

IGEM/GM/PRS/41
Communication 1808

Low pressure meter installation kits



Founded 1863
Royal Charter 1929
Patron: Her Majesty the Queen



***IGEM/GM/PRS/41
Communication 1808***

Low pressure meter installation kits



Price Code: C2S
© Institution of Gas Engineers and Managers
IGEM House
High Street
Kegworth
Derbyshire, DE74 2DA
Tel: 0844 375 4436
Fax: 01509 678198
Email: technical@igem.org.uk

Copyright © 2019, IGEM. All rights reserved
Registered charity number 214011

All content in this publication is, unless stated otherwise, the property of IGEM. Copyright laws protect this publication. Reproduction or retransmission in whole or in part, in any manner, without the prior written consent of the copyright holder, is a violation of copyright law.

ISBN 978 1 905903 84 9
ISSN 0367 7850

Published by the Institution of Gas Engineers and Managers

For information on other IGEM Standards, visit our website, www.igem.org.uk.

CONTENTS

SECTION

| | | |
|----|--|----|
| 1 | Introduction | 1 |
| 2 | Scope | 3 |
| 3 | Legal and allied considerations | 4 |
| | ● 3.1 General | 4 |
| 4 | Performance | 5 |
| 5 | Components within the meter installation kits | 6 |
| | ● 5.1 Meter configurations | 6 |
| | ● 5.2 Flexible meter connector | 7 |
| | ● 5.3 Low pressure meter regulator | 7 |
| | ● 5.4 Meter connections | 7 |
| | ● 5.5 Meter liner | 7 |
| | ● 5.6 Washers and nuts | 7 |
| | ● 5.7 Shear bolts and security washers | 7 |
| | ● 5.8 Galvanised fittings | 7 |
| | ● 5.9 Joints | 7 |
| | ● 5.10 Thread sealing | 7 |
| | ● 5.11 Labels | 7 |
| | ● 5.12 Contents list and assembly drawing | 8 |
| 6 | Pre-assembly of kits | 9 |
| 7 | Production tests | 10 |
| | ● 7.1 Alignment test | 10 |
| | ● 7.2 Gas tightness tests on assembly | 10 |
| 8 | Type tests – mechanical strength tests on assembly | 11 |
| | ● 8.1 General | 11 |
| | ● 8.2 Torque tightness of joints | 11 |
| | ● 8.3 Bending moment test | 11 |
| | ● 8.4 Impact test | 11 |
| 9 | Type approval and SPAA CoP/1A conformity | 12 |
| | ● 9.1 Type approval | 12 |
| | ● 9.2 Manufacturer's statement of conformity | 12 |
| 10 | Protection, packaging and labelling | 13 |
| | ● 10.1 General | 13 |
| | ● 10.2 Packaging | |
| | ● 10.3 Pallet loading and protection | 13 |
| | ● 10.4 Identification of contents | 13 |
| | ● 10.5 Palletised transit packs | 14 |

APPENDIX

| | | |
|---|---|----|
| 1 | Glossary, acronyms, abbreviations and units | 15 |
| 2 | References | 17 |
| 3 | Component lists and diagrams (informative) | 19 |
| 4 | Production gas tightness test (normative) | 27 |
| 5 | Mechanical strength tests (normative) | 28 |

FIGURES

| | | |
|----|--|----|
| 1 | Meter installation configurations | 6 |
| 2 | On/off tape | 8 |
| 3 | Standard G4 kit installation components | 19 |
| 4 | Standard G4 kit installation assembly | 20 |
| 5 | Semi-concealed ETM kit installation components | 21 |
| 6 | Semi-concealed ETM kit assembly | 22 |
| 7 | Semi-concealed G4 kit installation components | 23 |
| 8 | Semi-concealed G4 kit assembly | 24 |
| 9 | Regulator/flex kit installation components | 25 |
| 10 | Regulator/flex kit assembly | 26 |

TABLES

| | | |
|---|--|----|
| 1 | Meter installation inlet conditions | 5 |
| 2 | Performance of meter installation | 5 |
| 3 | Standard G4 kit components list | 19 |
| 4 | Semi-concealed ETM kit installation components | 20 |
| 5 | Semi-concealed G4 kit installation components | 23 |
| 6 | Regulator/flex kit installation components | 25 |

SECTION 1 : INTRODUCTION

- 1.1 This Specification is part of a series of Institution of Gas Engineers and Managers (IGEM) publications, providing a specification that covers the purchasing requirements for low pressure meter installation kits which will conform with the requirements of BS 6400-1. The document details the components incorporated in the various kits, provides the relevant component specifications, and where pre-assembly is necessary the requirements for jointing.
- 1.2 This Specification covers pre-assembled $6 \text{ m}^3 \text{ h}^{-1}$ low pressure meter installation kits intended for installing:
- on a floor or wall mounted bracket e.g. surface mount or inset box, room in a building, etc.
 - in a semi-concealed meter box
 - in a universal box.
- providing a nominal metering pressure of 21 mbar, which will be suitable for standard gas appliances, typically for domestic applications.
- 1.3 British Gas and latterly, National Grid Metering (NGM) developed a series of Specifications for key metering components based on its own product requirements. These documents were made available to meter installers and purchasers under the title of PRS "e" documents. Originally these Specifications were made available through Advantica, as they were known at the time.
- NGM has transferred the ownership of these documents to IGEM to make them available to the wider industry. It is some years since the original "e" documents were updated and these have been withdrawn.
- 1.4 This Specification has been drafted by an IGEM Working Group, appointed by IGEM's Gas Measurement Committee, and has been approved by IGEM's Technical Coordinating Committee on behalf of the Council of IGEM.
- 1.5 Details on the installation of low pressure gas meter installations are given in BS 6400-1.
- 1.6 Changes to the design of any product being supplied (or under consideration by a prospective purchaser following an invitation to tender) are to be notified immediately to the purchaser.
- Full details are to be supplied with a fully dimensioned engineering drawing and test results, if appropriate, to:
- demonstrate that the product continues to satisfy the requirements of this Specification, and
 - allow the purchaser to determine whether the modification(s) are acceptable to them.
- 1.7 Terms such as "maximum operating pressure" (MOP), "maximum incidental pressure" (MIP) and "operating pressure" (OP) are used to reflect gas pressure terminology used in European standards. These terms will arise in all relevant IGEM Standards and, possibly, in other standards. Other terms have been introduced to assist in recognition of design information to be transferred between interested parties.

- 1.8 This Specification makes use of the term “must”, “shall” and “should” when prescribing particular procedures.
- the term “must” identifies a requirement by law in Great Britain (GB) at the time of publication
 - the term “shall” prescribes a procedure which, it is intended, will be complied with in full and without deviation
 - the term “should” prescribes a procedure which, it is intended, will be complied with unless, after prior consideration, deviation is considered to be acceptable.
- Such a term may have different meanings when used in legislation, or Health and Safety Executive (HSE) Approved Codes of Practice (ACoPs) or guidance, and reference needs to be made to such statutory legislation or official guidance for information on legal obligations.
- 1.9 New and improved practices may be adopted prior to this Specification being updated. Amendments to this Specification will be issued when necessary and their publication will be announced in the Journal of IGEM (Gi) and elsewhere as appropriate.
- 1.10 Requests for interpretation of this Specification in relation to matters within its scope, but not precisely covered by the current text, are to be addressed to Technical Services, IGEM, IGEM House, High Street, Kegworth, Derbyshire, DE74 2DA or e-mail technical@igem.org.uk. Such requests will be submitted to the relevant Committee. Any advice given by or on behalf of IGEM does not imply acceptance of any liability, and does not relieve any party of their obligations.
- 1.11 This Specification was published in April 2019.

SECTION 2 : SCOPE

2.1 SCOPE

2.1.1 This Specification provides the purchasing requirements for:

- low pressure domestic meter installation kits
- use with 2nd family gases
- flow rates not exceeding 6 m³ h⁻¹, and
- a nominal metering pressure of 21 mbar.

2.1.2 The operating temperature range of the meter installation kit is -20°C to +60°C.

2.1.3 Meter installation kits designed to this Specification are appropriate for connecting to a standard low pressure Network, the operating parameters of which are shown in Table 1.

2.1.4 The meter installation kits are designed to provide a suitable pressure at the consumer's appliance(s), assuming the use of standard appliances, and pipework in accordance with BS 6891.

2.1.5 Meter installation kits include the items required for the installation of a domestic meter from the outlet of the emergency control valve to the outlet of the meter installation. The meter installation kit includes:

- the meter regulator
- flexible meter connector
- shear bolts, security washers and union washers (as appropriate to the customer's requirements) and
- any associated fittings, labels and drawings.

Note 1: The kit does not include the meter.

Note 2: This Specification also includes a regulator exchange kit (RF), intended for use on existing meter installations, which does not include the meter outlet liner.