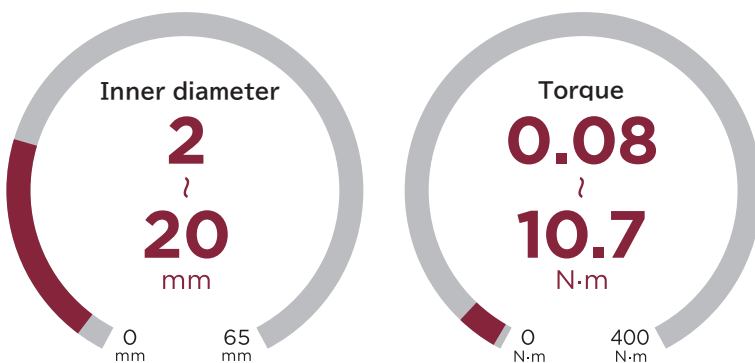


# Universal Joint

## MC/MD/MZ series

MC / MCM / MD / MZ  
MC-D / MCM-D / MZD  
MCT-V / MZT



resin/single  
**MC**



Cross-pinning

resin/single  
**MCM**



Set-screw

large  
resin/single  
**MD**



Set-screw

large  
resin/single  
**MZ**



Key / Set -screw

resin/double  
**MC-D**



Cross-pinning

resin/double  
**MCM-D**



Set-screw

metallic/double  
**MZD**



Key / Set -screw

resin/telescopic  
**MCT-V**



Set-screw

metallic/telescopic  
**MZT**



Key / Set -screw

## Features

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### Principle

This flexible shaft coupling utilises a cruciform intermediate body to transmit power even when the angular misalignment between the two shafts is particularly large.

### Misalignment

single : Allow angular

double: Allow lateral and angular

telescopic : Allow lateral and angular, endplay

### Hub-Shaft Connection

#### Cross-pinning

Fastening by drilling a bore slightly smaller than the outer diameter of the pin and press-fitting the cross-pinning into the bore

#### Set screw

Fixes a shaft by digging sets crews into the shaft directly

### Fail-safe

resin : Breaking during excessive torque  
          shuts off the torque between the  
          driven and driven

### Topology

There is a phase difference between the driven and driven phases. Even in the case of a double, there is in principle no phase difference if the intermediate shaft has a symmetrical shape and the angles with the driven and driven shafts on their quantity side are not exactly equal. However, because of the spring constant in the direction of rotation. The phase difference depends on the rotation speed and the torque to be transmitted.

### Backlash

Zero backlash

MCT-V: about 2 degrees at the telescopic section

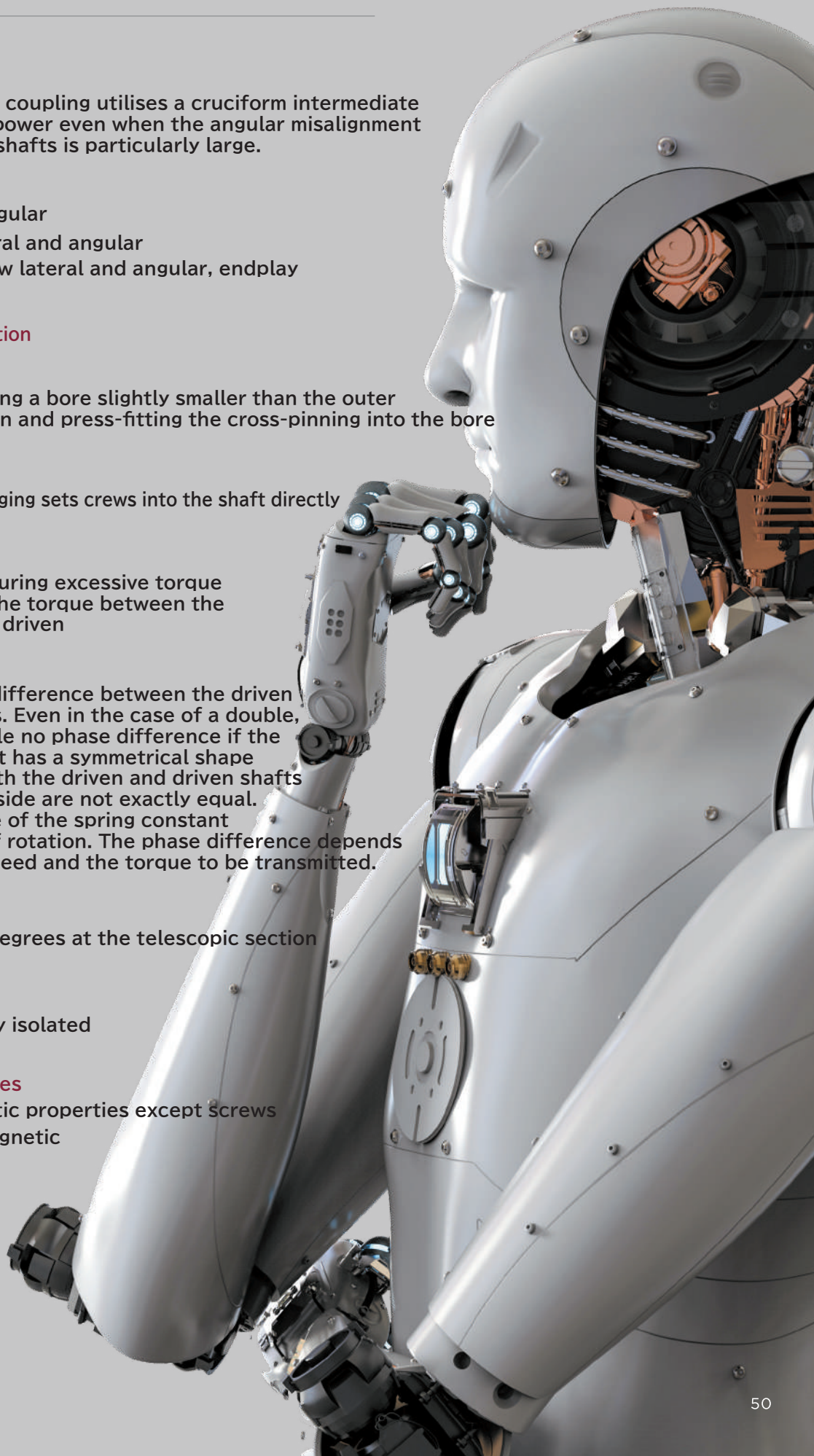
### Electric isolation

resin : Electrically isolated

### Magnetic properties

resin : No magnetic properties except screws

metallic : Can be magnetic



Universal Joint  
Single

# MC/MCM/MD/ MZ

Inner diameter G6  
**2 ~ 20** mm

Torque  
**0.11 ~ 10.7** N·m

Resin  
**MC**



Bonding / Cross-pinning

Resin  
**MCM**



Set-screw

Large resin  
**MD**



Set-screw

Metal  
**MZ**



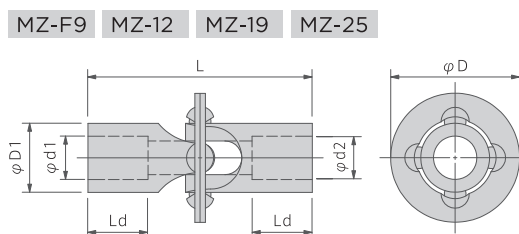
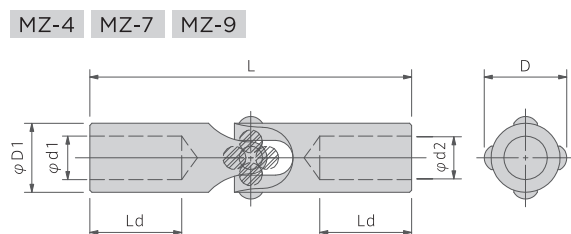
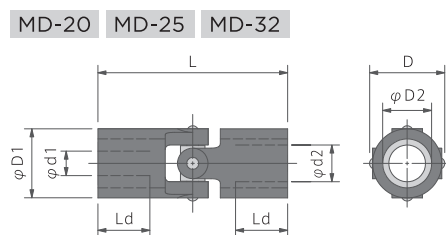
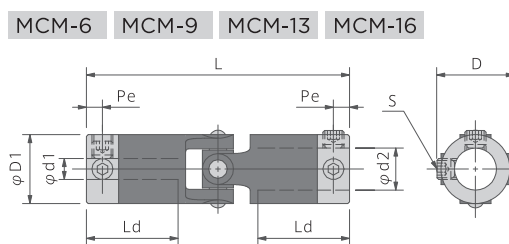
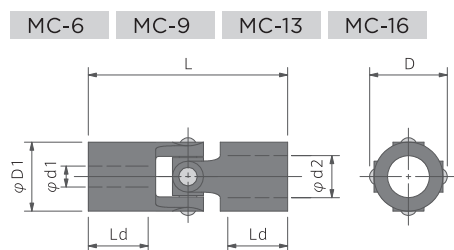
Key / Set -screw

## Specifications

Type	Size	Torque [N·m]	Angular [°]	Mass [g]
MC	6	0.11	45	0.7
MCM		0.11	45	3.0
MC	9	0.36	45	2.7
MCM		0.36	45	9.0
MC	13	0.85	45	5.7
MCM		0.85	45	19.0
MC	16	1.60	45	12.2
MCM		1.60	45	34.0
MD	20	2.80	40	25.7
	25	5.60	40	56.0
	32	10.7	40	103

Type	Size	Torque [N·m]	Angular [°]	Mass [g]
MZ	4	0.11	30	2.2
	7	0.45	30	6.0
	9	1.80	30	15.0
	F9	1.80	20	15.0
	12	2.30	20	27.0
	19	3.40	20	90.0
	25	8.50	20	199

## Drawings



## Dimensions

Type	Size	Shaft bore diameter d1, d2 [mm]	Overall length L [mm]	Outer diameter D [mm]	Hub outer diameter D1 [mm]	Insert outer diameter D2 [mm]	Mounting length Ld [mm]	Distance Pe [mm]	Set screw S [mm]	Tightening torque [N·m]
MC	6	3, 4	19.1	7.1	6.3	—	5.3	—	—	—
MCM		2, 3	27.2	7.1	6.3	—	9.3	2.0	M3	0.72
MC	9	3~6	28.5	11.1	9.5	—	8.6	—	—	—
MCM		3~5	37.6	11.1	9.5	—	13.1	2.3	M3	0.72
MC	13	4~8	35.6	14.3	12.7	—	10.4	—	—	—
MCM		4~6	46.2	14.3	12.7	—	15.7	2.7	M3	0.72
MC	16	6~10	53.3	17.5	15.9	—	15.2	—	—	—
MCM		6~10	67.6	17.5	15.9	—	22.3	3.6	M4	2.0
MD	20	8~12	62.0	23.0	20.0	16.0	17.0	—	—	—
	25	8~14	74.0	28.5	25.0	20.0	20.0	—	—	—
	32	10~20	86.0	36.5	32.0	25.0	21.0	—	—	—
MZ	4	2.5~3	25.4	5.6	4.8	—	8.7	—	—	—
	7	4~5	34.9	8.6	7.2	—	11.1	—	—	—
	9	5~6	44.5	11.4	9.5	—	12.7	—	—	—
	F9	5~6	38.1	19.1	9.5	—	9.5	—	—	—
	12	7~8	41.4	23.8	12.7	—	11.1	—	—	—
	19	10	50.8	35.1	19.1	—	15.9	—	—	—
	25	12~14	66.6	47.8	25.4	—	22.2	—	—	—

## Materials

Type	Hub	Intermediate	Insert
MC	Acetal	Free-cutting brass	—
MCM			Free-cutting brass
MD			Al alloy
MZ	Stainless steel	Stainless steel	—

# Universal Joint Double

# MC-D / MCM-D / MZD

Inner diameter G6

**2 ~ 14** mm

Torque

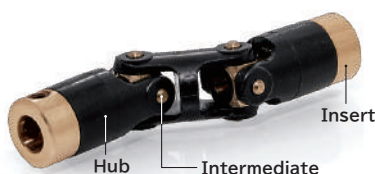
**0.08 ~ 8.50** N·m

Resin  
**MC-D**



Bonding / Cross-pinning

Resin  
**MCM-D**



Set-screw

Metal  
**MZD**



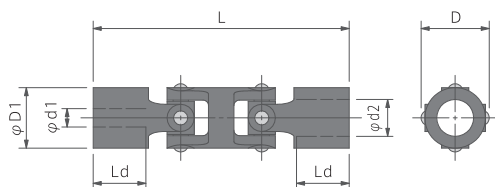
Key / Set-screw

## Specifications

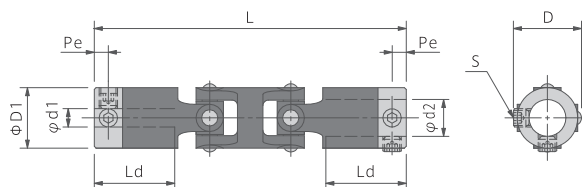
Type	Size	Torque [N·m]	Lateral [mm]	Angular [°]	Mass [g]
MC-D	6	0.08	5.6	90	1.1
MCM-D	6	0.08	5.6	90	4.0
MC-D	9	0.16	9.1	90	4.5
MCM-D	9	0.16	9.1	90	11.0
MC-D	13	0.59	10.9	90	9.6
MCM-D	13	0.59	10.9	90	22.0
MC-D	16	1.30	15.5	90	19.7
MCM-D	16	1.30	15.5	90	43.0
MZD	4	0.11	6.0	60	3.5
	7	0.45	7.7	60	10.0
	9	1.80	9.1	60	22.0
	F9	1.80	5.3	40	22.0
	12	2.30	6.5	40	35.0
	19	3.40	7.4	40	116
	25	8.50	10.6	40	255

## Drawings

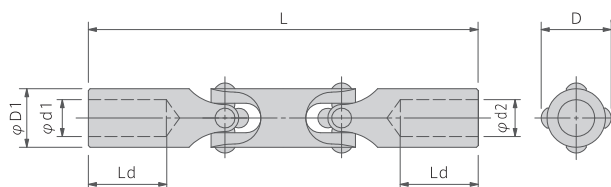
MC-6-D MC-9-D MC-13-D MC-16-D



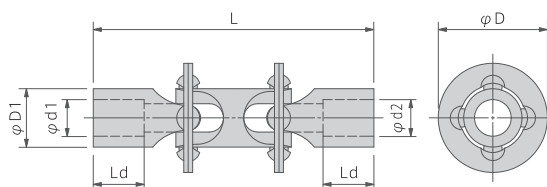
MCM-6-D MCM-9-D MCM-13-D MCM-16-D



MZD-4 MZD-7 MZD-9



MZD-F9 MZD-12 MZD-19 MZD-25



## Dimensions

Type	Size	Shaft bore diameter d1, d2 [mm]	Overall length L [mm]	Outer diameter D [mm]	Hub outer diameter D1 [mm]	Mouting length Ld [mm]	Distance Pe [mm]	Set screw S [mm]	Tightning torque [N·m]
MC-D	6	3, 4	27.2	7.1	6.3	5.3	—	—	—
MCM-D	6	2, 3	35.3	7.1	6.3	9.3	2.0	M3	0.72
MC-D	9	3~6	41.7	11.1	9.5	8.6	—	—	—
MCM-D	9	3~5	50.8	11.1	9.5	13.1	2.3	M3	0.72
MC-D	13	4~8	51.4	14.3	12.7	10.4	—	—	—
MCM-D	13	4~6	62.1	14.3	12.7	15.7	2.7	M3	0.72
MC-D	16	6~10	75.5	17.5	15.9	15.2	—	—	—
MCM-D	16	6~10	89.8	17.5	15.9	22.3	3.6	M4	2.0
MZD	4	2.5~3	38.1	5.6	4.8	8.7	—	—	—
	7	4~5	50.9	8.6	7.2	11.1	—	—	—
	9	5~6	63.5	11.4	9.5	12.7	—	—	—
	F9	5~6	54.1	19.1	9.5	9.5	—	—	—
	12	7~8	61.2	23.8	12.7	11.1	—	—	—
	19	10	73.2	35.1	19.1	15.9	—	—	—
	25	12~14	98.6	47.8	25.4	22.2	—	—	—

## Materials

Type	Hub	Intermediate	Insert
MC-D	Acetal	Free-cutting brass	—
MCM-D			Free-cutting brass
MZD	Stainless steel	Stainless steel	—

# Universal Joint Double MCT-V / MZT

Inner diameter G6  
**2.5 ~ 14** mm

Torque  
**0.11 ~ 8.50** N·m



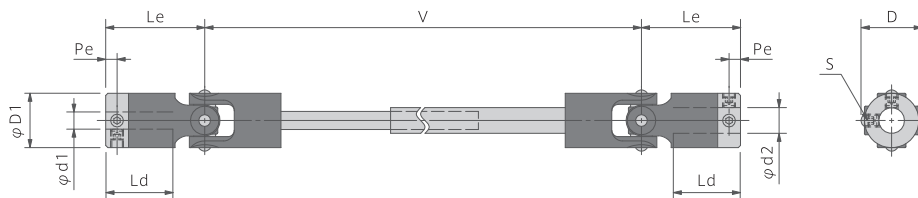
## Specifications

Type	Size	Torque [N·m]	Angular [°]	Expansion amount [mm]
MCT-V	9	0.36	90	15~265
	13	0.85	90	19~304
	16	1.60	90	27~482
MZT	4	0.11	60	6
	7	0.45	60	6
	9	1.80	60	6
	F9	1.80	40	6
	12	2.30	40	6
	19	3.40	40	6
	25	8.50	40	6

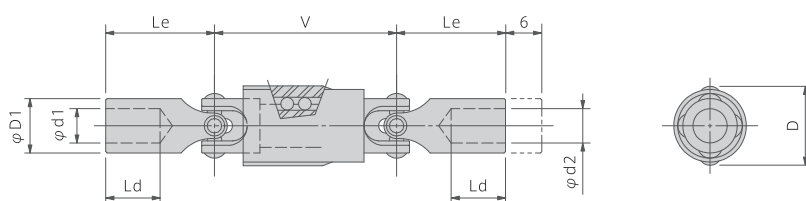


## Drawings

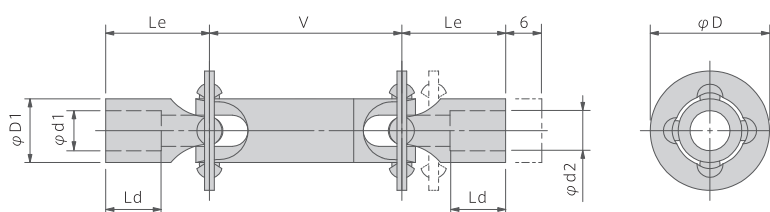
MCT-V-9 MCT-V-13 MCT-V-16



MZT-4 MZT-7 MZT-9



MZT-F9 MZT-12 MZT-19 MZT-25



## Dimensions

Type	Size	Shaft bore diameter d1,d2 [mm]	Overall length D [mm]	Outer diameter D1 [mm]	Min intermediate V min [mm]	Max intermediate V max [mm]	Intermediate position Le [mm]	Mounting length Ld [mm]	Distance Pe [mm]	Set screw S [mm]	Tightning torque [N·m]
MCT-V	9	3~5	11.1	9.5	50~300	2Vmin-35	18.8	13.1	2.3	M3	0.72
	13	4~6	14.3	12.7	65~350	2Vmin-46	23.1	15.7	2.7	M3	0.72
	16	6~10	17.5	15.9	95~550	2Vmin-68	33.8	22.3	3.6	M4	2.0
MZT	4	2.5~3	7.7	4.8	19.1	25.1	9.5	5.5	—	—	—
	7	4~5	10.3	7.2	24.0	30.0	14.2	11.1	—	—	—
	9	5~6	13.8	9.5	31.8	37.8	19.1	9.5	—	—	—
	F9	5~6	19.1	9.5	31.8	37.8	19.1	9.5	—	—	—
	12	7~8	23.8	12.7	38.4	44.4	20.7	11.1	—	—	—
	19	10	35.1	19.1	57.2	63.2	25.4	15.9	—	—	—
	25	12~14	47.8	25.4	63.4	69.4	33.3	22.2	—	—	—

## Materials

Type	Hub	Intermediate	Insert	Hollow shaft
MCT-V	Acetal	Free-cutting brass	Free-cutting brass	Free-cutting brass
MZT	Stainless steel	Stainless steel	—	Stainless steel