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

NIOEC SP

NIOEC SPECIFICATION FOR STRAINERS AND FILTERS (FOR PLANTS)

FIRST EDITION

JULY, 2005

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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-G-PI-230(2), April 2015 with the modification as specified herein after shall be strictly followed.

Articles 1 through 4 of this document replace entirely the related articles in the referenced IPS Standard.

1. SCOPE

This NIOEC Specification covers general requirements for design, material, fabrication, inspection and test of different types of strainers and filters mainly used in suction lines of pumps, compressors and turbines in Refineries and distribution depot.

The Contractor shall determine by careful security which of the requirements are the more stringent and which combination of requirements will be acceptable as regards safety, economic and legal aspects.

Compliance with the requirements of this Specification and the Standards and codes referred to herein shall not relieve the contractor or manufacturer of their responsibility to follow safe.

Resolution on cases not explicitly stipulated in this Specification, or on cases where conflicts may arise among the requirements of the referenced/relevant consent and approval of NIOEC.

Deviation from this specification will only be permitted on obtaining written approval from NIOEC.

2. REFERENCES

The following standard, codes and specification, to the extent specified hereinafter, 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 dated references, after the cited date shall be mutually agreed upon between NIOEC and vendor/contractor.

NIOEC-SP (NIOEC SPECIFICATIONS)

NIOEC-SP-00-10	“NIOEC Specification for Units”
NIOEC-SP-80-02	“NIOEC Specification for Paints”
NIOEC-SP-50-10	“NIOEC Specification for piping Material Purchasing-Flange and Gasket”
NIOEC-SP-50-11	“NIOEC Specification for Piping Material Purchasing-Fitting”

NIOEC STANDARD DRAWINGS

NIOEC-SD-5013-1/1	“Underground & Misc. Piping Details”
NIOEC-SD-5048-1/1	“Suction Strainers for Pumps "Y" type”
NIOEC-SD-5049-1/1	“Suction Strainers for Pumps "T" type”
NIOEC-SD-5050-1/1	“Flat Type Suction Strainers”

IPS (IRANIAN PETROLEUM STANDARD)

IPS-G-PI-230(2) "General standard for strainers and filters"

ISO (INTERNATIONAL ORGANIZATION FOR STANDARDIZATION)

ISO 7-1 "Pipe Threads Where Pressure-Tight Joints Are Made on the Threads"

ISO 148-1 "Metallic Materials - Charpy Pendulum Impact Test - Part 1: Test Method"

ISO 148-2 "Metallic Materials - Charpy Pendulum Impact Test - Part 2: Verification of Testing Machines"

ISO 148-3 "Metallic Materials - Charpy Pendulum Impact Test - Part 3: Preparation and Characterization of Charpy V-Notch Test Pieces or Indirect Verification of Pendulum Impact Machines"

ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)

A 105/A 105M "Standard Specification for Carbon Steel Forgings for Piping Applications"

ASTM A-370 "Standard Test Method and Definitions for Mechanical Testing of Steel Products"

ASTM E-94 "Standard Guide for Radiographic Examination"

ASTM E-125 "Reference Photographs for Magnetic Particle Indication on Ferrous Casting"

ASTM E-142 "Method for Controlling Quality of Radiographic Testing"

ASTM E-165/ E 165M "Standard Practice for Liquid Penetrant Examination for General Industry"

ASTM E-186 "Standard Reference Radiographs for Heavy Walled (2 2 to 4½ -in. (50.8 to 114-mm)) Steel Casting"

ASTM E 396 "Standard Test Methods for Chemical Analysis of Cadmium."

ASTM E-446 "Referenced Radiographs for Steel Casting up to 50.8 mm (2") in Thickness"

ASME (AMERICAN SOCIETY OF MECHANICAL ENGINEERING)

ASME B-1.20.1 "Pipe Threads, General Purpose"

ASME B-16.34 "Valves-Flanged, Threaded, and Welding Ends"

ASME B-31.3 "Process Piping"

ASME Section VIII Div I

UL (UNDERWRITERS LABORATORIES)

UL 331 "Strainers for Flammable Fluids and Anhydrous Ammonia"

UL 1105 "Standard for Marine Use Filters, Strainers and Separators"

UL 1193 "Standard for Safety for Marine Filters and Strainers for Non-Flammable Liquids"

SIS (SWEDISH INSTITUTION OF STANDARDS)

SIS 05 5900

"Practice Surface Preparation Standard for Painting Steel Surface"

2.1. Equivalent to IPS Standard

Substitute the following IPS Standards as referred to throughout IPS-G-PI-230(2) to relevant NIOEC's Specifications as follows:

<u>IPS Standard</u>	<u>Relevant NIOEC Specification</u>
IPS-E-TP-100	NIOEC-SP-80-02
IPS-M-PI-150	NIOEC-SP-50-10 & 11

3. UNITS

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

4. DEFINITIONS AND TERMINOLOGY

This section contains definitions for the terms as they are used in this document.

Strainer: A device designed to separate particles that are 150 microns or more in size, from fluids.

Filter: A device designed to remove particle size 500 down to one micron, from fluids.

Basket or Element: Basket or element—the replaceable part in a filter/strainer that performs the barrier separation of solid particles from flowing fluid. It is normally removable for cleaning and servicing and can be furnished in a wide variety of materials, particle size removal capability, straining area, and types of construction interchangeable baskets or elements are normally available for a given make, model, and size filter/strainer.

5. ADDENDUM TO IPS STANDARD IPS-G-PI-230(2)

GENERAL STANDARD FOR STRAINERS AND FILTERS

SECOND REVISION

APRIL 2015

استاندارد عمومی

برای

صافی‌ها و فیلترها

ویرایش دوم

اردیبهشت 1394

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این استاندارد متعلق به وزارت نفت ایران است. تمام حقوق متعلق به مالک است. تمام و یا بخشی از این استاندارد نباید بدون رضایت کتبی وزارت نفت ایران، به هر شکل یا به هر وسیله (تکثیر، ذخیره سازی، انتقال یا روشهای دیگر) در اختیار اشخاص ثالث قرار گیرد.

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 are based on internationally acceptable standards and include 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.

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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 شیمیائی و پتروشیمی ، تأسیسات انتقال و فرآوری 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 در هر مورد می باشد . همچنین سایر الزامات و / یا اصلاحات مورد نیاز براساس تجربیات صنعت نفت کشور و امکانات تأمین داخل در استانداردها گنجانده شده است ، مواردی از گزینه های فنی که در متن استانداردها آورده نشده است در برگ داده 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 در مواردی همه نیازهای پروژه ها را پوشش ندهند . در این گونه موارد باید الحاقیه ای که نیازهای خاص آنها را تامین مینماید 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 یکبار مورد بررسی قرار گرفته و روز آمد میگردند . در این بررسی ها ممکن است استانداردی حذف و یا الحاقیه ای بآن اضافه شود و بنابر این همواره آخرین ویرایش آنها ملاک عمل میباشد .

از کاربران استاندارد، درخواست میشود 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 17

اداره تحقیقات و استانداردها

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پست الکترونیک:

General Definitions:

Throughout this Standard the following definitions shall apply.

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, and National Petrochemical Company etc.

Purchaser :

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

Vendor And Supplier:

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

Contractor:

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

Executor :

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

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

Shall:

Is used where a provision is mandatory.

Should

Is used where a provision is advisory only.

Will:

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

May:

Is used where a provision is completely discretionary.

تعاریف عمومی :

در این استاندارد تعاریف زیر به کار می رود.

شرکت :

به شرکت های اصلی و وابسته وزارت نفت مثل شرکت ملی نفت ایران، شرکت ملی گاز ایران، شرکت ملی صنایع پتروشیمی و غیره اطلاق میشود.

خریدار:

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

فروشنده و تامین کننده:

به موسسه و یا شخصی گفته میشود که تجهیزات و کالاهای مورد لزوم صنعت را تامین مینماید .

پیمانکار:

به شخص ، موسسه و یا شرکتی گفته میشود که پیشنهادش برای مناقصه و یا مزایده پذیرفته شده است

مجری :

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

بازرس:

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

باید:

برای کاری که انجام آن اجباری است استفاده میشود.

توصیه:

برای کاری که ضرورت انجام آن توصیه میشود

ترجیح:

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

ممکن است :

برای کاری که انجام آن اختیاری میباشد .

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