



# Deltamatic automatic balancing valves

952

### Description:

Automatic balancing valve (flow controller) in DZR brass with test ports across the valve. Wafer type, Max  $\Delta P$  600 kPa (HP); 350 kPa (LP), DN15 - 50.

### Application:

For use in heating/aircon piping systems to control water (glycol) flows to preset but changeable levels, to prevent overflows in pumps and terminal units. Automatic balancing valves should be installed at the outlet side of each terminal unit and adjacent to pumps.

### Materials and Spec

Body:

- High pressure Tin/nickel plated DZR Brass to EN CW 602 N
- Low pressure DZR Brass to EN CW 602 N
- O-rings EPDM
- Diaphragm Reinforced HNBR
- Max. diif pressure 600 kPa (HP); 350 kPa (LP)
- Medium temperature -20°C to 120°C

### Operation:

Within certain broad  $\Delta P$  levels, the spring adjusts the flow of fluid through the valve exit. The flow is predetermined by the size of the orifice in the entry side and the force of the spring.

### Specification text assistance

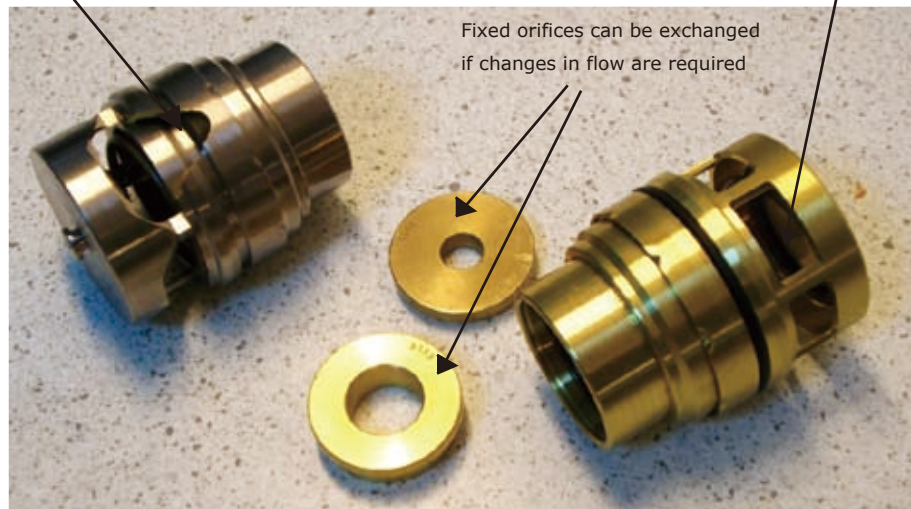
#### High pressure cartridges for DN 15-DN 50

"The cartridge for automatic balancing valve ('wafer between flanges' type housing) should be made of stainless steel. There should be only one differential pressure control range up to 600 kPa. The flow rate should be defined by replaceable orifice plate. There shall be a rolling diaphragm in the cartridge, made of reinforced HNBR. The 'o' rings should be made of EPDM"



Cutaway picture of the cartridge showing rolling diaphragm

Rectangular holes are for high pressure cartridges



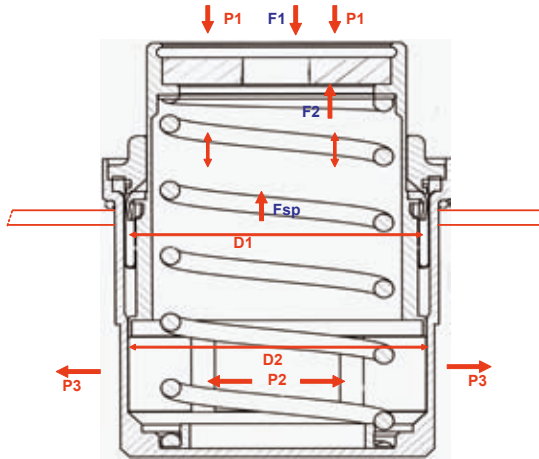
Fixed orifices can be exchanged if changes in flow are required





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$Q$  = flow;  $\Delta P$  = differential pressure;  $K_v$  is a constant for the orifice

$Q = K_v \cdot \sqrt{\Delta P}$   $K_v$  is a constant. To keep  $Q$  constant,  $\Delta P$  must be constant;  $\Delta P = P_1 - P_2$ ;

$F_1 = F_2 + F_{sp}$  (spring)

$P_1 \cdot A_1 = P_2 \cdot A_2 + F_{sp}$

Construction is made so that  $D_1 = D_2$ ;

thus  $A_1 = A_2 (= A')$

Therefore  $P_1 \cdot A' = P_2 \cdot A' + F_{sp}$

$(P_1 - P_2) \cdot A' = F_{sp}$  i.e.  $\Delta P \cdot A' = F_{sp}$

$\Delta P = F_{sp} / A'$

In this product,  $A'$  and  $F_{sp}$  are both constants, therefore  $\Delta P$  must be constant too.

$Q$  remains constant.

## Cartridges for Automatic Balancing Valve DN15-25, Deltamatic

### Low pressure

### 0.007 l/s to 0.151 l/s

Article no	Flow (l/s)	Min ΔP (kPa)
952-000-10 1 1150	0.007	7
952-000-10 1 1170	0.010	7
952-000-10 1 1190	0.012	7
952-000-10 1 1210	0.015	7
952-000-10 1 1230	0.021	8
952-000-10 1 1260	0.024	9
952-000-10 1 1290	0.029	10
952-000-10 1 1300	0.032	10
952-000-10 1 1320	0.036	11
952-000-10 1 1350	0.043	11
952-000-10 1 1370	0.049	12
952-000-10 1 1400	0.057	12
952-000-10 1 1430	0.067	12
952-000-10 1 1460	0.078	12
952-000-10 1 1490	0.089	13
952-000-10 1 1510	0.097	13
952-000-10 1 1540	0.111	13
952-000-10 1 1570	0.132	14
952-000-10 1 1620	0.151	14

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952-000-10 2 1260	0.024	9
952-000-10 2 1290	0.029	10
952-000-10 2 1300	0.032	10
952-000-10 2 1320	0.036	11
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952-000-10 2 1510	0.097	13
952-000-10 2 1540	0.111	13
952-000-10 2 1570	0.132	14
952-000-10 2 1620	0.151	14

### Low pressure

### 0.171 l/s to 0.260 l/s

Article no	Flow (l/s)	Min ΔP (kPa)
952-000-11 1 1725	0.171	14
952-000-11 1 1730	0.186	14
952-000-11 1 1735	0.204	14
952-000-11 1 1740	0.222	16
952-000-11 1 1745	0.242	19
952-000-11 1 1750	0.260	21

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952-000-11 2 1750	0.260	21

### Low pressure

### 0.283 l/s to 0.680 l/s

Article no	Flow (l/s)	Min ΔP (kPa)
952-000-20 1 2070	0.283	22
952-000-20 1 2074	0.300	22
952-000-20 1 2077	0.332	22
952-000-20 1 2082	0.371	23
952-000-20 1 2086	0.412	23
952-000-20 1 2088	0.439	23
952-000-20 1 2092	0.493	24
952-000-20 1 2094	0.509	24
952-000-20 1 2099	0.578	25
952-000-20 1 2103	0.625	26
952-000-20 1 2106	0.644	27
952-000-20 1 2109	0.680	28

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## Cartridges for Automatic Balancing Valve DN25L-50, Deltamatic

### Low pressure 0.188 l/s to 0.968 l/s

Article no	Flow (l/s)	Min ΔP (kPa)
952-000-30 1 3073	0.188	12
952-000-30 1 3082	0.239	12
952-000-30 1 3089	0.283	12
952-000-30 1 3094	0.315	12
952-000-30 1 3096	0.331	12
952-000-30 1 3098	0.353	13
952-000-30 1 3102	0.375	13
952-000-30 1 3107	0.413	13
952-000-30 1 3111	0.435	14
952-000-30 1 3112	0.453	14
952-000-30 1 3118	0.504	14
952-000-30 1 3124	0.556	15
952-000-30 1 3125	0.568	16
952-000-30 1 3129	0.603	16
952-000-30 1 3132	0.631	17
952-000-30 1 3135	0.661	17
952-000-30 1 3138	0.694	18
952-000-30 1 3142	0.733	18
952-000-30 1 3148	0.797	19
952-000-30 1 3156	0.886	21
952-000-30 1 3161	0.946	22
952-000-30 1 3163	0.968	22

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952-000-30 2 3163	0.968	22

### Low pressure 1.009 l/s to 3.154 l/s

Article no	Flow (l/s)	Min ΔP (kPa)
952-000-40 1 4118	1.009	20
952-000-40 1 4152	1.072	21
952-000-40 1 4156	1.136	21
952-000-40 1 4164	1.199	21
952-000-40 1 4168	1.262	22
952-000-40 1 4173	1.325	22
952-000-40 1 4176	1.388	23
952-000-40 1 4182	1.514	24
952-000-40 1 4191	1.640	25
952-000-40 1 4194	1.766	26
952-000-40 1 4200	1.893	27
952-000-40 1 4205	2.019	28
952-000-40 1 4211	2.145	30
952-000-40 1 4217	2.271	31
952-000-40 1 4222	2.397	33
952-000-40 1 4229	2.523	34
952-000-40 1 4235	2.650	36
952-000-40 1 4241	2.776	38
952-000-40 1 4248	2.902	40
952-000-40 1 4250	3.028	42
952-000-40 1 4262	3.154	44

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952-000-40 2 4152	1.072	21
952-000-40 2 4156	1.136	21
952-000-40 2 4164	1.199	21
952-000-40 2 4168	1.262	22
952-000-40 2 4173	1.325	22
952-000-40 2 4176	1.388	23
952-000-40 2 4182	1.514	24
952-000-40 2 4191	1.640	25
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952-000-40 2 4200	1.893	27
952-000-40 2 4205	2.019	28
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