

NIOEC-SP-60-19(1)							
DOCUMENT CODE							NO. OF PAGES: 3
PLAN/PRJ/SUB	UNIT	PHASE	DISCIPLINE	DOCUMENT TYPE	SERIAL NO.	REV. NO.	DATE
NIOEC	000	EG	EL	SP	6019	A1	JUNE, 2016



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

NIOEC SP

NIOEC SPECIFICATION FOR ELECTRICAL HEAT TRACING

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 on going 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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REV.	DATE	PREPARED	CHECKED	APPROVED	AUTHORIZED

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INTRODUCTION

To satisfy the requirements of this NIOEC Specification, Iranian Petroleum Standard IPS-M-EL-190(1), revised on July 2009, with the modifications as specified herein after shall be strictly followed. Articles 1 through 3 of this document replace entirely the related articles in the referenced IPS Standard.

1. SCOPE

- 1.1.** This Specification covers the electrical heat tracing systems to be provided for firefighting, process and utility piping, equipment, instruments, etc. where required.
- 1.2.** This Specification covers only the general requirements of the heat tracing system. The installation details will be covered in the construction drawings.
- 1.3.** The system will be designed to maintain the temperature required by the specified various fluids.
- 1.4.** Deviations from this Specification will only be permitted on obtaining written approval from NIOEC.
- 1.5.** 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 the international standards, shall be made through written consent and approval of NIOEC.

2. REFERENCES

The following standards, codes, and specifications, 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 the dated references, after the cited date shall be mutually agreed upon between NIOEC and the Vendor /Contractor.

IEC (INTERNATIONAL ELECTROTECHNICAL COMMISSION)

ANSI/IEEE Std515 “Standard for the Testing, Design, Installation and Maintenance of Electrical Resistance Heat Tracing for Industrial Applications”

BS (BRITISH STANDARD)

BS 6351-1983 “Electric Surface Heating”

IPS (IRANIAN PETROLEUM STANDARD)

IPS-M-EL-190 “Material Standard for Electrical Heat Tracing”

NIOEC-SP (NIOEC SPECIFICATIONS)

NIOEC-SP-00-10 “NIOEC Specification for Units”

NIOEC-SIP (NIOEC SHOP INSPECTION PROCEDURE)

NIOEC-SIP-60-00 “Shop Inspection Procedure for Electrical Equipment”

3. UNITS

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



IRANIAN PETROLEUM STANDARDS

استانداردهای نفت ایران

IPS

IPS-M-EL-190 (1)

**MATERIAL STANDARD
FOR
ELECTRICAL HEAT TRACING**

FIRST REVISION

JULY 2009

استاندارد کالا
برای
گرم کننده الکتریکی

ویرایش اول
تیر ۱۳۸۸

**DEPUTY MINISTER
OF
ENGINEERING & LOCAL MANUFACTURING
RESEARCH & STANDARDS**

معاونت مهندسی و ساخت داخل



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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 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 گزیده‌هایی از استانداردهای مرجع می‌باشد. 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 گزینه‌های فنی که در متن استاندارد آورده نشده است در داده برگ‌ها 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 نیازمندی‌های پروژه‌ها را پوشش ندهند. در این گونه موارد باید الحاقیه‌ای که نیازهای خاص آنها را تأمین 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 روزآمد می‌گردند. در این بررسی‌ها ممکن است استانداردی حذف و یا الحاقیه‌ای به آن اضافه شود و بنابراین همواره آخرین ویرایش آنها ملاک عمل می‌باشد.

از کاربران استاندارد، درخواست می‌شود نقطه نظرها و پیشنهادات اصلاحی و یا هرگونه الحاقیه‌ای که برای موارد خاص تهیه نموده‌اند، به نشانی زیر ارسال نمایند. نظرات و پیشنهادات دریافتی در کمیته‌های 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 19

اداره تحقیقات و استانداردها

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Standards@nioc.org

پست الکترونیکی:

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

Fax: 88810462

Email: Standards@nioc.org

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 documents.

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.