

Rotary transformer method torque transducer

TMNR-ME series

2024/02/28

Features



- TMNR-*ME type Torque meter can measure the torque from the geostationary axis to the high-speed spindle by the double bearing adoption. As the strength is higher than the standard model (TMNR type) both for radial and thrust, and a direct coupling with a propeller shaft etc. are more possible by making the bearing double. Because the dropping lubricant method is assumed to be a standard, the torque measurement to which a heavy load hangs is possible. (Please inquire for a grease lubrication method.)
- It is possible to use it for the test stand for not only the torque measurement but also the instrumentation control field , for instance, the car etc. because of the efficient rotary transformer adoption.
- Because the rotational speed can be measured by installing the rotation detector(option), the horsepower of the motor output etc. can be measured.

Specification

Specification name	Specification contents
Rated capacity	$\pm 500 \text{ N}\cdot\text{m} \sim \pm 5\text{kN}\cdot\text{m}$
Safe overload	120 %R.C.
Ultimate overload	200 %R.C.
Rated output	1.6 mV/V \pm 0.32 mV/V
Measurement accuracy	$\pm 0.2 \%$ R.O. (In case of combination with Minebea's Transmitter CSA-561B)(Linearity, hysteresis and repeatability are included.)
Excitation, recommended	4 VAC
Insulation resistance	500 M-ohm or more (DC50 V)(between bridge and main body)
Temp. range, safe	0 °C ~ 90 °C (Operating temperature range : 0 °C ~ 40 °C)

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Temp. effect on zero balance	0.1 %R.O./10 °C
Temp. effect on output	0.1 %LOAD/10 °C
Zero shift by rotation	0.2 %R.O.
Temperature rise by rotation	40 °C or less / at themaximum rotation(At the grease lubrication), Double bearing side 60 °C, Single bearing side 40°C or less at the maximum rotation (At the dropping llubrication)
Cable	φ10, 4 -cores shieldedcable (model : CAC-160-※M) with the connector at the both ends.(Cable is specified from 10 m, 20 m or 30 m)
Connector	1108-12A10-7M10.0、PRC03-12A10-7M10.5
Class of protection	IP40 or equivalent
Gear for rotation detector	S45C black coated

Table of P/N

Parts No.	Rated capacity [N·m]	Rated capacity [kN·m]	Rated output [mV/V]	Tolerance of rated output [mV/V]	Maximum rotation speed [rpm]	Zero shift by rotation [%R.O.p-p]
TMNR-500NME	±500		±1.6	±0.32	10000	0.2
TMNR-1KNME		±1	±1.6	±0.32	10000	0.2
TMNR-2KNME		±2	±1.6	±0.32	10000	0.2
TMNR-3KNME		±3	±1.6	±0.32	8000	0.2
TMNR-5KNME		±5	±1.6	±0.32	6000	0.2

Parts No.	Difference of temp. rise by rotation / at maximum speed [deg.C]	Mechanical characteristics Inertia moment [kg·cm ²]	Mechanical characteristics Torsional rigidity [kN·m/rad]	Mechanical characteristics Torsional peculiar pitch [KHz]	Mechanical characteristics Twist angle at rated capacity [°]	Mechanical characteristics [N]	Cable
							φ10, 4 cores

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TMNR-500NME	40	63.35	72.12	1.7	0.390	490.0	shielded cable (model CAC-16※M) with the connector at the both ends. (Cable specified from 10 m, 20 m or 30 m)
TMNR-1KNME	40	63.55	125.8	2.4	0.446	981.0	φ10, 4 cores shielded cable (model CAC-16※M) with the connector at the both ends. (Cable specified from 10 m, 20 m or 30 m)
TMNR-2KNME	40	63.74	177.7	4.0	0.632	1961	φ10, 4 cores shielded cable (model CAC-16※M) with the connector at the both ends. (Cable specified from 10 m, 20 m or 30 m)
							φ10, 4 cores

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TMNR-3KNME	40	143.0	309.1	2.9	0.545	2942	shielded cable (model CAC-16※M) with the connector at the both ends. (Cable specification from 10m, 20m or 30m)
TMNR-5KNME	40	193.2	513.6	2.7	0.547	4903	φ10, 4 cores shielded cable (model CAC-16※M) with the connector at the both ends. (Cable specification from 10m, 20m or 30m)

Parts No.	ConnectorParts No.	Gear for rotation detector	Weight(Approx.) [kg]	CAD files[DXF]	3D CAD files [STEP]
TMNR-500NME	1108-12A10-7M10.0 PRC03-12A10-7M10.5	S45C black coated 60-tooth, module 1, tooth width 10 mm	40	tmnr_500nm_me.dxf	TMNR-500NME.STEP
TMNR-1KNME	1108-12A10-7M10.0 PRC03-12A10-7M10.5	S45C black coated 60-tooth, module 1, tooth width 10 mm	40	tmnr_500nm_me.dxf	TMNR-1KNME.STEP
TMNR-2KNME	1108-12A10-7M10.0 PRC03-12A10-7M10.5	S45C black coated 60-tooth, module 1, tooth width 10 mm	40	tmnr_500nm_me.dxf	TMNR-2KNME.STEP
TMNR-	1108-12A10-7M10.0	S45C black coated 60-tooth, module 1, tooth	68	tmnr_3knm_me.dxf	TMNR-

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3KNME	PRC03-12A10-7M10.5	60-tooth, module 1, tooth width 10 mm	86	tmnr_5knm_me.dxf	3KNME.STEP
TMNR-5KNME	1108-12A10-7M10.0 PRC03-12A10-7M10.5	S45C black coated 120-tooth, module 1, tooth width 10 mm	86	tmnr_5knm_me.dxf	TMNR-5KNME.STEP

Associated Specification sheet

Specification sheet

Rotation detector for rotation speed and rotational direction : RPM

[Rotation detector MP-981 No.EN265981](#)

Options

Rotation detector(MP-981)

Rotation detectorCable(MX-705)