National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.1 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			PV-60104		
	2	P&ID No.	Piping Size	Piping Class	601	1"	
	3	Fluid	State		NITROGEN	VAPOROUS	
	4	Pressure rating	Piping material		150#	CS	
	5	Amb.Temp / Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification	Area		ZONE 1	000	
Flow Rate	7	Max.Continuous	Unit		200	Kg/h	
	8	Min.Continuous	Unit		100	Kg/h	
	9	Max.In Transients	Unit		-	Kg/h	
	10	Allow. with closed va	Unit		0	Kg/h	
Press	11	Norm . Op. upstr. Press	Unit		5	barg	
	12	Dp. At max. flowrate	Unit		1	barg	
	13	MAX SHUT OFF DIFF. PRESS	Unit		7	barg	
Temperature	14	Norm . upstr. Temp	Unit		AMB	◦C	
	15	Max . upstr. Temp	Unit			◦C	
Sp. Gr.	16	Gases vapours	Unit		6.8	kg/m3	
	17	Liquids	Unit			kg/m3	
	18	Mol.weight	Unit		28	Kg/Kmol	
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Max	Required		-	4	
	22	Selected Cv			VTA		
Body	23	Body type	Body material		Globe	CS	
	24	Size Body	Port		¾"	MFR. STD.	
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.	Lubricator		PTFE	VTA	
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type	Direction of action		Diaphragm	VTA	
	38	SERVICE	SIZE		Modulating	MFR. STD.	
	39	CLOSE AT	OPEN AT				
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating	Single/Double Acting		Modulating	Single	
I/P CONVERTER	43	MFR.	MODEL NO.		VTA	VTA	
	44	Type			I/P Positioner		
	45	Input signal	Out put signal		4-20mA + Hart	0.2 - 1barg	
	46	Air supply	Action dir.		3.5 barg	Direct	
	47	Positioner Protection	Certificate		IP 65	Eexia - IIB T6	
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage	Consumption		NA	NA	
	51	Protection	Certificate		NA	NA	
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland	Size/Qty		NA	NA	
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

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Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.2 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-60105		
	2	P&ID No.	Piping Size	Piping Class	601	2"	
	3	Fluid		State	STEAM		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	550		Kg/h
	8	Min.Continuous		Unit	200		Kg/h
	9	Max.In Transients		Unit	-		Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	7.5		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	10		barg
Temperature	14	Norm . upstr. Temp		Unit	175		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	4.3		kg/m
	17	Liquids		Unit			kg/m
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		17
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure		Min. Barg / Max. Barg		10	Barg
	28	Design Temperature		Min. °C / Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.3 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-60107		
	2	P&ID No.	Piping Size	Piping Class	601	2"	
	3	Fluid		State	HEXANE CHILLD		LIQUID
	4	Pressure rating		Piping material	150#		SS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	9500		Kg/h
	8	Min.Continuous		Unit	3600		Kg/h
	9	Max.In Transients		Unit	-		Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	4.2		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	7		barg
Temperature	14	Norm . upstr. Temp		Unit	-30		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	705		kg/m3
	18	Mol.weight		Unit	86		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		23
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		SS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.4 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-60108		
	2	P&ID No.	Piping Size	Piping Class	603	2"	
	3	Fluid		State	STEAM		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	500		Kg/h
	8	Min.Continuous		Unit	200		Kg/h
	9	Max.In Transients		Unit	-		Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	7.5		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	10		barg
Temperature	14	Norm . upstr. Temp		Unit	175		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	4.3		kg/m3
	17	Liquids		Unit			kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		16
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.5 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-70101		
	2	P&ID No.	Piping Size	Piping Class	701	2"	
	3	Fluid		State	STEAM		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	600		Kg/h
	8	Min.Continuous		Unit	230		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	7.5		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	10		barg
Temperature	14	Norm . upstr. Temp		Unit	175		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	4.3		kg/m3
	17	Liquids		Unit			kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		19
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure		Min. Barg / Max. Barg		10	Barg
	28	Design Temperature		Min. °C / Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET | SHEET N.6 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			FV-70101		
	2	P&ID No.	Piping Size	Piping Class	701	½"	
	3	Fluid		State	30%w. NaOH/WATER		LIQUID
	4	Pressure rating		Piping material	150#		SS - 304
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	800		Kg/h
	8	Min.Continuous		Unit	320		Kg/h
	9	Max.In Transients		Unit	-		Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	3.5		barg
	12	Dp. At max. flowrate		Unit	1		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	5		barg
Temperature	14	Norm . upstr. Temp		Unit	20		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	1328		kg/m3
	18	Mol.weight		Unit	~29.3		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		1.2
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		SS - 304
	24	Size Body		Port	½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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PROCESS DATA SHEET

SHEET N.7 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-70102		
	2	P&ID No.	Piping Size	Piping Class	701	2"	
	3	Fluid		State	STEAM		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	600		Kg/h
	8	Min.Continuous		Unit	230		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	7.5		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	10		barg
Temperature	14	Norm . upstr. Temp		Unit	175		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	4.3		kg/m3
	17	Liquids		Unit			kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max		Required	-		19
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure		Min. Barg / Max. Barg		10	Barg
	28	Design Temperature		Min. °C / Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.8 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-70103		
	2	P&ID No.	Piping Size	Piping Class	701	2"	
	3	Fluid		State	COOLING WATER		LIQUID
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	15000		Kg/h
	8	Min.Continuous		Unit	5600		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	4.5		barg
	12	Dp. At max. flowrate		Unit	0.8		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	6.5		barg
Temperature	14	Norm . upstr. Temp		Unit	20		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	1000		kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		24
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	2"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			Open		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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National Petrochemical Company
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SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.9 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-70201		
	2	P&ID No.	Piping Size	Piping Class	702	2"	
	3	Fluid		State	STEAM		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	600		Kg/h
	8	Min.Continuous		Unit	230		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	7.5		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	10		barg
Temperature	14	Norm . upstr. Temp		Unit	175		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	4.3		kg/m3
	17	Liquids		Unit			kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max		Required	-		19
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure		Min. Barg / Max. Barg		10	Barg
	28	Design Temperature		Min. °C / Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.10 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-70202		
	2	P&ID No.	Piping Size	Piping Class	702	2"	
	3	Fluid	State		STEAM	VAPOROUS	
	4	Pressure rating	Piping material		150#	CS	
	5	Amb.Temp / Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification	Area		ZONE 1	000	
Flow Rate	7	Max.Continuous	Unit		600	Kg/h	
	8	Min.Continuous	Unit		230	Kg/h	
	9	Max.In Transients	Unit			Kg/h	
	10	Allow. with closed va	Unit		0	Kg/h	
Press	11	Norm . Op. upstr. Press	Unit		7.5	barg	
	12	Dp. At max. flowrate	Unit		0.5	barg	
	13	MAX SHUT OFF DIFF. PRESS	Unit		10	barg	
Temperature	14	Norm . upstr. Temp	Unit		175	◦C	
	15	Max . upstr. Temp	Unit			◦C	
Sp. Gr.	16	Gases vapours	Unit		4.3	kg/m3	
	17	Liquids	Unit			kg/m3	
	18	Mol.weight	Unit		18	Kg/Kmol	
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max	Required		-	19	
	22	Selected Cv			VTA		
Body	23	Body type	Body material		Globe	CS	
	24	Size Body	Port		1½"	MFR. STD.	
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.	Lubricator		PTFE	VTA	
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type	Direction of action		Diaphragm	VTA	
	38	SERVICE	SIZE		Modulating	MFR. STD.	
	39	CLOSE AT	OPEN AT				
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating	Single/Double Acting		Modulating	Single	
I/P CONVERTER	43	MFR.	MODEL NO.		VTA	VTA	
	44	Type			I/P Positioner		
	45	Input signal	Out put signal		4-20mA + Hart	0.2 - 1barg	
	46	Air supply	Action dir.		3.5 barg	Direct	
	47	Positioner Protection	Certificate		IP 65	Eexia - IIB T6	
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage	Consumption		NA	NA	
	51	Protection	Certificate		NA	NA	
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland	Size/Qty		NA	NA	
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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PROCESS DATA SHEET

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Control Valve Data Sheet

General Data	1	Tag No.			TV-70203		
	2	P&ID No.	Piping Size	Piping Class	702	2"	
	3	Fluid		State	COOLING WATER		LIQUID
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	15000		Kg/h
	8	Min.Continuous		Unit	5600		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	4.5		barg
	12	Dp. At max. flowrate		Unit	0.8		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	6.5		barg
Temperature	14	Norm . upstr. Temp		Unit	20		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	1000		kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max		Required	-		24
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	2"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			Open		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.12 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-80101		
	2	P&ID No.	Piping Size	Piping Class	801	2"	
	3	Fluid		State	COOLING WATER		LIQUID
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	11100		Kg/h
	8	Min.Continuous		Unit	4200		Kg/h
	9	Max.In Transients		Unit	-		Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	4.5		barg
	12	Dp. At max. flowrate		Unit	0.8		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	6.5		barg
Temperature	14	Norm . upstr. Temp		Unit	20		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	1000		kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		18
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure		Min. Barg / Max. Barg		10	Barg
	28	Design Temperature		Min. °C / Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			Open		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

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PROCESS DATA SHEET

SHEET N.13 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			LV-80102		
	2	P&ID No.	Piping Size	Piping Class	801	½"	
	3	Fluid		State	HEXANE		LIQUID
	4	Pressure rating		Piping material	150#		SS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	740		Kg/h
	8	Min.Continuous		Unit	300		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	1.4		barg
	12	Dp. At max. flowrate		Unit	0.8		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	4		barg
Temperature	14	Norm . upstr. Temp		Unit	30		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	750		kg/m3
	18	Mol.weight		Unit	~86		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max		Required	-		1.5
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		SS
	24	Size Body		Port	3/8"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

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Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.14 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			FV-80201		
	2	P&ID No.	Piping Size	Piping Class	802	¾"	
	3	Fluid	State		HEXANE	LIQUID	
	4	Pressure rating	Piping material		150#	SS - 304	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification	Area		ZONE 1	000	
Flow Rate	7	Max.Continuous	Unit		800	Kg/h	
	8	Min.Continuous	Unit		300	Kg/h	
	9	Max.In Transients	Unit			Kg/h	
	10	Allow. with closed va	Unit		0	Kg/h	
Press	11	Norm . Op. upstr. Press	Unit		3.5	barg	
	12	Dp. At max. flowrate	Unit		0.5	barg	
	13	MAX SHUT OFF DIFF. PRESS	Unit		5	barg	
Temperature	14	Norm . upstr. Temp	Unit		25	◦C	
	15	Max . upstr. Temp	Unit			◦C	
Sp. Gr.	16	Gases vapours	Unit			kg/m3	
	17	Liquids	Unit		650	kg/m3	
	18	Mol.weight	Unit		86	Kg/Kmol	
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Max	Required		-	2	
	22	Selected Cv			VTA		
Body	23	Body type	Body material		Globe	SS - 304	
	24	Size Body	Port		¾"	MFR. STD.	
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.	Lubricator		PTFE	VTA	
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type	Direction of action		Diaphragm	VTA	
	38	SERVICE	SIZE		Modulating	MFR. STD.	
	39	CLOSE AT	OPEN AT				
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating	Single/Double Acting		Modulating	Single	
I/P CONVERTER	43	MFR.	MODEL NO.		VTA	VTA	
	44	Type			I/P Positioner		
	45	Input signal	Out put signal		4-20mA + Hart	0.2 - 1barg	
	46	Air supply	Action dir.		3.5 barg	Direct	
	47	Positioner Protection	Certificate		IP 65	Eexia - IIB T6	
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage	Consumption		NA	NA	
	51	Protection	Certificate		NA	NA	
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland	Size/Qty		NA	NA	
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.15 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-80201		
	2	P&ID No.	Piping Size	Piping Class	802	1"	
	3	Fluid	State		STEAM	VAPOROUS	
	4	Pressure rating	Piping material		150#	CS	
	5	Amb.Temp / Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification	Area		ZONE 1	000	
Flow Rate	7	Max.Continuous	Unit		125	Kg/h	
	8	Min.Continuous	Unit		50	Kg/h	
	9	Max.In Transients	Unit			Kg/h	
	10	Allow. with closed va	Unit		0	Kg/h	
Press	11	Norm . Op. upstr. Press	Unit		7.5	barg	
	12	Dp. At max. flowrate	Unit		0.5	barg	
	13	MAX SHUT OFF DIFF. PRESS	Unit		10	barg	
Temperature	14	Norm . upstr. Temp	Unit		175	◦C	
	15	Max . upstr. Temp	Unit			◦C	
Sp. Gr.	16	Gases vapours	Unit		4.3	kg/m3	
	17	Liquids	Unit			kg/m3	
	18	Mol.weight	Unit		18	Kg/Kmol	
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max	Required		-	4	
	22	Selected Cv			VTA		
Body	23	Body type	Body material		Globe	CS	
	24	Size Body	Port		¾"	MFR. STD.	
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.	Lubricator		PTFE	VTA	
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type	Direction of action		Diaphragm	VTA	
	38	SERVICE	SIZE		Modulating	MFR. STD.	
	39	CLOSE AT	OPEN AT				
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating	Single/Double Acting		Modulating	Single	
I/P CONVERTER	43	MFR.	MODEL NO.		VTA	VTA	
	44	Type			I/P Positioner		
	45	Input signal	Out put signal		4-20mA + Hart	0.2 - 1barg	
	46	Air supply	Action dir.		3.5 barg	Direct	
	47	Positioner Protection	Certificate		IP 65	Eexia - IIB T6	
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage	Consumption		NA	NA	
	51	Protection	Certificate		NA	NA	
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland	Size/Qty		NA	NA	
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.16 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-80203		
	2	P&ID No.	Piping Size	Piping Class	802	2½"	
	3	Fluid		State	COOLING WATER		LIQUID
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	14100		Kg/h
	8	Min.Continuous		Unit	6000		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	4.5		barg
	12	Dp. At max. flowrate		Unit	0.8		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	6.5		barg
Temperature	14	Norm . upstr. Temp		Unit	20		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit			kg/m3
	17	Liquids		Unit	1000		kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max		Required	-		23
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	2"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			Open		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.17 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-80204		
	2	P&ID No.	Piping Size	Piping Class	802	2"	
	3	Fluid		State	STEAM		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	550		Kg/h
	8	Min.Continuous		Unit	230		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	7.5		barg
	12	Dp. At max. flowrate		Unit	0.5		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	10		barg
Temperature	14	Norm . upstr. Temp		Unit	175		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	4.3		kg/m3
	17	Liquids		Unit			kg/m3
	18	Mol.weight		Unit	18		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Max		Required	-		18
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	1½"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

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National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

DOCUMENT NUMBER

PROCESS DATA SHEET

SHEET N.18 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			TV-80206		
	2	P&ID No.	Piping Size	Piping Class	802	3"	
	3	Fluid	State		COOLING WATER	LIQUID	
	4	Pressure rating	Piping material		150#	CS	
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification	Area		ZONE 1	000	
Flow Rate	7	Max.Continuous	Unit		22000	Kg/h	
	8	Min.Continuous	Unit		10000	Kg/h	
	9	Max.In Transients	Unit			Kg/h	
	10	Allow. with closed va	Unit		0	Kg/h	
Press	11	Norm . Op. upstr. Press	Unit		4.5	barg	
	12	Dp. At max. flowrate	Unit		0.8	barg	
	13	MAX SHUT OFF DIFF. PRESS	Unit		6.5	barg	
Temperature	14	Norm . upstr. Temp	Unit		20	◦C	
	15	Max . upstr. Temp	Unit			◦C	
Sp. Gr.	16	Gases vapours	Unit			kg/m3	
	17	Liquids	Unit		1000	kg/m3	
	18	Mol.weight	Unit		18	Kg/Kmol	
Visc.	19	Op. visc. (when>5mpa's)			1		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max	Required		-	32	
	22	Selected Cv			VTA		
Body	23	Body type	Body material		Globe	CS	
	24	Size Body	Port		2½"	MFR. STD.	
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.	Lubricator		PTFE	VTA	
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type	Direction of action		Diaphragm	VTA	
	38	SERVICE	SIZE		Modulating	MFR. STD.	
	39	CLOSE AT	OPEN AT				
	40	Fail Position			Open		
	41	Spring range			VTA		
	42	On-Off/Modulating	Single/Double Acting		Modulating	Single	
I/P CONVERTER	43	MFR.	MODEL NO.		VTA	VTA	
	44	Type			I/P Positioner		
	45	Input signal	Out put signal		4-20mA + Hart	0.2 - 1barg	
	46	Air supply	Action dir.		3.5 barg	Direct	
	47	Positioner Protection	Certificate		IP 65	Eexia - IIB T6	
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage	Consumption		NA	NA	
	51	Protection	Certificate		NA	NA	
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland	Size/Qty		NA	NA	
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

National Petrochemical Company
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SAZ CATALYST PLANT

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PROCESS DATA SHEET

SHEET N.19 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			PV-90203		
	2	P&ID No.	Piping Size	Piping Class	902	1"	
	3	Fluid	State		NITROGEN	VAPOROUS	
	4	Pressure rating	Piping material		150#	CS	
	5	Amb.Temp / Amb Press	Amb.Rel.Humidity Max		(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification	Area		ZONE 1	000	
Flow Rate	7	Max.Continuous	Unit		100	Kg/h	
	8	Min.Continuous	Unit		50	Kg/h	
	9	Max.In Transients	Unit			Kg/h	
	10	Allow. with closed va	Unit		0	Kg/h	
Press	11	Norm . Op. upstr. Press	Unit		5	barg	
	12	Dp. At max. flowrate	Unit		1	barg	
	13	MAX SHUT OFF DIFF. PRESS	Unit		7	barg	
Temperature	14	Norm . upstr. Temp	Unit		AMB	◦C	
	15	Max . upstr. Temp	Unit			◦C	
Sp. Gr.	16	Gases vapours	Unit		6.8	kg/m3	
	17	Liquids	Unit			kg/m3	
	18	Mol.weight	Unit		28	Kg/Kmol	
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max	Required		-	2	
	22	Selected Cv			VTA		
Body	23	Body type	Body material		Globe	CS	
	24	Size Body	Port		¾"	MFR. STD.	
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.	Lubricator		PTFE	VTA	
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type	Direction of action		Diaphragm	VTA	
	38	SERVICE	SIZE		Modulating	MFR. STD.	
	39	CLOSE AT	OPEN AT				
	40	Fail Position			CLOSE		
	41	Spring range			VTA		
	42	On-Off/Modulating	Single/Double Acting		Modulating	Single	
I/P CONVERTER	43	MFR.	MODEL NO.		VTA	VTA	
	44	Type			I/P Positioner		
	45	Input signal	Out put signal		4-20mA + Hart	0.2 - 1barg	
	46	Air supply	Action dir.		3.5 barg	Direct	
	47	Positioner Protection	Certificate		IP 65	Eexia - IIB T6	
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage	Consumption		NA	NA	
	51	Protection	Certificate		NA	NA	
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland	Size/Qty		NA	NA	
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes: 1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

National Petrochemical Company
Petrochemical Research & Technology Company

SAZ CATALYST PLANT

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PROCESS DATA SHEET

SHEET N.20 OF 20 | ISSUE 1

Control Valve Data Sheet

General Data	1	Tag No.			PV-90204		
	2	P&ID No.	Piping Size	Piping Class	902	1"	
	3	Fluid		State	WASTE GAS		VAPOROUS
	4	Pressure rating		Piping material	150#		CS
	5	Amb.Temp	Amb Press	Amb.Rel.Humidity Max	(-28)°C / 44°C	0.82 Bara	0.86
	6	Area Classification		Area	ZONE 1		000
Flow Rate	7	Max.Continuous		Unit	100		Kg/h
	8	Min.Continuous		Unit	50		Kg/h
	9	Max.In Transients		Unit			Kg/h
	10	Allow. with closed va		Unit	0		Kg/h
Press	11	Norm . Op. upstr. Press		Unit	5		barg
	12	Dp. At max. flowrate		Unit	1		barg
	13	MAX SHUT OFF DIFF. PRESS		Unit	7		barg
Temperature	14	Norm . upstr. Temp		Unit	AMB		◦C
	15	Max . upstr. Temp		Unit			◦C
Sp. Gr.	16	Gases vapours		Unit	~4-6		kg/m3
	17	Liquids		Unit			kg/m3
	18	Mol.weight		Unit	~86		Kg/Kmol
Visc.	19	Op. visc. (when>5mpa's)			0.0148		
	20	Solid in suspension			No		
Cv	21	Min/Norm/Max		Required	-		2
	22	Selected Cv			VTA		
Body	23	Body type		Body material	Globe		CS
	24	Size Body		Port	¾"		MFR. STD.
	25	Guiding / No. of Port					
	26	Max. Allowable Sound Level (dBA)			85db		
	27	Design Pressure	Min. Barg	Max. Barg		10	Barg
	28	Design Temperature	Min. °C	Max. °C	(-30)	230	◦C
	29	Valve end con. & rating			Flange 150#		
	30	Packing mat.		Lubricator	PTFE		VTA
	31	Flow direction			FTO		
	32	Bonnet type			Standard		
	33	SEAT Leakage Class ANSI			IV		
Trim	34	TRIM FORM			Linear		
	35	TRIM MATERIAL: SEAT / PLUG			316 SS		
	36	TRIM MATERIAL: SHAFT			316 SS		
Actuator	37	Type		Direction of action	Diaphragm		VTA
	38	SERVICE		SIZE	Modulating		MFR. STD.
	39	CLOSE AT		OPEN AT			
	40	Fail Position			Open		
	41	Spring range			VTA		
	42	On-Off/Modulating		Single/Double Acting	Modulating		Single
I/P CONVERTER	43	MFR.		MODEL NO.	VTA		VTA
	44	Type			I/P Positioner		
	45	Input signal		Out put signal	4-20mA + Hart		0.2 - 1barg
	46	Air supply		Action dir.	3.5 barg		Direct
	47	Positioner Protection		Certificate	IP 65		Eexia - IIB T6
Solenoid Valve	48	Type			NA		
	49	Tag No.			NA		
	50	Supply Voltage		Consumption	NA		NA
	51	Protection		Certificate	NA		NA
Accessories	52	Pressure gauge and filter			YES		
	53	Manual Control Wheel			NA		
	54	Cable Gland		Size/Qty	NA		NA
	55	Electrical Conection			M20 * 1.5mm ISO		
	56	Tubing & Conection			SS Tube 1/4"		
	57	Switch	Protection	Certificate	NA	NA	YES

Notes:

1 - The valve shall be sized by the vendor. Valve sizing procedure (software) shall be submitted by vendor.

2 - composition of waste gas: Hexane 99%w.

No.	Rev	Date	Issued For	Prepared	Checked	Approved

National Petrochemical Company
Petrochemical Research & Technology Company

Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-201	1 pieces

GENERAL	1	Tag Number			FV-201		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/4" TUBE		
	4	Pipe Size outlet inch	schedule		1/4" TUBE		
	5	Piping Class Rating	Material		300	STAINLESS STEEL TUBE	
	6	Line No.					
	7	Service			HYDROGEN TO R-201		
PROCESS CONDITIONS	8	Fluid	State		HYDROGEN	GAS	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	2.0	2.0	2.0
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	20	35	50
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			S.S 316L		
	31	Valve Size		inch	14" TUBE		
	32	Valve End Connection & Rating			1/4" - 300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Petrochemical Research & Technology Company

Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-205	1 pieces

GENERAL	1	Tag Number			FV-205			
	2	P & ID No.						
	3	Pipe Size inlet inch	schedule		1/2" TUBE			
	4	Pipe Size outlet inch	schedule		1/2" TUBE			
	5	Piping Class Rating	Material		300		STAINLESS STEEL TUBE	
	6	Line No.						
	7	Service			HEXANE TO R-201			
PROCESS CONDITIONS	8	Fluid	State		HEXANE		LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**	
	10	Molecular Weight		g/mol	86.18	86.18	86.18	
	11	Viscosity		cP	0.3	0.3	0.3	
	12	CP/CV		1				
	13	Compressibility						
	14	SP.Gravity@standard condition						
	15	Vapour Pressure		Bar				
	16	Critical Pressure		Bar				
	17	Flow Rate		Kg/h	20	35	50	
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT	
	19	Inlet Pressure		Bar (g)	13	12	11	
	20	Outlet pressure		Bar	8.5	8.5	8.5	
	21	Calculated CV		GPM(US)	VTA	VTA	VTA	
	22	Travel		%		VTA		
	23	Selected CV						
	24	Max. Shut Off DP		Bar				
	25	Design pressure		Bar (g)	20			
	26	Design temp.		°C	60			
	27	Allowable Noise Level		dBA				
	28	Air Fail Position			CLOSE			
Body	29	Body Type			GLOBE VALVE			
	30	Body Material			S.S 316L			
	31	Valve Size		inch	1/2" TUBE			
	32	Valve End Connection & Rating			1/2" - 300			
	33	Plug & Trim Material						
	34	Plug Dia.						
	35	Characteristic						
	36	Seat Leakage Class			IV			
	37	Packing Mat.			**PTFE**			
	38	Lubricator						
	39	Bonnet Type						
Actuator	40	Type			**Diaphragm**			
	41	Direction Of action						
	42	Spring range						
Positioner	43	Type			Electro-Pneumatic			
	44	Area Classification	Explosion Protection		DIVISION 2		EExiaIICT3	
	45	Enclosure			IP65			
	46	Input Signal			4-20 mA (HART)			
	47	Air Supply Min.	Oper.	Design Unit	4	6	10	barg
Accessories	48	Pressure Reducing Valve			Yes			
	49	Pressure Gauge			Yes			
	50	Air Connection						
	51	Electrical Connection						
	52	Hand Wheel						
	53	Solenoid Valve	Tag No.	Voltage				
	54	Position Switch	Tag No.	Type				

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-203	1 pieces

GENERAL	1	Tag Number			FV-203		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2" TUBE		
	4	Pipe Size outlet inch	schedule		1/2" TUBE		
	5	Piping Class Rating	Material		300	SS TUBE 1/2"	
	6	Line No.					
	7	Service			PROPYLENE TO R-201		
PROCESS CONDITIONS	8	Fluid	State		PROPYLENE	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	42.10	42.10	42.10
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	0.4	4	8
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12.0	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%		VTA	
	23	Selected CV					
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			S.S 316L		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2" TUBE-300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-204	1 pieces

GENERAL	1	Tag Number			FV-204		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2" TUBE		
	4	Pipe Size outlet inch	schedule		1/2" TUBE		
	5	Piping Class Rating	Material		300	STAINLESS STEEL TUBE	
	6	Line No.					
	7	Service			BUTENE TO R-201		
PROCESS CONDITIONS	8	Fluid	State		BUTENE	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	56.10	56.10	56.10
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	2	8	12
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	0.002	0.002	0.002
	22	Travel		%			
	23	Selected CV					
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			SS 316L		
	31	Valve Size		inch	1/4" TUBE		
	32	Valve End Connection & Rating			1/4" TUBE-300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-205	1 pieces

GENERAL	1	Tag Number			FV-205			
	2	P & ID No.						
	3	Pipe Size inlet inch	schedule		1/2" TUBE			
	4	Pipe Size outlet inch	schedule		1/2" TUBE			
	5	Piping Class Rating	Material		300		STAINLESS STEEL TUBE	
	6	Line No.						
	7	Service			HEXANE TO R-201			
PROCESS CONDITIONS	8	Fluid	State		HEXANE		LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**	
	10	Molecular Weight		g/mol	86.18	86.18	86.18	
	11	Viscosity		cP	0.3	0.3	0.3	
	12	CP/CV		1				
	13	Compressibility						
	14	SP.Gravity@standard condition						
	15	Vapour Pressure		Bar				
	16	Critical Pressure		Bar				
	17	Flow Rate		Kg/h	20	35	50	
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT	
	19	Inlet Pressure		Bar (g)	13	12	11	
	20	Outlet pressure		Bar	8.5	8.5	8.5	
	21	Calculated CV		GPM(US)	VTA	VTA	VTA	
	22	Travel		%		VTA		
	23	Selected CV						
	24	Max. Shut Off DP		Bar				
	25	Design pressure		Bar (g)	20			
	26	Design temp.		°C	60			
	27	Allowable Noise Level		dBA				
	28	Air Fail Position			CLOSE			
Body	29	Body Type			GLOBE VALVE			
	30	Body Material			S.S 316L			
	31	Valve Size		inch	1/2" TUBE			
	32	Valve End Connection & Rating			1/2" - 300			
	33	Plug & Trim Material						
	34	Plug Dia.						
	35	Characteristic						
	36	Seat Leakage Class			IV			
	37	Packing Mat.			**PTFE**			
	38	Lubricator						
	39	Bonnet Type						
Actuator	40	Type			**Diaphragm**			
	41	Direction Of action						
	42	Spring range						
Positioner	43	Type			Electro-Pneumatic			
	44	Area Classification	Explosion Protection		DIVISION 2		EExiaIICT3	
	45	Enclosure			IP65			
	46	Input Signal			4-20 mA (HART)			
	47	Air Supply Min.	Oper.	Design Unit	4	6	10	barg
Accessories	48	Pressure Reducing Valve			Yes			
	49	Pressure Gauge			Yes			
	50	Air Connection						
	51	Electrical Connection						
	52	Hand Wheel						
	53	Solenoid Valve	Tag No.	Voltage				
	54	Position Switch	Tag No.	Type				

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
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Designation	CONTROL VALVES	Item No.:	No. req.	FV-206	1 pieces

GENERAL	1	Tag Number			FV-206		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/4" TUBE		
	4	Pipe Size outlet inch	schedule		1/4" TUBE		
	5	Piping Class Rating	Material		300	STAINLESS STEEL TUBE	
	6	Line No.					
	7	Service			HYDROGEN TO R-202		
PROCESS CONDITIONS	8	Fluid	State		HYDROGEN	GAS	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	2.0	2.0	2.0
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	20	35	50
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			S.S 316L		
	31	Valve Size		inch	14" TUBE		
	32	Valve End Connection & Rating			1/4" - 300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
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Designation	CONTROL VALVES	Item No.:	No. req.	FV-207	1 pieces

GENERAL	1	Tag Number			FV-207		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2" TUBE		
	4	Pipe Size outlet inch	schedule		1/2" TUBE		
	5	Piping Class Rating	Material		300	SS TUBE 1/2"	
	6	Line No.					
	7	Service			ETHYLENE TO R-202		
PROCESS CONDITIONS	8	Fluid	State		ETHYLENE TO R-202	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	28.0	28.0	28.0
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	2	8	12
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12.0	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			S.S 316L		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2" TUBE-300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-208	1 pieces

GENERAL	1	Tag Number			FV-208		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2" TUBE		
	4	Pipe Size outlet inch	schedule		1/2" TUBE		
	5	Piping Class Rating	Material		300	SS TUBE 1/2"	
	6	Line No.					
	7	Service			PROPYLENE TO R-202		
PROCESS CONDITIONS	8	Fluid	State		PROPYLENE	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	42.10	42.10	42.10
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	0.4	4	8
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12.0	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			S.S 316L		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2" TUBE-300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-209	1 pieces

GENERAL	1	Tag Number			FV-209		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2" TUBE		
	4	Pipe Size outlet inch	schedule		1/2" TUBE		
	5	Piping Class Rating	Material		300	STAINLESS STEEL TUBE	
	6	Line No.					
	7	Service			BUTENE TO R-202		
PROCESS CONDITIONS	8	Fluid	State		BUTENE	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	56.10	56.10	56.10
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	2	8	12
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT
	19	Inlet Pressure		Bar (g)	12	12	12
	20	Outlet pressure		Bar	8.5	8.5	8.5
	21	Calculated CV		GPM(US)	0.002	0.002	0.002
	22	Travel		%			
	23	Selected CV					
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			SS 316L		
	31	Valve Size		inch	1/4" TUBE		
	32	Valve End Connection & Rating			1/4" TUBE-300		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	FV-210	1 pieces

GENERAL	1	Tag Number			FV-210			
	2	P & ID No.						
	3	Pipe Size inlet inch	schedule		1/2" TUBE			
	4	Pipe Size outlet inch	schedule		1/2" TUBE			
	5	Piping Class Rating	Material		300		STAINLESS STEEL TUBE	
	6	Line No.						
	7	Service			HEXANE TO R-202			
PROCESS CONDITIONS	8	Fluid	State		HEXANE		LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**	
	10	Molecular Weight		g/mol	86.18	86.18	86.18	
	11	Viscosity		cP	0.3	0.3	0.3	
	12	CP/CV		1				
	13	Compressibility						
	14	SP.Gravity@standard condition						
	15	Vapour Pressure		Bar				
	16	Critical Pressure		Bar				
	17	Flow Rate		Kg/h	20	35	50	
	18	Temperature		°C	AMBIENT	AMBIENT	AMBIENT	
	19	Inlet Pressure		Bar (g)	13	12	11	
	20	Outlet pressure		Bar	8.5	8.5	8.5	
	21	Calculated CV		GPM(US)	VTA	VTA	VTA	
	22	Travel		%				
	23	Selected CV			VTA			
	24	Max. Shut Off DP		Bar				
	25	Design pressure		Bar (g)	20			
	26	Design temp.		°C	60			
	27	Allowable Noise Level		dBA				
	28	Air Fail Position			CLOSE			
Body	29	Body Type			GLOBE VALVE			
	30	Body Material			S.S 316L			
	31	Valve Size		inch	1/2" TUBE			
	32	Valve End Connection & Rating			1/2" - 300			
	33	Plug & Trim Material						
	34	Plug Dia.						
	35	Characteristic						
	36	Seat Leakage Class			IV			
	37	Packing Mat.			**PTFE**			
	38	Lubricator						
	39	Bonnet Type						
Actuator	40	Type			**Diaphragm**			
	41	Direction Of action						
	42	Spring range						
Positioner	43	Type			Electro-Pneumatic			
	44	Area Classification	Explosion Protection		DIVISION 2		EExiaIICT3	
	45	Enclosure			IP65			
	46	Input Signal			4-20 mA (HART)			
	47	Air Supply Min.	Oper.	Design Unit	4	6	10	barg
Accessories	48	Pressure Reducing Valve			Yes			
	49	Pressure Gauge			Yes			
	50	Air Connection						
	51	Electrical Connection						
	52	Hand Wheel						
	53	Solenoid Valve	Tag No.	Voltage				
	54	Position Switch	Tag No.	Type				

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-104	1 pieces

GENERAL	1	Tag Number			TV-104		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2		
	4	Pipe Size outlet inch	schedule		1/2		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			COOLING WATER TO D-104		
PROCESS CONDITIONS	8	Fluid	State		WATER	LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP	1	1	1
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	1000	1500	2000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	7	5	3
	20	Outlet pressure		Bar	4.5	4	2
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-105	1 pieces

GENERAL	1	Tag Number			TV-105		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2		
	4	Pipe Size outlet inch	schedule		1/2		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			COOLING WATER TO D-102		
PROCESS CONDITIONS	8	Fluid	State		WATER	LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP	1	1	1
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	1000	1500	2000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	7	5	3
	20	Outlet pressure		Bar	4.5	4	2
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-201	1 pieces

GENERAL	1	Tag Number			TV-201		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2		
	4	Pipe Size outlet inch	schedule		1/2		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			STEAM TO R-201		
PROCESS CONDITIONS	8	Fluid	State		STEAM	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	2000	2500	3000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	20	18	16
	20	Outlet pressure		Bar	5	4	4.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	25		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-202	1 pieces

GENERAL	1	Tag Number			TV-202		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2		
	4	Pipe Size outlet inch	schedule		1/2		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			COOLING WATER TO R-201		
PROCESS CONDITIONS	8	Fluid	State		WATER	LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP	1	1	1
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	3000	3600	4000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	5.5	5	4.5
	20	Outlet pressure		Bar	5	4.5	4
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

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CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-203	1 pieces

GENERAL	1	Tag Number			TV-203		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2		
	4	Pipe Size outlet inch	schedule		1/2		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			STEAM TO R-202		
PROCESS CONDITIONS	8	Fluid	State		STEAM	VAPOR	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP			
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	2000	2500	3000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	20	18	16
	20	Outlet pressure		Bar	4	4	4
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	25		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

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CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-204	1 pieces

GENERAL	1	Tag Number			TV-204		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2"		
	4	Pipe Size outlet inch	schedule		1/2"		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			COOLING WATER TO R-202		
PROCESS CONDITIONS	8	Fluid	State		WATER	LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP	1	1	1
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	3000	3600	4000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	5.5	5	4.5
	20	Outlet pressure		Bar	5	4.5	4
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

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Basic Engineering
CONTROL VALVES
Process Data Sheet

Designation	CONTROL VALVES	Item No.:	No. req.	TV-206	1 pieces

GENERAL	1	Tag Number			TV-206		
	2	P & ID No.					
	3	Pipe Size inlet inch	schedule		1/2"		
	4	Pipe Size outlet inch	schedule		1/2"		
	5	Piping Class Rating	Material		150		
	6	Line No.					
	7	Service			COOLING WATER TO D-203		
PROCESS CONDITIONS	8	Fluid	State		WATER	LIQUID	
	9			unit	**Min. Flow**	**Norm. Flow**	**Max. Flow**
	10	Molecular Weight		g/mol	18.0	18.0	18.0
	11	Viscosity		cP	1	1	1
	12	CP/CV		1			
	13	Compressibility					
	14	SP.Gravity@standard condition					
	15	Vapour Pressure		Bar			
	16	Critical Pressure		Bar			
	17	Flow Rate		Kg/h	3000	3600	4000
	18	Temperature		°C	35-40	35-40	35-40
	19	Inlet Pressure		Bar (g)	6	5	4.5
	20	Outlet pressure		Bar	4	4	3.5
	21	Calculated CV		GPM(US)	VTA	VTA	VTA
	22	Travel		%			
	23	Selected CV			VTA		
	24	Max. Shut Off DP		Bar			
	25	Design pressure		Bar (g)	20		
	26	Design temp.		°C	60		
	27	Allowable Noise Level		dBA			
	28	Air Fail Position			CLOSE		
Body	29	Body Type			GLOBE VALVE		
	30	Body Material			CARBON STEEL		
	31	Valve Size		inch	1/2"		
	32	Valve End Connection & Rating			1/2", FLANGE - 150		
	33	Plug & Trim Material					
	34	Plug Dia.					
	35	Characteristic					
	36	Seat Leakage Class			IV		
	37	Packing Mat.			**PTFE**		
	38	Lubricator					
	39	Bonnet Type					
Actuator	40	Type			**Diaphragm**		
	41	Direction Of action					
	42	Spring range					
Positioner	43	Type			Electro-Pneumatic		
	44	Area Classification	Explosion Protection		DIVISION 2	EExiaIICT3	
	45	Enclosure			IP65		
	46	Input Signal			4-20 mA (HART)		
	47	Air Supply Min.	Oper.	Design Unit	4	6	10 barg
Accessories	48	Pressure Reducing Valve			Yes		
	49	Pressure Gauge			Yes		
	50	Air Connection					
	51	Electrical Connection					
	52	Hand Wheel					
	53	Solenoid Valve	Tag No.	Voltage			
	54	Position Switch	Tag No.	Type			

Remarks:

Note: The sizing of control valve shall be done by manufacturer and the proper valve shall be suggested.

* Vendor to Advise

Completed	Process:	Job or Project No.	Job:	Line revised under Rev.No.t ↑ Modified:

Checked	Document- No.:	Sheet:	Rev.	Date	Checked