

Ballorex Vario



Description

Ballorex Vario is a variable orifice double regulating valve for balancing water-based heating and cooling systems. The balancing performed ensures the required distribution of flow in individual risers and terminal units. Applications are typically central heating or cooling systems, as well as fan coil units in multi-storey and high-rise buildings.

Versions

Dimensions	DN15 DN20 DN25 DN32 DN40 DN 50
Flow	L(Low), S (Standard), H (High)

Benefits

- Product range from DN 15 to DN 50 for heating and cooling systems
- Measuring, pre-setting and isolation functions all in one unit
- Compact design for installations in confined spaces
- Flow direction is irrelevant for the valve installation
- Pre-setting is fast and simple using an Allen key
- Setting scale is precise and easy to read
- Isolation of flow is simply done using the quarter-turn handle
- No change in pre-setting when isolated and re-opened
- Drain valve can be rotated 360° for easy service
- Perfect as a partner valve for the Ballorex Delta, differential pressure control valves

Applications

- Underfloor heating system
- Fan coil system with two-way motorized valves
- Fan coil system with three-way motorized valves
- Central heating system with differential pressure control valves
- One pipe heating system



Conception



1. Allen key for pre-setting
2. Regulating spindle
3. Ball valve for flow isolation
4. Isolation handle
5. Optional drain valve
6. Measuring points

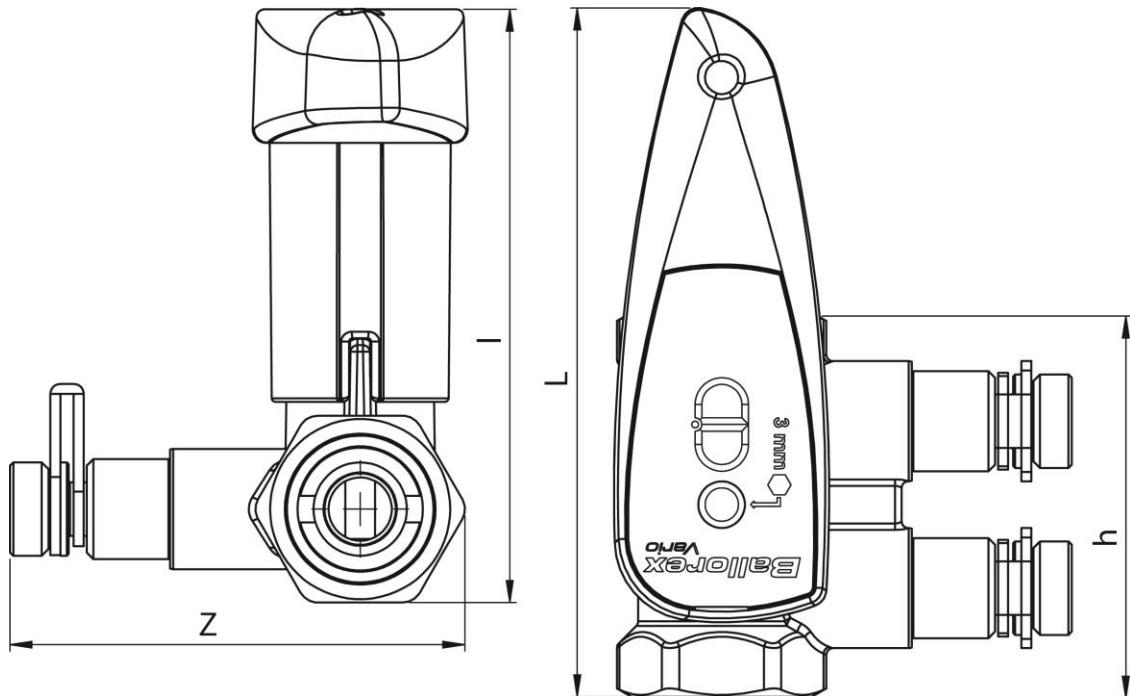
Materials

Body	DR Brass CW602N
Connection	Female thread ISO 7/1 parallel
Ball and needle	DR Brass CW602N
Sealings	O-rings EPDM

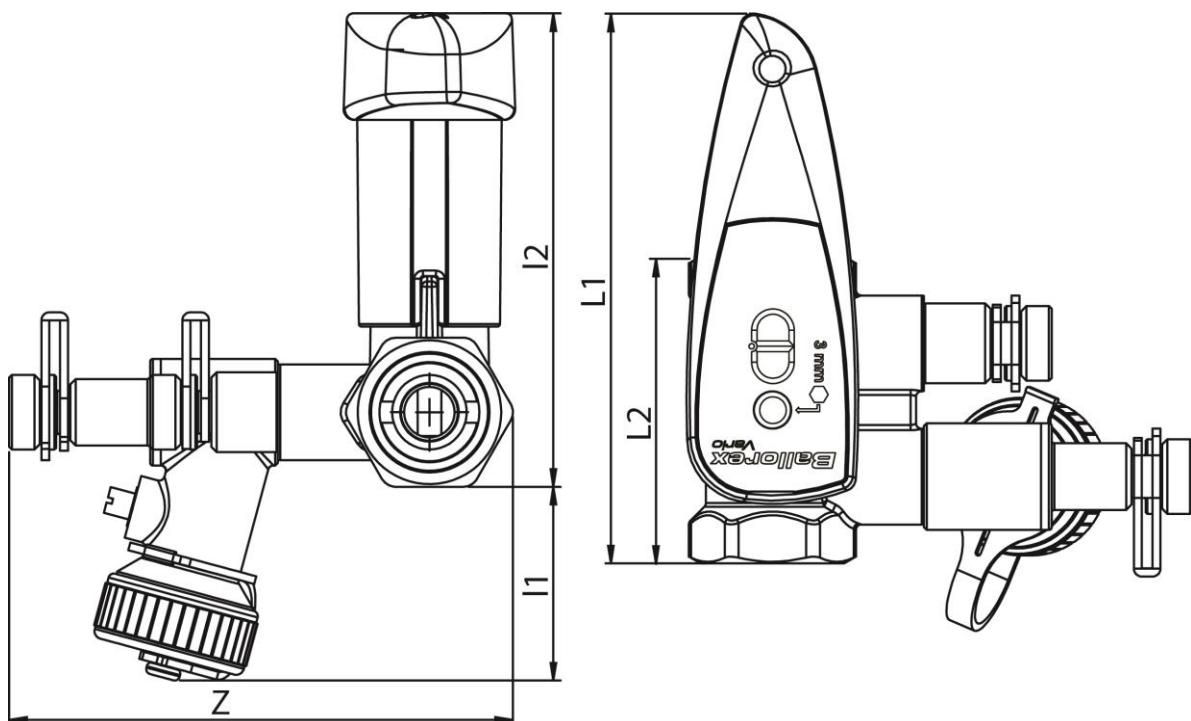
Specifications

Max. temperature	120°C
Min. temperature	-20°C
Max. pressure	25 bar

Dimensions



DN	G	Z (mm)	H (mm)	h (mm)	L (mm)
15	1/2"	68.2	103.2	88.9	57.6
20	3/4"	74.2	94.2	106	63.2
25	1"	80.2	112.2	102.4	75.6
32	1"1/4	88	165	137	89.0
40	1"1/2	94	170	144	98
50	2"	106	180	159	119

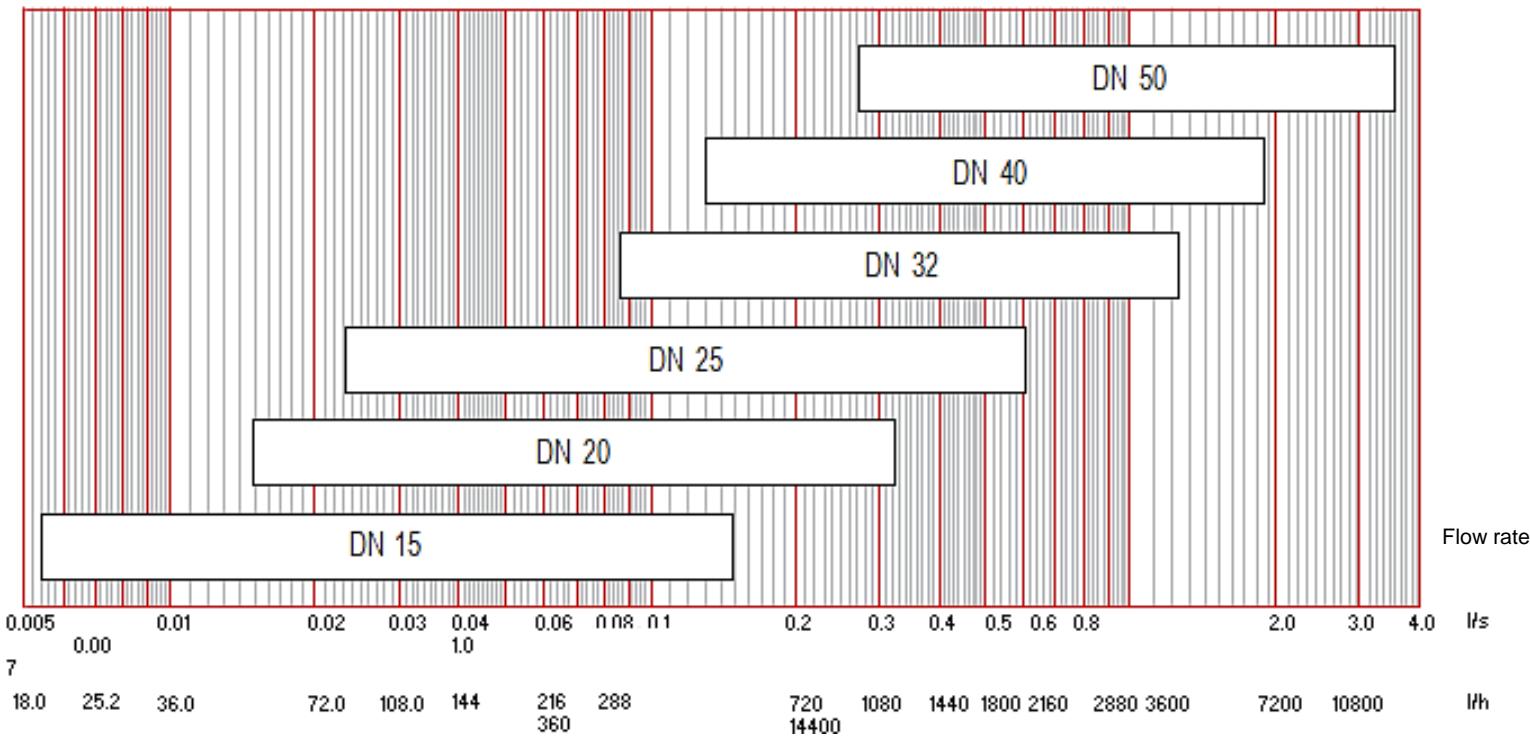


DN	G	Z (mm)	I1 (mm)	I2 (mm)	L1 (mm)	L2 (mm)
15	1/2"	95	36	89	103	57.6
20	3/4"	101	33	94	106	63.2
25	1"	107	30	102	112	75.6
32	1"1/4	114	22	137	165	89
40	1"1/2	120	18	144	169	98
50	2"	133	10	159	180	119

Product line

Photo	Size	Size (metric)	Type	Kvs	Kv range	Code
	1/2"	DN15	-	1,71	0.019-0.530	4351000S-001003
	3/4"	DN20	-	4,4	0.055-1.170	4451000S-001003
	1"	DN25	-	7,46	0.084-2.170	4551000S-001003
	1/1/4"	DN32	-	13,5	0.310-4.500	4651000S-001003
	1/1/2"	DN40	-	23,7	0.450-6.770	4751000S-001003
	2"	DN50	-	34,5	0.960-12.640	4851000S-001003
	1/2"	DN15	With drain	1,71	0.019-0.530	4351000S-001673
	3/4"	DN20	With drain	4,4	0.95-1.170	4451000S-001673
	1"	DN25	With drain	7,46	0.084-2.170	4551000S-001673
	1/1/4"	DN32	With drain	13,5	0.310-4.500	4651000S-001673
	1/1/2"	DN40	With drain	23,7	0.450-6.776	4751000S-001673
	2"	DN50	With drain	34,5	0.960-12.640	4851000S-001673

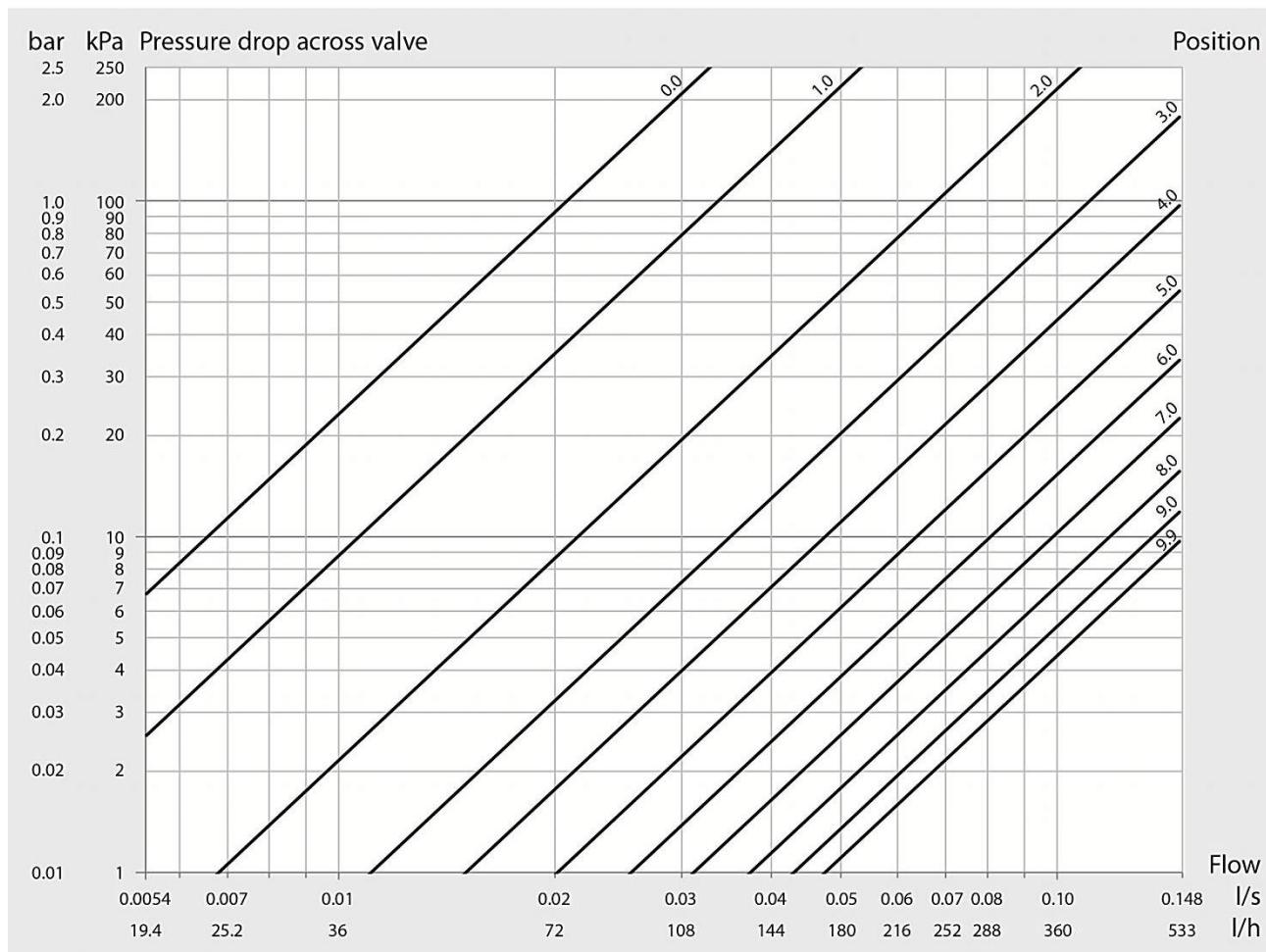
Quick selection chart





Flow range		Kvs m³/h	Dimension	Section
l/s	l/h			
0.0054-0.148	19-530	1.71	DN 15	3.2 - 14
0.015-0.325	55-1170	4.40	DN 20	3.2 - 20
0.023-0.603	84-2170	7.46	DN 25	3.2 - 26
0.087-1.25	310-4500	13.50	DN 32	3.2 - 32
0.13-1.88	450-6770	23.70	DN 40	3.2 - 38
0.27-3.51	960-12640	34.50	DN 50	3.2 - 44

DN 15 female/female-Flow diagram





The graph is used to determine the total pressure loss across the Ballorex Vario valve at a given pre-setting and flow rate.

The minimum digital scale setting is 0.0 and the maximum setting (fully open valve) is 9.9. One hundred different positions, at an increment of 0.1, are possible, and each position corresponds to a different Kv value.

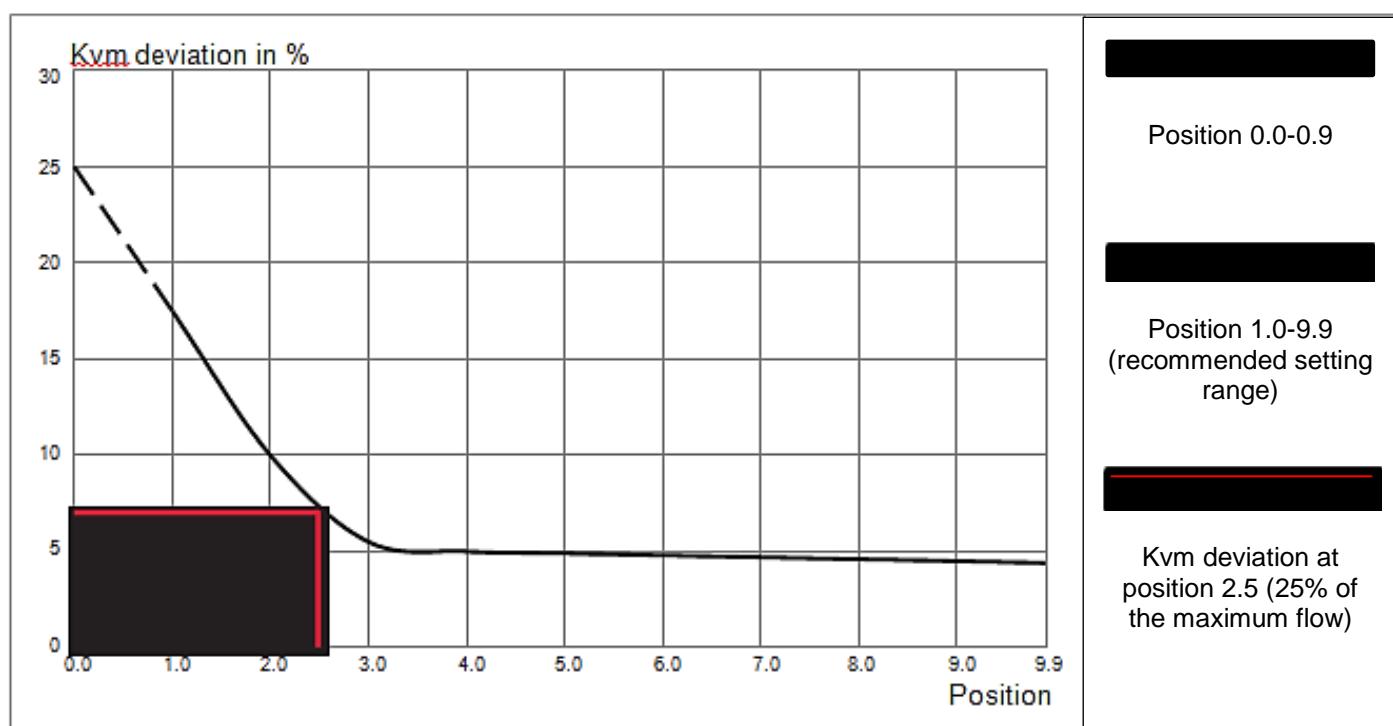
The Kv value and the Kvs value (at a fully open valve) refer to the pressure loss across the entire valve. These values are used for system sizing and pump selection. The Kv and the Kvs values differ from the Kvm value which is connected

to the pressure loss at the measuring points. This difference is a result of turbulence occurring in the measuring area. The Kvm value is used during system balancing to secure correct flow readings from the flowmeter. The Kvm value corresponding to a specific Ballorex Vario valve setting is typed into the flowmeter for a flow read-out.

A pressure loss of up to 250 kPa is allowed across the Ballorex Vario valve. Within the working range it should be assured that cavitation does not occur at any given pressure loss.

Measuring accuracy

The measuring accuracy of Ballorex Vario is variable and depends on the valve setting. A high valve setting position provides a more accurate measuring.



The Ballorex Vario DN 15 conforms to the BS standard 7350:1990. At 25% of the flow range the Kvm deviation is only $\pm 7\%$.

Note:

The measuring accuracy is not affected by the flow direction through the Ballorex Vario valve.

Valve setting - Kv (Kvs)

Setting	Kv m³/h
0.0	0.07
0.1	0.07
0.2	0.06
0.3	0.06
0.4	0.07
0.5	0.07
0.6	0.08
0.7	0.08
0.8	0.09
0.9	0.10

Setting	Kv m³/h
1.0	0.11
1.1	0.12
1.2	0.13
1.3	0.15
1.4	0.16
1.5	0.17
1.6	0.19
1.7	0.20
1.8	0.22
1.9	0.23

Setting	Kv m³/h
2.0	0.25
2.1	0.26
2.2	0.28
2.3	0.29
2.4	0.31
2.5	0.32
2.6	0.34
2.7	0.35
2.8	0.37
2.9	0.38

Setting	Kv m³/h
3.0	0.40
3.1	0.41
3.2	0.43
3.3	0.44
3.4	0.46
3.5	0.47
3.6	0.49
3.7	0.50
3.8	0.52
3.9	0.53

Setting	Kv m³/h
4.0	0.55
4.1	0.57
4.2	0.58
4.3	0.60
4.4	0.62
4.5	0.63
4.6	0.65
4.7	0.67
4.8	0.68
4.9	0.70

Setting	Kv m³/h
5.0	0.72
5.1	0.74
5.2	0.76
5.3	0.77
5.4	0.79
5.5	0.81
5.6	0.83
5.7	0.85
5.8	0.87
5.9	0.89

Setting	Kv m³/h
6.0	0.91
6.1	0.93
6.2	0.96
6.3	0.98
6.4	1.00
6.5	1.02
6.6	1.04
6.7	1.06
6.8	1.09
6.9	1.11

Setting	Kv m³/h
7.0	1.13
7.1	1.15
7.2	1.18
7.3	1.20
7.4	1.22
7.5	1.24
7.6	1.27
7.7	1.29
7.8	1.31
7.9	1.33

Setting	Kv m³/h
8.0	1.35
8.1	1.37
8.2	1.40
8.3	1.42
8.4	1.44
8.5	1.46
8.6	1.48
8.7	1.50
8.8	1.52
8.9	1.54

Setting	Kv m³/h
9.0	1.55
9.1	1.57
9.2	1.59
9.3	1.61
9.4	1.63
9.5	1.64
9.6	1.66
9.7	1.68
9.8	1.69
9.9	1.71

Measuring signal – Kvm

Setting	Kvm m³/h
0.0	0.07
0.1	0.07
0.2	0.06
0.3	0.06
0.4	0.07
0.5	0.07
0.6	0.08
0.7	0.08
0.8	0.09
0.9	0.10

Setting	Kvm m³/h
1.0	0.11
1.1	0.12
1.2	0.13
1.3	0.15
1.4	0.16
1.5	0.17
1.6	0.19
1.7	0.20
1.8	0.22
1.9	0.23

Setting	Kvm m³/h
2.0	0.25
2.1	0.26
2.2	0.28
2.3	0.29
2.4	0.31
2.5	0.32
2.6	0.34
2.7	0.35
2.8	0.37
2.9	0.38

Setting	Kvm m³/h
3.0	0.39
3.1	0.41
3.2	0.42
3.3	0.44
3.4	0.45
3.5	0.47
3.6	0.48
3.7	0.50
3.8	0.51
3.9	0.53

Setting	Kvm m³/h
4.0	0.54
4.1	0.56
4.2	0.57
4.3	0.59
4.4	0.61
4.5	0.62
4.6	0.64
4.7	0.65
4.8	0.67
4.9	0.69



Setting	Kvm m³/h
5.0	0.70
5.1	0.72
5.2	0.74
5.3	0.76
5.4	0.77
5.5	0.79
5.6	0.81
5.7	0.83
5.8	0.85
5.9	0.87

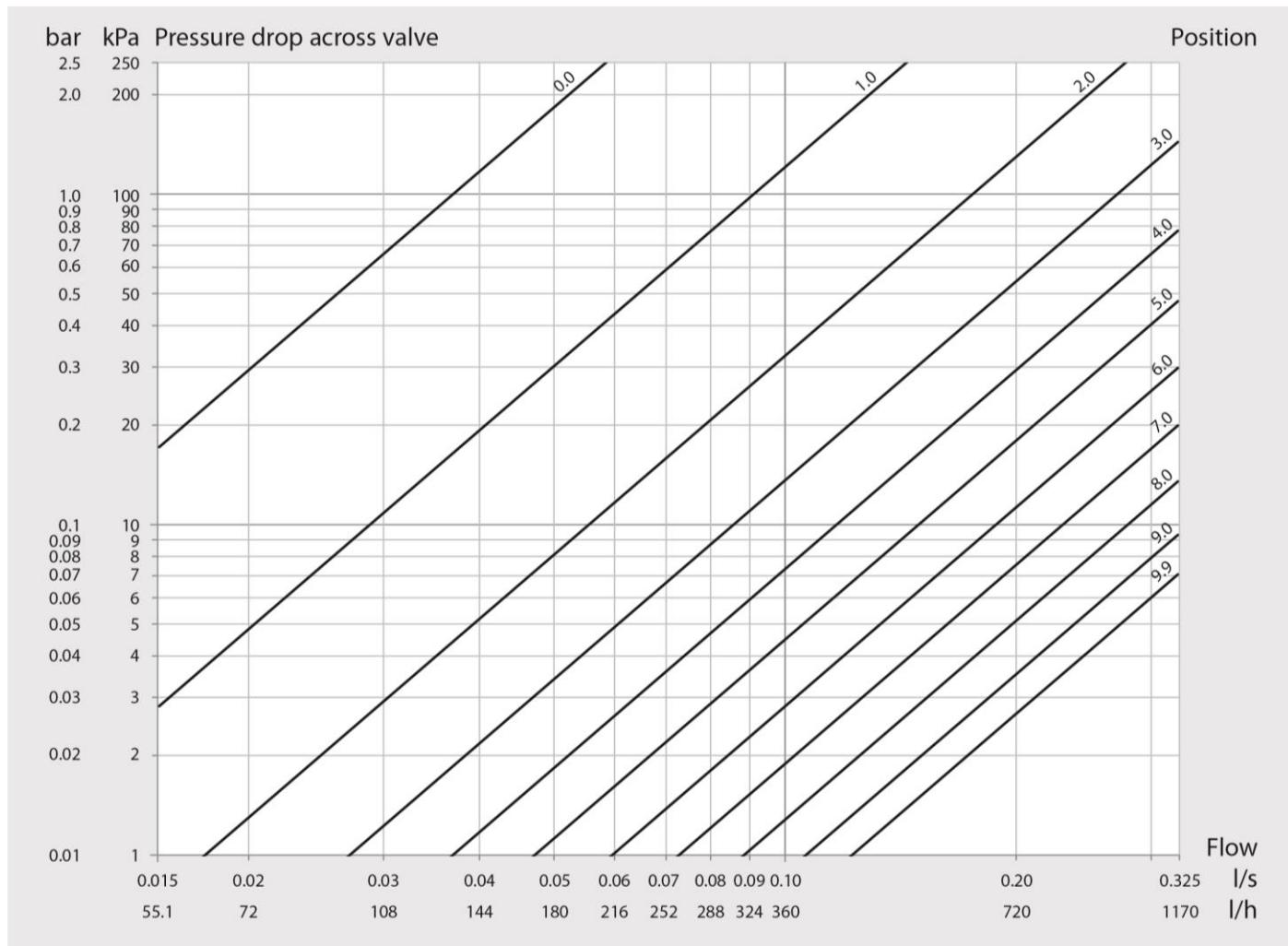
Setting	Kvm m³/h
6.0	0.88
6.1	0.90
6.2	0.92
6.3	0.94
6.4	0.96
6.5	0.98
6.6	1.00
6.7	1.03
6.8	1.05
6.9	1.07

Setting	Kvm m³/h
7.0	1.09
7.1	1.11
7.2	1.13
7.3	1.15
7.4	1.17
7.5	1.19
7.6	1.21
7.7	1.23
7.8	1.25
7.9	1.27

Setting	Kvm m³/h
8.0	1.29
8.1	1.31
8.2	1.33
8.3	1.35
8.4	1.37
8.5	1.39
8.6	1.41
8.7	1.43
8.8	1.44
8.9	1.46

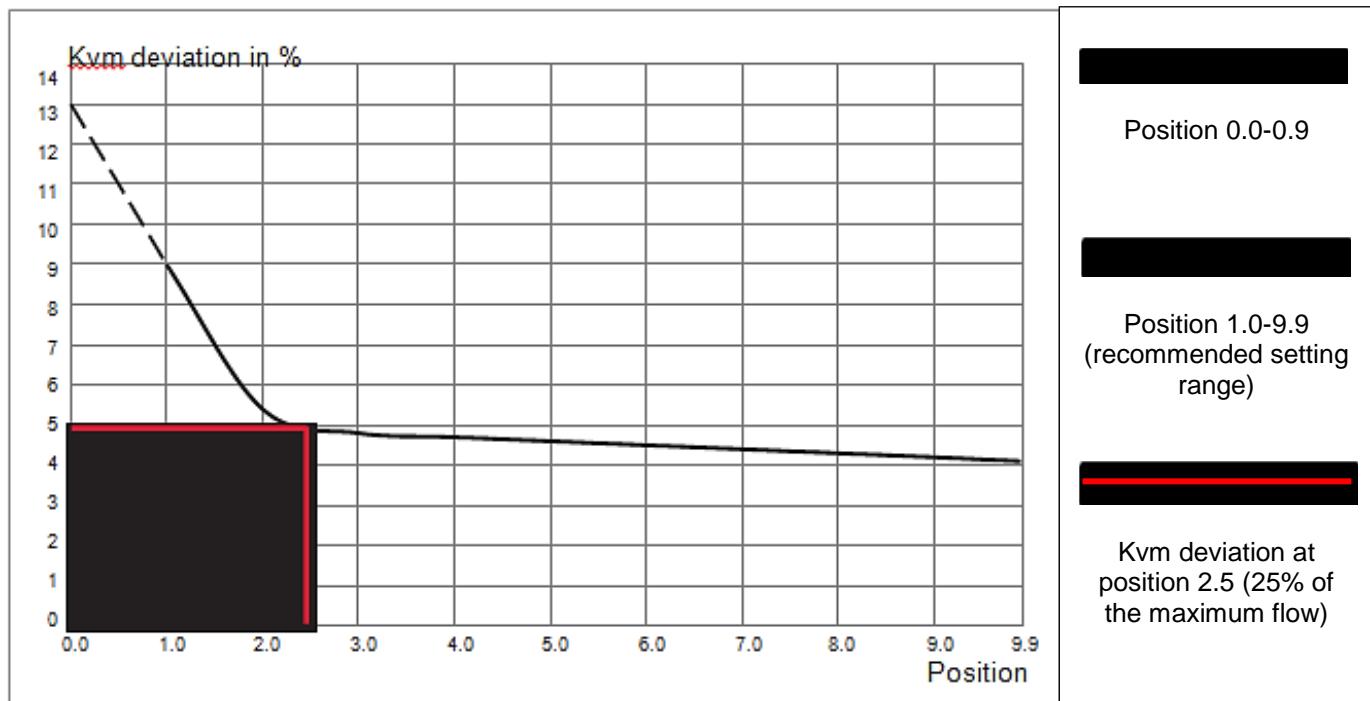
Setting	Kvm m³/h
9.0	1.48
9.1	1.49
9.2	1.51
9.3	1.53
9.4	1.54
9.5	1.56
9.6	1.57
9.7	1.58
9.8	1.60
9.9	1.61

DN 20 female/female-Flow diagram



Measuring accuracy

The measuring accuracy of Ballorex Vario is variable and depends on the valve setting. A high valve setting position provides a more accurate measuring.



The Ballorex Vario DN 20 conforms to the BS standard 7350:1990. At 25% of the flow range the Kvm deviation is only $\pm 5\%$.

Note:

The measuring accuracy is not affected by the flow direction through the Ballorex Vario valve.

Valve setting - Kv (Kvs)

Setting	Kv m ³ /h
0.0	0.12
0.1	0.13
0.2	0.14
0.3	0.16
0.4	0.17
0.5	0.19
0.6	0.21
0.7	0.24
0.8	0.26
0.9	0.29

Setting	Kv m ³ /h
1.0	0.31
1.1	0.34
1.2	0.37
1.3	0.40
1.4	0.44
1.5	0.47
1.6	0.50
1.7	0.53
1.8	0.57
1.9	0.60

Setting	Kv m ³ /h
2.0	0.64
2.1	0.67
2.2	0.70
2.3	0.74
2.4	0.77
2.5	0.81
2.6	0.84
2.7	0.88
2.8	0.91
2.9	0.95

Setting	Kv m ³ /h
3.0	0.98
3.1	1.02
3.2	1.05
3.3	1.09
3.4	1.12
3.5	1.16
3.6	1.19
3.7	1.23
3.8	1.26
3.9	1.30

Setting	Kv m ³ /h
4.0	1.33
4.1	1.37
4.2	1.40
4.3	1.44
4.4	1.48
4.5	1.51
4.6	1.55
4.7	1.59
4.8	1.63
4.9	1.66

Setting	Kv m³/h
5.0	1.70
5.1	1.74
5.2	1.78
5.3	1.82
5.4	1.87
5.5	1.91
5.6	1.95
5.7	1.99
5.8	2.04
5.9	2.08

Setting	Kv m³/h
6.0	2.13
6.1	2.18
6.2	2.22
6.3	2.27
6.4	2.32
6.5	2.37
6.6	2.42
6.7	2.47
6.8	2.52
6.9	2.57

Setting	Kv m³/h
7.0	2.63
7.1	2.68
7.2	2.74
7.3	2.79
7.4	2.85
7.5	2.91
7.6	2.96
7.7	3.02
7.8	3.08
7.9	3.14

Setting	Kv m³/h
8.0	3.20
8.1	3.26
8.2	3.32
8.3	3.38
8.4	3.44
8.5	3.50
8.6	3.57
8.7	3.63
8.8	3.69
8.9	3.76

Setting	Kv m³/h
9.0	3.82
9.1	3.88
9.2	3.95
9.3	4.01
9.4	4.08
9.5	4.14
9.6	4.21
9.7	4.27
9.8	4.34
9.9	4.40

Measuring signal – Kvm

Setting	Kvm m³/h
0.0	0.12
0.1	0.13
0.2	0.14
0.3	0.16
0.4	0.18
0.5	0.20
0.6	0.22
0.7	0.24
0.8	0.27
0.9	0.29

Setting	Kvm m³/h
1.0	0.32
1.1	0.35
1.2	0.38
1.3	0.41
1.4	0.44
1.5	0.47
1.6	0.50
1.7	0.53
1.8	0.56
1.9	0.60

Setting	Kvm m³/h
2.0	0.63
2.1	0.66
2.2	0.70
2.3	0.73
2.4	0.76
2.5	0.79
2.6	0.83
2.7	0.86
2.8	0.89
2.9	0.93

Setting	Kvm m³/h
3.0	0.96
3.1	0.99
3.2	1.03
3.3	1.06
3.4	1.09
3.5	1.12
3.6	1.16
3.7	1.19
3.8	1.22
3.9	1.26

Setting	Kvm m³/h
4.0	1.29
4.1	1.32
4.2	1.36
4.3	1.39
4.4	1.43
4.5	1.46
4.6	1.50
4.7	1.53
4.8	1.57
4.9	1.60

Setting	Kvm m³/h
5.0	1.64
5.1	1.67
5.2	1.71
5.3	1.75
5.4	1.79
5.5	1.83
5.6	1.86
5.7	1.90
5.8	1.94
5.9	1.98

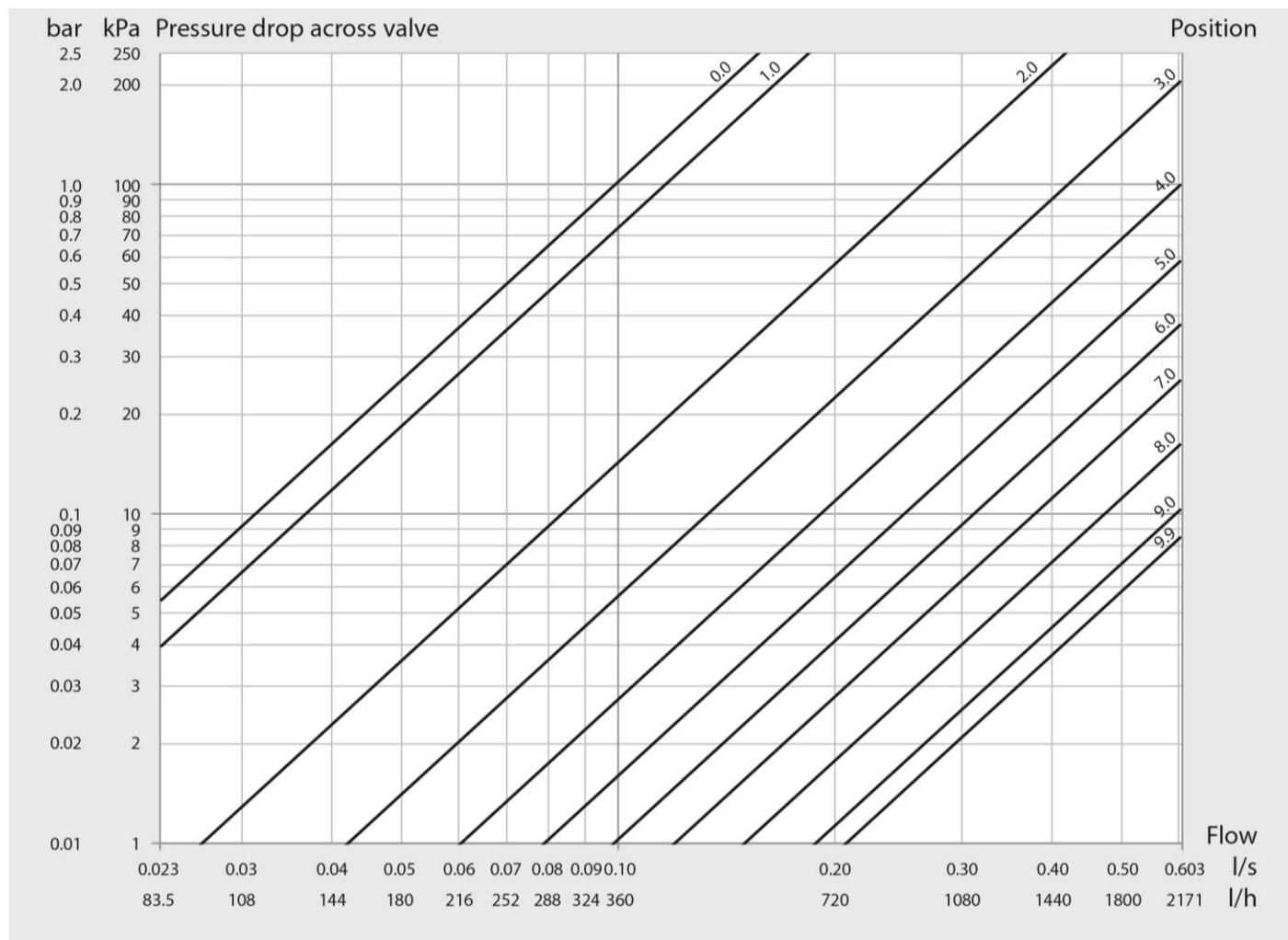
Setting	Kvm m³/h
6.0	2.03
6.1	2.07
6.2	2.11
6.3	2.15
6.4	2.19
6.5	2.24
6.6	2.28
6.7	2.33
6.8	2.37
6.9	2.42

Setting	Kvm m³/h
7.0	2.46
7.1	2.51
7.2	2.56
7.3	2.61
7.4	2.66
7.5	2.71
7.6	2.76
7.7	2.81
7.8	2.86
7.9	2.91

Setting	Kvm m³/h
8.0	2.96
8.1	3.02
8.2	3.07
8.3	3.13
8.4	3.18
8.5	3.24
8.6	3.29
8.7	3.35
8.8	3.41
8.9	3.47

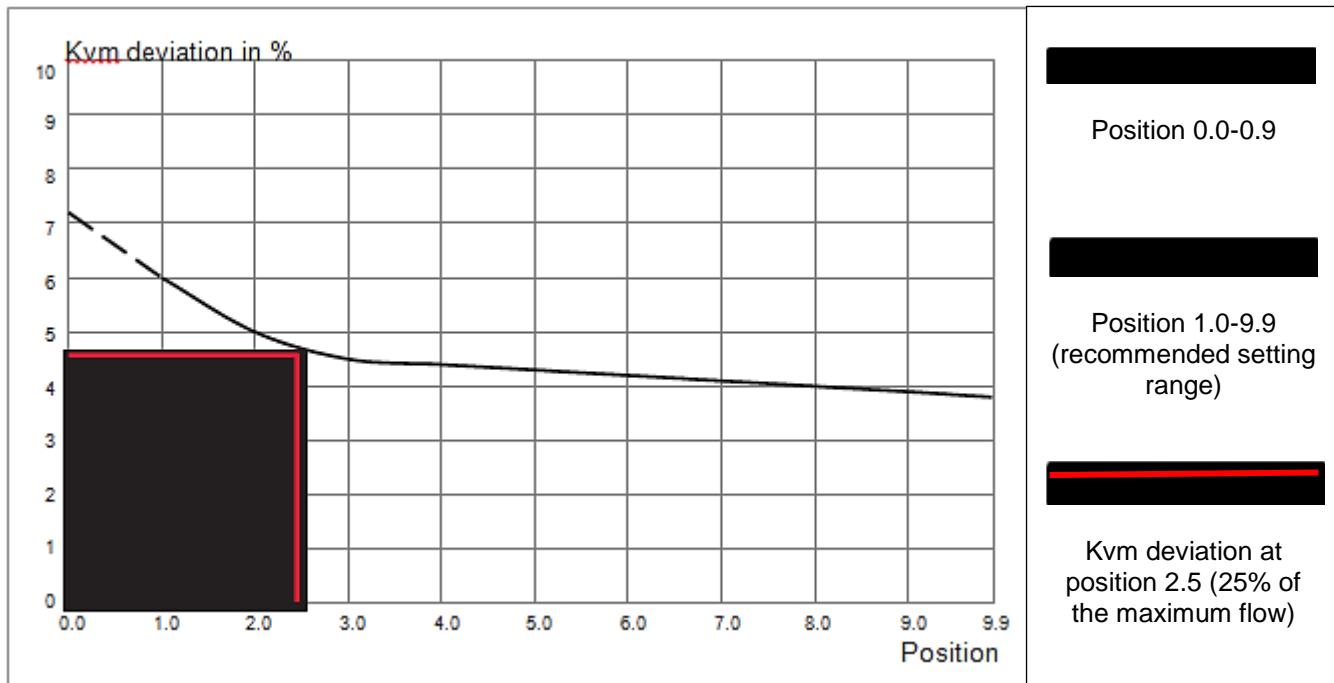
Setting	Kvm m³/h
9.0	3.53
9.1	3.60
9.2	3.66
9.3	3.72
9.4	3.79
9.5	3.86
9.6	3.93
9.7	4.00
9.8	4.07
9.9	4.15

DN 25 female/female-Flow diagram



Measuring accuracy

The measuring accuracy of Ballorex Vario is variable and depends on the valve setting. A high valve setting position provides a more accurate measuring.



The Ballorex Vario DN 25 conforms to the BS standard 7350:1990. At 25% of the flow range the Kvm deviation is only $\pm 4.5\%$.

Note:

The measuring accuracy is not affected by the flow direction through the Ballorex Vario valve.

Valve setting - Kv (Kvs)

Setting	Kv m³/h
0.0	0.34
0.1	0.34
0.2	0.34
0.3	0.35
0.4	0.35
0.5	0.37
0.6	0.38
0.7	0.40
0.8	0.42
0.9	0.45

Setting	Kv m³/h
1.0	0.48
1.1	0.51
1.2	0.55
1.3	0.59
1.4	0.63
1.5	0.67
1.6	0.72
1.7	0.77
1.8	0.82
1.9	0.87

Setting	Kv m³/h
2.0	0.93
2.1	0.98
2.2	1.04
2.3	1.10
2.4	1.16
2.5	1.23
2.6	1.29
2.7	1.35
2.8	1.42
2.9	1.48

Setting	Kv m³/h
3.0	1.55
3.1	1.62
3.2	1.68
3.3	1.75
3.4	1.81
3.5	1.88
3.6	1.95
3.7	2.01
3.8	2.08
3.9	2.14

Setting	Kv m³/h
4.0	2.21
4.1	2.27
4.2	2.34
4.3	2.40
4.4	2.47
4.5	2.53
4.6	2.59
4.7	2.66
4.8	2.72
4.9	2.78

Setting	Kv m³/h
5.0	2.85
5.1	2.91
5.2	2.97
5.3	3.04
5.4	3.10
5.5	3.17
5.6	3.23
5.7	3.30
5.8	3.37
5.9	3.44

Setting	Kv m³/h
6.0	3.51
6.1	3.58
6.2	3.65
6.3	3.73
6.4	3.80
6.5	3.88
6.6	3.96
6.7	4.04
6.8	4.13
6.9	4.22

Setting	Kv m³/h
7.0	4.31
7.1	4.40
7.2	4.50
7.3	4.59
7.4	4.69
7.5	4.80
7.6	4.90
7.7	5.01
7.8	5.12
7.9	5.24

Setting	Kv m³/h
8.0	5.35
8.1	5.47
8.2	5.59
8.3	5.71
8.4	5.83
8.5	5.96
8.6	6.08
8.7	6.20
8.8	6.33
8.9	6.45

Setting	Kv m³/h
9.0	6.57
9.1	6.69
9.2	6.81
9.3	6.92
9.4	7.03
9.5	7.13
9.6	7.23
9.7	7.32
9.8	7.40
9.9	7.46

Measuring signal – Kvm

Setting	Kvm m³/h
0.0	0.35
0.1	0.34
0.2	0.34
0.3	0.34
0.4	0.35
0.5	0.36
0.6	0.38
0.7	0.40
0.8	0.42
0.9	0.45

Setting	Kvm m³/h
1.0	0.48
1.1	0.52
1.2	0.56
1.3	0.60
1.4	0.64
1.5	0.69
1.6	0.73
1.7	0.79
1.8	0.84
1.9	0.89

Setting	Kvm m³/h
2.0	0.95
2.1	1.00
2.2	1.06
2.3	1.12
2.4	1.18
2.5	1.24
2.6	1.30
2.7	1.36
2.8	1.42
2.9	1.49

Setting	Kvm m³/h
3.0	1.55
3.1	1.61
3.2	1.67
3.3	1.73
3.4	1.80
3.5	1.86
3.6	1.92
3.7	1.98
3.8	2.04
3.9	2.10

Setting	Kvm m³/h
4.0	2.17
4.1	2.23
4.2	2.29
4.3	2.35
4.4	2.41
4.5	2.47
4.6	2.53
4.7	2.59
4.8	2.65
4.9	2.71

Setting	Kvm m³/h
5.0	2.78
5.1	2.84
5.2	2.90
5.3	2.97
5.4	3.03
5.5	3.10
5.6	3.17
5.7	3.24
5.8	3.31
5.9	3.38

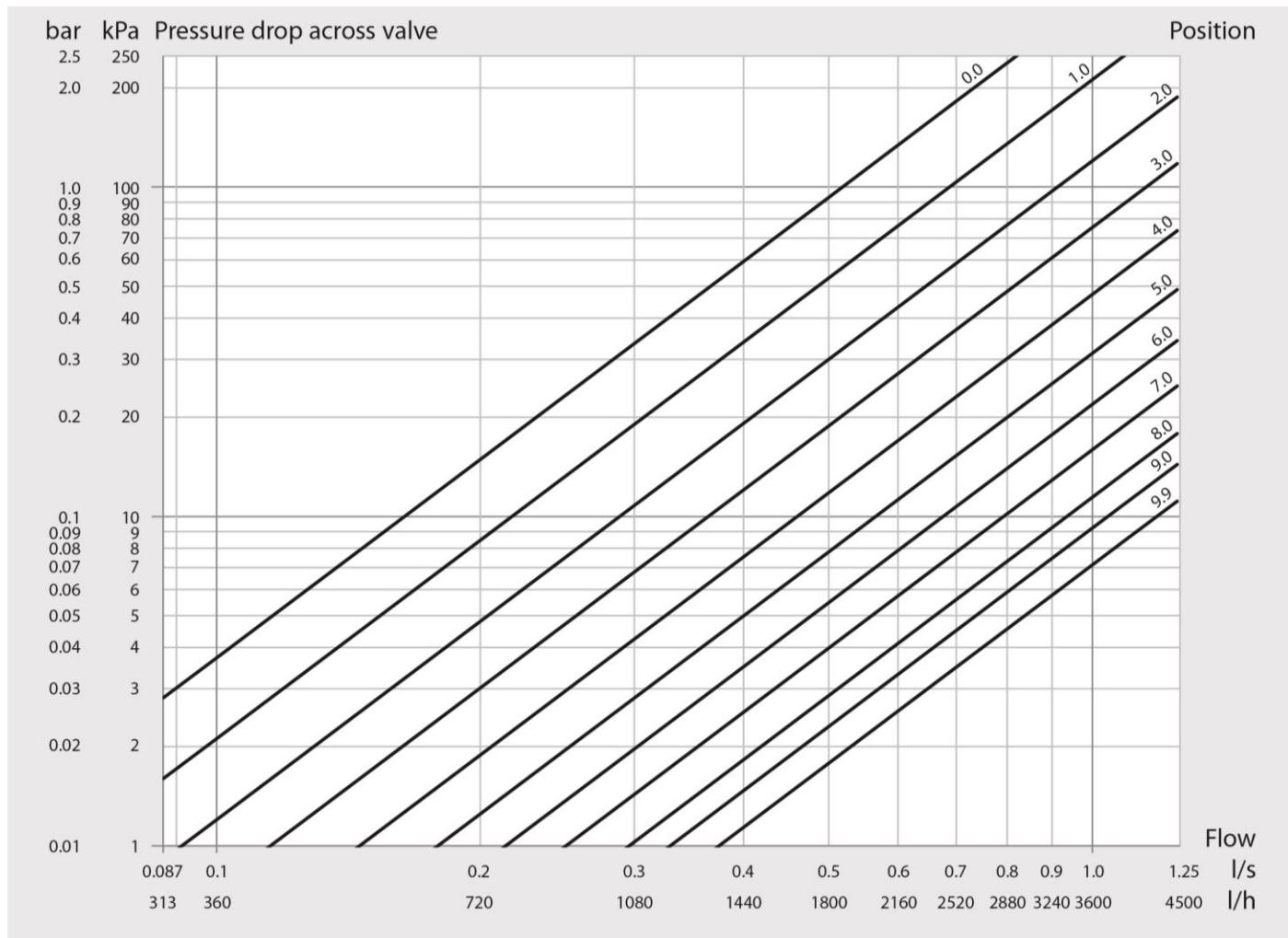
Setting	Kvm m³/h
6.0	3.45
6.1	3.53
6.2	3.61
6.3	3.69
6.4	3.77
6.5	3.85
6.6	3.93
6.7	4.02
6.8	4.11
6.9	4.20

Setting	Kvm m³/h
7.0	4.29
7.1	4.39
7.2	4.48
7.3	4.58
7.4	4.68
7.5	4.79
7.6	4.89
7.7	4.99
7.8	5.10
7.9	5.21

Setting	Kvm m³/h
8.0	5.31
8.1	5.42
8.2	5.52
8.3	5.63
8.4	5.73
8.5	5.84
8.6	5.94
8.7	6.03
8.8	6.13
8.9	6.22

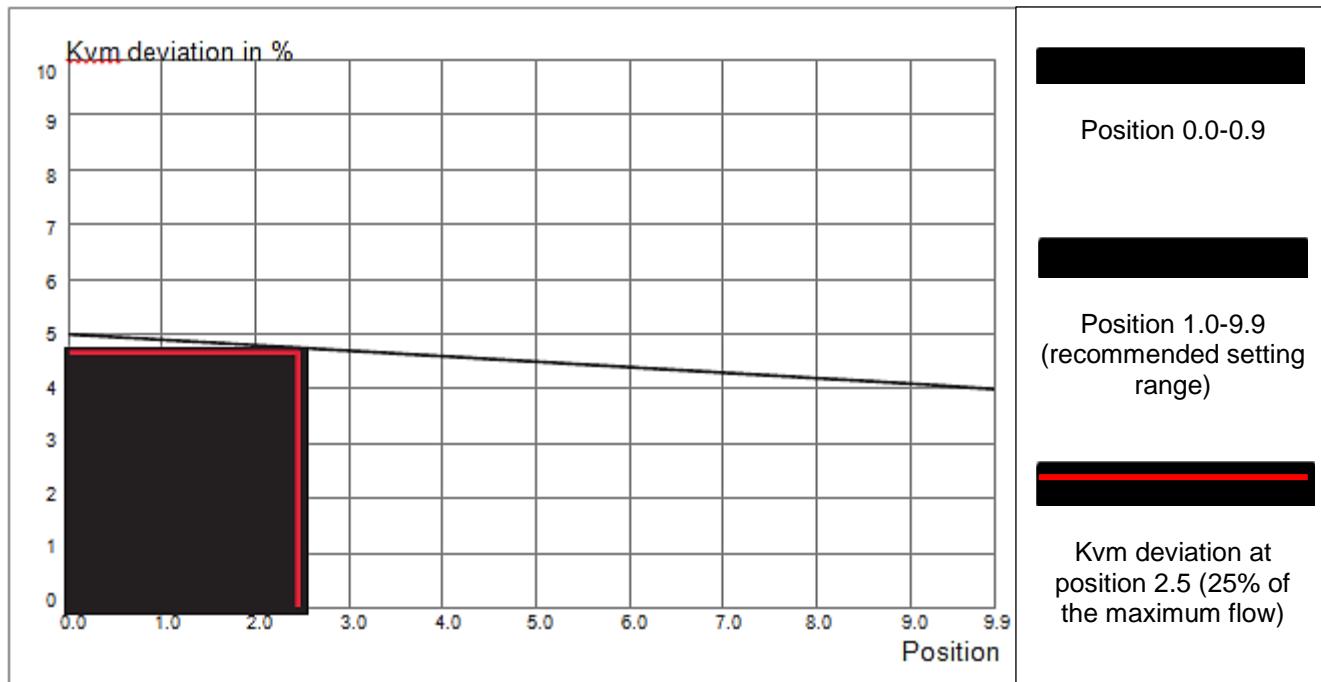
Setting	Kvm m³/h
9.0	6.30
9.1	6.38
9.2	6.45
9.3	6.51
9.4	6.57
9.5	6.61
9.6	6.64
9.7	6.66
9.8	6.66
9.9	6.66

DN 32 female/female-Flow diagram



Measuring accuracy

The measuring accuracy of Ballorex Vario is variable and depends on the valve setting. A high valve setting position provides a more accurate measuring.



The Ballorex Vario DN 32 conforms to the BS standard 7350:1990. At 25% of the flow range the Kvm deviation is only $\pm 4.7\%$.

Note:

The measuring accuracy is not affected by the flow direction through the Ballorex Vario valve.

Valve setting - Kv (Kvs)

Setting	Kv m³/h
0.0	1.85
0.1	1.89
0.2	1.94
0.3	1.99
0.4	2.05
0.5	2.11
0.6	2.17
0.7	2.24
0.8	2.31
0.9	2.38

Setting	Kv m³/h
1.0	2.45
1.1	2.53
1.2	2.61
1.3	2.69
1.4	2.77
1.5	2.85
1.6	2.93
1.7	3.02
1.8	3.10
1.9	3.19

Setting	Kv m³/h
2.0	3.28
2.1	3.36
2.2	3.45
2.3	3.54
2.4	3.63
2.5	3.73
2.6	3.82
2.7	3.91
2.8	4.01
2.9	4.10

Setting	Kv m³/h
3.0	4.20
3.1	4.30
3.2	4.40
3.3	4.50
3.4	4.60
3.5	4.70
3.6	4.81
3.7	4.91
3.8	5.02
3.9	5.13

Setting	Kv m³/h
4.0	5.24
4.1	5.35
4.2	5.46
4.3	5.57
4.4	5.69
4.5	5.80
4.6	5.92
4.7	6.04
4.8	6.16
4.9	6.29

Setting	Kv m³/h
5.0	6.41
5.1	6.54
5.2	6.66
5.3	6.79
5.4	6.92
5.5	7.05
5.6	7.18
5.7	7.31
5.8	7.44
5.9	7.58

Setting	Kv m³/h
6.0	7.71
6.1	7.84
6.2	7.98
6.3	8.12
6.4	8.25
6.5	8.39
6.6	8.53
6.7	8.66
6.8	8.80
6.9	8.94

Setting	Kv m³/h
7.0	9.08
7.1	9.21
7.2	9.35
7.3	9.49
7.4	9.63
7.5	9.76
7.6	9.90
7.7	10.04
7.8	10.18
7.9	10.32

Setting	Kv m³/h
8.0	10.46
8.1	10.60
8.2	10.74
8.3	10.88
8.4	11.02
8.5	11.16
8.6	11.31
8.7	11.45
8.8	11.60
8.9	11.75

Setting	Kv m³/h
9.0	11.91
9.1	12.07
9.2	12.23
9.3	12.40
9.4	12.57
9.5	12.75
9.6	12.93
9.7	13.12
9.8	13.33
9.9	13.48

Measuring signal – Kvm

Setting	Kvm m³/h
0.0	1.81
0.1	1.85
0.2	1.90
0.3	1.96
0.4	2.02
0.5	2.08
0.6	2.14
0.7	2.21
0.8	2.28
0.9	2.35

Setting	Kvm m³/h
1.0	2.42
1.1	2.49
1.2	2.57
1.3	2.64
1.4	2.72
1.5	2.80
1.6	2.88
1.7	2.96
1.8	3.04
1.9	3.12

Setting	Kvm m³/h
2.0	3.21
2.1	3.29
2.2	3.37
2.3	3.46
2.4	3.54
2.5	3.63
2.6	3.71
2.7	3.80
2.8	3.89
2.9	3.97

Setting	Kvm m³/h
3.0	4.06
3.1	4.15
3.2	4.24
3.3	4.33
3.4	4.42
3.5	4.51
3.6	4.61
3.7	4.70
3.8	4.79
3.9	4.89

Setting	Kvm m³/h
4.0	5.0
4.1	5.1
4.2	5.2
4.3	5.3
4.4	5.4
4.5	5.5
4.6	5.6
4.7	5.7
4.8	5.8
4.9	5.9

Setting	Kvm m³/h
5.0	6.0
5.1	6.1
5.2	6.2
5.3	6.3
5.4	6.4
5.5	6.5
5.6	6.7
5.7	6.8
5.8	6.9
5.9	7.0

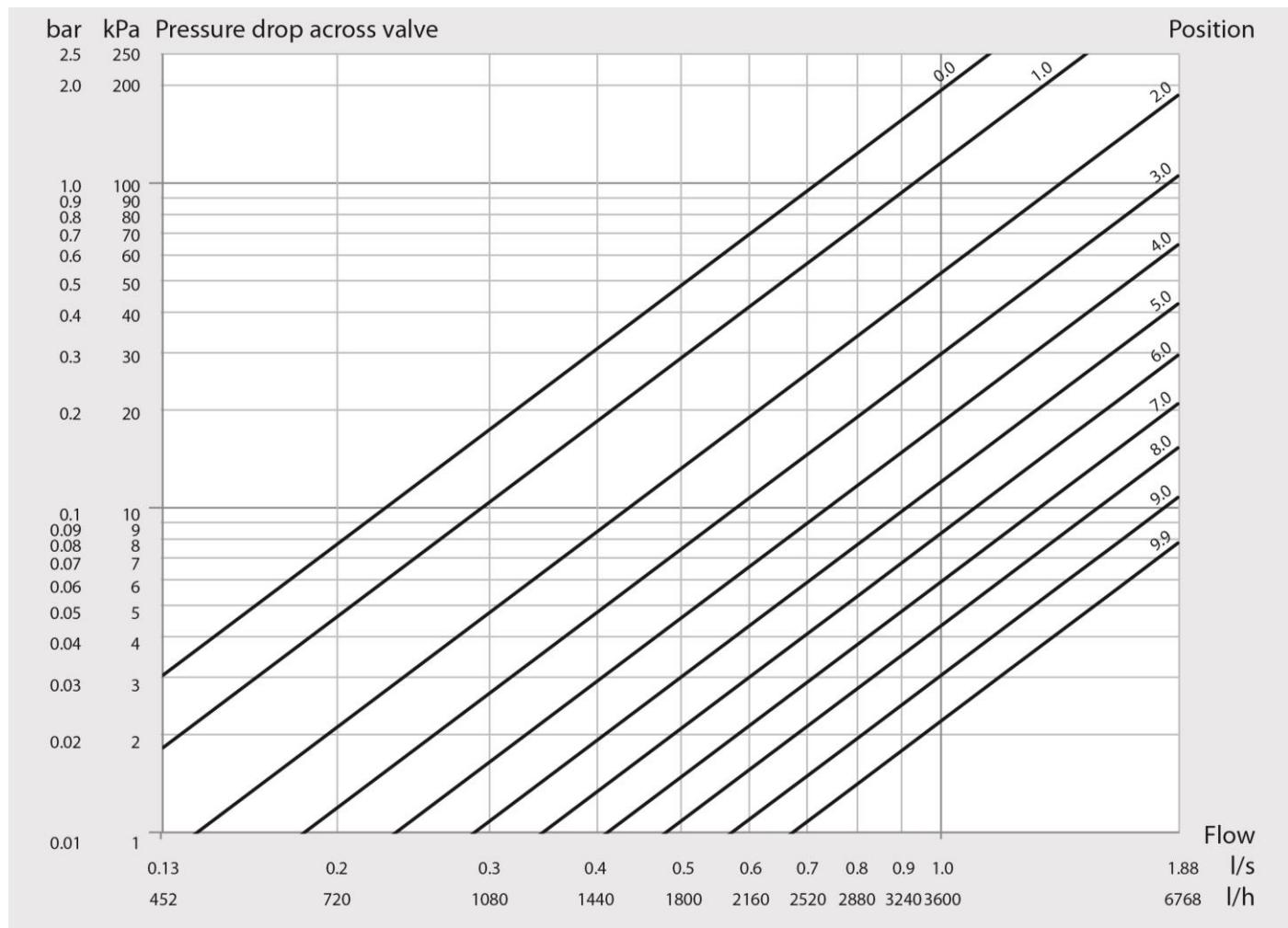
Setting	Kvm m³/h
6.0	7.1
6.1	7.2
6.2	7.3
6.3	7.5
6.4	7.6
6.5	7.7
6.6	7.8
6.7	7.9
6.8	8.0
6.9	8.2

Setting	Kvm m³/h
7.0	8.3
7.1	8.4
7.2	8.5
7.3	8.6
7.4	8.8
7.5	8.9
7.6	9.0
7.7	9.1
7.8	9.3
7.9	9.4

Setting	Kvm m³/h
8.0	9.5
8.1	9.6
8.2	9.7
8.3	9.9
8.4	10.0
8.5	10.1
8.6	10.2
8.7	10.4
8.8	10.5
8.9	10.6

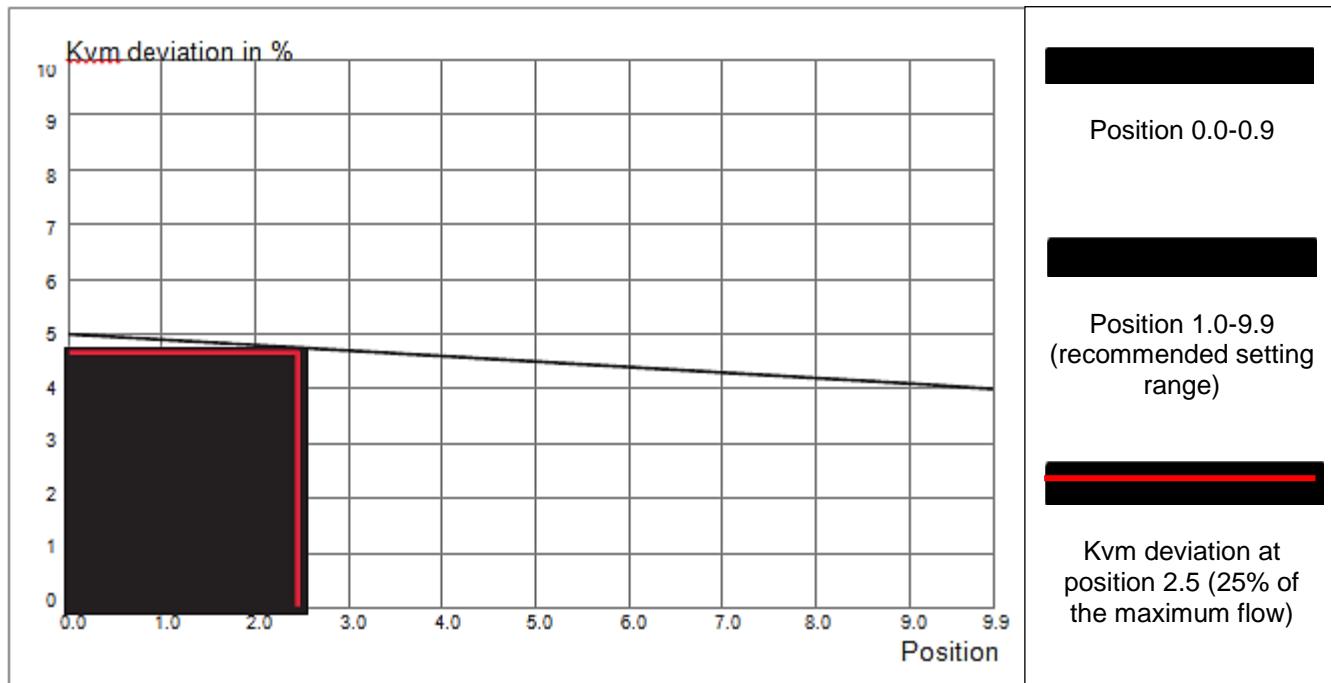
Setting	Kvm m³/h
9.0	10.8
9.1	10.9
9.2	11.0
9.3	11.1
9.4	11.3
9.5	11.4
9.6	11.6
9.7	11.7
9.8	11.9
9.9	12.0

DN 40 female/female-Flow diagram



Measuring accuracy

The measuring accuracy of Ballorex Vario is variable and depends on the valve setting. A high valve setting position provides a more accurate measuring.



The Ballorex Vario DN 40 conforms to the BS standard 7350:1990. At 25% of the flow range the Kvm deviation is only $\pm 4.7\%$.

Note:

The measuring accuracy is not affected by the flow direction through the Ballorex Vario valve.

Valve setting - Kv (Kvs)

Setting	Kv m ³ /h
0.0	2.70
0.1	2.75
0.2	2.82
0.3	2.89
0.4	2.97
0.5	3.05
0.6	3.14
0.7	3.24
0.8	3.34
0.9	3.45

Setting	Kv m ³ /h
1.0	3.57
1.1	3.69
1.2	3.81
1.3	3.94
1.4	4.08
1.5	4.22
1.6	4.36
1.7	4.51
1.8	4.65
1.9	4.81

Setting	Kv m ³ /h
2.0	4.96
2.1	5.12
2.2	5.28
2.3	5.44
2.4	5.61
2.5	5.78
2.6	5.95
2.7	6.12
2.8	6.29
2.9	6.46

Setting	Kv m ³ /h
3.0	6.64
3.1	6.82
3.2	6.99
3.3	7.17
3.4	7.35
3.5	7.53
3.6	7.71
3.7	7.90
3.8	8.08
3.9	8.26

Setting	Kv m ³ /h
4.0	8.45
4.1	8.63
4.2	8.82
4.3	9.01
4.4	9.20
4.5	9.39
4.6	9.58
4.7	9.77
4.8	9.96
4.9	10.15

Setting	Kv m³/h
5.0	10.35
5.1	10.54
5.2	10.74
5.3	10.94
5.4	11.14
5.5	11.35
5.6	11.55
5.7	11.76
5.8	11.97
5.9	12.18

Setting	Kv m³/h
6.0	12.39
6.1	12.61
6.2	12.83
6.3	13.05
6.4	13.27
6.5	13.50
6.6	13.73
6.7	13.97
6.8	14.21
6.9	14.45

Setting	Kv m³/h
7.0	14.70
7.1	14.95
7.2	15.20
7.3	15.46
7.4	15.72
7.5	15.99
7.6	16.26
7.7	16.54
7.8	16.82
7.9	17.11

Setting	Kv m³/h
8.0	17.40
8.1	17.69
8.2	17.99
8.3	18.30
8.4	18.61
8.5	18.92
8.6	19.24
8.7	19.56
8.8	19.89
8.9	20.22

Setting	Kv m³/h
9.0	20.55
9.1	20.89
9.2	21.24
9.3	21.58
9.4	21.93
9.5	22.28
9.6	22.63
9.7	22.99
9.8	23.34
9.9	23.68

Measuring signal – Kvm

Setting	Kvm m³/h
0.0	2.61
0.1	2.68
0.2	2.75
0.3	2.83
0.4	2.92
0.5	3.01
0.6	3.10
0.7	3.20
0.8	3.31
0.9	3.42

Setting	Kvm m³/h
1.0	3.5
1.1	3.6
1.2	3.8
1.3	3.9
1.4	4.0
1.5	4.2
1.6	4.3
1.7	4.4
1.8	4.6
1.9	4.7

Setting	Kvm m³/h
2.0	4.9
2.1	5.0
2.2	5.2
2.3	5.3
2.4	5.5
2.5	5.6
2.6	5.8
2.7	5.9
2.8	6.1
2.9	6.2

Setting	Kvm m³/h
3.0	6.4
3.1	6.6
3.2	6.7
3.3	6.9
3.4	7.0
3.5	7.2
3.6	7.4
3.7	7.5
3.8	7.7
3.9	7.8

Setting	Kvm m³/h
4.0	8.0
4.1	8.2
4.2	8.3
4.3	8.5
4.4	8.7
4.5	8.8
4.6	9.0
4.7	9.2
4.8	9.3
4.9	9.5

Setting	Kvm m³/h
5.0	9.7
5.1	9.8
5.2	10.0
5.3	10.2
5.4	10.3
5.5	10.5
5.6	10.7
5.7	10.8
5.8	11.0
5.9	11.2

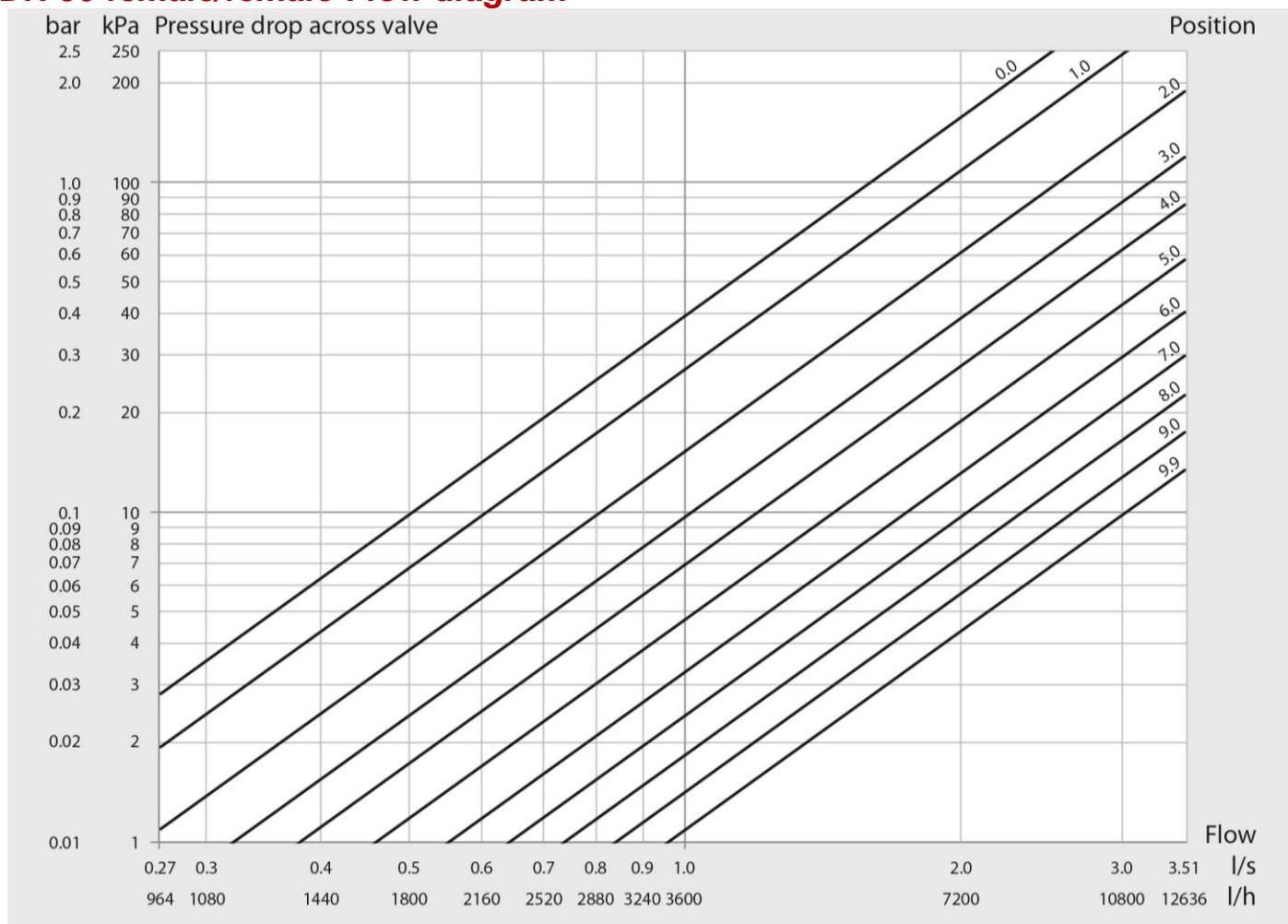
Setting	Kvm m³/h
6.0	11.4
6.1	11.5
6.2	11.7
6.3	11.9
6.4	12.1
6.5	12.3
6.6	12.5
6.7	12.7
6.8	12.9
6.9	13.1

Setting	Kvm m³/h
7.0	13.3
7.1	13.5
7.2	13.7
7.3	13.9
7.4	14.1
7.5	14.3
7.6	14.5
7.7	14.8
7.8	15.0
7.9	15.2

Setting	Kvm m³/h
8.0	15.5
8.1	15.7
8.2	15.9
8.3	16.2
8.4	16.4
8.5	16.7
8.6	17.0
8.7	17.2
8.8	17.5
8.9	17.8

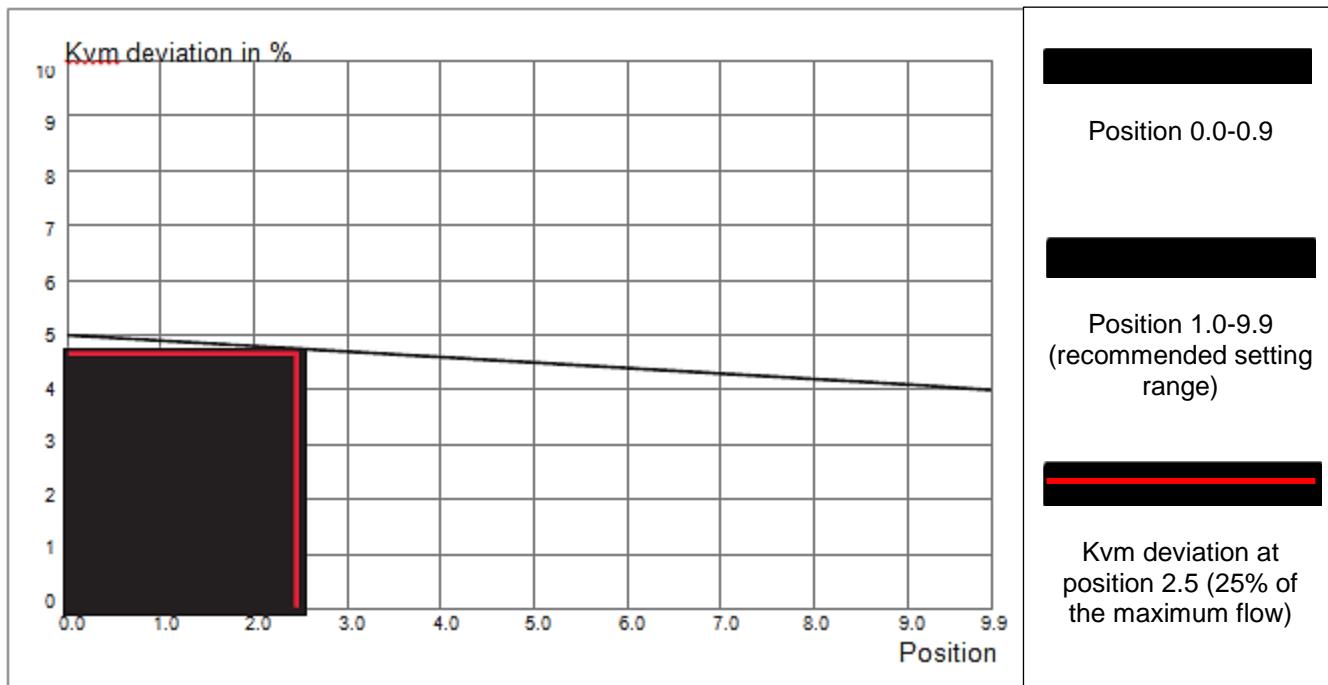
Setting	Kvm m³/h
9.0	18.0
9.1	18.3
9.2	18.6
9.3	18.9
9.4	19.1
9.5	19.4
9.6	19.7
9.7	20.0
9.8	20.3
9.9	20.6

DN 50 female/female-Flow diagram



Measuring accuracy

The measuring accuracy of Ballorex Vario is variable and depends on the valve setting. A high valve setting position provides a more accurate measuring.



The Ballorex Vario DN 50 conforms to the BS standard 7350:1990. At 25% of the flow range the Kvm deviation is only $\pm 4.7\%$.

Note:

The measuring accuracy is not affected by the flow direction through the Ballorex Vario valve.

Valve setting - Kv (Kvs)

Setting	Kv m ³ /h
0.0	5.71
0.1	5.75
0.2	5.82
0.3	5.91
0.4	6.02
0.5	6.15
0.6	6.30
0.7	6.47
0.8	6.65
0.9	6.83

Setting	Kv m ³ /h
1.0	7.03
1.1	7.23
1.2	7.44
1.3	7.66
1.4	7.88
1.5	8.10
1.6	8.32
1.7	8.55
1.8	8.77
1.9	9.00

Setting	Kv m ³ /h
2.0	9.22
2.1	9.45
2.2	9.68
2.3	9.90
2.4	10.13
2.5	10.35
2.6	10.58
2.7	10.81
2.8	11.03
2.9	11.26

Setting	Kv m ³ /h
3.0	11.48
3.1	11.71
3.2	11.94
3.3	12.17
3.4	12.40
3.5	12.64
3.6	12.87
3.7	13.11
3.8	13.36
3.9	13.60

Setting	Kv m ³ /h
4.0	13.85
4.1	14.10
4.2	14.36
4.3	14.62
4.4	14.89
4.5	15.16
4.6	15.43
4.7	15.71
4.8	16.00
4.9	16.28



Setting	Kv m³/h
5.0	16.58
5.1	16.87
5.2	17.18
5.3	17.48
5.4	17.80
5.5	18.11
5.6	18.43
5.7	18.75
5.8	19.08
5.9	19.41

Setting	Kv m³/h
6.0	19.74
6.1	20.08
6.2	20.42
6.3	20.76
6.4	21.10
6.5	21.45
6.6	21.79
6.7	22.14
6.8	22.48
6.9	22.83

Setting	Kv m³/h
7.0	23.18
7.1	23.52
7.2	23.87
7.3	24.22
7.4	24.56
7.5	24.91
7.6	25.25
7.7	25.59
7.8	25.94
7.9	26.28

Setting	Kv m³/h
8.0	26.62
8.1	26.97
8.2	27.31
8.3	27.66
8.4	28.01
8.5	28.36
8.6	28.72
8.7	29.08
8.8	29.45
8.9	29.83

Setting	Kv m³/h
9.0	30.22
9.1	30.62
9.2	31.04
9.3	31.47
9.4	31.92
9.5	32.40
9.6	32.90
9.7	33.43
9.8	34.00
9.9	34.52

Measuring signal – Kvm

Setting	Kvm m³/h
0.0	5.5
0.1	5.6
0.2	5.7
0.3	5.8
0.4	5.9
0.5	6.1
0.6	6.2
0.7	6.4
0.8	6.6
0.9	6.7

Setting	Kvm m³/h
1.0	6.9
1.1	7.1
1.2	7.3
1.3	7.5
1.4	7.7
1.5	7.9
1.6	8.1
1.7	8.3
1.8	8.5
1.9	8.7

Setting	Kvm m³/h
2.0	8.9
2.1	9.2
2.2	9.4
2.3	9.6
2.4	9.8
2.5	10.0
2.6	10.2
2.7	10.4
2.8	10.7
2.9	10.9

Setting	Kvm m³/h
3.0	11.1
3.1	11.3
3.2	11.5
3.3	11.7
3.4	12.0
3.5	12.2
3.6	12.4
3.7	12.6
3.8	12.9
3.9	13.1

Setting	Kvm m³/h
4.0	13.3
4.1	13.5
4.2	13.8
4.3	14.0
4.4	14.2
4.5	14.5
4.6	14.7
4.7	14.9
4.8	15.2
4.9	15.4

Setting	Kvm m³/h
5.0	15.7
5.1	15.9
5.2	16.2
5.3	16.4
5.4	16.7
5.5	16.9
5.6	17.2
5.7	17.4
5.8	17.7
5.9	17.9

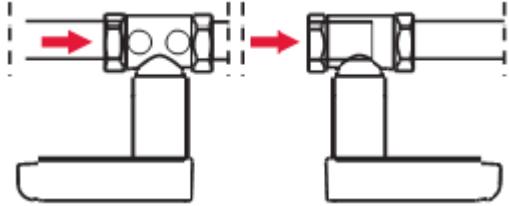
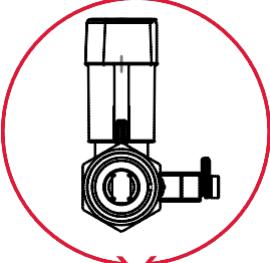
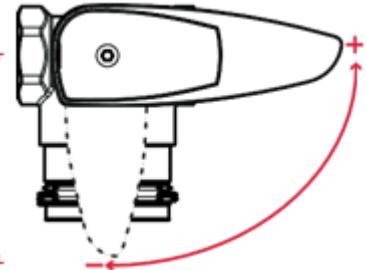
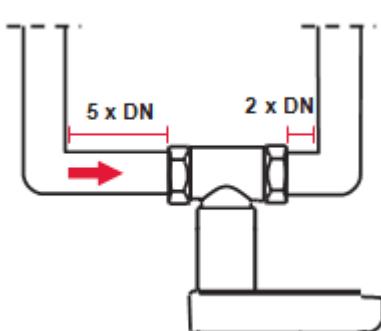
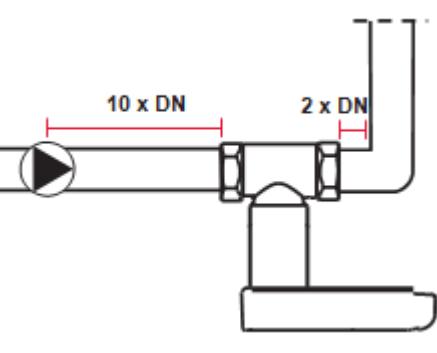
Setting	Kvm m³/h
6.0	18.2
6.1	18.5
6.2	18.7
6.3	19.0
6.4	19.3
6.5	19.5
6.6	19.8
6.7	20.1
6.8	20.3
6.9	20.6

Setting	Kvm m³/h
7.0	20.9
7.1	21.2
7.2	21.4
7.3	21.7
7.4	22.0
7.5	22.2
7.6	22.5
7.7	22.8
7.8	23.1
7.9	23.3

Setting	Kvm m³/h
8.0	23.6
8.1	23.9
8.2	24.2
8.3	24.4
8.4	24.7
8.5	25.0
8.6	25.3
8.7	25.6
8.8	25.8
8.9	26.1

Setting	Kvm m³/h
9.0	26.4
9.1	26.8
9.2	27.1
9.3	27.4
9.4	27.7
9.5	28.1
9.6	28.4
9.7	28.8
9.8	29.2
9.9	29.6

Mounting instructions DN 15 – 50

	<p>Ballorex Vario can be installed regardless of flow direction.</p>
	<p>Ballorex Vario can be installed 360° around the pipe axis.</p>
<p>DN 15 - 25: X = 75 mm DN 32 - 50: X = 122 mm</p> 	<p>Ballorex Vario requires installation space to ensure the 90° isolation function.</p>
	<p>Ballorex Vario requires 5 × DN straight piping when installed directly after a bend, and 2 × DN straight piping when installed directly before a bend.</p>
	<p>Ballorex Vario requires 10 × DN straight piping when installed directly after the pump.</p>



	<p>Ballorex Vario can be installed regardless of pipe inclination</p>
	<p>Ballorex Vario is not to be installed with a loose hemp hanging into the pipe</p>
	<p>Ballorex Vario is only to be installed after the deburring of pipe ends is carried out to avoid system clogging.</p>
	<p>A Ballorex balancing computer is used for flow verification. Ballorex Vario is selected in the menu of the balancing computer and the valve setting entered for direct flow reading. Any other flowmeter can be used for flow verification. In this case the Kvm value at current setting of the Ballorex Vario needs to be entered for direct flow reading</p>
<p>DN 15 - 25: 3 mm DN 32 - 50: 5 mm</p>	<p>Ballorex Vario is set using an Allen key to adjust the valve until the required flow is obtained.</p>



Accessories

Photo	Designation	Size	Code
	Insulation jacket	-	96M0273-000005
	Pre-sealed press adaptors, 16 bar max	15 mm x 1/2" 18 mm x 1/2"	83504006-000003 83504007-000003
	High capacity drain valve (Kv 4.5) 1/2" female/female threaded connection	DN 15	43500200-001003