



**PASVE® pH** is a mounting/service valve for pH sensors. It can be used with practically all pH sensors in this size category in the most demanding measurement locations.

**PASVE® pH** allows the cleaning and calibration of pH sensors without stopping the process. When required, this can be done automatically. To protect the sensor in abrasive processes, it can be turned to the measuring position only for the duration of the actual measurement. **PASVE® pH** is available in a manually operated type or equipped with a pneumatic or electric actuator.

### TECHNICAL SPECIFICATIONS

#### Compatible pH sensors

Refer to the Selection Table.

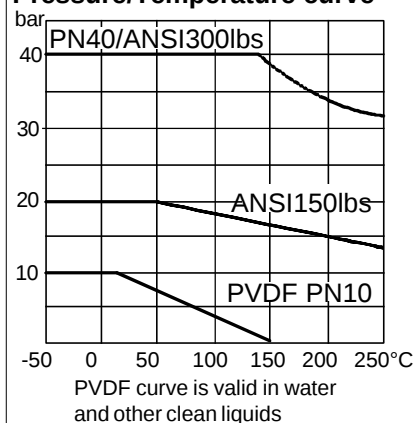
#### Max. operating pressure/temperature

40 bar, 250 °C, (see the below table).

Min. operating temp. -50°C.

Sensor-specific limitations should be taken into account by the application.

#### Pressure/Temperature curve



#### Materials

Wetted parts: AISI316L, AISI904L, Titanium, Hastelloy® C276, Duplex, 254 SMO® and PVDF.

Seals: PTFE, PTFE with carbon and graphite filling or PTFE 50%+AISI316 50% mixture

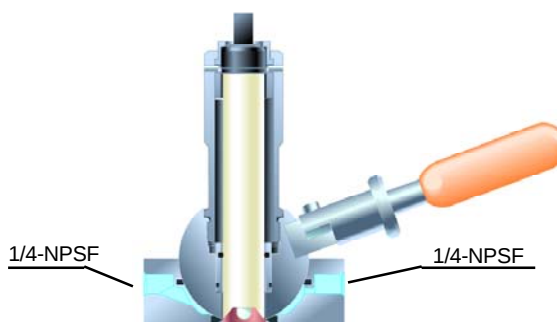
#### Weight

PASVE pH 4.7 kg, PASVE PHP 4.8 kg,

PASVE pHF 8.9 kg,

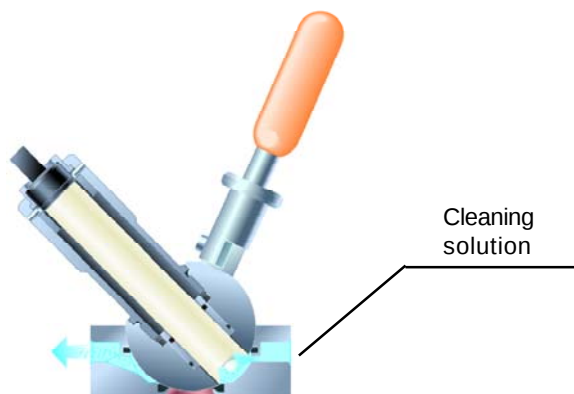
Actuator 5.5 kg

### OPERATING POSITIONS



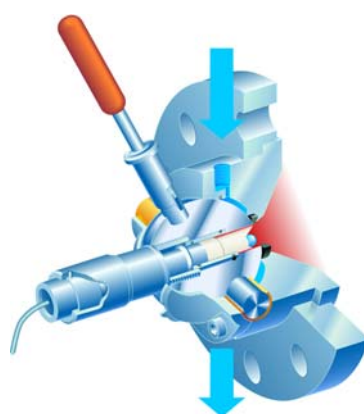
#### Measuring position

Sensor in measurement position. (Flushing channel can be used for watercooling the sensor and valve)

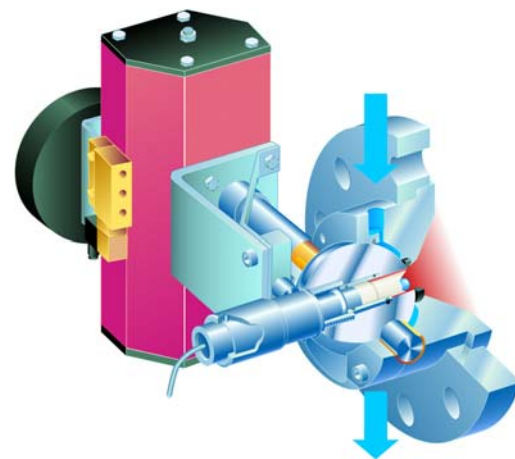


#### Service and calibration position

Sensor is turned inside the valve for cleaning, calibrating or sensor change without stopping the process.



Pasve pH manual operation



Pasve pH automatic operation with actuator

Sensor cleaning can be automated to prolong the sensor life. Pneumatic and electrical actuators are available for wide application range.

Hastelloy is the registered trademark of Haynes International.

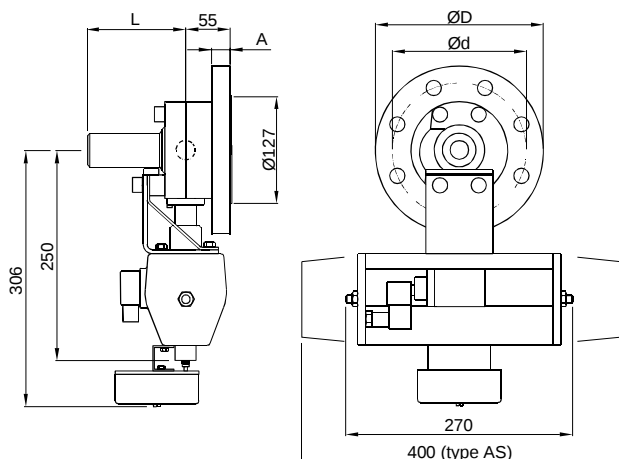
254 SMO is the registered trademark of Outokumpu Stainless Inc.

Pasve is the registered trademark of Satron Instruments Inc.

We reserve the right for technical modifications without prior notice.

### Pasve pH with pneumatic actuator

#### PASVE pHF (Flange type)



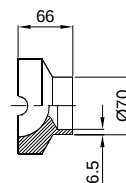
#### PASVE pHC

(Welded on a container or a horizontal pipe, instructions on manual page 10)



#### PASVE pHP

(Shape the body for the pipe Ø before welding, instructions on manual page 11)

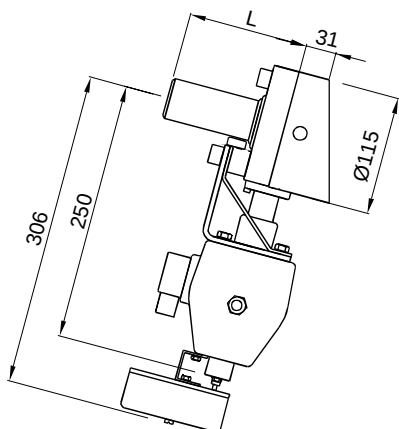


#### PASVE pHF

| FLANGE |                  | ØD  | Ød    | A  |
|--------|------------------|-----|-------|----|
| Code   | Type             |     |       |    |
| K      | ANSI 2½" 150 lbs | 172 | 139.7 | 22 |
| A      | ANSI 3" 150 lbs  | 191 | 152.4 | 22 |
| B      | ANSI 3" 300 lbs  | 210 | 168.3 | 27 |
| H      | ANSI 4" 150 lbs  | 229 | 190.5 | 26 |
| G      | ANSI 4" 300 lbs  | 254 | 200   | 29 |
| T      | DN50 PN40        | 165 | 125   | 20 |
| D      | DN80 PN40        | 200 | 160   | 22 |
| J      | DN100 PN10/16    | 220 | 180   | 22 |
| C      | DN100 PN40       | 235 | 190   | 26 |
| E      | JIS10K 80        | 185 | 150   | 20 |
| F      | JIS40K 80        | 210 | 170   | 30 |

#### PASVE pHB

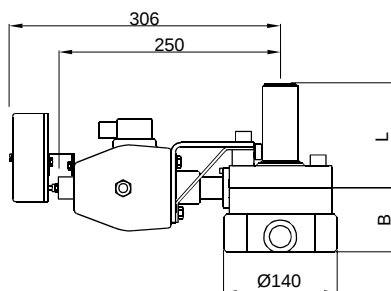
(Welded on a container or a vertical pipe, body 15°)



L depends on the sensor type

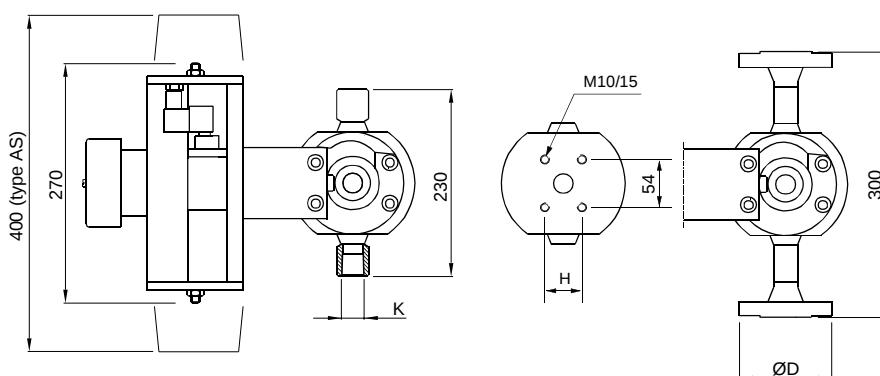
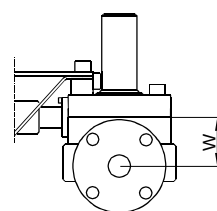
#### PASVE pHT

(Flow-through body, threaded connection)



#### PASVE pHD

(Flow through body, flange connection)



#### PASVE pHD

| FLANGE |                 | W  | ØD  | H  |
|--------|-----------------|----|-----|----|
| Code   | Type            |    |     |    |
| H      | ANSI 1" 150 lbs | 55 | 108 | 48 |
| J      | ANSI 1" 300 lbs | 55 | 124 | 48 |
| U      | ANSI 2" 150 lbs | 68 | 153 | 76 |
| V      | ANSI 2" 300 lbs | 68 | 165 | 76 |
| G      | DN25 PN40       | 55 | 115 | 48 |
| T      | DN50 PN40       | 68 | 165 | 76 |

#### PASVE pHT

| THREAD |              | B   | H  |
|--------|--------------|-----|----|
| Code   | Type (dim.K) |     |    |
| 2      | 1" - NPT     | 77  | 48 |
| 4      | 1.5" - NPT   | 92  | 64 |
| 5      | 2" - NPT     | 104 | 76 |

Dimensions (mm)

### Sensor connection

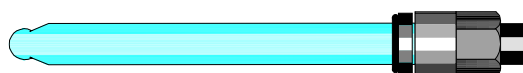
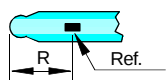
**Standard sensor connection PG13.5 / Ø12 mm / length 120 mm**

**Code dimension R**

**S** R < 30 mm

**M** R < 20 mm

**L** R < 10 mm



**Check the sensor datasheet for the reference point location!**

### Special sensor connection types

**Code Sensor**

**B1** Broadley-James Dynaprobe II

**B2** Broadley-James S410

**B3** Broadley-James DynaProbe ST856

**C1** Honeywell Durafet II, smooth tip

**C2** Honeywell Meredian II and Durafet II guarded tip

**D1** Barben 546/556, flat glass, 38 mm insertion depth

**D4** Barben 551/561, flat glass, actual insertion depth 3.94"

**D6** in-line Barben 551/561, flat glass, 100 mm insertion depth (manual only)

**E3** E+H CPF81/82, guarded tip, not machined

**E4** E+H CPF81, flat glass, not machined

**F1** Foxboro 871A

**F2** Foxboro 871pH

**F3** Foxboro PH10-3

**F4** Foxboro PH10-2

**F5** in-line Foxboro PH10-2 (manual only)

**G1** Lange (GLI) PD1P1.99

**G2** Lange (GLI) DPD1P1.99

**GX** +GF+ 272X, flat glass

**H1** Hamilton Inchtrode N75P

**H2** Hamilton Inchtrode N75F

**I1** Teledyne Isco 701pH

**K1** Kemotron 4835 and 4837 UPW

**O2** Orbisphere (31110)

**P1** Polymetron 8350/51

**R1** Rosemount/Emerson 389

**R2** Rosemount/Emerson 385+

**R4** Rosemount/Emerson TUpH 396/396VP, 398/398VP

**R5** in-line Rosemount/Emerson TUpH Combination 396P/PVP (manual only)

**R6** Rosemount/Emerson TUpH Combination 396P/PVP

**R9** Rosemount/Emerson 3300HT/HTVP

**RA** Rosemount/Emerson 3500VP

**RB** Rosemount/Emerson RB-546

**RC** Rosemount/Emerson 3900/3900VP

**T1** ABB TB556, flat glass, 38 mm insertion depth

**T2** ABB TB557, flat glass

**T3** ABB TB564, flat glass

**T4** ABB TB561 / Barben 551/561, flat glass, 100 mm insertion depth

**T5** in-line ABB TB564 (manual only), flat glass

**T6** in-line ABB TB561 (manual only), flat glass, 100 mm insertion depth

**T7** ABB TB556, flat glass, 28 mm insertion depth

**Y1** Yokogawa FU20 - - NPT (guarded tip)

**Y2** Yokogawa FU20 - - FSM (flat glass)



### Surface temperature

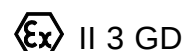
| Ambient temperature<br>°C | Temperature class |
|---------------------------|-------------------|
| 70                        | T6                |
| 85                        | T5                |
| 120                       | T4                |

### European Directive Information

ATEX directive (94/9/EC)  
Satron Instruments Inc. complies with the ATEX directive.

European Pressure Equipment Directive (PED) (97/23/EC)  
- Sound Engineering Practice

**European Certification:**



## Selection Table

## PASVE pH

## Mounting type

|                                                             | Wetted parts (C, B and P)            |
|-------------------------------------------------------------|--------------------------------------|
| <b>C</b> Welded on a container or a horizontal pipe (*)     | Code Material                        |
| <b>B</b> Welded on a container or a vertical pipe, body 15° | <b>2</b> AISI316L (EN 1.4404), std.  |
| <b>P</b> Body with a weld neck (**)                         | <b>3</b> Hastelloy® C276 (EN 2.4819) |
| <b>F</b> Flange mounting                                    | <b>4</b> AISI904L (EN 1.4539)        |
| <b>T</b> Flow-through body, threaded connection             | <b>6</b> Titanium Ti-2 (EN 3.7035)   |
| <b>D</b> Flow-through body, flange connection               | <b>8</b> Duplex (EN 1.4462)          |
|                                                             | <b>K</b> 254 SMO®                    |

## Process connection type, specified for mounting type F

| Flanges  |                        | Flanges  |                 | Wetted parts                                      |                             |
|----------|------------------------|----------|-----------------|---------------------------------------------------|-----------------------------|
| Code     | Type                   | Code     | Type            | Code                                              | Material                    |
| <b>T</b> | DN50 PN40 (***)        | <b>A</b> | ANSI 3"/150 lbs | <b>2</b>                                          | AISI316L (EN 1.4404)        |
| <b>D</b> | DN80 PN40              | <b>B</b> | ANSI 3"/300 lbs | <b>3</b>                                          | Hastelloy® C276 (EN 2.4819) |
| <b>J</b> | DN100 PN10/16          | <b>H</b> | ANSI 4"/150 lbs | <b>4</b>                                          | AISI904L (EN 1.4539)        |
| <b>C</b> | DN100 PN40             | <b>G</b> | ANSI 4"/300 lbs | <b>6</b>                                          | Titanium Ti-2 (EN 3.7035)   |
| <b>K</b> | ANSI 2½"/150 lbs (***) | <b>E</b> | JIS 10K 80      | <b>8</b>                                          | Duplex (EN 1.4462)          |
|          |                        | <b>F</b> | JIS 40K 80      | <b>K</b>                                          | 254 SMO®                    |
|          |                        |          |                 | <b>P1</b>                                         | PVDF PN10 (***)             |
|          |                        |          |                 | (P1 only suitable for flange codes <b>D,A,E</b> ) |                             |

## Process connection type, specified for mounting type T

| Threads  |            | Wetted parts |                             |
|----------|------------|--------------|-----------------------------|
| Code     | Type       | Code         | Material                    |
| <b>2</b> | 1" - NPT   | <b>2</b>     | AISI316L (EN 1.4404)        |
| <b>4</b> | 1.5" - NPT | <b>3</b>     | Hastelloy® C276 (EN 2.4819) |
| <b>5</b> | 2" - NPT   | <b>4</b>     | AISI904L (EN 1.4539)        |
|          |            | <b>6</b>     | Titanium Ti-2 (EN 3.7035)   |
|          |            | <b>8</b>     | Duplex (EN 1.4462)          |
|          |            | <b>K</b>     | 254 SMO®                    |

## Process connection type, specified for mounting type D

| Flanges  |               | Flanges  |             | Wetted parts |                             |
|----------|---------------|----------|-------------|--------------|-----------------------------|
| Code     | Type          | Code     | Type        | Code         | Material                    |
| <b>G</b> | DN25 PN40     | <b>U</b> | ANSI 2"/150 | <b>2</b>     | AISI316L (EN 1.4404)        |
| <b>M</b> | DN40 PN40     | <b>V</b> | ANSI 2"/300 | <b>3</b>     | Hastelloy® C276 (EN 2.4819) |
| <b>T</b> | DN50 PN40     | <b>K</b> | JIS 10K 25  | <b>4</b>     | AISI904L (EN 1.4539)        |
| <b>H</b> | ANSI 1"/150   | <b>R</b> | JIS 10K 40  | <b>6</b>     | Titanium Ti-2 (EN 3.7035)   |
| <b>J</b> | ANSI 1"/300   | <b>S</b> | JIS 10K 40  | <b>8</b>     | Duplex (EN 1.4462)          |
| <b>N</b> | ANSI 1.5"/150 | <b>X</b> | JIS 10K 50  | <b>K</b>     | 254 SMO®                    |
| <b>P</b> | ANSI 1.5"/300 | <b>L</b> | JIS 40K 25  |              |                             |
|          |               | <b>Y</b> | JIS 40K 50  |              |                             |

## Seals

|                                        |                                                            |
|----------------------------------------|------------------------------------------------------------|
| <b>0</b> PTFE + 20C + 5Gr / FPM (std.) | <b>4</b> PTFE + 20C + 5Gr / FPM+AISI316 / PTFE 50 % (Hard) |
| <b>1</b> PTFE 100% / FPM               | <b>5</b> PTFE 100% / FPM+AISI316 / PTFE 50% (Hard)         |
| <b>2</b> PTFE +20C+5Gr / FFPM          | <b>6</b> PTFE 100% / FPM + PVDF 100% (Hard)                |
| <b>3</b> PTFE 100% / FFPM              | <b>7</b> PTFE + 20C + 5Gr / EPDM                           |
|                                        | <b>8</b> PTFE 100% / EPDM                                  |

## Sensor connection

Sensor connection types, see page 3

## Pt100 temperature sensor

|                                                       |
|-------------------------------------------------------|
| <b>0</b> No sensor                                    |
| <b>X</b> With sensor (Measuring range -50 ... +200°C) |

## Actuator

|                                           |                                                 |
|-------------------------------------------|-------------------------------------------------|
| <b>MD</b> No actuator (manually operated) | <b>AE1</b> Electric actuator 230 V 50 Hz        |
| <b>AD</b> Double-action actuator          | <b>AE3</b> Electric actuator 115 V 60 Hz        |
| <b>AS</b> Spring-return actuator          | <b>A0</b> No actuator, fittings to the actuator |

Solenoid for actuator (only for actuator types **AD** and **AS**)

|                                           |                                      |                                 |
|-------------------------------------------|--------------------------------------|---------------------------------|
| <b>0</b> No solenoid valve                | <b>2</b> 24 V DC 2.5 W (also EEx dm) | <b>4</b> 28 V DC 0.4 W (EEx ia) |
| <b>1</b> 230 V AC 50 Hz 2 W (as standard) | <b>3</b> 115 V AC 60 Hz 2 W          |                                 |

## Solenoid explosion proof

|                             |                                      |
|-----------------------------|--------------------------------------|
| <b>0</b> No explosion proof | <b>2</b> EEx ia IIC T6 (only 28V)    |
| <b>1</b> EEx m II T5        | <b>3</b> EEx dm IIC T5/T6 (only 24V) |

## Position switches

|                                           |                                           |
|-------------------------------------------|-------------------------------------------|
| <b>0</b> None                             | <b>A</b> Position switch EEX ib IIC T5/T6 |
| <b>X</b> Equipped with position switches  |                                           |
| <b>E</b> Position switch NAMUR, DIN 19234 |                                           |

## Special options (not available for all configurations, ask for compatibility)

|                                        |                                                                                |
|----------------------------------------|--------------------------------------------------------------------------------|
| <b>Z1</b> For oxygen use               | <b>Z4</b> Cutting ball                                                         |
| <b>Z2</b> Process side flushing        | <b>Z5</b> Diamond-coated ball                                                  |
| <b>Z3</b> Actuator (AS) reverse action | <b>Z7</b> Process side flushing through the ball, only Ø12 / L = 120mm sensors |

## Documentation

## Installation and operating instructions

|                   |
|-------------------|
| <b>IE</b> English |
| <b>IF</b> Finnish |

## Material certificates

|                                              |       |                                                                                   |
|----------------------------------------------|-------|-----------------------------------------------------------------------------------|
| <b>0</b> No material certificate             | (*)   | = Pipe Ø>DN60 with disassembly before welding, more information on manual page 10 |
| <b>MC1</b> SFS-EN 10204-2.1 (DIN50049-2.1)   | (**)  | = Body can be shaped to fit pipe with Ø>DN70                                      |
| <b>MC2</b> SFS-EN 10204-2.2 (DIN50049-2.2)   | (***) | = Only available with manual operation <b>MD</b>                                  |
| <b>MC3</b> SFS-EN 10204-3.1B (DIN50049-3.1B) |       |                                                                                   |

Specification example: PASVE pH D U2 0 O2 X AD3 1 E Z1 IEMC1