

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض						 		
	احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک MECHANICAL DATA SHEETS FOR FUEL GAS K.O. DRUM								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری GCS	صادرکننده PEDCO	تهیلات 120	رشته ME	نوع مدرک DT	سریال 0013	نسخه D03	شماره صفحه: ۱ از ۸

طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR FUEL GAS K.O. DRUM

نگهداشت و افزایش تولید میدان نفتی بینک

D03	SEP.2024	IFA	V.Amjadi	M.Fakharian	M. Sadeghian	
D02	JUN.2023	IFA	H.Adineh	M.Fakharian	A.M.Mohseni	
D01	SEP. 2022	IFA	H.Adineh	M.Fakharian	M.Mehrshad	
D00	NOV.2021	IFC	H.Adineh	M.Fakharian	M.Mehrshad	
Rev.	Date	Purpose of Issue / Status	Prepared by:	Checked by:	Approved by:	CLIENT Approval

Class: 1

CLIENT Doc. Number:

F0Z-708844

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 CLIENT Review

AB-A: As-Built -Approved

 NISOC	نگهداشت و افزایش تولید میدان نفتی بینک سطح الارض							 	
	احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک MECHANICAL DATA SHEETS FOR FUEL GAS K.O. DRUM								
شماره پیمان: ۰۵۳ - ۰۷۳ - ۹۱۸۴	پروژه BK	بسته کاری GCS	صادر کننده PEDCO	تسهیلات 120	رشته ME	نوع مدرک DT	سریال 0013	نسخه D03	شماره صفحه: ۸ از ۲

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D00	D01	D02	D03	D04
1	X	X	X	X		65					
2	X	X	X	X		66					
3	X	X				67					
4	X	X	X			68					
5	X	X		X		69					
6	X	X	X	X		70					
7	X	X				71					
8	X	X				72					
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64						128					



Rev	
	1. The Asterisk * denotes information and/or confirmation required from VENDOR.
	2. Deleted
	3. VENDOR shall include for the services of a independent verification body for mechanical design, stage inspection, testing and stamping of the equipment (if possible).
	4. Painting and coating (internal & external) shall be as per project 'Specification for Painting', Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0006.
	5. Flanges shall comply with ASME B16.5. Nozzle bolt holes shall straddle the natural centrelines for horizontal nozzles. VENDOR to confirm maximum allowable nozzle loads and moments (RF: Raised Face, WN: Welding Neck)
	6. All reinforcement pads shall have 1/4" (6mm) tell-tale hole and 1/8" (3mm) vent hole as per Standard Detail Drawing For Pressure Vessels and Heat Exchangers', Doc. No. BK-GNRAL-PEDCO-000-ME-DW-0001".
	7. Manways shall be supplied complete with blind flange, external grab handles, internal grab handle and ladder rungs, nuts, bolting, gasket and proof load test davits. Davits shall be proof load tested on the vessels to 1.5 x Safe Working Load (SWL) and shall be marked accordingly.
	8. All external bolts and nuts shall be hot dip galvanized. Internal bolts and nuts shall be stainless steel.
	9. Loads at support base, Shall be calculated and determined by vendor.
	10. Access Ladder & Platform to be considered .
	11. Deleted
	12. All material, corrosion allowance and their suitability for the process fluid at design pressure and temperature to be confirmed by vendor.
	13. Deleted
	14. All nozzle locations and orientations to be finalized later.
	15. Instrumentation items are excluded from vendor's scope of supply.
	16. Any changes in material of construction, location & orientation of the nozzles shall be confirmed by client.
	17. All materials shall be new and unused.
	18. Fabrication tolerances for vessel shall be in accordance with requirement of ASME code.
	19. Location and number of lifting lugs on vessels shall be specified on VENDOR drawing.
	20. All items shall be clearly match marked against vessel drawings to facilitate erection.
	21. Deleted
	22. Vendor shall supply details of all welding connections and give general specification of used materials.
	23. For equipment requiring PWHT, final inspection and acceptance by the CLIENT or its nominated representative shall only be undertaken against NDE after PWHT. All weldings shall be made before vessel heat treatment (if any).
	24. Equipment packaging, preparation for shipment and delivery shall be in accordance with the project Packing, Marking, Transportation Procedure Doc. No. "BK-GNRAL-PEDCO-000-QC-PR-0045".
	25. Specified accessories and attachments shall be supplied by vendor.
	26. Gasket shall be spiral wound type, graphite filled with inner ring and outer ring S.S.316
	27. Deleted
	28. Deleted
	29. Two M12 earthing lugs shall be provided on vessel support. Material of Earthing lugs shall be S.S. 316



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	<p>30. For standard detail of Earth lug execution refer to the Project "Standard Detail Drawing For Pressure Vessels and Heat Exchangers Doc. No. BK-GNRL-PEDCO-000-ME-DW-0001". Projection of Horizontal & Vertical nozzles is from tangent line and centerline respectively.</p> <p>31. Elliptical heads shall be Ultrasonic Tested for LAMINATION after forming.</p> <p>32. The projection of equipment's nozzles should be considered as per 'Standard Detail Drawing For Pressure Vessels and Heat Exchangers', Doc. No. BK-GNRL-PEDCO-000-ME-DW-0001".</p> <p>33. The elevation of equipment's nozzels should be specified as follows :</p> <p>I. For vertical vessels : from bottom T.L.</p> <p>II. For horizontal vessels : from Left T.L.</p> <p>34. Nozzles and flanges shall be suitably supported and reinforced based on nozzle loads provided in project Specification for Pressure Vessels, Document No. BK-GNRL-PEDCO-000-ME-SP-0001.</p> <p>35. Prior to sealing the vessel for shipping and storage, the inside surface of the equipment shall be 100% visually inspected. Internal surfaces shall be clean and thoroughly dried. The CLIENT or its nominated representative shall witness the cleanliness of internal surfaces. Flange faces shall be protected by wooden or plastic dummy flanges.</p> <p>36. Minimum requirement for pre-commissioning, commissioning, start up and two years operation shall be in accordance with document E&C-QC-SP-1.</p> <p>37. Lifting Lugs / trunnions shall be provided to facilitate a single point lift. If a single point lift cannot be achieved without the use of a lifting beam, then VENDOR shall provide a suitable, certified, lifting beam.</p> <p>38. Design pressure specified is at top of vessels. VENDOR design shall include static head for vessels flooded with specific gravity of the handled liquid.</p> <p>39. VENDOR is to maximize shop fabrication based on the following transportation limits:</p> <ul style="list-style-type: none"> - Maximum weight: 96 tonnes - Maximum load per axle: 12 tonnes - Maximum length: 50.0 m - Maximum width: 5.0 m - Maximum height: 5.2 m <p>For items with dimensions and weights greater than the road capacity specified above, VENDOR may be required to split the package into several components.</p> <p>40. All external attachments directly welded to the pressure part shall be the same material as vessel grade.</p> <p>41. Thickness indicated on this DWG are minimum. Vendor shall check and guarantee them on strength as per code and specification.</p> <p>42. All dimensions shown are in mm unless otherwise indicated. All nozzle sizes are in inch.</p> <p>43. Deleted</p> <p>44. DEMISTER specification will be finalized later.</p> <p>45. The material shall be in compliance with NACE MR0175/ISO15156 and Specification For Material Requirements in Sour service Document No. BK-GNRL-PEDCO-000-PI-SP-0008.</p> <p>46. Welded carbon and carbon manganese steels for vessel shall comply with the following :</p> <p>Carbon content shall not exceed 0.23%.</p> <p>Based on the ladel analysis, below equation shall be satisfied.</p> <p>$C_{eq} = \frac{C+Mn}{6} + \frac{(Cr+Mo+V)}{5} + \frac{(Cu+Ni)}{15} < 0.42 \%$</p> <p>47. All carbon steel material shall be fully killed, fine grain treated and supplied in the normalized condition.</p> <p>48. The Vendor shall be fully responsible for the complete mechanical design, preparing calculation book and supply of the vessel.</p> <p>49. VENDOR to advise (VTA) internal for inlet nozzle.</p>



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MECHANICAL DATA SHEETS FOR FUEL GAS K.O. DRUM



شماره پیمان:

۰۵۳ - ۰۷۳ - ۹۱۸۴

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نسخه

شماره صفحه: ۵ از ۸

BK

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
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D03

Mechanical Data Sheets For Fuel Gas K.O. Drum (V-2205) / sheet 1 of 4

Rev	DATA SHEET					Rev	
D03	1	Description : <i>Fuel Gas K.O. Drum</i>				D03	
	2	Tag No. : <i>V-2205</i>		Quantity : <i>1 Set</i>			
	3	Type : <i>Pressure Vessel</i>					
	4	Process Design Data					
	5	Contents		Corrosive / Erosive	<i>CO2, H2S</i>		
	6	Operating Temp. (°C)	<i>18.88 -36.78</i>	Liquid Flow (kg/h)			
	7	Operating Press. (barg)	<i>4.9</i>	Vap. Molec. Weight (kg/kmol)			
	8	Gas Flow (kg/h)		Liquid Sp. Gravity	<i>0.005771</i>		
	9	Liquid Viscosity (cP)		Service:	<i>Sour Service</i>		
	10	Mechanical Design Data 					
	11	Design Temp. (°C)	<i>85</i>	Vessel Orientation	<i>Vertical</i>		
	12	Design Press. (barg)	<i>9</i>	HHLL (mm)	<i>1100</i>		
	13	Test Press. (barg)	<i>Per Code & Specification</i>	Nor. Liquid Vol. (m³)			
	14	Internal Vacuum (barg)	<i>F.V.</i>	In. Dia. Of Boots (mm)	<i>N/A</i>		
	15	In. Dia. of Shell (mm)	<i>438</i>	Boot Length (mm)	<i>N/A</i>		
	16	Tan/Tan Dim. (mm)	<i>2950</i>	Boot Head Type	<i>N/A</i>		
	17	Vessel Head Type	<i>2:1 elliptical + flange</i>	Corr. Allowance (mm)	<i>6</i>		
	18	Shell Wall Thk. (mm)	<i>*(See DWG)</i>	Joint Efficiency	<i>0.85 (Shell) / 1 (Head)</i>		
	19	Head Wall Thk. (mm)	<i>*(After Forming)</i>	Ambient Temp. (°C)			
	D03	20	Seismic Design	<i>Site Class: D, Code: ASCE 7-10 Fa=1, FV=1.33, S1=0.46, Ss=1.125, I=1.25</i>	MDMT (°C)		<i>5</i>
	D03	21	Wind Design	<i>Speed: 232 Km/hr (Max.), Code: ASCE 7-10</i>	Insulation Required		<i>No</i>
Materials							
23	Code	<i>ASME II / ASTM</i>	Nozzle Necks:				
24	Shell	<i>A 106 Gr B (18" Pipe, Sch. STD)</i>	Pipes		<i>A 106 Gr.B N</i>		
25	Heads	<i>A 516 Gr. 60 N</i>	Plates		<i>A 516 Gr.60 N</i>		
26	Lining / Cladding		Forgings		<i>A 105 N</i>		
27	Leg / Pad	<i>A 516 Gr.60 N / A 283 Gr. C</i>	Flanges		<i>A 105 N</i>		
28	Platform Gratings	<i>Hot Dip Galvanized C.S.</i>	Fittings		<i>A 234 Gr. WPB</i>		
29	Gaskets	<i>Note 26</i>	External Bolts		<i>A 193 Gr. B7</i>		
30	Lifting Lugs	<i>A 516 Gr.60 N / A 283 Gr. C</i>	External Nuts		<i>A 194 Gr. 2H</i>		
31	Reinforcing Pads	<i>A 516 Gr.60 N</i>	Internal (Removable)		<i>S.S. 316</i>		
32	Ladder & Platform	<i>C.S.</i>	Internal (Fixed)		<i>A 516 Gr.60 N</i>		
33	Name Plate	<i>S.S. 316</i>					
REFERENCE STANDARDS & DOCUMENTS							
36	Mechanical Design Code	<i>ASME Sec VIII Div 1, IPS-G-ME-150</i>					
37	Specification for Pressure Vessels	<i>BK-GNRAL-PEDCO-000-ME-SP-0001</i>					
38	Process Basis of Design	<i>BK-GNRAL-PEDCO-000-PR-DB-0001</i>					
39	Piping & Instrument Diagram (P&ID)	<i>BK-GCS-PEDCO-120-PR-PI-0022</i>					
40	Specification for Painting	<i>BK-GNRAL-PEDCO-000-PI-SP-0006</i>					
41	Specification for Insulation	<i>BK-GNRAL-PEDCO-000-PI-SP-0019</i>					
42	Specification For Material Requirements in Sour service	<i>BK-GNRAL-PEDCO-000-PI-SP-0008 (Note 45)</i>					
Fabrication and Inspection Requirements							
45	Inspection Authority	<i>TPI & Client</i>					
46	Material Certification	<i>In Accordance with BS EN 10204:2004, Type 3.1, Minimum for Pressure Containing and Attachments</i>					
47	Hydro Test Medium	<i>Water</i>	Hydro Test Procedure	<i>Yes; Per Code & Spec. Requirements</i>			
48	Post Weld Heat Treatment	<i>Yes, Process Reason</i>	PT	<i>100%</i>			
49	MT	<i>100 % on Lifting Lug Fillet Welds</i>	UT	<i>Yes; Per Code & Spec. Requirements</i>			
50	RT	<i>Spot % On T-Joints and Head Joints Butt-Welds,</i>					
52		<i>100 % On Nozzle Neck to Flange & Fabricated Nozzle Neck Longitudinal Butt-Welds,</i>					
53	RT Report	<i>Yes; Per Code & Spec. Requir.</i>	PT Report	<i>Yes; Per Code & Spec. Requirements</i>			
54	MT Report	<i>Yes; Per Code & Spec. Requir.</i>	UT Report	<i>Yes; Per Code & Spec. Requirements</i>			
55	Fabrication Quality Control Plan (With Offer)	<i>Yes</i>					
56	Welding Procedure Review / Approval	<i>Yes</i>					
57	Surface Preparation & Coating	<i>Specification for Painting Doc. No. "BK-GNRAL-PEDCO-000-PI-SP-0006"</i>					
58		<i>Specification for Lining Doc. No: "BK-GNRAL-PEDCO-000-PI-SP-0007"</i>					
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نگهداشت و افزایش تولید میدان نفتی بینک
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MECHANICAL DATA SHEETS FOR FUEL GAS K.O. DRUM



شماره پیمان:

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پروژه

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Mechanical Data Sheets For Fuel Gas K.O. Drum (V-2205) / sheet 2 of 4

Rev.	ACCESSORIES , NOZZLES LIST & LOADS @ BASE												Rev.
	Accessories & Attachments (Note 25)										D03		
1													
2	Supporting Leg		YES		Name Plate Bracket							YES	
3	Access Ladder & Platform (Note 10)		NO		Name Plate							YES	
4	Insulation Support		NO		Earthing Lug (Note 30)							YES	
5	Insulation		NO		Tailing Lug							NO	
6	Insulation Cover		NO		Cathodic Protection (Sacrificial Anodes)							NO	
7	Fireproofing Support		NO		Anchor Bolts							NO	
8	Lifting Lugs		YES		Instrumentations							NO	
9	Internal Supports		YES		Skid							NO	
10	Internal Impingement Baffle		YES		Vortex Breaker							YES	
11	Internal Demistier Pad (Note 44)		YES		Davit for Body Flange							YES	
12	Internal Lining		YES										
13													
14													
15													
16													
17													
18	Nozzles List * (Note 1)												
19	Mark	Qty.	Description	Pipe			Flange			Proj. (mm)	Reinforcement		Remarks
20				Size	Thk.	Sch.	Type	Rate.	Face	(Note 32)	Thk.	O.D.	
21	A	1	Inlet	2"			WN	#150	RF	428.5			
22	B1	1	Gas Outlet	2"			WN	#150	RF	See DWG			
23	B2	1	Liquid Outlet	2"			WN	#150	RF	314.25			
24	Deleted												
25	H	1	Handhole	8"			WN	#150	RF	478.5	*	*	Note 6
26	S	1	Utility Connection	2"			WN	#150	RF	428.5			
27	P1	1	Pressure Gauge	2"			WN	#300	RF	428.5			
28	P 2,3	2	PDI	2"			WN	#300	RF	428.5			
29	PSV	1	Pressure Safety Valve	2"			WN	#150	RF	428.5			
30	L 1,2	2	Stand Pipe	3"			WN	#150	RF	428.5			
31	L 3,4	2	Level Transmitter	2"			WN	#300	RF	428.5			
32	V	1	Vent	2"			WN	#150	RF	See DWG			
33													
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43	Wind and Seismic Loads at Base * Note(9)												
44	<div></div>	Empty Condition			Operating Condition			Testing Condition					
45		Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)			
46	Load Type												
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51	WIND												
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53	SEISMIC												
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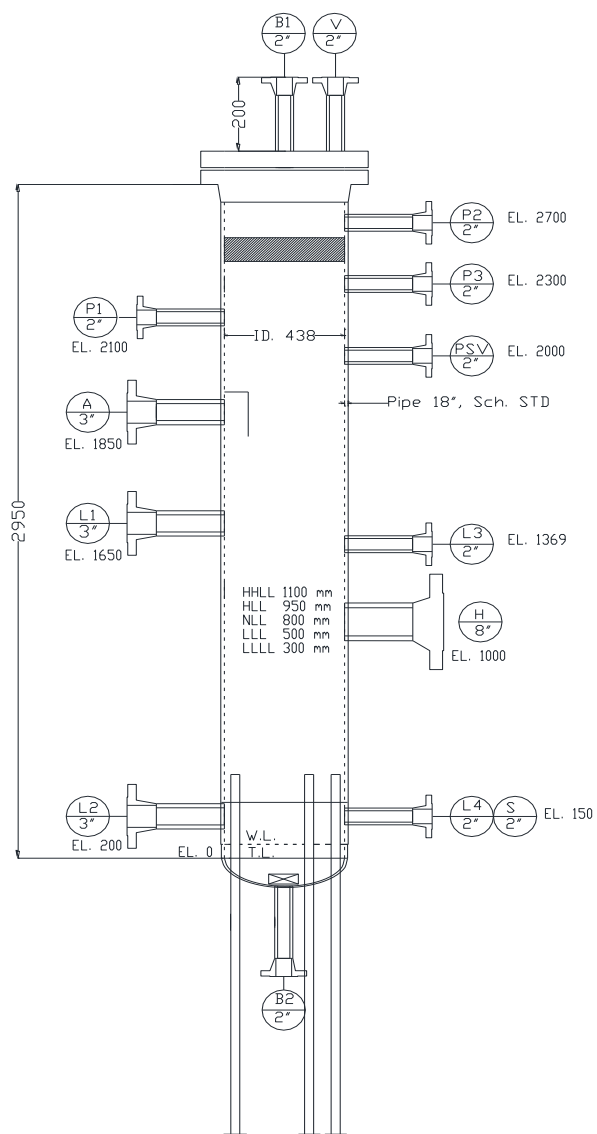
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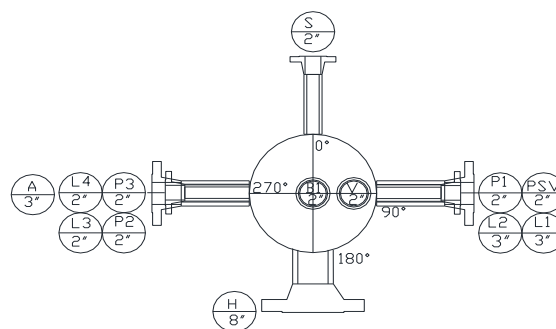
Mechanical Data Sheets For Fuel Gas K.O. Drum (V-2205) / sheet 3 of 4

Sketch



Elevation View

Nozzle Elevation will be finalized by piping later.



Orientation View

Nozzle Orientation will be finalized by piping later.

All dimensions are in mm.



نگهداشت و افزایش تولید میدان نفتی بینک
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MECHANICAL DATA SHEETS FOR FUEL GAS K.O. DRUM



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Mechanical Data Sheets For Fuel Gas K.O. Drum (V-2205) / sheet 4 of 4

Rev.	WEIGHT						Rev.
1	WEIGHT CONTROL DATA SHEET SI UNIT *					1/1	
2							
3							
4							
5							
6	Service :	Fuel Gas K.O. Drum			Location :	Bushehr (Binak Oilfield)	
7	Type :				Quotation No. :		
8	No. trains :				Serial No. :		
9	No. stages :						
10	Supplier :						
11	Manufacturer :						
12	Model :						
13							
14	Note: Information to be completed by equipment vendor.						
15							
16	Total weight (kg) *						
17	Fabrication	Erection	Operation	Hydrostatic Test	Removable internal	Ladder & Platform	
18							
19							
20							
21							
22							
23	WEIGHT AND C OF G DATA REQUIRED *						
24	CONDITION	WEIGHT ACCURACY %	WEIGHT (kg)	CENTER OF GRAVITY (mm)			
X				Y	Z		
25							
26	Dry						
27							
28							
29							
30	SKETCH						
31	<p>Page 1</p>						
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52	NOTES						
53	1) All lifting points to be load tested and certified.						
54	2) Any spreader beam to be load tested and certified.						
55	3) Lifting / rigging plan for skid mounted equipment to be provided by the Vendor.						
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