

FireSci[®]

FK5-1-12 Manual

In Partnership With
Chemori Americas[™]

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FK-5-1-12 Clean Agent



DESCRIPTION

Chemori 5112 is a trademark of Chemori's FK-5-1-12, Dodecafluoro-2-methylpentan-3-one. Another widely used extinguishing clean agent is FK-5-1-12. It is environmentally safe and best used in fire hazard areas containing A, B, & C classes of fire. It has been approved by US EPA and ISO for its safe characteristic and fire extinguishing effectiveness.

Chemori 5112 is good alternative clean agent for Halon 1301 replacement. Chemori FK-5-1-12 is guaranteed to meet the minimum NFPA 2001 Requirement as follows.

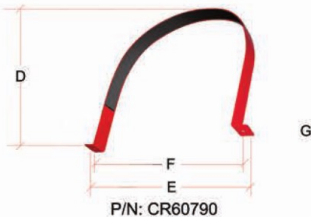
CLEAN AGENT PROPERTIES	
IUPAC Name	1,1,1,2,2,4,5,5,5-Nonafluoro-4-(trifluoromethyl)-3-pentanone
ASHRAE Designation	FK-5-1-12
Synonym	Dodecafluoro-2-methylpentan-3-one
CAS Registry Number	756-13-8
Chemical Formula	CF ₃ CF ₂ C(O)CF(CF ₃) ₂
Molecular Weight	316.04
Freezing Point	-162.4°F (-108°C)
Boiling Point at 760 mmHg	120.2°F (49°C)
Critical Temperature	335.6°F (168.66°C)
Critical Density	39.91 lbm/ft ³ (639.1 kg/m ³)
Critical Pressure	270.44 psi (1,865 kPa)
Critical Volume	0.0251 ft ³ /lbm (494.5 cc/mole)
Viscosity, Liquid at 77°F (25°C)	1.27 lb/ft-hr (0.524 cP)
Solubility in Water at 70°F (21.1°C)	<0.001% by weight
PROPERTY REQUIREMENT	
Purity	99.0% (minimum)
Water Content (by weight)	0.01%
Non-Volatile Residue (g/100 ml)	0.05
ENVIRONMENTAL IMPACT	
Ozone Depletion Potential (ODP)	0
Global Warming Potential (GWP)	≤1
Atmospheric Lifetime (ATL)	0.014 years
US EPA SNAP (Yes/No)	Yes

Clean Agent Cylinders (360 Psi System)



Cylinder Dimension

Part Number	A	B	C
CR 80020-E*	10.750"	13.632"	18.633"
CR 80035-E*	10.750"	18.677"	23.678"
CR 80070-E*	10.750"	28.166"	33.167"
CR 80100-F*	12.795"	26.709"	31.709"
CR 80150-E*	12.795"	37.343"	43.172"
CR 80250-E*	16"	40.099"	45.928"
CR 80375-E*	16"	57.248"	65.351"
CR 80560-E*	20"	55.516"	63.619"
CR 80650-E*	20"	63.335"	71.438"
CR 80650-F*	20"	63.805"	72.569"



Cylinder Bracket

The cylinder bracket is manufactured from galvanized steel band formed to the radius of the cylinder with flanges for bolting to the continuous slot metal framing channel of 12-gauge steel with corrosion resistant paint or galvanized. The channel must be supplied by the installer. The cylinder bracket must be secured to a surface that the bracket will withstand a load up to 5 times of the cylinder weight. This precaution is to have the bracket safely supports the weight of the cylinder and the reaction force of the FK-5-1-12 Clean Agent when discharge.

DESCRIPTION

The Clean Agent cylinders are manufactured and tested in accordance with DOT 4BW500 or DOT 4BA500. All cylinders are equipped with back pressure type valve. A piston in the valve bore is equipped with a rubber seal that keeps the FK-5-1-12 Clean Agent under pressure within the cylinder. A small hole in the piston allows cylinder pressure to be equalized on both sides of the piston. Since the area at the top of the piston is greater than the area at the bottom of the piston, the net force seals the piston against the valve discharge outlet. When the cylinder pressure on the top of the piston is relieved by means of automatic or manual activation, there is only cylinder pressure acting against the piston seal, and the piston slides to its full open position, allowing cylinder discharge through the distribution piping network.

Attached to the bottom of the cylinder valve is a siphon tube, which is straight and runs from the top of the cylinder to the bottom of the cylinder. The cylinder must be installed in an upright position (valve on top).

There is a 1/8" NPT outlet stamped "P" on the cylinder valve. This outlet transmits cylinder pressure to an optional low pressure supervisory switch, which when used, monitors the internal pressure of the cylinder. Another 1/8" NPT outlet stamped "M" on the cylinder valve is available for use as a pressure source to drive the piston actuators on a multiple cylinders system or to actuate a pressure operated switch in the event of the cylinder discharge.

Cylinder Model

FK-5-1-12 Clean Agent cylinders are available in the following capacities:

Part Number	Cylinder Size	Max Fill at 70 lb/ft³	Min Fill at 30 lb/ft³	Valve Size
CR 80020-E*	20 LB	21 LB	11 LB	1" Valve
CR 80035-E*	35 LB	38 LB	18 LB	1" Valve
CR 80070-E*	70 LB	76 LB	36 LB	1" Valve
CR 80100-F*	100 LB	108 LB	51 LB	1" Valve
CR 80150-E*	150 LB	163 LB	77 LB	1 1/2" Valve
CR 80250-E*	250 LB	271 LB	127 LB	1 1/2" Valve
CR 80375-E*	375 LB	406 LB	190 LB	2 1/2" Valve
CR 80560-E*	560 LB	601 LB	281 LB	2 1/2" Valve
CR 80650-E*	650 LB	712 LB	333 LB	2 1/2" Valve
CR 80650-F*	650 LB	712 LB	333 LB	3" Valve

Note: 1. Each of the basic sizes can be filled with one pound increments to meet the exact amount of FK-5-1-12 Clean Agent required, within their fill ranges.

2. * add "-SS" if valve is Stainless Steel

Temperature Range: 32°F (0°C) to 130°F (54.4°C)

System Operating Pressure: 360 psi at 70°F (35.2 kg_f / cm² at 21.1°C)

Part Number	Cylinder O.D	A	B	C	D	E	F	Bracket Part #
CR 80020-E*	10.00"	11"	14"	12.6"	1.5"	5.6"	2"	CR50139
CR 80035-E*	10.00"	11"	14"	12.6"	1.5"	5.6"	2"	CR50139
CR 80070-E*	10.00"	11"	14"	12.6"	1.5"	5.6"	2"	CR50139
CR 80100-F*	12.75"	13"	16.05"	14.65"	1.65"	6.475"	2"	CR60780
CR 80150-E*	12.75"	13"	16.05"	14.65"	1.65"	6.475"	2"	CR60780
CR 80250-E*	16.00"	16.25"	19.2"	17.7"	1.5"	8.2"	2"	CR60760
CR 80375-E*	16.00"	16.25"	19.2"	17.7"	1.5"	8.2"	2"	CR60760
CR 80560-E*	20.00"	20.25"	23.2"	21.7"	1.5"	12.2"	2"	CR60770
CR 80650-E*	20.00"	20.25"	23.2"	21.7"	1.5"	12.2"	2"	CR60770
CR 80650-F*	20.00"	20.25"	23.2"	21.7"	1.5"	12.2"	2"	CR60770

For the 20 lb. to 250 lb. cylinders - One cylinder bracket must be used
 For the 375 lb. to 650 lb. cylinders - Two cylinder brackets must be used

Engineered Clean Agent Cylinders (360 Psi System)



P/N: CR 81200-E

P/N: CR 81000-E,
CR 81000-F

P/N: CR 80800-E,
CR 80800-F

DESCRIPTION

The 800 lb, 1000 lb and 1200 lb cylinders are filled with one pound increments in order to meet the exact amount of agent required. By using Chemori's Flow Calculation Software Version CR 4.00, the two-phase and the two-component flow of agent and nitrogen through the distribution piping network in quasi-steady state from the initiation of the discharge to the final gas blow down can be estimated and predicted. The cylinder is equipped with the stainless steel valve that offers excellent flow characteristics for the liquefied gas, allowing for long pipe runs and has a greater coverage area.

Temperature Range: 32°F (0°C) to 130°F (54.4°C)

Operating Pressure: 360 psi at 70°F (25.3 kg/cm² at 21.1°C)

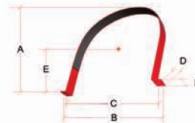
Part Number	Cylinder Size	Max Fill at 75 lb/ft ³	Min Fill at 35 lb/ft ³	Valve Size	Diameter	Total Height	Height to Discharge Outlet
CR 80800-E	800 LB	900 LB	420 LB	4" Valve	30.00"	56.792"	47.002"
CR 81000-E	1000 LB	1112 LB	520 LB	4" Valve	30.00"	64.154"	54.364"
CR 80800-F	800 LB	900 LB	420 LB	3" Valve	30.00"	55.463"	45.167"
CR 81000-F	1000 LB	1112 LB	520 LB	3" Valve	30.00"	62.431"	52.138"
CR 81200-E	1200 LB	1297 LB	606 LB	4" Valve	30.00"	71.985"	62.135"

The cylinder is equipped with a stainless steel back pressure type valve in which a piston installed within the valve is equipped with a rubber seal that keeps the clean agent under pressure within the cylinder. A small hole in the piston allows the pressure within the cylinder to be equalized on both sides of the piston. Since the area at the top of the piston is greater than the area at the bottom of the piston, the net force seals the piston against the valve discharge outlet. When the cylinder pressure on the top of the piston is relieved by means of automatic or manual activation, there is only cylinder pressure acting against the piston seal; hence, the piston slides to its full open position, allowing cylinder discharge through the distribution piping network.

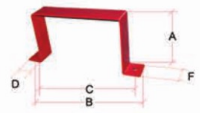
The cylinder must be installed in an upright position (valve on top) in which each cylinder installation shall use a top plug adapter. The available accessories include electric solenoid, pressure gauge, liquid level indicator, and bracket as described in the following manner.

3" and 4" Valve Accessories

Description	Usage
Electric Solenoid available in: - 24 VDC 15 Watts (4" Valve) - 24 VDC 15 Watts (3" Valve)	To automatically start and operate the clean agent discharge based on the operating specification requirement
Low Pressure Supervisory Switch	To monitor the internal pressure of the cylinder
Pressure Gauge, 360 psi	For quick visual inspection of the cylinder's internal pressure
Piston Actuator	For use as a pressure operated switch in the event of the cylinder discharge of multiple cylinders installation
Liquid Level Indicator	To measure the weight of the clean agent inside of the cylinder. Highly recommended for ease of maintenance
Cylinder Bracket	To support the weight of cylinder and the reaction force of the clean agent during discharge



P/N: CR 60790



P/N: CR 60772

Cylinder Bracket

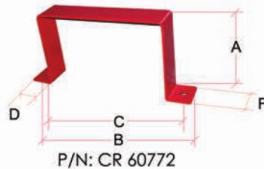
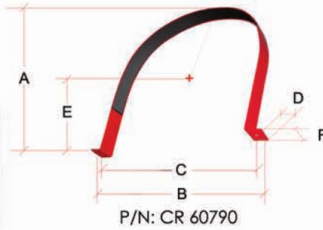
The cylinder bracket is manufactured from galvanized steel band formed to the radius of the cylinder with flanges for bolting to the continuous slot metal framing channel of 12-gauge steel with corrosion resistant paint or galvanized. The channel must be supplied by the installer. The cylinder bracket must be secured to a surface that the bracket will withstand a load up to 5 times of the cylinder weight. This precaution is to have the bracket safely support the weight of the cylinder and the reaction force of the HFC-227ea Clean Agent when discharge.

Part Number	Diameter	A	B	C	D	E	F
CR 60790	30.00"	29.125"	33.250"	31.750"	1.5"	14.00"	2"
CR 60772	30.00"	4.500"	11.500"	10.000"	1.5"	N/A	2"

1200 lb Clean Agent Cylinder (500 Psi System)



P/N: CR 71200-E



DESCRIPTION

The CR 71200-E 1200 lb. cylinder is filled with one pound increments from a minimum of 618 lb. to a maximum of 1324 lb., to meet the exact amount of agent required. The quantity of agent required for each enclosure can be calculated through Chemori's software, version CR 4.00, which contains a sophisticated calculation routine for predicting the two-phase as well as two-component flow of agent and nitrogen through the distribution piping network in quasi-steady state from the initiation of the discharge to final gas blow down. The cylinder is then super-pressurized with dry nitrogen to 500 psi at 70°F to provide extinguishment in 10 seconds or less. The 4" stainless steel valve offers excellent flow characteristics for the liquefied gas, allows for long pipe runs and has a greater coverage area. This is the largest Clean Agent cylinder currently manufactured and designed for very large applications. The 1200 lb. cylinder is manufactured and tested in accordance with DOT 4BW500.

Temperature Range: 32°F (0°C) to 130°F (54.4°C)

System Operating Pressure: 500 psi at 70°F (35.2 kg_f / cm² at 21.1°C) is also available

The cylinder is equipped with a 4" stainless steel back pressure type valve and a 4" Victaulic male outlet. A piston in the valve bore is equipped with a rubber seal that keeps the Clean Agent under pressure within the cylinder. A small hole in the piston allows cylinder pressure to be equalized on both sides of the piston. Since the area at the top of the piston is greater than the area at the bottom of the piston, the net force seals the piston against the valve discharge outlet. When the cylinder pressure on the top of the piston is relieved by means of automatic or manual activation, there is only cylinder pressure acting against the piston seal, and the piston slides to its full open position, allowing cylinder discharge through the distribution piping network.

Attached to the bottom of the cylinder valve is a siphon tube, which is straight and runs from the top of the cylinder to the bottom of the cylinder. The cylinder must be installed in an upright position (valve on top). Each cylinder installation shall use a top plug or a top plug adapter. The electric solenoid uses either a 24 VDC 15 Watts (CR 50025-6).

There is a 1/8" NPT outlet stamped "P" on the cylinder valve. This outlet transmits cylinder pressure to an optional low pressure supervisory switch, which when used, monitors the internal pressure of the cylinder. Another 1/8" NPT outlet stamped "M" on the cylinder valve is available for use as a pressure source to drive the piston actuators on a multiple cylinders system or to actuate a pressure operated switch in the event of the cylinder discharge. In multiple cylinders installation, when manifolded together, a maximum of six (6) 1200 lb. cylinders (also known as slave cylinders) can be operated to discharge using this "M" port through the piston actuator.

The cylinder is equipped with a 500 psi pressure gauge for quick visual INSPECTION of the cylinder's internal pressure.

Liquid level indicator is available as an option for measurement of weight of the Clean Agent in the cylinder and is highly recommended for ease of maintenance.

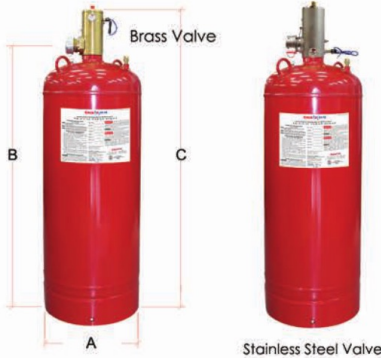
Part Number	Cylinder Size	Max Fill at 75 lb/ft ³	Min Fill at 35 lb/ft ³	Valve Size	Diameter	Total Height	Height to Discharge Outlet
CR 71200-E	1200 LB	1297 LB	606 LB	4" Valve	30.00"	71.985"	62.135"

Cylinder Bracket

The cylinder bracket is manufactured from galvanized steel band formed to the radius of the cylinder with flanges for bolting to the continuous slot metal framing channel of 12-gauge steel with corrosion resistant paint or galvanized. The channel must be supplied by the installer. The cylinder bracket must be secured to a surface that the bracket will withstand a load up to 5 times of the cylinder weight. This precaution is to have the bracket safely supports the weight of the cylinder and the reaction force of the FK-5-1-12 Clean Agent when discharge.

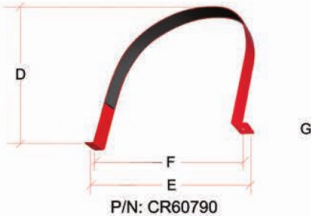
Part Number	Diameter	A	B	C	D	E	F
CR 60790	30.00"	30.225"	35.2"	33.2"	1.5"	15.225"	2"
CR 60772	30.00"	5"	11.85"	10.35"	1.5"	N/A	2"

Clean Agent Cylinders (500 Psi System)



Cylinder Dimension

Part Number	A	B	C
CR 70020-E*	10.750"	13.632"	18.633"
CR 70035-E*	10.750"	18.677"	23.678"
CR 70070-E*	10.750"	28.166"	33.167"
CR 70100-F*	12.795"	26.709"	31.709"
CR 70150-E*	12.795"	37.343"	43.172"
CR 70250-E*	16"	40.099"	45.928"
CR 70375-E*	16"	57.248"	65.351"
CR 70560-E*	20"	55.516"	63.619"
CR 70650-E*	20"	63.335"	71.438"
CR 70650-F*	20"	63.805"	72.569"



Cylinder Bracket

The cylinder bracket is manufactured from galvanized steel band formed to the radius of the cylinder with flanges for bolting to the continuous slot metal framing channel of 12-gauge steel with corrosion resistant paint or galvanized. The channel must be supplied by the installer. The cylinder bracket must be secured to a surface that the bracket will withstand a load up to 5 times of the cylinder weight. This precaution is to have the bracket safely supports the weight of the cylinder and the reaction force of the FK-5-1-12 Clean Agent when discharge.

DESCRIPTION

The Clean Agent cylinders are manufactured and tested in accordance with DOT 4BW500 or DOT 4BA500. All cylinders are equipped with back pressure type valve. A piston in the valve bore is equipped with a rubber seal that keeps the FK-5-1-12 Clean Agent under pressure within the cylinder. A small hole in the piston allows cylinder pressure to be equalized on both sides of the piston. Since the area at the top of the piston is greater than the area at the bottom of the piston, the net force seals the piston against the valve discharge outlet. When the cylinder pressure on the top of the piston is relieved by means of automatic or manual activation, there is only cylinder pressure acting against the piston seal, and the piston slides to its full open position, allowing cylinder discharge through the distribution piping network.

Attached to the bottom of the cylinder valve is a siphon tube, which is straight and runs from the top of the cylinder to the bottom of the cylinder. The cylinder must be installed in an upright position (valve on top).

There is a 1/8" NPT outlet stamped "P" on the cylinder valve. This outlet transmits cylinder pressure to an optional low pressure supervisory switch, which when used, monitors the internal pressure of the cylinder. Another 1/8" NPT outlet stamped "M" on the cylinder valve is available for use as a pressure source to drive the piston actuators on a multiple cylinders system or to actuate a pressure operated switch in the event of the cylinder discharge.

Cylinder Model

FK-5-1-12 Clean Agent cylinders are available in the following capacities:

Part Number	Cylinder Size	Max Fill at 70 lb/ft³	Min Fill at 30 lb/ft³	Valve Size
CR 70020-E*	20 LB	21 LB	11 LB	1" Valve
CR 70035-E*	35 LB	38 LB	18 LB	1" Valve
CR 70070-E*	70 LB	74 LB	36 LB	1" Valve
CR 70100-F*	100 LB	108 LB	51 LB	1" Valve
CR 70150-E*	150 LB	163 LB	77 LB	1 1/2" Valve
CR 70250-E*	250 LB	271 LB	127 LB	1 1/2" Valve
CR 70375-E*	375 LB	406 LB	190 LB	2 1/2" Valve
CR 70560-E*	560 LB	601 LB	281 LB	2 1/2" Valve
CR 70650-E*	650 LB	712 LB	333 LB	2 1/2" Valve
CR 70650-F*	650 LB	712 LB	333 LB	3" Valve

Note: 1. Each of the basic sizes can be filled with one pound increments to meet the exact amount of FK-5-1-12 Clean Agent required, within their fill ranges.

2. * add "-SS" if valve is Stainless Steel

Temperature Range: 32°F (0°C) to 130°F (54.4°C)

System Operating Pressure: 500 psi at 70°F (35.2 kg_f / cm² at 21.1°C)

Part Number	Cylinder O.D.	A	B	C	D	E	F	Bracket Part #
CR 70020-E*	10.00"	11"	14"	12.6"	1.5"	5.6"	2"	CR50139
CR 70035-E*	10.00"	11"	14"	12.6"	1.5"	5.6"	2"	CR50139
CR 70070-E*	10.00"	11"	14"	12.6"	1.5"	5.6"	2"	CR50139
CR 70100-F*	12.75"	13"	16.05"	14.65"	1.65"	6.475"	2"	CR60780
CR 70150-E*	12.75"	13"	16.05"	14.65"	1.65"	6.475"	2"	CR60780
CR 70250-E*	16.00"	16.25"	19.2"	17.7"	1.5"	8.2"	2"	CR60760
CR 70375-E*	16.00"	16.25"	19.2"	17.7"	1.5"	8.2"	2"	CR60760
CR 70560-E*	20.00"	20.25"	23.2"	21.7"	1.5"	12.2"	2"	CR60770
CR 70650-E*	20.00"	20.25"	23.2"	21.7"	1.5"	12.2"	2"	CR60770
CR 70650-F*	20.00"	20.25"	23.2"	21.7"	1.5"	12.2"	2"	CR60770

For the 20 lb. to 250 lb. cylinders - One cylinder bracket must be used

For the 375 lb. to 650 lb. cylinders - Two cylinder brackets must be used

Engineered Clean Agent Cylinders (500 Psi System)



P/N: CR 71200-E

P/N: CR 71000-E,
CR 71000-F

P/N: CR 70800-E,
CR 70800-F

DESCRIPTION

The 800 lb, 1000 lb and 1200 lb cylinders are filled with one pound increments in order to meet the exact amount of agent required. By using Chemori's Flow Calculation Software Version CR 4.0, the two-phase and the two-component flow of agent and nitrogen through the distribution piping network in quasi-steady state from the initiation of the discharge to the final gas blow down can be estimated and predicted. The cylinder is equipped with the stainless steel valve that offers excellent flow characteristics for the liquefied gas, allowing for long pipe runs and has a greater coverage area.

Temperature Range: 32°F (0°C) to 130°F (54.4°C)

Operating Pressure: 500 psi at 70°F (25.3 kg/cm² at 21.1°C)

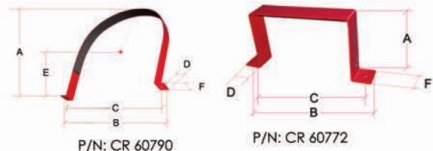
Part Number	Cylinder Size	Max Fill at 70 lb/ft ³	Min Fill at 30 lb/ft ³	Valve Size	Diameter	Total Height	Height to Discharge Outlet
CR 70800-E	800 LB	900 LB	420 LB	4" Valve	30.00"	56.792"	47.002"
CR 71000-E	1000 LB	1112 LB	520 LB	4" Valve	30.00"	64.154"	54.364"
CR 70800-F	800 LB	900 LB	420 LB	3" Valve	30.00"	55.463"	45.167"
CR 71000-F	1000 LB	1112 LB	520 LB	3" Valve	30.00"	62.431"	52.138"
CR 71200-E	1200 LB	1297 LB	606 LB	4" Valve	30.00"	71.985 "	62.135"

The cylinder is equipped with a stainless steel back pressure type valve in which a piston installed within the valve is equipped with a rubber seal that keeps the clean agent under pressure within the cylinder. A small hole in the piston allows the pressure within the cylinder to be equalized on both sides of the piston. Since the area at the top of the piston is greater than the area at the bottom of the piston, the net force seals the piston against the valve discharge outlet. When the cylinder pressure on the top of the piston is relieved by means of automatic or manual activation, there is only cylinder pressure acting against the piston seal; hence, the piston slides to its full open position, allowing cylinder discharge through the distribution piping network.

The cylinder must be installed in an upright position (valve on top) in which each cylinder installation shall use a top plug adapter. The available accessories include electric solenoid, pressure gauge, liquid level indicator, and bracket as described in the following manner.

3" and 4" Valve Accessories

Description	Usage
Electric Solenoid available in: - 24 VDC 15 Watts (4" Valve) - 24 VDC 15 Watts (3" Valve)	To automatically start and operate the clean agent discharge based on the operating specification requirement
Low Pressure Supervisory Switch	To monitor the internal pressure of the cylinder
Pressure Gauge, 500 psi	For quick visual inspection of the cylinder's internal pressure
Piston Actuator	For use as a pressure operated switch in the event of the cylinder discharge of multiple cylinders installation
Liquid Level Indicator	To measure the weight of the clean agent inside of the cylinder. Highly recommended for ease of maintenance
Cylinder Bracket	To support the weight of cylinder and the reaction force of the clean agent during discharge



Cylinder Bracket

The cylinder bracket is manufactured from galvanized steel band formed to the radius of the cylinder with flanges for bolting to the continuous slot metal framing channel of 12-gauge steel with corrosion resistant paint or galvanized. The channel must be supplied by the installer. The cylinder bracket must be secured to a surface that the bracket will withstand a load up to 5 times of the cylinder weight. This precaution is to have the bracket safely support the weight of the cylinder and the reaction force of the HFC-227ea Clean Agent when discharge.

Part Number	Diameter	A	B	C	D	E	F
CR 60790	30.00"	29.125"	33.250"	31.750"	1.5"	14.00"	2"
CR 60772	30.00"	4.500"	11.500"	10.000"	1.5"	N/A	2"

Clean Agent Cylinder Valves



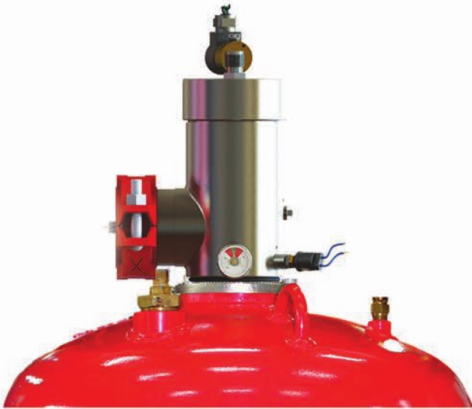
1" Brass Valve
Brass, ASTM B-16
P/N: CR 90001



1 1/2" Brass Valve
Brass, ASTM B-16
P/N: CR 90002



2 1/2" Brass Valve
Brass, ASTM B-16
P/N: CR 90003



3" Stainless Steel Valve
SS, AISI 304/ 316/ 316L
P/N: CR 30000-C



4" Stainless Steel Valve
SS, AISI 304/ 316/ 316L
P/N: CR 90004



1" Stainless Steel Valve
SS, AISI 304/ 316/ 316L
P/N: CR 90001-SS



1 1/2" Stainless Steel Valve
SS, AISI 304/ 316/ 316L
P/N: CR 90002-SS



2 1/2" Stainless Steel Valve
SS, AISI 304/ 316/ 316L
P/N: CR 90003-SS

Liquid Level Indicator



Part Number	Description
CR 60020	Liquid Level Indicator for 150 LB & 250 LB cylinders
CR 60020-1	Liquid Level Indicator for 375 LB & 560 LB cylinders
CR 60020-5	Liquid Level Indicator for 650 LB cylinders
CR 60020-4	Liquid Level Indicator for 800 LB cylinders
CR 60020-3	Liquid Level Indicator for 1000 LB cylinders
CR 60020-2	Liquid Level Indicator for 1200 LB cylinders

DESCRIPTION

The Liquid Level Indicator is a simple and easy to operate where it provides a means to determine the Clean Agent liquid level in vertically mounted agent storage containers. Once the liquid level is determined, it can then be converted into the weight of Clean Agent present in the agent storage container.

OPERATION

A magnet equipped float moves with the liquid level along the unit stem. Level readout is obtained by simply removing the protective cap and pulling out a calibrated tape until the magnetic interlock with the float is felt. With the tape in this position, the reading is obtained at the point where the tape emerges from the unit housing.

When the liquid level is determined, the reading then refers to a chart in the Engineering Manual and the corresponding weight of Clean Agent is determined. Accurate readings can be obtained over a +40°F to +90°F temperature range.

FEATURES

- Reduced maintenance time - weight in an agent storage container can be determined in a fraction of the time it would take to remove and weigh them.
- Continuous fire protection - use of the liquid level indicator does not require taking out the cylinder from the system, thus providing uninterrupted fire protection.
- Field installation capability - the indicator can easily be installed in the field using a single wrench as long as the container is empty and is equipped with a mounting boss.
- Compact - when not in use, the unit requires no more space than that required by the container.
- Flexibility - the flexible tape design allows the unit to be used in tight spaces that would otherwise hinder the use of a rigid type indicator "stick".
- Availability - units are available for all Chemori containers from sizes of 150 lbs. Thru 1200 lbs.

Pressure Gauge Guard and Pressure Supervisory Switch Guard

PRESSURE GAUGE GUARD

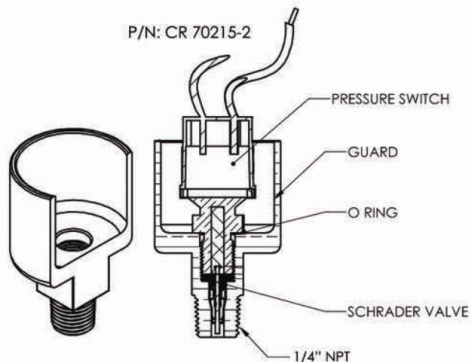
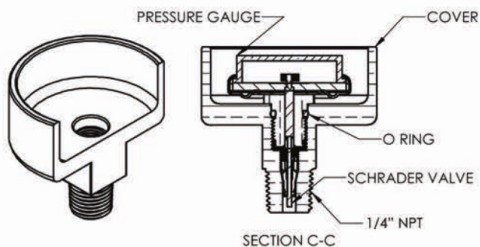


P/N: CR 70198-3

PRESSURE SWITCH GUARD



P/N: CR 70215-2



DESCRIPTION

The Pressure Gauge and Pressure Supervisory Switch Guards ensure increased safety, flexibility and serviceability when used in valve/cylinder assemblies. They are made of brass material and protect the pressure gauge and pressure supervisory switch from impacts which may cause a leak. The Pressure Gauge and Pressure Supervisory Switch Guards also incorporate a no loss connection which allows for the pressure gauge to be replaced easily and safely without discharging the cylinder

Pressure Supervisory Switch



Normally Closed Normally Open

DESCRIPTION

Pressure Supervisory Switch is operated by supervised fluid pressure applied within the cylinder. This switch offers a choice of pressure monitoring alarms when the set point pressure is detected, the switch works to open or close a circuit. This allows for enhanced alarm and control which in turn improves the dependability and safety of the workplace. Switch contacts can be Normally Open (N.O) or Normally Closed (N.C). An electric circuit can be a "closed" circuit, where the power flows, or an "open" circuit where the power is interrupted. In the Normally Closed circuit, power flows out until the relay is activated, which interrupts the power, and when the relay deactivates, the power is on again. Normally Open is the opposite, the power is off until the relay activates, which allows the power to flow through, and when the relay deactivates, power is again interrupted.

Low Supervisory Switch

The switch is used to monitor the pressure within the Liquid Agent cylinder. The switch contacts will be activated when a cylinder leak occurs providing a signal to the Release Control Panel to indicate loss of pressure and/or leakages. The pressure supervisory switch is wired into a supervised circuit to give a trouble signal upon activation.

SPECIFICATION

1. Auto-Reset Pressure Switch (SPST)
2. Proof Pressure: 600 psig (41 bar)
3. Burst Pressure: 5000 psig (345 bar)
4. Electrical Ratings:
 - 120/240 VAC - 375 VA
 - 24 VAC - 125 VA
5. Cycle Life: 100,000 Minimum
6. Ambient Temperature: -30 to +70°C
7. Fluid Temperature: -54 to +135°C

Part Number	Description	Operation
CR 50138-5	240 psi NPT	Normally Closed
CR 50138-4	240 psi NPT	Normally Open
CR 50138-1	360 psi NPT	Normally Closed
CR 50138-2	360 psi NPT	Normally Open
CR 50138-7	500 psi NPT	Normally Closed
CR 50138-8	500 psi NPT	Normally Open

Part Number	Description	Operation
CR 50138-6	135 psi M-10	Normally Closed
CR 50138-3	135 psi M-10	Normally Open
CR 50138-5	240 psi M-10	Normally Closed
CR 50138-4	240 psi M-10	Normally Open
CR 50138-1	360 psi M-10	Normally Closed
CR 50138-2	360 psi M-10	Normally Open
CR 50138-7	500 psi M-10	Normally Closed
CR 50138-8	500 psi M-10	Normally Open
CR 50138-9	500 psi M-10	Normally Closed
CR 50138-10	500 psi M-10	Normally Open

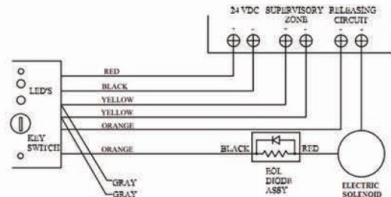
Electric Solenoid



Figure 1. Electric Solenoid



Figure 2. Electric Solenoid Tamper Seal



DESCRIPTION

The electric solenoid valve is a normally closed valve that requires electrical energy to open which is also used to vent the pressure from the top of the piston in the cylinder valve, allowing the piston to slide upward and commence cylinder discharge. The electric solenoid valves are available in 24 VDC. The source of the electrical energy will determine the number and rating of the electric solenoid used. The solenoid circuit must be supervised for a break in the wiring, a ground or a short circuit.

The cylinder discharge valve that is equipped with a solenoid valve is to be connected to a control panel, which is UL listed for releasing devices and is compatible with Chemori Fire Suppression equipment.

Connect solenoid pigtails to actuation circuit wires with wire nuts within a junction box or by means designated by the authority having jurisdiction.

Whenever an electric solenoid is used as the sole means of actuation, a top plug must be used to seal the top of the cylinder valve.

Electric Solenoid is added with a tamper indicator as shown in Figure 2 which uses a Zip-tie (Part Number: CR 70253) around the valve coil and vent solenoid to secured it mechanically. Unless the zip tie is cut, solenoid coil cannot be removed.

The cylinder discharge valve that is equipped with a solenoid valve is to be connected to a control panel, which is UL listed for releasing devices and is compatible with Chemori Fire Suppression equipment.

NFPA 2001 (2015 Edition) requirements to avoid unwanted system operation or unwanted discharge of an electrically actuated clean agent system are compulsory to follow.

1. A supervised disconnect switch shall be provided.
2. The disconnect switch shall interrupt the releasing circuit to the suppression system.
3. The disconnect switch shall cause a supervisory signal to the releasing control unit.
4. The disconnect switch shall be located inside a lockable fire alarm control panel inside a lockable enclosure, or require a key for activation of the switch.
5. When the disconnect switch requires a key for activation, the access key shall not be removable while disconnected so the suppression system can be quickly returned to the operational condition in the event of fire.

Electric Solenoid is coupled to the Releasing Circuit Disable Switch (Part Number: CR 88205).

Part Number	Description	Electrical Rating
CR 50025-2	Electric Solenoid	24 VDC, 11 Watts
CR 50025-2E	Electric Solenoid, Explosion-Proof	24 VDC, 11 Watts
CR 50025-6	Electric Solenoid	24 VDC, 15 Watts
CR 50025-6E	Electric Solenoid, Explosion-Proof	24 VDC, 15 Watts
CR 50025-7L	Electric Solenoid, with LMC	24 VDC, 15 Watts

Latching Solenoid and Local Manual Control



P/N: CR 50026-A

LATCHING SOLENOID

Latching Solenoid is used to open a Schrader valve on the top plug adaptor of the cylinder valve. The application provides a solution with a fast response and a high latching force to be used with the Chemori Clean Agent Fire Suppression System.

It was determined that a latching solenoid with an optional local manual control head is the best solution for the application. The actuator is held in the latched position without power

until a signal from the agent release control panel cuts off the permanent magnet. When release, the latching solenoid opens the cylinder valve allowing the extinguishing medium to discharge from the cylinder into the system. The fast response time allows the fire extinguishing agent for the system to be released in the event of a fire. The latching solenoid is designed with an emergency release local manual control to manually force the pin to depress the cylinder valve to release the extinguishing medium when needed. In order to reset the system, the solenoid is to be manually returned to the latched position.

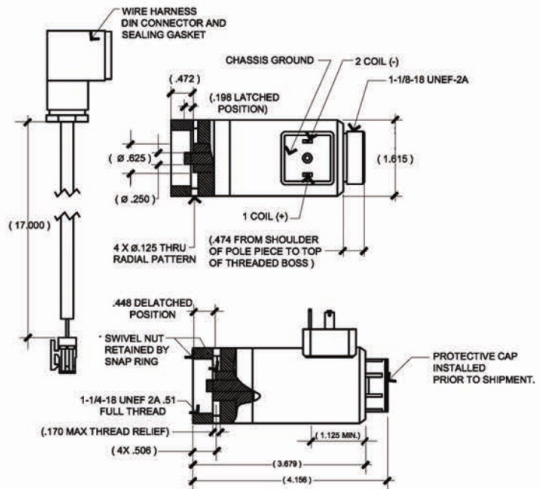
This custom latching solenoid designed specifically for fire protection systems is UL listed and tested in accordance with UL508.

Features

- High latching forces
- Fast response
- Options
 - Manual release button cap
 - Reset tool
- UL approval-recognized to UL864
- Tested in accordance with UL508

Specification

- Manual actuation force: 12-40 lb_f (5.44-18kg_f) max
- Operating force: 20.25-14.6 lb_f (90-65 N) min
- Power requirement: 24 VDC
- Current: 0.5A @ 24 VDC
- Electrical connection: DIN 43 650-A/ISO 440 3pin
- Operating temperature range: -4 to 131°F (-20 to 55°C)
- Weight: 1.9 lbs (.86 kg)
- Dimensions:
 - Body Diameter: 1.61 in (41 mm)
 - Length: 4.17 or 5.9 in (106 or 150 mm) with manual actuation cap



LATCHING SOLENOID LOCAL MANUAL CONTROL

- Used for manual actuation of the cylinder
- Equipped with safety pull-pin to prevent accidental manual discharge of Clean Agent
- Self-venting
- Solid brass construction
- Stainless steel operation lock-pin

The Latching Solenoid Local Manual Control features a local lever driven push rod that depresses a Schrader check valve thru the latching solenoid when fitted onto the top of the solenoid, thereby venting the pressure from the top of the piston in the cylinder valve, allowing the piston to slide upward and commence cylinder discharge. The Local Manual Control can be mounted directly to a top plug adapter, which is the top piece of the cylinder valve.



P/N: CR 61033-2

Pressure Switches

PRESSURE OPERATED SWITCH (N.C./N.O.) SPDT (MANUAL RESET)

Indicates that the Fire Suppression Agent is being discharged

ENGINEERING AND ARCHITECT SPECIFICATIONS

The switch is provided to alert a system discharge and provides electrical contacts for alarm and auxiliary functions. The switch will have form C contacts rated at 15A 480 VAC. An external manual reset button shall be provided on the pressure switch. After system actuation, the reset button **MUST** be depressed in order to reset the device. The switch may also be connected to any points of the discharge piping between the cylinder and nozzle.



P/N: CR 50339

Electrical Rating:
15A 480 VAC;
Switch:
SPDT snap action;
Contacts:
One : Normally Open (N.O.)
One : Normally Closed (N.C.)

PRESSURE OPERATED SWITCH (N.C./N.O.) SPDT (AUTOMATIC RESET)

Indicates that the Fire Suppression Agent is being discharged

ENGINEERING AND ARCHITECT SPECIFICATIONS

The switch is provided to alert a system discharge and provides electrical contacts for alarm and auxiliary functions. The switch is best used with an Agent Release Control panel to perform various auxiliary functions. The switch may be connected to "M" port of the Chemori Americas cylinder valve or at any points of the discharge piping between the cylinder and nozzle.



P/N: CR 50339-A

TECHNICAL INFORMATION

Materials	Part-stainless steel. Diaphragm-stainless steel. Seals-Buna-N or Viton. Housing-aluminium.
Temperature	-65°F to 280°F
Electrical Rating	5 Amps. Resistive 110 V/250 VAC, 3 Amps. Inductive 28 VDC. SPDT snap-action
Electrical Connection	8" Pigtails
Pressure Connection	1/8" NPT-Male
Dielectric Strength	1000 V RMS
Reset	Automatic

Mechanical Controls

Pressure supplied by Port M of Master Cylinder Valve



P/N : CR 61041



P/N : CR 61033

LOCAL MANUAL CONTROL (P/N : CR 61033)

- Used for manual actuation of cylinder
- Equipped with safety pull-pin to prevent accidental manual discharge of Clean Agent
- Self-venting
- Solid brass construction
- Stainless steel operation lock-pin

The Local Manual Control features a local lever driven push rod that depresses a check valve, thereby venting the pressure from the top of the piston in the cylinder valve, allowing the piston to slide upward and commence cylinder discharge. The Local Manual Control mounts directly to a top plug adapter, which is located on top of the cylinder valve.

PISTON ACTUATOR CONTROL HEAD-SLAVE (P/N : CR 61041)

- High quality brass construction
- Mounts directly on top of cylinder valves
- Self-venting

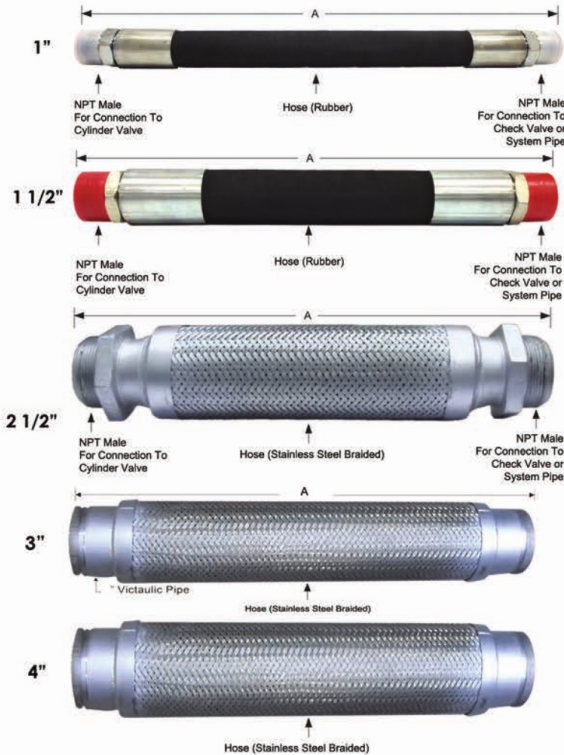
The Piston Actuator features a pneumatically driven piston that depresses a Schrader check valve, thereby venting the pressure from the top of the piston in the cylinder valve, allowing the piston to slide upward and commence cylinder discharge. The pneumatic pressure required to operate the Piston Actuator is obtained from the "M" port of a cylinder, which is designated as "Master" cylinder that is either mechanically and/or electrically actuated. Multiple cylinders equipped with Piston Actuators can be activated from one master cylinder using 1/4" copper tubing or 1/4" metal flex hose. The Piston Actuator mounts directly to a top plug adapter, which is located on top of the cylinder valve.

SPECIFICATIONS	
Thread for Piston Actuator Control Head - Slave	Available in 1", 1 1/2", 2 1/2", 3", 4" sizes
Thread for Pilot Connection	1/4" Copper Tubing or 1/4" Metal Flex Hose
Minimum Pilot Pressure	3.45 Bar (50 PSI)
Maximum Pilot Pressure	34.5 Bar (500 PSI)
Material	Available in Brass or Stainless Steel

Note: 1/4" Metal Flex Hose are available as follows:

P/N CR 50192-3	12" Length
P/N CR 50192	20" Length
P/N CR 50192-1	24" Length
P/N CR 50192-2	36" Length

Flexible Hoses



DESCRIPTION

Flex hoses are utilized to combine the agent storage containers to the manifold in multiple cylinder arrangement. All sizes are fitted with male NPT thread on both ends. Flex hoses are constructed of high pressure hydraulic rubber in the 1" and 1-1/2" sizes and stainless steel corrugated inner core with stainless steel braided in the 2-1/2" size.

For the 650 lb, 800 lb and 1200 lb cylinders, the flex hose is 3" in diameter (Part # CR 91230-C) and 18" in length. The flex hose is manufactured from a stainless steel corrugated inner core with stainless steel braided. The flex hose has 3" Victaulic fittings on both ends.

For the 800 lb, 1000 lb and 1200 lb cylinders, the flex hose is 4" in diameter (Part # CR 91230) and 18" in length. The flex hose is manufactured from a stainless steel corrugated inner core with stainless steel braided. The flex hose has 4" Victaulic fittings on both ends.

Part Number	Diameter	Description	A	Material
CR 60255	1"	Flexible Hose	18"	Rubber
CR 60256	1-1/2"	Flexible Hose	18"	Rubber
CR 60257	2-1/2"	Flexible Hose	18"	Stainless Steel Braided
CR 91230-C	3"	Flexible Hose	18"	Stainless Steel Braided
CR 91231-A	3" x 6"	Flexible Hose and Check Valve Assembly	26"	Stainless Steel Braided / Brass
CR 91230	4"	Flexible Hose	18"	Stainless Steel Braided
CR 91231	4" x 6"	Flexible Hose and Check Valve Assembly	26"	Stainless Steel Braided / Brass

Shuttle & Check Valves



4" Check Valve Assembly
P/N: CR 91231-2



3" Check Valve Assembly
P/N: CR 91231-3



P/N: CR 60263



P/N: CR 60261



P/N: CR 60262

CHECK VALVE

The Check Valves are used when two or more agent storage cylinders are combined together with one common discharge piping configuration. Their purpose is to prevent the loss of agent in the event that any of the agent storage cylinders are not connected to the manifold at time of system discharge and to prevent back flow of agent into other cylinders attached to the manifold.

All components of the check valves are constructed from brass for durability and protection against corrosion. The metal to metal sealing area of the disc and seat is precision lapped, providing a very tight shut-off of both gas and liquid.

Part Number	Description	Valve Size
CR 60261	Check Valve	1"
CR 60262	Check Valve	1-1/2"
CR 60263	Check Valve	2-1/2"
CR 91231-2	Check Valve Assembly	4"



P/N: CR 50123

Part Number	Description
CR 50123	1" Shuttle Valve
CR 60619	1-1/2" Shuttle Valve

SHUTTLE VALVE

The brass Shuttle Valve is used to connect two cylinders to a common discharge pipe and nozzle(s). All threads are available with 1" or 1-1/2" NPT. The purpose of having a reserve supply is that after the first cylinder (main) is discharged, the second cylinder (reserve) can be manually transferred via main/reserve switch to restore fire-fighting readiness.

The shuttle valve contains a shuttle check that closes off the piping to the first cylinder (main) when empty. When the second cylinder is discharged, the shuttle check prevents the charge of the second cylinder into the first empty cylinder (main) connected on the same manifold, thus reducing the unnecessary Clean Agent loss.

Schrader Valve with Cap

SCHRADER VALVE

Schrader valves are used in a wide variety of compressed gas and pressurized liquid applications such as fire extinguishing cylinders. Schrader valves are also viewed as more complex. Chemori's schrader valves are used on 20 LB to 1200 LB cylinders.

It consists of an externally threaded hollow cylindrical metal tube, typically of nickel plated brass. In the center of the exterior end is a metal pin pointing along the axis of the valve stem; the pin's end is approximately flush with the end of the valve body. It is used for pressurising extinguishers.



P/N: CR 50141-A

NIPPLE CAP

A valve cap is important on a Schrader valve because if one is not fitted, dirt and water can enter the inside of the valve stem, potentially jamming it or contaminating the sealing surfaces and causing a leak. The cap helps prevent Nitrogen (N_2) from escaping from a leaking valve core.



P/N: CR 50194-5

CORE (SCHRADERVALVE)

The valve core has a seal which is attached to a pin. When you push the Nitrogen (N_2) line hose on to the valve, it presses on the pin and it opens the valve to allow the Nitrogen (N_2). The valve ensures that the Nitrogen (N_2) already in the cylinder is retained.



P/N: CR 50009-3

1/8 NPT TO 7/16-20-UNEF FLARE NIPPLE

Flare fittings are used in the construction of the schrader valve.

Features:

- Precisely designed
- Rust proof
- Durable finish standards



P/N: CR 50194-4A

6 Inch Selector Valve with Pneumatic Actuator



DESCRIPTION

Chemori's 6 Inch Selector Valve contain flanged connection to the fire suppression pipe lines. The Selector Valve is designed with ISO direct mounting pad, it's convenient for mounting Pneumatic Actuator (CR 603402) directly on the valve's ISO pad.

It has a Limit Switch Box (OCI 603403) that is using aluminium die-casting housing and power coated. It is equipped with bolt on visual position indicator spring, loaded cam, captive cover bolts, dual cable entries, and Namur standard stainless steel shaft and bracket.

The 6 Inch Selector Valve offers flange connection in ASME/DIN/JIS standard. This is for 6" size (Dn150), and Fire Safe API607 - 4th Edition Certification can be provided as option.

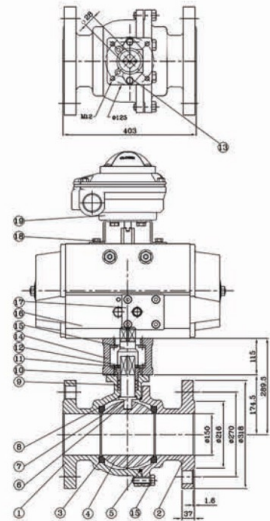
SPECIFICATION

1. Available in stainless steel or carbon steel
2. Body & end are investment cast
3. Self adjusting stem packing
4. Blow-out proof stem design
5. 100% air tested under water at 80 psi to 100 psi
6. Temperature Range: -200 F to 450O F
7. ISO 5211 mounting pad
8. Options: Silicone Free/Oil & Crease Free

General Design Information

- * Face to Face Dimension: ANSI B16.10
- * Flanged Dimension: ANSI B16.5
- * Wall Thickness: ANSI B16.34
- * Flanged Finish: MSS Sp-6
- * Pressure Test & Inspection: API 598

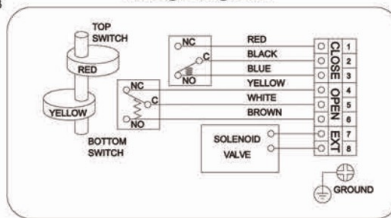
NO.	NAME OF PARTS	MATERIALS
1	BODY	CF8M
2	END CAP	CF8M
3	BALL SEATS	PTFE+25%Carbon
4	BALL	CF8M
5	GASKET	PTFE
6	ANTI-STATIC	SS 316
7	STEM	CF8M
8	THRUST WASHER	RPTFE
9	STEM PACKING	PTFE
10	GLAND	CF8
11	STOPPER	SS 304
12	STOP PLATE	SS 304
13	GLAND BLOT	SS 304
14	BRACKET	FCD45
15	ADAPTOR	S45C
16	ACTUATOR	SS 304
17	FLOW CONTROL BLOCK	-
18	BRACKET	SS 304
19	SWITCH BOX	-



Pneumatic Actuator Valve Assembly



Wiring Diagram



Available Sizes of Pneumatic Actuator Valve Assembly

Part Number	Size
CR 603300-P	2"
CR 603301-P	2 1/2"
CR 603302-P	3"
CR 603303-P	4"

DESCRIPTION

Chemori's Pneumatic Actuator Valve Assembly contain Pneumatic Actuator, Limit Switch Box and a Selector Valve. The Pneumatic Actuator is a compact rack and pinion actuator that is available in double acting and spring return. The body is a hard-anodized aluminium extrusion alloy. The pneumatic actuators are manufactured in a wide range of output torques to fit the characteristics of the selector valve applications, and the systems feature an ISO standard mounting design, assuring long-term industry acceptance.

It has a Limit Switch Box that is designed using aluminium die-casting housing and power coated. It is equipped with bolt on visual position indicator spring, loaded cam, captive cover bolts, dual cable entries, and Namur standard stainless steel shaft and pipings.

The Limit Switch provides electrical contact points for use on Chemori Selector Valve to indicate "Open" or "Closed" position.

Below the Pneumatic Actuator is the Selector Valve that is designed to operate together with the Pneumatic Actuator (CR 603402) and it has an ISO direct mounting pad which is designed for all of the Schedule 40 or 80 fire suppression system pipings.

Chemori's bare stem type selector valve is well designed for mounting the actuator directly with very low torque value.

Pneumatic Actuator Specification

1. Operating Pressure Range: 40 psig to 120 psig
2. Maximum Allowable Working Pressure: 150 psig
3. Pressure Regulator Device Range: 80 psig to 400 psig
4. Operating Temperature: -40°F (-40°C) to +200°F (90°C)
5. Double Acting: 10 Nm (88 in-lb) to 1,243 Nm (11,000 in-lb)
6. Spring Return: 7.6 Nm (68 in-lb) to 484 Nm (4,290 in-lb)
7. Direct connection: ISO 5211 standard and DIN 3337 stem standard

Limit Switch Box Specification

Enclosure Protection: Weatherproof IP67 / NEMA 4 & 4X
Ingress Protection: IP67
Coating: Polyester powder coated, hard-anodized surface against corrosion
Ambient Temperature: -4°F (-20°C) to +176°F (+80°C)
Cable Entry: Dual cable entries (2 x 1/2" NPT)
Terminal Strip: 8 points (6 for switches, 2 for solenoid connections)
Position Monitoring Indicator: Yellow - Open (0° to 90°)
Red - Close
Switches: 2 SPDT Mechanical Switches
Mounting Bracket: Standard NAMUR

Selector Valve Specification

1. Body & end caps quality investment casting
2. With ISO 5211 direct mounting pad
3. Adjustable stem packing
4. Available in stainless steel or carbon steel
5. Blow-out proof stem design
6. 100% air tested under water at 80 psi to 100 psi
7. Working Pressure: 1000 psi / 800 psi
8. Temperature Range: -200 F to 4500 F
9. End Type: Threaded

Discharge Nozzles



Part Number	Description	Part Number	Description
CR 70704-2-xxxx	½" (180°) Sidewall	CR 70707-2-xxxx	1 ½" (180°) Sidewall
CR 70704-3-xxxx	½" (360°) Central	CR 70707-3-xxxx	1 ½" (360°) Central
CR 70705-2-xxxx	¾" (180°) Sidewall	CR 70708-2-xxxx	1 ½" (180°) Sidewall
CR 70705-3-xxxx	¾" (360°) Central	CR 70708-3-xxxx	1 ½" (360°) Central
CR 70706-2-xxxx	1" (180°) Sidewall	CR 70709-2-xxxx	2" (180°) Sidewall
CR 70706-3-xxxx	1" (360°) Central	CR 70709-3-xxxx	2" (360°) Central

NOTE: 1. "xxxx" represents the orifice drill size
 2. Aluminum Material: CR 6070*
 Brass Material: CR 7070*
 Stainless Steel Material: CR 8070*

DESCRIPTION

Chemori discharge nozzles are designed to control the flow of clean agent in a uniform, pre-determined pattern and concentration. The nozzles are intended to finish the release of Clean Agent in 10 seconds or less when introduced within the design limitations as stated in the Installation Instruction Manual.

Discharge Nozzles are available in sizes of 1/2", 3/4", 1", 1-1/4", 1-1/2" and 2". Each discharge nozzle comes in two configurations: 180 and 360 degree distribution patterns. Deflector plates are available as a choice where sensitive ceiling tiles must be protected.

Discharge Nozzles are made of brass with female pipe threads. The orifice size of the discharge nozzle is determined by the hydraulic flow calculations. All nozzles are rated for a maximum hazard height of 16 ft. If hazards exceed 16 ft in height, a second tier of nozzles must be used.

Discharge nozzles are also available in Aluminium, Brass and Stainless steel materials.

Discharge Nozzle Selection – Sidewall 180°

Typically to be installed adjacent to the center of the one wall of one enclosure. It's discharge path will be across the enclosure. At no time shall the area coverage be exceeded.

Discharge Nozzle Selection – Central 360°

Typically to be installed at the center of the enclosure. It's discharge path will be across the enclosure. At no time shall the area coverage be exceeded.

Installation

Please refer to Chemori Installation, Maintenance & Service Technical Manual for Discharge Nozzles Area Coverage and Application Selections.

Manifold Couplings with Flexible Hoses



CR 88122-625 CR 88122-645 CR 88122-665

DESCRIPTION

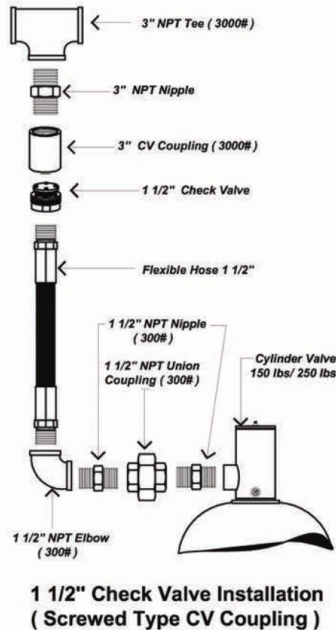
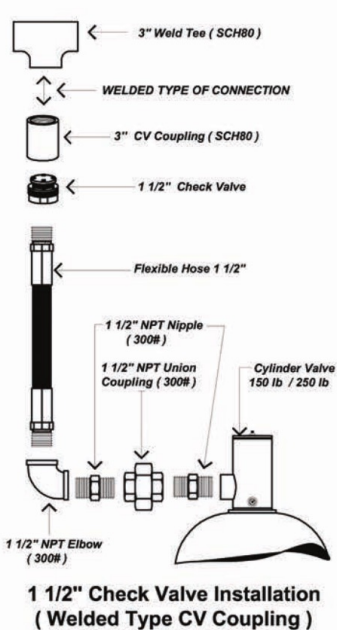
The Check Valve & Manifold Coupling (CV Coupling) is utilised when cylinders are manifolded together per the diagram below.

The CV Coupling is rated at 3000# and can be welded into the manifold inlet directly or connected thru a NPT Nipple.

CV Coupling

Part Number	Coupling Size	Type of Check Valve
CR 88122-625	2-1/2" CV	1" Check Valve
CR 88122-645	3" CV	1-1/2" Check Valve
CR 88122-665	4" CV	2-1/2" Check Valve

Cylinder to Manifold Connections with Flexible Hose



Manifold Couplings with Threaded Pipe



CR 88122-625 CR 88122-645 CR 88122-665

DESCRIPTION

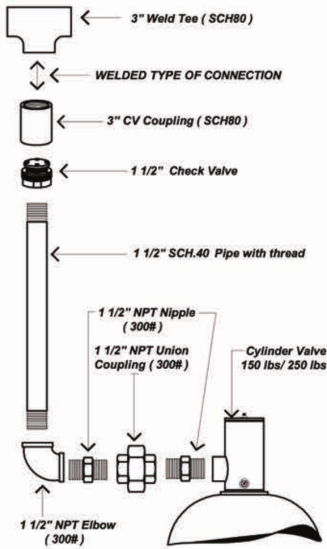
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The CV Coupling is rated at 3000# and can be welded into the manifold inlet directly or connected thru a NPT Nipple.

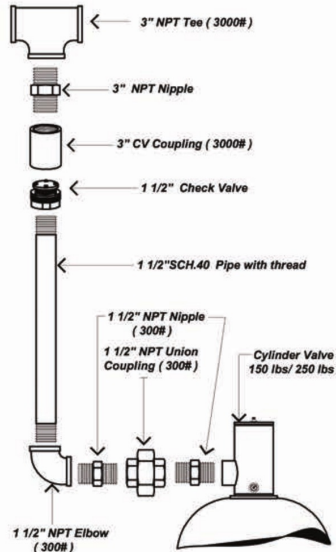
CV Coupling

Part Number	Coupling Size	Type of Check Valve
CR 88122-625	2-1/2" CV	1" Check Valve
CR 88122-645	3" CV	1-1/2" Check Valve
CR 88122-665	4" CV	2-1/2" Check Valve

Cylinder to Manifold Connections with Threaded Pipe



1 1/2" Check Valve Installation without flexible hose (Welded Type CV Coupling)



1 1/2" Check Valve Installation without flexible hose (Screwed Type CV Coupling)