

## PRESSURE REDUCING VALVES RPW45B (EN)

### DESCRIPTION

The ADCA RPW45B series pressure reducing valves are single seated, diaphragm sensing proportional controllers that operate without auxiliary energy. Designed for use with water, compressed air and other liquids and gases compatible with the construction.

### MAIN FEATURES

Pressure balancing through robust piston design.  
Soft sealing to meet tight shut-off requirements.  
Robust construction (fit-and-forget).  
Interchangeable actuators and adjustment springs.

**OPTIONS:** Low-noise flow divider.  
Sensing line connection on body.

**USE:** Water, compressed air and other liquids or gases compatible with the construction.

**AVAILABLE MODELS:** RPW45BG – SG iron.  
RPW45BS – carbon steel.  
RPW45Bi – stainless steel.

**SIZES:** DN 50 to DN 100.

**CONNECTIONS:** Flanged EN 1092-1 PN 16 or PN 40.  
Standard PN 16 DN 65 flanges are supplied with 4 holes. 8 holes, according to EN 1092-1/-2 on request.

**AVAILABLE ACTUATORS:** A1, A10, A12, A3 and A4 – carbon steel.  
A2 and A21 – SG iron or carbon steel.  
A1i, A10i, A12i, A2i, A21i, A3i and A4i – stainless steel.

**INSTALLATION:** See IMI – Installation and maintenance instructions.



| CE MARKING – GROUP 2<br>(PED – EUROPEAN DIRECTIVE) |              |               |
|--|--------------|---------------|
| PN 16  | PN 40        | CATEGORY      |
| DN 50  | –            | SEP           |
| DN 65 to 100                                       | DN 50 to 100 | 1 (CE marked) |

**LIMITING CONDITIONS – VALVE**

| MODEL                                     | RPW45BG, RPW45BS and RPW45Bi | RPW45BS and RPW45Bi |
|---|------------------------------|---------------------|
| Body design conditions                    | PN 16                        | PN 40               |
| Maximum upstream pressure                 | 16 bar                       | 40 bar              |
| Maximum downstream pressure               | 13 bar                       | 18 bar              |
| Minimum downstream pressure               | 0,2 bar                      | 0,2 bar             |
| Maximum operating temperature             | 130 °C                       | 130 °C              |
| Maximum reducing ratio                    | 10:1                         | 10:1                |
| Rangeability                              | 10:1                         | 10:1                |
| Maximum hydraulic factory valve body test | 24 bar                       | 60 bar              |

**LIMITING CONDITIONS – ACTUATOR**

| ACTUATOR MODEL                   | A1<br>A1i | A10<br>A10i | A12<br>A1i | A21<br>A21i | A2<br>A2i | A3<br>A3i | A4<br>A4i |
|----------------------------------|-----------|-------------|------------|-------------|-----------|-----------|-----------|
| Maximum operating pressure (bar) | 25        | 25          | 25         | 18          | 12        | 2,5       | 1,5       |
| Maximum operating temperature    | 90 °C *   |             |            |             |           |           |           |

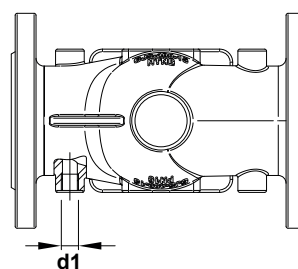
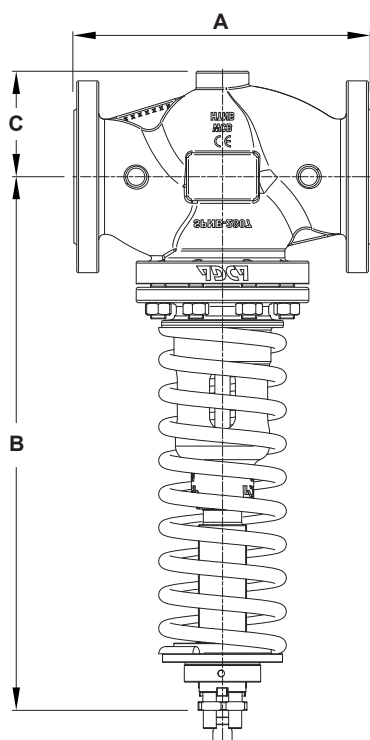
\* See "Sensing Line Connection Options" table.

**FLOW RATE COEFFICIENTS (m³/h)**

| SIZE | DN 50 | DN 65 | DN 80 | DN 100 |
|------|-------|-------|-------|--------|
| Kvs  | 26,5  | 51,5  | 79,5  | 129,5  |

**ACTUATOR AND SPRING SELECTION TABLE**

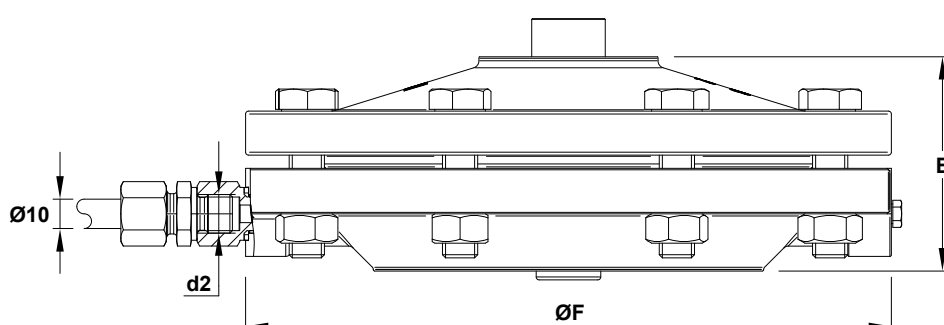
| SIZE   |                        | A4<br>A4i  |            | A3<br>A3i  | A2<br>A2i  | A21<br>A21i | A1<br>A1i | A10<br>A10i | A12<br>A12i |
|--------|------------------------|------------|------------|------------|------------|-------------|-----------|-------------|-------------|
| DN 50  | Regulating range (bar) | 0,2 to 0,5 | 0,4 to 1   | 0,7 to 1,6 | 1,4 to 3,5 | 2,5 to 5,5  | 3,5 to 8  | 5 to 10     | 8 to 18     |
|        | Spring No.             | 67         | 61         | 61         | 61         | 61          | 61        | 61          | 61          |
| DN 65  | Regulating range (bar) | 0,2 to 0,5 | 0,4 to 1   | 0,7 to 1,6 | 1,4 to 3,5 | 2,5 to 5,5  | 3,5 to 8  | 5 to 10     | 8 to 18     |
|        | Spring No.             | 67         | 61         | 61         | 61         | 61          | 61        | 61          | 61          |
| DN 80  | Regulating range (bar) | 0,2 to 0,5 | 0,4 to 1,2 | 0,7 to 2   | 1,8 to 4,5 | 2,5 to 5,5  | 3,5 to 9  | 5 to 12     | 10 to 18    |
|        | Spring No.             | 68         | 62         | 62         | 62         | 62          | 62        | 62          | 62          |
| DN 100 | Regulating range (bar) | 0,2 to 0,6 | 0,4 to 1,2 | 0,7 to 2   | 1,8 to 4,5 | 2,5 to 5,5  | 3,5 to 9  | 5 to 12     | 10 to 18    |
|        | Spring No.             | 69         | 63         | 63         | 63         | 63          | 63        | 63          | 63          |



Optional sensing line connection on body

**DIMENSIONS – VALVE (mm)**

| DIMENSION   | SIZE  |       |       |        |
|-------------|-------|-------|-------|--------|
|             | DN 50 | DN 65 | DN 80 | DN 100 |
| A           | 230   | 290   | 310   | 350    |
| B           | 470   | 495   | 556   | 597    |
| C           | 85    | 100   | 110   | 130    |
| d1          | 1/4"  | 1/4"  | 1/4"  | 1/4"   |
| WEIGHT (kg) | 23,9  | 37,3  | 48,1  | 58,2   |

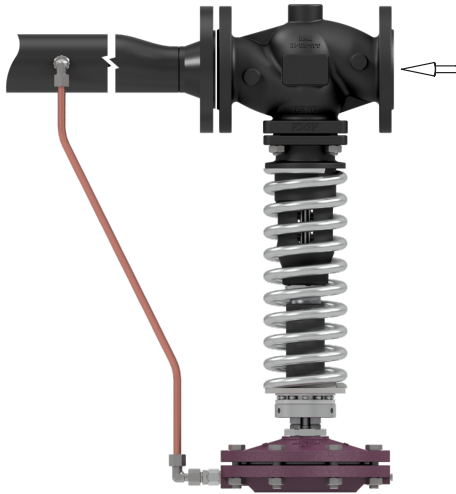


**DIMENSIONS – ACTUATOR (mm)**

| DIMENSION   | ACTUATOR  |             |             |           |             |           |           |
|-------------|-----------|-------------|-------------|-----------|-------------|-----------|-----------|
|             | A1<br>A1i | A10<br>A10i | A12<br>A12i | A2<br>A2i | A21<br>A21i | A3<br>A3i | A4<br>A4i |
| d2          | 1/4"      | 1/4"        | 1/4"        | 1/4"      | 1/4"        | 1/4"      | 1/4"      |
| E           | 67        | 67          | 67          | 74        | 74          | 71        | 81        |
| ØF          | 172       | 172         | 172         | 220       | 220         | 282       | 340       |
| WEIGHT (kg) | 4,3       | 4,3         | 4,3         | 7,3       | 7,3         | 11,3      | 16,3      |

## SENSING LINE CONNECTION OPTIONS

### EXTERNAL SENSING LINE



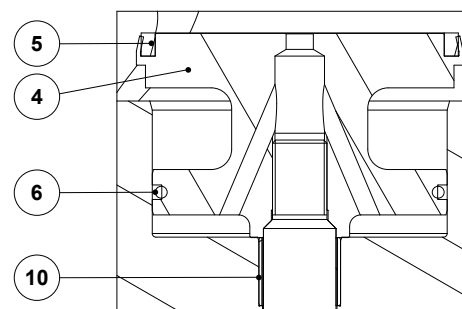
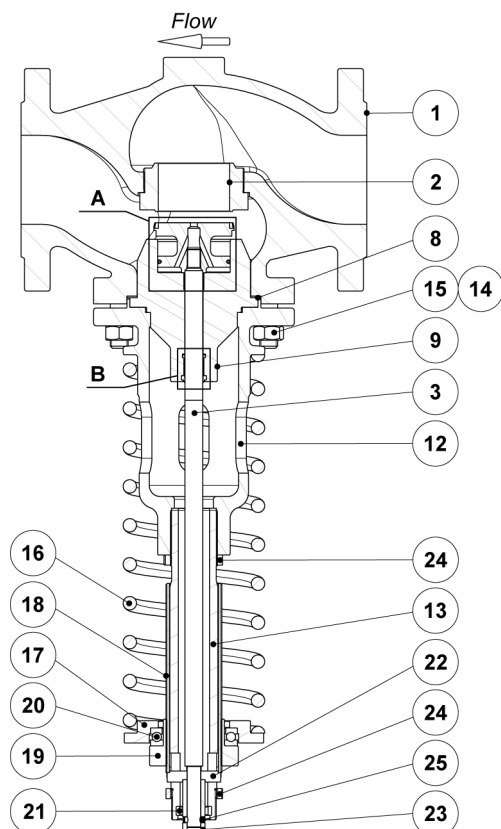
For use with liquids below 130 °C.  
For use with gases below 90 °C. For gases between 90 °C and 130 °C, please consult the manufacturer.  
Installation with the actuator oriented upwards is also acceptable.  
The sensing line should be connected at least 1 meter downstream of the valve outlet.

### SENSING LINE CONNECTION ON BODY

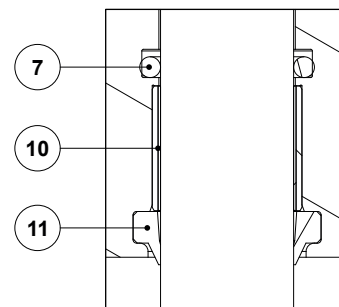


For use with liquids below 130 °C.  
For use with gases below 90 °C. For gases between 90 °C and 130 °C, please consult the manufacturer.  
Installation with the actuator oriented upwards is also acceptable.  
The valve can be supplied with the sensing tube factory-installed. If not supplied installed, the connection at the body is delivered closed with a plug.  
The image shows the connection and sensing tube positioned on the left side relative to the flow direction. If installation constraints require, the connection may also be made on the right side. For valves up to DN 25, the sensing connection is located at the cast boss on the bottom of the valve body.

## MATERIALS



Detail A

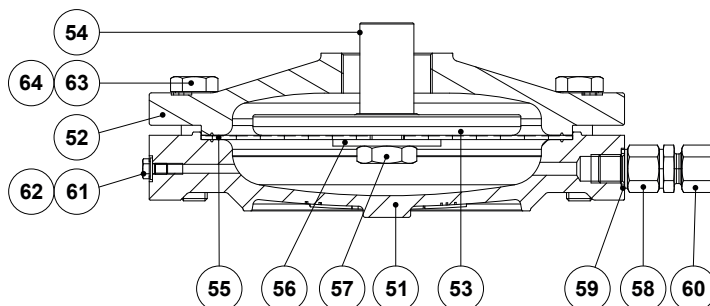


Detail B

**MATERIALS – VALVE**

| POS. No. | DESIGNATION                                 | MATERIAL                   |
|----------|---|----------------------------|
| 1        | Valve body (RPW45BG)                        | GJS-400-15 / 0.7040        |
|          | Valve body (RPW45BS)                        | A216 WCB / 1.0619          |
|          | Valve body (RPW45Bi)                        | A351 CF8M / 1.4408         |
| 2        | * Seat                                      | AISI 316 / 4.4401          |
| 3        | * Stem                                      | AISI 304 / 1.4301          |
| 4        | * Valve plug                                | AISI 316 / 4.4401          |
| 5        | * Seal ring                                 | ** EPDM                    |
| 6        | * O-ring                                    | ** EPDM                    |
| 7        | * O-ring                                    | ** EPDM                    |
| 8        | * Gasket                                    | Stainless steel / Graphite |
| 9        | Stem guide                                  | AISI 304 / 1.4301          |
| 10       | Plain bearing                               | Bronze / PTFE              |
| 11       | * Scraper                                   | FPM; NBR                   |
| 12       | Piston body (RPW45BG and RPW45BS)           | A216 WCB / 1.0619          |
|          | Piston body (RPW45Bi)                       | A351 CF8M / 1.4408         |
| 13       | Piston body extension (RPW45BG and RPW45BS) | P355T1 / 1.0421            |
|          | Piston body extension (RPW45Bi)             | AISI 304 / 1.4301          |
| 14       | Stud (RPW45BG and RPW45BS)                  | Steel 8.8; EN 10269 steel  |
|          | Stud (RPW45Bi)                              | Stainless steel A2-70      |
| 15       | Nut (RPW45BG and RPW45BS)                   | Steel 8.8; EN 10269 steel  |
|          | Nut (RPW45Bi)                               | Stainless steel A2-70      |
| 16       | * Adjustment spring                         | Spring steel               |
| 17       | Lower spring plate (RPW45BG and RPW45BS)    | C45E / 1.1191              |
|          | Lower spring plate (RPW45Bi)                | AISI 304 / 1.4301          |
| 18       | Threaded tube                               | CuZn39Pb3                  |
| 19       | Spring adjusting nut                        | AISI 304 / 1.4301          |
| 20       | Ball bearing                                | Zinc plated steel          |
| 21       | Spacer (RPW45BG and RPW45BS)                | S355J2G3 / 1.0570          |
|          | Spacer (RPW45Bi)                            | AISI 304 / 1.4301          |
| 22       | Pressure star (RPW45BG and RPW45BS)         | S235JR / 1.0038            |
|          | Pressure star (RPW45Bi)                     | AISI 304 / 1.4301          |
| 23       | Pressure tube (RPW45BG and RPW45BS)         | C45E / 1.1191              |
|          | Pressure tube (RPW45Bi)                     | AISI 304 / 1.4301          |
| 24       | Lock nut                                    | AISI 303 / 1.4305          |
| 25       | Pin   | AISI 303 / 1.4305          |

\* Available spare parts. \*\* Others on request.



*A series actuators*

| MATERIALS – ACTUATOR |                         |                               |   |  |
|----------------------|-------------------------|-------------------------------|---|--|
| POS. No.             | DESIGNATION             | A1, A10, A12, A3 and A4       | A2 and A21                                | A1i, A10i, A12i, A2i, A21i, A3i and A4i  |
| 51                   | Lower diaphragm chamber | A216 WCB / 1.0619             | GJS-400-15 / 0.7040;<br>A216 WCB / 1.0619 | A351 CF8M / 1.4408                       |
| 52                   | Upper diaphragm chamber | A216 WCB / 1.0619             | GJS-400-15 / 0.7040;<br>A216 WCB / 1.0619 | A351 CF8M / 1.4408                       |
| 53                   | Pressure plate          | A216 WCB / 1.0619             | GJS-400-15 / 0.7040                       | A351 CF8M / 1.4408;<br>AISI 304 / 1.4301 |
| 54                   | Diaphragm plate spindle | A216 WCB / 1.0619             | GJS-400-15 / 0.7040                       | A351 CF8M / 1.4408;<br>AISI 304 / 1.4301 |
| 55                   | * Diaphragm             | Neoprene reinforced polyamide | Neoprene reinforced polyamide             | Neoprene reinforced polyamide            |
| 56                   | Washer                  | Copper                        | Copper                                    | AISI 304 / 1.4301                        |
| 57                   | Hex nut                 | CuZn39Pb3                     | CuZn39Pb3                                 | AISI 304 / 1.4301                        |
| 58                   | Flow restrictor         | AISI 303 / 1.4305             | AISI 303 / 1.4305                         | AISI 303 / 1.4305                        |
| 59                   | Gasket                  | Copper                        | Copper                                    | Copper                                   |
| 60                   | Compression fitting     | AISI 316Ti / 1.4571           | AISI 316Ti / 1.4571                       | AISI 316Ti / 1.4571                      |
| 61                   | Vent screw              | Zinc plated steel             | Zinc plated steel                         | AISI 304 / 1.4301                        |
| 62                   | Washer                  | Copper                        | Copper                                    | AISI 304 / 1.4301                        |
| 63                   | Bolt                    | Zinc plated steel             | Zinc plated steel                         | AISI 304 / 1.4301                        |
| 64                   | Nut                     | Zinc plated steel             | Zinc plated steel                         | AISI 304 / 1.4301                        |

\* Available spare parts.

| ORDERING CODES RPW45B   |        |   |   |    |   |   |    |   |   |     |   |  |
|---|--------|---|---|----|---|---|----|---|---|-----|---|--|
| VALVE MODEL   | RPW45B | 1 | G | 61 | E | 0 | XX | X | L | 50  |   |  |
| RPW45B – Pressure reducing valve  | RPW45B |   |   |    |   |   |    |   |   |     |   |  |
| VALVE SERIES  |        |   |   |    |   |   |    |   |   |     |   |  |
| Series 1  |        | 1 |   |    |   |   |    |   |   |     |   |  |
| BODY MATERIAL   |        |   |   |    |   |   |    |   |   |     |   |  |
| GJS-400-15 / 0.7040 SG iron   |        |   | G |    |   |   |    |   |   |     |   |  |
| A216 WCB / 1.0619 carbon steel  |        |   | S |    |   |   |    |   |   |     |   |  |
| A351 CF8M / 1.4408 stainless steel  |        |   | I |    |   |   |    |   |   |     |   |  |
| SPRING No.  |        |   |   |    |   |   |    |   |   |     |   |  |
| 61 (DN 50 and DN 65)  |        |   |   | 61 |   |   |    |   |   |     |   |  |
| 62 (DN 80)  |        |   |   | 62 |   |   |    |   |   |     |   |  |
| 63 (DN 100)   |        |   |   | 63 |   |   |    |   |   |     |   |  |
| 67 (DN 50 and DN 65)  |        |   |   | 67 |   |   |    |   |   |     |   |  |
| 68 (DN 80)  |        |   |   | 68 |   |   |    |   |   |     |   |  |
| 69 (DN 100)   |        |   |   | 69 |   |   |    |   |   |     |   |  |
| VALVE SEALING   |        |   |   |    |   |   |    |   |   |     |   |  |
| Soft sealed with EPDM   |        |   |   |    | E |   |    |   |   |     |   |  |
| SENSING LINE CONNECTION ON BODY (a)   |        |   |   |    |   |   |    |   |   |     |   |  |
| Without sensing line connection on body   |        |   |   |    |   | 0 |    |   |   |     |   |  |
| Threaded connection on the left side, relative to flow direction                              |        |   |   |    |   | 4 |    |   |   |     |   |  |
| Threaded connection on the right side, relative to flow direction (non-standard construction) |        |   |   |    |   | 3 |    |   |   |     |   |  |
| Threaded connection on both sides (non-standard construction)                                 |        |   |   |    |   | 2 |    |   |   |     |   |  |
| OPTIONS   |        |   |   |    |   |   |    |   |   |     |   |  |
| Standard valve  |        |   |   |    |   |   | XX |   |   |     |   |  |
| Valve with carbon steel piston body (only for RPW45Bi)  |        |   |   |    |   |   | XS |   |   |     |   |  |
| SPECIAL FEATURES  |        |   |   |    |   |   |    |   |   |     |   |  |
| None  |        |   |   |    |   |   |    | X |   |     |   |  |
| PIPE CONNECTIONS  |        |   |   |    |   |   |    |   |   |     |   |  |
| Flanged EN 1092-1 PN 16   |        |   |   |    |   |   |    |   | L |     |   |  |
| Flanged EN 1092-1 PN 40   |        |   |   |    |   |   |    |   | N |     |   |  |
| SIZE  |        |   |   |    |   |   |    |   |   |     |   |  |
| DN 50   |        |   |   |    |   |   |    |   |   | 50  |   |  |
| DN 65   |        |   |   |    |   |   |    |   |   | 65  |   |  |
| DN 80   |        |   |   |    |   |   |    |   |   | 80  |   |  |
| DN 100  |        |   |   |    |   |   |    |   |   | 100 |   |  |
| SPECIAL CONSTRUCTION / ADDITIONAL OPTIONS   |        |   |   |    |   |   |    |   |   |     |   |  |
| Full description or additional codes have to be added in case of non-standard combination     |        |   |   |    |   |   |    |   |   |     | E |  |

(a) Connections are closed with plugs in case the valve is not supplied with the tube pre-assembled from factory.

## HOW TO ORDER

Indicate the complete valve ordering code together with the required actuator size. If the valve is to be supplied with factory-installed sensing tube, it must be stated in the order.

Example: RPW45B1G61E4XXXL50 fitted with A2 actuator and sensing line connection on body.