

# DANIEL LIQUID TURBINE METERS

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**INSTALLATION AND OPERATING INSTRUCTIONS  
SPECIFIC TO THE PRESSURE EQUIPMENT DIRECTIVE**

**DANIEL MEASUREMENT AND CONTROL, INC.  
AN EMERSON PROCESS MANAGEMENT COMPANY  
HOUSTON, TEXAS**

**Part Number 3-9008-012  
Revision B**

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**1. Purpose**

- 1.1 This document shall identify specific installation and operation instructions necessary to ensure compliance with the Essential Safety Requirements (ESR) of the European Economic Area Pressure Equipment Directive (PED) 97/23/EC and the UK Pressure Equipment Regulations 1999 (SI 1999/2001).

**2. Scope**

- 2.1 This document applies to Daniel Liquid Turbine Meters designed by Daniel Measurement and Control, Inc. (Daniel) of Houston, Texas, USA, and manufactured by Daniel or an authorized agent.

**3. Installation**

- 3.1 The end user of the equipment shall be responsible for the following actions during the installation of the equipment to ensure compliance with the Essential Safety Requirements of the Directive and Regulations quoted in paragraph 1.1 of this document. Relevant parts of the directive ESR are listed below.

## 3.1.1

<b>PED ESR Ref.</b>	<b>ESR Requirement</b>	<b>Compliance Requirement</b>
2.3	<p><b>Provisions to ensure safe handling and operation</b></p> <p>The method of operation specified for pressure equipment must be such as to preclude any reasonably foreseen risk in operation of the equipment. Particular attention must be paid, where appropriate, to the following.</p> <p>Devices to prevent physical access while pressure or a vacuum exists</p> <p>Surface temperature</p>	<p>The end user shall ensure that the meters are installed in a properly designed system with access limitation in place if required.</p> <p>It is the responsibility of the end user to assess the expected surface temperature in service, and if necessary, take the necessary precautions to avoid personnel coming into contact with the equipment.</p>

<b>PED ESR Ref.</b>	<b>ESR Requirement</b>	<b>Compliance Requirement</b>
2.3 contd.	Decomposition of unstable fluids	It is not envisaged that, for the designed service, the equipment shall come into contact with unstable fluids. However, the end user should assess the risk and take any steps considered necessary.
2.4	<p><b>Means of examination</b></p> <p>Pressure equipment must be designed and constructed so that all necessary examinations to ensure safety can be carried out.</p>	Daniel Liquid Turbine Meters are designed so that all critical parts are contained within the meter body and cannot be examined while in service. The end user should refer to the operations and maintenance instructions supplied with each meter.
2.5	<p><b>Means of draining and venting</b></p> <p>To avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions</p>	It is the responsibility of the end user to ensure that the meter is installed in a well-designed piping system to avoid such hazards.
2.6	<b>Corrosion or other chemical attack</b>	It is not expected that the process medium for which the meter is designed will give rise to severe corrosion problems. It is the end user's responsibility to monitor any change in the process medium that may cause concern.
2.7	<b>Wear</b>	It is not expected that the use of the meter for fluid metering will give rise to any abnormal wear problems. It is the responsibility of the end user to install any necessary filtration upstream of the meter to maintain the condition of the process medium.
2.10	<b>Protection against exceeding the allowable limits of the pressure equipment.</b>	The meter must be installed in a well-designed piping system with adequate protection against excessive pressure.
2.12	<b>External fire</b>	The meter has no special accessories for fire damage limitation. It is the responsibility of the end user to provide adequate fire-fighting facilities on site.
7.3	<b>Pressure limiting devices, particularly for pressure vessels</b>	The meter is not a pressure vessel and has no integral pressure limiting devices. It is the responsibility of the end user to ensure that the meter is installed in a well-designed system so that momentary pressure surges are limited to under 10% of the meter's maximum allowable pressure.

The sales and service offices of Daniel Measurement and Control are located throughout the United States and in major countries overseas.

Please contact Daniel Measurement Services at  
9753 Pine Lake Drive, Houston, Texas 77055, or phone (713) 827-6314  
for the location of the sales or service office nearest you.

Daniel Measurement Services offers both on-call and contract  
maintenance service designed to provide single-source  
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