







OWNER:  شرکت سست و سویی توستر ایران (سهایی نخا)	BUSHEHR PETROCHEMICAL COMPANY MEG PLANT						EPC CONTRACTOR:  Chagalesh-Enerchimi-Steam Joint Venture BUPC-MEG PLANT PROJECT		
	CALCULATION & DATA SHEET OF CONTROL VALVES / ON-OFF VALVES FOR NITROGEN GAS BOOSTER								
MC :  شرکت سست و سویی توستر ایران سهایی نخا	Project	Area	Phase	Unit	Dis.	Doc.	Seq.	Contract No : 52-98/445	
Owner Document Number: 17811-45A	BU	20	VD	303	IN	DSH	0041	Rev.:	Page
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CALCULATION & DATA SHEET OF CONTROL VALVES / ON-OFF VALVES FOR NITROGEN GAS BOOSTER

06	13/07/2022	Approved for Construction	TvT	KP	CL	
05	01/06/2022	Approved for Construction	TvT	KP	LdM	
04	03/02/2022	Approved for Construction	TvT	KP	LdM	
03	07/01/2022	Approved for Construction	TvT	KP	LdM	
02	25/10/2021	Approved for Construction	TvT	KP	LdM	
01	20/09/2021	For approval	TvT	KP	LdM	
00	25/02/2021	For approval	TvT	KP	LdM	
Rev	Date	Purpose of Issue	Prepared	Checked	Approved	AC Code
					Class: 1	Phase: P

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Notes:

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Rev	By	Date	Description		Sheet 3 of 17 Based on P&ID rev.06

GENERAL	1	Tag Number		No Tag.no.: Qty 1 pc		
	2	Service		Hand Ball valve		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Inlet		
	5	Line/equip. No.		2"-NL-1001-511C(N)		
	6					
	7					
PROCESS CONDITIONS	8	Fluid	State	Nitrogen	Dry Gas	
	9	Pressure	Norm. Max.	8 Bar(a)	9 Bar(a)	
	10	Temperature	Norm. Max.	55°C	65°C	
	11	Design	Press. Temp.	13.5 Bar(a)	85°C	
	12	Ambient Temp.	Min. Max.	5 °C	52 °C	
	13	Oper. Flow		707 Kg/hr / 565 Nm3/hr		
	14					
BODY	16	Body Type		Ball valve, 2-piece, split-body		
	17	Body Size	Bore	2"	Full bore	
	18	Guiding	No. Of Ports	-	2	
	19	Conn. Type	End Conn. Rat.	RF, ASME B16.5	150#	
	20	Body Material		Carbon steel ASTM A 216 Gr. WCB / A105		
	21	Packing/ gasket Material		RPTFE / 304/graphite		
	22	Bonnet Type		Bolted		
	23	Form		Floating ball		
	24	Trim	Seat Mat.		RPTFE	
	25		Ball Mat.	Shaft Mat.	SS 316	SS316
	26	Actuation	Material	Lever handle	CS	
	27	Bolts & Nuts		B7/2H		
	28	Shaft		Anti blow-out		
	29	Device		Anti static		
	30	Fire safe		Included		
	31					
	32					
	33					
	34					
	35	Leakage rate		API 598 TSO		
	36					
	37					
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OPTIONS	44					
	45					
	46					
CERTIFICATES	47	3.1 Material certificate		Yes		
	48	Hydrotest certificate		Yes		
	49					
	50					
	51					
PURCHASE	52	Manufacturer		ALFA		
	53	Model		64sb		
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INSTRUMENT AND VALVE DATASHEET



GENERAL	1	Tag Number		No Tag.no.: Qty 1 pcs		
	2	Service		Hand Ball valve		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Outlet		
	5	Line/equip. No.		2"-NL-1003-539D(N)		
	6					
	7					
PROCESS CONDITIONS	8	Fluid	State	Nitrogen	Dry Gas	
	9	Pressure	Norm. Max.	23,5 Bar(a)	-	
	10	Temperature	Norm. Max.	40°C	55°C	
	11	Design	Press. Temp.	25 Barg	85°C	
	12	Ambient Temp.	Min. Max.	5 °C	52 °C	
	13	Oper. Flow		707 Kg/hr / 565 Nm3/hr		
	14					
BODY	16	Body Type		Ball valve, 2-piece, split-body		
	17	Body Size	Bore	2"	Full bore	
	18	Guiding	No. Of Ports	-	2	
	19	Conn. Type	End Conn. Rat.	RF, ASME B16.5	300#	
	20	Body Material		Carbon steel ASTM A 216 Gr. WCB / A105		
	21	Packing/ gasket Material		RPTFE / 304/graphite		
	22	Bonnet Type		Bolted		
	23	Form		Floating ball		
	24	Trim	Seat Mat.		RPTFE	
	25		Ball Mat.	Shaft Mat.	SS 316	SS316
	26	Actuation	Material	Lever handle	CS	
	27	Bolts & Nuts		B7/2H		
	28	Shaft		Anti blow-out		
	29	Device		Anti static		
	30	Fire safe		Included		
	31					
	32					
	33					
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	35	Leakage rate		API 598 TSO		
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OPTIONS	44					
	45					
	46					
CERTIFICATES	47	3.1 Material certificate		Yes		
	48	Hydrotest certificate		Yes		
	49					
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PURCHASE	52	Manufacturer		ALFA		
	53	Model		64sb		
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INSTRUMENT AND VALVE DATASHEET



GENERAL	1	Tag Number		No Tag.no.: Qty 2 pcs	
	2	Service		Hand Ball valve	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Cooling water	
	5	Line/equip. No.		11/2"-CWS-1004-500C(N)/ 11/2"-CWR-1011-500C(N)	
	6				
	7				
PROCESS CONDITIONS	8	Fluid	State	Water	Liquid
	9	Pressure	Norm. Max.	4,5 Bar(g)	5 Bar(g)
	10	Temperature	Norm. Max.	35°C	45°C
	11	Design	Press. Temp.	7 Bar(g)	95°C
	12	Ambient Temp.	Min. Max.	5 °C	52 °C
	13	Oper. Flow		14,5 m3/hr	
	14				
BODY	16	Body Type		Ball valve, 2-piece, split-body	
	17	Body Size	Bore	2"	Full bore
	18	Guiding	No. Of Ports	-	2
	19	Conn. Type	End Conn. Rat.	RF, ASME B16.5	150#
	20	Body Material		Carbon steel ASTM A 216 Gr. WCB / A105	
	21	Packing/ gasket Material		RPTFE / 304/graphite	
	22	Bonnet Type		Bolted	
	23	Form		Floating ball	
	24	Trim	Seat Mat.	RPTFE	
	25		Ball Mat.	SS 316	SS316
	26	Actuation	Material	Lever handle	CS
	27	Bolts & Nuts		B7/2H	
	28	Shaft		Anti blow-out	
	29	Device		Anti static	
	30	Fire safe		Included	
	31				
	32				
	33				
	34				
	35	Leakage rate		API 598 TSO	
	36				
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43					
OPTIONS	44				
	45				
	46				
CERTIFICATES	47	3.1 Material certificate		Yes	
	48	Hydrotest certificate		Yes	
	49				
	50				
	51				
PURCHASE	52	Manufacturer		ALFA	
	53	Model		64sb	
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INSTRUMENT AND VALVE DATASHEET



GENERAL	1	Tag Number		No Tag.no.: Qty 2 pcs	
	2	Service		Hand Ball valve	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Oil sump drain & block valve	
	5	Line/equip. No.		N/A	
	6				
	7				
PROCESS CONDITIONS	8	Fluid	State	Oil	Liquid
	9	Pressure	Norm. Max.	3 Bar(a)	3,5 Bar(a)
	10	Temperature	Norm. Max.	45°C	65°C
	11	Design	Press. Temp.	5 Bar(a)	80°C
	12	Ambient Temp.	Min. Max.	5 °C	52 °C
	13	Oper. Flow			
	14				
BODY	16	Body Type		Ball valve, screwed type	
	17	Body Size	Bore	1/2"	Full bore
	18	Guiding	No. Of Ports	-	2
	19	Conn. Type	End Conn. Rat.	NPT-F	800#
	20	Body Material		SS316	
	21	Packing Material		RPTFE / Graphite	
	22	Bonnet Type		Screwed	
	23	Form		Floating ball	
	24	Trim	Seat Mat.	RPTFE	
	25		Ball Mat.	Shaft Mat.	SS 316 SS316
	26	Actuation	Material	Lever handle	SS
	27	Leakage rate		API 502, zero	
	28				
	29				
	30				
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OPTIONS	44				
	45				
	46				
CERTIFICATES	47	3.1 Material certificate		No	
	48	Hydrotest certificate		No	
	49				
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PURCHASE	52	Manufacturer		ALFA	
	53	Model		20r/t	
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INSTRUMENT AND VALVE DATASHEET



GENERAL	1	Tag Number		No Tag.no.: Qty 7 pcs		
	2	Service		Hand Ball valve		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor block valve		
	5	Line/equip. No.		N/A		
	6					
	7					
PROCESS CONDITIONS	8	Fluid	State	Nitrogen/ water	Dry Gas	
	9	Pressure	Norm. Max.	23,5 Bar(a)	-	
	10	Temperature	Norm. Max.	40°C	55°C	
	11	Design	Press. Temp.	25 Barg	80°C	
	12	Ambient Temp.	Min. Max.	5 °C	52 °C	
	13	Oper. Flow				
	14					
BODY	16	Body Type		Ball valve, screwed type		
	17	Body Size	Bore	1/2"	Full bore	
	18	Guiding	No. Of Ports	-	2	
	19	Conn. Type	End Conn. Rat.	NPT-F	800#	
	20	Body Material		SS316		
	21	Packing Material		RPTFE / Graphite		
	22	Bonnet Type		Screwed		
	23	Form		Floating ball		
	24	Trim	Seat Mat.		RPTFE	
	25		Ball Mat.	Shaft Mat.	SS 316	SS316
	26	Actuation	Material	Lever handle	SS	
	27	Leakage rate		API 502, zero		
	28					
	29					
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OPTIONS	44					
	45					
	46					
CERTIFICATES	47	3.1 Material certificate		No		
	48	Hydrotest certificate		No		
	49					
	50					
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PURCHASE	52	Manufacturer		ALFA		
	53	Model		20r/t		
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INSTRUMENT AND VALVE DATASHEET







GENERAL	1	Tag Number		XV-10152	
	2	Service		Ball valve	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Cooling water Inlet	
	5	Line/equip. No.		2"-CWS-1004-501C(N)	
	6				
	7				
PROCESS CONDITIONS	8	Fluid	State	Water	Liquid
	9	Pressure	Norm. Max.	4,5 Bar(g)	5 Bar(g)
	10	Temperature	Norm. Max.	35°C	45°C
	11	Design	Press. Temp.	7 Bar(g)	95°C
	12	Ambient Temp.	Min. Max.	5 °C	52 °C
	13	Oper. Flow		14,5 m3/hr	
	14				
BODY	15	Body Type		Ball valve, 2-piece, split-body	
	16	Body Size	Bore	2"	Full bore
	17	Guiding	No. Of Ports	-	2
	18	Conn. Type	End Conn. Rat.	RF, ASME B16.5	150#
	19	Body Material		Carbon steel ASTM A 216 Gr. WCB/ A105	
	20	Packing/ gasket Material		RPTFE / 304/graphite	
	21	Bonnet Type		Bolted	
	22	Form		Floating ball	
	23	Trim	Seat Mat.	RPTFE	
	24		Ball Mat.	SS 316	SS316
	25	Bolts & Nuts		B7/2H	
	26	Shaft		Anti blow-out	
	27	Device		Anti static	
28	Fire safe		Included		
ACTUATOR	29	Type		Rack & Pinion, single acting	
	30	Close At	Open At	Spring return	Air supply
	31	Flow Action To		FTC	
	32	Fail Position		FC	
	33	Pneumatic connection		2 x 1/4" NPT-F	
	34	Instrument Supply Fluid		Instrument Air / Nitrogen	
	35	Instrument Supply Fluid pressure		6.0 bar(g)	
	36	Brackets	Coupling	SS316	SS316
37	Housing material		Aluminium, epoxy coated		
38					
POSITION MONITOR	39	Type		N/A	
	40	Power supply		N/A	
	41	Type of switch/transmitter		N/A	
	42	Area Classification		N/A	
	43	Cable Gland		N/A	
OPTIONS	44	Solenoid valves		see instrument datasheet Tag. XY-10152	
	45	Leakage rate		API 598 TSO	
	46				
CERTIFICATES	47	3.1 Material certificate		Yes	
	48	Hydrotest certificate		Yes	
	49	ATEX		No	
	50	SIL certificate	Level	No	
	51	IP certificate		No	
PURCHASE	52	Valve Manufacturer		ALFA	
	53	Valve Model		64sb	
	54	Actuator Manufacturer		Air Torque	
	55	Actuator Model		AT251	
	56				
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06	TT	13/07/2022	For Construction	INSTRUMENT AND VALVE DATASHEET Pneumatic Actuated Valve 	
05	TT	01/06/2022	For Construction		
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03	TT	07/01/2022	For Construction		
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GENERAL	1	Tag Number	Calculation	
	2	Service	Ball valve	
	3	P&ID No.	BU-20-VD-303-PR-WG-0013	
	4	Location	Compressor Cooling water Inlet	
	5	Line/equip. No.	1 1/2"-CWS-1004-501C(N)	
	6			
	7			
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	10			
	11			
	12			
	13			
	14			
Calculation	15	2" Ball valve, 2-piece, split-body	k.k. F05 SW10	
	16	Break to open (Nm) End to close (Nm)	57 Nm	43 Nm
	17			
	18	Actuator Rack & Pinion single acting	251U S12 A F05/F07 17DS 6 bar	
	19	Break to open (Nm) End to close (Nm)	65,8 Nm	44 Nm
	20		Including Safety factor 1,5	
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06	TT	13/07/2022	For Construction	INSTRUMENT AND VALVE DATASHEET Actuated Valve calculation    	
05	TT	01/06/2022	For Construction		
04	TT	03/02/2022	For Construction		
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GENERAL	1	Tag Number		No Tag.no: Qty 2 pcs		
	2	Service		Globe valve		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Cooling water		
	5	Line/equip. No.		1 1/2"-CWS-1006-501C(N)		
	6					
	7					
PROCESS CONDITIONS	8	Fluid	State	Water	Liquid	
	9	Pressure	Norm. Max.	4,5 Bar(g)	5 Bar(g)	
	10	Temperature	Norm. Max.	35°C	45°C	
	11	Design	Press. Temp.	7 Bar(g)	95°C	
	12	Ambient Temp.	Min. Max.	5°C	52°C	
	13	Oper. Flow		14,5 m3/hr		
BODY	15	Body Type		Globe valve, OS&Y, BB		
	16	Body Size		1 1/2 "		
	17	Guiding	No. Of Ports	-	2	
	18	Conn. Type	End Conn. Rat.	RF	150#	
	19	Body Material		Carbon steel ASTM A 216 Gr. WCB/WCC / A105		
	20	Packing Material		PTFE / Graphite		
	21	Bonnet Type		Bolted		
	22	Form		Disc		
	23	Trim	Seat Mat.		PTFE / Graphite	
	24		Disc Mat.	Shaft Mat.	SS 316	SS316
	25					
	26					
	27					
	28					
	29					
	30					
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OPTIONS	44					
	45					
	46					
CERTIFICATES	47	3.1 Material certificate		Yes		
	48	Hydrotest certificate		Yes		
	49					
	50					
	51					
PURCHASE	52	Manufacturer		LVF		
	53	Model		1BR207		
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INSTRUMENT AND VALVE DATASHEET





GENERAL	1	Tag Number		No Tag.no: Qty 1 pcs		
	2	Service		Pressure Control Valve		
	3	P&ID No.		BU-20-VD-303-PR-WG-0013		
	4	Location		Compressor Inlet & actuator cooling inlet		
	5	Line/equip. No.		N/A		
	6					
	7					
PROCESS CONDITIONS	8	Fluid	State	Nitrogen	Dry Gas	
	9	Pressure	Norm. Max.	8 Bar(a)	9 Bar(a)	
	10	Temperature	Norm. Max.	55°C	65°C	
	11	Design	Press. Temp.	13.5 Bar(a)	85°C	
	12	Ambient Temp.	Min. Max.	5 °C	52 °C	
BODY	13	Valve Type		Pressure reducing valve		
	14	Body Material		Aluminium		
	15	Diaphragm Material		Nitrile		
	16	Trim	Form		Plug	
	17		Seat Mat.		SS316	
	18		Spring Mat.	Disc Mat.	SS316	SS316
	19					
	20					
	21					
22						
23						
ACTUATOR	25	Type		Mechanical, spring type		
	26	Fail Position		FC		
	27					
	28					
	29					
CONNECTIONS	31	Inlet Size	Outlet Size	1/4"	1/4"	
	32	Inlet Connection	Outlet Conn.	Threaded NPT-F	Threaded NPT-F	
	33	Inlet Rating	Outlet Rating	800#	800#	
	34					
SIZING CONDITIONS	35	Flow Rate		10 Nm ³ /hr		
	36	Pressure drop		0,1 bar		
	37	Pressure setpoint		6,0 bar(g)		
	38					
	39					
OPTIONS	41	Pressure Gauge		Yes		
	42	Material		Aluminium		
	43	Range		0...11 bar(g)		
	44	Filter Regulator and drip well		Yes(Mesh 40)		
CERTIFICATES	45	3.1 Material certificate for body		No		
	46	3.1 Material certificate for stem		No		
	47					
CALCULATIONS	48					
	49	Sizing calculation		No		
	50					
	51					
	52					
PURCHASE	53					
	54	Manufacturer		Fisher		
	55	Model		67CFR		
	56					
57						



NOTES :

06	TT	13/07/2022	For Construction	INSTRUMENT AND VALVE DATASHEET    	
05	TT	01/06/2022	For Construction		
04	TT	03/02/2022	For Construction		
03	TT	07/01/2022	For Construction		
02	TT	25/10/2021	For Construction		
01	TT	20/09/2021	For Approval		
00	TT	25/02/2021	For Approval		
Rev	By	Date	Description		
					Sheet 12 of 17
					Based on P&ID rev.06



GENERAL	1	Tag Number			PV-10151	
	2	Service			Recycle valve	
	3	P&ID No.			BU-20-VD-303-PR-WG-0013	
	4	Location			Compressor bypass	
	5					
	6					
	7					
PROCESS CONDITIONS	8	Fluid	State		Nitrogen	Dry Gas
	9	Pressure	Norm.	Max.	23.5 Bar(a)	-
	10	Temperature	Norm.	Max.	40°C	55°C
	11	Design	Press.	Temp.	25 Barg	85°C
	12	Ambient Temp.	Min.	Max.	5 °C	52 °C
BODY	13	Type Of Body			Globe valve	
	14	Body Size			1" ANSI RF	
	15	Conn. Type	End Conn. Rat.		RF	300#
	16	Body Material			Carbon steel ASTM A216 WCB/WCC	
	17	Packing Material			PTFE / Graphite	
	18	Bonnet Type			Integral	
	19	Trim	Form		Disc	
	20	Trim	Seat Mat.		PTFE / Graphite	
	21	Trim	Disc Mat.	Shaft Mat.	SS 316	SS316
	22	Required Seat Tightness			IV	
	23	Max. Allow. Sound Level (dBa)			85 dBA	
	24	Required CV			6,89	
	25	Travel%			71	
26	Trim characteristic			Equal percentage		
ACTUATOR	27	Positioner controller			Electro-pneumatic (I/P)	
	28	Interface			4 -20 mA , HART	
	29	Fail Position			AFC	
	30	Pneumatic Conn.			1/4" NPT-F	
	31	Instrument Supply Fluid			Instrument Air	
	32	Instrument Supply Fluid pressure			6.0 bar(g)	
	33	Position Monitor			Yes 4-20 mA HART	
	34	Area Classification			Zone 2, Eex'ia	
	35	Electric Connection			ISO M20 x 1,5	
	36	Cable Gland			Yes, Eex 'de' certified (Airpack scope)	
ACCESSORIES	37	Ingress Protection			IP65	
	38	Filter Regulator			Yes	
	39	Gauges			Yes	
	40					
SERVICE	41	Flow Rate			707 Kg/hr / 565 Nm3/hr	
	42	Pressure	Inlet	outlet	23.5 bar(a)	8 bar(a)
	43	Pressure drop			0,56	
	44	Cv Selected			2,13	
	45					
	46					
	47					
	48					
CERTIFICATES	49	3.1 Material certificate			Yes	
	50	ATEX			No	
	51	SIL certificate	Level		No	
	52					
PURCHASE	53	Valve Manufacturer			Emerson/Fisher	
	54	Valve Model			NPS1GX	
	55	Actuator Manufacturer			Emerson/Fisher	
	56	Actuator Model			DVC6200	
57						

06	TT	13/07/2022	For Construction	INSTRUMENT AND VALVE DATASHEET Pressure Control Valve   Sheet 13 of 17 Based on P&ID rev.06
05	TT	01/06/2022	For Construction	
04	TT	03/02/2022	For Construction	
03	TT	07/01/2022	For Construction	
02	TT	25/10/2021	For Construction	
01	TT	20/09/2021	For Approval	
00	TT	25/02/2021	For Approval	
Rev	By	Date	Description	

GENERAL	1	Tag Number		No Tag.no.: Qty 2 pcs	
	2	Service		Check Valve	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Outlet	
	5	Line/equip. No.		2"-NL-1003-539D(N)	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Nitrogen	Dry Gas
	10	Pressure	Norm. Max.	23.5 Bar(a)	-
	11	Temperature	Norm. Max.	40°C	55°C
	12	Design	Press. Temp.	25 Barg	80°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Oper. Flow		707 Kg/hr / 565 Nm3/hr	
	15				
	16				
	17				
	18				
BODY	20	Type Of Body		Wafer type	
	21	Type Of valve		Disc style, pulsation service	
	21	Body Size		DN 50 (Process line = 2" ANSI 300# RF)	
	22	Body Material		Carbon steel ASTM A216 WCB	
	23	Cracking Pressure		0,04 bar	
	24	Inlet Connection	Outlet Conn.	RF	RF
	25	Inlet Rating	Outlet Rating	300#	300#
	26	Trim material		SS316	
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
	35				
	36				
37					
38					
39					
40					
OPTIONS	41				
	42				
	43				
	44				
	45				
CERTIFICATES	46	3.1 Material certificate		Yes	
	47				
	48				
	49				
	50				
	51				
PURCHASE	52	Manufacturer		Hoerbigger	
	53	Model		53ED	
	54				
	55				
	56				

06	TT	13/07/2022	For Construction	INSTRUMENT AND VALVE DATASHEET   Sheet 16 of 17 Based on P&ID rev.06
05	TT	01/06/2022	For Construction	
04	TT	03/02/2022	For Construction	
03	TT	07/01/2022	For Construction	
02	TT	25/10/2021	For Construction	
01	TT	20/09/2021	For Approval	
00	TT	25/02/2021	For Approval	
Rev	By	Date	Description	

GENERAL	1	Tag Number		No Tag.no.: Qty 1 pcs	
	2	Service		Check Valve	
	3	P&ID No.		BU-20-VD-303-PR-WG-0013	
	4	Location		Compressor Cooling water inlet	
	5	Line/equip. No.		1 1/2" CWS-1004-501C(N)	
	6				
	7				
	8				
PROCESS CONDITIONS	9	Fluid	State	Water	Liquid
	10	Pressure	Norm. Max.	4,5 Bar(g)	5 Bar(g)
	11	Temperature	Norm. Max.	35°C	45°C
	12	Design	Press. Temp.	7 Bar(g)	95°C
	13	Ambient Temp.	Min. Max.	5 °C	52 °C
	14	Oper. Flow		14,5 m3/hr	
	15				
	16				
	17				
	18				
BODY	20	Type Of Body		Flanged bolted type	
	21	Type Of valve		Swing disc	
	21	Body Size		2" ANSI	
	22	Body Material		Carbon steel ASTM A216 WCB	
	23	Cracking Pressure		0,05 bar	
	24	Inlet Connection	Outlet Conn.	RF	RF
	25	Inlet Rating	Outlet Rating	150#	150#
	26	Trim material		SS316	
	27				
	28				
	29				
	30				
	31				
	32				
	33				
	34				
35					
36					
37					
38					
39					
40					
OPTIONS	41				
	42				
	43				
	44				
	45				
CERTIFICATES	46	3.1 Material certificate		Yes	
	47				
	48				
	49				
	50				
	51				
PURCHASE	52	Manufacturer		Fluval	
	53	Model		SWCV-150	
	54				
	55				
	56				

06	TT	13/07/2022	For Construction	INSTRUMENT AND VALVE DATASHEET  	
05	TT	01/06/2022	For Construction		
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00	TT	25/02/2021	For Approval		
Rev	By	Date	Description		
					Sheet 17 of 17 Based on P&ID rev.06

Customer: AIRPACK NEDERLAND BV

Contact:

Customer Reference: Inquiry 17811 VV-0801 (CV)

Item: 100 Rev: Qty: 1

Tags: PV-10151

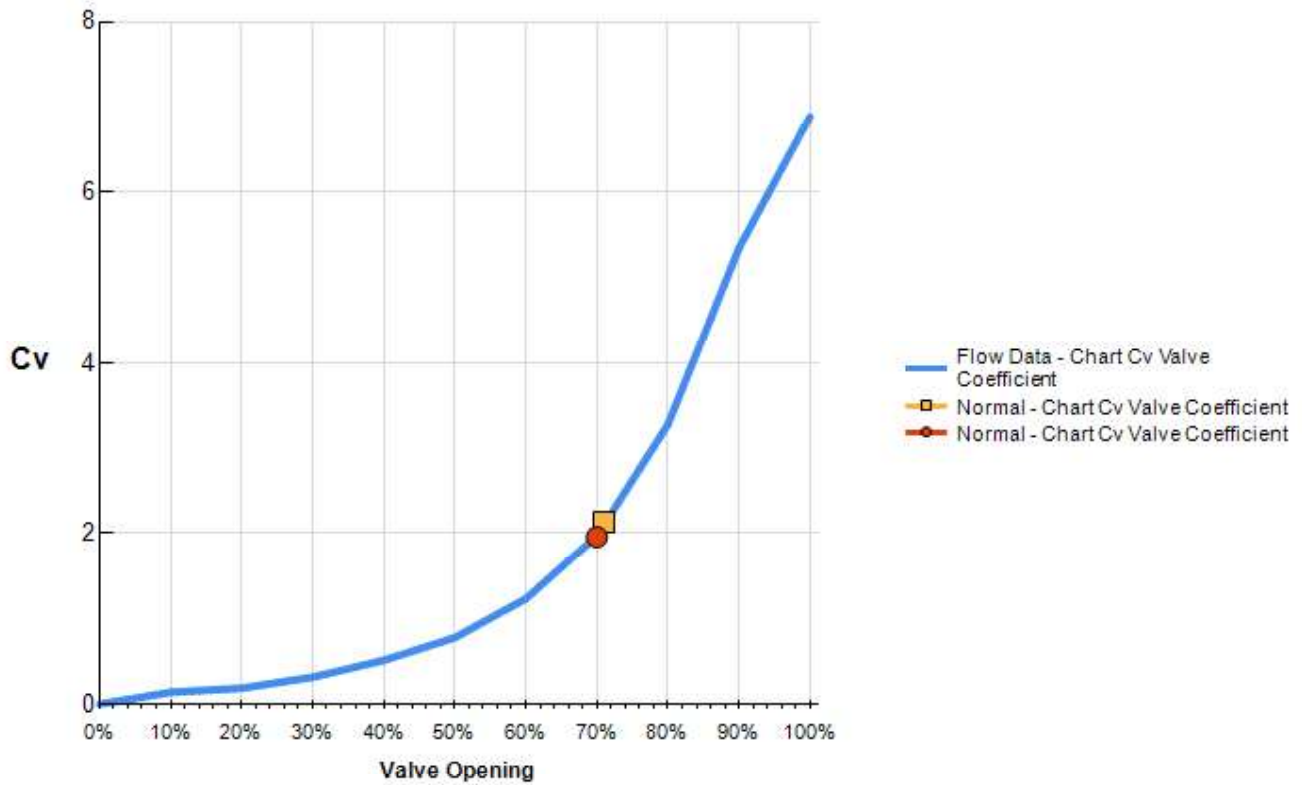
Description: NPS 1 GX DVC6200 Factory Mtgs DVC6200/DVC2000

Service Description: Recycle valve

Sizing Type: Gas	Flow is Turbulent	Solving for: Cv	Noise is IECAerodynamic	Flow is Volumetric
Variable Name	Units	Normal	Normal	
SERVICE & SIZING				
Gas		~NITROGEN	Dry Gas	
Inlet Pressure (P1)	bar(a)	23.500	26.00000	
Outlet Pressure (P2)	bar(a)	8.000	8.00000	
Inlet Temperature (T1)	deg C	40.000	55.0000	
Volumetric Flow Rate Gas (Qg)	Nm3/h	565.000	565.00000	
Pressure drop ratio factor (Xt)		0.562	0.569	
Pressure Recovery Factor (FI)		0.970	0.970	
Valve style modifier (Fd)		0.269	0.260	
Atmospheric Pressure	bar	1.013	1.013	
Dynamic Viscosity (Mu)	cP	0.017	0.017	
Specific heats ratio (gamma)		1.400	1.400	
Molecular Weight/Specific Gravity	M	28.130	28.130	
Inlet Compressibility Factor (Z1)		1.000	1.000	
Pipe Size Up	in	1	1	
Pipe Schedule Up		STD	STD	
Pipe Size Down	in	1	1	
Pipe Schedule Down		STD	STD	
Nominal Valve Diameter (dv)	in	1.000	1.000	
Aerodynamic Distance (Rn)	m	1.000	1.000	
Sizing Coefficient (Cv)		2.130	1.959	
% Open		71	70	
dP Choked	bar	13.207	14.79400	
dP/P1 Valve		0.660	0.692	
Fp		1.000	1.00	
NOISE CALCULATION				
Valve/Trim		Globe/Angle	Globe/Angle	
Valve Lpa (LpAe1m)	dB(A)	73	74	
Valve Lpa (LpAeRn)	dB(A)	73	74	
VELOCITY OUTPUTS				
Valve Outlet Area(Ao)	in2	0.761	0.761	
M1 Pipe	Mach	0.039	0.036	
Mo Valve	Mach	0.129	0.129	
M2 Pipe	Mach	0.114	0.114	
V1 Pipe	m/s	13.921	13.1853	
Vo Valve	m/s	46.442	46.4419	
V2 Pipe	m/s	40.893	40.8935	
C1 Pipe	m/s	360.080	368.6029	
Co Valve	m/s	360.080	360.0798	
C2 Pipe	m/s	360.080	360.0798	
Item Notes:				

Customer: **AIRPACK NEDERLAND BV**
 Contact:
 Customer Reference: **Inquiry 17811 VV-0801 (CV)**
 Item: **100** Rev: Qty: **1**
 Tags: **PV-10151**
 Description: **NPS 1 GX DVC6200 Factory Mtgs DVC6200/DVC2000**
 Service Description: **Recycle valve**

Flow Coefficient vs. Valve Opening



Product: GX Valve Size=NPS 1 Trim Style/Characteristic=Equal Percent Port Diameter=14 mm Trim Capacity=Full
 Capacity Travel=20 mm Balance=Unbalanced