

Series 65.0

Main applications

Downstream pressure control and isolation valve for SEMI and FPD processes

Optimal for corrosive etching and cleaning processes



Ordering information

Valve with stepper motor and integrated pressure controller

| DN | | Ordering numbers | | | | | | | | | | | |
|-----|------|------------------|---|-----|----------|-------------------------|---|----------|---|---|----------|---|---|
| mm | inch | aluminum | | | | aluminum, hard anodized | | | | | | | |
| | | ISO-F | | JIS | | ISO-F | | JIS | | | | | |
| 100 | 4 | 65040-PA | x | y | 65040-JA | x | y | 65040-PH | x | y | 65040-JH | x | y |
| 160 | 6 | 65044-PA | x | y | 65044-JA | x | y | 65044-PH | x | y | 65044-JH | x | y |
| 200 | 8 | 65046-PA | x | y | 65046-JA | x | y | 65046-PH | x | y | 65046-JH | x | y |
| 250 | 10 | 65048-PA | x | y | 65048-JA | x | y | 65048-PH | x | y | 65048-JH | x | y |
| 320 | 12 | 65050-PA | x | y | 65050-JA | x | y | 65050-PH | x | y | 65050-JH | x | y |
| 350 | 14 | – | | | 65051-JA | x | y | – | | | 65051-JH | x | y |
| 400 | 16 | 65052-PA | x | y | 65052-JA | x | y | 65052-PH | x | y | 65052-JH | x | y |

Controller configurations:

- G = basic version
- A = with SPS
- H = with PFO
- C = with SPS and PFO
- T = basic version with VC master
- V = with SPS and VC master
- U = with PFO and VC master
- W = with SPS, PFO and VC master

SPS = Sensor Power Supply
(±15VDC power supply for sensor)

PFO = Power Failure Option
(valve closes/opens automatically at power failure)

VC = Valve Cluster
(for operating several valves synchronously)

Interface

- G = RS232 1
- H = RS232 2
- C = Logic 1
- E = Logic 2
- P = DeviceNet® 1
- Q = DeviceNet® 2
- D = Profibus 1
- F = Profibus 2
- J = RS485 1
- K = RS485 2
- Y = Ethernet 1
- Z = Ethernet 2
- L = CC-Link 1
- N = CC-Link 2
- I = EtherCAT 1
- X = EtherCAT 2
- S = VC slave (without interface)

Number of sensors

Example: 65040-PAGG
= Aluminum valve
with ISO-F DN 100 flanges,
RS232 interface, for 1 sensor

Pressure controller: see pages 146 – 149

Features

Body material:
aluminum or
aluminum, hard anodized

Compact design

Fast, virtually particle-free and shock-free operation

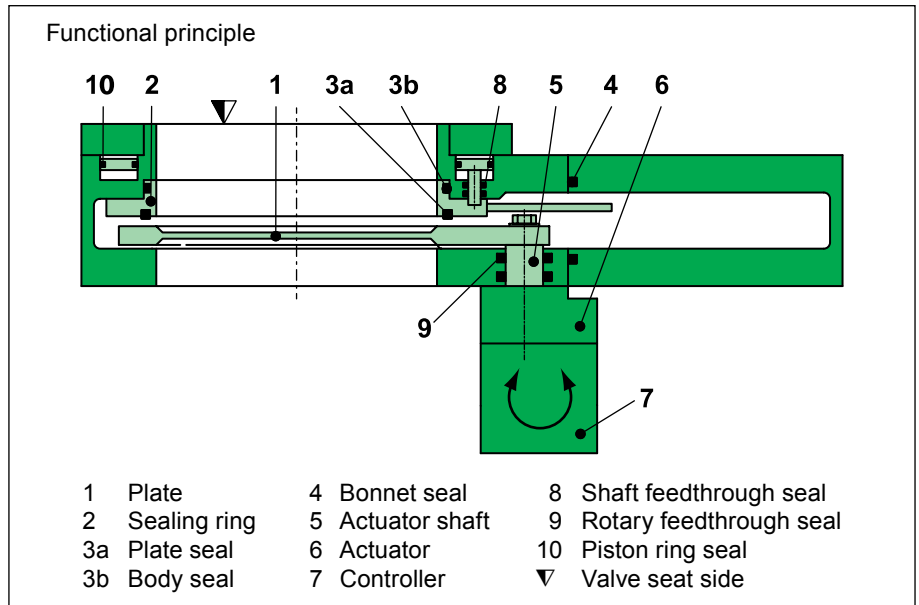
Integrated or external pressure controller

Extremely short control response times

Position indication

Service port for connecting a computer or a service box 2

Easy maintenance

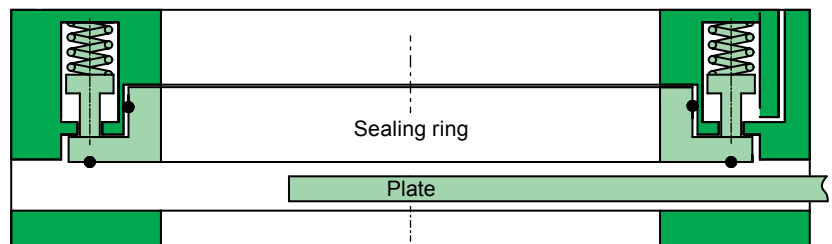


B

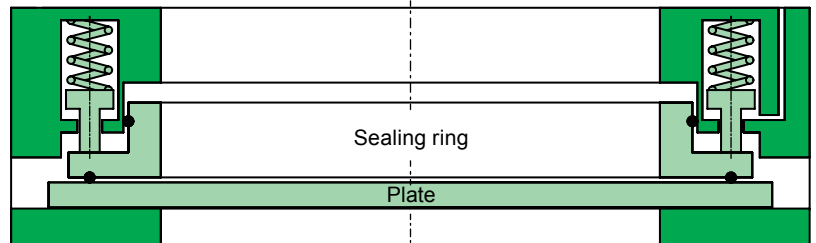
The plate acts as a throttling element and varies the conductance of the valve opening. The pressure controller calculates the required plate position to achieve the setpoint pressure. See also principle drawing on page 280. Actuation is performed by a stepper motor. An encoder monitors the position. This principle ensures fast and accurate process pressure control.

For leaktight closing the sealing ring is pressed downwards by a spring. For opening the sealing ring is lifted pneumatically.

Pressure control



Isolation



Technical data

| | |
|--|---|
| Leak rate ¹⁾ : valve body | |
| – Aluminum | 1 · 10 ⁻⁹ mbar ls ⁻¹ |
| – Aluminum, hard anodized | 1 · 10 ⁻⁵ mbar ls ⁻¹ |
| Leak rate ¹⁾ : valve seat | |
| – Aluminum | 1 · 10 ⁻⁹ mbar ls ⁻¹ |
| – Aluminum, hard anodized | 1 · 10 ⁻⁴ mbar ls ⁻¹ |
| Pressure range ¹⁾ | |
| – Aluminum | 1 · 10 ⁻⁸ mbar to 1.2 bar (abs) |
| – Aluminum, hard anodized | 1 · 10 ⁻⁶ mbar to 1.2 bar (abs) |
| Cycles until first service ²⁾ | |
| – Pressure control | 1 million |
| – Closing/opening | 200 000 |
| Temperature ²⁾ | |
| – Valve body | ≤ 120 °C |
| – Ambient | ≤ 50 °C |
| Material | |
| – Valve body, plate | EN AW-6082 (3.2315) |
| – Sealing ring | EN AW-6082 (3.2315), AISI 305 (1.4303), AISI 420C (1.3541), AISI 631 (1.4568) |
| – Other parts | AISI 316L (1.4404, 1.4435), AISI 440 (1.4122), AISI 301 (1.4310), AISI 316 Ti (1.4571), AISI 304 (1.4301) |
| Seal: bonnet, plate, body, feedthrough | FKM (Viton®) |
| Feedthrough | |
| – Actuator | rotary feedthrough |
| – Sealing ring | shaft feedthrough |
| Mounting position | |
| – DN 100–250 | any ³⁾ |
| – DN 320–400 | horizontal only ³⁾ |

¹⁾ Unheated on delivery

²⁾ Maximum values: depending on operating conditions and sealing materials

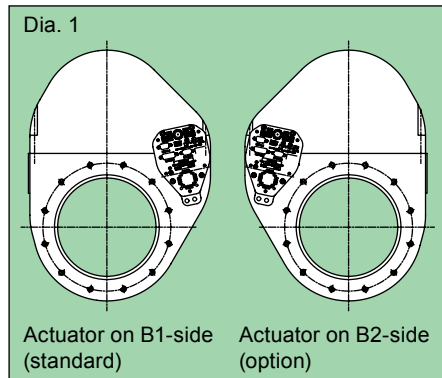
³⁾ Valve seat on chamber side recommended

| DN (nominal I.D.) | | Conductance (molecular flow) | Minimum controllable conductance (molecular flow) | Max. differential pressure on the plate | Max. differential pressure during operation | Compressed air min. – max. overpressure | | Operating time for throttling | Typical closing/opening time | | Weight | |
|-------------------|------|------------------------------|---|---|---|---|--------|-------------------------------|------------------------------|---------------|---------------|-----|
| mm | inch | | | | | bar | psi | | s | Open → closed | Closed → open | kg |
| 100 | 4 | 1 700 | 3 | 1 200 | 30 | 4–7 | 58–102 | 0.7 | 3 | 4 | 12 | 27 |
| 160 | 6 | 5 000 | 5 | 1 200 | 10 | 4–7 | 58–102 | 0.8 | 3 | 4 | 18 | 40 |
| 200 | 8 | 12 000 | 10 | 1 200 | 5 | 4–7 | 58–102 | 0.9 | 3 | 4 | 22 | 49 |
| 250 | 10 | 22 000 | 15 | 1 200 | 5 | 4–7 | 58–102 | 0.9 | 3 | 4 | 29 | 64 |
| 320 | 12 | 30 000 | 22 | 1 200 | 5 | 4–7 | 58–102 | 1.1 | 5 | 6 | 48 | 106 |
| 350 | 14 | 43 000 | 25 | 1 200 | 5 | 4–7 | 58–102 | 1.3 | 5 | 6 | 59 | 130 |
| 400 | 16 | 61 000 | 30 | 1 200 | 5 | 4–7 | 58–102 | 1.5 | 5 | 6 | 68 | 150 |

Technical data for pressure controller: see pages 146–149

Options

Certain options are not available for some nominal diameters or cannot be combined. Moreover, options can affect the general technical data.



Actuator

- Actuator on B2-side (Dia. 1)
- Controller with configurable PID parameters (adaptive, upstream, downstream, soft-pump)
- RS232 interface with 2 analog outputs

Valve

- Other sizes, e.g. DN 80
- Other flanges, e.g. ASA-LP
- Customer specified flanges, e.g. rectangular flange for direct mounting to chamber
- Surface treatment, e.g. nickel-plated
- Other sealing materials
- KF ports in body
- Heater with insulation (Pic. 2) for valve temperatures up to 120 °C (for valve temperatures up to 200 °C on request)
- Valve with detached pressure controller (Pic. 3)
- Valve for pressure control only (no leaktight closing)
- Wedge-shaped plate for smaller controllable conductances
 - DN 320: 16 ls⁻¹ (standard 22 ls⁻¹)
 - DN 350: 19 ls⁻¹ (standard 25 ls⁻¹)
 - DN 400: 22 ls⁻¹ (standard 30 ls⁻¹)

Ordering information for options:

Ordering No. of valve-X (e. g. 65046-PAGH-X, X = valve with heater for 120 °C)

Spare parts

- **Seals**
on request (specify fabrication number of valve)

Accessories

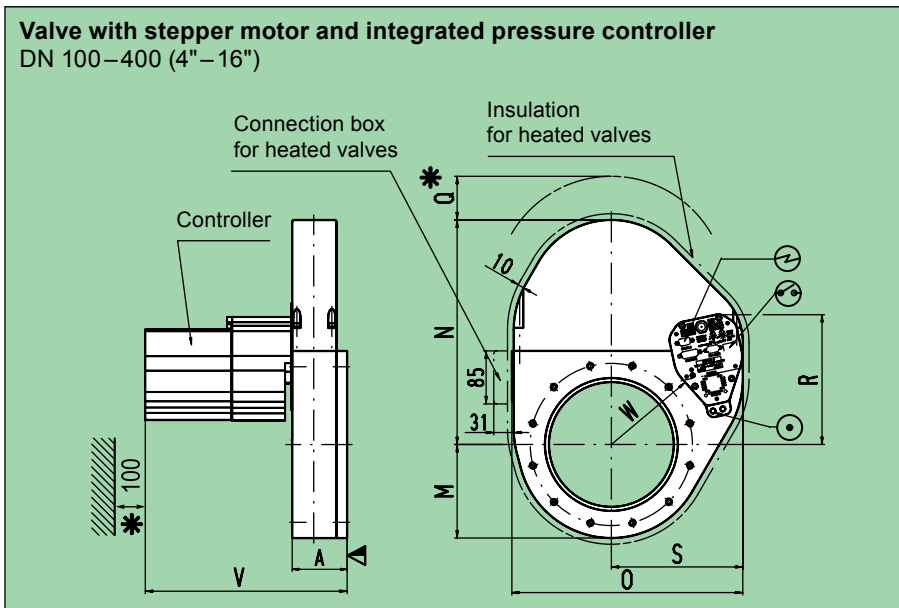
- **Flange connections**
for installation of the valve: see series 32

Easy maintenance



- Valve need not be removed from the system
- Fast removal and reinstallation of plate and sealing ring
- Only 2 standard tools required

Main dimensions

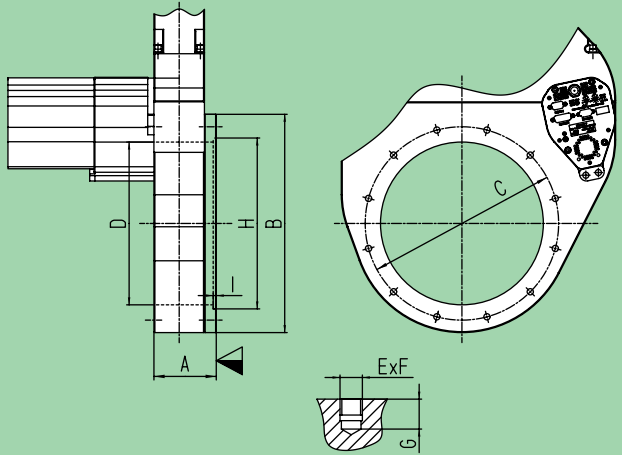


- ▽ Valve seat side
- * Required for dismantling
- ⊙ Compressed air connection
- ⊕ Electrical connection
- ⊗ Position indicator

| DN | mm inch | 100 4 | 160 6 | 200 8 | 250 10 | 320 12 | 350 14 | 400 16 |
|----|------------|-----------------|----------------|-----------------|-----------------|-----------------|--------------|--------------|
| A | mm inch | 70 2.76 | 88 3.46 | 88 3.46 | 100 3.94 | 120 4.72 | 126 4.96 | 128 5.04 |
| M | mm inch | 95 3.74 | 121.50 4.78 | 150 5.91 | 175 6.89 | 214 8.43 | 235 9.25 | 260 10.24 |
| N | mm inch | 200 7.87 | 302 11.88 | 360 14.17 | 438 17.24 | 538 21.18 | 590 23.23 | 655 25.79 |
| O | mm inch | 260.90 10.27 | 321 12.64 | 370.15 14.57 | 442.70 17.43 | 536.40 21.12 | 582 22.91 | 633 24.92 |
| Q | mm inch | 50 1.97 | 50 1.97 | 50 1.97 | 50 1.97 | 50 1.97 | 50 1.97 | 50 1.97 |
| R | mm inch | 176 6.93 | 192 7.56 | 208.50 8.21 | 233.50 9.19 | 277 10.91 | 290 11.42 | 313 12.32 |
| S | mm inch | 162.90 6.41 | 184.70 7.27 | 210.80 8.30 | 246.40 9.70 | 274.50 10.81 | 300 11.81 | 320 12.60 |
| V | mm inch | 308 12.13 | 326 12.83 | 326 12.83 | 331 13.03 | 351 13.82 | 358 14.09 | 360 14.17 |
| W | mm inch | 94 3.70 | 121 4.76 | 151 5.94 | 194 7.64 | 236 9.29 | 257 10.12 | 292 11.50 |

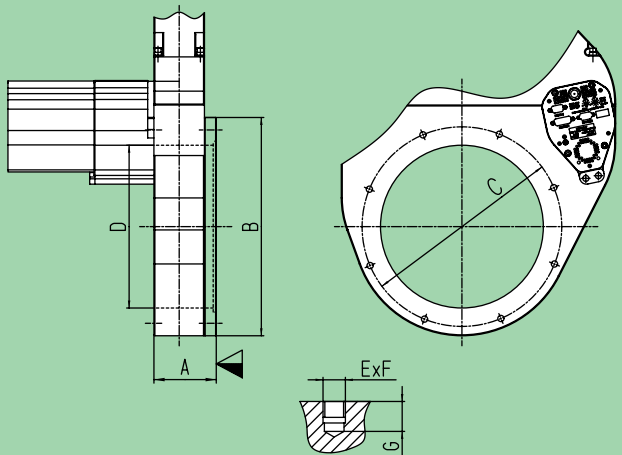
Flange dimensions

ISO-F
DN 100–400 (4"–16")

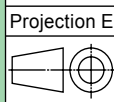


| | | | | | | | | |
|-------|------------|-------------|-------------|----------------|--------------|--------------|---|--------------|
| DN | mm inch | 100 4 | 160 6 | 200 8 | 250 10 | 320 12 | – | 400 16 |
| A | mm inch | 70 2.76 | 88 3.46 | 88 3.46 | 100 3.94 | 120 4.72 | – | 128 5.04 |
| B | mm inch | 190 7.48 | 243 9.57 | 300 11.81 | 350 13.78 | 425 16.73 | – | 520 20.47 |
| C | mm inch | 145 5.71 | 200 7.87 | 260 10.24 | 310 12.20 | 395 15.55 | – | 480 18.90 |
| D | mm inch | 100 3.94 | 150 5.91 | 200 7.87 | 261 10.28 | 318 12.52 | – | 400 15.75 |
| E x F | | 8 x M8 | 8 x M10 | 12 x M10 | 12 x M10 | 12 x M12 | – | 16 x M12 |
| G | mm inch | 12 0.47 | 14 0.55 | 15 0.59 | 16 0.63 | 18 0.71 | – | 20 0.79 |
| H | mm inch | – | 153 6.02 | 213.20 8.39 | – | – | – | – |
| I | mm inch | – | 5 0.20 | 5 0.20 | – | – | – | – |

JIS B 2290: 1998 / ISO 1609
DN 100–400 (4"–16")



| | | | | | | | | |
|-------|------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|
| DN | mm inch | 100 4 | 150 6 | 200 8 | 250 10 | 300 12 | 350 14 | 400 16 |
| A | mm inch | 70 2.76 | 88 3.46 | 88 3.46 | 100 3.94 | 120 4.72 | 126 4.96 | 128 5.04 |
| B | mm inch | 190 7.48 | 243 9.57 | 300 11.81 | 350 13.78 | 425 16.73 | 470 18.50 | 520 20.47 |
| C | mm inch | 160 6.30 | 210 8.27 | 270 10.63 | 320 12.60 | 370 14.57 | 420 16.54 | 480 18.90 |
| D | mm inch | 100 3.94 | 150 5.91 | 200 7.87 | 261 10.28 | 318 12.52 | 350 13.78 | 400 15.75 |
| E x F | | 8 x M10 | 8 x M10 | 8 x M12 | 12 x M12 | 12 x M12 | 12 x M12 | 12 x M16 |
| G | mm inch | 12 0.47 | 14 0.55 | 15 0.59 | 16 0.63 | 18 0.71 | 18 0.71 | 25 0.98 |



▽ Valve seat side