

# Data sheet

## AB-QM flow checker DN 40-100

### Verifying the flow on DN 40 to DN 100 AB-QM valves

#### Flow verification in an installation

To verify that an installation functions according to the design specifications checking only the most critical valve in the installation is needed (see figure 1).

The AB-QM maintains a constant differential pressure over the valve and any excess pressure will automatically be throttled. If there is not enough differential pressure the valve cannot reach the set flow. The valve that is furthest away from the pump or the valve in the circuit with the highest resistance has the lowest available differential pressure, so if this critical valve has enough pressure it means the other valves will also function properly.

#### Important:

To get a useful measurement the installation should run on full load, so all actuators in the installation should be opened fully. This ensures that you are measuring under the most unfavorable circumstances. The AB-QM's will have more differential pressure available when the installation is working on partial load.

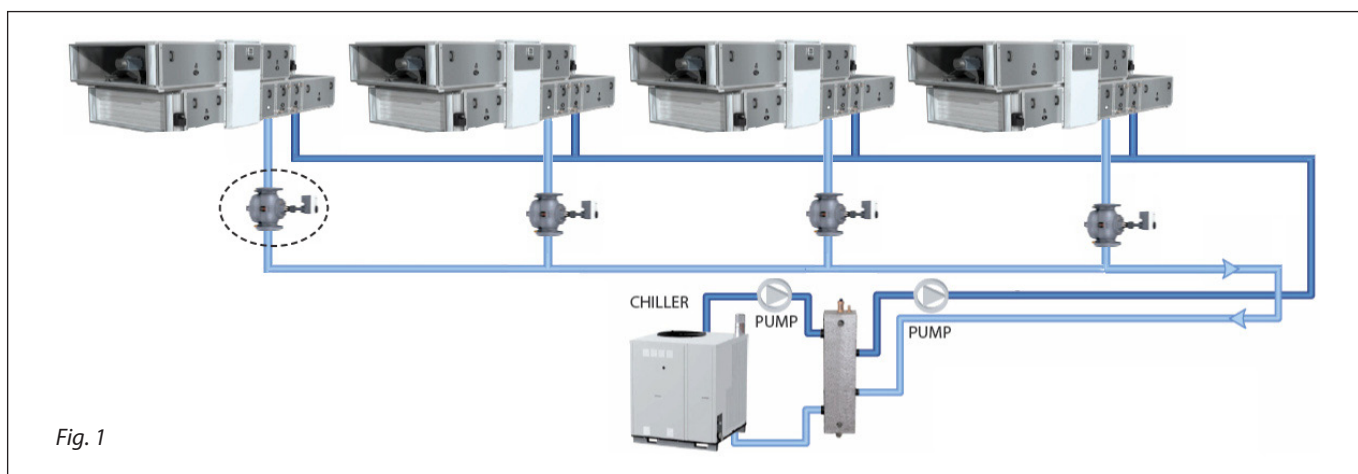


Fig. 1

#### Method of verification

Measure the differential pressure across the whole valve.

The measuring nipples are placed in such a way that differential pressure  $p_1-p_3$  ( $\Delta P$ ) over the valve is measured (see figure 2).

If the measured value is below 30 kPa then there is not enough differential pressure available for the AB-QM to function properly. If the measured value is above 30 kPa then the AB-QM has enough differential pressure available and the flow is according to the setting (see figure 3).

#### Setting the flow

DN 40 to DN 100: 1 turn=10%

Note: for more information about setting procedure please refer to instructions

#### Method of measurement

Measure the differential pressure across the control valve.

The measuring nipples are placed in such a way that  $P_1-P_2$  is measured (see figure 2).

Therefore the measured differential pressure can be used to calculate the flow directly. It's necessary to use the table that was derived from statistical measurements

Since the measurements across the measuring points are influenced by the dynamic pressure, turbulences, flow patterns, internal tolerances, setting accuracy and accuracy of the measuring equipment we believe that the total accuracy of the measurement is lower than performance of the valve.

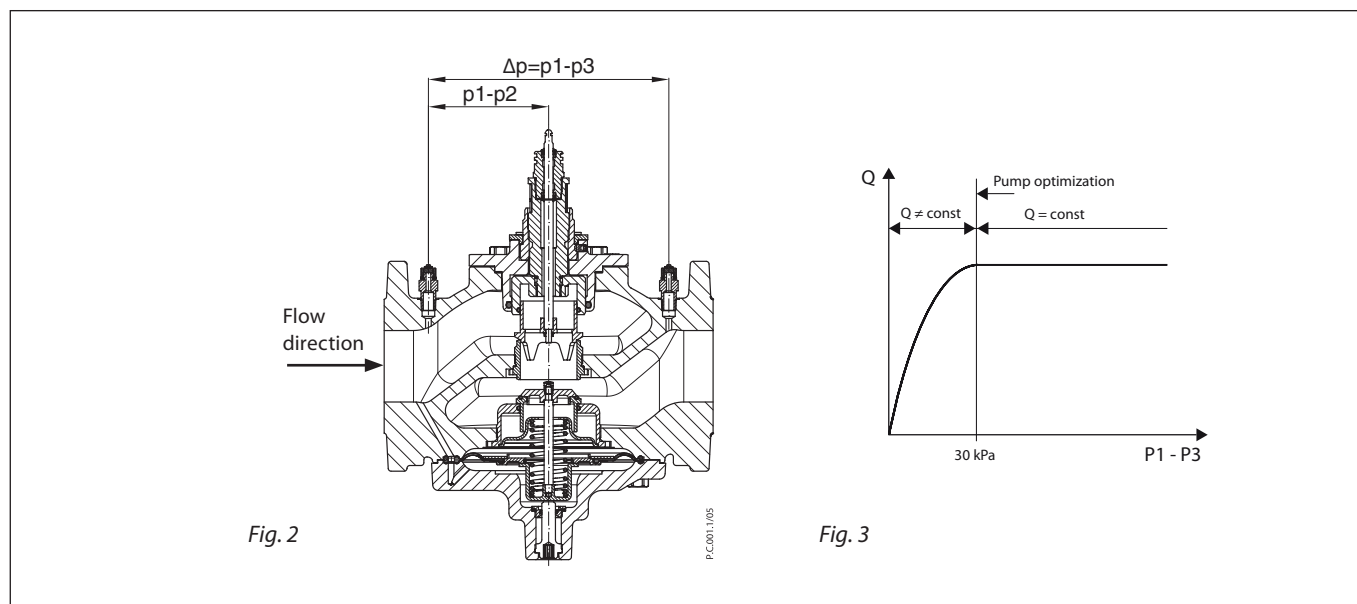
Therefore we recommend not to adjust the setting when the results are within 10% of the expected flow.

#### Calculating the flow

$$dpa = p_1 - p_2$$

$$Q = k_{v_{cv}} \cdot \sqrt{dpa}$$

For  $k_{v_{cv}}$  values see table in Fig.4



Presetting	DN40	DN50 / DN50F	DN65	DN80	DN100
s%	kvcv (m³/h)				
20,0 %	3,400	4,600	4,200	15,500	19,500
22,5 %	4,075	5,550	5,475	17,188	21,938
25,0 %	4,750	6,500	6,750	18,875	24,375
27,5 %	5,425	7,450	8,025	20,563	26,813
30,0 %	6,100	8,400	9,300	22,250	29,250
32,5 %	6,775	9,350	10,575	23,938	31,688
35,0 %	7,450	10,300	11,850	25,625	34,125
37,5 %	8,125	11,250	13,125	27,313	36,563
40,0 %	8,800	12,200	14,400	29,000	39,000
42,5 %	9,475	13,150	15,675	30,688	41,438
45,0 %	10,150	14,100	16,950	32,375	43,875
47,5 %	10,825	15,050	18,225	34,063	46,313
50,0 %	11,500	16,000	19,500	35,750	48,750
52,5 %	12,175	16,950	20,775	37,438	51,188
55,0 %	12,850	17,900	22,050	39,125	53,625
57,5 %	13,525	18,850	23,325	40,813	56,063
60,0 %	14,200	19,800	24,600	42,500	58,500
62,50%	14,875	20,75	25,875	44,188	60,938
65,00%	15,55	21,7	27,15	45,875	63,375
67,50%	16,225	22,65	28,425	47,563	65,813
70,00%	16,9	23,6	29,7	49,25	68,25
72,50%	17,575	24,55	30,975	50,938	71,813
75,00%	18,25	25,5	32,25	52,625	75,375
77,50%	18,925	26,45	33,525	54,313	78,938
80,00%	19,6	27,4	34,8	56	82,5
82,50%	20,275	28,35	36,075	57,688	86,063
85,00%	20,95	29,3	37,35	59,375	89,625
87,50%	21,625	30,25	38,625	61,063	93,188
90,00%	22,3	31,2	39,9	62,75	96,75
92,50%	22,975	32,15	41,175	64,438	100,313
95,00%	23,65	33,1	42,45	66,125	103,875
97,50%	24,325	34,05	43,725	67,813	107,438
100,00%	25	35	45	69,5	111

Fig. 4 The flow is according to setting if the calculated flow is in the range of ±10% of the set flow.

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