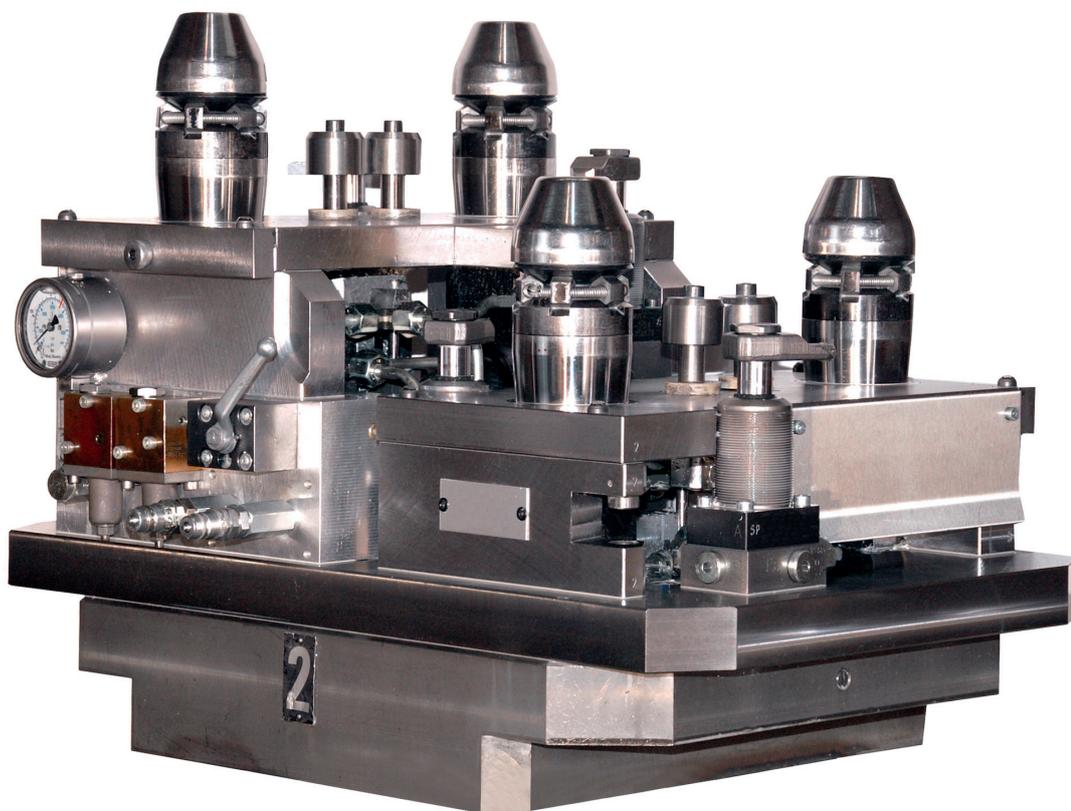


Efficient dual solution for manufacturing

Centring clamps by WPR simplify pre-machining work on engine housings

Upper Austrian tool and fixture constructor Plantech built a hydraulic double clamping device for an aluminium foundry designed to allow processing of two engine housings at once. The central components of the machine were four centring clamps by German manufacturer WPR. The clamps helped the machine exceed customer expectations and reduce tool changeover times by 50 percent.



1/
WPR delivered four of its centring inner clamps in the customer's specified size and design for an innovative double clamping device. Each of the centring clamps fit exactly into the two clamping benches, thanks to conical shaping on both sides.

Developing and manufacturing innovative clamping systems for assembly lines in the supply and automotive industries is one of the strengths of the tool manufacturer, Plantech, headquartered in the Upper Austrian municipality of Ternberg. When Leopold Pranzl, owner and head developer of the company, received a contract from a renowned aluminium foundry to create the most efficient possible clamping device for mechanically pre-processing aluminium engine housings, he

decided to create a hydraulic clamping system with one truly decisive advantage. With a base plate 396 x 596 mm in size, it allows simultaneous clamping of two engine housings, helping the foundry save up to 50 percent of its tool changeover times. This enormous improvement in efficiency was achieved not only through the numerous cleverly detailed solutions included on the machine and the stepped arrangement of two clamping benches, but also through the

functional integration of a total of four self-centring inner clamps by German manufacturer WPR in the clamping device.

Custom made and ready to install

WPR delivered these four inner clamps through its Austrian distribution partner B-S-D Spanntechnik in the customer's specified size and design. Each of the centring clamps has a clamping plane with six hexagonal clamping elements, as well as a housing that, with

its conical shape on both sides, can be installed perfectly into the clamping benches on the machine. The engine housings are placed on the device from above, then adjusted longitudinally with two cylinder bushings. Thereafter, a pair of hydraulically driven WPR centring clamps on each side take over the horizontal adjustments and pull-down tension with quick, reliable accuracy. Clamped with a positioning accuracy of ± 0.05 mm – the customer had only requested 0.15 mm – the engine housings then move into mechanical pre-machining in the aluminium foundry on the device. In the same process step, both housings receive processing on their exterior surfaces and two drill holes to attach to the engine manufacturer's assembly line.

A universal clamping system

This instance from the automotive industry is just one example of the great variation and flexibility with which centring clamps from WPR are used in manufacturing technology. Again and again, these clamps prove a key factor in simplifying processes and increasing efficiency. Whether they are used on their own or as components in a complex assembly – there are very few clamping systems that can be used in as

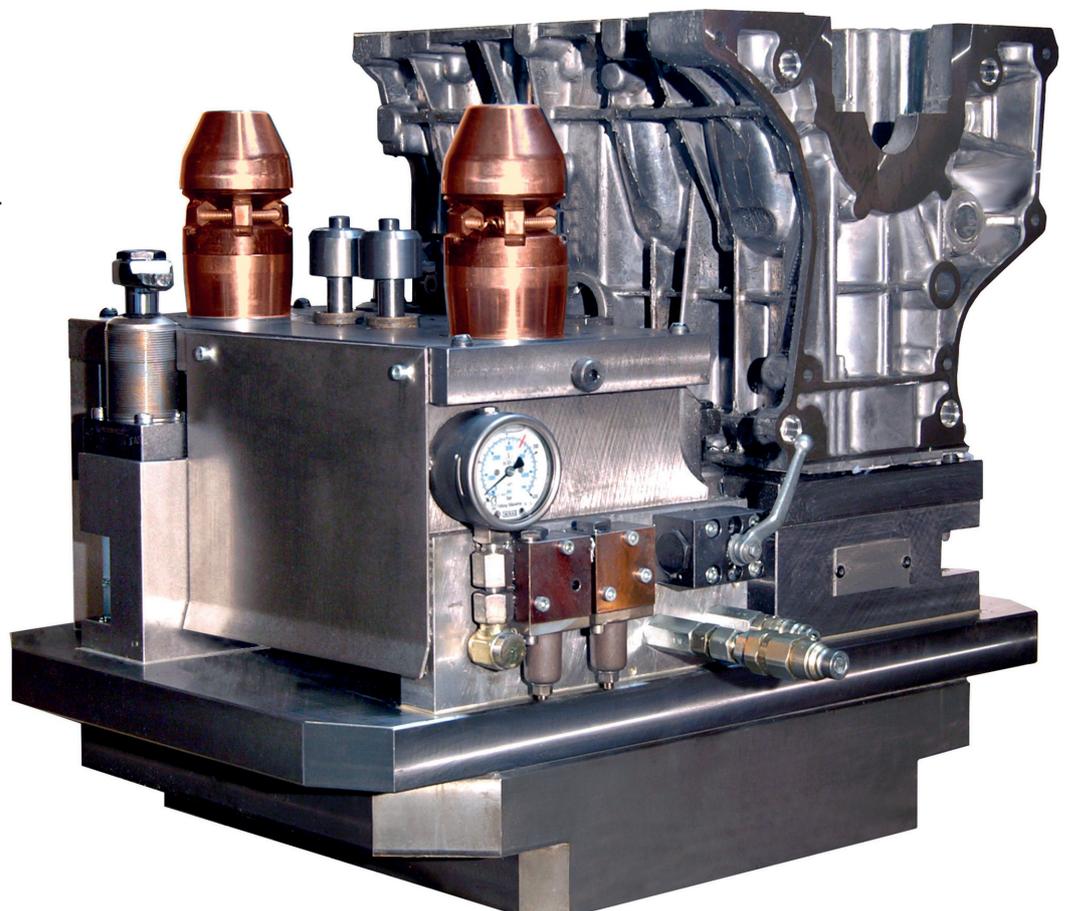
many diverse ways and with as little effort as the patented universal system from Hesse.

Whether customers need to mechanically process cast iron engine and drive housings, aluminium beams, ceramic or glass tubing: whether clients need to weld metal pipes with parallel precision or whether their assembly processes require exactly positioned workpieces – in these, and many other cases, WPR's inner clamps prove to be an ideal solution. They can be operated manually or – as in the case of the stepped double clamping system by Plantech – fully automatically. Their repeat accuracy in tool changes is ± 0.05 mm! As can also be seen from the Plantech example, WPR can manufacture almost any inner clamp based on proprietary basic designs, applying standardised components to fulfil customer

requirements or as a user-specific special solution. As a minimum requirement for use, the centring clamp needs only one hole on the workpiece with at least a 12 mm diameter. This allows the component to attach to the clamping system easily, and allows the clamping elements on their floating clamping plane to exert their full expansive power – up to 10 kN.

The number of clamping planes, and the geometry of the clamping elements for single point, line, or multi-point contact are also determined according to the specific manner in which they will be used, the position of the anchor point, and the height and diameter of the WPR inner clamp.

(Pictures:
PlantechTechnische Beratung GmbH,
Ternberg, Austria)



2/
The engine housings are placed onto the clamping device from above – a pair of hydraulically driven WPR centring clamps takes over horizontal adjustment and pull-down tensioning on each side, with a positioning accuracy of ± 0.05 mm