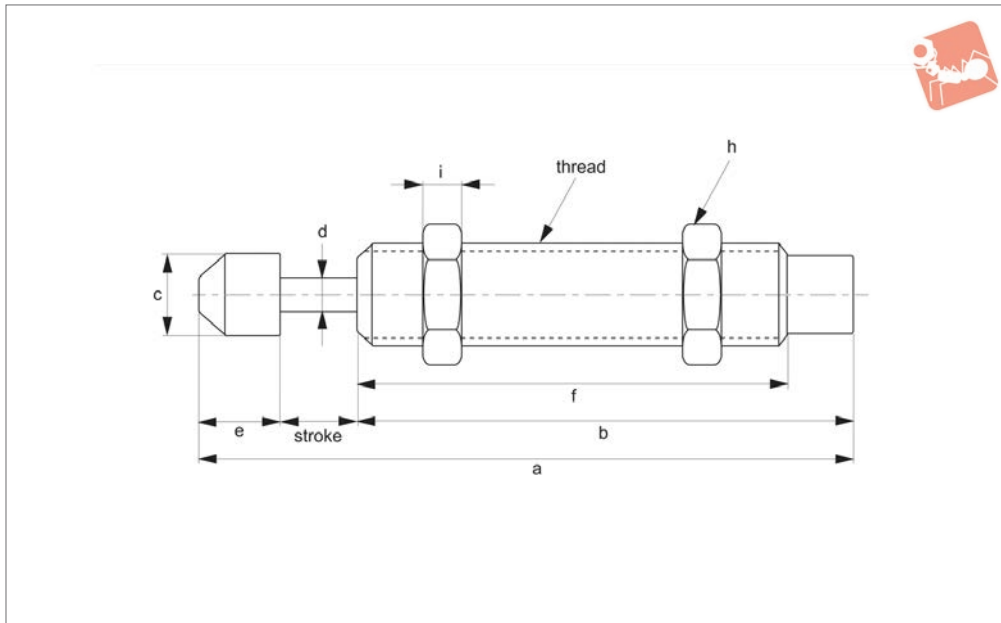




# Shock Absorbers, Self Compensating M14 - M20, non adjustable

## Shock Absorbers



**68002**

SHOCK ABSORBERS

### Material

Outer Tube: STKM11A, hardened and blackened.

Piston Rod: AISI 1045 hardened to HV940°, chrome plated.

Return Spring: DIN GWP.

Muffler Cap: urethane rubber. Seal: nitrile rubber.

### Technical Notes

Supplied with rubber muffler cap as standard, this is removable - see introductory technical notes for guidance.

### Tips

Select High Impact Speed model for hard impact at start of stroke. For hard set down

at end of stroke choose a Medium or Low Impact Speed model.

### Important Notes

For correct product selection refer to Product Selection Formulae and Calculation pages, and associated Capacity & Selection Charts.

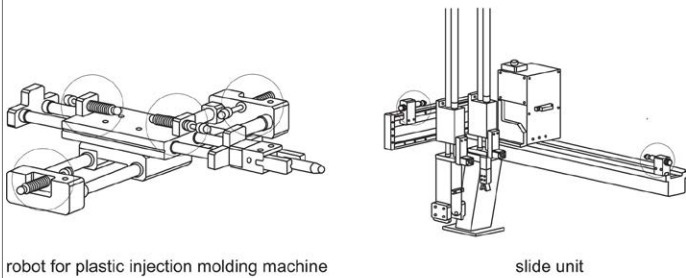
Order No.	Stroke mm	Nm per cycle (Et)		Effective mass (Me) kg max.	Impact speed (v)	Impact speed (v) m/s max.	Operating temperature °C	Weight g
		Nm max.	Per hour (ETc) Nm max.					
68002.W0140	8	12	22000	6	High	3.0	-10 to +80	65
68002.W0141	12	15	30000	8	High	3.0	-10 to +80	80
68002.W0142	12	15	30000	50	Med	1.5	-10 to +80	80
68002.W0143	12	15	30000	100	Low	0.8	-10 to +80	80
68002.W0144	16	20	35000	10	Low	3.0	-10 to +80	85
68002.W0145	16	20	35000	70	Low	1.5	-10 to +80	85
68002.W0146	16	20	35000	150	Low	0.8	-10 to +80	85
68002.W0147	16	20	35000	10	High	3.0	-10 to +80	80
68002.W0148	16	20	35000	70	Med	1.5	-10 to +80	80
68002.W0149	16	20	35000	150	Low	0.8	-10 to +80	80
68002.W0198	20	20	35000	10	High	3.0	-10 to +80	95
68002.W0199	20	20	35000	70	Med	1.5	-10 to +80	95
68002.WX200	10	16	42000	30	Low	3.5	-10 to +80	165
68002.W0200	20	20	35000	150	Low	0.8	-10 to +80	95
68002.W0201	20	40	40000	30	High	3.5	-10 to +80	215
68002.W0202	20	40	40000	200	Med	2.0	-10 to +80	215
68002.W0203	20	40	40000	700	Low	1.0	-10 to +80	215
68002.W0204	30	50	48000	30	High	3.5	-10 to +80	220
68002.W0205	30	50	48000	200	Med	2.0	-10 to +80	220
68002.W0206	30	50	48000	700	Low	1.0	-10 to +80	220
68002.W0207	50	60	60000	60	High	3.5	-10 to +80	300
68002.W0208	50	60	60000	400	Med	2.0	-10 to +80	300
68002.W0209	50	60	60000	1200	Low	1.0	-10 to +80	300

Order No.	Thread	a	b	c	d	e	f	h	i
68002.W0140	M14x1,5	73.5	55.0	12.0	4.0	11.2	50.5	19	5
68002.W0141	M14x1,5	98.5	76	12	4	10.5	67	19	5



Order No.	Thread	a	b	c	d	e	f	h	i
68002.W0142	M14x1,5	98.5	76	12	4	10.5	67	19	5
68002.W0143	M14x1,5	98.5	76	12	4	10.5	67	19	5
68002.W0144	M14x1,5	122.2	95.0	12.0	4.0	11.2	86.0	19.0	5.0
68002.W0145	M14x1,5	122.2	95.0	12.0	4.0	11.2	86.0	19.0	5.0
68002.W0146	M14x1,5	122.2	95.0	12.0	4.0	11.2	86.0	19.0	5.0
68002.W0147	M14x1,5	102.5	76	12	4	10.5	67	19	5
68002.W0148	M14x1,5	102.5	76	12	4	10.5	67	19	5
68002.W0149	M14x1,5	102.5	76	12	4	10.5	67	19	5
68002.W0198	M14x1,5	125.5	95	12	4	10.5	86	19	5
68002.W0199	M14x1,5	125.5	95	12	4	10.5	86	19	5
68002.WX200	M16x1,5	68.0	58.0	10.0	5.0	8.0	40.0	19.0	6.0
68002.W0200	M14x1,5	125.5	95	12	4	10.5	86	19	5
68002.W0201	M20x1,5	145.8	110	18	6	15.8	101	26	7
68002.W0202	M20x1,5	145.8	110	18	6	15.8	101	26	7
68002.W0203	M20x1,5	145.8	110	18	6	15.8	101	26	7
68002.W0204	M20x1,5	158.8	113	18	6	15.8	104	26	7
68002.W0205	M20x1,5	158.8	113	18	6	15.8	104	26	7
68002.W0206	M20x1,5	158.8	113	18	6	15.8	104	26	7
68002.W0207	M20x1,5	232.8	167	18	6	15.8	158	26	7
68002.W0208	M20x1,5	232.8	167	18	6	15.8	158	26	7
68002.W0209	M20x1,5	232.8	167	18	6	15.8	158	26	7

application examples:



robot for plastic injection molding machine

slide unit



## Shock Absorbers benefits and features

Shock Absorbers are widely used in industry where the speed, direction or movement of objects must be changed or stopped. Without suitable methods of control the kinetic energy inherent in many moving objects, which occur in manufacturing, can result in increased machine wear and even machine damage.

Ideally any method of "shock absorption" should provide two key features:

- 1) Bring the moving object to rest quickly, smoothly and without rebounding forces
- 2) In-built reliability and safety

Shock Absorbers are able to quickly convert the kinetic energy of a moving object into heat and to dissipate this into the air, and provide a constant linear deceleration of an object throughout its entire impact stroke, to quickly, smoothly and quietly bring a moving object to rest with the lowest reaction force and in the shortest time. All of these features mean increased manufacturing productivity, extended machine life, and improved efficiency.

### Traditional buffering methods:

- Springs
- Dash Pots
- Air Buffers
- Rubber bumpers

### Costs associated with outdated cushioning methods:

- Loss of production
- Increased machine wear and tear
- Increased maintenance cost
- Increased vibration and noise pollution
- Varying and inconsistent dampening forces, with non-linear or high peak forces at some point in their stroke.

Traditional buffering methods can only dissipate a small percentage of the kinetic energy of a moving object, the remainder is stored (rather than dissipated) as elastic energy which results in high resistance and rebounding forces toward the end of the impact stroke.

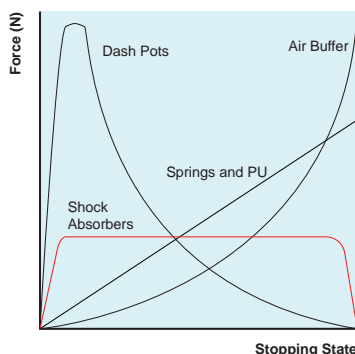
Wixroyd Shock Absorbers are designed to stop a moving object smoothly and quietly from the beginning to the end of its impact stroke. Their design enables a constant resistance force or linear deceleration throughout the impact stroke, quickly converting the kinetic energy of the moving object into heat which is quickly dissipated into the air. A linear deceleration curve, as achieved by our shock absorbers, brings an object to rest in the shortest time while reducing damaging impact forces.

**Energy Capacity:** Shock absorbers can absorb more energy, without increasing deceleration or reaction forces.

**Stopping Force:** Shock absorbers provide smooth deceleration of parts, which means less machine wear and hence reduced maintenance.

**Stopping time:** Shock absorbers bring moving loads to rest more quickly, increasing productivity.

- Consistent and reliable dampening force or linear deceleration, throughout entire impact stroke
- Smoother motion and deceleration of moving parts
- Increased productivity
- Extended machine life and improved efficiency
- Simplified application design and build costs
- Reduced maintenance costs
- Improved health and safety, through reduced vibration and noise pollution



**Dashpots:** produce large peak forces at beginning of impact stroke, abruptly slowing load - however braking force quickly declines.

**Springs & Rubber Buffers:** energy is stored rather than dissipated, resulting in rebounding of the load.

**Air Buffers:** initial braking force is low, but due to the compressibility of air it increases sharply toward later stages of stroke, resulting in inconsistent braking force.

**Shock Absorbers:** designed to stop a moving object smoothly and quietly from beginning to end of its impact stroke. Their design enables constant resistance force or linear deceleration throughout impact stroke, they quickly convert kinetic energy of a moving object into heat which is quickly dissipated into the air.

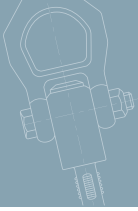
## Why do we need shock absorbers?

## The cost of outdated buffering methods

## Benefits of using Wixroyd Shock Absorbers

## Advantages of using Wixroyd Shock Absorbers

## Comparison of shock absorbers vs. other methods



Wixroyd Shock Absorbers are available in two primary types

Self-compensating



Self compensating shock absorber 68001

Our Self-Compensating Shock Absorbers are effective for a stated range of Effective Mass ( $M_e$ ), and are self-compensating within this range - see selection charts. As long as the applications effective mass remains within the given range then no additional adjustment is required for changes in weight, speed or propelling force.

See models: 68001, 68002, 68003, 68004, 68008, 68012



Self compensating shock absorber 68002

Each Self-Compensating Shock Absorber is available in three standard max. Impact speed (v-m/s) variations:

- 1 - high impact speed
- 2 - medium impact speed
- 3 - low impact speed

For specific max. impact speed values please refer to the selections charts and the specific product tables.

For hard impact at the start of a stroke it is advisable to choose a high impact speed model, for hard set down at the end of a stroke it is advisable to choose a medium or low impact speed model, or to move up to the next higher bore size

Adjustable



Adjustable shock absorber 68020



Set collar to 0 at initial installation



After a few cycles adjust collar setting to suit application

Adjustable Shock Absorbers have an adjustment collar at their base (with a scale of 0-9), which enables adjustment of the Shock Absorber's optimum deceleration to suit the application.

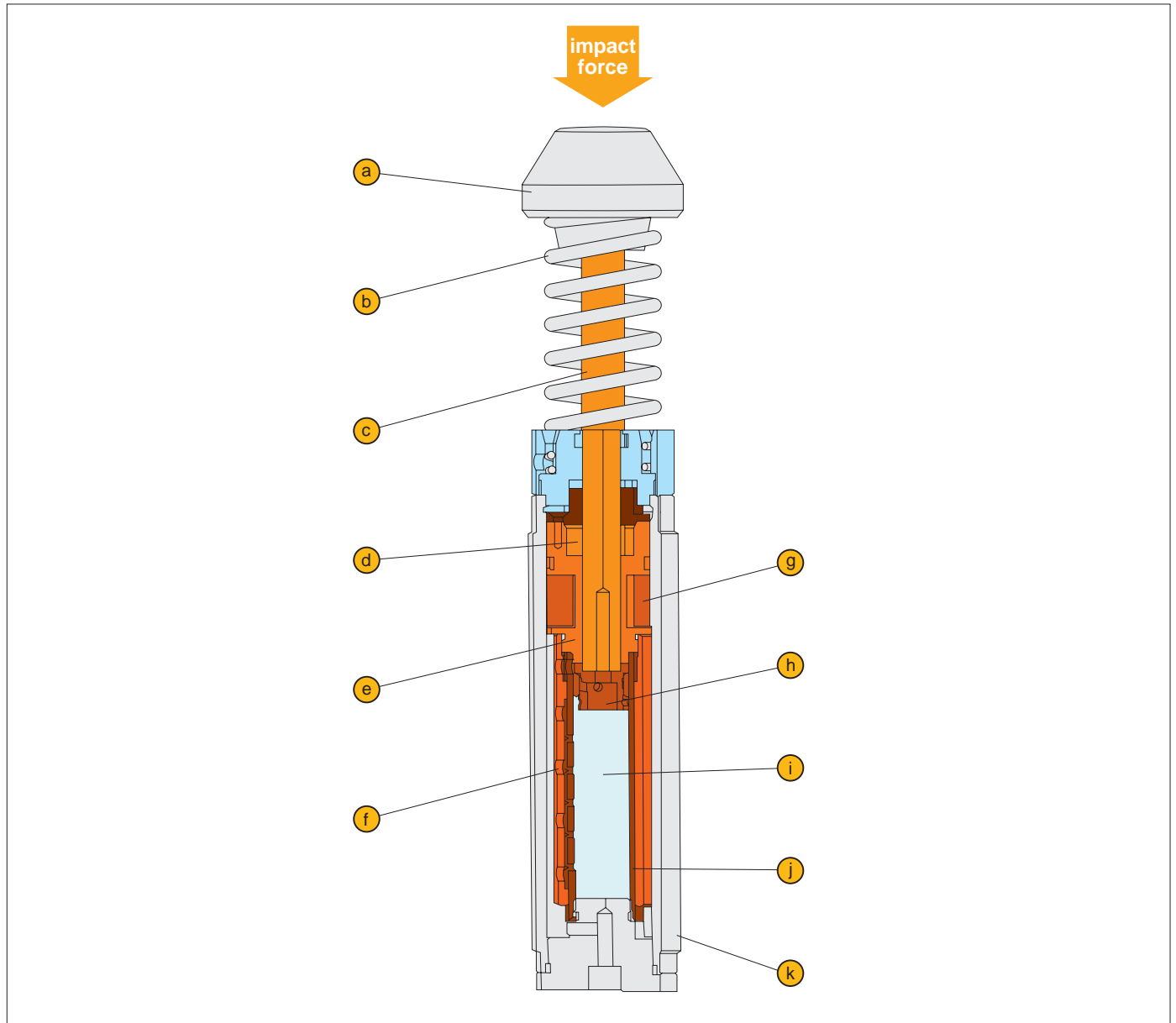
After initial installation, the Shock Absorber should be cycled a number of times to settle, and then the adjustable collar turned to the desired position for the application.



### Inside a Wixroyd Shock Absorber

The design of Wixroyd Shock Absorbers is beautifully simple and beautifully effective. Made from high quality materials and components, they provide the highest performance and reliability.

### Shock absorber design



- a** Impact Cap
- b** Return Spring; DIN GWP (external and internal models avai.)
- c** Piston Rod; AISI 1045, hardened to HV940°, chrome plated
- d** Seal
- e** Bearing
- f** Orifices
- g** Accumulator; neoprene rubber
- h** Check Valve
- i** Fluid
- j** Inner Tube
- k** Outer Tube; STKM11A, hardened and blackened

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