

Operating instructions for a device designed for mixing air and oil

VM1.



figure 1

Description:

This device was **developed and produced in the Czech Republic** based on specific customer requirements.

The device is designed for mixing air and oil. With suitable accessories, it **is possible to use** the mixture to **cool and lubricate** tools **while** performing the following operations:

- **milling** – suitable especially for finishing operations and sizing
- **drilling** – can be used for drills with internal cooling of some manufacturers
- **deep boring** – suitable for cannon drills of all manufacturers

The **construction** of the device is based on a **mechanical principle** and it is entirely maintenance-free. While operating the device, it **is not necessary to connect to the power supply**, which increases the safety at work and simplifies the work of an operator.

Operating:

II.



figure 2

Setting in operation:

All devices have been tested and are supplied with factory setting, unfilled with oil.

-1- Before setting in operation, it is first necessary to check the amount of oil in the oil tank, or to refill the tank (fig. 2) with oil (See Refilling oil).

Use only the oil specified by the manufacturer to refill the oil tank.

-2- Close the air inlet valve.

-3- Connect the air inlet (fig. 2) to the local pressure air distribution system of at least 6 atm. of pressure and of nominal flow of at least 400 litres per minute (consumption of air is directly proportional to the amount of the mixture of oil and air). The inlet air must be clear of all mechanical dirt and water.

-4- Connect the accessories to the outlet of the mixture of oil and air (fig. 2), e.g. an adapter + cannon drill (allow free passage of air through the device).

-5- Open the air inlet valve.

III.

The oil pressure gauge may not exceed 8 atm.

If the pressure is higher, it is necessary to adjust it by the oil pressure regulator (fig. 2) (exceeding the safe air pressure level is prevented by the air-pressure switch).

- The air pressure gauge must always be approx. 1 atm. lower than the oil pressure gauge (fig. 2). If not, adjust the the pressure by the air pressure regulator (fig. 2).

-To operate the device correctly, it is necessary to co-ordinate the air flow through the tool by adjusting the valve for the regulation of air (the tool must be sufficiently cooled, and chip disposal must be provided) with the air pressure, oil pressure, and with the amount of oil.

-Basic setting of the valve for the regulation of oil (fig. 2) ranges between approx. 0.5 repetition from the close-position up to approx. 3 repetitions.

-Operational pressure of the device ranges between 3 and 8 atm. and it depends on the diameter of the tool used and the depth of boring. It usually applies that the smaller drill diameter and the deeper boring are, the higher pressure is and vice versa.

Finishing of operation:

- 1- Close the air inlet valve and wait until the system loses the air through the tool.
- 2- Disconnect the air supply.
- 3- Open the air inlet valve.
- 4- Disconnect the outlet of the mixture of oil and air (accessories).

-Never disconnect the outlet of the mixture of oil and air (accessories) if the air inlet valve is not closed and the device has not been deaerated.

Lubrication function check:

- Before starting operation, it is advised to check the functionality and setting of the device by means of a simple test.

- 1- Start the device, see Setting in operation.
- 2- Place a clean sheet of paper in front of the tip of the drill.
- 3- If the setting is correct, a gentle oil spider-shaped image must start to appear on the paper after approx. 10 to 30 seconds of operation.
- 4- If oil does not come out of the device, or there is too much oil in the air, it is necessary to adjust this by the oil regulation valve.

While setting or adjusting the device, it is necessary to proceed carefully and allow the device some time to stabilize the balance of air and oil. For example, when the tool is clogged with oil and some adjustment is made, it takes a while before the amount of oil stabilizes and the tool and its surrounding become „clean“. This time is directly proportional to the flow of air. The same applies to the shortage of oil in the air, i.e. it takes some time before the oil reaches the tip of the drill, especially when using new tools.

IV.

Refilling oil:

- 1- Close the air inlet valve (fig. 2).
- 2- Disconnect the air supply.
- 3- Open the air inlet valve.
- 4- Unscrew the cap of the refill tank (fig. 2).
- After releasing the cap of the refill tank with approx. 3 repetitions, no hissing sound can be made. If there is some hissing sound, it is necessary to re-check if the device was properly deaerated.
- **If the device is under pressure, unscrewing the cap completely may cause injury to the operator.**
- 5- Refill the oil into the oil tank using a suitable crater.
- Max. oil level is at the top weld of the oil tank and can be easily checked using a measure which is a part of the refilling hole cap.
- 6- Screw back the refilling hole cap.

Caution: **Never open if the device is under pressure!!!**

Device installation:

While operating, the device must be fastened to the machine with which it is used. To fasten the device, there are four holes on the sides and at the back of the cover frame of the device. The size of the holes is suitable for M5 bolts.

Removing the device cover:

During the routine operation, it is not necessary to remove the cover.

The cover is attached to the body of the device with four M6 bolts. These bolts are accessible from the top part of the cover (fig 1.). Before removing the cover, it is necessary to release the oil hose which serves for checking the oil flow and which goes through the cover above the oil amount regulation valve. The hose can be released just by pressing it with a finger in the inside and side directions. After placing the cover back onto the device, return the hose to its position using a reverse procedure. When handling the hose, do not use any sharp tools.

Storing and transport:

If more than a quarter of the oil tank of the device is filled with oil, store and transport the device only in the upright position. If less than a quarter of the oil tank of the device is filled with oil, it is possible to store and transport the device in the position on the back side of the device.

Caution: if it is necessary to empty the oil tank, turn the device over the back side of the device.

V.

Safety at work:

- Only a person who has studied the operating instructions carefully and has understood all of them may operate the device.

- The device may be used only if it is in an adequate technical condition (no traces of mechanical damage, or leakage).
- The device may be used only in accordance with regulations concerning safety at work.
- The device is designed for installing inside machines and other devices and may be used only when fastened to a machine it is being used with (never make adjustments to wiring of the safety switches of the machine).
- The device can be refilled and used only with oil specified by the manufacturer (oil must comply to health protection regulations).
- When operating the device, sufficient ventilation of the operational space must be provided.
- It is prohibited to perform any kinds of repairs, changes, or adjustments to the device. The manufacturer is not responsible for any damage caused due to violating the operating instructions.

In accordance with Act no. 22/1997 Coll. and with the recommendation of the State Health Protection Institute in Brno, the device comes with a declaration of conformity and an EC certificate of the pressure vessel type test.

Exclusive reseller:

Brecht GmbH
Arbachtalstraße 7
72800 Eningen u.A.
D-Deutschland

phone: 0049 (0) 71 21 / 98 85 94-0
fax: 0049 (0) 71 21 / 8 35 25
e-mail: webmaster@brecht-brt.de
www.brt-brecht.de

