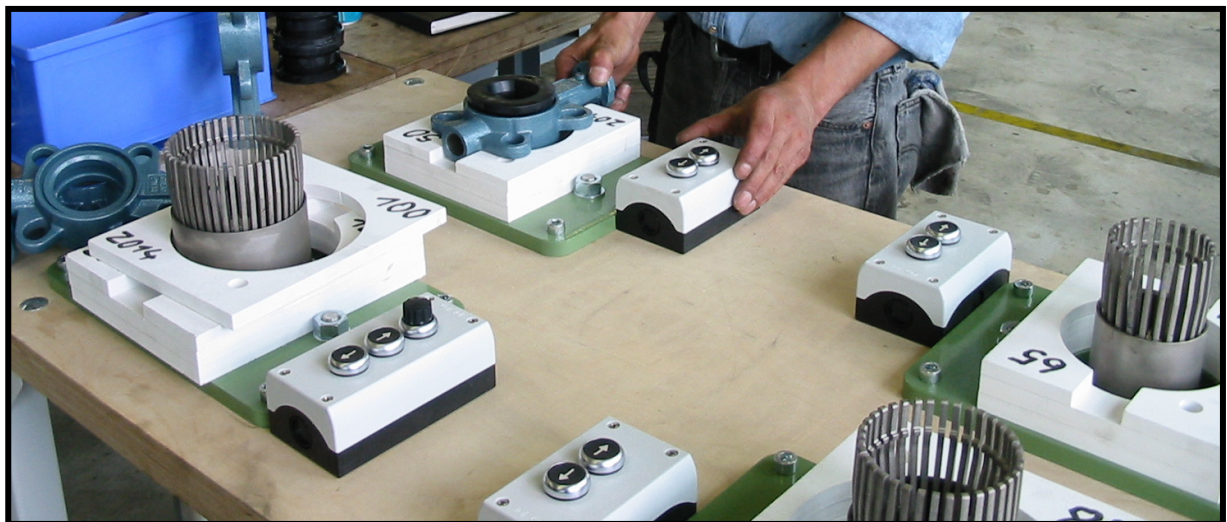


Becker Maschinenbau
Dipl.-Ing. Heiner Becker
Handelsriege 18
58339 Breckerfeld
Tel. 02338 / 379855
Fax 02338 / 872704
Mobil 0170 / 3819727
Mail: becker@becker-maschinenbau.com
Web: www.becker-maschinenbau.com

Liner Mounting Device

Manual and Maintenance



08/2002

Description

Liner mounting devices are used to simplify the assembly of the valve. The smaller the valve is, the more difficult it is to bring the liner into place. Below a certain size, app. DN50, it is in fact quite impossible to do it simply by hand. The device has been developed to help the workers to keep an equal level in productivity and quality throughout the assembly process.

Function

To get the liner into the valve body, it has to be compressed radial, because the diameter of the liner actually is bigger than the bore in the body. Several grip arms, operated by a central pneumatic cylinder, perform this. While opening, the cylinder moves upwards and the arms spread apart to take in the liner. By moving down, the cylinder forces the grips to compress the liner, because they are guided in a circular case, which makes them act like a scotch.

As this first part of operation is finished, the two side cylinders begin to pull the central unit through the valve body. By reaching a certain point of travel, the central cylinder is depressurised to allow the arms to open up and set free the liner as soon as it is seated correctly.

Installation

The equipment has to be operated by cleaned, dried and lubricated pressurized air. The working pressure should not drop below 8bar (115psi). For easy connection, a pneumatic coupling is installed (Picture 1).

The electric control unit needs 230V mains, if only a 110V supply is available, it can be operated between two phases of the three phases current (app. 205V). If necessary, the plug has to be changed accordingly.

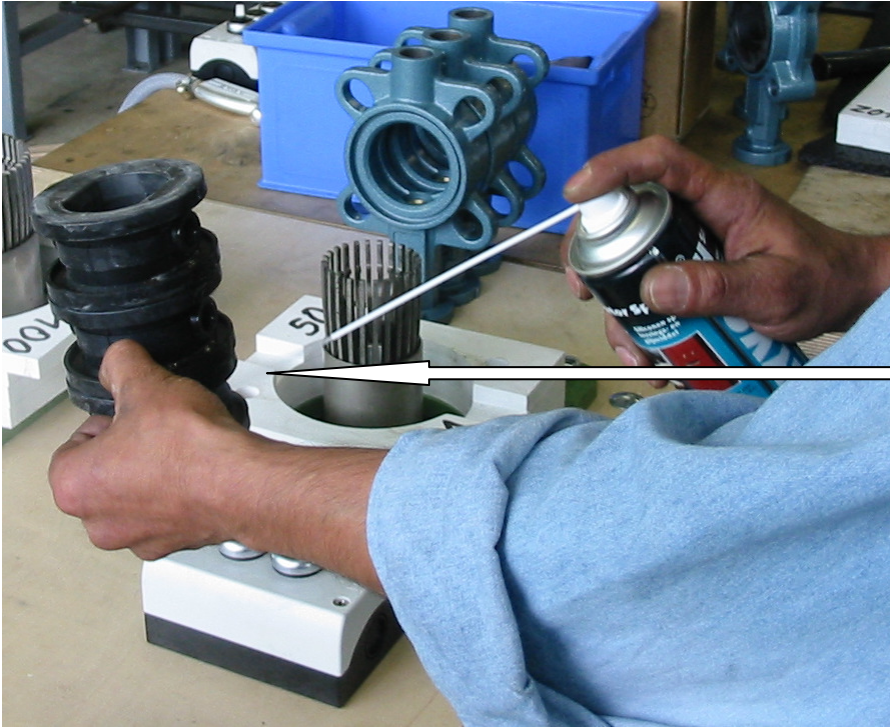


Picture 1

Coupling

Operation

Choose the distance plate according to the valve type you are going to mount. There are two of them for each size, one for Z011 and Z011A and one for Z014 and Z014A. Place the amount of valve bodies and liners you need onto the working plate. Switch on the unit and make sure, the working pressure is correct. Slightly lubricate the liners, especially the stem eyes with silicone or separator spray (Picture 2).



Picture 2

Stem Eyes

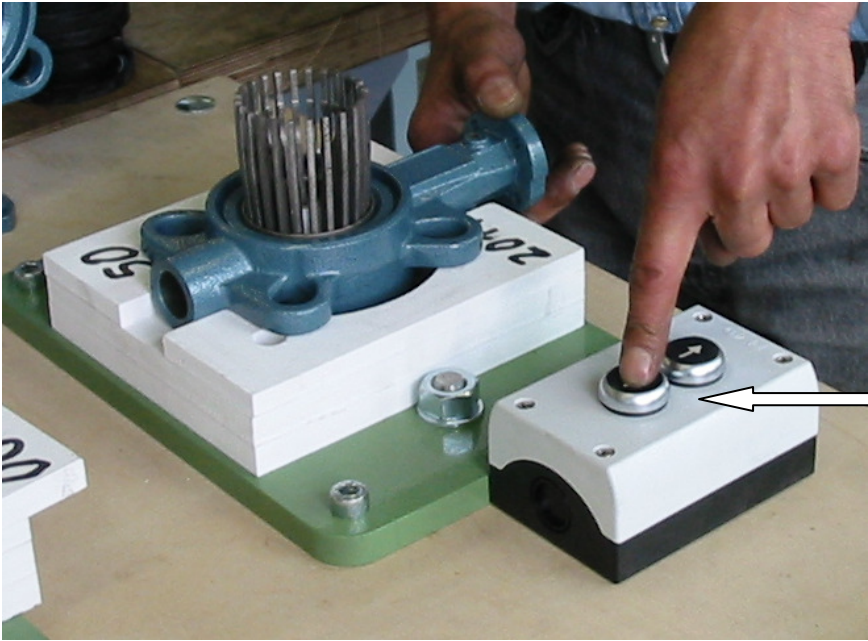
Seat the valve body right over the central unit with the valve neck showing directly to you. (Picture 3)



Picture 3

Valve Neck

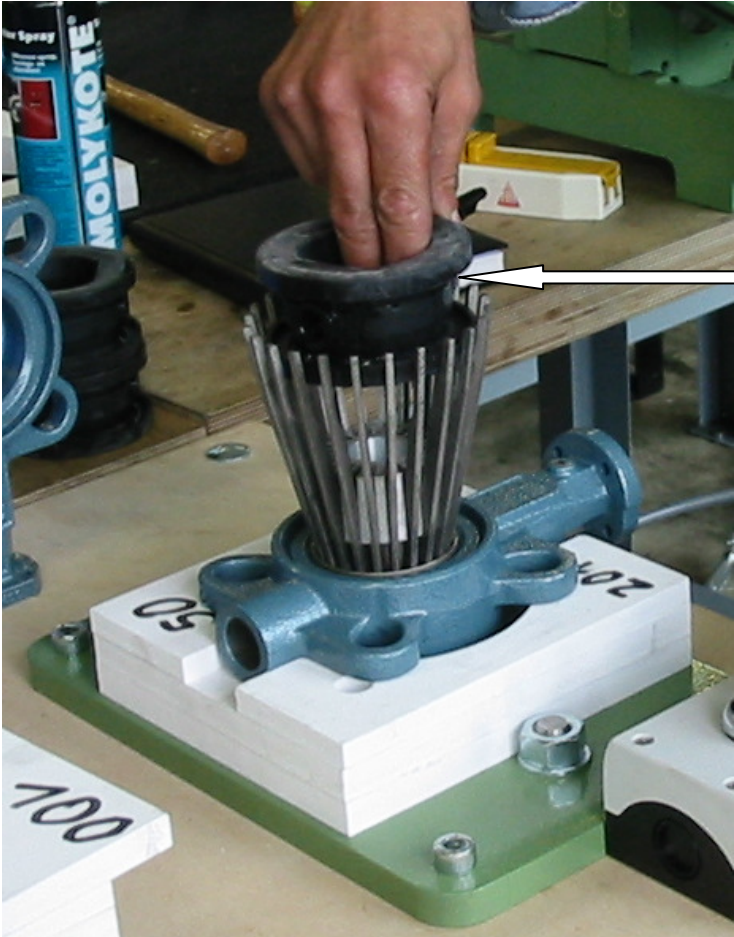
Open up the spanner bushel by pressing the upward button (picture 4).



Picture 4

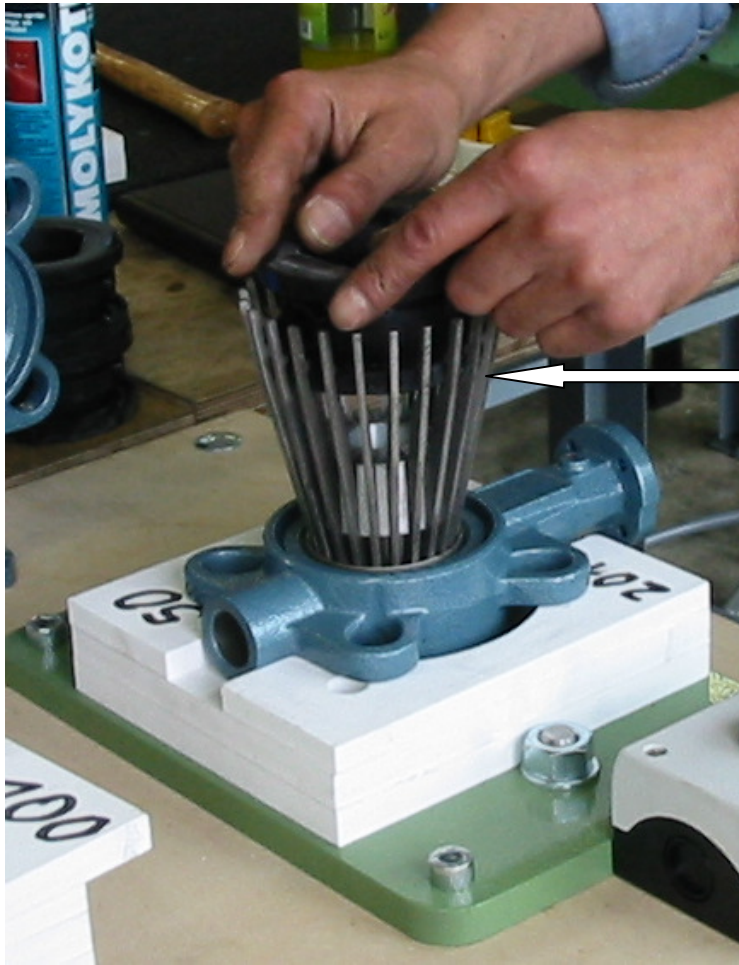
Upward Button

Insert the liner into the spanners, making sure, the stem eyes will meet the according positions of the body and the rim is pushed in deep enough to be hold by the little hooks at the inner side of the arms (picture 5, 6 and 7).



Picture 5

Stem eyes aligned with valve body



Picture 6

Rim taken by the small Hooks

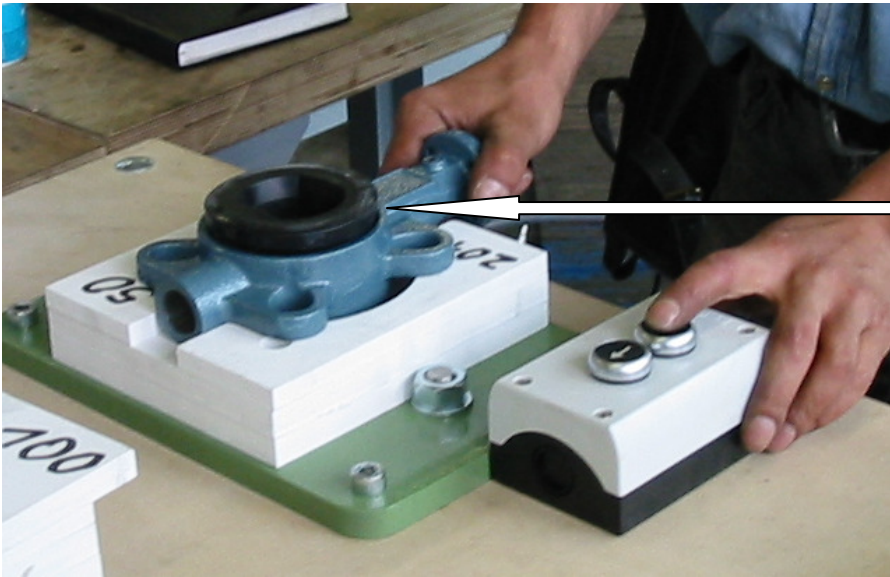


Picture 7

Liner seated correctly

Downward Button

If the liner is seated correctly, press the downward button (picture 7). The side cylinders will start pulling in the liner and the central cylinder will release it at a certain point (picture 8).



Picture 8

Release Point

The central unit will close at the lower return point, come up again and shift out the assembly (picture 9).

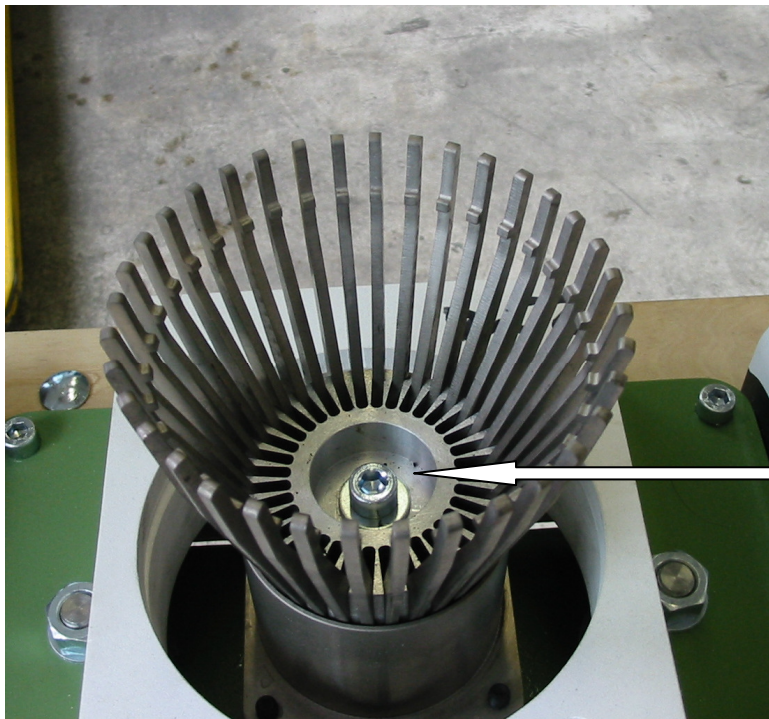


Picture 9

Take off the valve and control the position and fit of the liner. If necessary, correct by slight punches by a rubber hammer.
The mounting device now is ready to start the next turn.

Maintenance

The central unit, i.e. the spanner arms, their guidance and travel way have to be cleaned daily by pressurized air and should be lubricated afterwards using silicon or separator spray. The condition of each arm should be inspected by the way. Just one broken or defective arm will cause a rapid wear of the others (Picture 10). If it is necessary to disassemble the central unit, e.g. for changing arms or for cleaning it thoroughly, first bring it into the lower position. Wrap around the arms some adhesive tape to prevent them from falling apart completely. Take off the central screw and gently pull out the unit. When assembling again, make sure, the distance roll and the original amount of washers is installed again. The washers determine the opening angle of the arms. For easier mounting, they can be fixed with a bit of grease.



Picture 10

Central Screw

Adjustment

As described in the operation chapter, the central pneumatic cylinder is depressurised at a certain point. That gives you a slight “clack”, when the liner is released. The position is preadjusted in the factory and normally does not need to be changed. Only if the noise gets too loud or the liner is not pulled in correctly or even pulled through the body, this timing has to be adjusted. There are two limit switches attached to one side cylinder of the device. The upper one determines the return position and the lower one the release position.

The adjustment of the release position will be performed by moving the according limit switch up or down, but very carefully, just a bit each try, remembering the former position, until the performance is satisfactory again (Picture 11).



Picture 11

Location of the release switch

For further questions, spare part demands and problem solutions apply to Becker Maschinenbau, Breckerfeld, Germany