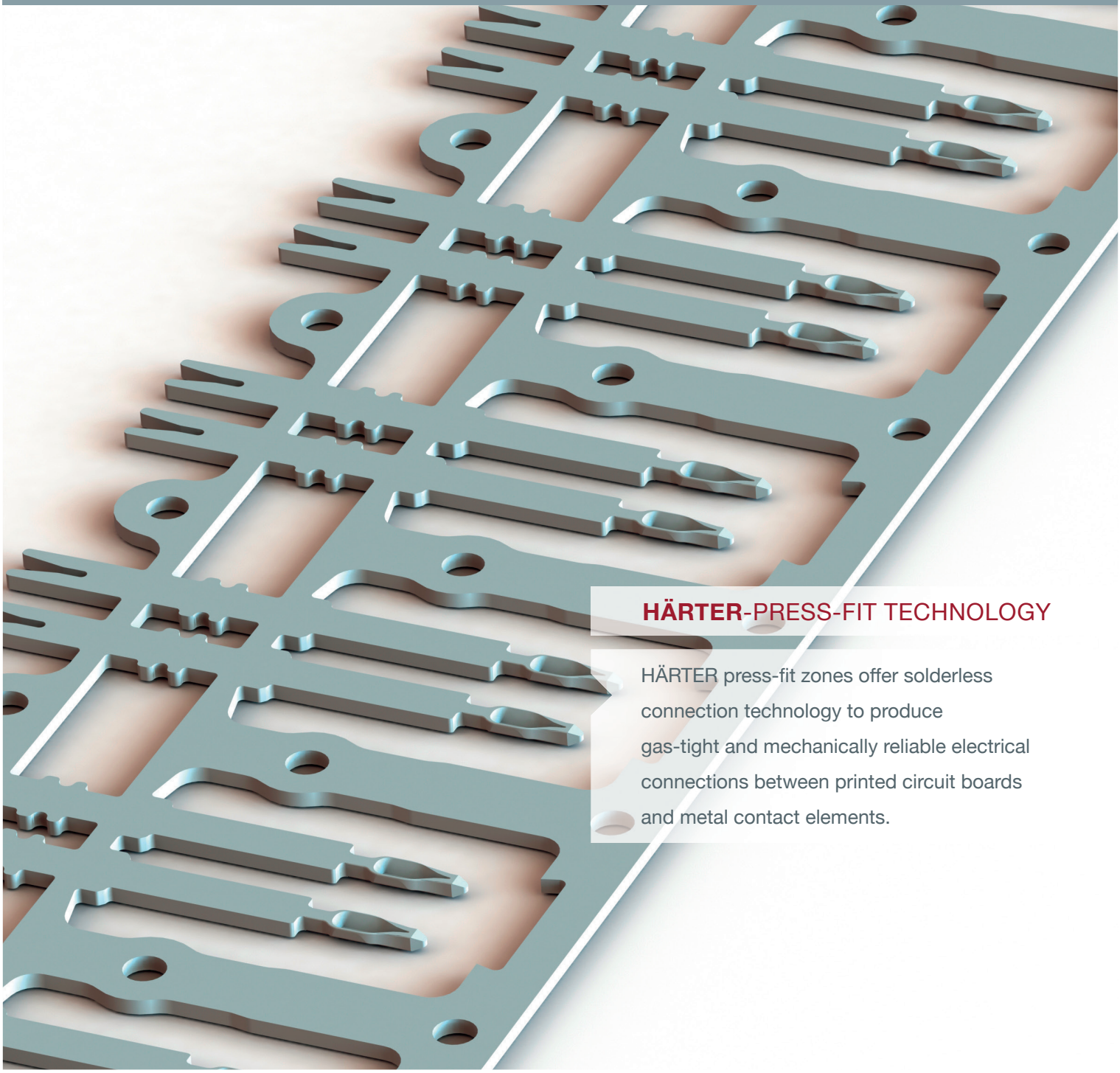
HÄRTER
PART OF SUCCESS

PRESS-FIT ZONES

PART OF A SUCCESSFUL CONNECTION



HÄRTER-PRESS-FIT TECHNOLOGY

HÄRTER press-fit zones offer solderless connection technology to produce gas-tight and mechanically reliable electrical connections between printed circuit boards and metal contact elements.

HÄRTER press-fit zones

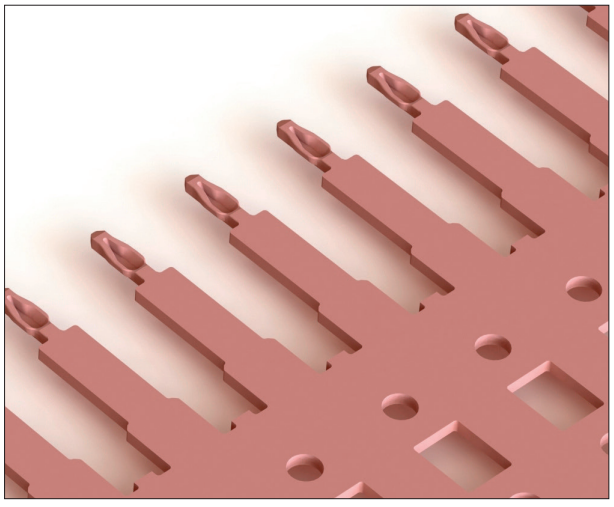
With the HÄRTER press-fit zones, the HÄRTER Group offers an innovative, solderless connection technology for a wide variety of requirements worldwide.
Not only in the automotive sector, but in industry as a whole, the trend to replacing conventional soldering technology with press-fit technology is becoming ever more pronounced. The basis of a high process reliability are the punching tools constructed and produced in our own tool production facility. In serial production, continuous process monitoring is carried out with state-of-the-art camera systems and 3D measuring machines. Other important components of our comprehensive quality concept are the control plans agreed with the customer and long-term analyses (trend analyses) of selected features.

About press-fit technology

Press-fit technology is a special connection technique used to produce electrical connections without soldering. In this case, contact parts or entire assemblies are inserted with press-fit zones into metallised holes of a printed circuit board (PCB). Between the press-fit pin and the hole wall, a gas-tight and very conductive contact is created.

The press-fit pin must have a larger diagonal than the hole diameter of the circuit board. The inserted pin and the printed circuit board creates a gas-tight and mechanically reliable electrical connection.

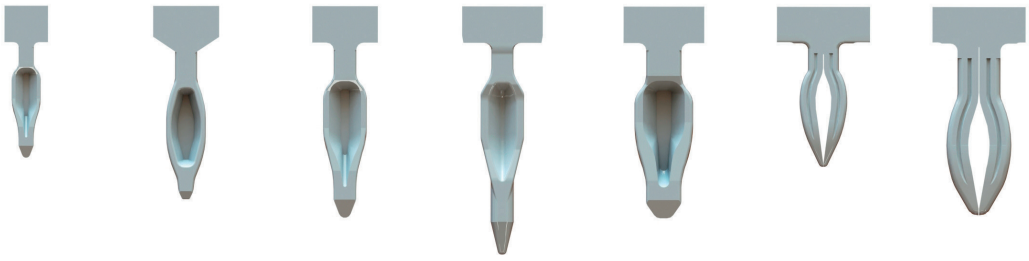
Advantages of press-fit technology over conventional soldering technology



- no soldering errors, no flux problems
- high reliability
- Additional washing is omitted
- No thermal stress on the printed circuit board and the electronic components
- Fast and cost-effective assembly of the printed circuit board
- Two-sided loading of the printed circuit board possible
- recycling through simple pressing out

Our innovation
HÄRTER Compliant Press-Fit Zone (HCP)

We are currently manufacturing our flexible press -fit zones „HÄRTER Compliant Press-Fit Zone (HCP)“ in the material thicknesses of 0.6 mm and 0.8 mm for a wide variety of applications. Further variants, such as an HCP 04 press-fit zone, and further developments of the one -sided stamped press-fit zone into a double-sided, symmetrically stamped one, are being planned. Depending on the requirements for the operating temperature and the electrical conductivity, different materials are used. Our „HÄRTER Compliant Press-Fit Zone“ can be used in conductor-plates with metallised holes according to DIN EN 60352-5 and used according to customer specifications Our HÄRTER press-fit technology Product Management accompanies our customers from the production of prototypes to series production. Before this, prototypes with HÄRTER press-fit zones can be created in our own prototype manufacture on existing tools produced in a similar manner to series production and matched to customer requirements. All the influencing parameters that are essential for the HÄRTER press-fit zones, such as basic material, press-fit zone geometry and surface coating, are defined during the product development phase and can be taken into account in the production of prototypes. In this phase, HÄRTER doesn‘t just work with original active elements for the press-in zones, but the punching machines also run with the stroke rates from the series production. In a separate area, a wide range of punching machines is available exclusively for making samples and the production of prototypes. This eliminates the need for punching capacity and the interruption of series jobs.

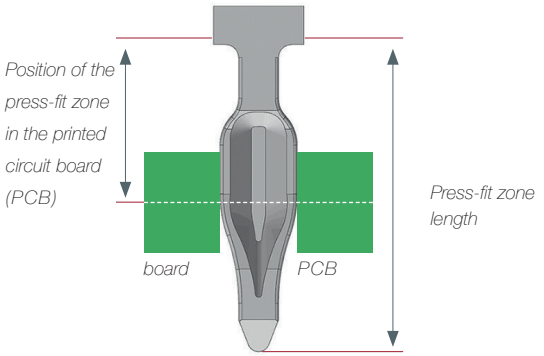


EPZ TYPE	HCP 04-10* ** in planning*	HCP 06-15* ** in planning*	HCP 06-10	HCP 06-25	HCP 08-10	HCP 06-AB	HCP 08-AB
Material-thick	0,4 mm	0,6 mm	0,6 mm	0,6 mm	0,8 mm	0,6 mm	0,8 mm
End hole PCB	0,6 mm	1,0 mm	1,0 mm	1,0 mm	1,45 mm	1,0 mm	1,45 mm

The technical design of the press-fit zone (PFZ) is clearly defined by the „variant“ in the designation. (e.g. HCP 06-XX, XX = variant) Through variations of the PFZ neck or the PFZ tip, the position of the PFZ and the PFZ length can be changed.

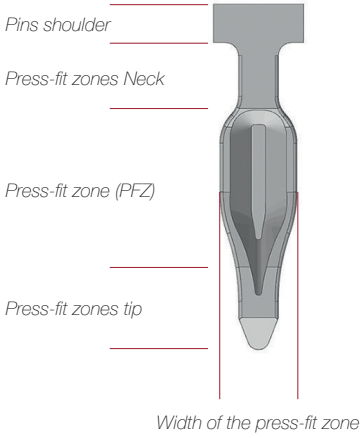
Qualification of the press-fit connection

In our press-fit zone laboratory, we can carry out all the essential tests to assess the press-fit connection. The laboratory works according to DIN EN 60352-5 and customer specifications. The scope of testing, the procedure and the parameters are agreed with the customer depending on the application. The tests under vibration and noxious gas are carried out with the support of external partners.



The following tests can be carried out in our laboratory:

- Visual and dimensional test
- Press-in and push-out force
- micro sectioning and thereof analysis
- Contact resistance
- Rapid change of temperature
- Climate sequence (dry heat, cold and damp heat, cyclical)
- Whisker test



Press-fit zones type	Pressing force F in*	Pressing out force F out**	Wide press-fit zone	Length press-fit zone
HCP 06-10	≤ 120 N	≥ 40 N	≥ 1,2 mm	≥ 4,0 mm
HCP 08-10	≤ 160 N	≥ 50 N	≥ 1,6 mm	≥ 4,4 mm
HCP 06-AB	≤ 120 N	≥ 40 N	≥ 1,3 mm	≥ 3,4 mm
HCP 08-AB	≤ 160 N	≥ 50 N	≥ 1,7 mm	≥ 4,7 mm

Depending on the design of the printed circuit board, the sleeve structure, the press-fit contact and the process parameters, the characteristic values may and deviate from the standard values.
** with PCB thickness ≥ 1.6 mm ** after ≥ 24 h (after storage at room temperature)*

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