

FORWARD

Thank you very much for your purchasing MinebeaMitsumi's Torque transducer.

This manual explains installation procedures and connecting method for Torque transducer.

Make use of it properly after reading through the manual carefully.

Be sure to deliver the manual to the end user. Moreover, the end user should keep the manual at hand after reading it over.

This manual is intended for technical experts to read.

- The contents of the manual may subject to change for the purpose of improvement without notice.

1. General

The TMBN torque meter is designed for accurately and easily measuring dynamic or static torque in combination with measuring instruments for industrial use and dynamic or static strain meters. A torque is detected by the following process. A voltage proportional to a torque is generated by Used widely together with meters for industrial use as well as in experimental and research the outside through the contact type slip ring.

This torque transducer excels in accuracy and stability and moreover is capable of maintaining original performance even under the strict condition. In addition this torque transducer can be used widely together with meters for industrial use as well as in experimental and research instruments.

2. Installation

- (1) If your torque transducer is TMBN, it is most desirable to connect the shaft to the motor and to the load by using doubly-flexible couplings. It is not recommended to use a rigid shaft coupling. The reason is that centering is difficult and possible decentering results in an unfavorable large load to the bearing. (Refer to Fig.1.)
- (2) Use singly-flexible coupling when there is angular deviation only and no decentering. And use doubly-flexible couplings if there are both decentering and angular deviation.
- (3) If you do not use flexible couplings, take sufficient care to perform exact centering between the torque transducer and the motor. Keep run-out of shaft less than 30 micron.
- (4) Please follow the direction of setting by the arrow mark on name plate.
(← TEST DEVICE SIDE)

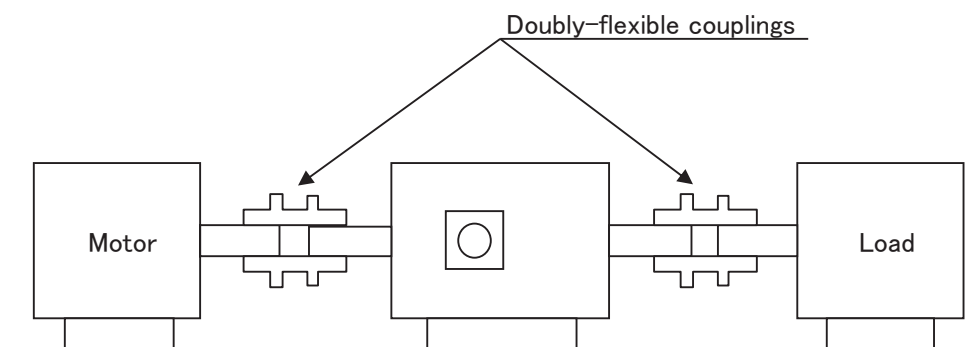


Fig.1 Installation on Mounting Leg

3. Operation

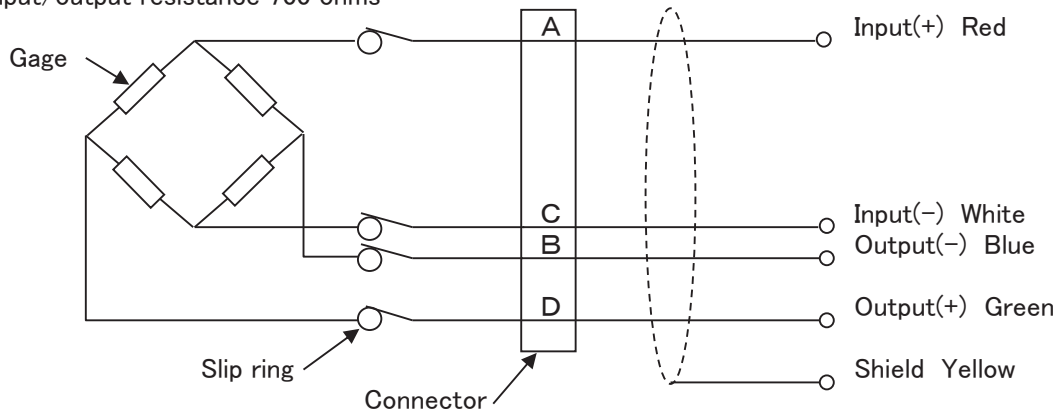
- (1) Connect the torque transducer to the strain amplifier by using the accessory cable.
- (2) Run the torque transducer with no load applied for approximately five minutes.
- (3) Since zero fluctuates due to varying revolution speed, adjust zero after the revolution speed becomes constant.

4. Precautions

- (1) Besides abrasive dust of the brush, and moisture in the air adhered to the slip ring and brush can occasionally cause deterioration of insulation resistance.
In such a case, run the torque transducer. The heat thus generated will evaporate water on the slip ring and brush, thereby recovering the regular insulation resistance. We therefore recommend to perform preparatory running prior to measurement.
- (2) The torque transducer does not feature water and drip-proof construction. Avoid using it in adverse environments including abnormally high relative humidity, high temperatures, vacuum and corrosive atmosphere.
- (3) Since the capacity is rated small, take sufficient care when handling. Twisting or bending the shaft by hands or hitting it against a foreign matter will deform the shape, making the transducer unusable.
- (4) An abrupt start with a load applied may result in an overload, thereby damaging the shaft.
- (5) Due to the construction designed to obtain output with low torque, wind pressure and centrifugal force caused by revolution will result in zero fluctuation. Before starting measurement, therefore, adjust zero while running the torque transducer at an expected revolution speed with no load applied.

5. Wiring

Input/output resistance 700 ohms



6. Maintenance and Inspection

- (1) 900 to 1000 hours of operation (at 500rpm) wears the brush, and abrasive dust adhered to insulating materials deteriorates the insulation resistance. Also, deposit of foreign matters on the slip ring and brush cause unstable reading.
- (2) Abrasion of brush is proportional to revolution speed. Add up operating hours and check the fatigue life of the brush by referring to Fig.2.
- (3) Contact your MinebeaMitsumi representative when insulation resistance has lowered due to dust accumulation, or when oil is impregnated into the brush, or for replacement of the brush required.

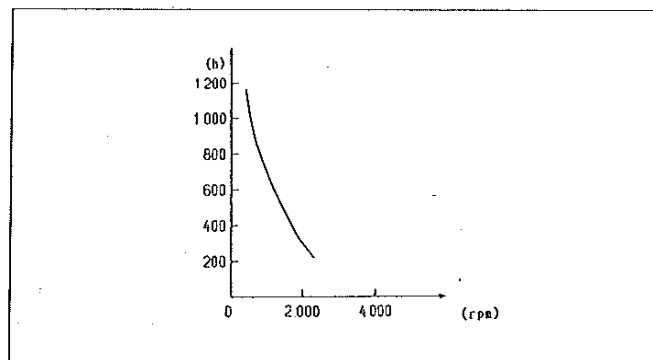


Fig.2 Fatigue life slip ring revolution speed against operating hour