

Special Specifications/Option

Mounting Brackets·Couplings

- HMI
- SENSOR
- ENCODER
- COUNTER
- INFORMATION

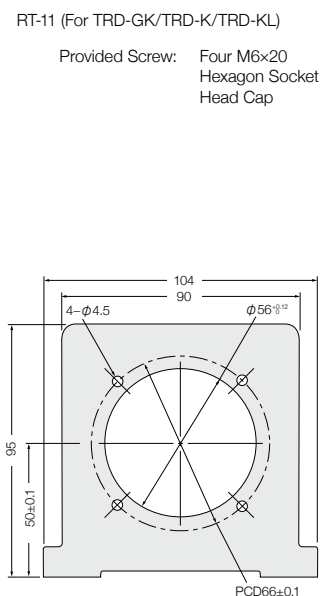
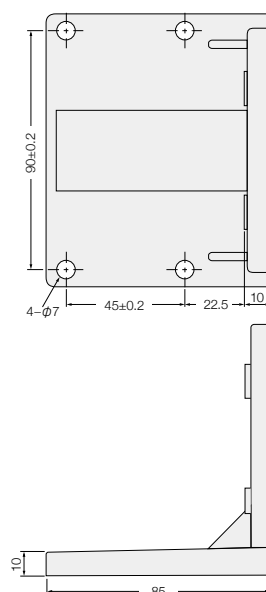
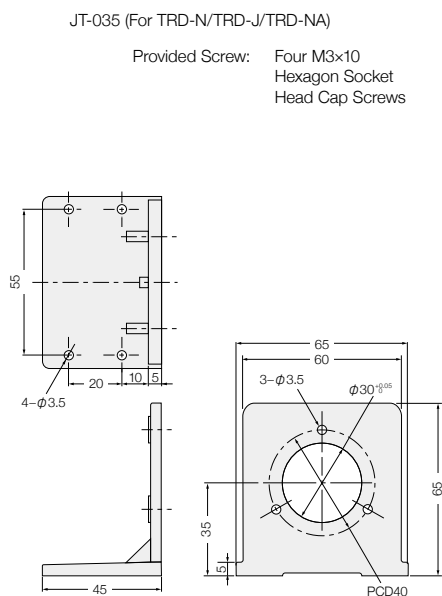
Special Specifications Products

Other than standard products, the following special specifications types can be manufactured. For details, consult with us.

Special Specification Contents	Applicable Models					
	TRD-S/SH	TRD-N/NH	TRD-J	TRD-GK	TRD-NA	TRD-K
Changed Cable Length	●	●	●	●	●	●
Treated Terminal of Cable (With Connector)	●	●	●	●	●	●
Pulse Product Except Standard Products	●	●	●	●		
Extended Length of Shaft	●	●	●	●	●	●
Changed Thickness of Shaft	●	●	●	●	●	●
Counterclockwise rotation output (Counting increases in CCW)						●

Option (Unit: mm)

Mounting Brackets



Couplings

1. Material and features of coupling

- Three kinds of coupling made of resin, metal, and flat spring are available. They can be selected according to conditions of use. Select the most suitable type for your conditions of use.
- Basically, it is recommended to use couplings made of metal and flat spring for "high resolution" and couplings made of resin for "low resolution." (When the resolution exceeds 3,600 P/R, it is considered high resolution.)
- For safety's sake, use metal couplings for applications that involve intense acceleration and deceleration, normal and reverse rotation, intermittence, or when using encoders that have high starting torque even for relatively "low resolution." Use flat spring couplings for applications that generate ultralow rotating speeds or when using encoders that have high starting torque.

Material	Advantage	Disadvantage
Resin	<ul style="list-style-type: none"> - Low price - The alignment of shafts when mounting can be rough. - Lightweight. The moment of inertia is small and the load on the drive system is small. - Electrical insulation is possible. 	<ul style="list-style-type: none"> - The couplings can be mounted even if the misalignment between axes is large. Therefore, if they are used in this state for a long time, resin-made couples have lower strength than metal couples and may be damaged by fatigue phenomena. - There is little margin of strength in screw parts. Therefore, if forces that surpass the specified value are applied, screw parts may be damaged, causing the shaft slip.
Metal Flat spring	<ul style="list-style-type: none"> - Torsional rigidity is high. Suitable for high resolution. - Allowable transmission torque is large. 	<ul style="list-style-type: none"> - High price - The weight is heavy, which may place a large load on the drive system. - Since the allowable misalignment for mounting couplings to each other is small, accurate positioning is required when mounting the couplings.

2. Misalignment allowance of coupling (Eccentricity error, deflection angle error, and axial displacement error)

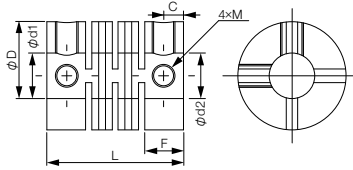
- Since the allowable eccentricity error, allowable deflection angle error, and allowable axial direction displacement of couplings are correlated, namely if one of them increases, the others decrease, they should be considered all together.
- If the misalignment is serious, excessive load is added to the shaft, which may be damaged or result in an extremely shorter life. Since the service-life is longer with little misalignment, make the misalignment as little as possible.

3.Procedure for mounting couplings

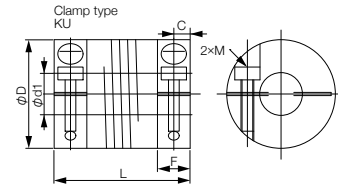
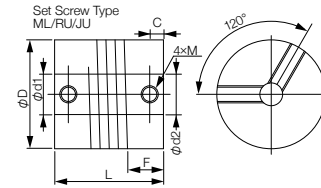
- 1) Wipe off dirt and oil cleanly from the surface of the mounting axle and coupling mounting plane using a waste cloth.
- 2) Center the mounting axle and put the coupling over the axle.
 - Make sure that the coupling smoothly moves when it is set over both axles.
 - Do not use screws to anchor the coupling to the axles.
- 3) Anchor the encoder. Do not push the axle into the coupling more than the proper distance.
- 4) Anchor the coupling. Anchor the axles by tightening screws to the proper torque value.

4.Coupling dimensions (Unit: mm)

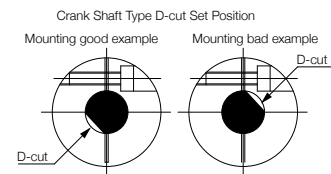
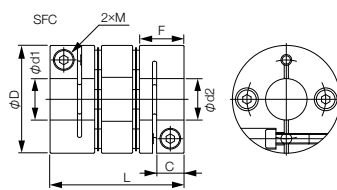
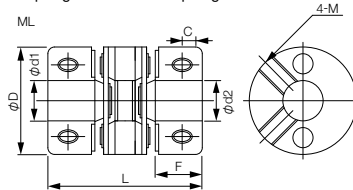
Plastic coupling



Metal coupling



Coupling made of flat spring



Type	K/E Model Number	Conforming Rotary Encoder	Material	d1	d2	D [φ mm]	L [mm]	F [mm]	C [mm]	Shaft Insertion Depth [mm]	Screw	
											Size	Tightening Torque [N·m]
Plastic Coupling	GJ-4	TRD-MX	Glass-fiber reinforced PBT resin	4	4	13	21	5.3	3	5.0 or more 5.3 or less	M3	0.2
	GJ-6	TRD-S/2E	Glass-fiber reinforced PBT resin	6	6	15	22	5.2	3	5.0 or more 5.2 or less	M3	0.25
	GJ-8	TRD-N/J/NA	Glass-fiber reinforced PBT resin	8	8	19	24	6.8	3.5	6.6 or more 6.8 or less	M4	0.4
	GJ-10	TRD-GK/K	Glass-fiber reinforced PBT resin	10	10	22	26	7.1	4	6.9 or more 7.1 or less	M4	0.5
Metal Coupling	MU-075	TRD-MX	Aluminum alloy (Equivalent to 7075)	4	4	19.1	19.1	4.6	2.4	6 or more 8 or less	M3	0.7
	RU-075	TRD-S/2E	Aluminum alloy (Equivalent to 7075)	6	6	19.1	19.1	4.6	2.4	6 or more 8 or less	M3	0.7
	JU-100	TRD-N/J/NA	Aluminum alloy (Equivalent to 7075)	8	8	25.4	25.4	6.6	3.8	7 or more 10 or less	M5	3.6
	RU-100	TRD-GK/K	Aluminum alloy (Equivalent to 7075)	10	10	25.4	25.4	6.6	3.8	7 or more 10 or less	M5	3.6
	KU-100	TRD-GK/K	Aluminum alloy (Equivalent to 7075)	10	10	25	32	7.9	3.8	7 or more 14 or less	M3	1.5
Coupling Made of Flat Spring	ML16P-4-4	TRD-MX	Aluminum die-cast hub + Polyimide plate	4	4	16	23	7	3	6.8 or more 7 or less	M3	0.7
	ML16P-6-6	TRD-S/2E	Aluminum die-cast hub + Polyimide plate	6	6	16	23	7	3	6.8 or more 7 or less	M3	0.7
	ML20P-8-8	TRD-N/J/NA	Aluminum die-cast hub + Polyimide plate	8	8	20	25	7.5	3.7	7.3 or more 7.5 or less	M3	0.7
	ML25P-10-10	TRD-GK/K	Aluminum die-cast hub + Polyimide plate	10	10	25	30	9	4	8.8 or more 9 or less	M4	1.7
	SFC-10-10	TRD-GK/K	Aluminum alloy + Stainless steel plate	10	10	26	32.3	10.7	3.3	7 or more 10 or less	M2.5	1.1

Option

Couplings



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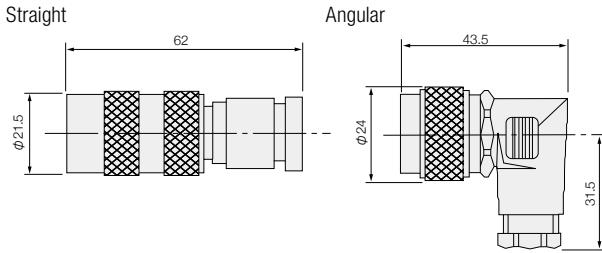
5. Specifications of couplings

Type	K/E Model Number	Static Torsion Spring Constant [N·m/rad]	Normal Torque [N·m]	Maximum Number of Revolutions [rpm]	Moment of Inertia [kg·m ²]	Allowable Eccentricity [mm]	Allowable Deflection Angle [°]	Allowable End Play [±mm]
Resin	GJ-4	6	0.6	4,000	7.0×10^{-8}	0.4	5	0.4
	GJ-6	10	0.8	6,000	1.2×10^{-7}	0.5	5	0.4
	GJ-8	20	1.5	8,000	3.9×10^{-7}	0.5	5	0.4
	GJ-10	32	2.0	10,000	7.0×10^{-7}	0.5	5	0.4
Metal	MU-075	8.2	1.0	25,000	7.02×10^{-7}	0.25	5	0.25
	RU-075	8.2	1.0	25,000	7.02×10^{-7}	0.25	5	0.25
	JU-100	14.3	1.6	25,000	2.87×10^{-6}	0.25	5	0.25
	RU-100	14.3	1.6	25,000	2.87×10^{-6}	0.25	5	0.25
	KU-100	14.3	1.6	10,000	3.60×10^{-6}	0.25	5	0.25
Flat Spring	ML16P-4-4	70	0.4	19,000	2.4×10^{-7}	0.6	5	0.3
	ML16P-6-6	70	0.4	19,000	2.4×10^{-7}	0.6	5	0.3
	ML20P-8-8	130	0.6	18,000	7.2×10^{-7}	0.6	5	0.4
	ML25P-10-10	240	1.4	16,000	2.2×10^{-6}	0.6	5	0.6
	SFC-10-10	1,850	2.0	10,000	3.43×10^{-6}	0.15	2	0.33

Option Connector·Junction Cables

- PLC
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Cable Connector (for TRD-GK/TRD-K Series Connector)



Type	for TRD-GK Series		for TRD-K Series	
	Straight	Angular	Straight	Angular
Model number	BMCC-6	BAFC-6	BMCC-12	BAFC-12
Number of pins	6P		12P	
Connecting Wire Cross-section	0.75mm ² or less		0.25mm ² or less	
Terminal	Soldered			
Conforming Cable Outside Diameter	5 to 8 mm			
Protective Structure	IP67 (When connected and locked)			

Junction Cables

Target Model No. (Absolute Type)	Appearance	Cable Length	Model Number	Remarks
 TRD-NA TRD-NA360NWE TRD-NA720NWE TRD-NA□(R)NWE TRD-NA□(R)PWE □...1024 or less		3 m	F-30GF2	Programmable cam for FC2 series connection
		5 m	F-50GF2	
		10 m	F-100GF2	
		3 m	F-30GF	Programmable cam for FC series connection
		5 m	F-50GF	
		10 m	F-100GF	
 TRD-NA2048-NWE TRD-NA2048-PWE		2 m	F-20G	Extension cable
		3 m	F-30G	
		5 m	F-50G	
		10 m	F-100G	
 TRD-K TRD-K360-YC2 TRD-KL360-YC2 TRD-K720-YC2 TRD-KL720-YC2		2 m	F-20ANC2	Programmable cam for FC series connection
		5 m	F-50ANC2	
		2 m	F-20BNC2	
		5 m	F-50BNC2	
		 TRD-KL TRD-K360-YC2 TRD-KL360-YC2 TRD-K720-YC2 TRD-KL720-YC2		
5 m	F-50ANC2A			
2 m	F-20BNC2A			
5 m	F-50BNC2A			

Conversion Cable

Appearance	Cable Length	Model Number	Remarks
	0.2 m	F-2GF-7308	Connector conversion cable for connecting programmable cam switch (FC-Series) and rotary encoder (TRD-NA□NWF2)
	0.2 m	F-2GF2	Connector conversion cable for connecting programmable cam switch (FC2-Series) and rotary encoder (TRD-NA□NWF)

Cable expansion connection connector

Model: Made by Hirose RM15TPD-12P

Pin Assignment	Line Color	Signal Name	Pin Assignment	Line Color	Signal Name
1	Red	Vcc	7	Purple	2 ⁵
2	Brown	2 ⁰	8	Gray	2 ⁶
3	Orange	2 ¹	9	White	2 ⁷
4	Yellow	2 ²	10	Pink	2 ⁸
5	Green	2 ³	11	Light Blue	2 ⁹
6	Blue	2 ⁴	12	Black	0 V

