

Soft Absorber

Multiple-orifice type

Fixed Type

Adjustable type

Self-adjusting

FL Series (M12~M16)

RoHS Compliant

● Products specification might be changed without notice.



Characteristics

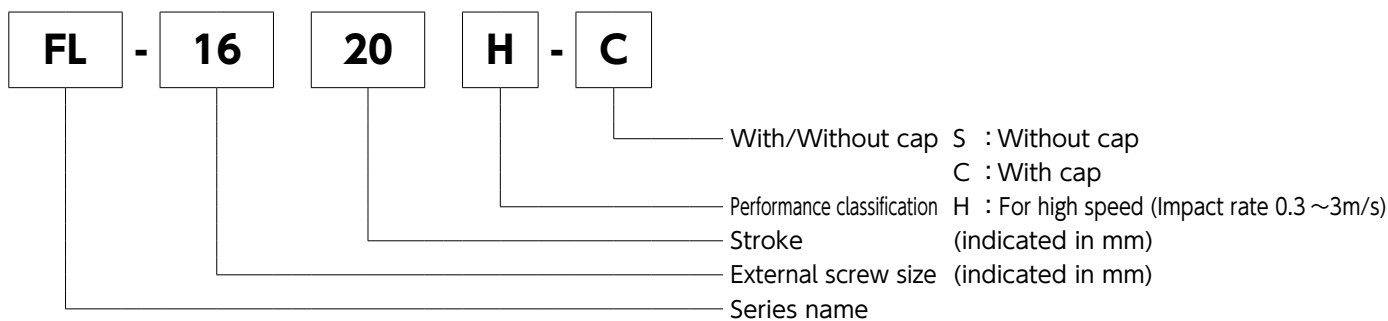
- With an adjustable multiple-orifice structure, an optimal impact absorption can be achieved by making adjustments, even under variable operating conditions.
- This product is a long-stroke type that is suitable for high-speed (3m/s) collisions.

Specifications

Model	Stroke mm	Max. absorption energy J (kgf·m)	Max. equivalent mass kg (kgf)	Range of impact rate m/s	Max. drag N (kgf)	Max. cycle rate cycle/min	Max. absorption energy per minute J/min (kgf·m/min)	Recovering power of the piston rod N (kgf)	Operating temperature °C	Mass g	
										S type	C type
FL-1214H-□	14	5.4 (0.55)	30 (30)	0.3~3	1,156 (118)	60	98 (10)	12.7 (1.3) or lower	-5~70	46	49
FL-1417H-□	17	14.7 (1.5)	50 (50)	0.3~3	2,646 (270)	60	176 (18)	15.7 (1.6) or lower	-5~70	80	85
FL-1620H-□	20	17.6 (1.8)	60 (60)	0.3~3	2,646 (270)	60	235 (24)	19.6 (2.0) or lower	-5~70	124	136

Note) Insert S in the □ to order without a cap, and insert C in the □ to order with a cap (R if ordering urethane cap).

Key to Model Number



Precautions for Use

- * Do not use this product without carefully reading the attached owner' s manual.
- * We recommend that you use it with an external stopper (Stopper nut OP-020**).
- * Ensure that sufficient mounting strength is secured for this product. (As a guideline, it should be 2 to 3 times the maximum drag listed in the catalogue.)
- * Do not use this product in a vacuum or a location where it may come in contact with oil.
- * Ensure that an eccentric load is not applied to the soft absorber. (Allowable eccentric angle: $\pm 2.5^\circ$)

Adjustment Method

- * To adjust, turn the adjustment knob located at the bottom of the main unit.
- * Because the adjustment can be done in an analog manner, a value between two integers on the indicator can be set.
- * Once the adjustment is complete, secure with a lock screw using the attached hex wrench.

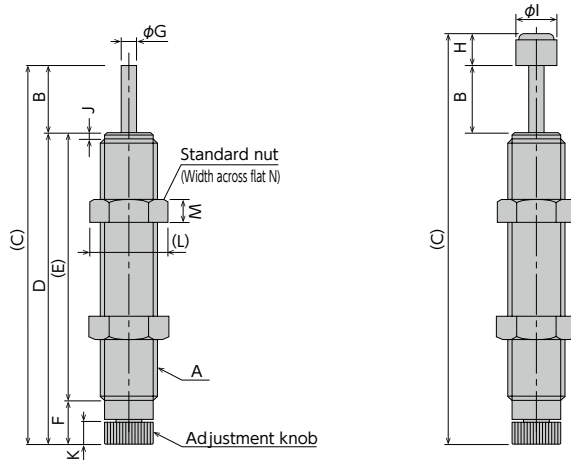
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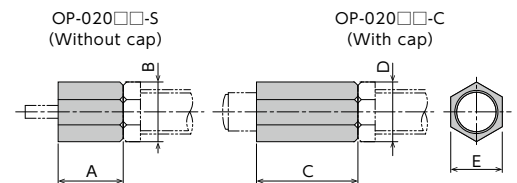
Dimensions

Model	A	B	C	D	E	F	ϕG	H	ϕI	J	K	L	M	N
FL-1214H-S	M12×1.0	14	84	70	59.5	10.5	3.5	—	—	1.5	5	16.2	4	14
FL-1214H-C			92					8	8					
FL-1417H-S	M14×1.5	17	105	88	77.8	10.2	4	—	—	1.5	5	19.6	6	17
FL-1417H-C			115					10	10					
FL-1620H-S	M16×1.5	20	128	108	93.5	14.5	5	—	—	—	4.4	21.9	6	19
FL-1620H-C			143					15	13.5					

Optional Parts

Stopper nut OP-020 □□ - □

Model	Without cap OP-020□□-S		With cap P-020□□-C		E	Applicable model	Mass g	
	A	B	C	D			S	C
OP-020KB-S-C	12	16.2	16	16.2	14	FL-1214H	S	6
							C	8
OP-020RB-S-C	12	19.6	20	19.6	17	FL-1417H	S	10
							C	17
OP-020HB-S-C	15	21.9	30	21.9	19	FL-1620H	S	15
							C	28

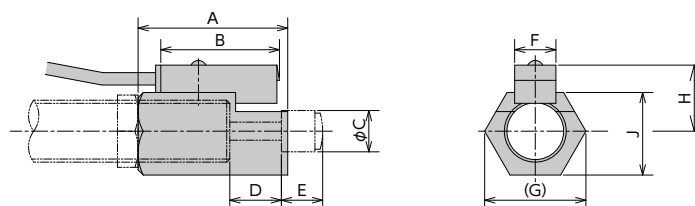


● Adjust so that it stops 1mm before the stroke end, and fasten with the main unit's nut until secured.
Note) When attaching, make sure that the side without a bearing chamfer is the impact surface.

Holder with a switch OP-032 □□

Model	A	B	ϕC	D	E	F	(G)	H	J	Applicable model	Mass g
OP-032KB	29	23	8	14	8	8	19.6	12.8	16	FL-1214H-C	38
OP-032HB	40	23	13.5	20	15	8	21.9	14.8	19	FL-1620H-C	46

Note) For switch specifications and precautions for use, please refer to page 23.
Note) A holder with a switch cannot be used with the FL-1417 series.



Standard nuts are sold separately as well.

Applicable model	Model
FL-1214H	M12 nut
FL-1417H	M14 nut
FL-1620H	M16 nut