











OWNER:  شرکت سست و سویی آوند ایرانیان (سهایی نایب)	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
MC :  شرکت سست و سویی آوند ایرانیان مدیر عامل	<b>INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER</b>						 Netherlands		
Owner Document Number: 17811-12A							Project	Area	Phase
	BU	20	VD	303	IN	DSH	0040	Rev.: 06	Page 1 of 38

## INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER

 شرکت سست و سویی آوند ایرانیان	 Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>
<b>Document Review</b>		
Issue Purpose:	IFA	
Result Code: AP,AN,CM,RE,NC	CM	
Next Status : IFC,IFA,IFI,AFC,AB	IFA	
Responsible Department	MECHANICAL	
Commented Date	7/25/2022	
<b>Approval or review hereunder shall not be construed to relieve Vendor / Subcontractor of his responsibilities and liability under the contract.</b>		

06	07/07/2022	For approval	KP	TvT	JR	
05	31/05/2022	For approval	TvT	KP	LdM	
04	05/01/2022	For approval	TvT	KP	LdM	
03	19/11/2021	For approval	TvT	KP	LdM	
02	27/10/2021	For approval	TvT	KP	LdM	
01	21/09/2021	For approval	TvT	KP	LdM	
00	19/11/2020	For approval	TvT	KP	LdM	
<b>Rev</b>	<b>Date</b>	<b>Purpose of Issue</b>	<b>Prepared</b>	<b>Checked</b>	<b>Approved</b>	<b>AC Code</b>
					<b>Class: 1</b>	<b>Phase: P</b>


OWNER:  شرکت سست موبلی توهر ایرانیاں (سهانی بنیاد)	<b>BUSHEHR PETROCHEMICAL COMPANY MEG PLANT</b>						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
	<b>INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER</b>						 Netherlands		
MC :  شرکت سست موبلی توهر ایرانیاں موبلی بنیاد	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445	
Owner Document Number: 17811-12A	BU	20	VD	303	IN	DSH	0040	Rev.:	Page
								06	2 of 38

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2.	X	X	X	X	X	X	X					
3.	X	X	X	X	X	X	X					
4.	X	X	X	X	X	X	X					
5.	X	X	X	X	X	X	X					
6.	X	X	X	X	X	X	X					
7.	X	X	X	X	X	X	X					
8.	X	X	X	X	X	X	X					
9.	X	X	X	X	X	X	X					
10.	X	X	X	X	X	X	X					
11.	X	X	X	X	X	X	X					
12.	X	X	X	X	X	X	X					
13.	X	X	X	X	X	X	X					
14.	X	X	X	X	X	X	X					
15.	X	X	X	X	X	X	X					
16.	X	X	X	X	X	X	X					
17.	X	X	X	X	X	X	X					
18.	X	X	X	X	X	X	X					
19.	X	X	X	X	X	X	X					
20.	X	X	X	X	X	X	X					
21.	X	X	X	X	X	X	X					
22.	X	X	X	X	X	X	X					
23.	X	X	X	X	X	X	X					
24.	X	X	X	X	X	X	X					
25.	X			X	X	X	X					
26.	X			X	X	X	X					
27.	X			X	X	X	X					
28.	X			X	X	X	X					
29.	X			X	X	X	X					
30.	X			X	X	X	X					
31.	X			X	X	X	X					
32.	X			X	X	X	X					
33.	X			X	X	X	X					
Till 46	X			X	X	X	X					
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Till 38												


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9	Thermowell	TW-10158	12
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**Notes:**

06	KP	07/07/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET Index</b> 	Sheet <b>3</b> of 38 Based on P&ID <span style="float: right;">Rev.04</span>
05	IT	31/05/2022	Approved for Construction		
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PDG-10151	
	2	Service		Differential Pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Inlet strainer	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1001-511C(N)	
	7				
PROCESS CONDITIONS	8	Fluid	State	Nitrogen	Dry Gas
	9	Pressure	Norm. Max.	8 Bar(a)	9 Bar(a)
	10	Temperature	Norm. Max.	55°C	65°C
	11	Design	Press. Temp.	13.5 Bar(a)	85°C
	12	Ambient Temp.	Min. Max.	5 °C	52 °C
	13				
	14				
GAUGE	15	Type		Diaphragm type	
	16	Range	Unit	-100 ... 100	mbar
	17	Mounting		Panel mounted	
	18	Dial Size	Dial Color	160 mm	White. Black numbers
	19	Case Material		SS 316	
	20	Ring Construction	Ring Material	Bayonet	SS 316
	21	Blow-Out Protection		Yes @ back	
	22	Lens Material		Shatterproof laminated safety glass	
	23	Pressure Element Type		Diaphragm	
	24	Pressure Element Material		SS 316	
	25	Socket Material		SS 316	
	26	Connection Size		2 x 1/4" NPT-F	
	27	Connection Location		Back	
	28	Movement Material		SS 316	
	29	Nominal Accuracy		±1.0% of full scale	
	30	Gauge Filling		Glycerine	
	31	Over Range Protection		1,3 x full scale value	
	32	Zero stop pin		Yes	
	33	Zero mechanisme		Adjustable	
	34				
	35				
36					
37					
38					
39					
40					
41					
42					
OPTIONS	43	Snubber	Material	Yes	SS316
	44	Gauge Savers	Material	N/A	N/A
	45	Manifold (Block & Bleed)		1/2" NPTF, 5-way B&B manifold	SS316 (Airpack Scope)
	46	Block valve (Hand ball valve)		Yes SS316 (Airpack scope)	
	47				
48					
CERTIFICATES	49	Calibration certificate		Yes	
	50	3.1 Material certificate		Yes	
	51	IP certificate		No	
	52				
	53				
PURCHASE	54	Manufacturer		WIKA	
	55	Model		733.51	
	56				
	57				

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Diff. Pressure Gauge</b>  	Sheet 4 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PG-10152	
	2	Service		Nitrogen pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Inlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1001-511C(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	8 Bar(a)	9 Bar(a)
	11	Temperature	Norm. Max.	55°C	65°C
	12	Design	Press. Temp.	13.5 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0 ....16	bar(a)
	21	Mounting		Panel mounted	
	22	Dial Size	Dial Color	160 mm	White. Black numbers
	23	Case Material		SS 316	
	24	Ring Construction	Ring Material	Bayonet	SS 316
	25	Blow-Out Protection		Yes @ Back	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS 316	
	28	Socket Material		SS 316	
	29	Connection Size		1/2" NPT-M	
	30	ConnectionLocation		Back-bottom	
	31	Movement Material		SS 316	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Glycerine	
	34	Over Range Protection		1,3 x full scale value	
35	Zero stop pin		Yes		
36	Zero mechanisme		Adjustable		
37					
OPTIONS	38	Snubber	Material	Yes	SS316
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		1/2" NPTF, 2-way B&B manifold	SS316 (Airpack Scope)
	41	Block valve (Hand ball valve)		Yes	SS316 (Airpack supply)
	42				
CERTIFICATES	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47	IP certificate		No	
	48				
	49				
PURCHASE	51	Manufacturer		WIKA	
	52	Model		233.50	
	53				
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**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Gauge</b>  	Sheet 5 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PG-10155	
	2	Service		Nitrogen pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Upstream Inter-Cooler	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1002-539D(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	1 ...30	bar(a)
	21	Mounting		Panel mounted	
	22	Dial Size	Dial Color	160 mm	White. Black numbers
	23	Case Material		SS 316	
	24	Ring Construction	Ring Material	Bayonet	SS 316
	25	Blow-Out Protection		Yes @ Back, solid front	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS 316	
	28	Socket Material		SS 316	
	29	Connection Size		1/2" NPT-M	
	30	ConnectionLocation		Back-bottom	
	31	Movement Material		SS 316	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Glycerine	
	34	Over Range Protection		1,3 x full scale value	
	35	Zero stop pin		Yes	
36	Zero mechanism		Adjustable		
37					
OPTIONS	38	Snubber	Material	Yes	SS316
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		1/2" NPTF, 2-way B&B manifold	SS316 (Airpack Scope)
	41	Block valve (Hand ball valve)		Yes	SS316 (Airpack supply)
	42				
CERTIFICATES	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47	IP certificate		No	
	48				
	49				
PURCHASE	51	Manufacturer		WIKA	
	52	Model		233.50	
	53				
	54				
	55				

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Gauge</b>  	Sheet 6 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PG-10161	
	2	Service		Nitrogen pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Outlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1003-539D(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	23,5 Bar(a)	26 Bar(a)
	11	Temperature	Norm. Max.	40°C	52°C
	12	Design	Press. Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	1 ...40	bar(a)
	21	Mounting		Panel mounted	
	22	Dial Size	Dial Color	160 mm	White. Black numbers
	23	Case Material		SS 316	
	24	Ring Construction	Ring Material	Bayonet	SS 316
	25	Blow-Out Protection		Yes @ Back, solid front	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS 316	
	28	Socket Material		SS 316	
	29	Connection Size		1/2" NPT-M	
	30	ConnectionLocation		Back-bottom	
	31	Movement Material		SS 316	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Glycerine	
	34	Over Range Protection		1,3 x full scale value	
35	Zero stop pin		Yes		
36	Zero mechanisme		Adjustable		
37					
OPTIONS	38	Snubber	Material	Yes	SS316
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		1/2" NPTF, 2-way B&B manifold	SS316 (Airpack Scope)
	41	Block valve (Hand ball valve)		Yes	SS316 (Airpack supply)
	42				
CERTIFICATES	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47	IP certificate		No	
	48				
	49				
PURCHASE	51	Manufacturer		WIKA	
	52	Model		233.50	
	53				
	54				
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**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Gauge</b>  	Sheet 7 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PG-10160	
	2	Service		Water pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Cooling water Inlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-CWS-1004-501C(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid
	10	Pressure	Norm. Max.	4,5 Bar(g)	5 Bar(g)
	11	Temperature	Norm. Max.	35°C	45°C
	12	Design	Press. Temp.	10 Bar(g)	95°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0 ...10	bar(g)
	21	Mounting		Panel mounted	
	22	Dial Size	Dial Color	160 mm	White. Black numbers
	23	Case Material		SS 316	
	24	Ring Construction	Ring Material	Bayonet	SS 316
	25	Blow-Out Protection		Yes @ Back	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS 316	
	28	Socket Material		SS 316	
	29	Connection Size		1/2" NPT-M	
	30	ConnectionLocation		Back-bottom	
	31	Movement Material		SS 316	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Glycerine	
	34	Over Range Protection		1,3 x full scale value	
35	Zero stop pin		Yes		
36	Zero mechanisme		Adjustable		
37					
OPTIONS	38	Snubber	Material	No	N/A
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		1/2" NPTF, 2-way B&B manifold	SS316 (Airpack Scope)
	41	Block valve (Hand ball valve)		Yes	SS316 (Airpack supply)
	42				
	43				
CERTIFICATES	44				
	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47	IP certificate		No	
	48				
	49				
PURCHASE	50				
	51	Manufacturer		WIKA	
	52	Model		233.50	
	53				
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**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Gauge</b>  	Sheet 8 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

GENERAL	1	Tag Number		TG-10157		
	2	Service		Water temperature		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Cooling water Inlet		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-CWS-1004-501C(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid	
	10	Pressure	Norm. Max.	4.5 Bar(g)	5 Bar(g)	
	11	Temperature	Norm. Max.	35°C	45°C	
	12	Design	Press. Temp.	10 Bar(g)	95°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14					
	15					
	16					
GAUGE	19	Type		Bi-metal		
	20	Range	Unit	0...60	°C	
	21	Dial Size	Dial Color	160 mm	White. Black numbers	
	22	Case material		SS 316		
	23	Stem Material		SS 316		
	24	Mounting		Panel mounted		
	25	Lens Material		Shatterproof laminated safety glass		
	26	Stem length	Stem Diameter	To fit in TW	6 mm	
	27	External Calibrator		Yes		
	28	Nominal Accuracy		±1.0% of full scale		
	29	Connection		1/2" NPT-M x 6 mm OD compression fitting, sliding on stem		
	30	Liquid filling		Glycerine		
	31	Element case		Hermetically sealed		
	32					
	33	FILLED SYSTEM	Compensation		-	
	34		Capillary Length		5 meter	
	35		Capillary Material		SS 316	
	36		Armor Material		SS 316	
	37					
	38					
39						
40						
41						
42						
43						
44						
CERTIFICATES	45	Calibration certificate		Yes		
	46	3.1 Material certificate		Yes		
	47	IP certificate		No		
	48					
	49					
PURCHASE	51	Manufacturer		WIKA		
	52	Model		F73		
	53					
	54					
	55					
	56					
	57					

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Temperature Gauge</b>  	Sheet 9 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

Comments in this page are applicable for other Thermowell too.


GENERAL	1	Tag Number		TW-10157	
	2	Service		Water temperature	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		TG-10157	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid
	10	Pressure	Norm. Max.	4,5 Bar(g)	5 Bar(g)
	11	Temperature	Norm. Max.	35°C	45°C
	12	Design	Press. Temp.	10 Bar(g)	45°C
	13	Ambient Temp.	Min. Max.	5 °C	
	14	Velocity			
	15				
	16				
	17				
	18				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2" ANSI RF #300 (Ra 125-250 AAR)	
	22	Instrument Connection		1/2" NPT	
	23	Root diameter		16 mm	
	24	Tip diameter		12 mm	
	25	Tip thickness		6 mm	
	26	Bore diameter		6,5 mm	
	27	Nozzle projection		50 mm	
	28	U-length		160 mm (4" pipe)	
	29	Make		Rodax	
	30	Model		BFT	
	31				
	32				
	33				
	34				
	35				
	36				
	37				
	38				
	39				
	40				
	41				
	42				
	43				
	44				
	45				
	46				
47					
48					
CERTIFICATES	49	3.1 Material certificate		Yes	
	50				
	51				
	52				
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55				
	56				
	57				

Wall thickness is thinner than dimensional Limits listed in ASME PTC 19.3 TW-2010 Tables 4-1-1 or 4-2-1

Root diameter shall be 25 mm  
 Tip diameter shall be 19 mm  
 Tip thickness shall be 6.4 mm  
 Bore diameter shall be 6.6 mm


due to the nozzle projection and U-length, thermowell will not fitted in its place, accordingly nozzle projection shall be modified so that thermowell properly fitted and also tips of thermowell to be in the middle third of pipe.

**NOTES :**

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03	TT	19/11/2021	For Approval	
02	TT	27/10/2021	For Approval	
01	TT	20/09/2021	For Approval	
00	TT	19/11/2020	For Approval	
Rev	By	Date	Description	

GENERAL	1	Tag Number		TG-10158		
	2	Service		Water temperature		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Cooling water Outlet		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-CWR-1011-501C(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid	
	10	Pressure	Norm. Max.	2,5 Bar(g)	3 Bar(g)	
	11	Temperature	Norm. Max.	45°C	55°C	
	12	Design	Press. Temp.	10 Bar(g)	95°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14					
	15					
	16					
GAUGE	19	Type		Bi-metal		
	20	Range	Unit	0...60	°C	
	21	Dial Size	Dial Color	160 mm	White. Black numbers	
	22	Case material		SS 316		
	23	Stem Material		SS 316		
	24	Mounting		Panel mounted		
	25	Lens Material		Shatterproof laminated safety glass		
	26	Stem length	Stem Diameter	To fit in TW	6 mm	
	27	External Calibrator		Yes		
	28	Nominal Accuracy		±1.0% of full scale		
	29	Connection		1/2" NPT-M x 6 mm OD compression fitting, sliding on stem		
	30	Liquid filling		Glycerine		
	31	Element case		Hermetically sealed		
	32					
	33	FILLED SYSTEM	Compensation		-	
	34		Capillary Length		5 meter	
	35		Capillary Material		SS 316	
	36		Armor Material		SS 316	
	37					
	38					
39						
40						
41						
42						
43						
44						
CERTIFICATES	45	Calibration certificate		Yes		
	46	3.1 Material certificate		Yes		
	47	IP certificate		No		
	48					
	49					
PURCHASE	51	Manufacturer		WIKA		
	52	Model		F73		
	53					
	54					
	55					
	56					
	57					


**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Temperature Gauge</b>  	Sheet 11 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

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GENERAL	1	Tag Number			TW-10158	
	2	Service			Water temperature	
	3	P&ID No.			BU-20-VD-303-PR-WG-0013	
	4	Location			TG-10158	
	5					
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Water	Liquid
	10	Pressure	Norm.	Max.	2,5 Bar(g)	3 Bar(g)
	11	Temperature	Norm.	Max.	45°C	55°C
	12	Design	Press.	Temp.	10 Bar(g)	95°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Velocity			0,4 m/s	
	15					
	16					
THERMOWELL	19	Material			SS 316	
	20	Construction			Solid bar stock	
	21	Process Connection			1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection			1/2" NPT-F	
	23	Root diameter			16 mm	
	24	Tip diameter			12 mm	
	25	Tip thickness			6 mm	
	26	Bore diameter			6,5 mm	
	27	Nozzle projection			50 mm	
	28	U-length			160 mm (4" pipe)	
	29	Make			Rodax	
	30	Model			BFT	
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
	39					
	40					
	41					
	42					
	43					
	44					
	45					
	46					
47						
48						
CERTIFICATES	49	3.1 Material certificate			Yes	
	50					
	51					
	52					
CALCULATIONS	53	Wake frequency calculation			No	
	54					
	55					
	56					
	57					

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>   Sheet 12 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval	
03	TT	19/11/2021	For Approval	
02	TT	27/10/2021	For Approval	
01	TT	20/09/2021	For Approval	
00	TT	19/11/2020	For Approval	
Rev	By	Date	Description	

GENERAL	1	Tag Number		TG-10156		
	2	Service		Nitrogen temperature		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Outlet		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-NL-1003-539D(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas	
	10	Pressure	Norm. Max.	23,5 Bar(a)	25 Bar(a)	
	11	Temperature	Norm. Max.	35°C	52°C	
	12	Design	Press. Temp.	25 Bar(a)	85°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14					
	15					
	16					
GAUGE	19	Type		Bi-metal		
	20	Range	Unit	0...60	°C	
	21	Dial Size	Dial Color	160 mm	White. Black numbers	
	22	Case material		SS 316		
	23	Stem Material		SS 316		
	24	Mounting		Panel mounted		
	25	Lens Material		Shatterproof laminated safety glass		
	26	Stem length	Stem Diameter	To fit in TW	6 mm	
	27	External Calibrator		Yes		
	28	Nominal Accuracy		±1.0% of full scale		
	29	Connection		1/2" NPT-M x 6 mm OD compression fitting, sliding on stem		
	30	Liquid filling		Glycerine		
	31	Element case		Hermetically sealed		
	32					
	33	FILLED SYSTEM	Compensation		-	
	34		Capillary Length		5 meter	
	35		Capillary Material		SS 316	
	36		Armor Material		SS 316	
	37					
	38					
39						
40						
41						
42						
43						
44						
CERTIFICATES	45	Calibration certificate		Yes		
	46	3.1 Material certificate		Yes		
	47	IP certificate		No		
	48					
	49					
	50					
PURCHASE	51	Manufacturer		WIKA		
	52	Model		F73		
	53					
	54					
	55					
	56					
	57					


**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Temperature Gauge</b> 	Sheet 13 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

Please refer to comment on page 10


GENERAL	1	Tag Number			TW-10156	
	2	Service			Nitrogen temperature	
	3	P&ID No.			BU-20-VD-303-PR-WG-0013	
	4	Location			TG-10156	
	5					
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas
	10	Pressure	Norm.	Max.	23,5 Bar(a)	25 Bar(a)
	11	Temperature	Norm.	Max.	35°C	52°C
	12	Design	Press.	Temp.	25 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Velocity			0,9 m/s	
	15					
	16					
THERMOWELL	19	Material			SS 316	
	20	Construction			Solid bar stock	
	21	Process Connection			1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection			1/2" NPT-F	
	23	Root diameter			16 mm	
	24	Tip diameter			12 mm	
	25	Tip thickness			6 mm	
	26	Bore diameter			6,5 mm	
	27	Nozzle projection			50 mm	
	28	U-length			160 mm (4" pipe)	
	29	Make			Rodax	
	30	Model			BFT	
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
CERTIFICATES	49	3.1 Material certificate			Yes	
	50					
	51					
	52					
CALCULATIONS	53	Wake frequency calculation			No	
	54					
	55					
	56					
	57					

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>   Thermowell <small>Netherlands</small>	Sheet 14 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		LG-10151		
	2	Service		Oil level		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor oil sump		
	5	Ingress Protection		IP65		
	6	Line/equipment number		20-C-1002		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Oil	Liquid
	10	Pressure	Norm.	Max.	Ambient	-
	11	Temperature	Norm.	Max.	45°C	65°C
	12	Design	Press.	Temp.	5 Bar(g)	80°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14					
	15					
	16					
GAUGE	19	Type		Bull-Eye		
	20					
	21	Mounting		Locally		
	22	Case Material		SS316		
	23	Lens Material		Pyrex glass		
	24					
	25					
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
OPTIONS	38					
	39					
	40					
	41					
	42					
	43					
	44					
	45	3.1 Material certificate		No		
CERTIFICATES	46					
	47					
	48					
	49					
	50					
PURCHASE	51	Manufacturer		Compressor supplier		
	52					
	53					
	54					
	55					
	56					
	57					

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Sight glass</b> 	Sheet 15 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PIT-10153	
	2	Service		Nitrogen Pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Inlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1001-511C(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	8 Bar(a)	9 Bar(a)
	11	Temperature	Norm. Max.	52°C	65°C
	12	Design	Press. Temp.	13.5 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Setpoint	LL L	6,5 Bar(a)	
	15		H HH		9,5 Bar(a)
	16				
	17				
18					
TRANSMITTER	19	Function		Field mounted Transmitter	
	20	Element Type		Diaphragm	
	21	Element Material		SS 316L	
	22	Housing Material		Aluminium, epoxy coated	
	23	Power Supply		24 VDC, 2-wire, loop powered	
	24	Process Conn.	Electric Conn.	1/2" NPTM	ISO M20 x 1,5
	25	Accuracy		± 0.1% of span	
	26	Calibrated Range	Unit	0...13,5	bar(a)
	27	Adjustable Range	Unit	0...55	bar(a)
	28	Allow. Press.	Allow. Temp.	110 bar	85°C
	29	Area Classification		Zone 2, Eex'ia	
	30	Communication Protocol		Smart , HART 5	
	31	Output Signal		4 - 20 mA	
	32	Sensor Fill Fluid		silicone	
	33				
34					
35					
36					
OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(a)
	38	Lightning And Surge Protection		N/A	
	39	Mounting facilities		Bracket	
	40	Manifold (Block & Bleed)		1/2" NPTF, 3-way B&B manifold	SS316 (Airpack Scope)
	41	Housing ground connection		Yes, external (tightened with screws)	
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
	43	Block valve (Hand ball valve)		Yes SS316 (Airpack supply)	
CERTIFICATES	44	Calibration certificate		Yes	
	45	3.1 Material certificate		Yes	
	46	ATEX		No	
	47	SIL certificate		No	
	48	IP certificate		No	
	49				
PURCHASE	50				
	51	Manufacturer		Emerson/Rosemount	
	52	Model		2051TA	
	53				
	54				
	55				
	56				
57					

**NOTES :**

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03	IT	19/11/2021	For Approval		
02	IT	27/10/2021	For Approval		
01	IT	20/09/2021	For Approval		
00	IT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PIT-10154	
	2	Service		Oil Pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Oil system	
	5	Ingress Protection		IP65	
	6	Line/equipment number		20-C-1002	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Oil	Liquid
	10	Pressure	Norm. Max.	3 Bar(g)	3,5 Bar(g)
	11	Temperature	Norm. Max.	45°C	65°C
	12	Design	Press. Temp.	5 Bar(g)	80°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Setpoint	LL L	1,5 Bar(g)	
	15		H HH		
	16				
	17				
18					
TRANSMITTER	19	Function		Field mounted Transmitter	
	20	Element Type		Diaphragm	
	21	Element Material		SS 316L	
	22	Housing Material		Aluminium, epoxy coated	
	23	Power Supply		24 VDC, 2-wire, loop powered	
	24	Process Conn.	Electric Conn.	½" NPTM	ISO M20 x 1,5
	25	Accuracy		± 0.1% of span	
	26	Calibrated Range	Unit	-1...5	bar(g)
	27	Adjustable Range	Unit	-1...10,3	bar(g)
	28	Allow. Press.	Allow. Temp.	51 bar	85°C
	29	Area Classification		Zone 2, Eex'ia	
	30	Communication Protocol		Smart , HART 5	
	31	Output Signal		4 - 20 mA	
	32	Sensor Fill Fluid		silicone	
	33				
34					
35					
36					
OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(a)
	38	Lightning And Surge Protection		N/A	
	39	Mounting facilities		Bracket	
	40	Manifold (Block & Bleed)		1/2" NPTF, 3-way B&B manifold, lock. SS316 (Airpack Scope)	
	41	Housing ground connection		Yes, external (tightened with screws)	
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
	43	Block valve (Hand ball valve)		Yes SS316 (Airpack supply)	
CERTIFICATES	44	Calibration certificate		Yes	
	45	3.1 Material certificate		Yes	
	46	ATEX		No	
	47	SIL certificate		No	
	48	IP certificate		No	
	49				
PURCHASE	50				
	51	Manufacturer		Emerson/Rosemount	
	52	Model		2051TG	
	53				
	54				
	55				
	56				
57					

**NOTES :**

05	IT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Transmitter</b>  	Sheet 17 of 38 Based on P&ID Rev.04
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03	IT	19/11/2021	For Approval		
02	IT	27/10/2021	For Approval		
01	IT	20/09/2021	For Approval		
00	IT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PIT-10158			
	2	Service		Nitrogen Pressure			
	3	P&ID No.		BU-20-VD-303-PR-WG-0013			
	4	Location		Compressor Outlet			
	5	Ingress Protection		IP65			
	6	Line/equipment number		2"-NL-1003-539D(N)			
	7						
	8						
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas	
	10	Pressure	Norm.	Max.	23,5 Bar(a)	26 Bar(a)	
	11	Temperature	Norm.	Max.	35°C	52°C	
	12	Design	Press.	Temp.	26 Bar(a)	85°C	
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C	
	14	Setpoint	LL	L	22 Bar(a) load		
	15		H	HH	23,5 Bar(a) unload		
	16						
	17						
18							
TRANSMITTER	19	Function		Field mounted Transmitter			
	20	Element Type		Diaphragm			
	21	Element Material		SS 316L			
	22	Housing Material		Aluminium, epoxy coated			
	23	Power Supply		24 VDC, 2-wire, loop powered			
	24	Process Conn.	Electric Conn.		½" NPTM	ISO M20 x 1,5	
	25	Accuracy		± 0.1% of span			
	26	Calibrated Range	Unit		1...36	bar(a)	
	27	Adjustable Range	Unit		0...55	bar(a)	
	28	Allow. Press.	Allow. Temp.		110 bar	85°C	
	29	Area Classification		Zone 2, Eex'ia			
	30	Communication Protocol		Smart , HART 5			
	31	Output Signal		4 - 20 mA			
	32	Sensor Fill Fluid		silicone			
	33						
34							
35							
36							
OPTIONS	37	Integral Meter	Scale		Yes, LCD	bar(a)	
	38	Lightning And Surge Protection		N/A			
	39	Mounting facilities		Bracket			
	40	Manifold (Block & Bleed)		1/2" NPTF,	3-way B&B manifold	SS316 (Airpack Scope)	
	41	Housing ground connection		Yes, external (tightened with screws)			
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)			
	43	Block valve (Hand ball valve)		Yes SS316 (Airpack supply)			
CERTIFICATES	44	Calibration certificate		Yes			
	45	3.1 Material certificate		Yes			
	46	ATEX		No			
	47	SIL certificate		No			
	48	IP certificate		No			
	49						
50							
PURCHASE	51	Manufacturer		Emerson/Rosemount			
	52	Model		2051TA			
	53						
	54						
	55						
	56						
	57						

**NOTES :**

05	IT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Transmitter</b>  	Sheet 18 of 38 Based on P&ID Rev.04
04	IT	05/01/2022	For Approval		
03	IT	19/11/2021	For Approval		
02	IT	27/10/2021	For Approval		
01	IT	20/09/2021	For Approval		
00	IT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PIT-10159	
	2	Service		Nitrogen Pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Outlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1003-539D(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	23,5 Bar(a)	26 Bar(a)
	11	Temperature	Norm. Max.	35°C	52°C
	12	Design	Press. Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Setpoint	LL L	21 Bar(a)	
	15		H HH		24 Bar(a)
	16				
17					
18					
TRANSMITTER	19	Function		Field mounted Transmitter	
	20	Element Type		Diaphragm	
	21	Element Material		SS 316L	
	22	Housing Material		Aluminium, epoxy coated	
	23	Power Supply		24 VDC, 2-wire, loop powered	
	24	Process Conn.	Electric Conn.	1/2" NPTM	ISO M20 x 1,5
	25	Accuracy		± 0.1% of span	
	26	Calibrated Range	Unit	1...36	bar(a)
	27	Adjustable Range	Unit	0...55	bar(a)
	28	Allow. Press.	Allow. Temp.	110 bar	85°C
	29	Area Classification		Zone 2, Eex'ia	
	30	Communication Protocol		Smart , HART 5	
	31	Output Signal		4 - 20 mA	
	32	Sensor Fill Fluid		silicone	
33					
34					
35					
36					
OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(a)
	38	Lightning And Surge Protection		N/A	
	39	Mounting facilities		Bracket	
	40	Manifold (Block & Bleed)		1/2" NPTF, 3-way B&B manifold	SS316 (Airpack Scope)
	41	Housing ground connection		Yes, external (tightened with screws)	
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
	43	Block valve (Hand ball valve)		Yes SS316 (Airpack supply)	
CERTIFICATES	44	Calibration certificate		Yes	
	45	3.1 Material certificate		Yes	
	46	ATEX		No	
	47	SIL certificate		No	
	48	IP certificate		No	
	49				
PURCHASE	50				
	51	Manufacturer		Emerson/Rosemount	
	52	Model		2051TA	
	53				
	54				
	55				
	56				
57					

**NOTES :**

05	IT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Transmitter</b>  	Sheet 19 of 38 Based on P&ID Rev.04
04	IT	05/01/2022	For Approval		
03	IT	19/11/2021	For Approval		
02	IT	27/10/2021	For Approval		
01	IT	20/09/2021	For Approval		
00	IT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PIT-10156	
	2	Service		Nitrogen Pressure	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor 1st downstream intercooler	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1003-539D(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	45°C	50°C
	12	Design	Press. Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Setpoint	LL L		
	15		H HH	16 bar(a)	
	16				
17					
18					
TRANSMITTER	19	Function		Field mounted Transmitter	
	20	Element Type		Diaphragm	
	21	Element Material		SS 316L	
	22	Housing Material		Aluminium, epoxy coated	
	23	Power Supply		24 VDC, 2-wire, loop powered	
	24	Process Conn.	Electric Conn.	1/2" NPTM	ISO M20 x 1,5
	25	Accuracy		± 0.1% of span	
	26	Calibrated Range	Unit	1...36	bar(a)
	27	Adjustable Range	Unit	0...55	bar(a)
	28	Allow. Press.	Allow. Temp.	110 bar	85°C
	29	Area Classification		Zone 2, Eex'ia	
	30	Communication Protocol		Smart , HART 5	
	31	Output Signal		4 - 20 mA	
	32	Sensor Fill Fluid		silicone	
33					
34					
35					
36					
OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(a)
	38	Lightning And Surge Protection		N/A	
	39	Mounting facilities		Bracket	
	40	Manifold (Block & Bleed)		1/2" NPTF, 3-way B&B manifold	SS316 (Airpack Scope)
	41	Housing ground connection		Yes, external (tightened with screws)	
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
	43	Block valve (Hand ball valve)		Yes SS316 (Airpack supply)	
CERTIFICATES	44	Calibration certificate		Yes	
	45	3.1 Material certificate		Yes	
	46	ATEX		No	
	47	SIL certificate		No	
	48	IP certificate		No	
	49				
PURCHASE	50				
	51	Manufacturer		Emerson/Rosemount	
	52	Model		2051TA	
	53				
	54				
	55				
	56				
57					

**NOTES :**

05	IT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Transmitter</b>  	Sheet 20 of 38 Based on P&ID Rev.04
04	IT	05/01/2022	For Approval		
03	IT	19/11/2021	For Approval		
02	IT	27/10/2021	For Approval		
01	IT	20/09/2021	For Approval		
00	IT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		PIT-10157		
	2	Service		Nitrogen Pressure		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor 1st downstream intercooler		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-NL-1003-539D(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas
	10	Pressure	Norm.	Max.	14,5 Bar(a)	26 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Setpoint	LL	L	15,5 bar(a)	
	15		H	HH		
	16					
	17					
18						
TRANSMITTER	19	Function		Field mounted Transmitter		
	20	Element Type		Diaphragm		
	21	Element Material		SS 316L		
	22	Housing Material		Aluminium, epoxy coated		
	23	Power Supply		24 VDC, 2-wire, loop powered		
	24	Process Conn.	Electric Conn.		1/2" NPTM	ISO M20 x 1,5
	25	Accuracy		± 0.1% of span		
	26	Calibrated Range	Unit		1...36	bar(a)
	27	Adjustable Range	Unit		0...55	bar(a)
	28	Allow. Press.	Allow. Temp.		110 bar	85°C
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4 - 20 mA		
	32	Sensor Fill Fluid		silicone		
	33					
34						
35						
36						
OPTIONS	37	Integral Meter	Scale		Yes, LCD	bar(a)
	38	Lightning And Surge Protection		N/A		
	39	Mounting facilities		Bracket		
	40	Manifold (Block & Bleed)		1/2" NPTF,	3-way B&B manifold	SS316 (Airpack Scope)
	41	Housing ground connection		Yes, external (tightened with screws)		
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
	43	Block valve (Hand ball valve)		Yes SS316 (Airpack supply)		
CERTIFICATES	44	Calibration certificate		Yes		
	45	3.1 Material certificate		Yes		
	46	ATEX		No		
	47	SIL certificate		No		
	48	IP certificate		No		
	49					
50						
PURCHASE	51	Manufacturer		Emerson/Rosemount		
	52	Model		2051TA		
	53					
	54					
	55					
	56					
	57					

**NOTES :**

05	IT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Pressure Transmitter</b>  	Sheet 21 of 38 Based on P&ID Rev.04
04	IT	05/01/2022	For Approval		
03	IT	19/11/2021	For Approval		
02	IT	27/10/2021	For Approval		
01	IT	20/09/2021	For Approval		
00	IT	19/11/2020	For Approval		
Rev	By	Date	Description		

GENERAL	1	Tag Number		TIT-10151		
	2	Service		Nitrogen Temperature		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Inlet		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-NL-1001-511C(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas
	10	Pressure	Norm.	Max.	8 Bar(a)	9 Bar(a)
	11	Temperature	Norm.	Max.	52°C	65°C
	12	Design	Press.	Temp.	13.5 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Setpoint	LL	L		
	15		H	HH	56 °C	
16						
TRANSMITTER	17	Function		Field mounted Transmitter		
	18	Transmitter Type		Temperature		
	19	RTD Types Supported		N/A		
	20	Thermocouples Types Supported		Yes, TC type 'K'		
	21	MV Type Supported		N/A		
	22	Cold Junction Compensation		Internal compensation		
	23	Housing Material		Aluminium, epoxy coated		
	24	Power supply		24 VDC, 2 wire, loop powered		
	25	Electric Conn.		ISO M20 x 1,5		
	26	Accuracy		± 0.1% of span		
	27	Calibrated Range	Unit	0...80		°C
	28	Burn-out Protection/Loss of Input		Overrange		
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4-20 mA		
	32	Adjustable Range		Yes		
	33					
	34					
	35					
	36					
37						
38						
39						
40						
41						
OPTIONS	42	Integral Meter	Scale	Yes, LCD	°C	
	43	Lightning And Surge Protection		N/A		
	44	Mounting facilities		Bracket		
	45	Housing ground connection		Yes, external (tightened with screws)		
	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
CERTIFICATES	47	Calibration certificate		Yes		
	48	ATEX		No		
	49	IP certificate		No		
	50	SIL certificate	Level	No		
	51					
52						
PURCHASE	53	Manufacturer		Emerson/Rosemount		
	54	Model		644H		
	55					
	56					
57						


**Notes:**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b> <b>Temperature Transmitter</b> 	Sheet 22 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
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GENERAL	1	ThermowellTag Number		TW-10151	
	2	Service		Temperature Transmitter	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		TIT-10001	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	8 Bar(a)	9 Bar(a)
	11	Temperature	Norm. Max.	55°C	65°C
	12	Design	Press. Temp.	13.5 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Velocity		2,6 m/s	
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Root diameter		16 mm	
	24	Tip diameter		12 mm	
	25	Tip thickness		6 mm	
	26	Bore diameter		6,5 mm	
	27	Nozzle projection		50 mm	
	28	U-length		160 mm (4" pipe)	
ELEMENT	30	ElementTag Number		TE-10151	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element		TC type 'K / Simplex	
	33	Accuracy Class		DIN - IEC-EN 60584 Class 1	
	34	Outside Diameter Sensor		6 mm	
	35	Connection		1/2" NPT-M x 6,0 mm OD coupling sliding on stem	
	36	Element Length		To fit in Thermowell	
	37	Type Of Cable		Armoured	
	38	Cable Length		5 m	
	39	Special construction		No	
	40	Sheat Material		SS 316	
	41	Element case		Hermetically sealed	
	OPTIONS	42			
43					
44		Make TW and TE		Rodax	
45		Model TE and TW		BFT + KWA	
CERTIFICATES	46				
	47				
	48				
	49	3.1 Material certificate		Yes	
CALCULATIONS	50	Functional test report (up-down) for elem		Yes	
	51	Calibration certificate		Yes	
	52				
	53	Wake frequency calculation		No	
54					
55					
56					
57					

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Thermowell + Element</b> 	Sheet 23 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		TIT-10152	
	2	Service		Nitrogen Temperature	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor 1st stage	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1002-539D(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Setpoint	LL L		
	15		H HH	160°C	
16					
TRANSMITTER	17	Function		Field mounted Transmitter	
	18	Transmitter Type		Temperature	
	19	RTD Types Supported		N/A	
	20	Thermocouples Types Supported		Yes, TC type 'K'	
	21	MV Type Supported		N/A	
	22	Cold Junction Compensation		Internal compensation	
	23	Housing Material		Aluminium, epoxy coated	
	24	Power supply		24 VDC, 2 wire, loop powered	
	25	Electric Conn.		ISO M20 x 1,5	
	26	Accuracy		± 0.1% of span	
	27	Calibrated Range	Unit	0...200	°C
	28	Burn-out Protection/Loss of Input		Overrange	
	29	Area Classification		Zone 2, Eex'ia	
	30	Communication Protocol		Smart , HART 5	
	31	Output Signal		4-20 mA	
	32	Adjustable Range		Yes	
	33				
	34				
	35				
	36				
37					
38					
39					
40					
41					
OPTIONS	42	Integral Meter	Scale	Yes, LCD	°C
	43	Lightning And Surge Protection		N/A	
	44	Mounting facilities		Bracket	
	45	Housing ground connection		Yes, external (tightened with screws)	
	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
CERTIFICATES	47	Calibration certificate		Yes	
	48	ATEX		No	
	49	IP certificate		No	
	50	SIL certificate	Level	No	
	51				
52					
PURCHASE	53	Manufacturer		Emerson/Rosemount	
	54	Model		644H	
	55				
	56				
57					

**Notes:**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b> <b>Temperature Transmitter</b> 	Sheet 24 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


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GENERAL	1	ThermowellTag Number		TW-10152	
	2	Service		Temperature Transmitter	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		TIT-10152	
	5				
	6	Line/equipment number			
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Velocity		1,9 m/s	
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Root diameter		16 mm	
	24	Tip diameter		12 mm	
	25	Tip thickness		6 mm	
	26	Bore diameter		6,5 mm	
	27	Nozzle projection		50 mm	
	28	U-length		160 mm (4" pipe)	
ELEMENT	30	ElementTag Number		TE-10152	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element		TC type 'K / Simplex	
	33	Accuracy Class		DIN - IEC-EN 60584 Class 1	
	34	Outside Diameter Sensor		6 mm	
	35	Connection		1/2" NPT-M x 6,0 mm OD coupling sliding on stem	
	36	Element Length		To fit in Thermowell	
	37	Type Of Cable		Armoured	
	38	Cable Length		5 m	
	39	Special construction		No	
	40	Sheat Material		SS 316	
	41	Element case		Hermetically sealed	
	OPTIONS	44	Make TW and TE		Rodax
45		Model TE and TW		BFT + KWA	
46					
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for elem		Yes	
	51	Calibration certificate		Yes	
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55				
	56				
NOTES :					

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Thermowell + Element</b>  	Sheet 25 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		TIT-10153		
	2	Service		Nitrogen Temperature		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor 1st stage		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-NL-1002-539D(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas	
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)	
	11	Temperature	Norm. Max.	160°C	170°C	
	12	Design	Press. Temp.	26 Bar(a)	200°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14	Setpoint	LL	L		
	15		H	HH		170°C
16						
TRANSMITTER	17	Function		Field mounted Transmitter		
	18	Transmitter Type		Temperature		
	19	RTD Types Supported		N/A		
	20	Thermocouples Types Supported		Yes, TC type 'K'		
	21	MV Type Supported		N/A		
	22	Cold Junction Compensation		Internal compensation		
	23	Housing Material		Aluminium, epoxy coated		
	24	Power supply		24 VDC, 2 wire, loop powered		
	25	Electric Conn.		ISO M20 x 1,5		
	26	Accuracy		± 0.1% of span		
	27	Calibrated Range	Unit	0...200		°C
	28	Burn-out Protection/Loss of Input		Overrange		
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4-20 mA		
	32	Adjustable Range		Yes		
	33					
	34					
	35					
	36					
37						
38						
39						
40						
41						
OPTIONS	42	Integral Meter	Scale	Yes, LCD	°C	
	43	Lightning And Surge Protection		N/A		
	44	Mounting facilities		Bracket		
	45	Housing ground connection		Yes, external (tightened with screws)		
	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
CERTIFICATES	47	Calibration certificate		Yes		
	48	ATEX		No		
	49	IP certificate		No		
	50	SIL certificate	Level	No		
	51					
52						
PURCHASE	53	Manufacturer		Emerson/Rosemount		
	54	Model		644H		
	55					
	56					
57						

**Notes:**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b> <b>Temperature Transmitter</b> 	Sheet 26 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


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GENERAL	1	ThermowellTag Number		TW-10153	
	2	Service		Temperature Transmitter	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		TIT-10153	
	5				
	6	Line/equipment number			
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Velocity		1,9 m/s	
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Root diameter		16 mm	
	24	Tip diameter		12 mm	
	25	Tip thickness		6 mm	
	26	Bore diameter		6,5 mm	
	27	Nozzle projection		50 mm	
	28	U-length		160 mm (4" pipe)	
ELEMENT	30	ElementTag Number		TE-10153	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element		TC type 'K / Simplex	
	33	Accuracy Class		DIN - IEC-EN 60584 Class 1	
	34	Outside Diameter Sensor		6 mm	
	35	Connection		1/2" NPT-M x 6,0 mm OD coupling sliding on stem	
	36	Element Length		To fit in Thermowell	
	37	Type Of Cable		Armoured	
	38	Cable Length		5 m	
	39	Special construction		No	
	40	Sheat Material		SS 316	
	41	Element case		Hermetically sealed	
	OPTIONS	44	Make TW and TE		Rodax
45		Model TE and TW		BFT + KWA	
46					
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for elem		Yes	
	51	Calibration certificate		Yes	
CALCULATIONS	52				
	53	Wake frequency calculation		No	
	54				
	55				
NOTES :					

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Thermowell + Element</b>  	Sheet 27 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

GENERAL	1	Tag Number		TIT-10154	
	2	Service		Nitrogen Temperature	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor 1st downstream inter-cooler	
	5	Ingress Protection		IP65	
	6	Line/equipment number		2"-NL-1002-539D(N)	
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	45°C	50°C
	12	Design	Press. Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Setpoint	LL L		
	15		H HH	50°C	
16					
TRANSMITTER	17	Function		Field mounted Transmitter	
	18	Transmitter Type		Temperature	
	19	RTD Types Supported		N/A	
	20	Thermocouples Types Supported		Yes, TC type 'K'	
	21	MV Type Supported		N/A	
	22	Cold Junction Compensation		Internal compensation	
	23	Housing Material		Aluminium, epoxy coated	
	24	Power supply		24 VDC, 2 wire, loop powered	
	25	Electric Conn.		ISO M20 x 1,5	
	26	Accuracy		± 0.1% of span	
	27	Calibrated Range	Unit	0...80	°C
	28	Burn-out Protection/Loss of Input		Overrange	
	29	Area Classification		Zone 2, Eex'ia	
	30	Communication Protocol		Smart , HART 5	
	31	Output Signal		4-20 mA	
	32	Adjustable Range		Yes	
	33				
	34				
	35				
	36				
37					
38					
39					
40					
41					
OPTIONS	42	Integral Meter	Scale	Yes, LCD	°C
	43	Lightning And Surge Protection		N/A	
	44	Mounting facilities		Bracket	
	45	Housing ground connection		Yes, external (tightened with screws)	
	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
CERTIFICATES	47	Calibration certificate		Yes	
	48	ATEX		No	
	49	IP certificate		No	
	50	SIL certificate	Level	No	
	51				
52					
PURCHASE	53	Manufacturer		Emerson/Rosemount	
	54	Model		644H	
	55				
	56				
57					


**Notes:**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b> <b>Temperature Transmitter</b> 	Sheet 28 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

Please refer to comment on page 10


GENERAL	1	ThermowellTag Number		TW-10154	
	2	Service		Temperature Transmitter	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		TIT-10154	
	5				
	6	Line/equipment number			
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	45°C	50°C
	12	Design	Press. Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Velocity		1,4 m/s	
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Root diameter		16 mm	
	24	Tip diameter		12 mm	
	25	Tip thickness		6 mm	
	26	Bore diameter		6,5 mm	
	27	Nozzle projection		50 mm	
	28	U-length		160 mm (4" pipe)	
	29				
ELEMENT	30	ElementTag Number		TE-10154	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element		TC type 'K / Simplex	
	33	Accuracy Class		DIN - IEC-EN 60584 Class 1	
	34	Outside Diameter Sensor		6 mm	
	35	Connection		1/2" NPT-M x 6,0 mm OD coupling sliding on stem	
	36	Element Length		To fit in Thermowell	
	37	Type Of Cable		Armoured	
	38	Cable Length		5 m	
	39	Special construction		No	
	40	Sheat Material		SS 316	
	41	Element case		Hermetically sealed	
42					
43					
44	Make TW and TE		Rodax		
45	Model TE and TW		BFT + KWA		
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for elem		Yes	
	51	Calibration certificate		Yes	
	52				
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55				
	56				
	57				

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Thermowell + Element</b> 	Sheet 29 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

GENERAL	1	Tag Number		TIT-10155		
	2	Service		Nitrogen Temperature		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor 2nd upstream intercooler		
	5	Ingress Protection		IP65		
	6	Line/equipment number		2"-NL-1003-539D(N)		
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas
	10	Pressure	Norm.	Max.	23,5 Bar(a)	26 Bar(a)
	11	Temperature	Norm.	Max.	70°C	83°C
	12	Design	Press.	Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Setpoint	LL	L		
	15		H	HH		100°C
16						
TRANSMITTER	17	Function		Field mounted Transmitter		
	18	Transmitter Type		Temperature		
	19	RTD Types Supported		N/A		
	20	Thermocouples Types Supported		Yes, TC type 'K'		
	21	MV Type Supported		N/A		
	22	Cold Junction Compensation		Internal compensation		
	23	Housing Material		Aluminium, epoxy coated		
	24	Power supply		24 VDC, 2 wire, loop powered		
	25	Electric Conn.		ISO M20 x 1,5		
	26	Accuracy		± 0.1% of span		
	27	Calibrated Range	Unit	0...200		°C
	28	Burn-out Protection/Loss of Input		Overrange		
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4-20 mA		
	32	Adjustable Range		Yes		
	33					
34						
35						
36						
37						
38						
39						
40						
41						
OPTIONS	42	Integral Meter	Scale	Yes, LCD	°C	
	43	Lightning And Surge Protection		N/A		
	44	Mounting facilities		Bracket		
	45	Housing ground connection		Yes, external (tightened with screws)		
	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
CERTIFICATES	47	Calibration certificate		Yes		
	48	ATEX		No		
	49	IP certificate		No		
	50	SIL certificate	Level	No		
	51					
52						
PURCHASE	53	Manufacturer		Emerson/Rosemount		
	54	Model		644H		
	55					
	56					
57						


**Notes:**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b> <b>Temperature Transmitter</b> 	Sheet 30 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

Please refer to comment on page 10


GENERAL	1	ThermowellTag Number		TW-10155	
	2	Service		Temperature Transmitter	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		TIT-10155	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	23,5 Bar(a)	26 Bar(a)
	11	Temperature	Norm. Max.	70°C	83°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Velocity		1,4 m/s	
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2" ANSI RF #300 (Ra 125-250 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Root diameter		16 mm	
	24	Tip diameter		12 mm	
	25	Tip thickness		6 mm	
	26	Bore diameter		6,5 mm	
	27	Nozzle projection		50 mm	
	28	U-length		160 mm (4" pipe)	
ELEMENT	30	ElementTag Number		TE-10155	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element		TC type 'K / Simplex	
	33	Accuracy Class		DIN - IEC-EN 60584 Class 1	
	34	Outside Diameter Sensor		6 mm	
	35	Connection		1/2" NPT-M x 6,0 mm OD coupling sliding on stem	
	36	Element Length		To fit in Thermowell	
	37	Type Of Cable		Armoured	
	38	Cable Length		5 m	
	39	Special construction		No	
	40	Sheat Material		SS 316	
	41	Element case		Hermetically sealed	
	OPTIONS	44	Make TW and TE		Rodax
45		Model TE and TW		BFT + KWA	
46					
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for elem		Yes	
	51	Calibration certificate		Yes	
CALCULATIONS	52				
	53	Wake frequency calculation		No	
	54				
	55				

**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Thermowell + Element</b> 	Sheet 31 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		FT-10151	
	2	Service		Water Flow	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor cooling water outlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		11/2"-CWR-1011-501C(N)	
PROCESS CONDITIONS	7	Fluid	State	Water	Liquid
	8	Pressure	Norm. Max.	2.5 Bar(g)	3 Bar(g)
	9	Temperature	Norm. Max.	45°C	55°C
	10	Flow		14.5 m³/hr	
	11	Density	Viscosity	990 kg/m³	0.597 Cp
	12	Design	Press. Temp.	10 Bar(g)	95°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Set Point	LL L	-	13 m3/hr
	15		H HH	-	-
	16				
TRANSMITTER	17	Function		Transmitter	
	18	Transmitter Type		Flow	
	19	Calibrated Range	Unit	0...20	m³/hr
	20	Instrument Range	Unit	0...20	m³/hr
	21	Transmitter Housing		Integral	
	22	Cable Entry		ISO M20 x 1.5	
	23	Power Supply		24 VDC, 2 wire, loop powered	
	24	Enclosure Material		Aluminium, epoxy coated	
	25	Meter To Transmitter Cable		N/A,	
	26	Internal Compensation		Yes, pressure & temperature	
	27	Accuracy		±1.0% of span	
	28	Area Classification		Zone 2, Eex'ia	
	29	Communication Protocol		Smart , HART 5	
	30	Output Signal		4-20 mA	
	31				
	32				
METER	33	Type		Variable Area	
	34	Meter Size		2"	
	35	Size & Rating		ANSI 150# RF	
	36	Body Material		SS 316 / SS 316L	
	37	Flange Material		SS 316 / SS 316L	
	38	Bluff Body Material		SS 316 / SS 316L	
	39	O-ring Material		-	
	40	Other Wetted Parts		SS 316 / SS 316L	
	41	Permanent Pressure Loss		220 mbar	
	42	Mounting/ direction		horizontal	
OPTIONS	43	Integral Meter	Scale	Yes,	m³/hr
	44	Lightning And Surge Protection		N/A	
	45	Mounting facilities		N/A	
	46	Block Valve		N/A	
	47	Housing ground connection		Yes, external (tightened with screws)	
	48	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
CERTIFICATES	49	Calibration certificate		Yes	
	50	3.1 Material certificate		Yes	
	51	ATEX		No	
	52	SIL certificate	Level	No	
	53	IP certificate		No	
	54				
PURCHASE	55	Manufacturer		Krohne	
	56	Model		H250H	
	57				

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Flow Transmitter</b>	
					
00	XX	06/03/2015	For Approval	Sheet	32 of 38
Rev	By	Date	Description	Based on P&ID Rev.XX	

GENERAL	1	Tag Number		VT-10151		
	2	Service		Vibration level		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor		
	5	Ingress Protection		IP65		
	6	Line/equipment number		20-C-1002		
PROCESS CONDITIONS	7	Fluid	State		Air	Wet Air
	8	Pressure	Norm.	Max.	Atmospheric	Atmospheric
	9	Temperature	Norm.	Max.	190°C	195°C
	10	Design	Press.	Temp.	Atmospheric	200°C
	11	Ambient Temp.	Min.	Max.	5 °C	52 °C
	12	Set Point	LL	L	-	-
13	H		HH	-	8 mm/sec	
TRANSMITTER	14					
	15	Function		Compressor vibration transmitter		
	16	Case Material		SS 316L		
	17	Calibrated Range	Unit		0...25,4	mm/sec
	18	Frequency Response		10 Hz to 1000 Hz (600 to 60,000 cpm) RMS		
	19	Area Classification		Zone 2, Eex'ia		
	20	Communication Protocol		N/A		
	21	Output Signal		4-20 mA		
	22					
	23					
	24					
	25					
	26					
	27					
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
OPTIONS	40	Integral Meter	Scale		No	N/A
	41	Lightning And Surge Protection		N/A		
	42	Mounting facilities		Plate Stud 1/4-28 to M8x1.25		
	43	Housing ground connection		Yes, external (tightened with screws)		
	44	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
45						
CERTIFICATES	46	Calibration certificate		No		
	47	3.1 Material certificate		No		
	48	ATEX		No		
	49	SIL certificate	Level		No	
	50	IP certificate		No		
	51					
52						
53						
PURCHASE	54	Manufacturer		PCB		
	55	Model		EX641B71		
	56					
	57					


**NOTES :**

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Vibration Transmitter</b>  	Sheet 33 of 38 Based on P&ID Rev.04
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03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
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Rev	By	Date	Description		

GENERAL	1	Tag Number		XY-10151, XY-10152			
	2	Service		Solenoid Valve			
	3	P&ID No.		BU-20-VD-303-PR-WG-0013			
	4	Location		Compressor inlet			
	5	Ingress Protection		IP65			
	6	Line/equipment number		Instrument airline			
	7						
	8						
	9						
PROCESS CONDITIONS	10	Fluid	State		Nitrogen	Dry Gas	
	11	Pressure	Norm.	Max.	8 Bar(a)	9 Bar(a)	
	12	Temperature	Norm.	Max.	55°C	65°C	
	13	Design	Press.	Temp.	13,5 Bar(a)	85°C	
	14	Ambient Temp.	Min.	Max.	5 °C	52 °C	
	15						
	16						
VALVE BODY	18	Type		Direct acting			
	19	Configuration		3 way 2 position			
	20	Fail position		To be used as FO (Fail open)			
	21	Ports		1/4" NPT-F			
	22	Body Material		SS316			
	23	Seat Sealing Material		Nitrile			
	24						
	25						
	26						
	27						
	28						
	29						
ELECTRICAL	33	Voltage		24 VDC			
	34	Power consumption		< 3W			
	35	Class of Coil Insulation		H			
	36	Connection		ISO M20 x 1.5			
	37	Lightning and Surge Protection		No			
	38	Cable Gland		Yes, Eex 'de' certified (Airpack scope)			
	39	Housing material		SS316			
	40	Area Classification		Zone 2, Exd			
	41						
	42						
	43						
CERTIFICATES	44	3.1 Material certificate		Yes			
	45	ATEX		Yes			
	46	SIL certificate	Level	No			
	47	IP certificate		No			
	48						
PURCHASE	50	Manufacturer		Maxseal			
	51	Model		ICO3S			
	52						
	53						
	54						

**NOTES:**

1. This solenoid valve is an universal 3/2 way, direct operated valve, also suitable for 2/2 way operation.

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  <b>Solenoid Valve</b> 	Sheet 34 of 38 Based on P&ID Rev.04
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
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01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


Comments in this page are applicable for other FO.

GENERAL	1	Tag Number		FO-10151	
	2	Service		Flow Orifice	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Line Size / Item Number		upstream 20-DC-1002-2	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dr
	10	Pressure	Norm. Max.	15,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Oper. Flow		565 Nm³/hr / 707 kg/hr	
	15				
	16				
	17				
	18				
BODY	20	Type Of Body		Flow Orifice	
	21	Connection		2", RF 150#	
	22	Sizing standard		API 618	
	23	Type of bore		concentric square	
	24	Orifice bore diameter		39 mm	
	25	Beta ratio		0,68	
	26	Plate thickness		7,5 mm	
	27	Plate material		P355QH1	
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
	37				
	38				
	39				
40					
41					
42					
43					
44					
45					
46					
CERTIFICATES	47	3.1 Material certificate		No	
	48				
	49				
	50				
	51				
	52				
PURCHASE	53	Manufacturer		Airpack	
	54	Model		FO	
	55				
	56				
	57				


Line size to be specified

As per project specification " Orifice bores shall be calculated by using the formula based on ISO 5167."


Material shall be specified with ASTM code

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  	Sheet 35 of 38 Based on P&ID Rev.05
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

GENERAL	1	Tag Number		FO-10152		
	2	Service		Flow Orifice		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Line Size / Item Number		upstream 20-DC-1002-3		
	5					
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas
	10	Pressure	Norm.	Max.	15,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Oper. Flow		565 Nm³/hr / 707 kg/hr		
	15					
	16					
	17					
BODY	20	Type Of Body		Flow Orifice		
	21	Connection		2", RF 150#		
	22	Sizing standard		API 618		
	23	Type of bore		concentric square		
	24	orifice bore diameter		42 mm		
	25	Beta ratio		0,67		
	26	Plate thickness		7,5 mm		
	27	Plate material		P355QH1		
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
	39					
40						
41						
42						
43						
44						
45						
46						
CERTIFICATES	47	3.1 Material certificate		No		
	48					
	49					
	50					
	51					
	52					
PURCHASE	53	Manufacturer		Airpack		
	54	Model		FO		
	55					
	56					
	57					

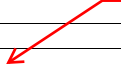
05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  	Sheet 36 of 38 Based on P&ID Rev.05
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		


GENERAL	1	Tag Number		FO-10153		
	2	Service		Flow Orifice		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Line Size / Item Number		downstream 20-DC-1002-3		
	5					
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State		Nitrogen	Dry Gas
	10	Pressure	Norm.	Max.	15,5 Bar(a)	18 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	26 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Oper. Flow		565 Nm³/hr / 707 kg/hr		
	15					
	16					
	17					
BODY	20	Type Of Body		Flow Orifice		
	21	Connection		2", RF 150#		
	22	Sizing standard		API 618		
	23	Type of bore		concentric square		
	24	orifice bore diameter		39 mm		
	25	Beta ratio		0,68		
	26	Plate thickness		7,5 mm		
	27	Plate material		P355QH1		
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
	39					
40						
41						
42						
43						
44						
45						
46						
CERTIFICATES	47	3.1 Material certificate		No		
	48					
	49					
	50					
	51					
	52					
PURCHASE	53	Manufacturer		Airpack		
	54	Model		FO		
	55					
	56					
	57					

05	TT	31/05/2022	Approved for Construction	<b>INSTRUMENT AND VALVE DATASHEET</b>  	Sheet 37 of 38 Based on P&ID Rev.05
04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		

GENERAL	1	Tag Number		FO-10154	
	2	Service		Flow Orifice	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Line Size / Item Number		upstream 20-DC-1002-4	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	23,5 Bar(a)	26 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	26 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Oper. Flow		565 Nm³/hr / 707 kg/hr	
	15				
	16				
BODY	20	Type Of Body		Flow Orifice	
	21	Sizing standard		API 618	
	22	Type of bore		concentric square	
	23	orifice bore diameter		39 mm	
	24	Beta ratio		0,68	
	25	Plate thickness		7,5 mm	
	26	Plate material		P355QH1	
	27				
	28				
	29				
	30				
	31				
	32				
	33				
CERTIFICATES	47	3.1 Material certificate		No	
	48				
	49				
	50				
	51				
PURCHASE	53	Manufacturer		Airpack	
	54	Model		FO	
	55				
	56				
	57				

Connection size shall be specified



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04	TT	05/01/2022	For Approval		
03	TT	19/11/2021	For Approval		
02	TT	27/10/2021	For Approval		
01	TT	20/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description		