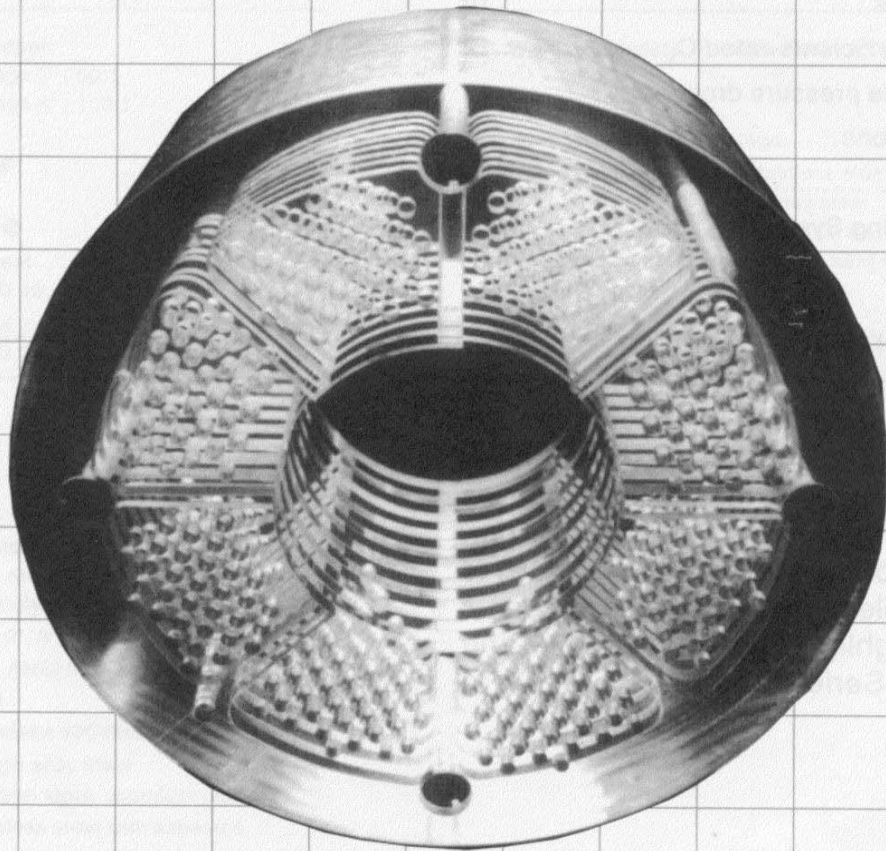


High Pressure Anti-Cavitation Valves featuring Variable Resistance Trim



Masoneilan

DRESSER

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79000 Series Valves

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Foreword

These specifications have been assembled to provide technical information required for specifying valves featuring Variable Resistance Trim. A companion Bulletin (No. 386E) is available to explain design concepts and highlight the many 41000 and 79000 Series features.

79000 Series specifications

VRT - The 79000 Series Valves

| Valve Size (in) | ANSI Class | | | |
|-----------------|------------|-----|------|------|
| | 600 | 900 | 1500 | 2500 |
| 1 | • | • | • | • |
| 1 1/2 | • | • | • | • |
| 2 | • | • | • | • |
| 3 | • | • | • | • |
| 4 | • | • | • | • |
| 6 | • | • | • | • |

general data

flow direction : flow-to-open

Cv ratio : 1" through 2" ; 50:1

3" through 6" ; 100:1

maximum fluid

temperature : + 450° F

minimum fluid

temperature : - 20° F ❶

seat leakage : metal seat

ANSI B 16. 104, Class V

soft seat

ANSI B 16. 104, Class VI

trim

type : multi-plate, Variable Resistance

Trim

flow

characteristic : modified percentage

materials : plug; type 440 C stainless steel

stem; 17-4 PH stainless steel

multi-plate stack; type 410 stainless steel

seat ring; stainless steel, hard faced with

optional Teflon insert

body

type : forged angle

materials : carbon steel

stainless steel

chrome molybdenum

sizes : 1", 1 1/2", 2", 3", 4", 6"

connections : mates to ANSI flanges

butt weld

ratings : ANSI Classes 600 through 2500

bolting material : studs; high alloy steel

nuts; carbon steel, cadmium plated

gaskets : 304 stainless steel with asbestos

filler

seals : carbon - graphite filled Teflon –

spring energized

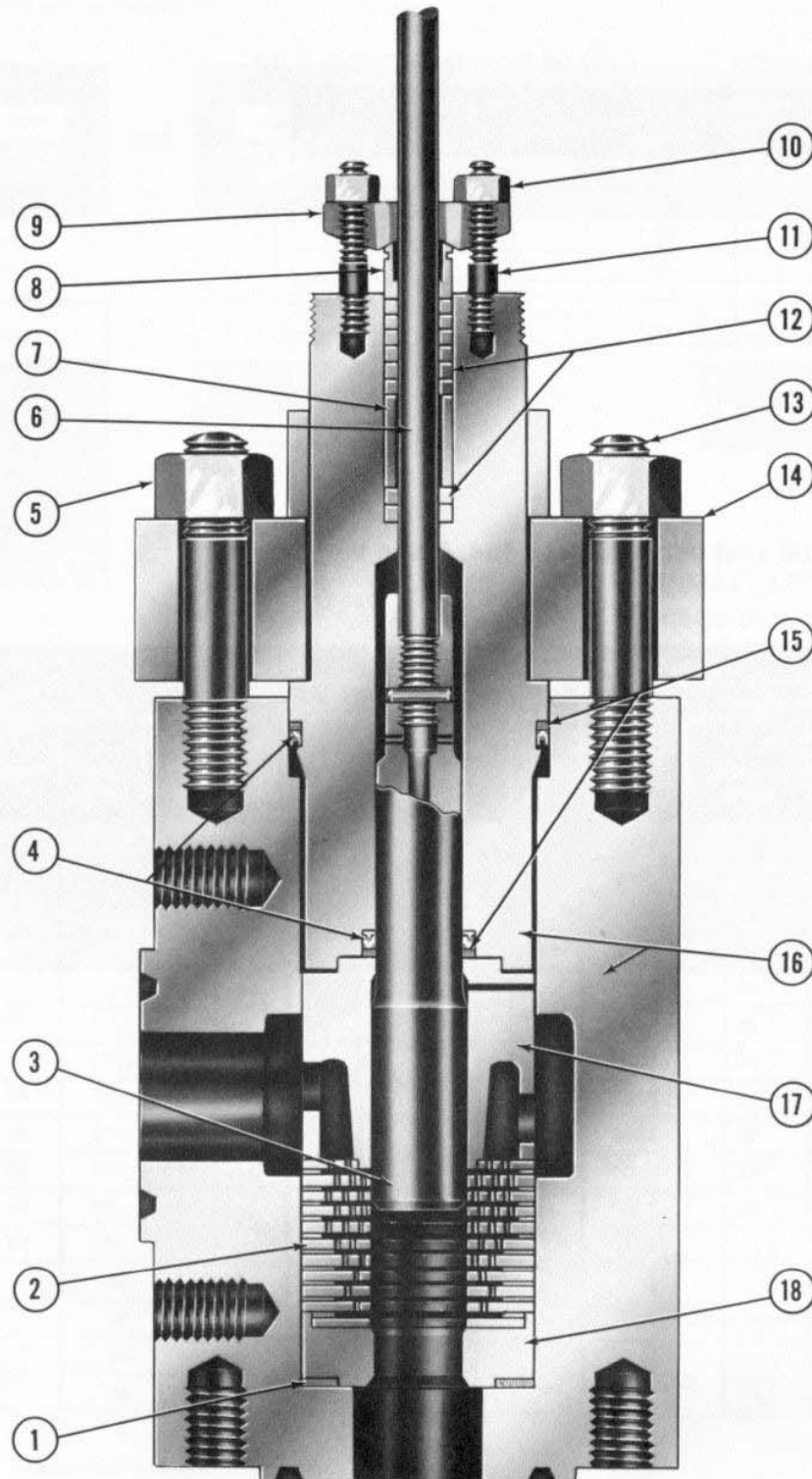
packing : Teflon jacketed asbestos

guide : 440C stainless steel

❶ Consult Masoneilan for lower temperature service.

79000 Series materials

| Part No. | Temperature | |
|----------|--------------------------|---|
| | -20° F | 450° F |
| | Part Name | Standard Materials |
| 1 | Gaskets | 304 stainless steel with asbestos filler |
| 2 | VRT Plate Assembly | ASTM A176 Ty 410 |
| 3 | Plug | ASTM A276 Ty 440-C, hardened |
| 4 | Seals | Carbon-graphite filled Teflon – spring energized |
| 5 | Nuts | ASTM A194 GR 2-H, cadmium plated |
| 6 | Stem | ASTM A564 GR 630 Condition H1075 |
| 7 | Packing Spacer | ASTM A582 Ty 303 |
| 8 | Packing Follower | ASTM A582 Ty 303 |
| 9 | Packing Flange | ASTM A108 GR B1213 |
| 10 | Packing Flange Nuts | ASTM A194 GR8 |
| 11 | Packing Flange Studs | ASTM A193 GR B7 |
| 12 | Packing | Teflon jacketed asbestos |
| 13 | Studs | ASTM A193 GR B7 |
| 14 | Bonnet Flange (2" to 6") | ASTM A515 GR 70 |
| 15 | Backup Rings | Teflon (virgin) |
| 16 | Body and Bonnet | ASTM A105 – 73 (carbon steel) |
| | | ASTM A 182 GRF-5 (5% chrome, 0.5% moly) |
| | | ASTM A 182 GRF316 (stainless steel) |
| 17 | Cage | 1" to 2"; ASTM A582 Ty 416 |
| | | 3" to 6"; ASTM A487 GR CA6NM |
| 18 | Seat Ring | Stainless steel, hard faced – optional with Teflon insert |



79000 Series flow coefficients (rated C_v) and allowable pressure drops

Flow coefficients; rated C_v Critical flow factor; $C_f = 1.00$

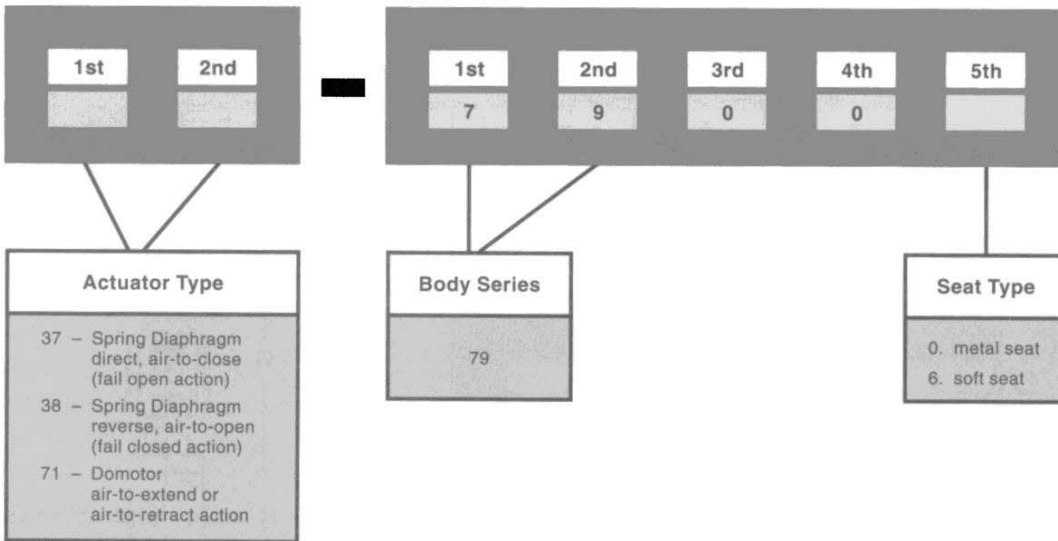
| Valve Size (in) | Stroke (in) | Full Area | | Reduced Area | |
|-----------------|-------------|-----------|-------------|--------------|-------------|
| | | C_v | C_v Ratio | C_v | C_v Ratio |
| 1 | 1.25 | 2.0 | 50:1 | 1.0 | 50:1 |
| 1 1/2 | 1.50 | 4.5 | 50:1 | 2.3 | 50:1 |
| 2 | 2.00 | 14.0 | 50:1 | 7.5 | 80:1 |
| 3 | 2.25 | 35.0 | 100:1 | 17.5 | 100:1 |
| 4 | 2.50 | 50.0 | 100:1 | 27.0 | 100:1 |
| 6 | 3.00 | 105.0 | 100:1 | 52.0 | 100:1 |

Seat leakage : metal seat per ANSI B16.104, Class V
 Temperature : -20°F to +450°F
 Flow direction : flow-to-open

| Valve Size (in) | Spring Diaphragm Actuator | | | | | | | | Domotor | | | | | |
|-----------------|---------------------------|---------------------|---------------|----------------------------|-------------|---------------------|----------------------------|-----------|------------|---------------|----------------|----------------------------|------------|--|
| | Air-To-Close | | | | Air-To-Open | | | | Hand-wheel | | | | | |
| | Act. Size | Spring Range (psig) | Supply (psig) | Allow. Press. Drop (psi) ① | Act. Size | Spring Range (psig) | Allow. Press. Drop (psi) ① | Act. Size | | Supply (psig) | Preload (psig) | Allow. Press. Drop (psi) ① | Hand-wheel | |
| 1 | 15 | 3-13 | 40 | 6000 | 15 | 13-27 | 5100 | 6A3 | B | 70 | 60 | 6000 | B | |
| | | | 30 | 4000 | | | | | | | | | | |
| 1 1/2 | 15 | 3-12 | 55 | 6000 | 18 (20") | 20-26 | 6000 | 6A3 | C | 75 | 65 | 6000 | C | |
| | | | 35 | 2600 | | | | | | | | | | |
| 2 | 18 | 3-11 | 40 | 6000 | 18 (20") | 18-30 | 6000 | 6A3 | C | 65 | 55 | 6000 | C | |
| | | | 25 | 2400 | | | | | | | | | | |
| 3 | 18 | 3-14 | 60 | 5000 | 18 (20") | 15-29 | 2000 | 6A3 | D | 70 | 60 | 6000 | D | |
| | | | 40 | 2300 | | | | | | 50 | 40 | 3500 | | |
| 4 | 18 | 3-15 | 60 | 4500 | 18 (20") | 15-30 | 2000 | 6A3 | D | 70 | 60 | 6000 | D | |
| | | | 40 | 2000 | | | | | | 45 | 35 | 3000 | | |
| 6 | 18 (16") | 3-13 | 60 | 3000 | 18 (20") | 13-30 | 800 | 8-A | D | 95 | 85 | 6000 | D | |
| | | | 40 | 1250 | | | | | | 60 | 50 | 3000 | | |

① Inlet pressure must not exceed the ANSI body rating.

79000 Series numbering system and allowable pressure drops



Seat leakage : soft seat per ANSI B16.104, Class VI

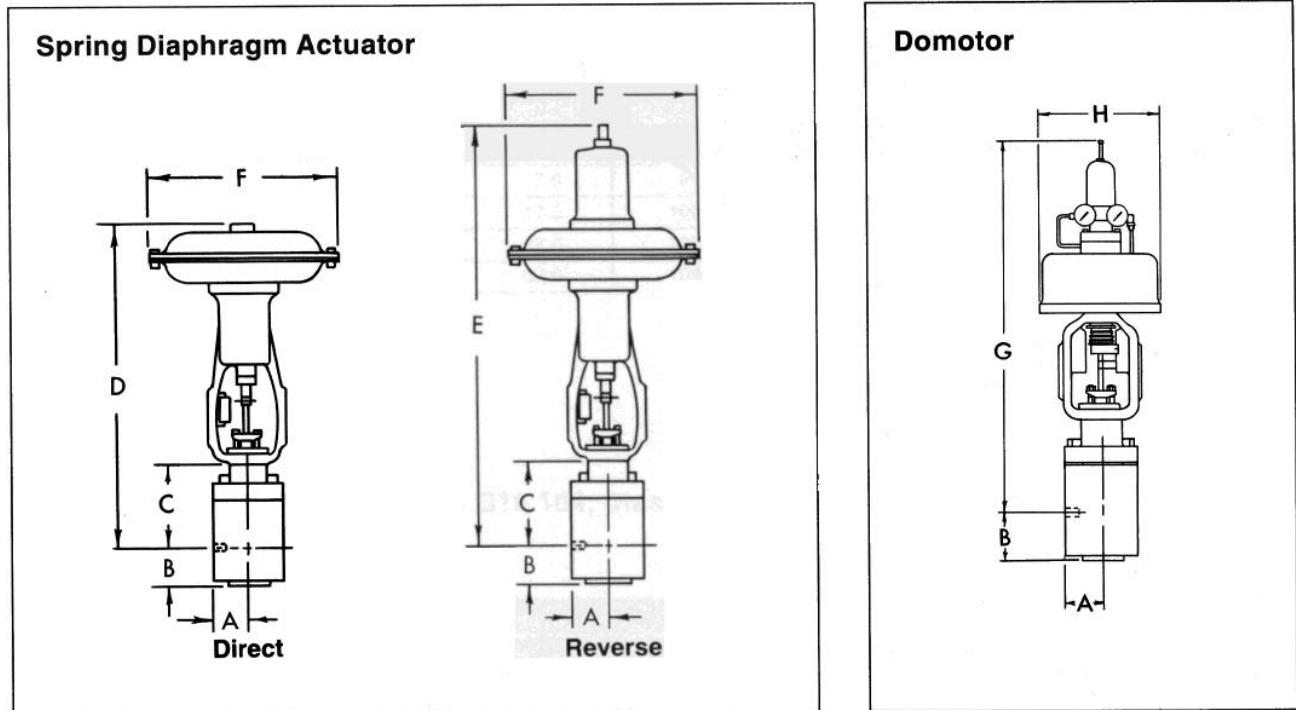
Temperature : -20°F to +450°F

Flow direction : flow-to-open

| Valve Size (in) | Spring Diaphragm Actuators | | | | | | | | Domotor | | | | |
|-----------------|----------------------------|---------------------|---------------|----------------------------|-------------|---------------------|----------------------------|-----------|------------|---------------|----------------|--------------------------|------------|
| | Air-To-Close | | | | Air-To-Open | | | | Hand-wheel | | | | |
| | Act. Size | Spring Range (psig) | Supply (psig) | Allow. Press. Drop (psi) ① | Act. Size | Spring Range (psig) | Allow. Press. Drop (psi) ① | Act. Size | | Supply (psig) | Preload (psig) | Allow. Press. Drop (psi) | Hand-wheel |
| 1 | 15 | 3-13 | 40 | 6000 | 15 | 13-27 | 4000 | 6A3 | B | 75 | 65 | 6000 | B |
| 1 1/2 | 15 | 3-12 | 60 | 6000 | 18 (20") | 20-26 | 5900 | 6A3 | C | 80 | 70 | 6000 | C |
| | | | 35 | 2250 | | | | | | | | | |
| 2 | 18 | 3-11 | 40 | 6000 | 18 (20") | 18-30 | 5700 | 6A3 | C | 65 | 55 | 6000 | C |
| | | | 25 | 2400 | | | | | | | | | |
| 3 | 18 (16") | 3-11 | 60 | 5000 | 18 (20") | 15-29 | 1600 | 6A3 | D | 70 | 60 | 6000 | D |
| | | | 40 | 2300 | | | | | | 45 | 35 | 3000 | |
| 4 | 18 (16") | 3-11 | 60 | 4500 | 18 (20") | 15-30 | 1500 | 6A3 | D | 75 | 65 | 6000 | D |
| | | | 40 | 2300 | | | | | | 50 | 40 | 3000 | |
| 6 | 18 (16") | 3-13 | 60 | 2500 | 18 (20") | 13-30 | 500 | 8-A | D | 100 | 90 | 5400 | D |
| | | | 40 | 1000 | | | | | | 70 | 60 | 3000 | |

① Inlet pressure must not exceed the ANSI body rating.

79000 Series dimensions and weights



Dimensions (in.)

Dimensions for butt weld construction on request

| Valve Size (in) | ANSI Class | A | B | C | Spring Diaphragm Actuators | | | | | Domotor | | | | |
|-----------------|------------|-----|------|------|----------------------------|--------------|----------------------|-------------|----------------------|---------|--------|------|------|----------------------|
| | | | | | Size | Air-To-Close | | Air-To-Open | | F | Series | G | H | Shipping Wt. (lbs) ① |
| | | | | | | D | Shipping Wt. (lbs) ① | E | Shipping Wt. (lbs) ① | | | | | |
| 1 | 600-2500 | 2.8 | 4.6 | 7.2 | 15 | 32.6 | 210 | 42.5 | 235 | 17.5 | B | 26.9 | 9.3 | 105 |
| | | | | | 15 | 34.1 | 300 | - | - | 17.5 | C | 34.0 | 12.5 | 225 |
| 1 1/2 | 600-2500 | 3.3 | 4.6 | 8.7 | 18 (20") | - | - | 44.0 | 575 | 20.8 | C | 34.0 | 12.5 | 225 |
| | | | | | 18 | 37.7 | 490 | - | - | 20.8 | C | 36.2 | 12.5 | 355 |
| 2 | 600-2500 | 4.4 | 6.0 | 10.9 | 18 (20") | - | - | 62.9 | 700 | 20.8 | C | 36.2 | 12.5 | 355 |
| | | | | | 18 | 38.6 | 825 | - | - | 20.8 | D | 51.3 | 18.0 | 815 |
| 3 | 600-2500 | 6.1 | 7.9 | 11.8 | 18 (16") | 45.0 | 840 | - | - | 20.8 | D | 51.3 | 18.0 | 815 |
| | | | | | 18 (20") | - | - | 63.8 | 1035 | 20.8 | D | 51.3 | 18.0 | 815 |
| 4 | 600-2500 | 7.1 | 8.9 | 13.4 | 18 | 40.2 | 1155 | - | - | 20.8 | D | 52.9 | 18.0 | 1145 |
| | | | | | 18 (16") | 46.6 | 1170 | - | - | 20.8 | D | 52.9 | 18.0 | 1145 |
| 6 | 600-2500 | 9.0 | 12.0 | 18.9 | 18 (20") | - | - | 65.4 | 1365 | 20.8 | D | 58.9 | 18.0 | 2535 |
| | | | | | 18 (16") | 52.1 | 2560 | - | - | 20.8 | D | 58.9 | 18.0 | 2535 |
| | | | | | 18 (20") | - | - | 70.9 | 2755 | 20.8 | D | 58.9 | 18.0 | 2535 |

① Approximate weight including valve.

14017 and 41037 Series specifications

41017 Series Valves

| Valve Size (in) | ANSI Class | | | | |
|-----------------|------------|-----|-----|------|------|
| | 300 | 600 | 900 | 1500 | 2500 |
| 8 | • | • | • | • | • |
| 10 | • | • | • | • | |
| 12 | • | • | • | | |

41037 Series Valves

| Valve Size (in) | ANSI Class | | | | |
|-----------------|------------|-----|-----|------|------|
| | 300 | 600 | 900 | 1500 | 2500 |
| 6 | • | • | • | • | • |
| 8 | • | • | • | • | • |
| 10 | • | • | • | • | |
| 16 | • | • | • | | |

general data

flow direction : flow-to-open

Cv ratio : 41017

8"; 80:1

10", 12"; 100:1

41037

100:1

maximum fluid

temperature : + 450° F

minimum fluid

temperature : - 20° F ❶

seat leakage : ANSI B16. 104, Class V

10"; ANSI Class 300 through 1500

16"; ANSI Class 300 through 900

bolting material : studs; high alloy steel

nuts; carbon steel, cadmium

plated

gaskets : 304 stainless steel with asbestos

filler

seals : carbon-graphite filled Teflon –

spring energized

packing : Crane 285

guide bushing : Type 440C stainless steel

body

type : cast, high capacity globe

materials : carbon steel

stainless steel

chrome molybdenum

sizes : 6", 8", 10", 12", 16"

connections : flanged

butt weld

ratings : 41017

8"; ANSI Class 300 through 2500

10"; ANSI Class 300 through 1500

12"; ANSI Class 300 through 900

41037

6" and 8"; ANSI Class 300

through 2500

trim

type : multi-plate, Variable Resistance

Trim

flow

characteristic : 41017; linear

41037; modified percentage

materials : plug

41017; 440C stainless steel

41037; (6") 440C stainless steel

(8"-16") 17-4 PH stainless steel

stem; 17-4 PH stainless steel

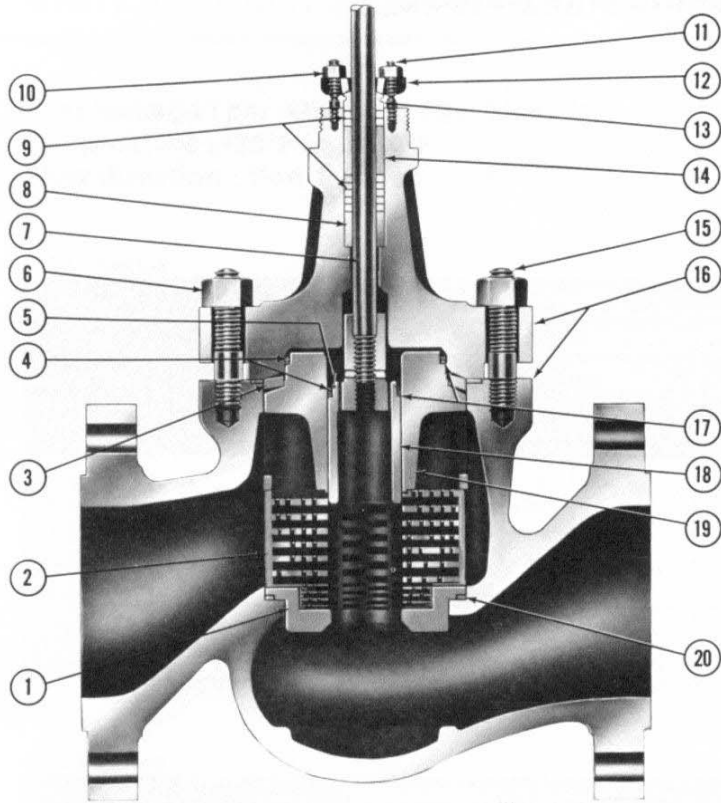
multi-plate stack; type 410 stainless steel

seat ring; stainless steel, hard faced

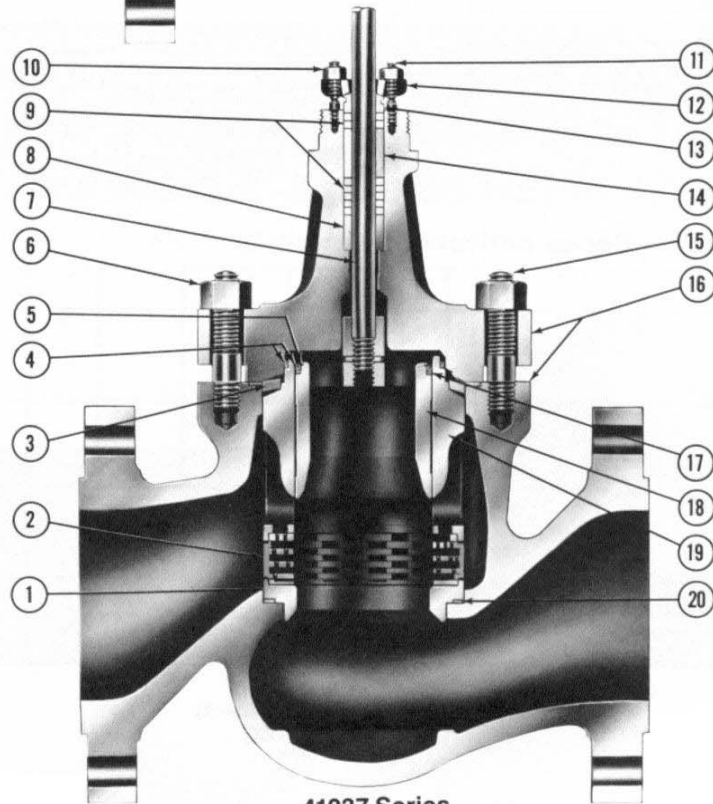
❶ Consult Masoneilan for lower temperature services.

41017 and 41037 Series valve materials

| Part No. | Temperature | |
|----------|---------------------|--|
| | -20° F | 450° F |
| | Part Name | Standard Materials |
| 1 | Seat Ring | 316 stainless steel-hard faced |
| 2 | VRT Disc Assembly | ASTM A176 Ty 410 |
| 3 | Flat Spring | ASTM A564 GR 630 |
| 4 | Seals | Carbon-graphite filled Teflon – spring energized |
| 5 | Retaining Ring | ASTM A313 |
| 6 | Nuts | ASTM A194 GR 2H |
| 7 | Stem | ASTM A564 GR 630 Condition H1075 |
| 8 | Guide Bushing | ASTM A276 Ty 440 |
| 9 | Packing | Crane 285 |
| 10 | Packing Flange Nuts | ASTM A194 GR8 |
| 11 | Packing Flange Stud | ASTM A193 GR B8 |
| 12 | Packing Flange | ASTM A108 GR B1213 |
| 13 | Packing Follower | ASTM A582 Ty 303 |
| 14 | Packing Spacer | ASTM A582 Ty 303 |
| 15 | Studs | ASTM A193 GR B7 |
| 16 | Body and Bonnet | ASTM A216 GR WCB (carbon steel) ASTM A217-C5 (chrome-molybdenum steel) ASTM A351 GR CF8M (stainless steel) |
| 17 | Back-up Ring | Teflon (virgin) |
| 18 | Plug | ASTM A276 Ty 440-C ASTM ACI-CB-7CU Cond. 1075 (for 41037 Series 8" through 16") |
| 19 | Cage | ASTM A 487 GR CA6NM |
| 20 | Gaskets | Spiral wound Ty 304 stainless steel with asbestos filler |



41017 Series



41037 Series

41017 and 41037 Series flow coefficients (rated C_v)

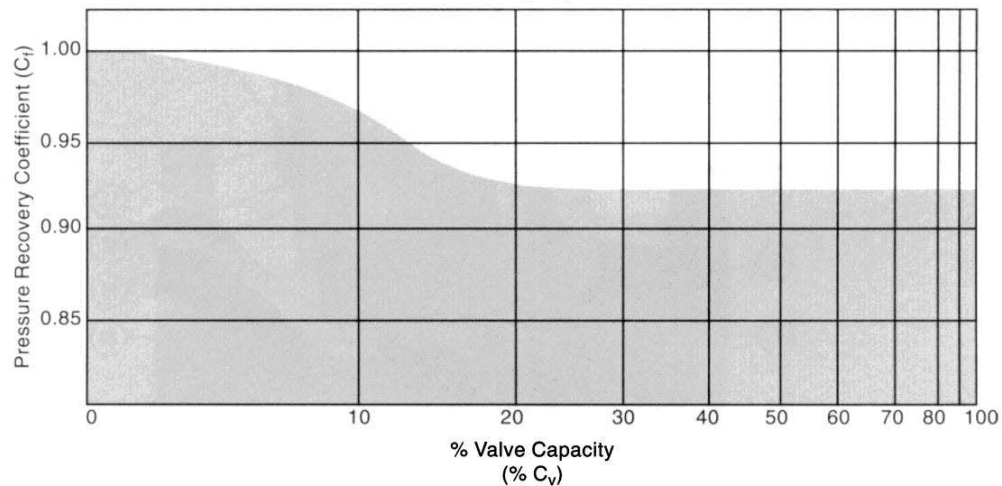
41017 Series flow coefficients; rated C_v
Critical flow factor; $C_f = 1.0$

| Valve Size (in) | Stroke (in) | C_v | C_v Ratio |
|-----------------|-------------|-------|-------------|
| 8 | 4 | 130 | 80:1 |
| 10 | | 210 | 100:1 |
| 12 | | 305 | 100:1 |

41037 Series flow coefficients; rated C_v

| Valve Size (in) | Stroke (in) | C_v | C_v Ratio |
|-----------------|-------------|-------|-------------|
| 6 | 3 | 235 | 100:1 |
| 8 | 4 | 460 | |
| 10 | 4 | 700 | |
| 16 | 6 | 1800 | |

41037 Series critical flow factor; C_f



41017 and 41037 Series allowable pressure drops

Seat leakage : per ANSI B16.104, Class V
Temperature : -20°F to +450°F
Flow direction : flow-to-open

41017 Series

| Valve Size (in) | Spring Diaphragm Actuators | | | | | | | | Domotors | | | | | |
|-----------------|----------------------------|---------------------|---------------|----------------------------|-------------|---------------------|----------------------------|-----------|------------|---------------|----------------|----------------------------|------------|--|
| | Air-To-Close | | | | Air-To-Open | | | | Hand-wheel | | | | | |
| | Act. Size | Spring Range (psig) | Supply (psig) | Allow. Press. Drop (psi) ① | Act. Size | Spring Range (psig) | Allow. Press. Drop (psi) ① | Act. Size | | Supply (psig) | Preload (psig) | Allow. Press. Drop (psi) ① | Hand-wheel | |
| 8 | 18-L (16") | 6-30 | 60 | 3750 | 18 (20") | 9-33 | 2600 | 8-A | D | 45 | 35 | 6000 | D | |
| 10 | 18-L (16") | 6-30 | 55 | 3100 | 18 (20") | 9-33 | 1800 3100 ② | 8-A | D | 35 | 25 | 3750 | D | |
| 12 | 18-L (16") | 6-30 | 55 | 2250 | 18 (20") | 9-33 | 2250 ② | 8-A | D | 30 | 20 | 2250 | D | |

41037 Series

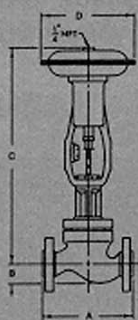
| Valve Size (in) | Spring Diaphragm Actuators | | | | | | | | Domotors | | | | | |
|-----------------|----------------------------|---------------------|---------------|----------------------------|-------------|---------------------|----------------------------|-----------|------------|---------------|----------------|----------------------------|------------|--|
| | Air-To-Close | | | | Air-To-Open | | | | Hand-wheel | | | | | |
| | Act. Size | Spring Range (psig) | Supply (psig) | Allow. Press. Drop (psi) ① | Act. Size | Spring Range (psig) | Allow. Press. Drop (psi) ① | Act. Size | | Supply (psig) | Preload (psig) | Allow. Press. Drop (psi) ① | Hand-wheel | |
| 6 | 18-L (16") | 8-30 | 55 | 4100 | 18 (20") | 13-30 | 3700 | 8-A | D | 50 | 40 | 6000 | D | |
| 8 | 18-L (16") | 6-30 | 60 | 3750 | 18 (20") | 9-33 | 2500 ② | 8-A | D | 50 | 40 | 6000 | D | |
| 10 | 18-L (16") | 6-30 | 60 | 3750 | 18 (20") | 9-33 | 2200 ② | 8-A | D | 35 | 25 | 3750 | D | |
| 16 | - | - | - | - | - | - | - | - | D | 40 | 30 | 2250 | D | |

① Inlet pressure must not exceed the ANSI body rating.

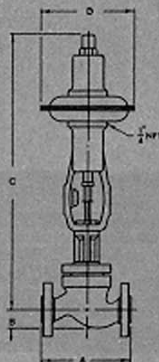
② ANSI B16.104, Class IV Leakage Only.

41017 and 41037 Series dimensions

Spring Diaphragm Actuator

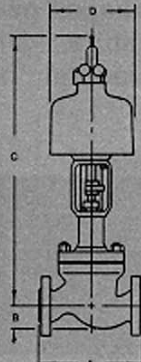


Direct



Reverse

Domotor



All dimensions in inches

| Valve Size | A | | | | | | | | B | | | | |
|------------|------------|-------|-------|-------|------------|-------|-------|-------|----------------------|-------|-------|-------|-------|
| | Flanged | | | | Butt-weld | | | | Flanged or Butt-weld | | | | |
| | ANSI Class | | | | ANSI Class | | | | ANSI Class | | | | |
| | 300 | 600 | 900 | 1500 | 600 | 900 | 1500 | 2500 | 300 | 600 | 900 | 1500 | 2500 |
| 6 | 18.64 | 20.00 | 28.12 | 30.24 | 20.00 | 30.24 | 30.24 | 30.00 | 6.20 | 6.20 | 6.50 | 6.50 | 9.88 |
| 8 | 22.36 | 24.00 | 36.00 | 38.24 | 24.00 | 38.24 | 38.24 | 37.50 | 7.60 | 7.60 | 8.10 | 8.10 | 10.00 |
| 10 | 27.88 | 29.62 | ① | ① | 29.62 | 46.00 | 46.00 | - | 9.20 | 9.20 | 9.00 | 10.00 | - |
| 12 | 30.50 | 32.24 | ① | - | 32.24 | 48.00 | - | - | 13.10 | 13.10 | 13.20 | - | - |
| 16 | 41.62 | - | ① | - | - | 54.50 | - | - | 17.50 | - | 18.00 | - | - |

| Valve Size | ANSI Class | C | | | D | |
|------------|------------|--------------------------------|---------|---------|--------------------------------|---------|
| | | # 18 Spring Diaphragm Actuator | | Domotor | # 18 Spring Diaphragm Actuator | Domotor |
| | | Direct | Reverse | | | |
| 6 | 300, 600 | 48.7 | 67.5 | 56.2 | 20.7 | 18.0 |
| | 900, 1500 | 48.7 | 67.5 | | | |
| | 2500 | 52.3 | 71.1 | | | |
| 8 | 300, 600 | 52.8 | 71.6 | 60.3 | 20.7 | 18.0 |
| | 900, 1500 | 52.9 | 71.7 | | | |
| | 2500 | 55.3 | 74.1 | | | |
| 10 | 300, 600 | 55.4 | 74.2 | 62.9 | 20.7 | 18.0 |
| | 900, 1500 | 55.7 | 74.5 | | | |
| 12 | 300, 600 | 57.5 | 76.3 | 65.0 | 20.7 | 18.0 |
| | 900 | 57.1 | 75.9 | | | |
| 16 | 300 | 60.5 | 79.3 | 68 | 20.7 | 18.0 |
| | 600 | ① | ① | | | |
| | 900 | 60.5 | 79.3 | | | |

① Consult Masonellan.

41017 and 41037 Series weights and numbering system

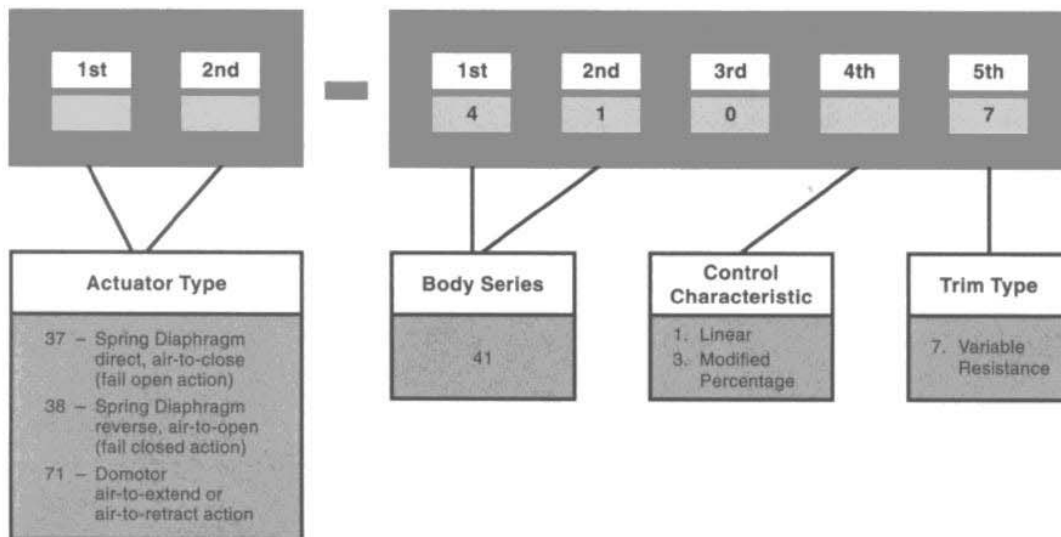
Boby sub-assembly weight (lbs.)

| Valve Size | ANSI Class | | | | | | | | | |
|------------|------------|------|------|------|------|-----------|------|------|------|--|
| | Flanged | | | | | Butt-weld | | | | |
| | 300 | 600 | 900 | 1500 | 2500 | 600 | 900 | 1500 | 2500 | |
| 6 | 540 | 573 | 1159 | 1181 | ① | 516 | 869 | 869 | 1243 | |
| 8 | 921 | 967 | 1525 | 1800 | ① | 779 | 1545 | 1545 | 2066 | |
| 10 | 1388 | 1492 | ① | ① | – | 1206 | 1571 | 2145 | – | |
| 12 | 2160 | 2238 | ① | – | – | 2103 | 2674 | – | – | |
| 16 | 3206 | – | ① | – | – | – | 5172 | – | – | |

① Consult Masonellan.

Actuator weight (lbs.)

| Size | Action | |
|------|--------|---------|
| | Direct | Reverse |
| 18 | 180 | 250 |
| 18L | 190 | 370 |
| C | 60 | |
| D | 360 | |





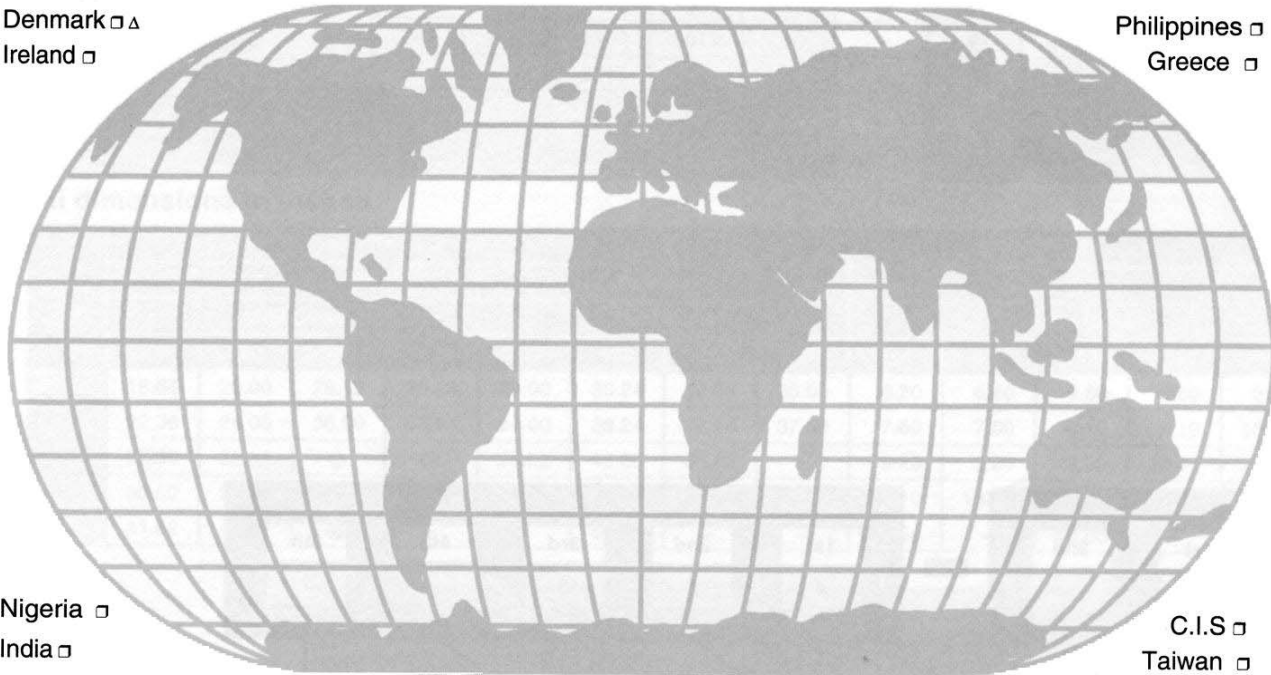
Certificat n° 1990/70

ISO 9001/EN 29001



Certificat n° 3555

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 △ Stocking centres

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