

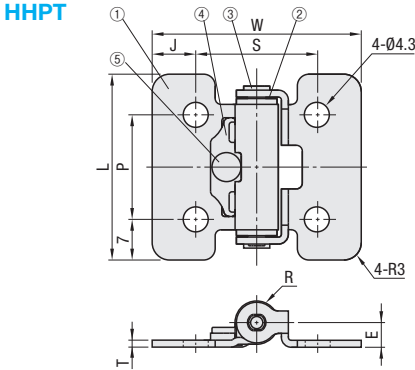
Torque Hinges

Fixed Torque, Adjustable Torque

Damper Hinges

Fixed Torque

HHPT



① Hinge Plate SUS304
② Plastic Barrel Polyacetal
③ Shaft SUS303
④ Plate SUS304
⑤ Swage Pin SUSXM7

Caution

- Use two hinges for one door/lid.
- Align the axes of the two hinges.
- Do not use the hinges outdoors or in any places where oil or grease adheres to the hinges.
- Do not use the hinges in any places requiring continuous open-close movements.
- Given the product characteristics, vertical usage is not assumed. For vertical use, adjust allowable load and torque value to the actual operating conditions.

Operating Temp. Range: -10°C ~ 50°C
Operating Humidity Range: 90%RH or lower

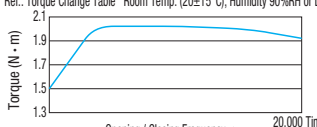
RoHS 10

Part Number	Rated Torque*	Mass (g)	L	W	P	J	S	T	E	R	Unit Price	Volume Discount Rate
Type	No.	N·m	kgf·cm								1 ~ 19 pc (s).	20~50
HHPT	3	0.35	3.4	15	32	36	18	7.5	21	1.2	4.25	7.5
	7	0.7	6.9	28	40	48	26	8	32	1.2	4.75	8.5
	15	1.5	14.7	64	50	48	36	8	32	2	6.5	12

* Rated torque has a margin of error between +40% and -20%.
* Rated torque value is for a single hinge.

Ordering Example **Part Number**
HHPT7

Example



Ref.: Torque Change Table Room Temp. (20±15°C), Humidity 90%RH or Lower

Values are measured by using HHPT15 for reference, and not guaranteed.
Opening/closing frequency: 5 times per minute (0° ~ 160° per opening/closing)
* The torque is set to a value higher than the rated torque before shipping considering the torque degradation due to aging and temperature/humidity change.

How to Select Torque Hinges
When operated as a lid as shown on right, calculate the necessary torque according to the following formula before selecting a torque hinge that satisfies the specifications. (Assume that the lid's center of gravity lies in the middle.)

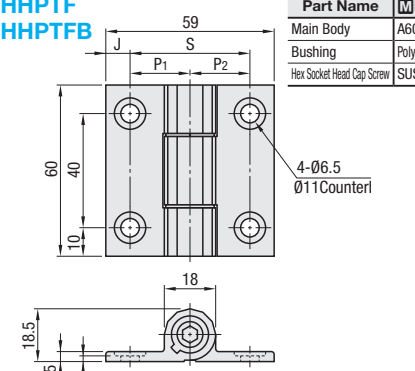
[Formula]
Max. Torque T = L / 2 x m (Weight: kg) x 9.8 (Newton: N)

(Ex.) When L=0.3m and m=2kg,
Max. Torque T = 0.3/2 x 2 x 9.8 = 2.94N·m.

⇒ Select 2 pcs. of HHPT15.

Adjustable Torque

HHPTF HHPTFB



Part Name | Material | Surface Treatment
Main Body | A6063 | Anodize
Bushing | Polyacetal | -
Hex Socket Head Cap Screw | SUSXM7 | -

RoHS 10

Part Number	* Allowable Load	** Rated Torque		Mass (g)	S	P1	P2	J	Clear Anodize		Black Anodize	
		kg	N						N·m	kgf·cm	Unit Price	Volume Discount Rate
HHPTF HHPTFB (Black Anodize)	6			0					32	16	16	13.5
	8-6	10	98	4.9	0	50			37	16	21	13.5
	8								42	21	21	8.5

* The allowable load is the value when 2 pieces are used.
** Rated torque value is for a single hinge.

Ordering Example **Part Number**
HHPTF8

Example

Use a hex wrench to adjust torque value.
If tightened with a force of 1.5N·m or more, a hex wrench might be damaged.

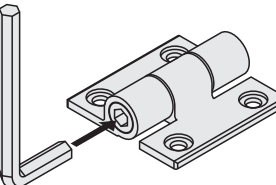
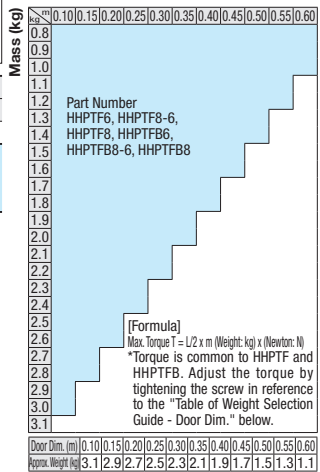
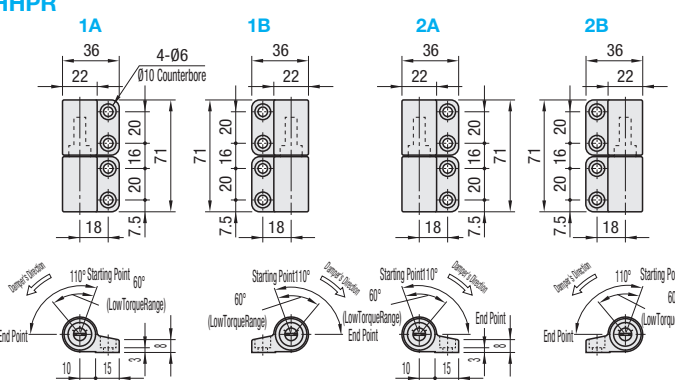


Table of Weight Selection Guide (per Hinge)



Damper Hinges

HHPR



1A, 1B, 2A, 2B

Combination Examples

Material: PBT

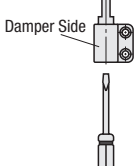
Part Number	Reverse Torque (N·m)*	Max. Operating Angle	Operating Temp. Range (°C)	Mass (g)	Unit Price	Volume Discount Rate
Type	No.				1 ~ 19 pc (s).	20~50
HHPR	1A	0.49~1.27	110	0~40	46	
	1B					
	2A					
	2B					

* Reverse torque value is for a single damper hinge.

Ordering Example **Part Number**
HHPR1B

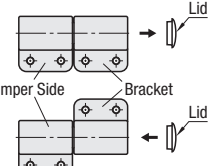
How to Adjust Torque

Torque can be easily adjusted with a flathead screwdriver.



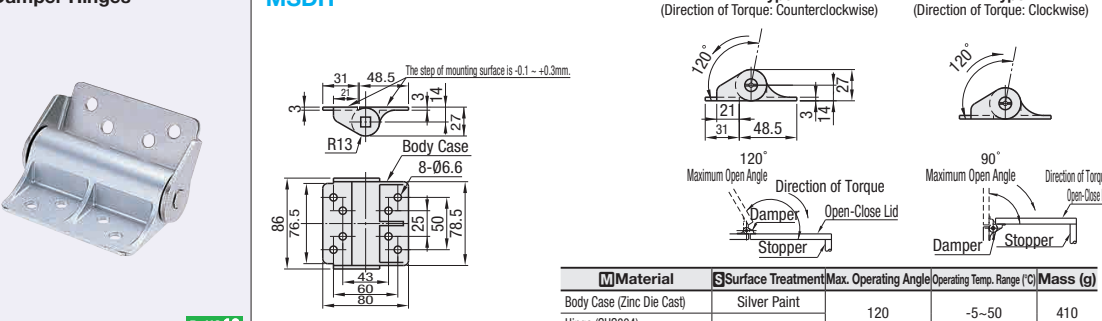
Bracket Position Change

Bracket mounting position can be adjusted. The lid is removable.



Damper Hinges

MSDH



L Type (Direction of Torque: Counterclockwise)
R Type (Direction of Torque: Clockwise)

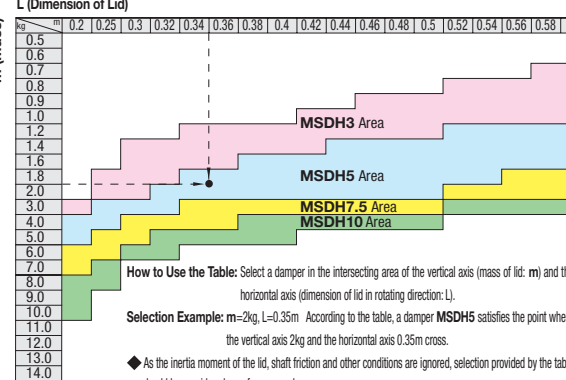
Material	Surface Treatment	Max. Operating Angle	Operating Temp. Range (°C)	Mass (g)
Body Case (Zinc Die Cast)	Silver Paint	120	-5~50	410
Hinge (SUS304)	-	-	-	-

Part Number	Max. Usable Torque (N·m)	Shaft Rotating Direction	Max. Reverse Torque (N·m)	Unit Price
MSDH	3	L (Counterclockwise) R (Clockwise)	0.4 or Less	
	5		0.6 or Less	
	7.5		0.8 or Less	
	10		1.0 or Less	

* Torque value is for a single hinge.
* Reverse torque is torque in the opposite direction.

Table of Selection Guide

L (Dimension of Lid)

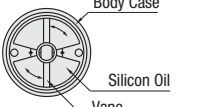


How to Use the Table: Select a damper in the intersecting area of the vertical axis (mass of lid: m) and the horizontal axis (dimension of lid in rotating direction: L).
Selection Example: m=2kg, L=0.35m. According to the table, a damper MSDH5 satisfies the point where the vertical axis 2kg and the horizontal axis 0.35m cross.

As the inertia moment of the lid, shaft friction and other conditions are ignored, selection provided by the table should be considered as references only.

Basic Principle

The rotation of the vanes compresses the oil and generates control (brake) force to act against work force.



How to Select a Damper Hinge

The lid in a horizontal position generates maximum torque as shown on the left. Calculate maximum torque according to the following formula before selecting a damper that satisfies the specifications.

[Formula]
Max. Torque T = L/2 x m (Weight: kg) x 9.8 (Newton: N)

(Ex.) When L=0.4m and m=5kg,
Max. Torque T = 0.4/2 x 5 x 9.8 = 9.8N·m
⇒ MSDH10 is selected.

Note) The selection made by the calculation above is for reference only. The friction resistance and the effect of inertia moment at the hinge were not taken into consideration in the example above. The viscosity of the oil in the damper changes depending on the temperature of the operating environment. Generally, the damping characteristic decreases with rising temperature, whereas it increases with lowering temperature.