

# MOR Flexible Couplings - Oldham Type

High torque Electrical Insulation High Allowable Misalignment Small Eccentric Reaction Force

## Structure

### Set Screw Type

**MOR** → P.xxxx



### Clamping Type

**MOR-C** → P.xxxx



### Set Screws + Key Type

**MOR-K** → P.xxxx



### Clamping + Key Type

**MOR-CK** → P.xxxx



### Applicable Motor

	MOR
Servomotor	—
Stepping Motor	—
General-purpose Motor	○

○: Excellent ○: Very good

### Property

	MOR
High Torque	○
Allowable Misalignment	○
Small Eccentric Reaction Force	○
Electrical Insulation	○
Allowable Operating Temperature	−20°C to 80°C

○: Excellent ○: Very good

- This is an oldham type flexible coupling.
- Slippage of hubs and a spacer allows large eccentricity and angular misalignment to be accepted.
- The eccentric reaction generated by misalignment is small and the burden on the shaft is reduced.
- The simple structure allows the unit to be easily assembled.

### Application

Sputtering device / Parts feeder / Industrial sewing machine / Amusement device

### Material/Finish



	MOR / MOR-C / MOR-K / MOR-CK
Hub	A2017 Anodized*1
Spacer	Polyacetal
Hex Socket Set Screw	SCM435 Ferrosferric Oxide Film (Black)
Hex Socket Head Cap Screw	SCM435 Ferrosferric Oxide Film (Black)

\*1: Due to manufacturing process requirements, couplings may have bores and keyways with or without surface treatment. This does not affect the performance of the couplings.

### Part number specification

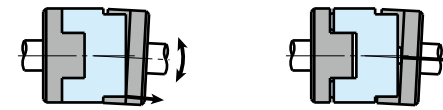
**MOR-20CK-6-10**

Product Code Size Bore Diameter

Please refer to dimensional table for part number specification.

### Spacer's projection structure

Spacer's projection structure allows large angular to be effortlessly accepted. It reduces burden on the shaft.



(Without projection)

(With projection)

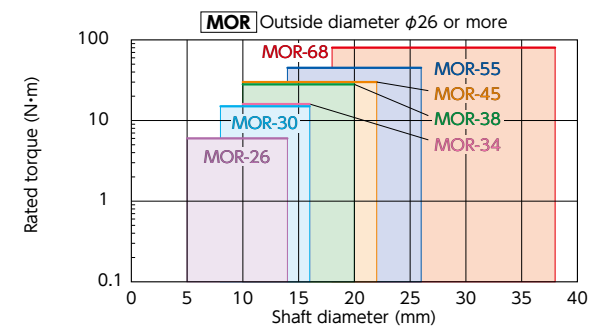
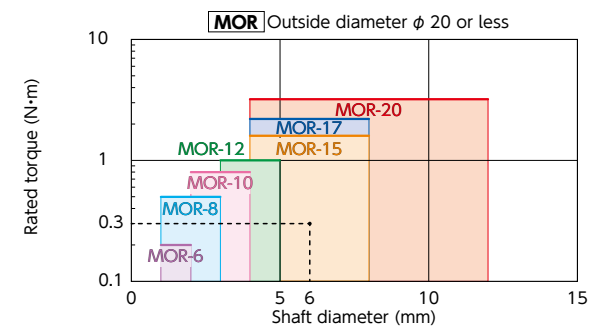
In the oldham-type coupling whose spacer has no projection, the spacer and hubs interfere with each other near outside diameter, so that the max. angular misalignment is small and that the bending moment arises on the shaft.

NBK's oldham type coupling allows the angular misalignment to be easily accepted since the projection serves as support. Bending moment does not arise. Therefore, the max. angular misalignment is large and the burden on the shaft is reduced.

## Selection

### Selection Based on Shaft Diameter and Rated Torque

The area bounded by the shaft diameter and rated torque indicates the selection size.



### Selection Example

In case of selected parameters of shaft diameter of  $\phi$  6 and load torque of 0.3 N·m, the selected size is

**MOR-15**.

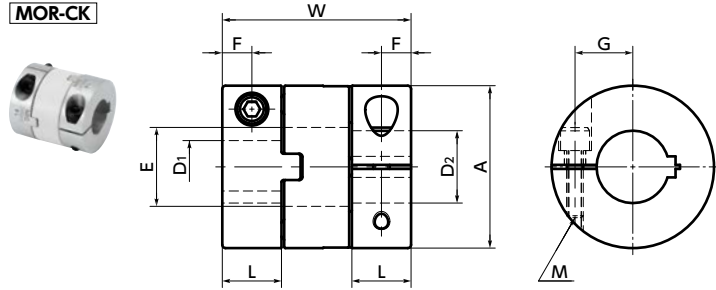


Additional Keyway at Shaft Hole → P.xxxx Available / Add'l charge  
Cleanroom Wash & Packaging → P.xxxx Please feel free to contact us  
Change to Stainless Steel Screw → P.xxxx Available / Add'l charge

# MOR-CK Flexible Coupling - Oldham - type - Clamping + Key type

High torque Electrical Insulation High Allowable Misalignment Small Eccentric Reaction Force

## MOR-CK




## Dimensions


Unit : mm

Part Number	A	L	W	E	F	G	M	Screw Tightening Torque (N·m)
MOR-15CK	15	7	21.2	8.2	3.5	5	M2.5	1
MOR-17CK	17	7.3	24.5	8.2	3.7	6	M2.5	1
MOR-20CK	20	8.8	27.6	12.2	4.4	7.5	M3	1.5
MOR-26CK	26	9.7	30.4	14.2	4.9	9.5	M3	1.5
MOR-30CK	30	10	32.6	16.2	5	11.1	M4	2.5
MOR-34CK	34	11.1	34	16.2	5.6	12.6	M4	2.5
MOR-38CK	38	12.1	40.1	20.3	6	14.2	M5	4
MOR-45CK	45	13.8	46	22.3	6.9	16	M5	4
MOR-55CK	55	18.7	57	26.5	9.4	20	M6	8
MOR-68CK	68	24	77	38.5	12	26	M8	16

Unit : mm

Part Number	Standard Metric Bore Diameter														
	D1 • D2 														
	6	8	10	12	14	15	16	18	20	22	25	28	30	35	
MOR-15CK	●														
MOR-17CK	●														
MOR-20CK	●	●	●												
MOR-26CK	●	●	●	●	●										
MOR-30CK		●	●	●	●										
MOR-34CK			●	●	●	●	●								
MOR-38CK			●	●	●	●	●	●	●						
MOR-45CK				●	●	●	●	●	●						
MOR-55CK						●	●	●	●	●	●				
MOR-68CK									●	●	●	●	●	●	

Unit : inch

Part Number	Standard Inch Bore Diameter			
	D1 • D2 			
	1 / 2	5 / 8	3 / 4	7 / 8
MOR-26CK	●			
MOR-30CK	●			
MOR-34CK	●	●		
MOR-38CK	●	●	●	
MOR-45CK	●	●	●	
MOR-55CK		●	●	●

- All products are provided with hex socket head cap screw.
- Recommended tolerance for shaft diameters is h6 and h7.
- A set of hubs with clamping + key type for one side and clamping type for the other side is available upon request.
- For the shaft insertion amount to the coupling, see Mounting/maintenance.

## ⚠ Precautions for Use

- In case of mounting on D-cut shaft, be careful about the position of the D-cut surface of the shaft. ➡ P.xxxx
- There are sizes where the hex socket head bolt exceeds the outer diameter of the coupling and the rotating diameter is larger than the outer diameter. Please be careful of the interference of coupling. ➡ P.xxxx

- Part number specification

**MOR-38CK - 14-15**

1 Set

1 2

**MOR-38 - SPCR**

Single Spacer

Product Code Outside Diameter (A Dimension) Single Spacer

Additional Keyway at Shaft Hole ➡ P.xxxx Cleanroom Wash & Packaging ➡ P.xxxx Change to Stainless Steel Screw ➡ P.xxxx

Please feel free to contact us

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Available / Add'l charge

# MOR-CK Flexible Coupling - Oldham - type - Clamping + Key type



High torque



Electrical Insulation



High Allowable Misalignment



Small Eccentric Reaction Force

## Performance

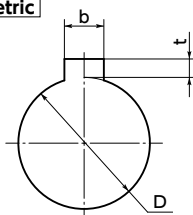
Part Number	Max. Bore Diameter (mm)	Rated Torque *1 (N·m)	Maximum Torque *1 (N·m)	Max. Rotational Frequency (min <sup>-1</sup> )	Moment *2 of Inertia (kg·m <sup>2</sup> )	Static Torsional Stiffness (N·m/rad)	Max. Lateral Misalignment (mm)	Max. Angular Misalignment (°)	Mass *2 (g)
MOR-15CK	6	1.6	3.2	42000	$1.8 \times 10^{-7}$	80	1	3	5
MOR-17CK	6.35	2.2	4.4	37000	$3.8 \times 10^{-7}$	120	1.2	3	9
MOR-20CK	10	3.2	6.4	31000	$8.0 \times 10^{-7}$	120	1.2	3	13
MOR-26CK	14	6	12	24000	$2.5 \times 10^{-6}$	300	1.5	3	23
MOR-30CK	14	15	30	21000	$5.2 \times 10^{-6}$	530	2	3	38
MOR-34CK	16	16	32	18000	$8.6 \times 10^{-6}$	1000	2.5	3	49
MOR-38CK	20	28	56	16000	$1.5 \times 10^{-5}$	1500	2.5	3	64
MOR-45CK	20	30	60	14000	$3.2 \times 10^{-5}$	2400	3	3	110
MOR-55CK	25	45	90	11000	$1.0 \times 10^{-4}$	4100	4	3	230
MOR-68CK	35	80	160	9000	$3.3 \times 10^{-4}$	6400	4.5	3	440

\*1: Values with no load fluctuation and rotation in a single direction. If there is large load fluctuation, or both normal and reverse rotation, select a size with some margin. If ambient temperature exceeds 30°C, be sure to correct the rated torque and max. torque with temperature correction factor shown in the following table. The allowable operating temperature of **MOR-CK** is -20°C to 80°C.

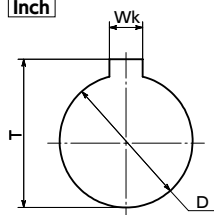
\*2: These are values with max. bore diameter.

### Details of Shaft Hole

#### Metric



#### Inch



#### Metric Shaft Hole

Unit: mm

Standard Bore Diameter D	Keyway				Key
	b		t		
	Standard Dimension	Allowance (JS9)	Standard Dimension	Allowance	Nominal Dimension b x h
6	2	±0.0125	1.0	$^{+0.1}_0$	2 × 2
8	3	±0.0125	1.4	$^{+0.1}_0$	3 × 3
10 · 12	4	±0.0150	1.8	$^{+0.1}_0$	4 × 4
14 · 15 · 16	5	±0.0150	2.3	$^{+0.1}_0$	5 × 5
18 · 20 · 22	6	±0.0150	2.8	$^{+0.1}_0$	6 × 6
25 · 28 · 30	8	±0.0180	3.3	$^{+0.2}_0$	8 × 7
35	10	±0.0180	3.3	$^{+0.2}_0$	10 × 8

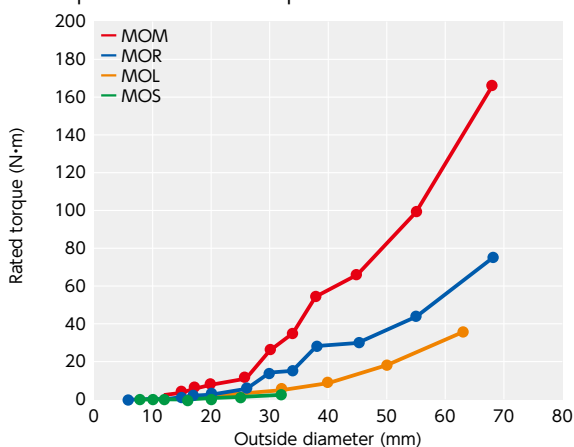
• Excerpt from JIS B 1301

#### Inch Shaft Hole

Unit: inch

Standard Inch Bore Diameter D	Keyway			
	Wk		T	
	Standard Dimension	Allowance	Standard Dimension	Allowance
1 / 2	1 / 8	$^{+0.002}_0$	0.560	$^{+0.01}_0$
5 / 8	3 / 16	$^{+0.002}_0$	0.709	$^{+0.01}_0$
3 / 4	3 / 16	$^{+0.002}_0$	0.837	$^{+0.01}_0$
7 / 8	3 / 16	$^{+0.002}_0$	0.964	$^{+0.01}_0$

### Comparison of rated torque



### Ambient Temperature / Temperature Correction Factor

Ambient Temperature	Temperature Correction Factor
-20°C to 30°C	1.00
30°C to 40°C	0.80
40°C to 60°C	0.70
60°C to 80°C	0.55

# MOR Flexible Couplings - Oldham Type

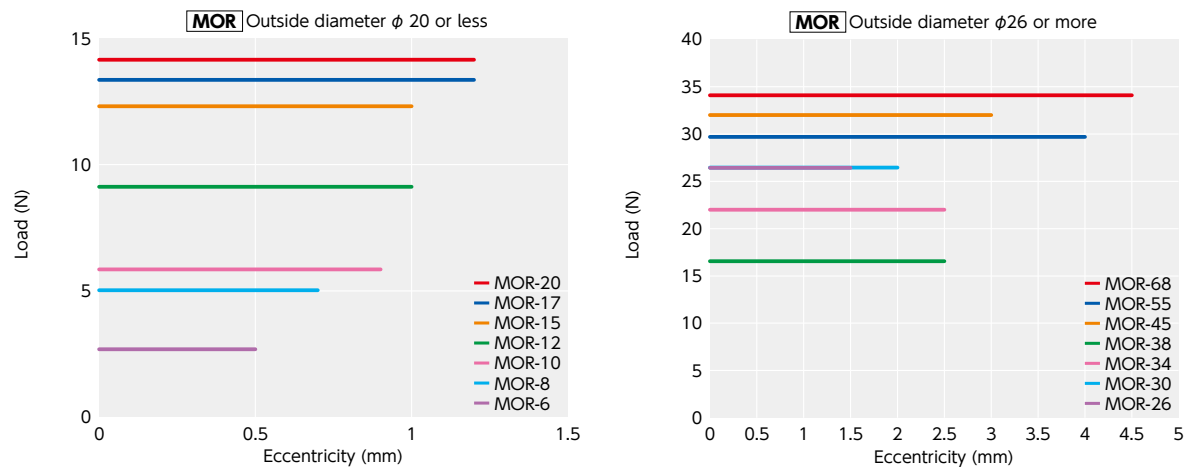
High torque × Electrical Insulation × High Allowable Misalignment × Small Eccentric Reaction Force

## Technical Information

### • Eccentric Reaction Force

These are initial slippage load values of hubs and a spacer.

After running-in operation, the slippage load becomes small, the load on the shaft due to misalignment becomes lowered, and the burden on the shaft bearing is reduced.

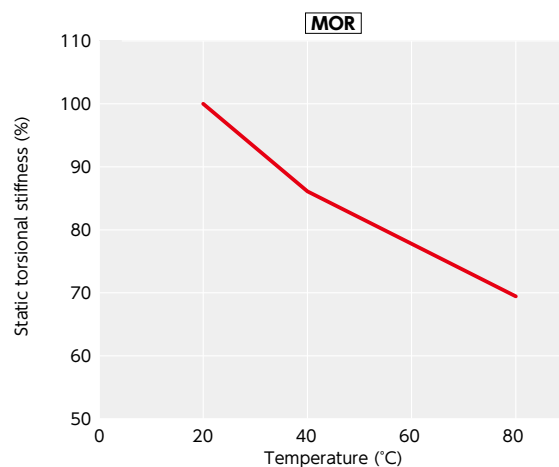


### • Change in static torsional stiffness due to temperature

This is a value under the condition where the static torsional stiffness at 20°C is 100%.

Changes in the static torsion spring constant within the operating temperature are shown in the graph.

Before using the unit, be aware of the deterioration of responsiveness.



### • Spacer's physical property (Polyacetal)

	Test Method	unit	Polyacetal
Density	ISO 1183	g/cm <sup>3</sup>	1.36
Water Absorption (23°C, Dipped for 24 hr)	ISO 62	%	0.7
Tensile Strength	ISO 527 - 1, 2	N/mm <sup>2</sup>	52
Bending Strength	ISO 178	N/mm <sup>2</sup>	72
Charpy Impact Strength (with Notch)	ISO 179 / 1eA	kJ/m <sup>2</sup>	5.9
Deflection Temperature Under Load (1.8MPa)	ISO 75 - 1, 2	°C	85
Insulation Breakdown Strength (3mmt)	IEC 60243 - 1	kV/mm	20
Volume Resistivity	IEC 60093	Ω·cm	1 x 10 <sup>14</sup>
Combustibility	UL94	-	HB

### • Spacer's chemical resistance (Polyacetal)

	Effect
Weather Resistance	Slight Change in Color
Weak Acid Resistance	Minor Effect
Strong Acid Resistance	Effect
Weak Alkali Resistance	Minor Effect
Strong Alkali Resistance	Minor Effect
Organic Solvent Resistance	Includes Resistance

### • Slip Torque

For set screw type **MOR**, see Aluminum Alloy Coupling under "Slip Torque of Coupling - Set Screw Type" for details.

As in the table below, the clamping type **MOR-C** has different slip torque according to the bore diameter.

Take care during selection.

Part Number	Bore Diameter																		
	3	4	5	6	6.35	8	9.525	10	12	14	15	16	18	20	22	25	28	30	35
<b>MOR-12C</b>	0.8	1.9	2.4																
<b>MOR-15C</b>		2.3	3.5	4.8															
<b>MOR-17C</b>			2.7	3.6	4														
<b>MOR-20C</b>			3.7	4.2	4.3	5.7	6.1												
<b>MOR-26C</b>				4	6.4	9.3	11												
<b>MOR-30C</b>						7.5	13	13	17	20									
<b>MOR-34C</b>								16	18	23	30								
<b>MOR-38C</b>								19	20	24	30	34	37	38					
<b>MOR-45C</b>									34	41	42	44	48						
<b>MOR-55C</b>												73	75	88					
<b>MOR-68C</b>															100	100	100	100	110

• These are test values based on the conditions of shaft dimensional allowance: h7, hardness: 34 - 40 HRC, and screw tightening torque of the values described in **MOR-C** dimension tables. They are not guaranteed values.

• Slip torque changes with usage conditions. Carry out tests under conditions similar to actual conditions in advance.