

Sr. No.	Description/Specification/Cat/Part No.	Quantity Required No.
1	2	3
1	Control Valve(33-FRCP-40.1) Size:ND 15 as per specification sheet	1
2	Control Valve(51-LRC-60.2) Size: ND 40 as per specification sheet	1
3	Control Valve (71-FV-20.1) Size: ND 15 as per specification sheet	1
4	Control Valve (73-FV-204.1) Size: ND 20 as per specification sheet	1
5	Control Valve (73-FIH-13.1) Size: ND 15 as per specification sheet	1
6	Control Valve (73-LRCW-30.2) Size: ND100 as per specification sheet	1
7	Control Valve (73-FV-204.2) Size: ND 20 as per specification sheet	1
8	Control Valve (82-PIC-10.2) Size: ND 250 as per specification sheet	1
9	Control Valve ,Size: ND40 as per specification sheet	1
10	Control Valve , Size: ND40 as per specification sheet	1
11	Control Valve , Size: ND40 as per specification sheet	1
12	Control Valve , Size: ND40 as per specification sheet	1
13	2 Nos. spare diaphragm for each control valve from serial No.1 to 12	24

Make: Ecoflo Turkey, Flowserve made
in USA/UK/Germany.
or equivalent.

				PROJECT					
Customer:				No.	By	Date	Revision	Sheet 1 of 5	
Equipment:		Control Valve		1				Made By	Date
Plant:									
Requisition No.								Chk'd by	Date
Contract No.								Appr. By	Date
GENERAL	1	Item No.							
	2	Tag Nos		233-FV-40.1			251-LV- 60.2		
	3	Service Tags		233-FRCP-40.1			251-LRC-60.2		
	4	Line No./Vessel No.		N.A			N.A		
	5	Line Size/Sch. No.		ND 15			ND 40		
Body	6	Type of Body		Straight			Straight		
	7	Body Size	Port Size	MFR-STD		MFR-STD	MFR-STD	MFR-STD	
	8	Guiding	No. of Ports			01			01
	9	End conn. & Rating		1/2" NPTF			RF face flanged 300 lb		
	10	Body Material		SS-304L			SS-304L		
	11	Packing Material		PTFE			PTFE		
	12	Lubricator	Isolating Valve						
	13	Bonnet Type		MFR-STD			MFR-STD		
	14	Trim Form		Equal Percentage			Linear		
	15	Trim Material Seat/Plug		SS-304L			SS-316L / SS-304L		
	16	Shaft Material		SS-304L			SS-316L / SS-304L		
	17	Reqd. Seat Thickness		MFR-STD			MFR-STD		
	18	Max. Allow Sound Level dBa							
	ACTUATOR	19	Model No. & Size		MFR-STD			MFR-STD	
20		Type of Actuator		Pneumatic			Pneumatic		
21		Close at	Open at	3 PSI		15 PSI	3 PSI	15 PSI	
22		Flow Action to							
23		Fail Position		Closed			Closed		
24		Handwheel & Location		Top			Top		
POSIT.	25	MFR & Model No.		MFR-STD			MFR-STD		
	26	Filt. Reg.	Gauges	Yes		Yes	Yes	Yes	
	27	Input Signal		4-20 mA			4-20 mA		
	28	Output Signal		0.2 -1 bar			0.2 -1 bar		
	29	Air Supply Pressure		1.4 bar			1.4 bar		
TRANSMITT	30	Make & Model No.							
	31	Input Signal							
	32	Output Signal							
OPTIONS	33								
	34								
	35								
SERVICE	36	Flow Units		L/h			m3/h		
	37	Fluid		HNO3 11M			Super Heated Water		
	38	Qty. Max		65			6		
	39	Qty. Opr.	Qty. Min	53		30	4	2	
	40	Valve Cv	Valve FI						
	41	Press. IN	Press. OUT	1 bar		0.1 bar	10 bar	8 bar	
	42	Max. Shutt Off Δ P		0.9 bar			2 bar		
	43	Temp. Max.	Operating	30° C		25° C	150° C		
	44	Density	Mol. Wt.	1300/1400 kg/m3			910 kg/m3		
	45	Opr. Viscosity	% Flash	1.5x10-6 m2/s			0.2x10-6 m2/s		

Note: All wetted parts to be of SS-304L / SS-316L

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				PROJECT					
Customer:				No.	By	Date	Revision	Sheet 2 of 10	
Equipment:		Control Valve		1				Made By	Date
Plant:								Chek'd by	Date
Requisition No.								Appr. By	Date
Contract No.									
GENERAL	1	Item No.							
	2	Tag Nos		271-FV-20.1			273 FV 204.1		
	3	Service Tags							
	4	Line No./Vessel No.		N.A			N.A		
	5	Line Size/Sch. No.		ND 15			ND 20		
Body	6	Type of Body		Straight			Straight		
	7	Body Size	Port Size	MFR-STD	MFR-STD	MFR-STD	MFR-STD	MFR-STD	
	8	Guiding	No. of Ports		01			01	
	9	End conn. & Rating		1/2" NPTF			3/4" NPTF		
	10	Body Material		SS-304L			SS-304L		
	11	Packing Material		PTFE			PTFE		
	12	Lubricator	Isolating Valve						
	13	Bonnet Type		MFR-STD			MFR-STD		
	14	Trim Form		Equal Percentage			Linear		
	15	Trim Material Seat/Plug		SS-304L			SS-304L		
	16	Shaft Material		SS-304L			SS-304L		
	17	Reqd. Seat Thickness		MFR-STD			MFR-STD		
	18	Max. Allow Sound Level dBa							
ACTUATOR	19	Model No. & Size		MFR-STD			MFR-STD		
	20	Type of Actuator		Pneumatic			Pneumatic		
	21	Close at	Open at	3 PSI	15 PSI	3 PSI	15 PSI		
	22	Flow Action to							
	23	Fail Position		Closed			OPEN		
POSIT.	24	Handwheel & Location		Top			Top		
	25	MFR & Model No.		MFR-STD			MFR-STD		
	26	Filt. Reg.	Gauges	Yes	Yes	Yes	Yes		
	27	Input Signal		4-20 mA			4-20 mA		
	28	Output Signal		0.2 -1 bar			0.2 -1 bar		
TRANSMITT	29	Air Supply Pressure		1.4 bar			1.4 bar		
	30	Make & Model No.							
	31	Input Signal							
OPTIONS	32	Output Signal							
	33								
	34								
SERVICE	35								
	36	Flow Units		l/h			Sm3/h		
	37	Fluid		Formaldehyde			Air		
	38	Qty. Max		13.8					
	39	Qty. Opr.	Qty. Min	13.8	13.3				
	40	Valve Cv	Valve FI						
	41	Press. IN	Press. OUT	1.05 bar	0.1 bar		ATM.		
	42	Max. Shutt Off Δ P		0.95 bar					
	43	Temp. Max.	Operating	30° C	25° C	30° C	25° C		
	44	Density	Mol. Wt.	1100 Kg/m3					
	45	Opr. Viscosity	% Flash	1x10-6					

Note: All wetted parts to be of SS-304L / SS-316L

				PROJECT						
Customer:				No.	By	Date	Revision	Sheet 3 of 6		
Equipment:		Control Valve		1				Made By	Date	
Plant:										
Requisition No.								Chek'd by	Date	
Contract No.								Appr. By	Date	
GENERAL	1	Item No.								
	2	Tag Nos		273-FV-13.1			273- LV-30.2			
	3	Service Tags		273-FIH-13.1			273-LRCW-30.2			
	4	Line No./Vessel No.		N.A			N.A			
	5	Line Size/Sch. No.		ND 15			ND 100			
Body	6	Type of Body		Straight			Straight			
	7	Body Size	Port Size	MFR-STD	MFR-STD	MFR-STD	MFR-STD			
	8	Guiding	No. of Ports		01			01		
	9	End conn. & Rating		1/2" NPTF			RF Flanged ANSI 150			
	10	Body Material		SS-304L			SS-316L / SS-304L			
	11	Packing Material		PTFE			PTFE			
	12	Lubricator	Isolating Valve							
	13	Bonnet Type		MFR-STD			MFR-STD			
	14	Trim Form		Equal Percentage			Linear			
	15	Trim Material Seat/Plug		SS-304L			SS-316L / SS-304L			
	16	Shaft Material		SS-304L			SS-316L / SS-304L			
	17	Reqd. Seat Thickness		MFR-STD			MFR-STD			
	18	Max. Allow Sound Level dBA								
	ACTUATOR	19	Model No. & Size		MFR-STD			MFR-STD		
		20	Type of Actuator		Pneumatic			Pneumatic		
		21	Close at	Open at	3 PSI	15 PSI	3 PSI	15 PSI		
		22	Flow Action to							
		23	Fail Position		CLOSED			CLOSED		
24		Handwheel & Location		Top			Top			
POSIT.	25	MFR & Model No.		MFR-STD			MFR-STD			
	26	Filt. Reg.	Gauges	Yes	Yes	Yes	Yes			
	27	Input Signal		4-20 mA			4-20 mA			
	28	Output Signal		0.2 -1 bar			0.2 -1 bar			
	29	Air Supply Pressure		1.4 bar			1.4 bar			
TRANSMITT	30	Make & Model No.								
	31	Input Signal								
	32	Output Signal								
OPTIONS	33									
	34									
	35									
SERVICE	36	Flow Units		Sm ³ /h			m ³ /h			
	37	Fluid		OXYGEN			Super heated water			
	38	Qty. Max		6		40				
	39	Qty. Opr.	Qty. Min	4.9	0	29	0			
	40	Valve Cv	Valve FI							
	41	Press. IN	Press. OUT	1.9 bar	0.1 bar	11 bar	10 bar			
	42	Max. Shutt Off ΔP		1.8 bar			1 bar			
	43	Temp. Max.	Operating	30° C	25° C	150 °C				
	44	Density	Mol. Wt.	4.3 Kg/m ³		920Kg/m ³				
	45	Opr. Viscosity	% Flash	13.6x10-6		0.2x10-6				

Note: All wetted parts to be of SS-304L / SS-316L

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				PROJECT			
Customer:			No.	By	Date	Revision	Sheet 4 of 6
Equipment:	Control Valve		1				Made By Date
Plant:							
Requisition No.							Chek'd by Date
Contract No.							Appr. By Date
GENERAL	1	Item No.					
	2	Tag Nos		273-FV-204.2			
	3	Service Tags				282-PIC-10.2	
	4	Line No./Vessel No.		N.A		N.A	
	5	Line Size/Sch. No.		ND 20		ND 250	
Body	6	Type of Body		Straight		Straight	
	7	Body Size	Port Size	MFR-STD	MFR-STD	MFR-STD	MFR-STD
	8	Guiding	No. of Ports		01		01
	9	End conn. & Rating		3/4" NPTF		RF Flanged ANSI 150	
	10	Body Material		SS-304L		SS-316L / SS-304L	
	11	Packing Material		PTFE		PTFE	
	12	Lubricator	Isolating Valve				
	13	Bonnet Type		MFR-STD		MFR-STD	
	14	Trim Form		Equal Percentage		Linear	
	15	Trim Material	Seat/Plug	SS-304L		SS-316L / SS-304L	
	16	Shaft Material		SS-304L		SS-316L / SS-304L	
	17	Reqd. Seat Thickness		MFR-STD		MFR-STD	
	18	Max. Allow Sound Level dBA					
	ACTUATOR	19	Model No. & Size		MFR-STD		MFR-STD
20		Type of Actuator		Pneumatic		Pneumatic	
21		Close at	Open at	3 PSI	15 PSI	3 PSI	15 PSI
22		Flow Action to					
23		Fail Position		CLOSED		CLOSED	
24		Handwheel & Location		Top		Top	
POSIT.	25	MFR & Model No.		MFR-STD		MFR-STD	
	26	Filt. Reg.	Gauges	Yes	Yes	Yes	Yes
	27	Input Signal		4-20 mA		4-20 mA	
	28	Output Signal		0.2 -1 bar		0.2 -1 bar	
	29	Air Supply Pressure		1.4 bar		1.4 bar	
TRANSMITT	30	Make & Model No.					
	31	Input Signal					
	32	Output Signal					
OPTIONS	33						
	34						
	35						
SERVICE	36	Flow Units		Sm ³ /h		m ³ /h	
	37	Fluid		Vacuum		Super heated water	
	38	Qty. Max				300	
	39	Qty. Opr.	Qty. Min				75
	40	Valve Cv	Valve FI				
	41	Press. IN	Press. OUT			10.1 bar	
	42	Max. Shutt Off Δ P				1.3 bar	
	43	Temp. Max.	Operating	30° C	25° C	150 °C	
	44	Density	Mol. Wt.			910 Kg/m ³	
	45	Opr. Viscosity	% Flash			0.2x10 ⁻⁶	

Note: All wetted parts to be of SS-304L / SS-316L

				PROJECT					
Customer:				No.	By	Date	Revision		Sheet 5 of 6
Equipment:		Control Valve		1					Made By
Plant:									Date
Requisition No.									Chek'd by
Contract No.									Date
									Appr. By
									Date
GENERAL	1	Item No.							
	2	Tag Nos							
	3	Service Tags							
	4	Line No./Vessel No.		N.A			N.A		
Body	5	Line Size/Sch. No.		ND 40			ND 40		
	6	Type of Body		Straight			Straight		
	7	Body Size	Port Size	MFR-STD		MFR-STD	MFR-STD	MFR-STD	
	8	Guiding	No. of Ports			01			01
	9	End conn. & Rating		WN RF face flanged 150 lb			WN RF face flanged 150 lb		
	10	Body Material		SS-304L			SS-304L		
	11	Packing Material		PTFE			PTFE		
	12	Lubricator	Isolating Valve						
	13	Bonnet Type		MFR-STD			MFR-STD		
	14	Trim Form		Equal Percentage			Equal Percentage		
	15	Trim Material	Seat/Plug	SS-304L			SS-304L		
	16	Shaft Material		SS-304L			SS-304L		
	17	Reqd. Seat Thickness		MFR-STD			MFR-STD		
	18	Max. Allow Sound Level dBa							
ACTUATOR	19	Model No. & Size		MFR-STD			MFR-STD		
	20	Type of Actuator		Pneumatic			Pneumatic		
	21	Close at	Open at	3 PSI		15 PSI	3 PSI	15 PSI	
	22	Flow Action to							
	23	Fail Position		Closed			Closed		
	24	Handwheel & Location		Top			Top		
POSIT.	25	MFR & Model No.		MFR-STD			MFR-STD		
	26	Filt. Reg.	Gauges	Yes		Yes	Yes	Yes	
	27	Input Signal		4-20 mA			4-20 mA		
	28	Output Signal		0.2 -1 bar			0.2 -1 bar		
	29	Air Supply Pressure		1.4 bar			1.4 bar		
TRANSMITT	30	Make & Model No.							
	31	Input Signal							
	32	Output Signal							
OPTIONS	33								
	34								
	35								
SERVICE	36	Flow Units		N l/min			N l/min		
	37	Fluid		Vacuum			Vacuum		
	38	Qty. Max		38			18		
	39	Qty. Opr.	Qty. Min			332		173	
	40	Valve Cv	Valve FI						
	41	Press. IN	Press. OUT	-9.2 mWG		-6 mWG	-6 mWG	-4.5 mWG	
	42	Max. Shutt Off ΔP		3.2 mWG			1.5 mWG		
	43	Temp. Max.	Operating	30° C		25° C	30° C	25° C	
	44	Density	Mol. Wt.	1.2 kg/m3			1.2 kg/m3		
	45	Opr. Viscosity	% Flash	16x10 ⁻⁶ m ² /s			16x10 ⁻⁶ m ² /s		

Note: All wetted parts to be of SS-304L

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				PROJECT						
Customer:				No.	By	Date	Revision	Sheet 7 of 7		
Equipment:		Control Valve		1				Made By	Date	
Plant:								Chek'd by	Date	
Requisition No.								Appr. By	Date	
Contract No.										
GENERAL	1	Item No.								
	2	Tag Nos								
	3	Service Tags								
	4	Line No./Vessel No.		N.A						
	5	Line Size/Sch. No.		ND 40			ND 40			
Body	6	Type of Body		Straight						
	7	Body Size	Port Size	MFR-STD		MFR-STD		MFR-STD	MFR-STD	
	8	Guiding	No. of Ports			01			01	
	9	End conn. & Rating		WN RF face flanged 150 lb			WN RF face flanged 150 lb			
	10	Body Material		SS-304L			SS-304L			
	11	Packing Material		PTFE			PTFE			
	12	Lubricator	Isolating Valve							
	13	Bonnet Type		MFR-STD			MFR-STD			
	14	Trim Form		Equal Percentage			Equal Percentage			
	15	Trim Material Seat/Plug		SS-304L			SS-304L			
	16	Shaft Material		SS-304L			SS-304L			
	17	Reqd. Seat Thickness		MFR-STD			MFR-STD			
	18	Max. Allow Sound Level dBa								
	ACTUATOR	19	Model No. & Size		MFR-STD			MFR-STD		
		20	Type of Actuator		Pneumatic			Pneumatic		
		21	Close at	Open at	3 PSI		15 PSI		3 PSI	15 PSI
22		Flow Action to								
23		Fail Position		Closed			Closed			
24		Handwheel & Location		Top			Top			
POSIT.		25	MFR & Model No.		MFR-STD			MFR-STD		
	26	Filt. Reg.	Gauges	Yes		Yes		Yes	Yes	
	27	Input Signal		4-20 mA			4-20 mA			
	28	Output Signal		0.2 -1 bar			0.2-1 bar			
	29	Air Supply Pressure		1.4 bar			1.4 bar			
TRANSMITT	30	Make & Model No.								
	31	Input Signal								
	32	Output Signal								
OPTIONS	33									
	34									
	35									
SERVICE	36	Flow Units		N l/min			N l/min			
	37	Fluid		VACUUM			VACUUM			
	38	Qty. Max		15				10		
	39	Qty. Opr.	Qty. Min			152			109	
	40	Valve Cv	Valve FI							
	41	Press. IN	Press. OUT	-4.5 mWG		-1.5 mWG		-1.5 mWG	-0.1 mWG	
	42	Max. Shutt Off Δ P		3 mWG			1.4 mWG			
	43	Temp. Max.	Operating	30° C		25° C		30° C	25° C	
	44	Density	Mol. Wt.	1.2 kg/m3				1.2 kg/m3		
	45	Opr. Viscosity	% Flash	16x10 ⁻⁶ m ² /s				16x10 ⁻⁶ m ² /s		

Note: All wetted parts to be of SS-304L / SS-316L