MAC / MAD series

SHOCK ABSORBERS

mindman

Order example

MAC – 0806 – 1 – □

- **MAD**: Adjustable
  MAC: Non-adjustable
  MACD: Double cushion
- Tube O.D.
- STROKE
- Select damping constant from graph
  1: Hight impact speed
  2: Medium impact speed
  3: Low impact speed
- Blank: with cap
  N: without cap

Why do we need shock absorbers?

The simplest method to increase productivity is to raise machine operation speed. It often accompanies with excessive vibration and noise, damage to machines and products and decreasing in machine life. Most important of all, safety has to be sacrificed to a certain degree because of large shock forces generated.

MINDMAN shock absorbers are developed to provide linear deceleration and therefore solve these problems. They can stop or change direction of moving objects smoothly and quietly without any compromising in safety. MINDMAN shock absorbers are ideal for energy absorption and are being used whenever shock forces occur.

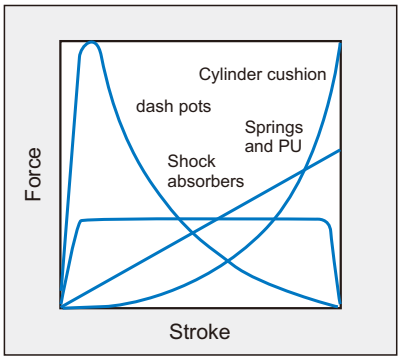
The advantages of using shock absorbers include

1. To increase production rate.
2. To extend machine life.
3. To simplify equipment design.
4. To reduce maintenance cost.
5. To reduce vibration and noise levels.

Comparison of shock absorbing of dash pots, rubber materials springs, cylinder cushion and shock absorbers

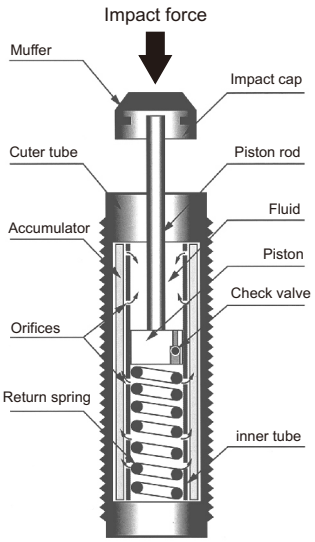
In case of MINDMAN shock absorbers compared with other buffering devices, such as spring, dash pots, air buffers, or rubber materials, resistant forces are different from one another. Only MINDMAN shock absorbers can stop a moving object smoothly and quietly from the beginning to the end of impact stroke. Figure 1 shows a scheme of comparing shock forces generated by different cushioning materials. Through special design of fluid metering system, MINDMAN shock absorbers can provide a constant resistant force or linear deceleration throughout the entire impact stroke, all the kinetic energy of the moving object is converted into heat and dissipated into the air.

Springs, air buffers and rubber materials only dissipate a small portion of the kinetic energy and store the remaining in elastic energy form. Therefore, large resistant forces and rebounding forces are inevitable near the end of the impact stroke. Without a delicate metering system, a dash pot will produce a large peak force at the beginning of the impact stroke.



Operating principles of shock absorbers

All series of MINDMAN shock absorbers are of such construction as shown in the following drawing. On impact the piston rod moves into the shock absorber and the hydraulic fluid is pushes into accumulator to produce resistant force. Owing to special spacing and sizing of orifices, the pressure in the inner tube remains constant throughout the entire impact stroke. By providing a linear deceleration, a MINDMAN shock absorber brings the impacting object to stop smoothly and quiet. At the end of the impact stroke, the return spring pushes the piston to its original piston for next cycle.



Constructlon of a shock absorber

Considerations for selecting shock a absorbers

1.Moving direction. (in horizontal, free fall or rotary motion)
2.Total weight of impacting object.
3.Propelling force. (pneumatic / hydraulic cylinder, motor etc.)
4.Impact Velocity.
5.Number of impact per hour.
6.Applicable quantity of shock absorbers in impacting direction.

Functions of hydraulic shock absorbers

1.Eliminating vibration and absorbing striking energy in a short time.
2.Reducing operating noise and offering a quiet working environment.
3.Accelerating machine operation and elevating production capacity.
4.Extending machine life time and reducing after sale service.
5.Improving quailty of products.

Applications

Robots for plastic injection moulding machine, pick and place robots, feeding equipment, screen print machines, conveyors, air cylinders, vibration conveyor systems, rolling doors, medical equipment, foundry industries, rodless cylinders, package machines, machine tools, rubber/plastic machines, woodworking machines, aircraft industries, military equipment, education researches and automotive transfer lines.

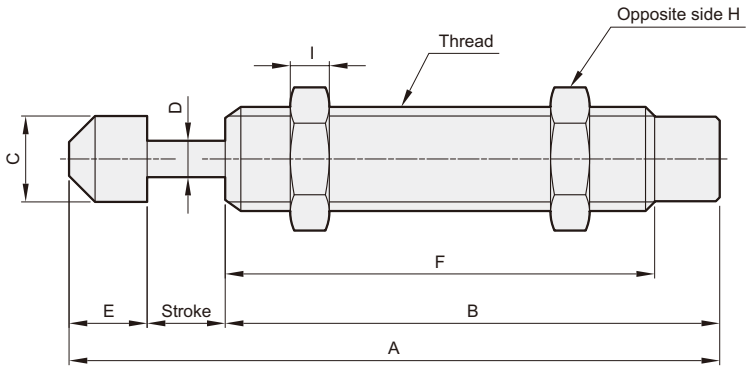
* Customer's own specification is welcome.
* The specifications are subject to change without advance notice.

Miniature MAC series
-M8, M10, M12

Our miniature shock absorbers MAC Series- M8, M10, M12 provide great effect for shock impact and come to stop smoothly and are Ideal for light loads.

Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAC-0806-1	6	2	8800	0.5	2.0	−10~+80	11
MAC-0806-2	6	2	8800	2.0	1.0	−10~+80	11
MAC-0806-3	6	2	8800	6.0	0.5	−10~+80	11
MAC-1005-1	5	3	10800	1	3.0	−10~+80	14
MAC-1005-2	5	3	10800	3	1.5	−10~+80	14
MAC-1005-3	5	3	10800	7	0.8	−10~+80	14
MAC-1008-1	8	4	15200	2	3.0	−10~+80	20
MAC-1008-2	8	4	15200	4	1.5	−10~+80	20
MAC-1008-3	8	4	15200	9	0.8	−10~+80	20
MAC-1210-1	10	5	17640	5	3.0	−10~+80	31.5
MAC-1210-2	10	5	17640	10	1.5	−10~+80	31.5
MAC-1210-3	10	5	17640	30	0.8	−10~+80	31.5



Dimensions

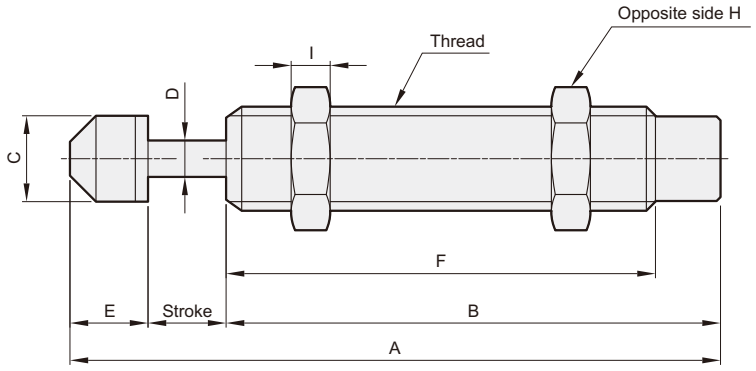
Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	H	I
MAC-0806-1	M 8×1.0	6	50	38	6.6	2.8	6	33	11	3
MAC-0806-2	M 8×1.0	6	50	38	6.6	2.8	6	33	11	3
MAC-0806-3	M 8×1.0	6	50	38	6.6	2.8	6	33	11	3
MAC-1005-1	M 10×1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3
MAC-1005-2	M 10×1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3
MAC-1005-3	M 10×1.0	5	38.7	27.7	8.6	2.8	6	22.9	12.7	3
MAC-1008-1	M 10×1.0	8	57	43	8.6	3	6	38	12.7	3
MAC-1008-2	M 10×1.0	8	57	43	8.6	3	6	38	12.7	3
MAC-1008-3	M 10×1.0	8	57	43	8.6	3	6	38	12.7	3
MAC-1210-1	M 12×1.0	10	69.5	50	10.3	3	9.5	45.5	14	4
MAC-1210-2	M 12×1.0	10	69.5	50	10.3	3	9.5	45.5	14	4
MAC-1210-3	M 12×1.0	10	69.5	50	10.3	3	9.5	45.5	14	4

MAC series - Porous type
M14, M20

MAC series is self-compensating, and ideal for energy absorption in high speed, medium speed and low speed impact. MAC series can stop moving objects smoothly and quietly.

Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAC-1412-1	12	15	30000	8	3.0	−10~+80	80
MAC-1412-2	12	15	30000	50	1.5	−10~+80	80
MAC-1412-3	12	15	30000	100	0.8	−10~+80	80
MAC-1416-1	16	20	35000	10	3.0	−10~+80	90
MAC-1416-2	16	20	35000	70	1.5	−10~+80	90
MAC-1416-3	16	20	35000	150	0.8	−10~+80	90
MAC-2020-1	20	40	40000	30	3.5	−10~+80	215
MAC-2020-2	20	40	40000	200	2.0	−10~+80	215
MAC-2020-3	20	40	40000	700	1.0	−10~+80	215



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	H	I
MAC-1412-1	M 14×1.5	12	99	76	12	4	11	67	19	5
MAC-1412-2	M 14×1.5	12	99	76	12	4	11	67	19	5
MAC-1412-3	M 14×1.5	12	99	76	12	4	11	67	19	5
MAC-1416-1	M 14×1.5	16	122	95	12	4	11	86	19	5
MAC-1416-2	M 14×1.5	16	122	95	12	4	11	86	19	5
MAC-1416-3	M 14×1.5	16	122	95	12	4	11	86	19	5
MAC-2020-1	M 20×1.5	20	145	110	18	6	15	101	26	7
MAC-2020-2	M 20×1.5	20	145	110	18	6	15	101	26	7
MAC-2020-3	M 20×1.5	20	145	110	18	6	15	101	26	7

MAC / MACD Self compensation

SHOCK ABSORBERS

Long stroke in 50 mm-

Porous fixed type

Model MAC 2050 and M 20 are applicable for high impact and high effectiveness.

MACD-2030

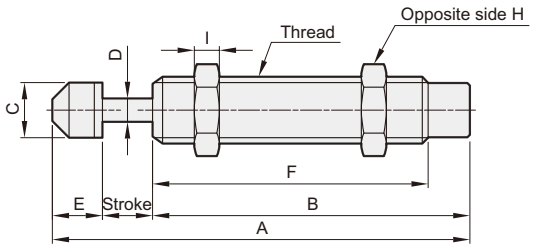
Double cushion

MACD-2030 are porosity fixed and double cushioning shock absorbers, and can be used alternatively against impact from directions of upper and lower sides, or right

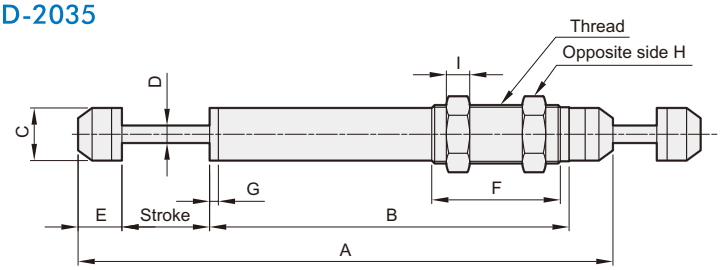
Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAC-2030-1	30	50	48000	30	3.5	−10~+80	220
MAC-2030-2	30	50	48000	200	2.0	−10~+80	220
MAC-2030-3	30	50	48000	700	1.0	−10~+80	220
MAC-2050-1	50	60	60000	60	3.5	−10~+80	300
MAC-2050-2	50	60	60000	400	2.0	−10~+80	300
MAC-2050-3	50	60	60000	1200	1.0	−10~+80	300
MACD-2030-1	30	45	55000	40	3.5	−10~+80	220
MACD-2030-2	30	45	55000	300	2.0	−10~+80	220
MACD-2030-3	30	45	55000	900	1.0	−10~+80	220
MACD-2035-1	35	52	63000	40	3.5	−10~+80	210
MACD-2035-2	35	52	63000	200	2.0	−10~+80	210
MACD-2035-3	35	52	63000	650	1.0	−10~+80	210

MAC-2030
MAC-2050



MACD-2030
MACD-2035



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I
MAC-2030-1	M 20×1.5	30	155	110	18	6	15	101	—	26	7
MAC-2030-2	M 20×1.5	30	155	110	18	6	15	101	—	26	7
MAC-2030-3	M 20×1.5	30	155	110	18	6	15	101	—	26	7
MAC-2050-1	M 20×1.5	50	232	167	18	6	15	158	—	26	7
MAC-2050-2	M 20×1.5	50	232	167	18	6	15	158	—	26	7
MAC-2050-3	M 20×1.5	50	232	167	18	6	15	158	—	26	7
MACD-2030-1	M 20×1.5	30	183	123	18	6	15	44	3	26	7
MACD-2030-2	M 20×1.5	30	183	123	18	6	15	44	3	26	7
MACD-2030-3	M 20×1.5	30	183	123	18	6	15	44	3	26	7
MACD-2035-1	M 20×1.5	35	223	123	18	5	15	42	3	26	7
MACD-2035-2	M 20×1.5	35	223	123	18	5	15	42	3	26	7
MACD-2035-3	M 20×1.5	35	223	123	18	5	15	42	3	26	7

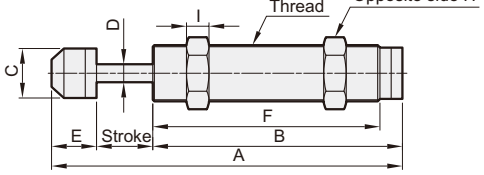
MAC series - Porous type
M25, M36

MAC series is self-compensating, and ideal for energy absorption in high speed, medium speed and low speed impact. MAC series can stop moving objects smoothly and quietly.

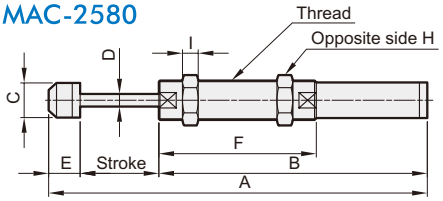
Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAC-2525-1	25	80	54000	200	4.0	−10~+80	330
MAC-2525-2	25	80	54000	800	2.5	−10~+80	330
MAC-2525-3	25	80	54000	1500	1.0	−10~+80	330
MAC-2540-1	40	120	75000	300	4.0	−10~+80	430
MAC-2540-2	40	120	75000	1200	2.5	−10~+80	430
MAC-2540-3	40	120	75000	2000	1.0	−10~+80	430
MAC-2550-1	50	98	90000	15	4.0	−10~+80	435
MAC-2550-2	50	98	90000	40	2.5	−10~+80	435
MAC-2550-3	50	98	90000	160	1.0	−10~+80	435
MAC-2580-1	80	150	120000	20	4.0	−10~+80	535
MAC-2580-2	80	150	120000	50	2.5	−10~+80	535
MAC-2580-3	80	150	120000	200	1.0	−10~+80	535
MAC-3660-1	60	250	120000	400	4.0	−10~+80	1030
MAC-3660-2	60	250	120000	1500	2.5	−10~+80	1030
MAC-3660-3	60	250	120000	2400	1.0	−10~+80	1030

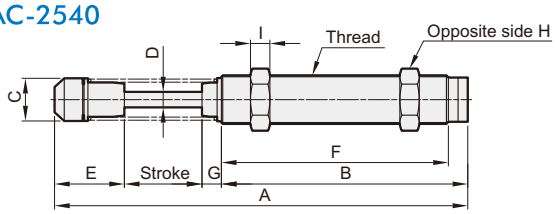
MAC-2525



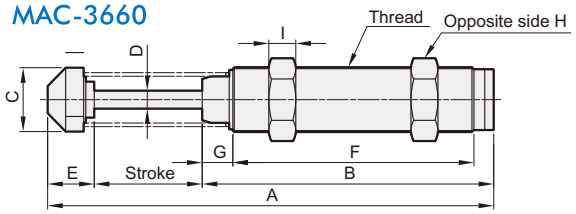
MAC-2550
MAC-2580



MAC-2540



MAC-3660



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	K
MAC-2525-1	M 25×1.5	25	155	111	22	8	19	101	—	32	9	—	—
MAC-2525-2	M 25×1.5	25	155	111	22	8	19	101	—	32	9	—	—
MAC-2525-3	M 25×1.5	25	155	111	22	8	19	101	—	32	9	—	—
MAC-2540-1	M 25×1.5	40	214	137	22	8	37	117	10	32	9	—	—
MAC-2540-2	M 25×1.5	40	214	137	22	8	37	117	10	32	9	—	—
MAC-2540-3	M 25×1.5	40	214	137	22	8	37	117	10	32	9	—	—
MAC-2550-1	M 25×1.5	50	239.5	170.5	22	8	19	100	—	32	9	23	11
MAC-2550-2	M 25×1.5	50	239.5	170.5	22	8	19	100	—	32	9	23	11
MAC-2550-3	M 25×1.5	50	239.5	170.5	22	8	19	100	—	32	9	23	11
MAC-2580-1	M 25×1.5	80	336	237	22	8	19	100	—	32	9	23	11
MAC-2580-2	M 25×1.5	80	336	237	22	8	19	100	—	32	9	23	11
MAC-2580-3	M 25×1.5	80	336	237	22	8	19	100	—	32	9	23	11
MAC-3660-1	M 36×1.5	60	248	162	35.5	10	26	134	17	46	15	—	—
MAC-3660-2	M 36×1.5	60	248	162	35.5	10	26	134	17	46	15	—	—
MAC-3660-3	M 36×1.5	60	248	162	35.5	10	26	134	17	46	15	—	—

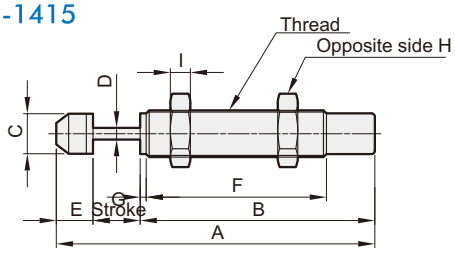
MAC-K Self compensation

SHOCK ABSORBERS

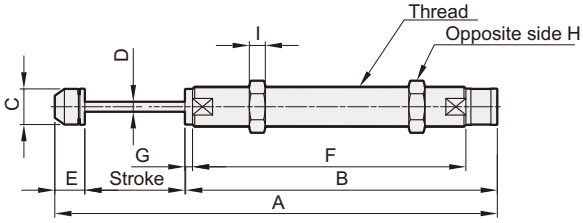
Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAC-1415-6K	15	9.8	35280	30	1.0	−10~+80	80
MAC-1415-7K	15	9.8	35280	15	1.5	−10~+80	80
MAC-2030-5K	30	44	26460	60	1.2	−10~+80	185
MAC-2030-6K	30	44	26460	30	1.7	−10~+80	185
MAC-2030-7K	30	44	26460	15	2.4	−10~+80	185
MAC-2030-16K	30	44	26460	5	4.2	−10~+80	205
MAC-2030-18K	50	44	26460	3	6.0	−10~+80	205
MAC-2050-11K	50	59	35280	30	2.0	−10~+80	250
MAC-2050-12K	50	59	35280	15	2.8	−10~+80	250
MAC-2050-13K	50	59	35280	8	3.8	−10~+80	250
MAC-2050-16K	50	59	35280	5	5.0	−10~+80	250
MAC-2050-17K	50	59	35280	3	6.8	−10~+80	235

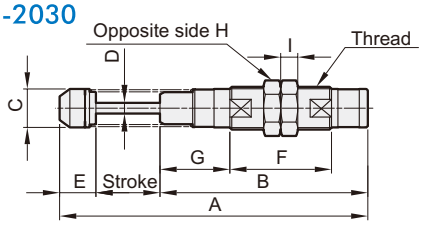
MAC-1415



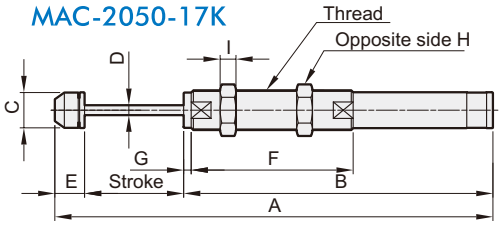
MAC-2050



MAC-2030



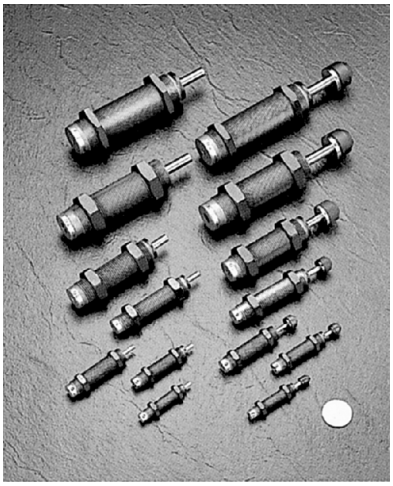
MAC-2050-17K



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	K
MAC-1415-6K	M 14×1.5	15	95.2	69.2	12	4	11	53	2	19	5	—	—
MAC-1415-7K	M 14×1.5	15	95.2	69.2	12	4	11	53	2	19	5	—	—
MAC-2030-5K	M 20×1.5	30	132.6	85.6	18	5	17	48	21	26	7	18.2	10
MAC-2030-6K	M 20×1.5	30	132.6	85.6	18	5	17	48	21	26	7	18.2	10
MAC-2030-7K	M 20×1.5	30	132.6	85.6	18	5	17	48	21	26	7	18.2	10
MAC-2030-16K	M 20×1.5	30	144.3	97.3	18	5	17	48	32.7	26	7	18.2	10
MAC-2030-18K	M 20×1.5	30	144.3	97.3	18	5	17	48	32.7	26	7	18.2	10
MAC-2050-11K	M 20×1.5	50	221	156	18	5	15	136.5	4	26	7	18.2	10
MAC-2050-12K	M 20×1.5	50	221	156	18	5	15	136.5	4	26	7	18.2	10
MAC-2050-13K	M 20×1.5	50	221	156	18	5	15	136.5	4	26	7	18.2	10
MAC-2050-16K	M 20×1.5	50	221	156	18	5	15	136.5	4	26	7	18.2	10
MAC-2050-17K	M 20×1.5	50	221	156	18	5	15	60	4	26	7	18.2	10

MAC-S Self compensation
SHOCK ABSORBERS

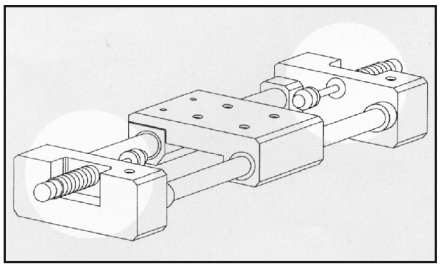


Specification

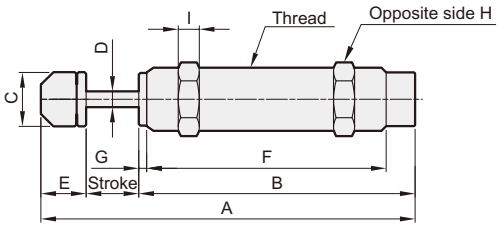
Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAC-0806-SN	6	3	7000	6	0.3~2.5	−10~+80	15
MAC-0806-S	6	3	7000	6	0.3~2.5	−10~+80	17
MAC-1007-SN	7	6	12400	12	0.3~3.5	−10~+80	25
MAC-1007-S	7	6	12400	12	0.3~3.5	−10~+80	28
MAC-1210-SN	10	12	22500	22	0.3~4.0	−10~+80	29
MAC-1210-S	10	12	22500	22	0.3~4.0	−10~+80	32
MAC-1412-SN	12	20	33000	40	0.3~5.0	−10~+80	65
MAC-1412-S	12	20	33000	40	0.3~5.0	−10~+80	70
MAC-2015-SN	15	59	38000	120	0.3~5.0	−10~+80	150
MAC-2015-S	15	59	38000	120	0.3~5.0	−10~+80	160
MAC-2525-SN	25	80	60000	180	0.3~5.0	−10~+80	280
MAC-2525-S	25	80	60000	180	0.3~5.0	−10~+80	295
MAC-2725-SN	25	147	72000	270	0.3~5.0	−10~+80	360
MAC-2725-S	25	147	72000	270	0.3~5.0	−10~+80	376

Application example

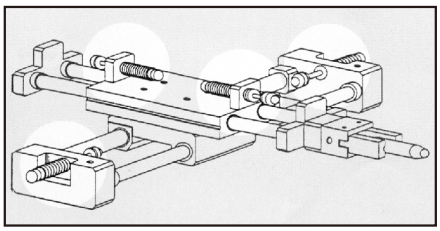
Slide unit cylinder



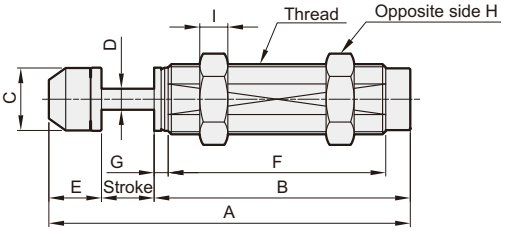
MAC-0806-S
MAC-1007-S
MAC-1210-S



Slide unit



MAC-1412-S
MAC-2015-S
MAC-2525-S
MAC-2725-S



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J
MAC-0806-SN	M 8×1.0	6	—	40.6	—	2.9	—	33.6	2	11	3	—
MAC-0806-S	M 8×1.0	6	55.2	40.6	6.6	2.9	8.6	33.6	2	11	3	—
MAC-1007-SN	M 10×1.0	7	—	47	—	3	—	39	3	12.7	3	—
MAC-1007-S	M 10×1.0	7	62.6	47	8.6	3	8.6	39	3	12.7	3	—
MAC-1210-SN	M 12×1.0	10	—	52.5	—	3	—	44	3	14	4	—
MAC-1210-S	M 12×1.0	10	71.1	52.5	10.3	3	8.6	44	3	14	4	—
MAC-1412-SN	M 14×1.5	12	—	67	—	4	—	58	4	19	5	12.1
MAC-1412-S	M 14×1.5	12	90	67	12	4	11	58	4	19	5	12.1
MAC-2015-SN	M 20×1.5	15	—	73	—	6	—	62	4	26	7	18
MAC-2015-S	M 20×1.5	15	103	73	18	6	15	62	4	26	7	18
MAC-2525-SN	M 25×1.5	25	—	92	—	8	—	82	—	32	9	23
MAC-2525-S	M 25×1.5	25	136	92	22	8	19	82	—	32	9	23
MAC-2725-SN	M 27×1.5	25	—	99	—	8	—	86	5	32	6	25
MAC-2725-S	M 27×1.5	25	143	99	22	8	19	86	5	32	6	25

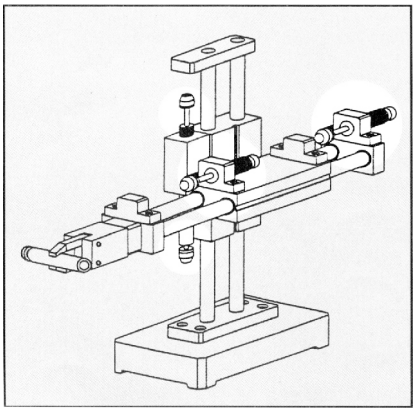
MAD Adjustable
SHOCK ABSORBERS

MAD series -Adjustable

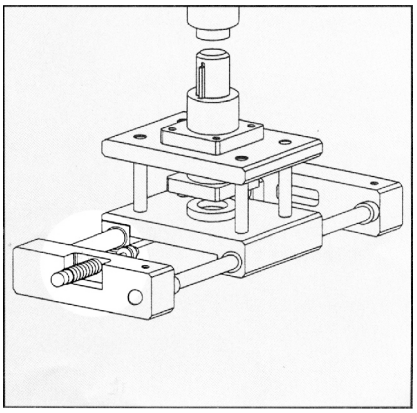
MAD-1410 is designed in single orifice. MAD-2016, MAD-2525, MAD-2540 are designed in porosity. MAD Series of shock absorbs is self-contained, fully adjustable and suitable for wide range of applications.

Application example

Pick and place robot

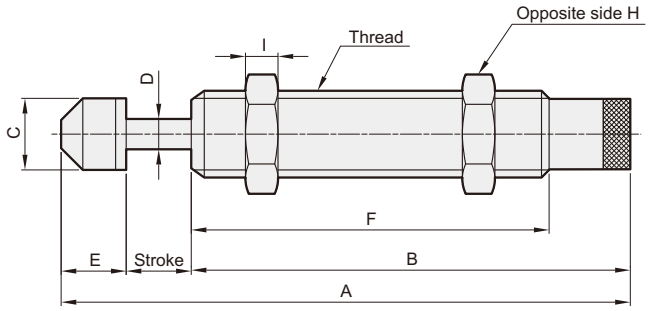


Press feed



Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAD-1410-N	10	20	25000	80	3.0	−10~+80	84
MAD-1410	10	20	25000	80	3.0	−10~+80	90
MAD-2016-N	16	25	30000	200	3.5	−10~+80	222
MAD-2016	16	25	30000	200	3.5	−10~+80	230
MAD-2025-N	25	39	30000	312	3.5	−10~+80	232
MAD-2025	25	39	30000	312	3.5	−10~+80	240
MAD-2525-N	25	85	54000	400	3.5	−10~+80	335
MAD-2525	25	85	54000	400	3.5	−10~+80	350
MAD-2530-N	30	95	60000	480	3.5	−10~+80	340
MAD-2530	30	95	60000	480	3.5	−10~+80	365



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	H	I
MAD-1410-N	M 14×1.5	10	—	88.5	—	4	—	72.5	19	5
MAD-1410	M 14×1.5	10	109.5	88.5	12	4	11	72.5	19	5
MAD-2016-N	M 20×1.5	16	—	117	—	6	—	101	26	7
MAD-2016	M 20×1.5	16	148	117	18	6	15	101	26	7
MAD-2025-N	M 20×1.5	25	—	117	—	6	—	101	26	7
MAD-2025	M 20×1.5	25	157	117	18	6	15	101	26	7
MAD-2525-N	M 25×1.5	25	—	118.5	—	8	—	101	32	9
MAD-2525	M 25×1.5	25	162.5	118.5	22	8	19	101	32	9
MAD-2530-N	M 25×1.5	30	—	118.5	—	8	—	101	32	9
MAD-2530	M 25×1.5	30	167.5	118.5	22	8	19	101	32	9

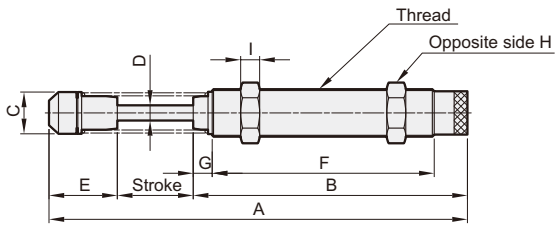
Specification

Order no.	Stroke (mm)	Max. Nm per cycle (Et)	Max. Nm per hour (Etc)	Max. effective mass (ml) kg	Max. impact speed (v) m/s	Operating temperature (℃)	Weight (g)
MAD-2540	40	100	80000	700	3.5	−10~+80	455
MAD-2550	50	98	90000	720	4.0	−10~+80	455
MAD-2580	80	150	120000	800	4.0	−10~+80	585
MAD-3625	25	150	81000	1400	3.0	−10~+80	955
MAD-3650	50	300	100000	1400	3.0	−10~+80	1100
MAD-4225	25	260	125000	3000	3.5	−10~+80	1280
MAD-4250	50	500	150000	4000	4.5	−10~+80	1490
MAD-4275	75	750	180000	6000	4.5	−10~+80	1710

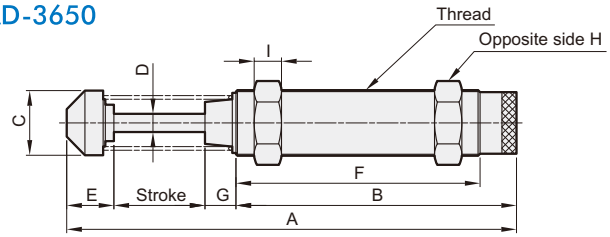
MAD series -Adjustable

Designed in porosity. MAD Series of shock absorbs is self-contained, fully adjustable and suitable for wide range of applications.

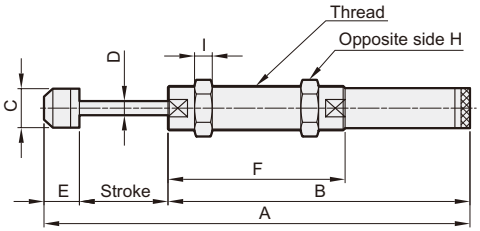
MAD-2540



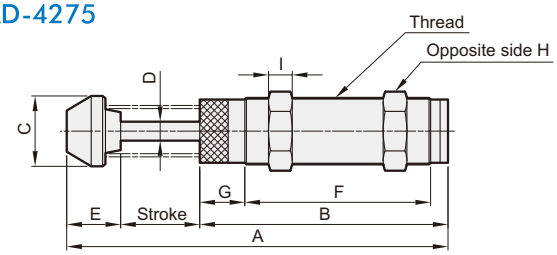
MAD-3625
MAD-3650



MAD-2550
MAD-2580



MAD-4225
MAD-4250
MAD-4275



Dimensions

Order no.	Thread	Stroke (mm)	A	B	C	D	E	F	G	H	I	J	K
MAD-2540	M25×1.5	40	221.5	144.5	22	8	37	117	10	32	9	—	—
MAD-2550	M25×1.5	50	247	178	22	8	19	100	—	32	9	23	11
MAD-2580	M25×1.5	80	343.5	244.5	22	8	19	100	—	32	9	23	11
MAD-3625	M36×1.5	25	183.8	133	35.5	10	25.8	103	10	46	15	—	—
MAD-3650	M36×1.5	50	246.8	171	35.5	10	25.8	134	17	46	15	—	—
MAD-4225	M42×1.5	25	186.4	127.5	44.5	12	33.9	88	28.5	50	15	—	—
MAD-4250	M42×1.5	50	240.9	157	44.5	12	33.9	117.5	28.5	50	15	—	—
MAD-4275	M42×1.5	75	301.4	187.5	44.5	12	33.9	148	28.5	50	15	—	—