

OPERATING INSTRUCTIONS

ALFRA PRESS AP 600-2 Stationary Punching Machine

Prod. No. 03090



Illustration includes special equipment

1. Intended use

The press is used for punching sheet metal. Punching without pre-drilling.

Perfect for switch cabinet and switchgear construction.

Hydraulic punch unit for fast punching of round, square, rectangular or special shapes in metal sheets and control cabinet doors up to 2200 x 1000 mm and up to 30 mm bending height.

Punching up to the edge area is possible.

Simple, quick tool change even when the **door is inserted**.

Stop system can be moved in X and Y direction.

Technical data:

Throat with limit stop:	600 mm
Punching force F:	60 kN at 165 bar
Punching stroke:	66 mm
Motor output:	0.75 kW
Equivalent continuous noise level	72 dB
Operating voltage:	400 V
Weight approx.:	360 kg
Total height:	1600 mm
Working height:	1000 mm
Width of the die body:	310 mm
Depth of the die body:	1150 mm
Length of the stop rail	1500 mm
Total travel of stop rail	1000 mm
Space requirement approx.:	2000 x 3000 mm

Maximum sheet metal and control cabinet doors:

Length/Width	2200 mm / 1000 mm
Angle of bend	30 mm

Punching power:

Round holes from	Ø 3.2 to 70.0 mm
Square up to	68.0 x 68.0 mm
Special shapes up to max. diagonals of	90.0 mm

Machinable material thicknesses: (depending on the tool)

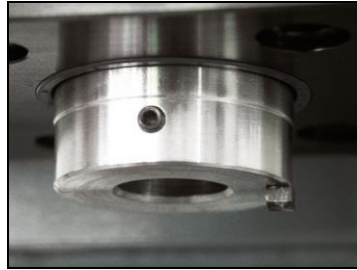
Steel sheets $F = 370 \text{ N/mm}^2$ up to	3.0 mm
Stainless sheets $F = 600 \text{ N/mm}^2$ to	2.0 mm
Aluminium F 22 to	4.0 mm
Punchable plastics up to	4.0 mm

Special materials or special alloys on request!

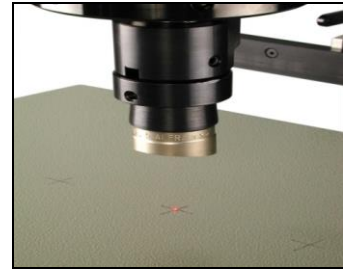
3. Description



Die bed holder tool replacement also with inserted door

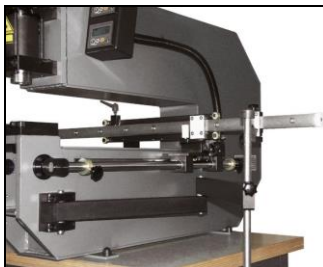


Stable piston rod with tool anti-twist device



Laser pointer for optical display of tool centre

- Stable press body in robust, deformation-resistant welded construction.
- Double-acting hydraulic cylinder, force and form-fit flanged to the machine body.
- Torsion-resistant arranged piston rod made of hardened and tempered stainless steel \varnothing 55 mm.
- Die bed, force-locked to the press body.
- Hold-down device with protective function to prevent accidents during the punching process and to protect against splintering (e.g. in the event of tool breakage due to misuse).
- Length and depth stop can be moved in X and Y direction, mounted in hardened double ball guides, for easy movement.
- Measuring tape indicator for length and depth stop, a digital measuring display for X- and Y-axis is available as an option.
- Dual circuit hydraulic unit with electric pump, oil tank and solenoid valves (very quiet).
- Safety foot switch with double pedal for continuously variable actuation of the punching and return stroke.
- Hydraulic cylinder prepared for the use of a laser pointer for optical indication of the tool centre.
- Quick tool change helps with problems with many breakthrough variants.



**Length and depth stop guided on both sides in guides.
2 adjustable stops each on the right and left side of the Y-axis.**



Alternating quick-clamping system for chamfers double ball optionally at the top or bottom.



Optional equipment: (not included in the scope of delivery)

- Laser pointer for optical display of the tool centre
- Digital display Y-axis
- Digital display X-axis
- Pivoting double-jointed arm to support the control cabinet door

Part no. 03021
Part no. 03091
Part no. 03092
Part no. 03078

Scope of delivery:

Stationary punch ALFRA PRESS 600-2, Part no. 03090, with hydraulic cylinder, cabinet base, length and depth stop movable in X and Y direction, cylinder piston with anti-rotation device for use of all punch holders, double-acting hydraulic unit and safety foot switch.

4. Setup

- Carefully and thoroughly remove the packaging or unpack parts.
- Make sure that there is no damage.
- The press is supplied on the base cabinet with built-in hydraulic unit and connected hydraulic hoses.
- Inspect the hardened ball guide shafts and other bare machine parts. Clean if necessary with polishing paper and oil carefully.
- Check oil filling in hydraulic unit, top up hydraulic oil if necessary.
(Please use only brand oil viscosity HLP 32)
- Set up the punch unit according to the required space requirement of approx. 2000 mm x 3000 mm. The machine must be freely accessible from all sides.

The machine must be set up on level ground so that it cannot tip over! There must be no obstructed lines in the immediate vicinity.

Ensure an obstacle-free and accessible working area!

- Carefully slide the stop rail together with the angle to the workpiece support into the hardened guide rollers and secure against overtravel by screwing on the stop plate.
- Screw on the tape-measure ruler with the 2 screws; this is not necessary with a digital measuring system.
- Slide the quick-release on the right and left side of the guide rail.

5. Putting into operation

- Plug in the mains plug
- Switch on the main switch on the base cabinet.
- Check the safety interlock on the hold-down device.
- Check the up-down movement of the pistons when the foot switch is actuated.

The safety switch on the hold-down device must not be manipulated under any circumstances!

6. Working with the punch unit

- Insert the punch into the corresponding punch holder and insert it into the punch cylinder (do not overtighten the grub screw)
- Slide the die into the die bed and lock it securely.

In order to avoid the risk of injury due to tool breakage caused by incorrectly used tools, special attention must be paid to the fact that:

- **the dimensions of the punches and dies match**
- **the square, rectangular and special punches are inserted to match the anti-rotation device and are positioned analogous to the die.**

We recommend an "empty punch" to check the accuracy of fit.

- Insert workpiece. Ensure the correct door height. Adjust the height if necessary by turning the workpiece supports (see Item 5 in Drawing 273.305).
The workpiece should run horizontally directly over the die.
- Move the workpiece to the desired position and align it.

- Lock the workpiece by closing the clamping lever.
- Swing down the hold-down device and clamp in vertical position
- The foot switch must be operated and held for punching.
The cylinder piston stops as soon as the foot switch is released.
- Do not use blunt or damaged tools.
- **The working area must always be kept clean and free of chips.**
- **The punching process can be interrupted immediately by releasing the foot pedal.**
The cylinder piston stops immediately!
- **Never reach into the punching area between die, workpiece and punch during the punching process!**
- **The punching operation may only be carried out with the hold-down device completely folded down and secured!**

Do not use blunt or damaged tools!

- **Worn and damaged tools can cause damage to the punching unit.**
- **Laser acc Laser class 2, DIN EN 60825-1**
Class 2 lasers are lasers in the visible range and in which an irradiation of less than 0.25 ms is harmless to the eye 0.25 ms correspond to an eyelid closure reflex, which automatically protects the eye sufficiently against prolonged irradiation.
Do not look into the laser beam!
- The machine may only be operated by persons who are not under the influence of medication/ other substances which impair the perception, reaction time of all body functions, as well as motor skills.

To obtain an optimum punching result and reduce tool wear, we recommend cleaning and rubbing the punches and dies regularly with a cloth and conventional oil, especially the cutting edges.

The function and setting options of the optionally available digital measuring system can be found in the operating instructions, which are enclosed in this case.

7. Maintenance and care

- The hydraulic unit may only be operated with branded hydraulic oil, viscosity class HLP 32.
- Ensure sufficient oil level and cleanliness of the oil.
- Carry out the first oil change after approx. 500 operating hours, each subsequent oil change after every 5000 operating hours, but at the latest after every 2 years.
- After the first 50 hours of operation, all hydraulic fittings must be checked for leaks and retightened if necessary.
- Always ensure that the guide shafts and ball bearings are clean.
- In the event of electrical malfunctions, the punch can no longer be put into operation and must be secured accordingly.
Re-commissioning only after inspection and repair by qualified personnel with the aid of the circuit diagrams and corresponding release.
- The pressure relief valve has been set at the factory.
It can be checked with the aid of the pressure gauge.
The external hydraulic hoses should be replaced after 6 years of operation.

according to the EC-Directive 2006/42/EC of May 17th, 2006, addition II A

We,

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hereby declare that the machines described below in its design and construction as well as in the version marketed by us is in accordance with the essential health and safety requirements of the EC Directive 2006/42/EC. If changes are made on machines that are not approved by us, this declaration loses its validity.

ALFRA PRESS – Stationary Punching Machine

AP 600-2

The accordance with further, also for this product applying directives / regulations, will be declared:

- EC–pressure-equipment-directive (97/23/EC) of May, 27th, 1997
- EMC-directive (2004/108/EC) of December 15th , 2004

Applied harmonized standards in particular:

- EN 12100 Safety of machinery - basic concepts, general guidelines for design, basic terminology, methodology, risk assessment.
- EN 60204-1 Safety of machinery - electrical equipment of machines;
Part 1: general requirements

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