

PICV PN16/PN25 with flanged connections

PN16: VPF43../VPF44.., PN25: VPF53../VPF54..



VPF44../VPF54..

VPF43../VPF53..

Pressure Independent Control Valves (PICV)

- With integrated pressure differential controller
- Valve body made of gray cast iron GJL-250 or nodular cast iron GJS-400
- Available in the range from DN 50 to 200
- Volumetric flow 15 to 280 m³/h nominal, with presetting
- Equipped with pressure test points P/T
- Can be equipped with SAX..P., SAV..P.. or SQV..P.. electromotoric actuators

Flow rate

Volumetric flow/dial presetting

Tables to determine the dial setting for a desired volumetric flow.

$\Delta p_{\min}$ [kPa] based on volumetric flow; interpolate missing values.

	Presetting range linear to VDI/VDE 2173
-	Presetting range not permitted

Standard flow rate

VPF44.50F15/VPF54.50F15, 15 m³/h nominal																					
ṽ [m³/h]	-	-	-	3.7	4.2	4.9	5.6	6.3	7.0	7.7	8.4	9.2	10.0	11.0	11.9	12.6	13.2	13.5	13.8	14.1	14.3
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max
Δp _{min} [kPa]				13	14	15	16	16	17	18	18	19	20	21	21	22	23	23	24	25	25
Kvs [m³/h]				11	13	14	16	18	20	23	25	27	30	33	37	36	36	36	36	39	41

VPF44.65F25/VPF54.65F25, 25 m³/h nominal																					
Ṡ [m³/h]	-	-	-	4.5	5.3	6.2	7.1	7.9	8.7	9.9	11.1	12.5	13.8	15.3	16.7	17.9	19.1	20.4	21.6	23.0	24.4
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				28	29	29	29	29	30	30	30	30	31	31	31	31	32	32	32	32	32
Kvs [m³/h]				14	16	19	21	24	26	30	33	36	38	42	45	49	53	55	56	58	59

VPF44.80F35/VPF54.80F35, 35 m³/h nominal																					
Ṡ [m³/h]	-	-	-	6.8	8.4	9.6	10.7	12.2	13.7	15.5	17.3	19.4	21.4	23.3	25.1	27.2	29.3	31.2	33.2	34.5	35.7
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				18	19	19	19	19	20	20	20	20	21	21	21	21	22	22	22	22	22
Kvs [m³/h]				19	23	25	30	32	38	41	48	51	56	60	63	69	75	79	84	85	85

VPF44.100F70/VPF54.100F70, 70 m³/h nominal																					
Ṡ [m³/h]	-	-	-	12.2	14.8	17.3	19.8	22.5	25.2	29.1	33.0	37.1	41.2	46.2	51.1	56.3	61.5	64.3	67.2	68.4	69.6
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				18	19	20	21	22	23	24	25	26	26	27	28	29	30	31	32	33	33
Kvs [m³/h]				35	42	49	55	63	71	80	90	99	106	116	126	133	139	141	143	150	158

VPF44.125F110/VPF54.125F110, 110 m³/h nominal																					
ṽ [m³/h]	-	-	-	15	19	22	26	31	36	40	45	52	57	65	73	83	89	96	103	109	112
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max
Δp _{min} [kPa]				20	20	22	22	23	24	24	25	25	26	26	26	28	28	28	28	29	30
Kvs [m³/h]				41	51	59	73	86	99	112	127	139	157	170	180	190	197	206	212	215	217

VPF44.150F150/VPF54.150F150, 150 m³/h nominal																					
ṡ [m³/h]	-	-	-	19	23	28	33	39	45	51	58	66	75	84	94	104	111	120	129	139	150
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max
Δp _{min} [kPa]				17	17	18	18	19	20	20	22	22	23	23	24	25	26	28	28	29	30
Kvs [m³/h]				55	68	79	98	115	132	150	168	188	208	229	243	261	271	287	302	316	326

High flow rate

VPF44.50F25/VPF54.50F25, 25 m³/h nominal																						
ṽ [m³/h]	-	-	-	5.7	6.9	7.8	8.8	9.9	11.1	12.3	13.5	15.0	16.5	18.1	19.7	21.0	22.2	22.9	23.5	24.0	24.6	
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.	
Δp _{min} [kPa]				30	32	33	35	36	38	39	41	42	44	45	47	48	50	51	53	54	55	
Kvs [m³/h]				11	13	15	16	19	21	23	25	28	31	34	38	38	38	39	39	41	44	

VPF44.65F35/VPF54.65F35, 35 m³/h nominal																						
ṽ [m³/h]	-	-	-	6.4	7.8	8.8	10.1	11.2	12.3	14.2	16.1	18.1	20.2	22.4	24.6	26.5	28.5	30.6	32.7	35.2	37.7	
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.	
Δp _{min} [kPa]				30	32	33	34	35	36	38	39	40	41	42	43	45	46	47	48	49	50	
Kvs [m³/h]				13	16	18	21	24	26	30	33	36	38	42	46	50	54	54	55	60	65	

VPF44.80F45/VPF54.80F45, 45 m³/h nominal																						
ṡ [m³/h]	-	-	-	8.5	10.5	12.2	13.9	16.0	18.0	20.2	22.4	24.7	27.0	30.2	33.4	36.5	39.6	42.5	45.4	47.2	49.0	
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.	
Δp _{min} [kPa]				22	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	
Kvs [m³/h]				18	22	25	29	33	38	42	46	50	53	59	64	69	74	79	84	87	90	

VPF44.100F90/VPF54.100F90, 90 m³/h nominal																					
ṡ [m³/h]	-	-	-	14.8	18.2	21.3	24.4	27.6	30.8	35.4	39.9	43.7	47.4	55.7	64.0	70.8	77.5	82.3	87.1	89.0	90.9
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				20	22	23	25	26	28	29	31	32	34	35	37	38	40	41	43	44	45
Kvs [m³/h]				34	41	48	55	63	70	79	89	97	104	115	125	132	138	140	142	149	155

VPF44.125F135/VPF54.125F135, 135 m³/h nominal																					
ṡ [m³/h]	-	-	-	18	23	25	30	36	41	45	51	59	65	74	85	94	100	109	120	126	132
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				20	22	24	25	26	28	29	31	32	34	35	37	38	40	42	42	43	45
Kvs [m³/h]				44	55	61	73	86	99	112	127	143	156	167	182	193	201	210	215	218	222

VPF44.150F200/VPF54.150F200, 200 m³/h nominal																					
ṡ [m³/h]	-	-	-	26	34	38	45	53	63	69	79	91	102	116	131	143	153	167	183	194	208
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				20	20	22	24	24	26	28	32	36	36	38	40	42	44	45	48	48	50
Kvs [m³/h]				57	74	84	102	121	137	155	177	194	208	229	245	266	278	294	310	321	327

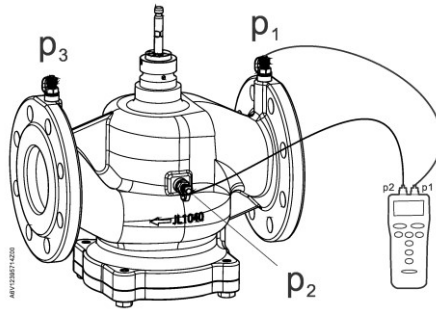
Notes: When valve installed with stem horizontally, the flow rate will reduce by about 5 %.

Volumetric flow calculation

Only possible with VPF44../VPF54..valves with pressure p_1 and p_2 available.

Steps

1. Measure p_1 and p_2



Example:

$\Delta p_{1-2} = 16 \text{ kPa}$

2. Check k_{vs}

Get the k_{vs} value from above volumetric flow/dial presetting table (Refer to "Flow rate" for checking k_{vs} value)

Example:

VPF44.65F25, Dial presetting = 3.6

VPF44.65F25/VPF54.65F25, 25 m³/h nominal																					
Ṡ [m³/h]	-	-	-	4.5	5.3	6.2	7.1	7.9	8.7	9.9	11.1	12.5	13.8	15.3	16.7	17.9	19.1	20.4	21.6	23.0	24.4
Dial	Min.	0.2	0.4	0.6	0.8	1	1.2	1.4	1.6	1.8	2	2.2	2.4	2.6	2.8	3	3.2	3.4	3.6	3.8	Max.
Δp _{min} [kPa]				28	29	29	29	29	30	30	30	30	31	31	31	31	32	32	32	32	32
Kvs [m³/h]				14	16	19	21	24	26	30	33	36	38	42	45	49	53	55	56	58	59

$k_{vs} = 55.7 \text{ m}^3/\text{h}$

3. Calculate volumetric flow

$$V = 0.1 \times k_{vs} \times \sqrt{\Delta p_{1-2}}$$

V = Volumetric flow m^3/h

k_{vs} = Nominal flow m^3/h

Δp_{1-2} = pressure difference between p_1 (inlet port A) and p_2 (outlet port of control valve)

Example:

$$V = 0.1 \times 55.7 \times \sqrt{16} = 22.3 \text{ m}^3/\text{h}$$

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