



GS 124-1

FIREWATER PUMPS FOR ONSHORE USE

October 1993

Copyright © The British Petroleum Company p.l.c.

All rights reserved. The information contained in this document is subject to the terms and conditions of the agreement or contract under which the document was supplied to the recipient's organisation. None of the information contained in this document shall be disclosed outside the recipient's own organisation without the prior written permission of Manager, Standards, BP International Limited, unless the terms of such agreement or contract expressly allow.

BP GROUP RECOMMENDED PRACTICES AND SPECIFICATIONS FOR ENGINEERING											
Doc. No. GS 124-1		Issue Date Latest Amendment Date	October 1993								
Document Title FIREWATER PUMPS FOR ONSHORE USE (Replaces BP Engineering Standard 217)											
APPLICABILITY - Does not preclude adaptation for other applications Regional Applicability: United Kingdom											
SCOPE AND PURPOSE This document specifies supplementary BP requirements for Firewater Pumps, based on Energy Industries Council (EIC) Publication Ref. MEC 02.											
AMENDMENTS <table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Amd</td> <td style="width: 20%;">Date</td> <td style="width: 20%;">Page(s)</td> <td style="width: 45%;">Description</td> </tr> <tr> <td colspan="4"> </td> </tr> </table>				Amd	Date	Page(s)	Description				
Amd	Date	Page(s)	Description								
CUSTODIAN (See Quarterly Status List for Contact) Mechanical Systems											
Issued by:- Engineering Practices Group, BP International Limited, Research & Engineering Centre Chertsey Road, Sunbury-on-Thames, Middlesex, TW16 7LN, UNITED KINGDOM Tel: +44 1932 76 4067 Fax: +44 1932 76 4077 Telex: 296041											

CONTENTS

Section	Page
FOREWORD	ii
1. INTRODUCTION	1
1.1 Scope	1
1.2 Quality Assurance.....	1
2. GENERAL REQUIREMENTS	1
APPENDIX A.....	4
DEFINITIONS AND ABBREVIATIONS	4
APPENDIX B.....	5
LIST OF REFERENCED DOCUMENTS.....	5



FOREWORD

Introduction to BP Group Recommended Practices and Specifications for Engineering

The Introductory Volume contains a series of documents that provide an introduction to the BP Group Recommended Practices and Specifications for Engineering (RPSEs). In particular, the 'General Foreword' sets out the philosophy of the RPSEs. Other documents in the Introductory volume provide general guidance on using the RPSEs and background information to Engineering Standards in BP. There are also recommendations for specific definitions and requirements.

Value of this Guidance for Specification

This Guidance for Specification defines BP's minimum additional requirements to EIC document MEC 02 using BP's knowledge and experience world-wide.

Application

This Guidance for Specification is intended to guide the purchaser in the use or creation of a fit-for-purpose specification for enquiry or purchasing activity.

It is a transparent supplement to [EIC MEC 02](#), showing substitutions, qualifications and additions to the EIC text as necessary. As the titles and numbering of the BP text follow those of EIC, gaps in the numbering of the BP document may occur. Where clauses are added, the EIC text numbering has been extended accordingly.

Text in italics is Commentary. Commentary provides background information which supports the requirements of the Specification, and may discuss alternative options.

This document may refer to certain local, national or international regulations but the responsibility to ensure compliance with legislation and any other statutory requirements lies with the user. The user should adapt or supplement this document to ensure compliance for the specific application.

Specification Ready for Application

A Specification (BP Spec 124-1) is available which may be suitable for enquiry or purchasing without modification. It is derived from this BP Group Guidance for Specification by retaining the technical body unaltered but omitting all commentary, omitting the data page and inserting a modified Foreword.

Principal Changes from Previous Edition

BP Engineering Standard 217 is being withdrawn and replaced by Energy Industries Council EIC Publication MEC 02 document for Onshore Firewater Pumps and by BP Group [GS 124-2](#), [GS 124-3](#) and [GS 124-4](#) for Offshore Firewater Pumps.



Feedback and Further Information

Users are invited to feed back any comments and to detail experiences in the application of BP RPSE's, to assist in the process of their continuous improvement.

For feedback and further information, please contact Standards Group, B P International or the Custodian. See Quarterly Status List for contacts.



1. INTRODUCTION

1.1 Scope

This document specifies supplementary BP requirements for Firewater Pumps, based on Energy Industries Council (EIC) Publication [Ref. MEC 02](#).

It is intended for use in conjunction with MEC 02, associated data sheets and drawings which give specific project requirements.

The requirements detailed within this document are applicable irrespective of the final location. Details which are site specified, e.g. pump capacity, environmental data, are specified by the purchaser.

1.2 Quality Assurance

Verification of the vendor's quality system is normally part of the pre-qualification procedure, and is therefore not specified in the core text of this specification. If this is not the case, clauses should be inserted to require the vendor to operate and be prepared to demonstrate the quality system to the purchaser. The quality system should ensure that the technical and QA requirements specified in the enquiry and purchase documents are applied to all materials, equipment and services provided by sub-contractors and to any free issue materials.

Further suggestions may be found in the BP Group RPSEs Introductory Volume

2. GENERAL REQUIREMENTS

The EIC General Specification for Onshore Firewater Pump Packages is an acceptable replacement for BP Group GS 124-1. However, the following clauses need clarification or additional information, and are listed with the EIC document paragraph numbers as reference.

2.8 The noise level normally specified shall not exceed 85 dB(A) at or beyond 1 m from the machine surface - including driver transmission and ancillaries.

Clarification

3.1.5 At 150% rated capacity the NPSH required shall not exceed 90% of the NPSH available.

This sets a tolerance level acceptable to BP

Clarification

3.4.3 Dry critical speeds shall be at least 20% above maximum continuous speed.

Addition



- 5.6 Fuel injectors shall be a type not requiring adjustment in service. They shall be easy to replace without removal of engine parts other than fuel lines.

Fuel lines between injection pumps and injectors shall be heavy seamless tubing, arranged to eliminate irregularity of fuel injection, and shall preferably be of the same length to all cylinders. Fuel lines shall be adequately supported and routed to follow the engine contour as closely as possible.

Addition

- 5.5.2 Lube oil filters shall be duplex type with manual changeover facility.

Addition

- 5.5.4 Where the diesel driver is liable to exposure to freezing conditions a sump heater may be installed. If required it shall have a power density not exceeding 2.3 W/cm^2 .

Addition

Consideration should be given to the risk of carbonisation of the lube oil should the heater fail 'on'.

6. Acceptance criteria for torsional analysis shall be as specified in [API 610](#).

A transient torsional analysis shall be performed on units driven by synchronous motors.

Addition

- 9.2.2 In order to ensure the full characteristic is determined up to 150% rated flow, it is recommended that performance measurements are made at a minimum of seven points on the curve.

Clarification

- 9.2.6 Vibration shall be measured at all specified operating flows, at minimum continuous stable flow, rated flow and 150% rated flow. Vibration levels shall not exceed those given in [API 610](#).

Clarification

- 9.4 Where site conditions are different from the standard reference conditions, BP will approve prior to testing whether:-

Standard conditions will be used and calculations produced for site conditions, or



Simulated site conditions will be used during test.

Addition

9.5

The preferred standard for gearbox testing is that specified in [API 613](#).

Addition



DEFINITIONS AND ABBREVIATIONS**Definitions**

Standardised definitions may be found in the BP Group RPSEs Introductory Volume.

Abbreviations

NPSH Net Positive Suction Head



LIST OF REFERENCED DOCUMENTS

A reference invokes the latest publish issue or amendment unless stated otherwise.

Referenced standards may be replaced by equivalent standards that are internationally or otherwise recognised provided that it can be shown to the satisfaction of the purchaser's professional engineer that they meet or exceed the requirements of the referenced standards.

API 610	Centrifugal Pumps for general refinery service
API 613	Special-purpose gear units for refinery service
EIC MEC 02	Energy Industries Council (EIC) General Specification for Firewater Pump Packages

