طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR FLARE K.O. DRUM

نگهداشت و افزایش تولید میدان نفتی بینک

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

Class: 1 **CLIENT Doc. Number:** **F0Z-708843**

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 FLARE K.O. DRUM	شرکت توسعه نیروایران HIRGAN ENERGY

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۲ از ۸
۹۱۸۴ – ۰۷۳ - ۰۵۳	BK	GCS	PEDCO	120	ME	DT	0012	D02	

REVISION RECORD SHEET

Page	D00	D01	D02	D03	D04	Page	D00	D01	D02	D03	D04
1	X	X	X			65					
2	X	X	X			66					
3	X	X				67					
4	X	X	X			68					
5	X	X	X			69					
6	X	X	X			70					
7	X	X	X			71					
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شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه	شماره صفحه: ۳ از ۸
۰۵۳ - ۰۷۳ - ۹۱۸۴	BK	GCS	PEDCO	120	ME	DT	0012	D02	

General Notes

Rev

1. The Asterisk * denotes information and/or confirmation required from VENDOR. The Vendor shall be fully responsible for the complete mechanical design, preparing calculation book and supply of the vessel. The vessel shall be supplied in accordance with project 'Specification for Pressure Vessels', Doc. No. BK-GNRAL-PEDCO-000-ME-SP-0001. The manufacturer shall calculate thickness and loads of the vessel.
2. Nozzles and flanges shall be suitably supported and reinforced based on nozzle loads provided in project Specification for Pressure Vessels, Document No. BK-GNRAL-PEDCO-000-ME-SP-0001.
3. VENDOR shall include for the services of an independent verification body for mechanical design, stage inspection, testing and stamping of the equipment (if possible).
4. Access Ladder & Platform to be considered .
5. Painting and coating (internal & external) shall be as per project 'Specification for Painting', Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0006 and Specification for Lining, Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0007.
6. Flanges shall comply with ANSI B16.5. Nozzle bolt holes shall straddle the natural centerlines for horizontal nozzles.
   VENDOR to confirm maximum allowable nozzle loads and moments. (RF: Raised Face, WN: Welding Neck, LWN: Long Weld Neck)
7. 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).
8. 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.
9. Loads at support base, Shall be calculated and determined by vendor.
10. Location and number of lifting lugs on vessels shall be specificed on VENDOR drawing.
11. All external bolts and nuts shall be hot dip galvanized. Internal bolts and nuts shall be stainless steel.
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 will 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 dimensions shown are in mm unless otherwise indicated. All nozzle sizes are in inch.
18. All removable internals should be passed through manhole.
19. All materials shall be new and unused.
20. 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 suarfaces. Flange faces shall be protected by wooden or plastic dummy flanges.
21. Fabrication tolerances for vessel shall be in accordance with requirement of ASME code.
22. All items shall be clearly match marked against vessel drawings to facilitate erection.
23. The elevation of equipment's nozzels should be specified as follows :
    I. For vertical vessels : from bottom T.L.
    II. For horizontal vessels : from Left T.L.
24. Vendor shall supply details of all welding connections and give general specification of used materials.
25. Specified accessories and attachments shall be supplied by vendor.
26. Gasket shall be spiral wound type, graphite filled with inner ring S.S.316 and outer ring S.S. 316L

General Notes (Cont'd)

Rev

D02

27. Fire proofing requirement will be specified as per result of fire proofing zone layout. "Area Classification: Zone 2, IIB, T3"

28. Deleted.

29. 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".

30. For standard detail of Earth lug execution refer to the Project "Standard Detail Drawing For Pressure Vessels and Heat Exchangers Doc. No. BK-GNRAL-PEDCO-000-ME-DW-0001".

31. Elliptical heads shall be Ultrasonic Tested for lamination after forming.

32. The projection of equipment's nozzles should be considered as per 'Standard Detail Drawing For Pressure Vessels and Heat Exchangers', Doc. No. BK-GNRAL-PEDCO-000-ME-DW-0001". Projection of Horizontal & Vertical nozzles is from tengent line and centerline respectively.

33. Deleted

34. 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".

35. Minimum requirement for pre-commissioning, commissioning, start up and two years operation spare parts shall be in accordance with document E&C-QC-SP-1.

36. Two M12 earthing lugs shall be provided on vessel support. Material of earthing lugs shall be S.S. 316.

37. The material shall be in compliance with NACE MR0175/ISO15156 and Specification for Material Requirements in Sour Service, Doc.No. BK-GNRAL-PEDCO-000-PI-SP-0008.

38. Welded carbon and carbon manganess steels for vessel shall comply with the following :
Carbon content shall not exceed 0.23%.
Based on the ladel analysis, below equation shall be satisfied.
Ceq. = C+MN/6+(Cr+Mo+V)/5+(Cu+Ni)/15 < 0.42 %

39. All carbon steel material shall be fully killed, fine grain treated and supplied in the normalized condition.

40. All nozzles must be vertical or horizontal and not perpendicular or parallel to vessel center line.

41. 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.

42. Design pressure specified is at top of vessels. VENDOR design shell include static head for vessels flooded with specific gravity of the handled liquid.

43. VENDOR is to maximize shop fabrication based on the following transportation limits:
    - 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

    For items with dimensions and weights greater than the road capacity specified above, VENDOR may be required to split the package into several components.

44. All external attachments directly welded to the pressure part shall be the same material as vessel grade.

D02 45. VENDOR to advise (VTA) internal for inlet nozzle.

NISOC

نگهداشت و افزایش تولید میدان نفتی بینک

سطح الارض

احداث ردیف تراکم گاز در ایستگاه جمع آوری بینک

MECHANICAL DATA SHEETS FOR FLARE K.O. DRUM

شرکت توسعه نیروایران

HIRGAN ENERGY

شماره پیمان:	پروژه	بسته کاری	صادرکننده	تسهیلات	رشته	نوع مدرک	سریال	نسخه
۰۵۳ - ۰۷۳ - ۹۱۸۴	BK	GCS	PEDCO	120	ME	DT	0012	D02

Mechanical Data Sheets For FLARE K.O. DRUM (V-2201) / sheet 1 of 4

DATA SHEET

Rev							Rev
	1	Description :	*Flare K.O. Drum*				
	2	Tag No. :	*V-2201*	Quantity :	*1*	*Set*	
	3	Type :	*Pressure Vessel*				
	4	**Process Design Data**					
	5	Contents	*HC, H2O, CO2, H2S*	Corrosive / Erosive			
	6	Operating Temp. (°C)	*32*	Liquid Flow (kg/h)			
	7	Operating Press. (barg)	*0.5*	Vap. Molec. Weight (kg/kmol)			
	8	Gas Flow (kg/h)		Liquid Sp. Gravity		*0.67~1*	
	9	Liquid Viscosity (cP)		Service:		*Sour Service*	
	10	**Mechanical Design Data** D02					
	11	Design Temp. (°C)	85	Vessel Orientation		*Horizontal*	
D02	12	Design Press. (barg)	6	HHLL (mm)		*650*	
	13	Test Press. (barg)	Per Code & Specification	Nor. Liquid Vol. (m^3)		-	
	14	Internal Vacuum (barg)	F.V.	In. Dia. Of Boots (mm)		*N/A*	
	15	In. Dia. of Shell (mm)	1000	Boot Length (mm)		*N/A*	
	16	Tan/Tan Dim. (mm)	3000	Boot Head Type		*N/A*	
	17	Vessel Head Type	2:1 elliptical	Corr. Allowance (mm)		*3.2*	
	18	Shell Wall Thk. (mm)	*	Joint Efficiency		*0.85 Shell / 1 Head*	
	19	Head Wall Thk. (mm)	* (After Forming)	Ambient Temp. (°C)			
	20	Seismic Design	*Site Clas: D, Code: ASCE 7-10*	MDMT (°C)		*-29*	
	21	Wind Design	*Speed: 120 Km/hr (Max.), Code: ASCE 7-10*	Insulation Required		*No*	
	22	**Materials**					
	23	Code	*ASME II / ASTM*	Nozzle Necks:			
	24	Shell	*A 516 Gr. 70 N*	Pipes		*A 106 Gr.B*	
	25	Heads	*A 516 Gr. 70 N*	Plates		*A 516 Gr.70 N*	
	26	Lining / Cladding	*P2*	Forgings		*A 105 N*	
	27	Skirt (Top / Bottom)	*A 516 Gr. 70 / A 283 Gr. C*	Flanges		*A 105 N*	
	28	Platform Gratings	*Hot Dip Galvanized C.S.*	Fittings		*A 234 Gr. WPB*	
	29	Gaskets	*Note 26*	External Bolts		*A 193 Gr. B7 (Note 11)*	
	30	Lifting Lugs	*A 516 Gr.70 / A 283 Gr. C*	External Nuts		*A 194 Gr. 2H (Note 11)*	
	31	Reinforcing Pads	*A 516 Gr.70 N*	Internal Bolts / Nuts			
	32	Ladder & Platform	*C.S.*	Name Plate		*S.S. 316*	
	33						
	34	**REFERENCE STANDARDS & DOCUMENTS**					
	35	Mechanical Design Code		*ASME Sec VIII Div 1, IPS-G-ME-150*			
	36	Specification for Pressure Vessels		*BK-GNRAL-PEDCO-000-ME-SP-0001*			
	37	Process Basis of Design		*BK-GNRAL-PEDCO-000-PR-DB-0001*			
	38	Piping & Instrument Diagram (P&ID)		*BK-GCS-PEDCO-120-PR-PI-0020*			
	39	Specification for Painting		*BK-GNRAL-PEDCO-000-PI-SP-0006*			
	40	Specification for Insulation		*BK-GNRAL-PEDCO-000-PI-SP-0019*			
	41	Specification for material requirements in Sour service		*BK-GNRAL-PEDCO-000-PI-SP-0008*			
	42						
	43	**Fabrication and Inspection Requirements**					
	44	Inspection Authority	*TPI & Client*				
	45	Material Certification	*In Accordance with BS EN 10204:2004, Type 3.1, Minimum for Pressure Containing and Attachments*				
	46	Hydro Test Medium	*Water*	Hydro Test Procedure	*Yes;Per Code & Spec. Requirements*		
	47	Post Weld Heat Treatment	*Yes; Per Code & Spec. Requir.*	PT	*100%*		
	48	MT	*100 % on Lifting Lug Fillet Welds*	UT	*Yes;Per Code & Spec. Requirements*		
	49	RT	*100 % On T-Joints and Head Joints Butt-Welds,*				
	50		*Spot On Shell Longitudinal and Circumferential Joints Butt-Welds,*				
	51		*100 % On Nozzle Neck to Flange & Fabricated Nozzle Neck Longitudinal Butt-Welds,*				
	52	RT Report	*Yes; Per Code & Spec. Requir.*	PT Report	*Yes;Per Code & Spec. Requirements*		
	53	MT Report	*Yes; Per Code & Spec. Requir.*	UT Report	*Yes;Per Code & Spec. Requirements*		
	54	Fabrication Quality Control Plan (With Offer)		*Yes*			
	55	Welding Procedure Review / Approval		*Yes*			
	56	Surface Preparation & Coating		*Specification for Painting Doc. No. "BK-GNRAL-PEDCO-000-PI-SP-0006"*			
	57			*Specification for Lining Doc. No: "BK-GNRAL-PEDCO-000-PI-SP-0007"*			
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Mechanical Data Sheets For FLARE K.O. DRUM (V-2201) / sheet 2 of 4

ACCESSORIES , NOZZLES LIST & LOADS @ BASE

Accessories & Attachments *(Note 25)*

Supporting Saddles	YES	Name Plate Bracket	YES
Access Ladder & Platform *(Note 4)*	YES	Name Plate	YES
Insulation Support	NO	Earthing Lug *(Note 30)*	YES
Insulation	NO	Tailing Lug	NO
Insulation Cover	NO	Cathodic Protection (Sacrificial Anodes) *(Note 2)*	NO
Fireproofing Support *(Note 27)*	NO	Anchor Bolts	NO
Lifting Lugs	YES	Instrumentations	NO
Internal/ External Clips	YES	Skid	NO
Template	YES	Support Clips	YES
Boot	NO	Vortex Breaker	YES
Davit for Manhole	YES	Rung & Grip	YES
Internal Lining (By Painting)	YES	Heating Coil	NO

Nozzles List *(Note 1)* D02

Mark	Qty.	Description	Pipe			Flange			Proj. (mm)	Reinforcement		Remarks	Rev.
			Size	Thk.	Sch.	Type	Rate.	Face	*(Note 32)*	Thk.	O.D.		
A	1	*Inlet*	*8"*			*WN*	*#150*	*RF*	*See DWG*	*	*	*Note 7*	D02
B1	1	*Liquid Outlet*	*2"*			*WN*	*#150*	*RF*	*707*				
B2	1	*Gas Outlet*	*10"*			*WN*	*#150*	*RF*	*807*	*	*	*Note 7*	D02
V1	1	*Ventilation*	*6"*			*WN*	*#150*	*RF*	*See DWG*	*	*	*Note 7*	D02
V2	1	*Vent*	*2"*			*WN*	*#150*	*RF*	*See DWG*				
P	1	*Pressure Gauge*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
T	1	*Temperature Gauge*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
L 1,2	2	*Stand Pipe*	*3"*			*WN*	*#150*	*RF*	*See DWG*	*	*	*Note 7*	D02
M	1	*Manhole*	*20"*			*WN*	*#150*	*RF*	*See DWG*	*	*	*Note 7*	D02
D	1	*Drain*	*2"*			*WN*	*#150*	*RF*	*See DWG*				
L 3,4	2	*Level Transmitter LL*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
L 5,6	2	*Level Transmitter HH A*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
L 7,8	2	*Level Transmitter HH B*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
L 9,10	2	*Level Transmitter HH C*	*2"*			*WN*	*#300*	*RF*	*See DWG*				
S	1	*Utility Connection*	*2"*			*WN*	*#150*	*RF*	*See DWG*				

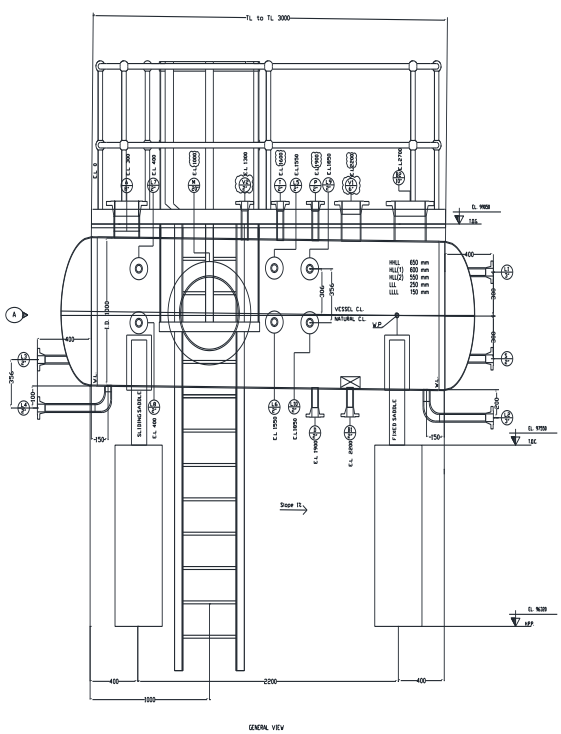
Wind and Seismic Loads at Base * *Note(9)*

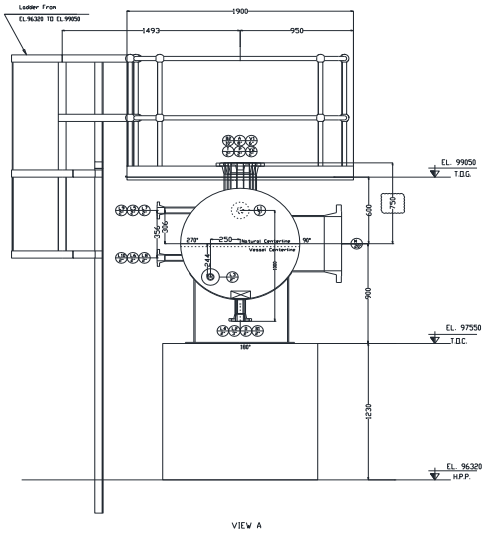
Load Condition / Load Type	Empty Condition			Operating Condition			Testing Condition		
	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)	Max. Shear @ Base (Kg)	Max. Moment @ Base (Kg.m)	Weight (Kg)
WIND									
SEISMIC									

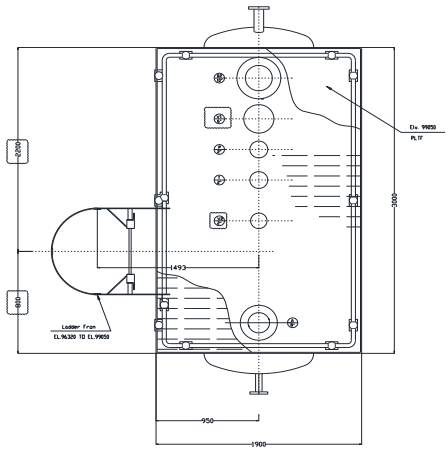
Mechanical Data Sheets For FLARE K.O. DRUM (V-2201) / sheet 3 of 4

D02

Sketch







All dimensions are in mm.

Mechanical Data Sheets For FLARE K.O. DRUM (V-2201) / sheet 4 of 4

Rev. | WEIGHT | Rev.

WEIGHT CONTROL DATA SHEET SI UNIT *

1/1

Service	: *Flare K.O. Drum*	Location	: *Bushehr (Binak Oilfield)*
Type	:	Quotation No.	:
No. trains	:	Serial No.	:
No. stages	:		
Supplier	:		
Manufacturer	:		
Model	:		

Note: Information to be completed by equipment vendor.

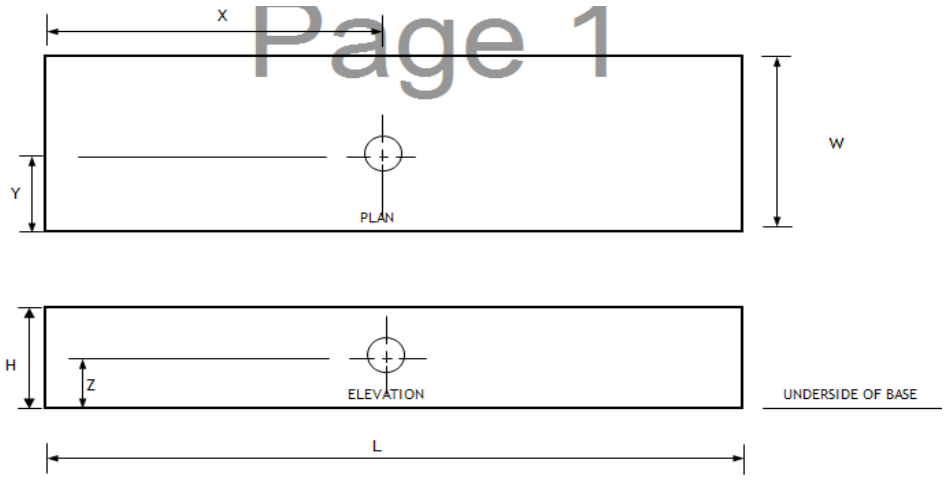
Total weight (kg) *

Fabrication	Erection	Operation	Hydrostatic Test	Removable internal	Ladder & Platform

WEIGHT AND C OF G DATA REQUIRED *

CONDITION	WEIGHT ACCURACY %	WEIGHT (kg)	CENTER OF GRAVITY (mm)		
			X	Y	Z
Dry					

SKETCH



NOTES

1) All lifting points to be load tested and certified.
2) Any spreader beam to be load tested and certified.
3) Lifting / rigging plan for skid mounted equipment to be provided by the Vendor.