JSB3

Brake unit

With brake/position locking

ø16/ø20/ø25/ø30/ø35/ø40/ø45

Overview

10 types of discrete brake units of brake cylinders (ø40 to ø180) 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 ø16 to ø45 rod diameter. Even if air source is shut off, the rod position is held.

Increased flexibility in design

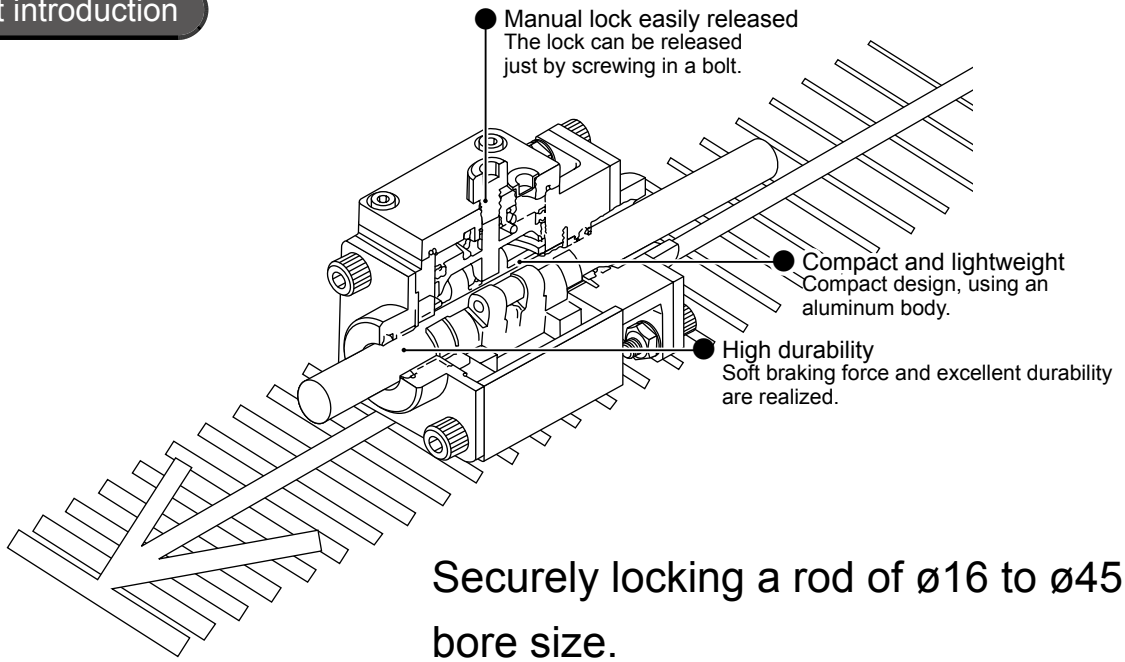
Flexibly applicable to various pneumatic devices, enhancing flexibility in design.

CONTENTS

●: Standard, ◎: Option

Model No.	Rod diameter (mm)	Rod length (mm)									Mounting		Page
		200	300	400	500	600	700	800	900	1000	Axial foot LB	Flange FA	
JSB3 	ø16/ø20/ø25	●	●	●	●	●	●	●	●	●	◎	◎	936
	ø30/ø35	-	●	●	●	●	●	●	●	●	◎	◎	
	ø40/ø45	-	-	●	●	●	●	●	●	●	◎	◎	

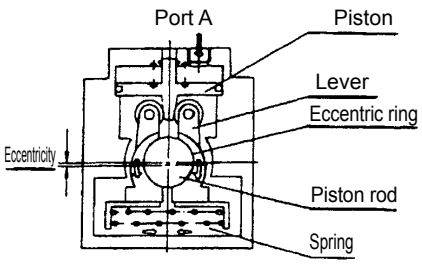
Product introduction



Securely locking a rod of ø16 to ø45 mm bore size.

Operational principle

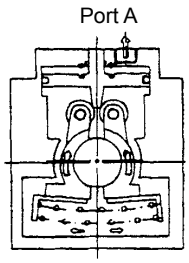
● Brake release operating principle



ⓐ Brake release operating principle

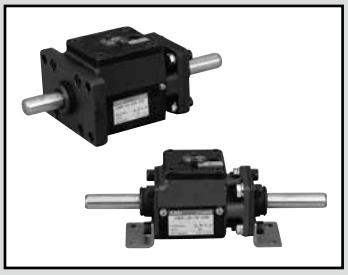
Air supplied from port A pushes the piston under it and opens the lever. The eccentric rings directly connected to the lever rotate in the arrow direction and release the piston rod.

● 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.



Brake unit

JSB3 Series

● Rod diameter: ø16/ø20/ø25/ø30/ø35/ø40/ø45

RoHS CAD

Specifications

Item		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		ø16f8	ø20f8		ø25f8	ø30f8	ø35f8		ø40f8	ø45f8
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

Ⓐ Mounting
Ⓑ Rod diameter
Ⓒ Rod length *1 *2

Code	Description
Ⓐ Mounting	
LB	Axial foot
FA	Flange

Ⓑ Rod diameter (mm)

Code	Rod diameter
16	ø16
20	ø20
20A	ø20
25	ø25
30	ø30
35	ø35
35A	ø35
40	ø40
45	ø45

Ⓒ Rod length (mm)

	Rod diameter	ø16, ø20, ø25	ø30, ø35	ø40, ø45
Blank	Not included	●	●	●
200	200	●		
300	300	●	●	
400	400	●	●	●
500	500	●	●	●
600	600	●	●	●
700	700	●	●	●
800	800	●	●	●
900	900	●	●	●
1000	1000	●	●	●

⚠ 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.

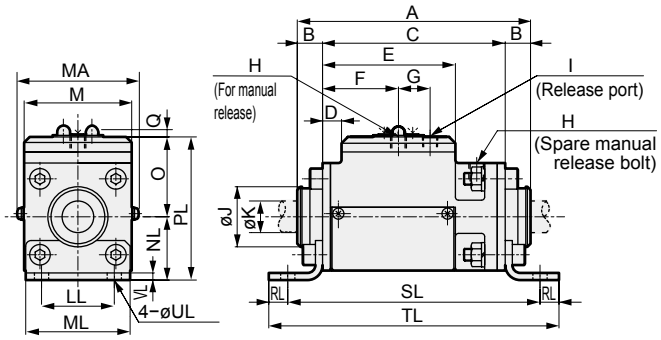
[Example of model No.]

JSB3-LB-16-500

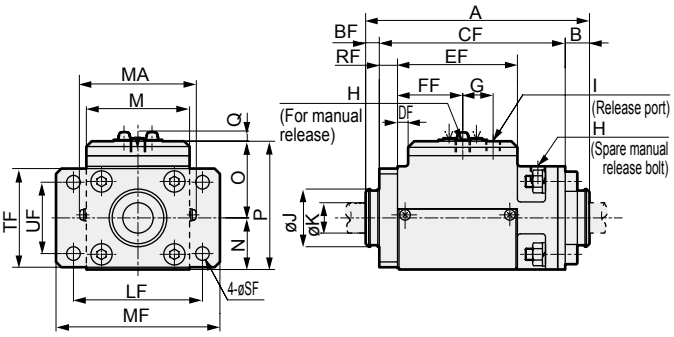
Model: Brake unit
Ⓐ Mounting : Axial foot
Ⓑ Rod diameter : ø16 mm
Ⓒ Rod length : 500 mm

Dimensions

● Axial foot (LB) ø16 to ø30



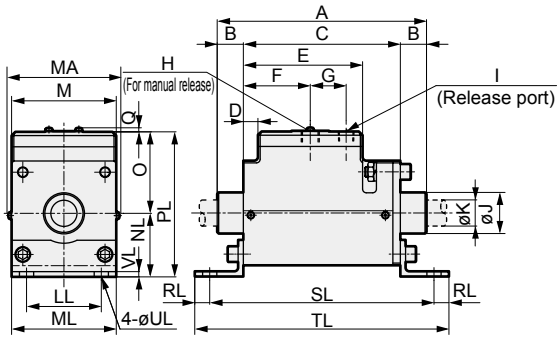
● Rod side flange (FA) ø16 to ø30



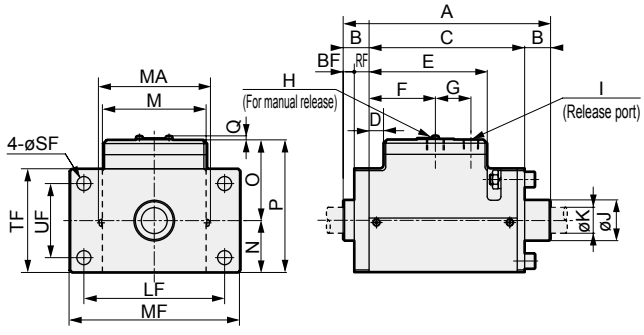
Code / Rod diameter code	A	B	BF	C	CF	D	DF	E	EF	F	FF	G	H	I	J	K	LL	LF
ø16	129	15	7	99	107	9	5	70	66	40	36	20	M10	Rc1/8	31	16	40	80
ø20	147.5	16	9	115.5	122.5	12	7	84	79	48	43	20	M10	Rc1/8	38	20	46	85
ø20A	164	16	8	132	140	13	5	99	91	56	48	27	M12	Rc1/4	38	20	60	106
ø25	186.5	17.5	4.5	151.5	164.5	13	7	119	113	66	60	27	M14	Rc1/4	43	25	74	125
ø30	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 / Rod diameter code	ML	MF	NL	N	O	PL	P	Q	RL	RF	SL	SF	TL	TF	UL	UF	VL	M	MA
ø16	57	100	40	28.5	46	86	74.5	5	10	12	138	9	158	57	9	40	3.2	57	66
ø20	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
ø20A	80	130	50	40	54	104	94	5	12	16	192	11	216	80	11	60	4.5	80	89
ø25	98	153	60	49	66	126	115	5	14	19	225.5	14	253.5	98	14	74	6.0	98	107
ø30	118	180	67	59	74	141	133	5	21	19	253	14	295	118	14	88	6.0	118	127

● Axial foot (LB) ø35 to ø45



● Rod side flange (FA) ø35 to ø45



Code / Rod diameter code	A	B	BF	C	D	E	F	G	H	I	J	K	LF	LL	M	MA	MF
ø35	280	35	15	210	19.5	159.5	89.5	48	M24	Rc1/2	55	35	190	100	140	150	230
ø35A	296	35	15	226	18.5	175.5	97	50	M24	Rc1/2	55	35	212	112	157	167	250
ø40	356	48	26	260	23	200	111.5	58	M24	Rc1/2	62.5	40	236	118	177	190	280
ø45	385	53	28	279	14	214	114	70	M24	Rc1/2	68.5	45	265	132	200	213	310

Code / Rod diameter code	ML	NL	N	O	PL	P	Q	RF	RL	SL	SF	TL	TF	UL	UF	VL
ø35	140	85	70	109	194	179	5	20	20	300	19	340	140	19	100	7
ø35A	157	100	78.5	116.5	216.5	195	5	20	20	326	19	366	157	19	112	8
ø40	177	106	88.5	128	234	216.5	5	22	20	366	19	406	177	19	118	10
ø45	200	125	100	146	271	246	5	25	27	399	24	453	200	24	132	10

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).

■ Do not use multiple synchronized brake units. If the synchronization deviates, load is concentrated on the brake unit where the brake was applied first, risking shortened service life or damage.

⚠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.

■ Sliding resistance is generated in this product even with brake released. Use of thrust as below or higher is recommended.

Rod diameter code	16	20	20A	25	30	35	35A	40	45
Required thrust guideline [N]	53	82	140	227	357	565	722	942	1193

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

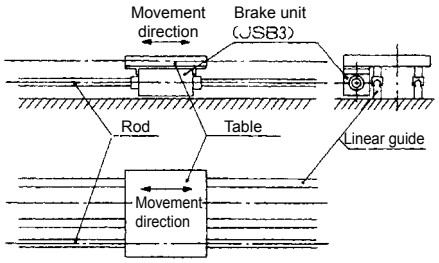


Fig. 1

■ 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.