



Manual Fogbuster Kit DIY

Revision History

Version	Date	Changes	Author
1.0.0	18.09.2019	Creation	Sorotec GmbH

Way of Operation

The compressed air required to operate the Fogbuster enters the reservoir for the cooling lubricant via a shut-off valve and a pressure regulator with pressure gauge. Optionally, the feed can be controlled via a pneumatic valve.

Coolant flows from the bottom of the tank through a check valve to the spray head. A second tube, connected to the container without liquid removal, provides the spray head with the compressed air required for blowing.

The spray head focuses the droplet flow in the smallest of spaces, the amount of coolant can be precisely metered by a needle valve. Thus, the liquid is blown to only where it is needed, and only in the amount necessary for the low-wear machining.



Picture 1: Minimal quantity lubrication system Fogbuster

Construction

Air Supply

Mount the coupling plug, the ball valve, the pressure regulator with the manometer and the hose with the screw-in hose connections as shown in Picture 2.



Caution!

All threads must be sealed with Teflon tape. Exception: The threads of the screw-in hose connections are already coated with Teflon.

Note:

The assembly of the ball valve can be done at any suitable location, e.g. a wall.

Then use the 1/8" double nipple and inlet fitting to install the assembly on the side of the reservoir labeled „IN“.



Picture 2.: Compressed air supply with ball valve, pressure regulator and manometer.

Outlet fittings

First, prepare the hose connections: Mount the three remaining screwed-in hose connections to the 1 „fitting, as shown in picture 3. The connection on the inside serves to connect the riser, for which you cut off a 40 cm long piece of air hose.

The reducing nipple 3/4" to 1/2" and the reducing sleeve 1" to 3/4" complete the outlet fitting. Pictures 4 and 5 show the assembly of the group on the „OUT“ side of the reservoir.



Picture 4: Connection of the riser



Picture 3: Hose connections of the outlet fitting



Picture 5: Ready assembled output fitting

Spray Nozzle

Picture 6 shows an example of the correct connection of the coolant line with the check valve and the spray head. Make the connection in the length you need.

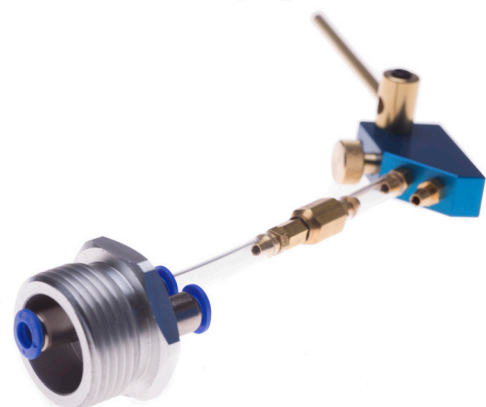


Caution!

The check valve must be mounted in the vicinity of the spray head. The direction of passage is marked on the valve with an arrow.

The connections on the spray head must not be confused. See also Picture 7 (next page).

Finally, mount the compressed air hose between the tank outlet and the spray head.

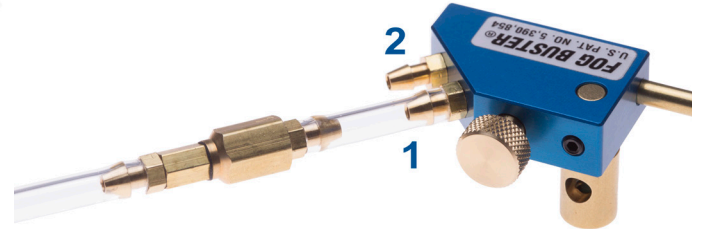


Picture 6: Correct connection of the coolant line. For a better overview, the compressed air connection is missing.

Attachment to the machine

For safe operation of the minimum quantity lubrication, the reservoir should be mounted at approximately the same height as the spray head. However, the delivery rate is sufficient for smaller height differences and should be determined experimentally if necessary.

For the flexible attachment of the spray head we recommend the quick mounting bracket with magnetic base (ZMMS.FOG00316).



Picture 7: Connection 1 for cooling lubricant, 2 for compressed air

Operation

Set up

1. Install the spray head with the nozzle approximately 50 mm away from cutter or workpiece. To adjust, always grasp the spray head by the housing, NOT by the nozzle tube!
2. To fill the container with coolant, remove the screw plug on the „IN“ side of the lid and place a suitable funnel. Avoid overfilling: The level must not exceed the upper edge of the level indicator.

For occasional cleaning, the container can be unscrewed.
3. Open the ball valve and set the desired pressure (see Pressure and Nozzle Settings).
4. Slowly open the needle valve by turning the knurled screw of the spray head to set the desired amount of coolant (see Pressure and Nozzle Settings). DO NOT over tighten when closing the needle valve!



Warning!

- Protect from sunlight
- It must be checked that the coolant used does not attack the plastic
- The container should be checked weekly for stress cracks
- Maximum permitted pressure: 2 bar
- It must be ensured that the maximum permitted pressure of 2 bar can not be exceeded even due to malfunction.

Changing the nozzle tube

If the nozzle tube has been damaged despite all caution, it can easily be replaced with a spare part (ZMMS.FOG001). Gently grasp the pipe with pliers and unscrew it. Screw in the new nozzle pipe only slightly, do not over tighten.

Pressure and Nozzle Settings

Droplets lubrication

Conventional mist lubrication creates an aerosol, a cloud that envelops the cutter and the workpiece. The Fogbuster does not produce fog, but a steady, narrowly focused stream of droplets. In order to achieve the optimum effect, on the one hand, the amount of outflowing air and, on the other hand, the amount of coolant entrained by it must be reconciled. This may initially seem problematic, but with some experience it is well manageable.

Basic rule

With higher air pressure, the delivery rate of the cooling lubricant also increases, which is then further distributed. It therefore applies:

- High pressure: Close the needle valve.
- Low pressure: Open the needle valve.
- Ideal working pressure between 0.6 and 1.4 bar.

Obviously, the cooling lubrication at the same time can be used to blow the chips out of the field - if air cooling is sufficient, the coolant even can be turned off completely. In order to blow chips out of deep grooves, the set pressure should be closer to the upper limit. But to bring a high amount of coolant to the cutter, rather in the lower pressure range, since otherwise the droplets are spread too far.

You can also try slightly lower or higher working pressures to find the ideal setting for your purposes.

First adjustment

If you are using Fogbuster for the first time, you can try the following example to get familiar with the system:

- Make sure the needle valve is closed and the ball valve is open.
- Set the pressure to 0.6 to 1.1 bar.
- Attach the spray head with the nozzle 50 ... 75 mm from the table or vise pointing downwards.
- Carefully open the needle valve until a light spray pattern appears.

You will notice that the needle valve is very sensitive. Even if only very little coolant is visible, already a slight twist on the needle valve will greatly increase or reduce the amount of coolant discharged.

The decisive factor is how much coolant drips from the cutter or workpiece, not how much coolant is to be seen in the jet at the nozzle! At normal setting, a slight flow of coolant is seen on one side of the air-flow at the nozzle exit.

Please do not hesitate to contact us if you have any questions.