

Pneumatic Cylinders I
Catalog No. CB-029SA

Shock absorber

FCK Series

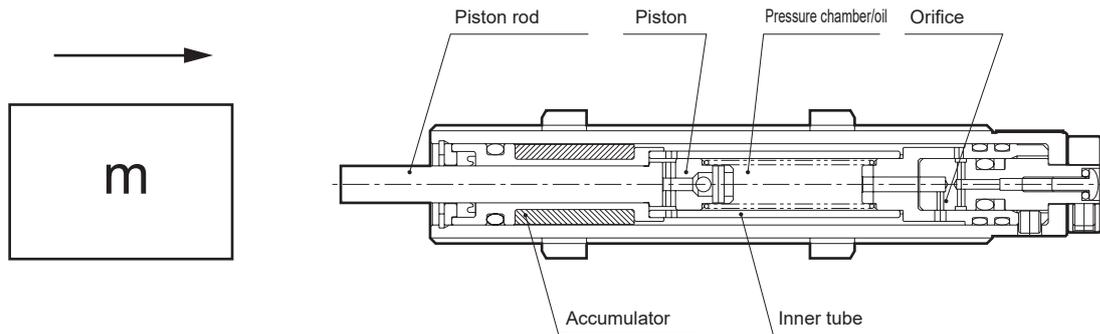
●Max. energy absorption: 1.5 to 79.3J



Specifications

Item	FCK											
	0.15	0.18	0.3	0.5	0.4	0.6	1	3	5	6.5	8.1	
Series												
Type/Classification	With adjuster Spring return											
Max. energy absorption J	1.5	1.8	2.9	4.9	3.9	5.9	9.8	29.4	49	63.7	79.3	
O.D. thread size mm	M 10 x 1.0		M 12 x 1.0		M 14 x 1.5		M 16 x 1.5	M 20 x 1.5	M 25 x 1.5		M 27 x 1.5	
Stroke mm	8		10				12	16	30	40	25	
per hour Max. energy absorption kJ/hr	3.5		5.9		8.8		14.1	20.6	29.4	38.2	32.3	
Max. colliding speed	L m/s	0.3 to 1	—	0.3 to 1	—	0.3 to 1	—	0.3 to 1				
	M m/s	—	0.3 to 2	—	0.3 to 2	—	0.3 to 2	0.3 to 2				
	H m/s	—	0.7 to 3	—	0.7 to 3	—	0.7 to 3	0.7 to 3				
Max. operating frequency (20°C)cycles/min.	60											
Ambient temperature °C	-5 to 70											
Max. load (resistance)	L N							4,900				
	M N	637		1,470		1,813		2,646	3,528	3,920		
	H N									6,370		
Return time S	0.5 or less											
Product weight	Without cap g	26.5		44		68		108	180	406	—	411
	With cap g	27		47		73		117	202	436	459	460
Return spring force	when extended N	2.9		4.9		4.5		5.4	12.0	16.6	23.8	16.2
	When compressed N	5.9		9.8				14.7	18.0	33.1	71.4	27.2

Operational principle



If an object collides with the piston rod, that action is transmitted to the oil in the pressure chamber attached by the piston and inner tube.

Oil in pressure chamber flows out from orifice provided in inner tube.

Resistance F shown by following formula occurs at that time.

$$F=av^2+bv+cx \text{ (v is colliding speed, and x is travel stroke. a, b, and c are constants.)}$$

Item No. 1 shows the speed square resistance, which is a significant part of the resistance as a whole.

Item No. 2 shows the viscosity resistance, which is a significant part of the resistance if the colliding speed is low.

Item No. 3 shows return force of piston rod. (Can usually be ignored, as the value is miniscule compared to Items 1 and 2.)

The product of resistance generated at this time and the piston rod stroke is the shock absorber absorption energy.

The shock absorber realizes ideal impact absorption by controlling Items 1 and 2.

Compatibility table by variation

Applicable size	P4	Low speed	Medium speed	High speed
		L	M	H
FCK-0.15 to 8.1		●	●	●

●: Applicable models ○: Semi-applicable models ▲: Contact CKD for details. □: Not applicable

How to order

● Low speed

FCK-L - **0.15** - **C** - P4

● Medium speed

FCK-M - **0.18** - **C** - P4

● High speed

FCK-H - **0.18** - **C** - P4

A Model No.

B Series (max. energy absorption)

C Option
*1

		A Model No.		
		Low speed	Medium speed	High speed
Code	Description	FCK-L	FCK-M	FCK-H
B Series (max. energy absorption)				
0.15	1.5J	●	□	□
0.18	1.8J	□	●	●
0.3	2.9J	●	□	□
0.4	3.9J	●	□	□
0.5	4.9J	□	●	●
0.6	5.9J	□	●	●
1	9.8J	●	●	●
3	29.4J	●	●	●
5	49J	●	●	●
6.5	63.7J	●	●	●
8.1	79.3J	●	●	●
C Option				
Blank	Without cap	●	●	●
C	Capped	●	●	●

*1: No cap is available for 6.5 (63.7J).

□ indicates not available.

P4
Series

Pneumatic cylinders
Hand/Chuck
Related products
Cylinder Switch

Vacuum components
Pneumatic valves

Clean air components
Speed controller
Fitting
Auxiliary valve
Silencer
Tube

Gas generator
Fluid control components

Motor specification
Motorless specifications