J.S.COCK A/s

SP45X16Q Digital Lock Balancing Valve

Qingdao Hua'an Xinda Machinery Co.,Ltd.

Content

1. Valve Description

SP45X16Q Digital Lock Balancing Valve is a new style energy-saving valve with measurement, regulating, and isolating three functions. It is widely used in various kind of heating and cooling water piping system, and works as a controlling device to measure, regulate medium flow rate, and isolate media.

2. Valve Features

2.1 Ideal regulating performance.

2.2 Excellent isolating function.

2.3 Open status indication accurate to 1 to 10 circle.

2.4 Flow characteristic curve is a ∆P-flow curve, only if the pressure differential between valve's inlet and outlet end is measured from the test point , it will be convenient to determine valve flow.

2.5 Each circle has a fixed flow coefficient Kv.

2.6 Valve disc is coated with EPDM rubber, and sealing performance is reliable.

2.7 Internal components is made of stainless steel and cooper alloy with strong anti-corrosion performance, and is reliable and durable.

2.8 Valve is designed with non-rising stem structure, which is compact and and need little space for installation and operation.

3. Technical Parameters

3.1 Valve Standard

● Valve design and manufacture according to BS7350

● Flange standard according to EN1092-2 PN16

● Face to Face according to EN558-1 Series 1

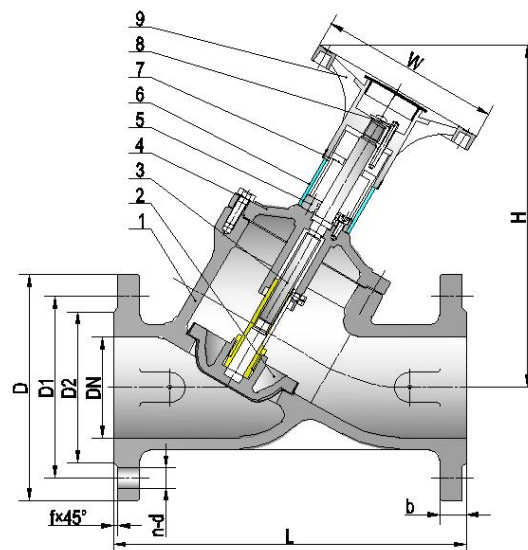● Pressure test according to EN12266-1

3.2 Performance Specification

Nominal Pressure (Mpa)		1.6
Testing Pressure (Mpa)	Shell	2.4
	Seat	1.76
Suitable Medium		Cooling water, Heating water
Suitable Temperature (℃）		≤120

3.3 Main Valve Parts Material

Sr.No	Part Name	Material
1	Valve Body	EN-GJS-450-10
2	Valve Disc	EN-GJL-250+EPDM
3	Valve Shaft	2Cr13
4	Valve Bonnet	EN-GJS-450-10
5	Gland Flange	EN-GJS-450-10+Ni
6	Link Cover	Black Plastic
7	Indication Cover	White Plastic
8	Locating Screw	Carbon Steel
9	Handwheel	Aluminium Die Casting

3.4 General Dimensions

External Dimensions for Connection(mm):

DN	L	D	D1	D2	b	f	n-d	H	W
50	230	165	125	99	16	3	4-19	276	180
65	290	185	145	118	16	3	4-19	308	180
80	310	200	160	132	16	3	8-19	320	180
100	350	220	180	156	16	3	8-19	340	180
125	400	250	210	184	16	3	8-19	375	240
150	480	285	240	211	16	3	8-23	410	240
200	600	340	295	266	17	3	12-23	550	350
250	730	400	355	319	19	3	12-28	590	350
300	850	455	410	370	21	4	12-28	678	450

4. Storage

4.1 Valves shall be stocked in dry warehouse as much as possible. If outdoor storage is required, valve shall be protected from the damage of weather, sunlight, Ozone, and impurities. Valve inside shall be prevented from filling with water.

4.2 Maintain the valve every half year for long time storage, inspect each machining surface, and replace the anti-rust oil after dirt cleaning every half year.
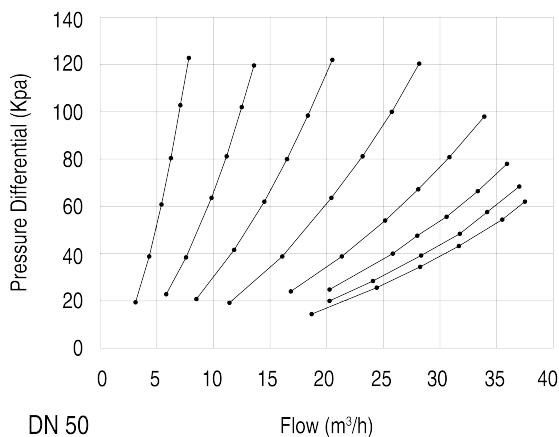
5. Installation, Commissioning and Notes

5.1 Check carefully whether the working condition conforms to valve's performance specification before installation.

5.2 Clean all dirt from the pipeline, valve cavity, sealing surface, and all exposed driving sub-surfaces, but the sealing surface shall be protected from damage.

5.3 Install the valve after it passes pressure test.

5.4 Valve can be used for flow regulating and measurement, and is suggested to be installed at straight pipeline to ensure the stability of water flow and the accuracy of measurement.

5.5 The arrow on valve body indicates the direction of water flow, don't install the valve in opposite direction.

5.6 As valve disc is spherical and is easily to squeeze foreign materials under small open degree, therefore, keep valve closed before installation to protect it from impurities. Fully open the valve during the pipeline washing.

5.7 Scale ring and direction cover are at zero position when valve is closed.

5.8 The valve has position locking device, when flow is regulated to the requested condition, open the cover of handwheel, tighten and locking the locating screw to store the open position, valve can still be closed under this condition. When re-open the valve, valve flow will be same as the one regulated last time because of the fixed locating screw.. When valve's open degree need to be changed to re-set the flow, the locating screw shall be loosened till it is aligned with the top surface of handwheel, tighten and locking the locating screw when the requested open degree is
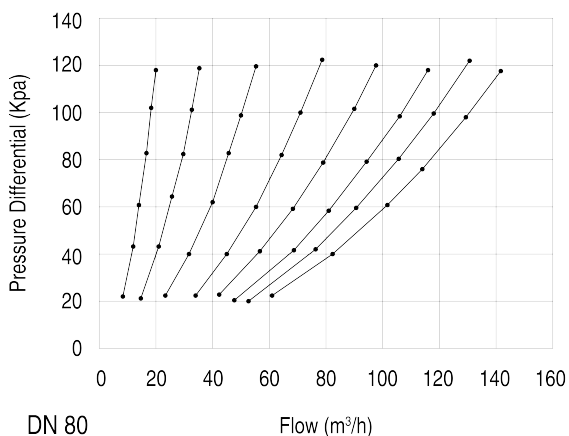
reached.

6. Flow Rate Calculation Statistics and Method

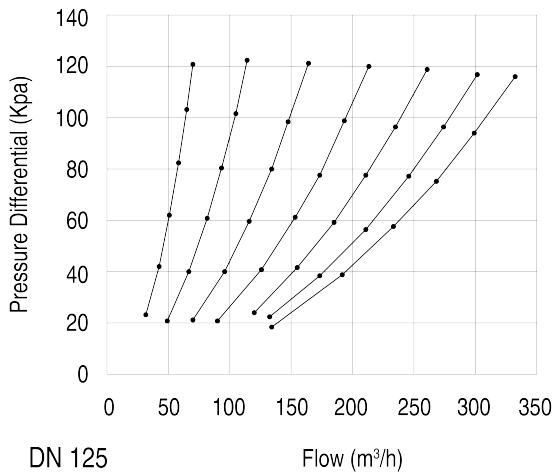## 6.1 PressureDifferential-Flow Curve for Each Valve Size

DN 50

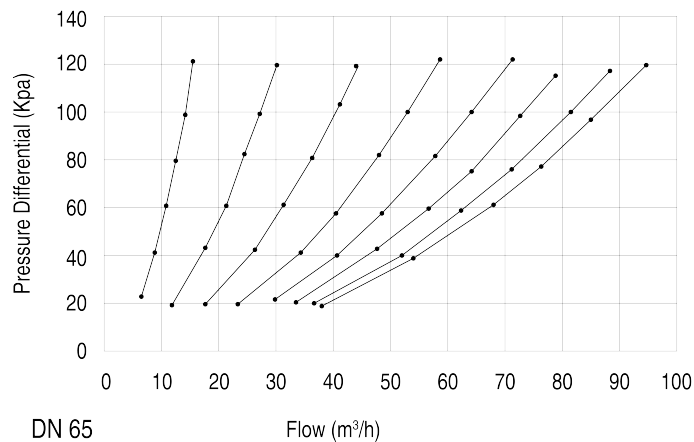From left to right:

ΔP-flow curve for valve opened by circle 1 to 8

DN 65

From left to right:

ΔP-flow curve for valve opened by circle 1 to 8

DN 80

From left to right:
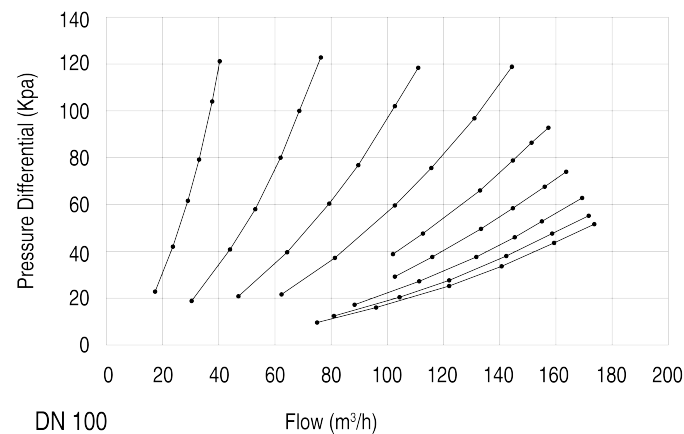
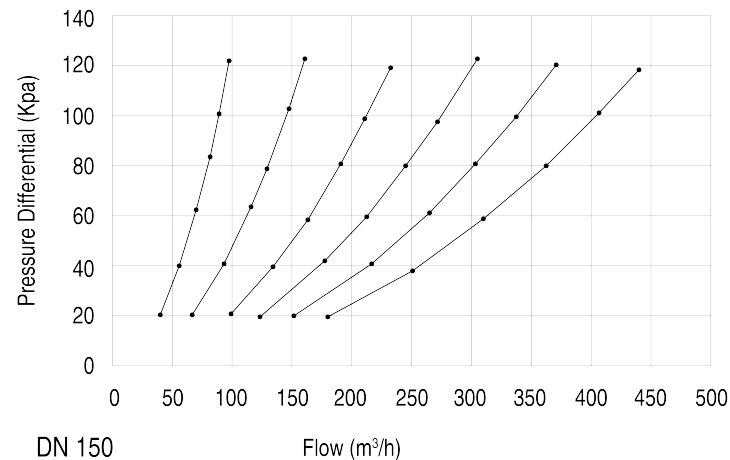ΔP-flow curve for valve opened by circle 1 to 8

DN 100

From left to right:

ΔP-flow curve for valve opened by circle 1 to 9

DN 125

From left to right:

ΔP-flow curve for valve opened by circle 1 to 7

DN 150

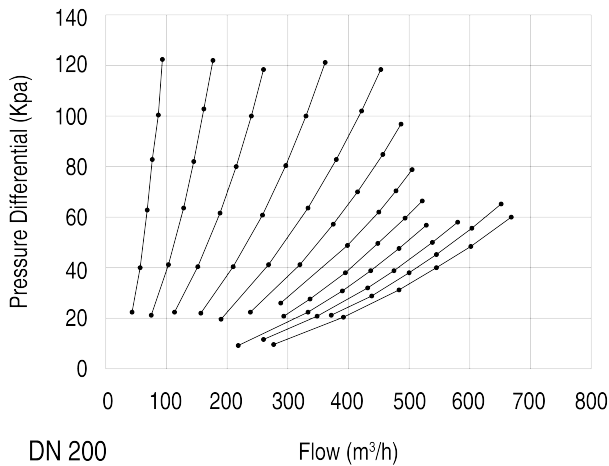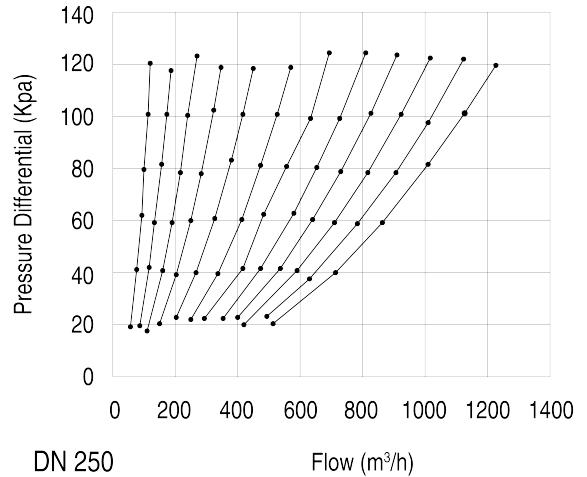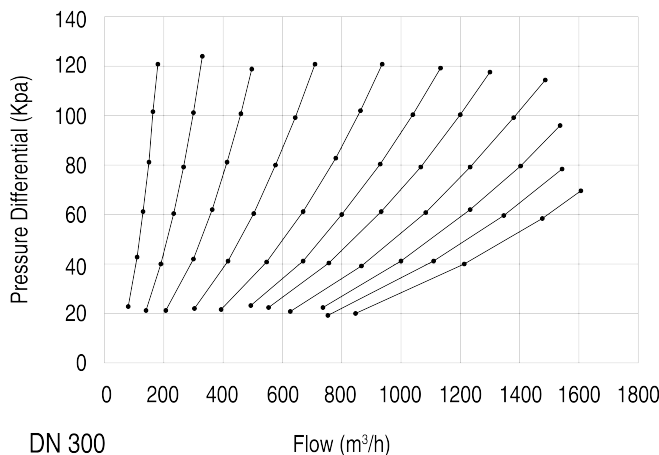From left to right:

ΔP-flow curve for valve opened by circle 1 to 6

DN 200   Flow (m³/h)

From left to right:

ΔP-flow curve for valve opened by circle 1 to 12

DN 250   Flow (m³/h)

From left to right:

ΔP-flow curve for valve opened by circle 1 to 12

DN 300   Flow (m³/h)

From left to right:

ΔP-flow curve for valve opened by circle 1 to 11

6.2 Flow Coefficient (Kv)

Size \ Circle	1	2	3	4	5	6	7	8	9	10	11	12
DN50	6.9	12.2	18.3	25.5	33.9	40.2	44.4	47.3				
DN65	14.5	27.5	40.5	53.2	64.4	73.4	81.6	86.6				
DN80	18.7	32.7	50.8	71.8	89.7	107.3	118.8	131.2				
DN100	37.2	69.4	102.5	133.5	163.4	189.6	213.5	230.4				
DN125	64.3	104.4	150.5	196.7	241.5	280.4	309.5	331.3				
DN150	89.6	146.3	213.4	275.6	338.4	404.5	448.6	478.2				
DN200	87.3	160.6	240.5	331.4	420.3	498.5	573.6	641.4	704.6	764.5	811.9	865.6
DN250	113.4	173.5	241.8	318.5	413.4	523.5	630.6	727.8	819.6	918.1	1018.2	1116.3
DN300	163.4	295.3	455.5	643.5	852.3	1037.6	1197.8	1387.8	1568.1	1739	1919.4	

Kv: Flow coefficient, Q: Flow, Unit: m³/h, ΔP: Pressure differential, Unit: Bar (100 kpa), Formula: $Kv = \dfrac{Q}{\sqrt{\Delta P}}$

6.3 Flow Determination Method

Measure the pressure differential between valve's inlet and outlet end with special pressure gauge. Refer to the pressure differential-flow curve or flow coefficient table and calculation formula to determine the requested flow Q.