



**LEAVE INDUSTRIAL CO., LTD.**

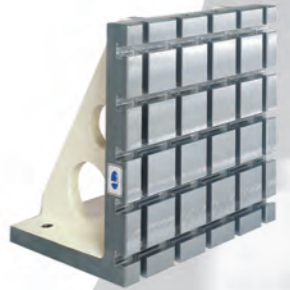
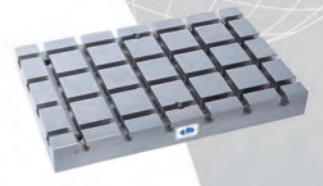
**Modular Jigs & Fixtures  
Modular Vise Systems  
Tooling & Work Holding Components**



2011.11

**BASE SERIES**

*BP01~BP37, BP-SPECIAL*



M/C BASE PLATE M/C CLAMPING CUBE M/C DOUBLE-SIDED ANGLE PLATE

# BP01

## M/C BASE PLATE

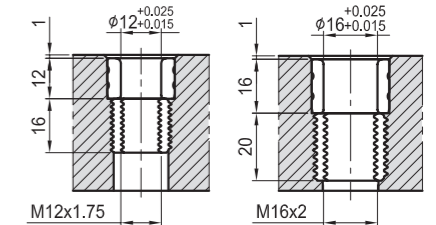
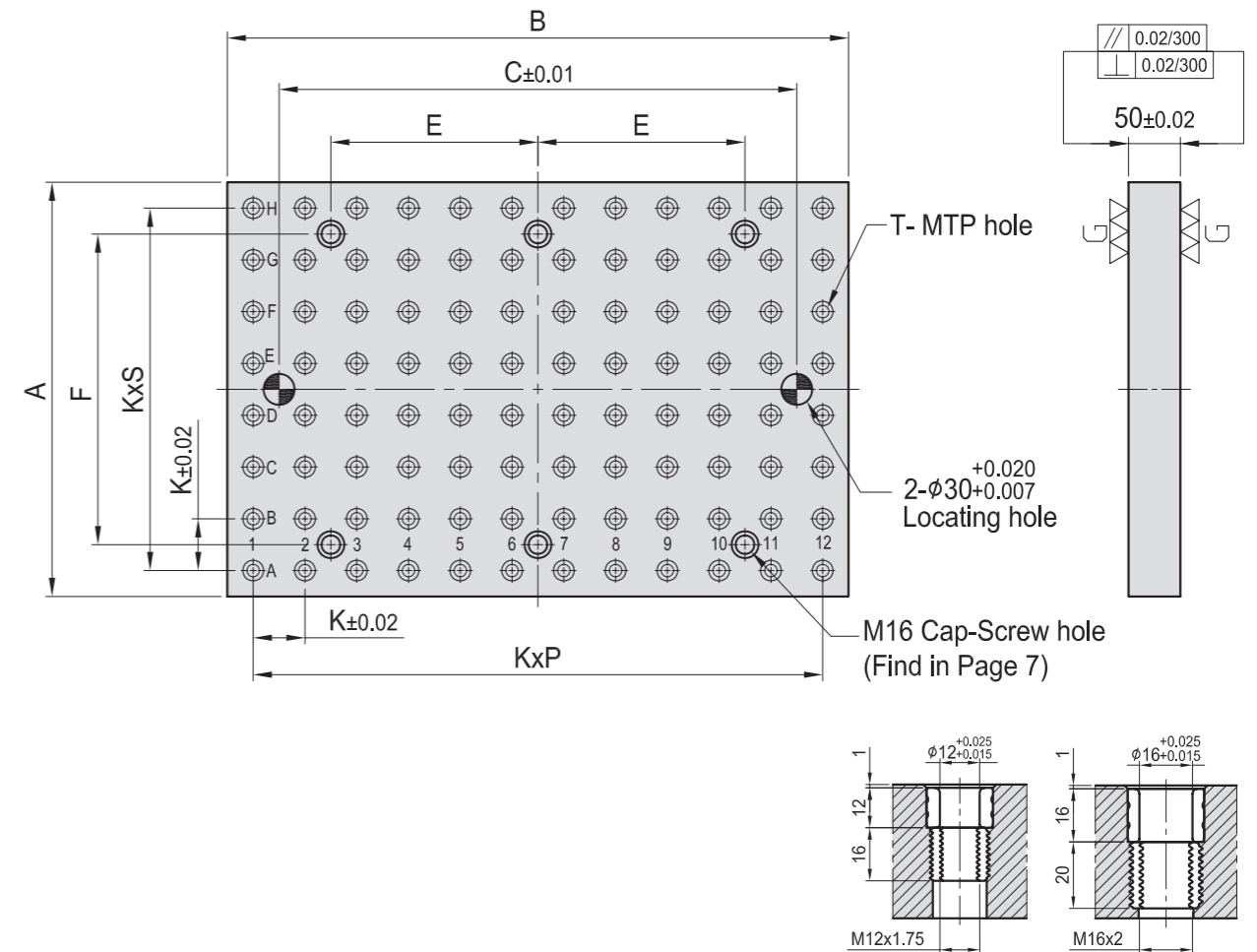
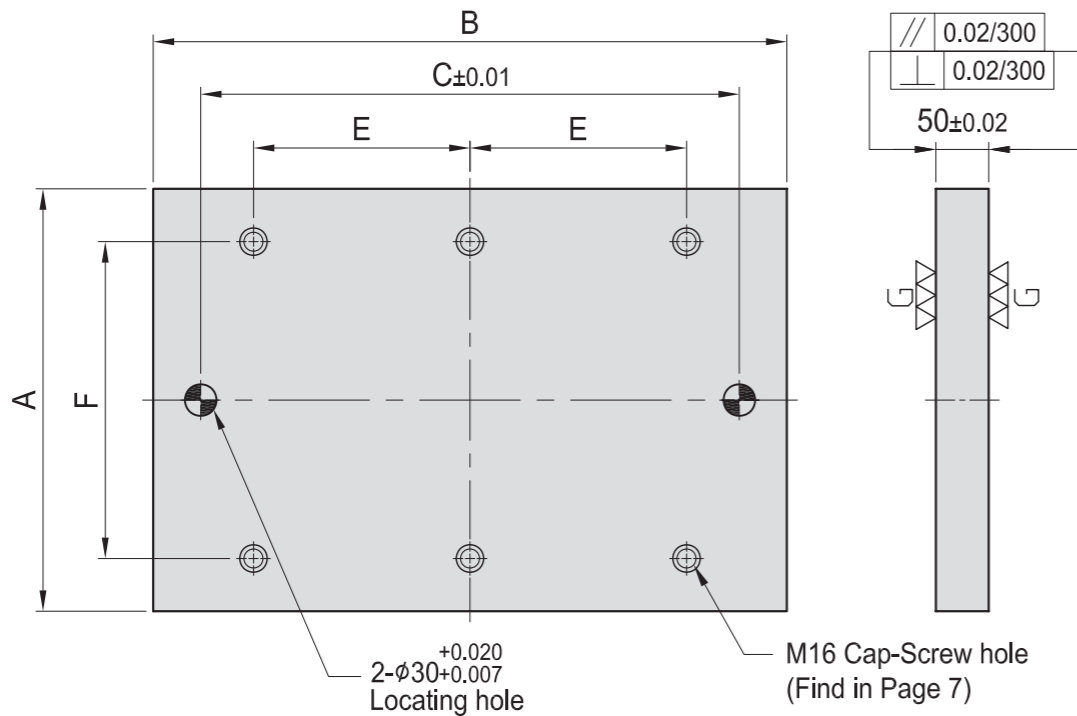
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Vertical Machining Center.
- Features: Ready to accept a hole pattern for your special jig.



# BP02

## M/C BASE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6(DIN) heat treated.
- Threaded Insert: S45C (JIS)/ CK45 (DIN), heat treated.
- MTP hole spacing:  $50 \pm 0.02$
- Application: Vertical Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.



MODEL NO.	A	B	C	E	F	kg
BP01-50400-0600	400	600	-	-	-	88
BP01-50500-0600	500					106
BP01-50600-0600	600					127
BP01-50400-0800	400	800	-	-	-	113
BP01-50450-0900	450	900				142
BP01-50500-1000	500	1000	-	-	-	176
BP01-50600-1200	600	1200				256

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MODEL NO.	A	B	C	E	F	T	K	P	S	MTP	kg	MODEL NO.	A	B	C	E	F	T	K	P	S	MTP	kg	
BP02-50400-0600-12	400	600	-	-	-	Ø12	M12	50	11	7	96	90	BP02-50400-0600-16	400	600	-	-	Ø16	M16	50	11	7	96	89
BP02-50500-0600-12	500									9	120	112	BP02-50500-0600-16	500								9	120	108
BP02-50600-0600-12	600									11	144	134	BP02-50600-0600-16	600								11	144	120
BP02-50400-0800-12	400	800	-	-	-	Ø12	M12	50	15	7	128	109	BP02-50400-0800-16	400	800	-	-	Ø16	M16	50	15	7	128	108
BP02-50450-0900-12	450	900							17	8	158	138	BP02-50450-0900-16	450	900						17	8	158	134
BP02-50500-1000-12	500	1000	-	-	-	Ø12	M12	50	19	9	200	165	BP02-50500-1000-16	500	1000	-	-	Ø16	M16	50	19	9	200	164
BP02-50600-1200-12	600	1200							23	11	288	244	BP02-50600-1200-16	600	1200						23	11	288	240

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# BP03

## M/C BASE PLATE

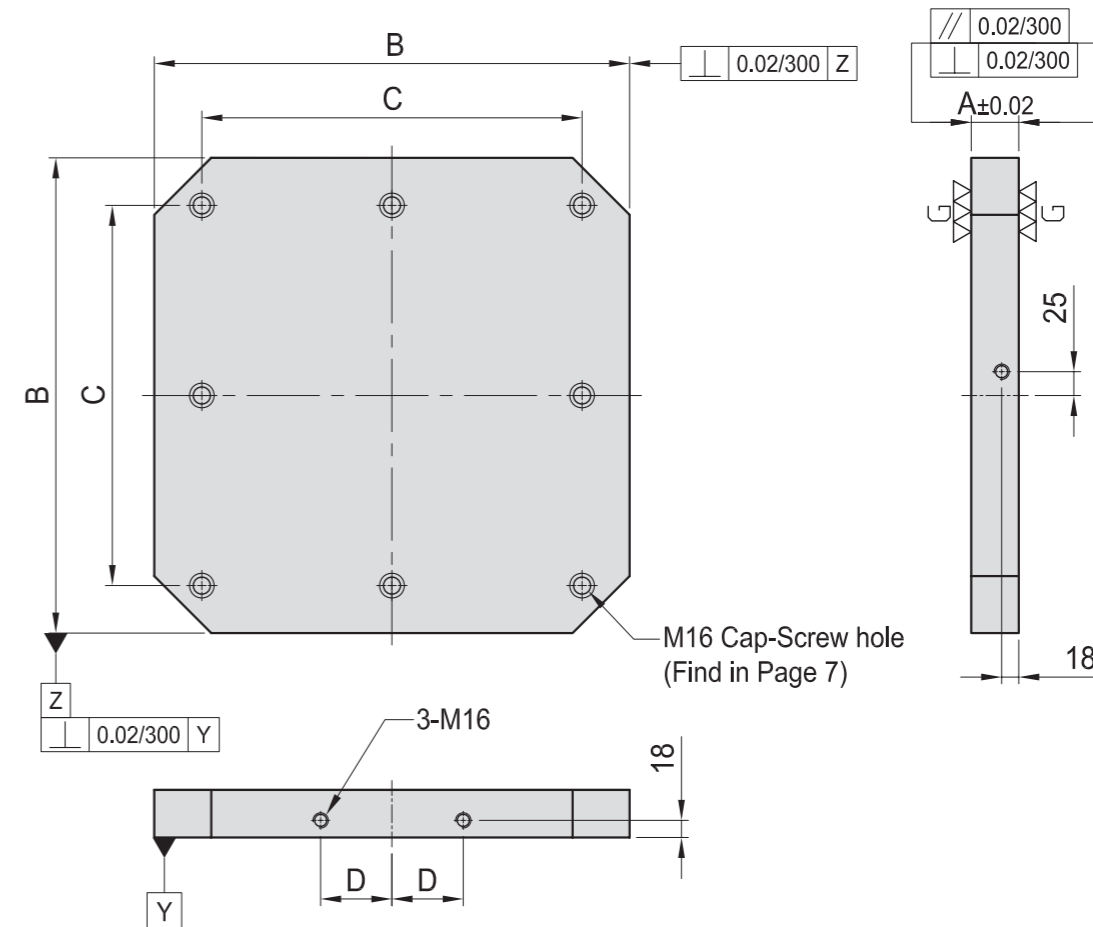
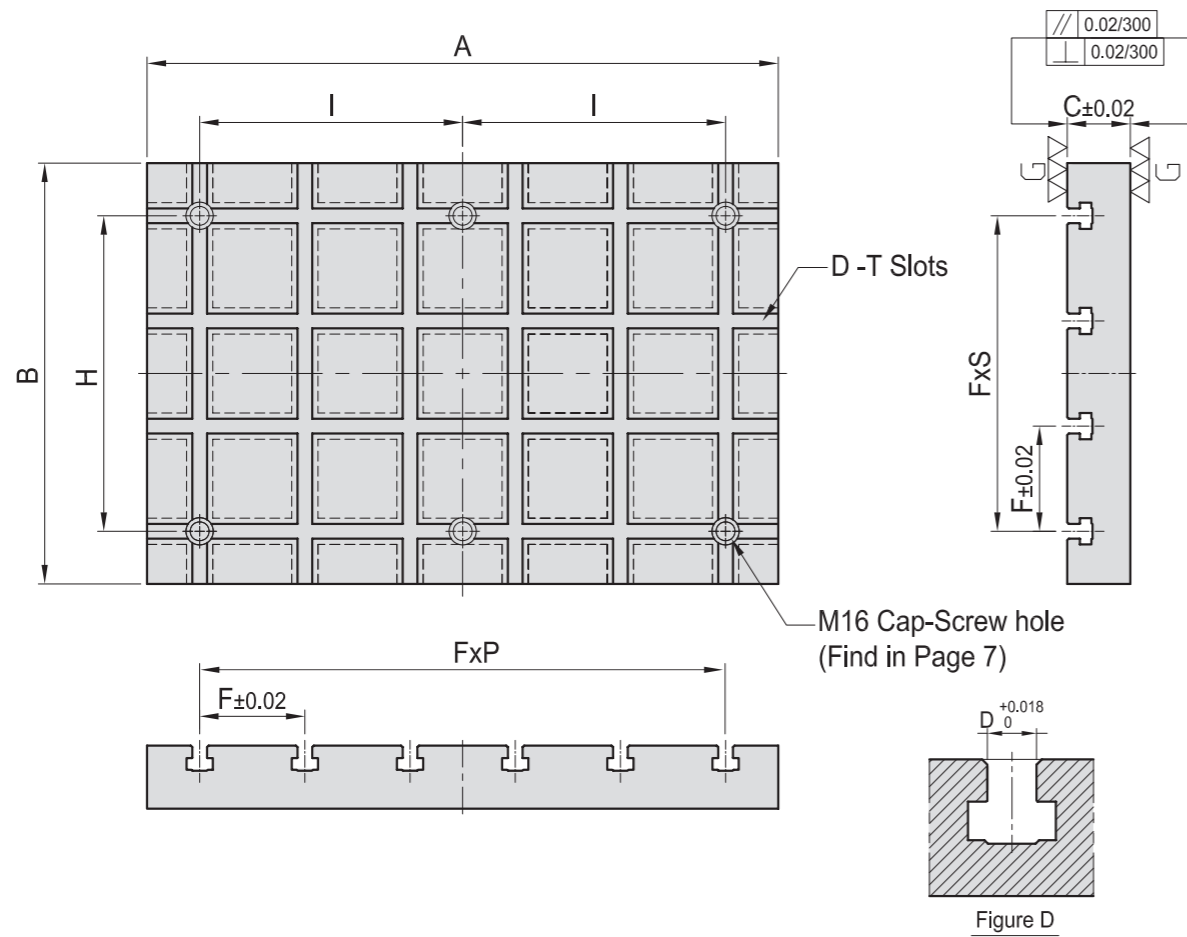
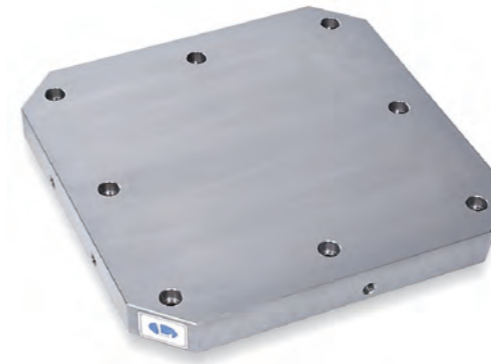
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated: Normalized
- Application: Vertical Machining Center.
- Features: T-Slots running in 2 directions, easily adapts to standardized jig components.



# BP04

## M/C BASE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated: (Normalized)
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.



MODEL NO.	A	B	C	D	F	P	S	H	I	kg	MODEL NO.	A	B	C	D	F	P	S	H	I	kg
BP03-60400-0600-14		400					3			92	BP03-75400-0600-18		400				3				118
BP03-60500-0600-14	600	500	60	14	100	5	4	-	-	115	BP03-75500-0600-18	600	500	75	18	100	5	4	-	-	147
BP03-60600-0600-14		600					5			130	BP03-75600-0600-18		600				5				173
BP03-60400-0800-14	800	400				7	3	-	-	117	BP03-75400-0800-18	800	400	75	18	100	7	3	-	-	151
BP03-60450-0900-14	900	450	60	14	100	8				168	BP03-75450-0900-18	900	450	75	18	100	8				182
BP03-60500-1000-14	1000	500				9	4	-	-	198	BP03-75500-1000-18	1000	500				9	4	-	-	228
BP03-60600-1200-14	1200	600	60	14	100	11	5	-	-	264	BP03-75600-1200-18	1200	600	75	18	100	11	5	-	-	329

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MODEL NO.	A	B	C	D	Mounting holes	kg
BP04-50400-0400	50	400	320	55	4	57
BP04-50500-0500	50	500	400	75	8	88
BP04-50630-0630	50	630	500	100	8	140
BP04-50800-0800	50	800	640	135	8	225

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# BP05

## M/C BASE PLATE



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated(Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated.
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated.
- MTP hole spacing:  $50 \pm 0.02$
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.

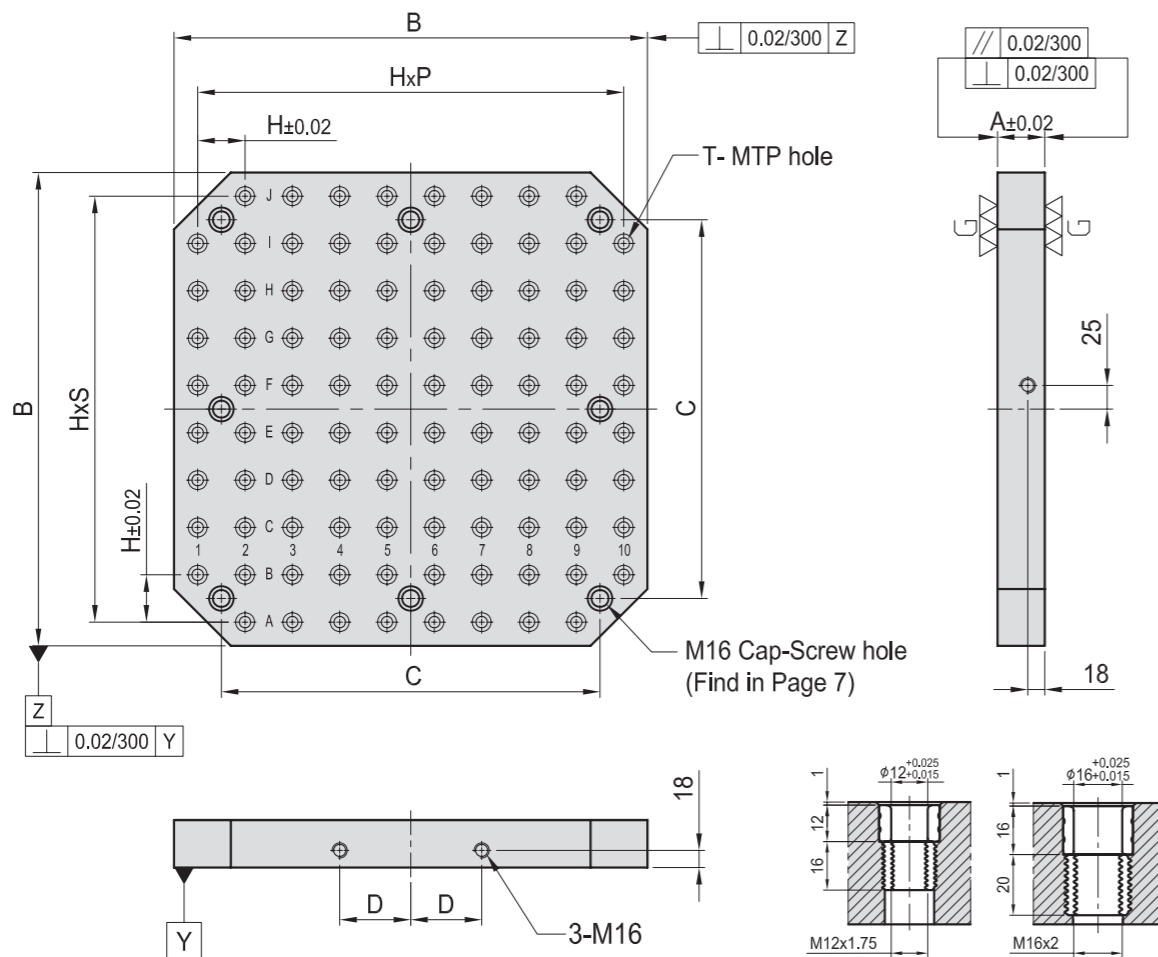


Figure T

MODEL NO.	A	B	C	D	T	H	P	S	MTP	Mounting holes	kg	
BP05-50400-0400-12	50	400	320	55	Ø12	M12	50	7	7	59	4	54
BP05-50500-0500-12		500	400	75				9	9	93	8	83
BP05-50630-0630-12	50	630	500	100	Ø12	M12	50	11	11	139	8	135
BP05-50800-0800-12		800	640	135				15	15	237		206
BP05-50400-0400-16	50	400	320	55	Ø16	M16	50	7	7	59	4	52
BP05-50500-0500-16		500	400	75				9	9	93	8	80
BP05-50630-0630-16	50	630	500	100	Ø16	M16	50	11	11	139	8	130
BP05-50800-0800-16		800	640	135				15	15	237		204

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# BP06

## M/C BASE PLATE



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated: Normalized
- Application: Horizontal Machining Center.
- Features: T-Slots running in 2 directions, easily adapts to standardized jig components.

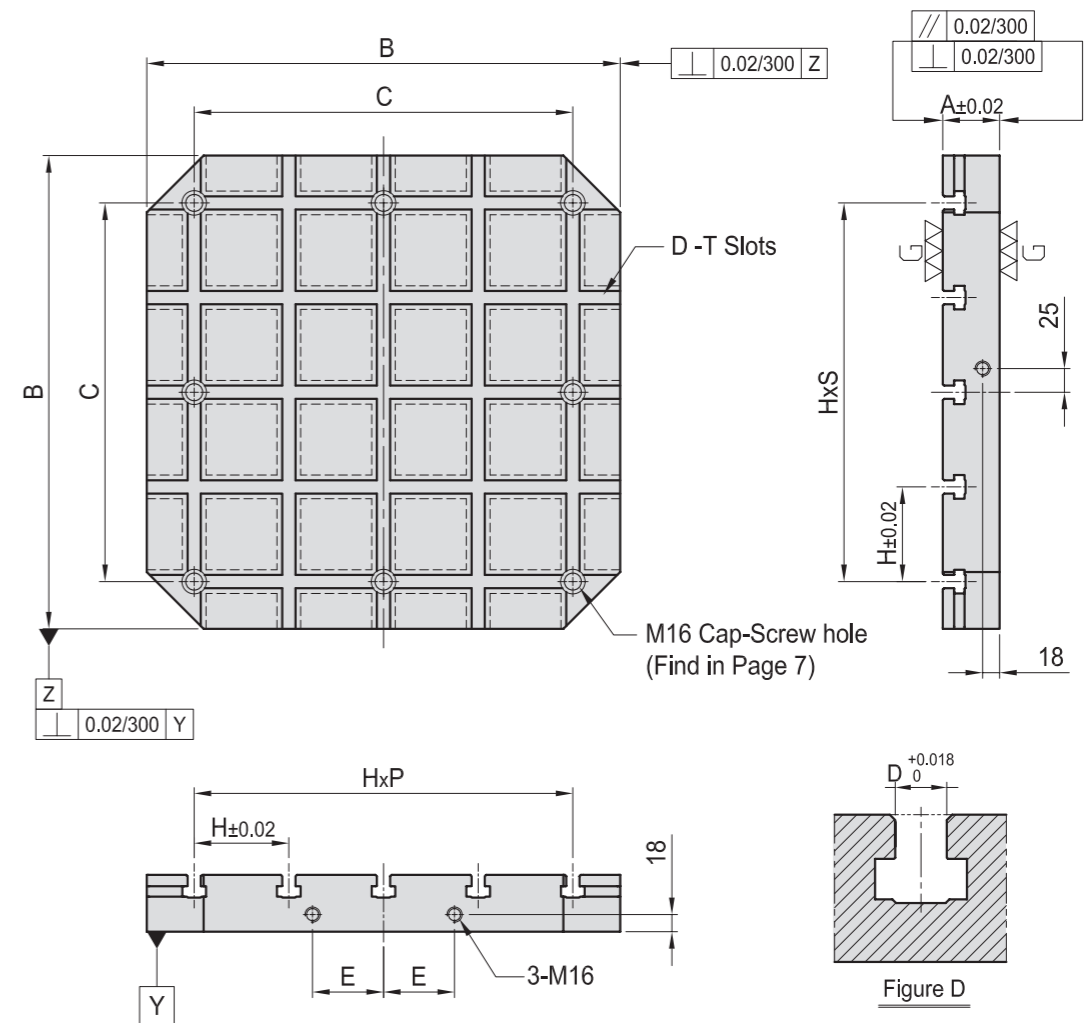


Figure D

MODEL NO.	A	B	C	D	E	H	P	S	Mounting holes	kg
BP06-60400-0400-14	60	400	320	14	55	80	4	4	4	56
BP06-60500-0500-14		500	400		75	100		8	90	
BP06-60630-0630-14	60	630	500	14	100	125	4	4	8	150
BP06-60800-0800-14		800	640		135	160		230		
BP06-75400-0400-18	75	400	320	18	55	80	4	4	4	68
BP06-75500-0500-18		500	400		75	100		8	108	
BP06-75630-0630-18	75	630	500	18	100	125	4	4	8	180
BP06-75800-0800-18		800	640		135	160		295		

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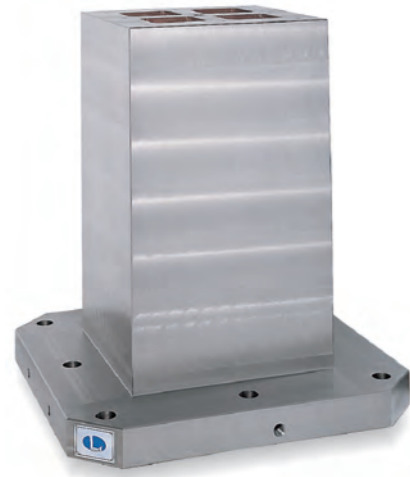
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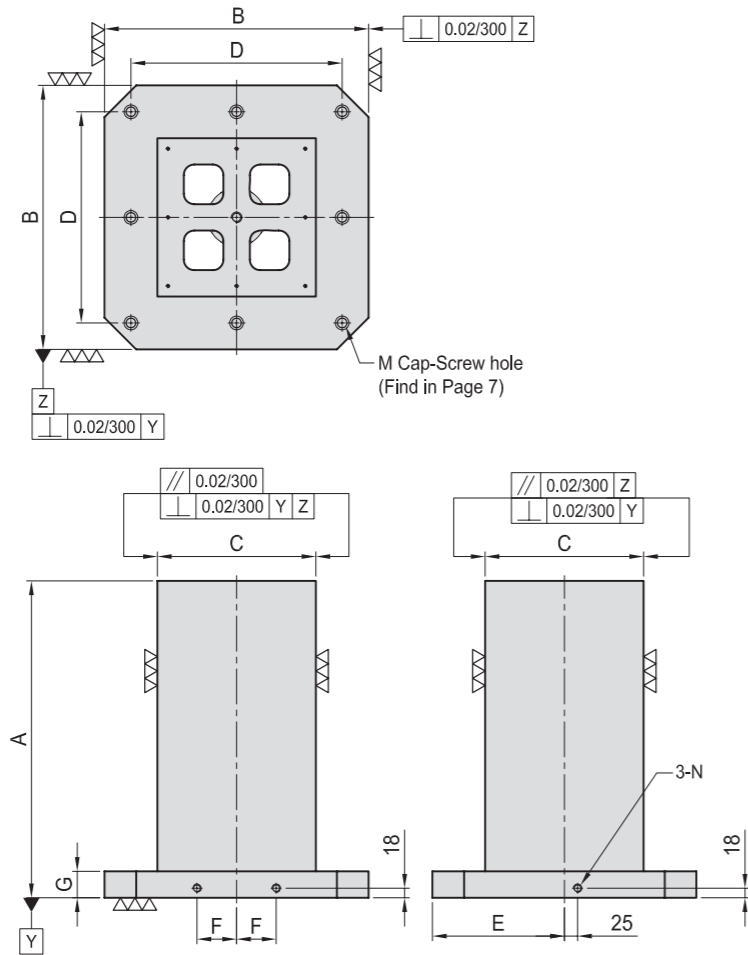
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# BP07

## SQUARE TOOLING COLUMN

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	M	N	Mounting holes	kg
BP07-300300-0500	500	300	150	250	150	40	50	M12	M12	4	90
BP07-400400-0500	500	400	250	320	200	55	50	M16	M16	4	160
BP07-400400-0650	650										210
BP07-500500-0600	600	500	300	400	250	75	50	M16	M16	8	250
BP07-500500-0750	750										310
BP07-630630-0700	700	630	350	500	315	100	50	M16	M16	8	400
BP07-630630-0850	850										460
BP07-800800-0800	800	800	500	640	400	135	50	M16	M16	8	680
BP07-800800-1000	1000										800
BP07-10001000-1000	1000	1000	600	800	500	165	55	M20	M16	8	1164
BP07-10001000-1250	1250										1391

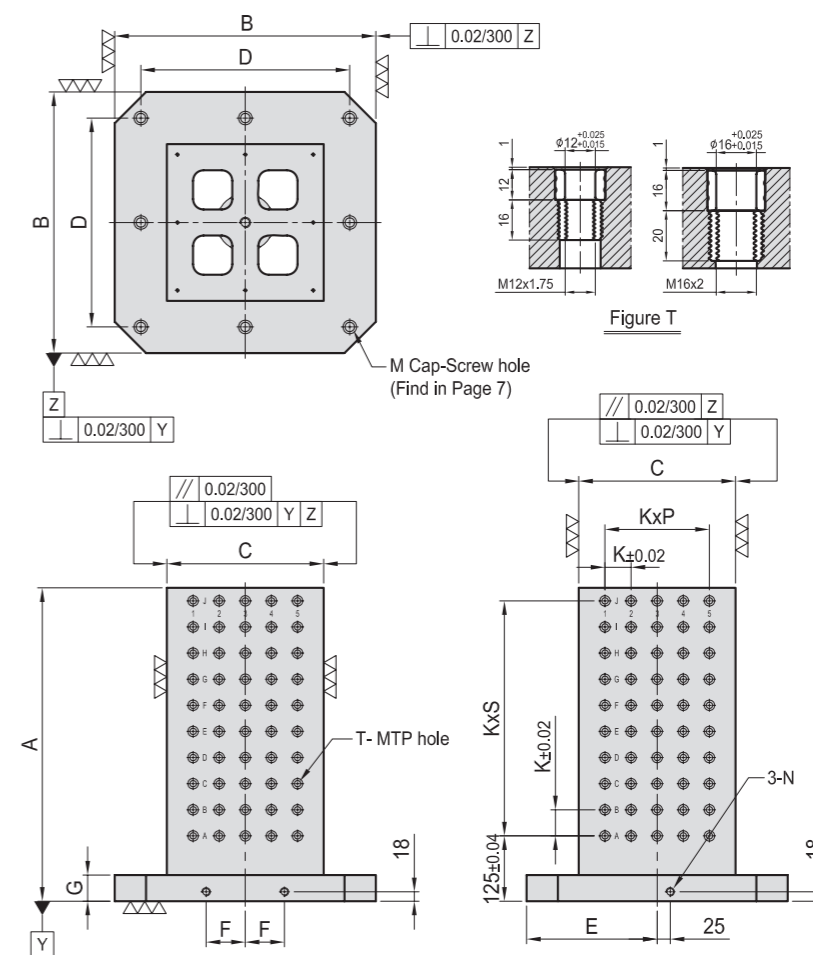
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# BP08

## SQUARE TOOLING COLUMN

- Material: Cast Iron FC300 (JIS) / GG30 (DIN)
- Heat treated (Normalized)
- Alignment bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing: 50±0.02
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	K	P	S	T	M	N	MTP	Mounting holes	kg	
BP08-300300-0500-12	500	300	150	250	150	40	50	50	1	7	Ø12	M12	M12	M12	64	4	90
BP08-400400-0500-12	500	400	250	320	200	55	50	50	3	7	Ø12	M12	M16	M16	128	4	155
BP08-400400-0650-12	650																200
BP08-500500-0600-12	600	500	300	400	250	75	50	50	4	9	Ø12	M12	M16	M16	200	8	240
BP08-500500-0750-12	750																300
BP08-630630-0700-12	700	630	350	500	315	100	50	50	5	11	Ø12	M12	M16	M16	288	8	360
BP08-630630-0850-12	850																360
BP08-800800-0800-12	800	800	500	640	400	135	50	50	8	13	Ø12	M12	M16	M16	504	8	635
BP08-800800-1000-12	1000																780
BP08-10001000-1000-12	1000	1000	600	800	500	165	55	50	10	17	Ø12	M12	M20	M16	792	8	1164
BP08-10001000-1250-12	1250																1391

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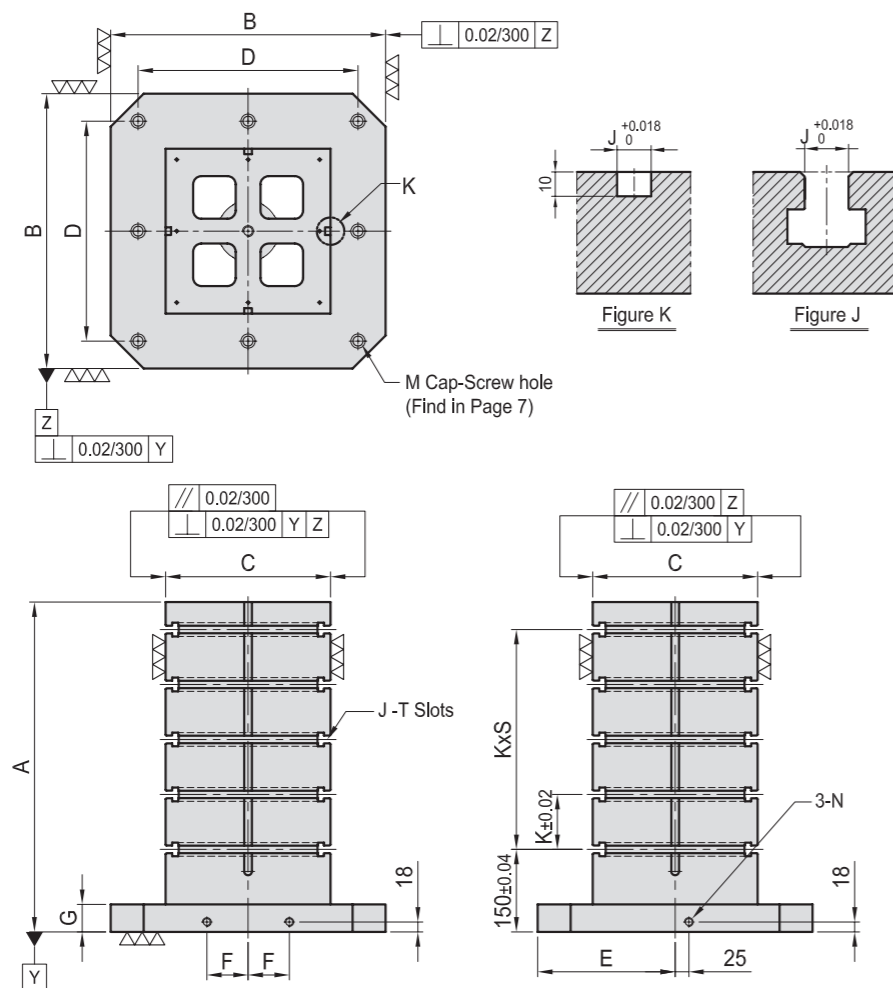
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# BP09

## SQUARE TOOLING COLUMN

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: T-Slots running horizontally, key-way running vertically, easily adapts to standardized jig components.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	M	N	K	S	J	Mounting holes	kg
BP09-400400-0500-14	500													
BP09-400400-0650-14	650	400	250	320	200	55	50	M16	M16	100	3	14	4	160
BP09-500500-0600-14	600													
BP09-500500-0750-14	750	500	300	400	250	75	50	M16	M16	100	4	14	8	270
BP09-630630-0700-14	700													
BP09-630630-0850-14	850	630	350	500	315	100	50	M16	M16	125	4	14	8	375
BP09-800800-0800-14	800													
BP09-800800-1000-14	1000	800	500	640	400	135	50	M16	M16	150	4	14	8	655
BP09-10001000-1000-14	1000													
BP09-10001000-1250-14	1250	1000	600	800	500	165	55	M20	M16	160	5	14	8	1146
BP09-400400-0500-18	500													
BP09-400400-0650-18	650	400	250	320	200	55	50	M16	M16	100	3	18	4	155
BP09-500500-0600-18	600													
BP09-500500-0750-18	750	500	300	400	250	75	50	M16	M16	100	4	18	8	265
BP09-630630-0700-18	700													
BP09-630630-0850-18	850	630	350	500	315	100	50	M16	M16	125	4	18	8	365
BP09-800800-0800-18	800													
BP09-800800-1000-18	1000	800	500	640	400	135	50	M16	M16	150	4	18	8	638
BP09-10001000-1000-18	1000													
BP09-10001000-1250-18	1250	1000	600	800	500	165	55	M20	M16	160	5	18	8	1146

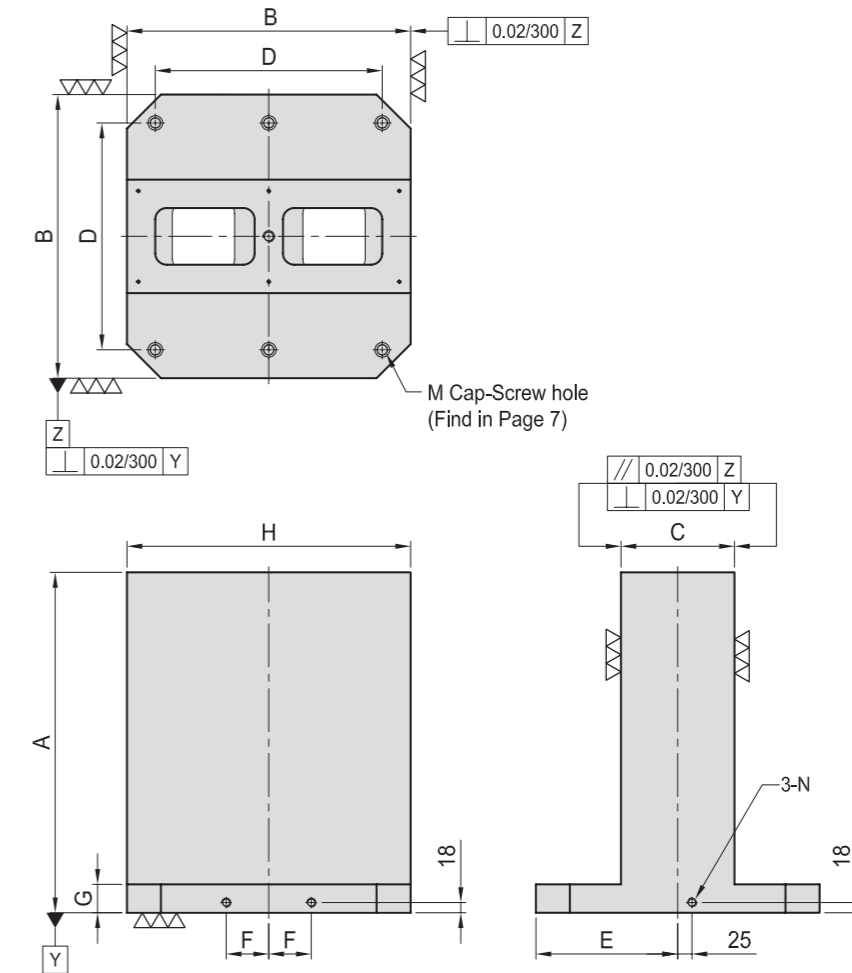
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# BP10

## DOUBLE SIDED TOOLING COLUMN

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	M	N	Mounting holes	kg
BP10-300300-0500	500	300	80	250	150	40	50	300	M12	M12	4	115
BP10-400400-0500	500											
BP10-400400-0650	650	400	150	320	200	55	50	400	M16	M16	4	170
BP10-500500-0600	600											
BP10-500500-0750	750	500	200	400	250	75	50	500	M16	M16	6	270
BP10-630630-0700	700											
BP10-630630-0850	850	630	250	500	315	100	50	630	M16	M16	6	350
BP10-800800-0800	800											
BP10-800800-1000	1000	800	300	640	400	135	50	800	M16	M16	6	445
BP10-10001000-1000	1000											
BP10-10001000-1250	1250	1000	350	800	500	165	55	1000	M20	M16	6	520

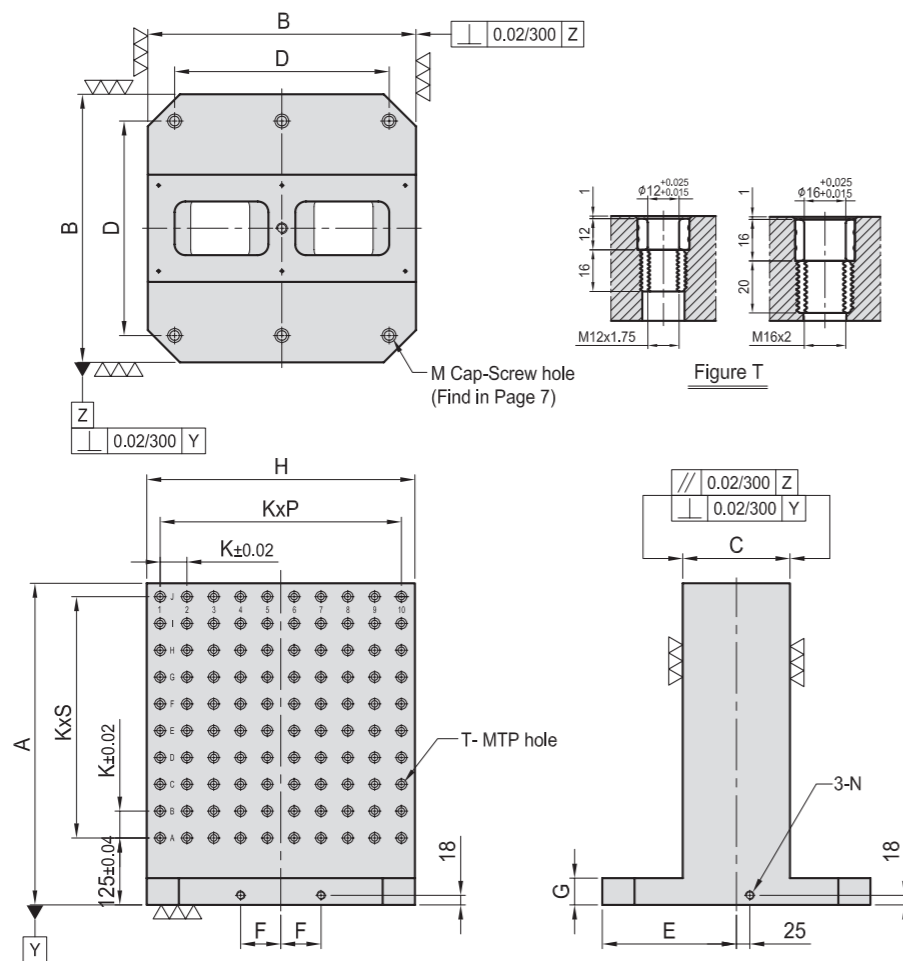
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# BP11

## DOUBLE SIDED TOOLING COLUMN

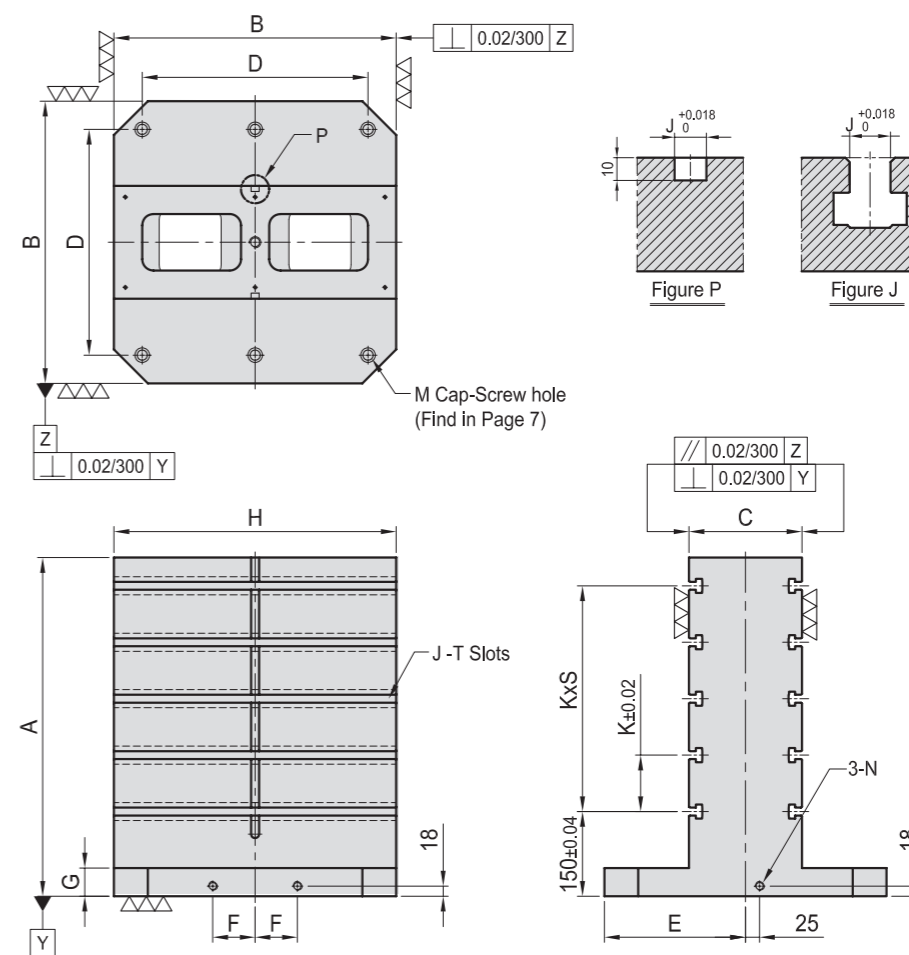
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6 (DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & top cover included.



# BP12

## DOUBLE SIDED TOOLING COLUMN

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: T-Slots running horizontally, key-way running vertically, easily adapts to standardized jig components.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	M	N	MTP	Mounting holes	kg
BP11-300300-0500-12	500	300	80	250	150	40	50	300	5	7	Ø12	M12	M12	M12	96	4	110
BP11-400400-0500-12	500	400	150	320	200	55	50	400	5	7	Ø12	M12	M16	M16	128	4	165
BP11-400400-0650-12	650	400	150	320	200	55	50	400	5	7	Ø12	M12	M16	M16	176	4	210
BP11-500500-0600-12	600	500	200	400	250	75	50	500	9	9	Ø12	M12	M16	M16	200	6	265
BP11-500500-0750-12	750	500	200	400	250	75	50	500	9	9	Ø12	M12	M16	M16	260	6	335
BP11-630630-0700-12	700	630	250	500	315	100	50	630	11	11	Ø12	M12	M16	M16	288	6	435
BP11-630630-0850-12	850	630	250	500	315	100	50	630	11	11	Ø12	M12	M16	M16	360	6	515
BP11-800800-0800-12	800	800	300	640	400	135	50	800	14	13	Ø12	M12	M16	M16	420	6	660
BP11-800800-1000-12	1000	800	300	640	400	135	50	800	14	13	Ø12	M12	M16	M16	540	6	800
BP11-10001000-1000-12	1000	1000	350	800	500	165	55	1000	18	17	Ø12	M12	M20	M16	684	6	1158
BP11-10001000-1250-12	1250	1000	350	800	500	165	55	1000	18	22	Ø12	M12	M20	M16	874	6	1375

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MODEL NO.	A	B	C	D	E	F	G	M	N	H	J	K	S	Mounting holes	kg
BP12-400400-0500-14	500	400	150	320	200	55	50	M16	M16	400	14	100	3	4	170
BP12-400400-0650-14	650	400	150	320	200	55	50	M16	M16	400	14	100	4	4	220
BP12-500500-0600-14	600	500	200	400	250	75	50	M16	M16	500	14	100	4	6	290
BP12-500500-0750-14	750	500	200	400	250	75	50	M16	M16	500	14	100	5	6	335
BP12-630630-0700-14	700	630	250	500	315	100	50	M16	M16	630	14	125	4	6	440
BP12-630630-0850-14	850	630	250	500	315	100	50	M16	M16	630	14	125	5	6	515
BP12-800800-0800-14	800	800	300	640	400	135	50	M16	M16	800	14	150	4	6	670
BP12-800800-1000-14	1000	800	300	640	400	135	50	M16	M16	800	14	150	5	6	790
BP12-10001000-1000-14	1000	1000	350	800	500	165	55	M20	M16	1000	14	160	5	6	1158
BP12-10001000-1250-14	1250	1000	350	800	500	165	55	M20	M16	1000	14	160	6	6	1375

\*Special Design Welcome !

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## BP13

### MODULAR TOOLING COLUMN

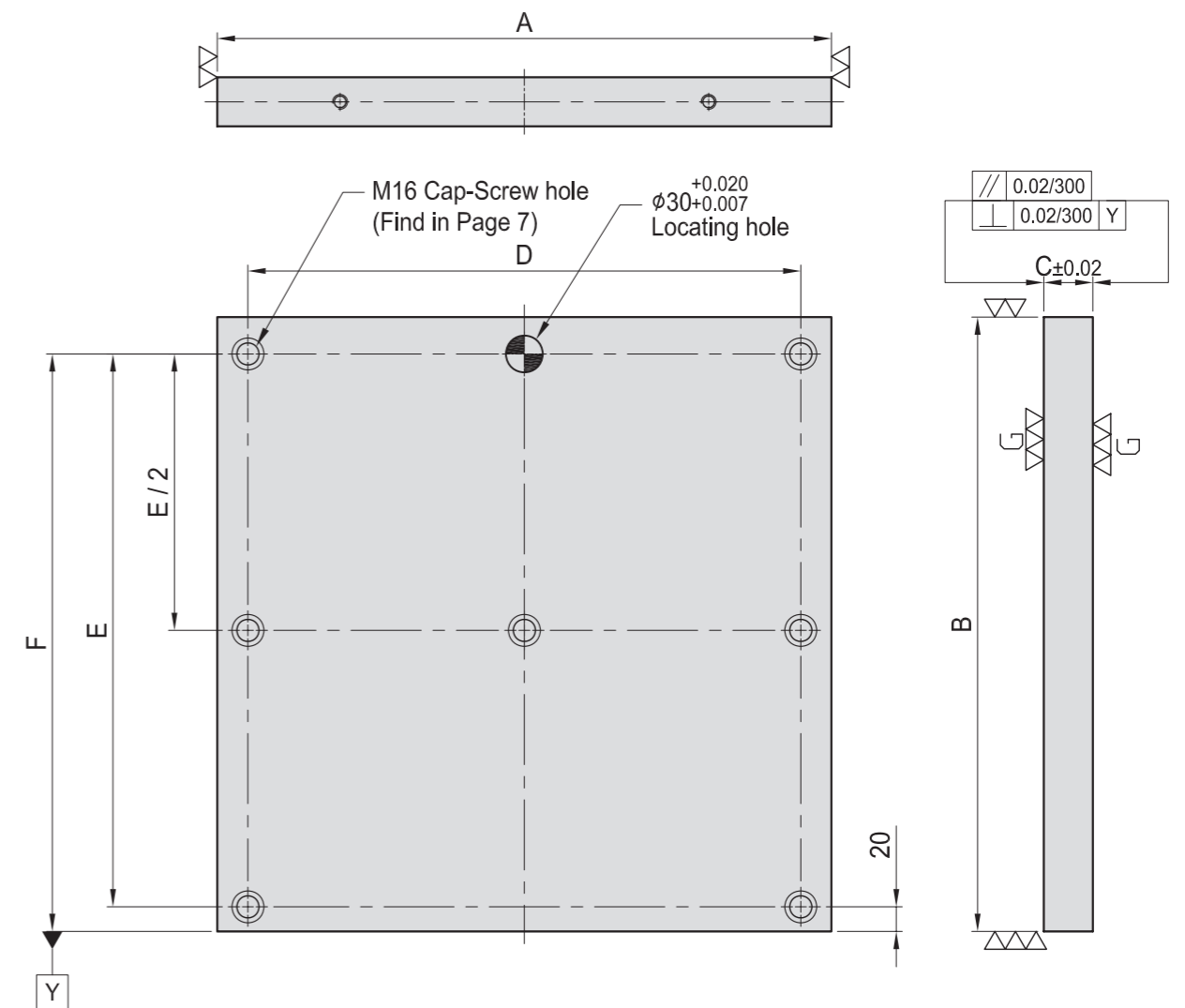
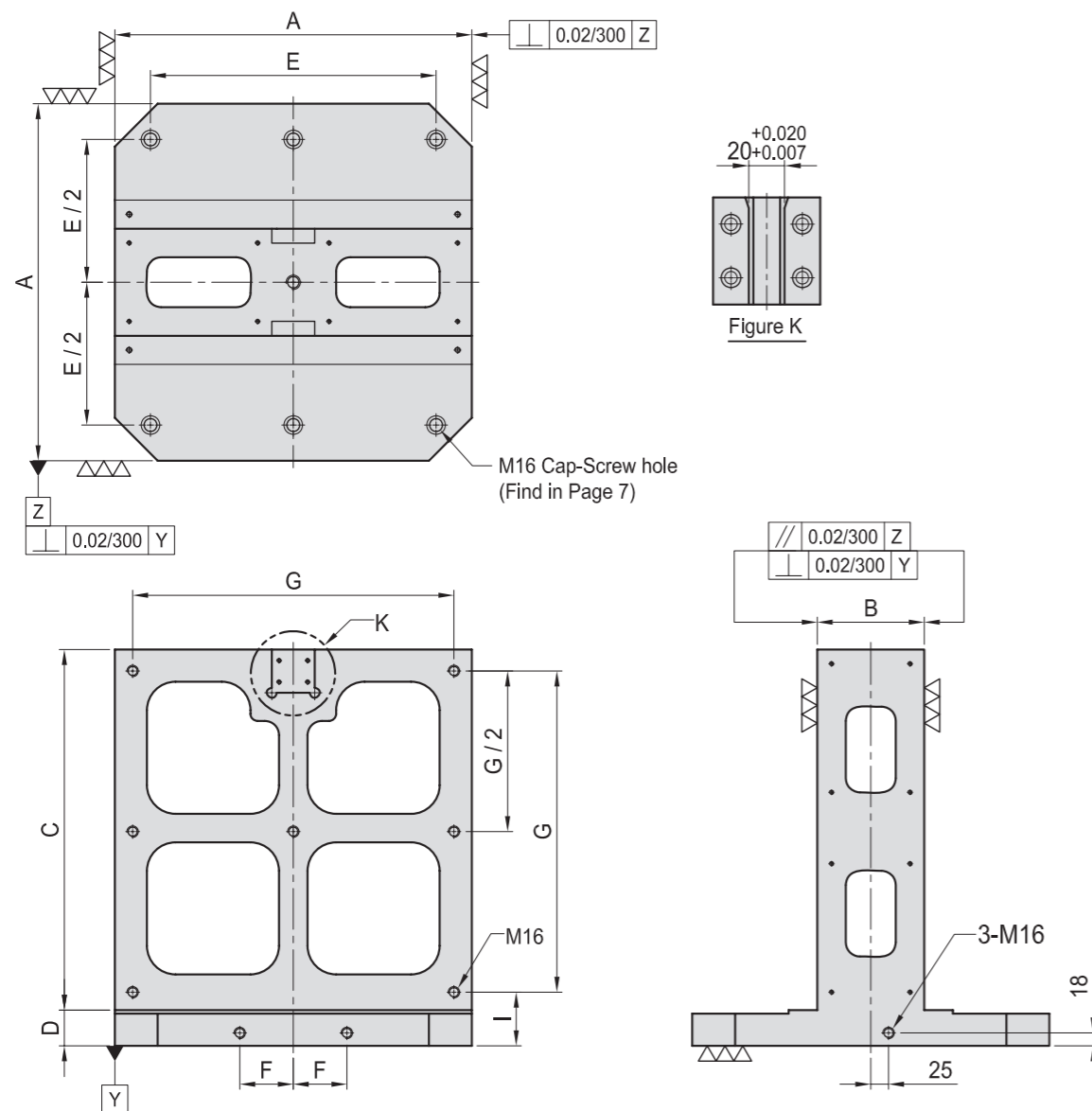
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: Modular quick-change system, simple 3 point mounting, use with BP14 & BP15 subplates.
- Eye bolt, top cover & side covers included.



## BP14

### SUB-PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Modular quick change subplate, use with BP13.
- Features: Ready to accept a hole pattern for your special jig.



MODEL NO.	A	B	C	D	E	F	G	I	Mounting holes	kg
BP13-400400-0450	400	130	400	50	320	55	350	70	4	125
BP13-500500-0555	500	150	500	55	400	75	450	75	6	178
BP13-630630-0690	630	220	630	60	500	100	580	80	6	350
BP13-800800-0860	800	250	800	60	640	135	750	80	6	515

\*Special Design Welcome !

MODEL NO.	A	B	C	D	E	F	Mounting holes	kg
BP14-40400-0400	400	400	40	350	350	370	5	46
BP14-40500-0500	500	500	40	450	450	470	7	72
BP14-40630-0630	630	630	40	580	580	600	7	114
BP14-50800-0800	800	800	50	750	750	770	7	232

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

SVF

ALV

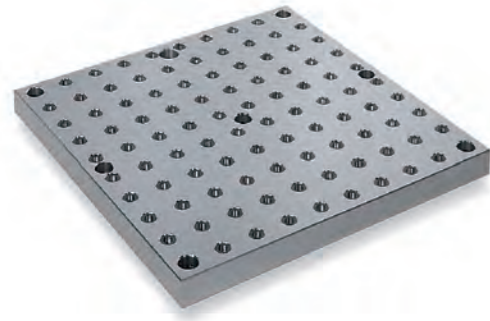
OK-  
VISE

OTHER

Column  
for  
Technical  
Data

# BP15

## SUB-PLATE



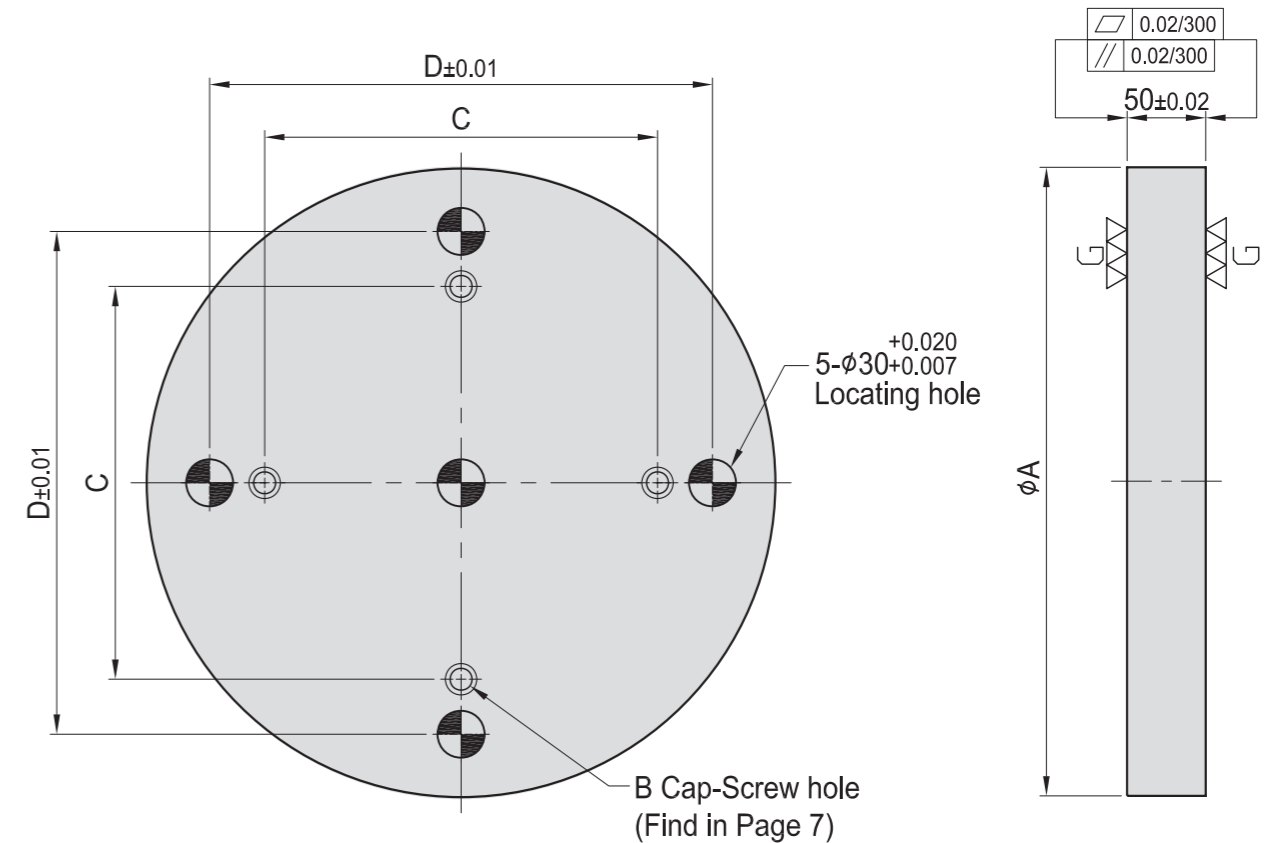
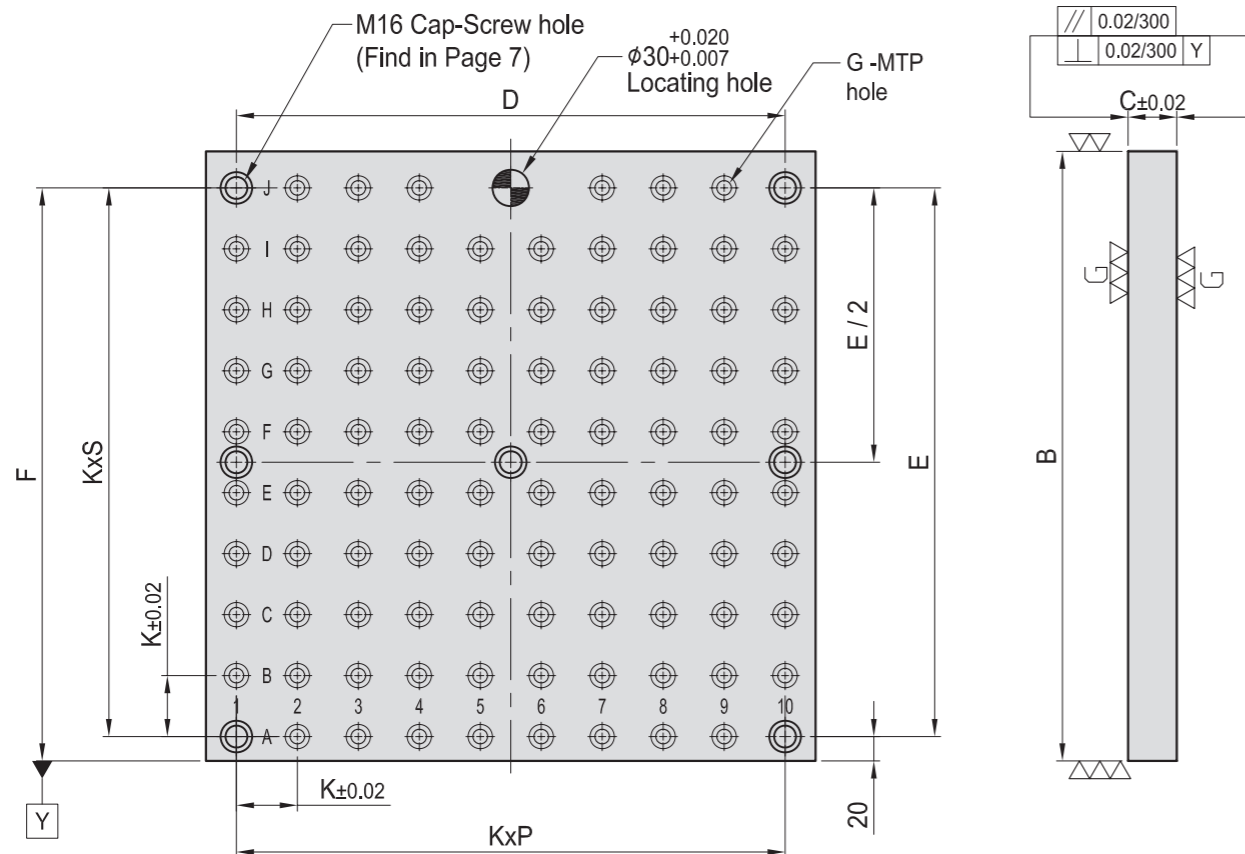
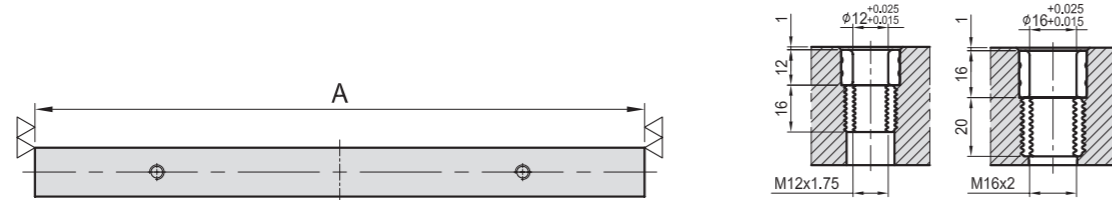
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6 (DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: Modular quick change subplate, use with BP13.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.

# BP16

## ROUND BASE PLATE



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: NC Rotary Table or Indexer.
- Features: Ready to accept a hole pattern for your special jig.



MODEL NO.	A	B	C	D	E	F	K	P	S	G	MTP	Mounting holes	kg	
BP15-40400-0400-12	400	400	40	350	350	370	7	7	7	Ø12	M12	58	5	42
BP15-40500-0500-12	500	500	40	450	450	470	9	9	9	Ø12	M12	94	7	69
BP15-40630-0630-12	630	630	40	580	580	600	11	11	11	Ø12	M12	138	7	108
BP15-50800-0800-12	800	800	50	750	750	770	15	15	15	Ø12	M12	250	7	220

\*Special Design Welcome !

MODEL NO.	A	B	C	D	kg
BP16-50-0300	300	M12	150	220	25
BP16-50-0400	400		250	320	40
BP16-50-0500	500	M16	300	400	65
BP16-50-0600	600		400	500	95

\*Special Design Welcome !

# BP17

## ROUND BASE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: NC Rotary Table or Indexer.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.



# BP18

## ROUND BASE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: NC Rotary Table or Indexer.
- Features: T-Slots running in 2 directions, easily adapts to standardized jig components.

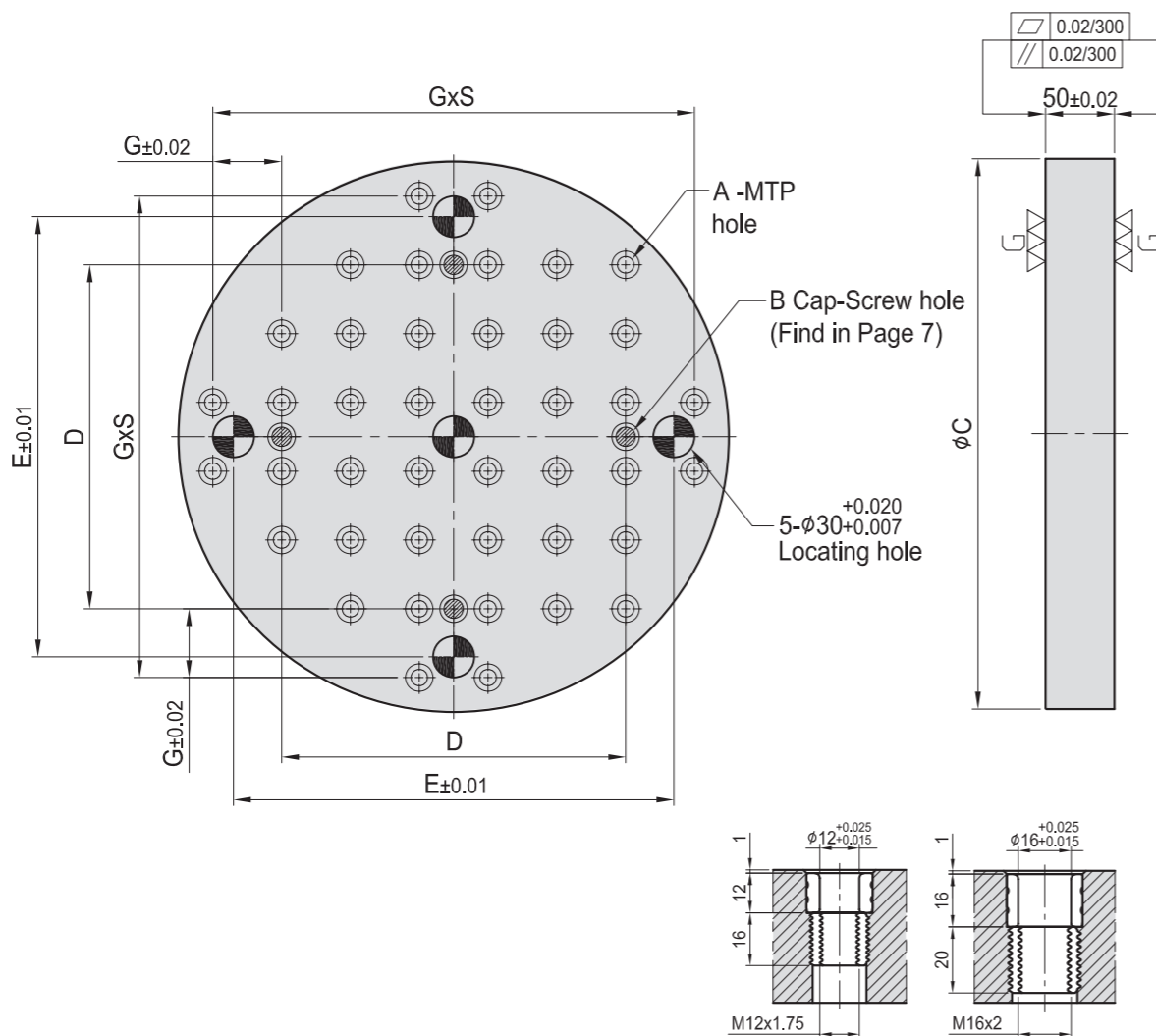


Figure A

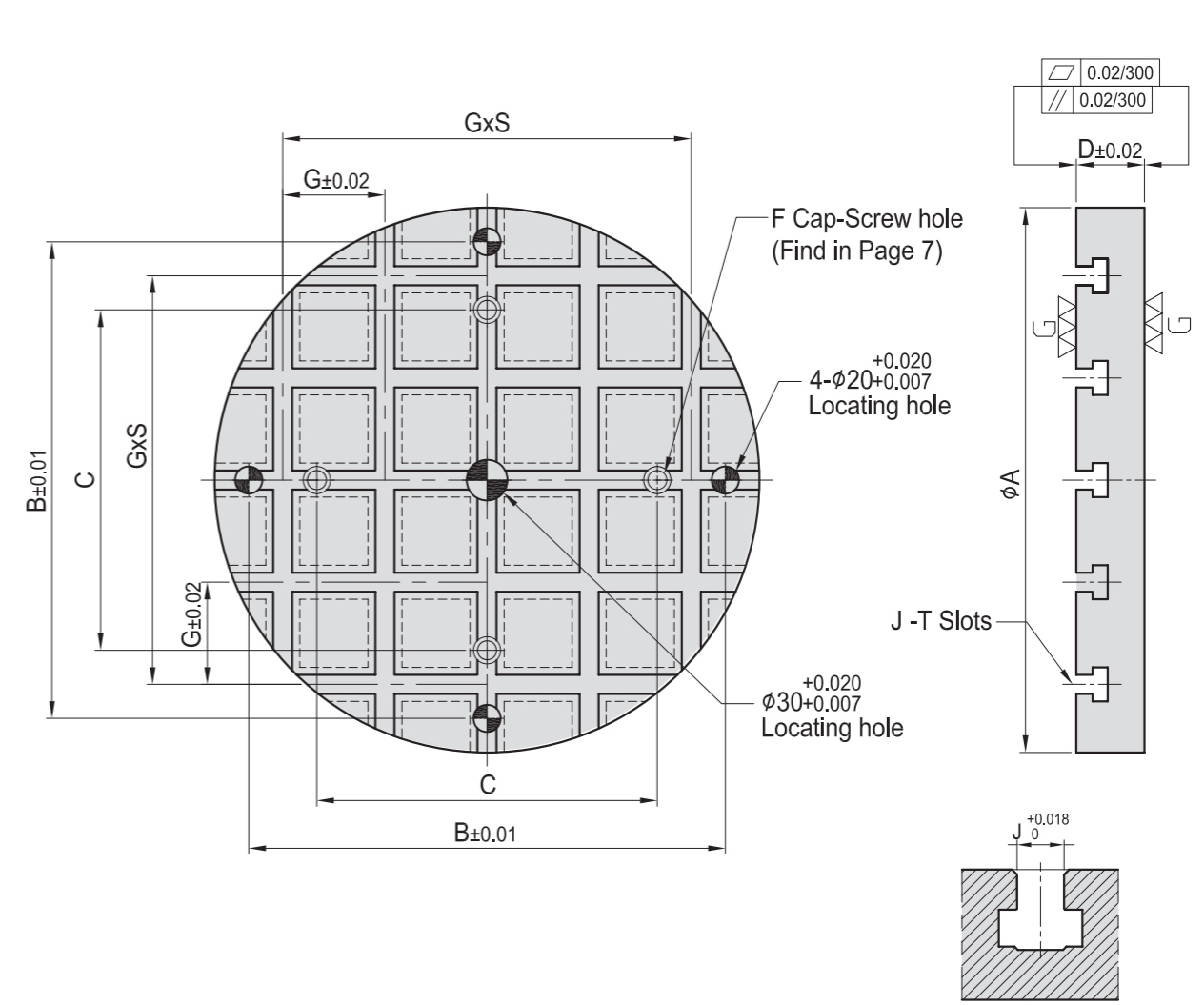


Figure J

MODEL NO.	A	B	C	D	E	G	S	MTP	kg
BP17-50-0300-12	Ø12	M12	M12	300	150	220	50	5	23
BP17-50-0400-12				400	250	320		7	42
BP17-50-0500-12	Ø12	M12	M16	500	300	400	50	9	70
BP17-50-0600-12				600	400	500		11	98
BP17-50-0500-16	Ø16	M16	M16	500	300	400	50	9	68
BP17-50-0600-16				600	400	500		11	95

\*Special Design Welcome !

MODEL NO.	A	B	C	D	F	G	S	J	kg
BP18-50-0300-14	300	250	150	50	M12	75	2	14	22
BP18-50-0400-14	400	350	250				4	36	
BP18-65-0500-18	500	450	300	65	M16	100	4	18	74
BP18-65-0600-18	600	550	400						110

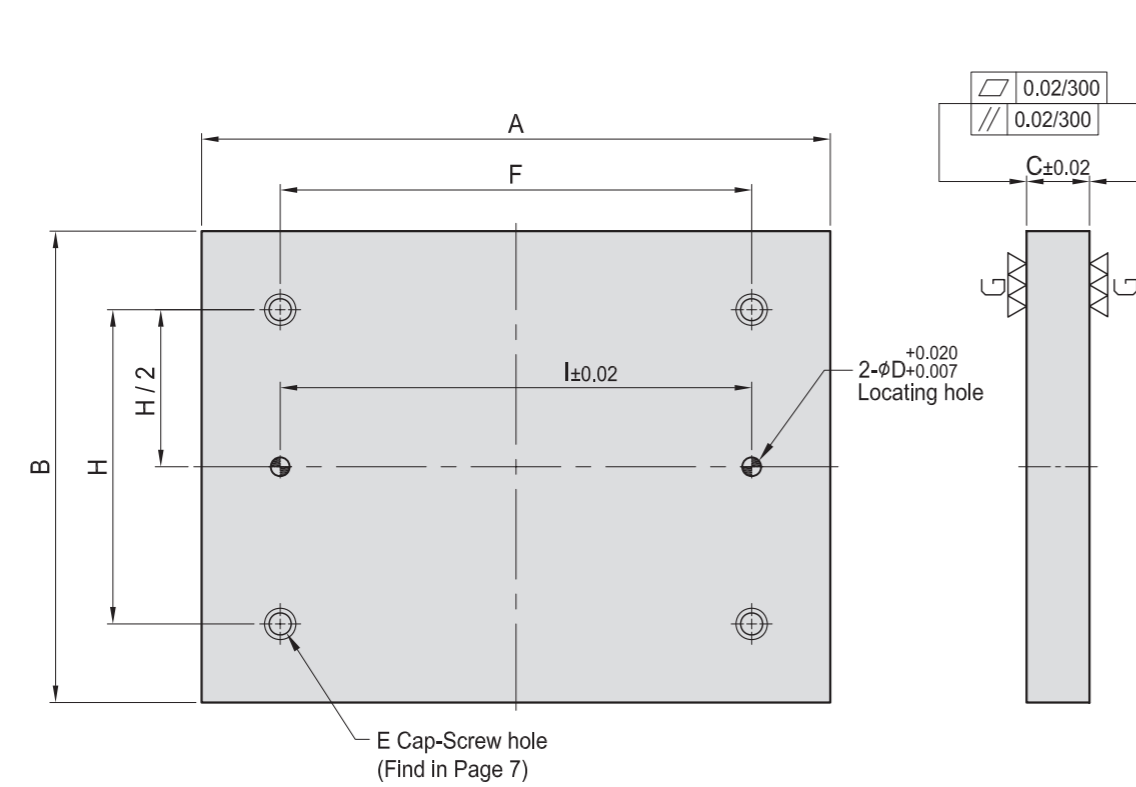
\*Special Design Welcome !

- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV
- OK-VISE
- OTHER
- Column for Technical Data

# BP19

## SUB-PLATE

- Material: S45C(JIS) / CK45(DIN)
- Application: Multipurpose subplate.
- Features: Ready to accept a hole pattern for your special jig.



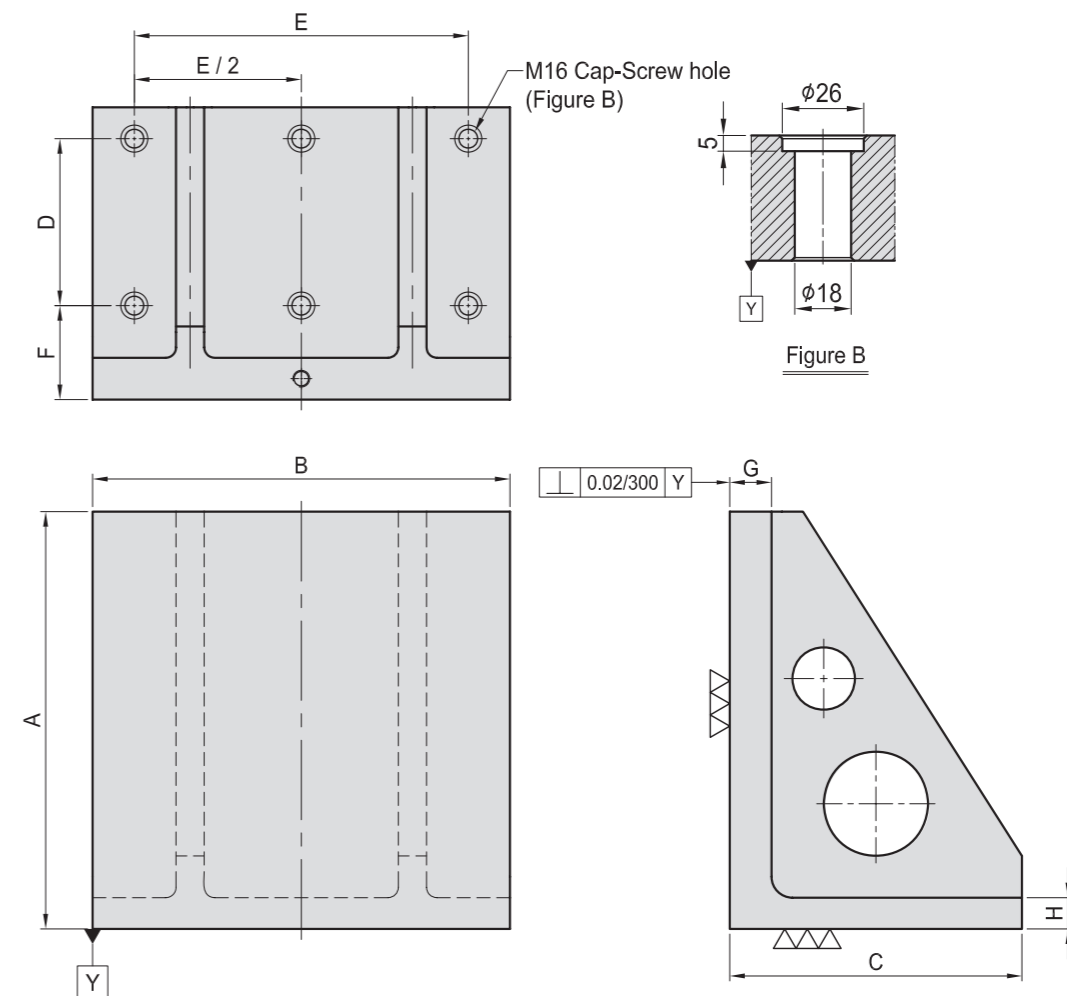
MODEL NO.	A	B	C	D	E	F	H	I	kg	MODEL NO.	A	B	C	D	E	F	H	I	kg
BP19-30150-0200-12	200	150	30	12	M12	100	100	100	8.0	BP19-30150-0200-16	200	150	30	16	M16	100	100	100	8.0
BP19-30150-0300-12	300					200		11.0	BP19-30150-0300-16	300	200					11.0			
BP19-30200-0200-12	200	200	30	12	M12	100	100	100	9.5	BP19-30200-0200-16	200	200	30	16	M16	100	100	100	9.5
BP19-30200-0300-12	300					200		14.5	BP19-30200-0300-16	300	200					14.5			
BP19-30300-0300-12	300	300	30	12	M12	200	200	200	21.5	BP19-30300-0300-16	300	300	30	16	M16	200	200	200	21.5
BP19-40300-0400-12	400					300		38.0	BP19-40300-0400-16	400	300					38.0			
BP19-40400-0400-12	400	400	40	12	M12	300	300	300	51.0	BP19-40400-0400-16	400	400	40	16	M16	300	300	300	51.0
BP19-40400-0500-12	500					400		63.0	BP19-40400-0500-16	500	400					63.0			

\*Special Design Welcome !

# BP20

## M/C ANGLE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: HMC / VMC
- Features: Ready to accept a hole pattern for your special jig.



MODEL NO.	A	B	C	D	E	F	G	H	Mounting holes	kg
BP20-220300-0300	300	300	220	100	250	90	40	30	6	50
BP20-280400-0400	400	400	280	160	320					90
BP20-340500-0500	500	500	340	200	400	90	50	35	6	165
BP20-435630-0630	630	630	435	250	500					100
BP20-525800-0800	800	800	525	320	640	115	50	45	6	475

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

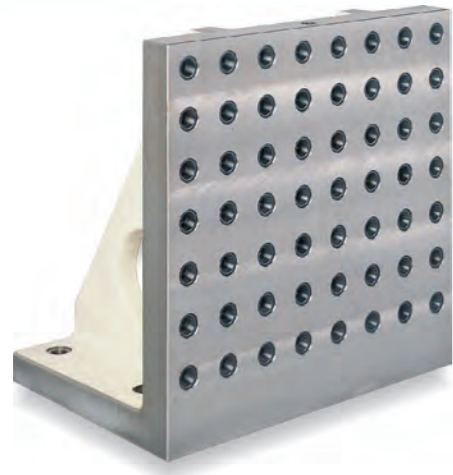
SVF

ALV

OK-VISE

OTHER

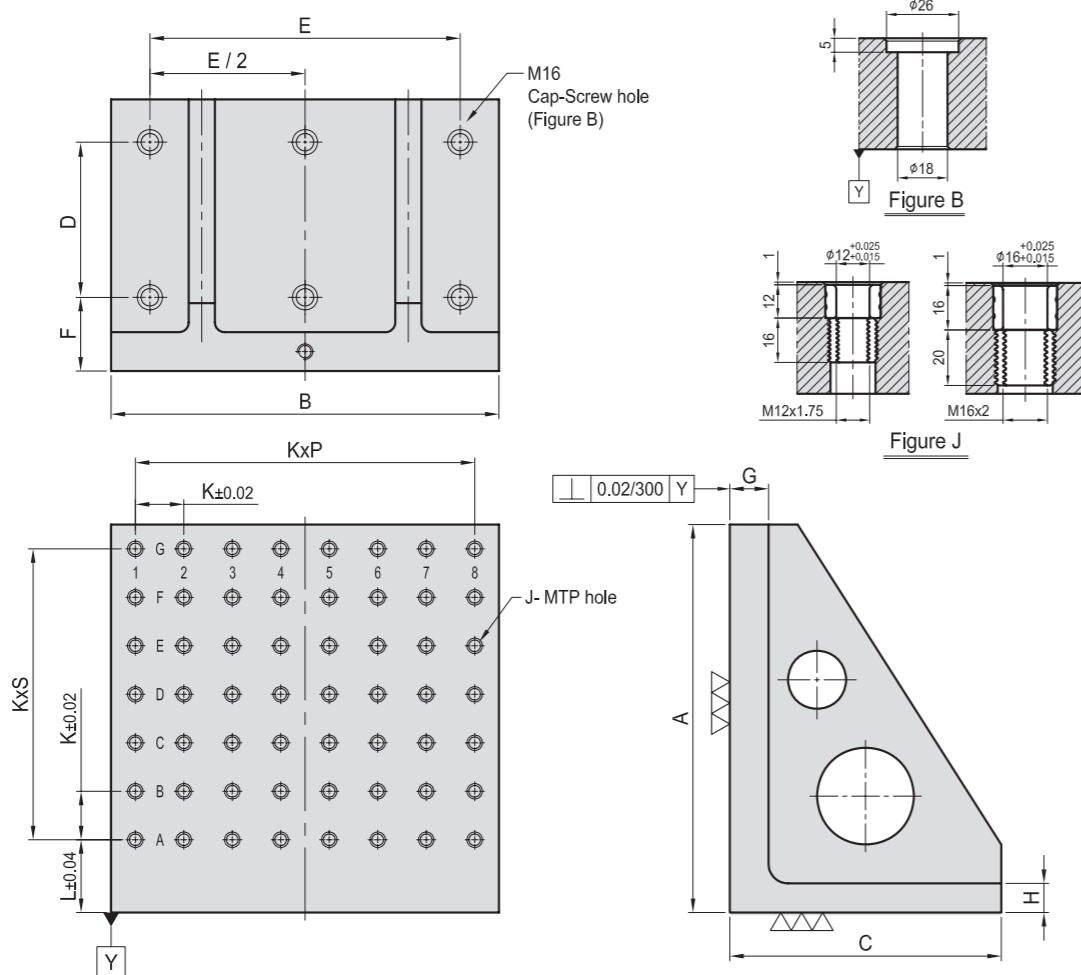
Column for Technical Data



# BP21

## M/C ANGLE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: HMC / VMC.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.



MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	P	S	MTP	Mounting holes	kg	
BP21-220300-0300-12	300	300	220	100	250	90	40	30	Ø12	M12	50	75	5	4	30	6	50
BP21-280400-0400-12	400	400	280	160	320								7	6	56		
BP21-340500-0500-12	500	500	340	200	400	90	50	35	Ø12	M12	50	75	9	8	90	6	173
BP21-435630-0630-12	630	630	435	250	500								40	11	11		
BP21-525800-0800-12	800	800	525	320	640	115	50	45	Ø12	M12	50	75	15	14	240	6	477
BP21-220300-0300-16	300	300	220	100	250	90	40	30	Ø16	M16	50	75	5	4	30	6	46
BP21-280400-0400-16	400	400	280	160	320								7	6	56		
BP21-340500-0500-16	500	500	340	200	400	90	50	35	Ø16	M16	50	75	9	8	90	6	170
BP21-435630-0630-16	630	630	435	250	500								40	11	11		
BP21-525800-0800-16	800	800	525	320	640	115	50	45	Ø16	M16	50	75	15	14	240	6	470

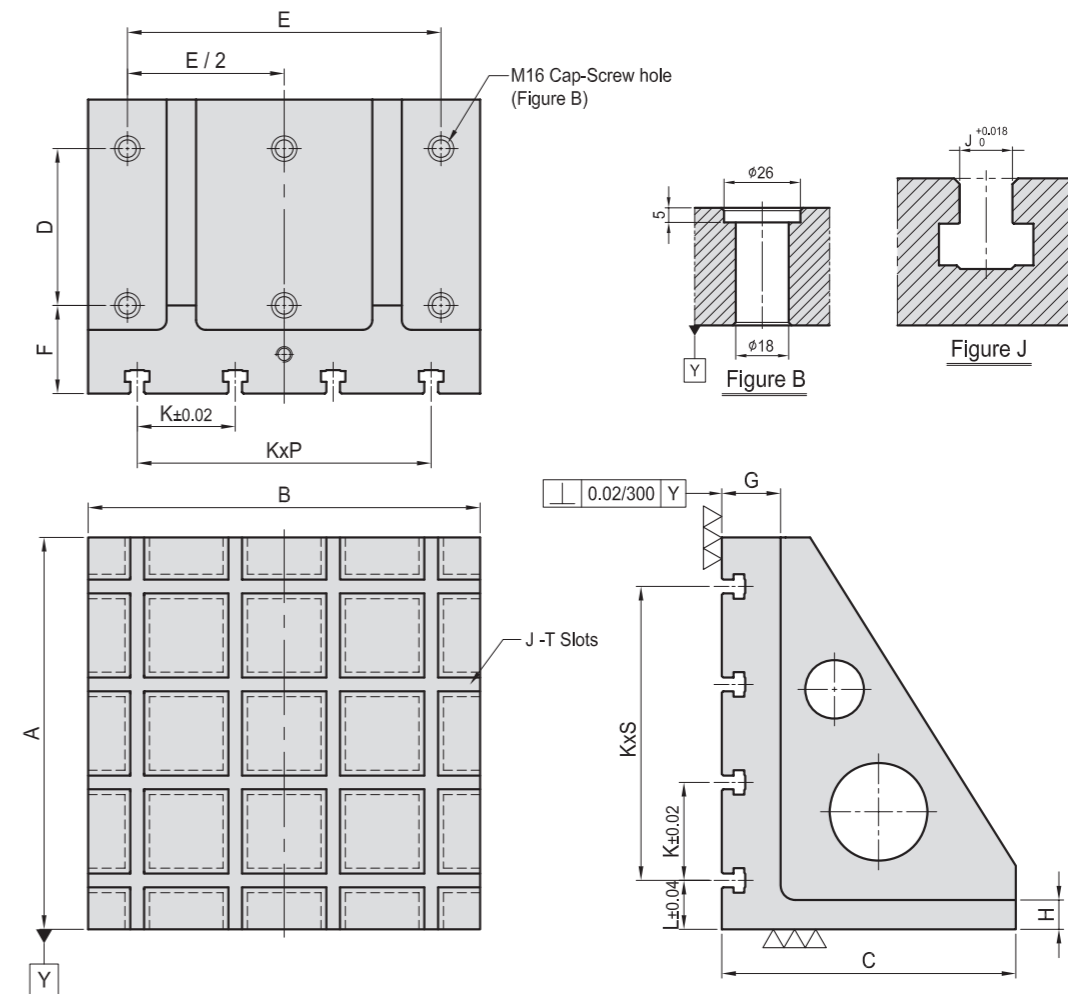
\*Special Design Welcome !



# BP22

## M/C ANGLE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: HMC / VMC.
- Features: T-Slots running in 2 directions, easily adapts to standardized jig components.



MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	P	S	Mounting holes	kg
BP22-220300-0300-14	300	300	220	100	250	90	60	30	14	100	50	2	2	6	53
BP22-300400-0400-14	400	400	300	160	320							3	3		
BP22-350500-0500-14	500	500	350	200	400	90	60	35	14	100	50	4	4	6	170
BP22-450630-0630-14	630	630	450	250	500							100	65		
BP22-550800-0800-14	800	800	550	320	640	115	75	45	14	150	100	4	4	6	566
BP22-220300-0300-18	300	300	220	100	250	90	60	30	18	100	50	2	2	6	51
BP22-300400-0400-18	400	400	300	160	320							3	3		
BP22-350500-0500-18	500	500	350	200	400	90	60	35	18	100	50	4	4	6	162
BP22-450630-0630-18	630	630	450	250	500							100	65		
BP22-550800-0800-18	800	800	550	320	640	115	75	45	18	150	100	4	4	6	555

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

SVF

ALV

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OTHER

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for  
Technical  
Data



# BP23

## MC NARROW ANGLE PLATE

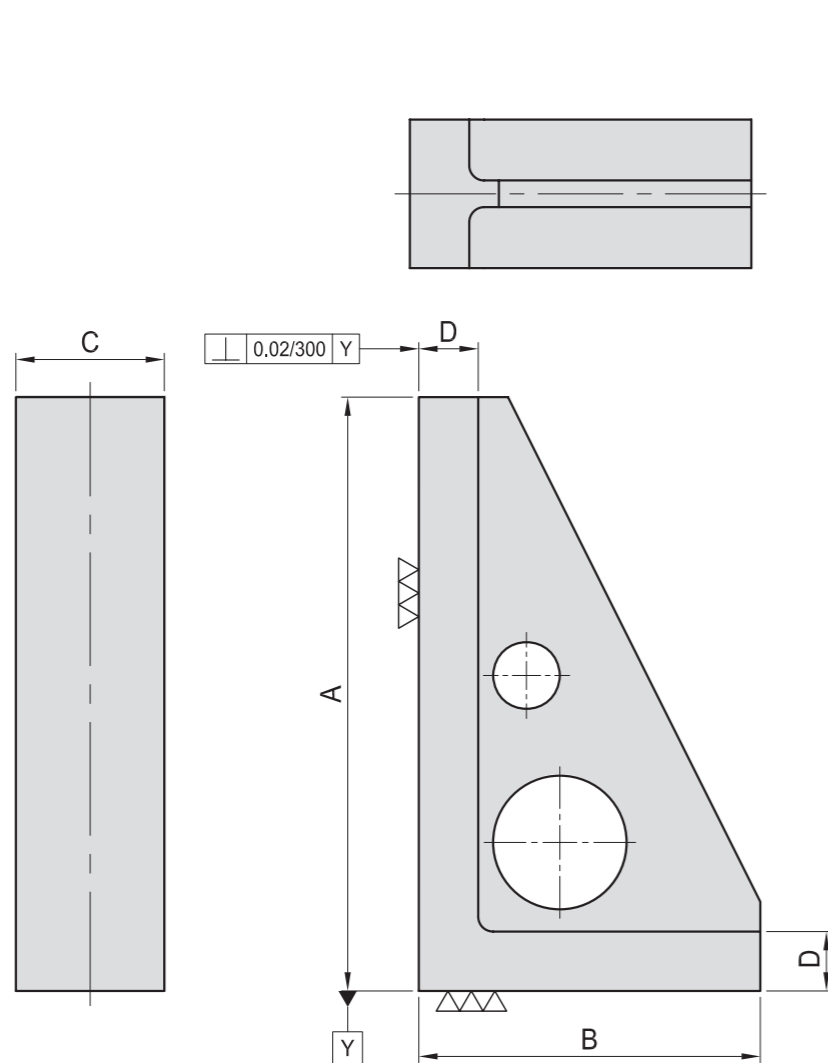
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: HMC / VMC.
- Features: Ready to accept a hole pattern for your special jig.



# BP24

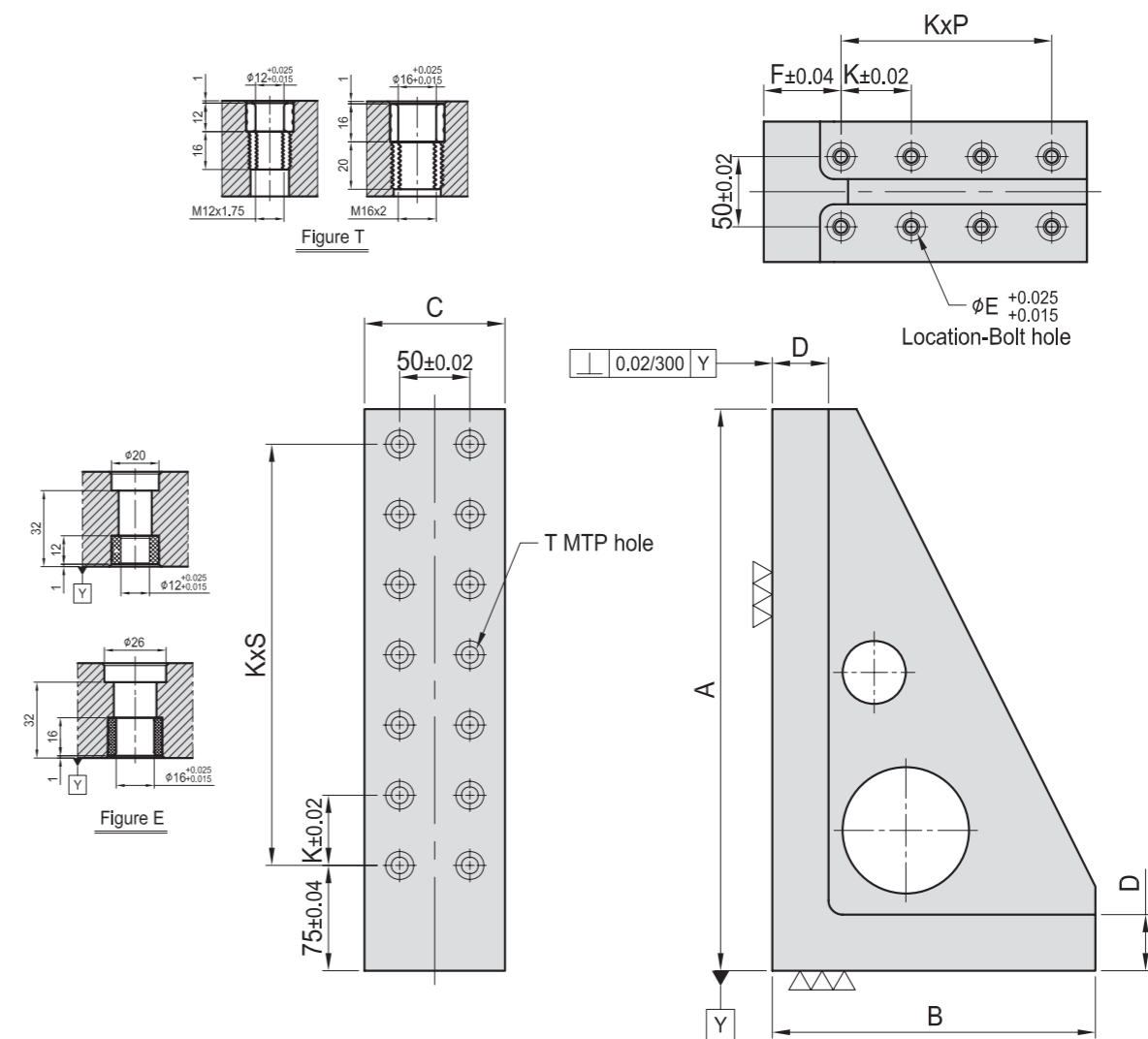
## MC NARROW ANGLE PLATE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: HMC / VMC.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.



MODEL NO.	A	B	C	D	kg
BP23-180100-0300	300	180	100	40	14
BP23-230100-0400	400	230	100	40	20
BP23-280100-0500	500	280	100	40	25

\*Special Design Welcome !



MODEL NO.	A	B	C	D	E	F	K	P	S	T	MTP	Mounting holes	kg	
BP24-180100-0300-12	300	180						2	4			10	6	12
BP24-230100-0400-12	400	230	100	40	12	55	50	3	6	Ø12	M12	14	8	19
BP24-280100-0500-12	500	280						4	8			18	10	23
BP24-180100-0300-16	300	180						2	4			10	6	13
BP24-230100-0400-16	400	230	100	40	16	55	50	3	6	Ø16	M16	14	8	20
BP24-280100-0500-16	500	280						4	8			18	10	24

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

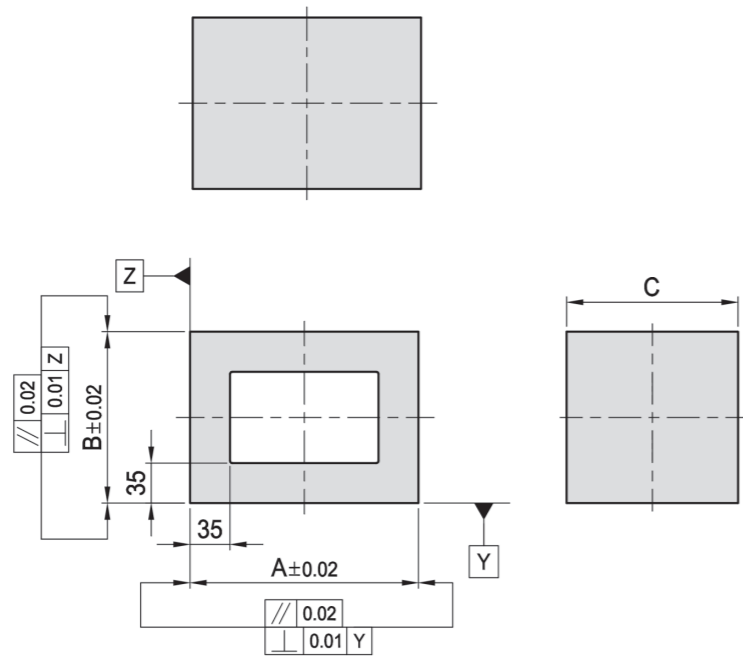
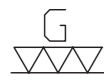
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Technical  
Data

# BP25

## RECTANGULAR CAST SECTION



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Cast sections provide a fast & economical way to make special jig components.
- Features: Ready to accept a hole pattern for your special jig.



MODEL NO.	A	B	C	kg
BP25-200150-0150	200	150	150	23
BP25-250150-0200	250	200	150	30
BP25-300200-0250	300	250	200	56

\*Special Design Welcome !

# BP26

## RECTANGULAR CAST SECTION



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Alignment Bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing: 50±0.02
- Application: Cast sections provide a fast & economical way to make special jig components.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.

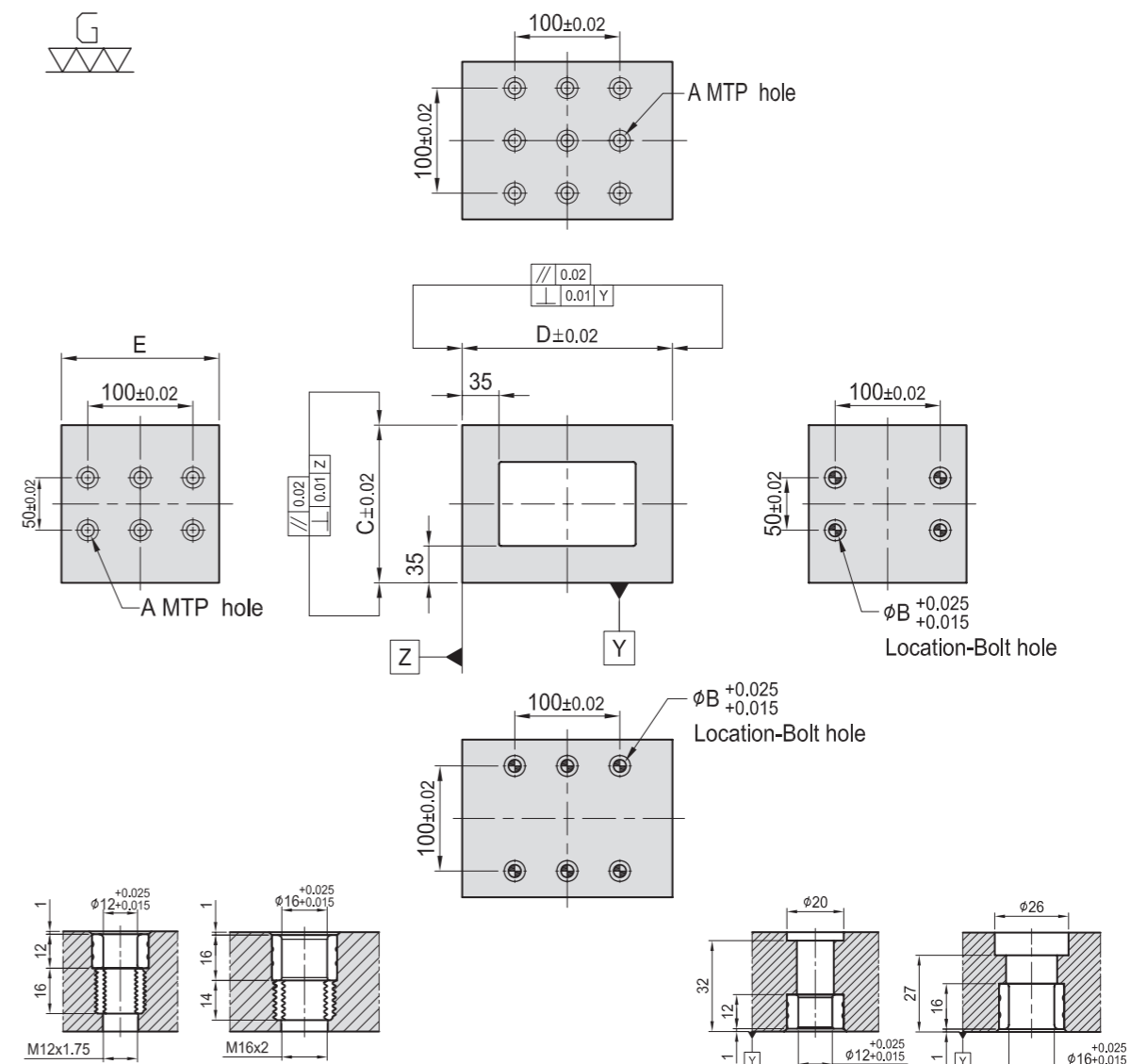


Figure A

Figure B

MODEL NO.	A	B	C	D	E	MTP	Mounting holes	kg
BP26-200150-0150-12	Ø12	M12	12	150	150	15	10	23
200								
BP26-250150-0200-12	Ø12	M12	12	150	150	15	10	29
200								
BP26-200150-0150-16	Ø16	M16	16	150	150	15	10	29
200								
BP26-250150-0200-16	Ø16	M16	16	150	150	15	10	30
200								

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

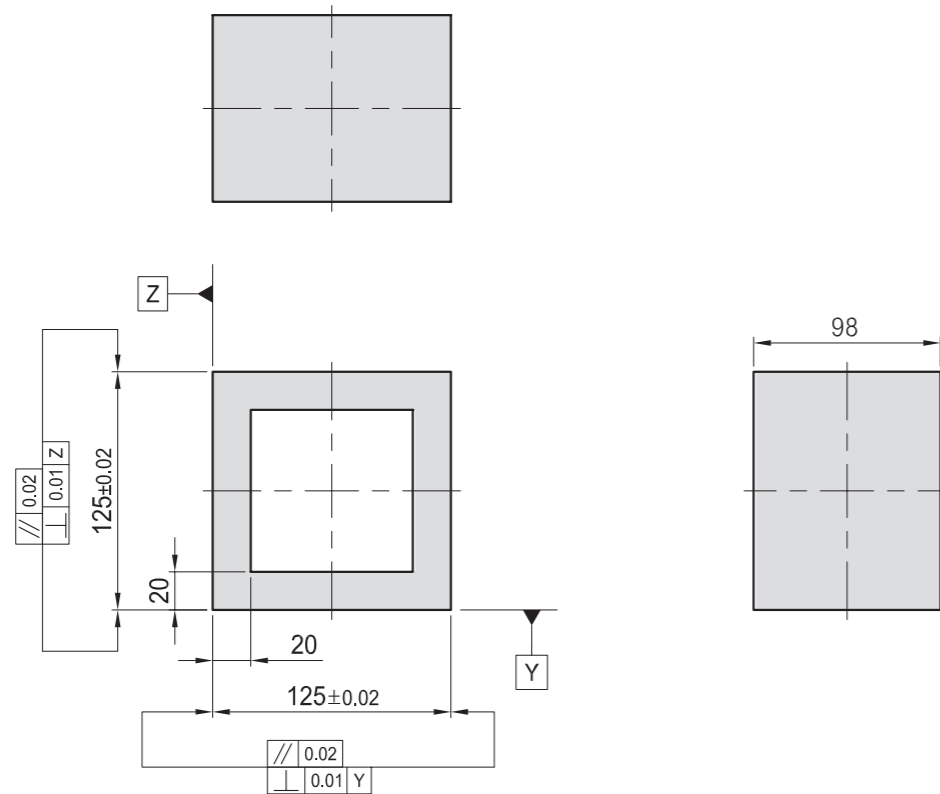
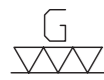
Column  
for  
Technical  
Data

# BP27

## RECTANGULAR CAST SECTION



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Cast sections provide a fast & economical way to make special jig components.
- Features: Ready to accept a hole pattern for your special jig.



MODEL NO.	kg
BP27-125098-125	6

\*Special Design Welcome !

# BP28

## RECTANGULAR CAST SECTION



- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Cast sections provide a fast & economical way to make special jig components.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.

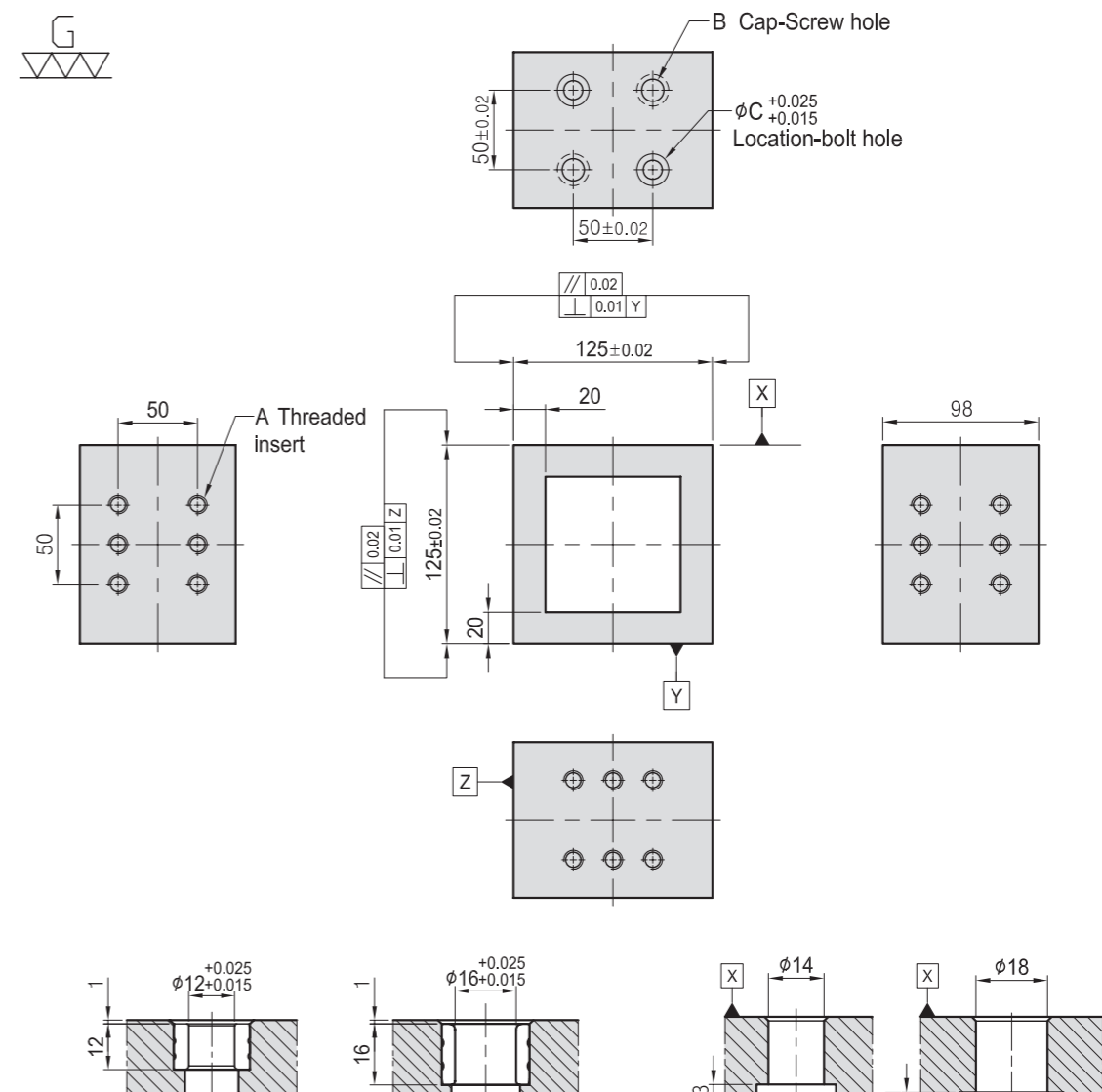


Figure C

Figure B

MODEL NO.	A	B	C	kg
BP28-125098-125-12	M12	M12	12	5.8
BP28-125098-125-16	M16	M16	16	5.5

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

Column  
for  
Technical  
Data

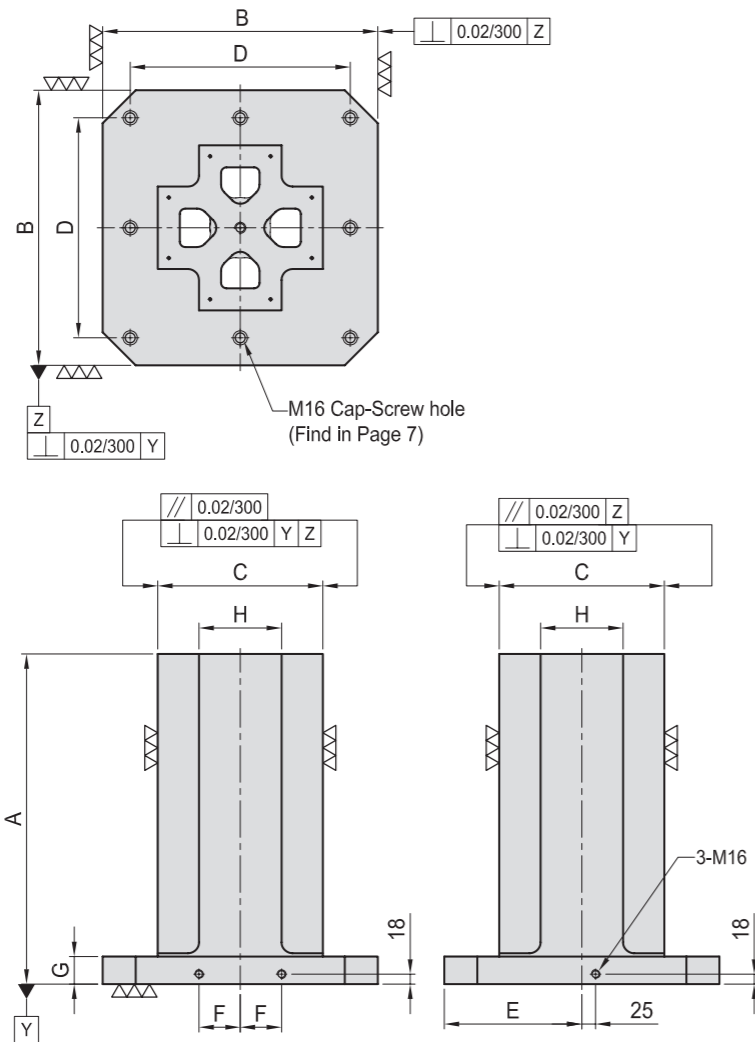




# BP29

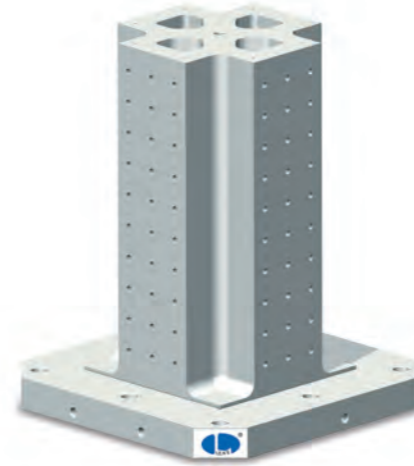
## CROSS TOOLING COLUMN

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	Mounting holes	kg
BP29-400400-0500	500	400	250	320	200	55	50	125	4	154
BP29-400400-0650	650	400	250	320	200	55	50	125	4	188
BP29-500500-0600	600	500	300	400	250	75	50	150	8	244
BP29-500500-0750	750	500	300	400	250	75	50	150	8	287
BP29-630630-0700	700	630	350	500	315	100	50	200	8	373
BP29-630630-0850	850	630	350	500	315	100	50	200	8	424
BP29-800800-0800	800	800	500	640	400	135	50	300	8	648
BP29-800800-1000	1000	800	500	640	400	135	50	300	8	753

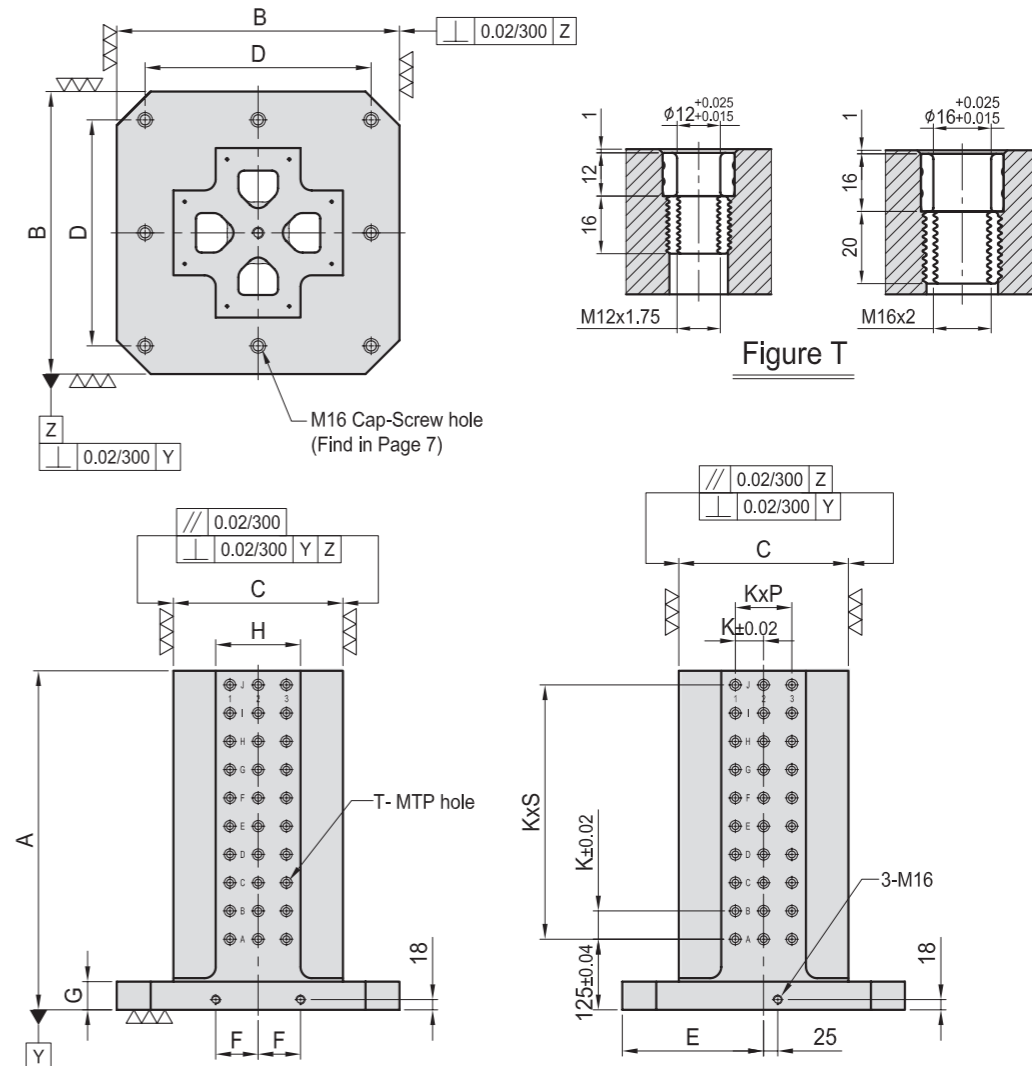
\*Special Design Welcome !



# BP30

## CROSS TOOLING COLUMN

- Material: Cast Iron FC300 (JIS) / GG30 (DIN)
- Heat treated (Normalized)
- Alignment bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing: 50±0.02
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	MTP	Mounting holes	kg	MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	MTP	Mounting holes	kg
BP30-400400-0500-12	500	400	250	320	200	55	50	125	50	1	7	Ø12	M12	64	152	BP30-400400-0500-16	500	400	250	320	200	55	50	125	50	1	7	Ø16	M16	64	151
BP30-400400-0650-12	650	400	250	320	200	55	50	125	50	1	10	Ø12	M12	88	186	BP30-400400-0650-16	650	400	250	320	200	55	50	125	50	1	10	Ø16	M16	88	184
BP30-500500-0600-12	600	500	300	400	250	75	50	150	50	2	9	Ø12	M12	120	250	BP30-500500-0600-16	600	500	300	400	250	75	50	150	50	2	9	Ø16	M16	120	247
BP30-500500-0750-12	750	500	300	400	250	75	50	150	50	2	12	Ø12	M12	156	293	BP30-500500-0750-16	750	500	300	400	250	75	50	150	50	2	12	Ø16	M16	156	290
BP30-630630-0700-12	700	630	350	500	315	100	50	200	50	3	11	Ø12	M12	192	368	BP30-630630-0700-16	700	630	350	500	315	100	50	200	50	3	11	Ø16	M16	192	364
BP30-630630-0850-12	850	630	350	500	315	100	50	200	50	3	14	Ø12	M12	240	418	BP30-630630-0850-16	850	630	350	500	315	100	50	200	50	3	14	Ø16	M16	240	413
BP30-800800-0800-12	800	800	500	640	400	135	50	300	50	5	13	Ø12	M12	336	640	BP30-800800-0800-16	800	800	500	640	400	135	50	300	50	5	13	Ø16	M16	336	633
BP30-800800-1000-12	1000	800	500	640	400	135	50	300	50	5	17	Ø12	M12	432	740	BP30-800800-1000-16	1000	800	500	640	400	135	50	300	50	5	17	Ø16	M16	432	733

\*Special Design Welcome !



# BP31

## HEXAGONAL CUBE

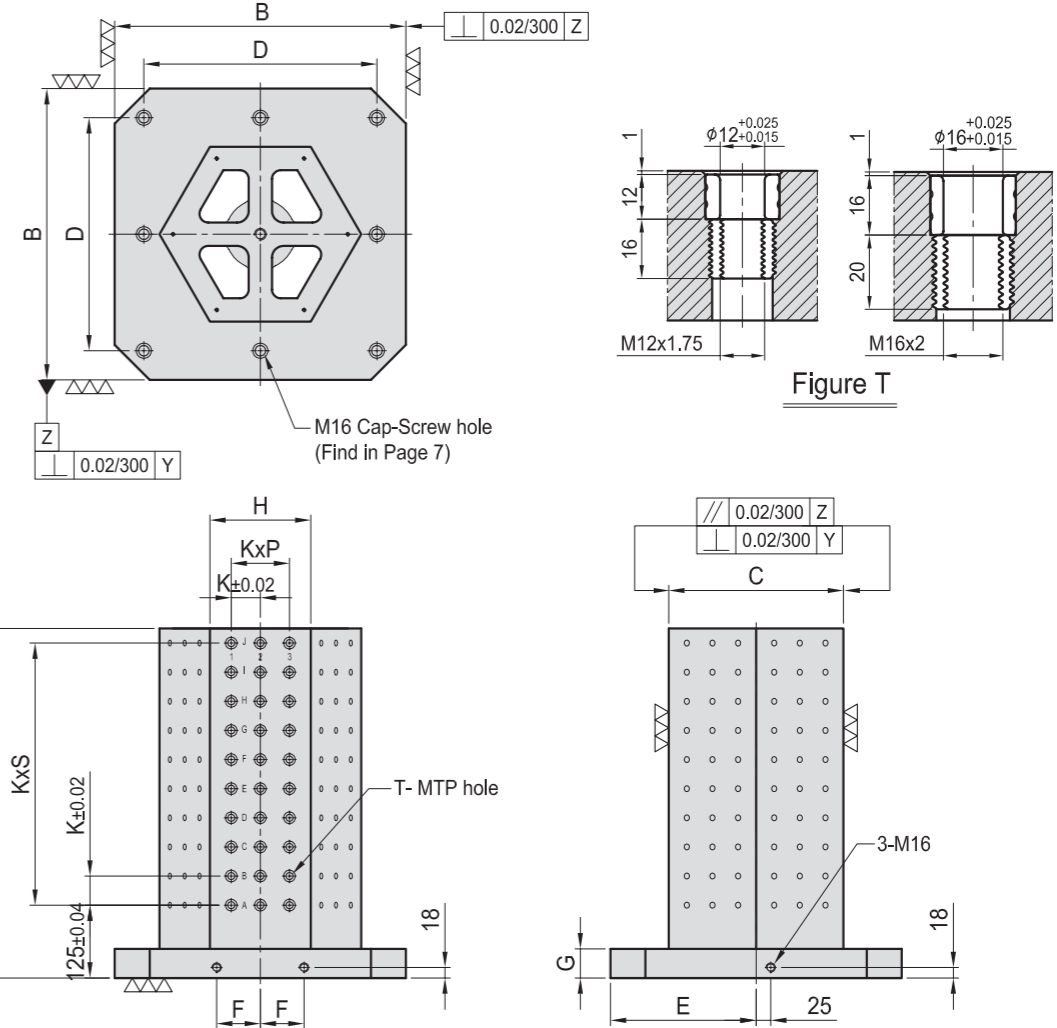
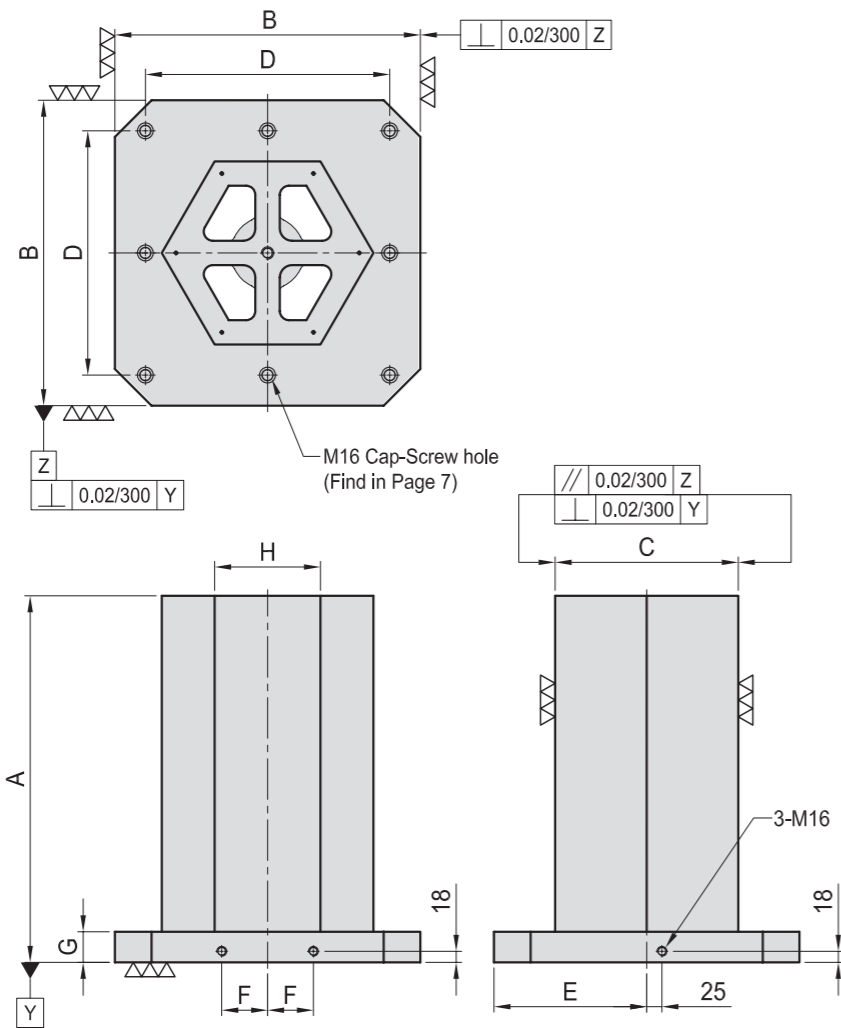
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & top cover included.



# BP32

## HEXAGONAL CUBE

- Material: Cast Iron FC300 (JIS) / GG30 (DIN)
- Heat treated (Normalized)
- Alignment bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	Mounting holes	kg
BP31-400400-0500	500									151
BP31-400400-0650	650	400	250	320	200	55	50	144	4	183
BP31-500500-0600	600									233
BP31-500500-0750	750	500	300	400	250	75	50	173	8	272
BP31-630630-0700	700									361
BP31-630630-0850	850	630	350	500	315	100	50	202	8	408
BP31-800800-0800	800									619
BP31-800800-1000	1000	800	500	640	400	135	50	289	8	713

\*Special Design Welcome !

MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	MTP	Mounting holes	kg	MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	MTP	Mounting holes	kg	
BP32-400400-0500-12	500														149	BP32-400400-0500-16	500													147		
BP32-400400-0650-12	650	400	250	320	200	55	50	144	50	1	10	$\phi 12$	M12	132	4	BP32-400400-0650-16	650	400	250	320	200	55	50	144	50	1	10	$\phi 16$	M16	132	4	177
BP32-500500-0600-12	600														228	BP32-500500-0600-16	600													224		
BP32-500500-0750-12	750	500	300	400	250	75	50	173	50	2	12	$\phi 12$	M12	234	8	BP32-500500-0750-16	750	500	300	400	250	75	50	173	50	2	12	$\phi 16$	M16	234	8	262
BP32-630630-0700-12	700														356	BP32-630630-0700-16	700													351		
BP32-630630-0850-12	850	630	350	500	315	100	50	202	50	2	14	$\phi 12$	M12	270	8	BP32-630630-0850-16	850	630	350	500	315	100	50	202	50	2	14	$\phi 16$	M16	270	8	396
BP32-800800-0800-12	800														609	BP32-800800-0800-16	800													600		
BP32-800800-1000-12	1000	800	500	640	400	135	50	289	50	4	17	$\phi 12$	M12	540	8	BP32-800800-1000-16	1000	800	500	640	400	135	50	289	50	4	17	$\phi 16$	M16	540	8	688

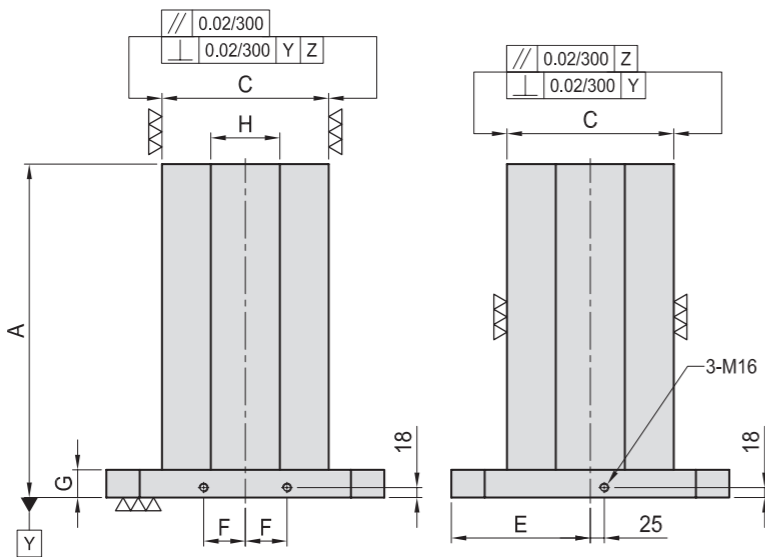
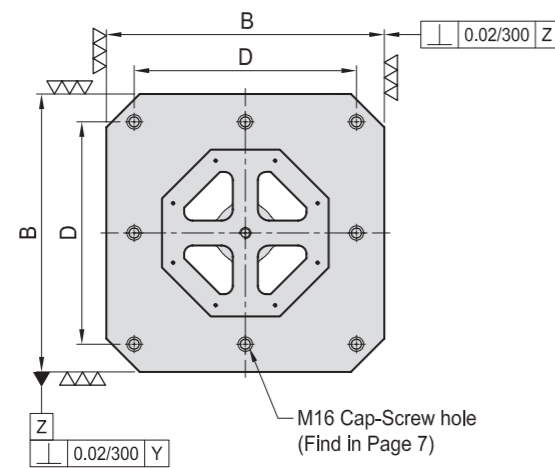
\*Special Design Welcome !



# BP33

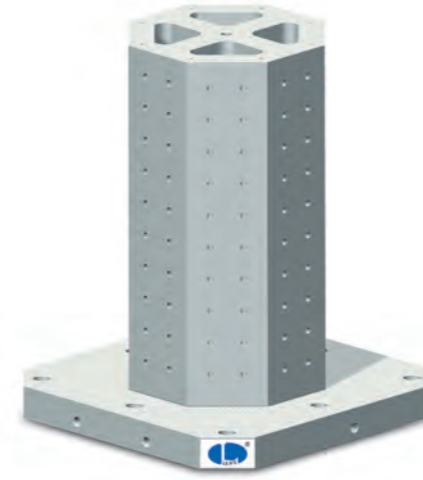
## OCTAGONAL CUBE

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	Mounting holes	kg
BP33-400400-0500	500									148
BP33-400400-0650	650	400	250	320	200	55	50	103	4	179
BP33-500500-0600	600									227
BP33-500500-0750	750	500	300	400	250	75	50	124	8	264
BP33-630630-0700	700									350
BP33-630630-0850	850	630	350	500	315	100	50	145	8	395
BP33-800800-0800	800									622
BP33-800800-1000	1000	800	500	640	400	135	50	207	8	711

\*Special Design Welcome !



# BP34

## OCTAGONAL CUBE

- Material: Cast Iron FC300 (JIS) / GG30 (DIN)
- Heat treated (Normalized)
- Alignment bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing: 50±0.02
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & top cover included.

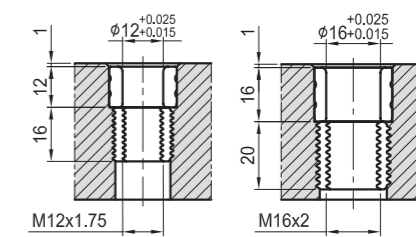
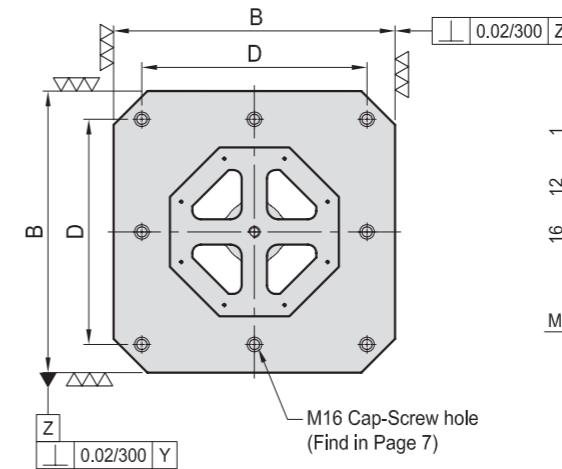
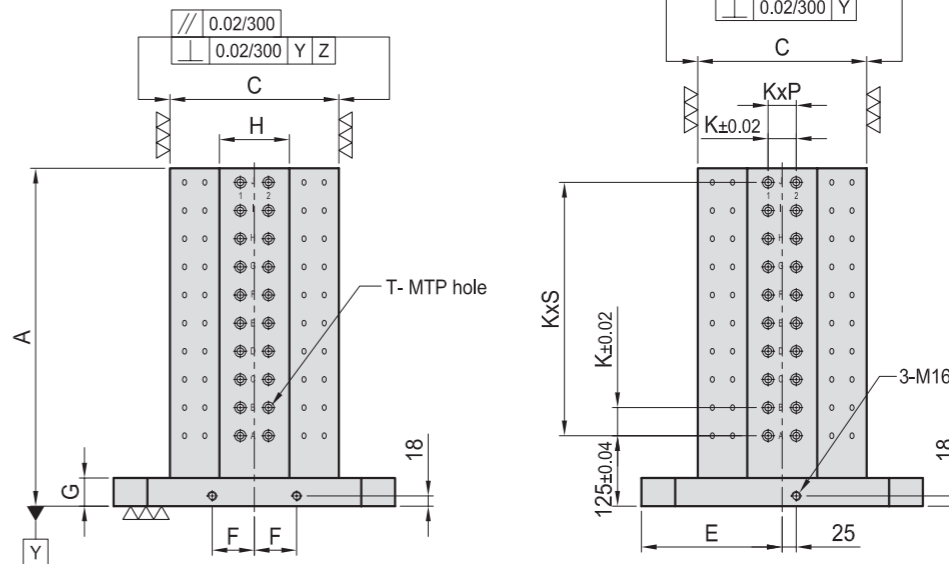


Figure T



MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	MTP	Mounting holes	kg	MODEL NO.	A	B	C	D	E	F	G	H	K	P	S	T	MTP	Mounting holes	kg
BP34-400400-0500-12	500														145	BP34-400400-0500-16	500													142	
BP34-400400-0650-12	650	400	250	320	200	55	50	103	50	1	7	Ø12	M12	128	175	BP34-400400-0650-16	650	400	250	320	200	55	50	103	50	1	10	Ø16	M16	128	171
BP34-500500-0600-12	600														223	BP34-500500-0600-16	600													219	
BP34-500500-0750-12	750	500	300	400	250	75	50	124	50	1	9	Ø12	M12	208	259	BP34-500500-0750-16	750	500	300	400	250	75	50	124	50	1	12	Ø16	M16	208	255
BP34-630630-0700-12	700														345	BP34-630630-0700-16	700													341	
BP34-630630-0850-12	850	630	350	500	315	100	50	145	50	1	11	Ø12	M12	240	389	BP34-630630-0850-16	850	630	350	500	315	100	50	145	50	1	14	Ø16	M16	240	384
BP34-800800-0800-12	800														611	BP34-800800-0800-16	800													601	
BP34-800800-1000-12	1000	800	500	640	400	135	50	207	50	3	13	Ø12	M12	576	697	BP34-800800-1000-16	1000	800	500	640	400	135	50	207	50	3	17	Ø16	M16	576	685

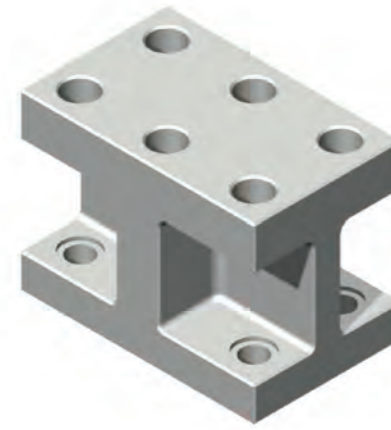
\*Special Design Welcome !



# BP35

## H/CAST SECTION

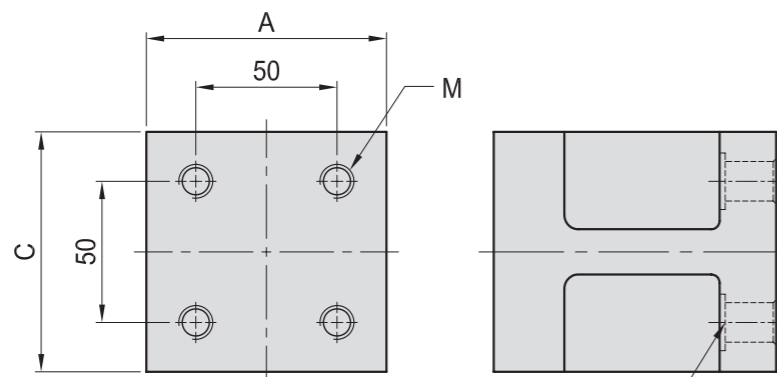
- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Features: Easily adapts to standardized jig components.



# BP36

## H/CAST SECTION

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Features: Easily adapts to standardized jig components.



N Cap-Screw hole

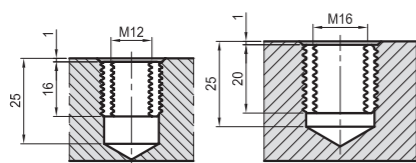
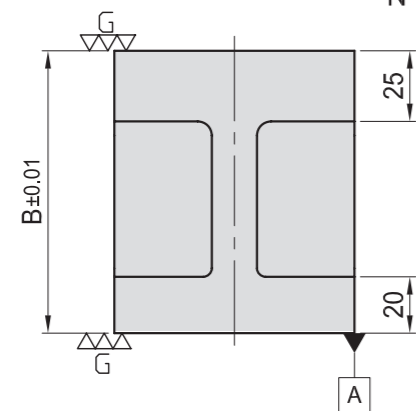


Figure M

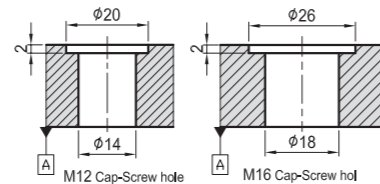
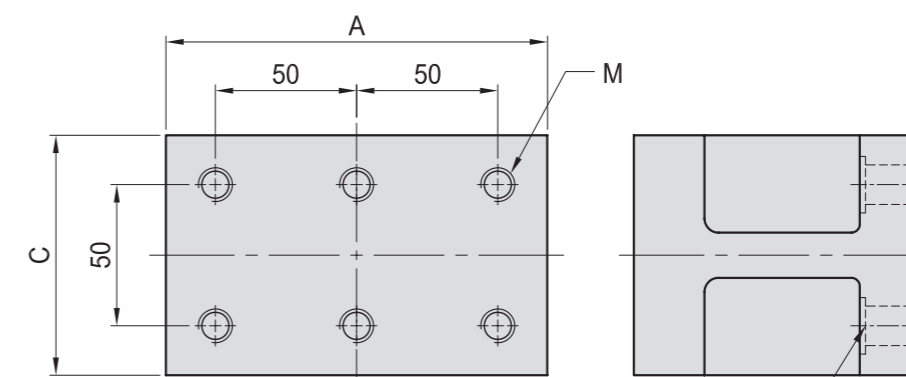


Figure N

MODEL NO.	A	B	C	M	N	kg
BP35-085085-0100-12	85	100	85	M12	M12	3.64
BP35-085085-0125-12		125				
BP35-085085-0100-16	85	100	85	M16	M16	4.13
BP35-085085-0125-16		125				

\*Special Design Welcome !



N Cap-Screw hole

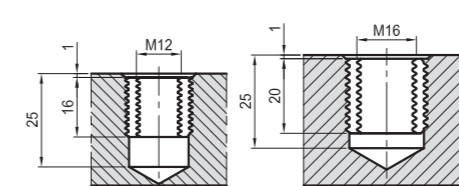
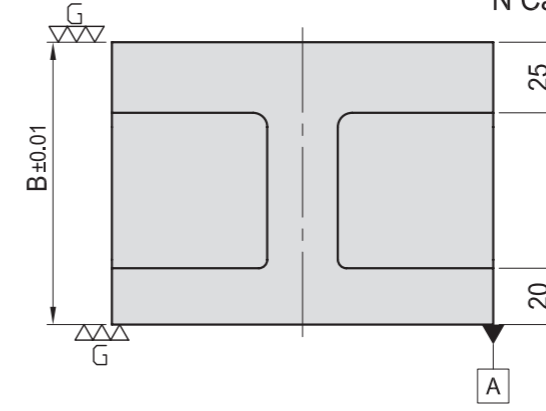


Figure M

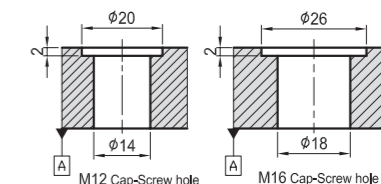


Figure N

MODEL NO.	A	B	C	M	N	kg
BP36-135085-0100-12	135	100	85	M12	M12	5.76
BP36-135085-0125-12		125				
BP36-135085-0100-16	135	100	85	M16	M16	6.53
BP36-135085-0125-16		125				

\*Special Design Welcome !

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

Column  
for  
Technical  
Data

# BP37

## H/CAST SECTION

- Material: Cast Iron FC300(JIS) / GG30(DIN)
- Heat treated (Normalized)
- Features: Easily adapts to standardized jig components.

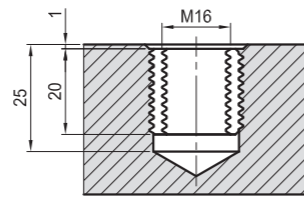
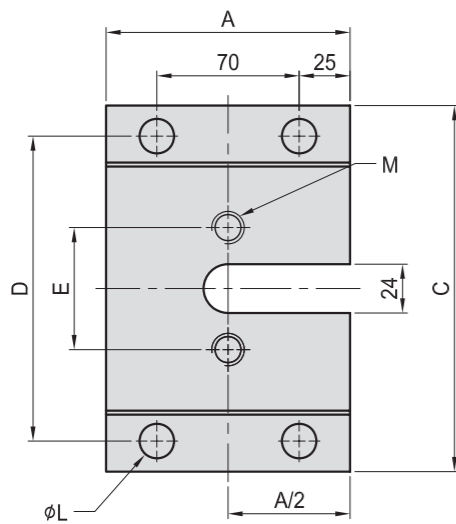
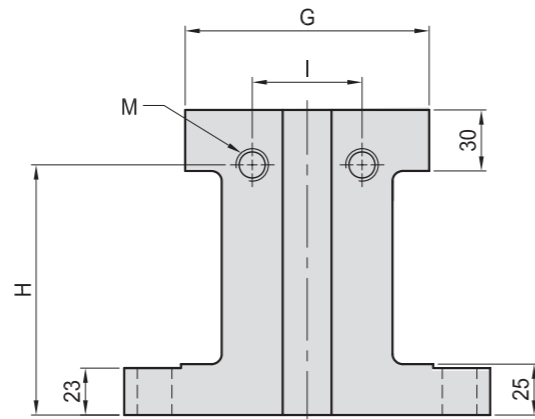
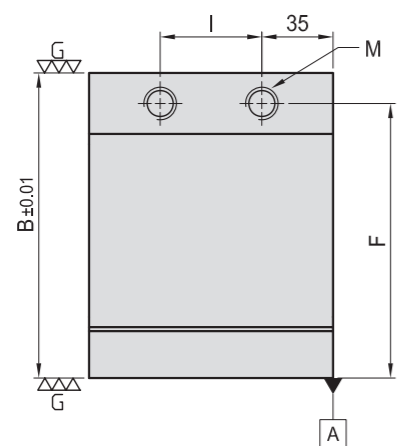


Figure M

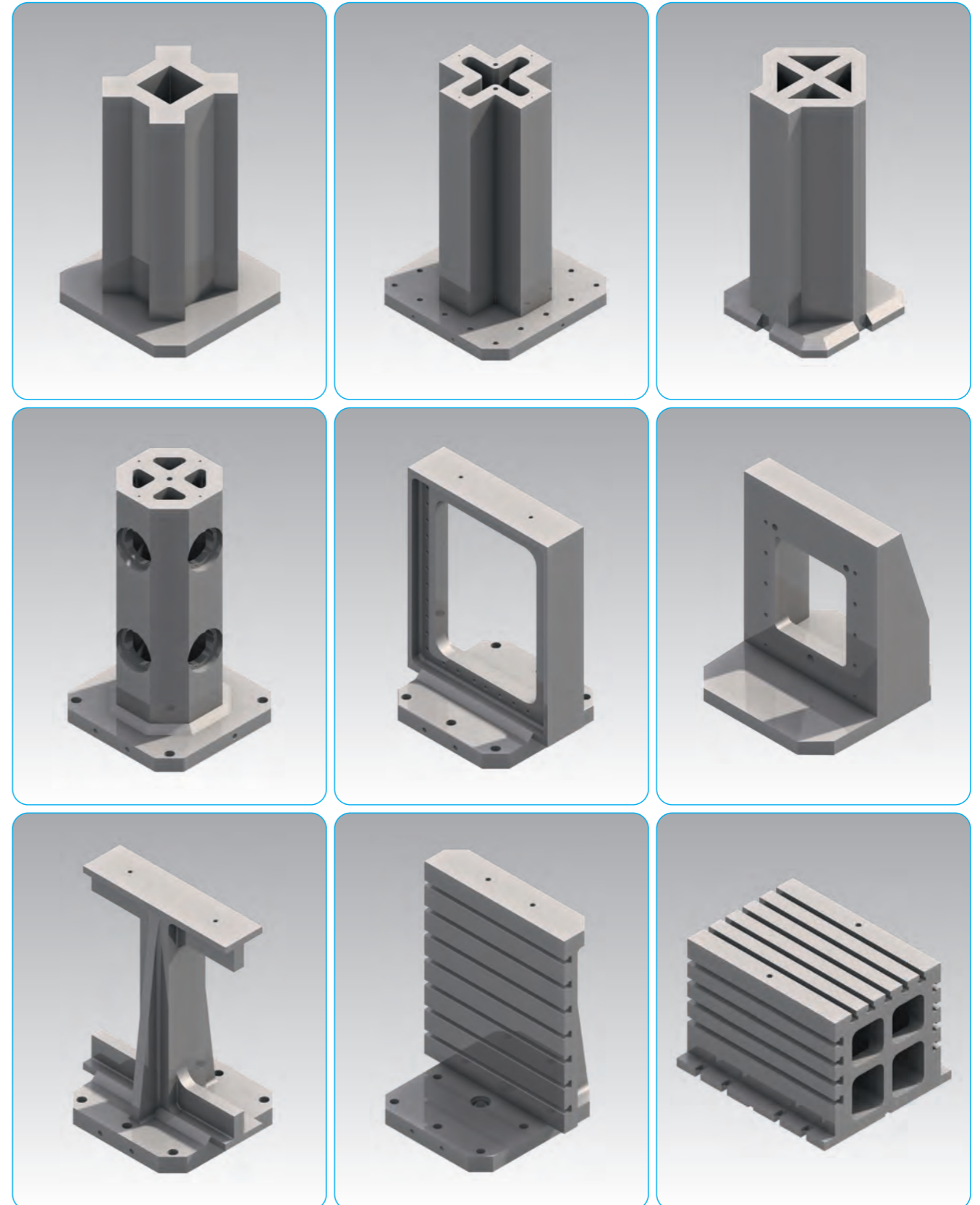


MODEL NO.	A	B	C	D	E	F	G	H	I	M	L	kg
BP37-120180-0150-16	120	150	180	150	60	135	120	123	50	M16	17	15.5

\*Special Design Welcome !

# BP-SPECIAL

**WE CAN BUILD YOUR OWN SPECIAL DESIGN  
UP TO 1500mm x 1500mm x 1500mm**



BP

BPA

BC

CP

SU

PT

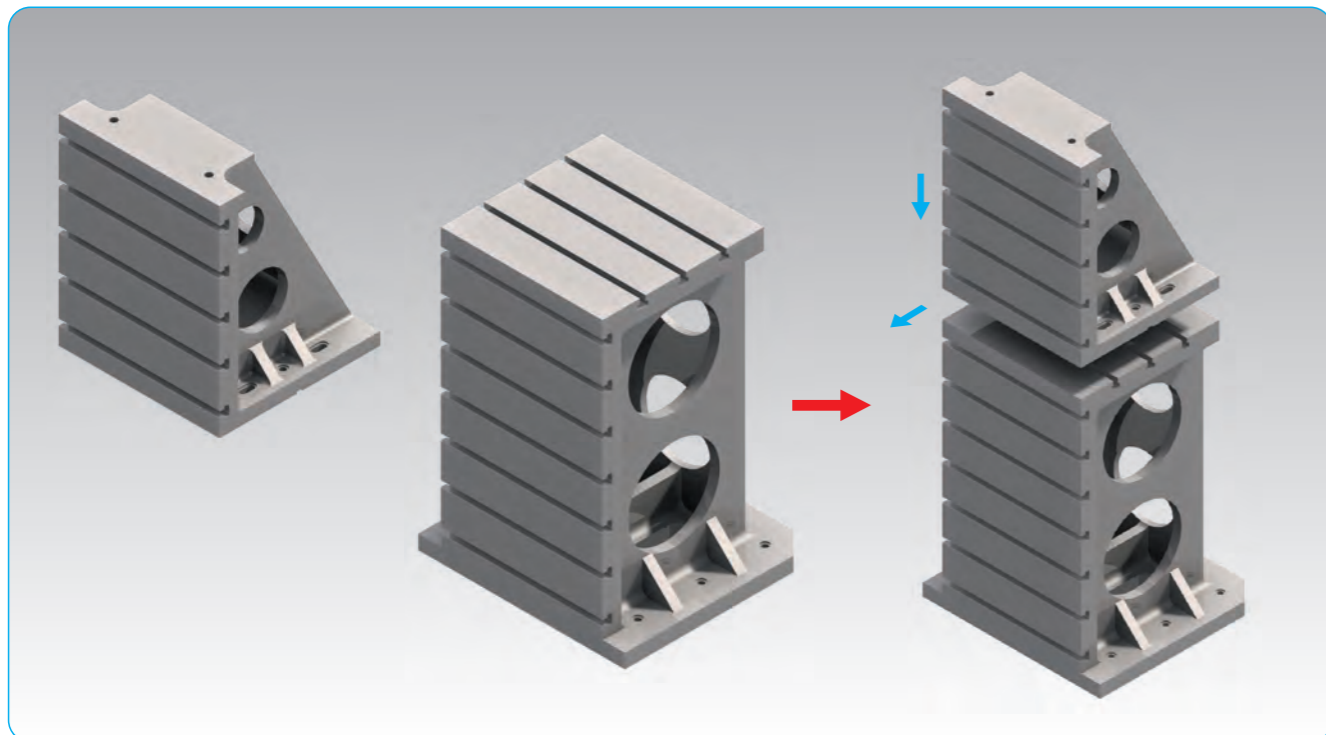
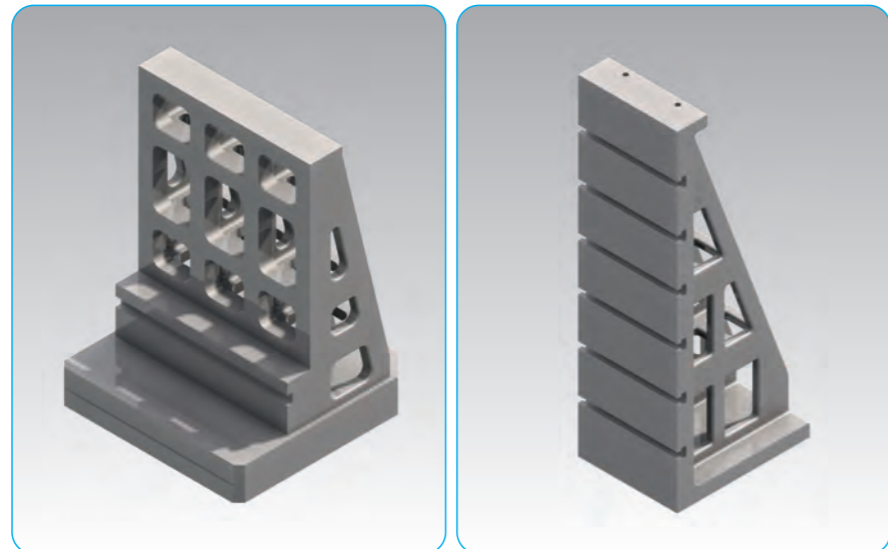
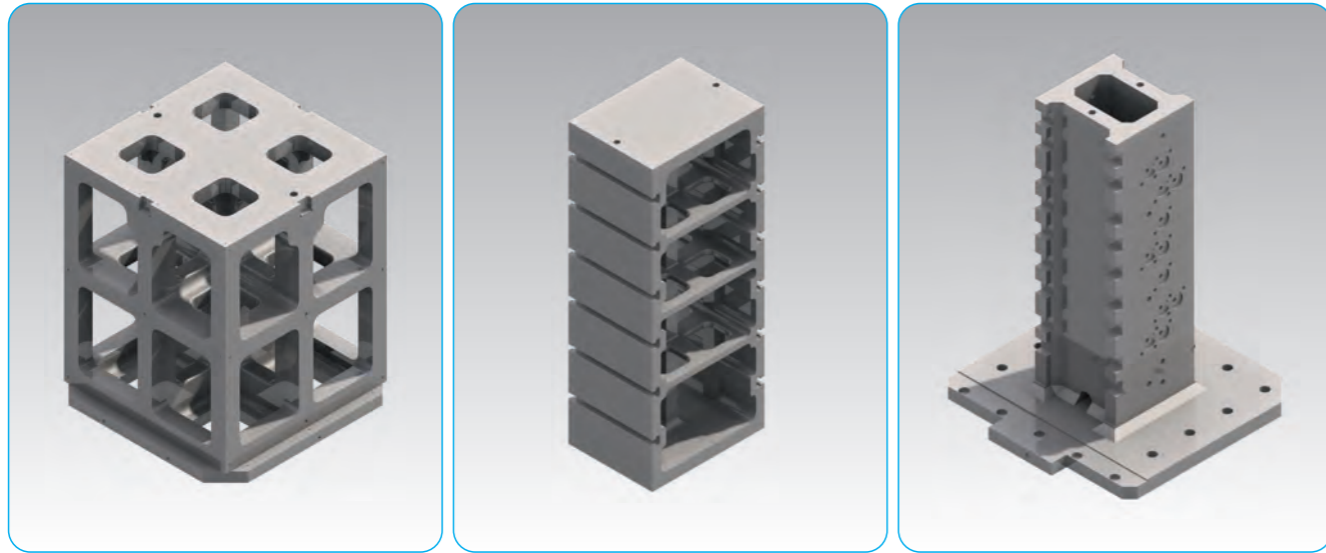
SVF

ALV

OK-  
VISE

OTHER

Column  
for  
Technical  
Data





# BPA07

## SQUARE TOOLING COLUMN

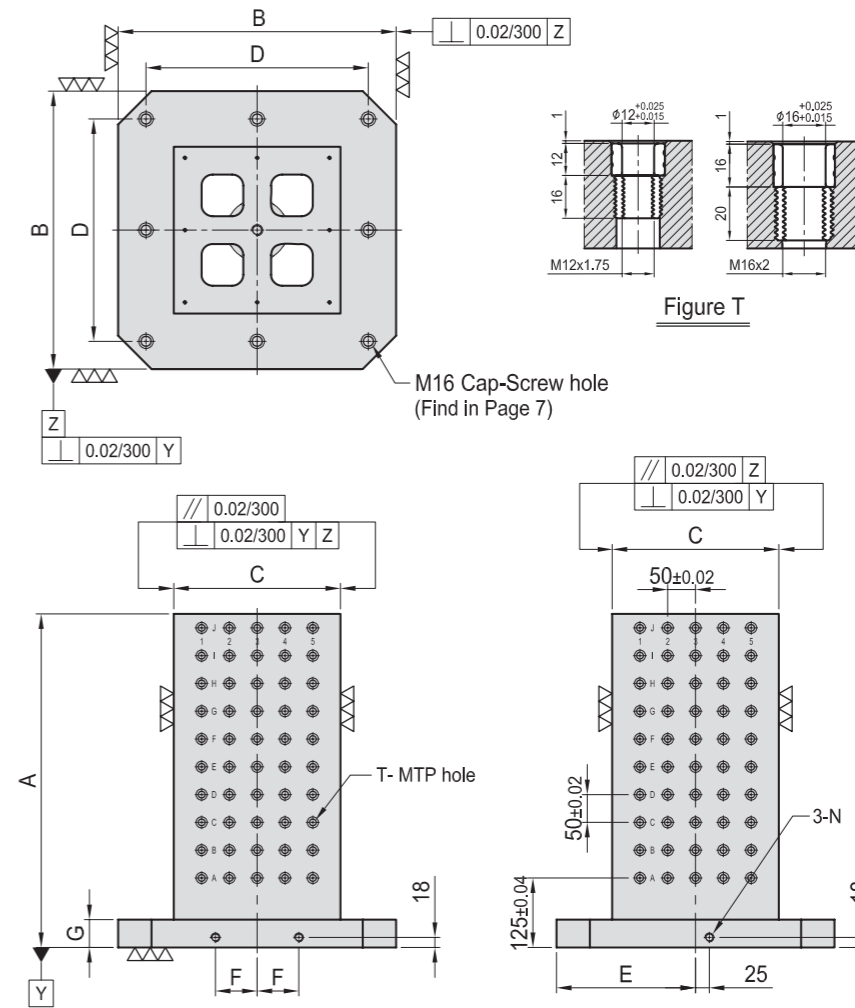
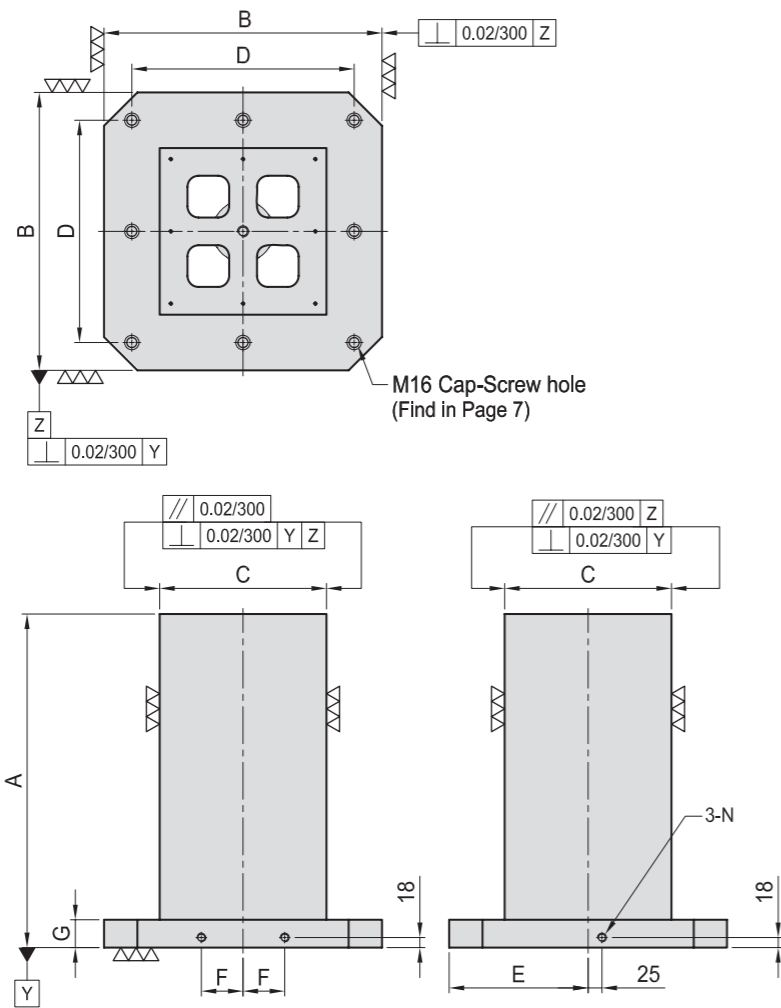
- Material: High Strength Aluminum Casting.
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & Top cover included.



# BPA08

## SQUARE TOOLING COLUMN

- Material: High Strength Aluminum Casting.
- Alignment bushing: SUJ2(JIS) / 100Cr6(DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing:  $50 \pm 0.02$
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & Top cover included.



MODEL NO.	A	B	C	D	E	F	G	Mounting holes	kg
BPA07-400400-0500	500								56
BPA07-400400-0650	650	400	250	320	200	55	40	4	73
BPA07-500500-0600	600	500	300	400	250	75	40	8	91
BPA07-500500-0750	750								122
BPA07-630630-0700	700	630	350	500	315	100	50	8	129
BPA07-630630-0850	850								180
BPA07-800800-0800	800	800	500	640	400	135	50	8	215
BPA07-800800-1000	1000								312

\*Special Design Welcome !

MODEL NO.	A	B	C	D	E	F	G	T	MTP	Mounting holes	kg	MODEL NO.	A	B	C	D	E	F	G	T	MTP	Mounting holes	kg		
BPA08-400400-0500-12	500									128		54	BPA08-400400-0500-16	500								128		54	
BPA08-400400-0650-12	650	400	250	320	200	55	40	$\phi 12$	M12	176	4	73	BPA08-400400-0650-16	650	400	250	320	200	55	40	$\phi 16$	M16	176	4	73
BPA08-500500-0600-12	600	500	300	400	250	75	40	$\phi 12$	M12	200	8	88	BPA08-500500-0600-16	600	500	300	400	250	75	40	$\phi 16$	M16	200	8	88
BPA08-500500-0750-12	750									260		122	BPA08-500500-0750-16	750									260		122
BPA08-630630-0700-12	700	630	350	500	315	100	50	$\phi 12$	M12	288	8	126	BPA08-630630-0700-16	700	630	350	500	315	100	50	$\phi 16$	M16	288	8	123
BPA08-630630-0850-12	850									360		180	BPA08-630630-0850-16	850									360		180
BPA08-800800-0800-12	800	800	500	640	400	135	50	$\phi 12$	M12	504	8	204	BPA08-800800-0800-16	800	800	500	640	400	135	50	$\phi 16$	M16	504	8	201
BPA08-800800-1000-12	1000									648		312	BPA08-800800-1000-16	1000									648		312

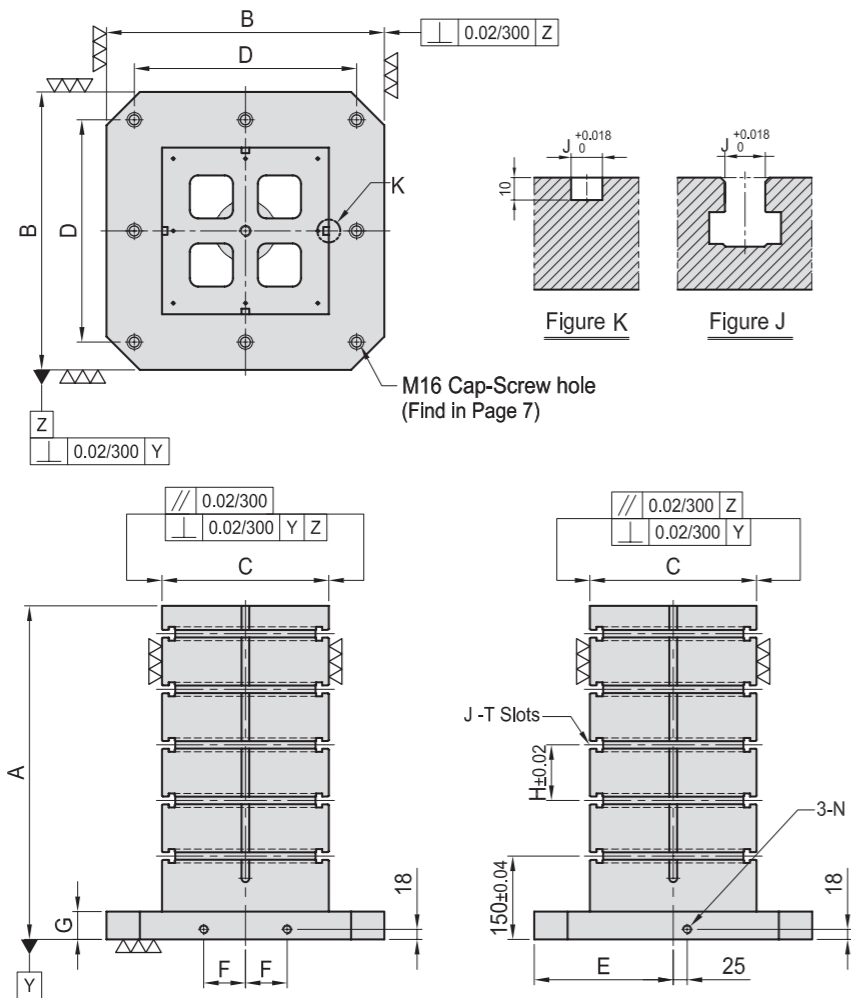
\*Special Design Welcome !



## BPA09

### SQUARE TOOLING COLUMN

- Material: High Strength Aluminum Casting.
- Application: Horizontal Machining Center.
- Features: T-Slots running horizontally, key-way running vertically, easily adapts to standardized jig components.
- Eye bolt & Top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	J	Mounting holes	kg
BPA09-400400-0500-14	500	400	250	320	200	55	40	100	14	4	61
BPA09-400400-0650-14	650	400	250	320	200	55	40	100	14	4	84
BPA09-500500-0600-14	600	500	300	400	250	75	40	100	14	8	86
BPA09-500500-0750-14	750	500	300	400	250	75	40	100	14	8	127
BPA09-630630-0700-14	700	630	350	500	315	100	50	125	14	8	136
BPA09-630630-0850-14	850	630	350	500	315	100	50	125	14	8	183
BPA09-800800-0800-14	800	800	500	640	400	135	50	150	14	8	260
BPA09-800800-1000-14	1000	800	500	640	400	135	50	150	14	8	319

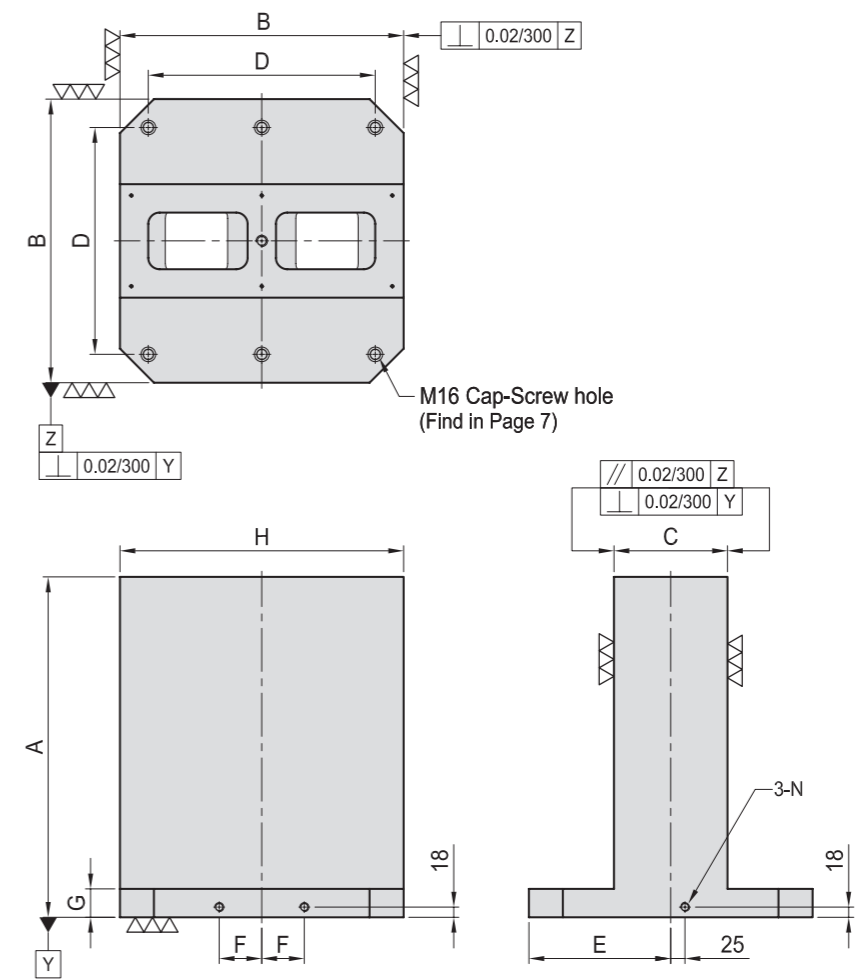
\*Special Design Welcome !



## BPA10

### DOUBLE SIDED TOOLING COLUMN

- Material: High Strength Aluminum Casting.
- Application: Horizontal Machining Center.
- Features: Ready to accept a hole pattern for your special jig.
- Eye bolt & Top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	Mounting holes	kg
BPA10-400400-0500	500	400	150	320	200	55	40	400	4	62
BPA10-400400-0650	650	400	150	320	200	55	40	400	4	86
BPA10-500500-0600	600	500	200	400	250	75	40	500	6	96
BPA10-500500-0750	750	500	200	400	250	75	40	500	6	135
BPA10-630630-0700	700	630	250	500	315	100	50	630	6	176
BPA10-630630-0850	850	630	250	500	315	100	50	630	6	202
BPA10-800800-0800	800	800	300	640	400	135	50	800	6	217
BPA10-800800-1000	1000	800	300	640	400	135	50	800	6	318

\*Special Design Welcome !

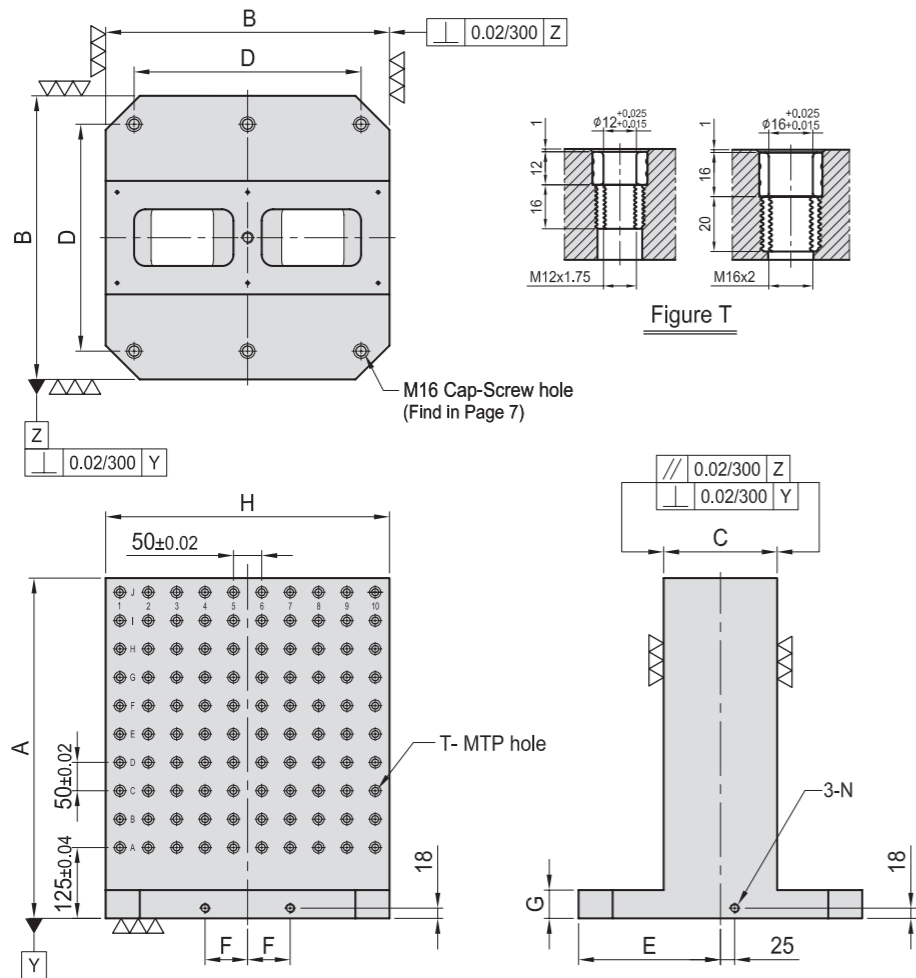




# BPA11

## DOUBLE SIDED TOOLING COLUMN

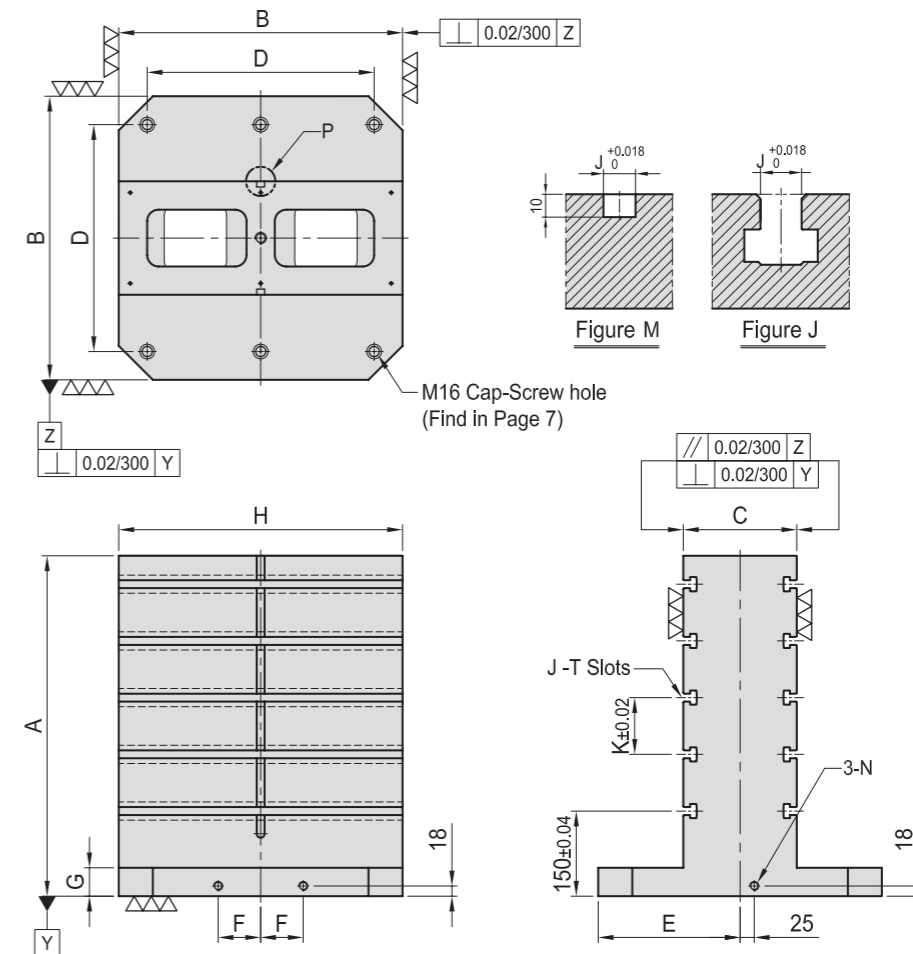
- Material: High Strength Aluminum Casting.
- Alignment Bushing: SUJ2(JIS) / 100Cr6 (DIN), heat treated
- Threaded Insert: S45C(JIS) / CK45(DIN), heat treated
- MTP hole spacing: 50±0.02
- Application: Horizontal Machining Center.
- Features: Alignment bushing & thread insert at every hole location, easily adapts to standardized jig components.
- Eye bolt & Top cover included.



# BPA12

## DOUBLE SIDED TOOLING COLUMN

- Material: High Strength Aluminum Casting.
- Application: Horizontal Machining Center.
- Features: T-Slots running horizontally, key-way running vertically, easily adapts to standardized jig components.
- Eye bolt & Top cover included.



MODEL NO.	A	B	C	D	E	F	G	H	T	MTP	Mounting holes	kg	MODEL NO.	A	B	C	D	E	F	G	H	T	MTP	Mounting holes	kg		
BPA11-400400-0500-12	500	400	150	320	200	55	40	400	Ø12	M12	128	4	56	BPA11-400400-0500-16	500	400	150	320	200	55	40	400	Ø16	M16	128	4	60
BPA11-400400-0650-12	650										176	86	BPA11-400400-0650-16	650										176	86		
BPA11-500500-0600-12	600										200	91	BPA11-500500-0600-16	600										200	103		
BPA11-500500-0750-12	750										260	135	BPA11-500500-0750-16	750										260	135		
BPA11-630630-0700-12	700										288	154	BPA11-630630-0700-16	700										288	170		
BPA11-630630-0850-12	850										360	202	BPA11-630630-0850-16	850										360	202		
BPA11-800800-0800-12	800										420	214	BPA11-800800-0800-16	800										420	210		
BPA11-800800-1000-12	1000										540	318	BPA11-800800-1000-16	1000										540	318		

\*Special Design Welcome !

MODEL NO.	A	B	C	D	E	F	G	H	J	K	Mounting holes	kg	MODEL NO.	A	B	C	D	E	F	G	H	J	K	Mounting holes	kg
BPA12-400400-0500-14	500	400	150	320	200	55	40	400	14	100	4	60	BPA12-400400-0500-18	500	400	150	320	200	55	40	400	18	100	4	60
BPA12-400400-0650-14	650										92	86	BPA12-400400-0650-18	650										92	86
BPA12-500500-0600-14	600										87	103	BPA12-500500-0600-18	600										87	103
BPA12-500500-0750-14	750										142	135	BPA12-500500-0750-18	750										142	135
BPA12-630630-0700-14	700										165	170	BPA12-630630-0700-18	700										165	170
BPA12-630630-0850-14	850										212	202	BPA12-630630-0850-18	850										212	202
BPA12-800800-0800-14	800										243	210	BPA12-800800-0800-18	800										243	210
BPA12-800800-1000-14	1000										325	318	BPA12-800800-1000-18	1000										325	318

\*Special Design Welcome !



A series of horizontal blue lines spanning the width of the page, providing a ruled area for writing or drawing.



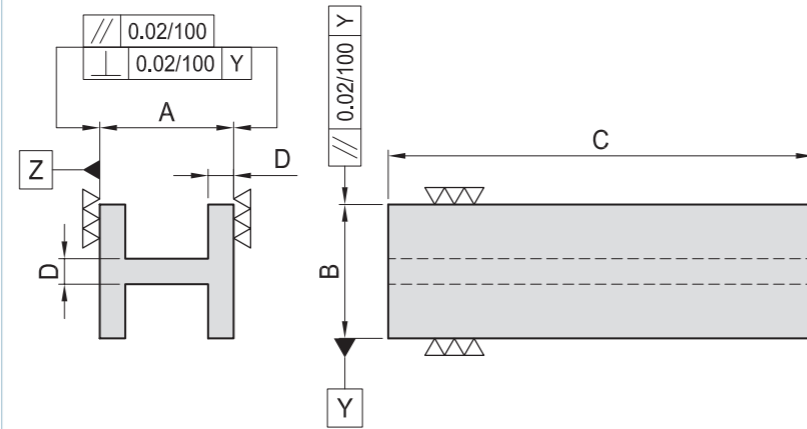
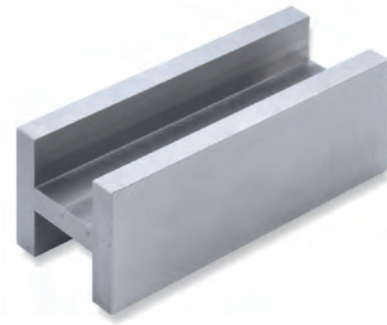
## **BASE COMPONENTS**

*BC01~BC14*

H-SECTION SQUARE HOLLOW BLOCK RECTANGULAR HOLLOW BLOCK CHANNEL SECTION

## BC01

### H-SECTION

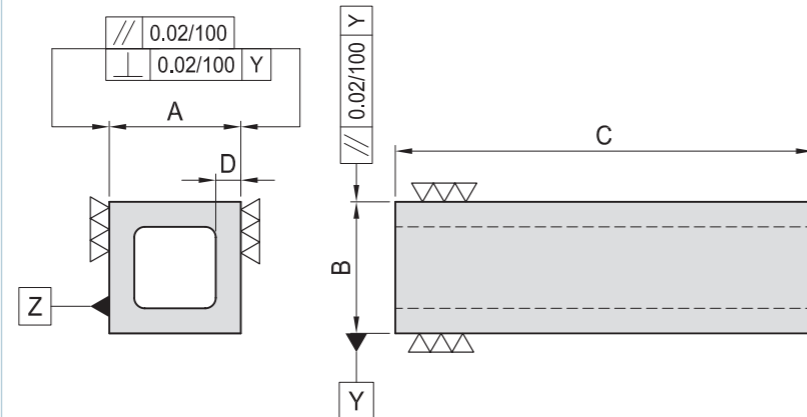


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	E	kg
BC01-063063-200	63	63	200	12	25.5	2.8
BC01-080080-200	80	80	200	16	32.0	4.8
BC01-080080-400			400			9.6
BC01-125125-200	125	125	200	20	52.5	9.6
BC01-125125-400			400			19.3

## BC02

### SQUARE HOLLOW BLOCK

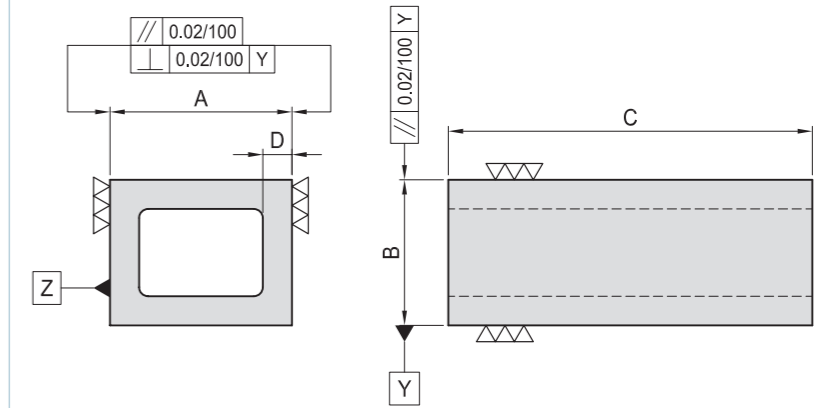


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	kg
BC02-063063-200	63	63	200	12	2.3
BC02-100100-200	100	100	200	16	8.0
BC02-100100-400			400		16.0
BC02-160160-200	160	160	200	20	16.5
BC02-160160-400			400		33.0

## BC03

### RECTANGULAR HOLLOW BLOCK

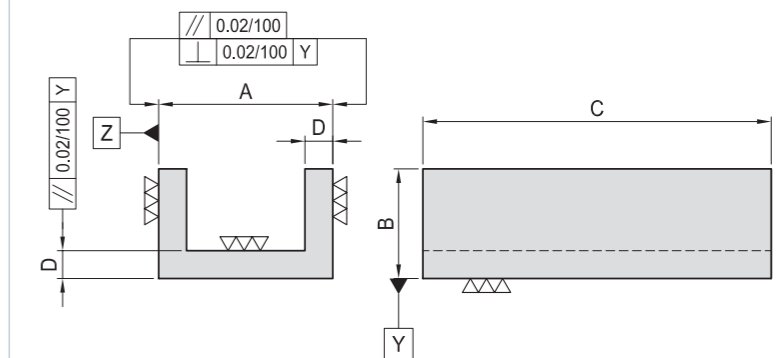
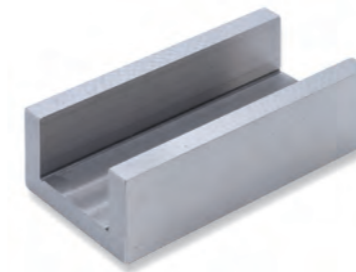


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	kg
BC03-080100-200	100	80	200	16	7.0
BC03-080100-400			400		14.0
BC03-100160-200	160	100	200	18	11.6
BC03-100160-400			400		23.2

## BC04

### CHANNEL SECTION



- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	kg
BC04-063100-200	100	63	200	16	4.5
BC04-063100-300	100	63	300	16	6.8
BC04-090160-300	160	90	300	20	13.0

BP

BPA

BC

CP

SU

PT

SVF

ALV

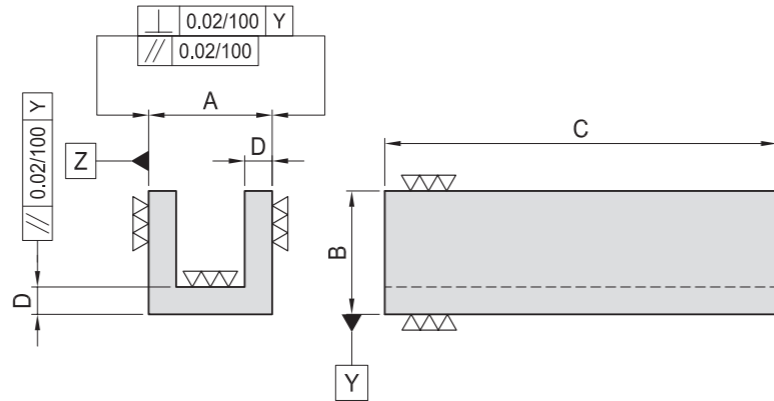
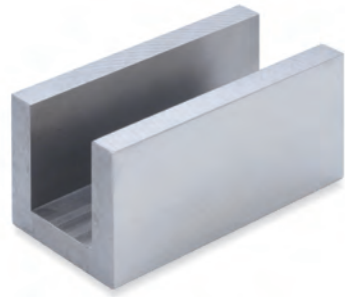
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# BC05

## U-SECTION

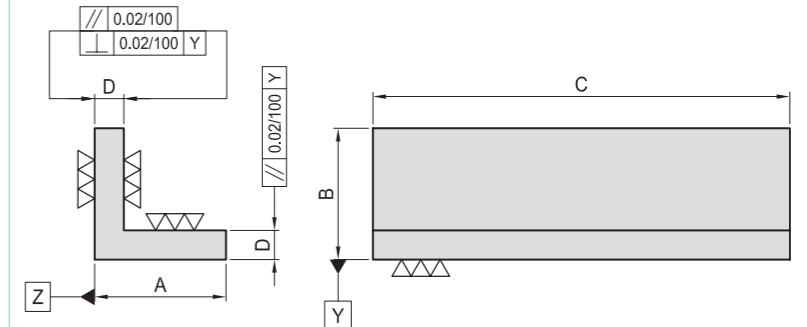
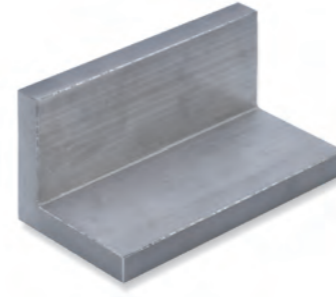


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	kg
BC05-063063-200	63	63	200	14	3.2
BC05-063063-400			400		6.5
BC05-100100-200	100	100	200	20	7.7
BC05-100100-400			400		14.8
BC05-150150-200	150	150	200	25	14.0
BC05-150150-400			400		29.0

# BC07

## L-SECTION

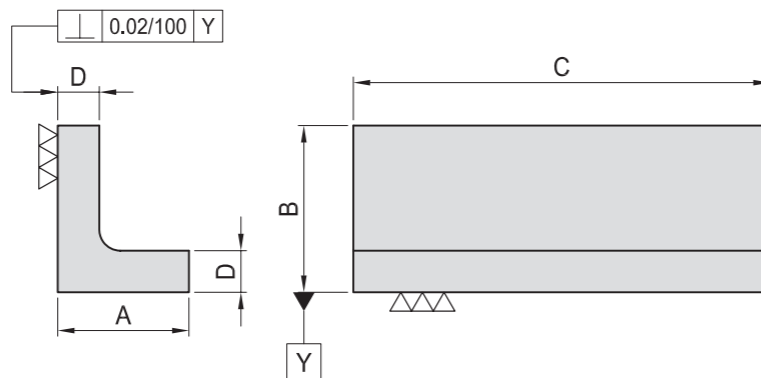
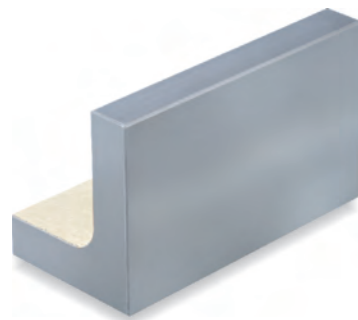


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	kg
BC07-063063-200	63	63	200	14	2.3
BC07-063063-400			400		4.5
BC07-100100-200	100	100	200	20	5.2
BC07-100100-400			400		10.4

# BC06

## HEAVY DUTY L-SECTION

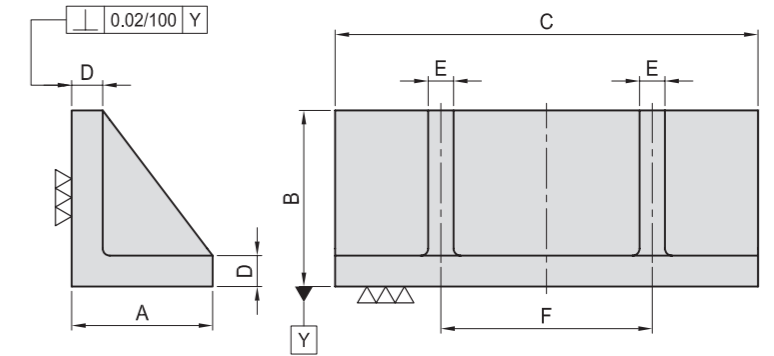
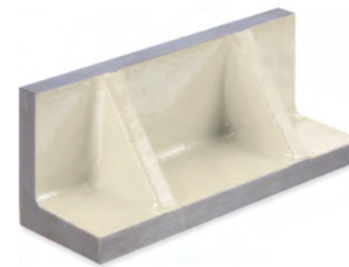


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	kg
BC06-080063-200	63	80	200	20	3.6
BC06-080063-400			400		7.2
BC06-125100-200	100	125	200	25	7.3
BC06-125100-400			400		15.0
BC06-200160-200	160	200	200	32	15.0
BC06-200160-400			400		31.0

# BC08

## WEBBED L-SECTION



- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	E	F	kg
BC08-125100-150	100	125	150	22	18	-	5.3
BC08-125100-300	100	125	300	22	18	150	11.0

BP

BPA

BC

CP

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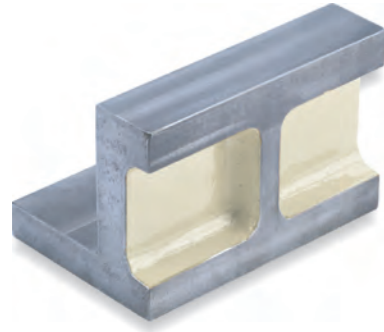
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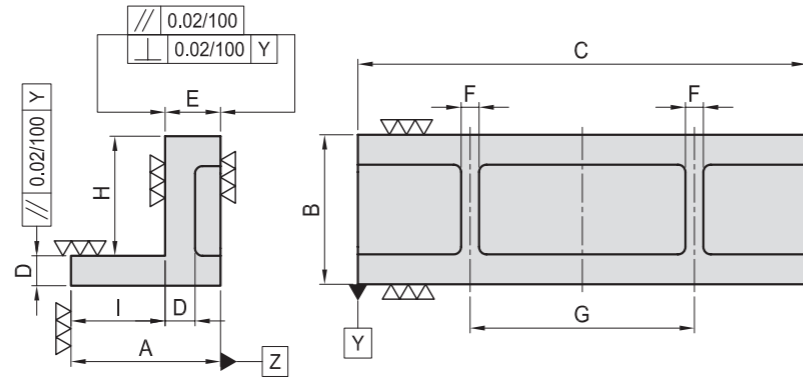
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## BC09

### WEBBED T-SECTION



- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized



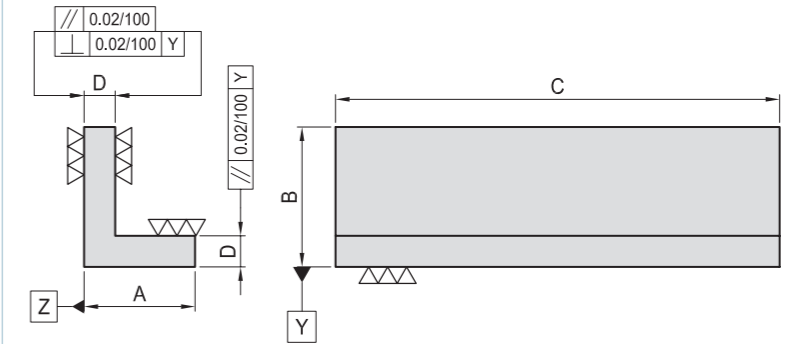
MODEL NO.	A	B	C	D	E	F	G	H	I	kg
BC09-100100-150	100	100	150	20	37	12	-	80	63	4.4
BC09-100100-300	100	100	300	20	37	12	150	80	63	8.7

## BC12

### UNEQUAL L-SECTION



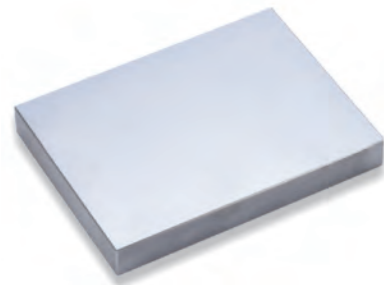
- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized



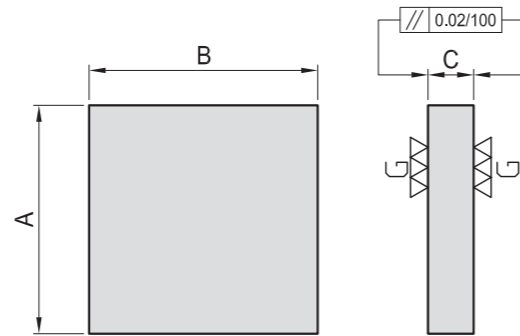
MODEL NO.	A	B	C	D	kg
BC12-063050-200	50	63	200	14	2
BC12-063050-300	50	63	300	14	3
BC12-063050-500	50	63	500	14	5

## BC10

### STEEL RECTANGULAR PLATE



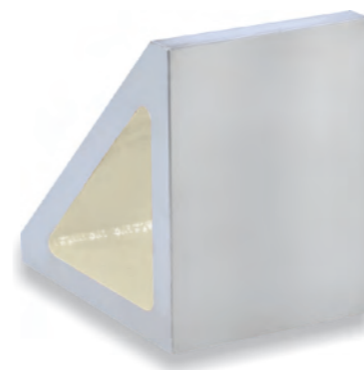
- Material : S45C



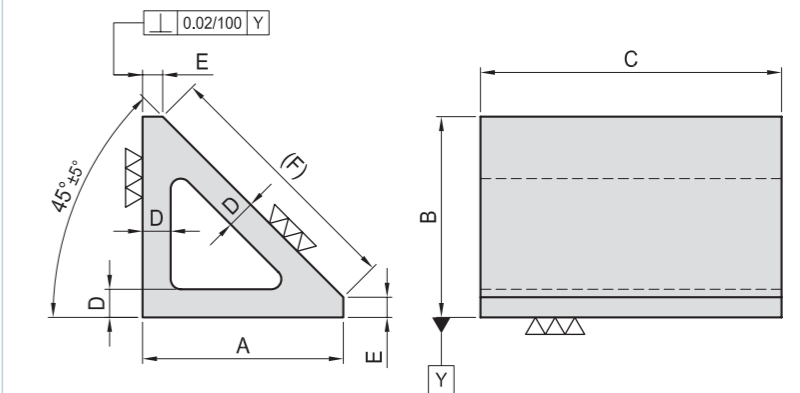
MODEL NO.	A	B	C	kg
BC10-20100-100	100	100	20	1.6
BC10-20100-150		150		2.3
BC10-25150-200	150	200	25	5.9
BC10-25150-250		250		7.3
BC10-25200-200	200	200	25	7.8
BC10-25200-250		250		9.8
BC10-25250-250	250	250	25	12.0

## BC13

### ANGULAR HOLLOW BLOCK 45°



- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized



MODEL NO.	A	B	C	D	E	F	kg
BC13-100100-150	100	100	150	14	10	127	4.5
BC13-100100-300			300				8.8
BC13-200200-150	200	200	150	22	20	255	15.0
BC13-200200-300			300				29.0

BP

BPA

BC

CP

SU

PT

SVF

ALV

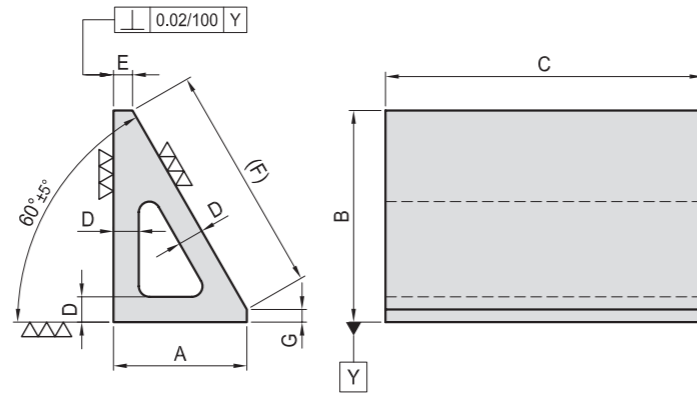
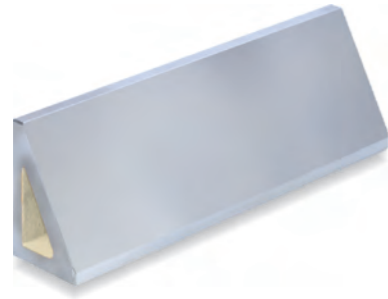
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# BC14

## ANGULAR HOLLOW BLOCK 30°

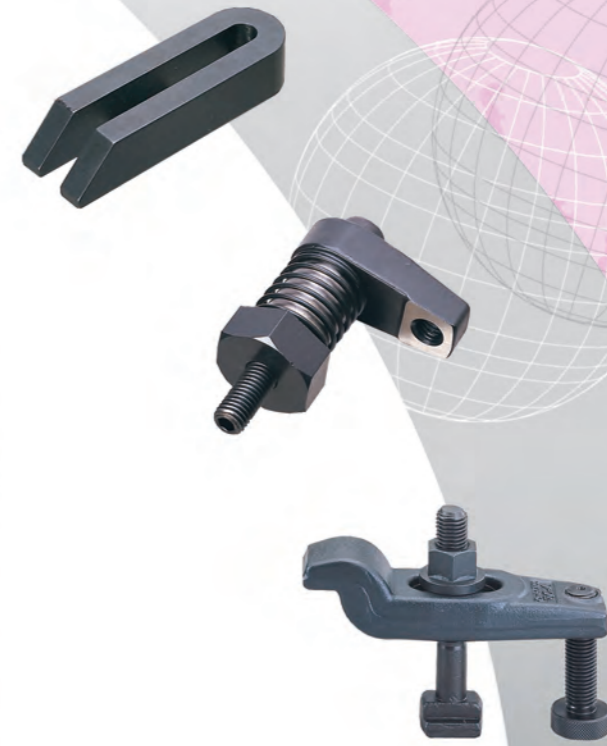


- Material : Cast Iron.  
FC-300 ( JIS )  
GG-30 ( DIN )
- Heat treated : Normalized

MODEL NO.	A	B	C	D	E	F	G	kg
BC14-100063-150	63	100	150	12	9	108	6	3.0
BC14-100063-300			300					6.0
BC14-200125-150	125	200	150	20	14	222	8	9.5
BC14-200125-300			300					19.0

## CLAMP PARTS

CP01~CP40



U-CLAMP TAPPED-NOSE STRAP GOOSE NECK U-CLAMP TAPPED END U-CLAMP

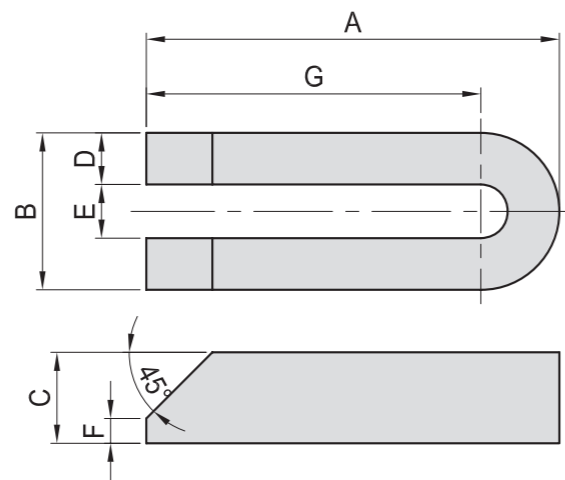


## CP01

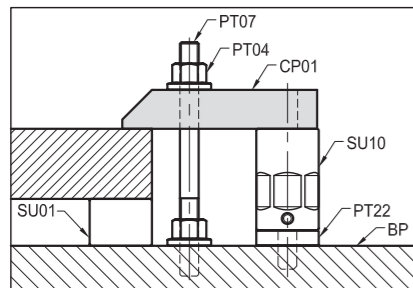
### U-CLAMP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Features : Open end permits quick & easy installation.



MODEL NO.	A	B	C	D	E	F	G	kg
CP01-12100	100	38	22	12.5	13	6	81	0.41
CP01-12125	125	38	25	12.5	13	6	106	0.58
CP01-16150	150	50	32	16.5	17	8	125	1.10
CP01-16200	200	50	32	16.5	17	8	175	1.40
CP01-16300	300	50	32	16.5	17	8	275	1.55
CP01-20200	200	60	35	19.5	21	10	170	2.10
CP01-20300	300	60	35	19.5	21	10	270	2.70
CP01-24250	250	76	48	25.0	26	18	212	3.55

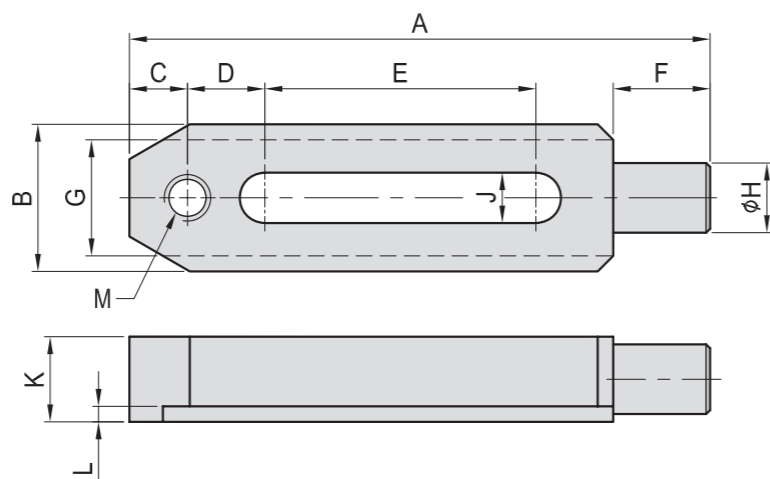


## CP02

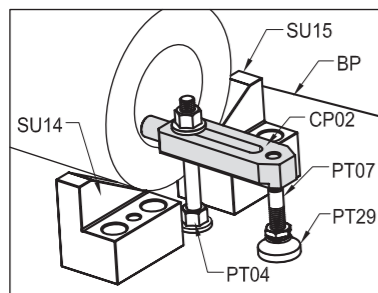
### TAPPED-NOSE STRAP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Features : The cylindrical pin minimizes contact area and is useful for clamping in horizontal holes & round profiles .



MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	Kg
CP02-12150	150	38	15	20	70	25	30	18	13	22	4	M12	0.58
CP02-16150	150	48	20	25	40	35	40	24	17	32	5	M16	1.12
CP02-16200	200	48	20	25	90	40	40	24	17	32	5	M16	1.50
CP02-20200	200	60	30	35	60	40	50	28	21	35	6	M20	2.22
CP02-20250	250	60	30	35	110	40	50	28	21	35	6	M20	2.74

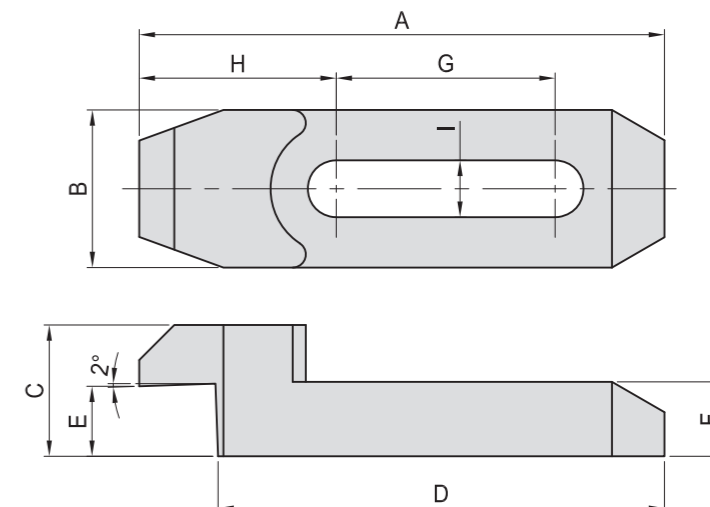


## CP03

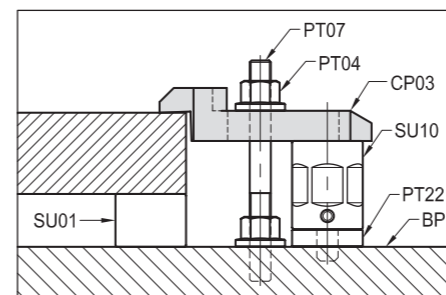
### GOOSE NECK CLAMP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Features : Low profile design helps eliminate cutter interference.



MODEL NO.	A	B	C	D	E	F	G	H	I	kg
CP03-12120	120	36	30	102	16	17	50	45	13	0.49
CP03-16150	150	48	48	130	25	25	55	60	17	1.30
CP03-20175	175	60	60	150	30	30	65	70	21	2.26

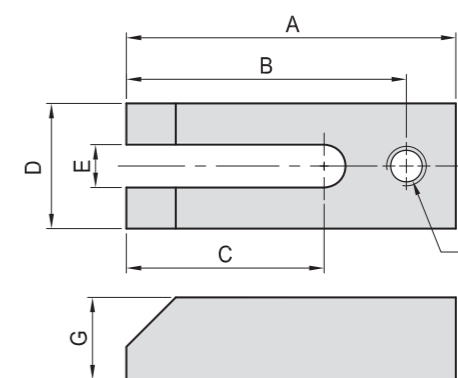


## CP04

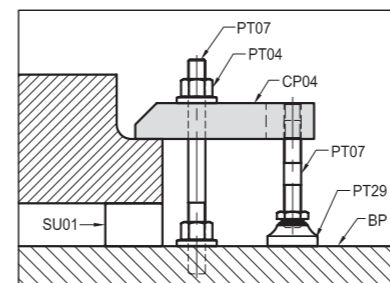
### TAPPED END U-CLAMP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Features : Open end design permits easy assembly.



MODEL NO.	A	B	C	D	E	F	G	kg
CP04-12075	75	60	35				19	0.31
CP04-12100	100	85	60	38	13	M12	25	0.52
CP04-12125	125	110	85					0.64
CP04-14100	100	84	64	38	15	M14	25	0.39
CP04-14150	150	134	89					0.62
CP04-16100	100	80	45					0.73
CP04-16125	125	105	70	50	17	M16	25	0.90
CP04-16150	150	130	95					1.06
CP04-18150	150	130	89	50	19	M18	32	1.05
CP04-18200	200	180	127					1.45
CP04-20150	150	130	95	60	21	M20	32	1.46
CP04-20200	200	180	145					1.85

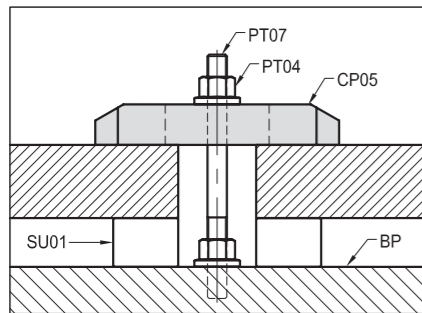
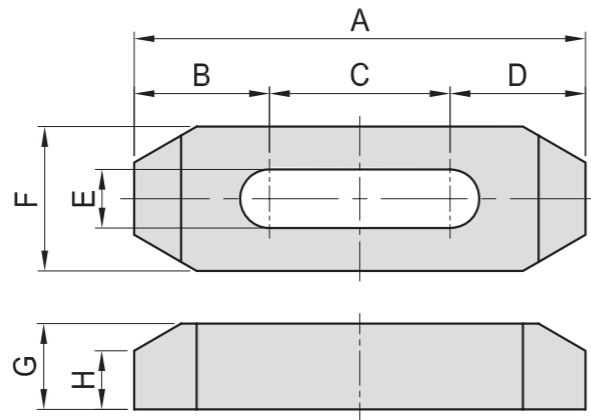


## CP05

### DOUBLE ENDED CLAMP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.



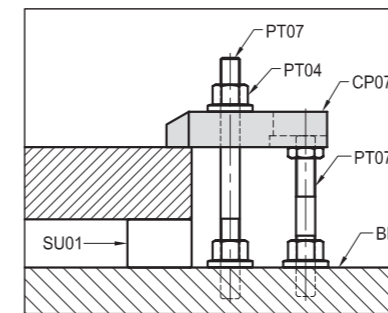
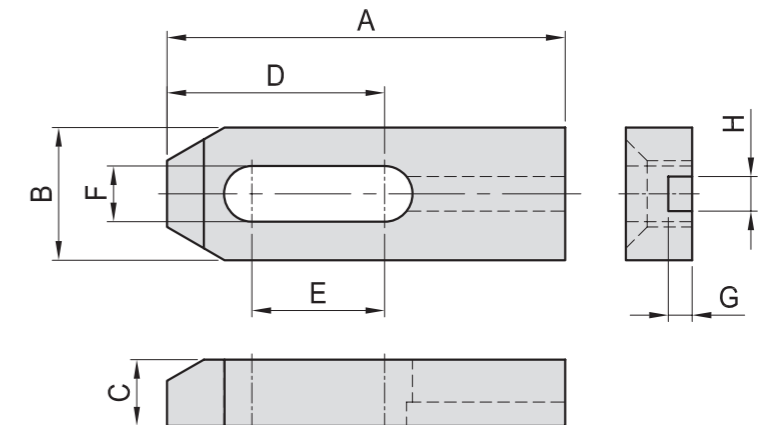
MODEL NO.	A	B	C	D	E	F	G	H	kg
CP05-12065	65	20.0	25	20.0	13	32	19	13	0.22
CP05-12100	100	30.0	40	30.0					0.33
CP05-12150	150	49.5	51	49.5	17	38	25	15	0.48
CP05-16080	80	28.0	24	28.0					0.34
CP05-16125	125	42.0	41	42.0	25	38	22	14	0.57
CP05-16150	150	51.0	48	51.0					0.68
CP05-20100	100	34.0	32	34.0	21	38	22	14	0.41
CP05-20125	125	42.5	40	42.5					0.62
CP05-20150	150	51.0	48	51.0	26	50	32	19	0.82
CP05-24150	150	51.0	48	51.0					1.14

## CP07

### SLOTTED END CLAMP STRAP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Application : Locating slot keeps clamp properly oriented.



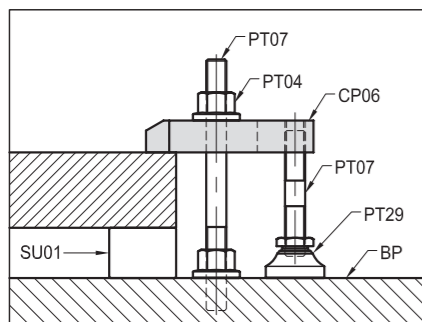
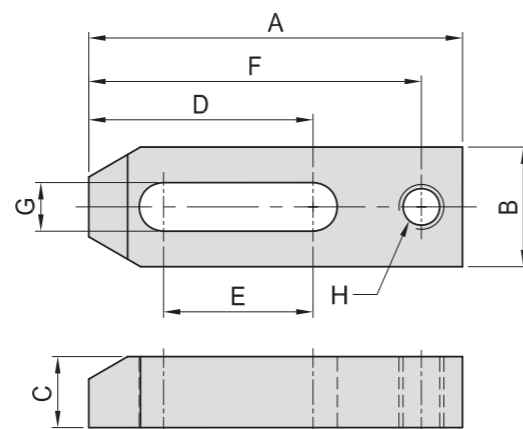
MODEL NO.	A	B	C	D	E	F	G	H	kg
CP07-12065	65	32	22	32	14	13	7	10	0.26
CP07-12080	80			48	25				0.31
CP07-12100	100	38	22	60	40	17	8	12	0.38
CP07-16080	80			40	17				0.38
CP07-16100	100	25	70	55	30	45	21	9	0.53
CP07-16125	125			70	45				0.65
CP07-20150	150	50	32	82	50	112	80	21	1.10
CP07-20200	200			112	80				1.40

## CP06

### TAPPED CLAMP STRAP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Application : Use with various knobs, jack screws, clamps & pads; such as PT29.



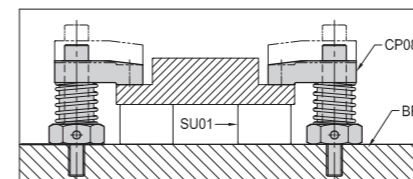
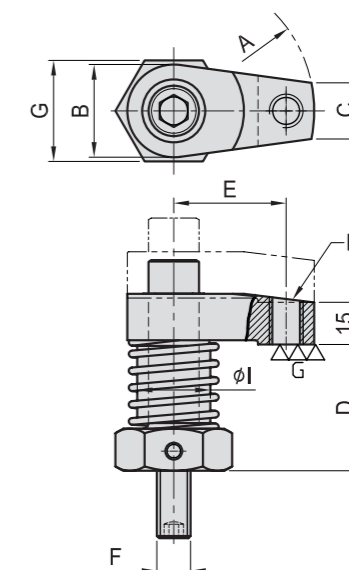
MODEL NO.	A	B	C	D	E	F	G	H	kg
CP06-12065	65	32	19	32	14	52	13	M12	0.22
CP06-12080	80			48	25	69			0.27
CP06-12100	100	38	25	60	40	89	17	M16	0.33
CP06-16080	80			40	17	65			0.32
CP06-16100	100	25	70	55	30	85	21	M20	0.53
CP06-16125	125			70	45	110			0.65
CP06-20150	150	50	32	82	50	134	80	184	1.10
CP06-20200	200			112	80	1.90			

## CP08

### SWING CLAMP



- Material : SCM-4(JIS)
- Heat treated : HRC 38°~42°.
- Surface finish : Black Oxide.
- Application : Multipurpose swing clamp, available with plain or threaded toe.
- Features : A small clamp with good holding power, ideal for tight spaces, full swing a way featute permits easy part loading.



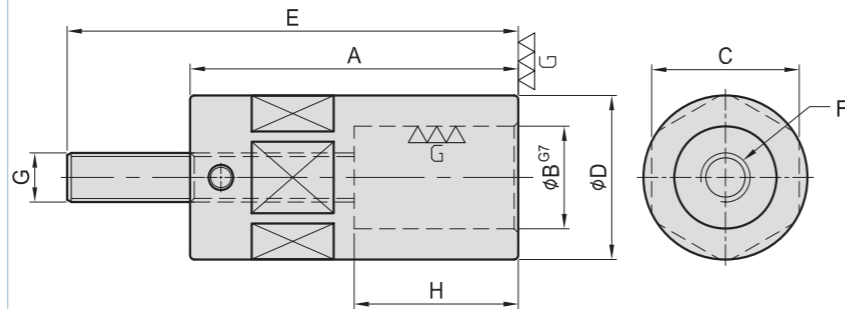
MODEL NO.	A	B	C	D	E	F	G	H	I	kg
CP08-1240-29	30	28	16	40	-	M12	29	-	22	0.29
CP08-1245-36	50	32	20	45	40	M12	36	M12	26	0.50
CP08-1645-36	50	32	20	45	40	M16	36	M12	26	0.50
CP08-1645-41	60	40	25	45	45	M16	41	M16	32	0.75



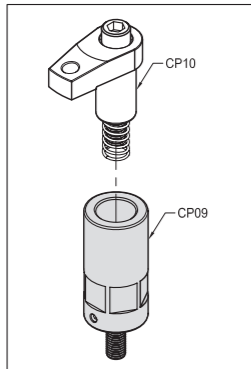
## CP09

### SWING CLAMP MOUNT/EXTENSION

- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°~42°.
- Surface finish : Black Oxide.
- Application : Use with CP10 swing clamp to gain extra height.



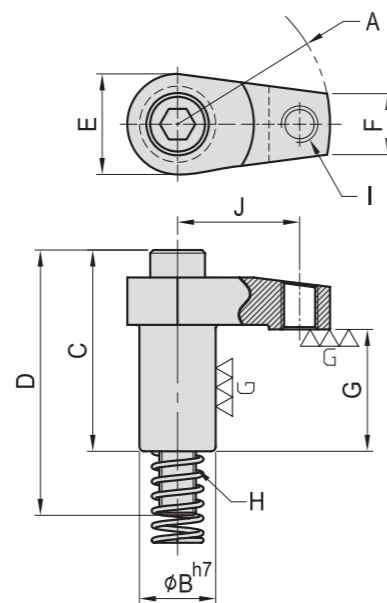
MODEL NO.	A	B	C	D	E	F	G	H	kg
CP09-12080	80	25	36	40	110	M12	M12	40	0.60
CP09-12100	100	25	36	40	130	M12	M12	40	0.78
CP09-16080	80	32	46	50	110	M16	M16	40	0.83
CP09-16100	100	32	46	50	130	M16	M16	40	1.25



## CP10

### SWING CLAMP

- Material : SCM-4(JIS)
- Heat treated : HRC 38°~42°.
- Surface finish : Black Oxide.
- Application : Multipurpose swing clamp, available with plain or threaded toe.



MODEL NO.	A	B	C	D	E	F	G	H	I	J	kg
CP10-1022	30	22	54.5	75	28	16	30	M10	-	-	0.20
CP10-1225	50	25	66.0	87	33	20	40	M12	M12	40	0.35
CP10-1632	60	32	69.5	96	40	26	40	M16	M12	45	0.61

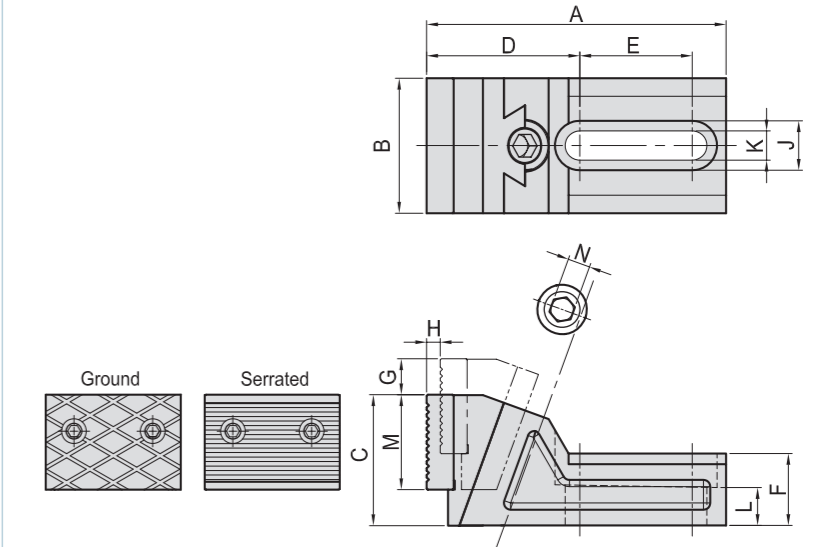
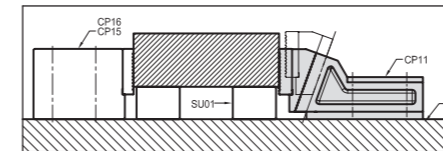
Type	A	B	C	D
CP10-1022	22	30	20	M10
CP10-1225	25	40	25	M12
CP10-1632	32	40	25	M16



## CP11

### FREE JAW VISE

- Material : FCD 45(JIS)
- Heat treated : Nnormalized.
- Application : Ideal for holding large or irregular shapes.
- Features : Clamping force in 2 directions, available with plain or serrated jaws.

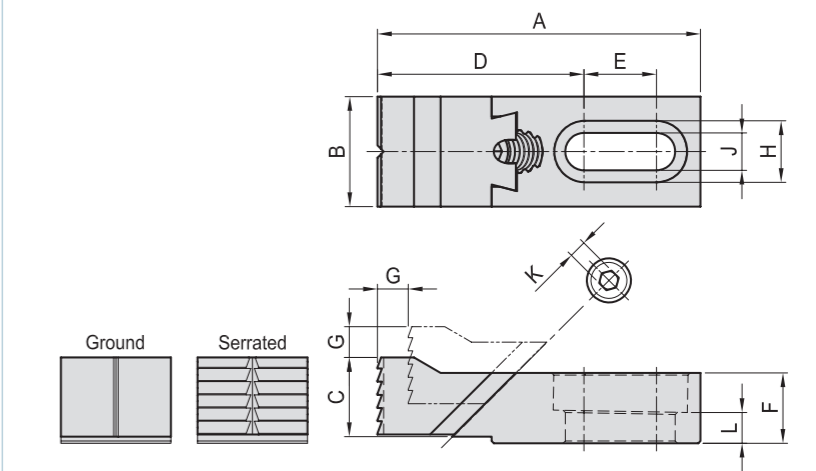
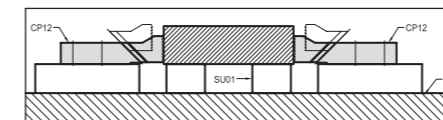


MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	M	N	Type	kg
CP11-1260-G	133	60	58	68	50	32	16	6	22	13	16.8	42	10	Ground	2.1
CP11-1685-G	187	85	80	92	70	50	24	9	30	17	23.4	60	14	Ground	5.6
CP11-1260-S	133	60	58	68	50	32	16	6	22	13	16.8	42	10	Serrated	2.1
CP11-1685-S	187	85	80	92	70	50	24	9	30	17	23.4	60	14	Serrated	5.6

## CP12

### ADJUSTABLE SIDE CLAMP

- Material: S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°. Jaw Surface treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Low profile side clamp keeps top surfaces clear for machining, ideal for rough or finished parts, available with plain or serrated jaw.



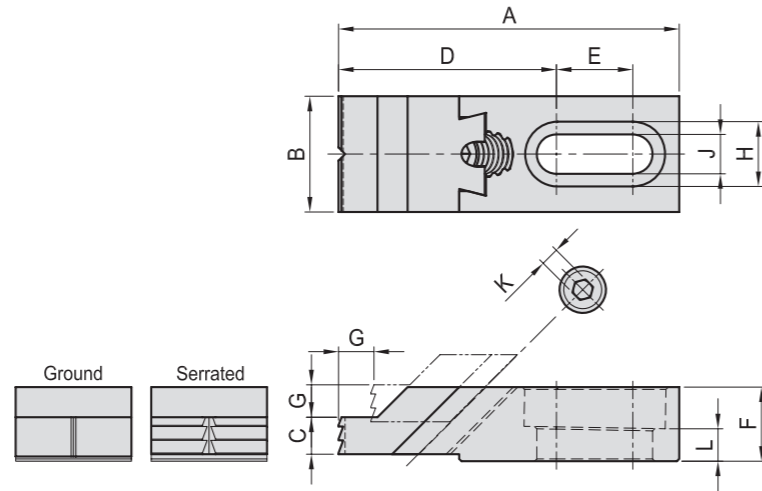
MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	Type	kg
CP12-0825-G	72.0	25	18.0	45.5	16.5	16	7	14	8.5	5	7	Ground	0.18
CP12-1235-G	104.5	35	27.5	62.0	30.0	22	12	20	13.5	6	9	Ground	0.52
CP12-1640-G	133.0	40	37.5	80.5	35.0	30	14	26	17.0	8	13	Ground	1.02
CP12-0825-S	73.5	25	18.0	47.0	16.5	16	7	14	8.5	5	7	Serrated	0.18
CP12-1235-S	106.5	35	27.5	64.0	30.0	22	12	20	13.5	6	9	Serrated	0.52
CP12-1640-S	134.5	40	37.5	82.0	35.0	30	14	26	17.0	8	13	Serrated	1.02

# CP13

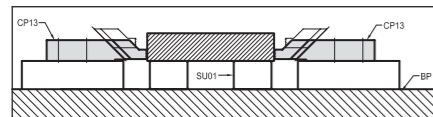
## ADJUSTABLE EDGE CLAMP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°. Jaw Surface treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Low profile side clamp is ideal for holding thin parts and keeps top surfaces clear for machining.



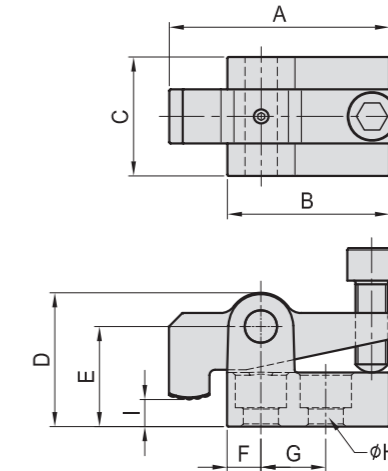
MODEL NO.	A	B	C	D	E	F	G	H	J	K	L	Type	kg
CP13-0825-G	72.0	25	8.5	45.5	16.5	16	7	14	8.5	5	7	Ground	0.15
CP13-1235-G	105.0	35	10.5	62.5	30.0	22	12	20	13.5	6	9		0.45
CP13-1640-G	133.0	40	14.0	80.5	35.0	30	14	26	17.0	8	13	Serrated	0.88
CP13-0825-S	73.5	25	8.5	47.0	16.5	16	7	14	8.5	5	7		0.15
CP13-1235-S	106.5	35	10.5	64.0	30.0	22	12	20	13.5	6	9		0.45
CP13-1640-S	134.5	40	14.0	82.0	35.0	30	14	26	17.0	8	13	0.88	



# CP14

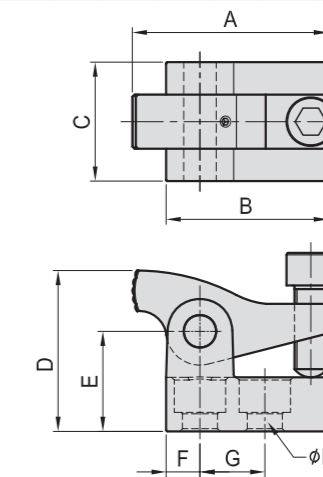
## PIVOTING SIDE CLAMP

### CP14A



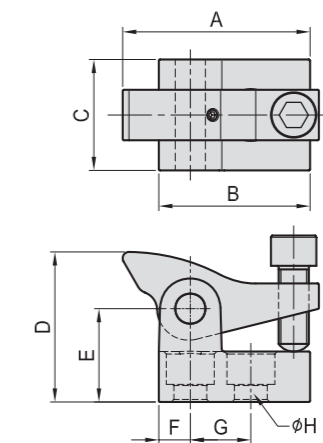
MODEL NO.	A	B	C	D	E	F	G	H	I	kg
CP14A-126045	81.5	60	44	49	37	12.5	24	13	5-15	0.78
CP14A-169068	121.0	91	68	64	47	18.0	36	18	5-15	2.26

### CP14B



MODEL NO.	A	B	C	D	E	F	G	H	kg
CP14B-126045	72.5	60	44	59.5	37	12.5	24	13	0.73
CP14B-169068	108.0	91	68	82.0	47	18.0	36	18	2.20

### CP14C



MODEL NO.	A	B	C	D	E	F	G	H	kg
CP14C-126045	75	60	44	59.5	37	12.5	24	13	0.73
CP14C-169068	110	91	68	82.0	47	18.0	36	18	2.12

- Material : S45C.
- Surface finish : Black Oxide.
- Application : Clamp that is well suited for castings and odd shaped workpieces.
- Pivoting nose has a serrated jaw that clamps forward and downward simultaneously.

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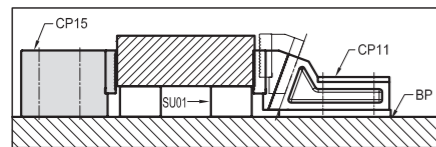
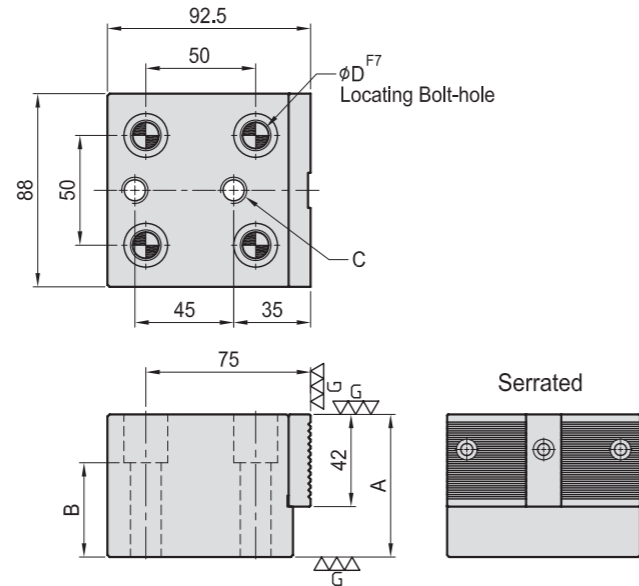
Column  
for  
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## CP15

### SERRATED BLOCK STOP



- Material :  
Body : S45C(JIS)/CK45(DIN)  
jaw : YK30(JIS) / C105W1(DIN),
- Heat treated :  
Body : HRC 40°  
jaw : HRC 58°.
- Surface finish : Black Oxide.
- Application : Serrated stop is used with CP11 free vise. Useful for holding rough parts and where heavy clamping is needed.



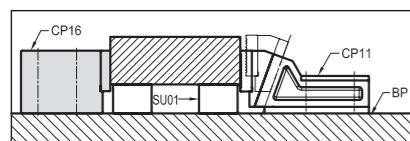
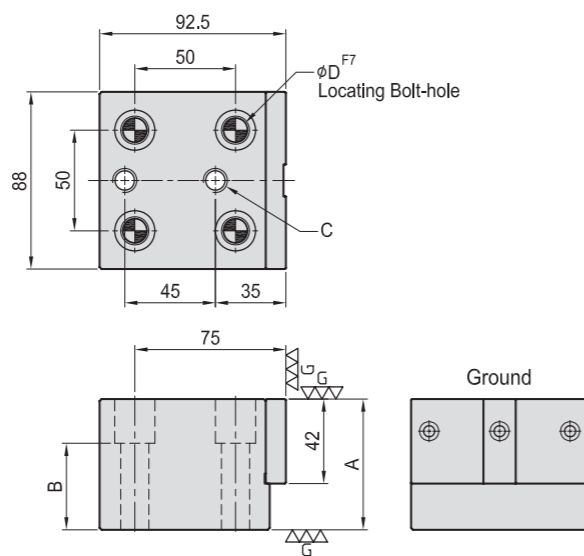
MODEL NO.	A	B	C	D	kg
CP15-1265	65	43	M12	12	3.52
CP15-1280	80	58			4.22
CP15-1665	65	38	M16	16	3.24
CP15-1680	80	53			3.78

## CP16

### SMOOTH BLOCK STOP



- Material :  
Body : S45C(JIS)/CK45(DIN)  
jaw : YK30(JIS) / C105W1(DIN),
- Heat treated :  
Body : HRC 40°  
jaw : HRC 58°.
- Surface finish : Black Oxide.
- Application : Smooth stop is used with CP11 free vise. Useful for holding finished parts.



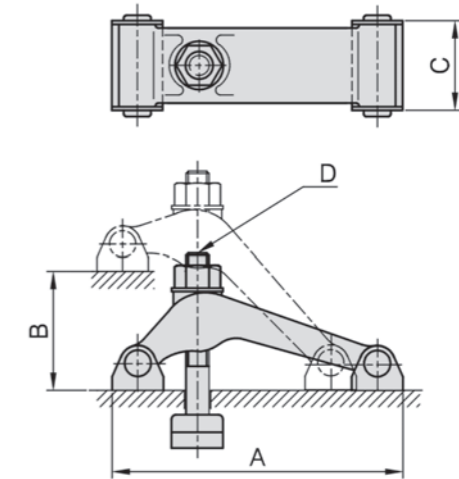
MODEL NO.	A	B	C	D	kg
CP16-1265	65	43	M12	12	3.54
CP16-1280	80	58			4.22
CP16-1665	65	38	M16	16	3.28
CP16-1680	80	53			3.78

## CP19

### FORGED SWIVEL CLAMP



- Material : S45C(JIS), Steel forging.
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.



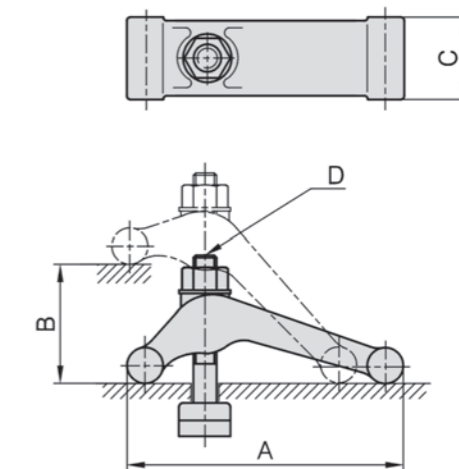
MODEL NO.	A	B	C	D	kg
CP19-12125	131	75	46.5	M12-125	1.50
CP19-16150	156	85	55.0	M16-150	2.64
CP19-20194	201	105	62.0	M20-175	4.80

## CP20

### FORGED SWIVEL CLAMP



- Material : S45C(JIS), Steel forging.
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.



MODEL NO.	A	B	C	D	kg
CP20-12125	125	75	45	M12-125	1.40
CP20-16150	150	85	52	M16-150	2.42
CP20-20194	194	105	58	M20-175	4.50

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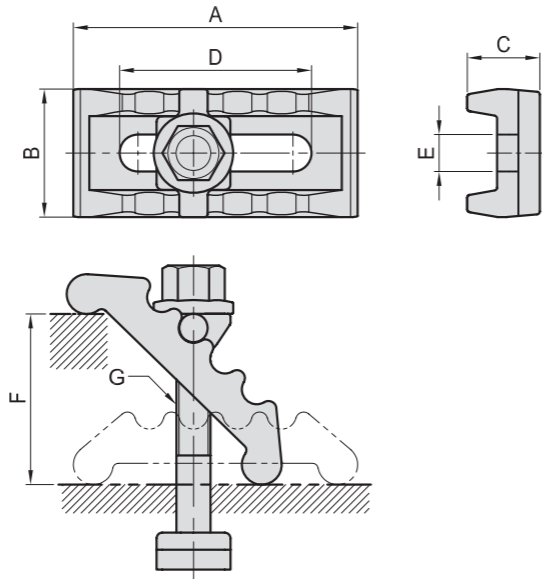
Column  
for  
Technical  
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## CP21

### UNIVERSAL CLAMP



- Material : S45C(JIS), Forging.
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.



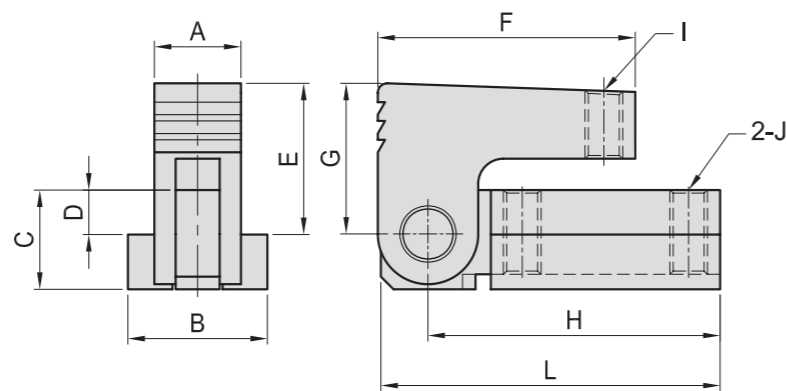
MODEL NO.	A	B	C	D	E	F	G	kg
CP21-12100	100	45	26	67.5	13	60	M12-100	1.1
CP21-16125	125	56	33	84.0	18	65	M16-125	2.1

## CP22

### T-SLOT MINIATURE CLAMP



- Material : S45C (JIS)
- Heat treated : HRC 35°~38°.



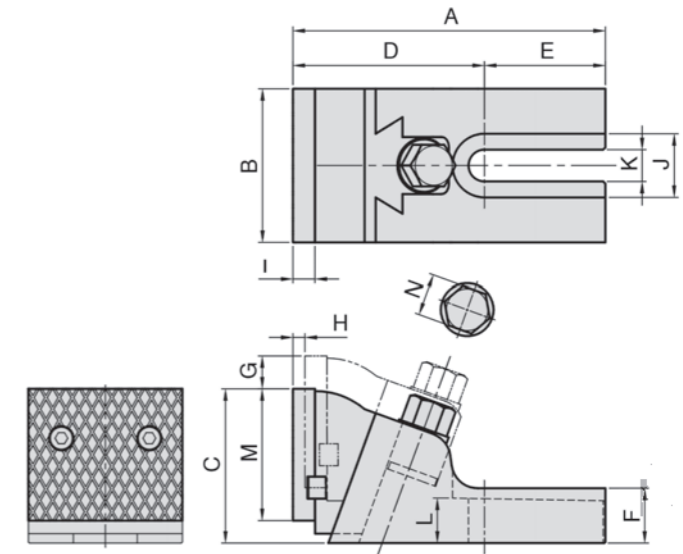
MODEL NO.	A	B	C	D	E	F	G	H	I	L	J	kg
CP22-1218	10.8	17.5	12.7	7.2	23.2	41	22.0	48.0	M6	54.0	M6	0.10
CP22-1422	13.8	22.2	15.8	7.1	24.1		24.0	46.0				
CP22-1625	15.8	25.4	15.8	7.1	27.1	50	27.0	55.0	M8	65.0	M8	0.22
CP22-1828	17.5	28.5	19.0	7.9	28.9		29.0					
CP22-2032	19.7	31.7	25.4	11.4	33.9	50	34.0	55.0	M10	65.0	M10	0.40
CP22-2240	21.7	38.0	28.0	12.8	39.8	65	39.5	71.0		M12	81.5	M12
CP22-2841	27.5	46.7	44.0	25.0	49.0	71	49.0	72.5	M16		130.0	M16
CP22-3559	34.7	55.0	48.0	24.5	64.0	103	62.5	113.5				

## CP23

### FREE VISE



- Material Heat Treated and surface to be treated with Black Oxide.



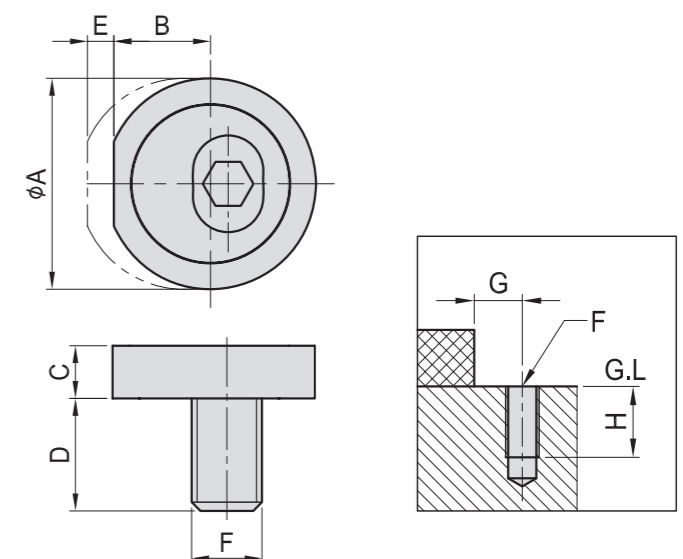
MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	kg
CP23-12140	142	70	70	87	55	25	14	5	10	29	14.5	20.5	60	19	6.3
CP23-16195	192	85	85	103	88	30	15	5	12	37	17.0	24.0	70	24	11.0
CP23-20220	220	110	104	120	100	36	20	7	13	42	21.0	28.0	85	30	21.0

## CP24

### ECCENTRIC CAM LOCK



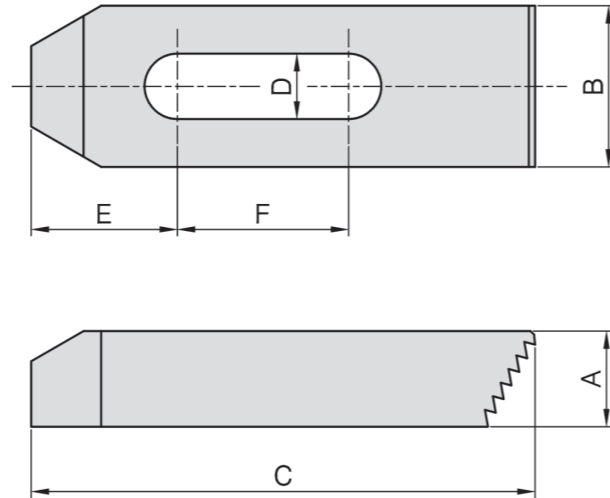
- Material : S45C (JIS)
- Heat treated : HRC 35°(ECCENTRIC CAM)



MODEL NO.	A	B	C	D	E	F	G	H	kg
CP24-0824	24	11.0	6	12.8	3	M 8	11.5	17	0.020
CP24-1026	26	11.8	8	14.3	4	M10	12.5	22	0.030
CP24-1230	30	13.5	9	17.8	5	M12	14.5	22	0.050
CP24-1638	38	16.0	12	20.8	6	M16	17.5	26	0.115

# CP25

## STEP CLAMP



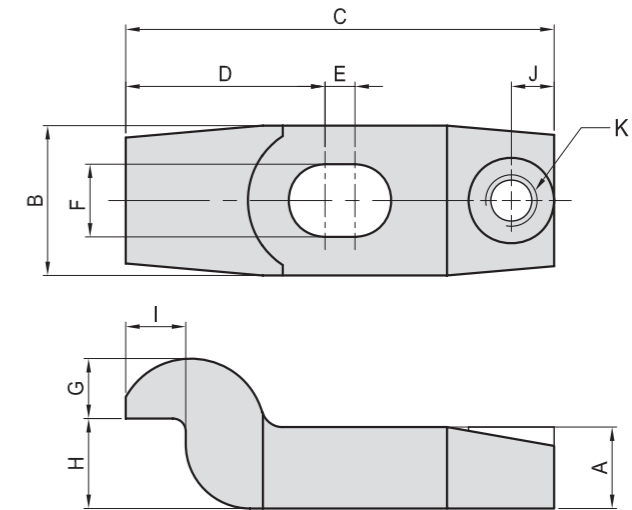
- Material : S45C
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Application : Used with SU25.

MODEL NO.	A	B	C	D	E	F	kg
CP25-10063	13	25	63	11	18	19	0.100
CP25-10100	16	25	100		27	37	0.215
CP25-10150	19	32	150		30	50	0.570
CP25-12063	13	25	63	13	20	14	0.100
CP25-12100	19	32	100		29	34	0.320
CP25-12150	22	32	150		32	50	0.650
CP25-14063	13	25	63	15	20	14	0.100
CP25-14100	19	32	100		29	34	0.315
CP25-14150	22	32	150		32	50	0.600
CP25-16063	16	32	63	17	22	12	0.160
CP25-16100	19	38	100		31	26	0.400
CP25-16150	22	38	150		40	47	0.710
CP25-18063	16	32	63	20	22	12	0.140
CP25-18100	19	38	100		31	26	0.380
CP25-18150	22	38	150		40	47	0.750
CP25-20100	19	38	100	21	31	26	0.360
CP25-20150	25	38	150		43	44	0.750
CP25-20200	25	50	200		55	65	1.500
CP25-24150	32	50	150	26	43	38	1.290
CP25-24200	32	50	200		53	57	2.000
CP25-24250	38	50	250		60	64	2.950



# CP27

## THREADED GOOSE NECK CLAMP



- Material : S45C(JIS), Forging.
- Surface finish : Black Oxide.

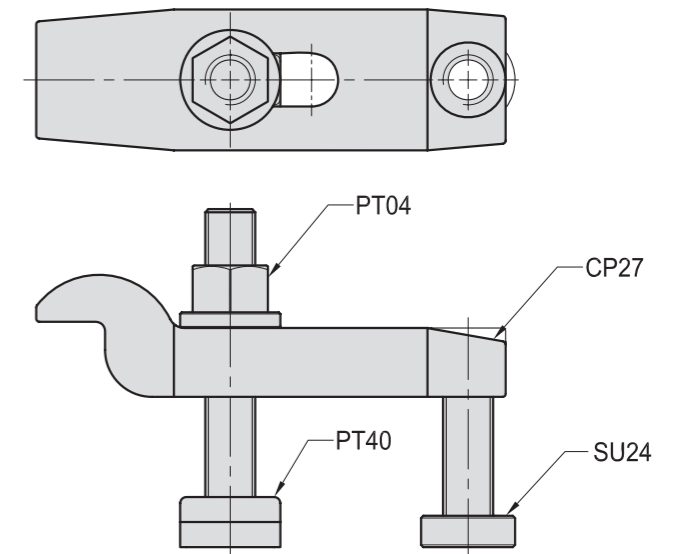
MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	kg
CP27-16100	19	35	100	46.5	7	17	14	21	14	10	M12x1.75	0.78
CP27-16150	22	45	150	62.0	26	17	15	24	22	12	M16x2.00	1.70

# CP28

## GOOSE NECK CLAMP



- Material : S45C(JIS), steel forging.
- Surface finish : Black Oxide.



MODEL NO.	CP27	PT40	PT04	SU24	kg
CP28-ZC-40	16100	16100	1624	12060	1.5
CP28-ZC-60	16150	16100	1624	16070	2.6

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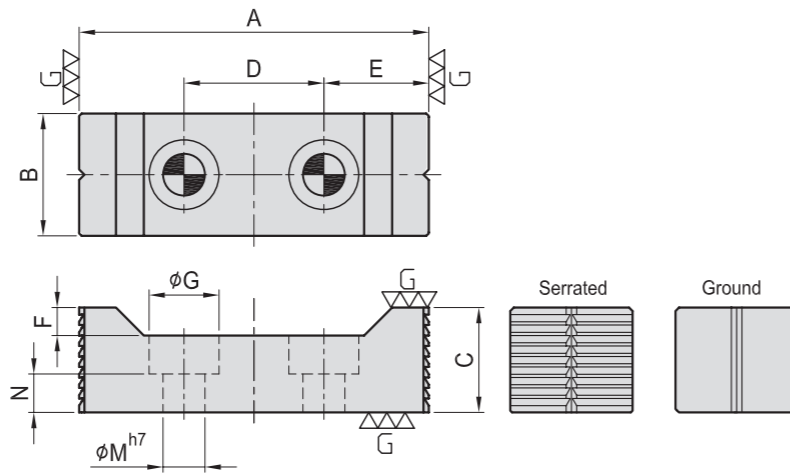
Column  
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Technical  
Data

## CP29

### BLOCK STOP



- Material : S45C
- Heat treated : HRC 32°~38°
- Surface finish : Black Oxide.
- Application : used with CP12.



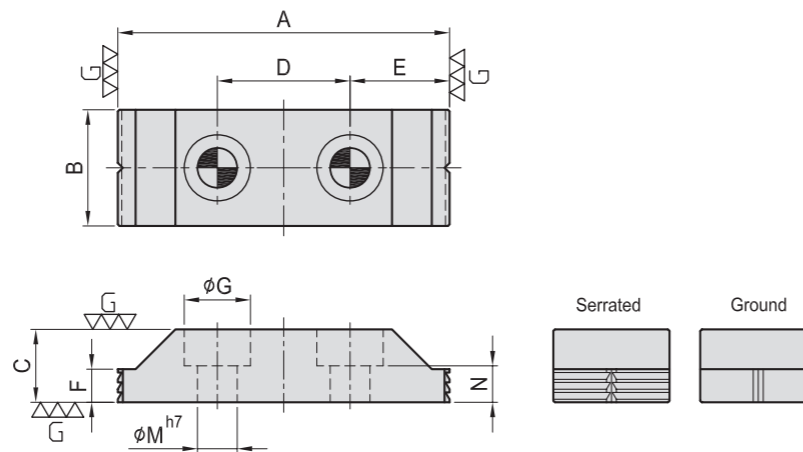
MODEL NO.	A	B	C	D	E	F	G	M	N	kg	TYPE
CP29-12100-S	100	35	30	40	30	8	20	12	11	0.59	Serrated
CP29-16130-S	130	40	40	50	40	10	26	16	14	1.20	
CP29-12100-G	100	35	30	40	30	8	20	12	11	0.59	Ground
CP29-16130-G	130	40	40	50	40	10	26	16	14	1.20	

## CP30

### THIN BLOCK STOP



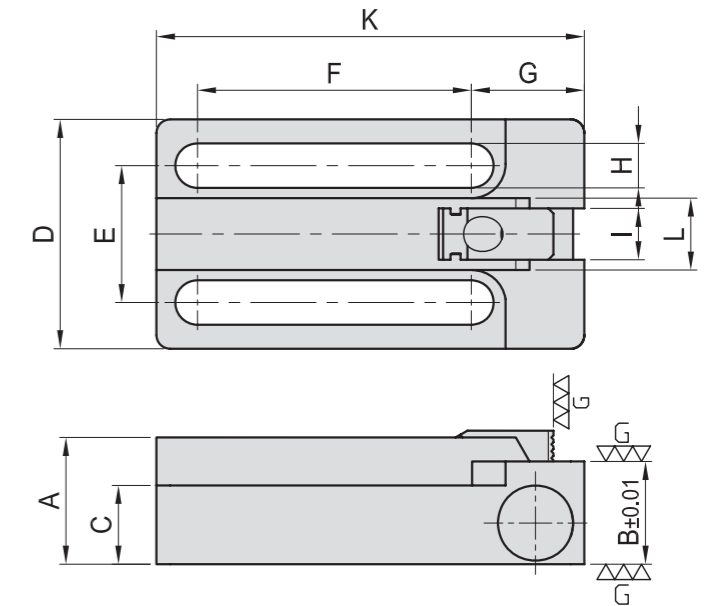
- Material : S45C
- Heat treated : HRC 32°~38°
- Surface finish : Black Oxide.
- Application : used with CP13.



MODEL NO.	A	B	C	D	E	F	G	M	N	kg	TYPE
CP30-12100-S	100	35	22	40	30	10	20	12	11	0.46	Serrated
CP30-16130-S	130	40	30	50	40	14	26	16	14	0.88	
CP30-12100-G	100	35	22	40	30	10	20	12	11	0.46	Ground
CP30-16130-G	130	40	30	50	40	14	26	16	14	0.88	

## CP31

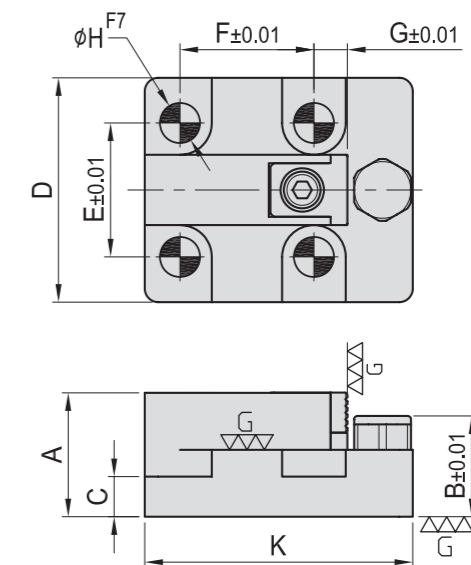
### CLAMPING PARTS



MODEL NO.	A	B	C	D	E	F	G	H	I	K	L	kg
CP31-1240	37	30	23	67	40	80	33.0	13.0	15	125	21	1.36
CP31-1250				77	50	85	33.0	13.0				1.71
CP31-1650				77	50	85	34.5	16.5				130

## CP32

### BLOCK STOP



MODEL NO.	A	B	C	D	E	F	G	H	K	kg
CP32-1240	37	30	12	67	40	40	10	12	80	0.86
CP32-1250			12	77	50	50		12	95	1.19
CP32-1650			15	77	50	50		16	95	1.14

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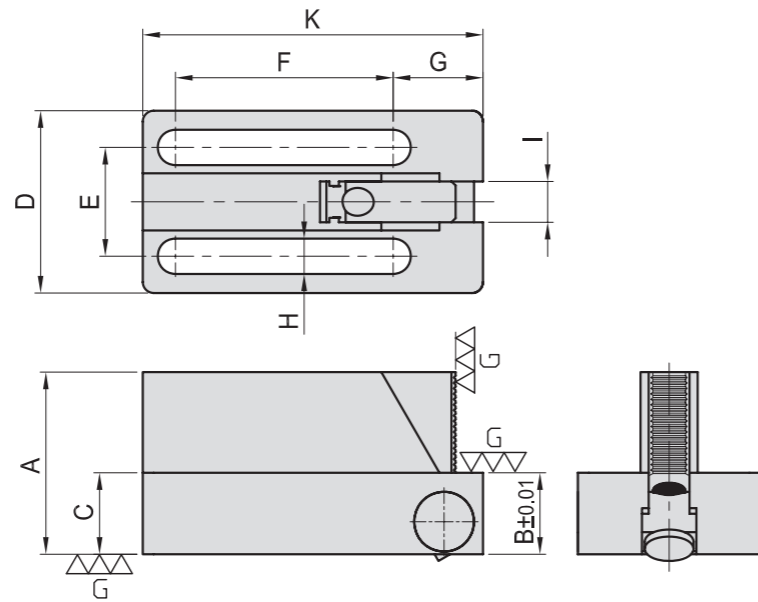
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# CP33

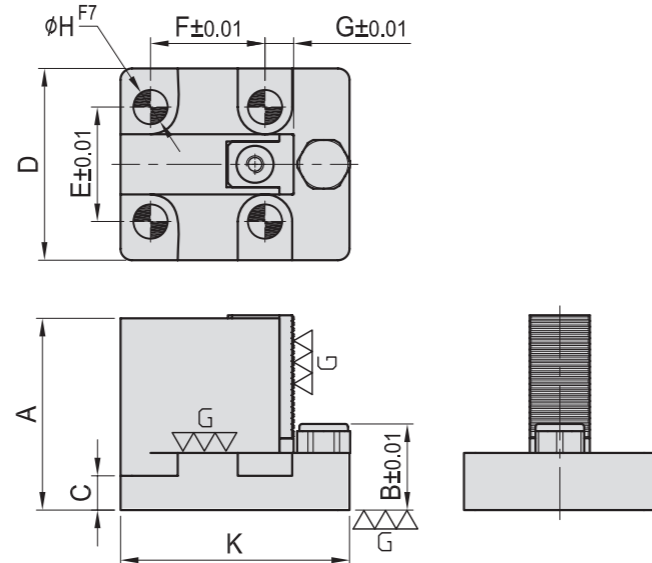
## CLAMPING PARTS



MODEL NO.	A	B	C	D	E	F	G	H	I	K	kg
CP33-1240				67	40	80	33.0	13.0		125	2.02
CP33-1250	67	30	30	77	50	85	33.0	13.0	15	130	2.45
CP33-1650				77	50	85	34.5	16.5		130	2.25

# CP34

## BLOCK STOP

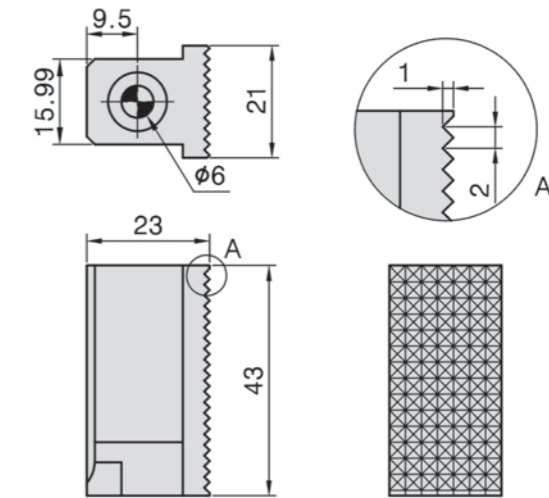


MODEL NO.	A	B	C	D	E	F	G	H	K	kg	
CP34-1240				12	67	40	40		12	80	1.24
CP34-1250	67	30		12	77	50	50	10	12	95	1.60
CP34-1650				15	77	50	50		16	95	1.52

# CP35

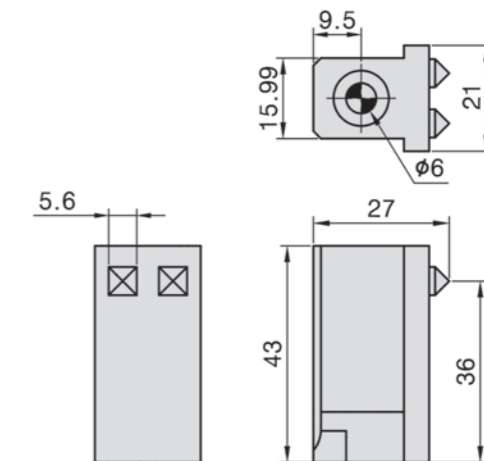
## REPLACEMENT HARD-JAW

### CP35A



MODEL NO.	kg
CP35A-2143	0.12

### CP35B



MODEL NO.	kg
CP35B-2143	0.12

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-VISE

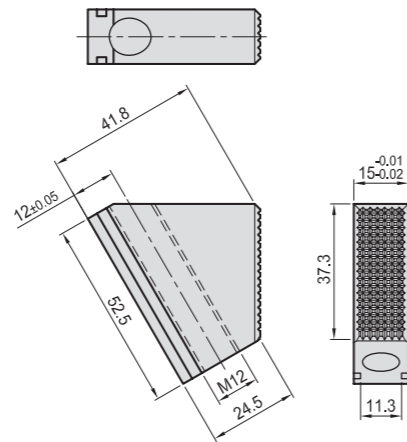
OTHER

Column for Technical Data

# CP36

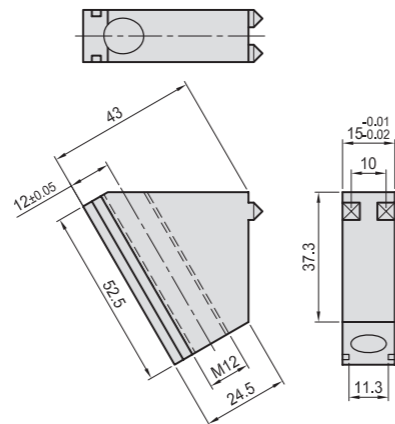
## REPLACEMENT HARD-JAW

CP36A



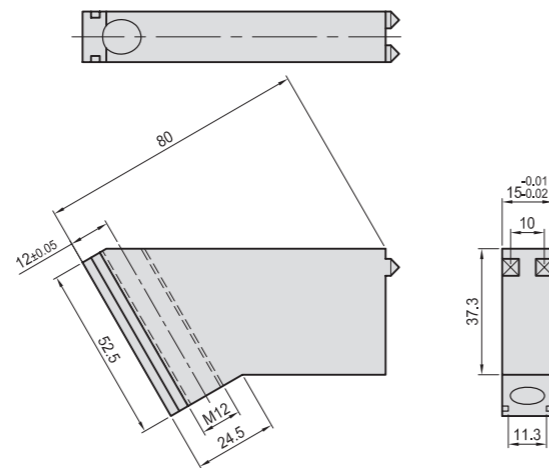
MODEL NO.	kg
CP36A-1243	0.14

CP36B



MODEL NO.	kg
CP36B-1243	0.14

CP36C

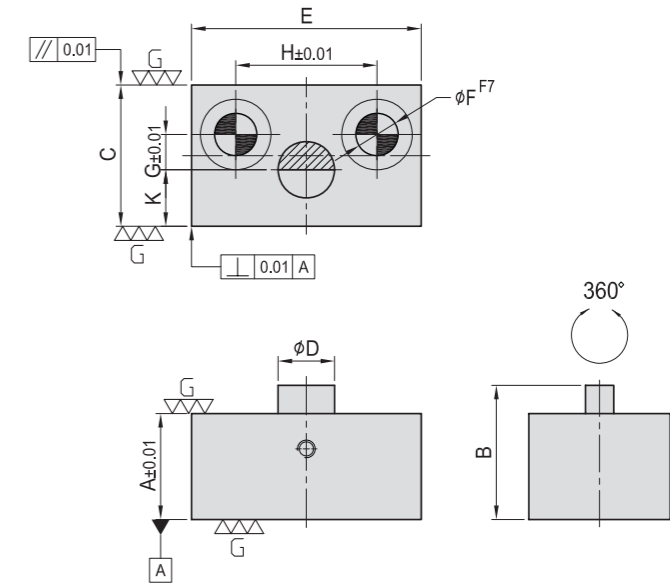


MODEL NO.	kg
CP36C-1280	0.30

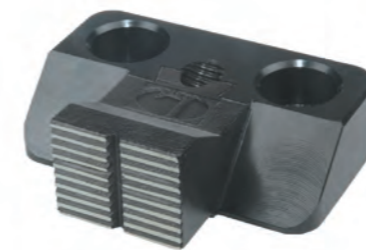


# CP37

## POSITIONING EDGE SUPPORT



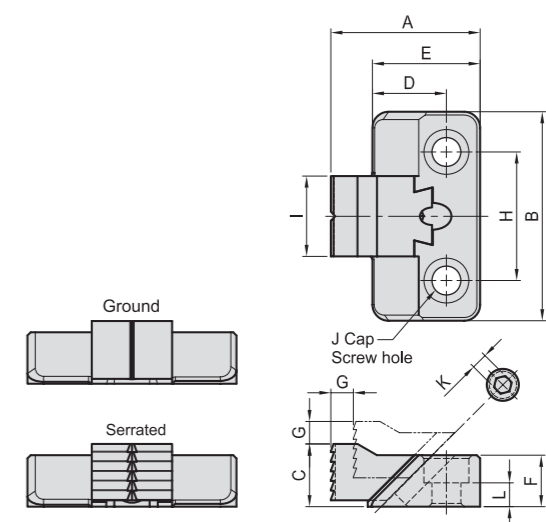
MODEL NO.	A	B	C	D	E	F	G	H	K	kg
CP37-1240			40		65	12		40	16	0.60
CP37-1250	30	38	40	16	75	12	10	50	15	0.60
CP37-1650			45		80	16		50	18	0.65



# CP38

## ADJUSTABLE SIDE CLAMP

- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°. Jaw Surface treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Low profile side clamp keeps top surfaces clear for machining, ideal for rough or finished parts, available with plain or serrated jaw.



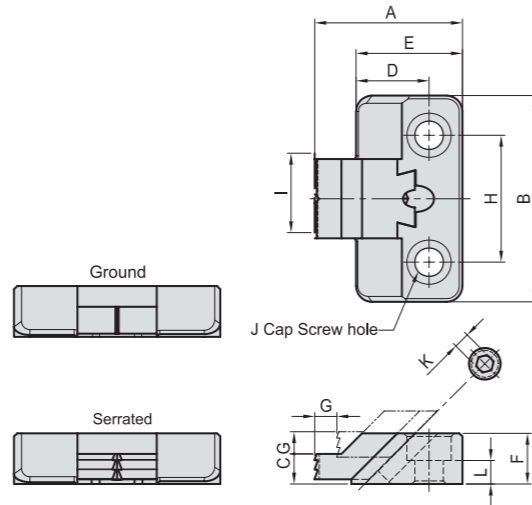
MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	Type	kg
CP38-0865-G	45.14	65	19.5	23	33.5	16	7	40	25	M 8	5	7.4	Ground	0.22
CP38-1285-G	65.14	85	29.0	33	48.0	22	12	50	35	M12	6	9.0	Ground	0.65
CP38-16100-G	85.64	100	39.0	48	68.0	30	14	50	40	M16	8	12.5	Ground	1.40
CP38-0865-S	46.45	65	19.5	23	33.5	16	7	40	25	M 8	5	7.4	Serrated	0.22
CP38-1285-S	67.14	85	29.0	33	48.0	22	12	50	35	M12	6	9.0	Serrated	0.65
CP38-16100-S	87.14	100	39.0	48	68.0	30	14	50	40	M16	8	12.5	Serrated	1.40

# CP39

## ADJUSTABLE SIDE CLAMP



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°. Jaw Surface treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Low profile side clamp keeps top surfaces clear for machining, ideal for rough or finished parts, available with plain or serrated jaw.



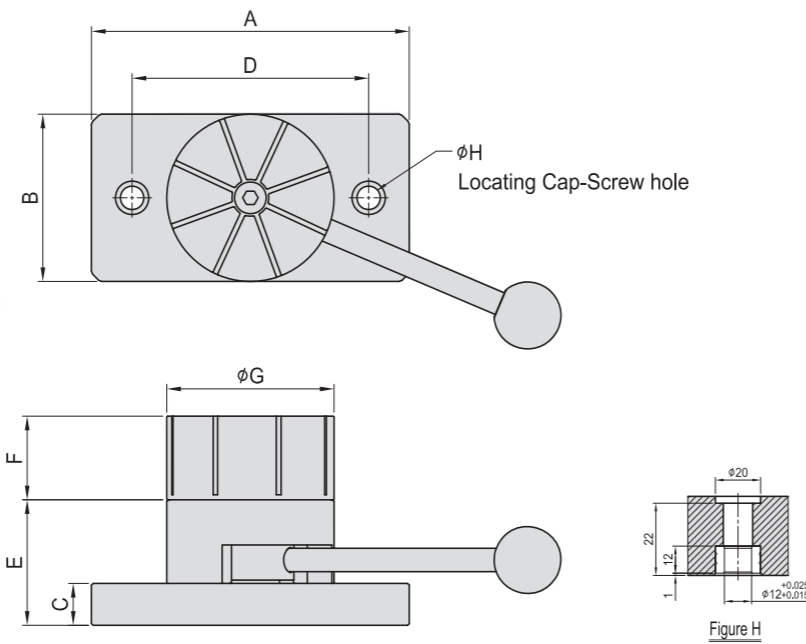
MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	Type	kg
CP39-0865-G	45.14	65	9.5	23	33.5	16	7	40	25	M 8	5	7.4	Ground	0.2
CP39-1285-G	65.64	85	12.0	33	48.0	22	12	50	35	M12	6	9.0		0.6
CP39-16100-G	86.14	100	15.5	48	68.0	30	14	50	40	M16	8	12.5		1.3
CP39-0865-S	46.55	65	9.5	23	33.5	16	7	40	25	M 8	5	7.4	Serrated	0.2
CP39-1285-S	67.14	85	12.0	33	48.0	22	12	50	35	M12	6	9.0		0.6
CP39-16100-S	87.64	100	15.5	48	68.0	30	14	50	40	M16	8	12.5		1.3

# CP40

## MACHINABLE IRREGULAR CLAMPS



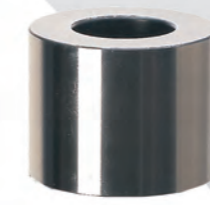
- Material : Soft Jaw : A6061, Base : S45C(JIS)
- Surface finish : Soft Jaws : Anodic Treatment
- Heat treated : Base : HRC 25°~ 30°
- Application : Vertical Machining Center
- Features : Hold the irregular clamps of aluminum and copper.



MODEL NO.	A	B	C	D	E	F	G	H	kg
CP40-A100	190	100	25	141.42	75	50	100	12	7.5

# SUPPORT PARTS

SU01~SU29



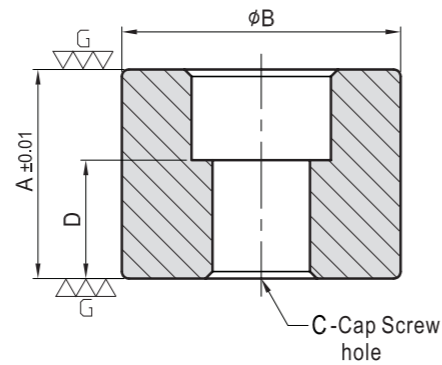
JIG REST BUTTON    OFFSET JIG REST BUTTON    SHOULDER SUPPORT CYLINDER    LOCATING CYLINDER

## SU01

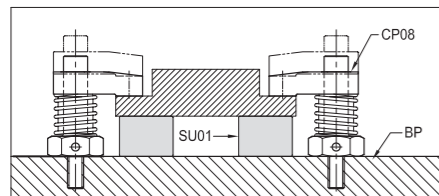
### JIG REST BUTTON



- Material : S45C(JIS) / CK45(DIN)
- Heat treated: HRC 40°.
- Surface finish : Black Oxide.
- Application : mount onto base plate or clamp cube for supporting workpiece.
- Features : Jig rest buttons are extremely useful as supports, side locator pads, and jig feet.



MODEL NO.	A	B	C	D	kg
SU01-1230	30	40	M12	17	0.24
SU01-1240	40			27	0.32
SU01-1250	50			37	0.41
SU01-1630	30	50	M16	12	0.36
SU01-1640	40			22	0.50
SU01-1650	50			32	0.64

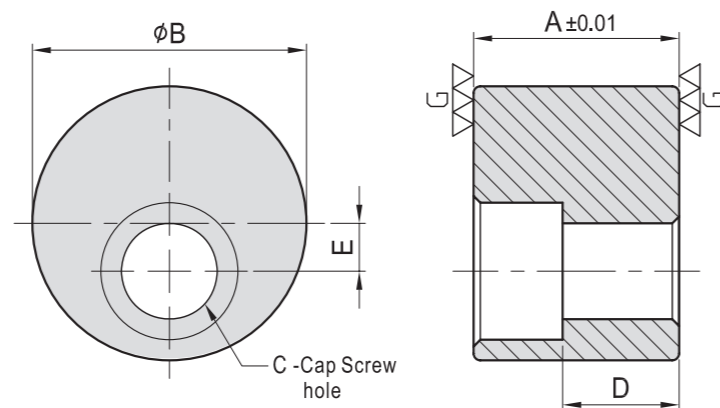


## SU02

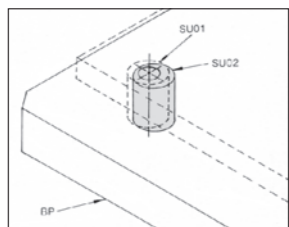
### OFFSET JIG REST BUTTON



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Use for supporting and / or positioning workpiece.
- Features : Jig rest buttons are extremely useful as supports, side locator pads, and jig feet.



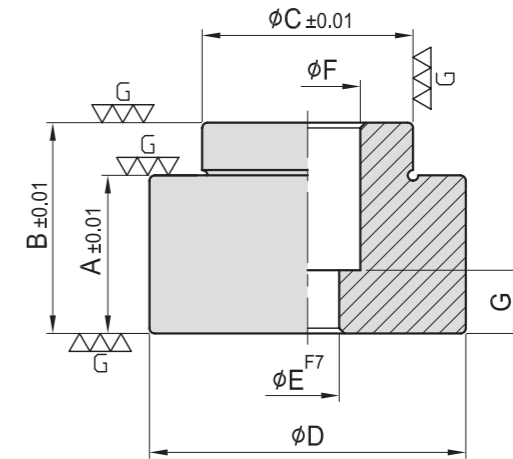
MODEL NO.	A	B	C	D	E	kg
SU02-1230	30	40	M12	17	7	0.24
SU02-1240	40			27		0.32
SU02-1250	50			37		0.41
SU02-1630	30	50	M16	12	10	0.36
SU02-1640	40			22		0.50
SU02-1650	50			32		0.64



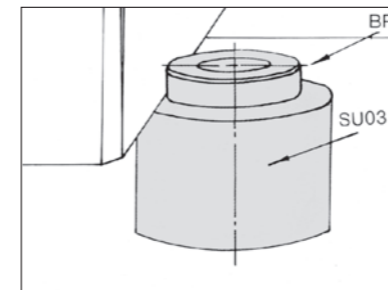
## SU03

### SHOULDER SUPPORT CYLINDER

- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Support and locate with one part.

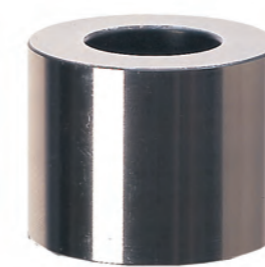


MODEL NO.	A	B	C	D	E	F	G	Kg
SU03-1230	30	40	40	60	12	20	12	0.68
SU03-1240	40	50						0.88
SU03-1250	50	60						1.10
SU03-1630	30	40	50	75	16	26	15	1.08
SU03-1640	40	50						1.40
SU03-1650	50	60						1.70

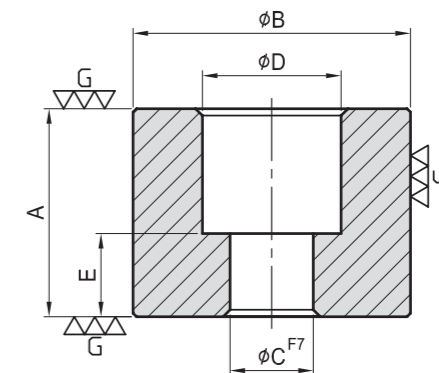


## SU04

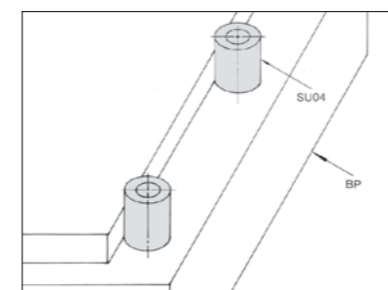
### LOCATING CYLINDER



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Support and locate with one part.



MODEL NO.	A	B	C	D	E	kg
SU04-1230	30	40	12	20	12	0.24
SU04-1240	40				12	0.32
SU04-1250	50				12	0.40
SU04-1630	30	50	16	26	12	0.37
SU04-1640	40				15	0.49
SU04-1650	50				15	0.60

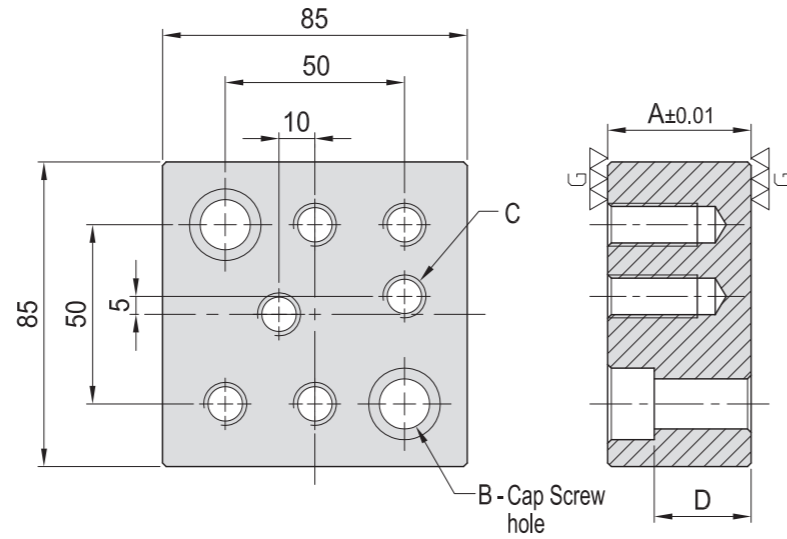


# SU05

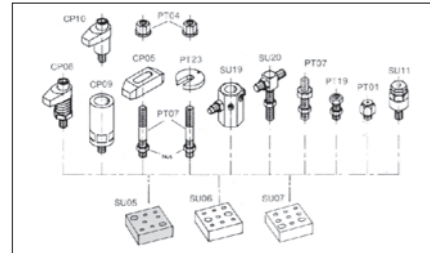
## SQUARE ADAPTER



- Material : S45C, (JIS) / CK45 (DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Multipurpose adapter for a variety of stops & clamps.



MODEL NO.	A	B	C	D	kg
SU05-1230*	30	M12	M12	17	1.50
SU05-1240	40			27	2.00
SU05-1250	50			37	2.25
SU05-1630*	30	M16	M16	12	1.30
SU05-1640	40			22	1.80
SU05-1650	50			32	2.22

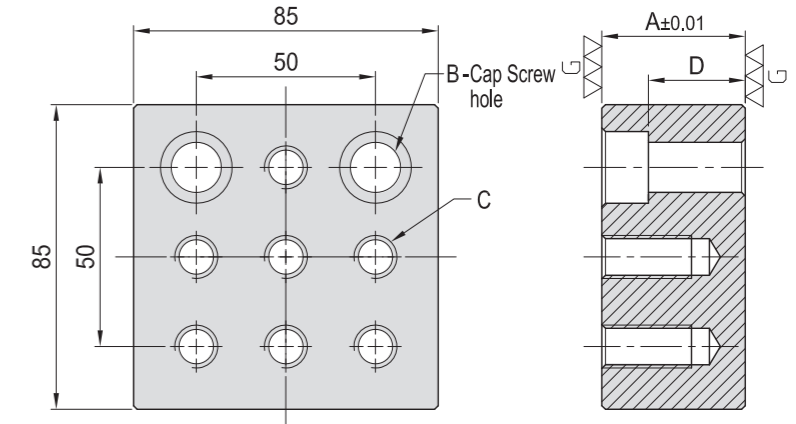


# SU07

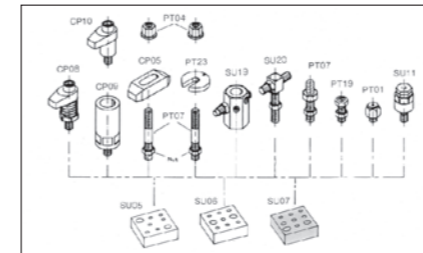
## SQUARE ADAPTER



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Multipurpose adapter for a variety of stops & clamps.



MODEL NO.	A	B	C	D	kg
SU07-1230*	30	M12	M12	17	1.5
SU07-1240	40			27	2.0
SU07-1250	50			37	2.6
SU07-1630*	30	M16	M16	12	1.3
SU07-1640	40			22	1.8
SU07-1650	50			32	2.2

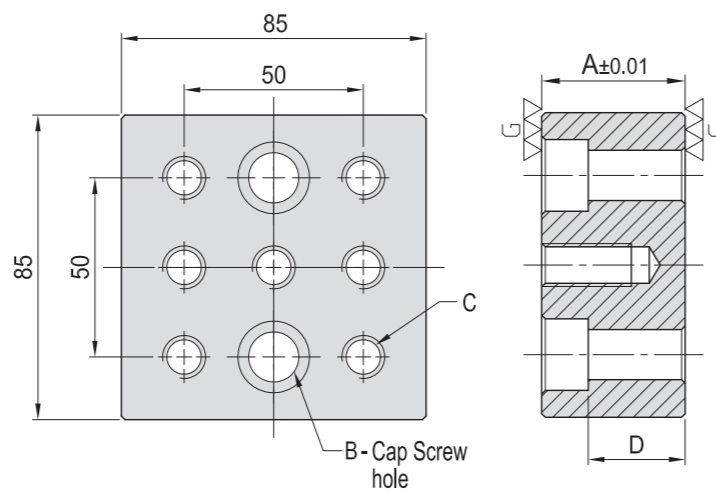


# SU06

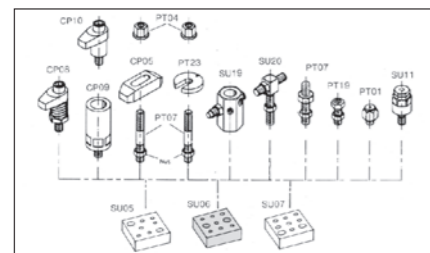
## SQUARE ADAPTER



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Multipurpose adapter for a variety of stops & clamps.

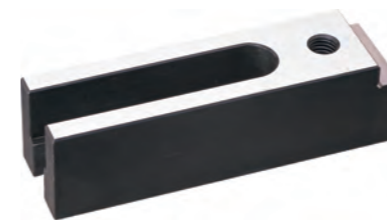


MODEL NO.	A	B	C	D	kg
SU06-1230*	30	M12	M12	17	1.50
SU06-1240	40			27	2.00
SU06-1250	50			37	2.60
SU06-1630*	30	M16	M16	12	1.30
SU06-1640	40			22	1.80
SU06-1650	50			32	2.25

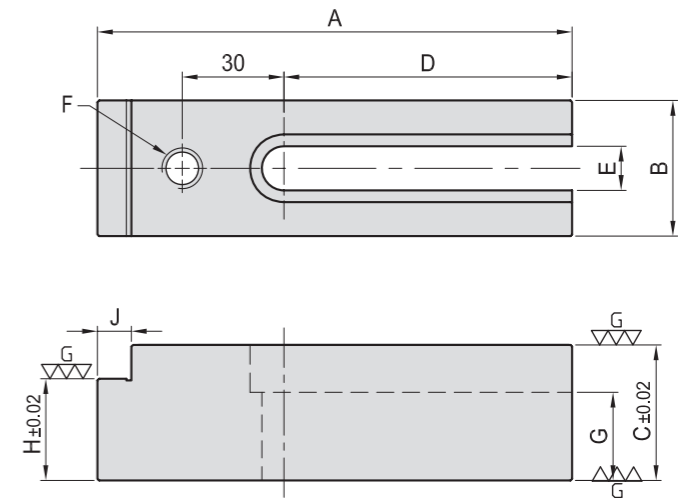


# SU08

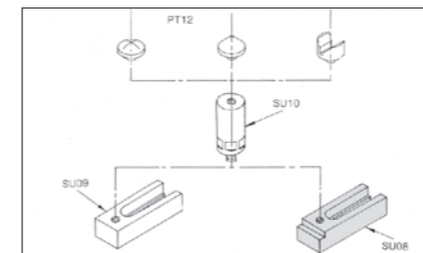
## EXTENSION SUPPORT



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Gives extra flexibility in the placement of stops.



MODEL NO.	A	B	C	D	E	F	G	H	J	kg
SU08-12140-30	140	40	40	85	13	M12	26	30	10	1.3
SU08-12140-40			50				36			
SU08-16140-30	140	50	40	85	17	M16	22	30	10	1.5
SU08-16140-40			50				32			

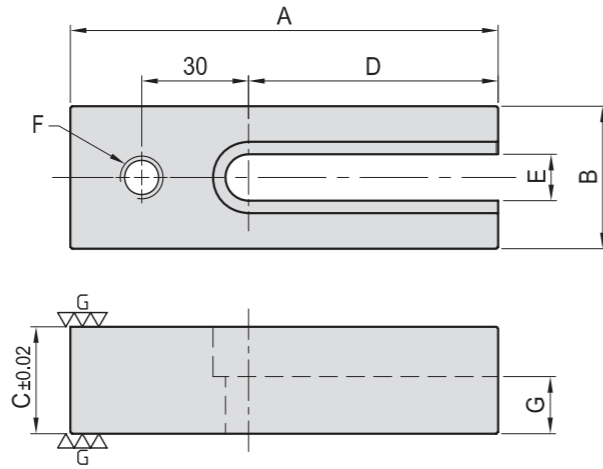


## SU09

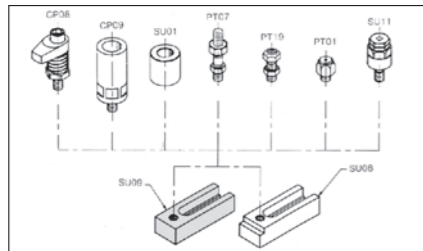
### EXTENSION SUPPORT



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 40°.
- Surface finish : Black Oxide.
- Application : Multipurpose adapter for a variety of stops & clamps.



MODEL NO.	A	B	C	D	E	F	G	kg
SU09-12120-30	120	40	30	70	13	M12	16	0.85
SU09-12120-40			40				26	1.10
SU09-16140-30	140	50	30	90	17	M16	12	1.14
SU09-16140-40			40				22	1.52

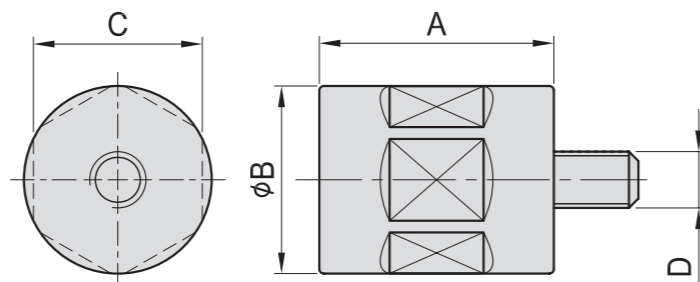


## SU10

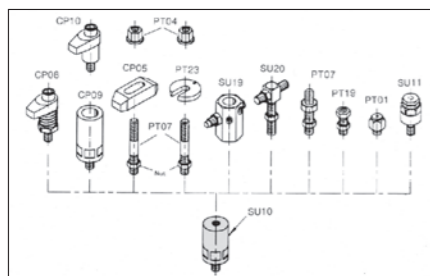
### RISER CYLINDER



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°.
- Surface finish : Black Oxide.
- Application : Elevate a work stop or clamp.



MODEL NO.	A	B	C	D	kg
SU10-1250	50				0.45
SU10-1265	65	40	36	M12	0.59
SU10-1280	80				0.74
SU10-1650	50				0.72
SU10-1665	65	50	46	M16	0.84
SU10-1680	80				1.20

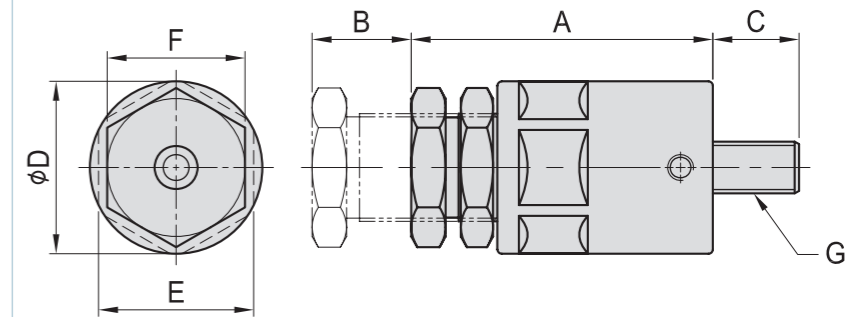


## SU11

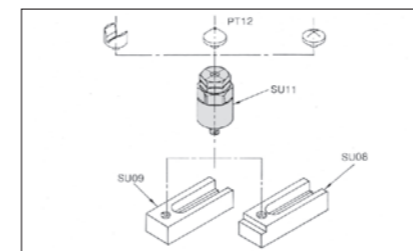
### SUPPORT JACK



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°~40°.
- Surface finish : Black Oxide.
- Application : Multipurpose support part.



MODEL NO.	A	B	C	D	E	F	G	kg
SU11-1265	65	20	20	40	36	32	M12	0.54
SU11-1665	65	20	20	50	46	36	M16	0.82

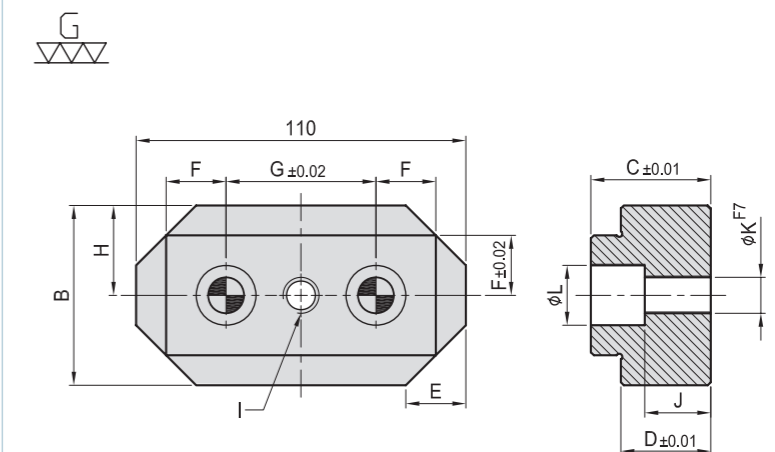


## SU12

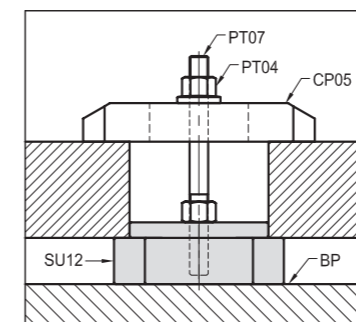
### POSITIONING EDGE SUPPORT



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 45°.
- Application : Work piece support & positioning.



MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	kg
SU12-1230			40	30	20	20	50	30	M12	22	12	20		1.50
SU12-1240	110	60	50	40						32				1.92
SU12-1630			40	30	20	20	50	30	M16	17	16	26		1.40
SU12-1640	110	60	50	40						26				1.80

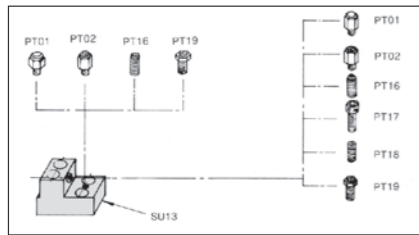
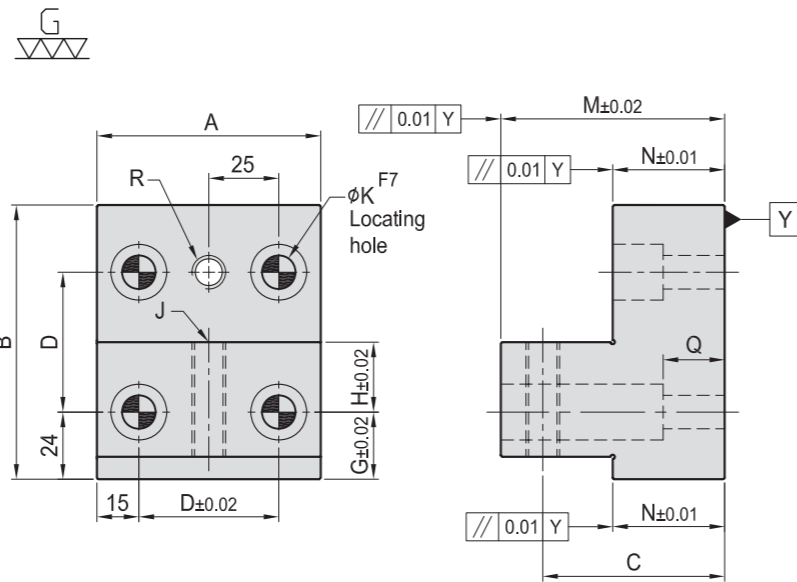


# SU13

## POSITIONING EDGE SUPPORT



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 45°.
- Application : Multipurpose adapter for a variety of stops & clamps.



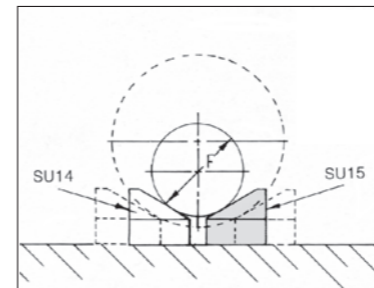
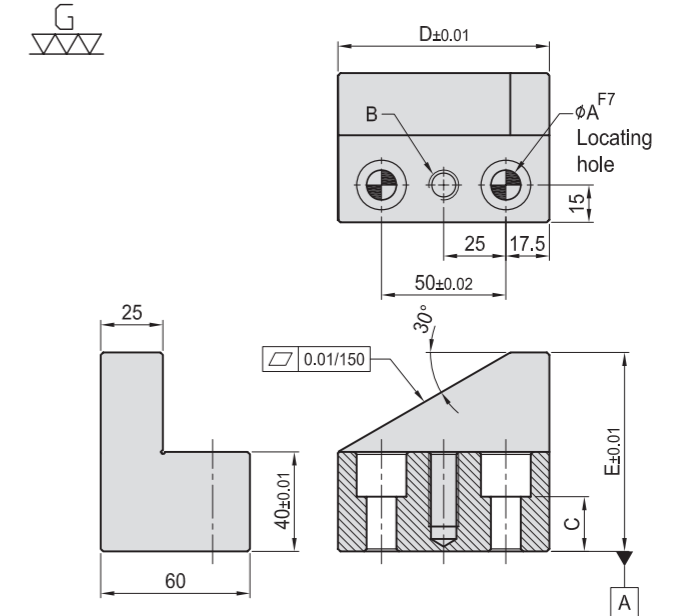
MODEL NO.	A	B	C	D	G	H	J	K	M	N	Q	R	kg
SU13-1240	80	98	65	50	16	25	M12	12	80	40	22	M12	3.00
SU13-1640	80	98	65	50	16	25	M16	16	80	40	16	M16	2.64

# SU15

## SPLIT V BLOCK



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 45°.
- Application : Use with SU14 to create an adjustable V block set.



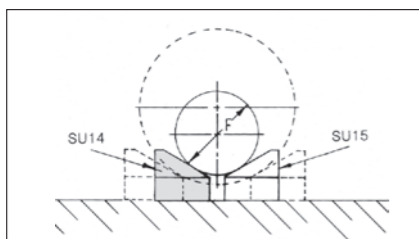
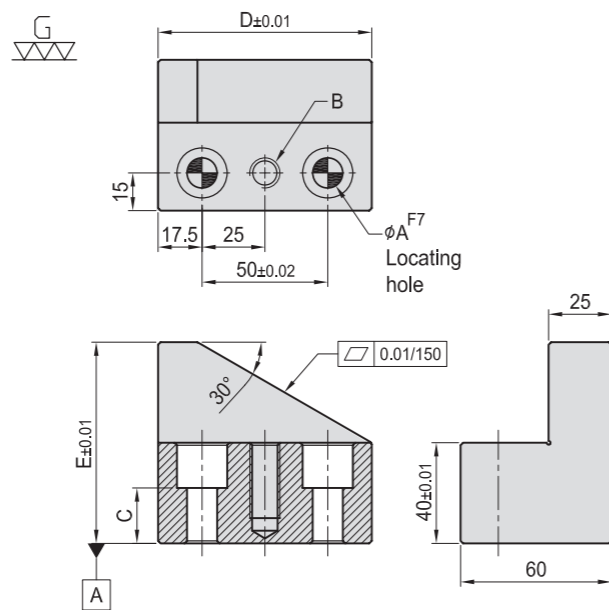
MODEL NO.	A	B	C	D	E	F		kg
						Max.	Min.	
SU15-1250-600	12	M12	22	85	80	600	50	1.86
SU15-1650-600	16	M16	16	85	80	600	50	1.74

# SU14

## SPLIT V BLOCK



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 45°.
- Application : Use with SU15 to create an adjustable V block set.



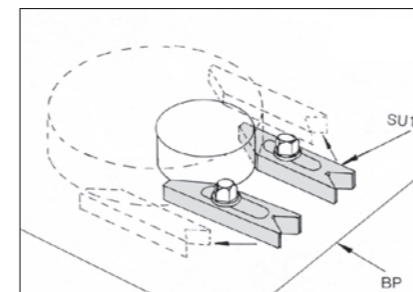
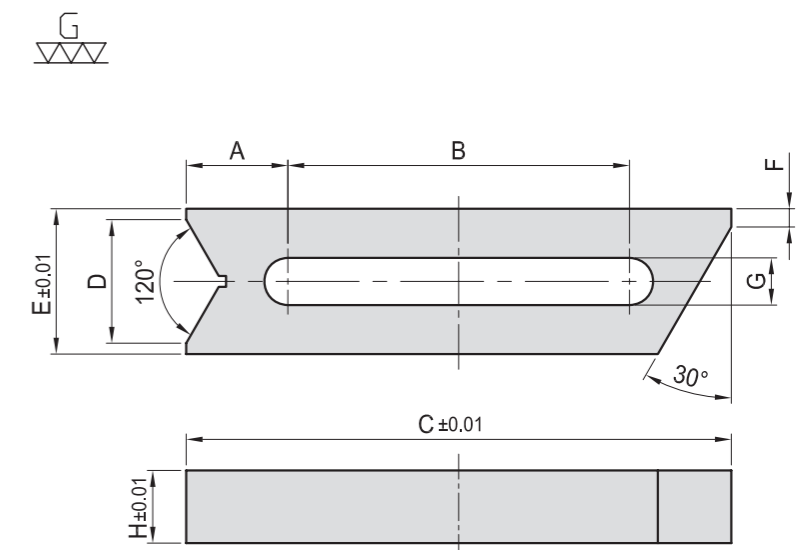
MODEL NO.	A	B	C	D	E	F		kg
						Max.	Min.	
SU14-1250-600	12	M12	22	85	80	600	50	1.86
SU14-1650-600	16	M16	16	85	80	600	50	1.76

# SU16

## V BLOCK



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 45°.
- Application : Multipurpose V-block, use independently or in pairs.



MODEL NO.	A	B	C	D	E	F	G	H	kg
SU16-12150	28	94	150	34	40	5	13	20	0.65
SU16-16175	30	115	175	40	50	5	17	20	0.90

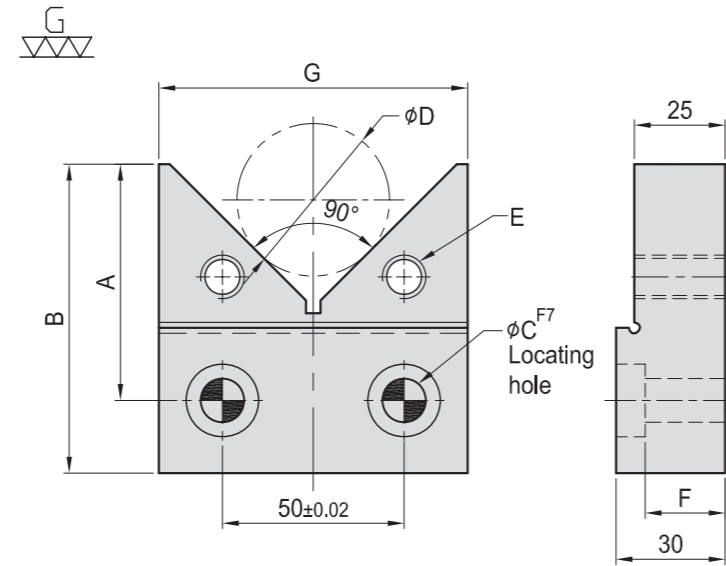
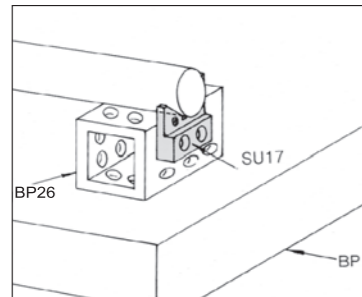


# SU17

## V BLOCK



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 45°.
- Application : Easily mounts to any fixture to support round parts.



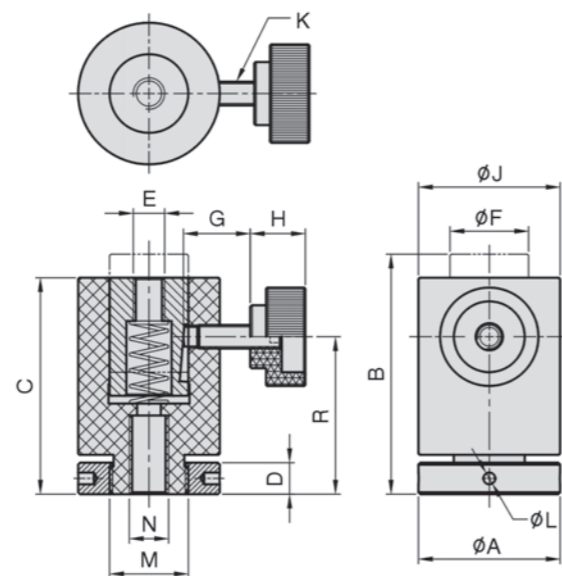
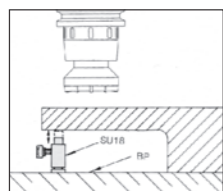
MODEL NO.	A	B	C	D		E	F	G	kg
				Max.	Min.				
SU17-1215-080	65	85	12	80	15	M12	22	85	1.10
SU17-1215-100	75	95		100					1.30
SU17-1615-080	65	85	16	80	15	M16	25	85	1.02
SU17-1615-100	75	95		100					1.20

# SU18

## SUPPORT JACK



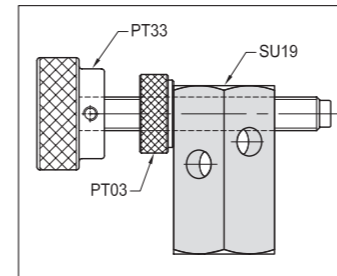
- Material : S45C(JIS) / CK45(DIN)
  - Heat treated : HRC 38°~42°.
  - Surface finish : Black Oxide.
  - Application : Designed to support over hanging workpiece, spring loaded & adjustable.
  - Features : supporting height can be adjusted by loosening the adjusting screw.
- Shock resistance during machining operation.



MODEL NO	A	B	C	D	E	F	G	H	J	K	L	M	N	R	kg
SU18-3655	36	61	55	8	M 8	20	17	14	36	M 6	3	M20	M10	40	0.43
SU18-4270	42	79	70	9	M10	25	25	17	42	M 8	4	M24	M12	50	0.73
SU18-5085	50	100	87	10	M12	30	27	20	50	M10	5	M30	M16	62	1.30

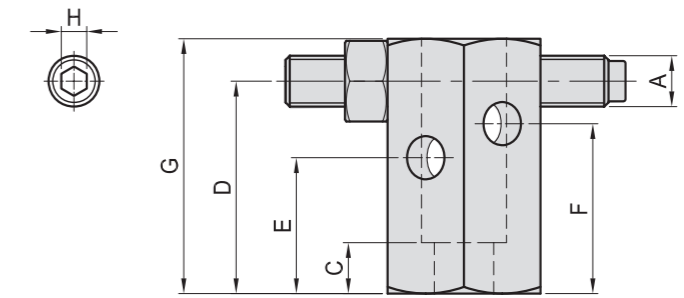
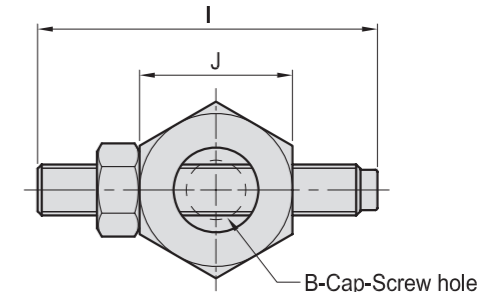


- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Application : Multipurpose work piece positioning.



# SU19

## ADJUSTABLE STOP



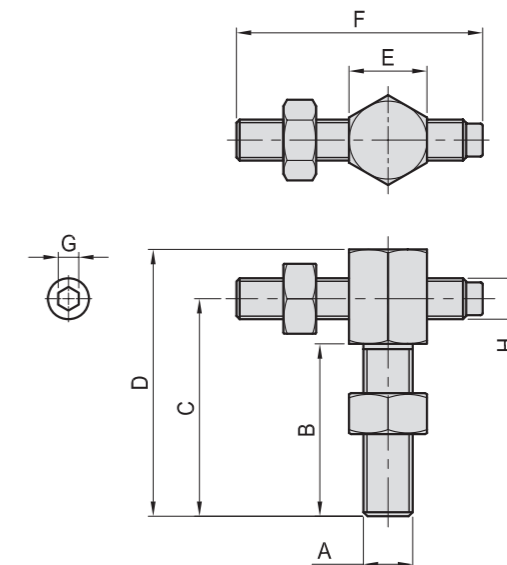
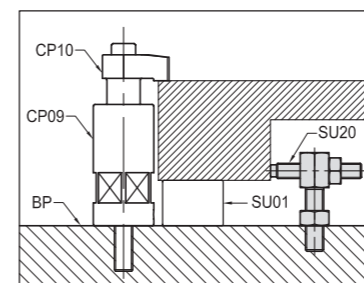
MODEL NO.	A	B	C	D	E	F	G	H	I	J	kg
SU19-1280	M12	M12	12	32	40	50	60	6	80	36	0.43
SU19-1690	M16	M16	14	40	50	63	80	8	90	46	0.89

# SU20

## MINI ADJUSTABLE STOP



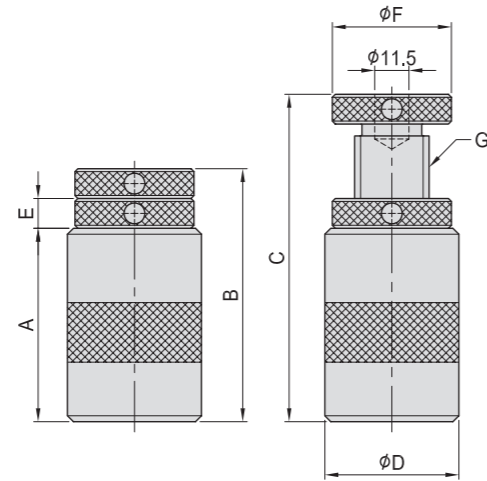
- Material : S45C (JIS) / CK45(DIN)
- Heat treated : HRC 32°~38°.
- Surface finish : Black Oxide.
- Application : Multipurpose work piece positioning.



MODEL NO.	A	B	C	D	E	F	G	H	kg
SU20-1260	M12	42	53	65	19	60	5	M10	0.13
SU20-1680	M16	45	58	70	24	80	6	M12	0.24

## SU21

### MAGNETIC SUPPORT JACK



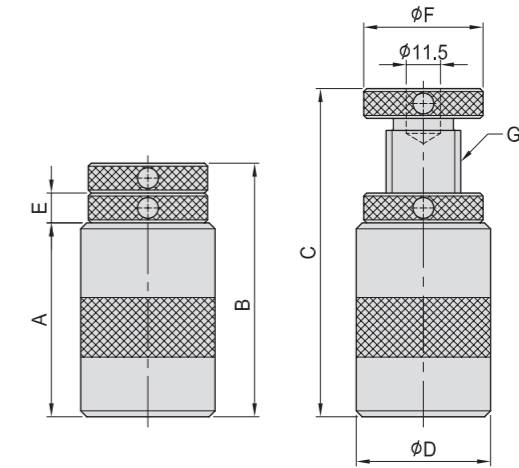
- Material : S45C(JIS), heat treated
- Surface finish : Black Oxide.

MODEL NO.	A	B~C	D	E	F	G	kg	KN
SU21-S050	24	40~50	45	8	35	Tr18x2	0.36	80
SU21-S065	34	50~65					0.46	
SU21-S085	49	65~85	45	8	35	Tr20x3	0.63	80
SU21-S110	63	85~110	45	12	40	Tr25x4	0.82	150
SU21-S165	85	110~165	50				45	
SU21-S265	135	165~265	60	15	50	Tr32x5	3.00	200
SU21-S300	170	265~300					3.50	



## SU23

### LARGE SUPPORT JACK

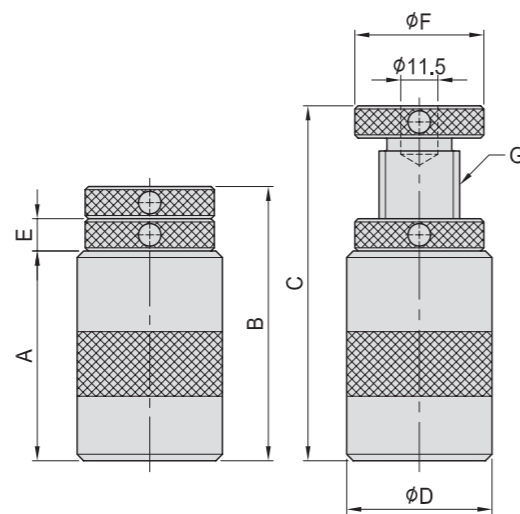


- Material : S45C(JIS), heat treated
- Surface finish : Black Oxide.

MODEL NO.	A	B~C	D	E	F	G	kg	KN
SU23-S0400	270	285~400	70	15	60	Tr40x4	8.0	260
SU23-S0500	370	385~500					10.5	
SU23-S0600	470	485~600	70	15	60	Tr40x4	12.0	260
SU23-S0700	570	585~700					14.0	
SU23-S0800	670	685~800	70	15	60	Tr40x4	15.0	260
SU23-S0900	770	785~900					16.5	
SU23-S1000	870	885~1000					18.0	

## SU22

### SUPPORT JACK



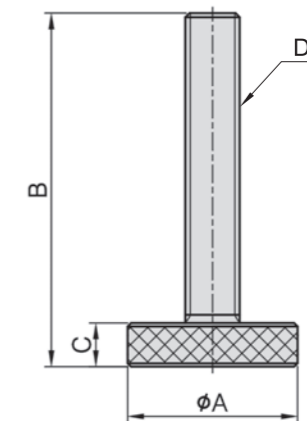
- Material : S45C(JIS), heat treated
- Surface finish : Black Oxide.

MODEL NO.	A	B~C	D	E	F	G	kg	KN
SU22-S050	21	37~50	40	8	35	Tr20x3	0.29	72
SU22-S070	34	50~70					0.40	
SU22-S100	50	70~100	45	10	40	Tr25x4	0.72	135
SU22-S150	76	100~150	50	12	45	1.30		
SU22-S250	120	150~250	60	15	50	Tr28x5	2.90	155
SU22-S300	170	200~300					3.50	

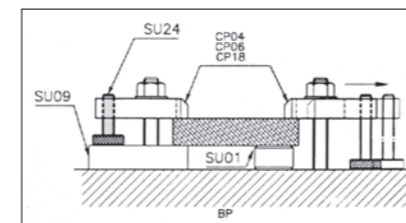


## SU24

### KNURLED ADJUSTING SCREW



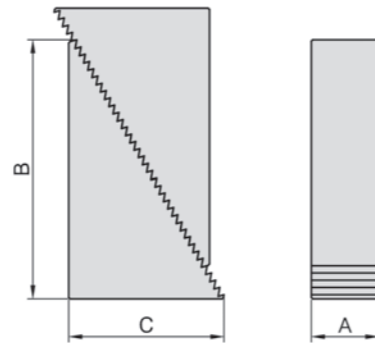
- Material : S45C(JIS), heat treated
- Heat treated : HRC 33°.
- Surface finish : Black Oxide.



MODEL NO.	A	B	C	D	kg
SU24-12060	28	60	8	M12	0.08
SU24-14065	30	65	9	M14	0.10
SU24-16070	30	70	10	M16	0.13
SU24-18080	36	80	12	M18	0.21
SU24-20130	50	130	16	M20	0.47

## SU25

### STEP BLOCK

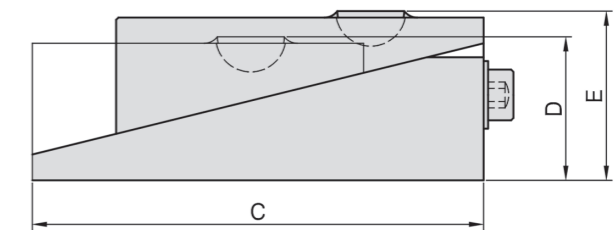
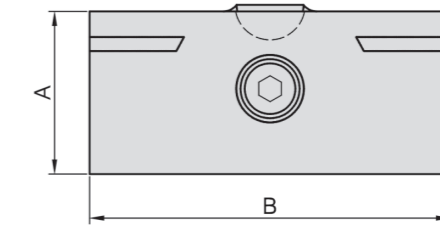


- Material : S45C.
- Heat treated : HRC32°~36°.
- Surface finish : Black Oxide.
- Application : Multipurpose clamping accessory, use with CP25.

MODEL NO.	Supporting Height	A	B	C	kg
SU25-25030	19-49	25	29.0	17	0.12
SU25-25045	28-68		45.0	27	0.22
SU25-25097	58-150		97.5	57	0.90
SU25-32059	38-90	32	59.0	35	0.46
SU25-32097	58-150		97.5	57	1.18
SU25-32139	82-210		139.0	81	2.56
SU25-38059	36-90	38	59.0	35	0.56
SU25-38097	58-150		97.5	57	1.36
SU25-38139	82-210		139.0	81	3.02
SU25-50059	36-90	50	59.0	35	0.76
SU25-50097	58-150		97.5	57	2.06
SU25-50139	82-210		139.0	81	4.02

## SU27

### ADJUSTABLE PARALLEL BLOCK

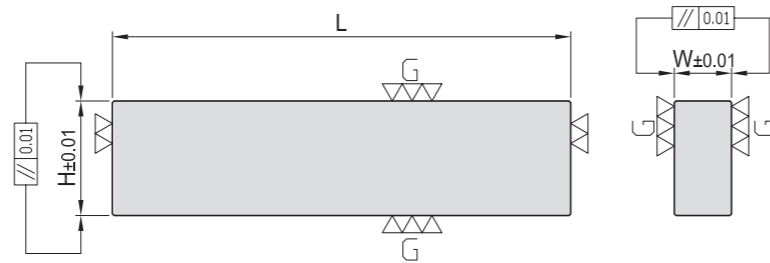
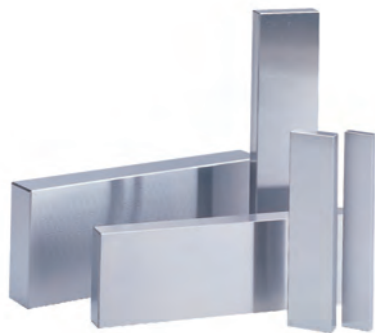


- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 38°~42°.
- Surface finish : Black Oxide.
- Application : Adjustable work piece support, fine adjustment capability.

MODEL NO.	A	B	C	D	E	kg
SU27-5039-46	39	50	82	35	41	1.2
SU27-8052-59	53	80	125	49	55	3.4

## SU26

### HARDENED GROUND PARALLEL

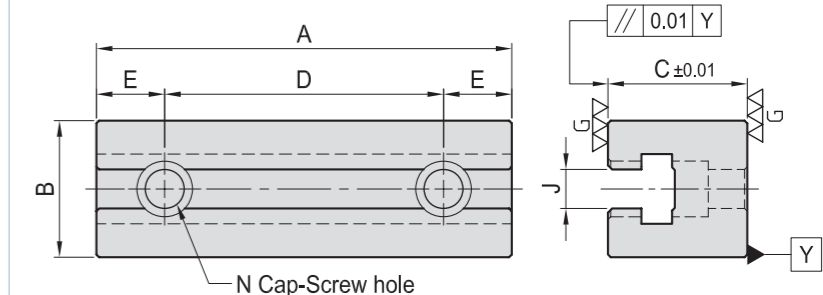


- Material : S45C
- Heat treated : HRC 45°.

MODEL NO.	W	H	L	kg	MODEL NO.	W	H	L	kg
SU26-0812-100	8	12	100	0.18	SU26-2025-200	20	25	200	1.60
SU26-0815-100		15		0.19	SU26-2030-200		30		1.92
SU26-1015-100	15	0.24	SU26-2040-200	40	2.54				
SU26-1020-100	10	20	100	0.32	SU26-2530-250	25	30	250	3.00
SU26-1025-100		25		0.22	SU26-2540-250		40		3.95
SU26-1215-100	15	0.28	SU26-2550-250	50	4.90				
SU26-1220-100	12	20	100	0.19	SU26-2840-300	28	40	300	5.80
SU26-1225-100		25		0.26	SU26-2850-300		50		6.66
SU26-1620-150	16	20	150	0.38	SU26-3850-300		38		50
SU26-1625-150		25		0.48	SU26-3875-300	75		13.80	
SU26-1630-150		30		1.14					

## SU28

### T SLOT PARALLEL BLOCK



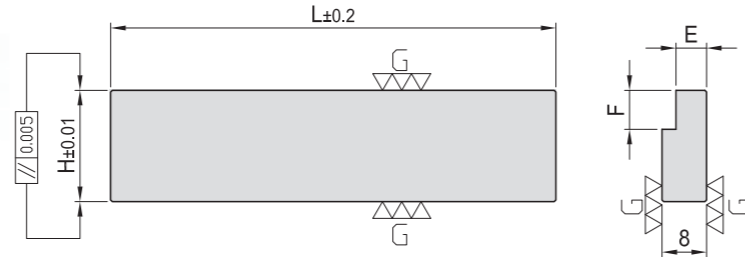
- Material : SCM420
- Heat treated : HRC 60°.
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	D	E	N	J	kg
SU28-5050150-12	149	49	50	100	24.5	M12	14	1.4
SU28-5050200-12	199			150			2.3	
SU28-6060150-16	149	59	60	100	24.5	M16	18	2.3
SU28-6060200-16	199			150			3.5	

# SU29

## HARDENED SLICED PARALLEL

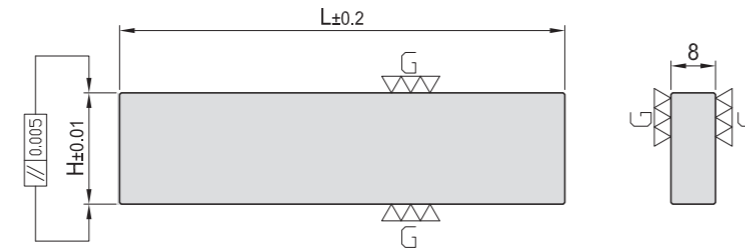
### SU29-S



MODEL NO.	E	F	H	L	kg	MODEL NO.	E	F	H	L	kg	
SU29-125S21	2.5	8	21	125	0.25	SU29-160S50	3.0	10	50	160	0.88	
SU29-125S25			25		0.31	SU29-160S52			52		0.92	
SU29-125S29			29		0.38	SU29-160S54			54		0.96	
SU29-125S30			30		0.39	SU29-160S56			56		1.00	
SU29-125S32			32		0.42	SU29-160S58			58		1.04	
SU29-125S33			33		0.44	SU29-200S40			200		40	0.90
SU29-125S34			34		0.46	SU29-200S45					45	1.03
SU29-125S36			36		0.49	SU29-200S50					50	1.15
SU29-125S37			37		0.50	SU29-200S55					55	1.30
SU29-125S38			38		0.52	SU29-200S58					58	1.42
SU29-160S30	3.0	10	30	160	0.47	SU29-200S60	60	1.35				
SU29-160S35			35		0.58	SU29-200S62	62	1.40				
SU29-160S40			40		0.67	SU29-200S64	64	1.45				
SU29-160S45			45		0.77	SU29-200S66	66	1.50				
SU29-160S48			48		0.84	SU29-200S68	68	1.55				

※ TWO PIECES PER PAIR!

### SU29-F



MODEL NO.	H	L	kg	MODEL NO.	H	L	kg
SU29-160F30	30	160	0.60	SU29-200F40	40	200	1.06
SU29-160F35	35		0.70	SU29-200F45	45		1.09
SU29-160F40	40		0.80	SU29-200F50	50		1.26
SU29-160F45	45		0.90	SU29-200F55	55		1.38
SU29-160F48	48		0.96	SU29-200F58	58		1.46
SU29-160F50	50		1.00	SU29-200F60	60		1.50
SU29-160F52	52		1.04	SU29-200F62	62		1.56
SU29-160F54	54		1.09	SU29-200F64	64		1.61
SU29-160F56	56		1.13	SU29-200F66	66		1.66
SU29-160F58	58		1.17	SU29-200F68	68		1.71

※ TWO PIECES PER PAIR!

- Material : S50C
- Heat treated : HRC 47°~52°.

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

Column  
for  
Technical  
Data



A series of horizontal blue lines for writing, spanning the width of the page.

# AUX PARTS

PT01~PT59



EXTRA NUT  
FLANGE NUT  
KNURLED NUT  
SERRATED BALL END BOLT  
SMOOTH BALL END BOLT

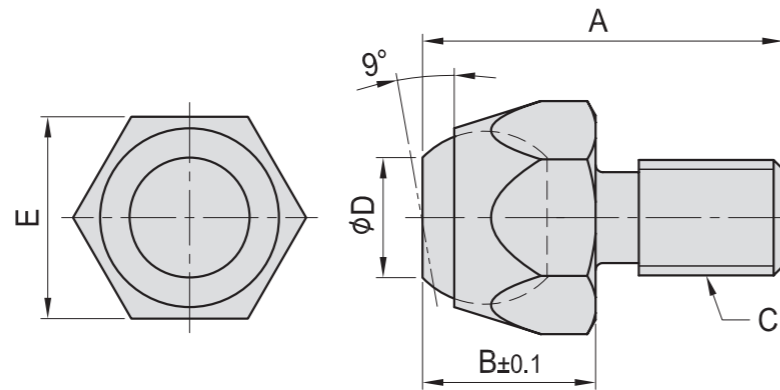
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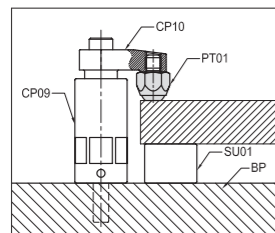
## PT01

### SMOOTH BALL END BOLT

- Material :  
Bolt : S45C(JIS) / CK45(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated :  
Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features : Precision ground top surface.



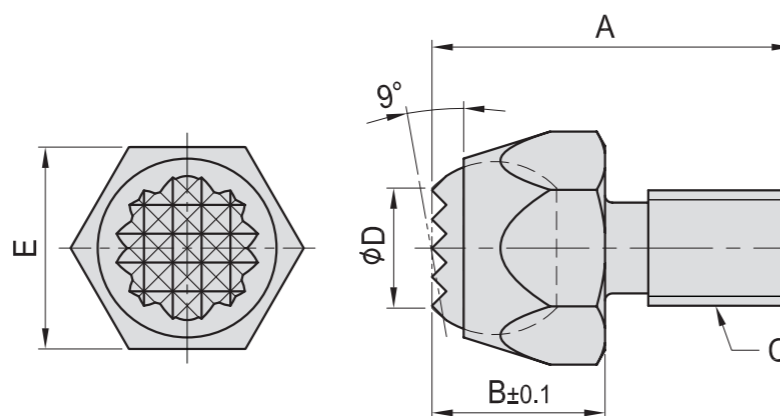
MODEL NO.	A	B	C	D	E	kg
PT01-0610	21	10	M6x1.00	6	10	0.012
PT01-0814	25	12	M8x1.25	8	14	0.015
PT01-1017	30	16	M10x1.50	10	17	0.025
PT01-1222	35	22	M12x1.75	12	22	0.070
PT01-1627	42	26	M16x2.00	14	27	0.140
PT01-2036	55	27	M20x2.50	14	36	0.280
PT01-2436	65	32	M24x2.00	18	36	0.560
PT01-3046	80	35	M30x2.00	21	46	0.880



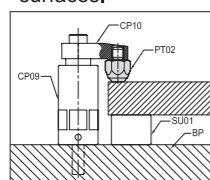
## PT02

### SERRATED BALL END BOLT

- Material :  
Bolt : S45C(JIS) / CK45(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated :  
Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features : serrated gripper is ideal for rough surfaces.



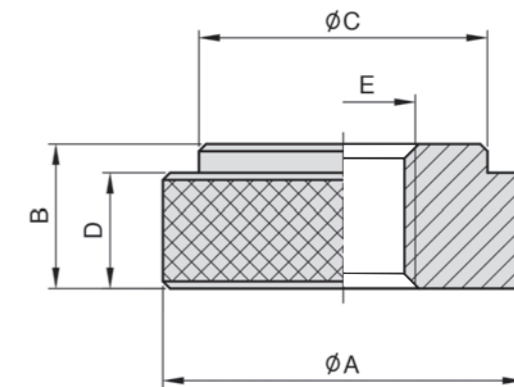
MODEL NO.	A	B	C	D	E	kg
PT02-0610	21	10	M6x1.00	6	10	0.012
PT02-0814	25	12	M8x1.25	8	14	0.015
PT02-1017	30	16	M10x1.50	10	17	0.025
PT02-1222	35	22	M12x1.75	12	22	0.070
PT02-1627	42	26	M16x2.00	14	27	0.140
PT02-2036	55	27	M20x2.50	14	36	0.280
PT02-2436	65	32	M24x2.00	18	36	0.560
PT02-3046	80	35	M30x2.00	21	46	0.880



## PT03

### KNURLED NUT

- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 30°~35°
- Surface finish : Black Oxide.
- Application : use where quick hand assembly is needed.



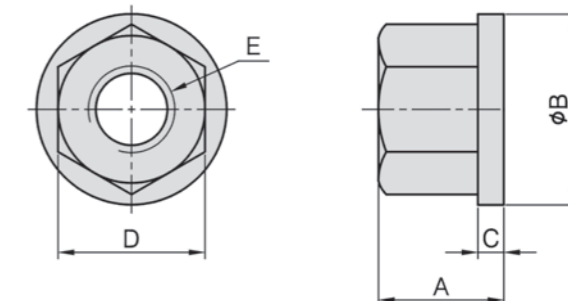
MODEL NO.	A	B	C	D	E	kg
PT03-0820	20	8	16	6	M 8	0.015
PT03-1025	25	10	20	8	M10	0.030
PT03-1228	28	12	24	10	M12	0.040
PT03-1630	30	12	25	10	M16	0.045



## PT04

### FLANGE NUT

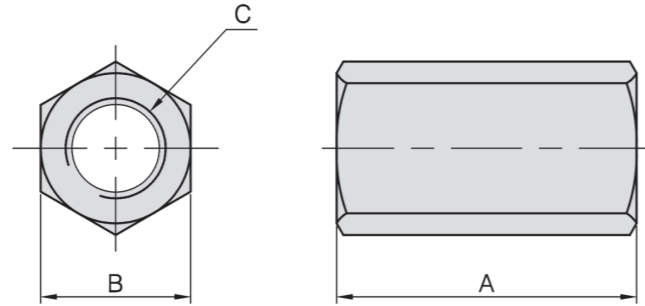
- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 30°~35°
- Surface finish : Black Oxide.



MODEL NO.	A	B	C	D	E	kg
PT04-0812	9	17	3	12	M 8	0.010
PT04-1017	13	22	3	17	M10	0.020
PT04-1219	17	28	4	19	M12	0.040
PT04-1422	17	28	4	22	M14	0.040
PT04-1624	20	32	5	24	M16	0.060
PT04-1827	20	35	5	27	M18	0.070
PT04-2030	25	40	6	30	M20	0.110
PT04-2232	28	45	6	32	M22	0.150
PT04-2436	28	47	6	36	M24	0.185

# PT05

## EXTENSION NUT



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 30°~35°.
- Surface finish : Black Oxide.
- Application : Extends the length of clamping studs.

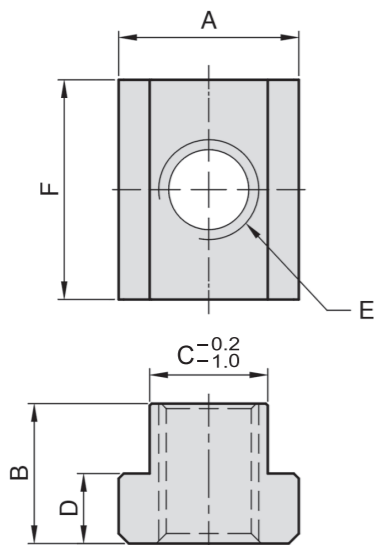
MODEL NO.	A	B	C	kg
PT05-0813	22	14	M 8	0.020
PT05-1017	30	17	M10	0.030
PT05-1219	36	19	M12	0.046
PT05-1422	42	22	M14	0.065
PT05-1624	48	24	M16	0.110
PT05-1827	54	27	M18	0.150
PT05-2030	60	30	M20	0.220
PT05-2232	66	32	M22	0.350
PT05-2436	72	36	M24	0.350

# PT06

## T-SLOT NUT



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 30°~35°
- Surface finish : Black Oxide.



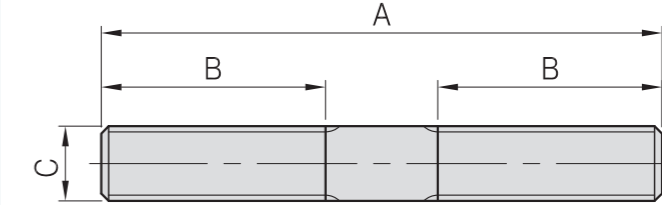
MODEL NO.	A	B	C	D	E	F	kg
PT06-1008	15.0	13.0	10	6.0	M 8	22	0.020
PT06-1210	18.0	14.0	12	7.0	M10		0.022
PT06-1410	22.0	16.0	14	8.0	M10	28	0.050
PT06-1412					M12		0.048
PT06-1612	25.0	16.0	16	8.0	M12	28	0.060
PT06-1614					M14		0.057
PT06-1810	28.0	20.0	18	10.5	M10	30	0.090
PT06-1812					M12		
PT06-1814	28.0	20.0		10.5	M14	30	0.090
PT06-1816					M16		0.085
PT06-2016	32.0	19.0	20	11.9	M16	30	0.098
PT06-2018	32.0	25.0		14.0	M18	38	0.110
PT06-2218	36.0	25.0	22	14.0	M18	38	0.178
PT06-2220					M20		0.190
PT06-2418	38.0	25.0	24	14.0	M18	38	0.184
PT06-2420					M20		0.250
PT06-2620	41.3	25.0	26	15.8	M20	44	0.250
PT06-2622					M22		0.240
PT06-2822	44.0	28.5	28	17.5	M22	50	0.330
PT06-2824					M24		0.312

# PT07

## CLAMPING STUD



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 22°~28°
- Surface finish : Black Oxide.



MODEL NO.	A	B	C	kg
PT07-08050	50	22	M8	0.020
PT07-08075	75			0.030
PT07-08100	100	38	P=1.25	0.040
PT07-08125	125			0.050
PT07-08150	150	50	P=1.25	0.060
PT07-08175	175			0.070
PT07-08200	200			0.080
PT07-08250	250			0.098
PT07-10050	50	22	M10	0.030
PT07-10075	75	30		0.042
PT07-10100	100	38		0.055
PT07-10125	125		0.070	
PT07-10150	150	50	P=1.5	0.090
PT07-10175	175			0.108
PT07-10200	200			0.123
PT07-10250	250			0.154
PT07-12050	50	22	M12	0.040
PT07-12075	75	30		0.060
PT07-12100	100	38		0.080
PT07-12125	125		0.100	
PT07-12150	150	50	P=1.75	0.125
PT07-12175	175			0.155
PT07-12200	200	65	M14	0.160
PT07-12300	300	80		0.240
PT07-14050	50	22		M14
PT07-14075	75	30	0.090	
PT07-14100	100	38	0.120	
PT07-14125	125		0.150	
PT07-14150	150	50	P=2.0	0.180
PT07-14175	175			0.210
PT07-14200	200	65	M16	0.240
PT07-16050	50	22		0.078
PT07-16075	75	30		0.120
PT07-16100	100	38	P=2.0	0.145
PT07-16125	125			0.180
PT07-16150	150	50		0.230
PT07-16175	175		0.276	
PT07-16200	200	65	P=2.0	0.290
PT07-16250	250			0.350
PT07-16300	300	80	M16	0.450
PT07-16400	400	100		0.580
PT07-16500	500			0.700

MODEL NO.	A	B	C	kg
PT07-18050	50	22	M18	0.100
PT07-18075	75	30		0.150
PT07-18100	100	38	P=2.5	0.200
PT07-18125	125			0.220
PT07-18150	150	50	P=2.5	0.300
PT07-18175	175			0.320
PT07-18200	200	65	M20	0.360
PT07-18300	300	80		0.600
PT07-20050	50	22		M20
PT07-20075	75	30	0.170	
PT07-20100	100	38	P=2.5	0.230
PT07-20125	125			0.275
PT07-20150	150	50	P=2.5	0.360
PT07-20175	175			0.437
PT07-20200	200	65	M22	0.450
PT07-20250	250	80		0.550
PT07-20300	300	80		0.700
PT07-20400	400	100	P=2.5	0.880
PT07-20500	500			1.100
PT07-22050	50	22	M22	0.150
PT07-22075	75	30		0.223
PT07-22100	100	38	P=2.5	0.300
PT07-22125	125			0.373
PT07-22150	150	50	P=2.5	0.448
PT07-22175	175			0.522
PT07-22200	200	65	M24	0.597
PT07-22250	250	80		0.746
PT07-22300	300	80		0.895
PT07-22400	400	100	P=3.0	1.194
PT07-22500	500			1.492
PT07-24050	50	22	M24	0.177
PT07-24075	75	30		0.266
PT07-24100	100	38	P=3.0	0.355
PT07-24125	125			0.443
PT07-24150	150	50	P=3.0	0.533
PT07-24175	175			0.620
PT07-24200	200	65	M24	0.710
PT07-24250	250	80		0.880
PT07-24300	300	80		1.065
PT07-24400	400	100	P=3.0	1.420
PT07-24500	500			1.775

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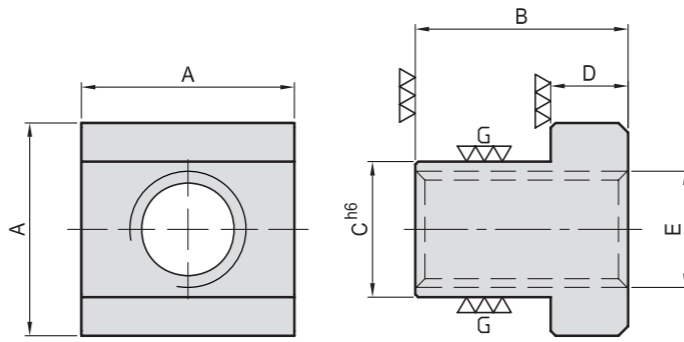


## PT08

### T-SLOT NUT(GROUND)



- Material : S45C(JIS) / CK45(DIN)
- Heat treated : HRC 30°~35°
- Application : Ground surfaces provide accurate positioning inside of t-slot.



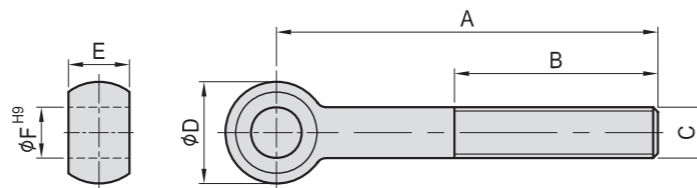
MODEL NO.	A	B	C	D	E	kg
PT08-1214	22	22	14	8	M12	0.045
PT08-1618	28	30	18	10	M16	0.080

## PT09

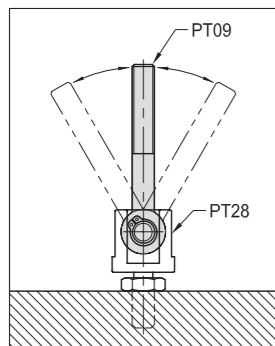
### EYEBOLT



- Material : SCM220(JIS)
- Heat treated : HRC 30°~35°
- Surface finish : Black Oxide.
- Application : use with PT28 to build custom clamping components.
- Features : Reamed hole for smooth swiveling.



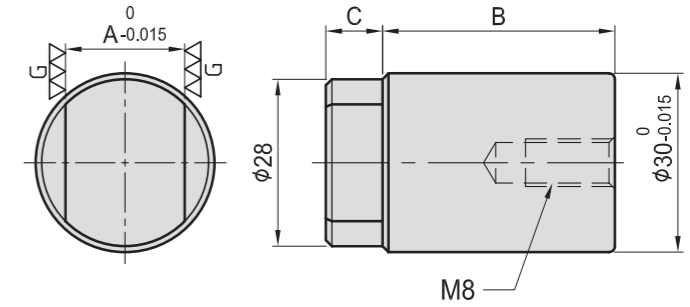
MODEL NO.	A	B	C	D	E	F	kg
PT09-10075	75	40	M10	20	12	10	0.060
PT09-10100	100						0.080
PT09-12075	75	50	M12	25	14	12	0.095
PT09-12100	100						0.120
PT09-16125	125	60	M16	32	17	16	0.250
PT09-16150	150						0.300
PT09-20125	125	60	M20	40	22	20	0.400
PT09-20150	150						0.485



- Material : SCM440(JIS) / 34CrMo4(DIN)
- Heat treated : HRC 45°
- Application : Multipurpose locating key.

## PT10

### LOCATING KEY



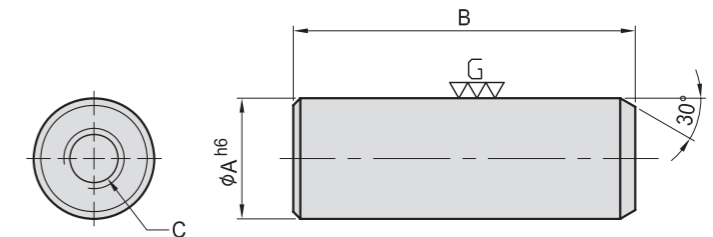
MODEL NO.	A	B	C	kg
PT10-1410	14	49	10.0	0.032
PT10-1815	18		15.0	0.033
PT10-2009	20	39	9.5	0.028
PT10-2010	20	49	10.0	0.033
PT10-2015			15.0	0.034

## PT11

### THREADED DOWEL PINS



- Material : SCM440(JIS) / 34CrMo4(DIN)
- Heat treated : HRC 45°
- Application : Threaded end makes removal easy.



MODEL NO.	A	B	C	kg
PT11-0825	8	25	M4	0.010
PT11-1030	10	30	M5	0.015
PT11-1234	12	34	M6	0.030
PT11-1642	16	42		0.060
PT11-2047	20	47	M8	0.100
PT11-2549	25	49		0.160

# PT12

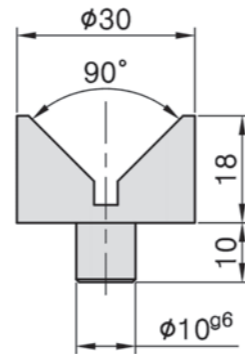
## JACK SCREW TIP

- Material : SCM440(JIS) / 42CrMo4(DIN)
- Heat treated : HRC 60°
- Surface finish : Black Oxide.
- Application : Multipurpose support tip, use with SU11.

PT12A-3028



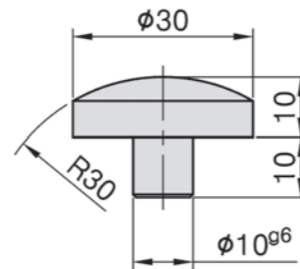
NW : 70g



PT12B-3020



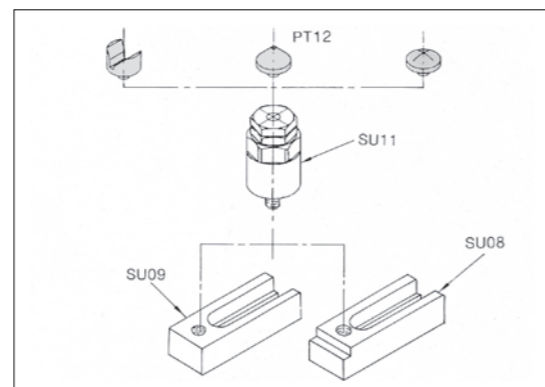
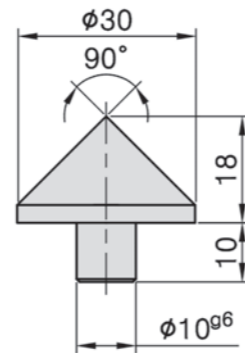
NW : 50g



PT12C-3028



NW : 60g



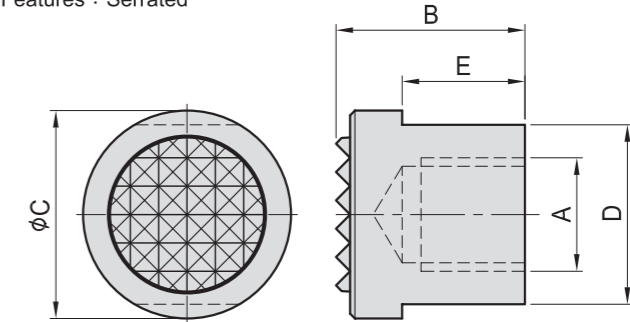
PT13 SERRATED END



# PT13-15

## GRIPPER NUT

- Material : S45C(JIS)
- Surface finish : Black Oxide.
- Application : Use for supporting workpiece.
- Features : Serrated



Tooth plate

- Material : SKH9(JIS)S18-1-2-5(DIN)
- Heat treated : HRC 60°
- Surface finish : Black Oxide.

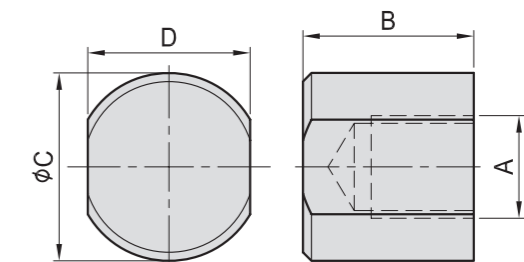
MODEL NO.	A	B	C	D	E	kg
PT13-1220	M12	20	22	19	13	0.043
PT13-1625	M16	25	28	24	16	0.080

Tooth plate

- Material : Extremely hard.
- Surface finish : Black Oxide.

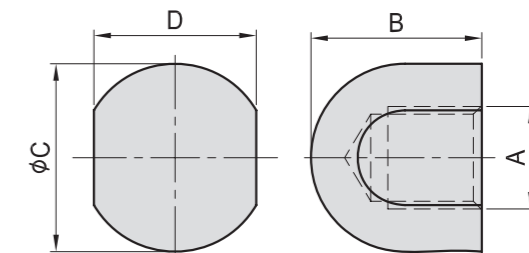
MODEL NO.	A	B	C	D	E	kg
PT13-1220-K	M12	20	22	19	13	0.043
PT13-1625-K	M16	25	28	24	16	0.080

PT14 FLAT END



MODEL NO.	A	B	C	D	kg
PT14-1220	M12	20	22	19	0.043
PT14-1625	M16	25	28	24	0.076

PT15 ROUND END



MODEL NO.	A	B	C	D	kg
PT15-1220	M12	20	22	19	0.042
PT15-1625	M16	25	28	24	0.063

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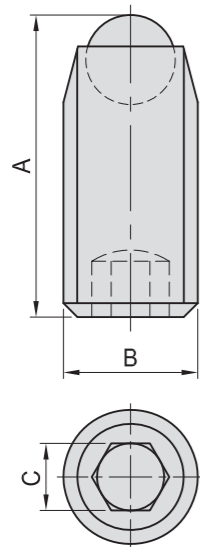
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# PT16

## PT16A ROUND END

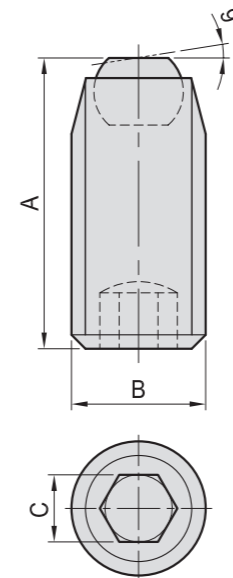


- Material :  
Bolt : SCM435(JIS) / 34CrMo4(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated :  
Bolt : HRC 28°~32°.  
Ball : HRC 62°.
- Surface finish : Black Oxide.
- Application : Ideal for clamping odd shaped work pieces.
- Features : Available with : Flat end, round end, serrated end, less chance of deforming the work piece due the rounded tip.

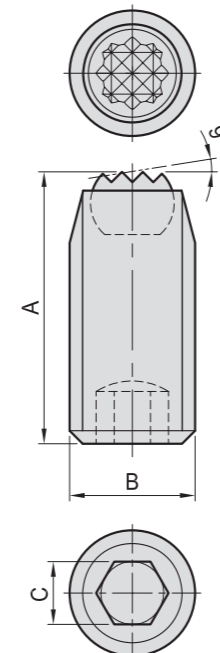
## SWIVEL CLAMPING SCREW

MODEL NO.	A	B	C	max (KN)	g
PT16A-0408	8.0	M4	2	4	0.6
PT16A-0410	10.0				0.7
PT16A-0412	12.0				0.8
PT16A-0416	16.0				1.1
PT16A-0510	10.0	M5	2.5	5	1.0
PT16A-0512	12.0				1.3
PT16A-0516	16.0				1.7
PT16A-0520	20.0				2.3
PT16A-0525	25.0				2.9
PT16A-0610	10.8	M6	3	9	1.5
PT16A-0615	13.5				2.4
PT16A-0616	16.8				2.4
PT16A-0620	20.8				3.0
PT16A-0625	23.5				3.8
PT16A-0812	12.0	M8	4	15	3.2
PT16A-0816	17.2				4.1
PT16A-0820	20.0				5.8
PT16A-0825	26.2				7.3
PT16A-0830	30.0				9.0
PT16A-1014	15.0	M10	5	20	5.0
PT16A-1015	16.0				6.7
PT16A-1020	21.0				8.7
PT16A-1025	26.0				11.2
PT16A-1030	31.0				13.7
PT16A-1035	36.0	16.2			
PT16A-1040	41.0				18.7
PT16A-1218	18.2	M12	6	30	10.0
PT16A-1220	23.2				12.5
PT16A-1230	31.2				20.0
PT16A-1240	41.2				30.0
PT16A-1250	51.2				40.0
PT16A-1625	25.6	M16	8	60	28.0
PT16A-1635	35.6				40.0
PT16A-1645	45.6				45.0
PT16A-1655	55.6				55.0
PT16A-1665	65.6				65.0
PT16A-2030	32.0	M20	10	90	54.0
PT16A-2040	42.0				74.0
PT16A-2050	52.0				94.0
PT16A-2060	62.0				120.0
PT16A-2090	92.0				170.0
PT16A-2435	37.0	M24	12	120	90.0
PT16A-2450	52.0				130.0
PT16A-2480	82.0				235.0

## PT16B FLAT END



## PT16C SERRATED END



MODEL NO.	MODEL NO.	A	B	C	max (KN)	g
PT16B-0610	PT16C-0610	10.3	M6	3	9	1.5
PT16B-0615	PT16C-0615	13.0				2.4
PT16B-0616	PT16C-0616	16.3				2.4
PT16B-0620	PT16C-0620	20.3				3.0
PT16B-0625	PT16C-0625	23.0				3.8
PT16B-0812	PT16C-0812	11.2	M8	4	15	3.2
PT16B-0816	PT16C-0816	16.4				4.1
PT16B-0820	PT16C-0820	19.2				5.8
PT16B-0825	PT16C-0825	25.4				7.3
PT16B-0830	PT16C-0830	29.2				9.0
PT16B-1014	PT16C-1014	14.0	M10	5	20	5.0
PT16B-1015	PT16C-1015	15.0				6.7
PT16B-1020	PT16C-1020	20.0				8.7
PT16B-1025	PT16C-1025	25.0				11.2
PT16B-1030	PT16C-1030	30.0				13.7
PT16B-1035	PT16C-1035	35.0	16.2			
PT16B-1040	PT16C-1040	40.0				18.7
PT16B-1218	PT16C-1218	17.0	M12	6	30	10.0
PT16B-1220	PT16C-1220	22.0				12.5
PT16B-1230	PT16C-1230	30.0				20.0
PT16B-1240	PT16C-1240	40.0				30.0
PT16B-1250	PT16C-1250	50.0				40.0
PT16B-1625	PT16C-1625	24.0	M16	8	60	28.0
PT16B-1635	PT16C-1635	34.0				40.0
PT16B-1645	PT16C-1645	44.0				45.0
PT16B-1655	PT16C-1655	54.0				55.0
PT16B-1665	PT16C-1665	64.0				65.0
PT16B-2030	PT16C-2030	30.0	M20	10	90	54.0
PT16B-2040	PT16C-2040	40.0				74.0
PT16B-2050	PT16C-2050	50.0				94.0
PT16B-2060	PT16C-2060	60.0				120.0
PT16B-2090	PT16C-2090	90.0				170.0
PT16B-2435	PT16C-2435	35.0	M24	12	120	90.0
PT16B-2450	PT16C-2450	50.0				130.0
PT16B-2480	PT16C-2480	80.0				235.0

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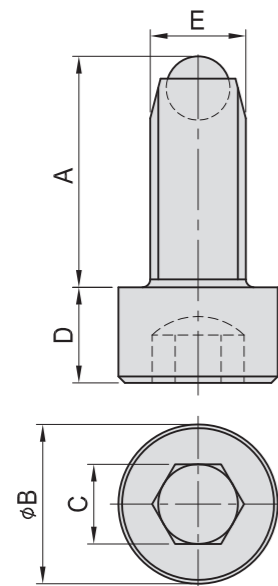
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# PT17

## SWIVEL SHOULDER CLAMPING SCREW

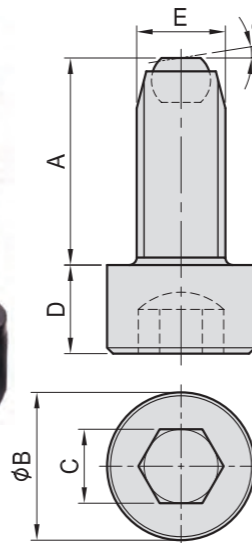
### PT17A ROUND END



MODEL NO.	A	B	C	D	E	max (KN)	g
PT17A-0615	14.5						5.3
PT17A-0625	23.5	10	5	6	M 6	9	7.4
PT17A-0635	33.5						9.5
PT17A-0820	18.7						13.5
PT17A-0830	28.7	13	6	8	M 8	15	20.0
PT17A-0840	38.7						24.0
PT17A-0850	50.7						30.0
PT17A-1025	25.0						26.0
PT17A-1040	40.0	16	8	10	M10	20	34.0
PT17A-1060	60.0						46.0
PT17A-1230	31.2						40.0
PT17A-1245	46.2	18	10	12	M12	30	50.0
PT17A-1265	66.2						70.0
PT17A-1280	81.2						83.0
PT17A-1640	40.6						90.0
PT17A-1650	50.6	24	14	16	M16	60	110.0
PT17A-1665	65.6						130.0
PT17A-1690	90.6						170.0
PT17A-20050	52.0						185.1
PT17A-20080	82.0	30	17	20	M20	90	256.4
PT17A-20100	102.0						301.2
PT17A-24060	62.0						324.8
PT17A-24090	92.0	36	19	24	M24	120	283.5
PT17A-24120	122.0						351.0

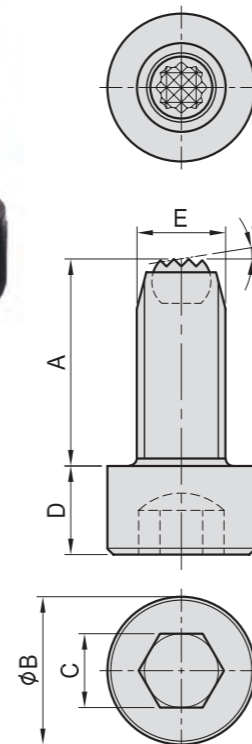
- Material :  
Bolt : SCM435(JIS) / 34CrMo4(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated :  
Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Support or clamp the work piece.
- Features : Available with : Flat end, round end, serrated end, less chance of deforming the work piece due the rounded tip.

### PT17B FLAT END



MODEL NO.	A	B	C	D	E	max (KN)	g
PT17B-0615	14						5.3
PT17B-0625	23	10	5	6	M 6	9	7.4
PT17B-0635	33						9.5
PT17B-0820	18						13.5
PT17B-0830	28	13	6	8	M 8	15	20.0
PT17B-0840	38						24.0
PT17B-0850	50						30.0
PT17B-1025	24						26.0
PT17B-1040	39	16	8	10	M10	20	34.0
PT17B-1060	59						46.0
PT17B-1230	30						40.0
PT17B-1245	45	18	10	12	M12	30	50.0
PT17B-1265	65						70.0
PT17B-1280	80						83.0
PT17B-1640	39						90.0
PT17B-1650	49	24	14	16	M16	60	110.0
PT17B-1665	64						130.0
PT17B-1690	89						170.0
PT17B-20050	50						185.1
PT17B-20080	80	30	17	20	M20	90	256.4
PT17B-20100	100						301.2
PT17B-24060	60						324.8
PT17B-24090	90	36	19	24	M24	120	283.5
PT17B-24120	120						351.0

### PT17C SERRATED END



MODEL NO.	A	B	C	D	E	max (KN)	g
PT17C-0615	14						5.3
PT17C-0625	23	10	5	6	M 6	9	7.4
PT17C-0635	33						9.5
PT17C-0820	18						13.5
PT17C-0830	28	13	6	8	M 8	15	20.0
PT17C-0840	38						24.0
PT17C-0850	50						30.0
PT17C-1025	24						26.0
PT17C-1040	39	16	8	10	M10	20	34.0
PT17C-1060	59						46.0
PT17C-1230	30						40.0
PT17C-1245	45	18	10	12	M12	30	50.0
PT17C-1265	65						70.0
PT17C-1280	80						83.0
PT17C-1640	39						90.0
PT17C-1650	49	24	14	16	M16	60	110.0
PT17C-1665	64						130.0
PT17C-1690	89						170.0
PT17C-20050	50						185.1
PT17C-20080	80	30	17	20	M20	90	256.4
PT17C-20100	100						301.2
PT17C-24060	60						324.8
PT17C-24090	90	36	19	24	M24	120	283.5
PT17C-24120	120						351.0

BP

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Data

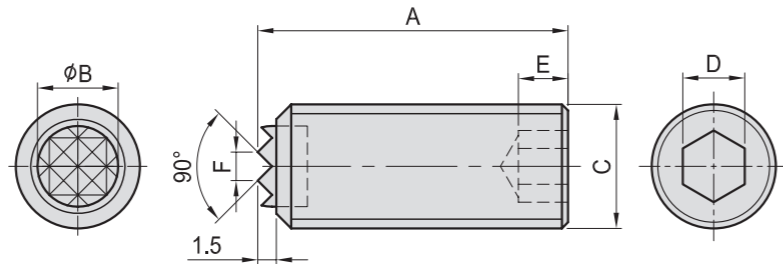
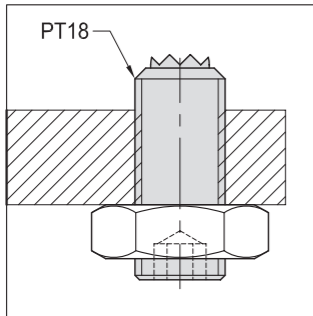


## PT18

### GRIPPER SCREW



- Material : SCM435(JIS) / 34CrMo4(DIN)
- Heat treated : HRC 32°~38°
- Serrated surface to be heat treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Multipurpose work support and clamping unit, ideal for rough parts.
- Features : Excellent holding power from the serrated face.



MODEL NO.	A	B	C	D	E	F	kg
PT18-1025	25	6.5	M10	5	4	2.3	0.015
PT18-1050	50						0.030
PT18-1225	25	8.0	M12	6	5	2.3	0.022
PT18-1250	50						0.045
PT18-1625	25	11.5	M16	8	6	3.0	0.038
PT18-1650	50						0.078
PT18-2025	25	13.0	M20	10	8	3.0	0.058
PT18-2050	50						0.120

Tooth plate

- Material : SKH9(JIS) S18-1-2-5(DIN)
- Heat treated : HRC 60°

MODEL NO.	A	B	C	D	E	F	kg
PT18-1025-K	25	6.5	M10	5	4	2.3	0.015
PT18-1050-K	50						0.030
PT18-1225-K	25	8.0	M12	6	5	2.3	0.022
PT18-1250-K	50						0.045
PT18-1625-K	25	11.5	M16	8	6	3.0	0.038
PT18-1650-K	50						0.078
PT18-2025-K	25	13.0	M20	10	8	3.0	0.058
PT18-2050-K	50						0.120

Tooth plate

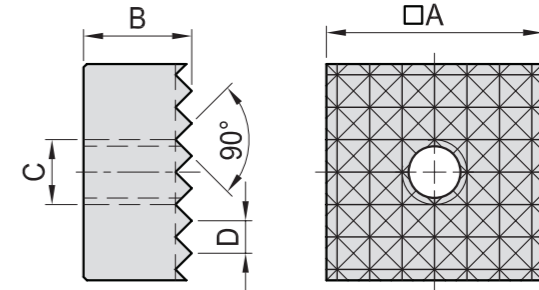
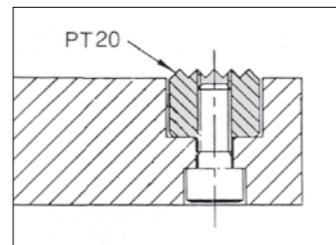
- Material : extremely hard

## PT20

### GRIPPER PAD(SQUARE)



- Material : SKH9(JIS)/S18-1-2-5(DIN)
- Heat treated : HRC 60°
- Surface finish : Black Oxide.
- Application : Multipurpose work support and clamping unit, ideal for rough parts.



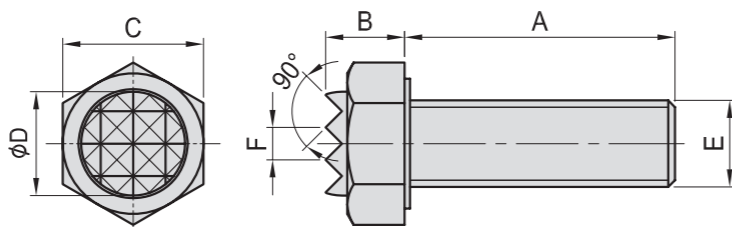
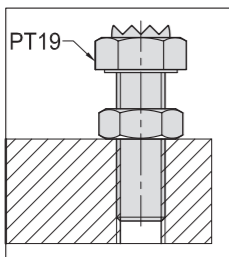
MODEL NO.	A	B	C	D	kg
PT20-1010	10	10	M5	2.3	0.008
PT20-1210	12	10	M6	3.0	0.010
PT20-2010	20				0.030
PT20-2510	25				0.043

## PT19

### GRIPPER SCREW



- Material : SCM435(JIS) / 34CrMo4(DIN)
- Heat treated : HRC 32°~38°
- Serrated surface to be heat treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Multipurpose work support and clamping unit, ideal for rough parts.
- Features : Excellent holding power from the serrated face.



MODEL NO.	A	B	C	D	E	F	kg
PT19-061025	25	6.0	10	7.9	M6	2.3	0.008
PT19-081325	25	7.3	13	9.5	M8	3.0	0.015
PT19-101725	25	8.4	17	12.7	M10	3.0	0.030
PT19-101740	40						0.035
PT19-121925	25	9.5	19	15.9	M12	3.0	0.035
PT19-121940	40						0.050
PT19-162435	35	12.0	24	19.1	M16	3.0	0.085
PT19-162450	50						0.100
PT19-203040	40	14.5	30	25.4	M20	3.0	0.160
PT19-203060	60						0.205

Tooth plate

- Material : SKH9(JIS) S18-1-2-5(DIN)
- Heat treated : HRC 60°

MODEL NO.	A	B	C	D	E	F	kg
PT19-061025-K	25	6.0	10	7.9	M6	2.3	0.008
PT19-081325-K	25	7.3	13	9.5	M8	3.0	0.015
PT19-101725-K	25	8.4	17	12.7	M10	3.0	0.030
PT19-101740-K	40						0.035
PT19-121925-K	25	9.5	19	15.9	M12	3.0	0.035
PT19-121940-K	40						0.050
PT19-162435-K	35	12.0	24	19.1	M16	3.0	0.085
PT19-162450-K	50						0.100
PT19-203040-K	40	14.5	30	25.4	M20	3.0	0.160
PT19-203060-K	60						0.205

Tooth plate

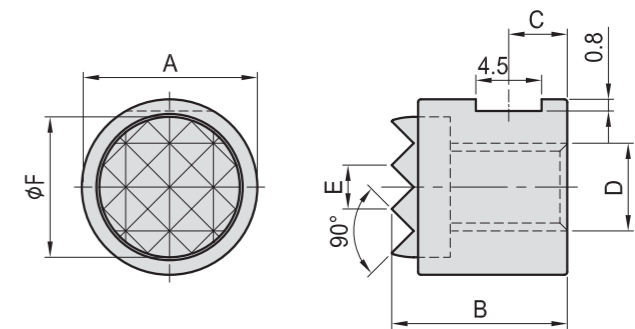
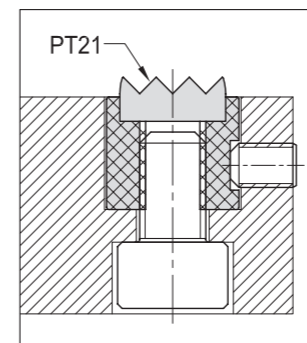
- Material : extremely hard

## PT21

### GRIPPER PAD(ROUND)



- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 33°
- Surface finish : Black Oxide.
- Application : Multipurpose work support and clamping unit, ideal for rough parts.



MODEL NO.	A	B	C	D	E	F	kg
PT21-1010	10	10.0	3.4	M5	2.3	8.1	0.005
PT21-1212	12	12.0	4.0	M6	3.0	9.6	0.008
PT21-1612	16					13.0	0.016
PT21-2012	20					16.3	0.025
PT21-2512	25	19.5	0.040				

Tooth plate

- Material : SKH9(JIS) S18-1-2-5(DIN)
- Heat treated : HRC 60°

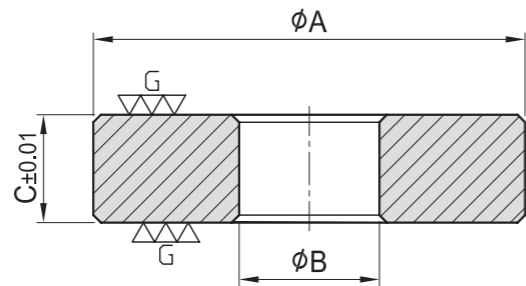
MODEL NO.	A	B	C	D	E	F	kg
PT21-1010-K	10	10.0	3.4	M5	2.3	8.1	0.005
PT21-1212-K	12	12.0	4.0	M6	3.0	9.6	0.008
PT21-1612-K	16					13.0	0.016
PT21-2012-K	20					16.3	0.025
PT21-2512-K	25	19.5	0.040				

Tooth plate

- Material : extremely hard

## PT22

### SPACER

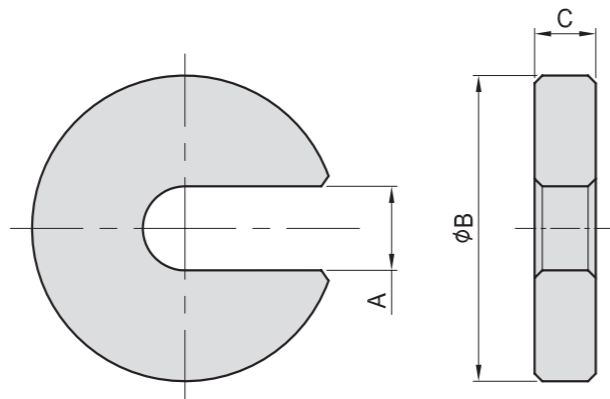


- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 40°
- Application : Use with jig components for increasing height or extending length.

MODEL NO.	A	B	C	kg
PT22-1303	40	13	3	0.030
PT22-1305			5	0.045
PT22-1310			10	0.100
PT22-1330			30	0.300
PT22-1703	50	17	3	0.035
PT22-1705			5	0.070
PT22-1710			10	0.350
PT22-1730			30	0.950

## PT23

### "C" WASHER



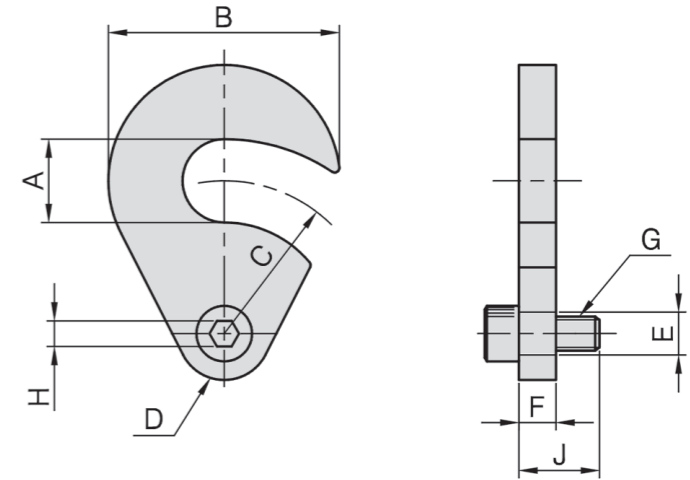
- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 40°
- Surface finish : Black Oxide.
- Application : Use where quick assembly is important.
- Features : Washer that slides in and out of position for clean loading.

MODEL NO.	A	B	C	kg
PT23-0835	9	35	8	0.065
PT23-1040	11	40		0.065
PT23-1255	13	55	10	0.150
PT23-1665	17	65		0.200
PT23-2080	21	80	10	0.300
PT23-2490	25	90	12	0.470



## PT24

### SWING "C" WASHER

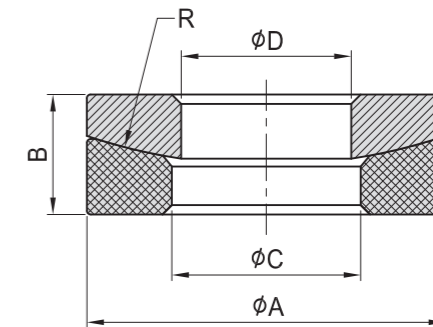


- Material : 4140(JIS)/CK45(DIN)
- Heat treated : HRC 40°
- Surface finish : Black Oxide.
- Application : C washer that swings out of the way for clean loading. Can be reversed to swing into position either clockwise or counter-clockwise.

MODEL NO.	A	B	C	D	E	F	G	H	J	kg
PT24-0632	11.0	32	24	16	8	6	M6	8	15	0.050
PT24-0840	13.5	40	27	20	10	8	M8	10	20	0.090
PT24-0850	18.0	50	33	20	10	8	M8	10	20	0.130

## PT25

### SPHERICAL WASHER



- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 38°
- Surface finish : Black Oxide.
- Application : Two-piece washer that compensates whenever a stud and clamping surface are not exactly perpendicular.

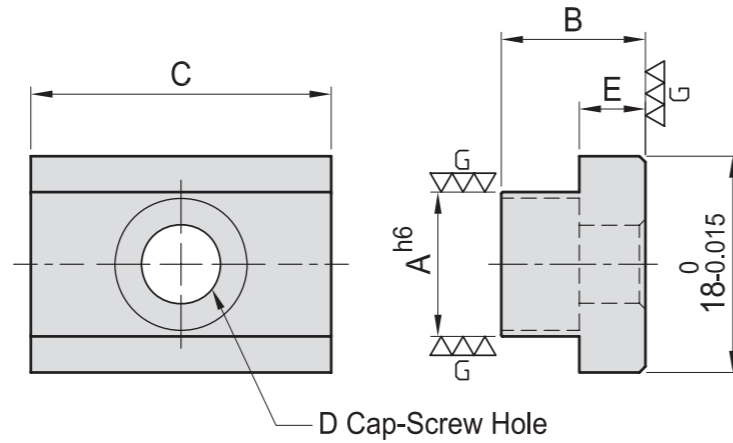
MODEL NO.	A	B	C	D	R	kg
PT25-0819	19	6.2	10	9	30	0.013
PT25-1022	22	8.0	12	11		0.019
PT25-1226	26	7.5	15	13	40	0.024
PT25-1428	28	9.0	16	15		0.033
PT25-1632	32		19	17	0.058	
PT25-1835	35	10.0	20	19	0.050	
PT25-2040	40	11.8	23	21	48	0.089
PT25-2245	45	12.5	26	24		0.110
PT25-2450	50	13.5	28	27	70	0.150

## PT26

### LOCATING KEY



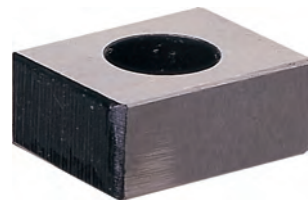
- Material : S45C(JIS)/C105W1(DIN)
- Heat treated : HRC 50°
- Application : Locate & align jig components  
T-slot, ground surface provide accurate placement.



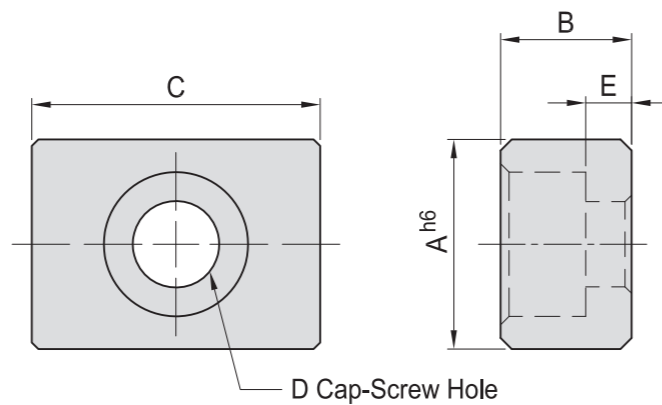
MODEL NO.	A	B	C	D	E	kg
PT26-1812	12	12	25	M6	5.5	0.035
PT26-1814	14					0.040
PT26-1816	16					0.040
PT26-1820	20					0.040
PT26-1822	22					0.040

## PT27

### LOCATING KEY



- Material : S45C(JIS)/C105W1(DIN)
- Heat treated : HRC 45°~50°
- Application : Locate & align jig components  
T-slot, ground surface provide accurate placement.



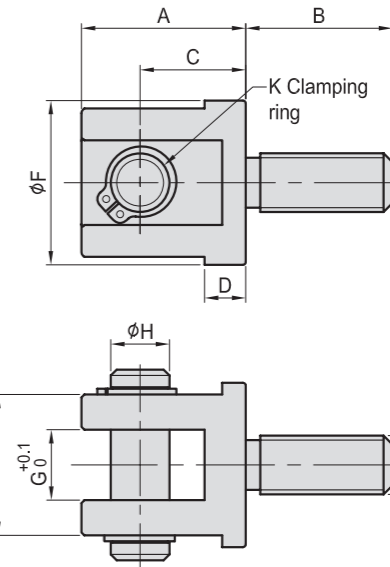
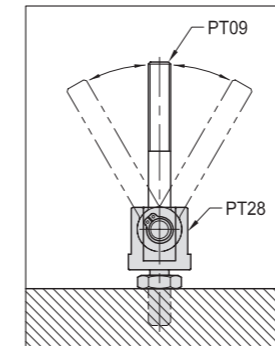
MODEL NO.	A	B	C	D	E	kg
PT27-1008	10	8	20	M4	3.5	0.015
PT27-1208	12			M5	2.5	0.019
PT27-1410	14	10	22	M6	3.5	0.020
PT27-1610	16					0.025
PT27-1810	18					0.025
PT27-2010	20					0.025
PT27-2210	22					0.030

## PT28

### SWIVEL JOINT SUPPORT



- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 32°~38°
- Surface finish : Black Oxide.
- Application : Use with PT09 to build up a swiveling jig.



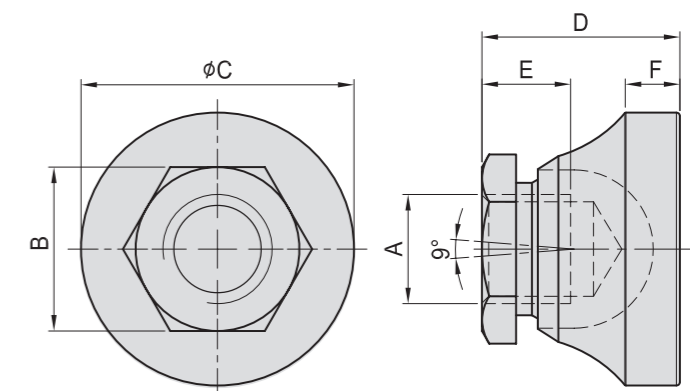
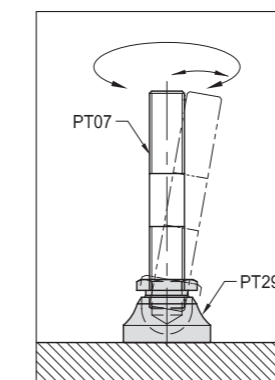
MODEL NO.	A	B	C	D	E	F	G	H	J	K	kg
PT28-1025	28	25	18	7.0	24	28	12	10	M10	10	0.055
PT28-1230	34	30	21	7.5	25	30	14	12	M12	12	0.105
PT28-1640	42	40	26	9.0	34	40	17	16	M16	16	0.210
PT28-2050	52	50	32	11.0	42	50	22	20	M20	20	0.300

## PT29

### SWIVEL PAD



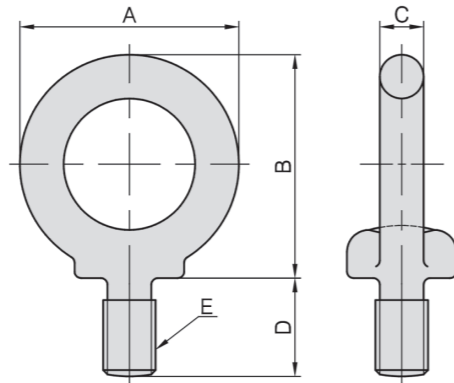
- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 32°~38°
- Surface finish : Black Oxide.
- Application : Use for supporting uneven surfaces.



MODEL NO.	A	B	C	D	E	F	kg
PT29-1219	M12	19	35	24	11	7	0.080
PT29-1624	M16	24	40	29	13	8	0.150
PT29-2029	M20	29	50	40	18	10	0.300

# PT30

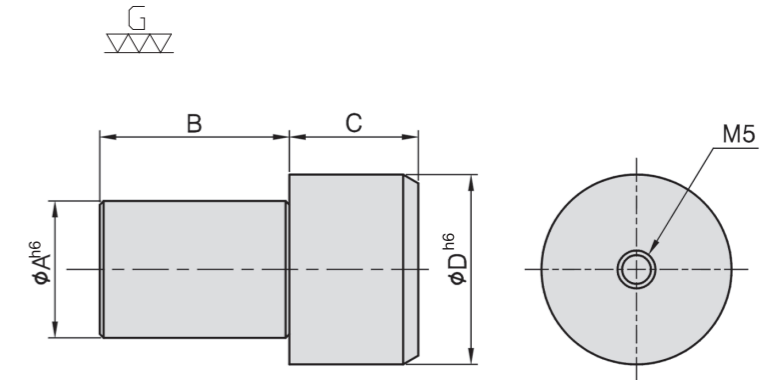
## LIFTING EYEBOLT



MODEL NO.	A	B	C	D	E	Load kg	kg
PT30-08	32.6	33.3	6.3	15	M 8	80	0.032
PT30-10	41.0	41.5	8.0	18	M10	150	0.063
PT30-12	50.0	51.0	10.0	22	M12	220	0.125
PT30-16	60.0	60.0	12.5	27	M16	450	0.216
PT30-20	72.0	71.0	16.0	30	M20	630	0.400
PT30-24	90.0	90.0	20.0	38	M24	950	0.830
PT30-30	110.0	110.0	25.0	45	M30	1500	1.500
PT30-36	133.0	131.5	31.5	55	M36	2300	2.900
PT30-42	151.0	150.5	35.5	65	M42	3400	4.400

# PT32

## SHOULDER DOWEL PIN

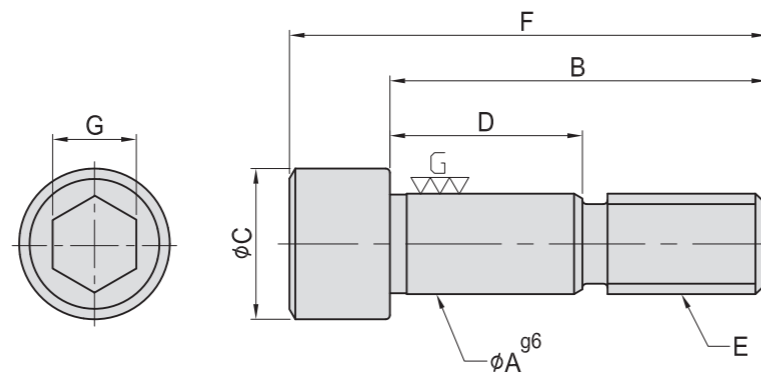


- Material : SCM435(JIS)/34CrMo4(DIN)
- Heat treated : HRC 55°
- Application : Multifunction Positioning.

MODEL NO.	A	B	C	D	kg
PT32-081225	8	13	12	12	0.012
PT32-121632	12	18	14	16	0.032
PT32-142037	14	22	15	20	0.052
PT32-162239	16	22	17	22	0.072
PT32-182542	18	25	17	25	0.098

# PT31

## SHOULDER BOLT

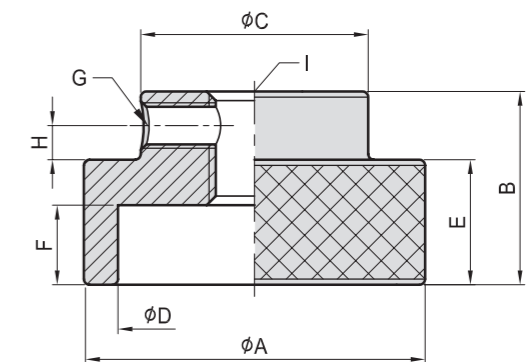


- Material : SCM435(JIS)/34CrMo4(DIN)
- Heat treated : HRC 32°~38°
- Application : Position & fasten this accurately ground bolt.

MODEL NO.	A	B	C	D	E	F	G	kg
PT31-1245	12	45	18	23	M12	57	10	0.053
PT31-1255		55		33		67		0.060
PT31-1265		65		43		77		0.070
PT31-1275	16	75	24	53	M16	87	14	0.078
PT31-1655		55		28		72		0.120
PT31-1665		65		40		82		0.140
PT31-1675		75		50		92		0.150
PT31-1688	88	68	105	0.165				

# PT33

## KNURLED NUT



- Material : S45C(JIS)/CK45(DIN)
- Heat treated : HRC 32°~38°
- Surface finish : Black Oxide.
- Application : Used where quick hand assembly is needed.

MODEL NO.	A	B	C	D	E	F	G	H	I	kg
PT33-0830	30	17	20	24	11	7	M4	3	M8	0.05
PT33-1035	35	20	28	30	13	8	M4	4	M10	0.09
PT33-1240	40	24	32	34	15	10	M5	4	M12	0.12
PT33-1645	45	30	35	38	18	12	M6	5	M16	0.18

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

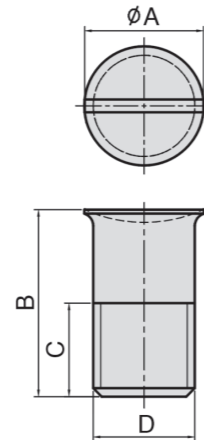
Column  
for  
Technical  
Data



# PT34

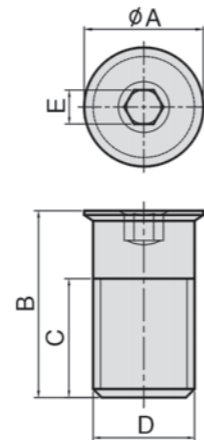
## PROTECTION PLUG

S45C(JIS) / CK45(DIN)



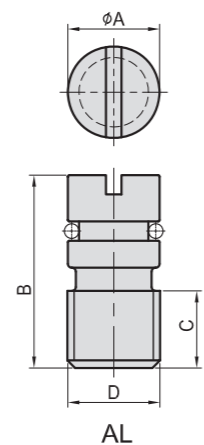
MODEL NO.	A	B	C	D	kg
PT34-10	11	19	10	M10	0.015
PT34-12	14	22	11	M12	0.018
PT34-16	18	25	13	M16	0.035

PBT



MODEL NO.	A	B	C	D	E	kg
PT34-12-PBT	14	22	14	M12	4	0.005
PT34-16-PBT	18	25	11	M16	5	0.010

AL

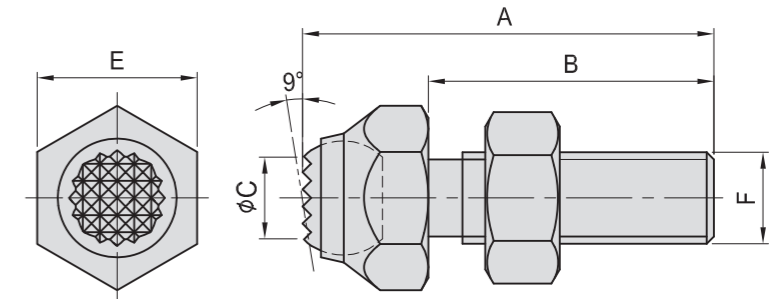


MODEL NO.	A	B	C	D	kg
PT34-12-AL	12	25	10	M12	0.007
PT34-16-AL	16	30	11	M16	0.015

- Material : S45C(JIS) / CK45(DIN) / PBT/AL
- Application : Protect unused MTP holes from Chips & dirt.

# PT35

## SWIVELING JACK SCREW

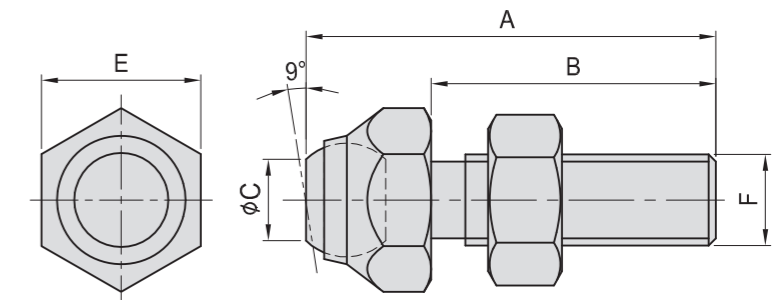


- Material :  
Body : S45C(JIS)  
Ball : SUJ2(JIS)
- Heat treated :  
Body : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	E	F	kg
PT35-0814	36	25	7	14	M8x1.25	0.025
PT35-1017	45	30	8	17	M10x1.50	0.055
PT35-1217	50	35	10	17	M12x1.75	0.055
PT35-1624	60	40	12	24	M16x2.00	0.140
PT35-2036	87	60	14	36	M20x2.50	0.330
PT35-2436	98	66	18	36	M24x2.00	0.660
PT35-3046	110	75	21	46	M30x2.00	1.100

# PT36

## SWIVELING JACK SCREW



- Material :  
Body : S45C(JIS)  
Ball : SUJ2(JIS)
- Heat treated :  
Body : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	E	F	kg
PT36-0814	36	25	7	14	M8x1.25	0.025
PT36-1017	45	30	8	17	M10x1.50	0.055
PT36-1217	50	35	10	17	M12x1.75	0.055
PT36-1624	60	40	12	24	M16x2.00	0.140
PT36-2036	87	60	14	36	M20x2.50	0.330
PT36-2436	98	66	18	36	M24x2.00	0.660
PT36-3046	110	75	21	46	M30x2.00	1.100

BP

BPA

BC

CP

SU

PT

SVF

ALV

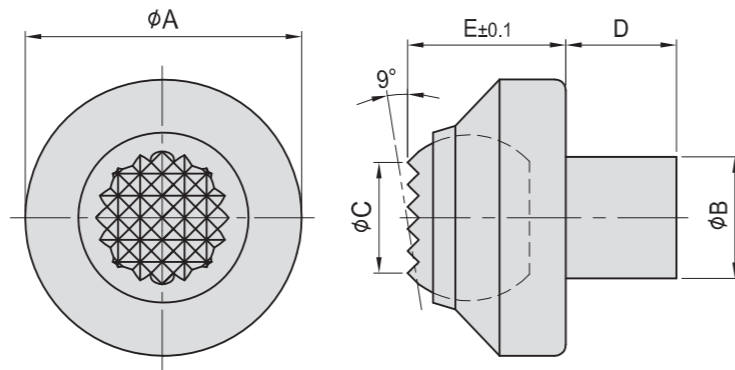
OK-  
VISE

OTHER

Column  
for  
Technical  
Data

## PT37

### SWIVEL REST TIP



- Material :  
Body : S45C(JIS)  
Ball : SUJ2(JIS)
- Heat treated :  
Body : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.

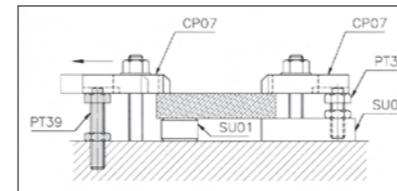
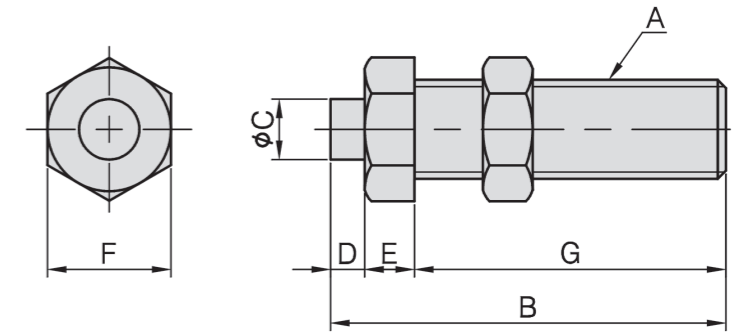
MODEL NO.	A	B	C	D	E	kg
PT37-1116	25	11	10	10	14.3	0.03
PT37-1118	30	11	12	10	18.0	0.04

## PT39

### CLAMP REST



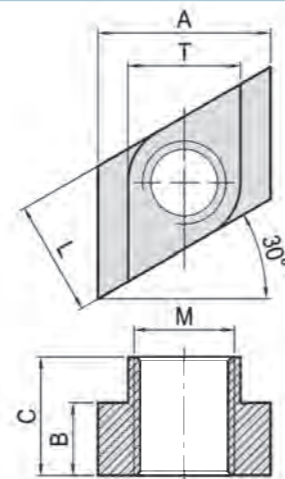
- Material : S45C(JIS)
- Heat treated : HRC 35°
- Surface Finish : Black Oxide.



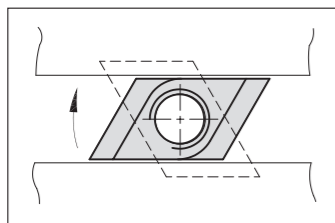
MODEL NO.	A	B	C	D	E	F	G	kg
PT39-1219	M12	75	9.5	6	9	19	60	0.09
PT39-1624	M16	80	11.0	7	10	24	63	0.17
PT39-2030	M20	100	12.0	8	12	30	80	0.35

## PT38

### ROTARY T-SLOT NUT



- Material : S45C(JIS)
- Heat treated : HRC 30°~35°
- Surface Finish : Black Oxide.



MODEL NO.	T	A	B	C	L	M	kg
PT38-1210	11.7	17.5	5.5	12.7	11.5	M10	0.010
PT38-1412	13.8	22.2	8.7	15.8	13.5	M12	0.023
PT38-1614	15.8	25.4	8.7	15.8	15.5	M14	0.030
PT38-1816	17.8	28.5	11.1	19.0	17.5	M16	0.030
PT38-2018	19.7	31.7	11.9	19.0	19.5	M18	0.044
PT38-2220	21.7	36.0	13.8	25.4	21.5	M20	0.062
PT38-2420	23.5	38.2	14.0	25.4	23.5	M20	0.092
PT38-2824	26.9	41.3	17.5	28.5	27.5	M24	0.162

BP

BPA

BC

CP

SU

PT

SVF

ALV

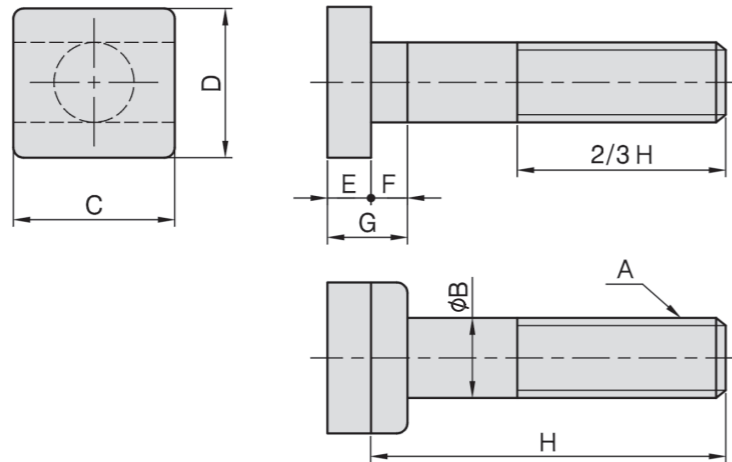
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for  
Technical  
Data

# PT40

## T-SLOT BOLT

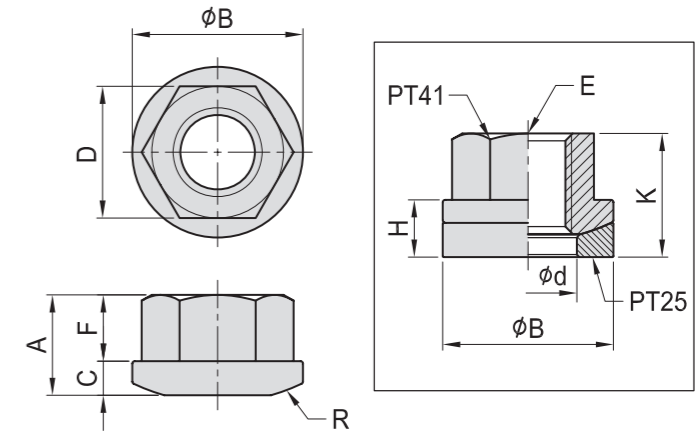


- Material : S45C(JIS)steel forging
- Heat treated : HRC 32°~38°
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	D	E	F	G	H	kg
PT40-12050								50	0.054
PT40-12075								75	0.057
PT40-12100								100	0.110
PT40-12125	M12	12	26	22	7	6	13	125	0.125
PT40-12150								150	0.140
PT40-12175								175	0.170
PT40-12200								200	0.185
PT40-16050								50	0.130
PT40-16075								75	0.160
PT40-16100								100	0.200
PT40-16125	M16	16	32	27	8	8	16	125	0.230
PT40-16150								150	0.270
PT40-16175								175	0.305
PT40-16200								200	0.325
PT40-18075								75	0.270
PT40-18100								100	0.320
PT40-18125	M18	18	40	30	11	11	22	125	0.340
PT40-18150								150	0.385
PT40-18175								175	0.445
PT40-18200								200	0.490
PT40-20075								75	0.290
PT40-20100								100	0.350
PT40-20125								125	0.400
PT40-20150	M20	20	40	30	11	11	22	150	0.455
PT40-20175								175	0.505
PT40-20200								200	0.560
PT40-20250								250	0.660
PT40-20315								315	1.000
PT40-22100								100	0.450
PT40-22125	M22	22	40	38	14	13	27	125	0.510
PT40-22150								150	0.580
PT40-22175								175	0.635
PT40-22200								200	0.700
PT40-24100								100	0.650
PT40-24125	M24	24	50	44	16	15	31	125	0.690
PT40-24150								150	0.775
PT40-24175								175	0.855
PT40-24200								200	0.925

# PT41

## SWIVEL FLANGE NUTS

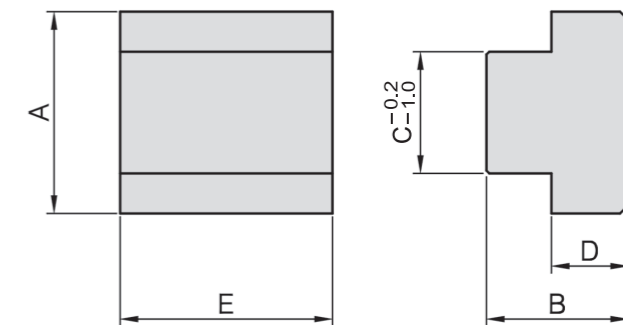


- Material : S45C(JIS)
- Heat treated : HRC 32°~35°
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	D	d	E	F	H	K	R	kg
PT41-0813	12.0	19	3.0	13	10	M8	7.8	7	15.0	30	0.021
PT41-1017	13.0	22		17	12	M10	8.4	8	16.5		0.032
PT41-1219	14.3	26	4.0	19	15	M12	9.0	10	19.0	32	0.046
PT41-1422	17.5	28	4.5	22	16	M14	11.4	11	22.0	40	0.066
PT41-1624	20.0	32		24	19	M16	12.8		23.8		0.103
PT41-1827	20.6	35	6.0	27	20	M18	13.6	12	25.5		0.106
PT41-2030	25.0	40		30	23	M20	16.6	14	31.0	48	0.183
PT41-2232	25.4	45	6.0	32	26	M22	16.9	15	31.5	70	0.210
PT41-2436	28.0	50		36	28	M24	18.7		33.5		0.270

# PT42

## T-SLOT NUT-BLANK

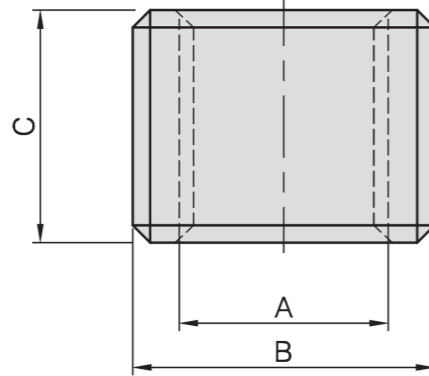


- Material : S45C(JIS)
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	D	E	kg
PT42-1022	15.8	12.7	10	4.7	22	0.026
PT42-1222	17.5		12	5.5		0.032
PT42-1428	22.2	15.8	14	8.7	28	0.064
PT42-1628	25.4		16	8.7		0.073
PT42-1830	28.5	19.0	18	11.1	30	0.112
PT42-2030	31.7		20	11.9		0.128
PT42-2238	36.0	25.0	22	13.8	38	0.223
PT42-2438	38.2		24	14.0		0.239
PT42-2644	41.3	25.0	26	15.8	44	0.309
PT42-2850	44.0	28.5	28	17.5	50	0.403

# PT43

## THREADED INSERT

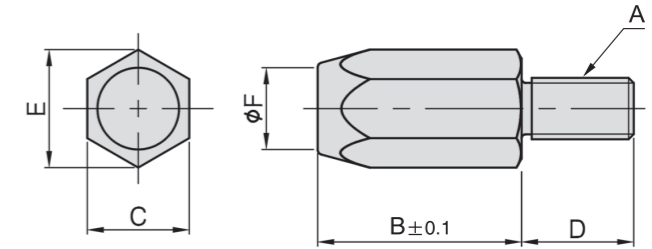


- Material : S45C(JIS)
- Heat treated : HRC 32°~35°
- Surface finish : Black Oxide.

MODEL NO.	A	B	C	kg
PT43-0612-10	M6x1.00	M12x1.5	10	0.005
PT43-0814-12	M8x1.25	M14x1.5	12	0.008
PT43-1016-15	M10x1.50	M16x1.5	15	0.010
PT43-1218-16	M12x1.75	M18x2.0	16	0.015
PT43-1420-18	M14x2.00	M20x2.0	18	0.300
PT43-1622-14	M16x2.00	M22x2.0	14	0.020
PT43-1622-20	M16x2.00	M22x2.0	20	0.025
PT43-2028-25	M20x2.50	M28x2.0	25	0.050

# PT45

## FEET(FLAT END)



- Material : S45C(JIS)
- Surface finish : Black Oxide.
- High frequency quenching.

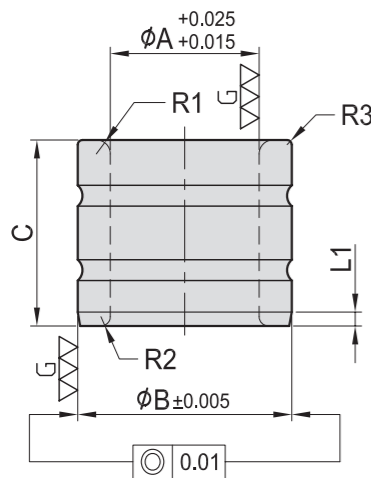
MODEL NO.	A	B	C	D	E	F	kg
PT45-0610	M 6	10	10	11	11.5	8	0.008
PT45-0620		20					0.013
PT45-0815	M 8	15	14	13	16.1	10	0.018
PT45-0830		30					0.033
PT45-1020	M10	20	17	16	19.6	13	0.044
PT45-1040		40					0.080
PT45-1225	M12	25	19	20	21.9	15	0.070
PT45-1250		50					0.126
PT45-1630	M16	30	24	25	27.7	20	0.130
PT45-1660		60					0.230
PT45-2030	M20	30	30	25	34.6	28	0.200
PT45-2060		60					0.360

# PT44

## POSITIONING BUSHING



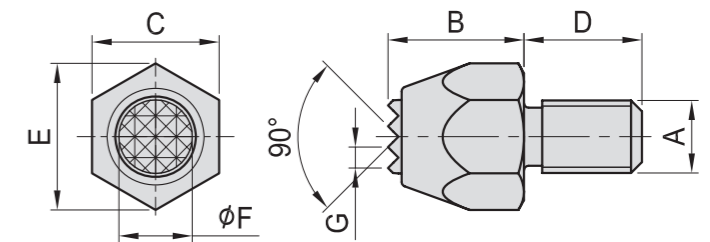
- Material : SUJ2(JIS)
- Heat treated : HRC 60°



MODEL NO.	A	B	C	R1	R2	R3	L1	kg
PT44-0613-10	6	13	10	1.0	0.5	0.5	1.25	0.007
PT44-0815-10	8	15						0.009
PT44-1018-12	10	18	12	1.5	0.5	0.5	1.50	0.015
PT44-1220-12	12	20						0.017
PT44-1423-16	14	23	16	1.5	1.0	0.5	1.50	0.030
PT44-1523-16	15							0.028
PT44-1623-16	16	23	16	1.5	1.0	0.5	1.50	0.025
PT44-1623-20			20					0.030
PT44-1826-20	18	26	20	1.5	1.0	0.5	1.50	0.040
PT44-2030-20	20	30	20	2.0	1.5	0.5	2.50	0.060
PT44-2230-20	22	30						0.050
PT44-2535-20	25	35	25	2.0	1.5	0.5	2.50	0.070
PT44-3042-25	30	42						0.130
PT44-4055-30	40	55	30	3.0	2.0	1.0	3.00	0.255
PT44-5070-30	50	70						0.430

# PT46

## FEET(SERRATED END)



Tooth plate

- Material : SKH9(JIS) / S18-1-2-5(DIN)
- Heat treated : HRC 60°

Tooth plate

- Material : Extremely hard.

- Material : S45C(JIS)/34CrMo4(DIN)
- Heat treated : HRC 28 °~ 32 °
- Serrated surface to be heat treated with high frequency quenching.
- Surface finish : Black Oxide.
- Application : Multipurpose work support and clamping unit, ideal for rough parts.
- Features : Excellent holding power from the serrated face.

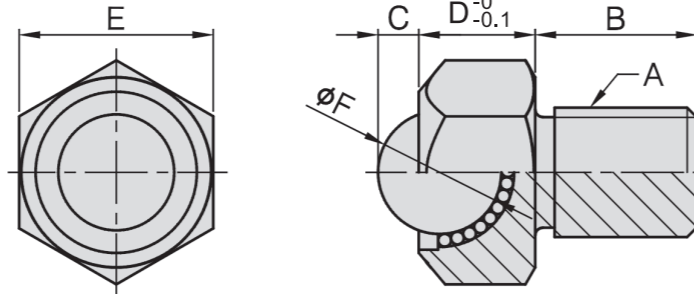
MODEL NO.	A	B	C	D	E	F	G	kg
PT46-0610	M6	10	10	11	11.5	6.5	2.3	0.008
PT46-0620		20						0.013
PT46-0815	M8	15	14	13	16.1	8.1	2.3	0.018
PT46-0830		30						0.033
PT46-1020	M10	20	17	16	19.6	11.4	3.0	0.044
PT46-1040		40						0.080
PT46-1225	M12	25	19	20	21.9	13.0	3.0	0.070
PT46-1250		50						0.126
PT46-1630	M16	30	24	25	27.7	16.2	3.0	0.130
PT46-1660		60						0.230
PT46-2030	M20	30	30	25	34.6	25.2	3.0	0.200
PT46-2060		60						0.360

# PT47-49

## BALL ROLLERS

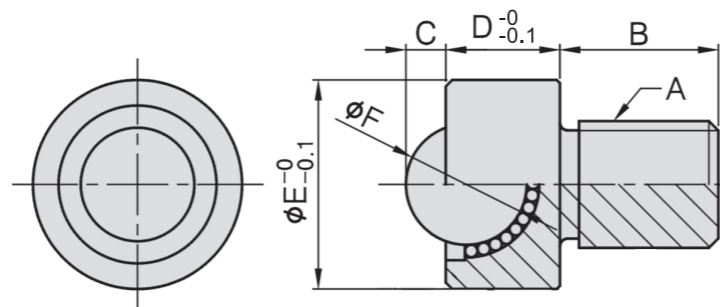
• Material : SUS304(JIS)

PT47



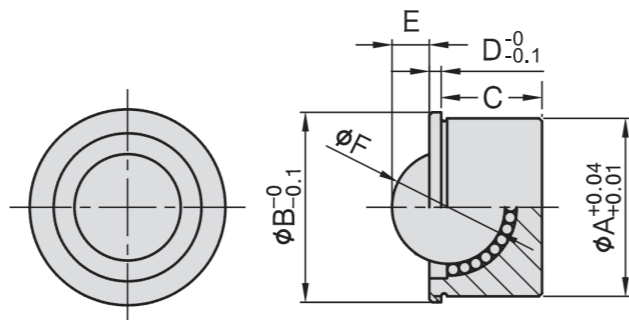
MODEL NO.	A	B	C	D	E	F	N(kgf)
PT47-1615	M16	20	3.3	16	24	15.87	343(35)
PT47-2018	M20	25	5.3	19	30	19.05	412(42)

PT48



MODEL NO.	A	B	C	D	E	F	G	N(kgf)
PT48-1615	M16	20	3.3	16	27	15.87	23	343(35)
PT48-2018	M20	25	5.3	19	33	19.05	29	412(42)

PT49



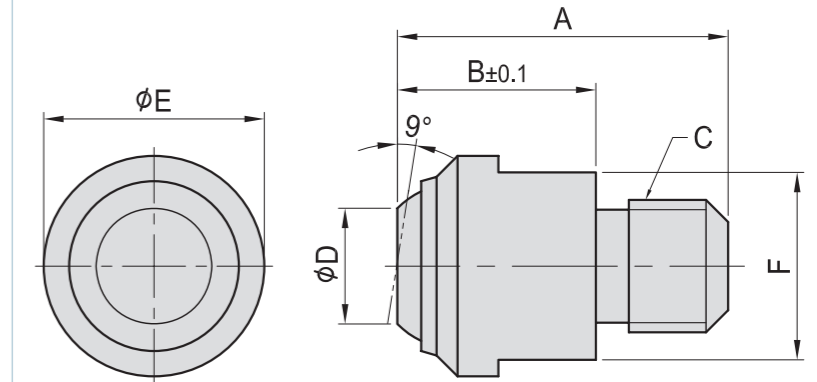
MODEL NO.	A	B	C	D	E	F	N(kgf)
PT49-2614	24	26	14	1.5	5.3	15.87	343(35)
PT49-3217	30	32	17	2	6.3	19.05	412(42)



- Material :  
Bolt : S45C(JIS) / CK45(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated :  
Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features : Precision ground top surface.

# PT50

## SMOOTH BALL END BOLT



MODEL NO.	A	B	C	D	E	F	max (KN)	g
PT50-0613	21	13	M6x1.00	7.2	13	11	10	12
PT50-0813	21	13	M8x1.25	7.2	13	11	10	13
PT50-0818	28	18	M8x1.25	10.5	20	17	25	38
PT50-1018	28	18	M10x1.50	10.5	20	17	25	40
PT50-1218	30	18	M12x1.75	10.5	20	17	25	40
PT50-1627	43	27	M16x2.00	20.0	30	27	90	150
PT50-2035	55	35	M20x2.50	34.5	50	41	165	520

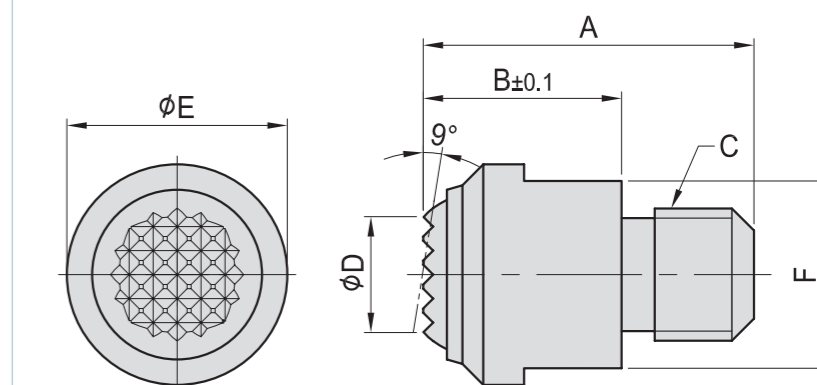
\*Applies only when the minimum bore depth is kept to.



- Material :  
Bolt : S45C(JIS) / CK45(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated :  
Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features : serrated gripper is ideal for rough surfaces.

# PT51

## SMOOTH BALL END BOLT



MODEL NO.	A	B	C	D	E	F	max (KN)	g
PT51-0613	21	13	M6x1.00	7.2	13	11	10	12
PT51-0813	21	13	M8x1.25	7.2	13	11	10	13
PT51-0818	28	18	M8x1.25	10.5	20	17	25	38
PT51-1018	28	18	M10x1.50	10.5	20	17	25	40
PT51-1218	30	18	M12x1.75	10.5	20	17	25	40
PT51-1627	43	27	M16x2.00	20.0	30	27	90	150
PT51-2035	55	35	M20x2.50	34.5	50	41	165	520

\*Applies only when the minimum bore depth is kept to.

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

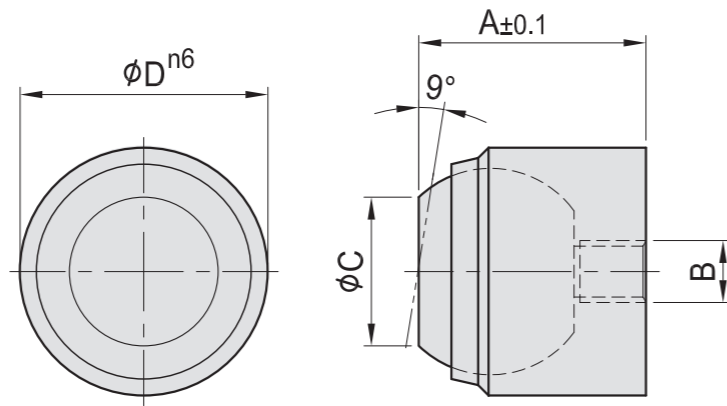
Column  
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Technical  
Data

# PT52

## SMOOTH BALL END BOLT



- Material : Bolt : S45C(JIS) / CK45(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated : Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features : Precision ground top surface.



MODEL NO.	A	B	C	D	max (kN)	g
PT52-0311	11	M3x0.5	7.2	12	10	8
PT52-0417	17	M4x0.7	10.5	18	25	30
PT52-0525	25	M5x0.8	20.0	28	90	80

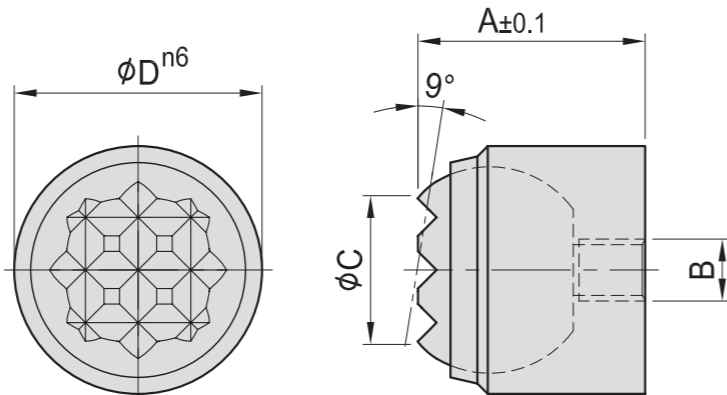
\*Applies only when the minimum bore depth is kept to.

# PT53

## SMOOTH BALL END BOLT



- Material : Bolt : S45C(JIS) / CK45(DIN)  
Ball : SUJ2(JIS) / 100Cr6(DIN)
- Heat treated : Bolt : HRC 28°~32°  
Ball : HRC 62°
- Surface finish : Black Oxide.
- Application : Precision swivel ball that can be used either as a contact bolt or as a rest pad. As contact bolts, these swivel-ball units are ideal for evenly distributing clamping pressure on sloped or uneven surfaces.
- Features : serrated gripper is ideal for rough surfaces.



MODEL NO.	A	B	C	D	max (kN)	g
PT53-0311	11	M3x0.5	7.2	12	10	8
PT53-0417	17	M4x0.7	10.5	18	25	30
PT53-0525	25	M5x0.8	20.0	28	90	80

\*Applies only when the minimum bore depth is kept to.

# PT55

## SPRING LOCATING PINS

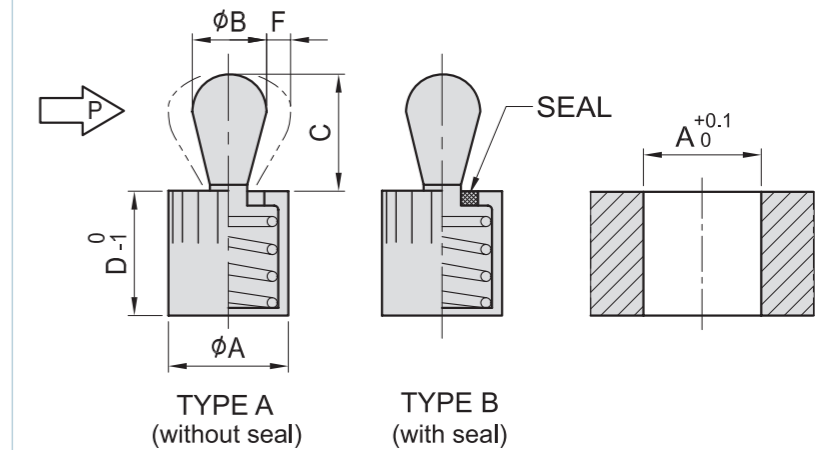


### TYPE A

- Body Material : Aluminum  
Surface finish : Silver passivated
- Pin Material : Steel  
Heat treated : HRC 45°  
Surface finish : Galvanized
- Spring Material : Spring steel wire

### TYPE B

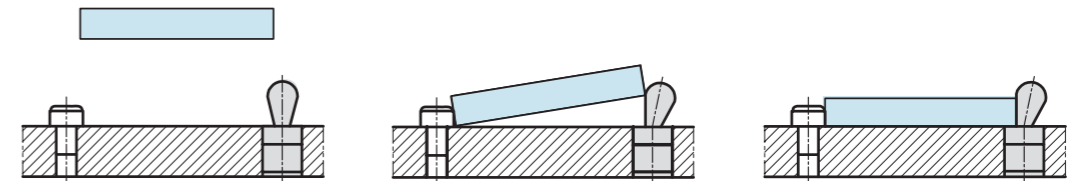
- Body Material : Aluminum  
Surface finish : Silver passivated
- Pin Material : Steel  
Heat treated : HRC 45°  
Surface finish : Galvanized
- Spring Material : Spring steel wire
- Seal Material : CR



Note :

- P(N) : The MAX Strength when pin moves
- Application temperature with steel pins up to 250°C
- See P.6-34 Installtion method
- See P.6-34 Installtion tool

Example :



### TYPE A

MODEL NO.	A	B	C	D	F	P(N)	INSTALLATION TOOLS	g
PT55A-0603-010	6	3	4.0	7	0.5	10	PT57-0603	0.6
20								
40								
PT55A-0603-040	10	5	6.7	11	0.8	10	PT57-1006	2.7
20								
50								
100								
40								
75								
PT55A-1005-020	12	8	13.9	13	1.3	100	PT57-1208	7.4
200								
7.4								
PT55A-1208-050	16	10	16.7	17	1.6	100	PT57-1610	15.0
200								
15.0								
PT55A-1610-200	16	10	16.7	17	1.6	200	PT57-1610	15.2
300								
15.3								

### TYPE B

MODEL NO.	A	B	C	D	F	P(N)	INSTALLATION TOOLS	g
PT55B-0603-010	6	3	4	7	0.5	10	PT57-0603	0.6
20								
40								
PT55B-0603-040	10	5	6	12	0.8	10	PT57-1006	2.7
20								
50								
100								
40								
75								
PT55B-1208-100	12	8	13	14	1.3	100	PT57-1208	7.3
200								
7.4								
PT55B-1610-100	16	10	16	18	1.6	100	PT57-1610	15.0
200								
15.2								
PT55B-1610-300	16	10	16	18	1.6	300	PT57-1610	15.6

# PT56

## SPRING LOCATING PINS

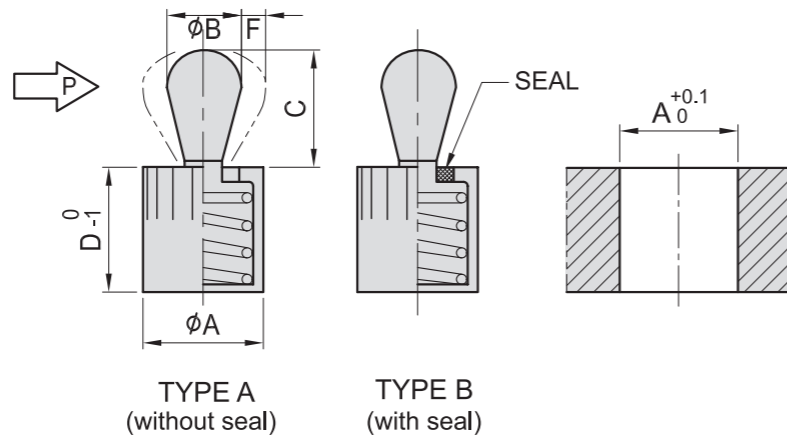


### TYPE A

- Body Material : Aluminum  
Surface finish : Silver passivated
- Pin Material : POM
- Spring Material : Spring steel wire

### TYPE B

- Body Material : Aluminum  
Surface finish : Silver passivated
- Pin Material : POM
- Spring Material : Spring steel wire
- Seal Material : CR



- Note :
- P(N) : The MAX Strength when pin moves
  - Application temperature with plastic pins up to 80°C
  - See P.6-34 Installtion method
  - See P.6-34 Installtion tool

### TYPE A

MODEL NO.	A	B	C	D	F	P(N)	INSTALLATION TOOLS	g
PT56A-0603-010	6	3	4.0	7	0.5	10	PT57-0603	0.4
PT56A-1005-020	10	5	6.7	11	0.8	20	PT57-1006	1.3
PT56A-1006-040	10	6	10.7	11	1.0	40	PT57-1006	1.5
PT56A-1208-050	12	8	13.9	13	1.3	50	PT57-1208	2.9
PT56A-1610-100	16	10	16.7	17	1.6	100	PT57-1610	6.6

### TYPE B

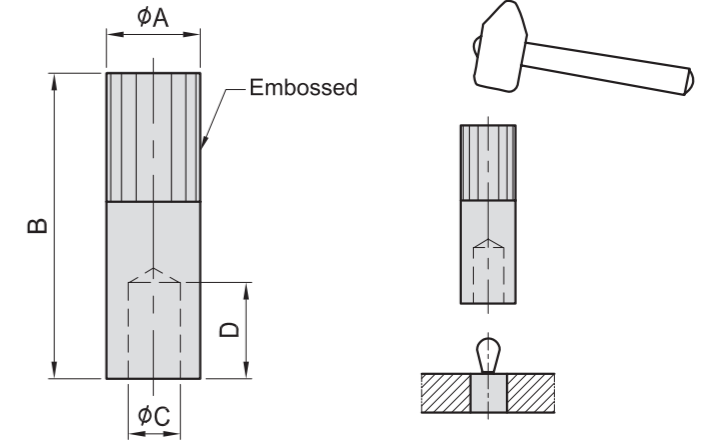
MODEL NO.	A	B	C	D	F	P(N)	INSTALLATION TOOLS	g
PT56B-0603-010	6	3	4	7	0.5	10	PT57-0603	0.4
PT56B-1005-020	10	5	6	12	0.8	20	PT57-1006	1.3
PT56B-1006-040	10	6	10	12	1.0	40	PT57-1006	1.5
PT56B-1208-050	12	8	13	14	1.3	50	PT57-1208	3.0
PT56B-1610-100	16	10	16	18	1.6	100	PT57-1610	6.7

# PT57

## INSTALLATION TOOLS



- Material : S45C
- Surface finish : Black Oxid



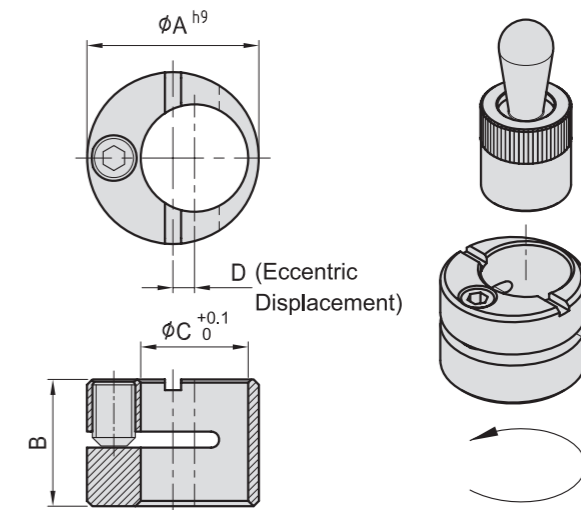
MODEL NO.	A	B	C	D	g
PT57-0603	8	50	3.2	6	19
PT57-1006	12	60	6.2	13	50
PT57-1208	14	60	8.2	16	65
PT57-1610	18	60	10.2	19	106

# PT58

## ECCENTRIC LINERS



- Material : S45C
- Surface finish : Black Oxid



MODEL NO.	A	B	C	D	g
PT58-0612	12	9.9	6	2	5.5
PT58-1016	16	11.9	10	2	9.4
PT58-1218	18	13.9	12	2	12.8
PT58-1625	25	17.9	16	3	34.0

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

Column  
for  
Technical  
Data

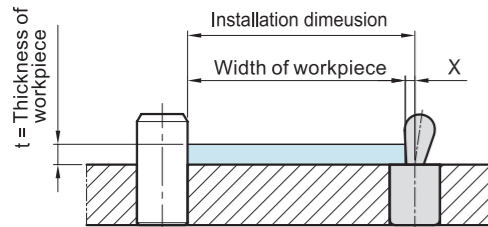
## 《 INSTALLATION 》

### ■ CALCULATING LOCATION FOR INSTALLATION

Based on the proposed usage of the spring locating pins, choose the correct specifications and size, and calculate as follows:

Installation dimension = width of workpiece + X

X: Distance from the edge of the workpiece to the center of spring locating pin as per the drawing.



### ■ X CALCULATION

There are two methods for calculating X dimension based on the thickness of the workpiece.

(1) When thickness of workpiece < H

$$X = B/2 - F - [(C - B/2 - t) \times 0.123]$$

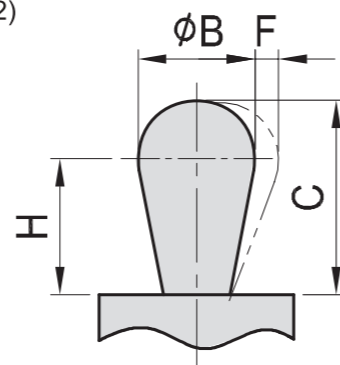
(2) When thickness of workpiece > H

$$X = B/2 - F$$

If thickness of workpiece is greater than H, then the X value of remains the same, regardless of the thickness of the workpiece.

< H CALCULATION >

Formula :  $H = C - (B/2)$



< X Reference Table >

	MODEL NO.		H	Width of workpiece (t)mm							
	STEEL	PLASTIC		1	2	3	4	5	6	8	
TYPE A without seal	PT55A-0603-010	PT56A-0603-010	2.5	0.8	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	PT55A-0603-020										
	PT55A-0603-040										
	PT55A-1005-020	PT56A-1005-020	4.2	-	1.5	1.7				1.7	1.7
	PT55A-1005-050										
	PT55A-1005-100						1.7	1.7			
	PT55A-1006-040	PT56A-1006-040	7.7	-	-	-				1.9	1.9
	PT55A-1006-075										
	PT55A-1006-150										
	PT55A-1208-050	PT56A-1208-050	9.9	-	-	-	-	-	-	2.5	2.7
	PT55A-1208-100										
	PT55A-1208-200										
	PT55A-1610-100	PT56A-1610-100	11.7	-	-	-	-	-	-	-	3.1
	PT55A-1610-200										
PT55A-1610-300											
TYPE B with seal	PT55B-0603-010	PT56B-0603-010	2.5	0.8	1.0	1.0	1.0	1.0	1.0	1.0	
	PT55B-0603-020										
	PT55B-0603-040										
	PT55B-1005-020	PT56B-1005-020	3.5	-	1.5	1.7				1.7	1.7
	PT55B-1005-050										
	PT55B-1005-100						1.7	1.7			
	PT55B-1006-040	PT56B-1006-040	7.0	-	-	-				1.9	1.9
	PT55B-1006-075										
	PT55B-1006-150										
	PT55B-1208-050	PT56B-1208-050	9.0	-	-	-	-	-	-	2.5	2.7
	PT55B-1208-100										
	PT55B-1208-200										
	PT55B-1610-100	PT56B-1610-100	11.0	-	-	-	-	-	-	-	3.1
	PT55B-1610-200										
PT55B-1610-300											

### ■ INSTALLATION METHOD

Apply yellow grease and press it into place while installing.

#### 《 Example 1 》

P/N :  
Spring locating pin PT55B-1006-075  
Steel pin (B type)

Width of workpiece 100mm  
Thickness of workpiece 2.3mm

#### < Calculation of H >

Comparison of thickness of workpiece and H size.

$$H = C - B/2 = 10 - 6/2 = 7 \text{ (mm)}$$

Because the thickness of the workpiece is bigger than H, use the second calculation method.

#### < Calculation of X >

$$\begin{aligned} X &= B/2 - F - [(C - B/2 - t) \times 0.123] \\ &= 6/2 - 1 - [(10 - 6/2 - 2.3) \times 0.123] \\ &= 3 - 1 - [(4.7) \times 0.123] \\ &= 1.4 \text{ (mm)} \end{aligned}$$

#### < Installation Location calculating >

$$\begin{aligned} \text{Installation location} &= \text{Width of workpiece} + X \\ &= 100 + 1.4 \\ &= 101.4 \text{ (mm)} \end{aligned}$$

#### 《 Example 2 》

P/N :  
Spring locating pin PT56A-1610-100  
POM (A type)

Width of workpiece 300mm  
Thickness of workpiece 40mm

#### < Calculation of H >

Comparison of thickness of workpiece and H size.

$$H = C - B/2 = 16.7 - 10/2 = 11.7 \text{ (mm)}$$

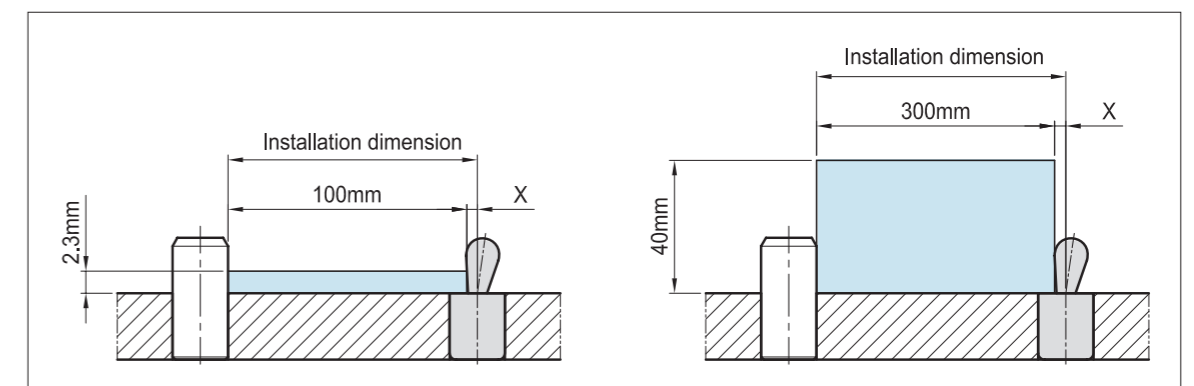
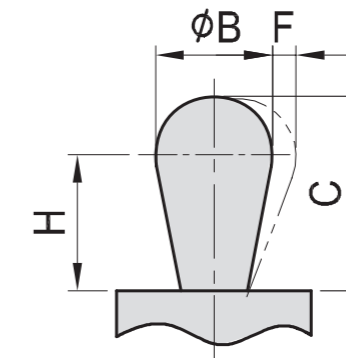
Because the thickness of the workpiece is bigger than H, use the second calculation method.

#### < Calculation of X >

$$\begin{aligned} X &= B/2 - F \\ &= 10/2 - 1.6 \\ &= 3.4 \text{ (mm)} \end{aligned}$$

#### < Calculation of Installation Location >

$$\begin{aligned} \text{Installation Location} &= \text{Width of workpiece} \\ &= 300 + 3.4 \\ &= 303.4 \text{ (mm)} \end{aligned}$$



BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

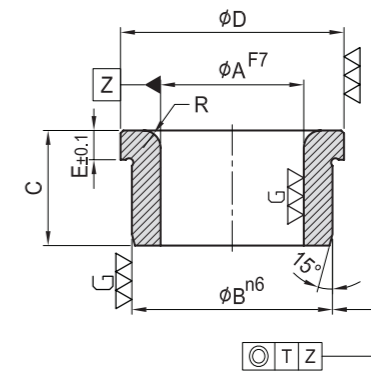
OTHER

Column  
for  
Technical  
Data



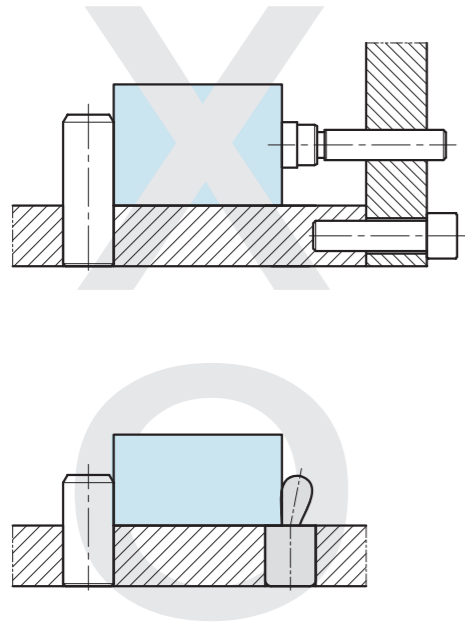
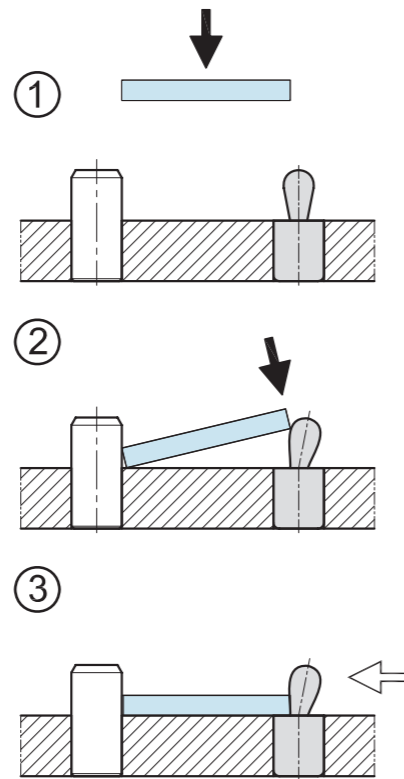
# PT59

## POSITIONING BUSHING



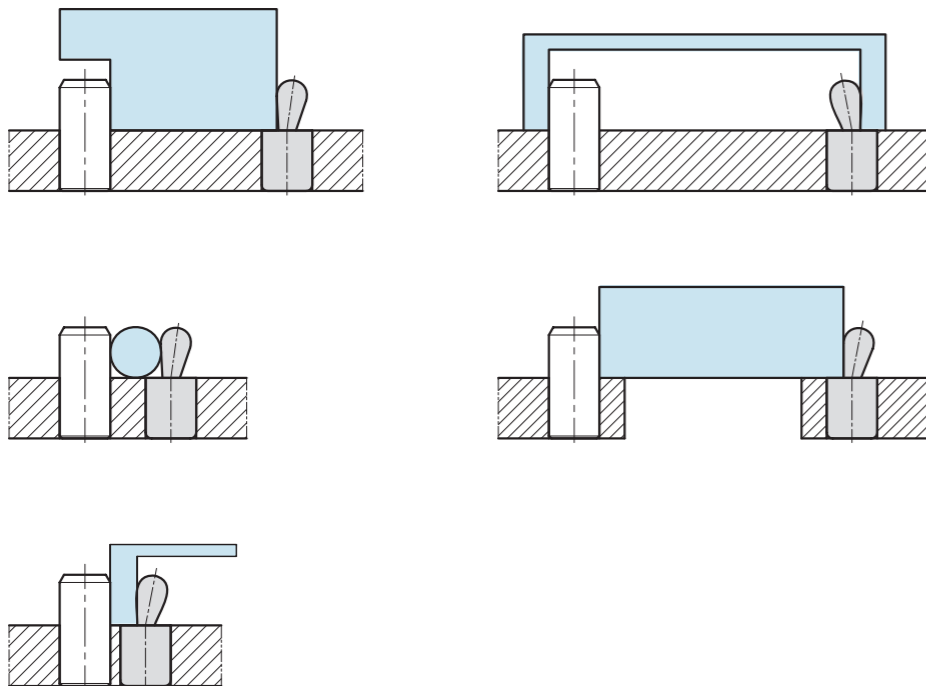
MODEL NO.	A	B	C	D	E	R	T
PT59-0615-10	6	12	10	15	3	1.5	0.01
PT59-0818-12	8	15		18	3	2.0	0.01
PT59-1022-12	10	18	12	22	4		
PT59-1226-16	12	22	16	26	4	2.0	0.01
PT59-1426-16	14						
PT59-1530-16	15	26	16	30	4	2.0	0.01
PT59-1630-16	16						
PT59-1834-20	18	30	20	34	5	3.0	0.01
PT59-2034-20	20						
PT59-2239-20	22	35	20	39	5	3.0	0.01
PT59-2539-20	25						
PT59-3052-25	30	48	25	52	5	3.0	0.01
PT59-4059-30	40	55	30	59			
PT59-5074-30	50	70	30	74	6	3.5	0.01

- Material : SUJ2
- Surface finish : HRC 60°



< Compared with traditional method, simple design can lower cost >

### Application:



BP

BPA

BC

CP

SU

PT

SVF

ALV

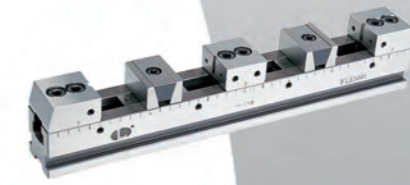
OK-  
VISE

OTHER

Column  
for  
Technical  
Data

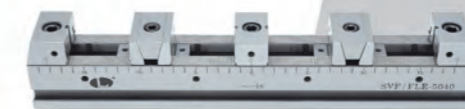
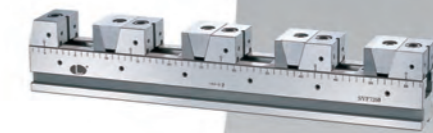


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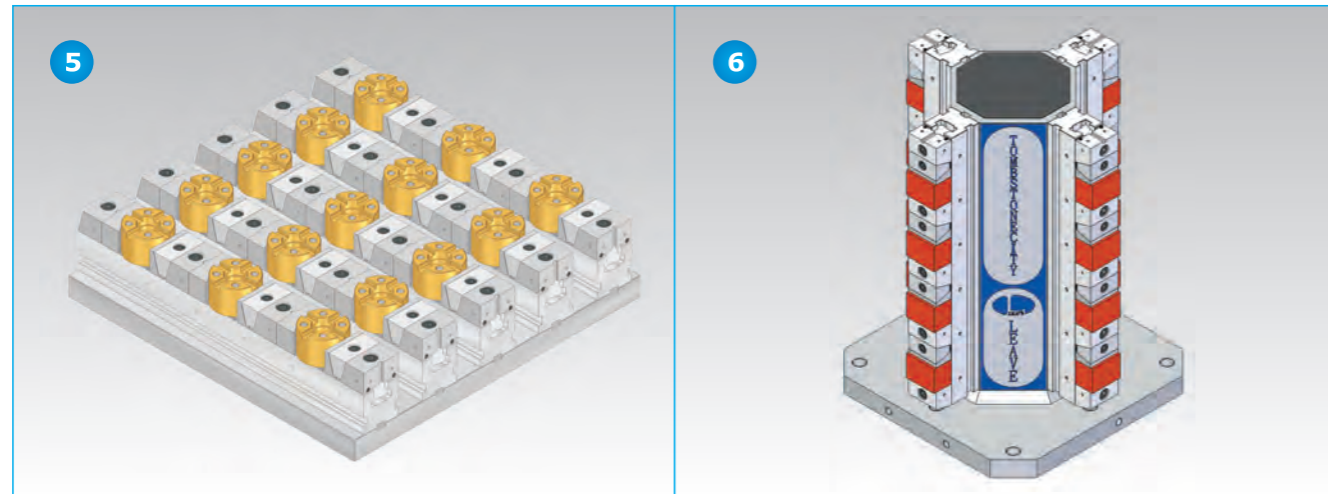
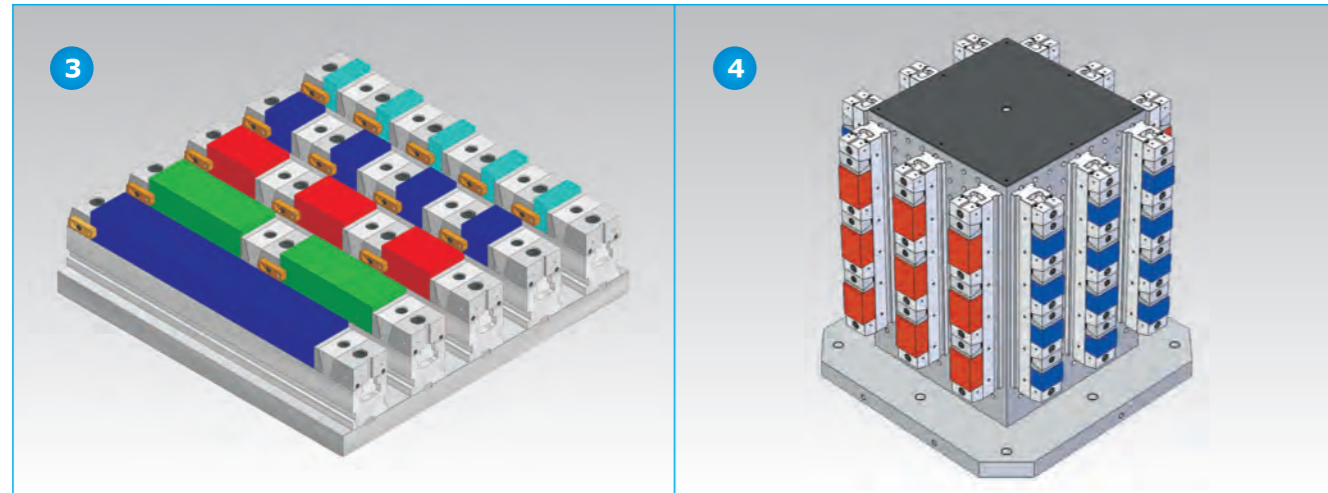
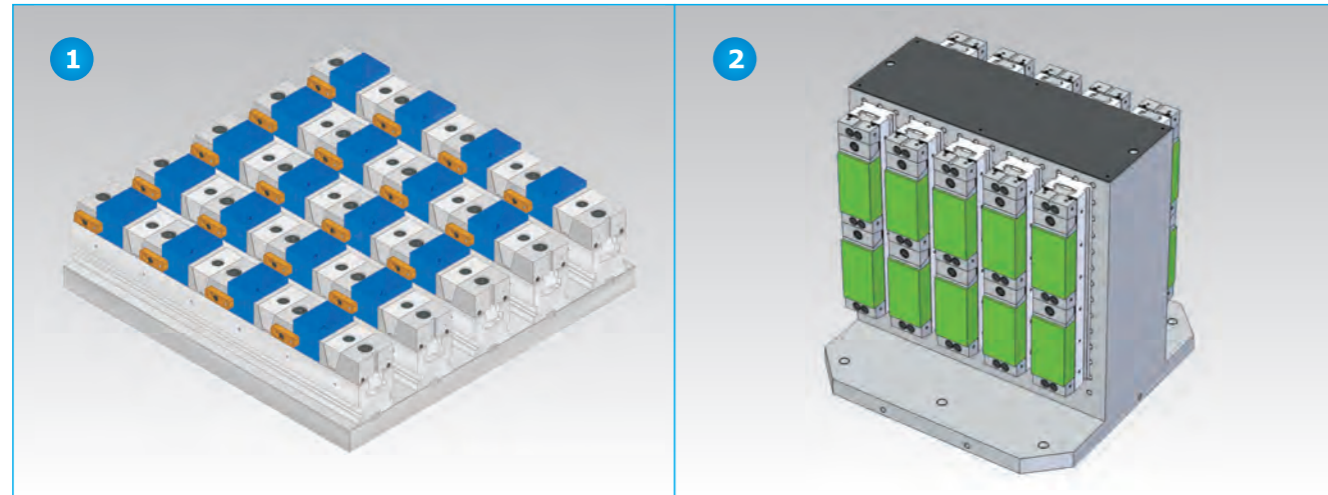
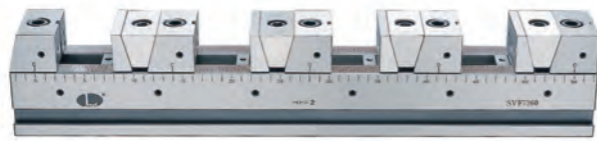
## **SVF SERIES** MODULAR VISE SYSTEM

SVF-A,B,BE,C, SVF-CB, SVFX

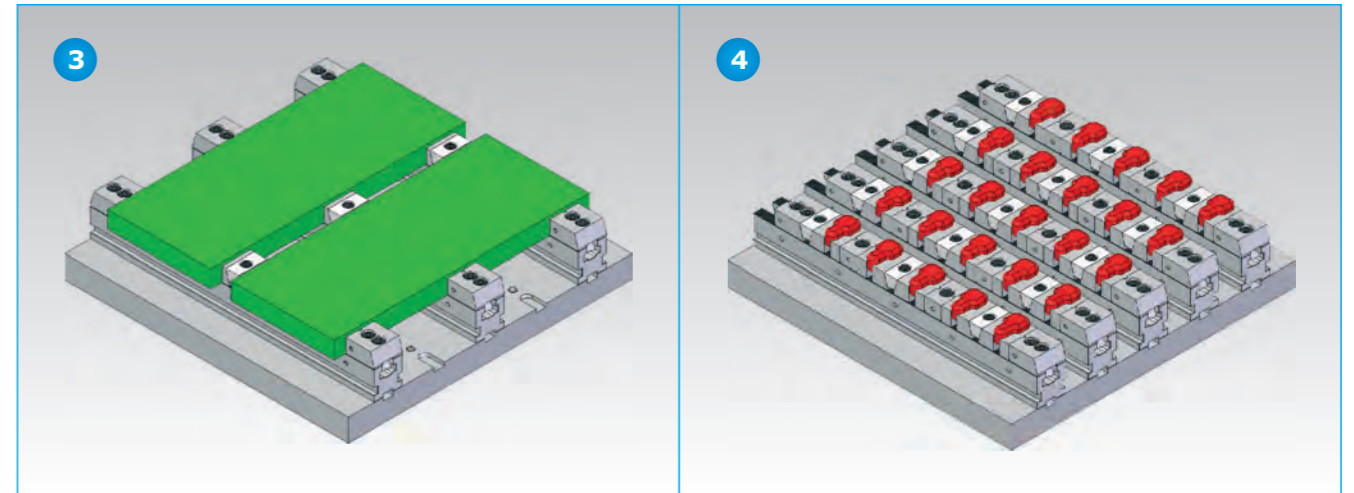
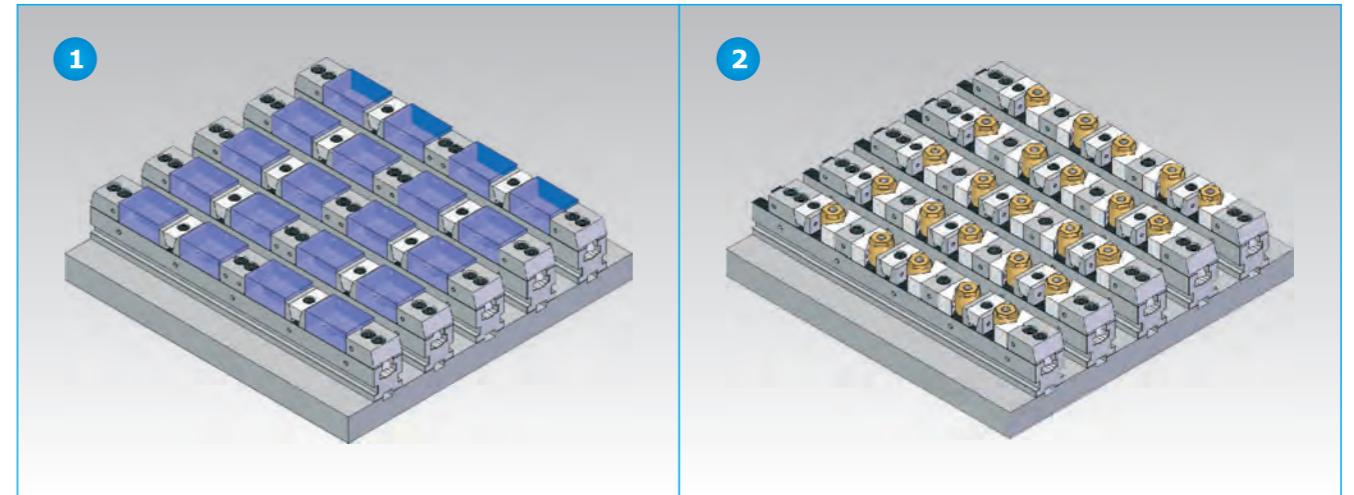
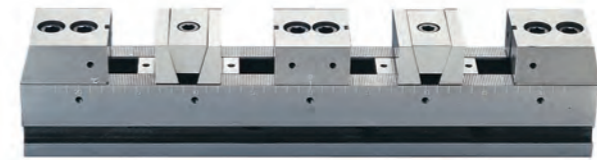


FLEXIBLE LINE UP VISE SERIES  
M/C OCTAGONAL CUBE  
INDEXING TABLE

Clamping Examples



Clamping Examples



BP

BPA

BC

CP

SU

PT

**SVF**

ALV

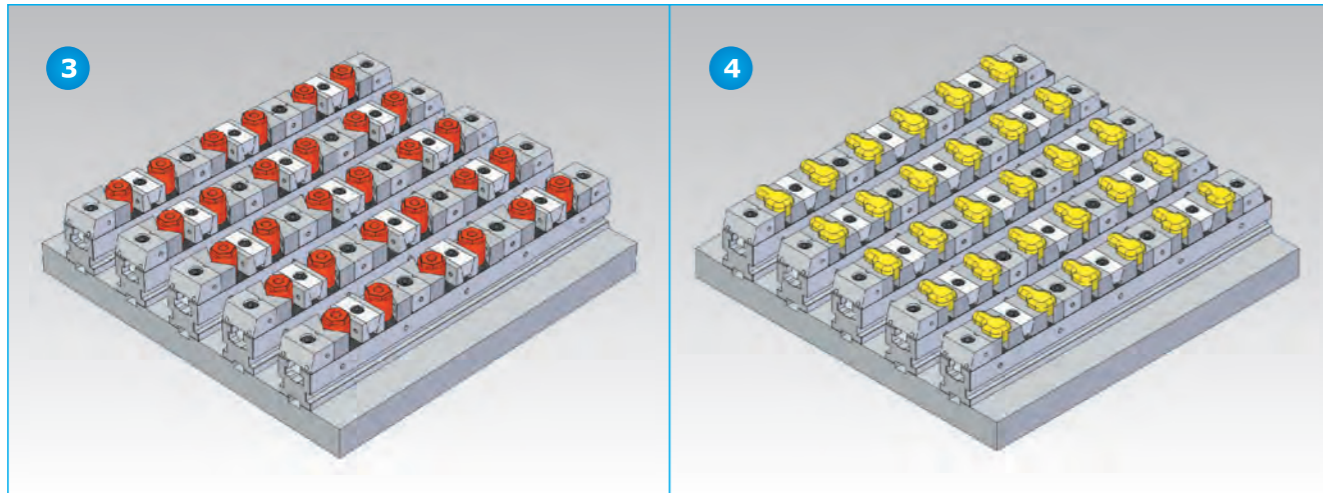
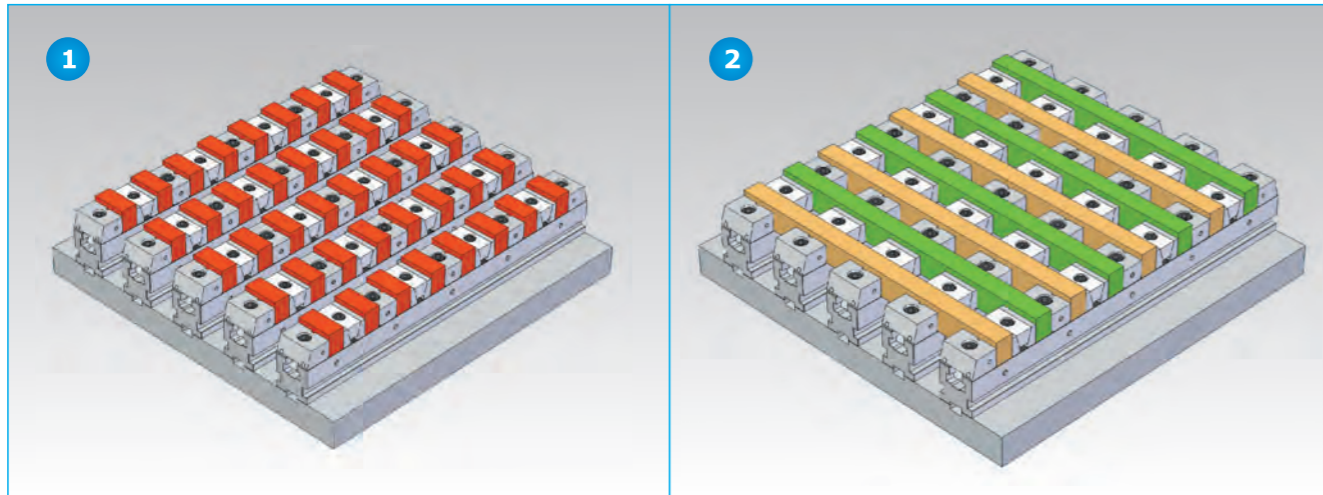
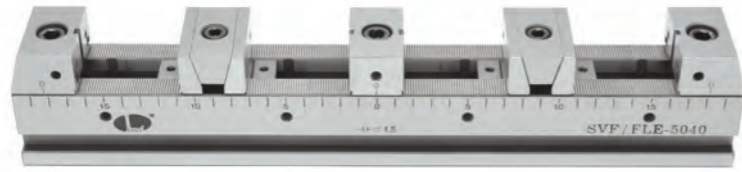
OK-VISE

OTHER

Column for Technical Data

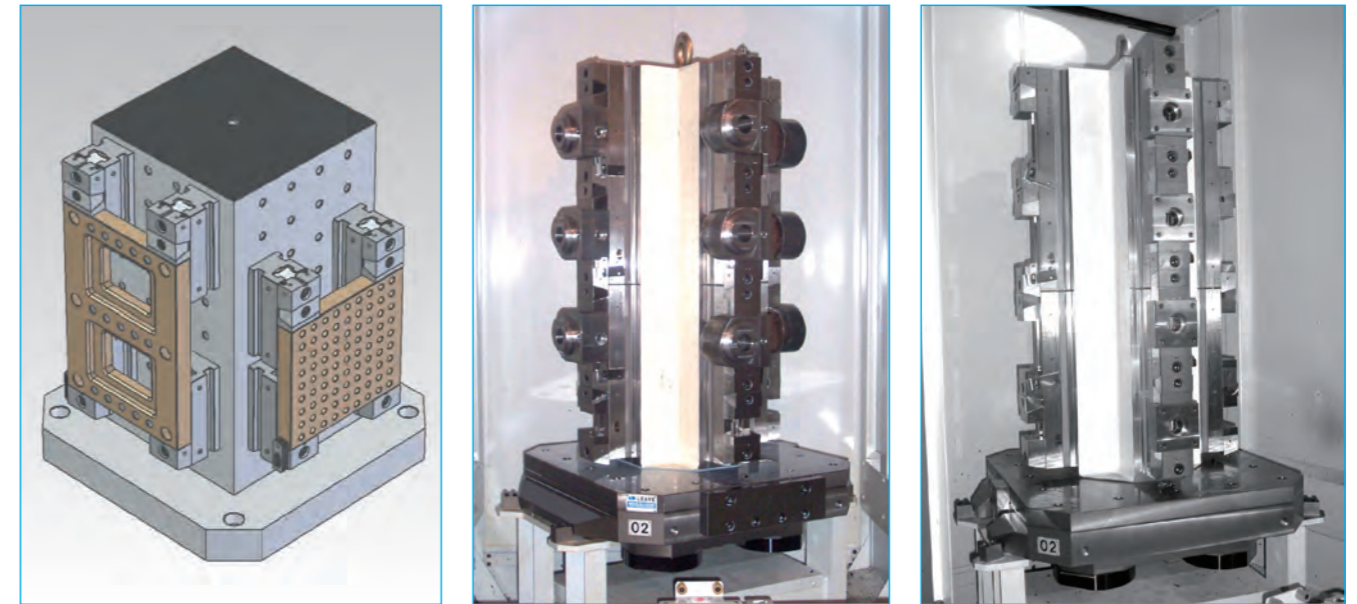
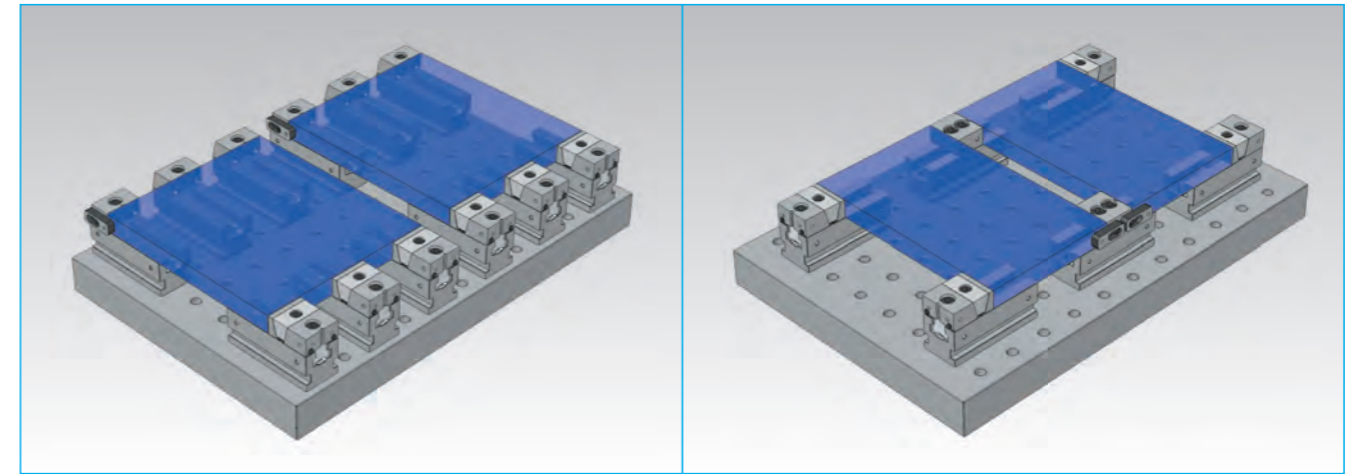
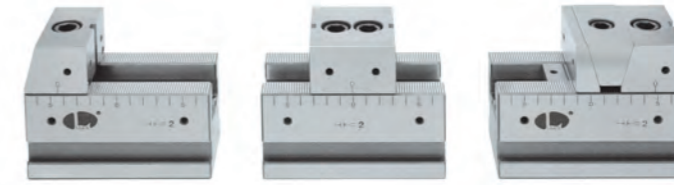
# SVF-BE Bi-direction Clamping

## Clamping Examples



# SVF-C

## Clamping Examples



BP

BPA

BC

CP

SU

PT

SVF

ALV

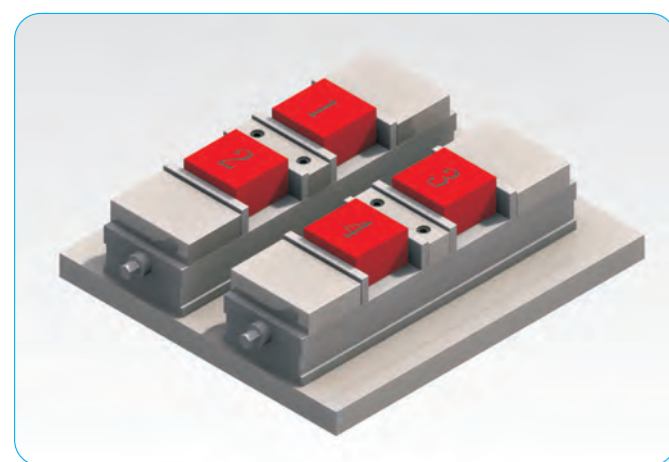
OK-VISE

OTHER

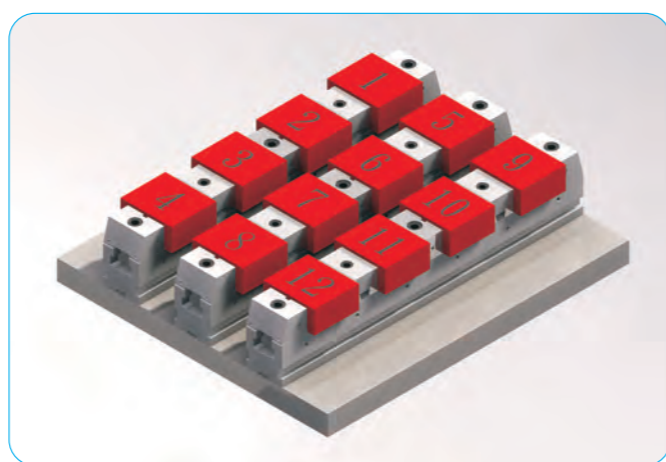
Column for Technical Data

### The SVF vise system will:

- Optimize your machine real estate to the fullest extent
- Increase production
- Streamline the work holding process
- Give you a true competitive edge



Traditional vise



SVF series vise

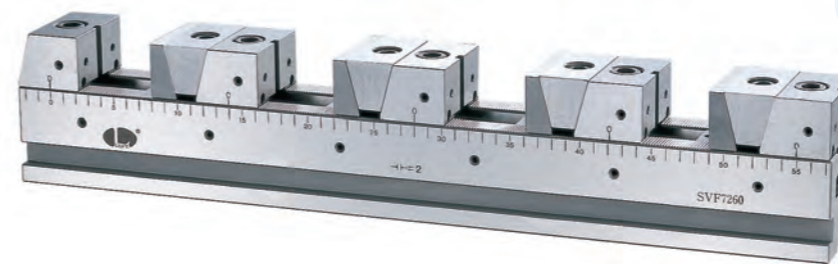
**SVF-50 : 1000 kgf**  
**Clamping force: SVF-72 : 2000 kgf**  
**SVF-100: 3000 kgf**

### SVF-A type vs SVF-B type

Type		SVF-A	SVF-B
Common features	1	Can accommodate a wide range of part quantities & sizes.	
	2	Can accommodate both regular & irregular shaped parts.	
Differences	1	One way clamping.	Two way clamping.
	2	For both of Vertical and Horizontal Machine	For Vertical Machine only.

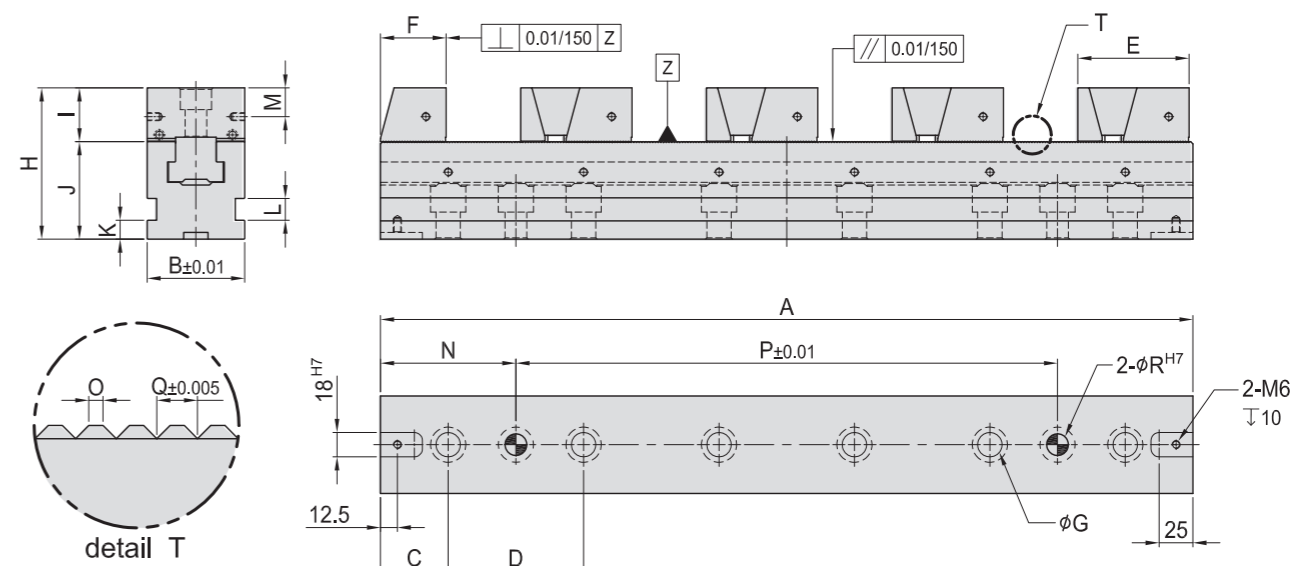
## SVF-A FLEXIBLE LINE UP VISE SERIES

- One way clamping**
- Material 100% tool steel
  - Heat treated HRC 55° & ground



**High Capacity**  
**High Flexibility**

Clamping force:  
 SVF-50 : 1000 kgf  
 SVF-72 : 2000 kgf  
 SVF-100: 3000 kgf



detail T

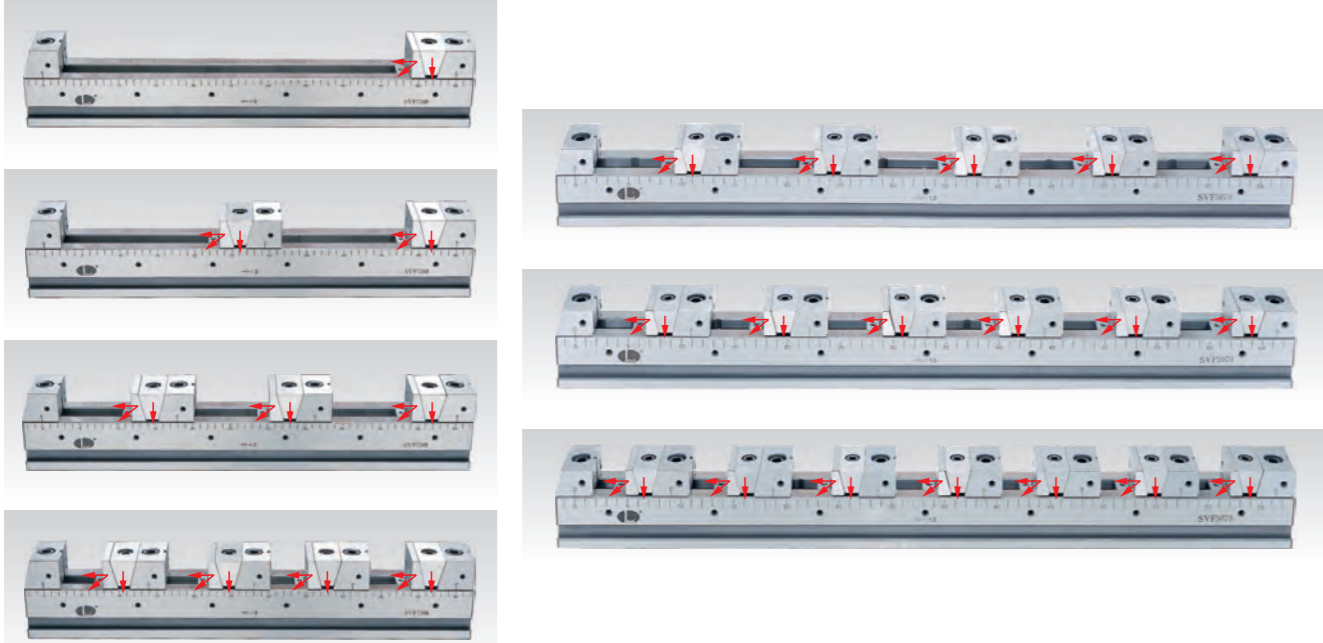
MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	kg
SVF-A-5030-80*	300	50	30	80	60.6	35	14	75	24.8	50	10	12	12.5	70	0.50	160	1.5	12	6.5
SVF-A-5030-100*			50	100										100					
SVF-A-5040-80	400	50	40	80	60.6	35	14	75	24.8	50	10	12	12.5	80	0.50	240	1.5	12	8.5
SVF-A-5040-100			50	100										200					
SVF-A-5050-80	500	50	50	80	60.6	35	14	75	24.8	50	10	12	12.5	90	0.50	320	1.5	12	10.0
SVF-A-5050-100			50	100										300					
SVF-A-5060-80	600	50	60	80	60.6	35	14	75	24.8	50	10	12	12.5	100	0.50	400	1.5	12	11.5
SVF-A-5060-100			50	100										400					
SVF-A-5070-80	700	50	70	80	60.6	35	14	75	24.8	50	10	12	12.5	110	0.50	480	1.5	12	13.0
SVF-A-5070-100			50	100										500					
SVF-A-7240-100*	400	72	50	100	82.2	48	18	112	39.7	72	14	16	21.3	100	0.70	200	2.0	16	19.0
SVF-A-7250-100	500															300			
SVF-A-7260-100	600	72	50	100	82.2	48	18	112	39.7	72	14	16	21.3	100	0.70	400	2.0	16	27.0
SVF-A-7270-100	700															500			
SVF-A-10040-100*	400	100	50	100	93.2	48	18	115	43.1	72	14	16	22.2	100	0.85	200	2.5	16	29.0
SVF-A-10050-100	500															300			
SVF-A-10060-100	600	100	50	100	93.2	48	18	115	43.1	72	14	16	22.2	100	0.85	400	2.5	16	41.0
SVF-A-10070-100	700															500			

(SVF vises listed above come equipped to clamp 1-4 parts, if additional part clamping is required please order optional accessories as listed on pages 7-14 ~ 7-19)  
 \* these units will only hold up to 3 parts.

- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV
- OK-VISE
- OTHER
- Column for Technical Data

# SVF-A

## Forcing direction



## Maximum width of the workpieces which can be clamped

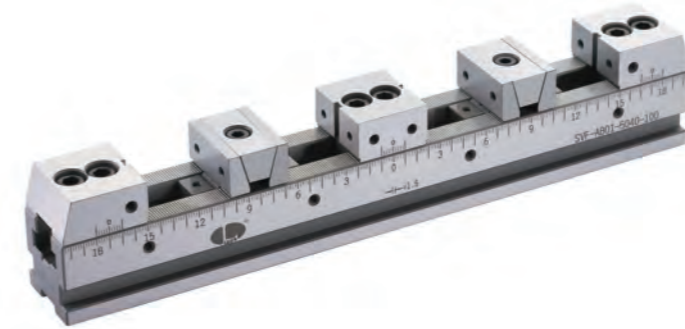
MODEL NO.	Maximum width of the workpieces which can be clamped			
	1 pcs	2 pcs	3 pcs	4 pcs
SVF-A-5030	203	71	27	--
SVF-A-5040	303	121	60	30
SVF-A-5050	403	171	94	55
SVF-A-5060	503	221	127	80
SVF-A-5070	603	271	160	105
SVF-A-7240	269	93	35	--
SVF-A-7250	369	143	68	30
SVF-A-7260	469	193	101	55
SVF-A-7270	569	243	135	80
SVF-A-10040	258	82	24	--
SVF-A-10050	358	132	57	19
SVF-A-10060	458	182	90	44
SVF-A-10070	558	232	124	69

MODEL NO.	Maximum width of the workpieces which can be clamped				
	5 pcs	6 pcs	7 pcs	8 pcs	9 pcs
SVF-A-5030	--	--	--	--	--
SVF-A-5040	--	--	--	--	--
SVF-A-5050	32	16	--	--	--
SVF-A-5060	52	33	20	--	--
SVF-A-5070	72	50	34	22	13
SVF-A-7240	--	--	--	--	--
SVF-A-7250	--	--	--	--	--
SVF-A-7260	28	--	--	--	--
SVF-A-7270	48	26	--	--	--
SVF-A-10040	--	--	--	--	--
SVF-A-10050	--	--	--	--	--
SVF-A-10060	17	--	--	--	--
SVF-A-10070	37	--	--	--	--

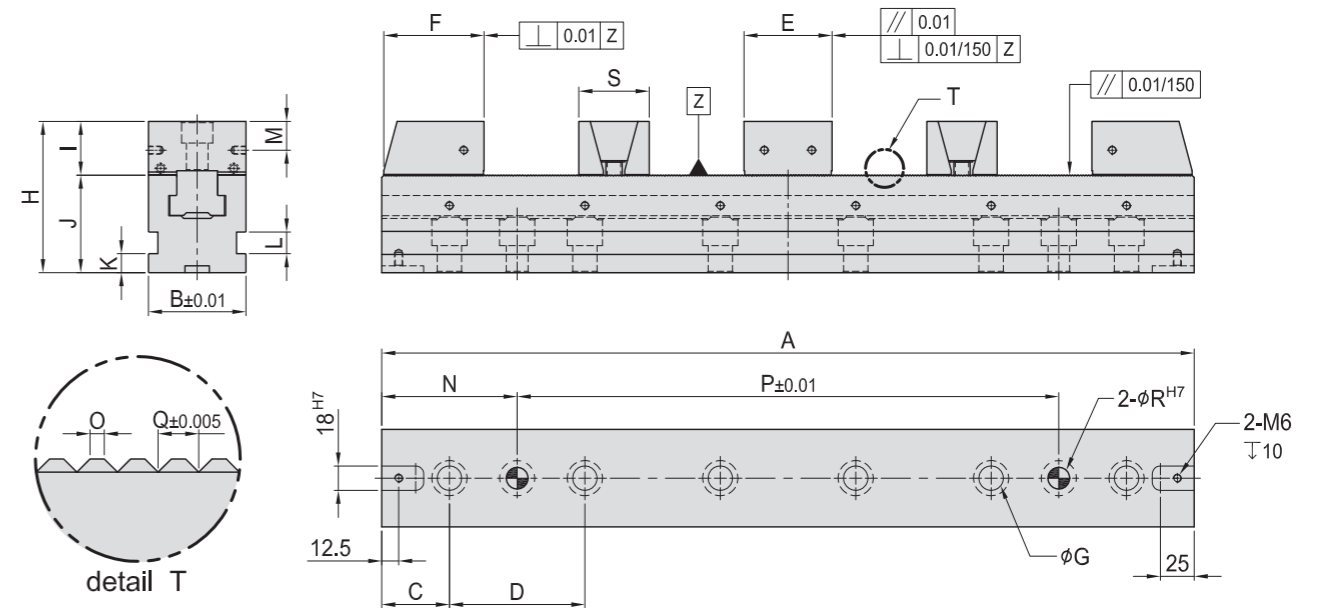
# SVF-B FLEXIBLE LINE UP VISE SERIES

- Two way clamping
- Material 100% tool steel
  - Heat treated HRC 55° & ground

**High Capacity  
High Flexibility**



SVF-50 : 1000 kgf  
amping force: SVF-72 : 2000 kgf  
SVF-100: 3000 kgf



MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	kg
SVF-B-5030-80	300	50	30	80	44	50	14	75	24.8	50	10	12	12.5	70	0.50	160	1.5	12	36	6.5
SVF-B-5030-100			50	100												100				
SVF-B-5040-80	400	50	40	80	44	50	14	75	24.8	50	10	12	12.5	80	0.50	240	1.5	12	36	7.6
SVF-B-5040-100			50	100												100				
SVF-B-5050-80	500	50	50	80	44	50	14	75	24.8	50	10	12	12.5	90	0.50	320	1.5	12	36	9.0
SVF-B-5050-100			50	100												100				
SVF-B-5060-80	600	50	60	80	44	50	14	75	24.8	50	10	12	12.5	100	0.50	400	1.5	12	36	10.5
SVF-B-5060-100			50	100												100				
SVF-B-5070-80	700	50	70	80	44	50	14	75	24.8	50	10	12	12.5	110	0.50	480	1.5	12	36	12.0
SVF-B-5070-100			50	100												100				
SVF-B-7240-100	400	72	50	100	65	74	18	112	39.7	72	14	16	21.3	100	0.70	200	2.0	16	52	19.0
SVF-B-7250-100																300				
SVF-B-7260-100	600	72	50	100	65	74	18	112	39.7	72	14	16	21.3	100	0.70	400	2.0	16	52	25.0
SVF-B-7270-100																500				
SVF-B-10040-100*	400	100	50	100	70	75	18	115	43.1	72	14	16	22.2	100	0.85	200	2.5	16	65	26.5
SVF-B-10050-100																300				
SVF-B-10060-100	600	100	50	100	70	75	18	115	43.1	72	14	16	22.2	100	0.85	400	2.5	16	65	36.6
SVF-B-10070-100																500				

(SVF vises listed above come equipped to clamp 1-4 parts, if additional part clamping is required please order optional accessories as listed on pages 7-14 ~ 7-19)  
\* these units will only hold up to 3 parts.

# SVF-B

## Forcing direction



## Maximum width of the workpieces which can be clamped

MODEL NO.	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs	6 pcs
SVF-B-5030	176	82	32	21	--	--
SVF-B-5040	276	132	65	46	23	17
SVF-B-5050	376	182	98	71	43	34
SVF-B-5060	476	232	132	96	63	50
SVF-B-5070	576	282	165	121	83	67
SVF-B-7240	217	100	33	20	--	--
SVF-B-7250	317	150	65	45	16	--
SVF-B-7260	417	200	100	70	36	27
SVF-B-7270	517	250	133	95	56	44
SVF-B-10040	204	92	23	--	--	--
SVF-B-10050	304	142	56	37	--	--
SVF-B-10060	404	192	89	62	26	18
SVF-B-10070	504	242	123	87	46	35

MODEL NO.	7 pcs	8 pcs	9 pcs	10 pcs	11 pcs
SVF-B-5030	--	--	--	--	--
SVF-B-5040	--	--	--	--	--
SVF-B-5050	19	15	--	--	--
SVF-B-5060	33	28	17	14	--
SVF-B-5070	48	40	28	24	16
SVF-B-7240	--	--	--	--	--
SVF-B-7250	--	--	--	--	--
SVF-B-7260	--	--	--	--	--
SVF-B-7270	23	18	--	--	--
SVF-B-10040	--	--	--	--	--
SVF-B-10050	--	--	--	--	--
SVF-B-10060	--	--	--	--	--
SVF-B-10070	--	--	--	--	--

# SVF-BE

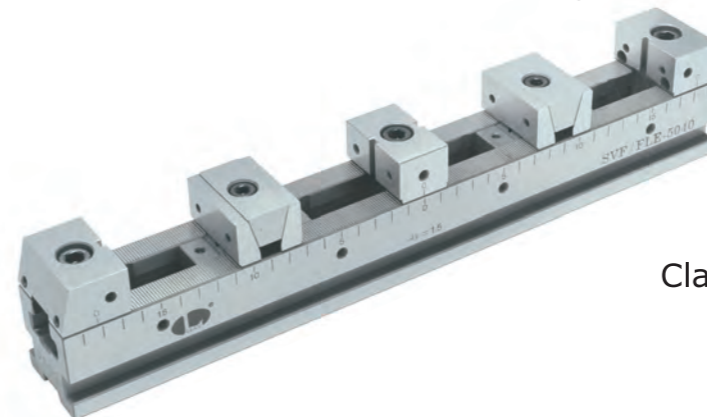
Two way clamping

## FLEXIBLE LINE UP VISE SERIES

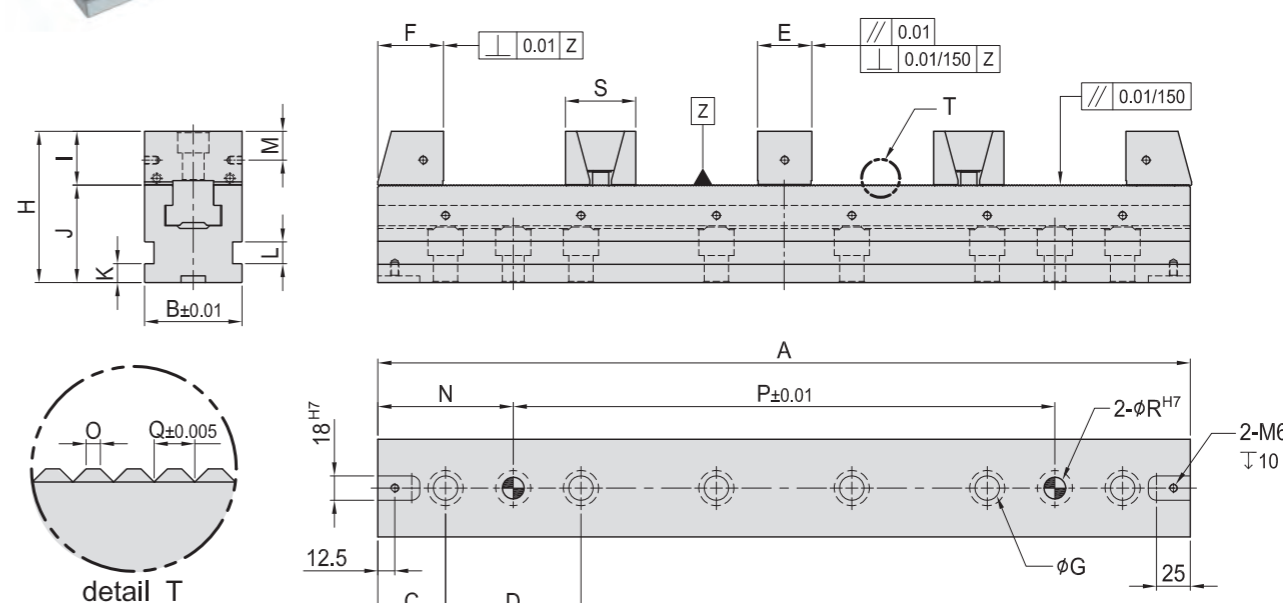
BE series offers more parts held & larger size parts held - compared to the "B" series

- Material 100% tool steel
- Heat treated HRC 55° & ground

**High Capacity  
High Flexibility**



SVF-50 : 1000 kgf  
Clamping force: SVF-72 : 2000 kgf  
SVF-100 : 3000 kgf



MODEL NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	kg
SVF-BE-5030-80	300	50	30	80	30	36	14	75	24.8	50	10	12	12.5	70	0.50	160	1.5	12	36	6.0
SVF-BE-5030-100			50	100										100		240				
SVF-BE-5040-80	400	50	40	80	30	36	14	75	24.8	50	10	12	12.5	80	0.50	200	1.5	12	36	7.5
SVF-BE-5040-100			50	100										100		320				
SVF-BE-5050-80	500	50	50	80	30	36	14	75	24.8	50	10	12	12.5	90	0.50	300	1.5	12	36	9.0
SVF-BE-5050-100				100										100						
SVF-BE-5060-80	600	50	60	80	30	36	14	75	24.8	50	10	12	12.5	100	0.50	400	1.5	12	36	10.2
SVF-BE-5060-100			50	100																
SVF-BE-5070-80	700	50	70	80	30	36	14	75	24.8	50	10	12	12.5	110	0.50	480	1.5	12	36	11.5
SVF-BE-5070-100			50	100										100		500				
SVF-BE-7240-100	400	72	50	100	40	48	18	112	39.7	72	14	16	21.3	100	0.70	200	2.0	16	52	18.0
SVF-BE-7250-100														300						21.0
SVF-BE-7260-100	600	72	50	100	40	48	18	112	39.7	72	14	16	21.3	100	0.70	400	2.0	16	52	24.0
SVF-BE-7270-100														500						26.0
SVF-BE-10040-100	400	100	50	100	44	48	18	115	43.1	72	14	16	22.2	100	0.85	200	2.5	16	65	27.0
SVF-BE-10050-100														300						31.0
SVF-BE-10060-100	600	100	50	100	44	48	18	115	43.1	72	14	16	22.2	100	0.85	400	2.5	16	65	35.0
SVF-BE-10070-100														500						39.0

(SVF vises listed above come equipped to clamp 1-4 parts, if additional part clamping is required please order optional accessories as listed on pages 7-14 ~ 7-19)

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

Column  
for  
Technical  
Data



# SVF-BE

# SVF-BE

## Forcing direction



## Maximum width of the workpieces which can be clamped

MODEL NO.	1 pcs	2 pcs	3 pcs	4 pcs	5 pcs
SVF-BE-5030	203	96	45	31	14
SVF-BE-5040	303	146	79	56	34
SVF-BE-5050	403	196	112	81	54
SVF-BE-5060	503	246	145	106	74
SVF-BE-5070	603	296	179	131	94
SVF-BE-7240	269	126	59	40	17
SVF-BE-7250	369	176	92	65	37
SVF-BE-7260	469	226	125	90	57
SVF-BE-7270	569	276	159	115	77
SVF-BE-10040	258	119	49	32	—
SVF-BE-10050	358	169	83	57	28
SVF-BE-10060	458	219	116	82	48
SVF-BE-10070	558	269	149	107	68

MODEL NO.	6 pcs	7 pcs	8 pcs	9 pcs
SVF-BE-5030	--	--	--	--
SVF-BE-5040	26	15	--	--
SVF-BE-5050	43	29	24	15
SVF-BE-5060	60	43	36	26
SVF-BE-5070	76	58	49	37
SVF-BE-7240	--	--	--	--
SVF-BE-7250	28	--	--	--
SVF-BE-7260	44	27	22	--
SVF-BE-7270	61	41	34	22
SVF-BE-10040	--	--	--	--
SVF-BE-10050	19	--	--	--
SVF-BE-10060	36	18	--	--
SVF-BE-10070	53	32	26	--

MODEL NO.	10 pcs	11 pcs	12 pcs	13 pcs
SVF-BE-5030	--	--	--	--
SVF-BE-5040	--	--	--	--
SVF-BE-5050	--	--	--	--
SVF-BE-5060	22	15	--	--
SVF-BE-5070	32	24	21	16
SVF-BE-7240	--	--	--	--
SVF-BE-7250	--	--	--	--
SVF-BE-7260	--	--	--	--
SVF-BE-7270	18	--	--	--
SVF-BE-10040	--	--	--	--
SVF-BE-10050	--	--	--	--
SVF-BE-10060	--	--	--	--
SVF-BE-10070	--	--	--	--

BP

BPA

BC

CP

SU

PT

SVF

ALV

OK-  
VISE

OTHER

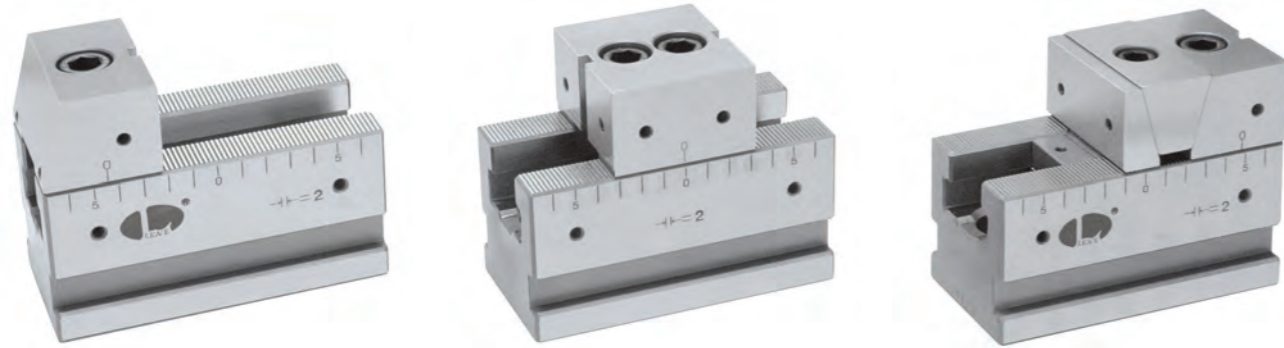
Column  
for  
Technical  
Data



# SVF-C FLEXIBLE LINE UP VISE SERIES

- Material 100% tool steel
- Heat treated HRC 55° & ground

**High Capacity  
High Flexibility**

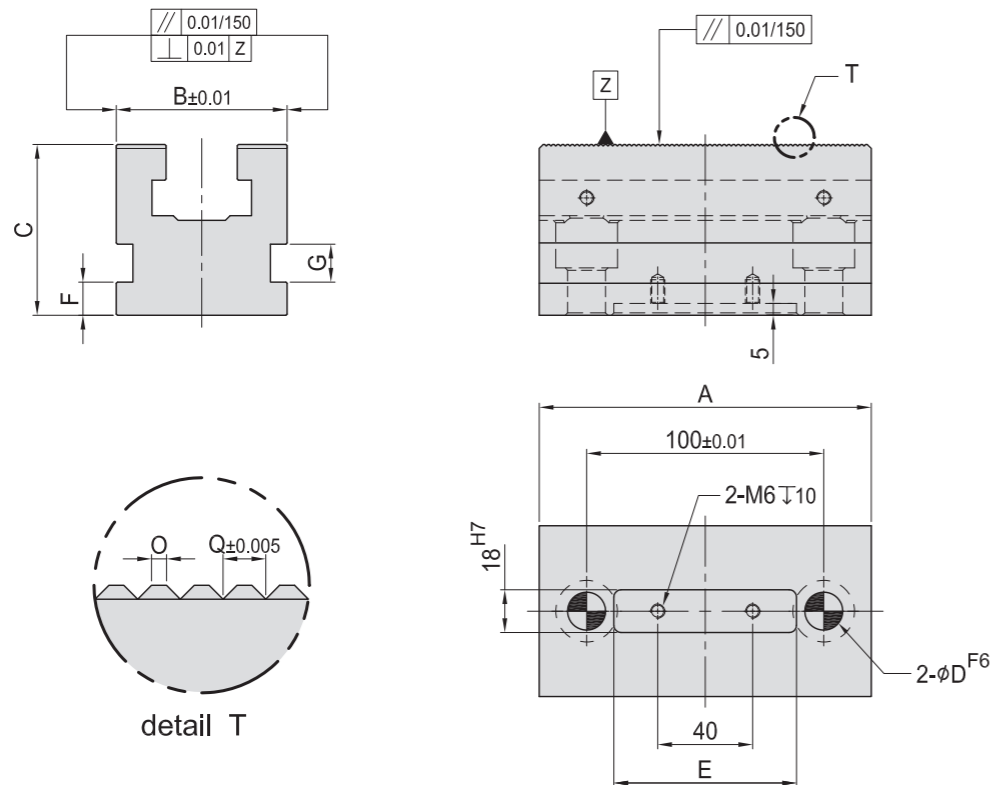


MODEL NO.	kg
SVF-C-5013-100-A	2.0
SVF-C-7214-100-A	5.0
SVF-C-10015-100-A	7.5

MODEL NO.	kg
SVF-C-5013-100-B	2.2
SVF-C-7214-100-B	5.7
SVF-C-10015-100-B	8.5

MODEL NO.	kg
SVF-C-5013-100-C	2.5
SVF-C-7214-100-C	6.2
SVF-C-10015-100-C	9.8

## Main body

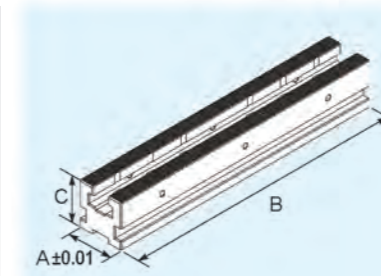
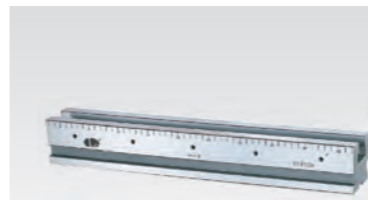


MODEL NO.	A	B	C	D	E	F	G	O	Q	kg
SVF-AB01-5013-100	130	50	50	12	77	10	12	0.50	1.5	1.6
SVF-AB01-7214-100	140	72	72	16	77	14	16	0.70	2.0	4.0
SVF-AB01-10015-100	148	100	72	16	77	14	16	0.85	2.5	5.8



# SVF Optional accessory parts

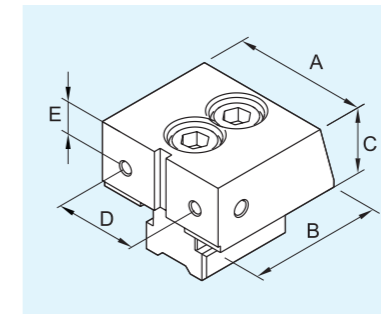
## Main body



TYPE	A	B	C	kg
SVF-AB01-5030-80	50	300	50	4.0
SVF-AB01-5030-100	50	300	100	5.3
SVF-AB01-5040-80	50	400	50	5.3
SVF-AB01-5040-100	50	400	100	6.7
SVF-AB01-5050-80	50	500	50	8.0
SVF-AB01-5050-100	50	500	100	9.5
SVF-AB01-5060-80	50	600	50	9.5
SVF-AB01-5060-100	50	600	100	11.2
SVF-AB01-5070-80	50	700	50	14.0
SVF-AB01-5070-100	50	700	100	17.0
SVF-AB01-7240-100	72	400	72	20.0
SVF-AB01-7250-100	72	500	72	24.0
SVF-AB01-7260-100	72	600	72	28.0
SVF-AB01-7270-100	72	700	72	32.0
SVF-AB01-10040-100	100	400	72	16.0
SVF-AB01-10050-100	100	500	72	20.0
SVF-AB01-10060-100	100	600	72	24.0
SVF-AB01-10070-100	100	700	72	28.0

(For use on A & B series)

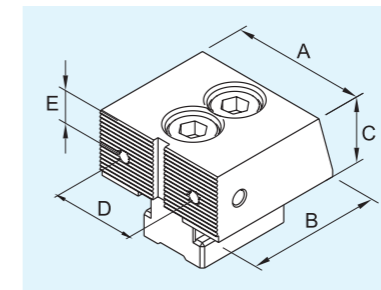
## Stationary wedge-heavy duty



TYPE	A	B	C	D	E	kg
SVF-AB02-50	50	50	25	30	12.5	0.6
SVF-AB02-72	72	74	40	44	21.5	2.0
SVF-AB02-100	100	75	43	64	22.0	2.6

(For use on B series)

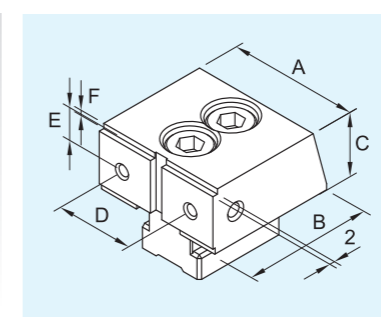
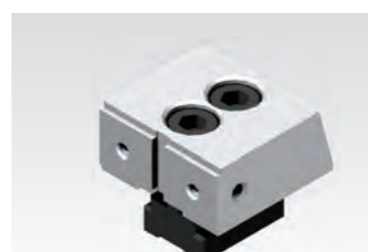
## Serrated stationary wedge-heavy duty



TYPE	A	B	C	D	E	kg
SVF-ABG02-50	50	50	25	30	12.5	0.6
SVF-ABG02-72	72	74	40	44	21.5	2.0
SVF-ABG02-100	100	75	43	64	22.0	2.6

(For use on B series)

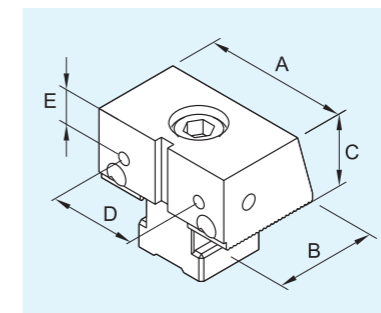
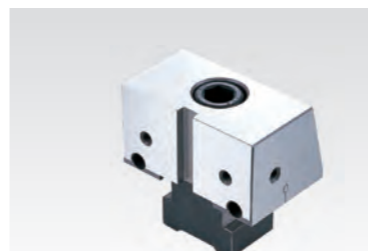
## Step stationary wedge-heavy duty



TYPE	A	B	C	D	E	F	kg
SVF-ABS02-502	50	50	25	30	12.5	2	0.6
SVF-ABS02-505	50	50	25	30	12.5	5	0.6
SVF-ABS02-722	72	74	40	44	21.5	2	2.0
SVF-ABS02-725	72	74	40	44	21.5	5	2.0
SVF-ABS02-1002	100	75	43	64	22.0	2	2.6
SVF-ABS02-1005	100	75	43	64	22.0	5	2.6

(For use on B series)

## Stationary wedge - standard duty



TYPE	A	B	C	D	E	kg
SVF-AB03-50	50	35	25	30	12.5	0.4
SVF-AB03-72	72	48	40	44	21.5	1.1
SVF-AB03-100	100	48	43	64	22.0	1.7

(For use on A, BE & C series)

BP

BPA

BC

CP

SU

PT

SVF

ALV

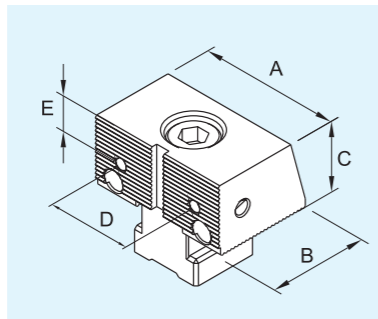
OK-  
VISE

OTHER

Column  
for  
Technical  
Data

**SVF** Optional accessory parts

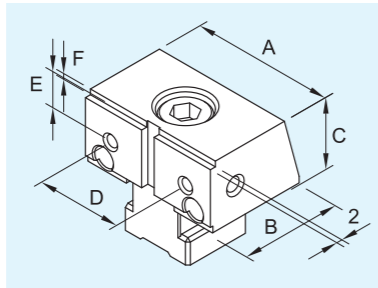
**Serrated stationary wedge - standard duty**



TYPE	A	B	C	D	E	kg
SVF-ABG03-50	50	35	25	30	12.5	0.4
SVF-ABG03-72	72	48	40	44	21.5	1.1
SVF-ABG03-100	100	48	43	64	22.0	1.7

(For use on A ,BE & C series)

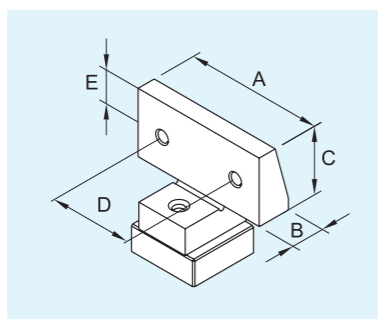
**Step stationary wedge - standard duty**



TYPE	A	B	C	D	E	F	kg
SVF-ABS03-502	50	35	25	30	12.5	2	0.4
SVF-ABS03-505						5	
SVF-ABS03-722	72	48	40	44	21.5	2	1.1
SVF-ABS03-725						5	
SVF-ABS03-1002	100	48	43	64	22.0	2	1.7
SVF-ABS03-1005						5	

(For use on A ,BE & C series)

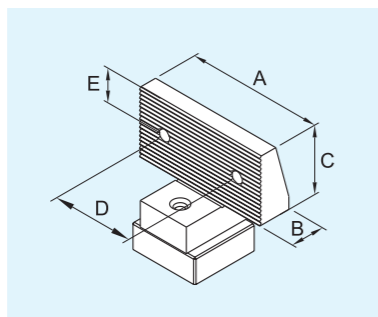
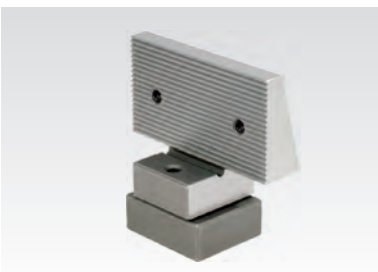
**Moveable jaw**



TYPE	A	B	C	D	E	kg
SVF-AB04-50	50	12	24.3	30	12.5	0.2
SVF-AB04-72	72	18	39.3	44	21.5	0.6
SVF-AB04-100	100	21	42.0	64	22.0	1.0

(For use on all series)

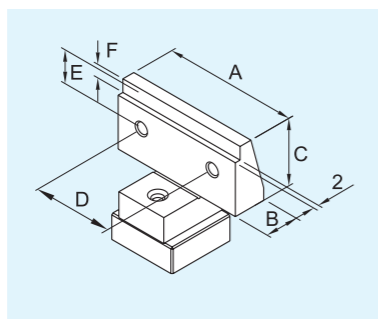
**Serrated moveable jaw**



TYPE	A	B	C	D	E	kg
SVF-ABG04-50	50	12	24.3	30	12.5	0.2
SVF-ABG04-72	72	18	39.3	44	21.5	0.6
SVF-ABG04-100	100	21	42.0	64	22.0	1.0

(For use on all series)

**Step moveable jaw**

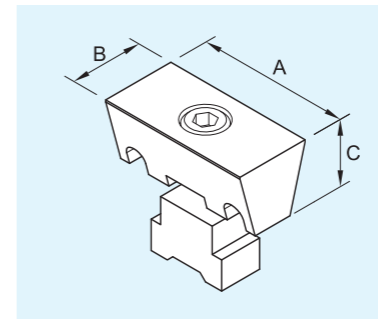
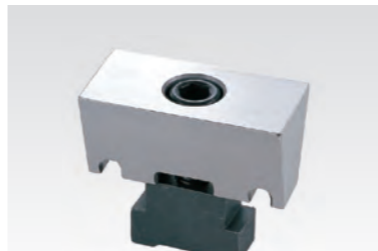


TYPE	A	B	C	D	E	F	kg
SVF-ABS04-502	50	12	24.3	30	12.5	2	0.2
SVF-ABS04-505						5	
SVF-ABS04-722	72	18	39.3	44	21.5	2	0.6
SVF-ABS04-725						5	
SVF-ABS04-1002	100	21	42.0	64	22.0	2	1.0
SVF-ABS04-1005						5	

(For use on all series)

**SVF** Optional accessory parts

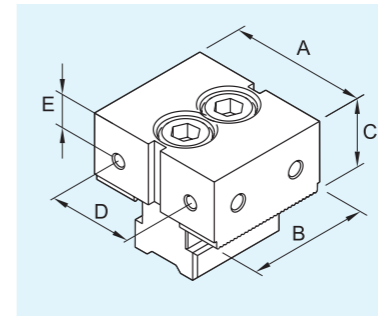
**Moveable wedge**



TYPE	A	B	C	kg
SVF-A01-50	50	24	22	0.2
SVF-A01-72	72	35	35	0.6
SVF-A01-100	100	45	38	1.2

(For use on A series)

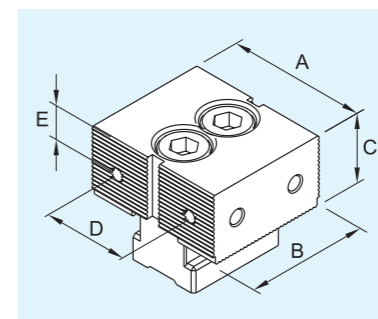
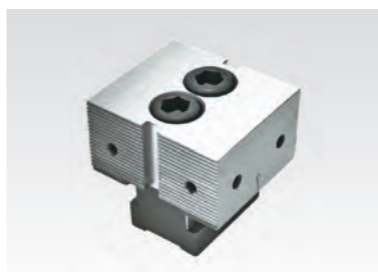
**Fixed jaw-heavy duty**



TYPE	A	B	C	D	E	kg
SVF-B01-50	50	44	25	30	12.5	0.5
SVF-B01-72	72	65	40	44	21.5	1.8
SVF-B01-100	100	70	43	64	22.0	2.6

(For use on B & C series)

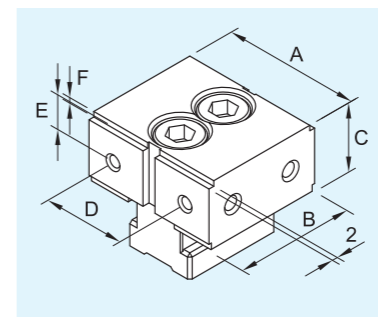
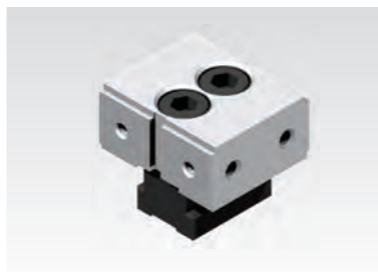
**Serrated fixed jaw-heavy duty**



TYPE	A	B	C	D	E	kg
SVF-BG01-50	50	44	25	30	12.5	0.5
SVF-BG01-72	72	65	40	44	21.5	1.8
SVF-BG01-100	100	70	43	64	22.0	2.6

(For use on B & C series)

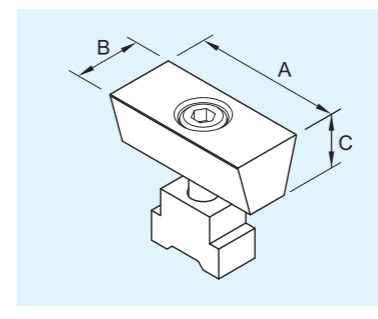
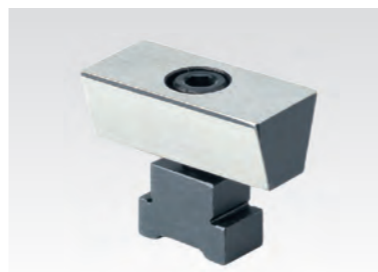
**Step fixed jaw-heavy duty**



TYPE	A	B	C	D	E	F	kg
SVF-BS01-502	50	44	25	30	12.5	2	0.5
SVF-BS01-505						5	
SVF-BS01-722	72	65	40	44	21.5	2	1.8
SVF-BS01-725						5	
SVF-BS01-1002	100	70	43	64	22.0	2	2.6
SVF-BS01-1005						5	

(For use on B & C series)

**Moveable wedge**



TYPE	A	B	C	kg
SVF-B02-50	50	22.5	18.0	0.2
SVF-B02-72	72	35.0	29.0	0.6
SVF-B02-100	100	45.0	32.9	1.3

(For use on B & BE series)

BP

BPA

BC

CP

SU

PT

**SVF**

ALV

OK-  
VISE

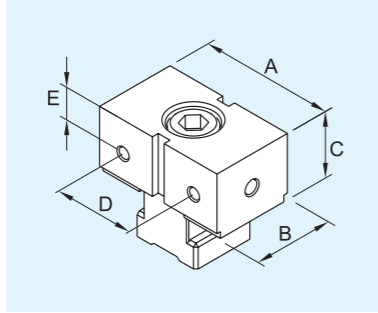
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Column  
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Technical  
Data

**Fixed jaw-standard duty**

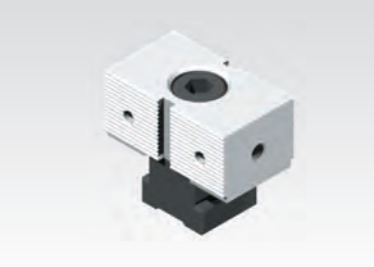


(For use on B & BE series)

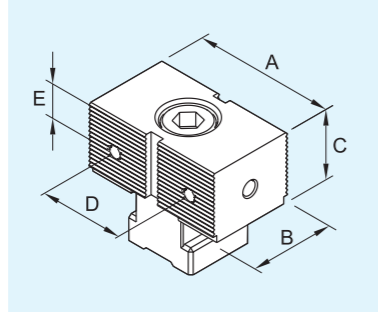


TYPE	A	B	C	D	E	kg
SVF-B03-50	50	30	25	30	12.5	0.4
SVF-B03-72	72	40	40	44	21.5	1.1
SVF-B03-100	100	44	43	64	22.0	1.7

**Serrated fixed jaw-standard duty**

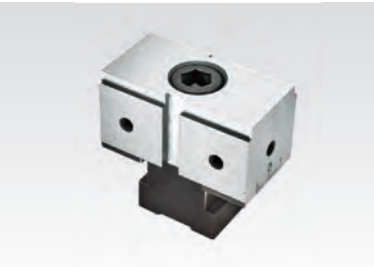


(For use on B & BE series)

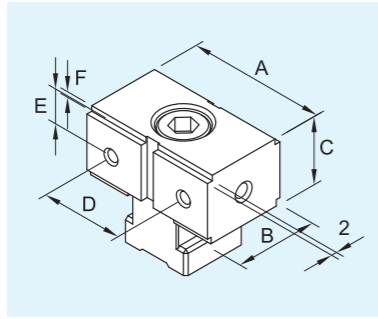


TYPE	A	B	C	D	E	kg
SVF-BG03-50	50	30	25	30	12.5	0.4
SVF-BG03-72	72	40	40	44	21.5	1.1
SVF-BG03-100	100	44	43	64	22.0	1.7

**Step fixed jaw-standard duty**

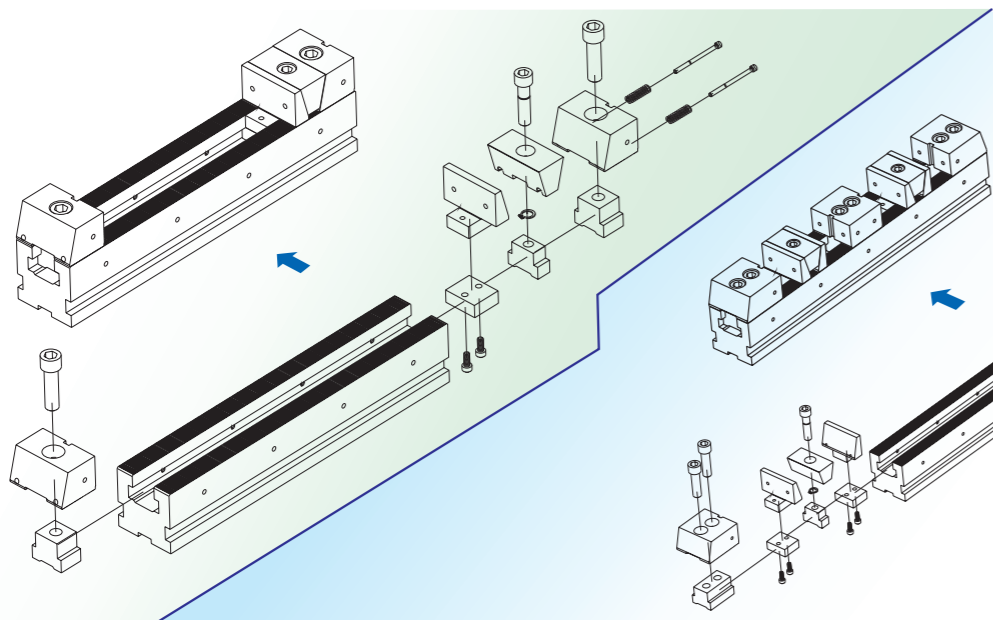


(For use on B & BE series)

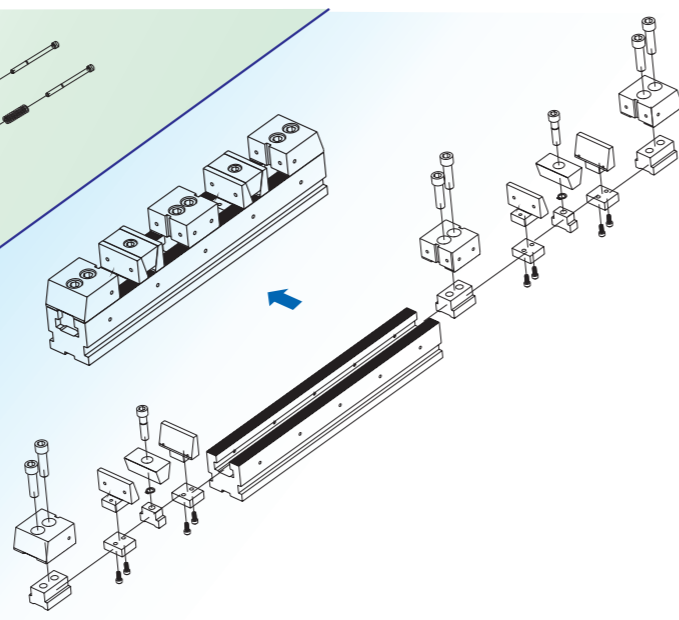


TYPE	A	B	C	D	E	F	kg
SVF-BS03-502	50	30	25	30	12.5	2	0.4
SVF-BS03-505						5	
SVF-BS03-722	72	40	40	44	21.5	2	1.1
SVF-BS03-725						5	
SVF-BS03-1002	100	44	43	64	22.0	2	1.7
SVF-BS03-1005						5	

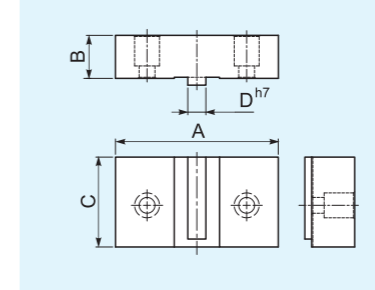
**SVF-A Assembled**



**SVF-B Assembled**

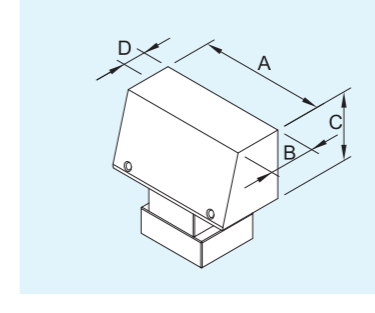
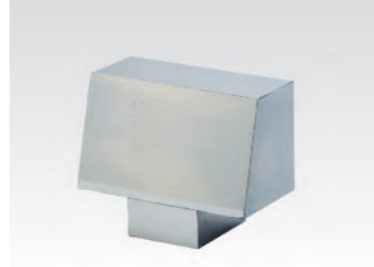


**Fixed soft jaw**



TYPE	A	B	C	D	kg
SVF-S01-50	50	17	25	5	0.2
SVF-S01-50W	80	27			0.4
SVF-S01-72	72	19	40	8	0.4
SVF-S01-72W	115	30			1.1
SVF-S01-100	100	25	43	10	0.9
SVF-S01-100W	150	35			1.8

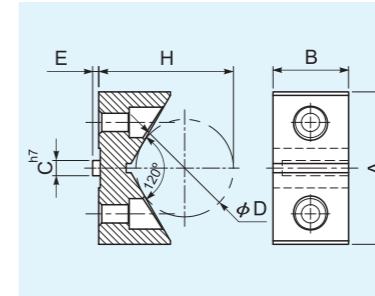
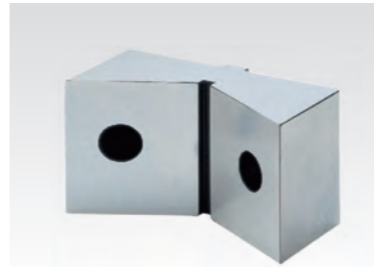
**Moveable soft jaw**



TYPE	A	B	C	D	kg
SVF-S02-50	50	21	24.5	13	0.3
SVF-S02-50W	80	34			0.7
SVF-S02-72	72	26	39.5	19	1.0
SVF-S02-72W	115	40			1.9
SVF-S02-100	100	35	42.5	25	2.0
SVF-S02-100W	150	50			3.2

D is the maximum dimension to be re-machined to accommodate the clamping requirement.

**Hardened V jaw**

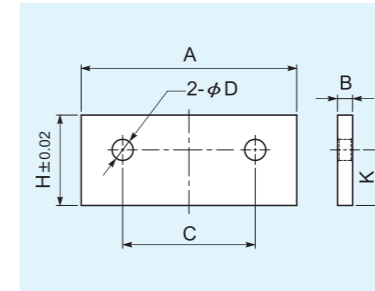


TYPE	A	B	C	D
SVF-S03-50	50	25	5	42
SVF-S03-72	72	40	8	62
SVF-S03-100	100	43	10	62

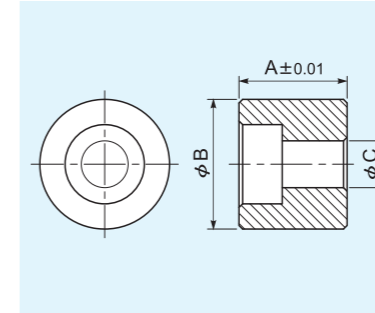
TYPE	E	H	CLAMP (MAX)	kg
SVF-S03-50	2	54.98	φ 70	0.2
SVF-S03-72	3	82.45	φ 110	0.6
SVF-S03-100	4	90.24	φ 160	1.2

**Parallel**



TYPE	A	B	C	D	H	K	kg
SVF-S04-50-17		5		17			0.03
SVF-S04-50-20	49.5	5	30	6	20	12.3	0.04
SVF-S04-50-22							0.03
SVF-S04-72-25		5		25			0.07
SVF-S04-72-30	71.5	5	44	7	30	18.4	0.08
SVF-S04-72-35							0.10
SVF-S04-72-37		3		37			0.15
SVF-S04-100-29		8		29			0.18
SVF-S04-100-33	99.5	8	64	9	33	21.0	0.21
SVF-S04-100-38							0.24
SVF-S04-100-40		5		40			0.10

**Spacer - work piece stop plate**



TYPE	A	B	C	kg
SVF-S05-10	10			0.01
SVF-S05-15	15	18	6.5	0.02
SVF-S05-23	23			0.03
SVF-S05-100-15	15			0.03
SVF-S05-100-20	20	25	9.0	0.04
SVF-S05-100-25	25			0.05

BP

BPA

BC

CP

SU

PT

**SVF**

ALV

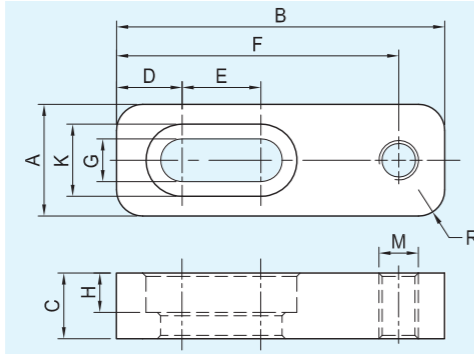
OK-VISE

OTHER

Column for Technical Data

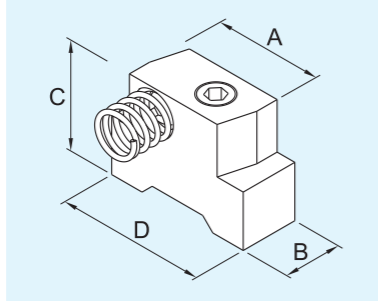
**SVF** Optional accessory parts

Work piece stop plate



TYPE	A	B	C	D	E	F
SVF-S06-50	17	45	10	10.0	12	38
SVF-S06-72	17	50	10	10.0	12	43
SVF-S06-100	25	55	15	11.5	16	45
TYPE	G	H	K	M	R	kg
SVF-S06-50	6.5	6.0	11	M6	4	0.03
SVF-S06-72	6.5	6.0	11	M6	4	0.04
SVF-S06-100	9.0	8.5	14	M8	5	0.14

Spring loaded nut



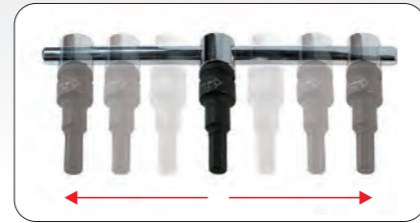
TYPE	A	B	C	D	kg
SVF-S07-50	19	10.2	19	25	0.04
SVF-S07-72	30	12.2	29	40	0.05
SVF-S07-100	45	14.0	29	56	0.05

(For use on B & BE series)

T-handle adjustable socket driver (SKD-T 1/2 L10)



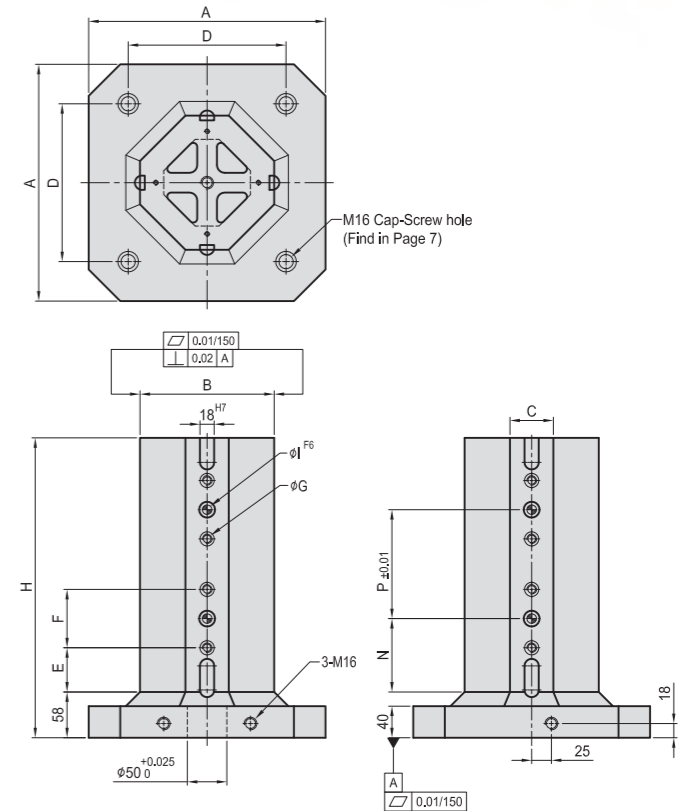
Socket



Standard parts included with SVF-A & SVF-B SVF-BE vises

For	T-slot nut		Clamp		Screw		Threaded dowel pin		Locating key		Hexagonal driver	
	MODEL NO.	QTY	MODEL NO.	QTY	MODEL NO.	QTY	MODEL NO.	QTY	MODEL NO.	QTY	MODEL NO.	QTY
50	PT06-1812		SVF-P01-50		CAP-M12-40L		PT11-1234		PT27-1810		SPN-M6HEX SPN-M8HEX	1 pc 1 pc
72	PT06-1816	4 pcs	SVF-P01-72	4 pcs	CAP-M16-50L		PT11-1642	2 pcs	CAP-M6-10L	2 pcs	SPN-M10HEX SPN-M12HEX	1 pc 1 pc
100	PT06-1816		SVF-P01-72		CAP-M16-50L		PT11-1642				SPN-M12HEX SPN-M14HEX	1 pc 1 pc

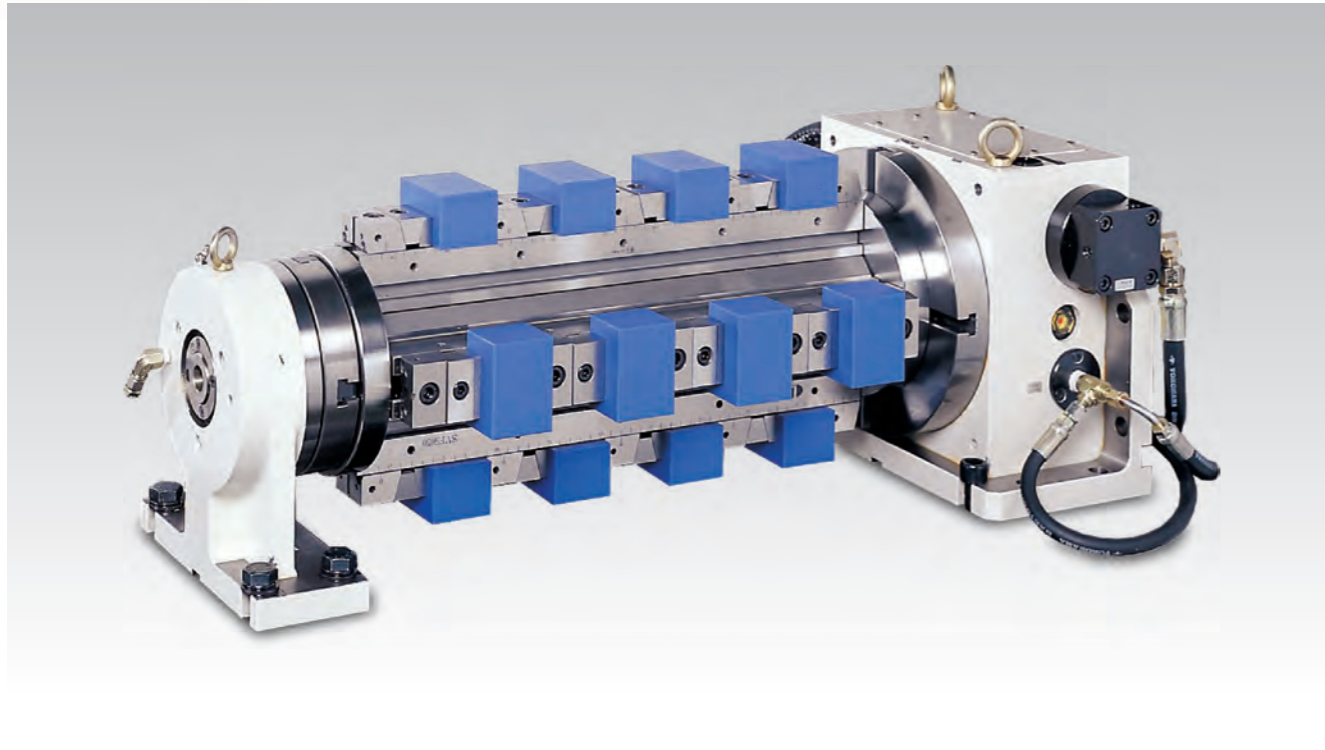
**SVF-CB** M/C Octagonal cube



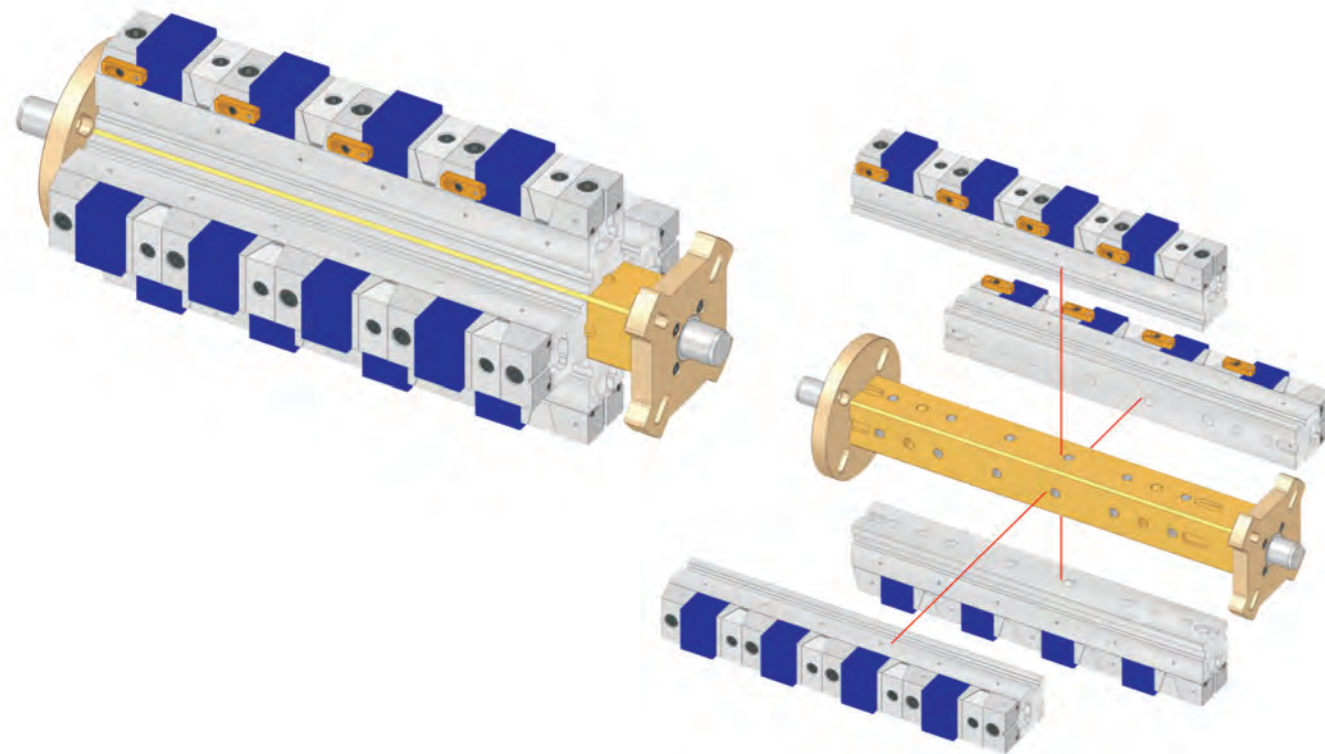
MODEL NO.	A	B	C	D	E	F	G	H	I	N	P	Mounting holes	kg
SVF-5030-300CB8-80	300	170	55	200	32	80	M12	360	12	72	160	4	61
SVF-5030-300CB8-100					52	100							
SVF-5030-320CB8-80	320	170	55	200	32	80	M12	360	12	72	160	4	65
SVF-5030-320CB8-100					52	100							
SVF-5040-300CB8-80	300	170	55	200	42	80	M12	460	12	82	240	4	73
SVF-5040-300CB8-100					52	100							
SVF-5040-320CB8-80	320	170	55	200	42	80	M12	460	12	82	240	4	76
SVF-5040-320CB8-100					52	100							
SVF-5050-400CB8-80	400	200	55	320	52	80	M12	560	12	92	320	4	118
SVF-5050-400CB8-100					100	102							
SVF-5050-500CB8-80	500	250	55	400	52	80	M12	560	12	92	320	8	163
SVF-5050-500CB8-100					100	102							
SVF-5060-400CB8-80	400	200	55	320	62	80	M12	660	12	102	400	4	132
SVF-5060-400CB8-100					52	100							
SVF-5060-500CB8-80	500	250	55	400	62	80	M12	660	12	102	400	8	181
SVF-5060-500CB8-100					52	100							
SVF-5070-400CB8-100	400	200	55	320	52	100	M12	760	12	102	500	4	188
SVF-5070-500CB8-80	500	250	55	400	72	80	M12	760	12	112	480	8	199
SVF-5070-500CB8-100					52	100							
SVF-7240-300CB8-100	300	170	75	200	52	100	M16	460	16	102	200	4	76
SVF-7240-320CB8-100	320												
SVF-7250-400CB8-100	400	200	75	320	52	100	M16	560	16	102	300	4	117
SVF-7250-500CB8-100	500	250	75	400	52	100	M16	560	16	102	300	8	167
SVF-7260-400CB8-100	400	200	75	320	52	100	M16	660	16	102	400	4	130
SVF-7260-500CB8-100	500	250	75	400	52	100	M16	660	16	102	400	8	185
SVF-7270-400CB8-100	400	200	75	320	52	100	M16	760	16	102	500	4	186
SVF-7270-500CB8-100	500	250		400									
SVF-7270-630CB8-100	630	300	75	500	52	100	M16	760	16	102	500	8	292
SVF-10050-400CB8-100	400	200	105	320	52	100	M16	560	16	102	300	4	130
SVF-10050-500CB8-100	500	250		400									
SVF-10060-500CB8-100	500	250	105	400	52	100	M16	660	16	102	400	8	191
SVF-10060-630CB8-100	630	300		500									
SVF-10070-500CB8-100	500	250	105	400	52	100	M16	760	16	102	500	8	211
SVF-10070-630CB8-100	630	300		500									

(Order optional mounting cube as a separate item)

**APPLICATION EXAMPLE**

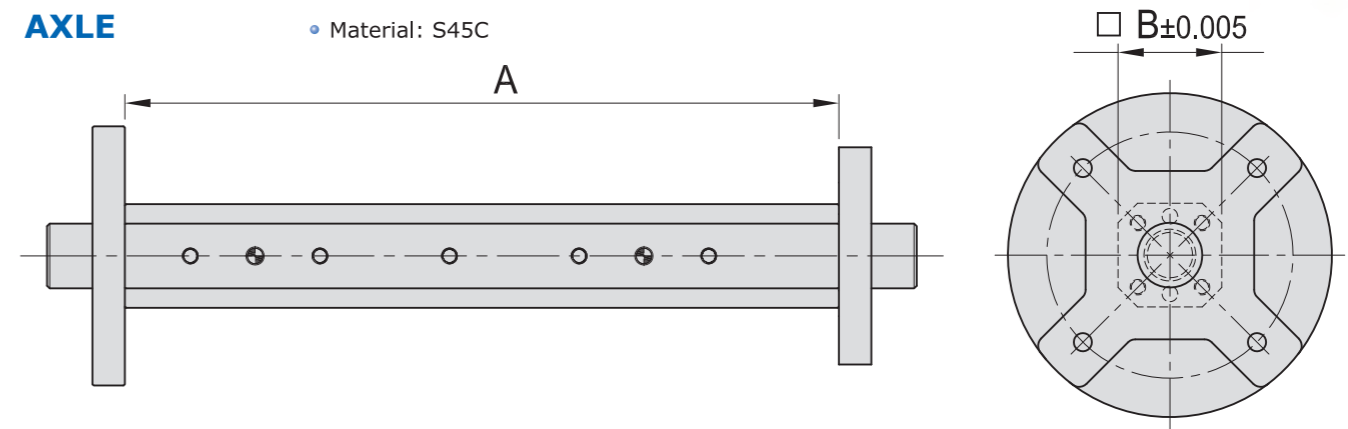


**ASSEMBLED**



**AXLE**

• Material: S45C

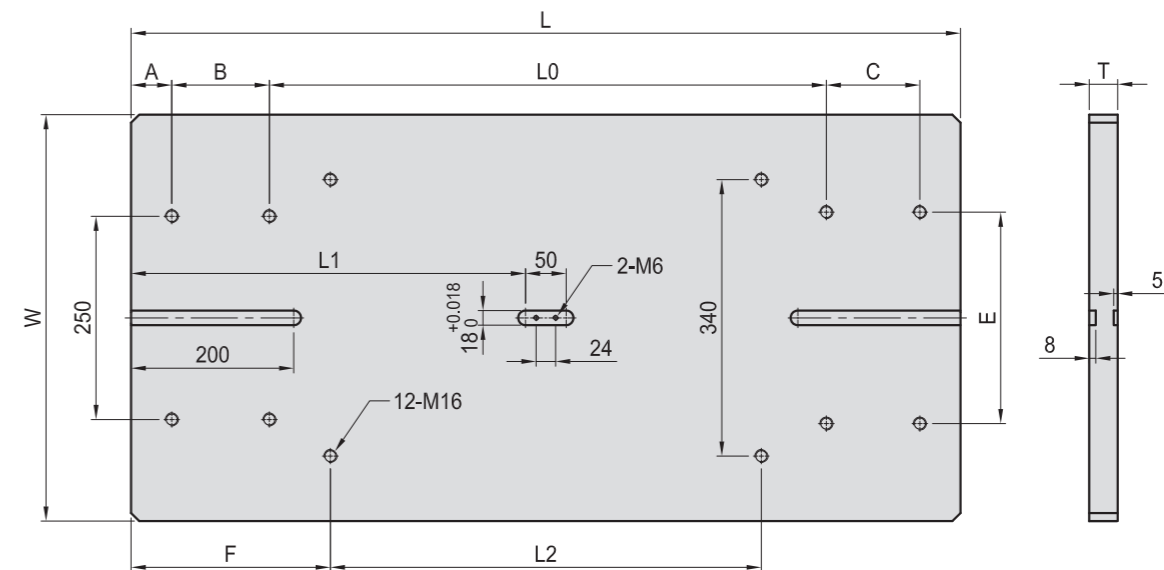


Model	A	B	kg	Model	A	B	kg
SVFX-5030-080	350	80	48.2	SVFX-7240-100	450	80	53.7
SVFX-5030-100				SVFX-7250-100	550	80	58.2
SVFX-5040-080	450	80	52.2	SVFX-7260-100	650	80	62.2
SVFX-5040-100				SVFX-7270-100	750	80	66.2
SVFX-5050-080	550	80	56.2	SVFX-10040-100	450	102	70.0
SVFX-5050-100				SVFX-10050-100	550	102	75.5
SVFX-5060-080	650	80	60.2	SVFX-10060-100	650	102	83.5
SVFX-5060-100				SVFX-10070-100	750	102	92.5
SVFX-5070-080	750	80	64.2				
SVFX-5070-100							

\*Please offer the brand and model no. of the indexing table and the tail stock that you use when you place an order.

**BASE PLATE**

• Material: S45C



Model	L	L0	L1	L2	W	T	A	B	C	E	F
SVFX-5030BP	700	425	325	260							
SVFX-5040BP	800	525	375	360							
SVFX-5050BP	900	625	425	460	400	30	80	80	72	200	220
SVFX-5060BP	1000	725	475	560							
SVFX-5070BP	1100	825	525	660							
SVFX-7240BP	920	520	435	430							
SVFX-7250BP	1020	620	485	530	500	35	45	185	135	300	280
SVFX-7260BP	1120	720	535	630							
SVFX-7270BP	1220	820	585	730							

\*Special design welcome!

(Optional accessory available for being ordered separately)

BP

BPA

BC

CP

SU

PT

SVF

ALV

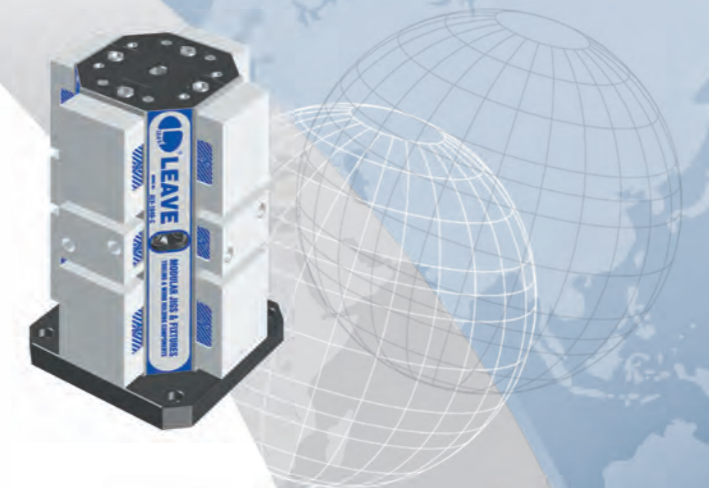
OK-  
VISE

OTHER

Column  
for  
Technical  
Data

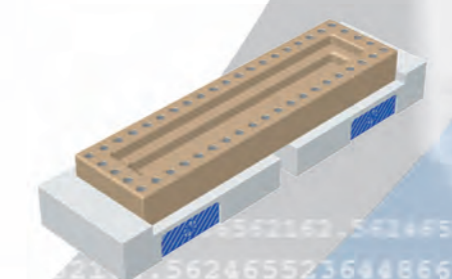
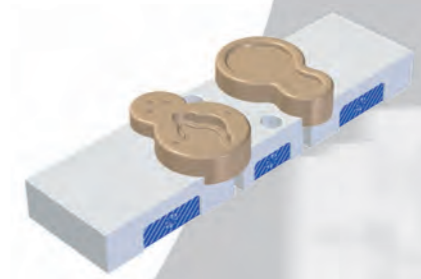


A series of horizontal blue lines for writing, spanning the width of the page.



## **ALV SERIES**

*HIGH STRENGTH ALUMINUM LINE UP VISE*



HIGH STRENGTH ALUMINUM LINE UP VISE HIGH STRENGTH ALUMINUM LINE UP VISE HIGH STRENGTH ALUMINUM LINE UP VISE

562162.562465523644866254.00005555556266.00066562162  
562162.562465523644866254.00005555556266.00066562162  
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4866254.00005555556266.00066562162.562465523644866254.00005555556266.00066562162  
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**ALV**

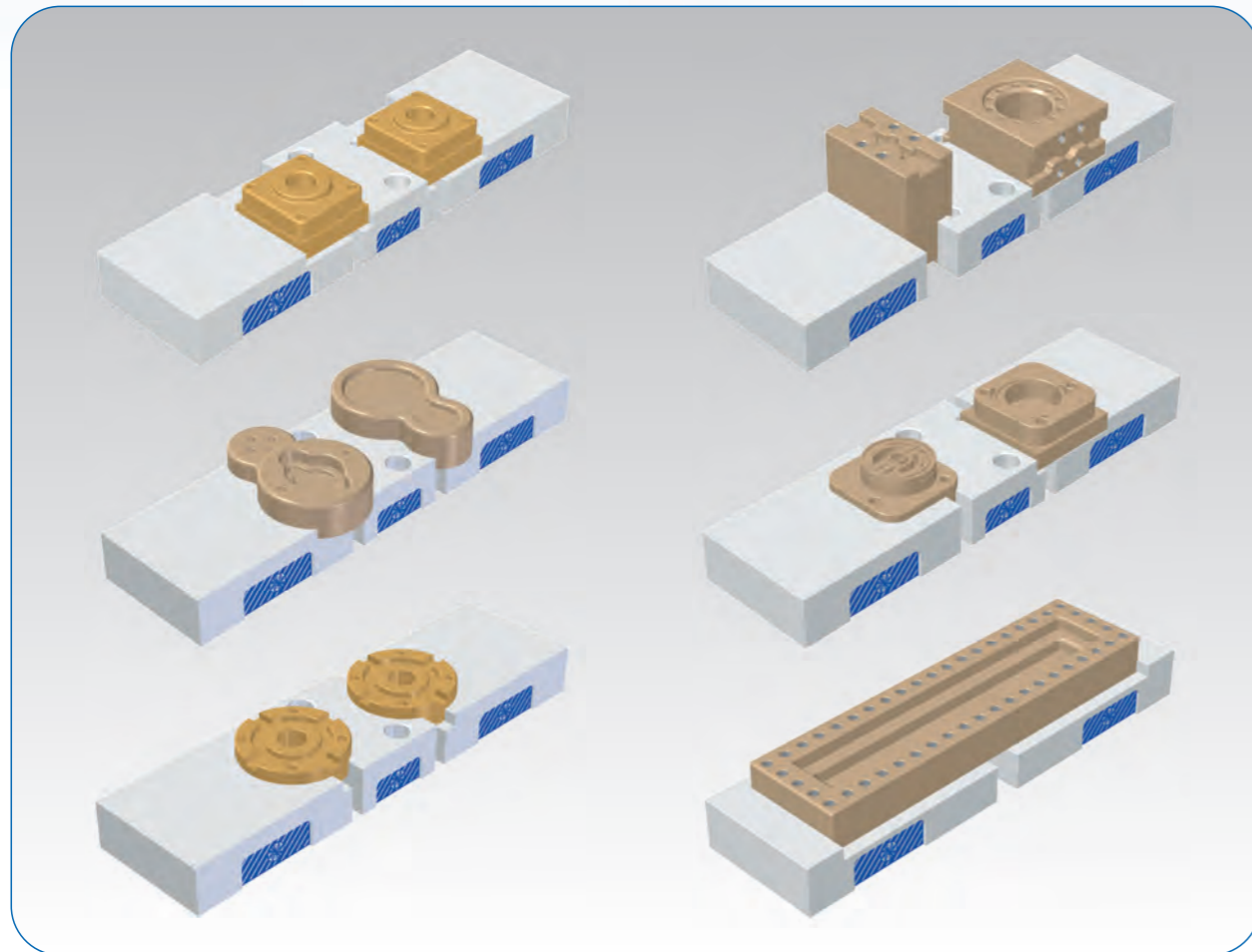
**HIGH STRENGTH  
ALUMINUM LINE UP VISE**

We are pleased to present to you our newly designed ALV Vise series. Many new features have been added to streamline the work holding process. The ALV vise will optimize your workspace, speed up cycle time and will give an overall increase in production. We have added quick change snap-in jaws and a rapid 1 part - 2 part change over system. As an added feature all internal parts are sealed to prevent chip contamination.



**LOWEST COST  
HIGHEST QUALITY  
100% SATISFACTION GUARANTEE**

**Clamping Examples**

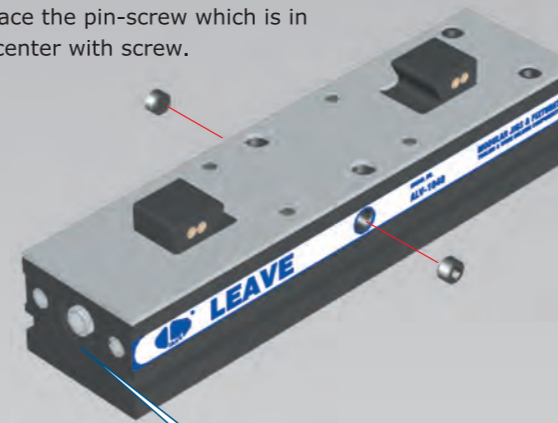


**ALV**

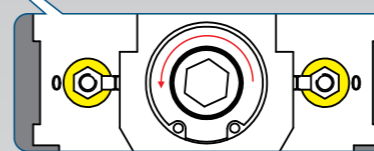
**HIGH STRENGTH  
ALUMINUM LINE UP VISE**

**To Clamp Two Workpiece**

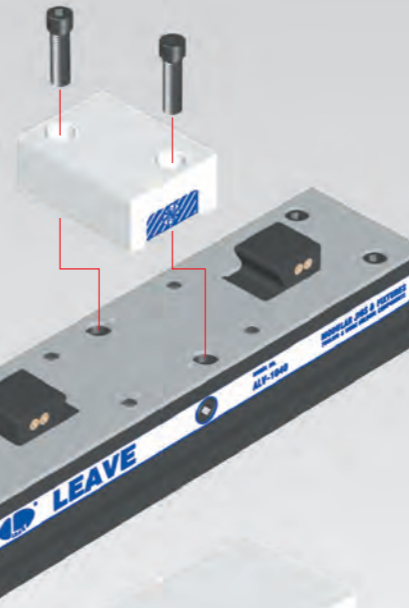
**1** Replace the pin-screw which is in the center with screw.



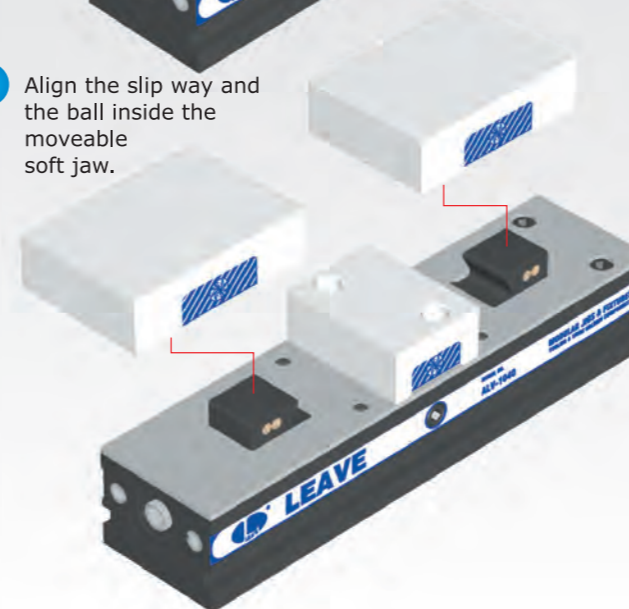
**2** Turn counterclockwise the bolt to the end and turn the model to "I" which is on the side of the main body.



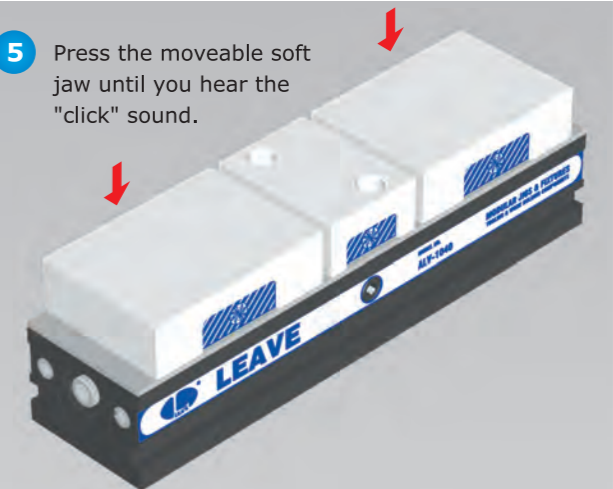
**3** Install the fixed soft jaw and close it completely.



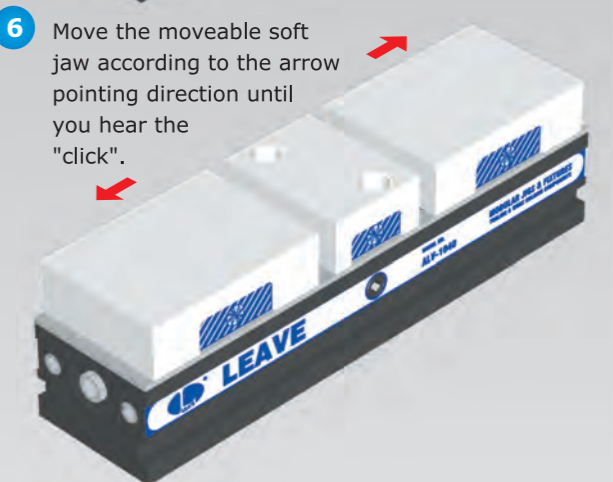
**4** Align the slip way and the ball inside the moveable soft jaw.



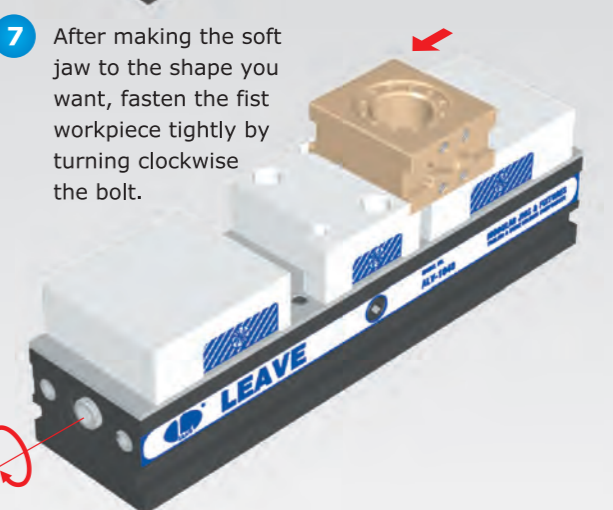
**5** Press the moveable soft jaw until you hear the "click" sound.



**6** Move the moveable soft jaw pointing direction until you hear the "click".



**7** After making the soft jaw to the shape you want, fasten the first workpiece tightly by turning clockwise the bolt.



**8** Put the second workpiece then swivel the bolt until it gets tightened.



BP

BPA

BC

CP

SU

PT

SVF

**ALV**

OK-  
VISE

OTHER

Column  
for  
Technical  
Data

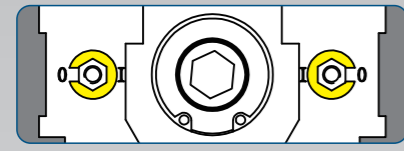
# ALV HIGH STRENGTH ALUMINUM LINE UP VISE

# ALV HIGH STRENGTH ALUMINUM LINE UP VISE

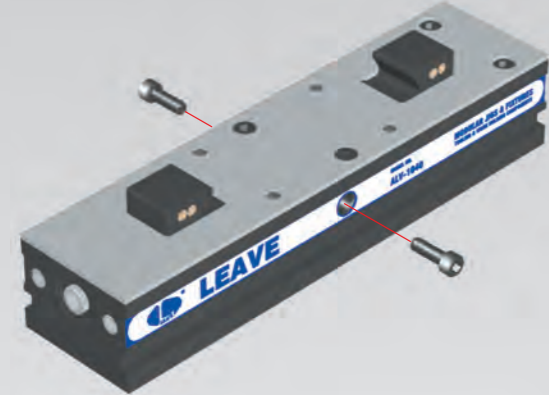
## To Clamp One Workpiece

## Application for Quick Fixture Base

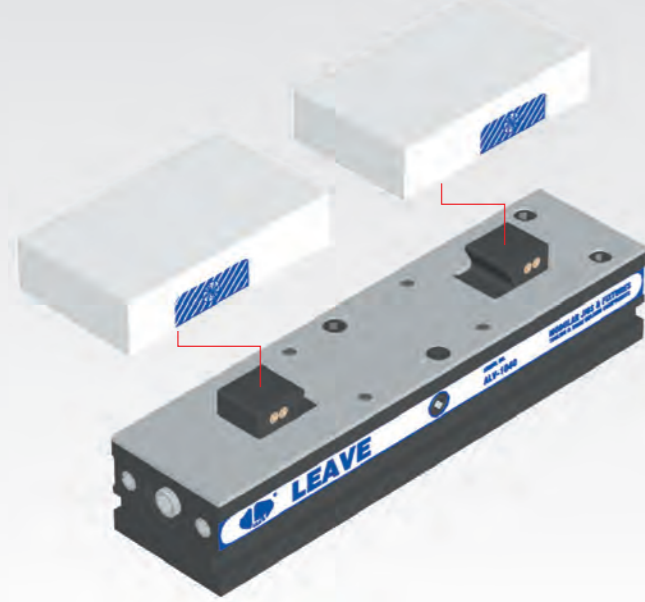
1 Turn the model to "O" which is on the side of the main body.



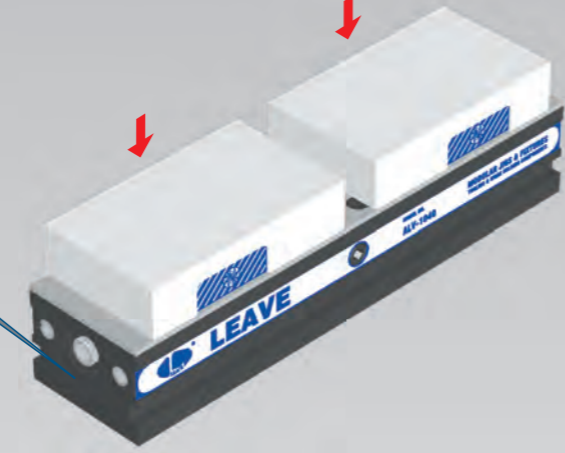
2 Turn counterclockwise the bolt to the end and replace the screw with pin-screw.



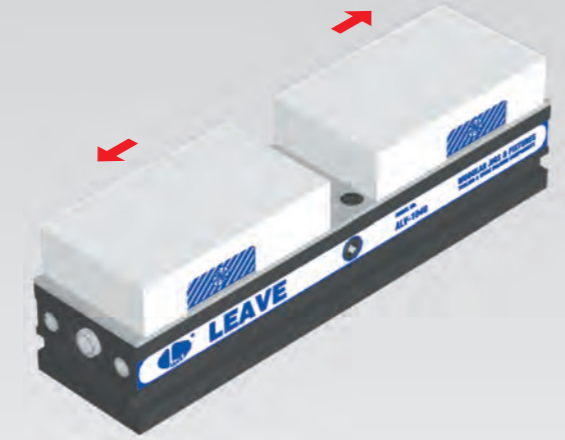
3 Align the slip way and the ball inside the moveable soft jaw.



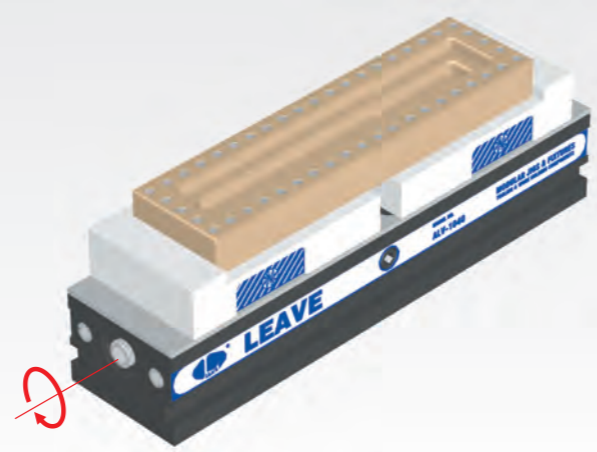
4 Press the moveable soft jaw until you hear the "click" sound.



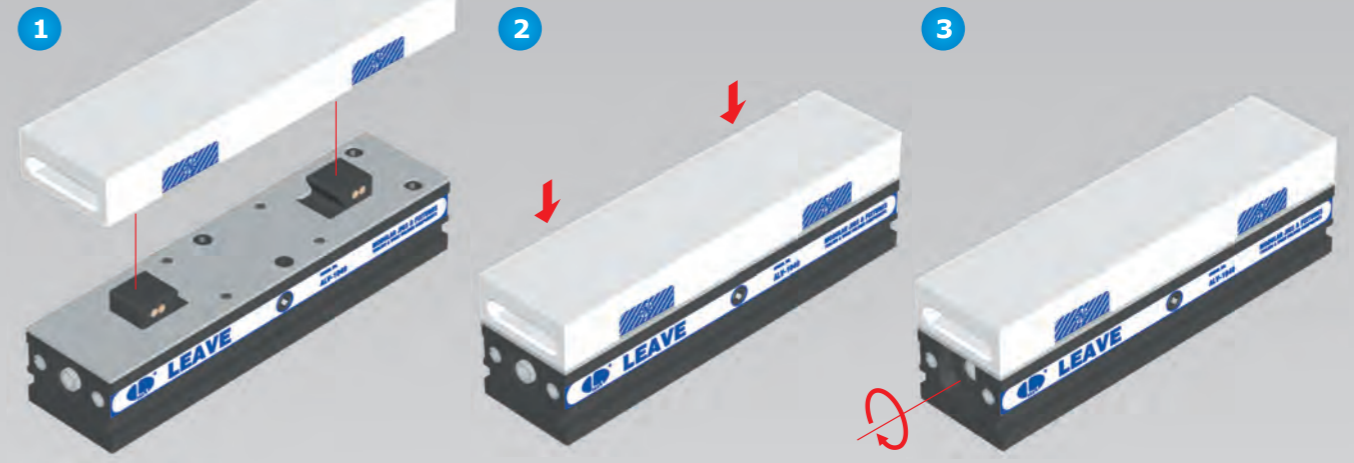
5 Move the moveable soft jaw according to the arrow pointing direction until you hear the "click".



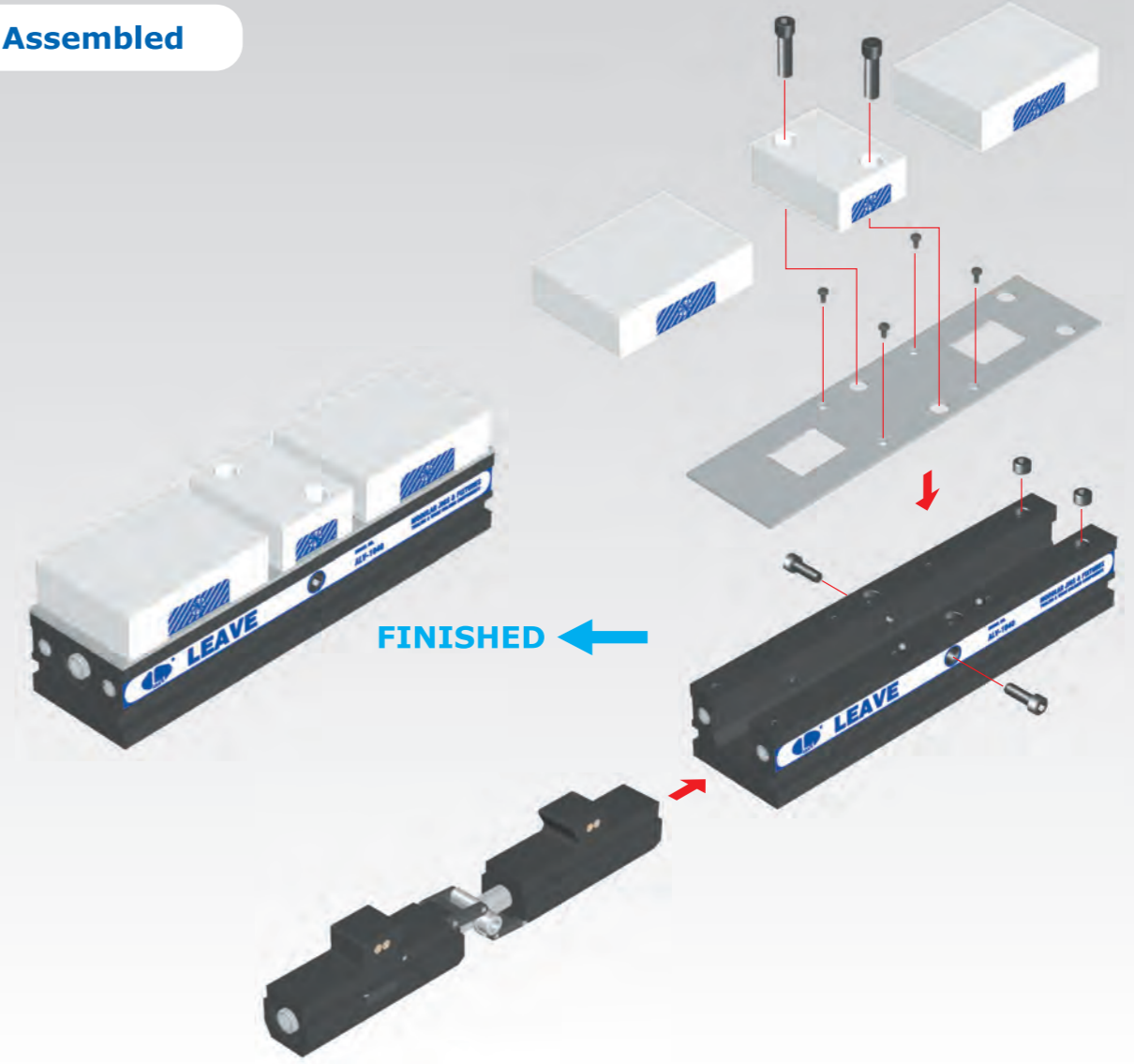
6 After making the soft jaw to the shape you want, the workpiece is clamped.



- Quickly convert the vise into a fixture base.
- Tightening the vise screw locks the fixture base in place.



## Assembled



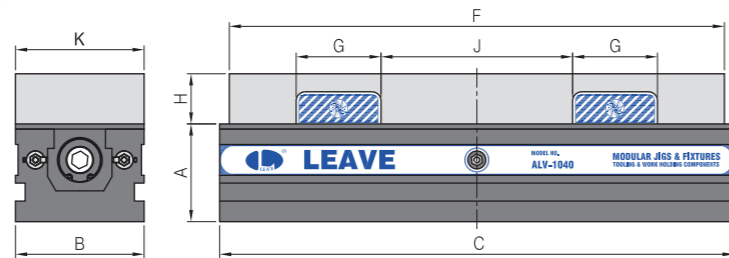
- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV**
- OK-VISE
- OTHER
- Column for Technical Data



**ALV**

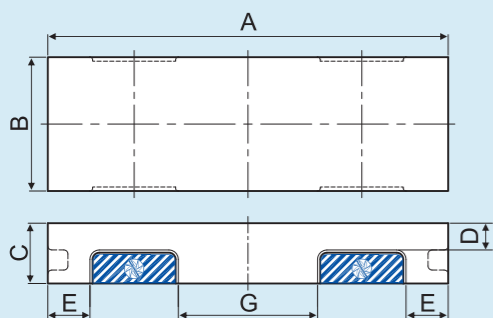
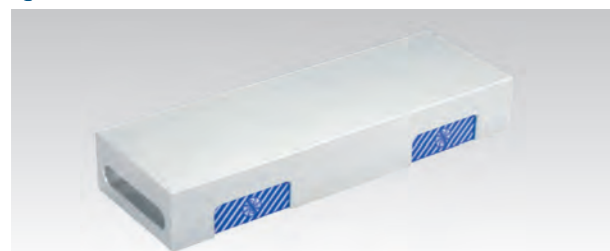
**HIGH STRENGTH ALUMINUM LINE UP VISE**

- Material: High strength aluminum A7075 (Hard coat surface)  
Tool steel (Hardness: over HRC 55°)
- Application: Ideal for aluminum or irregular shaped work pieces.



MODEL NO.	A	B	C	F	G	H	J	K	kg
ALV-0620-0	64	60	200	199	43	21	72.0	60	2.9
ALV-1030-0	76	100	300	299	66	45	104.0	100	9.8
ALV-1030-0H						54		10.6	
ALV-1030-0W						45		11.7	
ALV-1030-0WH						54		12.8	
ALV-1040-0	76	100	400	399	66	45	149.0	100	14.0
ALV-1040-0H						54		14.9	
ALV-1040-0W						45		16.1	
ALV-1040-0WH						54		16.8	
ALV-1550-0	95	150	500	499	89	49	198.5	150	29.5
ALV-1550-0H						59		32.3	
ALV-1550-0W						49		34.1	
ALV-1550-0WH						59		36.3	

**Quick Fixture Base**



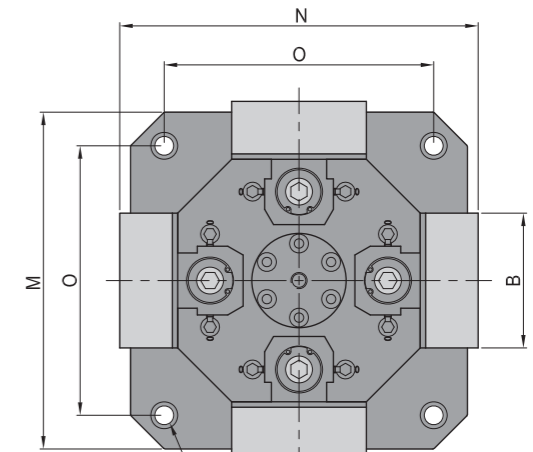
MODEL NO.	A	B	C	D	E	G	kg
ALV-0620-58	199	60	21	3	20.5	72.0	0.75
ALV-1030-58	299	100	45	20	31.5	104.0	3.25
ALV-1030-58H			54	29			4.00
ALV-1030-58W	299	150	45	20	31.5	104.0	5.10
ALV-1030-58WH			54	29			6.20
ALV-1040-58	399	100	45	20	59.0	149.0	4.50
ALV-1040-58H			54	29			5.42
ALV-1040-58W	399	150	45	20	59.0	149.0	6.63
ALV-1040-58WH			54	29			7.30
ALV-1550-58	499	150	49	19	61.3	198.5	10.20
ALV-1550-58H			59	29			11.80
ALV-1550-58W	499	200	49	19	61.3	198.5	13.60
ALV-1550-58WH			59	29			15.80



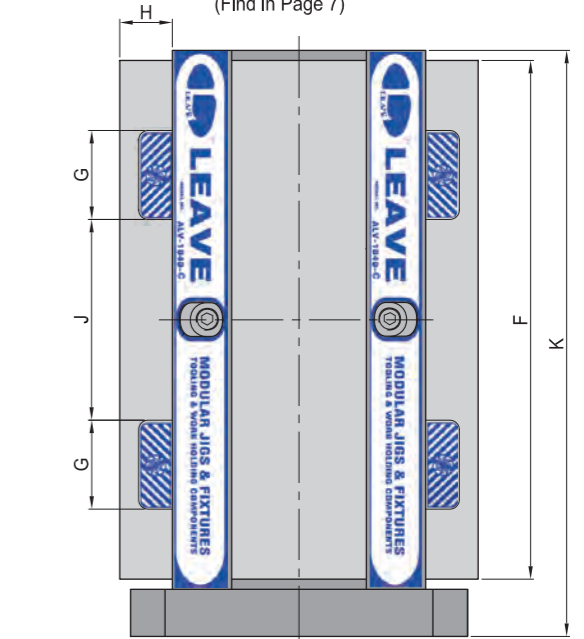
**ALV**

**HIGH STRENGTH ALUMINUM LINE UP VISE**

- Material: High strength aluminum A7075 (Hard coat surface)  
Tool steel (Hardness: over HRC 55°)
- Application: Ideal for aluminum or irregular shaped work pieces.



Cap-Screw hole (Find in Page 7)



MODEL NO.	B	F	G	H	J	K	M	N	O	Q	kg
ALV-1030-C-0	100	299	66	45	104.0	335	250	278	200	M12	47.00
ALV-1030-C-0H				54				296			50.00
ALV-1030-C-0W				45				278			54.40
ALV-1030-C-0WH	150			54				296			58.80
ALV-1040-C-0	100	399	66	45	149.0	435	250	278	200	M12	60.70
ALV-1040-C-0H				54				296			64.38
ALV-1040-C-0W				45				278			69.22
ALV-1040-C-0WH	150			54				296			71.90
ALV-1550-C-0	150	499	89	49	198.5	545	300	338	250	M16	127.00
ALV-1550-C-0H				59				358			138.20
ALV-1550-C-0W				49				338			145.40
ALV-1550-C-0WH	200			59				358			154.20

\*ALL SIZE BASE PLATES ARE AVAILABLE FOR THE ALV VISE.

BP

BPA

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ALV

OK-  
VISE

OTHER

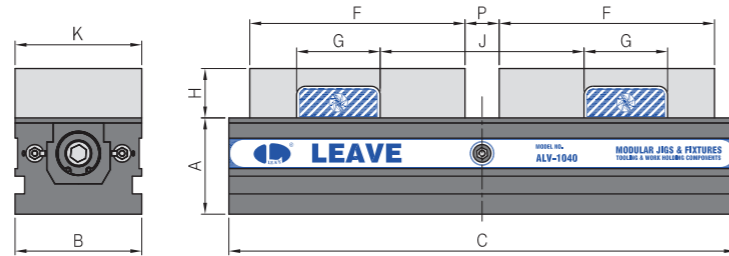
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**ALV**

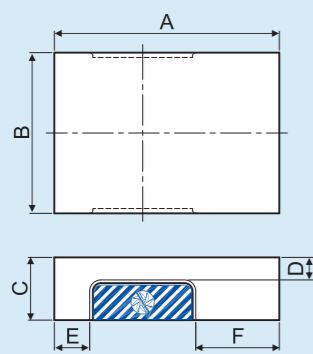
**HIGH STRENGTH ALUMINUM LINE UP VISE**

- Material: High strength aluminum A7075 (Hard coat surface)  
Tool steel (Hardness: over HRC 55°)
- Application: Ideal for aluminum or irregular shaped work pieces.



MODEL NO.	A	B	C	F	G	H	J	K	P	kg
ALV-0620-1						21		60		3.0
ALV-0620-1H	64	60	200	93.0	43	31	68-82		0-14	3.0
ALV-0620-1W						21		80		3.1
ALV-0620-1WH						31				3.4
ALV-1030-1						39		100		9.2
ALV-1030-1H	76	100	300	140.0	66	54	104-124		0-20	10.4
ALV-1030-1W						39		150		10.8
ALV-1030-1WH						54				12.5
ALV-1040-1						39		100		13.0
ALV-1040-1H	76	100	400	170.0	66	54	149-179		15-45	14.3
ALV-1040-1W						39		150		14.7
ALV-1040-1WH						54				16.7
ALV-1550-1						49		150		27.9
ALV-1550-1H	95	150	500	207.5	89	59	175-220		35-80	28.6
ALV-1550-1W						49		200		29.5
ALV-1550-1WH						59				31.3

**Extended Movable Soft Jaw**



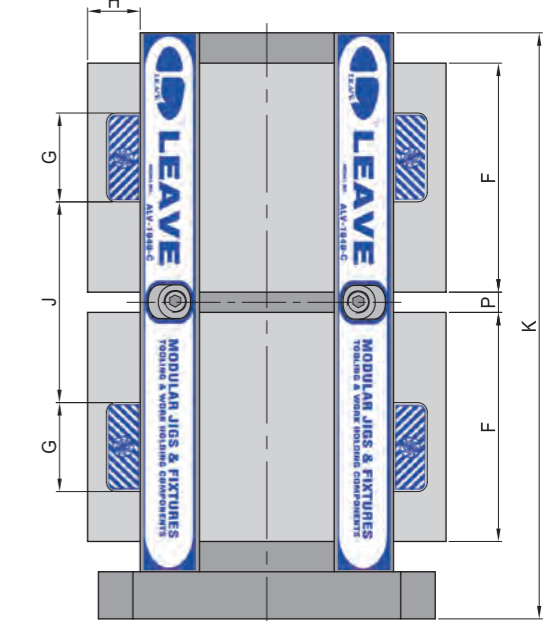
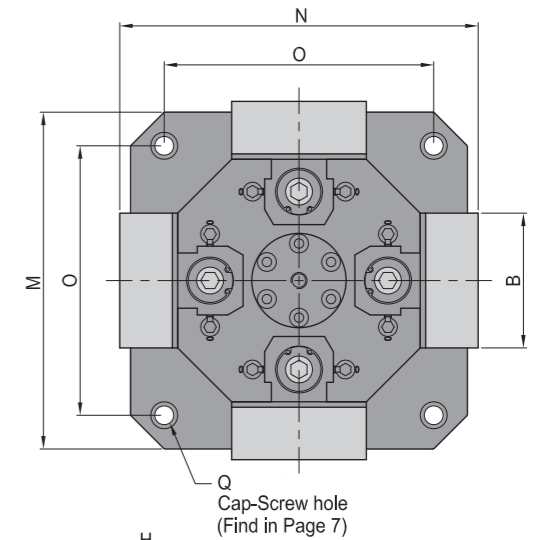
MODEL NO.	A	B	C	D	E	F	kg
ALV-0620-55			21	3			0.24
ALV-0620-55H	93.0	60	31	13	16	34.0	0.35
ALV-0620-55W			21	3			0.38
ALV-0620-55WH	93.0	80	31	13	16	34.0	0.56
ALV-1030-55			39	14			1.30
ALV-1030-55H	140.0	100	54	29	22	52.0	1.90
ALV-1030-55W			39	14			2.10
ALV-1030-55WH	140.0	150	54	29	22	52.0	2.96
ALV-1040-55			39	14			1.62
ALV-1040-55H	170.0	100	54	29	37	67.0	2.38
ALV-1040-55W			39	14			2.60
ALV-1040-55WH	170.0	150	54	29	37	67.0	3.60
ALV-1550-55			49	19			3.36
ALV-1550-55H	207.5	150	59	29	48	70.5	4.04
ALV-1550-55W			49	19			4.48
ALV-1550-55WH	207.5	200	59	29	48	70.5	5.39



**ALV**

**HIGH STRENGTH ALUMINUM LINE UP VISE**

- Material: High strength aluminum A7075 (Hard coat surface)  
Tool steel (Hardness: over HRC 55°)
- Application: Ideal for aluminum or irregular shaped work pieces.



MODEL NO.	B	F	G	H	J	K	M	N	O	P	Q	kg
ALV-1030-C-1				39				266				44.40
ALV-1030-C-1H	100			54				296				49.20
ALV-1030-C-1W		140.0	66	39	104-124	335	250	266	200	0-20	M12	50.80
ALV-1030-C-1WH				54				296				57.68
ALV-1040-C-1				39				266				55.66
ALV-1040-C-1H	100			54				296				61.74
ALV-1040-C-1W		170.0	66	39	149-179	435	250	266	200	15-45	M12	63.50
ALV-1040-C-1WH				54				296				71.50
ALV-1550-C-1				49				338				120.60
ALV-1550-C-1H	150			59				358				123.32
ALV-1550-C-1W		207.0	89	49	175-220	545	300	338	250	35-80	M16	126.84
ALV-1550-C-1WH				59				358				134.12

\*ALL SIZE BASE PLATES ARE AVAILABLE FOR THE ALV VISE.

BP

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ALV

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VISE

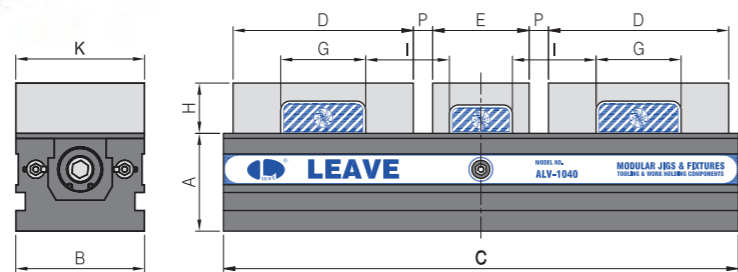
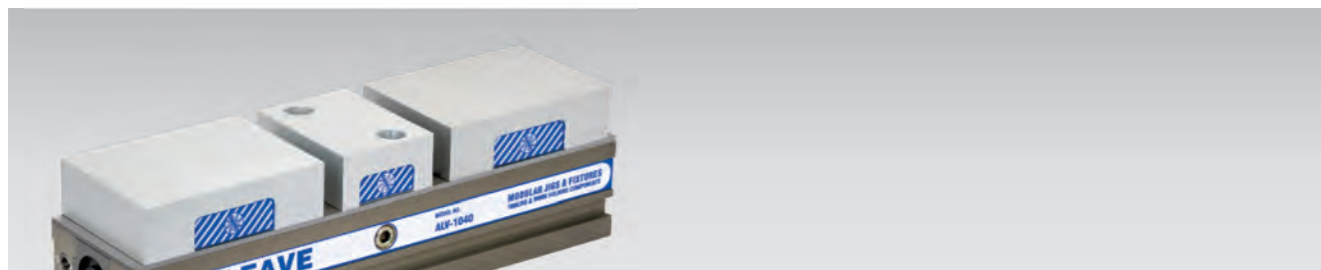
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**ALV**

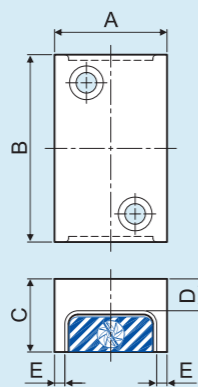
**HIGH STRENGTH ALUMINUM LINE UP VISE**

- Material: High strength aluminum A7075 (Hard coat surface)  
Tool steel (Hardness: over HRC 55°)
- Application: Ideal for aluminum or irregular shaped work pieces.



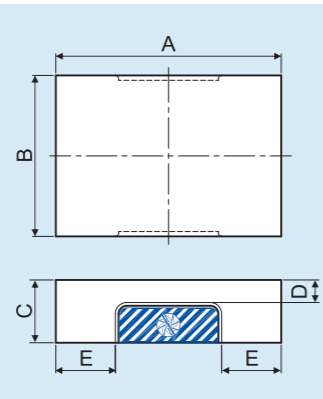
MODEL NO.	A	B	C	D	E	G	H	I	K	P	kg
ALV-0620-2							21		60		2.9
ALV-0620-2H							31	18.0-25.0		0-7.0	3.0
ALV-0620-2WH	64	60	200	75	36	43	31		80		3.1
ALV-1030-2							39		100		3.4
ALV-1030-2H							54	27.5-37.5		0-10.0	10.3
ALV-1030-2W	76	100	300	110	60	66	39		150		10.7
ALV-1030-2WH							54				12.4
ALV-1040-2							39		100		12.8
ALV-1040-2H							54	50.0-65.0		0-15.0	14.3
ALV-1040-2W	76	100	400	140	75	66	39		150		14.7
ALV-1040-2WH							54				17.0
ALV-1550-2							49		150		28.7
ALV-1550-2H							59	63.5-86.0		0-22.5	30.3
ALV-1550-2W	95	150	500	185	80	89	49		200		31.5
ALV-1550-2WH							59				33.7

**Fixed Jaw**



MODEL NO.	A	B	C	D	E	kg
ALV-0620-57	36	60	21	7	2.0	0.10
ALV-0620-57H			31	17		0.15
ALV-0620-57W	36	80	21	7	2.0	0.15
ALV-0620-57WH			31	17		0.23
ALV-1030-57	60	100	39	17	5.5	0.60
ALV-1030-57H			54	32		0.80
ALV-1030-57W	60	150	39	17	5.5	0.90
ALV-1030-57WH			54	32		1.25
ALV-1040-57	75	100	39	17	13.0	0.72
ALV-1040-57H			54	32		1.04
ALV-1040-57W	75	150	39	17	13.0	1.14
ALV-1040-57WH			54	32		1.60
ALV-1550-57	80	150	49	21	15.5	1.45
ALV-1550-57H			59	31		1.75
ALV-1550-57W	80	200	49	21	15.5	2.00
ALV-1550-57WH			59	31		2.40

**Movable Soft Jaw**

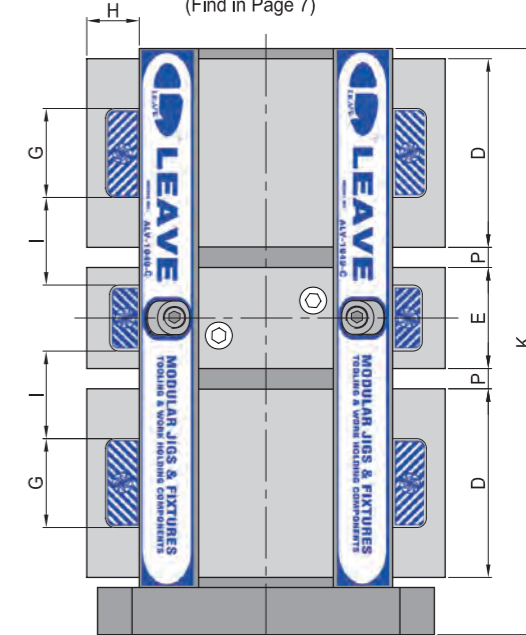
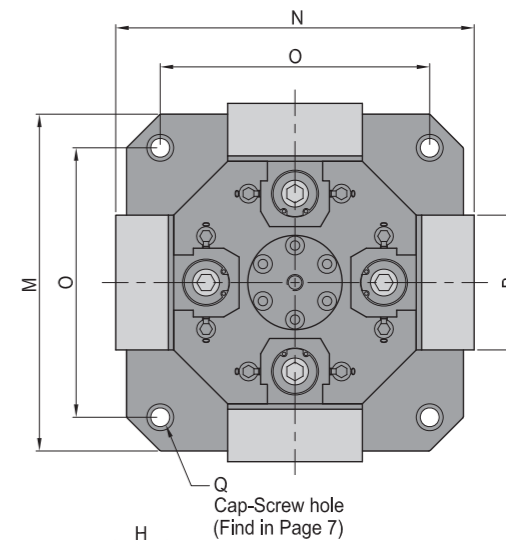
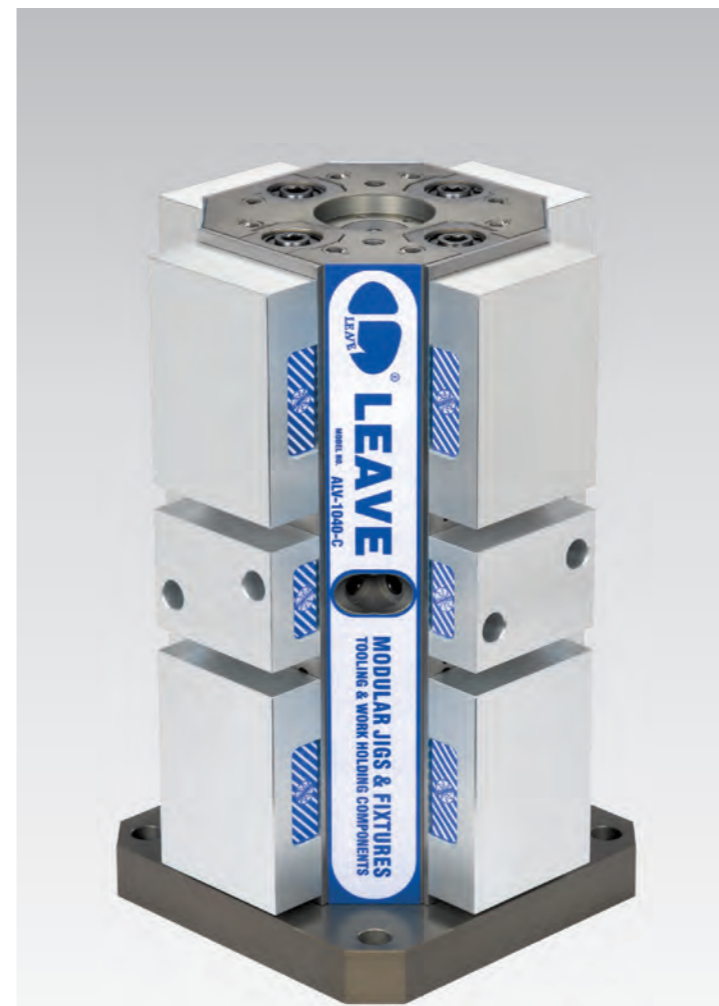


MODEL NO.	A	B	C	D	E	kg
ALV-0620-56	75	60	21	3	16	0.20
ALV-0620-56H			31	13		0.28
ALV-0620-56W	75	80	21	3	16	0.30
ALV-0620-56WH			31	13		0.45
ALV-1030-56	110	100	39	14	22	1.00
ALV-1030-56H			54	29		1.45
ALV-1030-56W	110	150	39	14	22	1.62
ALV-1030-56WH			54	29		2.30
ALV-1040-56	140	100	39	14	37	1.35
ALV-1040-56H			54	29		1.90
ALV-1040-56W	140	150	39	14	37	2.04
ALV-1040-56WH			54	29		2.95
ALV-1550-56	185	150	49	19	48	3.35
ALV-1550-56H			59	29		4.00
ALV-1550-56W	185	200	49	19	48	4.48
ALV-1550-56WH			59	29		5.40

**ALV**

**HIGH STRENGTH ALUMINUM LINE UP VISE**

- Material: High strength aluminum A7075 (Hard coat surface)  
Tool steel (Hardness: over HRC 55°)
- Application: Ideal for aluminum or irregular shaped work pieces.



MODEL NO.	B	D	E	G	H	I	K	M	N	O	P	Q	kg
ALV-1030-C-2	100	110	60	66	39	27.5-37.5	335	250	266	200	0-10.0	M12	44.40
54					296								48.80
ALV-1030-C-2H	150				39				266				50.56
54					296								57.40
ALV-1040-C-2	100	140	75	66	39	50.0-65.0	435	250	266	200	0-15.0	M12	56.38
54					296								62.06
ALV-1040-C-2H	150				39				266				63.58
54					296								72.70
ALV-1550-C-2	150	185	80	89	49	63.5-86.0	545	300	338	250	0-22.5	M16	123.60
59					358								130.00
ALV-1550-C-2H	200				49				338				134.84
59					358								143.80

\*ALL SIZE BASE PLATES ARE AVAILABLE FOR THE ALV VISE.

BP

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ALV

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VISE

OTHER

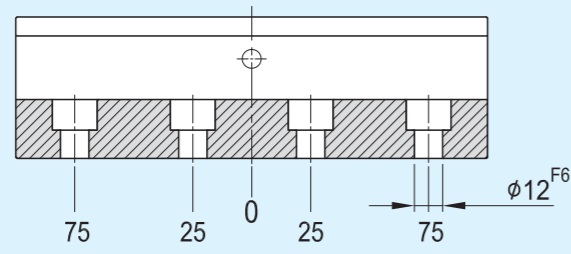
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**ALV**

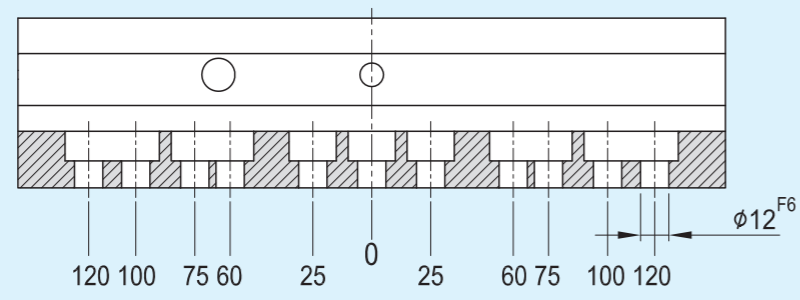
**HIGH STRENGTH  
ALUMINUM LINE UP VISE**

**The locating mounting holes for ALV main body**

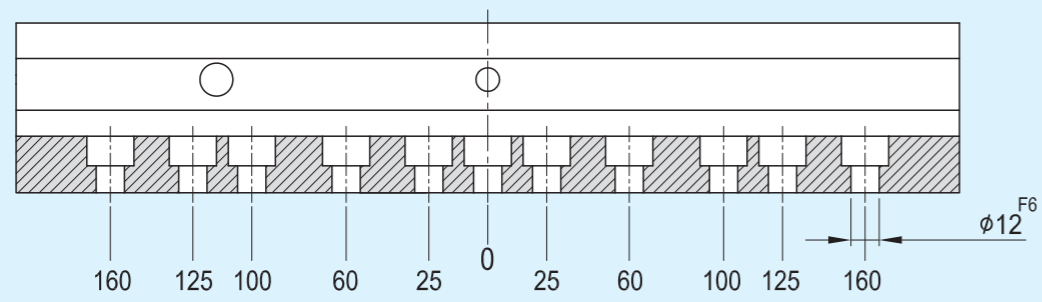
ALV-0620



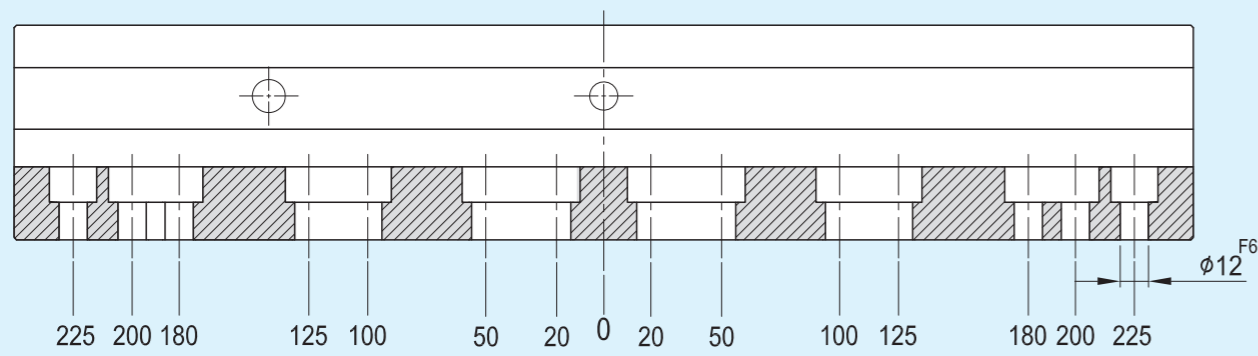
ALV-1030



ALV-1040



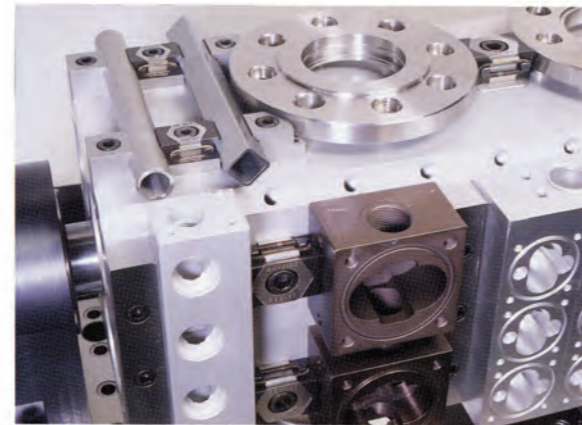
ALV-1550



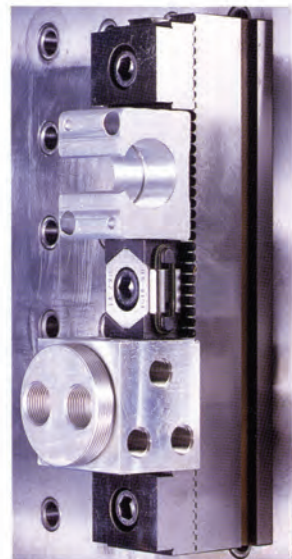


# OK-VISE CLAMPING UNIT

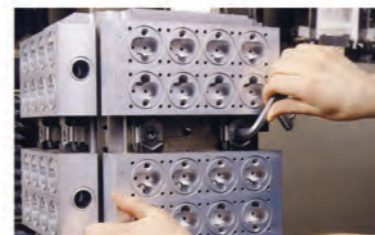
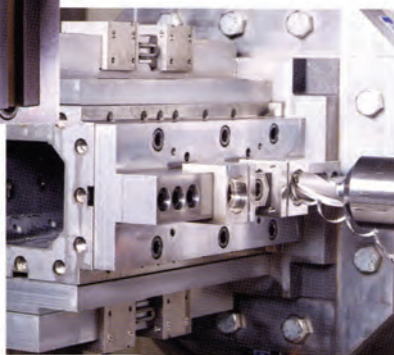
Smart design  
Ultimate efficiency



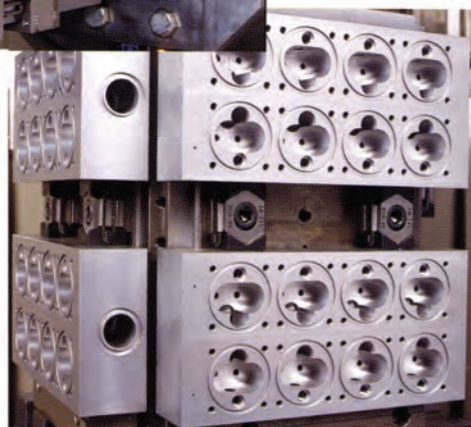
Accurate machining needs a free operative clamping unit. OK-VISE is a good solution for reaching such target because it is locked firmly in every direction as it is tightened down and this cuts out all possibilities of measurement error due to sliding.



OK-VISE low-profile clamp is flexible to operate on different pallets.



OK-VISE low-profile clamp extends the capacity of each pallets to be utilized.

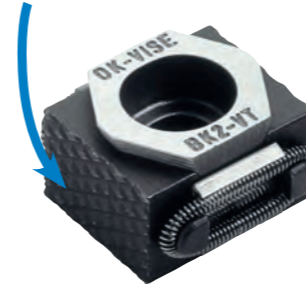


OK-VISE low-profile clamp cuts down the cost of changing other machining jig and fixtures, which means that the clamp is possible to achieve the highest level of this effectiveness.

# OK-VISE CLAMPING UNIT

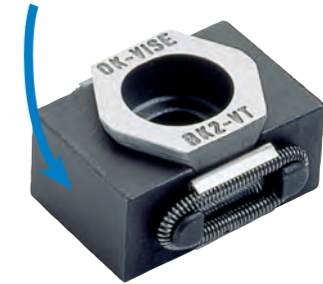
## SERRATED JAWS

General-purpose clamp for your workshop. Serration creates high friction, which ensures reliable clamping in any circumstances.



## SMOOTH JAWS

When no marks on the workpieces are allowed, smooth jaws are used.



## PULL-DOWN MODELS

In addition to holding the workpiece in place, pull-down clamps also generate pull-down action, pressing workpieces down onto the fixture base.



## MACHINABLE JAWS

Single-wedge clamps are also available with extended jaws and can be machined to suit the geometry of the workpiece. The smallest model can be machined up to 3 mm and the larger ones up to 5 mm.



## ADDITIONAL PIECE MODELS

Additional piece models have machined female threadings (M5) for socket head screws on the side of the jaw, making it quick and easy to use various additional pieces which can also be machined into different shapes.



## SELF-ADJUSTABLE MODELS

These clamps have a self-adjustable ball pressure screw inserted into a clamp jaw. The ball bearing at the end is made of steel and equipped with torsion protection, allowing the ball to self-adjust up to 9 degrees. This makes clamping irregularshaped parts and castings more flexible.



## STAINLESS STEEL MODEL

The stainless steel model is designed to meet the demands of wire EDM applications. This model only contains parts made of high quality stainless steel. Available only with smooth-ended jaws.



## ECONOMY MODELS

These models meet the demands of workholding when ultra precision and high clamping force are not necessary. They are made of the same raw material as our other models. Only the bottom of the jaw is ground. Our smallest series is only available as the economy model (AK2-VT-SO).



BP

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OK-VISE

OTHER

Column for Technical Data



# OK-VISE CLAMPING UNIT

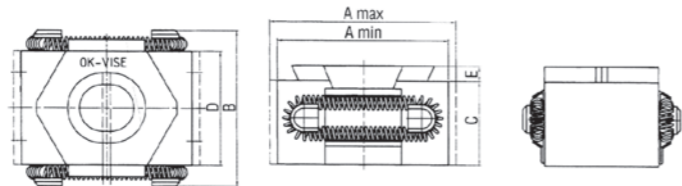
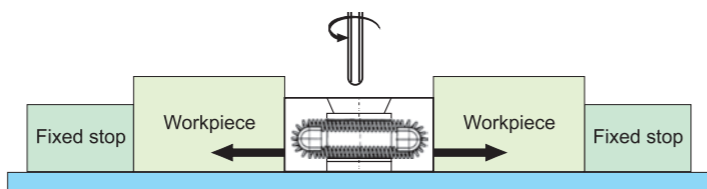
## THE COST EFFICIENT CHOICE !

Accuracy of the fixture comes normally from the precision of the fixed stoppers, guideframes and location pins (so called 0-points) not from the clamp itself which job is to generate the clamping force to hold the

workpiece towards the 0-points. We have designed three models on this page to meet the demands of

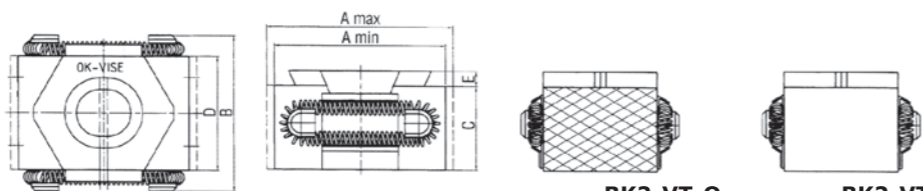
regular workholding when ultra precision is not a necessity. Although not ground as precise as standard models these clamps are just as effective when it comes to clamping force. Same raw material is being used and bottom of the jaws are ground for precise locating on the fixture base.

AK2-VT-SO always comes with Viton o-rings but B-series clamps are also available with regular springs on request.



AK2-VT-SO

TYPE	A			B	C	D	E	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max									
AK2-VT-SO	20	23	25	22	11	15	4.2	M5x025	10	10	0.022	48-52



BK2-VT-O

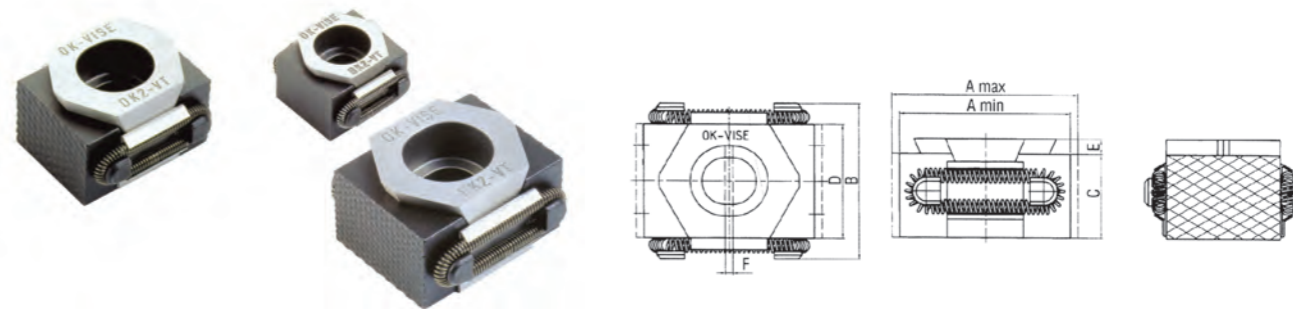
TYPE	A			B	C	D	E	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max									
BK2-VT-O	27	29	31	29	15	21	2.5	M8x020	25	44	0.055	48-52



BK2-VT-SO

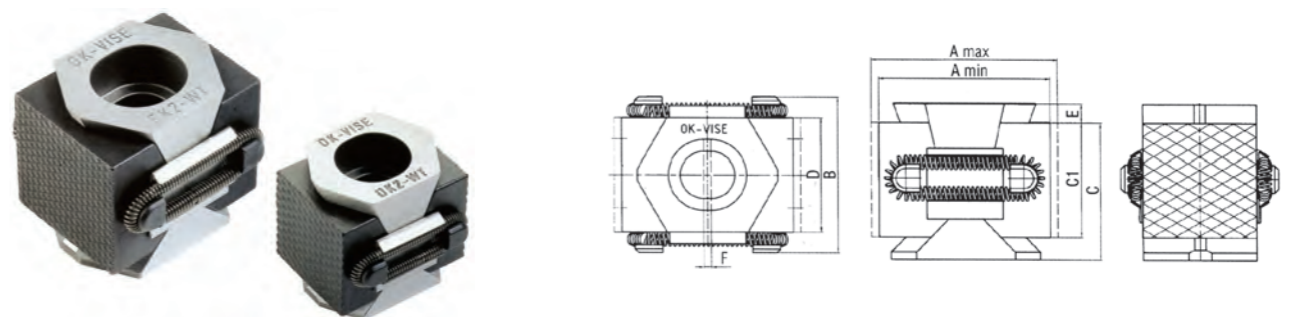
TYPE	A			B	C	D	E	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max									
BK2-VT-SO	27	29	31	29	15	21	2.5	M8x020	25	44	0.055	48-52

# OK-VISE CLAMPING UNIT



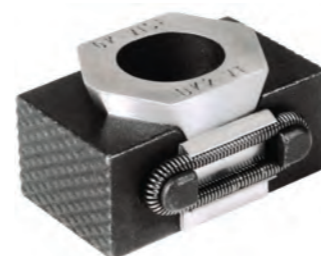
TYPE	A			B	C	D	E	F	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max										
BK2-VT	27	29	31	29	15	21	2.5	1	M 8x020	25	44	0.055	48-52
DK2-VT	42	45	49	41	22	30	4.0	2	M12x030	65	145	0.180	48-52
FK2-VT	57	61	66	56	29	42	5.0	3	M16x040	110	360	0.465	48-52

**Notice :** Standard jaw is serrated (as drawing), if U need flat-jaw, please add "-s" after the model number. For example : BK2-VT-S



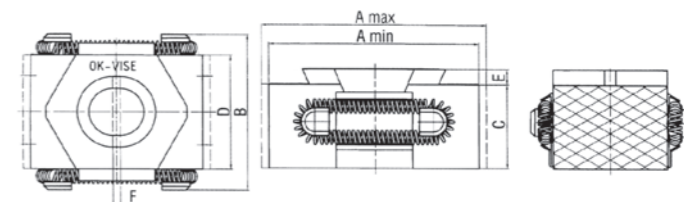
TYPE	A			B	C	C1	D	E	F	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max											
DK2-WT	42	46	49	41	36	30	30	5	2	M12x040	90	145	0.275	48-52
FK2-WT	58	61	66	56	50	42	42	5	3	M16x060	150	360	0.730	48-52

**Notice :** Standard jaw is serrated (as drawing), if U need flat-jaw, please add "-s" after the model number. For example : BK2-WT-S



### SPECIAL MODELS

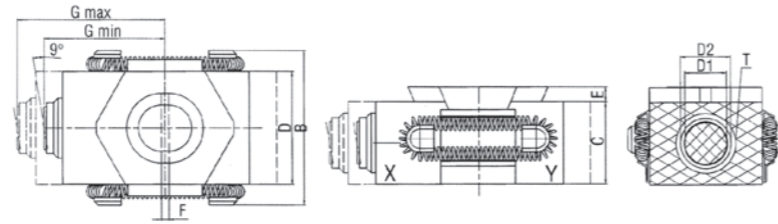
Special models include machinable jaw models, additional piece models and models designed for castings. BK2-VT Stainless steel mode is specially designed for use on EDM machines.



TYPE	A			B	C	D	E	F	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max										
BK2-VT+3	33	35	37	29	15	21	2.5	1	M 8x020	22	43	0.070	30-34
DK2-VT+5	52	55	59	41	22	30	4.0	2	M12x030	55	145	0.235	30-34
FK2-VT+5	67	70	75	56	29	42	5.0	3	M16x040	100	360	0.550	30-34

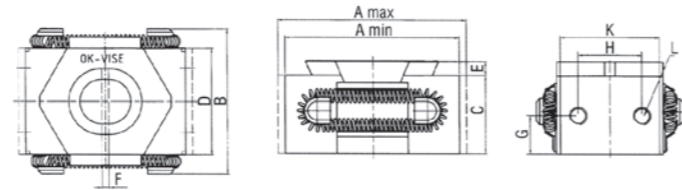
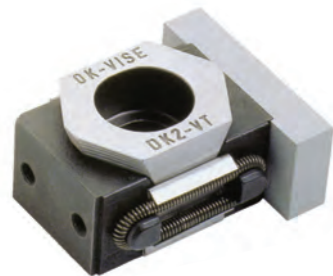
**Notice :** Except BK2-VT+3 only with flat-jaw, others have flat or serrated jaw.

# OK-VISE CLAMPING UNIT



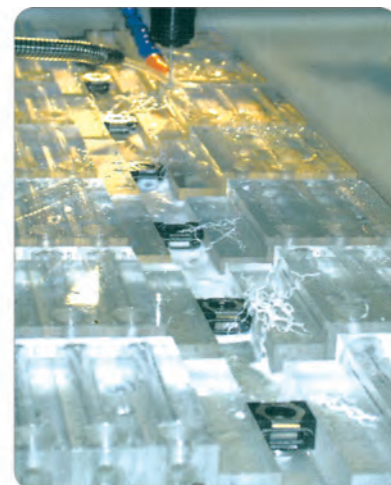
TYPE	Thread (T)	Diameter of ball (D2)	Diameter of serration (D1)	G min	G opt	G max
BK2-VT-B	M12	8.5	7.2	19.5	20.5	21.5
DK2-VT-B	M16	12.0	10.7	31.0	32.5	34.5

TYPE	A			B	C	D	E	F	G	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC X	Hardness of jaws HRC Y
	min	optimum	max												
BK2-VT-B	33	35	37	29	15	21	2.5	1	3	M 8x020	22	43	0.064	30-34	48-52
DK2-VT-B	52	55	59	41	22	30	4.0	2	5	M12x030	55	145	0.212	30-34	48-52



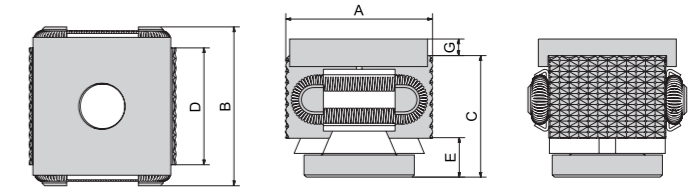
TYPE	A			B	C	D	E	F	G	H	K	L	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max														
BK2-VT-T	33	35	37	29	15	21	2.5	1	7.5	12	-	4xM5	M 8x020	22	43	0.060	30-34
DK2-VT-T	46	49	53	41	22	30	4.0	2	11.0	18	28	4xM5	M12x030	55	145	0.200	30-34
FK2-VT-T	61	65	70	56	29	42	5.0	3	14.5	26	40	4xM5	M16x040	100	360	0.480	30-34

Notice : use the screw strength above 8.8

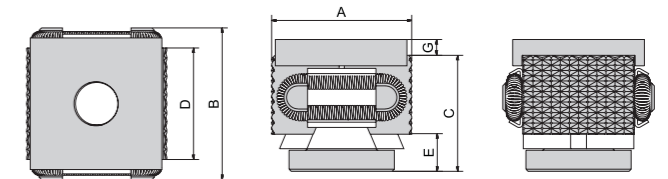


# OK-VISE CLAMPING UNIT

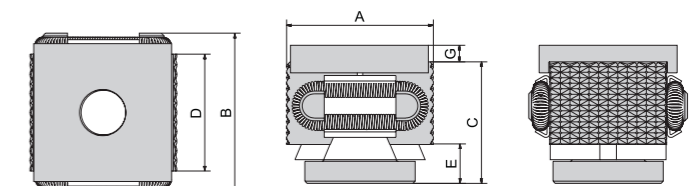
## SMOOTH BASIC VERSION



TYPE	A			B	C	D	E	G	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max										
BK2-VT-PD	27	29	31	29	22	21	7	3	M8x20	25	44	0.068	48-52



TYPE	A			B	C	D	E	G	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max										
DK2-VT-PD	42	45	49	41	32	30	10	4	M12x60	65	145	0.270	48-52



TYPE	A			B	C	D	E	G	Socket Head Screw DIN 912	Pressing force of Jaws, kN	Tightening torque, Nm	Weight in kg approx.	Hardness of jaws HRC
	min	optimum	max										
FK2-VT-PD	57	61	65	56	40.5	42	11.5	5	M16x60	110	360	0.620	48-52

BP

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OK-VISE

OTHER

Column for Technical Data



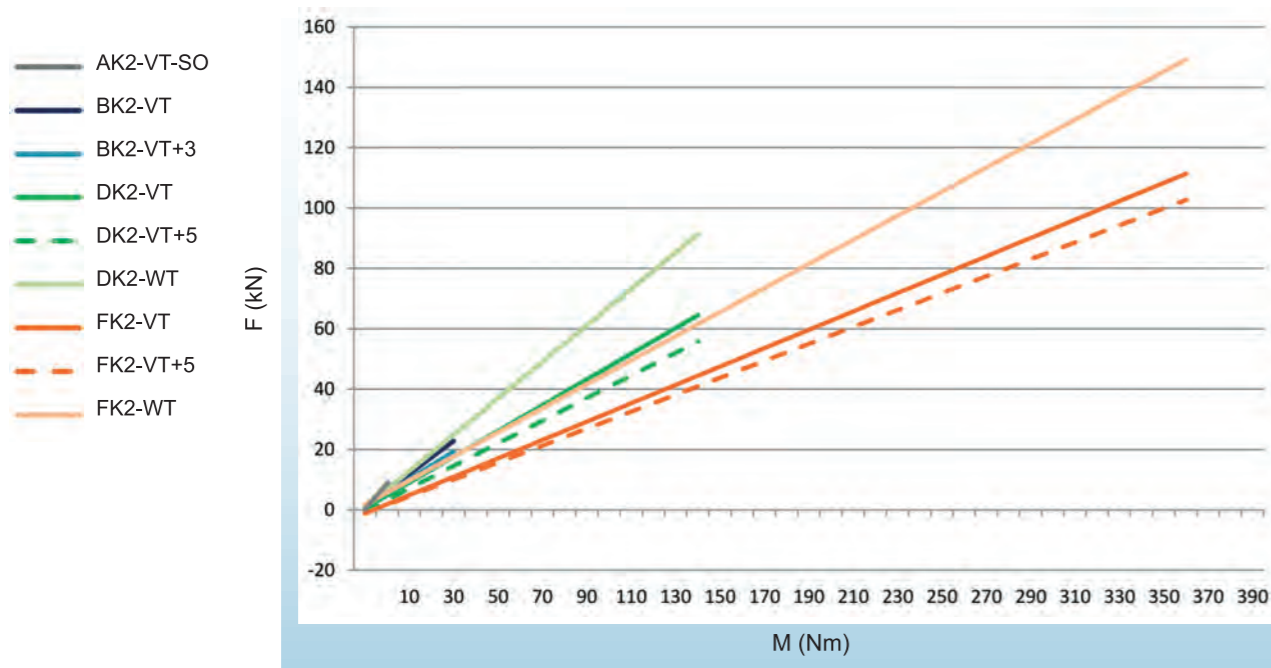
# OK-VISE CLAMPING UNIT

## OK-VISE LOW-PROFILE CLAMP TYPES

Size	A	B	D	D(inch)	F
Serrated basic version		BK2-VT	DK2-VT	DK2-VTI	FK2-VT
Smooth basic version		BK2-VT-S	DK2-VT-S	DK2-VTI-S	FK2-VT-S
Machinable jaws		BK2-VT+3	DK2-VT+5	DK2-VTI+5	FK2-VT+5
Machinable & smooth combo		BK2-VT+3S	DK2-VT+5S	DK2-VTI+5S	FK2-VT+5S
Additional piece model		BK2-VT-T	DK2-VT-T	DK2-VTI-T	FK2-VT-T
Additional piece model & smooth combo		BK2-VT-TS	DK2-VT-TS	DK2-VTI-TS	FK2-VT-TS
Self-adjustable model		BK2-VT-B	DK2-VT-B	DK2-VTI-B	
Two self-adjustable jaws		BK2-VT-E	DK2-VT-E	DK2-VTI-E	
Single-wedge pull-down, serrated		BK2-VT-PD	DK2-VT-PD	DK2-VTI-PD	FK2-VT-PD
Double-wedge pull-down, serrated			DK2-WT	DK2-WTI	FK2-WT
Double-wedge pull-down, smooth			DK2-WT-S	DK2-WTI-S	FK2-WT-S
Stainless steel model		BK2-VT-SS			
Economy-series, serrated		BK2-VT-O			
Economy-series, smooth	AK2-VT-SO	BK2-VT-SO			
Metric bolt	M5	M8	M12		M16
Imperial bolt	3/16"	5/16"		1/2"	5/8"
Force up to (kN)	10	25	90	90	150

## OK-VISE CLAMPFORCES

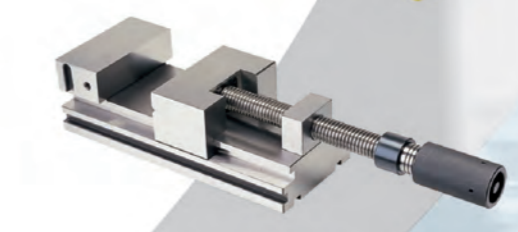
Horizontal forces of OK-Vise low profile clampa





# OTHERS

TCP, CF, PGV, NBK .....



NBK ROUND SUPER TWIN CHUCK S  
PGV PRECISION HYDRAULIC VISE  
TCP TOOL TIGHTENING FIXTURE  
CF MEASURING PROBE

00066562162.562465523644866254  
0066562162.562465523644866254  
00066562162.562465523644866254  
00066562162.562465523644866254

# TCP

## TOOL TIGHTENING FIXTURE

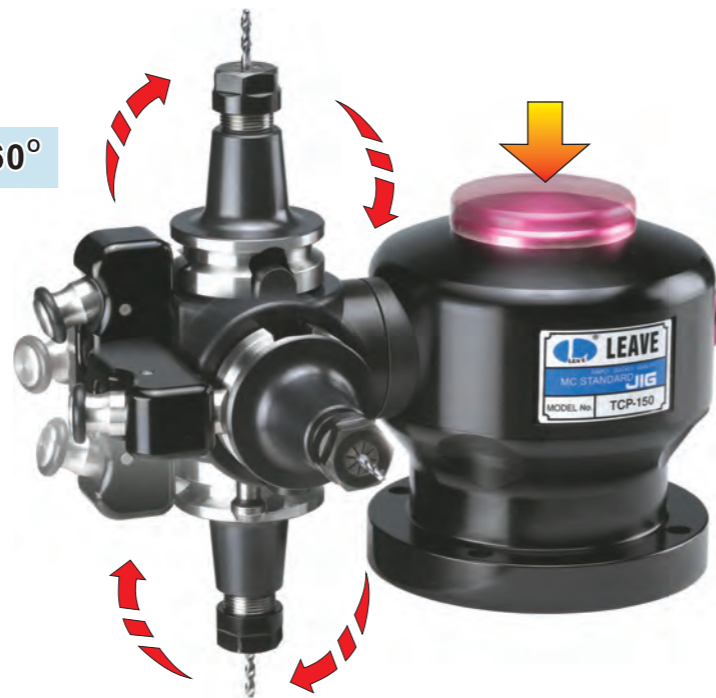
### Tool Holder is Changeable

Easy assemble and dis-assemble tool holder from main body while pressing the valve on the right hand side of the unit.



### Tool Holder is Adjustable up to 360°

Easily adjusts tool holders for a full 360° (45° increments) by pushing the valve on the top of the tightening fixture.



4pcs of M10x40mm bolt can be fastened from the top of the mounting flange or 4pcs of M12 bolt can be fastened from the bottom of the mounting

### Tightening Fixture Main Body



Model No.	kg
TCP-150	6

### Tool Holder

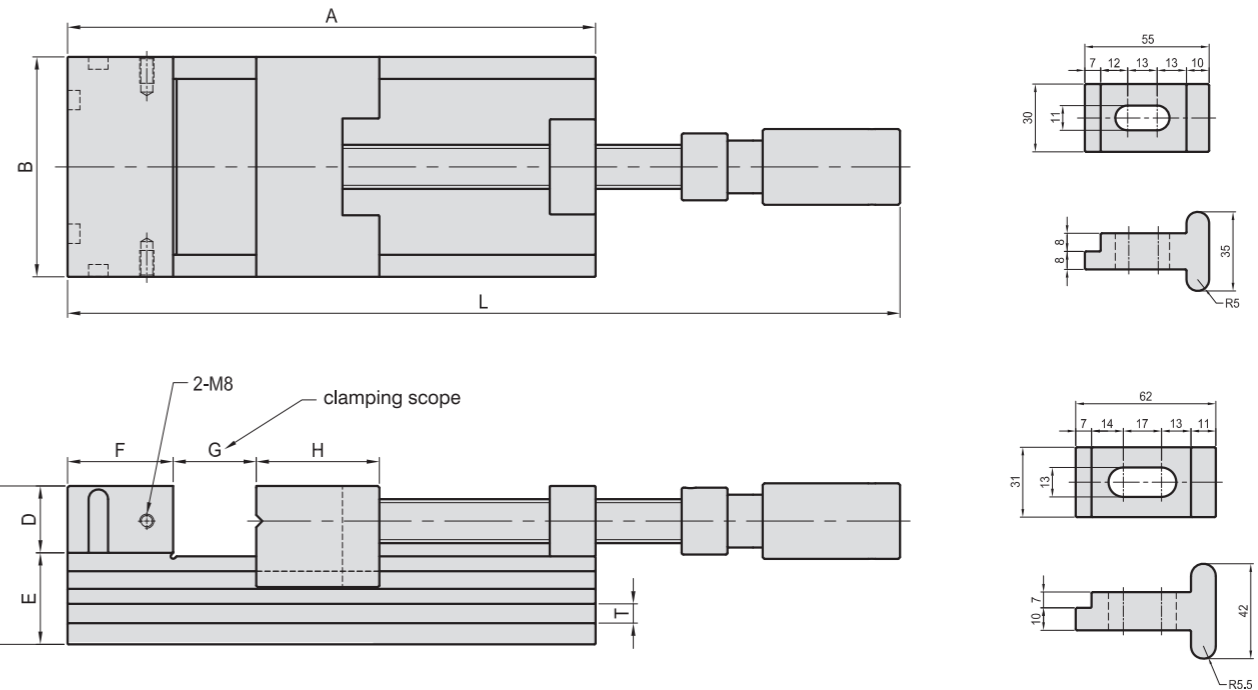
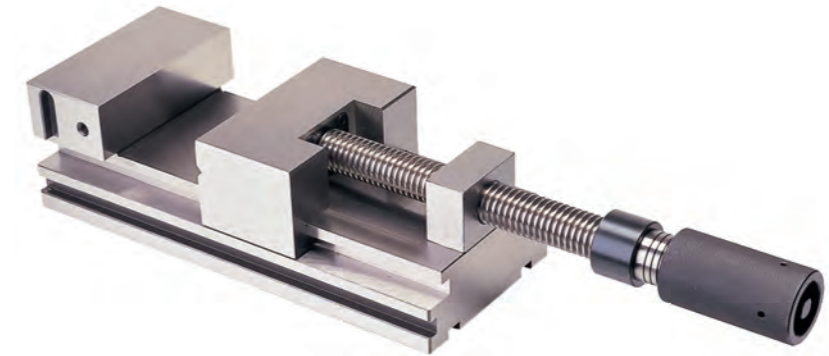


Model No.	kg	Model No.	kg
TCP-BT30	2.3	TCP-HSK-A-100	3.8
TCP-BT40	2.8	TCP-HSK-E-25	2.3
TCP-BT50	4.8	TCP-HSK-E-32	2.5
TCP-HSK-A-40	3.3	TCP-HSK-E-40	2.8
TCP-HSK-A-63	2.3	TCP-HSK-E-50	3.0
TCP-HSK-A-80	3.5	TCP-HSK-F-63	3.2

# PGV

## PGV PRECISION HYDRAULIC VISE

- Super precision: // ±0.005 / 100mm  
⊥ ±0.005 / 100mm
- Heat treated: HRC 58°~60°
- Application: Multifunction tool makers vise, ideally suited for: inspection, grinding or edm work.



MODEL NO.	A	B	C	D	E	F	G	H	L		T	Material	Kg
									MIN	MAX			
PGV-100	220	100	80	40	40	40	0~110	50	344	455	9x7	SNCM21	10.0
PGV-100N									SKS3				
PGV-125	300	125	90	40	50	60	0~165	70	420	590	11x7	SNCM21	19.5
PGV-125N									SKS3				

BP

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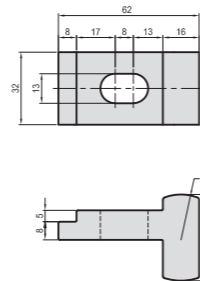
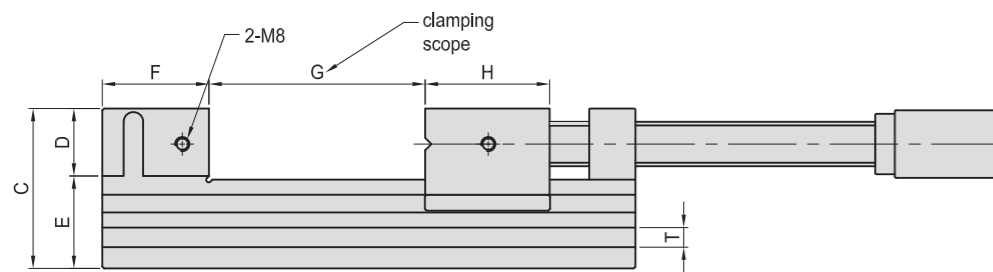
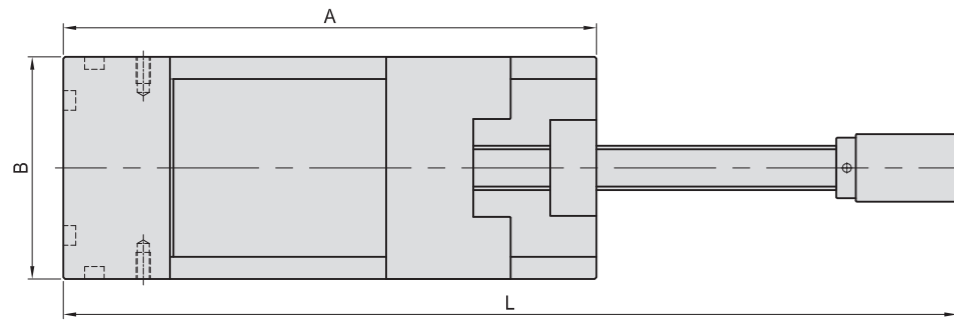
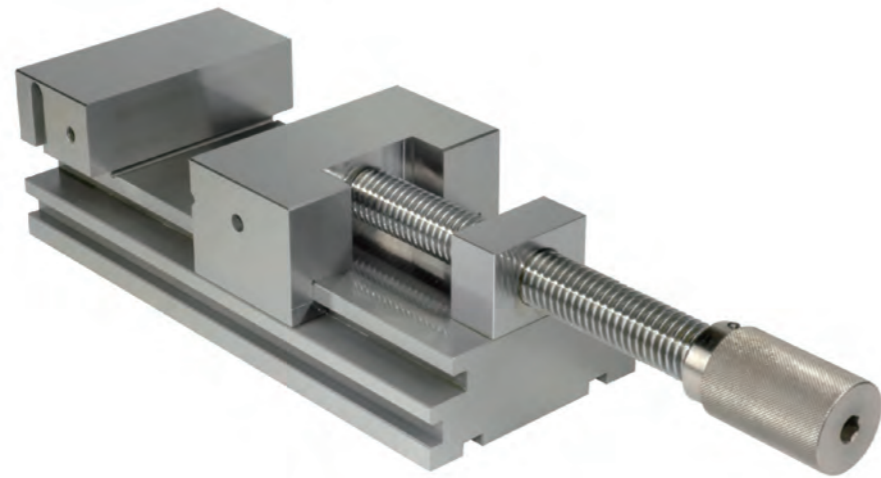
OK-VISE

OTHER

Column for Technical Data

**TOOL MAKER VISE**

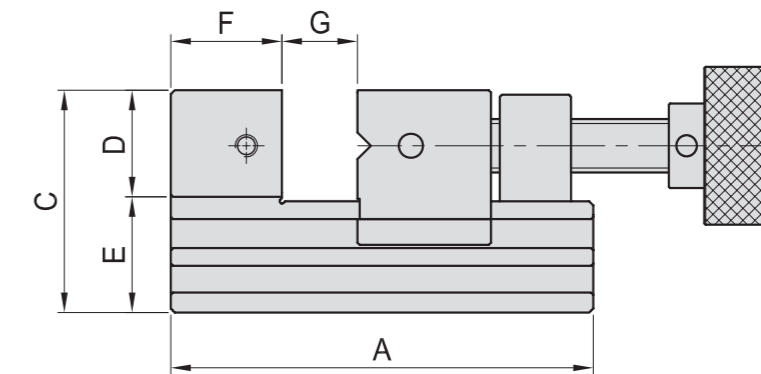
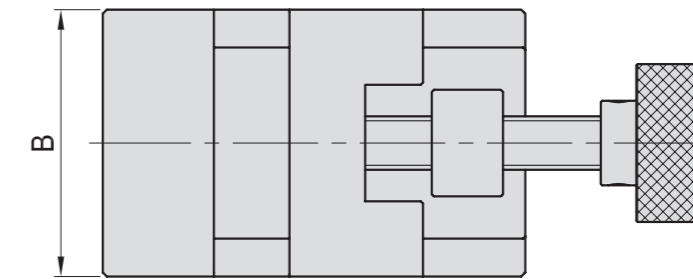
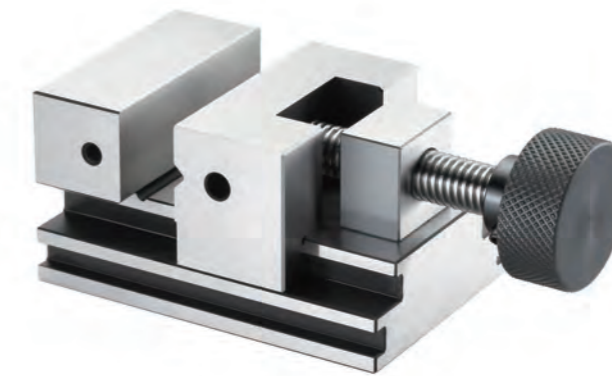
- Super precision: //  $\pm 0.005 / 100\text{mm}$   
 $\perp \pm 0.005 / 100\text{mm}$
- Heat treated: HRC 58°~60°
- Material: SKS3
- Application: Multifunction tool makers vise, ideally suited for: inspection, grinding or edm work.



MODEL NO.	A	B	C	D	E	F	G	H	L		T	Kg
									MIN	MAX		
PGV-125M	300	125	90	40	50	60	0~165	70	382	546	11x7	19

**SUPER PRECISION TOOL MAKER VISE**

- Super precision: //  $\pm 0.003 / 100\text{mm}$   
 $\pm 0.005 / 100\text{mm}$
- Heat treated: HRC 58°~60°
- Material: SKS3



MODEL NO.	A	B	C	D	E	F	G	Kg
GVS-AS60	95	60	50	25	25	26.0	0~30	1.7

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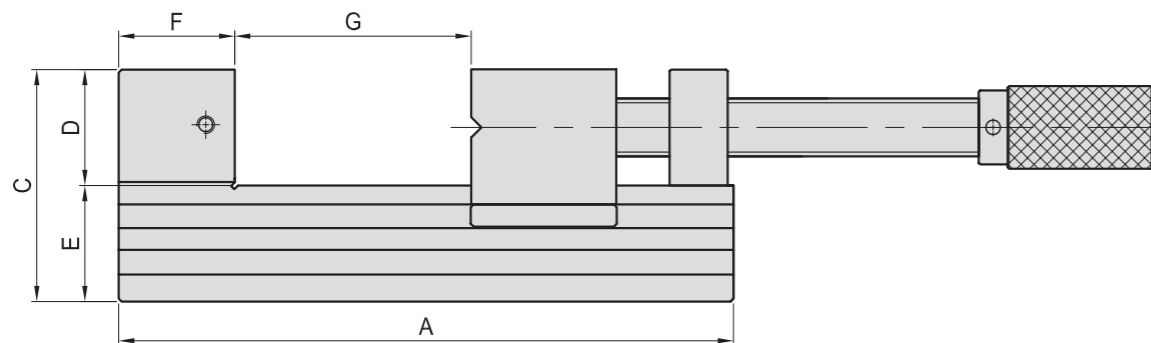
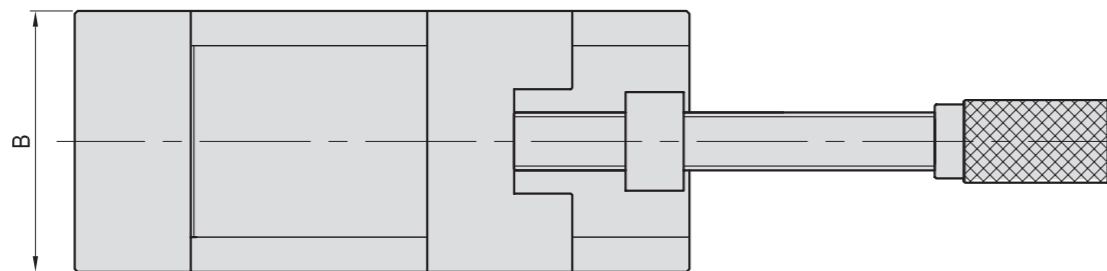
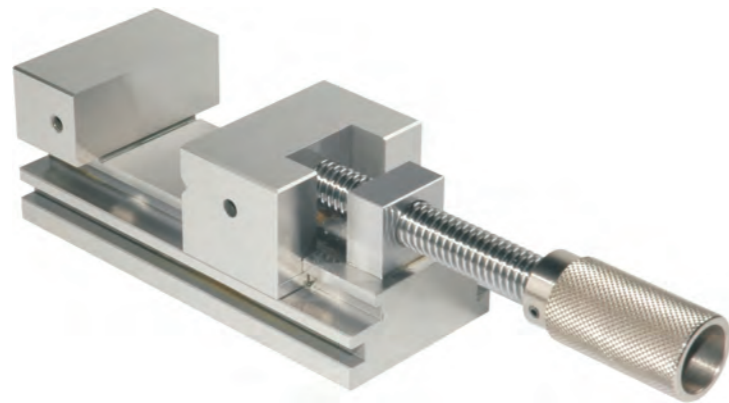
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VISE

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### SUPER PRECISION TOOL MAKER VISE

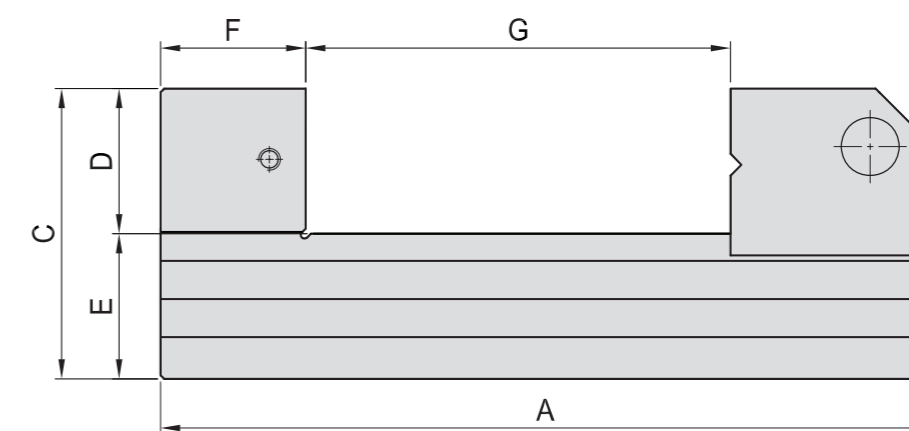
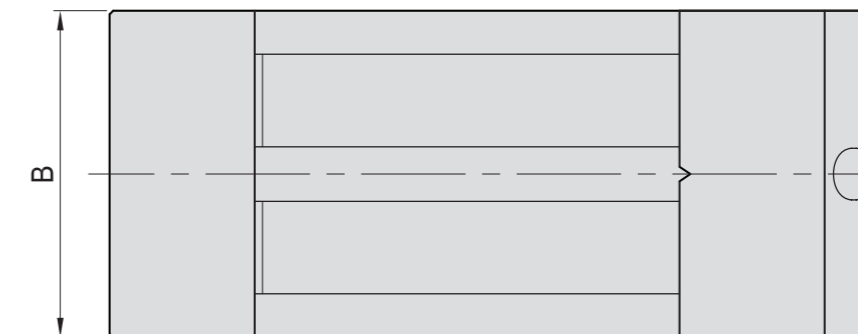
- Super precision: //  $\pm 0.003 / 100\text{mm}$   
 $\perp \pm 0.005 / 100\text{mm}$
- Heat treated: HRC 58°~60°
- Material: SKS3



MODEL NO.	A	B	C	D	E	F	G	Kg
GVS-AS70	165	70	62	30	32	33.0	0~80	4.5
GVS-AS90	212	90	80	40	40	41.2	0~120	8.5

### SUPER PRECISION TOOL MAKER VISE

- Super precision: //  $\pm 0.003 / 100\text{mm}$   
 $\perp \pm 0.005 / 100\text{mm}$
- Heat treated: HRC 58°~60°
- Material: SKS3



MODEL NO.	A	B	C	D	E	F	G	Kg
GVS-SV70	160	70	62	30	33	33.0	0~80	3.3
GVS-SV90	212	90	80	40	40	40.5	0~117	8.3

BP

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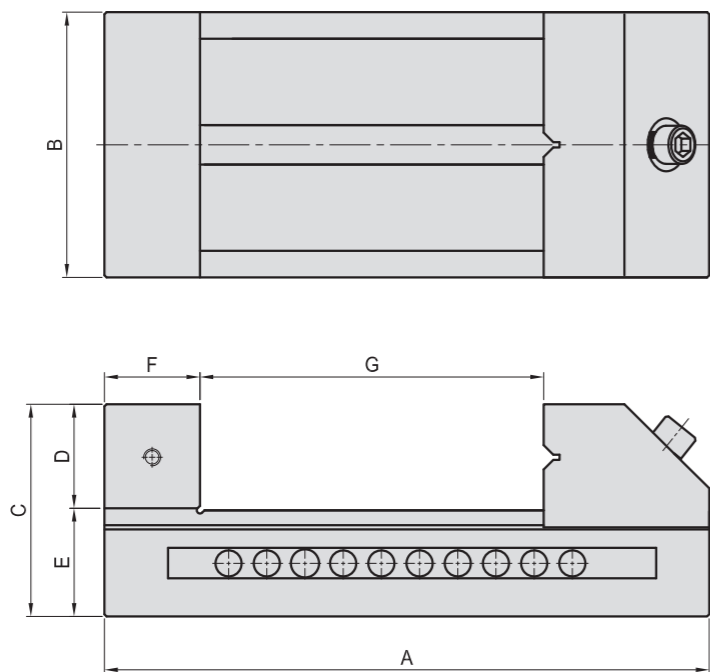
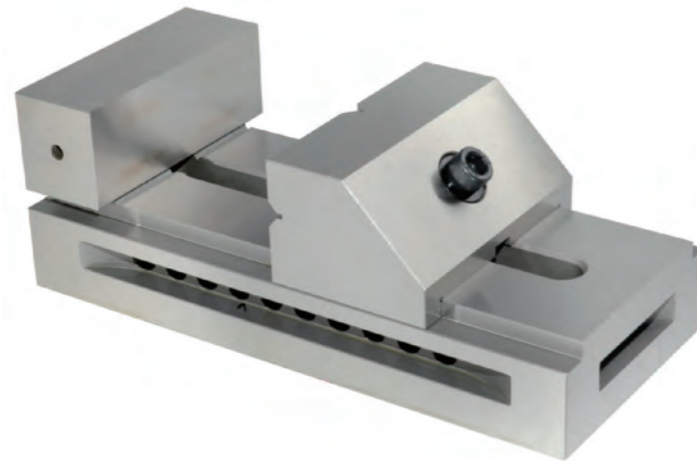
ALV

OK-  
VISE

OTHER

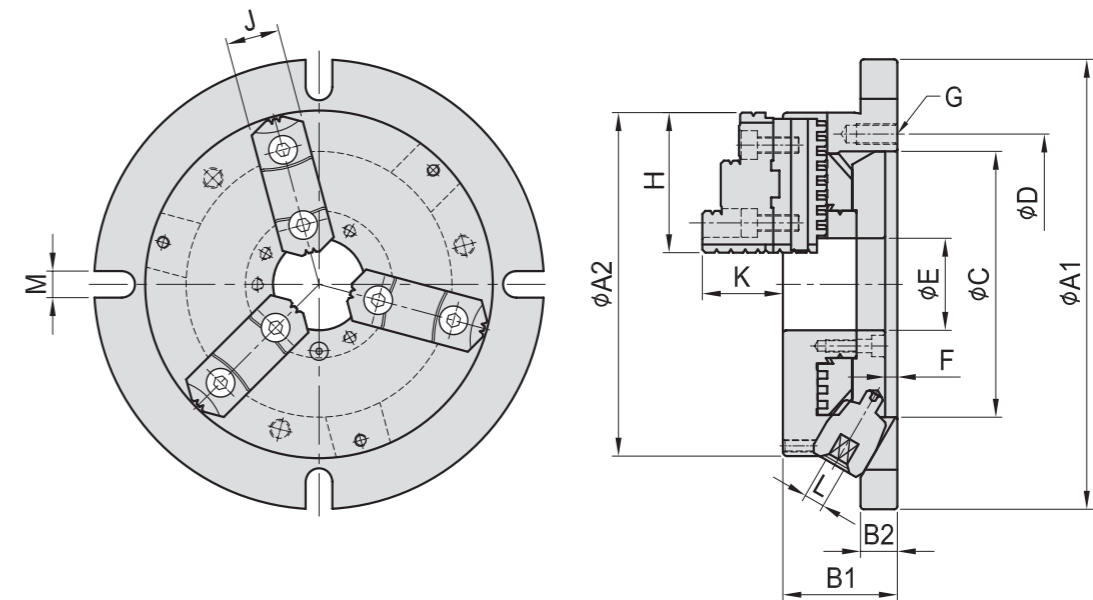
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- Super precision: //  $\pm 0.003 / 100\text{mm}$   
 $\perp \pm 0.005 / 100\text{mm}$
- Heat treated: HRC 58°~60°
- Material: SKS3



MODEL NO.	A	B	C	D	E	F	G	Kg
GVS-VS50	285	125	100	50	50	45	0~160	18

- The handle with an angle of 30 degrees is much convenient for operations.
- The "super thin thickness" design of chucks increase the "allowable distance" of machining operations.
- Chuck flange makes loading and unloading operations simpler and more convenient.
- Hard jaws and Soft jaws can be used alternatively.



SPEC./MODEL	A1	A2	B1	B2	C	D	E	F	G	H	J	K	L	M	Max. Dia Gripped by		Kg
															external	internal	
NBK-06	220	170	58	18	130	147	45	6	3-M10	68	26	40	10	13	$\phi 8-\phi 160$	$\phi 48-\phi 150$	10.6
NBK-08	270	210	65	20	155	172	60	6	3-M10	82	28	43	11	13	$\phi 11-\phi 200$	$\phi 62-\phi 190$	18.1
NBK-10	315	255	73	20	190	210	80	6	3-M12	93	32	52	12	16	$\phi 12-\phi 250$	$\phi 72-\phi 240$	27.9
NBK-12	370	305	80	22	250	285	105	5	3-M12	118	40	59	14	18	$\phi 15-\phi 300$	$\phi 86-\phi 290$	42.9

BP

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BC

CP

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SVF

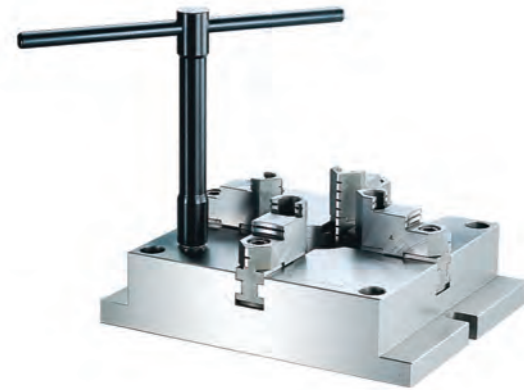
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VISE

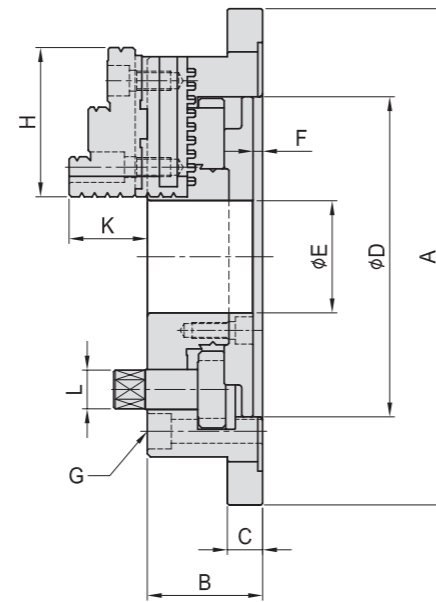
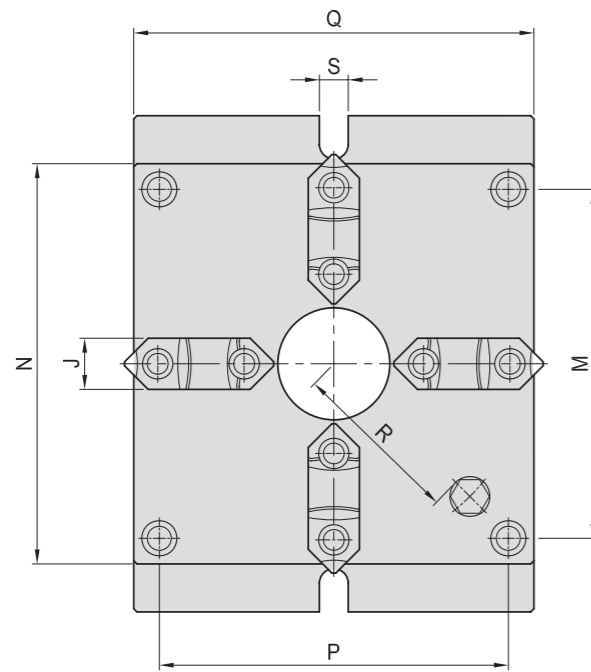
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- MC chucks are precisely ground, the tolerances of W,X,Y,Z among chucks are within 0.05mm.
- Soft jaws can be used alternatively for machining special shaped work pieces, to substitute for designing and making a lot of jigs for this purpose.
- The repetitive gripping accuracy with the hard jaws are within 0.02mm.
- Parallel gripping accuracy with hard jaws can be controlled within 0.05mm after aligning sides of chucks.



SPEC./MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	Max. Dia Gripped by		kg	
																		external	internal		
MCA-06	215	57	18	130	40	5.5	4-M10	68	26	39	14	144	165	144	165	66	18		φ4-φ128	φ55-φ128	11.4
MCA-08	250	65	20	160	55	6.0	4-M12	82	28	43	17	174	200	174	200	83	18		φ5-φ162	φ62-φ162	18.6
MCA-10	310	72	22	200	70	6.0	4-M14	93	32	50	21	218	250	218	250	104	18		φ6-φ200	φ72-φ200	31.6
MCA-12	380	85	25	260	100	7.0	4-M16	117	40	56	23	274	310	274	310	135	22		φ10-φ265	φ90-φ265	56.6

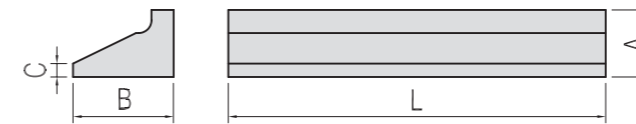


- Material: S45C(JIS) / CK45(DIN)
- Heat treated: HRC 45°.
- Accuracy: A ± 0.01  
B ± 0.01  
C ± 0.5

BASE



PARTS



Content	BASE SIZE			PARTS SIZE				Q'ty of each set	kg (1)
	A	B	C	A	B	C	L		
GP102-05	5	16	100	-	-	-	-	2	1 SET/11.6
GP102-06	6	18	100	-	-	-	-	2	
GP102-08	8	24	100	-	-	-	-	2	
GP102-10	10	30	100	-	-	-	-	2	
GP102-12	12	36	150	-	-	-	-	2	
GP102-14	14	48	150	-	-	-	-	2	
GP102-18	18	60	150	-	-	-	-	2	
GP102-22	22	62	150	-	-	-	-	2	
GP102-24				15	31	2.5	200	2	

\*Sell as a set !





A series of horizontal blue lines spanning the width of the page, providing a ruled area for writing or drawing.



# LIMIT TOLERANCES FOR SCREW THREADS

## 1.METER SIZED COARSE SCREW THREAD

Nominal of screw	Minimum dimension	Maximum dimension
M 1 x 0.25	0.73	0.78
M 1.1 x 0.25	0.83	0.89
M 1.2 x 0.25	0.93	0.98
M 1.4 x 0.3	1.08	1.14
M 1.6 x 0.35	1.22	1.32
M 1.7 x 0.35	1.33	1.42
M 1.8 x 0.35	1.42	1.52
M 2 x 0.4	1.57	1.67
M 2.2 x 0.45	1.71	1.84
M 2.3 x 0.4	1.87	1.97
M 2.5 x 0.45	2.01	2.14
M 2.6 x 0.45	2.12	2.23
M 3 x 0.5	2.46	2.60
M 3.5 x 0.6	2.85	3.01
M 4 x 0.7	3.24	3.42
M 4.5 x 0.75	3.69	3.88
M 5 x 0.8	4.13	4.33
M 6 x 1	4.92	5.15
M 7 x 1	5.92	6.15
M 8 x 1.25	6.65	6.91
M 9 x 1.25	7.65	7.91
M 10 x 1.5	8.38	8.68
M 11 x 1.5	9.38	9.68
M 12 x 1.75	10.11	10.44
M 14 x 2	11.84	12.21
M 16 x 2	13.84	14.21
M 18 x 2.5	15.29	15.74
M 20 x 2.5	17.29	17.74
M 22 x 2.5	19.29	19.74
M 24 x 3	21.29	21.74
M 27 x 3	23.75	24.25
M 30 x 3.5	26.21	26.77
M 33 x 3.5	29.21	29.77
M 36 x 4	31.67	32.27
M 39 x 4	34.67	35.27
M 42 x 4.5	37.13	37.80
M 45 x 4.5	40.13	40.80
M 48 x 5	42.59	43.30

## 2.METER SIZED FINE THREAD

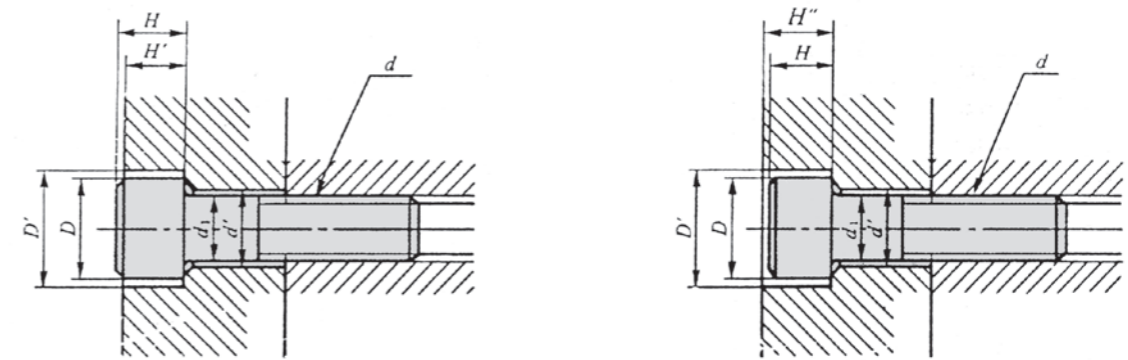
Nominal of screw	Minimum dimension	Maximum dimension
M 2.5 x 0.35	2.12	2.22
M 3 x 0.35	2.62	2.72
M 3.5 x 0.35	3.12	3.22
M 4 x 0.5	3.46	3.60
M 4.5 x 0.5	3.96	4.10
M 5 x 0.5	4.46	4.60
M 5.5 x 0.5	4.96	5.10
M 6 x 0.75	5.19	5.38
M 7 x 0.75	6.19	6.38
M 8 x 1	6.92	7.15
M 8 x 0.75	7.19	7.38
M 9 x 1	7.92	8.15
" x 0.75	8.19	8.38
M 10 x 1.25	8.65	8.91
" x 1	8.92	9.15
" x 0.75	9.19	9.38
M " x 1	9.92	10.15
" x 0.75	10.19	10.38
M 12 x 1.5	10.38	10.68
" x 1.25	10.65	10.91
" x 1	10.92	11.15
M 14 x 1.5	12.38	12.68
" x 1	12.92	13.15
M 15 x 1.5	13.38	13.68
" x 1	13.92	14.15
M 16 x 1.5	14.38	14.68
" x 1	14.92	15.15
M 17 x 1.5	15.38	15.68
" x 1	15.92	16.15
M 18 x 2	15.84	16.21
" x 1.5	16.38	16.68
M " x 1	16.92	17.15
M 20 x 2	17.84	18.21
" x 1.5	18.38	18.68
" x 1	18.92	19.15
M 22 x 2	19.84	20.21
" x 1.5	20.38	20.68
" x 1	20.92	21.15
M 24 x 2	21.84	22.21
" x 1.5	22.38	22.68
" x 1	22.92	23.15
M 25 x 2	22.84	23.21
" x 1.5	23.38	23.68

Nominal of screw	Minimum dimension	Maximum dimension
" x 1.5	23.92	24.15
M 26 x 1.5	24.38	24.68
M 27 x 2	24.84	25.21
" x 1.5	25.38	25.68
" x 1	25.92	26.15
M 28 x 2	25.84	26.21
" x 1.5	26.38	26.68
" x 1	26.92	27.15
M 30 x 3	26.75	27.25
" x 2	27.84	28.21
" x 1.5	28.38	28.68
" x 1	28.92	29.15
M 32 x 2	29.84	30.21
" x 1.5	30.38	30.68
M 33 x 3	29.75	30.25
" x 2	30.84	31.21
" x 1.5	31.38	31.68
M 35 x 1.5	33.38	33.68
M 36 x 3	32.75	33.25
" x 2	33.84	34.21
" x 1.5	34.38	34.68
M 38 x 1.5	36.38	36.68
M 39 x 3	35.75	36.25
" x 2	36.84	37.21
" x 1.5	37.38	37.68
M 40 x 3	36.75	37.25
" x 2	37.84	38.21
" x 1.5	38.38	38.68
M 42 x 4	37.67	38.27
" x 3	38.75	39.25
" x 2	39.84	40.21
" x 1.5	40.38	40.68
M 45 x 4	40.67	41.27
" x 3	41.75	42.25
" x 2	42.84	43.21
" x 1.5	43.38	43.68
M 48 x 4	43.67	44.27
" x 3	44.75	45.25
" x 2	45.84	46.21
" x 1.5	46.38	46.68
M 50 x 3	46.75	47.25
" x 2	47.84	48.21
" x 1.5	48.38	48.68

## 3.PIPE THREAD

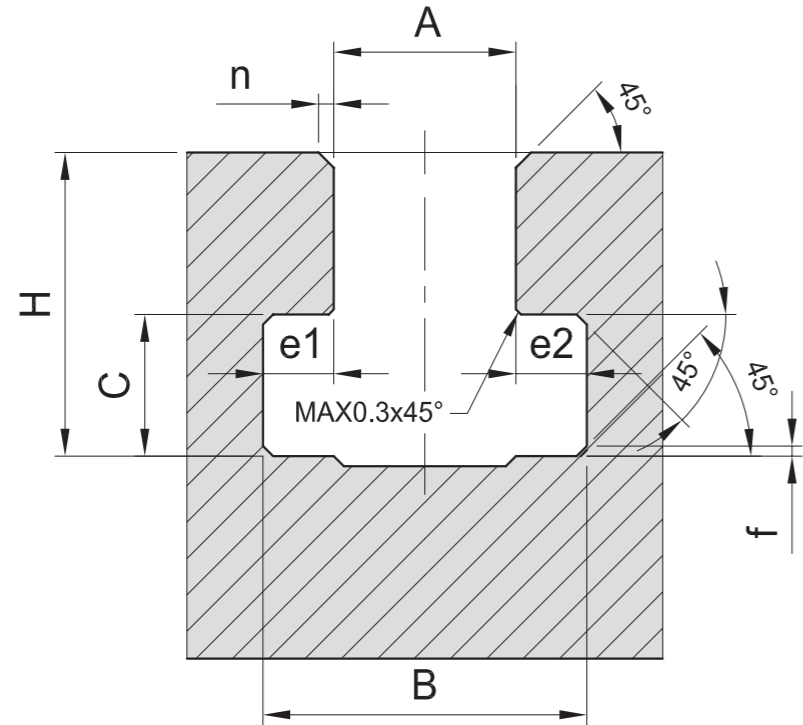
Nominal of screw	RP(PS)		RC(PT)	
	Minimum dimension	Maximum dimension	Minimum dimension	Maximum dimension
1/16	6.49	6.63	6.10	6.24
1/8	8.50	8.64	8.11	8.25
1/4	11.34	11.55	10.76	10.96
3/8	14.85	15.05	14.24	14.24
1/2	18.49	18.77	17.70	17.98
5/8				
3/4	23.98	24.26	23.10	23.38
7/8				
1	30.11	30.47	29.10	29.46
1 1/8				
1 3/4	38.77	39.13	37.62	37.98
1 1/2	44.67	45.03	43.51	43.87
1 3/4				
2	56.48	56.84	55.05	55.41

## THE DIMENSION OF THE SPOT FACING THE BOLT HOLE TO THE SOCKET HEAD CAP SCREW



Mark	M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24	M27	M30
d1	3.0	4.0	5.0	6.0	8.0	10.0	12	14.0	16.0	18.0	20.0	22.0	24.0	27	30
d'	3.4	4.5	5.5	6.6	9.0	11.0	14	16.0	18.0	20.0	22.0	24.0	26.0	30	33
D	5.5	7.0	8.5	10.0	13.0	16.0	18	21.0	24.0	27.0	30.0	33.0	36.0	40	45
D'	6.5	8.0	9.5	11.0	14.0	17.5	20	23.0	26.0	29.0	32.0	35.0	39.0	43	48
H	3.0	4.0	5.0	6.0	8.0	10.0	12	14.0	16.0	18.0	20.0	22.0	24.0	27	30
H'	2.7	3.6	4.6	5.5	7.4	9.2	11	12.8	14.5	16.5	18.5	20.5	22.5	25	28
H''	3.3	4.4	5.4	6.5	8.6	10.8	13	15.2	17.5	19.5	21.5	23.5	25.5	29	32

### T SLOTS



Standard	A					B		C		H		.e1-e2		reference	
	Class Tolerance					Standard	(1) Class Tolerance	Standard	(1) Class Tolerance	maximum	minimum	(2) Class Tolerance	n maximum	f minimum	
5	+0.012	+0.018	+0.12	-	-	10.0	+1 0	3.5	+1 0	10	8	0.5	1.0	0.6	
6	0	0	0	-	-	11.0	+1.5 0	5.0	7.0	13	11				
8	+0.015	+0.022	+0.15	-	-	14.5	+2 0	7.0	8.0	18	15				
10	0	0	0	-	-	16.0	+2 0	7.0	9.0	21	17				
12	+0.018	+0.027	+0.18	+0.43	+2.7	19.0	+2 0	8.0	9.0	25	20	1.0	1.6	1.0	
14	0	0	0	0	0	23.0	+3 0	12.0	12.0	28	23				
18	+0.021	+0.033	+0.21	+0.52	+3.3	30.0	+3 0	16.0	20.0	36	30				
22	0	0	0	0	0	37.0	+4 0	20.0	25.0	45	38				
28	+0.025	+0.039	+0.25	+0.62	+3.9	46.0	+4 0	25.0	32.0	56	48	2.0	2.5	1.6	
36	0	0	0	0	0	56.0	+5 0	32.0	36.0	71	61				
42	+0.030	+0.046	+0.30	+0.74	+3.9	68.0	+5 0	36.0	40.0	85	74				
48	0	0	0	0	0	80.0	+5 0	40.0	40.0	95	84				
54	0	0	0	0	0	90.0	+5 0	40.0	40.0	106	94			2.0	

### VARIETY OF GEOMETRICAL TOLERANCE AND THE MARK

Available form	Variety of tolerance		
Individual form	Shape tolerance	Straightness rate tolerance	—
		Plane rate tolerance	▭
		Out of roundness	○
		Cylindrical rate tolerance	⊘
Individual form or related form		Line contour rate tolerance	⤿
		Face contour rate tolerance	⤿
Related form	Position tolerance	Parallel rate tolerance	//
		Perpendicularity	⊥
		Inclination rate tolerance	∠
	Location tolerance	Position rate tolerance	⊕
		Concentricity	⊙
		Symmetrical rate tolerance	≡
	Shake rate tolerance	Circumference shake tolerance	↗
		All shake tolerance	↗↘

- BP
- BPA
- BC
- CP
- SU
- PT
- SVF
- ALV
- OK-VISE
- OTHER
- Column for Technical Data





## DIMENSIONAL TOLERANCE COORDINATING TABLE

■ TOLERANCE COORDINATING TABLE FOR BORE DIMENSION

Unit :  $\mu$

Basic dim(mm)		GRADE														
Above	Under	b9	c9	d8	d9	e7	e8	e9	f6	f7	f8	g5	g6	h5	h6	h7
-	3	-140	-60	-20	-20	-14	-14	-14	-6	-6	-6	-2	-2	0	0	0
		-165	-85	-34	-45	-24	-28	-39	-12	-16	-20	-6	-8	-4	-6	-10
3	6	-140	-70	-30	-30	-20	-20	-20	-10	-10	-10	-4	-4	0	0	0
		-170	-100	-48	-60	-32	-38	-50	-18	-22	-28	-9	-12	-5	-8	-12
6	10	-150	-80	-40	-40	-25	-25	-25	-13	-13	-13	-5	-5	0	0	0
		-186	-116	-62	-76	-40	-47	-61	-22	-28	-35	-11	-14	-6	-9	-15
10	14	-150	-95	-50	-50	-32	-32	-32	-16	-16	-16	-6	-6	0	0	0
		-193	-138	-77	-93	-50	-59	-75	-27	-34	-43	-14	-17	-8	-11	-18
18	24	-160	-110	-65	-65	-40	-40	-40	-20	-20	-20	-7	-7	0	0	0
		-212	-162	-98	-117	-61	-73	-92	-33	-41	-53	-16	-20	-9	-13	-21
30	40	-170	-120	-80	-80	-50	-50	-50	-25	-25	-25	-9	-9	0	0	0
		-232	-182	-119	-142	-75	-89	-112	-41	-50	-64	-20	-25	-11	-16	-25
40	50	-180	-130	-119	-142	-75	-89	-112	-41	-50	-64	-20	-25	-11	-16	-25
		-242	-192													
50	65	-190	-140	-100	-100	-60	-60	-60	-30	-30	-30	-10	-10	0	0	0
		-264	-214	-146	-174	-90	-106	-134	-49	-60	-76	-23	-29	-13	-19	-30
65	80	-200	-150	-146	-174	-90	-106	-134	-49	-60	-76	-23	-29	-13	-19	-30
		-274	-224													
80	100	-220	-170	-120	-120	-72	-72	-72	-36	-36	-36	-12	-12	0	0	0
		-307	-257	-174	-207	-107	-126	-159	-58	-71	-90	-27	-34	-15	-22	-35
100	120	-240	-180	-174	-207	-107	-126	-159	-58	-71	-90	-27	-34	-15	-22	-35
		-327	-267													
120	140	-260	-200													
		-360	-300													
140	160	-280	-210	-145	-145	-85	-85	-85	-43	-43	-43	-14	-14	0	0	0
		-380	-310	-208	-245	-125	-148	-185	-68	-83	-106	-32	-39	-18	-25	-40
160	180	-310	-230													
		-410	-330													
180	200	-340	-240													
		-455	-355													
200	225	-380	-260	-170	-170	-100	-100	-100	-50	-50	-50	-15	-15	0	0	0
		-495	-375	-242	-285	-146	-172	-215	-79	-96	-122	-35	-44	-20	-29	-46
225	250	-420	-280													
		-535	-395													
250	280	-480	-300	-190	-190	-110	-110	-110	-56	-56	-56	-17	-17	0	0	0
		-610	-430	-271	-320	-162	-191	-240	-88	-108	-137	-40	-49	-23	-32	-52
280	315	-540	-330	-271	-320	-162	-191	-240	-88	-108	-137	-40	-49	-23	-32	-52
		-670	-500													
315	355	-600	-400	-210	-210	-125	-125	-125	-62	-62	-62	-18	-18	0	0	0
		-740	-540	-299	-350	-182	-214	-265	-98	-119	-151	-43	-54	-25	-36	-57
355	400	-680	-440	-299	-350	-182	-214	-265	-98	-119	-151	-43	-54	-25	-36	-57
		-820	-595													
400	450	-760	-480	-230	-230	-135	-135	-135	-68	-68	-68	-20	-20	0	0	0
		-915	-635	-327	-385	-198	-290	-290	-108	-131	-165	-47	-60	-27	-40	-63
450	500	-840		-327	-385	-198	-290	-290	-108	-131	-165	-47	-60	-27	-40	-63
		-995														