

Diaphragm Valve, Metal 2/2 way, motorized

Construction

- Low maintenance electric actuator with toothed belt drive
- Reversible synchronous motor
- Manual override
- Optical position indicator

Features

- Suitable for inert and corrosive* liquid and gaseous media
- Stainless steel body with CIP/SIP cleaning and sterilizing capabilities
- The valve stroke can be limited by means of adjustable limit switches
- Insensitive to particulate media
- Valve body and diaphragm available in various materials and designs
- Various connections available
- Surface finishes down to 0.25 µm, electropolished
- Suitable for use as a control valve (with GEMÜ series 1281-1289)

Advantages

- Optional flow direction, will seal in either flow direction up to full working pressure
- Optional mounting position
- Consistent control system and reliable opening and closing action
- Direct 0/4-20 mA control using the optional module GEMÜ series 1281-1289
- Electrical position indication by means of a potentiometer available as an option



* see information on working medium on page 2

Technical specifications

Working medium

Corrosive, inert, gaseous and liquid media which have no negative impact on the physical and chemical properties of the body and diaphragm material.

Working temperature (depending on the application) max. 150°C

Rating

Continuously rated

Operating time

Standard design appr. 20 sec.

Admissible temperatures

Ambient temperature -10...+55°C

Storage temperature -15...+55°C

Protection class

IP 65 acc. to DIN 40050

Power consumption

10 VA

Cable gland

2 x PG 13.5 (version without integrated control module)

2 x PG 13.5 (version with integrated control module)

Order specifications

| Nominal size (mm) | Working pressure (bar) | K _v value* (m ³ /h) | Weight (kg) Butt weld spigots |
|----------------------|---------------------------|--|----------------------------------|
| 15 | 0 - 10 | 10.5 | 2.7 |
| 20 | 0 - 10 | 13.0 | 2.8 |
| 25 | 0 - 10 | 27.0 | 3.1 |
| 32 | 0 - 6 | 43.0 | 7.0 |
| 40 | 0 - 6 | 50.0 | 7.5 |
| 50 | 0 - 6/4** | 64.0 | 11.5 |

All pressures are given as gauge pressures when applied upstream only.

* Given K_v values are valid for valve body connection ISO, diaphragm material EPDM.

** DN 50 with TFM diaphragm up to 4 bar
K_v values determined with p₁ ≤ 6 bar, diaphragm material EPDM.

Connections

Ref. no.

Butt weld spigots

| | |
|-----------------------|----|
| DIN selection series | 0 |
| DIN 11850/Series 1 | 16 |
| DIN 11850/Series 2 | 17 |
| DIN 11850/Series 3 | 18 |
| SMS 3008 | 37 |
| BS O.D. Tubing | 55 |
| ASTM 269/270 ASME BPE | 59 |
| ISO | 60 |

Threaded connections

| | |
|--|----|
| Threaded sockets DIN ISO 228 | 1 |
| Threaded spigots (Dairy pipe unions acc. to DIN 11851) | 6 |
| One side dairy pipe union (DIN 11851) other side cone spigot with union nut | 62 |
| Aseptic unions upon request | |

Flanges DIN

| | |
|------------|---|
| DIN EN 558 | 4 |
|------------|---|

Clamp connections (see page 7)

| | |
|------------------|----|
| DIN 32676 | 85 |
| DIN 32676 | 86 |
| SMS 3007 | 87 |
| BS 4825 (Part 3) | 88 |
| BS 4825 (Part 3) | 89 |

Body configuration

Ref. no.

| | |
|------------------------|---|
| Tank bottom valve body | B |
| Straight through | D |
| Multi-port design | M |
| T-body | T |

| Valve body material | | Ref. no. |
|-------------------------------|-----------------------|----------|
| Cast iron | GG | 8 |
| Spheroidal graphite cast iron | GGG 40.3 PFA lined | 17 |
| Spheroidal graphite cast iron | GGG 40.3 PP lined | 18 |
| Investment casting | 1.4539 | 33 |
| Investment casting | 1.4435 (316 L) | 34 |
| Investment casting | 1.4408 | 37 |
| Forged stainless steel | 1.4435 (316 L) | 40 |

| Diaphragm material | | Ref. no. |
|---------------------|-------------------------|----------|
| FPM | | 4 |
| EPDM | max. 130°C* | 12 |
| EPDM | max. 150°C* | 13 |
| EPDM | max. 90°C* | 14 |
| EPDM | max. 150°C* | 16 |
| PTFE/EPDM convex | PTFE loose max. 150°C* | 5E |
| PTFE/FPM convex | PTFE loose max. 150°C* | 5F |
| PTFE/Silicon convex | PTFE loose max. 160°C* | 5S |
| PTFE/EPDM | PTFE lamin. max. 150°C* | 52 |

* Steam sterilization temperature / 20 min

| Supply voltages | | Ref. no. |
|-----------------|-------|----------|
| 24 V | ± 10% | C |
| 120 V | ± 10% | G |
| 230 V | ± 10% | L |

| Frequency | | Ref. no. |
|-----------|--|----------|
| 50 Hz | | 2 |
| 60 Hz | | 3 |

| Design | | Ref. no. |
|---|--|----------|
| PG glands, terminal block | | - |
| PG glands, terminal block, with potentiometer | | 6049 |

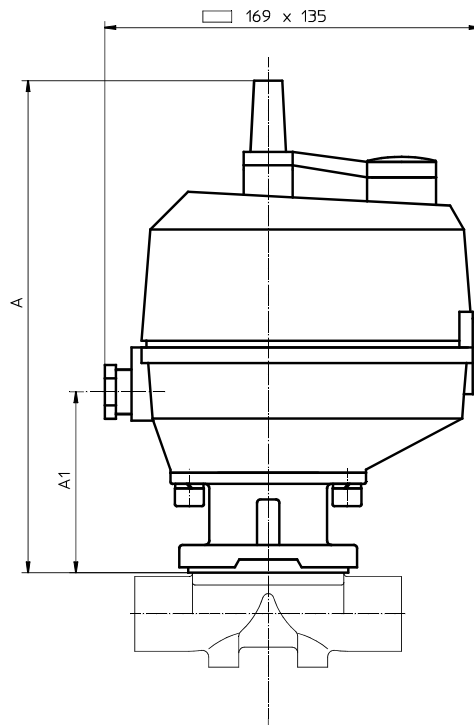
| Valve surface finishes, internal finish | | Code |
|---|--|------|
| *Ra ≤ 6,3 µm | blasted internal/external | 1500 |
| *Ra ≤ 6,3 µm | electropolished internal/external | 1509 |
| *Ra ≤ 0,8 µm | mechanically polished internal, blasted external | 1502 |
| *Ra ≤ 0,8 µm | electropolished internal/external | 1503 |
| *Ra ≤ 0,6 µm | mechanically polished internal, blasted external | 1507 |
| *Ra ≤ 0,6 µm | electropolished internal/external | 1508 |
| *Ra ≤ 0,4 µm | mechanically polished internal, blasted external | 1536 |
| *Ra ≤ 0,4 µm | electropolished internal/external | 1537 |
| *Ra ≤ 0,25 µm | mechanically polished internal, blasted external | 1527 |
| *Ra ≤ 0,25 µm | lectropolished internal/external | 1516 |

*Ra acc. to DIN 4768; at defined reference points

| Order example | 698 | 25 | D | 60 | 34 | 12 | L | 2 | 6049 | 1500 |
|--|-----|----|---|----|----|----|---|---|------|------|
| Type | 698 | | | | | | | | | |
| Nominal size (mm) | | 25 | | | | | | | | |
| Body configuration (reference number) | | | D | | | | | | | |
| Connection (reference number) | | | | 60 | | | | | | |
| Valve body material (reference number) | | | | | 34 | | | | | |
| Diaphragm material (reference number) | | | | | | 12 | | | | |
| Supply voltage (reference number) | | | | | | | L | | | |
| Frequency (reference number) | | | | | | | | 2 | | |
| Design (reference number) | | | | | | | | | 6049 | |
| Surface finish (reference number) | | | | | | | | | | 1500 |

Actuator dimensions (mm)

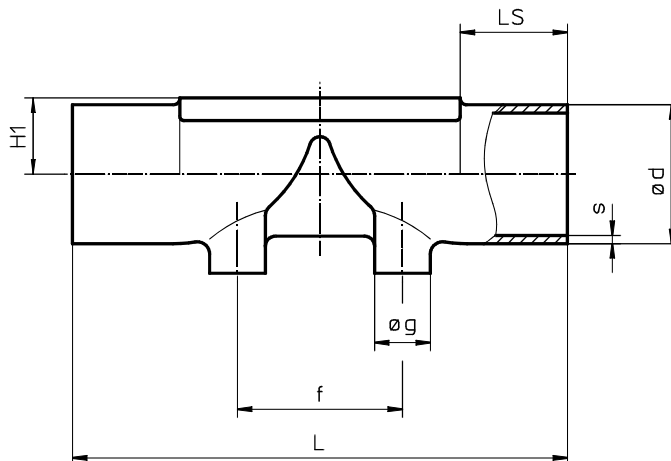
| DN | A | A1 |
|---------|-----|-----|
| 15 - 25 | 222 | 82 |
| 32 - 40 | 271 | 131 |
| 50 | 278 | 138 |



Body dimensions - Butt weld spigots, material ref. no. 33, 34, 40 (mm)

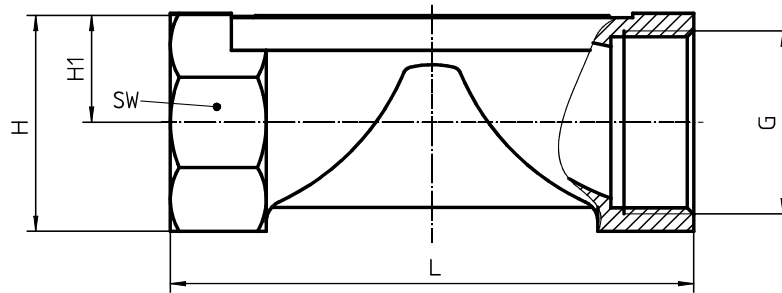
| DN | L | LS | H1* | H1** | f | DIN | | DIN 11850 | | DIN 11850 | | DIN 11850 | | SMS 3008 | | ISO 4200 | | BS 4825 | | | ASTM | | |
|----|-----|----|-----|------|----|----------------------|-----------------------|-----------------------|-----------------------|-------------|-------------|-------------|---------------------------|----------|------|----------|------|---------|--------|-------|------|-------|------|
| | | | | | | Series 0; ref. no. 0 | Series 1; ref. no. 16 | Series 2; ref. no. 17 | Series 3; ref. no. 18 | Ref. no. 37 | Ref. no. 60 | Ref. no. 55 | ASTM ASME BPE Ref. no. 59 | | | | | | | | | | |
| | | | | | | ø g | ø d | s | ø d | s | ø d | s | ø d | s | ø d | s | NPS | ø d | s | ø d | s | | |
| 15 | 120 | 26 | 13 | 19 | 40 | 13.5 | 18 | 1.5 | 18 | 1.0 | 19 | 1.5 | 20 | 2.0 | - | - | 21.3 | 1.6 | 1/2" | 12.70 | 1.2 | 12.70 | 1.65 |
| 20 | 120 | 26 | 16 | 19 | 40 | 13.5 | 22 | 1.5 | 22 | 1.0 | 23 | 1.5 | 24 | 2.0 | - | - | 26.9 | 1.6 | 3/4" | 19.05 | 1.2 | 19.05 | 1.65 |
| 25 | 120 | 26 | 19 | 19 | 40 | 13.5 | 28 | 1.5 | 28 | 1.0 | 29 | 1.5 | 30 | 2.0 | 25.0 | 1.2 | 33.7 | 2.0 | 1" | 25.40 | 1.6 | 25.40 | 1.65 |
| 32 | 153 | 30 | 24 | 26 | 68 | 13.5 | 34 | 1.5 | 34 | 1.0 | 35 | 1.5 | 36 | 2.0 | 33.7 | 1.2 | 42.4 | 2.0 | 1 1/4" | 31.75 | 1.6 | - | - |
| 40 | 153 | 30 | 26 | 26 | 75 | 13.5 | 40 | 1.5 | 40 | 1.0 | 41 | 1.5 | 42 | 2.0 | 38.0 | 1.2 | 48.3 | 2.0 | 1 1/2" | 38.10 | 1.6 | 38.10 | 1.65 |
| 50 | 173 | 31 | 32 | 32 | 90 | 13.5 | 52 | 1.5 | 52 | 1.0 | 53 | 1.5 | 54 | 2.0 | 51.0 | 1.2 | 60.3 | 2.0 | 2" | 50.80 | 1.6 | 50.80 | 1.65 |

H1* valid for investment cast design; H1** valid for forged design



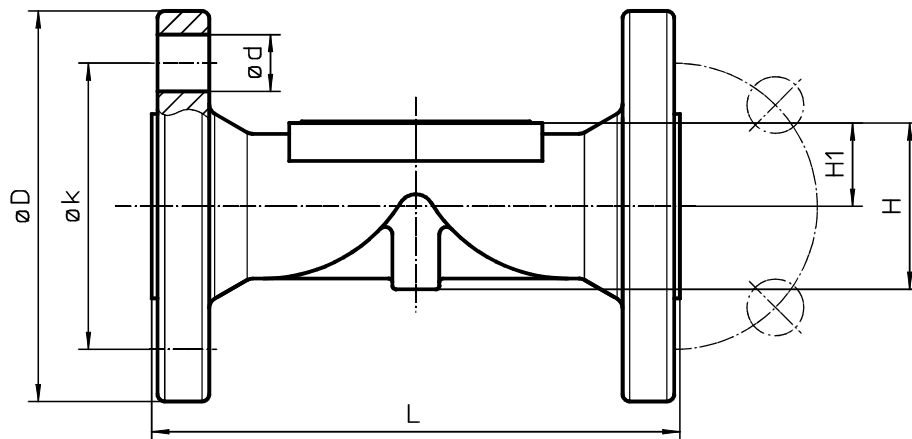
Body dimensions - Threaded sockets DIN ISO ref. no. 1, material ref. no. 8, 37 (mm)

| DN | G | H | H 1 | t | L | SW | | No. of wrench surfaces |
|----|--------|----|-----|----|-----|-----------------|------------------|------------------------|
| | | | | | | Mat. ref. no. 8 | Mat. ref. no. 37 | |
| 15 | 1/2" | 30 | 16 | 9 | 85 | 32 | 27 | 6 |
| 20 | 3/4" | 33 | 17 | 10 | 85 | 41 | 32 | 6 |
| 25 | 1" | 37 | 17 | 13 | 110 | 46 | 41 | 6 |
| 32 | 1 1/4" | 50 | 25 | 16 | 120 | 55 | 50 | 6 |
| 40 | 1 1/2" | 52 | 25 | 18 | 140 | 65 | 55 | 6 |
| 50 | 2" | 69 | 34 | 18 | 165 | 75 | 70 | 6 |



Body dimensions - Flanges ref. no. 4 (mm)

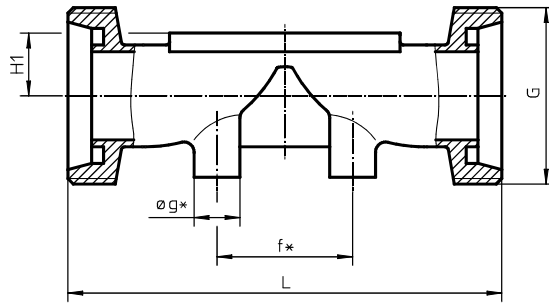
| DN | Material ref. no. 34 (1.4435) | | | | | | | Material ref. no. 8 (Cast iron) | | | | | | |
|----|-------------------------------|----|-----|-----|-----|-----|-------------------|---------------------------------|----|-----|-----|-----|-----|-------------------|
| | L | H | H 1 | ø D | ø d | ø k | No. of bolt holes | L | H | H 1 | ø D | ø d | ø k | No. of bolt holes |
| 15 | 150 | 30 | 13 | 95 | 14 | 65 | 4 | 130 | 36 | 18 | 95 | 14 | 65 | 4 |
| 20 | 150 | 36 | 16 | 105 | 14 | 75 | 4 | 150 | 41 | 21 | 105 | 14 | 75 | 4 |
| 25 | 160 | 43 | 19 | 115 | 14 | 85 | 4 | 160 | 47 | 24 | 115 | 14 | 85 | 4 |
| 32 | 180 | 52 | 24 | 140 | 18 | 100 | 4 | 180 | 57 | 28 | 140 | 18 | 100 | 4 |
| 40 | 200 | 57 | 26 | 150 | 18 | 110 | 4 | 200 | 57 | 32 | 150 | 18 | 110 | 4 |
| 50 | 230 | 69 | 32 | 165 | 18 | 125 | 4 | 230 | 69 | 37 | 165 | 18 | 125 | 4 |



Body dimensions - Dairy pipe unions to DIN 11851 (ref. no. 6), material ref. no. 34, 40 (mm)

| DN | H1* | H1** | f | øg | G | L |
|----|-----|------|------|------|-------------|-----|
| 15 | 13 | 19 | 40.0 | 13.5 | Rd 34 x 1/8 | 118 |
| 20 | 16 | 19 | 40.0 | 13.5 | Rd 44 x 1/6 | 118 |
| 25 | 19 | 19 | 40.0 | 13.5 | Rd 52 x 1/6 | 128 |
| 32 | 24 | 26 | 68.0 | 13.5 | Rd 58 x 1/6 | 147 |
| 40 | 26 | 26 | 75.0 | 13.5 | Rd 65 x 1/6 | 160 |
| 50 | 32 | 32 | 90.0 | 13.5 | Rd 78 x 1/6 | 191 |

H1* valid for investment cast design; H1** valid for forged design

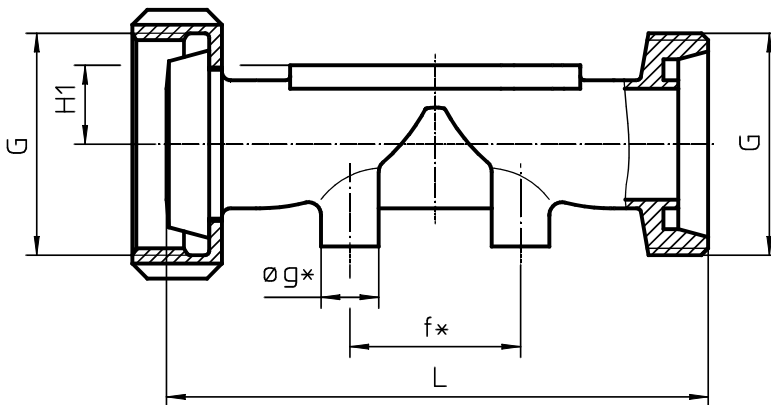


* only with investment cast bodies

Body dimensions - Dairy pipe unions to DIN 11851 (ref. no. 62), material ref. no. 34, 40 (mm)

| DN | H1* | H1** | f | øg | G | L |
|----|-----|------|------|------|-------------|-----|
| 15 | 13 | 19 | 40.0 | 13.5 | Rd 34 x 1/8 | 116 |
| 20 | 16 | 19 | 40.0 | 13.5 | Rd 44 x 1/6 | 114 |
| 25 | 19 | 19 | 40.0 | 13.5 | Rd 52 x 1/6 | 127 |
| 32 | 24 | 26 | 68.0 | 13.5 | Rd 58 x 1/6 | 147 |
| 40 | 26 | 26 | 75.0 | 13.5 | Rd 65 x 1/6 | 160 |
| 50 | 32 | 32 | 90.0 | 13.5 | Rd 78 x 1/6 | 191 |

H1* valid for investment cast design; H1** valid for forged design



* only with investment cast bodies

Body dimensions - Clamp connections, material ref. no. 34, 40 (mm)

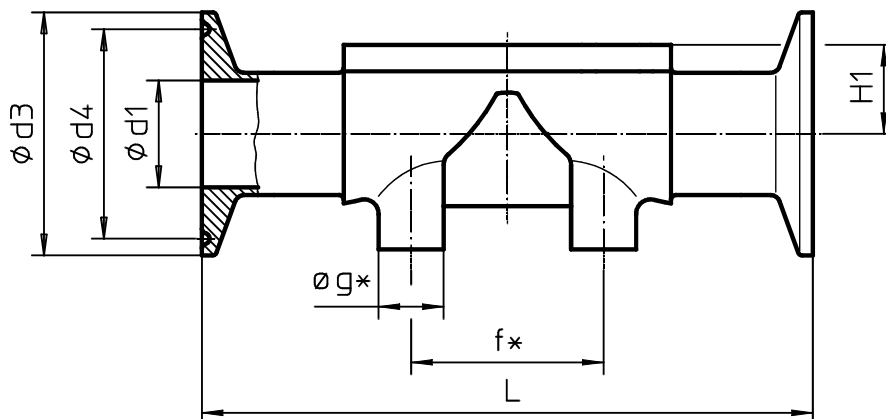
| | | | | | DIN 32676 | | | | | | SMS 3007 | | | |
|----|-----|------|----|------|-------------|-----|------|-------------|------|------|-------------|------|------|------|
| | | | | | Ref. no. 85 | | | Ref. no. 86 | | | Ref. no. 87 | | | |
| DN | H1* | H1** | f | øg | L | ød1 | ød3 | ød4 | ød3 | ød4 | L | ød1 | ød3 | ød4 |
| 15 | 13 | 19 | 40 | 13.5 | 165 | 16 | 50.5 | 43.5 | 34.0 | 27.5 | 165 | - | - | - |
| 20 | 16 | 19 | 40 | 13.5 | 165 | 20 | 50.5 | 43.5 | 34.0 | 27.5 | 165 | - | - | - |
| 25 | 19 | 19 | 40 | 13.5 | 165 | 26 | - | - | 50.5 | 43.5 | 165 | 22.6 | 50.5 | 43.5 |
| 32 | 24 | 26 | 68 | 13.5 | 198 | 32 | - | - | 50.5 | 43.5 | 198 | 31.3 | 50.5 | 43.5 |
| 40 | 26 | 26 | 75 | 13.5 | 198 | 38 | - | - | 50.5 | 43.5 | 198 | 35.6 | 50.5 | 43.5 |
| 50 | 32 | 32 | 90 | 13.5 | 218 | 50 | - | - | 64.0 | 56.5 | 218 | 48.6 | 64.0 | 56.5 |

H1* valid for investment cast design; H1** valid for forged design

Body dimensions - Clamp connections, material ref. no. 34, 40 (mm)

| BS 4825 | | | | | | | | | | | | | |
|---------|-----|------|----|------|--------|-----|-------|------|------|-------------|------|-------------|--|
| | | | | | | | | | | Ref. no. 88 | | Ref. no. 89 | |
| DN | H1* | H1** | f | øg | NPS | L | ød1 | ød3 | ød4 | ød3 | ød4 | | |
| 15 | 13 | 19 | 40 | 13.5 | 1/2" | 108 | 9.5 | 25 | - | 50.5 | 43.5 | | |
| 20 | 16 | 19 | 40 | 13.5 | 3/4" | 117 | 15.85 | 25 | - | 50.5 | 43.5 | | |
| 25 | 19 | 19 | 40 | 13.5 | 1" | 127 | 22.10 | 50.5 | 43.5 | - | - | | |
| 32 | 24 | 26 | 68 | 13.5 | - | - | - | - | - | - | - | | |
| 40 | 26 | 26 | 75 | 13.5 | 1 1/2" | 159 | 34.9 | 50.5 | 43.5 | - | - | | |
| 50 | 32 | 32 | 90 | 13.5 | 2" | 190 | 47.6 | 64.0 | 56.5 | - | - | | |

H1* valid for investment cast design; H1** valid for forged design

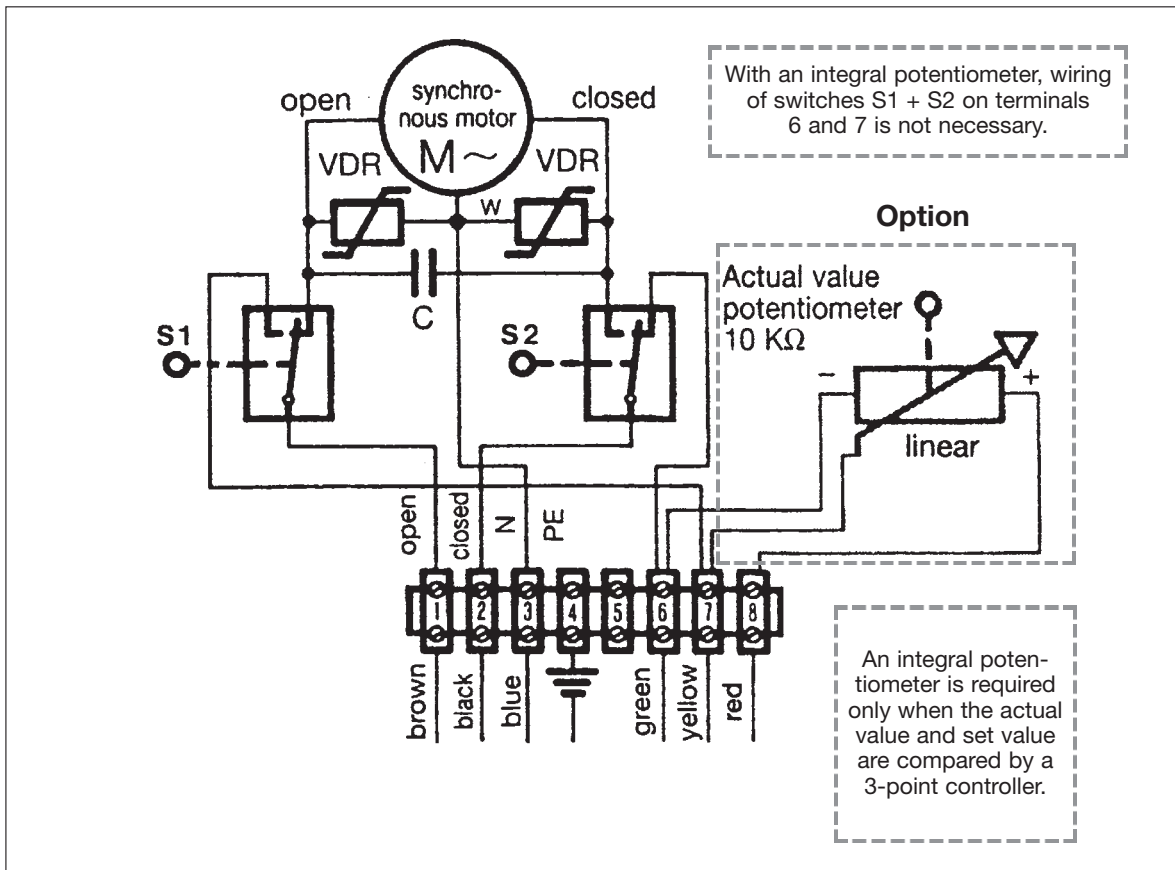


* only with investment cast bodies

Overview of valve bodies for GEMÜ 698

| Valve body material (ref. no.) | 1.4408 | GGG | 1.4435 (ref. no. 34/ref. no. 40) | | | | | | | | | | 1.4539 (ref. no. 33) | | | | | | |
|--------------------------------|------------------|-------------------|----------------------------------|---|---|----|----|----|----|----|----|----|----------------------|---|----|----|----|----|----|
| | (ref. no. 8, 37) | (ref. no. 17, 18) | 1 | 4 | 0 | 16 | 17 | 18 | 37 | 55 | 59 | 60 | 4 | 6 | 62 | 85 | 86 | 87 | 88 |
| DN 15 | X | X | X | X | X | X | X | - | X | X | X | X | X | X | X | X | - | X | X |
| DN 20 | X | X | X | X | X | X | X | - | X | X | X | X | X | X | X | X | - | X | X |
| DN 25 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | X | X | X | - |
| DN 32 | X | X | X | X | X | X | X | X | X | - | X | X | X | X | - | X | X | X | - |
| DN 40 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | X | X | X | - |
| DN 50 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | - | X | X | X | - |

Connection diagram GEMÜ 698



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