



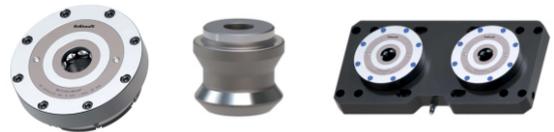
Standard Clamping Elements

The wide assortment of standard clamping elements fulfills all the general purpose clamping needs. The vast clamping elements range of highest quality and durability. Standard clamping elements help to reduce the effort by fast, simple and economical clamping options. All of these standard elements are available from stock.



Zero point Clamping Technology

Maximize your productivity by reducing machine set up time using quick and precise positioning with zero clamping technology. Pneumatic opening-clamped mechanically through spring force guarantees high clamping forces. Completely sealed design is maintenance free and easy to install. All parts made from superior quality stainless steel.



Modular Clamping Technology

Made from graded cast iron and stress-relieved. Basic elements are available in different interfaces according to different machine tool standards. Elements with hardened locating bushes and helicoils give maximum flexibility.



Hydraulic Clamping Technology

We offer a wide range of clamping solutions for workpieces in the field of hydraulic clamping. Available in many different designs. Different products like swing clamps, hinge clamps, hollow piston cylinders, built-in cylinders, block cylinders, push-pull cylinders, centring clamps are few to name from a large product range supplemented by accessories like work support, rotary joints, different types of valves and special products.



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Clamping Elements



B01-06

Clamping Pins



B07-09

Quick Locking Plates



B10-12

Quick Locking Blocks



B13

Collet



B14

Base Plates & Sub Plates



C01-13

Cube Tombstones



C14-16

Double Angle Tombstones



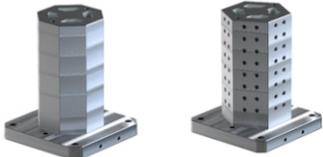
C17-19

Cross Tombstones



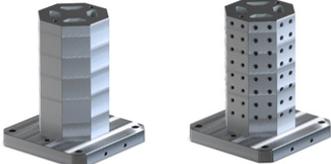
C20-21

Hexagonal Tombstones



C22-23

Octagonal Tombstones



C24-25

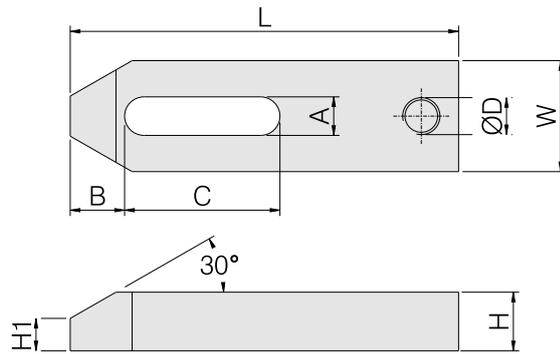
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Standard Clamping Elements



B1001 - Strap Clamp flat

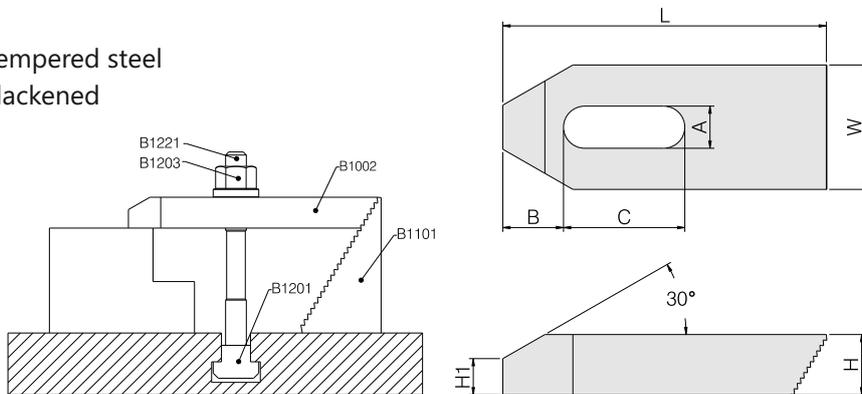
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	w	H	H1	ØD	B	C	Weight (Kg)
B1001-8-60	8.5	60	M8	24	12	7	M8	13	22	0.1
B1001-10-80	10.5	80	M10	30	15	9	M10	15	30	0.22
B1001-12-100	13	100	M12	38	18	12	M12	21	40	0.42
B1001-12-125	13	125	M12	38	18	12	M12	21	50	0.54
B1001-14-125	15	125	M14	48	24	15	M14	26	45	0.9
B1001-16-125	17	125	M16	48	24	15	M16	26	45	0.89
B1001-16-160	17	160	M16	48	24	16	M16	26	65	1.16
B1001-20-160	21	160	M20	62	30	18	M20	30	60	1.86
B1001-20-200	21	200	M20	62	30	18	M20	30	80	2.34
B1001-24-200	25	200	M24	72	38	21	M24	35	80	3.37
B1001-24-250	25	250	M24	72	38	21	M24	35	100	4.30
B1001-30-250	31	250	M30	72	48	28	M30	45	100	5.31

B1002 - Stepped Strap Clamp

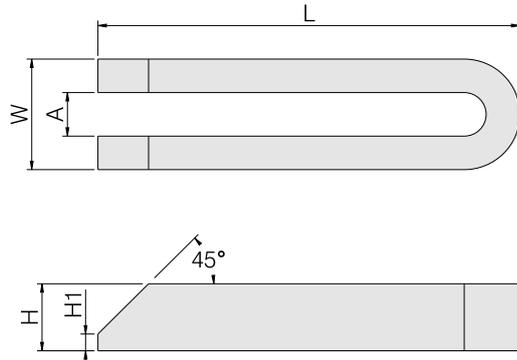
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	W	H	H1	B	C	Weight (Kg)
B1002-10-60	10.5	60	M10	30	15	9	15	20	0.15
B1002-10-80	10.5	80	M10	30	15	9	15	30	0.21
B1002-10-120	10.5	120	M10	30	15	9	15	45	0.34
B1002-12-65	12.5	65	M12	30	15	9	15	25	0.16
B1002-12-100	12.5	100	M12	38	18	12	21	35	0.41
B1002-12-125	12.5	125	M12	38	18	12	21	45	0.53
B1002-16-75	17	75	M16	38	18	12	21	32	0.28
B1002-16-125	17	125	M16	48	24	15	26	45	0.85
B1002-16-160	17	160	M16	48	24	15	26	65	1.10
B1002-20-160	21	160	M20	62	30	18	30	60	1.74
B1002-24-200	25	200	M24	72	38	21	35	80	3.2

B1003 - U Clamp

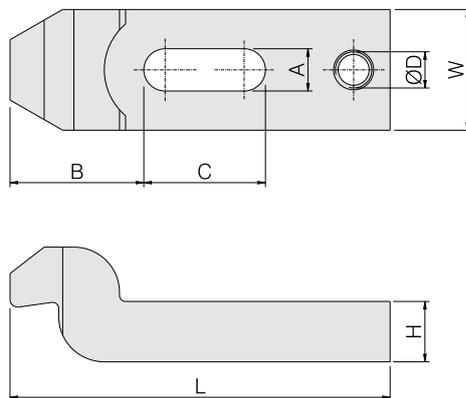
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	W	H	H1	Weight (Kg)
B1003-12-125	13	125	M12	38	24	6	0.58
B1003-12-160	13	160	M12	38	24	6	0.78
B1003-12-200	13	200	M12	38	24	6	0.95
B1003-16-160	17	160	M16	48	30	8	1.12
B1003-16-200	17	200	M16	48	30	8	1.41
B1003-16-250	17	250	M16	48	38	10	2.33
B1003-20-200	21	200	M20	52	38	10	1.86
B1003-20-250	21	250	M20	62	38	10	3.09
B1003-20-315	21	315	M20	62	38	10	3.93
B1003-24-200	26	200	M24	62	38	10	2.40
B1003-24-250	26	250	M24	62	38	10	3.03
B1003-24-315	26	315	M24	62	38	10	3.85
B1003-24-400	26	400	M24	62	48	10	4.92

B1006 - Cranked Clamp

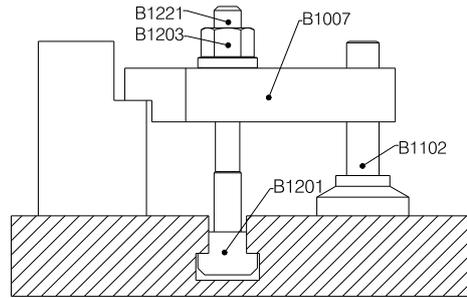
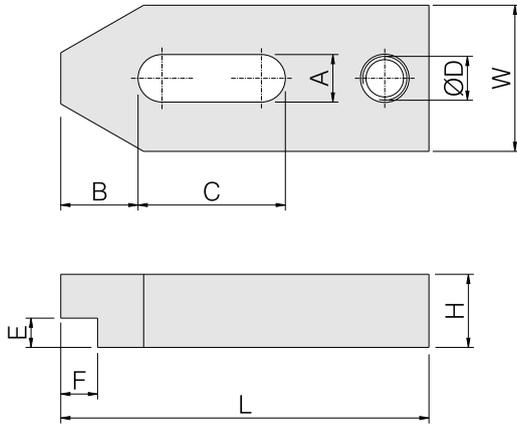
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	W	H	ØD	B	C	Weight (Kg)
B1006-12-125	13	125	M12	38	20	M12	44.0	40	0.725
B1006-16-160	17	160	M16	48	25	M16	51.5	50	1.4
B1006-20-200	21	200	M20	62	30	M20	59.0	70	2.5
B1006-24-200	25	200	M24	72	35	M24	76.5	60	3.6

B1007 - Stepped Clamp

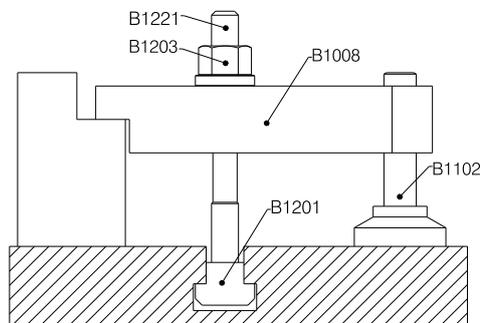
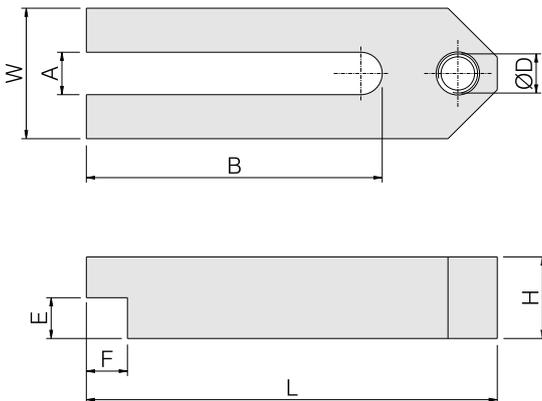
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	W	H	ØD	B	C	E	F	Weight (Kg)
B1007-12-100	13	100	M12	38	22	M12	21	40	8	10	0.78
B1007-16-125	17	125	M16	48	24	M16	26	45	10	12.5	0.95
B1007-20-160	21	160	M20	62	30	M20	30	60	12	15	1.73

B1008 – Stepped Clamp

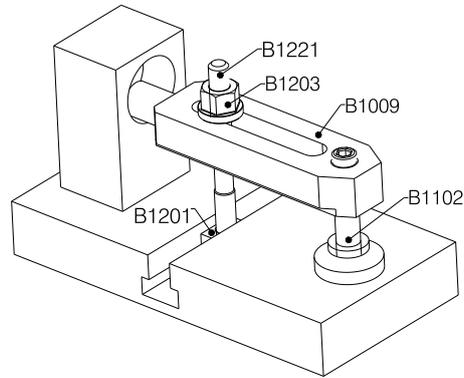
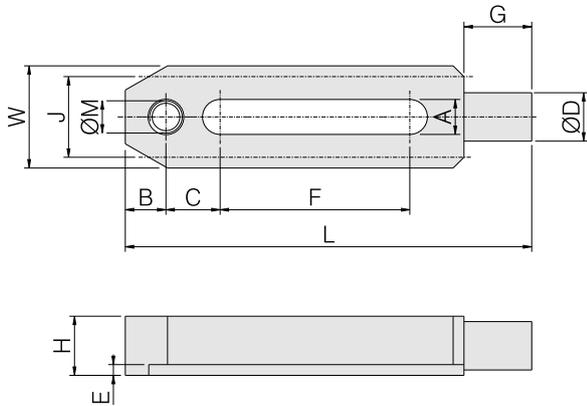
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	W	H	ØD	B	E	F	Weight (Kg)
B1008-12-125	13	125	M12	38	24	M12	90	12.5	12.5	0.66
B1008-16-160	17	160	M16	48	30	M16	110	15	15	1.3
B1008-20-200	21	200	M20	62	38	M20	135	20	20	2.56

B1009 - Tapped Nose Clamp

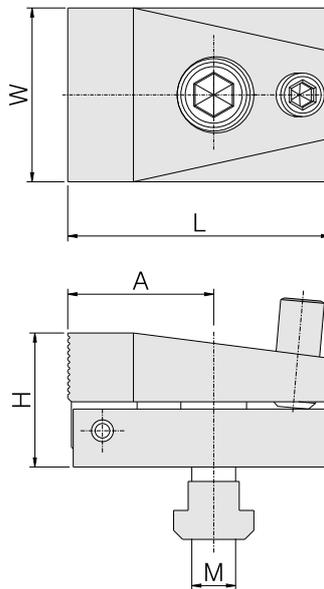
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	For clamping screw	W	H	ØM	B	C	ØD	E	F	G	J	Weight (Kg)
B1009-12-150	13	150	M12	38	24	M12	15	20	18	4	70	25	30	0.62
B1009-16-200	17	200	M16	48	30	M16	20	25	24	5	90	35	40	1.52
B1009-20-250	21	250	M20	62	38	M20	30	35	28	6	110	40	50	2.7

B1023 - Side Clamp

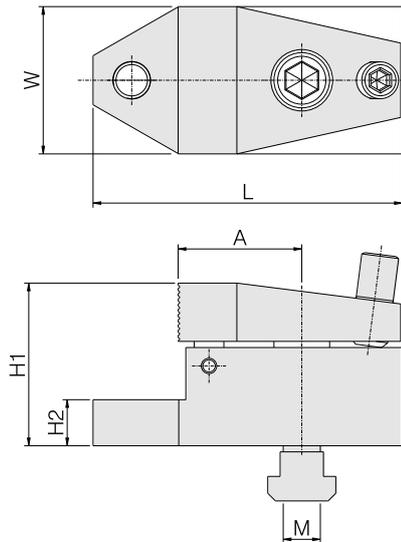
- ▶ Case Hardened Steel
- ▶ Blackened



Part No.	Suitable for T-slot size	ØM	L	W	H	A	Stroke	Weight (Kg)
B-1023-14-72	14	M12	72	48	37	40	4	0.82
B-1023-16-72	16							0.84
B-1023-18-72	18							0.87
B-1023-18-86	18	M16	86	68	47	41	7	1.80
B-1023-20-86	20							1.83
B-1023-22-86	22							1.86

B1024 - Side Clamp With Support

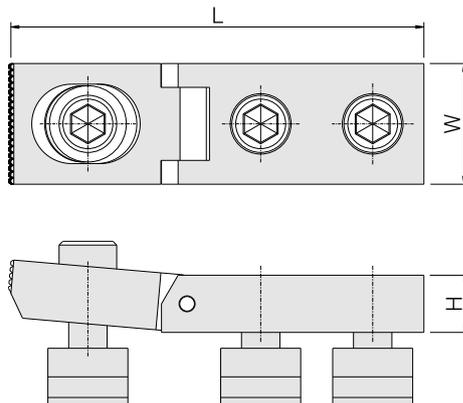
- ▶ Case Hardened Steel
- ▶ Blackened



Part No.	Suitable for T-slot size	ØM	L	W	H1	H2	A	Stroke	Weight (Kg)
B-1024-14-72	14	M12	100	48	53	15	40	4	1.40
B-1024-16-72	16								1.42
B-1024-18-72	18								1.45
B-1024-18-86	18	M16	126	68	72	20	41	7	3.20
B-1024-20-86	20								3.22
B-1024-22-86	22								3.25

B1026 - Medium Duty T-Slot Clamps

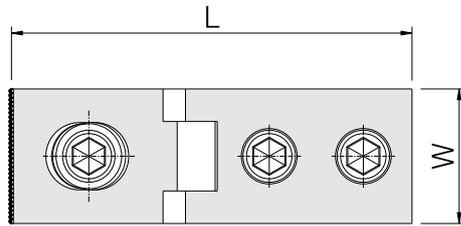
- ▶ Tempered steel
- ▶ Blackened



Part No.	Suitable for T-slot size	L	W	H	Weight (Kg)
B1026-12-105	12	105	30	15	0.42
B1026-14-105	14				0.45
B1026-16-130	16				0.93
B1026-18-130	18	175	48	24	1.02
B1026-20-175	20				1.67
B1026-22-175	22				2.35
B1026-24-175	24				2.38
B1026-28-175	28				2.75

B1027 - Heavy Duty Pinch Clamp

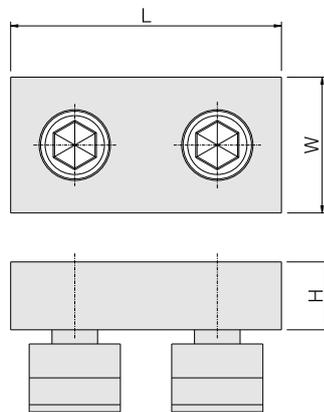
- ▶ Tempered steel
- ▶ Blackened



Part No.	Suitable for T-slot size	L	W	H	Weight (Kg)
B1027-18-185	18	185	62	38	3.44
B1027-20-185	20				3.47
B1027-22-185	22				3.43
B1027-24-185	24				4.05
B1027-28-185	28				4.40

B1028 - Stopper For T-Slot Clamps

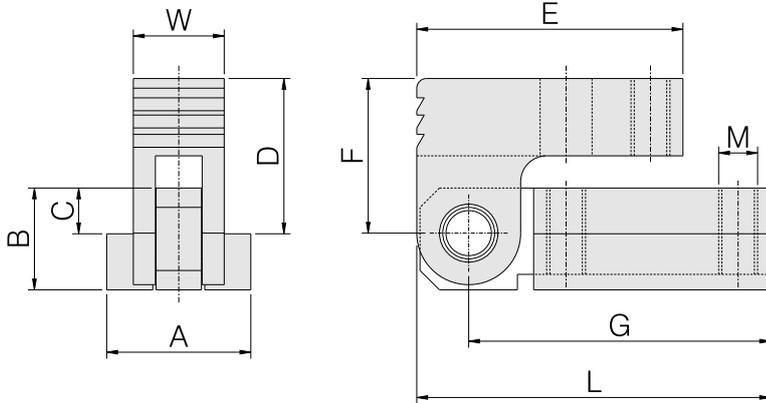
- ▶ Tempered steel
- ▶ Blackened



Part No.	Suitable for T-slot size	L	W	H	Weight (Kg)
B1028-12-55	12	55	30	15	0.23
B1028-14-55	14				0.28
B1028-16-66	16				0.53
B1028-18-66	18	66	38	18	0.54
B1028-20-95	20	95	48	24	0.93
B1028-22-95	22				1.23
B1028-24-95	24				1.26
B1028-28-95	28				1.52
B1028-18-95	18				95
B1028-20-95	20	1.88			
B1028-22-95	22	1.89			
B1028-24-95	24	2.19			
B1028-28-95	28	2.45			

B1030 - Mini T-Slots Clamp

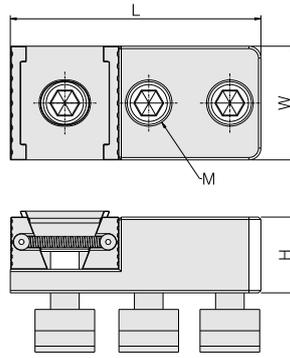
- ▶ Tempered steel
- ▶ Blackened



Part No.	W	A	B	C	L	D	E	F	G	M	Weight (Kg)
B1030-14-54	14	22.2	15.8	7.1	54	24.1	41	24	46	M6	0.16
B1030-16-65	16	25.4	15.8	7.1	65	27.1	50	27	55	M8	0.23
B1030-18-65	18	28.5	19.0	7.9	65	28.9	50	29	55	M8	0.30

B1025 - Wedge Type T-Slot Clamp

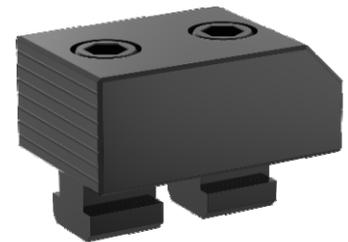
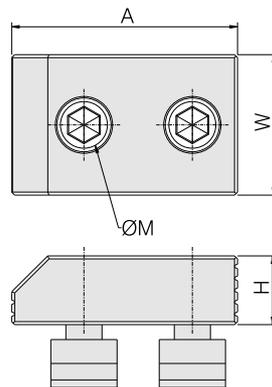
- ▶ Wedge - Tool Steel
- ▶ Base - Tempered Steel, Blackened



Part No.		Suitable for T-slot size	L	W	H	ØM	Weight (Kg)
SMOOTH	SERRATED						
B1025-14-12-A3	B1025-14-12-A4	14	110/105	48	32	M12	1.33
B1025-16-12-A3	B1025-16-12-A4	16					1.40
B1025-18-12-A3	B1025-18-12-A4	18					1.50
B1025-18-16-A3	B1025-18-16-A4	18	138/130	48	39	M16	2.0
B1025-20-16-A3	B1025-20-16-A4	20					2.1
B1025-22-16-A3	B1025-22-16-A4	22					2.15

B1031 – Wedge type T-slot clamp stopper

- ▶ Tempered Steel
- ▶ Blackened



Part No.	Suitable for T-slot size	ØM	L	W	H	Weight (Kg)
B1031-14-12	14	M12	75	48	32	0.94
B1031-16-12	16					1.00
B1031-18-12	18					1.05
B1031-18-16	18	M16	85	48	39	1.35
B1031-20-16	20					1.47
B1031-22-16	22					1.58

B1032 – Wedge type T-slot clamp with stopper set

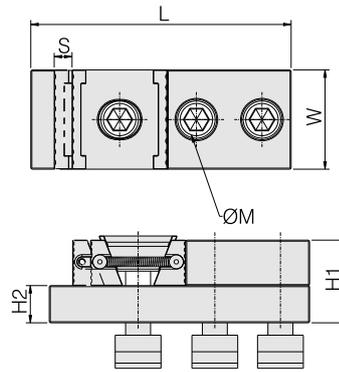
Part No.		Suitable for T-slot size	NM	Weight (Kg)
SMOOTH	SERRATED			
B1032-14-12-A3	B1032-14-12-A4	14	30	4.10
B1032-16-12-A3	B1032-16-12-A4	16	30	4.60
B1032-18-12-A3	B1032-18-12-A4	18	30	5.20
B1032-18-16-A3	B1032-18-16-A4	18	50	5.30
B1032-20-16-A3	B1032-20-16-A4	20	50	5.90
B1032-22-16-A3	B1032-22-16-A4	22	50	7.60

Part No.				
Quantity	2	2	10	10



B1035 – Wedge type T-slot clamp with parallel

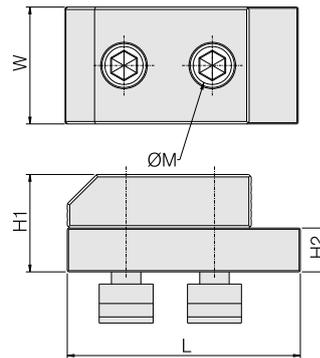
- ▶ Wedge - Tool Steel
- ▶ Base - Tempered Steel, Blackened



Part No.		Suitable for T-slot size	S	ØM	L	W	H1	H2	Weight (Kg)
SMOOTH	SERRATED								
B1035-14-12-A3	B1035-14-12-A4	14	5	M12	125	48	40	18	1.78
B1035-16-12-A3	B1035-16-12-A4	16							1.81
B1035-18-12-A3	B1035-18-12-A4	18							1.81
B1035-18-16-A3	B1035-18-16-A4	18	8	M16	160	48	47	18	2.30
B1035-20-16-A3	B1035-20-16-A4	20							2.90
B1035-22-16-A3	B1035-22-16-A4	22							3.20

B1036 – Wedge type T-slot clamp stopper with parallel

- ▶ Tempered Steel
- ▶ Blackened



Part No.	Suitable for T-slot size	ØM	L	W	H1	H2	Weight (Kg)
B1036-14-12	14	M12	95	48	40	18	1.31
B1036-16-12	16						1.36
B1036-18-12	18						1.41
B1036-18-16	18	M16	105	48	47	18	1.74
B1036-20-16	20						1.84
B1036-22-16	22						1.96

B1037 – Wedge type T-slot clamp with stopper & parallel set

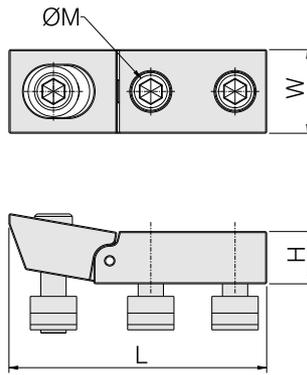
Part No.		Suitable for T-slot size	NM	Weight (Kg)
SMOOTH	SERRATED			
B1037-14-12-A3	B1037-14-12-A4	14	30	6.20
B1037-16-12-A3	B1037-16-12-A4	16	30	6.36
B1037-18-12-A3	B1037-18-12-A4	18	30	6.45
B1037-18-16-A3	B1037-18-16-A4	18	50	8.08
B1037-20-16-A3	B1037-20-16-A4	20	50	9.48
B1037-22-16-A3	B1037-22-16-A4	22	50	10.32

Part No.				
Quantity	2	2	10	10



B1040 – Side press clamp

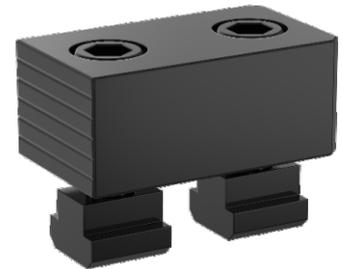
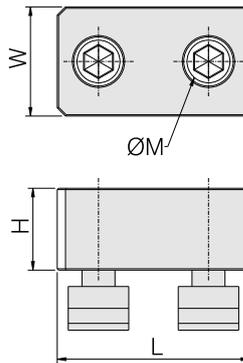
- ▶ Wedge - Tool Steel
- ▶ Base - Tempered Steel, Blackened



Part No.	Suitable for T-slot size	ØM	L	H	W	Clamping Kit Force (kg)	Weight (Kg)
B1040-14M12	14	M12	120	25	40	2500	1.10
B1040-16M12	16						1.07
B1040-18M12	18						1.20
B1040-20M12	20						1.32

B1041 – Side press clamp stopper

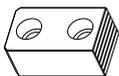
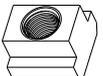
- ▶ Tempered Steel
- ▶ Blackened



Part No.	Suitable for T-slot size	ØM	L	H	W	Clamping Kit Force (kg)	Weight (Kg)
B1041-14M12	14	M12	70	30	40	2500	0.75
B1041-16M12	16						0.80
B1041-18M12	18						0.84
B1041-20M12	20						0.95

B1042 – Side press clamp with stopper set

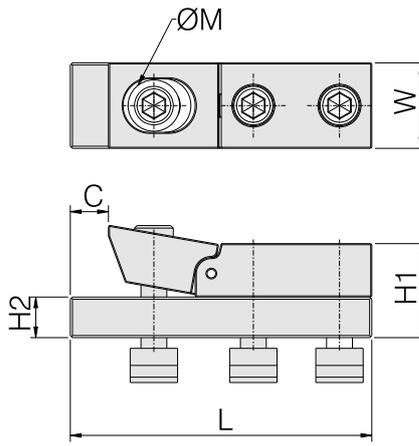
Part No.	Suitable for T-slot size	NM	Weight (Kg)
B1042-14M12	14	60	3.06
B1042-16M12	16	60	3.80
B1042-18M12	18	60	4.02
B1042-20M12	20	60	4.06

Part No.					
Quantity	2	2	10	10	2



B1045 – Side press clamp with Parallel

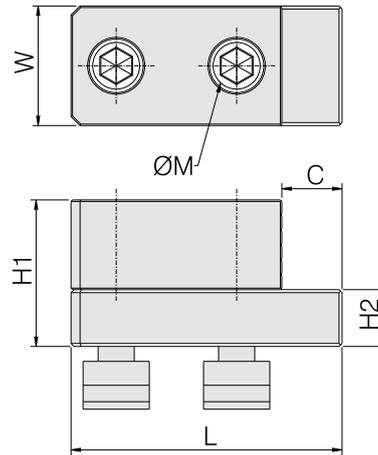
- ▶ Wedge - Tool Steel
- ▶ Base - Tempered Steel, Blackened



Part No.	Suitable for T-slot size	ØM	L	H1	H2	W	C	Clamping Kit Force (kg)	Weight (Kg)
B1045-14M12	14	M12	140	44	19	40	20	2500	1.82
B1045-16M12	16								1.88
B1045-18M12	18								1.97
B1045-20M12	20								2.13

B1046 – Side press clamp stopper with Parallel

- ▶ Tempered Steel
- ▶ Blackened



Part No.	Suitable for T-slot size	ØM	L	H1	H2	W	C	Clamping Kit Force (kg)	Weight (Kg)
B1046-14M12	14	M12	90	49	19	40	20	2500	1.26
B1046-16M12	16								1.31
B1046-18M12	18								1.37
B1046-20M12	20								1.46

B1047 – Side press clamp with stopper & Parallel set

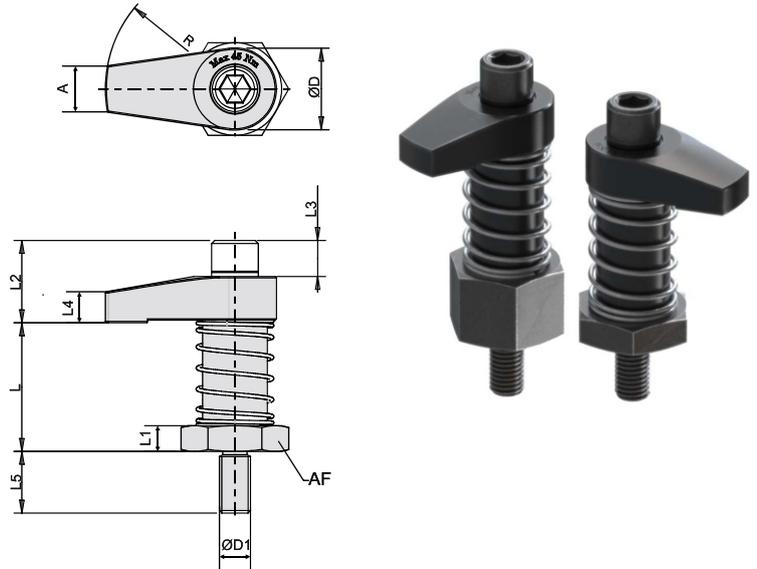
Part No.	Suitable for T-slot size	NM	Weight (Kg)
B1047-14M12	14	60	6.16
B1047-16M12	16	60	6.40
B1047-18M12	18	60	6.68
B1047-20M12	20	60	7.20

Part No.					
Quantity	2	2	10	10	2



B1400 - Hook Clamps With Flange

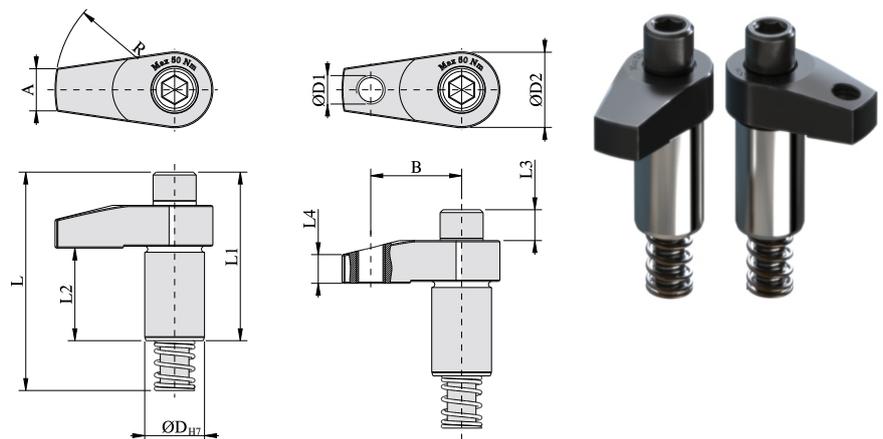
- ▶ Clamp : Carbon Steel, tempered, Blackened
- ▶ Hook Clamp Holder : Case Hardened, Blackened



Part No.	D	D1	L-(Min-Max) Clamping Range	L1	L2	L3	L4	L5	A	R	AF	Tightening torque max.Nm	F max.KN
B1400-M1240A	32	M12	55-70	10	30	14	10	24	18	40	36	45	13
B1400-M1250A	32	M12	55-70	10	32	14	12	24	18	50	36	45	12.5
B1400-M1260A	32	M12	55-70	10	32	14	12	24	18	60	36	45	11.5
B1400-M1240B	32	M12	70-85	25	30	14	10	24	18	40	36	45	13
B1400-M1250B	32	M12	70-85	25	32	14	12	24	18	50	36	45	12.5
B1400-M1260B	32	M12	70-85	25	32	14	12	24	18	60	36	45	11.5
B1400-M1640A	36	M16	55-70	10	39	18	15	24	22	40	36	60	13
B1400-M1650A	36	M16	55-70	10	39	18	16	24	22	50	36	60	12
B1400-M1660A	36	M16	55-70	10	39	18	16	24	22	60	36	60	11.5
B1400-M1640B	36	M16	70-85	25	39	18	15	24	22	40	36	60	13
B1400-M1650B	36	M16	70-85	25	39	18	16	24	22	50	36	60	12
B1400-M1660B	36	M16	70-85	25	39	18	16	24	22	60	36	60	11.5

B1410 - Hook Clamps Ground

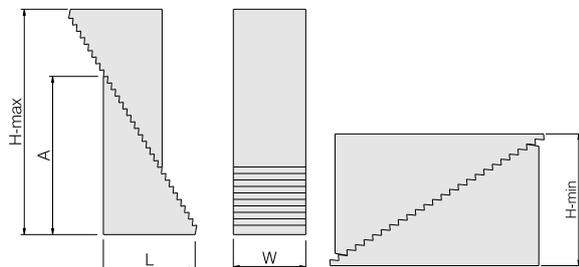
- ▶ Carbon Steel, tempered,
- ▶ Blackened



Part No.	D	D1	D2	L	L1	L2	L3	L4	A	B	R	Socket Head Screw DIN 912	Tightening torque max.Nm	F max.KN
B1410-M1240	25	M12	32	92	71	42	13	12	18	31	40	M12X80	55	22
B1410-M1250	25	M12	32	92	73	42	13	12	18	48	50	M12X80	50	18
B1410-M1260	25	M12	32	92	73	42	13	12	18	46	60	M12X80	42	14.5
B1410-M1640	32	-	36	101	80	42	17	15	22	-	40	M16X85	165	37.5
B1410-M1650	32	M12	36	101	80	42	17	15	22	38	50	M16X85	145	37.5
B1410-M1660	32	M12	36	101	80	42	17	15	22	46	60	M16X85	125	37.5

B1101 - Step Blocks

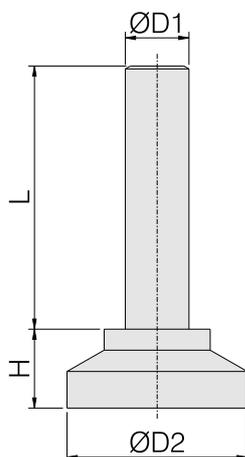
- ▶ Tempered steel
- ▶ Blackened



Part No.	A	L	W	H-minimum	H-maximum	Weight (Kg)
B1101-1	30	18	30	20	44	0.15
B1101-2	66	38	30	40	100	0.38
B1101-3	101	58	30	60	155	1.3
B1101-4	66	38	48	40	100	0.1
B1101-5	117	68	48	72	180	2.4

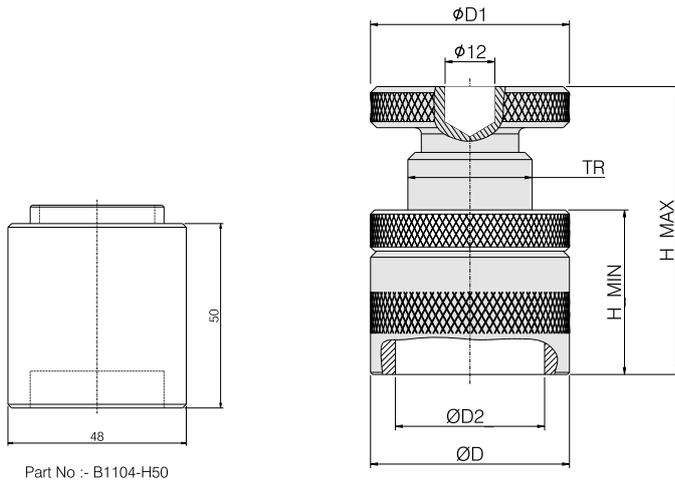
B1102 - Support Screw

- ▶ Tempered steel
- ▶ Blackened



Part No.	ØD1	L	ØD2	H	Weight (Kg)
B1102-M12-065	M12	50	34	15	0.130
B1102-M12-105	M12	90	34	15	0.167
B1102-M16-070	M16	55	38	15	0.193
B1102-M16-105	M16	90	38	15	0.250
B1102-M20-080	M20	60	48	20	0.380
B1102-M20-105	M20	85	48	20	0.444
B1102-M24-105	M24	85	54	20	0.600

B1103 - Screw Jack

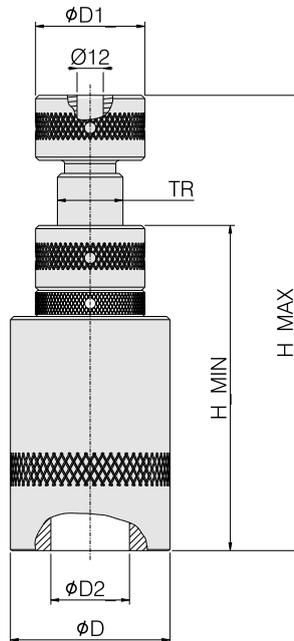


Part No :- B1104-H50



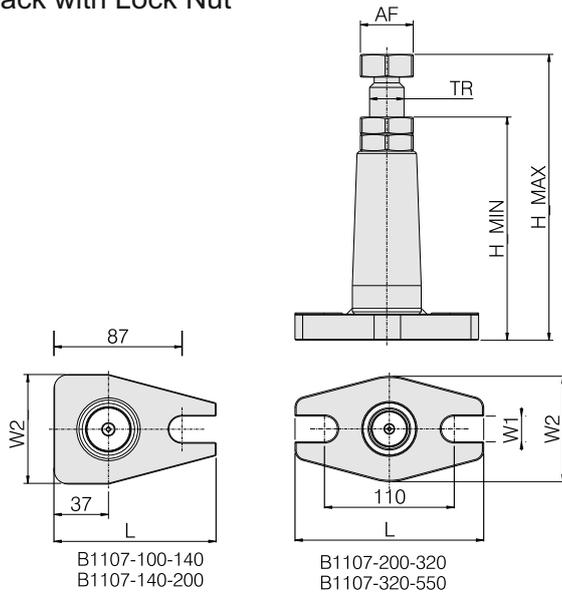
Part No.	Size	H-min	H-max	TR	ϕD	$\phi D1$	$\phi D2$	F-max (KN)	Weight (Kg)
B1103-40-50	50	40	50	30X4	48	48	38X2	100	0.500
B1103-50-70	70	50	70	30X4	48	48	38X2	100	0.580
B1103-70-100	100	70	100	30X4	48	48	38X2	100	0.890
B1103-100-150	150	100	150	30X4	48	48	-	120	1.30

B1105 - Screw Jack with Lock Nut



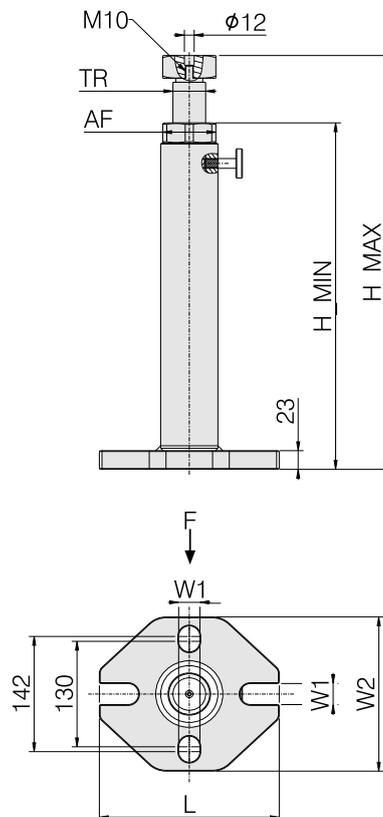
Part No.	Size	H-min	H-max	TR	ϕD	$\phi D1$	$\phi D2$	F-max (KN)	Weight (Kg)
B1105-150-230	230	150	230	30X4	73	50	-	170	4.0

B1107 - Screw Jack with Lock Nut



Part No.	Size	H-min	H-max	TR	W1	W2	L	AF	F-max (KN)	Weight (Kg)
B1107-100-140	140	100	140	30X6	18	75	110	46	60	2.0
B1107-140-200	200	140	200	30X6	18	75	110	46	60	2.7
B1107-200-320	320	200	320	30X6	22	90	160	46	40	4.7
B1107-320-550	550	320	550	30X6	22	90	160	46	25	6.4

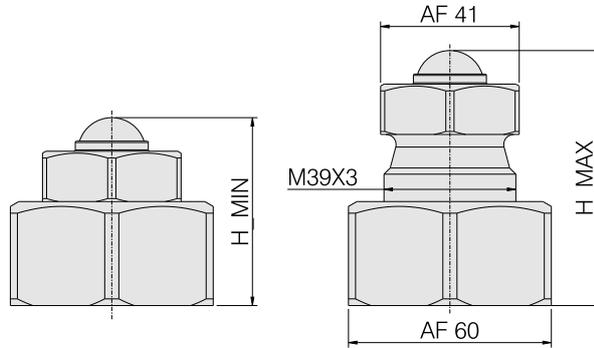
B1108 - Heavy Duty screw jack



Part No.	Size	H-min	H-max	TR	W1	W2	L	AF	F-max (KN)	Weight (Kg)
B1108-430-750	750	430	750	40X7	26	190	220	65	50	15

B1110 - Screw jack with spherical ball

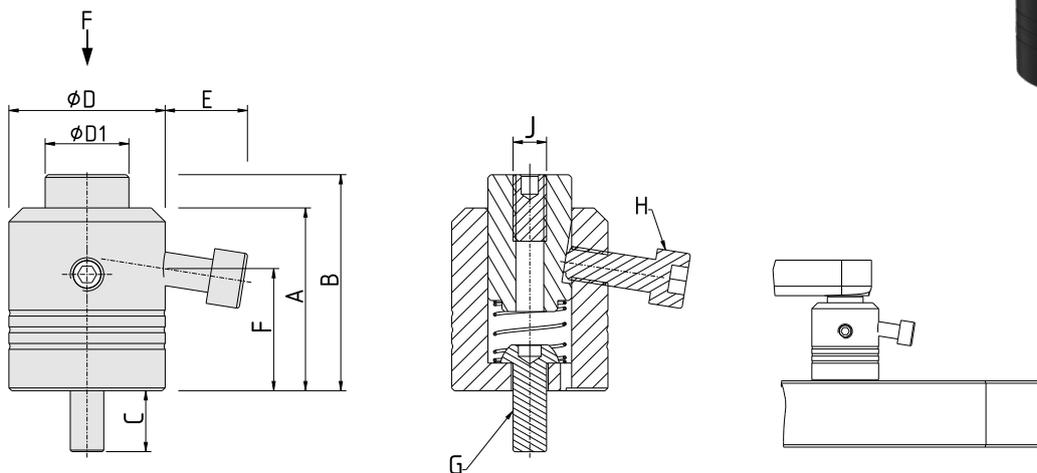
- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Tempered steel
- ▶ Blackened



Part No.	Size	H-min	H-max	F-max (KN)	Weight (Kg)
B1110-56-70	70	56	70	30	0.93

BU30200 - Manual Work Support

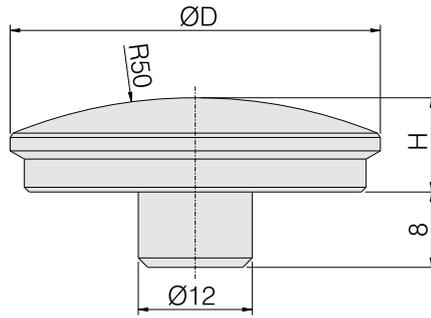
- ▶ Hardened steel, Blackened



Part No.	D	D1	A	B	C	E	F	G	H	J
BU30200-028	28	15	33	39	11	14.73	22.05	M6	M6X16	M6X12
BU30200-035	35	20	42	52	15	19.36	28.57	M8	M8X20	M8X10
BU30200-050	50	25	60	70	18	28.47	42.12	M12	M12X30	M12X25
BU30200-060	60	32	70	80	23	26.54	47.10	M16	M12X30	M16X30

B1112 - Spherical Surface Tip

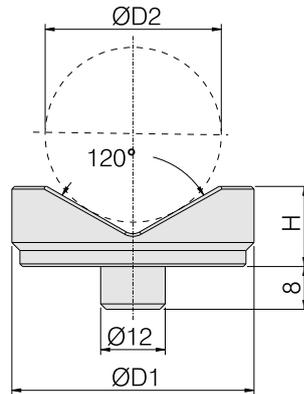
- ▶ Tempered steel
- ▶ Blackened



Part No.	ØD	H	Weight (Kg)
B1112-10	39	10	0.077

B1113 – V-Tip

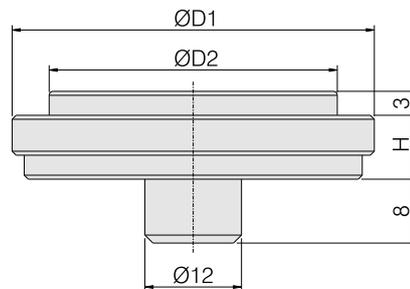
- ▶ Tempered steel
- ▶ Blackened



Part No.	Size	H	ØD1	ØD2-max	ØD2-min	Weight (Kg)
B1113-15	45	15	45	10	50	0.14
B1113-30	65	30	65	22	100	0.57

B1114 – Cantering Tip

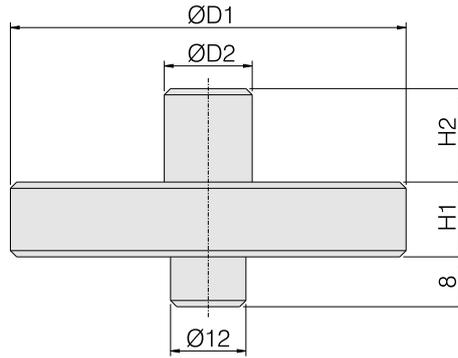
- ▶ Tempered steel
- ▶ Blackened



Part No.	ØD1	ØD2	H	Weight (Kg)
B1114-08	45	35.8	8	0.110

B1115 – Locating Tip

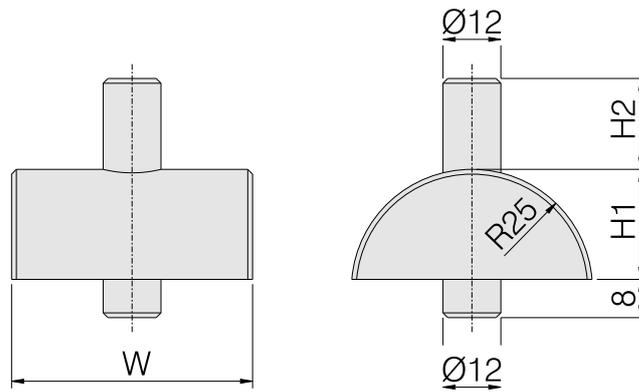
- ▶ Tempered steel
- ▶ Blackened



Part No.	ØD1	ØD2	H1	H2	Weight (Kg)
B1115-12	63	14	12	15	0.317
B1115-15	78	25	15	30	0.663

B1116 – Locating Tip

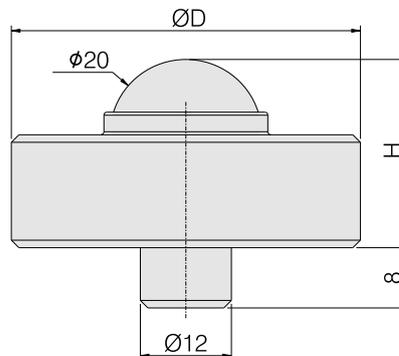
- ▶ Tempered steel
- ▶ Blackened



Part No.	H1	H2	W	Weight (Kg)
B1116-23	23	19	50	0.370

B1117 – Support with revolving ball Tip

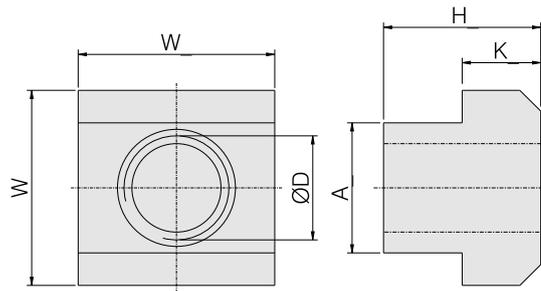
- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Tempered steel
- ▶ Blackened



Part No.	ØD1	H	F-max KN	Weight (Kg)
B1117-25	45	26	30	220

B1201 - T Nut

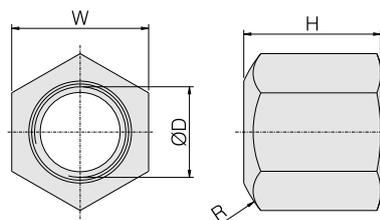
- ▶ Tempered steel
- ▶ Blackened



Part No.	For T-slot size A	ØD	W	H	K	Weight (Kg)
B1201-10 M8	10	M8	15	12	6	0.014
B1201-12 M10	12	M10	18	14	7	0.022
B1201-14 M10	14	M10	22	16	8	0.041
B1201-14 M12	14	M12	22	16	8	0.038
B1201-16 M12	16	M12	25	18	9	0.058
B1201-16 M14	16	M14	25	18	9	0.054
B1201-18 M12	18	M12	28	20	10	0.086
B1201-18 M16	18	M16	28	20	10	0.075
B1201-20 M16	20	M16	32	24	12	0.125
B1201-22 M16	22	M16	35	28	14	0.180
B1201-22 M20	22	M20	35	28	14	0.163
B1201-24 M20	24	M20	40	32	16	0.280
B1201-28 M24	28	M24	44	36	18	0.342
B1201-36 M24	36	M24	54	44	22	0.710
B1201-36 M30	36	M30	54	44	22	0.63

B1202 - Hexagon-Nuts-Spherical End

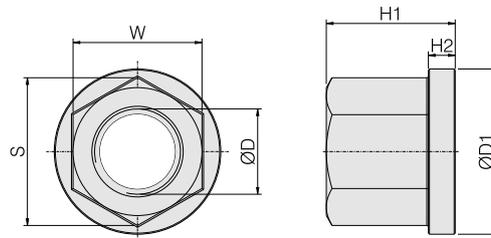
- ▶ Tempered steel
- ▶ Blackened
- ▶ Height 1.5xD



Part No.	ØD	H	R	W	Weight (Kg)
B1202-M8	M8	12	11	13	0.009
B1202-M10	M10	15	15	17	0.019
B1202-M12	M12	18	17	19	0.028
B1202-M14	M14	21	20	21	0.042
B1202-M16	M16	24	22	24	0.062
B1202-M18	M18	27	24.5	27	0.089
B1202-M20	M20	30	27	30	0.120
B1202-M22	M22	33	29	32	0.172
B1202-M24	M24	36	32	36	0.207
B1202-M30	M30	45	41	46	0.428

B1203 - Collar Nut

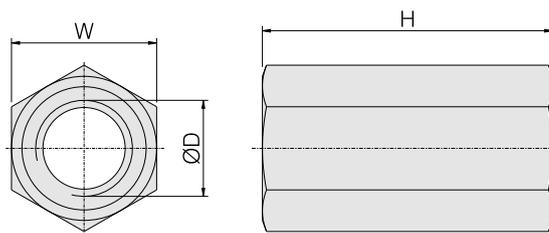
- ▶ Tempered steel
- ▶ Blackened
- ▶ Height 1.5xD



Part No.	ØD	S	H1	W	D1	H2	Weight (Kg)
B1203-M10	M10	19.6	15	17	22	4	0.028
B1203-M12	M12	21.9	18	19	25	4	0.037
B1203-M16	M16	27.7	24	24	31	5	0.073
B1203-M20	M20	34.6	30	30	37	6	0.138
B1203-M24	M24	41.6	36	36	45	6	0.237

B1205 - Extension Nut

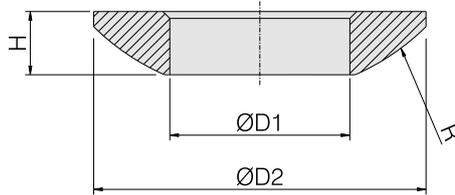
- ▶ Tempered steel
- ▶ Blackened
- ▶ Height 3xD



Part No.	ØD	H	W	Weight (Kg)
B1205-M8	M8	24	13	0.020
B1205-M10	M10	30	17	0.038
B1205-M12	M12	36	19	0.054
B1205-M14	M14	42	21	0.087
B1205-M16	M16	48	24	0.12
B1205-M20	M20	60	30	0.25
B1205-M24	M24	72	36	0.43
B1205-M30	M30	90	46	0.89

B1206 - Spherical Washer

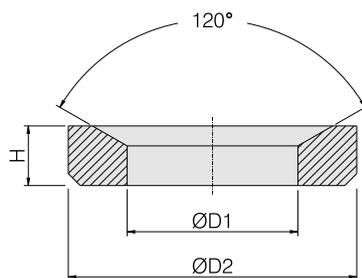
- ▶ Tempered steel
- ▶ Blackened



Part No.	For suitable screw	ØD1	ØD2	H	R	Weight (Kg)
B1206-M8	M8	8.4	17	3.2	12	0.026
B1206-M10	M10	10.5	21	4	15	0.05
B1206-M12	M12	13	24	4.6	17	0.07
B1206-M16	M16	17	30	5.3	22	0.0124
B1206-M20	M20	21	36	6.3	27	0.0225
B1206-M24	M24	25	44	8.2	32	0.0443

B1207 - Conical Seat

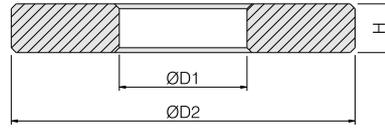
- ▶ Tempered steel
- ▶ Blackened



Part No.	For suitable screw	ØD1	ØD2	H	Weight (Kg)
B1207-M8	M8	9.6	17	3.5	0.03
B1207-M10	M10	12	21	4.2	0.07
B1207-M12	M12	14.2	24	5	0.011
B1207-M16	M16	19	30	6.2	0.014
B1207-M20	M20	23.2	36	7.5	0.025
B1207-M24	M24	28	44	9.5	0.025

B1208 - Plain Washer

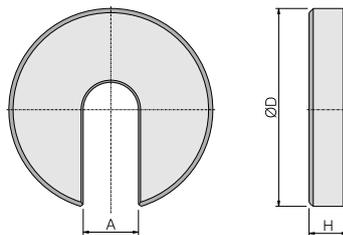
- ▶ Tempered steel
- ▶ Blackened



Part No.	For suitable screw	ØD1	ØD2	H	Weight (Kg)
B1208-M8	M8	8.4	23	4	0.011
B1208-M10	M10	10.5	28	4	0.016
B1208-M12	M12	13	35	5	0.033
B1208-M14	M14	15	40	5	0.041
B1208-M16	M16	17	45	6	0.064
B1208-M18	M18	19	45	6	0.064
B1208-M20	M20	21	50	6	0.075
B1208-M22	M22	23	50	8	0.092
B1208-M24	M24	25	50	8	0.172
B1208-M30	M30	31	68	10	0.226

B1209 - C Washer

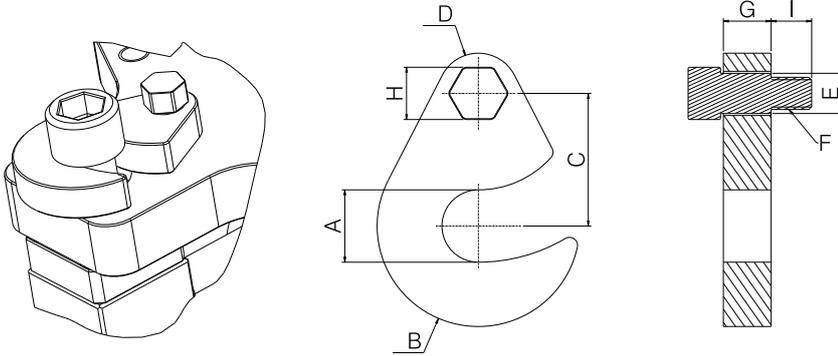
- ▶ Tempered steel
- ▶ Ground, Blackened



Part No.	For suitable screw	ØD	A	H	Weight (Kg)
B1209-M10	M10	42	10.5	9	0.07
B1209-M12	M12	48	13	9	0.1
B1209-M14	M14	63	15	11	0.21
B1209-M16	M16	63	17	12	0.21
B1209-M20	M20	78	21	14	0.34
B1209-M24	M24	102	25	16	0.6
B1209-M30	M30	102	31	18	0.65

B1210 - Swing washer

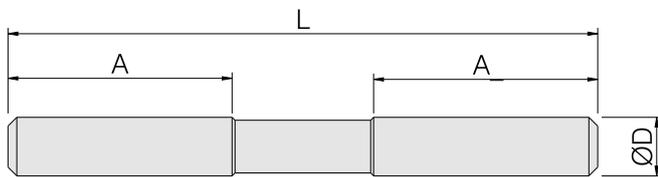
- ▶ Tempered Steel
- ▶ Ground, Blackened



Part No.	For suitable screw	A	B	C	D	E	F	G	H	I	Weight (Kg)
B1210-M10	M10	11	32	24	16	8	M6	12.8	13	10	0.078
B1210-M12	M12	13.5	40	27	20	10	M8	12.8	13	10	0.13
B1210-M16	M16	18	50	33	20	10	M8	12.8	13	10	0.18

B1221 - Clamping Stud

- ▶ Tempered steel
- ▶ Strength class 10.9
- ▶ Blackened



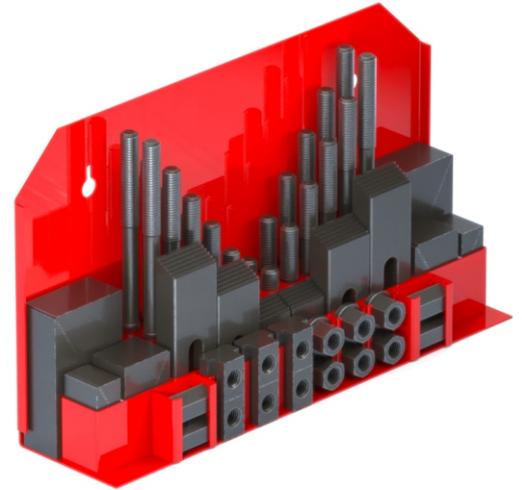
Part No.	ØD	L	A	Weight (Kg)
B1221-M8-075	M8	75	22	0.027
B1221-M8-100	M8	100	38	0.035
B1221-M8-150	M8	150	50	0.054
B1221-M10-075	M10	75	30	0.043
B1221-M10-100	M10	100	38	0.057
B1221-M10-125	M10	125	38	0.070
B1221-M10-150	M10	150	50	0.085
B1221-M10-175	M10	175	50	0.099
B1221-M10-200	M10	200	65	0.120
B1221-M12-075	M12	75	30	0.063
B1221-M12-100	M12	100	38	0.083
B1221-M12-125	M12	125	38	0.102
B1221-M12-150	M12	150	50	0.123
B1221-M12-175	M12	175	50	0.142
B1221-M12-200	M12	200	65	0.162
B1221-M12-250	M12	250	65	0.202
B1221-M12-300	M12	300	80	0.242
B1221-M14-100	M14	100	38	0.113
B1221-M14-150	M14	150	50	0.68
B1221-M14-200	M14	200	65	0.222
B1221-M14-250	M14	250	65	0.278

Part No.	ØD	L	A	Weight (Kg)
B1221-M16-075	M16	75	30	0.115
B1221-M16-100	M16	100	38	0.150
B1221-M16-125	M16	125	38	0.184
B1221-M16-150	M16	150	50	0.222
B1221-M16-175	M16	175	50	0.258
B1221-M16-200	M16	200	65	0.293
B1221-M16-250	M16	250	65	0.366
B1221-M16-300	M16	300	80	0.438
B1221-M20-100	M20	100	38	0.238
B1221-M20-150	M20	150	50	0.352
B1221-M20-200	M20	200	65	0.462
B1221-M20-250	M20	250	65	0.578
B1221-M20-300	M20	300	80	0.688
B1221-M20-400	M20	400	100	0.911
B1221-M20-500	M20	500	100	1.10
B1221-M24-150	M24	150	50	0.512
B1221-M24-200	M24	200	65	0.668
B1221-M24-250	M24	250	65	0.838
B1221-M24-300	M24	300	80	0.998
B1221-M24-400	M24	400	100	1.5
B1221-M24-500	M24	500	100	1.58

Clamping Kit

CK –Clamping Kit (58 piece)

Each 58 piece clamping kit is supplied with Heavy-duty steel holder. All parts are made from Tempered steel. See individual parts detail in catalogue Pages for more details



Item Part No.	T-slot Size (screw size)	Stepped Strap Clamp (2 nos. each size)	Step Blocks (4 nos. each size)	Flange Nut (6 nos.)	Extension Nuts (4 nos.)	T-Nut (6 nos.)	Clamping Stud (4 nos. each size)	Total items
CK-14-M10	14mm (M10)	B1002-10-60 B1002-10-80 B1002-10-125	B1101-1 B1001-2 B1001-3	B1203-M10	B1203-M10	B1201-14M10	B1221-M10-075 B1221-M10-100 B1221-M10-125 B1221-M10-150 B1221-M10-175 B1221-M10-200	58
CK-14-M12	14mm (M12)	B1002-12-65 B1002-12-100 B1002-12-125	B1101-1 B1001-2 B1001-3	B1203-M12	B1205-M12	B1201-14M12	B1221-M12-075 B1221-M12-100 B1221-M12-125 B1221-M12-150 B1221-M12-175 B1221-M12-200	58
CK-16-M12	14mm (M12)	B1002-12-65 B1002-12-100 B1002-12-125	B1101-1 B1001-2 B1001-3	B1203-M12	B1205-M12	B1201-16M12	B1221-M12-075 B1221-M12-100 B1221-M12-125 B1221-M12-150 B1221-M12-175 B1221-M12-200	58
CK-18-M12	18mm (M12)	B1002-12-65 B1002-12-100 B1002-12-125	B1101-1 B1001-2 B1001-3	B1203-M12	B1205-M12	B1201-18M12	B1221-M12-075 B1221-M12-100 B1221-M12-125 B1221-M12-150 B1221-M12-175 B1221-M12-200	58
CK-18-M16	18mm (M16)	B1002-16-75 B1002-16-125 B1002-16-160	B1101-1 B1001-2 B1001-3	B1203-M16	B1205-M16	B1201-18M16	B1221-M16-075 B1221-M16-100 B1221-M16-125 B1221-M16-150 B1221-M16-175 B1221-M16-200	58
CK-22-M16	22mm (M16)	B1002-16-75 B1002-16-125 B1002-16-160	B1101-1 B1001-2 B1001-3	B1203-M16	B1205-M16	B1201-22M16	B1221-M16-075 B1221-M16-100 B1221-M16-125 B1221-M16-150 B1221-M16-175 B1221-M16-200	58

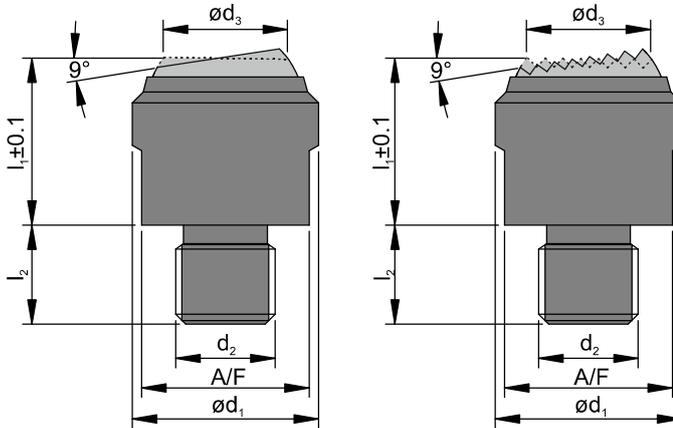
Self-Aligning Pads



Self-aligning pads are suitable for clamping irregular surface work pieces or as a support / stop element for contoured or non-parallel surface. Available in different versions either flat or ribbed surface and in different mounting options.

BU30100 Self-Aligning Pads - Male Thread

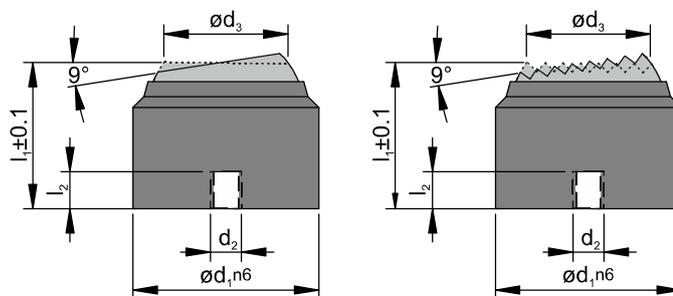
- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Body – Alloy steel, Tempered, Blackened
- ▶ Ball surface – Ribbed, Flat
- ▶ Ball is secured against rotation and limited to an angular movement of 9° only.



Part No.		d ₁	d ₂	d ₃	l ₁	l ₂	Ball	A/F
Flat surface ball	Ribbed surface ball							
BU30100-M10200	BU30100-M10201	20	M10	10.5	18.5	10	16	17
BU30100-M12200	BU30100-M12201	20	M12	10.5	18.5	12	16	17
BU30100-M16270	BU30100-M16271	27	M16	16	22	16	20	24
BU30100-M16300	BU30100-M16301	30	M16	20	28	16	25	27
BU30100-M20500	BU30100-M20501	50	M20	34.5	36	20	40	41
BU30100-M24500	BU30100-M24501	50	M24	34.5	36	24	40	41

BU30110 Self-Aligning Pads - Locating Hole

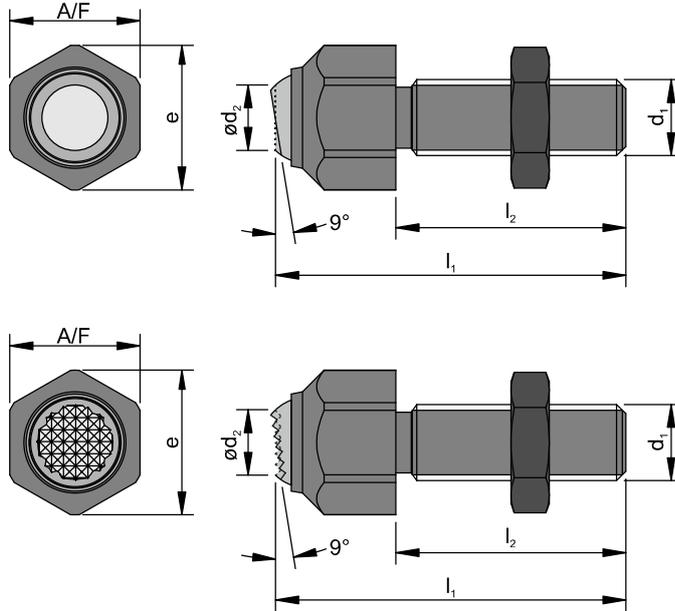
- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Body – Alloy steel, Tempered, Blackened
- ▶ Ball surface – Ribbed, Flat
- ▶ Ball is secured against rotation and limited to an angular movement of 9° only.



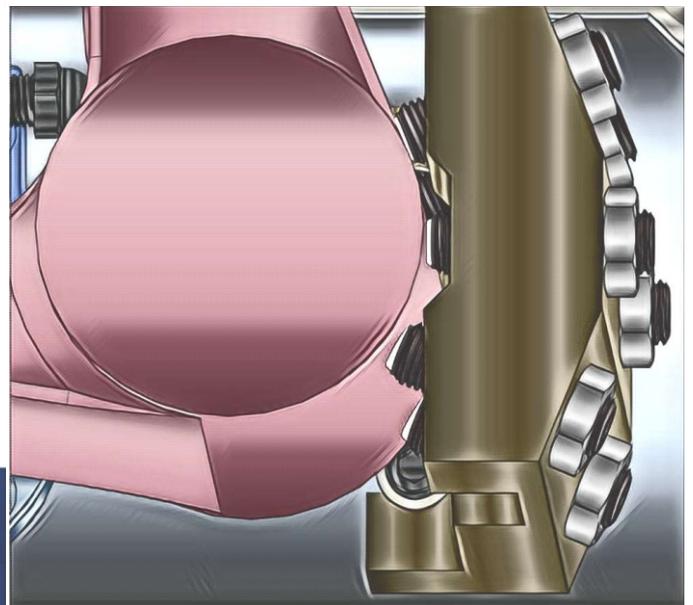
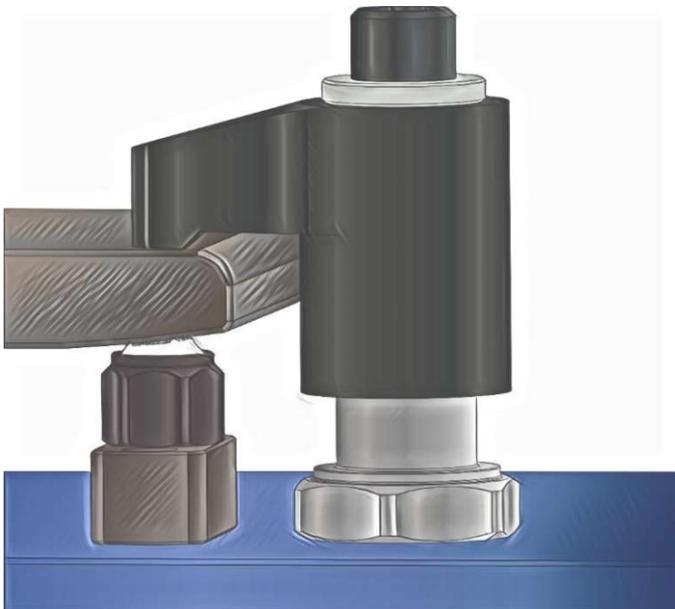
Part No.		d ₁	d ₂	d ₃	l ₁	l ₂ max.	Ball	A/F
Flat surface ball	Ribbed surface ball							
BU30110-M4200	BU30110-M4201	20n6	M4	10.5	18	4	16	20H7 x 8min
BU30110-M4250	BU30110-M4251	25n6	M4	16	21	5	20	25H7 x 10min
BU30110-M5300	BU30110-M5301	30n6	M5	20	26	5.5	25	30H7 x 13min

BU30120 Self-Aligning Pads - Adjustable

- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Body – Alloy steel, Tempered, Blackened
- ▶ Ball surface – Ribbed, Flat
- ▶ Ball is secured against rotation and limited to an angular movement of 9° only.

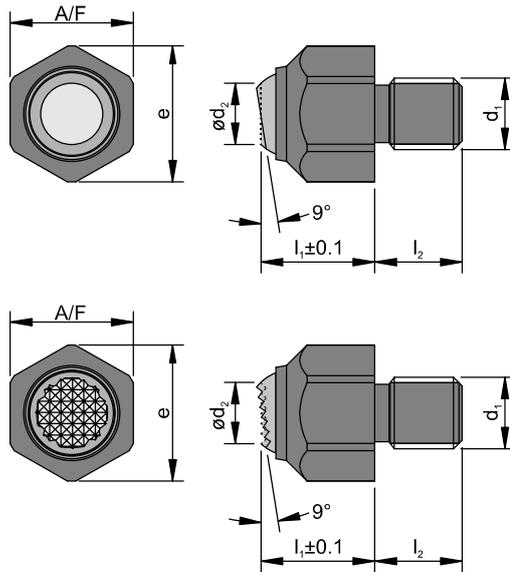


Part No.		d ₁	d ₂	l ₁	l ₂	Ball	A/F	e
Flat surface ball	Ribbed surface ball							
BU30120-M16240	BU30120-M16241	M16	10.5	61	40	16	24	27
BU30120-M16270	BU30120-M16271	M16	16	61	40	20	27	30
BU30120-M20300	BU30120-M20301	M20	20	77	50	25	30	33
BU30120-M24360	BU30120-M24361	M24	20	100	70	25	36	40
BU30120-M30460	BU30120-M30461	M30	34.5	100	65	40	46	51

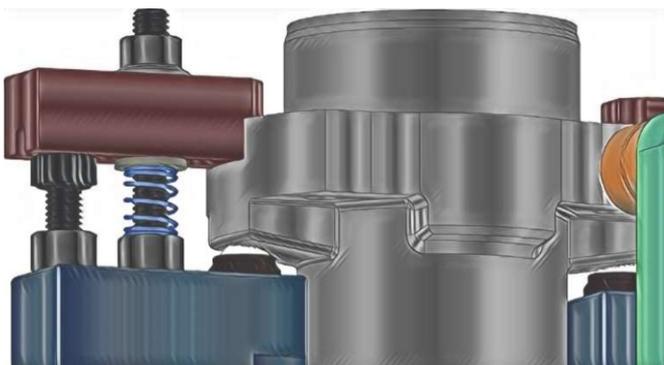


BU30130 Self-Aligning Pads - Hex Part

- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Body – Alloy steel, Tempered, Blackened
- ▶ Ball surface – Ribbed, Flat
- ▶ Ball is secured against rotation and limited to an angular movement of 9° only.

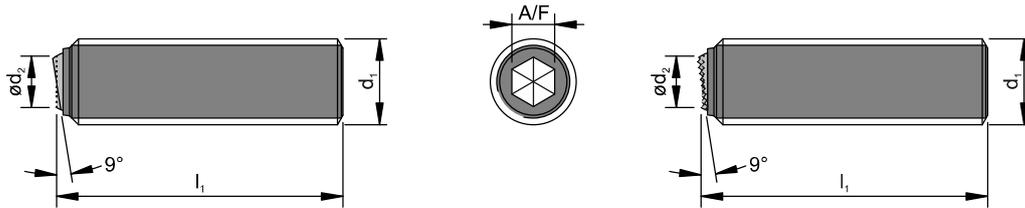


Part No.		d ₁	d ₂	l ₁	l ₂	Ball	A/F	e
Flat surface ball	Ribbed surface ball							
BU30130-M10190	BU30130-M10191	M10	10.5	18.5	10	16	19	21
BU30130-M12190	BU30130-M12191	M12	10.5	18.5	12	16	19	21
BU30130-M16270	BU30130-M16271	M16	16	22	16	20	27	30
BU30130-M16300	BU30130-M16301	M16	20	28	16	25	30	33

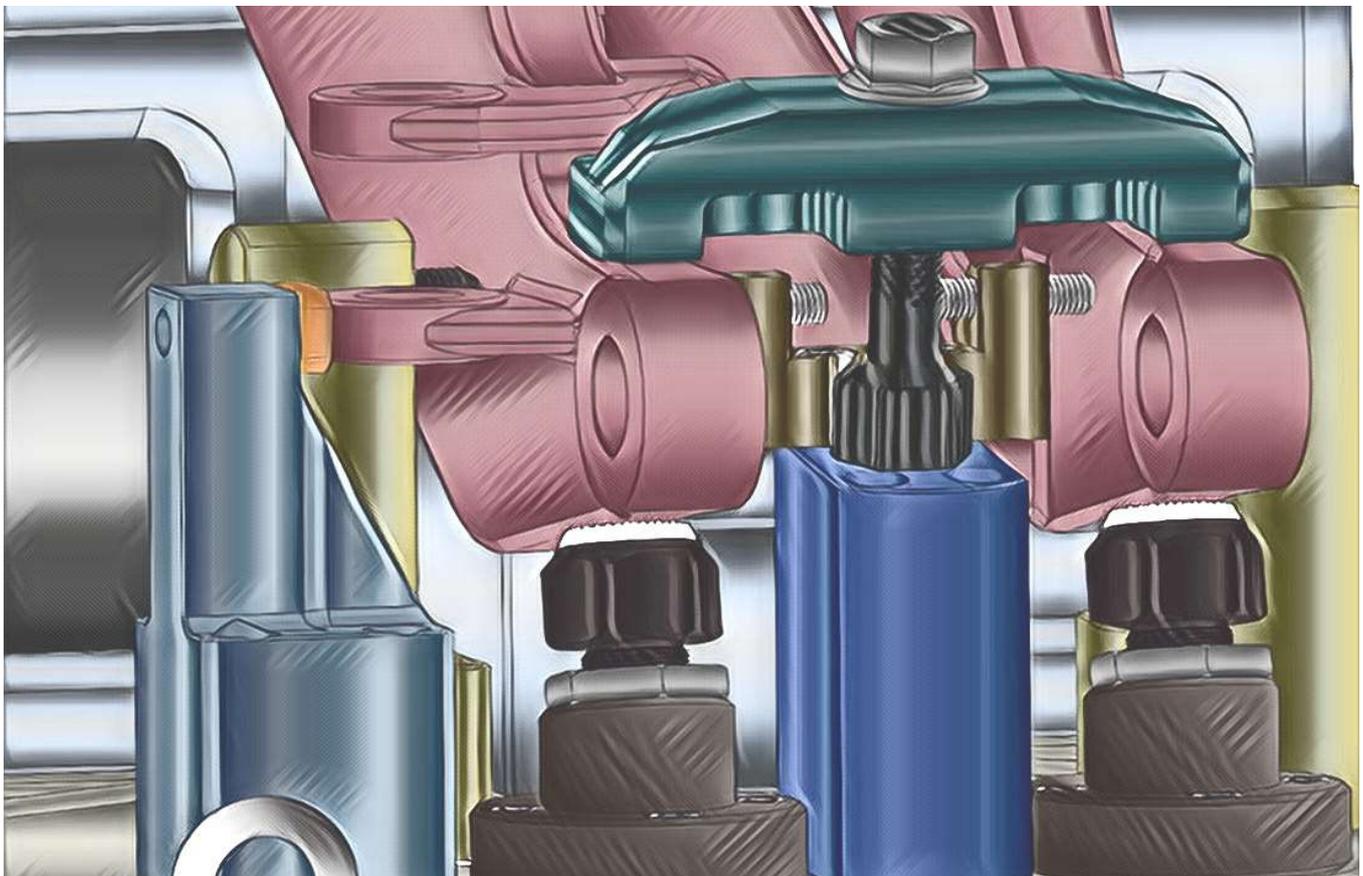


BU30140 Self-Aligning Pads - Grub Screw

- ▶ Ball – Bearing steel, Hardened, Bright
- ▶ Body – Alloy steel, Tempered, Blackened
- ▶ Ball surface – Ribbed, Flat
- ▶ Ball is secured against rotation and limited to an angular movement of 9° only.

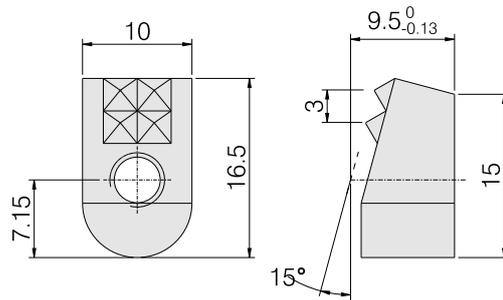
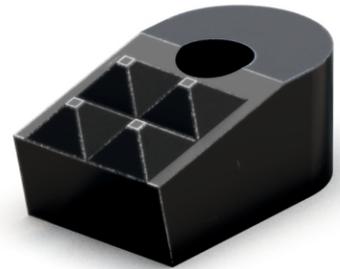


Part No.		d ₁	d ₂	l ₁	Ball	A/F
Flat surface ball	Ribbed surface ball					
BU30140-M20300	BU30140-M20301	M20	13.5	30	15	10
BU30140-M20400	BU30140-M20401	M20	13.5	40	15	10
BU30140-M20500	BU30140-M20501	M20	13.5	50	15	10
BU30140-M20600	BU30140-M20601	M20	13.5	60	15	10
BU30140-M24350	BU30140-M24351	M24	15.8	35	18	12
BU30140-M24500	BU30140-M24501	M24	15.8	50	18	12
BU30140-M24800	BU30140-M24801	M24	15.8	80	18	12

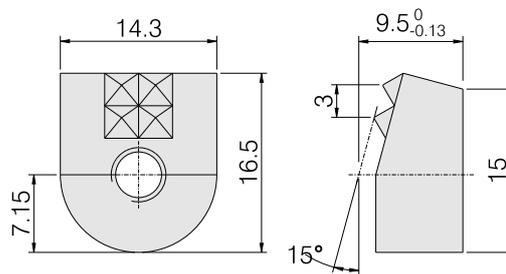


B3401

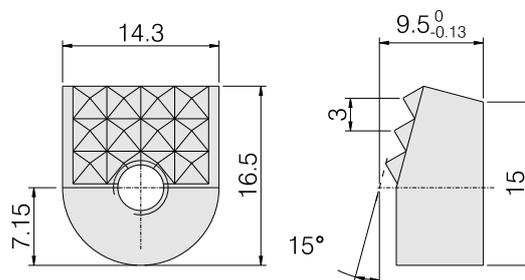
- ▶ High Speed Tool Steel
- ▶ Hardened to 60 / 62 HRC



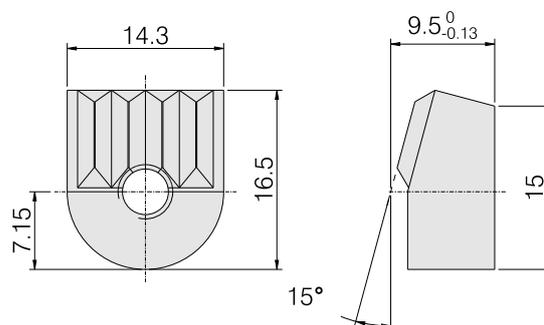
B3401 - A



B3401 - B



B3401 - C

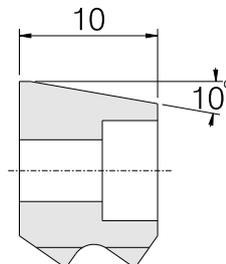
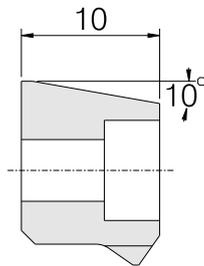
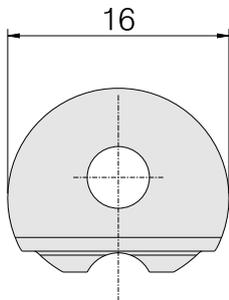


B3401 - D

Part No.	Weight (Kg)
B3401-A	0.008
B3401-B	0.010
B3401-C	
B3401-D	

B3400

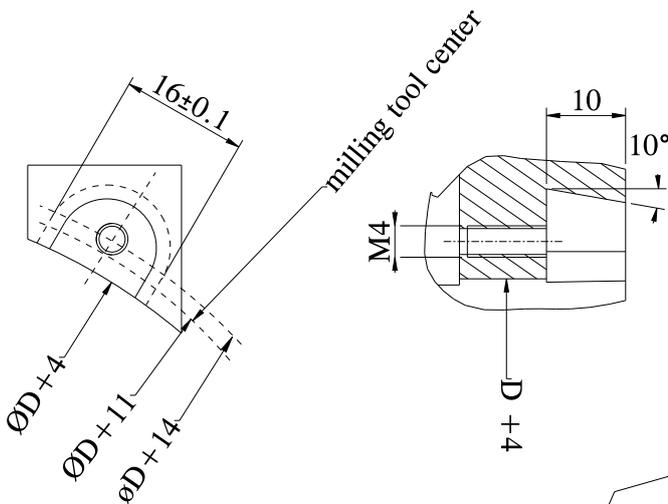
- ▶ High Speed Tool Steel
- ▶ Hardened to 60 / 62 HRC
- ▶ Pocket Can be Easily machined with Angular Dovetail Cutter
- ▶ For External or Internal Clamping



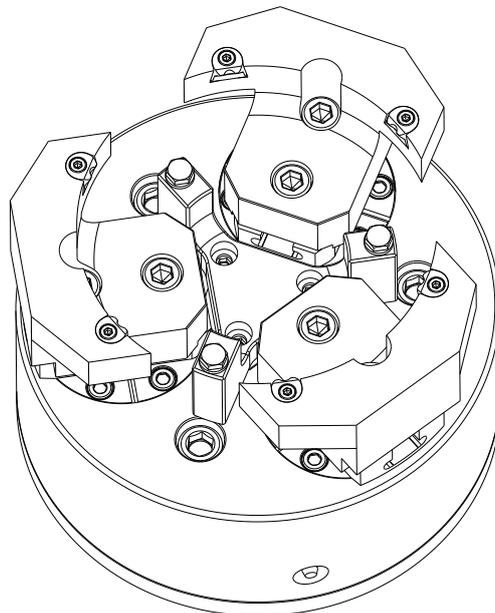
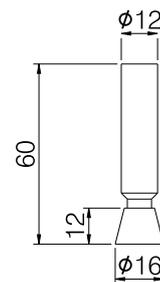
B3400-1

B3400-2

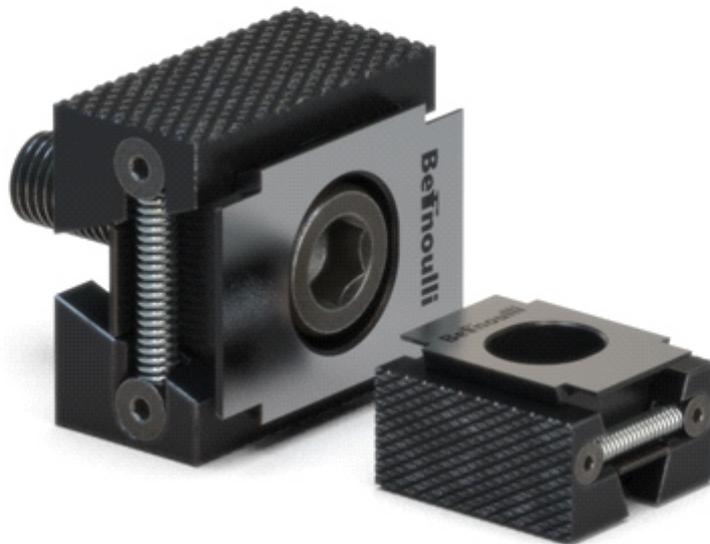
Pocket Machining Dimensions



Tool For Pocket Machining



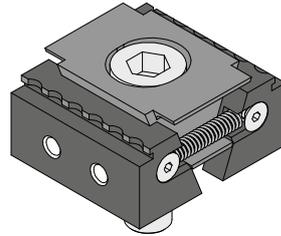
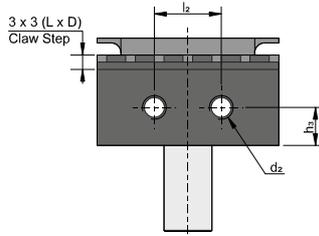
Wedge Clamp



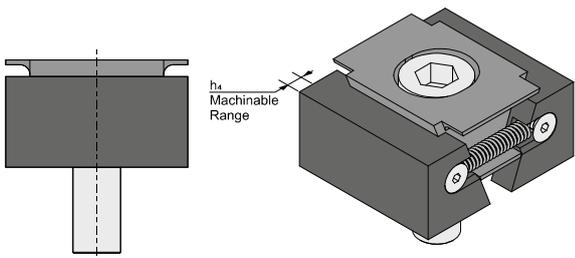
Wedge clamps expand in both directions using socket head screws to push the work-piece against fixed stops. Wedge clamps are ideal for clamping individual as well as multiple parts in vertical or on a tombstone in a horizontal machining environment. Wedge clamps are compact in size and fit between work-pieces on a fixture plate in a threaded hole or t-slot to allow maximum machinable space for workpiece. It has also less tool interference.

BU10200 - Wedge Clamps

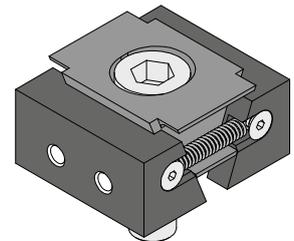
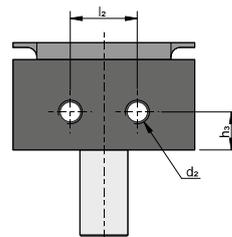
- ▶ Wedge – Tool steel, Hardened, Bright
- ▶ Jaw – Tool steel, Blackened
- ▶ Wedge clamp can be mounted in t-slots using t-slot nuts.
- ▶ The stroke of wedge clamp within M8=±0.5, M10=±0.8, M12=±1, M16=±1.4.
- ▶ Type A0 is only available in M12 & M16 sizes.



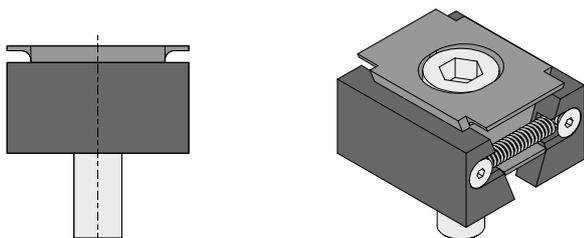
Type A0 – Claw Jaws
(3 mm clamping to achieve maximum machining area for work-piece)



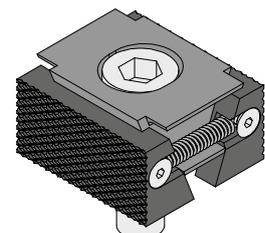
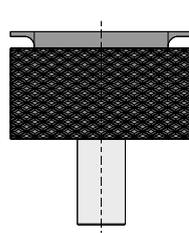
Type A1 – Machinable Jaws
(Extended jaws can be machined to suit the geometry of the work-piece)



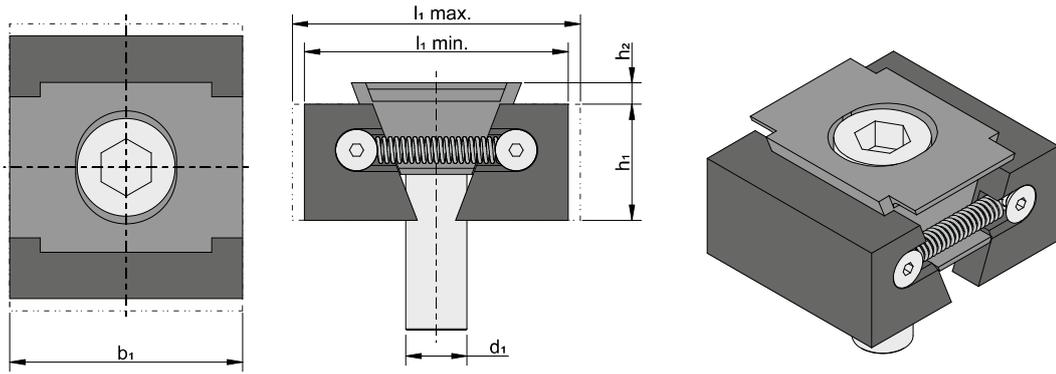
Type A2 – Thread for Attachment Jaws
(2 threads to attach additional jaws for extended stroke)



Type A3 – Smooth Jaws
(Smooth finish jaw face for direct clamping)

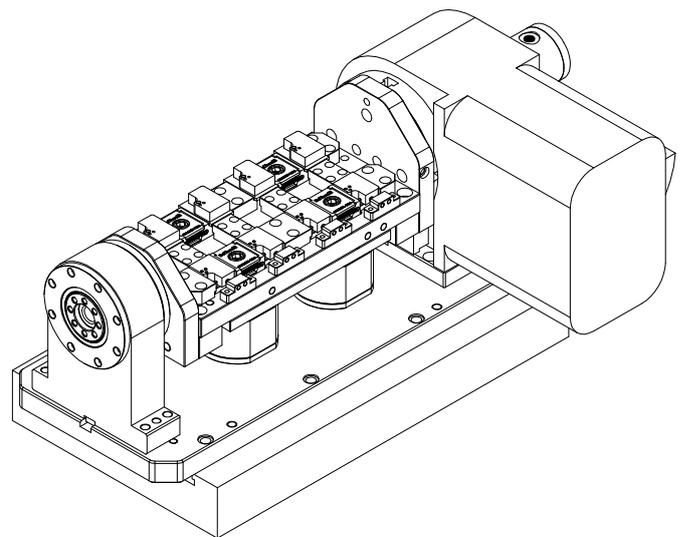
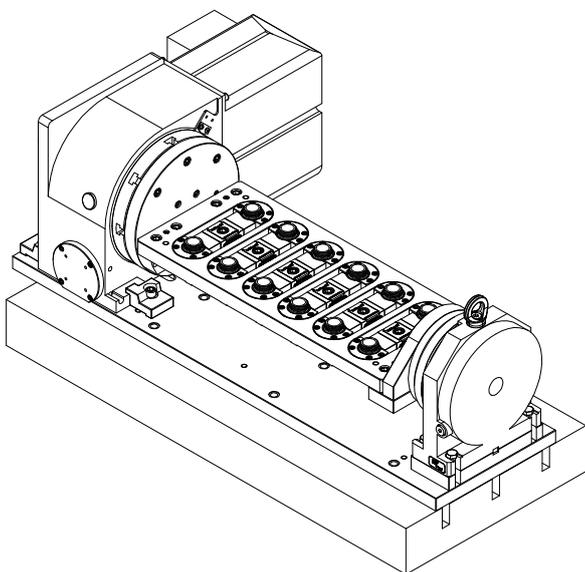


Type A4 – Serrated or Ribbed Jaws
(Jaw with serration to create high friction for a better grip)



Part No.	d ₁	l ₁ min.	Optimum l ₁	l ₁ max.	Total Stroke	b ₁	h ₁	h ₂	h ₃	h ₄	l ₂	d ₂
BU10200-08A1	M8	37	39	40.5	3.5	30	15	2	4.5	3	12	-
BU10200-08A2	M8	37	39	40.5	3.5	30	15	2	-	-	-	M4
BU10200-08A3	M8	31	33	34.5	3.5	30	15	2	-	-	-	-
BU10200-08A4	M8	31	33	34.5	3.5	30	15	2	-	-	-	-
BU10200-10A1	M10	43	45	48.5	5.5	38	19	3.5	8	4	14	-
BU10200-10A2	M10	43	45	48.5	5.5	38	19	3.5	-	-	-	M5
BU10200-10A3	M10	35	37	40.5	5.5	38	19	3.5	-	-	-	-
BU10200-10A4	M10	35	37	40.5	5.5	38	19	3.5	-	-	-	-
BU10200-12A0	M12	55	58	61	6	48	22	3.5	10	-	18	M5
BU10200-12A1	M12	55	58	61	6	48	22	3.5	10	5	18	-
BU10200-12A2	M12	55	58	61	6	48	22	3.5	-	-	-	M5
BU10200-12A3	M12	45	47	51	6	48	22	3.5	-	-	-	-
BU10200-12A4	M12	45	47	51	6	48	22	3.5	-	-	-	-
BU10200-16A0	M16	66	69	74	8	48	29	4	10	-	20	M5
BU10200-16A1	M16	66	69	74	8	48	29	4	10	5	20	-
BU10200-16A2	M16	66	69	74	8	48	29	4	-	-	-	M5
BU10200-16A3	M16	56	59	64	8	48	29	4	-	-	-	-
BU10200-16A4	M16	56	59	64	8	48	29	4	-	-	-	-

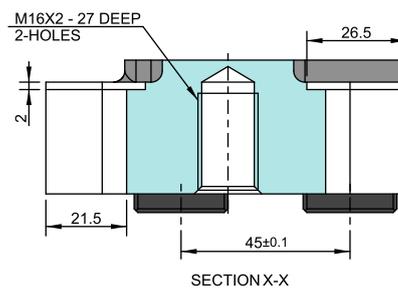
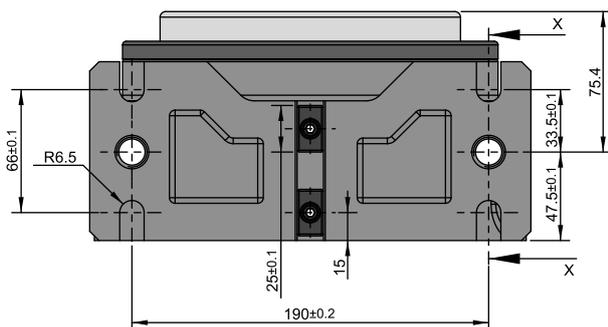
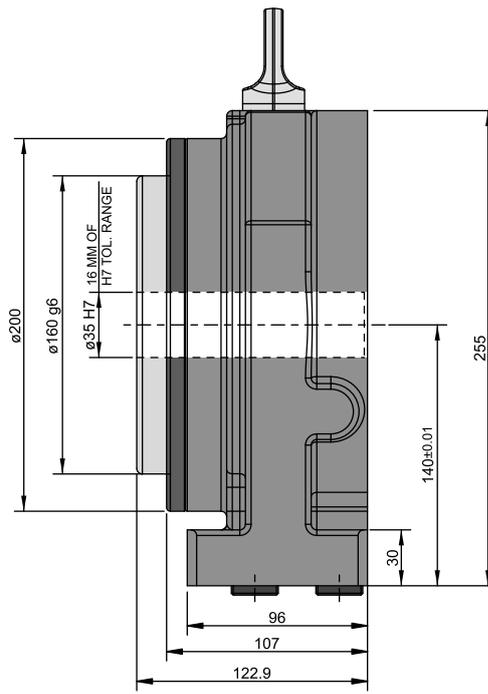
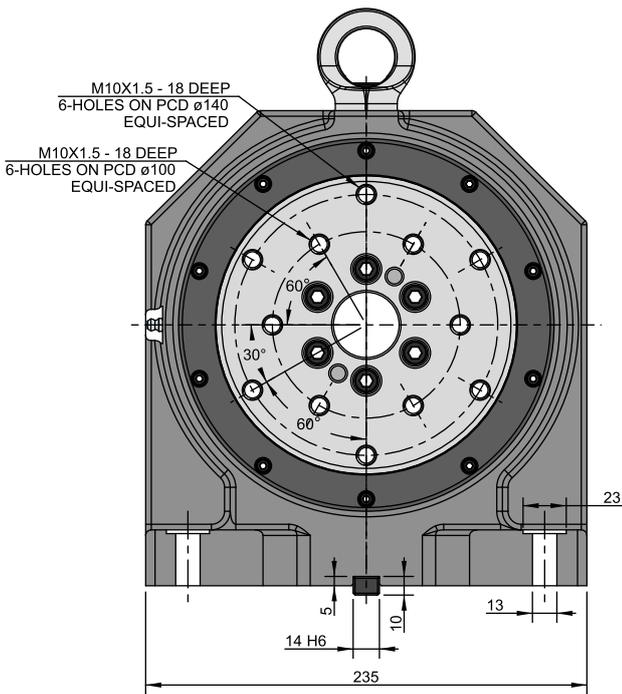
Thread size	Clamping force kN	Tightening torque Nm
M8	15	25
M10	20	49
M12	30	85
M16	50	210



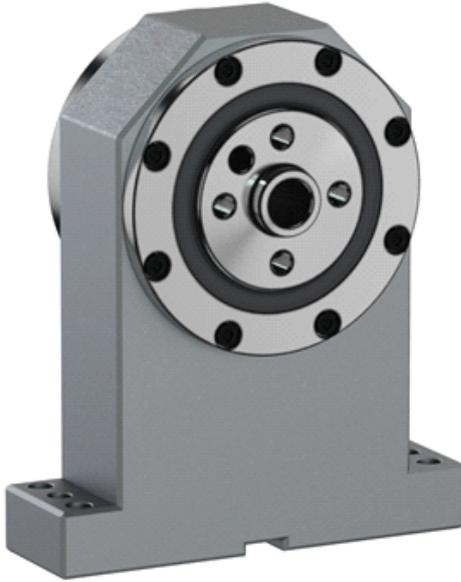
BU60010- Standard version without brake



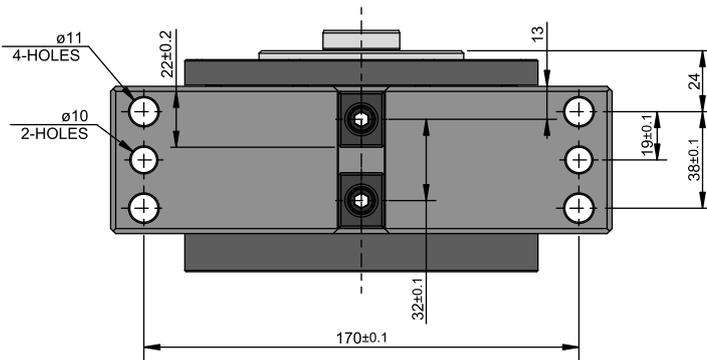
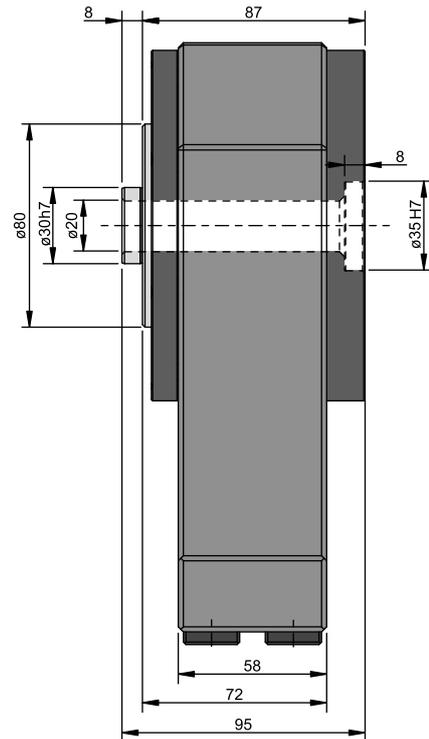
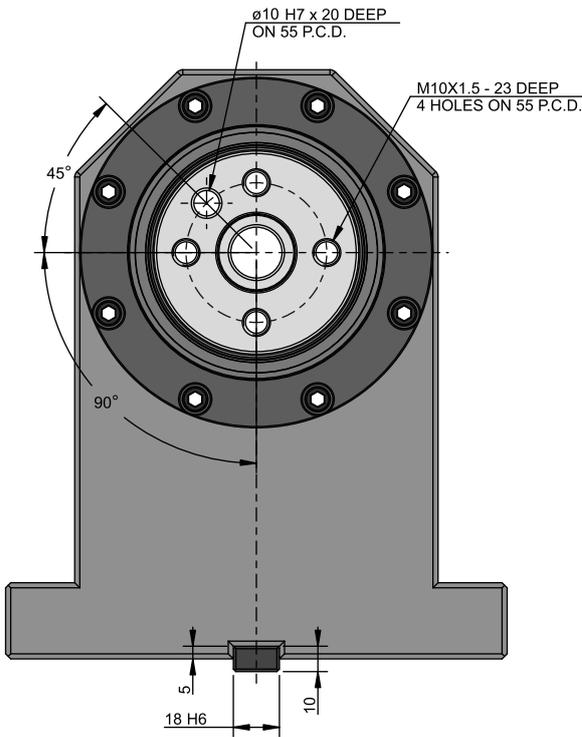
Part No.	BU60010-140
Version/Type	Standard
Clamping Method	Without Brake
Center Height	140
Net Weight (in Kg)	34



BU60020- Compact version without brake

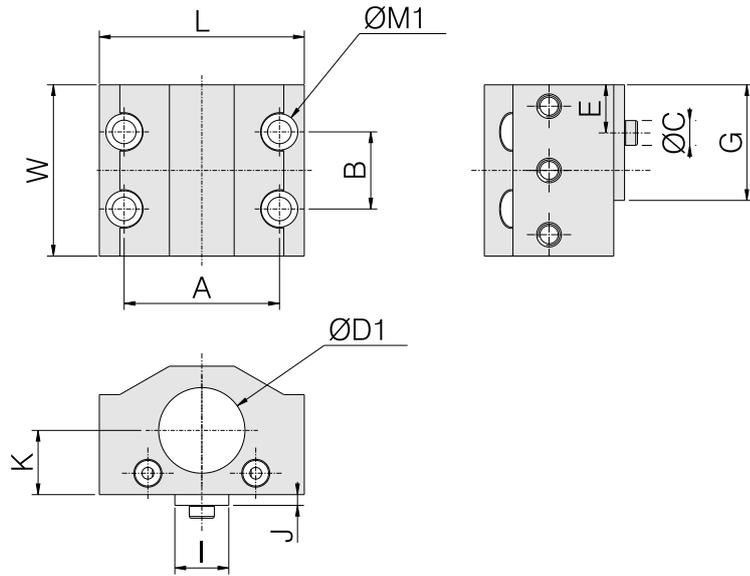


Part No.	BU60020-160
Version/Type	Compact
Clamping Method	Without Brake
Center Height	160
Net Weight (in Kg)	17



B6030 – Boring-tool-holder

► High Strength Cast Iron



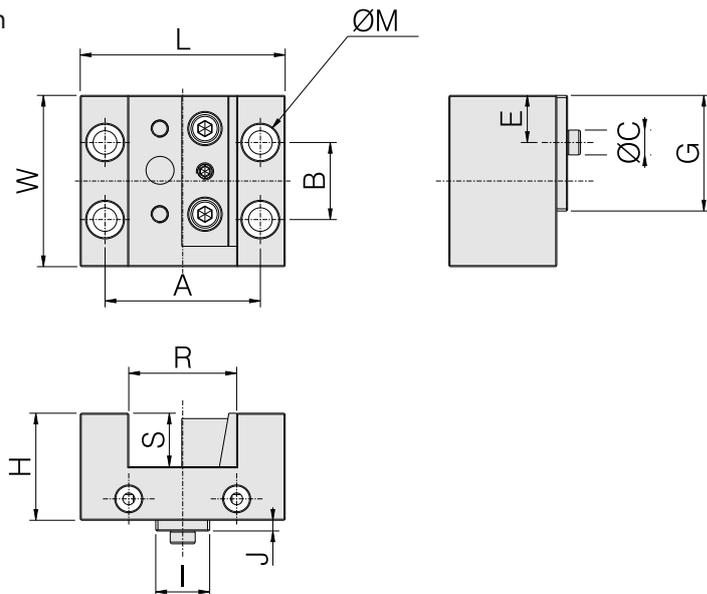
Part No.	L	W	ØD1	K	A	B	Mounting Screw ØM1	ØC	E	G	I	J	Weight (Kg)
B6030-C40-30	95	80	40	30	72	36	M10	11.8	22.5	54	25	5	2.20
B6030-D40-30-TC*	95	80	40	30	72	36	M10	11.8	22.5	54	25	5	2.5

* Boring tool holder with through coolant plate

3XD / 4XD Anti-vibration boring bar holder available upon request

B6040 – Axial tool holder

► High Strength Cast Iron

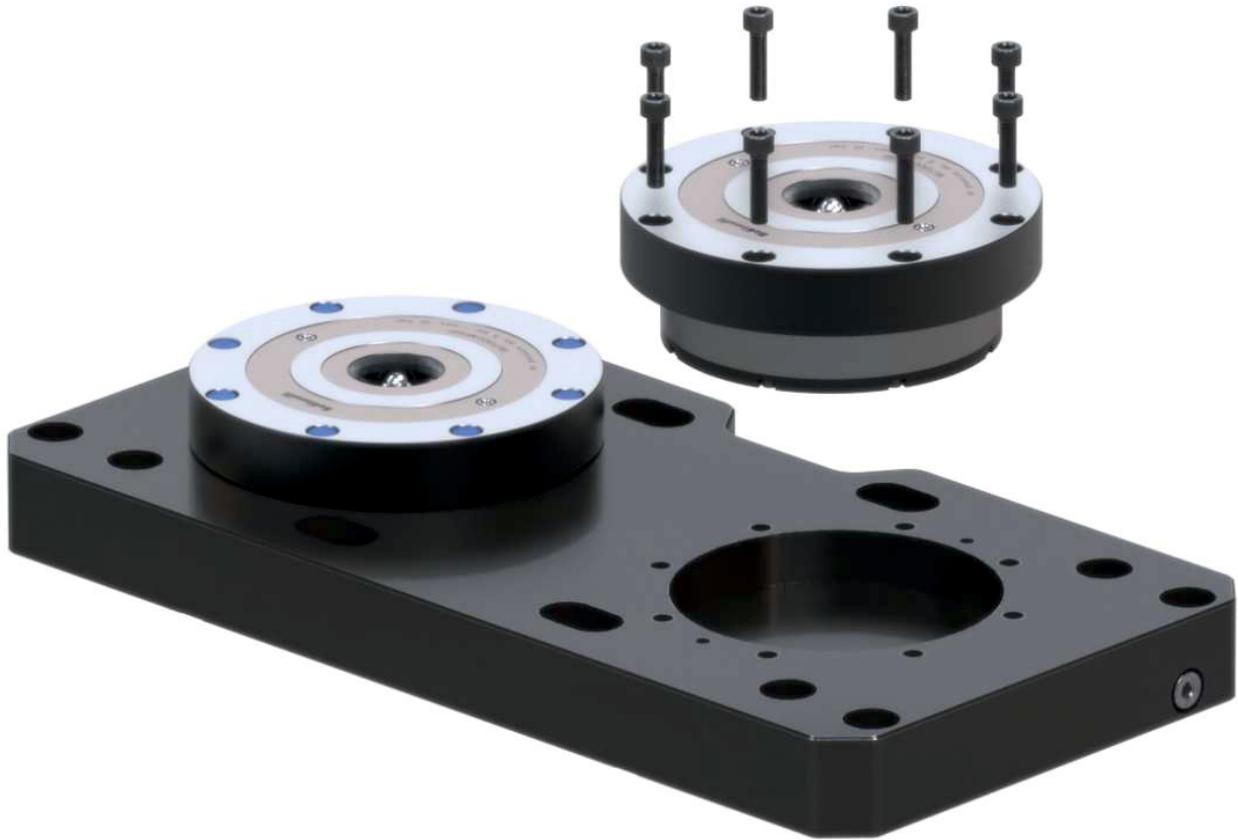


Part No.	L	W	H	A	B	Mounting Screw ØM	ØC	E	G	I	J	R	S	Weight (Kg)
B6040-25-25	95	80	50	72	36	M10	11.8	22	54	25	5	50	25	2.35

Zero Point Clamping System



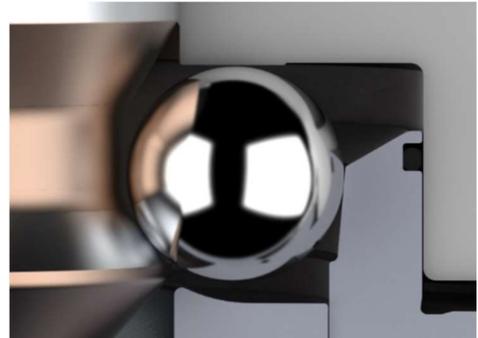
- Quick and Precise
- Modular Design
- High Clamping forces
- Pneumatically Actuated at 6 bar
- Simple Installation
- Completely Sealed Design
- Optimal Force Distribution
- All Parts from Stainless Steel



Due to special geometry at pin end, it's possible to load-unload pallet/ fixture at an angle. It makes run in-out of asymmetrical items easy.



Spring force permanently fixes the pin in the form-fit Precisely, which gives optimal downward force distribution.

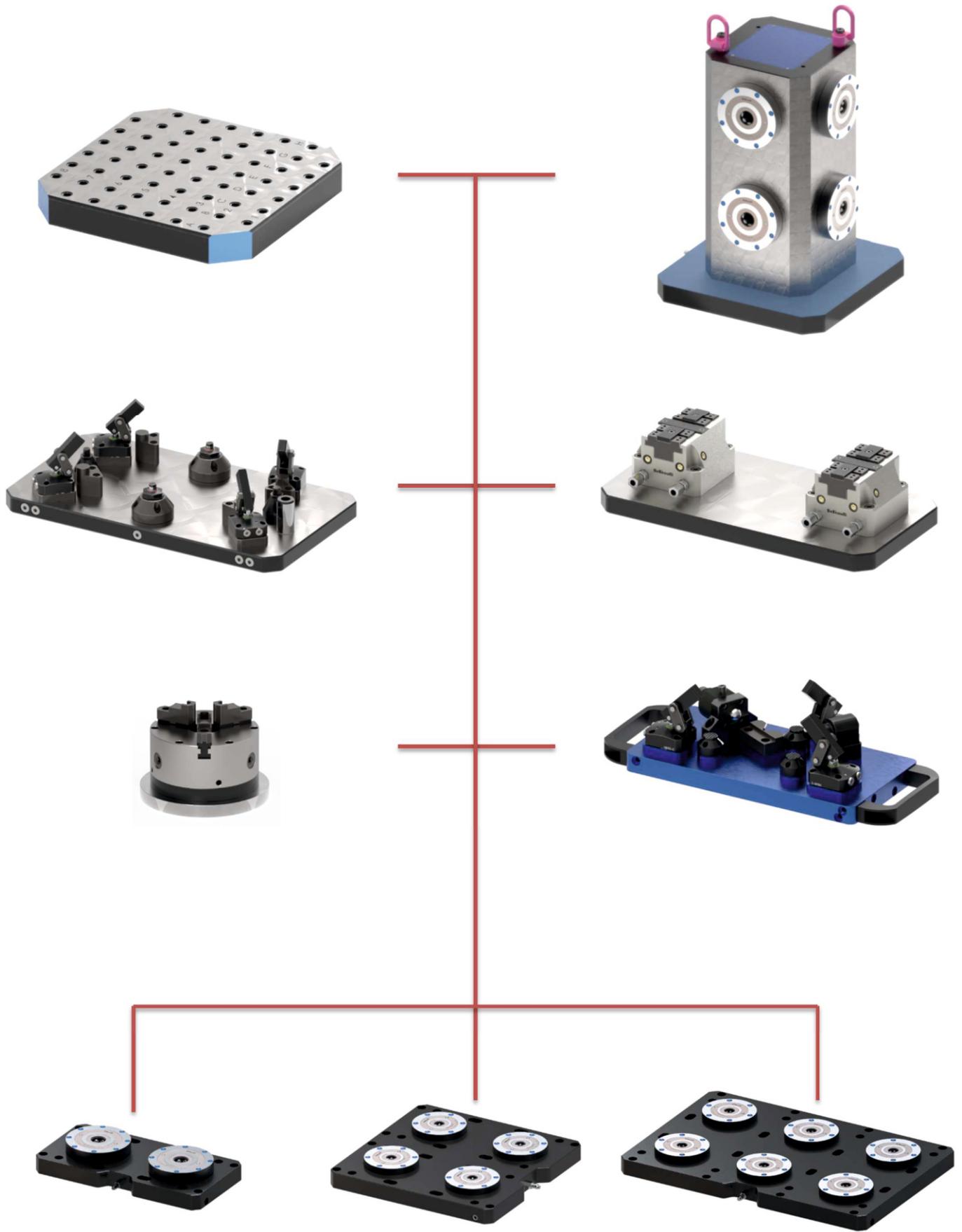


Element is completely sealed design, which makes it superior in terms of protection against foreign particles and coolant. No tedious machining operations for installation due to simple installation contour.



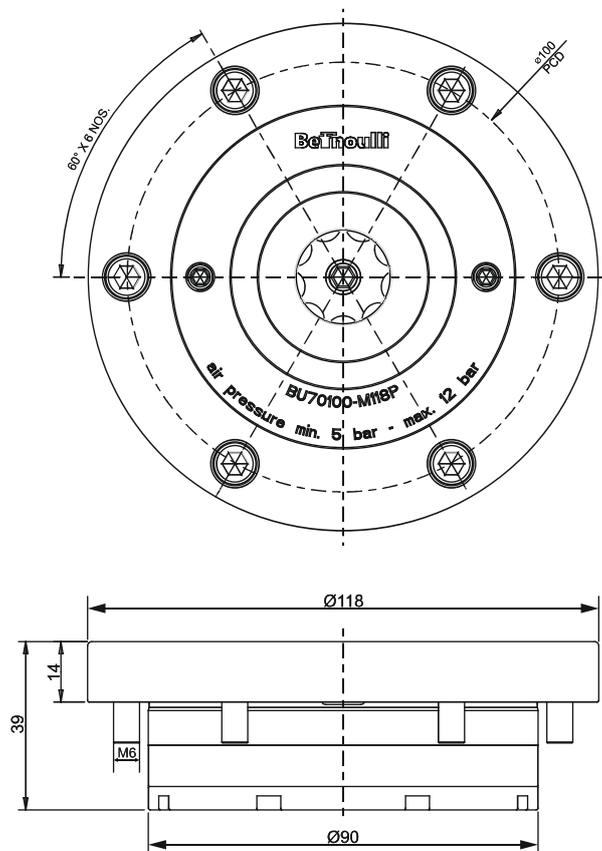
All parts made from superior quality stainless steel





Clamping element QP.1

- Clamping element $\varnothing 118\text{mm}$ made of high-quality stainless steel
- Completely sealed element – maintenance free
- Pneumatic opening - clamped mechanically through spring force
- Working pressure min 6bar- max 12bar
- For integration in machine tables, base plates, angles, cubes, tombstones, trunnion and rotary tables
- Can be used for milling, grinding, test stands and assembly devices.



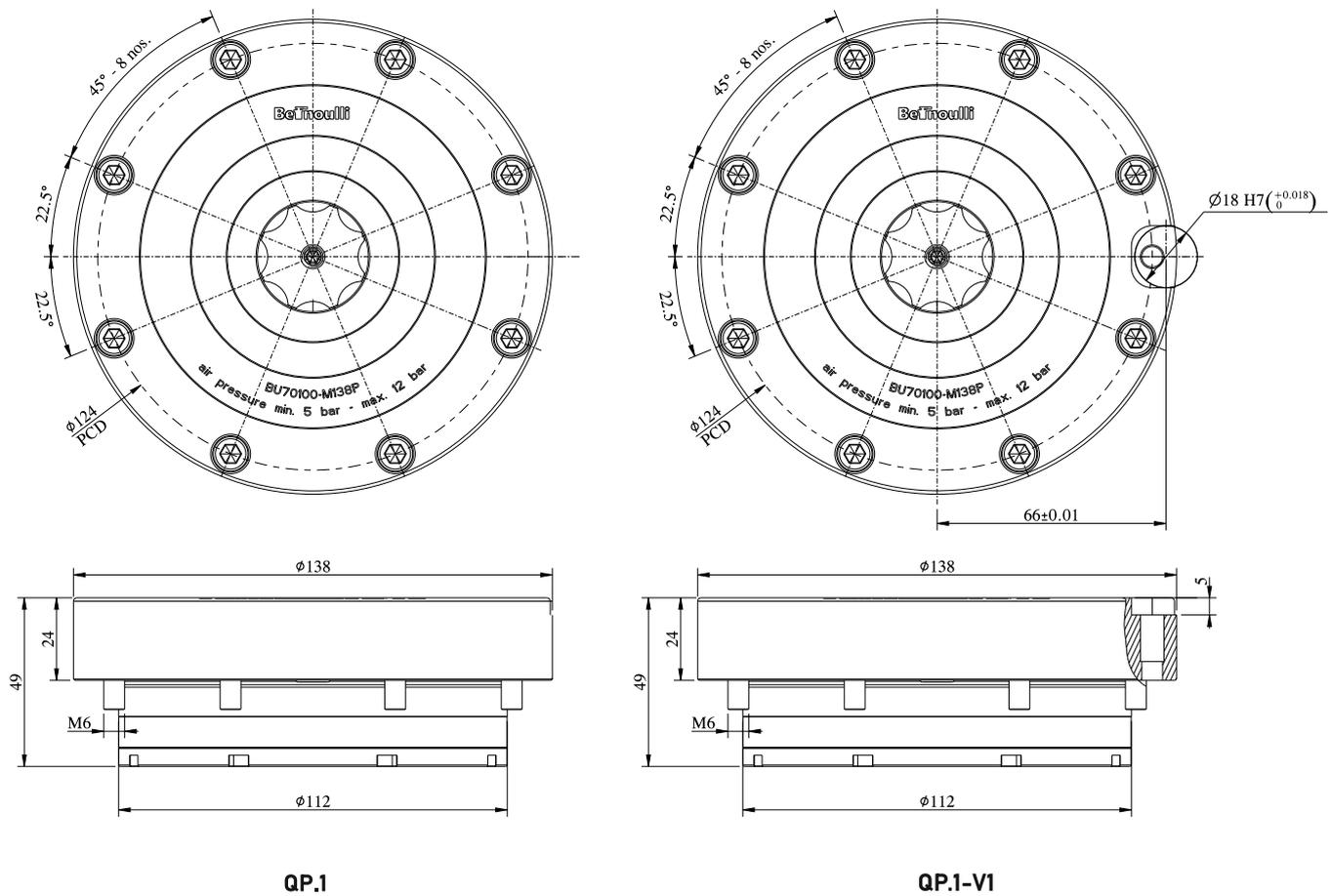
Description	Part No.	Pull-down force	Retention force	Repeat accuracy	Release pressure	Weight
QP.1	BU70100-M118P	10 kN	25 kN	<0.010 mm	6 bar	2.1 kg

Items included

- Clamping element QP .1
- O-ring - $\varnothing 6 \times 2$
- Fastening screw
- Screw cap

Clamping element QP.2

- Clamping element Ø138mm made of high-quality stainless steel
- Completely sealed element – maintenance free
- Pneumatic opening - clamped mechanically through spring force
- Working pressure min 6bar- max 12bar
- For integration in machine tables, base plates, angles, cubes, tombstones, trunnion and rotary tables
- Can be used for milling, grinding, test stands and assembly devices.



QP.1

QP.1-V1

Description	Part No.	Pull-down force	Retention force	Repeat accuracy	Release pressure	Weight
QP.2	BU70100-M138P	16 kN	50 kN	<0.010 mm	6 bar	4.3 kg
QP.2-V1	BU70100-M138P-V1	16 kN	50 kN	<0.010 mm	6 bar	4.3 kg

Items included

- Clamping element QP .2
- O-ring - Ø6x2
- Fastening screw
- Screw cap

Pin for QP.1

Zero Point Pin 



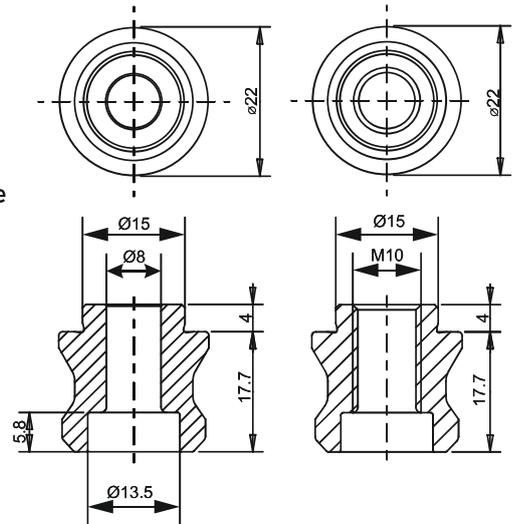
Characteristics:

Pin with zero point.

Application:

For mounting and positioning on fixture Plates, vise, chucks. Jigs or directly on workpiece.

Part No.	Bolt size	Tightening torque	Weight
BU70100-118PA-M08	M8	35 Nm	0.04 kg.
BU70100-118PA-M10	M10	60 Nm	0.04 kg.



Diamond Pin 



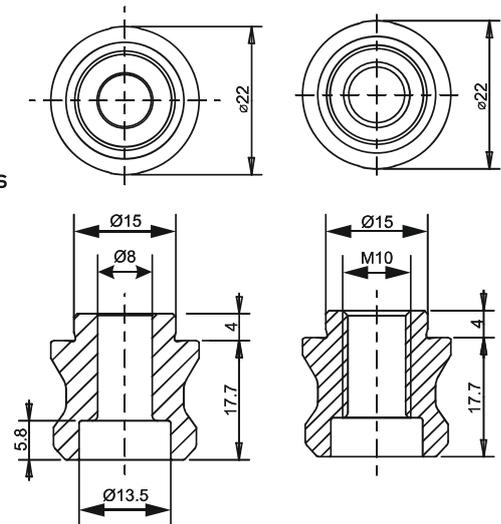
Characteristics:

Pin with equalizer in one axis.

Application:

For mounting and positioning on fixtures Plates, vise, chucks. Jigs or direct on Workpiece.

Part No.	Bolt size	Tightening torque	Weight
BU70100-118PB-M08	M8	35 Nm	0.04 kg.
BU70100-118PB-M10	M10	60 Nm	0.04 kg.



Undersize Pin 



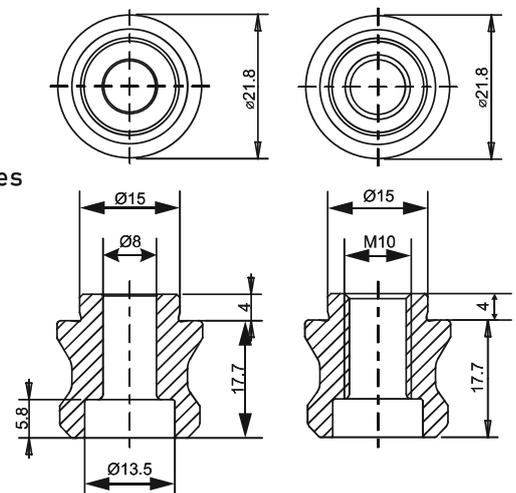
Characteristics:

Pin with zero point.

Application:

For mounting and positioning on fixtures Plates, vise, chucks. Jigs or direct on workpiece.

Part No.	Bolt size	Tightening torque	Weight
BU70100-118PC-M08	M8	35 Nm	0.04 kg.
BU70100-118PC-M10	M10	60 Nm	0.04 kg.



Pin for QP.2

Zero Point Pin 

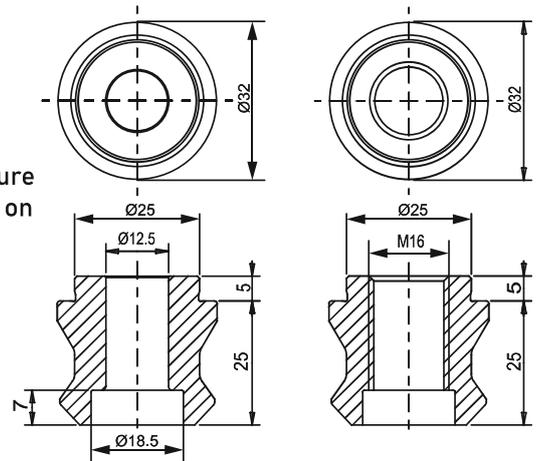


Characteristics:

Pin with zero point.

Application:

For mounting and positioning on fixture Plates, vise, chucks. Jigs or directly on workpiece.



Part No.	Bolt size	Tightening torque	Weight
BU70100-138PA-M12	M12	110 Nm	0.1 kg.
BU70100-138PA-M16	M16	200 Nm	0.1 kg.

Diamond Pin 

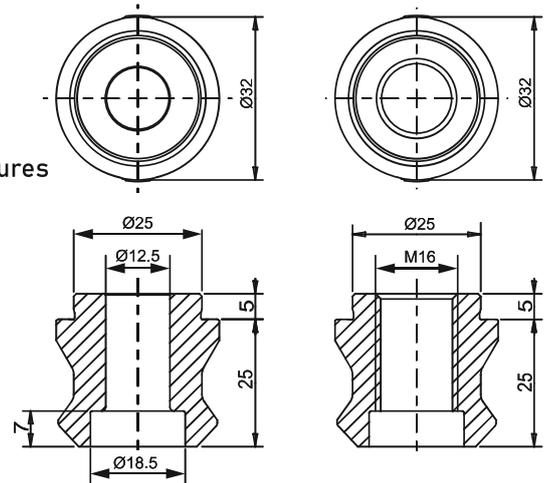


Characteristics:

Pin with equalizer in one axis.

Application:

For mounting and positioning on fixtures Plates, vise, chucks. Jigs or direct on Workpiece.



Part No.	Bolt size	Tightening torque	Weight
BU70100-138PB-M12	M12	110 Nm	0.1 kg.
BU70100-138PB-M16	M16	200 Nm	0.1 kg.

Undersize Pin 

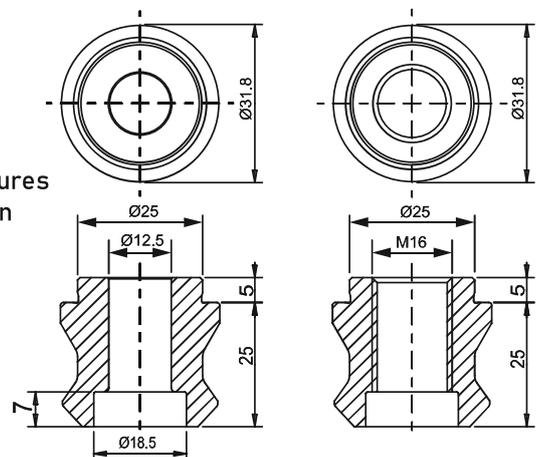


Characteristics:

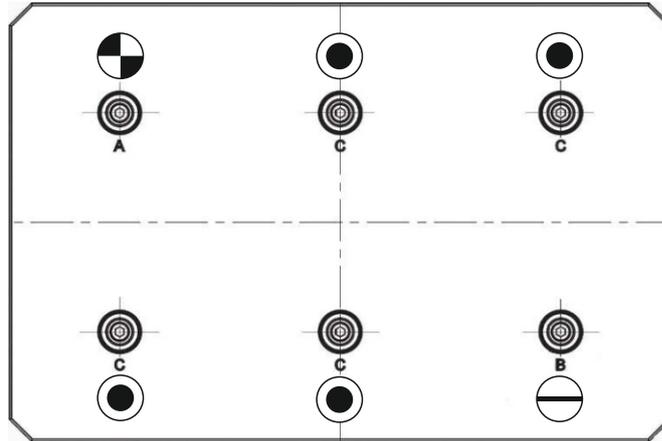
Pin with zero point.

Application:

For mounting and positioning on fixtures Plates, vise, chucks. Jigs or direct on workpiece.



Part No.	Bolt size	Tightening torque	Weight
BU70100-138PC-M12	M12	110 Nm	0.1 kg.
BU70100-138PC-M16	M16	200 Nm	0.1 kg.



Protection pin



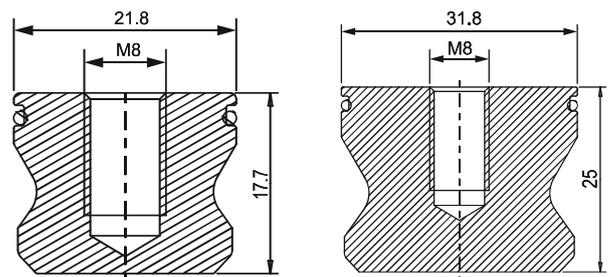
Characteristics:

Protection pin.

Application:

To cover clamping element against chips and coolant if not in use.

Part No.	Bolt size	Weight
BU70100-118PD	M08	0.04 kg.
BU70100-138PD	M08	0.12 kg.



Protection Pin with collar



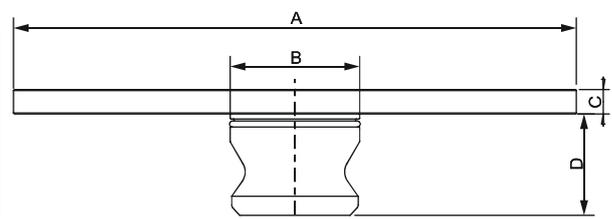
Characteristics:

Protection pin with collar.

Application:

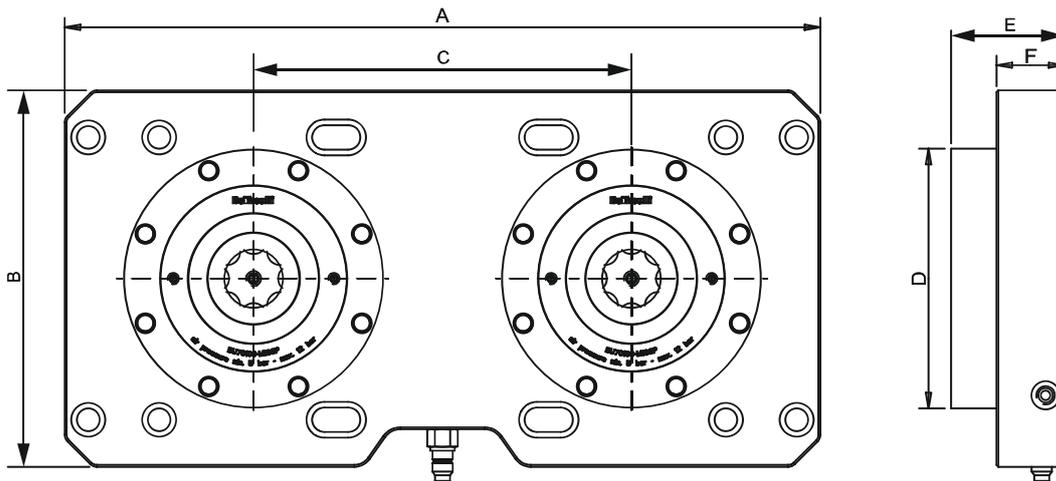
To cover clamping element against chips and coolant if not in use.

Part No.	A	B	C	D	Weight
BU70100-118PE	118	21.8	6	17.7	0.06 kg.
BU70100-138PE	138	31.8	6	25	0.16 kg.



Clamp Plate-2 clamping element

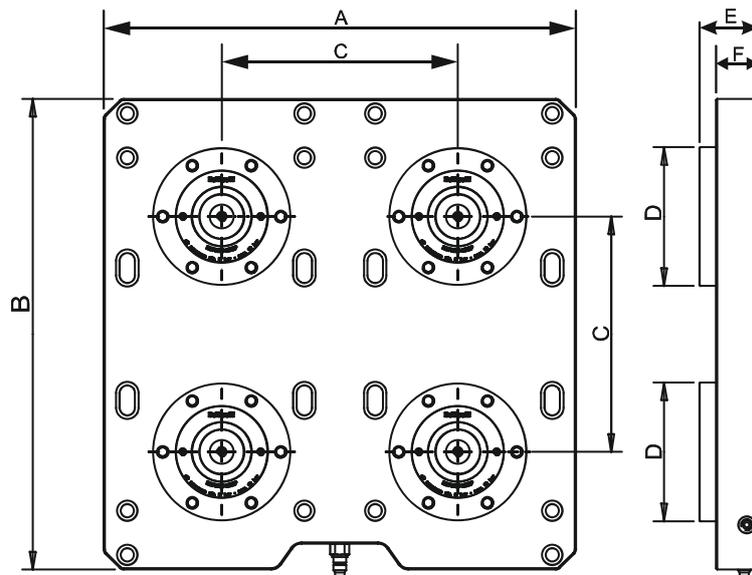
Clamp plate made of steel with 2 clamping elements either QP.1 or QP.2.
 Plate is clamped mechanically and released pneumatically at 6 bar
 Pull-down force QP.1- 2X10 kN
 Pull-down force QP.2- 2X16 kN
 Repeat accuracy < 0.01 mm



Part No.	A	B	C	D	E	F	Weight
BU70100-2MP118P	400	200	200	118	50	36	24 kg.
BU70100-2MP138P	400	200	200	138	60	36	28 kg.

Clamp Plate-4 clamping element

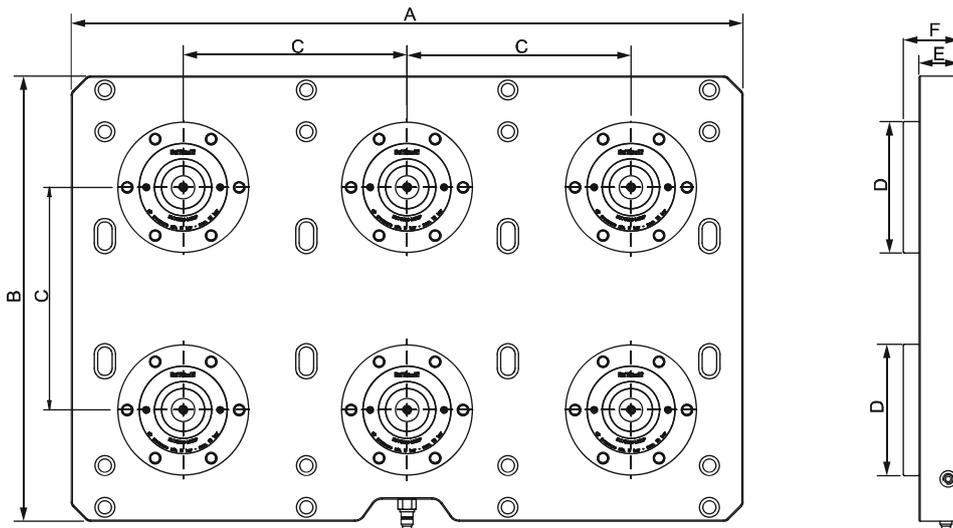
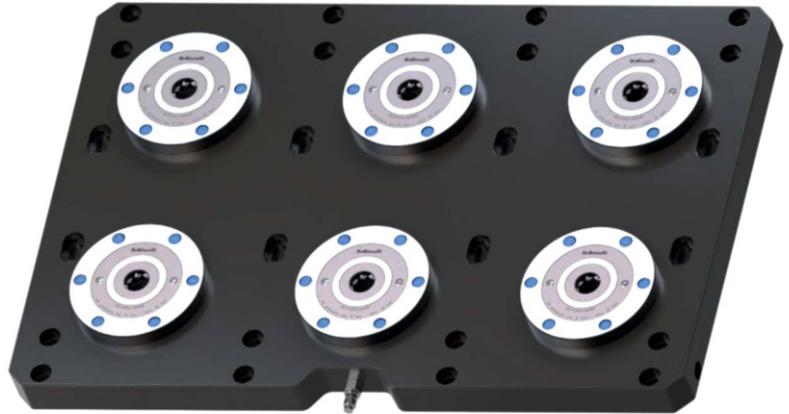
Clamp plate made of steel with 4 clamping elements either QP.1 or QP.2.
 Plate is clamped mechanically and released pneumatically at 6 bar
 Pull-down force QP.1- 4X10 kN
 Pull-down force QP.2-4X16 kN
 Repeat accuracy < 0.01 mm



Part No.	A	B	C	D	E	F	Weight
BU70100-4MP118P	400	400	200	118	50	36	48 kg.
BU70100-4MP138P	400	400	200	138	60	36	56 kg.

Clamp Plate-6 clamping element

Clamp plate made of steel with 6 clamping elements either QP.1 or QP.2.
 Plate is clamped mechanically and released pneumatically at 6 bar
 Pull-down force QP.1- 6X10 kN
 Pull-down force QP.2- 6X16 kN
 Repeat accuracy < 0.01 mm

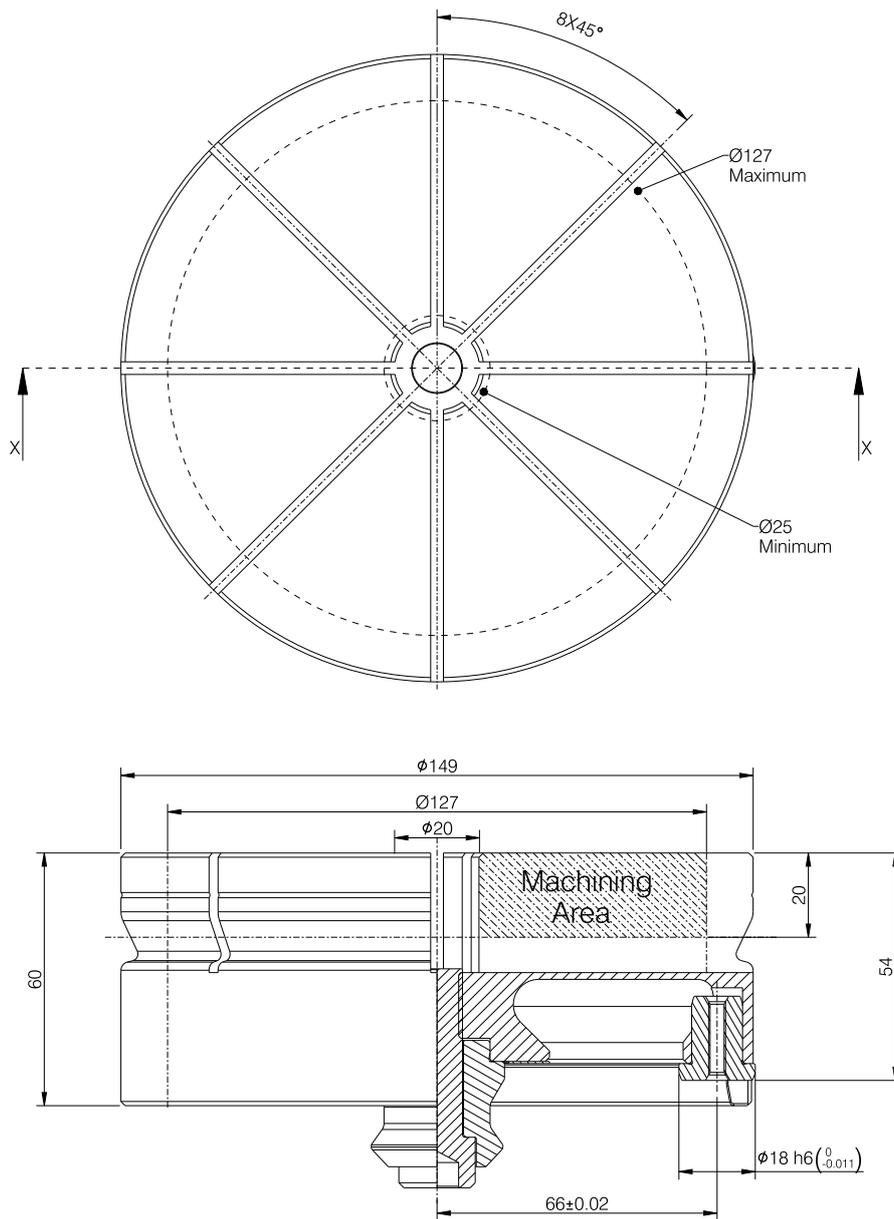
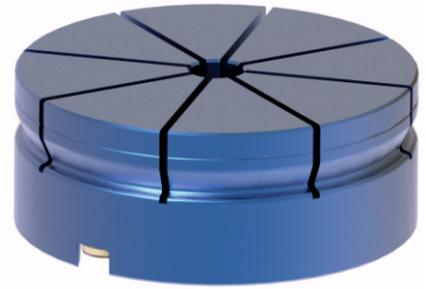


Part No.	A	B	C	D	E	F	Weight
BU70100-6MP118P	600	400	200	118	36	50	72 kg.
BU70100-6MP138P	600	400	200	138	36	60	84 kg.



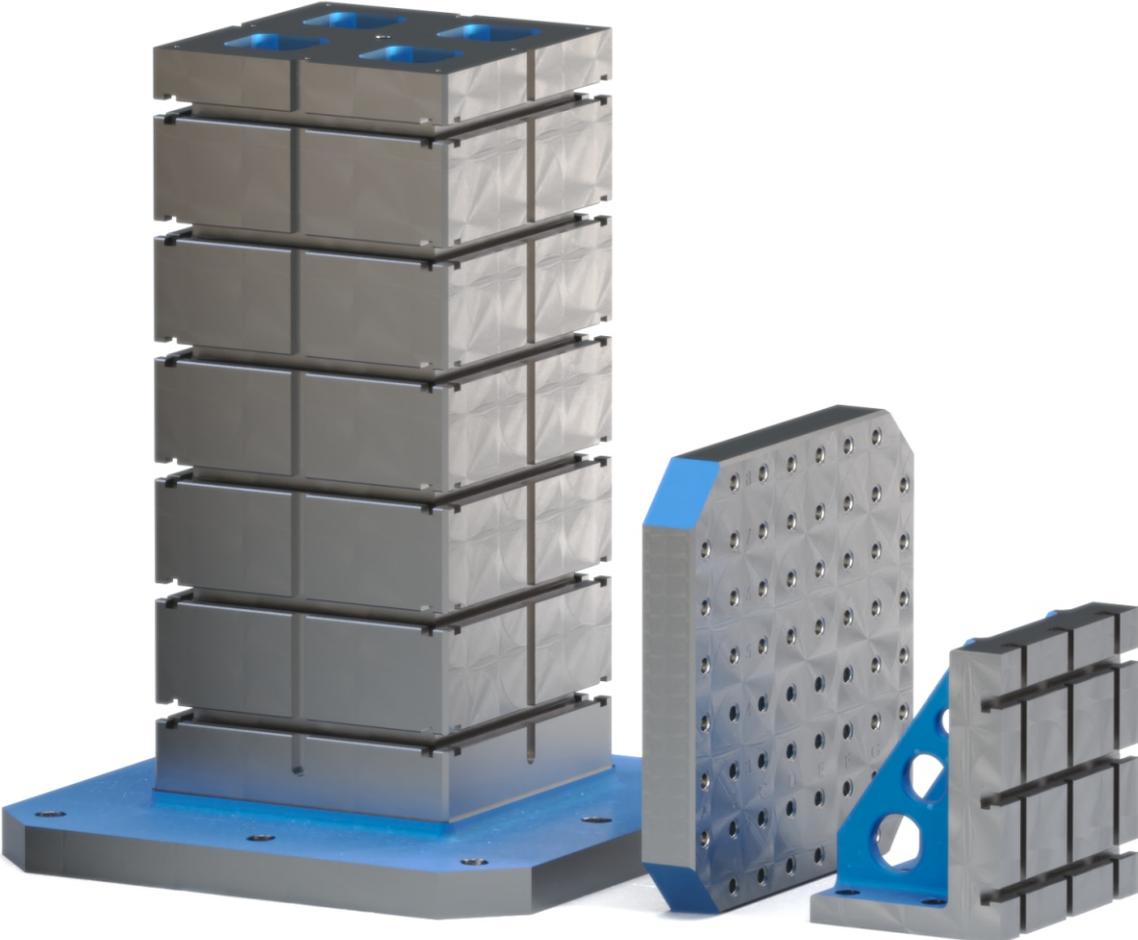
Form Holding Collet - FC

Machinable collet system is suitable for parts which are difficult to clamp with conventional method. It is also suitable for prototype & samples production. The contour of any workpiece to be clamp is machine into the collet.



Description	Part No.	Clamping Stroke	Clamping Force	Repeat accuracy	Clamping Range	Weight
FC	BU70200-138-149FC	16 kN	50 kN	<0.010 mm	20-127	1.5 Kg

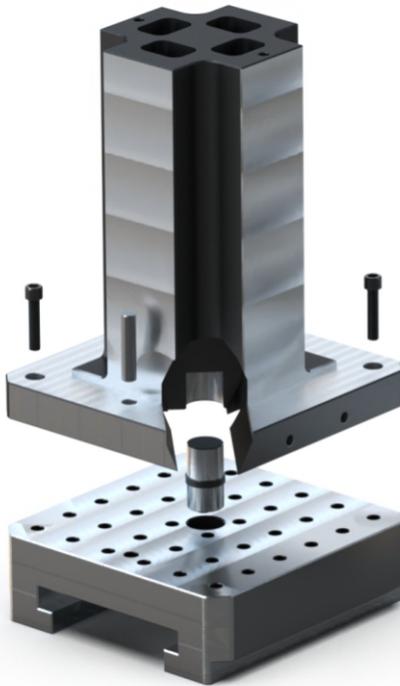
Modular Clamping Elements





Features

- ▶ Made from Grade-300 cast iron and stress relieved. Unique structure design gives high rigidity and stable performance in harsh cutting conditions.
- ▶ Mounting of all tombstones are available in different interfaces as positioning in center hole and locating in aligning hole or against stop plates using screws according to different machine tools standards.



- ▶ For the highest accuracy, self cutting of upto 0.5 mm on usable face after installation on the machine will remove all errors of both machine and element.

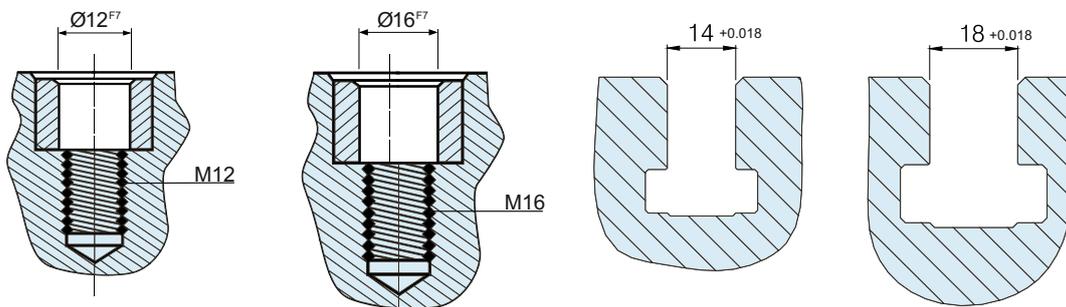
- ▶ Tombstones can be integrated with our zero point clamping elements according to machine size



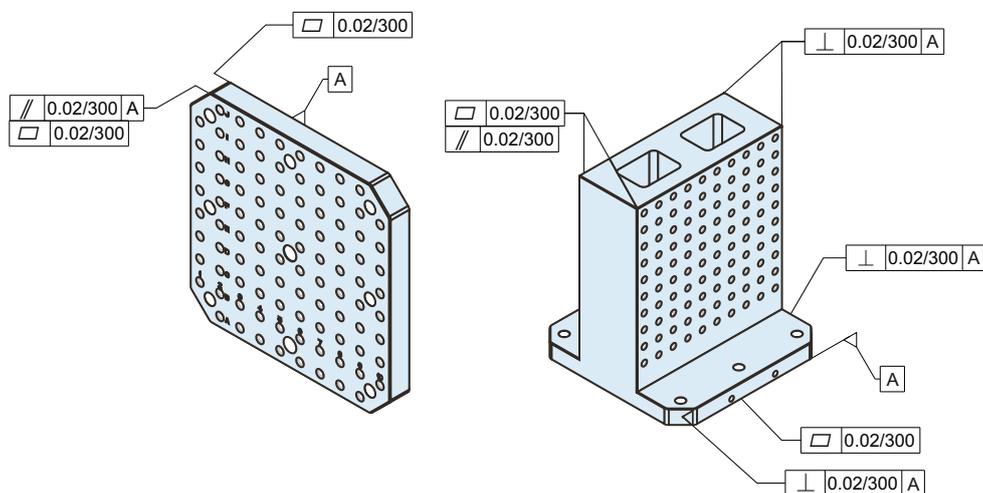
- ▶ All tombstones are available in different versions as plain casting, bottom mounting face finished, all face rough machined with finish cut allowance or complete finished as per customer requirement.



- ▶ Grid holes are consisting of hardened bushings and stainless steel helicoils serves as dual Purpose of locating and fastening at the same time. All tombstones and plates are available In $\text{Ø}12/\text{M}12$ or $\text{Ø}16/\text{M}16$ configuration. Plates and tombstones with T-slots are available in the size of 14mm & 18mm.

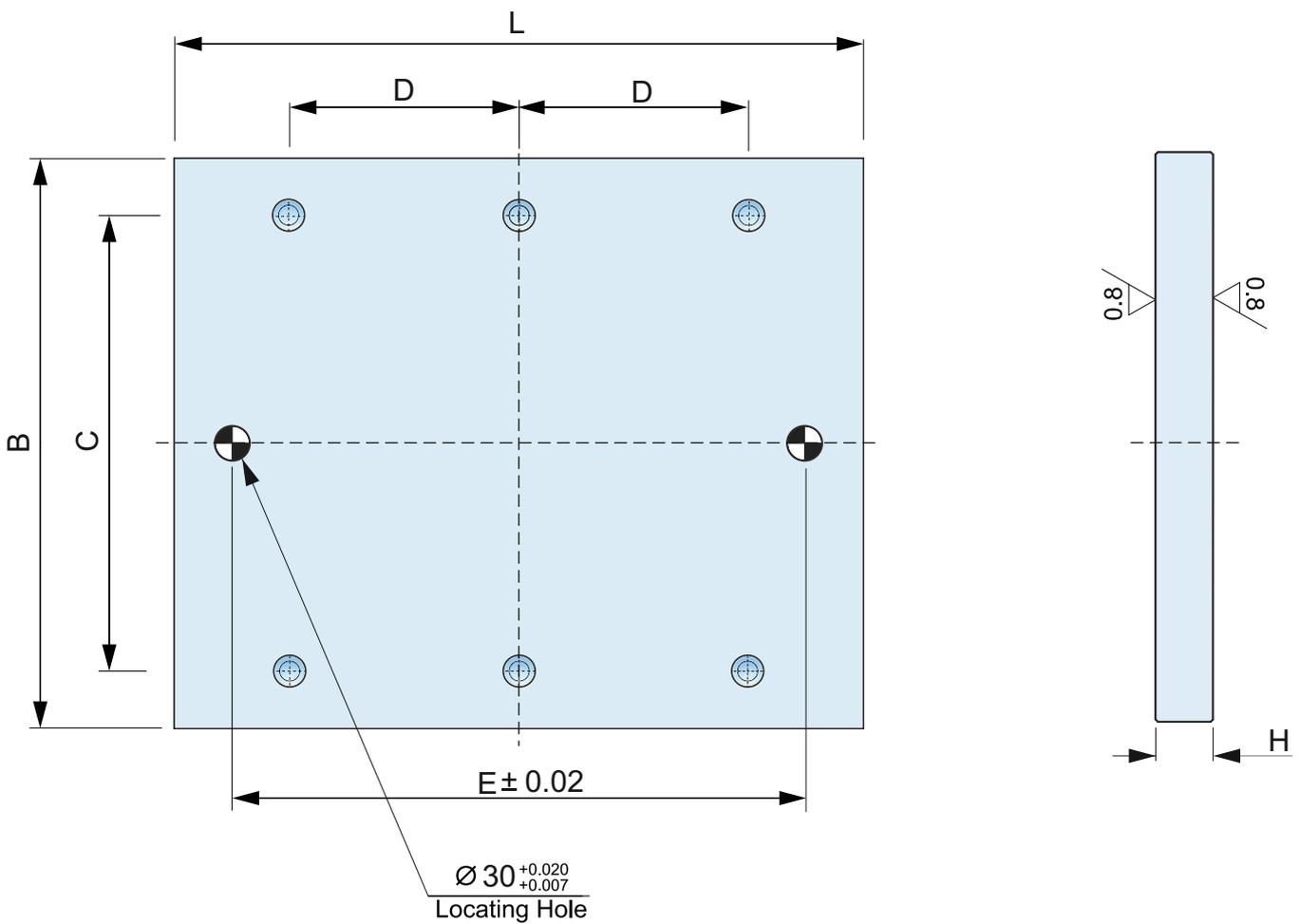
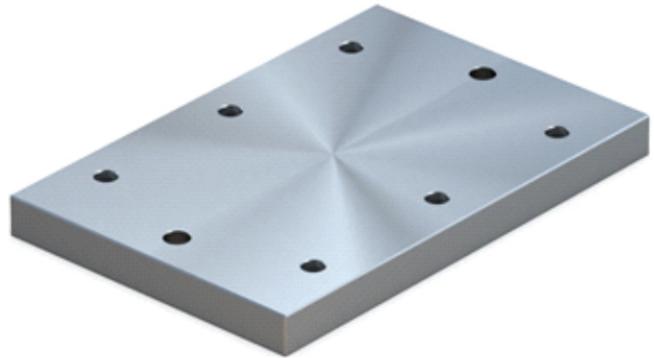


- ▶ General tolerance for plates and Tombstones



BU40110 – Baseplate with plain surface

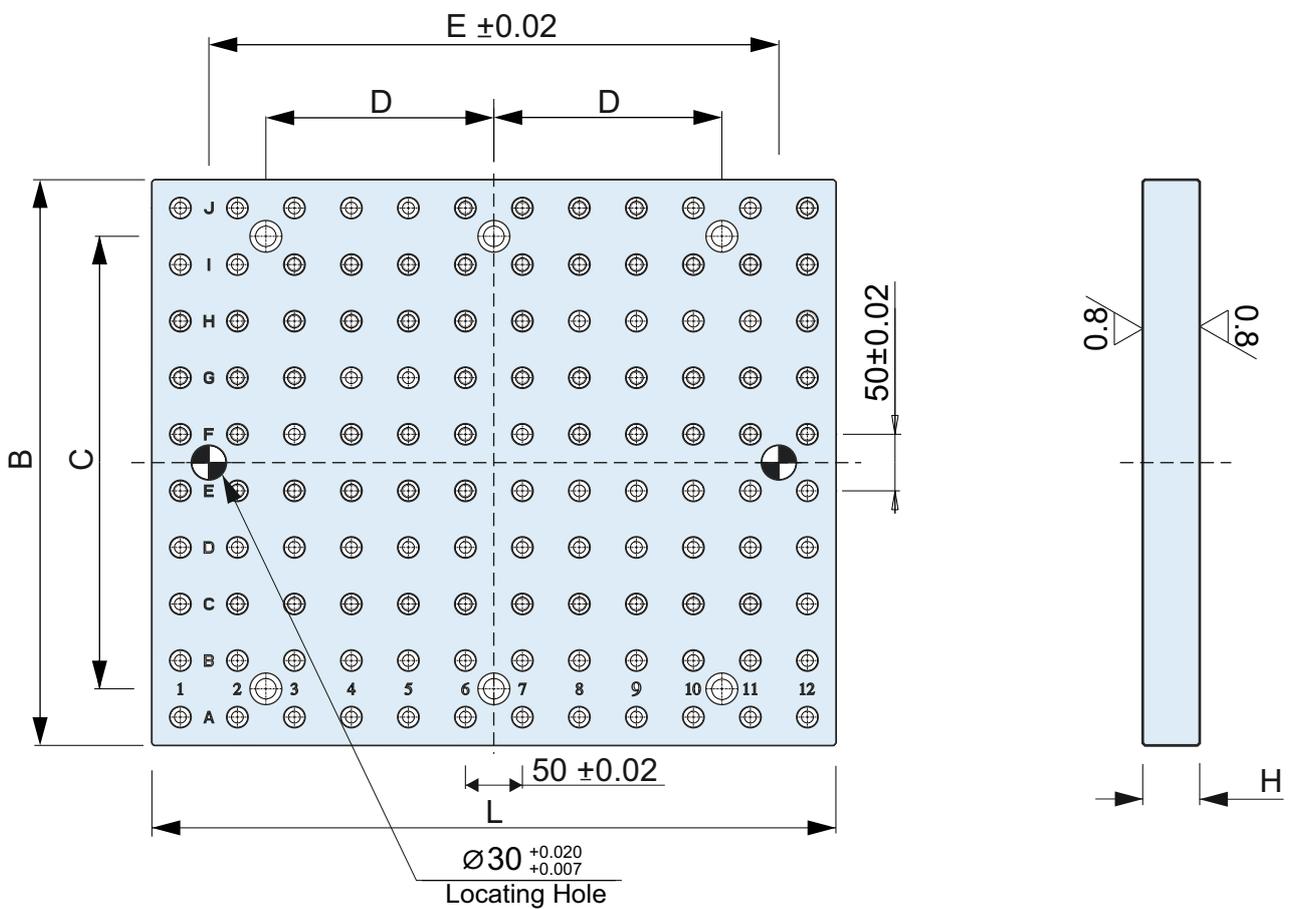
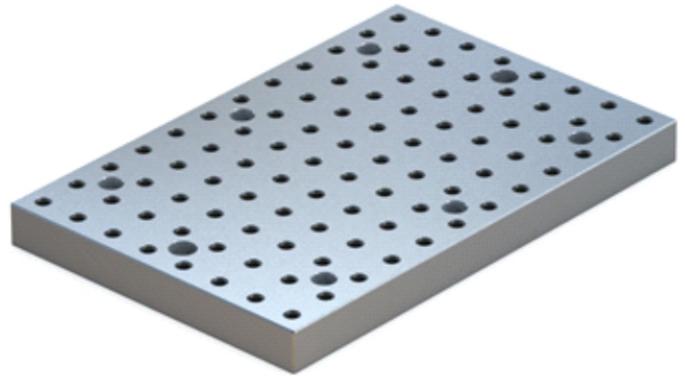
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground
- ▶ Plates mounting holes as per customer requirement.
- ▶ Customized sizes and material are available
- ▶ Size upto 5000mm*2800mm on request.



Part No.	L	B	H	E
BU40110-600_400	600	400	50	500
BU40110-600_500	600	500	50	500
BU40110-600_600	600	600	50	500
BU40110-800_400	800	400	50	700
BU40110-900_450	900	450	50	800
BU40110-1000_500	1000	500	50	900
BU40110-1200_600	1200	600	50	1100

BU40120 – Baseplate with grid holes

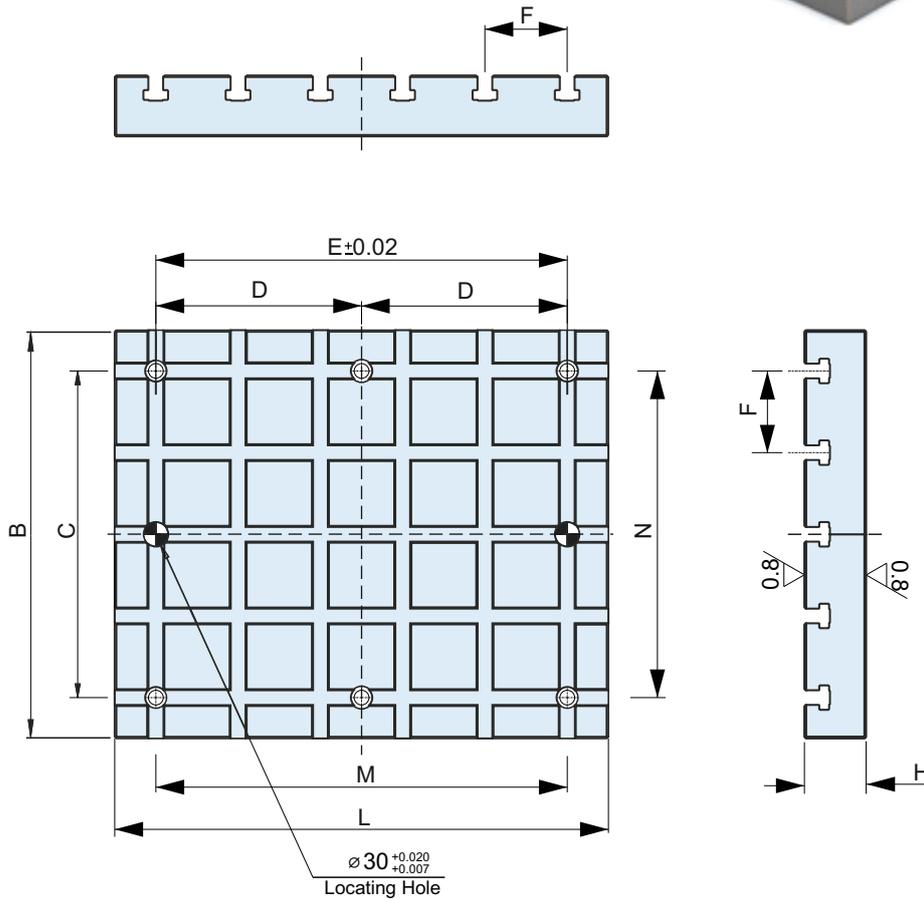
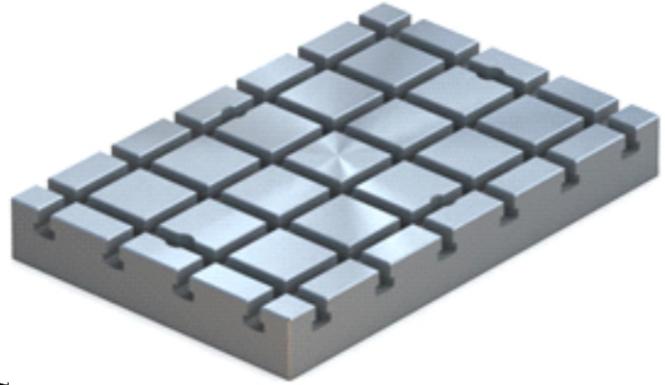
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Available in Ø12 or Ø16 bushings.
- ▶ Customized sizes and material are available upto 5000mm*2800mm on request.



Part No.	L	B	H	E
BU40120-600_400	600	400	50	500
BU40120-600_500	600	500	50	500
BU40120-600_600	600	600	50	500
BU40120-800_400	800	400	50	700
BU40120-900_450	900	450	50	800
BU40120-1000_500	1000	500	50	900
BU40120-1200_600	1200	600	50	1100

BU40130 – Baseplate with T-slots

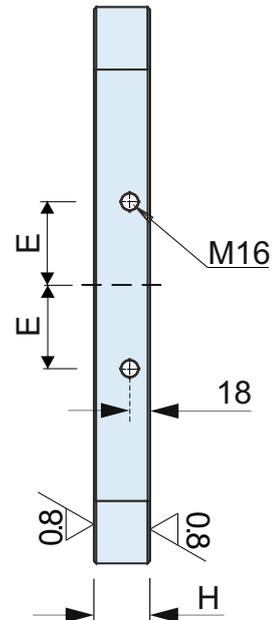
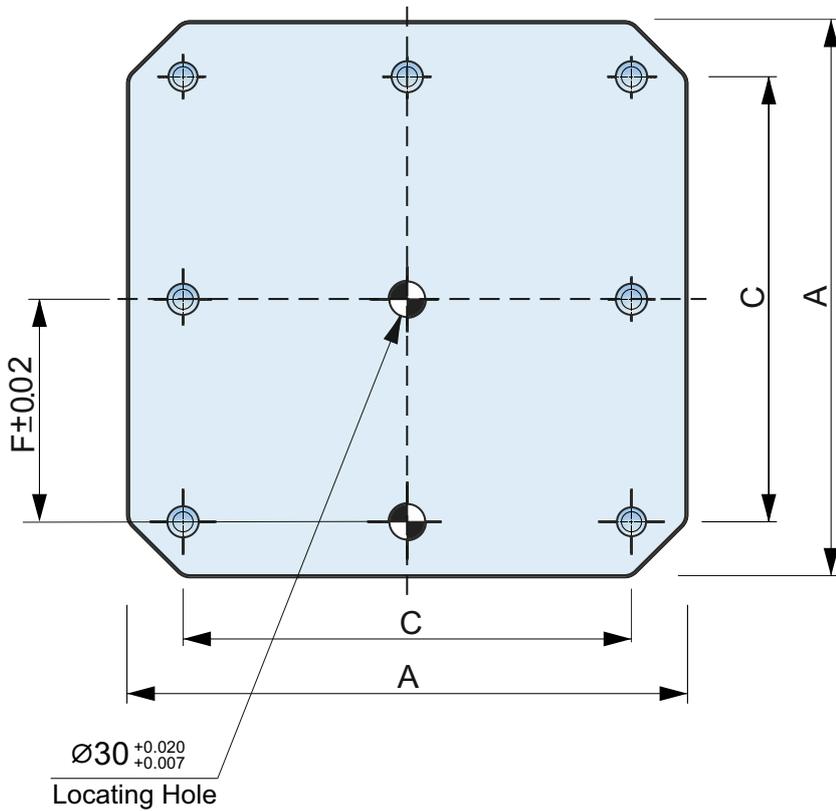
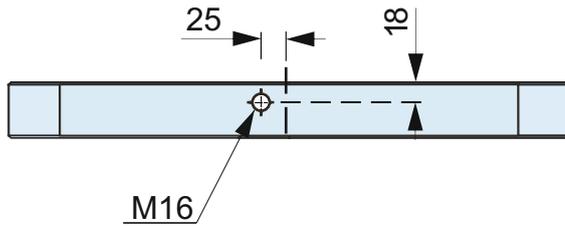
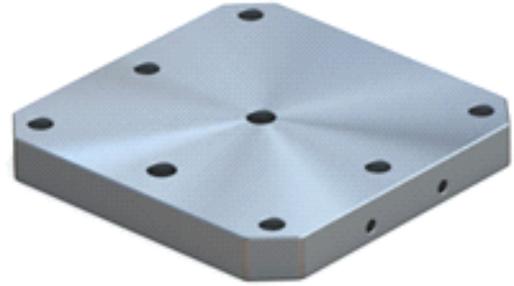
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Available in 14mm or 18mm T-slot size.
- ▶ Customized sizes and material are available upto 5000mm*2800mm on request.



Part No.	L	B	E	F	H	M	N
BU40130-600_400_60_14	600	400	500	100	60	500	300
BU40130-600_500_60_14	600	500	500	100	60	500	400
BU40130-600_600_60_14	600	600	500	100	60	500	500
BU40130-800_400_60_14	800	400	700	100	60	700	300
BU40130-900_450_60_14	900	450	800	100	60	800	300
BU40130-1000_500_60_14	1000	500	900	100	60	900	400
BU40130-1200_600_60_14	1200	600	1100	100	60	1100	500
BU40130-600_400_75_18	600	400	500	100	75	500	300
BU40130-600_500_75_18	600	500	500	100	75	500	400
BU40130-600_600_75_18	600	600	500	100	75	500	500
BU40130-800_400_75_18	800	400	700	100	75	700	300
BU40130-900_450_75_18	900	450	800	100	75	800	300
BU40130-1000_500_75_18	1000	500	900	100	75	900	400
BU40130-1200_600_75_18	1200	600	1000	100	75	1100	500

BU40140 – Subplate with plain surface

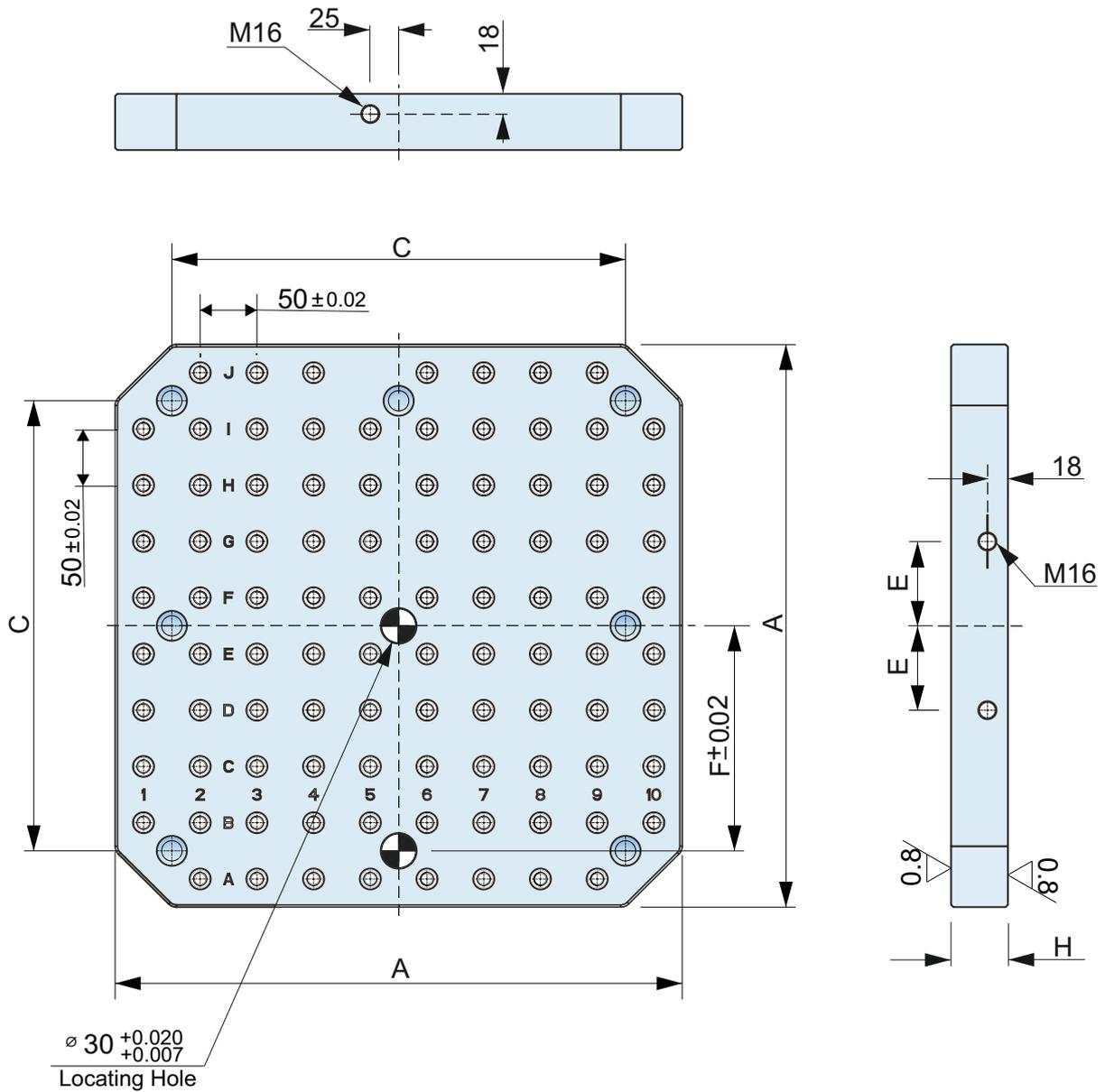
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.



Part No.	A	H	E	F
BU40140-400_400	400	50	55	150
BU40140-500_500	500	50	75	200
BU40140-630_630	630	50	100	200
BU40140-800_800	800	50	135	300

BU40150 – Subplate with grid holes

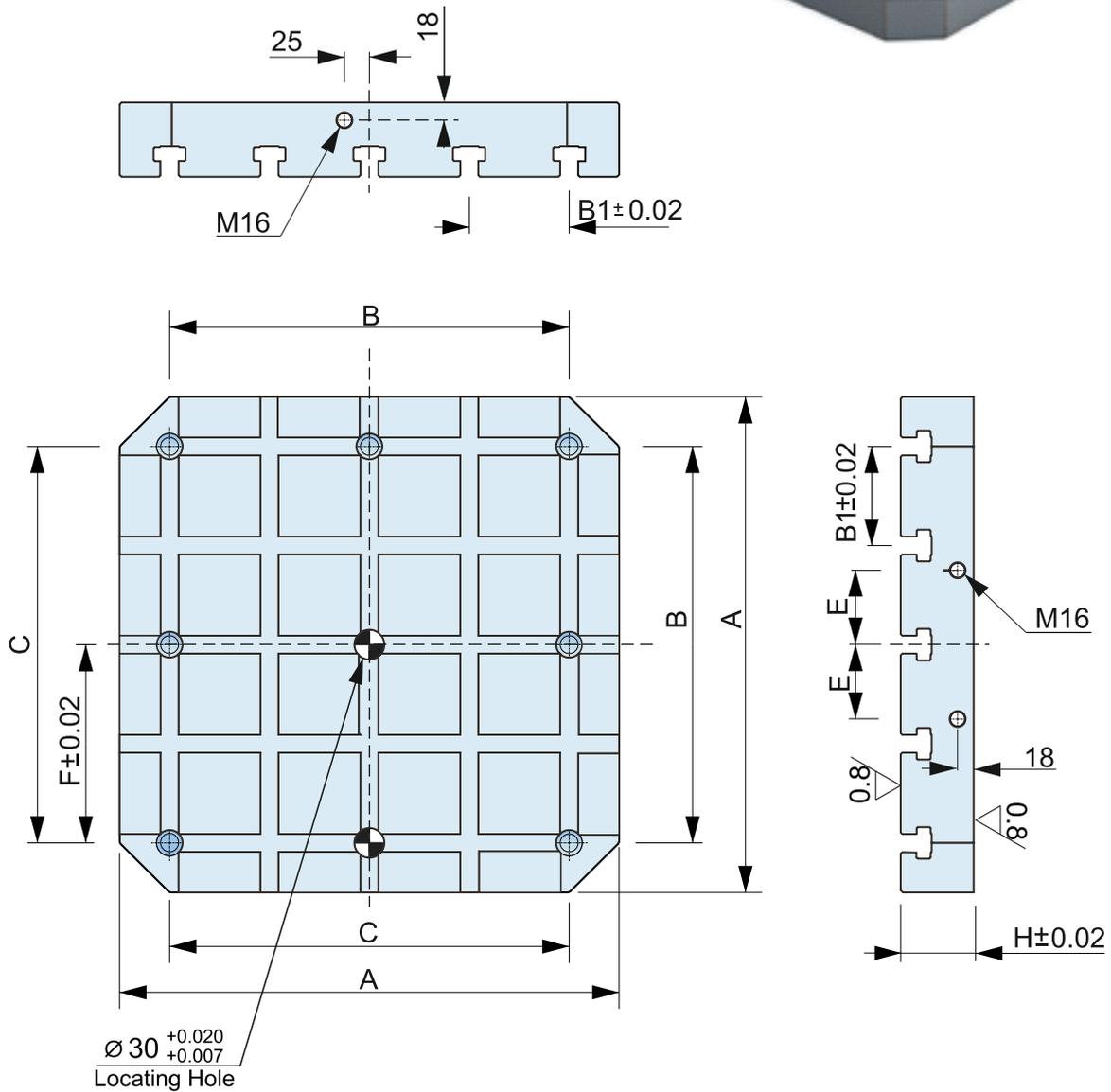
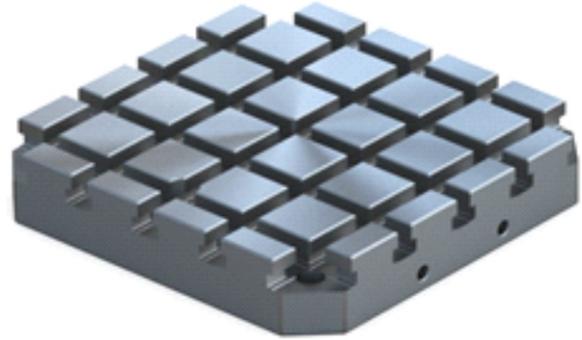
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Available in Ø12 or Ø16 bushings.



Part No.	A	H	E	F
BU40150-400_400	400	50	55	150
BU40150-500_500	500	50	75	200
BU40150-630_630	630	50	100	200
BU40150-800_800	800	135	135	300

BU40160 – Subplate with T-slots

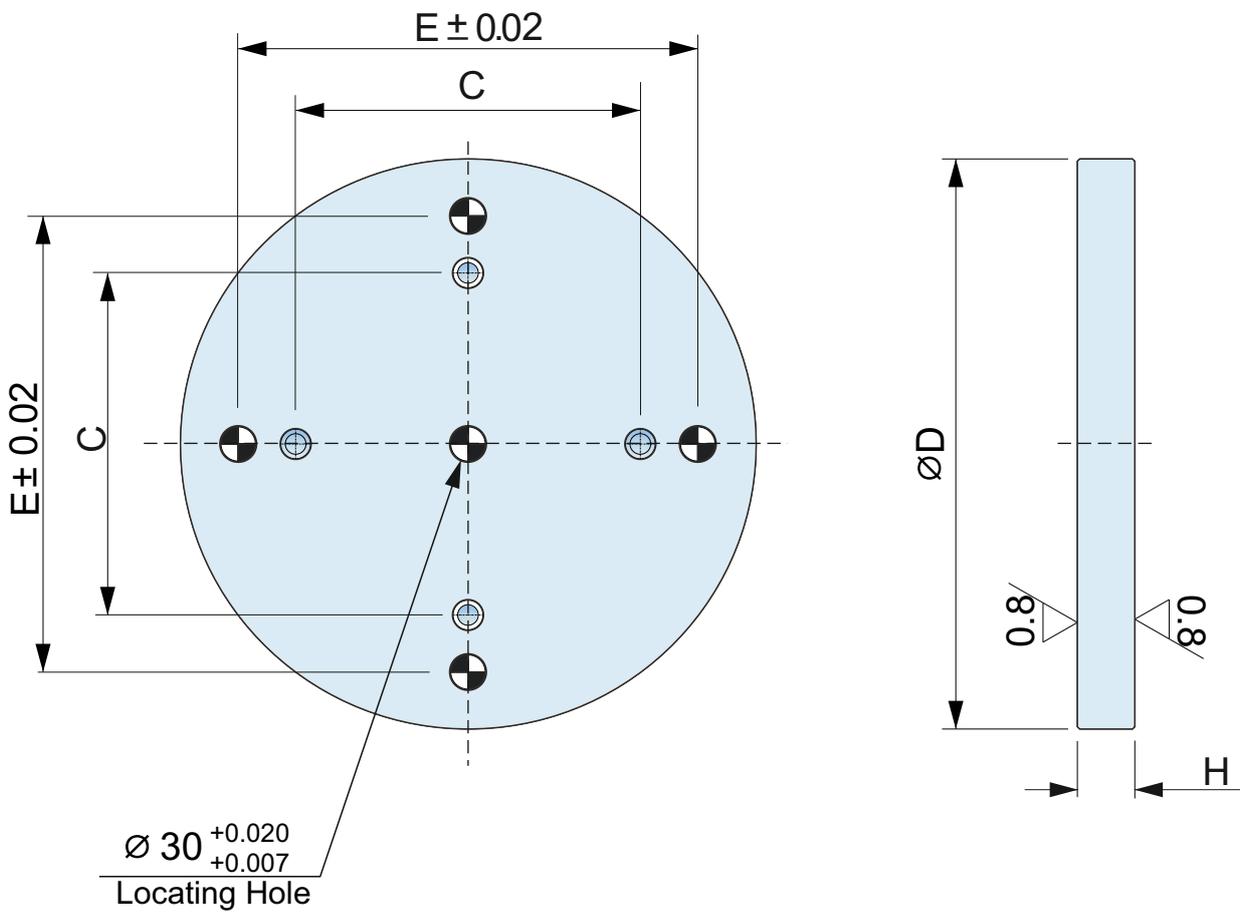
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Available in 14mm or 18mm T-slot size.



Part No.	A	B	B1	E	F	H
BU40160-400_400_60_14	400	320	80	55	150	60
BU40160-500_500_60_14	500	400	100	75	200	60
BU40160-630_630_60_14	630	500	125	100	200	60
BU40160-800_800_60_14	800	640	160	135	300	60
BU40160-400_400_75_18	400	320	80	55	150	75
BU40160-500_500_75_18	500	400	100	75	200	75
BU40160-630_630_75_18	630	500	125	100	200	75
BU40160-800_800_75_18	800	640	160	135	300	75

BU40170 – Round plate with plain surface

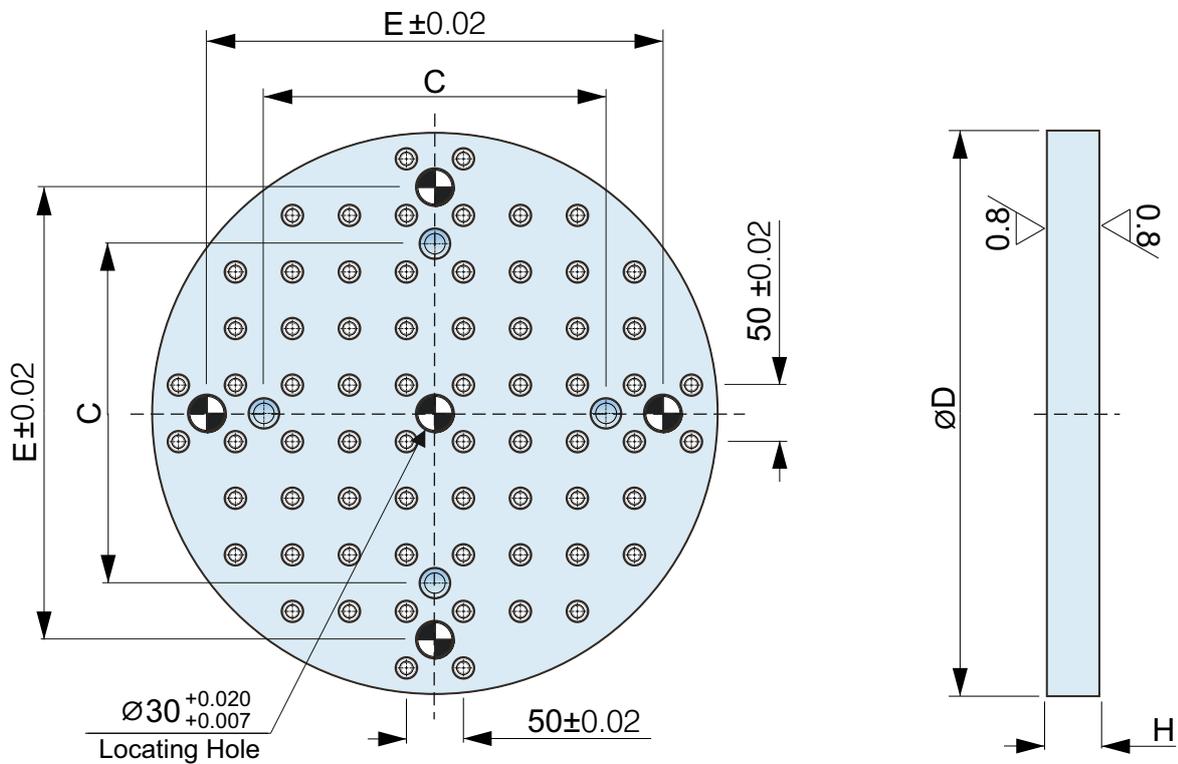
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Customized sizes and material are available upto Ø2500mm on request



Part No.	ØD	E	H
BU40170-300	300	220	50
BU40170-400	400	320	50
BU40170-500	500	400	50
BU40170-600	600	500	50

BU40180- Round plate with grid holes

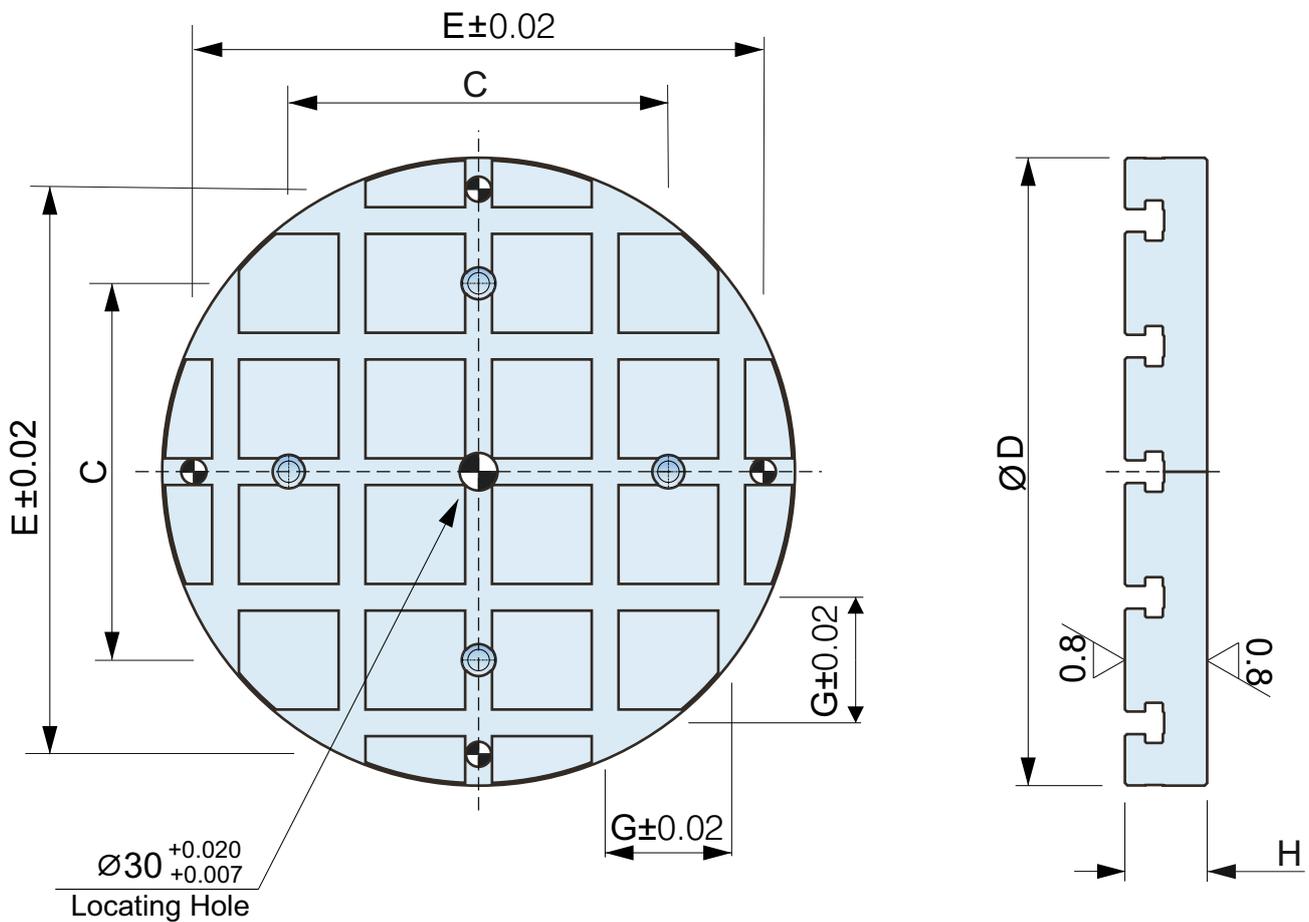
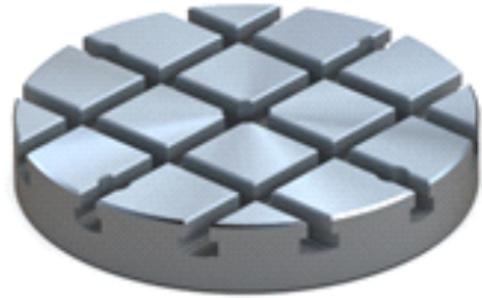
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Available in Ø12 or Ø16 bushings.
- ▶ Customized sizes and material are available upto Ø2500 on request.



Part No.	$\varnothing D$	E	H
BU40180-300	300	220	50
BU40180-400	400	320	50
BU40180-500	500	400	50
BU40180-600	600	500	50

BU40190- Round plate with T-slots

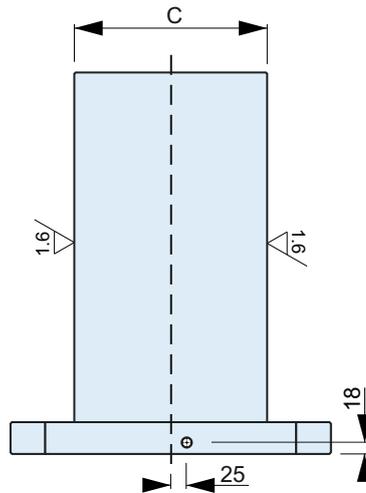
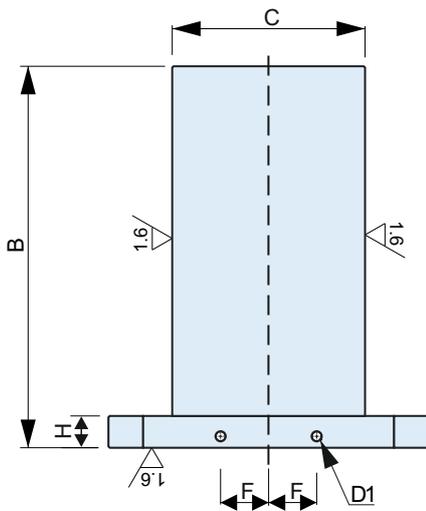
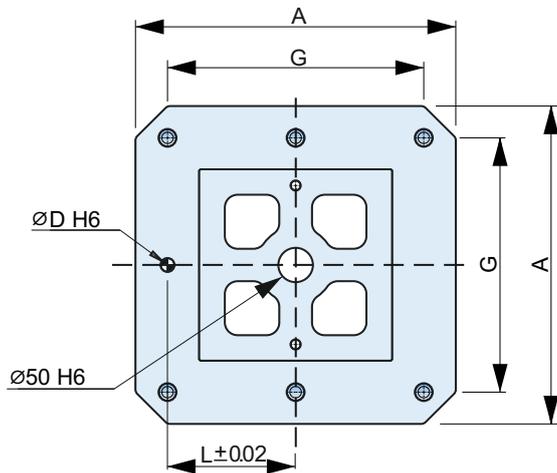
- ▶ Cast iron grade-300 / C45
- ▶ Both face ground, Plates mounting holes as per customer requirement.
- ▶ Available in 14mm or 18mm T-slot size.
- ▶ Customized sizes and material are available upto Ø2500 on request.



Part No.	ØD	E	G	H
BU40190-300_14	300	250	75	50
BU40190-400_14	400	350	75	50
BU40190-500_18	500	450	100	65
BU40190-600_18	600	550	100	65

BU41110- Cube Tombstone with plain surface

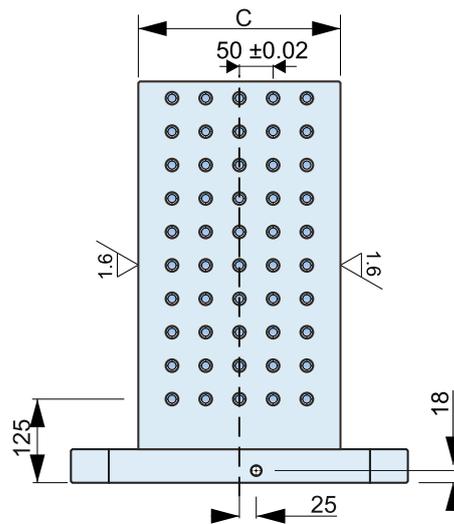
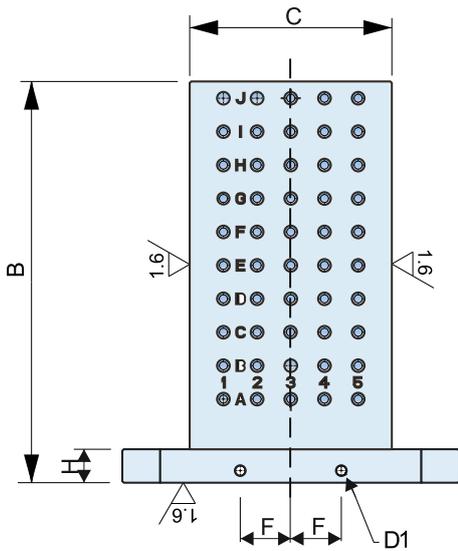
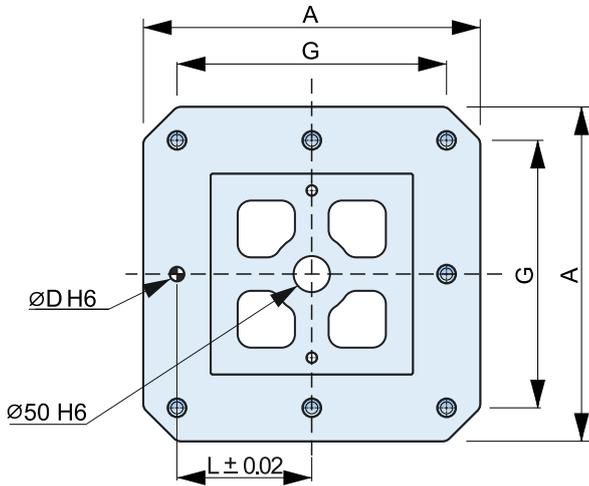
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	L
BU41110_300_300_500	300	500	151	20	M12	40	250	50	100
BU41110_400_400_500	400	500	251	20	M16	55	320	50	150
BU41110_400_400_650	400	650	251	20	M16	55	320	50	150
BU41110_500_500_600	500	600	301	20	M16	75	400	50	200
BU41110_500_500_750	500	750	301	20	M16	75	400	50	200
BU41110_630_630_700	630	700	351	25	M16	100	500	50	200
BU41110_630_630_850	630	850	351	25	M16	100	500	50	200
BU41110_800_800_800	800	800	501	25	M16	135	640	50	300
BU41110_800_800_1000	800	1000	501	25	M16	135	640	50	300
BU41110_1000_1000_1000	1000	1000	601	25	M16	165	800	55	400
BU41110_1000_1000_1250	1000	1250	601	25	M16	165	800	55	400

BU41120- Cube Tombstone with grid hole

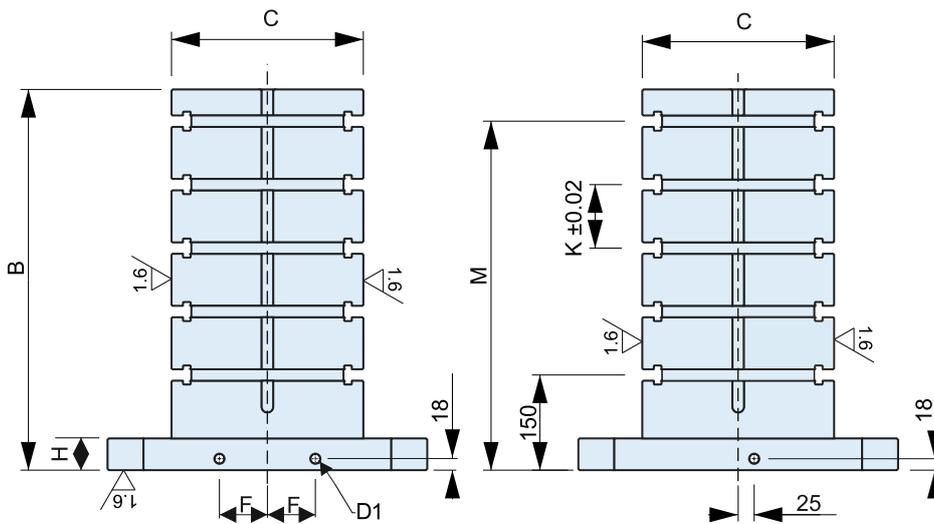
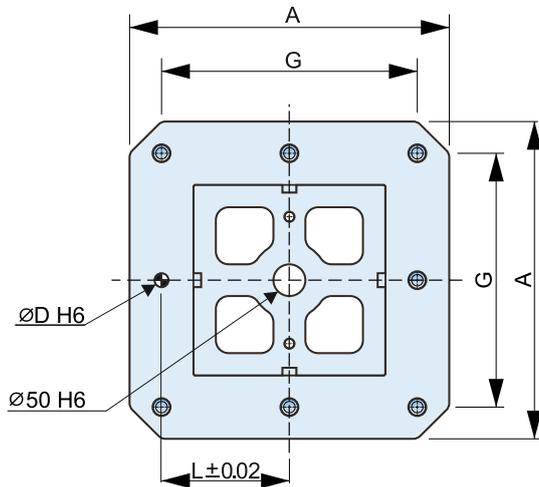
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Available in Ø12 or Ø16 bushings.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	L
BU41120_300_300_500	300	500	150	20	M12	40	250	50	100
BU41120_400_400_500	400	500	250	20	M16	55	320	50	150
BU41120_400_400_650	400	650	250	20	M16	55	320	50	150
BU41120_500_500_600	500	600	300	20	M16	75	400	50	200
BU41120_500_500_750	500	750	300	20	M16	75	400	50	200
BU41120_630_630_700	630	700	350	25	M16	100	500	50	200
BU41120_630_630_850	630	850	350	25	M16	100	500	50	200
BU41120_800_800_800	800	800	500	25	M16	135	640	50	300
BU41120_800_800_1000	800	1000	500	25	M16	135	640	50	300
BU41120_1000_1000_1000	1000	1000	600	25	M16	165	800	55	400
BU41120_1000_1000_1250	1000	1250	600	25	M16	165	800	55	400

BU41130 –Cube tombstone with T-slots

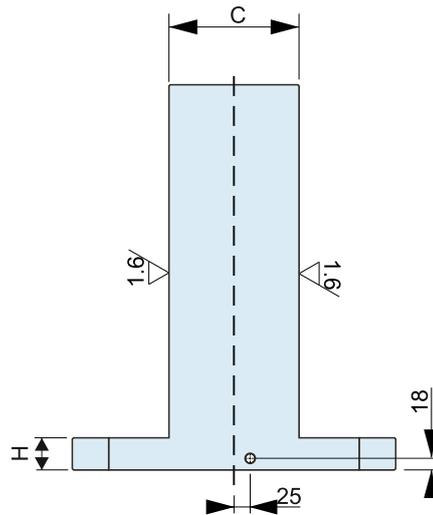
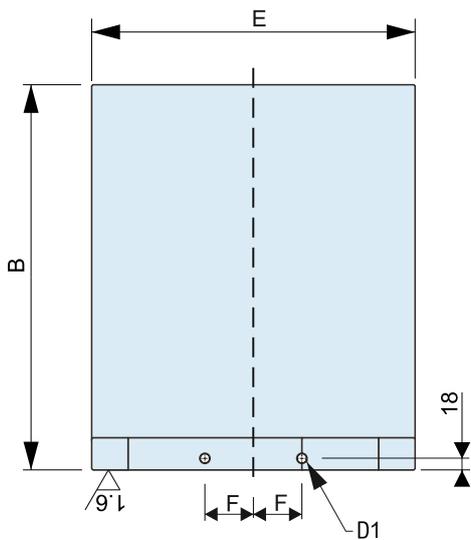
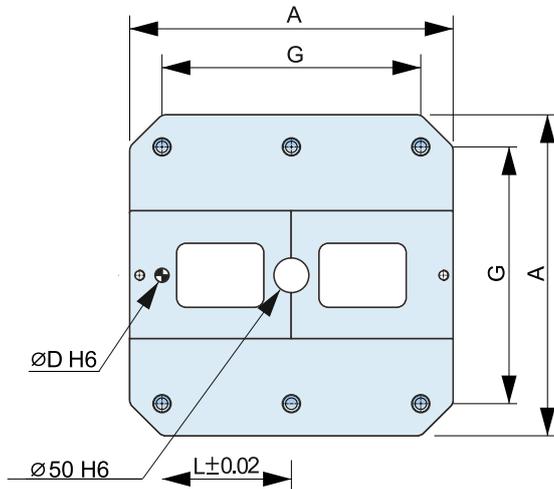
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Available in 14mm or 18mm T-slot size.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	L	M	K
BU41130_400_400_500	400	500	250	20	M16	55	320	50	150	450	100
BU41130_400_400_650	400	650		20	M16	55	320	50	150	550	100
BU41130_500_500_600	500	600	300	20	M16	75	400	50	200	550	100
BU41130_500_500_750	500	750		20	M16	75	400	50	200	650	100
BU41130_630_630_700	630	700	350	25	M16	100	500	50	200	650	125
BU41130_630_630_850	630	850		25	M16	100	500	50	200	775	125
BU41130_800_800_800	800	800	500	25	M16	135	640	50	300	750	150
BU41130_800_800_1000	800	1000		25	M16	135	640	50	300	900	150
BU41130_1000_1000_1000	1000	1000	600	25	M16	165	800	55	400	950	160
BU41130_1000_1000_1250	1000	1250		25	M16	165	800	55	400	1110	160

BU41140- Double Angle Tombstone with Plain Surface

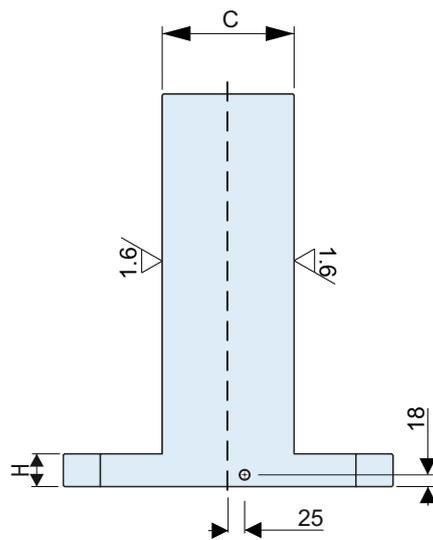
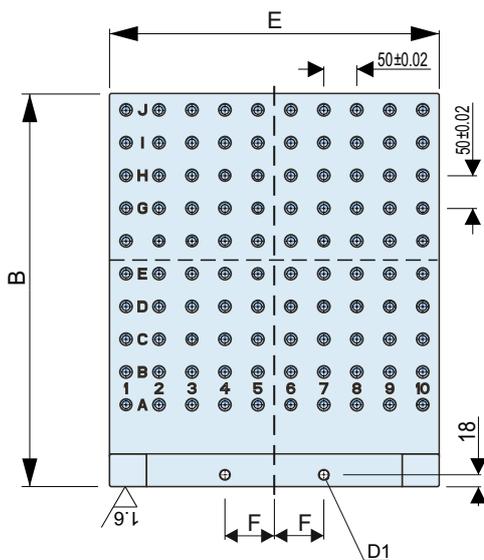
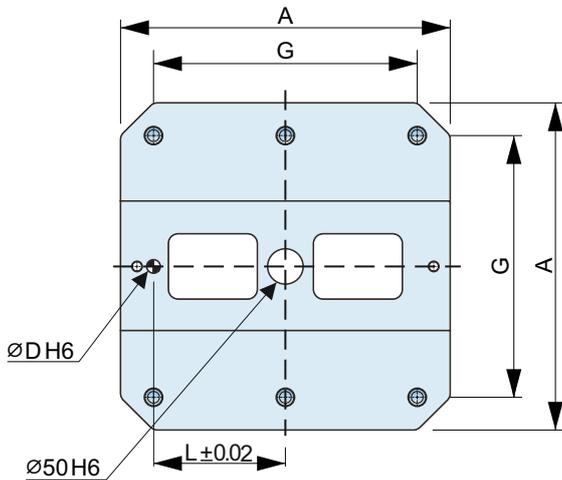
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	E	F	G	H	L
BU41140_300_300_500	300	500	81	20	M12	300	40	250	50	100
BU41140_400_400_500	400	500	151	20	M16	400	55	320	50	150
BU41140_400_400_650	400	650	151	20	M16	400	55	320	50	150
BU41140_500_500_600	500	600	201	20	M16	500	75	400	50	200
BU41140_500_500_750	500	750	201	20	M16	500	75	400	50	200
BU41140_630_630_700	630	700	251	25	M16	630	100	500	50	200
BU41140_630_630_850	630	850	251	25	M16	630	100	500	50	200
BU41140_800_800_800	800	800	301	25	M16	800	135	640	50	300
BU41140_800_800_1000	800	1000	301	25	M16	800	135	640	50	300
BU41140_1000_1000_1000	1000	1000	351	25	M16	1000	165	800	55	400
BU41140_1000_1000_1250	1000	1250	351	25	M16	1000	165	800	55	400

BU41150- Double Angle Tombstone With grid hole

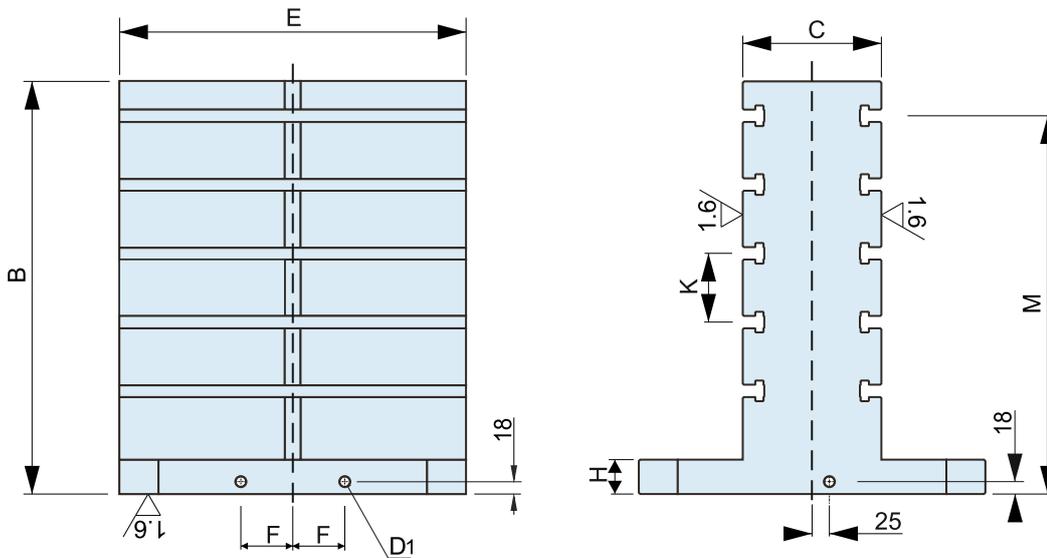
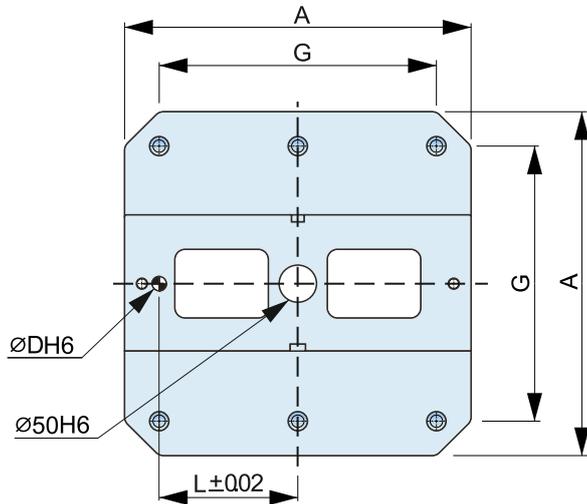
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Available in Ø12 or Ø16 bushings.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	E	F	G	H	L
BU41150_300_300_500	300	500	80	20	M12	300	40	250	50	100
BU41150_400_400_500	400	500	150	20	M16	400	55	320	50	150
BU41150_400_400_650	400	650	150	20	M16	400	55	320	50	150
BU41150_500_500_600	500	600	200	20	M16	500	75	400	50	200
BU41150_500_500_750	500	750	200	20	M16	500	75	400	50	200
BU41150_630_630_700	630	700	250	25	M16	630	100	500	50	200
BU41150_630_630_850	630	850	250	25	M16	630	100	500	50	200
BU41150_800_800_800	800	800	300	25	M16	800	135	640	50	300
BU41150_800_800_1000	800	1000	300	25	M16	800	135	640	50	300
BU41150_1000_1000_1000	1000	1000	350	25	M16	1000	165	800	55	400
BU41150_1000_1000_1250	1000	1250	350	25	M16	1000	165	800	55	400

BU41160- Double Angle Tombstone with T-slots

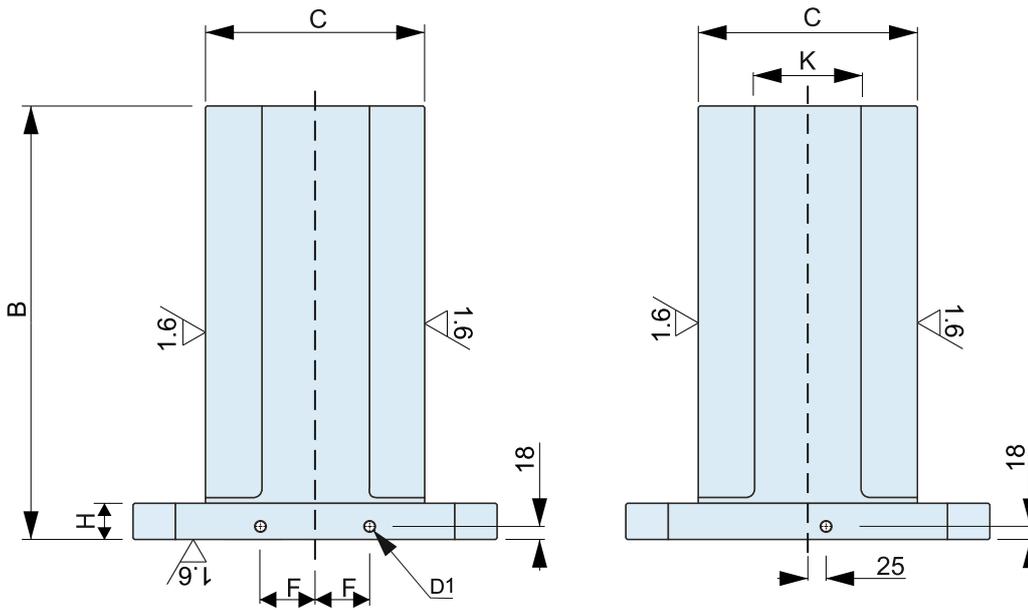
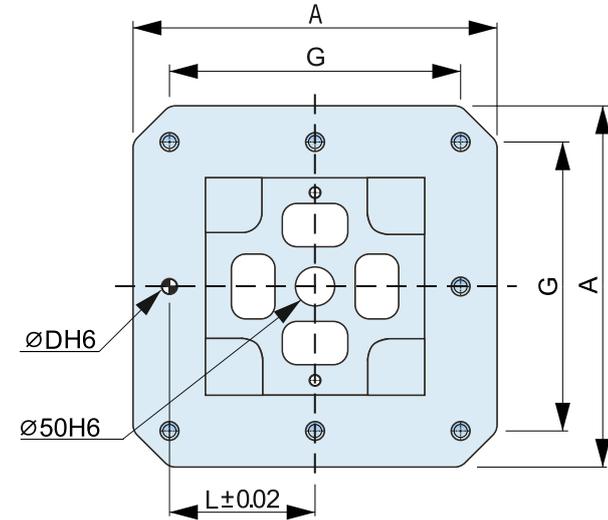
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Available in 14mm or 18mm T-slot size.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	L	M	K
BU41160_400_400_500	400	500	150	20	M16	55	320	50	150	450	100
BU41160_400_400_650	400	650	150	20	M16	55	320	50	150	550	100
BU41160_500_500_600	500	600	200	20	M16	75	400	50	200	550	100
BU41160_500_500_750	500	750	200	20	M16	75	400	50	200	650	100
BU41160_630_630_700	630	700	250	25	M16	100	500	50	200	650	125
BU41160_630_630_850	630	850	250	25	M16	100	500	50	200	775	125
BU41160_800_800_800	800	800	300	25	M16	135	640	50	300	750	150
BU41160_800_800_1000	800	1000	300	25	M16	135	640	50	300	900	150
BU41160_1000_1000_1000	1000	1000	350	25	M16	165	800	55	400	950	160
BU41160_1000_1000_1250	1000	1250	350	25	M16	165	800	55	400	1110	160

BU41170- Cross Tombstone with Plain Surface

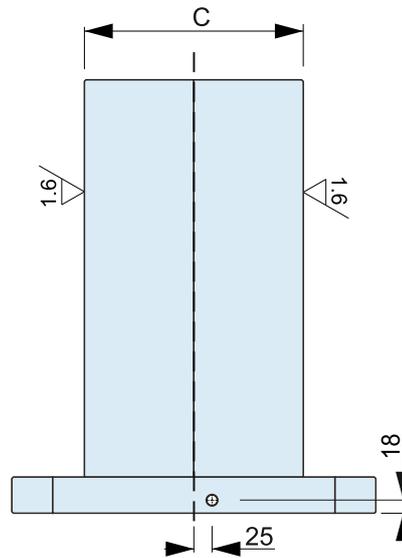
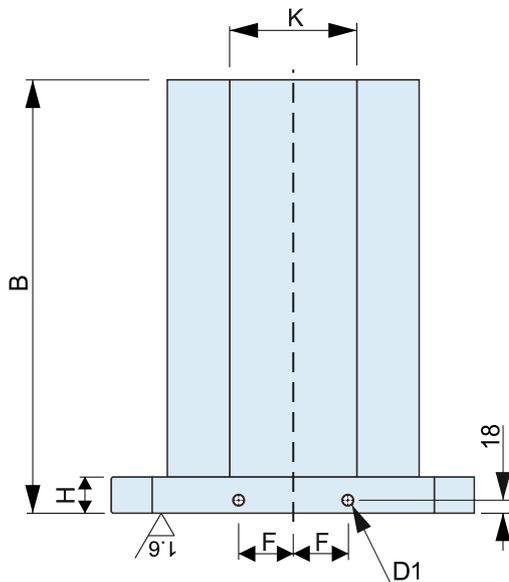
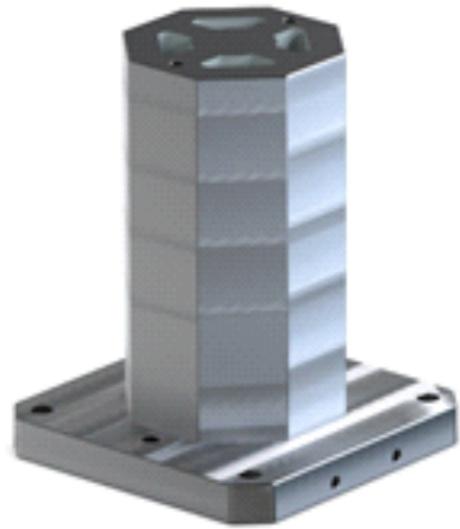
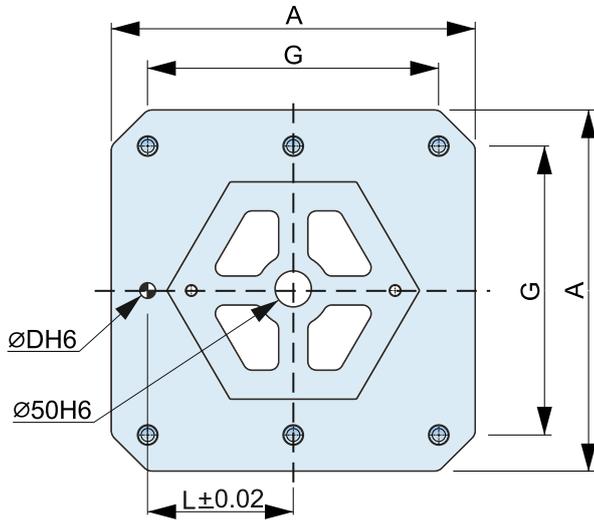
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	K	L
BU41170_400_400_500	400	500	251	20	M16	55	320	50	125	150
BU41170_400_400_650	400	650	251	20	M16	55	320	50	125	150
BU41170_500_500_600	500	600	301	20	M16	75	400	50	150	200
BU41170_500_500_750	500	750	301	20	M16	75	400	50	150	200
BU41170_630_630_700	630	700	351	25	M16	100	500	50	200	200
BU41170_630_630_850	630	850	351	25	M16	100	500	50	200	200
BU41170_800_800_800	800	800	501	25	M16	135	640	50	300	300
BU41170_800_800_1000	800	1000	501	25	M16	135	640	50	300	300

BU41190- Hexagonal Tombstone with Plain Surface

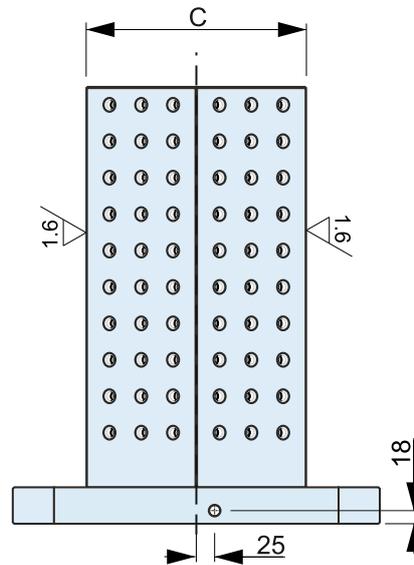
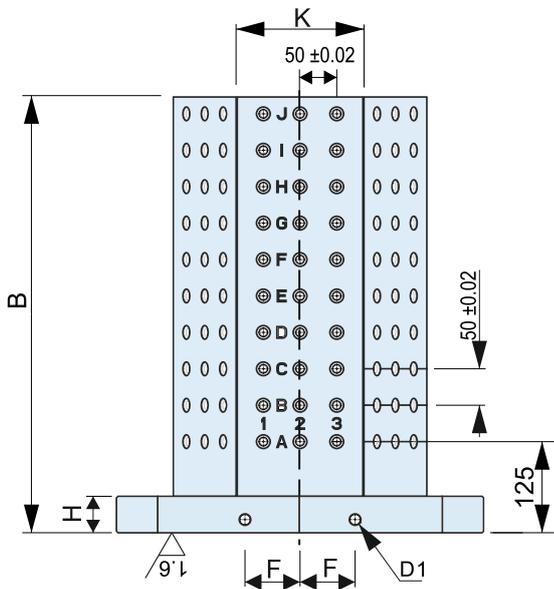
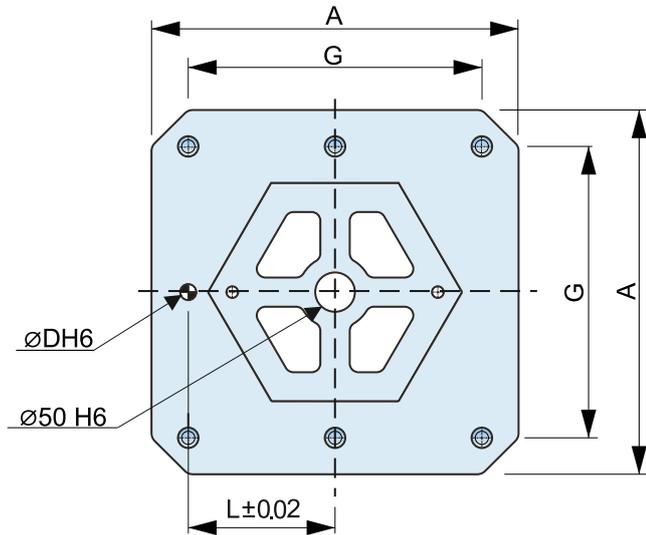
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	K	L
BU41190_400_400_500	400	500	251	20	M16	55	320	50	144	150
BU41190_400_400_650	400	650	251	20	M16	55	320	50	144	150
BU41190_500_500_600	500	600	301	20	M16	75	400	50	173	200
BU41190_500_500_750	500	750	301	20	M16	75	400	50	173	200
BU41190_630_630_700	630	700	351	25	M16	100	500	50	202	200
BU41190_630_630_850	630	850	351	25	M16	100	500	50	202	200
BU41190_800_800_800	800	800	501	25	M16	135	640	50	289	300
BU41190_800_800_1000	800	1000	501	25	M16	135	640	50	289	300

BU41200- Hexagonal Tombstone with grid hole

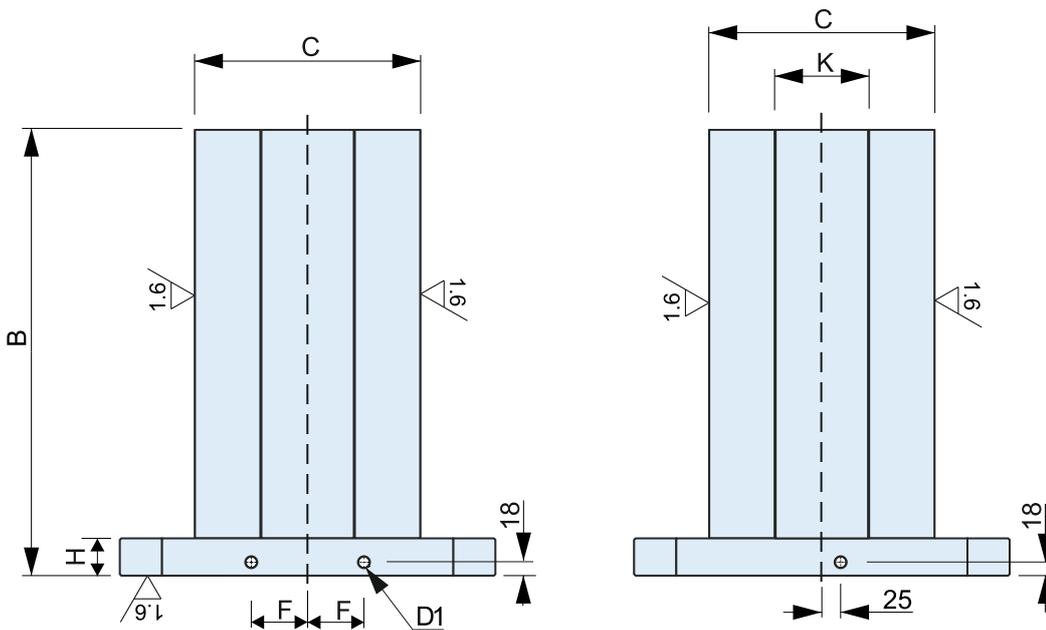
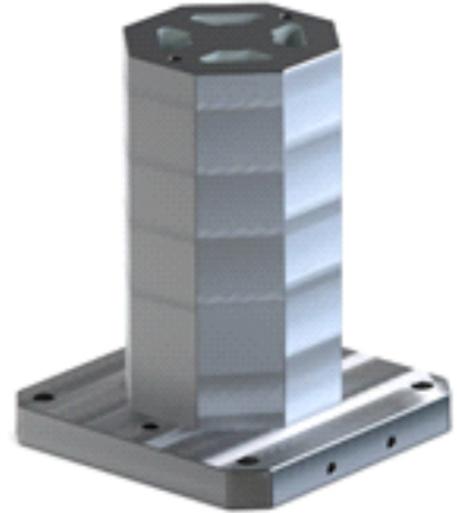
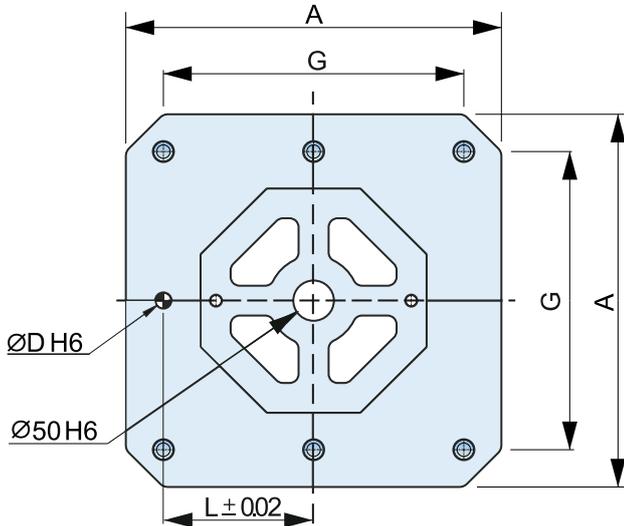
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Available in Ø12 or Ø16 bushings.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	K	L
BU41200_400_400_500	400	500	250	20	M16	55	320	50	144	150
BU41200_400_400_650	400	650	250	20	M16	55	320	50	144	150
BU41200_500_500_600	500	600	300	20	M16	75	400	50	173	200
BU41200_500_500_750	500	750	300	20	M16	75	400	50	173	200
BU41200_630_630_700	630	700	350	25	M16	100	500	50	202	200
BU41200_630_630_850	630	850	350	25	M16	100	500	50	202	200
BU41200_800_800_800	800	800	500	25	M16	135	640	50	289	300
BU41200_800_800_1000	800	1000	500	25	M16	135	640	50	289	300

BU41210- Octagonal Tombstone with plain surface

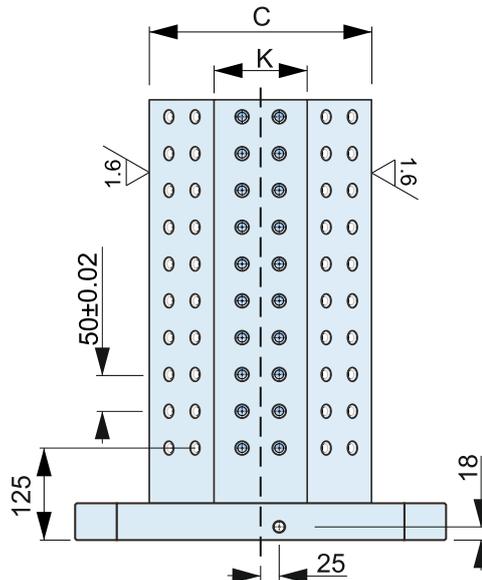
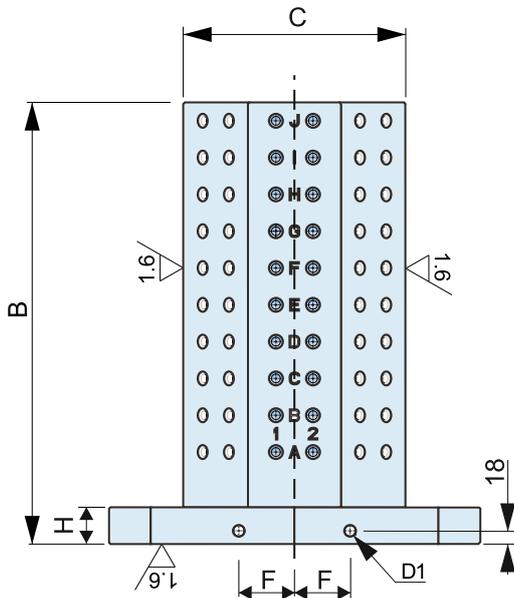
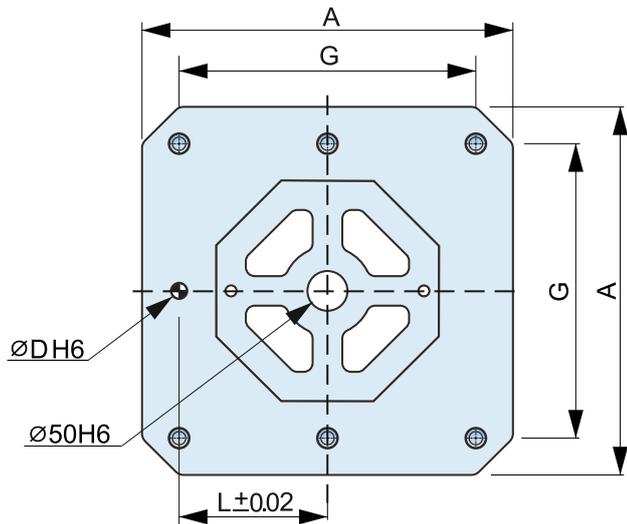
- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	K	L
BU41210_400_400_500	400	500	251	20	M16	55	320	50	103	150
BU41210_400_400_650	400	650	251	20	M16	55	320	50	103	150
BU41210_500_500_600	500	600	301	20	M16	75	400	50	124	200
BU41210_500_500_750	500	750	301	20	M16	75	400	50	124	200
BU41210_630_630_700	630	700	351	25	M16	100	500	50	145	200
BU41210_630_630_850	630	850	351	25	M16	100	500	50	145	200
BU41210_800_800_800	800	800	501	25	M16	135	640	50	207	300
BU41210_800_800_1000	800	1000	501	25	M16	135	640	50	207	300

BU41220- Octagonal Tombstone with grid hole

- ▶ Cast iron grade-300
- ▶ Suitable for pallets according to different standards.
- ▶ Available in Ø12 or Ø16 bushings.
- ▶ Customized sizes and material are available on request.



Part No.	A	B	C	D	D1	F	G	H	K	L
BU41220_400_400_500	400	500	250	20	M16	55	320	50	103	150
BU41220_400_400_650	400	650	250	20	M16	55	320	50	103	150
BU41220_500_500_600	500	600	300	20	M16	75	400	50	124	200
BU41220_500_500_750	500	750	300	20	M16	75	400	50	124	200
BU41220_630_630_700	630	700	350	25	M16	100	500	50	145	200
BU41220_630_630_850	630	850	350	25	M16	100	500	50	145	200
BU41220_800_800_800	800	800	500	25	M16	135	640	50	207	300
BU41220_800_800_1000	800	1000	500	25	M16	135	640	50	207	300

Hydraulic Clamping System



Hydraulic Double Acting Swing Clamp Model SH Top Flange

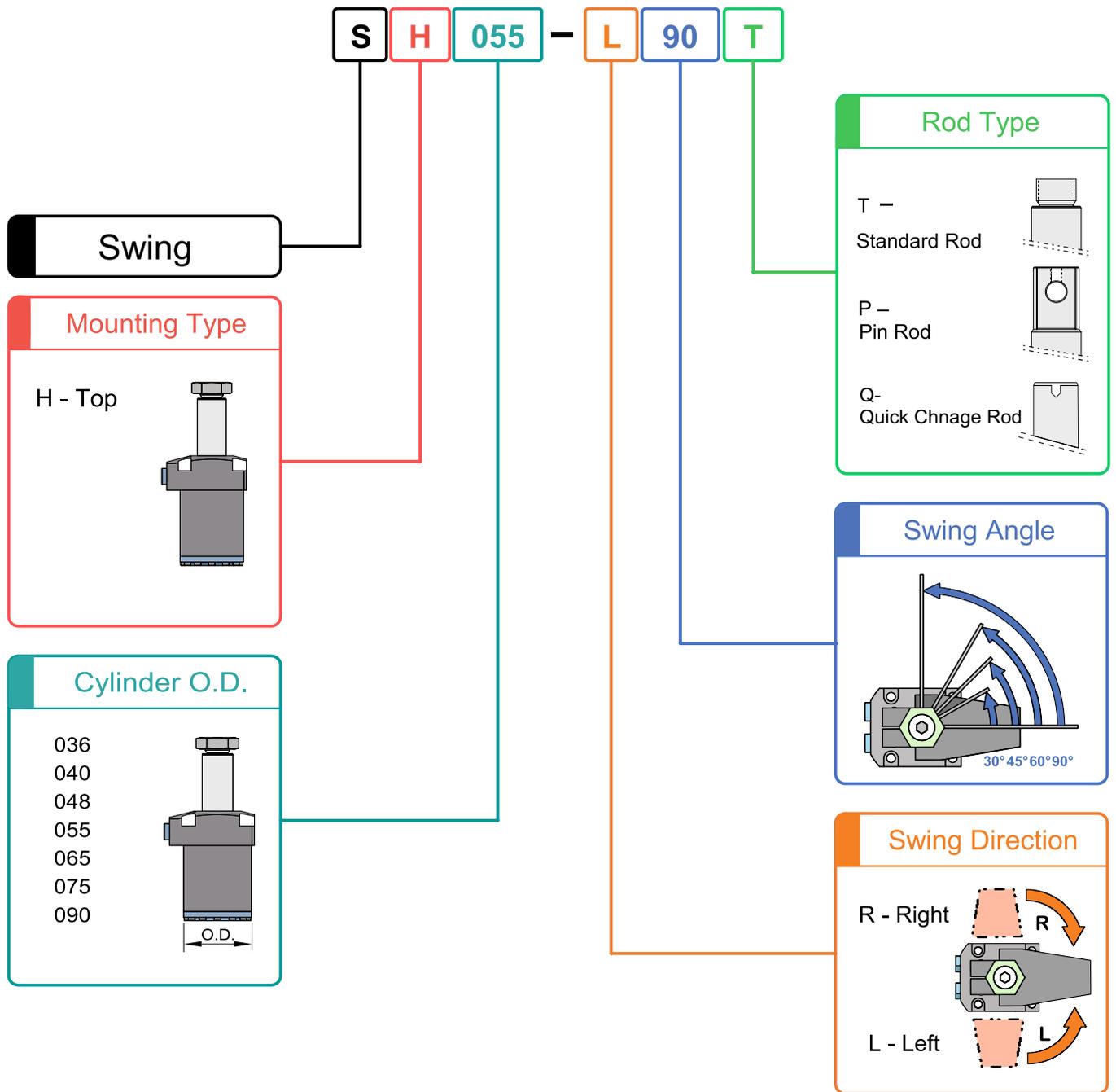


Specifications

Model No.		SH036-□□□	SH040-□□□	SH048-□□□	SH055-□□□	SH065-□□□	SH075-□□□	SH090-□□□	
Cylinder Force	kN	2.15	3.10	4.37	6.14	8.62	12.80	19.41	
Cylinder Inner Diameter	mm	25	30	36	42	50	60	75	
Rod Diameter	mm	15	18	22	25	30	35	45	
Effective Area(Clamp)	cm ²	3.14	4.52	6.37	8.94	12.56	18.65	28.27	
Swing Angle		30°±2°, 45°±2°, 60°±2°, 90°±2°							
Repeated Clamp Positioning Accuracy		±1°							
Full Stroke	mm	18	20	24	26	28	35	40	
Swing Stroke 90°	mm	10	12	16	16	18	23	25	
Vertical Stroke	mm	8	8	8	10	10	12	15	
Cylinder Capacity	Clamp	cm ³	5.65	9.04	15.30	23.25	35.18	65.28	113.09
	Unclamp	cm ³	8.83	14.13	24.42	36.02	54.97	98.96	176.71
Mass	Kg	0.7	0.9	1.3	1.8	2.7	4.1	6.8	

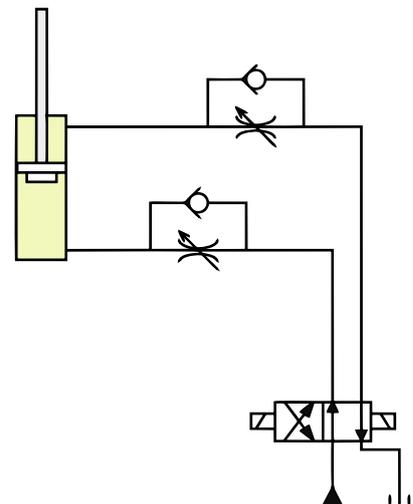
- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

Model No. Selection

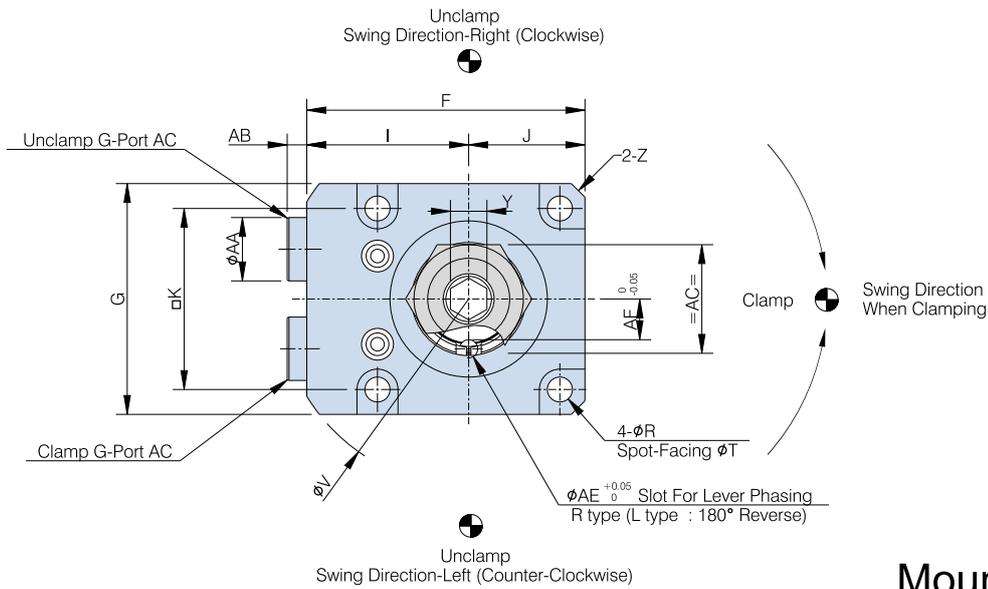


Hydraulic Circuit Diagram

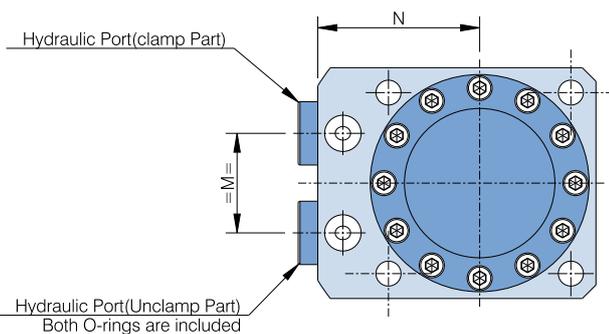
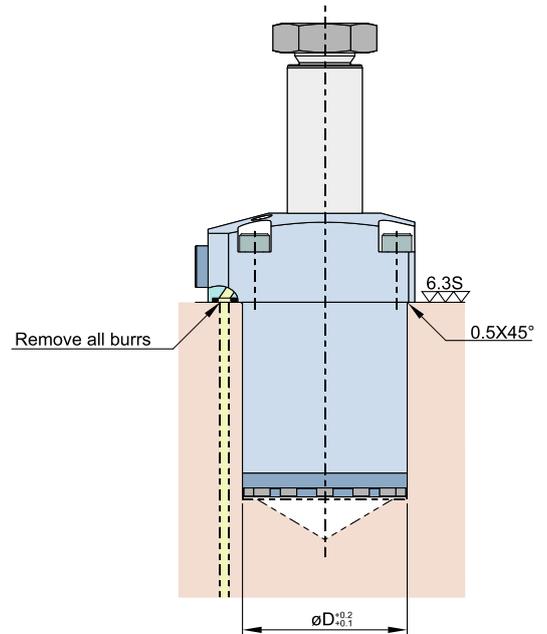
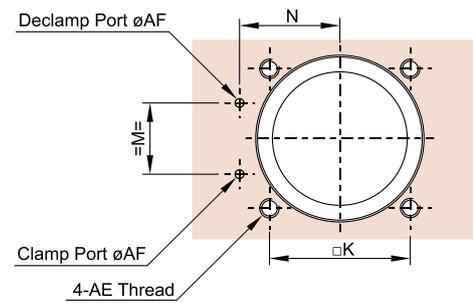
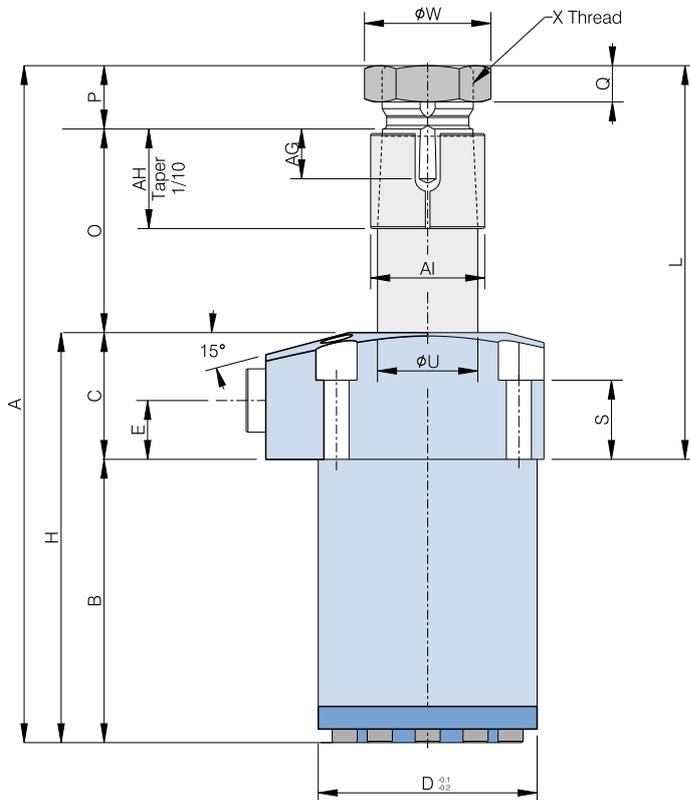
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.



External Dimensions



Mounting Details

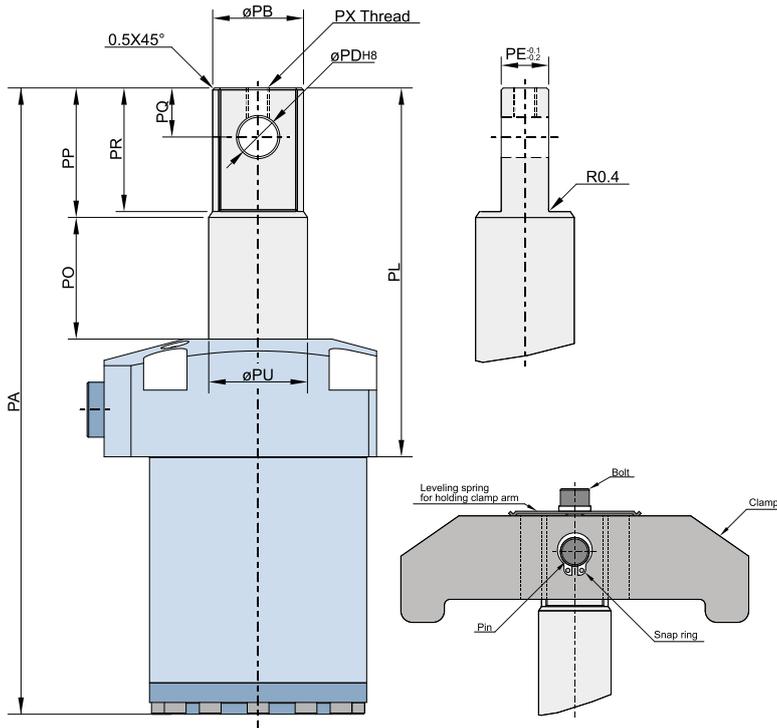


- This figure shows the released position of cylinder.
- The machining dimension ϕAF is for gasket option for hydraulic fluid supply.

Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
A	127.6	134.6	152.6	159.6	170.9	202.15	231.15
B	55.6	58.6	62.6	65.6	69.9	80.15	88.15
C	25	25	28	30	31	38	46
∅D	36	40	48	55	65	75	90
E	11	11	13	12	13	16	19
F	49	54	61	69	81	92	107
G	40	45	51	60	70	80	95
H	80.6	83.6	90.6	95.6	100.9	118.15	134.15
I	29	31.5	35.5	39	46	52	59.5
J	20	22.5	25.5	30	35	40	47.5
□K	31.4	34	40	47	55	63	75
L	72	76	90	94	101	122	143
M	16	18	22	24	30	32	37
N	23.5	26	30	33.5	39.5	45	52.5
O	36	39	48	49	54	68	79
P	11	12	14	15	16	14.5	18
Q	7	8	9	10	11	11	12
R	4.5	5.5	5.5	6.8	6.8	9	11
S	16	15	17.5	17	17	21	25
∅T	7.5	9	9	11	11	14	17.5
∅U	15	18	22	25	30	35	45
∅V	66	73	83	88	106	116	136
∅W	25.5	27.7	33	35.5	45	53.1	63.5
X (Nominal X Pitch)	M14X1.5	M16X1.5	M20X1.5	M22X1.5	M27X1.5	M30X1.5	M39X1.5
Y	5	6	8	8	10	10	14
Z	2	3	3	3	4	5	6
∅AA	14	14	14	14	19	19	22
AB	5	5	5	5	5	5	5
AC	22	24	30	32	41	46	55
AD	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
AE	4	4	5	6	6	8	8
AF	6	7	9	10	12.5	14	18.5
AG	9.5	8.5	11.5	9.5	11.5	12.5	11.5
AH	16	17	22	21	24	32.5	37
∅AI	17	20	25	28	34	40	49

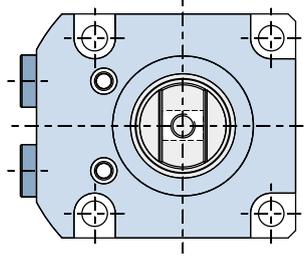
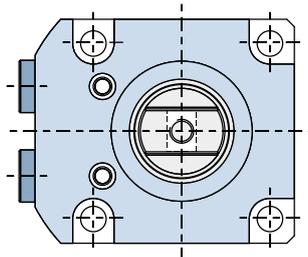
- Hexagonal thin nut is included and G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder.
- The depth of the body mounting hole ∅D should be decided according to the mounting height referring to dimension B.

Dimensions for Pin Rod Option

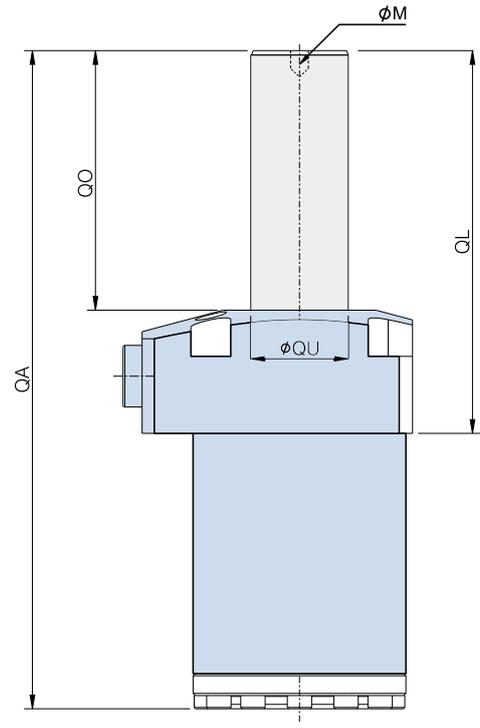


Unclamp

Clamp



Dimensions for Quick Change Option

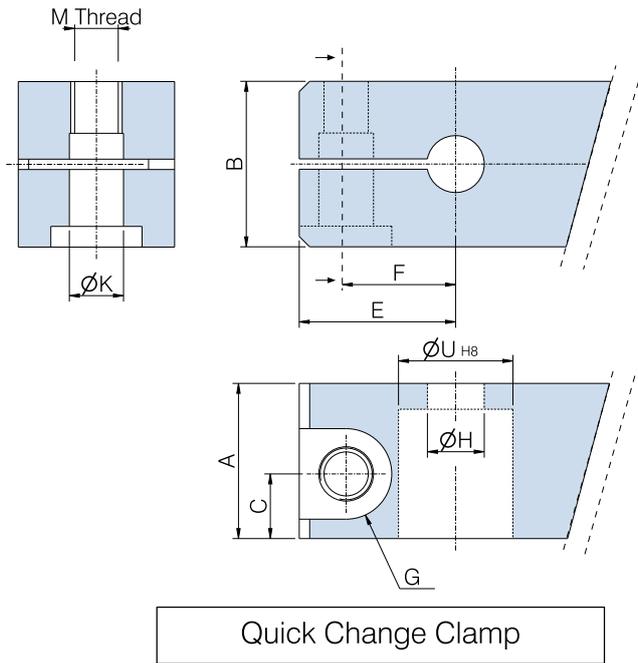
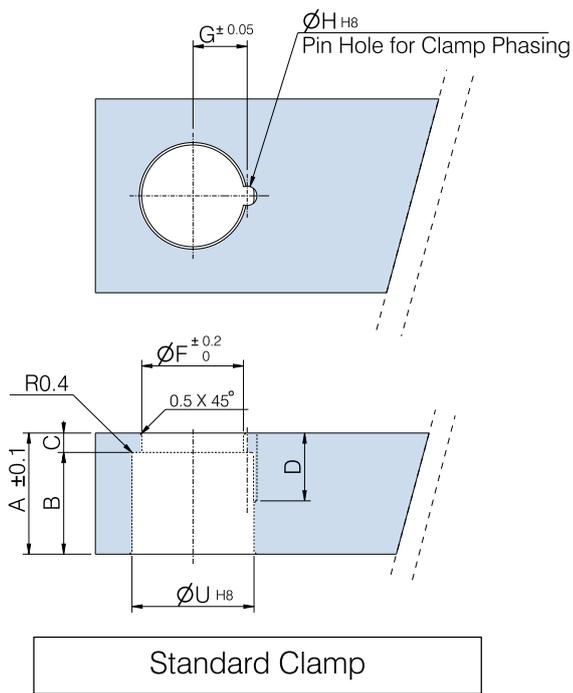


- This figure shows the released position in unclamp condition of cylinder.
- Clamp, snap ring, pin, leveling spring and bolt are not included. Please prepare them.
- Use tapped hole (px thread) on top of rod to attach leveling spring.
- Use leveling spring to maintain lever position.
- To balance clamp, the reference figure is given below.

Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
QA	123.6	133.6	149.6	162.6	175.9	211.15	237.15
QL	68	75	87	97	106.1	131	149
QO	43.3	50	59	67	75	93	103.5
øQU	15	18	22	25	30	35	45
øM	M8	M8	M12	M12	M12	M12	M12

Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
PA	124.6	131.6	147.6	159.6	169.9	202.15	233.15
øPB	13.5	16	20	23	28	33.5	43
øPD	6	6	8	10	13	13	16
PE	7	8	10	12	14	16	22
PL	69	73	85	94	100	122	145
PO	20	22	26	28	30	37	42
PP	24	26	31	36	39	47	57
PQ	9	11	12	12.5	16.5	19	23.5
PR	23	25	29.5	34.5	37.5	45.5	55.5
øPU	15	18	22	25	30	35	45
PX (Nominal X Pitch)	M3X0.5	M3X0.5	M4X0.7	M5X0.8	M6X1	M6X1	M8X1.25

Clamp Design Dimensions



Standard Clamp							
Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
A	17	19	23	26	29	35	43
B	14	16	19	22	25	31	38
C	3	3	4	4	4	4	5
D	10.5	10.5	12.5	14.5	16.5	17.5	17.5
$\varnothing F$	15	17	21	23.5	29	33	42
G	8	9	11.5	13	15.5	18	22.5
H	4	4	5	6	6	8	8
$\varnothing U$	17	20	25	28	34	40	49

Quick Change Clamp							
Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
A	22	25	30	34	40	46	55
B	22	26	32	36	45	53	70
C	11	12.5	15	17	20	23	27.5
E	15	19	23	26.5	31.5	36.5	46
F	9.75	12	14.75	17	20	23.5	29.75
G	R5.5	R7	R8.75	R10	R11.5	R13	R16
$\varnothing H$	3	4	4	4	6	6	8
$\varnothing J$	2.5	3.5	3.5	4	5.5	5.5	7.5
K	6.5	8.5	10.5	12.5	14.5	16.5	21
L	3.4	4.5	4.5	4.5	6.5	6.5	9
M (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M12X1.75	M14X2	M16X2	M20X2.85
$\varnothing U$	15	18	22	25	30	35	45

- Clamp is not included in scope of supply.

Hydraulic Double Acting Swing Clamp Model SJ Bottom Flange

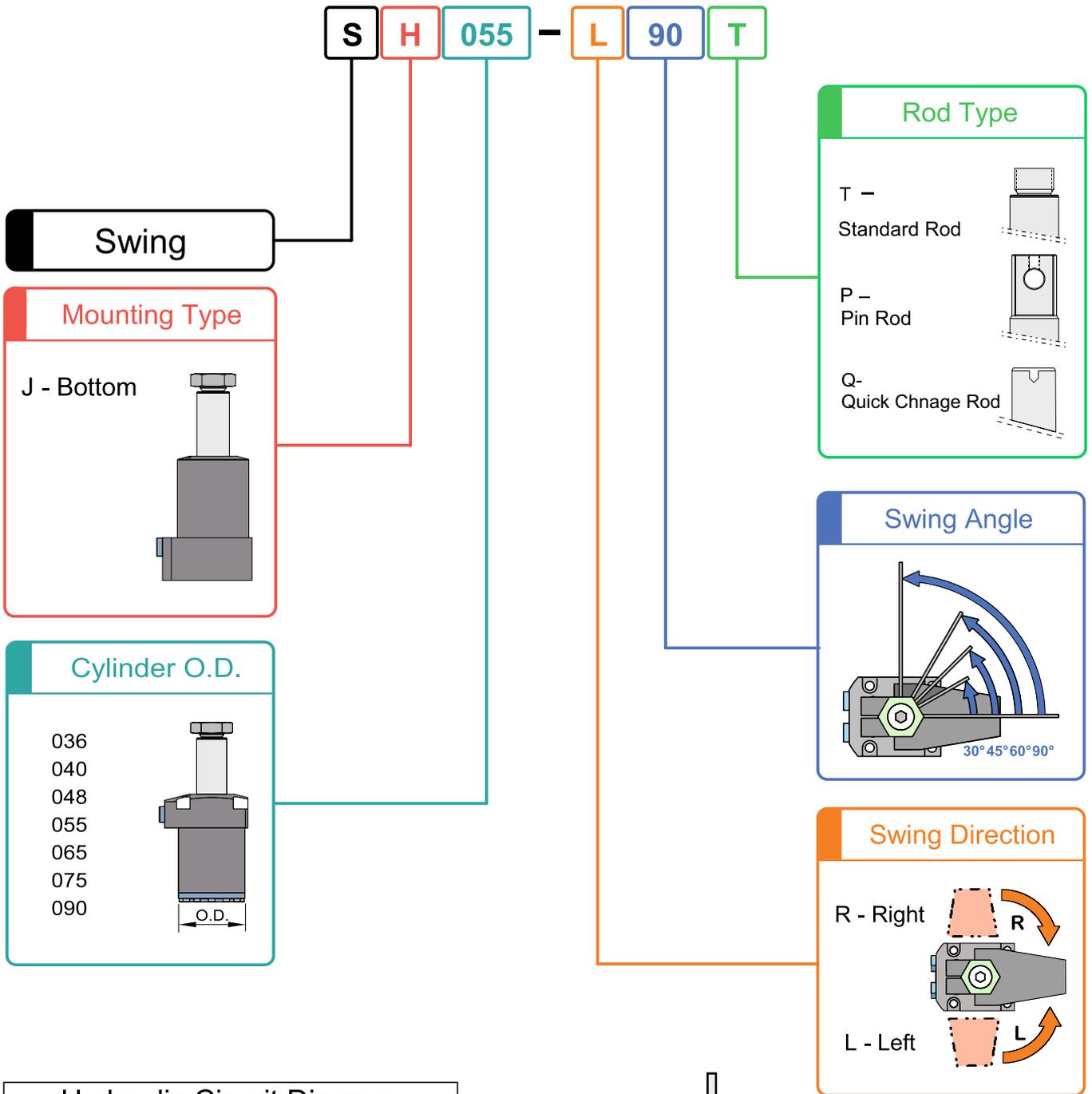


Specifications

Model No.	SJ036-□□□	SJ040-□□□	SJ048-□□□	SJ055-□□□	SJ065-□□□	SJ075-□□□	SJ090-□□		
Cylinder Force	kN	2.15	3.10	4.37	6.14	8.62	12.80	19.41	
Cylinder Inner Diameter	mm	25	30	36	42	50	60	75	
Rod Diameter	mm	15	18	22	25	30	35	45	
Effective Area(Clamp)	cm ²	3.14	4.52	6.37	8.94	12.56	18.65	28.27	
Swing Angle	30°±2°, 45°±2°, 60°±2°, 90°±2°								
Repeated Clamp Positioning Accuracy	±1°								
Full Stroke	mm	18	20	24	26	28	35	40	
Swing Stroke 90°	mm	10	12	16	16	18	23	25	
Vertical Stroke	mm	8	8	8	10	10	12	15	
Cylinder Capacity	Clamp	5.65	9.04	15.30	23.25	35.18	65.28	113.09	179.36
	Unclamp	8.83	14.13	24.42	36.02	54.97	98.96	176.71	286.27
Mass	Kg	0.7	0.9	1.3	1.8	2.7	4.1	6.8	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

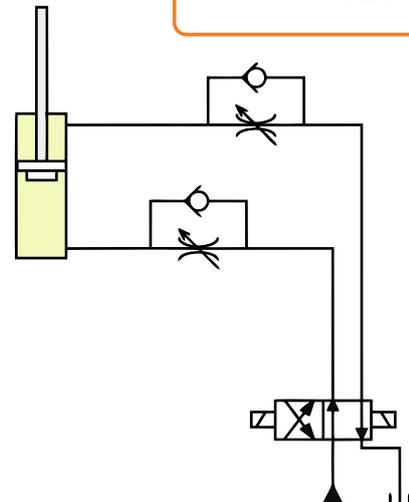
Model No. Selection



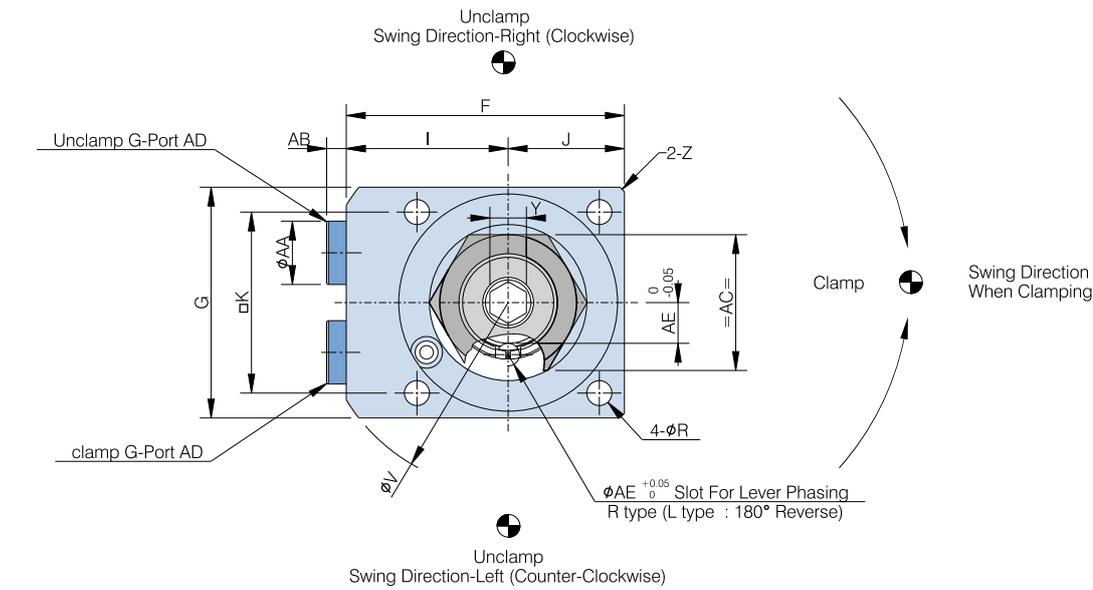
Hydraulic Circuit Diagram

For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.

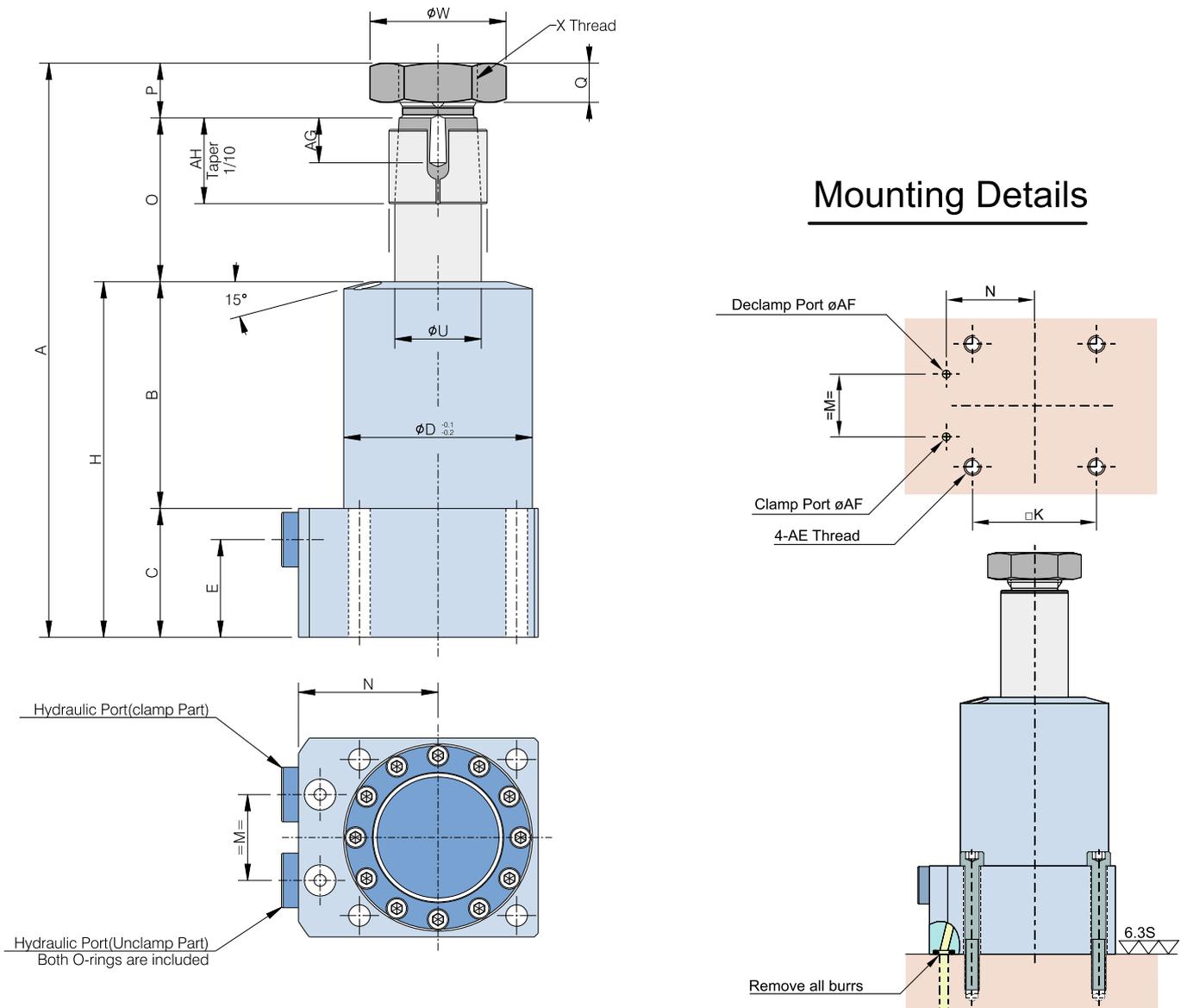
- Please be aware when designing the circuit.



External Dimensions



Mounting Details

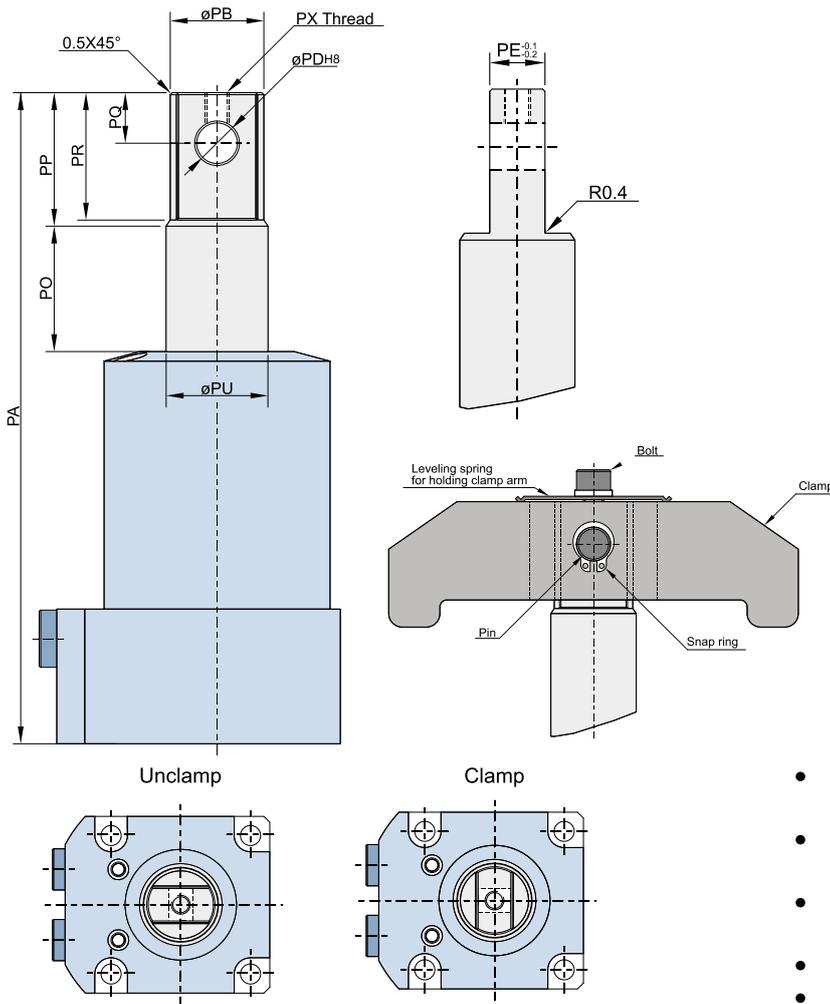


- This figure shows the released position of cylinder.
- The machining dimension ϕAF is for gasket option for hydraulic fluid supply.

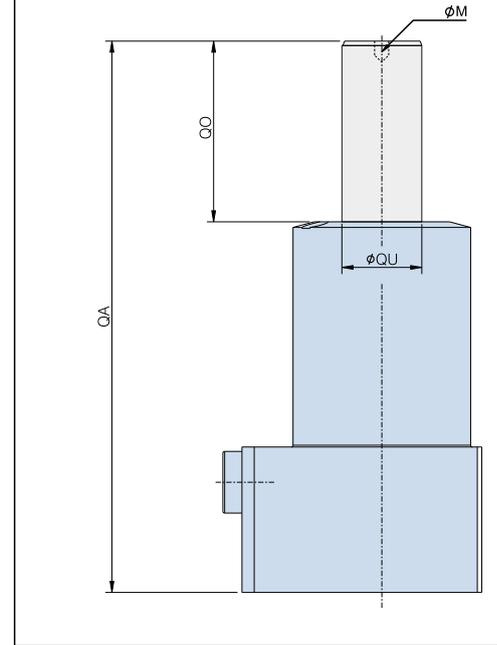
Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
A	127.6	134.6	152.6	159.6	170.9	202.15	231.15
B	55.6	58.6	62.6	65.6	69.9	80.15	88.15
C	25	25	28	30	31	38	46
∅D	36	40	48	55	65	75	90
E	11	11	13	12	13	16	19
F	49	54	61	69	81	92	107
G	40	45	51	60	70	80	95
H	80.6	83.6	90.6	95.6	100.9	118.15	134.15
I	29	31.5	35.5	39	46	52	59.5
J	20	22.5	25.5	30	35	40	47.5
□K	31.4	34	40	47	55	63	75
L	72	76	90	94	101	122	143
M	16	18	22	24	30	32	37
N	23.5	26	30	33.5	39.5	45	52.5
O	36	39	48	49	54	68	79
P	11	12	14	15	16	14.5	18
Q	7	8	9	10	11	11	12
R	4.5	5.5	5.5	6.8	6.8	9	11
S	16	15	17.5	17	17	21	25
T	7.5	9	9	11	11	14	17.5
U	15	18	22	25	30	35	45
V	66	73	83	88	106	116	136
W	25.5	27.7	33	35.5	45	53.1	63.5
X (Nominal X Pitch)	M14X1.5	M16X1.5	M20X1.5	M22X1.5	M27X1.5	M30X1.5	M39X1.5
Y	5	6	8	8	10	10	14
Z	2	3	3	3	4	5	6
∅AA	14	14	14	14	19	19	22
AB	5	5	5	5	5	5	5
AC	22	24	30	32	41	46	55
AD	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
AE	4	4	5	6	6	8	8
AF	6	7	9	10	12.5	14	18.5
AG	9.5	8.5	11.5	9.5	11.5	12.5	11.5
AH	16	17	22	21	24	32.5	37
∅AI	17	20	25	28	34	40	49

- Hexagonal thin nut is included and G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder.
- The depth of the body mounting hole ∅D should be decided according to the mounting height referring to dimension B.

Dimensions for Pin Rod Option



Dimensions for Quick Change Option

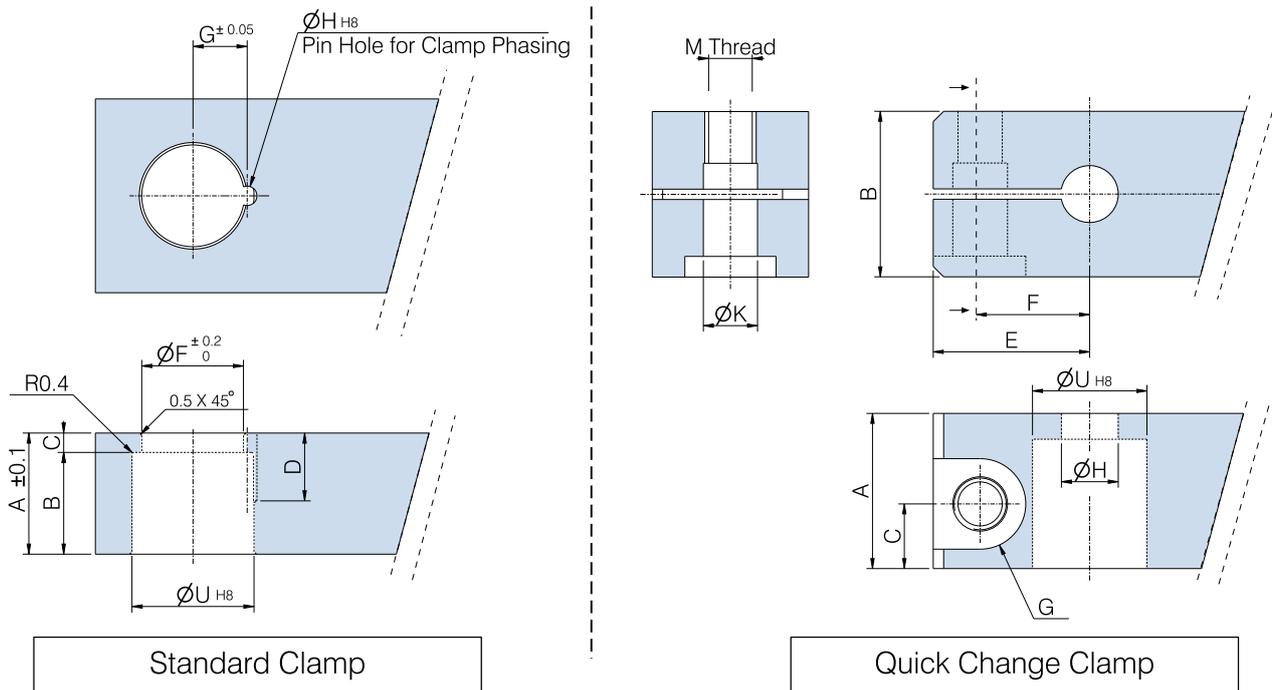


- This figure shows the released position in unclamp condition of cylinder.
- Clamp, snap ring, pin, leveling spring and bolt are not included. Please prepare them.
- Use tapped hole (px thread) on top of rod to attach leveling spring.
- Use leveling spring to maintain lever position.
- To balance clamp, the reference figure is given below.

Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
QA	123.6	133.6	149.6	162.6	175.9	211.15	237.15
QO	42	47	56	62	70	83	97
QU	15	18	22	25	30	35	45
ØM	M8	M8	M12	M12	M12	M12	M12

Model No.	SJ036-□□P	SJ040-□□P	SJ048-□□P	SJ055-□□P	SJ065-□□P	SJ075-□□P	SJ090-□□P
PA	125.1	132.1	148.1	160.1	170.4	202.65	233.65
ØPB	13.5	16	20	23	28	33.5	43
ØPD	6	6	8	10	13	13	16
PE	7	8	10	12	14	16	22
PO	20	22	26	28	30	37	42
PP	24	26	31	36	39	47	57
PQ	9	11	12	12.5	16.5	19	23.5
PR	23	25	29.5	34.5	37.5	45.5	55.5
ØPU	15	18	22	25	30	35	45
PX (Nominal X Pitch)	M3X0.5	M3X0.5	M4X0.7	M5X0.8	M6X1	M6X1	M8X1.25

Clamp Design Dimensions



Standard Clamp							
Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
A	17	19	23	26	29	35	43
B	14	16	19	22	25	31	38
C	3	3	4	4	4	4	5
D	10.5	10.5	12.5	14.5	16.5	17.5	17.5
ØF	15	17	21	23.5	29	33	42
G	8	9	11.5	13	15.5	18	22.5
H	4	4	5	6	6	8	8
ØU	17	20	25	28	34	40	49

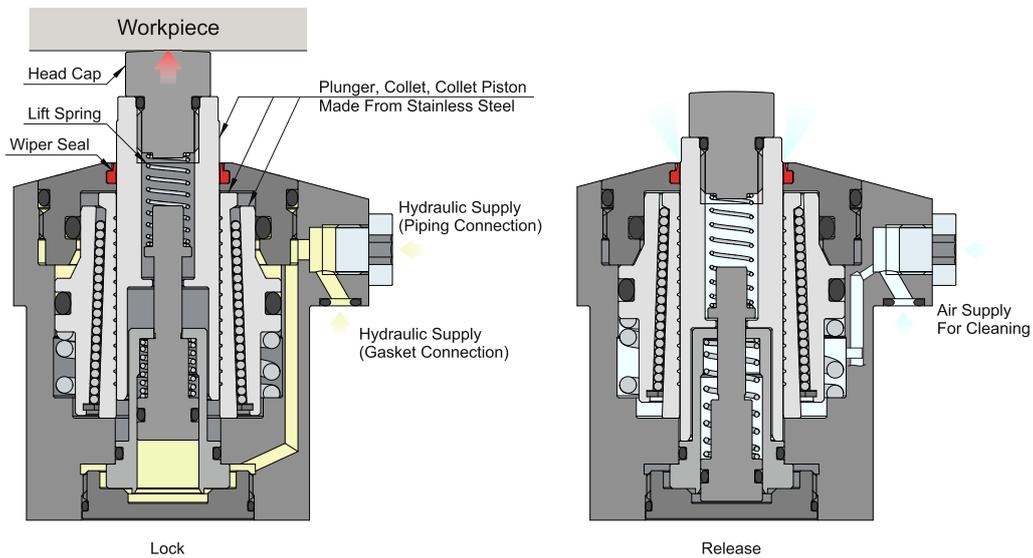
Quick Change Clamp							
Model No.	SH036-□□P	SH040-□□P	SH048-□□P	SH055-□□P	SH065-□□P	SH075-□□P	SH090-□□P
A	22	25	30	34	40	46	55
B	22	26	32	36	45	53	70
C	11	12.5	15	17	20	23	27.5
E	15	19	23	26.5	31.5	36.5	46
F	9.75	12	14.75	17	20	23.5	29.75
G	R5.5	R7	R8.75	R10	R11.5	R13	R16
ØH	3	4	4	4	6	6	8
ØJ	2.5	3.5	3.5	4	5.5	5.5	7.5
K	6.5	8.5	10.5	12.5	14.5	16.5	21
L	3.4	4.5	4.5	4.5	6.5	6.5	9
M (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M12X1.75	M14X2	M16X2	M20X2.85
ØU	15	18	22	25	30	35	45

- Clamp is not included in scope of supply.

Hydraulic Work Support

Model WH

Flange Type

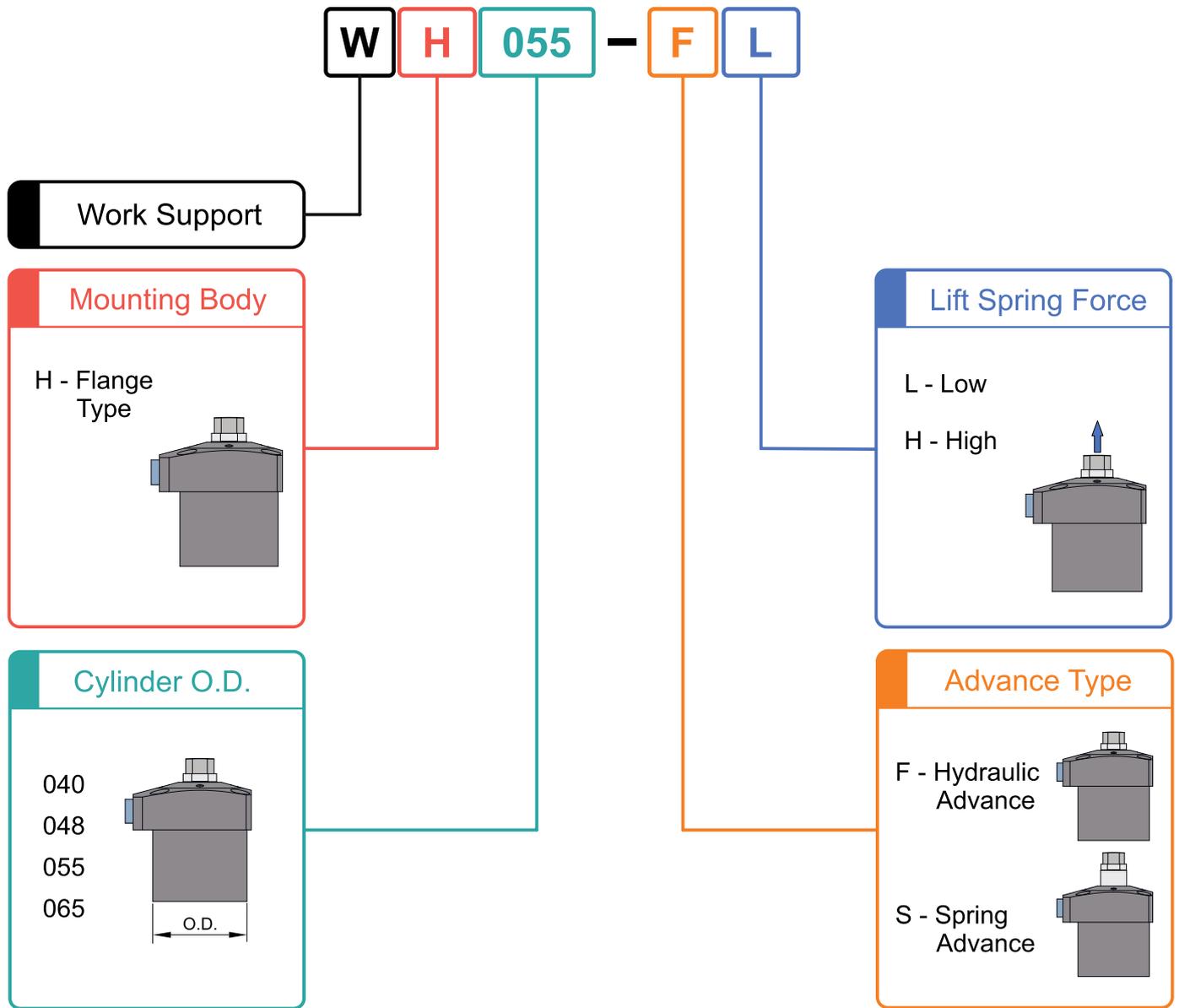


Specifications

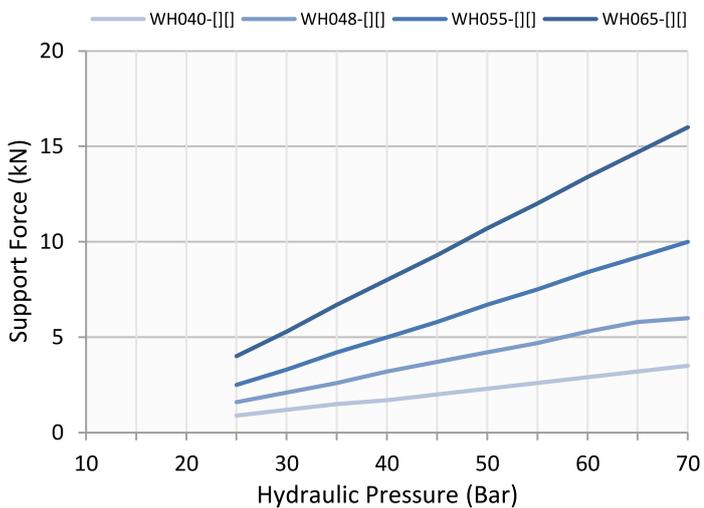
Model No.			WH040-□□	WH048-□□	WH055-□□	WH065-□□
Support Force at 70 Bar		kN	3.5	6	10	16
Lift Spring Force	Low	N	3.2 ~ 4.3	4.5 ~ 8.2	5.4 ~ 11	7 ~ 13.3
	High	N	4.5 ~ 6.1	5.2 ~ 11	8.2 ~ 17.1	9.2 ~ 17.5
Plunger Stroke		mm	8	12	12	16
Cylinder Capacity	Hydraulic Advance	cm ³	1.1	1.97	3.08	4.17
	Spring Advance	cm ³	0.47	1.03	1.73	2.36
Mass		Kg	0.65	1	1.4	2.35

- Pressure Range: - 25-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)

Model No. Selection

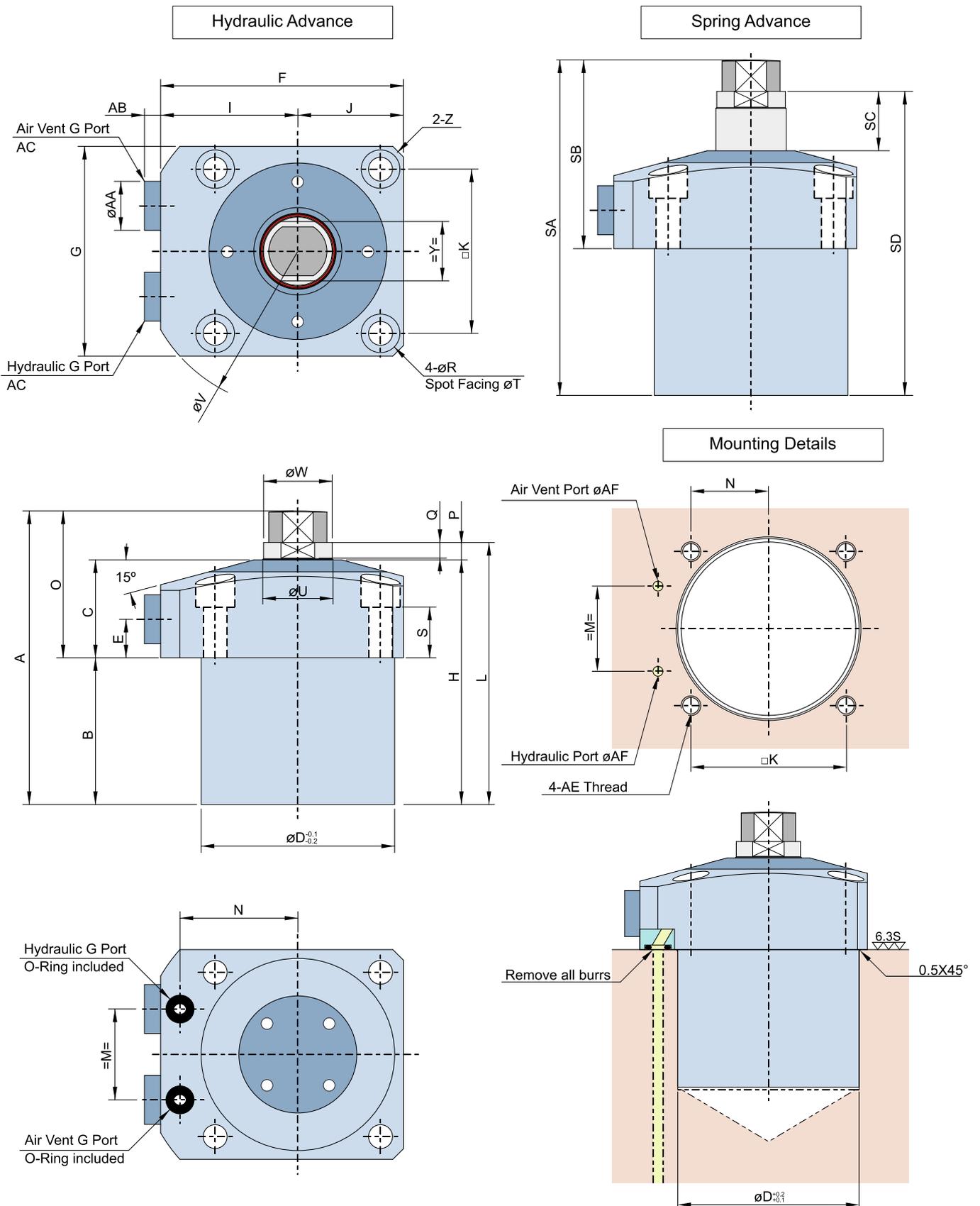


Hydraulic Pressure & Support Force



Hydraulic Pressure (Bar)	Support Force (kN)			
	WH040-□□	WH048-□□	WH055-□□	WH065-□□
25	0.9	1.6	2.5	4
30	1.2	2.1	3.3	5.3
35	1.5	2.6	4.2	6.7
40	1.7	3.2	5	8
45	2	3.7	5.8	9.3
50	2.3	4.2	6.7	10.7
55	2.6	4.7	7.5	12
60	2.9	5.3	8.4	13.4
65	3.2	5.8	9.2	14.7
70	3.5	6	10	16

External Dimensions

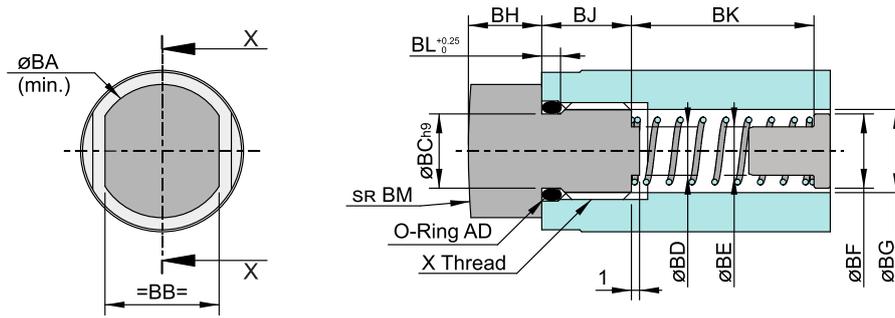


- This figure shows the position of plunger with no supply of hydraulic.

Model No.	WH040-F□	WH048-F□	WH055-F□	WH065-F□
A	68	79	82	102
B	30	41	42	57
C	26	26	28	30
ØD	40	48	55	65
E	11	11	11	11
F	54	61	69	81
G	45	51	60	70
H	56	67	70	87
I	31.5	35.5	39	46
J	22.5	25.5	30	35
□K	34	40	47	55
L	61	72	75	93
M	20	24	26	30
N	26	30	33.5	39.5
O	38	38	40	45
P	5	5	5	6
Q	4	4	4.5	5
ØR	9.5	9.5	11	11
S	15.4	14.5	14.5	14.5
ØT	5.5	5.5	6.8	6.8
ØU	15	16	20	22
ØV	73	83	90	104
ØW	14.5	15.5	19.5	21
X (Nominal X Pitch X Depth)	M10 X 1.5 X 12	M10 X 1.5 X 12	M12 X 1.75 X 13	M12 X 1.75 X 13
Y	13	13	17	19
Z	3	3	3	4
SA	76	91	94	118
SB	46	50	52	61
SC	13	17	17	22
SD	69	84	87	109
ØAA	14	14	14	14
AB	5	5	5	5
AC	G1/8	G1/8	G1/8	G1/8
AE (Nominal X Pitch)	M5X0.8	M5X0.8	M6X1	M6X1
ØAF (Max.)	3	3	3	5

- Head Cap is included and G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Flow control valve is sold separately. Select the right model of flow control valve according to the size of the cylinder.
- The depth of the body mounting hole ØD should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension ØAF is for gasket option for hydraulic fluid supply.
- For piping installation for hydraulic fluid supply do not perform ØAF hole in machining and close gasket line in cylinder with O-ring.

Head Cap and Lift Spring Design Dimensions



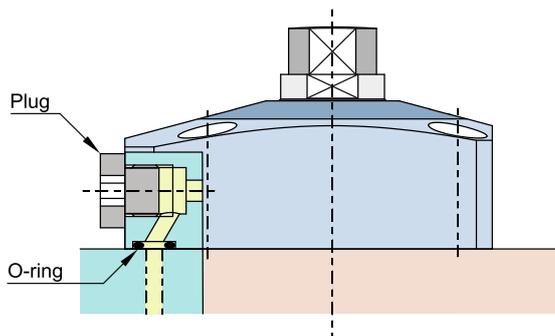
Model No.	WH040-□□	WH048-□□	WH055-□□	WH065-□□
$\varnothing BA$	12.6	12.6	16.5	16.5
BB	11	11	14	14
$\varnothing BC$	7.8	7.8	9.2	9.2
$\varnothing BD$	5	5	6	6
$\varnothing BE$	5	5	6	6
$\varnothing BF$	7.2	7.2	9.2	9.2
$\varnothing BG$	8.5	8.5	10.3	10.3
BH	7	7	7	9
BJ	9	9	11	11
BK	17.6	22	22.5	32.5
BL	2	2	2.3	2.3
BM	70	70	90	110
X (Nominal X Pitch X Depth)	M10 X 1.5 X 12	M10 X 1.5 X 12	M12 X 1.75 X 13	M12 X 1.75 X 13
AD (O-ring - I.D. X C/S)	8 X 1.5	8 X 1.5	9 X 2	9 X 2

- Reference for designing head cap and lift spring as per your requirement other than the included ones.
- When designing own head cap and lift spring, maintain dimensions which are given above in table.
- Figure indicates that head cap is assembled in a such condition where no pressure is applied.

Instructions

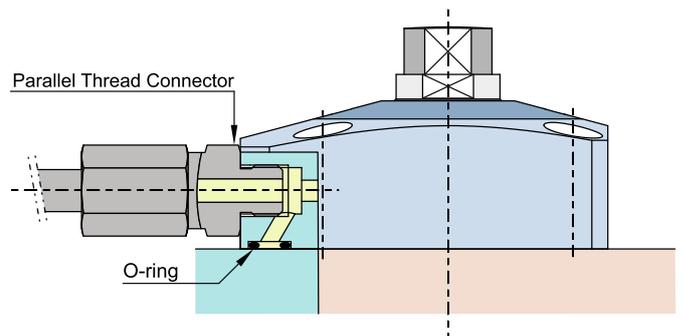
Hydraulic Connection

Gasket Option



- In a gasket option, a flow control valve is mountable on G-ports of the cylinder.

Piping Option

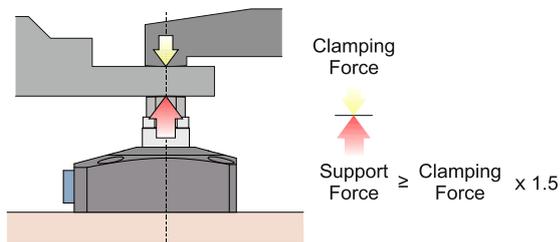


- Remove plugs for piping option (O-ring must be used in gasket holes.).

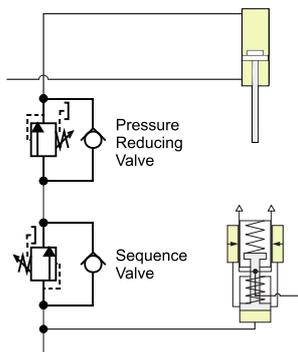


Cautions

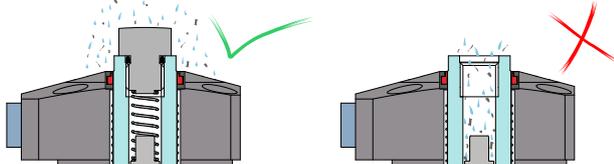
1. Check the usable fluid.
 - Use General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
 - Make sure the hydraulic fluid not deteriorated.
2. Hydraulic supply
 - Never exceed the given pressure limit.
 - If the flow rate is too high, excessive plunger speed can cause gap between work piece and plunger which may cause supporting fault. Always use flow control valve.
 - The supply flow must be controlled.
 - The minimum operating pressure must not be exceeded in order to have an assured clamping function. The highest clamping force is achieved at maximum operating pressure.
3. Appropriate actions before using cylinder
 - Work support and cylinder must be selected in such a way that the support force is 1.5 times clamping force plus machining force.



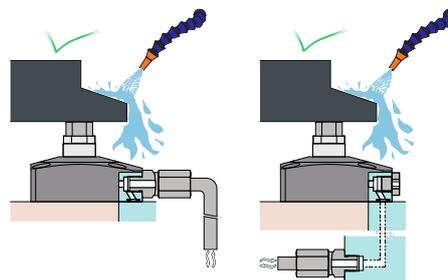
- Use pressure reducing valve to control pressure in clamping circuit.



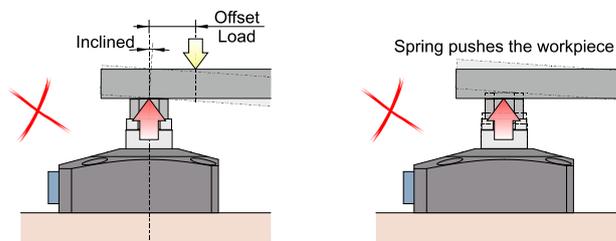
- Do not operate work support without head cap.



- The work support has air vent port for breathing. Confirm that it can breathe without being affected by cutting chips or coolant.



4. Clamping method
 - Never allow offset load and component of force affect the product.
 - If the work piece is light in weight, the lift spring in the plunger may push it upward. Determine the weight of the work piece or the lift spring force to ensure that the work piece is perfectly



seated and the work support is actuated.

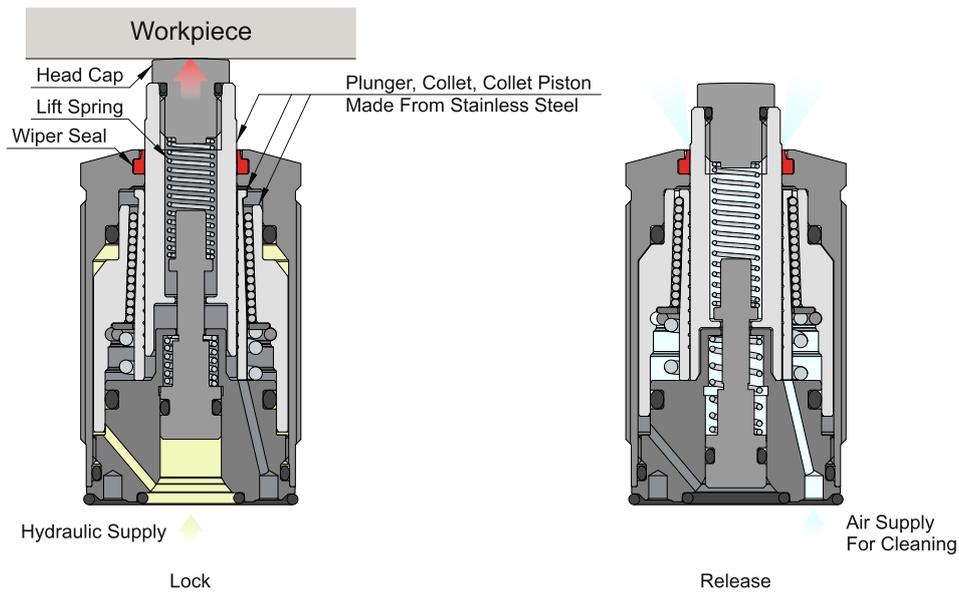
- When designing head cap, make sure that weight of head cap is 30% or less from the lift spring force.

5. Procedure before piping
 - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
 - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
 - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
 - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
 - Please implement piping constructions in a clean environment to prevent anything getting into the product.
6. Do not touch clamp while it is working, otherwise it may cause injury due to clinging.
7. Do not disassemble or modify the product.
 - If the product is modified, then malfunction occurs.
8. Please contact us for overhaul and repair.

Hydraulic Work Support

Model WT

Threaded Body Type

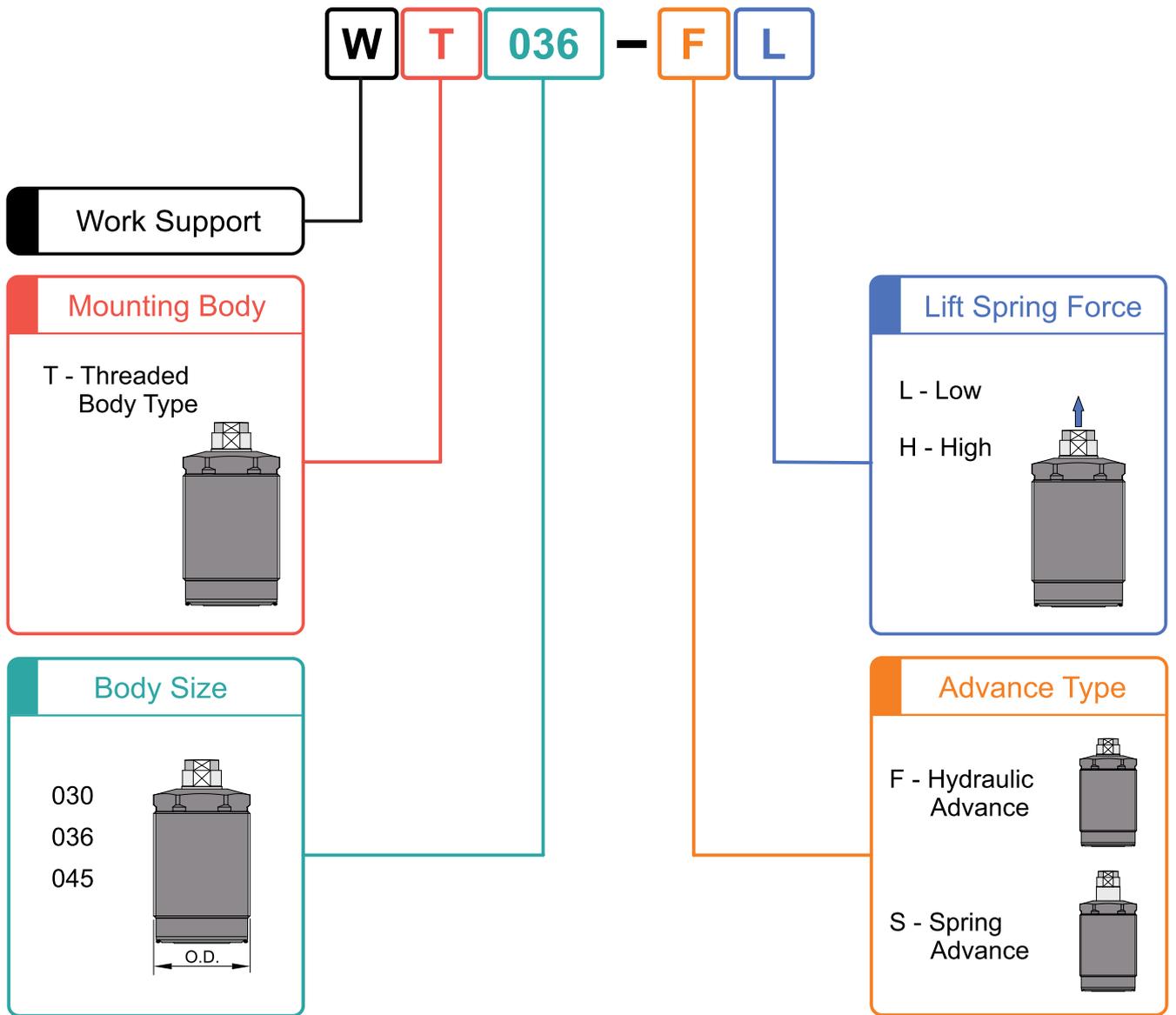


Specifications

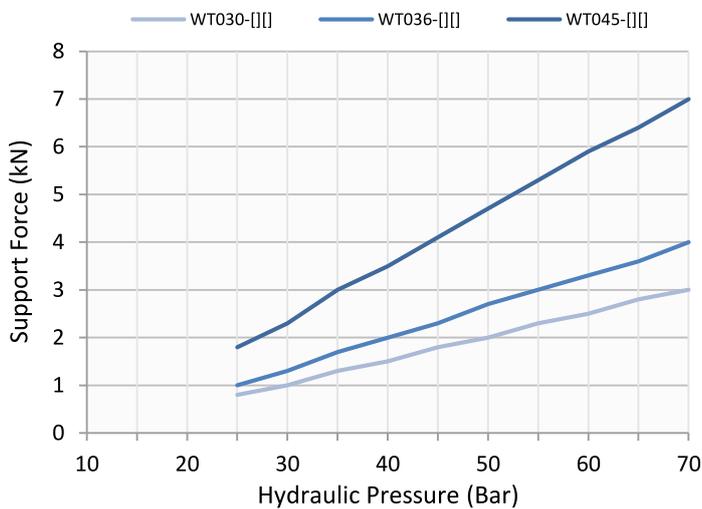
Model No.			WT030-□□	WT036-□□	WT045-□□
Support Force at 70 Bar		kN	3	4	7
Lift Spring Force	Low	N	2 ~ 4	2 ~ 4	3 ~ 6
	High	N	3 ~ 6	3 ~ 6	5 ~ 8
Plunger Stroke		mm	8	8	10
Cylinder Capacity	Hydraulic Advance	cm ³	0.97	1.74	2.54
	Spring Advance	cm ³	0.57	1.11	1.75
Mass		Kg	0.3	0.4	0.75

- Pressure Range: - 25-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)

Model No. Selection



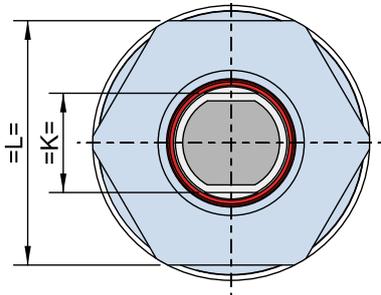
Hydraulic Pressure & Support Force



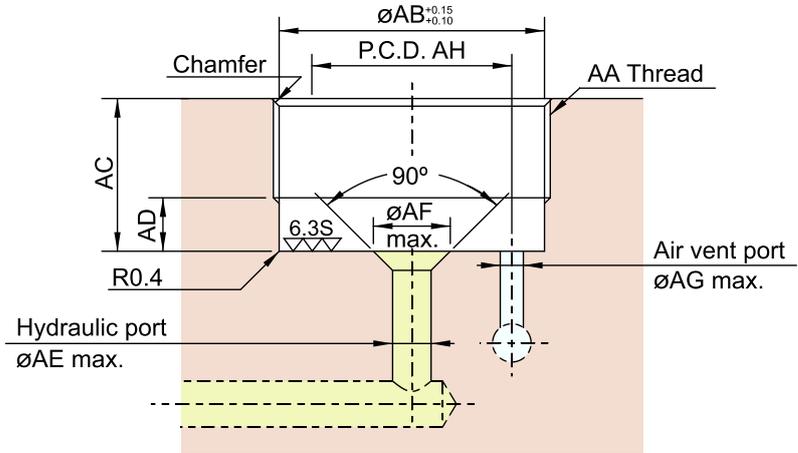
Hydraulic Pressure (Bar)	Support Force (kN)		
	WT030-□□	WT036-□□	WT045-□□
25	0.8	1	1.8
30	1	1.3	2.3
35	1.3	1.7	3
40	1.5	2	3.5
45	1.8	2.3	4.1
50	2	2.7	4.7
55	2.3	3	5.3
60	2.5	3.3	5.9
65	2.8	3.6	6.4
70	3	4	7

External Dimensions

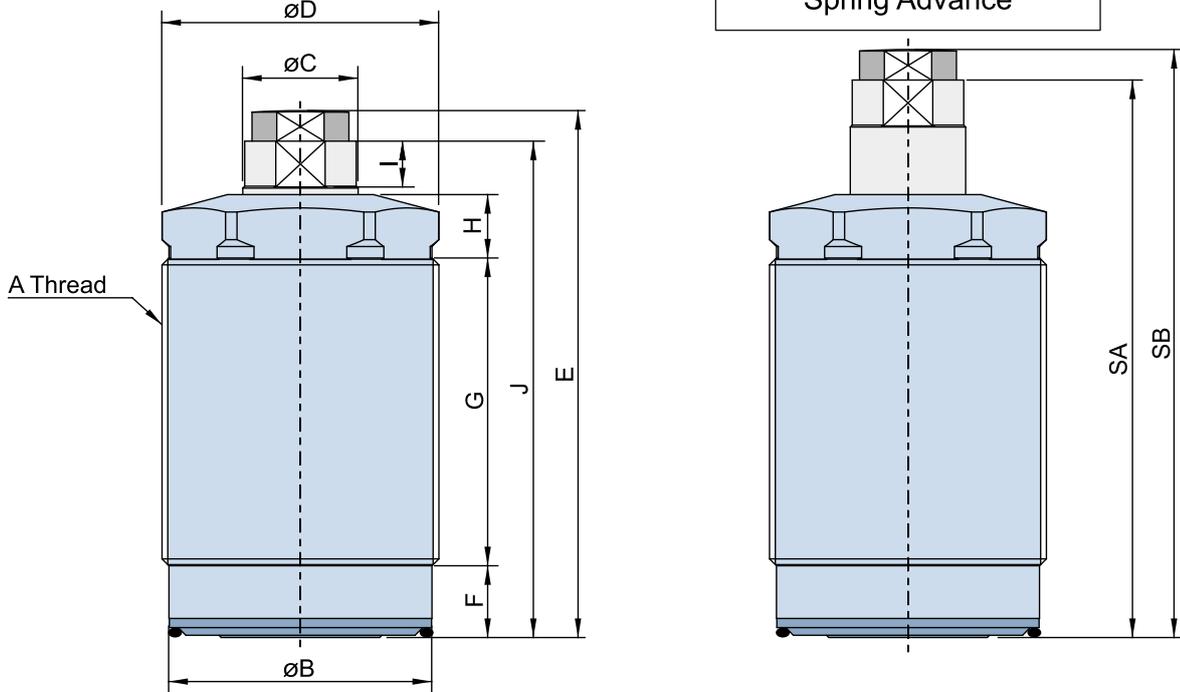
Hydraulic Advance



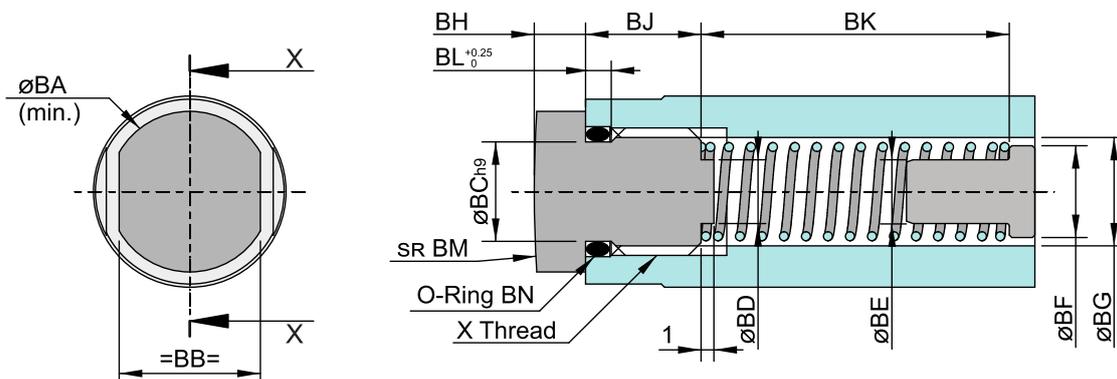
Mounting Details



Spring Advance



Head Cap & Lift Spring Design Dimensions



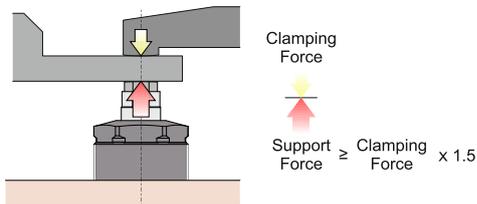
- This figure shows the position of plunger with no supply of hydraulic.

Model No.	WT030-F□	WT036-F□	WT045-F□
A Thread (Nominal X Pitch)	M30 X 1.5	M36 X 1.5	M45 X 1.5
ØB	28.2	34.2	43.2
ØC	12	15	16
ØD	30	36	45
E	73	69	82
F	9.4	9.4	9.4
G	42.3	40.3	49.35
H	10.3	8.3	12.25
I	6	6	6
J	69	65	78
K	10	13	13
L	27	32	41
SA	77	73	88
SB	81	77	92
AA Thread (Nominal X Pitch)	M30 X 1.5	M36 X 1.5	M45 X 1.5
ØAB	28.5	34.5	43.5
AC	17~32	18~48	21~58
AD	8	7	7.5
ØAE (Max.)	8	8	10
ØAF (Max.)	10	10	12
ØAG (Max.)	3	4	5
AH	20	26	29
Chamfer	1 X 45°	1 X 45°	1 X 45°
X (Nominal X Pitch X Depth)	M8 X 1.25 X 12	M10 X 1.5 X 11	M10 X 1.5 X 11
ØBA	10	12.5	12.5
BB	10	11	11
ØBC	6	7.8	7.8
ØBD	4.3	5	5
ØBE	4.3	5	5
ØBF	5.5	7.2	7.2
ØBG	6.8	8.5	8.5
BH	4	4	4
BJ	9	9	9
BK	23.2	24.1	32.5
BL	2	2	2
BM	50	50	50
BN (O-ring - I.D. X C/S)	5.5 X 1.5	8 X 1.5	8 X 1.5

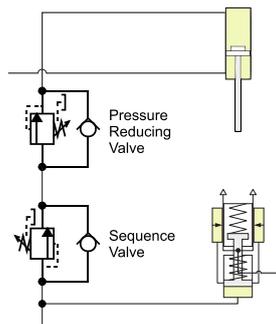
- Head Cap is included.
- Reference for designing head cap and lift spring as per your requirement other than the included ones.
- When designing own head cap and lift spring, maintain dimensions which are given above in table.
- Figure indicates that head cap is assembled in a such condition where no pressure is applied.


Cautions

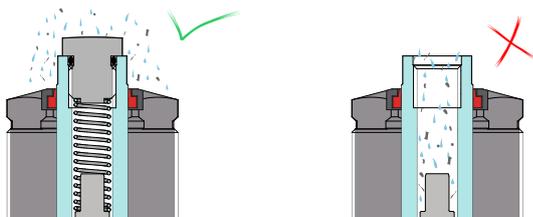
1. Check the usable fluid.
 - Use General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
 - Make sure the hydraulic fluid not deteriorated.
2. Hydraulic supply
 - Never exceed the given pressure limit.
 - If the flow rate is too high, excessive plunger speed can cause gap between work piece and plunger which may cause supporting fault. Always use flow control valve.
 - The supply flow must be controlled.
 - The minimum operating pressure must not be exceeded in order to have an assured clamping function. The highest clamping force is achieved at maximum operating pressure.
3. Appropriate actions before using cylinder
 - Work support and cylinder must be selected in such a way that the support force is 1.5 times clamping force plus machining force.



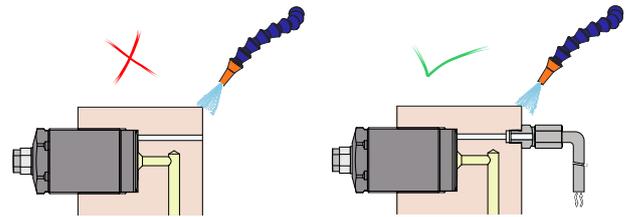
- Use pressure reducing valve to control pressure in clamping circuit.



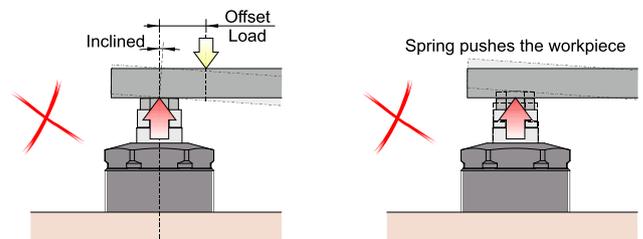
- Do not operate work support without head cap.



- The work support has air vent port for breathing. Confirm that it can breathe without being affected by cutting chips or coolant.



4. Clamping method
 - Never allow offset load and component of force affect the product.
 - If the work piece is light in weight, the lift spring in the plunger may push it upward. Determine the weight of the work piece or the lift spring force to ensure that the work piece is perfectly seated and the work support is actuated.



- When designing head cap, make sure that weight of head cap is 30% or less from the lift spring force.
5. Procedure before piping
 - The pipeline, piping connector and fixture circuits should be cleaned by thoroughly flushing.
 - The dust and cutting chips in the circuit may lead to fluid leakage and malfunction.
 - There is no filter provided with product, which prevents foreign materials and contaminants from getting into the circuit.
 - While applying the sealing tape ensure that no pieces of sealing tape enters into the circuit, it can lead to oil leakage and malfunctions.
 - Please implement piping constructions in a clean environment to prevent anything getting into the product.
 6. Do not touch clamp while it is working, otherwise it may cause injury due to clinging.
 7. Do not disassemble or modify the product.
 - If the product is modified, then malfunction occurs.
 8. Please contact us for overhaul and repair.

Hydraulic Double Acting Block Cylinder

Model BM

Rod Side Mounting

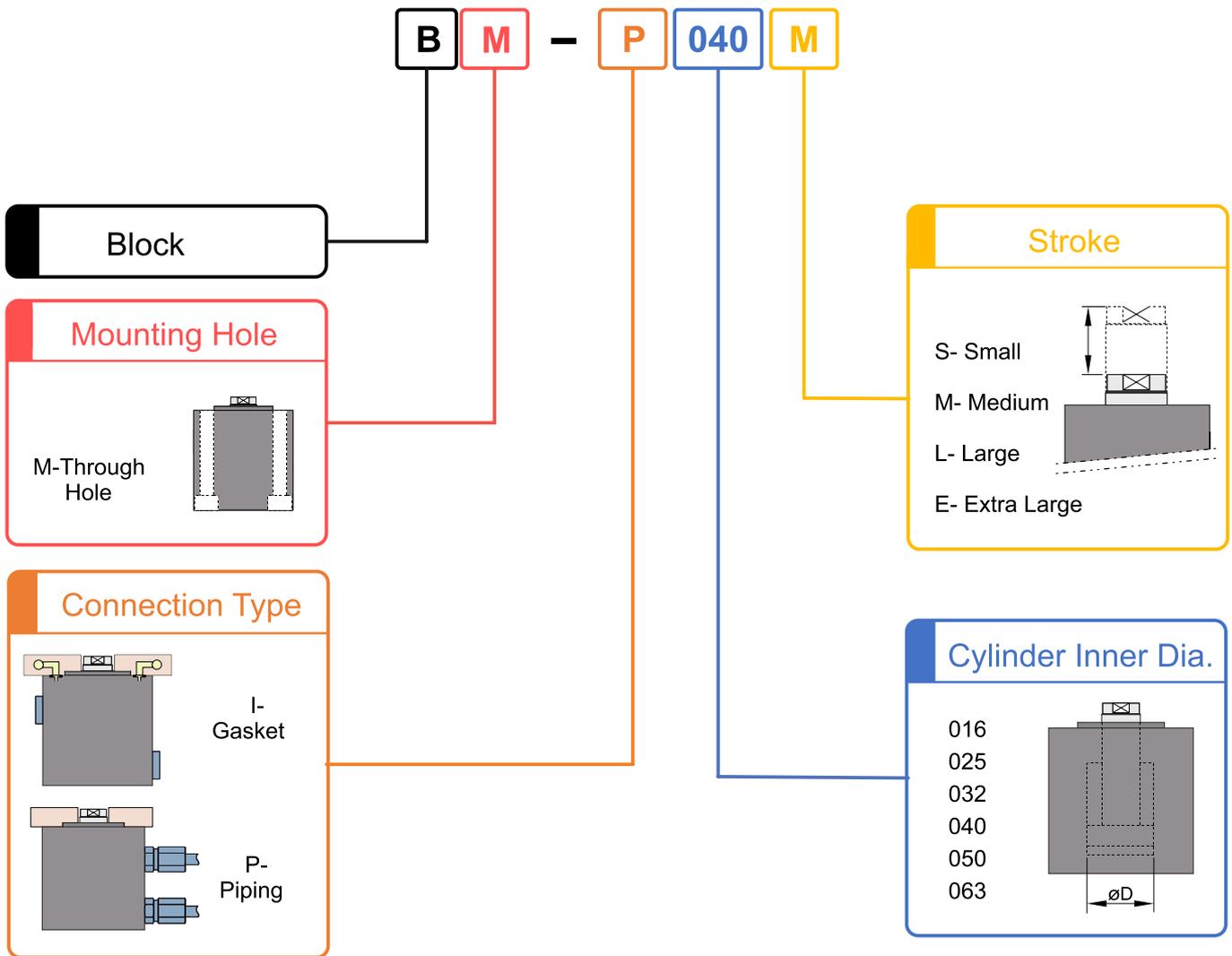


Specifications

Model No.		B□-□□016□	B□-□□025□	B□-□□032□	B□-□□040□	B□-□□050□	B□-□□063□	
Cylinder Inner Diameter	mm	16	25	32	40	50	63	
Rod Diameter	mm	10	16	20	25	32	40	
Cylinder Force	Push	kN	1.38	3.37	5.52	8.62	13.47	21.4
	Pull	kN	0.84	1.99	3.36	5.25	7.95	12.77
Effective area	Push	cm ²	2.01	4.9	8.04	12.56	19.63	31.17
	Pull	cm ²	1.22	2.89	4.9	7.65	11.59	18.6
Small Stroke (Code-S)		B□-□□016S	B□-□□025S	B□-□□032S	B□-□□040S	B□-□□050S	B□-□□063S	
Full Stroke	mm	16	16	16	25	25	25	
Cylinder Capacity	Push	cm ³	3.21	7.85	12.86	31.41	49.08	77.93
	Pull	cm ³	1.96	4.63	7.84	19.14	28.98	46.51
Mass	Kg	0.9	1.2	1.9	2.8	4.5	7.5	
Medium Stroke (Code-M)		B□-□□016M	B□-□□025M	B□-□□032M	B□-□□040M	B□-□□050M	B□-□□063M	
Full Stroke	mm	25	25	25	50	50	50	
Cylinder Capacity	Push	cm ³	5.02	12.27	20.1	62.83	98.17	155.86
	Pull	cm ³	3.06	7.24	12.25	38.28	57.96	93.03
Mass	Kg	1	1.4	2.1	3.7	5.6	9.3	
Large Stroke (Code-L)		B□-□□016L	B□-□□025L	B□-□□032L	B□-□□040L	B□-□□050L	B□-□□063L	
Full Stroke	mm	32	32	32	75	75	75	
Cylinder Capacity	Push	cm ³	6.43	15.7	25.73	94.24	147.26	233.79
	Pull	cm ³	3.92	9.27	15.68	57.43	86.94	139.54
Mass	Kg	1.1	1.5	2.3	4.5	6.8	11	
Extra Large Stroke (Code-E)		B□-□□016E	B□-□□025E	B□-□□032E	B□-□□040E	B□-□□050E	B□-□□063E	
Full Stroke	mm	50	50	50	100	100	100	
Cylinder Capacity	Push	cm ³	10.05	24.54	40.21	125.66	196.34	311.72
	Pull	cm ³	6.12	14.49	24.5	76.57	115.92	186.06
Mass	Kg	1.4	1.9	2.7	5.3	8	12.8	

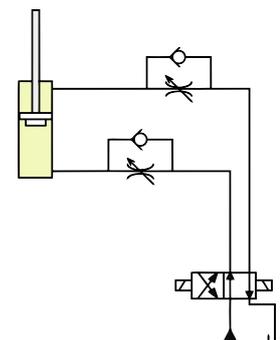
- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

Model No. Selection

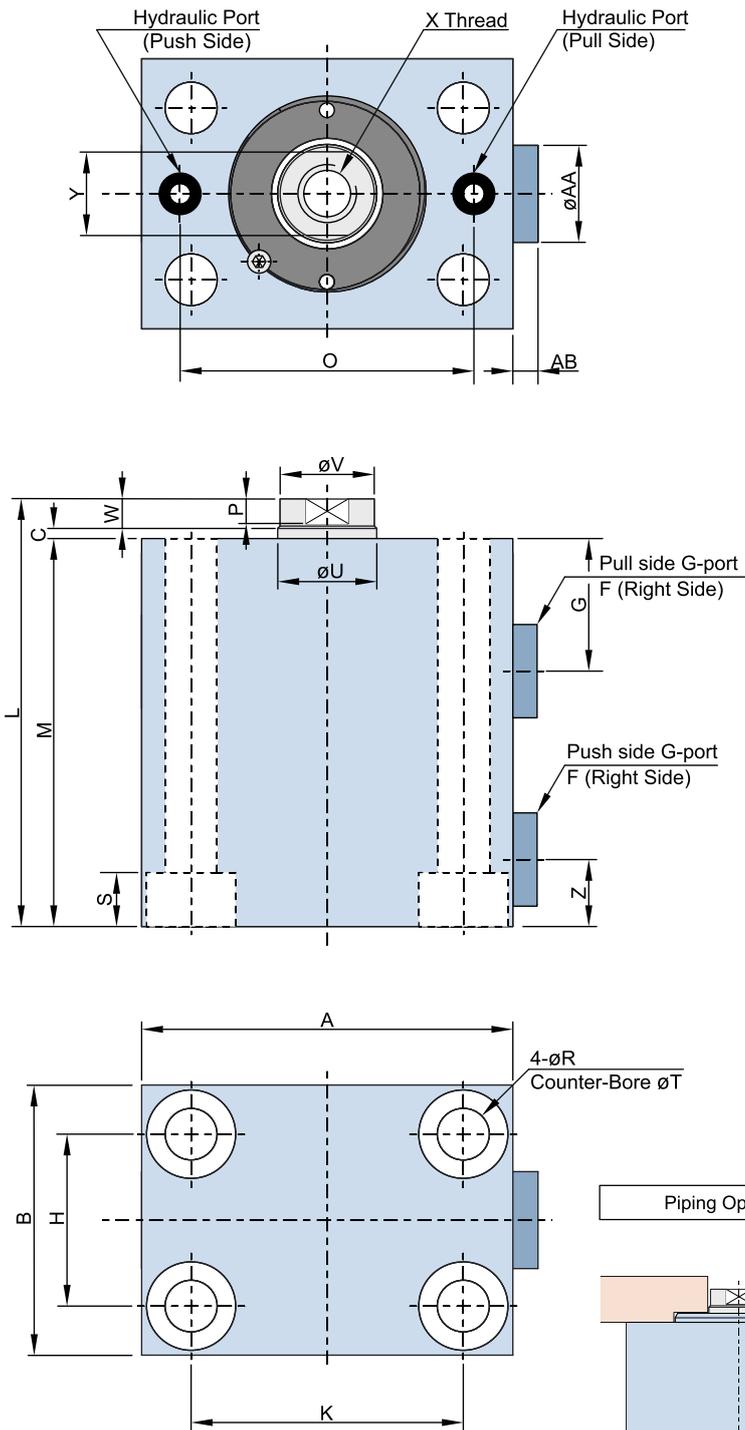


Hydraulic Circuit Diagram

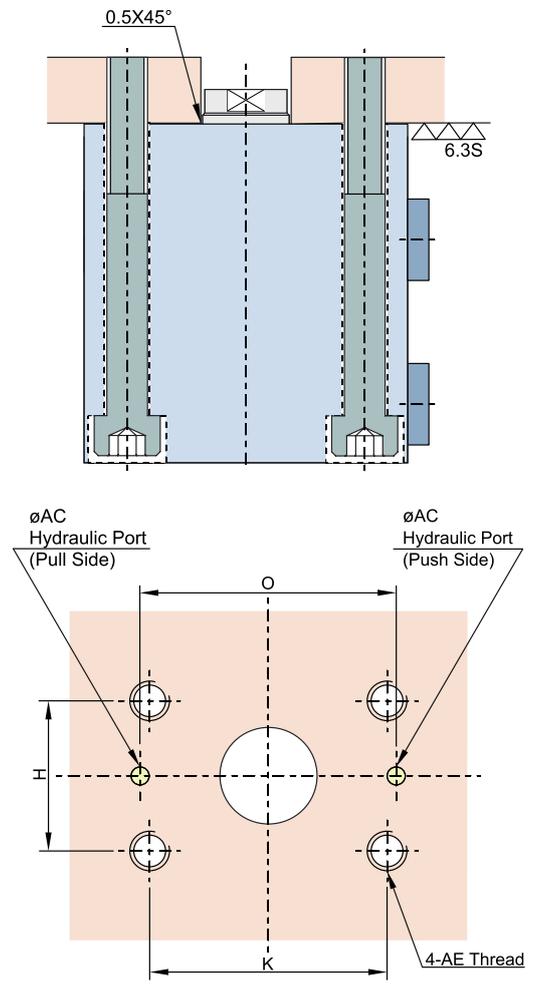
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.



External Dimensions

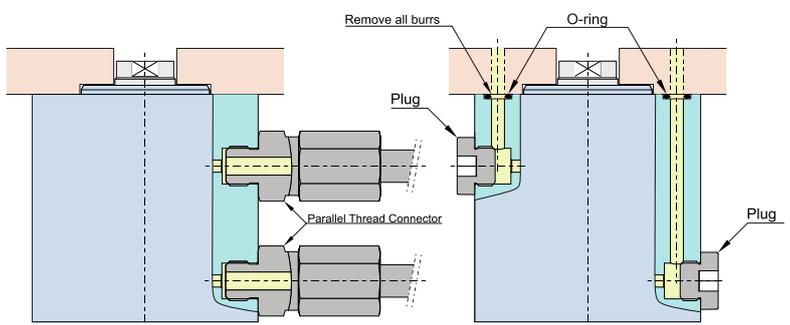


Mounting Details



Piping Option

Gasket Option



- figure shows the retracted position of cylinder.
- For gasket option (B□-I□□), gasket holes will be provided. Pull side G-port is on left side of cylinder and push side G-port is on right side of the cylinder. (Pull side G-port of right side will not be provided.) For more details,
- In a piping option (B□-P□□), gasket holes will not be provided. Pull side G-port and push side G-port, both are on right side of the cylinder. (Pull side G-port of left side will not be provided.) For more details,

Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□
A	60	65	75	85	100	125
B	35	45	55	63	75	95
C	2	2	4	4	4	5
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8
G	22	22.5	27	29	35	35
I	9	12	15	15	18	24
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2
H	22	30	35	40	45	65
K	40	50	55	63	76	95
O	44	52	59	69	80	99
P	3	4	5	5	5	8
ØR	6.8	9	11	11	14	17.5
S	4	9	11	11	13	17
ØT	11	14	18	18	19	25
ØU	10	16	20	25	32	40
ØV	9.2	15	19	24	30.5	38.7
W	4	5	6	6	6	9
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40
Y	8	13	17	22	27	36
Z	13	14	14	14	15	19
ØAA	19	19	19	19	19	22
AB	5	5	5	5	5	5
Stroke Code-S (Small)						
Stroke	16	16	16	25	25	25
L	68	70.5	80	91	101	111
M	62	63.5	70	81	91	97
Stroke Code-M (Medium)						
Stroke	25	25	25	50	50	50
L	77	79.5	89	116	126	136
M	71	72.5	79	106	116	122
Stroke Code-L (Large)						
Stroke	32	32	32	75	75	75
L	84	86.5	96	141	151	161
M	78	79.5	86	131	141	147
Stroke Code-E (Extra Large)						
Stroke	50	50	50	100	100	100
L	102	104.5	114	166	176	186
M	96	97.5	104	156	166	172
ØAC	3	4	4	4	5	5
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- When choosing gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.

Hydraulic Double Acting
Block Cylinder

Model BK

Bottom Side Mounting



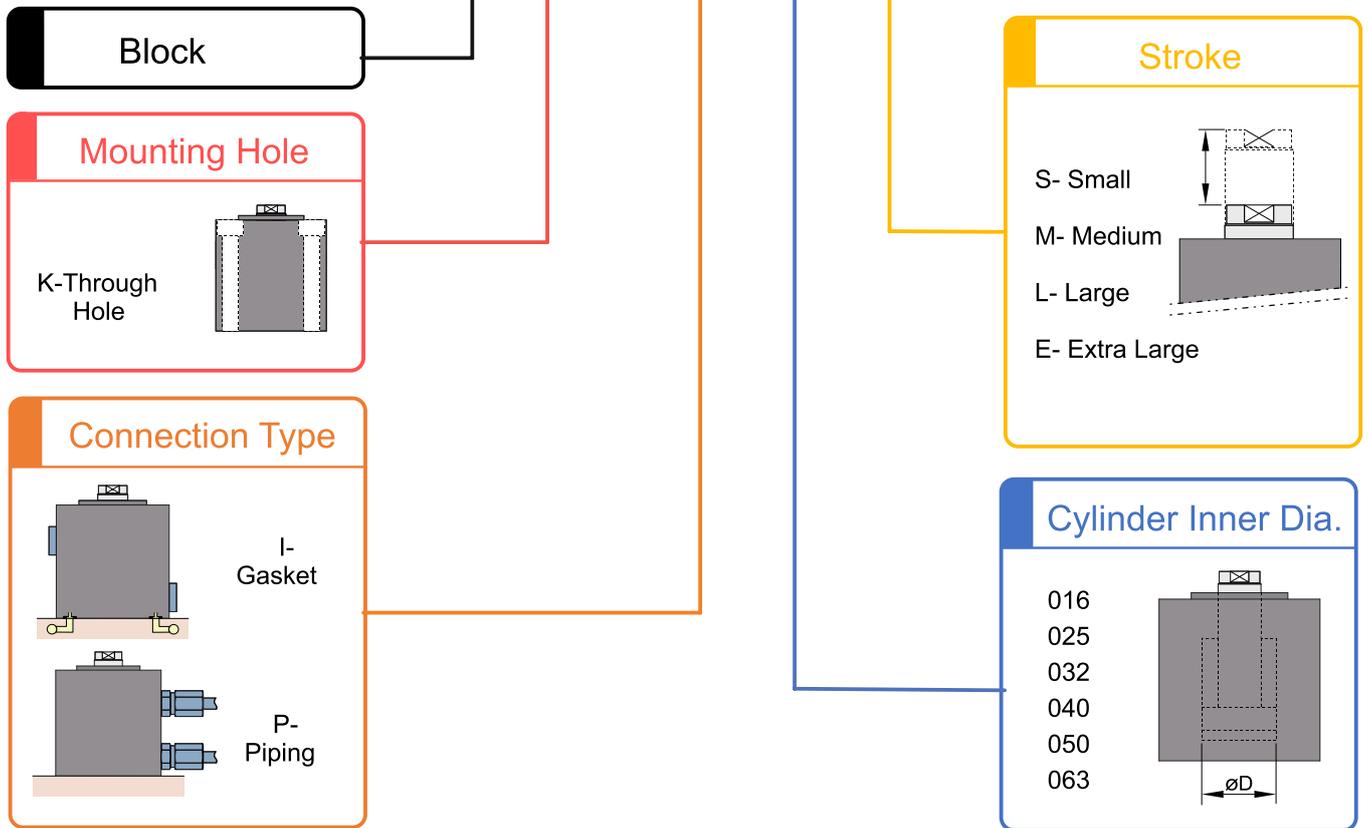
Specifications

Model No.		B□-□□016□	B□-□□025□	B□-□□032□	B□-□□040□	B□-□□050□	B□-□□063□	
Cylinder Inner Diameter	mm	16	25	32	40	50	63	
Rod Diameter	mm	10	16	20	25	32	40	
Cylinder Force	Push	1.38	3.37	5.52	8.62	13.47	21.4	34.50
	Pull	0.84	1.99	3.36	5.25	7.95	12.77	21.02
Effective area	Push	2.01	4.9	8.04	12.56	19.63	31.17	50.26
	Pull	1.22	2.89	4.9	7.65	11.59	18.6	30.63
Small Stroke (Code-S)		B□-□□016S	B□-□□025S	B□-□□032S	B□-□□040S	B□-□□050S	B□-□□063S	
Full Stroke	mm	16	16	16	25	25	25	
Cylinder Capacity	Push	cm ³	3.21	7.85	12.86	31.41	49.08	77.93
	Pull	cm ³	1.96	4.63	7.84	19.14	28.98	46.51
Mass	Kg	0.9	1.2	1.9	2.8	4.5	7.5	
Medium Stroke (Code-M)		B□-□□016M	B□-□□025M	B□-□□032M	B□-□□040M	B□-□□050M	B□-□□063M	
Full Stroke	mm	25	25	25	50	50	50	
Cylinder Capacity	Push	cm ³	5.02	12.27	20.1	62.83	98.17	155.86
	Pull	cm ³	3.06	7.24	12.25	38.28	57.96	93.03
Mass	Kg	1	1.4	2.1	3.7	5.6	9.3	
Large Stroke (Code-L)		B□-□□016L	B□-□□025L	B□-□□032L	B□-□□040L	B□-□□050L	B□-□□063L	
Full Stroke	mm	32	32	32	75	75	75	
Cylinder Capacity	Push	cm ³	6.43	15.7	25.73	147.26	233.79	
	Pull	cm ³	3.92	9.27	15.68	57.43	86.94	139.54
Mass	Kg	1.1	1.5	2.3	4.5	6.8	11	
Extra Large Stroke (Code-E)		B□-□□016E	B□-□□025E	B□-□□032E	B□-□□040E	B□-□□050E	B□-□□063E	
Full Stroke	mm	50	50	50	100	100	100	
Cylinder Capacity	Push	cm ³	10.05	24.54	40.21	125.66	196.34	311.72
	Pull	cm ³	6.12	14.49	24.5	76.57	115.92	186.06
Mass	Kg	1.4	1.9	2.7	5.3	8	12.8	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

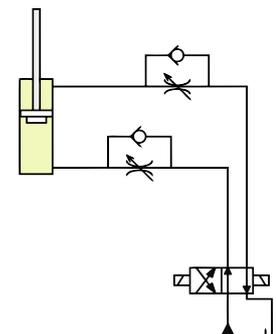
Model No. Selection

B **K** - **P** **040** **M**



Hydraulic Circuit Diagram

For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.



Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□
A	60	65	75	85	100	125
B	35	45	55	63	75	95
C	2	2	4	4	4	5
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8
G	22	22.5	27	29	35	35
I	9	12	15	15	18	24
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2
H	22	30	35	40	45	65
K	40	50	55	63	76	95
O	44	52	59	69	80	99
P	3	4	5	5	5	8
ØR	6.8	9	11	11	14	17.5
S	7	9	11	11	13	17
ØT	11	14	18	18	19	25
ØU	10	16	20	25	32	40
ØV	9.2	15	19	24	30.5	38.7
W	4	5	6	6	6	9
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40
Y	8	13	17	22	27	36
Z	13	14	14	14	15	19
ØAA	19	19	19	19	19	22
AB	5	5	5	5	5	5
Stroke Code-S (Small)						
Stroke	16	16	16	25	25	25
L	68	70.5	80	91	101	111
M	62	63.5	70	81	91	97
Stroke Code-M (Medium)						
Stroke	25	25	25	50	50	50
L	77	79.5	89	116	126	136
M	71	72.5	79	106	116	122
Stroke Code-L (Large)						
Stroke	32	32	32	75	75	75
L	84	86.5	96	141	151	161
M	78	79.5	86	131	141	147
Stroke Code-E (Extra Large)						
Stroke	50	50	50	100	100	100
L	102	104.5	114	166	176	186
M	96	97.5	104	156	166	172
ØAC	3	4	4	4	5	5
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2

- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- When choosing gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.

Hydraulic Double Acting Block Cylinder

Model BR

Broad Side Mounting

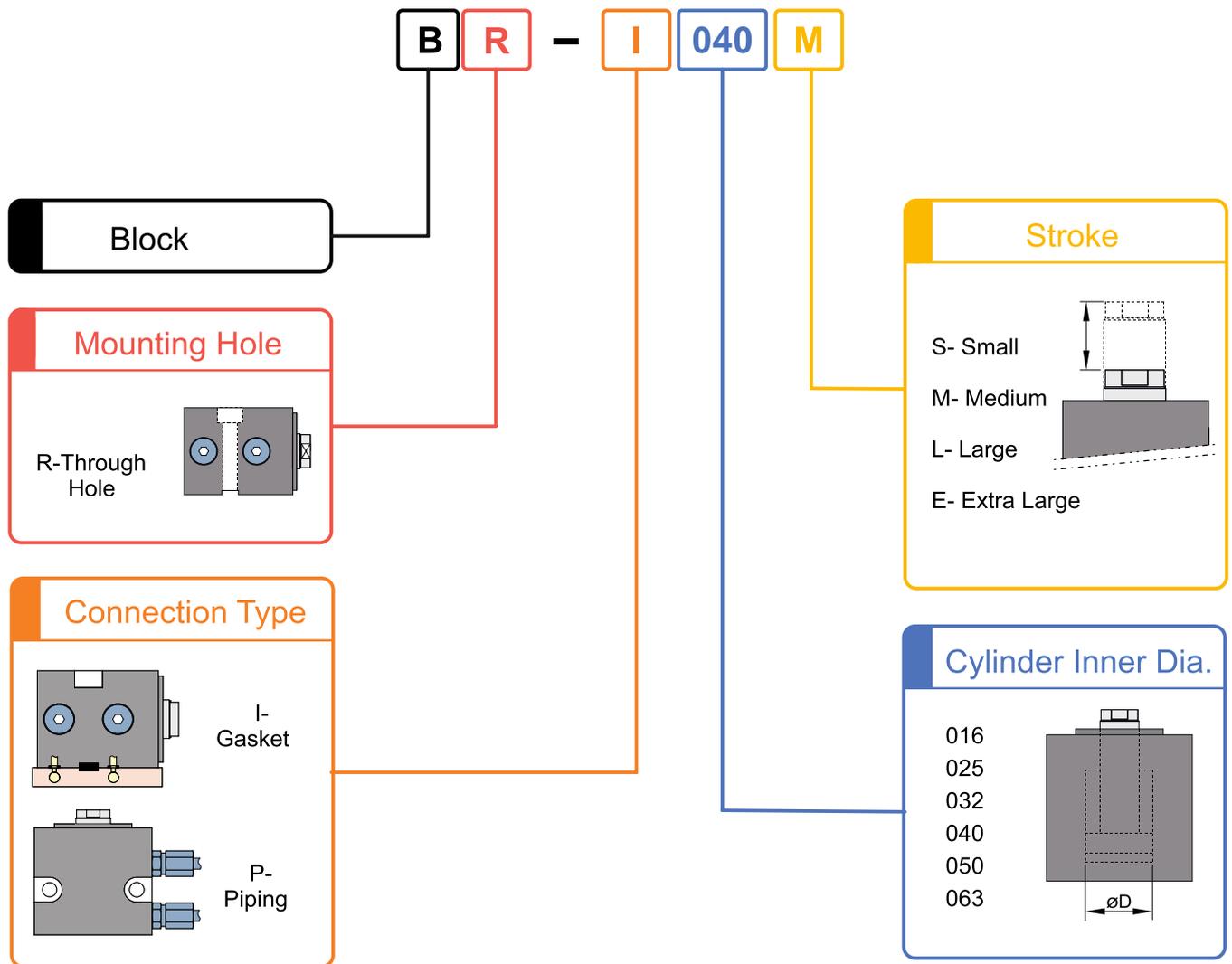


Specifications

Model No.		B□-□□016□	B□-□□025□	B□-□□032□	B□-□□040□	B□-□□050□	B□-□□063□
Cylinder Inner Diameter	mm	16	25	32	40	50	63
Rod Diameter	mm	10	16	20	25	32	40
Cylinder Force	Push	1.38	3.37	5.52	8.62	13.47	21.4
	Pull	0.84	1.99	3.36	5.25	7.95	12.77
Effective area	Push	2.01	4.9	8.04	12.56	19.63	31.17
	Pull	1.22	2.89	4.9	7.65	11.59	18.6
Small Stroke (Code-S)		B□-□□016S	B□-□□025S	B□-□□032S	B□-□□040S	B□-□□050S	B□-□□063S
Full Stroke	mm	16	16	16	25	25	25
Cylinder Capacity	Push	cm ³	3.21	7.85	12.86	31.41	49.08
	Pull	cm ³	1.96	4.63	7.84	19.14	28.98
Mass	Kg	0.9	1.2	1.9	2.8	4.5	7.5
Medium Stroke (Code-M)		B□-□□016M	B□-□□025M	B□-□□032M	B□-□□040M	B□-□□050M	B□-□□063M
Full Stroke	mm	25	25	25	50	50	50
Cylinder Capacity	Push	cm ³	5.02	12.27	20.1	62.83	98.17
	Pull	cm ³	3.06	7.24	12.25	38.28	57.96
Mass	Kg	1	1.4	2.1	3.7	5.6	9.3
Large Stroke (Code-L)		B□-□□016L	B□-□□025L	B□-□□032L	B□-□□040L	B□-□□050L	B□-□□063L
Full Stroke	mm	32	32	32	75	75	75
Cylinder Capacity	Push	cm ³	6.43	15.7	25.73	94.24	147.26
	Pull	cm ³	3.92	9.27	15.68	57.43	86.94
Mass	Kg	1.1	1.5	2.3	4.5	6.8	11
Extra Large Stroke (Code-E)		B□-□□016E	B□-□□025E	B□-□□032E	B□-□□040E	B□-□□050E	B□-□□063E
Full Stroke	mm	50	50	50	100	100	100
Cylinder Capacity	Push	cm ³	10.05	24.54	40.21	125.66	196.34
	Pull	cm ³	6.12	14.49	24.5	76.57	115.92
Mass	Kg	1.4	1.9	2.7	5.3	8	12.8

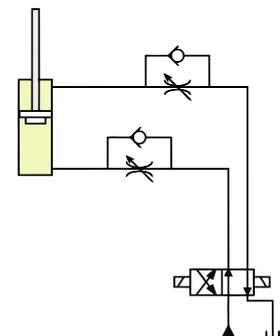
- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

Model No. Selection

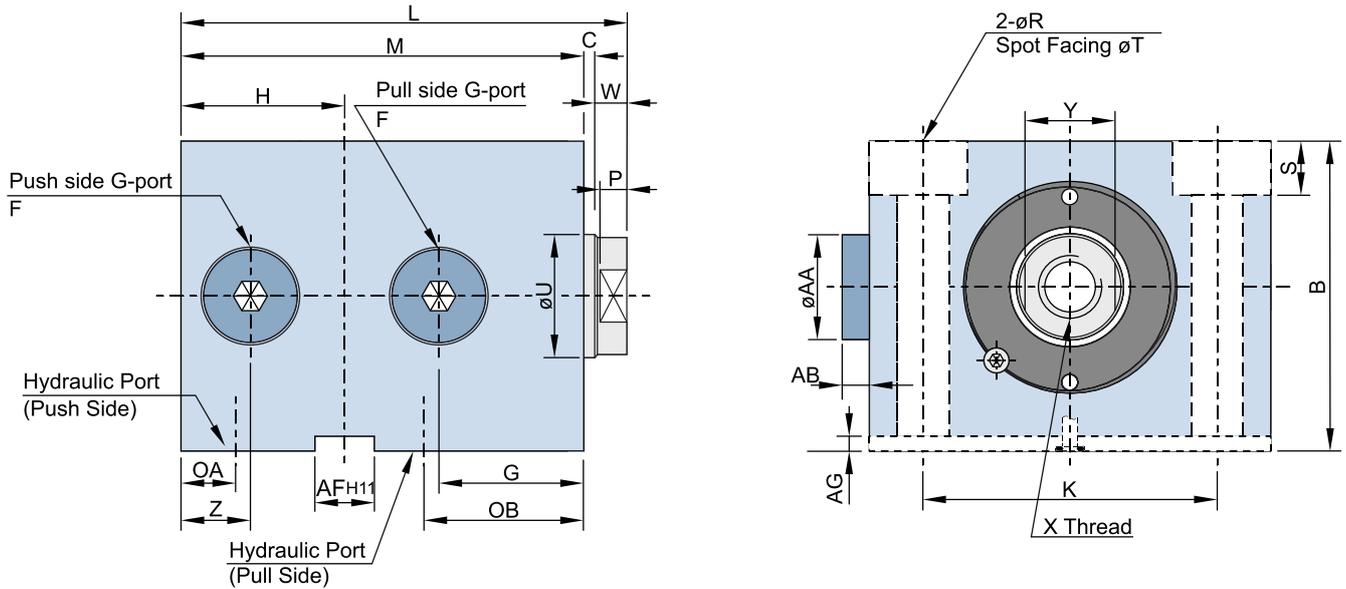


Hydraulic Circuit Diagram

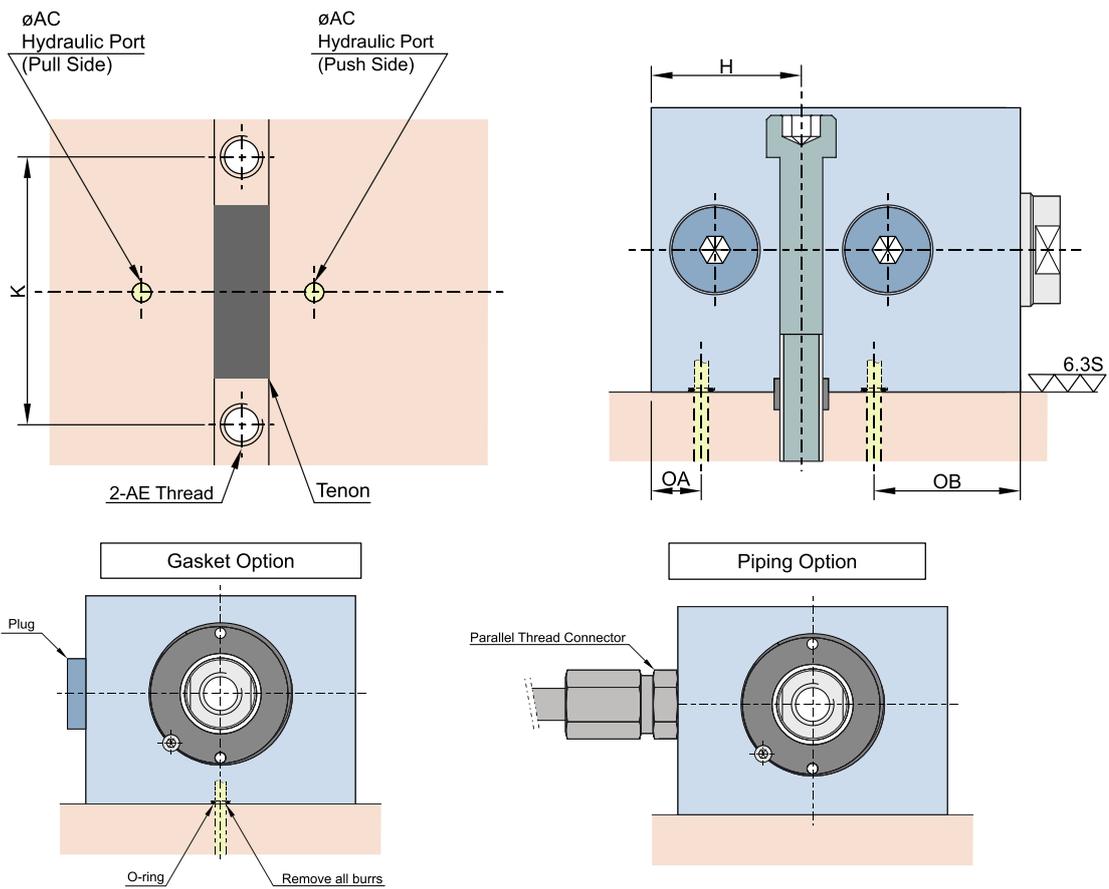
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.



External Dimensions



Mounting Details



- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimensions.
- The piston rod has female thread. No contact bolt is included. Prepare them according to the dimensions and application.
- G-thread plug is included and O-ring is provided at gasket option holes.
- For piping option, gasket holes will not be provided.
- In a gasket option, piping option holes will be provided for flow control valve. A flow control valve is mountable on G-ports of the cylinder.
- Remove plugs for piping in gasket option (O-ring must be used in gasket option holes.)

Model No.	B□-□016□	B□-□025□	B□-□032□	B□-□040□	B□-□050□	B□-□063□
A	60	65	75	85	100	125
B	35	45	55	63	75	95
C	2	2	4	4	4	5
F	G1/4	G1/4	G1/4	G1/4	G1/4	G3/8
G	22	22.5	27	29	35	35
I	9	12	15	15	18	24
J (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2
K	40	50	55	63	76	95
OA	10	10.5	11	11	12	15
OB	25	26	30	32	38	39
P	3	4	5	5	5	8
ØR	6.8	9	11	11	14	17.5
S	7	9	11	11	13	17
ØT	11	14	18	18	19	25
ØU	10	16	20	25	32	40
ØV	9.2	15	19	24	30.5	38.7
W	4	5	6	6	6	9
X (Nominal X Pitch X Depth)	M6X1X10	M10X1.5X15	M12X1.75X15	M16X2X25	M20X2.5X30	M27X2.5X40
Y	8	13	17	22	27	36
Z	13	14	14	14	15	19
ØAA	19	19	19	19	19	22
AB	5	5	5	5	5	5
AF	8	10	12	12	15	20
AG	2	2	3	3	5	5
ØAC	3	4	4	4	5	5
AE (Nominal X Pitch)	M6X1	M8X1.25	M10X1.5	M10X1.5	M12X1.75	M16X2

Stroke Code-S (Small)						
Stroke	16	16	16	25	25	25
L	68	70.5	80	91	101	111
M	62	63.5	70	81	91	97
H	26.5	27.5	28.5	33	35.5	40.5
Stroke Code-M (Medium)						
Stroke	25	25	25	50	50	50
L	77	79.5	89	116	126	136
M	71	72.5	79	106	116	122
H	31	32	33	45.5	48	53
Stroke Code-L (Large)						
Stroke	32	32	32	75	75	75
L	84	86.5	96	141	151	161
M	78	79.5	86	131	141	147
H	34.5	35.5	36.5	58	60.5	65.5
Stroke Code-E (Extra Large)						
Stroke	50	50	50	100	100	100
L	102	104.5	114	166	176	186
M	96	97.5	104	156	166	172
H	43.5	44.5	45.5	70.5	73	78

Hydraulic Double Acting Push-Pull Cylinder Model PH

Top Flange

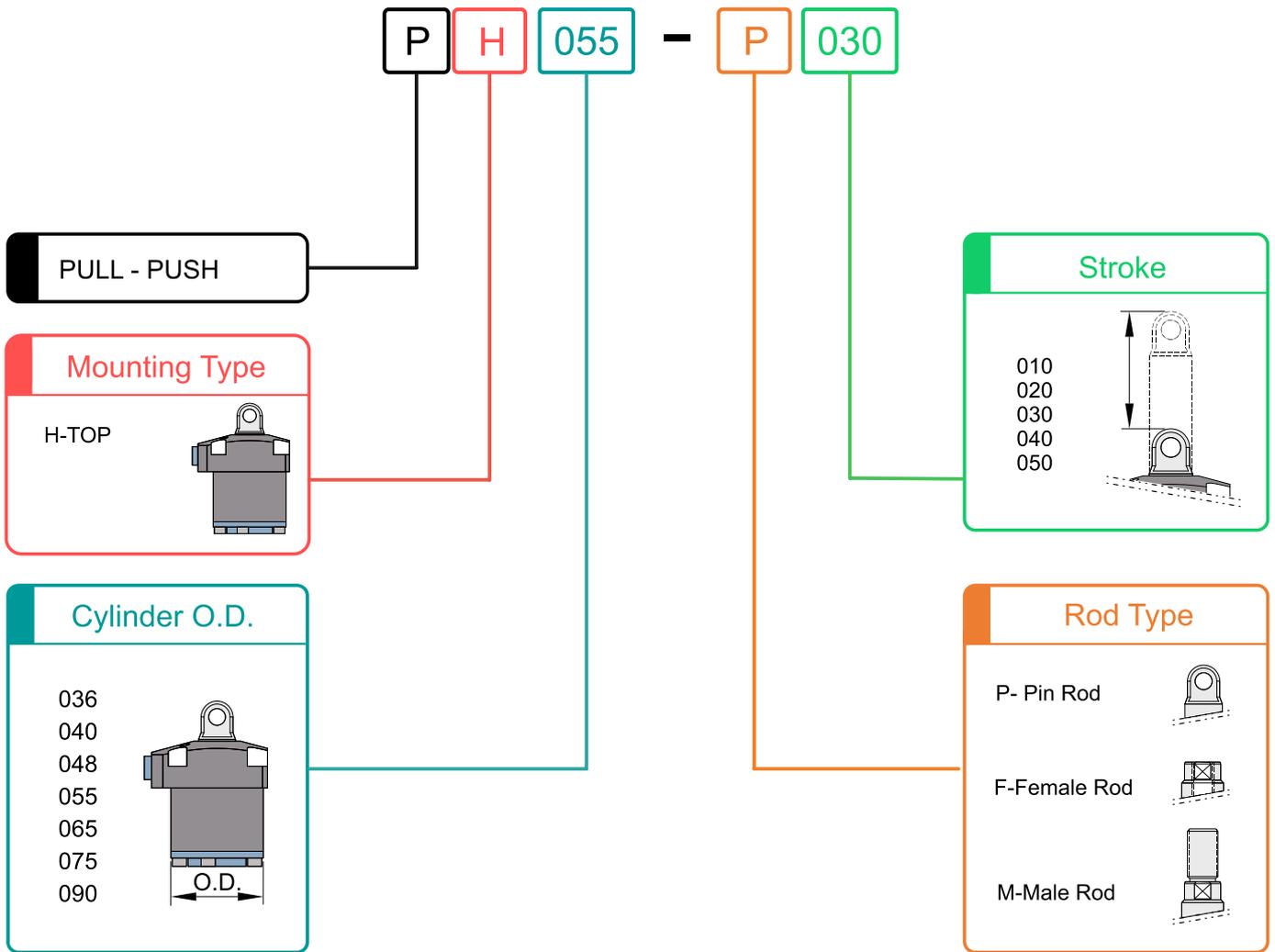


Specifications

Model No.		PH036-□□	PH040-□□	PH048-□□	PH055-□□	PH065-□□	PH075-□□	PH090-□□	
Cylinder Inner Diameter	mm	24	25	32	35	45	55	65	
Rod Diameter	mm	16	18	20	22	25	30	35	
Cylinder Force	Push	kN	3.10	3.37	5.52	6.60	10.91	16.30	22.77
	Pull	kN	1.72	1.62	3.36	3.99	7.54	11.45	16.17
Effective area	Push	cm ²	4.52	4.90	8.04	9.62	15.90	23.75	33.18
	Pull	cm ²	2.51	2.36	4.90	5.81	10.99	16.68	23.56
Cylinder Capacity	Push	cm ³	strokeX0.45	strokeX0.49	strokeX0.80	strokeX0.96	strokeX1.59	strokeX2.37	strokeX3.31
	Pull	cm ³	strokeX0.25	strokeX0.23	strokeX0.49	strokeX0.58	strokeX1.09	strokeX1.66	strokeX2.35
Mass	Kg	0.5~0.9	0.7~1.1	0.9~1.6	1.2~2.5	1.8~3.3	2.5~4.5	4.0~7.0	

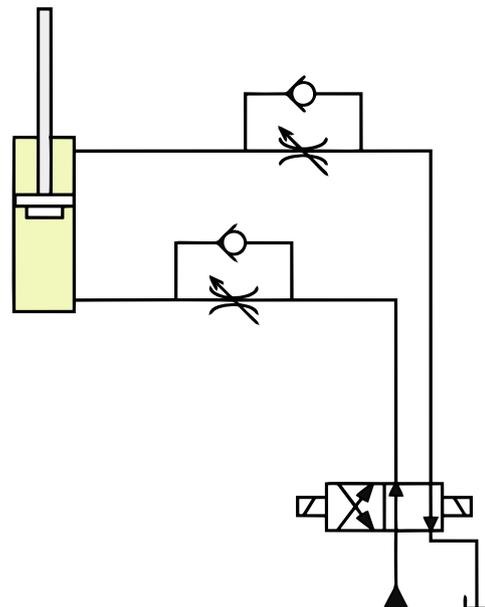
- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

Model No. Selection

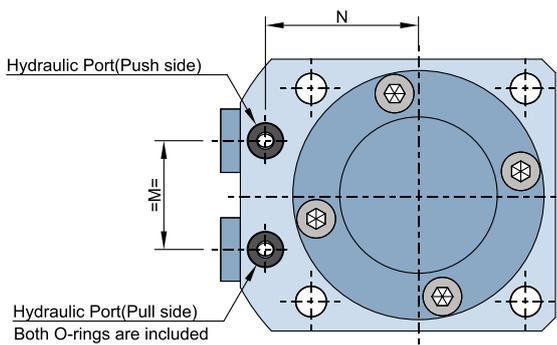
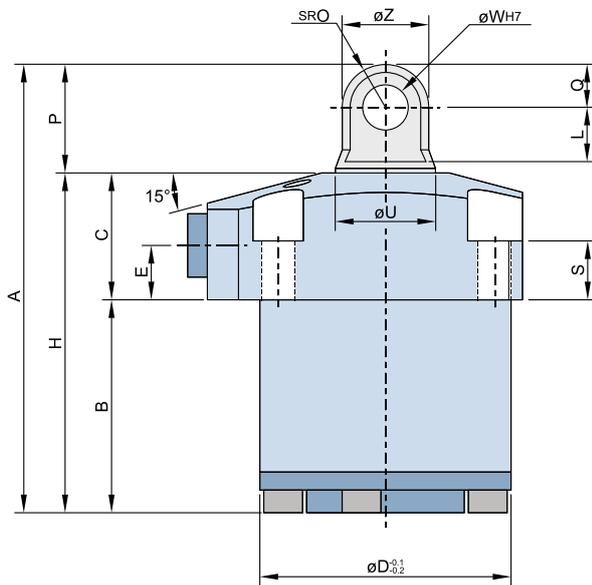
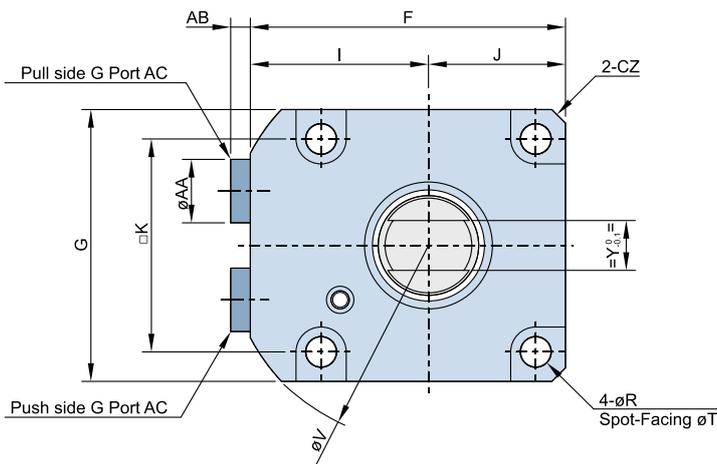


Hydraulic Circuit Diagram

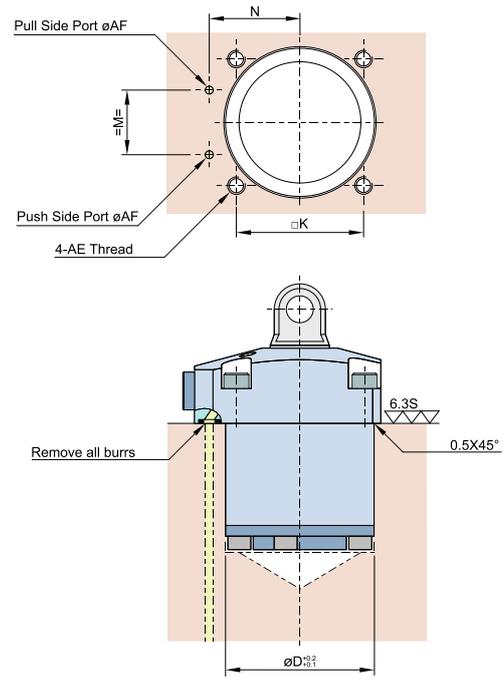
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.



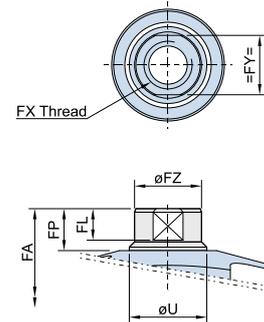
External Dimensions



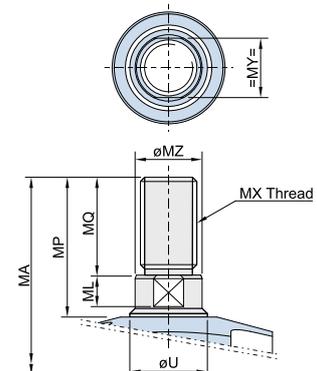
Mounting Details



PH-F: Female Thread Option



PH-M: Male Thread Option



- This figure shows the retracted position of cylinder.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder.
- The depth of the body mounting hole $\varnothing D$ should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.

Model No.	PH036-P□	PH040-P□	PH048-P□	PH055-P□	PH065-P□	PH075-P□	PH090-P□
A	Stroke+53	Stroke+61	Stroke+65	Stroke+69	Stroke+78	Stroke+87	Stroke+100
B	Stroke+13	Stroke+17	Stroke+16	Stroke+17	Stroke+20	Stroke+17	Stroke+23
C	25	25	28	28	30	37	40
D	36	40	48	55	65	75	90
E	11	11	12	12	13	16	16
F	49	54	61	69	81	92	107
G	40	45	51	60	70	80	95
I	29	31.5	35.5	39	46	52	59.5
J	20	22.5	25.5	30	35	40	47.5
H	Stroke+38	Stroke+42	Stroke+44	Stroke+45	Stroke+50	Stroke+54	Stroke+63
K	31.4	34	40	47	55	63	75
M	16	18	22	24	30	32	37
N	23.5	26	30	33.5	39.5	45	52.5
O	6	8	9	10	12	14	16
P	15	19	21	24	28	33	37
Q	6	8	9	10	12	14	16
L	7.5	9.5	10.5	12	14	17	19
ØR	4.5	5.5	5.5	6.8	6.8	9	11
S	16	14	15.5	13	15.5	17.5	16.5
ØT	7.5	9.5	9.5	11	11	14	17.5
ØU	16	18	20	22	25	30	35
ØV	66	73	83	88	106	116	136
W	6	8	8	10	12	14	16
Y	6	8	10	11	13	16	19
ØZ	12	15	17	19	22	27	32
ØAA	14	14	14	14	19	19	22
AB	5	5	5	5	5	5	5
AC	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
CZ	2	3	3	3	4	5	6
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5
ØAF	2.5	3	3	3	3	4	4

Model No.	PH036-F□	PH040-F□	PH048-F□	PH055-F□	PH065-F□	PH075-F□	PH090-F□
FA	Stroke+47	Stroke+52	Stroke+55	Stroke+57	Stroke+63	Stroke+69	Stroke+79
FP	9	10	11	12	13	15	16
ØFZ	14	15	17	19	22	27	33
FY	12	13	14	17	19	24	30
FL	7.5	7.5	8.5	9	10	12	13
FX (Nominal X Pitch)	M6X1X12	M8X1.25X16	M8X1.25X16	M10X1.5X20	M12X1.75X24	M16X2X32	M20X2.5X40

Model No.	PH036-M□	PH040-M□	PH048-M□	PH055-M□	PH065-M□	PH075-M□	PH090-M□
MA	Stroke+63	Stroke+72	Stroke+79	Stroke+85	Stroke+95	Stroke+104	Stroke+125
MP	25	30	35	40	45	50	62
ØMZ	14	17	19	21	24	29	34.5
MY	12	14	17	17	19	24	30
ML	7.5	7.5	8.5	9	10	12	13
MX (Nominal X Pitch)	M10X1.25	M12X1.25	M14X1.5	M16X1.5	M20X1.5	M24X1.5	M30X1.5
MQ	16	20	24	28	32	35	46

Hydraulic Double Acting Push-Pull Cylinder

Model PJ

Bottom Flange

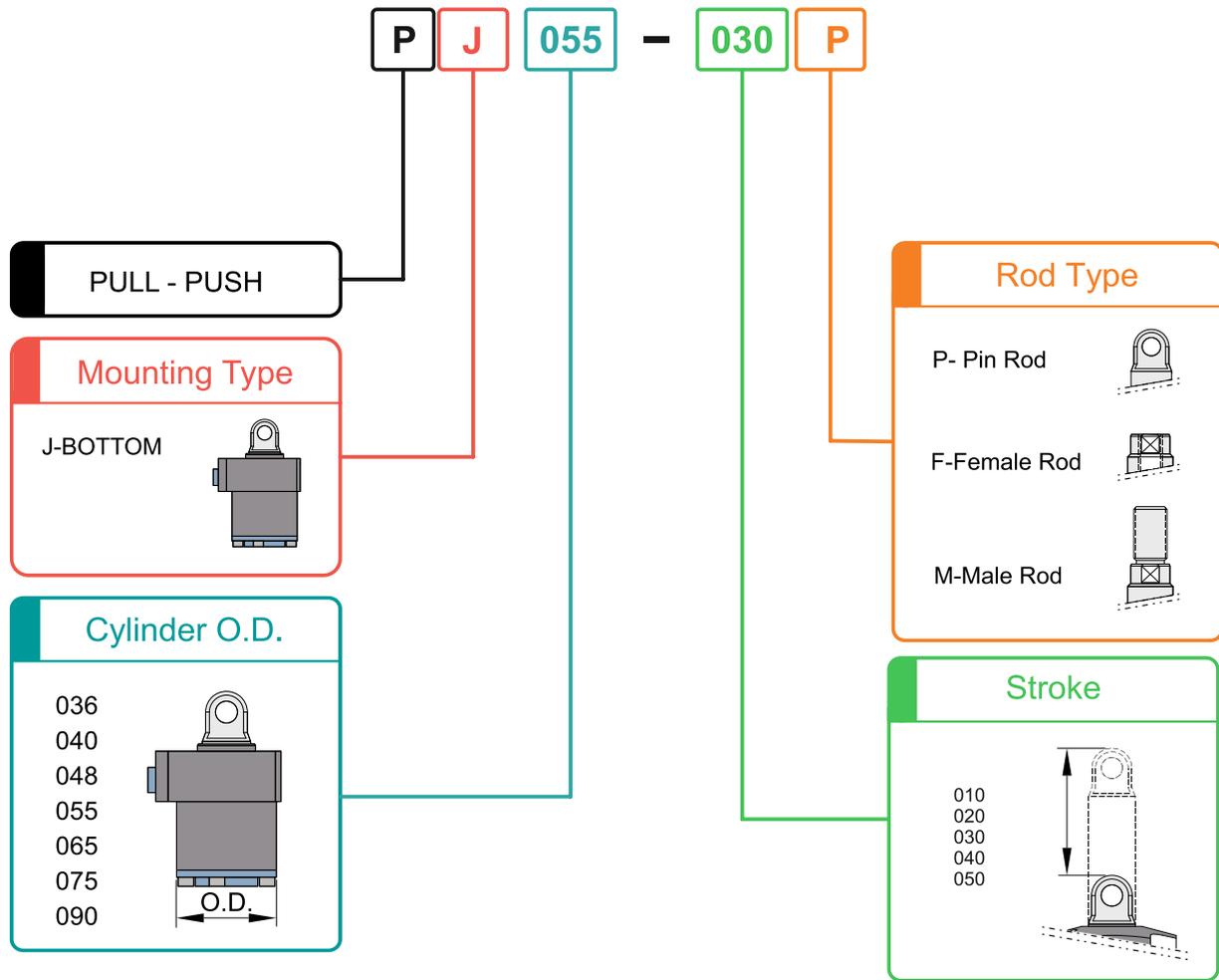


Specifications

Model No.		PJ036-□□□□	PJ040-□□□□	PJ048-□□□□	PJ055-□□□□	PJ065-□□□□	PJ075-□□□□	PJ090-□□□□	
Cylinder Inner Diameter	mm	24	25	32	35	45	55	65	
Rod Diameter	mm	16	18	20	22	25	30	35	
Cylinder Force	Push	kN	3.10	3.37	5.52	6.60	10.91	16.30	22.77
	Pull	kN	1.72	1.62	3.36	3.99	7.54	11.45	16.17
Effective area	Push	cm ²	4.52	4.90	8.04	9.62	15.90	23.75	33.18
	Pull	cm ²	2.51	2.36	4.90	5.81	10.99	16.68	23.56
Cylinder Capacity	Push	cm ³	strokeX0.45	strokeX0.49	strokeX0.80	strokeX0.96	strokeX1.59	strokeX2.37	strokeX3.31
	Pull	cm ³	strokeX0.25	strokeX0.23	strokeX0.49	strokeX0.58	strokeX1.09	strokeX1.66	strokeX2.35
Mass	Kg	0.5~0.9	0.7~1.1	0.9~1.6	1.2~2.5	1.8~3.3	2.5~4.5	4.0~7.0	

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

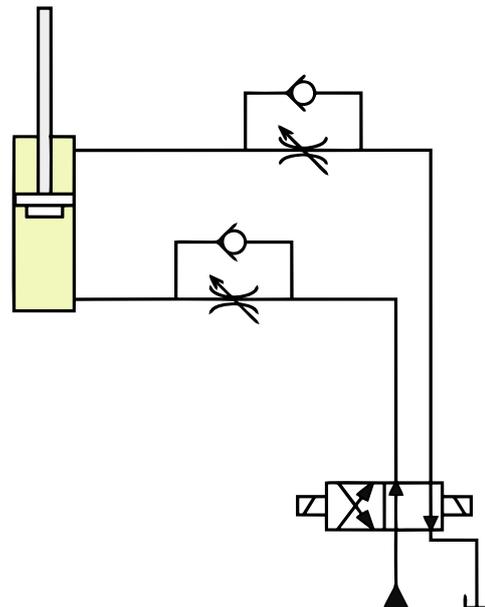
Model No. Selection

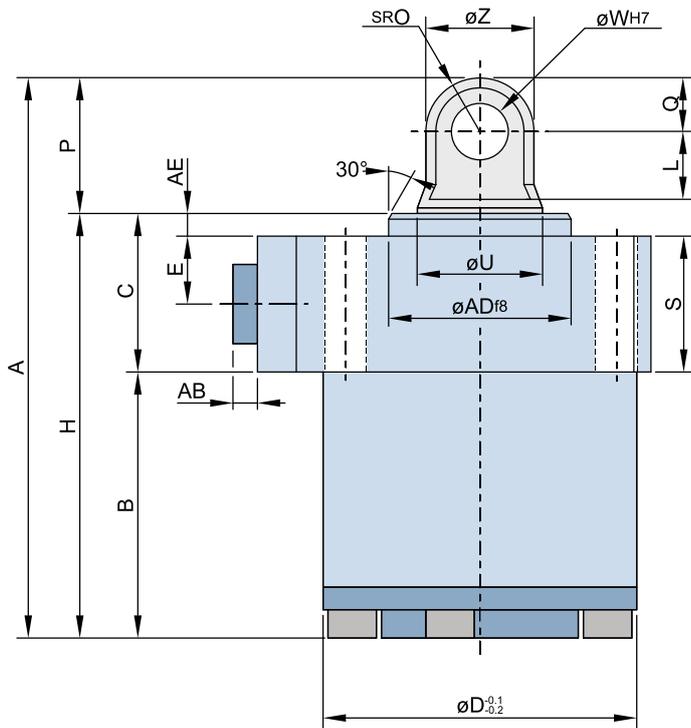
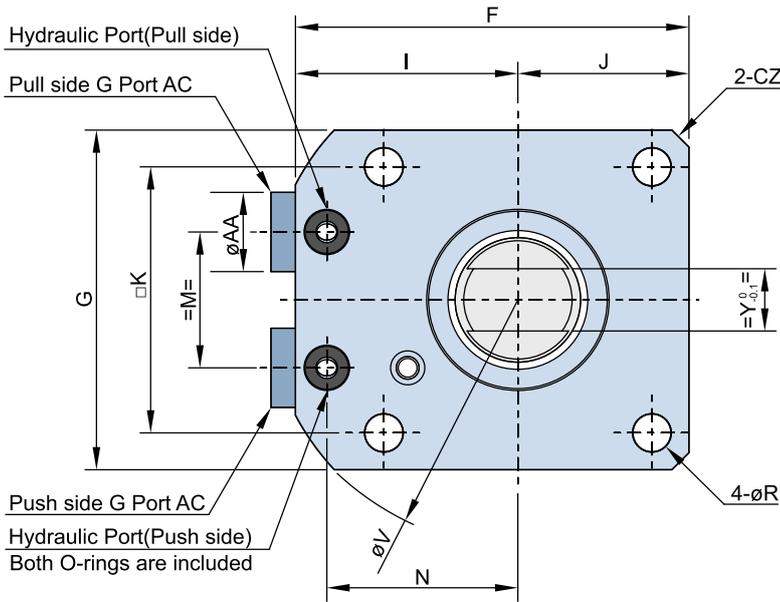


Hydraulic Circuit Diagram

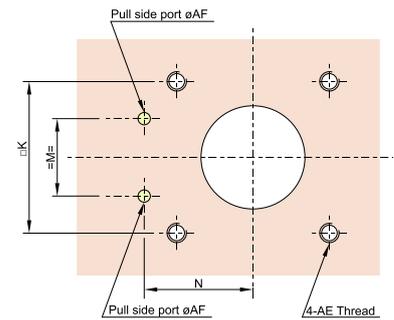
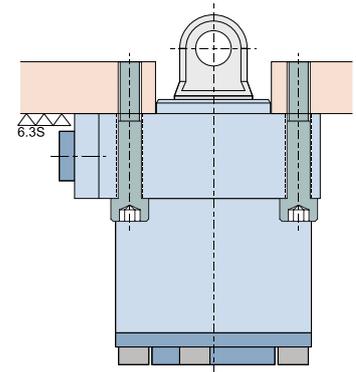
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.

- Please be aware when designing the circuit.

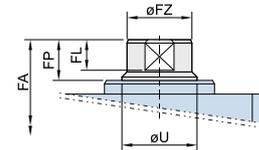
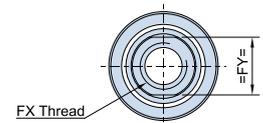




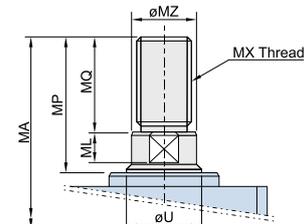
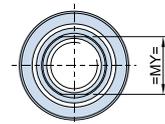
Mounting Details



PJ□-□□□F: Female Thread Option



PJ□-□□□M: Male Thread Option



- Both figure shows the retracted position of cylinder.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder.
- The depth of the body mounting hole ϕD should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.

Model No.	PJ036-□□GP	PH040-□□GP	PH048-□□GP	PH055-□□GP	PH065-□□GP	PH075-□□GP	PH090-□□GP
A	Stroke+53	Stroke+61	Stroke+65	Stroke+69	Stroke+78	Stroke+87	Stroke+100
B	Stroke+13	Stroke+17	Stroke+16	Stroke+17	Stroke+20	Stroke+17	Stroke+23
C	25	25	28	28	30	37	40
D	36	40	48	55	65	75	90
E	10	10	12	12	13	16	19
F	49	54	61	69	81	92	107
G	40	45	51	60	70	80	95
I	29	31.5	35.5	39	46	52	59.5
J	20	22.5	25.5	30	35	40	47.5
H	Stroke+38	Stroke+42	Stroke+44	Stroke+45	Stroke+50	Stroke+54	Stroke+63
K	31.4	34	40	47	55	63	75
M	16	18	22	24	30	32	37
N	23.5	26	30	33.5	39.5	45	52.5
O	6	8	9	10	12	14	16
P	15	19	21	24	28	33	37
Q	6	8	9	10	12	14	16
L	7.5	9.5	10.5	12	14	17	19
ØR	4.5	5.5	5.5	6.8	6.8	9	11
S	21	21	24	24	26	32	35
ØU	16	18	20	22	25	30	35
ØV	66	73	83	88	106	116	136
W	6	8	8	10	12	14	16
Y	6	8	10	11	13	16	19
ØZ	12	15	17	19	22	27	32
ØAA	14	14	14	14	19	19	22
AB	5	5	5	5	5	5	5
AC	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8
ØAD	25	28	28	32	38	44	50
AE	4	4	4	4	4	5	5
CZ	2	3	3	3	4	5	6
XR (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5
XS	8	10	10	12	12	16	20
AE (Nominal X Pitch)	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5
ØAF	2.5	3	3	3	3	4	4

Model No.	PJ036-□□□F	PJ040-□□□F	PJ048-□□□F	PJ055-□□□F	PJ065-□□□F	PJ075-□□□F	PJ090-□□□F
FA	Stroke+47	Stroke+52	Stroke+55	Stroke+57	Stroke+63	Stroke+69	Stroke+79
FP	9	10	11	12	13	15	16
ØFZ	14	15	17	19	22	27	33
FY	12	13	14	17	19	24	30
FL	7.5	7.5	8.5	9	10	12	13
FX (Nominal X Pitch)	M6X1X12	M8X1.25X16	M8X1.25X16	M10X1.5X20	M12X1.75X24	M16X2X32	M20X2.5X40

Model No.	PJ036-□□□M	PJ040-□□□M	PJ048-□□□M	PJ055-□□□M	PJ065-□□□M	PJ075-□□□M	PJ090-□□□M
MA	Stroke+63	Stroke+72	Stroke+79	Stroke+85	Stroke+95	Stroke+104	Stroke+125
MP	25	30	35	40	45	50	62
ØMZ	14	17	19	21	24	29	34.5
MY	12	14	17	17	19	24	30
ML	7.5	7.5	8.5	9	10	12	13
MX (Nominal X Pitch)	M10X1.25	M12X1.25	M14X1.5	M16X1.5	M20X1.5	M24X1.5	M30X1.5
MQ	16	20	24	28	32	35	46

Hydraulic Double Acting Link Clamp Model H



Specifications

Model No.			H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□
Cylinder Inner Diameter	mm		24	25	30	35	45	55	65
Rod Diameter	mm		12	14	14	16	20	22	28
Cylinder Force	kN		3.10	3.37	4.85	6.60	10.91	16.30	22.77
Effective area	cm ²		4.52	4.90	7.06	9.62	15.90	23.75	33.18
Full Stroke	mm		18.5	20.5	23.5	26	29.5	35	41
Lock Stroke	mm		16	17.5	20.5	23	26.5	32	38
Extra Stroke	mm		2.5	3	3	3	3	3	3
Cylinder Capacity	Push	cm ³	8.36	10	16.61	25.01	46.91	83.15	136.05
	Pull	cm ³	6.27	6.90	13	19.78	37.65	69.84	110.80
Mass	Kg		0.5	0.7	1	1.4	2.2	3.2	5.5

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 70 Bar Pressure.

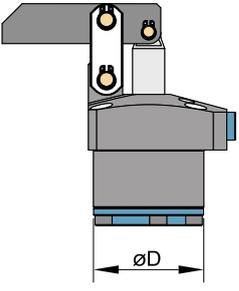
Model No. Selection

H **055** - **C**

Hinge

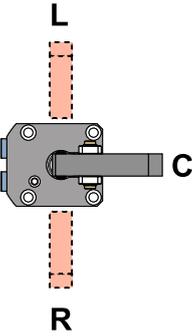
Body Size

- 036
- 040
- 048
- 055
- 065
- 075
- 090



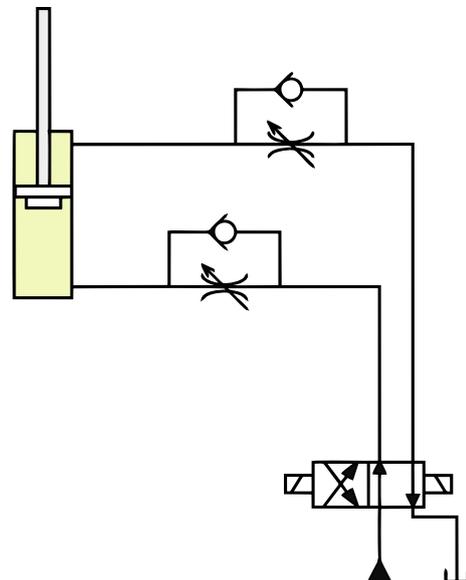
Lever Direction

- L- Left
- C- Center
- R- Right

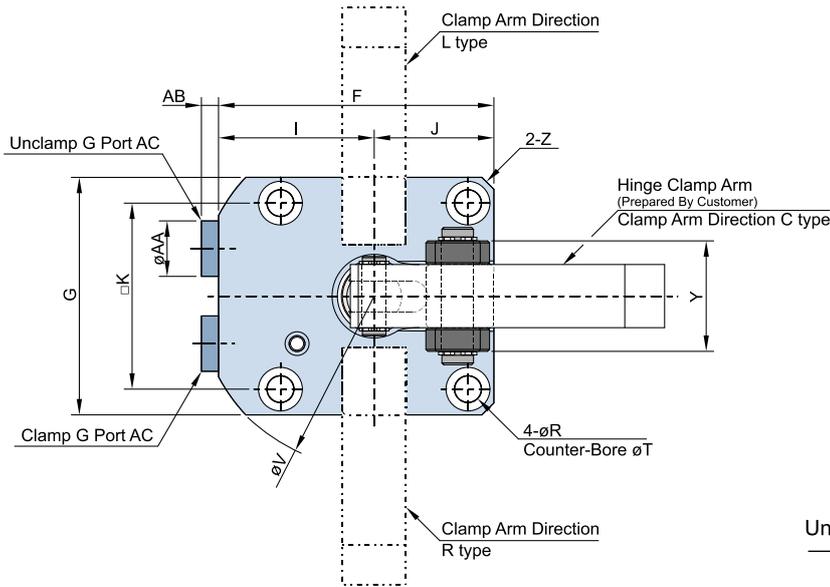


Hydraulic Circuit Diagram

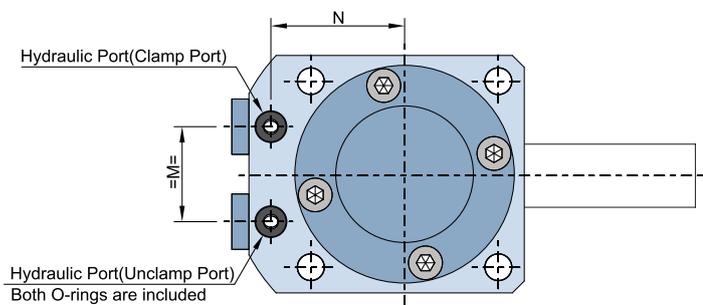
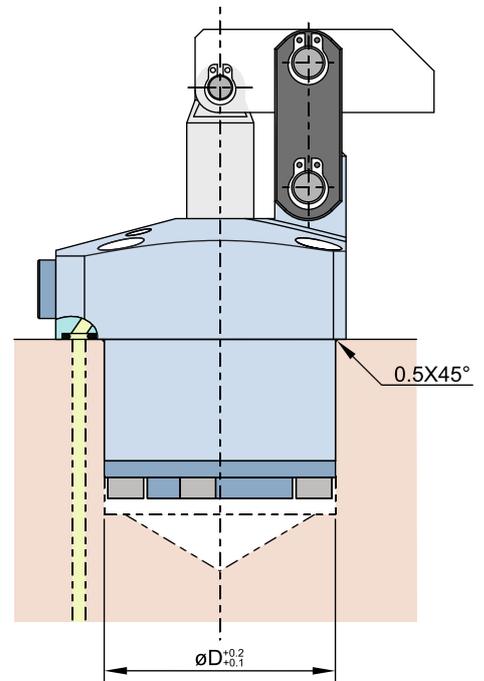
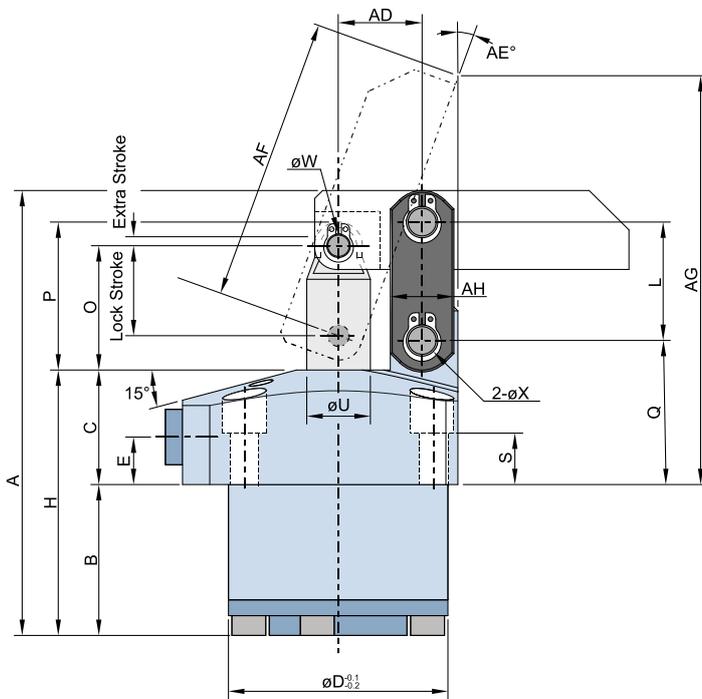
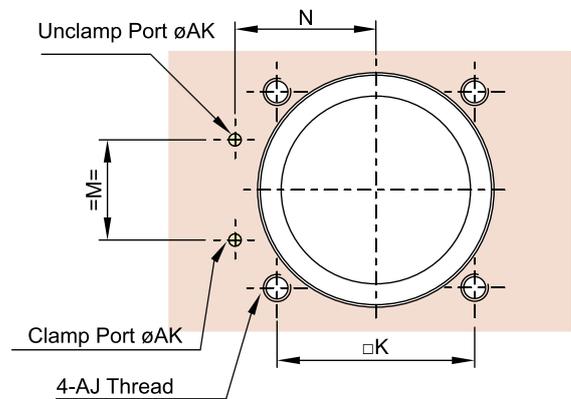
For flow control valve, we recommend the meter-in control. If meter-out control is used due to area difference it will cause back pressure and become high pressure. This can lead to malfunction of the system.



External Dimensions



Mounting Details



- G-Thread Plug is included.
- Mounting bolts are not provided. Please prepare them according to the mounting height referring to mounting dimension "S".
- Speed control valve is sold separately. Select the right model of speed control valve according to the size of the cylinder.

Model No.	H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□
A	85.75	91.2	101.45	114.5	131.5	154	183.38
B	28.75	31.7	33.45	40	46.5	50	63.38
C	25	25	28	28	30	37	40
D	36	40	48	55	65	75	90
E	11	10	12	12	13	16	16
F	49	54	61	69	81	94.5	109.5
G	40	45	51	60	70	85	100
H	53.75	56.7	61.45	68	76.5	87	103.4
I	29	31.5	35.5	39	46	52	59.5
J	20	22.5	25.5	30	35	42.5	50
K	31.4	34	40	47	55	63	75
L	20	22	26	30	35.5	43.5	52.5
M	16	18	22	24	30	32	37
N	23.5	26	30	33.5	39.5	45	52.5
O	24	26	30	32.5	38	46	53
P	29	31.5	36	38.5	46	56	65.5
Q	31.5	31.5	35.5	36.5	40	49	53.5
ØR	4.5	5.5	5.5	6.6	6.6	9	11
S	15.5	15	16	13.5	16	17.5	17
ØT	7.5	9	9	11	11	14	17
ØU	12	14	14	16	20	22	28
ØV	66	72	81	88	106	116	136
ØW	5	6	6	6	8	10	12
ØX	5	6	6	8	10	12	15
Y	19	21	24	28	37	40	49
Z	2	3	3	3	4	10	11
ØAA	14	14	14	14	19	19	22
AB	4.5	4.5	4.5	4.5	5	5	5
AC	118	118	118	118	114	114	318
AD	14.5	16	18.5	21	24.5	30	36
AE	19.56	20.2	18.9	19.85	20.46	21.44	22.38
AF	47	50.2	61.1	71.7	78.6	90.78	104.6
AG	75.8	78.7	93.4	102.9	112.4	131.8	147.5
AH	11	13	13	16	19	25	28
AJ Thread	M4X0.7	M5X0.8	M5X0.8	M6X1	M6X1	M8X1.25	M10X1.5
ØAK	3	3	3	3	4	4	5

- The depth of the body mounting hole ØD should be decided according to the mounting height referring to dimension B.
- AE tapping depth of mounting bolt should be decided according to the mounting height referring to dimension S.
- The machining dimension ØAF is for gasket option for hydraulic fluid supply.

Clamping Force Calculation

The clamping force is determined by the clamp arm length and the operating pressure. The F clamping force can thus be calculated using the following formulas:

$$C = \frac{p \times S}{100} \quad [\text{kN}]$$

$$F = \frac{k}{l} \times C \times \eta \quad [\text{kN}]$$

k = Clamp arm dimension [mm]

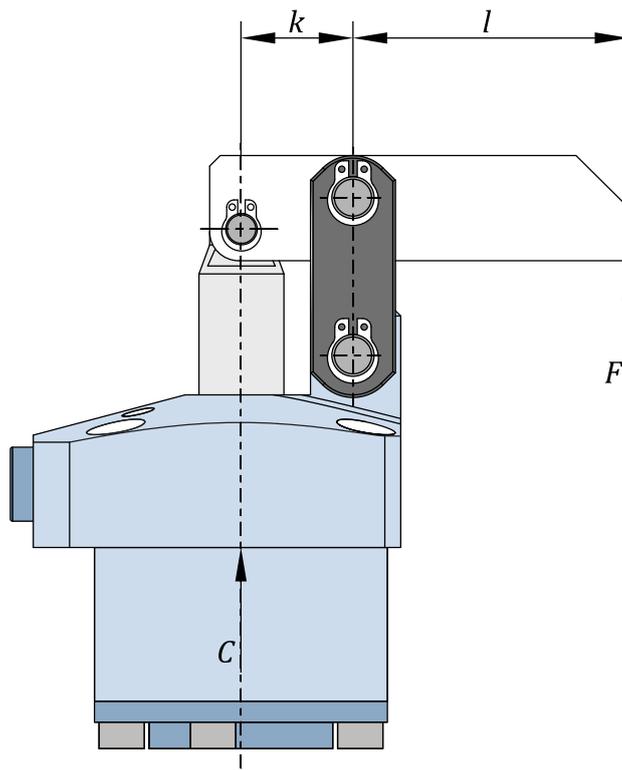
l = Clamp arm length [mm] (clamp arm length to be decided by customer)

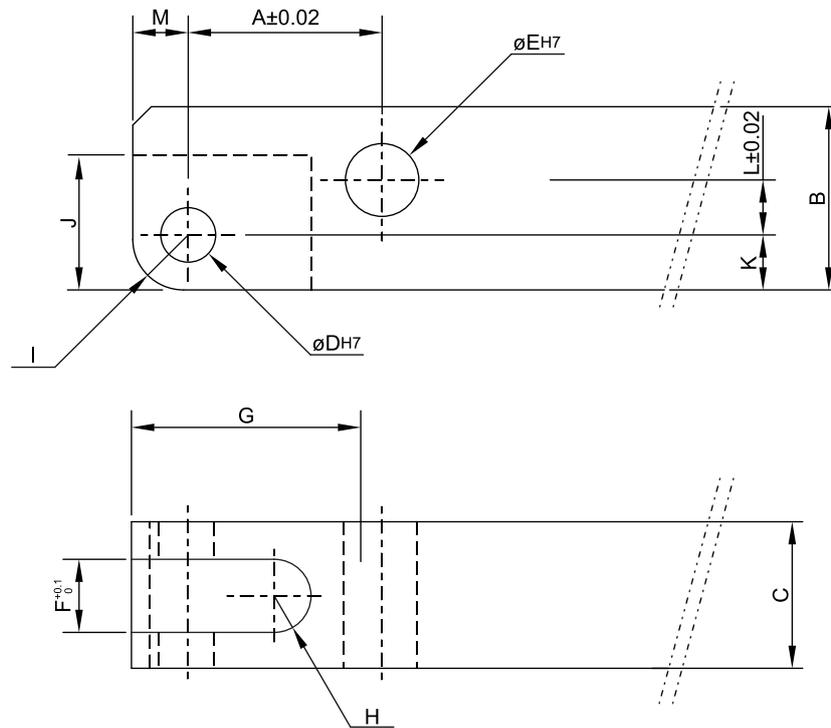
p = pressure [bar]

S = clamping area [cm²]

η = 0.9

Model No.		H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□
Cylinder Force C	kN	3.10	3.37	4.84	6.60	10.91	16.30	22.77	34.50
Effective area S	cm ²	4.52	4.9	7	9.62	15.9	23.75	33.18	50.2
Lever length k	mm	14.5	16	18.5	21	24.5	30	36	44
Performance η		0.9							
Max. operating Pressure p	bar	70							

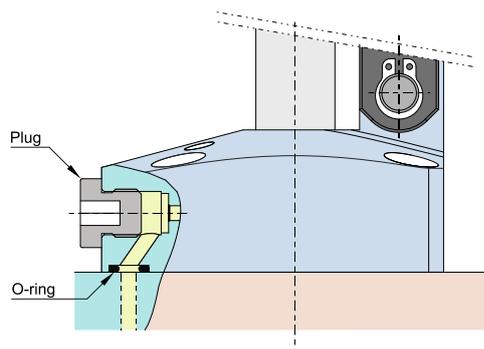




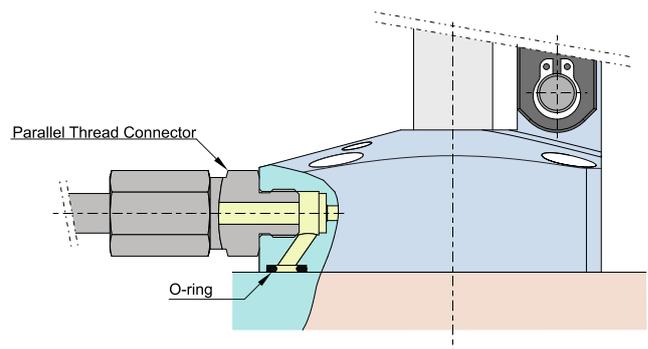
- Clamp is not included in scope of supply.

Model No.	H036-□	H040-□	H048-□	H055-□	H065-□	H075-□	H090-□	H0105-□
A	14.5	16	18.5	21	24.5	30	36	44
B	12.5	14	16	20	25	32	38	45
C	10	12	12	16	19	22	25	32
ØD	5	6	6	6	8	10	12	15
ØE	5	6	6	8	10	12	15	18
F	5	6	6	8	10	11	13	16
G	10	11.5	13	13.5	17	20	24	30
H	R2.5	R3	R3	R4	R5	R5.5	R6.5	R8
I	R4.5	R5.5	R6	R6	R8	R10	R11	R13
J	11	12	13	13	17.5	22	26	30.5
K	4.5	5.5	6	6	8	10	11	13
L	2.5	2.5	3.5	6	7.5	9.5	13	16
M	4.5	5.5	6	6	8	10	11	13

Gasket Option



Piping Option



- When choosing gasket option, a flow control valve is mountable on G-ports of the cylinder.

- Remove plugs when choosing piping (O-ring must be used in gasket holes.), flow control valve should be mountable in between hydraulic oil path.

Hydraulic Single Acting Threaded Body Cylinder Model T

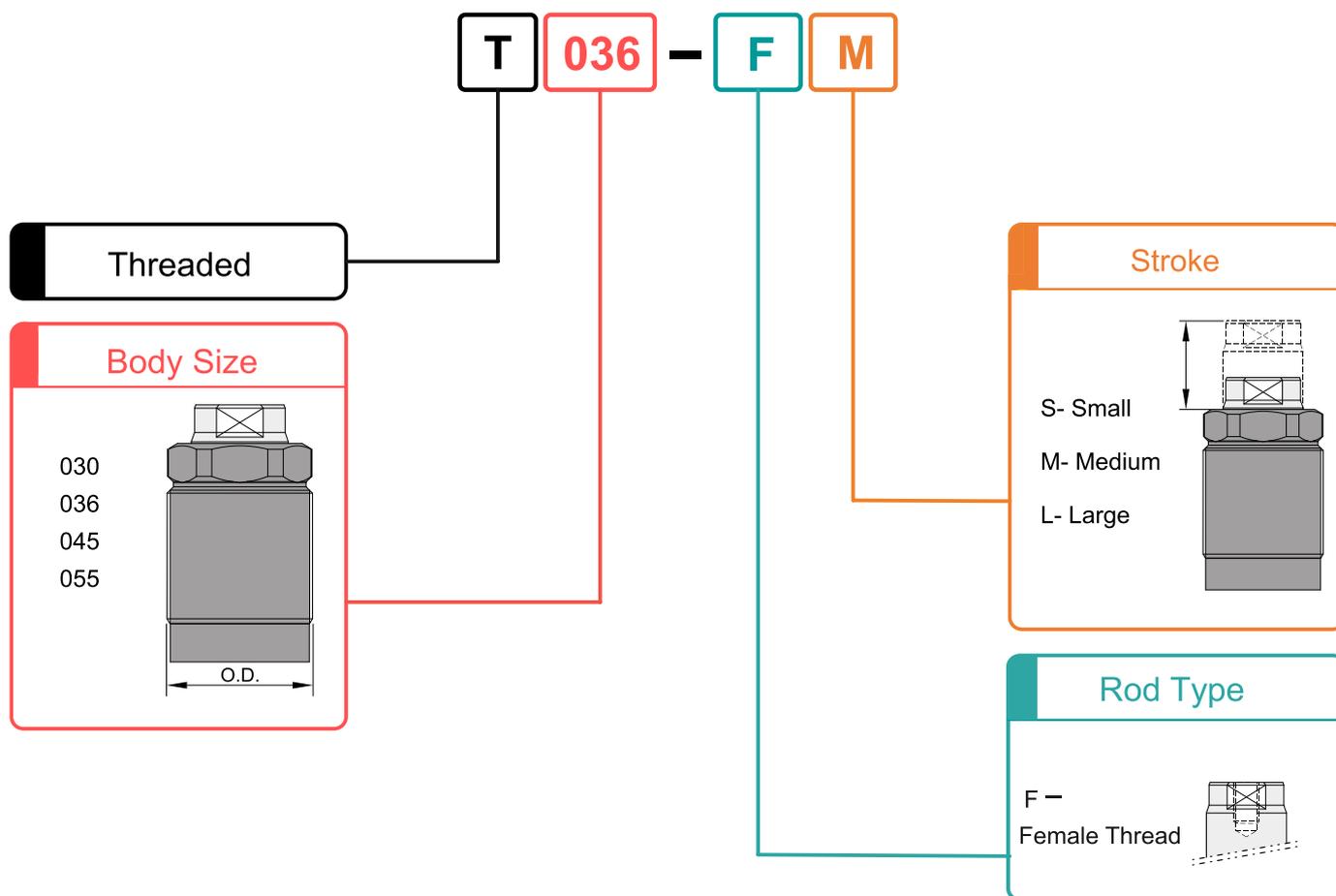


Specifications

Model No.		T030-□□	T036-□□	T045-□□	T055-□□
Rod Diameter	mm	18	22	30	35
Effective area	cm ²	2.2	3.3	6.4	8.6
Cylinder Force	kN	1.34~1.47	2.15~2.22	4.14~4.22	5.5~5.68
Release Spring Force	N	47~173.5	76~142.5	154~235	211.5~394.5
Small Stroke (Code-S)		T030-□S	T036-□S	T045-□S	T055-□S
Full Stroke	mm	8	10	10	12
Cylinder Capacity	cm ³	1.77	3.3	6.4	10.32
Mass	Kg	0.18	0.3	0.59	0.95
Medium Stroke (Code-M)		T030-□M	T036-□M	T045-□M	T055-□M
Full Stroke	mm	12	16	16	20
Cylinder Capacity	cm ³	2.66	5.2	10.24	17.2
Mass	Kg	0.22	0.4	0.68	1.2
Large Stroke (Code-L)		T030-□L	T036-□L	T045-□L	T055-□L
Full Stroke	mm	20	25	25	32
Cylinder Capacity	cm ³	4.43	8.25	16	27.5
Mass	Kg	0.31	0.53	0.94	1.6

- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General mineral based hydraulic oil (ISO – VG32 Equivalent)
- Cylinder force given in the table is relatively affected by release spring force. So, select the cylinder accordingly. Given value of cylinder forces are at 70 bar pressure.
- Actual forces of the cylinder may vary slightly due to friction losses, seal and wiper drag, and/or return spring forces.

Model No. Selection



Model No.	T030-F□	T036-F□	T045-F□	T055-F□
A (Nominal X Pitch)	M30X1.5	M36X1.5	M45X1.5	M55X2
ØB	28	34	43	52
ØC	17	19	28	34
ØD	18	22	30	35
ØE	29.5	35	44.5	54.5
H	9	10	12	12
I	8	8	12	12
J	8.5	9.5	12	13
K	7	8	10	11
L	14	17	24	30
M	27	32	41	50
N (Nominal X Pitch X Depth)	M8X1.25X10	M8X1.25X10	M10X1.5X11	M12X1.75X12
S	1			
Stroke Code-S (Small)				
Stroke	8	10	10	12
F	50	60	70	75
G	24.5	32.5	34	38
Stroke Code-M (Medium)				
Stroke	12	16	16	20
F	60	73	80	90
G	34.5	45.5	44	53
Stroke Code-L (Large)				
Stroke	20	25	25	32
F	80	94	105	115
G	54.5	66.5	69	78

Model No.	T030-□□	T036-□□	T045-□□	T055-□□
AA (Nominal X Pitch)	M30X1.5	M36X1.5	M45X1.5	M55X2
ØAB	28	34	43	52
AD max.	9	10	12	12
ØAE	3	4	5	6
ØAF	10	14	18	23
AC min.	20	22	25	28
Chamfer	1	1	1	1.5

Sequence Valve

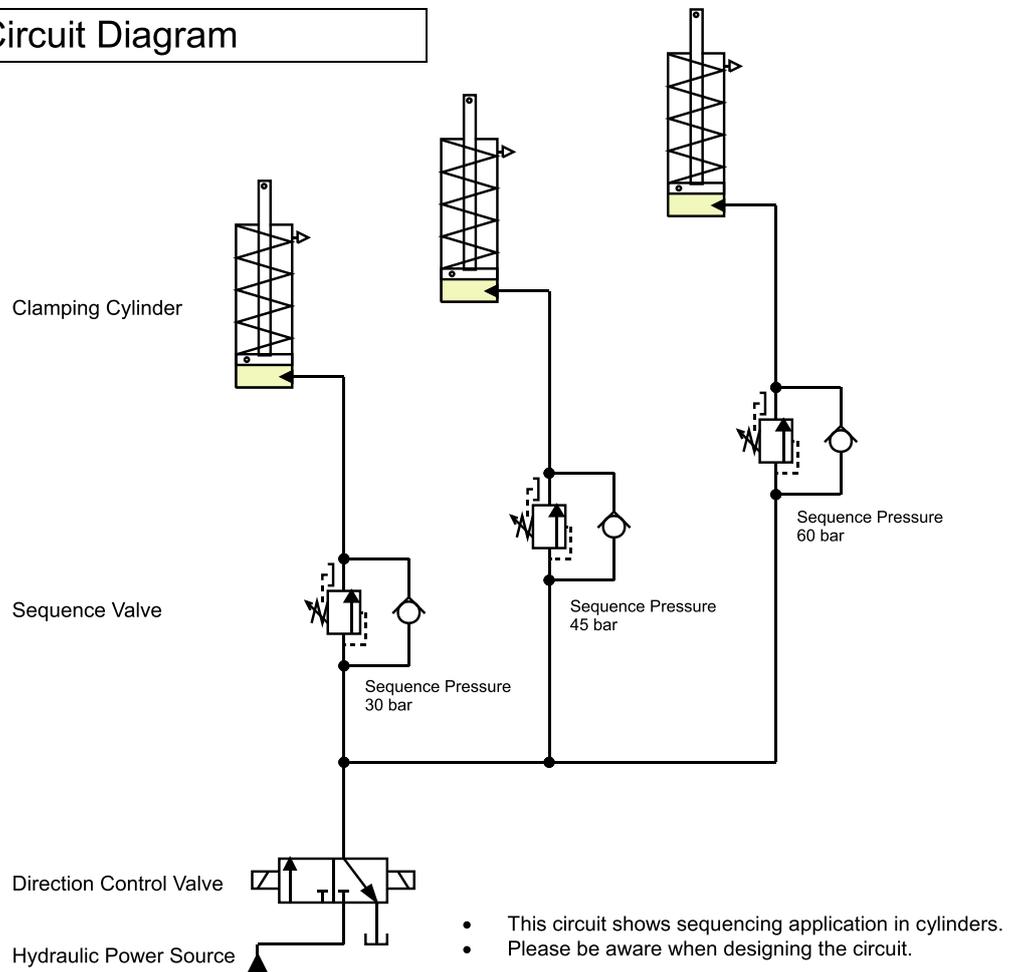
Model SQ



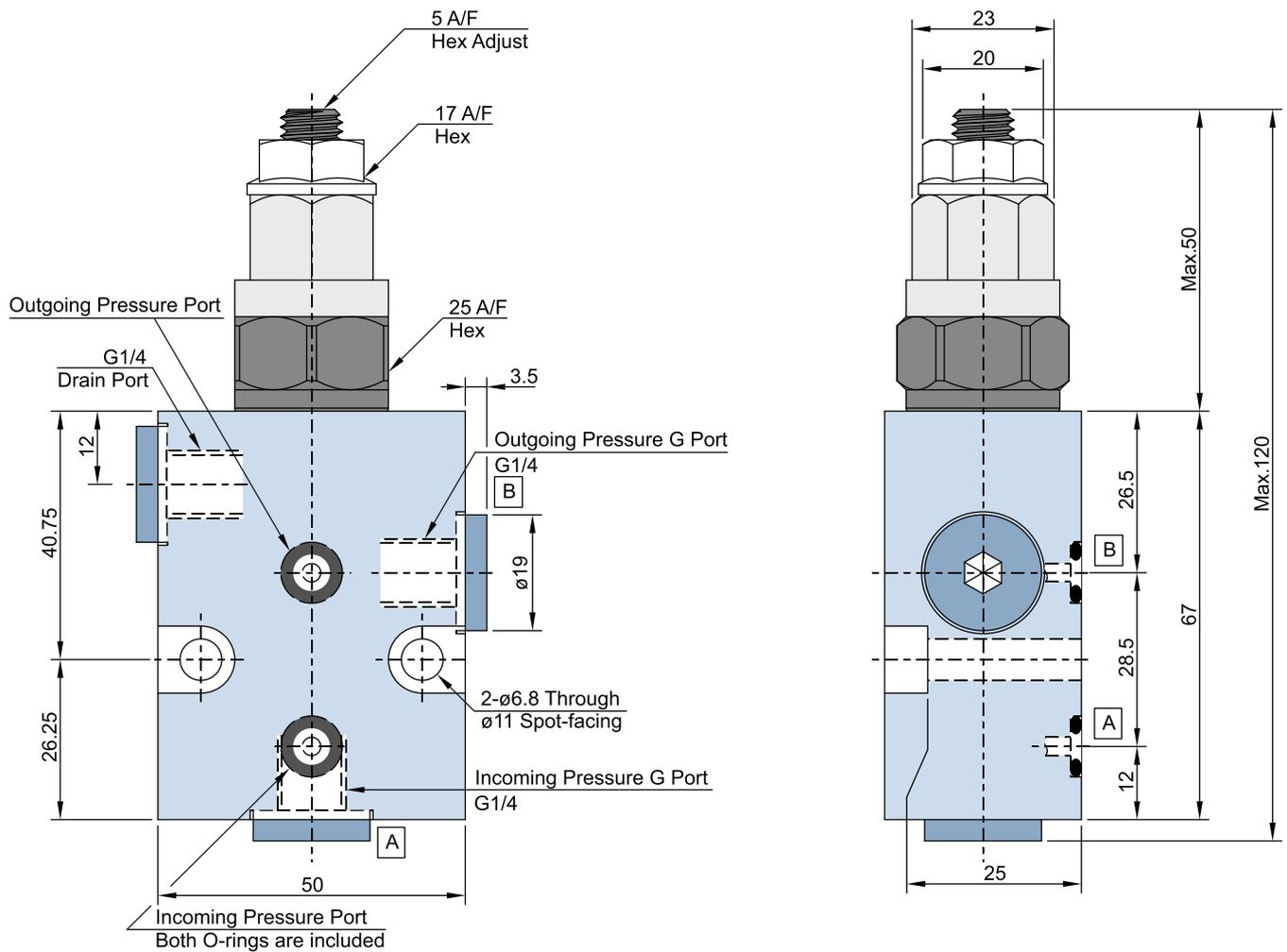
Specifications

Rated Flow	lpm	40
Pressure Range	bar	10-350
Operating Temperature	°C	-20 to 90
Filtration Level		BS5540/4 Class I8/I3 (25µ nominal)
Viscosity Range	cSt	5-500
Fluid used		General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
Mass	Kg	1

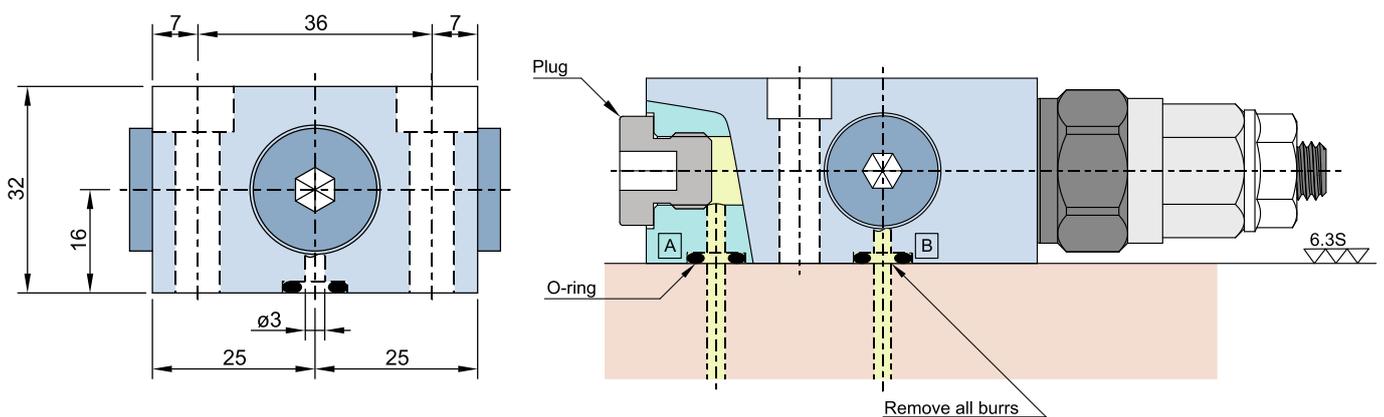
Hydraulic Circuit Diagram



External Dimensions



Hydraulic Connection



- Mounting Screws are not included.
- Set sequencing pressure by tightening or loosening the grub screw located at end of valve.
- For gasket option, G-ports must be closed with plug.
- The fluid flow is from path A to B.
- Roughness of mounting surface (O-ring seal surface) should be 6.3S or less.

Flow Control Valve

Model FC

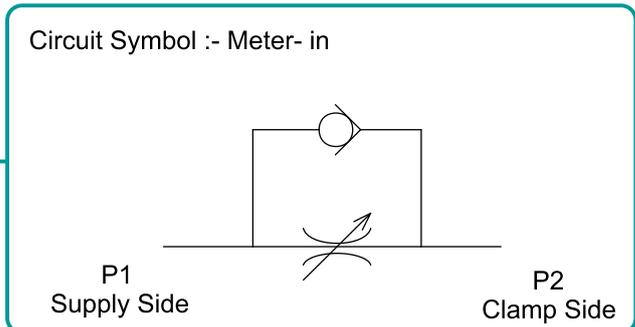
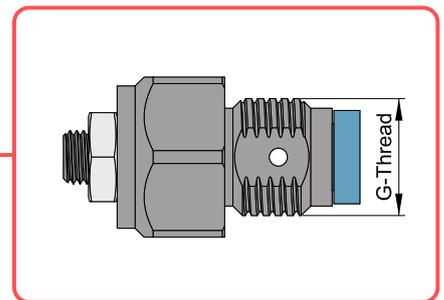
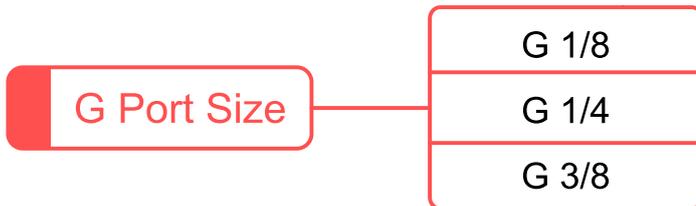


Specifications

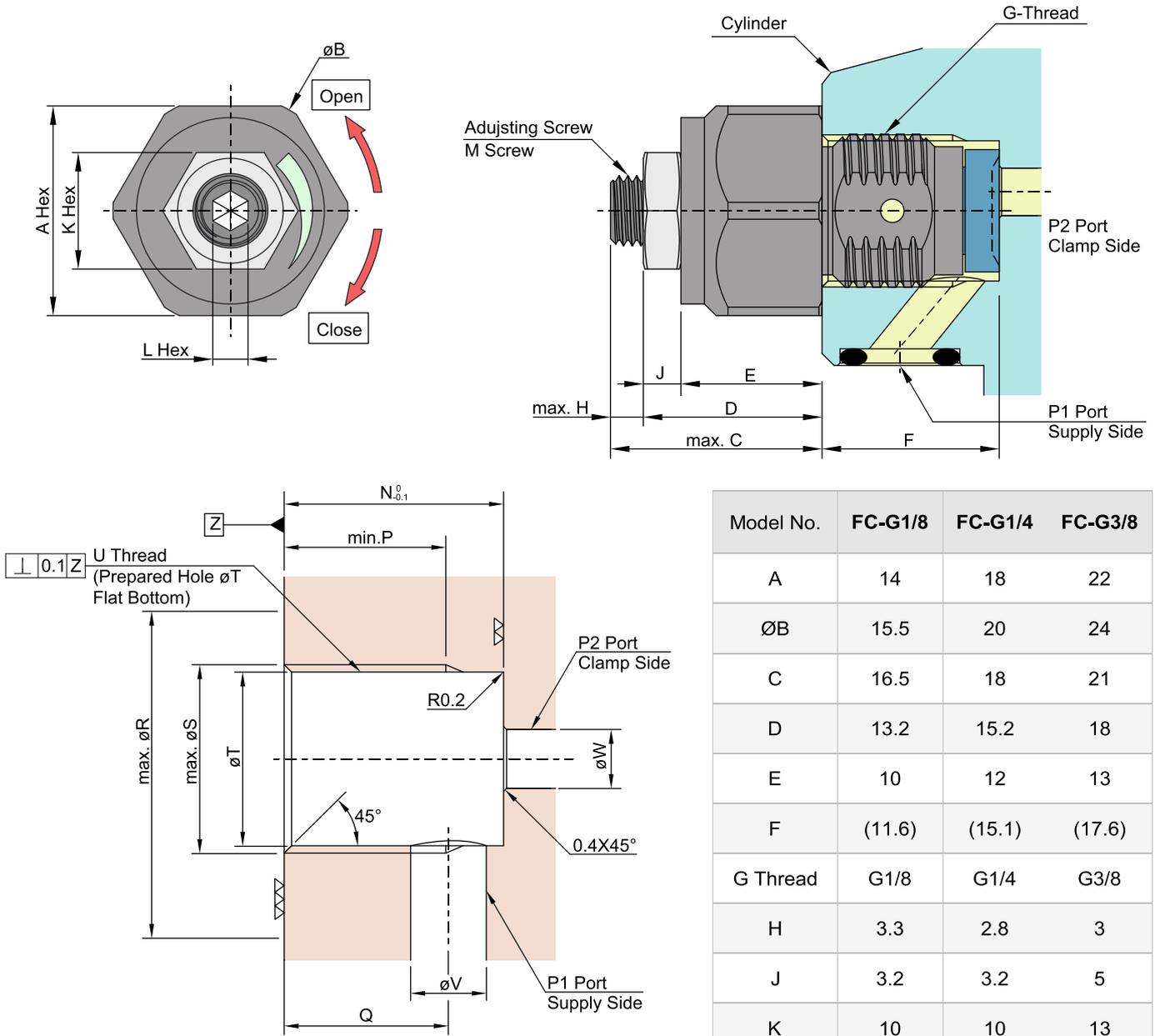
- There are three G-thread sizes: G1/8, G1/4 and G3/8
- Control method is meter-in type flow.
- Pressure Range: - 10-70 Bar
- Operating Temperature: - 0-70 °C
- Fluid Used: - General mineral based hydraulic oil (ISO – VG32 Equivalent)

Model No. Selection

FC **G 1/8**



External Dimensions



Model No.	FC-G1/8	FC-G1/4	FC-G3/8
A	14	18	22
$\varnothing B$	15.5	20	24
C	16.5	18	21
D	13.2	15.2	18
E	10	12	13
F	(11.6)	(15.1)	(17.6)
G Thread	G1/8	G1/4	G3/8
H	3.3	2.8	3
J	3.2	3.2	5
K	10	10	13
L	3	3	4
M Thread	M6X0.75	M6X0.75	M8X0.75
N	11.5	15	17.5
P	8.5	11	13
Q	8.5	11	13
$\varnothing R$	16	20.5	24.5
$\varnothing S$	10	13.5	17
$\varnothing T$	8.7	11.5	15
U Thread	G1/8	G1/4	G3/8
$\varnothing V$	2~3	3~4	4~5
$\varnothing W$	2.5~5	3.5~7	4.5~9

- Since the $\nabla\nabla\nabla$ area is sealing part, be careful not to damage it.
- Since the $\nabla\nabla$ area is the metal sealing part of valve, be careful not to damage it. (Especially when deburring)
- No cutting chips or burr should be at tolerance part of machining hole.
- As the figure illustrates, P1 port is used as hydraulic supply and P2 port as the clamp side.
- Prefer short G-thread plugs for this machining hole when not using flow control valve or else dimension P should be as standard G thread plug specification.

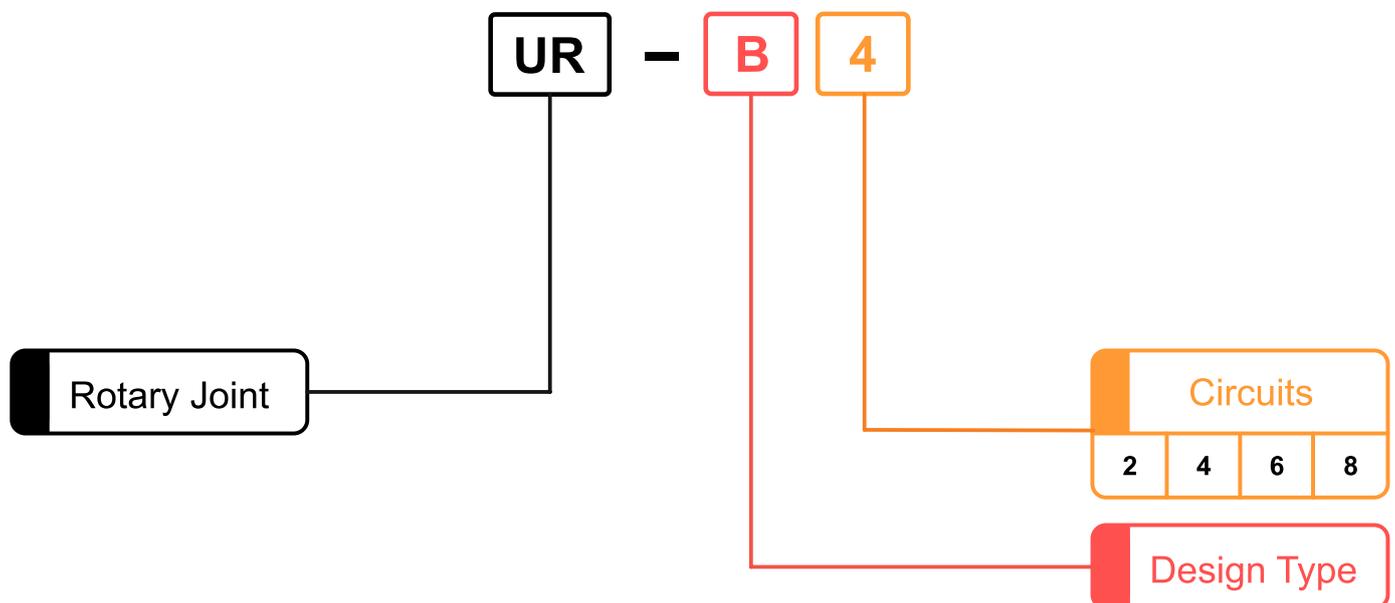
Rotary Joint Model UR-B



Specifications

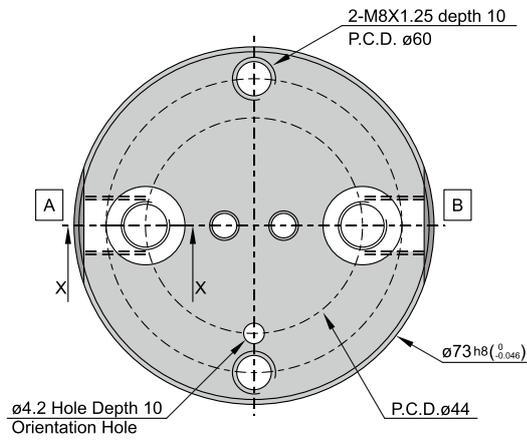
Model No.		UR-B2	UR-B4	UR-B6	UR-B8
Number of circuits		2	4	6	8
Fluid Used		General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent) or Air			
Max. pressure	Bar	100			
Operating temperature	°C	0-70			
Connection Type	Housing	Piping only (G1/8 port)			
	Shaft	Piping and Gasket option (counter-bore or groove is provided for O-ring)			
Guide	Housing	External guide of h8 tolerance with range of 10 mm at bottom			
	Shaft	External guide of h8 tolerance			
Centre hole		Without centre hole			
Mass	Kg	3.0	5.5	10	14.4

Model No. Selection

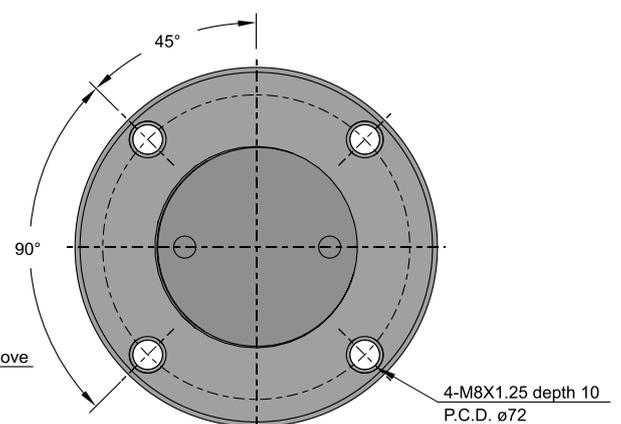
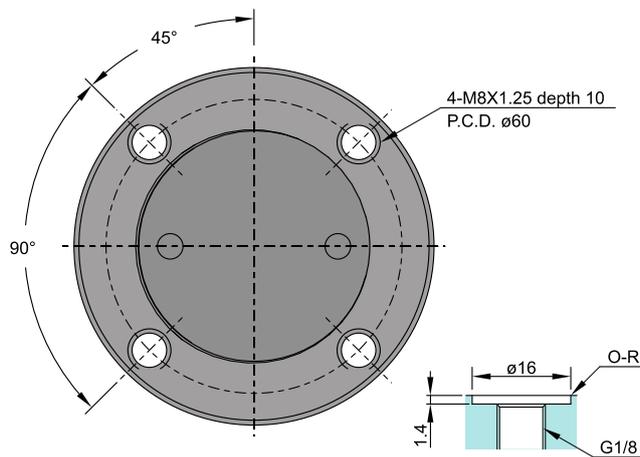
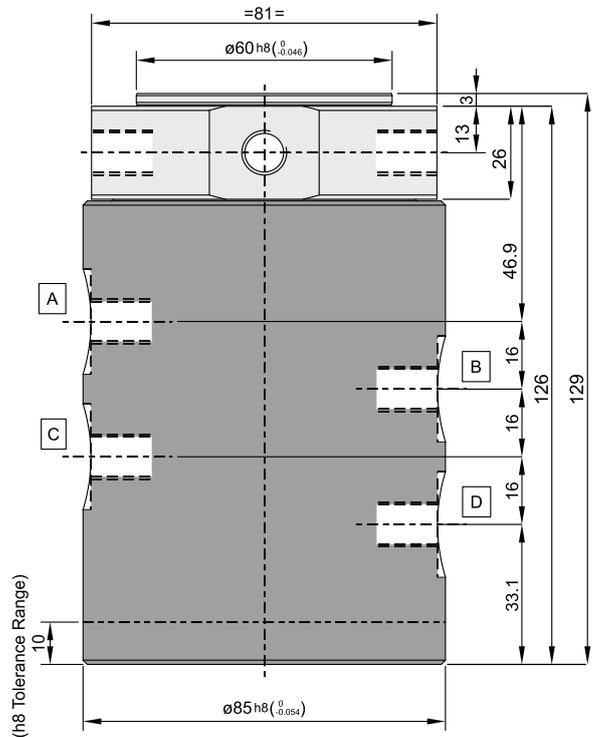
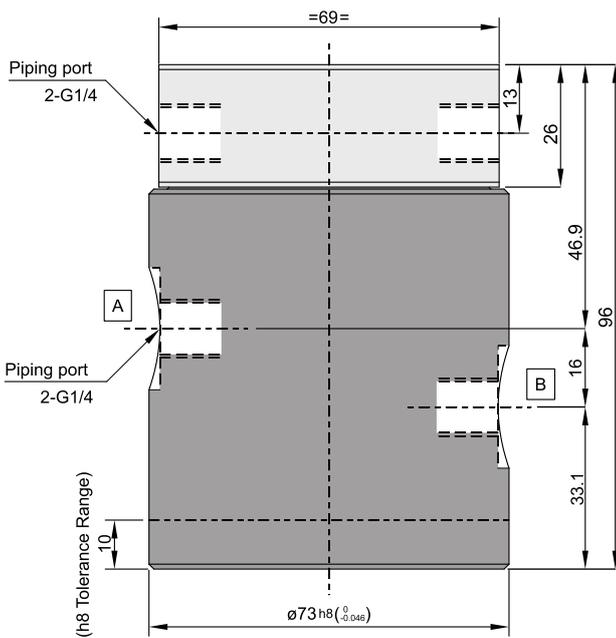
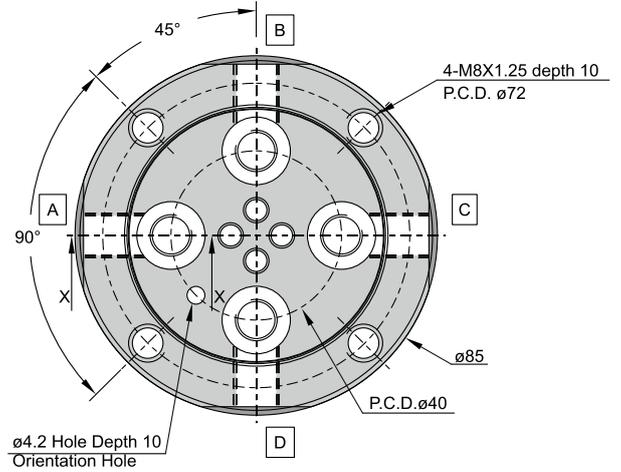


External Dimensions

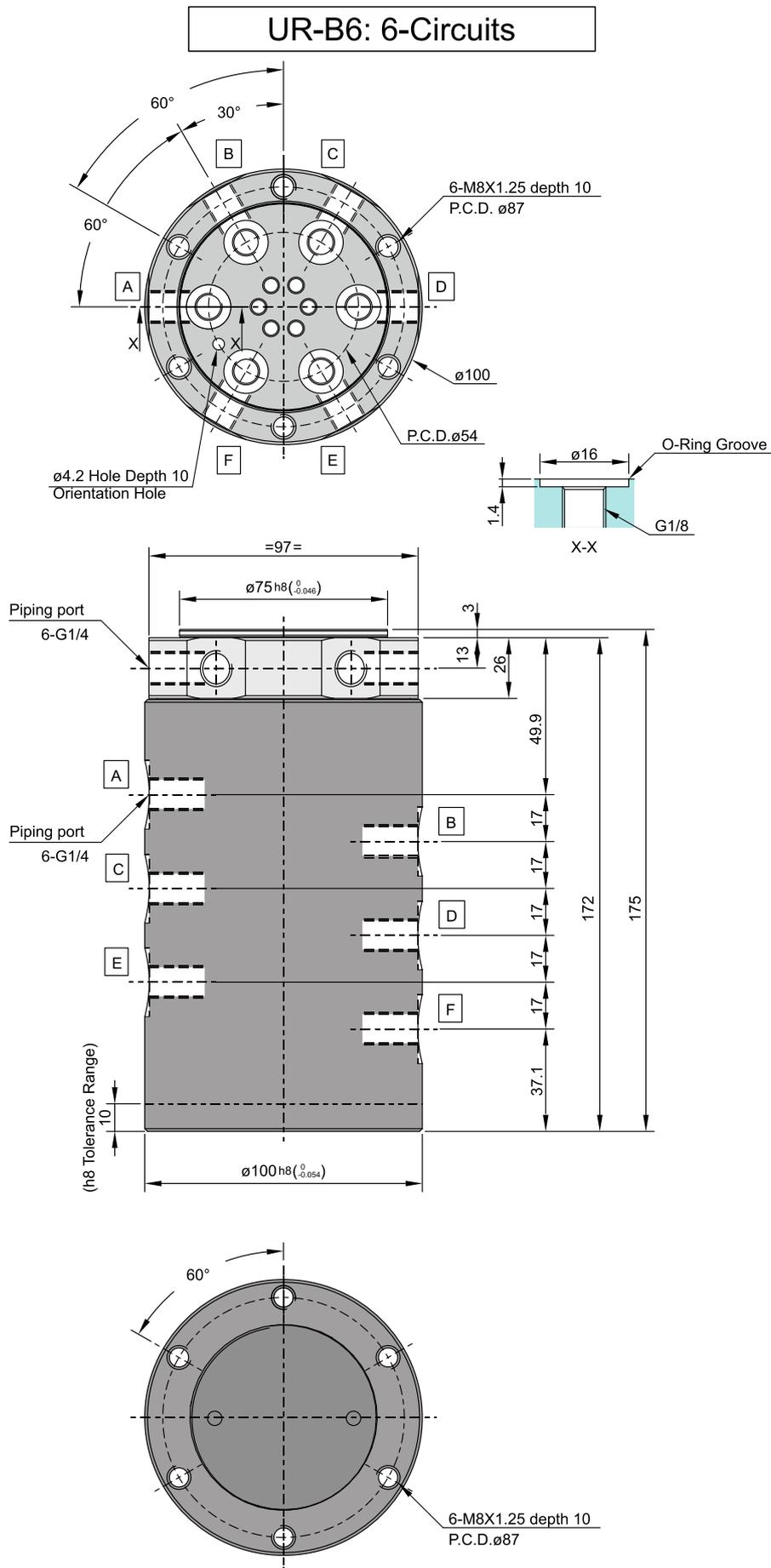
UR-B2: 2-Circuits



UR-B4: 4-Circuits

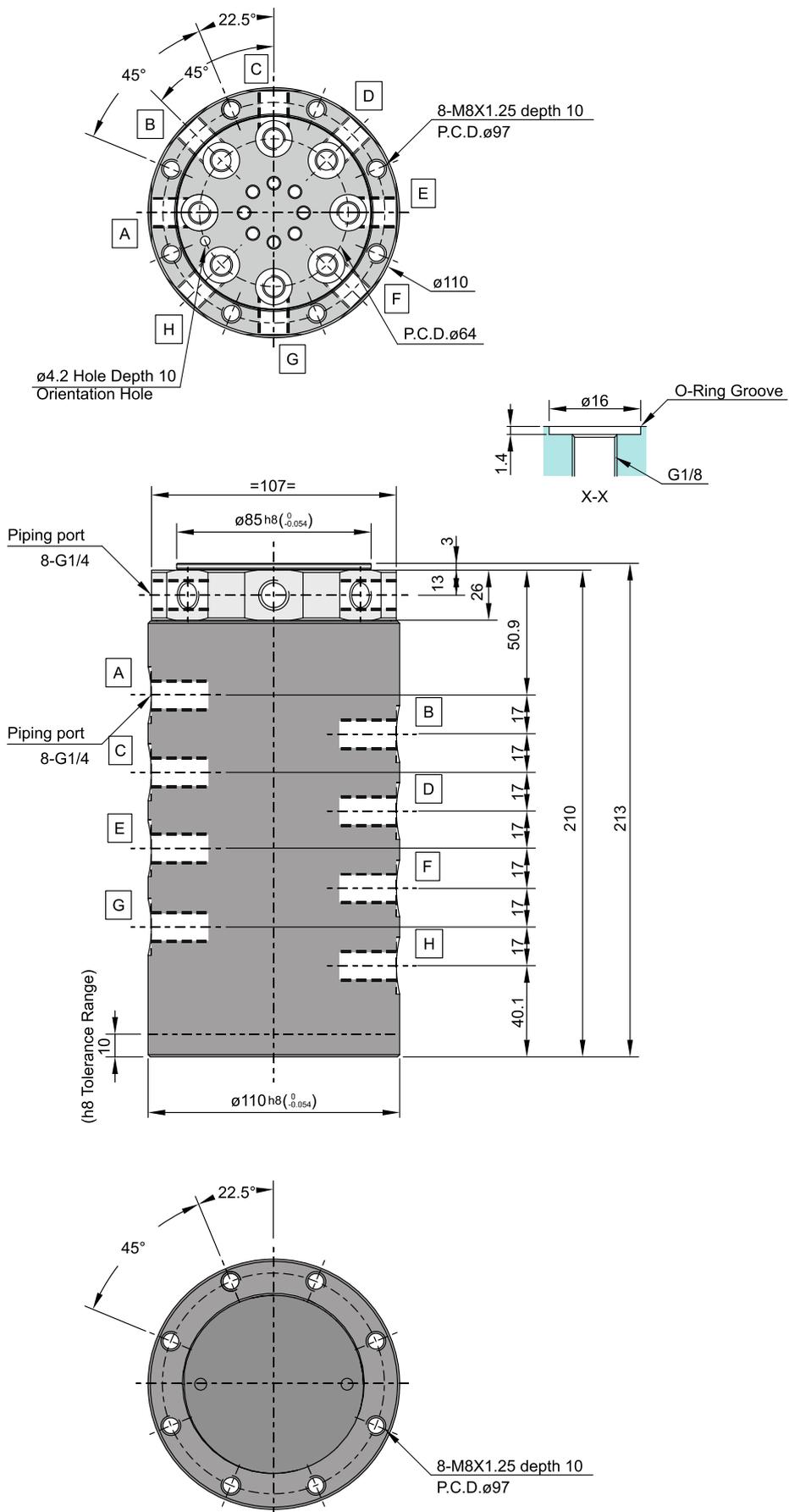


- Each piping port is marked with code A or B.
- Each piping port is marked with code A through D.



- Each piping port is marked with code A through F.

UR-B8: 8-Circuits



- Each piping port is marked with code A through H.

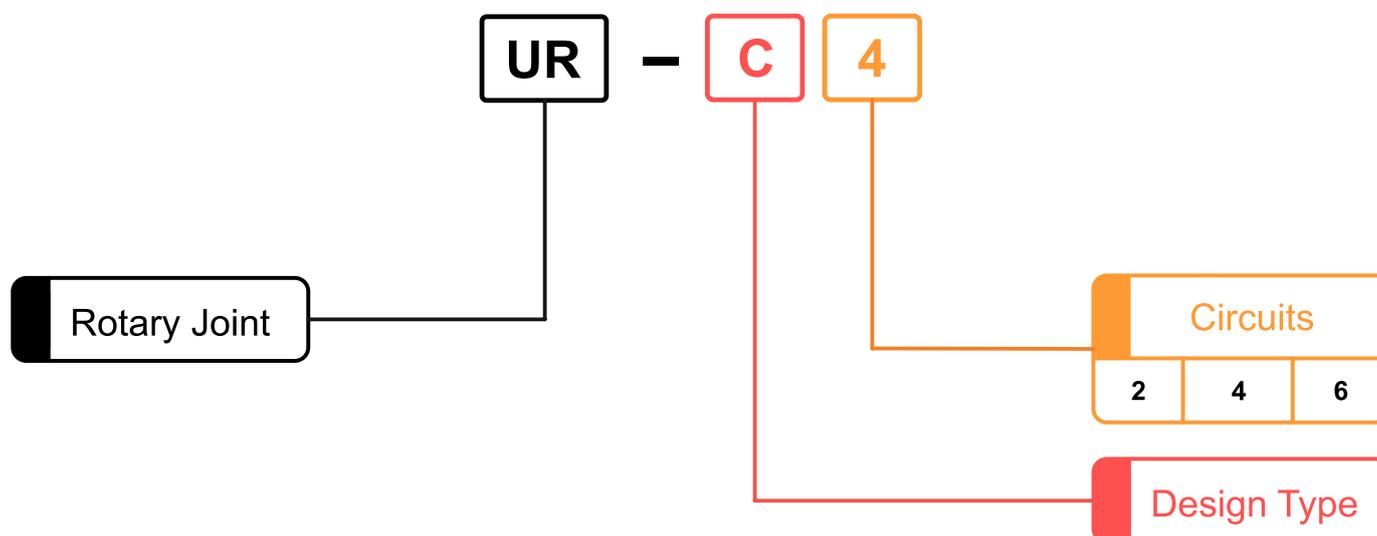
Rotary Joint Model UR-C



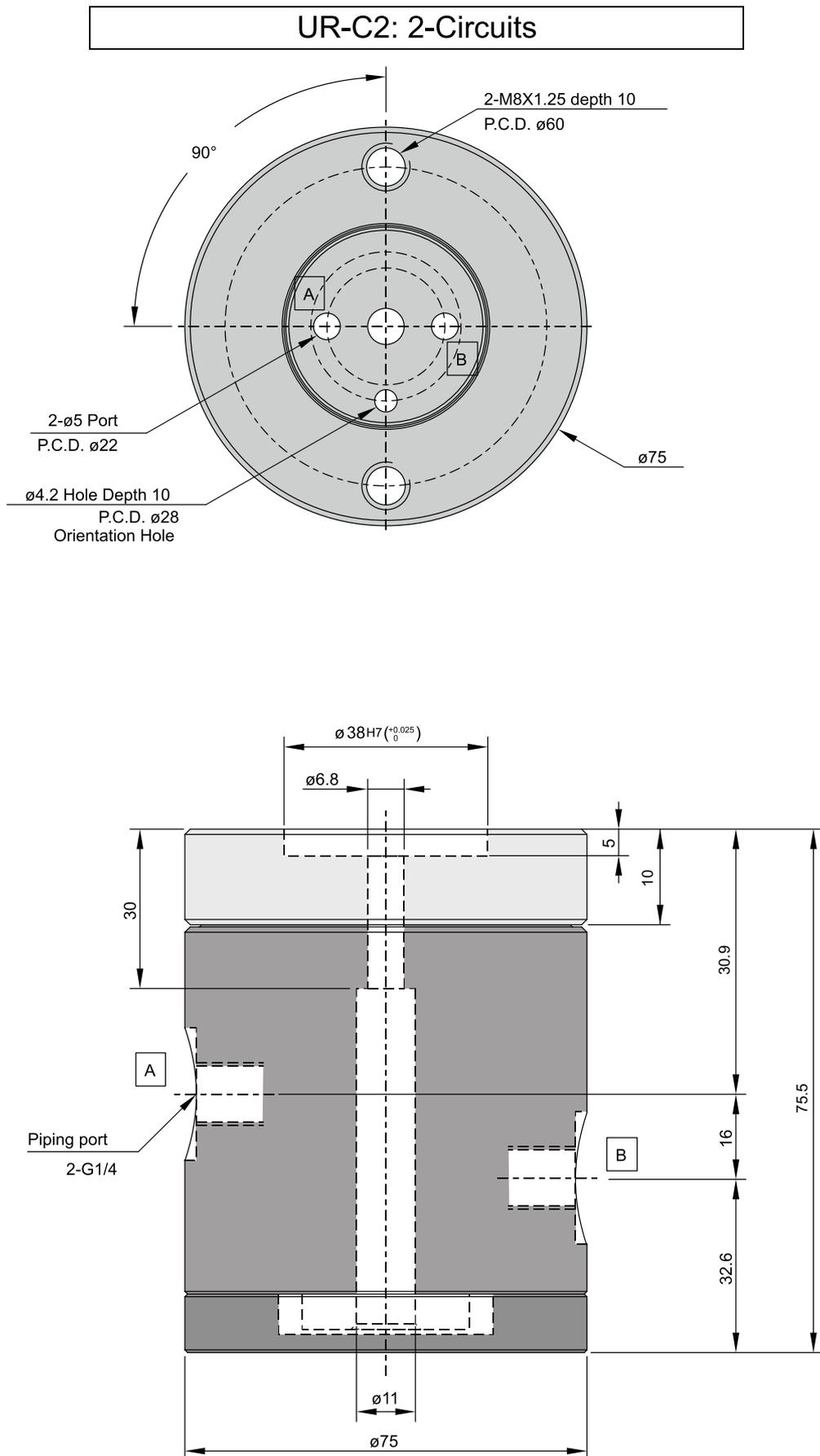
Specifications

Model No.		UR-C2	UR-C4	UR-C6
Number of circuits		2	4	6
Fluid Used		General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent) or Air		
Max. pressure	Bar	100		
Operating temperature	°C	0-70		
Connection Type	Housing	Piping only (G1/8 port)		
	Shaft	Gasket only (No counter-bore or groove is provided for O-ring)		
Guide	Housing	No guide		
	Shaft	Internal guide of H7 tolerance		
Centre hole		With centre hole		
Mass	Kg	3.0	4	9.7

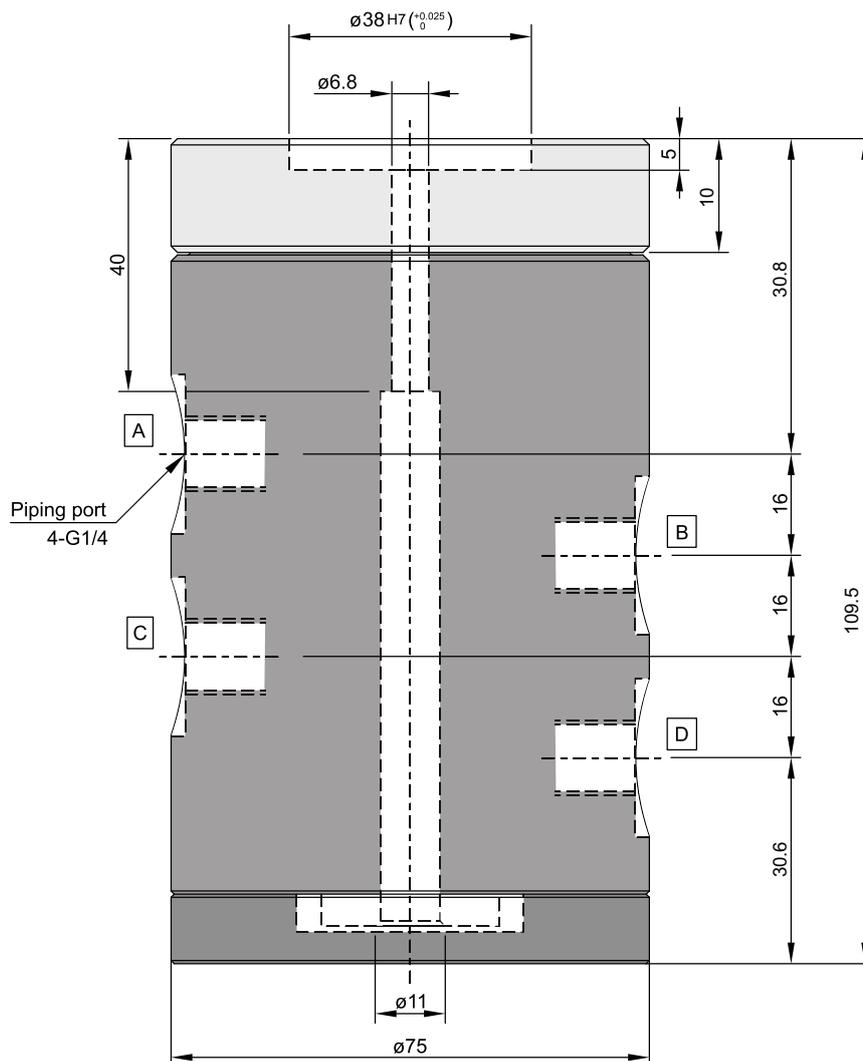
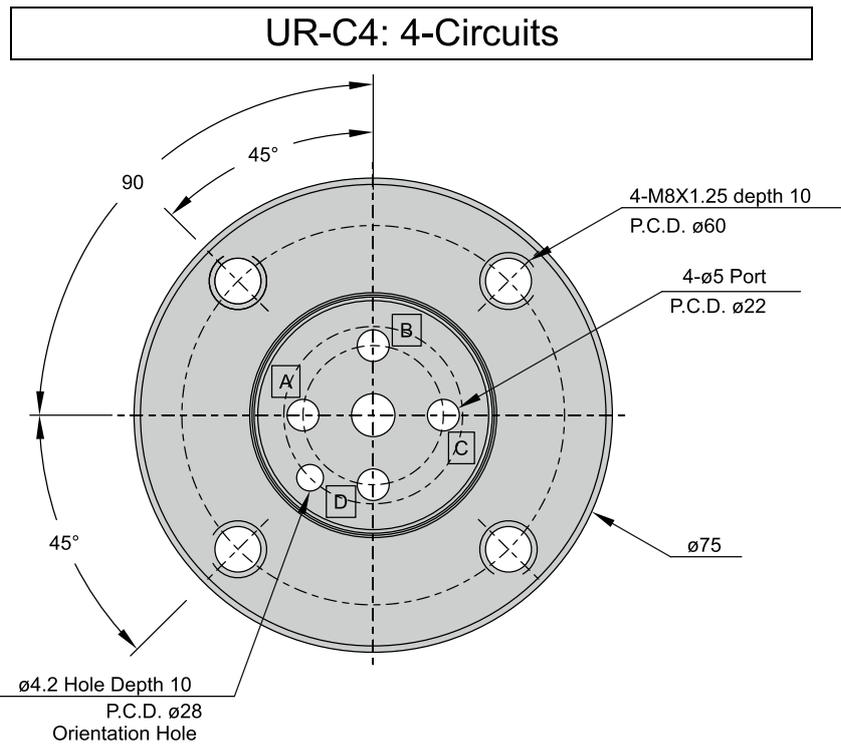
Model No. Selection



External Dimensions

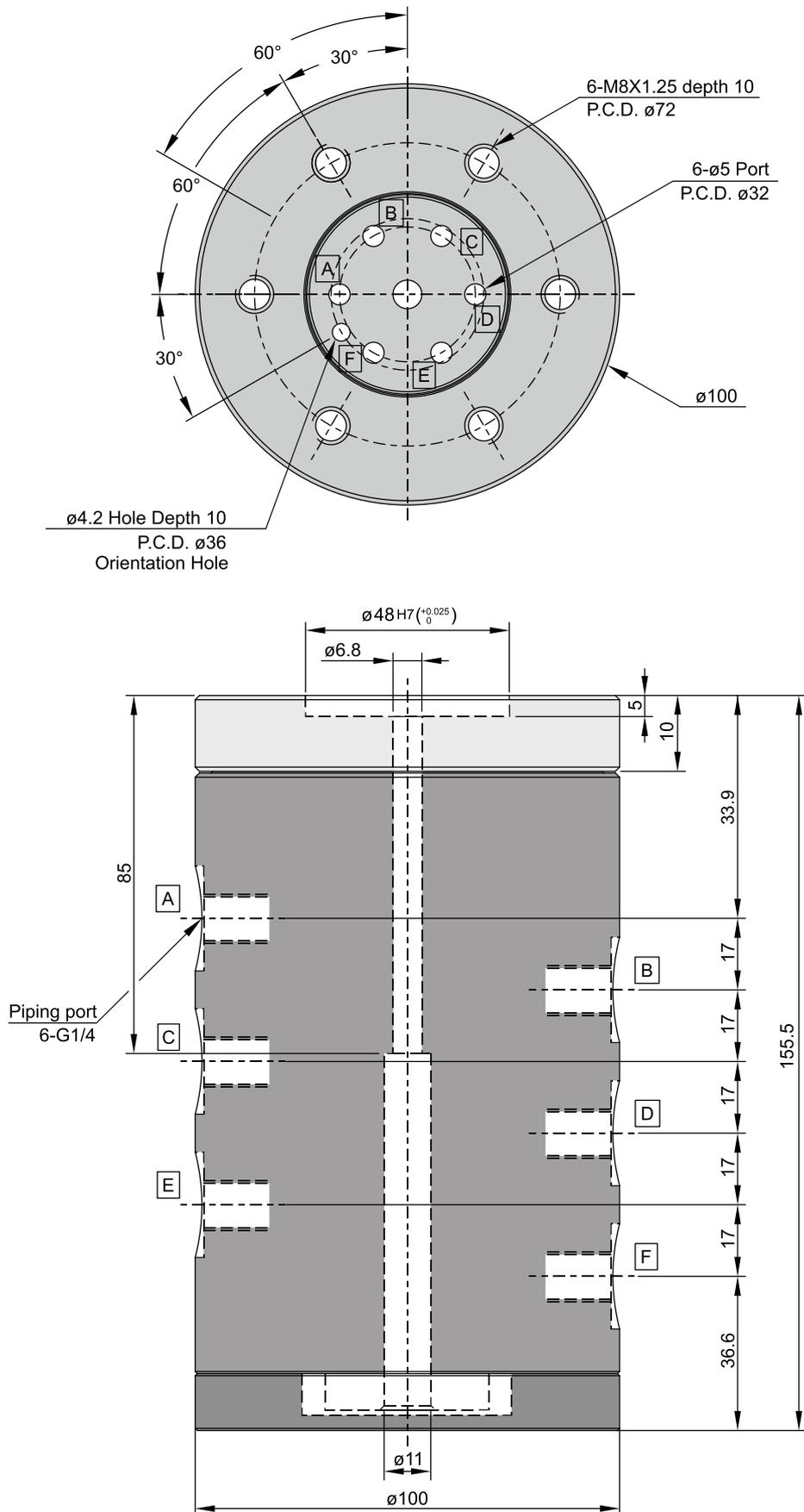


- Each piping port is marked with code A or B.



- Each piping port is marked with code A through D.

UR-C6: 6-Circuits



- Each piping port is marked with code A through F.

Hydraulic Double Acting Centering Vise Model CV



Specifications

		Part No.			
	Hydraulic Clamping	CVH-100-S	CVH-100-L	CVH-140-L	CVH-140-L
	Pneumatic Clamping	CVP-100-S	CVP-100-L	CVP-140-L	CVP-140-L
Clamping Force	kN	16	8	25	14
Stock per Jaw	mm	2	6	3	7
Max Operating Pressure	bar	60/9	60/9	60/9	60/9
Weight	Kg	7.6/7	7.6/7	15.8/14.5	15.8/14.5

- Pressure Range: - 20-60 Bar For Hydraulic / 5-9 Bar For Pneumatic
- Operating Temperature: - 0-70 °C
- Fluid Used: - General Mineral Based Hydraulic Oil (ISO – VG32 Equivalent)
- Given Value of Cylinder Forces Are at 60 Bar Pressure.

Model No. Selection

CV **P** - **100** **S**

Centering Vise

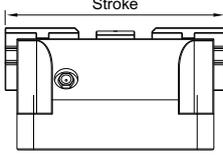
Clamping Type

P-
Pneumatic Clamping

H-
Hydraulic Clamping

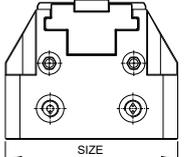
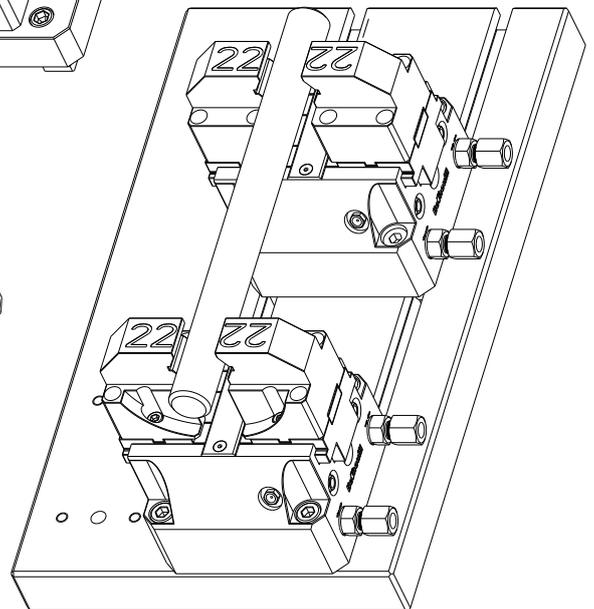
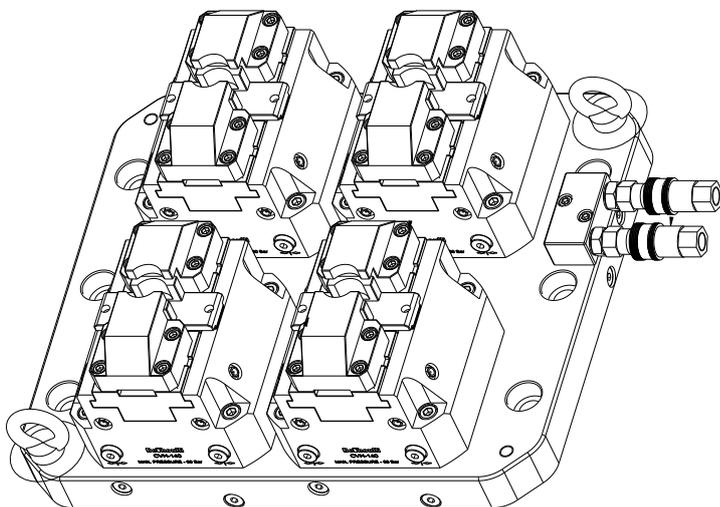
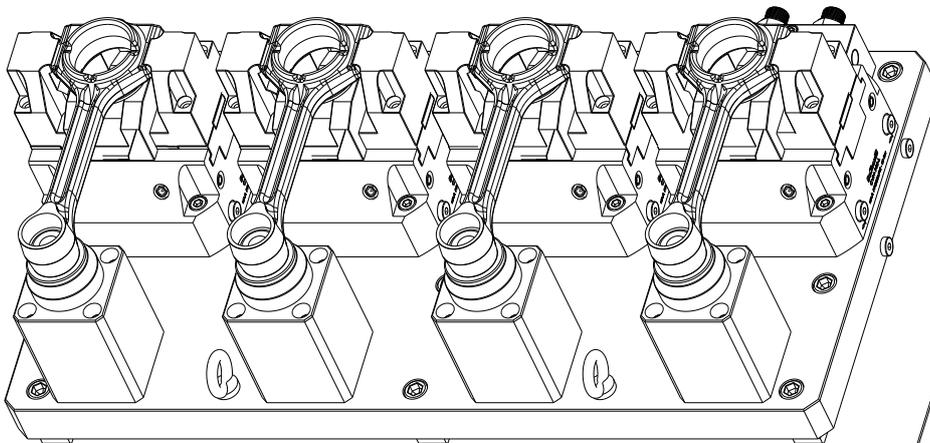
Stroke

S-Small
L-Large

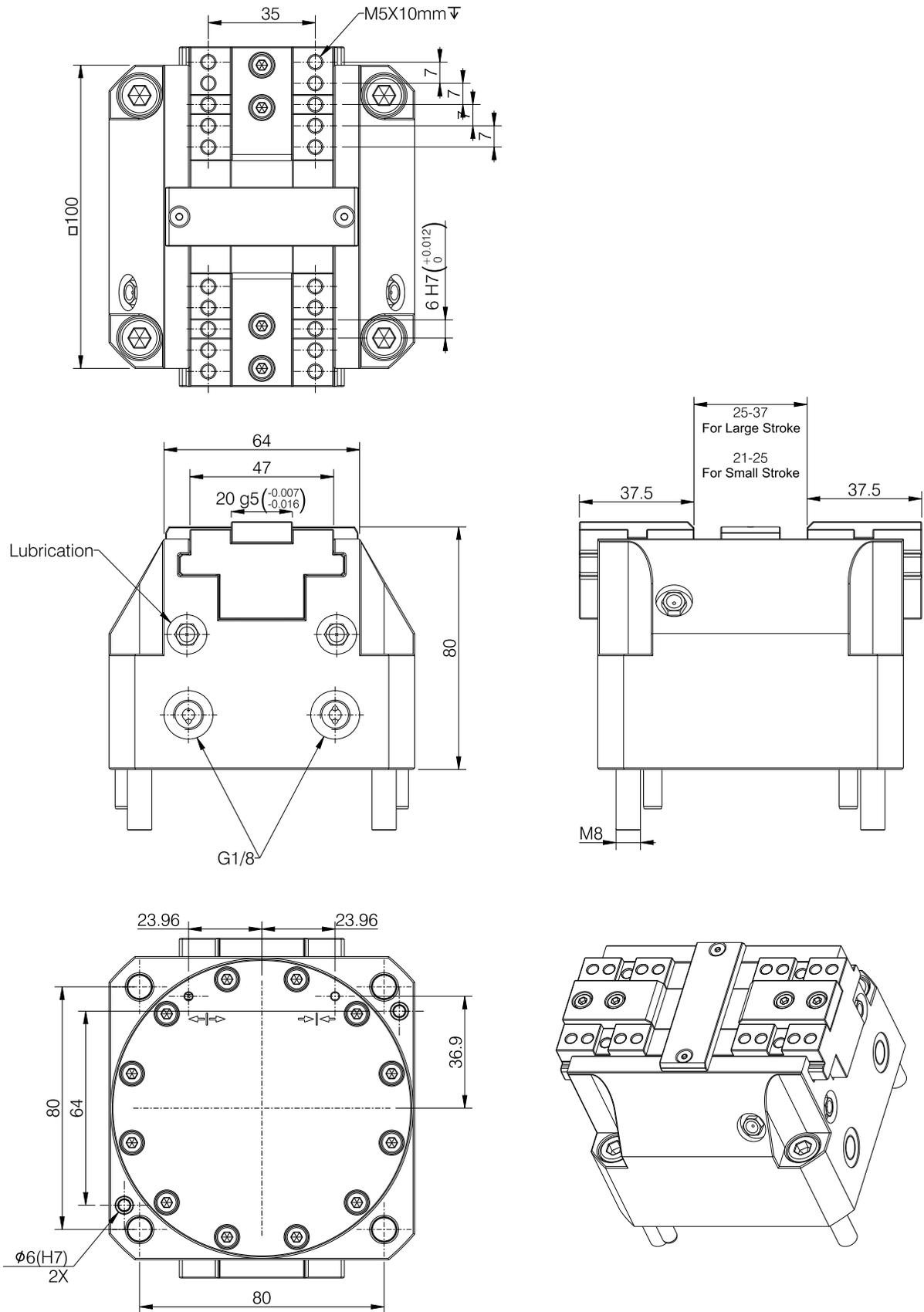


Size

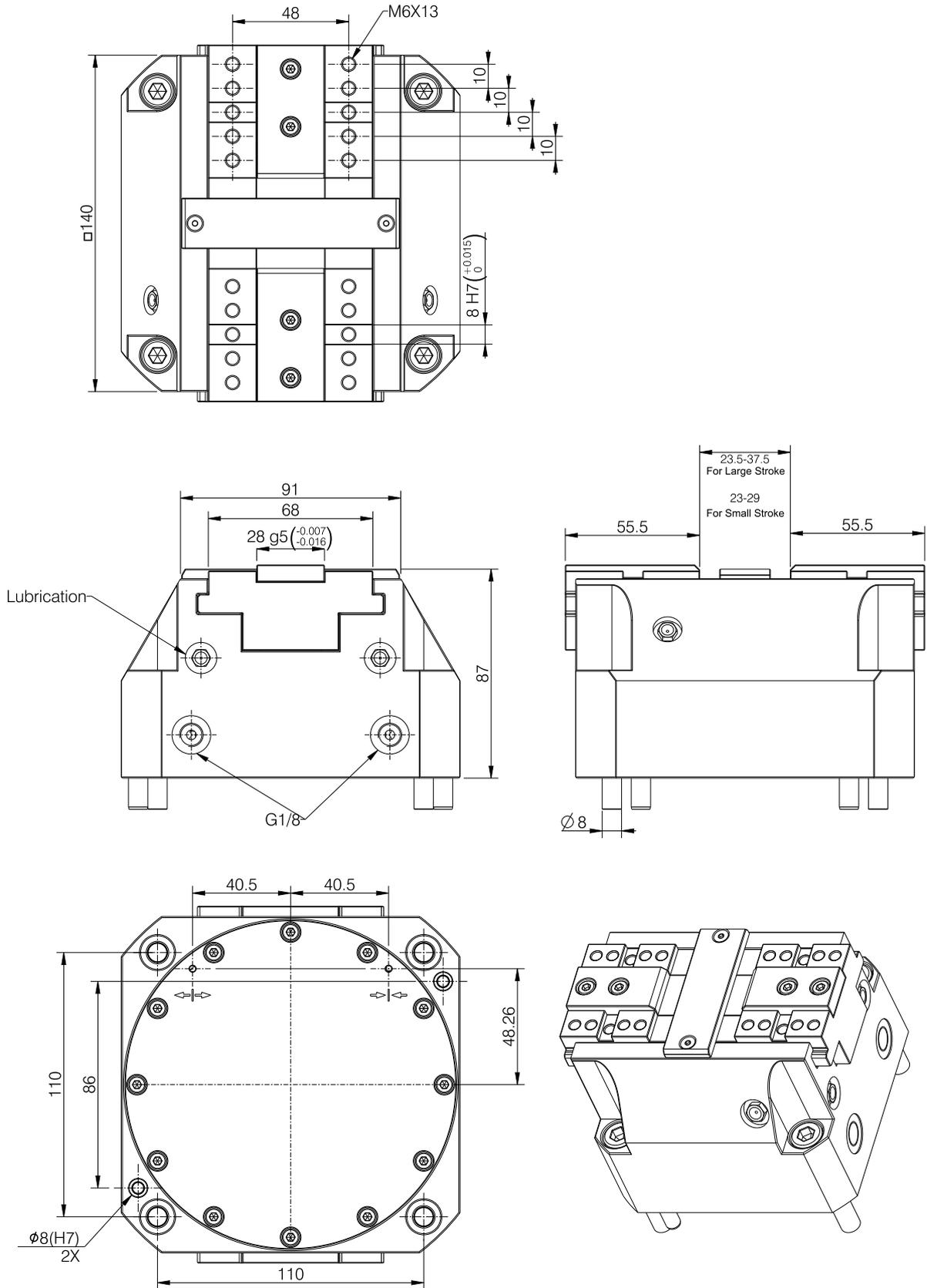
100
140

External Dimensions - CV-100



External Dimensions - CV-140



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