

C22D/23D/24D Contents

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C22D/23D/24D Specifications

Specifications

Capacity:	Maximum	Minimum
	l/min	l/min
C22D	38	11
C23D	76	11
C24D	152	19

Pressure Range (bar): Model Configuration				
	DA	DB	DC	DE
C22D	5-34	34-69	69-103	103-172
C23D	5-34	34-69	69-103	103-172
C24D	5-34	34-69	69-103	—

Max Temperature: 200°F

Inlet and Outlet Ports:

C22D	3/4" BSPT
C23D	1" BSPT
C24D	1-1/4" BSPT

Dimensions: (H x W x D)

C22DA, DB, DC	152.4 x 86.4 x 55.9 mm
C22DE	163.6 x 86.4 x 55.9 mm
C23DA, DB, DC	178 x 122 x 71.1 mm
C23DE	88 x 122 x 71.1 mm
C24DA, DB, DC	229 x 137.2 x 83.8 mm

Weight

C22D	1.3 kg
C23D	2.7 kg
C24D	4.5 kg

C22D/23D/24D Installation

Location

The Bypass Pressure Regulating Valve prevents system pressure from exceeding a preset maximum. As the system approaches this maximum pressure, excess fluid is bypassed (to a supply tank, or to the pump inlet). This prevents overpressurization and system failures.

Install the regulating valve between the pump outlet (as close to the pump as possible) and any shut-off device in the discharge plumbing. It may be located **in** the discharge line, or **off**-line:

- If in-line, use either of the horizontal ports as the inlet and the other as the outlet;
- If off-line, use either of the horizontal ports as the inlet and plug the other one.

The **bottom** port is always the bypass port.

Mounting Position

The preferred mounting position is vertical with the adjusting bolt at the top.

Connections

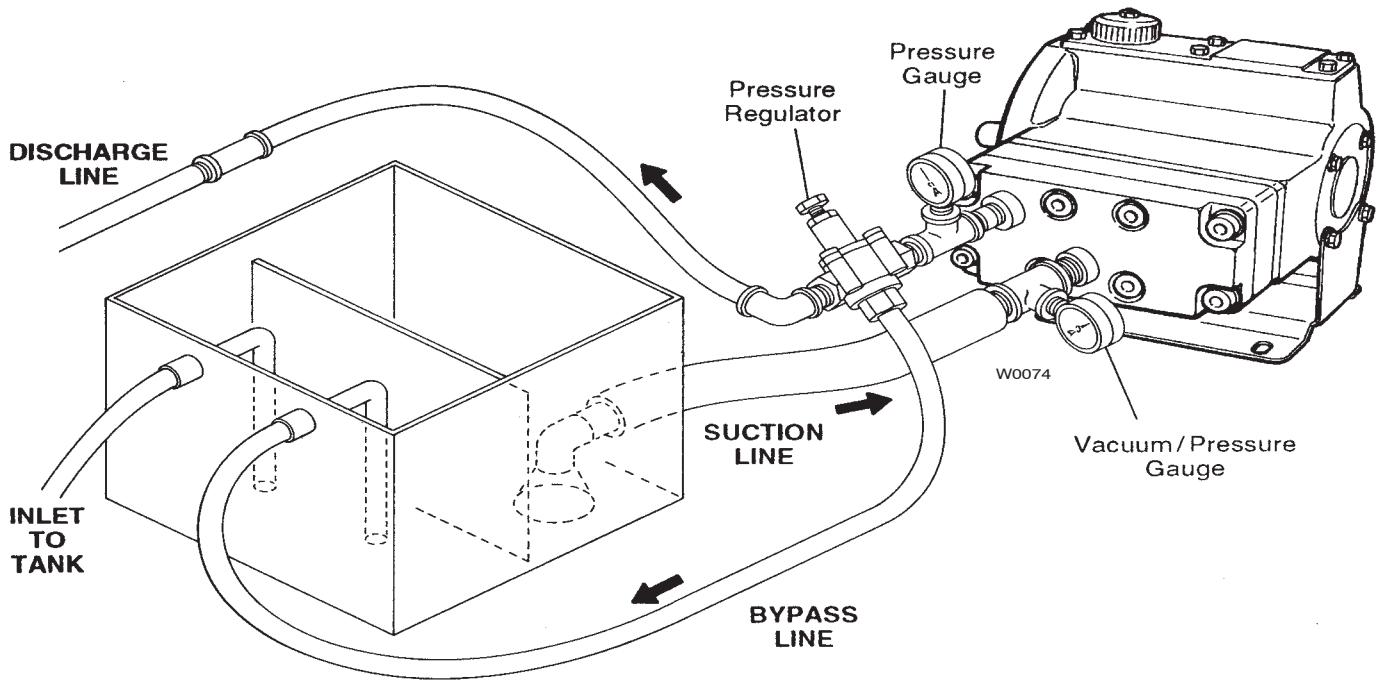
For best operation, the bypass line should return to the supply tank. If you must plumb the bypass line back to the pump inlet instead, have it enter the inlet line as far from the pump as possible. Contact the pump manufacturer, as a pressure regulator may be required in the pump inlet.

The bypass line should be as large as the ports of the regulating valve. Do **not** install shutoff valves or other restrictions.

Install a high-quality industrial pressure gauge in the discharge system to monitor system pressure. Failure to do so may result in overpressurization and premature failure of pumping system components.

For smoothest operation and minimal pressure spiking when the discharge system is closed (closed gun, plugged nozzles, valve closed), about 10% of the rated flow of the regulating valve should be bypassed at all times.

Example: With the C22D valve (rated at 38 l./m), 3 l./m should be bypassing at all times during operation. If the desired spray gun delivery is 22 l./m, then the pump should deliver 26 l./m (22 l./m to the gun and 4 l./m to be bypassed). The nozzle orifices should be properly sized for 22 l./m delivery at the desired pressure; the pump RPM for 26 l./m; and the pump HP for 26 l./m at the bypass pressure (bypass pressure is higher than nozzle pressure).



C22D/23D/24D Installation

Pressure Adjustment

Systems with Shutoff Guns or Valves

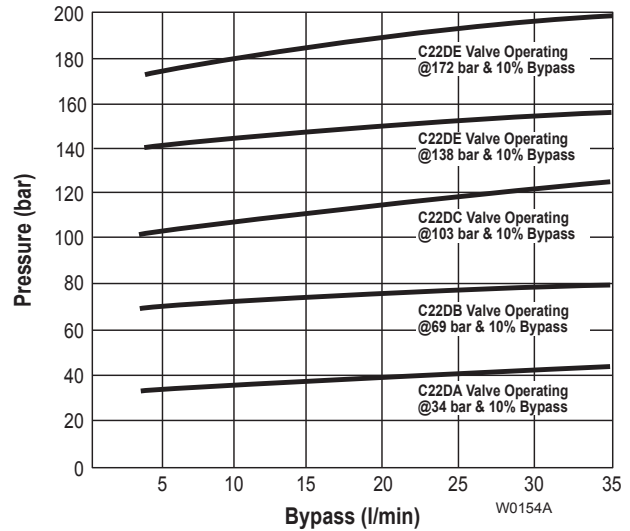
1. Turn off the system.
2. Turn the adjusting nut counterclockwise until there is no longer any pressure on the springs in the regulating valve.
3. Close the discharge line.
4. Be sure the piping and all valves and nozzles are open.
With an accurate pressure gauge installed in the system, start the system and let it run for a few minutes to remove any air.
5. When all air has been removed, begin turning the adjusting nut clockwise until the desired bypass pressure is reached.
Do not exceed the maximum rated pressure of the pump or the regulating valve!
6. Open and close the discharge line 3 or 4 times. Re-check the bypass pressure each time, and readjust if necessary. Turn the adjusting nut clockwise to increase or counterclockwise to reduce the pressure.
7. Check that the fluid bypass is continuous and adequate. With guns or valves open, you should be bypassing about 10% of the rated flow of the regulating valve (see the Example above). If the system discharge pressure is less than desired when 10% of the flow is bypassing, check the pump speed and delivery and the size of the nozzle or system orifice.
8. When both the bypass pressure and the flow have been set, turn the locknut clockwise to lock in the adjustment.

Systems without Shutoff Guns or Valves

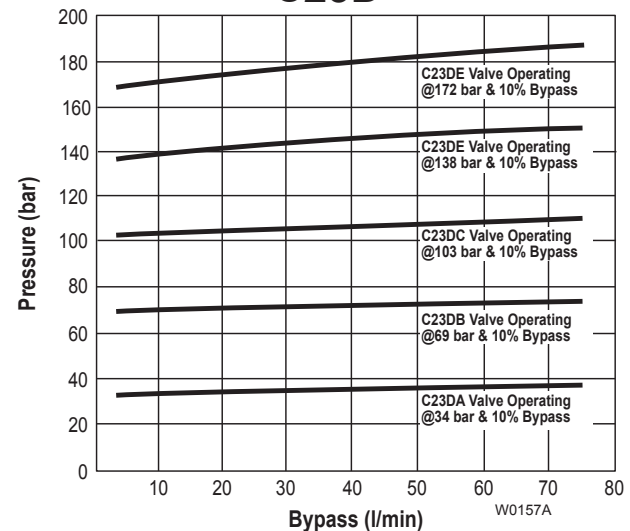
Note: When making this adjustment, you must be able to observe the amount of fluid being bypassed.

1. Turn off the system.
2. Turn the adjusting nut counterclockwise until there is no longer any pressure on the springs in the regulating valve.
3. With an accurate pressure gauge installed in the system start the system and let it run for a few minutes to remove any air. The full flow of the pump should be bypassing.
4. Be sure all nozzles are open.
5. When all air has been removed, begin turning the adjusting nut clockwise until the desired bypass pressure is reached, or until no fluid is being bypassed — whichever occurs first.
Do not exceed the maximum rated pressure of the pump or the regulating valve!
6. If the system discharge pressure is less than desired, check the pump speed and delivery and the size of the nozzle or system orifice.
7. When both the bypass pressure and the flow have been set, turn the locknut clockwise to lock in the adjustment.

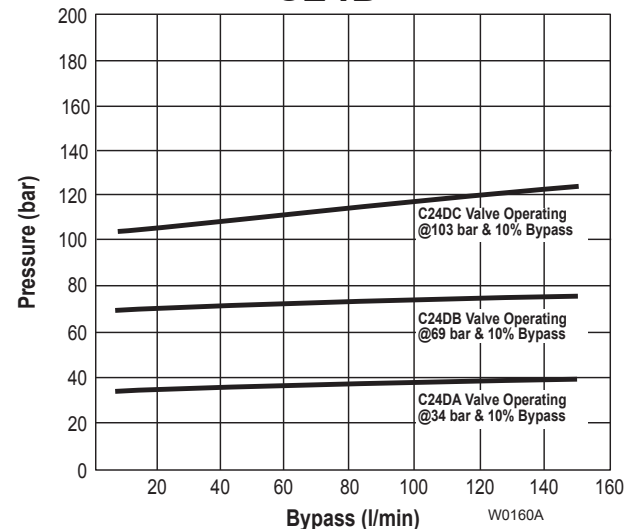
C22D



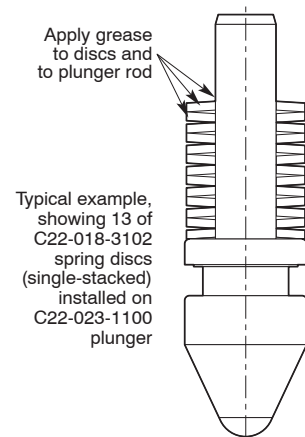
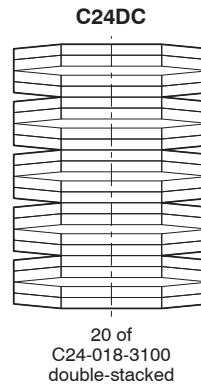
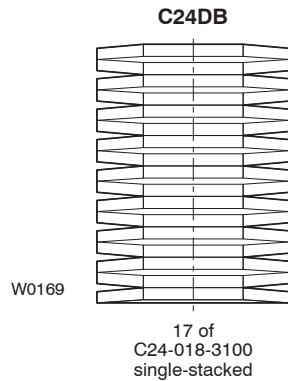
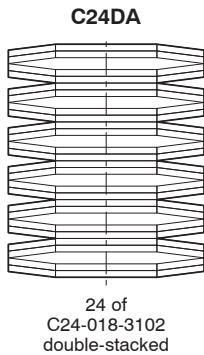
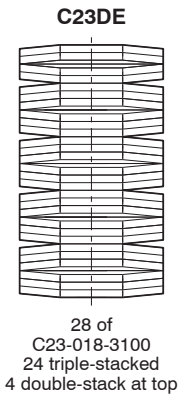
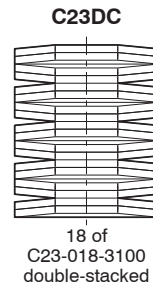
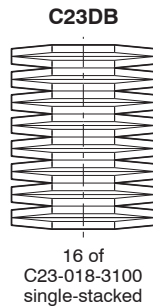
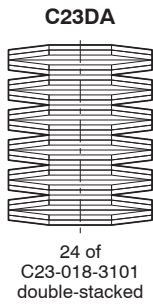
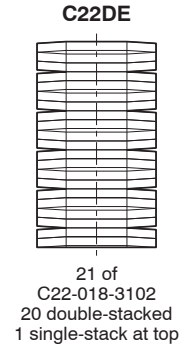
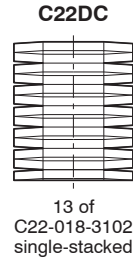
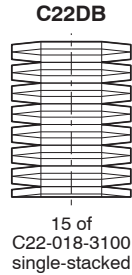
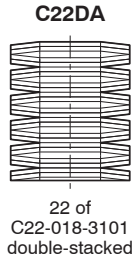
C23D



C24D



C22D/23D/24D Spring Disc Arrangement



Spring Disc Size and Arrangement

Valve Model	I./m	bar	Disc Size OD x ID x Thickness	Quantity Used
C22DA	11-38	5-34	20 x 10.2 x 0.8 mm	22 (double stack)
C22DB	11-38	34-69	20 x 10.2 x 1.2 mm	15 (single stack)
C22DC	11-38	69-103	20 x 10.2 x 1.5 mm	13 (single stack)
C22DE	11-38	103-172	20 x 10.2 x 1.5 mm	1 (single stack); 20 (double stack)
C23DA	11-76	5-34	28 x 12.2 x 1.0 mm	24 (double stack)
C23DB	11-76	34-69	28 x 12.2 x 1.5 mm	16 (single stack)
C23DC	11-76	69-103	28 x 12.2 x 1.5 mm	18 (double stack)
C23DE	11-76	103-172	28 x 12.2 x 1.5 mm	4 (double stack); 24 (triple stack)
C24DA	19-162	5-34	35.5 x 18.3 x 1.2 mm	24 (double stack)
C24DB	19-162	34-69	35.5 x 18.3 x 2.0 mm	17 (single stack)
C24DC	19-162	69-103	35.5 x 18.3 x 2.0 mm	20 (double stack)