V43/V243 Series Pressure-Actuated Water-Regulating Valves Catalog Page

2021-08-17

LIT-1927325



Description

The V43/V243 Pressure-Actuated Water Regulating Valves regulate water flow through the condenser of large refrigerated cooling systems. These pilot-operated valves open on an increase in refrigerant head pressure and provide modulating operation.

The V43/V243 water regulating valves are available for commercial and maritime applications.

V43 valves are available for noncorrosive low- and medium-pressure refrigerants such as R-134A, R-404A, R-502, and R-507.

V243 valves are available for noncorrosive high-pressure refrigerants such as R410A.

Commercial V43/V243 valves feature a cast iron body, brass internal parts, and bronze seat material.

To resist the corrosive action of sea water, the V43/V243 maritime and Navy models feature a red brass body, bronze and MONEL® interior parts, and MONEL seat material.

Refer to the *V43/V243 Pressure-Actuated Water Regulating Valves Product/Technical Bulletin (LIT-125683)* for important product information.

Features

- Built-in pilot valve for more precise throttling
- Easy adjustment facilitates service and adjustment without breaking line connections
- Drain plug to remove water during shutdown to reduce the possibility of freeze-up
- Mesh MONEL screen protects pilot valve from items such as dirt and scale and is easy to remove for cleaning and servicing without breaking any line connections

Repairs and replacement

If a V43/V243 Pressure-Actuated Water-Regulating Valve fails to operate inside its specifications, replacement sensing elements, internal parts, and diaphragms are available for valve repair.

To obtain replacement parts, kits, instructions, and details, contact your nearest Johnson Controls® distributor.

For replacement parts, see Repair parts and Parts kits.

WARNING

Warning

This product is made of copper alloy, which contains lead. The product is therefore not to be used on drinking water.

Selection chart

When you order V43 valves, specify the complete product code number including an optional companion flange and gasket kit. You need a companion flange and gasket kit to mount the water lines to commercial type V43/V243 water-regulating valves.

Table 1: Valve construction and pressure type

Designator	Construction and pressure type
A	Commercial service with iron body, open on pressure increase, V43
B	Maritime service with brass body, open on pressure increase, V43
C	Navy service with brass body, open on pressure increase, V43
G	Commercial service with iron body, open on pressure increase, V243
H	Maritime service with brass body, open on pressure increase, V243

Table 2: Flange size

Designator	Flange size
S	2 in.
T	2 1/2 in.
V	3 in.
W	4 in.

Table 3: V43 Series pressure-actuated water valves, except NAVSEA valves

Product code	Pipe size, in.	Inlet and outlet	Opening point adjustment range, psig (kPa)	Shipping weight, lb (kg)
Commercial type – noncorrosive refrigerants (R)				
V43AS-1C	2	Four-hole American Society of Mechanical Engineers (ASME) flange	70 to 150 (483 to 1,034)	59 (26.76)
V43AS-2C			160 to 260 (1,103 to 1,793)	
V43AT-2C	2-1/2		140 to 260 (1,103 to 1,793)	65 (29.48)
V43AV-1C	3		70 to 150 (483 to 1,034)	90 (40.82)
V43AV-2C			160 to 260 (1,103 to 1,793)	90 (40.82)
V43AW-2C	4	Eight-hole ASME flange		142 (64.41)
Maritime type – noncorrosive refrigerants (R)				
V43BS-7C			160 to 260 (1,103 to 1,793)	
V43BT-7C			140 to 260 (1,103 to 1,793)	
V43BV-7C			140 to 260 (1,103 to 1,793)	

Table 4: V43 Series pressure-actuated water valves, Navy NAVSEA certified

Product code	Pipe size, in.	Inlet and outlet	Pressure connector	Opening point adjustment range, psig (kPa)	Shipping weight, lb (kg)
Navy NAVSEA certified – noncorrosive refrigerants (R)					
V43CS-1C		Six-hole Navy flange		70 to 150 (1,013 to 2,175)	
V43CS-2C			Internal sweat connector		
V43BT-3C	2-1/2	Four-hole ASME flange	1/4 in. external flared connector		65 (29.48)
V43BV-4C	3	Four-hole ASME flange	Internal sweat connector		90 (40.82)
V43CV-1C		Eight-hole Navy flange	1/4 in. external flared connector		
V43CV-2C			Internal sweat connector		
V43BW-7C	4	Eight-hole ASME flange	1/4 in. external flared connector		142 (64.41)

Table 5: V243 Series pressurized actuated water valves

Product code	Pipe size, in.	Inlet and outlet	Opening point adjustment range, psig (kPa)	Shipping weight, lb (kg)
Commercial type – high pressure refrigerants (R)				
V243GS-1C	2	Four-hole ASME flange	200 to 400 (1,379 to 2,758)	59 (26.76)
V243GT-1C	2-1/2			65 (29.48)
V243GV-1C	3			90 (40.82)
Maritime type – high pressure refrigerants (R)				
V243HS-1C	2	Four-hole ASME flange	200 to 400 (1,379 to 2,758)	59 (26.76)
V243HT-1C	2-1/2			65 (29.48)
V243HV-1C	3			90 (40.82)
V243HW-1C	4	Eight-hole ASME flange		142 (64.41)

Table 6: Accessories

Kit product code	Water valve size, in.	Shipping weight, lb (kg)
KIT14A-613[1], [2]	2	11.8 (5.4)
KIT14A-614[1], [2]	2-1/2	16.5 (7.5)
FLG15A-600[1], [3]	3	20 (9.1)
FLG15A-601[1], [3]	4	34 (15.4)

1 Commercial valves only.
2 These are the parts included in the flange and gasket kit for the 2 in. and 2 1/2 in. valves.
3 These are the parts included in the flange and gasket kit for the 3 in. and 4 in. valves.

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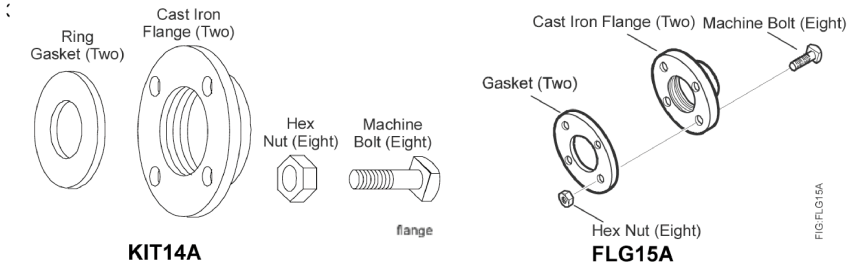
You need a companion flange and gasket kit to mount the water lines to commercial type V43/V243 water-regulating valves.

Figure 1: KIT14A and FLG15A



Repair parts

Table 7: Repair parts

Model	Diaphragm kit	Seat disc and diaphragm kit	Seat repair kit	Screen repair kit	Push rod kit[1]	Sensing element kit	Disc body kit
V43AS-1C	DPM18A-600R	DSC16A-600R	STT19A-602R	SCN10A-600R	ROD18A-600R	SEP88A-600R	DBK11A-600R
V43AS-2C	DPM18A-600R	DSC16A-600R	STT19A-602R	SCN10A-600R	ROD18A-600R	SEP88A-601R	DBK11A-600R
V43AS-5C	DPM18A-600R	DSC16A-600R	STT19A-602R	SCN10A-600R	ROD18A-600R	SEP87A-600R	DBK11A-600R
V43AT-1C	DPM18A-601R	DSC16A-601R	STT19A-603R	SCN10A-600R	ROD18A-601R	SEP88A-600R	DBK11A-601R
V43AT-2C	DPM18A-601R	DSC16A-601R	STT19A-603R	SCN10A-600R	ROD18A-601R	SEP88A-601R	DBK11A-601R
V43AT-5C	DPM18A-601R	DSC16A-601R	STT19A-603R	SCN10A-600R	ROD18A-601R	SEP87A-600R	DBK11A-601R
V43AV-1C	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-600R	ROD18A-601R	SEP88A-600R	DBK11A-602R
V43AV-2C	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-600R	ROD18A-601R	SEP88A-601R	DBK11A-602R
V43AV-5C	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-600R	ROD18A-601R	SEP87A-600R	DBK11A-602R
V43AW-1C	DPM18A-603R	DSC16A-603R	STT19A-608R	SCN10A-600R	ROD18A-602R	SEP88A-600R	DBK11A-603R
V43AW-2C	DPM18A-603R	DSC16A-603R	STT19A-608R	SCN10A-600R	ROD18A-602R	SEP88A-601R	DBK11A-603R
V43AW-5C	DPM18A-603R	DSC16A-603R	STT19A-608R	SCN10A-600R	ROD18A-602R	SEP87A-600R	DBK11A-603R
V43BS-1C[1]	DPM18A-600R	DSC16A-600R	STT19A-602R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK11A-600R
V43BS-2C[1]	DPM18A-600R	DSC16A-600R	STT19A-602R	SCN10A-601R	ROD18A-602R	SEP88A-601R	DBK11A-600R
V43BS-3C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-600R
V43BS-6C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-600R
V43BS-7C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-602R	SEP88A-601R	DBK10A-600R
V43BT-1C[1]	DPM18A-601R	DSC16A-601R	STT19A-603R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK11A-601R
V43BT-2C[1]	DPM18A-601R	DSC16A-601R	STT19A-603R	SCN10A-601R	ROD18A-603R	SEP88A-601R	DBK11A-601R
V43BT-3C	DPM18A-601R	DSC16A-601R	STT19A-605R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-602R
V43BT-6C	DPM18A-601R	DSC16A-601R	STT19A-605R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-602R
V43BT-7C	DPM18A-601R	DSC16A-601R	STT19A-605R	SCN10A-601R	ROD18A-603R	SEP88A-601R	DBK10A-602R
V43BV-1C[1]	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK11A-602R
V43BV-2C[1]	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-601R	ROD18A-603R	SEP88A-601R	DBK11A-602R
V43BV-4C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-601R
V43BV-5C[1]	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK11A-602R
V43BV-6C[1]	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-601R	ROD18A-603R	SEP88A-601R	DBK11A-602R
V43BV-7C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP88A-601R	DBK10A-601R
V43BV-8C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-601R
V43BV-9C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP88A-601R	DBK10A-601R
V43BV-10C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-601R
V43BW-1C	DPM18A-603R	DSC16A-603R	STT19A-609R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-603R
V43BW-2C	DPM18A-603R	DSC16A-603R	STT19A-609R	SCN10A-601R	ROD18A-602R	SEP88A-601R	DBK10A-603R
V43BW-5C	DPM18A-603R	DSC16A-603R	STT19A-609R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-603R
V43BW-6C	DPM18A-603R	DSC16A-603R	STT19A-609R	SCN10A-601R	ROD18A-602R	SEP88A-601R	DBK10A-603R
V43BW-7C	DPM18A-603R	DSC16A-603R	STT19A-609R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-603R
V43CS-1C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-600R
V43CS-2C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-602R	SEP88A-600R	DBK10A-600R
V43CS-3C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-604R	SEP88A-600R	DBK10A-600R

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Table 7: Repair parts

Model	Diaphragm kit	Seat disc and diaphragm kit	Seat repair kit	Screen repair kit	Push rod kit[1]	Sensing element kit	Disc body kit
V43CT-1C	DPM18A-601R	DSC16A-601R	STT19A-605R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-602R
V43CT-2C	DPM18A-601R	DSC16A-601R	STT19A-605R	SCN10A-601R	ROD18A-603R	SEP86A-600R	DBK10A-602R
V43CV-1C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP86A-600R	DBK10A-601R
V43CV-2C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP88A-600R	DBK10A-601R
V243GS-1C	DPM18A-600R	DSC16A-600R	STT19A-602R	SCN10A-600R	ROD18A-600R	SEP90A-600R	DBK11A-600R
V243GT-1C	DPM18A-601R	DSC16A-601R	STT19A-603R	SCN10A-600R	ROD18A-601R	SEP90A-600R	DBK11A-601R
V243GV-1C	DPM18A-602R	DSC16A-602R	STT19A-606R	SCN10A-600R	ROD18A-601R	SEP90A-600R	DBK11A-602R
V243GW-1C	DPM18A-603R	DSC16A-603R	STT19A-608R	SCN10A-600R	ROD18A-600R	SEP90A-600R	DBK11A-603R
V243HS-1C	DPM18A-600R	DSC16A-600R	STT19A-600R	SCN10A-601R	ROD18A-602R	SEP90A-600R	DBK10A-600R
V243HT-1C	DPM18A-601R	DSC16A-601R	STT19A-605R	SCN10A-601R	ROD18A-603R	SEP90A-600R	DBK10A-601R
V243HV-1C	DPM18A-602R	DSC16A-602R	STT19A-607R	SCN10A-601R	ROD18A-603R	SEP90A-600R	DBK10A-602R
V243HW-1C	DPM18A-603R	DSC16A-603R	STT19A-609R	SCN10A-601R	ROD18A-602R	SEP90A-600R	DPK10A-603R

1 Replacement push rod kit requires a seat repair kit or a diaphragm kit when you replace it.

Parts kits

The following valves, manufactured after date code 8702, contain MONEL interior trim. For a list of replacement kits to order, see Table 7 or refer to *V43xx and V243xx Series Repair Parts Kits Technical Bulletin (LIT-121690).*

Table 8: Parts kits

Valve model	Order parts kits for:
V43BS-1C	V43BS-6C
V43BS-2C	V43BS-7C
V43BT-1C	V43BT-6C
V43BT-2C	V43BT-7C
V43BV-1C	V43BV-10C
V43BV-2C	V43BV-7C
V43BV-5C	V43BV-10C
V43BV-6C	V43BV-9C

Dimensions

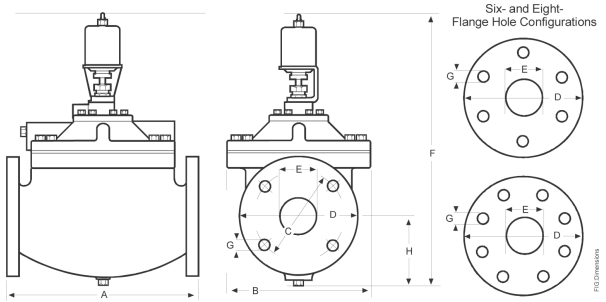
Table 9: Dimensions

Symbol	2 in.	2 1/2 in.	3 in.	4 in.
A Flange face to flange face	9 1/2 in. (241 mm)	10 3/4 in. (273 mm)	11 3/4 in. (298 mm)	14 in. (356 mm)
B	7 1/2 in. (191 mm)	8 in. (203 mm)	9 in. (229 mm)	10 3/4 in. (273 mm)
C	4 3/4 in. (121 mm)	5 1/2 in. (140 mm)	6 in. (152 mm)	7 1/2 in. (191 mm)
D	6 in. (152 mm)	7 in. (178 mm)	7 1/2 in. (191 mm)	9 in. (229 mm)
E	2 1/8 in. (54 mm)	2 5/8 in. (67 mm)	3 1/8 in. (80 mm)	4 1/8 in. (105 mm)
F V43 valves	15 1/4 in. (387 mm)	15 9/16 in. (395 mm)	16 9/16 in. (421 mm)	18 7/32 in. (462 mm)

Table 9: Dimensions

Symbol	2 in.	2 1/2 in.	3 in.	4 in.
F V243 valves	15 29/32 in. (404 mm)	16 7/32 in. (412 mm)	17 7/32 in. (437 mm)	18 7/8 in. (479 mm)
G	3/4 in. (19 mm) Diameter (four)	3/4 in. (19 mm) Diameter (four)	3/4 in. (19 mm) Diameter (four)	3/4 in. (19 mm) Diameter (eight)
H	3 5/8 in. (92 mm)	3 15/16 in. (100 mm)	4 1/4 in. (108 mm)	5 1/16 in. (128 mm)

Figure 2: V43/V243 Pressure Actuated Water Regulating Valves dimensions



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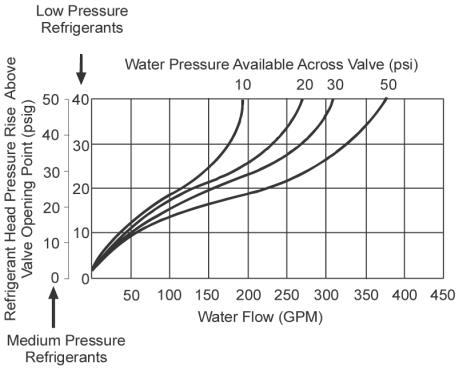
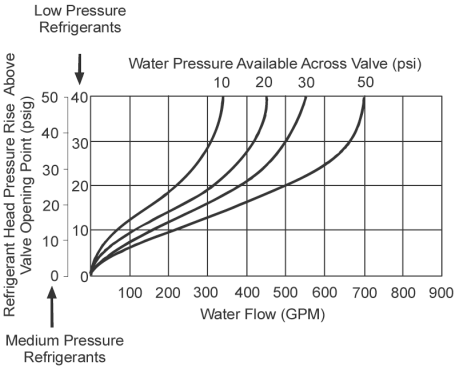
V43 capacity flow charts

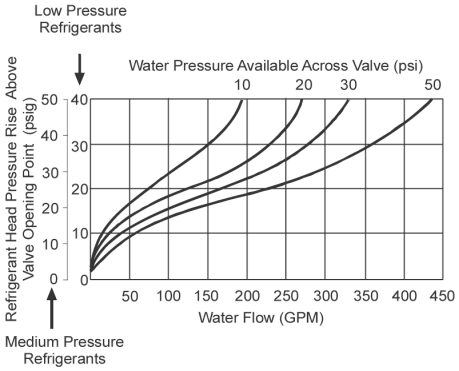
CAPACITY CHART FOR 2 in. VALVE



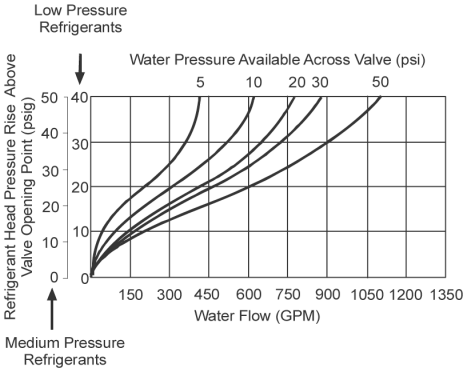
CAPACITY CHART FOR 3 in. VALVE



CAPACITY CHART FOR 2-1/2 in. VALVE

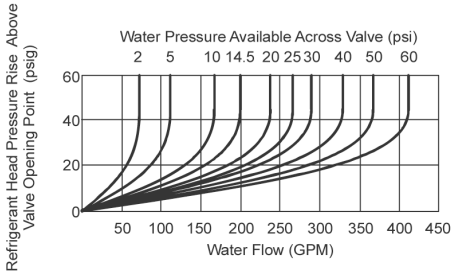


CAPACITY CHART FOR 4 in. VALVE

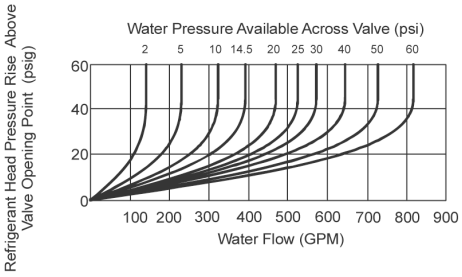


V243 capacity flow charts

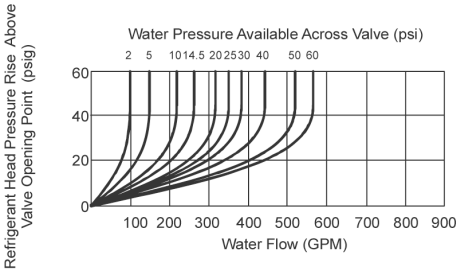
CAPACITY CHART FOR 2 in. VALVE



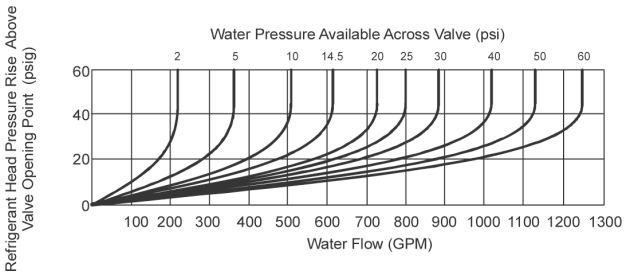
CAPACITY CHART FOR 3 in. VALVE



CAPACITY CHART FOR 2-1/2 in. VALVE



CAPACITY CHART FOR 4 in. VALVE



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V43/V243 Series valves technical specifications

Specification			Description
Maximum water supply pressure			150 psig (1,034 kPa)
V43 maximum head pressure			300 psig (2,068 kPa)
V243 maximum head pressure			630 psig (4,344 kPa)
Head pressure range, opening points	V43	Low-pressure refrigerants	R-134A – 70 to 150 psig (482 to 1,034 kPa)
		Medium-pressure refrigerants	R-22, R-502, R404A – 160 to 260 psig (1,103 to 1,793 kPa)
	V243	High-pressure	200 to 400 psig (1,379 to 2,758 kPa)
Factory settings[1]	V43	Low-pressure refrigerants	90 psig (621 kPa)
		Medium-pressure refrigerants	180 psig (1,241 kPa)
	V243	High-pressure	200 psig (1,379 kPa)
Maximum water supply temperature			160°F (71°C)
Valve body material		Commercial	Cast iron
		Maritime	Red brass
Internal parts material		Commercial	Brass
		Maritime	Bronze, MONEL
Seat material		Pilot	MONEL
		Main valve	Commercial – bronze Maritime – MONEL
Seat disc material			Buna N™
Packing; bellows assembly			Brass stem, stainless steel spring, synthetic rubber boot
Pressure connection refrigerant side		Noncorrosive	1/4 in. SAE external flare

1 You can adjust the factory opening setpoint for the valve.

Product warranty

This product is covered by a limited warranty, details of which can be found at www.johnsoncontrols.com/buildingswarranty.

Single point of contact

APAC	Europe	NA/SA
JOHNSON CONTROLS C/O CONTROLS PRODUCT MANAGEMENT NO. 32 CHANGJIJANG RD NEW DISTRICT WUXI JIANGSU PROVINCE 214028 CHINA	JOHNSON CONTROLS WESTENDHOF 3 45143 ESSEN GERMANY	JOHNSON CONTROLS 507 E MICHIGAN ST MILWAUKEE WI 53202 USA

Contact information

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