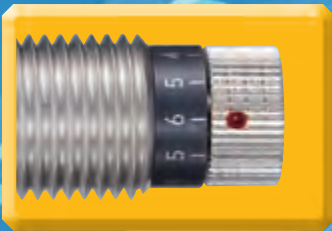


Adjustment Type Linear Orifice[®] Shock Absorber KSHP Series

Introducing the **adjustable** linear orifice!
Long **3 million cycle** operating life!
Uses NSF certified **H1 oil** (non silicon)



KSHP series can solve the problems for users worried about **fine tuning absorption of impacts!**

Introducing **the KSHP Series** of **Adjustment Type Linear Orifice[®]** Shock Absorber

New release of our first adjustment type linear orifice models!

Shorten operation cycle times by adjusting the absorbing capacity of the end of strokes.

Possible to fine tune both impact speed and load for proper shock absorption!

Our own construction makes fine tuning easy and **minimizes extreme changes** in shock absorbing capacity.

Maximum of more than 3 million operation cycles!

Linear orifice construction provides longer life.

Compliant with H1 grade food equipment specifications!

Uses NSF H1 grade oil (non silicon).

Scaled from 0 to 6

Numbers are easy to see and indelible

Set to 6 on the scale for maximum absorption
Set to 0 on the scale for minimum absorption

Adjusting knob

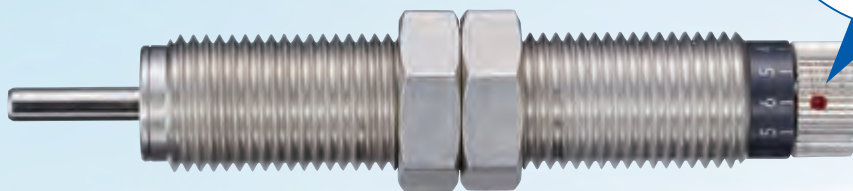
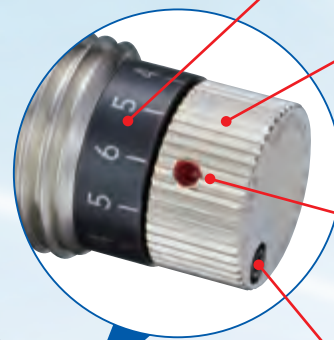
Can be rotated to the left or right

Red mark

Align the red mark to a value on the scale

Lock screw

Lock the adjusting knob in position by tightening the lock screw after completing adjustment



Wide range of variations
M10 to M36
9 sizes



KSHP10×8

KSHP12×10

KSHP14×12

KSHP16×15

KSHP18×20

KSHP20×22

KSHP25×25

KSHP30×30

KSHP36×50

KSHP36×50

Stopper nut not needed ^{Note}

Workpieces directly contact the end of the body, so there is no need for mounting a stopper nut. Mounting is easy and saves space.

Note: Except for models with caps.

Silent design

Reducing the impact value at collision decreases the noise at workpiece impact.

Options

● With plastic cap



● With rubber cap



● With stopper nut



● With side mounting bracket



■ KSHP basic specifications

Model	Body thread size × pitch	Absorption stroke (mm)	Maximum absorption capacity (J)	Maximum impact speed (m/s)
KSH10×8 (C)	M10×1	8	2	2
KSH12×10 (C,R)	M12×1	10	4	2
KSH14×12 (C,R)	M14×1.5	12	5	2
KSH16×15 (C,R)	M16×1.5	15	10	2
KSH18×20 (C,R)	M18×1.5	20	15	2
KSH20×22 (C,R)	M20×1.5	22	20	2
KSH25×25 (C,R)	M25×1.5	25	40	2
KSH30×30 (C,R)	M30×1.5	30	110	3
KSH36×50 (C,R)	M36×1.5	50	200	3

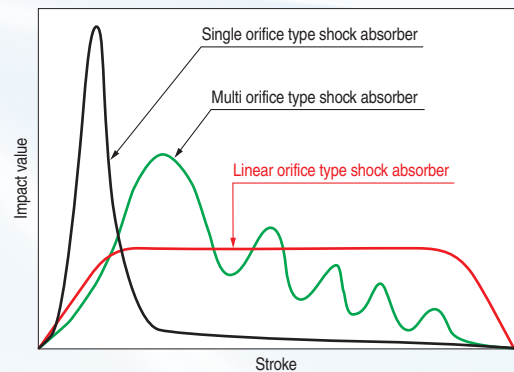
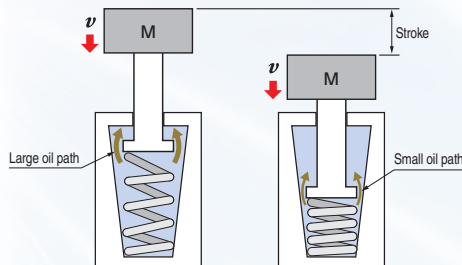
Linear orifice for low impact and long life

Use of a linear orifice mechanism, in which the orifice changes linearly, ensures smooth shock absorption and long life.

Achieves the performance of shock absorbers with next-size-up stroke lengths, to reduce vibrations on mounting frames and equipment.

● Operation principle

The piston stroke linearly squeezes the oil path, for soft absorption of shocks.



● "Linear orifice" is a registered trademark of Koganei Corporation.

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 Inner Construction and Major Parts and Materials ⑧
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CAUTION Read the safety precautions on page ③ before using this product.

Before selecting and using the products, please read all the "Safety Precautions" carefully to ensure proper product use. The Safety Precautions described below are to help you use the product safely and correctly, and to prevent injury or damage to you, other people, and assets. Be sure to observe these safety precautions together with the following safety regulations of ISO4414 (Pneumatic fluid power - General rules and safety requirements for systems and their components), and JIS B 8370 (General rules relating to systems).

The directions are ranked according to degree of potential danger or damage: "DANGER", "WARNING", "CAUTION" and "ATTENTION."

 DANGER	Indicates situations that can be clearly predicted as dangerous. Death or serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.
 WARNING	Indicates situations that, while not immediately dangerous, could become dangerous. Death or serious injury may result if the situation is not avoided. It could also result in damage or destruction of assets.
 CAUTION	Indicates situations that, while not immediately dangerous, could become dangerous. Failure to avoid the situation creates the risk of minor or semi-serious injury. It could also result in damage or destruction of assets.
 ATTENTION	While there is little chance of injury, this content refers to points that should be observed for appropriate use of the product.

■ This product was designed and manufactured for use in general industrial machinery.

- When selecting and handling equipment, the system designer or another person with sufficient knowledge and experience should always read the "Safety Precautions", "catalog", "instruction manual", and other literature before commencing operation. Improper handling is dangerous.
- After reading the instruction manual, catalog, and other documentation, always place them in a location that allows easy availability for reference to users of this product.
- Whenever transferring or lending the product to another person, always attach the catalog, instruction manual, and other information to the product where they are easily visible in order to ensure that the new user can use the product safely and properly.
- The danger, warning and caution items listed under these "Safety Precautions" do not cover all possible contingencies. Read the catalog and instruction manual carefully, and always keep safety first.

 **DANGER**

- Do not use the product for the purposes listed below:
 1. Medical equipment related to maintenance or management of human lives or bodies.
 2. Machines or equipment designed for the purpose of moving or transporting people.
 3. Critical safety components in mechanical devices.
 This product has not been planned or designed for purposes that require high levels of safety. Using the product in any of the ways described above creates the risk of loss of human life.
- Do not use the product in locations with or near dangerous substances such as flammable or ignitable substances. This product is not explosion-proof. It could ignite or burst into flames.
- When mounting the product and workpiece, always make sure they are firmly supported and secured in place. Ensure the mounting material is strong enough. If the product falls over, is dropped, or breaks, it may result in injury.
- Never attempt to modify the product in any way. Abnormal operation can lead to injury, etc.
- Never attempt inappropriate disassembly, assembly or repair of the product relating to basic construction, or to its performance or to functions. This can lead to injury, etc.
- Do not splash water on the product. Spraying it with water, washing it, or using it under water could result in malfunction leading to injury, etc.
- While the product is in operation, avoid touching it with your hands or otherwise approaching too close. Also, do not mount shock absorbers or make adjustments while the equipment is in operation. The equipment may move suddenly, possibly resulting in injury.

 **WARNING**

- Do not use the product in excess of its specification range. Doing so creates the risk of product breakdown, loss of function, or damage. It could also drastically reduce operating life.
- When conducting any kind of operation for the product, such as maintenance, inspection, repair, or replacement, always turn off the air supply and power to the equipment and make sure that the equipment is completely stopped.
- When mounting the product, always follow the handling instructions and precautions. Also when mounting the product, before operation, check that the mounting nut is tightened and not loose and then operate the product. If the mounting nut is loose, etc., this will result in damage to the equipment and accidents.
- Do not allow the product to be thrown into fire. The product could explode, ignite, and/or release toxic gases.
- Do not apply a load to the product, or place other objects on

it. It could lead to damaged or broken products that result in degraded performance, function stops, etc.

- If the product has not been used for over 30 days, it is possible that the contacting parts may have become stuck, leading to abnormal operation at impact. Check for proper operation a minimum of once every 30 days.
- Do not use the product at the beach in direct sunlight, near mercury lamps, or near equipment that generates ozone. Ozone causes rubber components to deteriorate resulting in reduced performance, or a limitation or stop of functions.

 **CAUTION**

- Do not use in locations that are subject to direct sunlight (ultraviolet rays); locations with high humidity and temperature, dust, salt, or iron powder; or in locations with fluids and/or ambient atmosphere that include organic solvents, phosphate ester type hydraulic oil, sulfur dioxide, chlorine gas, acids, etc. It could lead to early shutdown of some functions, a sudden degradation of performance, and a reduced operating life. For information about materials, see Major Parts and Materials.
- When installing the product, be sure to allow adequate work space around it. Failure to do so will make it more difficult to conduct daily inspections or maintenance, which could eventually lead to system shutdown or damage to the product.
- When transporting or mounting a heavy product, firmly support the product using a lift or support, or use multiple people to ensure personal safety. Also, wear protective gloves and use safety boots etc. for protection as necessary.
- Always post an "operations in progress" sign for installations, adjustments, or other operations, to avoid unintentional supplying of air or electrical power, etc. Unintentional supplying of air or electrical power can cause the equipment to operate and may result in injury.
- Never apply lubrication to the sliding parts. This leads to changes in the physical properties and deterioration of the materials used, resulting in reduced functionality.
- Attempting to use the shock absorber with a cap over the specification range could result in damage to the cap or to its flying off and causing personal injury. Moreover, if cracks or fractures appear in the cap, replace it as quickly as possible.
- Always wash your hands thoroughly after touching the oil or grease used on the shock absorber. There is a danger that smoking may cause the grease or oil on your hands to catch fire and release toxic gases.
- As a means to prevent vibration, do not use the product at a high frequency that exceeds the value in the catalog. It could drastically reduce the product's operating life.

 **ATTENTION**

- Whenever considering use of this product in situations or environments not specifically noted in the catalog or instruction manual, or in applications where safety is an important requirement such as in aircraft equipment, combustion equipment, leisure equipment, safety equipment, and other places where human life or assets may be greatly affected, take adequate safety precautions such as allowing plenty of margin for ratings and performance, or fail-safe measures. Contact the sales department of Koganei regarding use in such applications.
- When the product can no longer be used, or is no longer necessary, dispose of it appropriately, according to the "Law Regarding the Disposal and Cleaning of Waste" or other local governmental rules and regulations, as industrial waste.
- The product can exhibit degraded performance and function over its operating life. Always conduct daily inspections and confirm that all requisite system functions are satisfied, to prevent accidents from happening.
- When handling the product, wear protective gloves, safety glasses, safety shoes, and other protective clothing.
- The maximum absorption in the specifications are for a normal temperature (20 to 25°C). Be aware that performance and characteristics change depending on the operating temperature.
- The shock absorber's absorption capacity changes depending on the speed of the impacting object. Use the product within the ranges of the selection graphs (impact mass, impact speed diagram) on page 6.
- For inquiries about the product, consult your nearest Koganei sales office or Koganei Overseas Department. The addresses and telephone numbers are shown on the back cover of this catalog.

 **Other**

- Always observe the following items.
 1. When using this product in a system, use only genuine Koganei parts or equivalent (recommended) parts.
When conducting maintenance and repairs, always use genuine Koganei parts or compatible parts (recommended parts).
Always observe the prescribed methods and procedures.
 2. Never attempt unauthorized disassembly or assembly of the product relating to its basic construction, its performance, or its functions.

Koganei shall not be held responsible for any problems that occur as a result of these items not being properly observed.

Warranty and General Disclaimer

1. Warranty Period
Koganei warrants this product for a period of no more than 180 days from delivery.
2. Scope of Warranty and General Disclaimer
 - (1) The Koganei product warranty covers individual products. When a product purchased from Koganei or from an authorized Koganei distributor malfunctions during the warranty period in a way that is found to be attributable to Koganei responsibility, Koganei will repair or replace the product free of charge. Even if a product is still within the warranty period, its durability is determined by its operation cycles and other factors. Contact your nearest Koganei sales office or the Koganei overseas department for details.
 - (2) Koganei shall not be held responsible for any losses or for any damage to other machinery caused by breakdown, loss of function, or loss of performance of Koganei products.
 - (3) Koganei shall not be held responsible for any losses due to use or storage of the product in a way that is outside of the product specifications prescribed in Koganei catalogs and the instruction manual, and/or due to actions that violate the mounting, installation, adjustment, maintenance and other safety precautions.
 - (4) Koganei shall not be held responsible for any losses caused by breakdown of the product due to factors outside the responsibility of Koganei, including but not limited to fire, natural disaster, the actions of third parties, and intentional actions or errors by you.

Handling Instructions and Precautions



General precautions

Cover the unit when mounting it in locations where it might be subject to excessive dust, dripping water, dripping oil, etc. Water, oil, or dust on the piston rod results in damage and decreases service life.

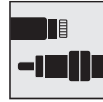


Mounting

1. Mount the shock absorber so that the load contacts at the center of the rod, and it is not subjected to off-centered loads. An off-centered load could result in breakage or defective rod returns. If there is concern that off-centered loads will occur, install a guide, etc.
2. Two or more shock absorbers can be mounted in parallel, to boost absorption capacity. In such an arrangement, however, be careful to ensure that the load is evenly absorbed by each shock absorber.
3. If using a shock absorber with a plastic or rubber cap, always mount a stopper nut (-S) or an external stopper to ensure that the cap is not subjected to loads at the stroke end. You can use a shock absorber with plastic cap without a stopper nut or external stopper, but over the long-term, the stop location changes due to cap deformation and wear.
4. For swing impacts, ensure that the angle of eccentricity between the load direction and the center line of the shock absorber is at or below the specification values shown on page 7.
5. If using a shock absorber with a rubber cap for lateral impacts, such as eccentric or swing impacts, note that the rubber cap may come off or be damaged.
6. When mounting the shock absorber, always use the following maximum tightening torque guidelines. Tightening using excessive force may result in damage.

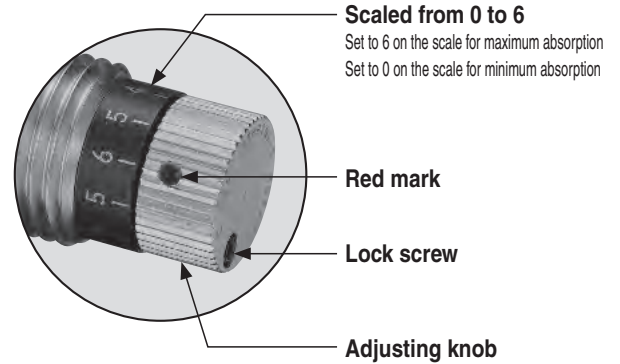
Model	Maximum tightening torque
KSHP10 × 8 (C)	6.5
KSHP12 × 10 (C,R)	8.0
KSHP14 × 12 (C,R)	12.0
KSHP16 × 15 (C,R)	20.0
KSHP18 × 20 (C,R)	25.0
KSHP20 × 22 (C,R)	30.0
KSHP25 × 25 (C,R)	42.0
KSHP30 × 30 (C,R)	60.0
KSHP36 × 50 (C,R)	72.0

7. Ensure that the hardness of the surface directly impacting the piston rod of the shock absorber is over HRC40 (excluding models with rubber or plastic caps).
8. Be aware that performance and characteristics may change depending on the operating temperature.
9. Rubber caps are consumable parts. The service life will vary depending on conditions of the application, replace these parts according to their condition.



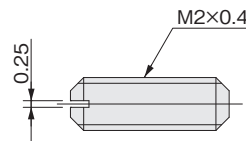
Adjusting the shock absorbing capacity

1. Align the red mark on the adjusting knob to the 6 on the scale.
2. For large impacts on collision or if a long time is required for a full stroke, reduce the value on the scale gradually.
3. Always tighten the lock screw to fix the knob in place after completing adjustment.

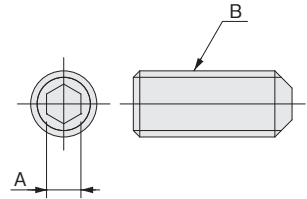


● Lock screw dimensions (mm)

For KSHP 10 to 14



For KSHP 16 to 36



Model	Symbol	A	B
KSHP16 to 18		1.3	M2.5 × 0.45
KSHP20 to 36		1.5	M3 × 0.5

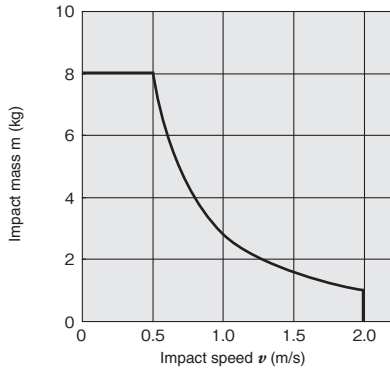
Selection Guidelines

Cautions for using the selection graphs

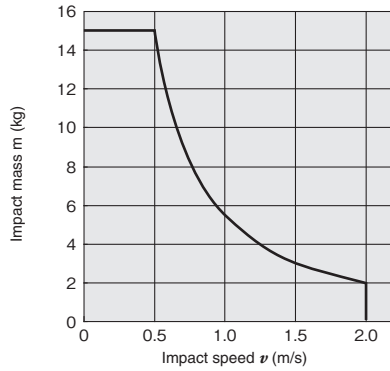
1. The selection graphs are calculated with a cylinder operating air pressure of 0.5 MPa, the recommended cylinder bore (maximum bore), and the adjusting knob scale set to 6.
2. The values in the selection graphs are for room temperature (20 to 25°C). Be aware that performance and characteristics change depending on the operating temperature.
3. Select a shock absorber that is below the capacity curve.

Selection graph

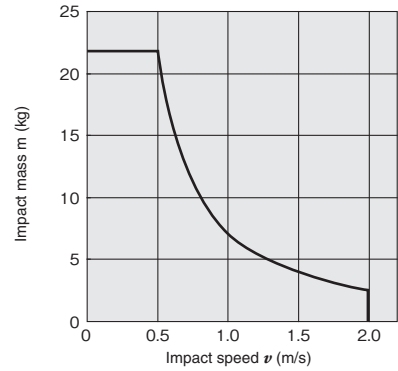
● **KSHP10×8**



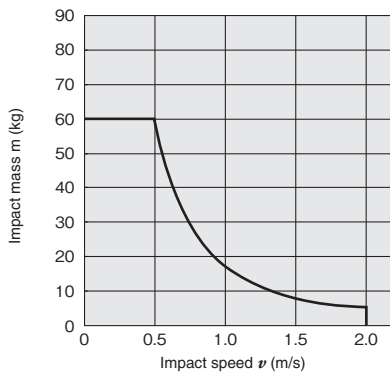
● **KSHP12×10**



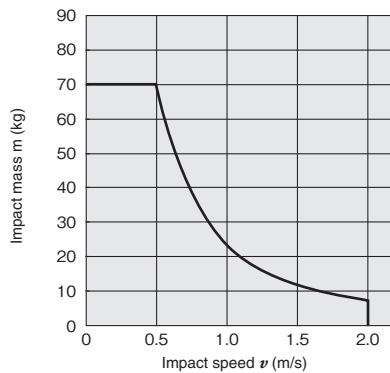
● **KSHP14×12**



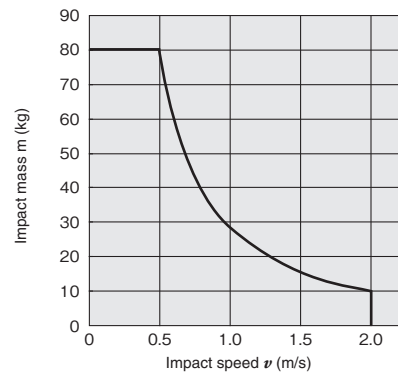
● **KSHP16×15**



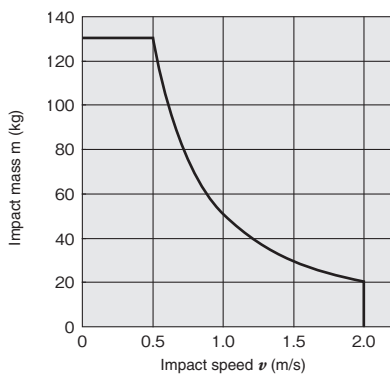
● **KSHP18×20**



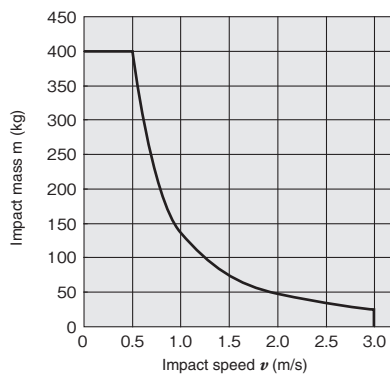
● **KSHP20×22**



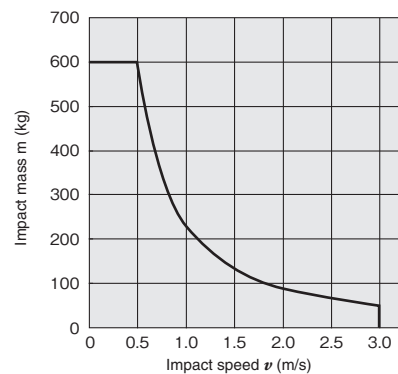
● **KSHP25×25**



● **KSHP30×30**



● **KSHP36×50**

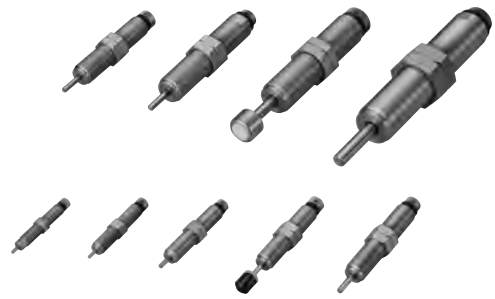


Recommended cylinder bore size

Model	Cylinder bore										
	φ 8	φ 10	φ 12	φ 16	φ 20	φ 25	φ 32	φ 40	φ 50	φ 63	φ 80
KSHP10×8	●	●	●	●							
KSHP12×10		●	●	●	●						
KSHP14×12			●	●	●	●					
KSHP16×15				●	●	●	●				
KSHP18×20					●	●	●				
KSHP20×22					●	●	●	●			
KSHP25×25						●	●	●	●		
KSHP30×30							●	●	●	●	
KSHP36×50								●	●	●	●

Adjustment type linear orifice shock absorber

KSHP Series



Specifications

Item	Model	KSHP Series		
		KSHP10 × 8	KSHP12 × 10	KSHP14 × 12
Maximum absorption capacity	J	2	4	5
Absorption stroke	mm	8	10	12
Maximum impact speed	m/s	2		
Maximum operating cycle	cycle/min	50		
Maximum absorption capacity per unit of time	J/min	60	120	150
Spring return force ^{Note 1}	N	6.5	9.6	9.0
Deflection angle		1° or less		
Operating temperature range ^{Note 2}	°C	0 to 60		

Item	Model	KSHP Series		
		KSHP16 × 15	KSHP18 × 20	KSHP20 × 22
Maximum absorption capacity	J	10	15	20
Absorption stroke	mm	15	20	22
Maximum impact speed	m/s	2		
Maximum operating cycle	cycle/min	40		30
Maximum absorption capacity per unit of time	J/min	240	360	360
Spring return force ^{Note 1}	N	20.5	23.0	18.4
Deflection angle		3° or less		
Operating temperature range ^{Note 2}	°C	0 to 60		

Item	Model	KSHP Series		
		KSHP25 × 25	KSHP30 × 30	KSHP36 × 50
Maximum absorption capacity	J	40	110	200
Absorption stroke	mm	25	30	50
Maximum impact speed	m/s	2	3	
Maximum operating cycle	cycle/min	30	20	
Maximum absorption capacity per unit of time	J/min	720	1320	2400
Spring return force ^{Note 1}	N	32.3	42.3	65.8
Deflection angle		3° or less		
Operating temperature range ^{Note 2}	°C	0 to 60		

Note 1: The spring return force is the force of the piston rod when it returns from a full stroke. It is not stable, so cannot be used as other than rod return.

Note 2: The shock absorbing capacity fluctuates based on speed and ambient temperature.

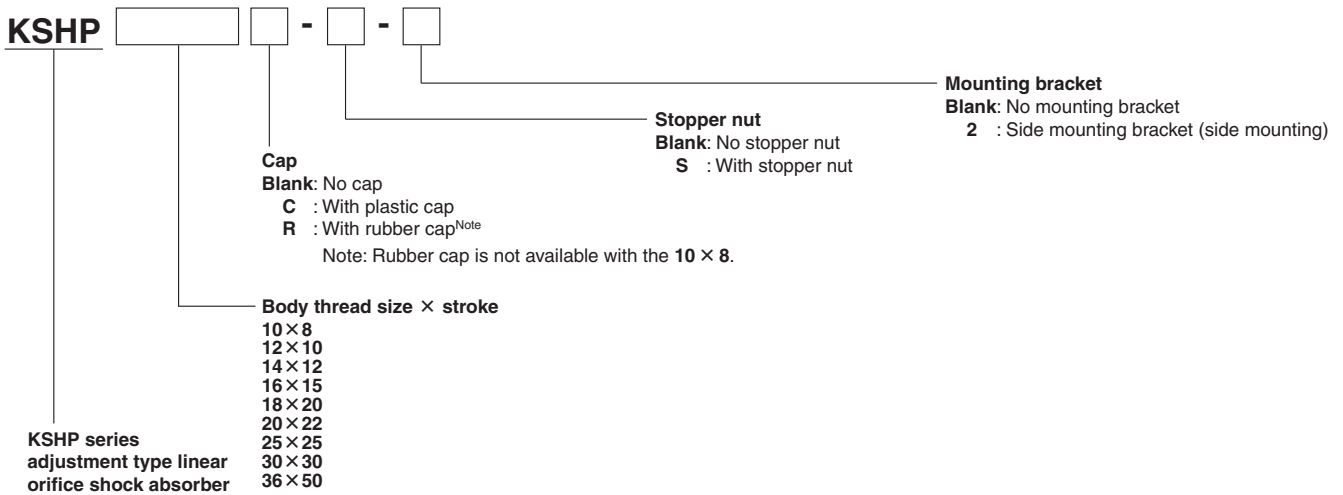
Use the product within the ranges shown by the capacity curves in the graphs on page ⑥.

Mass

Model	Main unit ^{Note}	Additional mass		Additional parts' mass		
		With plastic cap	With rubber cap	Mounting nut (1 ea.)	Stopper nut	Side mounting bracket
KSHP10 × 8	26.5	0.7	—	1.2	7	15
KSHP12 × 10	43.5	1.1	1.2	1.9	8	22
KSHP14 × 12	66.5	1.1	1.8	4.0	15	41
KSHP16 × 15	98.5	1.6	3.4	6.6	28	65
KSHP18 × 20	144	4.1	5.3	8.8	37	100
KSHP20 × 22	186	5.4	6.9	12.2	55	110
KSHP25 × 25	360	5.3	5.7	23.0	95	360
KSHP30 × 30	569	50	49	32.5	140	455
KSHP36 × 50	1130	110	109	95.5	330	2650

Note: The weight of the main unit includes the weight of 2 mounting nuts.


Order Codes



Additional parts


- Rubber cap
- Side mounting bracket
- Stopper nut
- Mounting nut (M10 to M20: 1 pack has 10 pieces)
(M25 to M36: 1 pack has 2 pieces)

R - KSH - M




Thread size
 12: KSHP12
 14: KSHP14
 16: KSHP16
 18: KSHP18
 20: KSHP20
 25: KSHP25
 30: KSHP30
 36: KSHP36

2 - KSH - M




Thread size
 10: M10 × 1
 12: M12 × 1
 14: M14 × 1.5
 16: M16 × 1.5
 18: M18 × 1.5
 20: M20 × 1.5
 25: M25 × 1.5
 30: M30 × 1.5
 36: M36 × 1.5

S - KSH - M



Thread size
 10: M10 × 1
 12: M12 × 1
 14: M14 × 1.5
 16: M16 × 1.5
 18: M18 × 1.5
 20: M20 × 1.5
 25: M25 × 1.5
 30: M30 × 1.5
 36: M36 × 1.5

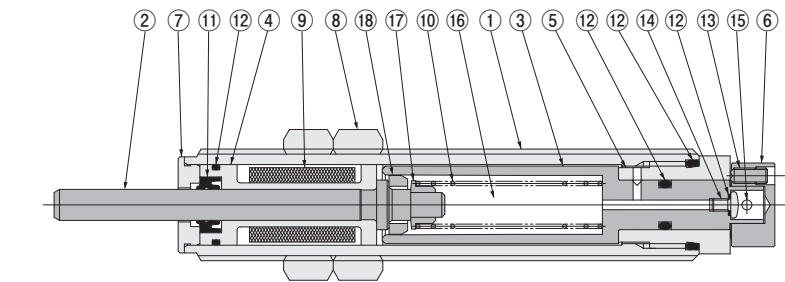
N - KSH - M



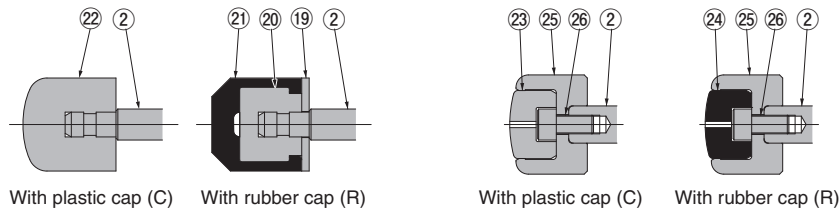
Thread size
 10: M10 × 1
 12: M12 × 1
 14: M14 × 1.5
 16: M16 × 1.5
 18: M18 × 1.5
 20: M20 × 1.5
 25: M25 × 1.5
 30: M30 × 1.5
 36: M36 × 1.5

Inner Construction and Major Parts and Materials

● Sizes M10 to M36



*For KSHP 30 × 30 and KSHP 36 × 50

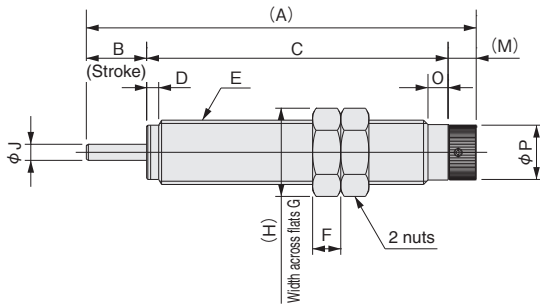


No.	Name	Materials
①	Body	Free-cutting steel (nickel plated)
②	Piston rod	Steel (nickel plated) ^{Note 1}
③	Inner tube	Stainless steel
④	Sleeve	Copper alloy
⑤	Housing	Mild steel (black electroplated)
⑥	Adjusting knob	Copper alloy (nickel plated)
⑦	Plug	Stainless steel
⑧	Mounting nut	Mild steel (nickel plated)
⑨	Accumulator	Synthetic rubber
⑩	Spring	Spring steel
⑪	Rod seal	Synthetic rubber
⑫	O-ring	Synthetic rubber
⑬	Lock screw	Steel (oxide film) ^{Note 2}
⑭	Screw	Mild steel (zinc plated) ^{Note 3}
⑮	Spring pin	Steel (oxide film)
⑯	Oil	Special oil (H1 compliant)
⑰	Collar	Stainless steel ^{Note 4}
⑱	Piston ring	Stainless steel
⑲	Washers ^{Note 5}	Stainless steel
⑳	Cap	Plastic (POM)
㉑	Rubber cap	Urethane rubber
㉒	Cap	Plastic (POM)
㉓	Cap	Plastic (POM)
㉔	Rubber cap	Urethane rubber
㉕	Metal cap	Stainless steel
㉖	Hexagon socket head screw	Stainless steel

Note 1: KSHP 10 to 12 are stainless steel
 Note 2: KSHP 10 to 14 are slotted lock screws.
 Note 3: KSHP 30 to 36 are stainless steel with button head screw
 Note 4: KSHP 10 are copper alloy and KSHP 12 to 14 are sintered metal
 Note 5: KSHP 18 to 20 only

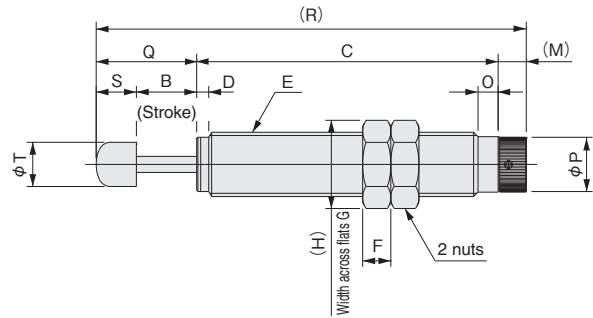
Dimensions (mm)

● No rod end cap: **KSHP□ × □**

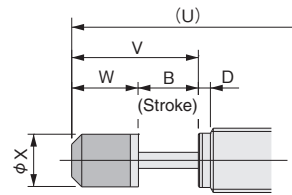


● With rod end cap

With plastic cap: **KSHP□ × □C**

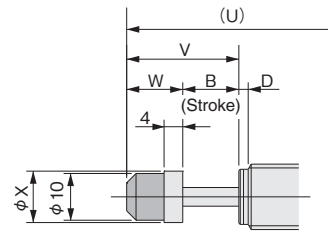


With rubber cap: **KSHP□ × □R**



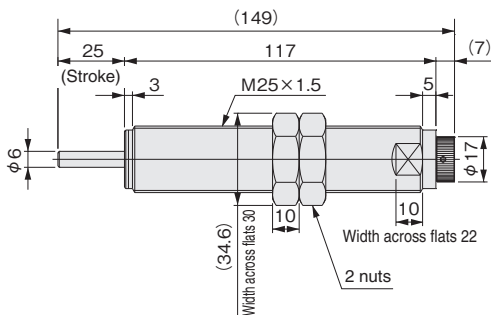
Note: Rubber cap is not available with the **KSHP10 × 8**.

With rubber cap: For the **KSHP14 × 12R**



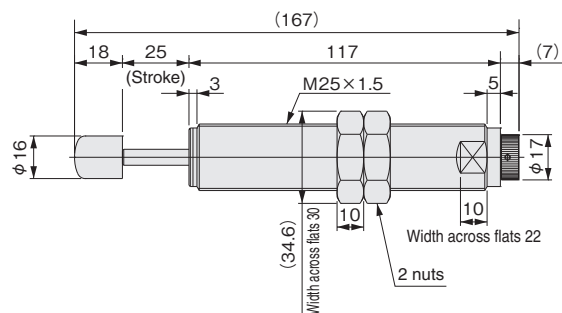
Model	Symbol	A	B	C	D	E	F	G	H	J	M	O	P	Q	R	S	T	U	V	W	X
KSHP10 × 8 (C)		69	8	56	6	M10×1	3	12	13.9	3	5	4	8.7	16	77	8	8	—	—	—	—
KSHP12 × 10 (C,R)		75	10	60	2	M12×1	4	14	16.2	3	5	4	10.7	20	85	10	10	85	20	10	10
KSHP14 × 12 (C,R)		87	12	70	2	M14×1.5	5	17	19.6	4	5	4	10.7	22	97	10	11	99	24	12	11
KSHP16 × 15 (C,R)		97	15	75	3	M16×1.5	7	19	21.9	4	7	5	13.5	25	107	10	11	113.5	31.5	16.5	13
KSHP18 × 20 (C,R)		116	20	89	3	M18×1.5	8	21	24.2	5	7	5	13.5	35	131	15	15	131.7	35.7	15.7	15
KSHP20 × 22 (C,R)		121	22	92	3	M20×1.5	8	24	27.7	5	7	5	17	40	139	18	16	139.2	40.2	18.2	16

● No rod end cap: **KSHP25 × 25**

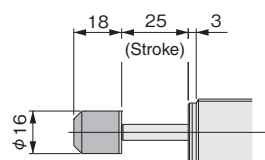


● With rod end cap

With plastic cap: **KSHP25 × 25C**



With rubber cap: **KSHP25 × 25R**



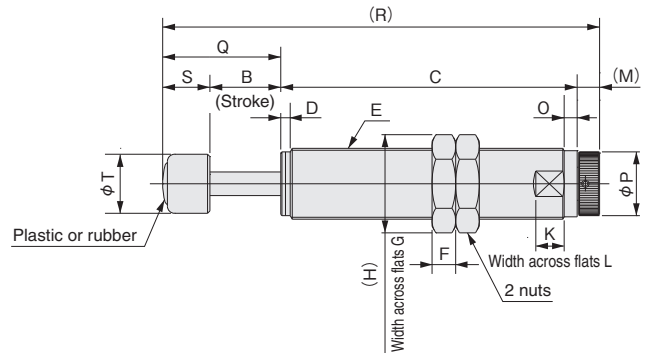
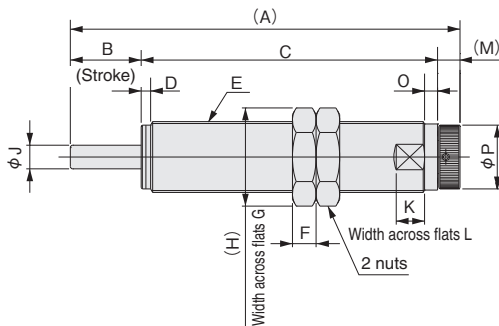
Dimensions (mm)

● No rod end cap: **KSHP**□ × □

● With rod end cap

With plastic cap: **KSHP**□ × □**C**

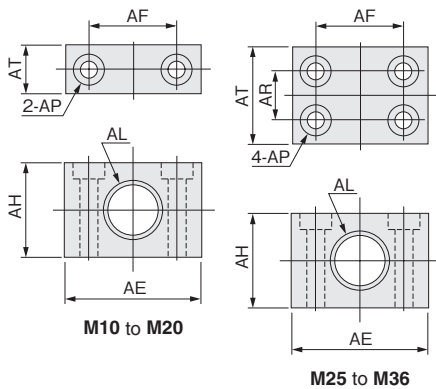
With rubber cap: **KSHP**□ × □**R**



Model	Symbol	A	B	C	D	E	F	G	H	J	K	L	M	O	P	Q	R	S	T
KSHP30 × 30 (C,R)		165	30	125.5	4	M30 × 1.5	10	36	41.6	10	12	28	9.5	5.5	27	50	185	20	25
KSHP36 × 50 (C,R)		229	50	169.5	5	M36 × 1.5	15	46	53.1	12	12	33	9.5	6	27	55	254	25	32

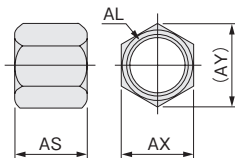
Dimensions of Additional Parts (mm)

● Side mounting bracket: **2-KSH**-□(-2)



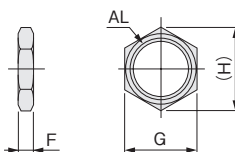
Model	Symbol	AE	AF	AH	AL	AP	AR	AT
2-KSH-M10		22	14	14	M10 × 1	φ 3.4, φ 6.5 Counter bore depth 3.3	—	9
2-KSH-M12		25	16	18	M12 × 1	φ 3.4, φ 6.5 Counter bore depth 3.3	—	9
2-KSH-M14		34	22	22	M14 × 1.5	φ 4.5, φ 8 Counter bore depth 4.5	—	10
2-KSH-M16		38	25	25	M16 × 1.5	φ 4.5, φ 8 Counter bore depth 4.5	—	12
2-KSH-M18		50	34	30	M18 × 1.5	φ 6.5, φ 11 Counter bore depth 6.5	—	12
2-KSH-M20		50	34	30	M20 × 1.5	φ 9, φ 14 Counter bore depth 8.5	—	16
2-KSH-M25		60	44	35	M25 × 1.5	φ 9, φ 14 Counter bore depth 8.5	19	35
2-KSH-M30		60	44	46	M30 × 1.5	φ 9, φ 14 Counter bore depth 8.5	19	35
2-KSH-M36		100	70	62	M36 × 1.5	φ 18, φ 26 Counter bore depth 18	50	80

● Stopper nut: **S-KSH**-□(-S)



Model	Symbol	AL	AS	AX	AY
S-KSH-M10		M10 × 1	17	12	13.9
S-KSH-M12		M12 × 1	17	14	16.2
S-KSH-M14		M14 × 1.5	18	17	19.6
S-KSH-M16		M16 × 1.5	30	19	21.9
S-KSH-M18		M18 × 1.5	35	21	24.2
S-KSH-M20		M20 × 1.5	35	24	27.7
S-KSH-M25		M25 × 1.5	40	30	34.6
S-KSH-M30		M30 × 1.5	40	36	41.6
S-KSH-M36		M36 × 1.5	50	46	53.1

● Mounting nut: **N-KSH**-□



Model	Symbol	AL	F	G	H
N-KSH-M10		M10 × 1	3	12	13.9
N-KSH-M12		M12 × 1	4	14	16.2
N-KSH-M14		M14 × 1.5	5	17	19.6
N-KSH-M16		M16 × 1.5	7	19	21.9
N-KSH-M18		M18 × 1.5	8	21	24.2
N-KSH-M20		M20 × 1.5	8	24	27.7
N-KSH-M25		M25 × 1.5	10	30	34.6
N-KSH-M30		M30 × 1.5	10	36	41.6
N-KSH-M36		M36 × 1.5	15	46	53.1

Limited Warranty

KOGANEI CORP. warrants its products to be free from defects in material and workmanship subject to the following provisions.

Warranty Period The warranty period is 180 days from the date of delivery.

Koganei Responsibility If a defect in material or workmanship is found during the warranty period, KOGANEI CORP. will replace any part proved defective under normal use free of charge and will provide the service necessary to replace such a part.

Limitations

- This warranty is in lieu of all other warranties, expressed or implied, and is limited to the original cost of the product and shall not include any transportation fee, the cost of installation or any liability for direct, indirect or consequential damage or delay resulting from the defects.

- KOGANEI CORP. shall in no way be liable or responsible for injuries or damage to persons or property arising out of the use or operation of the manufacturer's product.

- This warranty shall be void if the engineered safety devices are removed, made inoperative or not periodically checked for proper functioning.

- Any operation beyond the rated capacity, any improper use or application, or any improper installation of the product, or any substitution upon it with parts not furnished or approved by KOGANEI CORP., shall void this warranty.

- This warranty covers only such items supplied by KOGANEI CORP. The products of other manufacturers are covered only by such warranties made by those original manufacturers, even though such items may have been included as the components.

The specifications are subject to change without notice.

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