

Metering pumps and dispensers to be installed at filling stations and used to dispense liquid fuel —

Part 2: Guide to installation

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Industrial-process Measurement and Control Standards Policy Committee (PCL/-) to Technical Committee PCL/6, upon which the following bodies were represented:

- Associated Offices Technical Committee
- Association for Petroleum and Explosives Administration
- British Cable Makers' Confederation
- Council for Electrical Equipment for Flammable Atmospheres (BEAMA Ltd.)
- Department of Trade and Industry (National Weights and Measures Laboratory)
- Health and Safety Executive
- Independent Engineering Insurers' Committee
- Institute of Measurement and Control
- Institute of Petroleum
- Institute of Trading Standards Administration
- Local Authorities Co-ordinating Body on Trading Standards
- London Fire and Civil Defence Authority
- National Inspection Council for Electrical Installation Contracting
- National Inspection Council, Quality Assurance Ltd.
- Petrol Pump Manufacturers' Association
- Petrol Retailers' Association

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Contents

	Page
Committees responsible	Inside front cover
Foreword	ii
0 Introduction	1
1 Scope	1
2 Definitions	1
3 Location	2
4 Foundations	2
5 Liquid, electrical and other connections	5
Appendix A Retail petrol metering pumps and tank installations: suction lift considerations	7
Figure 1 — Pump installation: general arrangement	3
Figure 2 — Examples of leakproof plate or membrane and non-return valve type installation	4
Figure 3 — Example of leakproof plate or membrane, double-skin pipe arrangement	5
Publication(s) referred to	Inside back cover

Foreword

This Part of BS 7117 has been prepared under the direction of the Industrial-process Measurement and Control Standards Policy Committee. It forms Part 2 of a standard on metering pumps and dispensers to be installed at filling stations and used to dispense liquid fuel into tanks of motor vehicles, boats and light aircraft and into portable containers.

The other Parts are as follows:

- *Part 1: Specification for construction;*
- *Part 3: Guide to maintenance after installation.*

Attention is drawn to the existence of statutory requirements and by-laws which place responsibility for complying with specific safety requirements on the licensee, installer and user. These include the following:

- The Health and Safety at Work, etc. Act 1974
- The Electricity at Work Regulations 1989. SI 635
- Memorandum of Guidance on the Electricity at Work Regulations 1989. HS(R)25
- The Factories Act 1961
- The Petroleum (Consolidation) Act 1928
- The Weights and Measures Act 1985

and other relevant statutory requirements or by-laws.

For detailed guidance on construction and operation of petrol filling stations the reader is directed to the Health and Safety Executive publication HS(G)41.

Attention is drawn to Appendix A which gives guidance on the suction lift requirements for suction type pumps. Hazardous zones applicable to metering pumps/dispensers are given in Part 1.

Figure 1 to Figure 3 are not necessarily to scale and are intended only to supplement the text and to illustrate the general principles. They are not the only possible examples and they are not intended as design examples or as fully dimensioned working drawings.

Assessed capability. Users of this British Standard are advised to consider the desirability of assessment and registration of a supplier's quality systems against the appropriate Part of BS 5750 by a third party certification body.

Manufacturers/suppliers intending to make use of this British Standard should contact their customers in advance regarding possible requirements for assessment.

Compliance with accepted standards is demonstrated by the production of a certificate from a certification body, of which there are a number of competent ones, but not all of which have recognition by UK Petroleum Licensing Authorities.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

0 Introduction

The vapours given off by liquid fuels dispensed at filling stations are flammable. If ignited they may burn with considerable explosive force when mixed with air in appropriate proportions. Therefore sources of ignition should be excluded wherever possible from hazardous areas where vapour may be present. Electrical equipment, whether portable or fixed, used in such areas and in the vicinity of metering pumps should have been constructed so as not to be a source of ignition of flammable vapour. It is important that such equipment is correctly designed, selected, installed, used and maintained and does not facilitate the perpetration of fraud.

1 Scope

This Part of BS 7117 gives guidance on the installation of metering pumps/dispensers. It pays particular attention to hydraulic, mechanical and electrical equipment connections into, or out of, metering pumps/dispensers constructed in accordance with BS 7117-1.

Reference is made to pertinent foundation details but not to the height or construction of any plinths upon which the foundations may be constructed. (BS 7117-1 makes particular reference to plinth heights and also special conditions for hose connections when these are applicable.)

All mechanical and hydraulic tests should be carried out at ambient temperature.

This Part applies to equipment for fuels which are flammable liquids having a flash point not exceeding 100 °C, but does not include equipment for liquefied petroleum gas.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this Part of BS 7117 the definitions given in BS 7117-1, BS 4727, BS 5501, BS 6941 and BS 5345 (published in a number of Parts) apply, together with the following.

For convenience, some definitions have been reproduced from BS 7117-1.

2.1

air and/or vapour separator¹⁾

a device which allows air or vapour to escape to a vent pipe from the liquid stream before the liquid reaches the measuring unit (meter)

2.2

authorized person

a person authorized by management in writing to carry out certain duties and tasks on their behalf, on the understanding that the correct and appropriate procedures will be followed and standing instructions will be adhered to

2.3

competent person

a person who by reason of his training, experience, theoretical and practical knowledge, and maturity of judgement is able to carry out the specified duties

NOTE The person should have the necessary ability in the particular operation of the type of plant and equipment with which he is concerned, an understanding of the relevant statutory regulations and an appreciation of the hazards involved. He should be duly authorized to undertake the work.

2.4

dispenser¹⁾

a measuring system similar to a metering pump except that it does not incorporate its own pumping system

2.5

dispersed unit delivery system¹⁾

a measuring system similar to a metering pump except that the units may be separated and located in individual protective housings

2.6

filling station¹⁾

an establishment providing the dispensing of liquid fuels into the fuel tanks of motor vehicles, boats and light aircraft and into portable containers

2.7

impact check valve

an impact- and/or heat-actuated device which closes to prevent flow from a pressure source and remains closed after actuation

2.8

leak detector system

a system which detects leaks at all times and operates to prevent further leakage at all times when a leak occurs between the remote or submersible pump(s) and the dispenser(s)

2.9

metering pump¹⁾

a measuring system designed to dispense liquid fuel. It contains its own pumping system to draw fuel from a supply tank or tanks

¹⁾ Reproduced from BS 7117-1.