

JOHNSON CONTROLS - Pressure Actuated Water Valve

Repair Parts

V43 Series

Description

The V43 is a pilot pressure actuated modulating valve for use on water cooled condensers that require a large flow capacity. Valves open on pilot pressure increase.

Features

- field proven to give long lasting, trouble-free service on the job
- easy to adjust and service
- simple and efficient manual flushing

Applications

- water cooled refrigeration condensers that require a large flow capacity



V43AS-2

Selection Charts

V43 Series Pressure Actuated Water Valves (except NAVSEA valves, see below)

Part Number ¹	Pipe Size (in.)	Inlet and Outlet	Opening Point Adjustment Range psig (kPa)	Ship Wt. Lb.
Commercial Type – Non-Corrosive Refrigerants (R)				
V43AS-1C	2	4 Hole ASME Flanged	70 to 150 (483 to 1034)	59
V43AS-2C			160 to 260 (1103 to 1793)	
V43AT-1C	2 1/2		70 to 150 (483 to 1034)	65
V43AT-2C			160 to 260 (1103 to 1793)	
V43AV-1C	3		70 to 150 (483 to 1034)	90
V43AV-2C			160 to 260 (1103 to 1793)	
V43AW-2C	4	8 Hole ASME Flanged	160 to 260 (1103 to 1793)	142
Commercial Type - Ammonia (R)				
V43AV-5C	3		160 to 260 (1103 to 1793)	90
Maritime Type – Non-Corrosive Refrigerants (R)				
V43BS-6C	2	4 Hole ASME Flanged	70 to 150 (483 to 1034)	59
V43BS-7C			160 to 260 (1103 to 1793)	
V43BT-6C	2 1/2		70 to 150 (483 to 1034)	65
V43BT-7C			160 to 260 (1103 to 1793)	
V43BV-10C	3		70 to 150 (483 to 1034)	90
V43BV-7C			140 to 260 (1103 to 1793)	

1. Refer to the *V43 Valve Capacity and Selection Diagrams* on the following page.

V43 Series Pressure Actuated Water Valves, Navy NAVSEA Certified

Part Number	Pipe Size (in.)	Inlet and Outlet	Pressure Connector	Opening Point Adjustment Range – psig (kPa)	Ship Wt. Lb.	
Navy NAVSEA Certified – Non-Corrosive Refrigerants (R)						
V43BS-3C	2	4 Hole ASME Flange	1/4 in. Male Flared Conn.	70 to 150 (483 to 1034)	59	
V43CS-1C		6 Hole Navy Flange				
V43CS-2C			Female Sweat Conn.			
V43BT-3C	2 1/2	4 Hole ASME Flange	1/4 in. Male Flared Conn.		70 to 150 (483 to 1034)	65
V43CT-2C		6 Hole Navy Flange				
V43BV-4C	3	4 Hole ASME Flange	Female Sweat Conn.			70 to 150 (483 to 1034)
V43CV-1C		8 Hole Navy Flang	1/4 in. Male Flared Conn.			
V43CV-2C			Female Sweat Conn.			
V43BW-7C	4	8 Hole ASME Flange	1/4 in. Male Flared Conn.	160 to 260 (1103 to 1793)		
V43BW-2C						

Note: Flanges have NPT (National Pipe Thread)

JOHNSON CONTROLS - Pressure Actuated Water Valve

Selection Charts

MARITIME TYPE – NON-CORROSIVE REFRIGERANTS (R)

Pressure Actuated Water Valve (Continued)

Selection Charts (Continued)

Repair Parts¹

Model	Diaphragm Kit	Seat Disc and Diaphragm Kit	Seal Repair Kit	Screen Repair Kit	Push Rod (In.) ²	Sensing Element Kit	Disc Body Kit		
V43AS-1C	CPM18A-803F	D8C18A-803R	STT18A-803F	SCN10A-600F	R0018A-803R	SEF88A-600F SEF88A-601R	DBK11A-603F		
V43AS-2C						SEF88A-600F SEF88A-601R	DBK11A-601F		
V43AT-1C	CPM18A-801F	D8C18A-801R	STT18A-803F			SEF88A-600F SEF88A-601R	DBK11A-602F		
V43AT-2C						SEF88A-600F SEF88A-601R	DBK11A-603F		
V43AW-1C	CPM18A-802F	D8C18A-802R	STT18A-806F			SEF88A-600F SEF88A-601R	DBK11A-603F		
V43AW-2C						SEF88A-600F SEF88A-601R	DBK11A-603F		
V43AW-3C	CPM18A-803F	D8C18A-803R	STT18A-808F			R0018A-603R	DBK11A-603F		
V43AW-4C						R0018A-603R	DBK11A-603F		
V43AS-3C	CPM18A-803R	D8C18A-803R	STT18A-802F			R0018A-603R	DBK11A-603F		
V43AT-4C	CPM18A-801R	D8C18A-801R	STT18A-803F			R0018A-601R	SEF87A-600F DBK11A-601R		
V43AV-5C	CPM18A-802R	D8C18A-802R	STT18A-806F			DBK11A-602F			
V43AW-5C	CPM18A-803F	D8C18A-803R	STT18A-808F			DBK11A-603F			
V43BS-1C (1)	CPM18A-803R	D8C18A-803R	STT18A-802R	SCN10A-601F	R0018A-603R	SEF88A-600R SEF88A-601R	DBK11A-602F		
V43BS-2C (1)							SEF88A-600F SEF88A-601R	DBK10A-600F	
V43BS-3C							SEF88A-601R		
V43BS-4C							SEF88A-601R		
V43BS-7C			STT18A-803F				SEF88A-600R SEF88A-601R	DBK11A-601R	
V43BT-1C (1)	CPM18A-801R	D8C18A-801R	STT18A-803F				SEF88A-600R SEF88A-601R	DBK10A-602F	
V43BT-3C (1)							STT18A-805F	SEF88A-601R	
V43BT-6C								SEF88A-600R SEF88A-601R	DBK11A-602F
V43BT-7C								SEF88A-601R	
V43BV-1C (1)	CPM18A-802F	D8C18A-802F	STT18A-806R				SEF88A-600R SEF88A-601R	DBK11A-602F	
V43BV-2C (1)					STT18A-807F	SEF88A-600R SEF88A-601R	DBK10A-601F		
V43BV-4C					STT18A-806R	SEF88A-600R	DBK11A-602F		
V43BV-6C (1)					STT18A-807R	SEF88A-601R	DBK10A-601F		
V43BV-7C						SEF88A-600R	DBK10A-601F		
V43BV-8C						SEF88A-600R	DBK10A-603F		
V43BV-9C						SEF88A-601R	DBK10A-603F		
V43BV-10C						SEF88A-600R	DBK10A-603F		
V43BV-2C						SEF88A-601R	DBK10A-603F		
V43BV-6C			CPM18A-803F	D8C18A-803R	STT18A-800F		R0018A-602R	SEF88A-601R	DBK10A-603F
V43BV-7C					R0018A-602R	SEF88A-600R	DBK10A-603F		
V43CS-1C	CPM18A-803F	D8C18A-803R	STT18A-803R		R0018A-602R	SEF88A-600R	DBK10A-603F		
V43CS-2C						R0018A-604R			
V43CS-3C									
V43CT-1C	CPM18A-801R	D8C18A-801R	STT18A-806R		R0018A-603R	SEF88A-600R	DBK10A-602F		
V43CT-2C						SEF88A-600R	DBK10A-602F		
V43CV-1C	CPM18A-802R	D8C18A-802R	STT18A-807R			SEF88A-600R	DBK10A-601F		
V43CV-2C						SEF88A-600R	DBK10A-601F		

¹ Repair parts are supplied in kits only and include all parts required to recondition the portion of the valve. To order, specify model number only.
² Replacement push rod kit requires a seal repair kit and/or a diaphragm kit when required.

The following valves, manufactured after date code 8702, contain model interior trim. Order replacement parts kits as listed below:

Valve Model	Order Parts Kits for:	Valve Model	Order Parts Kits for:	Valve Model	Order Parts Kits for:
V43BS-1C	V43BS-6	V43BT-2C	V43BT-7	V43BV-3C	V43BV-13
V43BS-2C	V43BS-7	V43BV-1C	V43BV-1E	V43BV-4C	V43BV-9
V43BT-1C	V43BT-6	V43BV-2C	V43BV-7		

JOHNSON CONTROLS - Pressure Actuated Water Valve

Selection Charts

NAVY NAVSEA Certified – NON-CORROSIVE REFRIGERANTS (R)

Pressure Actuated Water Valve (Continued)

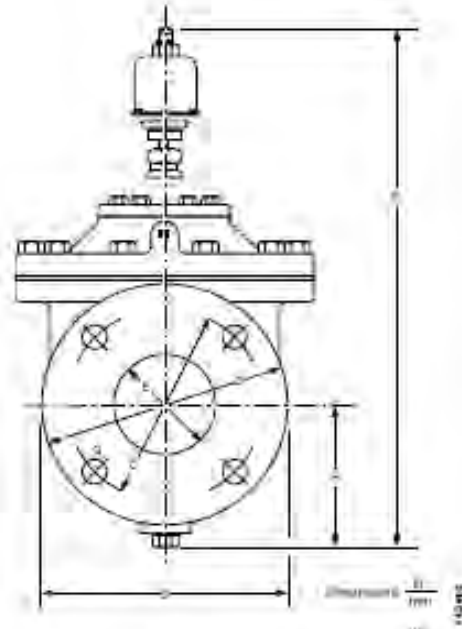
Technical Specifications

V43 Series Pressure Actuated Water Valve	
Maximum Static Water Pressure	150 psig (1034 kPa)
Maximum Water Pressure Drop Across Valve	50 psig
Maximum Bellows Pressure	300 psig (2068 kPa)
Maximum Water Supply Temperature	160°F (71°C)
Valve Body Material	Commercial—cast iron, Maritime—red brass
Pressure Connector	Non-corrosive—1/4 in. (6.4 mm) male flare; Ammonia—1/4 in. (6.4 mm) female flare

Dimensions

Symbol	2 Inch	2 1/2 Inch	3 Inch	4 Inch
A ¹	9.8 in. (249 mm)	10.75 in. (273 mm)	11.75 in. (298 mm)	14.0 in. (355 mm)
B	7.8 in. (198 mm)	8.0 in. (203 mm)	8.0 in. (203 mm)	10.75 in. (273 mm)
C	4.75 in. (121 mm)	5.50 in. (140 mm)	5.0 in. (127 mm)	7.5 in. (191 mm)
D	5.0 in. (127 mm)	7.0 in. (178 mm)	7.5 in. (191 mm)	5.0 in. (127 mm)
E	2.12 in. (54 mm)	2.62 in. (67 mm)	2.12 in. (54 mm)	4.13 in. (105 mm)
F	15.25 in. (387 mm)	16.56 in. (420 mm)	16.56 in. (420 mm)	18.15 in. (462 mm)
G	0.750 in. (19.05 mm) Dia. (4)	0.750 in. (19.05 mm) Dia. (4)	0.750 in. (19.05 mm) Dia. (4)	0.750 in. (19.05 mm) Dia. (8)
H	3.82 in. (97 mm)	3.84 in. (98 mm)	4.25 in. (108 mm)	5.03 in. (128 mm)

1. Flange face to flange face.



V43 Dimensions

Compressors,
Chillers, Condensers

Motors

Electrical

Heating
Components

Indoor Air
Quality

Thermostats

Oils &
Chemicals

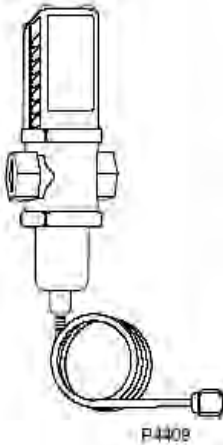
Accessories, Supplies
& Commodities

Tools &
Instruments

Refrigeration

JOHNSON CONTROLS - V46 SERIES PRESSURE ACTUATED WATER REGULATING VALVE SELECTION CHART

COMMERCIAL TYPE, LOW FLOW — NON-CORROSIVE REFRIGERANTS (R)**



DESCRIPTION

The V46 is a pressure actuated, modulating valve that is suitable for use either on closed or open systems. Direct acting valves open on pressure increase. This type of valve is primarily used to regulate the flow of water or glycol to a water cooled condenser on refrigeration system. Reverse acting valves open on pressure decrease and are generally used in parallel with a direct-acting valve or for bypass operation.

FEATURES

- no close fitting or sliding parts in water passages
- minimizes chatter or water hammer
- free movement of all parts provides smooth pressure modulation
- refrigerant adjustment is not affected by water pressure
- withstands high hydraulic shock without damage
- range spring does not come in contact with cooling water
- easy manual flushing, if required
- 3/8, 1/2, and 3/4-in. valves may be disassembled and reassembled without detaching from the refrigeration system or without pumping down

APPLICATIONS

Modulates flow of water or glycol to a water cooled condenser on a refrigeration system.

Examples include:

- Ice machines
- Computer room air conditioning units
- Ice cream machines
- Refrigeration cases

SPECIFICATIONS

V46 SERIES PRESSURE ACTUATED WATER REGULATING VALVES

Maximum Water Temperature	170° F (77° C)
Valve Commercial:	3/8 to 3/4-in. cast brass 1 in. and larger cast iron with a special finish
Body Navy and Maritime:	Cast naval bronze with monel interior parts

COMMERCIAL TYPE, LOW FLOW – NON CORROSIVE REFRIGERANTS (R)**

PART NO	PIPE SIZE (in)	INLET AND OUTLET	OPENING POINT RANGE psig (kPa)	PRESSURE ELEMENT STYLE	SEAT REPAIR KIT	REPLACEMENT POWER ELEMENTS
V46AA-1C	3/8 NPT	Threaded	70 to 250 (483 to 1793)	30 in. Capillary 1/4-in. Flare Nut (Style 45)	STT14A-600R	SEP91A-600R and SEC37A-601R*
V46AB-1C	1/2 NPT	Threaded	70 to 250 (483 to 1793)	30 in. Capillary 1/4-in. Flare Nut (Style 45)	STT15A-602R	SEP91A-602R and SEC37A-602R*
V46AC-1C	3/4 NPT	Threaded	70 to 250 (483 to 1793)	30 in. Capillary 1/4-in. Flare Nut (Style 45)	STT16A-601R	SEP91A-601R and SEC37A-602R*
V46AD-1C	1 NPT	Threaded	70 to 250 (483 to 1793)	30 in. Capillary 1/4-in. Flare Nut (Style 45)	STT17A-609R	SEP91A-603R and SEC37A-600R*
V46AE-1C	1-1/4 NPT	Threaded	70 to 250 (483 to 1793)	30 in. Capillary 1/4-in. Flare Nut (Style 45)	STT17A-610R	SEP91A-603R and SEC37A-600R*
V46AJ-2C	1/2	Union	70 to 250 (483 to 1793)	30 in. Capillary 1/4-in. Flare Nut (Style 45)	STT15A-602R	SEP77A-605R
V46EK-2C	3/4	Union	70 to 250 (483 to 1793)	30-in. Capillary 1/4in. Flare Nut (Style 46)	STT16A-601R	SEP127A-600R
V46AL-2C	1	Union	70 to 250 (483 to 1793)	30-in. Capillary 1/4in. Flare Nut (Style 46)	STT17A-609R	SEP107A-602R
V46AM-2C	1-1/4	Union	70 to 250 (483 to 1793)	30-in. Capillary 1/4in. Flare Nut (Style 46)	STT17A-610R	SEP107A-602R
V46AR-1C	1-1/2	4-Hole ASME Flange	70 to 250 (483 to 1793)	30-in. Capillary 1/4-in. Flare Nut (Style 45)	STT17A-610R	SEP91A-603R and SEC37A-600R*
V46AS-1C	2	4-Hole ASME Flange	70 to 170 (483 to 1172)	1/4-in. Male Flare Fitting (Style 5)	STT18A-600R	SEP81A-602R
V46AS-2C	2	4-Hole ASME Flange	160 to 250(1103 to 1793)	1/4-in. Male Flare Fitting (Style 5)	STT18A-600R	SEP81A-601R
V46AT-1C	2-1/2	4-Hole ASME Flange	70 to 170 (483 to 1172)	1/4-in. Male Flare Fitting (Style 5)	STT81A-601R	SEP81A-602R
V46AT-2C	2-1/2	4-Hole ASME Flange	160 to 260(1103 to 1793)	(Note 1)	STT81A-601R	SEP81A-601R
V46DA-2C	3/8 NPT	Threaded	70 to 260 (483 to 1793)	30-in. Capillary 1/4-in. Flare Nut (Style 45)	STT14A-630R	SEP91A-600R and SEC37A-601R†

JOHNSON CONTROLS - V46 SERIES PRESSURE ACTUATED WATER REGULATING VALVE SELECTION CHART

COMMERCIAL TYPE — AMMONIA (R)

PART NO	PIPE SIZE (in)	INLET AND OUTLET	OPENING POINT RANGE psig (kPa)	PRESSURE ELEMENT STYLE	SEAT REPAIR KIT	REPLACEMENT POWER ELEMENTS
V46AC-8C	3/4 NPT	Threaded	100 to 200 (690 to 1379)	1/4-in. Female NPT (Style 15)	STT16A-601R	SEP70A-601R
V46AD-4C	1 NPT	Threaded	100 to 200 (690 to 1379)	1/4-in. Female NPT (Style 15)	STT17A-609R	SEP70A-604R
V46AE-4C	1-1/4 NPT	Threaded	100 to 200 (690 to 1379)	1/4-in. Female NPT (Style 15)	STT17A-610R	SEP70A-604R
V46AR-2C	1-1/2	4 Hole ASME Flange	100 to 200 (690 to 1379)	1/4-in. Female NPT (Style 15)	STT18A-610R	SEP70A-604R
V46AS-3C	2	4 Hole ASME Flange	100 to 200 (690 to 1379)	1/4-in. Female NPT (Style 15)	STT18A-600R	SEP70A-605R
V46AT-3C	2-1/2	4 Hole ASME Flange	100 to 200 (690 to 1379)	1/4-in. Female NPT (Style 15)	STT18A-601R	SEP70A-605R

MARITIME TYPE — NON-CORROSIVE REFRIGERANTS (R)

PART NO	PIPE SIZE (in)	INLET AND OUTLET	OPENING POINT RANGE psig (kPa)	PRESSURE ELEMENT STYLE	SEAT REPAIR KIT	REPLACEMENT POWER ELEMENTS
V46BA-2C	3/8 NPT	Threaded	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT14A-601R	SEP13A-602R
V46BB-2C	1/2 NPT	Threaded	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT15A-603R	SEP13A-600R
V46BC-2C	3/4 NPT	Threaded	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-613R	SEP13A-603R
V46BD-2C	1 NPT	Threaded	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-611R	SEP50A-600R
V46VE-2C	1-1/4 NPT	Threaded	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-612R	SEP50A-600R
V46BS-4C	2	4 Hole ASME Flange	160 to 260 (1103 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R
V46BT-4C	2-1/2	4 Hole ASME Flange	160 to 260 (1103 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R

NAVSEA CERTIFIED — NON-CORROSIVE REFRIGERANTS (R)

PART NO	PIPE SIZE (in)	INLET AND OUTLET	OPENING POINT RANGE psig (kPa)	PRESSURE ELEMENT STYLE	SEAT REPAIR KIT	REPLACEMENT POWER ELEMENTS
V46CJ-2C	1/2	Sweat Connector	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT15A-603R	SEP13A-600R
V46CN-2C	3/4	4 Hole Navy Flange	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-613R	SEP13A-603R
V46CP-2C	1	4 Hole Navy Flange	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-611R	SEP50A-600R
V46CQ-2C	1-1/4	4 Hole Navy Flange	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-612R	SEP50A-600R
V46BR-2C	1-1/2	4 Hole ASME Flange	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-612R	SEP50A-600R
V46CR-2C	1-1/2	6 Hole Navy Flange	70 to 260 (483 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT17A-612R	SEP50A-600R
V46BS-3C	2	4 Hole ASME Flange	70 to 170 (483 to 1172)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R
V46CS-3C	2	6 Hole Navy Flange	70 to 170 (483 to 1172)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R
V46CS-4C	2	6 Hole Navy Flange	160 to 260 (1103 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R
V46BT-3C	2-1/2	4 Hole ASME Flange	70 to 170 (483 to 1172)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R
V46CT-3C	2-1/2	6 Hole Navy Flange	70 to 170 (483 to 1172)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R
V46CT-4C	2-1/2	6 Hole Navy Flange	150 to 260 (1103 to 1793)	30-in. Capillary with Sweat Connection (Style 34)	STT18A-602R	SEP50A-601R

*Replacement element supplied with 1/4" male SAE connector. Order SEC37A capillary kit w/2 flare nuts separately, if needed.

**Low water flow valve — 2.5 GPM max.

†Maximum opening point: 70 - 300 psi (483 to 2068 kPa), maximum permissible pressure: 440 psi (3034 kPa).

NOTES: 1. Use only on valves specified. 2. Standard capillary length: Style 45 & Style 34 elements is 30".