

RETAINERS

RETAINERS



Product name Catalog No.	HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL HDP—A□ HDP—F□		HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL —FOR HEAVY-LOAD PUNCHES—	HEAVY DUTY SQUARE RETAINER SETS FOR HIGH-TENSILE STEEL HSR—□□ HSA—□□	
Page	616		617	618	



END RETAINER SETS FOR NC MACHINING — 25MM THICK TYPE — —SPACE SAVING, SINGLE BOLT TYPE FOR PUNCHES WITH LOCATING DOWEL HOLES—	END RETAINER SETS FOR EDGE-MATCHING MACHINING — 25 MM THICK TYPE — —SPACE SAVING, SINGLE BOLT TYPE FOR PUNCHES WITH LOCATING DOWEL HOLES—		END RETAINER SETS FOR NC MACHINING DP—A□ DP—F□	END RETAINER SETS FOR EDGE-MATCHING MACHINING CP—A□ CP—F□	
619	620		621	622	



END RETAINER SETS FOR NC MACHINING —FOR HEAVY-LOAD PUNCHES—	END RETAINER SETS FOR EDGE-MATCHING MACHINING —FOR HEAVY-LOAD PUNCHES—		END RETAINER SETS FOR NC MACHINING — 25 MM THICK TYPE — —TRIANGLE TYPE—	END RETAINER SETS FOR NC MACHINING — 32 MM THICK TYPE — —TRIANGLE TYPE—	
623	624		625	626	



SQUARE RETAINER SETS SR—□□ SA—□□	RETAINER BACKING PLATES BPC		SELECT RETAINER SETS —COMPACT AIR TYPE—	SELECT RETAINER SETS —STANDARD AIR TYPE—	
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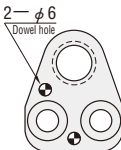
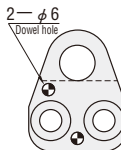
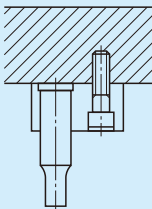
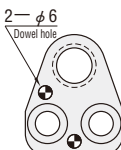
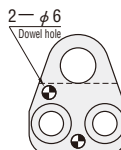
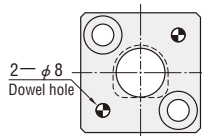
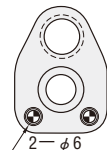
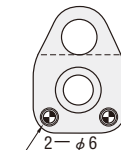
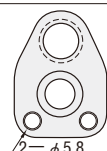
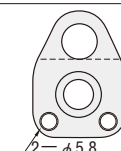
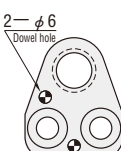
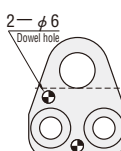
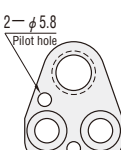
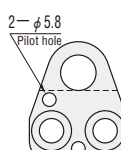
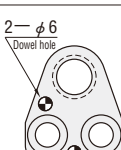
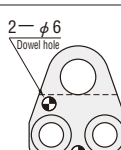
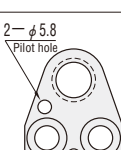
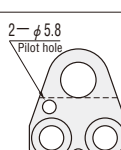


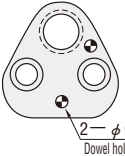
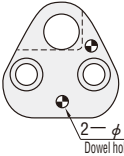
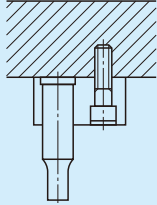
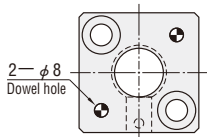
SELECT RETAINER SETS —STANDARD MANUAL TYPE—	SELECT RETAINER SETS —AIR TYPE FOR HEAVY LOAD—		SPECIAL RETAINER SETS —FIXED SIZE TYPE—	SPECIAL RETAINER SETS —CONFIGURABLE SIZE TYPE—	
633	634		635	637	



BUSHINGS FOR PUNCH HOLE POSITION ADJUSTMENT PCWB	URETHANE FALL-STOPPER UNITS PQSP USPP USQP		URETHANE STRIPPERS FOR FALL-OUT PREVENTION UNITS US	PROTECTION RINGS FOR URETHANE STRIPPERS USR		URETHANE STRIPPERS TUS USN
639	640		641	641		643 644

RETAINERS — GUIDE —






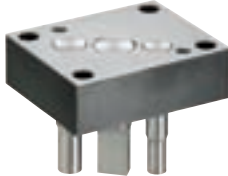
Type		Shape		Retainer body thickness	Locating method	Mounting method
		For round punch/die	For shaped punch			
Heavy duty type for high-tensile steel	End retainers for NC machining			30	Punch locating is performed by means of the two dowel holes in the retainer.	
	End retainers for NC machining —For heavy load—			35	Punch locating is performed by means of the two dowel holes in the retainer.	
	Square retainers			30	Punch locating is performed by means of the two dowel holes in the retainer.	
	Square retainers —For heavy load—			35		
Single fixing-bolt type	End retainers for NC machining			25	Punch locating is performed by means of the two dowel holes in the retainer.	
	End retainer for edge-matching machining			25	Punch locating is performed by machining a matching hole at the retainer dowel hole after the edges of the punch and die have been matched. (Note 1)	
Double fixing-bolts type	End retainers for NC machining			30	Punch locating is performed by means of the two dowel holes in the retainer.	
	End retainer for edge-matching machining			30	Punch locating is performed by machining a matching hole at the retainer dowel hole after the edges of the punch and die have been matched. (Note 1)	
	End retainers for NC machining —For heavy load—			30	Punch locating is performed by means of the two dowel holes in the retainer.	
	End retainers for edge-matching machining —For heavy load—			30	Punch locating is performed by machining a matching hole at the retainer dowel hole after the edges of the punch and die have been matched. (Note 1)	

Type		Shape		Retainer body thickness	Locating method	Mounting method
		For round punch/die	For shaped punch			
Triangle type	End retainers for NC machining			25 32	Punch locating is performed by means of the two dowel holes in the retainer.	
Square type	Square retainers Square retainers —For heavy load—			30		

(Note 1) Matching-hole machining: Dowel hole machining without using NC is performed by installing the retainer with punch mounted onto the upper die, aligning the punch and die edges, then using a drill to create a hole while the retainer is attached. A reamer is then used to simultaneously machine the retainer and upper die.

(Note 2) Correct use of end retainers and square retainers

With a square retainer, the punch is inserted at the center of the shape. As a result, this type provides superior balance. However there are many cases in which the holes that will actually be machined in the product are close together and a square retainer cannot be used due to space problems. End retainers are used in such cases when there is insufficient mounting space.

Select retainers	Compact air type	Standard air type	Standard manual type	Air type for heavy load
				
	Stroke	ST=10mm		
	Shaft dia.	D=10・13・16・20		
Special retainers	Fixed size type	Configurable size type		
				

HEAVY DUTY RETAINER SETS FOR HIGH-TENSILE STEEL

— GUIDE —

■ What are heavy duty retainers for high-tensile steel?

These are products which were developed for punching of high-tensile steel or other heavy loads. During punching of high-tensile steel or other heavy loads, the retainer may become deformed, causing the punch to become loose and reducing the punch lifetime. The use of high-strength material in these heavy duty retainers for high-tensile steel prevents the retainer from becoming deformed.

■ Deformation of the retainer during punching of high-tensile steel or heavy load

During punching of high-tensile steel or other heavy loads, problems occur which reduce the punch lifetime, such as rapid wear, chipping, and breakage of the punch tip. One cause of these problems is deformation of the retainer. When the retainer punch hole becomes deformed, it lacks sufficient strength to support the punch, and looseness of the tip occurs. As a result, it becomes impossible to maintain the correct clearance between the punch and die, causing uneven tip wear and chipping, and reducing the punch lifetime. (Fig. 1) There are two major causes of retainer deformation.

1. Deformation caused by excessive punching load

During punching of high-tensile steel or other heavy loads, the punch is subjected to large amounts of stress. This causes repeated expansion and contraction of the punch. The pressure caused by this expansion and contraction acts on the retainer, resulting in deformation. (Fig. 2) In addition, retainer deformation may also be caused by factors such as thrust loads resulting from tilting or uneven clearance.

2. Deformation caused by repeated mounting/demounting of punch

During punching of high-tensile steel or other heavy loads, tip wear occurs faster, and frequent maintenance is necessary. Repeated mounting/demounting of the punch for maintenance may result in damage to and deformation of the retainer, which has a hardness that is lower than that of the punch. (Fig. 3)

■ Features of heavy duty retainers for high-tensile steel

In order to resolve the problems described above, the material used for heavy duty retainers for high-tensile steel has been changed from S45C (raw material) to a material equivalent to SCM440 (hardness 36 ~ 44 HRC). Comparing the mechanical properties of S45C and SCM440 (Table 1) shows that SCM440 has a higher hardness, yield stress, and tensile strength, as well as superior wear resistance and breakage resistance, making it less likely to deform.

These properties of heavy duty retainers for high-tensile steel help to prevent retainer deformation and extend the punch lifetime.

[Table 1] Mechanical properties of S45C (raw material) and SCM440

Material	Hardness [HRC]	Yield stress [MPa]	Tensile strength [MPa]
S45C (raw material)	21 or less	345 or more	570 or more
SCM440	36 ~ 44	835 or more	980 or more

* Partially excerpted from former standards JIS G4051 and G4105 (1979).

■ Applications

1. Punching of high-tensile steel or other heavy loads

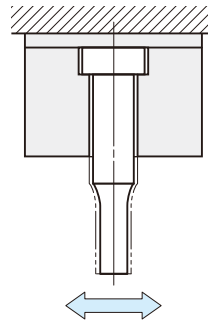
These heavy duty retainers for high-tensile steel deliver superior performance when the stress at the punch shank during punching exceeds approximately 500 MPa.

Consider the following service conditions as an approximate guide. Tensile strength of workpiece material $\sigma \times$ Plate thickness $t \geq 1800$ [MPa·mm] (Fig. 4)

Example: If the tensile strength of the workpiece material is 590 MPa and the plate thickness is 13.2, the stress will be $590 \times 3.2 = 1888$ [MPa·mm], a figure in excess of 1800 [MPa·mm]. This indicates that the use of a heavy duty retainer for high-tensile steel is suitable.

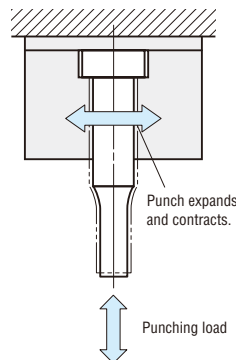
2. Dies used for large production counts

In cases when the production count is 1 million shots or more and the die part durability is increased in order to reduce maintenance costs, the use of a heavy duty retainer for high-tensile steel is suitable.

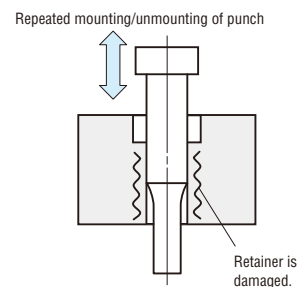


[Fig. 1] Decrease in punch lifetime due to retainer deformation

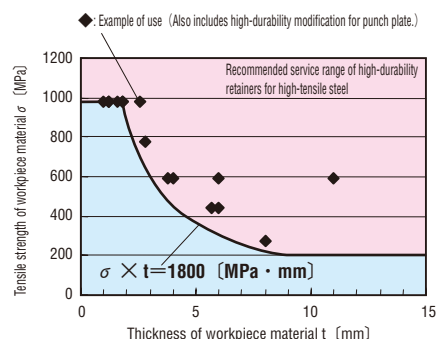
Retainer punch hole deformation
↓
Insufficient punch support
↓
Loose punch tip
↓
Loss of correct clearance between punch and die
↓
Uneven wear or chipping of tip



[Fig. 2] Retainer deformation caused by excessive punching load



[Fig. 3] Retainer deformation caused by repeated mounting/demounting of punch



[Fig. 4] Recommended service range and example of use for heavy duty retainers for high-tensile steel

HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL

—FOR NC MACHINING • PUNCHES WITH LOCATING DOWEL HOLES—

For round punch



Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
HDP—AP	HA1	○	○	○	○	○
HDPAR	HA2	○	○	○	○	○
BPC	—	○	○	○	○	○
HDP—AN	HA3	○	○	○	○	○

For shaped punch



Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
HDP—FP	HF1	○	○	○	○	○
HDPFR	HF2	○	○	○	○	○
BPC	—	○	○	○	○	○
HDP—FN	HF3	○	○	○	○	○

—For round punch—

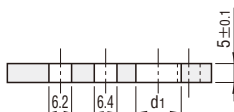
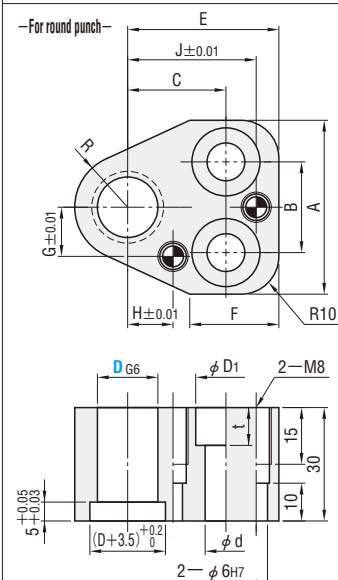


—For shaped punch—

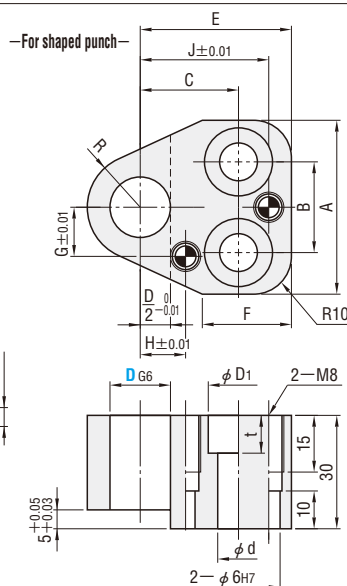


RoHS

—For round punch—



—For shaped punch—



- ① M Equivalent to SCM440
- ② H 36 ~ 44HRC
- ③ S Black oxide (Fe₃O₄)
- ④ M SK4
- ⑤ H 56 ~ 60HRC
- ⑥ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	t	d ₁	A ③④⑤
Type	Type																
—For round punch—	—For shaped punch—	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	③M8—40 ④MSTM6—30 ⑤MSW8
HDP—AP (①②③④⑤)	HDP—FP (①②③④⑤)	13	+0.017 +0.006	43	26	23	38		13	11	32	12	17	11	12	12	③M10—40 ④MSTM6—30 ⑤MSW8
HDPAR (①③④⑤)	HDPFR (①③④⑤)	16		44	24	26	40		13	12	34	14					
BPC (②)	BPC (②)	20	+0.020 +0.007	48	28	27	42		16	14	36	17					
HDP—AN (①)	HDP—FN (①)	25		50	30	30	46		18	17	39	19.5					



Order

Catalog No.

HDP—AP 25



Price

Quotation



Days to Ship

Quotation

HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL

— FOR NC MACHINING • PUNCHES FOR HEAVY LOAD —

For round punch



Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
HAP—AP	JA1	○	○	○	○	○
HAPAR	JA2	○	○	○	○	○
BPC	—	○	○	○	○	○
HAP—AN	JA3	○	○	○	○	○

For shaped punch



Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
HAP—FP	JF1	○	○	○	○	○
HAPFR	JF2	○	○	○	○	○
BPC	—	○	○	○	○	○
HAP—FN	JF3	○	○	○	○	○

— For round punch —

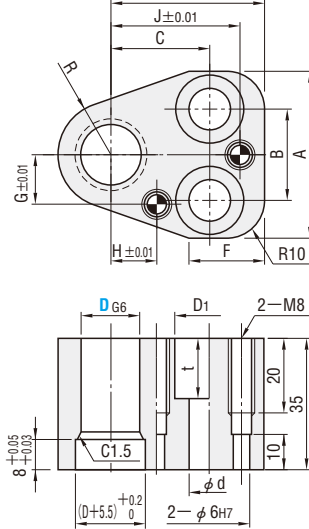


— For shaped punch —

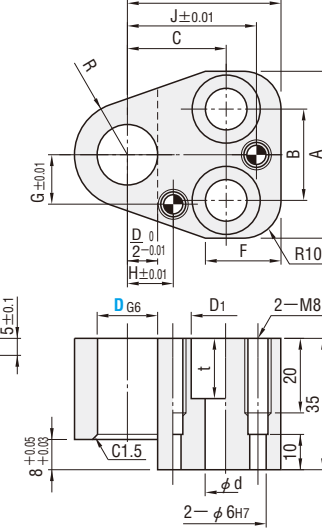


RoHS

— For round punch —



— For shaped punch —



- ① M Equivalent to SCM440
- ② H 36~44HRC
- ③ S Black oxide (Fe_3O_4)
- ④ M SK4
- ⑤ H 56~60HRC
- ⑥ Socket cap head screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	d ₁	t	A ③④⑤
Type																	
—For round punch— HAP—AP (1 2 3 4 5) HAPAR (1 3 4 5) BPC (2) HAP—AN (1)	—For shaped punch— HAP—FP (1 2 3 4 5) HAPFR (1 3 4 5) BPC (2) HAP—FN (1)	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	15	③ M8—40 ④ MSTM6—30 ⑤ MSW8
		13	+0.017 +0.006	43	26	23	38		13	11	32	12					
		16		44	24	26	40		12	34	14						
		20	+0.020 +0.007	48	28	27	42		16	14	36	17					
		25		50	30	30	46		18	17	39	19.5					



Order

Catalog No.

HAP—AP 10



Price

Quotation



Days to Ship

Quotation

HEAVY DUTY SQUARE RETAINER SETS FOR HIGH-TENSILE STEEL

—For heavy-load punches—

A D R E G

Type	Catalog No.	Retainer No.	Components				
			①	②	③	④	⑤
A	HSR—AP	MA1	○	○	○	○	○
	HMPSP	MA2	○	○	○	○	○
	HSR—AN	MA3	○	○	○	○	○
	HSR—FP	MF1	○	○	○	○	○
D	HMPDR	MF2	○	○	○	○	○
	MPSP	—	○	○	○	○	○
	HSR—FN	MF3	○	○	○	○	○
	HSR—FN	MF3	○	○	○	○	○

—For heavy-load punches—

A D R E G

Type	Catalog No.	Retainer No.	Components				
			①	②	③	④	⑤
A	HSA—AP	LA1	○	○	○	○	○
	HASAR	LA2	○	○	○	○	○
	HSR—AN	LA3	○	○	○	○	○
	HSA—FP	LF1	○	○	○	○	○
D	HASFR	LF2	○	○	○	○	○
	MPSP	—	○	○	○	○	○
	HSR—FN	LF3	○	○	○	○	○
	HSR—FN	LF3	○	○	○	○	○

For heavy-load punches

Retainer for round punch (A) does not include a key slot.

① M Equivalent to SCM440
 H 36~44HRC
 S Black oxide (Fe₃O₄)

② M SK4
 H 56~60HRC

③ Socket cap head screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	A ③④⑤
Type						
—For heavy load—		10	+0.014 +0.005	45	23	③ M10—40 ④ MSTM8—30 ⑤ MSW10
HSR—AP (①②③④⑤)	HSA—AP (①②③④⑤)	13	+0.017 +0.006			
HSR—FP (①②③④⑤)	HSA—FP (①②③④⑤)					
HMPSP (①③④⑤)	HASAR (①③④⑤)	16		52	30	
HMPDR (①③④⑤)	HASFR (①③④⑤)					
MPSP (②)	MPSP (②)	20	+0.020 +0.007			
HSR—AN (①)	HSA—AN (①)					
HSR—FN (①)	HSA—FN (①)	25		56	34	



Order

Catalog No.
HSR—AP 25



Days to Ship

Quotation



Price

Quotation

END RETAINER SETS FOR NC MACHINING 25 MM THICK TYPE

—SPACE-SAVING, SINGLE BOLT TYPE FOR PUNCHES WITH LOCATING DOWEL HOLES—

For round punch

Catalog No.	Retainer No.	①	②	③	④	⑤
SP—APS	SA1	○	○	○	○	○
SPARS	SA2	○	○	○	○	○
BPST	—	○	○	○	○	○
SP—ASN	SA3	○	○	○	○	○

For shaped punch

Catalog No.	Retainer No.	①	②	③	④	⑤
SP—FPS	SF1	○	○	○	○	○
SPFRS	SF2	○	○	○	○	○
BPST	—	○	○	○	○	○
SP—FSN	SF3	○	○	○	○	○

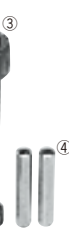
—For round punch—



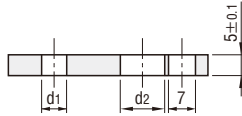
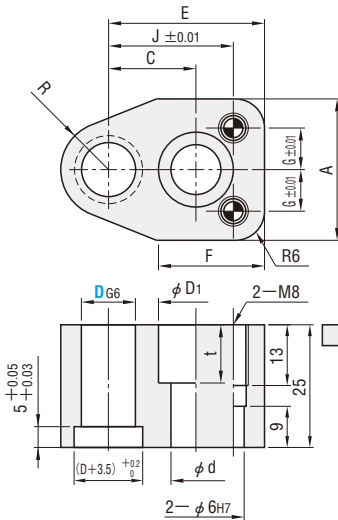
—For shaped punch—



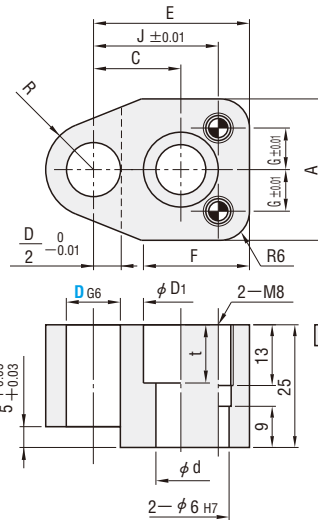
RoHS



—For round punch—



—For shaped punch—



- ① M S45C
- ② S Black oxide (Fe₃O₄)
- ③ M SK4
- ④ H 56~60HRC
- ⑤ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	C	E	F	G	J	R	D ₁	d	t	d ₂	d ₁	A ③④⑤
Type																
—For round punch—	—For shaped punch—	10	+0.014 +0.005	34	22	38	26	12	31.5	11.5	19	13	13	14	6.2	③ M12—35 ④ MSTM6—30 ⑤ MSW8
SP—APS (①②③④⑤)	SP—FPS (①②③④⑤)	13	+0.017 +0.006	36	26	45	33	12	39	14	25	17	17	18	6.2	③ M16—35 ④ MSTM6—30 ⑤ MSW8
SPARS (①③④⑤)	SPFRS (①③④⑤)	16		36	26	45	33	12	39	14	25	17	17	18	6.2	③ M16—35 ④ MSTM6—30 ⑤ MSW8
BPST (②)	BPST (②)															
SP—ASN (①)	SP—FSN (①)															



Order

Catalog No.

SP—APS 13



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR EDGE-MATCHING MACHINING 25 MM THICK TYPE

—SPACE-SAVING, SINGLE BOLT TYPE FOR PUNCHES WITH LOCATING DOWEL HOLES—

For round punch

Catalog No.	Components				
	①	②	③	④	⑤
TP—APS	○	○	○	○	○
TPARS	○		○	○	○
BPST		○			
TP—ASN	○				

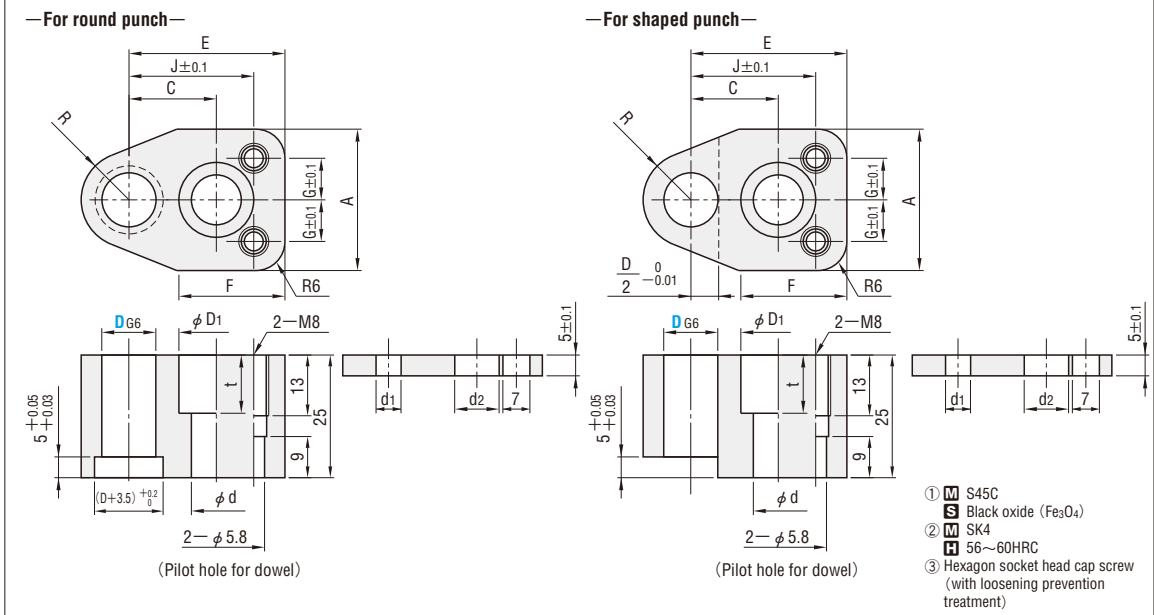
For shaped punch

Catalog No.	Components				
	①	②	③	④	⑤
TP—FPS	○	○	○	○	○
TPFRS	○			○	○
BPST		○			
TP—FSN	○				

—For round punch—

—For shaped punch—

RoHS



Catalog No.		D ₆₆	A	C	E	F	G	J	R	D ₁	d	t	d ₂	d ₁	A ③④⑤		
Type	D																
—For round punch— TP—APS (①②③④⑤)	—For shaped punch— TP—FPS (①②③④⑤)	10	+0.014 +0.005	34	22	38	26	12	31.5	11.5	19	13	13	14	6.2	③ M12—35 ④ MSTM6—30 ⑤ MSW8	
TPARS (①③④⑤)	TPFRS (①③④⑤)	13	+0.017 +0.006														
BPST (②)	BPST (②)	16															
TP—ASN (①)	TP—FSN (①)			36	26	45	33		39	14	25	17	17	18			③ M16—35 ④ MSTM6—30 ⑤ MSW8



Order

Catalog No.

TPARS 16



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR NC MACHINING

—FOR PUNCHES WITH LOCATING DOWEL HOLES—

For round punch·round button die

For round	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤
For punch	DA1	DP—AP	○	○	○	○	○
	DA2	DPAR	○	○	○	○	○
	—	BPC	○	○	○	○	○
Button die	—	DP—AD	○	○	○	○	○
	—	BDC	○	○	○	○	○
Body only	DA3	DP—AN	○	○	○	○	○

For shaped punch·shaped button die

For shaped	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤
For punch	DF1	DP—FP	○	○	○	○	○
	DF2	DPFR	○	○	○	○	○
	—	BPC	○	○	○	○	○
Button die	—	DP—FD	○	○	○	○	○
	—	BDC	○	○	○	○	○
Body only	DF3	DP—FN	○	○	○	○	○

—For round punch/die—

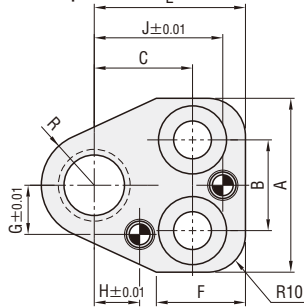


—For shaped punch/die—

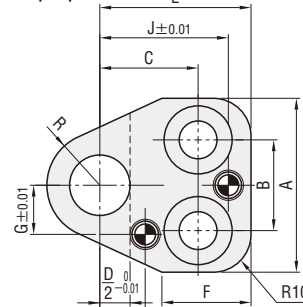


RoHS

—For round punch/die—



—For shaped punch/die—



- ① M S45C
- ② S Black oxide (Fe₃O₄)
- ③ M SK4
- ④ 56 ~ 60HRC
- ⑤ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.																d ₁		A ③④⑤
Type	D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	t	d ₂	BPC	BDC	
—For round punch/die—	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	6.2	7.4	③ M8—40 ④ MSTM6—30 ⑤ MSW8
DP—AP (①②③④⑤)	13	+0.017 +0.006	43	26	23	38		13	11	32	12						9.4	④ MSTM6—30 ⑤ MSW8
DP—AD (①②③④⑤)	16	+0.020 +0.007	44	24	26	40		16	14	36	17						11.6	③ M10—40 ④ MSTM6—30 ⑤ MSW8
DPAR (①③④⑤)	20		48	28	27	42		18	17	39	19.5						13.6	③ M12—40 ④ MSTM6—30 ⑤ MSW8
DPFR (①③④⑤)	25		50		30	46		21	20	42	23						17.6	③ M12—40 ④ MSTM6—30 ⑤ MSW8
BPC (②)	32		54	30	33	48		23	23	46	26						21.6	③ M12—40 ④ MSTM6—30 ⑤ MSW8
BDC (②)	38	+0.025 +0.009	58		35	52		26	27	50	29.5	19	13	14	14	10.2	27.6	③ M12—40 ④ MSTM6—30 ⑤ MSW8
DP—AN (①)	45		64	34	38	56											37.0	③ M12—40 ④ MSTM6—30 ⑤ MSW8
DP—FP (①②③④⑤)																		
DP—FD (①②③④⑤)																		
BPC (②)																		
BDC (②)																		
DP—FN (①)																		



Order

Catalog No.

DP—AP 25



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR EDGE-MATCHING MACHINING

For round punch·round button die

For round	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤
For punch	CA1	CP—AP	○	○	○	○	○
	CA2	CPAR	○		○	○	○
	—	BPC		○			
Button die	—	CP—AD	○	○	○	○	○
	—	BDC		○			
Body only	CA3	CP—AN	○				

For shaped punch·shaped button die

For shaped	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤
For punch	CF1	CP—FP	○	○	○	○	○
	CF2	CPFR	○		○	○	○
	—	BPC		○			
Button die	—	CP—FD	○	○	○	○	○
	—	BDC		○			
Body only	CF3	CP—FN	○				

—For round punch/die—

—For shaped punch/die—

RoHS

—For round punch/die—

(Pilot hole for dowel)

—For shaped punch/die—

(Pilot hole for dowel)

① M S45C
S Black oxide (Fe₃O₄)
② M SK4
H 56 ~ 60HRC
③ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		Type														d1		A ③④⑤		
		Type	D	D G6	A	B	C	E	F	G	H	J	R	D ₁	d	t	d ₂	BPC	BDC	
—For round punch/die—		CP—AP	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	6.2	7.4	③ M8—40
—For shaped punch/die—		CP—FP	13	+0.017 +0.006	43	26	23	38		13	11	32	12						9.4	④ MSTM6—30
		CP—AD	16		44	24	26	40			12	34	14							⑤ MSW8
		(①②③④⑤)																		
		CPAR	20	+0.020 +0.007	48	28	27	42		16	14	36	17		17	11	12	12	11.6	③ M10—40
		(①③④⑤)								18	17	39	19.5						13.6	④ MSTM6—30
		CPFR	25		50		30	46		21	20	42	23						17.6	⑤ MSW8
		BPC	32		54	30	33	48		23	23	46	26		19	13	14	14	21.6	③ M12—40
		(②)								26	27	50	29.5						27.6	④ MSTM6—30
		BDC	38	+0.025 +0.009	58		35	52											37.0	⑤ MSW8
		(②)																		
		CP—AN	45		64	34	38	56												
		(①)																		
		CP—FN																		
		(①)																		



Order

Catalog No.

CP—AP 25



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR NC MACHINING

—FOR HEAVY-LOAD PUNCHES—

For round punch



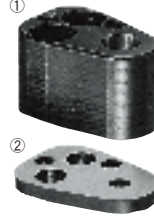
Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
AP—AP	AA1	○	○	○	○	○
APAR	AA2	○	○	○	○	○
BPC	—	○	○	○	○	○
AP—AN	AA3	○	○	○	○	○

For shaped punch



Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
AP—FP	AF1	○	○	○	○	○
APFR	AF2	○	○	○	○	○
BPC	—	○	○	○	○	○
AP—FN	AF3	○	○	○	○	○

—For round punch—

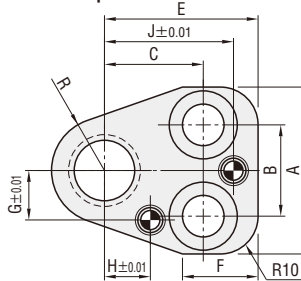


—For shaped punch—

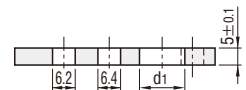
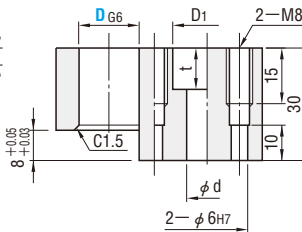
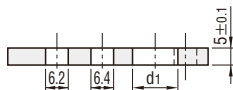
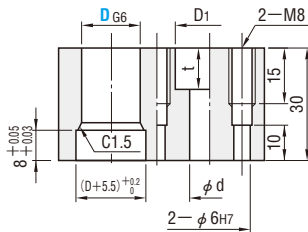
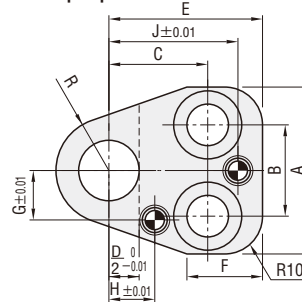


RoHS

—For round punch—



—For shaped punch—



- ① M S45C
- S Black oxide (FeSO₄)
- ② M SK4
- H 56~60HRC
- ③ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	d ₁	t	A ③④⑤
Type																	
—For round punch—	—For shaped punch—	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	③ M8—40 ④ MSTM6—30 ⑤ MSW8
AP—AP (①②③④⑤)	AP—FP (①②③④⑤)	13	+0.017 +0.006	43	26	23	38		13	11	32	12					17
APAR (①③④⑤)	APFR (①③④⑤)	16		44	24	26	40			12	34	14					
BPC (②)	BPC (②)	20	+0.020 +0.007	48	28	27	42		16	14	36	17					
AP—AN (①)	AP—FN (①)	25		50	30	30	46		18	17	39	19.5					



Order

Catalog No.

AP—AP 10



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR EDGE-MATCHING MACHINING

—FOR HEAVY-LOAD PUNCHES—

For round punch



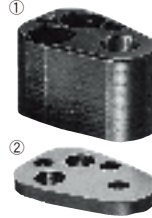
Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
FP—AP	FA1	○	○	○	○	○
FPAR	FA2	○	○	○	○	○
BPC	—	○	○	○	○	○
FP—AN	FA3	○	○	○	○	○

For shaped punch



Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
FP—FP	FF1	○	○	○	○	○
FPFR	FF2	○	○	○	○	○
BPC	—	○	○	○	○	○
FP—FN	FF3	○	○	○	○	○

—For round punch—

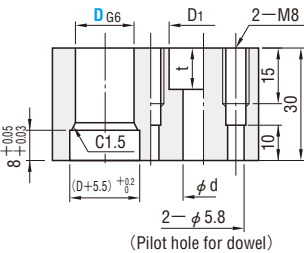
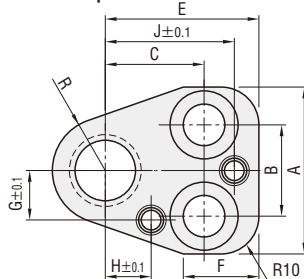


—For shaped punch—

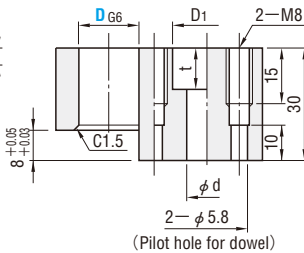
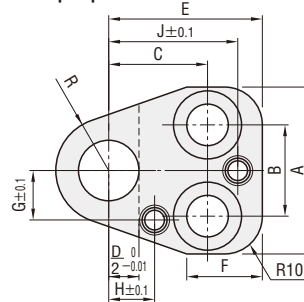


RoHS

—For round punch—



—For shaped punch—



- ① M S45C
- S Black oxide (Fe3O4)
- ② M SK4
- H 56~60HRC
- ③ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	d ₁	t	A ③④⑤
Type																	
—For round punch—	—For shaped punch—	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	③ M8—40 ④ MSTM6—30 ⑤ MSW8
FP—AP (①②③④⑤)	FP—FP (①②③④⑤)	13	+0.017 +0.006	43	26	23	38		13	11	32	12					
FPAR (①③④⑤)	FPFR (①③④⑤)	16		44	24	26	40			12	34	14	17	11	12	14	③ M10—40 ④ MSTM6—30 ⑤ MSW8
BPC (②)	BPC (②)	20	+0.020 +0.007	48	28	27	42		16	14	36	17					
FP—AN (①)	FP—FN (①)	25		50	30	30	46		18	17	39	19.5					



Order

Catalog No.

FP—AP 10



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR NC MACHINING 25 MM THICK TYPE

— TRIANGLE TYPE —

For round punch-round button die

For round	Retainer No.	Catalog No.	①	②	③	④	⑤
For punch	NA1	25CRN-AP	○	○	○	○	○
	NA2	25CRNAR	○	○	○	○	○
	—	CRNBP	○	○	○	○	○
Button die	—	25CRN-AD	○	○	○	○	○
	—	CRNBD	○	○	○	○	○
Body only	NA3	25CRN-A	○	○	○	○	○

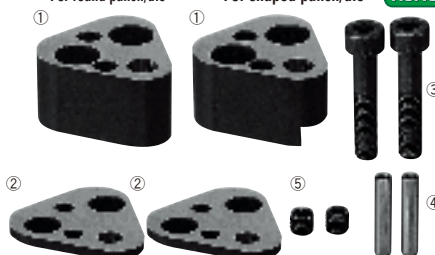
For shaped punch-shaped button die

For shaped	Retainer No.	Catalog No.	①	②	③	④	⑤
For punch	NF1	25CRN-FP	○	○	○	○	○
	NF2	25CRNFR	○	○	○	○	○
	—	CRNBP	○	○	○	○	○
Button die	—	25CRN-FD	○	○	○	○	○
	—	CRNBD	○	○	○	○	○
Body only	NF3	25CRN-F	○	○	○	○	○

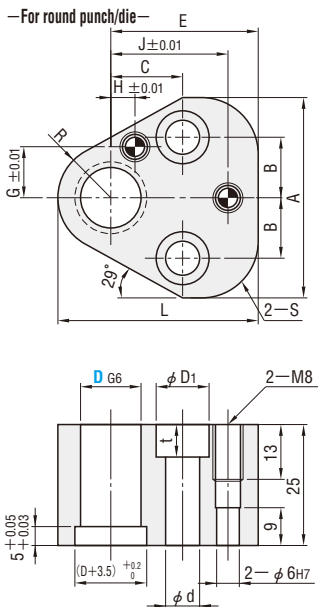
—For round punch/die—

—For shaped punch/die—

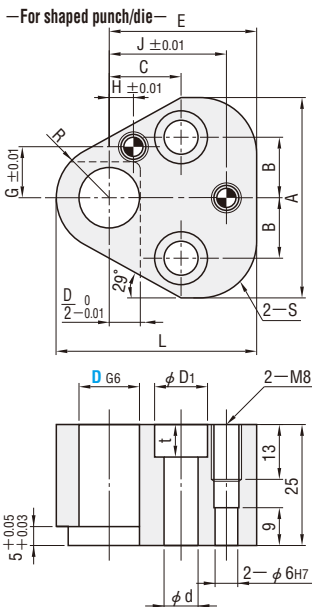
RoHS



—For round punch/die—



—For shaped punch/die—



- ① M S45C
- S Black oxide (Fe₃O₄)
- ② M Equivalent to SCM440
- H 56~60HRC
- ③ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	C	E	G	H	J	L	R	S	D ₁	d	t	d ₂	d ₁		A ③④⑤
Type																		CRNBP	CRNBD	
—For round punch/die— 25CRN-AP	25CRN-FP	10	+0.014 +0.005	43.7	11.12	19.05	35.0	9.0	7.5	26.925	44.5	9.5	12.0	14	9	9	10	6.2	7.4	③ M8—35
25CRN-AD	25CRN-FD	13	+0.017 +0.006	50.0	14.27		38.1	12.0	6.5	29.970	50.8	12.7	15.2							④ MSTM6—30
25CRNAR	25CRNFR	16		53.2	15.87		39.7	13.5	6.0	31.750	54.0	14.3	16.8							⑤ MSW8
CRNBP	CRNBP	20	+0.020 +0.007	59.5	17.47	23.82	42.8	16.5	5.0	33.530	60.3	17.5	20.0	17	11	11	12	13.6	13.6	③ M10—35 ⑤ MSW8
CRNBD	CRNBD			69.1	19.84		47.7	22.0	7.0	40.640	69.9	22.2	24.7							④ MSTM6—30
25CRN-A	25CRN-F	25																		⑤ MSW8



Order

Catalog No.

25CRN-AP 16



Price

Quotation



Days to Ship

Quotation

END RETAINER SETS FOR NC MACHINING 32 MM THICK TYPE

— TRIANGLE TYPE —

For round punch·round button die

	Catalog No.	Components				
		①	②	③	④	⑤
For punch	CRN-AP	○	○	○	○	○
	CRNAR	○	○	○	○	○
	CRNBP	○	○	○	○	○
Button die	CRN-AD	○	○	○	○	○
	CRNBD	○	○	○	○	○
Body only	CRN-A	○	○	○	○	○

For shaped punch·shaped button die

	Catalog No.	Components				
		①	②	③	④	⑤
For shaped punch	CRN-FP	○	○	○	○	○
	CRNFR	○	○	○	○	○
	CRNBP	○	○	○	○	○
Button die	CRN-FD	○	○	○	○	○
	CRNBD	○	○	○	○	○
Body only	CRN-F	○	○	○	○	○

—For round punch/die—

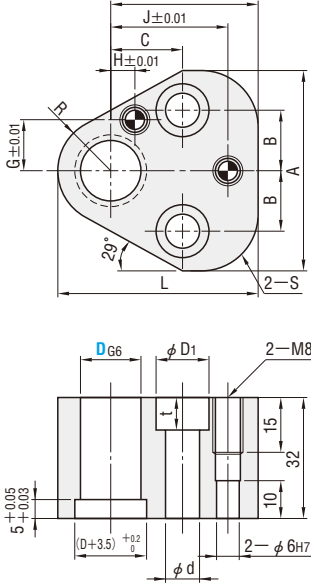


—For shaped punch/die—

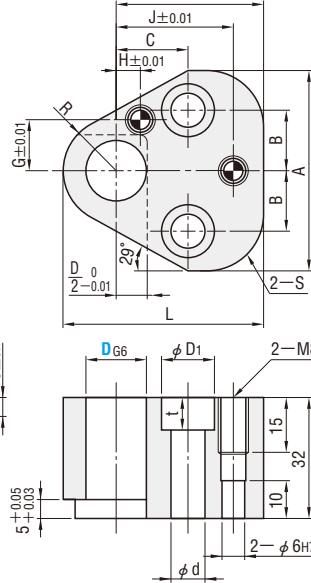


RoHS

—For round punch/die—



—For shaped punch/die—



- ① M S45C
- S Black oxide (Fe₃O₄)
- ② M Equivalent to SCM440
- H 56~60HRC
- ③ Hexagon socket head cap screw (with loosening prevention treatment)

Catalog No.		D	D _{G6}	A	B	C	E	G	H	J	L	R	S	D ₁	d	t	d ₂	d ₁		A ③④⑤
Type																		CRNBP	CRNBD	
—For round punch/die—	—For shaped punch/die—																			
CRN-AP	CRN-FP	10	+0.014 +0.005	43.7	11.12	19.05	35.0	9.0	7.5	26.925	44.5	9.5	12.0	14	9	9	10	6.2	7.4	③ M8—40
CRN-AD	CRN-FD	13	+0.017 +0.006	50.0	14.27		38.1	12.0	6.5	29.970	50.8	12.7	15.2						9.4	④ MSTM6—30
CRNAR	CRNFR	16		53.2	15.87		39.7	13.5	6.0	31.750	54.0	14.3	16.8						11.6	⑤ MSW8
CRNBP	CRNBP	20	+0.020 +0.007	59.5	17.47	23.82	42.8	16.5	5.0	33.530	60.3	17.5	20.0	17	11	11	12		13.6	③ M10—40 ⑤ MSW8
CRNBD	CRNBD	25		69.1	19.84		47.7	22.0	7.0	40.640	69.9	22.2	24.7						17.6	④ MSTM6—30 ⑤ MSW8
CRN-A	CRN-F																			



Order

Catalog No.

CRN-AP 16



Price

Quotation

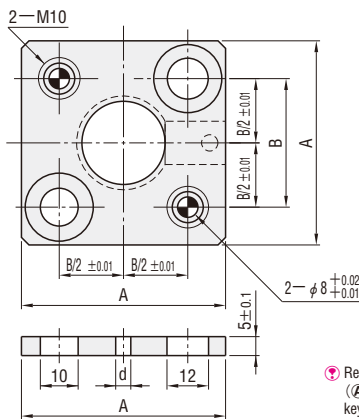
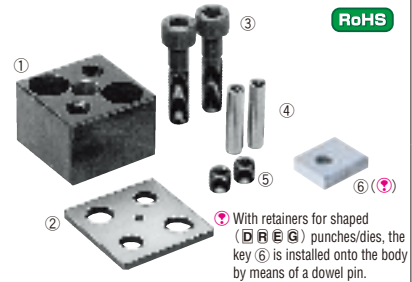


Days to Ship

Quotation

SQUARE RETAINER SETS

		—For heavy-load punches— (D10~25)	
		A D R E G	
Type	Catalog No.	Retainer No.	Components
	For punch	For die	(for punch)
A	SR—AP	SR—AD	RA1
	MPSP	MDSP	RA2
	SR—AN	—	—
	MPSP	MDSP	—
D	SR—FP	SR—FD	RF1
	MPDR	—	RF2
	MPSP	MDSP	—
	SR—FN	—	—
E	SA—AP	YA1	—
	ASAR	YA2	—
	MPSP	—	—
	SA—AN	YA3	—
G	SA—FP	YF1	—
	ASFR	YF2	—
	MPSP	—	—
	SA—FN	YF3	—

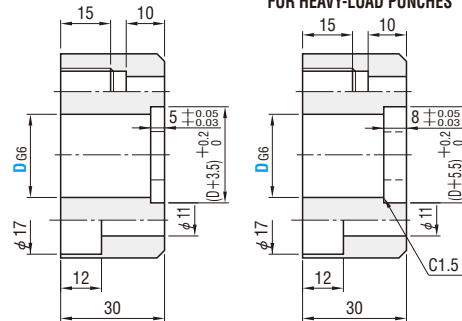


Retainers for round punches/dies (A) do not include a key slot or key.

① M S45C
S Black oxide (Fe₃O₄)

② M Equivalent to SCM440
H 56~60HRC
③ Hexagon socket head cap screw (with loosening prevention treatment)

FOR HEAVY-LOAD PUNCHES

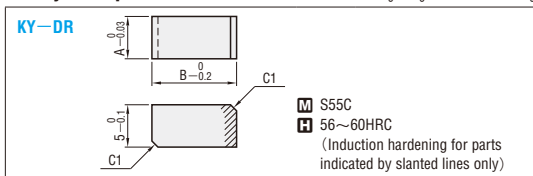


Catalog No.		D	D ₆₆	A	B	d		A ③④⑤
Type						MPSP	MDSP	
SR—AP	—For heavy load—	10	+0.014 +0.005	45	23	—	7.4	③ M10~40 ④ MSTM8~30 ⑤ MSW10
SR—AD	SA—AP	13	+0.017 +0.006	52	30	6.2	9.4	
SR—FP	SA—FP	16	+0.020 +0.007	56	34	—	11.6	
SR—FD	SA—FD	20	+0.025 +0.009	65	43	—	13.6	
MPSP	ASAR	25	—	—	—	—	17.6	
MPDR	ASFR	32	—	—	—	—	21.6	
MPSP	MPSP	(32)	—	—	—	—	27.6	
MDSP	MDSP	(38)	—	—	—	—	—	
SR—AN	SA—AN	—	—	—	—	—	—	—
SR—FN	SA—FN	—	—	—	—	—	—	—

③ (32) and (38) specifications for heavy load are not available. (Specifications for heavy load are limited to D10~25.)

Key for square retainer

KY—DR will be discontinued beginning from the next catalog.



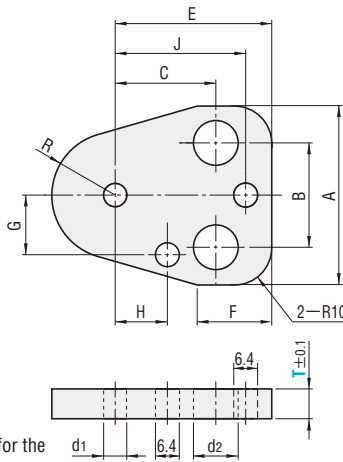
Retainer	A	B	Catalog No.		Base unit price 1~9 pieces
			Type	D	
SR—FP	10.1	17.5	KY—DR	10	Quotation
SR—FD	11.1	16.0		13	
MPDR	12.3	18.0		16	
SA—FP	13.6	15.5		20	
ASFR	15.3	16.5		25	
	16.6	13.5		32	

D in the table above indicates the punch diameter for the selected retainer.
A locating dowel hole is not created.

RETAINER BACKING PLATES

RoHS

BPC (for punch) ⚠ Cannot be used for button die retainers.



* See the table below for the applicable retainers.

■ S45C
■ 56~60HRC
(Depth 1 mm)

A	B	C	E	F	G	H	J	R	d ₁	d ₂	Catalog No.		T	Base unit price 1~9 pieces
											Type	No.		
37	20	21	35	20	10	9	29	9.5	6.2	10	BPC	10	6 7 8 9 10	Quotation
43	26	23	38		13	11	32	12		10		13		
44	24	26	40			12	34	14				16		
48	28	27	42		16	14	36	17		12		20		
50	30	30	46		18	17	39	19.5	10.2			14		
54		33	48		21	20	42	23		32				
58		35	52		23	23	46	26		38				
64	34	38	56			26	27	50	29.5					



Order

Catalog No. — T
BPC 10 — 10



Days to Ship

Quotation

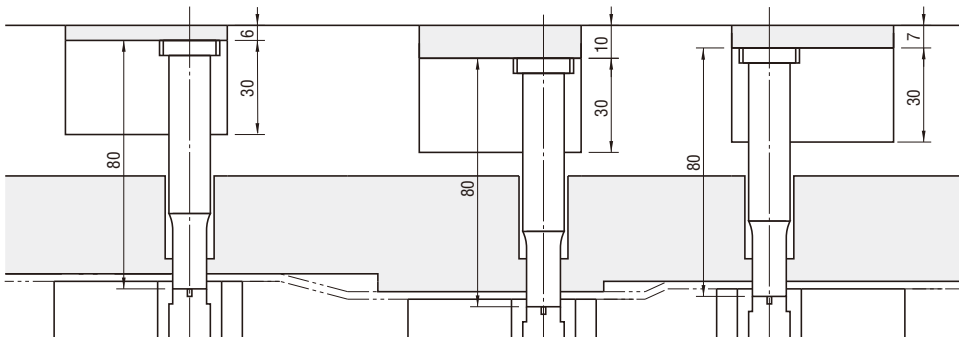


Price

Quotation



Example







- Features
- ① Allows punch lengths to be unified, reducing maintenance costs.
 - ② Height can be adjusted during die adjustments or after punch regrinding.

SELECT RETAINER SETS

COMPACT TYPE (AIR) • STANDARD TYPE (AIR • MANUAL) • HEAVY-LOAD TYPE (AIR) —GUIDE—

PATENTED

Select retainer sets	Compact air type	Standard air type	Standard manual type	Air type for heavy load
				
Stroke	ST=8mm		ST=10mm	
Shaft dia.	D=10•13•16•20		D=10•13•16•20•25•32	

A select retainer is a device which changes the punch bottom-dead-center height by operating a select bar in order to decide whether or not to punch holes in the workpiece material.

Features

(1) Broad range of variation

- Compact type: Punch stroke is 8 mm and projection area is reduced by approximately 20% compared with the SLS series.
 - Standard type: Select either air or manual type, both with a punch stroke of 10 mm.
 - Heavy-load type: Can be used with high-strength punches such as heavy-load punches and tapered-head punches.
- The above 4 types are available.

(2) Punch specifications

Standard punch can be used only when alteration RC is selected.

The optional alteration code RC is required.

(Alteration RC is not required for punches with locating dowel hole, heavy-load punches, and engraving punches.)

(3) Heavy duty

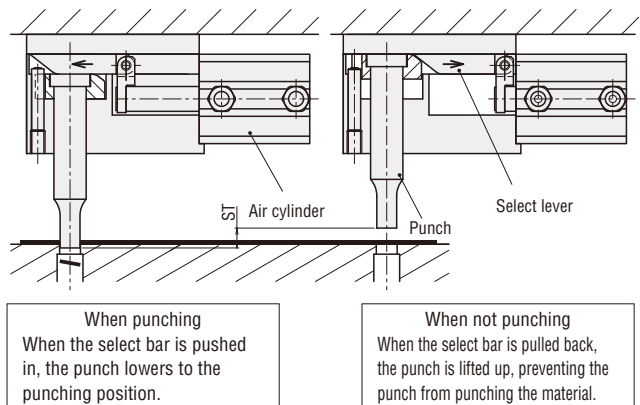
The body is carburized to 55 ~ 58 HRC, eliminating the risk of seizure or uneven wear.

(4) Because the high-rigidity body contains few openings, there is no risk of malfunctions resulting from deformation.

In addition, because dust is prevented from entering, there is no risk of dust-related malfunctions.

(5) High maintainability

The special spring and the select bar with hinge prevent parts from becoming separated and make punch replacement easier.



When punching
When the select bar is pushed in, the punch lowers to the punching position.

When not punching
When the select bar is pulled back, the punch is lifted up, preventing the punch from punching the material.

Precautions

- Select retainers were developed for punching materials such as automobile steel sheets, and are not suitable for punching of papers, films, and other small-clearance materials.

Be aware that if the select retainer mounting bolt is tightened with more than the correct tightening torque, elastic deformation of the punch sliding hole may occur, resulting in punch malfunction. (For the recommended tightening torques, refer to P.1128.)

- The thickness of the backing plates is different between the SLS series and SLC series. Therefore pay attention when selecting the punch length.
- The punch used must include the optional alteration code RC (head thickness changed to $5^{+0.03}_{+0.01}$). Failure to select RC may result in malfunction.
- Operate the select bar only after the punch is installed. If the punch is not installed, the spring will be bent, causing malfunction.
- Use a tube with outer diameter 6 mm and inner diameter 4 mm (air type).
- Do not bleed the air pressure while press machining is in progress. Vibration may cause the select bar to move, resulting in malfunction (air type).

■ Assembly of select ring and punch

If the punch and select ring are not fastened in the correct positions, there is the possibility of malfunction occurring. When assembling the punch and select ring, follow the procedure below and fasten in the correct positions.

- 1) Insert the punch into the select ring all the way until the entire punch head is in tight contact with the select ring.
- 2) Install the accessory screw plugs MSW3 \times 2 as double nuts into the side holes (M3 tap holes) in the select ring.

■ Punch replacement

(1) Air type

- The punch can be replaced easily by removing the backing plate and lifting up the select bar.
- After inserting the punch, fasten it in place with the provided screw plugs.

[Note] To change the coupling position, remove the air cylinder mounting bolts and rotate the cylinder by 90° at a time. Be sure to check the movement before beginning punching.

(2) Manual type

- The punch can be replaced easily by removing the backing plate and lifting up the select bar.
- After inserting the punch, fasten it in place with the provided screw plugs.
- The select bar can be easily removed by using the installation/removal groove.
- The select bar is fastened by a stop pin and cannot be disconnected from the retainer body.
- The select bar is locked in place by a ball plunger. However if the body is installed vertically, vibration during punching may cause the select bar to move downwards, resulting in malfunction.

■ Switch sensor

- When using two or more cylinder type units with sensors in parallel, separate the units by 40mm or more.
- There is the possibility of switch malfunction occurring due to magnetic interference between the units.
- Select retainers with sensors were developed to prevent press punching errors. In general they are used in combination with a controller that controls the press. For details, please contact the controller manufacturer.
- The sensor does not contain a contact protection circuit.

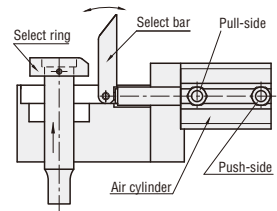
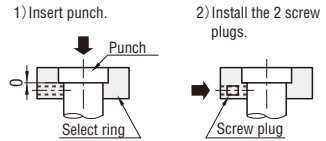
A contact protection box should be used in the cases listed below, as these may decrease the contact lifetime.

- ① The load used is an induction load.
- ② The length of wiring to the load is 5 m or longer.
- ③ The load voltage is AC100V.

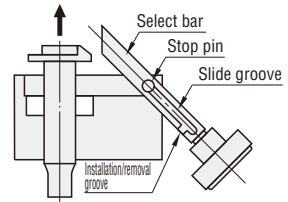
■ How to order USN (urethane stripper) punches

- Add the alteration codes **RC**·**UC** to a standard punch.
- Use USN (P.644) for the urethane stripper.
- ⊗ Alteration code (UC) cannot be used for jector punches.

Alteration	Code	Spec.	1Code												
	UC	Modification for urethane stripper (USN) installation	<div>Quotation</div>												
		<table><tr><th>Code</th><th>U</th><th>L</th><th>Applicable USN L dimension</th></tr><tr><td>UC40</td><td>37</td><td>$L \geq 80$</td><td>L40 USN</td></tr><tr><td>UC50</td><td>47</td><td>$L \geq 90$</td><td>L50 USN</td></tr></table>		Code	U	L	Applicable USN L dimension	UC40	37	$L \geq 80$	L40 USN	UC50	47	$L \geq 90$	L50 USN
		Code		U	L	Applicable USN L dimension									
		UC40		37	$L \geq 80$	L40 USN									
		UC50		47	$L \geq 90$	L50 USN									
⚡ P·Kmax. = D-1.1															
⚡ Can be used for $L \geq 80$, $L \geq 90$.															
⚡ When installing onto a select retainer, use in combination with alteration RC.															

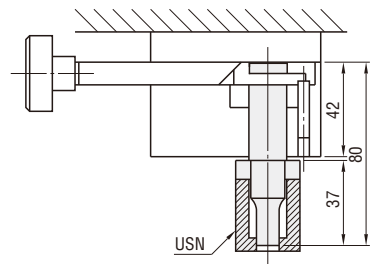
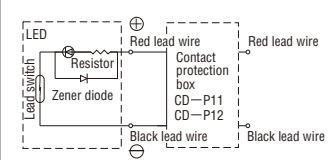


Replacing an air-type punch



Replacing a manual-type punch

Sensor internal circuit



SELECT RETAINER SETS

— COMPACT AIR TYPE —

ST=8mm

PATENTED

Check the precautions on P.629 and information concerning assembly of the select ring and punch on P.630.

Catalog No.		Components
For round punch	For shaped punch	①~⑧, ⑩ Without switch sensor
SLC—EA	SLC—FA	①~⑦, ⑨, ⑩ With switch sensor
SLC—SEA	SLC—SFA	

RoHS

① M Equivalent to SCM420
H 55~58HRC (Depth 1mm)
S Black oxide (Fe₃O₄)

②③④ M SK4
H 56~60HRC

⑧⑨ Air cylinder specification (SMC: CQS series)
Operation method Double-action
Pressure used 0.4~1.0MPa (4.1~10.2kgf/cm²)
Cylinder inner dia. φ20

⑨ 2-wire type contact switch
Type D—A93L (SMC)
Voltage used DC24V
AC100V
Lead wire length 3m

② Select ring
For round punch

For shaped punch

Catalog No.		A	B	C	E	L	ℓ	D ₁	Without sensor		With sensor		A	Base unit price 1~9 sets				
Type	D								S	F	S	F		SLC—EA	SLC—FA	SLC—SEA	SLC—SFA	
—Type without switch sensor— For round punch SLC—EA	10	44	24	12	17	67	15	25	44.5	111.5	54.5	121.5	⑤CB10—55	<div>Quotation</div>				
For shaped punch SLC—FA	13				17.5	69.5	17	28	44.5	114	54.5	124	⑥MSTM8—40					
—Type with switch sensor— For round punch SLC—SEA	16	48	28	15	20	78	23	31	49.5	127.5	59.5	137.5	⑦MSW10					
For shaped punch SLC—SFA	20	50	30	20	22	87	30	35	54.5	141.5	64.5	151.5	⑩MSW3					



Order

Catalog No.
SLC—EA10



Days to Ship

Quotation



Price

Quotation

Features

- Compact: Projection area is approximately 20% less than the SLS series.
- Heavy duty: The body is carburized to 55~58 HRC, eliminating the risk of seizure or uneven wear.
- High rigidity: Because the body contains few openings, there is no concern of malfunctions resulting from deformation.

Precautions

- Although the installation pitch is the same as for the SLS series, the thickness of the backing plate is different. Therefore pay attention when selecting the punch length.
 - Use a punch with head thickness $5^{+0.03}_{-0.01}$.
- For details, refer to the list of features on P.629.



Alterations

Catalog No. — (JLC—JNC—TLC—BPC)
SLC—EA10 — JLC

Alteration	Code	Spec.	1Code
	JLC	The provided one-touch pipe coupling is changed to an L-shape (elbow) type.	
	JNC	No pipe coupling Air cylinder tap (M5×0.8)	
	TLC	Coupling position change (cylinder direction change) Standard position TLC90 TLC180 TLC270	Quotation
	BPC	A ball plunger is installed on the select bar, and a recession is machined in the backing plate.	

SELECT RETAINER SETS

ST=10mm

—STANDARD AIR TYPE—

PATENTED

Check the precautions on P.629 and information concerning assembly of the select ring and punch on P.630.

Catalog No.		Components
For round punch	For shaped punch	
SLS—EA	SLS—FA	①~⑨,⑪ Without switch sensor
SLS—SEA	SLS—SFA	①~⑧,⑩,⑪ With switch sensor

① Retainer body, ② Select ring, ③ Backing plate, ④ Select bar, ⑤ Spacer block, ⑥ Bolt, ⑦ Nut, ⑧ Washer, ⑨ Air cylinder, ⑩ Air cylinder (With switch sensor), ⑪ Screw plug

① M Equivalent to SCM420
 H 55~58HRC (Depth 1mm)
 S Black oxide (Fe₃O₄)
 ②③④ M SK4
 H 56~60HRC
 ⑤ M S45C
 ⑨⑩ Air cylinder specification (SMC:CQS series)
 Operating method Double-action
 Pressure used 0.4~1.0MPa (4.1~10.2kgf/cm²)
 Cylinder inner dia. φ20
 ⑪ 2—wire type contact switch
 Type D—A93L (SMC)
 Voltage used DC24V
 AC100V
 Lead wire length 3m

Catalog No.		A	B	C	E	L	ℓ	D ₁	Without sensor				A	Base unit price 1~9 sets			
Type	D								S	F	S	F		SLS—EA	SLS—FA	SLS—SEA	SLS—SFA
—Type without switch sensor— For round punch SLS—EA For shaped punch SLS—FA	10	44	24	12	20	70	13.5	25	49.5	133	59.5	143	⑥CB10—60 ⑦MSTM8—45 ⑧MSW10 ⑪MSW3				
	13						16.5	31	139			149					
	16	48	28	15	23	73	21.5		54.5	149	64.5	159					
—Type with switch sensor— For round punch SLS—SEA For shaped punch SLS—SFA	20	50	30	20	25	75	28.5	35	163			173					
	25	58	38	25	27	77	31.5	40	59.5	168	69.5	178					
	32	68	48	32	31	81	44.5	47	69.5	195	79.5	205					

Order Catalog No. SLS—EA 10

Days to Ship Quotation

Price Quotation

Alterations Catalog No. — (JLC·JNC·TLC·BPC) SLS—EA10 — JLC

Alteration	Code	Spec.	1Code
	JLC	The provided one-touch pipe coupling is changed to an L—shape (elbow) type.	
	JNC	No pipe coupling Air cylinder tap (M5×0.8)	
	TLC	Coupling position change (cylinder direction change) Standard position TLC90 TLC180 TLC270	Quotation
	BPC	A ball plunger is installed on the select bar, and a recession is machined in the backing plate.	

Features

- Stroke: 10mm
- Heavy duty: The body is carburized to 55~58 HRC, eliminating the risk of seizure or uneven wear.
- High rigidity: Because the body contains few openings, there is no risk of malfunctions resulting from deformation.

Precautions

- Use a punch with head thickness $5 \pm \begin{smallmatrix} 0.03 \\ -0.01 \end{smallmatrix}$

For details, refer to the list of features on P.629.

SELECT RETAINER SETS

—STANDARD MANUAL TYPE—

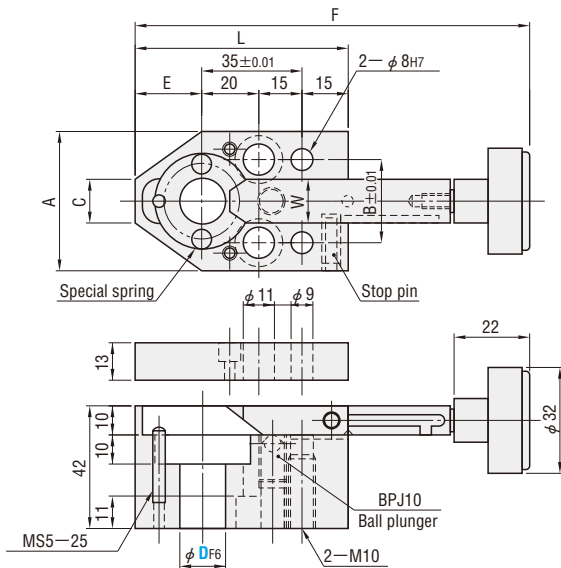
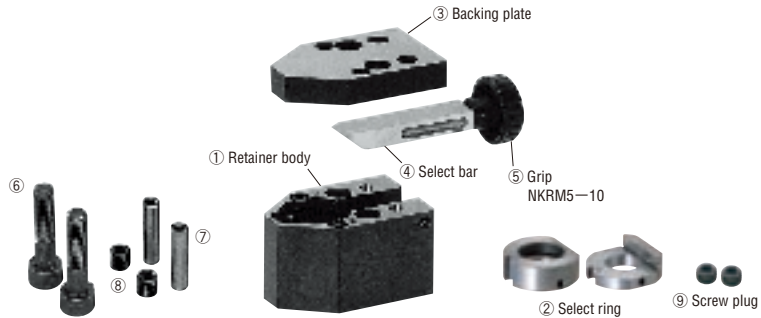
ST=10mm

PATENTED

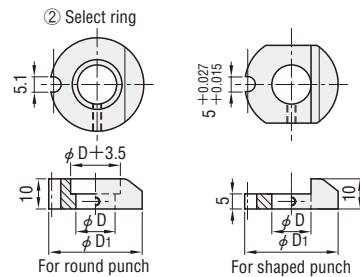
Check the precautions on P.629 and information concerning assembly of the select ring and punch on P.630.

RoHS

Catalog No.	
For round punch	For shaped punch
SLS—EH	SLS—FH



- ① M Equivalent to SCM420
- H 55~58HRC (depth 1 mm)
- S Black oxide (Fe_3O_4)
- ②③④ M SK4
- H 56~60HRC



Catalog No.		A	B	C	E	L	W	D ₁	F	A	Base unit price 1~9 sets	
Type	D										SLS—EH	SLS—FH
For round punch SLS—EH	10	44	24	12	20	70	11	25	94~124	⑥CB10—60 ⑦MSTM8—45 ⑧MSW10 ⑨MSW3		
	13	48	28	15	23	73	15	31	97~127			
	16								97~132			
For shaped punch SLS—FH	20	50	30	20	25	75	17	35	99~139			
	25	58	38	25	27	77	23	40	101~141			
	32	68	48	32	31	81	30	47	105~155			

Quotation



Order

Catalog No.

SLS—EH10



Example



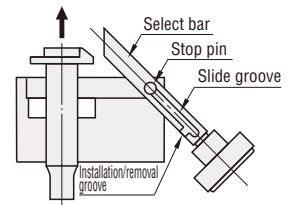
Days to Ship

Quotation



Price

Quotation



Features

- The ball plunger that is set in the select bar recession prevents the select bar from being displaced by vibration during punching.
- The select bar is fastened by a stop pin and cannot be disconnected from the retainer body.

Punch replacement

- The punch can be replaced easily by removing the backing plate and lifting up the select bar.
- The select bar can be easily removed by using the installation/removal groove.

Precaution

- The select bar is locked in place by a ball plunger. However if the body is installed vertically, vibration during punching may cause the select bar to move downwards, resulting in malfunction.
- Use a punch with head thickness $5^{+0.03}_{-0.01}$. For details, refer to the list of features on P.629.

SELECT RETAINER SETS

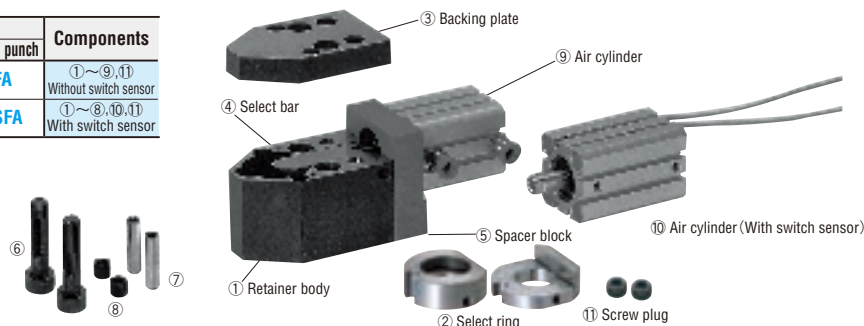
ST=10mm

—AIR TYPE FOR HEAVY LOAD—

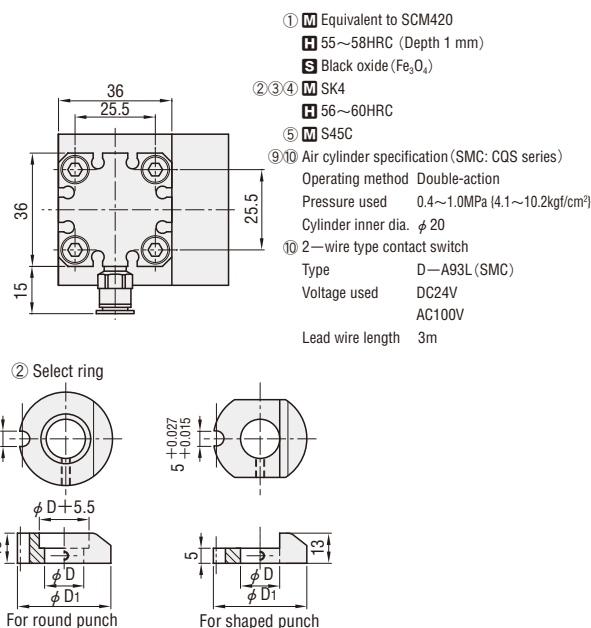
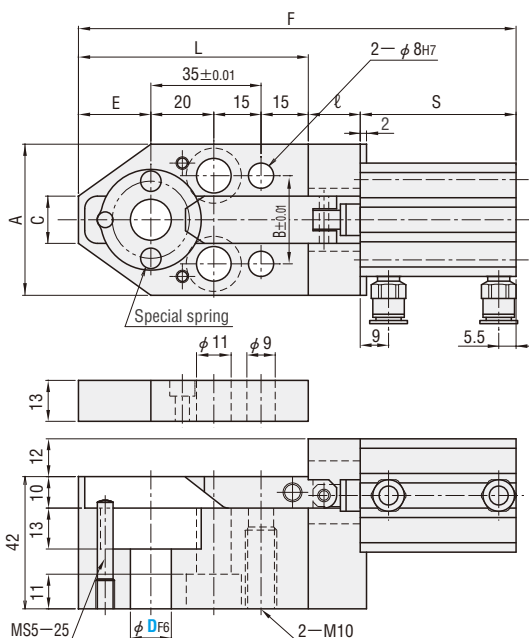
PATENTED

Check the precautions on P.629 and information concerning assembly of the select ring and punch on P.630.

Catalog No.		Components
For round punch	For shaped punch	
SLA—EA	SLA—FA	①~⑨,⑪ Without switch sensor
SLA—SEA	SLA—SFA	①~⑨,⑪,⑫ With switch sensor



RoHS



- ① M Equivalent to SCM420
- H 55~58HRC (Depth 1 mm)
- S Black oxide (Fe₂O₄)
- ②③④ M SK4
- H 56~60HRC
- ⑤ M S45C
- ⑨⑩ Air cylinder specification (SMC: CQS series)
- Operating method Double-action
- Pressure used 0.4~1.0MPa (4.1~10.2kgf/cm²)
- Cylinder inner dia. φ20
- ⑪ 2—wire type contact switch
- Type D—A93L (SMC)
- Voltage used DC24V
- AC100V
- Lead wire length 3m

Catalog No.		Base unit price 1~9 sets									
Type	D	A	B	C	E	L	ℓ	D ₁	Without sensor	With sensor	A
—Without switch sensor—									S	F	
For round punch	10	44	24	12	20	70	13.5	25	133	143	⑥ CB10—60
For shaped punch	13	48	28	15	23	73	16.5	31	139	149	⑦ MSTM8—45
—With switch sensor—									S	F	
For round punch	16	50	30	20	25	75	21.5	31	149	159	⑧ MSW10
For shaped punch	20	50	30	20	25	75	28.5	35	163	173	⑪ MSW3

Quotation



Order

Catalog No.

SLA—EA10



Days to Ship

Quotation



Price

Quotation

Features

- These select retainers are designed so that they can be used with punches for heavy load.
- High durability: The body is carburized to 55~58 HRC, eliminating the risk of seizure or uneven wear.
- High rigidity: Because the body contains few openings, there is no risk of malfunctions resulting from deformation.

Precautions

- Use a punch with head thickness $8^{+0.03}_{-0.01}$.
- For details, refer to the list of features on P.629.



Alterations

Catalog No. — (JLC—JNC—TLC—BPC)

SLA—EA10 — JLC

Alteration	Code	Spec.	1Code
	JLC	The provided one-touch pipe coupling is changed to an L—shape (elbow) type.	
	JNC	No pipe coupling Air cylinder tap (M5×0.8)	
	TLC	Coupling position change (cylinder direction change)	
		Standard position	TLC90
		TLC180	TLC270
	BPC	A ball plunger is installed on the select bar, and a recession is machined in the backing plate.	

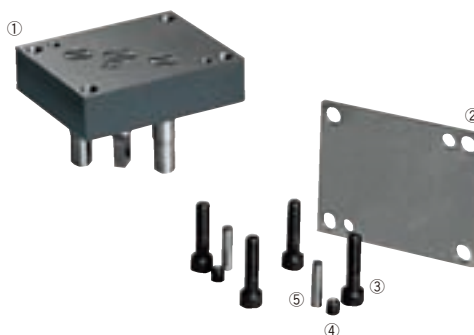
Quotation

—FIXED SIZE TYPE—

RoHS

Dowel hole	Backing plate	Left hand type	Right hand type
Finished $d = \phi 8$ dowel hole	With	SRGD—LP	SRGD—RP
	W/O	SRGD—L	SRGD—R
Drill hole $d = \phi 7.8$	With	SRND—LP	SRND—RP
	W/O	SRND—L	SRND—R

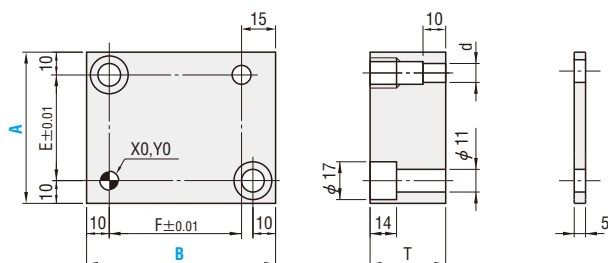
❗ For a $\phi 8$ dowel hole, the tolerance is $\phi 8_{H7}$.



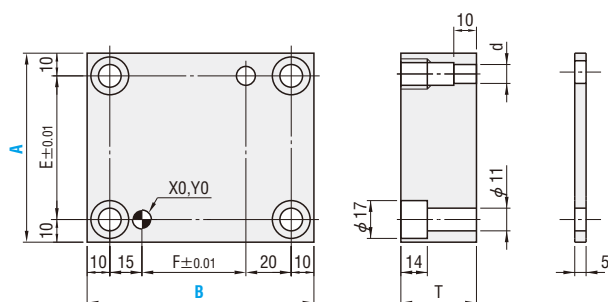
- ① **M** S45C
② **M** SK4
H 56~60HRC

Retainer size

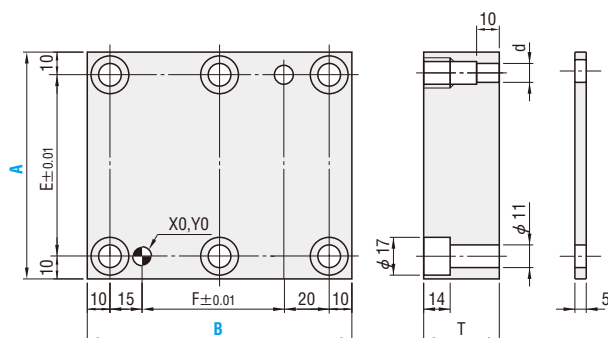
A	B	E	F	T	A	
50	60	30	35	32	③ Hexagon socket head cap screw (with loosening prevention treatment) M10—40 2	
	80		55			
60	80	40	55			④ MSW10 2
	100		75			⑤ MSTM8—30 2

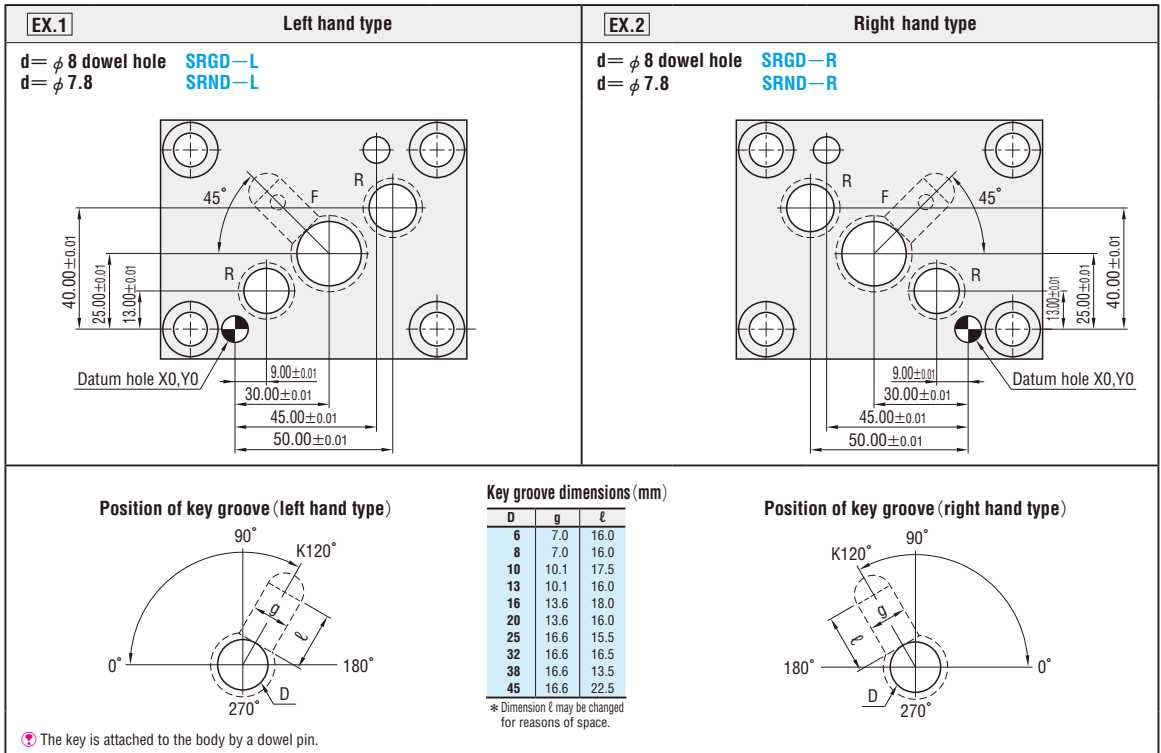


A	B	E	F	T	A
80	80	60	25	32	③ Hexagon socket head cap screw (with loosening prevention treatment) M10—40 4
	100		45		
	125		70		
100	100	80	45		④ MSW10 2 ⑤ MSTM8—30 2
	125		70		
	150		95		



A	B	E	F	T	A	
125	150	105	95	32	③Hexagon socket head cap screw (with loosening prevention treatment) M10—40 6	
	175		120			
150	175	130	120			④MSW10 2
	200		145			⑤MSM8—30 2





Order

(1) Selection of retainer type (left hand type, right hand type, dowel hole, with/without backing plate)

(2) Selection of plate size from the detailed specifications on the page at left

(3) Selection of punch type (round or shaped) and diameter

For round types, indicate D (the punch diameter) after the "R".

For shaped types, indicate D (the punch diameter) after the "F".

(4) Selection of punch hole position **□** : $X \pm 0.01 Y \pm 0.01$

For round types, X and Y are indicated in units of 0.01mm from the center of the reference hole.

For shaped types, X and Y are indicated in units of 0.01mm from the center of reference hole, and the key groove angle is indicated in units of 1°.

⚠ Punch holes must be separated from each other and from the dowel holes and bolt holes by a minimum of 2 mm in order to prevent interference.

	(1)	(2)	(3)	(4)
	Retainer type	A B	R · F	X — Y — K
Left hand type	SRGD-L (P)	80 100	— R13 — — F20 — — R16 —	— X 9.00—Y13.00 — X30.00—Y25.00—K45 — X50.00—Y40.00
Right hand type	SRGD-R (P)	80 100	— R13 — — F20 — — R16 —	— X 9.00—Y13.00 — X30.00—Y25.00—K45 — X50.00—Y40.00



Days to Ship

Quotation



Price

Retainer size A	Retainer Base unit price				Hole machining price/hole	
	SRGD-L SRGD-R	SRGD-LP SRGD-RP	SRND-L SRND-R	SRND-LP SRND-RP	R for round	F for shaped
50-60						
80-100						
125-150						

Quotation

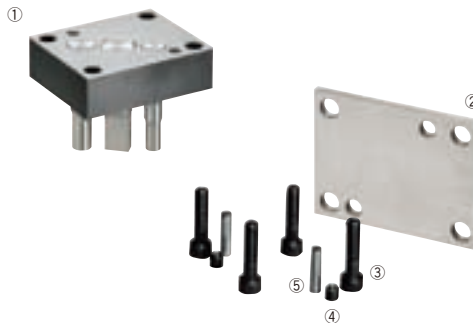
SPECIAL RETAINER SETS

—CONFIGURABLE SIZE TYPE—

RoHS

Dowel hole	Backing plate	Left hand type	Right hand type
Finished $d = \phi 8$ dowel hole	With	SRGT-LP	SRGT-RP
	W/O	SRGT-L	SRGT-R
Drill hole $d = \phi 7.8$	With	SRNT-LP	SRNT-RP
	W/O	SRNT-L	SRNT-R

For a $\phi 8$ dowel hole, the tolerance is $\phi 8_{-0.01}^{+0.01}$.

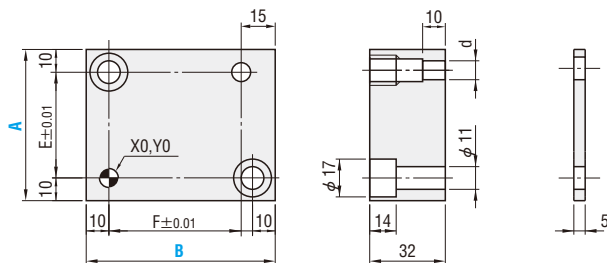


① M S45C
② M SK4
③ 56 ~ 60HRC

Retainer size

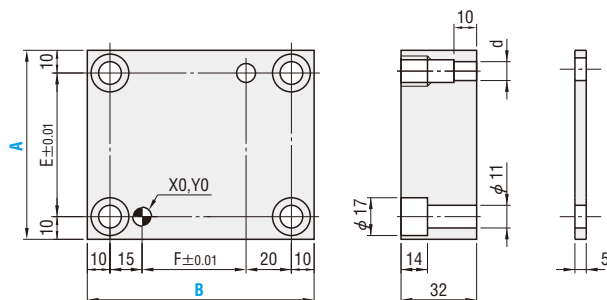
No. (bolt hole)	1mm increments		A
	A	B	
2H	35~60	40~100	③ Hexagon socket head cap screw (with loosening prevention treatment) M10—40 2 ④ MSW10 2 ⑤ MSTM8—30 2

E=A-20
F=B-25



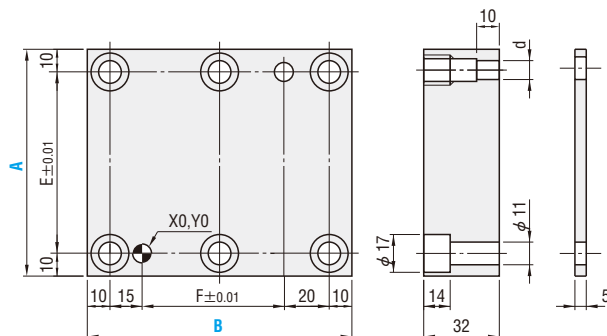
No. (bolt hole)	1mm increments		A
	A	B	
4H	40~100	55~150	③ Hexagon socket head cap screw (with loosening prevention treatment) M10—40 4 ④ MSW10 2 ⑤ MSTM8—30 2

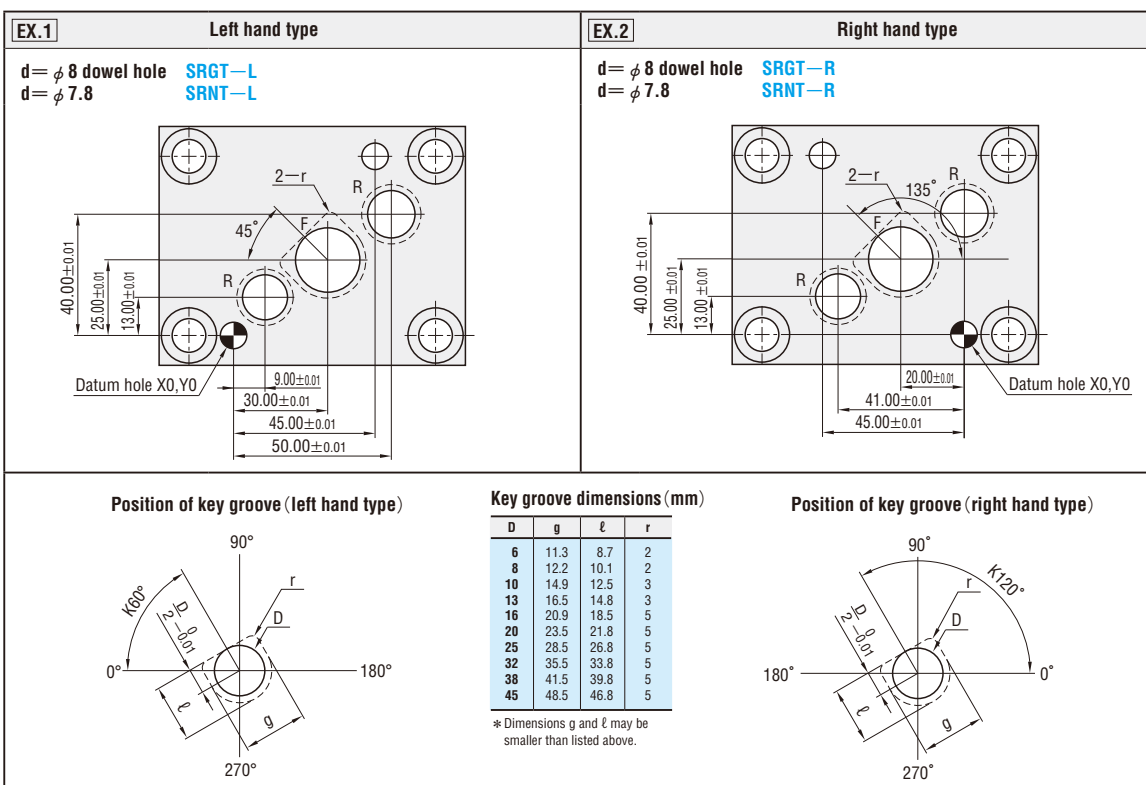
E=A-20
F=B-55



No. (bolt hole)	1mm increments		A
	A	B	
6H	40~150	85~200	③ Hexagon socket head cap screw (with loosening prevention treatment) M10—40 6 ④ MSW10 2 ⑤ MSTM8—30 2

E=A-20
F=B-55





Order

- (1) Selection of retainer type (left hand type, right hand type, dowel hole, with/without backing plate)
 - (2) Selection of the No. (bolt hole) from the detailed specifications on the page at left
 - (3) Selection of plate size (A, B dimensions) from the detailed specifications on the page at left
 - (4) Selection of punch type (round or shaped) and diameter
 For round types, indicate D (the punch diameter) after the "R".
 For shaped types, indicate D (the punch diameter) after the "F".
 - (5) Selection of punch hole position \blacksquare : $X \pm 0.01$ $Y \pm 0.01$
 For round types, X and Y are indicated in units of 0.01mm from the center of the reference hole.
 For shaped types, X and Y are indicated in units of 0.01mm from the center of reference hole, and the key groove angle is indicated in units of 1°.
 ⚠ Punch holes must be separated from each other and from the dowel holes and bolt holes by a minimum of 2 mm in order to prevent interference.
- Left hand type**

(1) Retainer type	(2) No.	(3) A	B	(4) R·F	(5) X — Y — K
SRGT-L(P)	4H	A80	B100	R13	X 9.00—Y13.00
				F20	X30.00—Y25.00—K45
				R16	X50.00—Y40.00
SRGT-R(P)	4H	A80	B100	R13	X41.00—Y13.00
				F20	X20.00—Y25.00—K135
				R16	X 0.00—Y40.00



Days to Ship

Quotation



Price

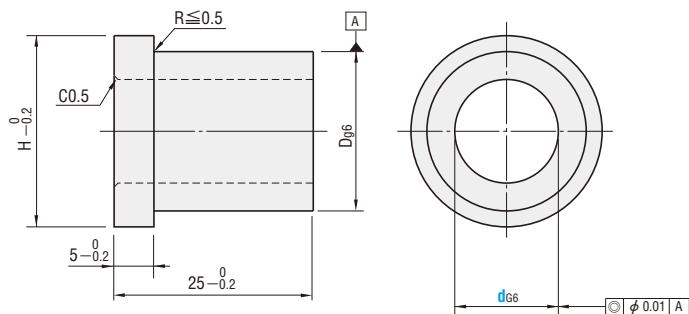
No.	Retainer base unit price				Hole machining price/hole	
	SRGT-L SRGT-R	SRGT-LP SRGT-RP	SRNT-L SRNT-R	SRNT-LP SRNT-RP	R for round	F for shaped
2H						
4H						
6H						

Quotation

BUSHINGS FOR PUNCH HOLE POSITION ADJUSTMENT

RoHS

PCWB



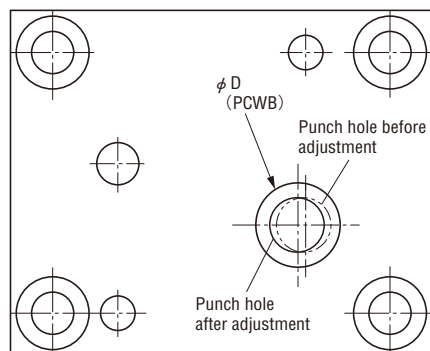
M S45C

D	H	Catalog No.		Base unit price 1~9 pieces
		Type	d	
16	19	PCWB	10	Quotation
20	24		13	
25	29		16	
30	34		20	
			25	



Example

These bushings are used in order to make fine adjustments to the punch hole position, as shown below, when attaching the punch to a special retainer. They can eliminate the costs required for re-manufacture of punches and retainers.



Order

Catalog No.

PCWB 16



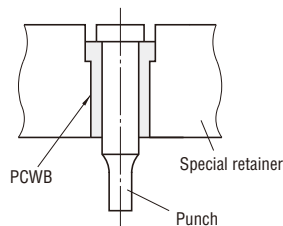
Days to Ship

Quotation

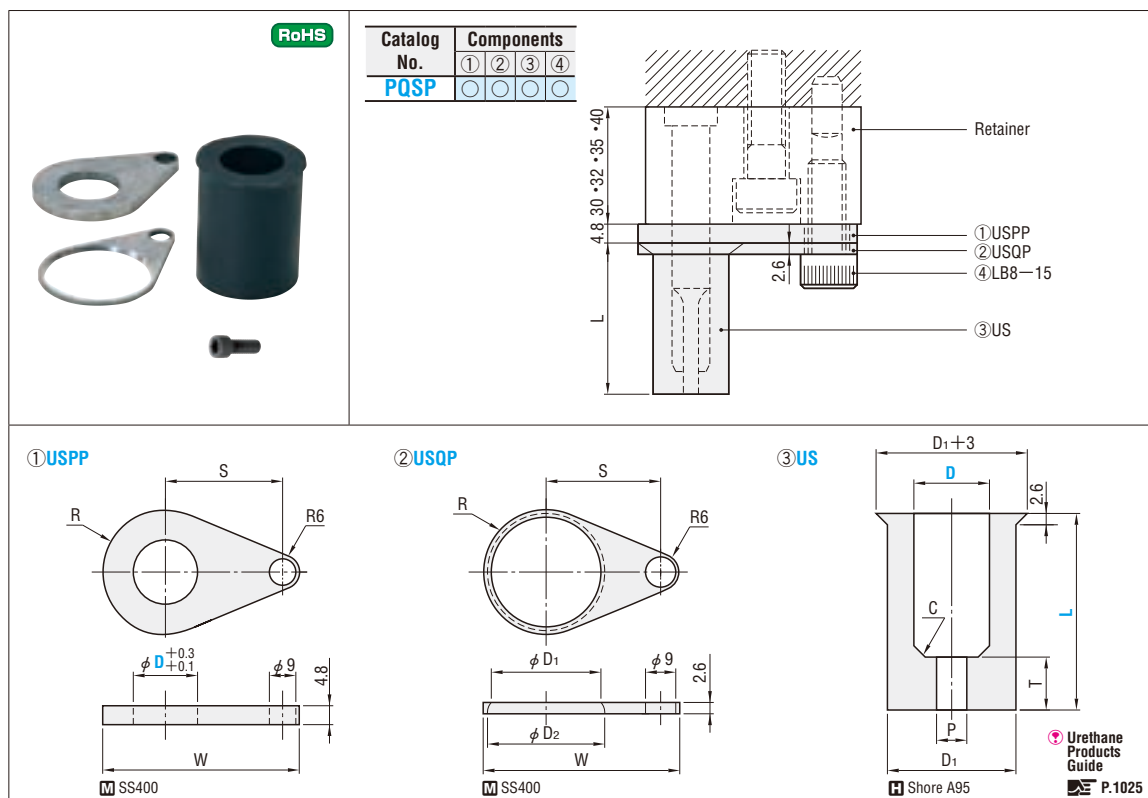


Price

Quotation



URETHANE FALL-STOPPER UNITS



■PQSP (①USPP・②USQP・③US・④LB8-15)

Catalog No.		L																Base unit price
Type	D																	1~19 sets
PQSP (①②③④)	10	27	29	32	34	37	39	42	44	47	49	52	54	Quotation				
	13	27	29	32	34	37	39	42	44	47	49	52	54					
	16	37	39	42	44	47	49	52	54	57	59	62	64					
	20	48	50	53	55	58	60	63	65	68	70	73	75					
	25	48	50	53	55	58	60	63	65	68	70	73	75					
	32	48	50	53	55	58	60	63	65	68	70	73	75					
	38	49	51	54	56	59	61	64	66	69	71	74	76					

D	D ₁	D ₂	①USPP・②USQP			③US						
			S	R	W	D	D ₁	P	T	C		
10	19	21	29	12	47	10	-0.2 -0.4	18	3.5	6	2.0	
13	24	26	32	14.5	52.5	13		23				
16	29	31	34	17	57	16		28				
20	34	36	36	19.5	61.5	20		33	4.0			
25	41	43	39	23	68	25		40		7		
32	51	53	42	28	76	32	-0.3 -0.5	50	5.0			
38	61	63	46	33	85	38		60		8		

■①USPP

Catalog No.	Base unit price
	1~19 pieces
10	Quotation
13	
16	
20	
25	
32	
38	

■②USQP

Catalog No.	Base unit price
	1~19 pieces
10	Quotation
13	
16	
20	
25	
32	
38	

■③US

■ P.641

■④LB8-15

■ P.679

■Applicable retainers for PQSP

•HDP-AP	•HDPAR	...	P.616
•HDP-FP	•HDPFR	...	
•HAP-AP	•HAPAR	...	P.617
•HAP-FP	•HAPFR	...	
•DP-AP	•DPAR	...	P.621
•DP-FP	•DPFR	...	
•CP-AP	•CPAR	...	P.622
•CP-FP	•CPFR	...	
•AP-AP	•APAR	...	P.623
•AP-FP	•APFR	...	
•FP-AP	•FPAR	...	P.624
•FP-FP	•FPFR	...	
•CLN-P		...	P.659
•CBN-P		...	P.660



Order

Catalog No. — L

PQSP 13 — 52

USPP 20



Days to Ship

Quotation



Price

Quotation

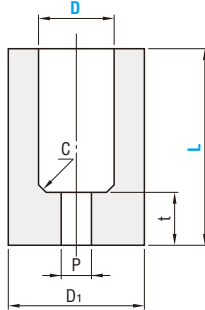
URETHANE STRIPPERS FOR FALL-OUT PREVENTION UNITS

RoHS



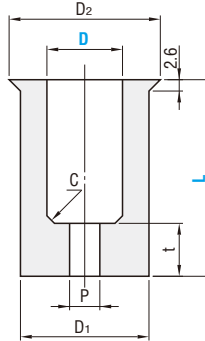
US (Urethane stripper for PQSP)

$$\text{※ } D = 6 \cdot 8 \cdot 45$$



※ The type varies depending on D.

$$\text{※ } D = 10 \sim 38$$



Urethane Products Guide P.1025

Shore A95

D		D ₁	D ₂	P	t	C	Catalog No.		L												Base unit price 1~19 pieces
							Type	D													
6	−0.2 −0.4	13	—	1.5	5	1.5	US	(6)	27	32	37	42	47	52	Quotation						
8		16	2.5	(8)				27	32	37	42	47	52								
10		18	21	3.5	6	2.0		10	27	29	32	34	37	39		42	44	47	49	52	54
13		23	26					13	27	29	32	34	37	39		42	44	47	49	52	54
16		28	31	4	7	2.0		16	37	39	42	44	47	49		52	54	57	59	62	64
20		33	36					20	48	50	53	55	58	60		63	65	68	70	73	75
25	−0.3 −0.5	40	43	5	8	2.0		25	48	50	53	55	58	60		63	65	68	70	73	75
32		50	53					32	48	50	53	55	58	60		63	65	68	70	73	75
38		60	63					38	49	51	54	56	59	61		64	66	69	71	74	76
45		70	—					(45)	49	51	54	56	59	61		64	66	69	71	74	76

Types for D (6), (8), and (45) are different. Refer to the drawing above.



Order

Catalog No.

US 13

—

42



Price

Quotation

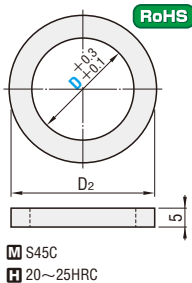


Days to Ship

Quotation

Protection rings for urethane strippers

RoHS



M S45C

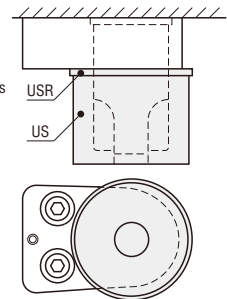
20~25HRC

D	D ₂	Catalog No.		Base unit price 1~19 pieces
10	22	USR	10	Quotation
13	27		13	
16	32		16	
20	37		20	
25	44		25	
32	54		32	
38	64		38	
45	74		45	

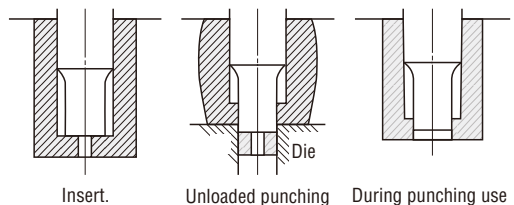


Example

The protection ring USR prevents damage to the urethane stripper caused by one-sided contact with the retainer surface or by interference with the bolt holes.



At the time of die adjustment, prepare the urethane stripper by performing unloaded punching so that its shape matches the punch tip before use. (Can also be used for shaped punches.)



Insert.

Unloaded punching

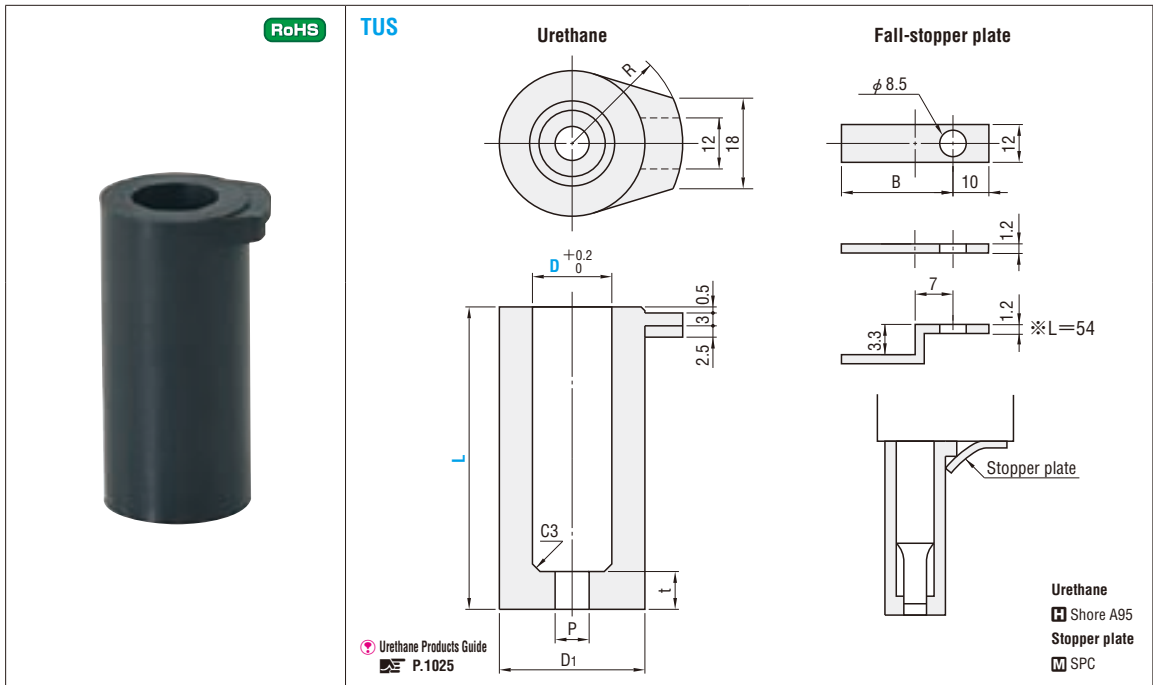
During punching use

Catalog No.	F=L×10%		F=L×15%		F=L×20%		
Type D—L	Fmm	N (kgf) Load	Fmm	N (kgf) Load	Fmm	N (kgf) Load	V
US 6—27	2.7	637 {65}	4.1	834 {85}	5.4	981 {100}	15.0
32	3.2		4.8		6.4		
37	3.7		5.6		7.4		
42	4.2		6.3		8.4		
47	4.7		7.1		9.4		
52	5.2		7.8		10.4		
US 8—27	2.7	981 {100}	4.1	1275 {130}	5.4	1569 {160}	18.5
32	3.2		4.8		6.4		
37	3.7		5.6		7.4		
42	4.2		6.3		8.4		
47	4.7		7.1		9.4		
52	5.2		7.8		10.4		
US 10—27	2.7	1226 {125}	4.1	1569 {160}	5.4	1863 {190}	20.7
29	2.9		4.4		5.8		
32	3.2		4.8		6.4		
34	3.4		5.1		6.8		
37	3.7		5.6		7.4		
39	3.9		5.9		7.8		
42	4.2		6.3		8.4		
44	4.4		6.6		8.8		
47	4.7		7.1		9.4		
49	4.9		7.4		9.8		
52	5.2		7.8		10.4		
54	5.4		8.1		10.8		
US 13—27	2.7	1961 {200}	4.1	2452 {250}	5.4	2942 {300}	26.5
29	2.9		4.4		5.8		
32	3.2		4.8		6.4		
34	3.4		5.1		6.8		
37	3.7		5.6		7.4		
39	3.9		5.9		7.8		
42	4.2		6.3		8.4		
44	4.4		6.6		8.8		
47	4.7		7.1		9.4		
49	4.9		7.4		9.8		
52	5.2		7.8		10.4		
54	5.4		8.1		10.8		
US 16—37	3.7	2746 {280}	5.6	3530 {360}	7.4	4217 {430}	32.0
39	3.9		5.9		7.8		
42	4.2		6.3		8.4		
44	4.4		6.6		8.8		
47	4.7		7.1		9.4		
49	4.9		7.4		9.8		
52	5.2		7.8		10.4		
54	5.4		8.1		10.8		
57	5.7		8.6		11.4		
59	5.9		8.9		11.8		
62	6.2		9.3		12.4		
64	6.4		9.6		12.8		
US 20—48	4.8	3334 {340}	7.2	4217 {430}	9.6	5001 {510}	38.0
50	5.0		7.5		10.0		
53	5.3		8.0		10.6		
55	5.5		8.3		11.0		
58	5.8		8.7		11.6		
60	6.0		9.0		12.0		

Catalog No.	F=L×10%		F=L×15%		F=L×20%		
Type D—L	Fmm	N (kgf) Load	Fmm	N (kgf) Load	Fmm	N (kgf) Load	V
US 20—63	6.3	3334 {340}	9.5	4217 {430}	12.6	5001 {510}	38.0
65	6.5		9.8		13.0		
68	6.8		10.2		13.6		
70	7.0		10.5		14.0		
73	7.3		11.0		14.6		
75	7.5		11.3		15.0		
US 25—48	4.8	5099 {520}	7.2	6472 {660}	9.6	7453 {760}	46.0
50	5.0		7.5		10.0		
53	5.3		8.0		10.6		
55	5.5		8.3		11.0		
58	5.8		8.7		11.6		
60	6.0		9.0		12.0		
63	6.3		9.5		12.6		
65	6.5		9.8		13.0		
68	6.8		10.2		13.6		
70	7.0		10.5		14.0		
73	7.3		11.0		14.6		
75	7.5		11.3		15.0		
US 32—48	4.8	7845 {800}	7.2	9807 {1000}	9.6	11278 {1150}	57.5
50	5.0		7.5		10.0		
53	5.3		8.0		10.6		
55	5.5		8.3		11.0		
58	5.8		8.7		11.6		
60	6.0		9.0		12.0		
63	6.3		9.5		12.6		
65	6.5		9.8		13.0		
68	6.8		10.2		13.6		
70	7.0		10.5		14.0		
73	7.3		11.0		14.6		
75	7.5		11.3		15.0		
US 38—49	4.9	11278 {1150}	7.4	14220 {1450}	9.8	16181 {1650}	69.0
51	5.1		7.7		10.2		
54	5.4		8.1		10.8		
56	5.6		8.4		11.2		
59	5.9		8.9		11.8		
61	6.1		9.2		12.2		
64	6.4		9.6		12.8		
66	6.6		9.9		13.2		
69	6.9		10.4		13.8		
71	7.1		10.7		14.2		
74	7.4		11.1		14.8		
76	7.6		11.4		15.2		
US 45—49	4.9	15200 {1550}	7.4	19123 {1950}	9.8	21575 {2200}	80.5
51	5.1		7.7		10.2		
54	5.4		8.1		10.8		
56	5.6		8.4		11.2		
59	5.9		8.9		11.8		
61	6.1		9.2		12.2		
64	6.4		9.6		12.8		
66	6.6		9.9		13.2		
69	6.9		10.4		13.8		
71	7.1		10.7		14.2		
74	7.4		11.1		14.8		
76	7.6		11.4		15.2		

●Load (kgf)=Load (N) ×0.101972

URETHANE STRIPPERS



D	D ₁	R	P	t	B	Applicable retainer types	N(kgf) Load		Catalog No.		Base unit price 1~19 pieces
							F=L×10%	F=L×15%	Type	D—L	
10	18	13	3.5	6	16	—	981{100}	1373{140}	TUS	10—54	Quotation
					17.5	②				10—59	
					24.5	①				10—61	
					17.5	②				10—66A	
					24.5	①				10—66B	
13	23	15.5	3.5	6	17.5	②	1569{160}	1961{200}		13—59	
					22.0	①				13—61	
					17.5	②				13—66A	
					22.0	①				13—66B	
15	25	16.5	4	6	12.5	—	1863{190}	2256{230}		15—54	
16	28	18	4	6	17.5	②	2452{250}	2942{300}		16—59	
					②	16—66					
20	33	20.5	4	7	12.5	—	3040{310}	3727{380}		20—54	
					②	20—59					
					②	20—66					
25	40	24	4	7	20.5	②	4119{420}	5099{520}		25—59	
					②	25—66					

Applicable retainer types: ① Single fixing-bolt type P.619・P.620 ② Triangular type P.625・P.626

Load (kgf) = Load (N) × 0.101972



Order

Catalog No.

TUS 10—59



Days to Ship

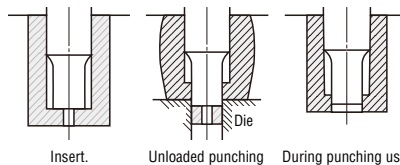
Quotation



Price

Quotation

At the time of die adjustment, prepare the urethane stripper by performing unloaded punching so that its shape matches the punch tip before use. (Can also be used for shaped punches.)



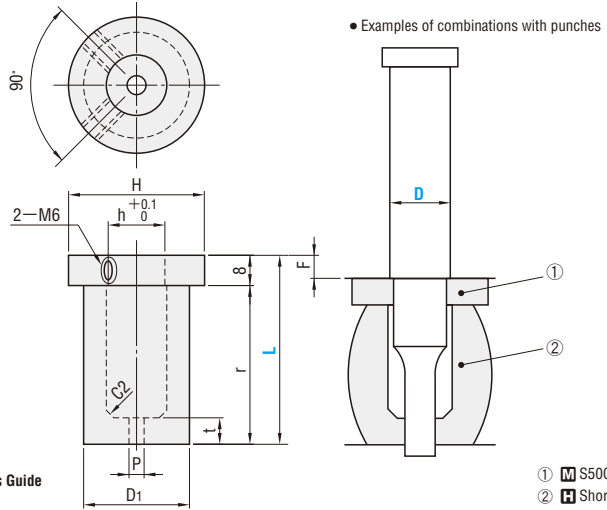
Applicable retainers for TUS

Type	Retainer	
①	SP—APS	SPARS
	SP—FPS	SPFRS
	TP—APS	TPARS
	TP—FPS	TPFRS
②	25CRN—AP	25CRNAR
	25CRN—FP	25CRNFR
	CRN—AP	CRNAR
	CRN—FP	CRNFR

URETHANE STRIPPERS

RoHS

USN



Urethane Products Guide
P.1025

① M S50C
② S Shore A95

F=ℓ×10%		F=ℓ×15%		F=ℓ×20%		Punch diameter D	D ₁	P	t	h	H	L	Catalog No.		L	Base unit price					
Fmm	N(kgf) Load	Fmm	N(kgf) Load	Fmm	N (kgf) Load								Type	Nominal size		1~19 pieces					
3.2	1226	4.8	1569	6.4	1863	10	18	3.5	6	9.2	23	40	USN	10	40	Quotation					
4.2	{125}	6.3	{160}	8.4	{190}							13					23	12.2	23	50	
3.2	1961	4.8	2452	6.4	2942	16	28			15.2	28									40	16
4.2	{200}	6.3	{250}	8.4	{300}															50	
3.2	2746	4.8	3530	6.4	4217	20	33	4	7	19.2	33	40		25							
4.2	{280}	6.3	{360}	8.4	{430}							50			50		25				
3.2	3334	4.8	4217	6.4	5001	25	40			24.2	40	31.2			50		32				
4.2	{340}	6.3	{430}	8.4	{510}													50	50		
3.2	5099	4.8	6472	6.4	7453	32	50			5	31.2	50		40	50						
4.2	{520}	6.3	{660}	8.4	{760}												50	50			
3.2	7845	4.8	9807	6.4	11278	32	50	5		31.2	50	40		50							
4.2	{800}	6.3	{1000}	8.4	{1150}										50		50				

● Load (kgf)=Load (N) ×0.101972



Order

Catalog No. — L
USN 16 — 50



Days to Ship

Quotation

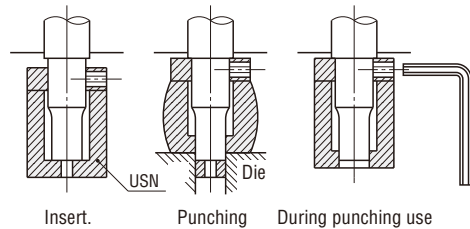


Price

Quotation

At the time of die adjustment, prepare the urethane stripper by performing unloaded punching so that its shape matches the punch tip before use. (Can also be used for shaped punches.)

The punch must be modified for urethane stripper installation (alteration code UC).



Select retainers: P. 629