

EXN Series

Electronic Expansion Valves

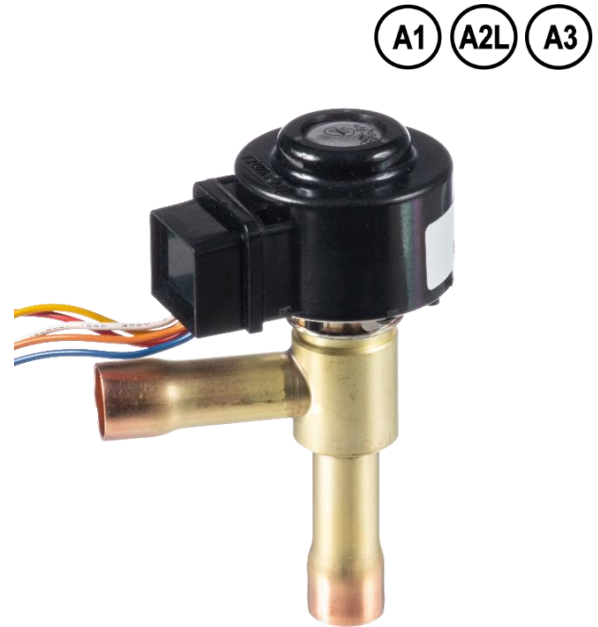
General information

EXN Unipolar stepper motor driven Electronic Expansion Valves are for precise control of refrigerant mass flow in heat pumps, heating units, air conditioning and close control applications.

The valve is not released for refrigeration applications such as cold room and refrigeration display cabinet.

Features

- Hermetic design
- Continuous, linear modulation of mass flow
- Bi-flow with same capacity in normal and reverse flow direction
- Unipolar stepper motor with gear mechanism enabling Bi-flow performance at 36 bar differential pressure across the valve
- High resolution: 2000 pulses (half steps) or 1000 full steps
Removable coil: 12 VDC
- Single packing



EXN with Coil

Selection Table

Type	Part No.	Description	Nominal capacity (kW)										Connections Size / Style
			A1			A2L						A3	
			R410A	R134a	R407C	R32	R454B	R452B	R454C	R1234ze	R1234yf	R290	
EXN-B2K	800421	Valve less coil	34	22.2	30.7	50.6	39	38.8	23.8	17.6	16.3	30	1/2" ODF
EXN-B2L	800422	Valve less coil	42	28.8	37.9	62.5	48.2	48	29.5	21.7	20.1	37	1/2" ODF
EXN-125	800420	Coil 12VDC	-	-	-	-	-	-	-	-	-	-	-

The nominal capacity (Q_n) is based on the following conditions:

Refrigerant	Evaporating temperature	Condensing temperature	Subcooling
R410A, R134a, R32, R1234ze, R1234yf, R290	+4 °C	+38 °C	1 K
R407C, R452B, R454B, R454C	+4 °C dew point	+38 °C bubble	1 K

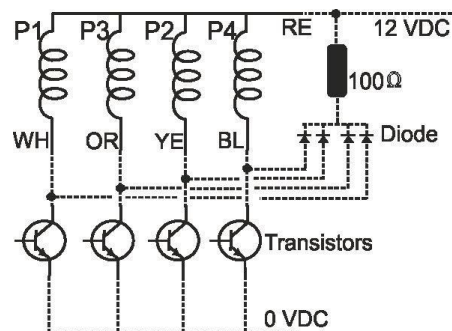
NOTE: For other operating conditions use the quick selection in this document or "Selection" tool (www.copeland.com/en-gb).

For assistance with selection, please contact your local Copeland Sales offices.

Wiring EXN-125 (12 VDC, 5 wires coil)

Phase Number	Wire Colour	Recommended half step pulsing/switching mode				Remark
		1	2	3	4	
P1	White	ON	OFF	OFF	ON	1) The pulse sequence 1 to 4 will be repeated for further pulses in order to close the valve. 2) The pulse sequence 4 to 1 will be repeated for further pulses in order to open the valve.
P2	Yellow	ON	ON	OFF	OFF	
P3	Orange	OFF	ON	ON	OFF	
P4	Blue	OFF	OFF	ON	ON	
	Red	ON	ON	ON	ON	

NOTE: If a 100 Ω resistor against surge is not installed in electronic driving circuit, the torque of EXN stepper motor will decrease, which might lead to lower MOPD than the published 36 bar.



NOTE: P1-P4 = Winding 1-4

RE = red (common), BL = blue,

OR = orange, YE = yellow, WH = white

Consideration for operating unipolar stepper motor in half step mode without holding current

When the pulsing reaches the desired position, the valve gets stabilized by holding the final pulse for at least duration of one pulse up to 0.5 s. Before re-move to a new position, the same previous final pulse must be powered for at least duration of one pulse up to 0.5 s.

NOTE:

Zero pulse (base point) shall be the point of full close position of valve. The rotor movement is limited up to 3500 pulses (half steps) but the valve shall not be operated beyond 2200 pulses (No warranty).

EXN - Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R410A			Capacity (kW)										R410A		Valve Type
	A1	Evaporating temperature (°C)												A1		
		30	25	20	15	10	5	0	-5	-10	-15	-20	-25		-30	
65	24.8	26.0	26.9	27.6	28.1	28.5	28.7	28.7	28.7	28.5	28.2	27.8	27.3	EXN-B2K		
	30.6	32.1	33.2	34.1	34.8	35.2	35.4	35.5	35.4	35.2	34.8	34.3	33.8	EXN-B2L		
60	26.1	27.7	29.0	29.9	30.7	31.2	31.6	31.8	31.9	31.8	31.6	31.3	30.9	EXN-B2K		
	32.3	34.2	35.8	37.0	37.9	38.6	39.0	39.3	39.3	39.3	39.0	38.6	38.2	EXN-B2L		
55	26.0	28.1	29.7	30.9	32.0	32.7	33.3	33.6	33.8	33.9	33.8	33.6	33.3	EXN-B2K		
	32.2	34.7	36.6	38.2	39.5	40.4	41.1	41.5	41.8	41.8	41.7	41.5	41.1	EXN-B2L		
50	24.7	27.3	29.4	31.0	32.3	33.3	34.1	34.6	34.9	35.1	35.2	35.1	34.8	EXN-B2K		
	30.6	33.7	36.3	38.3	39.9	41.1	42.1	42.7	43.2	43.4	43.4	43.3	43.0	EXN-B2L		
45	22.2	25.5	28.1	30.2	31.9	33.1	34.1	34.9	35.4	35.7	35.9	35.9	35.8	EXN-B2K		
	27.4	31.5	34.8	37.3	39.4	40.9	42.2	43.1	43.7	44.2	44.4	44.4	44.2	EXN-B2L		
40	17.9	22.5	26.0	28.6	30.7	32.3	33.6	34.6	35.3	35.8	36.1	36.3	36.3	EXN-B2K		
	22.1	27.8	32.1	35.3	37.9	39.9	41.5	42.7	43.6	44.2	44.6	44.8	44.8	EXN-B2L		
35	10.2	17.9	22.7	26.1	28.8	30.8	32.5	33.7	34.7	35.4	35.9	36.1	36.3	EXN-B2K		
	12.6	22.1	28.0	32.3	35.5	38.1	40.1	41.7	42.8	43.7	44.3	44.6	44.8	EXN-B2L		
30		9.6	17.7	22.5	26.0	28.7	30.7	32.3	33.5	34.5	35.1	35.6	35.8	EXN-B2K		
		11.8	21.8	27.8	32.1	35.4	37.9	39.9	41.4	42.6	43.4	44.0	44.3	EXN-B2L		
25			8.7	17.2	22.2	25.7	28.3	30.3	31.9	33.1	34.0	34.6	35.0	EXN-B2K		
			10.7	21.3	27.4	31.7	35.0	37.5	39.4	40.9	42.0	42.8	43.3	EXN-B2L		
20				7.4	16.6	21.6	25.1	27.7	29.7	31.3	32.4	33.3	33.9	EXN-B2K		
				9.2	20.5	26.7	31.0	34.2	36.7	38.6	40.0	41.1	41.8	EXN-B2L		

EXN - Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R134a Capacity (kW)													Valve Type
	Evaporating temperature (°C)													
	A1	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	
65	21.7	22.1	22.3	22.4	22.3	22.1	21.8	21.4	20.9	20.4	19.8	19.2	18.5	EXN-B2K
	26.8	27.3	27.5	27.6	27.5	27.3	26.9	26.4	25.8	25.2	24.4	23.7	22.8	EXN-B2L
60	21.3	22.0	22.4	22.6	22.7	22.6	22.4	22.1	21.7	21.3	20.8	20.2	19.6	EXN-B2K
	26.4	27.2	27.7	27.9	28.0	27.9	27.7	27.3	26.9	26.3	25.7	25.0	24.2	EXN-B2L
55	20.5	21.4	22.1	22.5	22.7	22.8	22.7	22.5	22.3	21.9	21.5	21.0	20.4	EXN-B2K
	25.3	26.5	27.3	27.8	28.1	28.1	28.1	27.8	27.5	27.0	26.5	25.9	25.2	EXN-B2L
50	19.1	20.4	21.3	22.0	22.4	22.6	22.7	22.6	22.5	22.2	21.8	21.4	20.9	EXN-B2K
	23.6	25.2	26.3	27.1	27.7	27.9	28.0	28.0	27.7	27.4	27.0	26.5	25.9	EXN-B2L
45	17.1	18.8	20.1	21.1	21.7	22.1	22.4	22.4	22.4	22.2	22.0	21.6	21.2	EXN-B2K
	21.1	23.3	24.9	26.0	26.8	27.3	27.6	27.7	27.6	27.4	27.1	26.7	26.2	EXN-B2L
40	14.1	16.6	18.4	19.7	20.6	21.3	21.7	21.9	22.0	22.0	21.8	21.6	21.2	EXN-B2K
	17.4	20.5	22.7	24.3	25.5	26.3	26.8	27.1	27.2	27.1	26.9	26.6	26.2	EXN-B2L
35	9.5	13.5	16.0	17.8	19.1	20.1	20.7	21.1	21.4	21.4	21.4	21.2	21.0	EXN-B2K
	11.7	16.7	19.8	22.0	23.6	24.8	25.6	26.1	26.4	26.5	26.4	26.2	25.9	EXN-B2L
30		8.5	12.7	15.3	17.1	18.4	19.4	20.0	20.4	20.6	20.7	20.7	20.5	EXN-B2K
		10.5	15.7	18.9	21.2	22.8	23.9	24.7	25.2	25.5	25.6	25.5	25.4	EXN-B2L
25			7.3	11.8	14.5	16.3	17.6	18.5	19.1	19.6	19.8	19.9	19.8	EXN-B2K
			9.0	14.5	17.9	20.1	21.7	22.9	23.6	24.2	24.4	24.5	24.5	EXN-B2L
20				5.6	10.7	13.4	15.3	16.6	17.5	18.2	18.6	18.8	18.9	EXN-B2K
				6.9	13.2	16.6	18.9	20.5	21.6	22.4	22.9	23.2	23.3	EXN-B2L

Condensing temperature (°C)	R407C													Valve Type
	Capacity (kW)													
	Evaporating temperature (°C)													
A1	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	A1
65 bubble / 68.5 dew point	26.6	27.4	27.9	28.3	28.4	28.4	28.3	28.1	27.7	27.3	26.8	26.2	25.5	EXN-B2K
	32.9	33.9	34.5	34.9	35.1	35.1	35.0	34.7	34.2	33.7	33.1	32.4	31.6	EXN-B2L
60 bubble/ 63.9 dew point	26.7	27.7	28.5	29.0	29.3	29.5	29.5	29.3	29.1	28.7	28.3	27.8	27.2	EXN-B2K
	32.9	34.2	35.1	35.8	36.2	36.4	36.4	36.2	35.9	35.5	35.0	34.3	33.6	EXN-B2L
55 bubble/ 59.2 dew point	26.0	27.4	28.4	29.1	29.7	30.0	30.1	30.1	30.0	29.7	29.4	28.9	28.4	EXN-B2K
	32.1	33.8	35.1	36.0	36.6	37.0	37.2	37.2	37.0	36.7	36.3	35.8	35.1	EXN-B2L
50 bubble/ 54.4 dew point	24.7	26.4	27.8	28.8	29.5	30.0	30.3	30.5	30.5	30.3	30.1	29.7	29.3	EXN-B2K
	30.5	32.7	34.3	35.6	36.5	37.1	37.5	37.6	37.6	37.4	37.1	36.7	36.2	EXN-B2L
45 bubble/ 49.6 dew point	22.6	24.9	26.6	27.9	28.9	29.7	30.1	30.4	30.5	30.5	30.4	30.1	29.7	EXN-B2K
	27.9	30.7	32.9	34.5	35.7	36.6	37.2	37.6	37.7	37.7	37.5	37.2	36.7	EXN-B2L
40 bubble/ 44.9 dew point	19.5	22.5	24.8	26.6	27.9	28.8	29.5	30.0	30.3	30.4	30.3	30.2	29.9	EXN-B2K
	24.0	27.8	30.7	32.8	34.4	35.6	36.5	37.0	37.4	37.5	37.5	37.3	36.9	EXN-B2L
35 bubble/ 40.1 dew point	14.8	19.3	22.3	24.6	26.3	27.6	28.5	29.2	29.6	29.9	30.0	29.9	29.7	EXN-B2K
	18.3	23.8	27.6	30.4	32.5	34.1	35.2	36.0	36.6	36.9	37.0	36.9	36.7	EXN-B2L
30 bubble/ 35.2 dew point		14.4	18.9	21.9	24.2	25.8	27.1	28.0	28.6	29.1	29.3	29.4	29.3	EXN-B2K
		17.8	23.3	27.1	29.8	31.9	33.4	34.6	35.4	35.9	36.2	36.3	36.2	EXN-B2L
25 bubble/ 30.4 dew point			13.9	18.3	21.3	23.5	25.2	26.4	27.3	27.9	28.3	28.5	28.6	EXN-B2K
			17.1	22.6	26.4	29.1	31.1	32.6	33.7	34.5	34.9	35.2	35.3	EXN-B2L
20 bubble/ 25.6 dew point				13.1	17.6	20.6	22.8	24.4	25.5	26.4	27.0	27.3	27.5	EXN-B2K
				16.2	21.7	25.4	28.1	30.1	31.6	32.6	33.3	33.8	34.0	EXN-B2L

EXN - Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R32		Capacity (kW)											R32		Valve Type
	A2L	Evaporating temperature (°C)												A2L		
		30	25	20	15	10	5	0	-5	-10	-15	-20	-25		-30	
65	42.0	44.3	46.2	47.9	49.2	50.3	51.1	51.7	52.2	52.4	52.5	52.5	52.4	EXN-B2K		
	51.8	54.7	57.1	59.1	60.8	62.1	63.1	63.9	64.4	64.8	64.9	64.9	64.7	EXN-B2L		
60	41.9	44.7	47.1	49.0	50.6	51.9	53.0	53.8	54.4	54.8	55.1	55.1	55.1	EXN-B2K		
	51.8	55.2	58.1	60.5	62.5	64.2	65.5	66.5	67.2	67.7	68.0	68.1	68.0	EXN-B2L		
55	40.4	43.7	46.6	48.9	50.8	52.4	53.7	54.7	55.5	56.1	56.4	56.6	56.7	EXN-B2K		
	49.9	54.0	57.5	60.4	62.8	64.7	66.3	67.6	68.5	69.2	69.7	69.9	70.0	EXN-B2L		
50	37.4	41.5	44.9	47.7	50.0	51.9	53.5	54.7	55.7	56.4	56.9	57.2	57.4	EXN-B2K		
	46.2	51.3	55.5	58.9	61.8	64.1	66.0	67.6	68.8	69.7	70.3	70.7	70.9	EXN-B2L		
45	32.9	38.0	42.2	45.6	48.3	50.6	52.4	53.9	55.1	56.0	56.7	57.2	57.5	EXN-B2K		
	40.6	47.0	52.1	56.3	59.7	62.5	64.8	66.6	68.1	69.2	70.1	70.6	71.0	EXN-B2L		
40	26.1	33.1	38.3	42.4	45.7	48.5	50.7	52.5	53.9	55.0	55.9	56.5	56.9	EXN-B2K		
	32.2	40.8	47.3	52.4	56.5	59.8	62.6	64.8	66.6	68.0	69.0	69.8	70.3	EXN-B2L		
35	14.6	25.9	32.9	38.1	42.2	45.5	48.2	50.3	52.1	53.4	54.5	55.3	55.8	EXN-B2K		
	18.1	32.0	40.6	47.1	52.2	56.2	59.5	62.2	64.3	66.0	67.3	68.3	69.0	EXN-B2L		
30		13.7	25.4	32.5	37.7	41.7	45.0	47.5	49.6	51.3	52.6	53.6	54.3	EXN-B2K		
		16.9	31.3	40.1	46.5	51.5	55.5	58.7	61.3	63.3	64.9	66.2	67.1	EXN-B2L		
25			12.3	24.6	31.7	36.9	40.9	44.1	46.6	48.6	50.2	51.4	52.3	EXN-B2K		
			15.2	30.3	39.2	45.6	50.5	54.4	57.5	60.0	61.9	63.5	64.6	EXN-B2L		
20				10.6	23.5	30.7	35.9	39.8	42.9	45.3	47.2	48.7	49.9	EXN-B2K		
				13.1	29.0	38.0	44.3	49.2	53.0	56.0	58.3	60.2	61.6	EXN-B2L		

Condensing temperature (°C)	R454B		Capacity (kW)											R454B		Valve Type
	A2L	Evaporating temperature (°C)												A2L		
		30	25	20	15	10	5	0	-5	-10	-15	-20	-25		-30	
65	31.0	32.4	33.6	34.5	35.2	35.7	36.1	36.2	36.3	36.2	36.0	35.7	35.3	EXN-B2K		
	38.3	40.1	41.5	42.7	43.5	44.1	44.6	44.8	44.8	44.7	44.5	44.1	43.6	EXN-B2L		
60	31.5	33.3	34.8	36.0	36.9	37.6	38.1	38.4	38.6	38.6	38.5	38.3	38.0	EXN-B2K		
	38.9	41.2	43.0	44.5	45.6	46.4	47.1	47.5	47.7	47.7	47.6	47.3	46.9	EXN-B2L		
55	30.8	33.1	34.9	36.4	37.5	38.4	39.1	39.6	39.9	40.0	40.0	39.9	39.7	EXN-B2K		
	38.1	40.9	43.1	44.9	46.4	47.5	48.3	48.9	49.3	49.5	49.5	49.3	49.0	EXN-B2L		
50	29.0	31.8	34.1	35.9	37.3	38.5	39.4	40.0	40.5	40.8	40.9	40.9	40.7	EXN-B2K		
	35.9	39.3	42.1	44.4	46.2	47.6	48.7	49.5	50.0	50.4	50.5	50.5	50.3	EXN-B2L		
45	26.1	29.6	32.4	34.7	36.5	37.9	39.0	39.9	40.5	40.9	41.2	41.3	41.2	EXN-B2K		
	32.2	36.6	40.1	42.8	45.1	46.8	48.2	49.3	50.1	50.6	50.9	51.0	51.0	EXN-B2L		
40	21.6	26.3	29.9	32.7	34.9	36.7	38.1	39.2	40.0	40.6	41.0	41.2	41.3	EXN-B2K		
	26.6	32.5	36.9	40.4	43.1	45.3	47.1	48.4	49.4	50.2	50.7	50.9	51.0	EXN-B2L		
35	14.3	21.5	26.3	29.9	32.6	34.8	36.6	37.9	39.0	39.8	40.3	40.7	40.9	EXN-B2K		
	17.7	26.5	32.5	36.9	40.3	43.1	45.2	46.9	48.2	49.2	49.9	50.3	50.6	EXN-B2L		
30		13.8	21.2	26.0	29.6	32.3	34.5	36.2	37.5	38.5	39.3	39.8	40.1	EXN-B2K		
		17.0	26.2	32.1	36.6	40.0	42.6	44.7	46.4	47.6	48.6	49.2	49.6	EXN-B2L		
25			13.0	20.6	25.5	29.1	31.8	33.9	35.6	36.8	37.8	38.5	39.0	EXN-B2K		
			16.0	25.5	31.5	35.9	39.3	41.9	44.0	45.5	46.7	47.6	48.2	EXN-B2L		
20				11.9	19.8	24.8	28.3	31.0	33.1	34.7	35.9	36.9	37.5	EXN-B2K		
				14.7	24.5	30.6	35.0	38.3	40.9	42.9	44.4	45.5	46.4	EXN-B2L		

EXN - Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R452B													Valve Type
	Capacity (kW)													
	A2L	Evaporating temperature (°C)											A2L	
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	30.6	32.0	33.1	34.1	34.8	35.3	35.6	35.8	35.8	35.8	35.6	35.3	34.9	EXN-B2K
	37.8	39.5	41.0	42.1	43.0	43.6	44.0	44.2	44.3	44.2	44.0	43.6	43.1	EXN-B2L
60	31.3	33.1	34.5	35.7	36.6	37.3	37.9	38.2	38.4	38.4	38.3	38.1	37.8	EXN-B2K
	38.6	40.9	42.7	44.1	45.3	46.2	46.8	47.2	47.4	47.5	47.4	47.1	46.7	EXN-B2L
55	30.6	32.9	34.7	36.2	37.4	38.3	39.0	39.5	39.8	40.0	40.0	39.9	39.7	EXN-B2K
	37.9	40.7	42.9	44.7	46.2	47.4	48.2	48.8	49.2	49.4	49.5	49.3	49.1	EXN-B2L
50	28.9	31.7	34.0	35.8	37.3	38.5	39.4	40.0	40.5	40.8	41.0	41.0	40.8	EXN-B2K
	35.7	39.2	42.0	44.2	46.1	47.5	48.7	49.5	50.1	50.5	50.6	50.6	50.5	EXN-B2L
45	25.9	29.5	32.3	34.6	36.4	37.9	39.0	39.9	40.6	41.0	41.3	41.4	41.4	EXN-B2K
	32.0	36.4	39.9	42.8	45.0	46.8	48.3	49.4	50.2	50.7	51.1	51.2	51.2	EXN-B2L
40	21.3	26.1	29.8	32.6	34.9	36.7	38.1	39.2	40.1	40.7	41.1	41.4	41.5	EXN-B2K
	26.4	32.3	36.8	40.3	43.1	45.3	47.1	48.5	49.6	50.3	50.9	51.2	51.3	EXN-B2L
35	13.9	21.2	26.1	29.7	32.6	34.8	36.6	38.0	39.1	39.9	40.5	40.9	41.1	EXN-B2K
	17.1	26.2	32.3	36.8	40.3	43.0	45.3	47.0	48.3	49.4	50.1	50.6	50.8	EXN-B2L
30		13.2	20.9	25.8	29.5	32.3	34.5	36.3	37.6	38.7	39.5	40.0	40.4	EXN-B2K
		16.4	25.8	31.9	36.4	39.9	42.7	44.8	46.5	47.8	48.8	49.5	49.9	EXN-B2L
25			12.4	20.3	25.3	29.0	31.8	34.0	35.7	37.0	38.0	38.7	39.2	EXN-B2K
			15.3	25.1	31.3	35.8	39.3	42.0	44.1	45.7	46.9	47.9	48.5	EXN-B2L
20				11.2	19.5	24.6	28.2	31.0	33.1	34.8	36.1	37.0	37.7	EXN-B2K
				13.8	24.1	30.4	34.9	38.3	41.0	43.0	44.6	45.8	46.6	EXN-B2L

Condensing temperature (°C)	R454C													Valve Type
	Capacity (kW)													
	A2L	Evaporating temperature (°C)											A2L	
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	19.0	19.4	19.6	19.7	19.6	19.5	19.2	18.8	18.4	17.9	17.3	16.7	16.1	EXN-B2K
	23.6	24.1	24.3	24.4	24.3	24.1	23.8	23.3	22.8	22.2	21.5	20.7	19.9	EXN-B2L
60	19.6	20.2	20.6	20.8	20.9	20.8	20.6	20.3	20.0	19.6	19.1	18.5	17.9	EXN-B2K
	24.2	25.0	25.5	25.8	25.8	25.8	25.6	25.2	24.8	24.2	23.6	23.0	22.2	EXN-B2L
55	19.5	20.4	21.0	21.4	21.6	21.6	21.6	21.4	21.1	20.8	20.4	19.9	19.3	EXN-B2K
	24.2	25.2	26.0	26.5	26.7	26.8	26.8	26.5	26.2	25.8	25.2	24.6	24.0	EXN-B2L
50	18.9	20.0	20.9	21.5	21.9	22.1	22.2	22.1	21.9	21.7	21.3	20.9	20.4	EXN-B2K
	23.4	24.8	25.9	26.6	27.1	27.4	27.5	27.4	27.2	26.9	26.4	25.9	25.3	EXN-B2L
45	17.6	19.2	20.4	21.2	21.8	22.2	22.4	22.5	22.4	22.2	22.0	21.6	21.2	EXN-B2K
	21.9	23.8	25.2	26.3	27.0	27.5	27.8	27.8	27.8	27.5	27.2	26.8	26.3	EXN-B2L
40	15.7	17.8	19.3	20.5	21.3	21.9	22.3	22.5	22.5	22.5	22.3	22.1	21.7	EXN-B2K
	19.4	22.0	24.0	25.4	26.4	27.1	27.6	27.9	27.9	27.9	27.7	27.3	26.9	EXN-B2L
35	12.6	15.6	17.7	19.3	20.4	21.3	21.8	22.2	22.4	22.5	22.4	22.2	22.0	EXN-B2K
	15.7	19.4	22.0	23.9	25.3	26.3	27.1	27.5	27.8	27.8	27.8	27.5	27.2	EXN-B2L
30		12.4	15.4	17.6	19.1	20.2	21.0	21.6	21.9	22.1	22.2	22.1	22.0	EXN-B2K
		15.4	19.1	21.8	23.7	25.1	26.1	26.8	27.2	27.4	27.5	27.4	27.2	EXN-B2L
25			12.1	15.1	17.2	18.7	19.8	20.6	21.2	21.5	21.7	21.8	21.7	EXN-B2K
			15.0	18.7	21.3	23.2	24.6	25.6	26.3	26.7	26.9	27.0	26.9	EXN-B2L
20				11.5	14.6	16.7	18.2	19.3	20.1	20.6	21.0	21.2	21.2	EXN-B2K
				14.3	18.1	20.7	22.6	23.9	24.9	25.6	26.0	26.2	26.3	EXN-B2L

EXN - Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	R1234ze													Valve Type
	Capacity (kW)													
	A2L	Evaporating temperature (°C)											A2L	
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	16.7	17.1	17.3	17.4	17.4	17.2	16.9	16.6	16.2	15.7	15.2	14.7	14.1	EXN-B2K
	20.6	21.1	21.4	21.5	21.4	21.2	20.9	20.5	20.0	19.4	18.7	18.1	17.3	EXN-B2L
60	15.9	16.5	17.0	17.2	17.3	17.3	17.1	16.9	16.5	16.2	15.7	15.2	14.7	EXN-B2K
	19.6	20.4	20.9	21.2	21.3	21.3	21.1	20.8	20.4	19.9	19.4	18.8	18.1	EXN-B2L
55	14.6	15.6	16.3	16.7	17.0	17.1	17.0	16.9	16.7	16.4	16.0	15.6	15.1	EXN-B2K
	18.0	19.2	20.1	20.6	20.9	21.0	21.0	20.8	20.5	20.2	19.7	19.2	18.6	EXN-B2L
50	12.7	14.2	15.2	15.9	16.3	16.6	16.7	16.7	16.6	16.3	16.1	15.7	15.3	EXN-B2K
	15.7	17.5	18.7	19.6	20.1	20.5	20.6	20.6	20.4	20.1	19.8	19.4	18.9	EXN-B2L
45	10.0	12.2	13.7	14.7	15.4	15.8	16.1	16.2	16.2	16.1	15.9	15.6	15.3	EXN-B2K
	12.4	15.0	16.8	18.1	19.0	19.5	19.9	20.0	20.0	19.9	19.6	19.3	18.9	EXN-B2L
40	5.4	9.3	11.5	13.0	14.1	14.8	15.2	15.5	15.6	15.6	15.5	15.4	15.1	EXN-B2K
	6.6	11.5	14.2	16.1	17.3	18.2	18.8	19.1	19.3	19.3	19.2	18.9	18.6	EXN-B2L
35		3.9	8.4	10.8	12.3	13.3	14.1	14.5	14.8	15.0	15.0	14.9	14.7	EXN-B2K
		4.8	10.4	13.3	15.1	16.4	17.3	17.9	18.3	18.4	18.5	18.3	18.1	EXN-B2L
30			0.7	7.3	9.8	11.4	12.5	13.2	13.7	14.0	14.2	14.2	14.1	EXN-B2K
			0.9	9.1	12.1	14.1	15.4	16.3	16.9	17.3	17.5	17.5	17.4	EXN-B2L
25					6.0	8.8	10.4	11.5	12.3	12.8	13.1	13.3	13.3	EXN-B2K
					7.4	10.8	12.9	14.2	15.2	15.8	16.1	16.3	16.4	EXN-B2L
20						4.1	7.5	9.3	10.4	11.2	11.7	12.1	12.2	EXN-B2K
						5.1	9.2	11.4	12.9	13.8	14.5	14.9	15.1	EXN-B2L

Condensing temperature (°C)	R1234yf													Valve Type
	Capacity (kW)													
	A2L	Evaporating temperature (°C)											A2L	
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	14.2	14.5	14.6	14.5	14.4	14.1	13.8	13.4	12.9	12.3	11.8	11.2	10.5	EXN-B2K
	17.5	17.8	18.0	17.9	17.7	17.4	17.0	16.5	15.9	15.2	14.5	13.8	13.0	EXN-B2L
60	14.0	14.5	14.8	14.9	14.9	14.7	14.5	14.2	13.8	13.3	12.8	12.2	11.7	EXN-B2K
	17.2	17.8	18.2	18.4	18.3	18.2	17.9	17.5	17.0	16.4	15.8	15.1	14.4	EXN-B2L
55	13.3	14.1	14.6	14.9	15.0	15.0	14.9	14.7	14.4	14.0	13.6	13.1	12.6	EXN-B2K
	16.3	17.3	18.0	18.4	18.5	18.5	18.4	18.1	17.7	17.3	16.7	16.1	15.5	EXN-B2L
50	12.0	13.2	14.0	14.6	14.9	15.0	15.1	15.0	14.8	14.5	14.1	13.7	13.2	EXN-B2K
	14.8	16.3	17.3	18.0	18.4	18.6	18.6	18.4	18.2	17.8	17.4	16.9	16.3	EXN-B2L
45	10.0	11.8	13.0	13.9	14.4	14.8	14.9	15.0	14.9	14.7	14.4	14.1	13.7	EXN-B2K
	12.3	14.5	16.0	17.1	17.8	18.2	18.4	18.4	18.3	18.1	17.8	17.4	16.9	EXN-B2L
40	6.7	9.6	11.5	12.7	13.6	14.2	14.5	14.7	14.7	14.7	14.5	14.3	13.9	EXN-B2K
	8.2	11.9	14.2	15.7	16.8	17.5	17.9	18.1	18.2	18.1	17.9	17.6	17.2	EXN-B2L
35		6.0	9.2	11.1	12.3	13.2	13.8	14.2	14.4	14.4	14.4	14.2	14.0	EXN-B2K
		7.4	11.3	13.6	15.2	16.3	17.0	17.5	17.7	17.8	17.7	17.5	17.2	EXN-B2L
30			5.1	8.5	10.5	11.8	12.7	13.3	13.7	13.9	14.0	13.9	13.8	EXN-B2K
			6.3	10.5	13.0	14.6	15.7	16.4	16.9	17.2	17.2	17.2	17.0	EXN-B2L
25				3.8	7.8	9.9	11.2	12.1	12.8	13.1	13.4	13.4	13.4	EXN-B2K
				4.7	9.6	12.2	13.8	15.0	15.7	16.2	16.5	16.6	16.5	EXN-B2L
20					1.7	6.9	9.1	10.5	11.4	12.1	12.5	12.7	12.8	EXN-B2K
					2.1	8.5	11.2	12.9	14.1	14.9	15.4	15.7	15.8	EXN-B2L

EXN - Quick selection (included 1.5 bar pressure drop for liquid line components and distributor)

Condensing temperature (°C)	Capacity (kW)													Valve Type
	R290													
	A3	Evaporating temperature (°C)											A3	
	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	
65	26.6	27.5	28.1	28.5	28.6	28.6	28.5	28.2	27.8	27.3	26.8	26.1	25.4	EXN-B2K
	32.9	33.9	34.7	35.1	35.3	35.3	35.1	34.8	34.3	33.7	33.0	32.2	31.4	EXN-B2L
60	25.9	27.2	28.0	28.7	29.0	29.2	29.3	29.1	28.9	28.5	28.0	27.5	26.9	EXN-B2K
	32.0	33.5	34.6	35.4	35.8	36.1	36.1	35.9	35.6	35.1	34.6	33.9	33.1	EXN-B2L
55	24.5	26.2	27.4	28.3	29.0	29.4	29.6	29.6	29.5	29.2	28.9	28.4	27.9	EXN-B2K
	30.2	32.3	33.8	34.9	35.7	36.2	36.5	36.5	36.4	36.1	35.6	35.1	34.4	EXN-B2L
50	22.2	24.5	26.2	27.5	28.4	29.1	29.5	29.7	29.7	29.6	29.4	29.0	28.6	EXN-B2K
	27.4	30.2	32.3	33.9	35.0	35.8	36.3	36.6	36.7	36.5	36.2	35.8	35.3	EXN-B2L
45	18.8	22.0	24.3	26.0	27.3	28.3	28.9	29.3	29.6	29.6	29.5	29.3	29.0	EXN-B2K
	23.2	27.1	30.0	32.1	33.7	34.9	35.7	36.2	36.5	36.5	36.4	36.1	35.7	EXN-B2L
40	13.5	18.4	21.6	24.0	25.7	27.0	28.0	28.6	29.0	29.3	29.3	29.2	29.0	EXN-B2K
	16.7	22.7	26.7	29.6	31.7	33.3	34.5	35.3	35.8	36.1	36.1	36.0	35.8	EXN-B2L
35		12.8	17.8	21.1	23.5	25.2	26.5	27.5	28.1	28.5	28.8	28.8	28.7	EXN-B2K
		15.8	21.9	26.0	28.9	31.1	32.7	33.9	34.7	35.2	35.5	35.5	35.4	EXN-B2L
30			11.9	17.1	20.4	22.8	24.6	25.9	26.8	27.5	27.9	28.1	28.2	EXN-B2K
			14.6	21.0	25.2	28.1	30.3	31.9	33.1	33.9	34.4	34.7	34.7	EXN-B2L
25				10.7	16.2	19.6	22.0	23.8	25.1	26.0	26.6	27.0	27.3	EXN-B2K
				13.2	20.0	24.2	27.1	29.3	30.9	32.0	32.8	33.4	33.6	EXN-B2L
20					9.3	15.1	18.6	21.0	22.8	24.1	25.0	25.6	26.1	EXN-B2K
					11.5	18.6	23.0	25.9	28.1	29.7	30.8	31.6	32.1	EXN-B2L

Technical Data

Max. allowable Pressure PS	45 bar
MOPD (maximum operating pressure differential)	36 bar in normal flow 36 bar in reverse flow
Temperatures Storage/ Ambient/ Transport Medium	-30...+60 °C -30...+70 °C
External leakage	1x10 ⁻⁶ Pa.m³/s at 43 bar pressure
Vibration at three axis (X, Y, Z)	9.8 m/s² (1 g) Frequency: 10...150 Hz
Air seat leakage at 10 bar differential pressure	< 400 cm³/min.
Resistant to humidity test	90...95 % RH at 50 °C for 96 h
Hysteresis	40 pulses
Endurance/ Durability	- 200000 full cycles pressurizing between 4 and 43 bar - 100000 cycles (2000 pulses open and 2200 pulses close) at 36 bar pressure differential

Released Refrigerants	
Fluid group II	R134a, R410A, R407C, R1234ze* A1
Fluid group I	R32, R454B, R452B, R454C, R1234yf A2L
Fluid group I	R290 A3
NOTE: Fluid group classification according to PED 2014/68/EU. *) A2L according ASHRAE	
Bi-flow direction	Normal: Connection A to B Reverse: Connection B to A
Valve installation	Coil upside or to vertical within ± 90°
Inlet and outlet connection	Copper 1/2" ODF brazing
Weight	Valve EXN: 163 g Coil EXN: 158 g
Package and delivery	Individual single packing for valves and coil
Salt spray test	At 35 °C, 5 % NaCl concentration for 72 h
Markings	CE not required

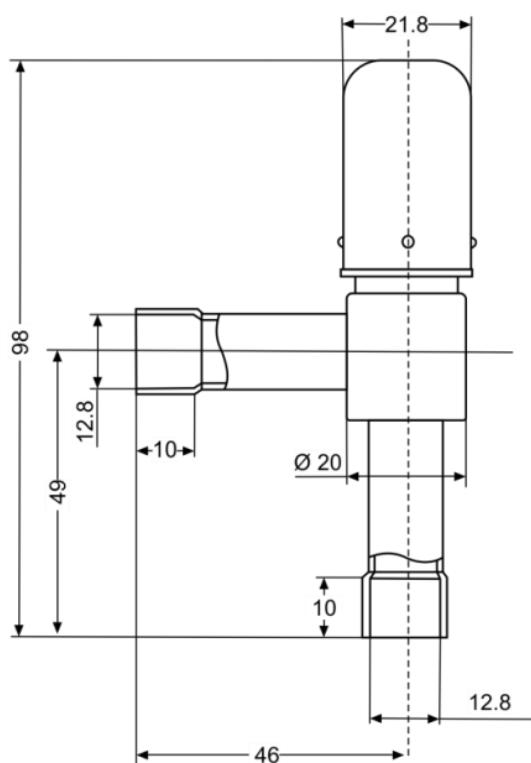
Electrical Data

Stepper motor type	Uni-polar, constant voltage, 5 wires
Supply voltage	12 VDC coil: 12 V $\pm$ 10 %
Nominal operating current	80 mA (each phase)
Winding resistance per phase	150 Ω $\pm$ 10 % at 20 °C
Insulation resistance	Min. 100 M Ω at 500 VDC
Coil insulation class	A
Dielectric strength	500 VAC for 1 minute 600 VAC for 1 second
Cable length	1 m
Step mode	Half step = one pulse

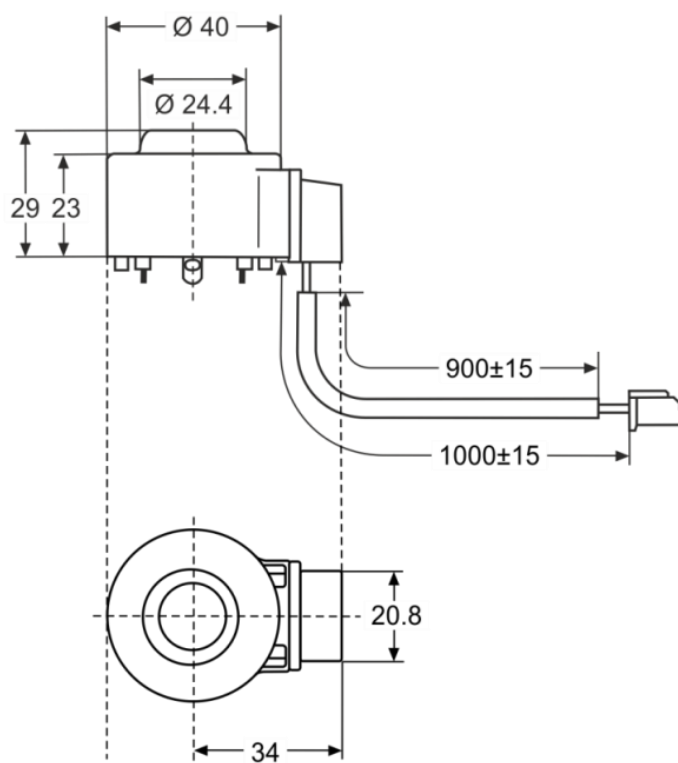
Total number of pulses	2000 half step (1000 full step)
Valve starts to open at:	100 $\pm$ 60 pulses
Pulsing rate frequency (pulse/sec.)	100...200 Hz
Full travel time	20 seconds at 100 Hz 10 seconds at 200 Hz
Reference position	Mechanical stop at fully close position at 2200 pulses
Electrical connection	JST XH connector, 5 pole Housing: XHP-5 Pin: SXH-001T-P0.6 

Dimension (mm)

Valve



Coil



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