# Pressure / Level transmitters in a Ball valve

## Retractable without shutting down the process!

### Series 8000-VALVE
"Conventional"


### Series 2000-VALVE
"Intelligent" HART COMMUNICATION PROTOCOL

- **Removeable during process!**
- All Stainless Steel design
- Strong Flush diaphragms
- Rugged and Compact
- Accuracy 0.2%

***Additional Features on Series 2000:***

- Accuracy 0.1%
- Easy calibration without testpressure
- 3 push buttons + display
- 4-20 mA + HART Protocol

**DESCRIPTION**

The Klay VALVE transmitters are compact and robust "**All Stainless steel**" pressure and level transmitters. They are a unique combination of a special ball valve and a pressure transmitter with a flush diaphragm. **The design permits 'flush' installation with the process while the transmitter can be removed (for maintenance, cleaning or calibration) without shutting down the process.**

The 8000-VALVE and 2000-VALVE transmitters are specially designed for the pulp and paper industry and similar industries where clogging is a problem.

Series 8000 is internally adjustable on zero and span and the 'intelligent' series 2000 is **very easy adjustable without test pressure by 3 pushbuttons and a display**, or by HART® (option).

Various process connections are available (see page 2 and 3).



Manufactured by:

**KLAY-INSTRUMENTS B.V.**

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Our representative in your area is:

DASTEC
30 años de soluciones para la industria

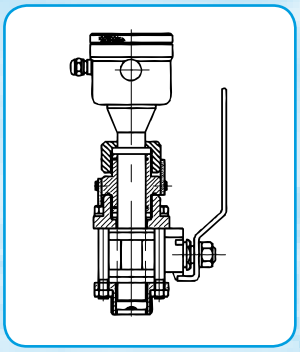
# Specifications Series 8000-VALVE

| | | |
|---|---|---|
| Accuracy | : | 0.2% of adjusted span |
| Measuring ranges | : | 0 - 100 mbar to 0 - 10 bar |
| Output signal | : | 4-20 mA / 2-wire |
| Adjustment | : | Zero and span internally |
| Power supply | : | 12 to 36 Vdc |
| Electrical connection | : | PG9, M20 x 1.5 or 1/2" NPT |
| Protection grade | : | IP66 (Option IP68) |
| Process temperature | : | -20°C to +85°C |
| Wetted parts | : | AISI 316L (standard), other materials on request |
| Electronic housing | : | AISI 304 (option: AISI 316) |
| Process connections | : | See ordering code. |

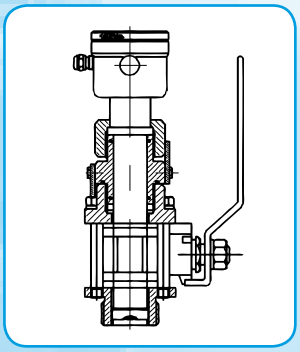
Specifications can change without notice

KLAY FlushDiaphragmTechnology

**All Klay VALVE transmitters have a strong flush mounted diaphragm using the Klay Flush Diaphragm technology.**
(Detailed brochure available)



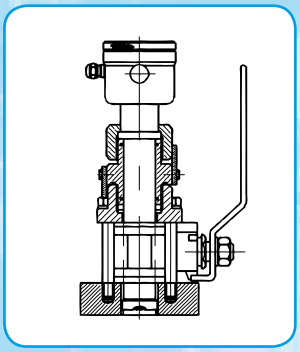
Code S



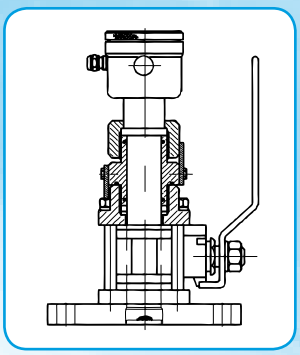
Code X3

# Ordering Code Series 8000-VALVE

| **Order code:** | **8000-VALVE** | (...") | | | | | |
|---|---|---|---|---|---|---|---|
| VALVE SIZE: | | ↑ | ↑ | ↑ | ↑ | ↑ | ↑ |
| - Valve 1" (only ranges D,E or F) | | 1" | | | | | |
| - Valve 1½" (All ranges) | | 1½" | | | | | |
| Adjustable span range **Min. Span ... Max. span** | Max. overpressure | | | | | | |
| 0 - 0.1 to 0 - 0.4 bar | 6.4 bar | B | | | | | |
| 0 - 0.4 to 0 - 0.7 bar | 6.4 bar | C | | | | | |
| 0 - 0.7 to 0 - 1.5 bar | 10.5 bar | D | | | | | |
| 0 - 1 to 0 - 4 bar | 16 bar | E | | | | | |
| 0 - 2.5 to 0 - 10 bar | 30 bar | F | | | | | |
| PROCESSCONNECTIONS: | | | ↑ | ↑ | ↑ | ↑ | ↑ |
| - Transmitter for 1" Valve, without valve | | | | | | | |
| - Transmitter for 1 ½" Valve, without valve | | | | | | | |
| - Threaded 1"BSP | | | S | | | | |
| - Threaded 1½" BSP | | | X3 | | | | |
| - Weld on nipple, Diameter 110 mm | | | W110 | | | | |
| - Flange with 1" Valve: DN50, 80 or 100 (DIN), 1½", 2" or 3" (ANSI) (specify size) | | | F(...) | | | | |
| - Flange with 1½" Valve: DN80 or 100 (DIN), 3" or 4" (ANSI) (specify size) | | | F(...) | | | | |
| OPTIONS: | | | | ↑ | ↑ | ↑ | ↑ |
| - Digital local indicator 3 ½" digit, programmable | | | | I | | | |
| - Vacuum ranges (Specify Relative or Absolute) Compound range available (example: -1 to + 1 bar) | | | | | V | | |
| - Special versions: Example Hastelloy C diaphragm (G7) | | | | | | G | |



Code W110



Code F(..)

# Specifications Series 2000-VALVE

Easy to Program

| | | |
|---|---|---|
| Accuracy | : | 0.1% of adjusted span |
| Measuring ranges | : | 0 - 100 mbar to 0 - 10 bar |
| Output signal | : | 4-20 mA / 2-wire<br>HART® protocol (option) |
| Adjustment | : | by 3 pushbuttons or H.H.T. |
| Power supply | : | 12 - 36 Vdc |
| Electrical connection | : | PG9, M20 x 1.5 or 1/2" NPT |
| Protection grade | : | IP66 (Option IP68) |
| Process temperature | : | -20°C to +85°C |
| Wetted parts | : | AISI 316L (standard) |
| Electronic housing | : | AISI 304 (option: AISI 316) |
| Process connections | : | See ordering code. |

Specifications can change without notice

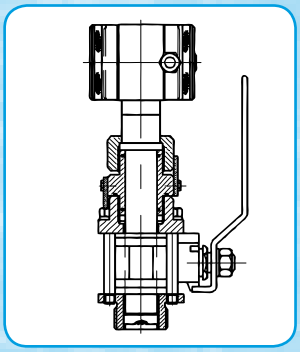
2000-VALVE, Code W110 in tank bottom

## Adjustable points

| | |
|---|---|
| P101 | Zero adjustment (4 mA) |
| P102 | Span adjustment (20 mA) |
| P103 | Cancel mounting position effect |
| P104 | Adjustment pressure unit<br>(see conversion table) |
| P105 | 4 - 20 mA *<br>20 - 4 mA (reverse output) |
| P106 | Damping adjustment (0 to 25 sec) |
| P107 | Indication of process temperature<br>(visible on display) |
| P108 | 0 = CELC °C *<br>1 = FAHR °F |
| P109 | Read out on display:<br>0 = current (4 - 20 mA) *<br>1 = pressure unit<br>2 = percent % |
| P110 | Current simulation (4 - 20 mA) |
| P111 | Linearisation<br>(Various tankshapes) |

* = factory settings

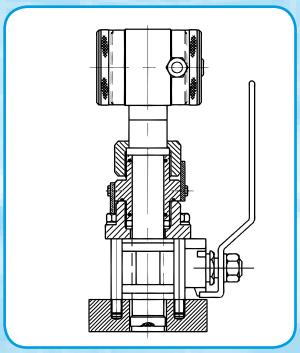
Display with 3 push buttons (Standard)



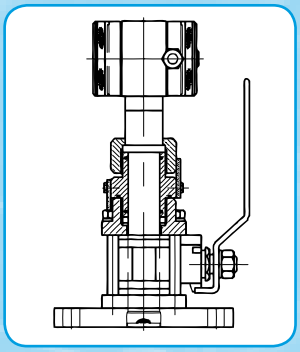
Code X3

# Ordering Code Series 2000-VALVE

| Order code: 2000-VALVE | | (...") |
|---|---|---|
| VALVE SIZE: | | |
| - Valve 1" (only ranges 2 or 3) | | 1" |
| - Valve 1½" (All ranges) | | 1½" |
| Adjustable span range<br>**Min. Span ... Max. span** | Max. overpressure | |
| 0 - 0.1 to 0 - 0.4 bar | 6.4 bar | 1 |
| 0 - 0.3 to 0 - 1.2 bar | 10.5 bar | 2 |
| 0 - 1 to 0 - 10 bar | 30 bar | 3 |
| PROCESSCONNECTIONS: | | |
| - Transmitter for 1" Valve, without valve | | |
| - Transmitter for 1 ½" Valve, without valve | | |
| - Threaded 1"BSP | | S |
| - Threaded 1½" BSP | | X3 |
| - Weld on nipple, Diameter 110 mm | | W110 |
| - Flange with 1" Valve: DN50, 80 or 100 DIN, 1½", 2" or 3" (ANSI) (specify size) | | F(...) |
| - Flange with 1½" Valve: DN80 or 100 (DIN) , 3" or 4" (ANSI) (specify size) | | F(...) |
| OPTIONS: | | |
| - Transparent cover, display functions as a local indicator | | I |
| - Vacuum ranges (Specify Relative or Absolute) Compound range available (example: -1 to + 1 bar) | | V |
| - HART® Protocol | | H |
| - Special versions: Example Hastelloy C diaphragm (G7) | | G |



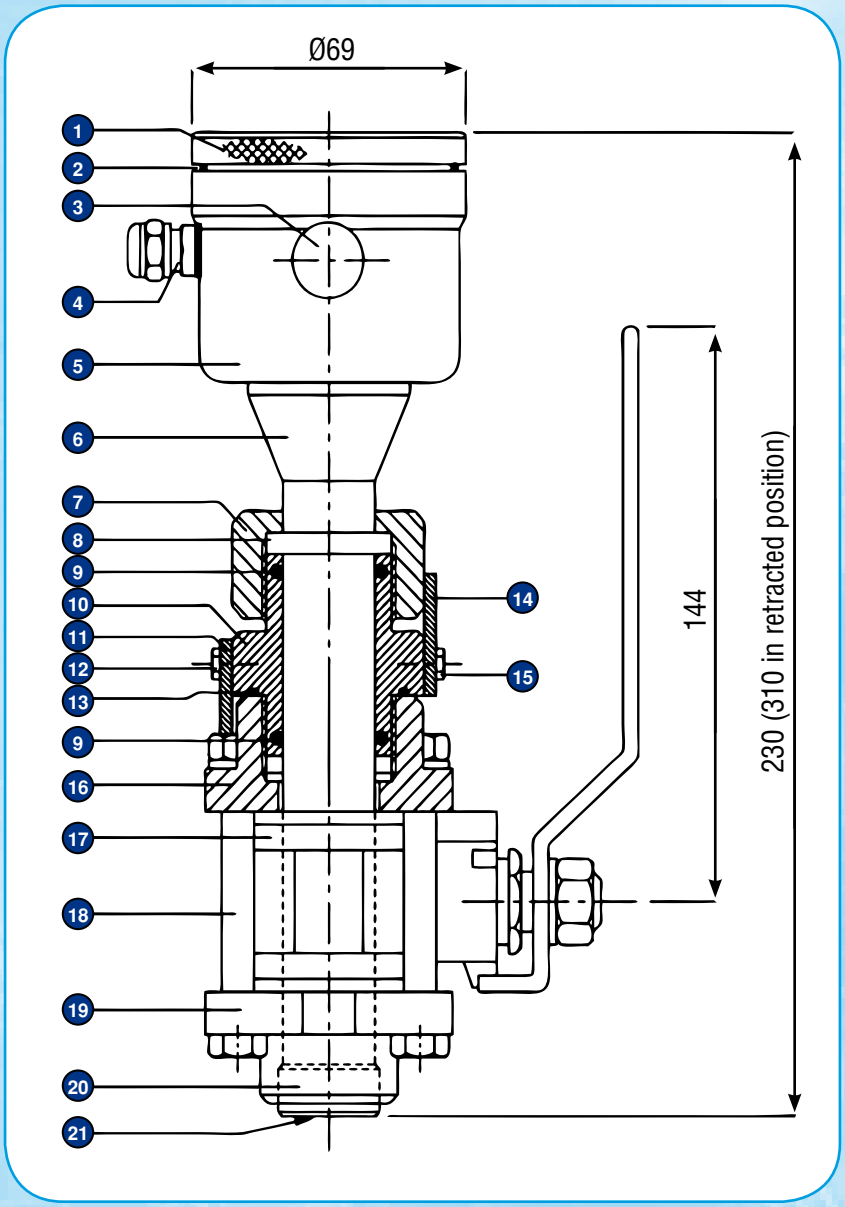
Code W110



Code F(..)

**Local Indicator**
The series 2000 as standard is delivered with 2 closed covers, so the 3 push buttons and the standard display are protected behind the cover.
A transparent cover is an option (I). Using a transparent cover allows you to use the display as a local indicator.

# Dimensional drawing (mm):




| PARTS DESCRIPTION (1" Valve) | MATERIAL |
|---|---|
| 1. Cover | SS 304 |
| 2. O-Ring | EPDM |
| 3. Venting | |
| 4. PG9 Cable gland | |
| 5. Electronic Housing | SS 304 |
| 6. Extension | SS 316 |
| 7. Hexagon, nut SW 41 | SS 304 |
| 8. Stop | SS 316 |
| 9. O-Ring (2x) | VITON |
| 10. Nipple, SW 41 (1" BSP M 2x) | SS 316 |
| 11. Safety lock | SS 304 |
| 12. M4 Bolt (2x) | |
| 13. O-Ring | VITON |
| 14. Safety lock | SS 304 |
| 15. M4 Bolt(2x) | |
| 16. Threaded valve joint(1"BSP F) | SS 316 |
| 17. Valve body | SS 316 |
| 18. M8 Bolt (4x) | SS 316 |
| 19. Valve body | SS 316 |
| 20. Process connection valve | SS 316 |
| 21. Diaphragm | SS 316 |

| PARTS DESCRIPTION (1 ½" Valve) | MATERIAL |
|---|---|
| 7. Hexagon nut, SW 60 | SS 304 |
| 10. Nipple, SW 57 (1½" BSP M 2x) | SS 316 |
| 16. Threaded valve joint (1½" BSP F) | SS 316 |
| 18. M 10 Valve bolt (4x) | SS 316 |

# Working Principle:

Dismounting transmitter out of the valve: Unlock the safety lock (14) and unscrew nut (7). Retract transmitter until the sensor foot reaches the end of the nipple (10). Close the Valve. Unlock second safety lock (11) and unscrew transmitter.
Mounting transmitter into the valve: in opposite sequence.

**The diaphragm (Pos. 21) is flush with the pipe or tank wall when the transmitter is pushed through the valve and screwed / locked into its final measuring position.**

*tank*