



Operating instructions underbody clamp

Version: 04.03.2015

SZ / SZD 50 UZ, UZV

1. Description

The underbody clamp is a high-power tool designed for use in clamping tasks processing sheet metal. It is made up of a pneumatic cylinder (tandem construction), a metal housing with mounting faces, front and rear, and an extendable centring mandrel with integrated clamp hook. The extendable centring mandrel serves to position the plate component to be fixated.

When used for clamping, the pneumatic cylinder increases the force exerted on an integrated toggle joint, which triggers the swivelling motion of the clamping hook. Once the clamping hook has opened, the centring mandrel with the second pneumatic cylinder is retracted and the component can be removed. The positioning check of the three operating position is carried out using an integrated inductive sensor.

2. Safety

The underbody clamp was not conceived to be a complete tool ready for independent applications and has therefore not been fitted with safety equipment. It is not until it has been correctly installed in a production system and a corresponding safety control has been installed on it, that the safety-technical requirements have been met.

Should any faults occur that place personnel at risk, the underbody clamp is to be switched off immediately. Maintenance activities may only be undertaken when the machine is at a complete standstill and by suitably qualified specialists.

After the maintenance work has been carried out, the protection devices are to be refitted in a correct way.

Maximum load depends on diameter of dowel pin and geometry of the hook.

3. Installing the underbody clamp

- Installation of the clamp by means of 4 cylinder screws on the mounting faces, front or rear.
- Connect the compressed-air supply between the pneumatic control and the clamp ('N' connections).

Caution: For fine adjusting the speed of clamping it is recommended to use external flow-control valves.

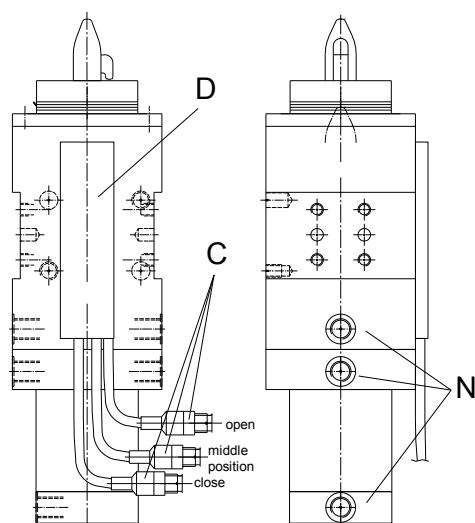


Fig. 1: clamp

Inductive sensors

The electrical connection in accordance with the electrical version of the pneumatic clamp (see the circuit diagrams) to be connected to plug 'C' and tightened.

Caution: Operation with incorrect or excessive voltage can lead to short circuiting and danger to personnel.

4. Set up of the underbody clamp

Caution! Danger of crushing!

When the clamp hook is being set, fingers could be severed or crushed. Do not reach into the swivelling range of the clamp hook while the clamp is being operated. Before carrying out work in the tool range, the compressed-air supply must be interrupted.

In the factory, the underbody clamp has been pre-adjusted to the plate thickness to be clamped, using shims, so that the upper dead centre operation of the clamping hooks is guaranteed.

Adjusting the clamping position

- For visually inspecting the support roller of sensor cassette 'D', remove the screws.
- Bring the underbody clamp into its opened position, the clamping hook has swivelled into the centring mandrel, the support roller is in its lower position.
- Put the work piece onto the centring mandrel and bring it in the desired position.
- Bring the underbody clamp in its clamping position, the clamping hook is on the work piece, the support roller is in its upper position.

Caution: The support roller must contact the upper stop. This is only guaranteed if the upper dead centre lock does function.

- If the pre-tension between work piece and clamping hook is too slight, open the clamp and remove the work piece. Correspondingly increase the height of the top plate on the clamping head (shims, referred to above).
- Excessive pre-tension is characterized by
 - a) Cylinder won't move to its upper position, support roller is not at end stop.
 - b) After clamping, the cylinder can no longer be raised under normal pressure (6 bar) cylinder ring surface area is not sufficient for unlocking the clamp.

If necessary, unlock the clamp manually at the point of the support roller. Open the clamp and remove the work piece. Correspondingly decrease the height of the support plate on the clamp head.
- Fasten the sensor cassette using screws.

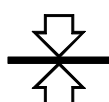
5. Replacement of sensor cassette

- Remove sensor cassette 'D' by removing the screws.
- Adjust and install a new sensor cassette.

6. Maintenance

The underbody clamp is designed for high-production applications; it is equipped with low-maintenance bearings and guides. Based on its closed construction it doesn't require special maintenance.

Caution: The underbody clamp can be damaged by cleaning with steam jet or dry ice.



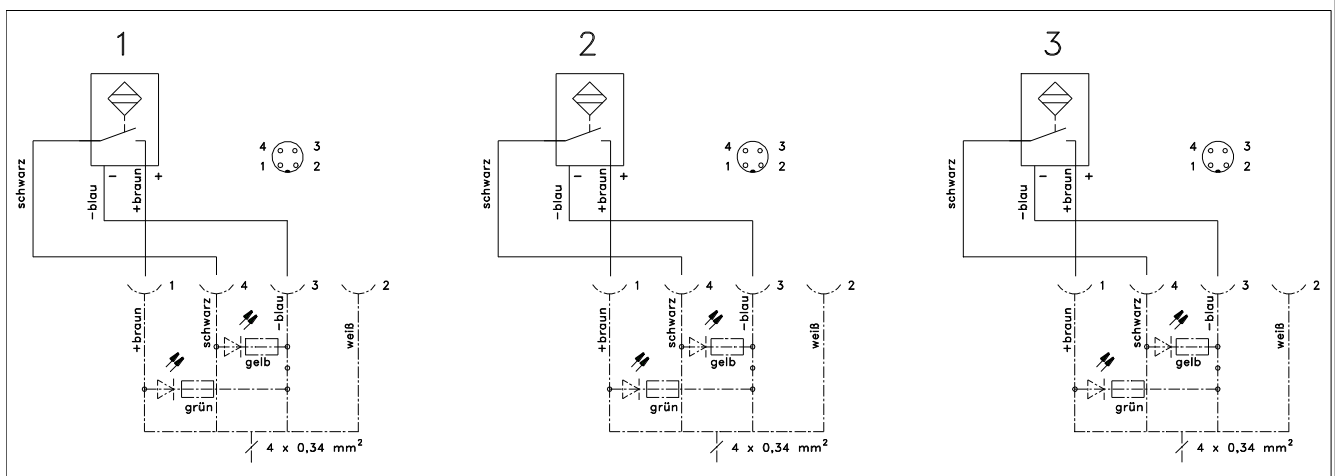
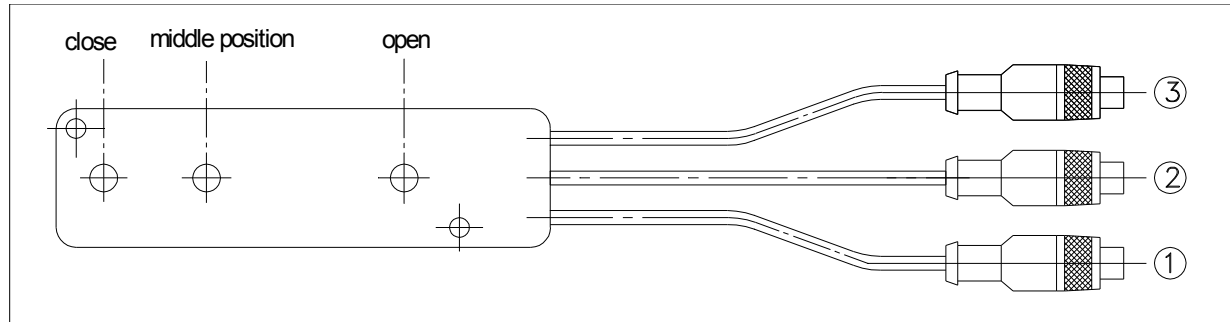
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Operating Instructions Underbody Clamp

Detection set T31
für SZ 50 UZ, SZ 50 UZV und
SZD 50 UZ



Technical Specifications:

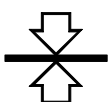
Inductive switch (standard version)

Short circuit proof

Rated voltage 10-30 V

Working current 32 mA (one initiator connected with PLC)

Closer PNP exit



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