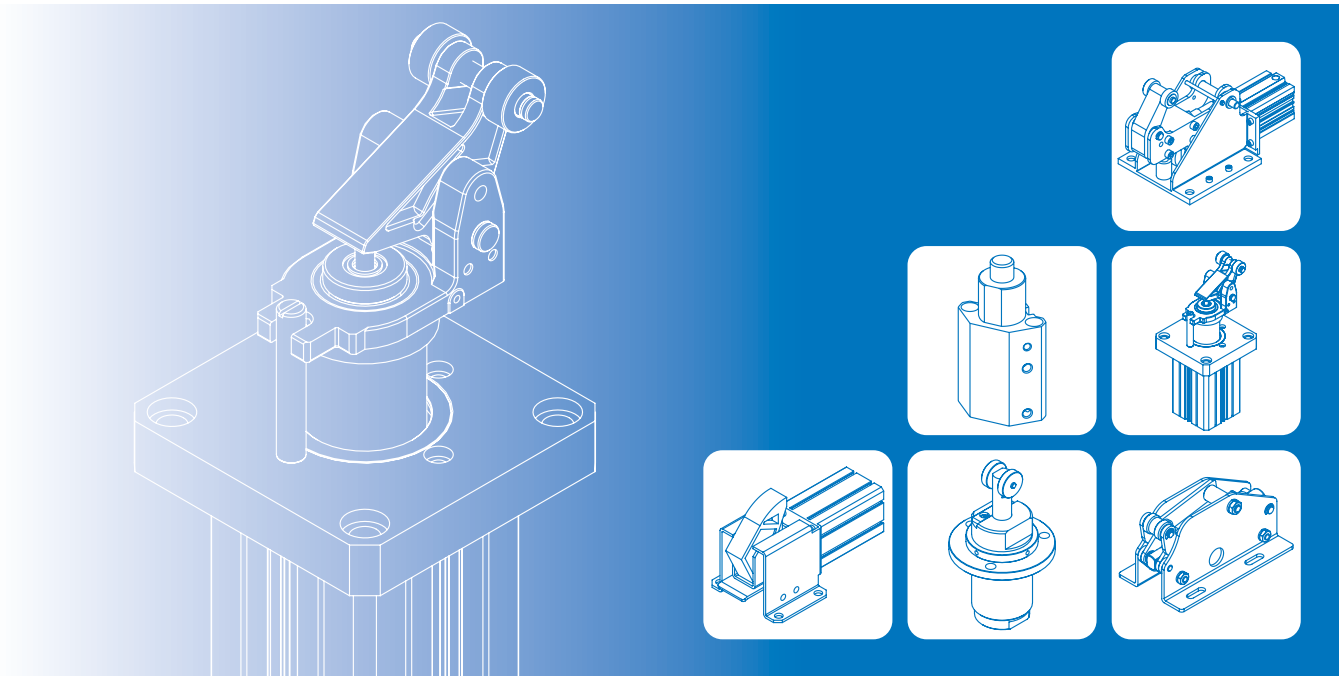
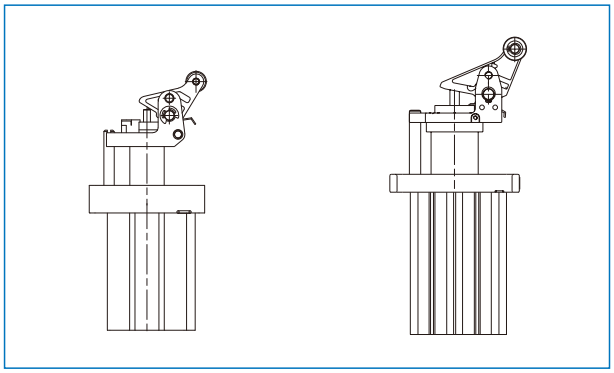
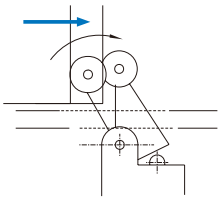
STOPPER CYLINDER



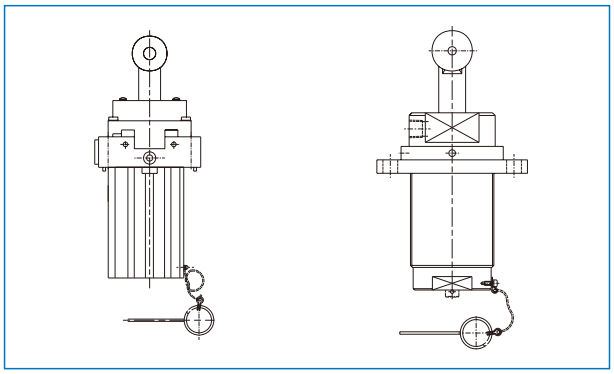
Shockless stopper cylinder



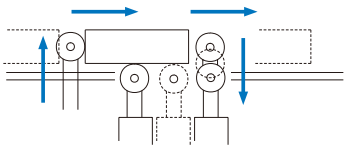
The built-in shock absorber softly catches and stops the work carrier.The strength of absorber can be easily adjusted, which makes the cylinder work in the best condition, conforming to the speed of the conveyor line and the weight of the work carrier.



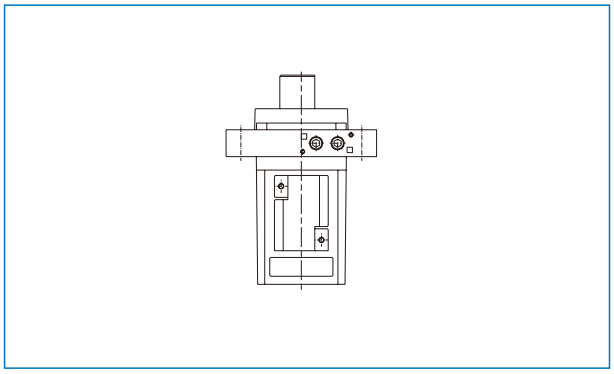
Stopper cylinder with roller



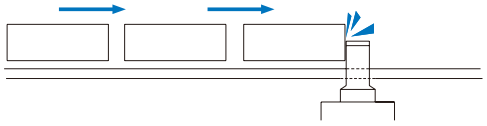
The top rollers with the built-in spring return in touch with the bottom of the work carrier. Automatically returns up to the original position as the work carrier pass by, and immediately works as a stopper for the next work carrier. Therefore the timing carriers does not need to be taken.



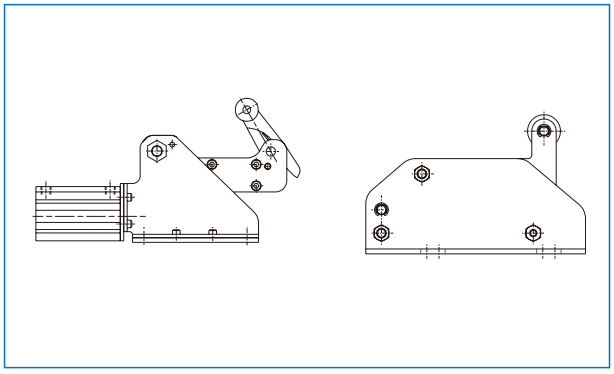
Direct stopper cylinder



Rod and cylinder are designed for toughness against the large side load. Also suitable for the relatively slowmoving conveyor line with the heavy work carriers.



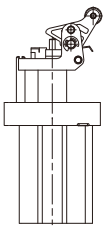
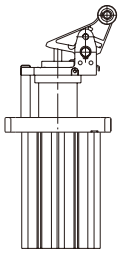
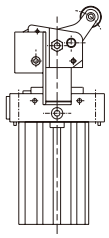
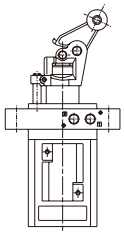
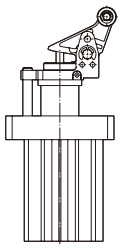
Horizontal stopper cylinder

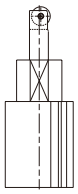
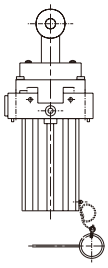
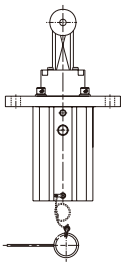
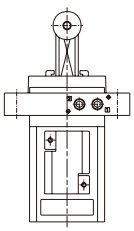
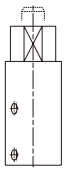
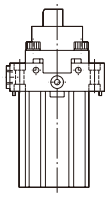
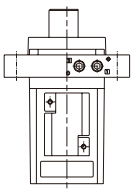


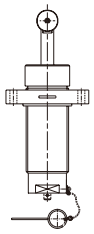
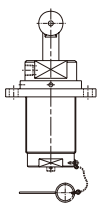
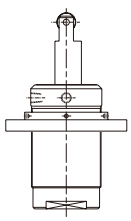
Horizontal stopper cylinder of lower height for conveying the heavy work carriers. Suitable as a stopper cylinder for accumulating line, ageing line, and mulit-stage conveyor line. Softly stops the work carriers of heavy weight and high speed.

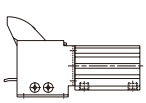
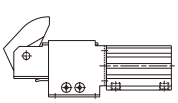
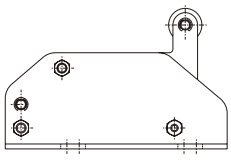
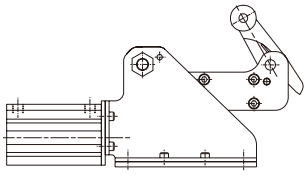
Pallet Control Cylinder

STOPPER CYLINDER

Model	MSB* series							
	MSBE				MSBD			
Operation type	Double acting with spring				Double acting with spring			
	Shockless stopper				Shockless stopper			
Standard stroke	ø32-20	ø50-30	ø63-30	ø80-40	ø32-20	ø50-30	ø63-30	ø80-40
Magnet	With magnet	With magnet	With magnet	With magnet	With magnet	With magnet	With magnet	With magnet
Diagram								

Model	MSB* series						
	MSBR				MSBS		
Operation type	Double acting	Single acting (Spring extended)			Double acting		
	Stopper with roller				Direct stopper		
Standard stroke	ø20-20	ø32-20	ø40-30	ø50-30	ø20-10	ø32-20	ø50-30
Magnet	With magnet	With magnet	Without magnet (*)	Without magnet (*)	With magnet	With magnet	With magnet
Diagram							

Model	MSAR		
Operation type	Single acting (Spring extended)		
	Stopper with roller		
Standard stroke	ø32-30	ø50-30	ø80-30
Magnet	Without magnet (*)	Without magnet (*)	Without magnet (*)
Diagram			

Model	MSL* series				
	MSLP-P	MSLP-CP	MSLL		MSLD
Operation type	Double acting		Double acting (Spring extended)		Double acting with spring
	Direct stopper		Stopper with roller		Shockless stopper
Standard stroke	ø32-40		ø25-30	ø40-30	ø50-50
Magnet	With magnet		Without magnet (*)	With magnet	With magnet
Diagram					

* Magnetic type can not be offered.

Feature

- Patented lever-lock mechanism.
- Proximity sensors are available.
- Adjustable shock absorbers provide good capacity for different applications.
- Magnetic as standard.

Specification

Model		MSBE			
Tube I.D. (mm)		ø32	ø50	ø63	ø80
Stroke (mm)		20	30	30	40
Medium		Air			
Operating pressure range		0.2~1 MPa			
Proof pressure		1.5 MPa			
Ambient temperature		-5~+60°C (No freezing)			
Lubrication		Not required			
Cushion	External stopper	Adjustable shock absorber			
	Internal cylinder	NBR cushion pad			
Sensor switch		RDFE(V) (Please refer to page 8-19)			
Weight		550 g	1930 g	3410 g	6340 g

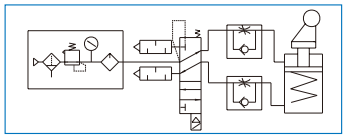
Order example

MSBE — 50 — 30 — D — L — S — G

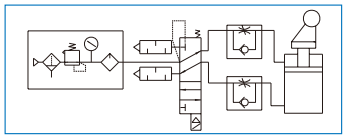
- MODEL
- TUBE I.D. (mm): 50
- STROKE (mm): 30
- STYLE: Blank: Double acting with spring extend; **D**: Double acting
- LEVER LOCK: Blank: Without; **L**: Lock mechanism
- ROLLER MATERIAL: Blank: POM; **S**: Steel
- PORT THREAD: Blank: Rc thread; **G**: G thread; **NPT**: NPT thread

Piping diagram

Double acting with spring



Double acting



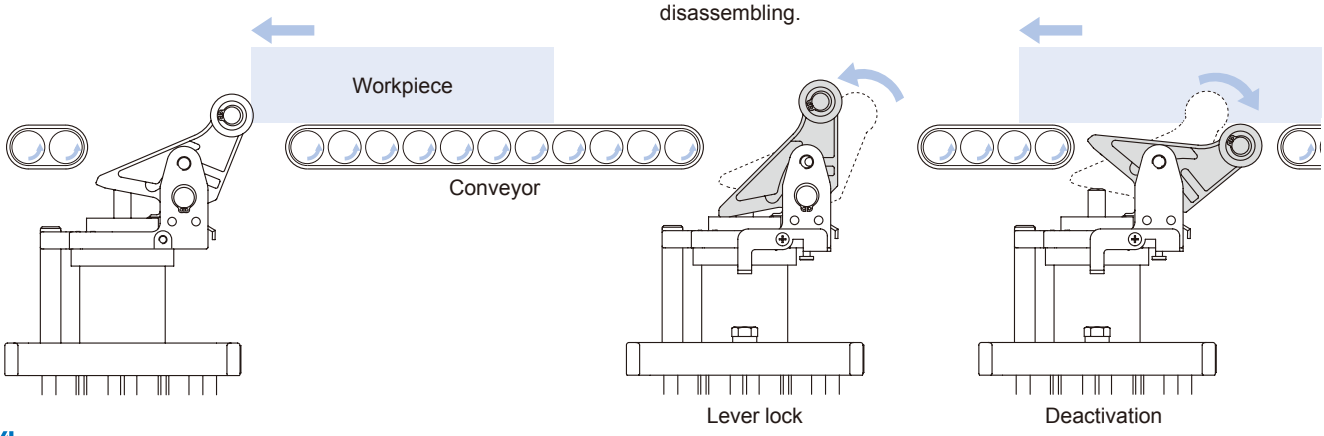
Intended use

Stopping transferred workpiece.

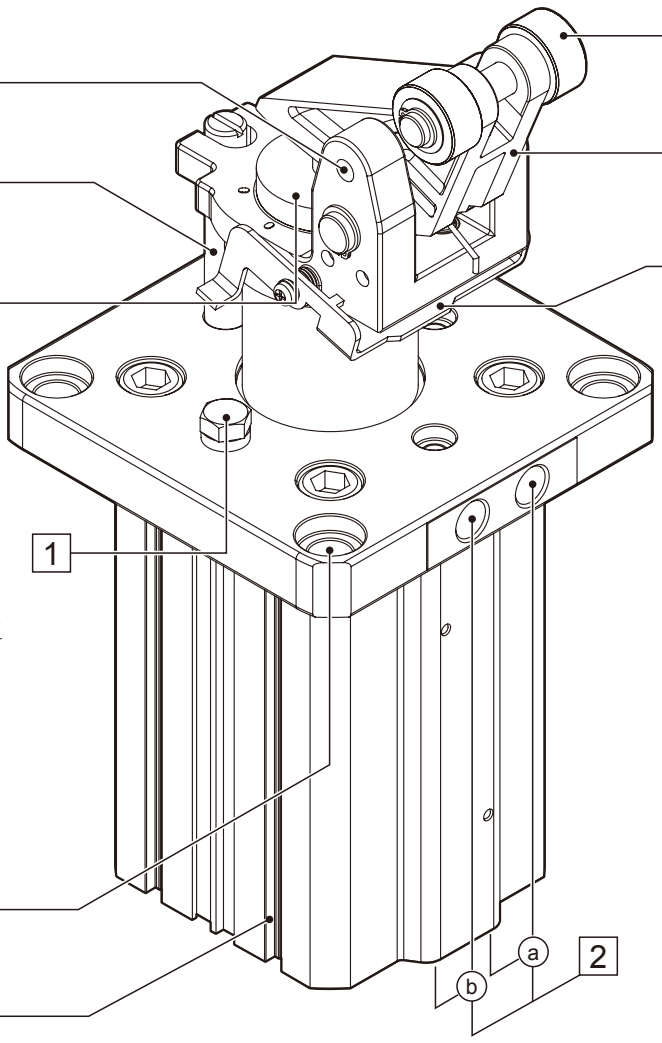
Lock & Deactivation mechanism

Lock mechanism prevents the light-weight workpiece from moving back by the force of shock absorber after damping.

Deactivation mechanism can deactivate the cylinder without any disassembling.



Pallet control stopper type

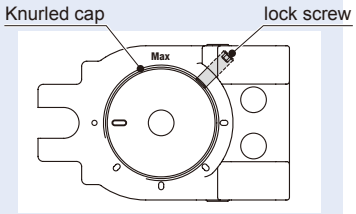


Thread (×2)
For inductive proximity sensor.

Guide rod
For protection against rotation.

Knurled cap
Step 1
Turn knurled cap until the desired cushioning is reached.
- Max mark: Cushion becomes harder.
- 0 mark: Cushion becomes softer.

Step 2
Tighten lock screw.
Tightening torque: 2 N.m



Through hole (×4)
For mounting.

Sensor switch groove (×6)

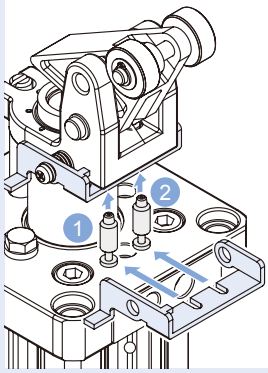
Stop roller (×2)

Roller toggle lever

(Optional)
Lock mechanism
For activating / deactivating lever position locking mechanism.

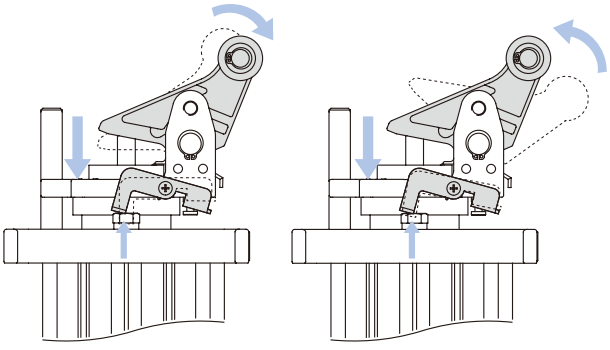
For ø50~ø80, two pins for lever lock and deactivation mechanism are deliveried for every L type MSBE.

The pin for lever lock fucntion is installed before delivery. The other pin is attached in the package. Please see the assembling guide below for installing.



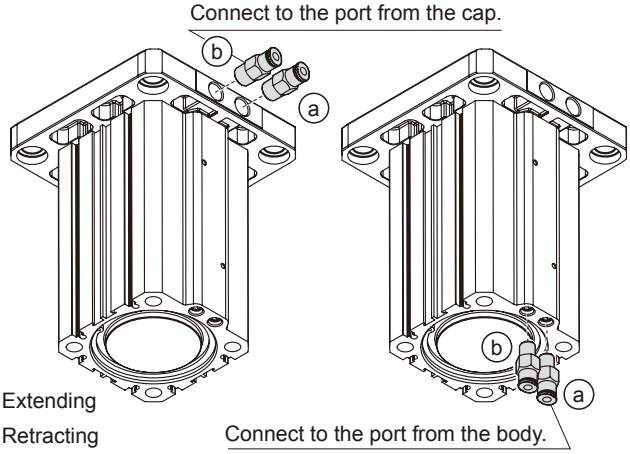
1 Lever-lock function
2 Free-pass function

1 Unlock bolt (Accessories)
The locking / deactivation mechanism of **MSBE*-L*** can be unlocked/reactivated by return the piston rod.



Unlocking locked lever　　Unlocking free-pass

2 Port installation & Supply port (×2)
Select one set of port between the top one on the front cap and the one at the bottom.

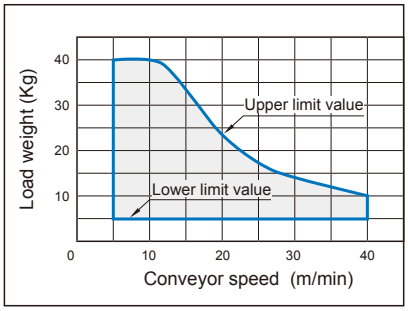


(a) Extending
(b) Retracting

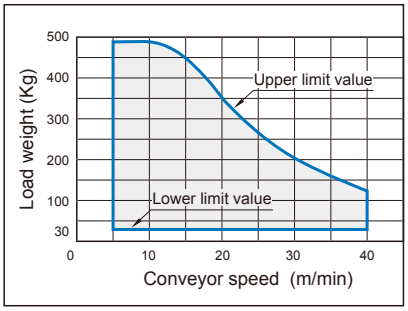
Load-speed chart for conveyor transmission

The chart is applied with the situation of friction coefficient μ = 0.1.

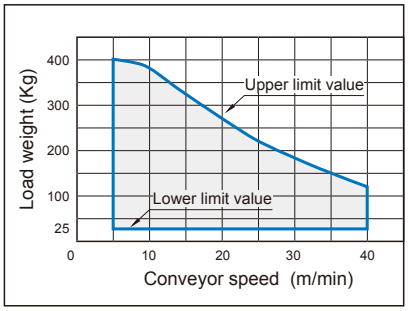
ø32-20



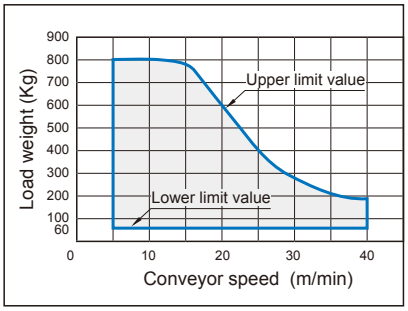
ø63-30



ø50-30



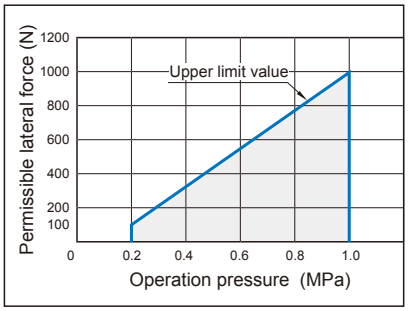
ø80-40



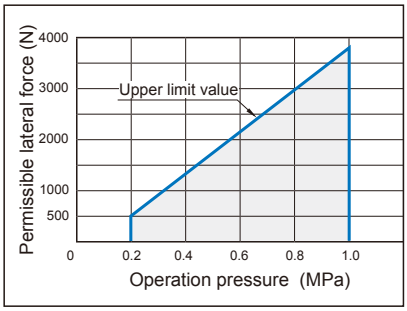
Lateral force-operation pressure chart

The lateral force is caused by the blocking object on the conveyor. The lateral force limit is proportional to operation pressure.

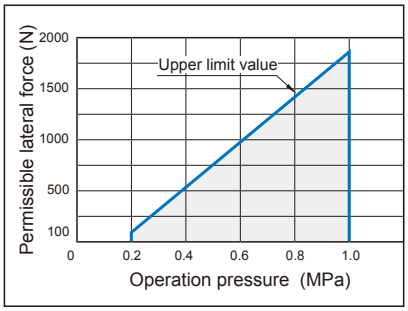
ø32-20



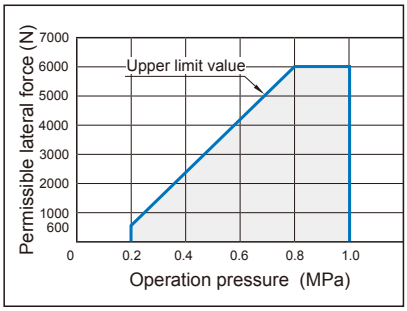
ø63-30



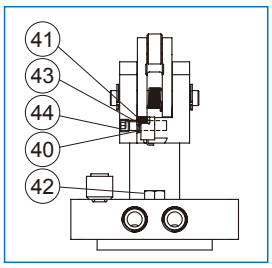
ø50-30



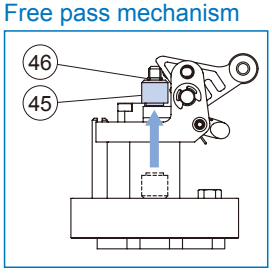
ø80-40

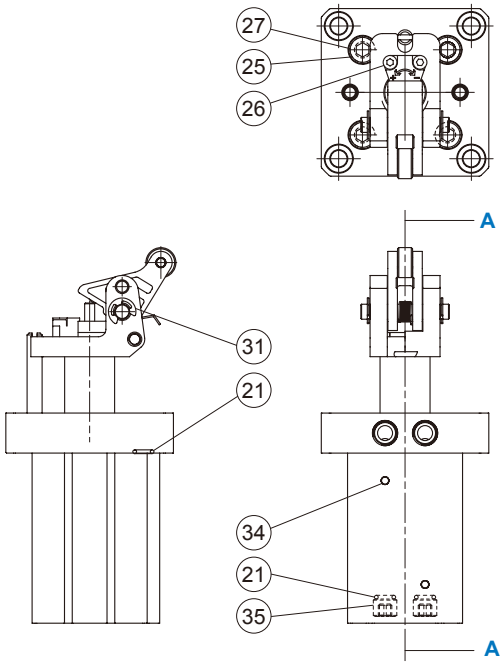


L: Lock mechanism

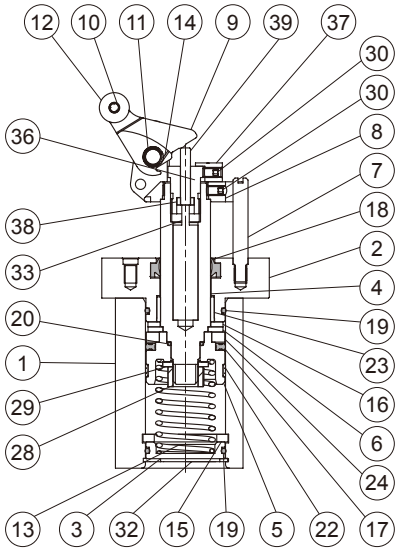


Free pass mechanism





A-A



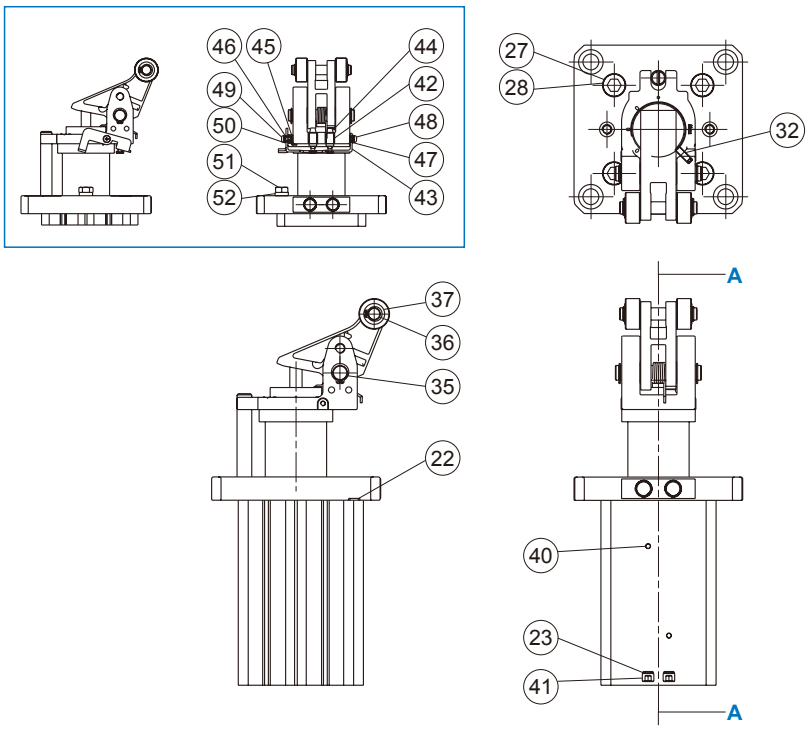
Material

No.	Part name	Material	Q'y
1	Body	Aluminum	1
2	Cover	Aluminum	1
3	Cover	Aluminum	1
4	Piston rod	Steel	1
5	Piston	Aluminum	1
6	Magnet holder	Aluminum	1
7	Guide rod	Steel	1
8	Lever holder	Steel	1
9	Lever	Steel	1
10	Roller pin	Steel	1
11	Lever pin	Steel	1
12	Roller	Resin	1
		Alloy steel *1	1
13	Piston spring	Steel	1
14	Lever spring	Steel	1
15	Cushion pad	NBR	1
16	Rod cushion pad	NBR	1
17	Piston seal	NBR	1
18	Seal	NBR	1
19	O-ring	NBR	2
20	O-ring	NBR	1
21	O-ring	NBR	4
22	Wear ring	Resin	1
23	Rod bush	NBR	1

No.	Part name	Material	Q'y
24	Magnet ring	Magnet	1
25	Hexagon bolt	Steel	4
26	Hexagon nut	Steel	2
27	Washer	Steel	4
28	Hexagon nut	Steel	1
29	Spring washer	Steel	1
30	Hexagon screw	Steel	2
31	Stop ring	Steel	2
32		Steel	1
33	Shock absorber	Steel	1
34	Ball	Steel	2
35	Plug	Alloy steel	2
36	Adjustable cap	Stainless steel	1
37	Damper lock	Stainless steel	1
38	Locating ring	Aluminum	1
39	Pin	Steel	1
40	Lever lock	Steel	1
41	Lock spring	Steel	1
42	Hexagon screw	Stainless steel	1
43	Pin	Steel	1
44	Hexagon screw	Steel	1
45	Locating pin	Aluminum	1
46	O-ring	NBR	1

*1. S type.

L: Lock mechanism

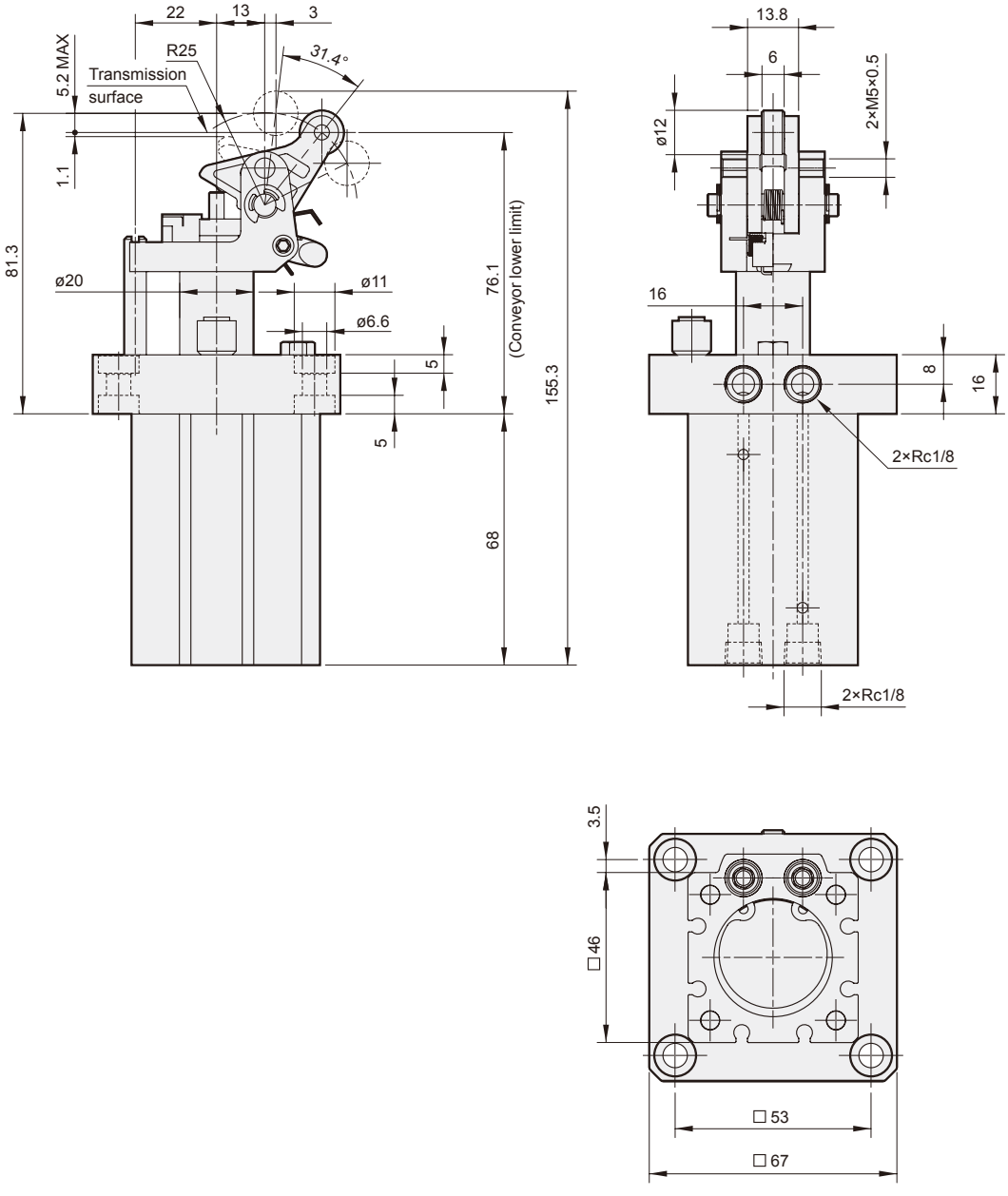


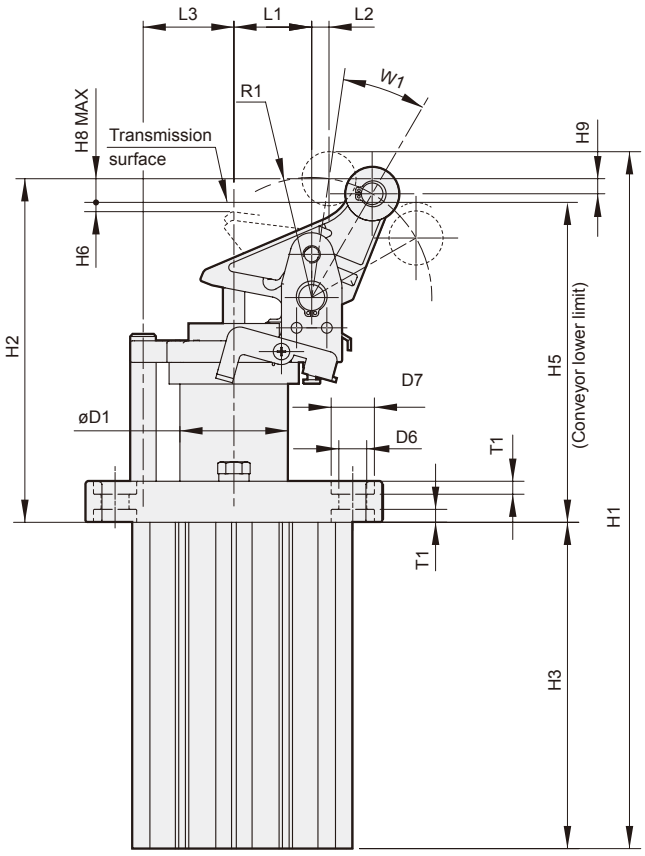
Material

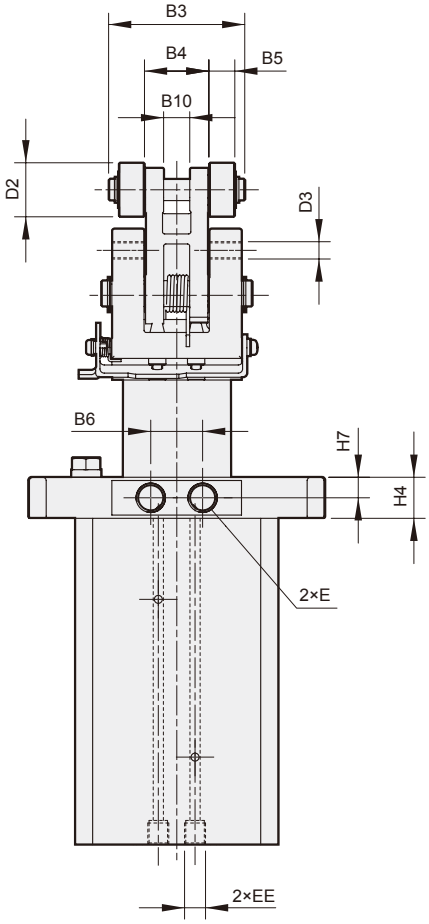
No.	Part name	Material	Q'y / Tube I.D.		
			50	63	80
1	Body	Aluminum	1		
2	Cover	Aluminum	1		
3	Cover	Aluminum	1		
4	Piston rod	Steel	1		
5	Piston	Aluminum	1		
6	Magnet holder	Aluminum	1		
7	Guide rod	Steel	1		
8	Lever holder	Steel	1		
9	Lever	Steel	1		
10	Roller pin	Steel	1		
11	Lever pin	Steel	1		
12	Roller	Resin	2		
		Alloy steel *1	2		
13	Piston spring	Steel	1		
14	Lever spring	Steel	1		
15	Cushion pad	NBR	1		
16	Rod cushion pad	NBR	1		
17	Piston seal	NBR	1		
18	Seal	NBR	1		
19	O-ring	NBR	1		
20	O-ring	NBR	1		
21	O-ring	NBR	1		
22	O-ring	NBR	2		
23	O-ring	NBR	2		
24	Wear ring	Resin	1		
25	Washer	Resin	1		

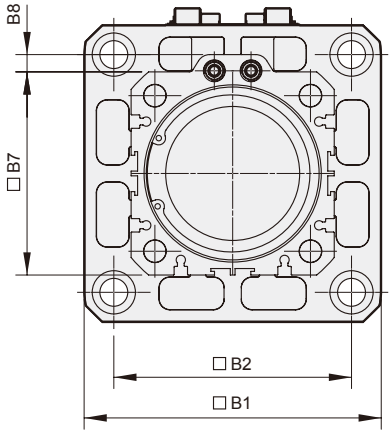
*1. S type.

No.	Part name	Material	Q'y / Tube I.D.		
			50	63	80
26	Magnet ring	Magnet	1		
27	Hexagon bolt	Steel	4		
28	Washer	Steel	4		
29	Hexagon nut	Steel	1		
30	Spring washer	Steel	1		
31	Hexagon screw	Steel	1		
32	Hexagon screw	Steel	1		
33	Hexagon screw	Steel	–	1	
34	Stop ring	Steel	1		
35	Stop ring	Steel	2		
36	Stop ring	Steel	2		
37	Roller washer	Steel	2		
38	Spring pin	Steel	–	1	
39	Shock absorber	Steel	1		
40	Ball	Steel	2		
41	Plug	Steel	2		
42	Bush	Resin	2		
43	Lever lock	Steel	1		
44	Pin	Steel	2		
45	Spring	Steel	1		
46	Coller	Steel	1		
47	Coller #2	Steel	1		
48	Screw	Steel	1		
49	Screw	Steel	1		
50	Spring washer	Steel	1		
51	Hexagon screw	Steel	1		
52	Washer	Steel	1		


22
13
3
R25
31.4°
5.2 MAX
Transmission surface
1.1
81.3
ø20
ø11
ø6.6
5
5
76.1
(Conveyor lower limit)
155.3
68
13.8
6
ø12
2×M5×0.5
16
8
16
2×Rc1/8
2×Rc1/8
3.5
□46
□53
□67

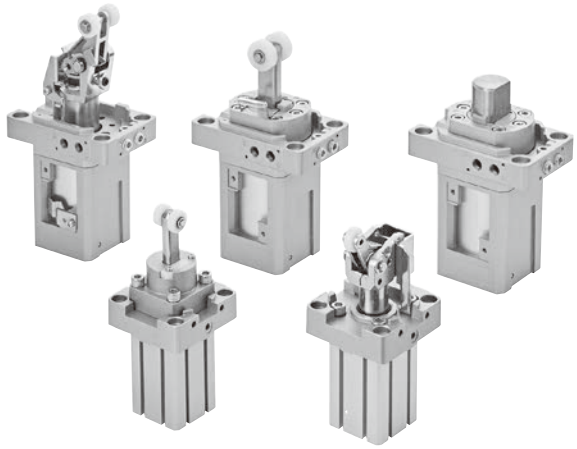






Code / Tubr I.D	B1	B2	B3	B4	B5	B6	B7	B8	B10
50	93	73	43	20	8	17	62	8	8.1
63	114	90	54	25	10	24	75	7	10.1
80	138	110	63	30	12	24	94	8	12.1

Code / Tubr I.D	D1	D2	D3	D6	D7	E	EE	H1	H2	H3	H4	H5	H6	H7	H8	H9	L1	L2	L3	R1	T1	W1
50	32	2-ø20	2-M8×1	9	14	Rc1/8	Rc1/8	218.8	117.8	91	17.5	109.3	2.8	8.75	8.5	5.7	23	6.3	26	38.5	5	23.5°
63	40	2-ø20	2-M8×1	11	18	Rc1/4	Rc1/8	251	134.0	107	25	126.3	6.3	12.5	7.8	4.8	29	6	34	44.4	6	20.3°
80	50	2-ø25	2-M8×1	13	20	Rc1/4	Rc1/8	322.5	159.0	151	19	146.9	4.3	9.5	12.1	7	36	8	42	55.6	6	21.9°



Specification

Model	MSB*	
Medium	Air	
Operating pressure range	0.2~1 MPa	
Proof pressure	1.5 MPa	
Ambient temperature	-5~+60°C (No freezing)	
Lubrication	Not required	
Cushion	With rubber cushion pad	
Sensor switch (*)	RCA for ø50	RCB, RCE, RCE1, RDEP
Sensor switch holder	HS	–

* RCA, RCB, RCE, RCE1, RDEP specifications, please refer to page 8-8, 10, 12, 13, 18.

Order example

MSBD – 32 – 20 – (L – K – L) – G – V – 4E2 – AC110

- MODEL
- TUBE I.D. (mm)
- STROKE (mm)
- SHOCK ABSORBERS GRADE (L – K – L)

L	Light	Red	Only for ø50
M	Standard	Yellow	
H	Powerful	Green	

- LEVER LOCK MECHANISM
- FREE PASS
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread
- SOLENOID VALVE LINK SEATS
  for **MVSC1-150** valve (*)
  (Only for MSBD-ø32, ø50)
- **4E1**: 4way / Single solenoid
  4E2: 4way / Double solenoid
- VOLTAGE
  AC220V(50/60)Hz
  AC110V(50/60)Hz
  DC24V

Type of cylinder		Operation type	Standard stroke	Magnet	Sensor switch	Weight
MSBD		Shockless stopper (Double acting with spring)	ø32-20	○	RCE, RCE1, RDEP	740 g
			ø50-30	○	RCA	1800 g
			ø63-30	○	RCB, RCE, RCE1, RDEP	3680 g
			ø80-40	○		6820 g

* MVSC1-150 specification, please refer to page 1-22 (Vol.1).

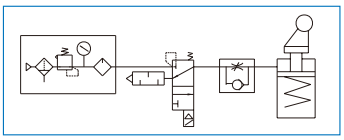
MSBR – 40 – 30 – G

- MODEL
- TUBE I.D.
- STROKE
- PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

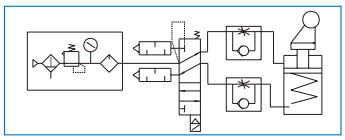
Type of cylinder		Operation type	Standard stroke	Magnet	Sensor switch	Weight
MSBR		Stopper with roller (Double acting)	ø20-20	○	RCB	250 g
		Stopper with roller (Single acting-Spring extended)	ø32-20	○	RCE,RCE1,RDEP	740 g
			ø40-30	×	–	1400 g
			ø50-30	×	–	1800 g
MSBS		Direct stopper (Double acting)	ø20-10	○	RCB	192 g
			ø32-20	○	RCE,RCE1,RDEP	720 g
			ø50-30	○	RCA	1850 g

Piping diagram

Single acting

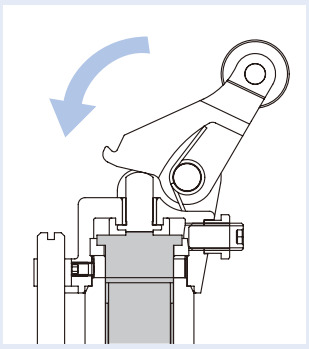


Double acting



Pallet control stopper type

Shock absorber built-in



Absorbs the shock when the carried object stops, and stops the object softly on the right Position. There is an adapter between the lever and shock absorber, which straightens the inclined load on the lever and transmits it to the lever.

Lever lock mechanism

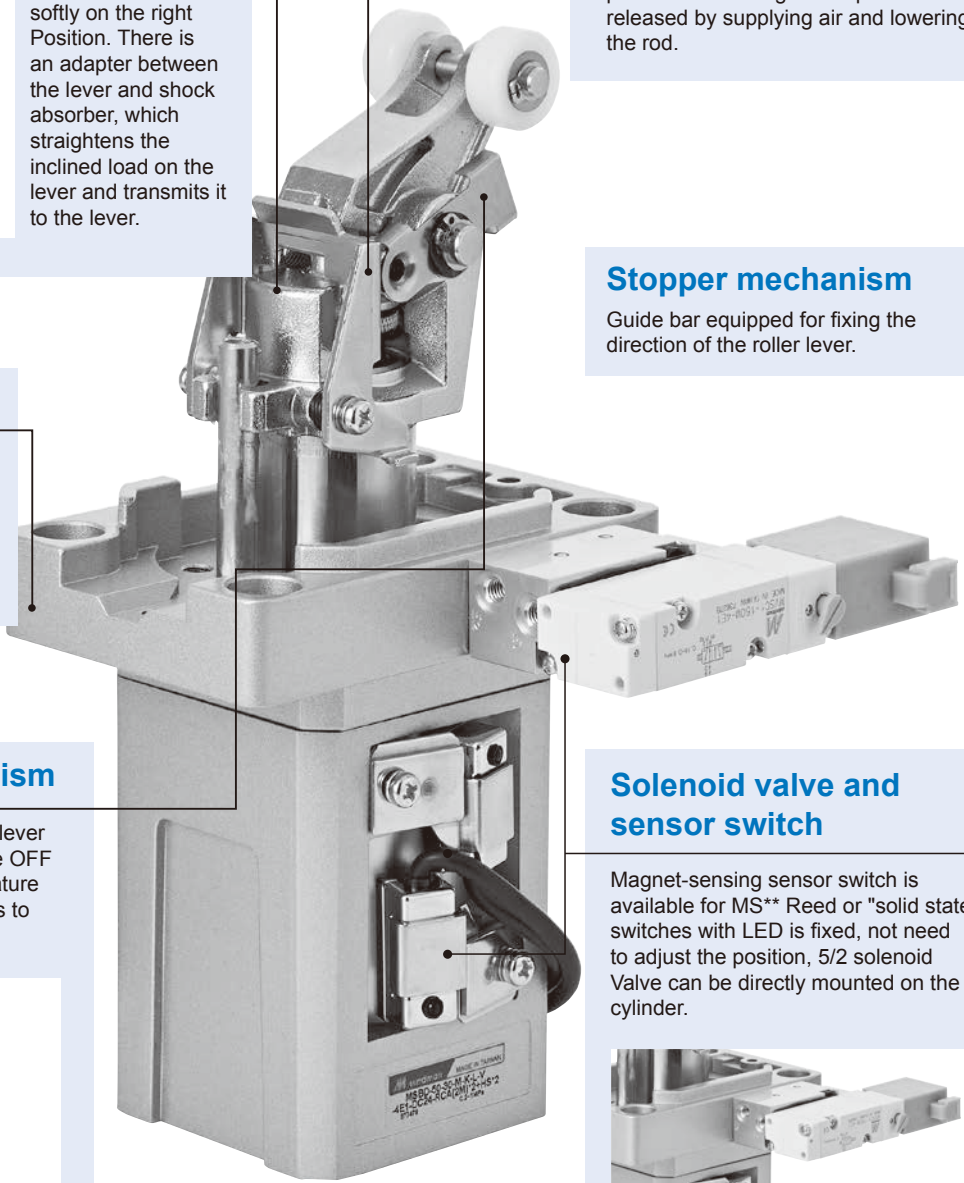
With this optional feature, the carried object is not pushed back by the lever. Also the Object returns to the right position after being lifted up. The lock is released by supplying air and lowering the rod.

Stopper mechanism

Guide bar equipped for fixing the direction of the roller lever.

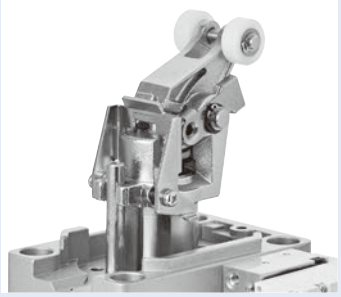
Light aluminum

Main cylinder part, shock absorber, and roller lever are integrated in the aluminum die cast body. The best cylinder for the light and space-saving conveyor line.



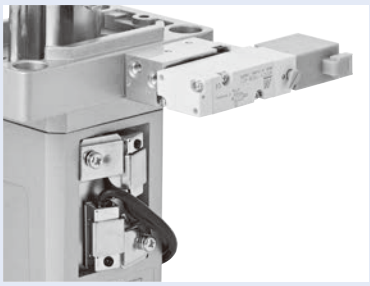
Free pass mechanism

Setting the pass-plate on the lever holder, the lever is fixed in the OFF position. Use the optional feature when the carried object needs to pass over the cylinder.

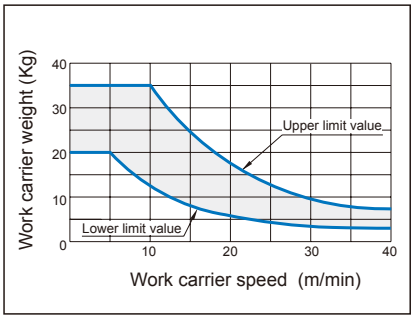


Solenoid valve and sensor switch

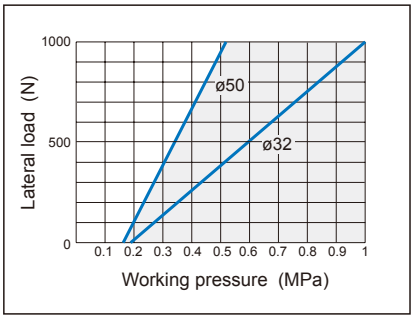
Magnet-sensing sensor switch is available for MS** Reed or "solid state" switches with LED is fixed, not need to adjust the position, 5/2 solenoid Valve can be directly mounted on the cylinder.



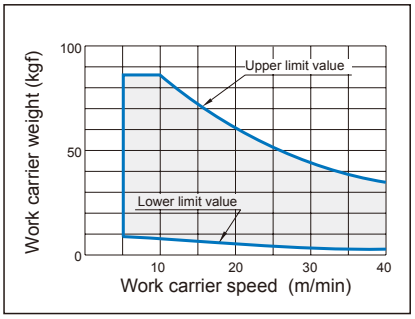
MSBD ø32-20
Capacity



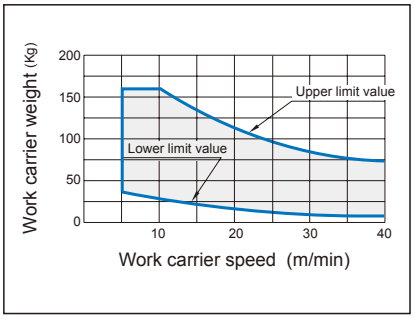
MSBD ø32-20, ø50-30
Normal lateral load



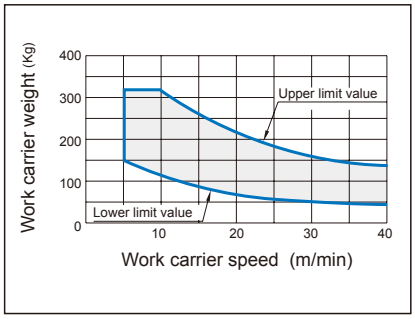
MSBD ø50-30
Capacity Light weight type



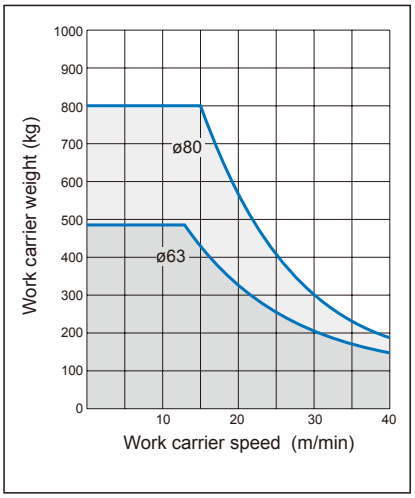
Capacity Standard type



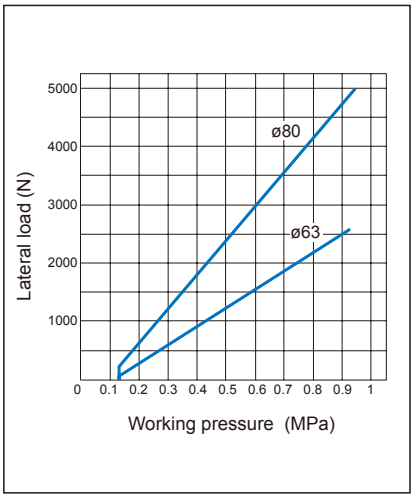
Capacity Heavy duty type



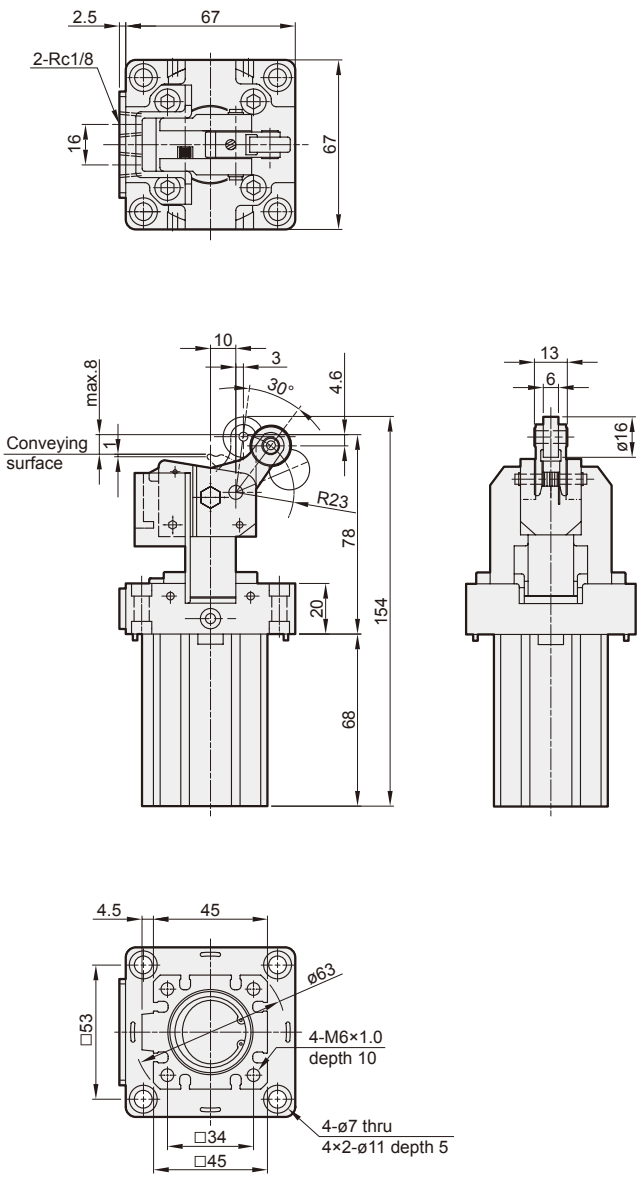
MSBD ø63-30, ø80-40
Capacity



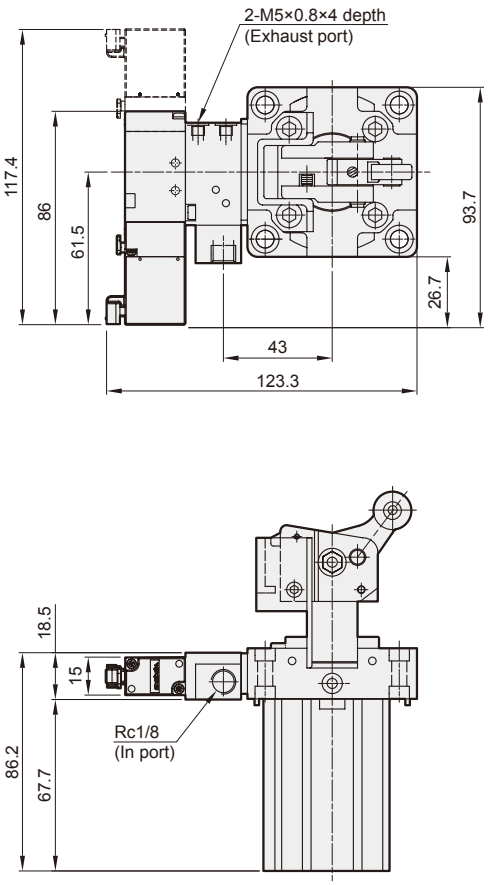
Normal lateral load



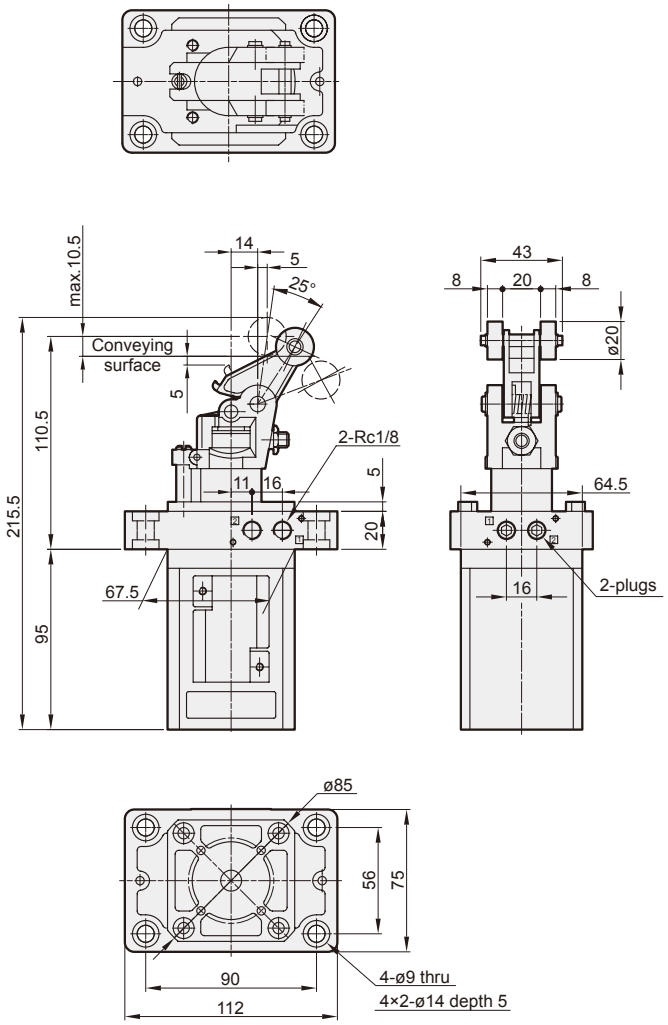
MSBD ø32-20



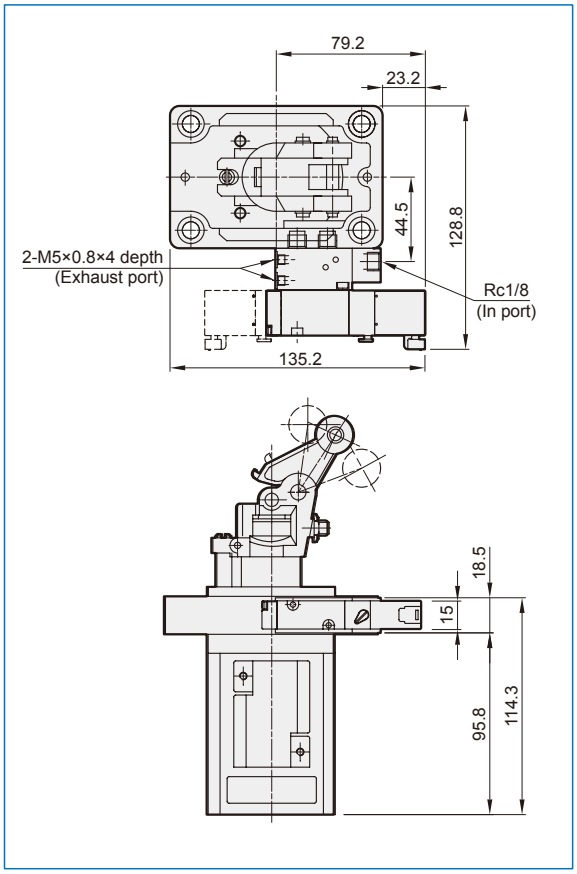
MSBD ø32-20-V



MSBD ø50-30

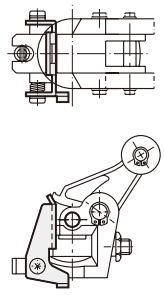


MSBD ø50-30-V

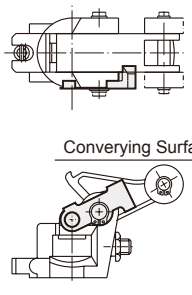


Option accessories

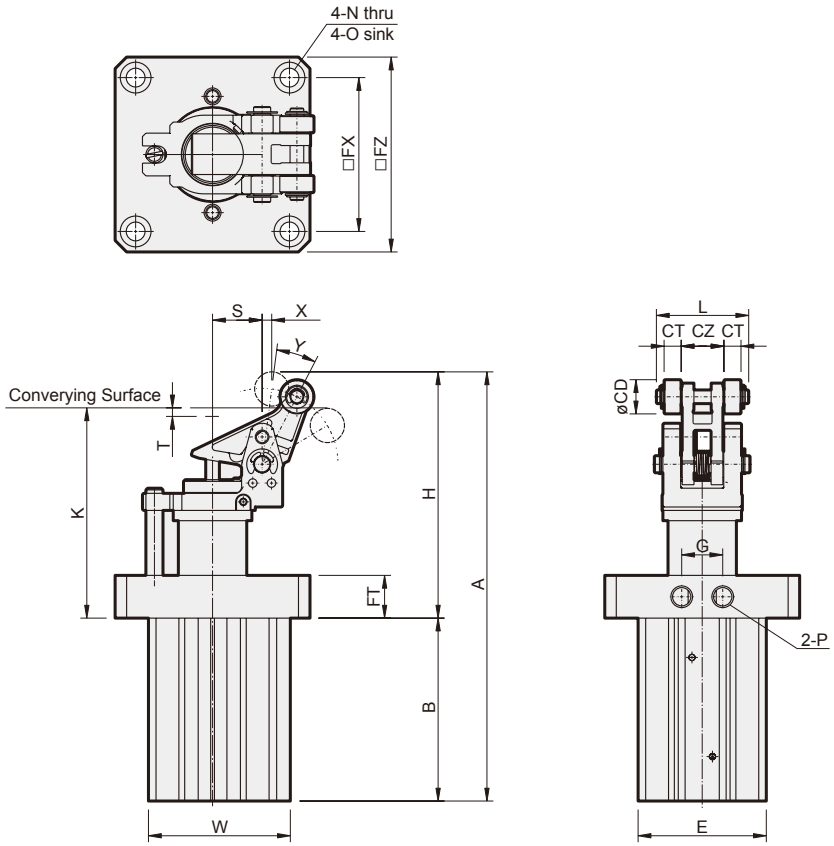
MSBD-ø50×30-K
Lever lock mechanism



MSBD-ø50×30-L
Free pass mechanism

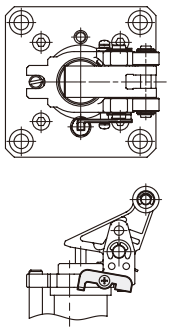


MSBD ø63-30
MSBD ø80-40

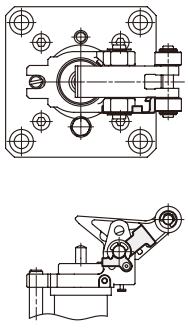


Option accessories

MSBD-ø63-30-K
MSBD-ø80-40-K
Lever lock mechanism

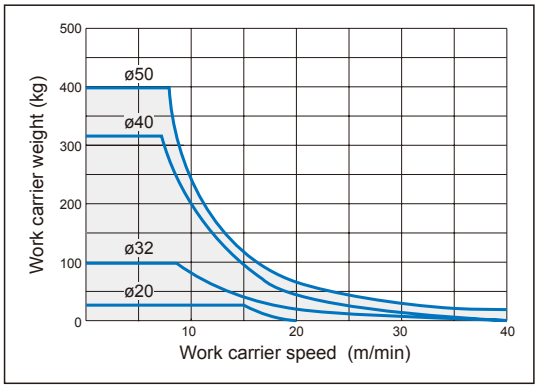


MSBD-ø63-30-L
MSBD-ø80-40-L
Free pass mechanism

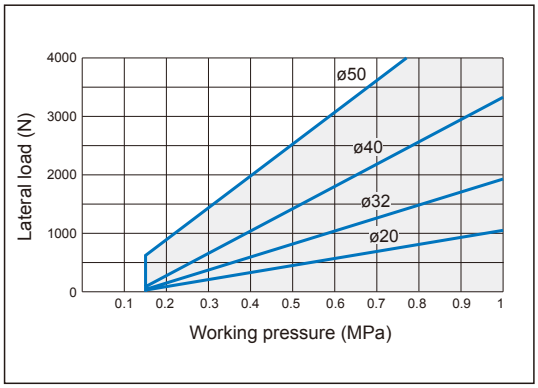


Tube I.D.	Stroke	A	B	CD	CT	CZ	E	FT	FX	FZ	G	H	K	L	N	O	P	S	T	W	X	Y
63	30	251	107	20	10	25	75	25	90	114	24	144	123	54	ø11	ø18×6 depth	Rc1/4	29	5	83	6	20°
80	40	322.5	145	25	12	30	94	25	110	140	24	177.5	150	63	ø13	ø20×6 depth	Rc1/4	36	4	102	8	22°

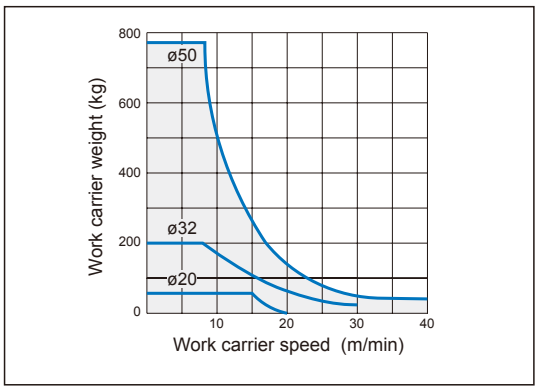
MSBR
Capacity



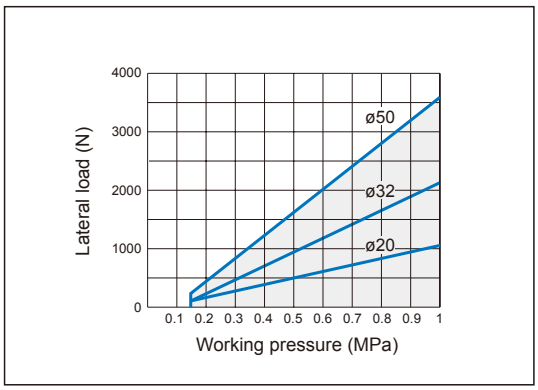
MSBR
Normal lateral load



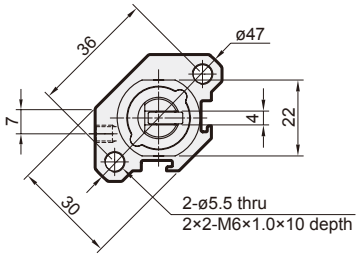
MSBS
Capacity

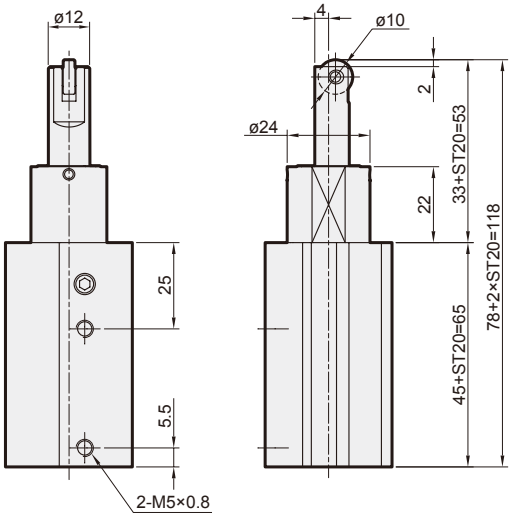


MSBS
Normal lateral load

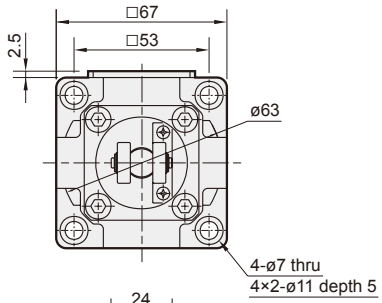


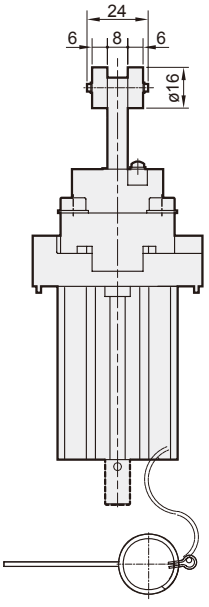
MSBR ø20-20

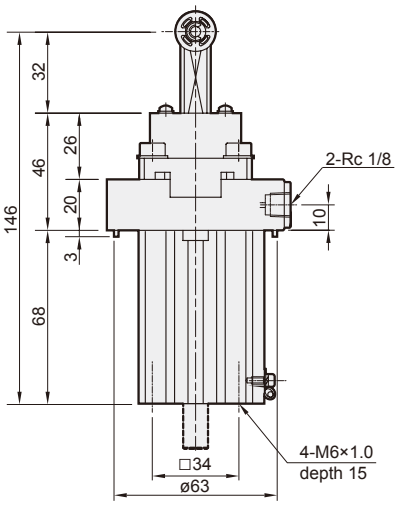




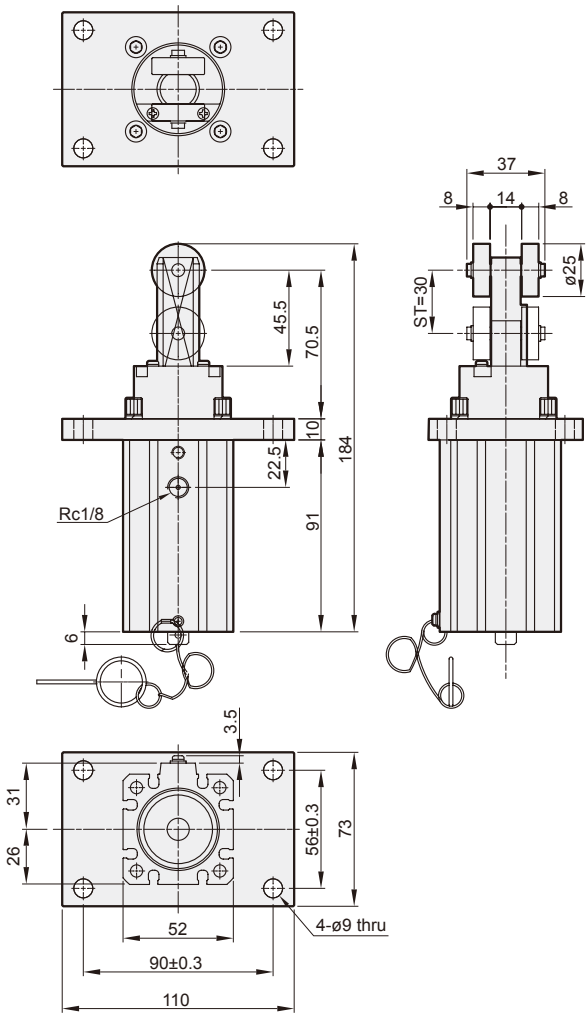
MSBR ø32-20



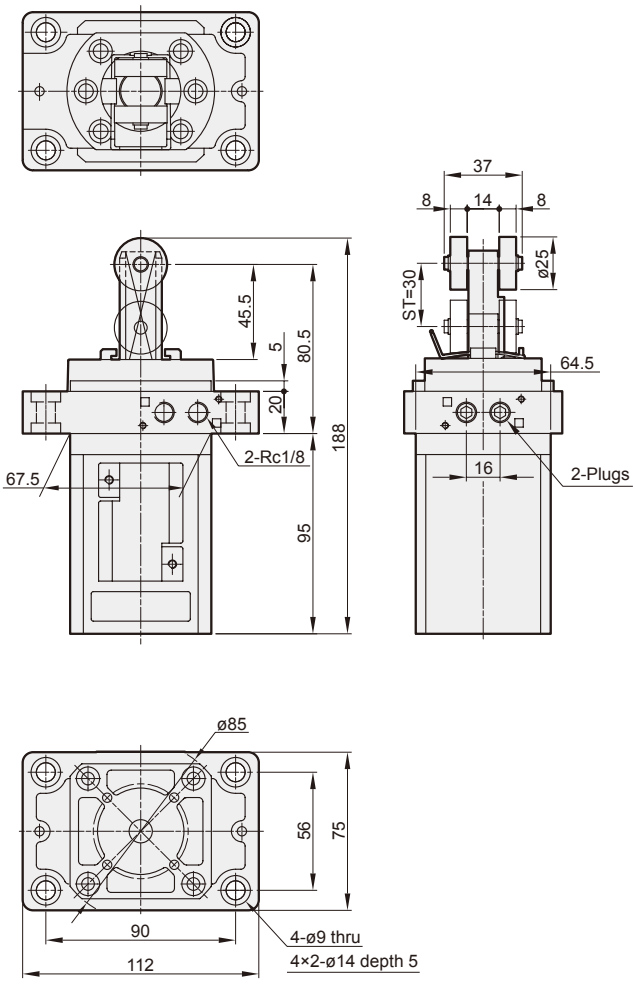




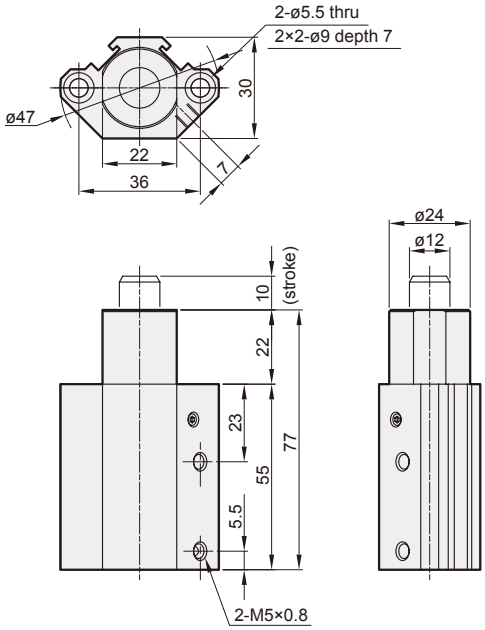
MSBR ø40-30



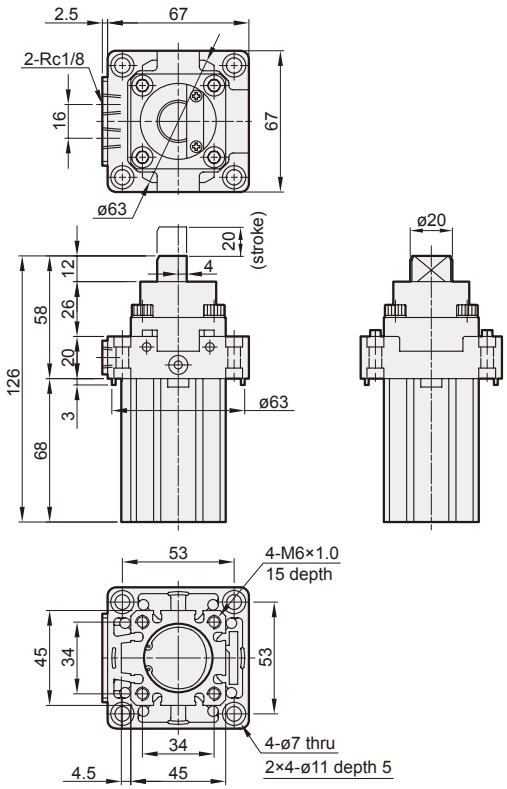
MSBR ø50-30



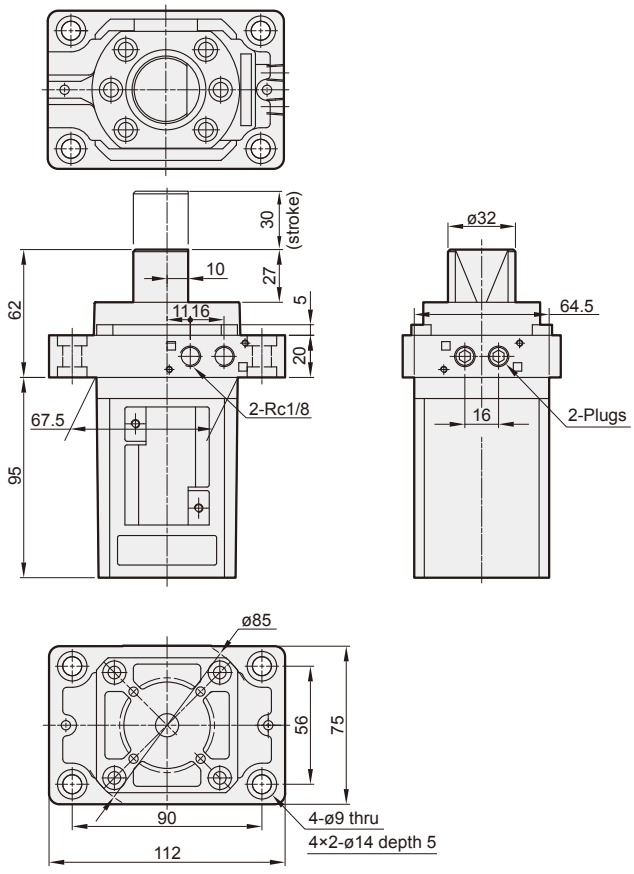
MSBS ø20-10



MSBS ø32-20



MSBS ø50-30



Specification

Model	MSAR		
Tube I.D. (mm)	ø32	ø50	ø80
Stroke (mm)	20	30	30
Acting type	Single acting (Spring extended)		
	Stopper with roller		
Medium	Air		
Operating pressure range	0.2~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	-5~+60°C (No freezing)		
Lubrication	Not required		
Cushion	With rubber cushion pad		
Magnet	Without magnet		
Weight	1350 g	2150 g	9000 g

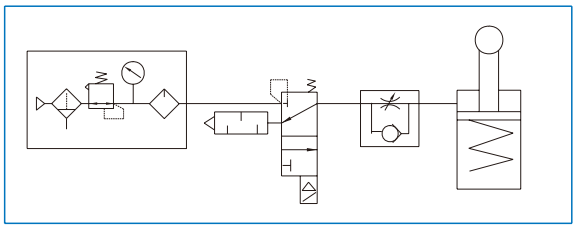
Order example

MSAR — 32 — 30 — G

- MSAR: MODEL
- 32: TUBE I.D. (mm)
- 30: STROKE (mm)
- G: PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

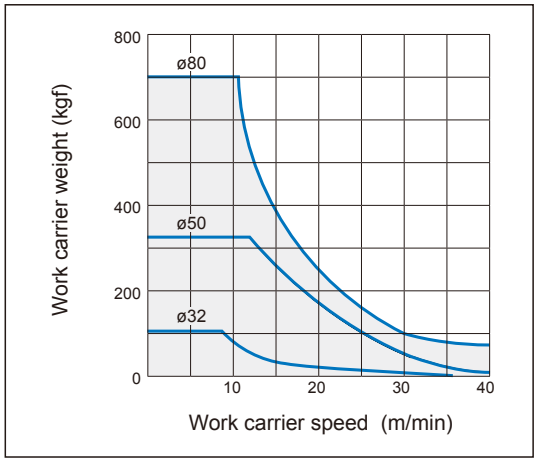
Piping diagram

Single acting



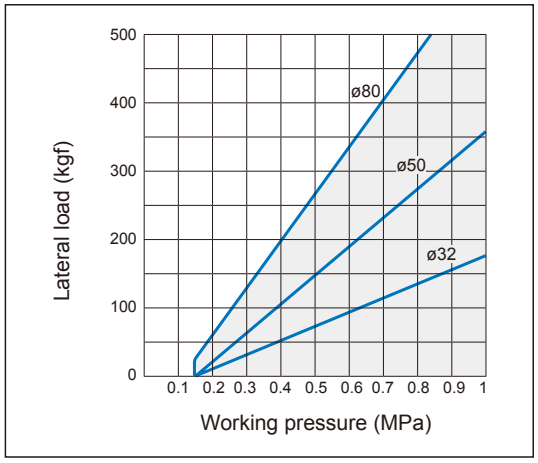
MSAR

Capacity

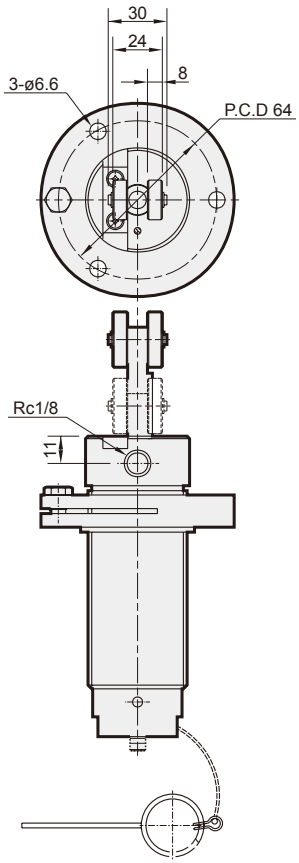


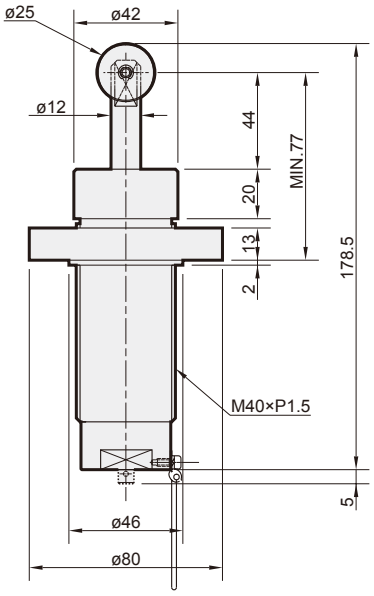
MSAR

Normal lateral load

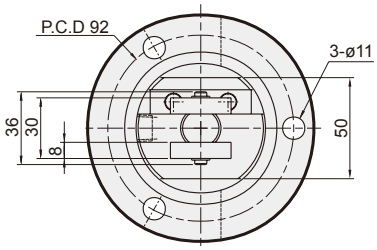


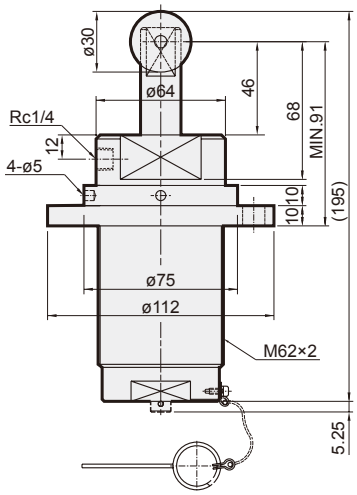
ø32-30



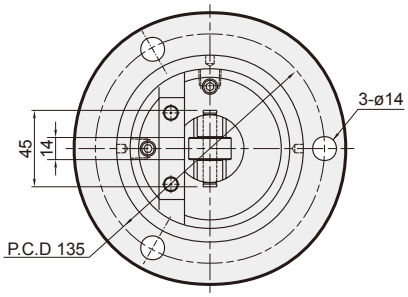


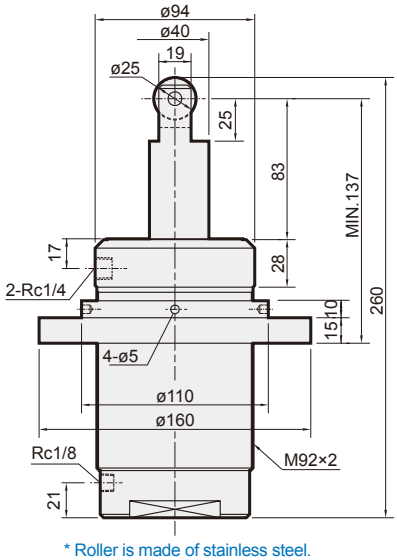
ø50-30



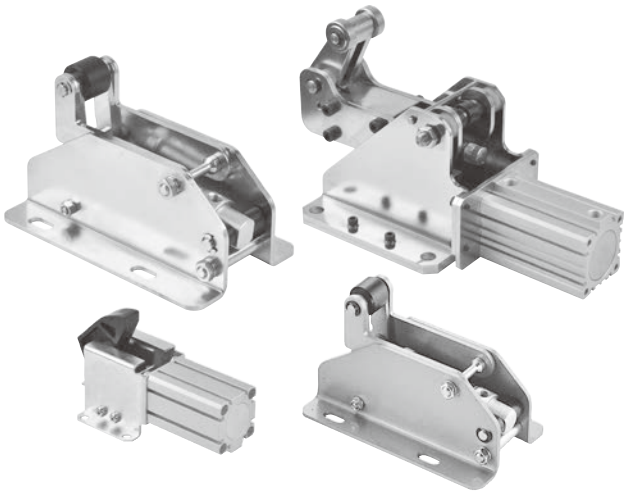


ø80-30





* Roller is made of stainless steel.



Specification

Model	MSL*
Medium	Air
Operating pressure range	0.2~1 MPa
Proof pressure	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)
Lubrication	Not required
Cushion	With rubber cushion pad

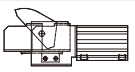
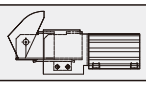
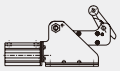
Model	Magnet	Sensor switch (*)	Weight
MSLP-ø32-40	○	RCE, RCE1, RDEP	840 g
MSLL-ø25-30	×	—	1850 g
MSLL-ø40-30	○	RCM (Band BM40)	4550 g
MSLD-ø50-50	○	RCB,RCE,RCE1,RDEP	8750 g

* RCB, RCE, RCE1, RCM, RDEP specifications, please refer to page 8-10, 12, 13, 16, 18.

Order example

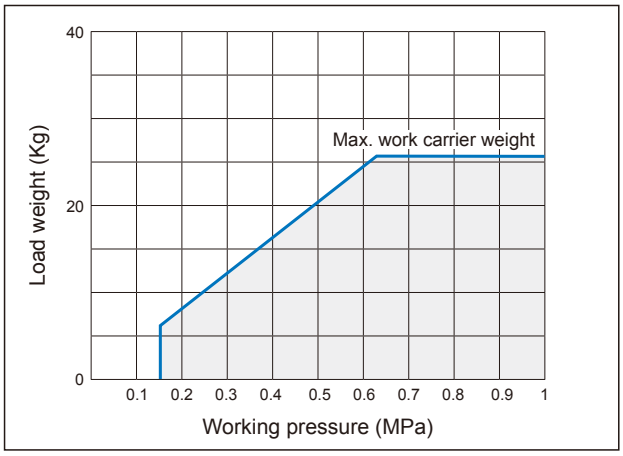
MSLL — 25 — 30 — D — G

- MSLL — MODEL
- 25 — TUBE I.D. (mm)
- 30 — STROKE (mm)
- D — OPERATION TYPE
- G — PORT THREAD
  Blank: Rc thread
  G: G thread
  NPT: NPT thread

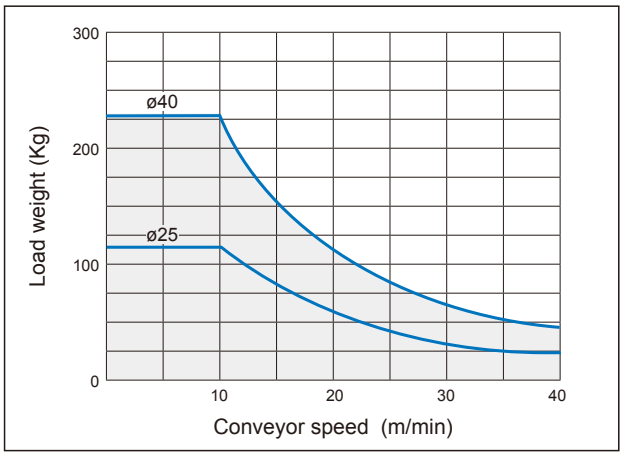
Code	Type of cylinder	Tube I.D.-Stroke
MSLP	 	**32 - 40**
MSLL		**25 - 30** **40 - 30**
MSLD		**50 - 50**

Code	Description
P	Double acting Extend type
CP	Double acting Return type
Blank	Double acting with spring
D	Double acting without spring
Blank	Double acting with spring and shock absorber

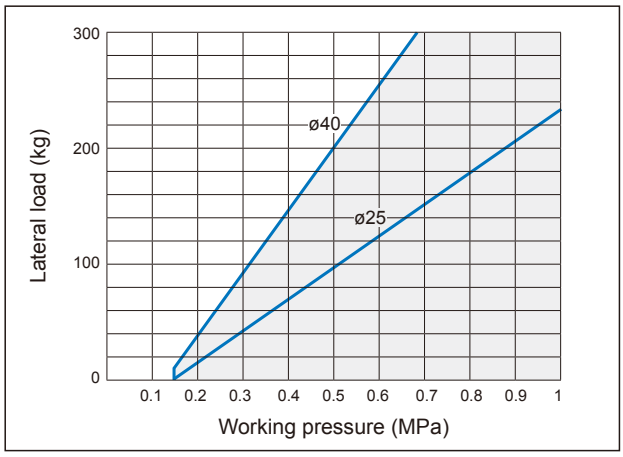
MSLP-* ø32
Capacity



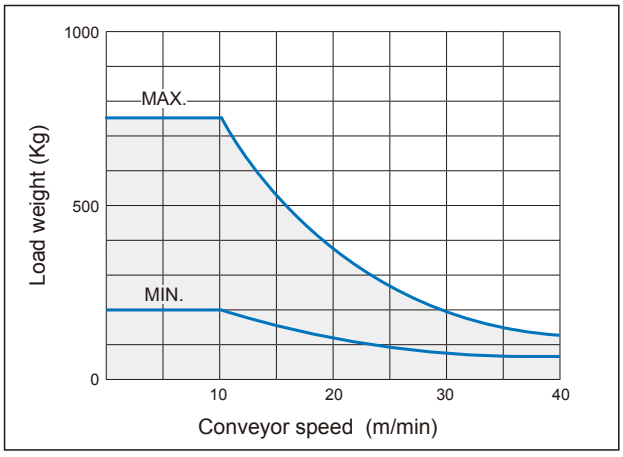
MSLL ø25, ø40
Capacity



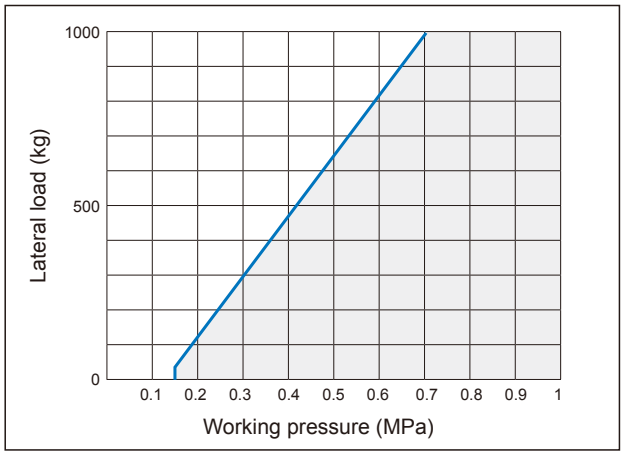
MSLL ø25, ø40
Normal lateral load



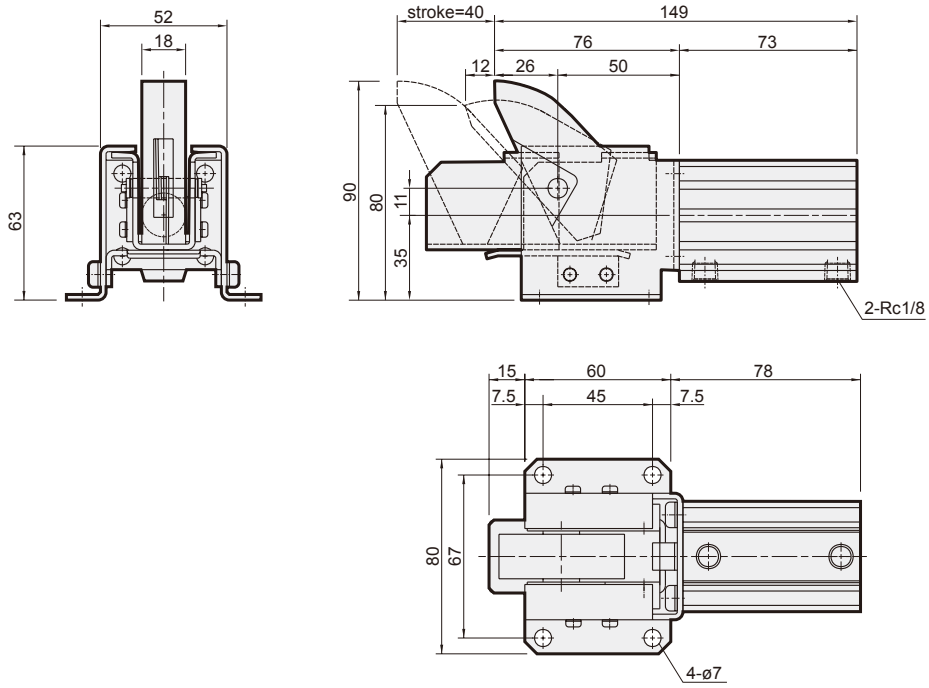
MSLD ø50
Capacity



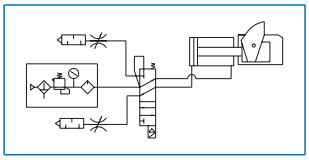
MSLD ø50
Normal lateral load



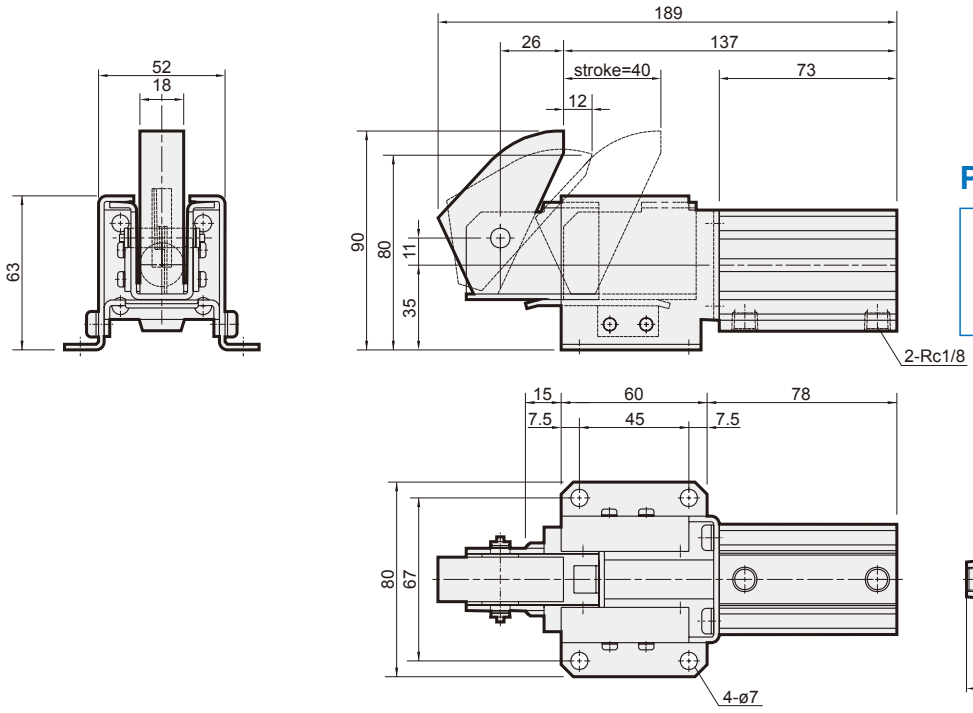
MSLP-P ø32-40



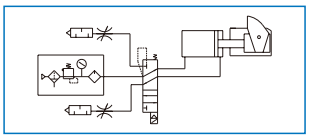
Piping diagram



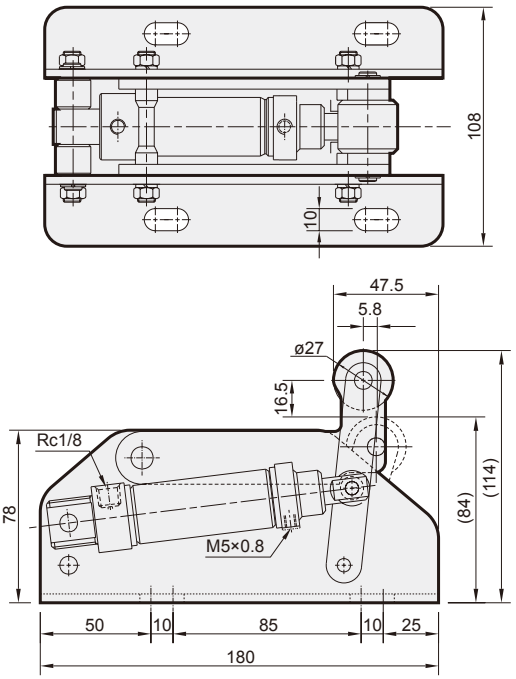
MSLP-CP ø32-40



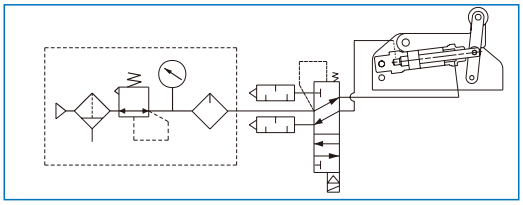
Piping diagram



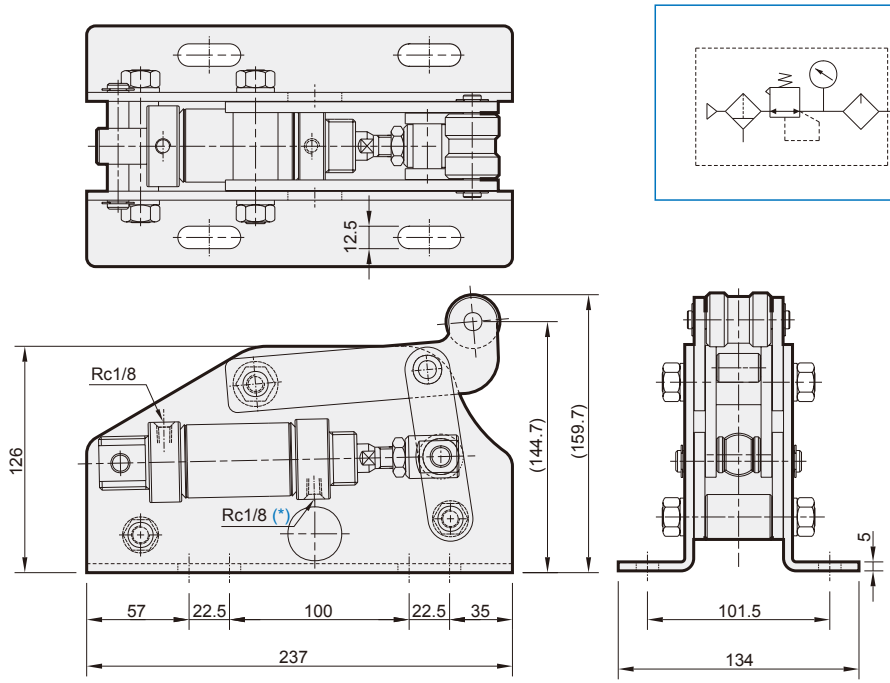
MSLL ø25-30



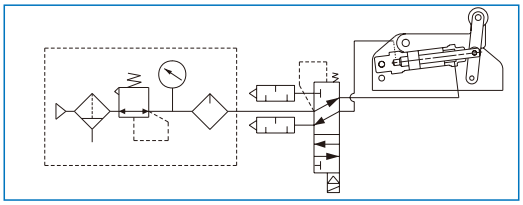
Piping diagram



MSLL ø40-30

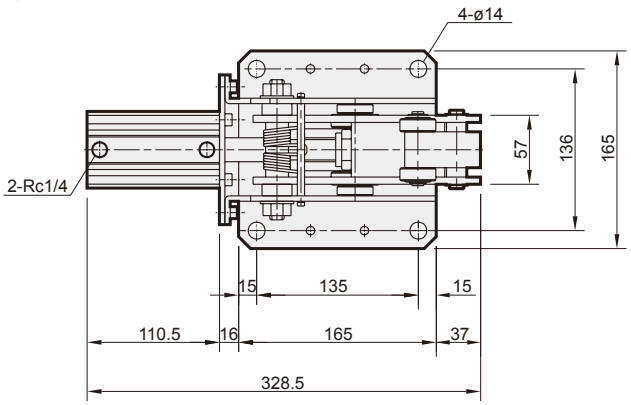


Piping diagram

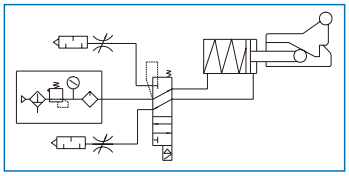


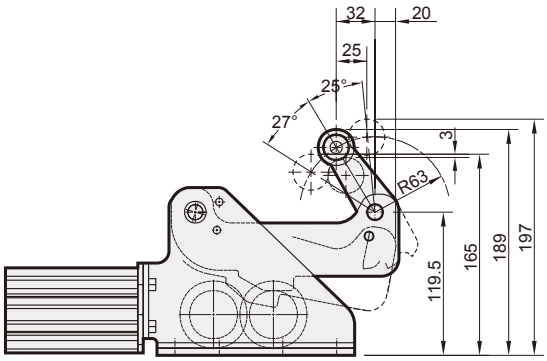
*M5×0.8
Double acting with spring Stopper with roller (Option)

MSLD ø50-50



Piping diagram





* Roller is made of rolled steel.