Origin

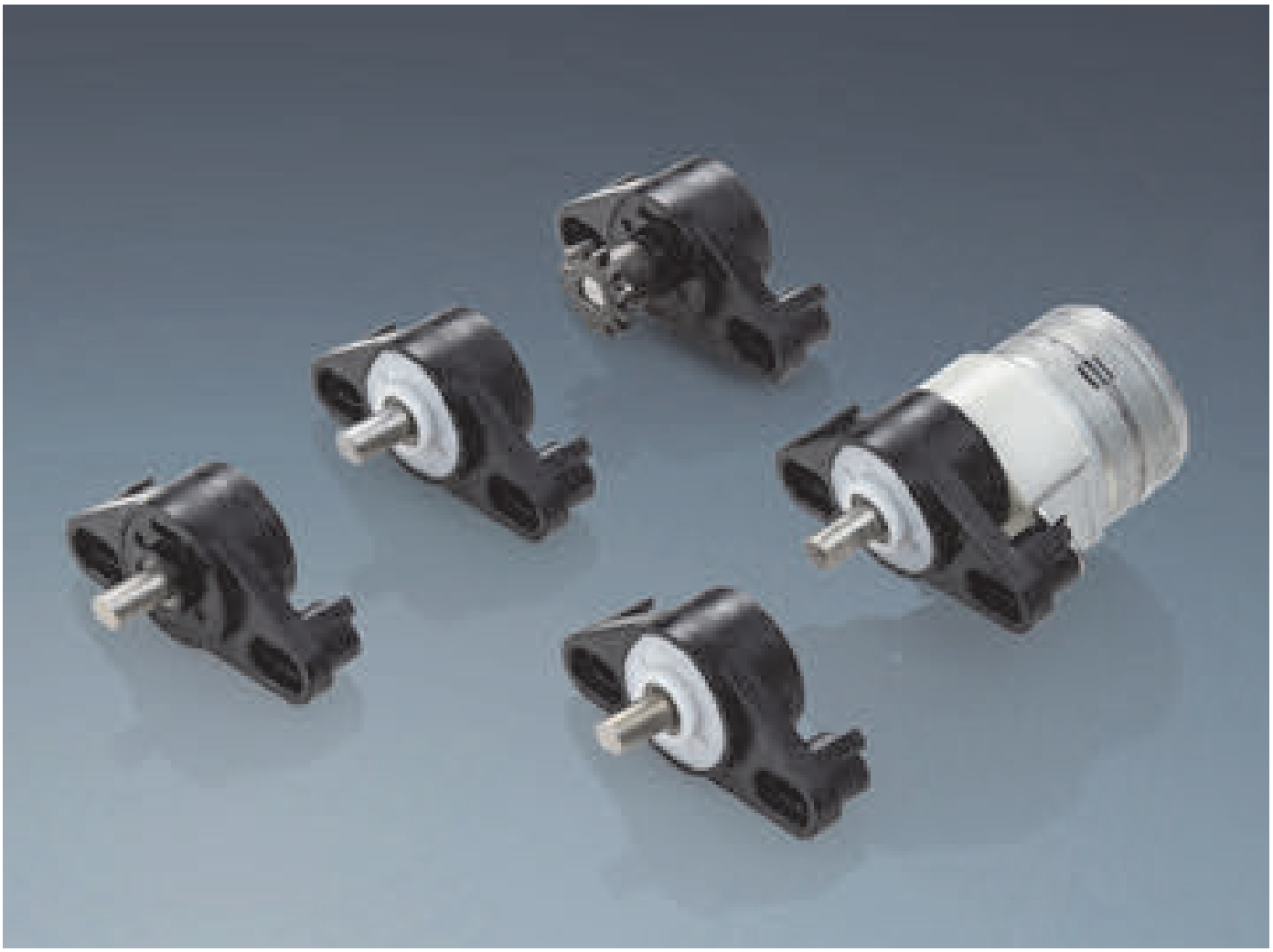
Our Technologies Realize Your Dreams

Small interactive clutch, OW type

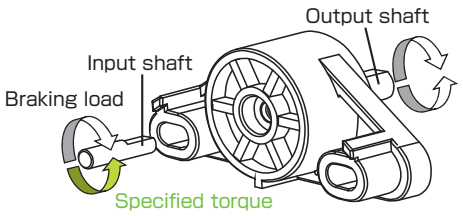
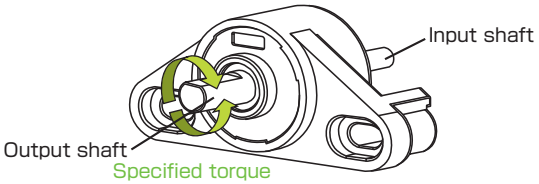
RoHS Compliant

Vertical hold type(OSCM-OW)

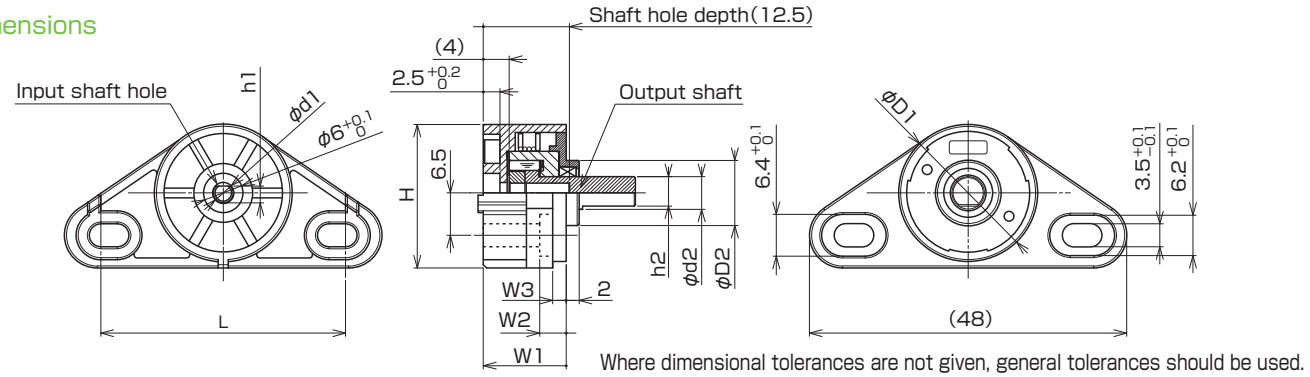
Small interactive clutches are a mechanical component that is able to transmit mechanical power at the same speed (1:1) without electrical power for controlling the transmission and blockage of the mechanical power like a motor, solenoid, or electromagnetic clutch.
The "vertical hold type" has an internal torque limiter function, and is constructed such the limiter function (slip) activates while moving up or down. This allows for smooth motion and position hold mechanism during upward and downward motion, particularly downward motion. Furthermore, breakage of the drive array is prevented by the limiter slipping when there is excess load on the output side.



01 Specifications for the Standard Models

Mechanical power transmission from the input shaft	Hold by output shaft
	

Dimensions



Where dimensional tolerances are not given, general tolerances should be used.

Unit=mm

Nominal Number	Dimension										
	Input shaft		Output shaft		Attachment hole pitch distance	Main body					
	Shaft diameter	D height	Shaft diameter	D height		Height	Width	Depth	Depth	Outside dia.	Outside dia.
	$\phi d1^{+0.08}_{0}$	$h1^{+0.10}_{0}$	$\phi d2^{0}_{-0.10}$	$h2^{0}_{-0.10}$	L	H	W1	W2	W3	φD1	$\phi D2^{0}_{-0.1}$
OSCM 3-5 L,R-10mN	3	2.5	5	4.5	32 to 37	22	12.5	4	2	21	10

Unit=mm

Specification								
Torque	Tolerable locking torque	Braking torque	Input shaft dia.	Output shaft dia.	Tolerated rotation speed	Ambient temperature range	Recommended shaft material	※Torque generating direction
10～50 mN·m	≦10 to 50 mN·m	<3 mN·m	$\phi3^{-0.01}_{-0.04}$	$\phi5^{+0.07}_{0}$	<250 rpm	0℃ to 60℃	SUM,SUS	R=Clockwise direction(Black) L=Clockwise direction(White) ( )Shield color
60～100 mN·m	≦60 to 100 mN·m				<150 rpm			
110～200 mN·m	≦110 to 200 mN·m				<50 rpm			

Note: The direction in which torque occurs is the direction of rotation of the input shaft as viewed from the D hole side of the input shaft.

02 Product description

1. Energy saving
· The eco-friendly clutch that allows for self-locking (non-excited hold) without using any electrical energy.

2. Space saving
· The safety mechanism (torque limiter) operates during overload allowing for direct coupling to a motor.

3. Torque setting
· The torque setting can be freely selected in steps of 10 mN·m in the range up to a maximum of 200 mN·m.

4. Torque direction
· Two types are available, an "R" type in which the torque occurs when the input shaft is rotated in the clockwise direction and an "L" type in which the torque occurs when the input shaft is rotated in the counterclockwise direction.

5. Assemble
· It can be assembled directly to designated stepping motors.

03 Recommended input shaft

When using the interactive clutch, use an input shaft with the following specifications.

Item	Input shaft specifications		
	Shaft diameter	D cut part	D cut part length
Shaft shape	$\phi 3\ ^{-0.01}_{-0.04}$	$\phi 2.5\ ^{-0.05}_{-0.10}$	3mm to 8mm

04 Reliability

Type	Torque control range on shipment
OSCM 3-5 10 to 50 mN·m	Within ±15% of nominal torque value
OSCM 3-5 60 to 200 mN·m	Within ±10% of nominal torque value

05 Operation Environment

Operation environment conditions	Operation environment
Temperature	0 to 60 ℃
Humidity	90%RH or less

Note) ·Please consult us if you use this product in the operation environment other than above.
·Since the operation environment described here is based on our experiences and testing data, it may not be applied to the products in same way under different circumstances. For this reason, we do not guarantee that the content of this catalogue will apply to your operation condition exactly in the same way. Please make final decision at one of your company premises before using this product.

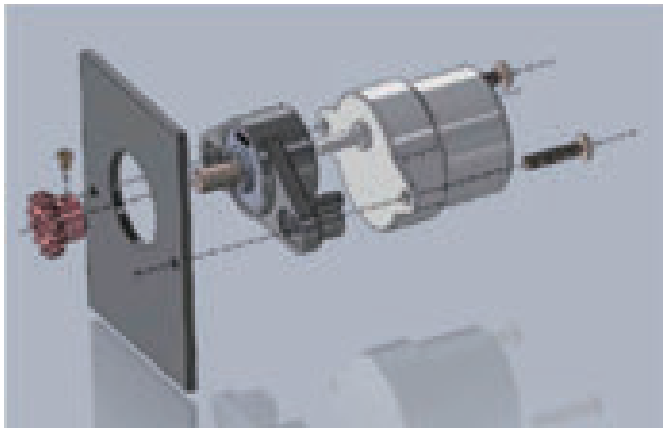
06 Mounting

Models	Mounting
Standard Model	Set the flange part of the housing and then insert the adaptable shaft. You may make a "D-cut" at the edge of the shaft for mounting, when putting a gear. When is operated, the shaft needs to be turned.

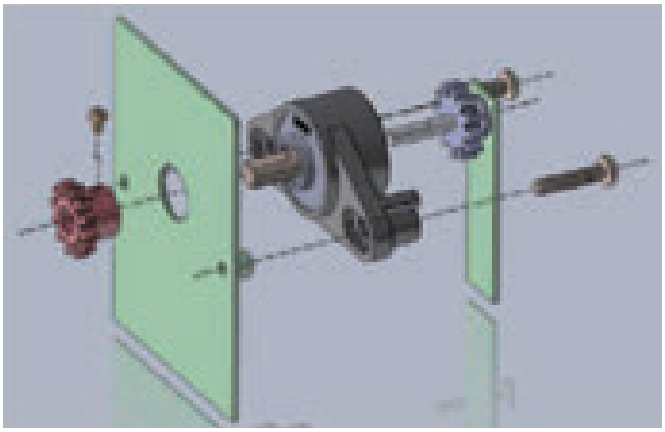
[Assembly examples]

The attachments in the following diagrams are also available. Please consult with us for details.

Attachment example 1 (direct motor shaft)

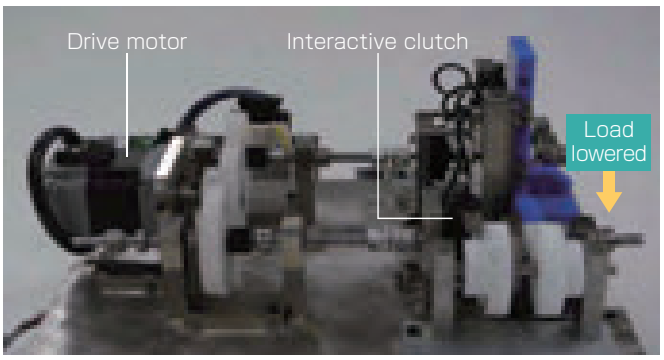


Attachment example 2 (drive shaft example)

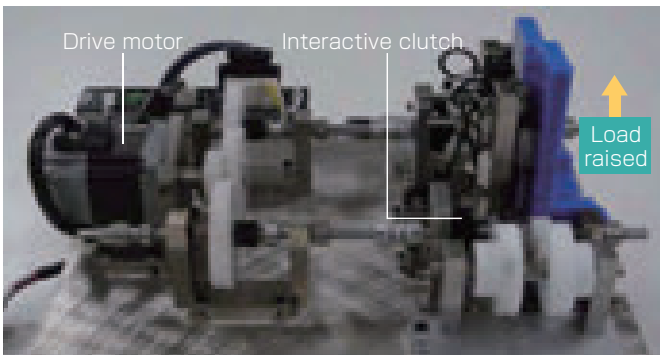


07 Reference data

Reliability testing



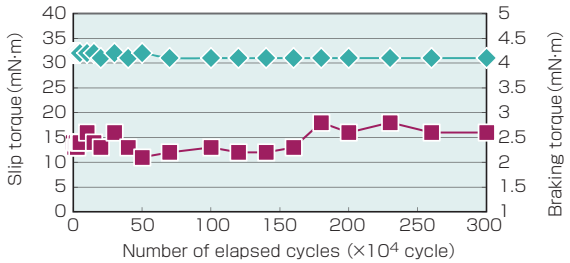
Evaluation tester (during lowering)



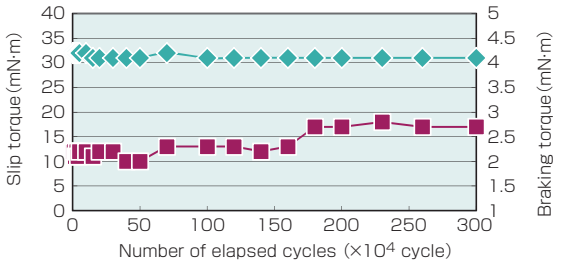
Evaluation tester (during raising)

Specimen No	①	②	③
Speed	250rpm	167rpm	50rpm
Load torque	30mN·m	80mN·m	200mN·m
Operating cycle	1 cycle: Raised 2.7 revolutions → Stopped 0.5sec → Lowered 2.7 revolutions → Stopped 0.5sec		

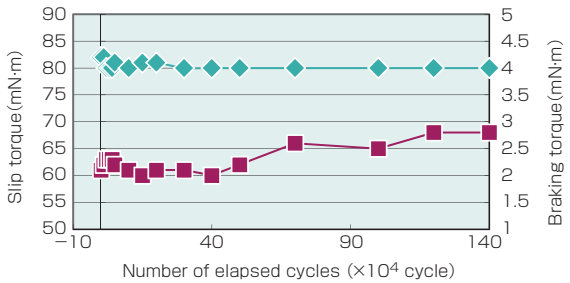
①Reliability data(250rpm 30mN·m Clockwise direction)



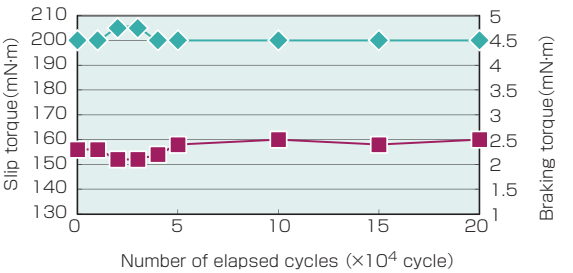
①Reliability data(250rpm 30mN·m Clockwise direction)



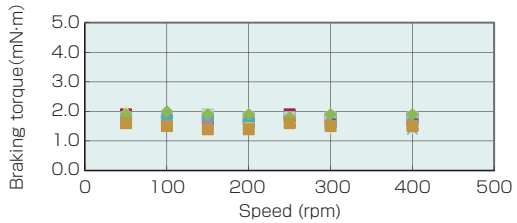
②Reliability data(167rpm 80mN·m Clockwise direction)



③Reliability data(50rpm 200mN·m Clockwise direction)

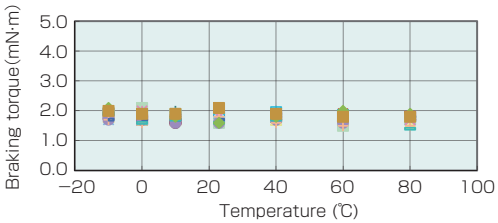


Braking torque vs speed
OSCM3-5 50rpm to 400rpm



Number of specimens 5

Braking torque vs temperature
OSCM3-5 −10℃ to 80℃



Number of specimens 5

08 Cautions when press fitting gears, etc. onto the output shaft

- When press fitting gears and pulleys onto the output shaft, press fit with the housing end face on the reverse side seated properly.
- Do not hammer gears and pulleys onto the output shaft such as by using a hammer. This may cause the shaft to deform, causing internal damage to the shaft and shortening the life.
- When connecting the output shaft using a coupling, try as much as possible to keep the shaft centers aligned. If the shafts are misaligned, it will reduce the life of the product.
- Attach gears, pulleys, etc. as close to the base of the shaft as possible.

09 Cautions

- The lock function may be degraded by radial loads and unbalanced loads. Please check before using.
- Please be noted that there is a risk of losing the lock function if another type of oil (grease or oil) gets inside.
- Please be noted that there is a risk of losing the lock function if the interactive clutch is subject to impacts or vibrations.

10 Before placing an order

- When you place an order of interactive clutch, please fill the form, “interactive clutch Spec Check List” attached separately.

Origin Co., Ltd.

http://www.origin.co.jp/eng

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Safety Warning — The data presented in this catalog are for general application purposes. Do not use this product in such a way that may be harmful to people or exceed its performance.

Safety Precaution — To avoid accidents and/or failures as well as to ensure safety , do not use this product exceeding the specifications noted in this catalog and ignoring the precautions.

*Specifications are subject to change without a notice for future development.

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