Cam Followers
Overview

What is Cam Follower

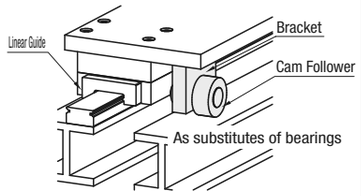
A highly rigid shaft bearing with a thick outer ring and integrated needle rollers.
The needle helps to increase the rotation capacity to withstand high-speed. The outer ring is designed thicker than normal bearings so that they can be used for areas with impact load or heavy load.

Features

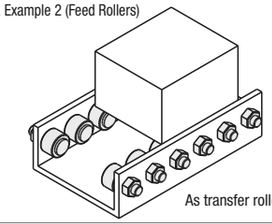
1. The shaft makes it easier to mount!
2. Suitable for areas where forces apply!
3. Can be used for high-speed applications!

App. Example

* App. Example 1 (Guide Rollers)



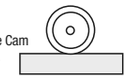
* App. Example 2 (Feed Rollers)



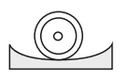
Types of Cam Followers

Application	General				Small		Noise Prevention			
Features	With Hex Socket		Straight Slot		Precision Type	Simple Type	Plastic Type		With Urethane	
Page	P.1043		P.1045		P.1048	P.1047	P.1049		P.1051	
Product Description	d3 to d10 are "Hex Socket on Head" (Hex socket on stud head), d12 to 20 are "Hex Socket on Head and Thread" (Hex socket on both stud head and thread). They can be mounted easily using a hex wrench.		A cam follower with straight slot on stud head. The most standard type.		A small cam follower with extremely fine needles assembled on the outer ring. Suitable for electronic components/equipment and office automation equipment.	Ball bearing-combined products used for light load transfers and guiding.	A cam follower with plastic press fit. Plastic absorbs shock on the mating side to reduce the noise during rotation.		A cam follower with urethane baked. Urethane absorbs shock on the mating side to reduce the noise during rotation.	
Shape	Crowned	Flat	Crowned	Flat	Flat	Flat	R	Flat	R	Flat
Grease	General	Low Dust Generation / Heavy Load	General	Low Dust Generation / Heavy Load	General	Low Dust Generation / Heavy Load	General	Low Dust Generation	General	Low Dust Generation
Selection Standards: Motion Direction (*1) Linear Motion	○	○	○	◎	◎	◎	○	○	◎	○	◎	◎	◎	◎	○	◎	○	◎
Selection Standards: Motion Direction (*1) Oscillating Motion	◎	◎	◎	△	△	△	◎	◎	△	△	△	△	△	△	◎	△	◎	△
Selection Standards: Rotational Speed (*2) Low Speed	◎	○	○	◎	○	○	◎	○	◎	○	◎	○	○	◎	◎	◎	◎	◎
Selection Standards: Rotational Speed (*2) High Speed	◎	○	○	◎	○	○	◎	○	◎	○	◎	○	○	×	×	×	△	△
Selection Standards: Reliability Low Dust Generation	○	◎	○	○	◎	○	○	◎	○	◎	○	◎	○	○	○	○	○	○
Selection Standards: Load (*3) Light Load	◎	○	○	◎	○	○	◎	○	◎	○	◎	○	○	◎	◎	◎	◎	◎
Selection Standards: Load (*3) Heavy Load	○	○	◎	○	○	◎	○	○	○	○	△	△	◎	×	△	△	○	○

(*1) The motion direction
<Linear motion>
The mating surface is flat and the Cam Follower moves in a straight line.



<Oscillating Motion>
The mating surface is curved and the Cam Follower moves on a curve.



(*2) Rotational Speed
For detailed values of Rotational Speed, please refer to the specification table on each product page.
(*3) Load
For detailed values of Load, please refer to the specification table on each product page.

Precautions for Use

• Mounting Hole Recommended Fits

Bearing Type	Mounting Hole Tolerance Zone Class
Standard Cam Follower	H7
Miniature Cam Followers	H6

•Stud Tightening Torque

Make sure to use a torque wrench when you mount Cam Followers. Do not exceed the maximum tightening torque of the screw. Doing so may damage the threads.

<Standard Cam Follower>

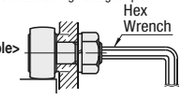
dh7	Max. Tightening Torque N·m
3	0.392
4	0.98
5	1.96
6	2.94
8	7.84
10	16.7
12	29.4
16	70.6
18	98
20	137

<Miniature Cam Followers>

dh7	Max. Tightening Torque (N·cm)
2.5	16
3	28
4	64
5	125
6	226

*Make sure to use a torque wrench to mount Miniature Cam Followers and fasten them without exceeding the maximum tightening torque.

<Mounting Example>



Changes in Cam Follower Standards

For the following products of d12 and above, the standard was modified to "Hex Socket on Head and Thread" where hex socket and grease fitting are mounted on both the head and thread. No change to the performance, so you can replace it for a new model dire
For new models, see the product page. (No standard change for d10 and below)
The applicable products will be changed over to the new model after all the stock items run out.

<Applicable Products>
Straight Slot (**P.1045**) / Hex Socket on Head (**P.1043**) / Hex Socket on Thread / Solid Eccentric (**P.1047**) / Plastic (**P.1049**) / Urethane (**P.1051**)

<Features of Hex Socket on Head and Thread>
1. Reduction of working hours
With the conventional products, fixtures need to be to manufactured to mount the plug or grease fittings. But "Hex Socket on Head and Thread" type comes with grease fittings on both sides, so the product can be used as soon as it arrives.

2. Easy mounting and maintenance
"Hex Socket on Head and Thread" type can be fixed from either head or thread side using a hex wrench. Greasing is also possible from both directions. As a result, it improves your work efficiency because it can be mounted and maintained without being concerned about the space.

Roller Followers
Overview

About Roller Followers

A highly rigid bearing with acicular rollers called needle integrated. Space-saving design can be achieved due to its shaft-free structure.
It has the structure of combining thick outer ring and inner ring, and needles just like Cam Follower. You can use it at a place where forces apply or high-speed is required.
The length of the pin to fix Roller Follower is configurable, so you can use it without worrying about the plate thickness on the mating side.

Features

1. Suitable for limited spaces!
2. More load-resistant than rollers!
3. Can be mounted without worrying about mating plate thickness!

App. Example

* App. Example 1 (Feed Rollers)

As pallet and steel plate supports

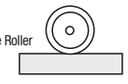
* App. Example 2 (Feed Rollers)

For both sides of slat conveyors

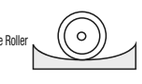
Types of Roller Followers

Application	General				Noise Prevention		Fixing Pin
Features	Separate		Solid		With Urethane		Roller Follower Pins
Page	P.1055		P.1055		P.1056		P.1056
Product Description	Separated to an inner ring, an outer ring, and a retainer. Economically priced for its simple structure.		Solid roller follower with side plates press fit on both sides of the inner ring. Heavy Load type (Crowned) that can support heavy load.		A solid roller follower with urethane baked. MISUMI original product. Urethane absorbs shock on the mating side to reduce the noise during rotation.		MISUMI original Roller Follower Pins. Use them to secure Roller Followers.
Shape	Crowned	Flat	Crowned	Heavy Load Crowned	R	Flat	-
Grease	General	Low Dust Generation	General	Low Dust Generation / General	General	General	-
Selection Standards: Motion Direction (*1) Linear Motion	○	◎	○	○	○	◎	-
Selection Standards: Motion Direction (*1) Oscillating Motion	◎	△	◎	○	◎	△	
Selection Standards: Rotational Speed (*2) Low Speed	◎	○	◎	○	◎	○	
Selection Standards: Rotational Speed (*2) High Speed	○	◎	○	○	×	×	
Selection Standards: Reliability Low Dust Generation	○	◎	○	◎	×	×	
Selection Standards: Load (*3) Light Load	◎	○	◎	○	◎	○	
Selection Standards: Load (*3) Heavy Load	○	○	○	◎	×	×	

(*1) The motion direction
<Linear motion>
The mating surface is flat and the Roller Follower moves in a straight line.



<Oscillating Motion>
The mating surface is curved and the Roller Follower moves on a curve.



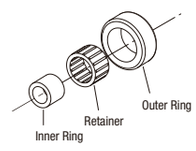
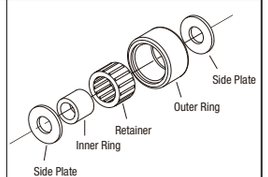
(*2) Rotational Speed
For detailed values of Rotational Speed, please refer to the specification table on each product page.
(*3) Load
For detailed values of Load, please refer to the specification table on each product page.

Precautions for Use

• Shaft Fits

Shaft Tolerances
g6,h6

Roller Follower Separate Type Structure

No Seal	With Seal
	
Separated to an inner ring, a retainer, and an outer ring.	Separated to an inner ring, a retainer, an outer ring, and side plates (seals).

•Grease Performance and Operation Temperature of Cam Followers and Roller Followers

		All-Purpose Grease Filled (AFB-LF Grease)	Low Particle Grease Filled (AFE-CA Grease)
Grease Performance	Thickener	Lithium Soap	Urea Inductor
	Base Oil	Refined Mineral Oil	Synthetic Oil
	Base Oil Dynamic Viscosity (40°C, mm²/S)	170	100
	Worked Penetration (25°C, 60W)	275	260
	Dropping Point (°C)	193	258
	Evaporation: wt% (99°C, 22h)	0.36	0.1
	Oil Separation: wt% (100°C, 24h)	0.6	0.8
Operating Temperature (°C)	In Air	-15~+100	-40~+160
	In Vacuum	Unsuitable	Unsuitable

• Other Cautions

•Dropping or hitting may damage the product.
•Please note that when shock was applied, the product may lose its function even though there is no visible damage outside.
•Cam Followers and Roller Followers can bear radial load, but they are not designed to support thrust load. Please avoid using them to bear thrust load.
•Some types are not filled with grease depending on the size.
See the above table and lubricate the ones not filled with the grease before using them.