TENDER NO. PROC-FC/CB/P&P/UCH-4691/2020

PROCUREMENT OF EMERGENCY VENTS AND PSV'S FOR AMINE STORAGE TANKS AS UCH FIELD

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SECTION - I

- A. Schedule of Requirement (Annexure-A)
- B. Terms and Conditions (Attachment # 01)
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- F. Corporate and Financial Information (Attachment # 05)
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<u>SECTION – II</u>

MASTER SET OF PRESS TENDER DOCUMENTS-FOREIGN AVAILABLE ON OGDCL WEBSITE: <u>WWW.OGDCL.COM</u> FOR REMAINING TERMS & CONDITIONS ALONG WITH <u>ANNEXURES I.E</u> <u>BID BOND FORMAT, DATA SUMMARY SHEET, BIDDING FORM, INTEGRITY & ETHICS PACT</u> <u>ETC WHICH ARE ALSO MANDATORY PART OF TECHNICAL AND COMMERCIAL PROPOSALS</u>

(NOTE: IN CASE OF ANY CONFLICT BETWEEN SECTION I & SECTION II, SECTION I SHALL PREVAIL OVER THE TENDER DOCUMENT)

TENDER NO. PROC-FC/CB/P&P/UCH-4691/2020

Attachment # 01

TERMS & CONDITIONS

- 1. The case will be processed on single stage two envelop bidding procedure as per PPRA Rules.
- 2. Bid shall remain valid for a period of 180 Days from the date of technical Bid Opening.
- 3. Commercial evaluation will be made on complete package. Incomplete bid will be rejected and will not be considered for evaluation. Bidders should quote for all the items in schedule of requirement.
- 4. The bidders are required to submit a Bid bond amounting to <u>PKR 200,000/-</u> or equivalent in shape of Bank Guarantee/pay Order upfront along with the technical bid. Any bid without bid bond shall be rejected without any right to appeal.
- 5. Bid Bond shall remain valid for a period of 210 Days from the date of technical Bid Opening. The Bid Bond shall only be issued by banks as mentioned in tender document uploaded on OGDCL website.
- 6. OGDCL may arrange Third Party Pre-Shipment Inspection at its own cost.
- 7. Within fifteen (15) days of the receipt of notification of intent to award the Contract from OGDCL, the successful Bidder shall furnish a Performance Bond in the Form of Bank Guarantee (Attachment-03) for an amount of ten (10) percent (%) of the Contract Price as a guarantee for the due and faithful performance of the Contract. The said Performance Bond shall be valid upto eighteen (18) months from the date of shipment. The bank guarantee shall be as per terms stipulated in clause # 31 of the tender document
- 8. <u>The bidder must provide a "certificate of compliance/acceptance"</u> (attachment # 06) of complete tender document along with the technical bid.
- 9. Only those clarifications will be entertained which are received ten (10) days before technical bid opening. Any clarification received after that shall not be responded.
- 10. Payment will be made as per Attachment No. 02.
- 11. Corporate and financial information of the company needs to be submitted with the technical bid as per Attachment # 05.
- 12. Copy of Certificate of incorporation to be enclosed with the technical bid.
- 13. Blacklisting affidavit on letterhead of LC beneficiary and local agent to be enclosed with the technical bid.

Attachment # 02

PAYMENT TERMS

The payment shall be made as follow:-

- a. Seventy (70%) percent of Material LC/Purchase Order Price shall be paid by OGDCL on shipment of the complete material. The payment under the L/C shall be effected upon submission of following documents upon each shipment of material component:
 - I. Original Clean on-board ocean vessel Master bills of lading.
 - II. Original detailed invoice showing material description, quantity unit price and total price strictly in line with the Contract.
 - III. Packing list
 - IV. Certificate and list of measurements and weight gross/net.
 - V. Mill Inspection/Quality Certificate.
 - VI. Insurance declaration.
 - VII. Warranty Certificate
 - VIII. Certificate of origin.
 - IX. Third Party Inspection report/certificate issued by any one of the following (if required)
 - 1. M/s Bureau Veritas Pakistan (Pvt) Ltd
 - 2. M/s SGS Pakistan (Private) Limited
 - 3. M/s TÜV Rheinland Arabia LLC Pakistan
 - 4. M/s Applus Velosi Pakistan
 - 5. TUV Austria Bureau of Inspection & Certification (Pvt.) Ltd. Pakistan
- b. Thirty (30%) percent of the Material LC/Purchase Order Price shall be released under the L/C upon delivery of complete equipment/material and after inspection/acceptance of material confirming complete delivery upon submission of supplier's original invoice duly verified by OGDCL.

PERFORMANCE BANK GUARANTEE

Oil & Gas Development Company Limited OGDCL House, Jinnah Avenue, Blue Area, Islamabad, (Pakistan)

Dear Sir,

Ref;	our	Bank	Guarantee	No			in	the	sum	of
				Account			_ in co	nsidera	ition of	you
having	J		entei	red		into			Con	tract
No			Dated		with					_C
	-									

alled Contractor and in consideration for value received from CONTRACTOR. We hereby agree and undertake as followings:

1 To make unconditional payment to you as called upon of (10%) ten percent of the Contract value of the contract price mentioned in the said contract, on your written FIRST and SIMPLE demand without further recourse, question or reference to CONTRACTOR or any other person in the event of default, non-performance or non-fulfillment by CONTRACTOR of his obligations, liabilities, responsibilities under the said contract of which you shall be the sole judge.

2 The accept written intimation from you as conclusive and sufficient evidence of the existence of the default or breach as aforesaid on the part of CONTRACTOR and to make payment immediately and forthwith upon receipt of your FIRST and SIMPLE written demand.

3 This Performance Bond shall remain valid and in full force and effect upto ______ or issue of statement of discharge by your authorized representative or return of original guarantee whichever is earlier.

4 <u>DEMURRAGE DUE TO DELAY IN RECEIPT / NEGOTIATION OF ORIGINAL SHIPPING</u> <u>DOCUMENTS.</u>

If clean documents are not negotiated within Negotiation Period allowed in Letter of Credit or documents are with held by Bank on account of any discrepancy:

 If the Demurrage, if any incurred due to late negotiation of the Clean Documents and paid by OGDCL will be realized from the beneficiary of L/C, by encashing this Performance Bond to the extent of demurrage amount. In case demurrage amount exceeds the total value of this Performance Bond the balance amount will be payable by the beneficiary.

1 That no grant of time or other indulgence to, amendment in the terms of the Contract by Agreement between the parties, or imposition or Agreement with CONTRACTOR in respect of the performance of his obligations under the said Agreement, with or without notice to us, shall in any manner discharge or otherwise affect this Guarantee and our liabilities and commitments there under.

2 This is an independent and direct obligation guarantee and shall be binding on us and our successors interest and shall be Irrevocable.

3 This guarantee shall not be affected by any change in the constitution of the <u>Guarantor Bank</u> or the constitution of the Contractor.

4 The Guarantor Bank Warrants and represents that it is fully authorized, empowered and competent to issue this guarantee.

(BANKERS)

DELIVERY PERIOD TIME IS OF ESSENCE

SUPPLY OF EQUIPMENT/MATERIAL

The Supplier is required to deliver the complete equipment/material in **seven (07) months** from the date of establishment of letter of credit on CFR by Sea Karachi Port basis.

FORMAT OF CORPORATE & FINANCIAL INFORMATION

<u>PART - I</u> GENERAL INFORMATION

- 1. Name (Full Company Name):
 - Postal Address :
 - Telephone:
 - Facsimile:
 - e-mail:
 - Website Address:
 - 1.1 Has the Company operated under any other name? If yes please give name, date of change and reason for change.
- 2. Type of Entity/Firm:
 - Corporation/Stock Company
 - Public Limited
 - Private Limited
 - Partnership
 - Proprietorship
- 3. Shareholders information/pattern with names and addresses of majority shareholders.
- 4. Place of Incorporation/Registration:
- 5. Year of Incorporation/Registration: (Please provide copies of Incorporation/Registration Certificates and Memorandum & Articles of Association)
- 6. Company's National Tax No.
- 7. Company's Core Business Areas and their annual sales revenue/earnings during last five (5) years.
- 8. Name & Address of Owners/Directors
- 9. Valid Registration Certificate with Pakistan Engineering Council (PEC) where applicable.

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<u>PART - II</u> FINANCIAL STRENGTH

1. Provide details with regard to the financial standing of the applicant including copies of last three (3) years Audited profit & loss account and balance sheet. Also, please fill the financial summary as per below table;

S. No.	Description	Years				
5. NO.	Description	2014	2015	2016		
1	Sales Revenue					
2	Paid Up Capital					
3	Profit Before Tax					
4	Profit After Tax					
5	Current Assets					
6	T. Asset					
7	Owner Equity					
8	Long Term Debt					
9	Current Liability					
10	Total Liabilities					

- 2. Bank(s) credit worthiness certificates (Latest Period) of applicant organization and available credit ceiling/limits with Account Number/Title.
- 3. Detail record with regard to litigation/arbitration proceedings or any other dispute related to project undertaken/being undertaken by the Bidder their Sub-Contractors and Suppliers (Specially with OGDCL it Joint Venture Partners or other public and private organizations working in the Oil & Gas sector of Pakistan) during past five (05) years.
- 4. Any information including brochures, references and other documentary evidence of technical qualification, capability and experience of the Applicant to execute the Project.

The undersigned on behalf of ______ hereby declare that the statements made and the information provided official herewith is complete, true and correct in every detail.

Signature

Official Seal of the Company

<u>COMPLIANCE CERTIFICATE</u> (On official letter head)

Subject : <u>TENDER NO. PROC-FC/CB/P&P/UCH-4691/2020 FOR PROCUREMENT OF</u> <u>EMERGENCY VENTS AND PSV'S FOR AMINE STORAGE TANKS AS UCH</u> <u>FIELD</u>

We have read and understood the tender documents completely and confirm total compliance with the technical and commercial requirement of the tender document.

Signed on behalf of_____

OIL & GAS DEVELOPMENT COMPANY LIMITED PROCUREMENT DEPARTMENT, ISLAMABAD FOREIGN SECTION C

(To be completed, filled in, signed and stamped by the principal)

ANNEXURE 'A'

Material PURCHASE OF EMERGENCY VENTS AND PSVS FOR AMINE STORAGE TANK AT UCH-II PLANT

Tender Enquiry No PROC-FC/CB/P&P/UCH-4691/2020

Due Date

Evaluation Criteria FULL

SCHEDULE OF REQUIREMENT

		~~~						
Sr No	Description	Unit	Quantity	Unit Price	Total Price	Unit Price	Total Price	Deviated From
12.20				(FOB)	(FOB)	C & F BY SEA	C & F BY SEA	Tender Spec. If Any
1	Breathing Valve, 8 inch, ANSI 150 lb. Set Pressure: -0.0725/0.213 psig, along-	Number	2					
	with Complete Set of Standard Spare Kit.							
2	Emergency Vents (Hatch Type), 24 Inch, ANSI 150 lb. Set Pressure: 0.284 psig,	Number	4					
	along-with Complete Set of Standard Spare Kit.							

Note:

- 1. Standard warranty and guarantee for all the items should be provided.
- 2. All items to be supplied must be newly manufactured and free from defects. A certificate in this regard to be provided by the bidder.
- 3. Standard test quality control certificates should be provided (where applicable).
- 4. The delivery period must be quoted to the most minimum possible extent however delivery period should not exceed seven (07) months from the date of establishment of letter of credit
- 5. Payment will be made on following payment milestones:
  - a. Seventy (70%) percent of Material LC/Purchase Order Price shall be paid by OGDCL on shipment of the complete material.
  - b. Thirty (30%) percent of the Material LC/Purchase Order Price shall be released under the L/C upon delivery of Complete Equipment/material at Karachi Port, Pakistan and after inspection/acceptance of material confirming complete delivery on submission of balance payment invoice.
- 6. The bid validity period of <u>180 days</u> is required from the date of bid submission/opening. Bid bond amounting to PKR 200,000/or equivalent should be enclosed with the technical bid valid for 210 days.
- 7. Certificate of incorporation showing name/designation/contact details of the person signing it must be enclosed with the bid.

#### PROC-FC/CB/P&P/UCH-4691/2020

. . . . 

<u>Item 1</u>

<u>Description</u>

Model No. B100 Open

Combined Pressure & Vacuum relief valve, open vent to atmosphere

Tag No.

Size 8" (DN200) Constructed with stainless steel body, seats and trim, PTFE diaphragm, Set pressure 0.213 psig, Set vacuum – 0.0725 psig. Flange connection to be drilled ANSI 150RF.

х. ¹.

Quantity 2 off

## Spare Parts

**Description** 

Model B100 Open Vent

Standard Spares Kit - Size 8"

2 x Diaphragms 2 x Backing Discs 2 x Spacer Discs 1 x O'ring

х Полоника •

one kit per two years operation and one kit for commissioning purposes.

Page O of B

<u>Item 2</u>

<u>Description</u>

Model No. B400

**Emergency Relieving Manway** 

Tag No.

Size 24" (DN600) Constructed with stainless steel body and cover, stainless steel seat. PTFE diaphragm. Set pressure 0.284 psig. Flanges to be drilled only ANSI 150FF.

Quantity 4 off

<u>Note</u>

Manway arm lengths may vary depending on setting, please advise of any restrictions.

## **Spare Parts**

**Description** 

Model B400 Emergency Manway

Standard Spares Kit - Size 24"

1 x Diaphragm 1 x Backing Disc

one kit per two years operation and one kit for commissioning purposes.

Page (2) of (8)

## **Commercial Summary**

## **Delivery time**

Delivery

## Documentation

Material certification to EN10204 Functional test certificate Installation & Operation Manual Atex certificate of conformity

## Painting

**Payment Terms** 

Validity

## C&F Karachi By SEA

## Not Applicable

Page 3 of 8

# Valve Capacity Calculation Based on API 2000

Date Our reference Author	: : :	02/01/19 PH	
Customer Your reference	:		
Tag Numbers	:		Serial Numbers :

•	
	•
-	
•	
•	
	•
•	
	•
•	
•	
•	•
	•

# **Operating Conditions**

Valve Model No	<b>)</b> . :	B100 OV	Medium : Air	
Valve Size		8 Inches		
Set Pressure	:	14.7 mbarg	Over Pressure :	10 %
Set Vacuum	:	5 mbarg	Over Vacuum :	10 %

## **Calculated Results**

Pressure Flow	:	2,901	
Vacuum Flow	:	827	
Flow Type	:		Nm3/hr

$$Nm^{2}/h = 12,503P_{1}A_{1}\sqrt{\frac{k}{MTZ(k-1)}\left[\left(\frac{P_{2}}{P_{1}}\right)^{\frac{1}{k}} - \left(\frac{P_{2}}{P_{1}}\right)^{\frac{k+1}{k}}\right]}$$

Page (4) of (8)

# Valve Capacity Calculation Based on API 2000

Date Our reference Author	:	02/01/19 PH		
	•			
Customer Your reference	:			
Tag Numbers	:		Serial Numbers : : :	

# **Operating Conditions**

Valve Model No	D. :		B400	Medium : Air		
Valve Size	:	24	Inches			
Set Pressure	:	19.6	mbarg	Over Pressure :	10	%
Set Vacuum	:		mbarg	Over Vacuum :		%

## **Calculated Results**

Pressure Flow	:	29,764
Vacuum Flow	:	

Flow Type :

Nm3/hr

$$Nm^{3}/h = 12,503P_{1}A_{\sqrt{MTZ(k-1)}}\left[\left(\frac{P_{1}}{P_{1}}\right)^{\frac{1}{k}} - \left(\frac{P_{1}}{P_{1}}\right)^{\frac{1}{k}}\right]$$

Page 3 of 3

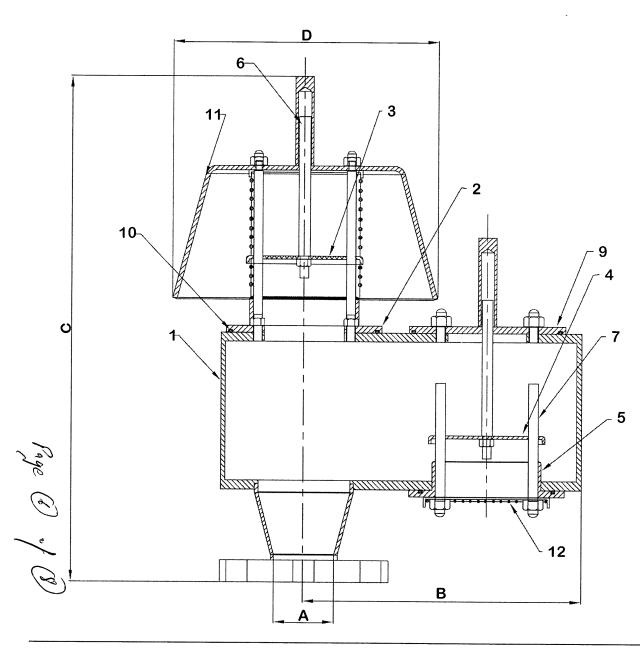
SERIAL No.	TAG NO.	- )-	

FLANGES SUPPLIED IN ACCORDANCE WITH ANSI / DIN

8-

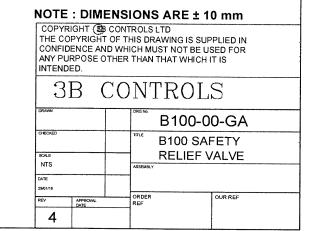
SEAT DETAIL

OTHER FLANGE STANDARDS AVAILABLE ON REQUEST



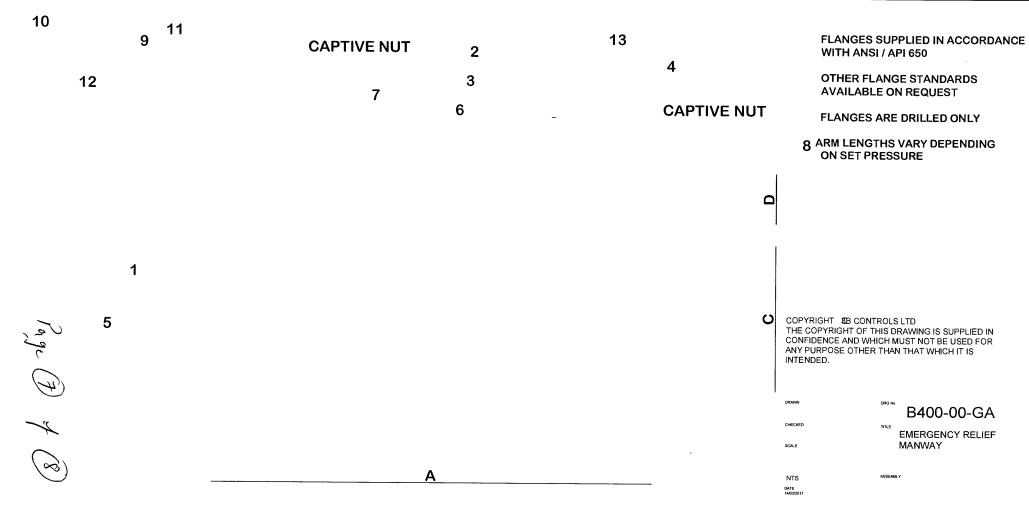
ITEM No.	QTY	DESCRIPTION	MATERIAL
1	1	VALVE BODY	SS/CS/AL
2	1	PRESSURE SEAT	SS
3	1	PRESSURE PALLET	SS
4	1	VACUUM PALLET	SS
5	1	VACUUM SEAT	SS
6	2	PALLET STEM	SS
7	8	GUIDE POSTS	SS
8	2	DIAPHRAGM	PTFE
9	1	VACUUM COVER	SS/CS/AL
10	3	O'RING SEAL	NITRILE
11	1	WEATHERHOOD	CS/SS/AL
12	2	SCREENS	SS

NOM SIZE	A	В	С	D
50(2")	54	250	440	208
80(3")	84	302	515	305
100(4")	108	366	623	380
150(6")	161	516	721	535
200(8")	211	626	677	600
250(10")	255	681	750	650
300(12")	305	717	835	700



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NOM SIZE	А	В	С	D
200 (8")	203	343	185	40
250(10")	254	406	205	40
300 (12")	305	483	205	40
400 (16")	406	597	205	40
450 (18")	457	635	205	40
508 (20")	508	699	205	40
600 (24")	610	813	205	40
750 (30")	762	984	205	40
900 (36")	920	1168	205	40

	OTV	DECODUDEIO	
ITEM No.	QIY	DESCRIPTION	MATERIAL
1	1	HOOP	SS/CS/AL
2	1	COVER	SS/CS/AL
3	1	DRIP RING	SS/CS/AL
4	1	SEAT	SS/CS/AL
5	1	FLANGE	SS/CS/AL
6	1	ARM	SS/CS/AL
7	2	ARM LUGS	SS/CS/AL
8	2	HINGE	SS/CS/AL
9	TBA	SETTING WEIGHT	LEAD/CS
10	1	LIFT HANDLE	SS/CS/AL
11	1	RETAINING NUT	SS
12	TBA	CLAMPING SCREWS	SS
13	1	DIAPHRAGM	PTFE



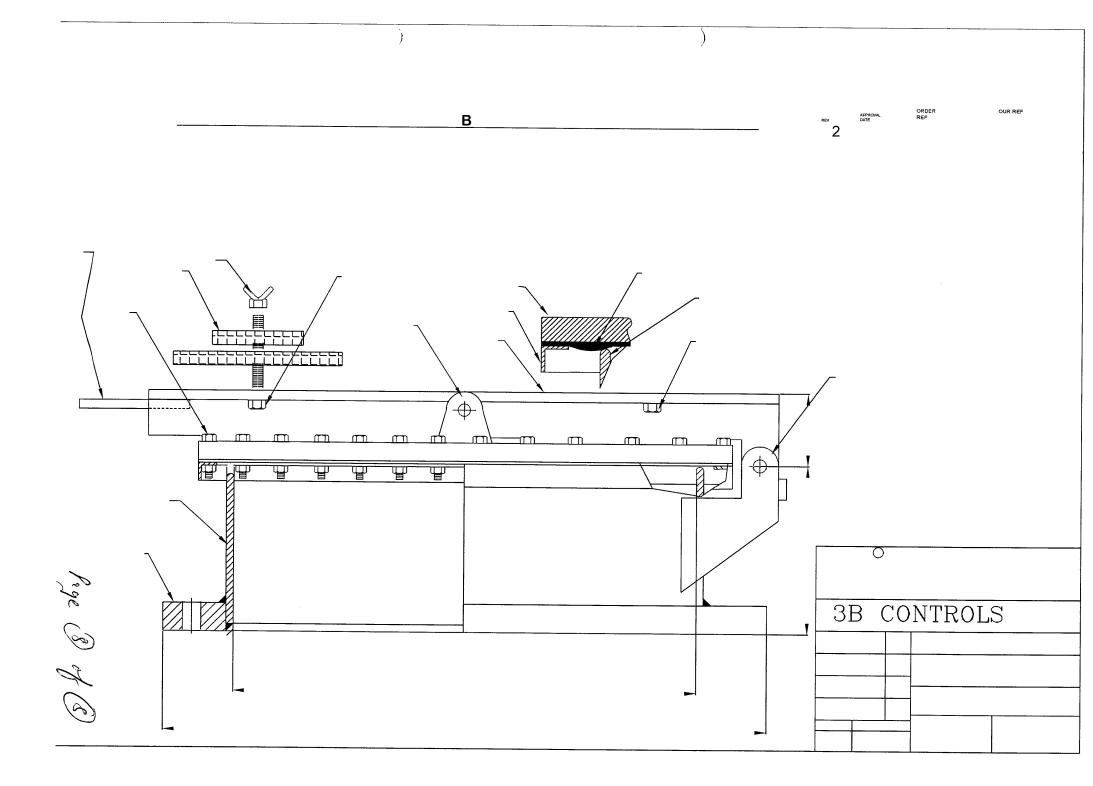


Image: Strain of the strain	Colleg		LIEN/	UCH-II Development Project		96/12 Unit:	300/3
0       122204       BSUED FOR CONTRUCTION       2M       SD       SV	操作 Rightman		6	AMINE GAS SWEETENING UNIT	BELLELLI ENC	INEERING S.p.A. c.No:	F
OGDCL 01 & Gas Development Company Limited 1 / 4 Dependent Company BELLELLI ENGINEERING S.p.A DATA SHEET FOR TANK TK103 VENTING VALVES AND RESTRICTION ORIFICE	E	NART	The second		3-TK103		
DATA SHEET FOR TANK TK103 VENTING VALVES AND RESTRICTION ORIFICE			OGDCL Oil & G	as Development Company Limited			
AND RESTRICTION ORIFICE					NG S.p.A.		
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		DATA			'G VALVE:	5	
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Bit INCINERATOR Package PROJECT No. 144985         Doc.No:         Nov.           GOOL 0II & Gas Development Company Limited         37K103-IN-DI-002         03           SECTION (NUMBER / NAME)         DATA SHEET FOR TANK TK103 VENTING VALVES         2 / 4           SECTION (NUMBER / NAME)         Train 300 / Train 310 - Amine Gas Sweetening Unit NUMBER         300-PSV026 / 310-PSV026 / 100-D01 sileet 1 of 1           Yoo NUMBER         300-PSV026 / 310-PSV026 / 100-PSV026 / 100-P	Stantinerration         Stantinerration         Stantine for the second s	PROJECT No. 14-9883       3.TK103-IN-DI-002       03         Sheet / of 2 / 4       3.TK103-IN-DI-002       03         DOCCL Dil & Gas Development Company Limited       Sheet / of 2 / 4       3.TK103-IN-DI-002       03         SECTION (NUMBER NAMBER       DATA SHEET FOR TANK TK103 VENTING VALVES       Sheet / of 2 / 4       3.TK103-IN-DI-002       03         SECTION (NUMBER NAMBER       Train 300 / Train 310 - Amine Gas Sweetening Unit 300-759/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026 / 310-69/026	SECTION ( NUM TAG NUM NUMBI		PROJ Dil & Gas Develope	ECT No. 14-4985	3-TK103-IN-DI-002	03		
OGDCL Oil & Gas Development Company Limited         Sheet / of           OGDCL Oil & Gas Development Company Limited         2 / 4           DATA SHEET FOR TANK TK103 VENTING VALVES           SECTION (NUMBER / NAME)         Train 300 / Train 310 - Amine Gas Sweetening Unit           NUMBER         300-PSV026 / 310-PSV026 (Note 1)         2 ( 1 for Each Train)           PID NUMBER         2 ( 1 for Each Train)         2 ( 1 for Each Train)           PID NUMBER         300-PSV026 / 310-PSV026 (Note 1)         2 ( 1 for Each Train)           PID NUMBER         300-PSV026 / 310-PSV026 (Note 1)         2 ( 1 for Each Train)           PROTECTED EQUIPMENT         300/310-1K103 Amine Inventory Storage Tark         300-100-1K103 Amine Inventory Storage Tark           DESIGN TEMPERATURE         Prig         -5 mbar (-0.0725 psg)/ 200 mmH20 (0.284 psg)         30           DESIGN TEMPERATURE         Prig         -5 mbar (-0.0725 psg)/ 200 mmH20 (0.284 psg)         -6           FLUID TYPE         Air         Air + Nitrogen         -6         -6           FLUID TYPE         Air         Air + Nitrogen         -6         -6         -6           OORROSWE COMPONENT         00         1.00         -6         -6         -6         -6         -6         -6         -6<	OGDCL Oil & Gas Development Company Limited         2 / 4           DATA SHEET FOR TANK TK103 VENTING VALVES           DATA SHEET FOR TANK TK103 VENTING VALVES           SECTION (NUMBER / NAME)           TAG NUMBER         300-PSV028 (Note 1)           NUMBER         2.1 for Each Train           PID NUMBER         300-PSV028 (Note 1)           NUMBER         2.1 for Each Train           PID NUMBER         31-TK103-PR0-J001 Steet 1 of 1           PROTECTED EQUIPMENT         300/310-TK103 Amine Inventory Storage Tark           DESIGN TEMPERATURE         'P           Vacuum ralief         'P           Vacuum ralief         'P           Vacuum ralief         'P           CORROSIVE COMPONENT         0019REATHING           UPSTREAM LINE         'P           DOWNSTREAM LINE         'P           DOWNSTREAM LINE         'P           OCORROSIVE COMPONENT         280           UPSTREAM LINE         'P           DOWNSTREAM LINE         'P           OCORROSIVE COMPONENT         280           UPSTREAM LINE         'P           DOWNSTREAM LINE         'P           UPSTREAM LINE         'P           OCORROSIVE COMPONENT	OGDEL Oil & Gas Development Company Limited         Steri / of 2 / 4           DATA SHEET FOR TANK TK103 VENTING VALVES	SECTION ( NUM TAG NUN NUMBI		Dil & Gas Develop		Sheet / of			
DATA SHEET FOR TANK TK103 VENTING VALVES           SECTION (NUMBER / NAME)         Train 300 / Train 310 - Amine Gas Sweetening Unit 300-PSV028 (Note 1)           NUMBER         2.01 For Each Train 900 NUMBER         2.01 For Each Train 301-TK103 Amine Inventory Storage Tark           PROTECTED EQUIPMENT         300-310-TK103 Amine Inventory Storage Tark         300-310-TK103 Amine Inventory Storage Tark           DESIGN PRESSURE         peg         -5-mbar (-0.0725 psg)/ 200 mmH20 (0.284 psg) 30 / 180	DATA SHEET FOR TANK TK103 VENTING VALUES           SECTION ( NUMBER / NAME ) NUMBER         Train 300 / Train 310 - Amine Gas Sweetening Unit 300-PSV026 (Note 1) 2.1 for Each Train PID NUMBER           NUMBER         3.00-PSV026 (Note 1) 2.1 for Each Train PID NUMBER         3.00-PSV026 (Note 1) 2.1 for Each Train PID NUMBER           PID NUMBER         3.00-PSV026 (Note 1) 2.1 for Each Train PID NUMBER         9.00           DESIGN TEMPERATURE         PS0 F         -5-mbar (-0.0725 Ps0) / 200 mmH20 (0.284 psig)           DESIGN TEMPERATURE         PS0 F         -5-mbar (-0.0725 Ps0) / 200 mmH20 (0.284 psig)           DESIGN TEMPERATURE         PS0 F         -5-mbar (-0.0725 Ps0) / 200 mmH20 (0.284 psig)           PUID STATE         Gas         Gas         Gas           FLUID STATE         Gas         Gas         Gas           UPSTREAM UNE         00/Free Name         0'Free Name         0'Free Name           UPSTREAM UNE         00/Free Name         00/Free Name         0'Free Name           ODWNEEMEMUNE         00/Free Name         0/Free Name         0'Free Name           ODWNEEMEMUNE         00/Free Name         0/Free Name         0'Free Name           FLUID STATE         Dom 100         380         -0.020         0/Free Name           ODWNEEMEMUNE         0/Free Name         0/Free Name         0/Free Name </td <td>DATA SHEET FOR TANK TK103 VENTING VALVES           SECTION (NUMBER / NAME)         Train 300 / Train 310 - Amine Gas Sweetening Unit           140 NUMBER         300-PSV028 / 310-PSV028 (Note 1)           NUMBER         2 (1 for Each Train)           PD NUMBER         2 (1 for Each Train)           PD NUMBER         300-PSV028 / 310-PSV028 (Note 1)           PD NUMBER         301-TK103 Amine Inventory Storage Tark           DESIGN TEMPERATURE         pg           Variation (1 for Each Train)         300-10-11K103 Amine Inventory Storage Tark           DESIGN TEMPERATURE         pg           Variation (1 for Each Train)         300-1160           CORROSIVE COMPONENT         Gas           CORROSIVE COMPONENT         Gas           COMONSTREAM LINE         Info 100           OWINTREAM LINE         Info 100           OWINTREAM ELLEVING COMONTIONS         Info 100           SECHER EACH TRAIN         PB           UOUD DENSITY         BP</td> <td>TAG NUM</td> <td></td> <td></td> <td> Ended by Ended</td> <td>2/4</td> <td></td>	DATA SHEET FOR TANK TK103 VENTING VALVES           SECTION (NUMBER / NAME)         Train 300 / Train 310 - Amine Gas Sweetening Unit           140 NUMBER         300-PSV028 / 310-PSV028 (Note 1)           NUMBER         2 (1 for Each Train)           PD NUMBER         2 (1 for Each Train)           PD NUMBER         300-PSV028 / 310-PSV028 (Note 1)           PD NUMBER         301-TK103 Amine Inventory Storage Tark           DESIGN TEMPERATURE         pg           Variation (1 for Each Train)         300-10-11K103 Amine Inventory Storage Tark           DESIGN TEMPERATURE         pg           Variation (1 for Each Train)         300-1160           CORROSIVE COMPONENT         Gas           CORROSIVE COMPONENT         Gas           COMONSTREAM LINE         Info 100           OWINTREAM LINE         Info 100           OWINTREAM ELLEVING COMONTIONS         Info 100           SECHER EACH TRAIN         PB           UOUD DENSITY         BP	TAG NUM			Ended by Ended	2/4			
TAG NUMBER         0.000 PS/026 / 310-PS/026 (Nole 1)           NUMBER         2 (1 For Each Train)           PID NUMBER         2 (1 For Each Train)           PID NUMBER         2 (1 For Each Train)           PROTECTED EQUIPMENT         300/310-TK103 Amine Inventory Storage Tank           DESIGN PRESSURE         psg           -5 mbar (-0.0725 psg) / 200 mmH20 (0.284 psig)           DESIGN TEMPERATURE         re           VISCOMPONENT         30/180           VISCOMPONENT         30/180           VEX.UD STATE         Gas           OORROSWE COMPONENT         8" - 150# FE           UPSTREAM UNE         8" - 150# FE           DOWINSTREAM UNE         8" - 150# FE           DOWINSTREAM UNE         8" - 150# FE           DOWINSTREAM UNE         0.020           SPECIFIC HEAT RATIO         1.41           UPSTREAM UNE         1000           SPECIFIC HEAT RATIO         1.41           UNSCOSITY         CP           USCOSITY         CP           USCOSITY         CP           UNSCOSITY         CP           UNSCOSITY         CP           USCOSITY         CP           USCOSITY         CP           SET PRESSURE	Tack Number         Street Hing Unit           NUMBER         300-PSV026 / 310-PSV026 (Note 1)           PID NUMBER         2 (1 For Each Train)           PID NUMBER         3-TK103-RE/1001 sheet 1 of 1           PROTECTED EQUIPMENT         300/310-TK103 Amine Inventory Storage Tank           DESIGN PRESSURE         psg           0ESIGN PRESSURE         psg	TAG AUMBER     300-PSV026 / 310-PSV026 / 010-PSV026 / 010	TAG NUM		A SHEET FOR TA	NK TK103 VENTING V		-		
NUMBER         300-PSV026 / 310-PSV026 (Note 1)           PID NUMBER         2 (1 FOr Each Train)           PID NUMBER         3-TK103-PR-DI-001 sheet 1 of 1           PROTECTED EQUIPMENT         300/310-TK103 Amine Inventory Storage Tank           DESIGN TEMPERATURE         ?F           NBREATHING         OUTBREATHING           Vacuum relief         (note 2)           FLUID TYPE         Air           Air NIRGE         00/310-TK102 Amine Inventory Storage Tank           FLUID TYPE         Air           Air Nirgen	NUMBER         300-PSV226 / 310-PSV226 / 10-PSV226 / 10-PSV226 / 10 - PSV26 /	NUMBER         300-PSV226 / 310-PSV226 (Note 1)           PID NUMBER         2 (1 For Gath Train)           PID NUMBER         3-TK 103-PR-DL-001 sheet 1 of 1           PROTECTED EQUIPMENT         300/310-TK 103 Amine Inventory Storage Tank           DESIGN PRESSURE         psig           DESIGN TEMPERATURE         *           POLID STATE         Gas           CORROSINE COMPORENT         300/310-TK 103 OmmH20 (0.284 psig)           PLUID STATE         Gas           CORROSINE COMPORENT         300/310-TK 100           UVSTREAM LINE         *           DOUNSTREAM LINE         S* 150# - RF           ODWISTREAM LINE         S* 150# - RF           OUNSTREAM LINE         UVSTREAM RELEVING CONDITIONS           UVSTREAM RELEVING CONDITIONS         UVSTREAM RELEVING CONDITIONS           ODWISTREAM LINE         See 0.000           VISCOSITY         CP           USCOSITY         CP           UNSTREAM RELEVING CONDITIONS         Set 0.0171           VISCOSITY         CP           USCOSITY         CP           USCOSITY         CP           USCOSITY         CP           USCOSITY         CP           USCOSITY         CP           USCOSITY	NUMB			Frain 300 / Train 310 - Ar	mine Gas Sweetening Unit			
MD NUMBER         3-TK103-PR-DI-001 sheet 1 of 1           PROTECTED EQUIPMENT         300/310-TK103         Amine Inventory Storage Tank           DESIGN TEMPERATURE         psig         -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)         -           DESIGN TEMPERATURE         psig         -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)         -           FULID TYPE         Air         NIRREATHING (note 2)         OUTBREATHING (note 2)         OUTBREATHING (note 3)         -         -           FLUID TYPE         Air         Air + Nitrogen         -         -         -         -         -           ODOWNSTREAM LINE         Gas         Gas         Gas         Gas         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	PID NUMBER         3-TK103-PR-DI-001 sheel 1 of 1           PROTECTED EQUIPMENT         300/310-TK103_Amine Inventory Storage Tank           DESIGN PRESSURE         psig         -5 mbar (-0.0725 psig) / 200 mmit20 (0.284 psig)           DESIGN TEMPERATURE         'F         INBREATHING         OUTBREATHING           Vacuum relief (note 2)         OUTBREATHING         OUTBREATHING         Image: State Sta	PID NOMBER       3-TK 103-PK-DF-001 sheet 1 of 1         PROTECTED EQUIPMENT       300/310-TK 103 Amine Inventory Storage Tank         DESIGN TEMPERATURE       pig         DESIGN TEMPERATURE       pig         Vacuum railof       OUTBREATHING         Vacuum railof       OUTBREATHING         FLUID STATE       Gas         CORROSIVE COMPONENT       0         OCORROSIVE COMPONENT       0         ODWISTREAM LINE       B*: 150# - RF         DOWISTREAM LINE       0         VORSINE COMPONENT       0         ODWISTREAM LINE       0         DOWISTREAM LINE       0         VURSTREAM LINE       0         ODWISTREAM LINE       0         DOWISTREAM LINE       0         ODWISTREAM LINE       0         VAROCONTONS	PID NUM			300-PSV026 / 31	10-PSV026 (Note 1)			
DESIGN PRESSURE         psig         -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)           DESIGN TEMPERATURE         'F         30 / 180         4           DESIGN TEMPERATURE         'F         0/ 180         4           Vacuum relief (note 2)         Pressure relief (note 3)         -         -         -           FLUID TYPE         Air         Air + Nitrogen         -         -         -         -           FLUID TYPE         Air         Air + Nitrogen         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	DESIGN PRESSURE         psig	DESIGN PRESSURE         psg		1BER						
DESIGN TEMPERATURE         Image         -5 mbar (-00 /25 psg) / 200 mmH20 (0.284 psig)           Vacuum relief         Vacuum relief         00 / 180         0           Vacuum relief         (note 2)         (note 3)         0         0           FLUID TYPE         Air         Air + Nitrogen         0         0         0           FLUID STATE         Gas         Gas         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0         0	DESIGN TEMPERATURE         PP3         -5 mBar (-00 /25 psg) / 200 mmH20 (0.284 psg)           Vacuum relief (note 2)         VUTBREATHING Vacuum relief (note 2)         OUTBREATHING Pressure relief (note 3)         OUTBREATHING Pressure relief           FLUID TYPE         Air         Air + Nitrogen	DESIGN TEMPERATURE         The         -3 mail	PROTECTED E	QUIPMENT		300/310-TK103 Amine	e Inventory Storage Tank			
INBREATHING         OUTBREATHING         OUTBREATHING           Vacuum roliof (note 2)         Pressure reliof (note 3)	INBREATHING         OUTBREATHING         OUTBREATHING           Vacuum relief (note 3)         Pressure relief (note 3)         Pressure relief           FLUID TYPE         Air         Air + Nitrogen         Pressure relief           FLUID STATE         Gas         Gas         Pressure relief           CORROSIVE COMPONENT         -         -         -         -           DOWNSTREAM LINE         05"-150# - RF         -         -         -         -           DOWNSTREAM LINE         00"1000         1.00         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -         -	INBREATHING         OUTBREATHING         OUTBREATHING         Interview           Vacuum relief         Pressure relief         (note 2)         Interview								
(note 2)         (note 3)	Image: full of type         Air         (note 3)         Image: full of type         full of type <th full="" of="" td="" type<=""><td>Image: space spac</td><td></td><td></td><td>INBREATHI</td><td>NG OUTBREATHING</td><td>/ 180</td><td></td></th>	<td>Image: space spac</td> <td></td> <td></td> <td>INBREATHI</td> <td>NG OUTBREATHING</td> <td>/ 180</td> <td></td>	Image: space spac			INBREATHI	NG OUTBREATHING	/ 180		
FLUID TYPE         Air         Air         Air + Nitrogen         Air + Nitrogen <t< td=""><td>FLUID TYPE     Air     Air + Nitogen       FLUID STATE     Gas     Gas       CORROSIVE COMPONENT     B' - 150# - RF       UPSTREAM LINE     B' - 150# - RF       DOWNSTREAM LINE     UPSTREAM RELIEVING CONDITIONS       FLOW RATE     Ibh     1600       MOLECULAR WEIGH1     28.9     28.0       CORPOSITY     COMPARTE     Ibh       MOLECULAR WEIGH1     28.9     28.0       SPECIFIC HEAR RATIO     1.41     1.40       SPECIFIC HEAR RATIO     1.41     1.40       VISCOSITY     CP     0.020     0.0171       VISCOSITY     CP     0.020     0.0171       VISCOSITY     CP     0.020     0.0171       VISCOSITY     CP     SERVICE CONDITIONS       SET PRESSURE     psig    </td><td>FLUID TYPE     Air     Air + Nitrogen       FLUID STATE     Gas     Gas       CORROSIVE COMPONENT     Gas     Gas       UPSTREAM LINE     B*-150# - RF     Component       DOWNSTREAM LINE     UPSTREAM RELIEVING CONDITIONS     F       DOWNSTREAM LINE     UPSTREAM RELIEVING CONDITIONS     F       MOLECULAR WEIGH1     28.9     28.0     Component       MOLECULAR WEIGH1     28.9     28.0     F       COMPRESSIBILITY FACTOR     1.00     1.00     I.00       SPECIFIC HEAT RATIO     1.141     1.40     F       UGUID DENSITY     LB/H     0.020     0.0171     F       VISCOSITY     CP     0.020     0.0171     F       VISCOSITY     CP     CONTCAL PRESSURE     Psig     F       VAPOUR PRESSURE     Psig     -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)     F       UPSTREAM RELIEVING TEMP     F     131 max     131 max     I       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)     F       MATERIAL     Body: Carbon steel     Noze: Sorta     F       MATERIAL     Body: Carbon steel     Noze: Carbon steel     Bonnet: BY MFR     F       MANUFACTURER'S MODEL NO.     ACCESSORIES     F     F     I</td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	FLUID TYPE     Air     Air + Nitogen       FLUID STATE     Gas     Gas       CORROSIVE COMPONENT     B' - 150# - RF       UPSTREAM LINE     B' - 150# - RF       DOWNSTREAM LINE     UPSTREAM RELIEVING CONDITIONS       FLOW RATE     Ibh     1600       MOLECULAR WEIGH1     28.9     28.0       CORPOSITY     COMPARTE     Ibh       MOLECULAR WEIGH1     28.9     28.0       SPECIFIC HEAR RATIO     1.41     1.40       SPECIFIC HEAR RATIO     1.41     1.40       VISCOSITY     CP     0.020     0.0171       VISCOSITY     CP     0.020     0.0171       VISCOSITY     CP     0.020     0.0171       VISCOSITY     CP     SERVICE CONDITIONS       SET PRESSURE     psig	FLUID TYPE     Air     Air + Nitrogen       FLUID STATE     Gas     Gas       CORROSIVE COMPONENT     Gas     Gas       UPSTREAM LINE     B*-150# - RF     Component       DOWNSTREAM LINE     UPSTREAM RELIEVING CONDITIONS     F       DOWNSTREAM LINE     UPSTREAM RELIEVING CONDITIONS     F       MOLECULAR WEIGH1     28.9     28.0     Component       MOLECULAR WEIGH1     28.9     28.0     F       COMPRESSIBILITY FACTOR     1.00     1.00     I.00       SPECIFIC HEAT RATIO     1.141     1.40     F       UGUID DENSITY     LB/H     0.020     0.0171     F       VISCOSITY     CP     0.020     0.0171     F       VISCOSITY     CP     CONTCAL PRESSURE     Psig     F       VAPOUR PRESSURE     Psig     -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)     F       UPSTREAM RELIEVING TEMP     F     131 max     131 max     I       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)     F       MATERIAL     Body: Carbon steel     Noze: Sorta     F       MATERIAL     Body: Carbon steel     Noze: Carbon steel     Bonnet: BY MFR     F       MANUFACTURER'S MODEL NO.     ACCESSORIES     F     F     I								
FLUID STATE         All Y Mitrogen         All Y Mitrogen           CORROSIVE COMPONENT         Gas	FLUID STATE     Cas     All P Nitrogen       CORROSIVE COMPONENT     8": 150#-RF     0       UPSTREAM LINE     0/form atmosphere     0/form atmosphere       DOWNSTREAM LINE     0/form atmosphere     0/form atmosphere       VPSTREAM RELIEVING CONDITIONS     0/form atmosphere       MOLEOULAR WEIGH     28.9     28.0       COMPRESIBILITY FACTOR     1.00     1.00       SPECIFIC HEAT RATIO     1.41     1.40       VISCOSITY     cP     0.020     0.0171       VISCOSITY     psig     -     -       VISCOSITY     cP     -     -       VISCOSITY     cP     -     -       VISCOSITY     cP     -     -       VISCOSITY     cP	FLUO STATE     Cas     Gas       UBSTREAM LINE     B* 150# - RF       DOWNSTREAM LINE     0/57 mar. Status       DOWNSTREAM LINE     0/750 mar. Status       PELOW RATE     Ib/h       1000     380       MOLECULAR WEIGH1     28.9       28.0     0.0171       COMPRESIBILITY PACTOR     1.00       1.41     1.40       VISCOSITY     0/P       0.020     0.0171       VISCOSITY     0/P       VAPOUR PRESSURE     Psig       SET PRESSURE     Psig		·····	(	(1018-3)				
CORROSIVE COMPONENT         Odds         Gas         Image: Constraint of the second	CORROSIVE COMPONENT         Oras         Gas         Image: Constraint of the second	CORROSIVE COMPONENT     Odds     Gas     Bit     Set     Set <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
UPSTREAM LINE         8" - 150# - RF           DOWNSTREAM LINE         UPSTREAM RELIEVING CONDITIONS           FLOW RATE         Ib/n           MOLECULAR WEIGH1         28.9           COMPRESSIBILITY FACTOR         1.00           COMPRESSIBILITY FACTOR         1.00           SPECIFIC HEAT RATIO         1.41           VISCOSITY         CP           VAPOUR PRESSURE         Psig           CRITICAL PRESSURE         Psig           CRITICAL PRESSURE         Psig           SET PRESSURE         Psig           VAPOUR PRESSURE         Psig           SET PRESSURE         Psig           SET PRESSURE         Psig           SET PRESSURE         Psig           VALVE DATA         VALVE OATA           BASIS OF SELECTION         API STANDARD 2000 ST EDTITON (6th Ed.)           MATERIAL         Body: Carbon steel         Bonnet: BY MFR	UPSTREAM LINE         8"-150# - RF           DOWNSTREAM LINE         U0/fifting atmosphere           FLOW RATE         Ib/n           1600         380           VISTREAM RELIEVING CONDITIONS         1           COMPRESSIBILITY FACTOR         1.00           SPECIFIC HEAT RATIO         1.41           VISCOSITY         cP           VISCOSITY <td< td=""><td>UPSTREAM LINE     8" · 150# - RF       DOWNSTREAM LINE     UDSTREAM RELIEVING CONDITIONS       FLOW RATE     Ib/h       ID000000000000000000000000000000000000</td><td>CORROSIVE CO</td><td>MPONENT</td><td></td><td></td><td></td><td></td></td<>	UPSTREAM LINE     8" · 150# - RF       DOWNSTREAM LINE     UDSTREAM RELIEVING CONDITIONS       FLOW RATE     Ib/h       ID000000000000000000000000000000000000	CORROSIVE CO	MPONENT						
Basis of Selection         Outform atmosphere           Outform atmosphere           Basis of Selection           Outform atmosphere           Basis of Selection           Outform atmosphere           Basis of Selection           Outform atmosphere           Outform atmosphere           Determine the second atmosphere           Second atmosphere           Outform atmosphere           Outform atmosphere           Second atmosphere           Outform atmosphere           Outher <td>Price         UPSTREAM RELIEVING CONDITIONS         Image: Constraint of the second sec</td> <td>Bit in the image of th</td> <td></td> <td></td> <td></td> <td>8" - 15</td> <td></td> <td></td>	Price         UPSTREAM RELIEVING CONDITIONS         Image: Constraint of the second sec	Bit in the image of th				8" - 15				
PERCENT         Ibh         1600         380         Image: constraint of the second secon	PEDUW RATE         Ib/h         1600         380	PEDW RAFE         Ib/n         1600         380	DOWNSTREAM LIN	Nt:		to/from at	tmosphere			
Odd         1.00         1.00         1.00         1.00           SPECIFIC HEAT RATIO         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.40         1.41         1.41         1.40         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41         1.41	Oddim         1.00         1.00         1.00           SPECIFIC HEAT RATIO         1.41         1.40         1.40         1.00           VISCOSITY         cP         0.020         0.0171         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00<	Object       1.00       1.00       1.00         SPECIFIC HEAT RATIO       1.41       1.40       1.40       1.40         VISCOSITY       cP       0.020       0.0171       1.40       1.40         UGUID DENSITY       lb/h       1.41       1.40       1.40       1.40       1.40         UGUID DENSITY       lb/h       1.60       1.60       1.60       1.60       1.60         UGUID DENSITY       lb/h       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60       1.60	FLOW RATE		p/h 1600					
OP         SPECIFIC HEAT RATIO         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00         1.00 <th1.00< th=""> <th1.00< th="">         1.00</th1.00<></th1.00<>	SPECIFIC HEAT RATIO     1.41     1.40     Image: constraint of the second sec	SPECIFIC HEAT RATIO       1.00       1.00       1.00         VISCOSITY       cP       0.020       0.0171       1.00       1.00         VISCOSITY       cP       0.020       0.0171       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00       1.00	COMPRESSIBILITY			and the second sec				
Basis of Selection         cP         0.020         0.0171         Image: Constraint of the selection of the selectio	VISCOSITY       CP       0.020       0.0171       Image: Constraint of the second	Image: Set of the set of	SPECIFIC HEAT F	RATIO						
Percent LiQuido DeNSITY         Ib/h         Image: Construct of the state of the	Provide     How RATE     John       LIQUID DENSITY     Ib/h***     Ib/h***       LIQUID DENSITY     Ib/h***     Ib/h***       VISCOSITY     OP     Ib/h***       VAPOUR PRESSURE     psig     Ib/h***       CRITCAL PRESSURE     psig     Ib/h***       CRITCAL PRESSURE     psig     -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       SET PRESSURE     psig     -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       UPSTREAM RELIEVING TEMP     *F     131 max     131 max       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)     Im/h************************************	FLOW RATE     Ib/h       LIQUID DENSITY     Ib/h*3       USCOSITY     oP       VAPOUR PRESSURE     psig       VAPOUR PRESSURE     psig       CRITICAL PRESSURE     psig       CRITICAL PRESSURE     psig       SET PRESSURE     psig       SET PRESSURE     psig       UPSTREAM RELIEVING TEMP     *F       131 max     131 max       MATERIAL     Body: Carbon steel       NOZZIE: Carbon steel     Nozzie: Carbon steel       MATERIAL     Body: Carbon steel       NANUFACTURER'S MODEL NO.     *       MANUFACTURER'S MODEL NO.     *       OTHER     *       OTHER     *       NOTES     *       ) Tank breathing valve (not for emergency conditions).       ) Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the	VISCOSITY							
CHILAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       "F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         SPARE REQUIRED       -       -       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -<	CRITICAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         Disc: By MFR       Guide & Ring: By MFR       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -       -         NOTES       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       - <td>CKITCAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURE       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         SPARE REQUIRED       -       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -         OTHER       -       -       -       -       -         .       -       -       -       -       -       -         .       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -&lt;</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	CKITCAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURE       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         SPARE REQUIRED       -       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -         OTHER       -       -       -       -       -         .       -       -       -       -       -       -         .       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -<								
CHILAL PRESSURE       psia       SERVICE CONDITIONS       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       "F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         Disc: By MFR       Guide & Ring: By MFR       -       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -<	CRITICAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         Disc: By MFR       Guide & Ring: By MFR       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -       -         NOTES       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       - <td>CKNTCAL PRESSURE       psia         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         SPARE REQUIRED       Disc: By MFR       Guide &amp; Ring: By MFR       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -         ) Tank breathing valve (not for emergency conditions).       -       -       -       -         ) Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal breathing' ADN CAPE CAPE)       -       -</td> <td>VISCOSITY</td> <td></td> <td></td> <td></td> <td></td> <td></td>	CKNTCAL PRESSURE       psia         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         SPARE REQUIRED       Disc: By MFR       Guide & Ring: By MFR       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -         ) Tank breathing valve (not for emergency conditions).       -       -       -       -         ) Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal breathing' ADN CAPE CAPE)       -       -	VISCOSITY							
CHILAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         Disc: By MFR       Guide & Ring: By MFR       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -       -         NOTHER       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -	CRITICAL PRESSURE       psia       SERVICE CONDITIONS         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       -         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       -         UPSTREAM RELIEVING TEMP       °F       131 max       131 max       -         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       -       -         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       -         Disc: By MFR       Guide & Ring: By MFR       -       -       -         MANUFACTURER'S MODEL NO.       -       -       -       -         OTHER       -       -       -       -       -       -         NOTES       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       -       - <td>CKNTCAL PRESSURE       psia         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH20 (0.213 psig)         UPSTREAM RELIEVING TEMP       °F       131 max       131 max         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       Image: Carbon steel       Bonnet: BY MFR         SPARE REQUIRED       Disc: By MFR       Guide &amp; Ring: By MFR       Image: Carbon steel       Bonnet: BY MFR         MANUFACTURER'S MODEL NO.       ACCESSORIES       Image: Carbon steel       Image:</td> <td>VAPOUR PRESS</td> <td></td> <td></td> <td></td> <td></td> <td></td>	CKNTCAL PRESSURE       psia         EQUIPMENT DESIGN PRESSURF       psig       -5 mbar (-0.0725 psig) / 200 mmH20 (0.284 psig)         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH20 (0.213 psig)         UPSTREAM RELIEVING TEMP       °F       131 max       131 max         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)       Image: Carbon steel       Bonnet: BY MFR         SPARE REQUIRED       Disc: By MFR       Guide & Ring: By MFR       Image: Carbon steel       Bonnet: BY MFR         MANUFACTURER'S MODEL NO.       ACCESSORIES       Image: Carbon steel       Image:	VAPOUR PRESS							
EQUIPMENT DESIGN PRESSURF:       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)         UPSTREAM RELIEVING TEMP       °F       131 max       131 max         VALVE DATA         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonzt: BY MFR         Disc: By MFR       Guide & Ring: By MFR       Image: Carbon steel       Image: Carbon steel       Image: Carbon steel         MANUFACTURER'S MODEL NO.       ACCESSORIES       Image: Carbon steel       Image:	EQUIPMENT DESIGN PRESSURF     psig     -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)       SET PRESSURE     psig     -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)       UPSTREAM RELIEVING TEMP     °F     131 max     131 max       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)     MATERIAL       Body: Carbon steel     Nozzle: Carbon steel     Bonnet: BY MFR     1       OTHER     Disc: By MFR     Guide & Ring: By MFR     1       OTHER     ACCESSORIES     1	EQUIPMENT DESIGN PRESSURE       psig       -5 mbar (-0.0725 psig) / 200 mmH2O (0.284 psig)         SET PRESSURE       psig       -5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)         UPSTREAM RELIEVING TEMP       *F       131 max       131 max         VALVE DATA         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR         Disc: By MFR       Guide & Ring: By MFR	- CRITICAL PRESS	SURE p:	sia					
SET PRESSURE     psig     -5 mbar (-0.0725 psig) / 150 mmH20 (0.248 psig)       UPSTREAM RELIEVING TEMP     °F     131 max     131 max       VALVE DATA       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)       MATERIAL     Body: Carbon steel     Nozzle: Carbon steel     Bonnet: BY MFR       Disc: By MFR     Guide & Ring: By MFR     Image: Carbon steel     Bonnet: BY MFR       MANUFACTURER'S MODEL NO.     -     -     Image: Carbon steel     Carbon steel       OTHER     OTHER     -     -     Image: Carbon steel     Carbon steel	SET PRESSURE     psig     -5 mbar (-0.0725 psig) / 150 mmH20 (0.244 psig)       UPSTREAM RELIEVING TEMP     *F     131 max     131 max       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)     1       MATERIAL     Body: Carbon steel     Nozzle: Carbon steel     Bonnet: BY MFR       SPARE REQUIRED     Disc: By MFR     Guide & Ring: By MFR     1       MANUFACTURER'S MODEL NO.     ACCESSORIES     1       OTHER     NOTES     1	SET PRESSURE     psig     -5 mbar (-0.0725 psig) / 150 mmH20 (0.244 psig)       UPSTREAM RELIEVING TEMP     °F     131 max     131 max       BASIS OF SELECTION     VALVE DATA       MATERIAL     Body: Carbon steel     Nozzle: Carbon steel     Bonnet: BY MFR       SPARE REQUIRED     Disc: By MFR     Guide & Ring: By MFR     Image: Carbon steel       MANUFACTURER'S MODEL NO.     ACCESSORIES     Image: Carbon steel     Image: Carbon steel       OTHER     OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: Carbon steel     NOTES     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: Carbon steel     NOTES     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: Carbon steel     NOTES     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel	EQUIPMENT DESIGN PRE	SSURE ps	ig					
OF OT REAM RELEVING TEMP     *F     131 max     131 max       VALVE DATA       BASIS OF SELECTION     API STANDARD 2000 LAST EDITION (6th Ed.)       MATERIAL     Body: Carbon steel     Nozzle: Carbon steel     Bonnet: BY MFR       Disc: By MFR     Guide & Ring: By MFR     I       MANUFACTURERS MODEL NO.     ACCESSORIES     I       OTHER     I     I       NOTES     I	OF OTHERMINECTEVING TEMP       **       131 max       131 max       **         VALVE DATA         VALVE DATA         VALVE DATA         DATE REQUIRED         MANUFACTURER'S MODEL NO.         OTHER         OTHER         OTHER         NOTES	OF ON REALWAREDEVING TEMP       131 max       131 max         VALVE DATA       VALVE DATA         BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR         Disc: By MFR       Guide & Ring: By MFR       Imax       Imax       Imax         MANUFACTURER'S MODEL NO.       Imax       Imax       Imax       Imax       Imax         OTHER       Imax       Ima				-5 mbar (-0.0725 psig) / 150 mmH2O (0.213 psig)				
API STANDARD 2000 LAST EDITION (6th Ed.) MATERIAL Body: Carbon steel Nozzle: Carbon steel Bonnet: BY MFR Disc: By MFR Guide & Ring: By MFR  SPARE REQUIRED ACCESSORIES OTHER OTHER NOTES	BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       Image: Carbon steel       Image: Carbon steel       Bonnet: BY MFR       Image: Carbon steel       Image: Carbon steel <td>BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       Image: Disc: By MFR         SPARE REQUIRED       Disc: By MFR       Guide &amp; Ring: By MFR       Image: Disc: By MFR</td> <td>UPSTREAM RELIEVING</td> <td>IEMP *</td> <td>F 131 max</td> <td colspan="5">131 max 131 max</td>	BASIS OF SELECTION       API STANDARD 2000 LAST EDITION (6th Ed.)         MATERIAL       Body: Carbon steel       Nozzle: Carbon steel       Bonnet: BY MFR       Image: Disc: By MFR         SPARE REQUIRED       Disc: By MFR       Guide & Ring: By MFR       Image: Disc: By MFR	UPSTREAM RELIEVING	IEMP *	F 131 max	131 max 131 max				
NATERIAL Body: Carbon steel Nozzle: Carbon steel Bonnet: BY MFR Disc: By MFR Guide & Ring: By MFR C	MATERIAL Body: Carbon steel Nozzle: Carbon steel Bonnet: BY MFR Disc: By MFR Disc: By MFR Guide & Ring: By MFR MANUFACTURER'S MODEL NO.	MATERIAL     Body: Carbon steel     Nozzle: Carbon steel     Bonnet: BY MFR       Disc: By MFR     Guide & Ring: By MFR     Image: Carbon steel     Bonnet: BY MFR       SPARE REQUIRED     Image: Carbon steel     Guide & Ring: By MFR     Image: Carbon steel       MANUFACTURER'S MODEL NO.     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       MANUFACTURER'S MODEL NO.     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel       Image: OTHER     Image: Carbon steel     Image: Carbon steel     Image: Carbon steel				API STANDARD 2000 L	AST EDITION (6th Ed.)			
SPARE REQUIRED	SPARE REQUIRED	SPARE REQUIRED	MATERIA	AL		el Nozzle: Carbon ster	el Bonnet: BY MFR			
OTHER ACCESSORIES	OTHER ACCESSORIES	OTHER OTHER OTHER OTHER NOTES ) Tank breathing valve (not for emergency conditions). ) Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal broathing) (ADI CTD, case)			Disc: By MFR	Guide & Ring: By N	AFR			
OTHER	OTHER	NOTES  NOTES  Tank breathing valve (not for emergency conditions).  I hbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal broathing) (ADI CTD, coop)	MANUFACTURER'S	MODEL NO.						
NOTES	NOTES	NOTES	OTHER			ACCESS	SORIES			
NOTES	Tank breathing valve (not for emergency conditions)	) Tank breathing valve (not for emergency conditions). () Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal broathing) (ABI GTD, 2000)								
) Tank breathing value (pot for ensure 1977)	Tank breathing valve (not for emergency conditions)	) Tank breathing valve (not for emergency conditions). () Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal broathing) (ABI GTD, 2000)								
) Tank breathing value (not for any second sec	Tank breathing valve (not for emergency conditions)	) Tank breathing valve (not for emergency conditions). () Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal broathing) (ABI GTD, 2000)								
) Tank breathing value (not for an end of the second	Tank breathing valve (not for emergency conditions)	) Tank breathing valve (not for emergency conditions). () Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the aximum decrease in vapor space temperature (thermal broathing) (ABI GTD, 2000)								
	Inbreathing resulting from maximum outflow of liquid from the table	) Inbreathing resulting from maximum outflow of liquid from the tank and from contraction of vapours caused by the	1) Tank broathing value (		N	OTES				
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.		nermal breathing) (API S	STD. 2000).			free change compet			
aximum decrease in vapor space temperature (thermal breathing) (API STD. 2000). ) Outbreathing resulting from maximum inflow of liquid into the tank from maximum increase in vapor space temperature hermal breathing) (API STD. 2000).	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	iermai breathing) (API STD. 2000).								
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	nermai breathing) (API STD. 2000).						H		
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	nermai breathing) (API STD. 2000).								
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	nermai breatning) (API STD. 2000).						<u> - </u>		
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	Thermal breatning) (API STD. 2000).						H-1		
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	nermai breatning) (API STD. 2000).								
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	Thermal breatning) (API STD. 2000).								
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	The space composition of the space composition						E		
) Outbreathing resulting from maximum inflow of liquid into the task from previous and the second se	Outbreathing resulting from maximum inflow of liquid into the tank from maximum inflow.	nermai breatning) (API STD. 2000).								

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OC	)		AMINE GAS SW	opment Project /EETENING UNIT TOR Package	Job N°: 1896/12 Un BELLELLI ENGINEERING S Doc.No:	S.p.A. Re	
ENAR	]	e de la companya de l La companya de la comp		No. 14-4985	3-TK103-IN-DI-002 Sheet / o	(103-IN-DI-002 03 Sheet / of	
	OGD			Company Limited	3 / 4		
			IEET FOR TANK	FK103 VENTING VAL	VES		
SECTION ( NUMBER / NAME ) TAG NUMBER			Train	300 / Train 310 - Ami	ine Gas Sweetening Un	it	
N	NUMBER			300/310-PSE072 4 (2 For Ea	ich Train)		
	PID NUMBER PROTECTED EQUIPMENT			3-TK103-PR-DI-0			
DESIGN PRE		psig		300/310-TK103 Amine Ir			
DESIGN TEMP	ERATURE	°F		-5 mbar (-0.0725 psig) / 20 30 / 1	180		
	RISK		CASE 1 FIRE (Wet Area)	CASE 2	CASE 3	CASE 4	
FLUID	TYPE (note 5)		H2O+Amine				
FLU	ID STATE		Vapour				
UPSTREAM	1 LINE			(NOTE2) - 1	50# - RF		
DOWNSTREA	M LINE			to atmosp UPSTREAM RELIEVI			
Hand FLOW		lb/h	16 <b>4</b> 57 18.07				
	ILITY FACTOR		0.99				
VISCO	DSITY	cP	1.33 0.013			·····	
See LIQUID C		lb/h lb/ft^3					
PLOW LIQUID D VISCO VAPOUR P		cP psig					
CRITICAL P	RESSURE	psia					
EQUIPMENT DESIG		psig		SERVICE CON 5 mbar (-0.0725 psig) / 200			
SET PRESS		psig °F	219.7	200 mmH2O (0	0.284 psig)		
BASIS OF	SELECTION						
MA	TERIAL REQUIRED		API STANDARD 2000 LAST EDITION (6lh Ed.) Carbon steel				
EMERGEN	CY VENT SIZE		- 24" Internal Diameter (TBC) (Note 2)				
MANUFACTUR	RER'S MODEL NO.			ACCESSO			
0.	THER						
						·····	
(1) Emergency vent (	hatch type)		NOTE	S			
(2) Dimension of PSE	072 A/B to be	defined by	Manufacturer.				
					ompany property. The Company lawfully r		

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		# 1.3 WE 1.5		Job No.:	1896/12	Unit:	300/310
- 201	DE	UCH-II Developm AMINE GAS SWEET	ENING UNIT		I ENGINEEF Doc.No:		
-		& INCINERATOR	Package	3-тк	103-PR-D	S-003	02
	ENAR	PROJECT No.			Shee	t / of	
		OGDCL Oil & Gas Development Comp	any Limited			1/5	
0	Driginator Company	BELLELLI ENGINEERING S.p.	Α.				
		DATA SHEET F AMINE INVENTORY STOF Items : (300/310-TF	RAGE TAN	ĸ			
			······································				
02	15/04/2013 ISSUED		PM	SDO	SV		
01	1/15/2013 ISSUED	FOR APPROVAL	PM LP	SDO SDO	SV VR		
		FOR APPROVAL					

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Bellenn	maring	a Lup MERT		······		Job No.:	1896/12 Unit:	300/3	10
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		SAC SEC	UCH-II	Development	Project	BELLELI		T	
	E 31			AS SWEETEN			Doc.No:	Re	v.
Colorado II.	Constant Pro-	201122	& INCI	NERATOR Pa	ickage				
						3-TK1	03-PR-DS-003	0;	2
LE	NAR	10 632	PRO	JECT No. 14-4			Sheet / of	1	
		OGDCL Oil & C	Gas Development (	Company Lim	ited		2 / 5		
Originat	or Company		BEI	LLELLI ENGIN	EERING S.	.p.A.			
		AMINE INVENTOR	Y STORAGE TANK	( Items : (300/	310-TK103)	······		-	
ITEM: AMINE INVEN	TORY STORAGE TANKS -	300-TK103 / 310-TK103 (No	ote 10)	CORROSIO	N ALLOWA	NCE			
CAPACITY: WORKIN	E OF REGENERATED (LEA	N) AMINE total volume) GEOMET.≈ 1		BOTTOM TYP			1.5	mm	02
INTERNAL DIAMETE	R : 30 (TRC)	total volume) GEOMET.= 1			CENTRAL F		1.5	mm	02
HEIGHT: = 24 (TBC			ft ft	SHELL		COURSE TO T		.5 mm	
	DESIGN DA	ATA (note 5)				COURSE TO COURSE TO	COURSE= COURSE=	mm mm	02
	0 11th edition + API STD. 2	000 6th edition		-	PLATES		1.5	mm	02
APPENDIX (VTC)		□ Ј □ м □ м □	0 🗌 р 🗹	ROOF		STRUCTURES	15	 mm	02
SHELL CALCULAT.	ONE FOOT METHOD	INT METHOD				STRUCTION			Ħ
AMBIENT TEMPERA	AVARAGE DESIGN PO TURE : MIN. = 30 °F		APP.K	BOTTOM TYPE :		L		MASS	H
	SIGN = 30 / 180 °F	MAX.= 1 OPERAT.= A		SLOPE (Note 6	- annund		Law and	tonn.	
PRESSURE : DESIG			TM (Note 3) TM (Note 3)	PERIPH. RING		in W=	in		
PRODUCT STORED			(NOLE 3)	CENTRAL PLATE	:5 ⊺hk.	in 🔝 Bl	UTT LAP		$\square$
 DENSITY	: 65.7 lb / ft3			SHELL	ТНК. М	lm u	EIGHT. mm		H
	: > 100 °F (Note 4)			1 st COURSE					$\vdash$
PUMP FLOW RATES	- 01	OUT= (Note 8)	USgpm	2 st COURSE			1		$\vdash$
WIND VELOCITY	120 Mph		mph	3st COURSE					H
EARTHQ.	ZONE = (Note 2) AMP. FACTOR.=	ZONE COEFFIC. =		4 st COURSE					$\square$
RAINFALL :	(Note 3) mm / h	ESSENT. FACT. = SNOW :		5 st COURSE					$\square$
		G VALVES	N / m2	6 st COURSE					
BREATHER	the second se		).0725 (-5 mbar) psig	7 st COURSE 8 st COURSE					
EMERGENCY		1 (200 mmH2O) (Note 7)	psig						
PRESS./ VACUUM	+		psig	1					
		ERIALS		TOP ANGLE					
BOTTOM PLATES	PERIPHERAL RING	ASTM A516 Gr. 70		STIFFERING RI	NGS				
	CENTRAL PLATES	ASTM A516 Gr. 70		CALCULATEO WI					
	FROM 1st Y. S. = (TBC)	COURSE TO TOP	ASTM A516 Gr. 70			UNCORRODE	C		
	FROM -	T. S. = (T st COURSE TO -	BC) N/mm ²	ТОР	INTERMEO		ERMEOIATE		
SHELL PLATES	Y. S. ≈ -	T. S. = -	N / mm2	A= mm B= mm			mm		
	FROM -	st COURSE TO -		B= mm C= mm	B= n C= n		mm		
	Y. S. = -	T. S. = -	N / mm ²	Thk. = mm			mm mm		
ROOF		STM A516 Gr. 70		1		ELL TOTAL MA			
WINDGIRD.	STRUCTURES C	ARBON STEEL		ROOF TYPE :	^				
STRUCT.	EXTERNAL CARE	ON STEEL		SLOPE (TBC)	%		R =	D	
PIPES	ASTM A106 Gr.B	DUN SIEEL		PLATES Thk. =	mm	BU'	TT 🗌 LAP		
FLANGES	ASTM A105			SUPPORTED WITH RAFTERS		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	a second		
GASKETS	Spiral Wound CS + Graph					COLUMNS		C)	
 BOLTS	SA-193 Gr.B7 (Zinc yellow	v Bichromated)		INTERNAL FLOATI		YES	55 🔽 NO		
NUTS	SA-194 Gr.2H (Zinc yellow	v Bichromated)		ACCESSORIES			IT NO	ł	
INTERNAL NUTS	SA-194 Gr.2H (Zinc yellow	v Bichromated)		TANK TOTAL MA	ASS			ŀ	
JOINT EFFICIENCY RADIOGRAPHY	-								
HYDRAULIC TEST	WATER FILLING							F	
NOTES :									
	C = to be confirmed/defined.							T	
		eld is located does not experi	ence earthquakes. Howe	ever the recommo	onded corthau-	ka factor (		ļ	
stru	ctural design is g/10 (corres	sponding to Zone 1 according	to UBC standard).		andou earinqua	ine lactor for		F	
3) Refe	er to section 5.5 of Design E	asis, doc. no. 3-PU101-PR-P						⊦	
4) Proc	cess fluid flash point higher i	than 100 °F.						⊦	
	mal boiling point lower than :							⊦	
5) Tan	k design shali bi- to acoorda	nce with document 4985-SA-	7502 Specification for sti	orage bank design				ŀ	02
6) Slop	e 1 : 120.							F	
() Self 8) Grav	vity flow to Amine Sume Dressure	relief device (emergency ver	nt).					Ē	
o, 0iai	,	im 300/310-V107. Maximum e	expected flow rate is 430	USgpm (98 m3/h	I).			L L	
							(continues on sh	et 3)	

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	ENAR	12 D37							Sheet / c	1 of
I Oric	inator Company	OGDCL Oil & Ga	as Devel						3 /	/ 5
	inator Company			В	ELLELI	I ENGI	NEERIN	IG S.p.A.		
POS.	1	AMINE INVENT						and the second se		
P03.			No.	SIZE		RATING	FACING	ELEVAT, A DISTANCE R	PROJECT. B / B1	REFERENC SH - SPC - S
1	DRAWOFF NOZZLE AND	SUMD		BOTTO	DM					
2	NOZZLE FOR	COM				-	-			
3	NOZZLE FOR LEVEL GAU	IGE (FLOATING TYPE)	÷ _		· _		-			
4	NOZZLE FOR	. ,	· _	_	· _			e		
5	HEATING (		) -	-			· _			
6	CATHODIC PROTECTION		-	-	· -	-	· -			
7	ANCHOR BOLTS		(TBC)	(TBC)	(TBC)	(TBC)	(TBC)			
9										
10					i	÷				
11			: •			+				
		······		ROO	-	L	•			
12	NOZZLE FOR GAS BLANK		-		-	-	-			
13	NOZZLE FOR BREATHER		16 1	8"	WN	150#	RF	· ·		
14	NOZZLE FOR VACUUM VA			-	-	-	-			
15 16	NOZZLE FOR EMERGENC			24"	WN	150#	RF			
17	NOZZLE FOR EMERCEN	CY VENT/VALVE (note 7) N	110B 1	24"	WN .	150#	RE			
18	NOZZLE FOR OPEN VENT	(Note 12) N		-		-	-			
19	NOZZLE FOR GAUGE HAT	( ····=/ ··	10 1	4"	WN	150#	RF			
20	NOZZLE FOR LEVEL INDIC		7 1	- 4"	WN	- 150#	RF			
21	NOZZLE FOR PRESSURE			2	, VVN	150# 150#	RE			
22	NOZZLE FOR			-	: _ ·	-	~			
23	MANHOLE				•					
24										
25										
26 27	NOZZLE FOR			-		-	- 1			
27	NOZZLE FOR			-	-	- 1				
29			÷ •		, 1					
30	INSP. DOOR FOR EXT. BOARD				. i		,			
31	CIRCUNFERENTIAL HAND			-		-				
32	TOP WALKWAY		<u>-</u> -				- ·			
33	INSULATION SUPPORTS		· - ·	-	: : ~	-				
34					· ·					
35										
	OPEN VENT		-	-	- 1	-	-	•		
	BREATHER VALVE VACUUM VALVE			-	-	- [	- '	TYPE	DWG	OR EQUIV.
	EMERGENCY VALVE		; <b>-</b> .	-				YPE	DWG	OR EQUIV.
40				-				YPE	DWG	OR EQUIV.
41	GAUGE HATCH				· .			YPE	DWG	OR EQUIV.
			1.1			- ·		YPE	DWG	OR EQUIV.

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