





Vendor:  Job No. 1308-2285	EPC Contractor :  Project No. : 1208	HENGAM FERTILIZER PROJECT INSTRUMENT DATA SHEETS AND BROCHURES 102 A/B & 130 A/B	Owner:  H. P. C.	MC:  H. P. C.
		Doc. No.: VD-1208-307A-DSH-225	Rev. : 03	

VENDOR : Roodhart Pump Group

REQ. NO. : 1208-00-REQ-RE-307A

ITEM NO. : 11-P-102 A/B & 11-P-130 A/B

ITEM DESCRIPTION : HP CARBAMATE PUMP & BOOSTER PUMP





PURCHASER DOC. NO.: VD-1208-307A-DSH-225

VENDOR DOC. NO. : 2285-102AB-1001





TOTAL PAGES : 48

<input type="checkbox"/> No Comment To Vendor <input type="checkbox"/> Comment as marked manufacturing may proceed To Vendor <input type="checkbox"/> Major Comment as marked manufacturing is on hold for the next rev To Vendor <input type="checkbox"/> Rejected , new document with the same rev. no. To Vendor <input type="checkbox"/> Used as for information To Vendor		
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DE	EXT	REVIEW				
Eng. Phase	Purpose of Distribution (POD)	Purpose of Issue (POI)	Purchaser's Action			
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Sheet No.	Internal Issue	Change Index During Formal Issues						Reason of Latest Change
		First Issue	Second Issue	Third Issue	Fourth Issue	Fifth Issue	Sixth Issue	
	Rev. 0A	Rev.00	Rev.01	Rev.02	Rev.03	Rev.04	Rev.05	
1		X	X	X	X			
2		X	X	X	X			
3		X	X	X	X			
4		X	X	X	X			
5		X	X	X	X			
6		X	X	X	X			
7		X	X	X	X			
8		X	X	X	X			
9		X	X	X	X			
10		X	X	X	X			
11		X	X	X	X			
12		X	X	X	X			
13		X	X	X	X			
14		X	X	X	X			
15		X	X	X	X			
16		X	X	X	X			
17		X	X	X	X			
18		X	X	X	X			
19		X	X	X	X			
20		X	X	X	X			
21			X	X	X			
22			X	X	X			
23			X	X	X			
24			X	X	X			
25			X	X	X			
26			X	X	X			
27			X	X	X			
28			X	X	X			
29			X	X	X			
30			X	X	X			
31			X	X	X			
32			X	X	X			
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34			X	X	X			
35			X	X	X			
36			X	X	X			
37			X	X	X			
38			X	X	X			
39			X	X	X			
40			X	X	X			
41			X	X	X			
42			X	X	X			
43			X	X	X			
44			X	X	X			
45					X			
46					X			
47					X			
48					X			

Vendor:  Job No. 1308-2285	EPC Contractor :  Project No. : 1208	HENGAM FERTILIZER PROJECT INSTRUMENT DATA SHEETS AND BROCHURES 102 A/B & 130 A/B	Owner:  شركة هنام للتسميد Hengam Gulf Fertilizers Co. S.P.A.	MC:  شركة هنام للتسميد Hengam Gulf Fertilizers Co. S.P.A.
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INSTRUMENT DATASHEET AND BROCHURES



SIGHT GLASS

Tag number	: 11-SG-10275A/B, 11-SG-10278A/B, 11-SG-10279A/B, 11-SG-10281A/B	3
Equipment	: Pump	
Service description	: High pressure carbamate and Booster pump	
P&ID	: VD-1208-307A-PID-211-Sh 4,5	
Line/equipment no.	: 11-P-102A/B & 11-P-130A/B	
Scale Range	:	
Area	: Hengam Fertilizer Project	
REQUISITION No.	: 1208-00-REQ-RE-307A	
Job number	: 1308-2285	

1 GENERAL

1.01 Type	: Flow Indicator	3
1.02 Manufacturer	: Flowpoint Type P	
1.03 Manufacturer model no	: SP-025&040-4	
1.04 Operating Temp. Limits	: 280°C	
1.05 Mounting	: Inline	
1.06 Weight	:	
1.07 Other	: N.A.	

2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range	: N.A.
2.02 Characteristic	: N.A.
2.03 Accuracy	: N.A.
2.04 Repeatability	: N.A.
2.05 Lower / upper range limits	: N.A.
2.06 Min / max span	: N.A.
2.07 Zero adjustment	: N.A.
2.08 Overpressure protect. to	: N.A.
2.09 Max static pressure	: 16 barg
2.10 Other	:

3 ELEMENT / SENSOR

3.01 Type	: N.A.
3.02 Material, element (sensor)	: N.A.
3.03 Material, socket (inlet port)	: N.A.
3.04 Material, sensor bolts/nuts	: N.A.
3.05 Process conn. size/type	: socket weld connction
3.06 Sour service spec.	:
3.07 Other	:

4 HOUSING

4.01 Dimension	: see notes
4.02 Material	: 316
4.03 Cable connection	: N.A.
4.04 Cable entry	: N.A.
4.05 Enclosure protection	: N.A.
4.06 Ex. classification	: N.A.
4.07 Window	: Toughened soda lime glass to BS3463 rated to 16 barg
4.08 Other	:

5 TRANSMITTER

5.01 Indicator	: N.A.
5.02 Output signal	: N.A.
5.03 Communication	: N.A.
5.04 Supply voltage	: N.A.
5.05 Consumption	: N.A.
5.06 Load limitation	: N.A.
5.07 Other	: N.A.

6 SWITCH

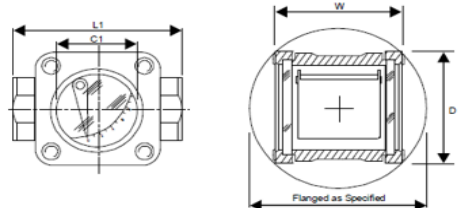
6.01 Reset; automatic or manu	: N.A.
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decreas	: N.A.
6.04 Contact configuration	: N.A.
6.05 Contact material	: N.A.
6.06 Contact rating	: N.A.
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.

7 NOTES

selected instruments

tag number	indicator size	D.P (barg)	Glass THK(in)
11-SG-10281A/B	1" SW	16	0.47"
11-SG-10278A/B	1 1/2" NPTM	16	0.47"
11-SG-10279A/B	1 1/2" NPTM	16	0.47"
11-SG-10275A/B	1 1/2" SW	16	0.47"

dimensions				
Indicator Size	Length	Width	Depth	Clearview
	L1	W	D	C
1/4"	85	63	60	42
3/8"	85	63	60	42
1/2"	85	63	60	42
3/4"	85	72	60	48
1"	95	72	66	48
1 1/2"	120	102	84	62
2"	150	118	106	77



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


INSTRUMENT DATASHEET AND BROCHURES
FLOW INDICATOR




Tag number : 11-FI-10276A/B, 11-FI-10278A/B, 11-FI-10280A/B
Equipment : Pump **Scale Range** : 2.0- 22.4 lit/min
Service description : High pressure carbamate and Booster pump **Area** : Hengam Fertilizer Project
P&ID : VD-1208-307A-PID-211 - Sh 4,5 **REQUISITION No.** : 1208-00-REQ-RE-307A
Line/equipment no. : 11-P-102 A/B & 11-P-130A/B **Job number** : 1308-2285

1 GENERAL

1.01 Type : Flow Gauge
 1.02 Manufacturer : Flowpoint Type F 
 1.03 Manufacturer model no : SFSHM-015-4SC
 1.04 Operating Temp. Limits : 250°C
 1.05 Mounting : inline (socket weld connction)
 1.06 Weight :
 1.07 Other : N.A.


2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range : see note 1
 2.02 Characteristic :
 2.03 Accuracy : 1.0
 2.04 Repeatability : High
 2.05 Lower / upper range limits : see note 1
 2.06 Min / max span : see note 1
 2.07 Zero adjustment : N.A.
 2.08 Overpressure protect. to : N.A.
 2.09 Max static pressure : 49 bar 
 2.10 Other :

3 ELEMENT / SENSOR

3.01 Type : spring loaded Flap
 3.02 Material, element (sensor) : Stainless steel
 3.03 Material, socket (inlet port) : SS316
 3.04 Material, sensor bolts/nuts : SS316
 3.05 Process conn. size/type : socket weld connction
 3.06 Sour service spec. : N.A.
 3.07 Other :

4 HOUSING

4.01 Dimension : see note 2
 4.02 Material : 316
 4.03 Cable connection : N.A.
 4.04 Cable entry : N.A.
 4.05 Enclosure protection : N.A.
 4.06 Ex. classification : N.A.
 4.07 Window : Toughened soda lime glass
 to BS3463 rated to 49 bar 
 4.08 Other :

5 TRANSMITTER

5.01 Indicator : N.A.
 5.02 Output signal : N.A.
 5.03 Communication : N.A.
 5.04 Supply voltage : N.A.
 5.05 Consumption : N.A.
 5.06 Load limitation : N.A.
 5.07 Other : N.A.

6 SWITCH

6.01 Reset; automatic or manu : N.A.
 6.02 Deadband or differential : N.A.
 6.03 Alarm at increase/decrea : N.A.
 6.04 Contact configuration : N.A.
 6.05 Contact material : N.A.
 6.06 Contact rating : N.A.
 6.07 Contact action on alarm : N.A.
 6.08 Other : N.A.

7 Notes

selected instruments

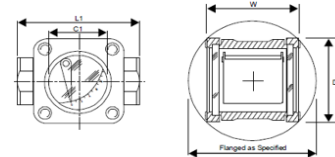
tag number	indicator size	D.P (barg)	Glass THK(in)
11-FI-10276A/B	1/2" SW	49	0.47"
11-FI-10278A/B	1/2" SW	49	0.47"
11-FI-10280A/B	1/2" SW	49	0.47"

Scale Ranges flow indicator- litres/minute

Scale marking	Pipe size (mm)	
	15	19 (nominal)
1	2.0	18.7
2	3.0	18.1
3	3.5	17.8
4	4.2	18.5
5	4.9	18.8
6	5.9	19.9
7	6.9	19.9
8	8.4	19.9
9	11.8	19.2
10	25.4	-

Dimensions flow indicator

Indicator Size	dimensions			
	Length L1	Width W	Depth D	Clearview C
3/4"	85	63	60	42
5/8"	85	63	60	42
1/2"	85	63	60	42
3/4"	85	72	60	48
1"	95	72	66	48
1 1/2"	120	102	84	62
2"	150	118	106	77



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INSTRUMENT DATASHEET AND BROCHURES

FLOW INDICATOR (DRIVE) 3



Tag number	: 11-FI-10273A/B, 11-FI-10274A/B	Scale Range	: 0.4-6 L/min
Equipment	: Drive	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate and Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-PM-102A/B		

1 GENERAL

1.01 Type	: PISTON TYPE
1.02 Manufacturer	: HONSBURG
1.03 Manufacturer model no	: HD2KO-015GK005A-474124
1.04 Process Temp. Limits	: -20 to 120°C
1.05 Mounting	: Inline
1.06 Weight	: 1.2kg
1.07 Other	: N.A.
1.08 Normal Flow Rate	: 11-FI-10273A/B: 3 Lit/m 11-FI-10274A/B: 3 Lit/m

2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range	: 0.4 to 6 L/min
2.02 Characteristic	:
2.03 Accuracy	: ±5.0% of full scale
2.04 Repeatability	: HIGH
2.05 Lower / upper range limits	:
2.06 Min / max span	:
2.07 Zero adjustment	:
2.08 Overpressure protect. to	: 2003 barg
2.09 Max static pressure	: 200 barg
2.10 Other	: N.A.
2.11 SERVICE	: OIL 30-330 mm2/s

3 ELEMENT / SENSOR

3.01 Type	: PISON FLOW SWITC
3.02 Material, element (sensor)	: 316L
3.03 Material, socket (inlet port)	: 316L
3.04 Material, sensor bolts/nuts	: 316 SSL
3.05 Process conn. size/type	: G1/2" FEMALE THREAD
3.06 Sour service spec.	: N.A.
3.07 Other	: N.A.

4 HOUSING

4.01 Dimension	: 120X81X42
4.02 Material	: Stainless steel
4.03 Cable connection	: M20 female, electrical connections without blind plugs
4.04 Cable entry	: M20x1.5
4.05 Enclosure protection	: IP65
4.06 Ex. classification	: Ex ia IIC T4
4.07 Protective coating	: N.A.
4.08 Other	: N.A.

5 TRANSMITTER

5.01 Indicator	: N.A.
5.02 Output signal	: N.A.
5.03 Communication	: N.A.
5.04 Supply voltage	: N.A.
5.05 Consumption	: N.A.
5.06 Load limitation	: N.A.
5.07 Other	: N.A.

6 SWITCH

6.01 Reset; automatic or manual	: CHANGEOVER
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decrease	: N.A.
6.04 Contact configuration	: 0.21
6.05 Contact material	: PA, CW614N, NBR
6.06 Contact rating	: 250 V AC 1.5 A 50 VA
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.

7 CHEMICAL SEAL

7.01 Type	: N.A.
7.02 Material, upper/lower part	: N.A.
7.03 Material, bolts / nuts	: N.A.
7.04 Material, diaphragm	: N.A.
7.05 Fill fluid	: N.A.
7.06 Capillary length/diameter	: N.A.
7.07 Material, capillary/armour	: N.A.
7.08 Process conn. size/type	: N.A.
7.09 Other	: N.A.

8 ACCESSORIES

8.01 Mounting bracket	: N.A.
8.02 Material, mounting bracket	: N.A.
8.03 Overpr. protection valve	: N.A.
8.04 Material, overpr. prot. valve	: N.A.
8.05 Pulsation damper	: N.A.
8.06 Material, pulsation damper	: N.A.
8.07 Other	: N.A.

9 NOTES

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INSTRUMENT DATASHEET AND BROCHURES
FLOW TRANSMITTER




Tag number	: 11-FT-10275A/B,11-FT-10277A/B,11-FT-10279A/B	Scale Range	: 2.4-24 L/min
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate and Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B & 11-P-130A/B		

1 GENERAL

1.01 Type	: Variable Area Flow Transmitter
1.02 Manufacturer	: KROHNE
1.03 Manufacturer model no	: H250/PRL/M40/ESK4/Ex/K15.8
1.04 Process Temp. Limits	: -40 to 200°C
1.05 Mounting	: vertical inline (flanged)
1.06 Weight	: 3.5kg
1.07 Other	: N.A.
1.08 Normal Flow Rate	: 11-FT-10275A/B: 9 Lit/m 11-FT-10277A/B: 9 Lit/m 11-FT-10279A/B: 6 Lit/m

2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range	: 2.4 to 24 L/min
2.02 Characteristic	: Linear
2.03 Accuracy	: ±2.0% of full scale
2.04 Repeatability	: 0.25%
2.05 Lower / upper range limits	: ±2.5%
2.06 Min / max span	: 2.4 to 24 L/min
2.07 Zero adjustment	:
2.08 Overpressure protect. to	: 82 barg 
2.09 Max static pressure	: 42 barg
2.10 Other	: N.A.


3 ELEMENT / SENSOR

3.01 Type	: Float Measuring
3.02 Material, element (sensor)	: 316L
3.03 Material, socket (inlet port)	: 316L
3.04 Material, sensor bolts/nuts	: 316 SSL
3.05 Process conn. size/type	: 1/2" 300#
3.06 Sour service spec.	: N.A.
3.07 Other	: N.A.

4 HOUSING

4.01 Dimension	: 250x214x188
4.02 Material	: Stainless steel
4.03 Cable connection	: M20 female, electrical connections without blind plugs
4.04 Cable entry	: M20x1.5
4.05 Enclosure protection	: IP65
4.06 Ex. classification	: Exi
4.07 Protective coating	: two-layer powder coating (epoxy / poly)
4.08 Other	: N.A.

5 TRANSMITTER

5.01 Indicator	: Digital indicator with LCD display
5.02 Output signal	: 4-20mA(LOOP POWERED) 
5.03 Communication	: HART 7
5.04 Supply voltage	: Loop Powered
5.05 Consumption	: 20...56
5.06 Load limitation	: 250-650Ω
5.07 Other	: N.A.

6 SWITCH

6.01 Reset; automatic or manual	: N.A.
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decrease	: N.A.
6.04 Contact configuration	: N.A.
6.05 Contact material	: N.A.
6.06 Contact rating	: N.A.
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.

7 CHEMICAL SEAL

7.01 Type	: N.A.
7.02 Material, upper/lower part	: N.A.
7.03 Material, bolts / nuts	: N.A.
7.04 Material, diaphragm	: N.A.
7.05 Fill fluid	: N.A.
7.06 Capillary length/diameter	: N.A.
7.07 Material, capillary/armour	: N.A.
7.08 Process conn. size/type	: N.A.
7.09 Other	: N.A.

8 ACCESSORIES

8.01 Mounting bracket	: N.A.
8.02 Material, mounting bracket	: N.A.
8.03 Overpr. protection valve	: N.A.
8.04 Material, overpr. prot. valve	: N.A.
8.05 Pulsation damper	: N.A.
8.06 Material, pulsation damper	: N.A.
8.07 Other	: N.A.

9 NOTES

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INSTRUMENT DATASHEET AND BROCHURES
PRESSURE GAUGE



Tag number	: 11-PG-10275A/B, 11-PG-10276A/B, 11-PG-10277A/B, 11-PG-10278A/B, 11-PG-10279A/B	Scale Range	: 0-16 bar
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate and Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B & 11-P-130A/B		

1 GENERAL

1.01 Type : Bourdon tube pressure gauge

1.02 Manufacturer : WIKA

1.03 Manufacturer model no : 232.50-100 SS316 1/2NPTM 0-16BAR/LM

1.04 Operating Temp. Limits : Ambient: -40 ... 60°C without filling liquid
Medium: +200°C maximum without liquid

1.05 Mounting : Lower mounted

1.06 Weight : 0.6 kg

1.07 Service : Lubricating Oil ISO VG46

1.08 Design Pressure : 10 barg

1.09 Design Temperature : 80 C

2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range : 0.6 - 16 bar

2.02 Characteristic : Linear

2.03 Accuracy : 1.0

2.04 Repeatability : High

2.05 Lower / upper range limits : Scale ranges up to 0 ... 16 bar

2.06 Min / max span : Scale ranges up to 0 ... 16 bar

2.07 Zero adjustment : N.A.

2.08 Overpressure protect. to : 1.3x full scale value

2.09 Max static pressure : N.A.

2.10 Other : Pressure relief at case circumference, 12 o'clock

3 ELEMENT / SENSOR

3.01 Type : Bourdon tube

3.02 Material, element (sensor) : Stainless steel

3.03 Material, socket (inlet port) : SS316

3.04 Material, sensor bolts/nuts : SS316

3.05 Process conn. size/type : 1/2 NPT male 3000 psi

3.06 Sour service spec. :

3.07 Other :

4 HOUSING

4.01 Dimension : 101*137.5*49.5

4.02 Material : Stainless steel

4.03 Cable connection : N.A.

4.04 Cable entry : N.A.

4.05 Enclosure protection : IP65

4.06 Ex. classification : N.A.

4.07 Protective coating : Polyester resin powder coating

4.08 Window : Laminated safety glass

4.09 Other : DIAL:100mm /white with black pointer

5 TRANSMITTER

5.01 Indicator : N.A.

5.02 Output signal : N.A.

5.03 Communication : N.A.

5.04 Supply voltage : N.A.

5.05 Consumption : N.A.

5.06 Load limitation : N.A.

5.07 Other : N.A.

6 SWITCH

6.01 Reset; automatic or manual : N.A.

6.02 Deadband or differential : N.A.

6.03 Alarm at increase/decrease : N.A.

6.04 Contact configuration : N.A.

6.05 Contact material : N.A.

6.06 Contact rating : N.A.

6.07 Contact action on alarm : N.A.

6.08 Other : N.A.

7 CHEMICAL SEAL

7.01 Type : N.A.

7.02 Material, upper/lower part : N.A.

7.03 Material, bolts / nuts : N.A.

7.04 Material, diaphragm : N.A.

7.05 Fill fluid : N.A.

7.06 Capillary length/diameter : N.A.

7.07 Material, capillary/armour : N.A.

7.08 Process conn. size/type : N.A.

7.09 Other : N.A.

8 ACCESSORIES

8.01 Mounting bracket : N.A.

8.02 Material, mounting bracket : N.A.

8.03 Overpr. protection valve : N.A.

8.04 Material, overpr. prot. valve : N.A.

8.05 Pulsation damper : N.A.

8.06 Material, pulsation damper : N.A.

8.07 Other : N.A.

9 NOTES


Installed with 2 way Manifold (SS)

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


INSTRUMENT DATASHEET AND BROCHURES
PRESSURE GAUGE




Tag number	: 11-PG-10274A/B	Scale Range	: 0-40 barg 
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-130 A/B		


1 GENERAL

1.01 Type	: Bourdon tube pressure gauge
1.02 Manufacturer	: WIKA
1.03 Manufacturer model no	: 232.50-100 SS316 1/2NPTM 0-40BAR/LM
1.04 Operating Temp. Limits	: Ambient: -40 ... 60°C without filling liquid Medium: +200°C maximum without liquid
1.05 Mounting	: Lower mounted
1.06 Weight	: 0.6 kg
1.07 Service	: Carbamate
1.08 Design Pressure	: 40 barg 
1.09 Design Temperature	: 120 C

2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range	: 0.6 - 40 bar 
2.02 Characteristic	: Linear
2.03 Accuracy	: 1.0
2.04 Repeatability	: High
2.05 Lower / upper range limits	: Scale ranges up to 0 ... 40 barg
2.06 Min / max span	: Scale ranges up to 0 ... 40 barg
2.07 Zero adjustment	: N.A.
2.08 Overpressure protect. to	: 1.3x full scale value
2.09 Max static pressure	: N.A.
2.10 Other	: Pressure relief at case circumference, 12 o'clock

3 ELEMENT / SENSOR

3.01 Type	: Bourdon tube
3.02 Material, element (sensor)	: Stainless steel
3.03 Material, socket (inlet port)	: SS316
3.04 Material, sensor bolts/nuts	: SS316
3.05 Process conn. size/type	: 1/2 NPT male 3000 psi 
3.06 Sour service spec.	:
3.07 Other	:

4 HOUSING

4.01 Dimension	: 101*137.5*49.5
4.02 Material	: Stainless steel
4.03 Cable connection	: N.A.
4.04 Cable entry	: N.A.
4.05 Enclosure protection	: IP65
4.06 Ex. classification	: N.A.
4.07 Protective coating	: Polyester resin powder coating
4.08 Window	: Laminated safety glass
4.09 Other	: DIAL:100mm /white with black pointer

5 TRANSMITTER

5.01 Indicator	: N.A.
5.02 Output signal	: N.A.
5.03 Communication	: N.A.
5.04 Supply voltage	: N.A.
5.05 Consumption	: N.A.
5.06 Load limitation	: N.A.
5.07 Other	: N.A.

6 SWITCH

6.01 Reset; automatic or manual	: N.A.
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decrease	: N.A.
6.04 Contact configuration	: N.A.
6.05 Contact material	: N.A.
6.06 Contact rating	: N.A.
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.

7 CHEMICAL SEAL

7.01 Type	: N.A.
7.02 Material, upper/lower part	: N.A.
7.03 Material, bolts / nuts	: N.A.
7.04 Material, diaphragm	: N.A.
7.05 Fill fluid	: N.A.
7.06 Capillary length/diameter	: N.A.
7.07 Material, capillary/armour	: N.A.
7.08 Process conn. size/type	: N.A.
7.09 Other	: N.A.

8 ACCESSORIES

8.01 Mounting bracket	: N.A.
8.02 Material, mounting bracket	: N.A.
8.03 Overpr. protection valve	: N.A.
8.04 Material, overpr. prot. valve	: N.A.
8.05 Pulsation damper	: N.A.
8.06 Material, pulsation damper	: N.A.
8.07 Other	: N.A.

9 NOTES

Installed with 2 way Manifold (SS)

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INSTRUMENT DATASHEET AND BROCHURES

PRESSURE GAUGE



Tag number	: 11-PG-10280A/B, 11-PG-10281A/B, 11-PG-10282A/B	Scale Range	: 0-60 barg
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate and Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B & 11-P-130A/B		



1 GENERAL	
1.01 Type	: Bourdon tube pressure gauge
1.02 Manufacturer	: WIKA
1.03 Manufacturer model no	: 232.50-100 SS316 1/2NPTM 0-60BAR/LM
1.04 Operating Temp. Limits	: Ambient: -40 ... 60°C without filling liquid Medium: +200°C maximum without liquid
1.05 Mounting	: Lower mounted
1.06 Weight	: 0.6 kg
1.07 Service	: Condensate/Demin Water
1.08 Design Pressure	: 40 barg
1.09 Design Temperature	: 80 C
2 INSTRUMENT CHARACTERISTICS	
2.01 Calibrated input range	: 0.6-60 bar
2.02 Characteristic	: Linear
2.03 Accuracy	: 1.0
2.04 Repeatability	: High
2.05 Lower / upper range limits	: Scale ranges up to 0 ... 60 barg
2.06 Min / max span	: Scale ranges up to 0 ... 60 barg
2.07 Zero adjustment	: N.A.
2.08 Overpressure protect. to	: 1.3x full scale value
2.09 Max static pressure	: N.A.
2.10 Other	: Pressure relief at case circumference, 12 o'clock
3 ELEMENT / SENSOR	
3.01 Type	: Bourdon tube
3.02 Material, element (sensor)	: Stainless steel
3.03 Material, socket (inlet port)	: SS316
3.04 Material, sensor bolts/nuts	: SS316
3.05 Process conn. size/type	: 1/2 NPT male
3.06 Sour service spec.	:
3.07 Other	:
4 HOUSING	
4.01 Dimension	: 101*137.5*49.5
4.02 Material	: Stainless steel
4.03 Cable connection	: N.A.
4.04 Cable entry	: N.A.
4.05 Enclosure protection	: IP65
4.06 Ex. classification	: N.A.
4.07 Protective coating	: Polyester resin powder coating
4.08 Window	: Laminated safety glass
4.09 Other	: DIAL:100mm /white with black pointer

5 TRANSMITTER	
5.01 Indicator	: N.A.
5.02 Output signal	: N.A.
5.03 Communication	: N.A.
5.04 Supply voltage	: N.A.
5.05 Consumption	: N.A.
5.06 Load limitation	: N.A.
5.07 Other	: N.A.
6 SWITCH	
6.01 Reset; automatic or manual	: N.A.
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decrease	: N.A.
6.04 Contact configuration	: N.A.
6.05 Contact material	: N.A.
6.06 Contact rating	: N.A.
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.
7 CHEMICAL SEAL	
7.01 Type	: N.A.
7.02 Material, upper/lower part	: N.A.
7.03 Material, bolts / nuts	: N.A.
7.04 Material, diaphragm	: N.A.
7.05 Fill fluid	: N.A.
7.06 Capillary length/diameter	: N.A.
7.07 Material, capillary/armour	: N.A.
7.08 Process conn. size/type	: N.A.
7.09 Other	: N.A.
8 ACCESSORIES	
8.01 Mounting bracket	: N.A.
8.02 Material, mounting bracket	: N.A.
8.03 Overpr. protection valve	: N.A.
8.04 Material, overpr. prot. valve	: N.A.
8.05 Pulsation damper	: N.A.
8.06 Material, pulsation damper	: N.A.
8.07 Other	: N.A.
9 NOTES	
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INSTRUMENT DATASHEET AND BROCHURES
PRESSURE TRANSMITTER



Tag number	: 11-PT-10275A/B, 11-PT-10276A/B, 11-PT-10277A/B	Scale Range	: 0-100 barg
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate and Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B & 11-P-130A/B		



1 GENERAL

1.01 Type	: Smart pressure transmitter
1.02 Manufacturer	: Yokogawa
1.03 Manufacturer model no	: EJA530E-JCS7N-024EL/SU21
1.04 Process Temp. Limits	: -40 to 120°C
1.05 Mounting	: 316 SST 2-inch pipe mounting
1.06 Weight	: 3kg
1.07 Service	: Condensate/Demin Water
1.08 Design Pressure	: 40 barg
1.09 Design Temperature	: 80 C
1.10 Operating Pressure	: 27 barg



2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range	: 5 to 100 barg
2.02 Characteristic	: Linear
2.03 Accuracy	: ±0.055% of Span
2.04 Repeatability	: High
2.05 Lower / upper range limits	: 0 to 100 barg
2.06 Min / max span	: 5 to 100 bar
2.07 Zero adjustment	: Zero can be fully elevated or suppressed, within the lower and upper range limits of the capsule
2.08 Overpressure protect. to	: 200 bar
2.09 Max static pressure	: 100 bar
2.10 Other	: N.A.

3 ELEMENT / SENSOR

3.01 Type	: single crystal silicon resonant sensor
3.02 Material, element (sensor)	: Hastelloy C-276
3.03 Material, socket (inlet port)	: SS 316L
3.04 Material, sensor bolts/nuts	: SS 316L
3.05 Process conn. size/type	: 1/2 NPT female 3000 psi
3.06 Sour service spec.	: N.A.
3.07 Other	: N.A.



4 HOUSING

4.01 Dimension	: GA: 95x165x110
4.02 Material	: ASTM CF-8M Stainless Steel
4.03 Cable connection	: M20
4.04 Cable entry	: 2x
4.05 Enclosure protection	: IP66
4.06 Ex. classification	: Exia
4.07 Protective coating	: Polyester resin powder coating
4.08 Other	: N.A.

5 TRANSMITTER

5.01 Indicator	: Digital indicator with LCD display
5.02 Output signal	: 4-20mA(loop powered)
5.03 Communication	: HART 5
5.04 Supply voltage	: Loop powered
5.05 Consumption	: 0.96 mA to 3 mA, 27 mW
5.06 Load limitation	: 250
5.07 Other	: N.A.



6 SWITCH

6.01 Reset; automatic or manual	: N.A.
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decrease	: N.A.
6.04 Contact configuration	: N.A.
6.05 Contact material	: N.A.
6.06 Contact rating	: N.A.
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.

7 CHEMICAL SEAL

7.01 Type	: N.A.
7.02 Material, upper/lower part	: N.A.
7.03 Material, bolts / nuts	: N.A.
7.04 Material, diaphragm	: N.A.
7.05 Fill fluid	: N.A.
7.06 Capillary length/diameter	: N.A.
7.07 Material, capillary/armour	: N.A.
7.08 Process conn. size/type	: N.A.
7.09 Other	: N.A.

8 ACCESSORIES

8.01 Mounting bracket	: SS 316
8.02 Material, mounting bracket	: SS 316
8.03 Overpr. protection valve	: N.A.
8.04 Material, overpr. prot. valve	: N.A.
8.05 Pulsation damper	: N.A.
8.06 Material, pulsation damper	: N.A.
8.07 Other	: N.A.

9 NOTES

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INSTRUMENT DATASHEET AND BROCHURES
TEMPERATURE INDICATOR



Tag number	11-TG-10275A/B, 11-TG-10276A/B, 11-TG-10277A/B, 11-TG-10283A/B		
	: 11-TG-10284A/B, 11-TG-10285A/B, 11-TG-10286A/B, 11-TG-10287A/B		
Equipment	: Pump	Scale Range	: 0 to 120°C
Service description	: High pressure carbamate and Booster pump	Area	: Hengam Fertilizer Project
P&ID	: VD-1208-307A-PID-211 - Sh4,5	REQUISITION No.	: 1208-00-REQ-RE-307A
Line/equipment no.	: 11-P-102 A/B & 11-P-130A/B	Job number	: 1308-2285

1 GENERAL

1.01 Type	: Gas actuated thermometer with contact bulb
1.02 Manufacturer	: WIKA
1.03 Manufacturer model no	: R73.160
1.04 Operating Temp Range	: 0 to 120°C
1.05 Mounting	: Surface Mount
1.06 Weight	: 0.9 kg
1.07 Design Pressure	: 10 barg
1.08 Design Temperature	: 80 °C
1.09 Operating Temperature	: 60 °C



2 INSTRUMENT CHARACTERISTICS

2.01 Calibrated input range	: 10 to 110°C
2.02 Characteristic	: -
2.03 Accuracy	: Class 1
2.04 Repeatability	: High
2.05 Lower / upper range limits	: 10 to 110°C
2.06 Min / max span	: 0 to 120°C
2.07 Zero adjustment	: N.A.
2.08 Overpressure protect. to	: N.A.
2.09 Max static pressure	: N.A.
2.10 Other	: N.A.

3 ELEMENT / SENSOR

3.01 Type	: Surface Mount bulb
3.02 Material, element (sensor)	: Stainless steel 1.4571
3.03 Material, socket (inlet port)	: Stainless steel 1.4571
3.04 Material, sensor bolts/nuts	: Stainless steel
3.05 Process conn. size/type	: 120x22x12
3.06 Sour service spec.	: N.A.
3.07 Other	: N.A.

4 HOUSING

4.01 Dimension	: 161x311x88
4.02 Material	: Stainless steel
4.03 Cable connection	: N.A.
4.04 Cable entry	: N.A.
4.05 Enclosure protection	: IP65
4.06 Ex. classification	: N.A.
4.07 Protective coating	: N.A.
4.08 Window	: Laminated safety glass
4.09 Other	: DIAL:160mm /white with black pointer

5 TRANSMITTER

5.01 Indicator	: N.A.
5.02 Output signal	: N.A.
5.03 Communication	: N.A.
5.04 Supply voltage	: N.A.
5.05 Consumption	: N.A.
5.06 Load limitation	: N.A.
5.07 Other	: N.A.

6 SWITCH

6.01 Reset; automatic or manual	: N.A.
6.02 Deadband or differential	: N.A.
6.03 Alarm at increase/decrease	: N.A.
6.04 Contact configuration	: N.A.
6.05 Contact material	: N.A.
6.06 Contact rating	: N.A.
6.07 Contact action on alarm	: N.A.
6.08 Other	: N.A.

7 CHEMICAL SEAL

7.01 Type	: N.A.
7.02 Material, upper/lower part	: N.A.
7.03 Material, bolts / nuts	: N.A.
7.04 Material, diaphragm	: N.A.
7.05 Fill fluid	: N.A.
7.06 Capillary length/diameter	: N.A.
7.07 Material, capillary/armour	: N.A.
7.08 Process conn. size/type	: N.A.
7.09 Other	: N.A.

8 ACCESSORIES

8.01 Mounting bracket	: N.A.
8.02 Material, mounting bracket	: N.A.
8.03 Overpr. protection valve	: N.A.
8.04 Material, overpr. prot. valve	: N.A.
8.05 Pulsation damper	: N.A.
8.06 Material, pulsation damper	: N.A.
8.07 Other	: N.A.

9 NOTES

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INSTRUMENT DATASHEET AND BROCHURES
TEMPERATURE TRANSMITTER



Tag number	: 11-TT-10272A/B	Scale Range	: -30 to +300°C
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B		


1 GENERAL

1.01 Type	: Temperature Transmitter
1.02 Manufacturer	: Wika
1.03 Manufacturer model no	: TIF-50
1.04 Mounting	: Screwed connection
1.05 Weight	: 1,3 kg
1.07 Service	: Carbamate
1.08 Design Pressure	: 208 barg 
1.09 Design Temperature	: 90 °C
1.10 Operating Temperature	: 79/146 °C

2 INSTRUMENT CHARACTERISTICS

2.01 Characteristic	: Linear
2.02 Accuracy	: 0,1 % of span
2.03 Calibration Range	: -100 to 450 °C
2.04 Repeatability	: included in 2.02
2.05 Min / max span	: -200 to +550°C
2.06 Zero adjustment	: n.a.
2.07 Other	:


3 ELEMENT / SENSOR

3.01 Type	: PT100
3.02 Design standard	: IEC 60751 Class A
3.03 Element operating limits	: -200 to +550°C
3.04 Wire configuration	: Single 3-wire
3.05 Element diameter	: 6.0mm
3.06 Insertion length	: 100 mm
3.07 Sensitive length	: 5 mm
3.08 Sheath material	: SS 316
3.09 Connection size/type	: 1/2" NPT Thermowell 3000 psi 
3.10 Connection material	: SS 316
3.11 Other	:

4 HOUSING

4.01 Mounting	: On instrument
4.02 Dimension	: DIN form B
4.03 Material	: Aluminium
4.04 Cable connection	: Side
4.05 Cable entry	: M20 x 1.5
4.06 Enclosure protection	: IP66
4.07 Ex. classification	: EX ia IIC T6
4.08 Protective coating	: n.a.
4.09 Other	:

5 TRANSMITTER

5.01 Model	: Wika TIF-50
5.02 Indicator	: Digital display
5.03 Output signal	: 4-20mA(loop powered) 
5.04 Communication	: Hart 5
5.05 Supply voltage	: Loop powered
5.06 Consumption	: n.a.
5.07 Load limitation	: n.a.
5.08 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 NOTES

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
INSTRUMENT DATASHEET AND BROCHURES

Radial Bearings RTD



Tag number	: 11-TE-10277A/B, 11-TE-10278A/B, 11-TE-10279A/B, 11-TE-10280A/B, 11-TE-10291A/B 11-TE-10292A/B	Scale Range	: -30 to +300°C
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate and Booster pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B & 11-P-130 A/B	trip point	: 105°C / 140.39 ohm
Alarm	: 95°C / 136.6 ohm		

1 GENERAL

1.01 Type	: Temperature sensor Radial Bearings of Pump and Booster Pump
1.02 Manufacturer	: Thermo electrics
1.03 Manufacturer model no	: PT100-Single
1.04 Mounting	: Screwed with nipple
1.05 Weight	: 1,2 kg
1.07 Service	: Lubricating Oil ISO VG46
1.08 Design Pressure	: 10 barg 
1.09 Design Temperature	: 300 C
1.10 Operating temperature	: 70 C

2 INSTRUMENT CHARACTERISTICS

2.01 Characteristic	: Linear
2.02 Accuracy	: 0,1 % of span
2.03 Repeatability	: included in 2.02
2.04 Min / max span	: -200 - 550°C
2.05 Zero adjustment	: n.a.
2.06 Other	:

3 ELEMENT / SENSOR

3.01 Type	: PT100
3.02 Design standard	: IEC 60751 Class A
3.03 Element operating limits	: -30 - 300°C
3.04 Wire configuration	: Single 3-wire
3.05 Element diameter	: 6.0mm
3.06 Insertion length	: note 2
3.07 Sensitive length	: 5 mm
3.08 Sheath material	: SS 316
3.09 Connection size/type	: M18x1,5mm
3.10 Connection material	: SS 316
3.11 Other	: 10mm springloading

4 HOUSING

4.01 Mounting	: On instrument
4.02 Dimension	: DIN form B
4.03 Material	: Aluminium
4.04 Cable connection	: Side
4.05 Cable entry	: M20 x 1.5
4.06 Enclosure protection	: IP65
4.07 Ex. classification	: Exia IIC T6
4.08 Protective coating	: n.a.
4.09 Other	:


5 TRANSMITTER

5.01 Indicator	: n.a.
5.02 Output signal	: n.a.
5.03 Communication	: n.a.
5.04 Supply voltage	: n.a.
5.05 Consumption	: n.a.
5.06 Load limitation	: n.a.
5.07 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 NOTES

7.01 Connecting to MMS	
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INSTRUMENT DATASHEET AND BROCHURES

Axial Bearing RTD



Tag number	: 11-TE-10275A/B, 11-TE-10276A/B, 11-TE-10294A/B, 11-TE-10293A/B,	Scale Range	: -50 to +260°C
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B	trip point	: 105°C / 140.39 ohm
Alarm	: 95°C / 136.6 ohm		

1 GENERAL

1.01 Type	: Temperature sensor Pump NDE Tilting Pad Bearing
1.02 Manufacturer	: Thermo-Electric
1.03 Manufacturer model no	: ASSY Head
1.04 Mounting	: Screwed with nipple
1.05 Weight	: 1,2 kg
1.06 Service	: Lubricating Oil ISO VG46
1.07 Design Pressure	: 10 barg
1.08 Design Temperature	: 260 C 
1.09 Operating temperature	: 85 C

2 INSTRUMENT CHARACTERISTICS

2.01 Characteristic	: Linear
2.02 Accuracy	: 0,1 % of span
2.03 Repeatability	: included in 2.02
2.04 Min / max span	: -50 to +260°C
2.05 Zero adjustment	: n.a.
2.06 Other	:

3 ELEMENT / SENSOR

3.01 Type	: PT100
3.02 Design standard	: IEC 60751 Class B
3.03 Element operating limits	: -30 - 300°C
3.04 Wire configuration	: Single 3-wire
3.05 Element diameter	: 4,8 mm
3.06 Insertion length	: 6,4 mm and Note 2 for Casing
3.07 Sensitive length	: 5 mm
3.08 Sheath material	: SS 316
3.09 Connection size/type	: stranded wire
3.10 Connection material	: SS 316
3.11 Other	: clip mounted in tilting pad bearing shoes.

4 HOUSING

4.01 Mounting	: External
4.02 Dimension	: DIN form B
4.03 Material	: Aluminium
4.04 Cable connection	: Side
4.05 Cable entry	: M24 x 1.5
4.06 Enclosure protection	: IP65
4.07 Ex. classification	: Exia IIC T6
4.08 Protective coating	: n.a.
4.09 Other	:


5 TRANSMITTER

5.01 Indicator	: n.a.
5.02 Output signal	: n.a.
5.03 Communication	: n.a.
5.04 Supply voltage	: n.a.
5.05 Consumption	: n.a.
5.06 Load limitation	: n.a.
5.07 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 NOTES

7.01 Connecting to MMS 
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

INSTRUMENT DATASHEET AND BROCHURES

Driver Winding RTD



Tag number	: 11-TE-10285A/B, 11-TE-10286A/B, 11-TE-10287A/B, 11-TE-10288A/B, 11-TE-10289A/B 11-TE-10290A/B	Scale Range	: -50 to +180°C
Equipment	: Driver	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B	trip point	: 135°C
Alarm	: 120°C		

1 GENERAL

1.01 Type	: Slot Resistance thermometer
1.02 Manufacturer	: Ephy-Mess
1.03 Manufacturer model no	: NWT-M-OK-AK-ESH/ 3 
1.04 Mounting	: Chip
1.05 Weight	: 1 kg
1.06 Other	: 
1.07 Operating Temperature	: 90 C

2 INSTRUMENT CHARACTERISTICS

2.01 Characteristic	: Linear
2.02 Accuracy	: ±0.30°C at 0°C
2.03 Repeatability	:
2.04 Min / max span	: -50 to +180°C
2.05 Zero adjustment	: n.a.
2.06 Other	:

3 ELEMENT / SENSOR

3.01 Type	: PT100
3.02 Design standard	: IEC 60751 Class B
3.03 Element operating limits	: -50 to +180°C
3.04 Wire configuration	: 3-wire circuit
3.05 Element diameter	:
3.06 Insertion length	:
3.07 Sensitive length	:
3.08 Sheath material	: SS 316
3.09 Connection size/type	:
3.10 Connection material	: SS 316
3.11 Other	: 10mm springloading

4 HOUSING

4.01 Mounting	: Chip
4.02 Dimension	: 100*8.2*2 mm
4.03 Material	: PTFE
4.04 Cable connection	: hose line
4.05 Cable entry	:
4.06 Enclosure protection	:
4.07 Ex. classification	: Ex ia IIC Gb
4.08 Protective coating	:
4.09 Other	: Cable Length: 5000mm


5 TRANSMITTER

5.01 Indicator	: n.a.
5.02 Output signal	: n.a.
5.03 Communication	: n.a.
5.04 Supply voltage	: n.a.
5.05 Consumption	: n.a.
5.06 Load limitation	: n.a.
5.07 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 NOTES

7.01 Connecting to MCC	
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INSTRUMENT DATASHEET AND BROCHURES

Driver Bearing RTD



Tag number	: 11-TE-10282A/B, 11-TE-10283A/B	Scale Range	: -40 to +120°C
Equipment	: Driver	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B	trip point	: 100°C
Alarm	: 95°C		

1 GENERAL

1.01 Type	: Temperature sensor
1.02 Manufacturer	: Ephy Mess
1.03 Manufacturer model no	: LT-38
1.04 Mounting	: Screw In
1.05 Weight	: 1 kg
1.06 Service	: Lubricating Oil ISO VG46
1.07 Design Pressure	: 10 barg
1.08 Design Temperature	: 120 C
1.09 Operating Temperature	: 70 C

2 INSTRUMENT CHARACTERISTICS

2.01 Characteristic	: Linear
2.02 Accuracy	: ±0.15°C at 0°C
2.03 Repeatability	:
2.04 Min / max span	: -40 to +120°C
2.05 Zero adjustment	: n.a.
2.06 Other	:

3 ELEMENT / SENSOR

3.01 Type	: PT100
3.02 Design standard	: IEC 60751 Class A
3.03 Element operating limits	: -40 to +120°C
3.04 Wire configuration	: 4Wire Circuit
3.05 Element diameter	: 6.8mm
3.06 Insertion length	: 200 mm
3.07 Sensitive length	: 120 mm
3.08 Sheath material	: SS 316
3.09 Connection size/type	:
3.10 Connection material	:
3.11 Other	:

4 HOUSING

4.01 Mounting	: On instrument
4.02 Dimension	: DIN form B
4.03 Material	: Brass Nickle Plated
4.04 Cable connection	: Side
4.05 Cable entry	: M20 x 1.5
4.06 Enclosure protection	:
4.07 Ex. classification	: Exia IIC T6
4.08 Protective coating	:
4.09 Other	: Cable Length: 4000mm

5 TRANSMITTER

5.01 Indicator	: n.a.
5.02 Output signal	: n.a.
5.03 Communication	: n.a.
5.04 Supply voltage	: n.a.
5.05 Consumption	: n.a.
5.06 Load limitation	: n.a.
5.07 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 NOTES

7.01 Connecting to MMS	
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INSTRUMENT DATASHEET AND BROCHURES
VIBRATION TRANSMITTER
accelerometer



Tag number	: 11-VE-10293A/B	3	Scale Range	: ± 50g
Equipment	: Pump		Area	: Hengam Fertilizer Project
Service description	: Booster Pump		REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5		Job number	: 1308-2285
Line/equipment no.	: 11-P-130 A/B		trip	: 7mm/s ²
alarm	: 5mm/s ²			

- 1 GENERAL**
- 1.01 Type : Intrinsically Safe Accelerometer
1.02 Manufacturer : Bently Nevada
1.03 Manufacturer model no : 200350
1.04 Operating temperature range : -54 - 121 °C
1.05 Other :
- 2 PERFORMANCE**
- 2.01 Measurement range : ± 50g
2.02 Output signal : 8 - 12 VDC
2.03 Frequency response : 0.5 - 10000 Hz
2.04 Transversal sensitivity : 100 mV/g ± 20%
2.05 Sensing element : PZT ceramic
- 3 ELECTRICAL**
- 3.01 Power supply : 18 - 28 VDC
3.02 Output Impedance : < 150 Ohm
3.03 Case isolation : > 10⁸ Ohm
3.04 Bias output voltage : 8 - 12 VDC
3.05 Hazardous area approval : Ex ia IIC T4
- 4 ENCLOSURE**
- 4.01 Size : 42 x 17 mm
4.02 Mounting thread : 1/4" 28 female thread
4.03 Mounting torque : 2,7 - 6,8 Nm
4.04 Enclosure material : 316L
4.05 Application axis : radial
4.06 Ingress protection : IP68
4.07 Cable connection : 2 pin connector
4.08 Cable entry : top
4.09 other :

- 5 EXTENSION CABLE**
- 5.01 Type : armored
5.02 Manufacturer : Bently Nevada
5.03 Manufacturer model no : 8466127
5.04 Length : 8 meter
5.05 Installation : in S.S Flexible Hose
- 6 NOTES**
- 6.01 Connecting to MMS



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INSTRUMENT DATASHEET AND BROCHURES
VIBRATION TRANSMITTER
Axial displacement probe



Tag number	: 11-ZE-10275A/B, 11-ZE-10276A/B	Scale Range	: 0.25 - 2.3mm
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211- Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B	trip point	: 85µm
alarm	: 55µm		

1 GENERAL

1.01 Type	: Eddy current proximity transmitter
1.02 Manufacturer	: Bently Nevada
1.03 Manufacturer model no	: 3300XL 5mm
1.04 Operating temperature range	: -51 - 100 °C
1.05 Other	:

2 PERFORMANCE

2.01 Measurement range	: 0.25 - 2.3mm
2.02 Output signal	: 0 - 18V
2.03 Frequency response	: 0 - 10000 Hz
2.04 Transversal sensitivity	: ≤ 2 MV/V
2.05 Linearity	: 0,25 + 2,3 mm - 1 - AVDC Probe nominal dc resistance 7,45 Ω ± 0,5

3 ELECTRICAL

3.01 Power supply	: - 17.5 VDC - 26V with barriers
3.02 Load resistance	: 50Ω
3.03 Electrical insulation	: R Jacket 0,3Ω ± 0,06 Ω
3.04 Electrical connections	: 0,2 - 1,5mm (5m extension cable)
3.05 Hazardous area approval	: EXIIAIC T4/T5
3.06 Capacitance	: 69 PF/M

4 ENCLOSURE

4.01 Size	:
4.02 Mounting thread	: M8x1
4.03 Mounting torque	: n.a.
4.04 Enclosure material	: Aluminium
4.05 Application axis	: axial
4.06 Ingress protection	: IP 54
4.07 Cable connection	: M20 x 1.5
4.08 Cable entry	: side

5 EXTENSION CABLE

5.01 Type	: 3300XL
5.02 Manufacturer	: Bently Nevada
5.03 Manufacturer model no	: 330174-0008500205
5.04 Length	: 5 meter
5.05 Installation	: in S.S Flexible Hose
5.06 Consumption	: n.a.
5.07 Load limitation	: n.a.
5.08 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 PROXIMETER

7.01 Type	: Dial rail mounted
7.02 Manufacturer	: Bently Nevada
7.03 Manufacturer model no	: 3301805105
7.04 Length	: for 5m transmitter

8 Notes

8.01 Connecting to MMS



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INSTRUMENT DATASHEET AND BROCHURES
VIBRATION TRANSMITTER
Key phaser



Tag number	: 11-KE-10275A/B	Scale Range	: 0.25 - 2.3mm
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B		

1 GENERAL

1.01 Type	: Eddy current proximity transmitter
1.02 Manufacturer	: Bently Nevada
1.03 Manufacturer model no	: 3300XL 8mm 21000280500720302
1.04 Operating temperature range:	: -51 - 100 °C
1.05 Other	:

2 PERFORMANCE

2.01 Measurement range	: 0.25 - 2.3mm
2.02 Output signal	: 0 - 18V
2.03 Frequency response	: 0 to 10000 Hz
2.04 Transversal sensitivity	: ≤ 2 MV/V
2.05 Linearity	: 0,25 + 2,3 mm - 1 - AVDC Probe nominal dc resistance 7,45 Ω ± 0,5

3 ELECTRICAL

3.01 Power supply	: - 17.5 VDC - 26V with barriers
3.02 Load resistance	: 50Ω
3.03 Electrical insulation	: R Jacket 0,3Ω ± 0,06 Ω
3.04 Electrical connections	: 0,2 - 1,5mm (0.5m extension cable)
3.05 Hazardous area approval	: EXIAIIC T4/T5
3.06 Capacitance	: 69 PF/M

4 ENCLOSURE

4.01 Size	: Bently Nevada 21000-28-05-00-81-03-02
4.02 Mounting thread	: 3/4" NPT 14
4.03 Mounting torque	: 33.9Nm
4.04 Enclosure material	: Aluminium
4.05 Application axis	: radial
4.06 Ingress protection	: IP 54
4.07 Cabel connection	: M20 x 1.5
4.08 Cable entry	: side

5 EXTENSION CABLE

5.01 Type	: 3300XL armored
5.02 Manufacturer	: Bently Nevada
5.03 Manufacturer model no	: 330130-045-01-05
5.04 Length	: 4,5 meter
5.05 Installation	: in S.S Flexible Hose
5.06 Consumption	: n.a.
5.07 Load limitation	: n.a.
5.08 Other	: n.a.


6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 PROXIMETER

7.01 Type	: Dial rail mounted
7.02 Manufacturer	: Bently Nevada
7.03 Manufacturer model no	: 3301805105
7.04 Length	: for 5m transmitter

8 Notes

8.01 Connecting to MMS	
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INSTRUMENT DATASHEET AND BROCHURES
VIBRATION TRANSMITTER
radial displacement probes



Tag number	: 11-VXE-10275A/B, 11-VXE-10276A/B, 11-VYE-10275A/B, 11-VYE-10276A/B	Scale Range	: 0.25 - 2.3mm
Equipment	: Pump	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B	trip point	: 85µm
alarm	: 55µm		

1 GENERAL

1.01 Type	: Eddy current proximity transmitter
1.02 Manufacturer	: Bently Nevada
1.03 Manufacturer model no	: 3300XL 8mm 2100280500350302
1.04 Operating temperature range	: -51 - 100 °C
1.05 Other	:

2 PERFORMANCE

2.01 Measurement range	: 0.25 - 2.3mm
2.02 Output signal	: 0 - 18V
2.03 Frequency response	: 0 to 10000 Hz
2.04 Transversal sensitivity	: ≤ 2 MV/V
2.05 Linearity	: 0,25 + 2,3 mm - 1 - AVDC Probe nominal dc resistance 7,45 Ω ± 0,5

3 ELECTRICAL

3.01 Power supply	: - 17.5 VDC - 26V with barriers
3.02 Load resistance	: 50Ω
3.03 Electrical insulation	: R Jacket 0,3Ω ± 0,06 Ω
3.04 Electrical connections	: 0,2 - 1,5mm (0.5m extension cable)
3.05 Hazardous area approval	: EXIAIIC T4/T5
3.06 Capacitance	: 69 PF/M

4 ENCLOSURE

4.01 Size	: Bently Nevada 21000-28-05-00-35-03-02
4.02 Mounting thread	: 3/4" NPT 14
4.03 Mounting torque	: 33.9Nm
4.04 Enclosure material	: Aluminium
4.05 Application axis	: radial
4.06 Ingress protection	: IP 54
4.07 Cabel connection	: M20 x 1.5
4.08 Cable entry	: side

5 EXTENSION CABLE

5.01 Type	: 3300XL armored
5.02 Manufacturer	: Bently Nevada
5.03 Manufacturer model no	: 330130-045-01-05
5.04 Length	: 4,5 meter
5.05 Installation	: in S.S Flexible Hose
5.06 Consumption	: n.a.
5.07 Load limitation	: n.a.
5.08 Other	: n.a.

6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 PROXIMETER

7.01 Type	: Dial rail mounted
7.02 Manufacturer	: Bently Nevada
7.03 Manufacturer model no	: 3301805105
7.04 Length	: for 5m transmitter

8 Notes

8.01 Connecting to MMS	
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INSTRUMENT DATASHEET AND BROCHURES
VIBRATION TRANSMITTER
radial displacement probes for Driver



Tag number	: 11-VXE-10277A/B, 11-VXE-10278A/B, 11-VYE-10277A/B, 11-VYE-10278A/B	Scale Range	: 0.25 - 2.3mm
Equipment	: Driver	Area	: Hengam Fertilizer Project
Service description	: High pressure carbamate pump	REQUISITION No.	: 1208-00-REQ-RE-307A
P&ID	: VD-1208-307A-PID-211 - Sh 4,5	Job number	: 1308-2285
Line/equipment no.	: 11-P-102 A/B	trip point	: 120µm
alarm	: 85µm		

1 GENERAL

1.01 Type	: Eddy current proximity transmitter
1.02 Manufacturer	: Bently Nevada
1.03 Manufacturer model no	: 3300XL 8mm 3301040008500205
1.04 Operating temperature range:	-51 - 100 °C
1.05 Other	:

2 PERFORMANCE

2.01 Measurement range	: 0.25 - 2.3mm
2.02 Output signal	: 0 - 18V
2.03 Frequency response	: 0 to 10000 Hz
2.04 Transversal sensitivity	: ≤ 2 MV/V
2.05 Linearity	: 0,25 + 2,3 mm - 1 - AVDC Probe nominal dc resistance 7,45 Ω ± 0,5

3 ELECTRICAL

3.01 Power supply	: - 17.5 VDC - 26V with barriers
3.02 Load resistance	: 50Ω
3.03 Electrical insulation	: R Jacket 0,3Ω ± 0,06 Ω
3.04 Electrical connections	: 0,2 - 1,5mm (4.5m extension cable)
3.05 Hazardous area approval	: EXIALIC T4/T5
3.06 Capacitance	: 69 PF/M

4 ENCLOSURE

4.01 Size	: N.A
4.02 Mounting thread	: N.A
4.03 Mounting torque	: N.A
4.04 Enclosure material	: N.A
4.05 Application axis	: Radial
4.06 Ingress protection	: N.A
4.07 Cabel connection	: N.A
4.08 Cable entry	: N.A

5 EXTENSION CABLE

5.01 Type	: 3300XL armored
5.02 Manufacturer	: Bently Nevada
5.03 Manufacturer model no	:
5.04 Length	: 5 meter
5.05 Installation	: in Flexible Hose
5.06 Consumption	: n.a.
5.07 Load limitation	: n.a.
5.08 Other	: n.a.


6 SWITCH

6.01 Reset; automatic or manual	: n.a.
6.02 Deadband or differential	: n.a.
6.03 Alarm at increase/decrease	: n.a.
6.04 Contact configuration	: n.a.
6.05 Contact material	: n.a.
6.06 Contact rating	: n.a.
6.07 Contact action on alarm	: n.a.
6.08 Other	: n.a.

7 PROXIMETER

7.01 Type	: Dial rail mounted
7.02 Manufacturer	: Bently Nevada
7.03 Manufacturer model no	: 3301805105
7.04 Length	: for 5m transmitter

8 Notes

8.01 Connecting to MMS	
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Pressure Transmitters





GENERAL	1	TAG NUMBER			AS LISTED NEXT PAGE		
	2	SERVICE			AS LISTED NEXT PAGE		
	3	P&ID NO.			AS LISTED NEXT PAGE		
	4	LINE NO. / EQUIPMENT NO.			AS LISTED NEXT PAGE		
	5	PIPE / EQUIPMENT:	MATERIAL	O.D. SIZE (mm) / SCH.	N/A	N/A	
	6	HAZARDOUS AREA CLASSIFICATION			SIL Certified, EX ia, IP65		
	7	QTY.			AS LISTED NEXT PAGE		
PROCESS CONDITIONS	8	FLUID	PHASE		AS LISTED NEXT PAGE		
	9	PRESSURE (Barg)	MIN.	NORMAL	MAX.	AS LISTED NEXT PAGE	
	10	TEMP. (°C)	MIN.	NORMAL	MAX.	AS LISTED NEXT PAGE	
	11	DENSITY (kg/m3)			AS LISTED NEXT PAGE		
	12	VISCOSITY (cP)			AS LISTED NEXT PAGE		
	13	VACCUUM POSSIBILITY			N/A		
	14	CORROSIVE (Y/N)			AS LISTED NEXT PAGE		
ELEMENT	15	TYPE			DIAPHRAGM		
	16	SERVICE (GAUGE, VACCUUM, COMPOUND, DP)			GAUGE		
	17	PROCESS CONNECTION	INSTRUMENT CONNECTION		1/2" NPT MALE	1/2" NPT MALE (Mountet on vertical gauge board)	
	18	WETTED PART MATERIAL			SS 316 L		
	19	MOUNTING			Mountet on vertical gauge board		
TRANSMITTER	20	TYPE (COMPACT / REMOTE)			COMPACT		
	21	POWER SUPPLY	OUTPUT SIGNAL		Looped Powered	4-20 mA (HART Loop Powered) with Local Indicator 3	
	22	CALIBRATION SPAN (Barg)			AS LISTED NEXT PAGE		
	25	ACCURACY			0.1% FS		
	26	HOUSING MATERIAL			CAST ALUMINIUM		
	27	ELECTRICAL CONNECTION			ISO M20X1.5		
	28	MOUNTING			None		
ACCESSORIES	29	DIAPHRAGM SEAL (Y/N)			NO		
	30		SEAL TYPE (FLUSH, PANCAKE, EXTEND)		-		
	31		PROCESS CONN.	MATERIAL / RATING		-	-
	32		DIAPHRAGM MATERIAL	MOUNTING		-	-
	33		CAPILLARY:	MATERIAL	LENGTH	FILL FLUID	-
	34	MANIFOLD :			YES		
	35		MOUNTING		Mountet on vertical gauge board		
	36		CONNECTION:			1/2" NPTF	
	37		MATERIAL		SS 316		
	38	LOCAL INDICATOR (Y/N)	SCALE		YES	Barg	
	39	CABLE GLAND (Y/N)	CONNECTION SIZE		YES	ISO M20X1.5	
40	PULSATION DAMPENER (Y/N)			NO			
41	TRANSMITTER MOUNTING BRACKET (Y/N)			NO			
PURCHASE	42	MANUFACTURER:	TRANSMITTER	MANIFOLD	Spriano	Spriano	
	43	MODEL (TRANSMITTER)			SST56		
	44	ORDERING CODE			-		
NOTE:							
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Pressure Transmitters



TAG NO.	SERVICE	P&ID SHEET NO.	PROCESS FLUID	DENSITY (Kg/m3)	VISCOSITY (cP)	CORROSIVE (Y/N)	CALIBRATION Range (Barg) 	OPER. PRESS. (Barg)	OPER. TEMP. (°C)	INST. Nominal RANGE (Barg)
								DESIGN PRESS. (Barg)	DESIGN TEMP. (°C)	
11-PT-10275AA	Oil iso VG46	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10275AB	Oil iso VG46	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10275AC	Oil iso VG46	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10282A	Oil iso VG46	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10275BA	Oil iso VG46	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10275BB	Oil iso VG46	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10275BC	Oil iso VG46	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10282B	Oil iso VG46	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	N	0-6	2.7/10	50/80	0-10 Bar
11-PT-10278	Condensate	VD-1208-307A-PID-211-9(6/8)	Water	970	0.45	N	0-60	33/40	70/80	0-100 Bar
11-PT-10279C	Condensate	VD-1208-307A-PID-211-9(6/8)	Water	970	0.45	N	0-60	33/40 	70/80	0-100 Bar
11-PT-10279D	Condensate	VD-1208-307A-PID-211-9(6/8)	Water	970	0.45	N	0-60	33/40	70/80	0-100 Bar
11-PT-10279E	Condensate	VD-1208-307A-PID-211-9(6/8)	Water	970	0.45	N	0-60	33/40	70/80	0-100 Bar
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems DIFFERENTIAL PRESSURE TRANSMITTER



GENERAL	1	TAG NUMBER			AS LISTED NEXT PAGE			
	2	SERVICE			AS LISTED NEXT PAGE			
	3	P&ID NO.			AS LISTED NEXT PAGE			
	4	LINE NO. / EQUIPMENT NO.			AS LISTED NEXT PAGE			
	5	PIPE / EQUIPMENT:	MATERIAL	O.D. SIZE (mm) / SCH.	N/A	N/A		
	6	HAZARDOUS AREA CLASSIFICATION			SIL Certified, EX ia, IP65			
	7	QTY.			AS LISTED NEXT PAGE			
PROCESS CONDITIONS	8	FLUID	PHASE		AS LISTED NEXT PAGE	AS LISTED NEXT PAGE		
	9	PRESSURE (Barg)	MIN.	NORMAL	MAX.	AS LISTED NEXT PAGE		
	10	TEMP. (°C)	MIN.	NORMAL	MAX.	AS LISTED NEXT PAGE		
	11	DENSITY (kg/m3)			AS LISTED NEXT PAGE			
	12	VISCOSITY (cP)			AS LISTED NEXT PAGE			
	13	VACCUM POSSIBILITY			N/A			
	14	CORROSIVE (Y/N)			AS LISTED NEXT PAGE			
ELEMENT	15	TYPE			DIAPHRAGM			
	16	SERVICE (GAUGE, VACCUM, COMPOUND, DP)			DP			
	17	PROCESS CONNECTION	INSTRUMENT CONNECTION		AS LISTED NEXT PAGE	1/2" NPT (COUPLED TO MANIFOLD)		
	18	MATERIAL			AS LISTED NEXT PAGE			
	19	MOUNTING			INTEGRATED TO TRANSMITTER			
TRANSMITTER	20	TYPE (COMPACT / REMOTE)			COMPACT			
	21	POWER SUPPLY	OUTPUT SIGNAL		Looped Powered	4-20 mA (HART - Loop Powered)		
	22	CALIBRATION SPAN (Barg)			AS LISTED NEXT PAGE	3		
	23	ENCLOSURE CLASS			EX "ia", IIB, T4			
	24	WEATHER PROTECTION			IP 65			
	25	ACCURACY			0.1% FS			
	26	HOUSING MATERIAL			CAST ALUMINIUM			
	27	ELECTRICAL CONNECTION			ISO M20X1.5			
	28	MOUNTING			Mount on vertical gauge board			
ACCESSORIES	29	DIAPHRAGM SEAL (Y/N)			NO			
	30		SEAL TYPE (FLUSH, PANCAKE, EXTEND)		-			
	31		PROCESS CONN.	MATERIAL / RATING		-	-	
	32		DIAPHRAGM MATERIAL	MOUNTING		-	-	
	33		CAPILLARY:	MATERIAL	LENGTH	FILL FLUID	-	
	34	MANIFOLD (Y/N)			YES			
	35		TYPE	MOUNTING		5-WAY	DIRECT	
	36		CONNECTION:	INLET	OUTLET	DRN/BLEED	1/2" NPTF	
	37		MATERIAL			SS 316		
	38	LOCAL INDICATOR (Y/N)		SCALE		YES	Barg	
	39	CABLE GLAND (Y/N)		CONNECTION SIZE		YES	ISO M20X1.5	
	40	PULSATION DAMPENER (Y/N)			NO			
	41	TRANSMITTER MOUNTING BRACKET (Y/N)			NO			
	PURCHASE	42	MANUFACTURER:	TRANSMITTER	MANIFOLD		Spriano	Spriano
43		MODEL (TRANSMITTER)			SST57			
44		ORDERING CODE			-			
NOTE:								
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems DIFFERENTIAL PRESSURE TRANSMITTER


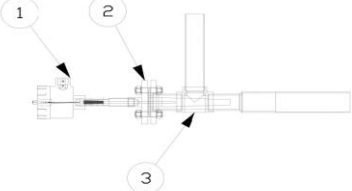


TAG NO.	SERVICE	P&ID SHEET NO.	PIPE / EQUIPMENT NO.	PROCESS FLUID	WETTED PART MATERIAL	PROCESS CONNEC.	MANIFOLD	DENSITY (Kg/m3)	VISCOSITY (cP)	CORROSIVE (Y/N)	CALIBRATION Range (mbar)	OPER. PRESS. (Barg)	OPER. TEMP. (°C)	INST. RANGE (mbar)
												DESIGN PRESS. (Barg)	DESIGN TEMP. (°C)	
11-PDT-10275A	Oil iso VG46	VD-1208-307A-PID-211-9(7/8)	11-P-102A-F1AB	Lubricating Oil	316LSST	1/4" NPT	5way valve	840	25.000	N	0-1000	2.7/10	50/80	0 to 1000
11-PDT-10275B	Oil iso VG46	VD-1208-307A-PID-211-9(8/8)	11-P-102B-F1AB	Lubricating Oil	316LSST	1/4" NPT	5way valve	840	25.000	N	0-1000	2.7/10	50/80	0 to 1000
11-PDT-10276	Condensate	VD-1208-307A-PID-211-9(6/8)	11-P-102-F2AB	Water	316LSST	1/4" NPT	5way valve	970	0.6	N	0-500	10-Jan	69/80	0 to 1000
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Temperature Transmitters



THERMOMETER		THERMOWELL																
1	COMPLETE ASSEMBLY <input checked="" type="checkbox"/> OTHER <input type="checkbox"/>	15	NONE <input type="checkbox"/> INCLUDED <input checked="" type="checkbox"/> BY OTHERS <input type="checkbox"/>															
2	SCREWED COVER <input checked="" type="checkbox"/> OTHER:With Chain & Gasket	16	CONSTRUCTION:TAPERED <input checked="" type="checkbox"/> DRILLED BAR STOCK <input checked="" type="checkbox"/>															
3	ELEMENT MATERIAL : SS316	17	WELL MATERIAL: 304 S.S. <input type="checkbox"/> 316 S.S. <input checked="" type="checkbox"/>															
4	BULB MATERIAL: SS 316 L DIAMETER: 6.4mm (VTA)	18	FLANGE MATERIAL: 304 S.S. <input type="checkbox"/> 316 S.S. <input checked="" type="checkbox"/>															
5	NIPPLE SIZE: 1/2"NPTM DIM. "N": MFR STD UNION <input checked="" type="checkbox"/>	19	PLUG MATERIAL: 304 S.S. <input type="checkbox"/> 316 S.S. <input checked="" type="checkbox"/>															
6	TERMINAL BLOCK: Single <input checked="" type="checkbox"/> Duplex <input type="checkbox"/>	20	SPECIAL FINISH: Polished															
7	Manufacturer and Model: Spriano SST52	21	TEST:HYDROSTATIC <input type="checkbox"/> STRESS CALCULATION <input type="checkbox"/>															
ELEMENT		22	PROCESS CONNECTION : 1 1/2" Flanged															
7	RTD (PT-100) <input checked="" type="checkbox"/> NICKEL <input type="checkbox"/> OTHER <input type="checkbox"/>	23	CONN.TO THERMOMETER : 1/2" NPT - F															
8	TEMPERATURE RANGE : AS LISTED NEXT PAGE	24	WELL INSIDE DIAMETER : MFR. STD.															
9	LEADS : STD <input checked="" type="checkbox"/> POTTED <input type="checkbox"/> HERM. SEALED <input type="checkbox"/>	25	WELL OUTSIDE DIAMETER : MFR. STD.															
10	SHEATH MATERIAL : 316 S.S O.D. : MFR STD	26	MFR. & MODEL NO. Spriano - SST52-TH-1-C-1-1-A-1-1 + TWE 															
11	SHEATH TYPE : GROUNDED <input type="checkbox"/> SPRING LOADED <input checked="" type="checkbox"/>	27	BORE DIAMETER : ≤10mm (VTC)															
12	MOUNTING THREAD: 1/2" NPTM	TRANSMITTER																
13	CONNECTION : 2-WIRE <input type="checkbox"/> 3-WIRE <input checked="" type="checkbox"/> 4-WIRE <input type="checkbox"/>	28	PROTOCOL: 4-20mA HART <input checked="" type="checkbox"/> F.F <input type="checkbox"/> OTHER:															
	LEAD WIRES <input type="checkbox"/> RECEPTACLE <input type="checkbox"/> BAYONET LOCK <input type="checkbox"/>	29	ENCLOSURE: Ex ia IIB T4 IP CLASS: 65															
14	STEM LENGTH: ACCORDING TO NEXT SHEET	30	MATERIAL:Die-Cast Aluminum With Baked Vinyl Finish															
 <table border="1"> <thead> <tr> <th colspan="3">PARTS LIST</th> </tr> <tr> <th>ITEM</th> <th>PART NUMBER</th> <th>DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Temperature Transmitter</td> <td>RTD+ Head Mounted Transmitter,EX ia With Range:0-100 C</td> </tr> <tr> <td>2</td> <td>Thermowell</td> <td>ASME B16.5,RF Class 150,1 1/2"</td> </tr> <tr> <td>3</td> <td>Tee</td> <td>ASME B16.11,Straight Tee,Sv_Class 3000,1 1/2"</td> </tr> </tbody> </table>		PARTS LIST			ITEM	PART NUMBER	DESCRIPTION	1	Temperature Transmitter	RTD+ Head Mounted Transmitter,EX ia With Range:0-100 C	2	Thermowell	ASME B16.5,RF Class 150,1 1/2"	3	Tee	ASME B16.11,Straight Tee,Sv_Class 3000,1 1/2"	31	MOUNTING : Head Mounted
		PARTS LIST																
		ITEM	PART NUMBER	DESCRIPTION														
		1	Temperature Transmitter	RTD+ Head Mounted Transmitter,EX ia With Range:0-100 C														
		2	Thermowell	ASME B16.5,RF Class 150,1 1/2"														
		3	Tee	ASME B16.11,Straight Tee,Sv_Class 3000,1 1/2"														
		32	ACCURACY: ± 0.2% Full Scale															
		33	OUTPUT SIGNAL: 4-20mA HART															
		34	POWER SUPPLY: 24 V DC, Loop Powered															
		35	LOCAL INDICATOR (Y/N):Y (Head Mounted)															
36	SCALE: MFR STD																	
37	SUPPORT (Y/N): N/A TYPE: -																	
38	CABLE GLAND (Y/N): Y ELEC. CONN. : M20x1.5 ISO																	
39	EXPLOSION PROTETION CLASS: Ex ia IIB T4																	
40	BODY MATERIAL: Die-Cast Aluminium																	

Note:

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**INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Temperature Transmitters**



ITEM	OPERATING						DESIGN			WELL			P&ID NO.:	
	TAG NO.	SERVICE LOCATION	FLUID	PRESS. (Barg)	TEMP. (°C)	CAL. RANGE (°C)	TEMP. (°C)		PRESS. (Barg)	STEM LENGT H	"T" LENGT H (mm)	"U" LENGT H (mm)		FLANGE
							Min	Max						SIZE & RATING
1	11-TT-10273A	Oil VG46	Lubricating Oil	Atmospheric	65.00	0-100	20	80	10	200	VTA	VTA	1 1/2" #150 RF	VD-1208-307A-PID-211-9(7/8)
2	11-TT-10273B	Oil VG46	Lubricating Oil	Atmospheric	65.00	0-100	20	80	10	200	VTA	VTA	1 1/2" #150 RF	VD-1208-307A-PID-211-9(8/8)
3	11-TT-10274A	Oil VG46	Lubricating Oil	2.70	50.00	0-100	20	80	10	150	VTA	VTA	1 1/2" #150 RF	VD-1208-307A-PID-211-9(7/8)
4	11-TT-10274B	Oil VG46	Lubricating Oil	2.70	50.00	0-100	20	80	10	150	VTA	VTA	1 1/2" #150 RF	VD-1208-307A-PID-211-9(8/8)
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Pressure Gauges



<p>1. TYPE : <input checked="" type="checkbox"/> DIRECT RDG <input type="checkbox"/> 3-15 LB RECEIVER <input type="checkbox"/> OTHER</p> <p>2. MOUNTING : <input type="checkbox"/> SURFACE <input type="checkbox"/> LOCAL <input checked="" type="checkbox"/> FLUSH</p> <p>3. DIAL : <input checked="" type="checkbox"/> DIAMETER: 100 mm COLOR: WHITE/BLACK</p> <p>4. CASE : <input type="checkbox"/> CAST IRON <input type="checkbox"/> ALUMINUM <input type="checkbox"/> PHENOL <input checked="" type="checkbox"/> OTHER SS ENCLOSURE CLASS : IP65</p> <p>5. RING : <input checked="" type="checkbox"/> SCREWED <input type="checkbox"/> HINGED <input type="checkbox"/> SLIP <input type="checkbox"/> STD <input type="checkbox"/> OTHER</p> <p>6. BLOW-OUT PROTECT.: <input type="checkbox"/> NONE <input checked="" type="checkbox"/> BACK <input type="checkbox"/> DISK</p> <p>7. LENS : <input checked="" type="checkbox"/> SOLID FRONT <input type="checkbox"/> OTHER <input type="checkbox"/> TEMPERED GLASS STD. <input type="checkbox"/> PLASTIC <input type="checkbox"/> OTHER</p> <p>8. AREA CLASSIFICATION : NA</p> <p>9. OPTIONS : D A) SYPHON B) GAUGE SNUBBER (PULSATION DAMPENER) C) PRESSURE LIMIT VALVE D) VIBRATION DAMPING (GLYCERINE FILLED)</p> <p>10. ACCURACY : 1% OF SPAN</p>	<p>11. PRESSURE ELEMENT : <input checked="" type="checkbox"/> BOURDON <input type="checkbox"/> BELLOWS (CAPSULE) <input type="checkbox"/> OTHER</p> <p>12. ELEMENT MATERIAL : <input type="checkbox"/> BRONZE <input type="checkbox"/> STEEL <input checked="" type="checkbox"/> SS 316 <input type="checkbox"/> OTHER</p> <p>13. SOCKET MATERIAL : <input type="checkbox"/> BRONZE <input type="checkbox"/> STEEL <input checked="" type="checkbox"/> SS 316 <input type="checkbox"/> OTHER</p> <p>14. CONNECTION-NPT : <input type="checkbox"/> 1/4" NPTM <input checked="" type="checkbox"/> 1/2" NPTM <input type="checkbox"/> OTHER <input type="checkbox"/> BOTTOM <input checked="" type="checkbox"/> BACK</p> <p>15. MOVEMENT : <input type="checkbox"/> BRONZE <input type="checkbox"/> NYLON <input checked="" type="checkbox"/> SS 316 <input type="checkbox"/> OTHER</p> <p>16. DIAPHRAGM SEAL : <input type="checkbox"/> MFR. - TYPE WETTED PART MTL. - FILL FLUID PROCESS CONN.</p> <p>17. MANIFOLD : <input checked="" type="checkbox"/> MFR. Spriano TYPE 2way manifold valve MATERIAL SS 316 CONN. 1/2 NPTF 3000 psi</p> <p>18. MFR./MODEL NO : Nouva-Fima MGS18.</p>
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TAG NO.	SERVICE	P&ID SHEET NO.	PROCESS FLUID	CORROSIVE (Y/N)	VACUUM POSSIBILITY (Y/N)	PROCESS CONNEC.	TEMP. (°C) DESIGN	PRESSURE (BARG)		OPERATING PRESSURE (BARG)
								DESIGN	DIAL RANGE	
11-PG-10283A	Oil VG46	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	N	N	1/2" NPTM	80	10	0-10	3.5
11-PG-10284A	Oil VG47	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	N	N	1/2" NPTM	80	10	0-10	3.5
11-PG-10283B	Oil VG48	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	N	N	1/2" NPTM	80	10	0-10	3.5
11-PG-10284B	Oil VG49	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	N	N	1/2" NPTM	80	10	0-10	3.5
11-PG-10286	Condensate	VD-1208-307A-PID-211-9(6/8)	Water	N	N	1/2" NPTM	80	40	0-100	39
11-PG-10288	Condensate	VD-1208-307A-PID-211-9(6/8)	Water	N	N	1/2" NPTM	80	40	0-100	39

NOTE:

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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Temperature Gauges



GAUGE					WELL						
1	Tag No.	AS LISTED NEXT PAGE			18	None	<input type="checkbox"/>	Included	<input checked="" type="checkbox"/>	By Others	<input type="checkbox"/>
2	Line No.	AS LISTED NEXT PAGE			19	Material:	304 SS		<input type="checkbox"/>	316 SS	<input checked="" type="checkbox"/>
3	Design Temp./Press.	AS LISTED NEXT PAGE			20	FLANGE MATERIAL	316 SS				
4	Operating Temp./Press	AS LISTED NEXT PAGE			21	PLUG & CHAIN MATERIAL:	304 SS				
5	Velocity and Density	AS LISTED NEXT PAGE			22	Construction:	TAPERED	<input checked="" type="checkbox"/>	Drilled	<input checked="" type="checkbox"/>	
6	Connection:	Threaded	<input checked="" type="checkbox"/>	Plain	<input type="checkbox"/>	Union	<input type="checkbox"/>	OTHER:	Polished		
7	Material:	SS 316			23	Well Length:	As Listed Next Page				
8	Stem or Union Thread	1/2in NPTM		<input checked="" type="checkbox"/>	3/4in NPTM		<input type="checkbox"/>				
9	Stem Diameter:	STD	<input checked="" type="checkbox"/>	.250in	<input type="checkbox"/>		.375in		<input type="checkbox"/>		
10	Case Material:	DIE-CAST ALUMINIUM		<input type="checkbox"/>	AISI 316 S.S.		<input checked="" type="checkbox"/>				
11	Dial Size:	100	Color:	White		27		Connection to Thermometer:	1/2" NPT-F		
12	Scale Length:	Mfr. Std.	Color:	Black & Red		28		Test	Hydrostatic		
13	Scale Unit:	°C			29		Wake Frequency Calculation:	NA			
14	Range:	AS LISTED NEXT PAGE									
15	Form:	AS LISTED NEXT PAGE									
16	Other Options:	Adjustable	<input checked="" type="checkbox"/>		ELEMENT:						
	External Calibrator	<input checked="" type="checkbox"/>		30	RTD	<input type="checkbox"/>		BiMetal	<input checked="" type="checkbox"/>	Gas Actuated	<input checked="" type="checkbox"/>
	Orientable Head	<input checked="" type="checkbox"/>		31	Element Diameter:	6mm O.D.					
	Window and Front Bezel	<input checked="" type="checkbox"/>		32	Material:	SS 316 L					
	ZERO ADJUSTMENT:	Pointer		33	MANUFACTURER	Nouva Fima					
	Ingress Protection:	IP 65		34	MODEL NO.	TB8 (Bimetallic) , TG8 (Gas-Actuated)					
	Nameplate	NA									
17	Accuracy:	± 1 % full scale									
NOTE:											
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Temperature Gauges



NO.	TAG NO.	SERVICE / LINE NO.	Type	Operating		Design		Velocity (m/s)	Density	RANGE (°C)	FLUID	Insert Length (mm)	Well Conn.	P&ID NO.	
				Pressure BARG	TEMP. °C	Pressure BARG	TEMP. °C								
1	11-TG-10279A	Oil VG46	Gas Actuated	3.5	60	10	80	2	840	0-120	Lube Oil	150	1 1/2" #150 RF	VD-1208-307A-PID-211-9(7/8)	
2	11-TG-10279B	Oil VG46	Gas Actuated	3.5	60	10	80	2	840	0-120	Lube Oil	150	1 1/2" #150 RF	VD-1208-307A-PID-211-9(8/8)	
3	11-TG-10280A	Oil VG46	Gas Actuated	3.5	44	10	80	2	840	0-120	Lube Oil	150	1 1/2" #150 RF	VD-1208-307A-PID-211-9(7/8)	
4	11-TG-10280B	Oil VG46	Gas Actuated	3.5	44	10	80	2	840	0-120	Lube Oil	150	1 1/2" #150 RF	VD-1208-307A-PID-211-9(8/8)	
5	11-TG-10278A	Oil VG46	Bimetallic	atm	65	10	80	0	840	0-120	Lube Oil	200	1 1/2" #150 RF	VD-1208-307A-PID-211-9(7/8)	
6	11-TG-10278B	Oil VG46	Bimetallic	atm	65	10	80	0	840	0-120	Lube Oil	200	1 1/2" #150 RF	VD-1208-307A-PID-211-9(8/8)	
7	11-TG-10281/3	Condensate	Bimetallic	atm	65	10	80	0	840	0-120	Water	200	1 1/2" #150 RF	VD-1208-307A-PID-211-9(6/8)	
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Flow Sight Glass



GENERAL	Tag No.	AS LISTED NEXT PAGE
	Service	AS LISTED NEXT PAGE
	P&ID NO.	AS LISTED NEXT PAGE
	Line No.	AS LISTED NEXT PAGE
PROCESS DATA	Process Fluid	AS LISTED NEXT PAGE
	Fluid State	LIQUID
	Design Temperature	AS LISTED NEXT PAGE
	Design Pressure	AS LISTED NEXT PAGE
	Density	AS LISTED NEXT PAGE
	Viscosity	AS LISTED NEXT PAGE
	Color or transparency	Color
BODY	Type	Fixed Paddle/Plain
	Process Connection Size & Type	AS LISTED NEXT PAGE
	Process Connection Rating	-
	Flange Material	-
	Function	INDICATE
	Mounting	IN LINE
	Enclosure Class	IP-65
	Body Material	AS LISTED NEXT PAGE
	Flapper Material	VTA
	Sight Glass Material	SAFETY GLASS
VENDOR DATA	Manufacturee	OOB (Officine Orobiche)
	Model Number	IVF/SBE25, IVF/SBE50

Notes :

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INSTRUMENT DATA SHEET AND BROCHURES Axillary Systems Flow Sight Glass



TAG NO.	SERVICE	Material	P&ID SHEET NO.	PROCESS FLUID	DENSITY (Kg/m3)	VISCOSITY (cP)	Design Press/ Oper Press (Barg)	Oper Temp C	Process Connection
11-SG-10285A	Oil iso VG46	SS316	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	3.5/atm	60	1" SW
11-SG-10286A	Oil iso VG46	SS316	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	3.5/atm	65	1" SW
11-SG-10287A	Oil iso VG46	SS316	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	25.000	3.5/atm	60	1" SW
11-SG-10285B	Oil iso VG46	SS316	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	3.5/atm	60	1" SW
11-SG-10286B	Oil iso VG46	SS316	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	3.5/atm	65	1" SW
11-SG-10287B	Oil iso VG46	SS316	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	25.000	3.5/atm	60	1" SW
11-SG-10282A	Cooling Water	Carbon Steel	VD-1208-307A-PID-211-9(7/8)	Water	993	0.650	7.5/4.5	40	2" 150# RF
11-SG-10282B	Cooling Water	Carbon Steel	VD-1208-307A-PID-211-9(8/8)	Water	993	0.650	7.5/4.5	40	2" 150# RF
11-SG-10288	Condensate	SS316	VD-1208-307A-PID-211-9(6/8)	Water	970	0.45	3.5/atm	70	1" SW
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Level Gauges



GENERAL

1	Function	Level Gauge		
2	Tag Number	AS LISTED NEXT PAGE		
3	Service	AS LISTED NEXT PAGE		
4	Tank	Tag Number	AS LISTED NEXT PAGE	
5		Size (Dimension)	AS LISTED NEXT PAGE	

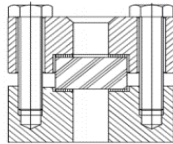
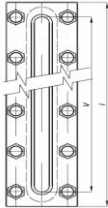
PROCESS DATA

6	Fluid	State	Oil/Water	Liquid
7	Operating Density	(Kg/m3)	AS LISTED NEXT PAGE	
8	Pressure: (Barg)	Operating	Design	AS LISTED NEXT PAGE
9	Temperature (°C)	Operating	Design	AS LISTED NEXT PAGE

GAUGE

10	Type	Weld Pad Flat Back		
11	Visible Length	AS LISTED NEXT PAGE		
12	Total Length	AS LISTED NEXT PAGE		
13	Body Material	SS316		
14	Glass Material	BOROSILICATE		
15	Glass Shield	NO		
16	Visual Form	AS LISTED NEXT PAGE		
17	Manufacturer	OOB (Officine Orobiche)		
18	Model No.	TJB.27.J.J.G (Transparent) , RJB.27.J.J.G (Reflex)		

NOTES:



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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Level Gauges



TAG NO.	SERVICE	Tank Dimension (LxWxH m)	P&ID SHEET NO.	PROCESS FLUID	DENSITY (Kg/m3)	Oper Press (Barg)	Oper Temp C	Total Lenth (mm)	Visual Length (mm)	Visual Form
11-LG-10275A	Oil iso VG46	1.1x1.0x0.6	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	atm	65	526	487	Transparent
11-LG-10275B	Oil iso VG46	1.1x1.0x0.6	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	atm	65	526	487	Transparent
11-LG-10276	Condensate	1.3x1.0x0.6	VD-1208-307A-PID-211-9(6/8)	Water	970	atm	65	526	487	Reflex
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Level Transmitters




GENERAL

1	Function	Level Transmitter		
2	Tag Number	AS LISTED NEXT PAGE		
3	Service	AS LISTED NEXT PAGE		
4	Tank	Tag Number	AS LISTED NEXT PAGE	
5		Size (Dimension)	AS LISTED NEXT PAGE	

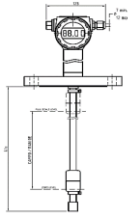
PROCESS DATA

6	Fluid	State	Oil/Water	Liquid
7	Operating Density	(Kg/m3)	AS LISTED NEXT PAGE	
8	Pressure: (Barg)	Operating	Design	AS LISTED NEXT PAGE
9	Temperature (°C)	Operating	Design	AS LISTED NEXT PAGE

TRANSMITTER

10	Type	Float Type Level Transmitter		
11	Integral Indicator	Yes		
12	Range (Total Length L1)	AS LISTED NEXT PAGE		
13	Power Supply	Loop Powered		
14	Output Signal	4-20 mA HART Loop Powered 		
15	MOUNTING	Top Mounted		
16	WETTED PART MATERIAL	PTFE		
17	ACCURACY	± 5mm		
18	PROCESS CONNECTION	1 1/2" 150# RF		
19	DEGREE OF PROTECTION	IP67		
20	EXPLOSION PROTECTION	Ex ia		
21	ELECTRICAL HOUSING MATERIAL	Die cas aluminium		
22	ELECTRICAL CONNECTION	M20x1.5		
23	Manufacturer	Spriano		
24	Model No.	SST51		

NOTES:







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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Level Transmitters



TAG NO.	SERVICE	Tank Dimension (LxWxH m)	P&ID SHEET NO.	PROCESS FLUID	DENSITY (Kg/m3)	Oper Press (Barg)	Oper Temp C	Total Length (L1) mm	Non- measuring Length mm
11-LT-10275A	Oil iso VG46	1.1x1.0x0.6	VD-1208-307A-PID-211-9(7/8)	Lubricating Oil	840	atm	65	670	210
11-LT-10275B	Oil iso VG46	1.1x1.0x0.6	VD-1208-307A-PID-211-9(8/8)	Lubricating Oil	840	atm	65	670	210
11-LT-10276	Condensate	1.3x1.0x0.6	VD-1208-307A-PID-211-9(6/8)	Water	970	atm	65	670	210
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				INSTRUMENT DATASHEET AND BROCHURES Flow Orifice						
1	GENERAL	TAG No.			AS LISTED NEXT PAGE					
2		SERVICE			AS LISTED NEXT PAGE					
3		LINE NO.			AS LISTED NEXT PAGE					
4		PIPE SIZE & SCHEDULE			AS LISTED NEXT PAGE					
5		P&ID NO.			AS LISTED NEXT PAGE					
6	SERVICE CONDITION	FLUID/STATE			AS LISTED NEXT PAGE					
7		COMPRESSIBILITY FACTOR			N/A					
8		Viscosity (cP)			AS LISTED NEXT PAGE					
9		Operating Pressure (barg)			AS LISTED NEXT PAGE					
10		Operating Temperature (°C)			AS LISTED NEXT PAGE					
11		VAPOR PRESSURE			AS LISTED NEXT PAGE					
12		Density (kg/m ³)			AS LISTED NEXT PAGE					
13		FLOW (lit/min)			AS LISTED NEXT PAGE					
14	ORIFICE PLATE	Differential Pressure (bar)			AS LISTED NEXT PAGE					
15		TYPE			Sharp-Edge Concentric					
16		MATERIAL			SS 316					
17		PLATE THICKNESS (MM)			3					
18		ORIFICE BORE DIAMETER			AS LISTED NEXT PAGE					
19		FLANGE Size			AS LISTED NEXT PAGE					
20	Flange Rating			AS LISTED NEXT PAGE						
NOTE:										
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INSTRUMENT DATASHEET AND BROCHURES
Flow Orifice



TAG NO.	SERVICE	P&ID SHEET NO.	Flange Size	Rating	PROCESS FLUID	DENSITY (Kg/m3)	VISCOSITY (cP)	Vapour Pressure (bara)	Material	Thickness (mm)	Orifice Diameter (mm)	Flow Full Scale (lpm)	Differential Pressure @ Full scale (bar)	Oper Press (Barg)	Oper Temp C
11-FO-10275A/B	Lubricating Oil	VD-1208-307A-PID-211-11(4,5/8)	3/4"	150# RF	Oil iso VG46	840	25.000	0.023	S.S 316	3	6.000	30.000	2.000	2.700	50
11-FO-10276A/B	Lubricating Oil	VD-1208-307A-PID-211-11(4,5/8)	1/2"	150# RF	Oil iso VG46	840	25.000	0.023	S.S 316	3	3.600	10.000	2.000	2.700	50
11-FO-10279A/B	Lubricating Oil	VD-1208-307A-PID-211-11(4,5/8)	1/2"	150# RF	Oil iso VG46	840	25.000	0.023	S.S 316	3	0.750	3.000	2.000	2.700	50
11-FO-10280A/B	Sealing Plan 32	VD-1208-307A-PID-211-11(4,5/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	5.000	8.000	0.500	32.500	70.000
11-FO-10281A/B	Sealing Plan 54	VD-1208-307A-PID-211-11(4,5/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	3.300	9.000	4.500	31.500	75.000
11-FO-10282A/B	Sealing Plan 32	VD-1208-307A-PID-211-11(4,5/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	3.500	8.000	2.500	32.500	70.000
11-FO-10283A/B	Sealing Plan 54	VD-1208-307A-PID-211-11(4,5/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	3.300	9.000	4.500	31.500	75.000
11-FO-10284A/B	Sealing Plan 32	VD-1208-307A-PID-211-11(4,5/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	3.000	6.000	2.500	32.500	70.000
11-FO-10285A/B	Sealing Plan 54	VD-1208-307A-PID-211-11(4,5/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	3.500	12.000	4.500	31.500	75.000
11-FO-10280	Sealing Plan 54	VD-1208-307A-PID-211-11(6/8)	1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	2.000	24.000	27.000	39.000	70.000
11-FO-10281A/B	Sealing Plan 54	VD-1208-307A-PID-211-11(6/8)	1 1/2"	300# RF	Condensate	970	0.45	0.42	S.S 316	3	6.000	24.000	3.000	5.000	70.000
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				INSTRUMENT DATASHEET AND BROCHURES Thermostatic Control Valves				
1	GENERAL	TAG No.			11-TCV-10275A/B			
2		SERVICE			Lubricating Oil			
3		LINE NO.			N/A			
4		PIPE SIZE & SCHEDULE			1" Sch 40S			
5		P&ID NO.			VD-1208-307A-PID-211-11(7,8/8)			
6	Operating Conditions	FLUID/STATE			Oil Iso VG 46			
7		Density (kg/m ³)			840			
8		Viscosity (cP)			25			
9		Operating Pressure (barg)			3			
10		Operating Temperature (°C)			49			
13		FLOW (lit/min)			50			
14	Differential Pressure (bar)			0.38				
15	Valve Data	TYPE			3Way Spring Type Thermostatic valve			
16		Body MATERIAL			CF8M			
17		Set Temperature (°C)			49			
18		Rated Range (°C)			44-55			
19		Size			1"			
20		Rating			150# RF			
21		Manufacturer			AMOT			
22	Model Number			1EFRJ12001-0-5-AA				
NOTE:								
3	05/09/2024	Issued for approval	AB	AS	VD-1208-307A-DSH-225	40/48		
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Pressure Safety Valves



GENERAL										
1	TAG. NO.		11-PSV-10275A,11-PSV-10276A,11-PSV-10275B,11-PSV-10276B				11-PSV-10277A ,11-PSV-10277B			
2	QUANTITY(OPERATING+STANDBY)		4				2			
3	P & ID NO.		VD-1208-307A-PID-211-9(7,8)				VD-1208-307A-PID-211-9(7,8)			
4	SERVICE		Lube Oil				Cooling Water			
5	LINE NO. /VESSEL NO.									
6	FULL NOZZLE / SEMI NOZZLE		FULL NOZZLE				FULL NOZZLE			
7	SAFETY OR RELIEF		SAFETY (Overpressure)				SAFETY (Thermal Expansion)			
8	CONV. / BELLOWS/PILOT		CONVENTIONAL				CONVENTIONAL			
9	BONNET TYPE		CLOSED/BOLTED				CLOSED/BOLTED			
CONNECTION										
10	SIZE : INLET	OUTLET	3/4"	1"			3/4"	1"		
11	FLANGED OR SCREWED		FLANGED RF				FLANGED RF			
12	RATING : INLET	OUTLET	150#	150#			150#	150#		
MATERIALS										
13	BODY & BONNET		S.S				C.S			
14	NOZZLE AND DISC		316 S.S				316 S.S			
15	RESILIENT SEAT SEAL		316 S.S				316 S.S			
16	GUIDE AND RINGS		316 S.S				316 S.S			
17	SPRING		316 S.S				Chrome Alloy			
18	BELLOWS		-				-			
OPTIONS										
19	CAP. SCREWED OR BOLTED		No.				No.			
20	LEVER: PLAIN OR PACKED		No.				No.			
21	TEST GAG		No.				No.			
BASIS										
22	CODE		ISO 4126				ISO 4126			
23	FIRE		-				-			
24	BLOCKED OUTLET		-				-			
FLUID DATA										
25	FLUID & STATE		Oil VG46 SG				Cooling Water			
26	REQUIRED CAPACITY (L / m) / Max. Relieving Capacity		70	138			140	216		
27	OPER.density (kg/m ³)		840				998			
28	OPER. PRESS. (barg)	SET PRESS. (barg)	3.5	7.5			4.5	7.5		
29	NORMAL TEMP °C	RELIEVING TEMP °C	60	70			41	70		
30	Back	CONSTANT	ATM				ATM			
31	PRESSURE (barg)	VARIABLE	ATM				ATM			
32	DISCHARGE TO.		ATMOSPHERE				ATMOSPHERE			
33	ALLOWABLE OVER PRESSURE		10%				10%			
34	COMPRESSIBILITY FACTOR (Z) @ RELIEVING COND.		-				-			
35	SPECIFIC HEAT RATIO (C _p /C _v)		-				-			
36	OPERATING VISCOSITY (CP)		25.000				1.000			
37	LATENT HEAT OF VAPORIZATION		-				-			
38	DESIGN TEMPERATURE / DESIGN PRESSURE		80	10			105	7.5		
SPECIFICATIONS										
39	CALC. AREA (cm ²)		0.439				0.924			
40	SELECTED AREA (cm ²)		0.865				1.43			
41	ORIFICE DESIGNATION		D				E			
42	MATERIAL CERTIFICATE		to EN 10203/3.1B of wetted parts material				to EN 10203/3.1B of wetted parts material			
43	MANUFACTURER		Carraro				Carraro			
44	MODEL NO		CS31D/IF1				CS31E/AF1			
NOTE 1:										
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Pressure Safety Valves



GENERAL							
1	TAG. NO.		11-PSV-10279			11-PSV-10280	
2	QUANTITY (OPERATING+STANDBY)		1			1	
3	P & ID NO.		VD-1208-307A-PID-211-9(6/8)			VD-1208-307A-PID-211-9(6/8)	
4	SERVICE		Condensate			Condensate	
5	LINE NO. /VESSEL NO.		-			-	
6	FULL NOZZLE / SEMI NOZZLE		FULL NOZZLE			FULL NOZZLE	
7	SAFETY OR RELIEF		SAFETY (Overpressure)			SAFETY (Overpressure)	
8	CONV. / BELLOWS/PILOT		CONVENTIONAL			CONVENTIONAL	
9	BONNET TYPE		CLOSED/BOLTED			CLOSED/BOLTED	
CONNECTION							
10	SIZE : INLET	OUTLET	1/2"	1"		1/2"	1"
11	FLANGED OR SCREWED		FLANGED RF			FLANGED RF	
12	RATING : INLET	OUTLET	300#	150#		150#	150#
MATERIALS							
13	BODY & BONNET		S.S			S.S	
14	NOZZLE AND DISC		316 S.S			316 S.S	
15	RESILIENT SEAT SEAL		316 S.S			316 S.S	
16	GUIDE AND RINGS		316 S.S			316 S.S	
17	SPRING		316 S.S			316 S.S	
18	BELLOWS		-			-	
OPTIONS							
19	CAP. SCREWED OR BOLTED		No.			No.	
20	LEVER: PLAIN OR PACKED		No.			No.	
21	TEST GAG		No.			No.	
BASIS							
22	CODE		ISO 4126			ISO 4126	
23	FIRE		-			-	
24	BLOCKED OUTLET		-			-	
FLUID DATA							
25	FLUID & STATE		Condensate			Condensate	
26	REQUIRED CAPACITY (L/ m) / Max. Relieving Capacity		60	160		60	67
27	OPER.density (kg/m3)		970			970	
28	OPER. PRESS. (barg)	SET PRESS. (barg)	34	45		1	7.5
29	NORMAL TEMP °c	RELIEVING TEMP °c	70	80		75	80
30	Back	CONSTANT	ATM			ATM	
31	PRESSURE (barg)	VARIABLE	ATM			ATM	
32	DISCHARGE TO.		ATMOSPHERE			ATMOSPHERE	
33	ALLOWABLE OVER PRESSURE		10%			10%	
34	COMPRESSIBILITY FACTOR (Z) @ RELIEVING COND		-			-	
35	SPECIFIC HEAT RATIO (C _p /C _v)		-			-	
36	OPERATING VISCOSITY C _p		0.400			0.400	
37	LATENT HEAT OF VAPORIZATION		-			-	
38	DESIGN TEMPERATURE / DESIGN PRESSURE		80	40	3	85	10
SPECIFICATIONS							
39	CALC. AREA (in ²)		0.184			0.45	
40	SELECTED AREA (in ²)		0.503			0.503	
41	ORIFICE DESIGNATION		C			C	
42	MATERIAL CERTIFICATE		to EN 10203/3.1B of wetted parts material			to EN 10203/3.1B of wetted parts material	
43	MANUFACTURER		Carraro			Carraro	
44	MODEL NO		CS31D/IF1			CS31D/IF1	
NOTE 1:							
3	05/09/2024	Issued for approval	AB	AS	VD-1208-307A-DSH-225	42/48	
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INSTRUMENT DATASHEET AND BROCHURES
Axillary Systems Pressure Safety Valves



GENERAL						
1	TAG. NO.	11-PSV-10277				
2	QUANTITY(OPERATING+STANDBY)	1				
3	P & ID NO.	VD-1208-307A-PID-211-9(6)				
4	SERVICE	Cooling Water				
5	LINE NO. /VESSEL NO.					
6	FULL NOZZLE / SEMI NOZZLE	FULL NOZZLE				
7	SAFETY OR RELIEF	SAFETY (Thermal Expansion)				
8	CONV./ BELLOWS/PILOT	CONVENTIONAL				
9	BONNET TYPE	CLOSED/BOLTED				
CONNECTION						
10	SIZE : INLET	OUTLET	3/4"	1"		
11	FLANGED OR SCREWED	FLANGED RF				
12	RATING : INLET	OUTLET	150#	150#		
MATERIALS						
13	BODY & BONNET	C.S				
14	NOZZLE AND DISC	316 S.S				
15	RESILIENT SEAT SEAL	316 S.S				
16	GUIDE AND RINGS	316 S.S				
17	SPRING	Chrome Alloy				
18	BELLOWS	-				
OPTIONS						
19	CAP. SCREWED OR BOLTED	No.				
20	LEVER: PLAIN OR PACKED	No.				
21	TEST GAG	No.				
BASIS						
22	CODE	ISO 4126				
23	FIRE	-				
24	BLOCKED OUTLET	-				
FLUID DATA						
25	FLUID & STATE	Cooling Water				
26	REQUIRED CAPACITY (KG / HR) / Max. Relieving Capacity	140	216			
27	MOL. WET.	OPER.density (kg/m3)	998			
28	OPER. PRESS. (barg)	SET PRESS. (barg)	4.5	7.5		
29	NORMAL TEMP °c	RELIEVING TEMP °c	42	70		
30	9/21/2021	CONSTANT	ATM			
31	PRESSURE (barg)	VARIABLE	ATM			
32	DISCHARGE TO.	ATMOSPHERE				
33	ALLOWABLE OVER PRESSURE	10%				
34	COMPRESSIBILITY FACTOR (Z) @ RELIEVING COND.	-				
35	SPECIFIC HEAT RATIO (C _p /C _v)	-				
36	OPERATING VISCOSITY C _p	1.000				
37	LATENT HEAT OF VAPORIZATION	-				
38	DESIGN TEMPERATURE / DESIGN PRESSURE	85	7.5			
SPECIFICATIONS						
39	CALC. AREA (in ²)	1.43				
40	SELECTED AREA (in ²)	1.43				
41	ORIFICE DESIGNATION	E				
42	MATERIAL CERTIFICATE	to EN 10203/3.1B of wetted parts material				
43	MANUFACTURER	Carraro				
44	MODEL NO	CS31E/AF1				
NOTE 1:						
3	05/09/2024	Issued for approval	AB	AS	VD-1208-307A-DSH-225	43/48
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INSTRUMENT DATASHEET AND BROCHURES Axillary Systems Pressure Regulator Valves



Item	Service	Lube Oil	Quantity	2		
	Tag	11-PCV-10275A, 11-PCV-10275B	PID Number	VD-1208-307A-PID-211-9(7,8)		
General	Piping diameter / Schedule	1" - Schedule 40		Operating Temperature	60 C	
	Design Pressure	10 barg		Design Temperature	80C	
	Fluid / Fluid State	OIL ISO VG46 / Liquid				
Operating Condition	Sizing Conditions	Normal	Units			
	Flow Rate	15.00	l/min			
	Upstream Pressure	3.00	bar.g			
	Downstream Pressure	0.00	bar.g			
	Delta P Sizing	3.00	bar			
	Temperature	60.00	C			
	Density	839.40	kg/m3			
	Viscosity	25.00	cP			
	CV - calculated	0.76				
	CV - oversized	0.92				
	Set Pressure	3.00	bar.g			
	Noise level at 1 m.	<85	dBA			
Velocity on inlet line	0.50	m/s				
Velocity on outlet line	0.50	m/s				
Type	Globe		Valve Function	Relief		
BODY	Inlet / Outlet Size	1"	Inlet / Outlet conn.	ANSI 150 RF		
	Body material	S.S	Face Finish	125-250 aarh		
Trim	Selected Cv	1.7	Plug material	316 S.S		
	Leakage Class [FCI 70-3]	VI	Seal - Disc material	FKM (STD)		
	Seats Nr.	1	Seat material	316 S.S		
	Flow action	Close	Characteristic	Quick opening		
ACTUATOR	Actuator size	13 cm2	Spring Range	1,5 : 4,1 bar.g (Spring code: 00041)		
	Max operating P / T	33,0 bar.g / 200,0 C	Inverse Mount. (if applic.)	Not required		
	Spring case material	ASME SA-216 WCC	Action on fail	Close		
	Diaphragm material	FKM+NOMEX	Press.sensing/Conn.	Internal		
	N° of diaphragms	1	Constr. tightness	Closed		
	Spring material	CHROME ALLOY	Cond. tank (if applic.)	Not Required		
Notes	Bug screen on vent hole		NO	Vent Hole/Connection	YES / 1/4"NPT	
3	05/09/2024	Issued for approval	AB	AS	VD-1208-307A-DSH-225	44/48
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INSTRUMENT DATASHEET AND BROCHURES Axillary Systems Pressure Regulator Valves



Item	Service	Condensate		Quantity	1	
	Tag	11-PCV-10275		PID Number	VD-1208-307A-PID-211-9(6/8)	
General	Piping diameter / Schedule	1" - Schedule 40		Operating Temperature	75C	
	Req. Body Design Pressure	40 barg		Design Temperature	80C	
	Fluid / Fluid State	Water\Liquid				
Operating Condition	Sizing Conditions	Normal	Units			
	Flow Rate	24.00	l/min			
	Upstream Pressure	27.00	bar.g			
	Downstream Pressure	1.00	bar.g			
	Delta P Sizing (Set Pressure)	26.00	bar			
	Temperature	75.00	C			
	Density	970.00	kg/m3			
	Viscosity	0.35	cP			
	CV - calculated	0.34				
	CV - oversized	0.40				
	Set Pressure	27.00	bar.g			
	Noise level at 1 m.	<85	dBa			
	Velocity on inlet line	0.70	m/s			
Velocity on outlet line	0.70	m/s				
Type	Globe		Valve Function	Relief		
BODY	Inlet / Outlet Size	1"	Inlet / Outlet conn.	ANSI 300 RF		
	Body material	S.S	Face Finish	125-250 aarh		
Trim	Selected Cv	0.6	Plug material	316 S.S		
	Leakage Class [FCI 70-3]	VI	Seal - Disc material	316 S.S		
	Seats Nr.	1	Seat material	316 S.S		
	Flow action	Close	Characteristic	Quick opening		
ACTUATOR	Actuator size	120	Spring Range	11 : 29.5 bar.g (Spring code: 00101)		
	Max operating P / T	33,0 bar.g / 150,0 C	Inverse Mount. (if applic.)	Not required		
	Spring case material	ASME SA-216 WCC	Action on fail	Close		
	Diaphragm material	EPDM	Press.sensing/Conn.	Internal		
	N° of diaphragms	1	Constr. tightness	Closed		
	Spring material	CHROME ALLOY	Cond. tank (if applic.)	Not Required		
	Bug screen on vent hole	NO	Vent Hole/Connection	YES / 1/4"NPT		
Notes	Manufacturer: Carraro Valve Model: UBS-V/IF2/120					
3	05/09/2024	Issued for approval	AB	AS	VD-1208-307A-DSH-225	45/48
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INSTRUMENT DATASHEET AND BROCHURES Axillary Systems Pressure Regulator Valves



Item	Service	Condensate		Quantity	1	
	Tag	11-PCV-10276		PID Number	VD-1208-307A-PID-211-9(6/8)	
General	Piping diameter / Schedule	1" - Schedule 40		Operating Temperature	70C	
	Req. Body Design Pressure	40 barg		Design Temperature	80C	
	Fluid / Fluid State	Water\Liquid				
Operating Condition	Sizing Conditions	Normal	Units			
	Flow Rate	46.00	l/min			
	Upstream Pressure	39.00	bar.g			
	Downstream Pressure	33.00	bar.g			
	Delta P Sizing	6.00	bar			
	Temperature	70.00	C			
	Density	970.00	kg/m ³			
	Viscosity	0.35	cP			
	CV - calculated	1.28				
	CV - oversized	1.54				
	Set Pressure	34.00	bar.g			
	Noise level at 1 m.	<85	dBa			
	Velocity on inlet line	1.37	m/s			
Velocity on outlet line	1.37	m/s				
Type	Globe		Valve Function	Reduction		
BODY	Inlet / Outlet Size	1"	Inlet / Outlet conn.	ANSI 300 RF		
	Body material	S.S	Face Finish	125-250 aarh		
Trim	Selected Cv	1.7	Plug material	316 S.S		
	Leakage Class [FCI 70-3]	VI	Seal - Disc material	316 S.S		
	Seats Nr.	1	Seat material	316 S.S		
	Flow action	Close	Characteristic	Quick opening		
ACTUATOR	Actuator size	100	Spring Range	16.6 : 37.9 bar.g (Spring code: 00091)		
	Max operating P / T	40.0 bar.g / 85 C	Inverse Mount. (if applic.)	Not required		
	Spring case material	ASME SA-216 WCC	Action on fail	Open		
	Diaphragm material	EPDM	Press.sensing/Conn.	Internal		
	N° of diaphragms	1	Constr. tightness	Closed		
	Spring material	CHROME ALLOY	Cond. tank (if applic.)	Not Required		
Notes	Manufacturer: Carraro Valve Model: UBR-V/IF2/100		Bug screen on vent hole	NO	Vent Hole/Connection	YES / 1/4"NPT
3	05/09/2024	Issued for approval	AB	AS	VD-1208-307A-DSH-225	46/48
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INSTRUMENT DATASHEET AND BROCHURES Axillary Systems Control Valves



Tag Number		11-LV-10276A			P&ID Number		VD-1208-307A-PID-211-9(6/8)	
Service		Condensate			Design Temp.		120 C	
Min / Max Ambient Temperature		5 / 48 deg C			Design Pressure		33 barg	
Hazardous Atmosphere		Explosive Atmosphere Application			Flow Direction / Leakage Class		Flow to Open / IV	
Inlet Pipe		Size: 25 mm		Schedule:	40	O.D.:	33.401	Thickness: 3.3782
Outlet Pipe		Size: 25 mm		Schedule:	40	O.D.:	33.401	Thickness: 3.3782
Fluid Type:		Liquid				Fluid Name:		
		Units		Norm				
Operating Condition	Flow Rate	l/m		25.00				
	Inlet Pressure	barg		26.40				
	Outlet Pressure	barg		0.00				
	Temperature	deg C		50.00				
	Viscosity/Density	centipoise/kg/m3		0.47/990 Δ 3				
	Vapor / Critical Pressure	MPa a		0.019 / 22.1				
	Required CV			0.33				
	Percent Travel			25.00				
	Sound Level	dBA		< 70				
	Valve Velocity	m/s		0.82				
Body / Bonnet	Valve Type	Globe		Valve rated CV	1.7			
	In x Body x Out Size	1"		Material Group	Stainless steel			
	Rating System	ASME		Body Material	316 S.S			
	Rating Class	CL 300		Body Studs	A193 gr B7 with plating			
	End Connection	RF Flanges		Body Nuts	A194 gr 2H with plating			
	Packing Material	PTFE with carbon fiber		Bonnet Type	Standard			
	Packing Endurance / Class			Bellows Material				
Trim	Trim Type	Equal perc.		Seat Type	Quick Change			
	Plug Type	Contoured		Seat Material	316 S.S			
	Plug Material	316 S.S		Stem Material	316 S.S			
	Retainer / Cage	316 S.S		Bushing	316 S.S			
Actuator	Type	Spring-diaphragm		Action	Single Acting			
	Fail Pos. / Air Action	Open / Air to Close		Manual Override	-			
	Model / Size	3277 - 175 cm2		Spring Range / Travel	0.2 to 1 barg			
	Limit Stop Open / Close	- 0% / - 0%		Supply / Safety Factor	Air, 0.17 MPa g / 1			
Air Set	Pressure Range	0.5 to 6 barg		Manufacturer	Samson			
	Temperature Range amb.	-25 to 70 °C		Model	4708-12			
	Housing material	Alluminium		Connection	G 1/4			
Positioner	Tag			Manufacturer	Samson			
	Type	Digital HART		Model	3730			
	Display	-		Input Signal	4-20 mA			
	Diagnostic Level	Easy Smart		Capacity	Standard			
	Transm. / Switches	-		Gauges / Sunshade	yes / -			
	Case Material	Aluminum		Electrical Connection	M20 x1.5			
	Agency			Protection Method	Intrinsic Safety "i" / IS"			
	Protection Description	Ex ia IIC; Ex ic IIC; T4 Ga/Gc		Protection Note	Ta = -20°C to 80°C			
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INSTRUMENT DATASHEET AND BROCHURES Axillary Systems Control Valves



Tag Number		11-LV-10276B		P&ID Number		VD-1208-307A-PID-211-9(6/8)	
Service		Demin Water		Design Temp.		85 C	
Min / Max Ambient Temperature		5 / 48 deg C		Design Pressure		14.5 barg	
Hazardous Atmosphere		Explosive Atmosphere Application		Flow Direction / Leakage Class		Flow to Open / IV	
Inlet Pipe		Size: 25 mm		Schedule:		40	
Outlet Pipe		Size: 25 mm		Schedule:		40	
Fluid Type:		Liquid		Fluid Name:			
Operating Condition	Flow Rate	Units	Norm				
	Inlet Pressure	l/m	25				
	Outlet Pressure	barg	10				
	Temperature	barg	0.0				
	Viscosity	deg C	Amb				
	Vapor / Critical Pressure	centipoise	1.00				
	Required CV	MPa a	0.005786/22.1				
	Percent Travel		0.6034				
	Sound Level		40.00				
	Valve Velocity	dBA	< 70				
Body / Bonnet	Valve Type	Globe		Valve rated CV	1.7		
	In x Body x Out Size	1"		Material Group	Stainless steel		
	Rating System	ASME		Body Material	316 S.S		
	Rating Class	CL 150		Body Studs	A193 gr B7 with plating		
	End Connection	RF Flanges		Body Nuts	A194 gr 2H with plating		
Trim	Packing Material	PTFE with carbon fiber		Bonnet Type	Standard		
	Packing Endurance / Class			Bellows Material			
	Trim Type	Equal perc.		Seat Type	Quick Change		
	Plug Type	Contoured		Seat Material	316 S.S		
	Plug Material	316 S.S		Stem Material	316 S.S		
Actuator	Retainer / Cage	316 S.S		Bushing	316 S.S		
	Type	Spring-diaphragm		Action	Single Acting		
	Fail Pos. / Air Action	Open / Air to Close		Manual Override	-		
	Model / Size	VTA		Spring Range / Travel	0.2 to 1 barg		
	Limit Stop Open / Close	- 0% / - 0%		Supply / Safety Factor	Air, 0.17 MPa g / 1		
Air Set	Pressure Range	0.5 to 6 barg		Manufacturer	Samson		
	Temperature Range amb.	-25 to 70 °C		Model	4708-12		
	Housing material	Alluminium		Connection	G 1/4		
Positioner	Tag			Manufacturer	Samson		
	Type	Digital HART		Model	3730		
	Display	-		Input Signal	4-20 mA		
	Diagnostic Level	Easy Smart		Capacity	Standard		
	Transm. / Switches	-		Gauges / Sunshade	- / -		
	Case Material	Aluminum		Electrical Connection	M20 x1.5		
	Agency			Protection Method	Intrinsic Safety "i / IS"		
Protection Description	Ex ia IIC; Ex ic IIC; T4 Ga/Gc		Protection Note	Ta = -20°C to 80°C			
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Comment / Response Sheet No. VD-1208-307A-DSH-225-2 Comments response	Reference No.: 1308-2285 P-102 A/B & 130 AB	Date of comments: 18-01-2023
Attached Document no.: VD-1208-307A-DSH-225-3	Document title: INSTRUMENT DATA SHEETS AND BROCHURES-102 AB & 130 AB	Date of response: 05-09-2024

Item No.	Client Comments	Vendor Clarifications/Response	Reply
Page 1 of 44	General note: - Flow service shall be marked for all instruments. - Each tag no. shall be considered in one sheet separately.	Noted	
Page 1 of 44	Some items have been missed. Please provide data sheet for following instruments: FO-10275, 10276, 10279, 10280, 10281, 10282, 10283, 10284, 10285 A/B SG-10275, 10277, 10281, 10283, 10284 A/B TG-10281 TCV-10275 A/B	Noted. SG-10277, SG-10283 and 10284A/B is constructed in the bearing housing.	
Page 4 of 44	BARG	Noted	
Page 4 of 44	IN/OUT connection rating shall be specified	Noted	
Page 4 of 44	these two is not inline! please clarify 16 vs. 10	Noted	
Page 4 of 44	please clarify glass thk.	Noted	
Page 4 of 44	barg	Noted	
Page 5 of 44	Process data such as flow rate, OP./De. Pressure and temperature to be marked.	Noted	

Item No.	Client Comments	Vendor Clarifications/Response	Reply
Page 5 of 44	(flow gauge)	Noted	
Page 5 of 44	AS PER DESIGN CONDITION P:45 barg AND 250C the connection rating shall be 600# as per ASME B16.5 please clarify and mark 600#	The connection is SW 3000 psi	
Page 5 of 44	barg	Noted	
Page 5 of 44	Data is not compatible 49 vs 45 barg.!	Noted	
Page 6 of 44	Process data such as OP./De. Pressure and temperature to be marked.	Noted	
Page 6 of 44	4-20mA(LOOP POWERED)	Noted	
Page 6 of 44	General Comment:for all instrumentation: There is not any external voltage all instrumentions shall be loop powered	Noted	
Page 6 of 44	BARG	Noted	
Page 6 of 44	AS PER DESIGN CONDITION P:45 barg AND 250C the connection rating shall be 600# as per ASME B16.5 please clarify and mark 600#	Design Pressure decreased to 40 bar for Plan 54	
Page 7 of 44	General comment for all pressure gauges: operating pressure per each tag number shall be specified. please be noticed that the gauge normally operates in the middle third of the maximum scale of pressure gauge.	In this stage we could not change the pressure gauges	
Page 7 of 44	DUE LUBE OIL OPERATING PRESSURE OF 3.5 BARG, THE RANGE IS OUT OF EXACT INDICATION!	In this stage we could not change the pressure gauges	
Page 7 of 44	PUMP DESIGN PRESSURE IS 10 BARG!, Why such huge scale is selected.	In this stage we could not change the pressure gauges	



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Item No.	Client Comments	Vendor Clarifications/Response	Reply
	Not acceptable! please provide appropriate scale and range for exact pressure indication (0-6 barg)		
Page 7 of 44	please specify the rating of PG connection	Noted	
Page 8 of 44	barg	Noted	
Page 8 of 44	General comment for all pressure gauges: operating pressure per each tag number shall be specified. please be noticed that the gauge normally operates in the middle-third of the maximum scale of pressure gauge.	Noted	
Page 8 of 44	shall be 120c as per Pump datasheet	Noted	
Page 8 of 44	barg	Noted	
Page 8 of 44	please specify 300# rating for PG connection	The connection is NPT 3000 psi	
Page 9 of 44	barg	Noted	
Page 9 of 44	General comment for all pressure gauges: operating pressure per each tag number shall be specified. please be noticed that the gauge normally operates in the middle-third of the maximum scale of pressure gauge.	Noted	
Page 9 of 44	barg	Noted	
Page 9 of 44	AS PER DESIGN CONDITION P:45 barg AND 120 C the connection rating shall be 600# as per ASME B16.5 please clarify and mark 600#	PG Connection is NPT 3000psi	



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Item No.	Client Comments	Vendor Clarifications/Response	Reply
Page 10 of 44	barg	Noted	
Page 10 of 44	GENERAL COMMENT: All different type of transmitters shall be equipped with integrated display.please add for all transmitters	Noted	
Page 10 of 44	4-20mA(LOOP POWERD)	Noted	
Page 10 of 44	general Comment: operating pressure for all Pressure transmitters and also temperature transmitters shall be specified	Noted	
Page 10 of 44	AS PER DESIGN CONDITION P:45 barg AND 120 C the connection rating shall be 600# as per ASME B16.5 please clarify and mark 600#	PT Connection is NPT 3000psi	
Page 11 of 44	General Comment: for all temperature gauges , operating temperature to be specified	Noted	
Page 11 of 44	Process data such as OP./De. pressure and temperature to be marked.	Noted	
Page 11 of 44	GENERAL COMMENT: If this means Range of gauge ,then please modify accordingly	Noted	
Page 11 of 44	general comment: flange connection 1 1/2" shall be considered for all temperature gauges and all temperature transmitters. please include per each sheet	The Temperature Gauges are surface mounted and there are no Wet parts to use Thermowell	
Page 11 of 44	PLEASE SPECIFY SENSOR INSERTION LENGTH	The Temperature Gauges are surface mounted and there is no insertion length	
Page 11 of 44	AS PER DESIGN CONDITION P:45 barg AND 120 C the connection rating shall be 600# as per ASME B16.5 please clarify and mark 600#	There is no contact between Temperature gauges and service because the type of gauges is surface mounted	
Page 12 of 44	General Comment: for all temperature transmitters , operating temperature to be specified	Noted	



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Item No.	Client Comments	Vendor Clarifications/Response	Reply
Page 12 of 44	General comment: flange connection 1 1/2" shall be considered for all temperature gauges and all temperature transmitters. please include per each sheet	The Temperature Gauges are surface mounted and there are no Wet parts to use Thermowell	
Page 12 of 44	4-20ma(loop powered)	Noted	
Page 12 of 44	196 barg (ON HP PUMP CASING) PLEASE CHECK AND CORRECT/CLARIFY	Noted	
Page 12 of 44	CALIBRATION RANGE SHALL BE INCLUDED FOR ALL TYPES OF TRANSMITTERS(TEMPERATURE.PRESSURE , FLOW AND ETC). PLEASE INCLUDE IN ALL SHEETS	Noted	
Page 12 of 44	Normal Operating temperature shall be specified.	Noted	
Page 13 of 44	IF THESE ARE CONNECTED TO MMS PLEASE SPECIFY IN NEXT OFFER.	Noted	
Page 13 of 44	PLEASE CHECK AND CORRECT1 The design shall be more!	Noted	
Page 13 of 44	PLEASE CHECK AND CORRECT1 The design shall be more!	Noted	
Page 13 of 44	Normal Operating temperature shall be specified.	Noted	
Page 14 of 44	IF THESE ARE CONNECTED TO MMS PLEASE SPECIFY IN NEXT OFFER.OTHERWISE PLEASE CLARIFY WHERE SHOULD BE CONNECTED? BECAUSE BASED ON TAG NUMBERS THERE ARE NOT TEMPERATURE TRANSMITTER OR TEMPERATURE GAUGE	Noted	
Page 14 of 44	PLEASE CHECK AND CORRECT1 The design shall be more!	Noted	
Page 14 of 44	Normal Operating temperature shall be specified.	Noted	
Page 15 of 44	IF THESE ARE CONNECTED TO MMS PLEASE SPECIFY IN NEXT OFFER.OTHERWISE PLEASE CLARIFY WHERE	Noted. Winding RTDs connected to MCC	



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Item No.	Client Comments	Vendor Clarifications/Response	Reply
	SHOULD BE CONNECTED? BECAUSE BASED ON TAG NUMBERS THERE ARE NOT TEMPERATURE TRANSMITTER OR TEMPERATURE GAUGE		
Page 15 of 44	Normal Operating temperature shall be specified.	Noted	
Page 16 of 44	IF THESE ARE CONNECTED TO MMS PLEASE SPECIFY IN NEXT OFFER. OTHERWISE PLEASE CLARIFY WHERE SHOULD BE CONNECTED? BECAUSE BASED ON TAG NUMBERS THERE ARE NOT TEMPERATURE TRANSMITTER OR TEMPERATURE GAUGE	Noted	
Page 16 of 44	design is lower than Trip and is not correct!	Noted	
Page 16 of 44	Normal Operating temperature shall be specified.	Noted	
Page 17 of 44	10292A/B	Noted	
Page 19 of 44	trip point shall be specified clearly	Based on PID the key phasor are just for indication, there is no interlock, alarm and trip set point for keyphasors	
Page 22 of 44	4-20MA(HART-LOOP POWERD)	Noted	
Page 23 of 44	WHAY CALIBRATION SPAN IS BIGGER THAN MAXIMUM PRESSURE RANGE?	Noted	
Page 23 of 44	Oil iso VG46	Noted	
Page 24 of 44	4-20MA(HART-LOOP POWERD)	Noted	
Page 24 of 44	ALL TRANSMITTERS SHALL BE EQUIPPED WITH DISPLAY PLEASE MODIFY	Noted	
Page 25 of 44	OP. press.: 2.7 barg	Noted	



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Item No.	Client Comments	Vendor Clarifications/Response	Reply
Page 25 of 44	OP. press.: 1 barg	Noted	
Page 25 of 44	Please recheck and confirm	Noted	
Page 25 of 44	connection rating of 150# to be specified/marked	Connection is NPT	
Page 26 of 44	shall be equipped with display .please confirm	Noted	
Page 27 of 44	manufacture and model number to be specified	Noted	
Page 28 of 44	the selected range is mush bigger than operating pressure! leads to exact pressure indication!	The OP is in the middle third	
Page 28 of 44	3.5 barg	Noted	
Page 28 of 44	21 barg as per pump data sheet.	Two pumps are working in series	
Page 28 of 44	PG connections shall be 600# as per pump design pressure of 45 barg "as per ASME B.16.5 Please mark	Connection is NPT	
Page 30 of 44	3.5 barg as per lube oil pump disch. pressure	Noted	
Page 32 of 44	Please mark design pressure for all items.	Noted	
Page 32 of 44	Design pressure shall be: 3.5 BARG 3.5BARG 3.5 BARG 3.5 BARG 3.5 BARG 3.5 BARG 7.5 BARG (design pressure of cooling water) 7.5 barg (design pressure of cooling water)	Noted	



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Item No.	Client Comments	Vendor Clarifications/Response	Reply
	3.5 barg		
Page 32 of 44	993 kg/m ³	Noted	
Page 35 of 44	4-20mA(HART, LOOP POWERED)	Noted	
Page 35 of 44	NO CLEARANCE	It is Schematic drawing, The length is issued in the LT List sheet	
Page 38 of 44	as per ASME B16.5 shall be 600#	Design pressure of plan 54 decreased to 40 barg	
Page 38 of 44	105 °C	Noted	
Page 41 of 44	shall be 36 l/min (as per condensate pump data sheet and plan 32 injection data)	Part of plan 54 flow rate consumed for Plan 32	
Page 41 of 44	as per design pressure of 45 barg the valve body rating shall be 600# "refer to ASME B.16.5	Design pressure of plan 54 decreased to 40 barg	
Page 42 of 44	Pump discharge pressure is 21 barg, please clarify why upstream pressure has been reported 40 barg.	Two pumps are working in series	
Page 42 of 44	shall be 600# as per design pressure of 45 barg and ASME B.16.5	Design pressure of plan 54 decreased to 40 barg	
Page 42 of 44	Please check with P&ID and clarify (Failure open is marked in P&ID)	Noted	
Page 43 of 44	density also to be specified. 990 kg/m ³	Noted	
Page 43 of 44	valve shall be failure close (to be specified)	Not Possible changing at this stage	
Page 44 of 44	also 25 L/M to be considered!	Noted	
Page 44 of 44	valve shall be failure close (to be specified)	Not Possible changing at this stage	