	6	50.0~125.0	L60.0~125.0	L100.5~160.0
ERSR	10	60.0~160.0	L60.0~160.0	Quotation
ERSR	16	60.0~160.0	L60.0~160.0	Quotation

④ Spacer

Part Number	Type	No.	U/Price
ERSS	5	5	1~9
ERSS	6	6	Quotation
ERSS	10	10	Quotation
ERSS	16	16	Quotation

Order

Part Number	BL	L	PL
ERST 10	BL50	L128.5	PL180.00
ERSB 10	BL50	—	—
ERSR 10	—	L123.5	—
ERSP 10	—	—	PL160.00
ERSS 10	—	—	—

Alterations

Part Number	BL	L	PL	(HC · TC)
ERST10	BL48	L120.5	PL152.00	TC5
ERSP10	—	—	PL162.00	HC13

Alterations	Code	Spec.	1Code
HC	HC	Head diameter change HC=0.1mm increments P+1≤HC<H Ⓜ Available for ERST/ERSP	Quotation
TC	TC	Head thickness change TC=0.1mm increments T/2≤TC<T Dimension PL remains unchanged. Ⓜ T-TC≤PLmax. - PL Ⓜ Available for ERST/ERSP	Quotation

SUPPORT PILLARS

—DOWEL HOLE TYPE—

ⓘ Non JIS material definition is listed on P.1351 - 1352

SPLG

■ Supplied Dowel Pin

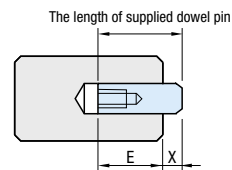
D	Dowel pin
20	MSTH 8-25
25	
30	MSTH10-30
35	
40	
50	MSTH10-35

ⓘ SPLG is attached dowel pin.
 ⓘ Black oxide on surface of the left tip (opposite side of the dowel hole) may be removed depending on the designated length.

■ S45C
 ■ Black Oxide

dh7	E	Part Number		L	U/Price	dh7	E	Part Number		L	U/Price
		Type	D					Type	D		
8	15	SPLG	20	40		10	+0.015 0	SPLG	20	50	
				50						60	
				60						70	
				70						80	
				80						90	
				90						100	
				100						110	
				110						120	
				120						130	
				130						140	
				140						150	
				150						160	
				160						170	
				170						180	
				180						190	
190		200									
10	20	SPLG	25	50		10	+0.015 0	SPLG	20	50	
				60						60	
				70						70	
				80						80	
				90						90	
				100						100	
				110						110	
				120						120	
				130						130	
				140						140	
				150						150	
				160						160	
				170						170	
				180						180	
				190						190	
200		200									

■ Support Pillar —Dowel hole— Example of setting



Part Number	D	The length of supplied dowel pin	E	X
SPLG	20	25	15	10
	25~40	30	20	10
	50	35	20	15

ⓘ The supplied dowel pin is not set when delivering.
 Please use it combining with the support pillar.

Order **Part Number** — **L**
 SPLG35 — 80

Days to Ship **Quotation**

Price **Quotation**



Alterations



Part Number — **L(LC)** — (LKC · MC...etc.)
 SPLG35 — LC 75 — LKC — MC10

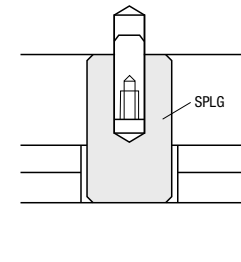
Alterations	Code	Spec.	1Code														
	LK	Changes the full length. LC=1mm increments ⓘ Combining LKC makes designation of 0.01mm increments possible. ⓘ Cut face is not surface-treated.	<table border="1" style="font-size: 6px;"> <tr><td>D</td><td>LC</td></tr> <tr><td>20</td><td>40 ≤ LC < 100</td></tr> <tr><td>25</td><td></td></tr> <tr><td>30</td><td>50 < LC < 120</td></tr> <tr><td>35</td><td></td></tr> <tr><td>40</td><td>50 < LC < 150</td></tr> <tr><td>50</td><td>70 < LC < 200</td></tr> </table>	D	LC	20	40 ≤ LC < 100	25		30	50 < LC < 120	35		40	50 < LC < 150	50	70 < LC < 200
D	LC																
20	40 ≤ LC < 100																
25																	
30	50 < LC < 120																
35																	
40	50 < LC < 150																
50	70 < LC < 200																
	LKC	Changes L dimension tolerance. $L_{+0.3/-0.2} \rightarrow L_{+0.02/0}$ ⓘ Makes LC alteration in 0.01mm increments possible. ⓘ All pieces are ground together when 8 pieces or less are ordered for LKC. (Although the tolerance of L dimension is as indicated, its dispersion is kept within a 0.01 range.) ⓘ Both ends are not surface-treated	Quotation														
	MC	Adds tapping <table border="1" style="font-size: 6px;"> <tr><td>D</td><td>Tap M selection</td></tr> <tr><td>20</td><td>8 · 10</td></tr> <tr><td>25</td><td></td></tr> <tr><td>30</td><td></td></tr> <tr><td>35</td><td>10 · 12</td></tr> <tr><td>40</td><td></td></tr> <tr><td>50</td><td></td></tr> </table> ⓘ Available for 50 ≤ L. ⓘ ℓ = M × 2		D	Tap M selection	20	8 · 10	25		30		35	10 · 12	40		50	
D	Tap M selection																
20	8 · 10																
25																	
30																	
35	10 · 12																
40																	
50																	
	KF WKF	Cuts dimension D as the figure, then performs surface treatment (Black Oxide). KF=1mm increments $\frac{d}{2} + 1 \leq KF \leq \frac{D}{2} - 1$ Cuts dimension D as the figure, then performs surface treatment (Black Oxide). WKF=1mm increments $\frac{d}{2} + 1 \leq WKF \leq \frac{D}{2} - 1$															

⊗ KC · WKC · KF · WKF combination not available.



Example

Installation and removal become easier due to fixing the support pillar by dowel pin.



Components of Ejector Space

EJECTOR RODS WITH SPRING WASHER

EJECTOR RODS

—L DIMENSION DESIGNATION TYPE—

ⓘ Non JIS material definition is listed on P.1351 - 1352

RoHS ERDW

① M S45C
S Black Oxide
② M SCM435
Strength class 12.9
Bolt JIS B0205
③ M SWRH62

d	t	l	M×Pitch	Part Number Type D	L	U/Price											
						L15 · 20 · 25			L30 · 35 · 40			L45 · 50 · 60					
						1~9	10~19	20~49	50~100	1~9	10~19	20~49	50~100	1~9	10~19	20~49	50~100
8	6.2	10	M 4×0.7	ERDW	15	15	20	25	30	35	40	—					
11	8.6	12	M 6×1.0		20	15	20	25	30	35	40	45	50	—			
14	11	14	M 8×1.25		25	15	20	25	30	35	40	45	50	—			
				30	15	20	25	30	35	40	45	50	60	—			
				32	20	25	30	35	40	45	50	60	—				
17	14.5	17	M10×1.5	35	20	25	30	35	40	45	50	60	—				
				40	25	30	35	40	45	50	60	—					
20	16.5	19	M12×1.75	50	30	35	40	45	50	60	—						
				60	30	35	40	50	60	—							

Order **Part Number** ERDW20 — **L** 30 **Days to Ship** **Quotation**

ⓘ When an ERDW spring washer alone is needed, use CBW described below.

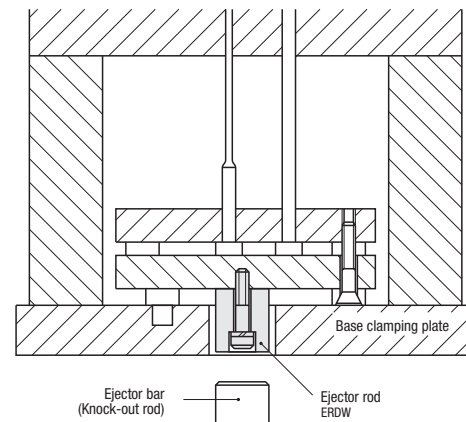
Spring Washers for Ejector Rod

RoHS CBW (Spring washers)

(D): Maximum (h): Minimum
M SWRH62 S 42~50HRC

d	(D)	(h)	t	Part Number Type No.	U/Price		
					1~199	200~499	500~1000
4.1	7	2.4	1.2	CBW	4	—	
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	—		

Order **Part Number** CBW10 **Days to Ship** **Quotation**



RoHS ERDFF ERDFX

ⓘ Black oxide on surface of the left tip (opposite side of the counterbore) may be removed depending on the designated length.

M S45C
S Black Oxide

C	Applicable bolts	Bolt hole				Part Number		L 1mm increments	U/Price 1~9	
		t1	t2	d1	d2	Type	D		L15~50	L51~80
0.5	M 4	6.2	(L-6.2)	4.5	8	ERDFF	15	15~ 60	—	
	M 6	9	(L-9)	7	11		20			
	M 8	11	(L-11)	9	14		25	20~ 80	—	
							30		—	
							32		—	
M10	14.5	(L-14.5)	11	17	35	25~ 80	—			
					40		—			
					50		—			
0.8	M12	16.5	(L-16.5)	14	20	60	30~ 80	—		

C	Applicable bolts	Bolt hole				Part Number		L 5mm increments	U/Price 1~9			
		t1	t2	d1	d2	Type	D		L50	L55~100	L105~150	L155~200
1.0	M 8	(L-20)	20	9	14	ERDFX	25	50~200	—			
							35		—			
	M10	11	17	55	—							
65	—											

Order **Part Number** ERDFF15 — **L** 27
ERDFX55 — 175

Days to Ship **Quotation**

P Price **Quotation**

EJECTOR PLATE RETURN DETECTION SWITCHES

☎ Non JIS material definition is listed on P.1351 - 1352

① **RoHS**

① V-156-1A5-T (Microswitch: Hinged roller lever)

PT
OP
34.0±0.8
t=0.5*
8.1
φ 3.1^{+0.13}_{-0.03} hole
φ 4.8×4.8 ** 5.1
15.9
18.8
3.4±0.15
22.2±0.1
2.8
3-#187 (t0.5)
Soldering terminal (also used as a tab)
10.3
10.3±0.1
3.1^{+0.13}_{-0.03}
27.8
37.8±0.8
10.3

* Stainless steel lever
** Oil-free type polyacetal resin roller

②

② EGS-ANGLE (L-angle plate)

5.5
20.0
12.0
6.5
12.0
25.0
8.5
2.0
15.0

③

③ EGS-BOARD (Heat insulation plate)

2-φ 4.5
5.0
20.0
10
15.0
5.0
(22)
32.0

④ **RoHS**

④ V-15-1A5-T (Microswitch: Push button)

PT
OP
2.8
20.2±0.25
3.1^{+0.13}_{-0.03} hole
2.8
15.9
18.8
3.4±0.15
22.2±0.1
2.8
3-#187 (t0.5)
Soldering terminal (also used as a tab)
10.3
10.3±0.1
3.1^{+0.13}_{-0.03}
27.8
37.8±0.8
10.3
4.2
5.1

⑤

⑤ EGS-AV (L-angle plate for push button type microswitch)

φ 5.5
6.5
9
6
20.0
12.0
10.3
15
30
10
20.0
2.0

③

③ EGS-BOARD (Heat insulation plate)

2-φ 4.5
5.0
20.0
10
15.0
5.0
(22)
32.0

① Microswitch (hinged roller lever type)
Manufactured by Omron

- Force needed to start 125gf
- Minimum return force 14gf
- Maximum movement till starting PT 4.0mm
- Minimum movement after starting 1.6mm
- Maximum differential motion 1.5mm
- Operation point OP 20.7±1.2mm

Standard

- Rated voltage: 250V • Rated current: 15A
- Heat resistance: up to 150°C

② **M** Steel Plate (SPCC)
③ **M** Bakelite (black)

④ Microswitch (push button type)
Manufactured by Omron

- Force needed to start 200gf
- Minimum return force 50gf
- Maximum movement till starting PT 1.2mm
- Minimum movement after starting 1.0mm
- Maximum differential motion 0.4mm
- Operation point OP 14.7±0.4mm

Standard

- Rated voltage: 250V • Rated current: 15A
- Heat resistance: up to 150°C

⑤ **M** SPCC
④ **A** CB3-20 (1 pc.)
M3 nut (2 pcs.)
③ **M** Bakelite (black)

Part No.	Part Number	U/Price			
		1~9	10~19	20~49	50~100
Set of ①②③	EGS (incl. 2 pcs. of CB5-15)				
Set of ④⑤③	EGS-V (incl. 2 pcs. of CB5-15)				
Switch ①	V-156-1A5-T				
L-angle plate ②	EGS-ANGLE				
Heat insulation plate ③	EGS-BOARD				
Switch ④	V-15-1A5-T				
L-angle plate ⑤	EGS-AV				

Quotation



Order Part Number
EGS-V



Days to Ship **Quotation**

☎ CB5-15 is included only in the set products.



Example • Examples of bolt hole boring on a mold base

Bolt hole boring examples	Switch mounting examples
<p>■ EGS · EGS-V</p> <p>2.0 Origin (0,0) φ 4.5 (8.5,17.0) (20.5,17.0) 2-M5 20.0 5.0 φ 4.5 (48.5,-5.4) 2-M3 (26.3,-15.7)</p>	<p>■ EGS</p> <p>Adjust the L-angle plate's height for activation/deactivation of the lever.</p> <p>■ EGS-V</p> <p>To mount EGS-V on a mold base on which holes for EGS have already been machined, attach the M3 bolt on the right hand side of the L-angle plate. Adjust the M3 bolt position for activation/deactivation of the push button.</p>
<p>■ EGS-V</p> <p>2.0 Origin (0,0) φ 4.5 (21.0,15.0) (33.0,15.0) 2-M5 20.0 5.0 φ 4.5 (45.0,-5.0) 2-M3 (22.8,-15.3)</p>	<p>■ EGS-V</p> <p>Adjust the M3 bolt position for activation/deactivation of the push button. Attach the M3 bolt on the left hand side of the L-angle plate. Use 2 pieces of M5 bolt to attach the L-angle plate.</p>

※An example of using stopper pin • stopper ring **P.1000**

※An example of using stopper pin • stopper ring **P.1000**

Components of Ejector Space