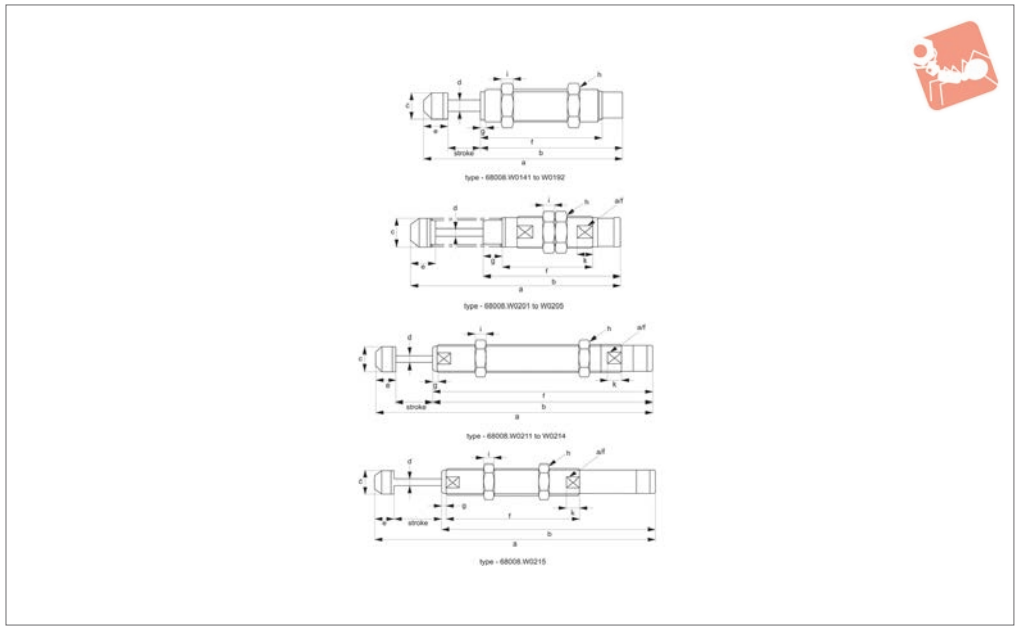
Shock Absorbers, Self Compensating

M14 - M20, non-adjustable



68008

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 introductorary 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) Nm max.	Per hour (ETc) Nm max.	Effective mass (Me) kg max.	Impact speed (v)	Impact speed (v) m/s max.	Operating temperature °C	Weight g
68008.W0141	15	9.8	35280	30	Low	1.0	-10 to +80	80
68008.W0142	15	9.8	35280	15	Med	1.5	-10 to +80	80
68008.W0191	20	36.0	22000	27	Low	2.0	-10 to +80	170
68008.W0192	25	40.0	24200	35	Low	2.0	-10 to +80	180
68008.W0201	30	44.0	26460	60	V Low	1.2	-10 to +80	185
68008.W0202	30	44.0	26460	30	Low	1.7	-10 to +80	185
68008.W0203	30	44.0	26460	15	Med	2.4	-10 to +80	185
68008.W0204	30	44.0	26460	5	High	4.2	-10 to +80	205
68008.W0205	30	44.0	26460	3	V High	6.0	-10 to +80	205
68008.W0211	50	59.0	35280	30	V Low	2.0	-10 to +80	250
68008.W0213	50	59.0	35280	8	Low	3.8	-10 to +80	250
68008.W0212	50	59.0	35280	15	Med	2.8	-10 to +80	250
68008.W0214	50	59.0	35280	5	High	5.0	-10 to +80	250
68008.W0215	50	59.0	35280	3	V High	6.8	-10 to +80	235

Order No.	Thread	a	b	c	d	e	f	h	g	i	A/F	k
68008.W0141	M14x1,0	95.2	69.2	12	4	11.0	53.0	19	2.0	5	-	-
68008.W0142	M14x1,0	95.2	69.2	12	4	11.0	53.0	19	2.0	5	-	-
68008.W0191	M20x1,5	129.3	95.0	18	5	15.8	74.5	26	3.8	7	-	-
68008.W0192	M20x1,5	140.4	100.0	18	5	15.8	81.0	26	2.7	7	-	-
68008.W0201	M20x1,5	134.0	85.6	18	5	18.0	48.0	26	21.0	7	18.2	10
68008.W0202	M20x1,5	134.0	85.6	18	5	18.0	48.0	26	21.0	7	18.2	10
68008.W0203	M20x1,5	134.0	85.6	18	5	18.0	48.0	26	21.0	7	18.2	10
68008.W0204	M20x1,5	146.0	97.3	18	5	18.0	48.0	26	32.7	7	18.2	10
68008.W0205	M20x1,5	146.0	97.3	18	5	18.0	48.0	26	32.7	7	18.2	10
68008.W0211	M20x1,5	221.0	156.0	18	5	15.8	136.5	26	4.0	7	18.2	10
68008.W0213	M20x1,5	221.0	156.0	18	5	15.8	136.5	26	4.0	7	18.2	10

Shock Absorbers, Self Compensating

M14 - M20, non-adjustable

Order No.	Thread	a	b	c	d	e	f	h	g	i	A/F	k
68008.W0212	M20x1,5	221.0	156.0	18	5	15.8	136.5	26	4.0	7	18.2	10
68008.W0214	M20x1,5	221.0	156.0	18	5	15.8	136.5	26	4.0	7	18.2	10
68008.W0215	M20x1,5	221.0	156.0	18	5	15.8	60.0	26	4.0	7	18.2	10

Shock Absorbers benefits and features

Why do we need shock absorbers?

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.

The cost of outdated buffering methods

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.

Benefits of using Wixroyd Shock Absorbers

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.

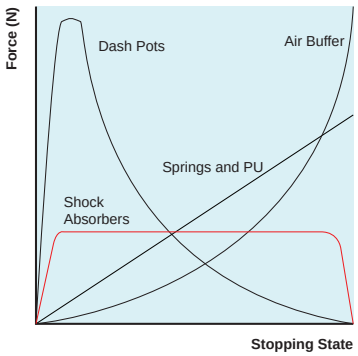
Stopping Force: Shock absorbers provide smooth decelaration of parts, which means less machine wear and hence reduced maintenance.

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

Advantages of using Wixroyd Shock Absorbers

- 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

Comparison of shock absorbers vs. other methods



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.

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 (Me), 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.

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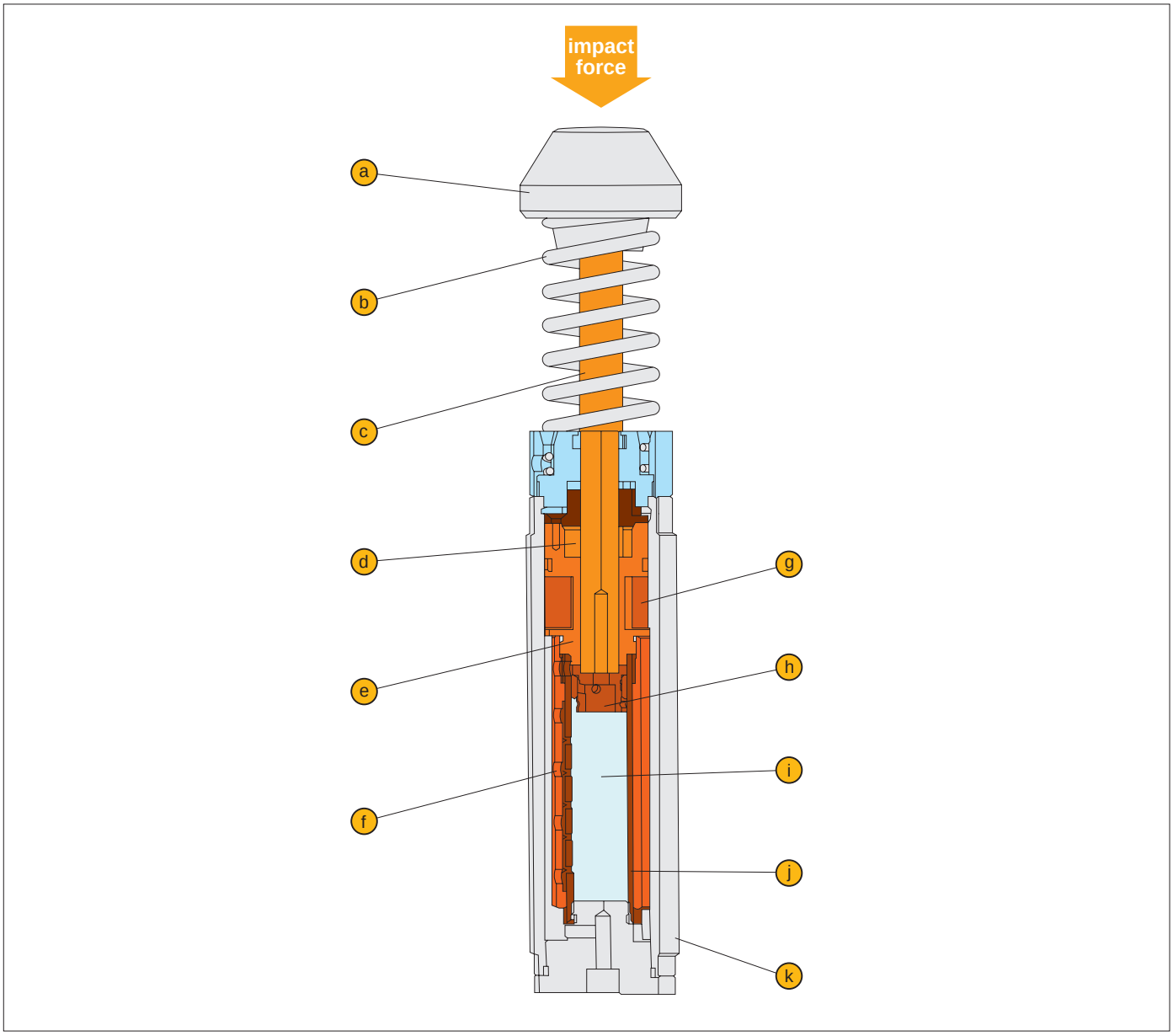
Inside a Wixroyd Shock Absorber

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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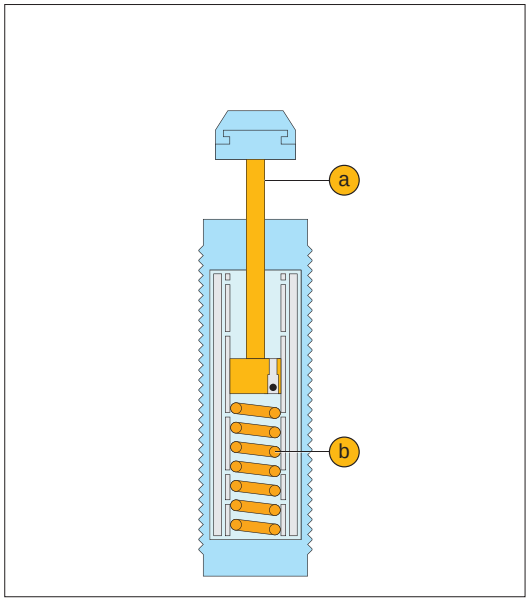
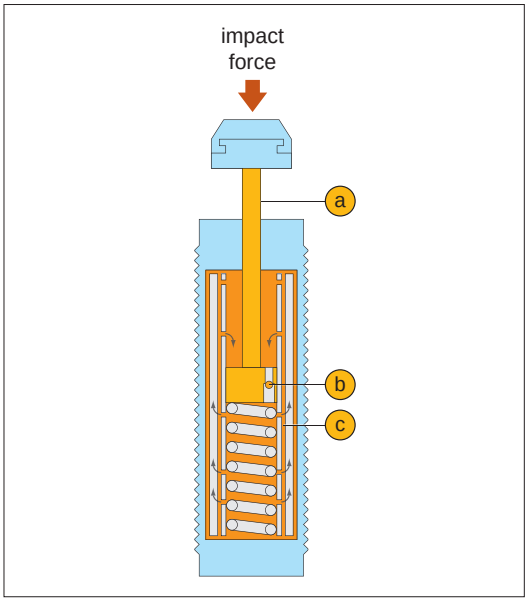
Wixroyd Shock Absorbers

operating principles and operating sequence of shock absorbers



At rest

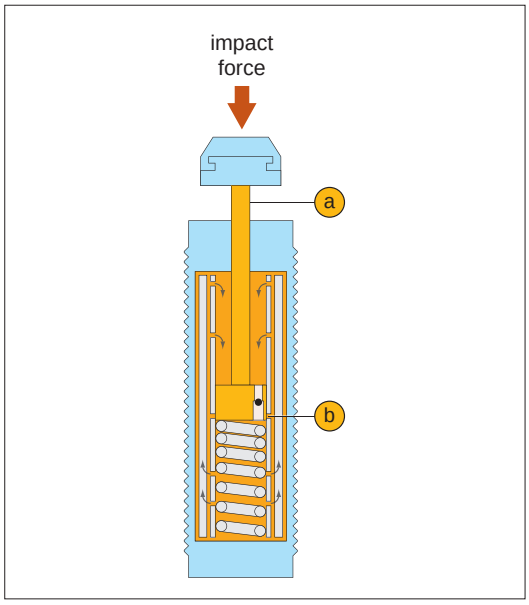
1) Shock Absorber at rest, piston rod (1), fully extended through force exerted on it by return spring (2).



Initial impact

2) Moving load impacts piston (1), which moves into shock absorber body increasing pressure in chamber.

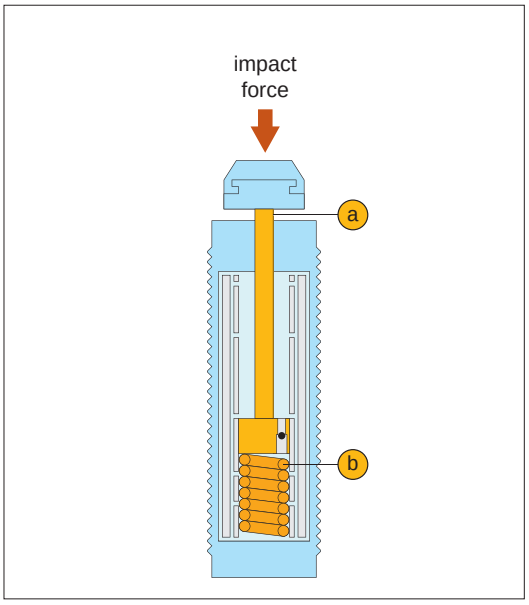
3) Piston rod check valve closes (2). Hydraulic oil behind the piston head is initially able to escape/vent into the accumulator (3).



Continued impact and linear decelaration

4) As load on piston rod (1) increases, the rod continues to move back into the inner tube, as it does so the number of available metering orifices (2) through which the hydraulic oil is able to escape reduces - hence the velocity of the moving load continues to decelerate.

5)The number and position of the orifices are such that the pressure in the inner tube remains constant throughout the entire impact stroke - providing constant linear decelaration. (Number of metering orifices decreases proportionally through length of piston rod.)



Load bought to rest

6) The moving load is brought to a smooth and quiet stop.

7) When the load is removed the return spring (2) pushes the piston (1), back to its original resting position, ready for the next cycle.

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