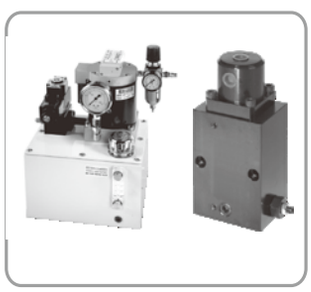
SWIVEL & CLAMP HYDRAULIC CYLINDERS

SERIES Products Content



NOS2 HYDRAYLIC CLAMPING CYLINDERS

- This product is suit for special machines in mass production and MC tooling fixtures, and it can improve production efficiency.
- The main function is that when cylinder works, the pressure plate will rotate to the required angle during the downward stroke of the piston, and then continue to press down the clamped workpiece along a straight line.
- Please install a flow control valve to avoid damage to the workpiece during the clamping process.
- Do not exceed 1.5x of the original length when the platen needs to be increased in length.

Tie-rod Hydraulic Cylinder
Mold Hydraulic Cylinders
Swivel & Clamp Hydraulic Cylinders
Booster Cylinders & Unclamping cylinders
ISO Specifications Cylinders
Round Hydraulic Cylinders
Specific Hydraulic Cylinders
Systems & Fittings

FEATYRE

Bore (mm)	25	32	40	50	63
Rod (mm)	18	20	22.4	28	35
Swivel stroke (mm)	9	11	11	13	13
Pressure stroke standard/ extend (mm)	13	15 / 30	15 / 30	17 / 34	17 / 34
Clamp force (kgf) (30kgf/cm^2)	71	147	259	404	647
Fluid	Mineral oil ISO-VG32				
Max. working pressure (kgf/cm^2)	100				
Working pressure area (kgf/cm^2)	5~70				
Swivel direction	R (right): Clockwise/ L (left): Counter clockwise				
Swivel angle	Standard angle 90±2°				
Type	Double acting				

STANDARD SPECIFICATIONGS

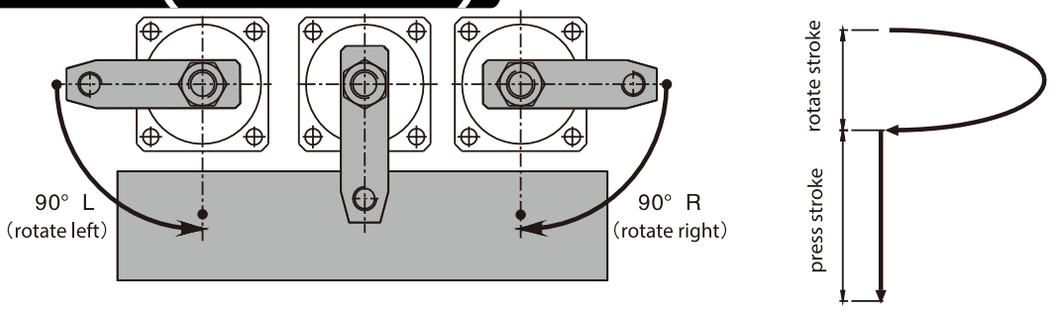
Type	Bore	25	32	40	50	63
SD	Basic	●	●	●	●	●
MF	Manifold block (down pressure speed regulation)	●	●	●	●	●
M	Manifold block	●	●	●	●	—
FA	Flange	●	●	●	●	●
FAM	Flange manifold block	●	●	●	●	—
TB	Full teeth	●	●	●	●	—

WEIGHT TABLE (Single side)

Units: kg

Type	Bore	25	32	40	50	63
SD	Basic	1.3	1.7	2.0	3.2	5.1
MF	Manifold block (down pressure speed regulation)	1.3	1.7	2.0	3.2	5.0
M	Manifold block	1.8	2.2	3.3	4.3	—
FA	Flange	1.3	1.7	2.3	3.4	5.2
FAM	Flange manifold block	1.3	1.7	2.4	3.5	—
TB	Full teeth	1.3	1.7	2.1	3.2	—

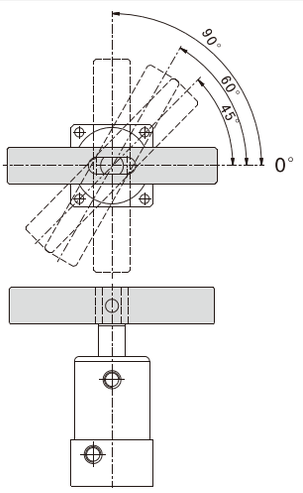
SINGLE SIDE SWIVEL CLAMP (DIRECTION)



L (rotate left) : When the axis is at the top fix center, the pressure plate rotates counter clockwise and presses down

R (rotate right) : When the axis is at the top fix center, the pressure plate rotates clockwise and presses down

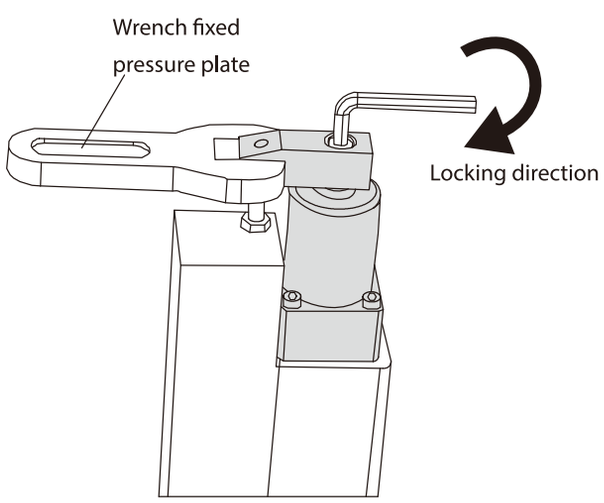
DOUBLE SIDE SWIVEL CLAMP (DIRECTION)



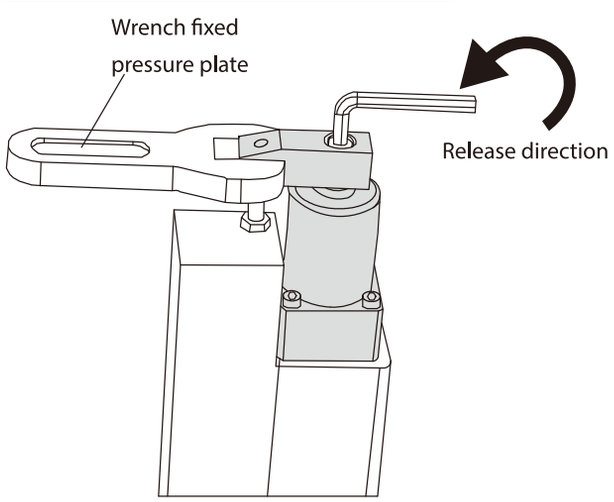
THEORETICAL OUTPUT TABLE

Bore (mm)	Shaft diameter (mm)	Piston pressure area (cm^2)	Theoretical output(kgf)	
			25kgf/cm^2	70kgf/cm^2
25	18	2.36	59	165
32	20	4.9	123	343
40	22.4	8.63	216	604
50	28	13.48	337	943
63	35	21.55	539	1509

SWIVEL CLAMP-LOCKING METHOD

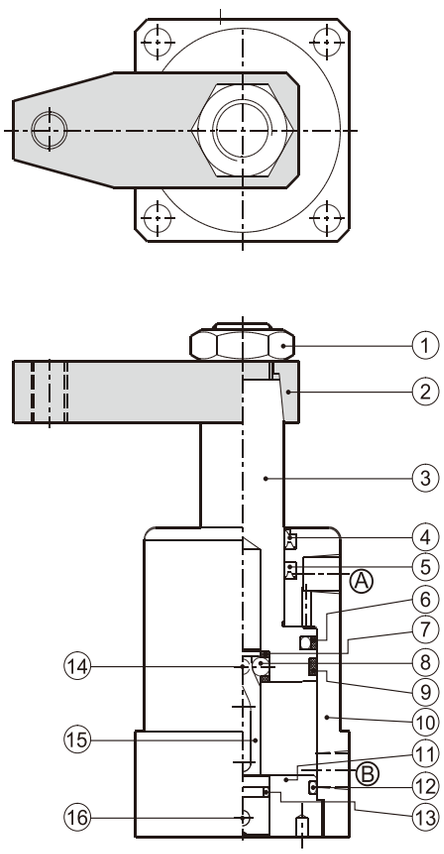


SWIVEL CLAMP-RELEASE METHOD

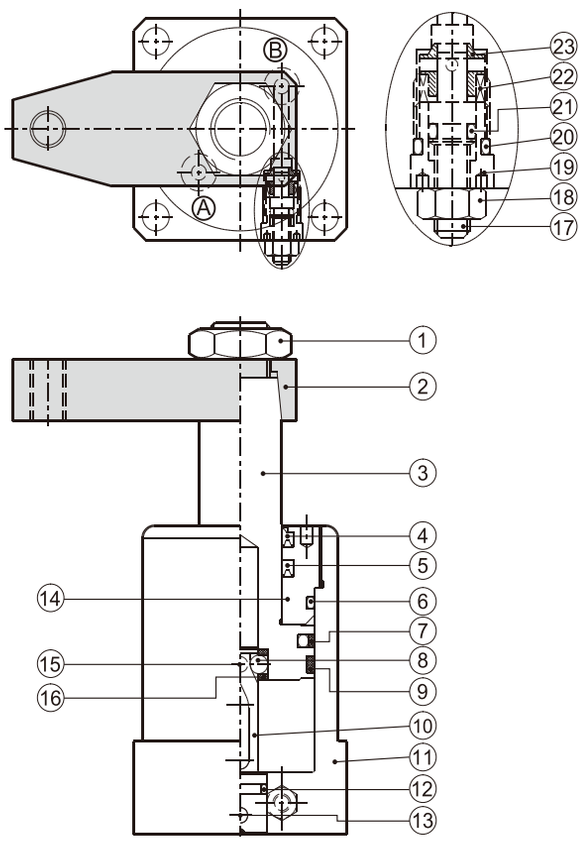


INTERNAL STRUCTURE AND PART NAMES

■ SD Basic



■ MF Manifold block (down pressure speed regulation)



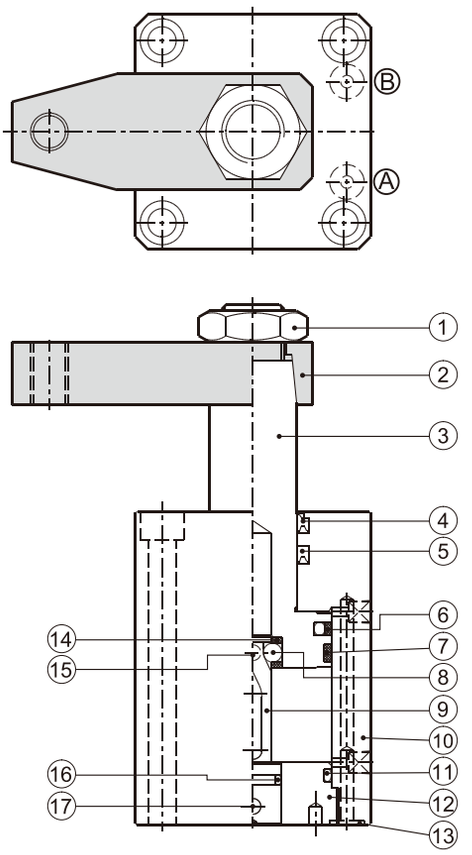
Ⓐ	Clamping
Ⓑ	Unclamping

Item	Part name	Qty	Item	Part name	Qty
①	Rod cap	1	⑨	Wear ring	1
②	Platen	1	⑩	Tube	1
③	Rod	1	⑪	Head cover	1
④	Rod dust cover	1	⑫	Head cover O-ring	1
⑤	Rod cover	1	⑬	Rod guide pin O-ring	1
⑥	Rod cover O-ring	1	⑭	Cylinder pin	2
⑦	Retaining ring	1	⑮	Rod guide pin	1
⑧	Steel ball	2	⑯	Spring pin	1

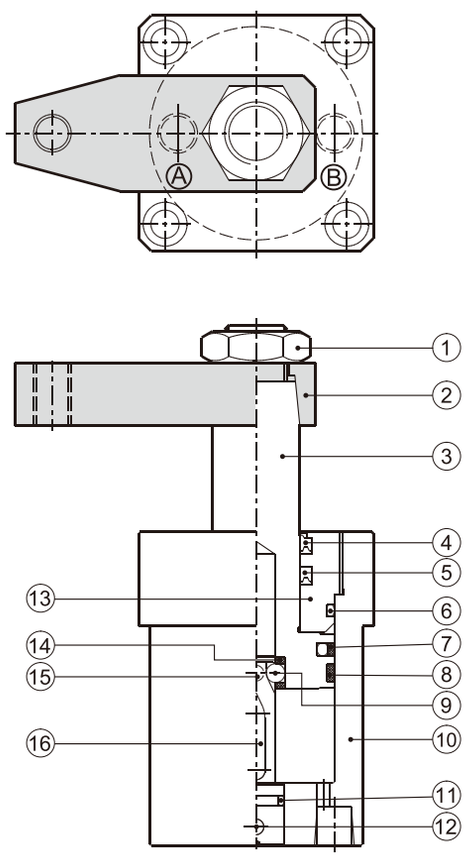
Item	Part name	Qty	Item	Part name	Qty
①	Rod cap	1	⑬	Spring pin	1
②	Platen	1	⑭	Cover	1
③	Rod	1	⑮	Cylinder pin	2
④	Rod dust cover	1	⑯	Retaining ring	1
⑤	Rod cover	1	⑰	Cushion screw	1
⑥	Rod cover O-ring	1	⑱	Cushion nut	1
⑦	Piston cover	1	⑲	Cushion socket	1
⑧	Steel ball	2	⑳	Cushion O-ring	1
⑨	Wear ring	1	㉑	Cushion O-ring	1
⑩	Rod guide pin	1	㉒	Spring	1
⑪	Tube	1	㉓	Check valve	1
⑫	Rod guide pin O-ring	1			

INTERNAL STRUCTURE AND PART NAMES

■ M Manifold block



■ FA Flange



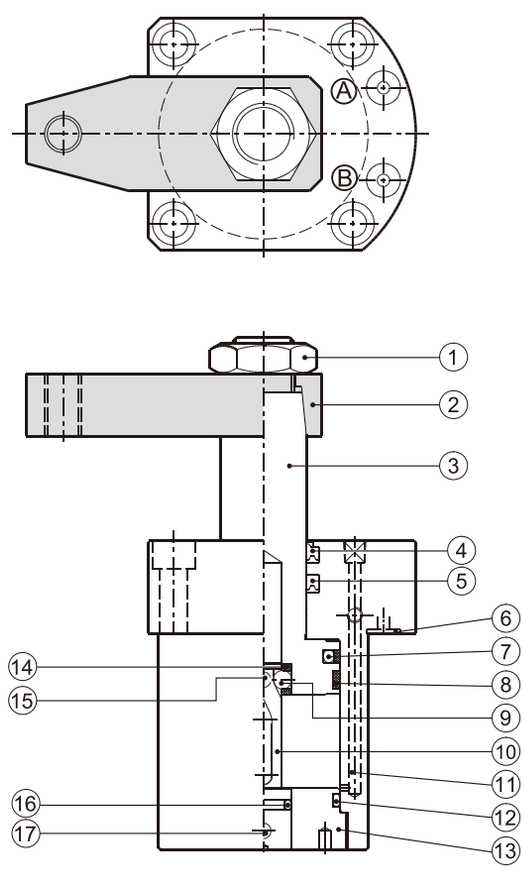
Ⓐ	Clamping
Ⓑ	Unclamping

Item	Part name	Qty	Item	Part name	Qty
①	Rod cap	1	⑩	Tube	1
②	Platen	1	⑪	Head cover O-ring	1
③	Rod	1	⑫	Head cover	1
④	Rod dust cover	1	⑬	O-ring	2
⑤	Rod cover	1	⑭	Retaining ring	1
⑥	Piston cover	1	⑮	Cylinder pin	2
⑦	Wear ring	1	⑯	Rod guide pin O-ring	1
⑧	Steel ball	2	⑰	Spring pin	1
⑨	Rod guide pin	1			

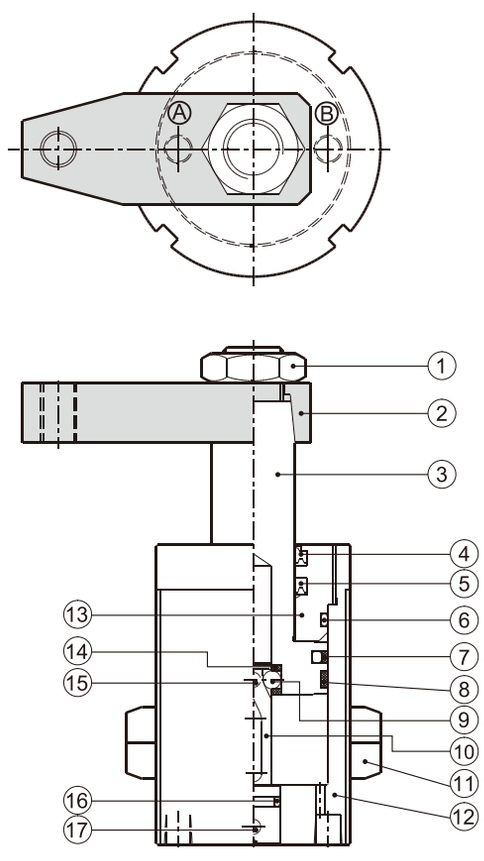
Item	Part name	Qty	Item	Part name	Qty
①	Rod cap	1	⑨	Steel ball	2
②	Platen	1	⑩	Tube	1
③	Rod	1	⑪	Rod guide pin O-ring	1
④	Rod dust cover	1	⑫	Spring pin	1
⑤	Rod cover	1	⑬	Cover	1
⑥	Rod cover O-ring	1	⑭	Retaining ring	1
⑦	Piston cover	1	⑮	Cylinder pin	2
⑧	Wear ring	1	⑯	Rod guide pin	1

INTERNAL STRUCTURE AND PART NAMES

■ FAM Flange manifold block



■ TB Full teeth



Ⓐ	Clamping
Ⓑ	Unclamping

Item	Part name	Qty	Item	Part name	Qty
①	Rod cap	1	⑩	Rod guide pin	1
②	Platen	1	⑪	Tube	1
③	Rod	1	⑫	Head cover O-ring	1
④	Rod dust cover	1	⑬	Head cover	2
⑤	Rod cover	1	⑭	Retaining ring	1
⑥	O-ring	2	⑮	Cylinder pin	2
⑦	Piston cover	1	⑯	Rod guide pin O-ring	1
⑧	Wear ring	2	⑰	Spring pin	1
⑨	Steel ball	1			

Item	Part name	Qty	Item	Part name	Qty
①	Rod cap	1	⑩	Rod guide pin	1
②	Platen	1	⑪	Cap	2
③	Rod	1	⑫	Tube	1
④	Rod dust cover	1	⑬	Cover	1
⑤	Rod cover	1	⑭	Retaining ring	1
⑥	Rod cover O-ring	1	⑮	Cylinder pin	2
⑦	Piston cover	1	⑯	Rod guide pin O-ring	1
⑧	Wear ring	1	⑰	Spring pin	1
⑨	Steel ball	2			

ORDER INDICATION

NOS2	SD	SR	25	90	
Series	Type	Turn form	Bore	Swivel angle	Down stroke
Standard swivel and clamp cylinders (new)	SD: Basic  MF: Manifold block (down pressure speed regulation)  M: Manifold block  FA: Flange  FAM: Flange manifold block  TB: Full teeth 	SR: Single right SL: Single left DR: Double right DL: Double left	25:25mm 32:32mm 40:40mm 50:50mm 63:63mm	Basic 90° Special 45°, 60°	Blank = indicates standard 13, 15, 17 (refer feature part) Customized: 30, 34 Notes: only for SD & MF type

PART ORDER INDICATION

NOS2	SD	SR	Rod	25	90	
Series	Type	Turn form	Part name	Bore	Swivel angle	Down stroke
Standard swivel and clamp cylinders (new)	SD MF M FA FAM TB	SR: Single right SL: Single left DR: Double right DL: Double left	Refer to internal structure and part name	25:25mm 32:32mm 40:40mm 50:50mm 63:63mm	Basic 90° Special 45°, 60°	Blank = indicates standard 13, 15, 17 (refer feature part) Customized: 30, 34 Notes: only for SD & MF type

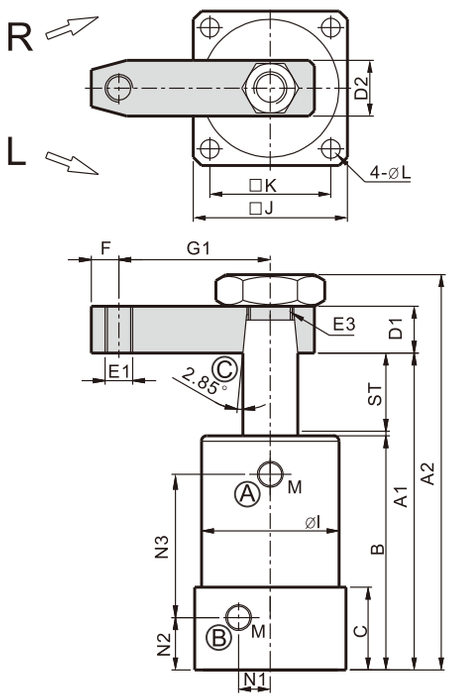
SEAL ORDER INDICATION

NOS2	SD	SR	Piston cover	25	90
Series	Type	Turn form	Seal name	Bore	Swivel angle
Standard swivel and clamp cylinders (new)	SD MF M FA FAM TB	SR: Single right SL: Single left DR: Double right DL: Double left	Refer to internal structure and part name	25:25mm 32:32mm 40:40mm 50:50mm 63:63mm	Basic 90° Special 45°, 60°

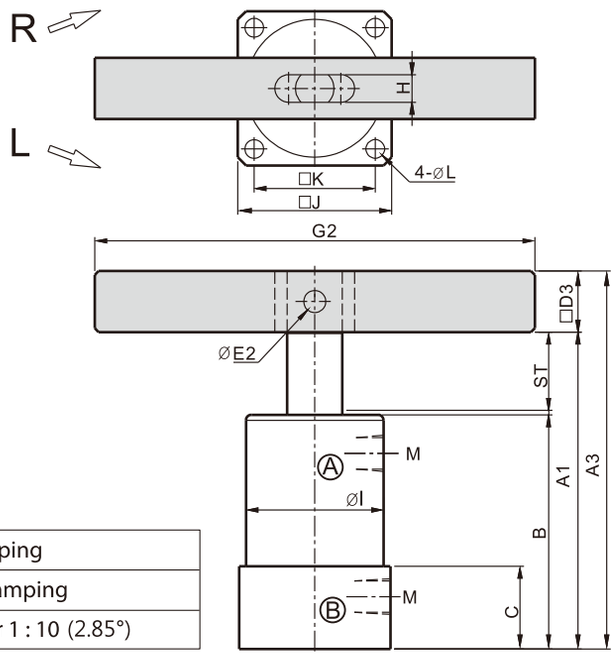
EXTERNAL DIMENSIONS

■ SD Basic

● S (single side)



● D (double side)



Ⓐ	Clamping
Ⓑ	Unclamping
Ⓒ	Taper 1 : 10 (2.85°)

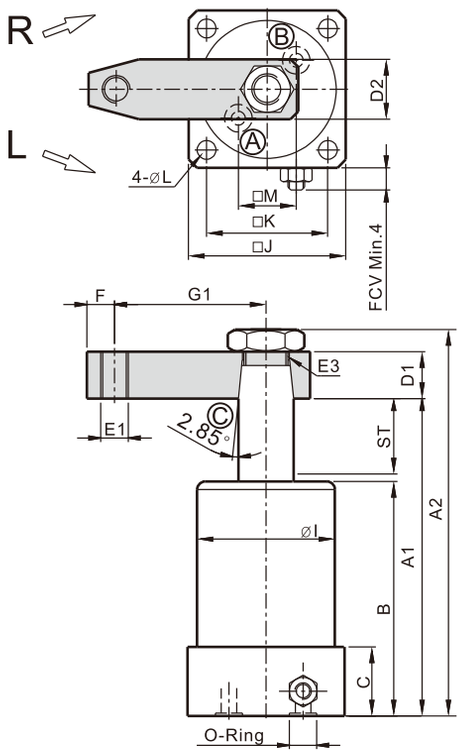
Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	A3	B	C	D1	D2	D3	E1	E2
25	9	13	22	101	(124)	120	76	27	15	27	19	M10x1.5	8
32	11	15	26	115	(140)	137.2	85	30	17	31	22.2	M10x1.5	8
	11	30	41	145	(170)	167.2	100						
40	11	15	26	120	(148)	142.2	90	30	18	31	22.2	M10x1.5	10
	11	30	41	150	(178)	172.2	105						
50	13	17	30	134	(166)	159.4	100	34	20	37	25.4	M12x1.75	12
	13	34	47	168	(200)	193.4	117						
63	13	17	30	139	(175)	170.8	105	34	23	48	31.8	M16x2.0	15
	13	34	47	173	(209)	204 8	122						

Symbol / Bore	E3	F	G1	G2	H	I	J	K	L	M	N1	N2	N3
25	M14x1.5	10	50	140	9	46	53	40	6.8	RC1/8	8	17	46
32	M16x1.5	10	55	160	10	50	57	44	6.8	RC1/8	10	19	52
													67
40	M18x1.5	10	60	160	10	54	63	48	9	RC1/8	12	19	57
													72
50	M20x1.5	12	65	180	12	66	72	57	9	RC1/4	15	21.5	63.5
													80.5
63	M26x1.5	15	75	200	15	80	88	70	11	RC1/4	17	22	68
													85

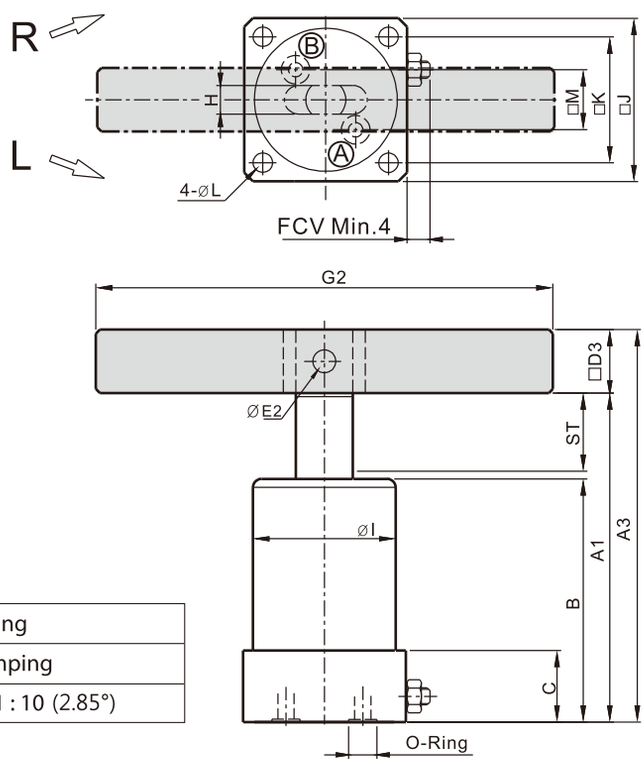
EXTERNAL DIMENSIONS

■ MF Manifold block (down pressure speed regulation)

● S (single side)



● D (double side)



Ⓐ	Clamping
Ⓑ	Unclamping
Ⓒ	Taper 1 : 10 (2.85°)

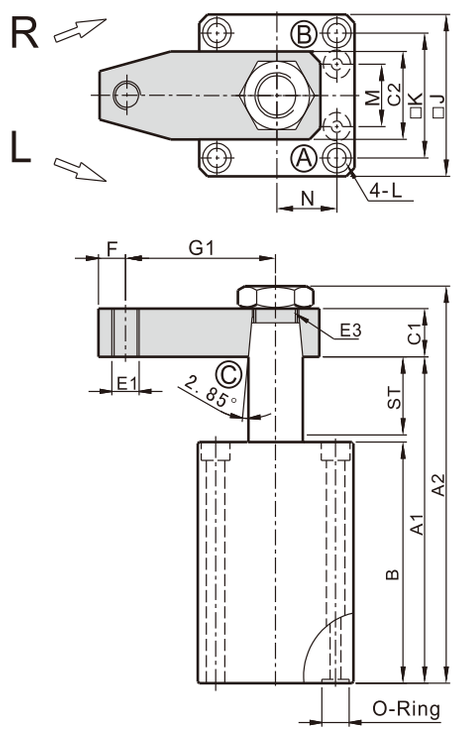
Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	A3	B	C	D1	D2	D3	E1	E2
25	9	13	22	101	(124)	120	76	22	15	27	19	M10x1.5	8
32	11	15	26	115	(140)	137.2	85	25	17	31	22.2	M10x1.5	8
	11	30	41	145	(170)	167.2	100						
40	11	15	26	120	(148)	142.2	90	25	18	31	22.2	M10x1.5	10
	11	30	41	150	(178)	172.2	105						
50	13	17	30	134	(166)	159.4	100	30	20	37	25.4	M12x1.75	12
	13	34	47	168	(200)	193.4	117						
63	13	17	30	139	(175)	170.8	105	30	23	48	31.8	M16x2.0	15
	13	34	47	173	(209)	204.8	122						

Symbol / Bore	E3	F	G1	G2	H	I	J	K	L	M	O-Ring
25	M14x1.5	10	50	140	9	46	57	42	6.8	19	P7
32	M16x1.5	10	55	160	10	50	57	44	6.8	21	P7
40	M18x1.5	10	60	160	10	54	63	48	9	23	P9
50	M20x1.5	12	65	180	12	66	72	57	9	28	P9
63	M26x1.5	15	75	200	15	80	88	70	11	32	P9

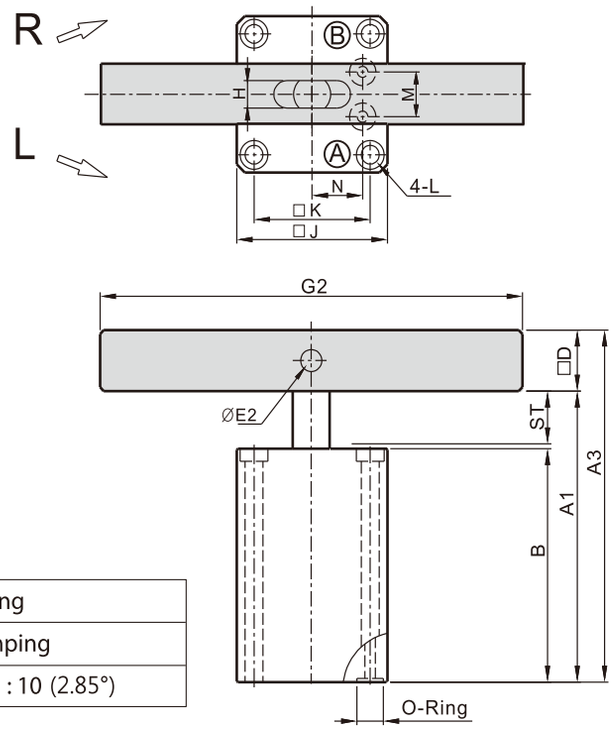
EXTERNAL DIMENSIONS

■ M Manifold block

● S (single side)



● D (double side)



Ⓐ	Clamping
Ⓑ	Unclamping
Ⓒ	Taper 1 : 10 (2.85°)

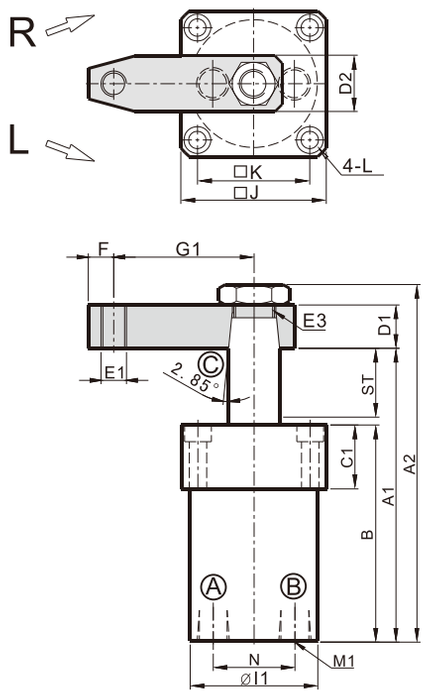
Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	A3	B	C1	C2	D	E1	E2
25	9	13	22	101	(124)	120	76	15	27	19	M10x1.5	8
32	11	15	26	115	(140)	137.2	85	17	31	22.2	M10x1.5	8
40	11	15	26	120	(148)	142.2	90	18	31	22.2	M10x1.5	10
50	13	17	30	134	(166)	159.4	100	20	37	25.4	M12x1.75	12

Symbol / Bore	E3	F	G1	G2	H	J	K	L	M	N	O-Ring
25	M14x1.5	10	50	140	9	57	42	Ø6.8-Ø10.5x6.5dp	18	20	P7
32	M16x1.5	10	55	160	10	57	44	Ø6.8-Ø10.5x6.5dp	22	22	P7
40	M18x1.5	10	60	160	10	69	52	Ø9-Ø14x9dp	26	26	P8
50	M20x1.5	12	65	180	12	75	58	Ø9-Ø14x9dp	32	30	P8

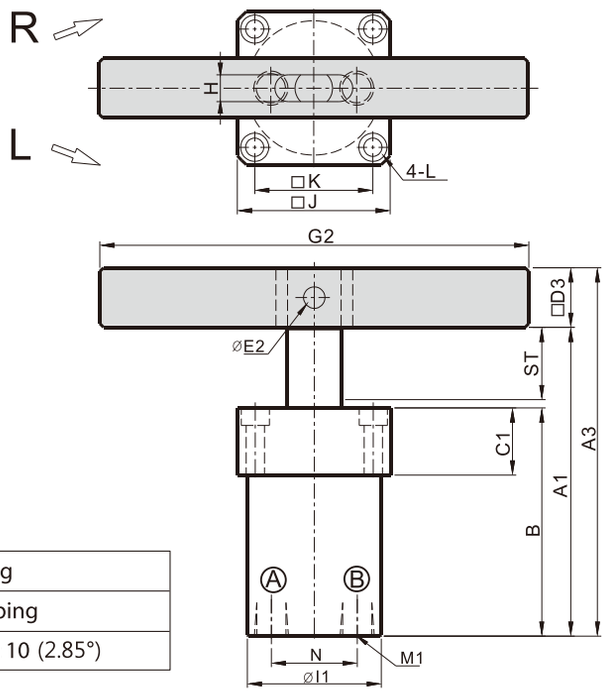
EXTERNAL DIMENSIONS

■ FA Flange

● S (single side)



● D (double side)



Ⓐ	Clamping
Ⓑ	Unclamping
Ⓒ	Taper 1 : 10 (2.85°)

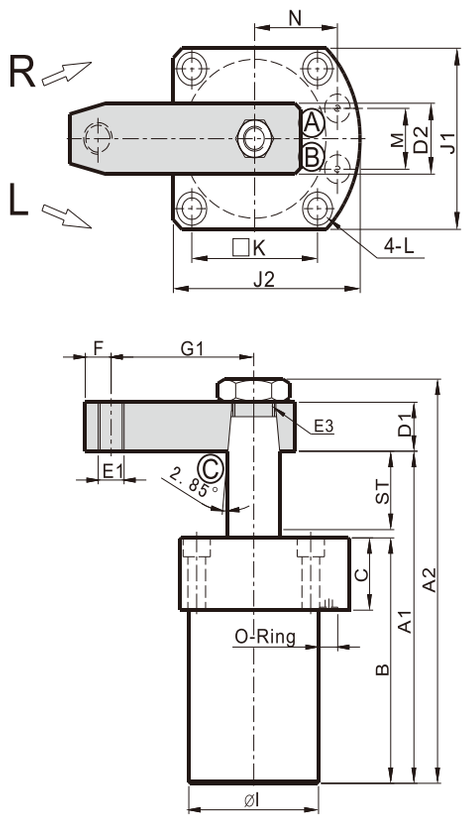
Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	A3	B	C1	D1	D2	D3	E1	E2
25	9	13	22	101	(124)	120	76	22	15	27	19	M10x1.5	8
32	11	15	26	115	(140)	137.2	85	25	17	31	22.2	M10x1.5	8
40	11	15	26	120	(148)	142.2	90	25	18	31	22.2	M10x1.5	10
50	13	17	30	134	(166)	159.4	100	30	20	37	25.4	M12x1.75	12
63	13	17	30	139	(175)	170.8	105	30	23	48	31.8	M16x2.0	15

Symbol / Bore	E3	F	G1	G2	H	I1	J	K	L	M1	N
25	M14x1.5	10	50	140	9	45	53	40	Ø6.8-Ø10.5x6.5dp	RC1/4	28
32	M16x.5	10	55	160	10	50	57	44	Ø6.8-Ø10.5x6.5dp	RC1/4	32
40	M18x1.5	10	60	160	10	58	69	52	Ø9-Ø14x9dp	RC1/4	40
50	M20x1.5	12	65	180	12	68	75	58	Ø9-Ø14x9dp	RC1/4	50
63	M26x1.5	15	75	200	15	81	90	70	Ø11-Ø17x11dp	RC1/4	63

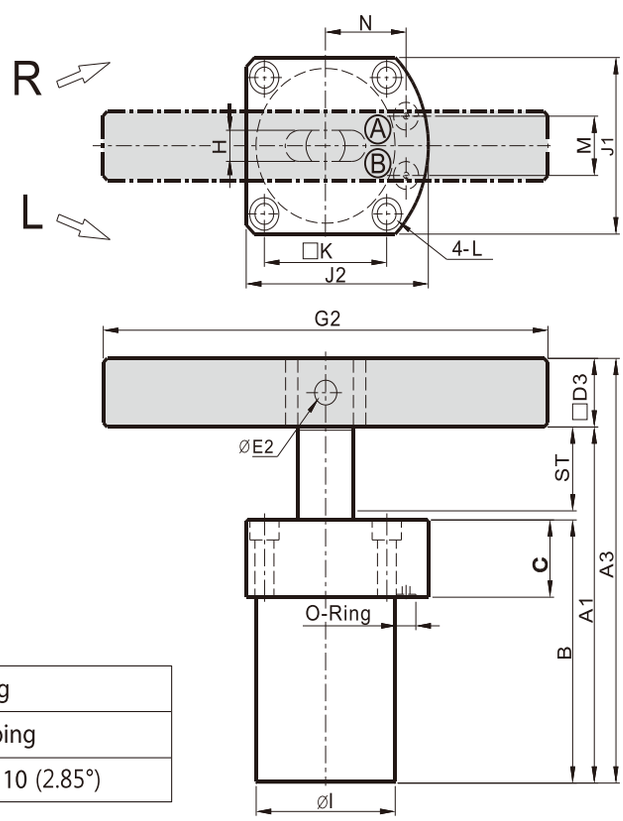
EXTERNAL DIMENSIONS

■ FAM Flange manifold block

• S (single side)



• D (double side)



Ⓐ	Clamping
Ⓑ	Unclamping
Ⓒ	Taper 1 : 10 (2.85°)

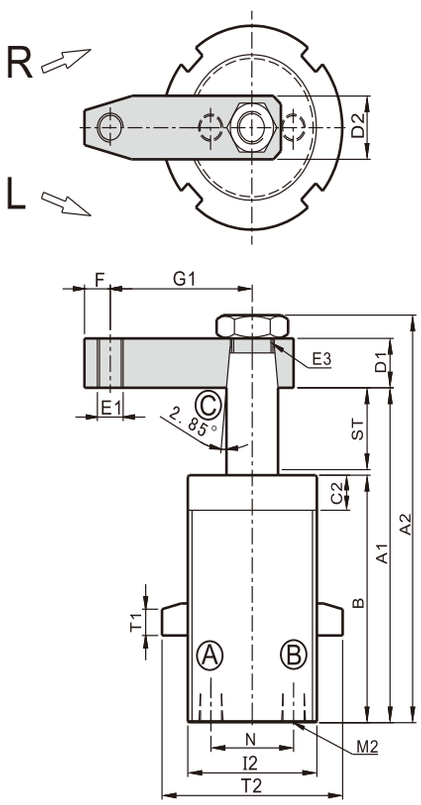
Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	A3	B	C	D1	D2	D3	E1	E2
25	9	13	22	101	(124)	120	76	22	15	27	19	M10x1.5	8
32	11	15	26	115	(140)	137.2	85	25	17	31	22.2	M10x1.5	8
40	11	15	26	120	(148)	142.2	90	25	18	31	22.2	M10x1.5	10
50	13	17	30	134	(166)	159.4	100	30	20	37	25.4	M12x1.75	12

Symbol / Bore	E3	F	G1	G2	H	I	J1	J2	K	L	M	N	O-Ring
25	M14x1.5	10	50	140	9	45	55	64	42	Ø6.8-Ø10.5x6.5dp	20	28	P6
32	M16x1.5	10	55	160	10	50	57	65.5	44	Ø6.8-Ø10.5x6.5dp	22	29	P6
40	M18x1.5	10	60	160	10	58	69	79	52	Ø9-Ø14x9dp	26	34.5	P9
50	M20x1.5	12	65	180	12	68	75	87	58	Ø9-Ø14x9dp	30	39	P9

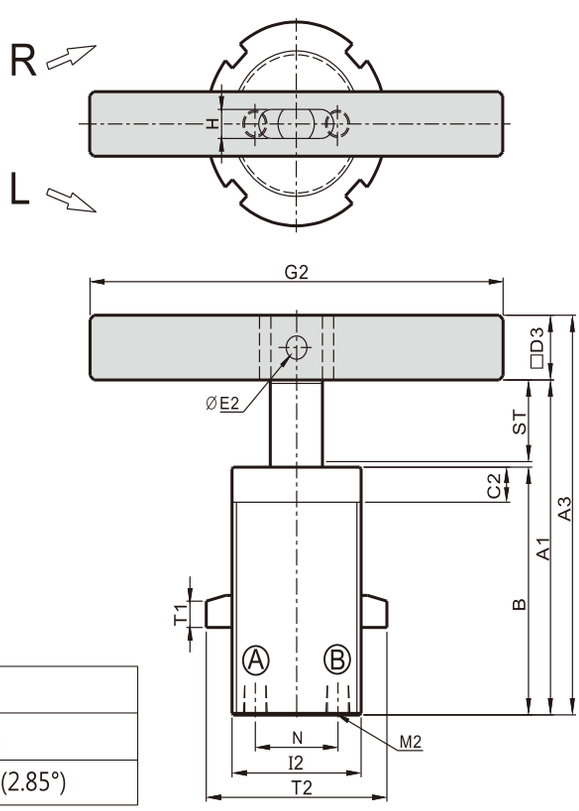
EXTERNAL DIMENSIONS

■ TB Full teeth

• S (single side)



• D (double side)



Ⓐ	Clamping
Ⓑ	Unclamping
Ⓒ	Taper 1 : 10 (2.85°)

Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	A3	B	C2	D1	D2	D3	E1
25	9	13	22	101	(124)	120	76	12	15	27	19	M10x1.5
32	11	15	26	115	(140)	137.2	85	12	17	31	22.2	M10x1.5
40	11	15	26	120	(148)	142.2	90	15	18	31	22.2	M10x1.5
50	13	17	30	134	(166)	159.4	100	15	20	37	25.4	M12x1.75

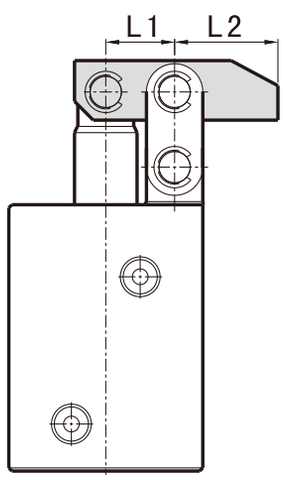
Symbol / Bore	E2	E3	F	G1	G2	H	I2	M2	N	T1x2PCS	T2
25	8	M14x1.5	10	50	140	9	M45x1.5	RC1/8	28	10	65
32	8	M16x1.5	10	55	160	10	M50x1.5	RC1/8	32	11	70
40	10	M18x1.5	10	60	160	10	M55x1.5	RC1/8	40	11	75
50	12	M20x1.5	12	65	180	12	M65x1.5	RC1/8	50	12	85

OS4 HYDRAYLIC CLAMPING CYLINDERS

- This product clamps the workpiece in a straight line to achieve the purpose of automatic processing
- Installation form: basic & manifold block

Tie-rod Hydraulic Cylinder
Mold Hydraulic Cylinders
Swivel & Clamp Hydraulic Cylinders
Booster Cylinders & Unclamping cylinders
ISO Specifications Cylinders
Round Hydraulic Cylinders
Specific Hydraulic Cylinders
Systems & Fittings

FEATYRE



F: Platen clamping force (kgf)
f: Cylinders force (kgf)
L1: Distance from output point to fulcrum (mm)
L2: Distance from clamping force to fulcrum (mm)

$$F = \frac{fxL1}{L2}$$

Bore (mm)	32	40	50
Fluid	Mineral oil ISO-VG32		
Max. pressure (kgf/cm²)	70/140		
Clamp type	Up and down		
Acting type	Double acting		
Swivel angle	None		
Stroke (mm)	25	30	35

THEORETICAL OUTPUT TABLE

Bore (mm)	Shaft diameter (mm)	Piston pressure area (cm²)	70kgf/cm²		140kgf/cm²	
			Force (kgf)	Clamping (kgf)	Force (kgf)	Clamping (kgf)
32	20	8.0	563	375	1126	751
40	25	12.6	880	572	1759	1144
50	28	19.6	1374	877	2749	1755

STANDARD SPECIFICATIONGS

Type \ Bore	32	40	50
SD Basic	●	●	●
MF Manifold block	●	●	●

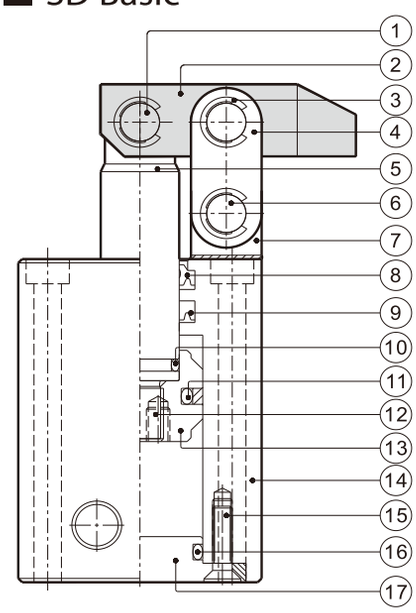
WEIGHT TABLE (Single side)

Units: kg

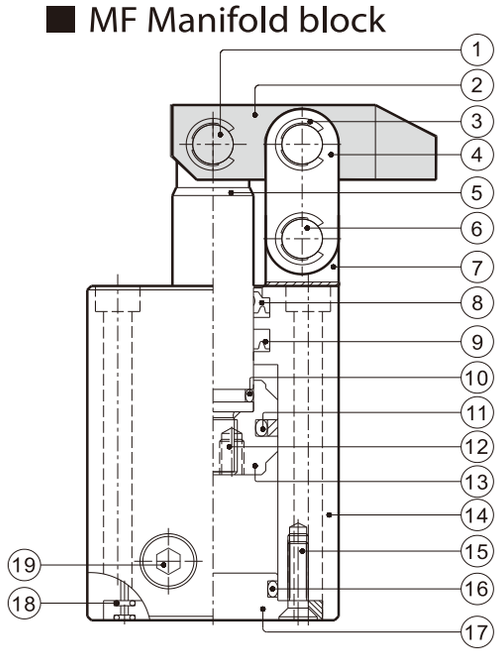
Bore \ Type	SD Basic	MF Manifold block
32	2.2	2.1
40	2.8	2.5
50	3.5	3.2

INTERNAL STRUCTURE AND PART NAMES

■ SD Basic



■ MF Manifold block

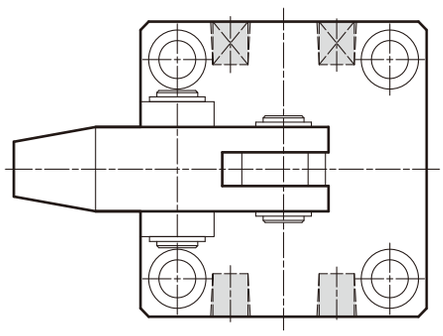


Item	Part name	Qty	Item	Part name	Qty
①	Rod fixed pin	1	⑪	Piston cover	1
②	Platen	1	⑫	Set screw	1
③	E-buckle	6	⑬	Piston	1
④	Connecting plate	2	⑭	Tube	1
⑤	Rod	1	⑮	Flat head hexagon socket cap screws	6
⑥	Connecting plate fixed pin	2	⑯	Head cover O-ring	1
⑦	Connecting socket	1	⑰	Head cover	1
⑧	Rod dust cover	1	⑱	Oil port O-ring	4
⑨	Rod cover	1	⑲	Plug	2
⑩	Piston O-ring	1			

ORDER INDICATION

OS4	SD	32
Series	Type	Bore
Lever clamp cylinders	SD: Basic / MF: Manifold block	32:32mm / 40:40mm / 50:50mm

Spare oil port position



Oil port position

PART ORDER INDICATION

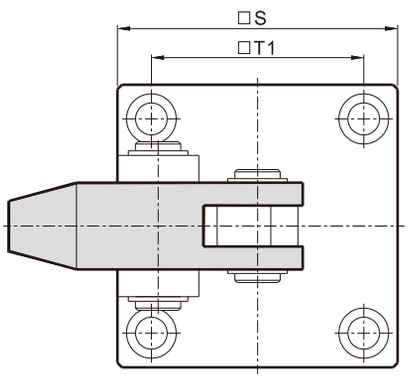
OS4	SD	32	Rod
Series	Type	Bore	Part name
Lever clamp cylinders	SD: Basic / MF: Manifold block	32:32mm / 40:40mm / 50:50mm	Refer to internal structure and part name

SEAL ORDER INDICATION

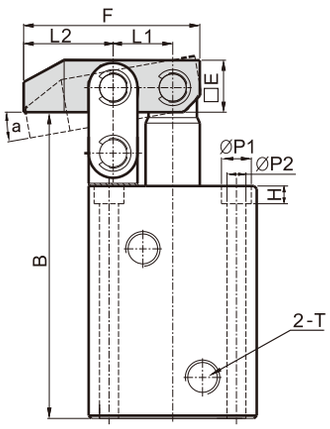
OS4	SD	32	Piston cover
Series	Type	Bore	Seal name
Lever clamp cylinders	SD: Basic / MF: Manifold block	32:32mm / 40:40mm / 50:50mm	Refer to internal structure and part name

EXTERNAL DIMENSIONS

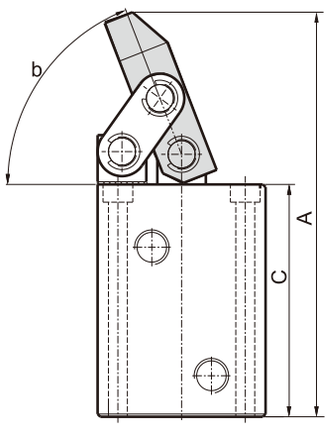
■ SD Basic



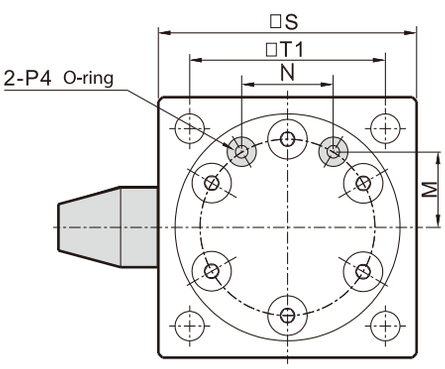
● Clamping



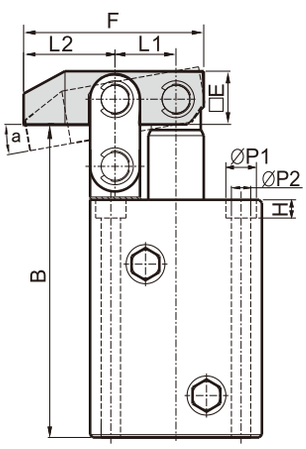
● Unclamping



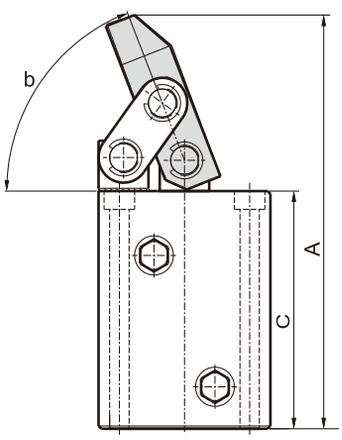
■ MF Manifold block



● Clamping



● Unclamping



Symbol / Bore	Stroke	A	B	C	E	F	a	b	S
32	25	148	112	85	19	65	10	69	62
40	30	166	122	90	22.2	77	7	70	70
50	35	202	138	100	25.4	90	6	70	80

Symbol / Bore	L1	L2	M	N	P1	P2	H	T	T1
32	22	33	18	22	11	7	6.5	RC 1/4	47
40	26	40	22	26	14	9	9	RC 1/4	52
50	30	47	25	32	14	9	9	RC 1/4	58

JHPS HIGH-PRESSURE SWIVEL AND CLAMP CYLINDERS

- Maximum working pressure is 500kgf/cm^2
- Workpiece clamping with downward force
- Unclamping with hydraulic or spring (push up stroke)
- To avoid unsmooth operation of the cylinder and affect the service life, a flow control valve is installed on the hydraulic circuit

FEATURE

Bore (mm)	25	32	40	50	63
Rod (mm)	20	25	32	40	50
Stroke (mm)	8	9	9	12	12
Pressure stroke (mm)	11	13	13	15	15
Max. filling speed (cm^3/s)	3.3	6.9	9.9	19.1	31.1
Clamping volume (cm^3)	3.3	6.9	9.9	19.1	31.1
Unclamping volume (cm^3)	9.3	17.7	27.6	53	84.2
Swivel direction	R (right): Clockwise/ L (left): Counter clockwise				
Swivel angle	Standard angle 90° select angle 45°, 60°				
Min. working pressure (kgf/cm^2)	S: Single acting : 40 D: Double acting : 10				

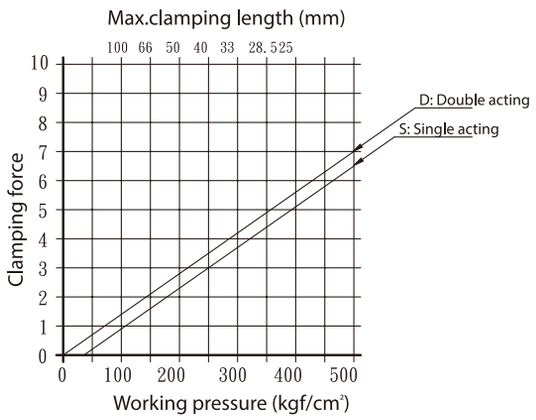
ORDER INDICATION

JHPS	SD			25	D	R	90
Series	Type			Bore	Acting type	Direction	Swivel angle
High-pressure swivel and clamp cylinders	SD: Basic	MF: Manifold block	TB: Full teeth	25:25mm 32:32mm 40:40mm 50:50mm 63:63mm	D: Double acting S: Single acting (spring return)	R: Right L: Left	90° 45° 60°

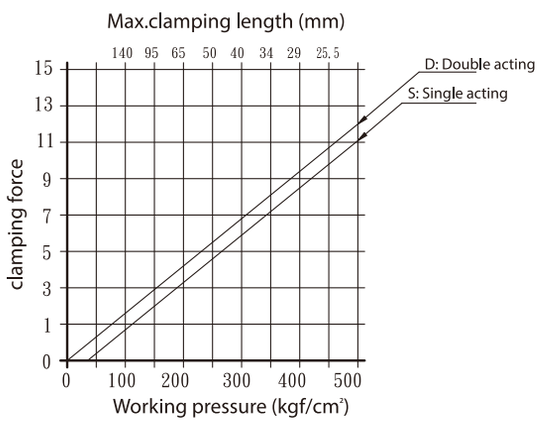


SINGLE SIDE SWIVEL CLAMP (DIRECTION)

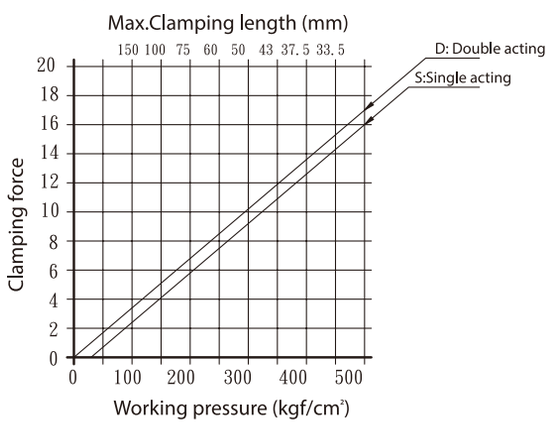
● 25



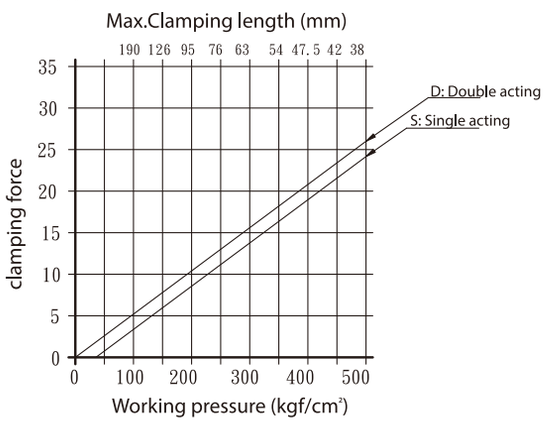
● 32



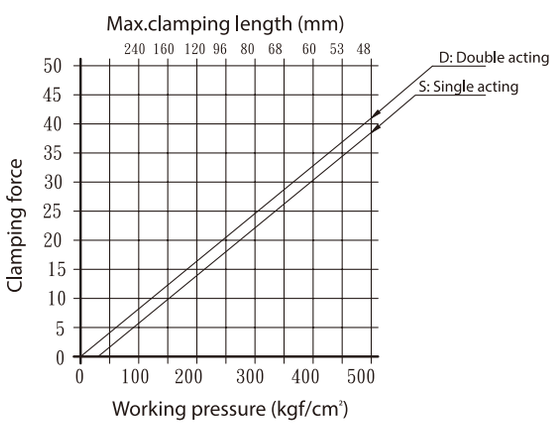
● 40



● 50



● 63



WEIGHT TABLE

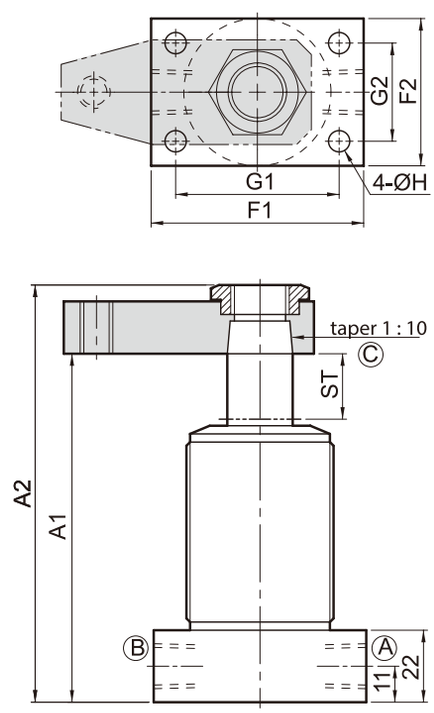
Units: kg

Bore	Type	Weight
25	TB	1.20
	SD，MF	1.43
32	TB	2.02
	SD，MF	2.30
40	TB	2.78
	SD，MF	3.20
50	SD，MF	4.80
63	SD，MF	6.60

EXTERNAL DIMENSIONS

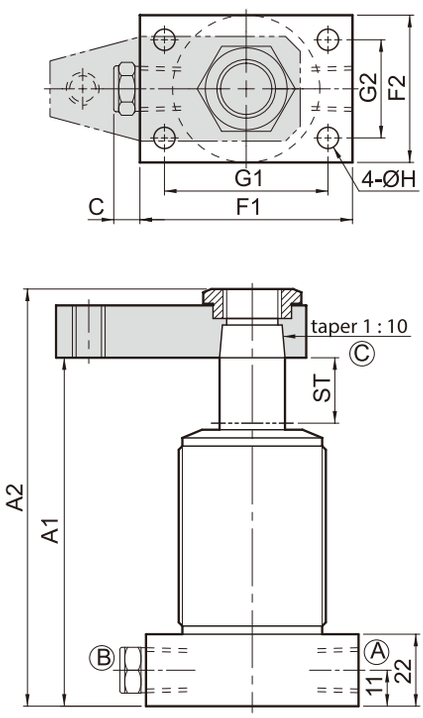
■ SD Basic

- D: Double acting



Ⓐ	Clamping RC 1/4
Ⓑ	Unclamping RC 1/4
Ⓒ	Taper 1 : 10 (2.85°)

- S: Single acting



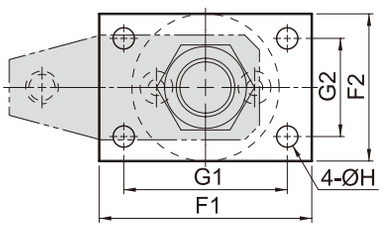
Ⓐ	Clamping RC 1/4
Ⓑ	Unclamping RC 1/4
Ⓒ	Taper 1 : 10 (2.85°)

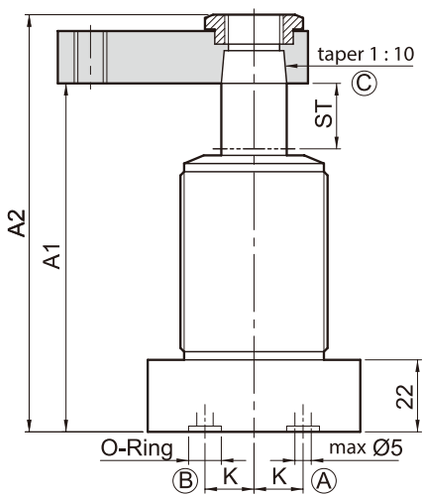
Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	C	F1	F2	G1	G2	H
25	8	11	19	107.5	129	8	65	45	50	30	6.8
32	9	13	22	120.5	146.5	8	73	53	57	37	9
40	9	13	22	123.5	152.5	8	85	63	65	44	9
50	12	15	27	142	177	8	100	80	80	60	13
63	12	15	27	148	190	8	115	90	90	68	15

EXTERNAL DIMENSIONS

■ MF Manifold block

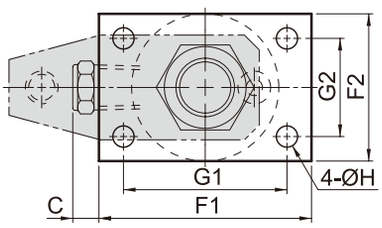
- D: Double acting

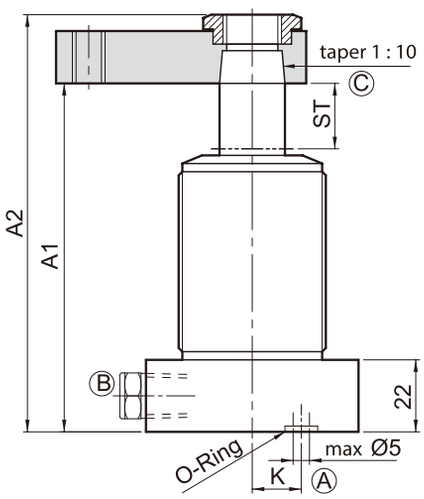




Ⓐ	Clamping RC 1/4
Ⓑ	Unclamping RC 1/4
Ⓒ	Taper 1 : 10 (2.85°)

- S: Single acting





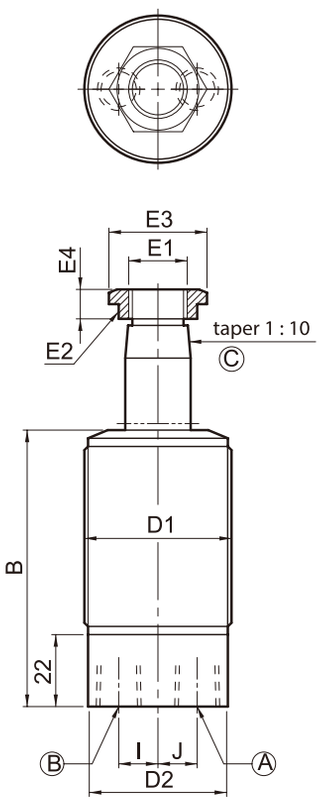
Ⓐ	Clamping RC 1/4
Ⓑ	Unclamping RC 1/4
Ⓒ	Taper 1 : 10 (2.85°)

Symbol / Bore	Swivel stroke	Down stroke	ST	A1	A2	C	F1	F2	G1	G2	H	K	O-Ring
25	8	11	19	107.5	129	8	65	45	50	30	6.8	15	P7
32	9	13	22	120.5	146.5	8	73	53	57	37	9	20	P7
40	9	13	22	123.5	152.5	8	85	63	65	44	9	28	P7
50	12	15	27	142	177	8	100	80	80	60	13	31	P9
63	12	15	27	148	190	8	115	90	90	68	15	37.5	P9

EXTERNAL DIMENSIONS

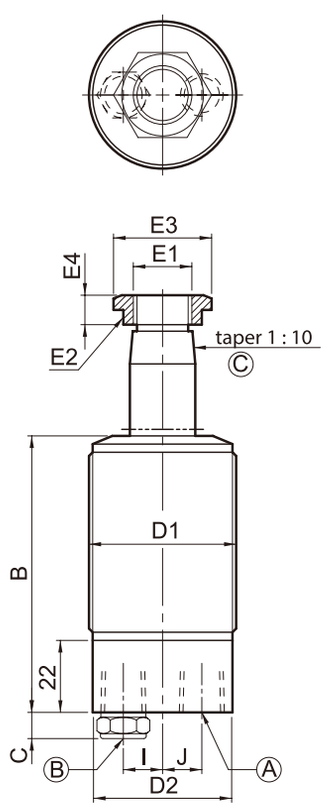
■ TB Full teeth

- D: Double acting



Ⓐ	Clamping RC 1/4
Ⓑ	Unclamping RC 1/4
Ⓒ	Taper 1 : 10 (2.85°)

- S: Single acting



Ⓐ	Clamping RC 1/4
Ⓑ	Unclamping RC 1/4
Ⓒ	Taper 1 : 10 (2.85°)

Symbol / Bore	Swivel stroke	Down stroke	ST	B	C	D1	D2	E1	E2	E3	E4	I	J
25	8	11	19	87	8	M45x1.5	43	M18x1.5	23.5	27.7	9	13	13
32	9	13	22	97	8	M52x1.5	50	M22x1.5	28.5	33.5	10	14.5	16
40	9	13	22	100	8	M60x1.5	58	M28x1.5	35.5	41.6	10	16	20
50	12	15	27	113.5	8	(M80x1.5)	78	M35x1.5	45.5	53.1	12	(20)	(26)
63	12	15	27	119.5	8	(M90x1.5)	88	M43x1.5	54.5	63.5	14	(26)	(33)