

SIGMA Compact

Veriflow-series, DN50-DN300

Description

The SIGMA Compact is an externally adjustable dynamic balancing valve that provides simple, accurate and reliable flow limitation and isolation in heating and cooling systems.

The Veriflow valve design with 3 P/T plugs allows for both flow measurement and verification of minimum differential pressure across the total valve for optimal pump energy saving.

SIGMA Compact is offered in 2 series:

- The Ultra series has reduced size and weight to offer an easy installation.
- The Standard series has higher flows to cover a wider flow range.

Application

SIGMA Compact can be used in both heating and cooling systems for the effective distribution of flow in various sections of the system.

SIGMA Compact can be used instead of traditional double regulating valves and can be installed in both variable flow systems and constant flow systems.

Operation

SIGMA Compact can be set to the required position easily by using the scale, to limit the flow rate in certain parts of a system, eliminating overflows and the unnecessary wastage of energy. The internal differential pressure control function of the SIGMA Compact ensures that the set flow rate is limited irrespective of differential pressure fluctuations in the system.

The hand wheel can be used to close the valve and to open it to the preset flow.

Features

- Easy adjustment of the flow using the clear preset scale on the valve
- Hand wheel provides an isolation function up to 10 bar differential pressure
- No minimum straight pipe lengths required before or after the valve
- Built-in P/T plugs for needle system
- Size range: DN50 to DN300
- Flow range: 1,400 to 600,000 l/h
- Maximum differential pressure: 800 kPa

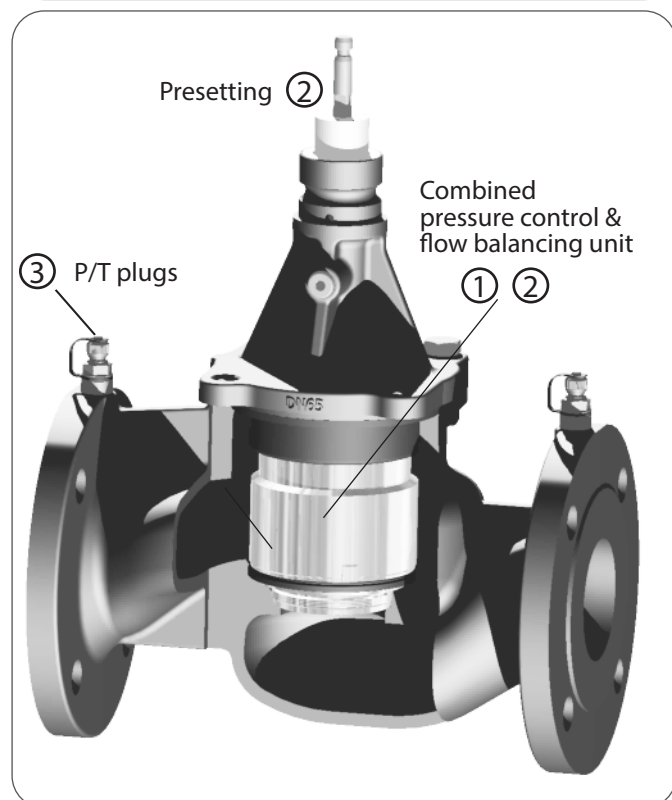
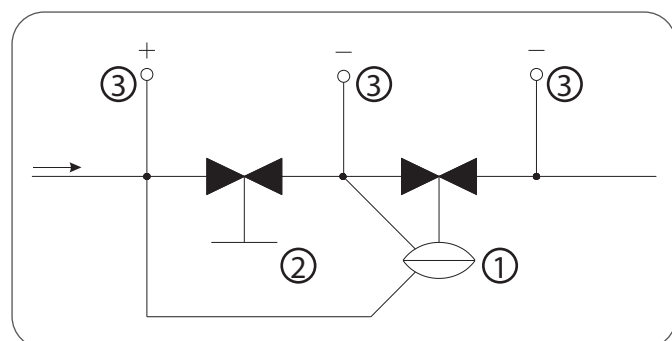


Benefits

- Measurement of flow and minimum differential pressure due to valve design with 3 P/T plugs
- Easy to size and select as only the flow rate is required
- Simplified system design with the number of balancing valves being reduced
- Removes the requirement for main circuit or branch balancing valves in the system
- Works as a flow limiter ensuring no overflows
- Easy to install and adjust on site
- Provides flexibility if the system is modified after the initial installation
- Simplifies the commissioning process and reduces commissioning time due to automatic balancing of the system
- High level comfort for the end-users as a result of the correct balance of the hydraulic system
- Reliable operation as a dynamic balancing valve automatically finds the hydraulic balance regardless of pressure fluctuations in the system

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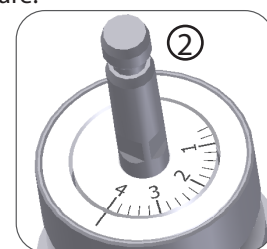


Design

The design of SIGMA Compact combines high performance and a compact design.

The main components of the valve are:

- ① Differential pressure control
- ② Presetting
- ③ P/T Plugs



Function

SIGMA Compact can be flushed before presetting the flow.

The presetting of the dial is user-friendly requiring only a simple flow vs. presetting table.

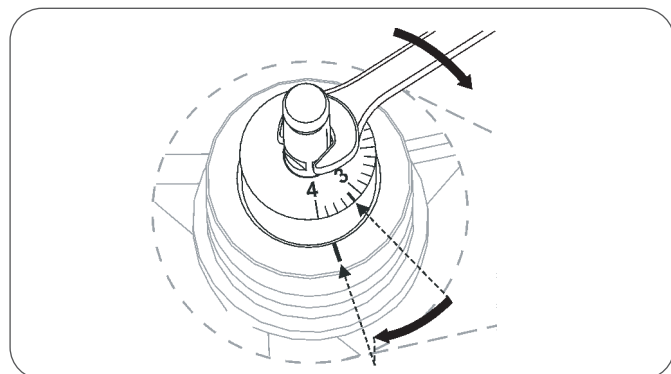
Once the flow is set, and hand wheel is opened up fully the valve ready to operate.

For lowest energy consumption, check the differential pressure at the index valve to set the pump at minimum speed.

Operating Pressure

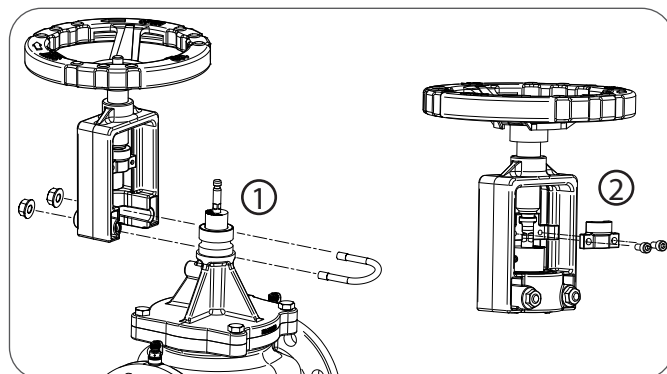
SIGMA Compact (DN50 to DN300) can operate to a maximum differential pressure of 800 kPa (8 bar).

Setting the Valve and Mounting the Hand Wheel



The SIGMA Compact is easily set using the pre-setting scale.

The set point of the valve can be determined by using the flow tables (page 9 to 13) or the Frese APP for the valve dimension in question.



After pre-setting of the flow, the hand wheel is mounted on the valve neck (1) and locked to the valve stem (2).

The pre-setting will be locked when the hand wheel is mounted as described above.

To use the valve for isolation, turn the hand wheel clockwise to the fully closed position.

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SIGMA Compact Veriflow design for flow and pressure measurement

Flow measurement

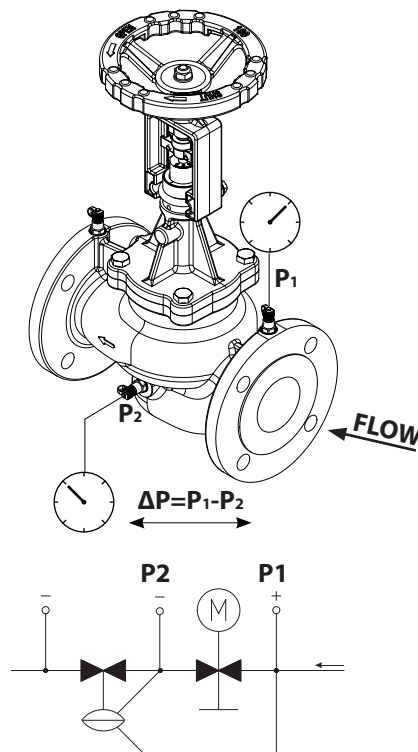
To measure the flow, insert the needles from a manometer in the red P/T plug (P1) and in the blue P/T plug (P2) placed at the middle of the valve body.

Now the manometer measures the differential pressure (P1-P2) across the KV presetting and the flow can be calculated by the formulas below.

Please use the KV-signal values from the tables page 9-13

Flow Calculation

$Q = K_v \cdot \sqrt{\Delta p}$	$Q = \text{m}^3/\text{h}$ $\Delta p = \text{Bar}$
$Q = K_v \cdot 100 \cdot \sqrt{\Delta p}$	$Q = \text{l/h}$ $\Delta p = \text{kPa}$
$Q = \frac{K_v}{36} \cdot \sqrt{\Delta p}$	$Q = \text{l/s}$ $\Delta p = \text{kPa}$

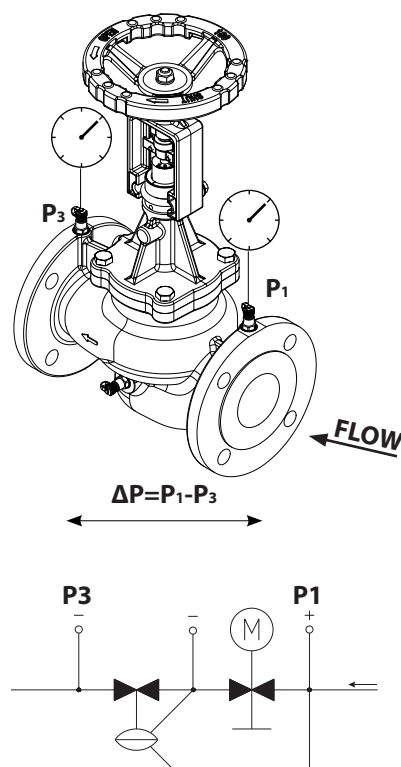


Minimum ΔP measurement

To measure the minimum differential pressure, insert the needles from a manometer in the red P/T plug (P1) and in the blue P/T plug (P3) placed at the outlet flange.

Now the manometer measures the differential pressure (P1-P3) across the total valve and the pump pressure can be optimized for pump energy saving.

Please use the required minimum differential pressure for the nominal flow in the tables page 9-13, or use the Frese APP.



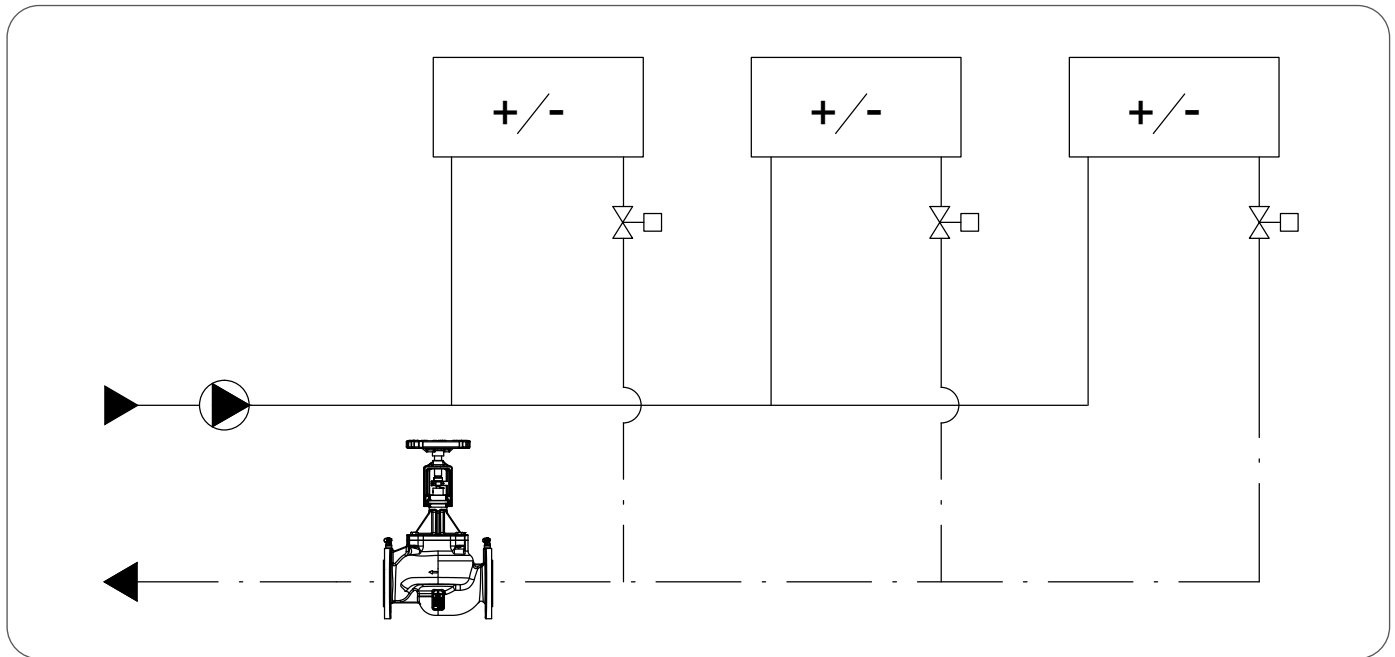
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Application Diagrams | SIGMA Compact installed in a circuit with heating or cooling coils

The system is easily balanced by adjusting the pump according to the required differential pressure across the dynamic balancing valve located at the furthest point from the pump, known as the critical valve.

When the minimum required differential pressure is available at the critical valve, sufficient differential pressure will be available in the rest of the system and the system will be automatically balanced.



Flow rate example | SIGMA Compact DN50 Low

Required design flow rate **9.5 m³/h** - (2.64 l/s)

1. The required design flow is used as the starting point to find the correct pre-setting.
(See the table)

2. The pre-setting for the valve can be determined using the table or the Frese APP.
Pre-set = **2.8**

3. In the right column, the minimum differential pressure required from the pump can be determined.
Min. ΔP required = **11 kPa**.

Series	Standard			
Dim.	DN50 LF			
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa
0.6	2.50	0.689	10.9	7
0.8	3.20	0.887	14.1	7
1.0	3.90	1.07	17.0	7
1.2	4.50	1.25	19.8	7
1.4	5.10	1.42	22.5	7
1.6	5.70	1.59	25.1	7
1.8	6.30	1.75	27.7	8
2.0	6.90	1.92	30.4	8
2.2	7.50	2.08	33.0	9
2.4	8.10	2.26	35.8	9
2.6	8.80	2.44	38.7	10
2.8	9.50	2.64	41.8	11
3.0	10.2	2.84	45.0	12
3.2	11.0	3.07	48.6	13
3.4	11.9	3.31	52.4	15
3.6	12.8	3.57	56.6	16
3.8	13.9	3.86	61.1	18
4.0	15.0	4.17	66.0	20

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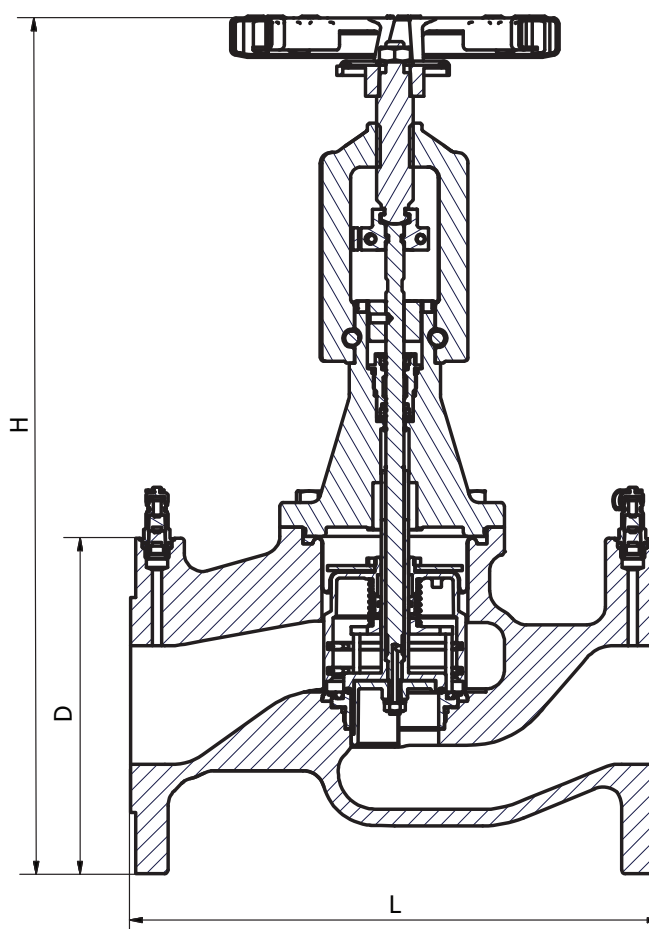
Veriflow-series, DN50-DN300

Technical Data DN50 - DN80

Valve housing:	GJL-250/GJS-400
Valve cover:	GJS-400
DN50 Ultra:	DZR brass CW602N
DP controller:	Stainless steel/PPS
Spring:	Stainless steel
Diaphragm:	Reinforced EPDM/HNBR
O-rings:	EPDM
Pressure class:	PN16/25
Flange connections:	ISO 7005-2 / EN 1092-2
Max. differential pressure:	800 kPa
Needles for DP measurement:	Max diameter, $\varnothing 3.2$ mm Length, 25 - 40 mm
Medium temperature range:	-10°C to 120°C
Hand wheel:	Steel
Hand wheel spindle:	Stainless steel
Yoke:	Zinc alloy EN 1774

The pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene).

Recommendation: Water treatment to VDI 2035.



Dimension & Weight · DN50 - DN80

Valve Size		DN50		DN65		DN80	
Series		Ultra	Standard	Ultra	Standard	Ultra	Standard
Dimensions [mm]	L	230		290		310	
	H	351	480	469	497	484	526
	D	165		185		200	
Weight [kg]		12.4	15.4	18.9	20.0	22.2	26.3

SIGMA Compact

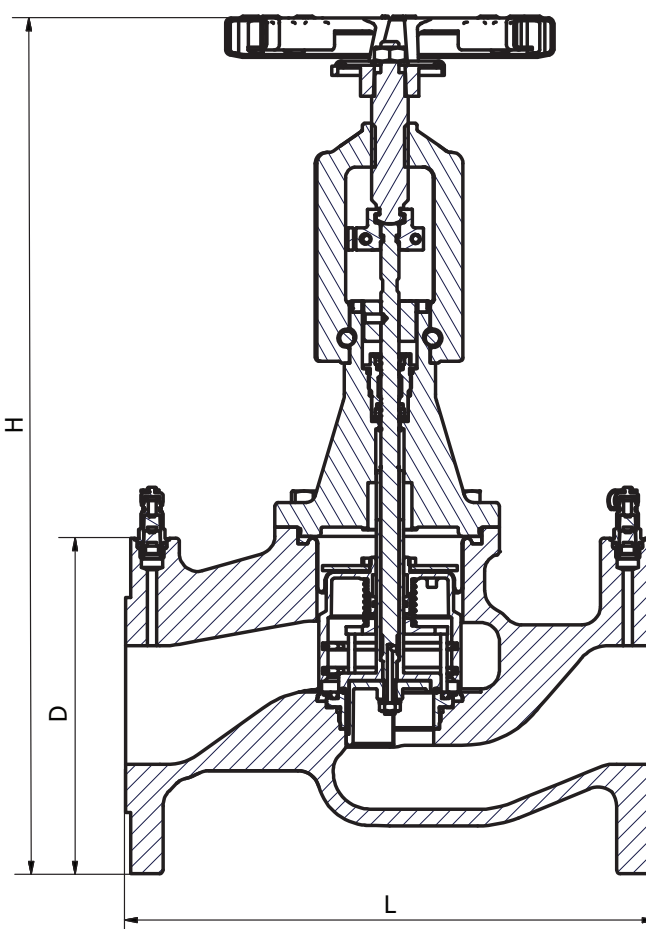
Veriflow-series, DN50-DN300

Technical Data DN100 - DN150

Valve housing:	GJL-250/GJS-400
Valve cover:	GJS-400
DP controller:	Stainless steel
Spring:	Stainless steel
Diaphragm:	Reinforced EPDM
O-rings:	EPDM
Pressure class:	PN16/25
Flange connections:	ISO 7005-2 / EN 1092-2
Max. differential pressure:	800 kPa
Needles for DP measurement:	Max diameter, $\varnothing 3.2$ mm Length, 25 - 40 mm
Medium temperature range:	
PN16 - DN100-DN150:	-10°C to 120°C
PN25 - DN100-DN125:	-10°C to 120°C
PN25 - DN150:	-10°C to 110°C
Hand wheel:	Steel
Hand wheel spindle:	Stainless steel
Yoke:	Zinc alloy EN 1774

The pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene).

Recommendation: Water treatment to VDI 2035.



Dimension & Weight · DN100 - DN150

Valve Size		DN100		DN125		DN150
Series		Ultra	Standard	Ultra	Standard	Standard
Dimensions [mm]	L	350		400		480
	H	523	714	726	761	782
	D	235		270		285
Weight [kg]		35.3	50.2	63.1	71.4	97.8

SIGMA Compact

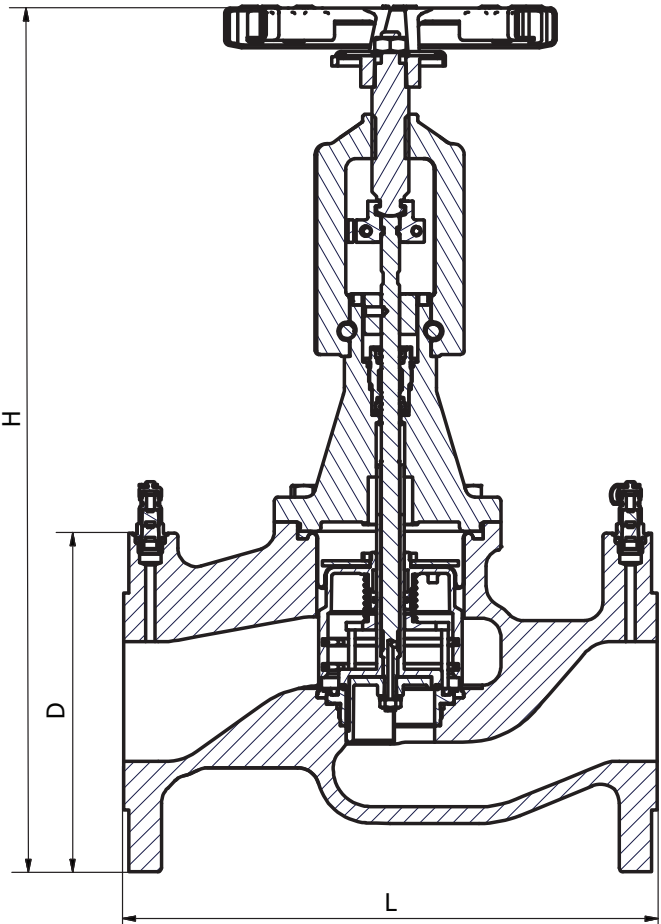
Veriflow-series, DN50-DN300

Technical Data DN200 - DN300

Valve housing:	GJS-400
Valve cover:	GJS-400
DP controller:	Stainless steel
Spring:	Stainless steel
Diaphragm:	Reinforced EPDM
O-rings:	EPDM
Pressure class:	PN16/25
Flange connections:	ISO 7005-2/EN 1092-2
Max. differential pressure:	800 kPa
Needles for DP measurement:	Max diameter, $\varnothing 3.2$ mm Length, 25 - 40 mm
Medium temperature range:	
PN16 - DN200-DN300:	-10°C to 120°C
PN25 - DN200-DN300:	-10°C to 110°C
Hand wheel	Steel
Hand wheel spindle	Stainless steel
Yoke	Zinc alloy EN 1774

The pipe system shall be properly ventilated to avoid risk of air pockets. Glycolic mixtures up to 50% are applicable (both ethylene and propylene).

Recommendation: Water treatment to VDI 2035.



Dimension & Weight · DN200 - DN300

Valve Size		DN200	DN250	DN300
Series		Standard	Standard	Standard
Dimensions [mm]	L	600	730	850
	H	853	1044	1082
	D	380	444	520
Weight [kg]		175	307	470

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Veriflow-series, DN50-DN300

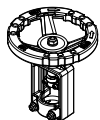
Product programme

Dim.	Series	Type	Flow [m³/h]	PN16	PN25
DN50	Ultra	High Flow	1.4 - 11.5	53-5410	53-5430
	Standard	Low Flow	2.5 - 15.0	53-2400	53-2420
		High Flow	3.9 - 24.0	53-2410	53-2430
DN65	Ultra	Low Flow	3.0 - 16.0	53-5401	53-5421
		High Flow	4.2 - 24.0	53-5411	53-5431
	Standard	Low Flow	4.4 - 25.0	53-2401	53-2421
		High Flow	5.9 - 35.0	53-2411	53-2431
DN80	Ultra	Low Flow	4.4 - 25.0	53-5402	53-5422
		High Flow	6.0 - 35.0	53-5412	53-5432
	Standard	Low Flow	5.3 - 34.0	53-2402	53-2422
		High Flow	7.0 - 43.0	53-2412	53-2432
DN100	Ultra	Low Flow	5.3 - 34.0	53-5403	53-5423
		High Flow	7.0 - 43.0	53-5413	53-5433
	Standard	Low Flow	12.1-68.0	53-2403	53-2423
		High Flow	14.8-90.0	53-2413	53-2433
DN125	Ultra	Low Flow	12.1-68.0	53-5404	53-5424
		High Flow	14.8-90.0	53-5414	53-5434
	Standard	Low Flow	18.5-110	53-2404	53-2424
		High Flow	23.0-135	53-2414	53-2434
DN150	Standard	Low Flow	25.6-148	53-2405	53-2425
		High Flow	32.0-195	53-2415	53-2435
DN200	Standard	Low Flow	95.0 - 210	53-2406	53-2426
		High Flow	130 - 280	53-2416	53-2436
DN250	Standard	Low Flow	190 - 475	53-2407	53-2427
		High Flow	245 - 600	53-2417	53-2437
DN300	Standard	Low Flow	190 - 475	53-2408	53-2428
		High Flow	245 - 600	53-2418	53-2438

The valve can be ordered with a protective coating in C5 standard. The product will have the item code extension - **ST01**.
Example: SIGMA Compact DN65 Standard PN16 Low Flow with C5 coating has item code **53-2401-ST01**

Accessories

Hand wheel

	Handwheel for SIGMA Compact	DN50 - DN80	01-2127
		DN100 - DN300	01-2128

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Setting and Flow

Series	Ultra				
Dim.	DN50 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	1.40	0.389	6.16	10	4.66
0.8	1.71	0.474	7.52	11	5.87
1.0	2.05	0.569	9.03	11	7.11
1.2	2.42	0.673	10.7	11	8.34
1.4	2.82	0.783	12.4	11	9.54
1.6	3.24	0.900	14.3	12	10.7
1.8	3.68	1.02	16.2	12	11.7
2.0	4.15	1.15	18.3	13	12.7
2.2	4.64	1.29	20.5	14	13.6
2.4	5.17	1.44	22.8	16	14.4
2.6	5.73	1.59	25.2	17	15.1
2.8	6.34	1.76	27.9	20	15.8
3.0	7.00	1.94	30.8	22	16.5
3.2	7.72	2.15	34.0	25	17.2
3.4	8.52	2.37	37.5	28	18.0
3.6	9.40	2.61	41.4	30	18.9
3.8	10.4	2.89	45.8	33	20.0
4.0	11.5	3.19	50.6	36	21.4

Series	Standard									
Dim.	DN50 LF					DN50 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	2.50	0.689	10.9	7	9.19	3.90	1.09	17.3	19	9.68
0.8	3.20	0.887	14.1	7	11.7	5.10	1.41	22.3	19	11.9
1.0	3.90	1.07	17.0	7	13.9	6.20	1.71	27.2	19	14.1
1.2	4.50	1.25	19.8	7	15.9	7.20	2.00	31.8	19	16.2
1.4	5.10	1.42	22.5	7	17.7	8.20	2.29	36.2	19	18.2
1.6	5.70	1.59	25.1	7	19.5	9.20	2.56	40.6	20	20.1
1.8	6.30	1.75	27.7	8	21.1	10.2	2.83	44.9	20	22.0
2.0	6.90	1.92	30.4	8	22.8	11.2	3.11	49.2	21	23.9
2.2	7.50	2.08	33.0	9	24.5	12.2	3.39	53.7	22	25.7
2.4	8.10	2.26	35.8	9	26.2	13.2	3.67	58.2	24	27.6
2.6	8.80	2.44	38.7	10	27.9	14.3	3.97	62.9	25	29.3
2.8	9.50	2.64	41.8	11	29.6	15.4	4.28	67.9	27	31.0
3.0	10.2	2.84	45.0	12	31.4	16.6	4.61	73.1	30	32.7
3.2	11.0	3.07	48.6	13	33.2	17.9	4.97	78.7	33	34.3
3.4	11.9	3.31	52.4	15	34.9	19.2	5.35	84.7	36	35.7
3.6	12.8	3.57	56.6	16	36.6	20.7	5.75	91.2	40	37.0
3.8	13.9	3.86	61.1	18	38.2	22.3	6.19	98.1	45	38.2
4.0	15.0	4.17	66.0	20	39.6	24.0	6.67	106	50	39.1

Series	Ultra									
Dim.	DN65 LF					DN65 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	3.00	0.833	13.2	10	9.89	4.20	1.17	18.5	19	9.44
0.8	3.80	1.06	16.7	10	12.3	5.48	1.52	24.1	19	11.9
1.0	4.50	1.25	19.8	10	14.4	6.60	1.83	29.1	19	14.0
1.2	5.13	1.43	22.6	10	16.3	7.60	2.11	33.5	19	15.9
1.4	5.73	1.59	25.2	10	18.0	8.53	2.37	37.6	19	17.7
1.6	6.31	1.75	27.8	11	19.7	9.42	2.62	41.5	20	19.5
1.8	6.89	1.92	30.4	11	21.5	10.3	2.86	45.4	20	21.2
2.0	7.50	2.08	33.0	11	23.4	11.2	3.11	49.3	20	22.9
2.2	8.14	2.26	35.8	11	25.4	12.1	3.37	53.4	20	24.7
2.4	8.83	2.45	38.9	11	27.5	13.1	3.65	57.8	21	26.5
2.6	9.56	2.66	42.1	11	29.8	14.2	3.95	62.5	22	28.3
2.8	10.4	2.88	45.6	12	32.2	15.4	4.27	67.6	23	30.1
3.0	11.2	3.11	49.3	12	34.6	16.6	4.61	73.1	24	32.0
3.2	12.1	3.36	53.3	13	37.0	17.9	4.98	78.9	26	33.8
3.4	13.0	3.62	57.4	13	39.3	19.3	5.37	85.2	29	35.5
3.6	14.0	3.89	61.7	15	41.4	20.8	5.79	91.7	32	37.1
3.8	15.0	4.17	66.1	17	43.1	22.4	6.22	98.6	37	38.3
4.0	16.0	4.44	70.4	19	44.4	24.0	6.67	106	43	39.3

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Setting and Flow

Series		Standard								
Dim.	DN65 LF					DN65 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	4.40	1.22	19.3	15	11.6	6.00	1.65	26.2	30	10.9
0.8	5.60	1.54	24.5	15	14.8	7.60	2.11	33.4	30	13.6
1.0	6.60	1.85	29.3	15	17.5	9.10	2.53	40.1	30	16.0
1.2	7.70	2.13	33.7	16	19.9	10.5	2.93	46.4	31	18.2
1.4	8.60	2.40	38.0	17	22.1	11.9	3.31	52.5	32	20.4
1.6	9.60	2.66	42.2	17	24.3	13.3	3.69	58.5	32	22.6
1.8	10.5	2.93	46.4	18	26.4	14.7	4.07	64.5	32	24.9
2.0	11.5	3.20	50.6	18	28.6	16.0	4.46	70.7	32	27.3
2.2	12.5	3.47	55.0	18	30.9	17.5	4.86	77.0	32	29.9
2.4	13.5	3.76	59.6	19	33.3	19.0	5.28	83.6	32	32.6
2.6	14.7	4.07	64.5	19	35.9	20.6	5.72	90.6	33	35.5
2.8	15.8	4.40	69.7	19	38.6	22.3	6.19	98.1	34	38.5
3.0	17.1	4.75	75.3	20	41.4	24.1	6.69	106	35	41.5
3.2	18.5	5.13	81.3	21	44.2	26.0	7.22	114	37	44.5
3.4	19.9	5.54	87.8	21	47.0	28.0	7.79	123	40	47.4
3.6	21.5	5.98	94.7	22	49.6	30.2	8.40	133	44	50.1
3.8	23.2	6.45	102	24	52.0	32.5	9.04	143	49	52.5
4.0	25.0	6.95	110	25	54.0	35.0	9.72	154	55	54.3

Series		Ultra								
Dim.	DN80 LF					DN80 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	4.40	1.22	19.4	15	10.4	6.00	1.67	26.4	27	10.8
0.8	5.53	1.54	24.4	15	12.8	7.61	2.11	33.5	27	13.2
1.0	6.60	1.83	29.1	15	15.2	9.10	2.53	40.1	27	15.5
1.2	7.61	2.12	33.5	15	17.5	10.5	2.92	46.3	27	17.9
1.4	8.60	2.39	37.8	16	19.9	11.9	3.30	52.3	27	20.2
1.6	9.56	2.66	42.1	17	22.2	13.2	3.68	58.3	27	22.7
1.8	10.5	2.92	46.3	17	24.5	14.6	4.06	64.3	27	25.1
2.0	11.5	3.19	50.6	18	26.9	16.0	4.44	70.4	27	27.6
2.2	12.5	3.47	55.1	19	29.3	17.4	4.85	76.8	27	30.1
2.4	13.6	3.77	59.7	19	31.7	19.0	5.27	83.5	28	32.7
2.6	14.7	4.07	64.6	19	34.2	20.6	5.72	90.6	29	35.2
2.8	15.8	4.40	69.7	20	36.8	22.3	6.19	98.1	30	37.8
3.0	17.1	4.75	75.3	20	39.4	24.1	6.69	106	32	40.4
3.2	18.5	5.13	81.2	20	42.1	26.0	7.23	115	35	42.9
3.4	19.9	5.53	87.7	21	44.9	28.1	7.80	124	38	45.4
3.6	21.5	5.97	94.6	22	47.9	30.3	8.41	133	42	47.8
3.8	23.2	6.44	102	23	50.9	32.6	9.05	143	48	50.1
4.0	25.0	6.94	110	25	54.1	35.0	9.72	154	55	52.3

Series		Standard								
Dim.	DN80 LF					DN80 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	5.30	1.48	23.5	9	14.9	7.00	1.95	30.9	15	15.0
0.8	6.90	1.91	30.2	9	18.8	9.00	2.51	39.8	15	19.9
1.0	8.30	2.30	36.5	9	22.4	11.0	3.04	48.2	15	24.0
1.2	9.60	2.68	42.4	9	25.8	12.8	3.55	56.2	15	27.5
1.4	10.9	3.04	48.2	9	29.1	14.5	4.03	63.9	15	30.6
1.6	12.2	3.40	53.8	9	32.5	16.2	4.51	71.5	15	33.7
1.8	13.5	3.75	59.5	9	35.8	18.0	4.98	79.0	16	36.7
2.0	14.8	4.11	65.2	9	39.2	19.6	5.46	86.5	16	39.9
2.2	16.2	4.49	71.1	9	42.7	21.4	5.94	94.2	16	43.3
2.4	17.6	4.88	77.3	9	46.3	23.2	6.45	102	17	46.9
2.6	19.1	5.30	83.9	10	50.0	25.1	6.97	111	17	50.8
2.8	20.7	5.74	91.0	10	53.9	27.1	7.53	119	18	54.9
3.0	22.4	6.23	98.7	11	57.7	29.3	8.13	129	19	59.1
3.2	24.3	6.76	107	12	61.5	31.6	8.78	139	20	63.2
3.4	26.4	7.34	116	13	65.3	34.1	9.47	150	22	67.2
3.6	28.7	7.98	126	15	68.9	36.8	10.2	162	24	70.7
3.8	31.2	8.68	138	17	72.2	39.8	11.1	175	26	73.5
4.0	34.0	9.45	150	19	75.2	43.0	12.0	189	29	75.4

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Veriflow-series, DN50-DN300

Setting and Flow

Series		Ultra								
Dim.	DN100 LF					DN100 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	5.30	1.47	23.3	9	15.6	7.00	1.94	30.8	15	16.8
0.8	6.86	1.90	30.2	9	19.2	9.08	2.52	40.0	15	19.9
1.0	8.30	2.31	36.5	9	22.6	11.0	3.06	48.4	15	23.1
1.2	9.66	2.68	42.5	9	26.0	12.8	3.56	56.4	15	26.3
1.4	11.0	3.05	48.3	9	29.4	14.5	4.04	64.0	15	29.7
1.6	12.2	3.40	53.9	9	33.0	16.2	4.51	71.5	15	33.1
1.8	13.5	3.75	59.5	9	36.6	17.9	4.97	78.8	16	36.7
2.0	14.8	4.11	65.2	9	40.5	19.6	5.44	86.3	16	40.5
2.2	16.1	4.48	71.0	9	44.5	21.3	5.93	94.0	16	44.4
2.4	17.5	4.87	77.2	9	48.7	23.2	6.43	102	17	48.4
2.6	19.0	5.29	83.8	10	53.0	25.1	6.97	110	17	52.4
2.8	20.6	5.74	90.9	10	57.4	27.1	7.53	119	18	56.4
3.0	22.4	6.22	98.6	11	61.8	29.3	8.14	129	19	60.4
3.2	24.3	6.75	107	12	66.1	31.6	8.79	139	20	64.2
3.4	26.4	7.34	116	13	70.1	34.2	9.49	150	22	67.8
3.6	28.7	7.97	126	15	73.8	36.9	10.3	162	24	71.1
3.8	31.2	8.68	138	17	76.9	39.8	11.1	175	26	73.8
4.0	34.0	9.44	150	19	79.4	43.0	11.9	189	29	76.0

Series		Standard								
Dim.	DN100 LF					DN100 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	12.1	3.37	53.4	10	35.2	14.8	4.10	65.0	16	35.0
0.8	15.3	4.25	67.3	10	43.4	18.9	5.25	83.2	16	43.0
1.0	18.1	5.04	79.9	10	50.2	22.6	6.28	99.5	16	49.6
1.2	20.8	5.76	91.4	10	56.1	26.0	7.22	114	16	55.3
1.4	23.2	6.44	102	10	61.4	29.1	8.09	128	16	60.8
1.6	25.5	7.08	112	10	66.5	32.1	8.92	141	16	66.3
1.8	27.8	7.71	122	10	71.7	35.1	9.74	154	16	72.2
2.0	30.0	8.35	132	10	77.1	38.1	10.6	168	16	78.8
2.2	32.4	9.00	143	10	83.0	41.2	11.4	181	16	86.3
2.4	34.9	9.70	154	11	89.6	44.5	12.4	196	16	94.6
2.6	37.6	10.5	166	11	96.9	48.2	13.4	212	18	104
2.8	40.6	11.3	179	12	105	52.2	14.5	230	19	114
3.0	44.0	12.2	194	13	114	56.7	15.8	250	22	125
3.2	47.7	13.3	210	14	124	61.9	17.2	272	25	136
3.4	51.9	14.4	229	16	134	67.7	18.8	298	29	148
3.6	56.7	15.7	249	19	145	74.2	20.6	327	34	159
3.8	62.0	17.2	273	22	156	81.7	22.7	360	39	169
4.0	68.0	18.9	299	25	168	90.0	25.0	396	45	178

Series		Ultra								
Dim.	DN125 LF					DN125 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	12.1	3.36	53.3	10	32.4	14.8	4.11	65.2	16	30.4
0.8	15.3	4.24	67.2	10	39.4	18.9	5.25	83.2	16	38.3
1.0	18.1	5.03	79.7	10	45.7	22.6	6.28	99.5	16	45.9
1.2	20.7	5.75	91.1	10	51.4	26.0	7.22	114	16	53.2
1.4	23.1	6.42	102	10	56.9	29.1	8.09	128	16	60.2
1.6	25.4	7.07	112	10	62.2	32.2	8.93	142	16	67.0
1.8	27.7	7.70	122	10	67.7	35.1	9.75	155	16	73.7
2.0	30.0	8.33	132	10	73.4	38.1	10.6	168	16	80.4
2.2	32.4	8.99	143	10	79.4	41.2	11.4	181	16	87.2
2.4	34.9	9.69	154	11	85.9	44.5	12.4	196	16	94.2
2.6	37.6	10.5	166	11	92.8	48.2	13.4	212	18	102
2.8	40.6	11.3	179	12	100	52.2	14.5	230	19	109
3.0	44.0	12.2	194	13	108	56.7	15.7	250	22	118
3.2	47.8	13.3	210	14	116	61.8	17.2	272	25	127
3.4	52.0	14.4	229	16	125	67.6	18.8	298	29	138
3.6	56.7	15.8	250	19	134	74.1	20.6	326	34	150
3.8	62.0	17.2	273	22	142	81.6	22.7	359	39	164
4.0	68.0	18.9	299	25	151	90.0	25.0	396	45	179

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Setting and Flow

Series		Standard								
Dim.	DN125 LF					DN125 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	18.5	5.14	81.5	16	43.6	23.0	6.39	101	27	45.4
0.8	23.6	6.54	104	16	54.3	29.9	8.31	132	27	56.7
1.0	28.5	7.92	125	16	64.4	36.5	10.1	161	27	67.4
1.2	33.3	9.26	147	17	74.2	42.8	11.9	188	28	77.7
1.4	38.0	10.6	167	17	83.8	48.7	13.5	215	28	87.7
1.6	42.6	11.8	188	17	93.4	54.5	15.1	240	28	97.7
1.8	47.1	13.1	207	18	103	60.0	16.7	264	29	108
2.0	51.5	14.3	227	18	113	65.5	18.2	288	29	118
2.2	55.9	15.5	246	18	123	70.9	19.7	312	29	128
2.4	60.4	16.8	266	19	133	76.4	21.2	336	30	139
2.6	65.0	18.1	286	19	144	82.0	22.8	361	31	150
2.8	69.8	19.4	308	20	155	87.8	24.4	387	32	161
3.0	75.0	20.8	330	21	166	94.0	26.1	414	33	172
3.2	80.6	22.4	355	22	177	101	28.0	443	35	183
3.4	86.7	24.1	382	24	188	108	30.0	475	37	194
3.6	93.6	26.0	412	26	200	116	32.2	511	41	204
3.8	101	28.1	446	30	211	125	34.7	550	46	214
4.0	110	30.6	484	35	221	135	37.5	594	53	223

Series		Standard								
Dim.	DN150 LF					DN150 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
0.6	25.6	7.11	113	21	60.8	32.0	8.89	141	33	59.8
0.8	32.6	9.05	143	21	77.0	41.3	11.5	182	33	76.1
1.0	39.2	10.9	173	21	92.3	50.0	13.9	220	33	91.6
1.2	45.6	12.7	201	21	107	58.2	16.2	256	33	106
1.4	51.8	14.4	228	21	121	66.0	18.3	291	33	121
1.6	58.0	16.1	255	21	134	73.7	20.5	324	33	134
1.8	64.1	17.8	282	21	147	81.3	22.6	358	33	148
2.0	70.4	19.6	310	22	160	89.0	24.7	392	34	161
2.2	76.8	21.3	338	23	173	96.9	26.9	427	36	174
2.4	83.4	23.2	367	25	185	105	29.2	463	38	186
2.6	90.3	25.1	398	27	197	114	31.6	501	40	199
2.8	97.5	27.1	429	28	209	123	34.2	542	43	211
3.0	105	29.2	462	30	221	133	36.9	586	46	223
3.2	113	31.3	497	32	232	144	39.9	632	49	235
3.4	121	33.6	533	33	243	155	43.1	683	53	246
3.6	130	36.0	571	34	253	167	46.5	737	57	257
3.8	139	38.5	610	35	263	181	50.2	796	61	267
4.0	148	41.1	652	35	271	195	54.2	859	65	277

Series		Standard								
Dim.	DN200 LF					DN200 HF				
Pre-set	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m³/h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
1.0	95	26.4	418	11	243	130	36.1	572	31	245
1.2	100	27.8	440	12	261	137	38.1	604	32	265
1.4	105	29.3	464	12	276	145	40.2	638	33	280
1.6	112	31.0	491	13	287	153	42.4	673	35	291
1.8	118	32.8	520	15	295	161	44.8	710	38	299
2.0	125	34.7	550	16	301	170	47.2	748	41	305
2.2	132	36.8	583	17	306	179	49.8	789	45	310
2.4	140	38.9	617	19	310	189	52.4	831	49	313
2.6	148	41.1	652	21	314	199	55.2	875	53	317
2.8	156	43.5	689	22	320	209	58.1	921	57	322
3.0	165	45.8	726	24	326	220	61.1	969	61	328
3.2	174	48.3	765	26	335	231	64.2	1018	65	337
3.4	183	50.7	804	27	346	243	67.4	1069	69	348
3.6	192	53.3	844	29	361	255	70.8	1122	72	364
3.8	201	55.8	884	31	380	267	74.2	1176	75	384
4.0	210	58.3	925	32	404	280	77.8	1233	78	409

SIGMA Compact

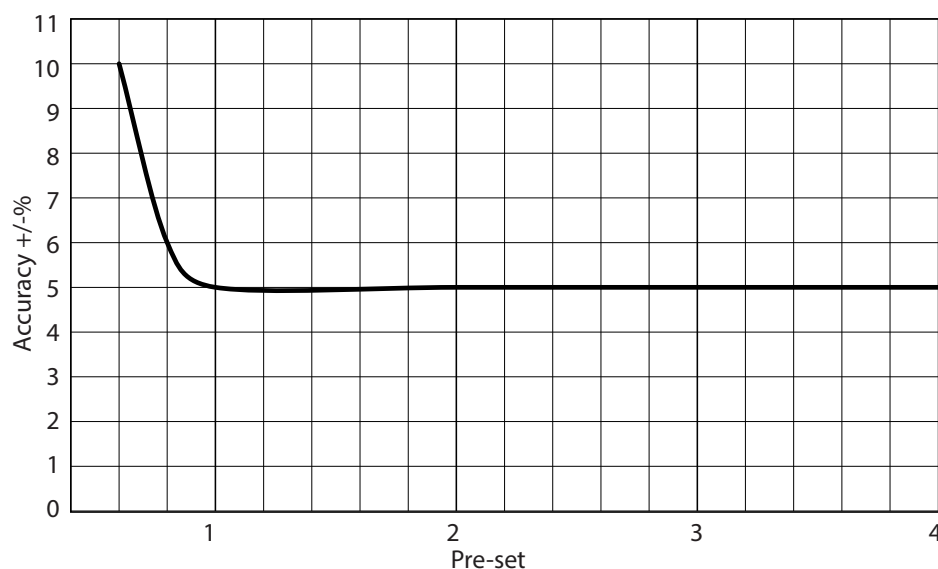
Veriflow-series, DN50-DN300

Setting and Flow

Series		Standard								
Dim.	DN250 LF					DN250 HF				
Pre-set	Flow m ³ /h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m ³ /h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
1.0	190	52.8	837	10	408	245	68.1	1079	15	428
1.2	205	57.0	904	10	418	256	71.2	1129	16	442
1.4	220	61.0	967	11	432	270	75.1	1190	17	456
1.6	233	64.8	1027	12	448	286	79.6	1261	20	470
1.8	247	68.5	1086	13	468	305	84.7	1342	22	484
2.0	260	72.2	1145	15	490	325	90.3	1431	25	498
2.2	274	76.0	1205	17	513	347	96.4	1528	28	533
2.4	288	80.1	1269	19	538	371	103	1632	32	567
2.6	304	84.4	1338	21	563	396	110	1743	36	597
2.8	321	89.2	1413	23	587	422	117	1860	40	626
3.0	340	94.4	1497	25	611	450	125	1981	45	652
3.2	361	100	1590	27	634	479	133	2107	50	676
3.4	385	107	1695	29	654	508	141	2237	55	697
3.6	412	114	1812	31	672	538	150	2370	60	717
3.8	441	123	1944	33	687	569	158	2505	65	733
4.0	475	132	2091	35	699	600	167	2642	70	748

Series		Standard								
Dim.	DN300 LF					DN300 HF				
Pre-set	Flow m ³ /h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal	Flow m ³ /h	Flow l/s	Flow gpm	Min.Δp kPa	KV-signal
1.0	190	52.8	837	10	387	245	68.1	1079	15	397
1.2	205	57.0	904	10	419	256	71.2	1129	16	429
1.4	220	61.0	967	11	447	270	75.1	1190	17	457
1.6	233	64.8	1027	12	469	286	79.6	1261	20	481
1.8	247	68.5	1086	13	489	305	84.7	1342	22	502
2.0	260	72.2	1145	15	505	325	90.3	1431	25	521
2.2	274	76.0	1205	17	519	347	96.4	1528	28	538
2.4	288	80.1	1269	19	533	371	103	1632	32	554
2.6	304	84.4	1338	21	546	396	110	1743	36	571
2.8	321	89.2	1413	23	559	422	117	1860	40	588
3.0	340	94.4	1497	25	574	450	125	1981	45	606
3.2	361	100	1590	27	591	479	133	2107	50	627
3.4	385	107	1695	29	611	508	141	2237	55	650
3.6	412	114	1812	31	635	538	150	2370	60	677
3.8	441	123	1944	33	663	569	158	2505	65	709
4.0	475	132	2091	35	697	600	167	2642	70	746

Flow measurement accuracy using KV-signal



When using the KV-signal for flow measurement, the accuracy is $\pm 5\%$. See the curve to the left. Verified by BSRIA in the ΔP range (P1 - P3) from 100 kPa to 800 kPa.

The curve is applicable regardless of the mounting position of SIGMA Compact.

The KV-values accuracy follows the BS 7350 standard for flow measurement devices for heating and chilled water systems.

Veriflow-series, DN50-DN300

Valve ID (own choice)	Valve type	Dim.	Pre-set	Flow measured P/T plug position Q Δp (P1-P2) [kPa]			Flow verified P/T plug position P Δp (P1-P3) [kPa]		
				KV-signal	Verified Δp	Flow	Minimum Δp	Verified Δp	Flow
Pump Type				Regulation mode			Set Point		
Installation									
Signature							Date		