

1. Description

The manual clamp is a high-power tool designed for use in clamping tasks processing sheet metal. It is made up of a manual engagement, a metal housing with front-side mounting faces and a clamping arm with a mounting for the contour piece.

When used for clamping, the manual lever increases the force exerted on an integrated toggle joint, which triggers the swivelling motion of the clamping arm. The position control of the clamp arm is optionally realized by means of the sensing elements integrated in the housing.

2. Safety

The manual 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 has been correctly installed in a production system and a corresponding safety control gas been added, that the safety-technical requirements have been met.

Should any faults occur that place personnel at risk, the manual clamp is to be switched off immediately. Maintenance manuals 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 a correct way.

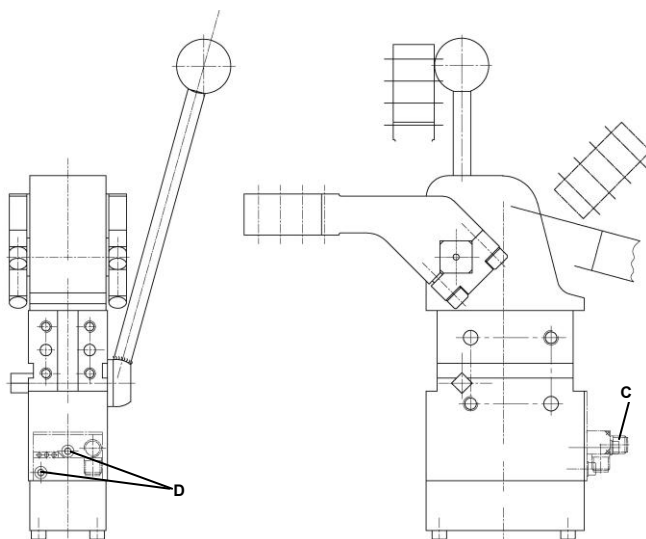


Fig. 1: Clamp

3. Installing the manual clamp

- The clamp is installed by means of socket-head cap screws on the mounting faces.

In case of the optional end-position sensors:

- The electrical connector in accordance with the electrical version of the manual 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.

The function control in the case of electrical coupling by means of LEDs is as follows:

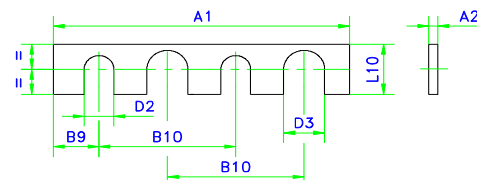
green..... operating voltage
red clamp is closed
yellow clamp is opened

4. Set up for the manual clamp

Caution! Danger of crushing!

When the clamp hook is being set, fingers could be severed or crushed. Do not reach into the toggle lever area of while the clamp is being operated.

- Twist the contour piece onto the clamp arm.
- Moved the clamp to the closed position. The toggle lever joint must move to and click in position in the upper-dead centre position.
- Determine the maximum distance between the clamp arm/contour piece and the workpiece.
- Open the clamp.
 - Adjustment without pre-tension (softtouch).
Adjustment of the dimensional tolerance to 0 mm (!) by installation of corresponding shims (see fig. 2).
Please note the OEM project specifications!
 - Adjustment with pretension
Adjustment of the dimensional tolerance to 0.5 mm by installation of corresponding shims.
- Move the clamp to the closed position. The toggle joint now moves to the upper dead centre position and the desired pre-tension is reached.



Shims no.	A1	A2	D2	D3	B9	B10	L10
AP 5005	65	0,5	6,5	9	10	30	16
AP 5010		1,0					

Fig. 2: shims - example

5. Changing the opening angle

In case of the optional end-position sensors:

The opening angle can be set in phases of 15° each. The smallest opening angle measures 45°.

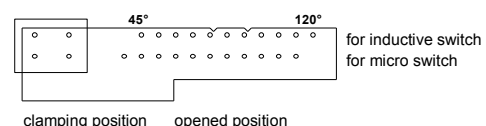


Fig 3: switch sheet metal

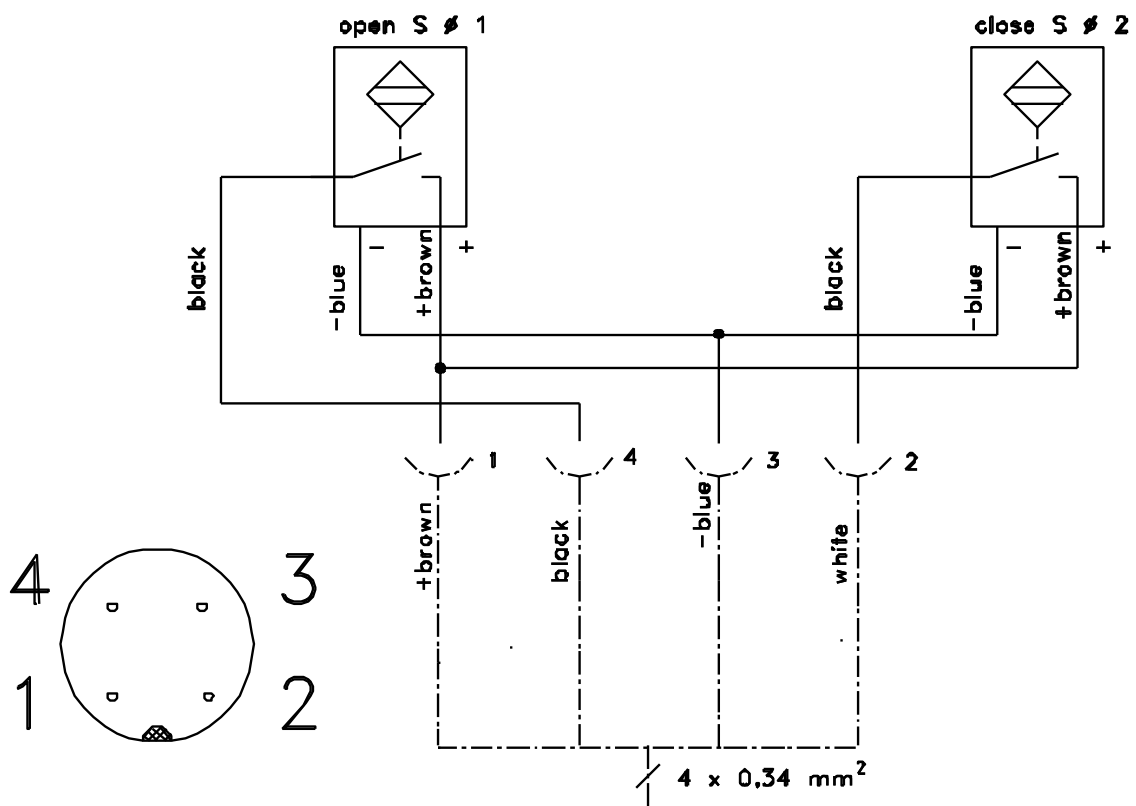
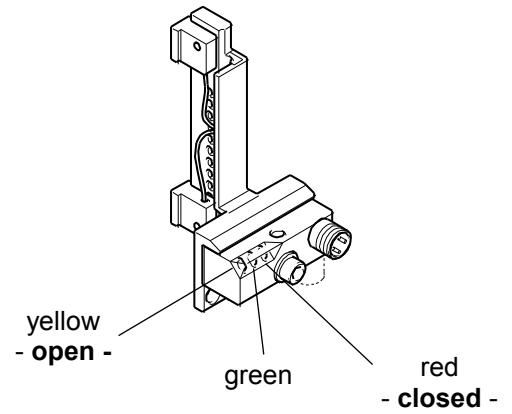
6. Replacement of limit switch cassette

- Remove the sensor cartridge by removing screw 'D'.
- Set the new sensor cassette to the required opening angle (see 5.) and install it.

7. Maintenance

The manual clamp is designed for high-production applications; it is equipped with low-maintenance bearings and guides. This technical concept allows 2 million cycles without significant component wear.

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



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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