

LOCATING COMPONENTS FOR AUTOMOBILE DIES

LOCATING COMPONENTS FOR AUTOMOBILE DIES



Product name Catalog No.	PANEL INPUT DETECTORS — LINEAR TYPE — PLGL PLGR	PANEL INPUT DETECTORS PACO□□ PACO□N□□	ROUGH GUIDES RG RG-L	NEST GUIDES — UPPER DIE RELIEF TYPE — NGUA NGUBR NGUBL NGUBRN NGUBLN
Page	883	885	886	887



NEST GUIDES — REINFORCED TYPE — NGNA NGNBR NGNBL	— ECONOMY TYPE — ENSTB ENSTR ENSTL	NEST GUIDES — NO PILOT HOLE FOR DOWEL, GUIDE R TYPE — NGGA NGGC NGGBR NGGBL	(WITH MOUNTING PLATES, CONFIGURABLE SHAPE) — REINFORCED TYPE — NGNBA NGNBC
888	888	889	890



— ECONOMY TYPE — ENSTA ENSTC ENSTD	(WITH MOUNTING PLATES, CONFIGURABLE LENGTH) — REINFORCED ECONOMY TYPE — NGNX ENSX	NEST GUIDES — CONFIGURABLE GUIDE SHAPE TYPE — NGW NGWK NGWS	NEST GUIDE BLANKS — LONG TYPE — NBBCL
891	892	893	895



NEST GUIDE BLANKS NBB NBBCL	NEST GUIDE MOUNTING PLATES TEA TEB TEC TEE TEL	NEST GUIDES — SURFACE SUPPORT TYPE — NSTFA NSTFB	LOCATING PILOT PINS SLTL□ SLPZ□	LOCATING PILOT PINS SNST□ SDST□ SOKL□
895	895	896	897	898



LOCATING PILOT PINS SKSTH SFSTH	LOCATING PILOT PINS PST PSTM	LOCATING PILOT PINS RFPP	PILOT PUNCHES — CONFIGURABLE TYPE — RTP T-RTP RTPE T-RTPE	LOCATING PINS FOR SETUP DIKPA DIKPB IKPDA IKPDB IKPCD IKPE
899	900	900	901	902



LOCATION PINS TLPA TLPC	LOCATION PINS LPU LPL DLPA	MAGNET LIFTER PINS MLP	PRE-HOLDING PUSH PIN SETS — STANDARD TYPE — PAPZ PAPZU	— ECONOMY TYPE — PAEZZ PAEZU	— LONG STROKE TYPE — PAP□ PAPG□
903	903	904	905	907	908

PRE-HOLDING PUSH PIN SETS — WITH LOCK MECHANISM — PALZS PALZU PALZP			PRE-HOLDING PUSH PIN SETS — AIR TYPE — PAEAS PAEAU		PUSHING PIN SETS PSPH PSH		PUSH-OUT PINS POP HPOP		DRAWING JECTOR PINS DHPA	COVERS FOR DRAWING JECTOR PINS DHPF100
909			910		911		912		912	912

SPRING PLUNGERS PJ□					SPRING PLUNGERS PJLR PJHR		WRENCHES FOR HEX PINS PJRW		SPRING PLUNGERS FOR SLANTED SURFACES PJHZ	
913					914		914		915	

SQUARE SKID BRACKETS STB STB-N STBY STBY-N				ROUND SKID BRACKETS MRTB MRTB-N MRTBY MRTBY-N				SKID BRACKETS WITH SLIDE ADJUSTMENT FUNCTION SCTB SCTBY	
917				917				918	

PANEL INPUT DETECTORS

— LINEAR TYPE —

RoHS

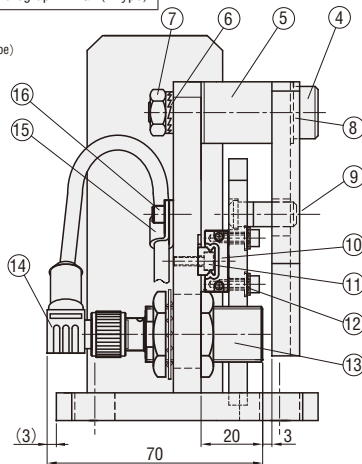
PLGL (L type)

PLGR (R type)



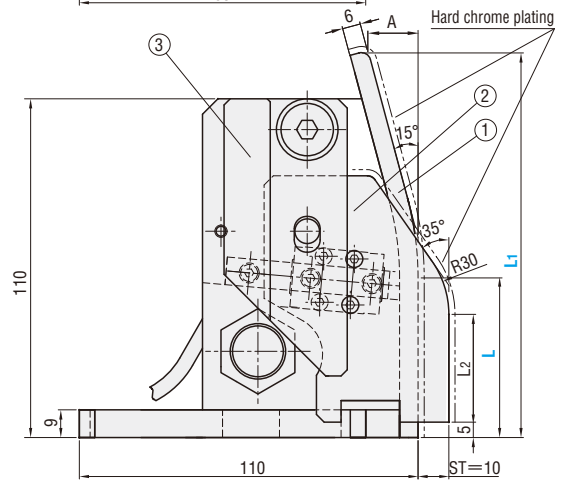
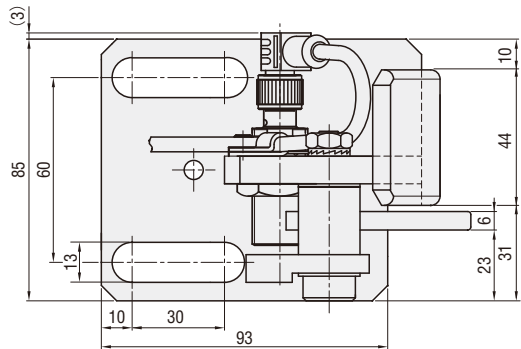
Photograph: PLGL (L type)

Figure: PLGR (R type)



Components

No.	Name	Quantity	Remarks
①	Body of gauge	1	SS400
②	Detection lever	1	SS400
③	Detection plate	1	SS400
④	Shoulder bolt	1	MSB12—30
⑤	Spacer	1	SS400
⑥	Nord-Lock	1	NLDP8
⑦	Nut	1	M8
⑧	Oil-free bushing	2	MDZF12—12



No.	Name	Quantity	Remarks
⑨	Actuation pin	1	SUJ2 HRC58~
⑩	Linear guide	1	SSEBZ10—55
⑪	Hexagon socket head cap screw	7	SCB3—10
⑫	Nord-lock	4	NLDP3
⑬	Proximity sensor	1	Product of OMRON
⑭	Sensor cable	1	Product of TURCK
⑮	Cable clamp	1	UC—0.5
⑯	Hexagon socket head cap screw	1	CB4—10

A	L2	Catalog No.	L	L1	Base unit price
		Type			1~9 pcs.
(16.1)	35	L type PLGL	50	125	Quotation
(17.4)	55		70	150	
(24.1)		R type PLGR	90	175	
(18.7)	175				
(25.5)	200				
(32.2)	225				



Order

Catalog No. — **L** — **L1**
PLGL — 50 — 125



Days to Ship

Quotation



Price

Quotation



Alterations



Catalog No. — **L** — **L1** — (STC·LHC, etc.)
PLGL — 50 — 125 — **CLC**

Alteration	Code	Spec.	1Code
ST=5	STC	Detection lever stroke length ST change ST=10→5mm	Quotation
L1	LHC	Gauge height L1 change L50: 115≤LHC≤L1max. L70·90: 130≤LHC≤L1max. 5mm increments	
Cable length change	CLC	The cable length is changed from 5m to 10m.	
Without sensor Without sensor cable	SCN	Proximity sensor and sensor cable are not provided.	

■Features

1. Horizontal movement of detection lever: Unlike conventional rocking detection levers, the lever is unaffected by variations in the panel position and provides stable detection.
2. Smooth movement: The use of a linear guide and oil-free bushing allows the sensor to be activated by a light load.
3. Proximity sensor
 - The connector-type proximity sensor can be installed and removed easily, facilitating maintenance.
 - Low-height mounting: Because the relief distance for the upper die can be reduced, the strength loss of the upper die is reduced.

■Specifications of proximity sensor and cable ■Shape and size of panel input detector

Proximity sensor (product of OMRON)

Model: E2E—X5Y1

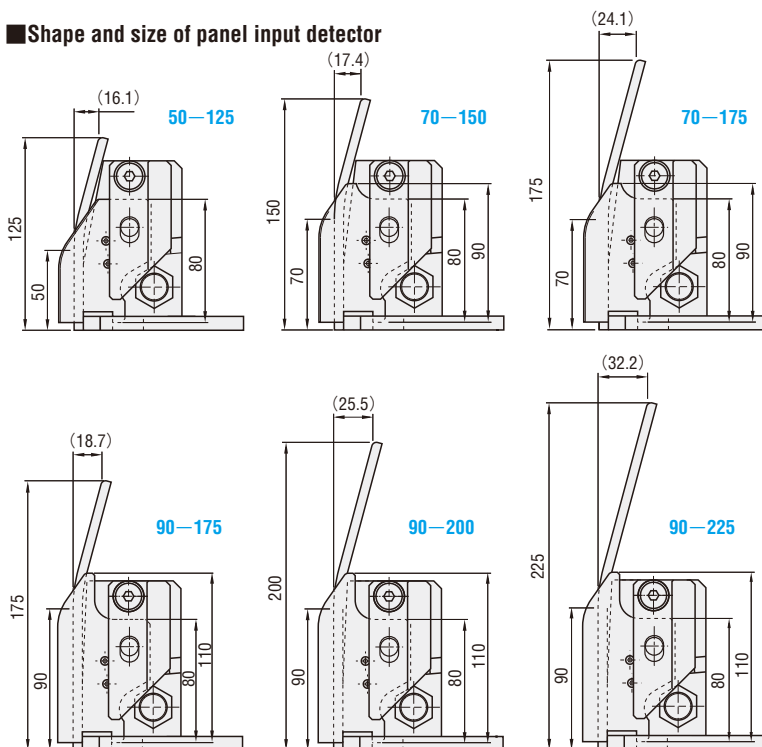
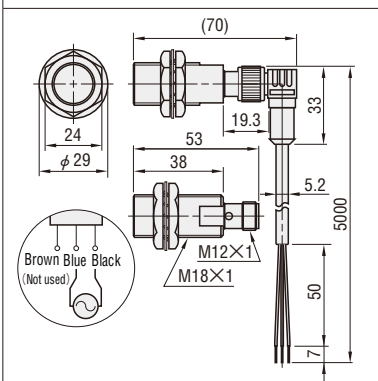
Power supply: 24 ~ 240V AC

Ambient temperature: 85°C or less

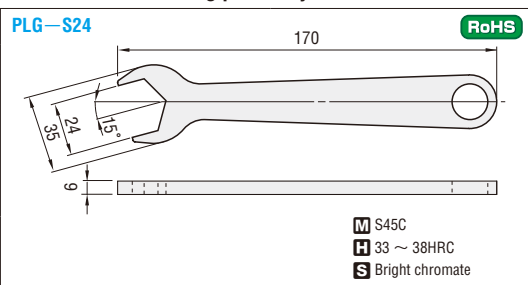
Connector cable (product of TURCK)

Model: WWAKW 4T—5

Power supply: 4A



■Wrench for attaching proximity sensor



Catalog No.	Base unit price
PLG—S24	Quotation



Order

Catalog No.

PLG—S24

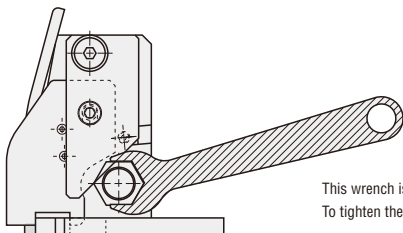


Days to Ship

Quotation



Example



This wrench is used to hold the sensor in place.

To tighten the mounting nut on the opposite side, use a general-purpose wrench.

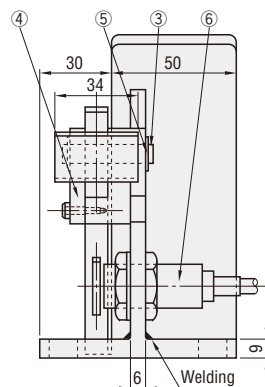
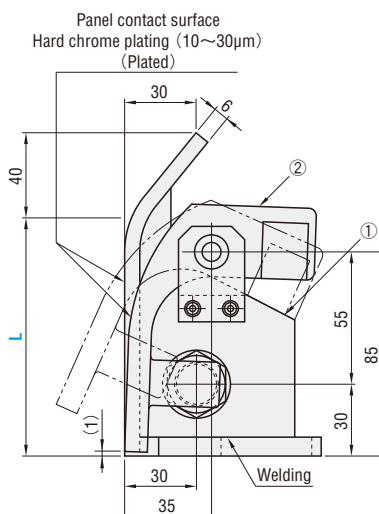
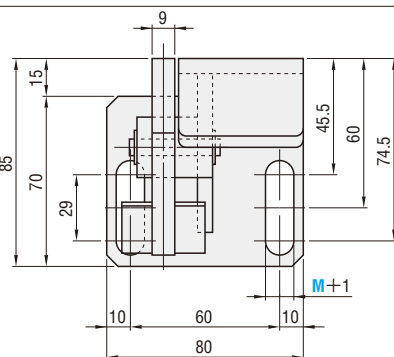
PANEL INPUT DETECTORS

RoHS



Type	Catalog No.	
	With proximity sensor	Without proximity sensor
Non-plated type	Left hand type PACOA-L	PACOA-N-L
	Right hand type PACOA-R	PACOA-N-R
Plated type	Left hand type PACOB-L	PACOB-N-L
	Right hand type PACOB-R	PACOB-N-R

① The diagram shows the left hand type.



Components

Part No.	Name	Quantity	M
①	Body of front gauge	1	SS400
②	Panel detection lever	1	SS400
③	Lever pin	1	S45C
④	Support plate	1	SS400
⑤	Snap ring (C type)	1	—
⑥	Proximity sensor (Cable length 5m)	1	Product of KEYENCE (2-wire type) AC100V : EV—18M DC24V : EV—118M

■ With proximity sensor (Components ①~⑥)

Catalog No.		Electrode type	Mounting bolt hole M	Base unit price 1~9 pieces	
Type	L			PACOA-L	PACOB-L
Non-plated type	75	100V AC	M10	PACOA-L	PACOB-L
Left hand type		24V DC		PACOA-L	PACOB-L
Right hand type	100	100V AC	M12	PACOA-R	PACOB-R
Plated type		24V DC		PACOA-R	PACOB-R
Left hand type	150	100V AC	M12	PACOB-L	PACOB-L
Right hand type		24V DC		PACOB-R	PACOB-R

■ Without proximity sensor (Components ①~⑤)

Catalog No.		Electrode type	Mounting bolt hole M	Base unit price 1~9 pieces	
Type	L			PACOA-N-L	PACOB-N-L
Non-plated	75	M10	M10	PACOA-N-L	PACOB-N-L
Left hand type				PACOA-N-L	PACOB-N-L
Right hand type	100	M12	M12	PACOA-N-R	PACOB-N-R
Plated				PACOA-N-R	PACOB-N-R
Left hand type	150	M12	M12	PACOB-N-L	PACOB-N-L
Right hand type				PACOB-N-R	PACOB-N-R



Order

Catalog No.	L	Electrode type	M
PACOA-R	150	24V DC	M12
PACOB-N-L	100	—	M10



Alterations



Catalog No.	L	Electrode type	M	(LC-AMC)
PACOB-L	100	100V AC	M10	LC80



Days to Ship

Quotation



Price

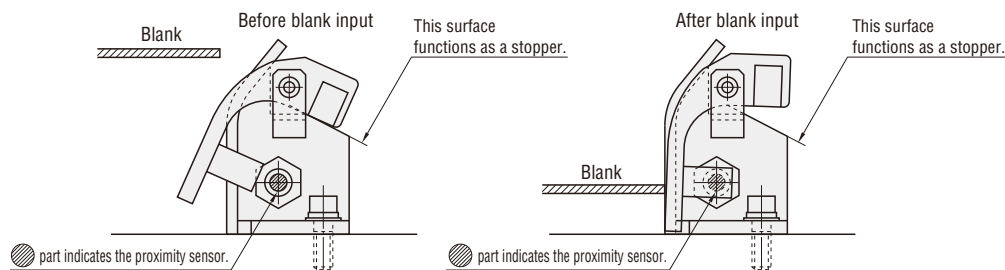
Quotation

Alteration	Code	Spec.	1Code
	LC	L dimension change 75 < LC < 150 5mm increments	Quotation
	AMC	Arm length change 10 ≤ AMC ≤ 100 10mm increments	



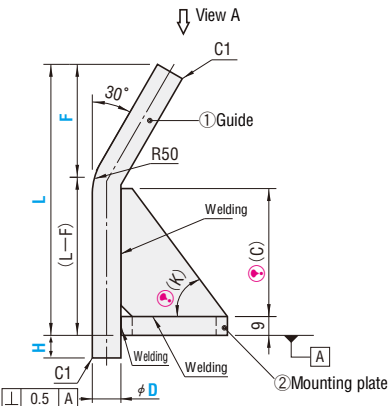
Example

This unit detects whether or not a draw-type blank has been input.

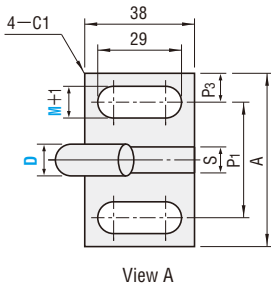


ROUGH GUIDES

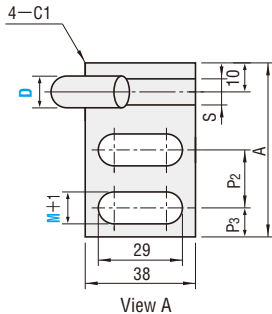
RoHS



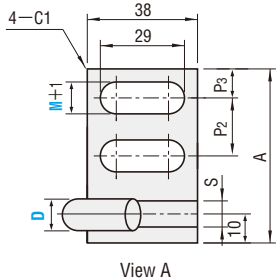
RG (Center type)



RG-R (Right hand type)



RG-L (Left hand type)



① S45C (Polished rod)
② SS400

F is the dimension before R50 machining.
(C) (K) : $134 \leq (L-F) \rightarrow C=100, K=74^\circ$
 $74 \leq (L-F) < 134 \rightarrow C=75, K=74^\circ$
 $(L-F) < 74 \rightarrow C=40, K=55^\circ$

Mounting bolts and other accessories	
M	A
M10	CB10-30 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12-30 (2 pcs.) Spring washer for M12 (2 pcs.)

A	P ₁ (RG)	P ₂ (RG-R-L)	P ₃	S	Catalog No.		5mm increments			Mounting bolt hole M	Base unit price 1~9 pieces
					Type	D	L	F	H		
60	40	20	10	6	RG	8	60~300	10~50 $F \leq L-50$	0~80	M10 M12 M12	Quotation
					RG-R	10					
					RG-L	12					
						16					
75	50	25	12.5	16		20					



Order

Catalog No. — L — F — H — M
RG 20 — 200 — 40 — 40 — M12



Alterations



Catalog No. — L — F — H — M — (SN-HTC)
RG-L20 — 200 — 40 — 40 — M12 — SN50



Days to Ship

Quotation



Price

Quotation

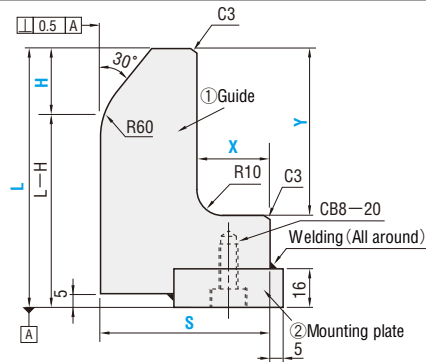
Alteration	Code	Spec.	1Code
	SN	① The guide is pushed forward. 5mm increments $0 \leq SN \leq 150$	Quotation
	HTC	① The guide is hardened. ~ 45HRC	

NEST GUIDES

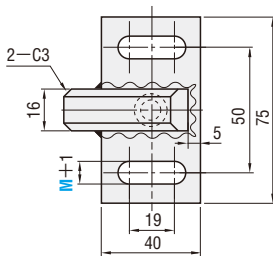
— UPPER DIE RELIEF TYPE —



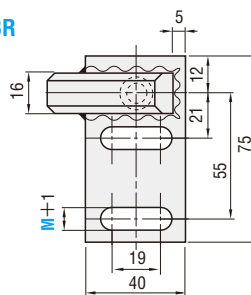
RoHS



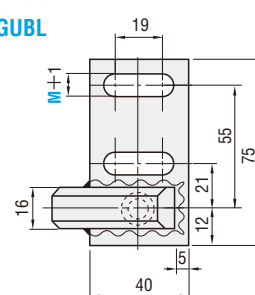
NGUA



NGUBR



NGUBL



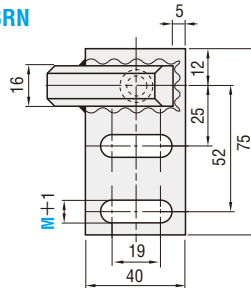
- ① H is the dimension prior to R60 and GRC machining.
- ② The guide ① and the mounting plate ② are fastened by welding and bolting.
- ③ As the guide ① is made of S45C, it can be hardened by flame hardening or alteration HTC.

■ Mounting bolts and other accessories

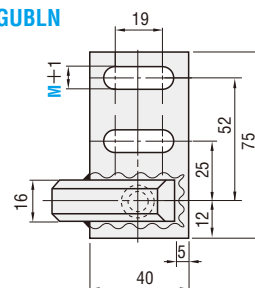
M	A
M10	CB10—35 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12—35 (2 pcs.) Spring washer for M12 (2 pcs.)

Mounting orientation	Catalog No.	M
Center	NGUA	① S45C
Right hand type	NGUBR (N)	② SS400
Left hand type	NGUBL (N)	

NGUBRN



NGUBLN



④ Alteration "WSS" : Use this

Catalog No.	L	H	S	X	Y	Mounting bolt hole M	Base unit price 1~9 pieces			
							NGUA	NGUBR	NGUBL	NGUBRN
NGUA	75~100	20~40	50~100	20~70	35~60	M10	\$50~75	\$80~100	\$50~75	\$80~100
NGUBR	105~150				65~110					
NGUBL	155~200				115~160					
NGUBRN						M12				
NGUBLN										

Quotation



Order

Catalog No. — L — H — S — X — Y — M
NGUA — 90 — 40 — S60 — X30 — Y40 — M10



Price

Quotation



Days to Ship

Quotation



Alterations

Catalog No. — L — H — S — X — Y — M — (HTC·GRC·WSS·ENT)
NGUBLN — 150 — 40 — S70 — X35 — Y85 — M12 — GRC20 — WSS

Alteration	Code	Spec.	Rs./Code
	HTC	① The guide is hardened. ② ~ 45HRC	Quotation
	ENT	The lower of a guide is extended	Quotation

Alteration	Code	Spec.	Rs./Code
	GRC	The corner R (R60) of the guide is reduced. R10 ~ 30 10mm increments	Quotation

Alteration	Code	Spec.	Rs./Code
	WSS	Provided spring washers are changed to washers for oblong holes WSS (2 pcs.). ④ Can be used for NGUA, NGUBRN, and NGUBLN only.	Quotation

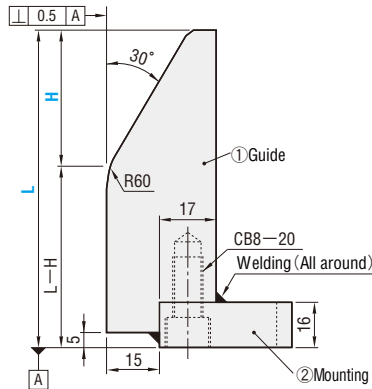
NEST GUIDES

—REINFORCED TYPE (ECONOMY)—

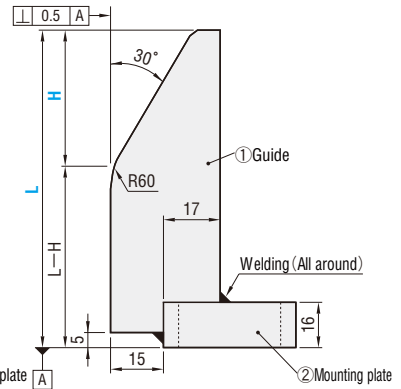


RoHS

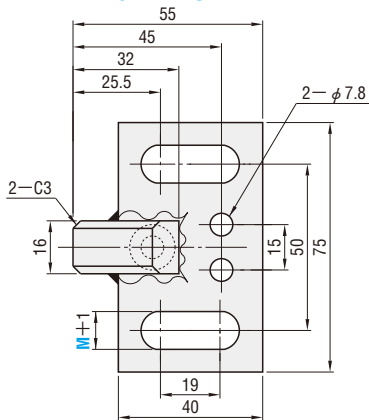
—Reinforced type—



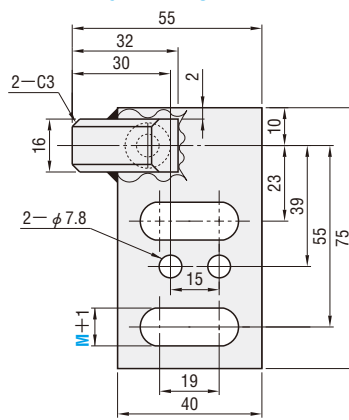
—Economy type—



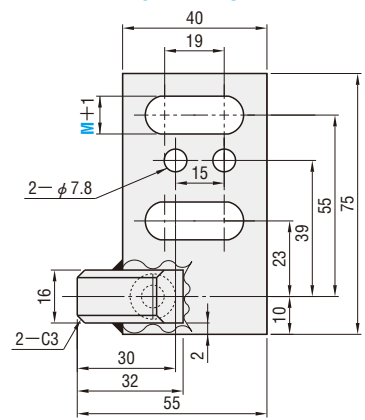
NGNA ENSTB



NGNBR ENSTR



NGNBL ENSTL



Ⓜ H is the dimension before R60 and GRC machining.

■ Mounting bolts and other accessories

M	A
M10	CB10—35 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12—35 (2 pcs.) Spring washer for M12 (2 pcs.)

Type	Mounting orientation	Catalog No.	Ⓜ
Reinforced type	Center	NGNA	① S45C
	Right hand type	NGNBR	② SS400
	Left hand type	NGNBL	

Type	Mounting orientation	Catalog No.	Ⓜ
Economy type	Center	ENSTB	① SS400
	Right hand type	ENSTR	② SS400
	Left hand type	ENSTL	

■ Reinforced type

Catalog No.	L 5mm increments	H 5mm increments	Mounting bolt hole M	Base unit price 1~9 pieces
NGNA NGNBR NGNBL	65~100	20~40	M10 M12	Quotation
	105~150			
	155~200			
	205~250			
	255~300			
	305~350			

Ⓜ The guide ① and the mounting plate ② are fastened by welding and bolting.

Ⓜ As the guide ① is made of S45C, it can be hardened by flame hardening or alteration HTC.



Order

Catalog No.	L	H	M
NGNA	185	30	M12
ENSTB	185	40	M10



Days to Ship

Quotation



Price

Quotation

■ Economy type

Catalog No.	L 5mm increments	H 5mm increments	Mounting bolt hole M	Base unit price 1~9 pieces
ENSTB ENSTR ENSTL	65~100	20~40	M10 M12	Quotation
	105~150			
	155~200			

Ⓜ The guide ① and the mounting plate ② are fastened by welding only.



Alterations



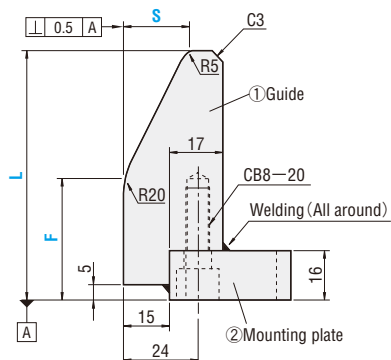
Catalog No.	L	H	M	(HTC-GRC-WSS-ENT)
NGNBL	120	35	M12	HTC-WSS

Alteration	Code	Spec.	Rs./Code
	HTC	① The guide is hardened. Ⓜ ~ 45HRC Ⓜ Can be used for reinforced type only.	
	GRC	The corner R (R60) of the guide is reduced. R10 ~ 30 10mm increments	Quotation
	WSS	Provided spring washers are changed to washers for oblong holes WSS (2 pcs.).	
	ENT	The lower of a guide is extended	

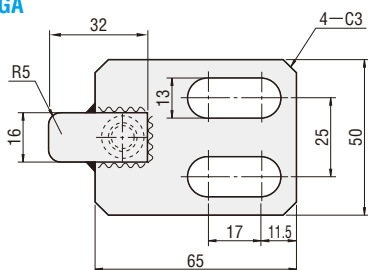
NEST GUIDES

—NO DOWEL PILOT HOLE・GUIDE R TYPE—

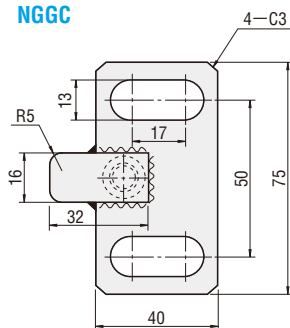
RoHS



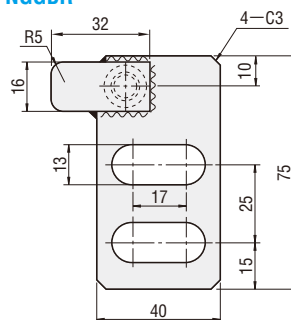
NGGA



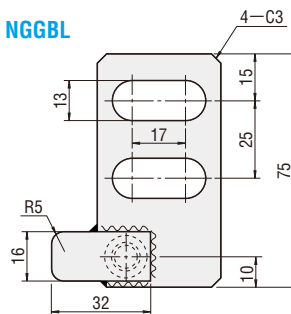
NGGC



NGGBR



NGGBL



- F is the dimension prior to R20 machining.
- $(L-F) \geq 10$

Mounting bolts and other accessories

M	A
M12	CB12—35 (2 pcs.) Spring washer for M12 (2 pcs.)

Mounting orientation	Catalog No.	M
Center	NGGA NGGC	①S45C
Right hand type	NGGBR	②SS400
Left hand type	NGGBL	

Catalog No.	L	F 10mm increments	S	Base unit price 1~9 pieces
NGGA NGGC NGGBR NGGBL	60	20~50	15 20	Quotation
	80	20~70		
	100	20~90		
	120	20~110		
	140	20~130		
	160	20~150		
	180	20~170		
	200	20~190		



Order

Catalog No. — L — F — S
NGGA — 200 — 50 — 15



Days to Ship

Quotation



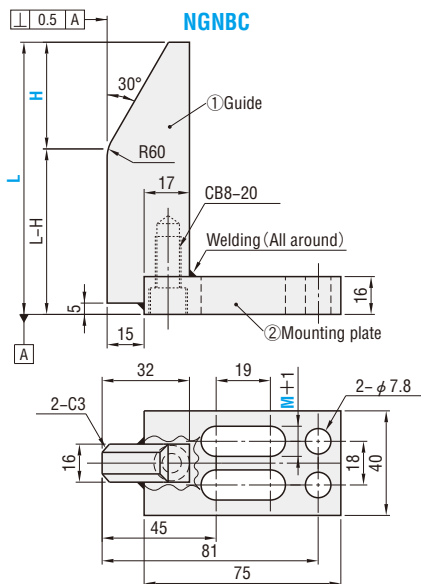
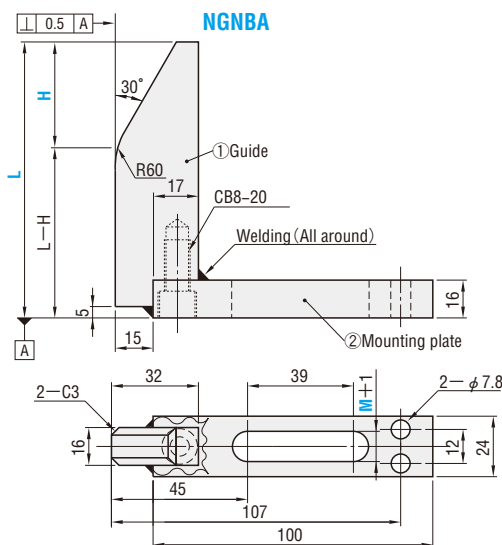
Price

Quotation

NEST GUIDES (WITH MOUNTING PLATES, CONFIGURABLE SHAPE)

—REINFORCED TYPE—

RoHS



H is the dimension before R60 and GRC machining.

M ①S45C
②SS400

■ Mounting bolts and other accessories

M	A
M10	CB10—35 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12—35 (2 pcs.) Spring washer for M12 (2 pcs.)

Catalog No.	L 5mm increments	H 5mm increments	Mounting bolt hole M	Base unit price 1~9 pieces
NGNBA	65~100	20~40	M10 (M12)	Quotation
NGNBC	105~150			
	155~200			

- ① M12 can be used for NGNBA only.
- ② The guide ① and the mounting plate ② are fastened by welding and bolting.
- ③ As the guide ① is made of S45C, it can be hardened by flame hardening or alteration HTC.

Order Catalog No. — L — H — M
NGNBA — 185 — 40 — M10

Days to Ship Quotation



Price

Quotation



Alterations

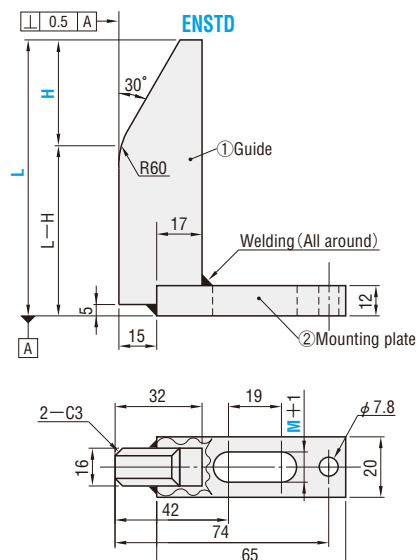
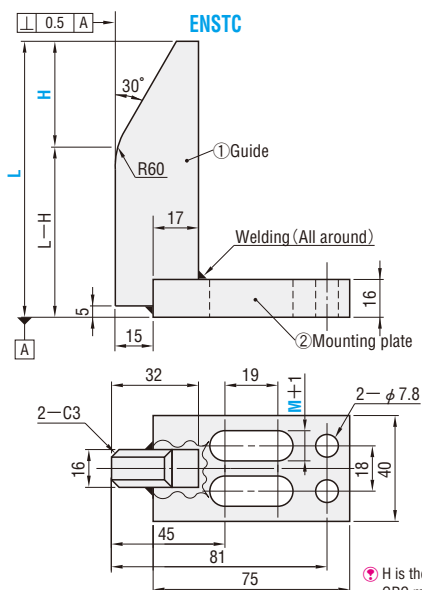
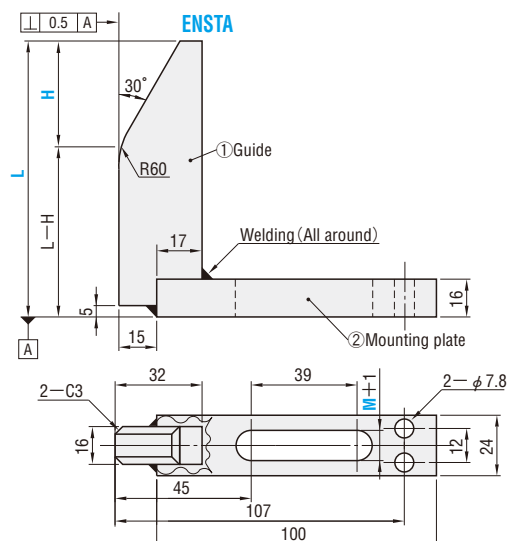
Catalog No. — L — H — M — (HTC-GRC-WSS)
NGNBA — 120 — 40 — M12 — HTC

Alteration	Code	Spec.	1Code
	HTC	①The guide is hardened. ② ~ 45HRC	Quotation
	GRC	The corner R (R60) of the guide is reduced. R10 ~ 30 10mm increments	
	WSS	Provided spring washers are changed to washers for oblong holes WSS (2 pcs.). ③ Can be used for NGNBA only.	

NEST GUIDES (WITH MOUNTING PLATES, CONFIGURABLE SHAPE)

—ECONOMY TYPE—

RoHS



H is the dimension prior to R60 and GRC machining.

■ Mounting bolts and other accessories

M	A
M10	CB10—35 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12—35 (2 pcs.) Spring washer for M12 (2 pcs.)

M ① ② SS400

Catalog No.	L 5mm increments	H 5mm increments	Mounting bolt hole M	Base unit price 1~9 pieces
ENSTA	65~100	20~40	M10 (M12)	Quotation
ENSTC	105~150			
ENSTD	155~200			

⚠ M12 can be used for ENSTA only.

⚠ The guide ① and the mounting plate ② are fastened by welding only.



Order

Catalog No. — L — H — M
ENSTA — 185 — 40 — M10



Days to Ship

Quotation



Price

Quotation



Alterations



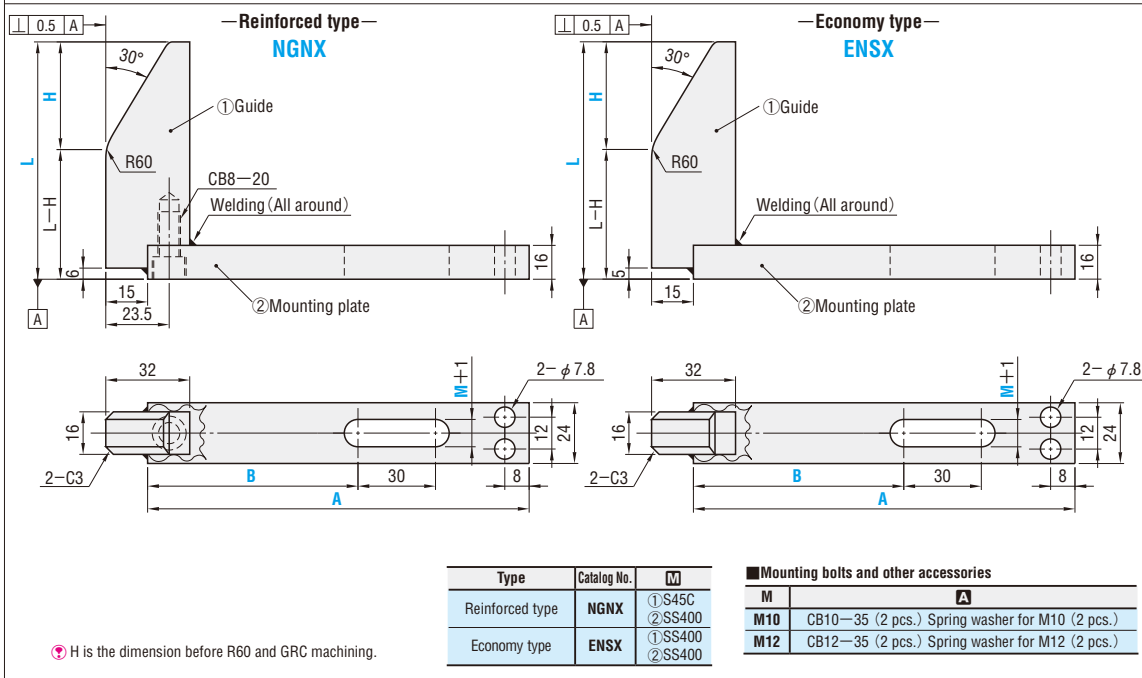
Catalog No. — L — H — M — (GRC)
ENSTA — 185 — 40 — M10 — GRC20

Alteration	Code	Spec.	1Code
R	GRC	The corner R (R60) of the guide is reduced. R10 ~ 30 10mm increments	Quotation

NEST GUIDES (WITH MOUNTING PLATES, CONFIGURABLE LENGTH)

—REINFORCED TYPE / ECONOMY TYPE—

RoHS



Catalog No.	L 5mm increments	H 5mm increments	A 10mm increments	B 5mm increments	Mounting bolt hole M
Reinforced type NGNX	65~100 105~150	20~40	100~200	35 ≤ B ≤ A-50	M10 M12
Economy type ENSX	155~200				

Reinforced type **NGNX** ⦿ The guide ① and the mounting plate ② are fastened by welding and bolting.
⦿ As the guide ① is made of S45C, it can be hardened by flame hardening or alteration HTC.

Economy type **ENSX** ⦿ The guide ① and the mounting plate ② are fastened by welding only.



Order

Catalog No. — L — H — A — B — M
NGNX — 150 — 40 — A150 — B80 — M12



Days to Ship

Quotation



Alterations

Catalog No. — L — H — A — B — M — (HTC-GRC-WSS)
NGNX — 150-40-A150-B80-M12- HTC



Price

Quotation

Alteration	Code	Spec.	1Code
	HTC	①The guide is hardened. ⦿ ~ 45HRC ⦿ Can be used for reinforced type only.	
	GRC	The corner R (R60) of the guide is reduced. R10 ~ 30 10mm increments	Quotation
	WSS	Provided spring washers are changed to washers for oblong holes WSS (2 pcs.).	

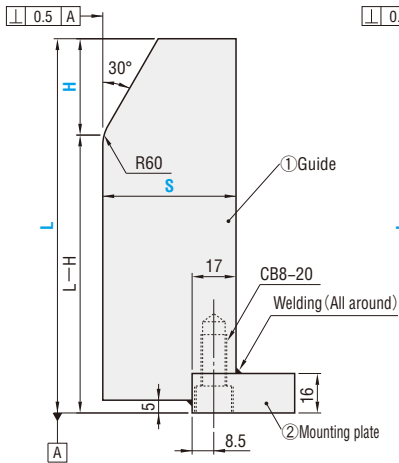
NEST GUIDES

—CONFIGURABLE GUIDE SHAPE TYPE—

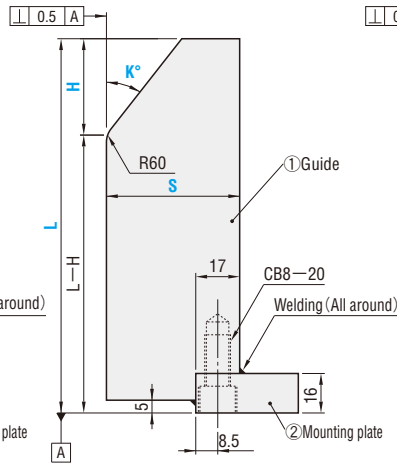
RoHS



Configurable guide width type
NGW

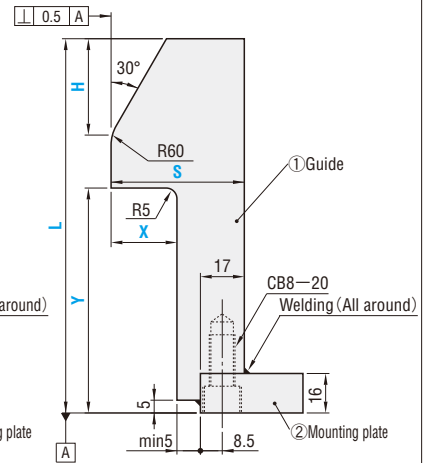


Configurable insertion angle type
NGWK

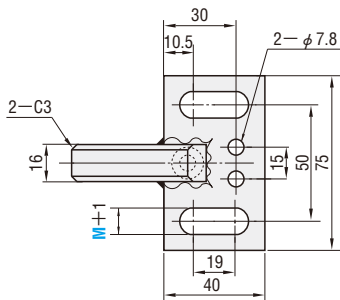


$$S \geq 10 + H \times \tan K^\circ$$

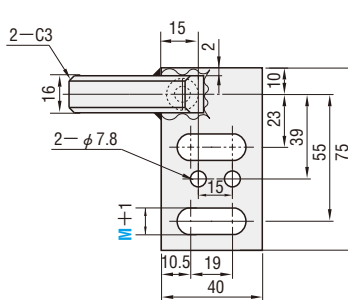
Notched guide type
NGWS



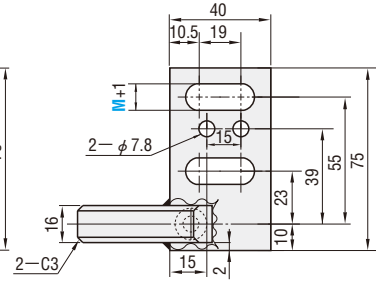
A (Center type)



BR (Right hand type)



BL (Left hand type)



① H is the dimension prior to R60 and GRC machining.

② The guide ① and the mounting plate ② are fastened by welding and bolting.

③ As the guide ① is made of S45C, it can be hardened by flame hardening or alteration HTC.

④ ① S45C
② SS400

■ Mounting bolts and other accessories

M	A
M10	CB10—35 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12—35 (2 pcs.) Spring washer for M12 (2 pcs.)

■Configurable guide width type

Catalog No.		L	H	S	Mounting bolt hole M
Type	Mounting orientation	5mm increments	5mm increments	5mm increments	
NGW	A (Center type)	65~100	20~40	35~100	M10 M12
	BR (Right hand)	105~150			
	BL (Left hand)	155~200			

④ S32 is possible with NGNA (P.888).

■Configurable insertion angle type

Catalog No.		L	H	S	K	Mounting bolt hole M
Type	Mounting orientation	5mm increments	5mm increments	5mm increments	5° increments	
NGWK	A (Center type)	65~100	20~40	32 35~100	$15 \leq K \leq 60$	M10 M12
	BR (Right hand)	105~150				
	BL (Left hand)	155~200				

④ $S \geq 10 + H \times \tan K^\circ$

■Notched guide type

Catalog No.		L	H	S	X	Y	Mounting bolt hole M
Type	Mounting orientation	5mm increments	5mm increments	5mm increments	1mm increments	5mm increments	
NGWS	A (Center type)	65~100	20~40	32 35~100	$X \leq S - 22$	$Y \leq L - H - 15$	M10 M12
	BR (Right hand)	105~150					
	BL (Left hand)	155~200					



Order

Catalog No.		L	H	S	K	X	Y	M
Type	Mounting orientation							
(Configurable guide width type) NGW	A	100	40	S35				M10
(Configurable insertion angle type) NGWK	A	200	40	S50	K45			M12
(Notched guide type) NGWS	BL	200	40	S40		X10	Y100	M12



Days to Ship

Quotation



Price

Quotation



Alterations

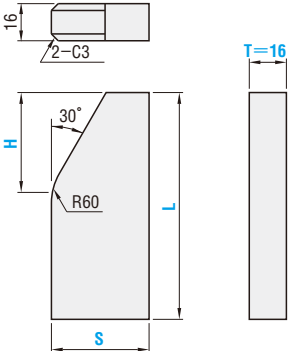
Catalog No.	L	H	S	K	X	Y	M	(HTC·GRC·WSS)
NGWBL	120	40	S35					M12 — HTC

Alteration	Code	Spec.	1Code	Alteration	Code	Spec.	1Code	Alteration	Code	Spec.	1Code
	HTC	① The guide is hardened. ④ ~ 45HRC	Quotation		GRC	The corner R (R60) of the guide is reduced. R10 ~ 30 10mm increments	Quotation		WSS	Provided spring washers are changed to washers for oblong holes WSS (2 pcs.).	Quotation

NEST GUIDE BLANKS / MOUNTING PLATES FOR NEST GUIDES

Nest guide blanks -Long type- **RoHS**

NBBCL **M S45C**

⚡ H is the dimension prior to R60 machining.

Catalog No.	S	L	H	Base unit price
Type	Thickness T	10mm increments	10mm increments	1~9 pieces
NBBCL	16	50	200~250 260~300 310~350	20~60 Quotation



Order

Catalog No. — S — L — H
NBBCL16 — 50 — 300 — 30



Days to Ship

[Quotation](#)

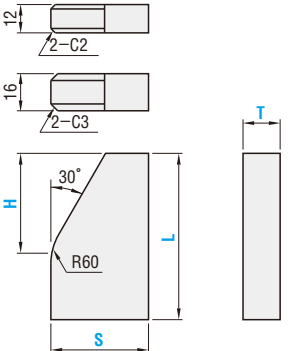


Price

[Quotation](#)

Nest guide blanks **RoHS**

NBB NBBC **M NBB SS400 NBBC S45C**

⚡ H is the dimension prior to R60 machining.

Catalog No.	S	L	H	Base unit price
Type	Thickness T	5mm increments	selection	1~9 pieces
NBB	12 16	32 50 75 100	65~200	30 40 Quotation
NBBC	16			



Order

Catalog No. — S — L — H
NBB12 — 75 — 100 — 30



Days to Ship

[Quotation](#)

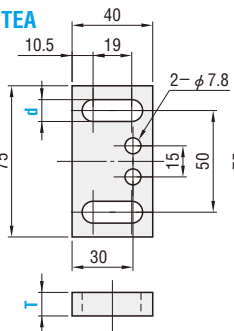
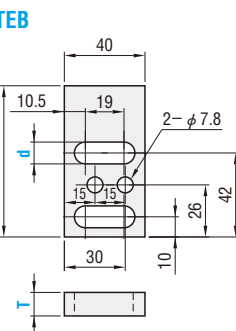


Price

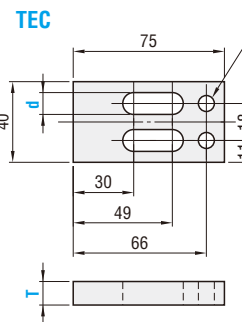
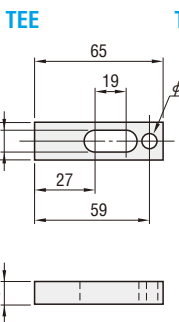
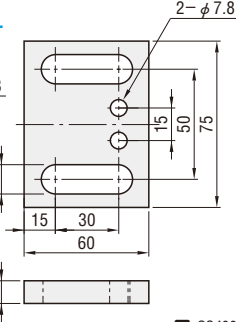
[Quotation](#)

Nest guide mounting plates **RoHS**

TEA TEB **M SS400**

TEC TEE TEL

Catalog No.	d	Base unit price
Type	Thickness T	1~9 pieces
TEA	12	11
TEB	12	13
※TEC	16	11 13 Quotation
TEE	12	11
TEL	16	13

※ d13 cannot be used for TEC.



Order

Catalog No. — d
TEA12 — 13



Days to Ship

[Quotation](#)



Price

[Quotation](#)

NEST GUIDES

—SURFACE SUPPORT TYPE—

RoHS

NSTFA

(Non-plated)

NSTFB

(Plated)



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

Welding

Welding

9

40

R30

0.5

A

A

6

38

29

4—C1

10

9

40

60

16

25

34

50

M SS400

■ Mounting bolts and other accessories

M	A
M10	CB10—30 (2 pcs.) Spring washer for M10 (2 pcs.)
M12	CB12—30 (2 pcs.) Spring washer for M12 (2 pcs.)

⚠ L,40 is the dimension prior to R30 machining.

Catalog No.	L 5mm increments	Mounting bolt hole M	Base unit price 1~9 pieces	
			NSTFA	NSTFB
NSTFA (Non-plated)	75~100	M10	Quotation	
NSTFB (Plated)	105~150	M12		

📞 Order

🚚 Days to Ship

💰 Price

Catalog No. — L — M
NSTFA — 100 — M12

Quotation

Quotation

LOCATING PILOT PINS

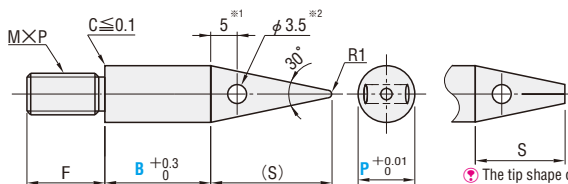
Male thread type

RoHS



SLTL (Fixed P dimension)

SLTLH (Configurable P and B dimensions)



The tip shape of SLTL is as shown above.

M SKS93
H 37 ~ 43HRC

For SLTLH, (S) ≈ 1.6 × P. ※1 SLTL6・SLTLH8 → 2 ※2 SLTL6・SLTLH8 → 2.5

M×P	F	S	Catalog No. Type	P	B	Base unit price 1~9 pieces
5×0.8	12	10	(Fixed P dimension) SLTL	6	5 10	Quotation
6×1.0				8		
				9		
8×1.25				10	10 15	
10×1.5	15	15		12		
				14		
12×1.75		17		15	15 20	
				16	20 25	
16×2.0	25	20		20	25 30	

M×P	F	Catalog No. Type	No.	P 0.01mm increments	B 1mm increments	Base unit price 1~9 pieces
5×0.8	12	(Configurable P and B dimensions) SLTLH	8	6.00 ~ 8.00	5~50	Quotation
6×1.0			10	8.00 ~ 10.00		
8×1.25			12	10.00 ~ 12.00		
10×1.5	15		14	12.00 ~ 14.00		
12×1.75			16	14.00 ~ 16.00		
16×2.0	25		20	16.00 ~ 20.00		

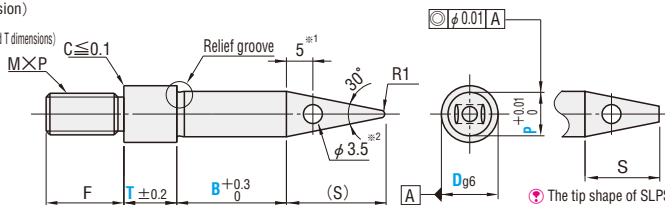
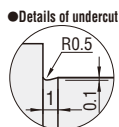
Inlay male thread type

RoHS



SLPS (Fixed P dimension)

SLPSH (Configurable P, B, and T dimensions)



The tip shape of SLPSH is shown above.

M SKS93
H 37 ~ 43HRC

For SLPSH, (S) ≈ 1.6 × P.
※1 D8 → 2 ※2 D8 → 2.5

M×P	F	P	B	T	S	Catalog No. Type	D	Base unit price 1~9 pieces
6×1.0	12	6	5	3	10	(Fixed P dimension) SLPS	8	Quotation
8×1.25		8		5	15		10	
					17		13	
12×1.75	15	10			20		16	
					25		20	
16×2.0	25	16	10	10	25		25	

M×P	F	Catalog No. Type	D	P 0.01mm increments	B 1mm increments	T 1mm increments	Base unit price 1~9 pieces
6×1.0	12	(Configurable P, B, and T dimensions) SLPSH	8	6.00 ~ 8.00	5~60	3~15	Quotation
8×1.25			10	8.00 ~ 10.00			
12×1.75	15		13	10.00 ~ 12.00			
			16	12.00 ~ 14.00			
			20	14.00 ~ 16.00			
16×2.0	25		25	16.00 ~ 20.00			



Order

Catalog No. — P — B — T
SLTL 8 — B10
SLTLH 14 — P13.80 — B20
SLPS 10
SLPSH 16 — P14.00 — B60 — T15

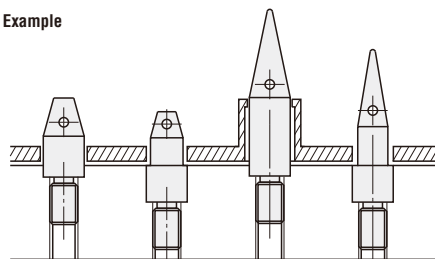


Days to Ship

Quotation



Example



Price

Quotation



Alterations

Catalog No. — P — B — T — (SC)
SLPSH 10 — P8.50 — B10 — T3 — SC9

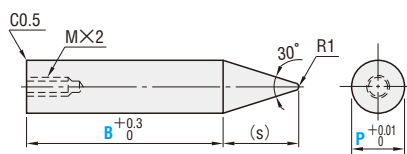
Alteration	Code	Spec.	1Code
	SC	Tip taper length change 8 < SC < S 1mm increments	Quotation

Female thread type

RoHS



SNST (Fixed P dimension)
SDSTH (Configurable P and B dimensions)



For (s), $s \approx 1.6 \times P$.

M SKS3
H 60 ~ 63HRC

M×P	Catalog No. Type	P	B	Base unit price 1~9 pieces
4×0.7	(Fixed P dimension) SNST	6	10 15	Quotation
5×0.8		8		
		10	15 20	
		12		
6×1.0		13	20 30	
		15		
		16	30 40	
8×1.25		20	40 50	

M×P	Catalog No. Type	No.	P 0.01mm increments	B 0.1mm increments	Base unit price 1~9 pieces
4×0.7	(Configurable P and B dimensions) SDSTH	6	6.00 ~ 7.00	10.0 ~ 80.0	Quotation
5×0.8		8	7.00 ~ 8.00		
		10	8.01 ~ 10.00		
		12	10.00 ~ 12.00		
6×1.0		13	12.01 ~ 13.00		
		15	13.01 ~ 15.00		
		16	15.01 ~ 16.00		
8×1.25		20	16.00 ~ 20.00		

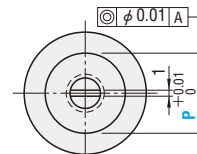
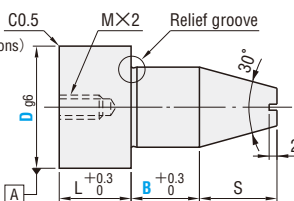
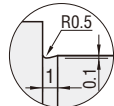
Small head female thread type

RoHS



SDST (Fixed P dimension)
SDSTH (Configurable P and B dimensions)

Details of undercut



M SKS3
H 60 ~ 63HRC

D _{ø6}						M×P	P	L	S	B	Catalog No.		Base unit price
						Type					D		1~9 pieces
8	-0.005	5×0.8	6	15	6	10 (Fixed P dimension) SDST					8	Quotation	
10	-0.014	6×1.0	8		8			10					
13	-0.006	8×1.25	10	20	12			13					
16	-0.017	10×1.5	12		17			16					
20	-0.007	12×1.75	16	24	20			20					
	-0.020				15								

D _{ø6}	M×P	L	S	Catalog No. Type	D	P 0.01mm increments	B 0.1mm increments	Base unit price 1~9 pieces
8 -0.005	5×0.8	15	6	(Configurable P and B dimensions) SDSTH	8	6.00 ~ 7.00	3.0 ~ 20.0	Quotation
10 -0.014	6×1.0		8		10	7.00 ~ 9.00	3.0 ~ 30.0	
13 -0.006	8×1.25	20	12		13	9.00 ~ 12.00		
16 -0.017	10×1.5		17		16	12.00 ~ 15.00	3.0 ~ 50.0	
20 -0.007	12×1.75	24	20		20	15.00 ~ 18.00		
-0.020								

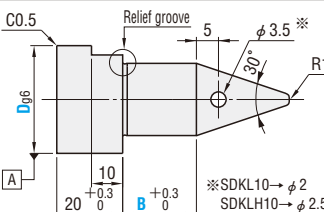
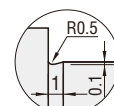
Small head one-side flat type

RoHS



SDKL (Fixed P dimension)
SDKLH (Configurable P and B dimensions)

Details of undercut



※SDKL10 → φ 2
SDKLH10 → φ 2.5

M SKS3
H 60 ~ 63HRC

D _{ø6}		P	B	Catalog No.		Base unit price
				Type	D	1~9 pieces
10	−0.005 −0.014	6	(Fixed P dimension) SDKL		10	Quotation
13	−0.006	8			13	
16	−0.017	10			16	
20	−0.007	12			20	
25	−0.020	16			25	
		15				

D _{ø6}	Catalog No. Type	D	P 0.01mm increments	B 0.1mm increments	Base unit price 1~9 pieces
10 -0.005	(Configurable P and B dimensions) SDKLH	10	6.00 ~ 7.00	3.0 ~ 30.0	Quotation
-0.014		13	7.00 ~ 9.00		
13 -0.006		16	9.00 ~ 12.00		
-0.017		20	12.00 ~ 15.00		
20 -0.007		25	15.00 ~ 20.00		
-0.020					

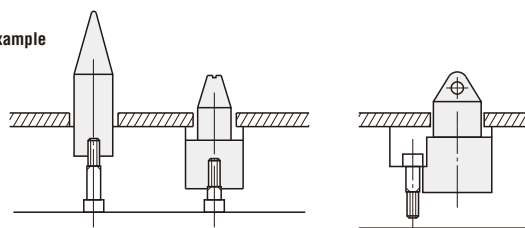


Order

Catalog No. — P — B
SNST 8 — B10
SDSTH 13 — P11.48 — B28.0
SDKL 20



Example



Days to Ship

Quotation



Price

Quotation

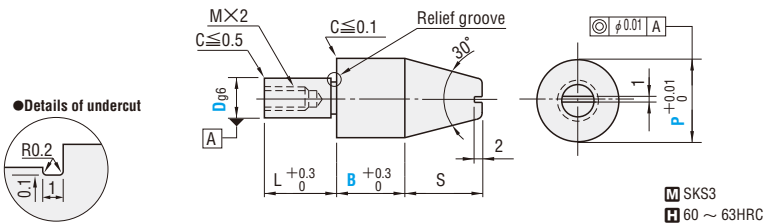
LOCATING PILOT PINS

Inlay female thread type

RoHS



SKSTH (Configurable P and B dimensions)



D _{g6}	M	L	S	Catalog No. Type	D	P 0.01mm increments	B 0.1mm increments	Base unit price 1~9 pieces
5	-0.004	3	12	(Configurable P and B dimensions) SKSTH	5	8.00 ~ 8.99	1.0 ~ 12.0	Quotation
6	-0.012		10		6	9.00 ~ 10.00	1.0 ~ 15.0	
			10			10.00 ~ 10.99		
			12			11.00 ~ 12.00		
			15		8	12.00 ~ 12.99	1.0 ~ 15.0	
8	-0.005	4	15			13.00 ~ 16.00		
	-0.014		17		10	14.00 ~ 14.99	1.0 ~ 20.0	
10		5	20			15.00 ~ 20.00		
			20		13	16.00 ~ 16.99	1.0 ~ 20.0	
13	-0.006	6	20			17.00 ~ 20.00		
	-0.017		25		16	18.00 ~ 20.00	1.0 ~ 20.0	
16		8	24					



Order

Catalog No. — P — B
SKSTH 8 — P12.80 — B3.5



Days to Ship

Quotation

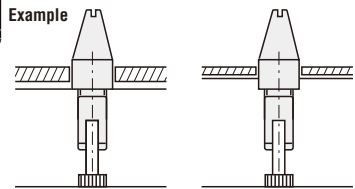


Price

Quotation



Example

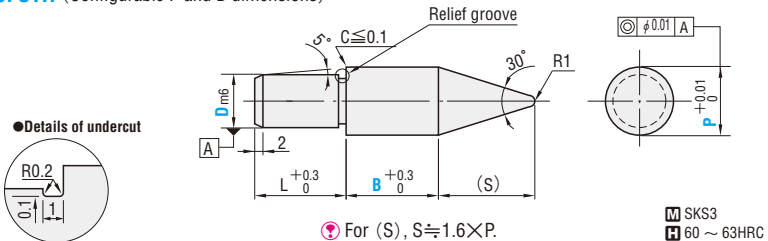


Press-fit type

RoHS



SFSTH (Configurable P and B dimensions)



D _{m6}	L	Catalog No. Type	D	P 0.01mm increments	B 0.1mm increments	Base unit price 1~9 pieces
4	+0.012	(Configurable P and B dimensions) SFSTH	4	4.00 ~ 8.00	1.0 ~ 12.0	Quotation
5	+0.004		5	5.00 ~ 10.00	1.0 ~ 12.0	
6			6	6.00 ~ 12.00	1.0 ~ 15.0	
8	+0.015		8	8.00 ~ 14.00	1.0 ~ 15.0	
10	+0.006		10	10.00 ~ 16.00	1.0 ~ 20.0	
13	+0.018		13	13.00 ~ 18.00	1.0 ~ 20.0	
16	+0.007		16	16.00 ~ 20.00	1.0 ~ 20.0	



Order

Catalog No. — P — B
SFSTH 6 — P7.98 — B4.5



Days to Ship

Quotation

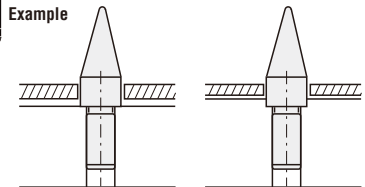


Price

Quotation

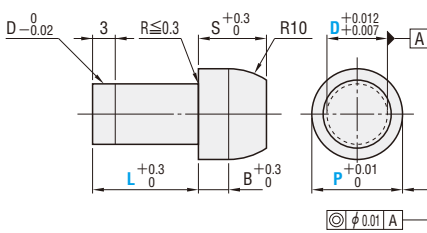


Example



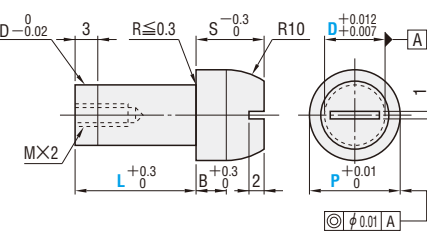
LOCATING PILOT PINS

RoHS **PST**

M SKS3
H 60 ~ 63HRC

RoHS **PSTM**

M SKS3
H 60 ~ 63HRC

B	S	Catalog No.		L	0.01mm increments min. P max.	Base unit price 1~9 pieces	
		Type	D				
1	4	PST	1	12	1.50~ 3.00	Quotation	
	5		2	12	2.50~ 4.00		
6	3		12	4.00~ 6.00			
2	7		4	15	5.00~ 7.00		
	8		5	15	6.00~ 8.00		
	8		6	15	7.00~ 9.00		
3	9		8	15	9.00~ 13.00		
			10	18	11.00~ 15.00		

B	S	M	Catalog No.		D	L	0.01mm increments min. P max.	Base unit price 1~9 pieces	
			Type						
2	7	3	PSTM	5	12	6.00~ 8.00	Quotation		
	8			6	15	7.00~ 9.00			
3	9			8	15	9.00~13.00			
				10	18	11.00~15.00			

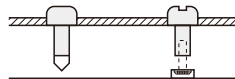
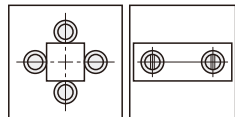
Order Catalog No. — L — P
PSTM 5 — 15 — P7.20

Alterations Catalog No. — L — P (PC) — (BC-PKC)
PSTM 5 — 15 — P7.20 — BC3.5

Days to Ship Quotation

Price Quotation

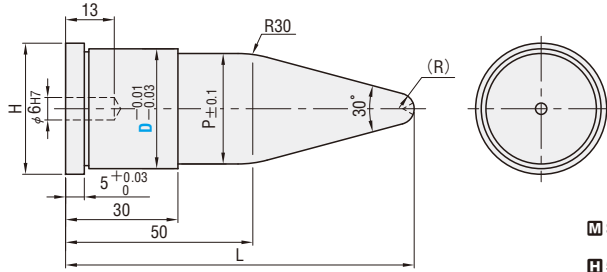
Example

Alteration	Code	Spec.	1Code
	PC	Tip diameter change PC ≥ Pmin. — 0.2 0.01mm increments	Quotation
	BC	B dimension change 1 ≤ BC ≤ Bmax. 0.1mm increments S dimension remains the same.	
	PKC	Tip diameter tolerance change P +0.01 / 0 → +0.005 / 0	

RoHS **RFPP**





M SK105
(Old JIS SK3)
H 55HRC ~

H	L	(R)	P	Catalog No.		Base unit price 1~4 pieces
				Type	D	
35	90	5	29.5	RFPP	32	Quotation
48	110	8	44.5		45	

Order Catalog No. RFPP 32

Days to Ship Quotation

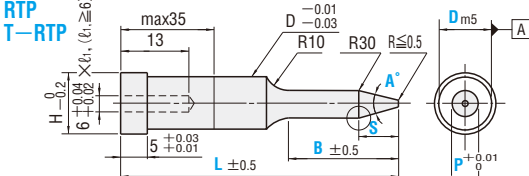
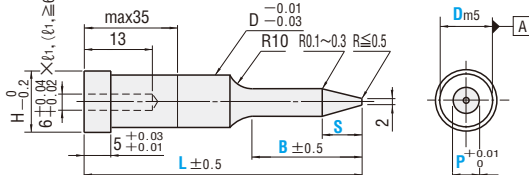
Price Quotation

PILOT PUNCHES

—CONFIGURABLE TYPE—

PRODUCTS DATA

P.1089

Type	Shank diameter D Tolerance	M H	Catalog No.	Shape												
—Normal— 	D _{m5} RoHS	Equivalent to SKD11 60~63HRC	RTP	 Details of ○ <table><thead><tr><th>A</th><th>f</th><th>Cmin.</th></tr></thead><tbody><tr><td>20°</td><td>2.624</td><td>5</td></tr><tr><td>30°</td><td>3.950</td><td>6</td></tr><tr><td>45°</td><td>5.967</td><td>8</td></tr></tbody></table> Ⓢ is the dimension prior to R30 machining. ⓐ MS6—25	A	f	Cmin.	20°	2.624	5	30°	3.950	6	45°	5.967	8
A	f	Cmin.														
20°	2.624	5														
30°	3.950	6														
45°	5.967	8														
—Dicoat® treatment— 	D _{m5} RoHS	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—RTP													
—Normal— 	D _{m5} RoHS	Equivalent to SKD11 60~63HRC	RTPE	 (Economy type) Ⓢ is the dimension prior to R30 machining. ⓐ MS6—25												
—Dicoat® treatment— 	D _{m5} RoHS	Equivalent to SKD11 60~63 HRC Surface 3000 HV	T—RTPE													

ⓐ MS6—25

H	Catalog No.	1mm increments	0.01mm increments	1mm increments	1mm increments	A	Base unit price 1 ~ 9 pieces
Type	D	L	min. P max.	B	S		RTP T—RTP
13	(10)		6.00 ~ 9.99			20	70 ≤ L ≤ 100 100 < L ≤ 150
16	13		6.00 ~ 12.99			30	
19	16		8.00 ~ 15.99			45	
23	20	70 ~ (200)	11.00 ~ 19.99	20 ~ (100)	10 ~ 50 S ≤ B—Cmin.		Quotation
28	25		16.00 ~ 24.99				
35	(32)		18.00 ~ 31.99				

Ⓢ The center hole remains at the tip end. Ⓢ Because the center hole is required, the flat surface on the end of the tip must be 2 mm or larger. P—2Stan (A/2) ≥ 2 Ⓢ (L—35) ≥ B ≥ (S+Cmin.)
 ✖ D (10) (32) → Cannot be used for T—RTP. Ⓢ L (200) → For RTP with D10 and T—RTP, L must not exceed 150. Ⓢ B (100) → If D=10, B must not exceed 50.

H	Catalog No.	1mm increments	0.01mm increments	1mm increments	1mm increments	A	Base unit price 1 ~ 9 pieces
Type	D	L	min. P max.	B	S		RTPE T—RTPE
13	(10)		6.00 ~ 9.99			8 ~ 45	70 ≤ L ≤ 100 100 < L ≤ 150
16	13		6.00 ~ 12.99			S ≤ B—2	
19	16		8.00 ~ 15.99				
23	20	70 ~ 150	11.00 ~ 19.99	10 ~ 50			Quotation
28	25		16.00 ~ 24.99				
35	(32)		18.00 ~ 31.99				

Ⓢ (L—35) ≥ B ≥ (S+2) ✖ D (10) (32) → Cannot be used for T—RTPE.



Order

Catalog No.	L	P	B	S	A
RTP 20	160	P15.20	B43	S20	A30
RTPE 20	150	P15.20	B43	S20	
T—RTP 20	120	P15.20	B43	S20	A30



Days to Ship

Quotation



Alterations

Catalog No.	L	P	B	S	A	(HC-TC-LKC, etc.)
RTP 20	160	P15.20	B43	S20	A30	HC22.0
RTPE20	150	P15.20	B43	S20		HC22.0



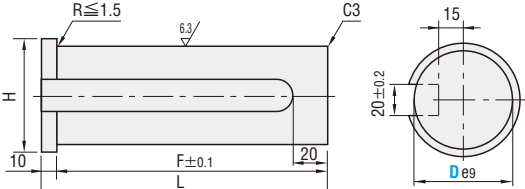
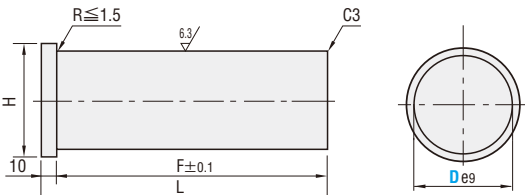
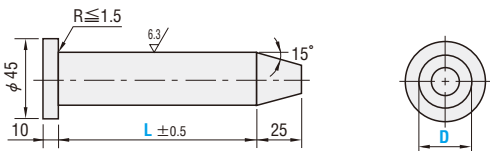
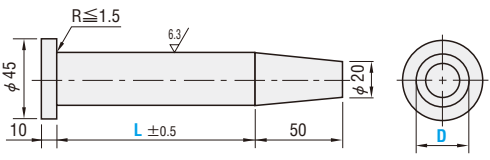
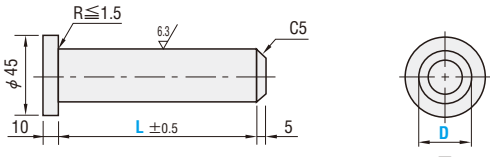
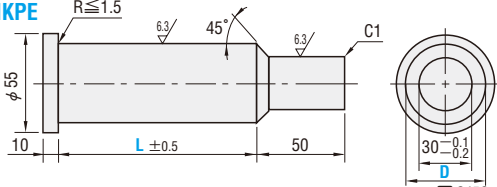
Price

Quotation

Alteration	Code	Spec.	1Code
Alterations to head 	HC	Head diameter change D ≤ HC < H 0.1mm increments	Quotation
	TC	Head thickness change 2 ≤ TC < 5 0.1mm increments	
	KC	Addition of single key flat to head	

Alteration	Code	Spec.	1Code
Full length 	LKC	Full length tolerance change L ± 0.5 → L ± 0.05 ✖ Cannot be used with Dicoat® treatment. Ⓢ If used with LKC, 0.1mm increments can be selected for L dimension. Ⓢ Shape of tip R remains unchanged.	Quotation
Shank 	NDC	No press-in lead ℓ ≥ 3 → ℓ = 0	
Others 	TPC	Dowel pin change Provided MS6—25 is changed to MSTP6—25 (tapped type).	

LOCATING PINS FOR SETUP

 	DIKPA  M S45C
 	DIKPB  M S45C
 	IKPDA  M S45C
 	IKPDB  M S45C
 	IKPDC  M S45C
 	IKPE  M S45C

D e9	H	F	L	Catalog No.		Base unit price
				Type	D	
60	-0.060 -0.134	70	170 180	DIKPA	60	Quotation

D e9	H	F	L	Catalog No.		Base unit price
				Type	D	
50	-0.050 -0.112	60	145 155	DIKPB	50	Quotation
60	-0.060 -0.134	70	170 180		60	

D tolerance		Catalog No. Type	D	L	Base unit price
				5mm increments	
30	-0.1 -0.2	IKPDA	30	110~150 155~200	Quotation

D tolerance		Catalog No. Type	D	L	Base unit price
				5mm increments	
30	-0.1 -0.2	IKPDB	30	110~150 155~200	Quotation

D tolerance		Catalog No. Type	D	L	Base unit price
				5mm increments	
30	-0.1 -0.2	IKPDC	30	110~150 155~200	Quotation

D tolerance		Catalog No. Type	D	L	Base unit price
				5mm increments	
45	-0.1 -0.2	IKPE	45	110~150 155~200	Quotation



Order

Catalog No. — L
DIKPA60
IKPDA30 — 120



Days to Ship

Quotation



Price

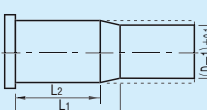
Quotation



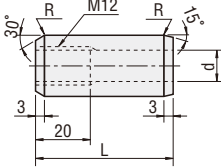
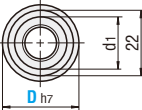
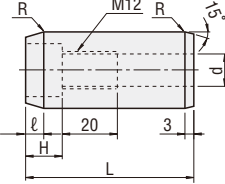
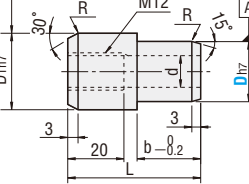
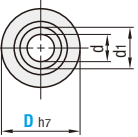
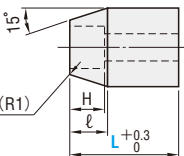
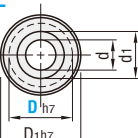
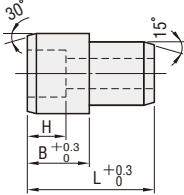
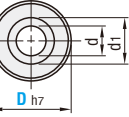
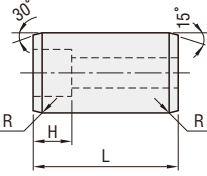
Alterations



Catalog No. — L — (SDC)
DIKPA60 — SDC

Alteration	Code	Spec.	1Code		
	SDC	Addition of a step to the D dimension part (D-1) ⚠ D dimension tolerance will change. Can be used for DIKPA and DIKPB.	Quotation		
Type		D		L1	L2
DIKPA		60		100	80
DIKPB		50		70	50
		60		100	80

LOCATION PINS

 	TLPA   M S45C H 40 ~ 50HRC
 	TLPB   M S45C H 40 ~ 50HRC
 	TLPC   M S45C H 40 ~ 50HRC
—Tapered type—  	LPU   M S45C (Raw material)
—Stepped type—  	LPL   M S45C H 40 ~ 50HRC
—Straight type—  	DLPA   M S45C H 40 ~ 50HRC

D _{h7}	L	R	d	Catalog No.		Base unit price
				Type	D	
20	0 -0.021	46	3	10.5	TLPA	20
						Quotation

D _{h7}	L	R	d	d ₁	H	ℓ	Catalog No.		Base unit price
							Type	D	
25	0 -0.021	56	3	10.5	17.5	12	TLPB	25	Quotation
32	0 -0.025	65	5			24		32	

D _{h7}		D _{h7}		L	R	d	b	Catalog No.		Base unit price
								Type	D	1~9 pieces
20	$0_{-0.021}^0$	25	$0_{-0.021}^0$	44	3	10.5	21	TLPC	20	Quotation

D _{h7}	ℓ	d	d ₁	H	Catalog No.		Base unit price
					Type	D	
25	0 -0.021	12	9	14	LPU	25	25
						30	30
32	0 -0.025	15	11	17.5		32	30
						35	35
40		18	14	20		40	35
							40
							Quotation

D _{h7}	D _{h7}	L	B	d	d ₁	H	Catalog No.		Base unit price
							Type	D	
20	0 -0.021	25	0 -0.021	40	20	9	LPL	20	Quotation
25	-0.021	32	0	50	25	11		25	
32	0 -0.025	40	-0.025	70	35	11		32	

D _{h7}	L	R	d	d ₁	H	Catalog No.		Base unit price
						Type	D	
20	0 -0.021	46	3	11	17.5	DLPA	20	Quotation
25	-0.021	56			12		25	
32	0 -0.025	70	5		24		32	

⚠ D20 has a φ 11 through hole instead of a counterbore.

	Order	Catalog No.
		LPL 25
	Days to Ship	Quotation
	Price	Quotation

	Alterations	Catalog No.
		LPU 25 — (LC) LPU 25 — LC22
	Quotation	

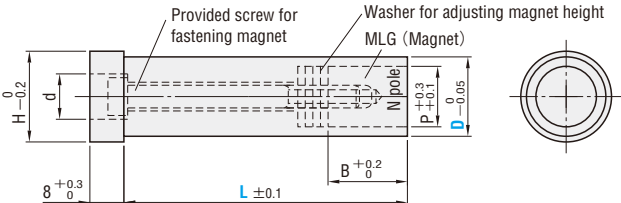
Alteration	Code	Spec.	1Code
	LC	Full length change 1mm increments LPU=L-(ℓ+3) ≤ LC < L LPL=B+2 ≤ LC < Lmax. ⚠ Can be used for LPU and LPL only.	Quotation

MAGNET LIFTER PINS

**RoHS**



MLP



 SK4

 53 ~ 58HRC

🔥 Use at temperatures of 80°C or less. 🔍 Details of magnet (MLG)  P.916

Provided screw for fastening the magnet	H	P	B Magnet length	d	Catalog No.		L 1mm increments	Base unit price	
					Type	D		1~9 pieces	
					CB6	23	16	25	11
CB8	28	20	30	14	25	40~ 100			
	35	28	35		32	45~ 100			



Order

Catalog No. — L
MLP 20 — 70



Example



Days to Ship

Quotation



Price

Quotation

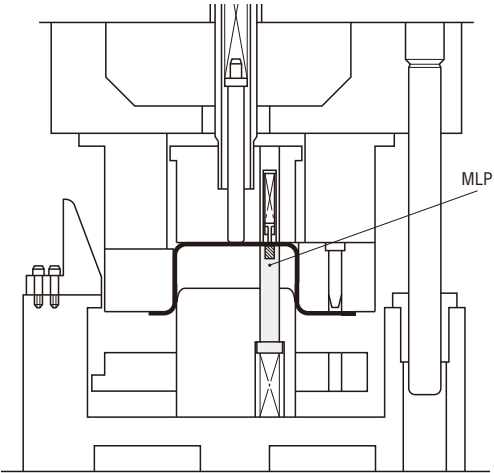


Alterations



Catalog No. — L — (KC·WKC)
MLP 20 — 70 — WKC

Alteration	Code	Spec.	1Code
	KC	Addition of single key flat to head	Quotation
	WKC	Addition of double key flats in parallel ⊗ Cannot be combined with KC.	



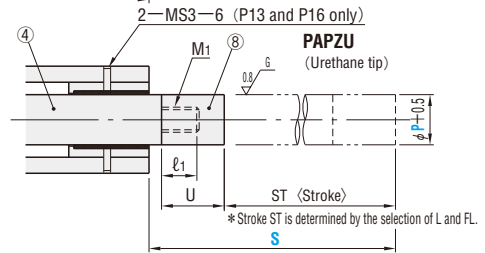
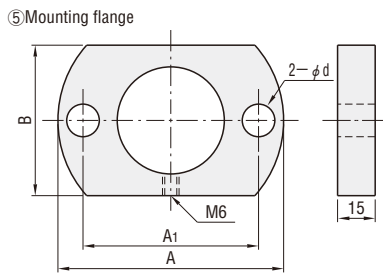
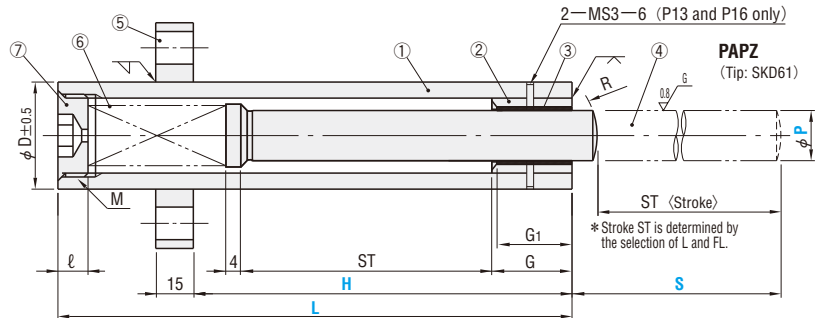
PRE-HOLDING PUSH PIN SETS

—STANDARD TYPE—

RoHS

PAPZ (Steel tip)

PAPZU (Urethane tip)



- ①②⑤ SS400
③ MDZB (Oil-free bushing)
④ SKD61 + Nitriding
⑥ SWP-A
⑦ MSWZSH
⑧ Urethane
⑨ 40 ~ 50HRC (Inside)
900HV ~ (Surface)
⑩ A90

①Case				④Pushing pin					⑤Mounting flange				Catalog No.		S	L		H		Spring free length FL	Base unit price 1~9 pieces	
D	G	G ₁	ℓ	M	R	U	M ₁	ℓ ₁	A	A ₁	B	d	Type	P		10mm increments	1mm increments				PAPZ	PAPZU
27.2	22	20	10	22	20	15	M6	9	70	52	40	11	PAPZ (Steel tip)	13	100	150~250	0≤H≤L-20		90	Quotation		
															150				125			
															200				150			
34.0	27	25	10	26	25	20	M8	12	80	60	50	11		16	100	150~350	0≤H≤L-20		90			
															150				125			
															200				150			
42.7	32	30	12	33	30	25	M10	15	90	70	60	13		20	250	180~500	0≤H≤L-20		175			
															300				200			
															350				250			
															400				300			
															450				350			
															500				400			
																			425			
																			450			
																			500			

For PAPZU, select an appropriate size so that the urethane tip does not enter the bushing.

S-ST>U



Order

Catalog No. — S — L — H — FL
PAPZ 16 — 150 — 220 — 190 — 200

■ Features • Because durability has been improved by adopting an oil-free bushing and a polished pin made of SKD61 (nitriding).



Days to Ship

Quotation



Price

Quotation

Quotation



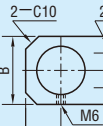
Alterations

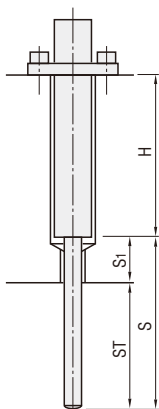


Catalog No. — S (SC) — L (LC) — H — FL — (SRC·TFC·TFS)

PAPZ 16 — SC148 — 220 — 190 — 200 — SRC

Alteration	Code	Spec.	1Code
	SC	④ Pushing pin length change $31 \leq SC < S$ 1mm increments	Quotation
	LC	① Case length change $75 \leq LC < L$ 1mm increments	
	SRC	④ Spherical surface machining to pushing pin tip Pin tip is machined to SR spherical surface.	

Alteration	Code	Spec.	1Code																														
	TFC	Mounting flange change Mounting flange is changed to round flange (for old PAP20). Flange thickness 15mm 🔗 Can be used for PAPZ20 and PAPZU20 only.	Quotation																														
	TFS	Mounting flange change Mounting flange is changed to one-side bolted flange. Flange thickness 15mm	<table><tr><th>P</th><th>A</th><th>A₁</th><th>A₂</th><th>B</th><th>B₁</th><th>d</th><th>1Code</th></tr><tr><td>13</td><td>60</td><td>20</td><td>25</td><td>38</td><td>20</td><td>11</td><td rowspan="3">Quotation</td></tr><tr><td>16</td><td>70</td><td>25</td><td>30</td><td>50</td><td>24</td><td>11</td></tr><tr><td>20</td><td>88</td><td>30</td><td>40</td><td>60</td><td>30</td><td>13</td></tr></table>	P	A	A ₁	A ₂	B	B ₁	d	1Code	13	60	20	25	38	20	11	Quotation	16	70	25	30	50	24	11	20	88	30	40	60	30	13
P	A	A ₁		A ₂	B	B ₁	d	1Code																									
13	60	20		25	38	20	11	Quotation																									
16	70	25		30	50	24	11																										
20	88	30	40	60	30	13																											

**■ Selecting FL, L, and S**

Consider a case in which pushing pin diameter $P=13\text{mm}$, pushing pin stroke $ST=100\text{mm}$, and spring initial deflection $f_1=25\text{mm}$, (Maximum deflection $f_{\text{max}}=100+25$).

(1) Selecting free length FL

$$FL \geq (ST + f_1) / 0.7$$

$$\geq (100 + 25) / 0.7$$

$$\geq 179\text{mm}$$

Select FL200 from the table.

(2) Selecting case length L

$$L \geq ST + (G + 4 + FL - f_{\text{max}} + \ell)$$

$$\geq 100 + (22 + 4 + 200 - 125 + 10)$$

$$\geq 211$$

Select $L=220\text{mm}$.

(3) Selecting protruding length S of pushing pin

Select $S=150$ from the table.

$$S_1 = S - ST = 150 - 100$$

$$= 50\text{mm}$$

$$\boxed{P} - \boxed{S} - \boxed{L} - \boxed{H} - \boxed{FL}$$

∴ Select PAPZ13-150-220-200-200.

In this case, the initial deflection, initial load, maximum load, and maximum stroke are the following.

$$\text{Initial deflection } f_1 = FL - (L - G - 4 - \ell) \quad \text{Initial load } P_1 = K \times f_1 = 0.27 [\text{N/mm}] \times 16 [\text{mm}]$$

$$= 200 - (220 - 22 - 4 - 10) = 4.3\text{N} [0.4\text{kgf}]$$

$$= 16\text{mm}$$

$$\text{Max. load } P_e = K \times f_{\text{max}}$$

$$= 0.27 \times (100 + 16)$$

$$= 31 [\text{N}] [3.2\text{kgf}]$$

$$\text{Max. stroke } ST = L - (G + 4 + FL - FL \times 0.7 + \ell)$$

$$= 220 - (22 + 4 + 200 - 140 + 10)$$

$$= 124\text{mm}$$

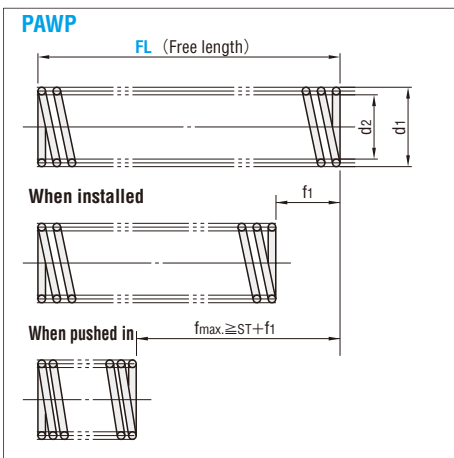
Initial deflection $f_1 = FL - (L - G - 4 - \ell)$

Initial load $P_1 = f_1 \times K$ (Spring constant)

Maximum deflection $f_{\text{max}} = FL \times 0.7$ (70% of maximum allowable deflection)

Spring free length

$$FL \geq f_{\text{max}} / 0.7 \geq (ST + f_1) / 0.7$$

■ Coil spring for PAPZ and PAPZU

Spring constant K N/mm (kgf/mm)	Max.		Effective minimum length fe = FL - fmax.	Outer diameter d1	Inner diameter d2	Wire diameter	Catalog No.	Base unit price
	Deflection fmax.	Load N (kgf)					Type No. — FL	
0.63 {0.064}	63	39.2 {4}	27	17	14.2	1.4	PAPW13— 90	Quotation
0.45 {0.046}	87.5		37.5				125	
0.37 {0.038}	105		45				150	
0.32 {0.033}	122.5		52.5				175	
0.27 {0.028}	140		60				200	
0.23 {0.023}	175	49.0 {5}	75	20	17	1.5	PAPW16— 90	
0.80 {0.082}	63		27				125	
0.55 {0.056}	87.5		37.5				150	
0.47 {0.048}	105		45				175	
0.39 {0.040}	122.5		52.5				200	
0.34 {0.035}	140	58.8 {6}	60	25.6	1.8	1.8	PAPW20— 90	
0.28 {0.029}	175		75				125	
0.24 {0.024}	210		90				150	
0.20 {0.02}	245		105				175	
0.95 {0.097}	63		27				200	
0.57 {0.058}	105	58.8 {6}	45	26	2.0	2.0	PAPW22— 90	
0.48 {0.049}	123		53				125	
0.42 {0.043}	140		60				150	
0.33 {0.034}	175		75				175	
0.28 {0.029}	210		90				200	
0.24 {0.024}	245	58.8 {6}	105	26	2.0	2.0	PAPW24— 90	
0.21 {0.021}	280		120				125	
0.20 {0.020}	298		128				150	
0.19 {0.019}	315		135				175	
0.17 {0.017}	350		150				200	

• Load [kgf] = Load N × 0.101972



Order

Catalog No.

PAWP 13-175



Days to Ship

Quotation



Price

Quotation

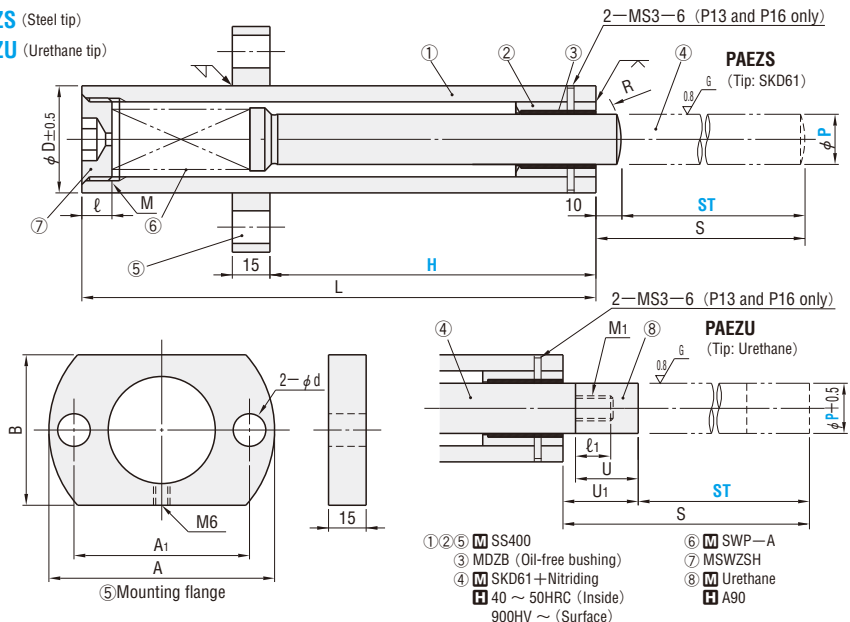
PRE-HOLDING PUSH PIN SETS

—ECONOMY TYPE—

RoHS

PAEZS (Steel tip)

PAEZU (Urethane tip)



①Case			④Pushing pins					⑤Mounting flange				Free length FL	Spring constant N/mm (kgf/mm)	Initial load N (kgf)	Maximum load	S		L	Catalog No.		ST	H 1mm increments	Base unit price 1 ~ 9 pieces	
D	ℓ	M	R	U	U ₁	M ₁	ℓ ₁	A	A ₁	B	d			N (kgf)		PAEZS	PAEZU		Type	P			PAEZS	PAEZU
27.2	10	22	20	15	20	M6	9	70	52	40	11	90	0.63 {0.064}	7.8 {0.8}	39.2 {4.0}	60	70	115	PAEZS (Steel tip)	13	50	0 ~ 95		
												175	0.32 {0.033}	7.8 {0.8}		110	120	190			100	0 ~ 170		
												270	0.21 {0.021}	7.8 {0.8}		160	170	270			150	0 ~ 250		
34.0	10	26	25	20	25	M8	12	80	60	50	11	90	0.80 {0.082}	9.8 {1.0}	49.0 {5.0}	60	75	120	PAEZU (Urethane tip)	16	50	0 ~ 100		
												175	0.39 {0.040}	9.8 {1.0}		110	125	195			100	0 ~ 175		
												270	0.26 {0.027}	9.8 {1.0}		160	175	275			150	0 ~ 255		
												350	0.20 {0.020}	8.8 {0.9}		210	225	350			200	0 ~ 330		
42.7	12	33	30	25	30	M10	15	90	70	60	13	90	0.95 {0.097}	9.8 {1.0}	58.8 {6.0}	60	80	130		20	50	0 ~ 110		
												175	0.48 {0.049}	9.8 {1.0}		110	130	205			100	0 ~ 185		
												260	0.32 {0.033}	9.8 {1.0}		160	180	280			150	0 ~ 260		
												350	0.23 {0.024}	9.8 {1.0}		210	230	360			200	0 ~ 340		
												425	0.20 {0.020}	8.8 {0.9}		260	280	430			250	0 ~ 410		

Quotation



Order

Catalog No. — ST — H
PAEZS 20 — 100 — 150



Days to Ship

Quotation



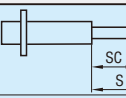
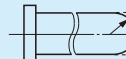
Price

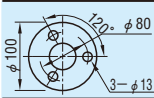
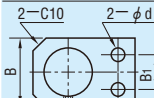
Quotation



Alterations

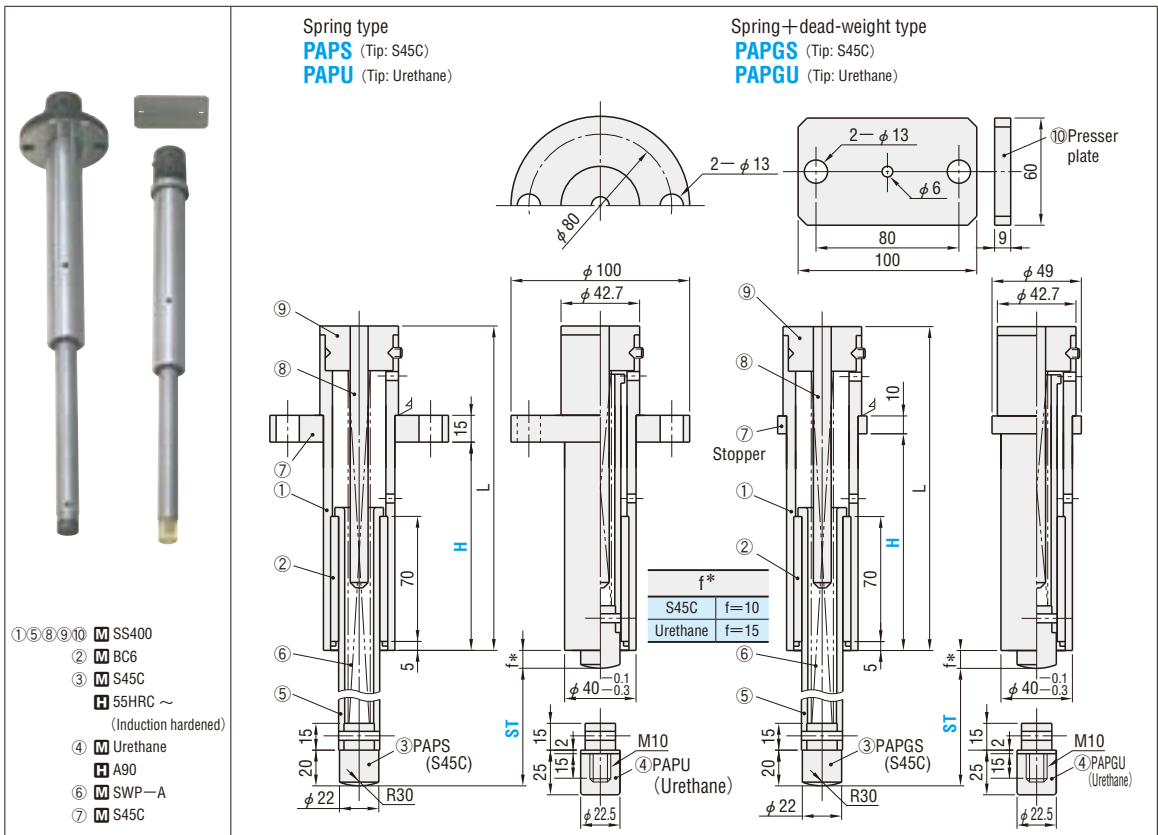
Catalog No. — ST — H — (SC·SRC·TFC·TFS)
PAEZU 20 — 150 — 220 — SC130

Alteration	Code	Spec.	1Code
	SC	④ Pushing pin length change 31 ≤ SC ≤ S 1mm increments	Quotation
	SRC	④ Spherical surface machining to pushing pin tip Can be used for PAEZS only. Pin tip is machined to SR spherical surface.	

Alteration	Code	Spec.	1Code																																
	TFC	Mounting flange change Mounting flange is changed to round flange (for old PAP20) . Flange thickness 15mm 🔴 Can be used for PAEZS20 and PAEZU20 only.	Quotation																																
	TFS	Mounting flange change Mounting flange is changed to one-side bolted flange. Flange thickness 15mm																																	
		<table><tr><th>P</th><th>A</th><th>A1</th><th>A2</th><th>B</th><th>B1</th><th>d</th><th>1Code</th></tr><tr><td>13</td><td>60</td><td>20</td><td>25</td><td>38</td><td>20</td><td>11</td><td></td></tr><tr><td>16</td><td>70</td><td>25</td><td>30</td><td>50</td><td>24</td><td>11</td><td></td></tr><tr><td>20</td><td>88</td><td>30</td><td>40</td><td>60</td><td>30</td><td>13</td><td>Quotation</td></tr></table>	P	A	A1	A2	B	B1	d	1Code	13	60	20	25	38	20	11		16	70	25	30	50	24	11		20	88	30	40	60	30	13	Quotation	
P	A	A1	A2	B	B1	d	1Code																												
13	60	20	25	38	20	11																													
16	70	25	30	50	24	11																													
20	88	30	40	60	30	13	Quotation																												

PRE-HOLDING PUSH PIN SETS

—LONG STROKE TYPE—



Spring constant N/mm (kgf/mm)	Initial load N (kgf)	Maximum load N (kgf)	Weight* [g]	L	Catalog No.		H 1mm increments	Base unit price 1~9 pieces	
					Type	Stroke ST		PAPS PAPGS	PAPU PAPGU
0.29 {0.029}	10.8 {1.1}	67 {6.9}	3550	312	Spring type PAPS PAPU	200	90~260		
0.26 {0.026}	10.8 {1.1}		3800	338		220	90~290		
0.24 {0.024}	8.8 {0.9}		4020	364	Spring+dead-weight type PAPGS PAPGU	250	90~310		
0.22 {0.022}	8.8 {0.9}		4180	390		270	90~340		
0.20 {0.021}	6.9 {0.7}		4400	414		300	90~360		

* Weight varies depending on the H dimension. (Weight of PAPGS and PAPGU)

Features

- The special structure allows longer strokes to be obtained.
- S45C or urethane can be selected for the pin tip material.
- With PAPGS or PAPGU (spring+dead-weight), longer strokes can be obtained than with ordinary pre-holding pins.



Order

Catalog No. — H

PAPU 200 — 230
PAPGS 200 — 250



Example

Spring type

Spring+dead-weight type



Days to Ship

Quotation



Price

Quotation

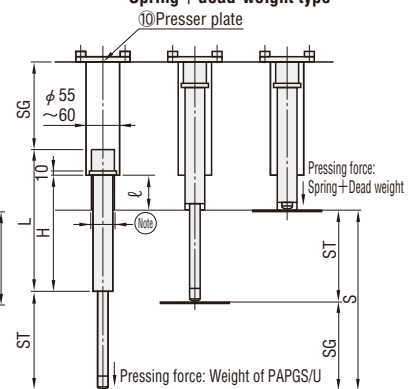
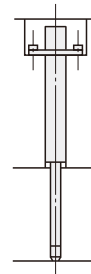


Alterations

Catalog No. — H — (SRC-PNC)

PAPGS 200 — 220 — SRC

Alteration	Code	Spec.	1Code
	SRC		
	PNC		

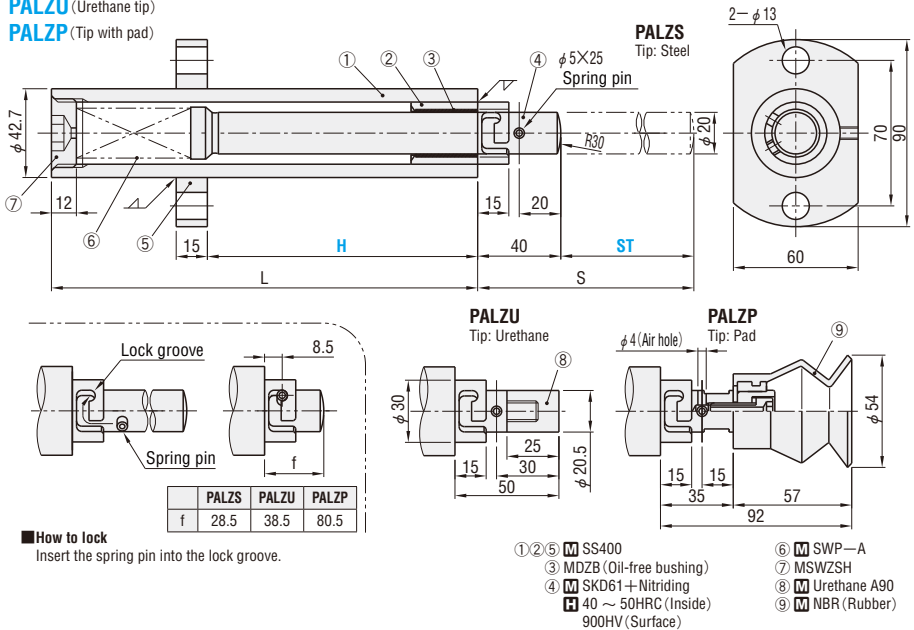


(Note) Recommended machining method for mounting holes (PAPGS, PAPGU).
 In order to use the die as a case guide, create smooth mounting holes using a φ40_{H7} reamer or end mill. (ℓ≥60)

PRE-HOLDING PIN SETS (WITH LOCK MECHANISM)

RoHS

PALZS (Steel tip)
PALZU (Urethane tip)
PALZP (Tip with pad)



Spring constant N/mm(kgf/mm)	Initial load N(kgf)	Maximum load N(kgf)	S			L	Catalog No.		ST	H 1mm increments	Base unit price 1~9 pieces		
			PALZS	PALZU	PALZP		Type	No.			PALZS	PALZU	PALZP
0.88{0.090}	0{0}	44.1{4.5}	90	100	142	150	PALZS (Steel tip) PALZU (Urethane tip) PALZP (Tip with pad)	20	50	0~130			
0.49{0.050}	0{0}	49.0{5.0}	140	150	192	210			100	0~190			
0.32{0.033}	0{0}	49.0{5.0}	190	200	242	285			150	0~265			
0.28{0.029}	0{0}	55.9{5.7}	240	250	292	355			200	0~335			
0.24{0.024}	0{0}	54.9{5.6}	290	300	342	415			250	0~395			



Order

Catalog No. — ST — H
 PALZS 20 — 150 — 120

Features

- Retracting the pin when moving the die or performing maintenance improves workability.
- A pad type which is less likely to scratch the workpiece has been added to the specifications.
- Because an oil-free bushing and a polished pin made of SKD61 (nitrided) are used.

Precautions

- Be careful not to move the pin in excess of the specified stroke. Doing so will damage the lock mechanism.
- Lock mechanism will be damaged if it moves acting as lock.



Days to Ship

Quotation



Price

Quotation



Alterations

Catalog No. — ST — H — (SC·SRC·TFC·TFS·SFC)
 PALZS 20 — 150 — 220 — SRC

Alteration	Code	Spec.	1Code
	SC	④ Pushing pin length change Can be used for PALZS and PALZU only. $61 \leq SC < S$ 1mm increments	
	SRC	④ Spherical surface machining to pushing pin tip Can be used for PALZS only. Pin tip R is machined to SR spherical surface.	
	TFC	Mounting flange change Mounting flange is changed to round flange Flange thickness 15mm	

Quotation

Alteration	Code	Spec.	1Code
	TFS	Mounting flange change Mounting flange is changed to one-side bolted flange. Flange thickness 15mm	
	SFC	Mounting flange change The flange diameter, width, and bolt pitch are changed.	

1Code

Quotation

1Code

Quotation

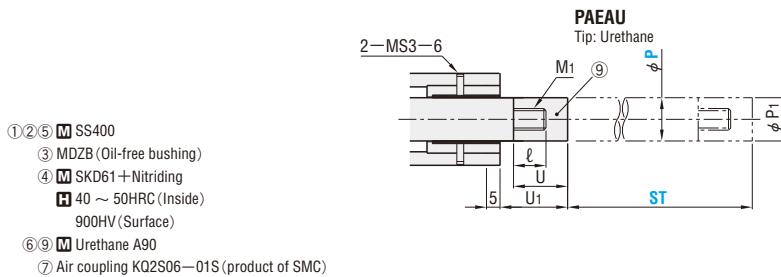
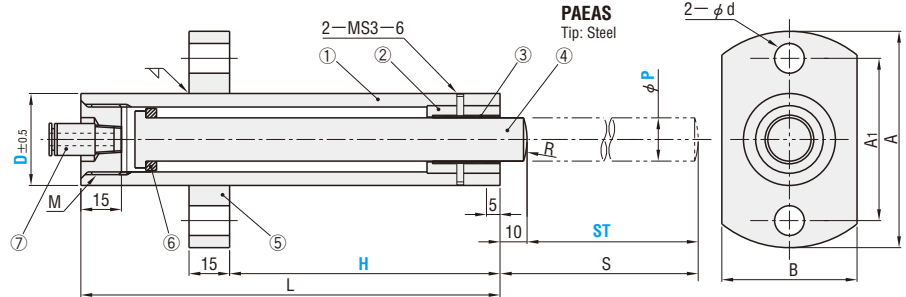
1Code

Quotation

PRE-HOLDING PIN SETS — AIR TYPE —

RoHS

PAEAS (Steel tip)
PAEAU (Urethane tip)



- ①②⑤ M SS400
- ③ MDZB (Oil-free bushing)
- ④ M SKD61 + Nitriding
- ⑧ 40 ~ 50HRC (Inside)
- 900HV (Surface)
- ⑥⑨ M Urethane A90
- ⑦ Air coupling KQ2S06—01S (product of SMC)

① Case			④ Pushing pins						⑦ Mounting flange				Pressing load N(kgf)			S		L	Catalog No.		ST	H		Base unit price 1~9 pieces	
D	M	G	R	U	U ₁	ℓ	M ₁	P ₁	A	A ₁	B	d	0.3MPa	0.4MPa	0.5MPa	PAEAS	PAEAU		Type	P		1mm increments	PAEAS	PAEAU	
27.2	22	22	20	15	20	9	M6	13.5	70	52	40	11	41.2 (4.2)	54.9 (5.6)	66.7 (6.8)	60	70	PAEAS (Steel tip)	13	50	0~ 80	Quotation			
																110	120			150	100		0~ 130		
																160	170			200	150		0~ 180		
34	26	27	25	20	25	12	M8	16.5	80	60	50		63.7 (6.5)	83.4 (8.5)	103 (10.5)	60	75			PAEAU (Urethane tip)	16		50	0~ 85	
																110	125						155	100	0~ 135
																160	175						205	150	0~ 185
													210	225	255	200	0~ 235								

* The pressing load values are provided for reference only.



Order

Catalog No. — ST — H
PAEAS 16 — 150 — 120



Days to Ship

Quotation



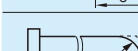
Price

Quotation



Alterations

Catalog No. — ST — H — (SC·SRC·TFS·JLC)
PAEAS 16 — 150 — 120 — SRC

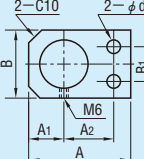
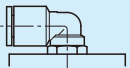
Alteration	Code	Spec.	1Code
	SC	④ Pushing pin length change $31 \leq SC < S$ 1mm increments	Quotation
	SRC	④ Spherical surface machining to pushing pin tip ❗ Can be used for PAEAS only. Pin tip R is machined to SR spherical surface.	

■ Features: The air-driven mechanism provides the following advantages.

- Saves space.
 - Because no spring is used, the full length is short.
 - Because the pressing load is large, the diameter can be reduced by 1 rank relative to the spring type.
- The pressing load can be easily adjusted by changing the air pressure.
- Because an oil-free bushing and a polished pin made of SKD61 (nitrided) are used.

■ Precautions

- Use air tubes with an outer diameter 6 mm and inner diameter 4 mm.
- Use dry compressed air.
- It can be made to perform pressure regulation of air.

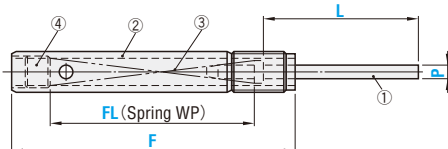
Alteration	Code	Spec.	1Code																							
	TFS	Mounting flange change Mounting flange is changed to one-side bolted flange. Flange thickness 15mm	<table><tr><th>P</th><th>A</th><th>A1</th><th>A2</th><th>B</th><th>B1</th><th>d</th><th>1Code</th></tr><tr><td>13</td><td>60</td><td>20</td><td>25</td><td>38</td><td>20</td><td>11</td><td rowspan="2">Quotation</td></tr><tr><td>16</td><td>70</td><td>25</td><td>30</td><td>50</td><td>24</td><td>11</td></tr></table>	P	A	A1	A2	B	B1	d	1Code	13	60	20	25	38	20	11	Quotation	16	70	25	30	50	24	11
P	A	A1	A2	B	B1	d	1Code																			
13	60	20	25	38	20	11	Quotation																			
16	70	25	30	50	24	11																				
	JLC	The provided one-touch pipe coupling is changed to an L-shape (elbow) type.	Quotation																							

PUSHING PIN SETS



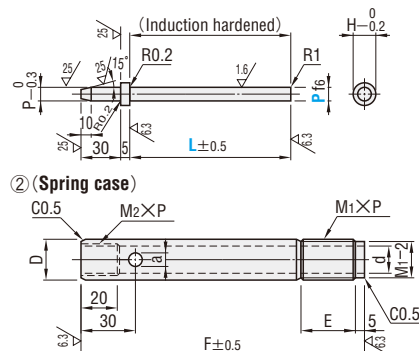
RoHS

PSPH (①②③④)



- ① **M** S45C
H 50HRC ~
 (Induction hardened on surface)
 ② **M** Seamless steel pipe

PSH (1)



Catalog No.		L	F	WP		PSPH Base unit price 1~9 pieces			PSH Base unit price 1~9 pieces		
Type	P			FL	L100	L150	L200	L100	L150	L200	
PSPH	8	100	150	100							
(1)(2)(3)(4)	10	200		125							
		150		150							
PSH	13	250		175							
(1)	16	200	300	200							
				250							
				300							



Order

Catalog No. — L — F — FL

PSPH 10	—	150	—	200	—	200
PSH 13	—	200				



Days to Ship

Quotation

**Price**

Quotation



Alterations

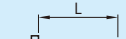
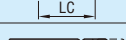


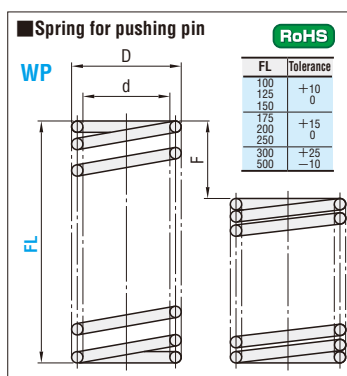
Catalog No. — **L (LC)** — **F (FC)** — **FL**

PSPH 10 — LC143 — FC193 — 200
PSH 13 — LC143



Quotation

Alteration	Code	Spec.	1Code										
	LC	Pushing pin ① length change $50 \leq LC < L$ 1mm increments	Quotation										
	FC	Spring case ② full length change $FC_{min.} \leq FC < F$ 1mm increments <table><tr><th>P</th><th>FC_{min.}</th></tr><tr><td>8</td><td>80</td></tr><tr><td>10</td><td>85</td></tr><tr><td>13</td><td>90</td></tr><tr><td>16</td><td>95</td></tr></table>		P	FC _{min.}	8	80	10	85	13	90	16	95
P	FC _{min.}												
8	80												
10	85												
13	90												
16	95												



Order

Catalog No.

WP 13—150



Days to Ship

Quotation

**Price**

Quotation

d	D	Wire diameter	Solid height	N/mm(kgt/mm)	F=L×70%		Catalog No.			Base unit price
					Fmm	N(kgt)	Type	No.	—	FL
8.5 or more	11.5 or less	0.9	23	0.30 (0.031)	70	21.3(2.2)	WP	8	—	100
			28	0.27 (0.028)	87.5	24.0(2.5)				125
			33	0.23 (0.023)	105	23.7(2.4)				150
			40	0.18 (0.018)	122.5	21.6(2.2)				175
			46	0.16 (0.016)	140	22.0(2.2)				200
			55	0.12 (0.012)	175	20.6(2.1)				250
			71	0.10 (0.010)	210	20.6(2.1)				300
			118	0.06 (0.006)	350	20.6(2.1)				500
10.5 or more	13.5 or less	1.0	23	0.37 (0.038)	70	26.1(2.7)	WP	10	—	100
			30	0.27 (0.028)	87.5	24.0(2.5)				125
			35	0.24 (0.024)	105	24.7(2.5)				150
			40	0.20 (0.020)	122.5	24.0(2.5)				175
			45	0.18 (0.018)	140	24.7(2.5)				200
			56	0.15 (0.015)	175	25.7(2.6)				250
			64	0.12 (0.012)	210	24.7(2.5)				300
			106	0.08 (0.008)	350	27.5(2.8)				500
13.5 or more	17 or less	1.2	17	0.59 (0.060)	70	41.2(4.2)	WP	13	—	100
			22	0.42 (0.043)	87.5	36.9(3.8)				125
			26	0.31 (0.032)	105	33.0(3.4)				150
			34	0.25 (0.025)	122.5	30.0(3.1)				175
			37	0.23 (0.023)	140	31.6(3.2)				200
			42	0.19 (0.019)	175	32.6(3.3)				250
			53	0.15 (0.015)	210	30.9(3.2)				300
			80	0.10 (0.010)	350	34.3(3.5)				500
16.5 or more	21 or less	1.4	18.9	0.54 (0.055)	70	37.8(3.9)	WP	16	—	100
			22.4	0.44 (0.045)	87.5	38.5(3.9)				125
			25.9	0.37 (0.038)	105	38.9(3.9)				150
			29.4	0.31 (0.032)	122.5	38.0(3.9)				175
			33.6	0.27 (0.028)	140	37.8(3.9)				200
			42	0.22 (0.022)	175	38.5(3.8)				250
			46.2	0.19 (0.019)	210	39.9(3.9)				300
			79.8	0.11 (0.011)	350	38.5(3.8)				500

Quotation

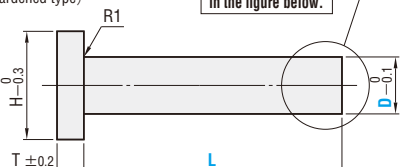
- Load {kgf}=Load {N} × 0.101972

PUSH-OUT PINS / DRAWING JECTOR PINS

Push-out pins RoHS



POP (Normal type)
HPOP (Induction-hardened type)

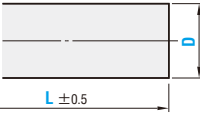


Select the tip shape from the shapes shown in the figure below.

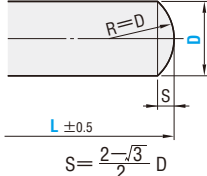
Type	M	H
POP	S45C	20 ~ 25HRC
HPOP	S45C	50HRC ~ (Induction hardened)

Tip shapes

N (No tip machining)

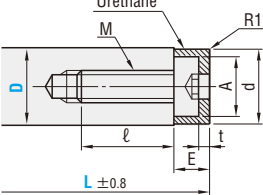


R (Rounding)



$S = \frac{2 - \sqrt{3}}{2} D$

U (With urethane cap)



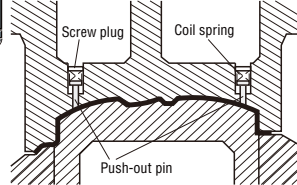
D	M	ℓ	t	d	A	B	E
8	3	5	3	7.5	5.5	2.5	6
10	4	6	3	9.5	7	3	7
13	5	7	4	12.5	8.5	4	9
16	6	8	4	15	10	5	10
20	8	10	5	19	13	6	13
25	10	12	5	24	16	8	15

❗ Urethane cap and bolt are bonded by Loctite.
Bolt
M SCM435
 ※Strength class 10.9
S Bright chromate
Urethane
H Shore A90 (Black)

H	T	Catalog No.			L	Base unit price 1~9 pieces						
		Type	Tip machining	D		POP			HPOP			
					10mm increments	N	R	U		N	R	U
18	8	POP	N R U	8	30~120							
25				10	40~150							
28				13	50~180							
30	10	HPOP (Induction-hardened type)		16	50~180	Quotation						
35				20	50~200							
40				25	50~200							

Quotation

ex



■ Screw plug (MSW) P.687
■ Coil spring P.965

Alterations

Catalog No. — L (LC)
 POP R 16 — LC114

Order

Days to Ship

Price

Catalog No.

Type

Tip machining

D

—

L

POP

R

16

—

100

Quotation

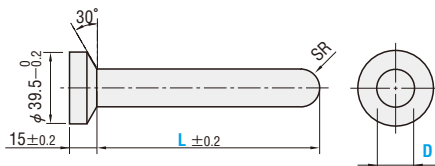
Quotation

Alteration	Code	Spec.	1Code
	LC	L dimension change Lmin. < LC < Lmax. 1mm increments	Quotation

Drawing jector pins RoHS



DHPA

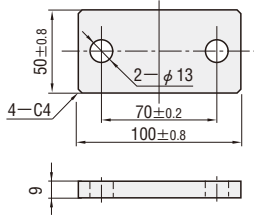


M S45C
H 55HRC ~ (Induction hardened)

Covers for drawing jector pins RoHS



DHPF100



M SS400

Catalog No.		L	Base unit price 1~9 pieces
Type	D		
DHPA	20	120	Quotation
		170	
	26	220	
		200	

Catalog No.		Base unit price 1~9 pieces
DHPF100		
		Quotation

Order

Days to Ship

Price

Catalog No.

DHPA 20

DHPF 100

—

120

Quotation

Quotation

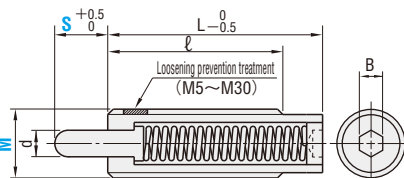
SPRING PLUNGERS

Spring plungers —Steel type—

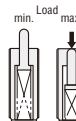
RoHS



Type			Main body			Pins			Spring	Service temp. range
			M	H	S	M	H	S	M	
Steel nose	For light load	PJL	S45C	29 ~ 35HRC	Black oxide (Fe ₃ O ₄)	S45C	57 ~ 63HRC (Carburizing)	Bright chromate	SWP—B	-30° ~ 80°
	For heavy load	PJH			Nickel plating			Black oxide		
	For extremely heavy load	PJX								



- Thread-locking adhesive is not applied on M3 and M4.
- Loosening prevention treatment involves fastening by means of an anaerobic adhesive that is sealed in microcapsules. It loosens its effect once loosened. Therefore anaerobic adhesive must be applied to the threads again.
- The adhesive is most effective if left on the part for 72 hours or more in 25°C. Note if the parts are left for short period of time and in low temperature, the thread-lock will be less effective.



d	ℓ	L		B	For light load (PJL)			For heavy load (PJH)			For extremely heavy load (PJX)			Catalog No.		Base unit price 1~49 pieces		
		Light and heavy load	Extremely heavy load		min.	N(kgf) Load	max.	min.	N(kgf) Load	max.	min.	N(kgf) Load	max.	Type	M (Coarse thread)	S	PJL PJH	PJX
1.1	10 (15)	10	15	0.9	0.49 (0.05)	1.0 (0.1)	0.78 (0.08)	2.9 (0.3)	2.2 (0.2)	4.5 (0.5)				PJL PJH PJX (Those with * mark only)	3	* 1.5		
1.1	15 (20)	15	20	0.9	0.29 (0.03)	1.0 (0.1)	0.78 (0.08)	2.9 (0.3)	1.8 (0.2)	4.5 (0.5)						* 3		
1.6	15 (24)	15	24	1.3	1.0 (0.1)	2.0 (0.2)	2.9 (0.3)	8.8 (0.9)	5.2 (0.5)	13 (1.3)						* 2		
1.6	24	24	24	1.3	0.59 (0.06)	2.0 (0.2)	2.0 (0.2)	8.8 (0.9)	5.2 (0.5)	13 (1.3)						* 4		
2.0	20 (27)	20	27	1.5	2.0 (0.2)	9.8 (1.0)	4.9 (0.5)	19.6 (2.0)	9.1 (0.9)	24.5 (2.5)						* 3		
2.0	27 (39)	27	39	1.5	2.0 (0.2)	9.8 (1.0)	2.9 (0.3)	19.6 (2.0)	8.8 (0.9)	24.8 (2.5)						* 5		
2.5	25 (30)	25	30	2	5.9 (0.6)	9.8 (1.0)	7.8 (0.8)	29.4 (3.0)	14.2 (1.4)	39.5 (4.0)						* 3		
2.5	30 (36)	30	36	2	2.0 (0.2)	9.8 (1.0)	4.9 (0.5)	29.4 (3.0)	14.1 (1.4)	39.4 (4.0)						* 5		
2.5	30	39	—	2	1.4 (0.14)	9.8 (1.0)	5.0 (0.5)	28.0 (3.0)	—	—						* 10		
3.1	25 (27)	25	27	2.5	5.9 (0.6)	9.8 (1.0)	14.7 (1.5)	29.4 (3.0)	35.3 (3.6)	41.2 (4.2)						* 3		
3.1	27 (30)	27	35	2.5	2.9 (0.3)	9.8 (1.0)	7.8 (0.8)	29.4 (3.0)	14.7 (1.5)	41.2 (4.2)						* 5		
3.1	30	43	—	2.5	3.0 (0.3)	9.8 (1.0)	7.0 (0.7)	28.8 (3.0)	—	—						* 10		
3.8	30	30	35	3	5.9 (0.6)	14.7 (1.5)	8.8 (0.9)	49.0 (5.0)	15.7 (1.6)	62.8 (6.4)						* 5		
3.8	30	43	53	3	2.9 (0.3)	14.7 (1.5)	7.8 (0.8)	49.0 (5.0)	12.7 (1.3)	62.8 (6.4)						* 10		
3.8	30	58	—	3	2.9 (0.3)	14.7 (1.5)	6.2 (0.6)	48.7 (5.0)	—	—						* 15		
5.5	30 (35)	30	43	4	5.9 (0.6)	14.7 (1.5)	6.2 (0.6)	48.7 (5.0)	37.2 (3.8)	98.1 (10.0)					PJL PJH PJX (Those with * mark only)	* 5		
5.5	35	43	58	4	2.9 (0.3)	19.6 (2.0)	7.8 (0.8)	49.0 (5.0)	14.7 (1.5)	98.1 (10.0)						* 10		
5.5	35	51	78	4	2.9 (0.3)	19.6 (2.0)	4.9 (0.5)	49.0 (5.0)	14.9 (1.5)	98.1 (10.0)						* 15		
5.5	35	78	—	4	3.5 (0.3)	19.6 (2.0)	6.9 (0.7)	49.0 (5.0)	—	—						* 20		
8	35	60	60	5	5.9 (0.6)	39.2 (4.0)	12.7 (1.3)	78.5 (8.0)	23.5 (2.4)	147.2 (15.0)						* 10		
8	35	60	70	5	3.9 (0.4)	39.2 (4.0)	12.7 (1.3)	78.5 (8.0)	21.6 (2.2)	147.2 (15.0)						* 15		
8	35	85	90	5	4.9 (0.5)	39.2 (4.0)	9.8 (1.0)	78.5 (8.0)	12.7 (1.3)	147.2 (15.0)						* 20		
8	35	125	125	5	2.9 (0.3)	39.2 (4.0)	6.9 (0.7)	78.5 (8.0)	19.6 (2.0)	147.2 (15.0)						* 30		
8	35	125	—	5	4.9 (0.5)	39.2 (4.0)	6.9 (0.7)	78.5 (8.0)	—	—						* 40		
8	35	155	—	5	19.6 (2.0)	49.0 (5.0)	29.4 (3.0)	78.5 (8.0)	—	—						* 50		
8	35	159	—	5	2.9 (0.3)	49.0 (5.0)	3.9 (0.4)	78.5 (8.0)	—	—						* 60		
8	35	185	—	5	3.4 (0.35)	49.0 (5.0)	5.5 (0.56)	78.5 (8.0)	—	—						* 70		
8	35	185	—	5	19.6 (2.0)	49.0 (5.0)	29.4 (3.0)	93.2 (9.5)	—	—						* 80		
10	45	60	80	6	12.7 (1.3)	78.5 (8.0)	24.5 (2.5)	147.1 (15.0)	12.7 (1.3)	245.3 (25.0)						* 15		
10	45	72	—	6	11.7 (1.2)	78.5 (8.0)	22.6 (2.3)	147.1 (15.0)	—	—						* 20		
10	45	96	—	6	11.7 (1.2)	78.5 (8.0)	22.6 (2.3)	147.1 (15.0)	—	—						* 30		
10	45	120	—	6	11.7 (1.2)	78.5 (8.0)	22.6 (2.3)	147.1 (15.0)	—	—						* 40		
10	45	60	—	10	19.6 (2.0)	98.1 (10.0)	44.1 (4.5)	196.1 (20.0)	—	—						* 7		
10	45	60	84	10	19.6 (2.0)	98.1 (10.0)	47.1 (4.8)	215.7 (22.0)	24.5 (2.5)	314.0 (32.0)						* 15		
10	45	75	—	10	17.7 (1.8)	98.1 (10.0)	44.1 (4.5)	215.7 (22.0)	—	—						* 20		
10	45	100	—	10	17.7 (1.8)	98.1 (10.0)	44.1 (4.5)	215.7 (22.0)	—	—						* 30		
10	45	124	—	10	17.7 (1.8)	98.1 (10.0)	44.1 (4.5)	215.7 (22.0)	—	—						* 40		
14	45	66	—	14	27.5 (2.8)	117.7 (12.0)	44.1 (4.5)	274.6 (28.0)	—	—						* 15		
14	45	78	—	14	27.5 (2.8)	117.7 (12.0)	53.0 (5.4)	274.6 (28.0)	—	—						* 20		
14	45	100	—	14	27.5 (2.8)	117.7 (12.0)	45.1 (4.6)	274.6 (28.0)	—	—						* 30		
14	45	123	—	14	27.5 (2.8)	117.7 (12.0)	47.1 (4.8)	274.6 (28.0)	—	—						* 40		

Quotation

Values in () for ℓ dimension apply to PJX for extremely heavy load.

(kgf) = N × 0.101972



Order

Catalog No.
PJL12-5



Days to Ship

Quotation



Price

Quotation

Wrenches for spring plungers

PJG



RoHS

M S45C
H 35~43HRC
S Black oxide (Fe₃O₄)

M	Catalog No.	Base unit price 1 ~ 9 pieces
5~6	PJG1	Quotation
8~10	PJG2	
	PJG2A (for flanged ones)	
12	PJG3	
16	PJG4	
20~24	PJG5	
30	PJG6	



Order

Catalog No.

PJG1



Days to Ship

Quotation



Example

Spring plungers M3, M4
(flat head screwdriver)



Spring plungers M5 ~ M30
(special wrench PJG)



SPRING PLUNGERS

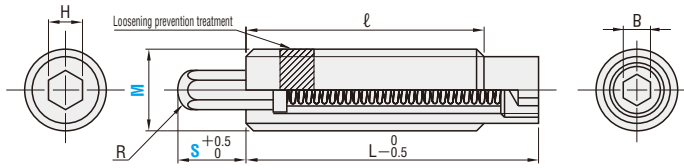
—HEX PIN TYPE / WRENCHES FOR HEX PINS / TYPE FOR SLANTED SURFACES—

Hex pin type

RoHS



Type	Main body			Pin			Spring	Service temperature range
	M	H	S	M	H	S	M	
For light load	PJLR							
For heavy load	PJHR	S45C	29 ~ 35HRC	Black oxide	S45C	57 ~ 63HRC Carburizing	Bright chrome Black oxide	SWP-B -30° ~ 80°



■ Features of PJLR and PJHR Because the pin shape is hexagonal, the pins can be installed using a wrench. No special wrench is required.

① Loosening prevention treatment involves fastening by means of an anaerobic adhesive that is sealed in microcapsules. It loses its effect once loosened. Therefore anaerobic adhesive must be applied to the threads again.
② The adhesive is most effective if left on the part for 72 hours or more in 25°C. Note if the parts are left for short period of time and in low temperature, the thread-lock will be less-effective.

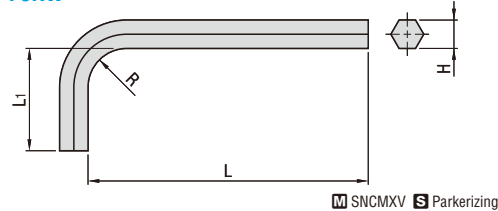
M×P (Coarse thread)	H	R	S	ℓ	L	B	PJLR		PJHR		Catalog No.		Base unit price
							min. N (kgf)	max.	min. N (kgf)	max.	Type	M-S	1~19 pieces
10×1.5	4	1.9	5	30	30	3	5.9 (0.6)	14.7 (1.5)	8.8 (0.9)	49.0 (5.0)	PJLR	10-5	Quotation
			10		43	3	2.9 (0.3)	14.7 (1.5)	7.8 (0.8)	49.0 (5.0)		10-10	
12×1.75	5	2.9	5		30	4	5.9 (0.6)	14.7 (1.5)	18.6 (1.9)	49.0 (5.0)		12-5	
			10		43	4	2.9 (0.3)	19.6 (2.0)	7.8 (0.8)	49.0 (5.0)		12-10	
			15		51	4	2.9 (0.3)	19.6 (2.0)	4.9 (0.5)	49.0 (5.0)		12-15	
			10		60	5	5.9 (0.6)	39.2 (4.0)	12.7 (1.3)	78.5 (8.0)		16-10	
16×2.0	7	4.1	15	35	60	5	3.9 (0.4)	39.2 (4.0)	12.7 (1.3)	78.5 (8.0)		16-15	
			20		85	5	4.9 (0.5)	39.2 (4.0)	9.8 (1.0)	78.5 (8.0)		16-20	
			30		125	5	2.9 (0.3)	39.2 (4.0)	6.9 (0.7)	78.5 (8.0)		16-30	
			50		155	5	19.6 (2.0)	49.0 (5.0)	29.4 (3.0)	78.5 (8.0)		16-50	
			80		185	5	19.6 (2.0)	49.0 (5.0)	29.4 (3.0)	93.2 (9.5)		16-80	
			7		60	10	19.6 (2.0)	98.1 (10.0)	44.1 (4.5)	196.1 (20.0)		24-7	
24×3.0	10	15	15	45	60	10	19.6 (2.0)	98.1 (10.0)	47.1 (4.8)	215.7 (22.0)	PJHR	24-15	
30×3.5	13	7.6	20	45	78	14	27.5 (2.8)	117.7 (12.0)	53.0 (5.4)	274.6 (28.0)		30-20	

Wrenches for hex pins

RoHS

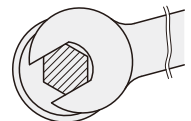


PJRW



■ SNCMV S Parkerizing

H	L	L ₁	R	Catalog No.		Base unit price
				Type	No.	1~19 pieces
7	95	34	7	PJRW	16	Quotation
13	132	50	13		30	



Order
Catalog No.
PJHR 10-10
PJRW 16



Days to Ship
Quotation



Price
Quotation

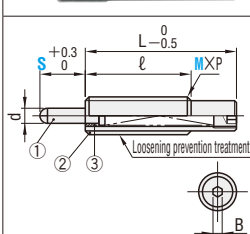
■ Features of PJLR and PJHR

- Because the pin shape is hexagonal, the pins can be installed using a socket wrench or an open wrench.
- If the pin is dented due to spring damage, the special wrench (PJRW) can be used to remove the pin. For M10, 12, and 24, use a commercially-available wrench.

■ Spring plungers for slanted surfaces

PJHZ (For slanted surfaces)

RoHS



M×P (Coarse thread)	d	S	ℓ	L	B	Load W (N/kgf)		Catalog No.		Base unit price
						min.	max.	Type	M-S	1~19 pieces
10×1.5	4	10	30	43	3	7.8 (0.8)	49.0 (5.0)	PJHZ	10-10	Quotation
12×1.75	5	15	35	43	4	7.8 (0.8)	49.0 (5.0)		12-10	
12×1.75	5	15	35	51	4	4.9 (0.5)	49.0 (5.0)		12-15	
16×2.0	8	10	35	60	5	12.7 (1.3)	78.5 (8.0)		16-10	
16×2.0	8	15	35	60	5	12.7 (1.3)	78.5 (8.0)		16-15	
16×2.0	8	20	35	85	5	9.8 (1.0)	78.5 (8.0)		16-20	
16×2.0	8	30	35	125	5	6.9 (0.7)	78.5 (8.0)		16-30	

■ PJHZ features

- The special structure improves resistance to wear and seizure, allowing use on slanted surfaces. (Conventional spring plungers should be used at 0° (oil-free types) or 5° or less (oil types).)
- Can be used oil-free.
- Angles of use: 0 ~ 30°

Test conditions

Press machine: 20 ton crank press

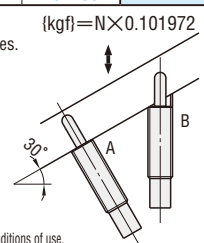
Speed: 130SPM

Slant angle: 30°

Lubrication: None

(Note) The test results are from the specific conditions listed above. The actual lifetime will vary depending on the conditions of use.

Type	Lifetime	
	A	B
PJHZ16-30	Minimum 300,000 strokes	Minimum 300,000 strokes
PJH16-30	Scuffing occurs at 17,000 strokes.	Scuffing occurs at 50,000 strokes.



Order
Catalog No.
PJHZ 12-10



Days to Ship
Quotation

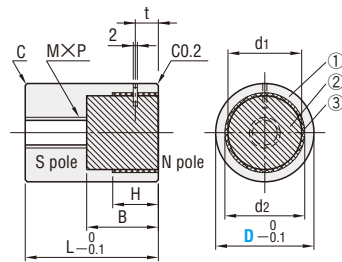


Price
Quotation

MAGNETS

RoHS

MG



- ① M SS400
② M Alnico magnet
③ M Brass (C3604BD) Heat resistance 80°C

L	M×P	* Adsorption N [kgf]	Surface magnetic flux density Gauss [G]	d ₁	d ₂	B	C	H	t	Catalog No.		Base unit price	
										Type	D	1~19 pieces	
15	5×0.8	5.9 {0.6}	1100~1300	6	8	7	0.5	5	2.5	MG	10	Quotation	
15	5×0.8	11.8 {1.2}		8	10.5						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					20		
30	8×1.25	44.1 {4.5}	1300~1700	15.5	18	13	1.5	9	6.5		25		
30	8×1.25	78.5 {8.0}	1400~1700	20	23.5	15					28		

Load [kgf] = Load [N] × 0.101972

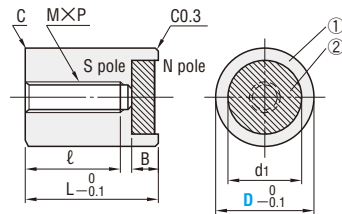
* Adhesive force: See the page at right (figure at bottom)

⚠ Because magnets are broken easily, do not alter them.

⚠ The end face is finished by grinding.

RoHS

MGN (Strong, corrosion-resistant type)



- ① M SS400
S Electroless nickel plating
② M Neodymium magnet Heat resistance 80°C

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

Load [kgf] = Load [N] × 0.101972

* Adhesive force: See the page at right (figure at bottom)

⚠ Because magnets are broken easily, do not alter them.

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



Order

Catalog No.

MG 13
HX 20



Days to Ship

Quotation



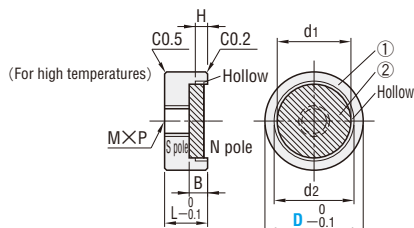
Price

Quotation



RoHS

HX
HXH



	HX	HXH
①	SS400	
②	Cobalt magnet	
③	—	Raydent treatment
Heat resistance	80°C	200°C

L	M×P	* Adhesive force N [kgf]	Surface magnetic flux density Gauss [G]	d1	d2	B	H	Catalog No.		Base unit price 1~19 pieces	
								Type	D	HX	HXH
6	3×0.5	2.9 [0.3]	2100~2600	4	5	2.0	1.5	HX Heat resistance: 80℃	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	HXH Heat resistance: 200℃	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

① Because magnets are broken easily, do not alter them.

② The magnet and holder are fastened by an adhesive.

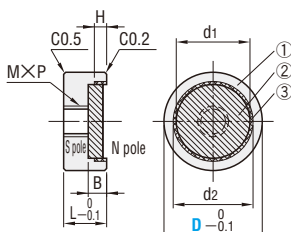
③ The magnetic surface is recessed by 0.1 ~ 0.3 from the case.

* Adhesive force: See the page at right (figure at bottom)



RoHS

HXU



- ① M SS400
② M Cobalt magnet Heat resistance 80°C
③ M Brass (C3604BD)

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

Load [kgf] = Load [N] × 0.101972

① Because magnets are broken easily, do not alter them.

② The magnet and holder are fastened by an adhesive.

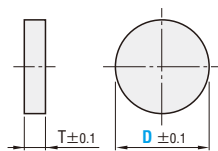
③ The magnetic surface is recessed by 0.1 ~ 0.3 from the case.

* Adhesive force: See the page at right (figure at bottom)



RoHS

HXMB



M Cobalt magnet

Heat resistance 200°C

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

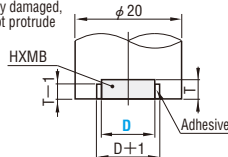
Load [kgf] = Load [N] × 0.101972

① Magnets are extremely brittle and are easily broken. Handle them with suitable care.

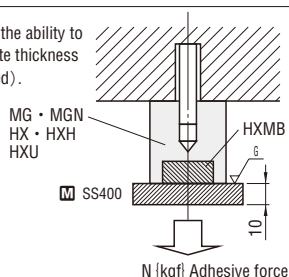
② Use adhesive to fasten the magnet in place.

* Adhesive force: See the page at right (figure at bottom)

① Because the magnets are easily damaged, fasten them so that they do not protrude from the holder.



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

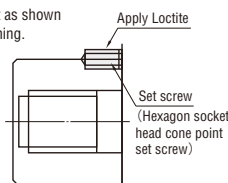


Example

How to mount

After press fitting, mount the magnet as shown in the figure to prevent it from loosening.

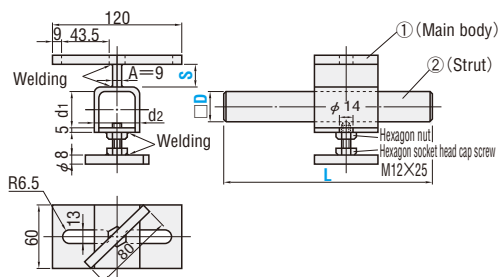
Hole machining (reference)	
D _{H7}	
20	+0.021
25	0
30	0
35	+0.025
40	0



SQUARE SKID BRACKETS / ROUND SKID BRACKETS

RoHS

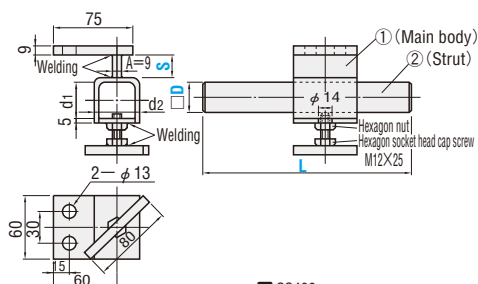
STB
STB—N (①+②)
(① only)



M SS400
S Black oxide (Fe_3O_4)

RoHS

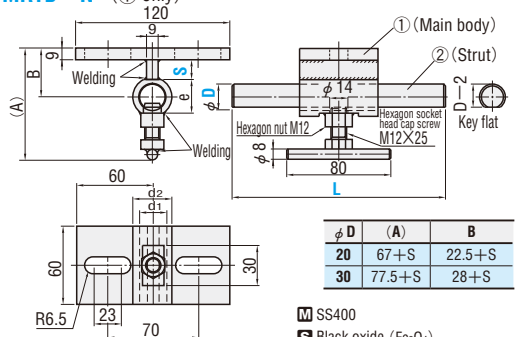
STBY
STBY—N (①+②)
(① only)



M SS400
S Black oxide (Fe_3O_4)

RoHS

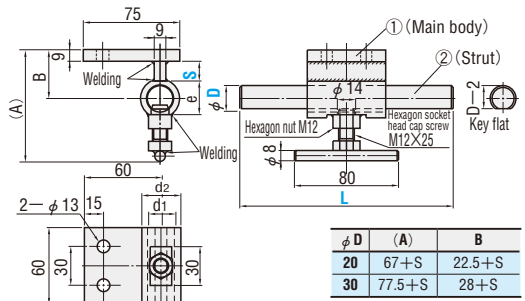
MRTB
MRTB—N (①+②)
(① only)



M SS400
S Black oxide (Fe_3O_4)

RoHS

MRTBY
MRTBY—N (①+②)
(① only)



M SS400
S Black oxide (Fe_3O_4)

d1	d2	Catalog No.		10mm increments		Base unit price 1 ~ 9 pieces	
		Type	D	L	S	STB STBY	STB—N STBY—N
33	33	STB	20				
45	44	STB—N	32				
33	33	STBY	20	100~300	0~150	Quotation	
45	44	STBY—N	32				

When S=10 only, then A=20 (D20) or A=32 (D32).



Order

Catalog No.	L	S
STB 20	100	100
STB—N 32	40	



Days to Ship

Quotation

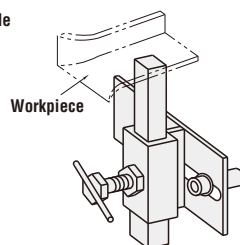


Price

Quotation



Example



e	d1	d2	Catalog No.		10mm increments		Base unit price 1 ~ 9 pieces	
			Type	D	L	S	MRTB MRTBY	MRTB—N MRTBY—N
26.0	21	30	MRTB	20				
37.5	32	40	MRTB—N	30				
26.0	21	30	MRTBY	20	100~300	0~150	Quotation	
37.5	32	40	MRTBY—N	30				



Order

Catalog No.	L	S
MRTB 20	100	100
MRTB—N 30	40	



Days to Ship

Quotation



Price

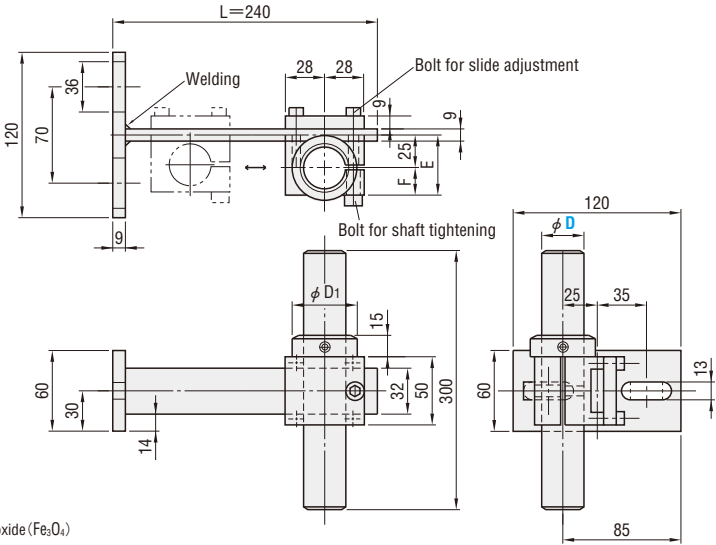
Quotation

SKID BRACKETS WITH SLIDE ADJUSTMENT FUNCTION



RoHS

SCTB

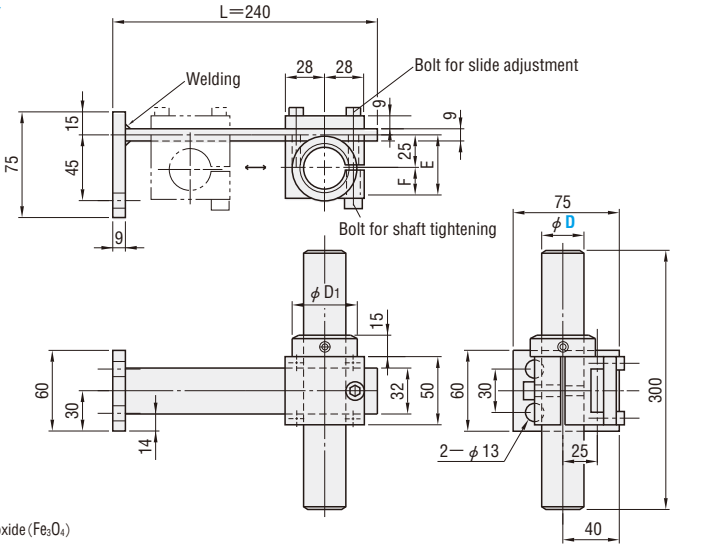


M SS400
S Black oxide (Fe₂O₄)



RoHS

SCTBY



M SS400
S Black oxide (Fe₂O₄)

E	F	D1	Catalog No.		Base unit price 1 ~ 9 pieces	
			Type	D	SCTB	SCTBY
40	15	32	SCTB	20	Quotation	
45	20	46	SCTBY	30		



Order

Catalog No.

SCTB 30



Alterations



Catalog No.

(LC)

SCTB 20

LC100



Days to Ship

Quotation



Price

Quotation

Alteration	Code	Spec.	1Code
	LC	Reduction of L dimension 80 ≤ LC ≤ 235 5mm increments	Quotation