

Issue 2-00 E

Press-In Devices 25-150 kN

with press-in force control and interpretation of the press-in process



Application

Press-in devices for assembly with press-in force control and quality assurance of the press-in operation are preferably used in assembly processes for production of longitudinal pressed joints; in addition perfect press fit of frictionally-engaged joinings is guaranteed. Quality assurance and the proof of realization of longitudinal pressed joints are more and more demanded due to product liability and in accordance with ISO 9000. Due to their geometrical and simple shape it is normally cheaper to produce frictionally-engaged assemblies than positive assemblies.

Description

Press-in devices as bench devices with pressin force control and interpretation of the pressin operation are complete functional units and consist of 3 basic components: mechanical press-in frame, electro-hydraulic control and underframe for tables. Above the table plate there are - according to the application of ergonomic design rules - the mechanical press-in frame with the data input board for the process parameters and the indicator board. The two-hand safety control is mounted to the exterior table frame. The electric control box and the hydraulic power unit are installed in the lower table area. Due to safety reasons, operation of the hydraulic cylinder is always made by a two-hand safety control.



Advantages

- High flexibility in assembly
- Improved ergonomics
- Quality assurance of operation
- Reduction of assembly time
- Short time of amortization
- Closed force-loop
- Defined joining forces
- Light component load
- Quick-change tooling system

Industry/applications (selection)

- Drive technology, gears box assembly
- Couplings, cardan shafts
- Compressors, pumps, hydraulic elements
- Industrial fittings
- Materials-handling technology
- Automotive industry and their suppliers
- Machine tool building
- Building and agricultural machines
- Electronics

Application example

This installation is adapted to the assembly process of electric motors: with a triple pressin device 3 stator bushings are pressed in into the housings in one cycle.

This corresponds to the assembly sequence of the preceding and following assembly steps in production, so that there will not be any waiting times.

The press-in device realizes in each press-in axis a press-in force control, thereby the quality of the operation and a reliable further processing are guaranteed.











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Subject to change without notice



ROEMHELD

Automatic mode

By operating the mushroom push-buttons at the two-hand operating panel simultaneously, the hydraulic cylinder extends rapidly starting from the retracted off-position. As soon as the hydraulic cylinder has reached the switching position, the control switches automatically during to creep speed. Press-in force control is effected during joining of the components. When the maximum press-in pressure is obtained, reversing to retraction is automatically effected and the hydraulic cylinder retracts rapidly until the off-position is obtained and the control is switched off. The switching points of the proximity switches are continuously adjustable. The automatic mode can only be started, if the hydraulic cylinder is in the retracted off-position.

Setting mode

In addition, the functions "Extend" and "Retract" can be selected by means of a selector switch in the two-hand control. In the setting mode, the press-in device can only be operated in creep speed. The proximity switches are not in operation.

Function triggering is - in all operating conditions - only possible by operating simultaneously both mushroom push-buttons of the two-hand safety control.

Press-in force control and interpretation

The press-in force is permanently measured during pressing-in and compared with the admissible limit values. The principles of assessment is based on the determination of admissible limit values in windowing and the control at a defined position during joining. If there are one or more measured values outside the admissible limit values, there is a N/O error signal, and this is shown by an illuminated push-button in the two-hand control. Before restart of the press-in device, the illuminated push-button has to be activated, in order to release the press-in device again for cylinder operation. A pilot light at the twohand control indicates the off-position.

In addition, there is an indicator board with 3 signal lamps in the visual range at the press-in frame.

Indicate:

- Upper limit value exceeded
- Max. press-in pressure is obtained
- Lower limit value not obtained

Data input

The electric control is equipped with a programmable control. Programming contains beside the measuring interpretation the application-oriented data input by records.

- One record consists of the input of:
- Admissible upper limit value
- Maximum press-in pressure
- Admissible lower limit value
- Measuring position Press-in force control
- Position Off-position
- Switching position rapid/creep speed

Up to 100 records can be programmed. Input of the records is made by means of the input board at the press-in frame. Activation of the desired record is made by input of the corresponding record-no.

Data output

An interface RS 232 is available to take the records and the data output.

Application and installation instructions

When installing the press-in device it has to be considered that it will be installed on a plain surface and will be carried by all 4 legs. According to the operating instructions the electric connection has to be effected and the hydraulic power unit must be filled with mineral oil.

Contact pieces

Variants (selection)

- Press-in frame with

- Base plate additionaly equipped with

(* standard for part-no. 6600-550)

diagonal slots as per DIN 650

- Table frame out of aluminium

additional protection cover

Special versions on request

- Contact piece as per DIN 810*



Quick-change tooling system

The quick-change tooling system offers the possiblity to change to other press-in contact pieces within a very short time. Uncoupling of the quick-change tooling system is made by lifting of the exterior sleeve only. The contact piece can be detached and changed. After release of the exterior sleeve the quick-change tooling system engages automatically and locates the contact piece in a defined position. In unloaded mode the contact pieces are selfcentering. During pressing-in the forces are compensated by the contact pieces and introduced to a spherical surface support, thereby they can allign themselves parallel to the centre line and compensate the elastic deformation of the components. A gentle press-in operation without lateral forces on the workpieces is realized.





Technical characteristics - Contact pieces

а	[mm]	60	100
b	[mm]	40	84
С	[mm]	12 H7x6	20 H7x10
d	[mm]	10	15
е	[mm]	Jm5 DIN 74	Km6 DIN 74
Weight	[kg]	0.3	1.3
for press-in devices			
		6600-150	6600-350
		6600-155	6600-355
		6600-250	6600-450
		6600-255	6600-455

Part-no.

6604-166

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6604-161







Nominal pressure force [kN] 150 Cylinder stroke [mm] 200 Flow rate [l/min] 2.6/11.9 Max. operating pressure [bar] 500 / 40 Oil volume 40 [I] 2.2/1.1 Rating [kW] Electrical connection 3/PE (50 Hz 400 V) Code class IP 54 14 v- press-in stroke [mm/s] v- rapids extend [mm/s] 78 v- rapids retract [mm/s] 130 Weight [kg] 445 Part-no. 6600-550

Illuminated push-button Off-position