

Sanitary Diaphragm Valve

pneumatically operated

Description

The type 605 is an extremely compact pneumatically actuated valve with many features which make them ideal for pharmaceutical and bio-processing applications.

Standard Features

- Compact design
- Sanitary internals
- Visual position indicator
- Maintenance-free piston actuator
- FDA compliant diaphragms
- 316L stainless steel valve body
- Triclamp®, O.D. Tubing
- Sizes 1/4", 3/8", 1/2"

Available Options

- Electrical limit and proximity switches
- Stroke limiter

Special connections

Hose barb, tube extensions, Swagelok®, Cajon VCR®, Ingold®, ISO, DIN end connections and others available upon request.

Fabrications

Cluster valve assemblies for both horizontal and vertical orientations, Zerostatic T-valves, Duplex, Multiported, Bottle Sampling, Tank Bottom, and custom fabrications upon request.

Materials

AL-6XN®, Hastelloy®, and others available upon request.

Typical Applications

- Pharmaceutical manufacturing
- Bioprocessing
- Cosmetic
- Brewery Service
- Food and Beverage
- Semiconductor
- High Purity Chemicals



Type 605

Type 605 Technical Data

Size (In.)	Nominal Diameter (mm)	Body Configuration D= straight through	Working Pressure (psi)	Control Pressure (psi) Control Function		C _v -Value (gpm)		Weight (lbs)
				1	2 + 3	ISO Connection	O.D. Tubing	
-	4	D	0 - 90	max. 105	max. 75		-	.66
-	6	D	0 - 90	max. 105	max. 75		-	.66
1/4	8	D	0 - 90	max. 105	max. 75		0.7	.66
3/8	10	D	0 - 90	max. 105	max. 75		1.5	.66
1/2	15	D	0 - 90	max. 105	max. 75		2.3	.66

Flow Medium
Max. Permissible temperature of working
medium: 302° F
(Depending on diaphragm material)

Control medium
Max. Perm. Temperature of the pilot medium:
104°F
Filling volume: 1.3 cu. in.

All pressures are gauge pressures, when applied upstream only.

Body Configuration

Tank bottom valve body
2-way valve body
2-way angled valve body
Multiported valve body
Zero Static T-Valve
U-bend

Ref.no.

B
D
E
M
T
U

Required Control Pressure

	Normally Closed (1)	Normally open + air to air (2+3)
Min.	60 psi	60 psi
Max.	105 psi	75 psi

Connection

DIN
DIN 11850/Series 1
DIN 11850/Series 2
DIN 11850/Series 3
Butt weld OD tubing
Sizes 1/4-3/8" 20 gauge .035" wall
Sizes 1/2-3" 16 gauge .065" wall
Sizes 4" 14 gauge .083" wall

Tri-clamp®
O.D. Tubing by Triclamp®
Extended O.D. Tubing
Extended O.D. Tubing by Triclamp®

Ref.no.

0
16
17
18
59

80
93
94
95

Diaphragm material

Ethylene-propylene Rubber for
saturated steam max 302° F

2nd generation, modified PTFE
with Ethylene-propylene backing

Ethylene-propylene Rubber for
saturated steam max 302° F

EPDM

TFM/EPDM

EPDM

Ref.no.

3A

5A

6A

All diaphragms listed conform to the FDA code of Federal Regulations paragraph 177.2600 of section 21.

Body material

Investment cast body
Stainless steel 316 L \pm 1.4435 (BN2) Fe < 0.5%
Stainless steel 1.4539 (UNS N 08904)

Forged Body

Stainless steel 316 L \pm 1.4435 (ASTM A 182)
Stainless steel 316 L \pm 1.4435 (BN2) Fe < 0.5%

Machined block

Stainless steel 316 L \pm 1.4435 (ASTMA 479)

Special versions

(Consult factory for special material reference numbers)

Ref.no.

32
33

40
42

41

91

Control function

Normally closed
Normally open
Double acting

Ref.no.

1
2
3

Surface finish

μ -in.	BPE Surface Designation	Ra Average [Note (1)]		Ra Max		Ref.no.	
		μ -in.	μ m	μ -in.	μ m		
32	Mechanical					3	
25	Mechanical	SFV3	25	0.625	30	0.750	1502
20	E-pol	SFV6	20	0.500	25	0.625	1508
20	Mechanical	SFV2	20	0.500	25	0.625	1507
15	E-pol	SFV5	15	0.375	20	0.500	1537
11	Mechanical	SFV1	15	0.375	20	0.500	1536
10	E-pol	SFV4	10	0.250	15	0.375	1516

GENERAL NOTE: All Ra readings are taken across the grain.
NOTE: (1) The average Ra is derived from two readings taken at different locations.

Special Versions

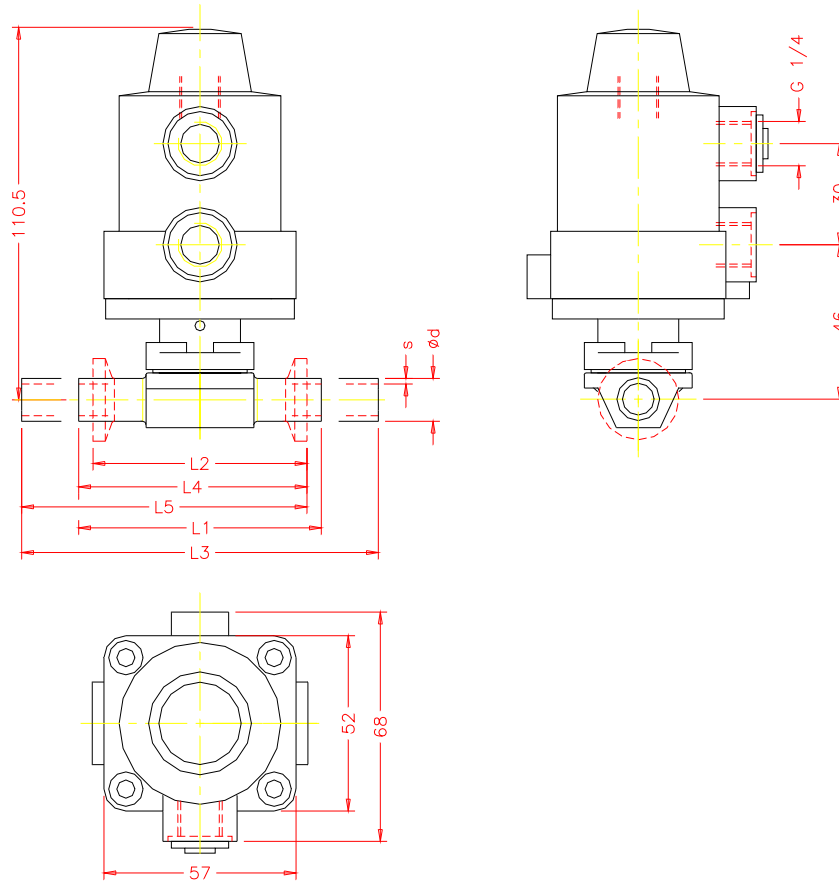
Special versions

Ref.no.

UXXXX

Order Example	-605	015	U	80	40	3A	1			040	94	1537		
Type of valve	-605													
Size DN		015												
Body configuration			U											
Connection (valve body)				80										
Body material					40									
Diaphragm material						3A								
Control function							1							
Actuator size														
Locking device														
Pipe main size										040				
Pipe main connection											94			
Surface finish												1537		
Special versions (XXXX)														

Type 605 Dimensional Data



Take Out Dimension For Standard Connections

Size	DN	Units	Con. Ref. No.		(59)	(80)	(94)	(93)	(95)
			ϕd	s	L1	L2	L3	L4	L5
1/4	8	mm	6.35	0.89	72.00	63.50	148.20	67.75	105.85
		in	0.250	0.035	2.835	2.500	5.835	2.667	4.167
3/8	10	mm	9.53	0.89	72.00	63.50	148.20	67.75	105.85
		in	0.375	0.035	2.835	2.500	5.835	2.667	4.167
1/2	15	mm	12.70	1.65	72.00	63.50	148.20	67.75	105.85
		in	0.500	0.065	2.835	2.500	5.835	2.667	4.167

- L1 = Connection Code 59 = Standard butt-weld
- L2 = Connection Code 80 = Standard clamp
- L3 = Connection Code 94 = Standard butt-weld extension (AWF)
- L4 = Connection Code 93 = Standard clamp X butt-weld
- L5 = Connection Code 95 = Standard clamp X butt-weld extension (AWF)

Optional Spigot Dimensions

Size	DN	L ₁	s	ϕd	DIN (0)		DIN Series 1 (16)		DIN Series 2 (17)		DIN Series 3 (18)		ISO (60)		O.D. Tubing (59)	
					ϕd	s	ϕd	s	ϕd	s	ϕd	s	ϕd	s	ϕd	s
-	4	72	1	6	-	-	-	-	-	-	-	-	-	-	-	-
-	6	72	1	8	-	-	-	-	-	-	-	-	-	-	-	-
1/4"	8	72	1	10	-	-	-	-	-	-	-	-	13.5	1.6	.250	.035
3/8"	10	72	-	-	12	1	13	1.5	14	2	-	-	-	-	.375	.035
1/2"	15	72	-	-	-	-	-	-	-	-	-	-	-	-	.500	.065

Drain Angles

Size	DN	Degrees
1/4"	8	55°
3/8"	10	60°
1/2"	15	65°

Drain angles are for BS O.D. Tubing only.

Type 605 Dimensional Data

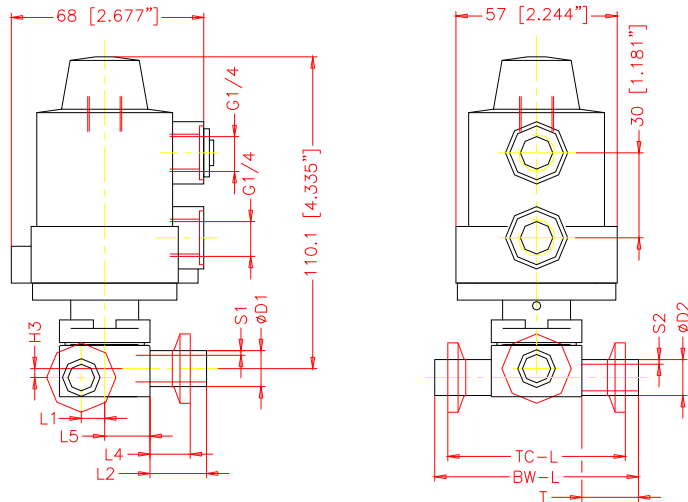
GEMÜ® Zero Static T-Valve

Standard Features

- Sterile design
- Mechanical parts isolated from process
- Zero dead-leg with no bacteria entrapment
- Maximum drainage, leaving virtually no residue
- Body machined from 316L stainless steel solid bar stock or specified material
- Compact design
- Minimum tube length of 1.5" for automatic orbital welding

Typical Applications

- WFI point-of-use
- DI systems
- SIP (steam-in-place)
- CIP (clean-in-place)
- Sampling
- Product transfer
- Draining
- Diverting applications of critical process fluids



D1 x D2	Units	D1	s1	D2	s2	H3	L1	Code 59				Code 94			Code 80		
								L2	T	BW-L	L2	T	BW-L	L4	L5	TC-L	
1/4 x 1/4	mm	6.35	1.2	6.35	1.2	-0.02	5.4	20.0	20.0	72.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.250	0.047	0.250	0.047	0.0	0.2	0.8	0.8	2.8	1.5	1.5	4.26	0.8	0.6	2.8	
1/4 x 1/2	mm	6.35	1.2	12.7	1.65	3.15	8.2	20.0	20.0	72.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.250	0.047	0.500	0.065	0.1	0.3	0.8	0.8	2.8	1.5	1.5	4.26	0.8	0.6	2.8	
1/4 x 3/4	mm	6.35	1.2	19.05	1.65	6.33	11.7	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.250	0.047	0.750	0.065	0.2	0.5	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
1/4 x 1	mm	6.35	1.2	25.4	1.65	9.5	15.3	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.250	0.047	1.000	0.065	0.4	0.6	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
1/4 x 1 1/2	mm	6.35	1.2	38.1	1.65	15.85	22.3	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.250	0.047	1.500	0.065	0.6	0.9	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
1/4 x 2	mm	6.35	1.2	50.8	1.65	22.2	29.4	20.0	30.0	92.0	38.1	44.5	120.9	19.7	16.0	71.4	
	in	0.250	0.047	2.000	0.065	0.9	1.2	0.8	1.2	3.6	1.5	1.8	4.76	0.8	0.6	2.8	
1/4 x 2 1/2	mm	6.35	1.2	63.5	1.65	28.55	36.4	20.0	30.0	92.0	38.1	44.5	120.9	19.7	16.0	71.4	
	in	0.250	0.047	2.500	0.065	1.1	1.4	0.8	1.2	3.6	1.5	1.8	4.76	0.8	0.6	2.8	
3/8 x 1/2	mm	9.525	1.2	12.7	1.65	3.15	8.2	20.0	20.0	72.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.375	0.047	0.500	0.065	0.1	0.3	0.8	0.8	2.8	1.5	1.5	4.26	0.8	0.6	2.8	
3/8 x 3/4	mm	9.525	1.2	19.05	1.65	6.33	11.7	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.375	0.047	0.750	0.065	0.2	0.5	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
3/8 x 1	mm	9.525	1.2	25.4	1.65	9.5	15.3	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.375	0.047	1.000	0.065	0.4	0.6	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
3/8 x 1 1/2	mm	9.525	1.2	38.1	1.65	15.85	22.3	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.375	0.047	1.500	0.065	0.6	0.9	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
3/8 x 2	mm	9.525	1.2	50.8	1.65	22.2	29.4	20.0	30.0	92.0	38.1	44.5	120.9	19.7	16.0	71.4	
	in	0.375	0.047	2.000	0.065	0.9	1.2	0.8	1.2	3.6	1.5	1.8	4.76	0.8	0.6	2.8	
1/2 x 1/2	mm	12.7	1.65	12.7	1.65	3.15	8.2	20.0	20.0	72.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.500	0.065	0.500	0.065	0.1	0.3	0.8	0.8	2.8	1.5	1.5	4.26	0.8	0.6	2.8	
1/2 x 3/4	mm	12.7	1.65	19.05	1.65	6.33	11.7	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.500	0.065	0.750	0.065	0.2	0.5	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
1/2 x 1	mm	12.7	1.65	25.4	1.65	9.5	15.3	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.500	0.065	1.000	0.065	0.4	0.6	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
1/2 x 1 1/2	mm	12.7	1.65	38.1	1.65	15.85	22.3	20.0	25.0	82.0	38.1	38.1	108.2	19.7	16.0	71.4	
	in	0.500	0.065	1.500	0.065	0.6	0.9	0.8	1.0	3.2	1.5	1.5	4.26	0.8	0.6	2.8	
1/2 x 2	mm	12.7	1.65	50.8	1.65	22.2	29.4	20.0	30.0	92.0	38.1	44.5	120.9	19.7	16.0	71.4	
	in	0.500	0.065	2.000	0.065	0.9	1.2	0.8	1.2	3.6	1.5	1.8	4.76	0.8	0.6	2.8	

TOL ±1mm Note: Dimension subject to change

Size	1/4	3/8	1/2	3/4	1	1 1/2	2	2 1/2	3	4
DN	8	10	15	20	25	40	50	65	80	100

Order Example	-605	015	T	80	41	3A	1			040	94	1537				
Type of valve	-605															
Size DN		015														
Body configuration			T													
Connection (valve body)				80												
Body material					41											
Diaphragm material						3A										
Control function							1									
Actuator size																
Locking device																
Pipe main size										040						
Pipe main connection											94					
Surface finish												1537				
Special version (XXXX)																



Type 605 Dimensional Data

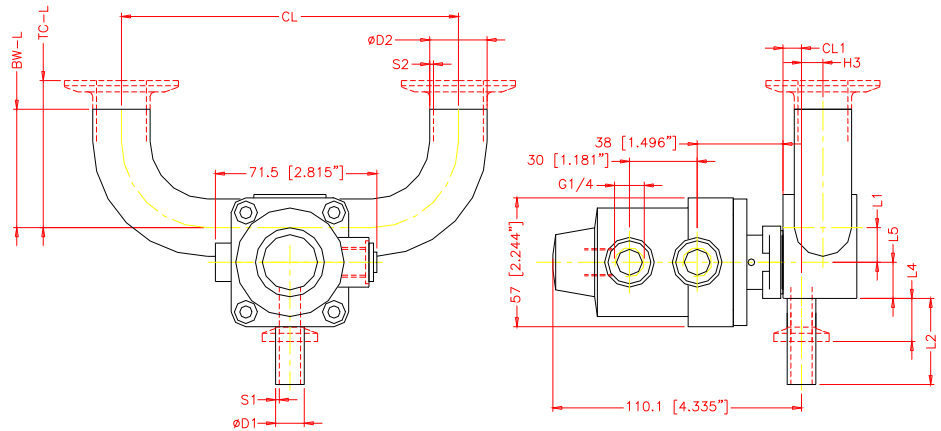
GEMÜ® Zero Static U-Bend Valve

Standard Features

- Sterile design
- Mechanical parts isolated from process
- Zero dead-leg with no bacteria entrapment
- Maximum drainage, leaving virtually no residue
- Body machined from 316L stainless steel solid bar stock or specified material
- Compact design
- Minimum tube length for automatic orbital welding

Typical Applications

- WFI point-of-use
- DI systems
- SIP (steam-in-place)
- CIP (clean-in-place)
- Sampling
- Product transfer
- Draining
- Diverting applications of critical process



D1 x D2	Units	D1	s1	D2	s2	H3	L1	Code 59		Code 94		CL	Code 94		Code 80
								L2	L2	L4	L5		BW-L	TC-L	
1/4 x 1/4	mm	6.35	1.2	6.35	1.2	-0.02	5.4	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.250	0.047	0.250	0.047	0.0	0.2	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
1/4 x 1/2	mm	6.35	1.2	12.7	1.65	3.15	8.2	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.250	0.047	0.500	0.065	0.1	0.3	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
1/4 x 3/4	mm	6.35	1.2	19.05	1.65	6.33	11.7	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.250	0.047	0.750	0.065	0.2	0.5	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
1/4 x 1	mm	6.35	1.2	25.4	1.65	9.5	15.3	20.0	38.1	19.7	16.0	198.4	76.2	50.8	
	in	0.250	0.047	1.000	0.065	0.4	0.6	0.8	1.5	0.8	0.6	7.8	3.0	2.0	
1/4 x 1 1/2	mm	6.35	1.2	38.1	1.65	15.85	22.3	20.0	38.1	19.7	16.0	236.5	95.3	69.9	
	in	0.250	0.047	1.500	0.065	0.6	0.9	0.8	1.5	0.8	0.6	9.3	3.8	2.8	
1/4 x 2	mm	6.35	1.2	50.8	1.65	22.2	29.4	20.0	38.1	19.7	16.0	287.3	120.7	88.9	
	in	0.250	0.047	2.000	0.065	0.9	1.2	0.8	1.5	0.8	0.6	11.3	4.8	3.5	
1/4 x 2 1/2	mm	6.35	1.2	63.5	1.65	28.55	36.4	20.0	38.1	19.7	16.0	325.4	139.7	108.0	
	in	0.250	0.047	2.500	0.065	1.1	1.4	0.8	1.5	0.8	0.6	12.8	5.5	4.3	
3/8 x 1/2	mm	9.525	1.2	12.7	1.65	3.15	8.2	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.375	0.047	0.500	0.065	0.1	0.3	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
3/8 x 3/4	mm	9.525	1.2	19.05	1.65	6.33	11.7	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.375	0.047	0.750	0.065	0.2	0.5	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
3/8 x 1	mm	9.525	1.2	25.4	1.65	9.5	15.3	20.0	38.1	19.7	16.0	198.4	76.2	50.8	
	in	0.375	0.047	1.000	0.065	0.4	0.6	0.8	1.5	0.8	0.6	7.8	3.0	2.0	
3/8 x 1 1/2	mm	9.525	1.2	38.1	1.65	15.85	22.3	20.0	38.1	19.7	16.0	236.5	95.3	69.9	
	in	0.375	0.047	1.500	0.065	0.6	0.9	0.8	1.5	0.8	0.6	9.3	3.8	2.8	
3/8 x 2	mm	9.525	1.2	50.8	1.65	22.2	29.4	20.0	38.1	19.7	16.0	287.3	120.7	88.9	
	in	0.375	0.047	2.000	0.065	0.9	1.2	0.8	1.5	0.8	0.6	11.3	4.8	3.5	
1/2 x 1/2	mm	12.7	1.65	12.7	1.65	3.15	8.2	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.500	0.065	0.500	0.065	0.1	0.3	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
1/2 x 3/4	mm	12.7	1.65	19.05	1.65	6.33	11.7	20.0	38.1	19.7	16.0	198.4	76.2	41.3	
	in	0.500	0.065	0.750	0.065	0.2	0.5	0.8	1.5	0.8	0.6	7.8	3.0	1.6	
1/2 x 1	mm	12.7	1.65	25.4	1.65	9.5	15.3	20.0	38.1	19.7	16.0	198.4	76.2	50.8	
	in	0.500	0.065	1.000	0.065	0.4	0.6	0.8	1.5	0.8	0.6	7.8	3.0	2.0	
1/2 x 1 1/2	mm	12.7	1.65	38.1	1.65	15.85	22.3	20.0	38.1	19.7	16.0	236.5	95.3	69.9	
	in	0.500	0.065	1.500	0.065	0.6	0.9	0.8	1.5	0.8	0.6	9.3	3.8	2.8	
1/2 x 2	mm	12.7	1.65	50.8	1.65	22.2	29.4	20.0	38.1	19.7	16.0	287.3	120.7	88.9	
	in	0.500	0.065	2.000	0.065	0.9	1.2	0.8	1.5	0.8	0.6	11.3	4.8	3.5	

TOL ±1mm Note: Dimension subject to change

Size	1/4	3/8	1/2	3/4	1	1 1/2	2	2 1/2	3	4
DN	8	10	15	20	25	40	50	65	80	100

Order Example	-605	015	U	80	41	3A	1			040	94	1537	
Type of valve	-605												
Size DN		015											
Body configuration			U										
Connection (valve body)				80									
Body material					41								
Diaphragm material						3A							
Control function							1						
Actuator size													
Locking device													
Pipe main size										040			
Pipe main connection											94		
Surface finish												1537	
Special version (XXXX)													



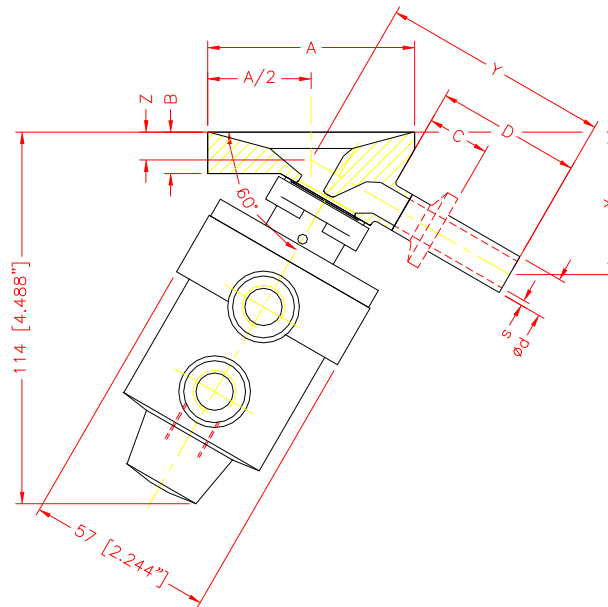
GEMÜ® Tank Bottom / Side Sampling Diaphragm Valve

Standard Features

- Sterile design
- Mechanical parts isolated from processes
- Designed to minimize fluid flow resistance
- Maximum drainage, leaving virtually no residue
- Pocket-free interior surface with no entrapment areas
- Body machined from 316L stainless steel bar stock ASME SA-479 (UNS S31 603)
- Complies with ASME Boiler & Pressure Vessel code requirements, section VIII Division #1

Typical Applications

- Media fill and transfer vessels
- CIP (*clean-in-place*) tanks
- Bioreactor & Fermentation vessels
- Water for Injection storage vessels (WFI)
- Sterile receivers
- Any process vessels used in pharmaceutical / bioprocessing applications



Connection Type	Size	DN		Ød	s	A	B	C	D	Y	X	Z
Code 59 BS OD Tubing	1/4	8	mm	6.35	1.20	63.50	12.70	15.88	41.28	65.32	44.86	12.21
			in	0.250	0.047	2.500	0.500	0.625	1.625	2.571	1.766	0.481
Code 59 BS OD Tubing	3/8	10	mm	9.53	1.20	63.50	12.70	15.88	41.28	66.23	43.48	10.37
			in	0.375	0.047	2.500	0.500	0.625	1.625	2.608	1.712	0.408
Code 59 BS OD Tubing	1/2	15	mm	12.70	1.65	63.50	12.70	15.88	41.28	67.15	42.11	8.54
			in	0.500	0.065	2.500	0.500	0.625	1.625	2.644	1.658	0.336

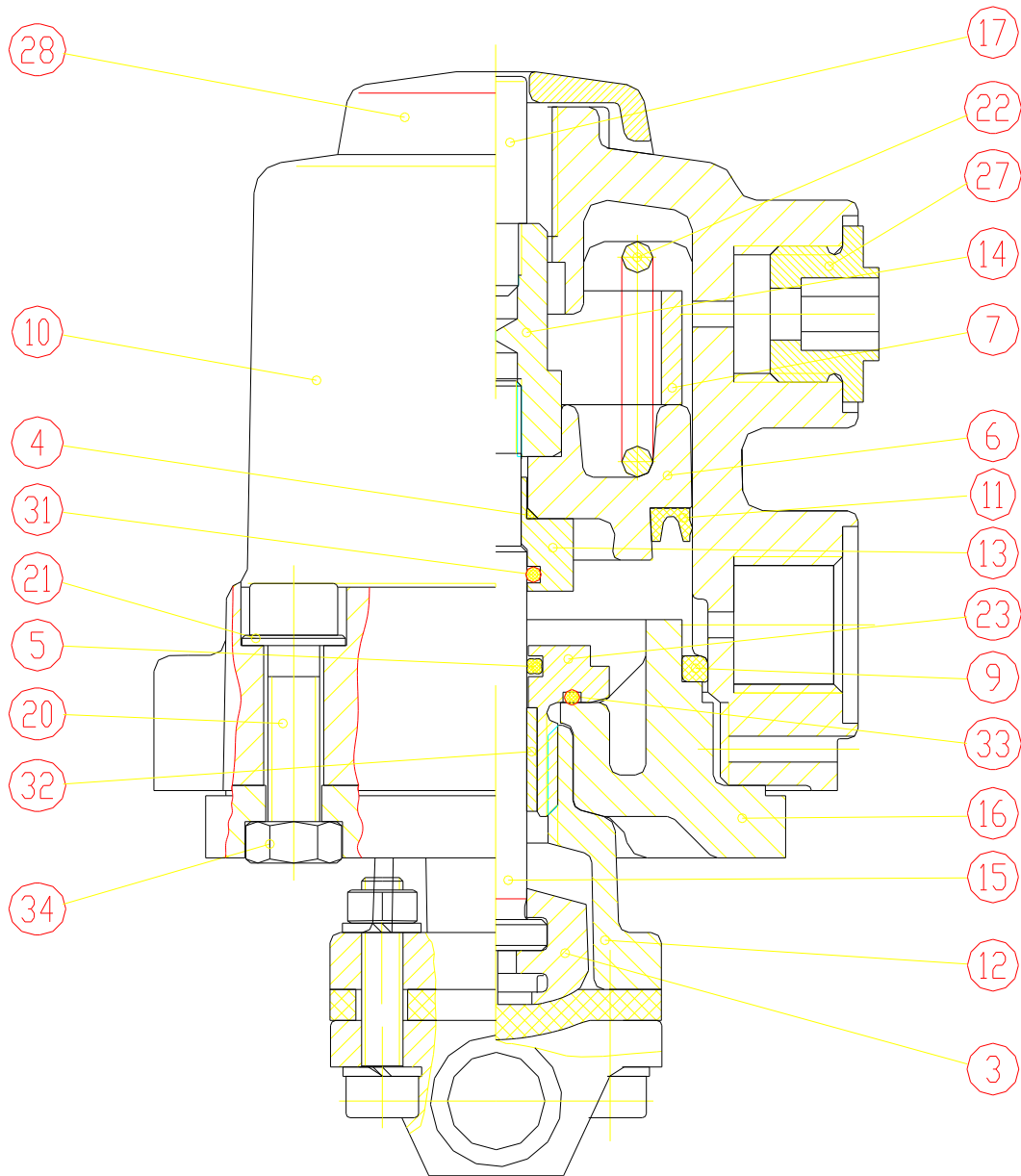
TOL ±1mm Note: Dimension subject to change

Size	1/4	3/8	1/2	3/4	1	1 1/2	2	2 1/2	3	4
DN	8	10	15	20	25	40	50	65	80	100

Order Example	-605	015	B	80	41	3A	1					1537
Type of valve	-605											
Size DN		015										
Body configuration			B									
Connection (valve body)				80								
Body material					41							
Diaphragm material						3A						
Control function							1					
Actuator size												
Locking device												
Pipe main size												
Pipe main connection												
Surface finish												1537
Special version (XXXX)												



Type 605 Spare Parts



ITEM	PART	ITEM	PART
1	Valve Body	14	Nut
2	Diaphragm	15	Valve Spindle
3	Compressor	16	Lower Part - Actuator
4	D.U. Bearing	17	Hexagon Nut
5	Quadring	18	Cylindrical Screw
6	Piston	19	Spring Washer
7	Lip Ring	21	O-Ring
8	O-Ring	26	Spring
9	Housing	27	O-Ring
10	Distance Piece	29	Distance Ring
11	Washer	31	O-Ring
12	Indicator Spindle		
13	Cylindrical Screw		