Underbody Clamp Operating instructions (from week 14/2015)

KN 40 / 40.1 UZ/B

1. Description

The Underbody clamp is a high-performance tool, which is designed for clamping tasks in metal processing. It consists of a pneumatic cylinder, a metal case with front and back attachment options and a centering mandrel with an integrated tension hook.

The pneumatic cylinder influences on one or two tension hooks during the clamping process, which clamp the work piece guided by a platform. The position control of the clamping arm is optional via an integrated inductive query.

2. Safety

The Underbody clamp is not designed as a ready-to-use freestanding tool, and is therefore not equipped with its own safety devices. Only through the proper installation in a manufacturing system and the establishment of a corresponding safety control unit are the technical safety requirements fulfilled.

Shut down the Underbody clamp immediately in the event of any malfunction that is likely to affect personal safety. Maintenance work may only be performed by properly trained skilled personnel - while the equipment is shut down.

Ensure that all safety devices are refitted correctly after maintenance work has been carried out.

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

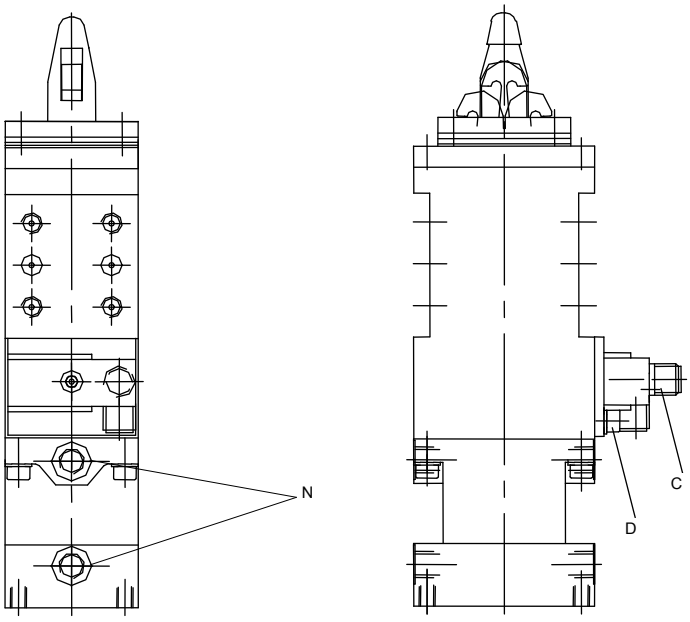
3. Assembly of the Underbody clamp

- Installation of the clamp via 4 cheese-head screws on the front or back support surface.
- Create a compressed air supply between the pneumatic control unit and the clamp (connections "N").

  Caution: The use of external flow control valves is recommended for the fine tuning of the speed of the clamping process.
- If using magnetic switches, assemble and connect these.

  Inductive query (T12)

  Attach the electric coupling according to the electric construction of the pneumatic clamp to the connection plug "C" and tighten.



Pic. 1: KN 40 UZ

Attention: When operating a KN 40 UZ version „B“ the adjusting screw „A“ must be set to position „V“ (see pic. 3) so that the blocking system is activated.

Caution: An operation with the incorrect or excessive voltage may result in short circuiting and physical injuries.

The function check of the integrated LED is as follows:

green..... Operating voltage
yellow..... Clamp open
red ..... Clamp closed

4. Adjusting the Underbody clamp

Caution! Risk of crushing injuries!

There is danger of fingers being crushed or amputated during adjustment of the clamping hook! Do not reach into the swivel area of the clamping hook while the Underbody clamp is operating. Interrupt the compressed air supply prior to working in the tool area.

- Move the Underbody clamp to the open position, clamping hook is retracted in centering pin.
- Place the work piece on the centering pin and move to the desired position.
- Move the clamp with compressed air to the closed position, so that the clamping hooks contact the work piece.

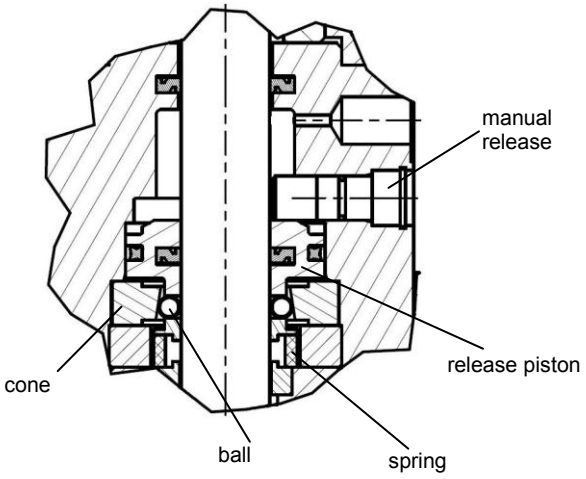
  If the end position is not shown by the position check of the switches (clamp closed, LED red), the placement of the work piece (adjusting plate, base plate) must be corrected accordingly.

5. Blocking system „B“

KN 40 UZ clamps version "B" are equipped with a mechanical blocking system acting in „open“-direction. In case of a spontaneous failure of the compressed air supply, the movement of the clamp arm in "open" direction will be prevented.

Operating mode:

The blocking system consists of balls which are arranged in a cone concentric to the piston rod. The balls are pressed into the cone by spring force. This leads to jamming of the piston rod in the intended movement direction for opening.



Pic. 2: Blocking system „B“

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The blocking is released automatically with the pneumatic control of the clamp in "open" direction.

At zero pressure the clamping of the piston rod on the return side is available in any position of the clamp arm

Release of the Underbody clamp Version “B”

For maintenance, the blocking mechanism can be released manually. For this purpose set adjusting screw (bolt) “A” from position “V” to position “NV”.

Caution! The clamping hook may move unpredictably when actuating the manual release.

6. Replacement of the monitoring cassette

- Dismantle the monitoring cassette by releasing screw "D".
- Adjust a new monitoring cassette and assemble.

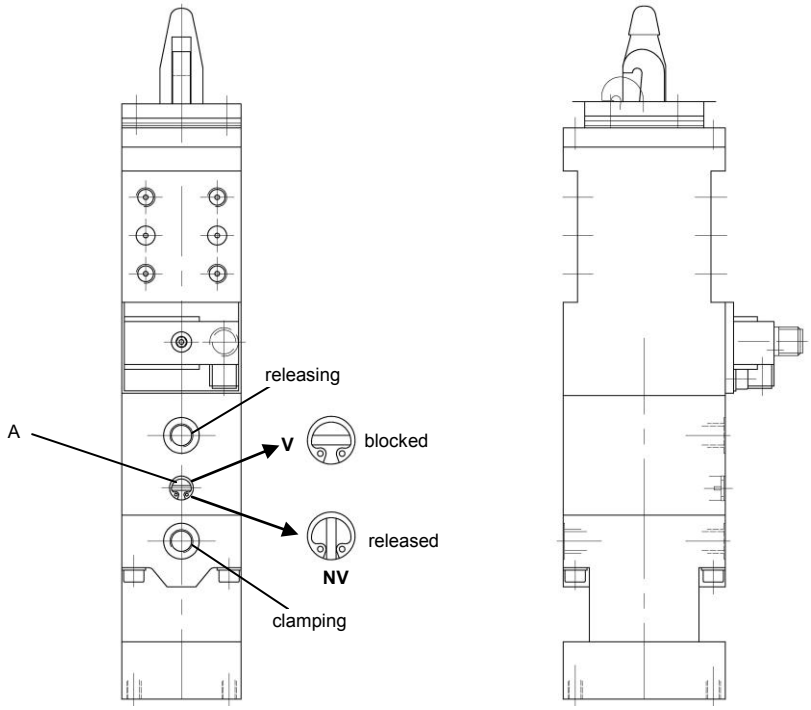
7. Maintenance

The Underbody clamp is fitted with low-maintenance bearings and guides designed for operation in large-scale series production. Based on the enclosed design, special maintenance of the Underbody clamps is not required.

Caution: Cleaning with a high-pressure steam cleaner or dry ice will result in damaging the Underbody clamp.

Underbody Clamp version „B“:

In regular intervals, at least every 100,000 cycles, the blocking system must be tested at its function. For this purpose, the clamping hook must be set to clamped position and the clamp must be placed into the pressure-less state. The blocking function is ensured if the clamping hook holds its position despite of an application of external force.



Pic. 3: KN 40 UZB

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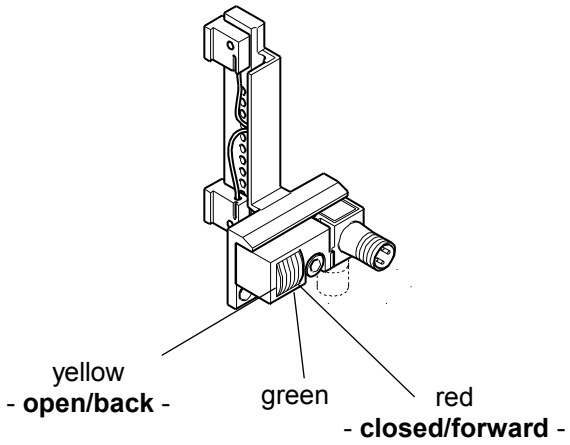
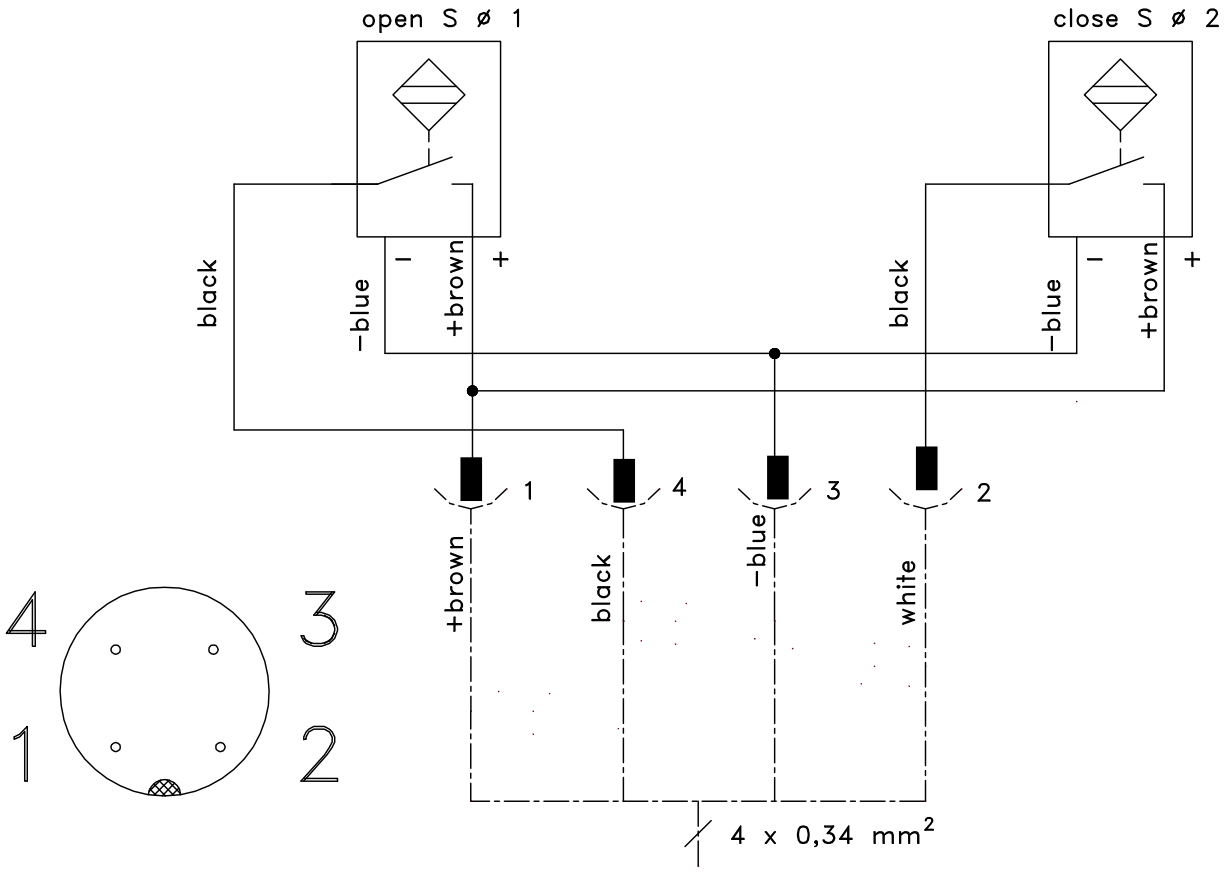
Detection set Inductive switch, 1 output T12





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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