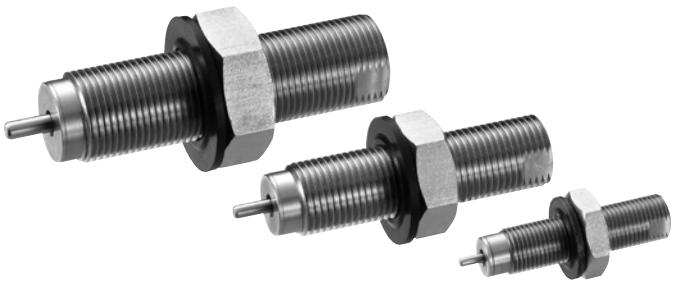
PRESSURE RESISTANT

SHOCK ABSORBERS

LINEAR ORIFICE TYPE

KSHK series



Specifications

Item \ Model	KSHK10×5-01	KSHK10×5-02	KSHK12×6-01	KSHK12×6-02
Maximum absorption capacity J [ft•lbf]	0.4 [0.295]	0.5 [0.369]	0.8 [0.590]	0.6 [0.443]
Absorption stroke mm [in]	5 [0.197]		6 [0.236]	
Maximum impact speed m/s [ft/sec]	0.5 [1.640]	0.8 [2.624]	0.5 [1.640]	0.8 [2.624]
Maximum operating frequency cycle/min	30			
Operating pressure range MPa [psi]	0 ～ 0.7 [0 ～ 102]			
Maximum absorption per unit of time J/min	8		12	
Spring return force N [lbf]	8.3		14.5	
Angle variation	1° or less			
Operating temperature range[Note] ℃ [°F]	0 ～ 60 [32 ～ 140]			

Item \ Model	KSHK14×7-01	KSHK14×7-02	KSHK16×8-01	KSHK16×8-02
Maximum absorption capacity J [ft•lbf]	1.0 [0.738]	1.0 [0.738]	1.6 [1.180]	1.3 [0.959]
Absorption stroke mm [in]	7 [0.276]		8 [0.315]	
Maximum impact speed m/s [ft/sec]	0.5 [1.640]	0.8 [2.624]	0.5 [1.640]	0.8 [2.624]
Maximum operating frequency cycle/min	30			
Operating pressure range MPa [psi]	0 ～ 0.7 [0 ～ 102]			
Maximum absorption per unit of time J/min	18		26	
Spring return force N [lbf]	13.0 [2.923]		13.5 [3.035]	
Angle variation	1° or less			
Operating temperature range[Note] ℃ [°F]	0 ～ 60 [32 ～ 140]			

Item \ Model	KSHK18×9-01	KSHK18×9-02	KSHK20×10-01	KSHK20×10-02
Maximum absorption capacity J [ft•lbf]	2.5 [1.844]	2.9 [2.139]	5.0 [3.688]	4.8 [3.540]
Absorption stroke mm [in]	9 [0.354]		10 [0.394]	
Maximum impact speed m/s [ft/sec]	0.5 [1.640]	0.8 [2.624]	0.5 [1.640]	0.8 [2.624]
Maximum operating frequency cycle/min	30			
Operating pressure range MPa [psi]	0 ～ 0.7 [0 ～ 102]			
Maximum absorption per unit of time J/min	50		90	
Spring return force N [lbf]	27.0 [6.070]		29.0 [6.519]	
Angle variation	1° or less		3° or less	
Operating temperature range[Note] ℃ [°F]	0 ～ 60 [32 ～ 140]			

Note: With shock absorbers, absorption capacity increases and decreases in accordance with speed and ambient temperature.
Always use the product within the capacity line range of the selection graph on page 1747.

Mass

g [oz]

Model	Mass	
	Seal washer, with hexagon nut	Main unit only (**-NN**: No seal washer, with hexagon nut)
KSHK10×5-01,-02	31 [1.093]	21 [0.741]
KSHK12×6-01,-02	49 [1.728]	35 [1.235]
KSHK14×7-01,-02	76 [2.681]	55 [1.940]
KSHK16×8-01,-02	110 [3.9]	82 [2.892]
KSHK18×9-01,-02	149 [5.3]	113 [4.0]
KSHK20×10-01,-02	207 [7.3]	155 [5.5]

Seal washer

g [oz]

Model	Mass
MK1-KSHK10	2.0 [0.071]
MK1-KSHK12	3.0 [0.106]
MK1-KSHK14	4.0 [0.141]
MK1-KSHK16	5.0 [0.176]
MK1-KSHK18	4.0 [0.141]
MK1-KSHK20	8.0 [0.282]

Hexagon nut

g [oz]

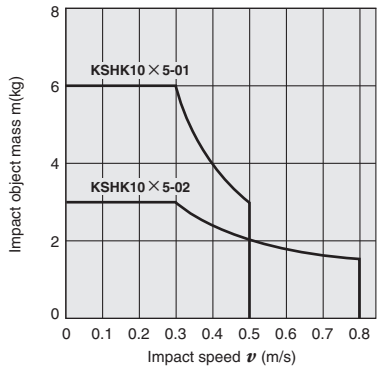
Model	Mass
MK2-KSHK10	8 [0.282]
MK2-KSHK12	11 [0.388]
MK2-KSHK14	17 [0.600]
MK2-KSHK16	23 [0.811]
MK2-KSHK18	32 [1.129]
MK2-KSHK20	44 [1.552]

Precautions when using the selection graph

1. Selection graph data is calculated with 0.5 MPa [73 psi] for the air pressure used in cylinders.
2. Select a shock absorber that is near and inside a capacity line.

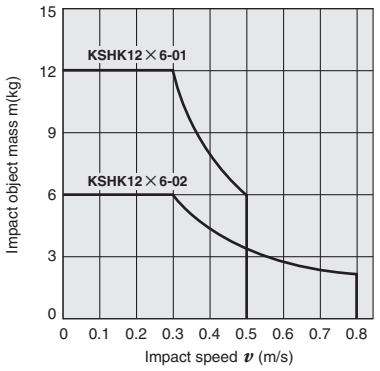
■ Selection graph

● KSHK10×5



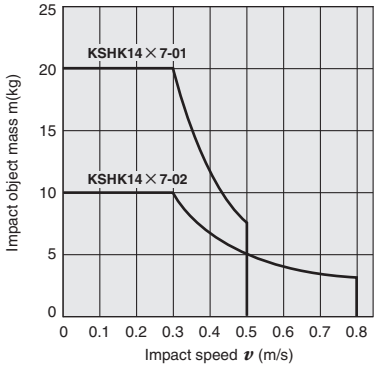
1 kg = 2.205 lb
1 m/s = 3.28 ft/sec

● KSHK12×6



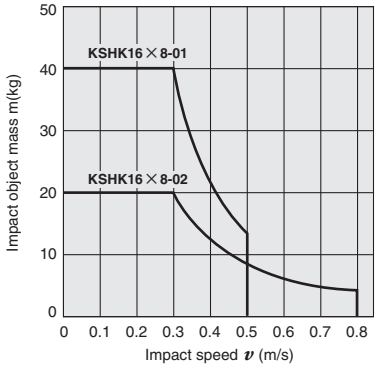
1 kg = 2.205 lb
1 m/s = 3.28 ft/sec

● KSHK14×7



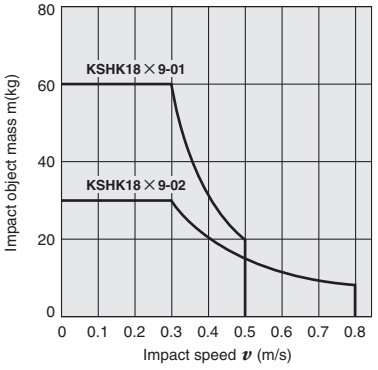
1 kg = 2.205 lb
1 m/s = 3.28 ft/sec

● KSHK16×8



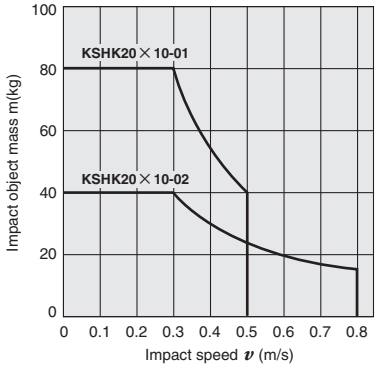
1 kg = 2.205 lb
1 m/s = 3.28 ft/sec

● KSHK18×9



1 kg = 2.205 lb
1 m/s = 3.28 ft/sec

● KSHK20×10



1 kg = 2.205 lb
1 m/s = 3.28 ft/sec

■ Recommended cylinder bores

Model \ Cylinder bore	φ12 [0.472]	φ16 [0.630]	φ20 [0.787]	φ25 [0.984]	φ32 [1.260]	φ40 [1.575]
KSHK10×5	●	●	●			
KSHK12×6		●	●	●		
KSHK14×7		●	●	●		
KSHK16×8			●	●	●	
KSHK18×9				●	●	●
KSHK20×10				●	●	●

Note: The above table shows recommendations. It does not mean that other size cylinders cannot be used.

Order Codes

KSHK □ - □ - □

Seal washer and hexagon nut
Blank: With seal washer, with hexagon nut
NN: No seal washer, no hexagon nut

Impact speed range
01: 0.02 to 0.5 m/s [0.066 to 1.64 ft/sec]
02: 0.1 to 0.8 m/s [0.328 to 2.624 ft/sec]

Body thread size x Stroke
10×5 [0.394 × 0.197]
12×6 [0.472 × 0.236]
14×7 [0.551 × 0.276]
16×8 [0.630 × 0.315]
18×9 [0.709 × 0.354]
20×10 [0.787 × 0.394]

Pressure resistant shock absorber
KSHK series

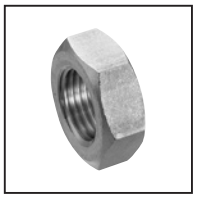
Additional Parts

MK □ - **KSHK** □

Article
1: Seal washer (Sales lot: 1)
2: Hexagon nut (Sales lot: 1)
3: Seal washer, hexagon nut (Sales lot: 1 each)

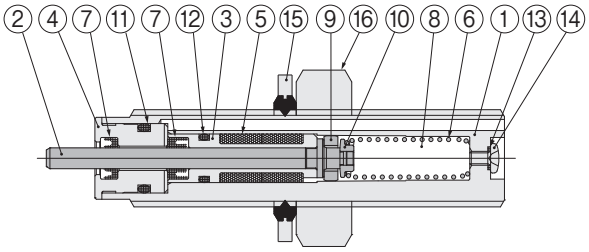
Thread size
10: For KSHK10×5
12: For KSHK12×6
14: For KSHK14×7
16: For KSHK16×8
18: For KSHK18×9
20: For KSHK20×10

Seal washer
MK1-KSHK□



Hexagon nut
MK2-KSHK□

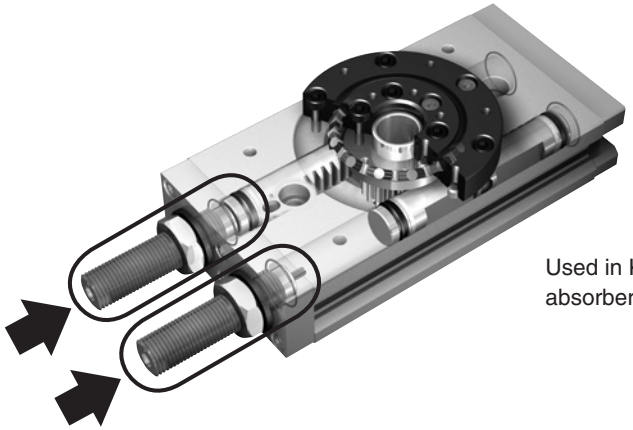
Inner Construction and Major Parts and Materials



Remark: Depending on size, some components and internal configurations may differ.

No.	Name	Materials
①	Main unit	Copper alloy (nickel plated)
②	Piston rod	Steel (nickel plated)
③	Sleeve	Copper alloy
④	Plug	Stainless steel
⑤	Accumulator	Synthetic rubber
⑥	Spring	Spring steel
⑦	Rod seal	Synthetic rubber
⑧	Oil	Special oil
⑨	Piston ring	Copper alloy
⑩	Collar	Stainless steel, copper alloy
⑪	O-ring	Synthetic rubber (NBR)
⑫	O-ring	Synthetic rubber (NBR)
⑬	O-ring	Synthetic rubber (NBR)
⑭	Screw	Mild steel (zinc, nickel plated)
⑮	Seal washer	Steel + Composite rubber (**KSHK18** Stainless steel + Composite rubber)
⑯	Hexagon nut	Stainless steel

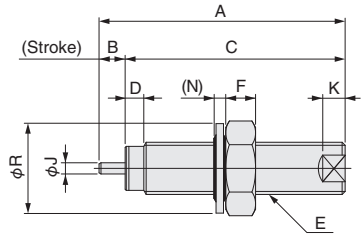
Example of Use

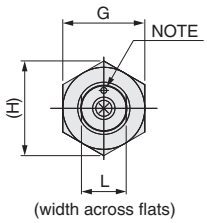


Used in Koganei flat rotary (RAF) shock absorbers and rotary angle adjustment.

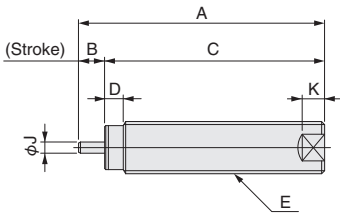
Dimensions mm [in]

●**KSHK□×□-□**





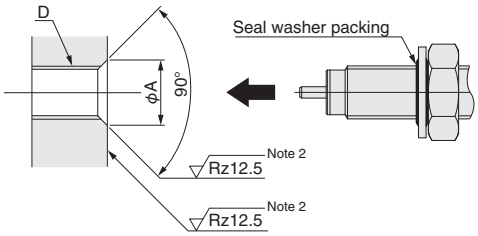
●**KSHK□×□-□-NN** (seal washer, no hexagon nut)



Note: Air passage port. Do not obstruct.

Model / Code	A	B	C	D	E	F	G	H	J	K	L	N	R
KSHK10×5-01,-02	48 [1.890]	5 [0.197]	43 [1.693]	5 [0.197]	M10×1	6 [0.236]	17 [0.669]	19.6 [0.772]	2 [0.079]	5 [0.197]	8 [0.315]	2.4 [0.094]	18 [0.709]
KSHK12×6-01,-02	55 [2.165]	6 [0.236]	49 [1.929]	5 [0.197]	M12×1	7 [0.276]	19 [0.748]	21.9 [0.862]	2.5 [0.098]	5 [0.197]	10 [0.394]	3.2 [0.126]	21 [0.827]
KSHK14×7-01,-02	66 [2.598]	7 [0.276]	59 [2.323]	5 [0.197]	M14×1.5	8 [0.315]	22 [0.866]	25.4 [1.000]	3 [0.118]	6 [0.236]	12 [0.472]	3.2 [0.126]	24 [0.945]
KSHK16×8-01,-02	73 [2.874]	8 [0.315]	65 [2.559]	5 [0.197]	M16×1.5	10 [0.394]	24 [0.945]	27.7 [1.091]	3 [0.118]	7 [0.276]	13 [0.512]	3.2 [0.126]	28 [1.102]
KSHK18×9-01,-02	79 [3.110]	9 [0.354]	70 [2.756]	5 [0.197]	M18×1.5	11 [0.433]	27 [1.063]	31.2 [1.228]	4 [0.157]	7 [0.276]	15 [0.591]	4.5 [0.177]	27 [1.063]
KSHK20×10-01,-02	88 [3.465]	10 [0.394]	78 [3.071]	5 [0.197]	M20×1.5	12 [0.472]	30 [1.181]	34.6 [1.362]	4 [0.157]	8 [0.315]	17 [0.669]	3.2 [0.126]	34 [1.339]

■ Pressure resistant shock absorber mounting surface (recommended dimensions)

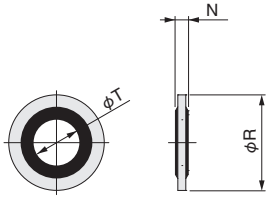


Model	Recommended φA[Note 1]	Screw diameter D
KSHK10×5 -01,-02	10.4 [0.409]	M10×1
KSHK12×6 -01,-02	12.4 [0.488]	M12×1
KSHK14×7 -01,-02	14.4 [0.567]	M14×1.5
KSHK16×8 -01,-02	16.4 [0.646]	M16×1.5
KSHK18×9 -01,-02	18.4 [0.724]	M18×1.5
KSHK20×10 -01,-02	20.4 [0.803]	M20×1.5

Note 1: Recommended value φA in the table is the MAX value.
2: The roughness of the surface that contacts the seal washer should be Rz 12.5 or less.

Additional Parts Dimensions mm [in]

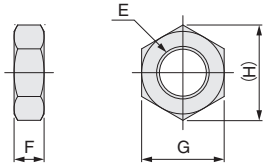
● Seal washer: MK1-KSHK □



Model / Code	N	R	T
MK1-KSHK10	2.4 [0.094]	18 [0.709]	8.5 [0.335]
MK1-KSHK12	3.2 [0.126]	21 [0.827]	9.5 [0.374]
MK1-KSHK14	3.2 [0.126]	24 [0.945]	11.5 [0.453]
MK1-KSHK16	3.2 [0.126]	28 [1.102]	13.5 [0.531]
MK1-KSHK18[Note]	4.5 [0.177]	27 [1.063]	16.5 [0.65]
MK1-KSHK20	3.2 [0.126]	34 [1.339]	17.5 [0.689]

Note: For **MK1-KSHK18** only, some shapes may differ.

● Hexagon nut:MK2-KSHK □



Model / Code	E	F	G	H
MK2-KSHK10	M10×1	6 [0.236]	17 [0.669]	19.6 [0.772]
MK2-KSHK12	M12×1	7 [0.276]	19 [0.748]	21.9 [0.862]
MK2-KSHK14	M14×1.5	8 [0.315]	22 [0.866]	25.4 [1.000]
MK2-KSHK16	M16×1.5	10 [0.394]	24 [0.945]	27.7 [1.091]
MK2-KSHK18	M18×1.5	11 [0.433]	27 [1.063]	31.2 [1.228]
MK2-KSHK20	M20×1.5	12 [0.472]	30 [1.181]	34.6 [1.362]

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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