

Daniel™ Orifice Fittings and Meter Tubes

Specific to the Pressure Equipment Directive

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Return Material Authorization (RMA)

A Return Material Authorization (RMA) number must be obtained prior to returning any equipment for any reason. Download the RMA form from the Support Services web page by selecting the link below.

<http://www.emerson.com/en-us/automation/daniel>

Signal words and symbols

Pay special attention to the following signal words, safety alert symbols and statements:



Safety alert symbol

This is a safety alert symbol. It is used to alert you to potential physical injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER!

Danger indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING!

Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION!

Caution indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Notice is used to address safety messages or practices not related to personal injury.

Important

Important is a statement the user needs to know and consider.

Tip

Tip provides information or suggestions for improved efficiency or best results.

Note

Note is “general by-the-way” content not essential to the main flow of information.

Important safety instructions

Daniel Measurement and Control, Inc. (Daniel) designs, manufactures and tests products to function within specific conditions. Because these products are sophisticated technical instruments, it is important that the owner and operation personnel must strictly adhere both to the information printed on the product and to all instructions provided in this manual prior to installation, operation, and maintenance.

Daniel also urges you to integrate this manual into your training and safety program.

BE SURE ALL PERSONNEL READ AND FOLLOW THE INSTRUCTIONS IN THIS MANUAL AND ALL NOTICES AND PRODUCT WARNINGS.

WARNING!

Failure to follow the installation, operation or maintenance instructions for a Daniel product could lead to serious injury or death from explosion or exposure to dangerous substances.

To reduce the risk:

- **Comply with all information on the product, in this manual, and in any local and national codes that apply to this product.**
- **Do not allow untrained personnel to work with this product.**
- **Use Daniel parts and work procedures specified in this manual.**

Product owners (Purchasers):

- Use the correct product for the environment and pressures present. See technical data or product specifications for limitations. If you are unsure, discuss your needs with your Daniel representative.
- Inform and train all personnel in the proper installation, operation, and maintenance of this product.
- To ensure safe and proper performance, only informed and trained personnel should install, operate, repair and maintain this product.
- Verify that this is the correct instruction manual for your Daniel product. If this is not the correct documentation, contact Daniel at 1-713-827-6314. You may also download the correct manual from: <http://www.emerson.com/en-us/automation/daniel>.
- Save this instruction manual for future reference.
- If you resell or transfer this product, it is your responsibility to forward this instruction manual along with the product to the new owner or transferee.
- ALWAYS READ AND FOLLOW THE INSTALLATION, OPERATIONS, MAINTENANCE AND TROUBLESHOOTING MANUAL(S) AND ALL PRODUCT WARNINGS AND INSTRUCTIONS.
- Do not use this equipment for any purpose other than its intended service. This may result in property damage and/or serious personal injury or death.

Product operation (Personnel):

- To prevent personal injury, personnel must follow all instructions of this manual prior to and during operation of the product.
- Follow all warnings, cautions, and notices marked on, and supplied with, this product.
- System should be designed to avoid over pressure conditions or exceeding maximum safe flow rate if meter losses measurement.
- Verify that this is the correct instruction manual for your Daniel product. If this is not the correct documentation, contact Daniel at 1-713-827-6314. You may also download the correct manual from:
<http://www.emerson.com/en-us/automation/daniel> .
- Read and understand all instructions and operating procedures for this product.
- If you do not understand an instruction, or do not feel comfortable following the instructions, contact your Daniel representative for clarification or assistance.
- Install this product as specified in the INSTALLATION section of this manual per applicable local and national codes.
- Follow all instructions during the installation, operation, and maintenance of this product.
- Connect the product to the appropriate pressure and electrical sources when and where applicable. Never operate meter above the maximum working pressure stated on the nameplate.
- Ensure that all connections to pressure and electrical sources are secure prior to and during equipment operation.
- Use only replacement parts specified by Daniel. Unauthorized parts and procedures can affect this product's performance, safety, and invalidate the warranty. "Look-a-like" substitutions may result in deadly fire, explosion, release of toxic substances or improper operation.
- Save this instruction manual for future reference.

Notice

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PRODUCT NAMES USED HEREIN ARE FOR MANUFACTURER OR SUPPLIER IDENTIFICATION ONLY AND MAY BE TRADEMARKS/ REGISTERED TRADEMARKS OF THESE COMPANIES.

Warranty and Limitations

1. LIMITED WARRANTY: Subject to the limitations contained in Section 2 herein, Daniel Measurement & Control, Inc. ("Daniel") warrants that the licensed firmware embodied in the Goods will execute the programming instructions provided by Daniel, and that the Goods manufactured by Daniel will be free from defects in materials or workmanship under normal use and care and Services will be performed by trained personnel using proper equipment and instrumentation for the particular Service provided. The foregoing warranties will apply until the expiration of the applicable warranty period. Goods are warranted for twelve (12) months from the date of initial installation or eighteen (18) months from the date of shipment by Daniel, whichever period expires first. Consumables and Services are warranted for a period of 90 days from the date of shipment or completion of the Services. Products purchased by Daniel from a third party for resale to Buyer ("Resale Products") shall carry only the warranty extended by the original manufacturer. Buyer agrees that Daniel has no liability for Resale Products beyond making a reasonable commercial effort to arrange for procurement and shipping of the Resale Products. If Buyer discovers any warranty defects and notifies Daniel thereof in writing during the applicable warranty period, Daniel shall, at its option, correct any errors that are found by Daniel in the firmware or Services or repair or replace F.O.B. point of manufacture that portion of the Goods or firmware found by Daniel to be defective, or refund the purchase price of the defective portion of the Goods/Services. All replacements or repairs necessitated by inadequate maintenance, normal wear and usage, unsuitable power sources or environmental conditions, accident, misuse, improper installation, modification, repair, use of unauthorized replacement parts, storage or handling, or any other cause not the fault of Daniel are not covered by this limited warranty, and shall be at Buyer's expense. Daniel shall not be obligated to pay any costs or charges incurred by Buyer or any other party except as may be agreed upon in writing in advance by Daniel. All costs of dismantling, reinstallation and freight and the time and expenses of Daniel's personnel and representatives for site travel and diagnosis under this warranty clause shall be borne by Buyer unless accepted in writing by Daniel. Goods repaired and parts replaced by Daniel during the warranty period shall be in warranty for the remainder of the original warranty period or ninety (90) days, whichever is longer. This limited warranty is the only warranty made by Daniel and can be amended only in a writing signed by Daniel. THE WARRANTIES AND REMEDIES SET FORTH ABOVE ARE EXCLUSIVE. THERE ARE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, AS TO MERCHANTABILITY, FITNESS FOR PARTICULAR PURPOSE OR ANY OTHER MATTER WITH RESPECT TO ANY OF THE GOODS OR SERVICES. Buyer acknowledges and agrees that corrosion or erosion of materials is not covered by this warranty.

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Part I

Plan

1 Introduction

Topics covered in this chapter:

- *Purpose of this manual*
- *Scope*

1.1 Purpose of this manual

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) 2014/68/EU and the UK Pressure Equipment Regulations 1999 (SI 1999/2001).

1.2 Scope

This document applies to Daniel Orifice Fittings and Orifice Meter Tubes designed by Daniel Measurement and Control, Inc. (Daniel) of Houston, Texas, USA., and manufactured by Daniel or an authorized agent.

Part II

Install

2 Installation procedure

Topics covered in this chapter:

- *Installation*
- *Compliance and requirements*

2.1 Installation

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 [Section 1.1](#) of this document. Relevant parts of the directive ESR are listed below.

2.2 Compliance and requirements

Table 2-1: Compliance and requirements information

PED ESR Ref	ESR requirement	Compliance requirement
2.3	Provisions to ensure safe handling and operation The method of operation specified for pressure equipment shall be such as to preclude any reasonably foreseen risk in operation of the equipment. Particular attention must be paid, where appropriate, to the following.	
	Closures and opening	During removal and replacement of the orifice carrier the operator must comply strictly with the instructions given in the unpacking, installing, operating and maintaining manual supplied with each fitting. These instructions are also given on the operating instruction plate attached to each fitting. It is the end user's responsibility to ensure that all operatives are aware of the instructions and sufficiently trained to carry them out.

Table 2-1: Compliance and requirements information (continued)

PED ESR Ref	ESR requirement	Compliance requirement
	Devices to prevent physical access while pressure or a vacuum exists	The end user shall ensure that the orifice fittings and any associated meter tubes are installed in a properly designed system with access limitation in place if required.
	Surface temperatur	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.
	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	Means of examination Pressure equipment shall be designed and constructed so that all necessary examinations to ensure safety can be carried out.	The Daniel Orifice Fittings and associated meter tubes are designed so that all critical parts can be examined without the need to remove the unit from service. The end user should refer to the operations and maintenance instructions supplied with each fitting. It is not expected that the process medium for which the equipment is designed will give rise to severe corrosion/erosion problems. It is the end user's responsibility to monitor any change in the process medium that may cause concern.
2.5	Means of draining and venting To avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions	It is the responsibility of the end user to ensure that the equipment is installed in a well-designed piping system to avoid such hazards.
2.6	Corrosion or other chemical attack	It is not expected that the process medium for which the equipment 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.

Table 2-1: Compliance and requirements information (continued)

PED ESR Ref	ESR requirement	Compliance requirement
2.7	Wear	It is not expected that the use of the fitting and any associated meter tube 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 fitting to maintain the condition of the process medium.
2.10	Protection against exceeding the allowable limits of the pressure equipment.	The fitting and any associated meter tube must be installed in a well-designed piping system with adequate protection against excessive pressure.
2.12	External fire	The fitting and any associated meter tube have 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	Pressure limiting devices, particularly for pressure vessels	The fitting and any associated meter tube are not a pressure vessel and has no integral pressure limiting devices. It is the responsibility of the end user to ensure that the fitting and any associated meter tube are installed in a well-designed system so that momentary pressure surges are limited to under 10% of the fitting's and any associated meter tube's maximum allowable pressure.

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