

Production of Railway Wagon Buffers



One of the basic elements of railway safety sets are the shock absorbing buffers between cars and propulsion units. The demanding production of these parts is with conventional casting or welding technologies, but in recent years hot pressing on forming machines have been significantly advocated.

In the area of material forming, ŽDAS, a.s. specializes in technological solutions on the basis of your individual request or demand. The design work results in technological preparation and documentation. On this basis, the entire station or line for mass production of the desired range of pressings is manufactured and delivered. For each desired profile, it is necessary to select the appropriate technological process and design of press tools. ŽDAS, a.s. is equipped with a physical simulation of the hot forming process, which not only facilitates the design of tools, but also allows for shorter and cheaper testing and verification.

Mass Production of Railway Buffers

One example of our successful solutions is the workstation which presses buffers for railway carriages. Custom buffers are comprised of two opposing pieces with internal suspension. At the CTHN 3000 workstation, the individual parts of the buffer are pressed from preheated blanks in a one-position tool. The blank, which weighs about 70 kg, is inserted into the machine using a manipulator and during a three-stage program-controlled pressing the final shape is formed.



Composition of the workstation:

Heating the blank to 1,200 °C, which includes the loading, transport and extraction (from the furnace)

Using a descender to clean the blank before the pressing process

Pressing on a hydraulic press with tools designed according to the technological requirements of the buffer shape and size

Lubrication necessary for the satisfactory forming process and cooling of the tool to ensure a long service life of the tool

Manipulators for moving the pressings between operations

Cooling and dispatching conveyor for gradual cooling of the finished pressings



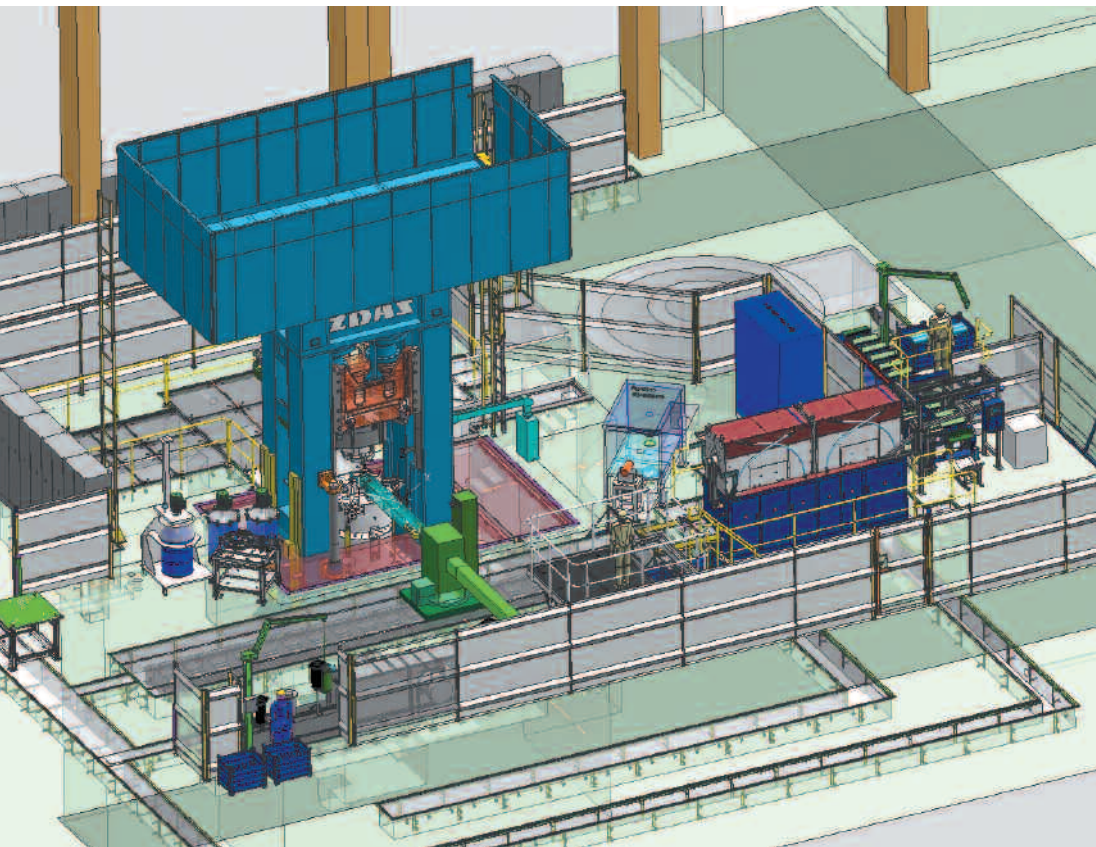
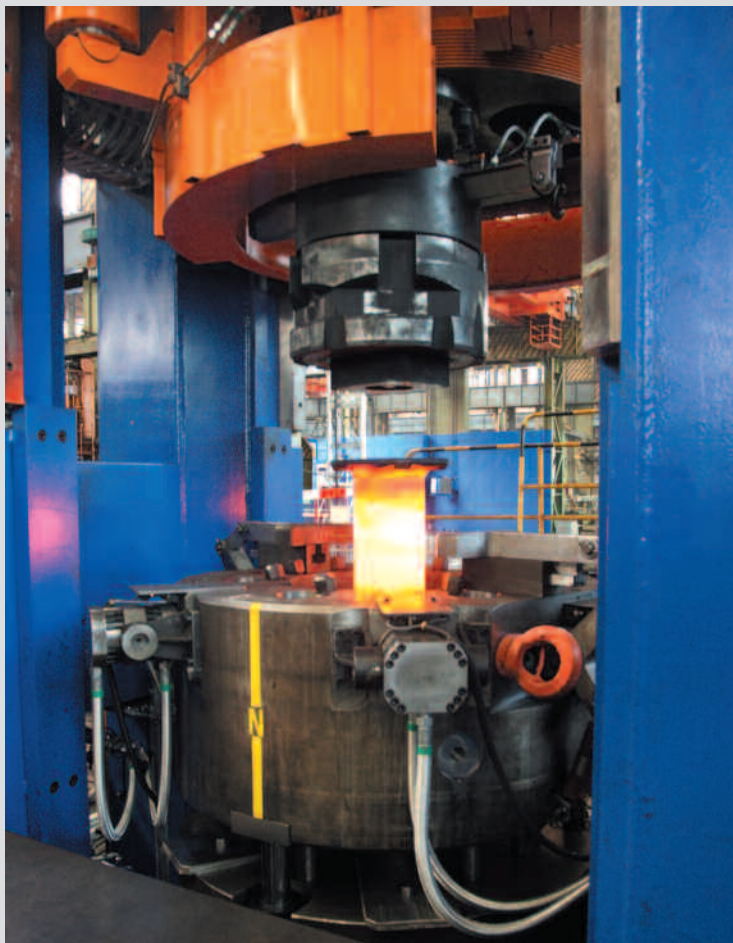


Diagram of the workstation for buffer manufacturing

- 1) Heating of blanks
- 2) Descaler
- 3) Manipulators
- 4) CTHN 3000 Hydraulic Press
- 5) Tooling
- 6) Cooling system

CTHN 3000 Hydraulic Press
A multipurpose hydraulic press used for both bulk and sheet-forming processes. High structural stiffness allows for a variety of forming operations. The equipment, technology and machine is according to your specific requirements. When equipped with a multi-functional tool, it can press various buffer parts - with a warranty on all required mechanical properties.



CTHN 3000 Hydraulic Press

Nominal force	30 MN
Ram stroke	1,300 mm
Clamping surface of ram	1,800 x 1,800 mm
Nominal ejector force	1,500 kN
Press height	approx. 7,800 mm
Line power for buffer production (according to the complexity of the pressing)	7-10 pieces/hour

One-Position Press Tool

Number of controllable positions	3 - upsetting extrusion stretching
Programmable positions	Program management
Max weight of the pressing	70 kg
Blank diameter	150 mm
Blank temperature	1,150-1,200 °C
Tooling weight	20 t
Changing the Tool	Traversing table

ZDAS

