



Electronic Expansion Valve

VPF series electronic expansion valves are designed for commercial and industrial applications. Typical VPF applications are air conditioning and refrigeration systems or heat pumps. The valve controls the automatic adjustment of refrigerant flow rate and makes the system work under optimized conditions for the purpose of fast cooling or heating, precise temperature control and energy saving. The valve can also be used e.g. for suction line pressure controls. These valves provide bidirectional operation to control the refrigerant flow rate in heating or cooling mode.



FEATURES

- ENERGY SAVING THANKS TO VERY PRECISE CAPACITY CONTROL: UP TO 3800 STEPS
- INTERNAL TIGHTNESS LIKE A SOLENOID VALVE
- OPTIMIZED FLOW PATH DESIGN FOR NOISE REDUCTION
- APPLICABLE FOR REVERSIBLE SYSTEMS LIKE HEAT PUMPS: BIDIRECTIONAL FLOW
- CORROSION RESISTANT DESIGN, LONG LIFETIME, HIGH RELIABILITY
- COMPACT DESIGN
- MODELS WITH INTEGRATED SIGHT GLASS ARE AVAILABLE

GENERAL SPECIFICATIONS

- Applicable for all common HFC, HFO refrigerants such as: R134a, R404A, R407A/F, R407C, R410A, R448A, R449A, R450A, R452A, R513A, R507A ¹⁾
- Cooling capacity: 54 to 1495 kW (R134a nominal capacity)
- Up to 3800 steps (full stroke); Valve starts opening with
 - VPF12.5, VPF25: 110 steps
 - VPH50...VPF400: 165 steps
- Medium temperature TS min./max.: -40°C / +90°C
- Ambient temperature min./max.: -40°C / +60°C
- Relative humidity: 0 to 100% RH
- Installation position:
 - Major flow direction from connection A to B
 - Installation in horizontal and vertical pipes possible
 - Installation position in horizontal lines with stepper motor preferably upwards
- Certifications: EAC and PED Declaration

Note:

1) Flammable refrigerants like R32, R290, R1234ze(E), R1234yf on request





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ELECTRICAL PARAMETERS

- Rated voltage: 12V DC, rectangular wave
- Actuating mode: 2-phase 4-step permanent magnet stepping motor
- Excitation mode: 2 phase excitation, bi-pole actuation
- Excitation rate:
 - 150 pps (Maximum for voltage drive)
 - 300 pps (Maximum for current drive)
- Motion time from completely open to completely closed (voltage drive/current drive):
 - VPF12.5...VPF50: 17,3s / 8,7s
 - VPF100: 23,3s / 11,7s
 - VPF150...VPF400: 25,3s / 12,7s

- Nominal motor current*:
 - Voltage drive: 124mA RMS per phase in control operation
 - Current drive: 100mA RMS per phase in control operation
- Peak motor current*:
 - Voltage drive: 238mA RMS per phase in control operation
 - Current drive: 140mA RMS per phase in control operation
- Coil resistance: $52 \pm 5,2\Omega$ /coil (20°C)
- Insulation class of coil: E
- Protection class: IP 67

*Specified motor currents are based on max. excitation rates

MODEL DESIGNATIONS

Position Number	Model Designation Legend	
1	Product Code	Product Series
	VPF	Electronic expansion valve with bi-pole stepper motor
2	Capacity Size	Description
	12.5	Digits for valve capacity size
	25	
	50	
	100	
	150	
	250	
400		
3	Connections Type	Description
	H	Solder
4	Valve Body	Description
	0...4	With sight glass
	5...9	Without sight glass
5	Pipe Connection	Description
	1...9	Digit for pipe connection diameter



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MODEL DESIGNATION EXAMPLE

Position Number					According to Model Designation Legend
1	2	3	4	5	
VPF	100	H	0	3	Electronic expansion valve
VPF	100	H	0	3	Digits for capacity size
VPF	100	H	0	3	Connection: Solder
VPF	100	H	0	3	Valve body: With sight glass
VPF	100	H	0	3	Digit for pipe connection diameter

TECHNICAL PARAMETERS

Model	Part Number ¹⁾	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat ø [mm]	Kv ²⁾ [m ³ /h]	MWP PS [MPa]	MOPD Direct A->B [MPa]	MOPD Rev. B->A [MPa]
				[inch]	[mm]					
VPF12.5H52	10130349502	straight	-	5/8 x 5/8	16 x 16	7,5	0,8			
VPF12.5H53	10130350202			7/8 x 7/8	22 x 22					
VPF12.5H58	10130342102	L-shape	-	5/8 x 5/8	16 x 16					
VPF12.5H59	10130349802			7/8 x 7/8	22 x 22					
VPF25H52	10130349202	straight	-	5/8 x 5/8	16 x 16	7,5	1,4			
VPF25H53	10130356202			7/8 x 7/8	22 x 22					
VPF25H58	10130343202	L-shape	-	5/8 x 5/8	16 x 16					
VPF25H59	10130356102			7/8 x 7/8	22 x 22					
VPF50H51	10130337702	straight	-	7/8 x 7/8	22 x 22	11,4	2,3	5,0	3,9	3,9
VPF50H52	10130347002			7/8 x 1 1/8	-					
VPF50H53	10130356502			1 1/8 x 1 1/8	-					
VPF50H54	10130342302			1 1/8 x 1 3/8	-					
VPF50H56	10130347102			-	22 x 28					
VPF50H57	10130347202			-	28 x 28					
VPF50H58	10130342402			-	28 x 35					
VPF50H01	10130341102			straight	with sight glass					
VPF50H02	10130346702	7/8 x 1 1/8	-							
VPF50H03	10130344802	1 1/8 x 1 1/8	-							
VPF50H04	10130342802	1 1/8 x 1 3/8	-							
VPF50H06	10130346802	-	22 x 28							
VPF50H07	10130346902	-	28 x 28							
VPF50H08	10130342502	-	28 x 35							



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TECHNICAL PARAMETERS

Model	Part Number ¹⁾	Valve Shape	Sight Glass	Connections ød ODF Inlet A x Outlet B		Seat ø [mm]	Kv ²⁾ [m ³ /h]	MWP PS [MPa]	MOPD Direct A->B [MPa]	MOPD Rev. B->A [MPa]
				[inch]	[mm]					
VPF100H51	10130347502	straight	-	1 1/8 x 1 1/8	-	14,4	4,0	5,0	3,9	3,9
VPF100H52	10130347602			1 1/8 x 1 3/8	-					
VPF100H53	10130342602			1 3/8 x 1 3/8	35 x 35					
VPF100H54	10130347702			-	28 x 28					
VPF100H55	10130347802			-	28 x 35					
VPF100H01	10130356802	straight	with sight glass	1 1/8 x 1 1/8	-	14,8	7,7	4,5	3,5	3,5
VPF100H02	10130347302			1 1/8 x 1 3/8	-					
VPF100H03	10130356602			1 3/8 x 1 3/8	35 x 35					
VPF100H05	10130347402			-	28 x 35					
VPF100H06	10130343102			-	28 x 28					
VPF150H01	10130357002	L-shape	with sight glass	1 1/8 x 1 3/8	-	25	11,9	4,5	3,5	3,5
VPF150H02	10130356702			1 5/8 x 1 5/8	-					
VPF250H01	10130348002	straight	with sight glass	1 1/8 x 1 1/8	-	33	17,0	4,5	3,5	3,5
VPF250H02	10130342902			1 3/8 x 1 3/8	35 x 35					
VPF250H03	10130356402			1 5/8 x 1 5/8	-					
VPF250H04	10130348102			-	28 x 28					
VPF250H05	10130341202			-	42 x 42					
VPF400H01	10130344902	straight	with sight glass	1 5/8 x 1 5/8	-	33	17,0	4,5	3,5	3,5
VPF400H02	10130349002			-	42 x 42					
VPF400H03	10130343302			2 1/8 x 2 1/8	54 x 54					

Note:

- 1) Extent of delivery: valve body (reference number for connection cable see in the following pages)
 2) Kv values valid for the flow direction inlet A to outlet B





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COOLING CAPACITIES

Model	Steps Completely Open	Nominal Cooling Capacity ¹⁾ [kW]							
		R22	R134a	R407A ²⁾	R407C ²⁾	R407F ²⁾	R404A ²⁾ R507A	R410A ²⁾	R1234ze ²⁾
VPF12.5	2600	69	54	67	71	76	50	82	43
VPF25	2600	147	116	144	152	162	108	176	92
VPF50	2600	281	221	275	290	310	206	336	175
VPF100	3500	406	319	397	418	447	297	484	253
VPF150	3800	730	574	714	752	804	534	871	455
VPF250	3800	1133	892	1108	1168	1249	830	1353	706
VPF400	3800	1900	1495	1857	1958	2094	1392	2269	1183

Model	Steps Completely Open	Nominal Cooling Capacity ¹⁾ [USRT]							
		R22	R134a	R407A ²⁾	R407C ²⁾	R407F ²⁾	R404A ²⁾ R507A	R410A ²⁾	R1234ze ²⁾
VPF12.5	2600	20	15	19	20	22	14	23	12
VPF25	2600	42	33	41	43	46	31	50	26
VPF50	2600	80	63	78	82	88	59	95	50
VPF100	3500	115	91	113	119	127	85	138	72
VPF150	3800	207	163	203	214	229	152	248	129
VPF250	3800	322	254	315	332	355	236	385	201
VPF400	3800	540	425	528	557	595	396	645	336

Note:

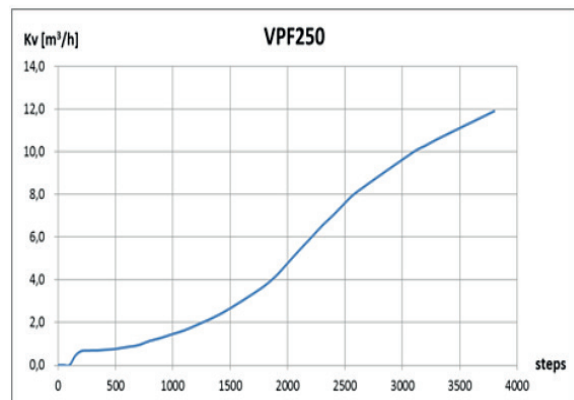
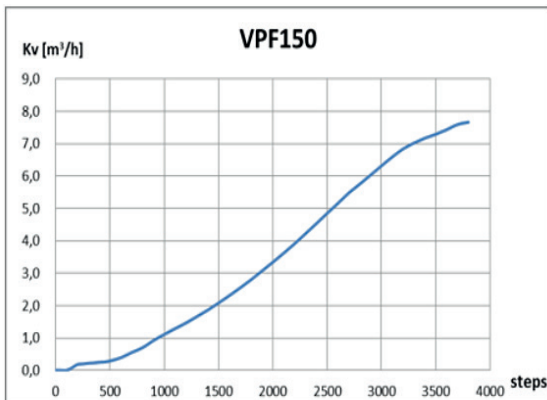
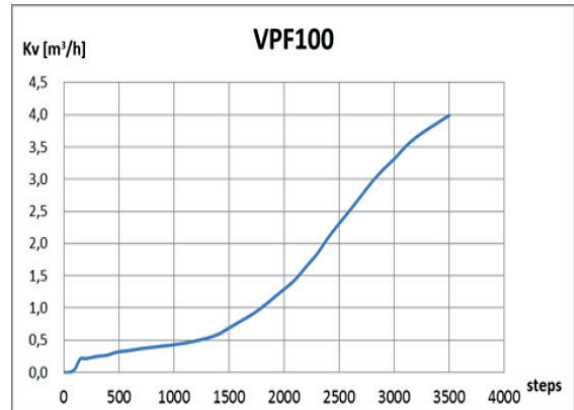
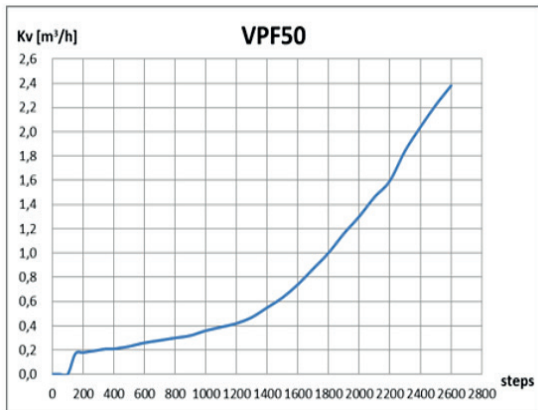
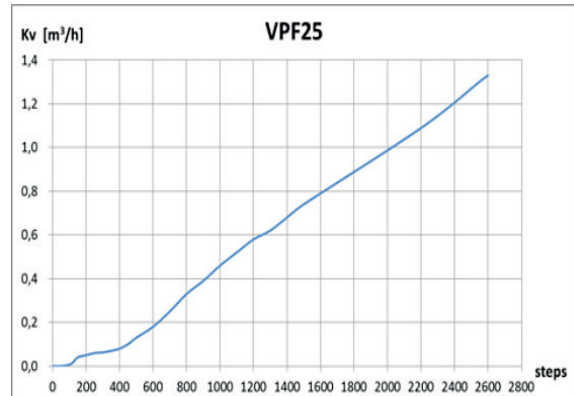
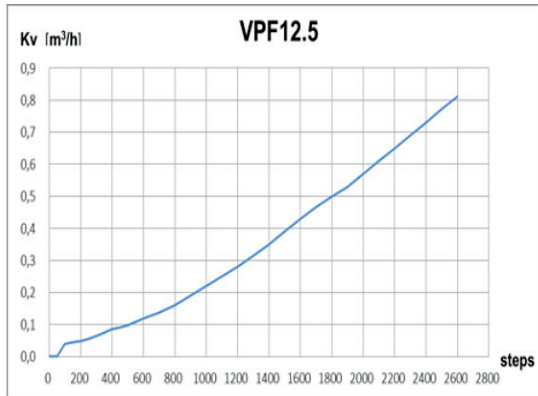
- 1) Nominal working conditions: Condensing temperature 38°C; evaporating temperature +4,4°C; liquid temperature 37°C
 2) Data based on dew point conditions





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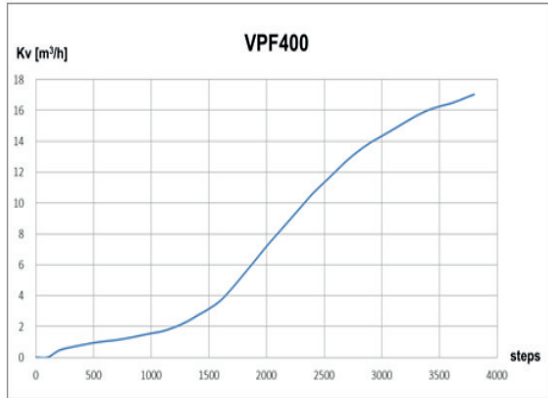
FLOW CHARACTERISTIC





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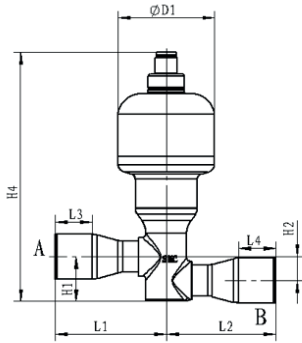
FLOW CHARACTERISTIC



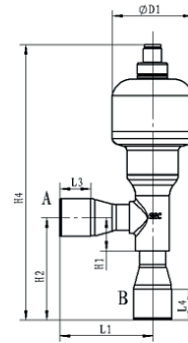


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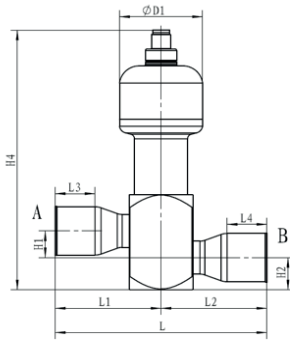
DIMENSIONS



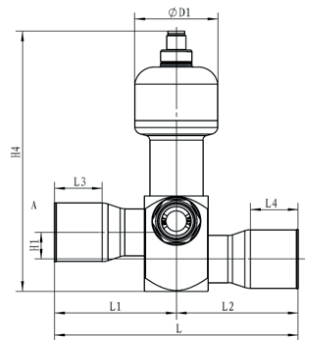
Valve Body - Straight: VPF12.5, VPF25



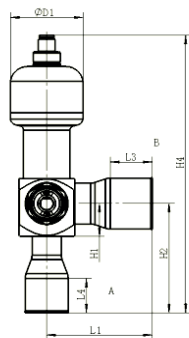
Valve Body - L-Shape: VPF12.5, VPF25



**Valve Body - Without sight glass: VPF50,
VPF100**



**Valve Body - With sight glass: VPF50,
VPF100**



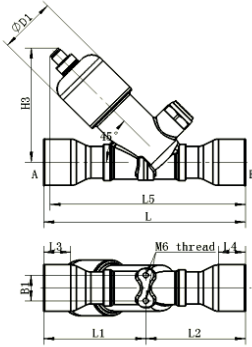
Valve Body - With sight glass: VPF150



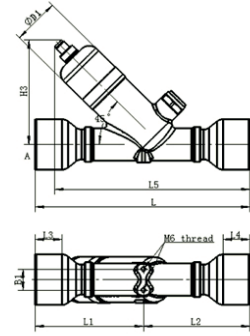


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DIMENSIONS



Valve Body - With sight glass: VPF250



Valve Body - With sight glass: VPF400



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DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF12.5H52	10130349502	120	60	60	13	13	25,6	13	136	52
VPF12.5H53	10130350202	120	60	60	20	20	25,6	13	136	52
VPF12.5H58	10130342102	-	60	-	13	13	22,5	66,5	178	52
VPF12.5H59	10130349802	-	60	-	20	20	22,5	66,5	178	52
VPF25H52	10130349202	120	60	60	13	13	25,6	13	136	52
VPF25H53	10130356202	120	60	60	20	20	25,6	13	136	52
VPF25H58	10130343202	-	60	-	13	13	22,5	66,5	178	52
VPF25H59	10130356102	-	60	-	20	20	22,5	66,5	178	52
VPF50H51	10130337702	112	56	56	20	20	17	20,5	166	52
VPF50H52	10130347002	122	56	66	20	25	17	20,5	166	52
VPF50H53	10130356502	132	66	66	25	25	17	20,5	166	52
VPF50H54	10130342302	142	66	76	25	30	17	20,5	166	52
VPF50H56	10130347102	122	56	66	20	25	17	20,5	166	52
VPF50H57	10130347202	132	66	66	25	25	17	20,5	166	52
VPF50H58	10130342402	142	66	76	25	30	17	20,5	166	52
VPF50H01	10130341102	112	56	56	20	20	17	20,5	166	52
VPF50H02	10130346702	122	56	66	20	25	17	20,5	166	52
VPF50H03	10130344802	132	66	66	25	25	17	20,5	166	52
VPF50H04	10130342802	142	66	76	25	30	17	20,5	166	52
VPF50H06	10130346802	122	56	66	20	25	17	20,5	166	52
VPF50H07	10130346902	132	66	66	25	25	17	20,5	166	52
VPF50H08	10130342502	142	66	76	25	30	17	20,5	166	52
VPF100H51	10130347502	132	66	66	25	25	17	20,5	166	52
VPF100H52	10130347602	142	66	76	25	30	17	20,5	166	52
VPF100H53	10130342602	152	76	76	30	30	17	20,5	166	52
VPF100H54	10130347702	132	66	66	25	25	17	20,5	166	52
VPF100H55	10130347802	142	66	76	25	30	17	20,5	166	52
VPF100H01	10130356802	132	66	66	25	25	17	20,5	166	52
VPF100H02	10130347302	142	66	76	25	30	17	20,5	166	52
VPF100H03	10130356602	152	76	76	30	30	17	20,5	166	52
VPF100H05	10130347402	142	66	76	25	30	17	20,5	166	52



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DIMENSIONS

Model	Part Number	Dimensions [mm]								
		L	L1	L2	L3	L4	H1	H2	H4	øD1
VPF100H06	10130343102	132	66	66	25	25	17	20,5	166	52
VPF12.5H53	10130350202	-	76	-	30	25	24	70	195	52
VPF12.5H58	10130342102	-	76	-	25	25	33,5	89	212	52
VPF250H01	10130348002	166	84	82	25	25	170	107	24	52
VPF250H02	10130342902	186	94	92	30	30	180	107	24	52
VPF250H03	10130356402	186	94	92	25	25	180	107	24	52
VPF250H04	10130348102	166	84	82	25	25	170	107	24	52
VPF250H05	10130341202	186	94	92	25	25	180	107	24	52
VPF400H01	10130344902	203	104	99	30	30	198	118	24	52
VPF400H02	10130349002	203	104	99	30	30	198	118	24	52
VPF400H03	10130343302	240	121	119	30	30	218	118	24	52

ACCESSORIES

Connection Cable

Model	Part Number ^{1) 2)}	Cable Length [m]
Y02A	20130669202	2
Y08A	20130661202	8

Note:

- 1) Extent of delivery: cable, connecting valve plug and cable sleeves for each single wire
- 2) Cable-VPF valve connection in IP67

