



LIDCO, Pars SEE Zone, Assaluyeh,
Integrated Methanol and Ammonia
Plant 3000 MTPD MeOH / 900 MTPD NH3 PROJECT



Instrument Data Sheets

Document No. 17735-12

Project No.	Vendor Doc.	P.O. No.	Department	Document Type	Serial No	Revision	Page
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**Airpack B.V. - Air Compressor –
Integrated Methanol and Ammonia Plant
17735-COM Instrument Data Sheets (K020)**

General Comment:

- 1- Any changes in next revision to be marked with revision mark.
- 2- If any comments is not applicable please send reply sheet.
- 3- Compatibility with project requirement is vendor responsibility and scope, and next comments are just for hint.
- 4- Compatibility with other vendor documents including PID, Hook-up, data sheet, and purchased instrument is vendor responsibility and scope.
- 5- Tag plate supply is scope of vendor and should added to data sheet as one of items.
- 6- all Tag name in all document should be same format. no needs - after prefix 320. example correct format is 320PT-8201, 320TG-8204,
- 7- For all instrument and accessories (Manifold), catalogue (including order code) should be submitted .

code-2
M. Vakili

01	09-11-2023	Issued for Approval	T.T.	S.K.	J.J.
REV.	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

Instrument Data Sheets

Document No. 17735-12

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All - should be deleted in all of Tags.

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Notes:

GENERAL	1	Tag Number		320-PG-8201	
	2	Service		Air pressure	
	3	P&ID No.		N278-VD-6019-PR-PID-0002	
	4	Location		Package inlet	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	9,5	
	11	Temperature	Norm. Max.	46	
	12	Design	Press. Temp.	12,5 bar(g)	63 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
GAUGE	17				
	18				
	19	Type	Bourdon tube		
	20	Range	Unit	0...16	bar(g)
	21	Mounting	Panel mounted, with front flange		
	22	Dial Size	Dial Color	100 mm	White surface Black numbers
	23	Case Material	SS316L		
	24	Ring Construction	Ring Material	Bayonet	SS316L
	25	Blow-Out Protection	Yes @ Back		
	26	Lens Material	Shatterproof laminated safety glass		
	27	Pressure Element Material	SS316L		
	28	Socket Material	SS316L		
	29	Connection Size	1/2" NPT-M		
	30	Connection Location	Back-bottom		
	31	Movement Material	SS316L		
	32	Nominal Accuracy	±1,0 % of span		
	33	Gauge Filling	Glycerin		
34	Over Range Protection	1,3 x full scale value			
35					
OPTIONS	36				
	37				
	38	Snubber	Material	N/A	N/A
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)	Yes (2-way manifolds)		
CERTIFICATES	41	Block valve (Hand ball valve)	Yes (3/4")		
	42				
	43				
	44				
	45	Calibration certificate			Yes
PURCHASE	46	3.1 Material certificate			Yes
	47				
	48				
	49				
	50				
PURCHASE	51	Manufacturer	According to approved vendor list		
	52	Model	VTA		
	53				
	54				
	55				
	56				
	57				

NOTES :
 The manifold material should be 316 Stainless Steel 2-valve complete of oval flanges with mounting bolts, gasket, etc



22.1 bar (g)
60 °C
PG-8202 is installed at the
downstream of intercooler

GENERAL	1	Tag Number		320-PG-8202	
	2	Service		Air pressure	
	3	P&ID No.		17735-03	
	4	Location		Suction 2nd stage	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	23.3 bar(g)	157 °C
	11	Temperature	Norm. Max.	157 °C	
	12	Design	Press. Temp.	29 bar(g)	175 °C
	13	Ambient Temp	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
	17				
	18				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0...40	bar(g)
	21	Mounting		Panel mounted, with front flange	
	22	Dial Size	Dial Color	100 mm	White, Black numbers
	23	Case Material		SS316L	
	24	Ring Construction	Ring Material	Bayonet	SS316L
	25	Blow-Out Protection		Yes @ Back	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS316L	
	28	Socket Material		SS316L	
	29	Connection Size		1/2" NPT-M	
	30	Connection Location		Back-bottom	
	31	Movement Material		SS316L	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Silicone	
	34	Over Range Protection		1,3 x full scale value	
	35				
	36				
37					
OPTIONS	38	Snubber	Material	N/A	N/A
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		Yes (2-way manifolds)	
	41	Block valve (Hand ball valve)		Yes (3/4")	
	42				
CERTIFICATES	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47				
	48				
	49				
PURCHASE	51	Manufacturer		According to approved vendor list	
	52	Model		VTA	
	53				
	54				
	55				
	56				
	57				
	58				

30.5 bar (g)
based on P&ID

157 °C

NOTES :

				INSTRUMENT DATASHEET Pressure Gauge 		 Lavan Industry Development Company	
01	TT	9-11-2023	For Approval			Sheet 3 of 24	
Rev	By	Date	Description			Based on P&ID Rev.01	

GENERAL	1	Tag Number		320-PG-8203		
	2	Service		Gas pressure		
	3	P&ID No.		17735-03		
	4	Location		Outlet package		
	5	Ingress Protection		IP65		
	6	plz recheck and modify				
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor	
	10	Pressure	Norm. Max.	30 bar(g)		
	11	Temperature	Norm. Max.	116 °C	52 °C	
	12	Design	Press. Temp.	39 bar(g)	135 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14					
	15					
	16					
	17					
GAUGE	19	Type		Bourdon tube		
	20	Range	Unit	0...60	bar(g)	
	21	Mounting		Panel mounted, with front flange		
	22	Dial Size	Dial Color	100 mm	White. Black numbers	
	23	Case Material		SS316L		
	24	Ring Construction	Ring Material	Bayonet	SS316L	
	25	Blow-Out Protection		Yes @ Back		
	26	Lens Material		Shatterproof laminated safety glass		
	27	Pressure Element Material		SS316L		
	28	Socket Material		SS316L		
	29	Connection Size		1/2" NPT-M		
	30	Connection Location		Back-bottom		
	31	Movement Material		SS316L		
	32	Nominal Accuracy		±1,0 % of span		
	33	Gauge Filling		Silicone		
	34	Over Range Protection		1,3 x full scale value		
	OPTIONS	38	Snubber	Material	N/A	N/A
		39	Gauge Savers	Material	N/A	N/A
40		Manifold (Block & Bleed)		Yes (2-way manifolds)		
41		Block valve (Hand ball valve)		Yes (3/4")		
42						
43						
CERTIFICATES	45	Calibration certificate		Yes		
	46	3.1 Material certificate		Yes		
	47					
	48					
	49					
PURCHASE	51	Manufacturer		According to approved vendor list		
	52	Model		VTA		
	53					
	54					
	55					
	56					
	57					

NOTES :

GENERAL	1	Tag Number		320-PG-8204	
	2	Service		Liquid pressure	
	3	P&ID No.		17735-03	
	4	Location		Cooling water inlet	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Water	Vapor
	10	Pressure	Norm. Max.	4,5 bar(g)	75
	11	Temperature	Norm. Max.	86 °C	
	12	Design	Press. Temp.	6 bar(g)	55 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
	17				
	18				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0...10	bar(g)
	21	Mounting		Panel mounted, with front flange	
	22	Dial Size	Dial Color	100 mm	White, Black numbers
	23	Case Material		SS316L	
	24	Ring Construction	Ring Material	Bayonet	SS316L
	25	Blow-Out Protection		Yes @ Back	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS316L	
	28	Socket Material		SS316L	
	29	Connection Size		1/2" NPT-M	
	30	Connection Location		Back-bottom	
	31	Movement Material		SS316L	
	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	N/A	N/A
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		Yes (2-way manifolds)	
	41	Block valve (Hand ball valve)		Yes (3/4")	
	42				
	43				
CERTIFICATES	44				
	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47				
	48				
PURCHASE	49				
	50				
	51	Manufacturer		According to approved vendor list	
	52	Model		VTA	
	53				
	54				
	55				
56					
57					

NOTES :

GENERAL	1	Tag Number		320-PT-8201	
	2	Service		Air pressure	
	3	P&ID No.		N278-VD-6019-PR-PID-0002	
	4	Location		Package inlet	
	5	Ingress Protection		IP65	
	6	Line Number should be added			
	7	Area Classification should be added			
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	9,5	
	11	Temperature	Norm. Max.	46	
	12	Design	Press. Temp.	12,5 bar(g)	65 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14	Setpoint	LL L	6,5 bar(g)	
	15		H HH	12 bar(g)	
	16				
17					
TRANSMITTER	18	to be filled based on selected model			
	19			Field mounted	
	20	Element Type		Bourdon tube	
	21	Element Material		SS316L	
	22	Housing Material		SS316L	
	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...16	bar(g)
	27	Adjustable Range	Unit		bar(g)
	28	Allow. Press.	Allow. Temp.		
	29	Enclosure Class		safe area	
30	Communication Protocol		Smart , HART		
31	Output Signal		4 - 20 mA		
32	Sensor Fill Fluid		Glycerine		
33	Mounting				
34					
35					
36					
OPTIONS	37	Integ	Yes, LCD	bar(g)	
	38	Light	N/A		
	39	Mounting facilities		Bracket/ Suitable for 2" pipe, 316SS	
	40	Manifold (Block & Bleed)		Yes (2-way manifolds)	
	41	Housing ground connection		Yes, external (tightened with screws)	
	42	Cable Gland		Yes, Eex d certified (Airpack scope)	
CERTIFICATES	43	Block valve (Hand ball valve)		No	
	44	Calibration certificate		Yes	
	45	3.1 Material certificate		Yes	
	46				
PURCHASE	51	Manufacturer		According to approved vendor list	
	52	Model		VTA	
	53				
	54				
	55				
	56				
	57				

NOTES :

The manifold material should be 316 Stainless Steel 2-valve complete of oval flanges with mounting bolts, gasket, etc

GENERAL	1	Tag Number		320-PT-8202		
	2	Service		Air pressure		
	3	P&ID No.		17735-03		
	4	Location		2nd stage suction		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor	
	10	Pressure	Norm. Max.	23,3 bar(g)		
	11	Temperature	Norm. Max.	157 °C		
	12	Design	Press. Temp.	30,5 bar(g)	175 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14	Setpoint	LL	L	15,5 bar(g)	19 bar(g)
	15		H	HH		
	16					
17						
TRANSMITTER	19	Function		Field mounted		
	20	Element Type		Bourdon tube		
	21	Element Material		SS316L		
	22	Housing Material		SS316L		
	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...60	bar(g)	
	27	Adjustable Range	Unit		bar(g)	
	28	Allow. Press.	Allow. Temp.			
	29	Area Classification		safe area		
	30	Communication Protocol		Smart , HART		
	31	Output Signal		4 - 20 mA		
	32	Sensor Fill Fluid		Silicone oil		
33						
34						
35						
36						
OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(g)	
	38	Lightning And Surge Protection		N/A		
	39	Mounting facilities		Bracket		
	40	Manifold (Block & Bleed)		Yes (2-way manifolds)		
	41	Housing ground connection		Yes, external (tightened with screws)		
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
	43	Block valve (Hand ball valve)		No		
CERTIFICATES	44	Calibration certificate		Yes		
	45	3.1 Material certificate		Yes		
	46					
	47					
	48					
PURCHASE	51	Manufacturer		According to approved vendor list		
	52	Model		VTA		
	53					
	54					
	55					
	56					
57						

NOTES :

GENERAL	1	Tag Number		320-PT-8203	
	2	Service		Air pressure	
	3	P&ID No.		17735-03	
	4	Location		Package outlet	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	30 bar(g)	
	11	Temperature	Norm. Max.		60 °C
	12	Design	Press. Temp.	39 bar(g)	70 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14	Setpoint	LL	L	25 bar(g)
	15		H	HH	39 bar(g)
	16				
	17				
18					
TRANSMITTER	19	Function		Field mounted	
	20	Element Type		Bourdon tube	
	21	Element Material		SS316L	
	22	Housing Material		SS316L	
	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...60	bar(g)
	27	Adjustable Range	Unit		bar(g)
	28	Allow. Press.	Allow. Temp.		
	29	Area Classification		safe area	
	30	Communication Protocol		Smart , HART	
	31	Output Signal		4 - 20 mA	
	32	Sensor Fill Fluid		Silicone oil	
	33				
34					
35					
36					
OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(g)
	38	Lightning And Surge Protection		N/A	
	39	Mounting facilities		Bracket	
	40	Manifold (Block & Bleed)		Yes (2-way manifolds)	
	41	Housing ground connection		Yes, external (tightened with screws)	
	42	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
	43	Block valve (Hand ball valve)		No	
CERTIFICATES	44	Calibration certificate		Yes	
	45	3.1 Material certificate		Yes	
	46				
	47				
	48				
PURCHASE	51	Manufacturer		According to approved vendor list	
	52	Model		VTA	
	53				
	54				
	55				
	56				
57					

116

34 bar(g)

NOTES :

GENERAL	1	Tag Number		320-PT-8204		
	2	Service		Liquid Pressure		
	3	P&ID No.		17735-03		
	4	Location		Oil system		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Oil	liquid	
	10	Pressure	Norm. Max.	1,7	2,0 bar(g)	
	11	Temperature	Norm. Max.		70 °C	
	12	Design	Press. Temp.	2,5	85 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14	Setpoint	LL	L	1	
	15		H	HH		
	16					
	17					
TRANSMITTER	19	Function		Field mounted		
	20	Element Type		Bourdon tube		
	21	Element Material		SS316L		
	22	Housing Material		SS316L		
	23	Power Supply		24 VDC, 2-wire, loop powered		
	24	Process Conn.	Electric	½" NPTM	ISO M20 x 1,5	
	25	Accuracy		± 0.1% of span		
	26	Calibrated Range	Unit	-1...	bar(g)	
	27	Adjustable Range	Unit		bar(g)	
	28	Allow. Press.	Allow. Temp.			
	29	Area Classification		safe area		
	30	Communication Protocol		Smart , HART		
	31	Output Signal		4 - 20 mA		
	32	Sensor Fill Fluid		Glycerin		
	33					
	OPTIONS	37	Integral Meter	Scale	Yes, LCD	bar(g)
38		Lightning And Surge Protection		N/A		
39		Mounting facilities		Bracket		
40		Manifold (Block & Bleed)		Yes (2-way manifolds lockable)		
41		Housing ground connection		Yes, external (tightened with screws)		
42		Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
43		Block valve (Hand ball valve)		No		
CERTIFICATES	44	Calibration certificate		Yes		
	45	3.1 Material certificate		Yes		
	46					
	47					
	48					
PURCHASE	51	Manufacturer		According to approved vendor list		
	52	Model		VTA		
	53					
	54					
	55					

should be mentioned. -1...?? clarify





NOTES :

- As per project specification, thermowells shall be installed at least on 6" line size.

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GENERAL	1	Tag Number		320-TT-8201		
	2	Service		Air temperature		
	3	P&ID No.		N278-VD-6019-PR-PID-0002		
	4	Location		1st stage suction		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	Line Number should be added		Vapor	
	10	Pressure	Area Classification should be added			
	11	Temperature	Norm.	Max.	46	
	12	Design	Press.	Temp.	12,5 bar(g)	65 °C
	13	Ambient Temp.	Min.	Max.	0 °C	49 °C
	14	Setpoint	LL	L		40 °C
	15		H	HH	50 °C	
	16			Plz check element type again		
TRANSMITTER	17	Function		Field mounted		
	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				
	23	Housing Material		SS 316		
	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...100		°C
	28	Burn-out Protection/Loss of Input				
	29	Enclosure Class		Safe area		
	30	Communication Protocol		Smart , HART		
	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					
	49					
	50					
	51					
PURCHASE	52					
	53	Manufacturer		According to approved vendor list		
	54	Model		VTA		
	55					
	56					
57						

Notes:

GENERAL	1	Thermowell Tag Number		320TW-8201	
	2	Service		Air temperature	
	3	P&ID No.		17735-03	
	4	Location		Air inlet	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor 75°C
	10	Pressure	Norm. Max.	9,5	
	11	Temperature	Norm. Max.	46	
	12	Design	Press. Temp.	12,5 bar(g)	65 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2 flange	
	22	Instrument Connection		3/4" NPT	
	23	Stem Diameter			
	24	Bore Diameter			
	25	U-length			
	26	<div style="border: 1px solid red; padding: 2px;"> - Flange Type/rating/Facing/size/face finish should be mentioned. - Well Dimensions(Bore Diameter/Tip thickness/Immersion length/insertion length/... should be mentioned. </div>			
28					
29					
ELEMENT	30	Element Tag Number		320TE-8201	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element			
	33	Type Of Element			
	34	Accuracy Class			
	35	Outside Diameter Sensor			
	36	Connection			
	37	Element Length		To fit in Thermowell	
	38	Type Of Cable		Armoured	
	39	Cable Length		5	
	40	Sheat Material		SS 316	
	41				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Calibration certificate		Yes	
	51				
CALCULATIONS	52	<div style="border: 1px solid red; padding: 2px;"> Should be finalized and specified (For all PT) and relevant catalogs and order code should be submitted. </div>			
	53				
	54				
	55	<div style="border: 1px solid red; padding: 2px;"> Thermowell wake Frequency calculation to be provided by vendor prior thermowell manufacture. Vendor ensures that the thermowell design is robust enough to cope with varying stresses and strains produced by the process media. </div>			
	56				
NOTES :					
INSTRUMENT DATASHEET Thermowell + Element 					
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GENERAL	1	Tag Number		320-TT-8202		
	2	Service		Air temperature		
	3	P&ID No.		17735-03		
	4	Location		1st stage discharge		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor	
	10	Pressure	Norm. Max.	23,3 bar(g)		
	11	Temperature	Norm. Max.	157 °C		
	12	Design	Press. Temp.	30,5 bar(g)	175 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14	Setpoint	LL	L		145 °C
	15		H	HH	165 °C	
TRANSMITTER	16					
	17	Function		Field mounted		
	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				
	23	Housing Material		SS 316		
	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...250		°C
	28	Burn-out Protection/Loss of Input				
	29	Area Classification		Ex II 2G IIA/B T3/Zone 2, Eex'ia"		
	30	Communication Protocol		Smart , HART		
	31	Output Signal		4-20 mA		
	32	Adjustable Range		Yes		
	33					
	34					
	35					
36						
37						
38						
39						
40						
OPTIONS	41					
	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)		
CERTIFICATES	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
	47	Calibration certificate		Yes		
	48					
	49					
	50					
PURCHASE	51					
	52					
	53	Manufacturer		According to approved vendor list		
	54	Model		VTA		
	55					
56						
57						

Notes:

GENERAL	1	Thermowell Tag Number		320-TW-8202	
	2	Service		Air temperature	
	3	P&ID No.		17735-03	
	4	Location		1st stage discharge	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	23,3 bar(g)	
	11	Temperature	Norm. Max.	157 °C	
	12	Design	Press. Temp.	30,5 bar(g)	175 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2 flange	
	22	Instrument Connection		3/4" NPT	
	23	Stem Diameter			
	24	Bore Diameter			
	25	U-length			
	26				
	27				
	28				
	29				
ELEMENT	30	Element Tag Number		320-TT-8202	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element			
	33	Type Of Element			
	34	Accuracy Class			
	35	Outside Diameter Sensor			
	36	Connection			
	37	Element Length		To fit in Thermowell	
	38	Type Of Cable		Armoured	
	39	Cable Length		5 m	
	40	Sheat Material		SS 316	
	41				
	42				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Calibration certificate		Yes	
	51				
	52				
CALCULATIONS	53				
	54				
	55				
	56				
	57				

NOTES :

GENERAL	1	Tag Number		320-TT-8203	
	2	Service		Air temperature	
	3	P&ID No.		17735-00	
	4	Location		2nd sta 22.1 bar(g)	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	23.8 bar(g)	
	11	Temperature	Norm. Max.	157 °C	
	12	Design	Press. Temp.	29 bar(g)	75 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14	Setpoint	LL L		
	15		H HH	65	70
TRANSMITTER	16				
	17	Function		Field mounted	
	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			
	23	Housing Material		SS 316	
	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...250	°C
	28	Burn-out Protection/Loss of Input			
	29	Area Classification		Ex II 2G IIA/B T3/Zone 2, Eex'ia"	
	30	Communication Protocol		Smart , HART	
	31	Output Signal		4-20 mA	
	32	Adjustable Range		Yes	
	33				
	34				
	35				
36					
37					
38					
39					
40					
OPTIONS	41				
	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)	
CERTIFICATES	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)	
	47	Calibration certificate		Yes	
	48				
	49				
	50				
PURCHASE	51				
	52				
	53	Manufacturer		According to approved vendor list	
	54	Model		VTA	
	55				
56					
57					

Notes:

GENERAL	1	Thermowell Tag Number		320-TW-8203	
	2	Service		Air temperature	
	3	P&ID No.		17735-03	
	4	Location		2nd stage suction	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	23,3 bar(g)	
	11	Temperature	Norm. Max.	157 °C	
	12	Design	Press. Temp.	29 bar(g)	75 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2 flange	
	22	Instrument Connection		3/4" NPT	
	23	Stem Diameter			
	24	Bore Diameter			
	25	U-length			
	26				
	27				
	28				
ELEMENT	30	Element Tag Number		320-TT-8203	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element			
	33	Type Of Element			
	34	Accuracy Class			
	35	Outside Diameter Sensor			
	36	Connection			
	37	Element Length		To fit in Thermowell	
	38	Type Of Cable		Armoured	
	39	Cable Length		5m	
	40	Sheat Material		SS 316	
	41				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate		Yes	
	50	Calibration certificate		Yes	
	51				
	52				
CALCULATIONS	53				
	54				
	55				
	56				
	57				

To be revised according to 320-TT-8203

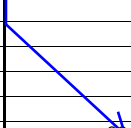
INSTRUMENT DATASHEET
 Thermowell + Element



01	TT	9-11-2023	For Approval
Rev	By	Date	Description

GENERAL	1	Tag Number		320-TT-8204	
	2	Service		Air temperature	
	3	P&ID No.		17735-03	
	4	Location		Second stage discharge	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	22,1 bar(g)	
	11	Temperature	Norm. Max.	116 °C	
	12	Design	Press. Temp.	39 bar(g)	135 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14	Setpoint	LL L		105 °C
	15		H HH	125 °C	
TRANSMITTER	17	Function		Field mounted	
	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			
	23	Housing Material		SS 316	
	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...160	°C
	28	Burn-out Protection/Loss of Input			
	29	Area Classification		Ex II 2G IIA/B T3/Zone 2, Eex'ia"	
	30	Communication Protocol		Smart , HART	
	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				
	49				
	50				
	51				
PURCHASE	53	Manufacturer		According to approved vendor list	
	54	Model		VTA	
	55				
	56				
	57				

30 bar(g)



Notes:



GENERAL	1	ThermowellTag Number		320-TW-8204	
	2	Service		Air temperature	
	3	P&ID No.		17735-03	
	4	Location		Second stage discharge	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	30 bar(g)	
	11	Temperature	Norm. Max.	116 °C	
	12	Design	Press. Temp.	39 bar(g)	135 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2 flange	
	22	Instrument Connection		3/4" NPT	
	23	Stem Diameter			
	24	Bore Diameter			
	25	U-length			
	26				
	27				
	28				
ELEMENT	30	ElementTag Number		320-TT-8204	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element			
	33	Type Of Element			
	34	Accuracy Class			
	35	Outside Diameter Sensor			
	36	Connection			
	37	Element Length		To fit in Thermowell	
	38	Type Of Cable		Armoured	
	39	Cable Length		5m	
	40	Sheat Material		SS 316	
	41				
	42				
OPTIONS	46				
	47				
	48				
CERTIFICATES	49	3.1 Material certificate			
	50	Calibration certificate			
	51				
CALCULATIONS	52				
	53				
	54				
	55				
	56				
57					

NOTES :



GENERAL	1	Tag Number		320-TT-8205		
	2	Service		Air temperature		
	3	P&ID No.		17735-03		
	4	Location		Package outlet		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor	
	10	Pressure	Norm. Max.	30 bar(g)		
	11	Temperature	Norm. Max.	60°C		
	12	Design	Press. Temp.	39 bar(g)	75 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14	Setpoint	LL	L		
	15		H	HH	65	70
TRANSMITTER	16					
	17	Function		Field mounted		
	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				
	23	Housing Material		SS 316		
	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...160	°C	
	28	Burn-out Protection/Loss of Input				
	29	Area Classification		Ex II 2G IIA/B T3/Zone 2, Eex'ia"		
	30	Communication Protocol		Smart , HART		
	31	Output Signal		4-20 mA		
	32	Adjustable Range		Yes		
	33					
	34					
	35					
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)		
CERTIFICATES	46	Cable Gland		Yes, Eex 'd' certified (Airpack scope)		
	47	Calibration certificate		Yes		
	48					
	49					
	50					
PURCHASE	53	Manufacturer		According to approved vendor list		
	54	Model		VTA		
	55					
	56					
57						

116 °C

Notes:

GENERAL	1	Thermowell Tag Number		320-TW-8205	
	2	Service		Air temperature	
	3	P&ID No.		03	
	4	Location		Packaging outlet	
	5				
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid
	10	Pressure	Norm. Max.	30 bar(g)	
	11	Temperature	Norm. Max.	60 °C	
	12	Design	Press. Temp.	39 bar(g)	75 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
THERMOWELL	19	Material		SS 316	
	20	Construction		Solid bar stock	
	21	Process Connection		1 1/2 flange	
	22	Instrument Connection		3/4" NPT	
	23	Stem Diameter			
	24	Bore Diameter			
	25	U-length			
	26				
	27				
	28				
ELEMENT	30	Element Tag Number		320-TT-8205	
	31	Construction		Sensor with lead wire, transition and relief spring	
	32	Type Of Element			
	33	Type Of Element			
	34	Accuracy Class			
	35	Outside Diameter Sensor			
	36	Connection			
	37	Element Length		To fit in Thermowell	
	38	Type Of Cable		Armoured	
	39	Cable Length		5m	
	40	Sheat Material		SS 316	
	OPTIONS	46			
47					
48					
CERTIFICATES	49	3.1 Material certificate			
	50	Calibration certificate			
	51				
	52				
CALCULATIONS	53				
	54				
	55				
	56				
	57				

NOTES :

				INSTRUMENT DATASHEET Thermowell + Element		شرکت توسعه صنایع لایان Lavan Industry Development Company	
							
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- As per project specification, thermowells shall be installed at least on 6" line size.

Some items in format data sheet TG is not related to TG, plz check and revised TG data sheet again.



Should be modified in all pages

GENERAL	1	Tag Number		320TG-8201		
	2	Service		Air temperature		
	3	P&ID No.		N278-VD-6019-PR-PID-0002		
	4	Location		1st stage suction		
	5	Ingress Protection		IP65		
PROCESS CONDITIONS	9	Fluid	Air		Vapor	
	10	Pressure	9,5			
	11	Temperature	Norm.	Max.	46	
	12	Design	Press.	Temp.	12,5 bar(g)	65 °C
	13	Ambient Temp.	Min.	Max.	0 °C	49 °C
	14					
GAUGE	19	Type	Bourdon tube			
	20	Range	Unit	0...100	°C	
	21	Mounting	Locally mounted			
	22	Dial Size	Dial Color	100 mm	White, Black numbers	
	23	Case Material	SS316L			
	24	Ring Construction	Ring Material	Bayonet	SS316L	
	25	Blow Out Protection	Yes @ Back			
	26	Lens Material	Shatterproof laminated safety glass			
	27	Pressure Element Material	SS316L			
	28	Socket Material	SS316L			
	29	Connection Size	3/4" NPT-M			
	30	Connection	Back-bottom			
	31	Movement material	SS316L			
	32	Nominal Accuracy	±1,0 % of span			
	33	Gauge Filling	Glycerin			
34	Over Range Protection	1,3 x full scale value				
OPTIONS	38	Snubber	Material	N/A	N/A	
	39	Gauge savers	Material	N/A	N/A	
	40	Manifold (Block & Bleed)	No			
	41	Block valve (Hand ball valve)	No			
	42					
CERTIFICATES	45	Calibration certificate	Yes			
	46	3.1 Material certificate	Yes			
	47					
PURCHASE	51	Manufacturer	According to approved vendor list			
	52	Should be finalized and specified (For all TG) and relevant catalogs and order code should be submitted.				
	53					
	54					
	55	Thermowell wake Frequency calculation to be provided by vendor prior thermowell manufacture. Vendor ensures that the thermowell design is robust enough to cope with varying stresses and strains produced by the process media.				

NOTES :



GENERAL	1	Tag Number		320-TG-8202	
	2	Service		Air temperature	
	3	P&ID No.		17735-03	
	4	Location		1st stage discharge	
	5	Ingress Protection		IP65	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	23,3 bar(g)	
	11	Temperature	Norm. Max.	157 °C	
	12	Design	Press. Temp.	30,5 bar(g)	175 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
	17				
	18				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0...300	°C
	21	Mounting		Locally mounted	
	22	Dial Size	Dial Color	100 mm	White, Black numbers
	23	Case Material		SS316L	
	24	Ring Construction	Ring Material	Bayonet	SS316L
	25	Blow-Out Protection		Yes @ Back	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS316L	
	28	Socket Material		SS316L	
	29	Connection Size		3/4" NPT-M	
	30	Connection Location		Back-bottom	
	31	Movement Material		SS316L	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Silicone	
	34	Over Range Protection		1,3 x full scale value	
	35				
	36				
37					
OPTIONS	38	Snubber	Material	N/A	N/A
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		No	
	41	Block valve (Hand ball valve)		No	
	42				
	43				
CERTIFICATES	44				
	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47				
	48				
PURCHASE	49				
	50				
	51	Manufacturer		According to approved vendor list	
	52	Model		VTA	
	53				
	54				
	55				
56					
57					

NOTES :

				INSTRUMENT DATASHEET Pressure Gauge 		شرکت توسعه صنایع لوان Lavan Industry Development Company 	
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Rev	By	Date	Description			Based on P&ID Rev.01	



GENERAL	1	Tag Number		320-TG-8203		
	2	Service		Air temperature		
	3	P&ID No.		17735-03		
	4	Location		2nd stage discharge		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor	
	10	Pressure	Norm. Max.	23,3 bar(g)		
	11	Temperature	Norm. Max.	157 °C		
	12	Design	Press. Temp.	29 bar(g)	73 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14					
	15					
	16					
GAUGE	19	Type		Bourdon tube		
	20	Range	Unit	0...200	°C	
	21	Mounting		Locally mounted		
	22	Dial Size	Dial Color	100 mm	White, Black numbers	
	23	Case Material		SS316L		
	24	Ring Construction	Ring Material	Bayonet	SS316L	
	25	Blow-Out Protection		Yes @ Back		
	26	Lens Material		Shatterproof laminated safety glass		
	27	Pressure Element Material		SS316L		
	28	Socket Material		SS316L		
	29	Connection Size		3/4" NPT-M		
	30	Connection Location		Back-bottom		
	31	Movement Material		SS316L		
	32	Nominal Accuracy		±1,0 % of span		
	33	Gauge Filling		Glycerin		
	34	Over Range Protection		1,3 x full scale value		
	OPTIONS	38	Snubber	Material	N/A	N/A
		39	Gauge Savers	Material	N/A	N/A
40		Manifold (Block & Bleed)		No		
41		Block valve (Hand ball valve)		No		
42						
43						
CERTIFICATES	45	Calibration certificate		Yes		
	46	3.1 Material certificate		Yes		
	47					
	48					
PURCHASE	51	Manufacturer		According to approved vendor list		
	52	Model		VTA		
	53					
	54					
	55					
	56					
	57					

NOTES :

				INSTRUMENT DATASHEET Pressure Gauge 		شرکت توسعه صنایع لوات Lavan Industry Development Company 	
01	TT	9-11-2023	For Approval			Sheet	22 of 24
Rev	By	Date	Description			Based on P&ID Rev.01	

GENERAL	1	Tag Number		320-TG-8204	
	2	Service		Air temperature	
	3	P&ID No.		30 bar(g)	
	4	Location		IP65	
	5	Ingress Protection			
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Air	Vapor
	10	Pressure	Norm. Max.	22,1 bar(g)	
	11	Temperature	Norm. Max.	116 °C	
	12	Design	Press. Temp.	39 bar(g)	135 °C
	13	Ambient Temp.	Min. Max.	0 °C	49 °C
	14				
	15				
	16				
	17				
	18				
GAUGE	19	Type		Bourdon tube	
	20	Range	Unit	0...200	°C
	21	Mounting		Panel mounted, with front flange	
	22	Dial Size	Dial Color	100 mm	White, Black numbers
	23	Case Material		SS316L	
	24	Ring Construction	Ring Material	Bayonet	SS316L
	25	Blow-Out Protection		Yes @ Back	
	26	Lens Material		Shatterproof laminated safety glass	
	27	Pressure Element Material		SS316L	
	28	Socket Material		SS316L	
	29	Connection Size		3/4" NPT-M	
	30	Connection Location		Back-bottom	
	31	Movement Material		SS316L	
	32	Nominal Accuracy		±1,0 % of span	
	33	Gauge Filling		Silicone	
	34	Over Range Protection		1,3 x full scale value	
	35				
	36				
37					
OPTIONS	38	Snubber	Material	N/A	N/A
	39	Gauge Savers	Material	N/A	N/A
	40	Manifold (Block & Bleed)		No	
	41	Block valve (Hand ball valve)		No	
	42				
	43				
CERTIFICATES	44				
	45	Calibration certificate		Yes	
	46	3.1 Material certificate		Yes	
	47				
	48				
PURCHASE	49				
	50				
	51	Manufacturer		According to approved vendor list	
	52	Model		VTA	
	53				
	54				
	55				
56					
57					

NOTES :

				INSTRUMENT DATASHEET Pressure Gauge 		شرکت توسعه صنایع لوات Lavan Industry Development Company 	
01	TT	9-11-2023	For Approval			Sheet	23 of 24
Rev	By	Date	Description			Based on P&ID Rev.01	

GENERAL	1	Tag Number		320-TG-8205		
	2	Service		Air temperature		
	3	P&ID No.		17735-03		
	4	Location		Cooling water outlet		
	5	Ingress Protection		IP65		
	6					
	7					
	8					
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid	
	10	Pressure	Norm. Max.	2,5 bar(g)	4,5 bar(g)	
	11	Temperature	Norm. Max.	36 °C	44 °C	
	12	Design	Press. Temp.	6 bar(g)	65 °C	
	13	Ambient Temp.	Min. Max.	0 °C	49 °C	
	14					
	15					
	16					
GAUGE	19	Type		Bourdon tube		
	20	Range	Unit	0...100	°C	
	21	Mounting		Panel mounted, with front flange		
	22	Dial Size	Dial Color	100 mm	White, Black numbers	
	23	Case Material		SS316L		
	24	Ring Construction	Ring Material	Bayonet	SS316L	
	25	Blow-Out Protection		Yes @ Back		
	26	Lens Material		Shatterproof laminated safety glass		
	27	Pressure Element Material		SS316L		
	28	Socket Material		SS316L		
	29	Connection Size		3/4" NPT-M		
	30	Connection Location		Back-bottom		
	31	Movement Material		SS316L		
	32	Nominal Accuracy		±1,0 % of span		
	33	Gauge Filling		Glycerin		
	34	Over Range Protection		1,3 x full scale value		
	OPTIONS	38	Snubber	Material	N/A	N/A
		39	Gauge Savers	Material	N/A	N/A
40		Manifold (Block & Bleed)		No		
41		Block valve (Hand ball valve)		No		
42						
43						
CERTIFICATES	45	Calibration certificate		Yes		
	46	3.1 Material certificate		Yes		
	47					
	48					
	49					
PURCHASE	51	Manufacturer		According to approved vendor list		
	52	Model		VTA		
	53					
	54					
	55					
	56					
	57					

7 bar(g)

75°C

NOTES :