

1. Description

The pneumatic power clamp is a high-power tool designed for use in clamping tasks processing sheet metal. It consists of a pneumatic cylinder, a metal housing with mounting faces, front and rear, and two clamp arms working in opposite direction with receivers for the contour pieces.

When used for clamping, the pneumatic cylinder functions on an integrated toggle lever joint and moves the clamp arm. The position control of the clamp arm is achieved through limit switches fixed on an integrated cassette system.

2. Safety

The pneumatic clamp was not conceived to be a complete tool, ready for independent applications and has therefore not been fitted with safety equipment. Only when it is correctly installed in a production system and a corresponding safety control system is added, will all safety requirements be met.

Should any faults occur that place personnel at risk, the pneumatic clamp is to be switched off immediately. Maintenance measures are only to be undertaken when the machine is at a complete standstill and by suitably qualified specialists. After maintenance work has been carried out, the protection devices are to be refitted in the correct way.

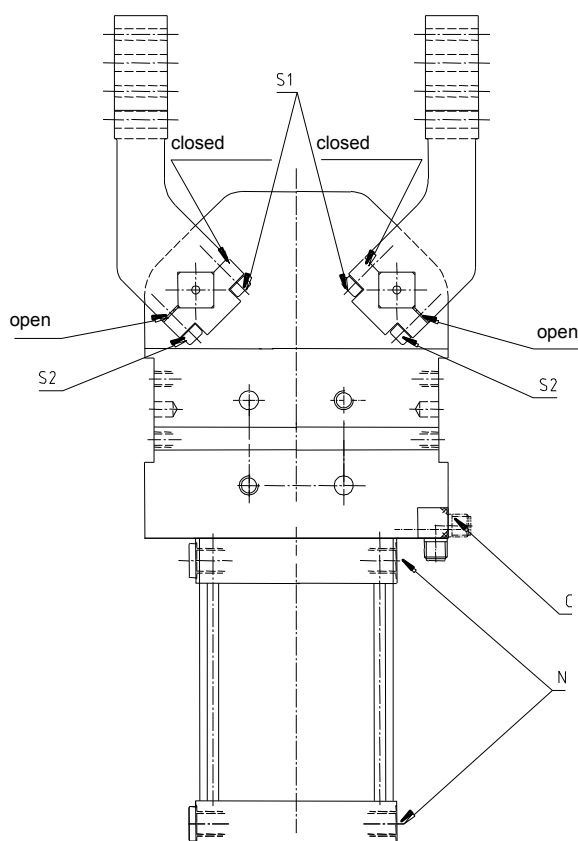


Fig. 1: Clamp

3. Assembly of the pneumatic clamp

- The clamp is installed by means of four socket head cap screws on the mounting face, front or rear.

It is mandatory to adhere to the minimum screw-in depth.

Front and rear side attachment:

	K 40 AS	K 63 AS
Thread size	M8x11	M8x12
Screw-in depth min. [mm]	9	9
Tightening torque max. [Nm]	25	25

Lateral attachment:

	K 40 AS	K 63 AS
Thread size	M6x11	M10x12
Screw-in depth min. [mm]	7	11
Tightening torque max. [Nm]	10	48

- Connect to supply air between pneumatic control valve and clamp (connections "N").

Caution: For fine adjustment of speed of clamping process, the use of external directional flow control valves is recommended.

Caution: Moving heavy clamp arms/contour pieces too fast on return stroke can cause damage to the cylinder floor. Do not fall short of the minimum cycle time (1 sec. to open / 1 sec. to close). The guidelines for maximum clamp arm weight are to be heeded (see constructional guidelines)!

A. Inductive inquiry (T12)

Position the electrical coupling on connector "C" in accordance with the electrical design of the vario-clamping element and screw it tight.

Important: Operation with incorrect or too high voltage can lead to short circuiting and danger to personnel.

The function control of the integrated LEDs T12 is as follows:

green operating voltage
yellow clamp is opened
red clamp is closed

B Inductive inquiry (T08/T10)

Connect trip line with the back of the pneumatic clamp according to the marking.

Important: Max. working pressure for trip line is 6 bar.

4. Set up for the pneumatic clamp

Caution! Danger of crushing!

When the clamp arm is being set, fingers could be severed or crushed. Do not reach into the swivel area of the clamp arm while the pneumatic clamp is in operation. Before operations are started the air supply must be shut off.

- Tighten contour piece on clamp arm.
- Move on pneumatic clamp. The toggle lever must audibly move into the upper dead centre position.
- Determine the tolerance between clamping arm and workpiece.
- Open pneumatic clamp.
 - a) Softtouch adjustment
Offset the tolerance to 0 mm (!) by adding required shims (see Fig. 2). Please note the OEM project specifications!
 - b) Adjustment with preload
Offset the tolerance to +0.5 mm by adding required shims.

Close pneumatic clamp. The toggle lever now moves into the upper dead centre position and the adjusted clamping force is achieved.

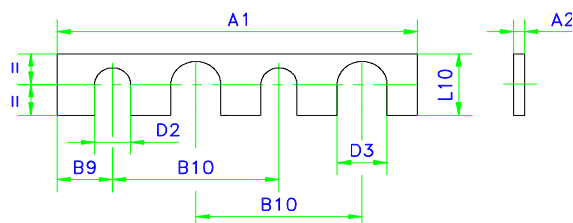


Fig. 2: Shims - example

Abstimm- platte Nr.	für Spanner	A1	A2	D2	D3	B9	B10	L10
AP 4005	K 40 AS	42	0,5	6,5	7	6	20	12,4
AP 4010			1,0					
AP 4020			2,0					
AP 5005	K 63 AS	65	0,5	6,5	9	10	30	16
AP 5010			1,0					
AP 5020			2,0					

5. Replacement of limit switch cartridge

- Remove limit switch cartridge by releasing the screw "D".
- Set new limit switch cartridge for relevant opening angle (see 4) and assemble.

6. Replacement of clamp arm

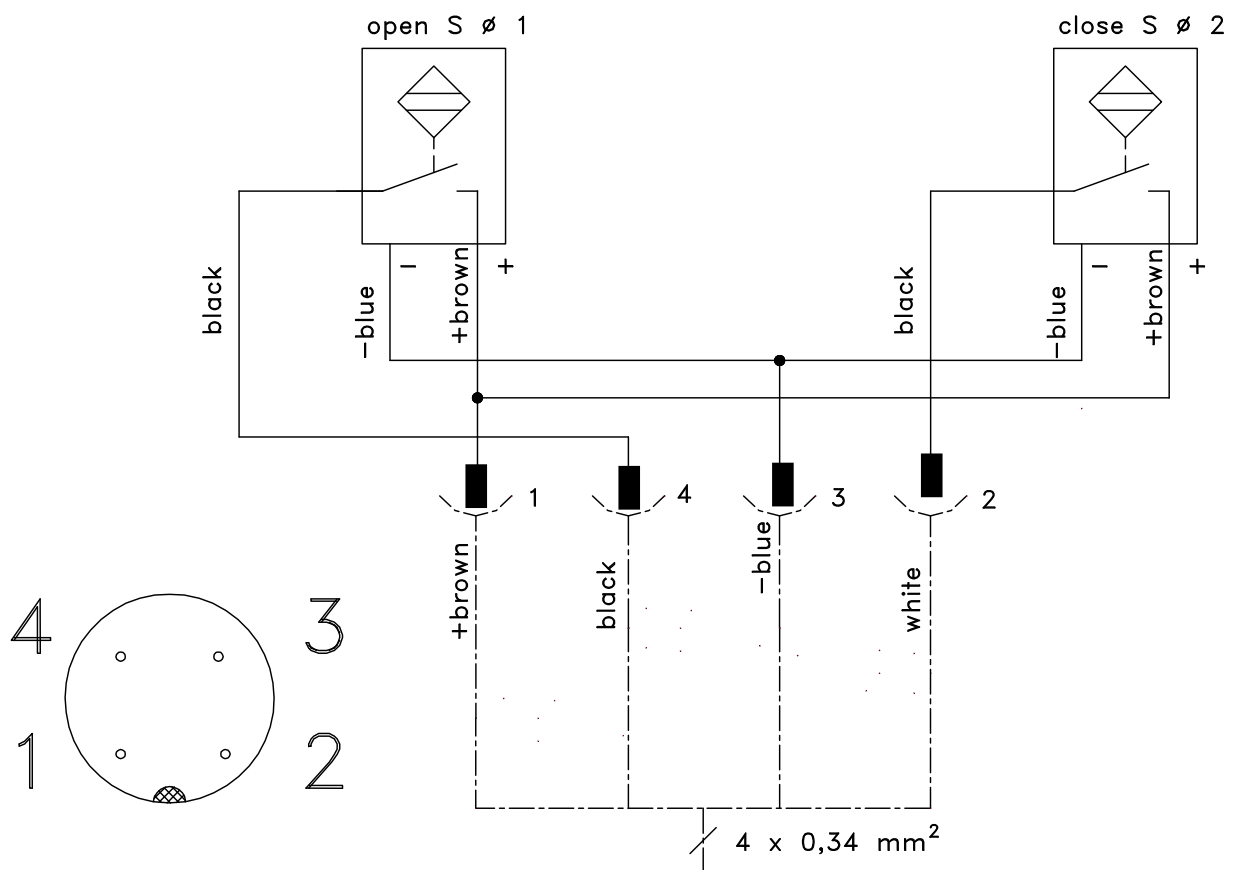
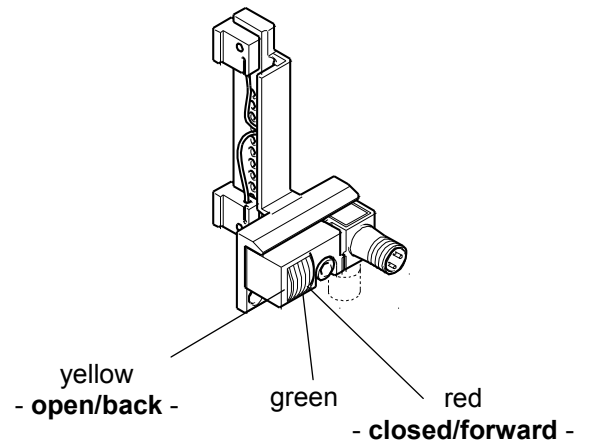
In order to avoid warping of the square-section shaft, it must be ensured when changing the clamp arm that fixing screw "S1" is tightened first, followed by the second fixing screw, "S2" (see Figure 1).

Recommended tightening torque: K 40 AS: 17 Nm
 K 63 AS: 41 Nm

7. Maintenance

The pneumatic clamp is designed for high production applications; it is equipped with high quality, low-maintenance bearings, seals and guides. Because of the closed structure no special maintenance of the pneumatic clamp is necessary.

Caution: Damage can be caused to the pneumatic clamp by cleaning with steam-jet or dry i



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



Subject to technical modifications.

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