

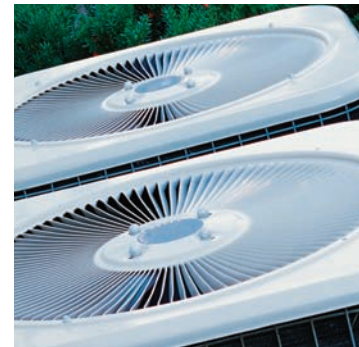


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J8 Thermostatic Expansion Valve

Products & Custom Solutions
Bulletin 10-10-7, October 2010



ENGINEERING YOUR SUCCESS.

The J8 Thermostatic Expansion Valve

Introduction

The J8 Thermostatic Expansion Valves are designed to regulate refrigerant flow into evaporators as a response to sensed superheat value. They can be used in a wide range of AC and refrigeration applications.

Features

- Adjustable superheat
- 8 Replaceable orifice assemblies
- Temperature range from -40°C to +15°C
- Thermostatic charges with or without MOP (Maximum Operating Pressure)
- Solder ODF (with inlet connector) or Flare SAE fittings
- Stainless steel thermostatic element
- Copper sensing bulb
- EC compliant (PED & RoHS Compliant)

Technical Specifications

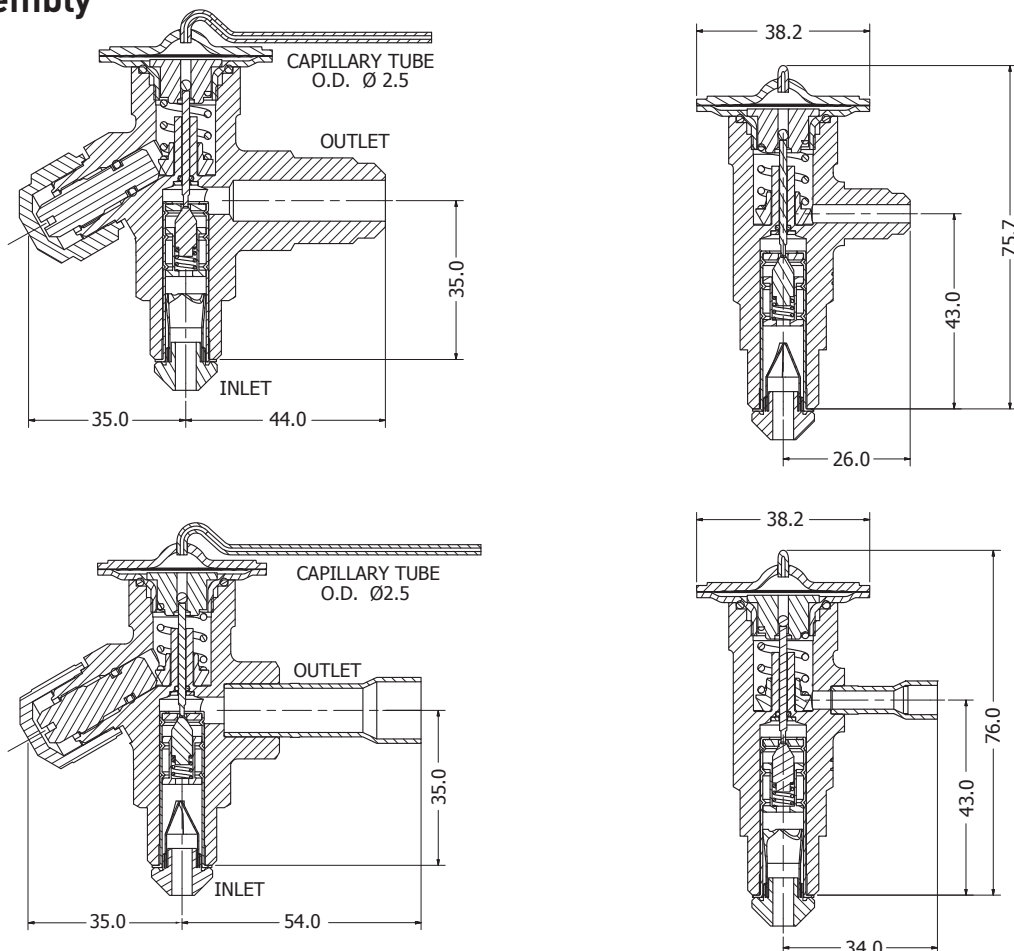
- Maximum bulb temperature: 100°C
- Maximum valve body temperature: 121°C
- Short-lived peak: 149°C
- Maximum working pressure MWP: 34 bar
- Maximum test pressure: 38 bar

J8 valves are supplied as three individual component parts that need to be ordered separately:

- Valve body & Thermostatic element assembly
- Cartridge & Filter assembly
- Inlet ODF adaptor (not mandatory)

Please refer to further sections for selection/ordering information.

J8 Assembly



All dimensions in millimeters (mm).

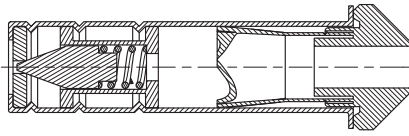
Valve Body & Thermostatic Element Assembly

Valve Type	Refrigerant	Equalizer	Connections		Equalizer	MOP bar / °C	Evaporator Temperature Range °C	Capillary Tube Length cm	
			Inlet	Outlet					
J8EF-NW	407C	External	3/8" SAE	1/2"	1/4"	–	-40°C to +15°C	150	
J8EF-NX100				SAE	SAE	6.9 bar / +17°C			
J8EM-NW				12mm	6mm	–			
J8EM-NX100				ODF	ODF	6.9 bar / +17°C			
J8ES-NW				1/2"	1/4"	–			
J8ES-NX100				ODF	ODF	6.9 bar / +17°C			
J8F-NW		Internal			1/2"				–
J8F-NX100					SAE				6.9 bar / +17°C
J8M-NW					12mm	–			–
J8M-NX100					ODF				6.9 bar / +17°C
J8S-NW					1/2"				–
J8S-NX100					ODF				6.9 bar / +17°C
J8EF-JW	134a	External	3/8" SAE	1/2"	1/4"	–	-40°C to +15°C	150	
J8EF-JX60				SAE	SAE	4.1 bar / +17°C			
J8EM-JW				12mm	6mm	–			
J8EM-JX60				ODF	ODF	4.1 bar / +17°C			
J8ES-JW				1/2"	1/4"	–			
J8ES-JX60				ODF	ODF	4.1 bar / +17°C			
J8F-JW		Internal			1/2"				–
J8F-JX60					SAE				4.1 bar / +17°C
J8M-JW					12mm	–			–
J8M-JX60					ODF				4.1 bar / +17°C
J8S-JW					1/2"				–
J8S-JX60					ODF				4.1 bar / +17°C
J8EF-SW	404A	External	3/8" SAE	1/2"	1/4"	–	-40°C to +10°C	150	
J8EF-SX110				SAE	SAE	7.6 bar / +12°C			
J8EF-SX35						2.4 bar / -17°C			-40°C to -18°C
J8EM-SW				12mm	6mm	–			-40°C to +10°C
J8EM-SX110				ODF	ODF	7.6 bar / +12°C			-40°C to +10°C
J8EM-SX35						2.4 bar / -17°C			-40°C to -18°C
J8ES-SW				1/2"	1/4"	–			-40°C to +10°C
J8ES-SX110				ODF	ODF	7.6 bar / +12°C			-40°C to +10°C
J8ES-SX35						2.4 bar / -17°C			-40°C to -18°C
J8F-SW		Internal			1/2"		–		-40°C to +10°C
J8F-SX110					SAE		7.6 bar / +12°C		-40°C to +10°C
J8F-SX35							2.4 bar / -17°C		-40°C to -18°C
J8M-SW					12mm	–	–		-40°C to +10°C
J8M-SX110					ODF		7.6 bar / +12°C		-40°C to +10°C
J8M-SX35							2.4 bar / -17°C		-40°C to -18°C
J8S-SW					1/2"		–		-40°C to +10°C
J8S-SX110					ODF		7.6 bar / +12°C		-40°C to +10°C
J8S-SX35							2.4 bar / -17°C		-40°C to -18°C

Cartridge & Filter Assembly

Cartridge and Filter Assembly ¹
 Rated Capacities, kW ²

Item	R407C	R134a	R404A
J8C-0X	0.57	0.44	0.45
J8C-00	1.0	0.77	0.79
J8C-01	2.3	1.7	1.6
J8C-02	3.7	3.1	2.8
J8C-03	5.5	4.6	4.2
J8C-04	8.3	6.9	6.3
J8C-05	10.5	8.7	8.0
J8C-06	15.0	10.4	9.6



■ The cartridge orifice is stamped with the orifice size, ex. C-0X



■ A metallic tag is provided with each individual cartridge and should be fixed on the cap tube as the orifice is installed in the valves body.

¹ All J8 cartridges are supplied with conical filters. Please contact your Parker Sales Representative in case a flat filter is required.

² The rated capacity is based on the following conditions:

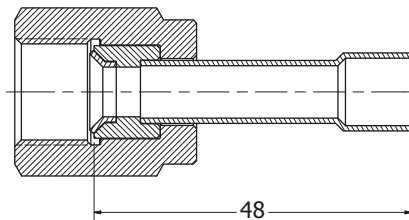
- Evaporating temperature, $T_e = +5^\circ\text{C}$
- Condensing temperature, $T_c = +32^\circ\text{C}$
- Refrigerant temperature ahead of valve, $T_1 = +28^\circ\text{C}$

Inlet ODF Adaptor

All J8 Thermostatic Expansion Valves feature 3/8" SAE inlet fitting. Solder inlet adaptors are available from Parker/Sporlan distributors.

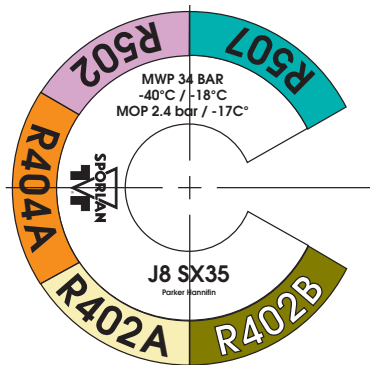
Solder adaptors allow the installation of the J8 TEV and easy access of cartridge orifice & filter assembly. Parker/Sporlan J8 Adaptors have been designed to be used with flare orifice filter.

Item	Description
J8A-6M	J8 Inlet Adaptor 3/8" SAE to 6mm ODF
J8A-10M	J8 Inlet Adaptor 3/8" SAE to 10mm ODF
J8A-2	J8 Inlet Adaptor 3/8" SAE to 1/4" ODF
J8A-3	J8 Inlet Adaptor 3/8" SAE to 3/8" ODF



All dimensions in millimeters (mm).

Identification



The main information about the valve is provided on the element label:

- Element assembly type J8 SX35
- Refrigerant
- Maximum Working Pressure (MWP) = 34 bar
- Evaporating temperature range in °C = -40°C/-18°C
- Maximum Operating Pressure (MOP) point in bar & °C = MOP 2.4 bar/-17°C
- Manufacturing Date Code

Selection Tables

R407C Capacity Tables (kW)

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature +10°C								
J8C-0X	0.52	0.73	0.90	1.0	1.2	1.3	1.4	1.5
J8C-00	0.91	1.3	1.6	1.8	2.0	2.2	2.4	2.6
J8C-01	1.6	2.2	2.7	3.2	3.5	3.9	4.2	4.5
J8C-02	2.8	4.0	4.9	5.6	6.3	6.9	7.4	7.9
J8C-03	4.2	6.0	7.3	8.4	9.4	10.3	11.2	11.9
J8C-04	6.3	9.0	11.0	12.7	14.2	15.5	16.8	17.9
J8C-05	8.0	11.4	13.9	16.1	18.0	19.7	21.3	22.7
J8C-06	9.6	13.6	16.6	19.2	21.5	23.5	25.4	27.2

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature 0°C								
J8C-0X	0.50	0.71	0.87	1.0	1.1	1.2	1.3	1.4
J8C-00	0.89	1.3	1.5	1.8	2.0	2.2	2.3	2.5
J8C-01	1.5	2.2	2.7	3.1	3.4	3.8	4.1	4.3
J8C-02	2.7	3.9	4.7	5.5	6.1	6.7	7.2	7.7
J8C-03	4.1	5.8	7.1	8.2	9.2	10.1	10.9	11.6
J8C-04	6.2	8.7	10.7	12.3	13.8	15.1	16.3	17.4
J8C-05	7.8	11.1	13.5	15.6	17.5	19.2	20.7	22.1
J8C-06	9.3	13.2	16.2	18.7	20.9	22.9	24.7	26.4

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -10°C								
J8C-0X	0.48	0.68	0.83	0.96	1.1	1.2	1.3	1.4
J8C-00	0.84	1.2	1.4	1.7	1.9	2.0	2.2	2.4
J8C-01	1.5	2.1	2.5	2.9	3.2	3.6	3.8	4.1
J8C-02	2.6	3.6	4.5	5.2	5.8	6.3	6.8	7.3
J8C-03	3.9	5.5	6.7	7.8	8.7	9.5	10.3	11.0
J8C-04	5.8	8.3	10.1	11.7	13.1	14.3	15.5	16.5
J8C-05	7.5	10.6	13.0	15.0	16.8	18.4	19.9	21.2
J8C-06	8.8	12.5	15.3	17.7	19.8	21.7	23.4	25.0

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -20°C								
J8C-0X	–	0.61	0.75	0.87	0.97	1.1	1.1	1.2
J8C-00	–	0.93	1.1	1.3	1.5	1.6	1.7	1.9
J8C-01	–	1.7	2.1	2.4	2.7	2.9	3.1	3.4
J8C-02	–	2.8	3.4	4.0	4.4	4.9	5.2	5.6
J8C-03	–	4.5	5.5	6.4	7.1	7.8	8.4	9.0
J8C-04	–	6.4	7.8	9.0	10.1	11.0	11.9	12.7
J8C-05	–	8.5	10.4	12.0	13.4	14.7	15.8	16.9
J8C-06	–	9.8	12.0	13.8	15.5	16.9	18.3	19.6

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -30°C								
J8C-0X	–	0.54	0.66	0.76	0.85	0.93	1.0	1.1
J8C-00	–	0.69	0.84	0.97	1.1	1.2	1.3	1.4
J8C-01	–	1.3	1.6	1.8	2.1	2.3	2.4	2.6
J8C-02	–	2.0	2.4	2.8	3.1	3.4	3.7	3.9
J8C-03	–	3.6	4.4	5.0	5.6	6.2	6.7	7.1
J8C-04	–	4.4	5.4	6.2	6.9	7.6	8.2	8.8
J8C-05	–	5.8	7.2	8.3	9.2	10.1	10.9	11.7
J8C-06	–	7.0	8.6	10.0	11.1	12.2	13.2	14.1

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -40°C								
J8C-0X	–	–	0.47	0.54	0.60	0.66	0.71	0.76
J8C-00	–	–	0.59	0.69	0.77	0.84	0.91	0.97
J8C-01	–	–	1.1	1.3	1.5	1.6	1.8	1.9
J8C-02	–	–	1.7	2.0	2.2	2.4	2.6	2.8
J8C-03	–	–	3.1	3.6	4.0	4.4	4.7	5.0
J8C-04	–	–	3.8	4.4	4.9	5.4	5.8	6.2
J8C-05	–	–	5.1	5.9	6.5	7.2	7.7	8.3
J8C-06	–	–	6.1	7.1	7.9	8.6	9.3	10.0

Correction Factor, (CF) Liquid Temperature

TEV corrected capacity = Required Evaporator Capacity / Correction Factor, (CF), for Subcooling.

Subcooling	4K	10K	15K	20K	25K	30K	35K	40K	45K	50K
Correction Factor	1	1.07	1.12	1.18	1.24	1.29	1.34	1.39	1.45	1.51

Selection Tables

R134a Capacity Tables (kW)

Orifice Number	Pressure Drop Across the Valve (bar)				
	2	4	6	8	10
Evaporating Temperature +10°C					
J8C-0X	0.51	0.72	0.89	1.0	1.1
J8C-00	0.90	1.3	1.6	1.8	2.0
J8C-01	1.6	2.2	2.7	3.1	3.5
J8C-02	2.8	3.9	4.8	5.6	6.2
J8C-03	4.2	5.9	7.2	8.3	9.3
J8C-04	6.3	8.9	10.9	12.5	14.0
J8C-05	8.0	11.2	13.8	15.9	17.8
J8C-06	9.5	13.4	16.5	19.0	21.2

Orifice Number	Pressure Drop Across the Valve (bar)				
	2	4	6	8	10
Evaporating Temperature 0°C					
J8C-0X	0.49	0.70	0.86	1.0	1.1
J8C-00	0.87	1.2	1.5	1.7	2.0
J8C-01	1.5	2.1	2.6	3.0	3.4
J8C-02	2.7	3.8	4.7	5.4	6.0
J8C-03	4.0	5.7	7.0	8.1	9.0
J8C-04	6.1	8.6	10.5	12.1	13.5
J8C-05	7.7	10.9	13.3	15.4	17.2
J8C-06	9.2	13.0	15.9	18.4	20.5

Orifice Number	Pressure Drop Across the Valve (bar)				
	2	4	6	8	10
Evaporating Temperature -10°C					
J8C-0X	0.47	0.66	0.81	0.94	1.0
J8C-00	0.82	1.2	1.4	1.6	1.8
J8C-01	1.4	2.0	2.5	2.8	3.2
J8C-02	2.5	3.6	4.4	5.0	5.6
J8C-03	3.8	5.3	6.5	7.6	8.5
J8C-04	5.7	8.1	9.9	11.4	12.7
J8C-05	7.3	10.4	12.7	14.6	16.4
J8C-06	8.6	12.2	14.9	17.2	19.3

Orifice Number	Pressure Drop Across the Valve (bar)				
	2	4	6	8	10
Evaporating Temperature -20°C					
J8C-0X	0.43	0.61	0.75	0.87	0.97
J8C-00	0.66	0.93	1.1	1.3	1.5
J8C-01	1.2	1.7	2.1	2.4	2.7
J8C-02	2.0	2.8	3.4	4.0	4.4
J8C-03	3.2	4.5	5.5	6.4	7.1
J8C-04	4.5	6.4	7.8	9.0	10.1
J8C-05	6.0	8.5	10.4	12.0	13.4
J8C-06	6.9	9.8	12.0	13.8	15.5

Orifice Number	Pressure Drop Across the Valve (bar)				
	2	4	6	8	10
Evaporating Temperature -30°C					
J8C-0X	0.37	0.52	0.64	0.73	0.82
J8C-00	0.47	0.66	0.81	0.93	1.0
J8C-01	0.89	1.3	1.5	1.8	2.0
J8C-02	1.3	1.9	2.3	2.7	3.0
J8C-03	2.4	3.4	4.2	4.8	5.4
J8C-04	3.0	4.2	5.2	6.0	6.7
J8C-05	4.0	5.6	6.9	7.9	8.9
J8C-06	4.8	6.8	8.3	9.6	10.7

Orifice Number	Pressure Drop Across the Valve (bar)				
	2	4	6	8	10
Evaporating Temperature -40°C					
J8C-0X	0.26	0.36	0.45	0.52	0.58
J8C-00	0.33	0.46	0.57	0.66	0.73
J8C-01	0.63	0.89	1.1	1.3	1.4
J8C-02	0.94	1.3	1.6	1.9	2.1
J8C-03	1.7	2.4	3.0	3.4	3.8
J8C-04	2.1	3.0	3.6	4.2	4.7
J8C-05	2.8	4.0	4.8	5.6	6.3
J8C-06	3.4	4.8	5.8	6.7	7.5

Correction Factor, (CF) Liquid Temperature

TEV corrected capacity = Required Evaporator Capacity / Correction Factor, (CF), for Subcooling.

Subcooling	4K	10K	15K	20K	25K	30K	35K	40K	45K	50K
Correction Factor	1	1.07	1.13	1.19	1.24	1.29	1.35	1.4	1.46	1.52

Selection Tables

R404A / R507 Capacity Tables (kW)

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating temperature +10°C								
J8C-0X	0.37	0.53	0.64	0.74	0.83	0.91	1.0	1.1
J8C-00	0.66	0.93	1.1	1.3	1.5	1.6	1.7	1.9
J8C-01	1.1	1.6	2.0	2.3	2.5	2.8	3.0	3.2
J8C-02	2.0	2.9	3.5	4.0	4.5	4.9	5.3	5.7
J8C-03	3.0	4.3	5.2	6.1	6.8	7.4	8.0	8.6
J8C-04	4.6	6.4	7.9	9.1	10.2	11.1	12.0	12.9
J8C-05	5.8	8.2	10.0	11.5	12.9	14.1	15.3	16.3
J8C-06	6.9	9.8	11.9	13.8	15.4	16.9	18.2	19.5

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating temperature 0°C								
J8C-0X	0.36	0.51	0.62	0.72	0.80	0.88	0.95	1.0
J8C-00	0.63	0.89	1.1	1.3	1.4	1.5	1.7	1.8
J8C-01	1.1	1.5	1.9	2.2	2.4	2.7	2.9	3.1
J8C-02	1.9	2.8	3.4	3.9	4.4	4.8	5.1	5.5
J8C-03	2.9	4.1	5.1	5.8	6.5	7.2	7.7	8.3
J8C-04	4.4	6.2	7.6	8.8	9.8	10.7	11.6	12.4
J8C-05	5.6	7.9	9.6	11.1	12.4	13.6	14.7	15.7
J8C-06	6.6	9.4	11.5	13.3	14.9	16.3	17.6	18.8

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating temperature +10°C								
J8C-0X	0.34	0.48	0.59	0.68	0.76	0.83	0.89	0.96
J8C-00	0.59	0.83	1.0	1.2	1.3	1.4	1.6	1.7
J8C-01	1.0	1.4	1.8	2.0	2.3	2.5	2.7	2.9
J8C-02	1.8	2.6	3.1	3.6	4.1	4.4	4.8	5.1
J8C-03	2.7	3.9	4.7	5.5	6.1	6.7	7.2	7.7
J8C-04	4.1	5.8	7.1	8.2	9.2	10.1	10.9	11.6
J8C-05	5.3	7.5	9.1	10.6	11.8	12.9	14.0	14.9
J8C-06	6.2	8.8	10.8	12.4	13.9	15.2	16.4	17.6

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -20°C								
J8C-0X	0.31	0.44	0.54	0.62	0.69	0.76	0.82	0.88
J8C-00	0.47	0.67	0.82	0.94	1.1	1.2	1.2	1.3
J8C-01	0.85	1.2	1.5	1.7	1.9	2.1	2.3	2.4
J8C-02	1.4	2.0	2.5	2.8	3.2	3.5	3.8	4.0
J8C-03	2.3	3.2	3.9	4.6	5.1	5.6	6.0	6.4
J8C-04	3.2	4.6	5.6	6.4	7.2	7.9	8.5	9.1
J8C-05	4.3	6.1	7.4	8.6	9.6	10.5	11.3	12.1
J8C-06	5.0	7.0	8.6	9.9	11.1	12.1	13.1	14.0

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -30°C								
J8C-0X	0.26	0.37	0.45	0.52	0.58	0.64	0.69	0.74
J8C-00	0.33	0.47	0.57	0.66	0.74	0.81	0.88	0.94
J8C-01	0.63	0.89	1.1	1.3	1.4	1.5	1.7	1.8
J8C-02	0.94	1.3	1.6	1.9	2.1	2.3	2.5	2.7
J8C-03	1.7	2.4	3.0	3.4	3.8	4.2	4.5	4.9
J8C-04	2.1	3.0	3.7	4.2	4.7	5.2	5.6	6.0
J8C-05	2.8	4.0	4.9	5.6	6.3	6.9	7.5	8.0
J8C-06	3.4	4.8	5.9	6.8	7.6	8.3	9.0	9.6

Orifice Number	Pressure Drop Across the Valve (bar)							
	2	4	6	8	10	12	14	16
Evaporating Temperature -40°C								
J8C-0X	–	0.26	0.31	0.36	0.41	0.44	0.48	0.51
J8C-00	–	0.33	0.40	0.46	0.52	0.56	0.61	0.65
J8C-01	–	0.63	0.77	0.89	0.99	1.1	1.2	1.3
J8C-02	–	0.93	1.1	1.3	1.5	1.6	1.7	1.9
J8C-03	–	1.7	2.1	2.4	2.7	2.9	3.2	3.4
J8C-04	–	2.1	2.6	2.9	3.3	3.6	3.9	4.2
J8C-05	–	2.8	3.4	3.9	4.4	4.8	5.2	5.6
J8C-06	–	3.3	4.1	4.7	5.3	5.8	6.3	6.7

Correction Factor, (CF) Liquid Temperature

TEV corrected capacity = Required Evaporator Capacity / Correction Factor, (CF), for Subcooling.

Subcooling	4K	10K	15K	20K	25K	30K	35K	40K	45K	50K
Correction Factor	1	1.1	1.18	1.26	1.34	1.41	1.49	1.56	1.64	1.71

**European Product
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Parker Hannifin Ltd
Climate and Industrial Controls Group
Refrigeration and Air Conditioning Europe
Cortonwood Drive, Brampton
South Yorkshire S73 0UF
United Kingdom
phone +44 (0) 1226 273400
fax +44 (0) 1226 273401
www.parker.com/race

