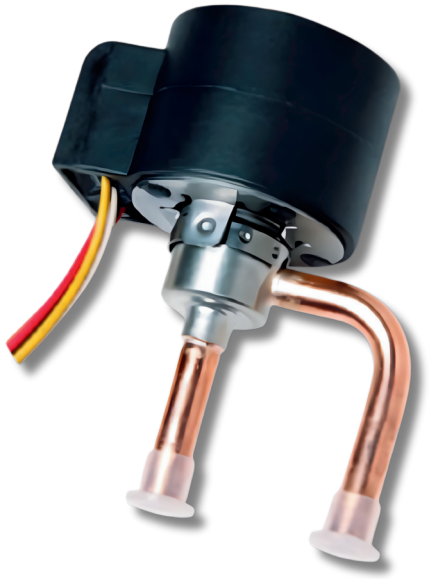
RVEV

ELECTRONIC EXPANSION VALVE
RPF-AA/AB SERIES

INTRODUCTION

The RPF-AA/AB series electronic expansion valves are mainly used in refrigeration, air conditioning, and heat pump systems. They automatically regulate refrigerant flow to ensure optimal system operation, enabling rapid cooling or heating, precise temperature control, and energy savings. They can also be used for pressure control in suction lines and other applications.



FEATURES

- Smaller installation space: low height, compact size, lightweight
- Large valve chamber design for lower noise
- Fast response and energy-saving operation
- Bi-directional flow, suitable for reversible systems such as heat pumps
- Excellent dry-friction resistance, suitable for oil-free systems

SPECIFICATIONS

- Applicable refrigerants: R22, R410A, R407C, R32, R134A, R404A, R507C
- Capacity range: 2.7–96 kW (nominal capacity for R22)
- Medium temperature: −30°C to +70°C (duty cycle ≤ 50%)
- Ambient temperature: −30°C to +60°C (duty cycle ≤ 50%)
- Relative humidity: ≤ 95% RH
- Full-open pulses: 500; valve opening pulses: 32 ± 20
- Maximum working pressure: 4.3 MPa; maximum working pressure differential: 3.5 MPa
- Installation orientation:
  - Coil facing upward; valve rotor centerline vertical to the horizontal plane, deviation within ±15°
  - Inlet pipe horizontal, outlet pipe facing downward

ELECTRICAL PARAMETERS

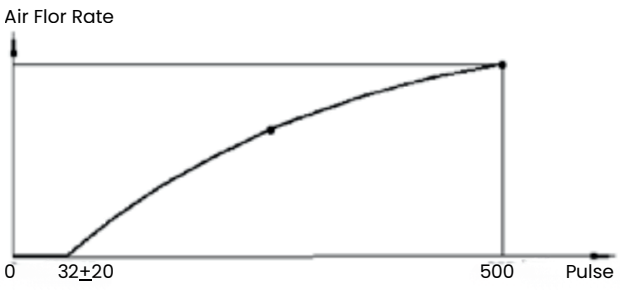
- Rated voltage: 12 VDC (±10%), square wave
- Actuation type: 4-phase, 8-step permanent magnet stepper motor, direct-acting
- Excitation method: 1–2 phase excitation, unipolar drive
- Excitation speed: 30–90 pps
- End excitation hold time: 0.1–1.0 s
- Minimum actuation time from fully open to fully closed: 5.8 s (at 90 pps)
- Coil current: 260 mA per phase (at 20°C)
- Coil resistance: 46 ± 3.7 Ω per phase (at 20°C)
- Coil insulation class: Class E
- Protection rating: IP67

PERFORMANCE PARAMETERS

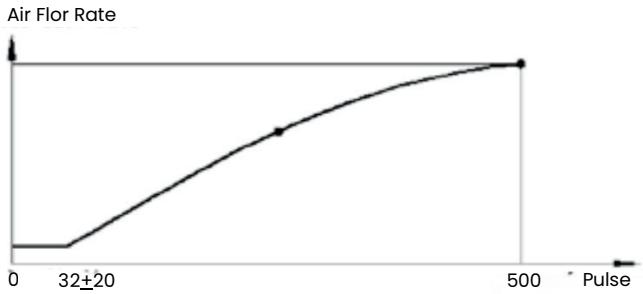
Product Model	Nominal Capacity (kW)							Kv	MOP	MOPD	ROD
	R22	R407C	R410A	R32	R134A	R404A/ R507A	R290	(m^3/h)	(MPa)	(MPa)	(MPa)
RPF(AA)0.6	1	1	1.1	1.7	0.8	0.7	1	0.009	4.3	3.5	≥2.5
RPF(AA)0.8	1.7	1.8	2	2.9	1.3	1.2	1.8	0.016			
RPF(AA)1.0	2.7	2.8	3.1	4.6	2.1	1.8	2.8	0.025			
RPF(AA)1.3	5.3	5.7	6.2	9.2	4.2	3.6	5.6	0.05			
RPF(AA)1.6	9	9.5	10.5	15.5	7	6.2	9.4	0.08			
RPF(AA)1.8	10.6	11.3	12.5	18.4	8.3	7.4	11.1	0.1			
RPF(AA)2.0	13.2	14	15.4	22.8	10.3	9.2	13.7	0.16			
RPF(AA)2.2	14.2	15.1	16.6	24.5	11.1	9.9	14.8	0.2			
RPF(AA)2.4	16.7	17.7	19.5	28.8	13	11.6	17.4	0.23			
RPF(AA)3.0	27.6	29.4	32.3	47.7	21.6	19.4	28.8	0.39	4.3	3.5	≥1.5
RPF(AA)3.2	30.4	32.4	35.6	52.6	23.8	21.2	31.7	0.43			
RPF(AB)4.0	50.6	53.8	59.2	87.5	39.5	35.3	52.8	0.5			≥3.5
RPF(AB)4.5	67.7	72	79.2	117	52.9	47.6	70.6	0.7			
RPF(AB)5.5	78.2	80.6	91.5	135.5	61	54.7	81.7	0.9			
RPF(AB)6.5	95.6	98.4	111.8	164.8	74.5	66.9	99.4	1.1			

Rated working condition : condensation temperature CT =38°C; Evaporation temperature ET=5°C; Super cooling degree SC=0°C: The superheat degree SH=0°C

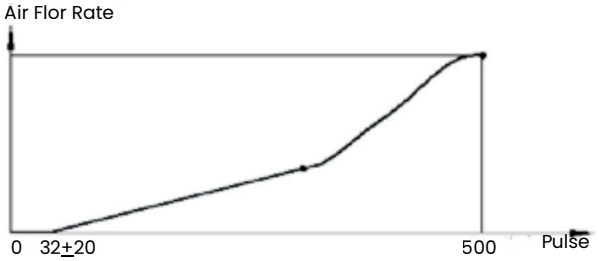
FLOW CHARACTERISTICS



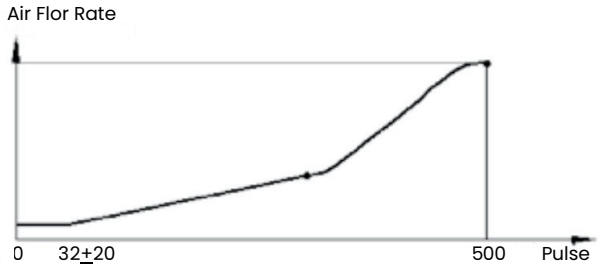
Fully closed, zero-flow, smooth-control type



Fully closed with leakage flow, smooth-control type

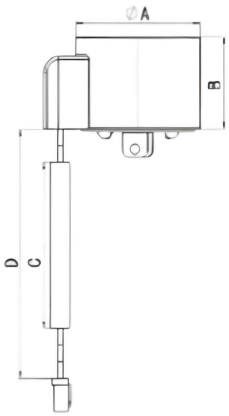


Fully closed, zero-flow, quick-opening type

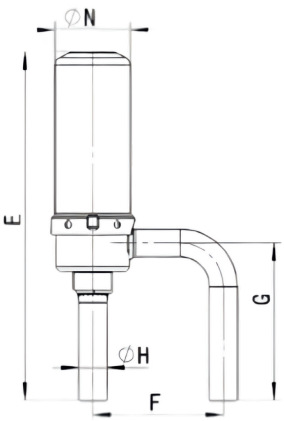


Fully closed with leakage flow, quick-opening type

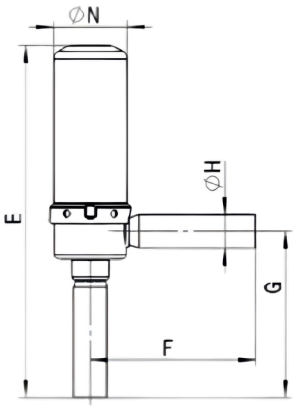
EXTERNAL DIMENSIONS



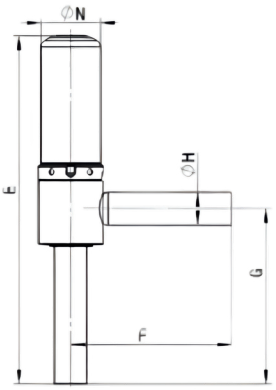
RBAA



RPF(AA)1.0 ~2.4



RPF(AA)3.0 ~3.2



RPF(AB)4.0 ~6.5

Coil Model	Suitable Valve Body Series	Size (mm)				Insulation Sleeve
		ΦA	B	C	D	
RBAA1200013	RPF(AA)1.0~3.2	37.5	27.9	600	700	XHP-5
	RPF(AB)4.0~4.5					
RBAA1200004	RPF(AA)1.0~3.2	37.5	27.9	900	1000	XHP-5
	RPF(AB)4.0~4.5					
RBAA1200007	RPF(AA)1.0-3.2	37.5	27.9	1400	1500	XHP-5
	RPF(AB)4.0~4.5					
RBAA1200002	RPF(AA)1.0~3.2	37.5	27.9	1900	2000	XHP-5
	RPF(AB)4.0~6.5					

Body Series	Suitable Valve Body Series	Size (mm)				
		E	G	F	ΦH	ΦN
RPF(AA) 1.0~2.4	RBAA	80	36	30	6.35	17.35
RPF(AA)3.0~3.2	RBAA	83	39	39	7.94	17.35
RPF(AB)4.0~4.5	RBAA	101	47	51	9.52	17.35
RPF(AB)5.5~6.5	RBAA	113	61	53	12.7	17.35

REFRIGERATION CAPACITY EXTENSION SHEET (R22)

Product Model	Condensing Temperature , CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AA)1.0	25	2.8	2.8	2.7	2.6	2.4	2.0
RPF(AA)1.3		5.6	5.6	5.4	5.2	4.7	3.9
RPF(AA)1.6		9.4	9.3	9.1	8.7	7.9	6.6
RPF(AA)1.8		11.1	11.1	10.9	10.3	9.4	7.8
RPF(AA)2.0		13.8	13.7	13.4	12.8	11.6	9.7
RPF(AA)2.2		14.8	14.7	14.4	13.7	12.5	10.4
RPF(AA)2.4		17.4	17.4	17.0	16.2	14.7	12.3
RPF(AA)3.0		28.9	28.8	28.1	26.8	24.4	20.3
RPF(AA)3.2		31.8	31.7	31.0	29.5	26.9	22.3
RPF(AB)4.0		52.9	52.7	51.6	49.1	44.7	37.2
RPF(AB)4.5		70.8	70.5	69.0	65.7	59.8	49.7
RPF(AA)1.0	35	2.9	2.9	2.9	2.8	2.7	2.4
RPF(AA)1.3		5.8	5.8	5.8	5.7	5.4	4.9
RPF(AA)1.6		9.8	9.8	9.8	9.5	9.0	8.2
RPF(AA)1.8		11.6	11.7	11.6	11.3	10.7	9.7
RPF(AA)2.0		14.4	14.5	14.4	14.0	13.3	12.0
RPF(AA)2.2		15.4	15.5	15.4	15.0	14.3	12.9
RPF(AA)2.4		18.2	18.3	18.2	17.7	16.8	15.2
RPF(AA)3.0		30.1	30.3	30.1	29.3	27.8	25.2
RPF(AA)3.2		33.1	33.4	33.2	32.3	30.7	27.8
RPF(AB)4.0		55.1	55.5	55.2	53.8	51.0	46.2
RPF(AB)4.5		73.8	74.3	73.8	72.0	68.2	61.8
RPF(AA)1.0	45	2.9	3.0	3.0	3.0	2.9	2.7
RPF(AA)1.3		5.9	6.0	6.0	6.0	5.8	5.5
RPF(AA)1.6		9.9	10.1	10.1	10.0	9.8	9.2
RPF(AA)1.8		11.8	12.0	12.0	11.9	11.6	10.9
RPF(AA)2.0		14.6	14.8	14.9	14.7	14.3	13.5
RPF(AA)2.2		15.7	15.9	16.0	15.8	15.4	14.5
RPF(AA)2.4		18.5	18.8	18.8	18.7	18.1	17.1
RPF(AA)3.0		30.5	31.0	31.2	30.9	30.0	28.3
RPF(AA)3.2		33.7	34.2	34.4	34.0	33.1	31.2
RPF(AB)4.0		56.0	56.9	57.2	56.6	55.0	52.0
RPF(AB)4.5		74.9	76.1	76.5	75.8	73.6	69.5
RPF(AA)1.0	55	2.9	3.0	3.0	3.0	3.0	2.9
RPF(AA)1.3		5.8	6.0	6.0	6.1	6.0	5.8
RPF(AA)1.6		9.8	10.0	10.2	10.2	10.1	9.8
RPF(AA)1.8		11.6	11.9	12.1	12.1	12.0	11.6
RPF(AA)2.0		14.4	14.7	14.9	15.0	14.8	14.3
RPF(AA)2.2		15.5	15.8	16.1	16.1	15.9	15.4
RPF(AA)2.4		18.2	18.7	18.9	19.0	18.8	18.2
RPF(AA)3.0		30.1	30.9	31.3	31.4	31.0	30.1
RPF(AA)3.2		33.2	34.0	34.5	34.6	34.2	33.1
RPF(AB)4.0		55.3	56.6	57.4	57.6	56.9	55.1
RPF(AB)4.5		73.9	75.7	76.8	77.0	76.1	73.7

REFRIGERATION CAPACITY EXTENSION SHEET (R410A)

Product Model	Condensing Temperature , CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AA)1.0	25	3.5	3.4	3.4	3.2	2.9	2.4
RPF(AA)1.3		6.9	6.9	6.7	6.4	5.8	4.8
RPF(AA)1.6		11.6	11.6	11.3	10.7	9.7	8.1
RPF(AA)1.8		13.8	13.8	13.4	12.7	11.6	9.6
RPF(AA)2.0		17.1	17.0	16.6	15.8	14.3	11.8
RPF(AA)2.2		18.4	18.3	17.8	16.9	15.4	12.7
RPF(AA)2.4		21.6	21.5	21.0	20.0	18.1	15.0
RPF(AA)3.0		35.8	35.6	34.8	33.0	30.0	24.8
RPF(AA)3.2		39.5	39.3	38.3	36.4	33.0	27.3
RPF(AB)4.0		65.6	65.3	63.8	60.6	54.9	45.5
RPF(AB)4.5		87.8	87.4	85.3	81.0	73.5	60.8
RPF(AA)1.0	35	3.5	3.5	3.5	3.4	3.2	2.9
RPF(AA)1.3		7.0	7.0	6.9	6.8	6.4	5.8
RPF(AA)1.6		11.7	11.8	11.7	11.4	10.7	9.7
RPF(AA)1.8		13.9	14.0	13.9	13.5	12.8	11.5
RPF(AA)2.0		17.2	17.3	17.2	16.7	15.8	14.2
RPF(AA)2.2		18.5	18.6	18.4	17.9	17.0	15.3
RPF(AA)2.4		21.8	21.9	21.7	21.1	20.0	18.0
RPF(AA)3.0		36.0	36.3	36.0	35.0	33.1	29.8
RPF(AA)3.2		39.7	39.9	39.6	38.5	36.4	32.8
RPF(AB)4.0		66.0	66.5	65.9	64.1	60.6	54.6
RPF(AB)4.5		88.3	88.9	88.2	85.8	81.1	73.1
RPF(AA)1.0	45	3.4	3.4	3.4	3.4	3.3	3.1
RPF(AA)1.3		6.7	6.8	6.9	6.8	6.6	6.2
RPF(AA)1.6		11.3	11.5	11.5	11.4	11.1	10.4
RPF(AA)1.8		13.4	13,6	13.7	13.5	13.1	12.3
RPF(AA)2.0		16.6	16.9	16.9	16.8	16.2	15.3
RPF(AA)2.2		17.8	18.1	18.2	18.0	17.4	16.4
RPF(AA)2.4		21.0	21.4	21.5	21.2	20.6	19.3
RPF(AA)3.0		34.7	35.3	35.5	35.1	34.0	32.0
RPF(AA)3.2		38.3	38.9	39.1	38.7	37.5	35.2
RPF(AB)4.0		63.7	64.8	65.1	64.4	62.4	58.6
RPF(AB)4.5		85.2	86.6	87.1	86.1	83.4	78.4
RPF(AA)1.0	55	3.0	3.1	3.2	3.2	3.2	3.0
RPF(AA)1.3		6.1	6.3	6.4	6.4	6.3	6.1
RPF(AA)1.6		10.3	10.5	10.7	10.8	10.6	10.2
RPF(AA)1.8		12.2	12.5	12.7	12.8	12.6	12.1
RPF(AA)2.0		15.0	15.5	15.7	15.8	15.6	15.0
RPF(AA)2.2		16.2	16.6	16.9	17.0	16.7	16.1
RPF(AA)2.4		19.1	19.6	19.9	20.0	19.7	19.0
RPF(AA)3.0		31.5	32.4	33.0	33.1	32.6	31.5
RPF(AA)3.2		34.7	35.7	36.3	36.5	36.0	34.7
RPF(AB)4.0		57.8	59.4	60.4	60.6	59.8	57.7
RPF(AB)4.5		77.3	79.5	80.9	81.1	80.0	77.2

REFRIGERATION CAPACITY EXTENSION SHEET (R407C)

Product Model	Condensing Temperature , CT (°C)	Cooling Capacity [kW] Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AA)1.0	25	2.8	2.9	2.9	2.8	2.6	2.3
RPF(AA)1.3		5.7	5.7	5.7	5.6	5.3	4.7
RPF(AA)1.6		9.5	9.6	9.6	9.4	8.8	7.9
RPF(AA)1.8		11.3	11.4	11.4	11.1	10.5	9.3
RPF(AA)2.0		14.0	14.1	14.1	13.8	13.0	11.5
RPF(AA)2.2		15.0	15.2	15.2	14.8	14.0	12.4
RPF(AA)2.4		17.7	17.9	17.9	17.4	16.4	14.6
RPF(AA)3.0		29.3	29.6	29.6	28.9	27.2	24.2
RPF(AA)3.2		32.3	32.7	32.6	31.8	30.0	26.6
RPF(AB)4.0		53.7	54.4	54.2	52.9	49.9	44.3
RPF(AB)4.5		71.8	72.7	72.5	70.8	66.7	59.2
RPF(AA)1.0	35	2.9	2.9	3.0	2.9	2.9	2.7
RPF(AA)1.3		5.7	5.8	5.9	5.9	5.7	5.4
RPF(AA)1.6		9.6	9.8	9.9	9.9	9.6	9.0
RPF(AA)1.8		11.4	11.7	11.8	11.7	11.4	10.7
RPF(AA)2.0		14.1	14.4	14.6	14.5	14.1	13.2
RPF(AA)2.2		15.2	15.5	15.7	15.6	15.2	14.2
RPF(AA)2.4		17.9	18.3	18.5	18.4	17.9	16.8
RPF(AA)3.0		29.6	30.3	30.6	30.4	29.6	27.7
RPF(AA)3.2		32.6	33.3	33.7	33.5	32.6	30.6
RPF(AB)4.0		54.2	55.5	56.1	55.8	54.2	50.8
RPF(AB)4.5		72.5	74.2	75.0	74.6	72.5	68.0
RPF(AA)1.0	45	2.8	2.9	2.9	3.0	2.9	2.9
RPF(AA)1.3		5.6	5.8	5.9	5.9	5.9	5.7
RPF(AA)1.6		9.4	9.7	9.9	10.0	9.9	9.6
RPF(AA)1.8		11.1	11.5	11.8	11.9	11.8	11.4
RPF(AA)2.0		13.8	14.2	14.6	14.7	14.6	14.1
RPF(AA)2.2		14.8	15.3	15.7	15.8	15.7	15.2
RPF(AA)2.4		17.4	18.0	18.4	18.6	18.5	17.9
RPF(AA)3.0		28.9	29.8	30.5	30.8	30.6	29.6
RPF(AA)3.2		31.8	32.9	33.6	33.9	33.7	32.6
RPF(AB)4.0		52.9	54.7	55.9	56.5	56.0	54.2
RPF(AB)4.5		70.8	73.2	74.9	75.6	74.9	72.5
RPF(AA)1.0	55	2.6	2.7	2.8	2.9	2.9	2.9
RPF(AA)1.3		5.2	5.5	5.6	5.8	5.8	5.7
RPF(AA)1.6		8.8	9.2	9.5	9.7	9.8	9.7
RPF(AA)1.8		10.4	10.9	11.3	11.5	11.6	11.5
RPF(AA)2.0		12.9	13.5	13.9	14.3	14.4	14.2
RPF(AA)2.2		13.9	14.5	15.0	15.3	15.4	15.3
RPF(AA)2.4		16.3	17.1	17.7	18.1	18.2	18.0
RPF(AA)3.0		27.0	28.2	29.2	29.9	30.1	29.8
RPF(AA)3.2		29.8	31.1	32.2	32.9	33.2	32.8
RPF(AB)4.0		49.5	51.7	53.5	54.7	55.2	54.6
RPF(AB)4.5		66.2	69.2	71.6	73.3	73.8	73.0

REFRIGERATION CAPACITY EXTENSION SHEET (R32)

Product Model	Condensing Temperature , CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AA)1.0	25	5.2	5.1	4.9	4.6	4.1	3.4
RPF(AA)1.3		10.3	10.2	9.8	9.2	8.3	6.8
RPF(AA)1.6		17.4	17.1	16.5	15.5	13.9	11.4
RPF(AA)1.8		20.6	20.3	19.6	18.4	16.5	13.5
RPF(AA)2.0		25.5	25.1	24.2	22.8	20.4	16.7
RPF(AA)2.2		27.4	27.0	26.1	24.5	22.0	18.0
RPF(AA)2.4		32.3	31.8	30.7	28.8	25.9	21.2
RPF(AA)3.0		53.5	52.6	50.8	47.7	42.8	35.1
RPF(AA)3.2		58.9	58.0	56.0	52.6	47.2	38.7
RPF(AB)4.0		98.0	96.4	93.1	87.5	78.5	64.3
RPF(AB)4.5		131.1	129.0	124.6	117.0	105.0	86.1
RPF(AA)1.0	35	5.4	5.3	5.2	5.0	4.7	4.2
RPF(AA)1.3		10.7	10.7	10.5	10.0	9.4	8.4
RPF(AA)1.6		18.1	18.0	17.6	16.9	15.8	14.1
RPF(AA)1.8		21.5	21.3	20.9	20.1	18.7	16.7
RPF(AA)2.0		26.5	26.4	25.8	24.8	23.2	20.7
RPF(AA)2.2		28.5	28.3	27.8	26.7	24.9	22.2
RPF(AA)2.4		33.6	33.4	32.7	31.4	29.4	26.2
RPF(AA)3.0		55.6	55.3	54.1	52.0	48.6	43.3
RPF(AA)3.2		61.3	60.9	59.7	57.3	53.5	47.7
RPF(AB)4.0		102.0	101.3	99.2	95.4	89.1	79.4
RPF(AB)4.5		136.4	135.5	132.8	127.6	119.2	106.3
RPF(AA)1.0	45	5.4	5.4	5.4	5.2	5.0	4.7
RPF(AA)1.3		10.9	10.9	10.8	10.5	10.0	9.3
RPF(AA)1.6		18.3	18.3	18.1	17.7	16.9	15.7
RPF(AA)1.8		21.7	21.7	21.5	21.0	20.0	18.6
RPF(AA)2.0		26.8	26.9	26.6	25.9	24.8	23.0
RPF(AA)2.2		28.8	28.9	28.6	27.9	26.6	24.7
RPF(AA)2.4		34.0	34.0	33.7	32.8	31.4	29.1
RPF(AA)3.0		56.2	56.3	55.7	54.3	51.9	48.2
RPF(AA)3.2		62.0	62.0	61.4	59.9	57.2	53.1
RPF(AB)4.0		103.1	103.1	102.1	99.6	95.2	88.4
RPF(AB)4.5		137.9	138.0	136.6	133.2	127.4	118.2
RPF(AA)1.0	55	5.3	5.3	5.3	5.2	5.1	4.8
RPF(AA)1.3		10.6	10.7	10.6	10.5	10.2	9.7
RPF(AA)1.6		17.8	17.9	17.9	17.7	17.1	16.3
RPF(AA)1.8		21.1	21.3	21.2	21.0	20.3	19.3
RPF(AA)2.0		26.2	26.3	26.3	25.9	25.2	23.9
RPF(AA)2.2		28.1	28.3	28.2	27.9	27.0	25.7
RPF(AA)2.4		33.1	33.4	33.3	32.8	31.9	30.3
RPF(AA)3.0		54.8	55.2	55.1	54.3	52.7	50.1
RPF(AA)3.2		60.4	60.8	60.7	59.8	58.1	55.2
RPF(AB)4.0		100.5	101.2	101.0	99.5	96.6	91.8
RPF(AB)4.5		134.4	135.4	135.1	133.2	129.3	122.9

REFRIGERATION CAPACITY EXTENSION SHEET (R134A)

Product Model	Condensing Temperature , CT (°C)	Cooling Capacity [kW] Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AA)1.0	25	2.0	2.0	2.0	2.0	1.8	1.6
RPF(AA)1.3		4.0	4.1	4.1	4.0	3.7	3.1
RPF(AA)1.6		6.8	6.9	6.9	6.7	6.2	5.3
RPF(AA)1.8		8.0	8.1	8.1	7.9	7.3	6.2
RPF(AA)2.0		9.9	10.1	10.1	9.8	9.1	7.7
RPF(AA)2.2		10.7	10.8	10.8	10.5	9.8	8.3
RPF(AA)2.4		12.6	12.8	12.7	12.4	11.5	9.8
RPF(AA)3.0		20.8	21.1	21.1	20.5	19.0	16.2
RPF(AA)3.2		22.9	23.3	23.2	22.6	21.0	17.8
RPF(AB)4.0		38.1	38.7	38.6	37.5	34.9	29.6
RPF(AB)4.5		50.9	51.8	51.7	50.2	46,7	39.6
RPF(AA)1.0	35	2.1	2.1	2.2	2.1	2.1	1.9
RPF(AA)1.3		4.1	4.2	4.3	4.3	4.2	3.9
RPF(AA)1.6		6.9	7.1	7.3	7.2	7.0	6.5
RPF(AA)1.8		8.2	8.5	8.6	8.6	8.3	7.7
RPF(AA)2.0		10.2	10.5	10.7	10.6	10.3	9.5
RPF(AA)2.2		11.0	11.3	11.5	11.4	11.1	10.2
RPF(AA)2.4		12.9	13.3	13.5	13.4	13.0	12.1
RPF(AA)3.0		21.4	22.0	22.3	22.2	21.6	20.0
RPF(AA)3.2		23.5	24.2	24.6	24.5	23.7	22.0
RPF(AB)4.0		39.2	40.3	40.9	40.8	39.5	36.6
RPF(AB)4.5		52.4	53.9	54.8	54.6	52.9	48.9
RPF(AA)1.0	45	2.1	2.1	2.2	2.2	2.2	2.1
RPF(AA)1.3		4.1	4.3	4.4	4.5	4.4	4.3
RPF(AA)1.6		6.9	7.2	7.4	7.5	7.5	7.2
RPF(AA)1.8		8.2	8.5	8.8	8.9	8.9	8.6
RPF(AA)2.0		10.1	10.6	10.9	11.0	11.0	10.6
RPF(AA)2.2		10.9	11.4	11.7	11.9	11.8	11.4
RPF(AA)2.4		12.9	13.4	13.8	14.0	13.9	13.4
RPF(AA)3.0		21.3	22.1	22.8	23.1	23.0	22.2
RPF(AA)3.2		23.4	24.4	25.1	25.5	25.4	24.5
RPF(AB)4.0		39.0	40.6	41.8	42.4	42.2	40.8
RPF(AB)4.5		52.2	54.3	55.9	56.7	56.4	54.5
RPF(AA)1.0	55	2.0	2.1	2.2	2.2	2.3	2.2
RPF(AA)1.3		3.9	4.1	4.3	4.5	4.5	4.5
RPF(AA)1.6		6.6	7.0	7.3	7.5	7.6	7.6
RPF(AA)1.8		7.9	8.3	8.7	8.9	9.0	9.0
RPF(AA)2.0		9.7	10.3	10.7	11.0	11.2	11.1
RPF(AA)2.2		10.5	11.0	11.5	11.8	12.0	11.9
RPF(AA)2.4		12.3	13.0	13.6	14.0	14.2	14.1
RPF(AA)3.0		20.4	21.5	22.4	23.1	23.4	23.3
RPF(AA)3.2		22.5	23.7	24.7	25.5	25.8	25.6
RPF(AB)4.0		37.4	39.4	41.1	42.3	42.9	42.7
RPF(AB)4.5		50.0	52.7	55.0	56.7	57.5	57.1

RVEV

ELECTRONIC EXPANSION VALVE
RPF-AC SERIES

INTRODUCTION

The RPF-AC series electronic expansion valves are mainly used in refrigeration and cold storage systems to automatically regulate refrigerant flow. When fully closed, the internal leakage rate is less than 1 ml/min, delivering performance equivalent to a solenoid valve. Therefore, in refrigeration and cold storage applications, the RPF-AC series electronic expansion valves can completely replace solenoid valves, saving installation space and cost.

FEATURES

- Bi-directional flow with tight shut-off performance equivalent to a solenoid valve
- Smaller installation space: low profile, compact size, lightweight
- Large valve chamber design for reduced noise
- Fast response and energy-efficient operation
- Excellent dry-friction resistance, suitable for oil-free systems

SPECIFICATIONS

- Applicable refrigerants: R22, R410A, R407C, R32, R134A, R404A, R507C
- Capacity range: 2.7–16.7 kW (nominal capacity based on R22)
- Medium temperature: −30°C to +70°C (duty cycle ≤ 50%)
- Ambient temperature: −30°C to +60°C (duty cycle ≤ 50%)
- Relative humidity: ≤ 95% RH
- Full-open pulses: 500; valve opening pulses: 32 ± 20
- Maximum working pressure: 4.3 MPa
- Maximum working pressure differential: 3.5 MPa
- Installation orientation:
  - Coil facing upward; valve rotor centerline vertical to the horizontal plane, deviation within ±15°
  - Inlet pipe horizontal, outlet pipe facing downward

ELECTRICAL PARAMETERS

- Rated voltage: 12 VDC (±10%), square wave
- Actuation type: 4-phase, 8-step permanent magnet stepper motor, direct-acting
- Excitation method: 1–2 phase excitation, unipolar drive
- Excitation speed: 30–90 pps
- End excitation hold time: 0.1–1.0 s
- Minimum actuation time (fully open to fully closed): 5.8 s (at 90 pps)
- Coil current: 260 mA per phase (at 20°C)
- Coil resistance: 46 ± 3.7 Ω per phase (at 20°C)
- Coil insulation class: Class E
- Protection rating: IP67

RVEV

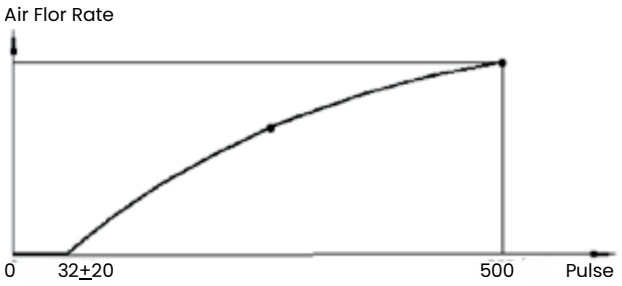
ELECTRONIC EXPANSION VALVE
RPF-AC SERIES

PERFORMANCE PARAMETERS

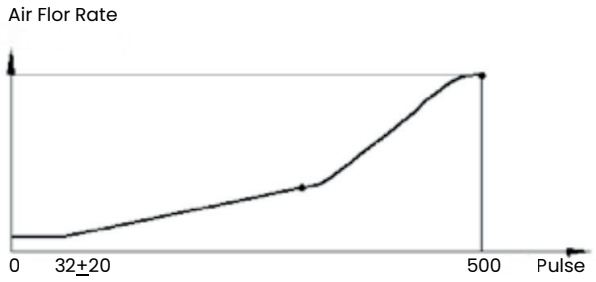
Product Model	Nominal Capacity (kW)							Kv	MOP	MOPD	ROD
	R22	R407C	R410A	R32	R134A	R404A/ R507A	R290	(m^3/h)	(MPa)	(MPa)	(MPa)
RPF(AC)1.0	2.7	2.8	3.1	4.6	2.1	1.8	2.8	0.025	4.3	3.5	≥2.1
RPF(AC)1.3	5.3	5.7	6.2	9.2	4.2	3.6	5.6	0.05			
RPF(AC)1.8	10.6	11.3	12.5	18.4	8.3	7.4	11.1	0.1			
RPF(AC)2.4	16.7	17.7	19.5	28.8	13	11.6	17.4	0.23			≥1.5

Rated working condition : condensation temperature CT =38°C; Evaporation temperature ET=5°C; Super cooling degree SC=0°C: The superheat degree SH=0°C

FLOW CHARACTERISTICS



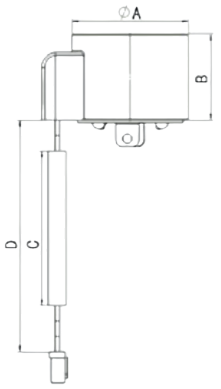
Fully closed, zero-flow, smooth-control type



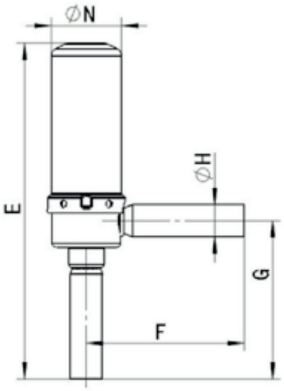
Fully closed with leakage flow, quick-opening type

EXTERNAL DIMENSIONS

Coil Model	Suitable Valve Body Series	Size (mm)				Insulation Sleeve Model
		ΦA	B	C	D	
RBAA1200013	RPF(AC)1.0~2.4	37.5	27.9	600	700	XHP-5
RBAA1200004	RPF(AC)1.0~2.4	37.5	27.9	900	1000	XHP-5
RBAA1200007	RPF(AC)1.0~2.4	37.5	27.9	1400	1500	XHP-5
RBAA1200002	RPF(AC)1.0~2.4	37.5	27.9	1900	2000	XHP-5



Body Series	Suitable Valve Body Series	Size (mm)				
		E	G	F	ΦH	ΦN
RPF(AC)1.0	RBAA	83	39	39	7.94	17.35
RPF(AC)1.3	RBAA					
RPF(AC)1.8	RBAA					
RPF(AC)2.4	RBAA					



REFRIGERATION CAPACITY EXTENSION SHEET (R22)

Product Model	Condensing Temperature, CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AC)1.0	25	2.8	2.8	2.7	2.6	2.4	2
RPF(AC)1.3		5.6	5.6	5.4	5.2	4.7	3.9
RPF(AC)1.8		11.1	11.1	10.9	10.3	9.4	7.8
RPF(AC)2.4		17.4	17.4	17	16.2	14.7	12.3
RPF(AC)1.0	35	2.9	2.9	2.9	2.8	2.7	2.4
RPF(AC)1.3		5.8	5.8	5.8	5.7	5.4	4.9
RPF(AC)1.8		11.6	11.7	11.6	11.3	10.7	9.7
RPF(AC)2.4		18.2	18.3	18.2	17.7	16.8	15.2
RPF(AC)1.0	45	2.9	3	3	3	2.9	2.7
RPF(AC)1.3		5.9	6	6	6	5.8	5.5
RPF(AC)1.8		11.8	12	12	11.9	11.6	10.9
RPF(AC)2.4		18.5	18.8	18.8	18.7	18.1	17.1
RPF(AC)1.0	55	2.9	3	3	3	3	2.9
RPF(AC)1.3		5.8	6	6	6.1	6	5.8
RPF(AC)1.8		11.6	11.9	12.1	12.1	12	11.6
RPF(AC)2.4		18.2	18.7	18.9	19	18.8	18.2

REFRIGERATION CAPACITY EXTENSION SHEET (R410A)

Product Model	Condensing Temperature, CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AC)1.0	25	3.5	3.4	3.4	3.2	2.9	2.4
RPF(AC)1.3		6.9	6.9	6.7	6.4	5.8	4.8
RPF(AC)1.8		13.8	13.8	13.4	12.7	11.6	9.6
RPF(AC)2.4		21.6	21.5	21.0	20.0	18.1	15.0
RPF(AC)1.0	35	3.5	3.5	3.5	3.4	3.2	2.9
RPF(AC)1.3		7.0	7.0	6.9	6.8	6.4	5.8
RPF(AC)1.8		13.9	14.0	13.9	13.5	12.8	11.5
RPF(AC)2.4		21.8	21.9	21.7	21.1	20.0	18.0
RPF(AC)1.0	45	3.4	3.4	3.4	3.4	3.3	3.1
RPF(AC)1.3		6.7	6.8	6.9	6.8	6.6	6.2
RPF(AC)1.8		13.4	13.6	13.7	13.5	13.1	12.3
RPF(AC)2.4		21.0	21.4	21.5	21.2	20.6	19.3
RPF(AC)1.0	55	3.0	3.1	3.2	3.2	3.2	3.0
RPF(AC)1.3		6.1	6.3	6.4	6.4	6.3	6.1
RPF(AC)1.8		12.2	12.5	12.7	12.8	12.6	12.1
RPF(AC)2.4		19.1	19.6	19.9	20.0	19.7	19.0

REFRIGERATION CAPACITY EXTENSION SHEET (R407)

Product Model	Condensing Temperature, CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AC)1.0	25	2.8	2.9	2.9	2.8	2.6	2.3
RPF(AC)1.3		5.7	5.7	5.7	5.6	5.3	4.7
RPF(AC)1.8		11.3	11.4	11.4	11.1	10.5	9.3
RPF(AC)2.4		17.7	17.9	17.9	17.4	16.4	14.6
RPF(AC)1.0	35	2.9	2.9	3.0	2.9	2.9	2.7
RPF(AC)1.3		5.7	5.8	5.9	5.9	5.7	5.4
RPF(AC)1.8		11.4	11.7	11.8	11.7	11.4	10.7
RPF(AC)2.4		17.9	18.3	18.5	18.4	17.9	16.8
RPF(AC)1.0	45	2.8	2.9	2.9	3.0	2.9	2.9
RPF(AC)1.3		5.6	5.8	5.9	5.9	5.9	5.7
RPF(AC)1.8		11.1	11.5	11.8	11.9	11.8	11.4
RPF(AC)2.4		17.4	18.0	18.4	18.6	18.5	17.9
RPF(AC)1.0	55	2.6	2.7	2.8	2.9	2.9	2.9
RPF(AC)1.3		5.2	5.5	5.6	5.8	5.8	5.7
RPF(AC)1.8		10.4	10.9	11.3	11.5	11.6	11.5
RPF(AC)2.4		16.3	17.1	17.7	18.1	18.2	18.0

REFRIGERATION CAPACITY EXTENSION SHEET (R410A)

Product Model	Condensing Temperature, CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AC)1.0	25	5.2	5.1	4.9	4.6	4.1	3.4
RPF(AC)1.3		10.3	10.2	9.8	9.2	8.3	6.8
RPF(AC)1.8		20.6	20.3	19.6	18.4	16.5	13.5
RPF(AC)2.4		32.3	31.8	30.7	28.8	25.9	21.2
RPF(AC)1.0	35	5.4	5.3	5.2	5.0	4.7	4.2
RPF(AC)1.3		10.7	10.7	10.5	10.0	9.4	8.4
RPF(AC)1.8		21.5	21.3	20.9	20.1	18.7	16.7
RPF(AC)2.4		33.6	33.4	32.7	31.4	29.4	26.2
RPF(AC)1.0	45	5.4	5.4	5.4	5.2	5.0	4.7
RPF(AC)1.3		10.9	10.9	10.8	10.5	10.0	9.3
RPF(AC)1.8		21.7	21.7	21.5	21.0	20.0	18.6
RPF(AC)2.4		34.0	34.0	33.7	32.8	31.4	29.1
RPF(AC)1.0	55	5.3	5.3	5.3	5.2	5.1	4.8
RPF(AC)1.3		10.6	10.7	10.6	10.5	10.2	9,7
RPF(AC)1.8		21.1	21.3	21.2	21.0	20.3	19.3
RPF(AC)2.4		33.1	33.4	33.3	32.8	31.9	30.3

REFRIGERATION CAPACITY EXTENSION SHEET (R134A)

Product Model	Condensing Temperature, CT (°C)	Cooling Capacity [kW]					
		Evaporating Temperature [°C]					
		-40	-30	-20	-10	0	10
RPF(AC)1.0	25	2.0	2.0	20.0	2.0	1.8	1.6
RPF(AC)1.3		4.0	4.1	4.1	4.0	3.7	3.1
RPF(AC)1.8		8.0	8.1	8.1	7.9	7.3	6.2
RPF(AC)2.4		12.6	12.8	12.7	12.4	11.5	9.8
RPF(AC)1.0	35	2.1	2.1	2.2	2.1	2.1	1.9
RPF(AC)1.3		4.1	4.2	4.3	4.3	4.2	3.9
RPF(AC)1.8		8.2	8.5	8.6	8.6	8.3	7.7
RPF(AC)2.4		12.9	13.3	13.5	13.4	13.0	12.1
RPF(AC)1.0	45	2.1	2.1	2.2	2.2	2.2	2,1
RPF(AC)1.3		4.1	4.3	4.4	4.5	4.4	4.3
RPF(AC)1.8		8.2	8.5	8.8	8.9	8.9	8.6
RPF(AC)2.4		12.9	13.4	13.8	14.0	13.9	13.4
RPF(AC)1.0	55	2.0	2.1	2.2	2.2	2.3	2.2
RPF(AC)1.3		3.9	4.1	4.3	4.5	4.5	4.5
RPF(AC)1.8		7.9	8.3	8.7	8.9	9.0	9.0
RPF(AC)2.4		12.3	13.0	13.6	14.0	14.2	14.1

RVEV

ELECTRONIC EXPANSION VALVE
RPF-AD SERIES

INTRODUCTION

The RPF-AD series electronic expansion valves are mainly used in air conditioning systems, providing automatic refrigerant flow regulation in the forward direction and flow passage in the reverse direction.

FEATURES

- Forward-direction flow regulation with reverse-direction flow passage
- Smaller installation space: low profile, compact size, lightweight
- Large valve chamber design for reduced noise
- Fast response and energy-efficient operation
- Excellent dry-friction resistance, suitable for oil-free systems

SPECIFICATIONS

- Applicable refrigerants: R22, R410A, R407C, R32, R134A, R404A, R507C
- Capacity range: 2.7–30.4 kW (nominal capacity based on R22)
- Medium temperature: −30°C to +70°C (duty cycle ≤ 50%)
- Ambient temperature: −30°C to +60°C (duty cycle ≤ 50%)
- Relative humidity: ≤ 95% RH
- Full-open pulses: 500; valve opening pulses: 32 ± 20
- Maximum working pressure: 4.3 MPa
- Maximum working pressure differential: 3.5 MPa
- Installation orientation:
  - Coil facing upward; valve rotor center line vertical to the horizontal plane, deviation within ±15°
  - Inlet pipe horizontal, outlet pipe facing downward

ELECTRICAL PARAMETERS

- Rated voltage: 12 V DC (±10%), square wave
- Actuation type: 4-phase, 8-step permanent magnet stepper motor, direct-acting
- Excitation method: 1–2 phase excitation, unipolar drive
- Excitation speed: 30–90 pps
- End excitation hold time: 0.1–1.0 s
- Minimum actuation time (fully open to fully closed): 5.8 s (at 90 pps)
- Coil current: 260 mA per phase (at 20°C)
- Coil resistance: 46 ± 3.7 Ω per phase (at 20°C)
- Coil insulation class: Class E
- Protection rating: IP67

RVEV

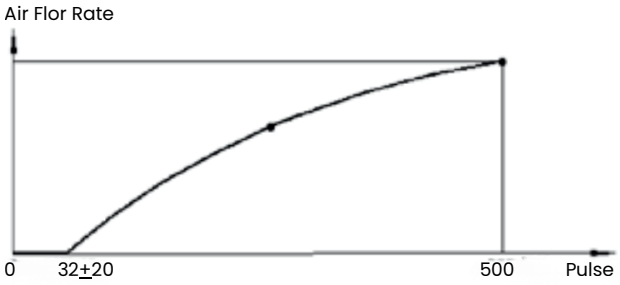
ELECTRONIC EXPANSION VALVE
RPF-AD SERIES

PERFORMANCE PARAMETERS

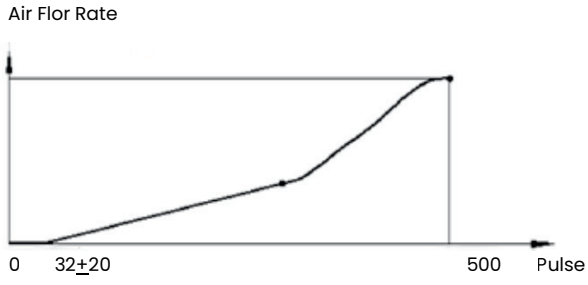
Product Model	Nominal Capacity (kW)					Kv	MOP	MOPD	ROD
	R22	R407C	R410A	R32	R134A	(m^3/h)	(MPa)	(MPa)	(MPa)
RPF(AD)1.0	2.7	2.8	3.1	4.6	2.1	0.025	4.3	3.5	0.9
RPF(AD)1.3	5.3	5.7	6.2	9.2	4.2	0.05			
RPF(AD)1.6	9	9.5	10.5	15.5	7	0.08			
RPF(AD)1.8	10.6	11.3	12.5	18.4	8.3	0.1			
RPF(AD)2.0	13.2	14	15.4	22.8	10.3	0.16			
RPF(AD)2.2	14.2	15.1	16.6	24.5	11.1	0.2			
RPF(AD)2.4	16.7	17.7	19.5	28.8	13	0.23			
RPF(AD)3.0	27.6	29.4	32.3	47.7	21.6	0.39			
RPF(AD)3.2	30.4	32.4	35.6	52.6	23.8	0.43			

Rated working condition : condensation temperature CT =38°C; Evaporation temperature ET=5°C; Super cooling degree SC=0°C: The superheat degree SH=0°C

FLOW CHARACTERISTICS



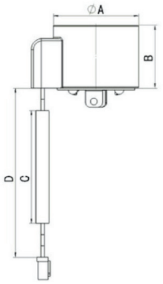
Fully closed, zero-flow, smooth-control type



Fully closed with leakage flow, quick-opening type

EXTERNAL DIMENSIONS

Coil Model	Suitable Valve Body Series	Size (mm)				Insulation Sleeve Model
		ΦA	B	C	D	
RBAA1200013	RPF(AD)1.0~3.2	37.5	27.9	600	700	XHP-5
RBAA1200004	RPF(AD)1.0~3.2	37.5	27.9	900	1000	XHP-5
RBAA1200007	RPF(AD)1.0~3.2	37.5	27.9	1400	1500	XHP-5
RBAA1200002	RPF(AD)1.0~3.2	37.5	27.9	1900	2000	XHP-5



Body Series	Suitable Valve Body Series	Size (mm)				
		E	G	F	ΦH	ΦN
RPF(AD)1.0- RPF(AD)3.2	RBAA	88	43	43	7.94	17.35