

Description

The type 687 is a compact valve with many features which make it ideal for pharmaceutical and bio-processing applications.

Sanitary Diaphragm Valve

Pneumatically Operated

Standard Features

- Compact design
- Sanitary internals
- FDA compliant diaphragms
- 316L stainless steel body
- Triclamp®, O.D. Tubing, ISO, and DIN end connections
- Sizes 1/2" - 4"

Available Options

- Handwheel, manual override
- Electrical limit and proximity switches
- Visual position indicator
- Pneumatic and electro-pneumatic positioners
- Stroke limiters
- Safety packing
- "V" notch vent plug
-

Special connections

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

Fabrications

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

Materials

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

Typical Applications

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



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Type 687

Type 687 Technical Data

Max permissible working temperature:
302°F (depending on diaphragm and body materials).

The valve will seal against flow in either direction up to full working pressure.

Control Medium DN 15-50 DN 80 + 100
Min. Required control pressure: 45 psi 82.5 psi
Max. Permissible control pressure: 90 psi 105 psi
Max. Permissible temp. of control medium: 104°F

Actuator volume: DN 15 - 25 9.2 cubic inches
 DN 32 + 40 21.4 cubic inches

| Body Configuration | Ref.no. |
|-------------------------|---------|
| Tank bottom valve body | B |
| 2-way valve body | D |
| 2-way angled valve body | E |
| Multiported valve body | M |
| Zero Static T-Valve | T |
| U-bend | U |

| Connection | Ref.no. |
|------------------------------------|---------|
| DIN | 0 |
| DIN 11850/Series 1 | 16 |
| DIN 11850/Series 2 | 17 |
| DIN 11850/Series 3 | 18 |
| Butt weld O.D. Tubing | 59 |
| Sizes 1/4-3/8" 20 gauge .035" wall | |
| Sizes 1/2-3" 16 gauge .065" wall | |
| Sizes 4" 14 gauge .083" wall | |
| ISO | 60 |
| Schedule 10 pipe | 63 |
| Tri-clamp® | 80 |
| O.D. Tubing by Triclam® | 93 |
| Extended O.D. Tubing | 94 |
| Extended O.D. Tubing by Triclam® | 95 |

| Body material | Ref.no. |
|---|---------|
| Investment cast body | |
| Stainless steel 316 L \geq 1.4435 (BN2) Fe < 0.5% | 32 |
| Stainless steel 1.4539 (UNS N 08904) | 33 |
| Forged Body | |
| Stainless steel 316 L \geq 1.4435 (ASTM A 182) | 40 |
| Stainless steel 316 L \geq 1.4435 (BN2) Fe < 0.5% | 42 |
| Machined block | |
| Stainless steel 316 L \geq 1.4435 (ASTMA 479) | 41 |
| Special versions (Consult factory for special material reference numbers) | 91 |

| Diaphragm material | Ref.no. |
|--|-------------|
| 2nd generation, modified Teflon® with Ethylene-propylene backing 2-piece molded closed | TFM/EPDM 5E |
| 2nd generation, modified Teflon® with Silicone backing 2-piece molded closed | TFM/VMQ 5S |
| Ethylene-propylene Rubber for saturated steam max 302° F | EPDM 13 |
| Ethylene-propylene Rubber for saturated steam max 302° F | EPDM 16 |
| 2nd generation, modified Teflon® with Ethylene-propylene backing (2-piece) | TFM/EPDM 50 |
| 2nd generation, modified Teflon® with Ethylene-propylene backing | TFM/EPDM 52 |

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

| Control function | Ref.no. |
|------------------|---------|
| Normally closed | 1 |
| Normally open | 2 |
| Double acting | 3 |

| Surface finish | | | | | | Ref.no. | |
|----------------|------------------------|-------------------------|-----------------------|-------|--------|---------|------|
| μ-in. | Mechanical Designation | BPE Surface Designation | Ra Average [Note (1)] | | Ra Max | | |
| | | | μ-in. | μm | μ-in. | μm | |
| 32 | Mechanical | SFV3 | 25 | 0.625 | 30 | 0.750 | 3 |
| 25 | Mechanical | SFV6 | 20 | 0.500 | 25 | 0.625 | 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.

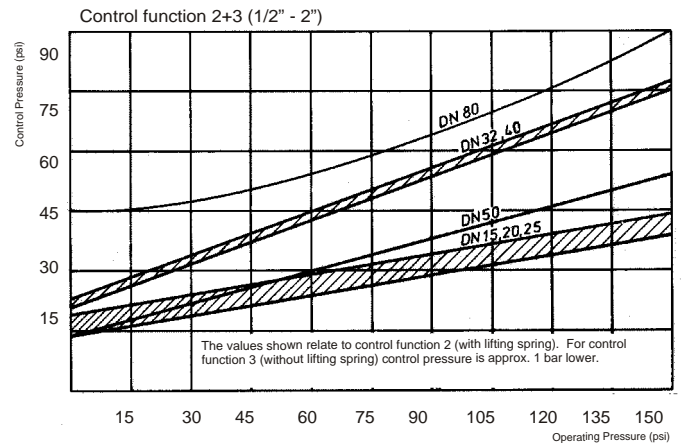
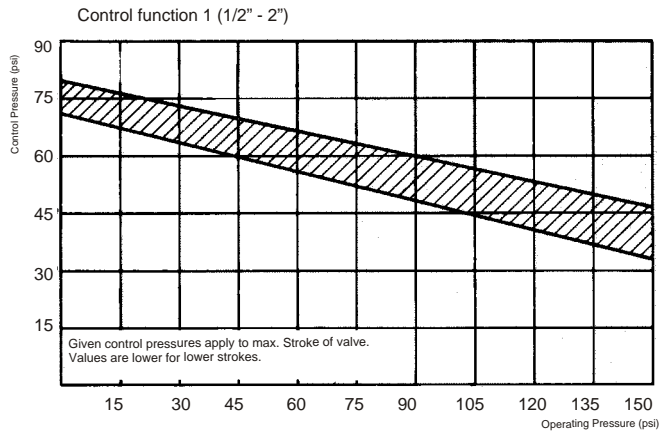
| Special Versions | Ref.no. |
|------------------|---------|
| Special versions | UXXXX |

| Order Example | -687 | 015 | U | 80 | 41 | 13 | 1 | | 040 | 94 | 1537 | |
|-------------------------|------|-----|---|----|----|----|---|--|-----|----|------|--|
| Type of valve | -687 | | | | | | | | | | | |
| Size DN | | 015 | | | | | | | | | | |
| Body configuration | | | U | | | | | | | | | |
| Connection (valve body) | | | | 80 | | | | | | | | |
| Body material | | | | | 41 | | | | | | | |
| Diaphragm material | | | | | | 13 | | | | | | |
| Control function | | | | | | | 1 | | | | | |
| Actuator size | | | | | | | | | | | | |
| Locking device | | | | | | | | | | | | |
| Pipe main size | | | | | | | | | 040 | | | |
| Pipe main connection | | | | | | | | | | 94 | | |
| Surface finish | | | | | | | | | | | 1537 | |
| Special versions (XXXX) | | | | | | | | | | | | |

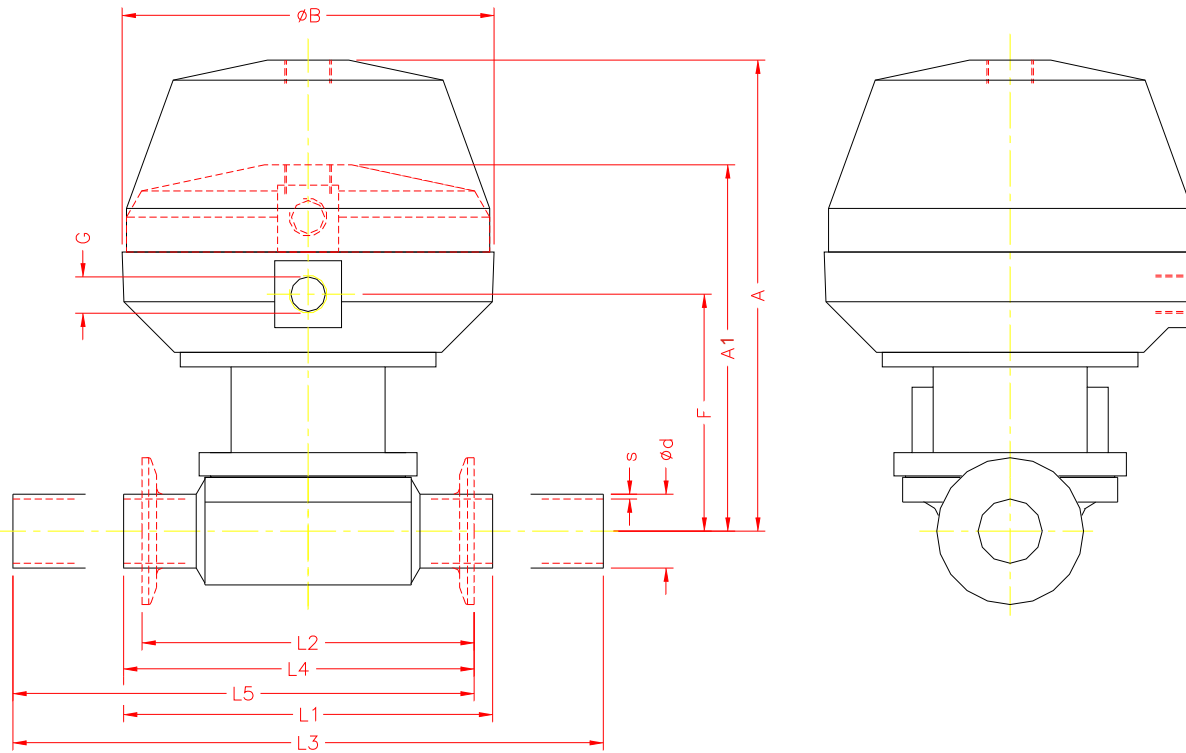
Type 687 Technical Data

| Size (In.) | Size (mm) | Body Configuration D= straight through | Control function 1 | | Control function 2 | | Control function 3 | | C _v -value (gpm) | | Weight (lbs) |
|------------|-----------|---|------------------------|--------|------------------------|--------|------------------------|--------|-----------------------------|-------------|--------------|
| | | | Working pressure (psi) | | Working pressure (psi) | | Working pressure (psi) | | ISO Connections | O.D. Tubing | |
| | | | EPDM, Viton, Silicon | Teflon | EPDM, Viton, Silicon | Teflon | EPDM, Viton, Silicon | Teflon | | | |
| 1/2 | 15 | D | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | - | 6.1 |
| 3/4 | 20 | D | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | 5.1 | 6.1 |
| 1 | 25 | D | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | 14.3 | 6.1 |
| 1 1/4 | 32 | D | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | - | 12.1 |
| 1 1/2 | 40 | D | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | 34.5 | 14.7 |
| 2 | 50 | D | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | 59.2 | 20.5 |
| 2 1/2 | 65 | D | 0 - 120 | 0 - 75 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | 80.1 | 51.1 |
| 3 | 80 | D | 0 - 120 | 0 - 75 | 0 - 150 | 0 - 90 | 0 - 150 | 0 - 90 | | 101.8 | 51.1 |
| 4 | 100 | D | 0 - 90 | 0 - 60 | 0 - 150 | 0 - 90 | 0 - 90 | 0 - 45 | | 220 | 79.8 |

All pressures are gauge pressures when applied upstream. The C_v values vary due to differences in valve construction (i.e., Port size, body material, diaphragm material, etc.)



Type 687 Dimensional Data



Take Out Dimensions for Standard Connections

| Size | DN | Units | Con. Ref. No. | $\varnothing d$ | s | (59) L1 | (80) L2 | (94) L3 | (93) L4 | (95) L5 |
|-------|-----|-------|---------------|-----------------|--------|------------|------------|------------|------------|------------|
| 1/2 | 15 | mm | 12.70 | 1.65 | 120.00 | 101.60 | 184.15 | 110.80 | 142.88 | |
| | | in | 0.500 | 0.065 | 4.724 | 4.000 | 7.250 | 4.362 | 5.625 | |
| 3/4 | 20 | mm | 19.05 | 1.65 | 120.00 | 101.60 | 190.50 | 110.80 | 146.05 | |
| | | in | 0.750 | 0.065 | 4.724 | 4.000 | 7.500 | 4.362 | 5.750 | |
| 1 | 25 | mm | 25.40 | 1.65 | 120.00 | 114.30 | 203.20 | 117.15 | 158.75 | |
| | | in | 1.000 | 0.065 | 4.724 | 4.500 | 8.000 | 4.612 | 6.250 | |
| 1 1/2 | 40 | mm | 38.10 | 1.65 | 153.00 | 139.70 | 234.95 | 146.35 | 187.33 | |
| | | in | 1.500 | 0.065 | 6.024 | 5.500 | 9.250 | 5.762 | 7.375 | |
| 2 | 50 | mm | 50.80 | 1.65 | 173.00 | 158.75 | 266.70 | 165.88 | 212.73 | |
| | | in | 2.000 | 0.065 | 6.811 | 6.250 | 10.500 | 6.531 | 8.375 | |
| 2 1/2 | 65 | mm | 63.50 | 1.65 | 216.00 | 193.68 | 292.10 | 204.84 | 242.89 | |
| | | in | 2.500 | 0.065 | 8.504 | 7.625 | 11.500 | 8.065 | 9.563 | |
| 3 | 80 | mm | 76.20 | 1.65 | 254.00 | 222.25 | 333.38 | 238.13 | 277.82 | |
| | | in | 3.000 | 0.065 | 10.000 | 8.750 | 13.125 | 9.375 | 10.938 | |
| 4 | 100 | mm | 101.60 | 2.10 | 305.00 | 292.10 | 406.40 | 298.55 | 349.25 | |
| | | in | 4.000 | 0.083 | 12.008 | 11.500 | 16.000 | 11.754 | 13.750 | |

Drain Angles

| Size | DN | Degrees |
|-------|-----|---------|
| 1/2 | 15 | 46° |
| 3/4 | 20 | 55° |
| 1 | 25 | 60° |
| 1 1/4 | 32 | 65° |
| 1 1/2 | 40 | 65° |
| 2 | 50 | 70° |
| 2 1/2 | 65 | 70° |
| 3 | 80 | 70° |
| 4 | 100 | 70° |

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

- 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

| Connection Ref. No. | 60 | 0 | 16 | 17 | 18 | 37 | | | | | | | |
|---------------------|----------------|-------|-----|----|-----|------|---|----|-----|----|---|-------|-----|
| Size DN | L ₁ | d | s | d | s | d | s | d | s | d | s | | |
| 1/2" 15 | 120 | 21.3 | 1.6 | 18 | 1.5 | 18 | 1 | 19 | 1.5 | 20 | 2 | - | - |
| 3/4" 20 | 120 | 26.9 | 1.6 | 22 | 1.5 | 22 | 1 | 23 | 1.5 | 24 | 2 | - | - |
| 1" 25 | 120 | 33.7 | 2.0 | 28 | 1.5 | 28 | 1 | 29 | 1.5 | 30 | 2 | 25.0 | 1.2 |
| 1 1/4" 32 | 153 | 42.4 | 2.0 | 34 | 1.5 | 34 | 1 | 35 | 1.5 | 36 | 2 | 33.7 | 1.2 |
| 1 1/2" 40 | 153 | 48.3 | 2.0 | 40 | 1.5 | 40 | 1 | 41 | 1.5 | 42 | 2 | 38.0 | 1.2 |
| 2" 50 | 173 | 60.3 | 2.3 | 52 | 1.5 | 52 | 1 | 53 | 1.5 | 54 | 2 | 51.0 | 1.2 |
| 2 1/2" 65 | 216 | 76.1 | 2.6 | - | - | 70.2 | 2 | - | - | - | - | 63.5 | 1.6 |
| 3" 80 | 254 | 88.9 | 2.6 | - | - | 85 | 2 | - | - | - | - | 76.1 | 1.6 |
| 4" 100 | 305 | 114.3 | 2.6 | - | - | 104 | 2 | - | - | - | - | 101.6 | 2.0 |

Dimensions

| Size | DN | Units | CF 1 A | CF 2, 3 A1 | F | G | $\varnothing B$ | Weight (lbs) |
|-------|-----|-------|-----------|---------------|-------|------|-----------------|--------------|
| 1/2 | 15 | mm | 160.5 | 131.0 | 78.5 | G1/4 | 125.0 | 6.0 |
| | | in | 6.32 | 5.16 | 3.09 | | 4.92 | |
| 3/4 | 20 | mm | 163.5 | 134.0 | 81.5 | G1/4 | 125.0 | 6.0 |
| | | in | 6.44 | 5.28 | 3.21 | | 4.92 | |
| 1 | 25 | mm | 168.5 | 137.0 | 84.5 | G1/4 | 125.0 | 6.0 |
| | | in | 6.63 | 5.39 | 3.33 | | 4.92 | |
| 1 1/4 | 32 | mm | 208.5 | 164.0 | 109.5 | G1/4 | 155.0 | 13.9 |
| | | in | 8.21 | 6.46 | 4.31 | | 6.10 | |
| 1 1/2 | 40 | mm | 210.5 | 166.0 | 111.5 | G1/4 | 155.0 | 13.9 |
| | | in | 8.29 | 6.54 | 4.39 | | 6.10 | |
| 2 | 50 | mm | 252.5 | 197.0 | 129.5 | G1/4 | 210.0 | 22.3 |
| | | in | 9.94 | 7.76 | 5.10 | | 8.27 | |
| 3 | 80 | mm | 382.0 | 341.0 | 234.0 | G1/4 | 258.0 | 53.0 |
| | | in | 15.04 | 13.43 | 9.21 | | 10.16 | |
| 4 | 100 | mm | 391.0 | 350.0 | 243.0 | G1/4 | 328.0 | 66.0 |
| | | in | 15.39 | 13.78 | 9.57 | | 12.91 | |

Type 687 Dimensional Data

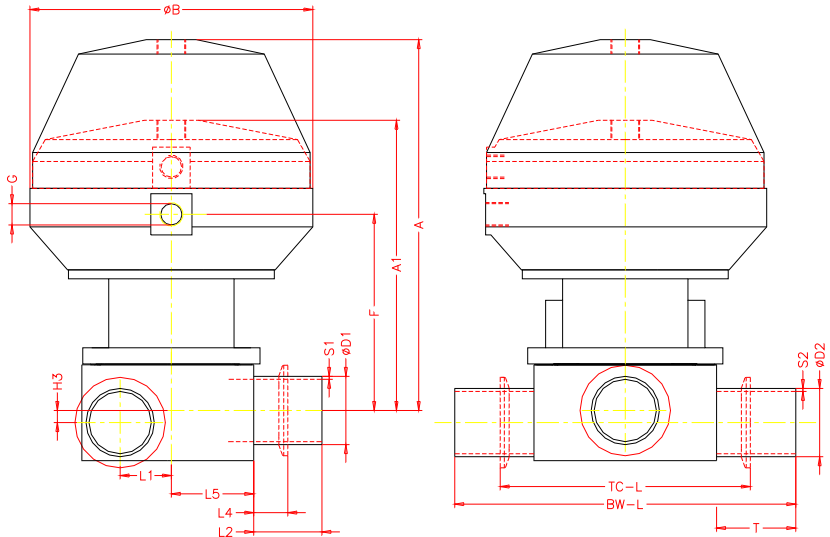
GEMÜ® Zero Static T-Valve

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
- 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 fluids



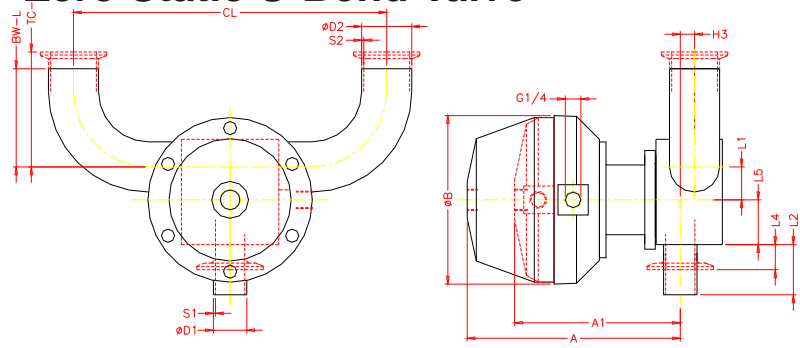
| D1 x D2 | Units | Code 59 | | | | | | | | | | Code 94 | | | | | Code 80 | | CF 1 | | | CF 2, 3 | | | ØB |
|--------------|-------|---------|-------|-------|-------|-------|------|------|------|-------|------|---------|-------|------|------|-------|---------|--------|--------|------|--------|---------|--|--|----|
| | | D1 | s1 | D2 | s2 | H3 | L1 | L2 | T | BW-L | L2 | T | BW-L | L4 | L5 | TC-L | A | A1 | F | G | | | | | |
| 1/2 x 1 | mm | 12.7 | 1.65 | 25.4 | 1.65 | 4.5 | 17.9 | 20.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.500 | 0.065 | 1.000 | 0.065 | 0.2 | 0.7 | 0.8 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1/2 x 1 1/2 | mm | 12.7 | 1.65 | 38.1 | 1.65 | 10.85 | 25.0 | 20.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.500 | 0.065 | 1.500 | 0.065 | 0.4 | 1.0 | 0.8 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1/2 x 2 | mm | 12.7 | 1.65 | 50.8 | 1.65 | 17.2 | 32.0 | 20.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.500 | 0.065 | 2.000 | 0.065 | 0.7 | 1.3 | 0.8 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1/2 x 2 1/2 | mm | 12.7 | 1.65 | 63.5 | 1.65 | 23.55 | 39.1 | 20.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.500 | 0.065 | 2.500 | 0.065 | 0.9 | 1.5 | 0.8 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1/2 x 3 | mm | 12.7 | 1.65 | 76.2 | 1.65 | 29.9 | 46.1 | 20.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.500 | 0.065 | 3.000 | 0.065 | 1.2 | 1.8 | 0.8 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1/2 x 4 | mm | 12.7 | 1.65 | 101.6 | 1.65 | 42.6 | 59.8 | 20.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.500 | 0.065 | 4.000 | 0.065 | 1.7 | 2.4 | 0.8 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 3/4 x 3/4 | mm | 19.05 | 1.65 | 19.05 | 1.65 | 1.33 | 14.4 | 25.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.750 | 0.065 | 0.750 | 0.065 | 0.1 | 0.6 | 1.0 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 3/4 x 1 | mm | 19.05 | 1.65 | 25.4 | 1.65 | 4.5 | 17.9 | 25.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.750 | 0.065 | 1.000 | 0.065 | 0.2 | 0.7 | 1.0 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 3/4 x 1 1/2 | mm | 19.05 | 1.65 | 38.1 | 1.65 | 10.85 | 25.0 | 25.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.750 | 0.065 | 1.500 | 0.065 | 0.4 | 1.0 | 1.0 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 3/4 x 2 | mm | 19.05 | 1.65 | 50.8 | 1.65 | 17.2 | 32.0 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.750 | 0.065 | 2.000 | 0.065 | 0.7 | 1.3 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 3/4 x 3 | mm | 19.05 | 1.65 | 76.2 | 1.65 | 29.9 | 46.1 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.750 | 0.065 | 3.000 | 0.065 | 1.2 | 1.8 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 3/4 x 4 | mm | 19.05 | 1.65 | 101.6 | 1.65 | 42.6 | 59.8 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 0.750 | 0.065 | 4.000 | 0.065 | 1.7 | 2.4 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 1 | mm | 25.4 | 1.65 | 25.4 | 1.65 | 4.5 | 17.9 | 25.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 1.000 | 0.065 | 0.2 | 0.7 | 1.0 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 1 1/2 | mm | 25.4 | 1.65 | 38.1 | 1.65 | 10.85 | 25.0 | 25.0 | 25.0 | 124.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 1.500 | 0.065 | 0.4 | 1.0 | 1.0 | 1.0 | 4.9 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 2 | mm | 25.4 | 1.65 | 50.8 | 1.65 | 17.2 | 32.0 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 2.000 | 0.065 | 0.7 | 1.3 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 2 1/2 | mm | 25.4 | 1.65 | 63.5 | 1.65 | 23.55 | 39.1 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 2.500 | 0.065 | 0.9 | 1.5 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 3 | mm | 25.4 | 1.65 | 76.2 | 1.65 | 29.9 | 46.1 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 3.000 | 0.065 | 1.2 | 1.8 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 4 | mm | 25.4 | 1.65 | 101.6 | 1.65 | 42.6 | 59.8 | 25.0 | 30.0 | 134.0 | 38.1 | 51.9 | 177.8 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 4.000 | 0.065 | 1.7 | 2.4 | 1.0 | 1.2 | 5.3 | 1.5 | 2.0 | 7.00 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 1 x 6 | mm | 25.4 | 1.65 | 152.4 | 1.65 | 68 | 87.3 | 25.0 | 30.0 | 134.0 | 38.1 | 63.5 | 201.0 | 19.7 | 34.0 | 113.4 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | | | |
| | in | 1.000 | 0.065 | 6.000 | 0.065 | 2.7 | 3.4 | 1.0 | 1.2 | 5.3 | 1.5 | 2.5 | 79.1 | 0.8 | 1.3 | 4.5 | 6.4 | 5.3 | 3.1 | G1/4 | 4.9 | | | | |
| 11/2 x 11/2 | mm | 38.1 | 1.65 | 38.1 | 1.65 | 6.75 | 27.1 | 25.0 | 25.0 | 152.0 | 38.1 | 50.6 | 203.2 | 19.7 | 46.0 | 141.4 | 210.50 | 166.00 | 111.50 | G1/4 | 155.00 | | | | |
| | in | 1.500 | 0.065 | 1.500 | 0.065 | 0.3 | 1.1 | 1.0 | 1.0 | 6.0 | 1.5 | 2.0 | 8.00 | 0.8 | 1.8 | 5.6 | 8.3 | 6.5 | 4.4 | G1/4 | 6.1 | | | | |
| 11/2 x 2 | mm | 38.1 | 1.65 | 50.8 | 1.65 | 13.1 | 34.1 | 25.0 | 30.0 | 162.0 | 38.1 | 50.6 | 203.2 | 19.7 | 46.0 | 141.4 | 210.50 | 166.00 | 111.50 | G1/4 | 155.00 | | | | |
| | in | 1.500 | 0.065 | 2.000 | 0.065 | 0.5 | 1.3 | 1.0 | 1.2 | 6.4 | 1.5 | 2.0 | 8.00 | 0.8 | 1.8 | 5.6 | 8.3 | 6.5 | 4.4 | G1/4 | 6.1 | | | | |
| 11/2 x 2 1/2 | mm | 38.1 | 1.65 | 63.5 | 1.65 | 19.45 | 41.2 | 25.0 | 30.0 | 162.0 | 38.1 | 50.6 | 203.2 | 19.7 | 46.0 | 141.4 | 210.50 | 166.00 | 111.50 | G1/4 | 155.00 | | | | |
| | in | 1.500 | 0.065 | 2.500 | 0.065 | 0.8 | 1.6 | 1.0 | 1.2 | 6.4 | 1.5 | 2.0 | 8.00 | 0.8 | 1.8 | 5.6 | 8.3 | 6.5 | 4.4 | G1/4 | 6.1 | | | | |
| 11/2 x 3 | mm | 38.1 | 1.65 | 76.2 | 1.65 | 25.8 | 48.2 | 25.0 | 30.0 | 162.0 | 38.1 | 50.6 | 203.2 | 19.7 | 46.0 | 141.4 | 210.50 | 166.00 | 111.50 | G1/4 | 155.00 | | | | |
| | in | 1.500 | 0.065 | 3.000 | 0.065 | 1.0 | 1.9 | 1.0 | 1.2 | 6.4 | 1.5 | 2.0 | 8.00 | 0.8 | 1.8 | 5.6 | 8.3 | 6.5 | 4.4 | G1/4 | 6.1 | | | | |
| 11/2 x 4 | mm | 38.1 | 1.65 | 101.6 | 1.65 | 38.5 | 61.9 | 25.0 | 30.0 | 162.0 | 38.1 | 50.8 | 203.6 | 19.7 | 46.0 | 141.4 | 210.50 | 166.00 | 111.50 | G1/4 | 155.00 | | | | |
| | in | 1.500 | 0.065 | 4.000 | 0.065 | 1.5 | 2.4 | 1.0 | 1.2 | 6.4 | 1.5 | 2.0 | 8.02 | 0.8 | 1.8 | 5.6 | 8.3 | 6.5 | 4.4 | G1/4 | 6.1 | | | | |
| 11/2 x 6 | mm | 38.1 | 1.65 | 152.4 | 1.65 | 63.9 | 89.4 | 25.0 | 30.0 | 162.0 | 38.1 | 63.5 | 229.0 | 19.7 | 46.0 | 141.4 | 210.50 | 166.00 | 111.50 | G1/4 | 155.00 | | | | |
| | in | 1.500 | 0.065 | 6.000 | 0.109 | 2.5 | 3.5 | 1.0 | 1.2 | 6.4 | 1.5 | 2.5 | 9.02 | 0.8 | 1.8 | 5.6 | 8.3 | 6.5 | 4.4 | G1/4 | 6.1 | | | | |
| 2 x 2 | mm | 50.8 | 1.65 | 50.8 | 1.65 | 9.2 | 35.3 | 30.0 | 30.0 | 184.0 | 44.5 | 52.3 | 228.6 | 19.7 | 55.0 | 163.4 | 252.50 | 197.00 | 129.50 | G1/4 | 210.00 | | | | |
| | in | 2.000 | 0.065 | 2.000 | 0.065 | 0.4 | 1.4 | 1.2 | 1.2 | 7.2 | 1.8 | 2.1 | 9.00 | 0.8 | 2.2 | 6.4 | 9.9 | 7.8 | 5.1 | G1/4 | | | | | |

Type 687 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 of 1.5" for automatic orbital welding



| D1 x D2 | Units | D1 | s1 | D2 | s2 | H3 | L1 | Code 59 | | Code 94 | | L4 | L5 | CL | BW-L | Code 80 | CF 1 | CF 2, 3 | F | G | ØB |
|---------|-------|-------|-------|-------|-------|-----|------|---------|------|---------|------|-------|------|------|--------|---------|-------|---------|--------|---|----|
| | | | | | | | | L2 | L2 | L2 | L2 | | | | | | | | | | |
| 1/2 x 1 | mm | 12.7 | 1.65 | 25.4 | 1.65 | 4.5 | 17.9 | 20.0 | 38.1 | 19.7 | 34.0 | 240.4 | 76.2 | 50.8 | 162.00 | 133.50 | 78.50 | G1/4 | 125.00 | | |
| | in | 0.500 | 0.065 | 1.000 | 0.065 | 0.2 | 0.7 | 0.8 | 1.5 | 0.8 | 1.3 | 9.5 | 3.0 | 2.0 | 6.4 | 5.3 | 3.1 | | 4.9 | | |

| | | | | | | | | | | |
|------|-----|-----|-----|-----|----|-------|----|-------|----|-----|
| 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 |

TOL ±1mm Note: Dimension subject to change

Type 687 Dimensional Data

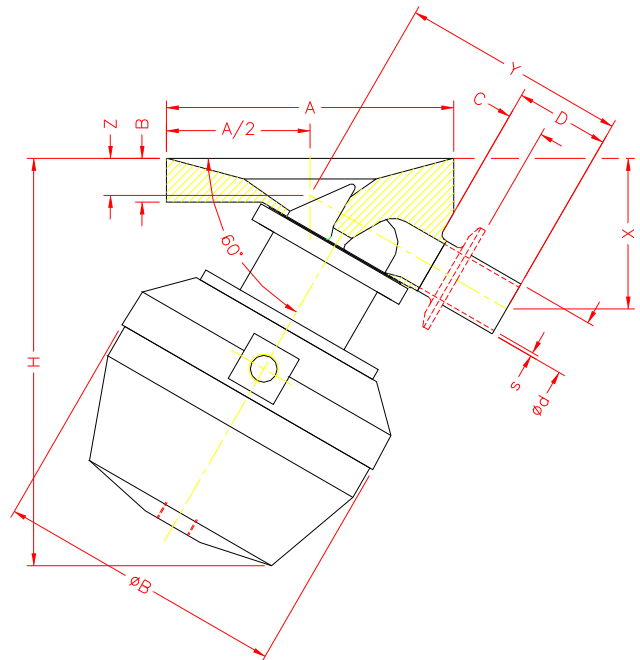
GEMÜ® Tank Bottom / Side Sampling Diaphragm Valve

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



| Size | DN | 59 | | A | A/2 | B | C | D | X | Y | Z | ØB | H | |
|-------|-----|----|-------|-------|--------|--------|-------|-------|-------|--------|--------|-------|--------|--------|
| | | Ød | s | | | | | | | | | | | |
| 1/2 | 15 | mm | 12.70 | 1.65 | 127.00 | 63.50 | 19.30 | 16.06 | 41.46 | 72.11 | 96.56 | 23.83 | 125.00 | 180.00 |
| | | in | 0.500 | 0.065 | 5.000 | 2.500 | 0.760 | 0.632 | 1.632 | 2.839 | 3.802 | 0.938 | 4.921 | 7.087 |
| 3/4 | 20 | mm | 19.05 | 1.65 | 127.00 | 63.50 | 19.30 | 16.06 | 41.46 | 69.35 | 98.39 | 21.08 | 125.00 | 180.00 |
| | | in | 0.750 | 0.065 | 5.000 | 2.500 | 0.760 | 0.632 | 1.632 | 2.730 | 3.874 | 0.830 | 4.921 | 7.087 |
| 1 | 25 | mm | 25.4 | 1.65 | 127.00 | 63.50 | 19.30 | 16.06 | 41.46 | 66.50 | 100.30 | 16.35 | 125.00 | 180.00 |
| | | in | 1.000 | 0.065 | 5.000 | 2.500 | 0.760 | 0.632 | 1.632 | 2.618 | 3.949 | 0.644 | 4.921 | 7.087 |
| 1 1/2 | 40 | mm | 38.1 | 1.65 | 177.80 | 88.90 | 22.22 | 17.46 | 42.86 | 77.73 | 122.23 | 16.62 | 158.00 | 223.80 |
| | | in | 1.500 | 0.065 | 7.000 | 3.500 | 0.875 | 0.687 | 1.687 | 3.060 | 4.812 | 0.654 | 6.220 | 8.811 |
| 2 | 50 | mm | 50.8 | 1.65 | 203.20 | 101.60 | 25.40 | 17.46 | 42.86 | 84.41 | 133.01 | 17.90 | 210.00 | 273.80 |
| | | in | 2.000 | 0.065 | 8.000 | 4.000 | 1.000 | 0.687 | 1.687 | 3.323 | 5.237 | 0.705 | 8.268 | 10.780 |
| 2 1/2 | 65 | mm | 63.5 | 1.65 | 203.20 | 101.60 | 25.40 | 17.46 | 42.86 | 79.02 | 136.62 | 10.72 | 210.00 | 273.80 |
| | | in | 2.500 | 0.065 | 8.000 | 4.000 | 1.000 | 0.687 | 1.687 | 3.111 | 5.379 | 0.422 | 8.268 | 10.780 |
| 3 | 80 | mm | 76.2 | 1.65 | 266.70 | 133.35 | 28.57 | 16.66 | 42.06 | 103.95 | 169.39 | 19.26 | 258.00 | 380.40 |
| | | in | 3.000 | 0.065 | 10.500 | 5.250 | 1.125 | 0.656 | 1.656 | 4.093 | 6.669 | 0.758 | 10.157 | 14.976 |
| 4 | 100 | mm | 101.6 | 2.00 | 368.30 | 184.15 | 31.75 | 22.23 | 44.45 | 133.31 | 213.88 | 26.36 | 328.00 | 410.20 |
| | | in | 4.000 | 0.079 | 14.500 | 7.250 | 1.250 | 0.875 | 1.750 | 5.248 | 8.420 | 1.038 | 12.913 | 16.150 |

TOL ±1mm Note: Dimension subject to change

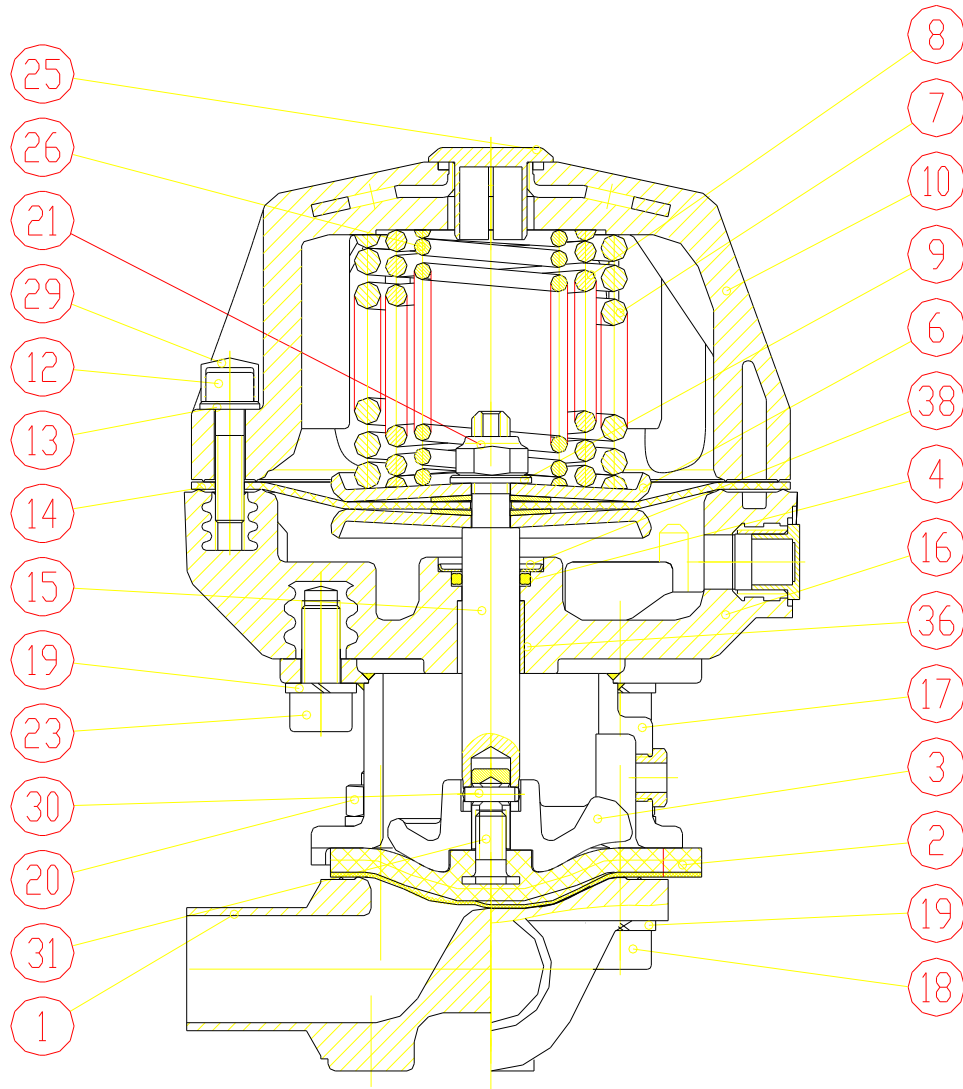
| Size | 1/2 | 3/8 | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 2 1/2 | 3 | 4 |
|------|-----|-----|-----|-----|----|-------|----|-------|----|-----|
| DN | 8 | 10 | 15 | 20 | 25 | 40 | 50 | 65 | 80 | 100 |

| | | | | | | | | | | | | | |
|-------------------------|------|-----|---|----|----|----|---|--|--|--|--|--|------|
| Order Example | -687 | 025 | B | 80 | 41 | 13 | 1 | | | | | | 1537 |
| Type of valve | -687 | | | | | | | | | | | | |
| Size DN | 025 | | | | | | | | | | | | |
| Body configuration | B | | | | | | | | | | | | |
| Connection (valve body) | 80 | | | | | | | | | | | | |
| Body material | 41 | | | | | | | | | | | | |
| Diaphragm material | 13 | | | | | | | | | | | | |
| Control function | 1 | | | | | | | | | | | | |
| Actuator size | | | | | | | | | | | | | |
| Locking device | | | | | | | | | | | | | |
| Pipe main size | | | | | | | | | | | | | |
| Pipe main connection | | | | | | | | | | | | | |
| Surface finish | 1537 | | | | | | | | | | | | |
| Special version (XXXX) | | | | | | | | | | | | | |



GEMÜ® VALVES, ACTUATORS AND CONTROL SYSTEMS

Type 687 Spare Parts



| ITEM | PART |
|------|------------------|
| 1 | Valve Body |
| 2 | Diaphragm |
| 3 | Compressor |
| 4 | Quadrang |
| 6 | Membrane Plate |
| 7 | Spring |
| 8 | Spring |
| 9 | Washer |
| 10 | Actuator Dome |
| 12 | Socket-Head Bolt |
| 13 | Washer |
| 14 | Membrane |
| 15 | Spindle |
| 16 | Actuator Base |
| 17 | Extension Piece |
| 18 | Socket-Head Bolt |
| 19 | Spring Washer |
| 20 | Nut |
| 21 | Locking Nut |
| 22 | Washer |
| 23 | Socket-Head Bolt |
| 25 | Cap |
| 26 | Spring |
| 29 | Cap |
| 30 | Pin |
| 31 | Stem |
| 33 | Nut |
| 34 | Cap |
| 35 | Nut |
| 36 | DU-Bearing |
| 37 | Lock Ring |
| 38 | Washer |
| 39 | Seal Ring |