طرح نگهداشت و افزایش تولید ۲۷ مخزن

MECHANICAL DATA SHEETS FOR INLET GAS K.O. DRUM

نگهداشت و افزایش تولید میدان نفتی بینک

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D02	SEP.2022	IFA	H.Adineh	M.Fakharian	M.Mehrshad	
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D00	DEC.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-708832**

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

REVISION RECORD SHEET

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1	X	X	X	X	
2	X	X	X	X	
3	X	X	X		
4	X	X	X	X	
5	X	X	X	X	
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General Notes

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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.
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 and Specification for Lining', Doc. No. BK-GNRAL-PEDCO-000-PI-SP-0007.
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. Deleted.
13. The vendor shall be responsible for mechanical strength of the equipment based on mentioned condition in data sheets.
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 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 specificed 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 bosses shall be provided on vessel support. Material of Earthing Bosses shall be S.S. 316

General Notes (Cont'd)

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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".

33. 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.

34. 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.

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.

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

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.

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

39. 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.

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

41. All dimensions are in "mm" unless otherwise specified.

42. The material shall be in compliance with NACE MR0175/ISO15156 and Specification For Material Requirements in Sour service Document No. BK-GNRAL-PEDCO-000-PI-SP-0008.

43. Nozzle loads shall be in accordance with "Specification for pressure vessel, Doc. No.:BK-GNRAL-PEDCO-000-ME-SP-0001".

44. DEMISTER specification will be finilized latter.

45. 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 %

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

D03 47. VENDOR to advise (VTA) internal for inlet nozzle.

Mech. Data Sheet For Inlet Gas K.O. Drum (V-2105) / sheet 1 of 4

DATA SHEET

1	Description :	*Inlet Gas K.O. Drum*				
2	Tag No. :	*V-2105*	Quantity :	*1*	*Set*	
3	Type :	*Pressure Vessel*				
4	**Process Design Data** D03					
5	Contents		Corrosive / Erosive		*CO2,H2S*	
6	Operating Temp. (°C)	*19.23 - 37.17*	Liquid Flow	(kg/h)	*0.33*	
7	Operating Press. (barg)	*5.3*	Vap. Molec. Weight	(kg/kmol)	*24.5*	
8	Gas Flow (kg/h)	*17833*	Liquid Sp. Gravity		*0.006 ~0.998*	D03
9	Liquid Viscosity (cP)	*0.691 ~ 1.0126*	Lethal / SOUR :		*Sour, Lethal*	D03
10	**Mechanical Design Data *(Note 1)***					
11	Design Temp. (°C)	*85*	Vessel Orientation		*Horizontal*	
12	Design Press. (barg)	*9*	HHLL	(mm)	*900*	
13	Test Press. (barg)	*Per Code & Spec. Requirements*	Nor. Liquid Vol.	(m^3)		
14	Internal Vacuum (barg)	F.V.	In. Dia. Of Boots	(mm)	*300*	
15	In. Dia. of Shell (mm)	1500	Boot Length	(mm)	*600*	
16	Tan/Tan Dim. (mm)	4500	Boot Head Type		*2:1 Elliptical*	
17	Vessel Head Type	2:1 Elliptical	Corr. Allowance	(mm)	*6*	
18	Shell Wall Thk. (mm)	*	Joint Efficiency		*0.85 (Shell) / 1 (Head)*	
19	Head Wall Thk. (mm)	*	Ambient Temp.(Min. / Max.)	(°C)	*5 / 50*	
20	Seismic Design	*Site Class : D, Code: ASCE 7-10*	MDMT	(°C)	*5*	
21	Wind Design	*Speed: 120 Km/hr (Max.), Code: ASCE 7-10*	Insulation Required		*NO*	
22	**Materials *(Note 42, 45, 46)***					
23	Code	*ASME II / ASTM*	Internal Welded and Supports		*A 516 Gr. 60N*	
24	Shell	*A 516 Gr. 60N*	Nozzle Necks		*A 106 Gr.B*	
25	Heads	*A 516 Gr. 60N*	Pipes		*A 106 Gr.B*	
26	Lining	*P3*	Plates		*A 516 Gr. 60N*	
27	Saddles	*A 283 Gr. C*	Forgings		*A 105N*	
28	Wear Plate	*A 516 Gr. 60N*	Flanges		*A 105N*	
29	Stiffening Rings	*A 516 Gr. 60N*	Fittings		*A 234 Gr. WPB*	
30	Gaskets	*Note 26*	Removable Internals		*S.S. 316*	
31	Lifting Lugs	*A 516 Gr.60 N / A 283 Gr. C*	External Bolts		*A 193 Gr. B7 (8)*	
32	Reinforcing Pads	*A 516 Gr. 60N*	Nuts		*A 194 Gr. 2H (8)*	
33	Ladder & Platform	*C.S.*	Internal Bolts		*A193 Gr. B8M (8)*	
34	Gratings	*Hot Dip Galvanized C.S.*	Nuts		*A194 Gr. 8M (8)*	
35	External Welded Clips and support	*A 516 Gr. 60N*	Name Plate		*S.S. 316*	
36						
37	**REFERENCE STANDARDS & DOCUMENTS**					
38	Mechanical Design Code		*ASME Sec VIII Div 1, IPS-G-ME-150*			
39	Specification for Pressure Vessels		*BK-GNRAL-PEDCO-000-ME-SP-0001*			
40	Process Basis of Design		*BK-GNRAL-PEDCO-000-PR-DB-0001*			
41	Piping & Instrument Diagram (P&ID)		*BK-GCS-PEDCO-120-PR-PI-0005*			
42	Specification for Painting		*BK-GNRAL-PEDCO-000-PI-SP-0006*			
43	Specification for Insulation		*BK-GNRAL-PEDCO-000-PI-SP-0019*			
44	Specification For Material Requirements in Sour service		*BK-GNRAL-PEDCO-000-PI-SP-0008*			
45	**Fabrication and Inspection Requirements**					
46	Inspection Authority	*TPI & Client*				
47	Material Certification	*In Accordance with BS EN 10204:2004, Type 3.1, Minimum for Pressure Containing and Attachments*				
48	Hydro Test Medium	*Water*	Hydro Test Procedure	*Yes;Per Code & Spec. Requirements*		
49	Post Weld Heat Treatment	*YES (Process Reason)*	PT	*100%*		
50	MT	*100 % on Lifting Lug Fillet Welds*	UT	*Yes;Per Code & Spec. Requirements*		
51	RT	*100 % On T-Joints and Head Joints Butt-Welds,*				
52		*Spot On Shell Longitudinal and Circumferential Joints Butt-Welds,*				
53		*100 % On Nozzle Neck to Flange & Fabricated Nozzle Neck Longitudinal Butt-Welds,*				
54	RT Report	*Yes; Per Code & Spec. Requir.*	PT Report	*Yes;Per Code & Spec. Requirements*		
55	MT Report	*Yes; Per Code & Spec. Requir.*	UT Report	*Yes;Per Code & Spec. Requirements*		
56	Fabrication Quality Control Plan (With Offer)		*Yes*			
57	Welding Procedure Review / Approval		*Yes*			
58	Surface Preparation & Coating		*Specification for Painting: Doc. No. "BK-GNRAL-PEDCO-PI-SP-0006"*			
59			*Specification For Lining: Doc. No.: "BK-GNRAL-PEDCO-000-PI-SP-0007"*			
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Mech. Data Sheet For Inlet Gas K.O. Drum (V-2105) / sheet 2 of 4

ACCESSORIES , NOZZLES LIST & LOADS @ BASE

Accessories & Attachments *(Note 25, 40)*

Supporting Saddles	YES	Name Plate Bracket	YES
Access Ladder & Platform	YES	Name Plate	YES
Insulation Support	NO	Earthing Lug *(Note 29, 30)*	YES
Insulation	NO	Tailing Lug	N/A
Insulation Cover	NO	Cathodic Protection (Sacrificial Anodes)	YES
Fireproofing Support	NO	Anchor Bolts	NO
Lifting Lugs	YES	Instrumentations	NO
Internal/ External Clips	YES	Skid	N/A
Tamplate	NO	Support Clips	YES
Boot	YES	Vortex Breaker	YES
Davit for Manhole	YES	Rung & Grip	YES
Internal Lining (By Painting)	NO	Heating Coil	NO

Nozzles List *(Note 1,5,6,14,32,33)*

D03

Rev.	Mark	Qty.	Description	Pipe Size	Pipe Thk.	Pipe Sch.*	Flange Type	Flange Rate.	Flange Face	Proj. (mm)	Reinforcement Thk.	Reinforcement O.D.	Remarks	Rev.
D03	A	1	*Inlet*	*8"*			*WN*	*#150*	*RF*	*SEE DWG*	*	*		D03
	B1	1	*Gas Outlet*	*10"*			*WN*	*#150*	*RF*	*SEE DWG*	*	*		D03
	B2	1	*Liquid Outlet*	*2"*			*WN*	*#150*	*RF*	*SEE DWG*				
	V1	1	*Vent*	*2"*			*WN*	*#150*	*RF*	*SEE DWG*				
	V2	1	*Ventilation*	*6"*			*WN*	*#150*	*RF*	*SEE DWG*	*	*		D03
	M	1	*Manhole*	*24"*			*WN*	*#150*	*RF*	*SEE DWG*	*	*	*7*	D03
	S	1	*Utility Connection*	*2"*			*WN*	*#150*	*RF*	*SEE DWG*				
	D	1	*Drain*	*2"*			*WN*	*#150*	*RF*	*SEE DWG*				
	L 1,2	2	*Stand Pipe*	*3"*			*WN*	*#150*	*RF*	*SEE DWG*				
	L 3,4	2	*Level Transmiter (HH)*	*2"*			*WN*	*#300*	*RF*	*SEE DWG*				
D03	PSV	1	*Pressure Safety Valve*	*6"*			*WN*	*#150*	*RF*	*SEE DWG*				
	P1	1	*Pressure Gauge*	*2"*			*WN*	*#300*	*RF*	*SEE DWG*				
	P2	1	*Pressure transmiter*	*2"*			*WN*	*#300*	*RF*	*SEE DWG*				
D03	T	1	*Temperature gauge*	*2"*			*WN*	*#300*	*RF*	*SEE DWG*				
	Deleted													
D03	L 5,6	2	*Level Transmiter (LLL)*	*2"*			*WN*	*#300*	*RF*	*SEE DWG*				
	P3	1	*PDIT*	*2"*			*WN*	*#300*	*RF*	*SEE DWG*				

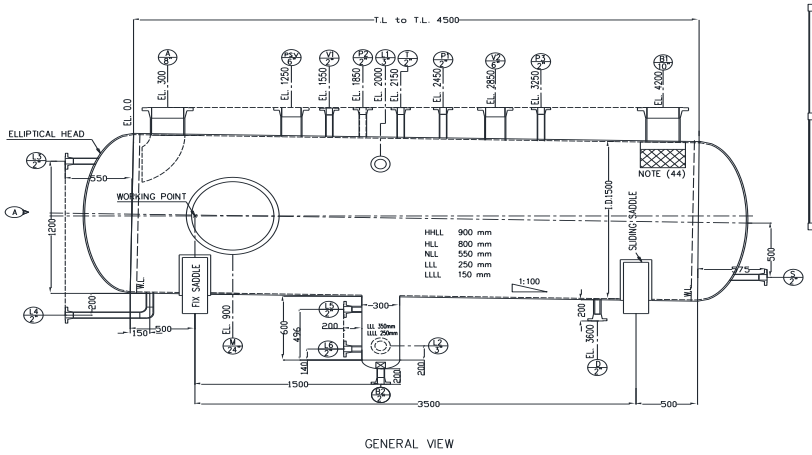
Wind and Seismic Loads at Base * *Note(9)*

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

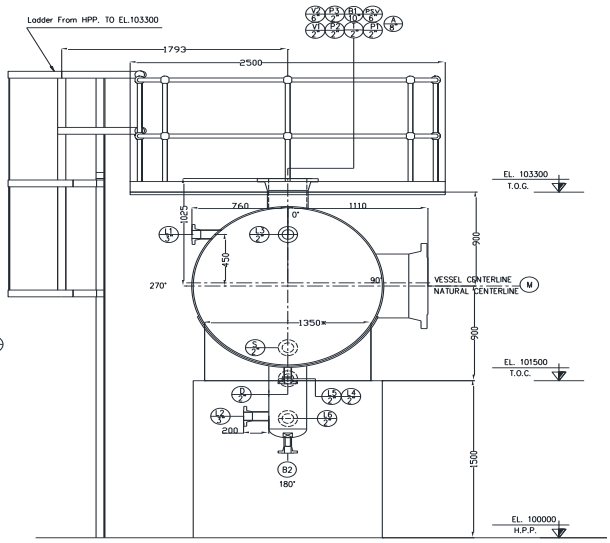
Mech. Data Sheet For Inlet Gas K.O. Drum (V-2105) / sheet 3 of 4

D03

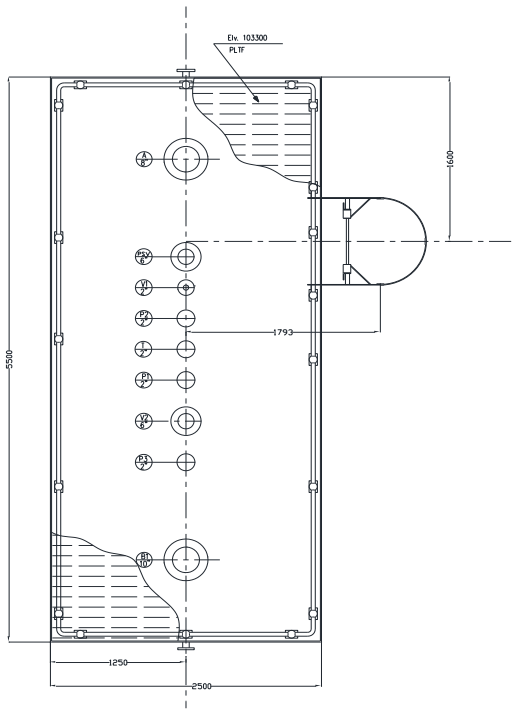
Sketch



GENERAL VIEW



VIEW A



Mech. Data Sheet For Inlet Gas K.O. Drum (V-2105) / sheet 4 of 4

WEIGHT

WEIGHT CONTROL DATA SHEET SI UNIT *

1/1

Service	:	*Inlet Gas 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.

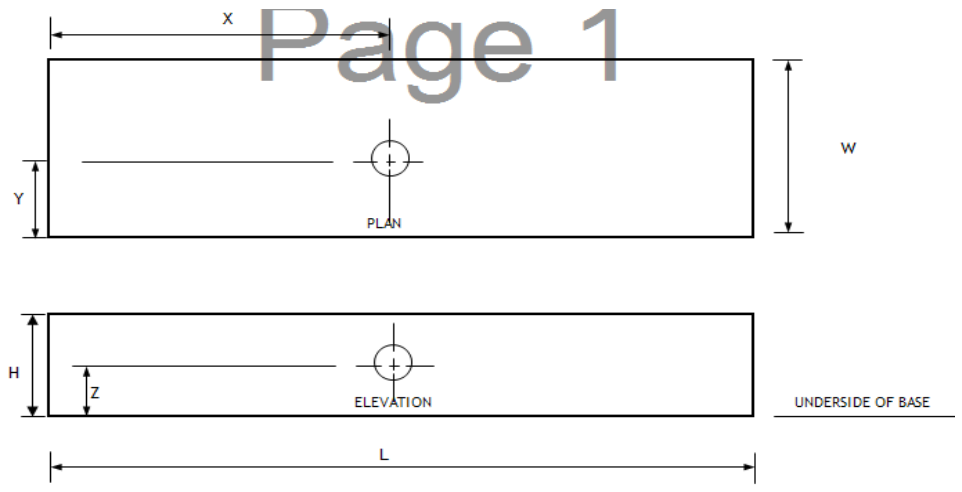
Total weight (kg)(1,2)

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.