








OWNER:  شرکت سست و سویی گیس ایرپاک (سهامی خاص)	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT						EPC CONTRACTOR:  Chagalesh-Enerechimi-Steam Joint Venture BUPC-MEG PLANT PROJECT				
	INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER										
MC :							 شرکت سست و سویی گیس ایرپاک (سهامی خاص)	 شرکت سست و سویی گیس ایرپاک (سهامی خاص)	Project	Area	Phase
Owner Document Number: 17811-12A	BU	20	VD	303	IN	DSH	0040	Rev.:		Page	
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- P&ID number to be modified as per related P&ID document number for all instruments.

## INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER


 شرکت سست و سویی گیس ایرپاک (سهامی خاص)	 Chagalesh-Enerechimi-Steam Joint Venture BUPC-MEG PLANT PROJECT	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT
<b>Document Review</b>		
Issue Purpose:	FA	
Result Code: AP,AN,CM,RE,NC	CM	
Next Status : IFC,IFA,IFI,AFC,AB	IFA	
Responsible Department	MECHANIC	
Commented Date	Oct.09.2021	
<b>Approval or review hereunder shall not be construed to relieve Vendor / Subcontractor of his responsibilities and liability under the contract.</b>		

01	21/09/2021	For approval	TvT	KP	LdM	
00	19/11/2020	For approval	TvT	KP	LdM	
Rev.	Date	Purpose of Issue	Prepared	Checked	Approved	AC Code
					Class: 1	Phase: P



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**Notes:**

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General comment for all PG/PDG:  
Gauges shall be provided with zero stop pin and zero adjustable mechanism shall be provided.

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GENERAL	1	Tag Number		PDG-10001	
	2	Service		Differential Pressure	
	3	P&ID No.		17811-03	
	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)	80°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		Remote mounted	
	18	Dial Size	Dial Color	150 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		Bottom	
	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				
	33				
	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		According to approved vendor list	
	55	Model		Supplier to advise	
	56				
	57				


As per project specification PDG connection shall be 1/2" NPT

NOTES :

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Diff. Pressure Gauge</b>	
					
01	TT	21/09/2021	For Approval		
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GENERAL	1	Tag Number		PG-10002	
	2	Service		Nitrogen pressure	
	3	P&ID No.		17811-03	
	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)	80°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
	17				
	18				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0 ....16	bar(a)
	21	Mounting		Remote mounted	
	22	Dial Size	Dial Color	150 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	Connection Location		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				
36					
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				
	43				
CERTIFICATES	44				
	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47	IP certificate		No	
	48				
PURCHASE	49				
	50				
	51	Manufacturer		According to aproved vendor list	
	52	Model		Supplier to advise	
	53				
	54				
	55				
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**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Pressure Gauge</b>	
					
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GENERAL	1	Tag Number		PG-10005	
	2	Service		Nitrogen pressure	
	3	P&ID No.		17811-03	
	4	Location		Compressor Upstream After-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 Bar(a)	16 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	16 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
GAUGE	17			0-25 standard range to be considered	
	18				
	19	Type		Bourdon tube	
	20	Range	Unit	1...24	bar(a)
	21	Mounting		Remote mounted	
	22	Dial Size	Dial Color	150 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	Connection Location		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					
36					
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				
	43				
CERTIFICATES	44				
	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47	IP certificate		No	
	48				
PURCHASE	49				
	50				
	51	Manufacturer		According to aproved vendor list	
	52	Model		Supplier to advise	
	53				
	54				
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**REPEATED COMMENT**  
 Gauges with maximum scale value of 25 bar g and more shall be solid front.

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Pressure Gauge</b>	
					
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GENERAL	1	Tag Number		PG-10006	
	2	Service		Water pressure	
	3	P&ID No.		17811-03	
	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.	6 Bar(g)	60°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
	17				
	18				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0 ...6	bar(a)
	21	Mounting		Remote mounted	
	22	Dial Size	Dial Color	150 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	Connection Location		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				
36					
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				
PURCHASE	49				
	50				
	51	Manufacturer		According to aproved vendor list	
	52	Model		Supplier to advise	
	53				
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**NOTES :**


				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Pressure Gauge</b>	
					
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Please be informed that pipe to be expanded to 4" for installation of TW on pipe.

GENERAL	1	Tag Number		TG-10004		
	2	Service		Water temperature		
	3	P&ID No.		17811-03		
	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.	6 Bar(g)	60°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14					
	15					
	16					
	17					
	18					
GAUGE	19	Type		Bi-metal		
	20	Range	Unit	0...60	°C	
	21	Dial Size	Dial Color	150 mm	White. Black numbers	
	22	Case material		SS 316		
	23	Stem Material		SS 316		
	24	Mounting		Remote		
	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, slip		
	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		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
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REPEATED COMMENT  
 Stem orientation shall be every angle

NOTES :


				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Temperature Gauge</b>	
					
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GENERAL	1	Tag Number		TW-10004	
	2	Service		Water temperature	
	3	P&ID No.		17811-03	
	4	Location		TG-10005	
	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.	6 Bar(g)	60°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	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	Tip Diameter		To be advised by supplier	
	24	Bore Diameter		To house a 6 mm OD element	
	25	U-length		Check with Engineering Department	
	26				
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
	37				
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45					
46					
47					
48					
CERTIFICATES	49	3.1 Material certificate		Yes	
	50				
	51				
	52				
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55			- Airpack shall submit wake frequency calculation sheets to meet ASME PTC 19.3 to purchaser for approval.	
	56				
	57				

10004; based on based on vendor PID


U length shall be specified by airpack so that with considering TW nozzle projection, TW tip stay on the middle third of pipe.

NOTES :

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				Thermowell	
					
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GENERAL	1	Tag Number		TG-10005		
	2	Service		Water temperature		
	3	P&ID No.		17811-03		
	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.	5 Bar(g)	60°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14					
	15					
	16					
	17					
	18					
GAUGE	19	Type		Bi-metal		
	20	Range	Unit	0...60	°C	
	21	Dial Size	Dial Color	150 mm	White. Black numbers	
	22	Case material		SS 316		
	23	Stem Material		SS 316		
	24	Mounting		Remote		
	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		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
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	56					
	57					

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Temperature Gauge</b>	
					
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GENERAL	1	Tag Number		TW-10005	
	2	Service		Water temperature	
	3	P&ID No.		17811-03	
	4	Location		TG-10005	
	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.	5 Bar(g)	60°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	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	Tip Diameter		To be advised by supplier	
	24	Bore Diameter		To house a 6 mm OD element	
	25	U-length		Check with Engineering Department	
	26				
	27				
	28				
	29				
	30				
	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 :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				Thermowell	
					
01	TT	21/09/2021	For Approval		
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GENERAL	1	Tag Number		LG-10001	
	2	Service		Oil level	
	3	P&ID No.		17811-03	
	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(a)	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				
OPTIONS	38				
	39				
	40				
	41				
	42				
	43				
	44				
CERTIFICATES	45	3.1 Material certificate		No	
	46				
	47				
	48				
	49				
PURCHASE	51	Manufacturer		TBA	
	52				
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**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				Sight glass	
					
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GENERAL	1	Tag Number		PIT-10003		
	2	Service		Nitrogen Pressure		
	3	P&ID No.		17811-03		
	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)	80°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.	½" 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	VTA	bar(a)	
	28	Allow. Press.	Allow. Temp.	To be informed by supplier	To be informed by supplier	
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4 - 20 mA		
	32	Sensor Fill Fluid		To be informed by supplier		
	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	51	Manufacturer		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
	55					
	56					
	57					

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Pressure Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
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GENERAL	1	Tag Number		PIT-10004		
	2	Service		Oil Pressure		
	3	P&ID No.		17811-03		
	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(a)	3,5 Bar(a)	
	11	Temperature	Norm. Max.	45°C	65°C	
	12	Design	Press. Temp.	5 Bar(a)	80°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14	Setpoint	LL	L	1,5 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.	½" NPTM	ISO M20 x 1,5	
	25	Accuracy		± 0.1% of span		
	26	Calibrated Range	Unit	0...5	bar(a)	
	27	Adjustable Range	Unit	VTA	bar(a)	
	28	Allow. Press.	Allow. Temp.	To be informed by supplier	To be informed by supplier	
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4 - 20 mA		
	32	Sensor Fill Fluid		To be informed by supplier		
	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	51	Manufacturer		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
	55					
	56					
	57					

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Pressure Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
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GENERAL	1	Tag Number		PIT-10007		
	2	Service		Nitrogen Pressure		
	3	P&ID No.		17811-03		
	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.	40°C	55°C	
	12	Design	Press. Temp.	25 Bar(a)	60°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14	Setpoint	LL	L	21 Bar(a)	22 Bar(a)
	15		H	HH	23 Bar(a) unload / stop	23,5 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.	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	VTA	bar(a)	
	28	Allow. Press.	Allow. Temp.	To be informed by supplier	To be informed by supplier	
	29	Area Classification		Zone 2, Eex'ia		
	30	Communication Protocol		Smart , HART 5		
	31	Output Signal		4 - 20 mA		
	32	Sensor Fill Fluid		To be informed by supplier		
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	51	Manufacturer		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
	55					
	56					
	57					

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Pressure Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
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GENERAL	1	Tag Number		TIT-10001		
	2	Service		Nitrogen Temperature		
	3	P&ID No.		17811-03		
	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)	80°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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

**Notes:**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Temperature Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
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GENERAL	1	ThermowellTag Number		TW-10001	
	2	Service		Temperature Transmitter	
	3	P&ID No.		17811-03	
	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)	80°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	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 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Stem Diameter		To be advised by supplier	
	24	Bore Diameter		To house a 6 mm OD element	
	25	U-length		Check with Engineering Department	
	26				
	27				
	28				
ELEMENT	30	ElementTag Number		TE-10001	
	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				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for element		Yes	
	51	Calibration certificate		Yes	
	52				
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55				
	56				
	57				

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Thermowell + Element</b>	
					
01	TT	21/09/2021	For Approval		
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Rev	By	Date	Description		
				Sheet 16 of 24	
				Based on P&ID Rev.B	

GENERAL	1	Tag Number		TIT-10002		
	2	Service		Nitrogen Temperature		
	3	P&ID No.		17811-03		
	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 Bar(a)	16 Bar(a)	
	11	Temperature	Norm. Max.	160°C	170°C	
	12	Design	Press. Temp.	16 Bar(a)	200°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14	Setpoint	LL	L		
	15		H	HH		170 °C
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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					


**Notes:**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Temperature Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
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GENERAL	1	ThermowellTag Number		TW-10002	
	2	Service		Temperature Transmitter	
	3	P&ID No.		17811-03	
	4	Location		TIT-10001	
	5				
	6	Line/equipment number			
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	14 Bar(a)	16 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	16 Bar(a)	200°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	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 AARH)	
	22	Instrument Connection		1/2" NPT-F	
	23	Stem Diameter		To be advised by supplier	
	24	Bore Diameter		To house a 6 mm OD element	
	25	U-length		Check with Engineering Department	
	26				
	27				
	28				
ELEMENT	30	ElementTag Number		TE-10002	
	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				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for element		Yes	
	51	Calibration certificate		Yes	
	52				
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55				
	56				
	57				


10002; based on based on vendor PID

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Thermowell + Element</b>	
					
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GENERAL	1	Tag Number		TIT-10003		
	2	Service		Nitrogen Temperature		
	3	P&ID No.		17811-03		
	4	Location		Compressor upstream after cooler		
	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.	135°C	140°C	
	12	Design	Press. Temp.	25 Bar(a)	170°C	
	13	Ambient Temp.	Min. Max.	5 °C	52 °C	
	14	Setpoint	LL	L		
	15		H	HH		140 °C
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					
PURCHASE	53	Manufacturer		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

Notes:

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Temperature Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
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GENERAL	1	ThermowellTag Number		TW-10003	
	2	Service		Temperature Transmitter	
	3	P&ID No.		17811-03	
	4	Location		TIT-10003	
	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.	135°C	140°C
	12	Design	Press. Temp.	25 Bar(a)	170°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14				
	15				
	16				
	17				
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	Stem Diameter		To be advised by supplier	
	24	Bore Diameter		To house a 6 mm OD element	
	25	U-length		Check with Engineering Department	
	26				
	27				
	28				
ELEMENT	30	ElementTag Number		TE-10003	
	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				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Functional test report (up-down) for element		Yes	
	51	Calibration certificate		Yes	
	52				
CALCULATIONS	53	Wake frequency calculation		No	
	54				
	55				
	56				
	57				

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Thermowell + Element</b>	
					
01	TT	21/09/2021	For Approval		
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Rev	By	Date	Description		
				Sheet 20 of 24 Based on P&ID Rev.B	


GENERAL	1	Tag Number		FIT-10001	
	2	Service		Water Flow	
	3	P&ID No.		17811-03	
	4	Location		Compressor cooling water outlet	
	5	Ingress Protection		IP65	
	6	Line/equipment number		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.	5 Bar(g)	60°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Set Point	LL L	-	1,3 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	To be advised by supplier	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		To be advised, 2" line size available	
	35	Size & Rating		ANSI 150# RF	
	36	Body Material		Carbon Steel	
	37	Flange Material		Carbon Steel	
	38	Bluff Body Material		SS 316 / SS 316L	
	39	O-ring Material		-	
	40	Other Wetted Parts		SS 316 / SS 316L	
	41	Permanent Pressure Loss		To be advised by supplier	
	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		According to aproved vendor list	
	56	Model		Supplier to advise	
	57				

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Flow Transmitter</b>	
					
00	XX	06/03/2015	For Approval	Sheet	21 of 24
Rev	By	Date	Description	Based on P&ID	Rev.XX

GENERAL	1	Tag Number		VT-10001		
	2	Service		Vibration level		
	3	P&ID No.		17811-03		
	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		Compressir vibration transmitter		
	16	Case Material		SS 316L		
	17	Calibrated Range	Unit		To be advised by supplier	mm/sec
	18	Frequency Response		10 Hz to 1000 Hz (600 to 60,000 cpm) ±1.0 dB		
	19	Area Classification		Zone 2, Eex'ia		
	20	Communication Protocol		Smart, HART 5		
	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	Intergral Meter	Scale		No	N/A
	41	Lightning And Surge Protection		N/A		
	42	Mounting facilities		Plate Stud 3/8-24 to M8x1		
	43	Housing ground connection		Yes, external (tightened with screws)		
	44	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
CERTIFICATES	45					
	46	Calibration certificate		Yes		
	47	3.1 Material certificate		No		
	48	ATEX		No		
	49	SIL certificate	Level		No	No
	50	IP certificate		No		
	51					
PURCHASE	52					
	53					
	54	Manufacturer		According to aproved vendor list		
	55	Model		Supplier to advise		
56						
57						

**NOTES :**

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Vibration Transmitter</b>	
					
01	TT	21/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
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XY-71102 is missed.


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XY-10002 is one of the XV-10002 accessories it shall be removed from this data sheet and mentioned in on-off valve data sheet

GENERAL	1	Tag Number		XY-10001, XY-10002	
	2	Service		Solenoid Valve	
	3	P&ID No.		17811-03	
	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)	80°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		To be advised by the manufacturer	
	24				
	25				
	26				
	27				
	28				
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				
CERTIFICATES	44	3.1 Material certificate		Yes	
	45	ATEX		Yes	
	46	SIL certificate	Level	No	
	47	IP certificate		No	
	48				
PURCHASE	50	Manufacturer		According to aproved vendor list	
	51	Model		Supplier to advise	
	52				
	53				
	54				

**NOTES:**

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

				<b>INSTRUMENT AND VALVE DATASHEET</b>	
				<b>Solenoid Valve</b>	
					
01	TT	21/09/2021	For Approval		
00	TT	19/11/2020	For Approval		
Rev	By	Date	Description	Sheet 23 of 24 Based on P&ID Rev.B	