



RETAINERS

RETAINERS



Product name	HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL	HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL	HEAVY DUTY SQUARE RETAINER SETS FOR HIGH-TENSILE STEEL
Catalog No.	HDP-A □ HDP-F □	—FOR HEAVY-LOAD PUNCHES—	HSR-□□ HSA-□□
Page	736	737	738



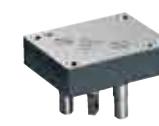
END RETAINER SETS FOR NC MACHINING —25MM THICK TYPE— —SPACE SAVING, SINGLE BOLT TYPE FOR PUNCHES WITH LOCATING DOWEL HOLES—	END RETAINER SETS FOR EDGE-MATCHING MACHINING —25 MM THICK TYPE— —SPACE SAVING, SINGLE BOLT TYPE FOR PUNCHES WITH LOCATING DOWEL HOLES—	END RETAINER SETS FOR NC MACHINING DP-A □ DP-F □	END RETAINER SETS FOR EDGE-MATCHING MACHINING CP-A □ CP-F □
739	740	741	742



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—
743	744	745	746



SQUARE RETAINER SETS SR-□□ SA-□□	RETAINER BACKING PLATES BPC	SELECT RETAINER SETS —COMPACT AIR TYPE—	SELECT RETAINER SETS —STANDARD AIR TYPE—	SELECT RETAINER SETS —STANDARD MANUAL TYPE—
747	748	751	752	753



SELECT RETAINER SETS —AIR TYPE FOR HEAVY LOAD—	REMOVABLE PUNCH RETAINER UNITS —AIR TYPE—	SPECIAL RETAINER SETS —FIXED SIZE TYPE—	SPECIAL RETAINER SETS —CONFIGURABLE SIZE TYPE—	STEEL PAD
754	755	757	759	761



BUSHINGS FOR PUNCH HOLE POSITION ADJUSTMENT PCWB	URETHANE FALL-STOPPER UNITS PQSP USQP	URETHANE STRIPPERS FOR FALL-OUT PREVENTION UNITS US	PROTECTION RINGS FOR URETHANE STRIPPERS USR	URETHANE STRIPPERS TUS USN
763	764	765	765	767 768

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 either of the center hole in punch or the dowel hole in retainer.	
	End retainers for NC machining —For heavy load—		35		
	Square retainers		30		
	Square retainers —For heavy load—		35		
Single fixing-bolt type	End retainers for NC 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)	
	End retainer for edge-matching machining		25		
Double fixing-bolts type	End retainers for NC machining		30	Punch locating is performed by means either of the center hole in punch or the dowel hole in retainer.	
	End retainer for edge-matching machining		30		
	End retainers for NC machining —For heavy load—		30		
	End retainers for edge-matching machining —For heavy load—		30		
	End retainers for edge-matching machining —For heavy load—		30		

Type	Shape		Retainer body thickness	Locating method	Mounting method
	For round punch/die	For shaped punch			
Triangle type			25 32	Punch locating is performed by means either of the center hole in punch or the dowel hole in retainer.	
Square type			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=8mm		ST=10mm	
Shaft dia.	D=10·13·16·20		D=10·13·16·20·25·32	

Select retainers	Removable punch retainer units	
	Fixed size type	Configurable size type
Stroke	ST=8mm	
Shaft dia.	Free	

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

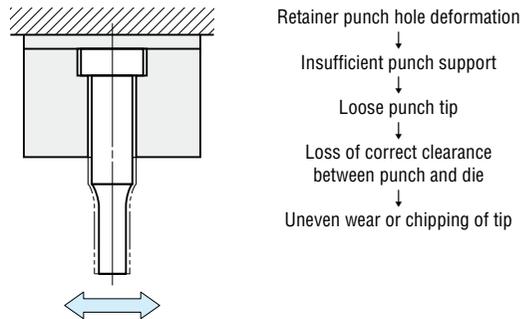
These heavy duty retainers for high-tensile steel deliver superior performance when the stress at the punch shank during punching exceeds approximately 500 MPa.

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)

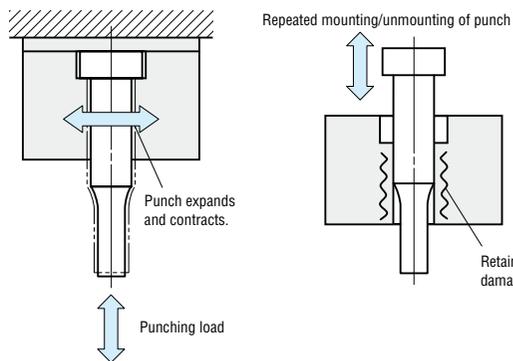
Example: If the tensile strength of the workpiece material is 590 MPa and the plate thickness is t3.2, the stress will be $590 \times 3.2 = 1888$ [MPa·mm], a figure in excess of 1800 [MPa·mm]. This indicates that the use of a heavy duty retainer for high-tensile steel is suitable.

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.

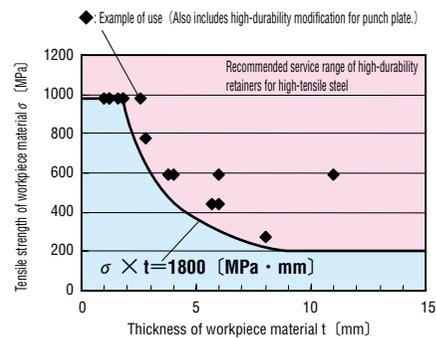


[Fig. 1] Decrease in punch lifetime due to retainer deformation



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

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

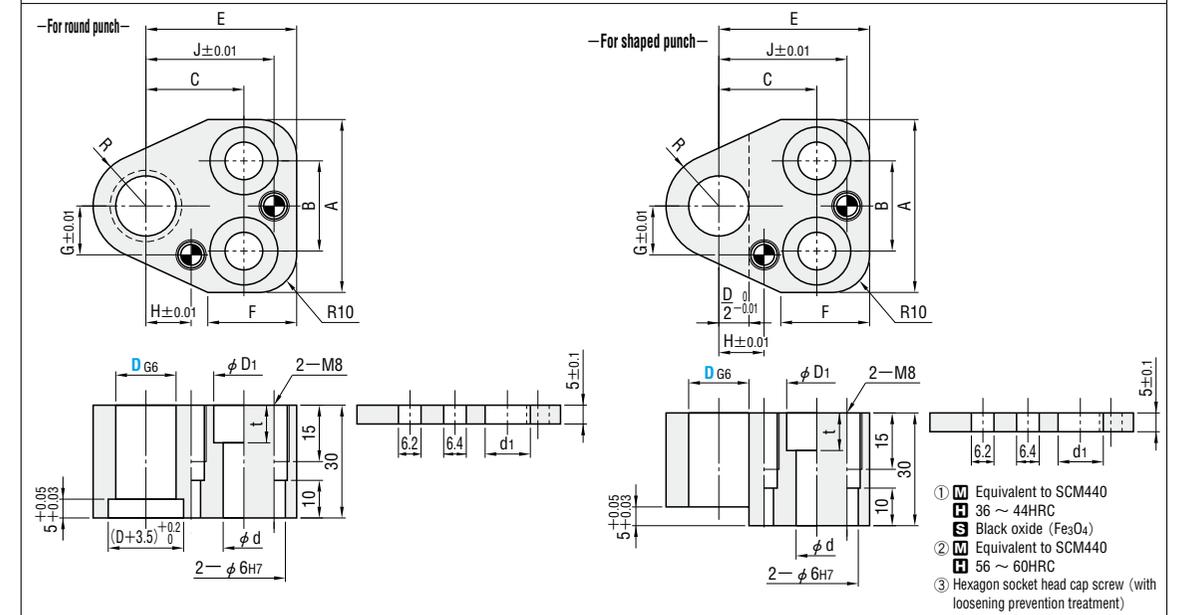


[Fig. 4] Recommended service range and example of use for heavy duty retainers for high-tensile steel

HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL

— FOR NC MACHINING · PUNCHES WITH LOCATING DOWEL HOLES —

For round punch					For shaped punch								
Catalog No.	Retainer No.	Components					Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤			①	②	③	④	⑤
HDP-AP	HA1	○	○	○	○	○	HDP-FP	HF1	○	○	○	○	○
HDPAR	HA2	○	○	○	○	○	HDPFR	HF2	○	○	○	○	○
BPC	—	○	○	○	○	○	BPC	—	○	○	○	○	○
HDP-AN	HA3	○	○	○	○	○	HDP-FN	HF3	○	○	○	○	○



Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	t	d ₁	Ⓐ ③④⑤
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
HDP-AP (①②③④⑤)	HDP-FP (①②③④⑤)	13	+0.017 +0.006	43	26	23	38		13	11	32	12					
HDPAR (①③④⑤)	HDPFR (①③④⑤)	16	+0.017 +0.006	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	17	11	12	12	
HDP-AN (①)	HDP-FN (①)	25	+0.020 +0.007	50	30	30	46	18	17	39	19.5						③ M10—40 ④ MSTM6—30 ⑤ MSW8



Order

Catalog No.

HDP-AP 25



Price

Quotation



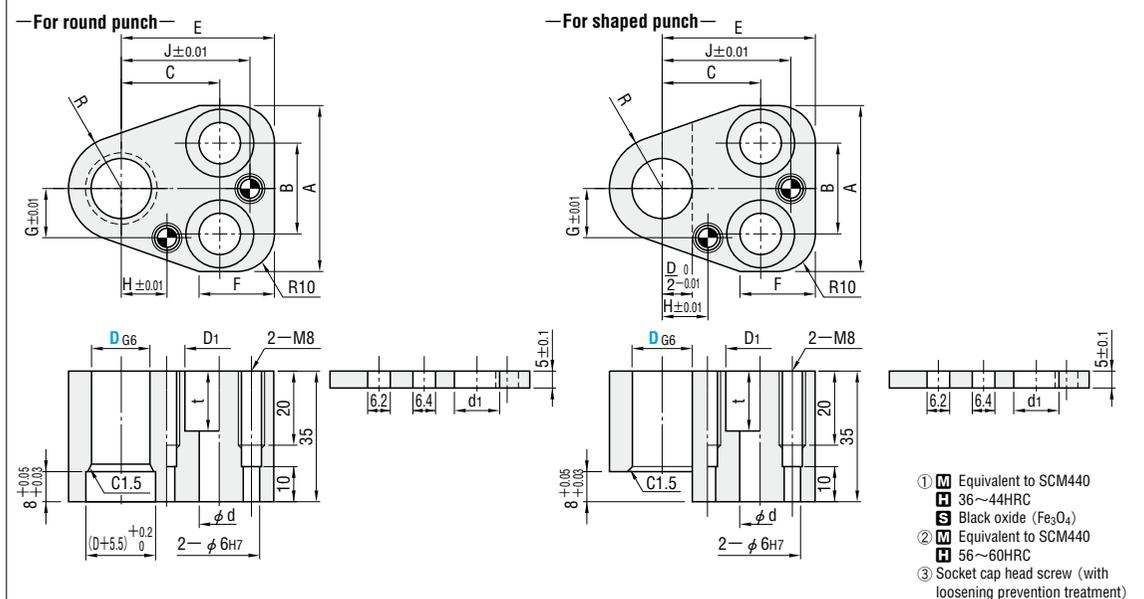
Days to Ship

Quotation

HEAVY DUTY END RETAINER SETS FOR HIGH-TENSILE STEEL

—FOR NC MACHINING · PUNCHES FOR HEAVY LOAD—

For round punch					For shaped punch								
Catalog No.	Retainer No.	Components					Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤			①	②	③	④	⑤
HAP-AP	JA1	○	○	○	○	○	HAP-FP	JF1	○	○	○	○	○
HAPAR	JA2	○	○	○	○	○	HAPFR	JF2	○	○	○	○	○
BPC	—	○	○	○	○	○	BPC	—	○	○	○	○	○
HAP-AN	JA3	○	○	○	○	○	HAP-FN	JF3	○	○	○	○	○



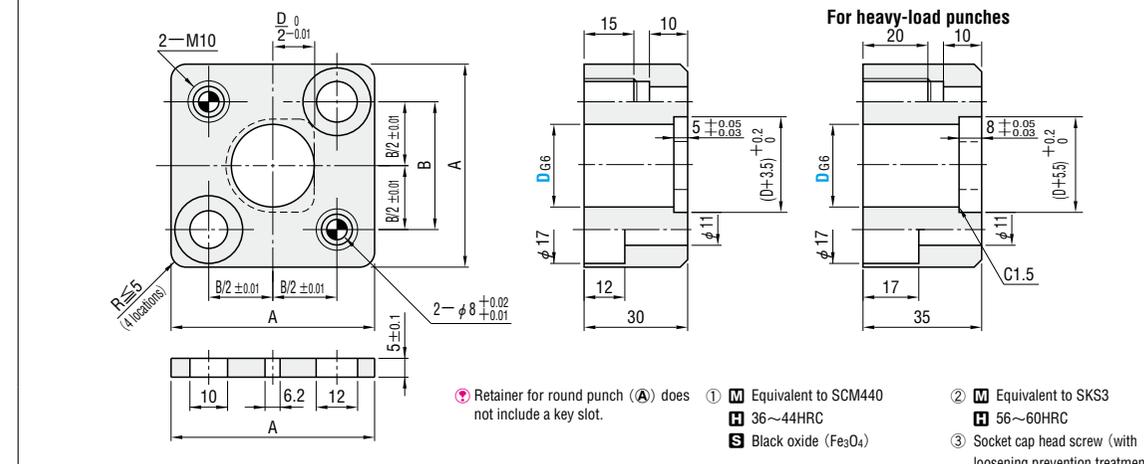
Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	t	A ③④⑤	
Type	①																
For round punch	For shaped punch	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	15	③ M8-40
HAP-AP (①②③④⑤)	HAP-FP (①②③④⑤)	13	+0.017 +0.006	43	26	23	38		13	11	32	12					④ MSTM6-30
HAPAR (①③④⑤)	HAPFR (①③④⑤)	16	+0.020 +0.007	44	24	26	40		16	12	34	14					⑤ MSW8
BPC (②)	BPC (②)	20	+0.020 +0.007	48	28	27	42		18	14	36	17					③ M10-40
HAP-AN (①)	HAP-FN (①)	25	+0.020 +0.007	50	30	30	46	18	17	39	19.5	④ MSTM6-30					
																	⑤ MSW8

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							
Type	Catalog No.	Retainer No.	Components				
			①	②	③	④	⑤
A	HSR-AP	MA1	○	○	○	○	○
	HMPSP	MA2	○	○	○	○	○
	*MPSPH	—	○	○	○	○	○
D	HSR-AN	MA3	○	○	○	○	○
	HSR-FP	MF1	○	○	○	○	○
	HMPDR	MF2	○	○	○	○	○
E	*MPSPH	—	○	○	○	○	○
	HSR-FN	MF3	○	○	○	○	○
	HSA-AP	LA1	○	○	○	○	○
A	HASAR	LA2	○	○	○	○	○
	*MPSPH	—	○	○	○	○	○
	HSA-AN	LA3	○	○	○	○	○
D	HSA-FP	LF1	○	○	○	○	○
	HASFR	LF2	○	○	○	○	○
	*MPSPH	—	○	○	○	○	○
E	HSA-FN	LF3	○	○	○	○	○



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

*MPSPH is the successor product of MPSP published in the previous catalog.

Order **Catalog No.** HSR-AP 25 **Quotation**

Days to Ship **Quotation**

Price **Quotation**

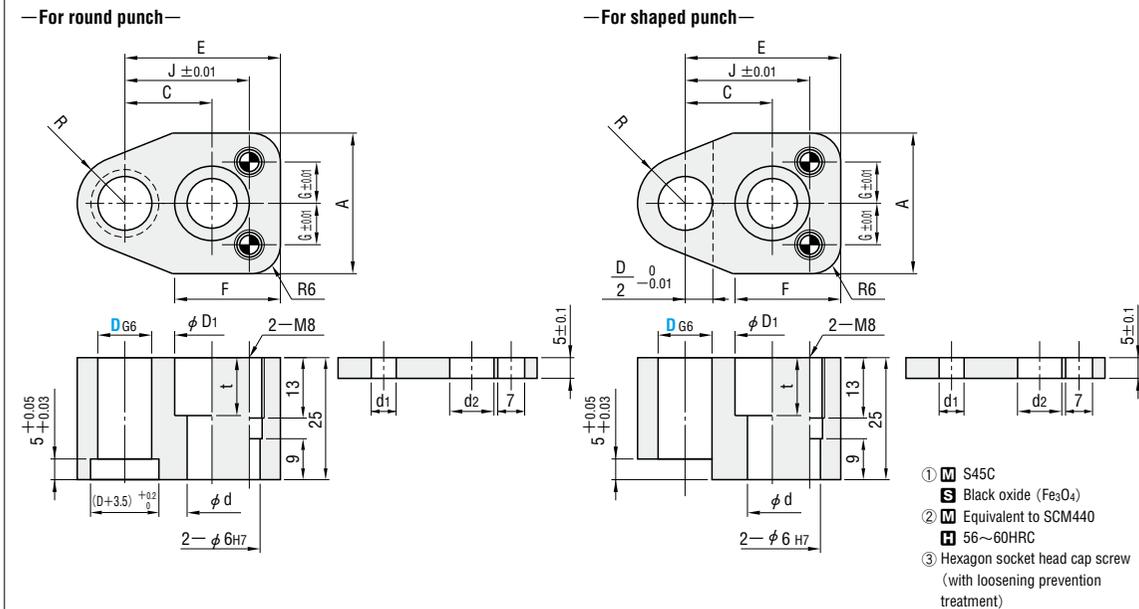
END RETAINER SETS FOR NC MACHINING 25 MM THICK TYPE

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

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					For shaped punch								
Catalog No.	Retainer No.	Components					Catalog No.	Retainer No.	Components				
SP-APS	SA1	○	○	○	○	○	SP-FPS	SF1	○	○	○	○	○
SPARS	SA2	○	○	○	○	○	SPFRS	SF2	○	○	○	○	○
BPST	—	○	○	○	○	○	BPST	—	○	○	○	○	○
SP-ASN	SA3	○	○	○	○	○	SP-FSN	SF3	○	○	○	○	○



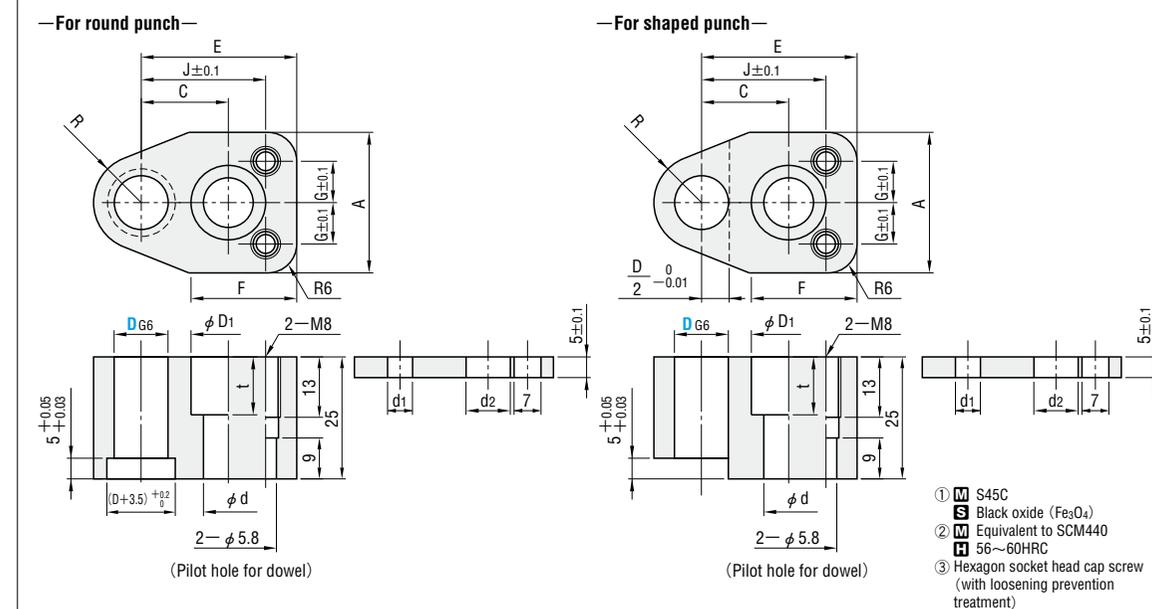
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Type	Retainer No.															
—For round punch— SP-APS (①②③④⑤)	—For shaped punch— SP-FPS (①②③④⑤)	10	+0.014 +0.005	34	22	38	26	12	31.5	11.5	19	13	13	14	6.2	③ M12-35 ④ MSTM6-30 ⑤ MSW8
SPARS (①③④⑤)	SPFRS (①③④⑤)	13														
BPST (②)	BPST (②)	16	+0.017 +0.006	36	26	45	33		39	14	25	17	17	18		③ M16-35 ④ MSTM6-30 ⑤ MSW8
SP-ASN (①)	SP-FSN (①)															

Order **Catalog No.**
SP-APS 13

Days to Ship **Quotation**

Price **Quotation**

For round punch					For shaped punch								
Catalog No.	Retainer No.	Components					Catalog No.	Retainer No.	Components				
TP-APS	TA1	○	○	○	○	○	TP-FPS	TF1	○	○	○	○	○
TPARS	TA2	○	○	○	○	○	TPFRS	TF2	○	○	○	○	○
BPST	—	○	○	○	○	○	BPST	—	○	○	○	○	○
TP-ASN	TA3	○	○	○	○	○	TP-FSN	TF3	○	○	○	○	○



Catalog No.		D	D _{G6}	A	C	E	F	G	J	R	D ₁	d	t	d ₂	d ₁	⚠ ③④⑤
Type	Retainer No.															
—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														
BPST (②)	BPST (②)	16	+0.017 +0.006	36	26	45	33		39	14	25	17	17	18		③ M16-35 ④ MSTM6-30 ⑤ MSW8
TP-ASN (①)	TP-FSN (①)															

Order **Catalog No.**
TPARS 16

Days to Ship **Quotation**

Price **Quotation**

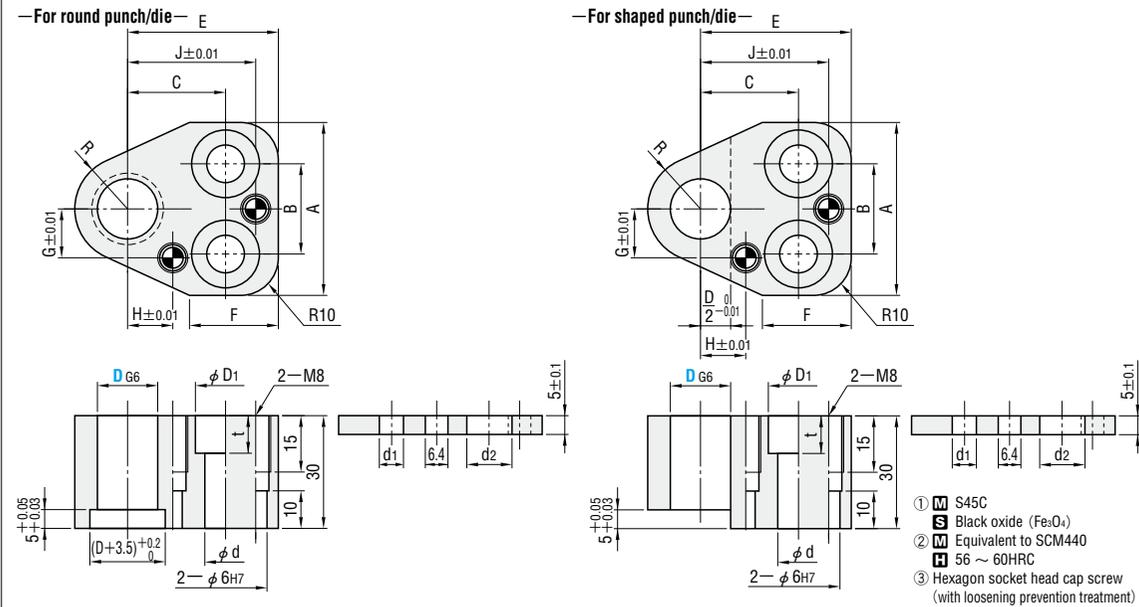
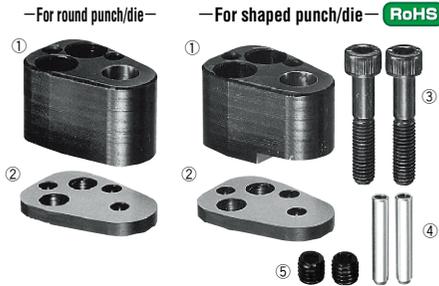
RETAINERS

END RETAINER SETS FOR NC MACHINING

— FOR PUNCHES WITH LOCATING DOWEL HOLES —

END RETAINER SETS FOR EDGE-MATCHING MACHINING

For round punch·round button die					For shaped punch·shaped button die										
For round	Retainer No.	Catalog No.	Components					For shaped	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤				①	②	③	④	⑤
For punch	DA1	DP-AP	○	○	○	○	○	For punch	DF1	DP-FP	○	○	○	○	○
	DA2	DPAR	○	○	○	○	○		DF2	DPFR	○	○	○	○	○
		BPC	○	○	○	○	○			BPC	○	○	○	○	○
Button die		DP-AD	○	○	○	○	○	Button die		DP-FD	○	○	○	○	○
		BDC	○	○	○	○	○			BDC	○	○	○	○	○
Body only	DA3	DP-AN	○	○	○	○	○	Body only	DF3	DP-FN	○	○	○	○	○



- ① S45C
- ② Black oxide (Fe₃O₄)
- ③ Equivalent to SCM440
- ④ 56 ~ 60HRC
- ⑤ Hexagon socket head cap screw (with loosening prevention treatment)

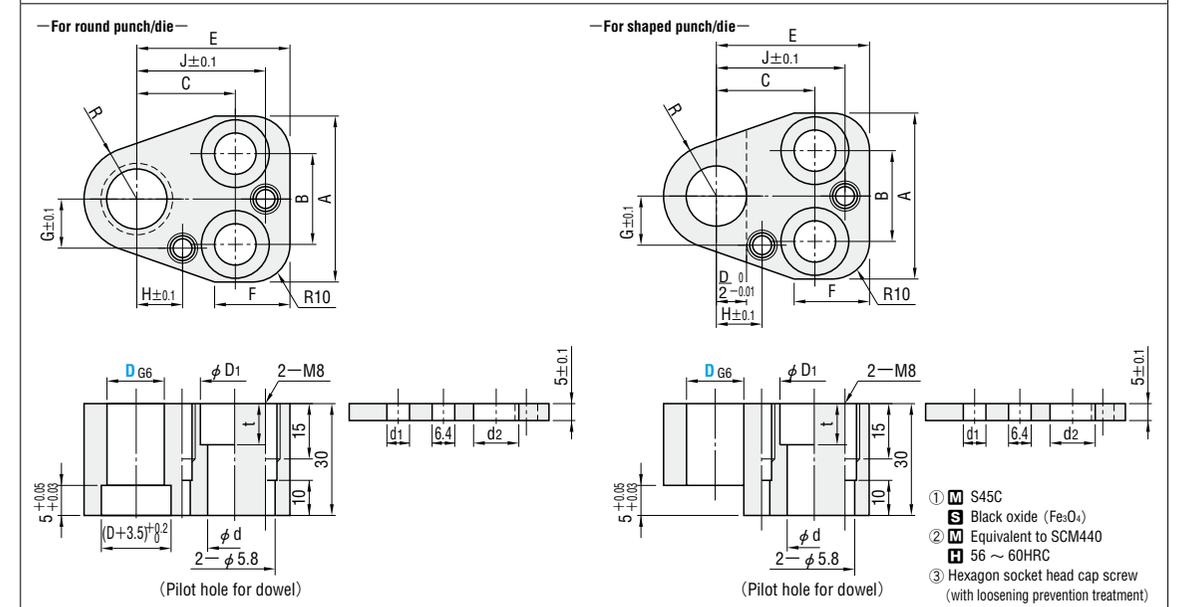
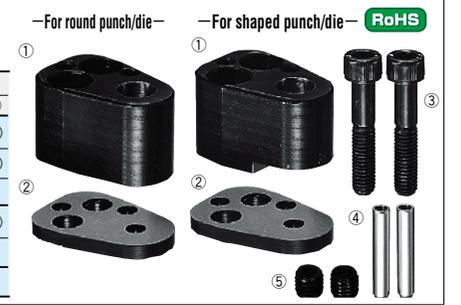
Catalog No.		D	D _{G6}	A	B	C	E	F	G	H	J	R	D ₁	d	t	d ₂	d ₁		A ③④⑤
Type																	BPC	BDC	
For round punch/die	10	+0.014 +0.005	37	20	21	35	20	10	9	29	9.5	14	9	10	10	6.2	7.4	3	M8-40
For shaped punch/die	13	+0.017 +0.006	43	26	23	38													
	16	+0.017 +0.006	44	24	26	40			12	34	14							5	MSW8
	20	+0.020 +0.007	48	28	27	42			16	14	36	17	17	11	12	12		3	M10-40
	25	+0.020 +0.007	50		30	46			18	17	39	19.5						4	MSTM6-30
	32		54	30	33	48			21	20	42	23						5	MSW8
	38	+0.025 +0.009	58		35	52			23	23	46	26	19	13	14	14		3	M12-40
	45		64	34	38	56			26	27	50	29.5						4	MSTM6-30
																		5	MSW8

Order **Catalog No.**
DP-AP 25

Price **Quotation**

Days to Ship **Quotation**

For round punch·round button die					For shaped punch·shaped button die										
For round	Retainer No.	Catalog No.	Components					For shaped	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤				①	②	③	④	⑤
For punch	CA1	CP-AP	○	○	○	○	○	For punch	CF1	CP-FP	○	○	○	○	○
	CA2	CPAR	○	○	○	○	○		CF2	CPFR	○	○	○	○	○
		BPC	○	○	○	○	○			BPC	○	○	○	○	○
Button die		CP-AD	○	○	○	○	○	Button die		CP-FD	○	○	○	○	○
		BDC	○	○	○	○	○			BDC	○	○	○	○	○
Body only	CA3	CP-AN	○	○	○	○	○	Body only	CF3	CP-FN	○	○	○	○	○



- ① S45C
- ② Black oxide (Fe₃O₄)
- ③ Equivalent to SCM440
- ④ 56 ~ 60HRC
- ⑤ 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 ₂	d ₁		A ③④⑤
Type																	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
For shaped punch/die	13	+0.017 +0.006	43	26	23	38													
	16	+0.017 +0.006	44	24	26	40			12	34	14							5	MSW8
	20	+0.020 +0.007	48	28	27	42			16	14	36	17	17	11	12	12		3	M10-40
	25	+0.020 +0.007	50		30	46			18	17	39	19.5						4	MSTM6-30
	32		54	30	33	48			21	20	42	23						5	MSW8
	38	+0.025 +0.009	58		35	52			23	23	46	26	19	13	14	14		3	M12-40
	45		64	34	38	56			26	27	50	29.5						4	MSTM6-30
																		5	MSW8

Order **Catalog No.**
CP-AP 25

Price **Quotation**

Days to Ship **Quotation**

END RETAINER SETS FOR NC MACHINING

—FOR HEAVY-LOAD PUNCHES—

END RETAINER SETS FOR EDGE-MATCHING 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	○	○	○	○	○

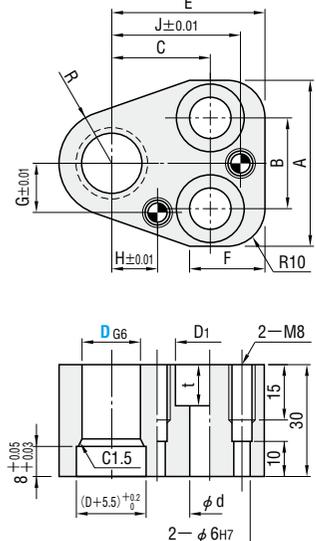
For shaped punch



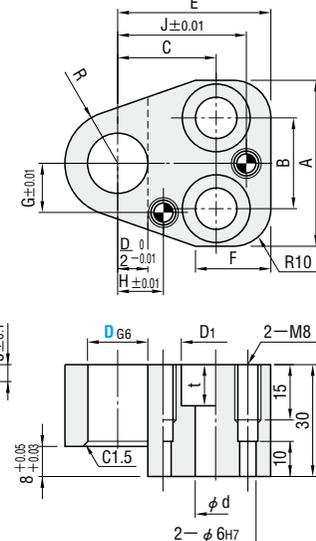
Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
AP-FP	AF1	○	○	○	○	○
APFR	AF2	○	○	○	○	○
BPC	—	○	○	○	○	○
AP-FN	AF3	○	○	○	○	○



—For round punch—

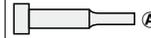


—For shaped punch—



① S45C
 ② Black oxide (Fe₃O₄)
 ③ Equivalent to SCM440
 ④ 56~60HRC
 ⑤ Hexagon socket head cap screw (with loosening prevention treatment)

For round punch



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

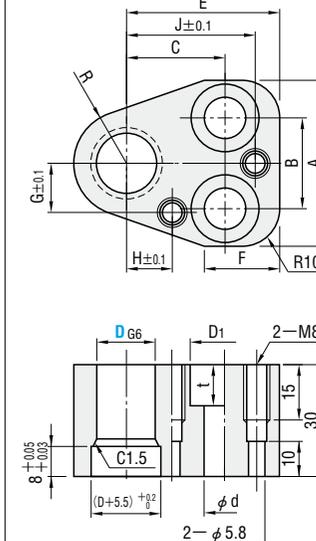
For shaped punch



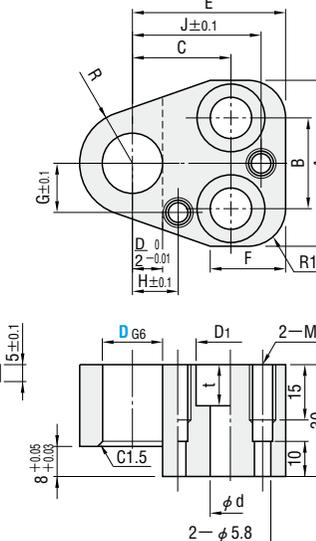
Catalog No.	Retainer No.	Components				
		①	②	③	④	⑤
FP-FP	FF1	○	○	○	○	○
FPFR	FF2	○	○	○	○	○
BPC	—	○	○	○	○	○
FP-FN	FF3	○	○	○	○	○



—For round punch—



—For shaped punch—



① S45C
 ② Black oxide (Fe₃O₄)
 ③ Equivalent to SCM440
 ④ 56~60HRC
 ⑤ 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					
APAR (①③④⑤)	APFR (①③④⑤)	16		44	24	26	40		16	14	36	17					
BPC (②)	BPC (②)	20	+0.020 +0.007	48	28	27	42		17	11	39	19.5					
AP-AN (①)	AP-FN (①)	25		50	30	30	46	18	17	39	19.5						③ M10-40 ④ MSTM6-30 ⑤ MSW8

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		16	14	36	17					
BPC (②)	BPC (②)	20	+0.020 +0.007	48	28	27	42		17	11	39	19.5					
FP-AN (①)	FP-FN (①)	25		50	30	30	46	18	17	39	19.5						③ M10-40 ④ MSTM6-30 ⑤ MSW8

 Order

 Catalog No.
AP-AP 10

 Price

 Quotation

 Days to Ship

 Quotation

 Order

 Catalog No.
FP-AP 10

 Price

 Quotation

 Days to Ship

 Quotation

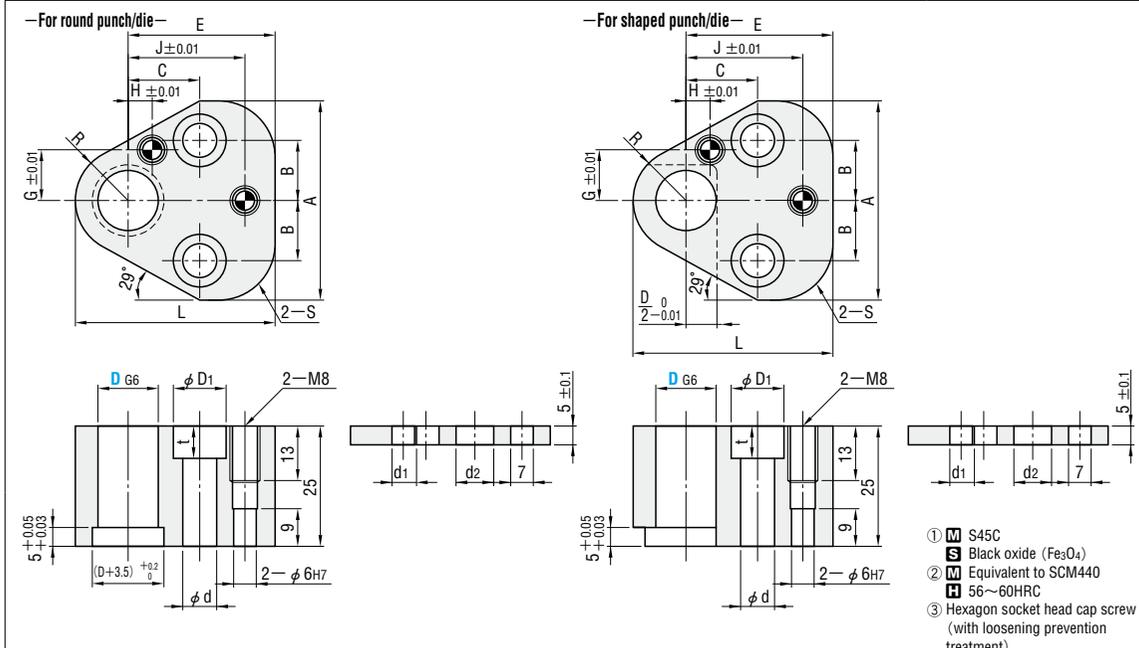
END RETAINER SETS FOR NC MACHINING 25 MM THICK TYPE

— TRIANGLE TYPE —

END RETAINER SETS FOR NC MACHINING 32 MM THICK TYPE

— TRIANGLE TYPE —

For round punch-round button die						For shaped punch-shaped button die									
For round	Retainer No.	Catalog No.	Components					For shaped	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤				①	②	③	④	⑤
For round	NA1	25CRN-AP	○	○	○	○	○	For shaped	NF1	25CRN-FP	○	○	○	○	○
For punch	NA2	25CRNAR	○	○	○	○	○	For punch	NF2	25CRNFR	○	○	○	○	○
		CRNBP	○	○	○	○	○			CRNBP	○	○	○	○	○
Button die		25CRN-AD	○	○	○	○	○	Button die		25CRN-FD	○	○	○	○	○
		CRNBD	○	○	○	○	○			CRNBD	○	○	○	○	○
Body only	NA3	25CRN-A	○	○	○	○	○	Body only	NF3	25CRN-F	○	○	○	○	○



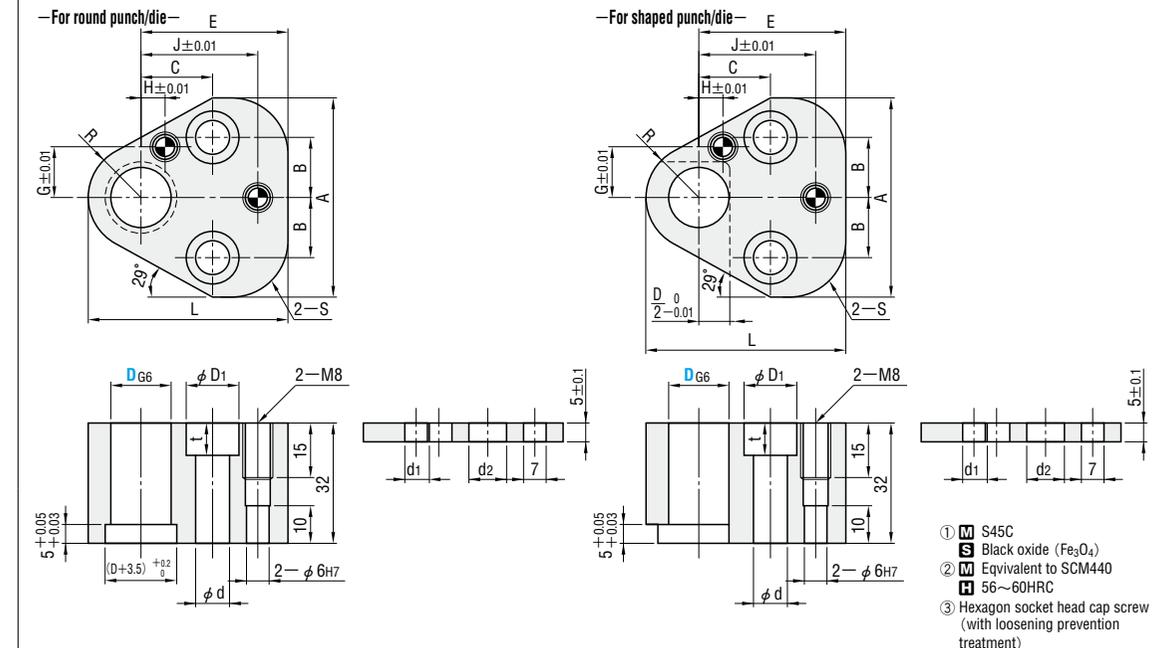
Catalog No.		D	D _{G6}	A	B	C	E	G	H	J	L	R	S	D ₁	d	t	d ₂	d ₁		A ③④⑤
Type	①																	CRNBP	CRNBD	
For round punch/die	25CRN-AP	10	+0.014 +0.005	43.7	11.12	19.05	35.0	9.0	7.5	26.925	44.5	9.5	12.0	14	9	9	10	6.2	7.4	③ M8-35
For shaped punch/die	25CRN-FP	13	+0.017 +0.006	50.0	14.27		38.1	12.0	6.5	29.970	50.8	12.7	15.2						14	9
	25CRNAR	16	+0.017 +0.006	53.2	15.87	39.7	13.5	6.0	31.750	54.0	14.3	16.8	17	11	11	12	6.2	11.6	⑤ MSW8	
	CRNBP	20	+0.020 +0.007	59.5	17.47	42.8	16.5	5.0	33.530	60.3	17.5	20.0						17	11	11
	CRNBD	25	+0.020 +0.007	69.1	19.84	23.82	47.7	22.0	40.640	69.9	22.2	24.7	19	13	14	14	17.6	17.6	④ MSTM6-30	

Order **Catalog No.**
25CRN-AP 16

Price **Quotation**

Days to Ship **Quotation**

For round punch-round button die						For shaped punch-shaped button die									
For round	Retainer No.	Catalog No.	Components					For shaped	Retainer No.	Catalog No.	Components				
			①	②	③	④	⑤				①	②	③	④	⑤
For round		CRN-AP	○	○	○	○	○	For shaped		CRN-FP	○	○	○	○	○
For punch		CRNAR	○	○	○	○	○	For punch		CRNFR	○	○	○	○	○
		CRNBP	○	○	○	○	○			CRNBP	○	○	○	○	○
Button die		CRN-AD	○	○	○	○	○	Button die		CRN-FD	○	○	○	○	○
		CRNBD	○	○	○	○	○			CRNBD	○	○	○	○	○
Body only		CRN-A	○	○	○	○	○	Body only		CRN-F	○	○	○	○	○



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	①																	CRNBP	CRNBD	
For round punch/die	CRN-AP	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
For shaped punch/die	CRN-FP	13	+0.017 +0.006	50.0	14.27		38.1	12.0	6.5	29.970	50.8	12.7	15.2						14	9
	CRNAR	16	+0.017 +0.006	53.2	15.87	39.7	13.5	6.0	31.750	54.0	14.3	16.8	17	11	11	12	6.2	11.6	⑤ MSW8	
	CRNBP	20	+0.020 +0.007	59.5	17.47	42.8	16.5	5.0	33.530	60.3	17.5	20.0						17	11	11
	CRNBD	25	+0.020 +0.007	69.1	19.84	23.82	47.7	22.0	40.640	69.9	22.2	24.7	19	13	14	14	17.6	17.6	④ MSTM6-30	

Order **Catalog No.**
CRN-AP 16

Price **Quotation**

Days to Ship **Quotation**

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		D=10·13·16·20

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

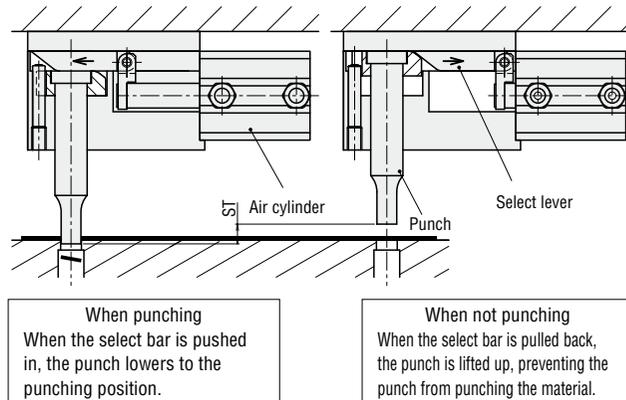
The special spring and the select bar with hinge prevent parts from becoming separated and make punch replacement easier.

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.1644.)

- 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 × 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.

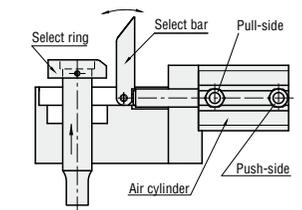
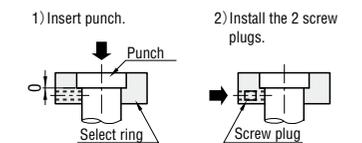
A contact protection box should be used in the cases listed below, as these may decrease the contact lifetime.

- 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.

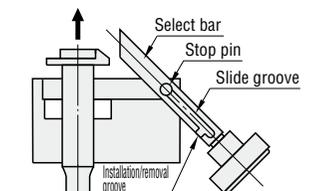
How to order USN (urethane stripper) punches

- Add the alteration codes **RC·UC** to a standard punch.
- Use USN (P.768) for the urethane stripper.
- ⊗ Alteration code (UC) cannot be used for jector punches.

Alteration	Code	Spec.	1Code	
	UC	Modification for urethane stripper (USN) installation	Quotation	
				Code U L Applicable USN L dimension
		UC40 37 L ≥ 80 L40 USN		
UC50 47 L ≥ 90 L50 USN				
<ul style="list-style-type: none"> ⊕ P · Kmax. = D - 1.1 ⊕ Can be used for L ≥ 80, L ≥ 90. ⊕ When installing onto a select retainer, use in combination with alteration RC. 				

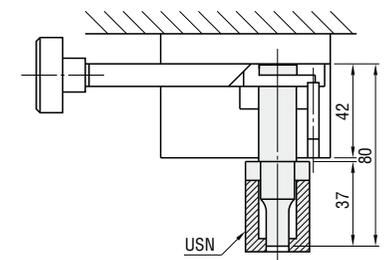
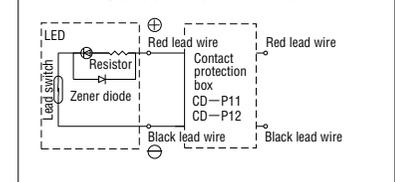


Replacing an air-type punch



Replacing a manual-type punch

Sensor internal circuit



SELECT RETAINER SETS

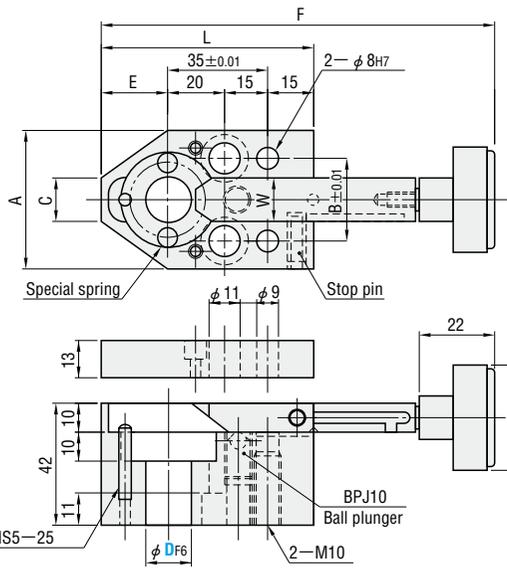
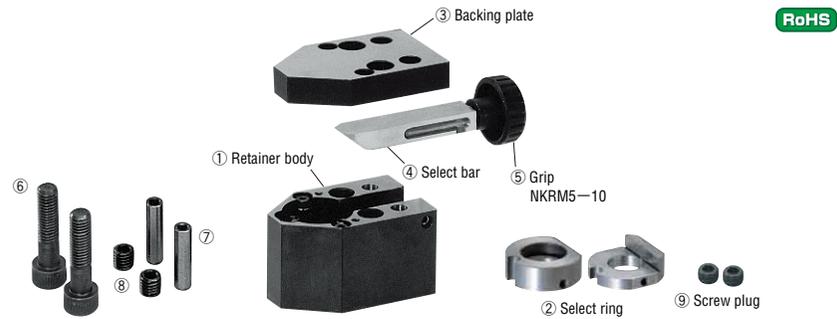
—STANDARD MANUAL TYPE—

ST=10mm

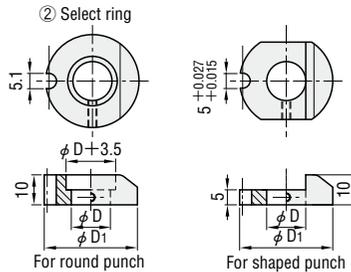
PATENTED

Check the precautions on P.749 and information concerning assembly of the select ring and punch on P.750.

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



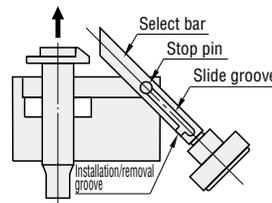
- ① M Equivalent to SCM420
- ② H 55~58HRC (depth 1 mm)
- ③ S Black oxide (Fe₃O₄)
- ④ M SK4
- ⑤ H 56~60HRC



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

Order **Catalog No.**
SLS—EH10

Example **EX**



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.749.

SELECT RETAINER SETS

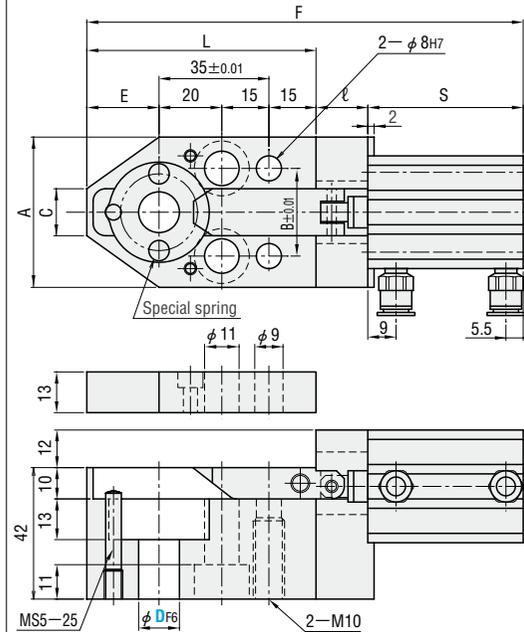
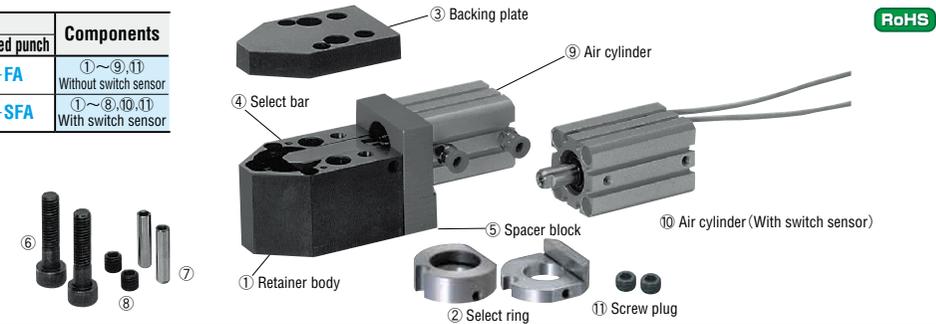
—AIR TYPE FOR HEAVY LOAD—

ST=10mm

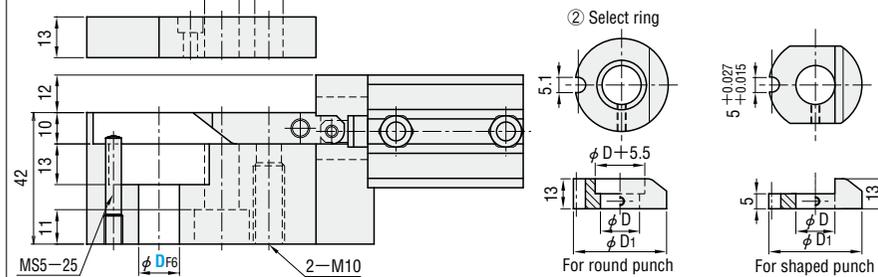
PATENTED

Check the precautions on P.749 and information concerning assembly of the select ring and punch on P.750.

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



- ① M Equivalent to SCM420
- ② H 55~58HRC (Depth 1 mm)
- ③ S Black oxide (Fe₃O₄)
- ④ M SK4
- ⑤ H 56~60HRC
- ⑥ M S45C
- ⑦⑩ Air cylinder specification
- Operating method Double-action
- Pressure used 0.4~1.0MPa (4.1~10.2kgf/cm²)
- Cylinder inner dia. φ20
- ⑧ 2-wire type contact switch
- Voltage used DC24V
- AC100V
- Lead wire length 3m



Catalog No. Type	D	A	B	C	E	L	ℓ	D ₁	Without sensor		With sensor		A	Base unit price 1~9 sets							
									S	F	S	F		SLA—EA	SLA—FA	SLA—SEA	SLA—SFA				
—Without switch sensor—														Quotation							
For round punch	SLA—EA	10	44	24	12	20	70	13.5	25	49.5	133	143	⑥ CB10—60 ⑦ MSTM8—45 ⑧ MSW10 ⑪ MSW3								
For shaped punch	SLA—FA	13	48	28	15	23	73	16.5	31	139	139	149									
—With switch sensor—																					
For round punch	SLA—SEA	16	50	30	20	25	75	21.5	31	54.5	149	149	159								
For shaped punch	SLA—SFA	20	58	38	25	27	77	28.5	35	163	163	173									

Order **Catalog No.**
SLA—EA10

Alterations **Catalog No.** — (JLC-JNC-TLC-BPC)
SLA—EA10 — JLC

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.749.

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)	Quotation
		Standard position TLC90 TLC180 TLC270	
	BPC	A ball plunger is installed on the select bar, and a recession is machined in the backing plate.	

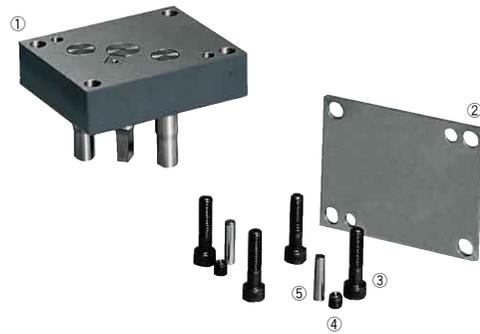
SPECIAL RETAINER SETS

—FIXED SIZE TYPE—

RoHS

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

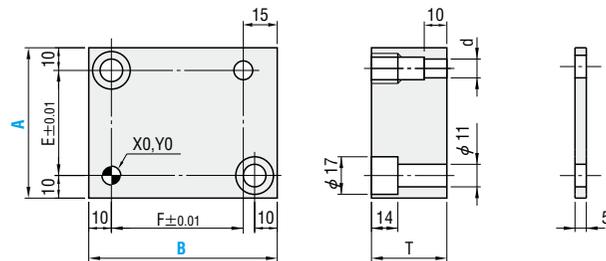
For a φ 8 dowel hole, the tolerance is φ 8_{H7}.



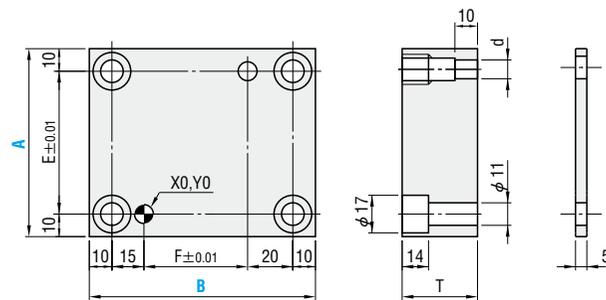
- ① S45C
- ② SK4
- ③ 56~60HRC

Retainer size

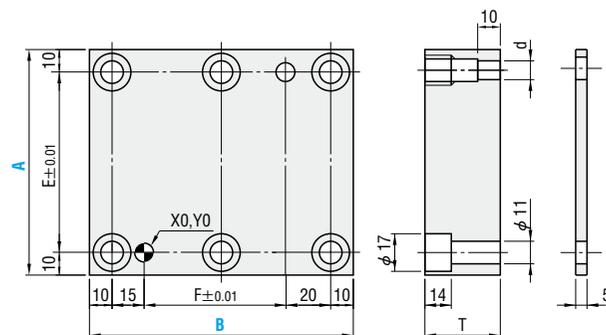
A	B	E	F	T	A
50	60	30	35	32	③ Hexagon socket head cap screw (with loosening prevention treatment) M10-40 2 ④ MSW10 2 ⑤ MSTM8-30 2
	80		55		
60	80	40	55		
	100		75		



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



A	B	E	F	T	A
125	150	105	95	32	③ Hexagon socket head cap screw (with loosening prevention treatment) M10-40 6 ④ MSW10 2 ⑤ MSTM8-30 2
	175		120		
150	175	130	120		
	200		145		



EX.1 Left hand type

d = φ 8 dowel hole SRGD-L
d = φ 7.8 SRND-L

EX.2 Right hand type

d = φ 8 dowel hole SRGD-R
d = φ 7.8 SRND-R

Position of key groove (left hand type)

Key groove dimensions (mm)

D	g	ℓ
6	7.0	16.0
8	7.0	16.0
10	10.1	17.5
13	10.1	16.0
16	13.6	18.0
20	13.6	16.0
25	16.6	15.5
32	16.6	16.5
38	16.6	13.5
45	16.6	22.5

* Dimension ℓ may be changed for reasons of space.

Position of key groove (right hand type)

The key is attached to the body by a dowel pin.



- (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 \square : $X \pm 0.01$ $Y \pm 0.01$
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.

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



Quotation



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 = ϕ 8 dowel hole	With	SRGT-LP	SRGT-RP
	W/O	SRGT-L	SRGT-R
Drill hole d = ϕ 7.8	With	SRNT-LP	SRNT-RP
	W/O	SRNT-L	SRNT-R

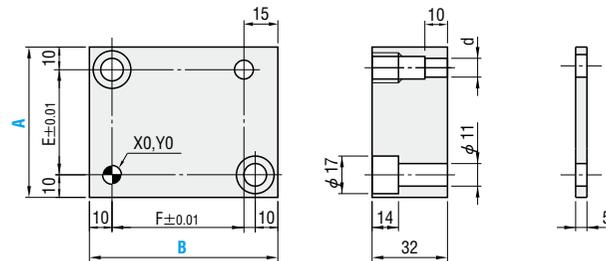
For a ϕ 8 dowel hole, the tolerance is ϕ 8_{IT7}.



- ① M S45C
- ② SK4
- ③ ④ ⑤ 56 ~ 60HRC

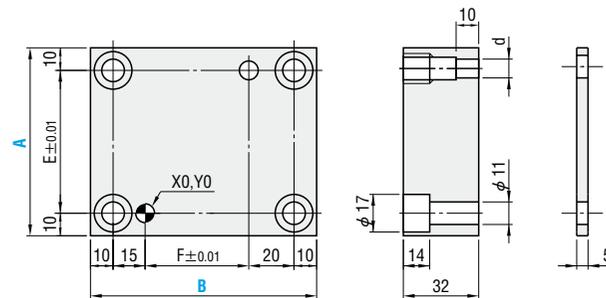
Retainer size

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



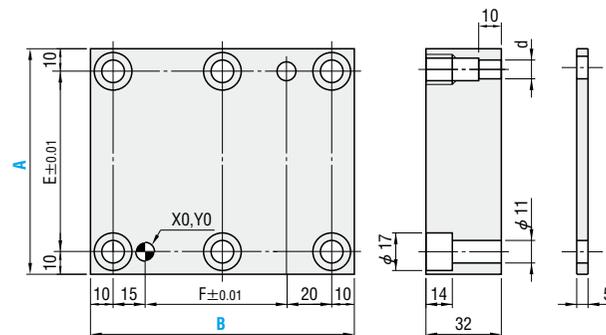
E=A-20
F=B-25

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

EX.1 Left hand type

d = ϕ 8 dowel hole SRGT-L
d = ϕ 7.8 SRNT-L

EX.2 Right hand type

d = ϕ 8 dowel hole SRGT-R
d = ϕ 7.8 SRNT-R

Position of key groove (left hand type)

Key groove dimensions (mm)

D	g	ℓ	r
6	11.3	8.7	2
8	12.2	10.1	2
10	14.9	12.5	2
13	16.5	14.8	2
16	20.9	18.5	2
20	23.5	21.8	2
25	28.5	26.8	2
32	35.5	33.8	2
38	41.5	39.8	2
45	48.5	46.8	2

* Dimensions g and ℓ may be smaller than listed above.

Position of key groove (right hand type)

Order

- Selection of retainer type (left hand type, right hand type, dowel hole, with/without backing plate)
- Selection of the No. (bolt hole) from the detailed specifications on the page at left
- Selection of plate size (A, B dimensions) from the detailed specifications on the page at left
- 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".
- 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 2mm in order to prevent interference.

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

Days to Ship **Quotation**

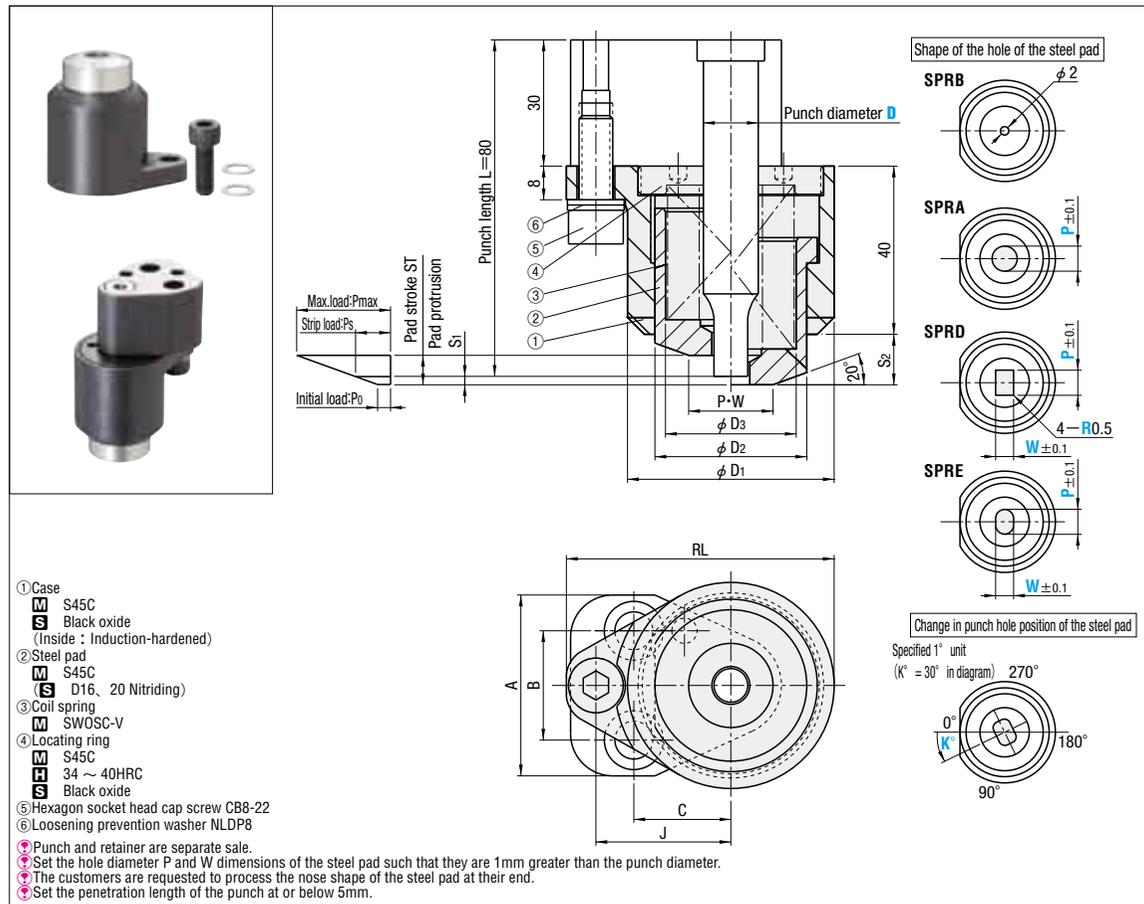
Price

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

RETAINERS

STEEL PAD UNIT



Applicable punch D	D1	D2	D3	S1	S2	RL	Retainer				Catalog No.		Load	0.1mm increments		1°increments	Base unit price 1~9sets			
							A	B	C	J	Type	D		SPRA	SPRD-SPRE	Pad hole position K°	SPRB (Blank)	SPRA	SPRD-SPRE	
10	40	28	16	2	12	56	37	20	21	29	10	F L M H B G	3.0~11.0	3.0~11.0	0° ≤ K ≤ 359	Quotation	SPRB (Blank)	SPRA	SPRD-SPRE	
13	49	36	20			63.5	43	26	23	32			13	3.0~14.0						3.0~14.0
16	54	41	25			68	44	24	26	34			16	3.0~17.0						3.0~17.0
20	57	45	25			71.5	48	28	27	36			20	(B)						3.0~21.0

⑪ Determine the load based on the selected spring.
 ⑫ Use B of the dedicated spring for D20.

Order	Catalog No.	P	W	K
	SPRA13	H	P9	
	SPRE16	G	P11	W5
	SPRB10	G		K20

Days to Ship **Quotation** Price **Quotation**

Load (N) of the pad stroke (mm) and coil spring

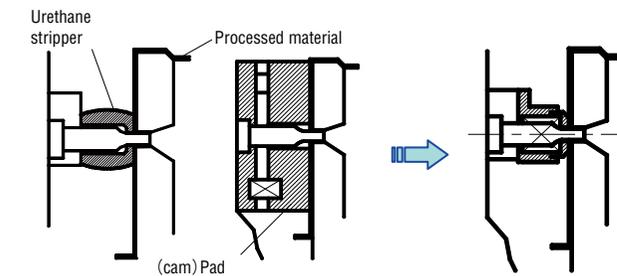
		F		L		M		H		B		G		Coil spring	
		Stroke (mm)	Load (N)												
D10	Initial	0	20	0	41	0	74	0	148	0	239	0	294	SWF22-40	
	When stripping	2	59	2	123	2	223	2	444	2	717	2	882	SWL22-40	
	Life span (10,000 times)	100	10	216	10	451	9.2	758	6.6	1125	5.4	1530	5.4	1882	SWM22-40
		30					10	817	7.6	1273	6.2	1721	6.2	2117	SWB22-40
						8.6	1421	7	1912	7	2352	7	2352	SWG22-40	
D13	Initial	0	35	0	74	0	138	0	276	0	441	0	588	SWF30-40	
	When stripping	2	106	2	222	2	414	2	828	2	1323	2	1768	SWL30-40	
	Life span (10,000 times)	100	10	388	10	815	9.2	1408	6.6	2098	5.4	2822	5.4	3763	SWM30-40
		30					10	1518	7.6	2374	6.2	3175	6.2	4234	SWB30-40
						8.6	2650	7	3528	7	4704	7	4704	SWG30-40	
D16	Initial	0	48	0	101	0	188	0	375	0	600	0	772	SWF35-40	
	When stripping	2	144	2	303	2	564	2	1125	2	1800	2	2316	SWL35-40	
	Life span (10,000 times)	100	10	528	10	1111	9.2	1918	6.6	2850	5.4	3840	5.4	4941	SWM35-40
		30					10	2068	7.6	3225	6.2	4320	6.2	5558	SWB35-40
						8.6	3600	7	4800	7	6176	7	6176	SWG35-40	
D20	Initial									0	531			Exclusive SWB39-40	
	When stripping									2	1593				
	Life span (10,000 times)	100									5.4	3398			
		30									6.2	3823			
										7	4248				

Note) The usage count of the coil spring is based on the 'Instruction and Precautions for the use of coil springs' on P.1397. (These are reference values. Life-span will deteriorate if the coil spring is set diagonally or horizontally.)

Features

- The coil spring can be installed into a Misumi standard retainer with just one bolt.
- Suitable in processing of high tension materials as a high stripping load can be obtained by building in a deformed wire coil spring.
- As each structural part (1-4) is integrated, the parts do not get dispersed making the mounting and demounting an easy process.

Example



Can be used as a substitute to (cam) pad, urethane stripper of the side pierce (when using base cam, hanging cam)

Applicable retainer

Catalog No.				Page
HDP-AP	HDP-AD	HDP-AN		P.736
HDP-FP	HDP-FD	HDP-FN		
DP-AP	DP-AD	DP-AN	DP-AN	P.741
DP-FP	DP-FD	DP-FN	DP-FN	
CP-AP	CP-AD	CP-AN	CP-AN	P.742
CP-FP	CP-FD	CP-FN	CP-FN	
AP-AP	AP-AD	AP-AN		P.743
AP-FP	AP-FD	AP-FN		
FP-AP	FP-AD	FP-AN		P.744
FP-FP	FP-FD	FP-FN		

Wrench for positioning ring



How to replace the coil spring
 Insert the wrench in the wrench holes of the positioning ring and rotate to left. The positioning ring will come out and the coil spring can be replaced.

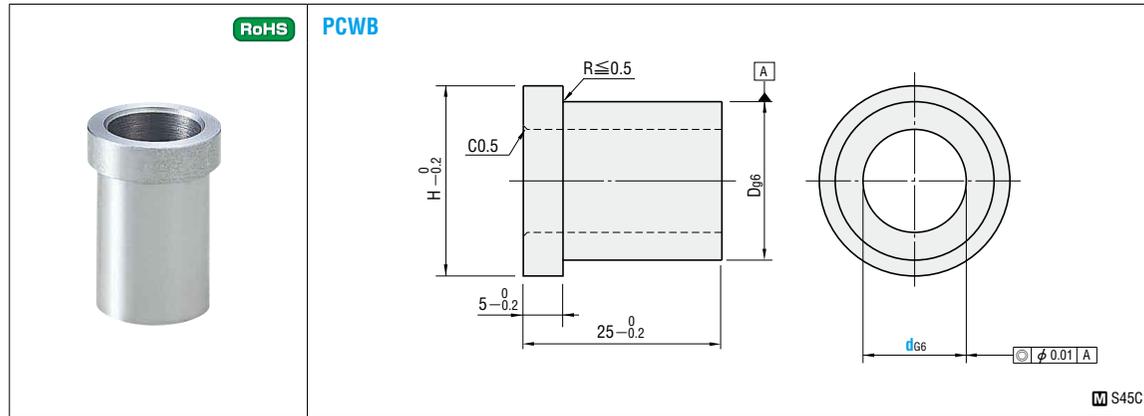
Order **Quotation** Days to Ship **Quotation**

Catalog No. **SPRAP**

Price **Quotation**

BUSHINGS FOR PUNCH HOLE POSITION ADJUSTMENT

URETHANE FALL-STOPPER UNITS



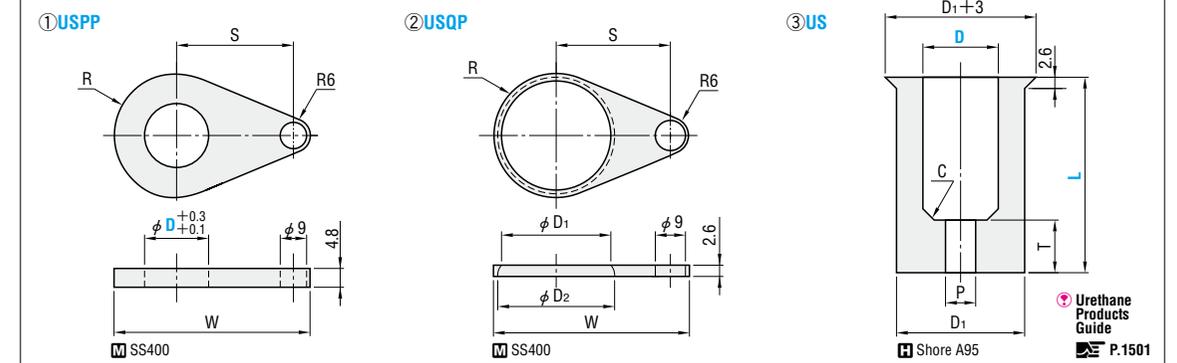
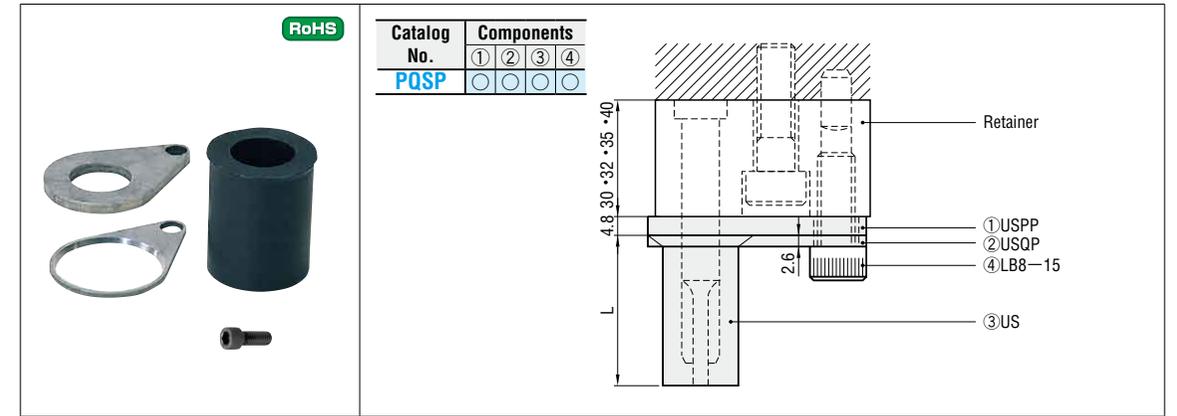
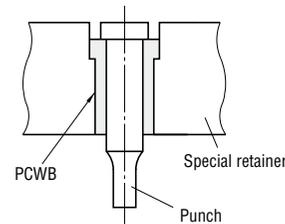
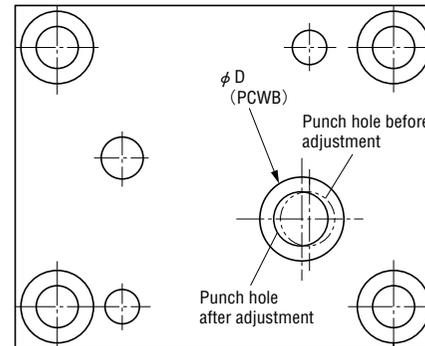
D	H	Catalog No.		Base unit price 1~9 pieces
		Type	d	
16	19	PCWB	10	Quotation
20	24		13	
25	29		16	
30	34		20	
			25	

Order **Catalog No.**
PCWB 16

Days to Ship **Quotation**

Price **Quotation**

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.



■ PQSP (①USPP · ②USQP · ③US · ④LB8-15)

Catalog No. Type	D	L													Base unit price 1~19 sets
		10	13	16	20	25	32	38	40	44	47	49	52	54	
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		

■ 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	

Order **Catalog No.** — L
PQSP 13 — 52
USPP 20

Days to Ship **Quotation**

Price **Quotation**

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

■ ③US

■ P.765

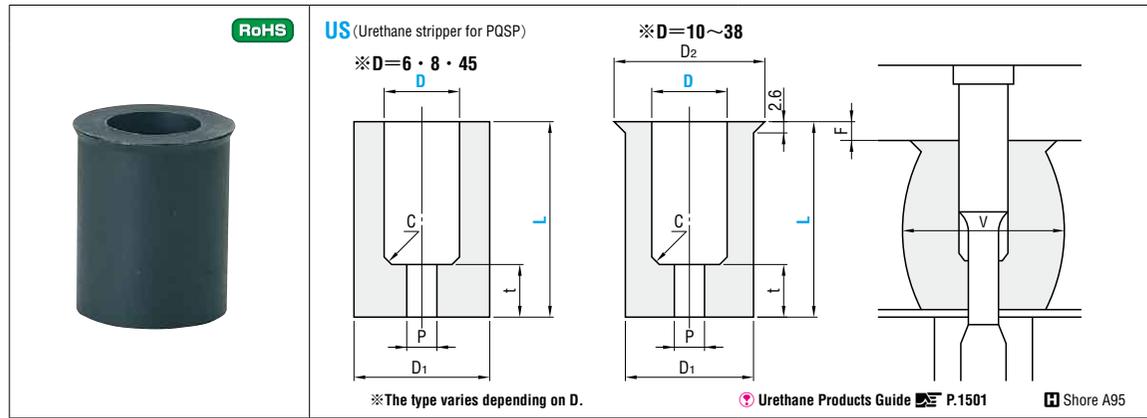
■ ④LB8-15

■ P.811

■ Applicable retainers for PQSP

·HDP-AP	·HDPAR	... P.736
·HDP-FP	·HDPFR	... P.736
·HAP-AP	·HAPAR	... P.737
·HAP-FP	·HAPFR	... P.737
·DP-AP	·DPAR	... P.741
·DP-FP	·DPFR	... P.741
·CP-AP	·CPAR	... P.742
·CP-FP	·CPFR	... P.742
·AP-AP	·APAR	... P.743
·AP-FP	·APFR	... P.743
·FP-AP	·FPAR	... P.744
·FP-FP	·FPFR	... P.744
·CLN-P P.791
·CBN-P P.792

URETHANE STRIPPERS FOR FALL-OUT PREVENTION UNITS



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

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

Order **Catalog No.** — **L**
US 13 — 42

Price **Quotation**

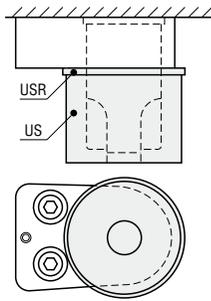
Days to Ship **Quotation**

Protection rings for urethane strippers

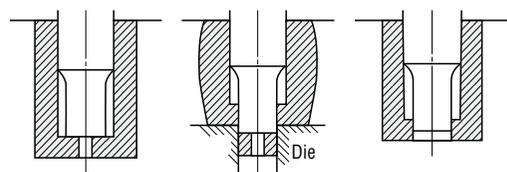
D	D ₂	Catalog No.	Base unit price 1~19 pieces
10	22	10	Quotation
13	27	13	
16	32	16	
20	37	20	
25	44	25	
32	54	32	
38	64	38	
45	74	45	

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

Order **Catalog No.**
USR 13

Days to Ship **Quotation**

Price **Quotation**

Catalog No.	F=L×10%		F=L×15%		F=L×20%		V		
	Type D—L	Fmm	N (kgf) Load	Fmm	N (kgf) Load	Fmm		N (kgf) Load	
US 6—27	2.7	2.7		4.1		5.4		15.0	
32	3.2		637 (65)	4.8		6.4			
37	3.7			5.6	834 (85)	7.4	981 (100)		
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		5.4		18.5	
32	3.2			4.8		6.4			
37	3.7			5.6	1275 (130)	7.4	1569 (160)		
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			4.1		5.4		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	1226 (125)		5.9	1569 (160)	7.8	1863 (190)		
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			4.1		5.4			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	1961 (200)		5.9	2452 (250)	7.8	2942 (300)		
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			5.6		7.4		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	2746 (280)		7.4	3530 (360)	9.8	4217 (430)		
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			7.2		9.6			38.0
50	5.0			7.5		10.0			
53	5.3	3334 (340)		8.0	4217 (430)	10.6	5001 (510)		
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%		V	
	Type D—L	Fmm	N (kgf) Load	Fmm	N (kgf) Load	Fmm		N (kgf) Load
US 20—63	6.3			9.5		12.6		38.0
65	6.5		3334 (340)	9.8		13.0		
68	6.8			10.2	4217 (430)	13.6	5001 (510)	
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			7.2		9.6		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	5099 (520)		9.0	6472 (660)	12.0	7453 (760)	
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		
US 32—48	4.8			7.2		9.6		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	7845 (800)		9.0	9807 (1000)	12.0	11278 (1150)	
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		
US 38—49	4.9			7.4		9.8		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	11278 (1150)		9.2	14220 (1450)	12.2	16181 (1650)	
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		
US 45—49	4.9			7.4		9.8		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	15200 (1550)		9.2	19123 (1950)	12.2	21575 (2200)	
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		

Load (kgf)=Load (N) × 0.101972

URETHANE STRIPPERS

URETHANE STRIPPERS

TUS

Urethane

Fall-stopper plate

Urethane
 Shore A95
 Stopper plate
 SPC

Urethane Products Guide
 P.1501

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

Applicable retainer types: ① Single fixing-bolt type P.739-P.740 ② Triangular type P.745-P.746 Load (kgf) = Load (N) × 0.101972

Order

Catalog No.
TUS 10-59

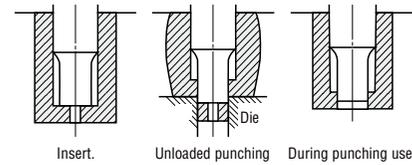
Days to Ship

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 ... P.739
	· TP-APS · TPARS
	· TP-FPS · TPFRS ... P.740
②	· 25CRN-AP · 25CRNAR
	· 25CRN-FP · 25CRNFR ... P.745
	· CRN-AP · CRNAR
	· CRN-FP · CRNFR ... P.746

USN

Examples of combinations with punches

Urethane Products Guide
 P.1501

① S50C
 ② 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										
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	6	12.2	23	40	13	50
3.2	1961	4.8	2452	6.4	2942																			
4.2	{200}	6.3	{250}	8.4	{300}	20	33	4	19.2	33	40	20	50											
3.2	2746	4.8	3530	6.4	4217									25	40	7	24.2	40	40	25	50			
4.2	{280}	6.3	{360}	8.4	{430}	32	50	5	31.2	50	40	32	50											
3.2	3334	4.8	4217	6.4	5001																	25	40	7
4.2	{340}	6.3	{430}	8.4	{510}	32	50	5	31.2	50	40	32	50											
3.2	5099	4.8	6472	6.4	7453									32	50	5	31.2	50	40	32	50			
4.2	{520}	6.3	{660}	8.4	{760}	32	50	5	31.2	50	40	32	50											
3.2	7845	4.8	9807	6.4	11278																	32	50	5
4.2	{800}	6.3	{1000}	8.4	{1150}	32	50	5	31.2	50	40	32	50											

Order

Catalog No.
USN 16 - 50

Days to Ship

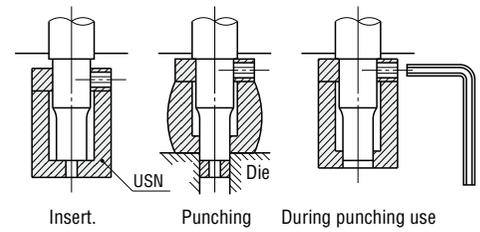
Quotation

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.749