C(E) Series

The C(E) series incorporates a brass body with a 90° elbow inlet and SAE flare fittings using balanced port construction, allowing operation over varying load conditions. Designed for use on small refrigeration and or air conditioning systems, the external equalized models are provided with a 1/4" SAE male connection.

Applications

- Small Refrigeration Systems
- Slush Machines
- Air Conditioning Units
- Freezers
- Walk-in Coolers
- Refrigerated Cases
- Rail & Transport Refrigeration

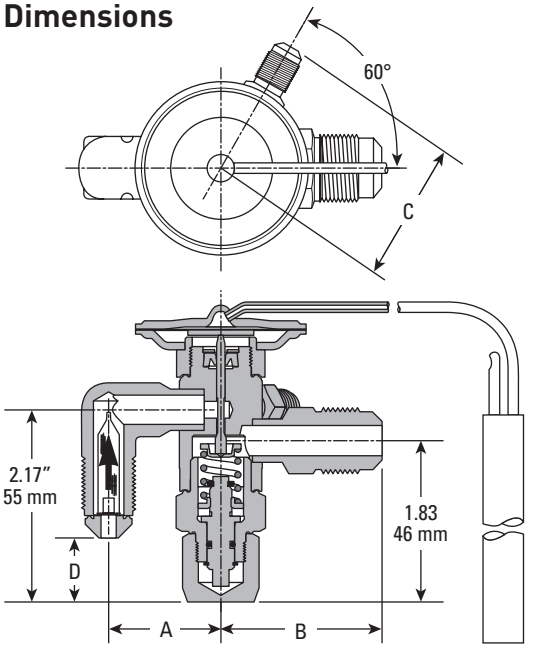
Features and Benefits

- Balanced port design
- Removable power element
- Inlet strainer – 100 mesh
- 60" capillary tube
- Field adjustable superheat
- 1/4" SAE external equalizer
- Weight: 1.0 lbs / 0.45 kg

Specifications

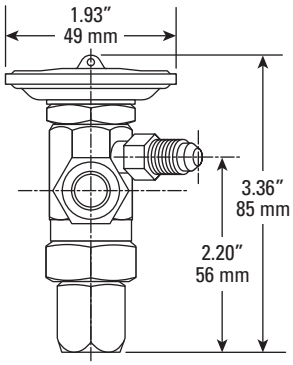
Refrigerant	Refrigerant Designation	Orifice Designation	Nominal Capacity (Tons)	Capacity Range of Valve to be Replaced (Tons)	Valve Description		Rainbow Charges™	Connection - (Inches)		External Equalizer Connection (Inches)
					Internally Equalized	Externally Equalized		Inlet	Outlet	
R-12 R-134a R-401A R-401B	J	AA	1/4	1/6 to 1/4	C-AA-J	CE-AA-J	W X60	1/4 SAE	1/2 SAE	1/4 SAE
		A	1	1/2 to 1	C-A-J	CE-A-J		3/8 SAE		
		B	2	1 to 2	C-B-J	CE-B-J				
		C	3	2 to 3	C-C-J	CE-C-J				
		D	5	3 to 5	C-D-J	CE-D-J			5/8 SAE	
R-402A R-402B R-404A R-502	S	AA	1/4	1/6 to 1/4	C-AA-S	CE-AA-S	W Z X110 X35	1/4 SAE	1/2 SAE	1/4 SAE
		A	1	1/2 to 1	C-A-S	CE-A-S		3/8 SAE		
		B	2	1 to 2	C-B-S	CE-B-S				
		C	3-1/2	2 to 3-1/2	C-C-S	CE-C-S				
		D	6	3-1/2 to 6	C-D-S	CE-D-S			5/8 SAE	
R-22 R-407C R-422D	V	AA	1/2	1/3 to 1/2	C-AA-V	CE-AA-V	W Z X100 X35	1/4 SAE	1/2 SAE	1/4 SAE
		A	1-1/2	3/4 to 1-1/2	C-A-V	CE-A-V		3/8 SAE		
		B	3	1-1/2 to 3	C-B-V	CE-B-V				
		C	5	3 to 5	C-C-V	CE-C-V				
		D	8	5 to 8	C-D-V	CE-D-V			5/8 SAE	

Dimensions



1/4 SAE Inlet Strainer
P/N 3008-000

3/8 SAE Inlet Strainer
P/N 1538-000

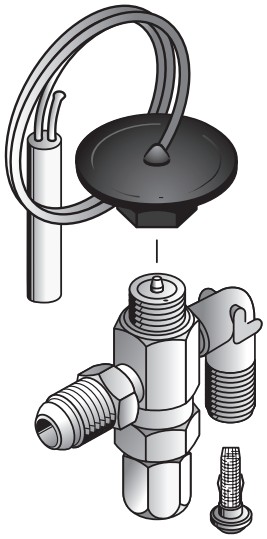


Fitting Size	A	B	C	D
1/4 SAE	1.11" 28 mm	—	1.54" 39 mm	1.15" 29 mm
3/8 SAE	1.27" 32 mm	—	—	0.75" 19 mm
1/2 SAE	—	1.82" 46 mm	—	—
5/8 SAE	—	1.98" 50 mm	—	—

Replacement Elements

Refrigerant Designation	Element
V	KT-46-VW KT-46-VX100
J	KT-46-JW KT-46-JX60
S	KT-46-SZ KT-46-SW KT-46-SX35

C Series Interchangeable Valve



The C series replaceable element style valves are designed for small refrigeration systems, such as refrigerated cases, coolers, and freezers. The externally equalized versions of these valves are ideal for air conditioning and refrigeration systems. C valves are balanced ported, engineered specifically for systems with a wide range of operating conditions and may be applied on bi-directional applications.

C valves are supplied as 2 individual component parts: the **thermostatic element**, and the **valve body**. The interchangeable nature of the C family makes it ideal for reducing inventory, while increasing valve options — so, the right valve is always on hand.

Body Features

C brass body type valves feature traditional knife edge, metal-to-metal thermostatic element to valve body construction, which ensures a leak-proof joint.

Selective Charges

The selective thermostatic charges are specifically designed for low temperature, medium temperature, and air conditioning applications. The elements are manufactured with a large flat diaphragm to reduce diaphragm stresses and provide precise control. And, because C valve bodies and thermostatic elements are supplied as independent components, the installer is able to select the best possible thermostatic charge for the application.

Internal Port Design

Refrigerant flow through the valve port opposes the pin movement in all type C valves. This provides improved stability at light loads, when the pin modulates to a position close to the port. Additionally, charge migration, is reduced or eliminated by the C valve design. By engineering the liquid flow to enter through the top of the valve body, the liquid refrigerant warms the thermostatic element and minimizes the potential for charge migration.

Applications

- Small Refrigeration Systems
- Air Conditioning Systems
- Heat Pump Systems
- Freezers
- Walk-in Coolers
- Refrigerated Cases

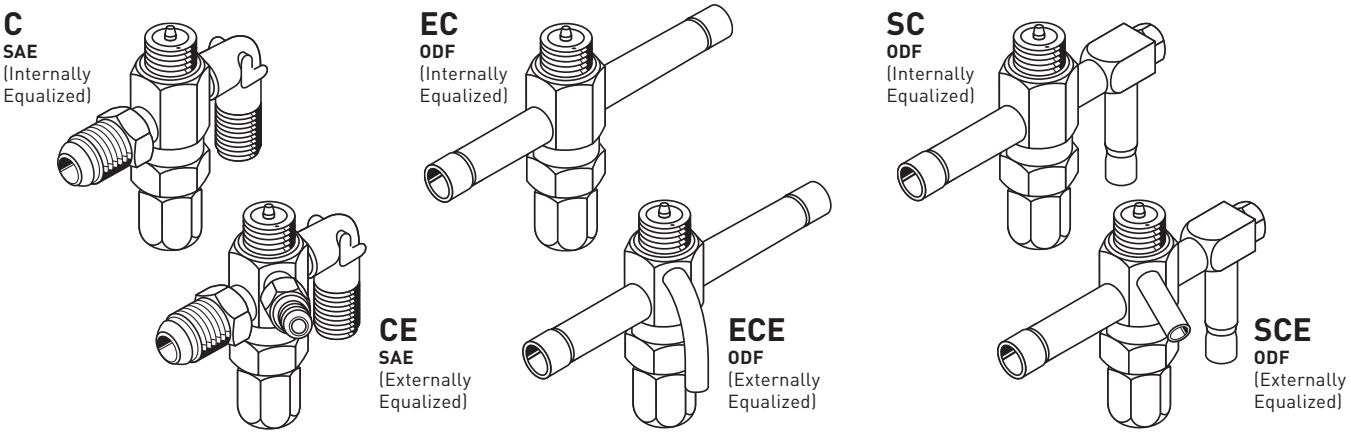
Features and Benefits

- Balanced port design
- Removable power element
- Inlet strainer – 100 mesh
- 60″ capillary tube
- Field adjustable superheat
- 1/4″ SAE external equalizer
- Weight: 1.0 lbs / 0.45 kg

C Series Interchangeable Valve

Selecting Components

Body



Capacities

Nominal Capacity - Tons (Capacity Range of Valve to be Replaced - Tons)									Orifice Designation Letter Code	Available Valve Body Configurations*
R-12	R-22 R-407C R-422D	R-134a	R-401A R-401B	R-402A R-402B	R-404A	R-410A	R-502	R-507		
1/4 (1/6 to 1/4)	**1/2** (1/3 to 1/2)	**1/4** (1/6 to 1/4)	**1/4** (1/6 to 1/4)	**1/4** (1/6 to 1/4)	**1/4** (1/6 to 1/4)	**1/2** (1/3 to 1/2)	**1/4** (1/6 to 1/4)	**1/4** (1/6 to 1/4)	AA	C - AA - 1/4 X 1/2 SAE CE - AA - 1/4 X 1/2 X 1/4 SAE EC - AA - 3/8 X 1/2 ODF ECE - AA - 3/8 X 1/2 X 1/4 ODF SC - AA - 3/8 X 1/2 ODF SCE - AA - 3/8 X 1/2 X 1/4 ODF
1 (1/2 to 1)	**1-1/2** (3/4 to 1-1/2)	**1** (1/2 to 1)	**1** (1/2 to 1)	**1** (1/2 to 1)	**1** (1/2 to 1)	**1-1/2** (3/4 to 1-1/2)	**1** (1/2 to 1)	**1** (1/2 to 1)	A	C - A - 1/4 X 1/2 SAE CE - A - 1/4 X 1/2 X 1/4 SAE EC - A - 3/8 X 1/2 ODF ECE - A - 3/8 X 1/2 X 1/4 ODF SC - A - 3/8 X 1/2 ODF SCE - A - 3/8 X 1/2 X 1/4 ODF
2 (1 to 2)	**3** (1-1/2 to 3)	**2** (1 to 2)	**2** (1 to 2)	**2** (1 to 2)	**2** (1 to 2)	**3** (1-1/2 to 3)	**2** (1 to 2)	**2** (1 to 2)	B	CE - B - 1/4 X 1/2 X 1/4 SAE ECE - B - 3/8 X 1/2 X 1/4 ODF SCE - B - 3/8 X 1/2 X 1/4 ODF
3 (2 to 3)	**5** (3 to 5)	**3** (2 to 3)	**3** (2 to 3)	**3-1/2** (2 to 3-1/2)	**3-1/2** (2 to 3-1/2)	**5** (3 to 5)	**3-1/2** (2 to 3-1/2)	**3-1/2** (2 to 3-1/2)	C	CE - C - 1/4 X 1/2 X 1/4 SAE ECE - C - 3/8 X 1/2 X 1/4 ODF SCE - C - 3/8 X 1/2 X 1/4 ODF
5 (3 to 5)	**8** (5 to 8)	**5** (3 to 5)	**5** (3 to 5)	**6** (3-1/2 to 6)	**6** (3-1/2 to 6)	**8** (5 to 8)	**6** (3-1/2 to 6)	**6** (3-1/2 to 6)	D	ECE - D - 3/8 X 1/2 X 1/4 ODF

*See Pages 5 through 8 for Valve Assembly Dimensions.

Body Nomenclature (Example)

CE – **A** – **3/8 x 1/2 x 1/4 SAE**

Valve Model

C, EC, SC
Internally Equalized
CE, ECE, SCE
Externally Equalized

Orifice Designation

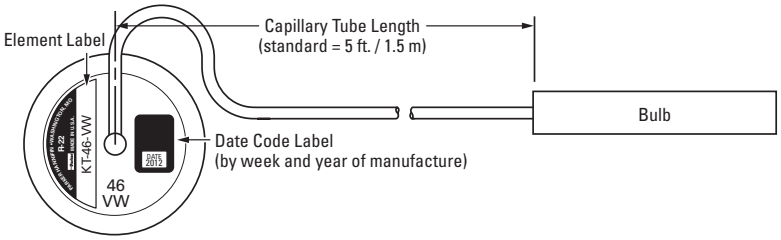
AA
A
B
C
D
See capacity table above for more details.

Connection Size and Style

Inlet x Outlet x External Equalizer Connection Sizes and Style

C Series Interchangeable Valve

Element



Element Nomenclature (Example)

KT	–	46	–	V		W
Abbreviation for "Kit"		Element Size Number		Refrigerant Code ①		Thermostatic Charge

① While many new refrigerants and refrigerant blends have a unique letter code, many use the same thermostatic element as the traditional refrigerant they replace. Refer to the table below to select the correct thermostatic element.

Recommended Thermostatic Valve Charges**

Application	Applicable Evaporator Temperature Range	Refrigerants			
		22 407C	12 134a	502 404A	410A
Low Temperature Refrigeration	-40°F to 0°F	VZ	–	SZ	–
Commercial Refrigeration	-30°F to +60°F	VW	JW	SW	–
Low Temperature Pressure Limiting	-40°F to +0°F	VX35	–	SX35	–
Commercial Pressure Limiting	-10°F to +60°F	VX100	JX60	–	ZX200
Air Conditioning	+30°F to +60°F	VX100	JX60	–	ZX200

Rainbow Charge Refrigerant Designation

J	R-134a, R-401A (MP39), R-401B (MP66), R-12
V	R-407C (AC9000), R-22
S	R-125, R-404A (HP62), R-402A (HP80), R-402B (HP81), R-507 (AZ50)
Z	R-410A (AZ20)

Refrigerant Color Code

R-12 - yellow
R-134a - light blue
R-22 - green
R-402A - light brown (sand)
R-402B - olive
R-404A - orange
R-407C - medium brown
R-410A - rose
R-502 - purple
R-507 - teal

****Application Factors:**

1. The Type "X" thermostatic charges have essentially the same characteristics as the conventional Z cross charges with one exception: they produce a pressure limit or MOP. The "X" charges are not intended as replacements for the Z charges - they should only be used where a definite pressure limit is required to prevent motor overloading.
2. All air conditioning and heat pump charges are intended for use with externally equalized valves.
3. For dual temperature applications, use the "W" charge.
4. The "W" charge may be used on applications down to -30°F (-34°C) on R-22, R-404A and R-507.
5. R-410A elements for use with ECE only.

†Charge Type

"W" (all-purpose) liquid charge maintains nearly flat superheat control over a -10°F to +60°F (-23°C to +15°C) evaporator temperature range.

"Z" (low temperature) charge provides fast pulldown benefits like a gas charge with the non-migrating benefits of a liquid charge; usable over a -40°F to 0°F (-40°C to -18°C) evaporator temperature range.

"X" (damped response) gas charge provides a pressure limiting (MOP) charge with anti-hunt characteristics over a -40°F to +60°F (-40°C to +15°C) evaporator temperature range.

Notes: M.O.P. not available on "W" or "Z" charge.

1. Maximum operational pressure 500 psig (35 bar) high side and 275 psig (19 bar) low side.
2. Maximum storage temperature 130°F (55°C).
3. Consult Parker for pressure and temperature exceptions.
4. Do not use "W" or "Z" liquid charges in applications where bulb temperatures can exceed 130°F (55°C).
   For these applications use type "X" MOP gas charge ***only***.