







OWNER:  شرکت سست و سویی گیس ایرپک (سهامی خاص)	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
	INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER								
MC :									
Owner Document Number: 17811-12A	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Rev.:	Page
	BU	20	VD	303	IN	DSH	0040	03	1 of 34

INSTRUMENT DATA SHEET FOR NITROGEN GAS BOOSTER

Rev	Date	Purpose of Issue	Prepared	Checked	Approved	AC Code
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	
				Class: 1		Phase: P


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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	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		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				
CERTIFICATES	49	Calibration certificate		Yes	
	50	3.1 Material certificate		Yes	
	51	IP certificate		No	
	52				
	53				
PURCHASE	54	Manufacturer		According to aproved vendor list	
	55	Model		Supplier to advise	
	56				
	57				

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				INSTRUMENT AND VALVE DATASHEET	
				Diff. Pressure Gauge	
					
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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					
	17					
	18					
GAUGE	19	Type		Bourdon tube		
	20	Range	Unit	0 ...16	bar(a)	
	21	Mounting		Panel 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	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					
	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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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Gauge	
					
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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 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				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	1 ...25	bar(a)
	21	Mounting		Panel 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, 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	Connection Location		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				
	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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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Gauge	
					
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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)	25 Bar(a)
	11	Temperature	Norm.	Max.	40°C	55°C
	12	Design	Press.	Temp.	25 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14					
	15					
	16					
	17					
	18					
GAUGE	19	Type		Bourdon tube		
	20	Range	Unit	1 ...40	bar(a)	
	21	Mounting		Panel 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, 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	Connection Location		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					
	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		
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Gauge	
					
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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					
	17					
	18					
GAUGE	19	Type		Bourdon tube		
	20	Range	Unit	0 ...6	bar(a)	
	21	Mounting		Panel 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	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					
PURCHASE	49					
	50					
	51	Manufacturer		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Gauge	
					
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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		1 1/2"-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					
	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		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		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
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				INSTRUMENT AND VALVE DATASHEET	
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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)	95°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			160 mm (4" pipe)	
	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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell	
					
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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		1 1/2"-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					
	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		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		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
	55					
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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					
	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			160 mm (4" pipe)	
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
CERTIFICATES	49	3.1 Material certificate			Yes	
	50					
	51					
	52					
CALCULATIONS	53	Wake frequency calculation			No	
	54					
	55					
	56					
	57					

NOTES :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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				Based on P&ID	Rev.02


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 40°C	
	12	Design	Press.	Temp.	25 Bar(a) 85°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		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		According to aproved vendor list		
	52	Model		Supplier to advise		
	53					
	54					
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				INSTRUMENT AND VALVE DATASHEET	
03	TT	19-11-2021	For Approval		
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01	TT	20-9-2021	For Approval		
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Rev	By	Date	Description		Sheet 13 of 34 Based on P&ID Rev.02


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	40°C
	12	Design	Press.	Temp.	25 Bar(a)	85°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			160 mm (4" pipe)	
	26					
	27					
	28					
	29					
	30					
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
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40						
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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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
Rev	By	Date	Description	Sheet 14 of 34 Based on P&ID Rev.02	


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					
CERTIFICATES	44					
	45	3.1 Material certificate			No	
	46					
	47					
	48					
PURCHASE	49					
	50					
	51	Manufacturer			TBA	
	52					
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				INSTRUMENT AND VALVE DATASHEET	
				Sight glass	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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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.	55°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						
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						
	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			
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Transmitter	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
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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	VTA	bar(g)	
	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		
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Transmitter	
					
03	TT	19-11-2021	For Approval		
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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)	25 Bar(a)	
	11	Temperature	Norm.	Max.	35°C	40°C	
	12	Design	Press.	Temp.	25 Bar(a)	85°C	
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C	
	14	Setpoint	LL	L	22 Bar(a) load /start		
	15		H	HH	23 Bar(a) unload / stop		
	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			
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Transmitter	
					
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00	TT	19-11-2020	For Approval		
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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)	25 Bar(a)
	11	Temperature	Norm.	Max.	35°C	40°C
	12	Design	Press.	Temp.	25 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Setpoint	LL	L	21 Bar(a)	
	15		H	HH		23,5 Bar(a)
	16					
	17					
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					
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Transmitter	
					
03	TT	19-11-2021	For Approval		
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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 Bar(a)	16 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	20 Bar(a)	85°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Setpoint	LL	L		
	15		H	HH	15 bar(a)	
	16					
	17					
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					
	OPTIONS	37	Integral Meter	Scale		Yes, LCD
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		
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Transmitter	
					
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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 Bar(a)	16 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	20 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					
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		
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				INSTRUMENT AND VALVE DATASHEET	
				Pressure Transmitter	
					
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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.	55°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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

Notes:

				INSTRUMENT AND VALVE DATASHEET	
				Temperature Transmitter	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
Rev	By	Date	Description	Sheet 22 of 34 Based on P&ID Rev.02	


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				
	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		160 mm (4" pipe)	
	26				
	27				
	28				
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	
	42				
	43				
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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell + Element	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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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 Bar(a)	16 Bar(a)
	11	Temperature	Norm.	Max.	160°C	170°C
	12	Design	Press.	Temp.	20 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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

Notes:

				INSTRUMENT AND VALVE DATASHEET	
				Temperature Transmitter	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
Rev	By	Date	Description	Sheet 24 of 34 Based on P&ID Rev.02	


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 Bar(a)	16 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	20 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		160 mm (4" pipe)	
	26				
	27				
	28				
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	
	42				
	43				
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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell + Element	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
Rev	By	Date	Description		Sheet 25 of 34 Based on P&ID Rev.02


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 Bar(a)	16 Bar(a)
	11	Temperature	Norm.	Max.	160°C	170°C
	12	Design	Press.	Temp.	20 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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

Notes:

				INSTRUMENT AND VALVE DATASHEET	
				Temperature Transmitter	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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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 Bar(a)	16 Bar(a)
	11	Temperature	Norm. Max.	160°C	170°C
	12	Design	Press. Temp.	20 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		160 mm (4" pipe)	
	26				
	27				
	28				
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	
	42				
	43				
	44				
45					
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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell + Element	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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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 Bar(a)	16 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	20 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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

Notes:

				INSTRUMENT AND VALVE DATASHEET	
				Temperature Transmitter	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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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 Bar(a)	16 Bar(a)
	11	Temperature	Norm.	Max.	45°C	50°C
	12	Design	Press.	Temp.	20 Bar(a)	85°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			160 mm (4" pipe)	
	26					
	27					
	28					
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					
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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell + Element	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
Rev	By	Date	Description	Sheet 29 of 34 Based on P&ID Rev.02	


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)	25 Bar(a)
	11	Temperature	Norm.	Max.	160°C	170°C
	12	Design	Press.	Temp.	25 Bar(a)	200°C
	13	Ambient Temp.	Min.	Max.	5 °C	52 °C
	14	Setpoint	LL	L		
	15		H	HH		140°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		According to aproved vendor list		
	54	Model		Supplier to advise		
	55					
	56					
	57					

Notes:

				INSTRUMENT AND VALVE DATASHEET	
				Temperature Transmitter	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
00	TT	19-11-2020	For Approval		
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GENERAL	1	ThermowellTag Number			TW-10155	
	2	Service			Temperature Transmitter	
	3	P&ID No.			BU-20-VD-303-PR-WG-0013	
	4	Location			TIT-10154	
	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.	160°C	170°C
	12	Design	Press.	Temp.	25 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			160 mm (4" pipe)	
	26					
	27					
	28					
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	
	42					
	43					
	44					
45						
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 :

				INSTRUMENT AND VALVE DATASHEET	
				Thermowell + Element	
					
03	TT	19-11-2021	For Approval		
02	TT	27-10-2021	For Approval		
01	TT	20-9-2021	For Approval		
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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		1 1/2"-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	-	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, 1 1/2" 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 :

				INSTRUMENT AND VALVE DATASHEET	
				Flow Transmitter	
					
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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		Compressir vibration transmitter		
	16	Case Material		SS 316L		
	17	Calibrated Range	Unit		To be adviced 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	Integral 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)		
	45					
CERTIFICATES	46	Calibration certificate		Yes		
	47	3.1 Material certificate		No		
	48	ATEX		No		
	49	SIL certificate	Level		No	
	50	IP certificate		No		
	51					
	52					
	53					
PURCHASE	54	Manufacturer		According to aproved vendor list		
	55	Model		Supplier to advise		
	56					
	57					


NOTES :

				INSTRUMENT AND VALVE DATASHEET	
				Vibration Transmitter	
					
03	TT	19-11-2021	For Approval		
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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		To be advised by the manufacturer			
	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		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.

				INSTRUMENT AND VALVE DATASHEET	
				Solenoid Valve	
					
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