Magnetic Torque Coupler

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Smith Meter® PD Coupler

The Magnetic Torque Coupler (MTC) is designed to replace the packing gland of your existing or new Smith Meter double-case PD meters and supports all the current mechanical and electronic stack-up options, meter sizes, and mechanical gear ratios.

Features

- The MTC features high-strength, permanent magnets that are capable of driving any stack-up configuration without losing strength over time.
- Double-row ball bearings are over-dimensioned for the application and designed to last the entire life of your Smith Meter Positive Displacement (PD) meter–30 years or longer.
- The MTC is built using corrosion-resistant materials of stainless steel and aluminum.
- The MTC has lower startup and running rotational drag, which lowers induced drag on smaller meters at lower flow rates.
- Fully sealed design eliminates the possibility of volatile organic compound (VOC) emissions and maintenance requirements of packing glands, which minimizes the total cost of ownership.

Principle of Operation

The MTC transmits rotation from the internal rotor assembly to the external registration devices through two magnet assemblies that rotate (1:1) on a common axis with zero internal contact of rotating components. The two magnet assemblies are separated by a pressure barrier with static o-ring seals. This creates a static seal between the wetted side of the lower magnet assembly exposed to the meter fluid and system pressure and the non-wetted side of the upper magnet assembly that connects to the external registration devices.

The MTC–with high strength magnets, static seals, and zero internal contact of rotating components–offers leak-free operation while meeting the same custody-transfer accuracy that is expected from Smith Meter products.

Applications

The MTC system provides a direct replacement for Smith Meter double-case PD flow meter packing gland assemblies. The MTC is mounted on the meter by using an adapter that allows installation with most double-case Smith Meter PD meters in the field and all new double-case C2 through M16 PD meters with S3 to S7 pressure ratings. The MTC replaces the dynamic seal of the packing gland and replaces it with a static seal, while maintaining torque transfer from the meter shaft to the output shaft through the magnetic field.

The MTC is designed for use with all liquid types that Smith Meter PD meters can be used, such as batching, loading, blending, inventory, and process control.

Specifications

- Operating temperature range of -58 to 150 °F (-50 to 65 °C)
- Maximum working pressure of 1,480 pound-force per square inch (psi)
- Maintenance-free operation
- Supports all mechanical stack-up options, meter sizes, and mechanical gear ratios
- Corrosion resistant

Retrofit Kits for Double-Case Installed Field Base Meters				
Meter Model	Pressure Rating	Gearing	MTC Part Numbers	
			Retrofit Kit	Individual MTC
C2	S3 and S5	All	P80000 20265	P570060
F4, G6, and H8	S3 and S5	All	P80000 20266	P570060
C2, F4, G6, and H8	S6 and S7	All	P80000 20267	P570061
M16	S3 and S5	All	P80000 19544	P570063
M16	S6	All	P80000 19545	P570066
K12	S1, S3, and S5	All	P80000 19546	P570065
J10 and K12	S6 and S7	All	P80000 19547	P570064
J10	S3 and S5	All	P80000 19548	P570063
J10	S1	All	P80000 19549	P570062

The MTC is field-retrofittable for C2 and F4 through M16 meters and includes the current design for S3 through S7 pressure classes.

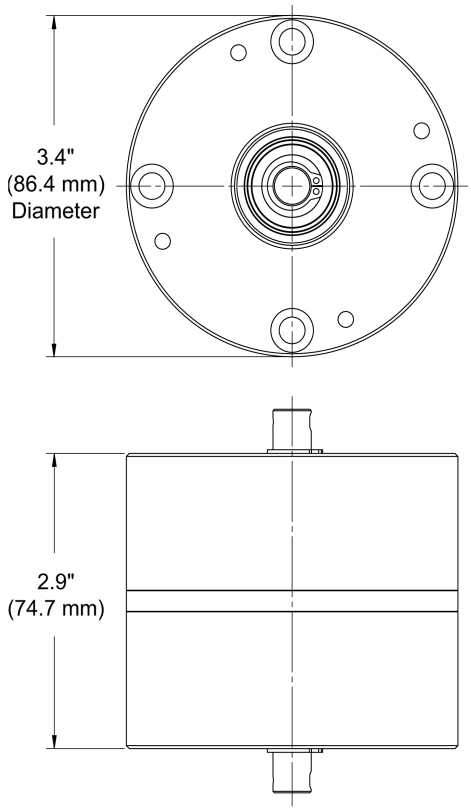
NOTE: The MTC is not adaptable to any version of the E3 or E4 meters nor the S1 pressure class meters with cartridge-style packing glands.

Ordering Information

The MTC is a component available with MTC retrofit kits. The MTC retrofit kits can be used to upgrade installed field-base double-case PD meters. Different kits are available, based on the meter model, pressure class, and year of manufacture. The upgrade kit includes the MTC, along with appropriate meter adapter, spacer, o-rings, and fasteners. It is important to select the proper kit part number at order placement, which should be determined from the above table.

Dimensions

Inches (") are to the nearest tenth (millimeters (mm) to the nearest hundredth), each independently dimensioned from respective engineering drawings.



Weight

The MTC weighs approximately 5 pounds (lb) (2.27 kilograms (kg)).

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