

Technical Bulletin

Filling and Charging DLP Cylinders with HFC

BlazeCut Automatic Fire Suppression System

For C Series Direct Clean Agent Systems

CEA15, CEA20, CEA25



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1 INTRODUCTION

This Technical Bulletin is applicable to BlazeCut C Series DLP valve and cylinder combinations:

- 15, 20 and 25 series pneumatic valves



Always have appropriate detection device for inspection of leak of HFC gases used in BlazeCut system during the installation, maintenance and inspection of the system. Always follow the manual of the detection device.



In case of suspected leak of extinguishing agent it is essential that the operator of the system shall take corresponding measures immediately to prevent leak of extinguishing agent and repair any detected leak as soon as possible.

2 DISASSEMBLY

IMPORTANT!

Before starting the disassembly, make sure that the cylinder is unpressurized! If any amount of HFC agent is present in the cylinder, use a HFC gas extractor. Agent removed from cylinders during service or maintenance procedures shall be recovered and recycled or disposed of in accordance with any applicable laws and regulations.

1. Firmly fasten the cylinder assembly to a clamping device, so that the cylinder is firmly fastened but not damaged.
2. Use a spanner size 36 to unscrew the valve.
3. Remove the valve with a dip tube attached.

3 ASSEMBLY

1. Firmly fasten the cylinder assembly to a clamping device, so that the cylinder is firmly fastened but not damaged.
2. Screw in the valve with dip tube to the cylinder first by hand.
3. Use a torque wrench to tighten the valve on the cylinder, size 36. Do not overtighten the valve. Use a 50 Nm torque to tighten the valve on the cylinder.

4 FILLING WITH EXTINGUISHING AGENT

IMPORTANT!

Filling procedure of cylinders with HFC gas agent requires use of specialised equipment: vacuum pump, HFC filling machine with a scale, and in case of refilling partially emptied cylinder, a HFC gas extractor.

1. Follow steps in Chapter [DISASSEMBLY](#).
2. Make sure the cylinder inside is clean, dry and there is no moisture. If there is any residual moisture, dry the inside of the cylinder using air compressor or similar tool.
3. Follow steps in Chapter [ASSEMBLY](#).
4. Follow steps in Chapter [PROCEDURE OF VACUUMING OF THE CYLINDER – FOR ALL VALVES](#).
5. Place the cylinder on the scale and connect it to the HFC filling machine through the main pressure gauge port (same port as for vacuuming procedure). The amount of HFC-227ea depends on volume of the cylinder. Always check your system specifications on the cylinder label before proceeding.

System model: CEAx
System kit: CEAx-2
Amount of agent: 2 kg
Cylinder volume: 2.4 L
Serial number: 0000001
Production date: 01-2022

6. Fill in an exact amount of the extinguishing agent HFC-227ea.
7. For pressurization process of cylinders and BlazeTube detection at once proceed according to instructions in Chapter [6](#). For pressurization of the cylinder only, follow steps in the Chapter [7](#).

5 PROCEDURE OF VACUUMING OF THE CYLINDER – FOR ALL VALVES



Cylinder valve 15



Cylinder valve 20

Step 1: Close the ball valve(s) on the cylinder valve.



Step 2:

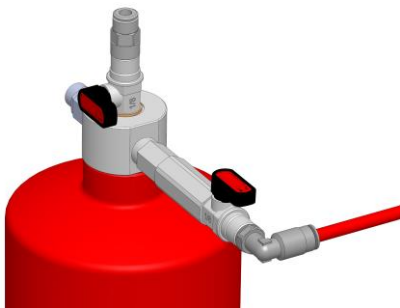
Remove the main pressure gauge from the cylinder valve.

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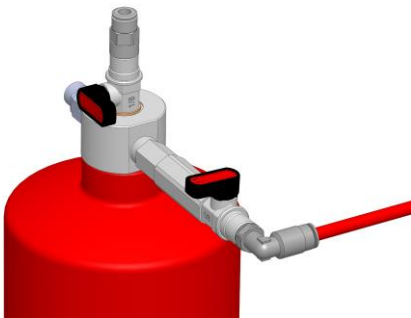
Step 3:

Mount the vacuum pump's adapter to the outlet M10x1 by rotating clockwise. Tighten the adapter properly.



Step 5.

Open the ball valve on the vacuum pump's adapter slowly and extract the air and create a vacuum in the cylinder.



Step 6.

Close the ball valve on the charging adapter.



Step 7.

Unscrew the vacuum pump's adapter.

6 PROCEDURE OF PRESSURIZATION OF THE CYLINDER AND THE DETECTION SYSTEM



Never connect or disconnect the charging adapter to the BlazeTube detection if the ball valve of the outlet of the BlazeTube detection on the cylinder valve is open.

Proceed according to instructions in this chapter to pressurize the cylinder and BlazeTube detection at once.

For pressurization of BlazeTube detection only, skip steps 6 and 7.

For pressurization of the cylinder only, follow steps in the Chapter [7](#).



Cylinder valve 15

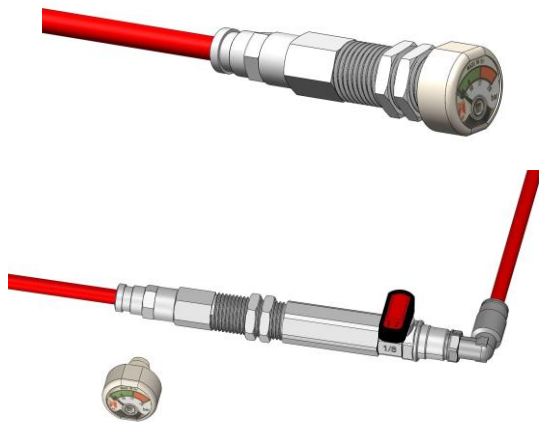


Cylinder valve 20

Step 1:

Close the ball valve(s) on the cylinder valve. Read and write down the value of pressure from the cylinder valve.

On valves 20 and 25 make sure BlazeTube ends from both the left and right outlets have an end-of-line adapter installed.



Step 2:

If installed, remove the pressure gauge (pressure switch or transducer) from the end-of-line adapter AEA006 at the end of the BlazeTube.

Step 3:

Make sure the ball valve on the charging adapter is closed.

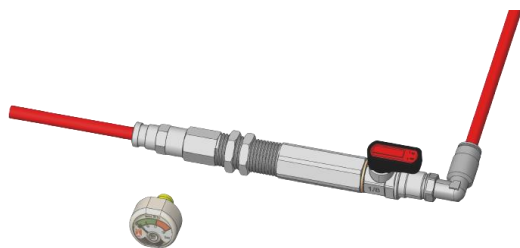
Mount the charging adapter ATC001 to the end-of-line adapter's M10x1 port by rotating clockwise. Tighten the charging adapter properly.



Step 4:

Set the regulator valve on the source of N₂ to the desired value (**12 bar for HFC-227ea at 20 °C ± 3 °C ambient temperature**) Setting must be at least on the level of pressure in the cylinder increased by 1 bar. Open the regulation valve.

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Slowly open the ball valve on the charging adapter and pressurize BlazeTube detection first.

When pressurizing systems with valve 25, the BlazeTube detections have to be pressurized individually, except when they are in a loop configuration

Step 5:

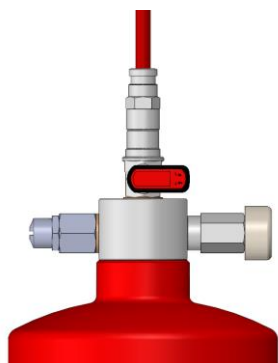


Step 6 (skip this step if pressurizing only the BlazeTube):

Slowly open the ball valve on the cylinder valve and pressurize the cylinder.

During pressurization hissing can be heard. When the hissing stops, keep the valve open for at least 30 seconds to stabilize the pressure.

Close the ball valve on the cylinder valve, shake the cylinder several times and repeat Step 6.1 until the pressure stays at the desired value.



Step 7 (skip this step if pressurizing only the BlazeTube):

Close the ball valve on the cylinder valve.

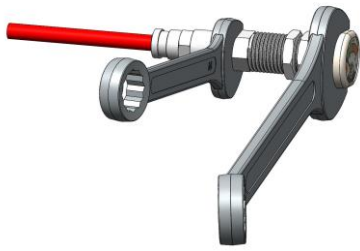


Step 8:

Close the ball valve on the charging adapter.

Step 9:

Unscrew the charging adapter from the M10x1 port of the end-of-line adapter (with size 16 spanner). You can use size 14 spanner on the valve adapter to push clockwise while unscrewing the charging adapter.



Step 10:

Mount the pressure gauge (pressure switch or transducer) back. Tighten it with spanner 22 mm.



Cylinder valve 15



Cylinder valve 20

Step 11:

If the pressure is not decreasing, very slowly open the ball valve(s) on the cylinder valve. Pressures in the tube and the cylinder will equalise. Wait approximately 30 seconds.

Follow additional steps from Chapter [8](#).



Since this moment the cylinder and the BlazeTube detection are connected in one pressure unit. Proceed carefully not to damage the BlazeTube detection. Its damage would cause activation of the system and release of extinguishing agent.



Do not try to remove the BlazeTube detection from the BlazeTube outlet on the cylinder valve or remove the end-of-line adapter if the BlazeTube is under pressure and the ball valve is open.

7 PROCEDURE OF PRESSURIZATION OF THE CYLINDER ONLY

Proceed according to instructions in this chapter to pressurize an unpressurized cylinder and BlazeTube detection separately. For pressurization of BlazeTube detection follow instructions in Chapter [6](#).



Cylinder valve 15



Cylinder valve 20

Step 1:

Close the ball valve(s) on the cylinder valve.

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Step 2:

Remove the pressure gauge (pressure switch or transducer) from the valve adaptor FVABM0210 on the cylinder valve.



Step 3:

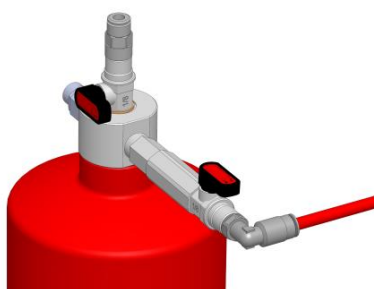
Make sure the ball valve on the charging adapter is closed.

Mount the charging adapter ATC001 to the valve adaptor's M10x1 port by rotating clockwise. Tighten the charging adapter properly.



Step 4:

Set the regulator valve on the source of N₂ to the desired value (**12 bar for HFC-227ea at 20 °C ± 3 °C ambient temperature**) and open the regulation valve.

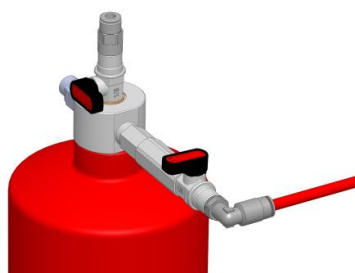


Step 5:

Slowly open the ball valve on the charging adapter and pressurize the cylinder.

During pressurization hissing can be heard. When the hissing stops, keep the ball valve open for about 30 seconds to stabilize the pressure.

Close the ball valve on the charging adapter, shake the cylinder several times and repeat Step 5 until the pressure stays at the desired value.



Step 6:

Close the ball valve on the charging adapter.



Step 7:

Unscrew the charging adapter from the M10x1 port of the valve adapter with size 16 spanner. You can use size 14 spanner on the valve adapter to push clockwise while unscrewing the charging adapter.



Step 8:

Mount the pressure gauge (pressure switch or transducer) back. Tighten it with spanner 22 mm.

Follow additional steps from Chapter [8](#).

8 ADDITIONAL STEPS AFTER PRESSURIZATION

Observe the value on the cylinder valve's pressure gauge and check the system components for leaks. If pressure is decreasing, the BlazeTube detection may not be connected properly or some component may not be mounted tightly. Also check the connection between the cylinder neck ring and the cylinder valve using a foaming solution. Observe if no bubbles are formed due to loss of pressure through the connection.



Connection between the cylinder neck ring and the valve

IMPORTANT!

Never install the cylinder assembly if any leak is detected!