Mini Power Clamp Operating Instructions   K 25 - K 40, 40.1
PKS 25 K

1. Description

The pneumatic clamp is a high-power tool designed for use in clamping tasks in the processing of sheet metal. It consists of a housing made of aluminum "A" with an integrated pneumatic cylinder, mountings at the front and rear and a clamp arm "E" with receiver for the contour piece.

When used in clamping, the pneumatic cylinder functions on an integrated toggle lever to move the clamp arm. The position control of the clamp arm is achieved through a cassette system with integrated inductive limit switches.

2. Safety

The pneumatic clamp was not conceived as a full tool supplied ready for independent use and has therefore not been fitted with its own 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.

3. Assembly of the pneumatic clamp

- The clamp is installed by means of four head cap screws on the shoulder area on the front / back.
- Create supply of compressed air between pneumatic control and clamp (connections "N").
  Caution: For fine adjustment of speed of clamping process, the use of external regulating valves is recommended.
- Set electric plug on socket "C" according to the electrical design of the pneumatic clamp (see circuit diagram in Fig. 2), and tighten.
  Caution: Operation with incorrect or too high voltage can lead to short circuiting and danger to personnel.

- Function control with inductive inquiry (T12) "B" with integrated LEDs as follows:

green ....operation voltage
yellow ....clamp opened
red   ....clamp closed (new version from 1/99, formerly yellow)

4. Setting for pneumatic clamp

Caution! Danger of crushing! When the clamp arm "E" is being set, fingers could be severed or crushed. Do not reach into the swivel area of the clamp arm.

Caution: This pneumatic clamp works with an upper dead center toggle system. Incorrect adjustment with too high preload can cause damage to the toggle system.
Indication of a wrong adjustment: Clamp does not open or opens only with delay.

- Mount contour piece on clamp arm.
- Close clamp. Toggle lever must audibly move into the upper dead center position. Position of the clamping arm to the clamping housing is exactly 90° or 180°.
- Determine the tolerance between clamp arm / contour piece and work piece.
- Open pneumatic clamp.
  a) Softtouch adjustment
     Offset the tolerance to 0 mm (!) by adding required shims.
  a) Adjustment with preload
     Adjust clamping arm/contour piece tolerance by adding appropriate shims as follows:
     PKS 25 K, K25: + 0.1...0.2 mm for a reach of 70 mm
     K 40, K 40.1:   + 0.3 mm   for a reach of 85 mm
- Close pneumatic clamp. The toggle lever must audibly move into the upper dead center position. If dead center position is not achieved reduce tolerance in steps of 0.1 mm.

K 40.1: **Caution:** Move clamp arm to the open position before replacing the limit switch cartridge!

5. Maintenance

The pneumatic clamp is fitted with a view to application in series production with low-maintenance bearings and guides. This technical concept allows 3 million cycles without significant component wear.
Because of the closed structure of the pneumatic clamp no special maintenance is necessary.

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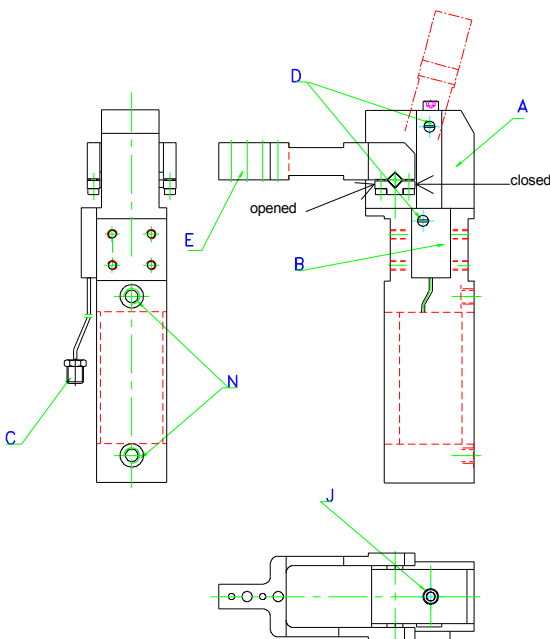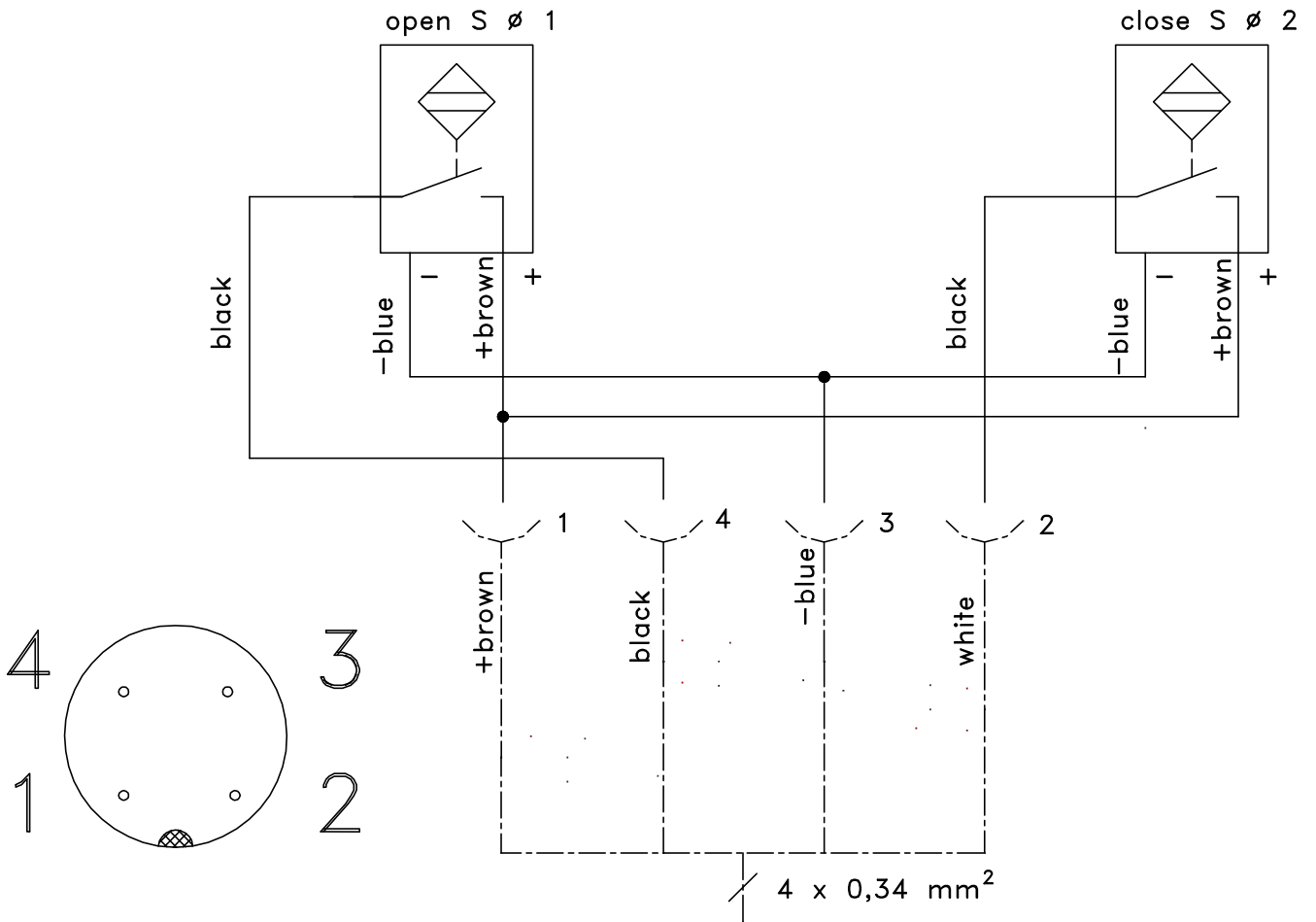

Fig. 1: Clamp

open S ∅ 1

close S ∅ 2

black

−blue

+brown

+

black

−blue

+brown

+

1

4

3

2

+brown

black

−blue

white

4 x 0,34 mm^2

4 3
1 2

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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