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NATIONAL IRANIAN OIL REFINING & DISTRIBUTION COMPANY
NATIONAL IRANIAN OIL ENGINEERING
& CONSTRUCTION COMPANY

NIOEC SP

NIOEC SPECIFICATION FOR FIRE WATER PUMPS

SECOND EDITION

JUNE, 2016

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IN THE NAME OF GOD

FOREWORD

By their very nature, technical Specifications are continuously subject to modifications and revisions. To strengthen their merit and usefulness, continuous improvements, addendum, deletion of disparate information and consequently provision of updated revisions are to be made in order to ascertain that such Specifications meet the current requirements, inclusive of Iranian Petroleum Standards (IPS) and the recognized and acceptable national and international Standards, as well as the optimal codes and practices based on the accumulated in-house know-how and plant knowledge and experiences.

However, in reality, due to several reasons, not to mention the complexity of the matter, the ultimate goal of continuous direct embedment of the required changes on the relevant Specifications may be far reaching. Therefore, in the interim periods between the officially issued revisions, the required changes will appear in other documents related to the engineering and design work of the ongoing projects.

In response to the initiative of the Design and Engineering Directorate, and considering that the task of the execution of several important and mega projects for the realization of the new oil refineries, pipelines and oil terminals as well as improvements of the existing facilities, has been assigned to NIOEC, it was decided to update the NIOEC Specifications and to issue new official revisions.

The Design and Engineering Directorate was itself entrusted to carry out this important task, and as such by forming several special technical committees, working in close co-operation and cohesion and sharing their expertise and knowledge, the updated and revised NIOEC Specifications were successfully prepared and complied.

These Specifications are intended to be used for Oil Refineries, Distribution Depots, Oil Terminals, Pipelines and Pump Stations within NIOEC's projects, and have been proven to be of high value for such purposes. It must however be appreciated that these Specifications represent the minimum requirements and should in no way be interpreted as a restriction on the use of better procedures, engineering and design practices or materials.

We encourage and highly appreciate the users and other clear sighted and experts to send their comments on the Specifications to the Design and Engineering Director of NIOEC for evaluation and approval.

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NOTES:

- 1) THIS SHEET IS A RECORD OF ALL REVISIONS TO THIS SPECIFICATION.
- 2) WHEN APPROVED EACH REVISION SHALL BE CONSIDERED AS A PART OF THE ORIGINAL DOCUMENT.
- 3) NUMBER OF PAGES EXCLUDES THIS SHEET AND THE COVER SHEET.

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INTRODUCTION

To satisfy the requirements of this NIOEC Specification, Iranian Petroleum Standard IPS-M-PM-125(1) with the modifications as specified herein after shall be strictly followed.

Articles 0 through 4 of this document replace entirely the related articles in the referenced IPS Standard.

1. SCOPE (Substitution)

- 1.1. This Specification covers the requirements for fire water pumps, drivers, controllers, accessories and fittings.
- 1.2. Compliance by the pump manufacturer with the provisions of this Specification does not relieve him of the responsibility of furnishing pumps and other equipment of proper design, mechanically suited to meet operating guarantees at the specified service conditions.
- 1.3. Resolution on cases not explicitly stipulated in this specification, or on cases where conflicts may arise among the requirements of the referenced / relevant IPS and international standards shall be made through written consent and approval of NIOEC.
- 1.4. Deviations from this specification will only be permitted in obtaining written approval from NIOEC.

2. CONFLICTING REQUIREMENTS (Substitution)

In the case of conflict between documents relating to the inquiry or order, the following priority of documents shall apply:

- First priority : Purchase Order and Variation Thereto
- Second priority : Data Sheets and Drawings
- Third priority : This Specification

All conflicting requirements shall be referred to the Company in writing. The Company will issue confirmation documents if needed for clarification.

3. REFERENCES (Modification)

The following standards, codes and specifications, to the extent specified herein after, shall constitute a part of this NIOEC specification. Latest edition of the undated referenced documents and the cited edition of the dated references shall apply. The applicability of changes made to the dated references, after the cited date shall be mutually agreed upon between NIOEC and the vendor/contractor.

IPS (IRANIAN PETROLEUM STANDARD)

IPS-M-PM-125

"Material And Equipment Standard For Centrifugal Fire Water Pumps" March 2009.

NEMA (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION)

NFPA (NATIONAL FIRE PROTECTION ASSOCIATION)

NFPA No. 20

“National Fire Protection Association International, Pamphlet No. 20, Approving organization- under-writers Laboratories Inc., Latest edition.”

NIOEC-SP (NIOEC SPECIFICATIENS)

NIOEC-SP-00-10	"NIOEC Specification for Units"
NIOEC-SP-40-03	"NIOEC Specification for Spare Parts Requirements"
NIOEC-SP-46-00	"NIOEC Specification for Pumps, Drivers, and Auxiliary Equipments"
NIOEC-SP-46-02	"NIOEC Specification for General Purpose Steam Turbines"
NIOEC-SP-46-06	"NIOEC Specification for Special Purpose Steam Turbines"
NIOEC-SP-47-09	"NIOEC Specification for Packaged Equipment"
NIOEC-SP-47-10	"NIOEC Specification for Noise Control and Vibration"
NIOEC-SP-47-27	"NIOEC Specification for Fire Fighting Equipment and Facility"
NIOEC-SP-60-02	"NIOEC Specification for Low Voltage Induction Motors"

NIOEC SIP (NIOEC SHOP INSPECTION PROCEDURE)

NIOEC-SIP-46-04	"NIOEC Shop Inspection Procedure for Rotary Machines"
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3.1. Equivalent to IPS Standard (Addition)

Substitute the following IPS Standards as referred to throughout IPS- M-PM-220 to relevant NIOEC's Specifications as follows:

<u>IPS Standard</u>	<u>Relevant NIOEC Specification</u>
IPS-E-GN-100	NIOEC-SP-00-10
IPS-G-SF-900	NIOEC-SP-47-10
IPS-M-EL-132	NIOEC-SP-60-02
IPS-M-PM-240	NIOEC-SP-46-02
IPS-M-PM-250	NIOEC-SP-46-06
IPS-M-PM-290	-
-	NIOEC-SP-46-00
-	NIOEC-SP-47-09
-	NIOEC-SP-47-27
-	NIOEC-SP-40-03

4. UNITS (Substitution)

International system of units (SI) shall be used in accordance with NIOEC-SP-00-10, unless otherwise specified.

5. ADDENDUM TO IPS STANDARD (IPS-M-PM-125(1))

This addendum revises the below listed articles of the referenced standard as follows:

6.1.12(Addition)

Requirements of NIOEC-SP-47-27 shall be met.

6.2.6.6 (Modification)

Add the following sentences at the end of this clause:

The coupling guard shall be a removable all-metal guard furnished and mounted such that all rotating parts are covered to within 12mm of stationary housing.

6.2.8.1(Addition)

Any tools especially designed and required for the maintenance and operation of the equipment shall be furnished by the pump manufacturer.

6.2.9.1(Modification)

Add the following sentences at the end of this clause:

Castings shall be sound, free from shrink or blow holes, scale, blisters and other similar defects. The surfaces shall be cleaned by manufacturer's standard methods. All casting burrs shall be filed or ground flush with the surface of the casting.

8.1.2 (Substitution)

Main electric fire water pump and standby electric pumps shall be equipped for automatic starting and standby diesel pumps shall be push button start.

8.2.6 (Modification)

Add the following sentences at the end of this clause:

Fuel storage tank, fittings, tubing, gages, and miscellaneous equipment for the fuel system, as specified on the individual pump data sheet, shall have sufficient capacity for 24 hours continuous operation.

8.2.7 (Addition)

The engine shall be provided with heat exchanger mounted on the engine or engine base plate and cooled by water from the fire pump discharge in compliance with NFPA No. 20. All piping, valves, fittings, etc., are to be furnished by the pump manufacturer.

8.2.8 (Addition)

The engines shall be supplied with heaters in the lubricating oil and/or the cooling system to maintain an engine temperature when engine is down of between 50°C and 60°C with an ambient air temperature of as low as -6°C. The heater and controls shall be completely wired to NEMA 3 specifications and shall include thermostat and contactor.

8.2.9(Addition)

The engine shall be equipped with 24-volt DC starting motor, with generator (or alternator) and regulator.

8.2.10(Addition)

Batteries shall be heavy duty truck quality, and furnished in dual sets complete with necessary cables and connectors of proper size and length. AC-powered battery charger shall be furnished as specified by NFPA No. 20.

8.2.11(Addition)

Battery trays (or boxes) shall be provided with a plywood-lined metal bottom and legs to facilitate cleaning of surface beneath trays (or boxes).

8.2.12(Addition)

Boxes shall be constructed of 2mm (14ga.) sheet steel of ventilated design and with steel lid. The interior of the boxes shall be painted with acid resistant paint. The exterior shall be primer painted and finish painted with industrial enamel.

8.2.13(Addition)

An industrial type spark arrestor/silencer with flexible exhaust connection shall be furnished with the diesel engine. Silencer shall be properly size for the engine and be complete with companion flanges. Installation of exhaust silencer and connection to exhaust system will be by Purchaser.

9. (Addition)

All tests and inspections shall be performed in accordance with the relevant NIOEC inspection and test procedures including Shop Inspection Procedure (NIOEC-SIP-46-04).

10.12 & 10.13(Modification)

Add the following sentences at the end of this clause:

Two years spare parts shall be in accordance with NIOEC-SP-40-03.



IRANIAN PETROLEUM STANDARDS

استانداردهای نفت ایران

IPS

IPS-M-PM-125 (1)

**MATERIAL AND EQUIPMENT STANDARD
FOR
CENTRIFUGAL FIRE WATER PUMPS**

FIRST REVISION

MARCH 2009

استاندارد کالا و تجهیزات
برای
پمپهای آتش نشانی گریز از مرکز

ویرایش اول

اسفند ۱۳۸۷

DEPUTY MINISTER
OF
ENGINEERING & LOCAL MANUFACTURING
RESEARCH & STANDARDS

معاونت مهندسی و ساخت داخل



Documents

Document Sharing Hub

تحقیقات و استانداردها

FOREWORD

The Iranian Petroleum Standards (IPS) reflect the views of the Iranian Ministry of Petroleum and are intended for use in the oil and gas production facilities, oil refineries, chemical and petrochemical plants, gas handling and processing installations and other such facilities.

IPS is based on internationally acceptable standards and includes selections from the items stipulated in the referenced standards. They are also supplemented by additional requirements and/or modifications based on the experience acquired by the Iranian Petroleum Industry and the local market availability. The options which are not specified in the text of the standards are itemized in data sheet/s, so that, the user can select his appropriate preferences therein.

The IPS standards are therefore expected to be sufficiently flexible so that the users can adapt these standards to their requirements. However, they may not cover every requirement of each project. For such cases, an addendum to IPS Standard shall be prepared by the user which elaborates the particular requirements of the user. This addendum together with the relevant IPS shall form the job specification for the specific project or work.

The IPS is reviewed and up-dated approximately every five years. Each standards are subject to amendment or withdrawal, if required, thus the latest edition of IPS shall be applicable

The users of IPS are therefore requested to send their views and comments, including any addendum prepared for particular cases to the following address. These comments and recommendations will be reviewed by the relevant technical committee and in case of approval will be incorporated in the next revision of the standard.

Standards and Research department
No.19, Street14, North kheradmand

Karimkhan Avenue, Tehran, Iran .

Postal Code- 1585886851

Tel: 88810459-60 & 66153055

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Email: Standards@nioc.org

پیش گفتار

استانداردهای نفت ایران (IPS) منعکس کننده دیدگاههای وزارت نفت ایران است و برای استفاده در تأسیسات تولید نفت و گاز، پالایشگاههای نفت، واحدهای شیمیایی و پتروشیمی، تأسیسات انتقال و فراورش گاز و سایر تأسیسات مشابه تهیه شده است.

استانداردهای نفت، براساس استانداردهای قابل قبول بین المللی تهیه شده و شامل گزیده هائی از استانداردهای مرجع می باشد. همچنین براساس تجربیات صنعت نفت کشور و قابلیت تأمین کالا از بازار داخلی و نیز برحسب نیاز، مواردی بطور تکمیلی و یا اصلاحی در این استاندارد لحاظ شده است. مواردی از گزینه های فنی که در متن استانداردها آورده نشده است در داده برگ ها بصورت شماره گذاری شده برای استفاده مناسب کاربران آورده شده است.

استانداردهای نفت، بشکلی کاملاً انعطاف پذیر تدوین شده است تا کاربران بتوانند نیازهای خود را با آنها منطبق نمایند. با این حال ممکن است تمام نیازمندی های پروژه ها را پوشش ندهند. در این گونه موارد باید الحاقیه ای که نیازهای خاص آنها را تأمین می نماید تهیه و پیوست نمایند. این الحاقیه همراه با استاندارد مربوطه، مشخصات فنی آن پروژه و یا کار خاص را تشکیل خواهند داد.

استانداردهای نفت تقریباً هر پنج سال یک بار مورد بررسی قرار گرفته و روزآمد می گردند. در این بررسی ها ممکن است استانداردی حذف و یا الحاقیه ای به آن اضافه شود و بنابراین همواره آخرین ویرایش آنها ملاک عمل می باشد.

از کاربران استاندارد، درخواست می شود نقطه نظرها و پیشنهادات اصلاحی و یا هرگونه الحاقیه ای که برای موارد خاص تهیه نموده اند، به نشانی زیر ارسال نمایند. نظرات و پیشنهادات دریافتی در کمیته های فنی مربوطه بررسی و در صورت تصویب در تجدید نظرهای بعدی استاندارد منعکس خواهد شد.

ایران، تهران، خیابان کریمخان زند، خردمند شمالی، کوچه چهاردهم، شماره ۱۹

اداره تحقیقات و استانداردها

کدپستی: ۱۵۸۵۸۸۶۸۵۱

تلفن: ۶۰ - ۸۸۸۱۰۴۵۹ و ۶۶۱۵۳۰۵۵

دور نگار: ۰۲۱-۸۸۸۱۰۴۶۲

Standards@nioc.org

پست الکترونیکی:

تعاریف عمومی :

در این استاندارد تعاریف زیر به کار می رود.

GENERAL DEFINITIONS:

Throughout this Standard the following definitions shall apply.

شرکت :

به یکی از شرکت های اصلی و یا وابسته به وزارت نفت، مثل شرکت ملی نفت ایران، شرکت ملی گاز ایران، شرکت ملی صنایع پتروشیمی و شرکت ملی پالایش و پخش فرآورده های نفتی اطلاق می شود.

COMPANY :

Refers to one of the related and/or affiliated companies of the Iranian Ministry of Petroleum such as National Iranian Oil Company, National Iranian Gas Company, National Petrochemical Company and National Iranian Oil Refinery And Distribution Company.

خریدار:

یعنی شرکتی که این استاندارد بخشی از مدارک سفارش خرید مستقیم آن "شرکت" می باشد و یا "پیمانکاری" که این استاندارد بخشی از مدارک قرارداد آن است.

PURCHASER :

Means the "Company" where this standard is a part of direct purchaser order by the "Company", and the "Contractor" where this Standard is a part of contract document.

فروشنده و تامین کننده:

به موسسه و یا شخصی گفته می شود که تجهیزات و کالاهای مورد لزوم صنعت را تامین می نماید.

VENDOR AND SUPPLIER:

Refers to firm or person who will supply and/or fabricate the equipment or material.

پیمانکار:

به شخص، موسسه و یا شرکتی گفته می شود که پیشنهادش برای مناقصه پذیرفته شده است.

CONTRACTOR:

Refers to the persons, firm or company whose tender has been accepted by the company.

مجری :

مجری به گروهی اطلاق می شود که تمام یا قسمتی از کارهای اجرایی و یا راه اندازی پروژه را انجام دهد.

EXECUTOR :

Executor is the party which carries out all or part of construction and/or commissioning for the project.

بازرس:

در این استاندارد بازرس به فرد/گروه یا موسسه ای اطلاق می شود که کتباً توسط کارفرما برای بازرسی، ساخت و نصب تجهیزات معرفی شده باشد.

INSPECTOR :

The Inspector referred to in this Standard is a person/persons or a body appointed in writing by the company for the inspection of fabrication and installation work.

باید:

برای کاری که انجام آن اجباری است، استفاده می شود.

SHALL:

Is used where a provision is mandatory.

توصیه:

برای کاری که ضرورت انجام آن توصیه می شود، بکار می رود.

SHOULD:

Is used where a provision is advisory only.

ترجیح:

معمولاً در جایی استفاده می شود که انجام آن کار براساس نظارت شرکت باشد.

WILL:

Is normally used in connection with the action by the "Company" rather than by a contractor, supplier or vendor.

ممکن است :

برای کاری که انجام آن اختیاری می باشد، بکار می رود.

MAY:

Is used where a provision is completely discretionary.

MATERIAL AND EQUIPMENT STANDARD
FOR

CENTRIFUGAL FIRE WATER PUMPS

FIRST REVISION

MARCH 2009

استاندارد کالا و تجهیزات

برای

تلمبه های گریز از مرکز آب آتش نشانی

ویرایش اول

اسفند ۱۳۸۷

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این استاندارد متعلق به وزارت نفت ایران است. تمام حقوق آن متعلق به مالک آن بوده و نباید بدون رضایت کتبی وزارت نفت ایران، تمام یا بخشی از این استاندارد، به هر شکل یا وسیله از جمله تکثیر، ذخیره سازی، انتقال، یا روش دیگری در اختیار افراد ثالث قرار گیرد.

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