DTS 1000076374 EN Version: A Status: RL (released | freigegeben | validé) printed: 29.08.2013

Flow-rate curves for diaphragm valves

bürkert
Fluid Control Systems

Flow-rate curves for diaphragm valves

Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

In this documentation flow characteristics for the Bürkert diaphragm valves 2730 and 2731 are given. These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate easily from the stated values. Reason is due to the elasticity and the grouting of the diaphragms. Therefore the curves serve only as a guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

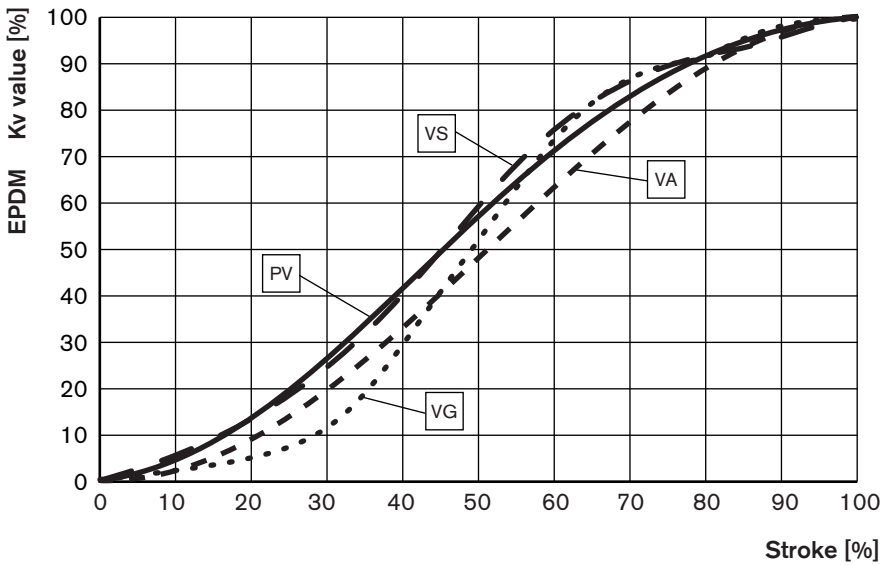
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN15

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	PVC body (PV) EPDM Kv value [%]	PVC body (PV) PTFE Kv value [m³/h]	PVC body (PV) PTFE Kv value [%]	Forged body (VS) EPDM Kv value [m³/h]	Forged body (VS) EPDM Kv value [%]	Forged body (VS) PTFE Kv value [m³/h]	Forged body (VS) PTFE Kv value [%]	Cast body (VG) EPDM Kv value [m³/h]	Cast body (VG) EPDM Kv value [%]	Cast body (VG) PTFE Kv value [m³/h]	Cast body (VG) PTFE Kv value [%]	Cold-formed pipe valve body (VA-ISO) EPDM Kv value [m³/h]	Cold-formed pipe valve body (VA-ISO) EPDM Kv value [%]	Cold-formed pipe valve body (VA-ISO) PTFE Kv value [m³/h]	Cold-formed pipe valve body (VA-ISO) PTFE Kv value [%]
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0.15	5	0.07	3	0.29	6	0.21	5	0.11	2	0.15	3	0.1	2	0.1	2
20	0.38	13	0.16	6	0.51	11	0.42	9	0.25	5	0.29	7	0.5	10	0.4	9
30	0.88	29	0.58	21	1.1	23	0.82	18	0.36	8	1.1	25	1	20	0.9	20
40	1.3	43	1.1	39	1.9	40	1.6	36	1.3	28	2	45	1.6	32	1.5	33
50	1.7	57	1.3	46	2.8	60	2.6	58	2.3	50	2.8	64	2.4	48	2.1	47
60	2.1	70	1.8	64	3.5	74	3.3	73	3.4	74	3.4	77	3.2	64	2.9	64
70	2.5	83	2.1	75	4.1	87	3.7	82	4	87	4	91	3.9	78	3.6	80
80	2.7	90	2.4	86	4.3	91	4.1	91	4.2	91	4	91	4.5	90	4.1	91
90	2.9	97	2.6	93	4.5	96	4.3	96	4.5	98	4.3	98	4.9	98	4.4	98
100	3	100	2.8	100	4.7	100	4.5	100	4.6	100	4.4	100	5	100	4.5	100

Actuator size F-80mm - DN15



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

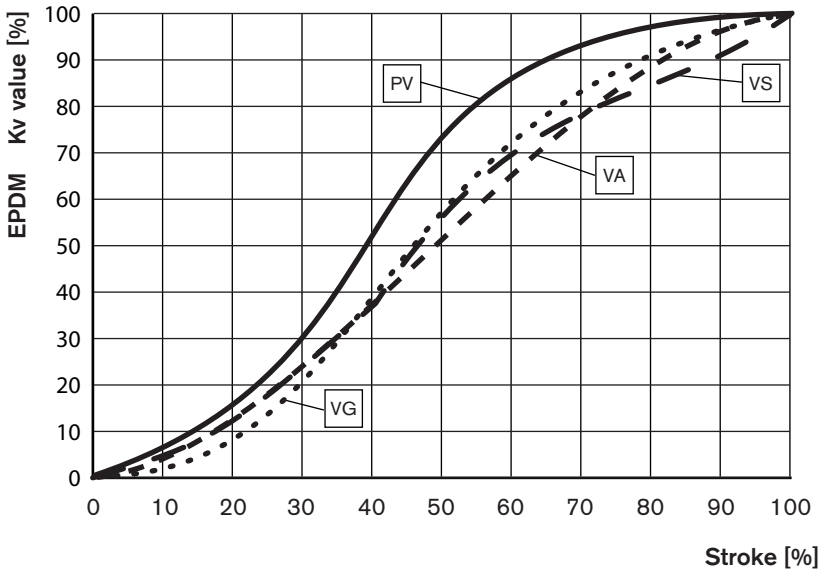
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN20

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Forged body (VS) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cast body (VG) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0.40	6	0.30	4	0.50	5	0.40	5	0.10	1	0.60	6	0.70	5	0.70	5
20	0.90	13	0.80	12	1.0	11	0.80	9	0.30	3	1.1	10	1.8	12	1.6	12
30	2.1	30	1.8	26	2.3	25	1.8	21	2.2	21	2.5	24	3.4	23	3.1	23
40	3.5	50	3.3	49	3.4	37	2.9	33	4.2	39	3.9	37	5.3	37	5.0	37
50	5.1	73	4.5	66	5.3	58	4.9	56	6.1	57	6.3	60	7.4	51	6.9	51
60	6.0	86	5.6	82	6.5	71	6.2	71	7.6	71	7.9	75	9.3	64	8.7	64
70	6.6	94	6.3	93	7.2	79	6.8	78	8.8	82	8.6	82	11.4	79	10.6	79
80	6.8	97	6.6	97	7.7	85	7.5	86	9.8	92	9.5	90	12.8	88	11.9	88
90	6.9	99	6.7	99	8.4	92	8.2	94	10.5	98	10.3	98	13.9	96	13.0	96
100	7.0	100	6.8	100	9.1	100	8.7	100	10.7	100	10.5	100	14.5	100	13.5	100

Actuator size F-80mm - DN20



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

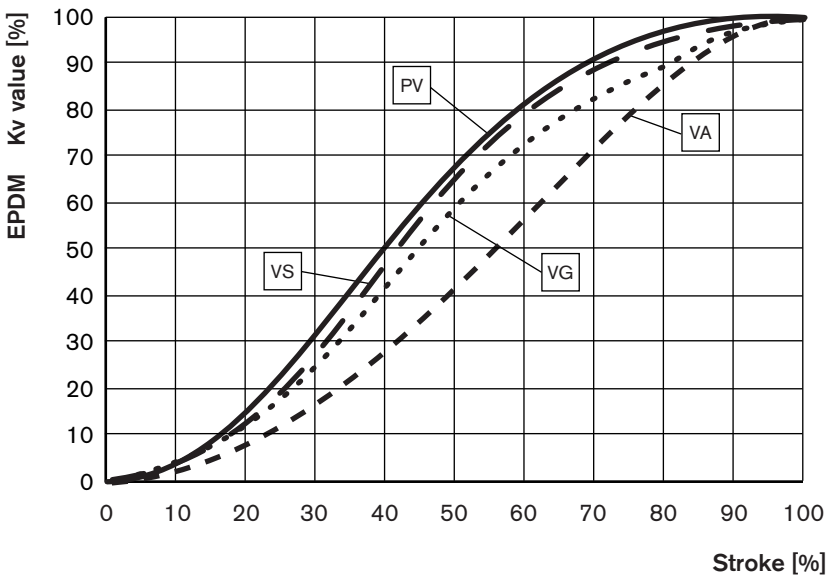
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN25

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Forged body (VS) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cast body (VG) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0.32	3	0.18	2	0.43	3	0.33	3	0.71	5	0.35	3	0.50	3	0.40	3
20	1.9	16	0.75	7	1.5	11	0.95	8	1.5	10	0.71	5	1.0	6	0.90	6
30	3.7	32	2.4	23	3.7	28	2.1	17	3.7	25	2.3	17	2.9	16	2.5	16
40	5.8	50	4.2	40	6.0	46	4.2	34	6.3	43	4.2	31	5.0	28	4.3	28
50	7.9	68	6.0	57	8.4	64	6.4	52	8.6	59	6.2	46	7.3	41	6.3	41
60	9.5	81	7.6	72	10.5	80	8.4	69	10.5	72	8.2	60	10.4	58	8.9	57
70	10.9	93	8.9	84	11.8	90	10.0	82	12.2	84	9.9	73	12.9	72	11.1	72
80	11.4	97	9.8	92	12.3	94	11.2	92	13.0	89	11.9	88	15.5	86	13.3	86
90	11.6	99	10.4	98	12.7	97	11.6	95	14.1	97	13.0	96	17.1	95	14.7	95
100	11.7	100	10.6	100	13.1	100	12.2	100	14.6	100	13.6	100	18.0	100	15.5	100

Actuator size F-80mm - DN25



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

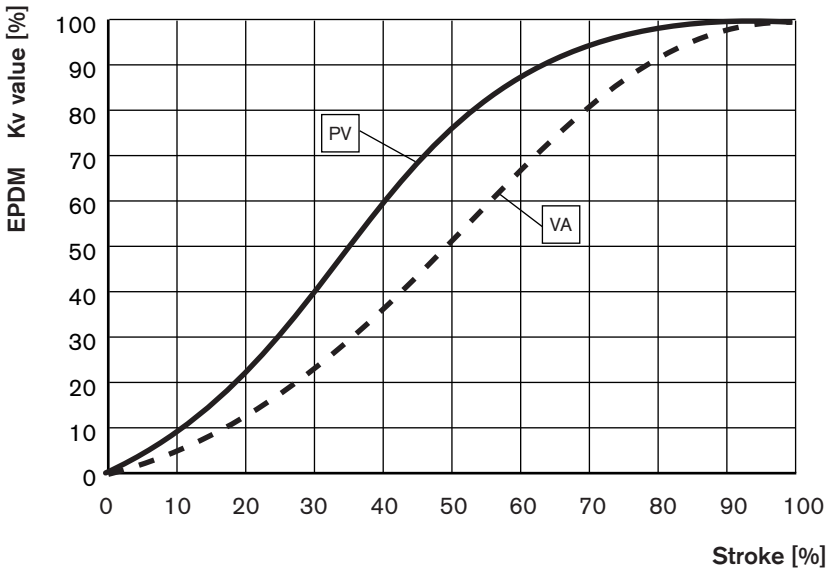
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN32

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]
0	0	0	0	0	0	0	0	0
10	1.5	9	1.0	6	1.2	4	1.1	4
20	3.6	21	2.2	13	3.8	12	3.6	12
30	6.7	40	5.3	32	7.7	23	7.2	23
40	9.9	59	8.5	51	12.3	37	11.6	37
50	12.5	74	11.2	67	17.3	52	16.3	53
60	15.0	89	14.0	84	22.1	67	20.8	67
70	16.1	95	15.6	93	26.6	81	25.0	81
80	16.5	98	16.3	98	30.5	92	28.6	92
90	16.7	99	16.5	99	32.8	99	30.9	100
100	16.9	100	16.7	100	33.0	100	31.0	100

Actuator size G-100mm - DN32



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

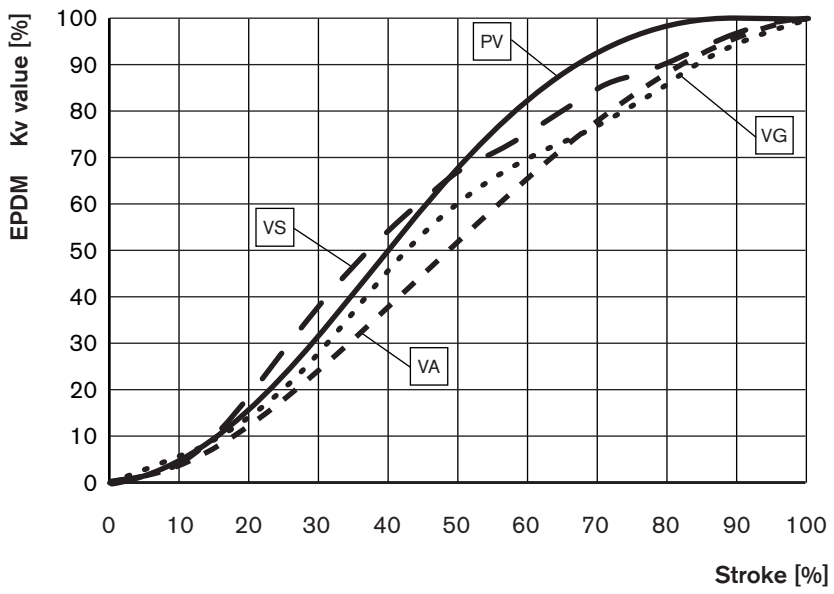
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN40

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	PVC body (PV) EPDM Kv value [%]	PVC body (PV) PTFE Kv value [m³/h]	PVC body (PV) PTFE Kv value [%]	Forged body (VS) EPDM Kv value [m³/h]	Forged body (VS) EPDM Kv value [%]	Forged body (VS) PTFE Kv value [m³/h]	Forged body (VS) PTFE Kv value [%]	Cast body (VG) EPDM Kv value [m³/h]	Cast body (VG) EPDM Kv value [%]	Cast body (VG) PTFE Kv value [m³/h]	Cast body (VG) PTFE Kv value [%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [%]	Cold-formed pipe valve body (VA–ISO) PTFE Kv value [m³/h]	Cold-formed pipe valve body (VA–ISO) PTFE Kv value [%]
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	1.0	4	0.61	2	0.77	3	0.51	2	1.7	6	1.8	6	1.4	3	1.4	3
20	4.3	16	3.6	14	4.9	19	4.3	17	3.6	12	3.8	14	5.4	12	5.2	12
30	8.5	32	7.6	29	9.9	38	9.3	37	8.4	28	8.1	29	10.7	24	10.3	24
40	13.4	50	12.9	49	14.5	55	14.1	56	13.8	46	12.5	45	16.7	37	16.0	37
50	18.2	68	17.3	66	17.6	67	17.1	67	18.6	62	17.2	62	22.9	51	21.9	51
60	21.8	82	20.1	77	19.7	75	19.2	76	20.9	70	20.4	74	29.5	66	28.2	66
70	24.7	93	23.5	90	22.2	85	21.4	84	23.2	77	22.1	80	34.9	78	33.3	77
80	26.4	99	25.5	98	23.7	90	22.9	90	25.7	86	24.3	88	39.6	88	37.8	88
90	26.6	100	25.9	99	25.3	97	24.5	96	28.4	95	26.7	96	43.3	96	41.4	96
100	26.6	100	26.1	100	26.2	100	25.4	100	30.0	100	27.7	100	45.0	100	43.0	100

Actuator size H-125mm - DN40



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

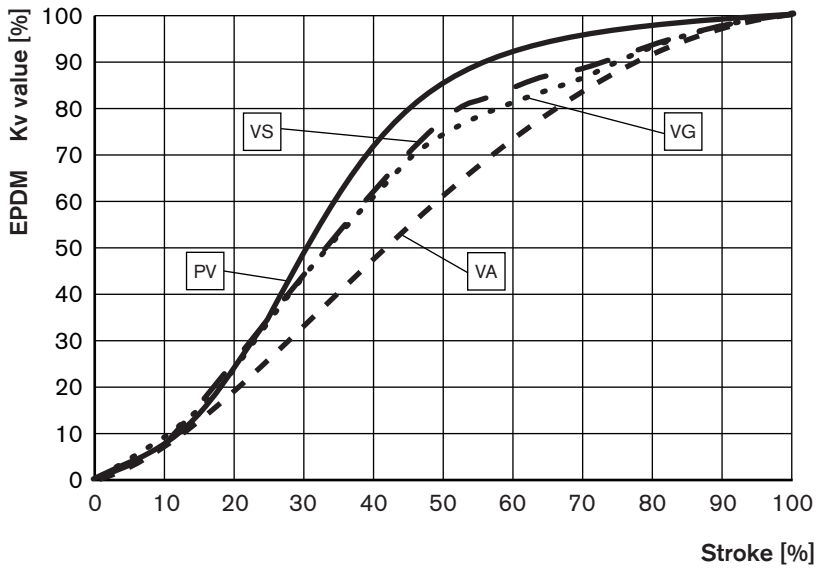
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN50

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Forged body (VS) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cast body (VG) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	[%]	PTFE Kv value [m³/h]	[%]
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	2.31	6	1.95	5	2.68	6	1.88	4	4.21	9	3.56	7	4.4	6	4.2	6
20	8.6	22	8.1	21	11.9	25	10.4	22	10.4	22	11.5	24	14.4	19	13.6	19
30	18.8	48	17.6	45	21.6	45	18.4	39	20.9	44	20.7	43	25.3	34	24.0	34
40	27.9	71	26.6	69	30.4	63	28.0	59	29.2	62	30.3	63	36.0	48	34.1	48
50	34.5	87	33.4	86	37.8	78	36.3	77	35.2	75	36.1	75	45.9	61	43.5	61
60	36.1	91	35.4	91	41.1	85	40.0	85	38.0	81	39.4	82	55.8	74	51.8	73
70	37.2	94	36.4	94	42.8	88	41.7	88	40.8	86	41.8	87	62.3	83	58.9	83
80	38.6	98	37.7	97	44.9	93	43.4	92	43.7	93	45.1	94	68.7	92	65.0	92
90	39.0	99	38.6	99	47.4	98	45.6	96	46.0	97	47.4	99	73.0	97	69.1	97
100	39.5	100	38.8	100	48.4	100	47.3	100	47.2	100	47.9	100	75.0	100	71.0	100

Actuator size H-125mm - DN50



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Flow-rate curves for diaphragm valves

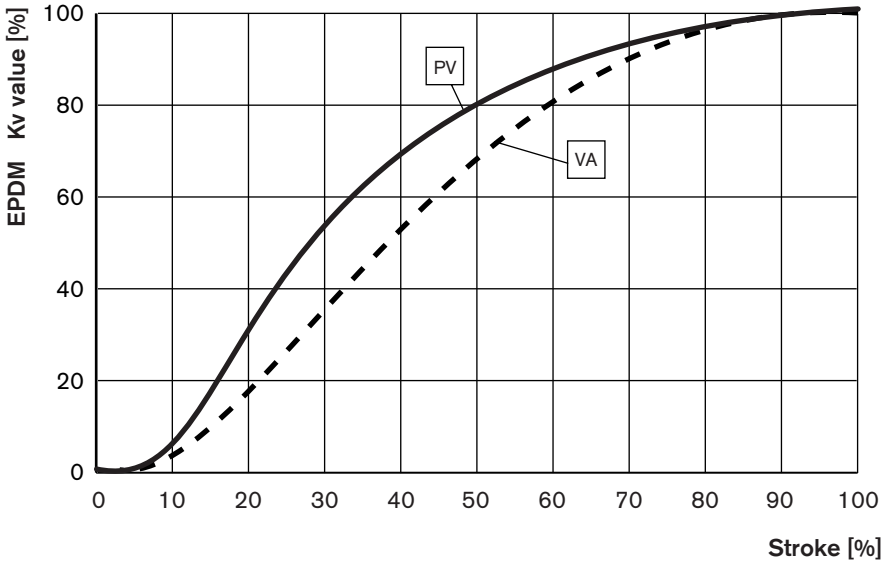
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN65

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	[%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	[%]
0	0	0	0	0
10	1.7	3	2.1	2
20	19	32	19	16
30	35	58	42	37
40	42	70	62	54
50	47	79	80	70
60	53	88	94	82
70	57	94	103	90
80	59	98	111	97
90	60	100	113	99
100	60	100	114	100

Actuator size K-175mm - DN65



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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bürkert

Flow-rate curves for diaphragm valves

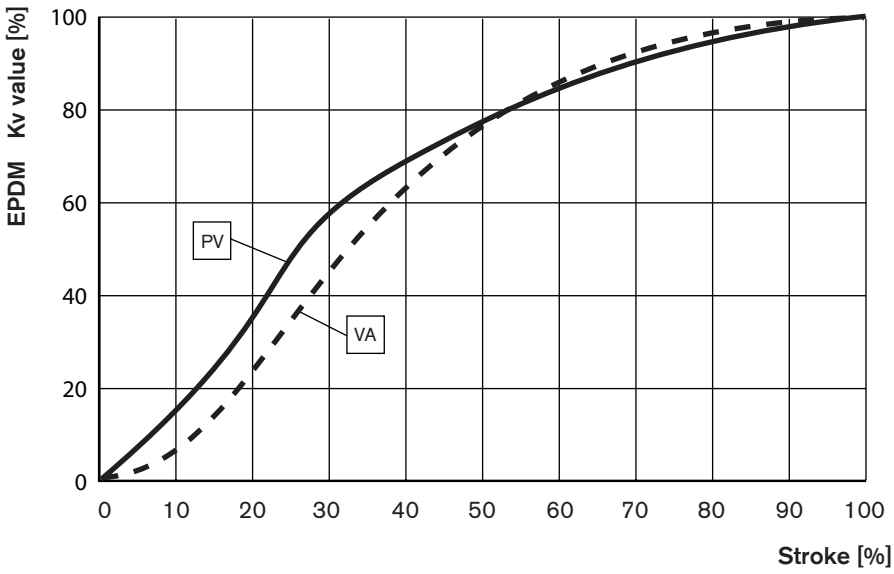
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN80

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value [m³/h]	[%]	Cold-formed pipe valve body (VA–ISO) EPDM Kv value [m³/h]	[%]
0	0	0	0	0
10	13	13	8.3	5
20	37	35	42	25
30	60	58	77	47
40	72	69	103	62
50	80	76	126	76
60	86	84	145	88
70	94	89	154	93
80	99	95	162	98
90	104	99	165	100
100	105	100	165	100

Actuator size K-175mm oder L-225mm - DN80



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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bürkert

Flow-rate curves for diaphragm valves

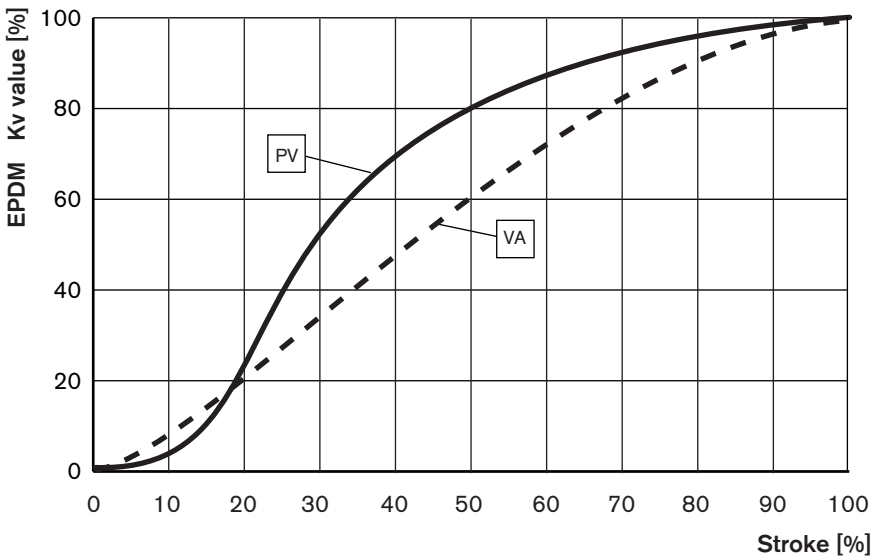
Type 2730 plastic, 2731 forged, 2731 cast, 2731 GP cold formed pipe valve body

DN100

Flow-rate value

Stroke [%]	PVC body (PV) EPDM Kv value		Cold-formed pipe valve body (VA–ISO) EPDM Kv value	
	[m³/h]	[%]	[m³/h]	[%]
0	0	0	0	0
10	6	4	21	8
20	37	24	52	20
30	82	53	88	34
40	106	69	124	48
50	123	80	156	60
60	134	87	186	72
70	142	92	214	83
80	146	95	235	91
90	151	98	250	97
100	154	100	258	100

Actuator size L-225mm - DN100



Note: These characteristics were determined with a pressure of 3 bar at the valve entrance and a pressure drop of 1 bar. With other operating conditions the curves can deviate from the stated values. Therefore the curves serve only as guideline for the rating of regulating valves.

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Company	Contact person
Customer No	Department
Address	Tel./Fax
Postcode/Town	E-mail

■ = mandatory fields to fill out **Quantity** **Required delivery date**

Operating data

Site of control				
Measuring and control task				
Pipeline	DN		PN	
Pipe material				
■ **Process medium**				
■ **Type of media**	☐ Liquid ☐ Steam ☐ Gas			
	Min	Standard	Max	unit
■ **Flow rate (Q, Q_N, W)** [1]				
■ **Temperature at valve inlet T1**				
■ **Absolute pressure at valve inlet P1**				
■ **Absolute pressure at valve outlet P2**				
Steam pressure Pv				
Kinematic viscosity (ν)		mm^2/s or cSt		
Dynamic viscosity (η)		mPa.s or cP		
Standard density		Kg/m^3		
Max. sound level accepted		DB (A)		

[1] standard unit
Liquid Q = m^3/h; Steam W = Kg/h; Gas Q_N = Nm^3/h

Valve features

Control valve type	☐ Globe	☐ Angle seat	☐ Diaphragm	☐ Ball Valve	☐ Butterfly	☐ Other
Body material	☐ Stainless steel		☐ PVC	☐ PP	☐ PVDF	☐ Other
Surface finish[2]		internal			external	
Seat sealing material	☐ Metal	☐ PTFE	☐ EPDM[2]	☐ FPM[2]		
Nominal pressure	PN					
Nominal size	DN					
Type of connection	☐ Flange	☐ Socket union	☐ Welded	☐ Int. thread	☐ Ext. thread	☐ Tri-Clamp®
Standard connection	☐ ISO	☐ DIN	☐ ANSI	☐ JIS	☐ Other	
Function	☐ NC	☐ NO	☐ Double-acting			
Pilot pressure		min.			max.	

[2] Only diaphragm valve

Positioner / Controller

☐ **Type 1067** - 3 wire	☐ **Type 8630**- 3 wire	☐ **Type 8635**- 2 wire
☐ **Valve mounted** ☐ **Remote version**		☐ **Standard** ☐ **EEx ia**
Power supply 24 VDC	**Power supply** 24 VDC	**Power supply** 24 VDC via setpoint or BUS
Communication Setpoint/output analog signal	**Communication** Setpoint/output analog signal or via BUS ☐ Profibus DP ☐ Device Net	**Communication** Setpoint/output analog signal or via BUS ☐ Profibus PA ☐ Hart
☐ **Positioner version** Input 0/4 - 20 mA / 0-10 V Output ☐ 4 - 20 mA or ☐ Binary	☐ **Positioner version** Input 0/4 - 20 mA / 0-5/10 V Output ☐ 4 - 20 mA or/and ☐ Binary	☐ **Positioner version** Input 4 - 20 mA Output ☐ 4 - 20 mA or/and ☐ Binary
☐ **PID Controller version** [3] Input measuring signal 4 - 20 mA	☐ **PID Controller version** [3] Input measuring signal 4 - 20 mA / Pt100 / Frequency	☐ **PID Controller version** [3] Input measuring signal 4 - 20 mA
	Inductive proximity switch ☐ 1 ☐ 2	**Inductive proximity switch** ☐ 1 ☐ 2

3) same setpoint for Input and Output signal as for Positioner version

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