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

NIOEC SP

NIOEC SPECIFICATION FOR CONTROL PANELS AND SYSTEM CABINETS

SECOND EDITION

DECEMBER 2009

THIS SPECIFICATION IS THE PROPERTY OF NATIONAL IRANIAN OIL ENGINEERING & CONSTRUCTION COMPANY. IT IS CONFIDENTIAL AND ALL RIGHTS RESERVED TO THE OWNER. NEITHER WHOLE NOR ANY PART OF THIS DOCUMENT MAY BE DISCLOSED TO ANY THIRD PARTY, REPRODUCED, STORED IN ANY RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WITHOUT THE PRIOR WRITTEN CONSENT OF THE NATIONAL IRANIAN OIL ENGINEERING & CONSTRUCTION COMPANY.

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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0. INTRODUCTION

To satisfy the requirements of this NIOEC specification, Iranian Petroleum Standard IPS-M-IN-220, with the modifications as specified hereinafter shall be strictly followed.

Articles 1 through 3 of this document replace entirely the related articles in the referenced IPS Standard.

1. SCOPE

This specification defines NIOEC'S minimum requirements for control panels and system cabinets.

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

API (AMERICAN PETROLEUM INSTITUTE)

API-552 "Transmission Systems"

IEC (INTERNATIONAL ELECTRO-TECHNICAL COMMISSION)

60068 "Basic Environmental Testing Procedures"

PART 2 TESTS

60068-2-1 "Test A: Cold"

60068-2-2 "Test B: Dry Heat"

60068-2-3 " Test Ca: Damp Heat and Steady State"

60068-2-42 " Test Kc: Sulfur Dioxide Tests for Contacts and Connections"

60068-2-43 " Test Kd: Hydrogen Sulphide Tests for Contacts Connections"

60079-11 "Explosive Atmospheres- Part 11: Equipment protection by intrinsic safety "i"'"

60529 "Classification of Degrees of Protection Provided by Enclosures"

60605 "Equipment Reliability Testing"

60605-1 "Part 1: General Requirements"

60605-5 "Part 5: Compliance Test Plans for Success Ratio"

60605-7 "Part 7: Compliance Test Plans for Failure Rate and Mean Time between Failures Assuming Constant Failure Rate"

60641 "Specification for Pressboard and Press paper for Electrical Purposes"

60641-1	"Part 1: Definitions and General Requirements"
60654	"Operating Conditions for Industrial Process Measurement and Control Equipment"
60654-1	"Part 1: Temperature, Humidity and Barometric Pressure"
60654-3	"Part 3: Mechanical Influences"
60654-4	"Part 4: Corrosive and Erosive Influences"
60801	"Electromagnetic Compatibility for Industrial-Process Measurement and Control Equipment"
60801-3	"Part 3: Radiated Electromagnetic Field"

IPS (IRANIAN PETROLEUM STANDARD)

IPS-M-IN-220	"Material Standard for Control Panels and System Cabinets"
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ISA (INSTRUMENT SOCIETY OF AMERICA)

ANSI/ISA S 71-04	"Environmental Conditions"
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BSI (BRITISH STANDARD INSTITUTION)

BS 381C -1988	"Specification for Colors for Identification, Coding and Special Purposes"
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NIOEC-SP (NIOEC SPECIFICATIONS)

NIOEC-SP-70-01	"Specification for Instrumentation"
NIOEC-SP-70-03	"Specification for Instrument Installation Material"
NIOEC-SP-00-10	"Specification for Units"
NIOEC-SP-60-37	"Specification for Lighting/Small Power Panels"

3. UNITS

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

4. ABBREVIATIONS

Throughout this document the following abbreviations and acronyms are used:

I/O: Input/ Output

IS: Intrinsically Safe

PCB: Printed Circuit Board

5. DEFINITIONS

In cases where this specification is part of a direct order, Purchaser shall mean National Iranian Oil Engineering and Construction Company. Where this specification forms part of contract documents, purchaser shall mean contractor. In references to inspection by purchaser when this specification forms part of contract documents this shall be construed to mean that NIOEC shall also have the right of inspection.

6. MODIFICATIONS TO THE ORIGINAL IPS (IPS-M-IN-220)

6.1 ARTICLE 7 CLAUSE 6 SHALL READ AS FOLLOWS:

“7.6 The height from the floor to top of the highest control or recording instrument and to the top of the lowest instrument shall be in accordance with NIOEC-SD-7012.”

6.2 ARTICLE 15 CLAUSE 5 SECTION 4 SHALL READ AS FOLLOWS:

“15.5.4 Unless otherwise specified in the requisition, or agreed by the user, the coding of wires shall be as follows:

1. DC Power Supply 24 V	Positive	- Red
	Negative	- Black
2. AC Power Supply	Phase	- Brown
	Neutral	- Light Blue
3. Input and Output Signals		- White (or blue if a color is to be used to indicate intrinsically safe signals)
4. Signal Earth (Clean Earth)		- Green
5. Safety Earth (Dirty Earth)		- Green and Yellow
6. Thermo-Couple Ext. Wires		- As specified in the data sheets, which is to be based on NIOEC-SP-70-05

Note: 1) Care shall be taken that interference susceptible signal lines are not affected by high current carrying lines. ”

6.3 ARTICLE 15 CLAUSE 7 SECTION 6 SHALL READ AS FOLLOWS:

“15.7.6 For additional lightning protection requirements, reference shall be made to API-552.”

6.4 ARTICLE 18 CLAUSE 1 SHALL READ AS FOLLOWS:

“18.1 Unless otherwise specified in the requisition, all system cabinets and panels shall be inspected by

the user's nominated inspector before leaving the factory. The inspection shall be carried out in accordance with the requirements of factory inspection and testing of instruments and instrument system standard, NIOEC-SP-70-16."

6.5 APPENDIX A.1.5 SHALL READ AS FOLLOWS:

"A.1.5 DC uninterruptible maintained

A supply as specified in NIOEC electrical power supply and distribution system specification, and maintained for a prolonged period such as for A.1.1 above."

6.6 ARTICLE 15 CLAUSE 2 SECTION 1 Note SHALL READ AS FOLLOWS:

"15.2.1 Note: Indoor stations and System cabinets shall conform to IEC-60529, IP 42, as a minimum."

7. GENERAL REQUIREMENTS

7.1 Mechanical

- 7.1.1 The cabinets shall have suitable EIA 19" rack mounting facilities for installing system rack modules.
- 7.1.2 The structure of the enclosure shall be made of heavy duty, minimally 2 mm thick metal plates.
- 7.1.3 Quick reference charts shall be permanently attached to the inside of each enclosure front door. The chart shall clarify proper module or PCB placement and assist in the interpretation of the status indicators.
- 7.1.4 Internal layout of cabinets shall be designed to provide unimpeded access to all electronic modules, power distribution switches, fuses and terminals and field cable termination areas.
- 7.1.5 Internal framework shall be designed to provide rigid and secure mountings for module racks, power distribution and field cable termination areas.
- 7.1.6 Framework shall be braced as required to resist vibration movement.
- 7.1.7 Cabinet assembly shall utilize nuts and bolts of adequate size and strength to suit the application. Self tapping screws and pop rivets shall not be used.
- 7.1.8 Individual cabinet sections shall match accurately with those adjacent in terms of location holes, overall dimensions and finish.
- 7.1.9 Neoprene rubber seals shall be used to seat all doors and side panels.
- 7.1.10 Each cabinet shall be designed as free standing units with its individual side walls.
- 7.1.11 Cabinets shall be constructed in sections for transportation. Each cabinet section shall be provided with removable, lifting eyes for handling.
- 7.1.12 Cabinets shall be plinth mounted. Plinths shall be drilled for mounting by M12 (minimum) bolts. Plinths shall be removable for installation.
- 7.1.13 Access shall be by means of 135 degree continuously hinged doors to each cabinet at front and back.
- 7.1.14 Cable entries shall be via the bottom of the cabinets from an under floor void.

- 7.1.15 A gland plate shall be incorporated at the bottom of the enclosure. This plate shall be made of steel plates with 5 mm thickness and shall be removable by suitable screws.
- 7.1.16 Cables shall be adequately clamped and supported to minimize strain on connectors, associated termination's and equipment.
- 7.1.17 Each cabinet section and console shall include a pocket for cabinet layout and termination drawings. Cabinets shall have adequate internal lighting.
- 7.1.18 Full heat gain calculations for each cabinet and console type shall be provided.
- 7.1.19 Ventilation requirements shall be arranged to avoid the creation of local hot spots. Forced ventilation Systems shall be fitted to the stations and cabinets where necessary. All ventilation intakes shall be filtered.
- 7.1.20 Forced ventilation Systems shall consist of twin paralleled Systems each rated at 100% duty. Each system shall be fed from the cabinet/console power supply via its own dedicated fuses, contact breakers and thermostats. Fan failure shall annunciate at the operator stations.
- 7.1.21 Forced ventilation Systems shall be fitted with the maximum noise level of 55 dBA.
- 7.1.22 The thermostat for fan and heater shall be considered separately and heater should be anti condensation type.
- 7.1.23 All cabinets of one system shall have the same lock key.
- 7.1.24 Cabinet door shall be double acting type. Doors shall be equipped with hardware that permits it to swing to either side of the plane of its frame.

7.2 Electrical

- 7.2.1 All field termination areas (screw terminals) shall be readily accessible via key lockable doors.
- 7.2.2 All spare module locations shall have blanking plates fitted to the racks. Spare input and output module locations shall be fully wired to spare terminals
- 7.2.3 Cable trays, wire-ways and tie-bars shall be supplied to separately support field and cabinet wiring.
- 7.2.4 Wire-ways for field and cabinet wiring shall not be filled to greater than 50% of their total capacity) Each cable entry, cable tray and wire-way for field cables shall be sized taking into account the number and diameters of field cables to be installed and allowance for utilisation of spare capacity. As a general rule, cable trays shall be sized for a single layer of cables and to take into account future use of spare I/O capacity.
- 7.2.5 The layout of cabinets shall provide for unrestricted routing for incoming and outgoing cables between cable entry and terminations.
- 7.2.6 Wire-ways shall be of the vented flame resistant low smoke, low toxicity type. Removable covers shall be provided.
- 7.2.7 Cable tie-bars material of construction shall be of stainless steel.
- 7.2.8 Cabinet/console wiring shall be flame-retardant volt grade, stranded conductors.
- 7.2.9 Wiring shall be sized according to service. Maximum current per conductor and conductor bundles shall be 90% of the cable manufacturer's allowable current rating at maximum soak test temperature.

- 7.2.10 Each wire shall have identifying markers, using sleeve or plastic ferrules at all terminal points, showing terminal number and appropriate instrument tag number.
- 7.2.11 All wiring to terminals shall be individually and alpha-numerically identified with respect to the terminals.
- 7.2.12 Wiring shall be routed in such a way that it will not impede maintenance work such as card removal etc.
- 7.2.13 Cables within wire-ways shall be secured with plastic ties to prevent spilling when covers are removed.
- 7.2.14 Wiring of different signal levels shall be adequately segregated in accordance with the appropriate standards and codes. Field termination side of terminal banks shall be reserved for field cabling only. Field cabling shall occupy dedicated cable trays and wire-ways.
- 7.2.15 Power cables shall be separated at least 300 mm from all signal cables. Vendor shall take care to avoid electrical interfaces.
- 7.2.16 Plugs and sockets shall have nameplates on the mounting plate identifying their number.
- 7.2.17 Power distribution shall be divided into individually protected branch circuits.
- 7.2.18 Branch circuit protection device shall be a circuit breaker. Time-current characteristic shall be such that the upstream protection device shall not operate for a fault in the branch circuit.
- 7.2.19 Each module/component in cabinets requiring AC power shall have its own circuit breaker within the cabinet.
- 7.2.20 Each DC power supply unit, within the cabinets, stations etc., shall have its own AC and DC circuit breakers.
- 7.2.21 For further distribution of cabinet DC power supply to electronic cards/modules, such as controllers, with built in fuse protection, isolating switches shall be provided.
- 7.2.22 Branch circuit disconnect switch is required for branch circuits protected by fuses. Switch shall be connected ahead of the fuse.
- 7.2.23 Each console, printer, annunciator shall have dedicated circuit breaker.
- 7.2.24 Analogue inputs and outputs shall be fused at the marshalling cabinet terminals when the 24 VDC loop power is not supplied through the I/O card.
- 7.2.25 All field I/O's in a non-Intrinsically safe installation shall have the ability to disconnect power to each field instrument individually at the marshalling panel by means of a fused terminal or a disconnect terminal. This is to enable the removal of an individual instrument for maintenance.
- 7.2.26 All digital outputs shall be fused at the marshalling panel terminals.
- 7.2.27 Terminals shall be selected according to field and panel conductor size and rating. Terminals shall be Screw type, Klippon or equivalent. Wire ends shall have crimp-on vinyl self insulating, locking type lugs.
- 7.2.28 Medium duty, 300-600 Volts rating barrier type, non-hygroscopic material type terminal blocks shall be provided.
- 7.2.29 Terminals shall be either tinned or silver plated and terminal numbers shall be clearly identified.
- 7.2.30 Terminals shall be so located that they are easily accessible.

- 7.2.31 Adequate space and/or barriers shall be provided to facilitate easy maintenance work.
- 7.2.32 Terminal blocks shall be mounted on channels with a minimum of 25-mm spacers between channel and mounting surface.
- 7.2.33 Terminal blocks shall be mounted vertically.
- 7.2.34 Different signal levels shall run on different terminal rows and shall be physically segregated by space or barriers.
- 7.2.35 The relevant signal level on any terminal row shall be clearly marked on the terminals.
- 7.2.36 Terminals shall be individually identified alpha-numerically. Banks of terminals shall be labeled as to service. Field cabling shall govern terminal grouping i.e., terminals shall be arranged to accommodate the field cables in sequential rows.
- 7.2.37 Spare terminal rail space shall be provided such that the prepared and equipped spare capacity within the corresponding cabinet/bay can be fully utilized. As a minimum, 20% spare space shall be provided on each rail for future field cable terminals. All field cable cores and screens shall be terminated on terminals.
- 7.2.38 Only one conductor shall be terminated in each side of a terminal. All Looping shall be by means of jumper bars.
- 7.2.39 Protective covers shall be provided over all power distribution terminals to reduce the likelihood of accidental short-circuits and contact by maintenance personnel. Appropriate and clear identification and warning labels shall be provided.
- 7.2.40 Terminals shall be so arranged that all incoming and outgoing cables have a minimum straight length of 150 mm from the point of entry.
- 7.2.41 The following earthing points, for connection by others, shall be provided:
- Earthing point shall be provided for Panel steelwork, electrical “dirty” earth - 2 off M12 brass studs per cabinet/console section.
- Earthing point shall be provided for clean earth - electrically insulated copper bus bar of 75 mm² minimum, separated from the cabinet/console steelworks by 25-mm minimum. 2 off M10 brass earth studs to be provided at each end of the bars.
- Earthing point shall be provided for IS earth - electrically insulated copper bus bar of 75 mm² minimum, separated from cabinet/console steelworks by 25 mm minimum. 2 off M10 brass earth studs to be provided at each end of the bars.
- 7.2.42 All cabinet/console internal fabrication and racks shall be earth-bonded together.
- 7.2.43 Each earthing stud and bus bar shall be permanently and durably labeled as to its service.
- Cabinets containing power consuming devices such as System cabinets, etc. shall be equipped with smoke detectors to be connected to system and annunciated at relevant operator stations.
- 7.2.44 Cable entry shall be in the bottom of the cabinet through gland or sliding plate.



IRANIAN PETROLEUM STANDARDS

استانداردهای نفت ایران

IPS

IPS-M-IN-220 (1)

MATERIAL AND EQUIPMENT STANDARD
FOR
CONTROL PANELS AND SYSTEM CABINETS

FIRST REVISION

APRIL 2010

استاندارد کالا و تجهیزات
برای
تابلوهای کنترل و سیستم کابینت‌های ابزار دقیق

ویرایش اول

اردیبهشت ۱۳۸۹

DEPUTY MINISTER
OF
ENGINEERING & LOCAL MANUFACTURING
RESEARCH & STANDARDS

معاونت مهندسی و ساخت داخل



Documents

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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.

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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 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 در هر مورد می‌باشد. همچنین بر اساس تجربیات صنعت نفت کشور و قابلیت تأمین کالا از بازار داخلی و نیز بر حسب 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، به شکلی 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 ۱۹

اداره تحقیقات و استانداردها

کدپستی: ۱۵۸۵۸۸۶۸۵۱

تلفن: ۶۰ - ۸۸۸۱۰۴۵۹۰ و ۰۲۱-۶۶۱۵۳۰۵۵

دورنگار: ۸۸۸۱۰۴۶۲

Standards@nioc.org

آدرس الکترونیکی:

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, National Petrochemical Company and National Iranian Oil Refinery And Distribution Company.

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.

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 می‌رود.

شرکت :

به یکی از شرکت‌های 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 فرآورده‌های نفتی 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 قرار داد 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 پذیرفته شده است.

مجری :

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

بازرس:

در این استاندارد بازرس به فرد/گروه یا موسسه‌ای اطلاق می‌شود 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، بکار می‌رود.

ترجیح:

معمولاً در جایی استفاده می‌شود که انجام آن کار بر اساس نظارت شرکت باشد.

ممکن است :

برای کاری که انجام آن اختیاری می‌باشد، بکار می‌رود.

MATERIAL AND EQUIPMENT STANDARD
FOR
CONTROL PANELS AND SYSTEM CABINETS
ORIGINAL EDITION

FIRST REVISION

APRIL 2010

استاندارد کالا و تجهیزات

برای

تابلوهای کنترل و سیستم کابینت‌های ابزار دقیق

ویرایش اول

اردیبهشت ۱۳۸۹

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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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APPENDICES:

پیوست‌ها:

APPENDIX A 46

پیوست الف ۴۶

1. SCOPE

This standard covers the general requirements for the material of control panels and system cabinets to be used in oil, gas, and petrochemical industries.

Note 1:

This standard specification is reviewed and updated by the relevant technical committee on April. 2007, as amendment No. 1 by circular No. 312.

Note 2:

This bilingual standard is a revised version of the standard specification by the relevant technical committee on April 2010, which is issued as revision (1). Revision (0) of the said standard specification is withdrawn.

Note 3:

In case of conflict between Farsi and English languages, English language shall govern.

2. REFERENCES

Throughout this standard the following dated and undated standards/codes are referred to. These referenced documents shall, to the extent specified herein, form a part of this standard. For dated references, the edition cited applies. The applicability of changes in dated references that occur after the cited date shall be mutually agreed upon by the Company and the Vendor. For undated references, the latest edition of the referenced documents (including any supplements and amendments) applies.

IEC (INTERNATIONAL ELECTROTECHNICAL COMMISSION)

IEC 60068	"Environmental Testing Procedures"
Part 2	"Tests"
IEC 60068-2-1	Test A: "Cold"
IEC 60068-2-2	Test B "Dry Heat"
IEC 60068-2-42	Test Kc: "Sulfur Dioxide Tests for Contacts and Connections"

۱- دامنه کاربرد

این استاندارد حداقل الزامات عمومی کالا برای تجهیزات تابلوهای کنترل و سیستم تابلوهای ابزار دقیق که باید در صنایع نفت، گاز و پتروشیمی بکار برده شود را پوشش می دهد.

یادآوری ۱:

این استاندارد در اردیبهشت ماه سال ۱۳۸۶ توسط کمیته فنی مربوطه بررسی و روز آمد شد و موارد تأیید شده به عنوان اصلاحیه شماره ۱ طی بخشنامه شماره ۳۱۲ ابلاغ گردید.

یادآوری ۲:

این استاندارد دو زبانه، نسخه بازنگری شده استاندارد فوق میباشد که در اردیبهشت ماه سال ۱۳۸۹ توسط کمیته فنی مربوطه تأیید و به عنوان ویرایش (۱) ارایه می گردد. از این پس ویرایش (۰) این استاندارد منسوخ می باشد.

یادآوری ۳:

در صورت اختلاف بین متن فارسی و انگلیسی، متن انگلیسی ملاک می باشد.

۲- مراجع

در این استاندارد به آیین نامه ها و استانداردهای تاریخ دار و بدون تاریخ زیر اشاره شده است. این مراجع، تا حدی که در این استاندارد مورد استفاده قرار گرفته اند، بخشی از این استاندارد محسوب می شوند. در مراجع تاریخ دار، ویرایش گفته شده ملاک بوده و تغییراتی که بعد از تاریخ ویرایش در آنها داده شده است، پس از توافق بین کارفرما و فروشنده قابل اجرا می باشد. در مراجع بدون تاریخ، آخرین ویرایش آنها به انضمام کلیه اصلاحات و پیوست های آن ملاک عمل می باشند.

IEC (کمیسیون بین المللی الکتروتکنیک)

IEC 60068	"دستورالعمل های آزمایش محیطی"
بخش ۲	"آزمون ها"
IEC 60068-2-1	آزمون A: "سرد"
IEC 60068-2-2	آزمون B: "حرارت خشک"
IEC 60068-2-4	آزمون Kc: "آزمون های دی اکسید گوگرد برای کنتاکت ها و اتصالات"