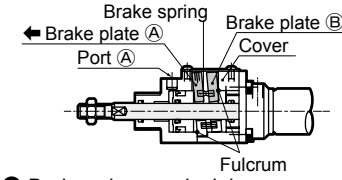
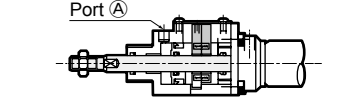
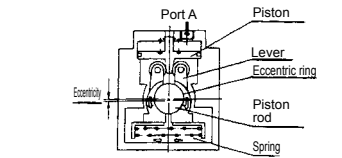
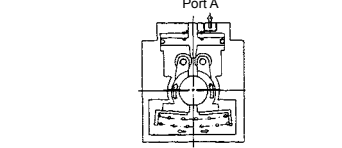
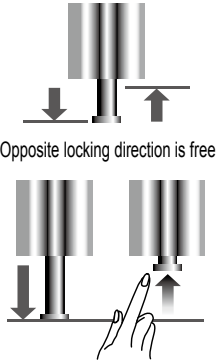
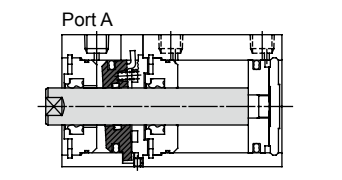
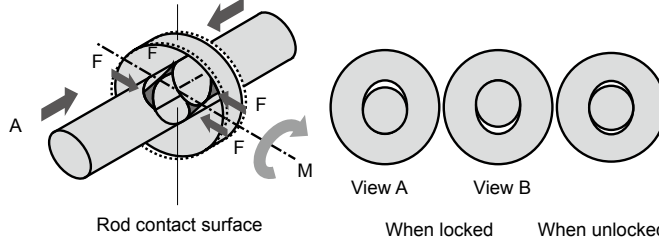


Product MAP with brake function

1) Cylinder with position locking and brake

Model	Function	Structure/Operational principle	Driving cylinder	Features	
ULK* JSK/M2 JSG JSC3/JSC4 USSD UFCD USC JSB3 LMB LML	With brake (Stop when operating)	Swash plate	SCP*2 φ16	Cylinder with brake. It can be stopped or held stationary during operation. JSG saves more space in the brake area when compared to the conventional JSC3 Series. The ULK also saves more space by reducing the brake height compared to the conventional JSK2 Series.	
		<ul style="list-style-type: none"> ● Brake operating principle  <p>When air is discharged from port A, the brake plates A and B tilt to the arrow direction from the fulcrum. This boosts the brake force by generating cylinder thrust, enabling retention of the piston rod.</p> <ul style="list-style-type: none"> ● Brake release principle  <p>When air is supplied from port A, the brake plates A and B are pushed by the release piston. The brake plates A and B become perpendicular to the piston rod, and the piston rod becomes free to move.</p>			
JSK2	With brake (Stop when operating)	Rod clamping	CMK2 φ20 to φ40	[Applications] (1) When multipoint positioning is required (2) When position locking is required (3) When emergency stop is required (4) When locking a workpiece	
JSM2		<ul style="list-style-type: none"> ● Brake release principle  <p>Air supplied from port A pushes the piston under it and opens the lever. The eccentric rings directly connected to the lever rotate and release the piston rod.</p>	CMA2 φ20 to φ40		
JSG		<ul style="list-style-type: none"> ● Brake operating principle  <p>If air is discharged from port A, the eccentric rings rotate with the spring force, generating an eccentric load to brake the piston rod.</p>	SCG φ40 to φ100		
JSC3		SCA2 φ40 to φ100			
JSC4		SCS2 φ125 to φ180			
USSD	Free position locking (Retain stationary state)	Round slit method	SSD φ25 to φ100	Cylinder with position locking mechanism (for holding cylinder stationary). 2 lock direction  Opposite locking direction is free [Application] When position locking is required	
UFCD		 <p>New long life position locking mechanism is used. Applying torque M to the lock metal generates axial force F. This force holds the rod.</p>			FCD φ25 to φ63
USC		 <p>Rod contact surface View A View B When locked When unlocked</p>			SCA2 φ40 to φ100

2) Braking unit

Model	Function	Size	Features
JSB3	Brake (Stop when operating)	Rod size φ16 to φ45	A module of the brake mechanism of JSC3 Series. Able to stop the movable rod immediately and lock it firmly, it can be used in safety mechanisms and clamping mechanisms of many kinds of devices.
LMB	Stationary state locked	THK Rail width: 15/20/25	A lock unit installed in a linear guide. When used with a system incorporating a linear guide, this lock unit can be used to lock a workpiece after moving it to a specified position, or to enable emergency stop for safety, etc. LMB is narrower than LML, and LML is lower-profile than LMB.
LML		THK, IKO Rail width: 15/20/25/30/35	

JSB3

Brake unit

With brake/position locking

φ16/φ20/φ25/φ30/φ35/φ40/φ45

Overview

10 types of discrete brake units of brake cylinders (φ40 to φ180) are available. These powerful and compact brake units enable movable rods to stop instantaneously.

Usable as safety and clamp mechanisms in a variety of fields.

Features

High precision

Rod stopping accuracy ± 1.0 mm or less is realized by CKD unique brake mechanism (rod speed 300 mm/s, no load).

Increases equipment precision.

Powerful holding force

Powerful holding force of 980 N to 20000 N is provided according to φ16 to φ45 rod diameter. Even if air source is shut off, the rod position is held.

Increased flexibility in design

Flexibly applicable to various pneumatic devices, enhancing flexibility in design.




CONTENTS

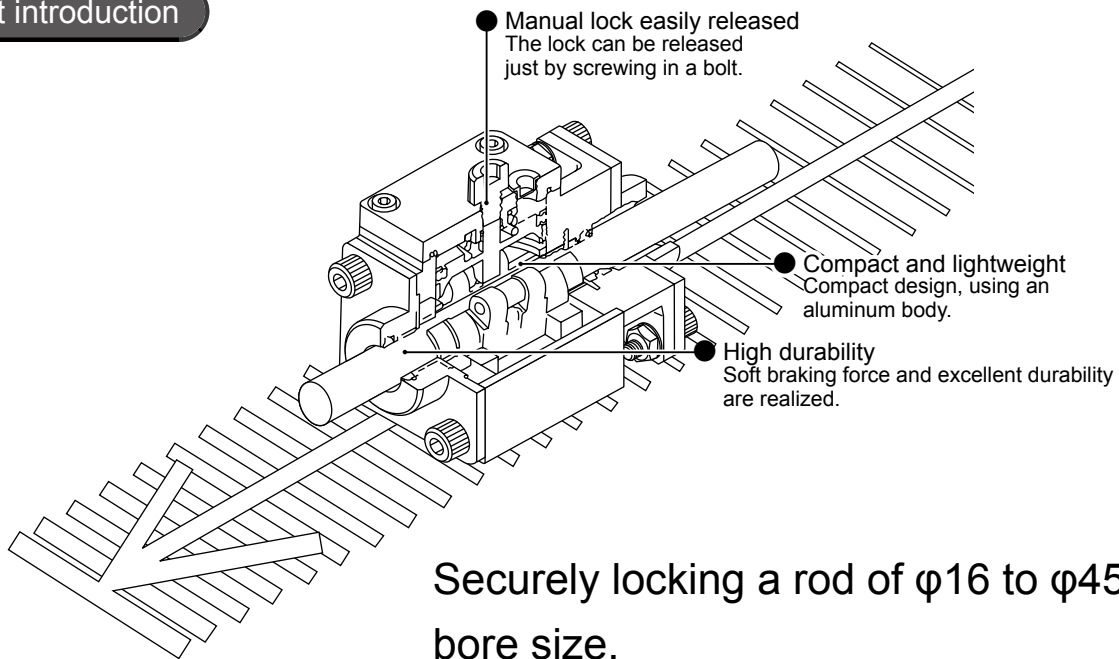
Product introduction	918
Series variation	918
● JSB3	920
⚠ Safety precautions	922

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
UCAC-N
RCC2
RCS
PCC
SHC
MCP
GLC
MFC
BBS
RRC
GRC
RV3*
NHS
HR
LN
Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending

●: Standard, ◎: Option

Model No.	Rod diameter (mm)	Rod length (mm)										Mounting		Page
		200	300	400	500	600	700	800	900	1000	Axial foot	Flange		
											LB	FA		
JSB3 	φ16/φ20/φ25	●	●	●	●	●	●	●	●	●	●	◎	◎	920
	φ30/φ35	-	●	●	●	●	●	●	●	●	●	◎	◎	
	φ40/φ45	-	-	●	●	●	●	●	●	●	●	◎	◎	

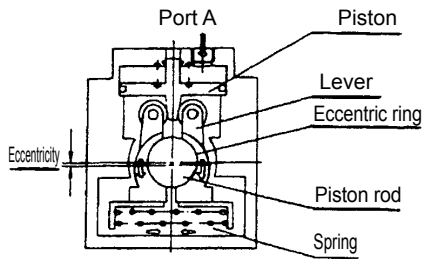
Product introduction



- LCW
- LCR
- LCC
- LCX
- LCM
- STM
- STG
- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3**
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending

Operational principle

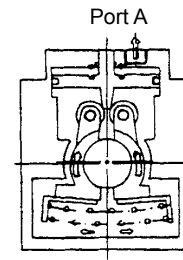
● Brake release operating principle



ⓐ Brake release operating principle

Air supplied from port A pushes the piston under it and opens the lever. The eccentric rings directly connected to the lever rotate in the arrow direction and release the piston rod.

● Brake operating principle

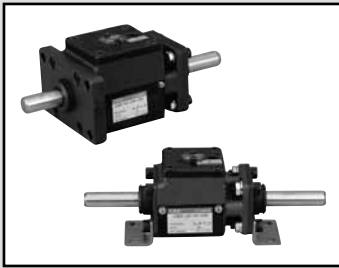


ⓑ Brake operating principle

If air is discharged from port A, the eccentric rings rotate in the arrow direction with the spring force, generating an eccentric load on the piston rod to apply a braking force.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
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LMB
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HR
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Hand
Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
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LML
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LBC
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CAC-N
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GLC
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BBS
RRC
GRC
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NHS
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LN
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Chuk
MecHnd/Chuk
ShkAbs
FJ
FK
SpdContr
Ending



Brake unit

JSB3 Series

● Rod diameter: $\phi 16/\phi 20/\phi 25/\phi 30/\phi 35/\phi 40/\phi 45$



Specifications

Descriptions		JSB3								
Rod diameter code		16	20	20A	25	30	35	35A	40	45
Working fluid		Compressed air								
Max. working pressure MPa		1.0 (≈150 psi, 10 bar)								
Min. working pressure MPa		0.3 (≈44 psi, 3 bar)								
Proof pressure MPa		1.6 (≈230 psi, 16 bar)								
Ambient temperature °C		-10 (14°F) to 60 (140°F) (no freezing)								
Port size		Rc1/8		Rc1/4		Rc3/8		Rc1/2		
Working rod speed mm/s		10 to 1000								
Lubrication		Not required (use turbine oil class 1 ISO VG32 if necessary for lubrication)								
Stopping accuracy mm		±1.0 (Rod speed 300 mm/s, no load) (*1)								
Holding force N		980	1569	2451	3922	6178	9600	12000	15800	20000
Rod diameter and tolerance mm		$\phi 16f8$	$\phi 20f8$		$\phi 25f8$	$\phi 30f8$	$\phi 35f8$		$\phi 40f8$	$\phi 45f8$
Rod surface roughness μmRz		1.2 to 1.6								
Weight kg	LB	1.8	2.5	3.7	6.7	11.6	18.5	20.3	33.0	44.0
	FA	1.8	2.5	4.1	7.3	12.1	20.3	26.4	36.8	51.5
	Additional weight per rod 100 m	0.16	0.25	0.25	0.39	0.56	0.76	0.76	0.99	1.25

*1: The stopping accuracy diminishes if the brake valve is separated. The value above is for piping of 1 m or less.

*2: Brake valves are also available. Contact CKD for details.

How to order

JSB3 — **LB** — **16** — **500**

A Mounting

B Rod diameter

C Rod length

*1
*2

⚠ Precautions for model No. selection

*1: Available up to 3000 mm in 1 mm increments.

*2: The rod length indicates the total length of rod.
Note that this is not the stroke length.

[Example of model No.]

JSB3-LB-16-500

Model: Brake unit

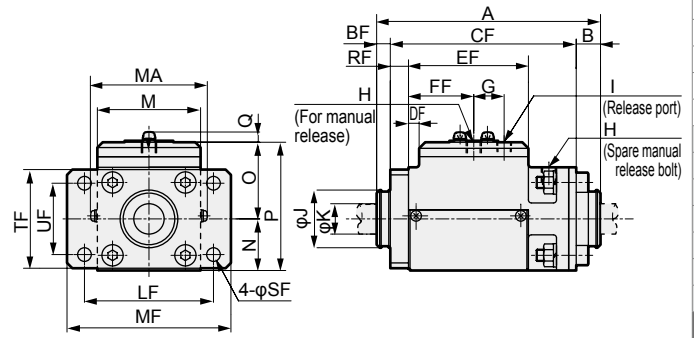
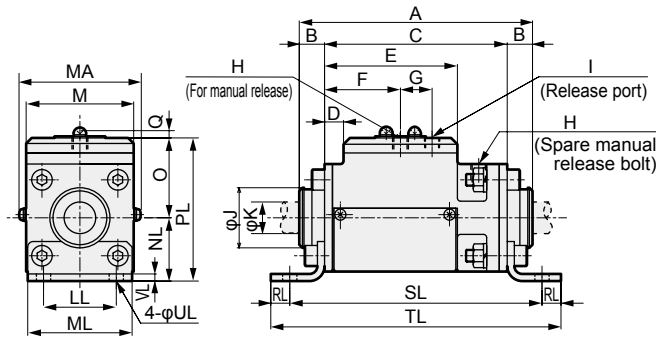
- A** Mounting : Axial foot
- B** Rod diameter : $\phi 16$ mm
- C** Rod length : 500 mm

Code	Content			
A Mounting				
LB	Axial foot			
FA	Flange			
B Rod diameter (mm)				
Code	Rod diameter			
16	$\phi 16$			
20	$\phi 20$			
20A	$\phi 20$			
25	$\phi 25$			
30	$\phi 30$			
35	$\phi 35$			
35A	$\phi 35$			
40	$\phi 40$			
45	$\phi 45$			
C Rod length (mm)				
	Rod diameter	$\phi 16, \phi 20, \phi 25$	$\phi 30, \phi 35$	$\phi 40, \phi 45$
Blank	Not attached	●	●	●
200	200	●		
300	300	●	●	
400	400	●	●	●
500	500	●	●	●
600	600	●	●	●
700	700	●	●	●
800	800	●	●	●
900	900	●	●	●
1000	1000	●	●	●

Dimensions

● Axial foot (LB) $\phi 16$ to $\phi 30$

● Rod side flange (FA) $\phi 16$ to $\phi 30$

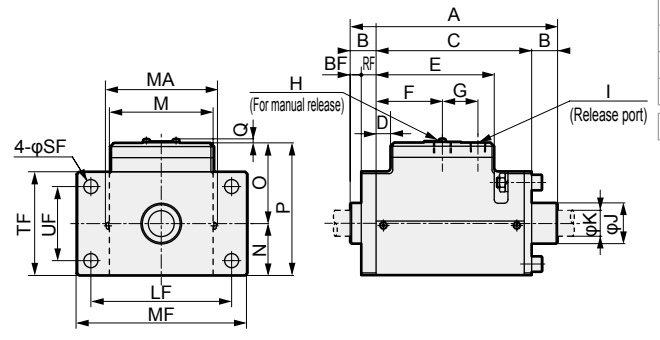
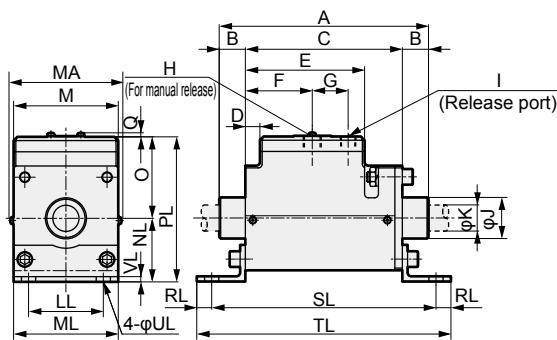


Code	A	B	BF	C	CF	D	DF	E	EF	F	FF	G	H	I	J	K	LL	LF
φ16	129	15	7	99	107	9	5	70	66	40	36	20	M10	Rc1/8	31	16	40	80
φ20	147.5	16	9	115.5	122.5	12	7	84	79	48	43	20	M10	Rc1/8	38	20	46	85
φ20A	164	16	8	132	140	13	5	99	91	56	48	27	M12	Rc1/4	38	20	60	106
φ25	186.5	17.5	4.5	151.5	164.5	13	7	119	113	66	60	27	M14	Rc1/4	43	25	74	125
φ30	243	26	13.5	191	203.5	17.5	11	149.5	143	83.5	77	35	M16	Rc3/8	51	30	80	144

Code	ML	MF	NL	N	O	PL	P	Q	RL	RF	SL	SF	TL	TF	UL	UF	VL	M	MA
φ16	57	100	40	28.5	46	86	74.5	5	10	12	138	9	158	57	9	40	3.2	57	66
φ20	66	108	40	34	50.5	90.5	84.5	5	12	12	159.5	9	183.5	65	9	47	4.5	68	77
φ20A	80	130	50	40	54	104	94	5	12	16	192	11	216	80	11	60	4.5	80	89
φ25	98	153	60	49	66	126	115	5	14	19	225.5	14	253.5	98	14	74	6.0	98	107
φ30	118	180	67	59	74	141	133	5	21	19	253	14	295	118	14	88	6.0	118	127

● Axial foot (LB) $\phi 35$ to $\phi 45$

● Rod side flange (FA) $\phi 35$ to $\phi 45$



Code	A	B	BF	C	D	E	F	G	H	I	J	K	LF	LL	M	MA	MF
φ35	280	35	15	210	19.5	159.5	89.5	48	M24	Rc1/2	55	35	190	100	140	150	230
φ35A	296	35	15	226	18.5	175.5	97	50	M24	Rc1/2	55	35	212	112	157	167	250
φ40	356	48	26	260	23	200	111.5	58	M24	Rc1/2	62.5	40	236	118	177	190	280
φ45	385	53	28	279	14	214	114	70	M24	Rc1/2	68.5	45	265	132	200	213	310

Code	ML	NL	N	O	PL	P	Q	RF	RL	SL	SF	TL	TF	UL	UF	VL
φ35	140	85	70	109	194	179	5	20	20	300	19	340	140	19	100	7
φ35A	157	100	78.5	116.5	216.5	195	5	20	20	326	19	366	157	19	112	8
φ40	177	106	88.5	128	234	216.5	5	22	20	366	19	406	177	19	118	10
φ45	200	125	100	148	271	246	5	25	27	399	24	453	200	24	132	10

- LCW
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- LCX
- LCM
- STM
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- STS/STL
- STR2
- UCA2
- ULK*
- JSK/M2
- JSG
- JSC3/JSC4
- USSD
- UFCD
- USC
- JSB3**
- LMB
- LML
- HCM
- HCA
- LBC
- CAC4
- UCAC2
- CAC-N
- UCAC-N
- RCC2
- RCS
- PCC
- SHC
- MCP
- GLC
- MFC
- BBS
- RRC
- GRC
- RV3*
- NHS
- HR
- LN
- Hand
- Chuk
- MecHnd/Chuk
- ShkAbs
- FJ
- FK
- SpdContr
- Ending



Pneumatic components

Safety Precautions

Be sure to read this section before use.

Refer to Intro Page 73 for general information of the cylinder, and to Intro Page 80 for general information of the cylinder switch.

Product-specific cautions: Brake unit JSB3 Series

Design/selection

WARNING

- Use a rod with a surface roughness between 1.2 to 1.6 μmRz . Use of a non-standard rod may result in abnormal wear of the brake shoe metal or a drop in holding force.

- Use a rod treated with industrial chrome plating (coating thickness of 15 μm or more).

CAUTION

- Connect with spherical bearings (floating joints) to prevent damage to the screw at the rod end, to prevent wear or seizure in the brake unit, and to prevent twisting of the rod and brake unit at any position during movement.

- As shown in Fig.1, the brake unit is fixed to the table, so keep the rod parallel to the direction of table movement.

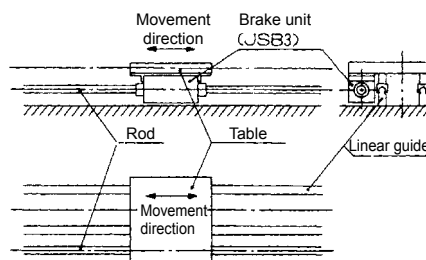


Fig. 1

- Do not use for rotating rod braking.
- Note that stopping accuracy is adversely affected if the brake unit air supply pipe is too long.
- Do not apply lateral load moment to brake units when using in a horizontal state.

Mounting, installation and adjustment

CAUTION

- Check that load is applied in the rod axial direction.

- Take special care in handling so as not to cause scratches or dents. Rough handling may result in abnormal wear of the brake shoe metal or a drop in holding force.

Use/maintenance

WARNING

- Never disassemble the brake section, as this is dangerous.
- Do not apply grease. It may cause the holding force to decrease.
- For safety purposes, prevent the load from falling under its own weight during maintenance.

CAUTION

- Make sure that water and oil do not contact the brake unit and rod section. Water may cause corrosion and ultimately lead to malfunctioning. Splattered oil may compromise the holding force and stopping accuracy.
- If the manual release bolt is removed while the piston rod is pulled out, the bolt cannot be screwed in. When the manual release bolt has been removed, supply air from the brake release port and screw in the bolt.

LCW
LCR
LCG
LCX
LCM
STM
STG
STS/STL
STR2
UCA2
ULK*
JSK/M2
JSG
JSC3/JSC4
USSD
UFCD
USC
JSB3
LMB
LML
HCM
HCA
LBC
CAC4
UCAC2
CAC-N
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PCC
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GLC
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