

DESIGN SPECIFICATION REPORT

Project & Configuration Details

Customer: DXP	Order/Quote No.:	Configuration No.: S304699	Date: 1/20/2020
Project: DXP	PO No.:	Contact: David McQuitty	
Tag No.: cv-xxx V-BALL OPTION	Item/Ref. No.:	Phone No.: 432-332-5516	

System Details

PART NO:	5702-DFS114619
MAX DP SHUTOFF @ 100°F:	533 PSID

Valve Details

PART NO:	570-2-CLC-PNT
MODEL:	570 CONTROL VALVE ASSEMBLY
BODY:	2" ASME CL150-600 WAFER
BODY MATERIAL:	LCC (ASTM A352)
SEAL PROT. RING:	LCC (ASTM A352) OR LF2 (A350) ¹³
BODY MAX CWP (@ 100°F):	1480 PSIG
FACE TO FACE DIMENSION:	4.88"
NACE:	MR0175/ISO15156-2015 COMPLIANT
PACKING:	SINGLE PTFE V-RING
BALL MATERIAL:	CG8M / CRPL
SHAFT CONNECTION:	SPLINED
SHAFT MATERIAL:	S20910
BALL SEAL DESIGN:	STANDARD
BALL SEAL MATERIAL:	PTFE COMPOSITION
BEARING MATERIAL:	PEEK / CPTFE
CHARACTERISTIC:	MODIFIED EQUAL PERCENT
FLOW DIRECTION:	FORWARD
PROCESS TEMP RATING:	-50 TO 450°F (-46 TO 232°C)
AMBIENT LOW-TEMP RATING:	-50°F (-46°C)
MAX RATED CV:	112
SHUT-OFF CLASS:	VI
PAINT:	DFPS-01 (STANDARD PAINT)



GENERIC PRODUCT PHOTO

- The maximum shutoff and cold working pressures described on this document unless otherwise specified are at 100°F. Maximum allowable pressures are typically reduced by increased temperatures. Refer to the product bulletin for detailed pressure/temperature charts.

- Unless otherwise stated, all temperature ratings are for use in Non-Oxidizing service. For use in Oxidizing service refer to the product bulletin, or contact Dyna-Flo for temperature ratings.

- Options marked with an asterisk (*) may not be available in the product literature, and do not follow the standard product model builder.

¹³ Dyna-Flo reserves the right to substitute a cast material with the forged equivalent.

Valve (In-Body Process) Temperature Limits

Overall Rating	Min	Max
VALVE ASSEMBLY	-50°F (-46°C)	450°F (232°C)

Component Breakdown

→ MODEL 570	-100°F (-73°C)	800°F (427°C)
→ BODY MATERIAL	-50°F (-46°C)	650°F (343°C)
→ PACKING	-50°F (-46°C)	450°F (232°C)
→ BEARING MATERIAL	-325°F (-198°C)	500°F (260°C)
→ BALL SEAL	-50°F (-46°C)	450°F (232°C)

Valve Recommended Spare Parts

Item No.	Description	Quantity
RV150X00C8D	BALL SEAL REPAIR KIT, 2" COMPOSITE SEAL	1
570X208X08D	BALL/SHAFT (SPLINED), 2" CG8M/CRPL/NIT50	1
INCLUDED	SHAFT (INCLUDED IN BALL SHAFT ASSY)	1
1R5795X001D	PACKING SET, 1.5-2" PTFE	1
16A6083X01D	PACKING BOX RING, 1.5" & 2"	1
13B6678X01D	FOLLOWER SHAFT, 1.5" & 2"	1
570X200001D	DOWEL PIN, 1.5" & 2"	1
570X2003X1D	INBOARD BEARING, 2"	1
570X2003X1D	OUTBOARD BEARING, 2"	1

Actuator Details

PART NO: DFR-026-C-04S3-B-RB1
MODEL: DFR SPRING & DIAPHRAGM ACTUATOR
FAIL POSITION: CLOSED
ACTUATOR SIZE: 026
TRAVEL: 90°
INITIAL SET: 6.8 PSIG
OPERATING RANGE: 0-33 PSIG
LEVER / SHAFT CONNECTION: 1/2" SPLINED
MOUNTING POSITION: RH, POSITION 1, STYLE B
MAX CASING PRESSURE: 60 PSIG
DIAPHRAGM EFFECTIVE AREA: 25 IN²
PAINT: DFPS-01 (STANDARD PAINT)



GENERIC PRODUCT PHOTO

Actuator Recommended Spare Parts

Item No.	Description	Quantity
26A4668X01D	DIAPHRAGM	1

VALVE SIZING REPORT

LIQUID

Project & Configuration Details

Customer: DXP	Order/Quote No.:	Configuration No.: S304699	Date: 1/20/2020
Project: DXP	PO No.:	Contact: David McQuitty	
Tag No.: cv-xxx V-BALL OPTION	Item/Ref. No.:	Phone No.: 432-332-5516	

Common Parameters

Fluid Name:	Atmospheric Pressure: 14.7 psi(a)
Upstream Pipe Size: 4 in	Upstream Pipe Schedule: 80
Downstream Pipe Size: 4 in	Downstream Pipe Schedule: 80

Flow Conditions

			MIN	NORM	MAX	OTHER	OTHER	OTHER
Valve Sizing Coefficient	C_V		13.71	27.28	33.76	9.115	8.542	11.87
Volumetric Flow Rate	Q	bb/day	2500	6000	9000	2500	6000	9000
Mass Flow Rate	w	lb/hr	25557.8	61338.7	92008.1	25557.8	61338.7	92008.1
Upstream Pressure	P_1	psi(g)	550	550	550	550	800	850
Downstream Pressure	P_2	psi(g)	530	520	505	505	505	505
Differential Pressure	ΔP	psi	20	30	45	45	295	345
Nominal Valve Size	d	in	2	2	2	2	2	2
Dynamic Viscosity	ν	cP	1	1	1	1	1	1
Specific Gravity	G_f		0.7	0.7	0.7	0.7	0.7	0.7
Critical Pressure	P_C	psi(a)	3200	3200	3200	3200	3200	3200
Vapour Pressure	P_V	psi(a)	2	2	2	2	2	2
Upstream Temperature	T_1	°F	90	90	90	90	90	90
Recovery Factor	F_L		0.86	0.85	0.85	0.91	0.91	0.91

Calculated Values

			MIN	NORM	MAX	OTHER	OTHER	OTHER
Piping Geometry Factor	F_P		0.995	0.98	0.97	0.998	0.998	0.996
F_L Corrected For Piping	F_{LP}		0.855	0.832	0.822	0.907	0.908	0.906
Critical Pressure Ratio	F_F		0.953	0.953	0.953	0.953	0.953	0.953
Reynolds Number	Re_V		203630.9	377570.3	511535.1	217944.8	540258.6	688121.2
Reynolds Factor	F_R		1	1	1	1	1	1
ΔP for Choked Flow	ΔP_{CHOKED}	psi	415.77	405.25	404.57	465.53	672.41	713.13
ΔP for Flashing	$\Delta P_{FLASHING}$	psi	562.7	562.7	562.7	562.7	812.7	862.7

IEC Noise / Velocity / Cavitation

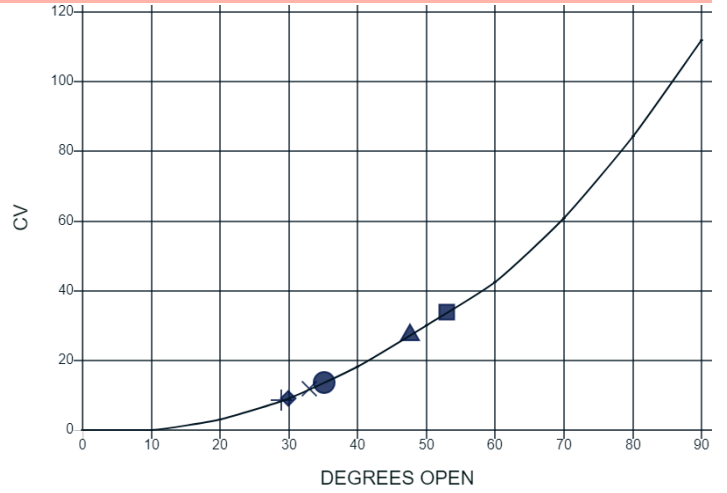
			MIN	NORM	MAX	OTHER	OTHER	OTHER
Cavitation Index	σ		28.14	18.76	12.5	12.5	2.755	2.501
Application Ratio	A_R		0.036	0.053	0.08	0.08	0.363	0.4
Cavitation Index	K_C		1	1	1	1	0.555	0.555
ΔP for Cavitation	$\Delta P_{CAVITATION}$	psi	562.7	562.7	562.7	562.7	451.05	478.8
Valve Style Modifier	F_d		0.79	0.85	0.85	0.71	0.71	0.71
Upstream Velocity	V_1	ft/s	2.034	4.882	7.322	2.034	4.882	7.322
Downstream Velocity	V_2	ft/s	2.034	4.882	7.322	2.034	4.882	7.322
Sound Pressure Distance	R_n	ft	3.281	3.281	3.281	3.281	3.281	3.281
Sound Pressure @ R_n	$L_{PA R_n}$	dB(A)	< 50	< 50	57	< 50	78	< 85
Sound Pressure @ 1m	L_{PA}	dB(A)	< 50	< 50	57	< 50	78	< 85

Flow Graph

Selected Valve Details

Valve Model: 570
PTFE/COMP SEAL - MOD
Trim Style: EQ.PCT
Valve Size: 2 in
Port Size: 2 in
Travel: 90°
Max CV: 112

- Cv Curve
- MIN 35.07 DEG OPEN
- ▲ NORM 47.65 DEG OPEN
- * MAX 52.98 DEG OPEN
- ◆ OTHER 29.86 DEG OPEN
- + OTHER 28.93 DEG OPEN
- × OTHER 33 DEG OPEN



Comments

- MIN
- NORM
- MAX
- OTHER
- OTHER
- OTHER

ACTUATOR SIZING REPORT

Project & Configuration Details

Customer: DXP	Order/Quote No.:	Configuration No.: S304699	Date: 1/20/2020
Project: DXP	PO No.:	Contact: David McQuitty	
Tag No.: cv-xxx V-BALL OPTION	Item/Ref. No.:	Phone No.: 432-332-5516	

Flow Conditions

Description	Value
Atmospheric Pressure	14.7 psi
Maximum Upstream Pressure (P ₁)	850 psi(g)
Minimum Downstream Pressure (P ₂)	505 psi(g)
Differential Pressure (ΔP)	345 psi
Flow Direction	Forward

Valve Details

Description	Value
Valve Type	570
Valve Size	2 in
ASME Rating	ASME CL150 - CL600
Max CWP	1480 psig
Bearing Type	PEEK/PTFE LINED
Ball Seal Type	TCM
Shaft Type	SPLINED
Shaft Size	0.5 in
Factor A	0.15
Factor B	80

Calculated Valve Torques

Description	Value
Maximum Valve Shaft Torque	1225 lbf-in
Breakout Torque	131.75 lbf-in

Actuator Details

Description	Value
Actuator Type	DFR SPRING AND DIAPHRAGM
Actuator Size	026
Fail Position	CLOSED
Spring Rate	258 lbs/in
Spring	16A4659
Initial Set	6.8 psig
Actuator Breakout Torque	160 lbf-in
Max DP Shutoff	533 psid

OUTLINE DRAWING

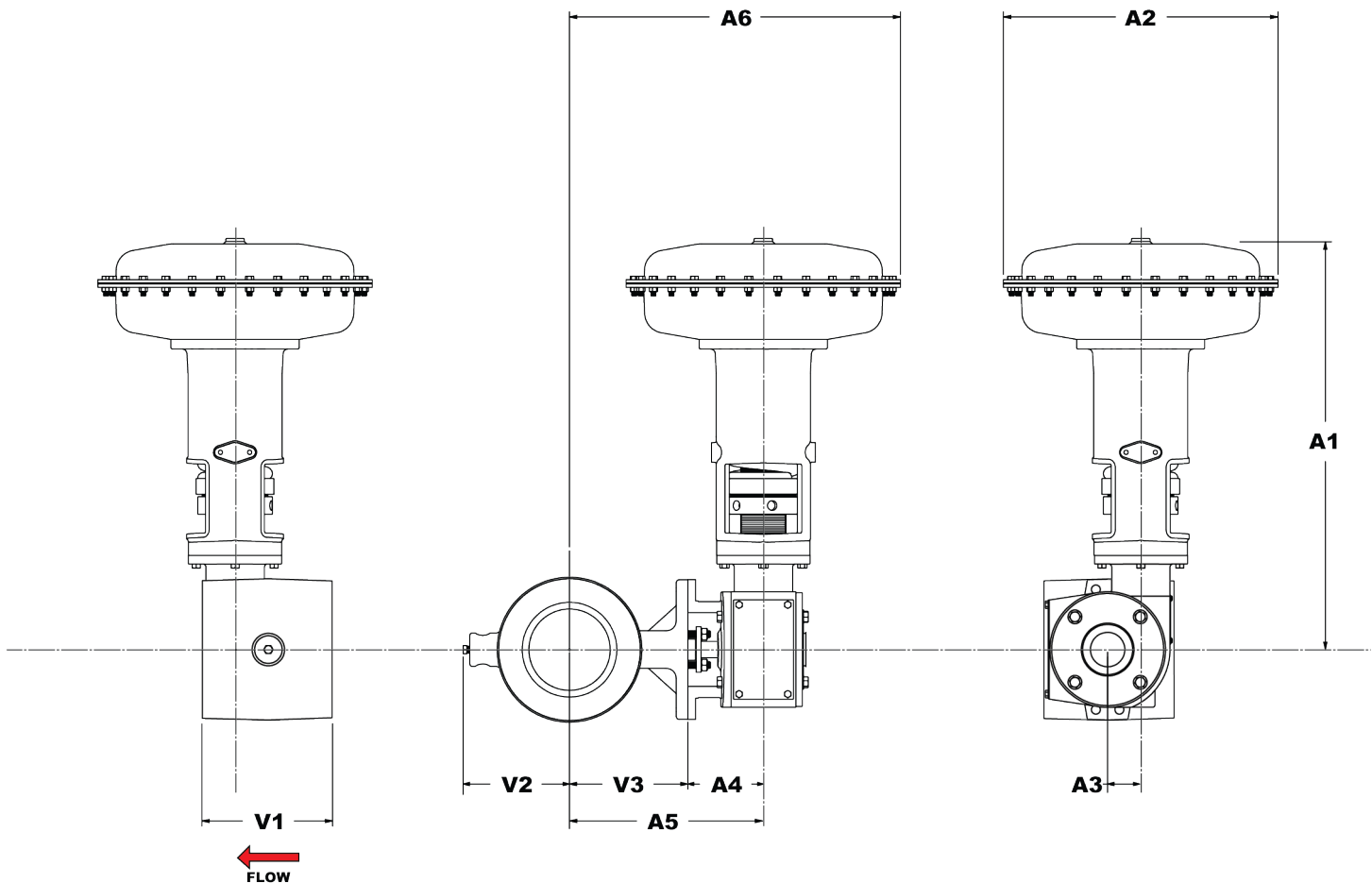
Project & Configuration Details

Customer: DXP	Order/Quote No.:	Configuration No.: S304699	Date: 1/20/2020
Project: DXP	PO No.:	Contact: David McQuitty	
Tag No.: cv-xxx V-BALL OPTION	Item/Ref. No.:	Phone No.: 432-332-5516	

Assembly Details and Dimensions Inch (mm)

Valve	Dimensions	Instrumentation	Dimensions
Model: 570	V1: 4.88 (124)	Total Assembly Weight Weight (±5%): 53 lbs (24 kg)	
Size: 2"	V2: 4.19 (106)		
Rating: ASME CL150-600	V3: 5 (127)		
Connection: RF WAFER			

Actuator	Dimensions
Model: DFR	A1: 10.13 (257)
Size: 026	A2: 9.94 (252)
Mounting Style: B - RIGHT	A3: 0.75 (19)
Mounting Position: 1	A4: 5.38 (137)
H.Wheel/Stop: NONE	A5: 10.38 (264)
	A6: 15.4 (390)



1. Drawings and dimensions are not to scale, and in some cases objects are not proportional. Products are pictorially typical, actual product appearance will differ.
2. Dimension and location of accessories indicate extreme mounting location. Actual mounting may vary.
3. Items such as airsets, solenoids, trip valves, and other small accessories that fit within the envelope of the dimensions above **may not be shown**.
4. Instrument tubing is not shown and in some cases can exceed some of the dimensions on this drawing.