

8TJ167 Mass Fuel Flowmeter

SUPERIOR RELIABILITY AND ACCURACY

AMETEK Aerospace is a recognized leader in the design and manufacture of highly reliable aircraft engine fuel system components. AMETEK's model 8TJ167 Mass Fuel Flowmeter offers superior measurement accuracy and reliability at the lowest life cycle costs in the industry. This family of product has been certified on several engine/aircraft applications with flow ranges up to 42,000 pph.

The 8TJ167 is a fluid-driven, true mass fuel flowmeter requiring no external electrical power to operate. The 8TJ167 design is based on reliable, field-proven technology currently used in AMETEK fuel flow measurement systems, where MTBFs are currently exceeding 100,000 hours. The TJ167 model offers distinct advantages over similar devices in its ease of calibration and performance stability over time and operating temperatures.

PROVEN CONSTRUCTION

The 8TJ167 includes a solid wall main housing to contain the fuel stream and support the mechanical metering assembly. Stationary components include the inlet flow conditioner, a spring-finger swirl-generator assembly, and two external coils. Primary moving components, shaft mounted on bearings, include a turbine, impeller and viscous shroud. Angular momentum is imparted to the fuel by a helical groove passage bypassing valve.

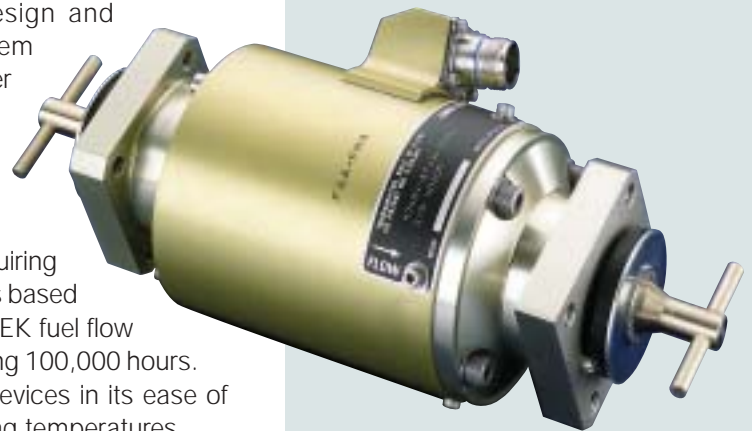
APPLICATION FLEXIBILITY

Fuel flowmeters may be tailored to meet specific application needs in the areas of performance, electrical interface, fuel line end-fittings, etc. The low impedance, digitally compatible output signals provide interface flexibility to one or more displays, indicators, engine monitoring systems and/or other aircraft subsystems. AMETEK engineering resources and commitment to customer satisfaction provide for fast response to individual requirements and application needs. Specifications shown herein are typical for the 8TJ167 series flowmeter.

PERFORMANCE AND TEST

AMETEK calibrates mass fuel flowmeters to better than +0.5% accuracy of point over typical cruise flow rates. AMETEK has aggressively developed design improvements to assure performance is maintained over time and temperature. Through these design improvements and tightened material tolerances, AMETEK has been able to achieve repeatable accuracy, independent of the fuel temperature.

Precise calibration of the fuel flowmeter is easily performed under dynamic conditions while the unit under test is mounted on the flow stand. To facilitate calibration, zero offset and skew adjustments are external to the drive mechanism and accessible from outside the unit.



FEATURES

- ✓ *Accurate over a broad range of operating temperatures and flow rates*
- ✓ *Acceptance tested at engine operating temperature*
- ✓ *External calibration features*
- ✓ *Unique two-stage inlet flow conditioning to minimize inlet flow effects*
- ✓ *Form, fit and function interchangeable with AMETEK 8TJ124 flowmeters*
- ✓ *Low cost of ownership*

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SPECIFICATIONS

Flow Ranges: 250 lbs/hr to 42,000 lbs/hr (113.5 kg/hr to 19,090 kg/hr)

Accuracy: +0.5% of point over *extended* cruise ranges, performance over temperature range with room temperature calibration

Response: 4 seconds maximum full scale

Input Power: None required

Output Signal: Sinusoidal pulse type time interval duration proportional to mass flow rate

Scale Factors: 55 lbs/msec (25 kg/lb/msec) or
80 lbs/hr/msec (36 kg/hr/msec) or
180 lbs/hr/msec (81 kg/hr/msec)

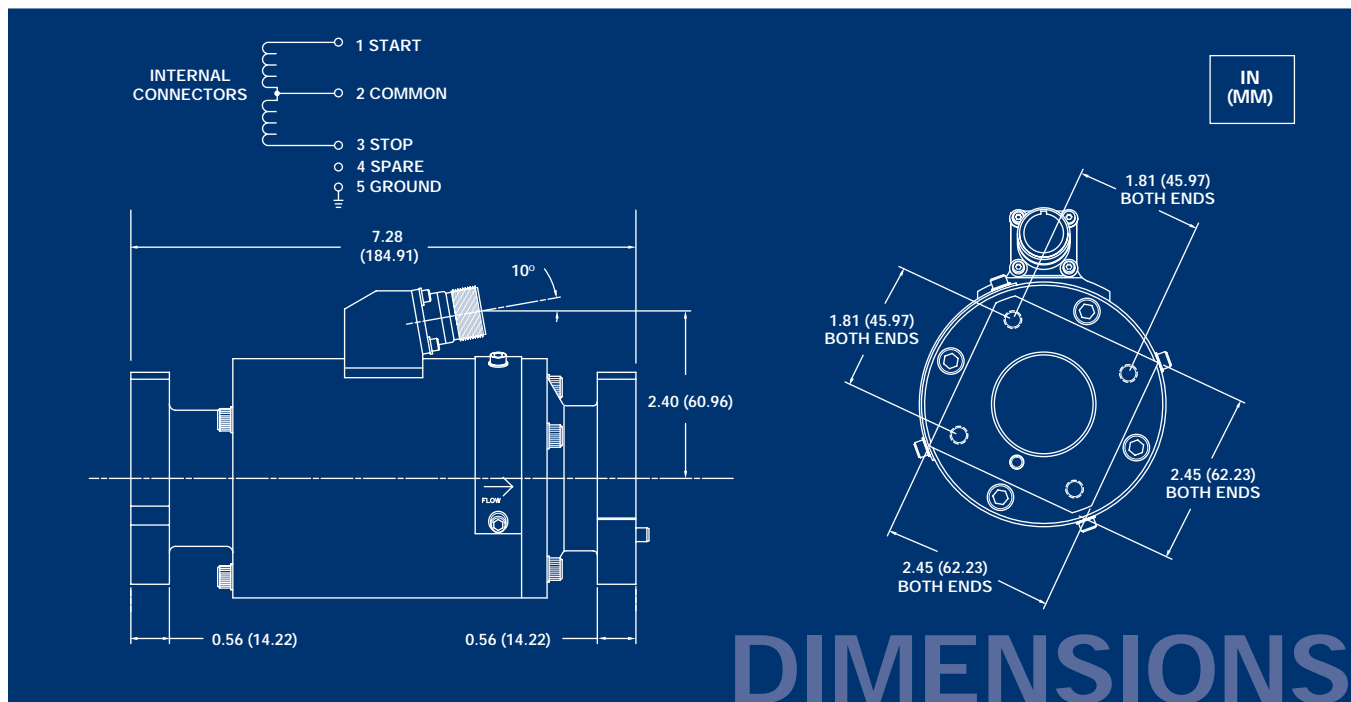
Pressure Drop: 18 psi nominal at 16,000 lb/hr

Ambient Operating Temperature: -65° to 392°F
(-54° to 200°C)

Fuel Temperature: 65° to 350°F (-54° to 177°C)

Size: Cylindrical—7.28 in. (18.49 cm) length x 3.5 in.
(8.89 cm) diameter, plus receptacle

Weight: Typically 3.4 lbs (1.55 kg) maximum



TEST AND CALIBRATION EQUIPMENT

AMETEK maintains and operates state-of-the-art flow measurement stands in support of design and production operations. Flowmeter test systems incorporate high accuracy reference flowmeters. High temperature testing capability is readily available to demonstrate flowmeter

performance at extreme operating conditions. AMETEK testing facilities also include a high temperature and pressure endurance flow rig, a low fuel lubricity test rig and a contaminated fuel circulation loop.

AMETEK®
AEROSPACE
www.ametekaerospace.com

HEADQUARTERS
50 Fordham Road • Wilmington MA 01887 U.S.A.

Sales

Tel: 978-988-4771 • Fax: 978-988-4944
www.ametekaerospace.com • E-mail: aerosales@ametek.com

Distribution and Repair

Tel: 978-988-4100 • Fax: 978-988-4720
www.ametekaerospace.com/service.asp