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- Ball Valve
- Brass Service Valve & Receiver Valve
- Check Valve
- Compensator & Compressor Receiver
- Controllers
- Drain Pump & Float Switch
- **Electronic Expansion Valve**
- Filter Drier
- Four - Way Reversing Valve
- Liquid Receiver
- Micro Channel Heat Exchanger
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- Sight Glass
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- Thermostatic Expansion Valve



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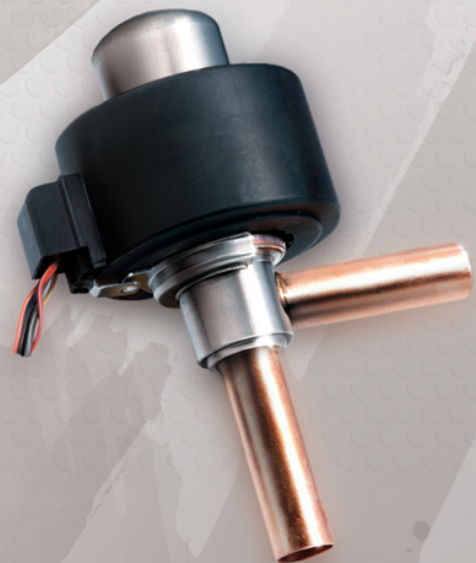
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# Electronic Expansion Valve



## Electronic Expansion Valve

### O Series

#### 01. Outline

O series electronic expansion valves are mainly used in air conditioning systems with variable refrigerant flow to realize automatic adjustment of refrigerant flow rate and make the air conditioning system work under the best working condition for the purpose of fast cooling, precise temperature control and power saving. These valves can also be used for other controls. These valves are reversible which can automatically control the flow of refrigerant in either heating or cooling mode.

#### 02. Features

- High precision: full open pulse 2000
- Long life
- Low noise
- Energy saving

#### 03. General spec.

- Applicable refrigerant: R22, R134A, R404A, R407C, R410A etc.
- Capacity: 1USRT~13.3USRT (R22 Nominal Capacity)
- Applicable medium temperature : -30°C~+70°C (electrified rate below 50%)
- Applicable ambient temperature : -30°C~+60°C (electrified rate below 50%)
- Relative humidity : below 95% RH
- Installation mode : Coil upwards, central axis of valve rotor within  $\pm 15^\circ$  vertical to horizontal surface

#### 04. Electrical Parameters

- Rated voltage : DC12V ( $\pm 10\%$ ), rectangular wave
- Actuating mode : 4-phase 4-step permanent magnet stepping motor of direct-acting type
- Excitation mode : 2-2 phase excitation, monopole actuation
- Excitation rate: 100PPS~250PPS (opening excitation speed  $\leq$  closing excitation speed, the ending excitation mode maintains more than 0.1S)
- Current of coil: 80mA/phase(20°C)
- Resistance of coil:  $150 \pm 15\Omega$ /phase(20°C)  
Insulation grade of coil: E

#### 05. Technical Parameters

Model	Port mm	R22 Nominal Capacity		Full Open Pulse	Open Pulse	Max. Operation Pressure Difference MPa		Internal Leakage ml/min	Max. Working Pressure MPa		Reverse Open Valve Pressure Difference MPa			
		KW	USRT.			R22	R407C R410A		R22	R407C R410A	R22	R407C	R410A	
DPFS01J1.3	1.3	3.5	1	500	32 $\pm 20$	2.26	2.48	3.43	3.0	3.3	4.2	$\geq 1.47$	$\geq 1.47$	$\geq 2.1$
DPFS01J1.65	1.65	5.25	1.5									$\leq 600$	$\geq 0.7$	$\geq 0.7$
DPFS01J1.8	1.8	7	2	500	32 $\pm 20$	2.26	2.48	3.43	3.0	3.3	4.2	$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS01J2.0	2.0	8.75	2.5									$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS02J2.2	2.2	10.5	3	500	32 $\pm 20$	2.26	2.48	3.43	3.0	3.3	4.2	$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS02J2.4	2.4	17.5	5									$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS03J4.0	4.0	42	12	500	32 $\pm 20$	2.26	2.48	3.43	3.0	3.3	4.2	$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS03J4.5	4.5	52.5	15									$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS03J5.5	5.5	70	20	500	32 $\pm 20$	2.26	2.48	3.43	3.0	3.3	4.2	$\leq 1500$	$\geq 0.7$	$\geq 0.7$
DPFS03J6.5	6.5	105	30									$\leq 1500$	$\geq 0.7$	$\geq 0.7$

- Nominal working conditions: Condensing temperature: 38°C, vaporizing temperature 5°C, Supercooling temperature 0°C, superheat temperature 0°C
- When using other refrigerants, it is need to use a factor to adjust nominal capacity of R22.(R134A - 0.75, R407C - 1, R410A - 1.2)

## Electronic Expansion Valve

### Q Series

#### 01. Outline

Q series electronic expansion valves are mainly used in air conditioning systems with variable refrigerant flow to realize automatic adjustment of refrigerant flow rate and make the air conditioning system work under the best working condition for the purpose of fast cooling, precise temperature control and power saving. These valves can also be used for other controls. These valves are reversible which can automatically control the flow of refrigerant in either heating or cooling mode.

#### 02. Features

- Small volume, light weight
- Fast cooling
- Energy saving
- Applicable for heat pumps: bidirectional flow available

#### 03. General spec.

- Applicable refrigerant : R22, R134a, R404A, R407C, R410A
- Capacity : 1US.R.T - 8US.R.T (R22 Nominal Capacity)
- Applicable medium temperature : -30°C~+70°C (electrified rate below 50%)
- Applicable ambient temperature : -30°C~+60°C (electrified rate below 50%)
- Relative humidity : below 95% RH
- Installation mode : Coil upwards, central axis of valve rotor within  $\pm 15^\circ$  vertical to horizontal surface

#### 04. Electrical Parameters

- Rated voltage : DC12V $\pm 10\%$ , rectangular wave
- Actuating mode : 4-phase 8-step permanent magnet stepping motor of direct-operated type
- Excitation mode : 1-2 phase excitation, monopole actuation
- Excitation rate: Q01 and Q02 series: 30~90PPS (the ending excitation mode maintains 0.1~1.0s), Q03 series: 30~40PPS (the ending excitation mode maintains 0.1~1.0s)
- Current of coil: 260mA/phase(20°C)
- Resistance of coil : 46 $\pm 3.7\Omega$ /phase(20°C)  
Insulation grade of coil: E

#### 05. Technical Parameters

Model	DPF(R04)1.5D	Port mm	1.5	R744 Nominal Capacity	KW	4.5	Full Open Pulse	500	Open Pulse	32 $\pm 20$	Max. Operation Pressure Difference MPa	10	Internal Leakage ml/min	$\leq 600$	Max. Working Pressure MPa	14
					US.R.T.	1.3										

## Electronic Expansion Valve

### R Series

#### 01. Outline

R series electronic expansion valves are mainly used in air conditioning systems with variable refrigerant flow to realize automatic adjustment of refrigerant flow rate and make the air conditioning system work under the best working condition for the purpose of fast cooling, precise temperature control and power saving. These valves can also be used for other controls. These valves are reversible which can automatically control the flow of refrigerant in either heating or cooling mode.

#### 02. Features

- Applicable for oil-free cooling system
- Smaller installation space: low height, small volume and light weight
- Wider applicability for eliminating system refrigerant noise: with optimized flow path design
- Outer Encapsulation coil structure: better corrosion resistance

#### 03. General spec.

- Applicable refrigerant: R744(CO<sub>2</sub>)
- Applicable medium temperature : -30°C~+80°C (electrified rate below 40%)
- Applicable ambient temperature : -30°C~+60°C (electrified rate below 40%)
- Relative humidity : below 95% RH
- Installation mode : Coil upwards, central axis of valve rotor within ±15° vertical to horizontal surface
- Direction of Medium: one direction from horizontal tube to Vertical tube

#### 04. Electrical Parameters

- Rated voltage : DC12V (±10%), rectangular wave
- Actuating mode : 4-phase 8-step permanent magnet stepping motor of direct-acting type
- Excitation mode : 1-2 phase excitation, monopole actuation
- Excitation rate: 30~90PPS (the ending excitation mode maintains more than 0.1~1.0S)
- Current of coil: 260mA/phase(20°C)
- Resistance of coil: 46±3.7Ω/phase(20°C)
- Insulation grade of coil: E

#### 05. Technical Parameters

Model	Port mm	R22 Nominal Capacity		Full Open Pulse	Open Pulse	Max. Operation Pressure Difference MPa		Internal Leakage ml/min	Max. Working Pressure MPa			Reverse Open Valve Pressure Difference MPa			
		KW	US.R.T.			R22	R407C		R410A	R22	R407C	R410A	R22	R407C	R410A
DPF(Q01)1.3	1.3	3.5	1	500	32 ±20	2.26	2.48	3.43	≤600	3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q01)1.65	1.65	5.25	1.5			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q01)1.8	1.8	7	2			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q01)2.0	2.0	8.75	2.5			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q02)2.2	2.2	10.5	3			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q02)2.4	2.4	17.5	5			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q03)3.0	3.0	21	6			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1
DPF(Q03)3.2	3.2	28	8			2.26	2.48	3.43		3.0	3.3	4.2	≥1.47	≥1.47	≥2.1

Note:

- Nominal working conditions: Condensing temperature: 38°C, vaporizing temperature 5°C, Supercooling temperature 0°C, superheat temperature 0°C
- When using other refrigerants, it is need to use a factor to adjust nominal capacity of R22.(R134A - 0.75, R407C - 1, R410A -1.2)

## Electronic Expansion Valve

### S Series

#### 01. Outline

S series electronic expansion valves are mainly used in air conditioning systems with variable refrigerant flow to realize automatic adjustment of refrigerant flow rate and make the air conditioning system work under the best working condition for the purpose of fast cooling, precise temperature control and power saving. These valves can also be used for other controls. These valves are reversible which can automatically control the flow of refrigerant in either heating or cooling mode.

#### 02. Features

- Small volume, light weight
- Fast cooling
- Energy saving
- Applicable for heat pumps: bidirectional flow available

#### 03. General spec.

- Applicable refrigerant : R22, R134A, R404A, R407C, R410A
- Capacity : 1US.R.T - 3US.R.T (R22 Nominal Capacity)
- Applicable medium temperature : -30°C~+70°C (electrified rate below 50%)
- Applicable ambient temperature : -30°C~+60°C (electrified rate below 50%)
- Relative humidity : below 95% RH
- Installation mode : Coil upwards, central axis of valve rotor within  $\pm 15^\circ$  vertical to horizontal surface

#### 04. Electrical Parameters

- Rated voltage : DC12V $\pm$ 10%, rectangular wave
- Actuating mode : 4-phase 8-step permanent magnet stepping motor of direct-acting type
- Excitation mode : 1-2 phase excitation, monopole actuation
- Excitation rate: S01 and S02 series: 30~90PPS (the ending excitation mode maintains more than 0.1~1.0s), S03 series: 30~40PPS (the ending excitation mode maintains more than 0.1~1.0s)
- Current of coil: Coil for S01 and S02 series: 260mA/phase(20°C) Coil for S03 series: 375mA/phase(20°C)
- Resistance of coil : Coil for S01 and S02 series: 46 $\pm$ 3.7  $\Omega$ /phase(20°C), Coil for S03 series: 32 $\pm$ 3.7 $\Omega$ /phase(20°C)
- Insulation grade of coil: E

#### 05. Technical Parameters

Model	Port mm	R22 Nominal Capacity		Max. Operation Pressure Difference MPa			Internal Leakage ml/min			Reverse Open Valve Pressure Difference MPa		
		KW	US.R.T.	R22	R407C	R410A	R22	R407C	R410A	R22	R407C	R410A
DPF(O)1.3	1.3	5.28	1.5	2.26	2.48	3.43	≤ 600	3.0	3.3	4.2		
DPF(O)2.0	2.0	8.8	2.5									
DPF(O)2.4	2.4	10.56	3.0	2.26	2.48	3.43	≤ 1000	3.0	3.3	4.2		
DPF(O)3.2	3.2	14.1	4.0									
DPF(O)3.2	3.2	17.6	5.0	2.26	2.48	3.43	≤ 1000	3.0	3.3	4.2		
DPF(O)4.0	4.0	21.2	6.0									
DPF(O)5.2	5.2	28.1	8.0	2.26	2.48	3.43	≤ 1000	3.0	3.3	4.2		
DPF(O)6.4	6.4	35.2	10.0									
DPF(O)8.0	8.0	47.6	13.3									

- Nominal working conditions: Condensing temperature: 38°C, vaporizing temperature 5°C, Supercooling temperature 0°C, superheat temperature 0°C
- When using other refrigerants, it is need to use a factor to adjust nominal capacity of R22.(R134A - 0.75, R407C - 1, R410A -1.2)

