

# C 301

Control valves

Upstream stabilisers

## Technical Data Sheet



## Description

The control valves C 301 controls and maintains a preset upstream pressure regardless of variations in flow rate. Equipped with non return valves, it closes automatically in case of backflow (C 301C - consult us). Always mounted in line, it prevents the pump from reducing its suction pressure below the security point. It prevents also from exceeding the pumping capacity when the demand is higher.



## C 301

Control valves - Upstream stabilisers

| DN    | PN       | PFA<br>in bar | PS |    |    |    | Cat | Ref.              | Weight*<br>Kg |
|-------|----------|---------------|----|----|----|----|-----|-------------------|---------------|
|       |          |               | L1 | L2 | G1 | G2 |     |                   |               |
| 1 1/2 | 10/16/25 | 25            | 25 | 25 | x  | x  | 4.3 | <b>149B007871</b> | 8             |
| 40    | 10/16/25 | 25            | 25 | 25 | x  | x  | 4.3 | <b>149B007872</b> | 12            |
| 50    | 10/16/25 | 25            | 25 | 25 | x  | x  | 4.3 | <b>149B007875</b> | 13            |
| 65    | 10/16/25 | 25            | 25 | 25 | x  | x  | 4.3 | <b>149B30106N</b> | 21            |
| 80    | 10/16/25 | 25            | 20 | 25 | x  | x  | 4.3 | <b>149B30108N</b> | 26            |
| 100   | 10/16    | 16            | 16 | 16 | x  | x  | 4.3 | <b>149B30110N</b> | 39            |
| 125   | 10/16    | 16            | 16 | 16 | x  | x  | 4.3 | <b>149B30111N</b> | 59            |
| 150   | 10/16    | 16            | 16 | 16 | x  | x  | 4.3 | <b>149B30112N</b> | 73            |
| 200   | 10       | 10            | 10 | 10 | x  | x  | 4.3 | <b>149B30114N</b> | 122           |
| 250   | 10       | 10            | 10 | 10 | x  | x  | I   | <b>149B30115N</b> | 208           |
| 300   | 10       | 10            | 10 | 10 | x  | x  | I   | <b>149B30116N</b> | 328           |

\* Weight of valve alone

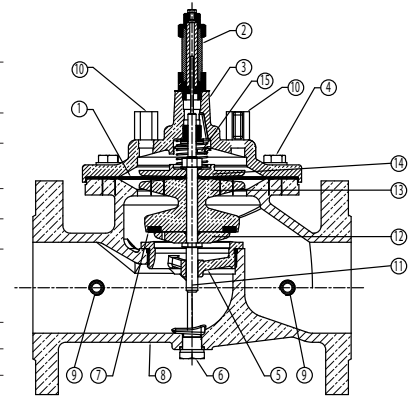
### Important notice :

The indicated pressure for the different categories of fluids (L1/L2/G1/G2) is under no condition a guarantee of use. Therefore, it is essential to validate the use of products under given operating conditions.

| Technical features    |   |
|-----------------------|---|
| Operating temperature | -10 °C to 90 °C   |
| Upstream pressure     | Mini. : 1 bar / Maxi. : 25 bar (see table above)                              |
| Connection            | DN 40 to 300 mm : with flange PN (see table above)<br>DN 1"1/2 : threaded F/F |
| Mediums               | Clear water 2 mm  |
| Vertical mounting     | In optional   |

## Nomenclature and materials

| N°   | Description                   | Materials                                  | EURO   | ANSI   |
|------|-------------------------------|--|--|--|
| 1    | Membrane                      | EPDM / Polyamide                           |  |  |
| 2    | Position indicator with purge | Brass and stainless steel                  | EN 12164-CuZn39Pb3-R360min<br>EN 10088-3-X5CrNi18-10<br>EPDM<br>Cu | ASTM B36 / ASTM B121<br>AISI 304 / ASTM A240 |
| 3    | Valve head high pressure      | Ductile iron / Epoxy Int/Ext               | EN 1563 EN-GJS-400-15<br>except DN 125 : EN 1561-EN-GJL-300        | ASTM A536 60-40-18<br>ASTM A48 class 45B     |
| 4    | Nuts and bolts                | Stainless steel                            | EN 10088-3-X5CrNi18-10   | AISI 304 / ASTM A240                         |
| 5    | Removable streamlined         | Stainless steel                            | EN 10213-GX5CrNi19-10+AT   | AISI 304 / ASTM A240                         |
| 6    | Body drain plug               | Brass                                      | EN 12164-CuZn39Pb3-R360min   | ASTM B36 / ASTM B121                         |
| 7    | Reversible seal               | EPDM                                       |  |  |
| 8    | Body high pressure            | Ductile iron / Epoxy Int/Ext<br>150μ ± 50μ | EN 1563 EN-GJS-400-15<br>except DN 125 : EN 1561-EN-GJL-300        | ASTM A536 60-40-18<br>ASTM A48 class 45B     |
| 9-10 | Valve                         | Chromed brass                              |  |  |
| 11   | Stem                          | Stainless steel                            | EN10213-GX5CrNi19-10-AT  | AISI 304 / ASTM A240                         |
| 12   | Flange                        | Stainless steel                            | EN10088-3X5CrNi18-10   | AISI 304 / ASTM A240                         |
| 13   | Seal carrier                  | Bronze (DN40-50)<br>Cast iron / Epoxy      | EN1982 CuSn5Zn5Pb2-C GS<br>EN1561-EN-GJL-250                       | ASTM A 48 35 B                               |
| 14   | Plate                         | Bronze (DN40-50)<br>Cast iron / Epoxy      | EN1982 CuSn5Zn5Pb2-C GS<br>EN1561-EN-GJL-250                       | ASTM A 48 35 B                               |
| 15   | Spring                        | Stainless steel                            | EN10270-3 X10CrNi18-8  | AISI 302                                     |



standard flow valve

## Approvals

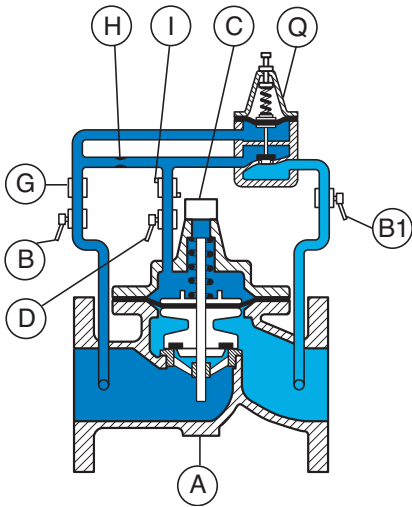
ACS  PED 2014/68/UE **WRAS** (except C 301C)

### International construction Standards :

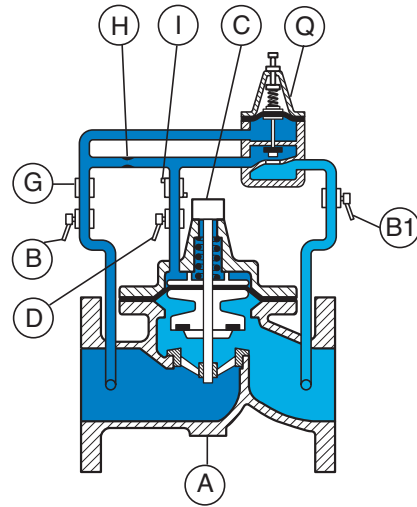
Directive 2014/68/UE

Connection with flange PN according to EN 1092-2

## Operation

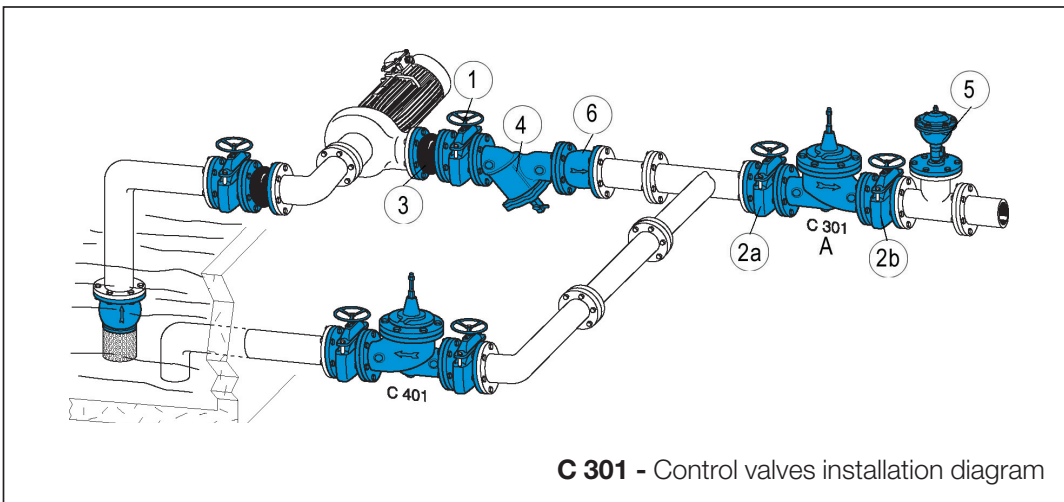


When upstream pressure is getting lower than the pressure required by the pilot (Q), the pilot will close and limit the flow circulation. The upstream pressure pushes on the membrane of the main valve (A) which closes.



When upstream pressure increases, pilot (Q) will open and release the pressure from the membrane of the main valve (A) which opens.

## Installation



C 301 - Control valves installation diagram

| N° | Description                                       |
|----|---|
| A  | Main valve  |
| B  | Upstream isolation valve                          |
| B1 | Downstream isolation valve                        |
| C  | Position indicator with drain                     |
| D  | Chamber isolation valve                           |
| G  | Filter  |
| H  | Orifice-needle valve                              |
| I  | Flow control                                      |
| Q  | Pilot C301  |
| 1  | Isolation valve of the pump                       |
| 2a | Upstream isolation valve of the main water pipe   |
| 2b | Downstream isolation valve of the main water pipe |
| 3  | Rubber expansion joint                            |
| 4  | Filter  |
| 5  | Single function air valve                         |
| 6  | Check valve of the pump                           |

**Pilot setting ranges :**

- 1 to 4,1 bar
- 1,7 to 7,5 bar
- 2 to 25 bar (standard)

**Installation :**

- Install a strainer upstream
- Install an air relief valve down-stream or at the high point near the control valve
- Horizontal setting up : the cap of the valve should be oriented to the top and inclined at 45° maximum
- Vertical setting up : change the spring of the main valve (option 7)

**Other types :**

- C301DS, C301S, C301M
- FKM seals in the main valve and in the pilot
- Stainless steel pilot 304 and stainless steel connection 316TI

## Maintenance

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We recommend a maintenance programme of between 6 to 12 months according to the quality of the water and to the pressure :

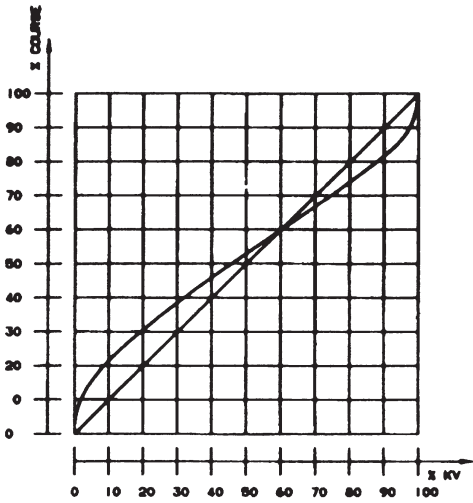
- Purging the upper chamber
- Flushing the valves not frequently used
- Checking and cleaning filters of the pilot circuit and main piping system.
- Checking the working (pressures)

Every 5 years, general maintenance is advisable :

- Dismantling
- Cleaning of main valve and pilot valve
- Preventive removing of the seals (set available - please consult us)
- Reassembling and tests.

# Operating characteristics

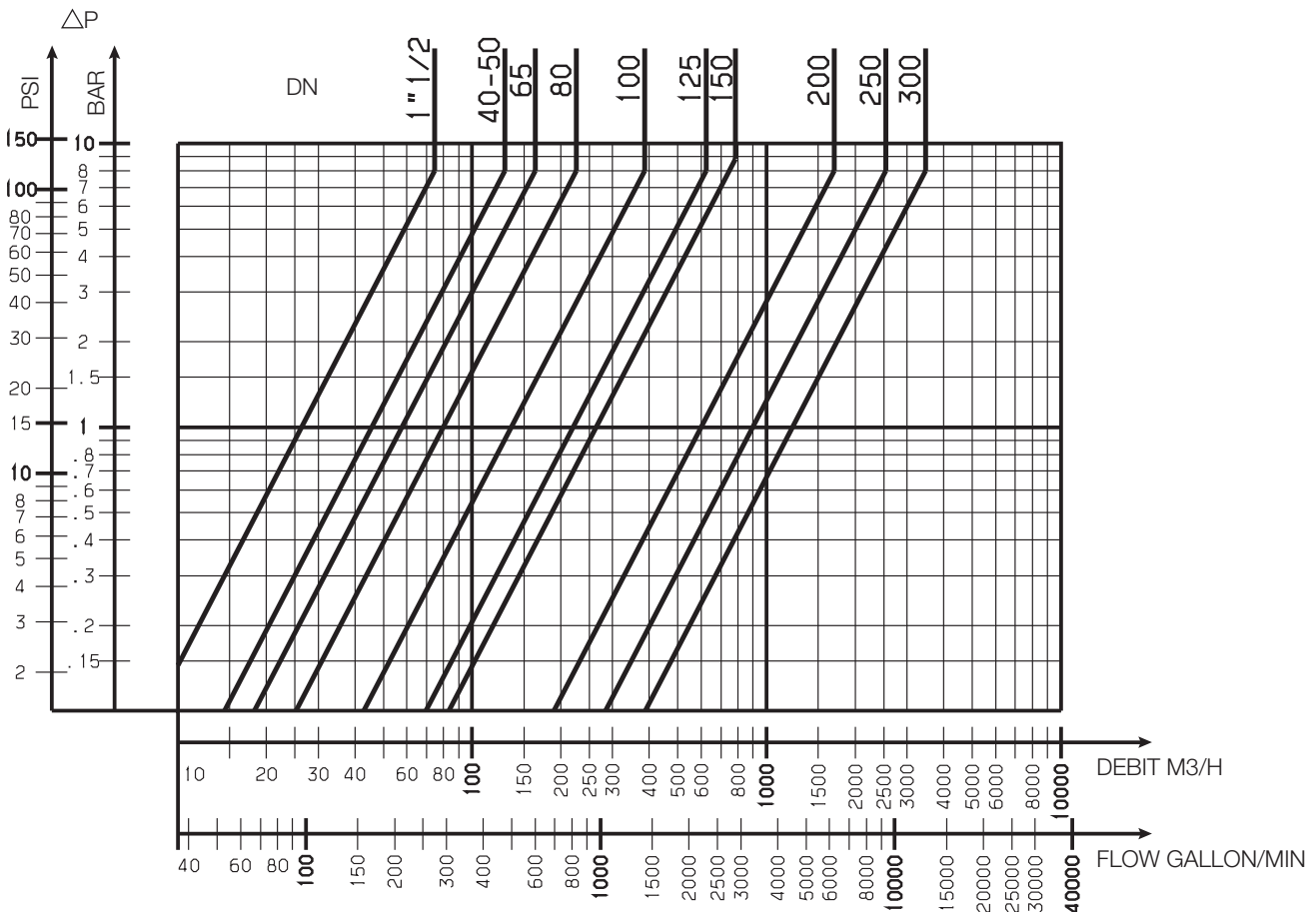
## Choice of base valve



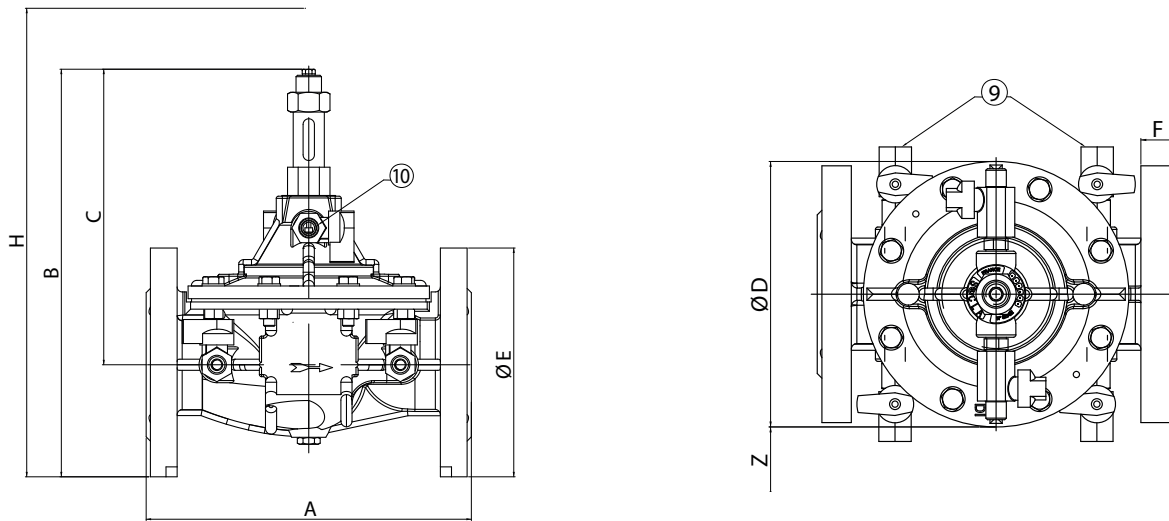
| DN<br>mm | Mini<br>m³/h | Maxi<br>m³/h | KV      |       | ζ     | PN<br>bar | PFA<br>bar | PN<br>bar | PFA<br>bar | PN<br>bar | PFA<br>bar |
|----------|--------------|--------------|---------|-------|-------|-----------|------------|-----------|------------|-----------|------------|
|          |              |              | m³/h    | L/s   |       |           |            |           |            |           |            |
| 1" 1/2   | 0,520        | 20,34        | 26,35   | 7,32  | 5,78  | 10/16     | 16         | 25        | 25         | -         | -          |
| 40       | 0,675        | 32,00        | 45,66   | 12,68 | 1,93  | 10/16     | 16         | 25        | 25         | -         | -          |
| 50       | 0,675        | 32,00        | 45,66   | 12,68 | 4,70  | 10/16     | 16         | 25        | 25         | -         | -          |
| 65       | 0,855        | 54,00        | 57,75   | 16,08 | 8,39  | 10/16     | 16         | 25        | 25         | -         | -          |
| 80       | 1,600        | 82,00        | 80,00   | 22,22 | 10,00 | 10/16     | 16         | 25        | 25         | -         | -          |
| 100      | 2,720        | 127,00       | 136,00  | 37,78 | 8,47  | 10/16     | 16         | 25        | 25         | -         | -          |
| 125      | 4,400        | 199,00       | 220,00  | 61,11 | 7,90  | 10/16     | 16         | 25        | 25         | -         | -          |
| 150      | 5,280        | 286,00       | 264,00  | 73,33 | 11,38 | 10/16     | 16         | 25        | 25         | -         | -          |
| 200      | 13,500       | 509,00       | 600,00  | 66,67 | 6,96  | 10        | 10         | 25        | 25         | 16        | 16         |
| 250      | 25,000       | 795,00       | 900,00  | 50,00 | 7,56  | 10        | 10         | 25        | 25         | 16        | 16         |
| 300      | 40,900       | 1145,00      | 1224,00 | 40,00 | 8,47  | 10        | 10         | 25        | 25         | 16        | 16         |

## Headloss chart

Solid line: Base valve completely open



## Sizing



### standard flow valve

| DN         | A   | B   | C   | Ø D | Ø E                   | F  | H               | Z   | 9   | 10  |
|------------|-----|-----|-----|-----|-----------------------|----|-----------------|-----|-----|-----|
| ”          | mm  | mm  | mm  | mm  | mm                    | mm | Exc. C501<br>mm | mm  | ”   | ”   |
| 1 1/2(F/F) | 230 | 267 | 210 | 170 | 6 pans <sup>(1)</sup> | -  | 400             | 254 | 1/4 | 3/8 |
| 40         | 230 | 285 | 210 | 170 | 152                   | 23 | 400             | 254 | 1/4 | 3/8 |
| 50         | 230 | 285 | 210 | 170 | 161                   | 23 | 400             | 254 | 1/4 | 3/8 |
| 65         | 290 | 352 | 257 | 200 | 185                   | 24 | 470             | 254 | 3/8 | 1/4 |
| 80         | 310 | 372 | 272 | 217 | 200                   | 26 | 500             | 254 | 3/8 | 3/8 |
| 100        | 350 | 423 | 302 | 241 | 235                   | 28 | 510             | 254 | 3/8 | 3/8 |
| 125        | 400 | 506 | 371 | 296 | 270                   | 30 | 570             | 254 | 3/8 | 3/8 |
| 150        | 480 | 551 | 401 | 363 | 300                   | 20 | 650             | 254 | 3/8 | 3/8 |
| 200        | 600 | 709 | 529 | 467 | 360                   | 22 | 750             | 254 | 3/8 | 3/8 |
| 250        | 730 | 844 | 631 | 587 | 425                   | 24 | 900             | 254 | 1/2 | 1/2 |
| 300        | 850 | 975 | 730 | 680 | 486                   | 27 | 1100            | 254 | 1/2 | 1/2 |

(1) 78/plats

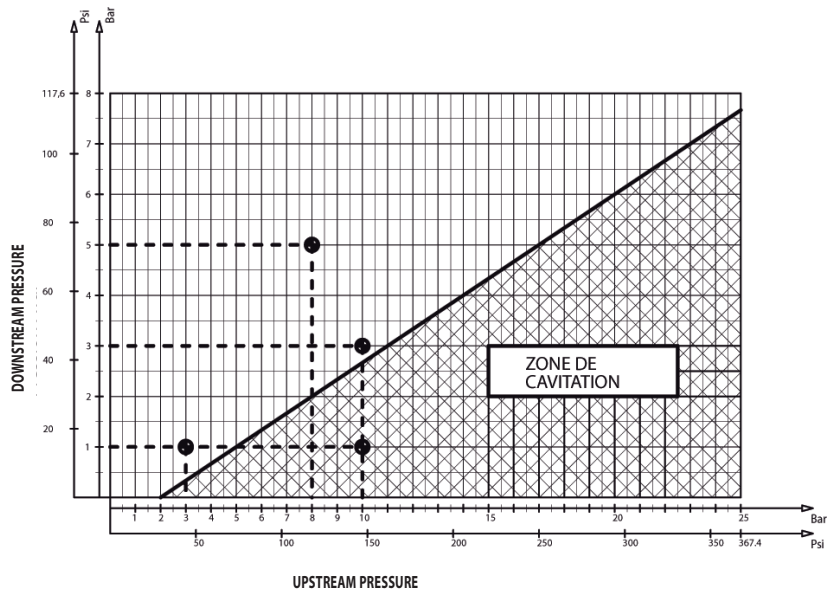
## Other operating characteristics

### Cavitation

A too large differential pressure and a low downstream pressure may result in damage to the valve by cavitation.

To avoid it, refer to the cavitation curve and if needed, reduce the differential pressure by installing and connecting two or more control valves in same line (consult us).

Stainless steel seat and counter seat are standard.



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Socla sas

365 rue du Lieutenant Putier • 71530 Virey-Le-Grand • France

Tel. +33 03 85 97 42 00 • Fax +33 03 85 97 42 42

[contact@wattswater.com](mailto:contact@wattswater.com) • [www.socla.com](http://www.socla.com)

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