

مدارک فنی مناقصه

PROJECT: PP-PE PILOT PLANT



TITLE: INSPECTION & TEST PLAN FOR LEVEL TRANSMITTER

شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

INSPECTION & TEST PLAN FOR LEVEL TRANSMITTER

Document No.:900-ITP-A4-IN-0008

Rev.: 0

Owner Job No.:

Type: ITP

Contract Job No.:

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ITP FOR LEVEL TRANSMITTER



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ABBREVIATION ON TYPE OF INSPECTION

H: Hold Point, inspection notification required. During hold point inspection, the witness will be performed.

The Vendor shall not proceed with the work until presence of the inspector or written consent of the inspector.

W: Inspection activities performed by the Vendor and witnessed by the inspector. Inspection notification required.

If the Inspector is not present, the Vendor may perform the inspection/tests as scheduled unless otherwise requested.


S: Witness, but spot check basis, inspection notification required. Initial operation will be witnessed and subsequent operation will be witnessed at discretion of the inspector considering the results of previous inspection unless otherwise inspection % specified.


R: Review of inspection records and/or specified document


M: Vendor's inspection and tests X: Required


No.	Inspection/Tests by the OWNER				Inspection/Test Items	Procedure & Standards	Remarks
	1.	2.	3.	4.			
					(level transmitter)		
01	R	W	M		Visual inspection	Approved procedure and drawings	
02	R	S	M	X	Dimensional inspection	Approved procedure and drawings	
03	R	R	M		Mill test reports	Approved procedure and drawings	
04	R	S	M		Non-destructive examination, when specified	Approved procedure and drawings	
05	R	W	M		Pressure test	Approved procedure and drawings	
06	R	W	M	X	Calibration Test	Approved procedure and drawings	
07	W	H	M	X	Performance test including - hysteresis, sensitivity and reliability check	Approved procedure and drawings	
08	R	S	M	X	Insulation resistance test	Approved procedure and drawings	
09	R	S	M	X	High voltage test	Approved procedure and drawings	
10	H	H	M		Preparation for shipment	Approved procedure and drawings	
11	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	
					(Chamber for displacement type level meter)		
12	R	W	M		Visual inspection	Approved procedure and drawings	
13	R	S	M	X	Dimensional inspection	Approved procedure and drawings	
14	R	R	M	X	Mill test reports for chamber	Approved procedure and drawings	
15	R	S	M	X	Non-destructive examination, when specified	Approved procedure and drawings	
16	R	S	M	X	Pressure test on chamber	Approved procedure and drawings	
17	H	H	M		Preparation for shipment	Approved procedure and drawings	
18	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	


Note: Percent of witness for type "S" shall be depend on the quantity as follows: 3 to 20→3(all if total 2 and less), 20 to 40→5, 50 to 100→10, 100 to 200→15, 200 to 300→20, 300 to 500→25.
For another type, percent of witness inspection shall be 100%.


PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
TITLE: Flow Transmitter (Integral Orifice) Data Sheet									
Contractor Job No:			Doc. No: 900-DAS-A4-IN-0016						
Owner Job No:			Sheet No: 5 of 109						
General Data	1	Tag No.			FT - 0105				
	2	Tap N° .							
	3	P&ID No.	Piping Size	Class	Line No	001	1"	1CS1	101
	4	Fluid		State		HEXANE		LIQUID	
	5	Service			HEXANE AT B . L .				
	6	Pressure rating		Piping material		150 #		STAINLESS STEEL	
	7	Amb. Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C	0.82 Bara	86%	
	8	Area Classification		Area		ZONE 1		000	
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	50		Kg/h		
	10		Min. Continuous	Unit	6		Kg/h		
	11		Full Scale	Unit	60		Kg/h		
	12	Meters	Operation		hours/24				
	13		Piping arrangement						
	14		Flow direction						
	15	Normal Temperature		Unit	AMB		°C		
	16	Max Temperature		Unit	170		°C		
	17	Normal Pressure		Unit	5		barg		
	18	Max Pressure		Unit	10		barg		
	19	Allow . Press . Drop		Unit			barg		
	20	Sp . Gr	Gases Vapours		Unit			kg/m3	
	21		Liquids		Unit	658		kg/m3	
	22		Mol.Weight		Unit	86		kg/kmol	
	23	Viscosity at OP . Cond		Unit	0.3		m pa's		
	24	OP . Compressib . Factor							
	25	Solids in suspension							
	26	Sensing element material							
27	tracing		Jacketing						
Integral Orifice	28	Type			Integral Orifice (Orifice Plate+Flange+Straight run pipe)				
	29	Pipe & Flange Material			STAINLESS STEEL				
	30	Orifice Plate Material			SS-316				
	31	Orifice Plate Bore Diameter			VTA				
	32	Beta Ratio (d/D)			VTA				
33	Differential Pressure Range			Preferably 250 mBar					
TRANSMITTER	34	Function			Indicating Transmitter				
	35	TYPE			d/p Cell (Integrated with manifold & orifice)				
	36	Power Supply			24V DC				
	37	Case Material			AISI 304				
	38	Mounting			Direct				
	39	Measuring Range			VTA				
	40	Accuracy			0.20%				
	41	Wetted Part Material			AISI 316				
	42	Degree of Protection			IP 65				
	43	Explosion Protection			EExib IIB T3				
	44	Process connection			to be suit to direct connection to manifold				
	45	Element Material			AISI 316L				
	46	Electrical Connection			Gland M20				
	47	Out Put Signal			4-20 mA-Loop Powered, HART				
Accessories	48	Local Indication			Yes				
	49	Others			NA				
1	0	12/16/2021	IFA	K.A	M.N	AA.SH			
No.	Rev	Date	Status	Prepared	Checked	Approved			


PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
TITLE: Flow Transmitter (Integral Orifice) Data Sheet									
Contractor Job No:			Doc. No: 900-DAS-A4-IN-0016						
Owner Job No:			Sheet No: 1 of 17						
General Data	1	Tag No.			FT - 0106				
	2	Tap N° .							
	3	P&ID No.	Piping Size	Class	Line No	001	1"	1FS4	101
	4	Fluid		State		PROPANE		LIQUID	
	5	Service			PROPANE AT B . L . PLANT				
	6	Pressure rating		Piping material		600 #		STAINLESS STEEL	
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara	86%
	8	Area Classification		Area		ZONE 1			000
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	500		Kg/h		
	10		Min. Continuous	Unit	60		Kg/h		
	11		Full Scale	Unit	600		Kg/h		
	12	Meters	Operation		hours/24				
	13		Piping arrangement						
	14		Flow direction						
	15	Normal Temperature		Unit	AMB		°C		
	16	Max Temperature		Unit	150		°C		
	17	Normal Pressure		Unit	55		barg		
	18	Max Pressure		Unit	65		barg		
	19	Allow . Press . Drop		Unit	0.1		barg		
	20	Sp . Gr	Gases Vapours		Unit			kg/m3	
	21		Liquids		Unit	509		kg/m3	
	22		Mol.Weight		Unit	44		kg/kmol	
	23	Viscosity at OP . Cond		Unit	0.1		m pa's		
	24	OP . Compressib . Factor							
	25	Solids in suspension							
	26	Sensing element material							
27	tracing		Jacketing						
Integral Orifice	28	Type			Integral Orifice (Orifice Plate+Flange+Straight run pipe)				
	29	Pipe & Flange Material			STAINLESS STEEL				
	30	Orifice Plate Material			SS-316				
	31	Orifice Plate Bore Diameter			VTA				
	32	Beta Ratio (d/D)			VTA				
33	Differential Pressure Range			Preferably 250 mBar					
TRANSMITTER	34	Function			Indicating Transmitter				
	35	TYPE			d/p Cell (Integrated with manifold & orifice)				
	36	Power Supply			24V DC loop power				
	37	Case Material			AISI 304				
	38	Mounting			Direct				
	39	Measuring Range			VTA				
	40	Accuracy			0.20%				
	41	Wetted Part Material			AISI 316				
	42	Degree of Protection			IP 65				
	43	Explosion Protection			EExib IIB T3				
	44	Process connection			to be suit to direct connection to manifold				
	45	Element Material			AISI 316L				
	46	Electrical Connection			Gland M20				
	47	Out Put Signal			4-20 mA-Loop Powered, HART				
	Accessories	48	Local Indication			Yes			
49		Others			NA				
1	0	12/16/2021	IFA	K.A	M.N	AA.SH			
No.	Rev	Date	Status	Prepared	Checked	Approved			


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
		TITLE: Flow Transmitter (Orifice Type) Data Sheet								
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016						
		Owner Job No:		Sheet No: 1 of 7						
General Data	1	Tag No.		FT - 0120						
	2	Tap N° .								
	3	P&ID No.	Piping Size	Class	Line No	001	3"	3CC6(IA)	0101	
	4	Fluid		State		STEAM		GAS		
	5	Service		LOW PRESSURE STEAM AT B . L .						
	6	Pressure rating		Piping material		150 #		CS		
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara		86%
	8	Area Classification		Area		ZONE 1		000		
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit		300		Kg/h	
	10		Min. Continuous		Unit		36		Kg/h	
	11		Full Scale		Unit		360		Kg/h	
	12	Meters	Operation		hours/24					
	13		Piping arrangement							
	14		Flow direction							
	15	Normal Temperature		Unit		162		°C		
	16	Max Temperature		Unit		180		°C		
	17	Normal Pressure		Unit		5		barg		
	18	Max Pressure		Unit		6.5		barg		
	19	Allow . Press . Drop		Unit		0.2		barg		
	20	Sp . Gr	Gases Vapours		Unit		3.36		kg/m3	
	21		Liquids		Unit				kg/m3	
	22		Mol.Weight		Unit		18		kg/kmol	
	23	Viscosity at OP . Cond		Unit		0.014		m pa's		
24	OP . Compressib . Factor									
25	Solids in suspension									
26	Sensing element material									
27	tracing		Jacketing							
Orifice Plate	28	Design Type		Concentric						
	29	Material		SS-316						
	30	Beta Ratio (d/D)								
	31	Orifice diameter								
	32	Drain hole diameter		Vent hole diameter						
	33	Element Thickness								
	34	Pressure Tap Location		Flange taps						
35	Drain hole diameter		Vent hole diameter							
36	Differential Pressure Range									
TRANSMITTER	37	Function		Indicating Transmitter						
	38	TYPE		d/p Cell						
	39	Power Supply		24VDC loop power						
	40	Case Material		AISI 304						
	41	Mounting		on Bracket						
	42	Measuring Range								
	43	Accuracy		0.20%						
	44	Wetted Part Material		AISI 316						
	45	Degree of Protection		IP 65						
	46	Explosion Protection		Eexib IIB T3						
47	Process connection		to be suit to direct connection to manifold							
48	Element Material		AISI 316L							
49	Electrical Connection		Gland M20							
50	Out Put Signal		4-20 mA-Loop Powered, HART							
Accessories	51	Local Indication		Yes						
	52	Manifold		5 valve						
	53	Others		Bracket, Suitable for 2" pipe						
1	0	12/16/2021	IFA	K.A	M.N	AA.SH				
No.	Rev	Date	Status	Prepared	Checked	Approved				


		PROJECT: PP-PE PILOT PLANT								
		TITLE: Flow Transmitter (Orifice Type) Data Sheet				شرکت ملی صنایع پتروشیمی				
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016		شرکت پژوهش و فناوری پتروشیمی				
		Owner Job No:		Sheet No: 2 of 7						
General Data	1	Tag No.		FT - 0121						
	2	Tap N° .								
	3	P&ID No.	Piping Size	Class	Line No	001	2"	1CG	0101	
	4	Fluid		State		AIR		GAS		
	5	Service		UTILITY AIR AT B.L.						
	6	Pressure rating		Piping material		150 #		GALVANIZED CS		
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara		86%
	8	Area Classification		Area		ZONE 1		000		
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit		333		normal m^3/hr	
	10		Min. Continuous		Unit		40		normal m^3/hr	
	11		Full Scale		Unit		400		normal m^3/hr	
	12	Meters	Operation		hours/24					
	13		Piping arrangement							
	14		Flow direction							
	15	Normal Temperature		Unit		AMB		°C		
	16	Max Temperature		Unit		100		°C		
	17	Normal Pressure		Unit		6.8		barg		
	18	Max Pressure		Unit		9.5		barg		
	19	Allow . Press . Drop		Unit		0.1		barg		
	20	Sp . Gr	Gases Vapours		Unit					
	21		Liquids		Unit					
	22		Mol.Weight		Unit		28		kg/kmol	
23	Viscosity at OP . Cond		Unit							
24	OP . Compressib . Factor									
25	Solids in suspension									
26	Sensing element material									
27	tracing		Jacketing							
Orifice Plate	28	Design Type		Concentric						
	29	Material		SS-316						
	30	Beta Ratio (d/D)								
	31	Orifice diameter								
	32	Drain hole diameter		Vent hole diameter						
	33	Element Thickness								
Orifice Plate	34	Pressure Tap Location		Flange taps						
	35	Drain hole diameter		Vent hole diameter						
	36	Differential Pressure Range								
TRANSMITTER	37	Function		Indicating Transmitter						
	38	TYPE		d/p Cell						
	39	Power Supply		24VDC loop power						
	40	Case Material		AISI 304						
	41	Mounting		on Bracket						
	42	Measuring Range								
	43	Accuracy		0.20%						
	44	Wetted Part Material		AISI 316						
	45	Degree of Protection		IP 65						
	46	Explosion Protection		Exexib IIB T3						
TRANSMITTER	47	Process connection		to be suit to direct connection to manifold						
	48	Element Material		AISI 316L						
	49	Electrical Connection		Gland M20						
	50	Out Put Signal		4-20 mA-Loop Powered, HART						
	Accessories	51	Local Indication		Yes					
52		Manifold		5 valve						
53		Others		Bracket, Suitable for 2" pipe						
1	0	12/16/2021	IFA	K.A	M.N	AA.SH				
No.	Rev	Date	Status	Prepared	Checked	Approved				


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Flow Transmitter (Orifice Type) Data Sheet						
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016				
		Owner Job No:		Sheet No: 3 of 7				
General Data	1	Tag No.		FT - 0122				
	2	Tap N° .						
	3	P&ID No.	Piping Size	Class	Line No	001	2"	1CG 0101
	4	Fluid		State		AIR		GAS
	5	Service		INSTRUMENT AIR AT B.L.				
	6	Pressure rating		Piping material		150 #		GALVANIZED CS
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara 86%
	8	Area Classification		Area		ZONE 1		000
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	365		Kg/h	
	10		Min. Continuous	Unit	43.8		Kg/h	
	11		Full Scale	Unit	438		Kg/h	
	12	Meters	Operation		hours/24			
	13		Piping arrangement					
	14		Flow direction					
	15	Normal Temperature		Unit	AMB		°C	
	16	Max Temperature		Unit	100		°C	
	17	Normal Pressure		Unit	7		barg	
	18	Max Pressure		Unit	8.5		barg	
	19	Allow . Press . Drop	Unit	0.1		barg		
	20	Sp . Gr	Gases Vapours	Unit	9.3		kg/m3	
	21		Liquids	Unit			kg/m3	
	22		Mol.Weight	Unit	28.8		kg/kmol	
	23	Viscosity at OP . Cond		Unit	0.019		m pa's	
24	OP . Compressib . Factor							
25	Solids in suspension							
26	Sensing element material							
27	tracing	Jacketing						
Orifice Plate	28	Design Type		Concentric				
	29	Material		SS-316				
	30	Beta Ratio (d/D)						
	31	Orifice diameter						
	32	Drain hole diameter	Vent hole diameter					
	33	Element Thickness						
	34	Pressure Tap Location		Flange taps				
35	Drain hole diameter	Vent hole diameter						
36	Differential Pressure Range							
TRANSMITTER	37	Function		Indicating Transmitter				
	38	TYPE		d/p Cell				
	39	Power Supply		24VDC loop power				
	40	Case Material		AISI 304				
	41	Mounting		on Bracket				
	42	Measuring Range						
	43	Accuracy		0.20%				
	44	Wetted Part Material		AISI 316				
	45	Degree of Protection		IP 65				
	46	Explosion Protection		Exexib IIB T3				
47	Process connection		to be suit to direct connection to manifold					
48	Element Material		AISI 316L					
49	Electrical Connection		Gland M20					
50	Out Put Signal		4-20 mA-Loop Powered, HART					
Accessories	51	Local Indication		Yes				
	52	Manifold		5 valve				
	53	Others		Bracket, Suitable for 2" pipe				
1	0	12/16/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		


PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
TITLE: Flow Transmitter (Integral Orifice) Data Sheet									
Contractor Job No:			Doc. No: 900-DAS-A4-IN-0016						
Owner Job No:			Sheet No: 3 of 17						
General Data	1	Tag No.			FT - 0123				
	2	Tap N° .							
	3	P&ID No.	Piping Size	Class	Line No	001	1 1/2"	1CC2	101
	4	Fluid		State		NITROGENE		GAS	
	5	Service			NITROGENE AT B . L .				
	6	Pressure rating		Piping material		150#		CS	
	7	Amb. Temp	Amb Press	Amb. Rel. Humidity Max		(-28)°C / 44°C		0.82 Bara 86%	
	8	Area Classification		Area		ZONE 1			
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	120		Kg/h		
	10		Min. Continuous	Unit	14.4		Kg/h		
	11		Full Scale	Unit	144		Kg/h		
	12	Meters	Operation		hours/24				
	13		Piping arrangement						
	14		Flow direction						
	15	Normal Temperature		Unit	AMB		°C		
	16	Max Temperature		Unit	100		°C		
	17	Normal Pressure		Unit	5		barg		
	18	Max Pressure		Unit	7		barg		
	19	Allow . Press . Drop		Unit	0.1		barg		
	20	Sp . Gr	Gases Vapours		Unit	6.8		kg/m3	
	21		Liquids		Unit			kg/m3	
	22		Mol. Weight		Unit	28		kg/kmol	
	23	Viscosity at OP . Cond		Unit	0.018		m pa's		
	24	OP . Compressib . Factor							
	25	Solids in suspension							
	26	Sensing element material							
	27	tracing		Jacketing					
	Integral Orifice	28	Type			Integral Orifice (Orifice Plate+Flange+Straight run pipe)			
29		Pipe & Flange Material			STAINLESS STEEL				
30		Orifice Plate Material			SS-316				
31		Orifice Plate Bore Diameter			VTA				
32		Beta Ratio (d/D)			VTA				
33	Differential Pressure Range			Preferably 250 mBar					
TRANSMITTER	34	Function			Indicating Transmitter				
	35	TYPE			d/p Cell (Integrated with manifold & orifice)				
	36	Power Supply			24V DC loop power				
	37	Case Material			AISI 304				
	38	Mounting			Direct				
	39	Measuring Range			VTA				
	40	Accuracy			0.20%				
	41	Wetted Part Material			AISI 316				
	42	Degree of Protection			IP 65				
	43	Explosion Protection			EExib IIB T3				
	44	Process connection			to be suit to direct connection to manifold				
	45	Element Material			AISI 316L				
	46	Electrical Connection			Gland M20				
	47	Out Put Signal			4-20 mA-Loop Powered, HART				
	Accessories	48	Local Indication			Yes			
		49	Others			NA			
1	0	12/16/2021	IFA	K.A	M.N	AA.SH			
No.	Rev	Date	Status	Prepared	Checked	Approved			


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
		TITLE: Flow Transmitter (Orifice Type) Data Sheet								
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016						
		Owner Job No:		Sheet No: 4 of 7						
General Data	1	Tag No.		FT - 0125						
	2	Tap N° .								
	3	P&ID No.	Piping Size	Class	Line No	001	3"	3CC6(P)	0101	
	4	Fluid		State		WATER		LIQUID		
	5	Service		CONDENSATE AT B.L.						
	6	Pressure rating		Piping material		150 #		CS		
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara		86%
	8	Area Classification		Area		ZONE 1		000		
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit		300		Kg/h	
	10		Min. Continuous		Unit		36		Kg/h	
	11		Full Scale		Unit		360		Kg/h	
	12	Meters	Operation		hours/24		6.5			
	13		Piping arrangement							
	14		Flow direction							
	15	Normal Temperature		Unit		133		°C		
	16	Max Temperature		Unit		180		°C		
	17	Normal Pressure		Unit		2		barg		
	18	Max Pressure		Unit		6.5		barg		
	19	Allow . Press . Drop		Unit		0.1		barg		
	20	Sp . Gr	Gases Vapours		Unit		kg/m3			
	21		Liquids		Unit		918		kg/m3	
	22		Mol.Weight		Unit		18		kg/kmol	
	23	Viscosity at OP . Cond		Unit		0.2		m pa's		
24	OP . Compressib . Factor									
25	Solids in suspension									
26	Sensing element material									
27	tracing		Jacketing							
Orifice Plate	28	Design Type		Concentric						
	29	Material		SS-316						
	30	Beta Ratio (d/D)								
	31	Orifice diameter								
	32	Drain hole diameter		Vent hole diameter						
	33	Element Thickness								
	34	Pressure Tap Location		Flange taps						
35	Drain hole diameter		Vent hole diameter							
36	Differential Pressure Range									
TRANSMITTER	37	Function		Indicating Transmitter						
	38	TYPE		d/p Cell						
	39	Power Supply		24VDC loop power						
	40	Case Material		AISI 304						
	41	Mounting		on Bracket						
	42	Measuring Range								
	43	Accuracy		0.20%						
	44	Wetted Part Material		AISI 316						
	45	Degree of Protection		IP 65						
	46	Explosion Protection		Eexib IIB T3						
47	Process connection		to be suit to direct connection to manifold							
48	Element Material		AISI 316L							
49	Electrical Connection		Gland M20							
50	Out Put Signal		4-20 mA-Loop Powered, HART							
Accessories	51	Local Indication		Yes						
	52	Manifold		5 valve						
	53	Others		Bracket, Suitable for 2" pipe						
Installation:DCS										
1	0	12/16/2021	IFA	K.A	M.N	AA.SH				
No.	Rev	Date	Status	Prepared	Checked	Approved				


PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
TITLE: Flow Transmitter (Integral Orifice) Data Sheet									
Contractor Job No:			Doc. No: 900-DAS-A4-IN-0016						
Owner Job No:			Sheet No: 4 of 17						
General Data	1	Tag No.			FT - 0126				
	2	Tap N° .							
	3	P&ID No.	Piping Size	Class	Line No	001	1"	4CC2	0101
	4	Fluid		State		WATER		LIQUID	
	5	Service			INDUSTRIAL WATER AT B.L.				
	6	Pressure rating		Piping material		150 #		CS	
	7	Amb. Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara 86%	
	8	Area Classification		Area		ZONE 1			
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	3100		Kg/h		
	10		Min. Continuous	Unit	310		Kg/h		
	11		Full Scale	Unit	3700		Kg/h		
	12	Meters	Operation		hours/24				
	13		Piping arrangement						
	14		Flow direction						
	15	Normal Temperature		Unit	20		°C		
	16	Max Temperature		Unit	50		°C		
	17	Normal Pressure		Unit	4		barg		
	18	Max Pressure		Unit	5.5		barg		
	19	Allow . Press . Drop		Unit	0.1		barg		
	20	Sp . Gr	Gases Vapours		Unit				
	21		Liquids		Unit	1004		kg/m3	
	22		Mol.Weight		Unit	18		kg/kmol	
	23	Viscosity at OP . Cond		Unit	0.7		m pa's		
	24	OP . Compressib . Factor							
	25	Solids in suspension							
	26	Sensing element material							
	27	tracing		Jacketing					
	Integral Orifice	28	Type			Integral Orifice (Orifice Plate+Flange+Straight run pipe)			
29		Pipe & Flange Material			STAINLESS STEEL				
30		Orifice Plate Material			SS-316				
31		Orifice Plate Bore Diameter			VTA				
32		Beta Ratio (d/D)			VTA				
33	Differential Pressure Range			Preferably 250 mBar					
TRANSMITTER	34	Function			Indicating Transmitter				
	35	TYPE			d/p Cell (Integrated with manifold & orifice)				
	36	Power Supply			24V DC loop power				
	37	Case Material			AISI 304				
	38	Mounting			Direct				
	39	Measuring Range			VTA				
	40	Accuracy			0.20%				
	41	Wetted Part Material			AISI 316				
	42	Degree of Protection			IP 65				
	43	Explosion Protection			EExib IIB T3				
	44	Process connection			to be suit to direct connection to manifold				
	45	Element Material			AISI 316L				
	46	Electrical Connection			Gland M20				
	47	Out Put Signal			4-20 mA-Loop Powered, HART				
	Accessories	48	Local Indication			Yes			
49		Others			NA				
1	0	12/16/2021	IFA	K.A	M.N	AA.SH			
No.	Rev	Date	Status	Prepared	Checked	Approved			


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
		TITLE: Flow Transmitter (Orifice Type) Data Sheet								
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016						
		Owner Job No:		Sheet No: 5 of 7						
General Data	1	Tag No.		FT - 0201						
	2	Tap N° .								
	3	P&ID No.	Piping Size	Class	Line No	002	2"	4CC2	219	
	4	Fluid		State		WATER GLYCOL		LIQUID		
	5	Service		RWA FLOW FROM P 021						
	6	Pressure rating		Piping material		150 #		CS		
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara		86%
	8	Area Classification		Area		ZONE 1		000		
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit		10500		Kg/h	
	10		Min. Continuous		Unit		1050		Kg/h	
	11		Full Scale		Unit		12600		Kg/h	
	12	Meters	Operation		hours/24					
	13		Piping arrangement							
	14		Flow direction							
	15	Normal Temperature		Unit		2		°C		
	16	Max Temperature		Unit		-10 +100		°C		
	17	Normal Pressure		Unit		3.5		barg		
	18	Max Pressure		Unit		10		barg		
	19	Allow . Press . Drop		Unit		0.1		barg		
	20	Sp . Gr	Gases Vapours		Unit					
	21		Liquids		Unit		1084		kg/m3	
	22		Mol.Weight		Unit		26.83		kg/kmol	
	23	Viscosity at OP . Cond		Unit		4.85		m pa's		
24	OP . Compressib . Factor									
25	Solids in suspension									
26	Sensing element material									
27	tracing		Jacketing							
Orifice Plate	28	Design Type		Concentric						
	29	Material		SS-316						
	30	Beta Ratio (d/D)								
	31	Orifice diameter								
	32	Drain hole diameter		Vent hole diameter						
	33	Element Thickness								
	34	Pressure Tap Location		Flange taps						
35	Drain hole diameter		Vent hole diameter							
36	Differential Pressure Range									
TRANSMITTER	37	Function		Indicating Transmitter						
	38	TYPE		d/p Cell						
	39	Power Supply		24VDC loop power						
	40	Case Material		AISI 304						
	41	Mounting		on Bracket						
	42	Measuring Range								
	43	Accuracy		0.20%						
	44	Wetted Part Material		AISI 316						
	45	Degree of Protection		IP 65						
	46	Explosion Protection		Eexib IIB T3						
47	Process connection		to be suit to direct connection to manifold							
48	Element Material		AISI 316L							
49	Electrical Connection		Gland M20							
50	Out Put Signal		4-20 mA-Loop Powered, HART							
Accessories	51	Local Indication		Yes						
	52	Manifold		5 valve						
	53	Others		Bracket, Suitable for 2" pipe						
1	0	12/16/2021	IFA	K.A	M.N	AA.SH				
No.	Rev	Date	Status	Prepared	Checked	Approved				


PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی				
TITLE: Flow Transmitter (Integral Orifice) Data Sheet									
Contractor Job No:			Doc. No: 900-DAS-A4-IN-0016						
Owner Job No:			Sheet No: 13 of 17						
General Data	1	Tag No.			FT - 3201				
	2	Tap N° .							
	3	P&ID No.	Piping Size	Class	Line No	032	1/2"	1FS4	3310
	4	Fluid		State		PROPYLENE		LIQUID	
	5	Service			RECYCLE P 321				
	6	Pressure rating		Piping material		600 #		SS	
	7	Amb. Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara 86%	
	8	Area Classification		Area		ZONE 1			
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	11		Kg/h		
	10		Min. Continuous	Unit	1.1		Kg/h		
	11		Full Scale	Unit	13.2		Kg/h		
	12	Meters	Operation		hours/24				
	13		Piping arrangement						
	14		Flow direction						
	15	Normal Temperature		Unit	25		°C		
	16	Max Temperature		Unit	100		°C		
	17	Normal Pressure		Unit	55		barg		
	18	Max Pressure		Unit	65		barg		
	19	Allow . Press . Drop	Unit	0.5		barg			
	20	Sp . Gr	Gases Vapours	Unit			kg/m3		
	21		Liquids	Unit	523.5		kg/m3		
	22		Mol.Weight	Unit	42		kg/kmol		
	23	Viscosity at OP . Cond		Unit	0.09		m pa's		
	24	OP . Compressib . Factor							
	25	Solids in suspension							
26	Sensing element material								
27	tracing	Jacketing							
Integral Orifice	28	Type			Integral Orifice (Orifice Plate+Flange+Straight run pipe)				
	29	Pipe & Flange Material			STAINLESS STEEL				
	30	Orifice Plate Material			SS-316				
	31	Orifice Plate Bore Diameter			VTA				
	32	Beta Ratio (d/D)			VTA				
33	Differential Pressure Range			Preferably 250 mBar					
TRANSMITTER	34	Function			Indicating Transmitter				
	35	TYPE			d/p Cell (Integrated with manifold & orifice)				
	36	Power Supply			24V DC loop power				
	37	Case Material			AISI 304				
	38	Mounting			Direct				
	39	Measuring Range			VTA				
	40	Accuracy			0.20%				
	41	Wetted Part Material			AISI 316				
	42	Degree of Protection			IP 65				
	43	Explosion Protection			EExib IIB T3				
	44	Process connection			to be suit to direct connection to manifold				
	45	Element Material			AISI 316L				
	46	Electrical Connection			M20				
	47	Out Put Signal			4-20 mA-Loop Powered, HART				
	Accessories	48	Local Indication			Yes			
		49	Others			NA			
1	0	12/16/2021	IFA	K.A	M.N	AA.SH			
No.	Rev	Date	Status	Prepared	Checked	Approved			


PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی					
TITLE: Flow Transmitter (Integral Orifice) Data Sheet										
Contractor Job No:			Doc. No: 900-DAS-A4-IN-0016							
Owner Job No:			Sheet No: 76 of 109							
General Data	1	Tag No.			FT - 3202					
	2	Tap N° .								
	3	P&ID No.	Piping Size	Class	Line No	032	1/2"	1FS4	3310	
	4	Fluid		State		PROPYLENE		LIQUID		
	5	Service			FLOW TO HEAD					
	6	Pressure rating		Piping material		600 #		SS		
	7	Amb. Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara		86%
	8	Area Classification		Area		ZONE 1				
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	11		Kg/h			
	10		Min. Continuous	Unit	1.1		Kg/h			
	11		Full Scale	Unit	13.2		Kg/h			
	12	Meters	Operation		hours/24					
	13		Piping arrangement							
	14		Flow direction							
	15	Normal Temperature		Unit	25		°C			
	16	Max Temperature		Unit	100		°C			
	17	Normal Pressure		Unit	55		barg			
	18	Max Pressure		Unit	65		barg			
	19	Allow . Press . Drop		Unit	0.5		barg			
	20	Sp . Gr	Gases Vapours		Unit			kg/m3		
	21		Liquids		Unit	523.5		kg/m3		
	22		Mol.Weight		Unit	42		kg/kmol		
	23	Viscosity at OP . Cond		Unit	0.09		m pa's			
	24	OP . Compressib . Factor								
	25	Solids in suspension								
	26	Sensing element material								
27	tracing		Jacketing							
Integral Orifice	28	Type			Integral Orifice (Orifice Plate+Flange+Straight run pipe)					
	29	Pipe & Flange Material			STAINLESS STEEL					
	30	Orifice Plate Material			SS-316					
	31	Orifice Plate Bore Diameter			VTA					
	32	Beta Ratio (d/D)			VTA					
33	Differential Pressure Range			Preferably 250 mBar						
TRANSMITTER	34	Function			Indicating Transmitter					
	35	TYPE			d/p Cell (Integrated with manifold & orifice)					
	36	Power Supply			24V DC					
	37	Case Material			AISI 304					
	38	Mounting			Direct					
	39	Measuring Range			VTA					
	40	Accuracy			0.20%					
	41	Wetted Part Material			AISI 316					
	42	Degree of Protection			IP 65					
	43	Explosion Protection			EExib IIB T3					
	44	Process connection			to be suit to direct connection to manifold					
	45	Element Material			AISI 316L					
	46	Electrical Connection			Gland M20					
	47	Out Put Signal			4-20 mA-Loop Powered, HART					
Accessories	48	Local Indication			Yes					
	49	Others			NA					
1	0	4/18/2013	IFA	S.S.	A.R.	A.N.				
No.	Rev	Date	Status	Prepared	Checked	Approved				


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی			
		TITLE: Flow Transmitter (Integral Orifice) Data Sheet							
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016					
		Owner Job No:		Sheet No: 14 of 17					
General Data	1	Tag No.		FT - 3602					
	2	Tap N° .							
	3	P&ID No.	Piping Size	Class	Line No	036	1 1/2"	3CC6(IA)	3601
	4	Fluid		State		STEAM		GAS	
	5	Service		LPS TO E 362					
	6	Pressure rating		Piping material		300 #		CS	
	7	Amb. Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C		0.82 Bara 86%	
	8	Area Classification		Area		ZONE 1			300
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	100		Kg/h		
	10		Min. Continuous	Unit	10		Kg/h		
	11		Full Scale	Unit	120		Kg/h		
	12	Meters	Operation		hours/24				
	13		Piping arrangement						
	14		Flow direction						
	15	Normal Temperature		Unit	162		°C		
	16	Max Temperature		Unit	180		°C		
	17	Normal Pressure		Unit	5.5		barg		
	18	Max Pressure		Unit	6.5		barg		
	19	Allow . Press . Drop		Unit	0.5		barg		
	20	Sp . Gr	Gases Vapours		Unit	3.3		kg/m3	
	21		Liquids		Unit			kg/m3	
	22		Mol.Weight		Unit	18		kg/kmol	
	23	Viscosity at OP . Cond		Unit	0.014		m pa's		
	24	OP . Compressib . Factor							
	25	Solids in suspension							
26	Sensing element material								
27	tracing		Jacketing						
Integral Orifice	28	Type		Integral Orifice (Orifice Plate+Flange+Straight run pipe)					
	29	Pipe & Flange Material		STAINLESS STEEL					
	30	Orifice Plate Material		SS-316					
	31	Orifice Plate Bore Diameter		VTA					
	32	Beta Ratio (d/D)		VTA					
33	Differential Pressure Range		Preferably 250 mBar						
TRANSMITTER	34	Function		Indicating Transmitter					
	35	TYPE		d/p Cell (Integrated with manifold & orifice)					
	36	Power Supply		24V DC loop power					
	37	Case Material		AISI 304					
	38	Mounting		Direct					
	39	Measuring Range		VTA					
	40	Accuracy		0.20%					
	41	Wetted Part Material		AISI 316					
	42	Degree of Protection		IP 65					
	43	Explosion Protection		EExib IIB T3					
	44	Process connection		to be suit to direct connection to manifold					
	45	Element Material		AISI 316L					
	46	Electrical Connection		M20					
	47	Out Put Signal		4-20 mA-Loop Powered, HART					
Accessories	48	Local Indication		Yes					
	49	Others		NA					
1	0	12/16/2021	IFA	K.A	M.N	AA.SH			
No.	Rev	Date	Status	Prepared	Checked	Approved			


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Flow Transmitter (Integral Orifice) Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016			
		Owner Job No:		Sheet No: 15 of 17			
General Data	1	Tag No.				FT - 6101	
	2	Tap N° .					
	3	P&ID No.	Piping Size	Class	Line No	061	1" 1CS2 6101
	4	Fluid		State		NITROGEN GAS	
	5	Service				NIT TO V 611	
	6	Pressure rating		Piping material		150 # SS	
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C 0.82 Bara 86%	
	8	Area Classification		Area		ZONE 1 600	
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit 40 Kg/h		
	10		Min. Continuous		Unit 4 Kg/h		
	11		Full Scale		Unit 48 Kg/h		
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit		AMB °C	
	16	Max Temperature		Unit		100 °C	
	17	Normal Pressure		Unit		5 barg	
	18	Max Pressure		Unit		7 barg	
	19	Allow . Press . Drop		Unit		0.5 barg	
	20	Sp . Gr	Gases Vapours		Unit 6.8 kg/m3		
	21		Liquids		Unit kg/m3		
	22		Mol.Weight		Unit 28 kg/kmol		
23	Viscosity at OP . Cond		Unit		0.018 m pa's		
24	OP . Compressib . Factor						
25	Solids in suspension						
26	Sensing element material						
27	tracing		Jacketing				
Integral Orifice	28	Type				Integral Orifice (Orifice Plate+Flange+Straight run pipe)	
	29	Pipe & Flange Material				STAINLESS STEEL	
	30	Orifice Plate Material				SS-316	
	31	Orifice Plate Bore Diameter				VTA	
	32	Beta Ratio (d/D)				VTA	
	33	Differential Pressure Range				Preferably 250 mBar	
TRANSMITTER	34	Function				Indicating Transmitter	
	35	TYPE				d/p Cell (Integrated with manifold & orifice)	
	36	Power Supply				24V DC loop power	
	37	Case Material				AISI 304	
	38	Mounting				Direct	
	39	Measuring Range				VTA	
	40	Accuracy				0.20%	
	41	Wetted Part Material				AISI 316	
	42	Degree of Protection				IP 65	
	43	Explosion Protection				EExib IIB T3	
44	Process connection				to be suit to direct connection to manifold		
45	Element Material				AISI 316L		
46	Electrical Connection				M20		
47	Out Put Signal				4-20 mA-Loop Powered, HART		
Accessories	48	Local Indication				Yes	
	49	Others				NA	
1	0	12/16/2021		IFA	K.A	M.N	AA.SH
No.	Rev	Date		Status	Prepared	Checked	Approved


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Flow Transmitter (Integral Orifice) Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016			
		Owner Job No:		Sheet No: 16 of 17			
General Data	1	Tag No.				FT - 6102	
	2	Tap N° .					
	3	P&ID No.	Piping Size	Class	Line No	061	1" 3CC6(IA) 6101
	4	Fluid		State		STEAM	GAS
	5	Service				LPS TO V 611	
	6	Pressure rating		Piping material		150 #	CS
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C	0.82 Bara 86%
	8	Area Classification		Area		ZONE 1	600
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit	50	Kg/h
	10		Min. Continuous		Unit	5	Kg/h
	11		Full Scale		Unit	60	Kg/h
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit	162	°C	
	16	Max Temperature		Unit	180	°C	
	17	Normal Pressure		Unit	5.5	barg	
	18	Max Pressure		Unit	6.5	barg	
	19	Allow . Press . Drop		Unit	0.5	barg	
	20	Sp . Gr	Gases Vapours		Unit	3.36	kg/m3
	21		Liquids		Unit		kg/m3
	22		Mol.Weight		Unit	18	kg/kmol
23	Viscosity at OP . Cond		Unit	0.014	m pa's		
24	OP . Compressib . Factor						
25	Solids in suspension						
26	Sensing element material						
27	tracing		Jacketing				
Integral Orifice	28	Type				Integral Orifice (Orifice Plate+Flange+Straight run pipe)	
	29	Pipe & Flange Material				STAINLESS STEEL	
	30	Orifice Plate Material				SS-316	
	31	Orifice Plate Bore Diameter				VTA	
	32	Beta Ratio (d/D)				VTA	
	33	Diffrential Pressure Range				Preferably 250 mBar	
TRANSMITTER	34	Function				Indicating Transmitter	
	35	TYPE				d/p Cell (Integrated with manifold & orifice)	
	36	Power Supply				24V DC loop power	
	37	Case Material				AISI 304	
	38	Mounting				Direct	
	39	Measuring Range				VTA	
	40	Accuracy				0.20%	
	41	Wetted Part Material				AISI 316	
	42	Degree of Protection				IP 65	
	43	Explosion Protection				EExib IIB T3	
	44	Process connection				to be suit to direct connection to manifold	
45	Element Material				AISI 316L		
46	Electrical Connection				M20		
47	Out Put Signal				4-20 mA-Loop Powered, HART		
Accessories	48	Local Indication				Yes	
	49	Others				NA	
1	0	12/16/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Flow Transmitter (Integral Orifice) Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0016			
		Owner Job No:		Sheet No: 17 of 17			
General Data	1	Tag No.				FT - 6103	
	2	Tap N° .					
	3	P&ID No.	Piping Size	Class	Line No	061	1" 4CC2 6101
	4	Fluid		State		WATER LIQUID	
	5	Service				IWA TO T 611	
	6	Pressure rating		Piping material		150 # CS	
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C 0.82 Bara 86%	
	8	Area Classification		Area		ZONE 1 600	
PROCESS CONDITION	9	Flowrate	Max. Continuous		Unit 3000 Kg/h		
	10		Min. Continuous		Unit 300 Kg/h		
	11		Full Scale		Unit 3600 Kg/h		
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit		20 °C	
	16	Max Temperature		Unit		100 °C	
	17	Normal Pressure		Unit		3.5 barg	
	18	Max Pressure		Unit		5 barg	
	19	Allow . Press . Drop		Unit		0.5 barg	
	20	Sp . Gr	Gases Vapours		Unit kg/m3		
	21		Liquids		Unit 1000 kg/m3		
	22		Mol.Weight		Unit 18 kg/kmol		
	23	Viscosity at OP . Cond		Unit		0.7 m pa's	
24	OP . Compressib . Factor						
25	Solids in suspension						
26	Sensing element material						
27	tracing		Jacketing				
Integral Orifice	28	Type				Integral Orifice (Orifice Plate+Flange+Straight run pipe)	
	29	Pipe & Flange Material				STAINLESS STEEL	
	30	Orifice Plate Material				SS-316	
	31	Orifice Plate Bore Diameter				VTA	
	32	Beta Ratio (d/D)				VTA	
	33	Differential Pressure Range				Preferably 250 mBar	
TRANSMITTER	34	Function				Indicating Transmitter	
	35	TYPE				d/p Cell (Integrated with manifold & orifice)	
	36	Power Supply				24V DC loop power	
	37	Case Material				AISI 304	
	38	Mounting				Direct	
	39	Measuring Range				VTA	
	40	Accuracy				0.20%	
	41	Wetted Part Material				AISI 316	
	42	Degree of Protection				IP 65	
	43	Explosion Protection				EExib IIB T3	
	44	Process connection				to be suit to direct connection to manifold	
45	Element Material				AISI 316L		
46	Electrical Connection				M20		
47	Out Put Signal				4-20 mA-Loop Powered, HART		
Accessories	48	Local Indication				Yes	
	49	Others				NA	
1	0	12/16/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
TAG N°		FT-0205				
Service		Refrigerated water (RWA) TO P022/R251				
Revision		0 ISSUED				
Primary Element	1	Piping	Size/Class	1" 4CC2		
	2	Piping(special classes)		150 # ANSI		
	3	Fluid		Water Ethylene Glycol		
	4	State		LIQUID		
	5	Requested Flow	Max. continuous	Kg/h	1700	
	6		Min. continuous	Kg/h	170	
	7		nominal continuous	Kg/h	2040	
	8	Meters	Operation	hours/24	24H	
	9		Piping arrangement		horizontal	
	10	Flow direction		horizontal		
	11	Normal temperature		°C	2	
	12	Max. temperature		°C	-10 +100	
	13	Normal pressure		barg	3.5	
	14	Max. pressure		barg	10	
	15	Allow. press. drop		bar	0.1	
	16	Density	Gases vapours	Kg/m ³	-----	
	17		Liquids	Kg/m ³	1084	
	18	Mol. weight		Kg/Kmol	26.83	
	19	Viscosity at op. cond.		mPa's	4.85	
	20	Op. Compressib. Factor (Z)		Vapor Pressure.bar_a	----	0.0039 bar_a
	21	Solids in suspension		NO		
	22	Sensing element material (Material (sensor))		SS316L		
	23	Tracing / Jacketing		NO		
Instrument	24	Installation		SITE - OUTDOR		
	25	Flowrate increase, valve		■Closes		
	26	Requested accuracy (meters)		1% ≥ 0		
	27	Control modes		<input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PID		
28	sensor Type		VTA			
Process	29	Critical temperatur.	Critical pressure	374.1 °C	141 bar	
	30	Process componnts (mass %)		0.4 WATER + 0.6 GLYCOL		


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
31	Output signal	4 to 20 mA , HART , 24 V DC Loop power				
32	Sensor Nominal value PN mbar	VTA				
33	Measurement limit	lower (LRL) mbar		VTA		
34		upper (URL) mbar		VTA		
35	range calibration at nominal flow	Lower range value (LRV) mbar		VTA		
		upper range value (URV) mbar		VTA		
36	Smallest span mbar (factory calibration)	VTA				
37	maximum working pressure; MWP = PN Bar	VTA				
38	Min. operating pressure mbar-abs	VTA				
39	Max. measured error(vol.)	min. flow		1% ≥ 0		
		max. flow		1% ≥ 0		
40	Pressure loss at req. Flow min.	Flow max.				
41	Damping sec	2				
42	ENCLOSURE PROTECTION	EE xia , IIC , T6				
43	Mounting Position (Remote version or copmact Transmitter)	Remote				
44	Display, Operation	LCD, push button on display electronics-Indicating Transmitter				
mechanical	45	Orifice type	Orifice material	VTA	SS 304	
	46	Pipe inner diam. at oper. temp. (D)		VTA		
	47	Bore diameter at oper. temp. (d)		VTA		
	48	Diameter ratio beta(d/D)β		0.8 ≥ 0.4		
	49	fluid velocity at min. max. req. flow		VTA	VTA	
	50	Process connection Type	Size	Class	VTA	150#
	51	Process isolating diaphragm material		SS 316L		
	52	Fill Fluid		YES		
	53	Body & External surface Material (cover)		SS 304		
	54	CABLE GLANDS -Electrical Connection		Gland M20 IP66/68		
	55	Manifold		Yes		
	56	Condensate Chambers & connection for PDT type		NA		
	57	Condensate Chambers Mat.; Volume; PN		NA		
	PURCHASE	58	MANUFACTURER		VTA	
59		MODEL		VTA		
60		REQUISITION No.	Qty	VTA	1	
61		Ordering code information		VTA		
62		SERIAL No.		VTA		
63		Certificates & Calibration		pressure test, inspection certificate-Works calib. certificate 5-point		
64	accessary		Mounting bracket + adapter plate 304 + Marking(Tagging)			
Note: VTA = vendor to advise • Compact version: transmitter and sensor form a mechanical unit • Remote version: transmitter and sensor are mounted physically separate from one another						
10/10/2021	AFC	K.A / V.V	M.N	M.A		
Date	Status	Prepared	Checked	Approved		


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
TAG N°		FT-0206				
Service		Refrigerated water (RWA) TO P023/R261				
Revision		0 ISSUED				
Primary Element	1	Piping	Size/Class	1" 4CC2		
	2	Piping(special classes)		150 # ANSI		
	3	Fluid		Water Ethylene Glycol		
	4	State		LIQUID		
	5	Requested Flow	Max. continuous	Kg/h	1700	
	6		Min. continuous	Kg/h	170	
	7		nominal continuous	Kg/h	2040	
	8	Meters	Operation	hours/24	24H	
	9		Piping arrangement		horizontal	
	10	Flow direction		horizontal		
	11	Normal temperature		°C	2	
	12	Max. temperature		°C	-10 +100	
	13	Normal pressure		barg	3.5	
	14	Max. pressure		barg	10	
	15	Allow. press. drop		bar	0.1	
	16	Density	Gases vapours	Kg/m ³	-----	
	17		Liquids	Kg/m ³	1084	
	18	Mol. weight		Kg/Kmol	26.83	
	19	Viscosity at op. cond.		mPa's	4.85	
	20	Op. Compressib. Factor (Z)		Vapor Pressure.bar_a	----	0.0039 bar_a
	21	Solids in suspension		NO		
	22	Sensing element material (Material (sensor))		SS316L		
	23	Tracing / Jacketing		NO		
Instrument	24	Installation		SITE - OUTDOR		
	25	Flowrate increase, valve		■Closes		
	26	Requested accuracy (meters)		1% ≥ 0		
	27	Control modes		<input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PID		
28	sensor Type		VTA			
Process	29	Critical temperatur.	Critical pressure	374.1 °C	141 bar	
	30	Process componnts (mass %)		0.4 WATER + 0.6 GLYCOL		


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
31	Output signal	4 to 20 mA , HART , 24 V DC Loop power				
32	Sensor Nominal value PN mbar	VTA				
33	Measurement limit	lower (LRL) mbar		VTA		
34		upper (URL) mbar		VTA		
35	range calibration at nominal flow	Lower range value (LRV) mbar		VTA		
		upper range value (URV) mbar		VTA		
36	Smallest span mbar (factory calibration)	VTA				
37	maximum working pressure; MWP = PN Bar	VTA				
38	Min. operating pressure mbar-abs	VTA				
39	Max. measured error(vol.)	min. flow		1% ≥ 0		
		max. flow		1% ≥ 0		
40	Pressure loss at req. Flow min.	Flow max.				
41	Damping sec	2				
42	ENCLOSURE PROTECTION	EE xia , IIC , T6				
43	Mounting Position (Remote version or copmact Transmitter)	Remote				
44	Display, Operation	LCD, push button on display electronics-Indicating Transmitter				
mechanical	45	Orifice type	Orifice material	VTA	SS 304	
	46	Pipe inner diam. at oper. temp. (D)		VTA		
	47	Bore diameter at oper. temp. (d)		VTA		
	48	Diameter ratio beta(d/D)β		0.8 ≥ 0.4		
	49	fluid velocity at min. max. req. flow		VTA	VTA	
	50	Process connection Type	Size	Class	VTA	150#
	51	Process isolating diaphragm material		SS 316L		
	52	Fill Fluid		YES		
	53	Body & External surface Material (cover)		SS 304		
	54	CABLE GLANDS -Electrical Connection		Gland M20 IP66/68		
	55	Manifold		Yes		
	56	Condensate Chambers & connection for PDT type		NA		
	57	Condensate Chambers Mat.; Volume; PN		NA		
	PURCHASE	58	MANUFACTURER		VTA	
59		MODEL		VTA		
60		REQUISITION No.	Qty	VTA	1	
61		Ordering code information		VTA		
62		SERIAL No.		VTA		
63		Certificates & Calibration		pressure test, inspection certificate-Works calib. certificate 5-point		
64	accessary		Mounting bracket + adapter plate 304 + Marking(Tagging)			
Note: VTA = vendor to advise • Compact version: transmitter and sensor form a mechanical unit • Remote version: transmitter and sensor are mounted physically separate from one another						
10/10/2021	AFC	K.A / V.V	M.N	M.A		
Date	Status	Prepared	Checked	Approved		


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
TAG N°		FT-0302				
Service		Reactor cooling water(RCW) TO E411/R411				
Quantity		2				
Revision		0 ISSUED				
Primary Element	1	Piping	Size/Class	4" 4CC2		
	2	Piping(special classes)		150 # ANSI		
	3	Fluid		Water		
	4	State		LIQUID		
	5	Requested Flow	Max. continuous	Kg/h	30000	
	6		Min. continuous	Kg/h	3000	
	7		nominal continuous	Kg/h	36000	
	8	Meters	Operation	hours/24	24H	
	9		Piping arrangement		horizontal	
	10	Flow direction		horizontal		
	11	Normal temperature		°C	55 - 80	
	12	Max. temperature		°C	-10 +100	
	13	Normal pressure		bar	3	
	14	Max. pressure		bar	10	
	15	Allow. press. drop		bar	0.5	
	16	Density	Gases vapours	Kg/m ³	-----	
	17		Liquids	Kg/m ³	1000	
	18	Mol. weight		Kg/Kmol	18	
	19	Viscosity at op. cond.		mPa's	1	
	20	Op. Compressib. Factor (Z)		Vapor Pressure.bar_a	----	0.0563 bar_a
	21	Solids in suspension		NO		
	22	Sensing element material (Material (sensor))		SS316L		
	23	Tracing / Jacketing		YES		
Instrument	24	Installation		SITE - OUTDOR		
	25	Flowrate increase, valve		■Closes		
	26	Requested accuracy (meters)		1% ≥ 0		
	27	Control modes		<input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PID		
28	sensor Type		VTA			
Process	29	Critical temperatur.	Critical pressure	374 °C	221.2 bar	
	30	Process componnts (mass %)		Pure		


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
31	Output signal	4 to 20 mA , HART , 24 V DC Loop power				
32	Sensor Nominal value PN mbar	VTA				
33	Measurement limit	lower (LRL) mbar		VTA		
34		upper (URL) mbar		VTA		
35	range calibration at nominal flow	Lower range value (LRV) mbar		VTA		
		upper range value (URV) mbar		VTA		
36	Smallest span mbar (factory calibration)	VTA				
37	maximum working pressure; MWP = PN Bar	VTA				
38	Min. operating pressure mbar-abs	VTA				
39	Max. measured error(vol.)	min. flow		1% ≥ 0		
		max. flow		1% ≥ 0		
40	Pressure loss at req. Flow min.	Flow max.				
41	Damping sec	2				
42	ENCLOSURE PROTECTION	EE xia , IIC , T6				
43	Mounting Position (Remote version or compact Transmitter)	Remote				
44	Display, Operation	LCD, push button on display electronics-Indicating Transmitter				
mechanical	45	Orifice type	Orifice material	VTA	SS 304	
	46	Pipe inner diam. at oper. temp. (D)		VTA		
	47	Bore diameter at oper. temp. (d)		VTA		
	48	Diameter ratio beta(d/D)β		0.8 ≥ 0.4		
	49	fluid velocity at min. max. req. flow		VTA	VTA	
	50	Process connection Type	Size	Class	VTA	150#
	51	Process isolating diaphragm material		SS 316L		
	52	Fill Fluid		VTA		
	53	Body & External surface Material (cover)		SS 304		
	54	CABLE GLANDS -Electrical Connection		Gland M20 IP66/68		
	55	Manifold		Yes		
	56	Condensate Chambers & connection for PDT type		NA		
	57	Condensate Chambers Mat.; Volume; PN		NA		
	PURCHASE	58	MANUFACTURER		VTA	
59		MODEL		VTA		
60		REQUISITION No.	Qty	VTA	1	
61		Ordering code information		VTA		
62		SERIAL No.		VTA		
63		Certificates & Calibration		pressure test, inspection certificate-Works calib. certificate 5-point		
64	accessary		Mounting bracket + adapter plate 304 + Marking(Tagging)			
Note: VTA = vendor to advise • Compact version: transmitter and sensor form a mechanical unit • Remote version: transmitter and sensor are mounted physically separate from one another						
10/10/2021	AFC	K.A / V.V	M.N	M.A		
Date	Status	Prepared	Checked	Approved		


		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
TAG N°		FT-0303				
Service		Reactor cooling water (RCW) TO P034				
Quantity		2				
Revision		0 ISSUED				
Primary Element	1	Piping	Size/Class	2" 4CC2		
	2	Piping(special classes)		150 # ANSI		
	3	Fluid		Water		
	4	State		LIQUID		
	5	Requested Flow	Max. continuous	Kg/h	2000	
	6		Min. continuous	Kg/h	200	
	7		nominal continuous	Kg/h	2400	
	8	Meters	Operation	hours/24	24H	
	9		Piping arrangement		horizontal	
	10	Flow direction		horizontal		
	11	Normal temperature		°C	35	
	12	Max. temperature		°C	-10 +100	
	13	Normal pressure		bar	3	
	14	Max. pressure		bar	10	
	15	Allow. press. drop		bar	0.5	
	16	Density	Gases vapours	Kg/m ³	-----	
	17		Liquids	Kg/m ³	1000	
	18	Mol. weight		Kg/Kmol	18	
	19	Viscosity at op. cond.		mPa's	1	
	20	Op. Compressib. Factor (Z)		Vapor Pressure.bar_a	----	0.0563 bar_a
	21	Solids in suspension		NO		
	22	Sensing element material (Material (sensor))		SS316L		
	23	Tracing / Jacketing		YES		
Instrument	24	Installation		SITE - OUTDOR		
	25	Flowrate increase, valve		■Closes		
	26	Requested accuracy (meters)		1% ≥ 0		
	27	Control modes		<input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PID		
28	sensor Type		VTA			
Process	29	Critical temperatur.	Critical pressure	374 °C	221.2 bar	
	30	Process componnts (mass %)		Pure		

		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
31	Output signal	4 to 20 mA , HART , 24 V DC Loop power				
32	Sensor Nominal value PN mbar	VTA				
33	Measurement limit	lower (LRL) mbar		VTA		
34		upper (URL) mbar		VTA		
35	range calibration at nominal flow	Lower range value (LRV) mbar		VTA		
		upper range value (URV) mbar		VTA		
36	Smallest span mbar (factory calibration)	VTA				
37	maximum working pressure; MWP = PN Bar	VTA				
38	Min. operating pressure mbar-abs	VTA				
39	Max. measured error(vol.)	min. flow		1% ≥ 0		
		max. flow		1% ≥ 0		
40	Pressure loss at req. Flow min.	Flow max.				
41	Damping sec	2				
42	ENCLOSURE PROTECTION	EE xia , IIC , T6				
43	Mounting Position (Remote version or copmact Transmitter)	Remote				
44	Display, Operation	LCD, push button on display electronics-Indicating Transmitter				
mechanical	45	Orifice type	Orifice material	VTA	SS 304	
	46	Pipe inner diam. at oper. temp. (D)		VTA		
	47	Bore diameter at oper. temp. (d)		VTA		
	48	Diameter ratio beta(d/D)β		0.8 ≥ 0.4		
	49	fluid velocity at min. max. req. flow		VTA	VTA	
	50	Process connection Type	Size	Class	VTA	150#
	51	Process isolating diaphragm material		SS 316L		
	52	Fill Fluid		VTA		
	53	Body & External surface Material (cover)		SS 304		
	54	CABLE GLANDS -Electrical Connection		Gland M20 IP66/68		
	55	Manifold		Yes		
	56	Condensate Chambers & connection for PDT type		NA		
	57	Condensate Chambers Mat.; Volume; PN		NA		
	PURCHASE	58	MANUFACTURER		VTA	
59		MODEL		VTA		
60		REQUISITION No.	Qty	VTA	1	
61		Ordering code information		VTA		
62		SERIAL No.		VTA		
63		Certificates & Calibration		pressure test, inspection certificate-Works calib. certificate 5-point		
64	accessary		Mounting bracket + adapter plate 304 + Marking(Tagging)			
Note: VTA = vendor to advise • Compact version: transmitter and sensor form a mechanical unit • Remote version: transmitter and sensor are mounted physically separate from one another						
10/10/2021	AFC	K.A / V.V	M.N	M.A		
Date	Status	Prepared	Checked	Approved		

		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
TAG N°		FT-0304				
Service		Reactor cooling water(RCW) TO E421/R421				
Revision		0 ISSUED				
Primary Element	1	Piping	Size/Class	4" 4CC2		
	2	Piping(special classes)		150 # ANSI		
	3	Fluid		Water		
	4	State		LIQUID		
	5	Requested Flow	Max. continuous	Kg/h	50000	
	6		Min. continuous	Kg/h	5000	
	7		nominal continuous	Kg/h	60000	
	8	Meters	Operation	hours/24	24H	
	9		Piping arrangement		horizontal	
	10	Flow direction		horizontal		
	11	Normal temperature		°C	55+80	
	12	Max. temperature		°C	-10 +100	
	13	Normal pressure		barg	3	
	14	Max. pressure		barg	10	
	15	Allow. press. drop		bar	1	
	16	Density	Gases vapours	Kg/m ³	-----	
	17		Liquids	Kg/m ³	1000	
	18	Mol. weight		Kg/Kmol	18	
	19	Viscosity at op. cond.		mPa's	1	
	20	Op. Compressib. Factor (Z)		Vapor Pressure.bar_a	----	0.0563 bar_a
	21	Solids in suspension		NO		
	22	Sensing element material (Material (sensor))		SS316L		
	23	Tracing / Jacketing		YES		
Instrument	24 Installation		SITE - OUTDOR			
	25 Flowrate increase, valve		■Closes			
	26 Requested accuracy (meters)		1% ≥ 0			
	27 Control modes		<input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PID			
28 sensor Type		VTA				
Process	29	Critical temperatur.	Critical pressure	374 °C	221.2 bar	
	30	Process componnts (mass %)		Pure		

		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
31	Output signal	4 to 20 mA , HART , 24 V DC Loop power				
32	Sensor Nominal value PN mbar	VTA				
33	Measurement limit	lower (LRL) mbar		VTA		
34		upper (URL) mbar		VTA		
35	range calibration at nominal flow	Lower range value (LRV) mbar		VTA		
		upper range value (URV) mbar		VTA		
36	Smallest span mbar (factory calibration)	VTA				
37	maximum working pressure; MWP = PN Bar	VTA				
38	Min. operating pressure mbar-abs	VTA				
39	Max. measured error(vol.)	min. flow		1% ≥ 0		
		max. flow		1% ≥ 0		
40	Pressure loss at req. Flow min.	Flow max.				
41	Damping sec	2				
42	ENCLOSURE PROTECTION	EE xia , IIC , T6				
43	Mounting Position (Remote version or compact Transmitter)	Remote				
44	Display, Operation	LCD, push button on display electronics-Indicating Transmitter				
mechanical	45	Orifice type	Orifice material	VTA	SS 304	
	46	Pipe inner diam. at oper. temp. (D)		VTA		
	47	Bore diameter at oper. temp. (d)		VTA		
	48	Diameter ratio beta(d/D)β		0.8 ≥ 0.4		
	49	fluid velocity at min. max. req. flow		VTA	VTA	
	50	Process connection Type	Size	Class	VTA	150#
	51	Process isolating diaphragm material		SS 316L		
	52	Fill Fluid		VTA		
	53	Body & External surface Material (cover)		SS 304		
	54	CABLE GLANDS -Electrical Connection		Gland M20 IP66/68		
	55	Manifold		Yes		
	56	Condensate Chambers & connection for PDT type		NA		
	57	Condensate Chambers Mat.; Volume; PN		NA		
	PURCHASE	58	MANUFACTURER		VTA	
59		MODEL		VTA		
60		REQUISITION No.	Qty	VTA	1	
61		Ordering code information		VTA		
62		SERIAL No.		VTA		
63		Certificates & Calibration		pressure test, inspection certificate-Works calib. certificate 5-point		
64	accessary		Mounting bracket + adapter plate 304 + Marking(Tagging)			
Note: VTA = vendor to advise • Compact version: transmitter and sensor form a mechanical unit • Remote version: transmitter and sensor are mounted physically separate from one another						
10/10/2021	AFC	K.A / V.V	M.N	M.A		
Date	Status	Prepared	Checked	Approved		

		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. :		of		
TAG N°		FT-0305				
Service		Reactor cooling water (RCW) TO P035				
Revision		0 ISSUED				
Primary Element	1	Piping	Size/Class	4" 4CC2		
	2	Piping(special classes)		150 # ANSI		
	3	Fluid		Water		
	4	State		LIQUID		
	5	Requested Flow	Max. continuous	Kg/h	5000	
	6		Min. continuous	Kg/h	500	
	7		nominal continuous	Kg/h	6000	
	8	Meters	Operation	hours/24	24H	
	9		Piping arrangement		horizontal	
	10	Flow direction		horizontal		
	11	Normal temperature		°C	35	
	12	Max. temperature		°C	-10 +100	
	13	Normal pressure		barg	3	
	14	Max. pressure		barg	10	
	15	Allow. press. drop		bar	1	
	16	Density	Gases vapours	Kg/m ³	-----	
	17		Liquids	Kg/m ³	1000	
	18	Mol. weight		Kg/Kmol	18	
	19	Viscosity at op. cond.		mPa's	1	
	20	Op. Compressib. Factor (Z)		Vapor Pressure.bar_a	----	0.0563 bar_a
	21	Solids in suspension		NO		
	22	Sensing element material (Material (sensor))		SS316L		
	23	Tracing / Jacketing		YES		
Instrument	24 Installation		SITE - OUTDOR			
	25 Flowrate increase, valve		■Closes			
	26 Requested accuracy (meters)		1% ≥ 0			
	27 Control modes		<input type="checkbox"/> P <input type="checkbox"/> PI <input type="checkbox"/> PID			
28 sensor Type		VTA				
Process	29	Critical temperatur.	Critical pressure	374 °C	221.2 bar	
	30	Process componnts (mass %)		Pure		

		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR ORIFICE FLOW METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
31	Output signal	4 to 20 mA , HART , 24 V DC Loop power				
32	Sensor Nominal value PN mbar	VTA				
33	Measurement limit	lower (LRL) mbar		VTA		
34		upper (URL) mbar		VTA		
35	range calibration at nominal flow	Lower range value (LRV) mbar		VTA		
		upper range value (URV) mbar		VTA		
36	Smallest span mbar (factory calibration)	VTA				
37	maximum working pressure; MWP = PN Bar	VTA				
38	Min. operating pressure mbar-abs	VTA				
39	Max. measured error(vol.)	min. flow		1% ≥ 0		
		max. flow		1% ≥ 0		
40	Pressure loss at req. Flow min.	Flow max.				
41	Damping sec	2				
42	ENCLOSURE PROTECTION	EE xia , IIC , T6				
43	Mounting Position (Remote version or copmact Transmitter)	Remote				
44	Display, Operation	LCD, push button on display electronics-Indicating Transmitter				
mechanical	45	Orifice type	Orifice material	VTA	SS 304	
	46	Pipe inner diam. at oper. temp. (D)		VTA		
	47	Bore diameter at oper. temp. (d)		VTA		
	48	Diameter ratio beta(d/D)β		0.8 ≥ 0.4		
	49	fluid velocity at min. max. req. flow		VTA	VTA	
	50	Process connection Type	Size	Class	VTA	150#
	51	Process isolating diaphragm material		SS 316L		
	52	Fill Fluid		VTA		
	53	Body & External surface Material (cover)		SS 304		
	54	CABLE GLANDS -Electrical Connection		Gland M20 IP66/68		
	55	Manifold		Yes		
	56	Condensate Chambers & connection for PDT type		NA		
	57	Condensate Chambers Mat.; Volume; PN		NA		
	PURCHASE	58	MANUFACTURER		VTA	
59		MODEL		VTA		
60		REQUISITION No.	Qty	VTA	1	
61		Ordering code information		VTA		
62		SERIAL No.		VTA		
63		Certificates & Calibration		pressure test, inspection certificate-Works calib. certificate 5-point		
64	accessary		Mounting bracket + adapter plate 304 + Marking(Tagging)			
Note: VTA = vendor to advise • Compact version: transmitter and sensor form a mechanical unit • Remote version: transmitter and sensor are mounted physically separate from one another						
10/10/2021	AFC	K.A / V.V	M.N	M.A		
Date	Status	Prepared	Checked	Approved		

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

TITLE: FLOW TRANSMITTER DATA SHEET

FLOW TRANSMITTER DATA SHEET

CONTRACTOR:

Document No.:


Rev.:0

Owner Job No.:

Type: DAS

Contract Job No.:

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		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		Integral Orifice Flow Transmitter					
Contractor Job No:		Doc. No:					
Owner Job No:		Sheet No. : 1 of 3					
GENERAL DATA	1	TAG NUMBER		FT-4401			
	2	SERVICE		Propane to T-351			
	3	P & ID No.		0044			
OPERATING CONDITIONS	4	LINE SIZE	PIPING CLASS		1"	1DS4	
	5	FLUID	STATE		Propane	Liquid	
	6	FLOW Kg/h	MIN.	NORM.	MAX.		
	7	OP. INLET PRESS. barg	OPER. TEMP. °C		31	35	
	8	Design PRESS. (barg)	Design TEMP. °C		38	-60/+260	
	9	MOL.WEIGHT Kg/Kmol	DENSITY Kg/m ³		44.1	440	
	10	VISCOSITY @OP. CONDITION m pa's		0,01 cp			
METER	11	CONNECTION TYPE		FLANGED			
	12	CONNECTION SIZE	RATING	FACING	1"	300# RF	
	13	RANGE (Kg/h)					
	14	ACCURACY		+/- 2 % F.S. FOR LIQUIDS AND +/-1 %F.S. FOR GASES			
	15	INSTALLATION		horizontal			
	16	LENGTH		700 mm			
	17	Diameter ratio beta β		0.33			
	18	Pipe inner diam. at oper. temp. (D)		0.96 inch (1.315 - 2 * 0.18)			
	19	Bore diameter at oper. temp. (d)		0.32 inch (To be Checked by Vendor)			
	20	FLANGE MATERIAL		SS-316L- ASME B16.5			
	21	Differential pressure in Upper range value(URV)		400 mbar in 600 kg/h			
	22	Required straight lengths at Upstream: 1 bend (90°)		1.7 ft (uncertainty = 0.21)			
	23	Required straight lengths at Downstream: any		0.6 ft (uncertainty = 0.21)			
	24	Version		compact Deltatop DO65F15, DN15 (DP/O meter run)			
TRANSMITTER	25	Differential Pressure Transmitter Model		Deltabar M PMD55			
	26	Nominal Pressure PN		160bar/16MPa/2400psi			
	27	ELECTRICAL CONNECTIONS		M20 x 1.5mm ISO x 2EA (SIGNAL & POWER)			
	28	OUTPUT SIGNAL		4-20mA HART			
	29	Sensor Nominal Value		500mbar/50kPa/7.5psi			
	30	Display, Operation		LCD, push button on display/electronics			
	31	INGRESS PROTECTION		IP67			
	32	ENCLOSURE PROTECTION		EE xia , IIC , T4			
	33	Membrane Material		316L			
	34	Fill Fluid		Silicone oil			
	35	CABLE GLANDS		YES			
	36	Sensor Process Connection		NPT1/4-18 IEC61518 UNF7/16-20, H1Installation impulse line			
PURCHASE	37	REQUISITION No.	ITEM			1	
	38	MANUFACTURER		Endress+Hauser 9944423134-E1T			
	39	SERIAL No. of Sensor		PMD55-BA21BA77FDLHAJA1A+AAZ1			
	40	SERIAL No. of meter run		DO65F15-CCFBS1RAB1AAA1AAAAL2BEBD+Z1			
2	12/16/2021	02	IFA	K.A	M.N	AA.SH	
1	10/10/2021	01	IFA	K.A/ V.V	M.N	M.A	
No.	Date	Rev	Status	Prepared	Checked	Approved	

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

TITLE: FLOW TRANSMITTER DATA SHEET

FLOW TRANSMITTER DATA SHEET

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		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		Integral Orifice Flow Transmitter						
		Contractor Job No:		Doc. No:				
		Owner Job No:		Sheet No. :				
GENERAL DATA	1	TAG NUMBER			FT - 4402			
	2	SERVICE			LPS TO E 352			
	3	P & ID No.			0044			
	4	LINE SIZE	PIPING CLASS		1 1/2"	2DC4		
OPERATING CONDITIONS	5	FLUID	STATE		STEAM	GAS		
	6	FLOW Kg/h	MIN.	NORM.	MAX.	6	60	72
	7	OP. INLET PRESS. barg	OPER. TEMP. °C		2	120		
	8	Design PRESS. (barg)	Design TEMP. °C		4	150		
	9	MOL.WEIGHT Kg/Kmol	DENSITY Kg/m ³		18	1.7		
	10	VISCOSITY @OP. CONDITION m pa's			0.014 m pa's			
METER	11	CONNECTION TYPE			FLANGED			
	12	CONNECTION SIZE	RATING	FACING	1 1/2"	150#	RF	
	13	RANGE (Kg/h)						
	14	ACCURACY			+/- 2 % F.S. FOR LIQUIDS AND +/-1 %F.S. FOR GASES			
	15	INSTALLATION			horizontal			
	16	LENGTH			700 mm			
	17	Diameter ratio beta β			0.3			
	18	Pipe inner diam. at oper. temp. (D)			1.6 inch (1.9 - 2 * 0.145)			
	19	Bore diameter at oper. temp. (d)			0.465 inch (To be Checked by Vendor)			
	20	FLANGE MATERIAL			A105 ASME B16.5			
	21	Differential pressure in Upper range value(URV)			300 mbar in 72 kg/h			
	22	Required straight lengths at Upstream: 1 bend (90°)			1.7 ft (uncertainty = 0.21)			
	23	Required straight lengths at Downstream: any			0.6 ft (uncertainty = 0.21)			
24	Version			remote Deltatop DO65F20, DN20 (DP/O meter run)				
TRANSMITTER	25	Differential Pressure Transmitter Model			Deltabar M PMD55			
	26	Nominal Pressure PN			160bar/16MPa/2400psi			
	27	ELECTRICAL CONNECTIONS			M20 x 1.5mm ISO x 2EA (SIGNAL & POWER)			
	28	OUTPUT SIGNAL			4-20mA HART			
	29	Sensor Nominal Value			500mbar/50kPa/7.5psi			
	30	Display, Operation			LCD, push button on display/electronics			
	31	INGRESS PROTECTION			IP67			
	32	ENCLOSURE PROTECTION			EE xia , IIC , T6			
	33	Membrane Material			316L			
	34	Fill Fluid			Silicone oil			
	35	CABLE GLANDS			YES			
	36	Sensor Process Connection			NPT1/4-18 IEC61518 UNF7/16-20, 316L, H1Installation impulse line			
PURCHASE	37	REQUISITION No.	ITEM		1			
	38	MANUFACTURER			Endress+Hauser 9944423132-E1T			
	39	SERIAL No. of Sensor			PMD55-BA21BA77HDLHGJA1A+AAZ1			
	40	SERIAL No. of meter run			DO65F20-FBFBQ1RAH1AAA1AAACA2BCBD+Z1			
2	12/18/2021	2	IFA	K.A	M.N	AA.SH		
1	10/10/2021	01	IFA	K.A/ V.V	M.N	M.A		
No.	Date	Rev	Status	Prepared	Checked	Approved		

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

TITLE: FLOW TRANSMITTER DATA SHEET

FLOW TRANSMITTER DATA SHEET

CONTRACTOR:

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PROJECT: PP-PE PILOT PLANT




TITLE: FLOW TRANSMITTER DATA SHEET

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A	X										
B	X										
C	X										
Integral Orifice Type Flow transmitter											
1	X										
2	X										
3	X										
0											

Revision	Date	Prepared By	Checked By	Approved By	Status
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		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		Integral Orifice Flow Transmitter						
		Contractor Job No:		Doc. No:				
		Owner Job No:		Sheet No. :				
GENERAL DATA	1	TAG NUMBER		FT-4403				
	2	SERVICE		1-Butene to R-411 R-421				
	3	P & ID No.		0044				
	4	LINE SIZE	PIPING CLASS		1/2"	1DS4		
OPERATING CONDITIONS	5	FLUID	STATE		1-Butene	Liquid		
	6	FLOW Kg/h	MIN.	NORM.	MAX.	2	20	24
	7	OP. INLET PRESS. barg	OPER. TEMP. °C		31	105		
	8	Design PRESS. (barg)	Design TEMP. °C		38	-60/+260		
	9	MOL. WEIGHT Kg/Kmol	DENSITY Kg/m³		56.11	462		
	10	VISCOSITY @OP. CONDITION m pa's		0,14 (1) cp				
METER	11	CONNECTION TYPE		FLANGED				
	12	CONNECTION SIZE	RATING	FACING	1/2"	300#	RF	
	13	RANGE (Kg/h)						
	14	ACCURACY		+/- 2 % F.S. FOR LIQUIDS AND +/-1 %F.S. FOR GASES				
	15	INSTALLATION		horizontal				
	16	LENGTH		700 mm				
	17	Diameter ratio beta β		0.15				
	18	Pipe inner diam. at oper. temp. (D)		0.55 inch (0.84 - 2 * 0.147)				
	19	Bore diameter at oper. temp. (d)		0.08 inch (To be Checked by Vendor)				
	20	FLANGE MATERIAL		SS-316L- ASME B16.5				
	21	Differential pressure in Upper range value(URV)		150 mbar in 24 kg/h				
	22	Required straight lengths at Upstream: 1 bend (90°)		1.7 ft (uncertainty = 0.21)				
	23	Required straight lengths at Downstream: any		0.6 ft (uncertainty = 0.21)				
	24	Version		compact Deltatop DO65F15, DN15 (DP/O meter run)				
TRANSMITTER	25	Differential Pressure Transmitter Model		Deltabar M PMD55				
	26	Nominal Pressure PN		160bar/16MPa/2400psi				
	27	ELECTRICAL CONNECTIONS		M20 x 1.5mm ISO x 2EA (SIGNAL & POWER)				
	28	OUTPUT SIGNAL		4-20mA HART				
	29	Sensor Nominal Value		500mbar/50kPa/7.5psi				
	30	Display, Operation		LCD, push button on display/electronics				
	31	INGRESS PROTECTION		IP67				
	32	ENCLOSURE PROTECTION		EE xia , IIC , T6				
	33	Membrane Material		316L				
	34	Fill Fluid		Silicone oil				
	35	CABLE GLANDS		YES				
	36	Sensor Process Connection		NPT1/4-18 IEC61518 UNF7/16-20,				
PURCHASE	37	REQUISITION No.	ITEM			1		
	38	MANUFACTURER		Endress+Hauser 994423134-E1T				
	39	SERIAL No. of Sensor		PMD55-BA21BA77FDLHAJA1A+AAZ1				
	40	SERIAL No. of meter run		DO65F15-CCFBS1RAB1AAA1AAA2BEBD+Z1				
NOTES: (1) HCM SHOULD BE CHANGE AS FOR COMPOSITION								
2	12/18/2021	2	IFA	K.A	M.N	AA.SH		
1	10/10/2021	01	IFA	K.A/ V.V	M.N	M.A		
No.	Date	Rev	Status	Prepared	Checked	Approved		

PROJECT: PP-PE PILOT PLANT



TITLE: INSPECTION & TEST PLAN FOR FLOW TRANSMITTER

شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

INSPECTION & TEST PLAN FOR FLOW TRANSMITTER

Document No.:900-ITP-A4-IN-0016

Rev.: 0

Owner Job No.:

Type: ITP

Contract Job No.:

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8						38					
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0		8/24/2021		K.A.		M.N.		M.A		IFA	
Revision	Date	Prepared By			Checked By		Approved By		Status		
Document revision											
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						Contract Job No.:				Page B	

ITP FOR FLOW TRANSMITTER



ABBREVIATION ON TYPE OF INSPECTION

H: Hold Point, inspection notification required. During hold point inspection, the witness will be performed.
The Vendor shall not proceed with the work until presence of the inspector or written consent of the inspector.
W: Inspection activities performed by the Vendor and witnessed by the inspector. Inspection notification required.
If the Inspector is not present, the Vendor may perform the inspection/tests as scheduled unless otherwise requested.
S: Witness, but spot check basis, inspection notification required. Initial operation will be witnessed and subsequent operation will be witnessed at discretion of the inspector considering the results of previous inspection unless otherwise inspection % specified.
R: Review of inspection records and/or specified document
M: Vendor's inspection and tests X: Required

No.	1. Inspection/Tests by the OWNER				4. Certificate/Data to be Provided by Vendor	Procedure & Standards	Remarks
	2. Inspection/Tests by Purchaser and/or Purchaser's Representative						
	3.						
01	R	W	M		(Orifice plate/ring, Restriction orifice) Visual inspection	Approved procedure and drawings	
02	R	W	M	X	Checking of characteristics including the following items as minimum: 1)Check material certificate 2)Check of indications shown on tag.	Approved procedure and drawings	
03	R	W	M	X	Dimensional inspection including surface state on the upstream side	Approved procedure and drawings	
04	H	H	M		Preparation for shipment	Approved procedure and drawings	
05	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	
06	R	W	M		(Orifice flange) Visual inspection	Approved procedure and drawings	
07	R	S	M	X	Dimensional inspection including tap stamping check	Approved procedure and drawings	
08	R	R	M	X	Mill test reports	Approved procedure and drawings	
09	R	R	M	X	Non-destructive examination, when specified	Approved procedure and drawings	
10	H	H	M		Preparation for shipment	Approved procedure and drawings	
11	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	
20	R	W	M		(Differential pressure flow meter and transmitter) Visual inspection	Approved procedure and drawings	
21	R	S	M		Dimensional inspection	Approved procedure and drawings	
22	R	S	M	X	Pressure test	Approved procedure and drawings	
23	R	W	M	X	Calibration check	Approved procedure and drawings	
24	W	H	M	X	Performance test including: - hysteresis, sensitivity and reliability check	Approved procedure and drawings	
25	R	S	M	X	Insulation resistance test	Approved procedure and drawings	
26	R	S	M	X	High voltage test	Approved procedure and drawings	
27	W	H	M	X	Check all foundation fieldbus transmitters for interoperability check certificate and function block check certificate	Approved procedure and drawings	
28	H	H	M		Preparation for shipment	Approved procedure and drawings	
29	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	

Note: Percent of witness for type "S" shall be depend on the quantity as follows: 3 to 20→3(all if total 2 and less), 20 to 40→5, 50 to 100→10, 100 to 200→15, 200 to 300→20, 300 to 500→25.
For another type, percent of witness inspection shall be 100%.

PROJECT: PP-PE PILOT PLANT

TITLE: Level Transmitter Data Sheet



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

Contractor Job No: Doc. No: 900-DAS-A4-IN-0008
Owner Job No: Sheet No: 1 of 25

General Data	1	Tag No.	LT - 0201			
	2	Tap N° .				
	3	P&ID No.	Piping Size	Class	Line. No	V - 021
	4	Fluid	State			
	5	Service	V 021 LEVEL			
	6	Pressure rating	Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	8	Area Classification	Area ZONE 1 000			
	9	Upper fluid	AIR			
	10	Upper fluid Sp . Gr	Unit	1.1		Kg/m3
	11	Lower fluid	WATER GLYCOL			
	12	Lower fluid Sp . Gr	Unit	1084		Kg/m3
	13	Type of connections	1" #300			
	14	Normal Temperature	Unit	5		°C
	15	Max Temperature	Unit	-30 +100		°C
	16	Normal Pressure	Unit	0.1		barg
	17	Max Pressure	Unit	10		barg
	18	Allow . Press . Drop	Unit			barg
	19	Measurement Range	Unit	900 mm water		mm
TRANSMITTER	20	Function	Indicating Transmitter			
	21	TYPE	D/P Cell			
	22	Case Material	AISI 304			
	23	Mounting	on Bracket			
	24	Measuring Range	0-100%			
	25	Accuracy	0.20%			
	26	Wetted Part Material	AISI 316			
	27	Degree of Protection	IP 65			
	28	Explosion Protection	EExib IIB T3			
	29	Process connection	to be suit to direct connection to manifold			
	30	Element Material	AISI 316L			
	31	Electrical Connection	M20			
	32	Out Put Signal	4-20 mA-Loop Powered, HART			
	Accessories	33	Local Indication	Yes		
34		Manifold	5 valve			
35		Others	Bracket, Suitable for 2" pipe			
1	0	12/13/2021	IFA	K.A	M.N	AA.SH
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT

TITLE: Level Transmitter Data Sheet



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

Contractor Job No: Doc. No: 900-DAS-A4-IN-0008

Owner Job No: Sheet No: 2 of 25

General Data	1	Tag No.	LT - 0301			
	2	Tap N° .				
	3	P&ID No.	Piping Size	Class	Line. No	V - 031
	4	Fluid	State			
	5	Service	V 031 LEVEL			
	6	Pressure rating	Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	8	Area Classification	Area ZONE 1 000			
	9	Upper fluid	AIR			
	10	Upper fluid Sp . Gr	Unit	1.1	Kg/m3	
	11	Lower fluid	WATER			
	12	Lower fluid Sp . Gr	Unit	1000	Kg/m3	
	13	Type of connections	1" #300			
	14	Normal Temperature	Unit	25	°C	
	15	Max Temperature	Unit	-10+100	°C	
	16	Normal Pressure	Unit	0.1	barg	
	17	Max Pressure	Unit	10	barg	
	18	Allow . Press . Drop	Unit		barg	
	19	Measurement Range	Unit	900 mm water	mm	
TRANSMITTER	20	Function	Indicating Transmitter			
	21	TYPE	D/P Cell			
	22	Case Material	AISI 304			
	23	Mounting	on Bracket			
	24	Measuring Range	0-100%			
	25	Accuracy	0.20%			
	26	Wetted Part Material	AISI 316			
	27	Degree of Protection	IP 65			
	28	Explosion Protection	EExib IIB T3			
	29	Process connection	FLANGED-DIAPHRAGM SEAL(2" 300#) WITH CAPILLARY TUBE			
	30	Element Material	AISI 316L			
	31	Electrical Connection	M20			
	32	Out Put Signal	4-20 mA-Loop Powered, HART			
	Accessories	33	Local Indication	Yes		
34		Manifold	NA			
35		Others	Bracket, Suitable for 2" pipe			
1	0	12/13/2021	IFA	K.A	M.N	AA.SH
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT

TITLE: Level Transmitter Data Sheet




شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی


Contractor Job No: Doc. No: 900-DAS-A4-IN-0008
Owner Job No: Sheet No: 20 of 25

General Data	1	Tag No.	LT - 6103			
	2	Tap N° .				
	3	P&ID No.	Piping Size	Class	Line. No	T-611(K1 K4)
	4	Fluid	State			
	5	Service	T611 LEVEL			
	6	Pressure rating	Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	8	Area Classification	Area		ZONE 1	600
	9	Upper fluid	NITROGEN PROCESS (1)			
	10	Upper fluid Sp . Gr	Unit	1.2	Kg/m3	
	11	Lower fluid	WATER			
	12	Lower fluid Sp . Gr	Unit	1000	Kg/m3	
	13	Type of connections	Diaphragm on flange with extension			
	14	Normal Temperature	Unit	30	°C	
	15	Max Temperature	Unit	150	°C	
	16	Normal Pressure	Unit	0.5	barg	
	17	Max Pressure	Unit	6	barg	
	18	Allow . Press . Drop	Unit		barg	
	19	Measurement Range	Unit	850	mm	
TRANSMITTER	20	Function	Indicating Transmitter			
	21	TYPE	D/P Cell			
	22	Case Material	AISI 304			
	23	Mounting	on Bracket			
	24	Measuring Range	0-100%			
	25	Accuracy	0.20%			
	26	Wetted Part Material	AISI 316			
	27	Degree of Protection	IP 65			
	28	Explosion Protection	EExib IIB T3			
	29	Process connection	FLANGED-DIAPHRAGM SEAL(3" 300#) WITH CAPILLARY TUBE			
	30	Element Material	AISI 316L			
	31	Electrical Connection	M20			
	32	Out Put Signal	4-20 mA-Loop Powered, HART			
	Accessories	33	Local Indication	Yes		
34		Manifold	NA			
35		Others	Bracket, Suitable for 2" pipe - cable gland			

NOTE:(1) Is assumed with nitrogen & monomers
centerline connections=450mm over lower tangent line

1	0	2013.05.31	IFA	S.S.	A.R.	A.N.
No.	Rev	Date	Status	Prepared	Checked	Approved

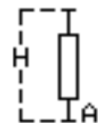
		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		DATA SHEET FOR D.P. CELL LEVEL METER				
Contractor Job No:		Doc. No:				
Owner Job No:		Sheet No. : of				
1	TAG N°	LT-4101				
2	Quantity	2				
3	Service	R 411 LEVEL				
4	Revision	0 ISSUED				
5	Primary Element	Vessel		K2a-K2b R 411		
6		Material		SS		
7		Type of connections		Diaphragm on flange with extension		
8		Upper fluid (GAS phase)		HCM=(H2=1.68% C2=7% C3+=89.79% c4=1.53%)		
9		Upper fluid Sp. Gr. (GAS phase)	Kg/m ³	55.34		
10		Lower fluid (solid phase)		HCM + POLYMER= (polymer & H2=1.68% & C2=7% & C3+=89.79% & c4=1.53%)		
11		Lower fluid Sp. Gr. (solid phase)	Kg/m ³	300		
12		Normal temperature		°C 75		
13		Max. temperature		°C 180		
14		Normal pressure		barg 25		
15		Max. pressure		barg 30		
16		Suspend solids		Yes		
17		Liable to solidify or crystallize		Yes		
18		Condens. temp. at op. press.		°C -----		
19		Fluid, if any, avail. for scrubbing		-----		
20		Measurement range:		range mm	range mm water	2900 mm 875 mm
21		Recomm. Type	Instrument type		DP-cell	
22			Body shape		"A"	
23			Centerline connections		-----	
24			Primary element material		ss	
25	Installation		outdoor			
26	Indic/recorder installation		0±100%			
27	Level rises valve:		<input type="checkbox"/> Opens	<input type="checkbox"/> Closes		
28	Control modes:		oP oPI oPID			

PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
DATA SHEET FOR D.P. CELL LEVEL METER		
Contractor Job No:	Doc. No:	
Owner Job No:	Sheet No. :	of


29		Output signal	4 to 20 mA , HART , 24 V DC Loop power	
30		Sensor Nominal value PN mbar	VTA	
31		Measurement limit	lower (LRL) mbar	VTA
32			upper (URL) mbar	VTA
33		range calibration at nominal flow	Lower range value (LRV) mbar	VTA
34			upper range value (URV) mbar	VTA
35		Smallest span mbar (factory calibration)	VTA	
36		maximum working pressure; MWP = PN Bar	VTA	
37		Min. operating pressure mbar-abs	VTA	
38		Damping sec	2	
39		ENCLOSURE PROTECTION	EE xia , IIC , T6	
40		Mounting Position (Remote version or compact Transmitter)	VTA (Recommend=Remote)	
41		Display, Operation	LCD, push button on display electronics-Indicating Transmitter	
42		CABLE GLANDS -Electrical Connection	Gland M20 IP66/68	
43		Body & External surface Material (cover)	SS 304	
44	EXTENDED DIAPHRAGM	Process connection Type	4"	400#
45		Size		
46		Process isolating diaphragm material	SS 316L	
47		EXTENDED LENGTH	200 mm	
48		Capillary Length	leg low pressure =4 m & leg high pressure=2 m	
49		Fill Fluid	YES	
50	PURCHASE	MANUFACTURER	VTA	
51		MODEL	VTA	
52		REQUISITION No.	VTA	1
53		Qty		
54		Ordering code information	VTA	
55		SERIAL No.	VTA	
		Certificates & Calibration	pressure test, inspection certificate-Works calib. certificate 5-point	
		accessary	Mounting bracket + adapter plate 304 + Marking(Tagging)	


Note: VTA = vendor to advise

- Compact version: transmitter and sensor form a mechanical unit
- Remote version: transmitter and sensor are mounted physically separate from one another



10/10/2021	AFC	K.A / V.V	M.N	M.A
Date	Status	Prepared	Checked	Approved

		PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		DATA SHEET FOR D.P. CELL LEVEL METER			
Contractor Job No:		Doc. No:			
Owner Job No:		Sheet No. : of			
1	TAG N°	LT-4201			
2	Service	R 421 LEVEL			
3	Revision	0 ISSUED			
4	Vessel	K2a-K2b R 421			
5	Material	SS			
6	Type of connections	Diaphragm on flange with extension			
7	Upper fluid (GAS phase)	HCM=(H2=7.75% C2=25% C3+=58.47% c4=8.78%)			
8	Upper fluid Sp. Gr. (GAS phase)	Kg/m ³	42.35		
9	Lower fluid (solid phase)	HCM + POLYMER= (polymer & H2=7.75% C2=25% C3+=58.47% c4=8.78%)			
10	Lower fluid Sp. Gr. (solid phase)	Kg/m ³	300		
11	Normal temperature	°C	75		
12	Max. temperature	°C	180		
13	Normal pressure	barg	25		
14	Max. pressure	barg	30		
15	Suspend solids	Yes			
16	Liable to solidify or crystallize	Yes			
17	Condens. temp. at op. press.	°C	-----		
18	Fluid, if any, avail. for scrubbing	-----			
19	Measurement range:	range mm	range mm water	3900 mm	1170 mm
20	Recomm. Type	Instrument type		DP-cell	
21		Body shape		"A"	
22		Centerline connections		-----	
23		Primary element material		SS	
24	Installation	outdoor			
25	Indic/recorder installation	0-100%			
26	Level rises valve:	oOpens		oCloses	
27	Control modes:	oP oPI oPID			

PROJECT: PP-PE PILOT PLANT		 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
DATA SHEET FOR D.P. CELL LEVEL METER		
Contractor Job No:	Doc. No:	
Owner Job No:	Sheet No. :	of

28	INSTRUMENT	Output signal	4 to 20 mA , HART , 24 V DC Loop power		
29		Sensor Nominal value PN mbar	VTA		
30		Measurement limit	lower (LRL) mbar	VTA	
31			upper (URL) mbar	VTA	
32		range calibration at nominal flow	Lower range value (LRV) mbar	VTA	
33			upper range value (URV) mbar	VTA	
34		Smallest span mbar (factory calibration)	VTA		
35		maximum working pressure; MWP = PN Bar	VTA		
36		Min. operating pressure mbar-abs	VTA		
37		Damping sec	2		
38		ENCLOSURE PROTECTION	EE xia , IIC , T6		
39		Mounting Position (Remote version or compact Transmitter)	VTA (Recommend=Remote)		
40		Display, Operation	LCD, push button on display electronics-Indicating Transmitter		
41		CABLE GLANDS -Electrical Connection	Gland M20 IP66/68		
42	Body & External surface Material (cover)	SS 304			
43	EXTENDED DIAPHRAGM	Process connection Type	Size	Class	
44		Process isolating diaphragm material	SS 316L		
45		EXTENDED LENGTH	200 mm		
46		Capillary Length	leg low pressure =5 m & leg high pressure=2 m		
47	Fill Fluid	YES			
48	PURCHASE	MANUFACTURER	VTA		
49		MODEL	VTA		
50		REQUISITION No.	Qty	VTA	1
51		Ordering code information	VTA		
52		SERIAL No.	VTA		
53		Certificates & Calibration	pressure test, inspection certificate-Works calib. certificate 5-point		
54		accessary	Mounting bracket + adapter plate 304 + Marking(Tagging)		

Note: VTA = vendor to advise

- Compact version: transmitter and sensor form a mechanical unit
- Remote version: transmitter and sensor are mounted physically separate from one another

10/10/2021	AFC	K.A / V.V	M.N	M.A
Date	Status	Prepared	Checked	Approved



PROJECT: PP-PE PILOT PLANT



TITLE: INSPECTION & TEST PLAN FOR DIFF. PRESS. TRANSMITTER

شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

INSPECTION & TEST PLAN FOR DIFFERENTIAL PRESSURE TRANSMITTER

Document No.:900-ITP-A4-IN-0005

Rev.: 1

Owner Job No.:

Type: ITP

Contract Job No.:

Page A

REV. PAGE	0	1	2	3	4	REV. PAGE	0	1	2	3	4
A	X					29					
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27						57					
28						58					
4											
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1											
0	12/18/2021			K.A		M.N		AA.SH			IFA
Revision	Date			Prepared By		Checked By		Approved By			Status
Document revision											
						Document No.: 900-ITP-A4-IN-0005			Rev.: 1		
						Owner Job No.:			Type: ITP		
						Contract Job No.:			Page B		

ITP FOR DIFFERENTIAL PRESSURE TRANSMITTER





ABBREVIATION ON TYPE OF INSPECTION
 H: Hold Point, inspection notification required. During hold point inspection, the witness will be performed.
 The Vendor shall not proceed with the work until presence of the inspector or written consent of the inspector.
 W: Inspection activities performed by the Vendor and witnessed by the inspector. Inspection notification required.
 S: Witness, but spot check basis, inspection notification required. Initial operation will be witnessed and subsequent operation will be witnessed at discretion of the inspector considering the results of previous inspection unless otherwise inspection % specified.
 R: Review of inspection records and/or specified document
 M: Vendor's inspection and tests X: Required


- 1. Inspection/Tests by the OWNER
- 2. Inspection/Tests by Purchaser and/or Purchaser's Representative
- 3. Inspection/Tests to be Performed by Vendor as a Minimum
- 4. Certificate/Data to be Provided by Vendor


No.	1.	2.	3.	4.	Inspection/Test Items	Procedure & Standards	Remarks
01	R	W	M		(Differential Pressure transmitter)		
02	R	S	M		Visual inspection	Approved procedure and drawings	
03	R	S	M	X	Dimensional inspection	Approved procedure and drawings	
04	R	W	M	X	Pressure test	Approved procedure and drawings	
05	W	H	M	X	Calibration check	Approved procedure and drawings	
					Performance test including: Linearity and Accuracy	Approved procedure and drawings	
06	R	S	M	X	Insulation resistance test	Approved procedure and drawings	
07	R	S	M	X	High voltage test	Approved procedure and drawings	
08	H	H	M		Preparation for shipment	Approved procedure and drawings	
09	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	


Note: Percent of witness for type "S" shall be depend on the quantity as follows: 3 to 20→3(all if total 2 and less), 20 to 40→5, 50 to 100→10, 100 to 200→15, 200 to 300→20, 300 to 500→25.
 For another type, percent of witness inspection shall be 100%.


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Differential Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0005			
		Owner Job No:		Sheet No: 1 of 1			
General Data	1	Tag No.		PDT - 3504			
	2	Tap N° .					
	3	P&ID No.	Piping Size	Piping Class	0035	3"(FT-351)	1DS4 (FT-351)
	4	Fluid	State		MONOMERS(1)	GAS	
	5	Service		FT 351 PRESS			
	6	Pressure rating	Piping material		300#	STAINLESS STEEL	
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification	Area		ZONE 1	300	
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit		Kg/h	
	10		Min. Continuous	Unit		Kg/h	
	11		Full Scale	Unit		Kg/h	
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature	Unit	50 - 80	°C		
	16	Max Temperature	Unit	100	°C		
	17	Normal Pressure	Unit	18	barg		
	18	Max Pressure	Unit	28	barg		
	19	Allow . Press . Drop	Unit		barg		
	20	Sp . Gr	Gases Vapours	Unit		kg/m3	
	21		Liquids	Unit		kg/m3	
	22		Mol.Weight	Unit		kg/kmol	
	23	Viscosity at OP . Cond	Unit		m pa's		
24	OP . Compressib . Factor						
25	Solids in suspension						
26	Sensing element material						
27	tracing	Jacketing					
TRANSMITTER	28	Function		Indicating Transmitter			
	29	TYPE		d/p Cell			
	30	Case Material		AISI 304			
	31	Mounting		on Bracket			
	32	Measuring Range		0 - 1 BAR			
	33	Accuracy		0.20%			
	34	Wetted Part Material		AISI 316			
	35	Degree of Protection		IP 65			
	36	Explosion Protection		EExib IIB T3			
	37	Process connection		FLANGED-DIAPHRAGM SEAL(3" 300#) WITH CAPILLARY TUBE			
	38	Element Material		AISI 316L			
	39	Electrical Connection		M20			
40	Out Put Signal		4-20 mA-Loop Powered, HART				
Accessories	41	Local Indication		Yes			
	42	Manifold		YES			
	43	Others		Bracket, Suitable for 2" pipe			
NOTE: (1) It is assumed propylene to define instrument							
Connections type : Diaphragm on flange with extension							
Op visc (when>10 mpa) = 0.01							
1	0	12/18/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Differential Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: 1 of 1			
General Data	1	Tag No.		PDT - 5301			
	2	Tap No .		FT-531(N5A/B)			
	3	P&ID No.	Piping Size	Piping Class	0053		
	4	Fluid	State		NITROGEN	GAS	
	5	Service		FT-531 Differential PRESS			
	6	Pressure rating	Piping material				
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification	Area		ZONE 1	500	
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	Kg/h		
	10		Min. Continuous	Unit	Kg/h		
	11		Full Scale	Unit	Kg/h		
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit	20-50	°C	
	16	Max Temperature		Unit	100	°C	
	17	Normal Pressure		Unit	0.08	barg	
	18	Max Pressure		Unit	0.12	barg	
	19	Allow . Press . Drop	Unit		barg		
	20	Sp . Gr	Gases Vapours	Unit	kg/m3		
	21		Liquids	Unit	kg/m3		
	22		Mol.Weight	Unit	kg/kmol		
	23	Viscosity at OP . Cond		Unit	m pa's		
	24	OP . Compressib . Factor					
	25	Solids in suspension					
26	Sensing element material						
27	tracing	Jacketing					
TRANSMITTER	28	Function		Indicating Transmitter			
	29	TYPE		Differential Pressure			
	30	Case Material		AISI 304			
	31	Mounting		on Bracket (Pipe Mounting)			
	32	Measuring Range		0 - 50 mbar			
	33	Accuracy		0.20%			
	34	Wetted Part Material		AISI 316			
	35	Degree of Protection		IP 65			
	36	Explosion Protection		Eexia IIC T4			
	37	EX Protection Requirement		Gas: None	Dust: Zone 22		
	38	Process connection		SCREWED, 1/2" 14 NPT EXT			
39	Element Material		AISI 316				
40	Electrical Connection		M20				
41	Out Put Signal		4-20 mA-Loop Powered, HART				
Accessories	42	Local Indication		Yes			
	43	Manifold		YES			
	44	Others		Bracket, Suitable for 2" pipe - cable gland			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Differential Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: 1 of 1			
General Data	1	Tag No.		PDT - 5302			
	2	Tap No .		FT-532(N5A/B)			
	3	P&ID No.	Piping Size	Piping Class	0053		
	4	Fluid	State		NITROGEN	GAS	
	5	Service		FT-532 Differential PRESS			
	6	Pressure rating		Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification		Area		ZONE 1	500
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit		Kg/h	
	10		Min. Continuous	Unit		Kg/h	
	11		Full Scale	Unit		Kg/h	
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit	20-50	°C	
	16	Max Temperature		Unit	100	°C	
	17	Normal Pressure		Unit	0.08	barg	
	18	Max Pressure		Unit	0.12	barg	
	19	Allow . Press . Drop		Unit		barg	
	20	Sp . Gr	Gases Vapours	Unit		kg/m3	
	21		Liquids	Unit		kg/m3	
	22		Mol.Weight	Unit		kg/kmol	
	23	Viscosity at OP . Cond		Unit		m pa's	
	24	OP . Compressib . Factor					
	25	Solids in suspension					
26	Sensing element material						
27	tracing		Jacketing				
TRANSMITTER	28	Function		Indicating Transmitter			
	29	TYPE		Differential Pressure			
	30	Case Material		AISI 304			
	31	Mounting		on Bracket (Pipe Mounting)			
	32	Measuring Range		0 - 50 mbar			
	33	Accuracy		0.20%			
	34	Wetted Part Material		AISI 316			
	35	Degree of Protection		IP 65			
	36	Explosion Protection		Eexia IIC T4			
	37	EX Protection Requirement		Gas: None	Dust: Zone 22		
	38	Process connection		SCREWED, 1/2" 14 NPT EXT			
39	Element Material		AISI 316				
40	Electrical Connection		M20				
41	Out Put Signal		4-20 mA-Loop Powered, HART				
Accessories	42	Local Indication		Yes			
	43	Manifold		YES			
	44	Others		Bracket, Suitable for 2" pipe - cable gland			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Differential Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: 1 of 1			
General Data	1	Tag No.		PDT - 5401			
	2	Tap No .		FT-541(N5A/B)			
	3	P&ID No.	Piping Size	Piping Class	0054		
	4	Fluid	State		NITROGEN	GAS	
	5	Service		FT-541 Differential PRESS			
	6	Pressure rating		Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification		Area	ZONE 1		500
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit	Kg/h		
	10		Min. Continuous	Unit	Kg/h		
	11		Full Scale	Unit	Kg/h		
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit	20-50	°C	
	16	Max Temperature		Unit	100	°C	
	17	Normal Pressure		Unit	0.08	barg	
	18	Max Pressure		Unit	0.12	barg	
	19	Allow . Press . Drop		Unit	barg		
	20	Sp . Gr	Gases Vapours	Unit	kg/m3		
	21		Liquids	Unit	kg/m3		
	22		Mol.Weight	Unit	kg/kmol		
	23	Viscosity at OP . Cond		Unit	m pa's		
	24	OP . Compressib . Factor					
	25	Solids in suspension					
26	Sensing element material						
27	tracing		Jacketing				
TRANSMITTER	28	Function		Indicating Transmitter			
	29	TYPE		Differential Pressure			
	30	Case Material		AISI 304			
	31	Mounting		on Bracket (Pipe Mounting)			
	32	Measuring Range		0 - 50 mbar			
	33	Accuracy		0.20%			
	34	Wetted Part Material		AISI 316			
	35	Degree of Protection		IP 65			
	36	Explosion Protection		Eexia IIC T4			
	37	EX Protection Requirement		Gas: None	Dust: Zone 22		
	38	Process connection		SCREWED, 1/2" 14 NPT EXT			
39	Element Material		AISI 316				
40	Electrical Connection		M20				
41	Out Put Signal		4-20 mA-Loop Powered, HART				
Accessories	42	Local Indication		Yes			
	43	Manifold		YES			
	44	Others		Bracket, Suitable for 2" pipe			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Differential Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: 1 of 1			
General Data	1	Tag No.		PDT - 5402			
	2	Tap No .		FT-542(N5A/B)			
	3	P&ID No.	Piping Size	Piping Class	0054		
	4	Fluid	State		NITROGEN		GAS
	5	Service		FT-542 Differential PRESS			
	6	Pressure rating		Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification		Area		ZONE 1	
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit			Kg/h
	10		Min. Continuous	Unit			Kg/h
	11		Full Scale	Unit			Kg/h
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit	20-50	°C	
	16	Max Temperature		Unit	100	°C	
	17	Normal Pressure		Unit	0.08	barg	
	18	Max Pressure		Unit	0.12	barg	
	19	Allow . Press . Drop		Unit			barg
	20	Sp . Gr	Gases Vapours	Unit			kg/m3
	21		Liquids	Unit			kg/m3
	22		Mol.Weight	Unit			kg/kmol
	23	Viscosity at OP . Cond		Unit			m pa's
	24	OP . Compressib . Factor					
	25	Solids in suspension					
26	Sensing element material						
27	tracing		Jacketing				
TRANSMITTER	28	Function		Indicating Transmitter			
	29	TYPE		Differential Pressure			
	30	Case Material		AISI 304			
	31	Mounting		on Bracket (Pipe Mounting)			
	32	Measuring Range		0 - 50 mbar			
	33	Accuracy		0.20%			
	34	Wetted Part Material		AISI 316			
	35	Degree of Protection		IP 65			
	36	Explosion Protection		Eexia IIC T4			
	37	EX Protection Requirement		Gas: None		Dust: Zone 22	
	38	Process connection		SCREWED, 1/2" 14 NPT EXT			
39	Element Material		AISI 316				
40	Electrical Connection		M20				
41	Out Put Signal		4-20 mA-Loop Powered, HART				
Accessories	42	Local Indication		Yes			
	43	Manifold		YES			
	44	Others		Bracket, Suitable for 2" pipe			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Differential Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: 1 of 1			
General Data	1	Tag No.		PDT - 5403			
	2	Tap No .		FT-543(N5A/B)			
	3	P&ID No.	Piping Size	Piping Class	0054		
	4	Fluid	State		NITROGEN		GAS
	5	Service		FT-543 Differential PRESS			
	6	Pressure rating		Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification		Area		ZONE 1	
PROCESS CONDITION	9	Flowrate	Max. Continuous	Unit			Kg/h
	10		Min. Continuous	Unit			Kg/h
	11		Full Scale	Unit			Kg/h
	12	Meters	Operation		hours/24		
	13		Piping arrangement				
	14		Flow direction				
	15	Normal Temperature		Unit	20-50	°C	
	16	Max Temperature		Unit	100	°C	
	17	Normal Pressure		Unit	0.08	barg	
	18	Max Pressure		Unit	0.12	barg	
	19	Allow . Press . Drop		Unit			barg
	20	Sp . Gr	Gases Vapours	Unit			kg/m3
	21		Liquids	Unit			kg/m3
	22		Mol.Weight	Unit			kg/kmol
	23	Viscosity at OP . Cond		Unit			m pa's
	24	OP . Compressib . Factor					
	25	Solids in suspension					
26	Sensing element material						
27	tracing		Jacketing				
TRANSMITTER	28	Function		Indicating Transmitter			
	29	TYPE		Differential Pressure			
	30	Case Material		AISI 304			
	31	Mounting		on Bracket (Pipe Mounting)			
	32	Measuring Range		0 - 50 mbar			
	33	Accuracy		0.20%			
	34	Wetted Part Material		AISI 316			
	35	Degree of Protection		IP 65			
	36	Explosion Protection		Eexia IIC T4			
	37	EX Protection Requirement		Gas: None		Dust: Zone 22	
	38	Process connection		SCREWED, 1/2" 14 NPT EXT			
39	Element Material		AISI 316				
40	Electrical Connection		M20				
41	Out Put Signal		4-20 mA-Loop Powered, HART				
Accessories	42	Local Indication		Yes			
	43	Manifold		YES			
	44	Others		Bracket, Suitable for 2" pipe			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

PROJECT: PP-PE PILOT PLANT



TITLE: INSPECTION & TEST PLAN FOR PRESS. TRANSMITTER

شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

INSPECTION & TEST PLAN FOR PRESSURE TRANSMITTER

Document No.:900-ITP-A4-IN-0004

Rev.: 0

Owner Job No.:

Type: ITP

Contract Job No.:

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0	8/24/2021			K.A.		M.N.		M.A			IFA
Revision	Date			Prepared By		Checked By		Approved By			Status
Document revision											
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ITP FOR PRESSURE TRANSMITTER





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No.	1. Inspection/Tests by the OWNER	2. Inspection/Tests by Purchaser and/or Purchaser's Representative	3. Inspection/Tests to be Performed by Vendor as a Minimum	4. Certificate/Data to be Provided by Vendor	Inspection/Test Items	Procedure & Standards	Remarks
					(Pressure transmitter)		
01	R	W	M		Visual inspection	Approved procedure and drawings	
02	R	S	M		Dimensional inspection	Approved procedure and drawings	
03	R	S	M	X	Pressure test	Approved procedure and drawings	
04	R	W	M	X	Calibration check	Approved procedure and drawings	
05	W	H	M	X	Performance test including: Linearity and Accuracy	Approved procedure and drawings	
06	R	S	M	X	Insulation resistance test	Approved procedure and drawings	
07	R	S	M	X	High voltage test	Approved procedure and drawings	
08	H	H	M		Preparation for shipment	Approved procedure and drawings	
09	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	


ABBREVIATION ON TYPE OF INSPECTION
 H: Hold Point, inspection notification required. During hold point inspection, the witness will be performed.
 The Vendor shall not proceed with the work until presence of the inspector or written consent of the inspector.
 W: Inspection activities performed by the Vendor and witnessed by the inspector. Inspection notification required.
 S: Witness, but spot check basis, inspection notification required. Initial operation will be witnessed and subsequent operation will be witnessed at discretion of the inspector considering the results of previous inspection unless otherwise inspection % specified.
 R: Review of inspection records and/or specified document
 M: Vendor's inspection and tests X: Required


Note: Percent of witness for type "S" shall be depend on the quantity as follows: 3 to 20→3(all if total 2 and less), 20 to 40→5, 50 to 100→10, 100 to 200→15, 200 to 300→20, 300 to 500→25.
 For another type, percent of witness inspection shall be 100%.


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 0101			
	2	Service		HYDROGEN AT . B. L .			
	3	Tap No					
	4	P&ID No.	Line No	Area	000		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1"	1FS4	
	7	Pressure Rating		Piping Material	600#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	HYDROGEN	GAS	
	11	Normal Temperature		Unit	+40	°C	
	12	Max Temperature		Unit	-45 +120	°C	
	13	Normal Pressure		Unit	55	barg	
	14	Max Pressure		Unit	65	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.009	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 70 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		Exib IIC T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 0102			
	2	Service		ETHYLENE AT . B. L .			
	3	Tap No					
	4	P&ID No.	Line No	Area		000	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		1"	1FS4
	7	Pressure Rating		Piping Material		600#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		ETHYLENE	GAS
	11	Normal Temperature		Unit		+40	°C
	12	Max Temperature		Unit		-40 +120	°C
	13	Normal Pressure		Unit		55	barg
	14	Max Pressure		Unit		65	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.014	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Dircet			
	30	Measuring Range		0 - 70 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		Exib IIC T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Dircet Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 3 of 59			
Primary Element	1	Tag No.		PT - 0103			
	2	Service		PROPYLENE AT . B . L .			
	3	Tap No					
	4	P&ID No.	Line No	Area		000	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		1"	1FS4
	7	Pressure Rating		Piping Material		600#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		PROPYLENE	LIQUID
	11	Normal Temperature		Unit		+40	°C
	12	Max Temperature		Unit		-40 +120	°C
	13	Normal Pressure		Unit		55	barg
	14	Max Pressure		Unit		65	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.014	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 + 70 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 0104			
	2	Service		BUTENE AT . B . L .			
	3	Tap No					
	4	P&ID No.	Line No	Area		000	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		1"	1FS4
	7	Pressure Rating		Piping Material		600#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		BUTENE	LIQUID
	11	Normal Temperature		Unit		25	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		55	barg
	14	Max Pressure		Unit		65	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.14	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 + 70 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Integral Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 5 of 59			
Primary Element	1	Tag No.		PT - 0105			
	2	Service		HEXANE AT . B . L .			
	3	Tap No					
	4	P&ID No.	Line No	Area	0001	0101	000
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		1"	1CS1
	7	Pressure Rating		Piping Material		150#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT	
	10	Fluid		State		HEXANE	LIQUID
	11	Normal Temperature		Unit		AMB	°C
	12	Max Temperature		Unit		170	°C
	13	Normal Pressure		Unit		5	barg
	14	Max Pressure		Unit		10	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 15 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 3 of 59			
Primary Element	1	Tag No.		PT - 0106			
	2	Service		PROPANE AT . B . L .			
	3	Tap No					
	4	P&ID No.	Line No	Area		0101	000
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		1"	1FS4
	7	Pressure Rating		Piping Material		600#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		PROPANE	LIQUID
	11	Normal Temperature		Unit		AMB	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		55	barg
	14	Max Pressure		Unit		65	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.014	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 70 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/16/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 6 of 59			
Primary Element	1	Tag No.		PT - 0120			
	2	Service		LOW PRESSRE STEAM AT . B. L .			
	3	Tap No					
	4	P&ID No.	Line No	Area	0001	0101	000
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	3"	3CC6(IA)	
	7	Pressre Rating		Piping Material	150#	CARBON STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	STEAM	GAS	
	11	Normal Temperature		Unit	162	°C	
	12	Max Temperature		Unit	180	°C	
	13	Normal Pressure		Unit	5	barg	
	14	Max Pressure		Unit	6.5	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 -10 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 7 of 59			
Primary Element	1	Tag No.		PT - 0122			
	2	Service		INSTRUMENT AIR AT . B . L .			
	3	Tap No					
	4	P&ID No.	Line No	Area	0001	0101	000
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	2"	1CG	
	7	Pressure Rating		Piping Material	150#	GALVANIZED CARBON STEEL	
	8	Connections		Material	C.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	AIR	GAS	
	11	Normal Temperature		Unit	AMB	°C	
	12	Max Temperature		Unit	50	°C	
	13	Normal Pressure		Unit	7	barg	
	14	Max Pressure		Unit	12	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 12 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 8 of 59			
Primary Element	1	Tag No.		PT - 0123			
	2	Service		NITROGEN AT . B. L .			
	3	Tap No					
	4	P&ID No.	Line No	Area	0001	0101	000
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1 1/2"	1CC2	
	7	Pressure Rating		Piping Material	150#	CARBON STEEL	
	8	Connections		Material	C.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	NITROGEN	GAS	
	11	Normal Temperature		Unit	AMB	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	5	barg	
	14	Max Pressure		Unit	7	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 10 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 0128			
	2	Service		COOLING WATER AT . B . L .			
	3	Tap No					
	4	P&ID No.	Line No	Area	0001	0101	000
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		8"	4CC2
	7	Pressure Rating		Piping Material		150#	CARBON STEEL
	8	Connections		Material		C.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		WATER	LIQUID
	11	Normal Temperature		Unit		27	°C
	12	Max Temperature		Unit		50	°C
	13	Normal Pressure		Unit		4	barg
	14	Max Pressure		Unit		6	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 10 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 16 of 59			
Primary Element	1	Tag No.		PT - 1201			
	2	Service		PRESS P 121			
	3	Tap No					
	4	P&ID No.	Line No	Area	012	1204	100
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1/2"	1FS4(ET)	
	7	Pressure Rating		Piping Material	600#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	ALKYL(1)	LIQUID	
	11	Normal Temperature		Unit	3	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	55	barg	
	14	Max Pressure		Unit	65	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.28	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 70 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) Alkyl solution at 100g/l is assumed as for hexane condition							
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 17 of 59			
Primary Element	1	Tag No.		PT - 1301			
	2	Service		PRESS P 131			
	3	Tap No					
	4	P&ID No.	Line No	Area	013	1308	100
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1/2"	1FS4(ET)	
	7	Pressure Rating		Piping Material	600#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	DONOR (1)	LIQUID	
	11	Normal Temperature		Unit	30	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	55	barg	
	14	Max Pressure		Unit	65	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.28	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 100 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) Donor solution at 30g/1 is assumed as for hexane condition							
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 18 of 59			
Primary Element	1	Tag No.		PT - 1401			
	2	Service		PRESS. P141			
	3	Tap No					
	4	P&ID No.	Line No	Area	014	1407	100
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1/2"	1FS4(ET)	
	7	Pressure Rating		Piping Material	600#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	ATMER (1)	LIQUID	
	11	Normal Temperature		Unit	30	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	55	barg	
	14	Max Pressure		Unit	65	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.28(1)	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0-100			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) Atmer solution at 100g/l is assumed as for hexane condition							
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Pressure Transmitter Data Sheet						
		Contractor Job No:		Doc. No:				
		Owner Job No:		Sheet No: of				
Primary Element	1	Tag No.		PT 2101				
	2	Service		PRESSRE R 211				
	3	P&ID No.	Line No	Area	021	K1	200	
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	5	Piping Size		Piping Class				
	6	Presre Rating		Piping Material				
	7	PT Connections	Material		SS 316L			
	8		Type		1/2" 3000# , NPT, THR. ANSI B2.1			
	9	Fluid		State	SLURRY	LIQUID		
	10	Normal Temperature		Unit	20	°C		
	11	Max Temperature		Unit	180	°C		
	12	Normal Pressure		Unit	30	barg		
	13	Max Pressure		Unit	65	barg		
	14	Solids in suspension		NO				
	15	Sensing element material		SS 316L				
	16	tracing		Jacketing	NO	NO		
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics				
	18	TYPE		VTA				
	19	Sensor Range		80bar				
	20	Power Supply		Loop Powered (24 V DC)				
	21	Case Material - Housing		SS 304				
	22	Mounting		2" Pipe - bracket				
	23	Measurement Range		0 - 50 barg				
	24	Accuracy		0.20%				
	25	Wetted Part Material		SS 316 L				
	26	Degree of Protection		IP 66				
	27	Explosion Protection		Ex ia IIC T6				
28	Electrical Connection		Gland M20, IP66					
29	Output Signal		4-20mA HART-Loop Powered,					
Diaphragm	30	Type	size & Rating	Direct Diaphragm	1/2" 3000# , NPT, THR. ANSI B2.1			
	31	EXT. LENGTH (TUBE LENGTH)		-				
	32	Material		SS 316L				
	33	Seal Liquid		Fill Silicone oil				
34	Capillary Length		-					
Accessories	36	Manifold		YES				
	37	Others		Tag Number				
PURCHASE	38	MANUFACTURER		VTA				
	39	SERIAL No.		VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved		
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A		
1	0	2018.03.01	IFA	A.A	M.R	M.D		


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		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 2201			
	2	Service		PRESSURE R 221			
	3	P&ID No.	Line No	Area	022	K1	200
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class			
	6	Presre Rating		Piping Material			
	7	PT Connections	Material		SS 316L		
	8		Type		1/2" 3000# , NPT, THR. ANSI B2.1		
	9	Fluid		State	SLURRY	LIQUID	
	10	Normal Temperature		Unit	20	°C	
	11	Max Temperature		Unit	-60 _ +180	°C	
	12	Normal Pressure		Unit	30	barg	
	13	Max Pressure		Unit	65	barg	
	14	Solids in suspension		NO			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		Cerabar M PMP55			
	19	Sensor Range		80 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range	0 - 50 barg			
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Direct Diaphragm	1/2" 3000# , NPT , THR. ANSI B2.1		
	31	EXT. LENGTH (TUBE LENGTH)		-			
	32	Material		SS 316LSS			
	33	Seal Liquid		Fill Silicone oil			
Accessories	34	Capillary Length		-			
	36	Manifold		YES			
PURCHASE	37	Others		Tag Number			
	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 2501			
	2	Service		PRESSURE R 251			
	3	P&ID No.	Line No	Area	025	2505	200
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class	3/4"	IFS4	
	6	Pressre Rating		Piping Material	300#	STAINLESS STEEL	
	7	PT Connections	Material		SS 316L		
	8		Type		1/2" ,3000# , NPT, THR. ANSI B2.1		
	9	Fluid		State	MONOMERS	LIQUID	
	10	Normal Temperature		Unit	20	°C	
	11	Max Temperature		Unit	-60 _ +180	°C	
	12	Normal Pressure		Unit	28	barg	
	13	Max Pressure		Unit	40	barg	
	14	Solids in suspension		NO			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		VTA			
	19	Sensor Range		50 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range	0 - 50 barg			
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Direct Diaphragm	1/2" ,3000# , NPT, THR. ANSI B2.1		
	31	EXT. LENGTH (TUBE LENGTH)		-			
	32	Material		SS 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		-				
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
3	2	12/18/2021	IFA	K.A	M.N	AA.SH	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 2601			
	2	Service		PRESSURE R261			
	3	P&ID No.	Line No	Area	026	2601	200
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class	1"	IFS4	
	6	Pressre Rating		Piping Material	600#	STAINLESS STEEL	
	7	PT Connections	Material		SS 316L		
	8		Type		1/2" ,3000# , NPT, THR. ANSI B2.1		
	9	Fluid		State	MONOMERS	LIQUID	
	10	Normal Temperature		Unit	20	°C	
	11	Max Temperature		Unit	100	°C	
	12	Normal Pressure		Unit	27	barg	
	13	Max Pressure		Unit	40	barg	
	14	Solids in suspension		NO			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		VTA			
	19	Sensor Range		50 BAR			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range	0 - 50 barg			
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Direct Diaphragm	1/2" ,3000# , NPT, THR. ANSI B2.1		
	31	EXT. LENGTH (TUBE LENGTH)		-			
	32	Material		SS 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		-				
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 31 of 59			
Primary Element	1	Tag No.		PT - 3201			
	2	Service		TK 321 PRESS			
	3	Tap No					
	4	P&ID No.	Line No	Area	032	3218	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	2"	1DS4(IA)	
	7	Pressure Rating		Piping Material	300#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	PROPYLENE	GAS	
	11	Normal Temperature		Unit	50	°C	
	12	Max Temperature		Unit	150	°C	
	13	Normal Pressure		Unit	18	barg	
	14	Max Pressure		Unit	25	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.01	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 30 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 32 of 59			
Primary Element	1	Tag No.		PT - 3202			
	2	Service		TK 321 VENT			
	3	Tap No		K2 (1" #300)			
	4	P&ID No.	Line No	Area	032	TK 321	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	2"	1DS4(IA)	
	7	Pressure Rating		Piping Material	300#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	PROPYLENE	GAS	
	11	Normal Temperature		Unit	35	°C	
	12	Max Temperature		Unit	(-45) +120	°C	
	13	Normal Pressure		Unit	18	barg	
	14	Max Pressure		Unit	25	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.01	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 30 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Extended Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remore mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 3401			
	2	Service		TK 341 VENT			
	3	P&ID No.	Line No	Area	034	K2 (1" #150 RF)	300
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class			
	6	Pressure Rating		Piping Material			
	7	PT Connections	Material		SS 316L		
	8		Type		1", 150# , Flange RF S.S		
	9	Fluid		State		NITROGEN	GAS
	10	Normal Temperature		Unit		AMB	°C
	11	Max Temperature		Unit		-45 _ +200	°C
	12	Normal Pressure		Unit		1.5	barg
	13	Max Pressure		Unit		3.5	barg
	14	Solids in suspension		NO			
	15	Op. visc. (when > 10 mPa's)		mPa's		0.01	
	16	Sensing element material		SS 316L			
	17	tracing		Jacketing		NO	NO
TRANSMITTER	18	Display Operation		LCD, push button on display/electronics			
	19	TYPE		VTA			
	20	Sensor Range		5 bar			
	21	Power Supply		Loop Powered (24 V DC)			
	22	Case Material - Housing		SS 304			
	23	Mounting		Direct			
	24	Measurement Range		0 - 5 barg			
	25	Accuracy		0.20%			
	26	Wetted Part Material		AISI 316 L			
	27	Degree of Protection		IP 66			
	28	Explosion Protection		Ex ia IIC T6			
	29	Electrical Connection		Gland M20, IP66			
	30	Output Signal		4-20mA HART-Loop Powered,			
Diaphragm	31	Type	size & Rating	Direct Diaphragm	1",150# , RF		
	32	EXT. LENGTH (TUBE LENGTH)		-			
	33	Material		SS 316L			
	34	Seal Liquid		Fill Silicone oil			
	35	Capillary Length		-			
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 3402			
	2	Service		P 341 RECYCLE			
	3	P&ID No.	Line No	Area	034	3406	300
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class	1"	IFS4	
	6	Pressre Rating		Piping Material	600#	STAINLESS STEEL	
	7	PT Connections	Material		SS 316L		
	8		Type		1/2", 3000#, NPT, THR. ANSI B2.1		
	9	Fluid	State		HEXENE	LIQUID	
	10	Normal Temperature	Unit		AMB	°C	
	11	Max Temperature	Unit		100	°C	
	12	Normal Pressure	Unit		55	barg	
	13	Max Pressure	Unit		65	barg	
	14	Solids in suspension		NO			
	15	Op. visc. (when > 10 mPa's)		mPa's		0.24	
	16	Sensing element material		SS 316L			
	17	tracing	Jacketing		NO	NO	
TRANSMITTER	18	Display Operation		LCD, push button on display/electronics			
	19	TYPE		VTA			
	20	Sensor Range		80bar			
	21	Power Supply		Loop Powered (24 V DC)			
	22	Case Material - Housing		SS 304			
	23	Mounting		2" Pipe - bracket			
	24	Measurement	Range		0 - 70 barg		
	25	Accuracy		0.20%			
	26	Wetted Part Material		AISI 316 L			
	27	Degree of Protection		IP 66			
	28	Explosion Protection		Ex ia IIC T6			
29	Electrical Connection		Gland M20, IP66				
30	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	31	Type	size & Rating	Direct Diaphragm	1/2", 3000#, NPT, THR. ANSI B2.1		
	32	EXT. LENGTH (TUBE LENGTH)		-			
	33	Material		SS 316L			
	34	Seal Liquid		Fill Silicone oil			
Accessories	35	Capillary Length		-			
	36	Manifold		YES			
PURCHASE	37	Others		Tag Number			
	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 3405			
	2	Service		PRESS TK-343			
	3	Tap No					
	4	P&ID No.	Line No	Area		300	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		2"	1CL1
	7	Pressure Rating		Piping Material		150#	CARBON STEEL
	8	Connections		Material		C.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		HEXANE	LIQUID
	11	Normal Temperature		Unit		AMB	°C
	12	Max Temperature		Unit		AMB	°C
	13	Normal Pressure		Unit		0.1-0.3	barg
	14	Max Pressure		Unit		5	barg
	15	Solids in suspension		NO			
	16	Op . Visc . (when > 10 mpa's)		Unit			
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 6 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating		NA	NA	
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/13/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 39 of 59			
Primary Element	1	Tag No.		PT - 3501			
	2	Service		FT 351 TO BDG			
	3	Tap No					
	4	P&ID No.	Line No	Area	035	3501	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	3"	1DS4(P)	
	7	Pressure Rating		Piping Material	300#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	MONOMERS (1)	GAS	
	11	Normal Temperature		Unit	50 - 80	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	18	barg	
	14	Max Pressure		Unit	28	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.01(1)	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 30 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Direct Diaphragm	NA		
Accessories	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
	43	Local Indication		Yes			
Accessories	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) It is assumed propylene to define instrument							
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 40 of 59			
Primary Element	1	Tag No.		PT - 3502			
	2	Service		FT 351 PRESS			
	3	Tap No					
	4	P&ID No.	Line No	Area	035	3501	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	3"	1DS4(P)	
	7	Pressure Rating		Piping Material	300#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	MONOMERS (1)	GAS	
	11	Normal Temperature		Unit	50 - 80	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	18	barg	
	14	Max Pressure		Unit	28	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.01(1)	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 30 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) It is assumed propylene to define instrument							
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT			 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet				
		Contractor Job No:	Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:	Sheet No: 41 of 59			
Primary Element	1	Tag No.		PT - 3505		
	2	Service		V 351 PRESS		
	3	Tap No		K1 (1" #300)		
	4	P&ID No.	Line No	Area	035	V 351 300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	6	Piping Size		Piping Class	1"	1DS4(P)
	7	Pressure Rating		Piping Material	300#	STAINLESS STEEL
	8	Connections		Material	S.S	
	9			Type	1/2" NPT MALE	
	10	Fluid		State	PROPYLENE	GAS
	11	Normal Temperature		Unit	75	°C
	12	Max Temperature		Unit	150	°C
	13	Normal Pressure		Unit	23	barg
	14	Max Pressure		Unit	30	barg
	15	Solids in suspension				
	16	Op . Visc . (when > 10 mpa's)		Unit	0.01	mpa's
	17	L.iable to solidify or crystalize				
	18	Fluid if any available for purge				
	19	Sensing element material				
	20	tracing		Jacketing		
TRANSMITTER	25	Function		Indicating Transmitter		
	26	TYPE		Gauge Pressure Transmitter		
	27	Power Supply		Loop Powered (24 V DC)		
	28	Case Material		AISI 304		
	29	Mounting		Direct		
	30	Measuring Range		0 - 30 barg		
	31	Accuracy		0.20%		
	32	Wetted Part Material		AISI 316		
	33	Degree of Protection		IP 65		
	34	Explosion Protection		EExib IIB T3		
35	Process connection		1/2" NPT Female			
36	Element Material		AISI 316L			
37	Electrical Connection		Gland M20			
38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	Extended Diaphragm	NA	
	40	Material		NA		
	41	Seal Liquid		NA		
	42	Capillary Length		NA		
Accessories	43	Local Indication		Yes		
	44	Manifold		2 Valve-Remote mount		
	45	Others		NA		
1	0	12/14/2021	IFA	K.A	M.N AA.SH	
No.	Rev	Date	Status	Prepared	Checked Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 42 of 59			
Primary Element	1	Tag No.		PT - 3506			
	2	Service		LPS TO I° FLASH PIPE			
	3	Tap No					
	4	P&ID No.	Line No	Area	035	3506	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1/2"	3CC6(IA)	
	7	Pressure Rating		Piping Material	150#	CARBON STEEL	
	8	Connections		Material	C.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	STEAM	GAS	
	11	Normal Temperature		Unit	100 - 120	°C	
	12	Max Temperature		Unit	180	°C	
	13	Normal Pressure		Unit	0.1 - 1.3	barg	
	14	Max Pressure		Unit	6.5	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.014	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 6 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 43 of 59			
Primary Element	1	Tag No.		PT - 3507			
	2	Service		LPS TO II° FLASH PIPE			
	3	Tap No					
	4	P&ID No.	Line No	Area	035	3505	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1/2"	3CC6(IA)	
	7	Pressure Rating		Piping Material	150#	CARBON STEEL	
	8	Connections		Material	C.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	STEAM	GAS	
	11	Normal Temperature		Unit	100 - 120	°C	
	12	Max Temperature		Unit	180	°C	
	13	Normal Pressure		Unit	0.1 - 1.3	barg	
	14	Max Pressure		Unit	6.5	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.014	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 + 6 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 44 of 59			
Primary Element	1	Tag No.		PT - 3508			
	2	Service		LPS TO III° FLASH PIPE			
	3	Tap No					
	4	P&ID No.	Line No	Area	035	3504	300
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1/2"	3CC6(IA)	
	7	Pressure Rating		Piping Material	150#	CARBON STEEL	
	8	Connections		Material	C.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	STEAM	GAS	
	11	Normal Temperature		Unit	100 - 120	°C	
	12	Max Temperature		Unit	180	°C	
	13	Normal Pressure		Unit	0.1 - 1.3	barg	
	14	Max Pressure		Unit	6.5	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.014	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 6 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Direct Diaphragm	NA		
Accessories	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/14/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 17 of 17			
Primary Element	1	Tag No.		PT - 3601			
	2	Service		T 361 / E 361 PRESSURE			
	3	P&ID No.	Line No	Area	036	300	
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	AREA CLASSIFICATION				ZONE 1	
	6	Piping Size		Piping Class	1"	1DS4	
	7	Pressre Rating		Piping Material	300#	STAINLESS STEEL	
	8	PT Connections	Material		SS 316L		
	9		Type		Thread ANSI MNPT1/2 hole 11.4mm, 316L		
	10	Fluid		State	HCM (1)	GAS	
	11	Normal Temperature		Unit	42	°C	
	12	Max Temperature		Unit	120	°C	
	13	Normal Pressure		Unit	18	barg	
	14	Max Pressure		Unit	28	barg	
	15	Solids in suspension				NO	
	16	Sensing element material				SS 316L	
	17	tracing		Jacketing	
TRANSMITTER	18	Function		LCD, push button on display/electronics			
	19	TYPE		Cerabar M PMP51			
	20	Sensor Range		Range: 40bar/4MPa			
	21	Power Supply		Loop Powered (24 V DC)			
	22	Case Material		F31 Alu, Glass window			
	23	Mounting		Direct			
	24	Calibration Range		0-30 barg			
	25	Accuracy		0.20%			
	26	Wetted Part Material		AISI 316 L			
	27	Degree of Protection		IP 66			
	28	Explosion Protection		ATEX II 1/2G Ex ia IIC T4			
29	Electrical Connection		Gland M20				
30	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm Seal	31	Type	size & Rating	Metal process isolating Extended diaphragm		NA	
	32	EXT. LENGTH (TUBE LENGTH)				NA	
	33	Material				STAINLESS STEEL	
	34	Seal Liquid				Fill Silicone oil	
	35	Capillary Length				NA	
Accessories	36	Local Indication				Yes	
	37	Manifold				2 valve Remote mount	
	38	Others				NA	
PURCHASE	39	MANUFACTURER					
	42	SERIAL No.					
NOTE: (1) HCM should be change as for composition							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:					
Primary Element	1	Tag No.		PT - 4001			
	2	Service		V-401 Pressure			
	3	Tap No					
	4	P&ID No.	Line No	Area	P1		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	AREA CLASSIFICATION		ZONE 1			
	7	Piping Size		Piping Class	1"	1FS4	
	8	Pressre Rating		Piping Material	600#	STAINLESS STEEL	
	9	Connections		Material			
	10			Type			
	11	Fluid		State	Propane & Ethylene	GAS	
	12	Normal Temperature		Unit	25	°C	
	13	Max Temperature		Unit	100	°C	
	14	Normal Pressure		Unit	1	barg	
	15	Max Pressure		Unit	30	barg	
	16	Solids in suspension		No			
	17	Op . Visc . (when > 10 mpa's)		Unit		mpa's	
	18	L.i.able to solidify or crystalize		No			
	19	Fluid if any available for purge		No			
	20	Sensing element material		SS316L			
	21	tracing		Jacketing	No	No	
TRANSMITTER	22	Function		Indicating Transmitter			
	23	TYPE		VTA			
	24	Power Supply		Loop Powered (24 V DC)			
	25	Case Material		AISI 304			
	26	Mounting		1" Pipe-Bracket			
	27	Measuring Range		barg 0-40			
	28	Accuracy		0.20%			
	29	Wetted Part Material		AISI 316L			
	30	Degree of Protection		IP 65			
	31	Explosion Protection		EExia-IIC T6			
	32	Process connection		1/2" NPT Female			
	33	Element Material		AISI 316L			
	34	Electrical Connection		Gland M20, IP66			
	35	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	36	Type	size & Rating	Capsul	1" 3000# NPT MALE		
	37	EXT. LENGTH (TUBE LENGTH)		VTA			
	38	Material		SS 316L			
	39	Seal Liquid		Fill Silicone oil			
Accessories	40	Capillary Length		NA			
	41	Local Indication		Yes			
	42	Manifold		2 Valve-Integral with transmitter			
	43	Others		Tag Number			
01	10/10/2021	IFA	K.A	M.N	M.A		
No.	Rev	Date	Status	Prepared	Checked	Approved	


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		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:					
		Owner Job No:					
Primary Element	1	Tag No.		PT - 4002			
	2	Service		V-402 Pressure			
	3	Tap No					
	4	P&ID No.	Line No	Area	P1		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	AREA CLASSIFICATION		ZONE 1			
	7	Piping Size	Piping Class		1"	1FS4	
	8	Pressre Rating	Piping Material		600#	STAINLESS STEEL	
	9	Connections	Material				
	10		Type		1/2" NPT Female		
	11	Fluid	State		Propane & Ethylene	GAS	
	12	Normal Temperature	Unit		25	°C	
	13	Max Temperature	Unit		100	°C	
	14	Normal Pressure	Unit		1	barg	
	15	Max Pressure	Unit		30	barg	
	16	Solids in suspension		No			
	17	Op . Visc . (when > 10 mpa's)	Unit			mpa's	
	18	L.i.able to solidify or crystalize		No			
	19	Fluid if any available for purge		No			
	20	Sensing element material		SS316L			
	21	tracing	Jacketing		No	No	
TRANSMITTER	22	Function		Indicating Transmitter			
	23	TYPE		VTA			
	24	Power Supply		Loop Powered (24 V DC)			
	25	Case Material		AISI 304			
	26	Mounting		1" Pipe-Bracket			
	27	Measuring Range		barg 0-40			
	28	Accuracy		0.20%			
	29	Wetted Part Material		AISI 316			
	30	Degree of Protection		IP 65			
	31	Explosion Protection		EExia-IIC T6			
	32	Process connection		1/2" NPT Female			
	33	Element Material		AISI 316L			
	34	Electrical Connection		Gland M20, IP66			
	35	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	36	Type	size & Rating	Capsul	1" 3000# NPT MALE		
	37	EXT. LENGTH (TUBE LENGTH)		VTA			
	38	Material		SS316L			
	39	Seal Liquid		Fill Silicone oil			
Accessories	40	Capillary Length		NA			
	41	Local Indication		Yes			
	42	Manifold		2 Valve-Integral with transmitter			
	43	Others		Tag Number			
01	10/10/2021	IFA	K.A	M.N	M.A		
No.	Rev	Date	Status	Prepared	Checked	Approved	


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		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Quantity: 2			
Primary Element	1	Tag No.		PT 4101			
	2	Service		R 411 PRESSURE CONTROLE			
	3	P&ID No.	Line No	Area	041	4101	10000
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class	1 "	IFS4	
	6	Pressre Rating		Piping Material	600#	STAINLESS STEEL	
	7	PT Connections	Material		SS 316L		
	8		Type		1/2", 3000#, NPT, THR. ANSI B2.1		
	9	Fluid	State		HCM	GAS	
	10	Normal Temperature	Unit		75	°C	
	11	Max Temperature	Unit		150	°C	
	12	Normal Pressure	Unit		25	barg	
	13	Max Pressure	Unit		30	barg	
	14	Solids in suspension		NO			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		VTA			
	19	Sensor Range		40 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range	0 - 35 barg			
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Direct Diaphragm	1/2", 3000#, NPT, THR. ANSI B2.1		
	31	EXT. LENGTH (TUBE LENGTH)		-			
	32	Material		SS 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		-				
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


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		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Quantity: 2			
Primary Element	1	Tag No.		PRC 4102			
	2	Service		R 411 PRESURE CONTROL			
	3	P&ID No.	Line No	Area	041	K1	400
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class			
	6	Presre Rating		Piping Material			
	7	PT Connections	Material		SS 316L		
	8		Type		2" ,300 # , LF. PAD. ANSI ..		
	9	Fluid		State	HCM	GAS	
	10	Normal Temperature		Unit	75	°C	
	11	Max Temperature		Unit	180	°C	
	12	Normal Pressure		Unit	27	barg	
	13	Max Pressure		Unit	30	barg	
	14	Solids in suspension		YES			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics...			
	18	TYPE		VTA			
	19	Sensor Range		40 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range	0 - 35 barg			
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Extended Diaphragm Seal Connection	2" , 300 #, RF, FLANGED, ANSI B16.5		
	31	EXT. LENGTH (TUBE LENGTH)		80 mm			
	32	Material		SS 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		-				
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 4201			
	2	Service		R 421 PRESSURE CONTROL			
	3	P&ID No.	Line No	Area	042	4201	400
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class	1"	IFS4	
	6	Pressre Rating		Piping Material	600#	STAINLESS STEEL	
	7	PT Connections	Material		SS 316L		
	8		Type		1/2" 3000# , NPT , THR. ANSI B2.1		
	9	Fluid	State		HCM	GAS	
	10	Normal Temperature	Unit		75	°C	
	11	Max Temperature	Unit		150	°C	
	12	Normal Pressure	Unit		25	barg	
	13	Max Pressure	Unit		30	barg	
	14	Solids in suspension		NO			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		VTA			
	19	Sensor Range		40 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range		0 - 35 barg		
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Direct Diaphragm	1/2", 3000# , NPT, THR. ANSI B2.1		
	31	EXT. LENGTH (TUBE LENGTH)		-			
	32	Material		SS 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		-				
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 4202			
	2	Service		R421 PRSSERE CONTROL			
	3	P&ID No.	Line No	Area	042	K1	400
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class			
	6	Pressre Rating		Piping Material			
	7	PT Connections	Material		SS 316L		
	8		Type		2", 300 #, RF, PAD ANSI		
	9	Fluid		State		LIQUID	
	10	Normal Temperature		Unit		75	°C
	11	Max Temperature		Unit		180	°C
	12	Normal Pressure		Unit		27	barg
	13	Max Pressure		Unit		30	barg
	14	Solids in suspension		YES			
	15	Sensing element material		SS 316L			
	16	tracing	Jacketing		NO	NO	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		VTA			
	19	Sensor Range		40 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		2" Pipe - bracket			
	23	Measurement	Range		0 - 35 barg		
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
28	Electrical Connection		Gland M20, IP66				
29	Output Signal		4-20mA HART-Loop Powered,				
Diaphragm	30	Type	size & Rating	Extended Diaphragm Seal Connection	2", 300 #, RF, FLANGED, ANSI B16.5		
	31	EXT. LENGTH (TUBE LENGTH)		85 mm			
	32	Material		SS 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		-				
Accessories	36	Manifold		YES			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER		VTA			
	39	SERIAL No.		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	
1	0	2018.03.01	IFA	A.A	M.R	M.D	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT 4401			
	2	Service		E-351 PRSSERE CONTROL			
	3	P&ID No.	Line No	Area	0044		
	4	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	5	Piping Size		Piping Class		1"	
	6	Pressre Rating		Piping Material		#300	STAINLESS STEEL
	7	PT Connections	Material		SS 304L		
	8		Type		Flange 1" 300 RF, ANSI		
	9	Fluid		State	Propane & Ethylene	GAS	
	10	Normal Temperature		Unit	50	°C	
	11	Design Temperature		Unit	-60/+230	°C	
	12	Normal Pressure		Unit	31	barg	
	13	Design Pressure		Unit	38	barg	
	14	Solids in suspension					
	15	Sensing element material		SS 316L			
	16	tracing		Jacketing	
TRANSMITTER	17	Display Operation		LCD, push button on display/electronics			
	18	TYPE		VTA			
	19	Sensor Range		50 bar			
	20	Power Supply		Loop Powered (24 V DC)			
	21	Case Material - Housing		SS 304			
	22	Mounting		1" Pipe - bracket			
	23	Calibration Range		0 - 50 barg			
	24	Accuracy		0.20%			
	25	Wetted Part Material		AISI 316 L			
	26	Degree of Protection		IP 66			
	27	Explosion Protection		Ex ia IIC T6			
	28	Electrical Connection		Gland M20, IP66			
	29	Output Signal		4-20mA HART-Loop Powered,			
Diaphragm Seal	30	Type	size & Rating	Extended Diaphragm Seal Connection	Flange 1" 300 RF, ANSI		
	31	EXT. LENGTH (TUBE LENGTH)		80 mm			
	32	Material		STAINLESS STEEL 316L			
	33	Seal Liquid		Fill Silicone oil			
34	Capillary Length		NA				
Accessories	36	Manifold		...			
	37	Others		Tag Number			
PURCHASE	38	MANUFACTURER					
	39	SERIAL No.					
No.	Rev	Date	Status	Prepared	Checked	Approved	
2	2	12/18/2021	IFA	K.A	M.N	AA.SH	
1	1	2021.10.10	IFA	K.A/ V.V	M.N	M.A	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 5301			
	2	Service		Blowers Suction Press.			
	3	Tap No					
	4	P&ID No.	Line No	Area	0053	5307	500
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		4"	1CS2
	7	Pressure Rating		Piping Material		#150	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		NITROGEN	GAS
	11	Normal Temperature		Unit		45	°C
	12	Max Temperature		Unit		85	°C
	13	Normal Pressure		Unit		0.1	barg
	14	Max Pressure		Unit		0.5	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 2 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 5303			
	2	Service		BL-531 Discharge Pressure			
	3	Tap No					
	4	P&ID No.	Line No	Area	0053	5305	500
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		3"	1CS2
	7	Pressure Rating		Piping Material		#150	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		NITROGEN	GAS
	11	Normal Temperature		Unit		40	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		0.4	barg
	14	Max Pressure		Unit		0.9	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 4 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		PT - 5304			
	2	Service		BL-532 Discharge Pressure			
	3	Tap No					
	4	P&ID No.	Line No	Area	0053	5307	500
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		3"	1CS2
	7	Pressure Rating		Piping Material		#150	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		NITROGEN	GAS
	11	Normal Temperature		Unit		40	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		0.4	barg
	14	Max Pressure		Unit		0.9	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 4 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 51 of 59			
Primary Element	1	Tag No.		PT - 6101			
	2	Service		T 611 PRESS			
	3	Tap No					
	4	P&ID No.	Line No	Area	061	6105	600
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		3"	1CS1
	7	Pressure Rating		Piping Material		150#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT	
	10	Fluid		State		NITROGEN PROCESS (1)	GAS
	11	Normal Temperature		Unit		35	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		0.4	barg
	14	Max Pressure		Unit		6	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 10 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) Is assumed nitrogen and monomers							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 52 of 59			
Primary Element	1	Tag No.		PT - 6102			
	2	Service		V 611 JACKET			
	3	Tap No					
	4	P&ID No.	Line No	Area	061	6103	600
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	1"	3CC6(IA)	
	7	Pressure Rating		Piping Material	150#	CARBON STEEL	
	8	Connections		Material	C.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	STEAM	GAS	
	11	Normal Temperature		Unit	113 - 120	°C	
	12	Max Temperature		Unit	180	°C	
	13	Normal Pressure		Unit	0.6 - 1	barg	
	14	Max Pressure		Unit	6.5	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 2 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 53 of 59			
Primary Element	1	Tag No.		PT - 6201			
	2	Service		CF 611 SUCTION PRESSURE			
	3	Tap No					
	4	P&ID No.	Line No	Area	062	6202	600
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		6"	1CS2
	7	Pressure Rating		Piping Material		150#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		NITROGEN	GAS
	11	Normal Temperature		Unit		35	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		0.2	barg
	14	Max Pressure		Unit		1	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.018	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 1 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 54 of 59			
Primary Element	1	Tag No.		PT - 6202			
	2	Service		CF 611 LOW PRESSURE			
	3	Tap No					
	4	P&ID No.	Line No	Area	062	6202	600
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		6"	1CS2
	7	Pressure Rating		Piping Material		150#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		NITROGEN	GAS
	11	Normal Temperature		Unit		35	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		0.2	barg
	14	Max Pressure		Unit		1	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.018	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0-0.5 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE:							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 55 of 59			
Primary Element	1	Tag No.		PT - 6203			
	2	Service		CF 611 HIGH DISCHARGE PRESSURE			
	3	Tap No					
	4	P&ID No.	Line No	Area	062	6203	600
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		6"	1CS2
	7	Pressure Rating		Piping Material		150#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE	
	10	Fluid		State		NITROGEN	GAS
	11	Normal Temperature		Unit		50	°C
	12	Max Temperature		Unit		100	°C
	13	Normal Pressure		Unit		0.6	barg
	14	Max Pressure		Unit		1	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		0.019	mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 1 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	NA	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE:							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 56 of 59			
Primary Element	1	Tag No.		PT - 6204			
	2	Service		DR 621 PRESSURE			
	3	Tap No					
	4	P&ID No.	Line No	Area	062	6201	600
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	6"	1CS2(P)	
	7	Pressure Rating		Piping Material	150#	STAINLESS STEEL	
	8	Connections		Material	S.,S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	NITROGEN	GAS	
	11	Normal Temperature		Unit	80	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	0.3	barg	
	14	Max Pressure		Unit	1	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	0.02	mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 1 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
Diaphragm Seal	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 57 of 59			
Primary Element	1	Tag No.		PT - 7101			
	2	Service		V 711 PRESSURE			
	3	Tap No		K2 (2" #300 RF)			
	4	P&ID No.	Line No	Area	071	V 711	700
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		2"	1DS2(P)
	7	Pressure Rating		Piping Material		300#	STAINLESS STEEL
	8	Connections		Material		S.S	
	9			Type		1/2" NPT MALE(1)	
	10	Fluid		State		MONOMERS	GAS
	11	Normal Temperature		Unit		AMB	°C
	12	Max Temperature		Unit		(-45) +180	°C
	13	Normal Pressure		Unit		0.1	barg
	14	Max Pressure		Unit		15	barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit			mpa's
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 20 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Extended Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) Diaphragm on flange with extension							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 58 of 59			
Primary Element	1	Tag No.		PT - 7102			
	2	Service		V 712 PRESSURE			
	3	Tap No		k1 (2" #150 RF)			
	4	P&ID No.	Line No	Area	071	V 712	700
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	2"	1CS2(P)	
	7	Pressure Rating		Piping Material	150#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE(1)		
	10	Fluid		State	MONOMERS	GAS	
	11	Normal Temperature		Unit	AMB	°C	
	12	Max Temperature		Unit	(-45) +180	°C	
	13	Normal Pressure		Unit	0.1	barg	
	14	Max Pressure		Unit	6	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit	mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 10 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Extended Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
NOTE: (1) Diaphragm on flange with extension							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Pressure Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0004			
		Owner Job No:		Sheet No: 59 of 59			
Primary Element	1	Tag No.		PT - 7103			
	2	Service		FLARE HEADER			
	3	Tap No					
	4	P&ID No.	Line No	Area	071	0101	700
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	12"	1CS1	
	7	Pressure Rating		Piping Material	150#	STAINLESS STEEL	
	8	Connections		Material	S.S		
	9			Type	1/2" NPT MALE		
	10	Fluid		State	MONOMERS	GAS	
	11	Normal Temperature		Unit	AMB	°C	
	12	Max Temperature		Unit	100	°C	
	13	Normal Pressure		Unit	0.1	barg	
	14	Max Pressure		Unit	10	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)		Unit		mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing		Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 20 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
35	Process connection		1/2" NPT Female				
36	Element Material		AISI 316L				
37	Electrical Connection		Gland M20				
38	Output Signal		4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	Direct Diaphragm	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve-Remote mount			
	45	Others		NA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

PROJECT: PP-PE PILOT PLANT



TITLE: INSPECTION & TEST PLAN FOR TEMPERATURE TRANSMITTER

شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

INSPECTION & TEST PLAN FOR TEMPERATURE TRANSMITTER

Document No.:900-ITP-A4-IN-0014

Rev.: 0

Owner Job No.:

Type: ITP

Contract Job No.:

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0	8/24/2021			K.A.		M.N.		M.A			IFA
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ITP FOR TEMPERATURE TRANSMITTER




شرکت ملی صنایع پتروشیمی
 شرکت پژوهش و فناوری پتروشیمی
 Doc. No. : 900-ITP-A4-IN-0014
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ABBREVIATION ON TYPE OF INSPECTION


H: Hold Point, inspection notification required. During hold point inspection, the witness will be performed.
 The Vendor shall not proceed with the work until presence of the inspector or written consent of the inspector.
 W: Inspection activities performed by the Vendor and witnessed by the inspector. Inspection notification required.
 If the Inspector is not present, the Vendor may perform the inspection/tests as scheduled unless otherwise requested.
 S: Witness, but spot check basis, inspection notification required. Initial operation will be witnessed and subsequent operation will be witnessed at discretion of the inspector considering the results of previous inspection unless otherwise inspection % specified.
 R: Review of inspection records and/or specified document
 M: Vendor's inspection and tests X: Required


No.	1. Inspection/Tests by the OWNER	2. Inspection/Tests by Purchaser and/or Purchaser's Representative	3. Inspection/Tests to be Performed by Vendor as a Minimum	4. Certificate/Data to be Provided by Vendor	Inspection/Test Items	Procedure & Standards	Remarks
01	R	S	M	X	(Thermocouple, Resistance thermometer bulb, Thermocouples extension wire) Visual inspection including the following items as minimum: - model, material, service pressure, flange diameter/series/face/material and well length	Approved procedure and drawings	
02	R	S	M		Dimensional inspection	Approved procedure and drawings	
03	R	W	M	X	Calibration by comparison with standard thermocouple or RTD by sample taking	Approved procedure and drawings	
04	R	W	M	X	Performance test	Approved procedure and drawings	
05	R	S	M	X	Insulation resistance test	Approved procedure and drawings	
06	R	S	M	X	High voltage test	Approved procedure and drawings	
07	H	H	M		Preparation for shipment	Approved procedure and drawings	
08	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	
09	R	W	M		(Temp. transmitter) Visual inspection	Approved procedure and drawings	
10	R	S	M		Dimensional inspection	Approved procedure and drawings	
11	R	W	M	X	Calibration check	Approved procedure and drawings	
12	W	H	M	X	Performance test including: Linearity and Accuracy	Approved procedure and drawings	
13	R	S	M	X	Insulation resistance test	Approved procedure and drawings	
14	R	S	M	X	High voltage test	Approved procedure and drawings	
15	H	H	M		Preparation for shipment	Approved procedure and drawings	
16	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	
17	R	W	M	X	(Thermowell) Visual inspection - model, material, service pressure, flange diameter series/face/material and well length	Approved procedure and drawings	
18	R	S	M		Dimensional inspection	Approved procedure and drawings	
19	R	R	M	X	Mill test reports	Approved procedure and drawings	
20	R	W	M	X	Non destructive examination, when specified (Specially for thermowell for reactor to be examined by 100% RT or PT)	Approved procedure and drawings	
21	R	S	M	X	Pressure test	Approved procedure and drawings	
22	H	H	M		Preparation for shipment	Approved procedure and drawings	
23	R	R	M	X	Documentation review prior to release	Approved procedure and drawings	


Note: Percent of witness for type "S" shall be depend on the quantity as follows: 3 to 20→3(all if total 2 and less), 20 to 40→5, 50 to 100→10, 100 to 200→15, 200 to 300→20, 300 to 500→25.
For another type, percent of witness inspection shall be 100%.


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 1 of 103			
Primary Element	1	Tag No.		TT -0101			
	2	Service		HYDROGEN AT B . L .			
	3	Tap					
	4	P&ID No.	Line No.	0001	0101		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	1"	1FS4		
	7	Pressre Rating	Piping Material	600 #	STAINLESS STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	HYDROGEN			
	10	Normal Temperature	Unit	+40	°C		
	11	Max Temperature	Unit	+120	°C		
	12	Normal Pressure	Unit	55	barg		
	13	Max Pressure	Unit	65	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-40) +100	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-40) +100 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIC T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Temperature Transmitter Data Sheet						
Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014						
Owner Job No:		Sheet No: 2 of 103						
Primary Element	1	Tag No.		TT -0102				
	2	Service		ETHYLENE AT B . L				
	3	Tap						
	4	P&ID No.	Line No.		0001	0101		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class		1"	1FS4		
	7	Pressre Rating	Piping Material		600 #	STAINLESS STEEL		
	8	Connection size	Connection type					
	9	Fluid	State		ETHYLENE			
	10	Normal Temperature	Unit		+40	°C		
	11	Max Temperature	Unit		+120	°C		
	12	Normal Pressure	Unit		55	barg		
	13	Max Pressure	Unit		65	barg		
	14	Well	Identification tag					
	15		Type (special application)					
	16	Materials						
	17	Instrument	Measurement range	Unit	(-40) +100	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-40) +100 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust		YES	YES		
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIC T3				
	30	Linerization		YES				
	31	Head material		SS-304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
1	0	12/15/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Temperature Transmitter Data Sheet						
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014				
		Owner Job No:		Sheet No: 3 of 103				
Primary Element	1	Tag No.		TT -0103				
	2	Service						
	3	Tap						
	4	P&ID No.	Line No.		0001	0101		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class		8"	4CC2		
	7	Pressre Rating	Piping Material		150#	CARBON STEEL		
	8	Connection size		Connection type				
	9	Fluid	State		CWS			
	10	Normal Temperature	Unit		10	°C		
	11	Max Temperature	Unit		50	°C		
	12	Normal Pressure	Unit		4	barg		
	13	Max Pressure	Unit		6	barg		
	14	Well	Identification tag					
	15		Type (special application)					
	16	Materials						
	17	Instrument	Measurement range	Unit	-20	+100	°C	
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-40) +100 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust		YES	YES		
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS-304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100		Single		
	35	Sheath material	Sheath diameter	SS-316		6 mm		
	36	Connection type	Length	3 wire		VTA		
	37	Wire Size	Insulation	VTA		VTA		
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316		1" -600 # - RF		
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
1	0	12/15/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 4 of 103			
Primary Element	1	Tag No.		TT -0104			
	2	Service					
	3	Tap					
	4	P&ID No.	Line No.	0001	0101		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	8"	4CC2		
	7	Pressre Rating	Piping Material	150#	CARBON STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	CWR			
	10	Normal Temperature	Unit	10	°C		
	11	Max Temperature	Unit	50	°C		
	12	Normal Pressure	Unit	4	barg		
	13	Max Pressure	Unit	6	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	-20 +100	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-40) +100 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF		
	45	Insertion Length (U)		350 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Temperature Transmitter Data Sheet						
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014				
		Owner Job No:		Sheet No: 5 of 103				
Primary Element	1	Tag No.		TT -0120				
	2	Service		LOW PRESSURE STEAM AT B.L.				
	3	Tap						
	4	P&ID No.	Line No.		0001	0101		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class		3"	3CC6		
	7	Pressre Rating	Piping Material		150 #	CARBON STEEL		
	8	Connection size		Connection type				
	9	Fluid	State		STEAM			
	10	Normal Temperature	Unit		162	°C		
	11	Max Temperature	Unit		180	°C		
	12	Normal Pressure	Unit		5	barg		
	13	Max Pressure	Unit		6.5	barg		
	14	Well	Identification tag					
	15		Type (special application)					
	16	Materials						
	17	Instrument	Measurement range	Unit	0 +200	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-40) +100 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust		YES	YES		
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS-304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
1	0	12/15/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Temperature Transmitter Data Sheet						
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014				
		Owner Job No:		Sheet No: 6 of 103				
Primary Element	1	Tag No.		TT -0201				
	2	Service		RWS SUPPLY				
	3	Tap						
	4	P&ID No.		Line No.		0002 0219		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C		0.82 Bara 86%	
	6	Piping Size		Piping Class		2" 4CC2(IF)		
	7	Pressre Rating		Piping Material		150# CARBON STEEL		
	8	Connection size		Connection type				
	9	Fluid		State		WATER GLYCOL		
	10	Normal Temperature		Unit		2 °C		
	11	Max Temperature		Unit		-10 +100 °C		
	12	Normal Pressure		Unit		3.5 barg		
	13	Max Pressure		Unit		10 barg		
	14	Well	Identification tag					
	15		Type (special application)					
	16		Materials					
	17	Instrument	Measurement range		Unit		(-10) +30 °C	
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-40) +100 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust		Span Adjust		YES YES		
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS-304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double		RTD - Pt 100		Single	
	35	Sheath material	Sheath diameter		SS-316		6 mm	
	36	Connection type	Length		3 wire		VTA	
	37	Wire Size	Insulation		VTA		VTA	
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating		SS-316		1" -600 # - RF	
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
1	0	12/15/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 7 of 103			
Primary Element	1	Tag No.		TT -0202			
	2	Service		RWS RETURN			
	3	Tap					
	4	P&ID No.	Line No.	0002	0221		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	2"	4CC2(IF)		
	7	Pressre Rating	Piping Material	150#	CARBON STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	WATER GLYCOL			
	10	Normal Temperature	Unit	10	°C		
	11	Max Temperature	Unit	-10 +100	°C		
	12	Normal Pressure	Unit	1	barg		
	13	Max Pressure	Unit	10	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-10) +50	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-40) +100 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0204
Service	RWA SUPPLY TO R 211
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1/2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 2
	Max. temperature	°C -10 +100
	Normal pressure	barg 3.5
	Max. pressure	barg 10

Well	Identification tag	TW-0204
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C -10/ +30
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0205
Service	RWA RETURN FROM R 211
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1/2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 0/ +40
	Max. temperature	°C -10 +100
	Normal pressure	barg 1
	Max. pressure	barg 10

Well	Identification tag	TW-0205
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C -10/ +50
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0206
Service	RWA SUPPLY TO R 221
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1/2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 2
	Max. temperature	°C -10 /+100
	Normal pressure	barg 3.5
	Max. pressure	barg 10

Well	Identification tag	TW-0206
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C -10/ +30
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0207
Service	RWA RETURN FROM R 221
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1/2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C -0/ +40
	Max. temperature	°C -10 +100
	Normal pressure	barg 1
	Max. pressure	barg 10

Well	Identification tag	TW-0207
	Connection type & Size & Rating	1" -FLANGE- RF-150 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C -10/ +50
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0210
Service	RWA SUPPLY TO R 251
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 20
	Max. temperature	°C -10/ +100
	Normal pressure	barg 3.5
	Max. pressure	barg 10

Well	Identification tag	TW-0210
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +70
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0211
Service	RWA RETURN FROM R 251
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 25
	Max. temperature	°C -10 +100
	Normal pressure	barg 1
	Max. pressure	barg 10

Well	Identification tag	TW-0211
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +70
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0212
Service	RWA SUPPLY TO R 261
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 20/ +55
	Max. temperature	°C -10 +100
	Normal pressure	barg 3.5
	Max. pressure	barg 10

Well	Identification tag	TW-0212
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +70
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0213
Service	RWA RETURN FROM R 261
Revision	0 ISSUED


Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 25 +60
	Max. temperature	°C -10 +100
	Normal pressure	barg 1
	Max. pressure	barg 10

Well	Identification tag	TW-0213
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0 / +70
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 20 of 103			
Primary Element	1	Tag No.		TT -0301			
	2	Service		RCW SUPPLY			
	3	Tap					
	4	P&ID No.	Line No.		0003	0303	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class		6"	4CC2	
	7	Pressre Rating	Piping Material		150 #	CARBON STEEL	
	8	Connection size	Connection type		1"		
	9	Fluid	State		WATER		
	10	Normal Temperature	Unit		35	°C	
	11	Max Temperature	Unit		(-10) + 100	°C	
	12	Normal Pressure	Unit		3	barg	
	13	Max Pressure	Unit		10	barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 +60	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-40) +100 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF		
	45	Insertion Length (U)		250 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0302
Quantity:	2
Service	E 411 RCW IN
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	3" 4CC2
	Connections size - type	1 "
	Fluid	WATER
	Normal temperature	°C 55 80
	Max. temperature	°C -10 +100
	Normal pressure	barg 3
	Max. pressure	barg 10

Well	Identification tag	TW-0302
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	120 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0303
Service	E 411 RCW OUT
Quantity:	2
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	3" 4CC2
	Connections size - type	1"
	Fluid	WATER
	Normal temperature	°C 55 +80
	Max. temperature	°C -10 +100
	Normal pressure	barg 1
	Max. pressure	barg 10

Well	Identification tag	TW-0303
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	120 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

PROJECT: PP-PE PILOT PLANT

TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0305
Service	E 421 RCW IN
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	4" 4CC2
	Connections size - type	1"
	Fluid	WATER
	Normal temperature	°C 55 +80
	Max. temperature	°C -10 +100
	Normal pressure	barg 3
	Max. pressure	barg 10

Well	Identification tag	TW-0305
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	150 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

PROJECT: PP-PE PILOT PLANT

TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-0306
Service	E 421 RCW OUT
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	4" 4CC2
	Connections size - type	1"
	Fluid	WATER
	Normal temperature	°C 55 +80
	Max. temperature	°C -10 +100
	Normal pressure	barg 1
	Max. pressure	barg 10

Well	Identification tag	TW-0306
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	150 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EEExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

PROJECT: PP-PE PILOT PLANT

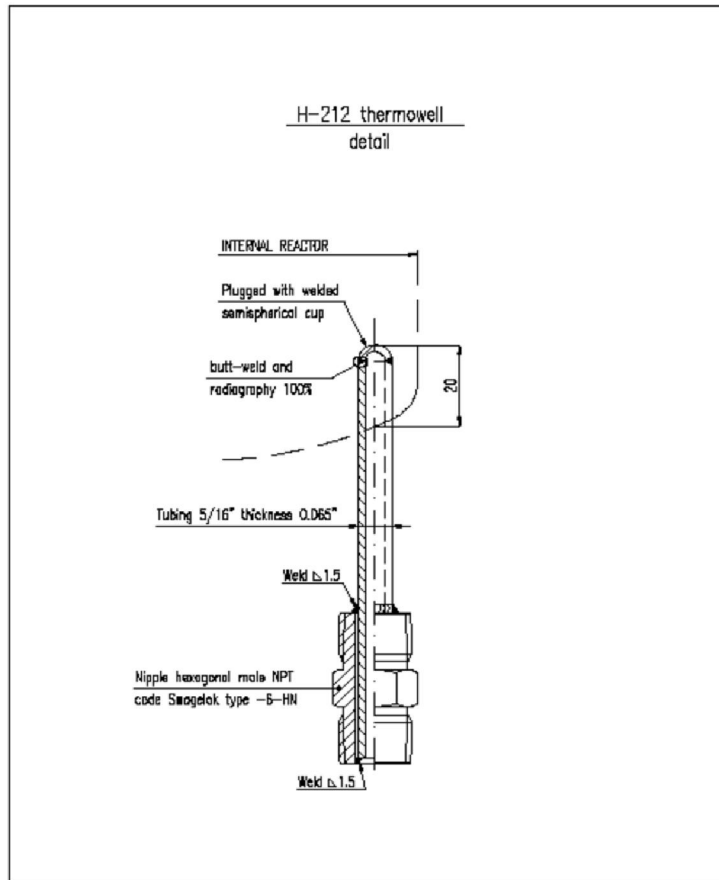


TITLE: Temperature Transmitter Data Sheet

Contractor Job No:		Doc. No:		
Owner Job No:		Sheet No:		
TAG N°		TT-2101		
Service		TEMP R 211		
Revision		0 ISSUED		
Primary Element	Tap	K2		
	Piping or Vessel	R211		
	Connections size - type	3/8" -THR. NPT -3000 # FEMALE ANSI B2.1- NOTE 2		
	Fluid	SLURRY (1)		
	Normal temperature	°C	20	
	Max. temperature	°C	-60 +180	
	Normal pressure	barg	30	
	Max. pressure	barg	65	
Well	Identification tag	TW-2102		
	Connection type & Size & Rating	NOTE(2)		
	Materials	SS-316		
	Insertion Length (U)	NOTE(2)		
	Standard No	ANSI		
Instrument	Measurement range (calibration range)	°C	-10/ +90	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 67		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Variable increase, valve	<input type="checkbox"/> Opens <input checked="" type="checkbox"/> Closes		
	Type	(single/double) input	RTD - Pt 100	single input
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		
PURCHASE	Manufacturer			
	Order code			
	Model No			
NOTE(1): SLURRY SOPPOSE CATALYST + COCATALYST +MONOMERS				
NOTE(2) : FOR MORE DETAIL SEE H 212 - ATTACHMENT SKETCH				
1	1	10/10/2021	IFA K.A/ V.V M.N M.A	
No.	Rev	Date	Status Prepared Checked Approved	

PROJECT: PP-PE PILOT PLANT

TITLE: Temperature Transmitter Data Sheet



a) All dimensions are preliminary, shall be check in accordance with R-211 design project

B				U.S.	DRAWING NO.	SH. NO.
				FE	312030	005
				I.R.	PP-PE	H
	00	Process design Issue	JUL.12.04		CREATED DATE	NO.
<small>This drawing contains CONFIDENTIAL and PROPRIETARY information by SABIC Polyolefins. This information has not to be used or disclosed to anyone outside of SABIC Polyolefins and its subsidiaries except pursuant to a written agreement with SABIC Polyolefins.</small>			Project:	Spheripol Spherilene Pilot Plant		
			Title:	Thermowell H-212 for nozzle K2 of R-211		
			<small>Not issued by SABIC Polyolefins into Spck - Sabic Code "SAB" - For Design & Mfg Issues (SAB)</small>			
File name	FDI	Company	Location	Country	Drawn	Checked
	H-212	R&T Center	ARAK	IRAN		

1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



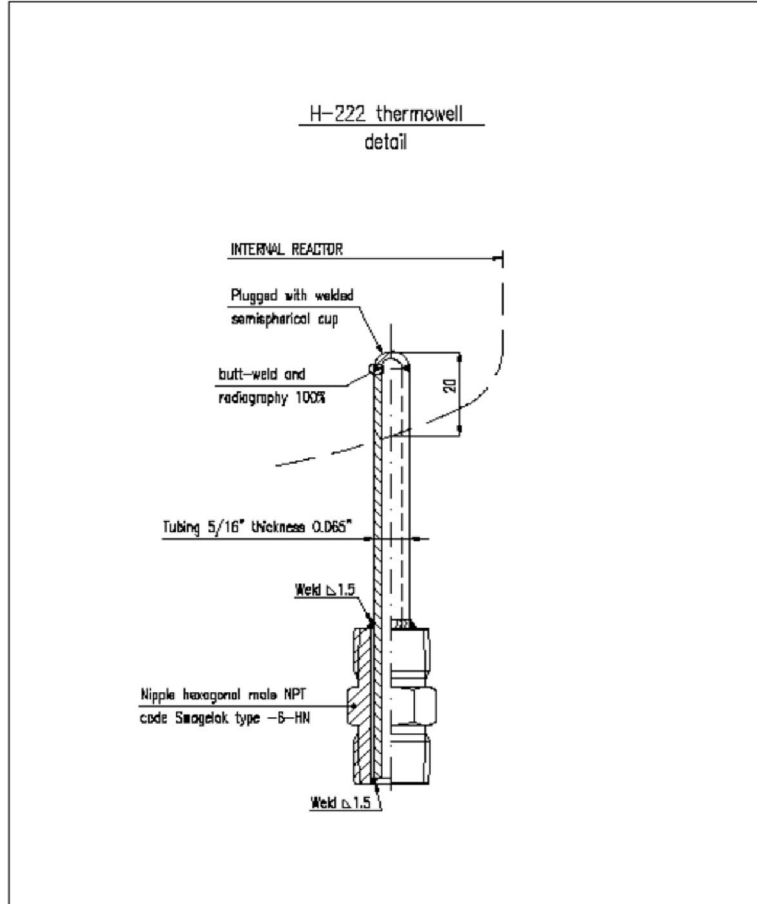
TITLE: Temperature Transmitter Data Sheet

Contractor Job No:		Doc. No:		
Owner Job No:		Sheet No:		
TAG N°		TT- 2201		
Service		TEMP R 221		
Revision		0 ISSUED		
Primary Element	Tap	K2		
	Piping or Vessel	R 221		
	Connections size - type	3/8" -THR. NPT -3000 # FEMALE ANSI B2.1- NOTE 2		
	Fluid	SLURRY (1)		
	Normal temperature	°C	20	
	Max. temperature	°C	-60 +180	
	Normal pressure	barg	30	
	Max. pressure	barg	65	
Well	Identification tag	TW-2201		
	Connection type & Size & Rating	NOTE(2)		
	Materials	SS-316		
	Insertion Length (U)	NOTE(2)		
	Standard No	ANSI		
Instrument	Measurement range (calibration range)	°C	-10/ +90	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 67		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Variable increase, valve	<input type="checkbox"/> Opens <input checked="" type="checkbox"/> Closes		
	Type	(single/double) input	RTD - Pt 100	single input
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		
PURCHASE	Manufacturer			
	Order code			
	Model No			
NOTE(1): SLURRY SOPPOSE CATALYST + COCATALYST +MONOMERS				
NOTE(2) : FOR MORE DETAIL SEE H 222 - ATTACHMENT SKETCH				
1	1	10/10/2021	IFA K.A/ V.V M.N M.A	
No.	Rev	Date	Status Prepared Checked Approved	

PROJECT: PP-PE PILOT PLANT



TITLE: Temperature Transmitter Data Sheet



c) All dimensions are preliminary, shall be check. In accordance with R-221 design project

B			U.S.	DRAWING NO.	SH. NO.		
			FE	312031	005		
			IR	PP-PE	H		
	00 Process design Issue		JUL.12.04	DATE	REV.		
Project: Spheripol Spherilene Pilot Plant			10.12.04	R			
Title: Thermowell H-222 for nozzle K2 of R-221							
Rev. name	ITEM	Company	Location	Country	Drawn	Checked	Approved
	H-222	R&T Center	ARAK	IRAN			G.I.B.

1	1	10/10/2021	IFA	K.A/ V.V	M.N		M.A
No.	Rev	Date	Status	Prepared	Checked		Approved

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

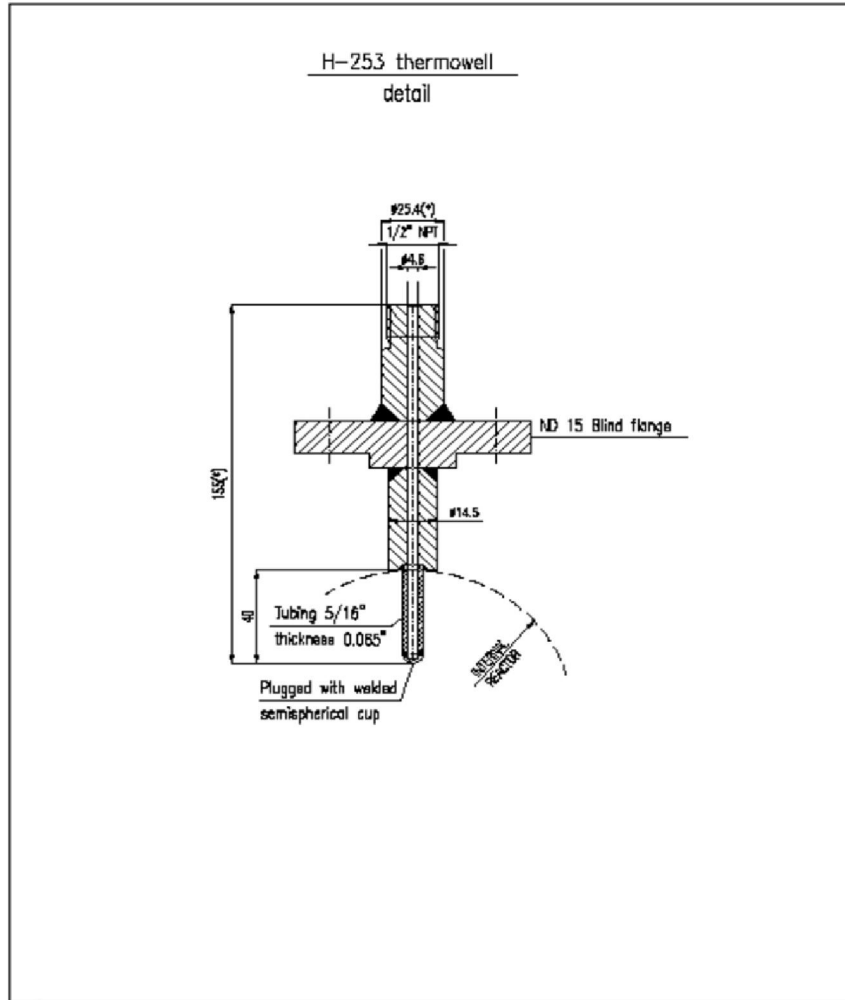
TITLE: Temperature Transmitter Data Sheet

Contractor Job No:			Doc. No:			
Owner Job No:			Sheet No:			
TAG N°			TT- 2501			
Service			R 251 TEMP			
Revision			0 ISSUED			
Primary Element	Tap		K3			
	Piping or Vessel		R 251			
	Connections size - type		1/2" -LF. PAD -600 # ANSI- NOTE 1			
	Fluid		POLYMER SLURRY			
	Normal temperature	°C	10 +70			
	Max. temperature	°C	-60 +180			
	Normal pressure	barg	28			
	Max. pressure	barg	40			
Well	Identification tag		TW-2501			
	Connection type & Size & Rating		NOTE(1)			
	Materials		SS-316			
	Insertion Length (U)		NOTE(1)			
	Standard No		ANSI			
Instrument	Measurement range (calibration range)	°C	-10/ +90			
	Power Supply		24 VDC			
	Output		4-20 mA-Loop Powered, HART			
	Accuracy		0.20%			
	Degree of protection		IP 67			
	ENCLOSURE PROTECTION		EExia IIC T6			
	Type	(single/double) input	RTD - Pt 100		single input	
	Display, Operation		NA			
	CABLE GLANDS -Electrical Connection		Gland M20 IP66			
	Element Housing		SS-304			
PURCHASE	Manufacturer					
	Order code					
	Model No					
NOTE(1) : FOR MORE DETAIL SEE H 253 - ATTACHMENT SKETCH						
1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



TITLE: Temperature Transmitter Data Sheet



* All dimensions are preliminary, shall be checked in accordance with R-251 design project.

B							
				U.E.	DEPARTMENT N.	SH. N.	
				FE	312033	007	
				U.D.	PLANT	CT	
	QD	Process design issue		IR	PP-PE	H	
			30.12.04				
					CREATION DATE	13.12.04	R
<small>This drawing contains CONFIDENTIAL and PROPRIETARY information by BAKEL Polyethylene. This information has not to be used or disclosed to anyone outside of BAKEL Polyethylene and its subsidiaries, except pursuant to a written agreement with BAKEL Polyethylene.</small>			Project:		Spheripol Spherilene Pilot Plant		
			Title:		Thermowell H-253 for nozzle K3 of R-251		
File name	ITEM	Company	Location	Country	Drawn	Checked	Approved
	H-253	R&T Center	ARAK	IRAN			G.I.B.

1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

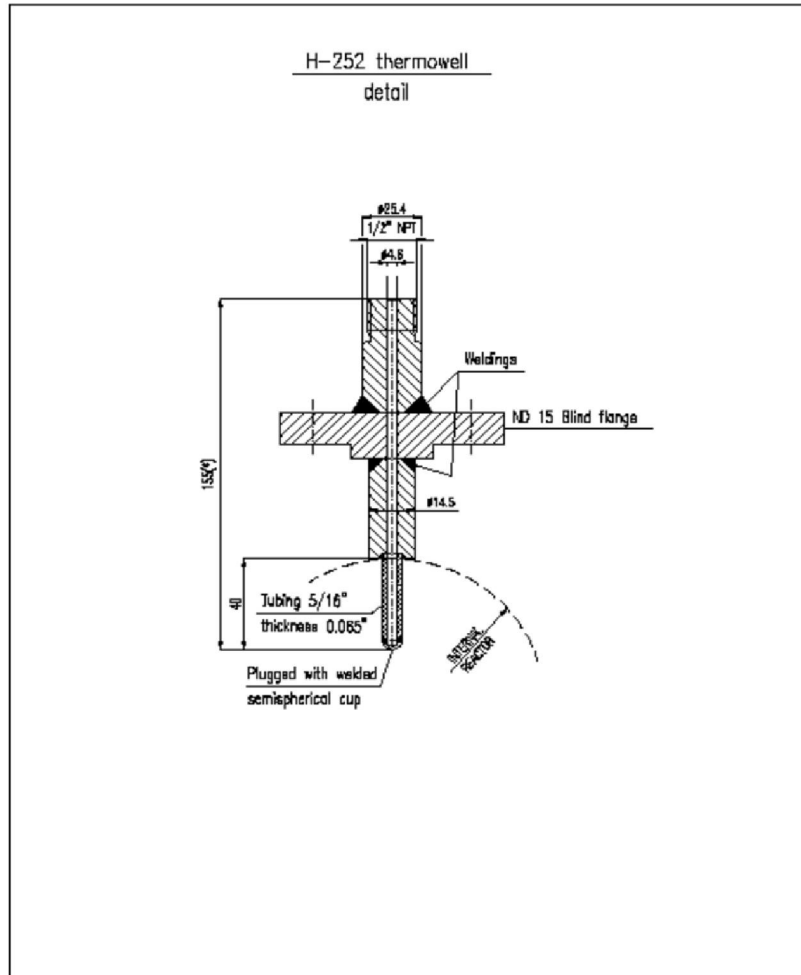
TITLE: Temperature Transmitter Data Sheet

Contractor Job No:			Doc. No:			
Owner Job No:			Sheet No:			
TAG N°			TT-2502			
Service			R51 TOP TEMP			
Revision			0 ISSUED			
Primary Element	Tap	K2				
	Piping or Vessel	R251				
	Connections size - type	1/2" -LF. PAD -600 # ANSI- NOTE 1				
	Fluid	POLYMER SLURRY				
	Normal temperature	°C	10 +70			
	Max. temperature	°C	-60 +180			
	Normal pressure	barg	28			
	Max. pressure	barg	40			
Well	Identification tag	TW-2502				
	Connection type & Size& &Rating	NOTE(1)				
	Materials	SS-316				
	Insertion Length (U)	NOT(1)				
	Standard No	ANSI				
Instrument	Measurement range (calibration range)	°C	-10/ +90			
	Power Supply	24 VDC				
	Output	4-20 mA-Loop Powered, HART				
	Accuracy	0.20%				
	Degree of protection	IP 67				
	ENCLOSURE PROTECTION	EExia IIC T6				
	Type	(single/double) input	RTD - Pt 100		single input	
	Display, Operation	NA				
	CABLE GLANDS -Electrical Connection	Gland M20 IP66				
	Element Housing	SS-304				
PURCHASE	Manufacturer					
	Order code					
	Model No					
NOTE(1) : FOR MORE DETAIL SEE H 252 - ATTACHMENT SKETCH						
1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



TITLE: Temperature Transmitter Data Sheet



* All dimensions are preliminary, shall be checked in accordance with R-251 design project.

B				U.G.	DRYAMP. N.	SH. N.
				FE	312033	006
				U.D.	PLANT	BT
	DC	Process design Issue	30.12.04	IR	PP-PE	H
				CHEMICAL DATE	REV.	
				13.12.04	R	
This drawing contains CONFIDENTIAL and PROPRIETARY information by BAKEL Polymers. This information has not to be used, or disclosed to anyone outside of BAKEL Polymers and its subsidiaries, without consent in a written agreement with BAKEL Polymers.			Project: <i>Spheripol Spherilene Pilot Plant</i>		PDC issued by BAKEL Polymers with Sp. - Sakel Code: 3001-14-1400/1400 (Rev)	
Title: Thermowell H-252 for nozzle K2 of R-251			Drawn	Checked	Approved	
File name	ITEM	Company	Location	Country		
	H-252	R&T Center	ARAK	IRAN		G.L.B.

1	1	10/10/2021	IFA	K.A/V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

TITLE: Temperature Transmitter Data Sheet

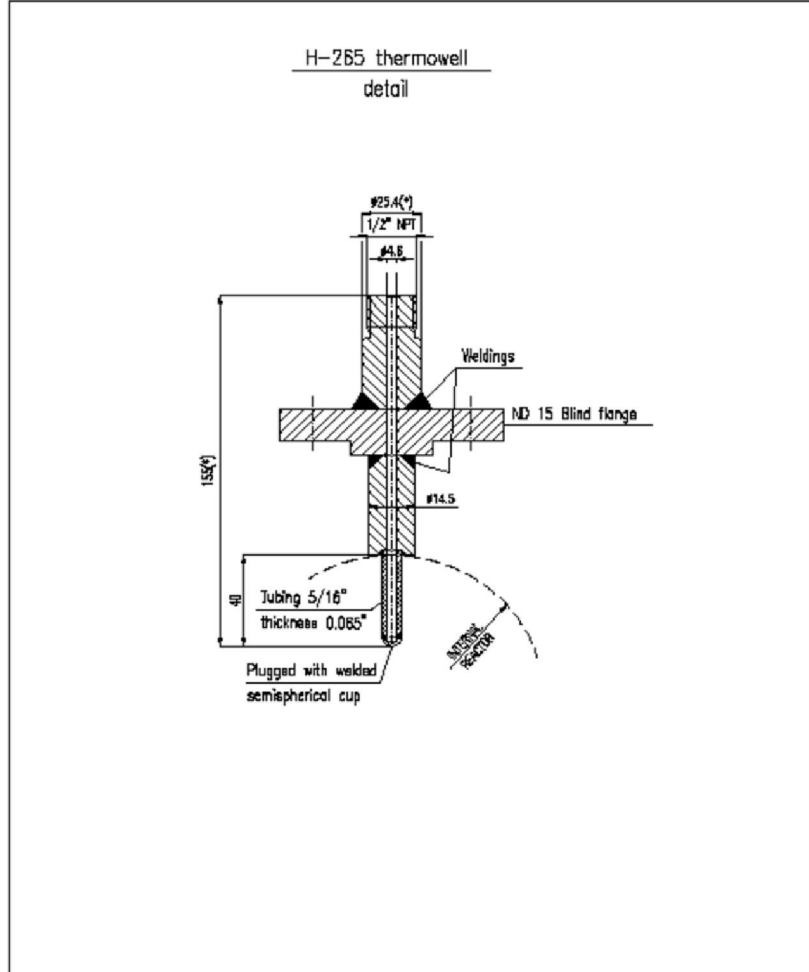
Contractor Job No:			Doc. No:			
Owner Job No:			Sheet No:			
TAG N°			TT-2601			
Service			R261 TEMP			
Revision			0 ISSUED			
Primary Element	Tap	K3				
	Piping or Vessel	R261				
	Connections size - type	1/2" -LF. PAD -600 # ANSI- NOTE 1				
	Fluid	POLYMER SLURRY				
	Normal temperature	°C	10/ +70			
	Max. temperature	°C	-60 +180			
	Normal pressure	barg	27			
	Max. pressure	barg	40			
Well	Identification tag	TW-2601				
	Connection type & Size& &Rating	NOTE(1)				
	Materials	SS-316				
	Insertion Length (U)	NOTE(1)				
	Standard No	ANSI				
Instrument	Measurement range (calibration range)	°C	-10/ +90			
	Power Supply	24 VDC				
	Output	4-20 mA-Loop Powered, HART				
	Accuracy	0.20%				
	Degree of protection	IP 67				
	ENCLOSURE PROTECTION	EExia IIC T6				
	Type	(single/double) input	RTD - Pt 100	single input		
	Display, Operation	NA				
	CABLE GLANDS -Electrical Connection	Gland M20 IP66				
	Element Housing	SS-304				
PURCHASE	Manufacturer					
	Order code					
	Model No					
NOTE(1) : FOR MORE DETAIL SEE H 265 - ATTACHMENT SKETCH						
1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



شرکت ملی صنایع پتروشیمی
شرکت پژوهش و فناوری پتروشیمی

TITLE: Temperature Transmitter Data Sheet



*] All dimensions are preliminary, shall be checked in accordance with R-261 design project.

B	U.E.	DEPARTMENT	EH. N.				
	FE	312035	009				
	U.P.	PLANT	GT				
	IR	PP-PE	H				
QC	Process design issue	30.12.04					
<small>This drawing contains CONFIDENTIAL and PROPRIETARY information by BAKEL Polyethylene. This information has not to be used, or disclosed to anyone outside of BAKEL Polyethylene and its subsidiaries, except pursuant to a written agreement with BAKEL Polyethylene.</small>		Project: Spheripol Spherilene Pilot Plant Title: Thermowell H-265 for nozzle K3 of R-261	CREATION DATE: 10.12.04 R				
File name	ITEM	Company	Location	Country	Drawn	Checked	Approved
	H-265	R&T Center	ARAK	IRAN			G.L.B.

1	1	10/10/2021	IFA	K.A/V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT



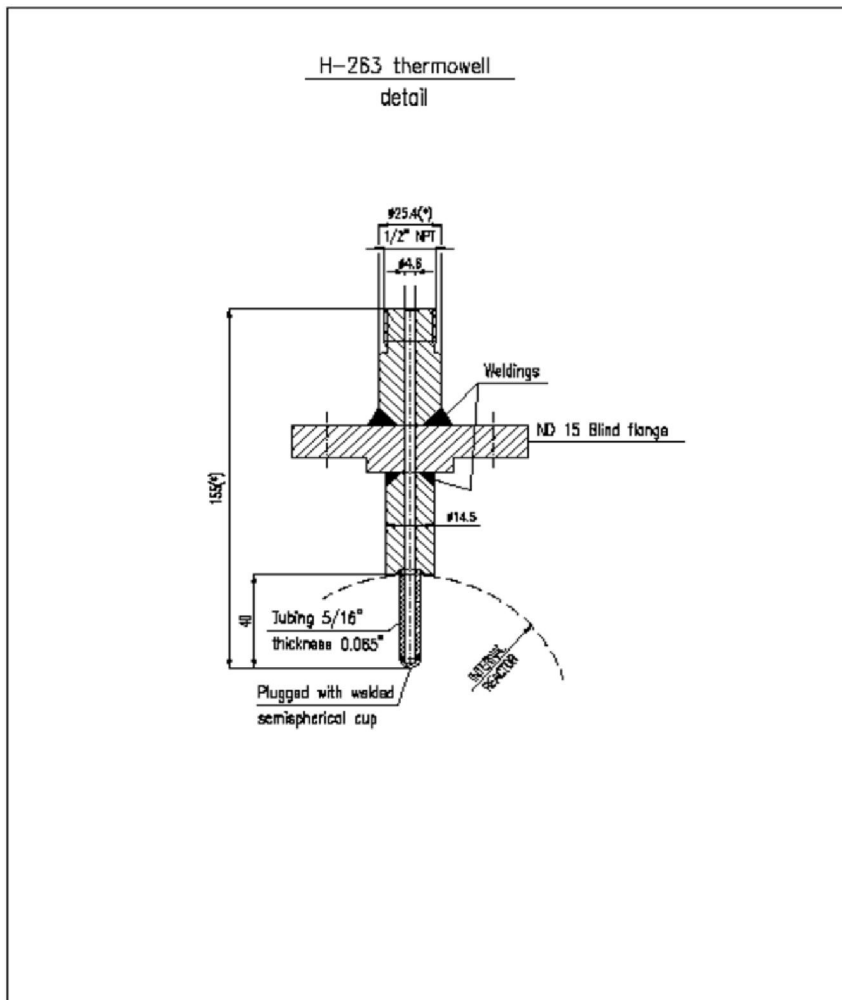
TITLE: Temperature Transmitter Data Sheet

Contractor Job No:			Doc. No:			
Owner Job No:			Sheet No:			
TAG N°			TT-2602			
Service			R 261 TOP TEMP			
Revision			0 ISSUED			
Primary Element	Tap	K2				
	Piping or Vessel	R 261 TOP TEMP				
	Connections size - type	1/2" -LF -600 # ANSI - NOTE 1				
	Fluid	POLYMER SLURRY				
	Normal temperature	°C	10 +70			
	Max. temperature	°C	-60 +180			
	Normal pressure	barg	27			
	Max. pressure	barg	40			
Well	Identification tag		TW-2602			
	Connection type & Size & Rating		NOTE(1)			
	Materials		SS-316			
	Insertion Length (U)		NOTE(1)			
	Standard No		ANSI			
Instrument	Measurement range (calibration range)	°C	-10/ +90			
	Power Supply		24 VDC			
	Output		4-20 mA-Loop Powered, HART			
	Accuracy		0.20%			
	Degree of protection		IP 67			
	ENCLOSURE PROTECTION		EExia IIC T6			
	Type	(single/double) input	RTD - Pt 100		single input	
	Display, Operation		NA			
	CABLE GLANDS -Electrical Connection		Gland M20 IP66			
	Element Housing		SS-304			
PURCHASE	Manufacturer					
	Order code					
	Model No					
NOTE(1) : FOR MORE DETAIL SEE H 263 - ATTACHMENT SKETCH						
1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved

PROJECT: PP-PE PILOT PLANT




TITLE: Temperature Transmitter Data Sheet





* All dimensions are preliminary, shall be checked in accordance with R-261 design project.


B			U.E.	DRWING N.	BT N.
			FE	312035	007
			U.O.	PLANT	BT
	00	Process design issue	IR	PP-PE	H
			CHECKED DATE	SQL	
			10.12.04	R	
<p>This drawing contains CONFIDENTIAL and PROPRIETARY information by BASFEL Polyolefin. This information has not to be used or disclosed to anyone outside of BASFEL Polyolefin and its subsidiaries, except pursuant to a written agreement with BASFEL Polyolefin.</p>			<p>Project: Spheripol Spherilene Pilot Plant</p>		
<p>Title: Thermowell H-263 for nozzle K2 of R-261</p>			<p>ISS. ISSUED BY: BASFEL Polyolefin Italia SpA - Issued Under "Tech. Info." - No. Drawings: 02 - 0000 (Issued)</p>		<p>STATUS</p>
File name	ITEM	Company	Location	Country	Drawn
	H-263	R&T Center	ARAK	IRAN	Checked
					Approved
					G.L.B.


1	1	10/10/2021	IFA	K.A/ V.V	M.N	M.A
No.	Rev	Date	Status	Prepared	Checked	Approved


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 66 of 103			
Primary Element	1	Tag No.		TT - 3201			
	2	Service		TK 321 TEMPERATRE			
	3	Tap		K4 (1 1/2" #300 RF)			
	4	P&ID No.	Line No.	0032	TK 321		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	35	°C		
	11	Max Temperature	Unit	(-45) + 120	°C		
	12	Normal Pressure	Unit	18 - 23	barg		
	13	Max Pressure	Unit	25	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-45) 100	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-40) +100 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -600 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 70 of 103			
Primary Element	1	Tag No.		TT - 3401			
	2	Service		TK 341 TEMPERATRE			
	3	Tap		K4(1" #150 RF)			
	4	P&ID No.	Line No.	0034	TK 341		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	AMB	°C		
	11	Max Temperature	Unit	(-45) + 200	°C		
	12	Normal Pressure	Unit	0.5 - 1.5	barg		
	13	Max Pressure	Unit	3.5	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-45) +100	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-40) +100 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/16/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Temperature Transmitter Data Sheet						
		Contractor Job No:		Doc. No:				
		Owner Job No:		Sheet No: of				
Primary Element	1	Tag No.		TT - 3201				
	2	Service		Tk-343 TEMPERATRE				
	3	Tap		K6				
	4	P&ID No.	Line No.		TK-343			
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size		Piping Class				
	7	Pressre Rating	Piping Material		300#	C.S		
	8	Connection size		Connection type		1"	RF	
	9	Fluid		State		HEXANE		
	10	Normal Temperature		Unit		AMB	°C	
	11	Max Temperature		Unit		40	°C	
	12	Normal Pressure		Unit		0.1	barg	
	13	Max Pressure		Unit		5	barg	
	14	Well	Identification tag					
	15		Type (special application)					
	16	Materials						
	17	Instrument	Measurement range	Unit	0 - 100	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-40) +100 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust		YES	YES		
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS-304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)		300 mm				
	46	Standard No		ANSI				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
1	0	12/13/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 71 of 103			
Primary Element	1	Tag No.		TT - 3501			
	2	Service		FT 351 BOTTOM			
	3	Tap		K4 (1" #300 RF)			
	4	P&ID No.	Line No.	0035	FT 351		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	70	°C		
	11	Max Temperature	Unit	150	°C		
	12	Normal Pressure	Unit	18	barg		
	13	Max Pressure	Unit	28	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 72 of 103			
Primary Element	1	Tag No.		TT - 3502			
	2	Service		HP 351			
	3	Tap		K2 (1" #300 RF)			
	4	P&ID No.	Line No.	0035	HP 351		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	70	°C		
	11	Max Temperature	Unit	150	°C		
	12	Normal Pressure	Unit	18	barg		
	13	Max Pressure	Unit	28	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 73 of 103			
Primary Element	1	Tag No.		TT - 3503			
	2	Service		FT 351 GAS OUTLET			
	3	Tap					
	4	P&ID No.	Line No.		0035	3501	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class		3"	1DS4(P)	
	7	Pressre Rating	Piping Material		300#	STAINLESS STEEL	
	8	Connection size		Connection type			
	9	Fluid	State		MONOMERS		
	10	Normal Temperature	Unit		50 - 80	°C	
	11	Max Temperature	Unit		100	°C	
	12	Normal Pressure	Unit		18	barg	
	13	Max Pressure	Unit		28	barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 74 of 103			
Primary Element	1	Tag No.		TT - 3504			
	2	Service		V 351			
	3	Tap		K3 (1" #300 RF)			
	4	P&ID No.	Line No.	0035	V 351		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State	PROPYLENE			
	10	Normal Temperature	Unit	75	°C		
	11	Max Temperature	Unit	180	°C		
	12	Normal Pressure	Unit	23	barg		
	13	Max Pressure	Unit	30	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-30) +150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 75 of 103			
Primary Element	1	Tag No.		TT - 3601			
	2	Service		T 361 BOTTOM			
	3	Tap		K4 (1" #300 RF)			
	4	P&ID No.	Line No.	0036	T 361		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State	HCM LIQUID			
	10	Normal Temperature	Unit	47	°C		
	11	Max Temperature	Unit	180	°C		
	12	Normal Pressure	Unit	18	barg		
	13	Max Pressure	Unit	28	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-45) +150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-45) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT					
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 76 of 103			
Primary Element	1	Tag No.		TT - 3602			
	2	Service		T 361 TOP			
	3	Tap					
	4	P&ID No.	Line No.		0036	3610	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		2"	1DS4(P)
	7	Pressre Rating		Piping Material		300#	STAINLESS STEEL
	8	Connection size		Connection type			
	9	Fluid		State		HCM GAS	
	10	Normal Temperature		Unit		45	°C
	11	Max Temperature		Unit		100	°C
	12	Normal Pressure		Unit		18	barg
	13	Max Pressure		Unit		28	barg
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-10) +150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 77 of 103			
Primary Element	1	Tag No.		TT - 3603			
	2	Service		T 361 LOWER			
	3	Tap		K3 (1" #300 RF)			
	4	P&ID No.	Line No.	0036	T 361		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	46.5	°C		
	11	Max Temperature	Unit	120	°C		
	12	Normal Pressure	Unit	18	barg		
	13	Max Pressure	Unit	28	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-10) +150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 78 of 103			
Primary Element	1	Tag No.		TT - 3604			
	2	Service		T 361 MEDIUM			
	3	Tap		K1 (1" #300 RF)			
	4	P&ID No.	Line No.	0036	T 361		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	46	°C		
	11	Max Temperature	Unit	120	°C		
	12	Normal Pressure	Unit	18	barg		
	13	Max Pressure	Unit	28	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-10) +150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 79 of 103			
Primary Element	1	Tag No.		TT - 3605			
	2	Service		V-361 Temp.			
	3	Tap		K2 (1 1/2" #300 RF)			
	4	P&ID No.	Line No.	0036	V 361		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	40	°C		
	11	Max Temperature	Unit	180	°C		
	12	Normal Pressure	Unit	18	barg		
	13	Max Pressure	Unit	28	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	-10 +150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT					 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:					
		Owner Job No:					
Primary Element	1	Tag No.	TT - 4001				
	2	Service					
	3	Tap					
	4	P&ID No.	Line No.	V 402			
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State PROPANE & ETHYLENE				
	10	Normal Temperature	Unit	80	°C		
	11	Max Temperature	Unit	(-45) +120	°C		
	12	Normal Pressure	Unit	27	barg		
	13	Max Pressure	Unit	30	barg		
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-60) ÷ 100	°C	
	18		Installation DCS				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	RTD				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-60) ÷ 100 °c				
	25	Power Supply	24V DC LOOP POWER				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust				
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia-IIC T4				
	30	Linerization					
	31	Head material	SS-304				
	32	Wire Break Function (Up/Down)					
	33	Electrical connection	M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer					
	42	Certificate					
	43	Model No					
THERMOWELL	44	Material	Size& Type &Rating	SS-316	Flange-RF-900#-"1		
	45	Insertion Length (U)	300 mm				
	46	Standard No	ANSI				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	sensor Connection	1/2" NPT				
	01	10/10/2021	IFA	K.A	M.N	M.A	
No.	Rev	Date	Status	Prepared	Checked	Approved	

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4101
Quantity:	2
Service	R 411 TEMP
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	6" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4101
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	170 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +90
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4103
Quantity:	2
Service	E 411 TOP
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	6" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4103
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	170 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4104
Quantity:	2
Service	GAS TO R 411
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	6" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4104
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	170 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4105
Quantity:	2
Service	E 411 BOTTOM
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	6" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4105
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	170 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4106
Quantity:	2
Service	TEMP GAS TO CF 411 (SEAL)
Revision	0 ISSUED

Primary Element	Tap		
	Piping or Vessel		PIPE
	Connections size - type		1/2" 1FS4
	Fluid		PROPANE
	Normal temperature	°C	75
	Max. temperature	°C	90
	Normal pressure	barg	25
	Max. pressure	barg	30

Well	Identification tag		TW-4106
	Connection type & Size & Rating		1" -FLANGE- RF-300 #
	Materials		SS-316
	Insertion Length (U)		100 mm
	Standard No		ANSI

Instrument	Measurement range (calibration range)	°C	0/ +90	
	Power Supply		24 VDC	
	Output		4-20 mA-Loop Powered, HART	
	Accuracy		0.20%	
	Degree of protection		IP 67	
	ENCLOSURE PROTECTION		EExia IIC T6	
	Variable increase, valve		<input type="checkbox"/> Opens <input checked="" type="checkbox"/>Closes	
	Type	(single/double) input	RTD - Pt 100	single input
	Display, Operation		NA	
	CABLE GLANDS -Electrical Connection		Gland M20 IP66	
	Element Housing		SS-304	

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4107
Quantity:	2
Service	R 411 MONOMER INLET
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1" 1FS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 90
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4107
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C -50/ +150
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Variable increase, valve	<input type="checkbox"/> Opens <input checked="" type="checkbox"/> Closes
	Type	(single/double) input RTD - Pt 100 single input
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4201
Service	TEMP R 421
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	8" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4201
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	210 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +90
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

PROJECT: PP-PE PILOT PLANT

TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4202
Service	RWA SUPPLY TO R 211
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1/2" 4CC2
	Fluid	WATER GLYCOLE
	Normal temperature	°C 2
	Max. temperature	°C -10 +100
	Normal pressure	barg 3.5
	Max. pressure	barg 10

Well	Identification tag	TW-4202
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +90
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4203
Service	E 421 (TOP)
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	8" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4203
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	210 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4204
Service	GAS TO R 421
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	8" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4204
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	210 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4205
Service	E 421 (DOWN)
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	8" 1DS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4205
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	210 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +100
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4206
Service	TEMP GAS TO CF 421 (SEAL)
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1/2" 1FS4
	Fluid	PROPANE
	Normal temperature	°C 75
	Max. temperature	°C 90
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4206
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +90
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No:
TAG N°	TT-4207
Service	R 421 MONOMER INLET
Revision	0 ISSUED

Primary Element	Tap	
	Piping or Vessel	PIPE
	Connections size - type	1" 1FS4
	Fluid	HCM
	Normal temperature	°C 75
	Max. temperature	°C 100
	Normal pressure	barg 25
	Max. pressure	barg 30

Well	Identification tag	TW-4207
	Connection type & Size & Rating	1" -FLANGE- RF-300 #
	Materials	SS-316
	Insertion Length (U)	100 mm
	Standard No	ANSI

Instrument	Measurement range (calibration range)	°C 0/ +90
	Power Supply	24 VDC
	Output	4-20 mA-Loop Powered, HART
	Accuracy	0.20%
	Degree of protection	IP 67
	ENCLOSURE PROTECTION	EExia IIC T6
	Type	(single/double) input RTD - Pt 100
	Display, Operation	NA
	CABLE GLANDS -Electrical Connection	Gland M20 IP66
	Element Housing	SS-304

PURCHASE	Manufacturer	
	Order code	
	Model No	

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No: 0044
TAG N°	TT-4401
Service	T-351
Quantity	1

Primary Element	Tap	K1-K2-K3-K4-P1 Pipe	
	Piping or Vessel		
	Connections size - type	1" -FLANGE- RF-300#	
	Fluid		
	Normal temperature	°C	105
	Design temperature	°C	-60/+230
	Normal pressure	barg	31
	Design pressure	barg	38

Well	Identification tag		
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #	
	Materials	SS-316	
	Insertion Length (U)	150 mm	
	Standard No	ANSI	

Instrument	Measurement range (calibration range)	°C	-60/ +230	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 65		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Type	(single/double) input	RTD - Pt 100	single in
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		

PURCHASE	Manufacturer		
	Order code		
	Model No		

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No: 0044
TAG N°	TT-4402
Service	T-351
Quantity	1

Primary Element	Tap	K1-K2-K3-K4-P1 Pipe	
	Piping or Vessel		
	Connections size - type	1" -FLANGE- RF-300#	
	Fluid		
	Normal temperature	°C	105
	Design temperature	°C	-60/+230
	Normal pressure	barg	31
	Design pressure	barg	38

Well	Identification tag		
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #	
	Materials	SS-316	
	Insertion Length (U)	150 mm	
	Standard No	ANSI	

Instrument	Measurement range (calibration range)	°C	-60/ +230	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 65		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Type	(single/double) input	RTD - Pt 100	single in
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		

PURCHASE	Manufacturer		
	Order code		
	Model No		

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No: 0044
TAG N°	TT-4403
Service	T-351
Quantity	1

Primary Element	Tap	K1-K2-K3-K4-P1 Pipe	
	Piping or Vessel		
	Connections size - type	1" -FLANGE- RF-300#	
	Fluid		
	Normal temperature	°C	105
	Design temperature	°C	-60/+230
	Normal pressure	barg	31
	Design pressure	barg	38

Well	Identification tag		
	Connection type & Size & Rating	1" -FLANGE- RF-300 #	
	Materials	SS-316	
	Insertion Length (U)	150 mm	
	Standard No	ANSI	

Instrument	Measurement range (calibration range)	°C	-60/ +230	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 65		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Type	(single/double) input	RTD - Pt 100	single in
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		

PURCHASE	Manufacturer		
	Order code		
	Model No		

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:		Doc. No:		
Owner Job No:		Sheet No: 0044		
TAG N°		TT-4404		
Service		T-351		
Quantity		1		
Primary Element	Tap	K1-K2-K3-K4-P1 Pipe		
	Piping or Vessel			
	Connections size - type	1" -FLANGE- RF-300#		
	Fluid			
	Normal temperature	°C	105	
	Design temperature	°C	-60/+230	
	Normal pressure	barg	31	
	Design pressure	barg	38	
Well	Identification tag			
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #		
	Materials	SS-316		
	Insertion Length (U)	150 mm		
	Standard No	ANSI		
Instrument	Measurement range (calibration range)	°C	-60/ +230	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 65		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Type	(single/double) input	RTD - Pt 100	single in
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		
PURCHASE	Manufacturer			
	Order code			
	Model No			

1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked

	PROJECT: PP-PE PILOT PLANT
	TITLE: Temperature Transmitter Data Sheet

Contractor Job No:	Doc. No:
Owner Job No:	Sheet No: 0044
TAG N°	TT-4405
Service	T-351
Quantity	1


Primary Element	Tap	K1-K2-K3-K4-P1 Pipe	
	Piping or Vessel		
	Connections size - type	1" -FLANGE- RF-300#	
	Fluid		
	Normal temperature	°C	105
	Design temperature	°C	-60/+230
	Normal pressure	barg	31
	Design pressure	barg	38


Well	Identification tag		
	Connection type & Size& &Rating	1" -FLANGE- RF-300 #	
	Materials	SS-316	
	Insertion Length (U)	150 mm	
	Standard No	ANSI	


Instrument	Measurement range (calibration range)	°C	-60/ +230	
	Power Supply	24 VDC		
	Output	4-20 mA-Loop Powered, HART		
	Accuracy	0.20%		
	Degree of protection	IP 65		
	ENCLOSURE PROTECTION	EExia IIC T6		
	Type	(single/double) input	RTD - Pt 100	single in
	Display, Operation	NA		
	CABLE GLANDS -Electrical Connection	Gland M20 IP66		
	Element Housing	SS-304		


PURCHASE	Manufacturer		
	Order code		
	Model No		


1	1	10/10/2021	IFA	K.A/ V.V	M.N
No.	Rev	Date	Status	Prepared	Checked


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		TT - 5301			
	2	Service		BL-531 Discharge Temp.			
	3	Tap					
	4	P&ID No.	Line No.	0053	5306		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State	NITROGEN			
	10	Normal Temperature	Unit	70	°C		
	11	Max Temperature	Unit	100	°C		
	12	Normal Pressure	Unit	0.4	barg		
	13	Max Pressure	Unit	0.9	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-10) +150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No:			
		Owner Job No:		Sheet No: of			
Primary Element	1	Tag No.		TT - 5302			
	2	Service		BL-532 Discharge Temp.			
	3	Tap					
	4	P&ID No.	Line No.		0053	5304	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class			
	7	Pressre Rating		Piping Material			
	8	Connection size		Connection type			
	9	Fluid		NITROGEN			
	10	Normal Temperature		Unit	70	°C	
	11	Max Temperature		Unit	100	°C	
	12	Normal Pressure		Unit	0.4	barg	
	13	Max Pressure		Unit	0.9	barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-10) +150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/12/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 89 of 103			
Primary Element	1	Tag No.		TT - 6101			
	2	Service		V 611 BOTTOM			
	3	Tap		K3 (1" #300 RF)			
	4	P&ID No.	Line No.	0061	V-611		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	90	°C		
	11	Max Temperature	Unit	180	°C		
	12	Normal Pressure	Unit	0.8	barg		
	13	Max Pressure	Unit	6	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-10) +180	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) +180 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		Up			
	33	Electrical connection		1/2" NPT			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 90 of 103			
Primary Element	1	Tag No.		TT - 6102			
	2	Service		V 611 OUT			
	3	Tap					
	4	P&ID No.	Line No.	0061	6101		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	4"	1CS1(P)		
	7	Pressre Rating	Piping Material	150#	STAINLESS STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	NITROGEN PROCESS (1)			
	10	Normal Temperature	Unit	80	°C		
	11	Max Temperature	Unit	100	°C		
	12	Normal Pressure	Unit	0.6	barg		
	13	Max Pressure	Unit	6	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-10) +180	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-10) +180 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		Up			
	33	Electrical connection		1/2" NPT			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		225 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
NOTE: (1) Is assumed nitrogen, steam and monomers							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی		
		TITLE: Temperature Transmitter Data Sheet						
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014				
		Owner Job No:		Sheet No: 91 of 103				
Primary Element	1	Tag No.		TT - 6103				
	2	Service		T 611 OUT				
	3	Tap						
	4	P&ID No.	Line No.		0061	6105		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size		Piping Class		3"	1CS1	
	7	Pressre Rating		Piping Material		150#	STAINLESS STEEL	
	8	Connection size		Connection type				
	9	Fluid		State		NITROGEN PROCESS (1)		
	10	Normal Temperature		Unit		35	°C	
	11	Max Temperature		Unit		150	°C	
	12	Normal Pressure		Unit		0.6	barg	
	13	Max Pressure		Unit		6	barg	
	14	Well	Identification tag					
	15		Type (special application)					
	16	Materials						
	17	Instrument	Measurement range	Unit	0 +180	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head Mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		0 +180 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust		YES	YES		
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS-304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
NOTE: (1) Is assumed nitrogen, steam and monomers								
1	0	12/15/2021	IFA	K.A	M.N	AA.SH		
No.	Rev	Date	Status	Prepared	Checked	Approved		


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 92 of 103			
Primary Element	1	Tag No.		TT - 6104			
	2	Service		T 611 BOTTOM			
	3	Tap		K2 (1" #300 RF)			
	4	P&ID No.	Line No.	0061	T 611		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	35	°C		
	11	Max Temperature	Unit	100	°C		
	12	Normal Pressure	Unit	0.2	barg		
	13	Max Pressure	Unit	6	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 +120	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 +120 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 93 of 103			
Primary Element	1	Tag No.		TT - 6201			
	2	Service		E 621 OUT			
	3	Tap					
	4	P&ID No.	Line No.		0062	6205	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class		6"	1CS2 (P)	
	7	Pressre Rating	Piping Material		150#	STAINLESS STEEL	
	8	Connection size		Connection type			
	9	Fluid	State		NITROGEN	GAS	
	10	Normal Temperature	Unit		110	°C	
	11	Max Temperature	Unit		180	°C	
	12	Normal Pressure	Unit		0.6	barg	
	13	Max Pressure	Unit		1	barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		250 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 94 of 103			
Primary Element	1	Tag No.		TT - 6202			
	2	Service		DR 621 BOTTOM			
	3	Tap		K5 (1" #300 RF)			
	4	P&ID No.	Line No.	0062	DR 621		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	90	°C		
	11	Max Temperature	Unit	180	°C		
	12	Normal Pressure	Unit	0.6	barg		
	13	Max Pressure	Unit	1	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 95 of 103			
Primary Element	1	Tag No.		TT - 6203			
	2	Service		DR 621 MIDDLE			
	3	Tap		K4 (1" #300 RF)			
	4	P&ID No.	Line No.	0062	DR 621		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class			
	7	Pressre Rating		Piping Material			
	8	Connection size		Connection type			
	9	Fluid		State			
	10	Normal Temperature		Unit	85	°C	
	11	Max Temperature		Unit	180	°C	
	12	Normal Pressure		Unit	0.4	barg	
	13	Max Pressure		Unit	1	barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16			Materials			
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 96 of 103			
Primary Element	1	Tag No.		TT - 6204			
	2	Service		DR 621 OUT			
	3	Tap					
	4	P&ID No.	Line No.	0062	6201		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	6"	1CS2 (P)		
	7	Pressre Rating	Piping Material	150#	STAINLESS STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	NITROGEN			
	10	Normal Temperature	Unit	80	°C		
	11	Max Temperature	Unit	180	°C		
	12	Normal Pressure	Unit	0.3	barg		
	13	Max Pressure	Unit	1	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 96 of 103			
Primary Element	1	Tag No.		TT - 6205			
	2	Service		T 621 OUT			
	3	Tap					
	4	P&ID No.	Line No.	0062	6202		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	6"	1CS2 (P)		
	7	Pressre Rating	Piping Material	150#	STAINLESS STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	NITROGEN			
	10	Normal Temperature	Unit	40	°C		
	11	Max Temperature	Unit	80	°C		
	12	Normal Pressure	Unit	0.3	barg		
	13	Max Pressure	Unit	1	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 100	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		250 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/11/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 97 of 103			
Primary Element	1	Tag No.		TT - 6206			
	2	Service		CF 621 OUT			
	3	Tap					
	4	P&ID No.	Line No.	0062	6203		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	6"	1CS2		
	7	Pressre Rating	Piping Material	150#	STAINLESS STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	NITROGEN			
	10	Normal Temperature	Unit	50	°C		
	11	Max Temperature	Unit	150	°C		
	12	Normal Pressure	Unit	0.6	barg		
	13	Max Pressure	Unit	1	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		250 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
NOTE:							
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 98 of 103			
Primary Element	1	Tag No.		TT - 6207			
	2	Service		T 621 BOTTOM			
	3	Tap		K2 (1" #300 RF)			
	4	P&ID No.	Line No.	0062	T 621		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	35	°C		
	11	Max Temperature	Unit	150	°C		
	12	Normal Pressure	Unit	0.3	barg		
	13	Max Pressure	Unit	1	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	0 - 120	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 120 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	


		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 99 of 103			
Primary Element	1	Tag No.		TT - 6208			
	2	Service		P 621 REFLUX			
	3	Tap					
	4	P&ID No.	Line No.		0062	6203	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class		2"	4CS2
	7	Pressre Rating		Piping Material		150#	STAINLESS STEEL
	8	Connection size		Connection type			
	9	Fluid		State		WATER	
	10	Normal Temperature		Unit		30	°C
	11	Max Temperature		Unit		100	°C
	12	Normal Pressure		Unit		0.6	barg
	13	Max Pressure		Unit		1	barg
	14	Well	Identification tag				
	15		Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	0 - 120	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		0 - 120 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 100 of 103			
Primary Element	1	Tag No.		TT - 7101			
	2	Service		V 711 BOTTOM TEMPERATURE			
	3	Tap		K3 (1" #300 RF)			
	4	P&ID No.	Line No.	0071	V 711		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	30	°C		
	11	Max Temperature	Unit	(-60) + 120	°C		
	12	Normal Pressure	Unit	0.1	barg		
	13	Max Pressure	Unit	15	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-50) +120	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-50) 120 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		300 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 29 of 30			
Primary Element	1	Tag No.		TT - 7102			
	2	Service		V 712 BOTTOM TEMPERATURE			
	3	Tap		K2 (1" #300 RF)			
	4	P&ID No.	Line No.	0071	V 712		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material				
	8	Connection size	Connection type				
	9	Fluid	State				
	10	Normal Temperature	Unit	30	°C		
	11	Max Temperature	Unit	(-45) + 120	°C		
	12	Normal Pressure	Unit	0.1	barg		
	13	Max Pressure	Unit	6	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-50) +120	°C	
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-50) +120 °c			
	25	Power Supply		24V DC LOOP POWER			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia-IIC T4			
	30	Linerization		YES			
	31	Head material		SS-304			
32	Wire Break Function (Up/Down)		UP				
33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
43	Model No		VTA				
THERMOWELL	44	Material	Size& Type &Rating	SS-316	1" -FLANGE- RF-300 #		
	45	Insertion Length (U)		350 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	sensor Connection		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 101 of 103			
Primary Element	1	Tag No.		TT - 7103			
	2	Service		FLARE HEADER			
	3	Tap					
	4	P&ID No.	Line No.		0071	0101	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class		12"	1CS1	
	7	Pressre Rating	Piping Material		150#	STAINLESS STEEL	
	8	Connection size		Connection type			
	9	Fluid	State				MONOMERS
	10	Normal Temperature	Unit		AMB	°C	
	11	Max Temperature	Unit		100	°C	
	12	Normal Pressure	Unit		0.1	barg	
	13	Max Pressure	Unit		10	barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-50) +120	°C	
	18		Installation				DCS
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-50) +120 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		350 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
		Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014			
		Owner Job No:		Sheet No: 102 of 103			
Primary Element	1	Tag No.		TT - 7104			
	2	Service		V 711 JACKET RETURN			
	3	Tap					
	4	P&ID No.	Line No.	0071	7105		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	2"	4CC2(P)		
	7	Pressre Rating	Piping Material	150#	CARBON STEEL		
	8	Connection size	Connection type				
	9	Fluid	State	WATER GLYCOLE			
	10	Normal Temperature	Unit	30	°C		
	11	Max Temperature	Unit	120	°C		
	12	Normal Pressure	Unit	0.5	barg		
	13	Max Pressure	Unit	10	barg		
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-20) +150	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head Mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-20) +150 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS-304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	

		PROJECT: PP-PE PILOT PLANT				 شرکت ملی صنایع پتروشیمی شرکت پژوهش و فناوری پتروشیمی	
		TITLE: Temperature Transmitter Data Sheet					
Contractor Job No:		Doc. No: 900-DAS-A4-IN-0014					
Owner Job No:		Sheet No: 103 of 103					
Primary Element	1	Tag No.	TT - 7105				
	2	Service	V 712 JACKET RETURN				
	3	Tap					
	4	P&ID No.	Line No.	0071	7110		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	2"		4CC2(P)	
	7	Pressre Rating	Piping Material	150#		CARBON STEEL	
	8	Connection size	Connection type				
	9	Fluid	State	WATER GLYCOLE			
	10	Normal Temperature	Unit	30		°C	
	11	Max Temperature	Unit	120		°C	
	12	Normal Pressure	Unit	0.5		barg	
	13	Max Pressure	Unit	10		barg	
	14	Well	Identification tag				
	15		Type (special application)				
	16	Materials					
	17	Instrument	Measurement range	Unit	(-20) +150		°C
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	Head Mounted				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-20) 150 °c				
	25	Power Supply	24V DC				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia IIB T3				
	30	Linerization	YES				
	31	Head material	SS-304				
	32	Wire Break Function (Up/Down)	UP				
	33	Electrical connection	Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100		Single	
	35	Sheath material	Sheath diameter	SS-316		6 mm	
	36	Connection type	Length	3 wire		VTA	
	37	Wire Size	Insulation	VTA		VTA	
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer	VTA				
	42	Certificate	YES				
	43	Model No	VTA				
THERMOWELL	44	Material	Size & Rating	SS-316		1" -300 # - RF	
	45	Insertion Length (U)	300 mm				
	46	Standard No	ANSI				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	Instrument Connection (sensor - well)	VTA				
1	0	12/15/2021	IFA	K.A	M.N	AA.SH	
No.	Rev	Date	Status	Prepared	Checked	Approved	



SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET


SHEET N.1 OF ?


ISSUE 0

Level Transmitter Data Sheet

Level Transmitter Data Sheet (Differential Pressure)

No	Rev	Date	Status	Prepared	Checked	Approved

 National Petrochemical Company Petrochemical Research & Technology Company	SAZ CATALYST PLANT				DOCUMENT NUMBER		
	PROCESS DATA SHEET				SHEET N.1 OF ?	ISSUE 0	
	Level Transmitter						
General Data	1	Tag No.			LT-70201		
	2	Tap N° .					
	3	P&ID No.	Vessel		702	V-7021 A	
	4	Fluid	State		WASTE LIQUID	LIQUID	
	5	Service			LEVEL V-7021 A		
	6	Pressure rating	Piping material				
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification	Area				
	9	Upper fluid			WASTE GAS		
	10	Upper fluid Sp . Gr	Unit		3.22	Kg/m3	
	11	Lower fluid			WASTE LIQUID		
	12	Lower fluid Sp . Gr	Unit		700	Kg/m3	
	13	Type of connections			Flange		
	14	Normal Temperature	Unit		70	°C	
	15	Max Temperature	Unit		100	°C	
	16	Normal Pressure	Unit		0.2	barg	
	17	Max Pressure	Unit		5	barg	
	18	Allow . Press . Drop	Unit			barg	
	19	Measurement Range	Unit		3100	mm	
TRANSMITTER	20	Function			Indicating Transmitter		
	21	TYPE			Differential Pressure		
	22	Case Material			AISI 304		
	23	Mounting			Diaphragm Remote Seal		
	24	Measuring Range			0-100%		
	25	Accuracy			0.20%		
	26	Wetted Part Material			AISI 316		
	27	Degree of Protection			IP 65		
	28	Explosion Protection			EExib IIB T3		
	29	Capillary Length			3200mm		
	30	Process connection			15 mm with Flange 1½"		
	31	Element Material			AISI 316L		
	32	Electrical Connection			Gland M20		
	33	Out Put Signal			4-20 mA-Loop Powered, HART		
Accessories	34	Local Indication			Yes		
	35	Manifold			NA		
	36	Others			Bracket, Suitable for 2" pipe		
No.	Rev	Date	Status	Prepared	Checked	Approved	

 National Petrochemical Company Petrochemical Research & Technology Company	SAZ CATALYST PLANT				DOCUMENT NUMBER	
	PROCESS DATA SHEET				SHEET N.1 OF ?	ISSUE 0
	Level Transmitter					
General Data	1	Tag No.		LT-70202		
	2	Tap N° .				
	3	P&ID No.	Vessel	702	V-7021 B	
	4	Fluid	State	WASTE LIQUID	LIQUID	
	5	Service		LEVEL V-7021 B		
	6	Pressure rating	Piping material			
	7	Amb.Temp	Amb Press	Amb.Rel.Humidity Max (-28)°C / 44°C	0.82 Bara	86%
	8	Area Classification	Area			
	9	Upper fluid		WASTE GAS		
	10	Upper fluid Sp . Gr	Unit	3.22	Kg/m3	
	11	Lower fluid		WASTE LIQUID		
	12	Lower fluid Sp . Gr	Unit	700	Kg/m3	
	13	Type of connections		Flange		
	14	Normal Temperature	Unit	70	°C	
	15	Max Temperature	Unit	100	°C	
	16	Normal Pressure	Unit	0.2	barg	
	17	Max Pressure	Unit	5	barg	
	18	Allow . Press . Drop	Unit		barg	
	19	Measurement Range	Unit	3100	mm	
TRANSMITTER	20	Function		Indicating Transmitter		
	21	TYPE		Differential Pressure		
	22	Case Material		AISI 304		
	23	Mounting		Diaphragm Remote Seal		
	24	Measuring Range		0-100%		
	25	Accuracy		0.20%		
	26	Wetted Part Material		AISI 316		
	27	Degree of Protection		IP 65		
	28	Explosion Protection		EExib IIB T3		
	29	Capillary Length		3200mm		
	30	Process connection		15 mm with Flange 1½"		
	31	Element Material		AISI 316L		
	32	Electrical Connection		Gland M20		
	33	Out Put Signal		4-20 mA-Loop Powered, HART		
Accessories	34	Local Indication		Yes		
	35	Manifold		NA		
	36	Others		Bracket, Suitable for 2" pipe		
No.	Rev	Date	Status	Prepared	Checked	Approved



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

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NPCRT Doc No:SAZ-DAS-A4-IN-0001-00

DATA SHEET

SHEET N. 1 OF 20

ISSUE 0

PRESSURE TRANSMITTER

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PRESSURE TRANSMITTER

REVISED DATA	ROW NUMBER	ISSUE	DESCRIPTION	DRAWN UP	VERIFIE	APROVED	DATE	

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SAZ CATALYST PLANT

DOCUMENT NUMBER

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DATA SHEET

SHEET N. 2 OF 20

ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.		PT-60104 A		
	2	Service		WASTE GAS ON DECANter 6014		
	3	Tap No				
	4	P&ID No.	Line No	602	2"-WAG-603003-CS1	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	6	Piping Size		Piping Class	2"	
	7	Pressre Rating		Piping Material	150# CARBON STEEL	
	8	Connections	Material		C.S.	
	9		Type		1/2" NPT Male	
	10	Fluid	State	WASTE GAS		GAS
	11	Normal Temperature	Unit	55		°C
	12	Max Temperature	Unit	60		°C
	13	Normal Pressure	Unit	1		barg
	14	Max Pressure	Unit	2		barg
	15	Solids in suspension				
	16	Op . Visc . (when > 10 mpa's)	Unit			mpa's
	17	L.iable to solidify or crystalize				
	18	Fluid if any available for purge				
	19	Sensing element material				
	20	tracing	Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter		
	26	TYPE		Gauge Pressure Transmitter		
	27	Power Supply		Loop Powered (24 V DC)		
	28	Case Material		AISI 304		
	29	Mounting		Direct		
	30	Measuring Range		0 - 10 barg		
	31	Accuracy		0.20%		
	32	Wetted Part Material		AISI 316		
	33	Degree of Protection		IP 65		
	34	Explosion Protection		EExib IIB T3		
	35	Process connection		1/2" NPT Female		
	36	Element Material		AISI 316L		
	37	Electrical Connection		Gland M 20		
	38	Output Signal		4-20 mA-Loop Powered, HART		
Diaphragm Seal	39	Type	size & Rating	NA	NA	
	40	Material		NA		
	41	Seal Liquid		NA		
	42	Capillary Length		NA		
Accessories	43	Local Indication		Yes		
	44	Manifold		2 Valve - Remote Mount		
	45	Others		Bracket, Suitable for 2" pipe		



National Petrochemical Company
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SAZ CATALYST PLANT

DOCUMENT NUMBER

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DATA SHEET

SHEET N. 3 OF 20

ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.		PT-60104 B		
	2	Service		DECANTER 6014		
	3	Tap No				
	4	P&ID No.	Line No	602	DECANTER 6014	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	6	Piping Size		Piping Class		
	7	Pressre Rating		Piping Material		150# S.S
	8	Connections	Material		S.S	
	9		Type		1/2" NPT Male	
	10	Fluid	State	CATALYST	SLURRY	
	11	Normal Temperature	Unit	55	°C	
	12	Max Temperature	Unit	60	°C	
	13	Normal Pressure	Unit	1	barg	
	14	Max Pressure	Unit	2	barg	
	15	Solids in suspension		YES		
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's	
	17	L.i.able to solidify or crystalize				
	18	Fluid if any available for purge				
	19	Sensing element material				
	20	tracing	Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter		
	26	TYPE		Diaphragm Seal (Capillary)		
	27	Power Supply		Loop Powered (24 V DC)		
	28	Case Material		AISI 304		
	29	Mounting		Direct		
	30	Measuring Range		0 - 10 barg		
	31	Accuracy		0.20%		
	32	Wetted Part Material		AISI 316		
	33	Degree of Protection		IP 65		
	34	Explosion Protection		EExib IIB T3		
35	Process connection		1/2" NPT Female			
36	Element Material		AISI 316L			
37	Electrical Connection		Gland M 20			
38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA	NA	
	40	Material		NA		
	41	Seal Liquid		YES		
Accessories	42	Capillary Length		3"		
	43	Local Indication		Yes		
	44	Manifold		2 Valve - Remote Mount		
	45	Others		Bracket, Suitable for 2" pipe		



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

NPCRT Doc No:SAZ-DAS-A4-IN-0001-00

DATA SHEET

SHEET N. 4 OF 20

ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.		PT-70101 A		
	2	Service		WASTE GAS ON V-7011 A		
	3	Tap No				
	4	P&ID No.	Line No	701	4"-WAG-701007-CS1	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	6	Piping Size		Piping Class		4"
	7	Pressre Rating		Piping Material		150# CARBON STEEL
	8	Connections	Material		C.S.	
	9		Type		1/2" NPT Male	
	10	Fluid	State		WASTE GAS	GAS
	11	Normal Temperature	Unit		70	°C
	12	Max Temperature	Unit		100	°C
	13	Normal Pressure	Unit		0.1	barg
	14	Max Pressure	Unit		1	barg
	15	Solids in suspension				
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's	
	17	L.i.able to solidify or crystalize				
	18	Fluid if any available for purge				
	19	Sensing element material				
	20	tracing	Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter		
	26	TYPE		Gauge Pressure Transmitter		
	27	Power Supply		Loop Powered (24 V DC)		
	28	Case Material		AISI 304		
	29	Mounting		Direct		
	30	Measuring Range		0 - 6 barg		
	31	Accuracy		0.20%		
	32	Wetted Part Material		AISI 316		
	33	Degree of Protection		IP 65		
	34	Explosion Protection		EExib IIB T3		
35	Process connection		1/2" NPT Female			
36	Element Material		AISI 316L			
37	Electrical Connection		Gland M 20			
38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA	NA	
	40	Material		NA		
	41	Seal Liquid		NA		
42	Capillary Length		NA			
Accessories	43	Local Indication		Yes		
	44	Manifold		2 Valve - Remote Mount		
	45	Others		Bracket, Suitable for 2" pipe		



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

NPCRT Doc No:SAZ-DAS-A4-IN-0001-00

DATA SHEET

SHEET N. 5 OF 20

ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-70101 B		
	2	Service	BOT. V-7011 A		
	3	Tap No			
	4	P&ID No.	Line No	701	V-7011A
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class		
	7	Pressre Rating	Piping Material		150# C.S
	8	Connections	Material		
	9		Type		
	10	Fluid	State	WASTE LIQUID	LIQUID
	11	Normal Temperature	Unit	70	°C
	12	Max Temperature	Unit	100	°C
	13	Normal Pressure	Unit	0.1	barg
	14	Max Pressure	Unit	1	barg
	15	Solids in suspension		YES	
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Diaphragm Seal (Capillary)		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 6 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
	35	Process connection	1/2" NPT Female		
	36	Element Material	AISI 316L		
	37	Electrical Connection	Gland M 20		
38	Output Signal	4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA NA	
	40	Material	NA		
	41	Seal Liquid	YES		
42	Capillary Length	1½"			
Accessories	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

NPCRT Doc No:SAZ-DAS-A4-IN-0001-00

DATA SHEET

SHEET N. 6 OF 20

ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-70102 A		
	2	Service	WASTE GAS ON V-7011 B		
	3	Tap No			
	4	P&ID No.	Line No	701	4"-WAG-70101-CS1
	5	Amb.Temp	Amb.Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class	4"	
	7	Pressre Rating	Piping Material	150#	CARBON STEEL
	8	Connections	Material	C.S.	
	9		Type	1/2" NPT Male	
	10	Fluid	State	WASTE GAS	GAS
	11	Normal Temperature	Unit	70	°C
	12	Max Temperature	Unit	100	°C
	13	Normal Pressure	Unit	0.1	barg
	14	Max Pressure	Unit	1	barg
	15	Solids in suspension			
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Gauge Pressure Transmitter		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 6 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
	35	Process connection	1/2" NPT Female		
	36	Element Material	AISI 316L		
	37	Electrical Connection	Gland M 20		
38	Output Signal	4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA NA	
	40	Material	NA		
	41	Seal Liquid	NA		
Accessories	42	Capillary Length	NA		
	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-70102 B		
	2	Service	BOT. V-7011 B		
	3	Tap No			
	4	P&ID No.	Line No	701	V-7011B
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class		
	7	Pressre Rating	Piping Material		150# C.S
	8	Connections	Material		
	9		Type		
	10	Fluid	State	WASTE LIQUID	LIQUID
	11	Normal Temperature	Unit	70	°C
	12	Max Temperature	Unit	100	°C
	13	Normal Pressure	Unit	0.1	barg
	14	Max Pressure	Unit	1	barg
	15	Solids in suspension			
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Diaphragm Seal (Capillary)		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 6 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
	35	Process connection	1/2" NPT Female		
	36	Element Material	AISI 316L		
	37	Electrical Connection	Gland M 20		
38	Output Signal	4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA NA	
	40	Material	NA		
	41	Seal Liquid	YES		
42	Capillary Length	1½"			
Accessories	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		



National Petrochemical Company
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SAZ CATALYST PLANT

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.		PT-70201 A			
	2	Service		WASTE GAS ON V-7021 A			
	3	Tap No					
	4	P&ID No.	Line No		702	4"-WAG-702013-CS1	
	5	Amb. Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	4"		
	7	Pressre Rating		Piping Material	150#	CARBON STEEL	
	8	Connections	Material		C.S.		
	9		Type		1/2" NPT Male		
	10	Fluid	State		WASTE GAS	GAS	
	11	Normal Temperature	Unit		70	°C	
	12	Max Temperature	Unit		100	°C	
	13	Normal Pressure	Unit		0.2	barg	
	14	Max Pressure	Unit		1	barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 6 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M 20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve - Remote Mount			
	45	Others		Bracket, Suitable for 2" pipe			



National Petrochemical Company
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SAZ CATALYST PLANT

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-70201 B				
	2	Service	BOT. V-7021 A				
	3	Tap No					
	4	P&ID No.	Line No	702	V-7021		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material		150#	S.S	
	8	Connections	Material			S.S	
	9		Type			1/2" NPT Male	
	10	Fluid	State	WASTE LIQUID	LIQUID		
	11	Normal Temperature	Unit	70	°C		
	12	Max Temperature	Unit	100	°C		
	13	Normal Pressure	Unit	0.2	barg		
	14	Max Pressure	Unit	1	barg		
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function	Indicating Transmitter				
	26	TYPE	Gauge Pressure Transmitter				
	27	Power Supply	Loop Powered (24 V DC)				
	28	Case Material	AISI 304				
	29	Mounting	Direct				
	30	Measuring Range	0 - 6 barg				
	31	Accuracy	0.20%				
	32	Wetted Part Material	AISI 316				
	33	Degree of Protection	IP 65				
	34	Explosion Protection	EExib IIB T3				
35	Process connection	1/2" NPT Female					
36	Element Material	AISI 316L					
37	Electrical Connection	Gland M 20					
38	Output Signal	4-20 mA-Loop Powered, HART					
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material	NA				
	41	Seal Liquid	NA				
42	Capillary Length	NA					
Accessories	43	Local Indication	Yes				
	44	Manifold	2 Valve - Remote Mount				
	45	Others	Bracket, Suitable for 2" pipe				



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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-70202 A		
	2	Service	WASTE GAS ON V-7021 B		
	3	Tap No			
	4	P&ID No.	Line No	702	4"-WAG-702018-SS1
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class	4"	
	7	Pressre Rating	Piping Material	150#	CARBON STEEL
	8	Connections	Material	C.S.	
	9		Type	1/2" NPT Male	
	10	Fluid	State	WASTE GAS	GAS
	11	Normal Temperature	Unit	70	°C
	12	Max Temperature	Unit	100	°C
	13	Normal Pressure	Unit	0.2	barg
	14	Max Pressure	Unit	1	barg
	15	Solids in suspension			
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Gauge Pressure Transmitter		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 6 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
	35	Process connection	1/2" NPT Female		
	36	Element Material	AISI 316L		
	37	Electrical Connection	Gland M 20		
	38	Output Signal	4-20 mA-Loop Powered, HART		
Diaphragm Seal	39	Type	size & Rating	NA NA	
	40	Material	NA		
	41	Seal Liquid	NA		
	42	Capillary Length	NA		
Accessories	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		



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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.		PT-70202 B		
	2	Service		BOT. V-7021 B		
	3	Tap No				
	4	P&ID No.	Line No	702	V-7021B	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara 86%
	6	Piping Size		Piping Class		
	7	Pressre Rating		Piping Material		150# S.S
	8	Connections	Material		S.S	
	9		Type		1/2" NPT Male	
	10	Fluid	State		WASTE LIQUID	LIQUID
	11	Normal Temperature	Unit		70	°C
	12	Max Temperature	Unit		100	°C
	13	Normal Pressure	Unit		0.2	barg
	14	Max Pressure	Unit		1	barg
	15	Solids in suspension				
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's	
	17	L.i.able to solidify or crystalize				
	18	Fluid if any available for purge				
	19	Sensing element material				
	20	tracing	Jacketing			
TRANSMITTER	25	Function		Indicating Transmitter		
	26	TYPE		Gauge Pressure Transmitter		
	27	Power Supply		Loop Powered (24 V DC)		
	28	Case Material		AISI 304		
	29	Mounting		Direct		
	30	Measuring Range		0 - 6 barg		
	31	Accuracy		0.20%		
	32	Wetted Part Material		AISI 316		
	33	Degree of Protection		IP 65		
	34	Explosion Protection		EExib IIB T3		
35	Process connection		1/2" NPT Female			
36	Element Material		AISI 316L			
37	Electrical Connection		Gland M 20			
38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA	NA	
	40	Material		NA		
	41	Seal Liquid		NA		
Accessories	42	Capillary Length		NA		
	43	Local Indication		Yes		
	44	Manifold		2 Valve - Remote Mount		
	45	Others		Bracket, Suitable for 2" pipe		



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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-70203		
	2	Service	WASTE GAS ON V-7022		
	3	Tap No			
	4	P&ID No.	Line No	702	1"-WAG-702048-CS1
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class	1"	
	7	Pressre Rating	Piping Material	150#	C.S
	8	Connections	Material	C.S	
	9		Type	1/2" NPT Male	
	10	Fluid	State	WASTE GAS	GAS
	11	Normal Temperature	Unit	AMB	°C
	12	Max Temperature	Unit	40	°C
	13	Normal Pressure	Unit	ATM	barg
	14	Max Pressure	Unit	1	barg
	15	Solids in suspension			
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Gauge Pressure Transmitter		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 4 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
	35	Process connection	1/2" NPT Female		
	36	Element Material	AISI 316L		
	37	Electrical Connection	Gland M 20		
	38	Output Signal	4-20 mA-Loop Powered, HART		
Diaphragm Seal	39	Type	size & Rating	NA	NA
	40	Material	NA		
	41	Seal Liquid	NA		
	42	Capillary Length	NA		
Accessories	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		



National Petrochemical Company
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SAZ CATALYST PLANT

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-80101 A				
	2	Service	WASTE GAS ON V-8011				
	3	Tap No					
	4	P&ID No.	Line No	801	2"-WAG-801003-CS1		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	2"			
	7	Pressre Rating	Piping Material	150#			CARBON STEEL
	8	Connections	Material	C.S.			
	9		Type	1/2" NPT Male			
	10	Fluid	State	WASTE GAS		GAS	
	11	Normal Temperature	Unit	80		°C	
	12	Max Temperature	Unit	100		°C	
	13	Normal Pressure	Unit	2		barg	
	14	Max Pressure	Unit	3		barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit				
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function	Indicating Transmitter				
	26	TYPE	Gauge Pressure Transmitter				
	27	Power Supply	Loop Powered (24 V DC)				
	28	Case Material	AISI 304				
	29	Mounting	Direct				
	30	Measuring Range	0 - 8 barg				
	31	Accuracy	0.20%				
	32	Wetted Part Material	AISI 316				
	33	Degree of Protection	IP 65				
	34	Explosion Protection	EExib IIB T3				
	35	Process connection	1/2" NPT Female				
	36	Element Material	AISI 316L				
	37	Electrical Connection	Gland M 20				
	38	Output Signal	4-20 mA-Loop Powered, HART				
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material	NA				
	41	Seal Liquid	NA				
Accessories	42	Capillary Length	NA				
	43	Local Indication	Yes				
	44	Manifold	2 Valve - Remote Mount				
	45	Others	Bracket, Suitable for 2" pipe				



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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-80101 B				
	2	Service	BOT. V-8011				
	3	Tap No					
	4	P&ID No.	Line No	801	V-8011		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material		150#	S.S.	
	8	Connections	Material		S.S		
	9		Type		1/2" NPT Male		
	10	Fluid	State	WASTE LIQUID/ HEXANE	LIQUID + SOLID		
	11	Normal Temperature	Unit	80	°C		
	12	Max Temperature	Unit	100	°C		
	13	Normal Pressure	Unit	2	barg		
	14	Max Pressure	Unit	3	barg		
	15	Solids in suspension		YES			
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Diaphragm Seal (Capillary)			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 8 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M 20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material		NA			
	41	Seal Liquid		YES			
	42	Capillary Length		1½"			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve - Remote Mount			
	45	Others		Bracket, Suitable for 2" pipe			



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SAZ CATALYST PLANT

DOCUMENT NUMBER

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-80102		
	2	Service	WASTE GAS ON V-8012		
	3	Tap No			
	4	P&ID No.	Line No	801	½"-WAG-801022-CS1
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class	½"	
	7	Pressre Rating	Piping Material	150#	CARBON STEEL
	8	Connections	Material	C.S.	
	9		Type	1/2" NPT Male	
	10	Fluid	State	WASTE GAS	GAS
	11	Normal Temperature	Unit	AMB	°C
	12	Max Temperature	Unit	40	°C
	13	Normal Pressure	Unit	ATM	barg
	14	Max Pressure	Unit	1	barg
	15	Solids in suspension			
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Gauge Pressure Transmitter		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 4 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
35	Process connection	1/2" NPT Female			
36	Element Material	AISI 316L			
37	Electrical Connection	Gland M 20			
38	Output Signal	4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA NA	
	40	Material	NA		
	41	Seal Liquid	NA		
Accessories	42	Capillary Length	NA		
	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		



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SAZ CATALYST PLANT

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-80201				
	2	Service	T-8021				
	3	Tap No					
	4	P&ID No.	Line No	802	T-8021		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	½"			
	7	Pressre Rating	Piping Material	150#		S.S.	
	8	Connections	Material	S.S.			
	9		Type	1/2" NPT Male			
	10	Fluid	State	WASTE GAS		GAS	
	11	Normal Temperature	Unit	65		°C	
	12	Max Temperature	Unit	87		°C	
	13	Normal Pressure	Unit	0.5		barg	
	14	Max Pressure	Unit	0.7		barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit	mpa's			
	17	L.i.able to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function	Indicating Transmitter				
	26	TYPE	Gauge Pressure Transmitter				
	27	Power Supply	Loop Powered (24 V DC)				
	28	Case Material	AISI 304				
	29	Mounting	Direct				
	30	Measuring Range	0 - 6 barg				
	31	Accuracy	0.20%				
	32	Wetted Part Material	AISI 316				
	33	Degree of Protection	IP 65				
	34	Explosion Protection	EExib IIB T3				
35	Process connection	1/2" NPT Female					
36	Element Material	AISI 316L					
37	Electrical Connection	Gland M 20					
38	Output Signal	4-20 mA-Loop Powered, HART					
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material	NA				
	41	Seal Liquid	NA				
Accessories	42	Capillary Length	NA				
	43	Local Indication	Yes				
	44	Manifold	2 Valve - Remote Mount				
	45	Others	Bracket, Suitable for 2" pipe				



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

NPCRT Doc No:SAZ-DAS-A4-IN-0001-00

DATA SHEET

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-80202				
	2	Service	WASTE GAS ON V-8021				
	3	Tap No					
	4	P&ID No.	Line No	802	1"-WAG-802022-CS1		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	1"		4CC2	
	7	Pressre Rating	Piping Material	150#		CARBON STEEL	
	8	Connections	Material	C.S.			
	9		Type	1/2" NPT Male			
	10	Fluid	State	WASTE GAS		GAS	
	11	Normal Temperature	Unit	AMB		°C	
	12	Max Temperature	Unit	40		°C	
	13	Normal Pressure	Unit	ATM		barg	
	14	Max Pressure	Unit	0.5		barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit			mpa's	
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function	Indicating Transmitter				
	26	TYPE	Gauge Pressure Transmitter				
	27	Power Supply	Loop Powered (24 V DC)				
	28	Case Material	AISI 304				
	29	Mounting	Direct				
	30	Measuring Range	0 - 4 barg				
	31	Accuracy	0.20%				
	32	Wetted Part Material	AISI 316				
	33	Degree of Protection	IP 65				
	34	Explosion Protection	EExib IIB T3				
35	Process connection	1/2" NPT Female					
36	Element Material	AISI 316L					
37	Electrical Connection	Gland M 20					
38	Output Signal	4-20 mA-Loop Powered, HART					
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material	NA				
	41	Seal Liquid	NA				
Accessories	42	Capillary Length	NA				
	43	Local Indication	Yes				
	44	Manifold	2 Valve - Remote Mount				
	45	Others	Bracket, Suitable for 2" pipe				



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.	PT-80203				
	2	Service	T-8021				
	3	Tap No					
	4	P&ID No.	Line No	802	T-8021		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class	½"			
	7	Pressre Rating	Piping Material	150#		S.S.	
	8	Connections	Material	S.S.			
	9		Type	1/2" NPT Male			
	10	Fluid	State	WASTE GAS		GAS	
	11	Normal Temperature	Unit	84		°C	
	12	Max Temperature	Unit	117		°C	
	13	Normal Pressure	Unit	0.5		barg	
	14	Max Pressure	Unit	0.7		barg	
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit	mpa's			
	17	L.i.able to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function	Indicating Transmitter				
	26	TYPE	Gauge Pressure Transmitter				
	27	Power Supply	Loop Powered (24 V DC)				
	28	Case Material	AISI 304				
	29	Mounting	Direct				
	30	Measuring Range	0 - 6 barg				
	31	Accuracy	0.20%				
	32	Wetted Part Material	AISI 316				
	33	Degree of Protection	IP 65				
	34	Explosion Protection	EExib IIB T3				
35	Process connection	1/2" NPT Female					
36	Element Material	AISI 316L					
37	Electrical Connection	Gland M 20					
38	Output Signal	4-20 mA-Loop Powered, HART					
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material	NA				
	41	Seal Liquid	NA				
Accessories	42	Capillary Length	NA				
	43	Local Indication	Yes				
	44	Manifold	2 Valve - Remote Mount				
	45	Others	Bracket, Suitable for 2" pipe				



National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

NPCRT Doc No:SAZ-DAS-A4-IN-0001-00

DATA SHEET

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ISSUE 0

PRESSURE TRANSMITTER

Primary Element	1	Tag No.		PT-90203 A			
	2	Service		WASTE GAS ON TK-9022			
	3	Tap No					
	4	P&ID No.	Line No		902	2"-WAG-902017-CS1	
	5	Amb. Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size		Piping Class	2"		4CC2
	7	Pressre Rating		Piping Material	150#		CARBON STEEL
	8	Connections	Material		C.S.		
	9		Type		1/2" NPT Male		
	10	Fluid	State		WASTE GAS		GAS
	11	Normal Temperature	Unit		AMB		°C
	12	Max Temperature	Unit		40		°C
	13	Normal Pressure	Unit		ATM		barg
	14	Max Pressure	Unit		0.5		barg
	15	Solids in suspension					
	16	Op . Visc . (when > 10 mpa's)	Unit		mpa's		
	17	L.iable to solidify or crystalize					
	18	Fluid if any available for purge					
	19	Sensing element material					
	20	tracing	Jacketing				
TRANSMITTER	25	Function		Indicating Transmitter			
	26	TYPE		Gauge Pressure Transmitter			
	27	Power Supply		Loop Powered (24 V DC)			
	28	Case Material		AISI 304			
	29	Mounting		Direct			
	30	Measuring Range		0 - 4 barg			
	31	Accuracy		0.20%			
	32	Wetted Part Material		AISI 316			
	33	Degree of Protection		IP 65			
	34	Explosion Protection		EExib IIB T3			
	35	Process connection		1/2" NPT Female			
	36	Element Material		AISI 316L			
	37	Electrical Connection		Gland M 20			
	38	Output Signal		4-20 mA-Loop Powered, HART			
Diaphragm Seal	39	Type	size & Rating	NA	NA		
	40	Material		NA			
	41	Seal Liquid		NA			
	42	Capillary Length		NA			
Accessories	43	Local Indication		Yes			
	44	Manifold		2 Valve - Remote Mount			
	45	Others		Bracket, Suitable for 2" pipe			



National Petrochemical Company
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SAZ CATALYST PLANT

DOCUMENT NUMBER

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DATA SHEET

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ISSUE 0


PRESSURE TRANSMITTER


Primary Element	1	Tag No.	PT-90203 B		
	2	Service	WASTE GAS BOT. TK-9022		
	3	Tap No			
	4	P&ID No.	Line No	902	TK-9022
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C 0.82 Bara 86%
	6	Piping Size	Piping Class	4CC2	
	7	Pressre Rating	Piping Material	150#	CARBON STEEL
	8	Connections	Material	C.S.	
	9		Type	1/2" NPT Male	
	10	Fluid	State	WASTE LIQUID	LIQUID
	11	Normal Temperature	Unit	AMB	°C
	12	Max Temperature	Unit	40	°C
	13	Normal Pressure	Unit	ATM	barg
	14	Max Pressure	Unit	0.5	barg
	15	Solids in suspension			
	16	Op . Visc . (when > 10 mpa's)			mpa's
	17	L.iable to solidify or crystalize			
	18	Fluid if any available for purge			
	19	Sensing element material			
	20	tracing	Jacketing		
TRANSMITTER	25	Function	Indicating Transmitter		
	26	TYPE	Gauge Pressure Transmitter		
	27	Power Supply	Loop Powered (24 V DC)		
	28	Case Material	AISI 304		
	29	Mounting	Direct		
	30	Measuring Range	0 - 4 barg		
	31	Accuracy	0.20%		
	32	Wetted Part Material	AISI 316		
	33	Degree of Protection	IP 65		
	34	Explosion Protection	EExib IIB T3		
	35	Process connection	1/2" NPT Female		
	36	Element Material	AISI 316L		
	37	Electrical Connection	Gland M 20		
	38	Output Signal	4-20 mA-Loop Powered, HART		
Diaphragm Seal	39	Type	size & Rating	NA NA	
	40	Material	NA		
	41	Seal Liquid	NA		
	42	Capillary Length	NA		
Accessories	43	Local Indication	Yes		
	44	Manifold	2 Valve - Remote Mount		
	45	Others	Bracket, Suitable for 2" pipe		


 National Petrochemical Company Petrochemical Research & Technology Company	SAZ CATALYST PLANT		DOCUMENT NUMBER	
	PROCESS DATA SHEET		SHEET N.1 OF 17	ISSUE 0
	Temperature Transmitter			


Temperature Transmitter Data Sheet


No.	Rev	Date	Status	Prepared	Checked	Approved


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER		
		PROCESS DATA SHEET				SHEET N.2 OF 17	ISSUE 0	
		Temperature Transmitter Data Sheet						
Primary Element	1	Tag No.	TT - 60108					
	2	Service	V-6014					
	3	Tap						
	4	P&ID No.	Line No.	603	V-6014			
	5	Amb.Temp	Amb.Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class					
	7	Pressure Rating	Piping Material		150#	SS 304		
	8	Connection size	Connection type				1½"	FLANGE
	9	Fluid	State		CATALYST/HEXANE	SOLID LIQUID SUSPENSION		
	10	Normal Temperature	Unit	60	°C			
	11	Max Temperature	Unit	80	°C			
	12	Normal Pressure	Unit	1	barg			
	13	Max Pressure	Unit	4	barg			
	14		Identification tag					
	15	Well	Type (special application)					
	16		Materials					SS
	17		Measurement range	Unit	(-30) +350	°C		
	18	Instrument	Installation					DCS
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function	Indicator Transmitter					
	22	TYPE	Head mounted					
	23	Output	4-20 mA-Loop Powered, HART					
	24	Range	(-30) +350 °c					
	25	Power Supply	24V DC					
	26	Accuracy	0.20%					
	27	Zero Adjust	Span Adjust	YES	YES			
	28	Degree of protection	IP 65					
	29	Explosion protection	EExia IIB T3					
	30	Linerization	YES					
	31	Head material	SS 304					
	32	Wire Break Function (Up/Down)	UP					
	33	Electrical connection	Gland M20					
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction	NA					
	39	Spring Load	YES					
	40	Element Housing	VTA					
	41	Manufacturer	VTA					
	42	Certificate	YES					
	43	Model No	VTA					
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)	200 mm					
	46	Standard No	ANSI B36.19M					
	47	Leg Extension	VTA					
	48	Watted Parts To Nace	NO					
	49	Requisition(sensor-well)	YES					
	50	Instrument Connection (sensor - well)	VTA					
No.	Rev	Date	Status	Prepared	Checked	Approved		


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER		
		PROCESS DATA SHEET				SHEET N.3 OF 17	ISSUE 0	
		Temperature Transmitter Data Sheet						
Primary Element	1	Tag No.				TT -70101		
	2	Service				V-7011 A		
	3	Tap						
	4	P&ID No.	Line No.	701		V-7011 A		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class					
	7	Pressre Rating	Piping Material		150#	SS 304		
	8	Connection size	Connection type		1½"	FLANGE		
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID		
	10	Normal Temperature	Unit	70		°C		
	11	Max Temperature	Unit	100		°C		
	12	Normal Pressure	Unit	0.2		barg		
	13	Max Pressure	Unit	5		barg		
	14		Identification tag					
	15	Well	Type (special application)					
	16		Materials		SS			
	17	Instrument	Measurement range	Unit	(-30) +350	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-30) +350 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust	YES	YES			
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS 304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI B36.19M				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved		


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER		
		PROCESS DATA SHEET				SHEET N.4 OF 17	ISSUE 0	
		Temperature Transmitter Data Sheet						
Primary Element	1	Tag No.				TT -70102		
	2	Service				V-7011 B		
	3	Tap						
	4	P&ID No.	Line No.	701		V-7011 B		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class					
	7	Pressure Rating	Piping Material		150#	SS 304		
	8	Connection size	Connection type		1½"	FLANGE		
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID		
	10	Normal Temperature	Unit	70		°C		
	11	Max Temperature	Unit	100		°C		
	12	Normal Pressure	Unit	0.2		barg		
	13	Max Pressure	Unit	5		barg		
	14		Identification tag					
	15	Well	Type (special application)					
	16		Materials		SS			
	17	Instrument	Measurement range	Unit	(-30) +350	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-30) +350 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust	YES	YES			
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS 304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI B36.19M				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved		


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.5 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -70103				
	2	Service	OUTLET OF E-7011 A/B				
	3	Tap					
	4	P&ID No.	Line No.	701	1"-WAL-701023		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID	
	10	Normal Temperature	Unit	38		°C	
	11	Max Temperature	Unit	68		°C	
	12	Normal Pressure	Unit	ATM		barg	
	13	Max Pressure	Unit	0.5		barg	
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17		Measurement range	Unit	(-30) +350	°C	
	18	Instrument	Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	Head mounted				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-30) +350 °c				
	25	Power Supply	24V DC				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia IIB T3				
	30	Linerization	YES				
	31	Head material	SS 304				
	32	Wire Break Function (Up/Down)	UP				
	33	Electrical connection	Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer	VTA				
	42	Certificate	YES				
	43	Model No	VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)	170 mm				
	46	Standard No	ANSI B36.19M				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	Instrument Connection (sensor - well)	VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved	


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.6 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.				TT -70104	
	2	Service				V-7013	
	3	Tap					
	4	P&ID No.	Line No.	701		V-7013	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State		NAOH	LIQUID	
	10	Normal Temperature	Unit		AMB	°C	
	11	Max Temperature	Unit		40	°C	
	12	Normal Pressure	Unit		ATM	barg	
	13	Max Pressure	Unit		1	barg	
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17		Measurement range	Unit	(-30) +350	°C	
	18	Instrument	Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) +350 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS 304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100		Single	
	35	Sheath material	Sheath diameter	SS-316		6 mm	
	36	Connection type	Length	3 wire		VTA	
	37	Wire Size	Insulation	VTA		VTA	
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316		1" -300 # - RF	
	45	Insertion Length (U)		170 mm			
	46	Standard No		ANSI B36.19M			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.7 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.				TT -70201	
	2	Service				V-7021 A	
	3	Tap					
	4	P&ID No.	Line No.	702		V-7021 A	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID	
	10	Normal Temperature	Unit	70		°C	
	11	Max Temperature	Unit	100		°C	
	12	Normal Pressure	Unit	0.2		barg	
	13	Max Pressure	Unit	5		barg	
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials		SS		
	17	Instrument	Measurement range	Unit	(-30) +350	°C	
	18		Installation		DCS		
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) +350 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS 304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI B36.19M			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER		
		PROCESS DATA SHEET				SHEET N.8 OF 17	ISSUE 0	
		Temperature Transmitter Data Sheet						
Primary Element	1	Tag No.				TT -70201		
	2	Service				V-7021 B		
	3	Tap						
	4	P&ID No.	Line No.	702		V-7021 B		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class					
	7	Pressre Rating	Piping Material		150#	SS 304		
	8	Connection size	Connection type		1½"	FLANGE		
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID		
	10	Normal Temperature	Unit	70		°C		
	11	Max Temperature	Unit	100		°C		
	12	Normal Pressure	Unit	0.2		barg		
	13	Max Pressure	Unit	5		barg		
	14		Identification tag					
	15	Well	Type (special application)					
	16		Materials		SS			
	17	Instrument	Measurement range	Unit	(-30) +350		°C	
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-30) +350 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust	YES	YES			
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS 304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI B36.19M				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved		


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.9 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -70103				
	2	Service	OUTLET OF E-7021AB				
	3	Tap					
	4	P&ID No.	Line No.	701	1"-WAL-702013		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material	150#	SS 304		
	8	Connection size	Connection type	1½"	FLANGE		
	9	Fluid	State	WASTE LIQUID/HEXANE	LIQUID		
	10	Normal Temperature	Unit	38	°C		
	11	Max Temperature	Unit	68	°C		
	12	Normal Pressure	Unit	ATM	barg		
	13	Max Pressure	Unit	0.5	barg		
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials	SS			
	17	Instrument	Measurement range	Unit	(-30) +350	°C	
	18		Installation	DCS			
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	Head mounted				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-30) +350 °c				
	25	Power Supply	24V DC				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia IIB T3				
	30	Linerization	YES				
	31	Head material	SS 304				
	32	Wire Break Function (Up/Down)	UP				
	33	Electrical connection	Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer	VTA				
	42	Certificate	YES				
	43	Model No	VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)	170 mm				
	46	Standard No	ANSI B36.19M				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	Instrument Connection (sensor - well)	VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved	


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER		
		PROCESS DATA SHEET				SHEET N.10 OF 17	ISSUE 0	
		Temperature Transmitter Data Sheet						
Primary Element	1	Tag No.				TT -70204		
	2	Service				V-7022		
	3	Tap						
	4	P&ID No.	Line No.	702		V-7022		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%	
	6	Piping Size	Piping Class					
	7	Pressure Rating	Piping Material		150#	SS 304		
	8	Connection size	Connection type		1½"	FLANGE		
	9	Fluid	State		HEXANE	LIQUID		
	10	Normal Temperature	Unit		38	°C		
	11	Max Temperature	Unit		68	°C		
	12	Normal Pressure	Unit		0.1	barg		
	13	Max Pressure	Unit		0.5	barg		
	14		Identification tag					
	15	Well	Type (special application)					
	16		Materials		SS			
	17	Instrument	Measurement range	Unit	(-30) +350	°C		
	18		Installation		DCS			
	19		Requested accuracy					
	20		Control modes					
TRANSMITTER	21	Function		Indicator Transmitter				
	22	TYPE		Head mounted				
	23	Output		4-20 mA-Loop Powered, HART				
	24	Range		(-30) +350 °c				
	25	Power Supply		24V DC				
	26	Accuracy		0.20%				
	27	Zero Adjust	Span Adjust	YES	YES			
	28	Degree of protection		IP 65				
	29	Explosion protection		EExia IIB T3				
	30	Linerization		YES				
	31	Head material		SS 304				
	32	Wire Break Function (Up/Down)		UP				
	33	Electrical connection		Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single			
	35	Sheath material	Sheath diameter	SS-316	6 mm			
	36	Connection type	Length	3 wire	VTA			
	37	Wire Size	Insulation	VTA	VTA			
	38	Hot Junction		NA				
	39	Spring Load		YES				
	40	Element Housing		VTA				
	41	Manufacturer		VTA				
	42	Certificate		YES				
	43	Model No		VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF			
	45	Insertion Length (U)		200 mm				
	46	Standard No		ANSI B36.19M				
	47	Leg Extension		VTA				
	48	Watted Parts To Nace		NO				
	49	Requisition(sensor-well)		YES				
	50	Instrument Connection (sensor - well)		VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved		


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.11 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.				TT -80101	
	2	Service				V-8011	
	3	Tap					
	4	P&ID No.	Line No.	801		V-8011	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State			WASTE LIQUID/HEXANE	LIQUID
	10	Normal Temperature	Unit	70		°C	
	11	Max Temperature	Unit	100		°C	
	12	Normal Pressure	Unit	0.8		barg	
	13	Max Pressure	Unit	5		barg	
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17		Measurement range	Unit	(-30) +350		°C
	18	Instrument	Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) +350 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS 304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100		Single	
	35	Sheath material	Sheath diameter	SS-316		6 mm	
	36	Connection type	Length	3 wire		VTA	
	37	Wire Size	Insulation	VTA		VTA	
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316		1" -300 # - RF	
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI B36.19M			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	


 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.12 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -80201				
	2	Service	OUTLET OF E-8021				
	3	Tap					
	4	P&ID No.	Line No.	802	1"-WAL-802021		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State		HEXANE	LIQUID	
	10	Normal Temperature	Unit		80	°C	
	11	Max Temperature	Unit		90	°C	
	12	Normal Pressure	Unit		2	barg	
	13	Max Pressure	Unit		4	barg	
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17		Measurement range	Unit	(-30) +350	°C	
	18	Instrument	Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) +350 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS 304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		170 mm			
	46	Standard No		ANSI B36.19M			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	

 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.13 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -80202				
	2	Service	CONDENSED HEXANE OUTLET OF E-8022				
	3	Tap					
	4	P&ID No.	Line No.	802	1"-WAL-802014		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material	150#	SS 304		
	8	Connection size	Connection type	1½"	FLANGE		
	9	Fluid	State	HEXANE	LIQUID		
	10	Normal Temperature	Unit	60	°C		
	11	Max Temperature	Unit	72	°C		
	12	Normal Pressure	Unit	0.1	barg		
	13	Max Pressure	Unit	1	barg		
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials	SS			
	17	Instrument	Measurement range	Unit	(-30) +350	°C	
	18		Installation	DCS			
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	Head mounted				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-30) +350 °c				
	25	Power Supply	24V DC				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia IIB T3				
	30	Linerization	YES				
	31	Head material	SS 304				
	32	Wire Break Function (Up/Down)	UP				
	33	Electrical connection	Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer	VTA				
	42	Certificate	YES				
	43	Model No	VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)	170 mm				
	46	Standard No	ANSI B36.19M				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	Instrument Connection (sensor - well)	VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved	

 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.14 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -80203				
	2	Service	CONDENSED HEXANE OUTLET OF E-8024				
	3	Tap					
	4	P&ID No.	Line No.	802	1"-WAL-802011		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material	150#	SS 304		
	8	Connection size	Connection type	1½"	FLANGE		
	9	Fluid	State	HEXANE	LIQUID		
	10	Normal Temperature	Unit	40	°C		
	11	Max Temperature	Unit	50	°C		
	12	Normal Pressure	Unit	ATM	barg		
	13	Max Pressure	Unit	1	barg		
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials	SS			
	17	Instrument	Measurement range	Unit	(-30) +350	°C	
	18		Installation	DCS			
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	Head mounted				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-30) +350 °c				
	25	Power Supply	24V DC				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia IIB T3				
	30	Linerization	YES				
	31	Head material	SS 304				
	32	Wire Break Function (Up/Down)	UP				
	33	Electrical connection	Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer	VTA				
	42	Certificate	YES				
	43	Model No	VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)	170 mm				
	46	Standard No	ANSI B36.19M				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	Instrument Connection (sensor - well)	VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved	

 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.15 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -80204A				
	2	Service	T-8021 (TOP SECTION)				
	3	Tap					
	4	P&ID No.	Line No.	802	T-8021		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID	
	10	Normal Temperature	Unit	82	°C		
	11	Max Temperature	Unit	92	°C		
	12	Normal Pressure	Unit	0.5	barg		
	13	Max Pressure	Unit	1	barg		
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17		Measurement range	Unit	(-30) +350	°C	
	18	Instrument	Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function	Indicator Transmitter				
	22	TYPE	Head mounted				
	23	Output	4-20 mA-Loop Powered, HART				
	24	Range	(-30) +350 °c				
	25	Power Supply	24V DC				
	26	Accuracy	0.20%				
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection	IP 65				
	29	Explosion protection	EExia IIB T3				
	30	Linerization	YES				
	31	Head material	SS 304				
	32	Wire Break Function (Up/Down)	UP				
	33	Electrical connection	Gland M20				
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction	NA				
	39	Spring Load	YES				
	40	Element Housing	VTA				
	41	Manufacturer	VTA				
	42	Certificate	YES				
	43	Model No	VTA				
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)	200 mm				
	46	Standard No	ANSI B36.19M				
	47	Leg Extension	VTA				
	48	Watted Parts To Nace	NO				
	49	Requisition(sensor-well)	YES				
	50	Instrument Connection (sensor - well)	VTA				
No.	Rev	Date	Status	Prepared	Checked	Approved	

 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.16 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.	TT -80204B				
	2	Service	T-8021 (MID SECTION)				
	3	Tap					
	4	P&ID No.	Line No.	802	T-8021		
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressre Rating	Piping Material		150#	SS 304	
	8	Connection size	Connection type		1½"	FLANGE	
	9	Fluid	State		WASTE LIQUID/HEXANE	LIQUID	
	10	Normal Temperature	Unit	82	°C		
	11	Max Temperature	Unit	94	°C		
	12	Normal Pressure	Unit	0.5	barg		
	13	Max Pressure	Unit	1.1	barg		
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17		Measurement range	Unit	(-30) +350	°C	
	18	Instrument	Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) +350 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust	YES	YES		
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS 304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100	Single		
	35	Sheath material	Sheath diameter	SS-316	6 mm		
	36	Connection type	Length	3 wire	VTA		
	37	Wire Size	Insulation	VTA	VTA		
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316	1" -300 # - RF		
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI B36.19M			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	

 National Petrochemical Company Petrochemical Research & Technology Company		SAZ CATALYST PLANT				DOCUMENT NUMBER	
		PROCESS DATA SHEET				SHEET N.17 OF 17	ISSUE 0
		Temperature Transmitter Data Sheet					
Primary Element	1	Tag No.				TT -80204A	
	2	Service	T-8021 (BOTTOM SECTION)				
	3	Tap					
	4	P&ID No.	Line No.	802		T-8021	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	86%
	6	Piping Size	Piping Class				
	7	Pressure Rating	Piping Material			150#	SS 304
	8	Connection size	Connection type				
	9	Fluid	State			WASTE LIQUID/HEXANE	LIQUID
	10	Normal Temperature	Unit			82	°C
	11	Max Temperature	Unit			101	°C
	12	Normal Pressure	Unit			0.5	barg
	13	Max Pressure	Unit			1.5	barg
	14		Identification tag				
	15	Well	Type (special application)				
	16		Materials				
	17	Instrument	Measurement range	Unit	(-30) +350		°C
	18		Installation				
	19		Requested accuracy				
	20		Control modes				
TRANSMITTER	21	Function		Indicator Transmitter			
	22	TYPE		Head mounted			
	23	Output		4-20 mA-Loop Powered, HART			
	24	Range		(-30) +350 °c			
	25	Power Supply		24V DC			
	26	Accuracy		0.20%			
	27	Zero Adjust	Span Adjust		YES	YES	
	28	Degree of protection		IP 65			
	29	Explosion protection		EExia IIB T3			
	30	Linerization		YES			
	31	Head material		SS 304			
	32	Wire Break Function (Up/Down)		UP			
	33	Electrical connection		Gland M20			
ELEMENT	34	Type	single/double	RTD - Pt 100		Single	
	35	Sheath material	Sheath diameter	SS-316		6 mm	
	36	Connection type	Length	3 wire		VTA	
	37	Wire Size	Insulation	VTA		VTA	
	38	Hot Junction		NA			
	39	Spring Load		YES			
	40	Element Housing		VTA			
	41	Manufacturer		VTA			
	42	Certificate		YES			
	43	Model No		VTA			
THERMOWELL	44	Material	Size & Rating	SS-316		1" -300 # - RF	
	45	Insertion Length (U)		200 mm			
	46	Standard No		ANSI B36.19M			
	47	Leg Extension		VTA			
	48	Watted Parts To Nace		NO			
	49	Requisition(sensor-well)		YES			
	50	Instrument Connection (sensor - well)		VTA			
No.	Rev	Date	Status	Prepared	Checked	Approved	

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-101			
	2	P & ID Number				
	3	Service	Hexane with 10 wt.% TEAL			
	4	Equipment Number	D-102			
	5	Vessel size (Length / ID)	430/305 mm			
	6	Projection nozzle length (mm)				
	7	Vessel Material	SS304			
	8	Hazardous Area classification	Zone I			
	9	Ambient Temperature (°C)	0-60			
	10	Wetted part exposed to sour service(Nace MR-01-75)				
PROCESS DATA	11	Fluid	State	Hexane with 10 wt.% TEAL	Liquid	
	12	Pressure (barg):	Operating	Maximum	0.5	1
	13	Temperature (°C):	Operating	Maximum	25	30
	14	HH/LL (mm)	344/43			
	15	Specific gravity	671			
	16	Viscosity (Cp)	0.315			
	18	Corrosive Compounds	Toxic Compounds	Yes	yes	
	19	Wetted part material	SS 316			
SENSOR	20	Insertion length	At least 170 mm (VTA)			
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)			
	22	Connection Type	flange			
	23	Connection Size	Rating	4" / 150# RF		
	24	Calibration range	0 ~ 9000 mm			
	25	Response time	better than 20 Sec			
	26	Beam angle	VTA			
	27	Blocking distance (Blind zone)	VTA			
	28	Cable Entry	-			
TRANSMITTER	29	Output signal	4-20 mA / HART			
	30	Power supply	24 Vdc (Loop powered) (VTA)			
	31	Wire configuration	2 wire			
	32	IP rating	IP 65			
	33	Ex Protection	EExd (flammable proof)			
	34	Mounting Location	Integrated with sensor			
	35	Indicator	Yes			
	36	Min Load of HART (Ω)	250 Ω			
	37	Housing Material	Die cast Al.			
	38	Electrical Connection	M20 x 1.5 (ISO)			
OPTIONS	39	Local indicator (Receiver)	N/A			
	40	Indication scale	N/A			
	41	Sun shade	Yes			
PURCHASE	42	Purchase Order Number	will be finalized later			
	43	Serial Number	will be finalized later			
	44	Manufacturer	will be finalized later			
	45	Model	will be finalized later			
NOTES						

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-102		
	2	P & ID Number			
	3	Service	Hexane with catalyst powder (10 g/L)		
	4	Equipment Number	D-104		
	5	Vessel size (Length / ID)	430/305 mm		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (°C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with catalyst powder (10 g/L)	Slurry
	12	Pressure (barg):	Operating	Maximum	0.5
	13	Temperature (°C):	Operating	Maximum	25
	14	HH/LL (mm)	344/43		
	15	Specific gravity	671		
	16	Viscosity (Cp)	0.315		
	18	Corrosive Compounds	Toxic Compounds	No	yes
	19	Wetted part material	SS 316		
SENSOR	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
	28	Cable Entry	-		
TRANSMITTER	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
OPTIONS	37	Housing Material	Die cast Al.		
	38	Electrical Connection	M20 x 1.5 (ISO)		
	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-201		
	2	P & ID Number			
	3	Service	Hexane with polymer powder (250 g/L)		
	4	Equipment Number	R-201		
	5	Vessel size (Length / ID)	625/478		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (°C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with polymer powder (250 g/L)	Slurry
	12	Pressure (barg):	Operating	Maximum	8 10
	13	Temperature (°C):	Operating	Maximum	85 95
	14	HH/LL (mm)	530/62.5		
	15	Specific gravity (Kg/m3)	805		
	16	Viscosity (Cp)	1.4		
	18	Corrosive Compounds	Toxic Compounds	Yes	yes
	19	Wetted part material	SS 316		
SENSOR	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
	28	Cable Entry	-		
TRANSMITTER	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
37	Housing Material	Die cast Al.			
38	Electrical Connection	M20 x 1.5 (ISO)			
OPTIONS	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-202		
	2	P & ID Number			
	3	Service	Hexane with polymer powder (250 g/L)		
	4	Equipment Number	D-201		
	5	Vessel size (Length / ID)	430/243		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (°C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with polymer powder (250 g/L)	Slurry
	12	Pressure (barg):	Operating	Maximum	5 6
	13	Temperature (°C):	Operating	Maximum	60 65
	14	HH/LL (mm)	365/43		
	15	Specific gravity (Kg/m3)	761		
	16	Viscosity (Cp)	0.8		
	18	Corrosive Compounds	Toxic Compounds	Yes	yes
	19	Wetted part material	SS 316		
SENSOR	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
	28	Cable Entry	-		
TRANSMITTER	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
	37	Housing Material	Die cast Al.		
	38	Electrical Connection	M20 x 1.5 (ISO)		
OPTIONS	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-203		
	2	P & ID Number			
	3	Service	Hexane with polymer powder (250 g/L)		
	4	Equipment Number	R-202		
	5	Vessel size (Length / ID)	625/478		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (°C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with polymer powder (250 g/L)	Slurry
	12	Pressure (barg):	Operating	Maximum	8 10
	13	Temperature (°C):	Operating	Maximum	85 95
	14	HH/LL (mm)	530/62.5		
	15	Specific gravity (Kg/m3)	805		
	16	Viscosity (Cp)	1.4		
	18	Corrosive Compounds	Toxic Compounds	Yes	yes
	19	Wetted part material	SS 316		
SENSOR	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
	28	Cable Entry	-		
TRANSMITTER	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
37	Housing Material	Die cast Al.			
38	Electrical Connection	M20 x 1.5 (ISO)			
OPTIONS	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-204		
	2	P & ID Number			
	3	Service	Hexane with polymer powder (250 g/L)		
	4	Equipment Number	D-202		
	5	Vessel size (Length / ID)	430/243		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (° C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with polymer powder (250 g/L)	Slurry
	12	Pressure (barg):	Operating	Maximum	5 6
	13	Temperature (°C):	Operating	Maximum	60 65
	14	HH/LL (mm)	365/43		
	15	Specific gravity (Kg/m3)	761		
	16	Viscosity (Cp)	0.8		
	18	Corrosive Compounds	Toxic Compounds	Yes	yes
	19	Wetted part material	SS 316		
SENSOR	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
	28	Cable Entry	-		
TRANSMITTER	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
	37	Housing Material	Die cast Al.		
	38	Electrical Connection	M20 x 1.5 (ISO)		
OPTIONS	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (DPT)

GENERAL	1	Tag Number	LT-205		
	2	P & ID Number			
	3	Service	Hexane with polymer powder (250 g/L)		
	4	Equipment Number	D-203		
	5	Vessel size (Length / ID)	656/590		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (°C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with polymer powder (250 g/L)	Slurry
	12	Pressure (barg):	Operating	Maximum	6 7
	13	Temperature (°C):	Operating	Maximum	60 65
	14	HH/LL (mm)	557/65		
	15	Specific gravity (Kg/m3)	761		
	16	Viscosity (Cp)	0.8		
	18	Corrosive Compounds	Toxic Compounds	Yes	yes
	19	Wetted part material	SS 316		
SENSOR	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
	28	Cable Entry	-		
TRANSMITTER	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
	37	Housing Material	Die cast Al.		
	38	Electrical Connection	M20 x 1.5 (ISO)		
OPTIONS	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (Radar Type)

GENERAL	1	Tag Number	LT-301			
	2	P & ID Number				
	3	Service	Hexane with polymer powder			
	4	Equipment Number	S-301			
	5	Vessel size (Length / ID/W)	1055/4*273/500			
	6	Projection nozzle length (mm)				
	7	Vessel Material	SS304			
	8	Hazardous Area classification	Zone I			
	9	Ambient Temperature (°C)	0-60			
	10	Wetted part exposed to sour service(Nace MR-01-75)				
PROCESS DATA	11	Fluid	State	Hexane with polymer powder	Slurry	
	12	Pressure (barg):	Operating	Maximum	3	5
	13	Temperature (°C):	Operating	Maximum	50	100
	14	HH/LL (mm)				
	15	Specific gravity (Kg/m3)	761			
	16	Viscosity (Cp)	0.8			
SENSOR	18	Corrosive Compounds	Toxic Compounds	Yes	yes	
	19	Wetted part material	SS 316			
	20	Insertion length	At least 170 mm (VTA)			
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)			
	22	Connection Type	flange			
	23	Connection Size	Rating	4" / 150# RF		
	24	Calibration range	0 ~ 9000 mm			
	25	Response time	better than 20 Sec			
	26	Beam angle	VTA			
	27	Blocking distance (Blind zone)	VTA			
TRANSMITTER	28	Cable Entry	-			
	29	Output signal	4-20 mA / HART			
	30	Power supply	24 Vdc (Loop powered) (VTA)			
	31	Wire configuration	2 wire			
	32	IP rating	IP 65			
	33	Ex Protection	EExd (flammable proof)			
	34	Mounting Location	Integrated with sensor			
	35	Indicator	Yes			
	36	Min Load of HART (Ω)	250 Ω			
	37	Housing Material	Die cast Al.			
OPTIONS	38	Electrical Connection	M20 x 1.5 (ISO)			
	39	Local indicator (Receiver)	N/A			
	40	Indication scale	N/A			
	41	Sun shade	Yes			
PURCHASE	42	Purchase Order Number	will be finalized later			
	43	Serial Number	will be finalized later			
	44	Manufacturer	will be finalized later			
	45	Model	will be finalized later			
NOTES						

Datasheet For Level Transmitter (Radar Type)

GENERAL	1	Tag Number	LT-302		
	2	P & ID Number			
	3	Service	Hexane with polymer powder		
	4	Equipment Number	S-301		
	5	Vessel size (Length / ID/W)	1055/4*273/500		
	6	Projection nozzle length (mm)			
	7	Vessel Material	SS304		
	8	Hazardous Area classification	Zone I		
	9	Ambient Temperature (°C)	0-60		
	10	Wetted part exposed to sour service(Nace MR-01-75)			
PROCESS DATA	11	Fluid	State	Hexane with polymer powder	Slurry
	12	Pressure (barg):	Operating	Maximum	3
	13	Temperature (°C):	Operating	Maximum	50
	14	HH/LL (mm)			
	15	Specific gravity (Kg/m3)	761		
	16	Viscosity (Cp)	0.8		
SENSOR	18	Corrosive Compounds	Toxic Compounds	Yes	yes
	19	Wetted part material	SS 316		
	20	Insertion length	At least 170 mm (VTA)		
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)		
	22	Connection Type	flange		
	23	Connection Size	Rating	4" / 150# RF	
	24	Calibration range	0 ~ 9000 mm		
	25	Response time	better than 20 Sec		
	26	Beam angle	VTA		
	27	Blocking distance (Blind zone)	VTA		
TRANSMITTER	28	Cable Entry	-		
	29	Output signal	4-20 mA / HART		
	30	Power supply	24 Vdc (Loop powered) (VTA)		
	31	Wire configuration	2 wire		
	32	IP rating	IP 65		
	33	Ex Protection	EExd (flammable proof)		
	34	Mounting Location	Integrated with sensor		
	35	Indicator	Yes		
	36	Min Load of HART (Ω)	250 Ω		
	37	Housing Material	Die cast Al.		
OPTIONS	38	Electrical Connection	M20 x 1.5 (ISO)		
	39	Local indicator (Receiver)	N/A		
	40	Indication scale	N/A		
	41	Sun shade	Yes		
PURCHASE	42	Purchase Order Number	will be finalized later		
	43	Serial Number	will be finalized later		
	44	Manufacturer	will be finalized later		
	45	Model	will be finalized later		
NOTES					

Datasheet For Level Transmitter (Radar Type)

GENERAL	1	Tag Number	LT-303			
	2	P & ID Number				
	3	Service	polymer powder			
	4	Equipment Number	M-301			
	5	Vessel size (Length / ID/W)	3150/203			
	6	Projection nozzle length (mm)				
	7	Vessel Material	SS304			
	8	Hazardous Area classification	Zone I			
	9	Ambient Temperature (°C)	0-60			
	10	Wetted part exposed to sour service(Nace MR-01-75)				
PROCESS DATA	11	Fluid	State	polymer powder	Solid	
	12	Pressure (barg):	Operating	Maximum	0.5	3
	13	Temperature (°C):	Operating	Maximum	100	150
	14	HH/LL (mm)	2520/315			
	15	Specific gravity (Kg/m3)	0.42			
	16	Viscosity (Cp)	bulk powder (solid)			
	18	Corrosive Compounds	Toxic Compounds	Yes	yes	
	19	Wetted part material	SS 316			
SENSOR	20	Insertion length	At least 170 mm (VTA)			
	21	Mounting Location	On the roof / near to the wallside (1/6 D from wall)			
	22	Connection Type	flange			
	23	Connection Size	Rating	4" / 150# RF		
	24	Calibration range	0 ~ 9000 mm			
	25	Response time	better than 20 Sec			
	26	Beam angle	VTA			
	27	Blocking distance (Blind zone)	VTA			
	28	Cable Entry	-			
TRANSMITTER	29	Output signal	4-20 mA / HART			
	30	Power supply	24 Vdc (Loop powered) (VTA)			
	31	Wire configuration	2 wire			
	32	IP rating	IP 65			
	33	Ex Protection	EExd (flammable proof)			
	34	Mounting Location	Integrated with sensor			
	35	Indicator	Yes			
	36	Min Load of HART (Ω)	250 Ω			
	37	Housing Material	Die cast Al.			
	38	Electrical Connection	M20 x 1.5 (ISO)			
OPTIONS	39	Local indicator (Receiver)	N/A			
	40	Indication scale	N/A			
	41	Sun shade	Yes			
PURCHASE	42	Purchase Order Number	will be finalized later			
	43	Serial Number	will be finalized later			
	44	Manufacturer	will be finalized later			
	45	Model	will be finalized later			
NOTES						

SDRL Code		Document Number							
	Project Code	Field	MR No.	Tag No.	Doc. Type	Seq. No.	Revision	Page : 1 of 1	

GENERAL	1	Tag Number			TT-101 to 170		
	2	P & ID Number					
	3	input			TC/RTD		
	4	out put			4-20mA HART LOOP POWER		
	5	Pipe/Equipment			Material/size		
	6				Schedule/Class		
	7	operating Temperature			400C°		
	8						
PROCESS DATA	9	Fluid		State			
	10	Pressure (barg):		Operating		Maximum	
	11	Temperature (°C):		Operating		Maximum	
	12	Spec. Gravity @ Oper. Condition		Viscosity (cP) @ Oper. Condition		500C° 800C°	
	13	Velocity(m/s)					
TRANSMITTER	14	Function					
	15	Input Type		Single/Multi		Wiring Configuration	
	16	Instrument Range		Calibration Range			
	17	Power Supply		Output Signal		24vdc 4-20mA	
	18	Process Connection		Electrical Connection		RAIL MOUNT	
	19	Accuracy %				0.5%	
	20	Elec. "Ex" Protection		Ingress Protection		ATEX/EMC/SIL2/SIL3 CERTIFIED IP68	
	22	Mounting		Housing			
	23	Cold Junction Compensation					
	28	Construction Type					
WELL	29	Process Connection:		Type		Size	
	30	Element Connection:		Type		Size	
	31	Well:		Material		Rating	
	32	Well Dimensions:		Top Length "L" mm (Note 1)			
OPTIONS	33			Immersion Length "L1" mm (Note 1)			
	34	Coating		Plug & Chain			
	39	Integral Indicator		Indication Scale			
	40	Cable Gland					
	41	Mounting Accessories/Bracket					
PURCHASE	44	Purchase Order Number					
	45	Serial Number					
	46	Manufacturer					
	47	Model					
	48						

NOTES	1)			
	2)	Material shall be suitable for related service.		
	3)	Cable gland will be provided by others.		

Temperature Transmitter

Input

TC, RTD

Output

4-20 mA, HART 5 or 7
Loop Power

Operating Temperature

(-50)°C to (+85)°C

Approval

ATEX/EMC/SIL2/SIL3 Certified

Installation

to be mounted on the rail

IP

IP68

Response Time

≤80ms

PAGE	REV.	۰	۱	۲	۳	۴	۵	PAGE	REV.	۰	۱	۲	۳	۴	۵	PAGE	REV.	۰	۱	۲	۳	۴	۵
A		X																					
۱		X																					
۲		X																					
۳		X																					
۴		X																					
۵		X																					
۶		X																					
۷		X																					
۸		X																					
۹		X																					
۱۰		X																					
۱۱		X																					
۱۲		X																					
۱۳		X																					
۱۴		X																					
۱۵		X																					
۱۶		X																					
۰																							
۴																							
۳																							
۲																							
۱																							
۰	۲۰-Oct-۲۰	M.Asgari	M.Nazeri Nasab	AA.SH	M.Asadi	N.Nouhjah	IFA																
Rev	Date	Prepared By	Checked By	Approved By	Approved By	Approved By	Status	Discipline			PEM			PM									

Document Revisions



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CONTENTS

۱. Purpose
۲. Definition
۳. Content
۴. Instructions concerning vendor's data books presentation
 - ۴,۱ Language / units
 - ۴,۲ Size of documents
 - ۴,۳ Class of documents
 - ۴,۴ Books form
 - ۴,۵ Identification
 - ۴,۶ Internal presentation
 - ۴,۷ Vendor documents numbering
۵. Number of vendor's data books per purchase order
۶. Delivery time
۷. Transmittal of documentation
۸. Documents for engineering
 - ۸,۱ Vendor drawing and documentation list
 - ۸,۲ Plate arrangement drawing and material list
 - ۸,۳ General arrangements drawing
 - ۸,۴ Detail drawings
 - ۸,۵ Calculation notes
 - ۸,۶ Spare parts list
۹. Description of inspection and / or acceptance documents
 - ۹,۱ Material certificates
 - ۹,۲ Welders qualification
 - ۹,۳ Hydraulic test report
۱۰. Issuance schedule

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۱. Purpose

The purpose of this procedure is to give instructions for preparation of Vendor's data book (mechanical catalogue) applicable to the contract.

۲. Difinition

VENDOR Companies Awarded by Owner for Procurement Services, Inspection Affairs or Transportation, Providing of Project's goods, following up all transport activities from VENDOR workshop to final destination as defined in the purchase order.

OWNER: Petrochemical Research & Technology Company

۳. Content

The Vendor's Data Book shall contain comprehensive detailed information covering design and engineering, inspection and testing, installation, operation and maintenance manual of the equipment and accessories included in, and supplied for the plant.

In addition, VENDOR shall submit the drawings and documents according to the "LIST OF DOCUMENTS REQUIRED FROM VENDOR" "given in the requisition / purchase order.

For a sample of the contents of VENDOR's data book refer to Attachment No. ۱.

۴. **Instructions Concerning Vendor's Data Books Presentation**

۴.۱ **Language / Units**

All documents and drawings for design and fabrication shall be written in English as well as all Maintenance and Operating Instructions.

All units and dimensions shall be in the metric system except for the following:

- Size of pipe and valve (Inch)
- Flange rating (Pound)

If necessary, other units and dimensions shall be used with OWNER approval.



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۴,۲ Size Of Documents

- All drawings shall be prepared on ISO standard size sheets, i.e.

A۰	:	۸۴۰	x	۱۱۸۸	mm
A۱	:	۵۹۴	x	۸۴۰	mm
A۲	:	۴۲۰	x	۵۹۴	mm
A۳	:	۲۹۷	x	۴۲۰	mm
A۴	:	۲۱۰	x	۲۹۷	mm

- Size A۰ should be used only with OWNER approval. Larger sizes are not allowed.
- In general all drawings shall be reduced to ۲۹۷ mm x random length size for convenience in handling.
- All documents other than drawings shall be prepared on standard A۳ or A۴ size sheets suitable for insertion in an A۴ hard-core binder.
- All reduced drawings, data, etc. shall be legible.

۴,۳ Class Of Documents



All drawings / data submitted must be of good quality that will allow production of legible copies.

- Documents submitted to OWNER for comments:
These documents give all data necessary to understand operation and to appraise the construction method, assembly, disassembly, fastening and connections of equipment. They clearly indicate the scope of supply and specify all details necessary for installation.
- Final documents:
These documents are certified, "As built" documents finally reviewed without comment by OWNER.
OWNER comments on VENDOR documentation shall in no way relieve the VENDOR of his responsibility especially concerning the design of the equipment or facilities.

۴,۴ Books Form

All the documentation shall be inserted in A۴ (۲۹۷ mm x ۲۱۰ mm) white color binder (Punch holes shall be two).

Other types, such as folders or boxes with loose sheets, are not acceptable. The thickness of each volume shall under no circumstance exceed that of a normal file (۷ cm). The paper level inside each file shall be at least ۲ mm below the opening point of the binder.

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Drawings and documents with sizes larger than A^۳ will be folded in plastic jackets inserted in the file, with opening upward.

۴,۵ Identification

Each Vendor's data book shall be identified on its back and on the cover by a standard label, the format of which is given in Attachment No.۲.

۴,۶ Internal Presentation

All drawings and documents shall be written in English.
Cardboard division sheets shall separate different groups of documents, sheets and directions. At least rigid index sheets with numbering shall separate the different chapters.

The wording and presentation of the reports will be controlled with utmost care.


Consequently, any loose presentation, which may give the OWNER impression of careless work, will be rejected. This applies in particular to:



- All manuscripts or type texts with handwritten comments (except for technical documents on OWNER or Vendor's standard forms).
- All texts in any language other than English, unless they are transmitted together with a translation in compliance with the above requirement.
- All copies that might be questionable: writing too light, dark background areas, dark edge due to poor centering, titled copy, perforation marks, etc.

۴,۷ Vendor Document Numbering

In addition to the Vendor's document number, VENDOR shall add OWNER's document number.

The block shown here below will be placed on each "first page" of specification, data sheet and each drawing in addition to the Vendor's label.

 NPC-RT PP-PE Pilot Plant	National Petrochemical Company / Petrochemical Research & Technology Company PP-PE Pilot Plant			
	Owner Project No.	Rev.	Date	Signature
	Owner Doc/Dwg. No.			
	Sh. Of			

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All other pages of the specifications and data sheets shall have the following block.

Project No.	Owner Project No.	Rev. Sh. Of
OWNER DOC. No.		

۰. **Number Of Vendor's Data Books Per Purchase Order**

If the purchase order includes several separate requisitions or covers several items, which are to be shipped with different vessels, the VENDOR shall supply as many separate Vendor's data books, as there are separate requisitions and/or shipments.

If the requisition covers a large number of items, a common part and specific chapters by item may be planned in agreement with OWNER.

VENDOR shall prepare:

- ۳ Copies of the complete VENDOR Data Book.
- Copy of electronic file in CD
- ۲ Reproducible copy of final drawings / documents

۱. **Delivery Time**

Documents submitted for review are forwarded in compliance with the dates specified on the Attachment # ۲ of requisition.

Final documents shall be forwarded ۱۰ days after receipt of documents commented by OWNER.



Delivery dates are mandatory and a payment installment may be conditioned by the receipt of documents and/or drawings (refer to the order provisions).

۲. **Transmittal Of Documentation**

All drawings and documents shall be transmitted with a transmittal note to the address indicated in the Purchase contract. Purchase order number should be clearly indicated.

Any drawing, which is unreadable, will be returned without fail to the VENDOR who shall in no case use this as an excuse for delivery delay.

Any revision made on documentation should be highlighted with a cloud mark.

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٨. Documents For Engineering

This paragraph is to clarify OWNER requirements concerning the presentation of some essential engineering documents and drawings submitted for approval. The items indicated below refer to the items listed in the “LIST OF DOCUMENTS REQUIRED FROM THE VENDOR” shown in the attachment # ٢ of requisition.

٨, ١ **Vendor Drawing And Documentation List**

The VENDOR’S shall provide an exhaustive list of the documentation to be delivered. It should be sent together with the first issue of documents.

٨, ٢ **Plate Arrangement Drawing And Material List**

This drawing shall be in proper scale.

The plate arrangement drawing or sketch shall indicated as a minimum:

- A general outline of the equipment (shells, heads, supports, skirt, lugs, saddles, stiffeners, etc.) ;
- For columns, shell / cone / skirt development including all internal & external attachments;
- Position of circumferential and longitudinal weld seams in accordance with plates sizes;
- Head shape (and plate arrangement in case of composed head);
- Shape of reduction cone (straight flange, knuckle radius, etc.) ;
- Plate thickness after plate forming;
- Material specification;
- Material list

Approval of this document enables order of main materials to be finalized.

The material list for nozzles shall be presented in schedule form. It shall be established from the nozzles list shown on the engineering arrangement drawing or process data sheet, and shall include:

- Identification (or item), quantity and diameter of nozzles;
- Type, rating, facing and material of flanges;
- Schedule or thickness of nozzle necks;
- Diameter, thickness and material of reinforcements;
- Material, thickness, rating of blind flanges (if any);
- Diameter, quantity, length, thread type, material of stud bolts and nuts;
- Definition, rating, materials of gaskets



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This document is prepared from information known when equipment is ordered. Its approval will allow the above accessories to be supplied.

Any modifications of one of the items listed above will involve revision of the documents and be followed by new approval.

After approval, the material list shall be transferred on the VENDOR general arrangement drawing.

Note: these documents do not apply to storage tanks.



۸,۳ **Item: General Arrangement Drawing**

The VENDOR can start fabrication only after receiving OWNER approval of this document as a minimum.

This drawing shall be in proper scale.

This drawing shall give the following technical information:

- Main dimensions, overall length, minimum thickness of major components;
 - Design code, design pressure and temperature, hydrostatic test pressure, non-destructive tests, heat treatment, etc.;
 - Corresponding material specification;
 - Location and orientation of weld seams (shells, heads, skirt, etc.);
 - Shape of heads or, type/ angle of roof for storage tanks;
 - Location, orientation of nozzle gussets and other external welded Attachments;
 - Location & orientation of internals (trays supports, coils, demisters, baffles, etc.);
 - List of nozzles and connections in accordance with material list (dia., type, rating, schedule, etc.);
 - Gaskets and bolting (type, material, etc.);
 - All information of scope of supply;
 - All information on anchoring system;
 - Fabricated weight;
 - Empty weight;
 - Hydro test weight;
 - Operating weight;
 - Net weight of removable parts;
 - Type of paint and its surface preparation;
 - North direction;
 - List of detail drawings;
 - Insulation / fire proofing support detail;
- Note: OWNER guide drawings shall not be used as construction drawings.

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۸, ۴ **Detail Drawings**

These drawings shall include references to general arrangement drawing and show:

- Detail of all accessories, internal and external attachment (gussets, etc.): With weld geometry and specification in accordance with approved welding procedure;
- Weight and dimension of removable internals;
- Part list of the various elements;
- Weld geometry and specification in accordance with approved welding procedure;
- All information required on manufacturer name plate;
- Insulation / Fire proofing support detail;
- All construction details not covered above;

All this information may be shown on general arrangement drawing, at Vendor's choice.

۸, ۵ **Calculation Notes**

Calculation notes shall be in accordance with general arrangement drawing. VENDOR shall establish calculation notes for each equipment. They shall in all cases be included in "manufacturer file".

These documents shall be clearly marked with identification numbers as other VENDOR documents.

They shall include full reference to information sources (codes, formulas, etc.) used for design.

These documents shall be transmitted for review / approval to OWNER. These documents shall be approved prior to general arrangement drawing approval. OWNER approval shall in no case relieve the VENDOR from his responsibilities.

۸, ۶ **Spare Parts List**

SPARE PARTS LIST AND INTERCHANGEABILITY RECORD (SPIR form) to be filled out by VENDOR according to its filling procedure.

۹. **Description Of Inspection And/Or Acceptance Documents**

This paragraph clarifies OWNER requirements for documents relating to inspection and acceptance of equipment.

The items indicated below refer to the items listed in the "LIST OF DOCUMENTS REQUIRED FROM THE VENDOR" included in the requisition.



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۹.۱ Material Certificates

All pressurized parts shall be considered as main components requiring certificates type ۳

.۱. B including:

- Shell, heads, cones
- Skirt, saddles, support brackets
- Tubes, flanges, forging, internal piping, nozzle necks
- Bolting for nozzle and shell flanges
- Welding material

۹.۲ Welders Qualification

This document shall contain all the information concerning:

- Welders (name, number, mark)
- Welding procedure
- Base material (specification, thickness, etc.)
- Welding material (specification, diameter, etc.)
- Electrode type
- Destructive tests results (bending, tensile, impact tests)

All information required on the QW ۴۸۴ forms given by ASME section IX shall be considered as a minimum.

۹.۳ Hydraulic Test Report

This document shall contain the following information:

- Type and volume of equipment
- Contained gas analysis
- Description of equipment (length, width or diameter, nature of base material, thickness)
- Construction number and date
- Hydrostatic test pressure in letters
- Date of inspection (before test) and inspector's name
- Hydrostatic test data
- Signatures of inspectors

۱۰. Issuance Schedule

Final Vendor's data books should normally be shipped to the OWNER as per agreed delivery schedule specified in PO of the relevant equipment.

Such final Vendor's data books shall be an integral part of the Vendor's services set forth in the purchase order and the following precautions must be taken in order to meet the above shipping requirements:



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At the latest ۶ months before the scheduled delivery date, the VENDOR shall transmit the Vendor's data book model to OWNER for comments and approval.

The model shall be in conformity with the final internal and external presentation and shall contain all documents required for the final report.

A non- completed form will replace the final acceptance documents, which do not exist at that stage.

Note: Recommendation for handling, transport and storage shall be shipped in box together with the equipment.



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ATTACHMENT # ۱

VENDOR DATA BOOK'S CONTENT (SAMPLE)



PART ۱ : General Descripton Of The Equipment

- ۱,۱. OWNER's requisition
- ۱,۲. General description including OWNER's specifications and data sheets and drawings

PART ۲ : Recommendations For Storage, Handling And Lifting

- ۲,۱. Special precautions for handling prior erection (۱)
- ۲,۲. Recommendations for storage prior and during erection

PART ۳: Erection

- ۳,۱. List of components to be erected/installed on site
- ۳,۲. Detailed schedule of the erection including hypothesis taken into account
- ۳,۳. Procedures for erection and installation of the equipment
- ۳,۴. Schedule of connection points detailing locations and dimensions
- ۳,۵. Electrical terminal wiring diagrams
- ۳,۶. Details of site assembly, and filed welds
- ۳,۷. List of special tools for site erection and assembly
- ۳,۸. Procedures for site assembly, leveling and welding
- ۳,۹. Welding specifications for field welds
- ۳,۱۰. List of checks and tests to be performed on site
- ۳,۱۱. Site testing and acceptance procedures
- ۳,۱۲. Procedures for preparation of the equipment for commissioning (including the calibration of instruments)
- ۳,۱۳. List of works to be implemented on site instead of Vendor's shop (When required)
- ۳,۱۴. Weight (empty, full of water)

PART ۴ : Start-Up Running Instructions

- ۴,۱. General
- ۴,۲. Principle
- ۴,۳. Operation
- ۴,۴. Description of the apparatus
- ۴,۵. Commissioning
- ۴,۶. Running instructions



PART ۰ : Maintenance Instructions

- ۰,۱. Maintenance
- ۰,۲. Safety instructions
- ۰,۳. General maintenance
- ۰,۴. Lubricant table and equivalence
- ۰,۵. Trouble shooting check lists and diagrams
- ۰,۶. Maintenance Schedule

PART ۱: Spare Parts (۲), (۶)

- ۱,۱. Spare parts for erection, precommissioning, commissioning and start-up
- ۱,۲. Spare parts for ۲ years operation
- ۱,۳. Sectional drawings

PART ۲: Manufacturer's Documents / Drawings (۳)

- ۲,۱. List of drawings (۴)
- ۲,۲. Manufacturer's data report
- ۲,۳. Drawings (۵)
- ۲,۴. Calculation notes
- ۲,۵. Curves and technical data (including P.W.H.T. if applicable)
- ۲,۶. MANUFACTURER name plate photography

PART ۳: Quality Assurance And Manufacturing Documents

- ۳,۱. Material test certificates
- ۳,۲. Welding Inspection controls and test reports
- ۳,۳. Welding procedure specification
- ۳,۴. Welding procedure qualification reports
- ۳,۵. Welder qualification reports
- ۳,۶. Weld identification
- ۳,۷. Plate identification sketch with heat numbers
- ۳,۸. Certificate of shop inspection (before hydrostatic test)
- ۳,۹. X-Ray identification
- ۳,۱۰. Radiographic procedure qualification
- ۳,۱۱. Radiographic reports along with radiographs
- ۳,۱۲. Batch test certificates from manufactures for electrodes
- ۳,۱۳. Hydrostatic and other test results and reports (such as visual control and N.D.T., etc.).
- ۳,۱۴. Precommissioning / commissioning check Lists & procedures
- ۳,۱۵. All other requirements as specified in the respective specifications



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Remarks

- (۱) Including a copy of transportation drawing
- (۲) No spare parts price must be incorporated in this book
- (۳) Only issues approved by as “FINAL”
- (۴) Only the drawings included in this part √.
- (۵) Drawings larger than A^۳ format must be folded and inserted in individual plastic skirts.
- (۶) Sufficient information to be prepared for spare parts Such as: materials of construction sizes / three proposed Vendor's, etc.



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ATTACHMENT # ۲

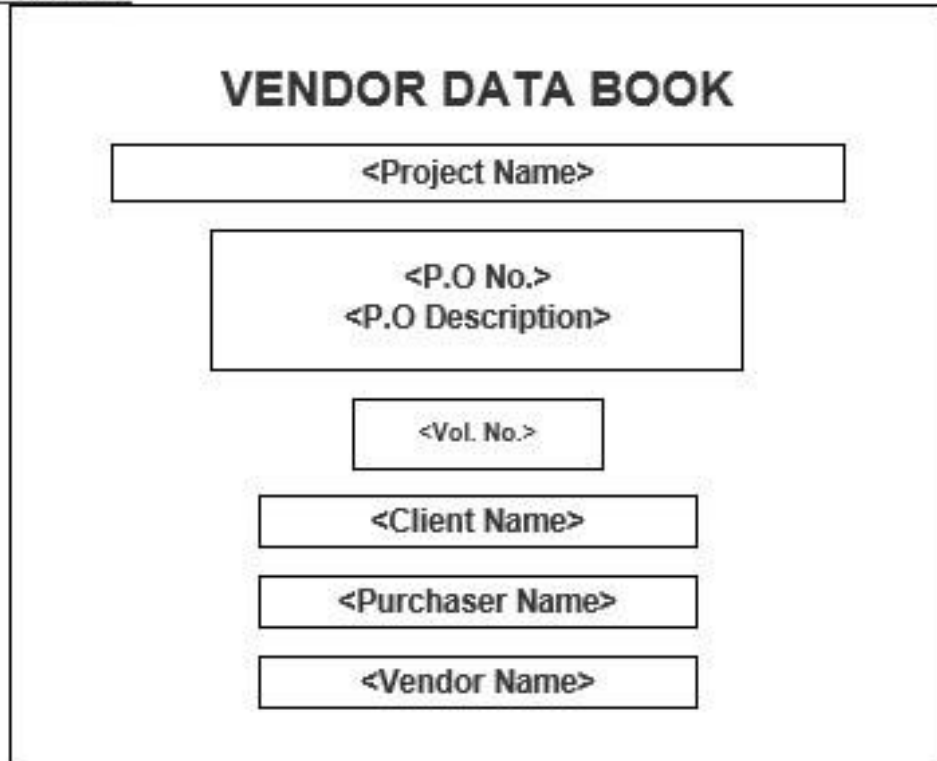
VENDOR'S DATA BOOK

COVER

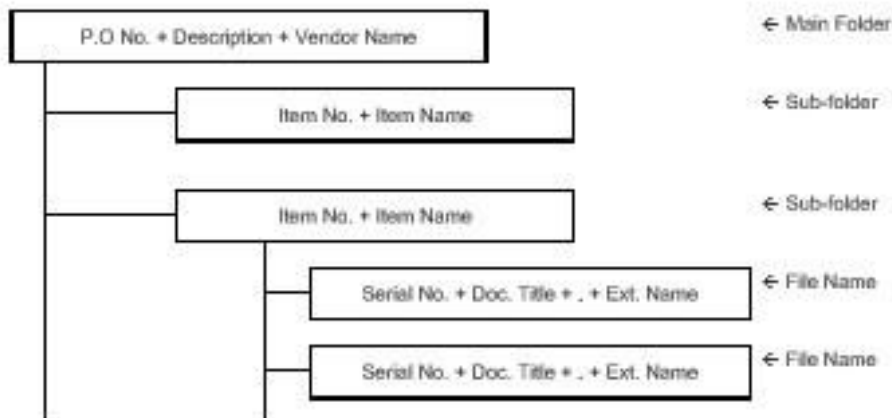


Attachment #6 Instruction for making Data CD

• CD Title CASE



• Construction of the Data Folder





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۱. **Scope**
۲. **Purpose**
۳. **Definitions**
۴. **Packing for Equipment and Materials**
۵. **Packing and Marking for Electrical Panels And Instruments**



۱. **Scope**

- ۱,۱ This procedure gives the information for Packing and Marking and it is to be applied to vendors for the preparation, protection and packaging of materials, equipment, requiring export shipments for the PP-PE Pilot Plant Project to be built in Petrochemical Research & Technology Company, Arak/Iran.

The following instructions are intended as minimum requirements, and adherence to these instructions in no way, absolves or relieves Vendors of any responsibility or obligation outlined in the Purchase Order.

۲. **Purpose**

This document defines the criteria required by the Project in relation to the packing and marking of both Project's Equipment and materials including Electrical Panels and Instruments.

۳. **Definitions**

OWNER	Petrochemical Research & Technology Company
PROJECT	PP-PE Pilot Plant
GOODS	All kind of materials and equipment to be incorporated in the Project.
VENDOR	Companies Awarded by Owner for Procurement Services, Inspection Affairs or Transportation, Providing of Project's goods, following up all transport activities from VENDOR workshop to final destination as defined in the purchase order.

۴. **Packing For Equipment And Materials**

- ۴,۱ Equipment and material shall be exported packed in compliance with General Purchase Conditions and the best established practice for overseas construction jobs in accordance with the following directives. In the event of any divergence between this specification and the established practice, this specification shall govern.

۴,۱,۱. **"Seaworthy and tropical proof " according to international standard.**

۴,۱,۲ Packing and conservation of goods shall be sufficient to protect them from damage during transit from point of manufacture to the delivery at job site under conditions



which may involve multiple handling, extended storage, exposure to moisture and the possibility of pilferage. The contents must withstand one year transit conditions without suffering damage and Vendors shall give recommendations for a further two(۲) years storage under SITE conditions.

Required storage facilities and procedure shall be advised by manufacturer/seller in advance.

- ۴,۱,۳ The packing of the equipment and materials shall be carried out in order to comply with transport conditions.
- ۴,۱,۴ Individual packages shall be kept as small in bulk as possible.
- ۴,۱,۵ Individual packages exceeding a gross weight of ۳,۰۰۰ kgs shall be avoided, if possible.
- ۴,۱,۶ Kind and dimension of packages shall be chosen to suit overseas transport in containers and to fully utilize the size of containers.
- ۴,۱,۷ The following inside dimension of containers are to be observed :
 - ۴۰-foot-containers : ۱۱۹۰x۲۲۰x۲۰۵ cms.
 - ۲۰-foot-containers : ۵۹۵x۲۲۰x۲۰۵ cms.

۴,۲ Modes of Packing

In accordance with the nature of the contents, the following modes of packing shall be considered:

- a) wooden cases
- b) wooden crates
- c) skid-construction (for vessels etc.)
- d) non-returnable steel drums (export variety)
- e) non-returnable cable reels
- f) bales
- g) ۲۰ ft - ۴۰ ft non-refundable containers

۴,۳ General Rules for Packing

- ۴,۳,۱ Cases and crates shall be made from new, sound and seasoned lumber. Sheathing shall be of min ۲۴ mm thickness.

If so required for static reasons, thicker sheathing shall be used, in accordance with size and weight of the package. Timber crates and boxes shall be strong enough to withstand without any damage , transport on ship board at sea and numerous handling between the works and the port of origin and between the port of destination and the site.



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- ۴,۳,۲ Cases and crates with gross weight up to ۱,۰۰۰ kgs shall be provided with bottom cleats of min. ۴۰ mm thickness to ensure clearance for handling by forklift. Cases and crates exceeding gross weight of ۱,۰۰۰ kgs shall be provided with skid runners, number and size according to weight of package.
- ۴,۳,۳ The contents of cases shall be protected by waterproof and strong plastic foil which shall be sealed by welding. An adequate quantity of moisture absorbent (silica gel) shall be added to protect the contents for sufficiently long time from corrosion.
- ۴,۳,۴ Felt , cellophane paper, polyester cuttings , crepe cellulose and some equally efficient materials may be used for padding or cushioning. Wood shavings and other paper shall not be used for padding or cushioning.
- ۴,۳,۵ Materials shall be protected against corrosion during transit as necessary. All bright and machined parts shall be coated with a recognized rust preventative suited to the particular application concerned. All internal parts of machinery shall be treated with lubricant containing rust and oxidation inhibitors to protect equipment from any damage possible. Such lubricants shall be compatible with those which will subsequently be used in service and shall be identified by appropriate tagging.
- ۴,۳,۶ When required, materials shall be painted or coated in accordance with the particulars contained in the purchase order and/or specifications.
- ۴,۳,۷ All flanges, machined working surfaces and threaded parts of all equipment shall be suitably protected . All flanged connections of vessels shall be protected by metal plates correctly gasketed by wooden plugs or plastic caps suitably secured in position.
- ۴,۳,۸ Units or parts belonging to main equipment but separately packed shall be clearly marked for easy identification with the main equipment to which they relate.
- ۴,۳,۹ Packages containing "FRAGILE" articles shall be appropriately packed and in addition to the words "FRAGILE-HANDLE WITH CARE" being stenciled on two opposite sides, internationally recognized symbols shall also be used "This Side Up".
- ۴,۳,۱۰ Pipe, structural steel sections and plates shall be strapped in bundles of convenient size and weight for handling. Rolled and shaped plates shall be provided with suitable bracing to eliminate distortion during transit, and shall be bundled in uniform lengths. The weight of each bundle shall be within the breaking strain of the steel wrapping. Each bundle shall be marked with a metal tag ,hard stamped, secured under steel wrapping. A ۲۰۰۰ kg limitation shall be imposed for lifts in this category. Where practicable long lengths shall be limited to ۱۲,۲ meters to avoid long length carriers. All small steel sections, handrail stanchions, gusset plates etc. shall be boxed.
- ۴,۳,۱۱ Black steel pipes with an outside diameter of up to ۱۶۸,۳ mm shall be bundled by strapping cleats above and below the load, with boards between each pipe layer and secured by bolts.



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Black steel pipes exceeding the above outside diameter shall be treated as an individual package and marked accordingly.

All black steel pipes shall be protected by means of TECTYL spray. The pipe ends shall be closed with plastic caps.

If, in case of pipes with large diameters, the pipe ends cannot be closed with plastic caps, the interior of the pipes shall also be protected and sprayed with TECTYL.

۴,۳,۱۲ Bitumen coated pipes shall be prepared, packed and handled according to established practice.

۴,۳,۱۳ Stainless steel pipes shall be packed in wooden cases.
Protection with TECTYL is not necessary.

۴,۳,۱۴ All valves and fittings (pipe elbows, flanges, etc.) shall be suitably protected and their method of shipment shall be:

- a) All valves and fittings shall be suitably packed and shipped in metal strapped or wood re-enforced waterproof wooden cases with metal corner protection .
- b) All treaded fittings shall be greased and provided with plastic caps.
- c) Control valves shall be packed in wooden cases having adequately designed interior support with interior water proof protection .

۴,۳,۱۵ Apparatus and vessels shall, where possible, be packed on skid constructions and secured with adjustable steel straps. All unprotected surfaces shall be sprayed with TECTYL. Manholes and other major openings shall be protected with either plastic caps or wooden lids, which shall be firmly secured. Smaller openings shall be closed with plastic plugs.

۴,۳,۱۶ All vessel internals and items not installed by the vendor at works including accessories such as small parts, bolts, nuts, gaskets etc. shall be packed in wooden cases separately for each vessel or apparatus and marked with the same item number as the vessel/apparatus in order to protect all parts from loss or damage in transit. Internals, bolts and gaskets for service/ testing operations shall be supplied with the vessels/items by the vendor and all internals, boxed separately and marked according to marking procedures. Each item shall be supplied correctly and identified for field installation by others.

NOTE: It is imperative that all these items be clearly listed on the packing list.

۴,۳,۱۷ Fire bricks, special tiles and insulation refractories shall be boxed after sealing in a polyethylene liner. These boxes shall be skid mounted. Instructions regarding storage prior to installation shall be stenciled on each box with particular reference to adverse weather/temperature/humidity conditions.

۴,۳,۱۸ All electrical motors whether coupled or uncoupled, generators and electrical equipment shall have all openings sealed with protective tape, shall be packed in suitable weather proof skid mounted boxes, and protected from moisture ingress by desiccant as described above.



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Items with brushes shall be brushed and rust removed before shipment.

All electrical equipment shall be suitably protected to withstand ١ year transit conditions and Vendors shall give recommendations for a further , ٢ years storage under site conditions

Batteries shall be shipped dry with electrolyte packed separately and shall include charging instructions.

٤,٣,١٩ All electronic and pneumatic instruments to be packed in accordance with given instructions and must be suitably protected to withstand ١ year transit conditions and Vendors are to give recommendations for a further ٢ years storage under site conditions.

٤,٣,٢٠ Pipeline / vessel insulation shall be packed in double water-proof wooden plywood cases and secured to pallets.
Drums of insulation mastic will also be shipped on pallets.

٤,٣,٢١ Spare parts for two years operation, which shall be individually tagged, must be covered with a suitable preservative and wrapped with greaseproof paper and be packed in separate cases from the base item. The cases are to bear the markings as specified and in addition the words "SPARE PARTS FOR TWO YEARS OPERATION".

٤,٣,٢٢ Commissioning spares shall be individually tagged and marked "COMMISSIONING SPARES" and shall be packed and shipped with the base item.

٤,٣,٢٣ All vessels/heat exchangers or items of such kind shall be dried, thoroughly cleaned inside and be free of all dirt and loose materials.

٤,٣,٢٤ Should any materials be scheduled to be freighted as deck cargo, additional packing instructions may be required; the Vendor will advise, for vessels and columns, which shipment cradles will be used throughout the transportation. Cradles to be secured to vessels and columns, by strapping.

٤,٣,٢٥ Paper bags suitably boxed, or water tight Steel Drums will be used for shipping cement, special aggregate, etc. Paperbags must not be less substantial than ٦٠ lbs outer wall, ٤٠ lbs inner wall and one moisture craft inner wall.

٤,٣,٢٦ Unless otherwise specified, all export cases, boxes, bundles and containers are to be securely metal strapped with a minimum of two unannealed steel straps in each of two right angled and opposite directions, or where applicable wood re-enforced.

NOTE: Should consignments arrive at the shipment point of origin visually damaged, the shipping agent will advise and await instruction before onward shippings.

٤,٣,٢٧ All bulk items, lighting, fittings, cable glands, switches etc. are to be packed in batches sufficient for a specific volume of work.



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۴,۳,۲۸ Cases and crates shall, according to their weight and size , be provided with two or more steel straps made of unannealed steel, applied with a stretching tool and secured with crimped steel seals.

۴,۳,۲۹ Fittings (valves, pipe elbows, flanges, etc.) must be packed in wooden cases and must be protected.

۴,۳,۳۰ Accessories for apparatus and vessels (small parts, bolts, nuts, washers, gaskets, etc.) are to be packed in wooden cases, separately for each apparatus or vessel. These cases must be marked with the same item No. as the apparatus/vessel to which it belongs (see also Item ۰ - packing lists).

All commissioning spare parts to be packed separately, being the packing marked with the relevant main item.

۴.۴ Marking of Packages

۴,۴,۱ All packages shall be clearly stencilled on two opposite sides with black, indelible and seawater proof paint, as follows:

Wherever possible , the stenciled characters shall be ۱ cms high.

In case the surfaces of a package are too small to permit stenciling, sheet metal tags shall be embossed with the above marking and shall be securely fastened on two opposite ends of the package.

۴,۴,۲ If necessary, packages shall be additionally marked with cautionary symbols on two opposite ends.

۴,۴,۳ Packages which may be stored in the open but under a tarpaulin, shall be marked with a red "double roof" symbol.

۴,۴,۴ Packages which are to be stored in closed and dry places shall be marked with a red "double roof" symbol.

۴,۴,۵ The system of package-numbering shall be indicated to the OWNER in due course of time.

۴,۴,۶ The gross weight shall be determined by the party who is responsible for the packing of the items/materials.

۴,۴,۷ Example for marking of packages is shown in attach ۱.

۴,۵ Packing list

The packing lists shall be prepared on standard forms :

The necessary number of forms will be made available to OWNER , who shall advise about the quantity required.

The packing list forms shall be filled in ENGLISH language.



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OWNER shall supply VENDOR with a specimen packing list showing how it is to be filled in.

At the same time OWNER shall be informed of the package numbers required for marking the packages. one column of the packing list shall be filled in with OWNER "ITEM NO. " These item numbers shall be taken from the order form. Special attention shall be paid to the order form that the item number is correctly attributed to the goods to which it belongs . If any question should arise in this respect VENDOR shall contact the OWNERS Representative.

Special care shall be taken that all accessory parts loose or detachable, belonging to the main item under dispatch, shall also be individually listed in the packing list. In the event these accessory parts are not listed in the packing list , they shall be considered by OWNER as not delivered.

Two copies of the packing list in a water-proof plastic envelope shall securely be mailed under a galvanized steel sheet on the outer surface of the package The final packing list in ۲-folds shall be available in OWNERS office ۱۰ (TEN) working days prior to dispatch of the goods from the manufacturer's premises.

۴,۶ Liability and Guarantee

The party responsible for the packing shall be fully liable for and guarantee proper, sufficient and adequate packing, completeness of the contents, protection of the contents for a storage time of ۱۲ month starting from the date when the equipment is loaded on the ship, and the correct preparation of the packing list.

All cost whatever resulting from inadequate or insufficient packing shall be fully charged to the responsible party.

۰. Packing And Marking For Electrical Panels And Instruments

۰,۱ Scope

This section covers the method for packaging of electric and instrument panels for export delivery, which are to be provided with full protection against physical damage and atmospheric attack during transit and possible long periods under adverse storage conditions which may extend to two years.

۰,۲ General

This specification is for the package Vendor's guidance only.

Vendor shall remain fully responsible for selecting suitable materials for proper packaging and shall comply with the latest issues of the following European or British Standards: Where standards conflict with this specification, specification shall govern .

- Packing Code
- Silica gel for use as desiccant for packages
- Method of determining the permeability of materials used for packaging.



The Vendor shall provide written instructions for the removal of protective coatings and devices.

۰,۳ **Method**

۰,۳,۱ **The instrument or panel which shall be thoroughly clean, dry and free from rust** shall be totally enclosed in a polythene shroud after sharp projections on the instrument or panel have been padded . Silica gel or other approved desiccant shall be strapped inside the shroud, but shall not come into contact with the paint work.

After the desiccant is strapped into position, the open ends of the shroud shall be heat sealed , only leaving an opening large enough for the insertion of an air extracting pipe. After extraction of the air from the shroud, the opening shall be completely sealed.

۰,۳,۲ **Packing Case Materials**

- All wood shall be thoroughly seasoned and thoroughly sound without knots, knot holes, shakes and checks .
- Wood which can cause metallic such as oak , western red cedar and sweet chestnut shall not be used .
- The case shall be of sill base type. All sheathing shall be tongued and grooved.

۰,۳,۳ **Packing Case Lining**

The packing case shall be lined with completely multilayer waterproof.

The lining shall have as few joints as possible. If joints are necessary, the pieces shall be overlapped so that any rain water which may penetrate the case is shed automatically when the case is upright. Overlaps shall be ۷۰ mm minimum Joints shall be made with Bostik 'C'".

۰,۳,۴ **Securing Instruments or Panels Inside Packing Case.**

- a)The instrument or panel shall be completely secured by wooden battens faced with suitable rubber or other shock absorbing materials.
- b)Wood, wool and other hydroscopic shall not be used.
- c)Hay and straw shall not be used.



۰,۳,۵ **Sealing of Packing Case**

After nailing, joints in the case shall be sealed with Bostik Sealing Compound and the outside bound with steel strapping .

۰,۴ **Marking of Packing Cases**

۰,۴,۱ Cases which are for Carriage by sea shall be marked "*HOLD STORAGE*".

۰,۴,۲ All cases shall be marked to indicate the correct way up and bear the marking described here in above.

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ATTACHMENT No. ۱

MARKING OF PACKAGES

PROJECT :

PROJECT No. :

L/C No. :

OWNER :

ORDERED BY :

ORDER No. :

FINAL DESTINATION : Pouyesh Site, Arak / Iran

STORAGE CODE :

DIMENSION : L x W x H

GROSS WEIGHT :

NET WEIGHT :

PACKAGE No. : _____ **OF** _____ .

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PAGE	REV.	۰	۱	۲	۳	۴	۵	PAGE	REV.	۰	۱	۲	۳	۴	۵	PAGE	REV.	۰	۱	۲	۳	۴	۵
A		X																					
۱		X																					
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۰	۲۰-۱۰-۲۰	M.Asgari	M.Nazeri Nasab	AA.SH	M.Asadi	N.Nouhjah	IFA																
Rev	Date	Prepared By	Checked By	Approved By	Approved By	Approved By	Status																
		Discipline			PEM		PM																

Document Revisions



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These instructions outline the requirements for providing original manufacturer's pre-commissioning, commissioning and two years operation spare parts for a PP-PE Pilot Plant to be built in Petrochemical Research & Technology Company, Arak/Iran.

CONTENTS

- ۱) General information
- ۲) Definitions
- ۳) Spare parts required
- ۴) Required information
- ۵) Identification
- ۶) Packing and protection
- ۷) Special storage items

Attachments:

۱. **Erection, precommissioning, commissioning and start-up phase spare parts**
۲. Two years operation spare parts
۳. Guidelines for the compilation of Spare Parts Interchangeability Record (SPIR)
۴. SPIR form

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۱) **General Information**

These instruction outline the requirements for providing original manufacture's pre-commissioning, commissioning and two years operation spare parts for PP-PE Pilot Plant to be built in Petrochemical Research & Technology Company, Arak/Iran.

The Vendor is obliged to provide with an original equipment manufacturer spare parts data package, containing full and complete spare parts information and prices for each item of equipment supplied.

The Vendor shall recommend those spare parts that are deemed necessary on the basis of Vendor's recommendations and experience.

۲) **Definitions**

۲,۱ "Erection, Precommissioning, Commissioning and start-up spare parts" are those material, equipment or components necessary during the erection, precommissioning, commissioning and start-up activities of the Plant.

۲,۲ "Operating Spare Parts" are spare parts material, equipment or components necessary for the continuous operation of the plant after commissioning completion for a period of two years.

۲,۳ GOODS: All kind of materials and equipment to be incorporated in the Project.

۲,۴ VENDOR: Companies Awarded by Owner for Procurement Services, Inspection Affairs or Transportation, Providing of Project's goods, following up all transport activities from VENDOR workshop to final destination as defined in the purchase order.

۲,۵ OWNER: Petrochemical Research & Technology Company.

۳) **Spare Parts Required**

۳,۱ **Capital spare parts**

Capital spare parts are defined in documentation prepared by technical department.

۳,۲ **Erection, precommissioning, commissioning and start-up Spare Parts**

Vendor is requested to submit a Spare Parts proposal together with base quotation. Such spare parts shall be packed in separate boxes and shipped together with the main equipment/material purchased in order to be available at the site together with the base order supply.

Minimum required quantities are shown in attachment ۱).



۳,۳ Two years operation spare parts

Vendor is requested to submit a Operation Spare Parts quotation based on his experience together with base quotation

The necessary and sufficient two years spare parts include those parts that are normally required to maintain the plant in a satisfactory working condition for a period of two years of continuous operation after plant start-up.

These Operation Spare Parts shall be packed in separate boxes.

Guidelines for selection of two years spare parts are shown in attachment ۲.

۴) Required Information

۴,۱ All information and drawings must be in English language.

۴,۲ Data sheets, engineering drawings, manufacturer's catalogs and operating and maintenance manuals required to identify the function of and fully describe all parts associated with the equipment

۴,۳ The interchangeability of spare parts must be completely assured between all units contained on the parent equipment purchase order.

۴,۴ The Vendor shall guarantee the spare parts in accordance with the requirements requested for the parent equipment.

۴,۵ The offer must be valid for supply either for total or partial quantities.

۴,۶ All Spare Parts list shall be filled-in using the attached "Spare Parts Card" according also to the instructions attached herein.

Photocopied or hand-written documents are not acceptable.

Twelve (۱۲) months price validity is required

۵) Identification

All spare parts shall be individually identified by one of the following methods:

۵,۱ A stainless steel label imprinted with lettering approximately ۶ mm (۱/۴) high and secured to the part with S.S. wire.

۵,۲ Inscribing with an electric spark erosion pencil

۵,۳ On large items inscribing with non-fading, moisture resistant marking ink, figures/ letters to be at least ۲۰ mm (۱) high. Ink shall be Pannier ۱۰۰۱ Yellow Industrial or equal.



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- ۵,۴ Items such as Ball Bearings which in actual storage will remain in their packing may be identified with an adhesive label firmly attached to the outside of the carton.
- ۵,۵ Alternative methods which are standard industrial practice may be used provided SP's approval has been obtained in writing in advance. Stamping directly into spare parts will not be allowed.
- ۵,۶ The following shall appear on each spare or spare part label:
Manufacturer's real part number.
Short description (one word will suffice if space is limited).
Tag number of equipment (if applicable).

۶) **Packing And Protection**

- ۶,۱ Packing protection and marking of the packing container shall be as described in Project Packing and Marking Procedure ۰۰۰-PCR-PRC-۰۰۰۲. Spare parts shall be packed separately from main equipment and the packing containers shall clearly be marked "erection, pre-commissioning, commissioning, and start-up spare parts" or "two years operating spare parts" as applicable. The following additional comments apply :
- ۶,۲ Packing cases and other shipping containers must be capable of giving adequate protection to contents for a period of one year after despatch from Vendor work-shop (i.e. cases may after receipt at the Plant Site be stored outside before being unpacked).
- ۶,۳ Two years operating spares are to be protected and packed in such a manner as to ensure a minimum shelf life of four years in an un-air-conditioned warehouse sited in extremely dusty heavy industrial and coastal area with salt pollution location where the maximum shade temperature may exceed $-۱۴ + ۴۵$ C. and where relative humidity reaches ۹۰%.
- ۶,۴ Consumables items such as bolts and nuts shall be adequately oiled to prevent corrosion.
- ۶,۵ Other unpackaged items shall be protected by a rust preservative oil, hard drying type. if the nature of the item permits the removal of the deposited tar oil skin by means of petroleum based solvents or the use of hot dip strippable coating.
- ۶,۶ Any protection for stainless steel parts shall not contain chlorides or harmful metal salts such as Zinc, Lead, Copper. etc. Also marking paint or ink shall not contain similar harmful components.
- ۶,۷ Electronic and instrument parts shall be packed in sealed clear plastic bags along with a bagged amount of dessicant.

۷) **Special Storage Items**



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- ۷,۱ Vendor must advise of any spares which cannot be stored under the conditions stated in para. ۶,۲ and which require special storage conditions
- ۷,۲ Special Storage Items are to be clearly labelled with storage instructions such as:
STORE IN A COOL DRY PLACE AT C
STORE IN DARK PLACE
KEEP HUMIDITY BELOW %
etc.
- ۷,۳ Owner must be notified of all such items without delay before order placement since a restricted shelf life may require an amendment to order quantity and an appropriate re-ordering procedure.



ATTACHMENT ١

ERECTION, PRECOMMISSIONING, COMMISSIONING AND START UP SPARE PARTS

١) FURNACES

Gaskets for coil:	٥٠٪
-Burner Tiles	١٠٠٪
-Burner Tips	٥٪
-Fire eyes	١٠٪
-Gas valves seat	١٠٠٪
-Solenoid valves	٢٥٪

٢) EXCHANGERS, REACTORS & DRUMS/TANKS

Gaskets for Girth Flange, M/H& H/H	١٠٠٪
Stud Bolts and Nuts for the Above	٥٪(Min. ٢ Sets)
<u>Field-Installed Trays:</u>	
-Bolts and Nuts	١٥٪ (Min. ٢ Sets)
-Washers (Metal and Asb.)	٢٠٪ (Min. ٢ Sets)
-Tray Clamps	١٠٪ (Min. ٢ Sets)
-Asb. Rope and Tape	٢٥٪ (Min. ٢ Sets)
<u>Field-Installed Internals, Piping and Other Bolted Internals:</u>	
Stud Bolts (Alloy and C.S.)	١٠٪ (Min. ٢ Sets)
Washers and Nuts	١٠٪ (Min. ٢ Sets)
<u>Packing:</u>	
-Inert Balls	١٥٪
-Raschig Rings / Slotted Rings	١٥٪
-Gaskets Sets And O-Rings	١٠٠٪
-Fan for Air Cooler	

٣) STEEL STRUCTURE AND PLATFORM

Bridge Crane:

-Bolts & Washers	١٥٪
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-Gashels	۱۰٪
-Contactors	۵٪
-Tension Springs	۱۰٪
-Fuse Elements	۱۰٪
-Gaskets	۱۰٪
-Oil Seals	۲۵٪
-Relays	۵٪
-Collectors	۱ set Each Size
-Contact Shoes	۱ set Each Size
-Limit Switches	۱ set Each Size
-Welding Rod	۱۰٪

۴) MACHINERY / PACKAGES

Please see the relevant engineering specifications of each equipment for commissioning spares.

Electrical Equipment: See item ۹

Instrumentation:

- Control panel	See item ۱۰
- Board instruments	See item ۱۰
- Field Transmitters	See item ۱۰
- Field instruments	See item ۱۰
- Others	۰٪

۵) H.V.A.C.

Bolts, Nuts, Gaslets for Field installation of Pipe/Duct	۵٪
Rotating Equipment	See item ۵
Heat Exchangers	۰٪
Filter Element	۱ Set Each Size/Material
Electrical	See Item ۹
<u>Instrumentation:</u>	
-Control panel	See Item ۱۰
-Board Instruments	See Item ۱۰
-Field Transmitters	See Item ۱۰



-Field Instruments	See Item ۱۰		
-Others	۰٪		
۶) <u>SPECIAL EQUIPMENT</u>			
Heat Exchanger	See Item ۲		
Rotating Equipment	See Item ۰		
Filter Element	۱ Set Each Size/Mat'1		
Piping	۰٪		
Electrical	See Item ۹		
<u>Instrumentation:</u>			
-Control panel	See Item ۱۰		
-Board Instruments	See Item ۱۰		
-Field Transmitters	See Item ۱۰		
-Field Instruments	See Item ۱۰		
-Others	۰٪		
۷) <u>PIPING</u>			
Gaskets, all sizes	۲۰٪		
Stud Bolts less than ۱"	۱۰٪		
Stud Bolts ۱" to ۱ ۱/۸"	۱۰٪		
Stud Bolts ۲" and over	۰٪		
Welding Rods	۱۰٪		
Coating and Wrapping	۱۰٪		
		Carbon Steel	Alloy/SS
Pipe ۲" and below	۱۰٪	۴٪	۰٪
۳" to ۶"	۱۰٪	۲٪	۰٪
۸" and over	۰٪	۱٪	۰٪
(*) Valves ۲" and below			
screwed and welded	۱۰٪	۰٪	۰٪
(*) flanged	۲٪	۲٪	۰٪



(*) Valves ۳" to ۱۰"	۲٪	۲٪	۰٪
(*) Valves over ۱۰"	۰٪	۰٪	۰٪
(*) Flanges up to ۱۲"	۵٪	۳٪	۰٪
(*) ۱ ۴" and over	۲٪	۲٪	۰٪
(*) Fittings welded up to ۲"	۱۰٪	۶٪	۰٪
(*) ۲ ۱/۲" to ۱۰"	۵٪	۳٪	۰٪
(*) ۱۲" and over	۳٪	۲٪	۰٪
(*) Fittings Screwed up to ۲"			
(*) ۳" and over	۵٪	۳٪	۰٪
(*) Flanged all sizes	۵٪	۳٪	۰٪
(*) Hub and Spigot ۳" to ۱۲"	۰٪	۰٪	۵٪
(*) ۴" and over	۰٪	۰٪	۳٪

Note: as indicated with (*), where the percent gives the quantity consisting of a whole number plus a decimal less than ۰,۵, the decimal portion will be dropped; where the decimal portion is ۰,۵ and more, the next higher whole number quantity will be selected.

۸) ELECTRICAL EQUIPMENT

Switchgear, Motor Control Centers MV/LV:

-Fuse elements ۵۰٪

-Bulb for Signal Lamps ۵۰٪

Local Control Panels & control stations:

-Fuse elements ۵۰٪

-Bulb for Signal Lamps ۵۰٪

Electirc Motors:

-Grease Nipples where applicable ۱۰٪+power terminal (in J.B.) ۲٪

Lighting Fixtures ۳٪

Flag Relay ۲٪

Time Relay ۲٪

Terminal Block ۲٪

Auxiliary Relays ۱٪

Moving Contacts ۱۵٪



Fixed Contacts	۱۵٪
Coils for Contactors	۱۰٪
Boucholz Relay	one of each type and size
Thermometer	
<u>Local Control Station:</u>	۵٪
-Ammeter	
-Push button	۵٪
-Selector Switch	۵٪
<u>UPS:</u>	
-Fuse	*
-MCB (miniature circuit breaker)	*
-SCR	*
-DIOD	*
-Transistor	*
-Control cards	*
-Signaling lamps	*
-Batteries	*
<u>Battery Charger:</u>	
-Fuse	*
-MCB(miniature circuit breaker)	*
-SCR	*
-DIOD	*
-Transistor	*
-Control cards	*
-Signaling lamps	*
-Batteries	*
Fire Alarm System	*
Telephone System	*
Paging System	*
Radio System	*
Emergency Diesel Generator	*
Sockets (۴۰۰V, ۲۳۰V, ۲۴V)	۵٪



Plugs(۴۰۰V, ۲۳۰V, ۲۴V)	۵٪
Portable ۱۱۰V AC, ۵۰Hz, with transformer	۵٪ each type
Socket and plug (ex-type)	
Hand lamp ۲۴V AC, ۵۰Hz(ex-type)	۱۰ no.

All special tools, equipment and spare parts required for commissioning and start-up shall be provided.

These are the spare parts that VENDORS shall recommend based on experience.

۹) INSTRUMENTATION

For control Panel:

- Bulbs For Signal Lamps	۵۰٪
- Fuse Elements	۵۰٪

Boards instruments:

- Fuse elements	۵۰٪
- Chart paper for recorders	۳ boxes each type
- Ink for Recorder	۷ sets each type
- Pens for Recorders	۵۰٪

Field transmitters:

- Gasket	۱۵٪
----------	-----

Field instruments:

- Air pressure regulators	۵٪
- Temperature Indicators	۱۰٪ each range
- Pressure gauges	۱۰٪ each range
Solenoid Valves	۲٪ each type(min ۱ set)
Solonoid coils	۳ coil each type
Valve positioners	۲٪ each type(min ۱ set)
Cable – Single Pair	۲۰٪
Cable – Multi Pair	۱۵٪
Cable Glands	۲۰٪
Junction Boxes – Large	۱ min.
Pipe and Tube	۱۰٪



Fittings all type ۱۵% each size

Valves ۲۰%

Manifold Valves ۱۰% each size

Cable Tray ۲۰%

DCS:

- Bulbs for signal lamps ۵۰%

- Fuse elements ۵۰%

- Printer paper, Chart paper ۴ boxes each type

- Printer Ribbon ۱۰ sets each type

- Blank Floppy disks/magnetic tape cartridge ۱۰ pieces

Gas Chromatograph:

-Filter elements ۱۰%

-Calibration gas cylinders ۱ cylinder (۱۰۰ liter) each type

-Standard gas cylinders ۱ cylinder (۱۰۰ liter) each type

-Other gas cylinders ۱ cylinder (۱۰۰ liter) each type

Other Analyzers:

-Filter Elements ۱۰%

-Calibration Gas Cylinders ۱ cylinder (۱۰۰ liter) each type

-Standard gas cylinders ۱ cylinder (۱۰۰ liter) each type

-Other gas cylinders ۱ cylinder (۱۰۰ liter) each type

۱۰) PAINT AND INSULATION

Paint ۱۰%

Insulation material ۱۰%

Insulation Band & Seal ۱۰%

Insulating Cement ۱۰%

Insulation Sheet Metal ۱۵%

Insulation Wire ۱۰%

۱۱) UTILITY EQUIPMENT

Heat Exchanger, Vessel, Tank and Tower

See item ۲



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Rotating Equipment	See item ۰
Filter Elements	\ Set Each Size/Mat'1
Piping	۰٪
Electrical	See item ۹
<u>Insturmentation :</u>	
-Control panel	See item ۱۰
-Board Instruments	See item ۱۰
-Field Instruments	See item ۱۰
-Others	۰٪



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ATTACHMENT ۲

GUIDELINES FOR SELECTION OF ۲ YEARS OPERATION SPARE PARTS

Spare parts for equipment are shown in the following tables:

Table ۱ – Spare parts for machinery/packages.

Table ۲ – Spare parts for electrical equipment

Table ۳ – Spare parts for instruments

Table ۴ – Spare parts for pressure vessels and heat exchangers

Table ۵ – Spare parts for piping.



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TABLE ۱
SPARE PARTS FOR MACHINERY / PACKAGES

Note ۱: Please see the relevant engineering specifications of each equipment for recommended ۳-years spares.

Note ۲: Please see tables ۲ and ۳ of attachment-۲ for the electrical and instrument spare parts requirements of machinery / packages for ۳ -years.



TABLE ۲
MINIMUM SPARE PART FOR ELECTRICAL EQUIPMENT

Item:	Quantities
۱) Switchgears:	
MV Fuses	۱۵٪
Protecting and Flag Relay	۲٪
Time Relay	۲٪
Lamps	۱۰٪
Space Heaters	۱۰٪
L.V. Fuses	۲٪
Auxiliary Relays	۱٪
Moving Contacts	۱۵٪
Fixed Contacts	۱۵٪
Circuit Breakers(MCCB,MCB)	۱۰٪
Contactors	۱۵٪
Metering	۱۵٪
CT	۲۰٪
PT	۲۰٪
۲)Power Motors Control Center:	
L.V. Fuses	۱۵٪
Time Delayed Relays	۸٪
Lamps	۱۰٪
Space Heaters	۱۰٪
Terminal Blocks	۷٪
Auxiliary relays	To be determined later in conjunction with the equipment vendor
Contactors	
Thermal	
overload Relays	
Isolators for each trip	۲۱٪
Current Setting	۱۱٪



	Motor Circuit Brakers					
	Complete Unit for Each	۱۵٪(min ۱)				
	Type & Size(incoming & bus tie)					
	Moving Contacts	۲۰٪				
	Fixed Contacts	۲۰٪				
	Metering	۱۵٪				
	CT	۲۰٪				
	PT	۲۰٪				
	Circuit Breaker	one per each type				
۳) Transformers :	Bucholz Relays	one each type & size				
	Thermometer	۱۰٪				
	Bushing HV/LV	۵۰٪				
	Measuring and cintrol devices	۲۰٪				
	CT of natural resistor	۱۰٪ (of each type)				
۴) Power Material:	a) Local Control Stations	۵٪				
	b) Sockets ۴۰۰V AC	۱۰٪				
	c) Plugs ۴۰۰V AC	۱۰٪				
۵) Lighting Materials:	a) Switches	۱۰٪				
	b) Fuses	۳۰٪				
	c) Sockets(۲۳۰ V, ۲۴۵V)	۱۰٪				
	d) Plugs(۲۳۰ V, ۲۴۵V)	۱۰٪				
	e) Lighting Fixtures	۱۰٪				
	f) Ballast Lamps	۵٪				
	g) Lamps	۲۰٪				
	h) Portable ۱۱۰V AC, ۵۰Hz with transformer (ex-type)socket and plug	۱۰٪				
	i) hand amp ۲۴۵V AC, ۵۰Hz (ex-type)					
۶) Motors:						
No of Machines	۱	۲	۳	۴	۵	more
set of Bearing	۱	۱	۱	۲	۲	۴۰٪
Fan, terminal, blocks, space heater (MV)per type						۵٪



۷) UPS:

Fuses	۳۰٪
MCB(miniator circuit breaker)	۱۵٪
SCR	۳۰٪
Signaling lamps and protection device	۱۵٪
DIOD	۱۰٪
Transistor	۳۰٪
Control cards	one per each type
Batteries	۵٪
Isolator switch (make before break)	one per each type

۸) Battery charger:

Fuse	۳۰٪
MCB	۱۵٪
SCR	۳۰٪
DIOD	۱۰٪
Signaling lamp	۱۵٪
Control cards	one per each type
Batteries	۵٪

۹) Telephoned system

*

۱۰) Paging system

*

۱۱) Radio system

*

۱۲) Fire alarm system

*

۱۳) Neutral grounding system

*

۱۴) Bus duct

*

These are the spare parts required for two years operation. Vendor shall recommend the spares based on their experience.

(*The Quantities indicated are only preliminary estimation, so the firm quantities will be specified later in conjunction with recommendations of equipment vendors.

The quantities which shall be ordered by VENDOR shall be approved By OWNER.



TABLE ۳
SPARE PARTS FOR INSTRUMENTS

<u>Item</u>	<u>Quantities</u>
Flow Instruments	To be determined
Level Instruments	in conjunction with
	the equipment Vendor
Temperature Instruments	(based on Vendor's
	experience on similar
Pressure Instruments	type of plant)
Analyzers	
Control Valves : Valve Bodies	None unless service
	is corrosive or erosive.
	For corrosive or
	erosive services,
	shall be determined
	in conjunction with
	the equipment Vendor.
Valve Plugs	۱ of each size/min.
	۱۵% or ۱
Seat Rings	۱ of each size/min.
	۲۵% or ۱
Actuators	۱۰% (min ۱ per type / size)
Valve Stems	۱ of each diameter.
	These vary in length
	depending on valve
	size. Purchase the
	longest of each dia.
	These can be cut to
	the correct size.



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Stem packings	۳ boxes of each size used/min. ۲۰٪
Grease	۳ boxes of each type used/min. ۲۰٪
Diaphragms	۱ of each size used min. ۲۰٪
Blank Orifice Plates	
Dial Thermometers	
Manual Loading Stations	
Instrument Air Filters	
(Regulation sets)	
Pressure Gauges	
Pressure Switches	
Plug-in Assemblies for Elect. Instr.	
Plug-in Assemblies for Pneum. Instr.	۱۰٪
Seal, Condensate and Vent Pots	(for all)
Solenoid Valves	
Thermocouples	
Thermowells	
Signal Lights	
Pneumatic relay and/or boosh(if any)	
Valve Positioners	۱۰٪
I/P Convertes	(for all)



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DCS/ESD/PLC (for each system the following items):

- I/O cards ۱٪ for each type (min ۱ for each type)
- Main cards one set
- Power supply (AC, if any) one set
- Power supply (DC, if any) one set
- Barriers cards ۱٪ for each type (min ۱ for each type)

On-line gaschromatographs:

- Main mother board one set
- Column one per type



TABLE ۴
SPARE PARTS FOR
PRESSURE VESSELS & HEAT EXCHANGERS

<u>ITEM</u>	<u>QUANTITIES</u>
۱) Heat Exchangers-Shell and Tube (U Type included)	
- Tubes	Straight tubes sufficient to retube the largest bundle of each tube size and material.
- Bolts and nuts	(Special or Alloy) of each exchanger minimum one set.
- Gaskets	۲۰۰٪
۲) Pressure Vessels	
- Gaskets	۲۰۰٪
- Bolts and nuts	۱۰٪ (Special, Alloy or size ۲" diam or greater), minimum one set.
۳) Air Cooled Exchangers	
- Plugs	Steel ۱٪; Non-ferrous ۲٪ (min. one number)
- Plug Gaskets	۵٪ (min. one number)
-Cover plate gaskets	۱۰٪
-Tube support boxes	۱۰٪ (min. one number)
۴) Number of Air-fin Coolers Using Part.	۱ ۲ ۳ ۴ ۵ ۶ ۷ or more
(i) V-Belts-Sheaves (Driven & Driver)	۰ ۰ ۰ ۰ ۰ ۰ ۱
- Set of Belts	۱ ۲ ۳ ۴ ۵ ۶ ۱۰۰٪
(ii) Fan Shaft Bearing (Upper & Lower)	۱ ۱ ۱ ۲ ۲ ۳ ۵۰٪ of No of Air Fins
(iii) Speed Reducers (Gear Box) Shaft	



and pinion

- Bearing Set ۱ ۱ ۱ ۲ ۲ ۳ ۵۰٪ of No
of Air Fins

- O-Rings, Seals, Lock-washers, Locknuts

(iv) Couplings – Complete Coupling,

-Flanges, Gaskets, Seals ۱ ۱ ۱ ۱ ۱ ۱ ۱

(v) Fan Assemblies ۱ ۲ ۳ ۴ ۵ ۶ ۱۰۰٪ of No
of Air Fins

-Automatic Pitch Control

-Hub Assembly Parts Guide Bushing,

-Pitch Blocks, O-Rings, Clam Gaskets

(vi) Bolt Assemblies, Fork, Pins ۱ ۲ ۳ ۴ ۵ ۶ ۱۰۰٪ of No
of Air Fins

(vii) Flexible Hose, Rotary Union ۱ ۱ ۱ ۱ ۱ ۱ ۲

(viii) Automatic or Manual Adjustments:

- Blade Retention Clamps, Pitch, ۱ ۱ ۱ ۲ ۲ ۲ ۳۰٪ of No
of Air Fins

Change Forks, Puch Rod, Stub,(with pilot tubes),Bearing

Retainer Rings

(ix) Spring Housing Gasket, Diaphragm, ۱ ۱ ۱ ۱ ۲ ۲ ۲۰٪ of No
Blade Retainer Ring, Thrust of Air Fins
cover Gasket

(x) Hub Assembly with Blades ۱ (b)

(*) NOTES

(a) Quantities shown are for each size and type of part

(b) Twenty units or more

(c) The parts listed are the principal parts only. Other parts shall be considered for recommendation in quantities consistent with the above table.



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o) Plate type Exchangers

Plat gasket	۱۰۰٪
Flow Plate	۱۰٪
Nozzle Gasket	۲۰۰٪
Glue (۱ Kg. Pot)	۱
Special spanner tool	۱ for each size/type



TABLE ۵
SPARE PARTS FOR PIPING

<u>Item</u>	<u>Quantities</u>
Valves up to ۱/۲"	۵٪ for each size, type and material complete units
Valves from ۳" to ۶"	۲٪ (minimum ۲ pieces) for each size , type and material
Valves above ۶" to ۱۰"	۱ piece for each size, type and material complete units
Valves above ۱۰"	۱ only if installed valves quantity is more than ۳۰
Valves up to ۱۰"	
Gland packing and bonnet gasket	۱۰٪
Valves from ۳" to ۱۰"	۲ for each type , size and material set of changeable inner parts
Valves above ۱۰"	۱ for each type, size and material
Set interchangeable inner parts: bonnet gasket and stem packing	
Piping gaskets and bolts set for each size and type	۱۰٪

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ATTACHMENT ۳

**GUIDELINES FOR THE COMPILATION OF SPARE PARTS
INTERCHANGEABILITY RECORD (SPIR)**

The manufacturer/supplier shall complete the following parts of th SPIR form as per listed sequence and in the English language:

- Line ۱: PLANT registration/item number or tag number of equipment/instruments, etc. as stated on requisitions and/or Purchase Orders.
- Line ۲: Mode, type or other identification of equipment/instruments, etc. ordered.
- Line ۳: Serial number of each equipment/instruments, etc. ordered.
- Line ۴: Purchase Order number reference of equipment/instruments, etc.
- Line ۵a: Unit of measure, i.e. No., set, pair, kg,roll, etc.
- Line ۵: Number of identical equipment, etc. of particular model or type being supplied against Purchase Order number mentioned under line ۴.
- Line ۶: Parts description of all component parts considered by supplier as being required for maintenance of equipment, etc. listed in lines ۱, ۲ and ۳. However, all items specified in the appropriate equipment list shall be shown separately.
- Col. ۹: Drawing number/part number as per supplier's parts list or drawing.
- Col. ۱۰: Part identification number shoeing interchangeability within equipment manufacturer's organization.
- Note: Identical parts, regardless of whether they have the same part number or drawing number, should be shown only once (see also line ۵).
- Col. ۱۱: Material specification of parts listed in column ۶.
- Line ۵: Enter in appropriate sqare the nuber of parts (listed in column) fitted in each applicable unit. For groups of identical units, denote quantity per unit below quantity shown in line ۵.
- Col. ۷: Total number of identical parts listed in colimn ۶ for all equipment, etc. For identical units multiply quantity in line ۵ by number in same column in line ۵ and enter overall total of each line in column ۷.





- Col. ۱۲: Total spare parts recommended for ۷ years operation and commissioning period.
- Col. ۱۸: Unit price (up to two decimals) for recommended spare parts of column ۱۲.
- Col. ۲۰: Original identification number for all items of third party manufacture (bought-out items) such as : ball/-roller bearings, mechanical seals, couplings, bearing lock nuts, bearing lock washers, V-bels, bolts/nuts, gaskets, O-rings, and the like. These items should be fully identified by manufacturers' numbers, types, sizes, etc.
- V – for: Vital equipment, a breakdown of which would mean an immediate and serious interruption of vital operations in field or plant and with which no risk in the ordering and stocking of spare parts can be justified.
- E – for: Essential equipment, engaged in primary operations, but with which a calculated risk can be taken in ordering and stocking of spare parts.
- A – for: Auxiliary, general purpose and stand-by equipment, for secondary operations, the temporary lack of spare parts would not have a serious effect.
- Under this heading also comes the equipment of which there is a large number of units in used, thus ensuring a sufficient degree of protection in case of failure of one or more units.

The Owner MESC project team should complete the following part of the SPIR form

- Col. ۱۶: For allocation of the final MESC number.
- Col. ۱۷: For the classification of spare parts, i.e.:
- C – for: Parts wearing out or deteriorating during normal operations, thus shown a fairly regular consumption.
- Q - for: Parts not normal stocked, but ordered on request only.
- I - for: Insurance items.
- O - for: Temporary code number.

THE VENDOR SHALL COMPLETE THE FOLLOWING PART OF THE SPIR FORM:

- Col. ۱۳: VENDOR'S recommended spare parts for ۷ years operation.

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- Col. ۱۴: VENDOR'S recommended spare parts for the precommissioning, commissioning and start-up period.
- Col. ۲۲: This column has to be filled out for the respective parts purchase order-item reference. This number should be tagged to the respective material for easy identification upon receipt at site.
- Col. ۱۹: Total price (up to ۲ decimals) of the spare parts for ۲ years operation and the commissioning period based upon the quantities approved by the OWNER'S Project Engineer (see column ۱۵)

NOTE: Columns ۱۵, ۱۷ and ۲۱ should be left blank, these are for OWNER'S use.
THE OWNER'S PROJECT ENGINEER SHOULD COMPLETE THE FOLLOWING PART OF SPIR FORM:

- Col. ۱۵: Final quantity to be ordered and Approved by the OWNER'S Project Engineer.
- Col. ۲۱: This column has to be used to indicate the equipment class, i.e.

IMPORTANT NOTE:

The necessary provisions shall be made to fix the prices of spare parts for all equipment and materials for future purchasing of the spare parts by OWNER more than which shall be purchased by VENDOR for two years operations of the PLANT all EQUIPMENT AND MATERIALS for future purchasing of the spare

ATTACHMENT ۴

SPIR Form:



National Petroleum Company Co.
Research and Technology

PP-PE Pilot Plant

Document No. : 000-SPC-A4-IN-0004

Rev.: 01

Title: INSTRUMENTATION GENERAL SPECIFICATION

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10. FLOW INSTRUMENTS
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12. PRESSURE INSTRUMENTS
13. TEMPERATURE INSTRUMENTS
14. CONTROL VALVES
15. PRESSURE RELIEF VALVES
16. ANALYZERS



۱. SCOPE

This specification covers the minimum general requirements for the instrumentation and control system design for PP-PE Pilot Plant in NPC-RT plant, Arak, Iran.

For instrumentation systems and components, as far as mechanical and electrical characteristics and performances are concerned, the present general specification will be used, and specific detailed specifications will be issued for each system and/or component. In case of discrepancy, information contained in the particular instrument specification and data sheet will take precedence over the general specification. The instrument design specification will be updated to include all the requirements of the project during detail engineering and is subject to the client's approval.

Any deviation from the present specification at any stage of the project will be clearly stated to the Contractor/Client by the Vendor or the Bidder. If any variation or addition is required in individual cases, they will be shown on material data-sheets. Any deviation from data-sheets or specifications, must be approved in writing by Contractor/Client, otherwise the equipment will be rejected at factory inspection.

۲. TECHNICAL REQUIREMENTS

۲.۱. Instruments and control equipment will be specified on standard data sheet formats and by written detailed specification and description.

۲.۲. Design methods and materials will be mainly in accordance with **NPCS** standards while the latest editions of the following standards as well as contractual codes and requirements are applicable:

- ISA Instrumentation Standards:

ISA S ۰-۱	: Identification and Symbolization ۱۹۹۲
ISA S ۰-۲	: Graphic symbols for logic diagrams ۱۹۹۲
ISA S ۰-۳	: Graphic symbols for distributed control/shared display instrumentation, logic and computer systems
ISA S ۱۸-۱	: Alarm and sequences
ISA S ۷۰-۱	: Control valve sizing, equations
ISA S ۷۰-۳	: Face to Face dimensions of globe type control valves
ISA S ۷۰-۱۹	: Hydraulic testing of control valves ۱۹۹۱
ISA S ۶۱,۱	: Procedures for executive function for process input output and bit manipulation
ISA S ۶۱,۲	: Procedure for file access and the control of file contention.
ISA RP ۶۰,۸	: Electrical guide for control centers

- ANSI Standards:

ANSI-B ۱۶-۰	: Steel pipe flanges, flanged valve fitting edition + B۱۶-۰ a (۱۹۹۲)
ANSI-B ۱۶-۱۰	: Face to face and end to end dimensions of valves
ANSI-B ۳۱,۳	: Process Piping
ANSI-B ۱-۲۰,۱	: Pipe threads
ANSI/FC ۷۰,۲	: Control valve seat leakage
ANSI/MC ۹۶-۱	: Temperature measurement thermocouples
ANSI-B ۱۶,۳۷	: Hydro static Testing



• ASME & ASTM Standards:

- ASME, Div 1, : Hydraulic test for safety relief valve, Sect. VIII
ASTM : Material specifications

• ISO Standards:

- ISO 5167 : Flow measurement with orifices, nozzles and venturi tubes

• BS Standards

- BS 1042 : Methods for measurement of fluid flow in pipes (where not covered by ISO 5167)
BS 6739 : Instrumentation in process control systems installation design and practice (1986)
BS 5308 : Instrumentation cables

• IEC Standards:

- IEC 751 : Industrial platinum resistance - thermometer sensors (1983 + AMD 1 1986)
IEC 947 : Low voltage switchgear and control gear (1990)
IEC 61131 : Programmable controllers Programming languages.(for DCS/PLC)
IEC 61108 : DCS/PLC
IEC 529 : Mechanical Protection degree for enclosures
IEC 60548 : Industrial Thermocouples- thermometer sensors (for T/C)
IEC 60751 : Industrial Thermocouples- thermometer sensors (for RTD)
IEC 237-1 : Switches Contact Rating

• API Standards

- API-RP 001 : Process measurement Instrumentation
API-RP 004 : Process Instrumentation and control
API-RP 000 : Process Analyzers
API-RP 026 : Dimensions of Flanged type Pressure Safety valves
API-RP 026 : Valves Leakage Limits
API-RP 000 : Hazardous Area classification

• Other Standards

- NACE- MR-0100 : In Sour Corrosive Services
AWS D1.1 : American Welding Society for steel structures and Instrument welding.
CENELEC-00014 to 00020 : Protection of Electrical apparatus in explosive area
NAMUR : Proximity switch mounting and solenoid valve connection.
IPS -G-IN-16 : Engineering & material standard for control valves
IPS-C-IN-16 : Construction & installation standard for control valves

Plant control and process monitoring as well as all operational interlocks and sequences shall be performed by DCS.



- 2.3. When it is commercially available all field instruments shall have a protection of at least IP-60 or better according to IEC 609. In case of non-availability of IP-60 or better, other commercially available IP ratings will be reviewed and approved case by case by the client. Transmitter enclosures shall be rated IP-60 as minimum.
- 2.4. All instruments will be tested and calibrated by the Manufacturer before delivery and a calibration sheet will be supplied with each instrument.
- 2.5. In order to achieve a fail safe design all Alarm, safety and interlock contacts will be closed and solenoid valves and relays shall be energized during normal plant operation.
- 2.6. The actions of valves will be designed in such a way as to keep the plant under safe conditions in case of main electric power or instrument air failure.
- 2.7. Instrumentation system shall be basically electronic type. Final control elements and local loops will be pneumatic. Minimization of pneumatic instruments to be considered. Control valves shall have electro-pneumatic positioner. Electronic transmitters shall be Smart type.
- 2.8. Electronic signals shall be 4-20 mA as standard. Isolated outputs to be considered where required. All transmitters shall be Smart type with HART protocol. Communicator shall be supplied by manufacturer.

Pneumatic signals shall be 0.2-1 Bar.
Solenoid valves will be 24 VDC powered.
Cable Entry size shall be generally M20 X 1.5 mm ISO.
- 2.9. Electronic instruments and circuit boards will be tropicalized against moisture, fungus growth and insect attack and will have a high degree of environmental protection for such a duty as well as protection against corrosive, saline etc. atmospheres.
- 2.10. Electronic instruments construction material of wetted parts shall be in accordance with piping class requirements. Wetted parts shall be, as minimum, AISI 316. Where AISI 316 is not suitable for the application other compatible materials with process fluid at service conditions of pressure and temperature shall be selected as Hastelloy C, Titanium, Monel, etc.
- 2.11. Electronic instruments installed in classified area shall be selected in accordance with CENELEC or IEC code requirements. Electronic instruments in hazardous area shall be basically Intrinsically safe. Where Intrinsic safe instruments are not available Explosion proof or purged instruments shall be selected. Certification shall be provided by a recognized laboratory.

3. BASIC DESIGN VALUES

- 3.1. All field equipment will be suitable for operation in a corrosive, dusty, saline etc. Atmosphere.

3.2. SITE CONDITION:

- Minimum temp. : - °C
- Maximum temp. : +44°C
- Maximum humidity : 86% in January



- 3.3. Critical instruments systems and control systems will be supplied by 110V 50 Hz single phase from UPS and 24 VDC.



The UPS (un-interruptible power supply) located in the control building, or in the electrical substation (UPS room) will deliver:

- Frequency : 50 Hz \pm 0.5 Hz
- Voltage : 110 VAC \pm 1%


The UPS is limited to feeding the DCS, analyzers and other specific instruments when required. Instruments such as transmitters, transducers, converters, switches... will be powered by 24 VDC. Power supply will normally be supplied from the DCS or other systems otherwise 24 VDC power supply will be used for solenoid valves. No voltages other than 24 VDC, and 110 VAC will be used for systems supply except if clearly specified by the Contractor.

3.4. Instrument air supply shall have the following characteristics as minimum:


- Normal Pressure : 4 Barg
- Minimum Pressure : 6.5 Barg
- Design Pressure : 10.5 Barg
- Temperature : Ambient
- Dew Point : -4.5 °C
- Dust, Oil, Water free


4. MEASUREMENT UNITS

- Density : kg/m³ (kilograms per cubic meter)
- Level : m, cm, mm
- Viscosity : % of range (for indication)
- Viscosity :
 - Liquid : cSt
 - Gas : cp
- Other units:
 - Rotation : rpm (revolutions per minute)
 - Power : kW or kVA
 - Voltage : V (volt)
 - Electrical current : A (ampere)
 - Pressure : barg
 - Flow : m³/hr
 - Mass flow : kg/s , kg/hr
 - Temperature : °C
 - Time : Sec, Minute
 - Distance : Meter

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0. INSTRUMENT GENERAL REQUIREMENTS

- 0.1. For transmission and control, electronic loops will use a standard 4-20 mA signal. This is based on smart transmission of signal with HART protocol. The electrical instrument signal will increase in level in increase of the process variable.
For temperature instruments, refer to chapter 13 (TEMPERATURE INSTRUMENTS).
- 0.2. Instrument will in general be of the electronic type.
- 0.3. Transmitters may be provided with integral or separate local digital indicator per process requirements.
- 0.4. Millimeters and receiver gauges will be visible and readable at the associated control valve assembly or at the location indicated on the detailed engineering P&ID.
- 0.5. Process control valves with pneumatic actuators will be actuated via I/P positioners (integral with the control valve).
- 0.6. Limit switches shall be proximity type (NAMUR type) 
- 0.7. The component parts of instruments will be of material suitable for the process. Movements or wetted parts for instruments will be stainless steel or better when specified. Materials exposed to the process fluid will be in accordance with the fluid conditions (pressure, temperature, and corrosion). This will be reviewed case by case during detail engineering and is subject to the Client's approval.
- 0.8. All components, particularly if containing electric contacts, will be vibration resistant. All components will be constructed of material which is resistant to corrosion by the process fluid with which they are in contact internally and to the ambient air environment to which they are externally exposed (corrosive, dusty, saline etc. atmospheres).
- 0.9. Instrument cables (analog (4-20 mA), digital signal, RTD and thermocouple cables) will be run separate from power supply cables from the field junction boxes to the control room.
- 0.10. cables carrying intrinsically safe shall be routed separately with non-IS signal carrying cables.
- 0.11. Instrument air manifolds shall be used for distributing the instrument air to the consumer. Min 20% spare tapping shall be considered in each manifold.
- 0.12. Control actions shall be done as much as possible in the DCS system but Local controllers if any will be specified with one or more of the following actions; the control action will be easily reversible.
 - a. Proportional
 - b. Integral or reset
 - c. Derivative or rate.
Generally, temperature controllers will be three term controllers; flow pressure and level will be two term controllers. Integral and derivative actions will have an off position where possible.
- 0.13. Each pneumatic user shall be provided with a 1/2" block valve. the material of block valve shall be 316 SS. An air filter regulator with pressure gauge shall be considered for each user. For control valves the pressure gauge will be installed on the positioner.

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- 0.14. All indicator dials will be white with black graduations. Electronic indicators will be as per supplier standard.
- 0.15. All field instruments will be provided with a suitable stainless-steel nameplate bearing whenever applicable, the following information:
 - tag number
 - Manufacturer's name, model and serial number
 - Maximum allowable pressure / temperature for the parts concerned
 - Scale factors
 - Materials of the fluid wetted parts
 - Power voltage and frequency or instrument air pressure
 - Calibrated range
All indoor instruments will be provided with at least one nameplate for operating and maintenance purposes.
- 0.16. Final drawing and certificates will be issued in the English language.

6. CONTROL ROOM

- 6.1. The main apparatus installed in control room is the cabinets of Distributed Control System (DCS) package PLCs and operator stations.
- 6.2. Cable cross wiring marshalling cabinets, DCS process interface and controller cabinets, DCS historical modules and network modules, marshalling cabinets, electrical distribution panel will be installed in an auxiliary room adjacent to the PCR (process control room).
The DCS operator stations / engineering stations and associated printers will be located in the PCR (process control room).
The UPS cabinets and the UPS batteries will be located in the UPS room and battery room respectively which is in the scope of Electrical.
- 6.3. All instrument cable entries into the control room and auxiliary room from the outside will be via PVC conduit, which will be sealed in order to prevent the ingress of gas or vapors.
- 6.4. No process fluids will be piped into the control room or the auxiliary room.
- 6.5. The process control room and the auxiliary room will be air conditioned, and classified as a general-purpose (unclassified) electrical area. They will also have a false floor for routing of cables and a false ceiling for proper lighting and air conditioning ducting.

7. LOCAL PANELS

All functions for process control of the plant will be done through the Distributed Control System. However, local panels may be provided for main EQUIPMENT, which will be normally controlled by programmable logic controllers (PLC) located in the auxiliary room. The local panels (installed near the EQUIPMENT) will include push buttons, lamps and indicators necessary for local operations, start-up and maintenance (e.g. heater...) and will be the Vendor's standard design.



1. ALARMS AND SHUTDOWNS

- 1.1. Alarms and shutdown systems will be generally designed to be fail-safe.
- 1.2. The control systems will be designed in order to protect against tripping from random or spurious signals on deviation from normal operating conditions i.e. to prevent noisy shutdown.

2. CONNECTIONS

- 2.1. Instrument connections and tapping points on vessels or pipes are defined on table #1.
- 2.2. Plant pneumatic signal lines will be 1/2" OD stainless steel tubing and fittings.
- 2.3. All cable runs between the control room and the plant will be made with multi core/pair cables and connected to the field junction boxes.
Cable specifications from the auxiliary room to the field are:
Electronic signals: multi-pair, each pair twisted and screened, overall screened, armored PVC insulated.
On-off signals : multi core, overall screened, armored PVC insulated
- 2.4. The single pair cable specifications are the following:
Electronic signals : single pair, twisted, screened, armored, PVC insulated
On-off signals : Two Core, armored, PVC insulated, overall sheath
Cable runs in the main control room as well as in the auxiliary room and the plant, will be tagged at each end for identification purposes. For the cable runs in the plant, cable markers will be provided at specific distances to indicate the route of the cable.
- 2.5. Multi-strand copper wires for single pair or triple conductor cables will be used in the auxiliary room, and for cables between field junction boxes and instruments. For other connections, solid copper conductors are preferred.
- 2.6. A maximum voltage drops of 10% at normal loading conditions will be taken into account in the sizing of cables.
- 2.7. 20% spare cores are required in multi core cables and for spare cable inlets to the junction boxes. All spare conductors will be connected to terminals.
- 2.8. Minimum 20% spare space is required in junction boxes.
- 2.9. Screwed terminals will normally be used. Test/disconnect terminals will be used for the connection of field cables in the marshalling cabinets.
- 2.10. Accuracy rating for instruments.

The rated accuracy of individual instruments will be as listed below.

These tolerances will apply to the full-scale reading of the particular instrument, referring to repeatability a deviation of characteristic curve, at constant ambient temperature and a steady power supply (for instruments accuracy values marked with (*) referred to the measured value).



Primary devices:

Standard orifice plates and Venturi tubes ($>0.5\%$ of measuring range)	71,0 %
Resistance thermometers Pt 100 DIN	70,6 %
Thermocouples	70,70 %

Field indicators:

Pressure gauges	71,6 %
Pressure gauges (flanged connections)	72,0 %
Liquid expansion thermometers	71,0 %
Bimetal thermometers	72,0 %

Flow meters ($> 1\%$ of measuring range)

Magnetic flow meters	71,0 %
Turbine flow meters	70,0 %
Positive displacement meters	70,0 %
Rotameters	71,6 %
Rotameters with PTFE lining	72,0 %
Rotameters (for purge systems)	74,0 %
Coriolis flow meters for gas streams	(*)70,0 %
Coriolis flow meters for liquid streams	(*)70,2 %
Vortex flow meters for gas or vapour streams	(*)71,0 %
Vortex flow meters for liquid streams	(*)71,0 %
Thermal mass flow meters	(*)72,0 %

(*) accuracy rating referred to the measured value

Transmitters


Temperature transmitters for resistance Thermometers/thermocouples	70,6 %
Pressure transmitters	70,2 %
Differential pressure transmitters	70,2 %
Level transmitters (displacer type)	71,0 %
Level transmitters (radar type)	71,0 mm 70,3 %

I/P transducers	70,6 %
A/D or D/A converters	70,2 %

Control room instruments

Line recorders	70,0 %
Dotted line recorders	70,0 %
Pneumatic indicators	70,0 %
Electric indicator	70,0 %

Factors influencing the measuring accuracy:

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1. FLOW INSTRUMENTS

1.1. ORIFICE PLATES

In general, flow measurement will be made by means of square-edged concentric orifice plates mounted between flanges with flange taps, in accordance with ISO 5167 recommendations and relevant codes and standards.

Eccentric orifices may be used in horizontal lines to avoid accumulation of liquid when vent or drain holes (maximum 2 mm diameter) are not specified or with fluids containing solids. Quarter circle or conical entrance orifice plated may be selected when a square-edge type is not appropriate.

Orifice plates shall be in AISI 316 as minimum for general service. Other materials shall be used when AISI 316 is not suitable for the service conditions; The material to be used will be specified on Piping material specification and/or instrument data sheet.

Orifice plate beta ratios shall be between 0.20 to 0.7.

Orifice meter runs shall be used for line size lower than 2".

Integral Orifice assemblies shall be used for to measure flow rates which can't be measured accurately with the minimum size of meter runs.

Orifices will be sized for the following standard instrument DP range:

- 12,0, 20, 0, 62,0, 120, 200, 000, 1000, 1200 mbar.

In order to achieve a minimum pressure loss in the system, the maximum allowable beta value (d/D) will be selected for each orifice.

Straight run pipe requirements shall be in accordance with ISO 5167 or vendor requirements. Straightening vane can be used to reduce upstream pipe lengths.

1.2. VENTURI AND FLOW NOZZLE

Venturi tubes may be selected for non-viscous fluids when relatively high accuracy is required with a low-pressure drop in the system and or short minimum straight run piping requirements.

1.3. PITOT TUBES

Pitot tubes or modified pitot tubes (Annubars) may be selected for large flows of clean fluid to achieve minimum pressure loss in the system where the pressure drop through an orifice is uneconomical or flow measurement accuracy is not critical.

1.4. MAGNETIC FLOW METERS


Magnetic flow meters may be used for dirty liquids having conductivity higher than 0 μS/cm.

1.5. VORTEX FLOW METERS

Vortex and other non differential flow transmitters shall be used only in special applications as shown on P&IDs.

1.6. MASS FLOW METERS

Generally, Coriolis or thermal Mass flow meters shall be used for mass flow measurement. Installation of flow meters shall be in a manner as to ensure that the entire assembly is fitted with the respective process fluid.

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10.7 DIFFERENTIAL PRESSURE TRANSMITTERS

Flow measurement signals (e.g. for indication/recording / totalizing / trending etc.) will generally be connected to the DCS:

Transmitter measuring principles used with orifice plates, venturi tubes, pitot tubes, etc. will be in accordance with the selected manufacturer's standards e.g. diffused silicon strain gauge, capacitance etc....

The transmitters will be of the "smart" type (HART Protocol) with accuracy better than 0.2%. The sensing element material will be AISI 316 minimum.

Electronic transmitters will be furnished with test terminals and by-pass diode to facilitate field testing without disconnection or connection of a field mounted signal indicator (MV-Meter) either integral with or remote from the transmitter. Transmitters shall be reverse polarity protected.

10.8 FLOW SWITCHES

Direct-acting flow switches will not generally be used for process fluids. Switch actions will normally be made via normal measuring means with the switch function on the transmitter output or as threshold contact type on local flow indicator.

The switch function will be adjustable. Switches will have changed-over volt-free snap-acting contacts.

Further detailed data and information will be provided when specifying the instruments

10.9 LOCAL FLOW MEASUREMENT:

For local measurement, variable flow meters or differential head type elements with DP pressure indicator will be used.

10.10 P/T COMPENSATION:

Whenever high fluctuation of pressure or temperature of the process fluids are expected, P/T compensation shall be considered.

11 LEVEL INSTRUMENTS


11.1 DISPLACEMENT TYPE

External displacer-type (torque tube type) transmitters will generally be used for level ranges lower than or equal to 1219 mm (48"). Adequate valves will be provided for maintenance purposes.

The following standard ranges will be used:

- 306, 813, 1219, 1524, 1829, 2134: mm
- 12, 32, 48, 60, 72, 84: inch

Displacement type level instrument shall not be used with viscous, turbulent, solidifying, corrosive conditions or liquids that boils at ambient temperature.

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Internal displacer type (displacer hanging in vessel) will only be used where conditions dictate that the level shall be measured internally and where turbulence will not detach the displacer. and they shall be avoided practically on vessels that can't be isolated without shutting down a part of the plant.

Extensions will be considered for services above 200°C (fins).

Connections will be in general side-bottom mounted. The housing will be rotatable. Left-hand type or right-hand mounting position of housing will be in accordance with the installation requirements. Drain valves shall be considered for external level transmitters.

11.2 DIFFERENTIAL PRESSURE TYPE

In general, differential pressure transmitters will be used to measure liquid level where the range of level to be measured is greater than 2000 mm and where this type of instrument is preferred to a displacer type like steam drum level.

Transmitter measuring principles will be in accordance with the selected manufacturer's standards, and preferably same as those differential pressure transmitters used for flow measurement.

External differential pressure instruments shall be installed lower than the lowest vessel connection and higher than the highest vessel connection depending on the process fluid or selected purge method.

The transmitters will be of the "smart" type with accuracy better than 0.2%. The sensing element material will be AISI 316 minimum.

Electronic transmitters will be furnished with test terminals and by-pass diode to facilitate field testing without disconnection or connection of a field mounted signal indicator (MV-Meter) either integral with or remote from the transmitter. Transmitters will be reverse polarity protected. D/p transmitters will have zero elevation or suppression as required.

11.3 DIAPHRAGM SEAL AND CAPILLARIES

For measurement of viscous fluids, fluids containing solids, highly corrosive fluids or where temperature changes may influence the fluid conditions, the use of diaphragm seals and capillaries may be considered. Capillaries for remote seal applications will be kept as short as possible and will not exceed 1 m. When remote seal systems are specified, the fill liquid shall be selected to agree with the process requirements, and shall not affect a change in the instrument calibration when subjected to a calibration at ambient conditions versus normal process condition.

11.4 LIQUID LEVEL SWITCHES


Depending on the process requirements, level switches shall be of the float type, tuning fork, or capacitive sensor type. Switches without mechanical contacts are preferred. For process connection refer to the Table #1 on the attachment.

11.5 SPECIAL LEVEL MEASUREMENTS:

Capacitive level transmitters may be used as an alternative for fluids of high viscosity and for bulk materials.

Ultrasonic or radar methods will be used for tank gauging if physical condition of the process fluid allows this.

Radioactive level measurements will be used in the polymerization reactors only, as in this case it is the only possible method of measurement.

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Load cell assemblies normally will be used for silo measurement. In that case the silo shall be installed stress free.

11.6 LOCAL LEVEL INDICATORS:

Local level indicators with all metric construction and magnetic coupling of follower magnet is generally preferred. For process connection refer to Table #1.

The instruments will have vents and drains according to manufacturers standard. In justified exceptional cases and as explicit shown on the PID, permanently attached valves and fluid discharge lines will be used and installed in accordance with the piping specification.

Local tank level gauges with a large measuring range will consist of level transmitters with local indicators.

11.7 REMARKS

- There will be no local recording
- Installing two or more devices on the same connections will be avoided.

12 PRESSURE INSTRUMENTS

12.1 GENERAL

Pressure-measuring elements will be minimum AISI 316 stainless steel or comply with piping material if more resistive material required.

Pressure Instruments will have over-range protection to minimize the effect of over pressure in order to avoid a shift in calibration. Instruments, which can be exposed to vacuum, will have under range protection. Over-range protection will cover the Design pressure of line.

Pulsation dampeners or glycerin-filled systems will be supplied for all pressure instruments and gauges in vibrating or pulsating services.

Differential-pressure instruments will generally be capable of withstanding the full static pressure without loss of calibration.

For the measurement of absolute pressure, differential pressure transmitters will be used with an absolute vacuum reference chamber.

12.2 PRESSURE GAUGES

Bourdon-tube type pressure gauges will generally be used. The material of the Bourdon-tube will be SS 316 minimum or better, depending on process requirements.

Pressure gauges shall have stainless steel housings with a blowout disc and zero adjustment. It must be possible to fill the gauge with glycerin.

The movement will be of corrosion and wear-resistant material, e.g. stainless steel/nylon-coated, independent of case.

Gauges for direct mounting will have a 1/2" NPT male bottom connection and a 4" (100 mm) dial.

Bourdon tube type pressure gages shall be used for ranges from 1 Barg to 1000 Barg

Diaphragm type pressure gages shall be used for measuring ranges below 1 Barg.



Over range protection of pressure gauges shall be 1.2 of full scale.



For slurry, viscous, highly corrosive or fluids with suspended solids the pressure gages shall have diaphragm seal with 1/2" flange connection.

Pressure gauges will preferably be direct-mounted to the process. Receiver gauges may be local field-mounted or panel-mounted (local panel).

12.3 PRESSURE SWITCHES

Pressure switches will be of the Bourdon tube or pressure gauges with adjustable contacts (proximity type), diaphragm or bellows type with a 316 SS element as a minimum requirement. Switches will be adjustable over the full scale. Pressure switches for direct mounting will have a 1/2" NPT female connection. Diaphragm seals with capillary shall be provided where required. Whenever no suitable pressure switch can be found due to material or, over-range protection requirements etc., a 4 - 20 mA electronic transmitter will be used instead. Pressure switches for pneumatic signals will preferably have bellows measuring elements. Connections will be 1/4" NPT female. Pressure switches will have a minimum standard over-range protection of 130% of range and be capable of withstanding the full static design pressure of the system without loss of calibration. Switches will be snap acting hermetically sealed switches with contact rating in accordance with IEC 947-5-1 and relevant codes and standards. The switches type shall be SPDT type.

12.4 TRANSMITTERS

Transmitter measuring principles will be in accordance with the selected manufacturer's standards e.g. diffused silicon strain gauge, capacitance etc.

The transmitter will be of the "smart" (HART protocol) type with accuracy better than 0.2%. The sensing element material will be AISI 316 minimum.

Electronic transmitters will be furnished with test terminals and by-pass diode to facilitate field-testing without disconnection or connection of a field mounted signal indicator (MV-Meter) either integral with or remote from the transmitter. Transmitters will be reverse polarity protected.


Electronic transmitters will have a provision for checking zero and span on the output terminals while the transmitter is in service.

The manufacturer of each type of transmitter shall supply suitable communicator.

12.5 DIAPHRAGM SEALS AND CAPILLARIES

For measurement of viscous fluids, fluids containing solids, highly corrosive fluids or where temperature changes may influence the fluid conditions the use of remote diaphragm seals and capillaries may be considered. Capillaries for remote seal applications will be kept as short as possible and will not exceed 3 m in length.

Seals and capillaries will be considered to be an integral part of the instrument.

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13 TEMPERATURE INSTRUMENTS

13.1 THERMOWELLS

Standard length thermowells will be used. Thermowell will be solid machined and drilled from bar stock. They will be selected in accordance with the piping class.

Thermowells shall be flanged type, for connection size refer to Table #1.

13.2 THERMOCOUPLE ELEMENTS (T/C'S)

Thermocouples will be in accordance with IEC-60584; non-grounded hot junction type will be used for temperature measurement. RTD detectors will be used in preference to thermocouples for temperature ranges of -200 to 600°C . The following types of thermocouples may be used depending on the temperature range to be measured.

- Type K (chromel - alumel) -270 to 1372°C (Nickel-chrome/nickel-aluminum)
- Type R (platinum 13% rhodium-platinum) -0 to 1768°C
- Standard length thermocouples will be used. Thermocouple inserts will match the standard Thermowell diameter and length. Lagging extensions will be supplied as required. Connection heads to be metal type.
- Stainless steel sheathed mineral-insulated spring-loaded 2-wire type elements will be used. Special protection tube/sheathing and/or insulation will be used for temperatures above 800°C , saline environment and when hydrogen diffusion may be expected.
- For services where thermowells must be considered to be an obstacle in the process (clogging/turbulence), skin-type thermocouples may be considered. Skin-type thermocouples will be used to measure heater coil, reactor wall temperatures, as per process. Skin-type thermocouples will preferably be welded to the surface and as a minimum be spring-loaded or clamped. Open-air skin-thermocouple installations will be insulated. Skin-type thermocouples will not generally be used for shutdown purposes.

13.3 RESISTANCE-TYPE ELEMENTS (RTD'S)

Platinum-type resistance elements, with characteristics in accordance with IEC 60751 (resistance 100 ohms at 0°C), will be used in preference to thermocouples for ranges between of -200 to 600°C


- Standard length elements will be used. RTD inserts will match the standard Thermowell diameter and length. Lagging extensions will be supplied as required. Connection heads to be metal type.
- Stainless steel sheathed mineral-insulated spring-loaded 3-wire type elements will be used.

13.4 THERMISTOR AND SEMICONDUCTOR SYSTEMS

These systems will not be used, except for motor windings when specified.

13.5 BIMETALLIC SYSTEMS

Dial thermometers for local use will be of the bimetallic type with adjustable gland and dial. Dial thermometers will fit the standard Thermowell diameter and lengths.

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Thermometers will be heavy duty, industrial type. Nominal dial size will be 100 mm (4"). Case to be stainless steel with back shafts and zero adjustment. The movement will be of corrosion and wear-resistant material, e.g. stainless steel/nylon-coated, independent of the housing. Bimetallic-operated switches may only be used in non-critical services such as for tank heater. Bimetallic switches are not permitted for process alarm and shutdown functions.

13.6 TRANSMITTERS

- Head mounted mV/I (T/C) or ohm/I (RTD) converters will be used as much as possible. The required degree of accessibility will be strictly adhered to.
- In cases head mounting is not possible or when indicator is required, where, the converter will be installed locally, close to the measuring element or in the place where local reading is required.
- Cold junction compensation will be provided for mV/I (T/C) converters. Transmitters will be of the "smart" type with accuracy better than 0.2%. Electronic transmitters will be furnished with test terminals and by-pass diode to facilitate field-testing without disconnection or connection of a field mounted signal indicator (MV-Meter) either integral with or remote from the transmitter. Transmitters will be reverse polarity protected. Electronic transmitters will have a provision for checking zero and span on the output terminals while the transmitter is in service.

13.7 SPECIAL APPLICATIONS


Temperature-measurement on rotating equipment:

- A temperature rise in the bearings of rotating machinery, is an indication of approaching problems.
- In thrust bearing, a temperature rise indicates inadequate cooling of bearings or excessive wear.
- Sensors, extension wire, terminal heads, cables,
- boxes, etc., must be capable of withstanding considerable mechanical stress, weather exposure, fire-protection sprinklers, equipment washing etc.

13.8 REMARKS

Local temperature control (thermo-valve) is not recommended. Local recording will not be done.

Further detailed data and application for each type of instrument will be provided when specifying the temperature instruments.

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14. CONTROL VALVES

14.1. GENERAL REQUIREMENT

Supplier quotation shall include a detailed specification sheet for each control valve, which shall provide all the details regarding type, construction materials, noise, etc... and any other valve accessories.

This specification is general. If exceptions, variation or additions are required in individual cases they will be shown on specification/data sheets for control valves.

Any proposed deviation from control valve specification /data sheets or this general specification, must be approved in writing by client / contractor.

14.2. CONTROL VALVES SELECTION

14.2.1. Required valves capacities

Required valve capacities shall be referred to in terms of CV coefficients and selected CV value.

14.2.2. Valve sizing

A calculation note / sheet for the sizing of each control valve shall be supplied.

Calculation of the control valves shall be based on ISA S 70.1 "Control valve sizing equations".

The control valve capacities in term if CV shown on the purchaser's data sheets has been arrived at using the formula given in the standard ISA-S-70.1, "Control Valve Sizing Equations". In case of Vendor sizing formula differs from this. Purchaser should be provided with the same.

In general, control valves shall be sized so that the valve opening is as following:

At maximum flow-about 90% open

At normal flow about 70% open

At minimum flow about 20% open

Rangeability of valves shall be 30:1 unless otherwise specified.

Butterfly valves shall be sized assuming a 70° opening at max. flow in general.

Non preferred valve body sizes are 1/4", 3/4", 1/2", 3/2", 4/2", 6", 7" and 9".

Vendor shall furnish calculation sheets or computer print out for sizing.


14.2.3. By pass & Block Valve

Block & Bypass valves are mostly manifolded in piping system to allow manual manipulation of flow through systems when control valves are not in service. Bypass valves in sizes of 4 inches or less must be globe valves.

They should have a capacity at least equal to the calculated Cv of control valve.

Block and Bypass valves should be avoided in the following cases:

- On hydrogen service
- Around 3-way valves
- Around self-acting steam pressure reducing valves
- Around control valves forming part of a protection system

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14.2.4. Valve type

Globe body type control valves shall generally be chosen for standard use (due to bench test requirement).

Butterfly control valves shall be considered where:

- When available pressure drop is low
- For large line sizes
- Where allowed in piping specification

Shut off valves shall be generally selected as Ball type except for high temperature services.

Valves using special technology shall be submitted to the Client / Contractor for approval. (Clearly noted on P&ID)

For small size or special cases (low noise, etc...) other types shall also be considered

14.3. GENERAL VALVE CONSTRUCTION REQUIREMENTS

14.3.1. Flange Finish Facing

Minimum body and connection rating shall be 300 lbs Raised Face (RF). Flange facing shall be chosen in accordance with classes of the piping specification. Contact finish facing shall be as follows:

Spiral serrated finish (conventional symbols: RFD)

Roughness: Ra 6.3 μm to 12.5 μm (250 μin to 500 μin AARH)

Smooth finish (conventional symbols: RFC)

Roughness: Ra 3.2 μm to 6.3 μm (125 μin to 250 μin AARH)

For RTJ flanges, ring joints will be supplied by others

14.3.2. Accessories

Limit switches if any shall be proximity type with NAMUR standard.

All control valves shall be normally fitted with an electropneumatic positioners.

All accessories specified on data sheets shall be supplied, installed, connected and wired to the valve by the valve supplier.

All tubing shall be in 316 Stainless steel.

Compression fittings shall be in SS 316 Stainless steel double ferrule design.

Pneumatic connections shall be 1/4" NPT female minimum, or bigger if stated by supplier for flow considerations.

Electrical connections shall be:

- M20 x 1.0 ISO for positioner
- M20 x 1.0 ISO solenoid valve

All positioners shall have pneumatic gauges, graduated in bar, two (2) in case of electro-pneumatic positioners, three (3) in case of pneumatic positioners if any. Dial size shall be as per Vendor standard.


Solenoid valves shall be provided where specified on data sheets and shall be NAMUR type.

Valve trim shall be stainless steel with Viton or similar resilient seat to provide tight shutoff.

Solenoid valves shall be normally energized. Coils shall be suitable for permanent energizing.

Low power coils shall be proposed (maximum acceptable is 10 W). Electrical power for solenoid valves coils will be 24 VDC.

Solenoid valves shall be suitable for instrument air Service.

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When specified, solenoid valves shall be provided with manual reset facilities. The manual reset facilities shall prevent automatic reset but allow local manual reset of individual valves on restoration of electrical power (i.e. reset of electrical logic), and local shutdown.

10. PRESSURE RELIEF VALVES

Pressure relief valves shall be full-bore type.

Relief valves shall be designed in accordance to the requirements of API-RP-597.

Lifting lever shall be provided for steam and air services.

Conventional valves shall be used for constant back pressure applications while pressure balanced valves with stainless steel bellows shall be used for varying back pressure application where the back pressure exceeds 10% of the set pressure of the valve.

Connection of Pressure relief valves shall be flanged type while the connections of thermal relief valves shall be screwed type.

Steel bodies with stainless steel trim shall be used for all pressure relieving devices unless piping specification requires alloy construction.

Rupture Disc may be used in lieu of or in combination with safety and relief valves.

Combination of rupture disc and pressure safety valve shall be used for slurry or highly corrosive services.

Rupture discs shall be provided with bursting alarm device. Combination of rupture disc and relief valves shall include a pressure switch installed between disc and valve to alarm a leakage or burst.

11. ANALYZERS

Process analyzers requiring sampling will be supplied pre-assembled with their own sampling and conditioning systems in open ladder type racks. Analyzer racks will be installed in analyzer houses.

Where possible analyzers will be of the on-line type.

When necessary analyzers will be provided with a fast loop system

Sample purge gas and analyzer vent gas will be properly vented to a safe area.

When applicable analyzer transmitters shall be of the "smart" type with accuracy better than 0.2% and have a 4-20 mA output to DCS.

All materials used shall be suitable for the sample stream and the surrounding atmosphere; AISI 304 / 316 shall be selected as minimum.

Whenever practical sample shall be returned to the process. Other methods of disposal shall ensure safety and pollution restrictions.

Field mounted analyzers shall be used for simple analyzers such as Conductivity, PH, density, etc.

Analyzers shall be in general installed in analyzer house that shall be weather proof, with air conditioning.

Sample Pressure reducers, conditioners, fast loops, and calibration gas cylinders shall be installed outside analyzer house.



Further detailed data and application for each type of analyzer will be provided when specifying the analyzers.

INSTRUMENT ON VESSEL	VESSEL CONNECTION	FIRST BLOCK VALVE	INSTRUMENT CONNECTION
External level instrument	2" flanged	2" flanged	2" flanged
Internal displacer level	2" flanged	-	-
External ball float level switch	2" flanged	-	2" flanged
Internal ball float level switch	2" flanged	-	2" flanged
Level guage on vessel	1" flanged	1" flanged	1" flanged
Level guage on standpipe	1" flanged	1" flanged	1" flanged
Magnetic level instrument	1" flanged	1" flanged	1" flanged
Dp cell on vessel (without diaphragm)	1" flanged	1" flanged	1/2" NPT
Dp cell on vessel (with diaphragm)	2" flanged	2" flanged	2" diaph.seal
Dp cell on standpipe(without diaphragm)	1" flanged	1" flanged	1/2" NPT
Dp cell on standpipe (with diaphragm)	2" flanged	2" flanged	2" diaph.seal
Dip tube level instrument	2" flanged	1" flanged	1/2" NPT
Pressure guage&transmitter(general case)	1" flanged	1" flanged	1/2" NPT
Pressure transmitter with diaphragm	2" flanged	2" flanged	2" flanged
Pressure gauge with diaphragm	2" flanged	2" flanged	2" flanged
Thermowell (general case)	1 1/2" flanged	-	-
D/P pressure transmitter /gauge(vessel)	1" flanged	1" flanged	1/2" NPT
Radar type level instrument	2" flanged	-	-

Table #1

PIPING	PIPE CONNECTION	FIRST BLOCK PIPE	INSTRUMENT CONNECTION
Orifice (Dp) flow-meter	1/2"	1/2"	1/2" NPT
Pitot tube	Acc.mfr.std	Acc.mfr.std	1/2" NPT
Pressure transmitter	1/2"	1/2"	1/2" NPT
Pressure gauge	1/2"	1/2"	1/2" NPT
Pressure transmitter with diaphragm	2" flanged	2" flanged	2" flanged
Pressure guage with diaphragm	2" flanged	2" flanged	2" flanged
Thermowell (flanged connection)	1 1/2" flanged	-	TE : 1/2" NPT
Thermowell (Threaded connection)	1" NPT	-	
Analyzer connection	1" flanged	Special valve	Acc.mfr.std
D/P pressure transmitter/guage	1/2"	1/2"	1/2"

Table #2