

NIOEC-SP-60-17(1)						
DOCUMENT CODE						NO. OF PAGES: 3
PLAN/PRJ/SUB	UNIT	PHASE	DISCIPLINE	DOCUMENT TYPE	SERIAL NO.	REV. NO.
NIOEC	000	EG	EL	SP	6017	A1
						DATE
						DECEMBER, 2016



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

NIOEC SP

NIOEC SPECIFICATION FOR CAPACITOR BANKS

SECOND EDITION

DECEMBER, 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.

REVISION INDEX

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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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1	DECEMBER, 2016	M.ABDI	H.BANAKHEIRI	M.R.FARZAM	M. KAREGAR NAJAFI
0	JULY, 2005	R.SEYEDIAN	R.SEYEDIAN	M.R.FARZAM	M.A.A.SAJEDI
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-181(2), revised on JANUARY 2010, with the modifications as specified herein after shall be strictly followed. Articles 1 through 3 of this document replace entirely the articles 1 through 4 in the referenced IPS.

1. SCOPE

This NIOEC Specification covers the minimum requirements for design, manufacture, and quality control of power factor correction capacitors.

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

Resolution on cases not explicitly stipulated in this Specification, or on cases where conflicts may arise among the requirements of the referenced 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)

IEC 60831-1	“Shunt Power Capacitor of the Self-Healing Type for a.c. Systems having a rated Voltage up to and including 1000V-General Performance, Testing and Rating, Safety Requirements, guide for Installation and Operation.”
IEC 60831-2	“Shunt Power Capacitor of the Self-Healing Type for a.c. Systems having a rated Voltage up to and including 1000V-Ageing Test, Self Healing Test and Destruction Test.”
IEC 60871-1	“Shunt Capacitors for a.c. Power Systems Having a Rated Voltage above 1000V-General.”
IEC 60871-2	“Shunt Capacitors for a.c. Power Systems Having a Rated Voltage above 1000V-Endurance Testing.”
IEC 60871-3	“Shunt Capacitors for a.c. Power Systems Having a Rated Voltage above 1000V-Protection of shunt capacitors and shunt Capacitor banks.”
IEC 60871-4	“Shunt Capacitors for a.c. Power Systems Having a Rated Voltage above 1000V-Internal fuses.”
IEC 60529	“Degree of Protection Provided by Enclosures.”

IPS (IRANIAN PETROLEUM STANDARD)

IPS-M-EL-181(2)	“Material and Equipment Standard for Power Factor Improvement Capacitor.”
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NIOEC-SP (NIOEC SPECIFICATIONS)

NIOEC-SP-00-10	“NIOEC Specification for Units”
NIOEC-SP-00-11	“NIOEC Specification for Site Conditions”

NIOEC-SIP (NIOEC SHOP INSPECTION PROCEDURE)

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

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

4. ADDENDUM TO IPS-M-EL-181 (2)

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

Addition to 5.2:

For site condition NIOEC-SP-00-11 shall be followed.



IRANIAN PETROLEUM STANDARDS

استانداردهای نفت ایران

IPS

IPS-M-EL-181 (2)

MATERIAL AND EQUIPMENT STANDARD
FOR
POWER FACTOR IMPROVEMENT
CAPACITOR

SECOND REVISION
JANUARY 2010

استاندارد کالا و تجهیزات
برای
خازن اصلاح ضریب قدرت

ویرایش دوم
دی ۱۳۸۸

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 بین‌المللی تهیه شده و شامل گزیده‌هایی از استانداردهای مرجع در هر مورد 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 استانداردها 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 استاندارد 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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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.

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