



نگهداشت و افزایش تولید میدان نفتی بینک  
سطح الارض و ابنیه تحت الارض

عمومی و مشترک



شماره پیمان:

053 - 073 - 9184

SPECIFICATION FOR FITTINGS, FLANGES, GASKETS AND BOLTS

نسخه	سریال	نوع مدرک	رشته	تسهیلات	صادر کننده	بسته کاری	پروژه
D02	0005	SP	PI	000	PEDCO	GNRAL	BK

شماره صفحه: 1 از 8

طرح نگهداشت و افزایش تولید 27 مخزن

## SPECIFICATION FOR FITTINGS, FLANGES, GASKETS AND BOLTS

نگهداشت و افزایش تولید میدان نفتی بینک

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Rev.	Date	Purpose of Issue/Status	Prepared by:	Checked by:	Approved by:	COMPANY Approval

Class: 2

COMPANY Doc. Number:

Status:

IDC: Inter-Discipline Check  
IFC: Issued For Comment  
IFA: Issued For Approval  
AFD: Approved For Design  
AFC: Approved For Construction  
AFP: Approved For Purchase  
AFQ: Approved For Quotation  
IFI: Issued For Information  
AB-R: As-Built for COMPANY Review  
AB-A: As-Built -Approved



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## 1.0 INTRODUCTION

Binak oilfield in Bushehr province is a part of the southern oilfields of Iran, is located 20 km northwest of Genaveh city.

With the aim of increasing production of oil from Binak oilfield, an EPC/EPD Project has been defined by NIOC/NISOC and awarded to Petro Iran Development Company (PEDCO). Also PEDCO (as General Contractor) has assigned the EPC-packages of the Project to "Hirgan Energy - Design and Inspection" JV.

### GENERAL DEFINITION

The following terms shall be used in this document.

CLIENT:	National Iranian South Oilfields Company (NISOC)
PROJECT:	Binak Oilfield Development – General Facilities
EPD/EPC CONTRACTOR (GC):	Petro Iran Development Company (PEDCO)
EPC CONTRACTOR:	Joint Venture of : Hirgan Energy – Design & Inspection(D&I) Companies
VENDOR:	The firm or person who will fabricate the equipment or material.
EXECUTOR:	Executor is the party which carries out all or part of construction and/or commissioning for the project.
THIRD PARTY INSPECTOR (TPI):	The firm appointed by EPD/EPC CONTRACTOR (GC) and approved by CLIENT (in writing) for the inspection of goods.
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 CLIENT rather than by an EPC/EPD CONTRACTOR, supplier or VENDOR.
MAY:	Is used where a provision is completely discretionary.

## 2.0 SCOPE

This specification gives amendment and supplement IPS-M-PI-150(2), Material Standard for Flanges and Fittings “for shop the design, manufacturing and testing of steel flanges, metallic & nonmetallic gasket and bolts intended for BINK manifold Extension and compressor stations.

## 3.0 NORMATIVE REFERENCES

The latest edition and addenda of the following industrial Codes & Standards are the main

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documents and shall be referenced in this specification.

### 3.1 LOCAL CODES AND STANDARDS

- IPS-M-PI-150 Material Standard for Flanges and Fittings
- IPS-E-PI-221 Engineering Standard for Piping Material Selection
- IPS-D-PI-144 Insulated Flange Detail
- IPS-M-TP-750/15 Specification for Flange Insulation Kit

### 3.2 INTERNATIONAL CODES AND STANDARDS



- ASME B1.1 Unified Inch Screw Threads
- ASME B1.20.1 Pipe Threads, General Purpose
- ASME B18.2.1 Square & Hex Bolts and Screws
- ASME B18.2.2 Square & Hex Nuts
- ASME B16.20 Ring Joint Gaskets and Grooves for Steel Pipe Flange
- ASME B31.3 Process Piping
- ASME B16.5 Pipe Flanges and Flanged Fittings
- ASME B16.47 Large Diameter Steel Flanges
- ASME B36.10M Welded and seamless Wrought Steel Pipe
- ASME B36.19M Stainless Steel Pipe
- ASME B16.9 Factory Made Wrought Steel Butt welding Fittings
- ASME B16.11 Forged Fittings, Socket-Welding and Threaded
- ASME B16.49 Factory-Made Wrought Steel Butt welding Induction



- ASTM A 193 Alloy Steel and Stainless Steel Bolting for High Temp
- ASTM A 194 Carbon and Alloy Steel Nuts for Bolts for High Pressure And High Temperature Service
- ASTM A 320 Standard Specification for Alloy/Steel Bolting Materials for Low- Temperature Service
- ASTM A370 Standard Methods and Definitions for Mechanical Testing of Products
- ASTM A105 Specification for Forging, Carbon Steel, for Piping Components

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- ASTM A182 Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High Temperature Service
- ASTM A193/A193M Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
- ASTM A194/A194M Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High Pressure or High Temperature Service, or Both
- ASTM A694 Standard Specification for Carbon and Alloy Steel Forgings for Pipe Flanges, Fittings, Valves and Parts for High-Pressure Transmission Services
- ASTM A860 Standard Specification for Wrought High-Strength Ferritic Steel Butt-Welding Fittings
- ASTM A420 Standard Specification for Piping Fittings of Wrought Carbon and Alloy Steel for Low-Temperature Service
- ASTM A403 Standard Specification for Wrought Austenitic Stainless Steel Fittings
- API Spec.5L Specification for Line Pipe
- API 601 Metallic Gaskets for Raised Face Flanges
- MSS-SP-6 Standard Finishes for Contact Faces of Pipe Flanges and Connecting-End Flanges of Valves and Fittings
- MSS-SP-25 Standard Marking Systems for Valves, Fittings, Flanges and Unions
- MSS-SP-43 Wrought Stainless Steel But-Welding Fittings
- MSS-SP-44 Steel Pipeline Flanges
- MSS-SP-53 Quality Standards for Steel Castings and Forgings for Valves, Flanges and Fittings and Other Components Magnetic Particle Examination Methods
- MSS-SP-75 Specification for High Test Wrought Welding Fittings
- EN 10204 Metallic Products – Types of Inspection Documents
- NACE TM-0177 Laboratory Testing of Metals for Resistance to Sulfide Stress Cracking and Stress Corrosion Cracking in H<sub>2</sub>S

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#### Environments

- NACE MR0175/ISO15156 Petroleum and natural gas industries-Materials for use in H2S-containing environments in oil and gas production parts 1, 2 and 3

### 3.3 THE PROJECT DOCUMENTS

- |                                 |  |
|---------------------------------|--|
| • BK-GNRAL-PEDCO-000-PI-DC-0001 | Piping Design Criteria                     |
| • BK-GCS-PEDCO-120-PI-SP-0001   | Piping Material Specification              |
| • BK-SSGRL-PEDCO-110-PI-SP-0001 | Piping Material Specification              |
| • BK-GNRAL-PEDCO-000-PI-SP-0001 | Specification For Color Coding and Marking |
| • BK-GNRAL-PEDCO-000-PI-SP-0018 | Specification For HDPE Pipes               |
| • BK-GNRAL-PEDCO-000-PI-SP-0004 | Specification For Metallic Pipes           |
| • BK-GNRAL-PEDCO-000-PI-SP-0006 | Specification For Painting                 |



### 3.4 ENVIRONMENTAL DATA

Refer to "Process Basis of Design; Doc. No. BK-GNRAL-PEDCO-000-PR-DB-0001".

### 3.5 ORDER OF PRECEDENCE

In case of conflict between requirements specified herein & the requirements of any other referenced document, the most approved stringent requirements of below listed items shall be considered based on the approval given by the owner's representative:



- Purchase order
- Material Requisition
- MTO & Data Sheet
- This Specification
- Drawing & Other Specification
- Reference Project Specification
- Iranian Petroleum Standard (IPS)
- Reference international Code & Standards

When the term "Authorized", "Authorization", "Approval", or "Approved" are used in this specification, it shall mean authorization or Approval from CLIENT.

In case of any conflict between the project documents, the most stringent one shall be considered.

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#### 4.0 ADDENDUM / MODIFICATION TO IPS

##### MODIFICATION TO IPS-M-PI-150

This specification is based on the latest edition of IPS-M-PI-150 "Material Standard for Flanges and Fittings" with modification as follow:

#### 4.1 INSPECTION (ADDED TO CLAUSE 7 IN IPS-M-PI-150)

4.1.1 For all the Flanges and Fittings the certification documents shall be in accordance with the EN 10204.3.1 B.

4.1.2 Repair by welding shall be prohibited on the parent metal of Flanges.

4.1.3 The bolting having a defect due to the design, the material or the fabrication under the vendor's responsibility shall not be accepted.

#### 4.2 IDENTIFICATION (MODIFIED TO CLAUSE 9 IN IPS-M-PI-150)

4.2.1 All flanges and fittings shall be identified by marking with color marks and code numbers as per Specification for Painting.

#### 4.3 BOLTS AND NUTS (ADDED AT THE END OF IPS-M-PI-150)

4.2.1 The specification of the bolting material shall conform to the MR for stud bolt & nuts and also PMS

4.2.2 In order to appreciate the effects on the mechanical characteristics of these steels, the basic product used for manufacture will be checked after any hot forming operation and any stress relieving heat treatment after cold forming.

4.2.3 UNC thread for elements with diameter 1 inch and smaller.

4.2.4 UN8 thread for elements with diameter 1 1/8 inch and larger.

4.2.5 Length of bolts and stud bolts as well as tolerances of fabrication shall conform to the requirements of the ASME B16.5 standard appendix F, and the ASME B16.47 series "A" standard appendix C / MSS SP-44.

4.2.6 Only heavy hexagonal nuts series shall be used.

4.2.7 Stud bolts shall be manufactured from ASTM A193 GR.B7 / B7M, A320 GR. L7 and A193 GR.B8M. Nuts shall be to ASTM A194, Grade 2H, 4 and 8M.

Stud bolt and nuts shall be according to ASME B 1.1, ASME B 18.2.1 and ASME B 18.2.2.

