

Press Hardening



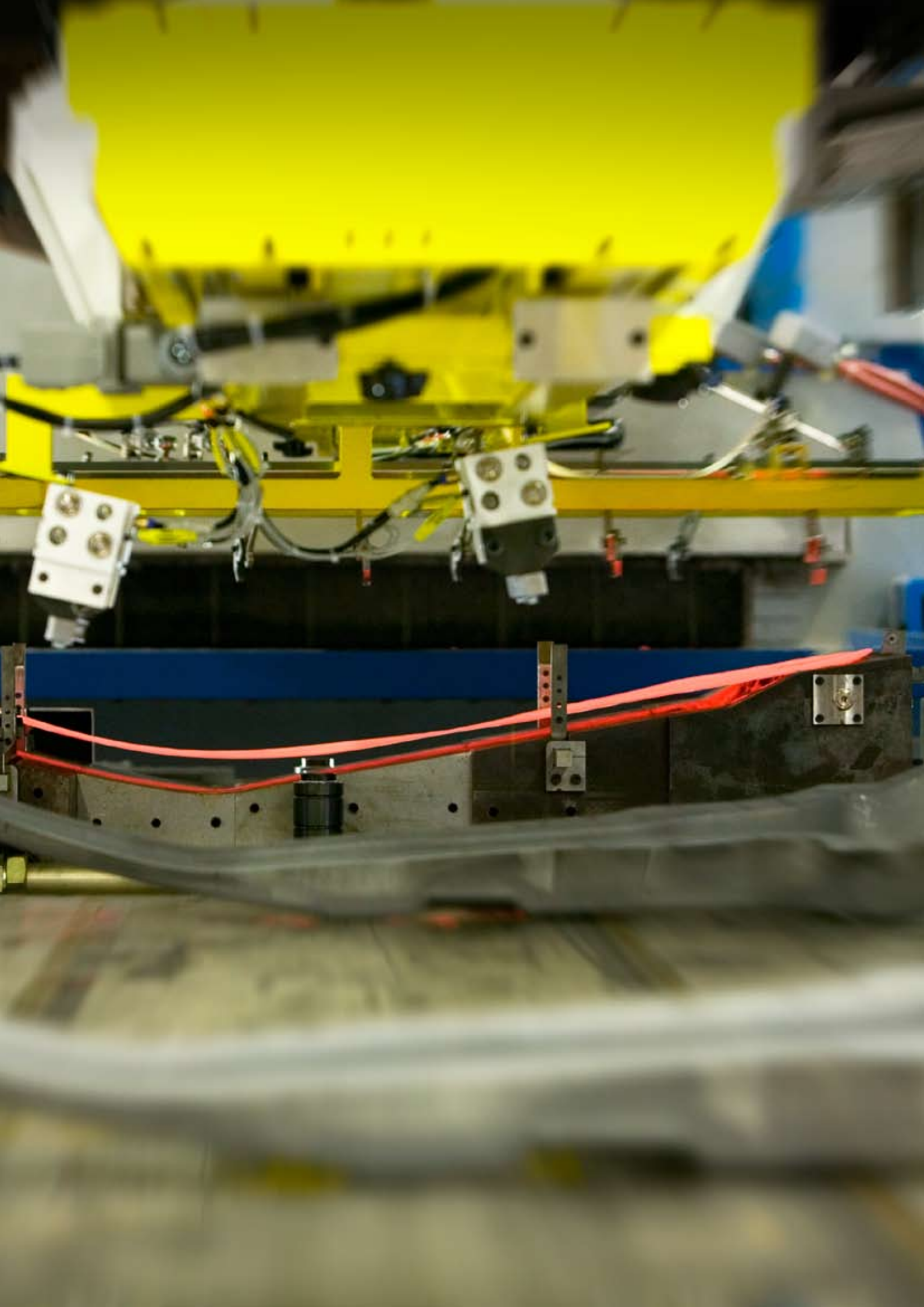
Are you hard pressed by customers when it comes to weight and strength?

The continually increasing demands for lighter sheet metal parts with higher strength put both you and your production methods to the test. The press hardening process makes it possible to produce parts up to three times stronger than standard steel – and all in the same press operation.

Forming the hot blanks and then quickly cooling them in the press tool gives the finished part a hard-to-beat strength to weight ratio. Short cycle times to avoid temperature loss during handling naturally set tough demands for the equipment in the process to work together optimally in order to create a quality result. In AP&T press hardening lines, the entire process from blank feeding, heating to forming and unloading is run by the very same control system. We take total responsibility – a fundamental concept we call One Responsible Partner®.

AP&T delivers complete press hardening lines to our customers such as companies in the automotive industry. Naturally, we utilize our vast experience in sheet metal forming to find the right press hardening solution for each application.





From cold blanks to hot parts – we are with you every step of the way

1 Blank feeding

A good start on the line leads to high reliability and high availability. The blanks are separated, picked and centered for entry into the furnace. It is also possible to perform actions such as marking the batch or punching holes in the blanks.

2 Furnace

The material is heated to austenitic temperature level in electric or gas-fired flow-through furnaces. The blanks are normally transported through the furnace directly on ceramic rollers. The blanks reach 950 °C before being ejected from the furnace. In some cases the furnace is equipped with a gas atmosphere to prevent surface scaling of the blanks.

3 Press feeding

Speed and stability are deciding factors at high temperatures and short feeding cycles. The SpeedFeeder gripper system combined with the furnace ejection system ensures quick and precise positioning of the blank before it enters the press.

4 Press

When the press tool is closed, the 950 °C blank is formed with a high pressure applied during the cooling process. The forming method requires a hydraulic press with high press forces to ensure contact between the tool and blank, which generates the most effective cooling. The press can be equipped with hydraulic and pneumatic outlets for tool functions.

5 Forming Tool

The press tool must be able to form hot blanks and work with large temperature differences. For this reason, the tools have components such as an integrated, water-to-air cooling system. Because of this, there are extremely high requirements when it comes to material selection and tool design.

6 Unloading

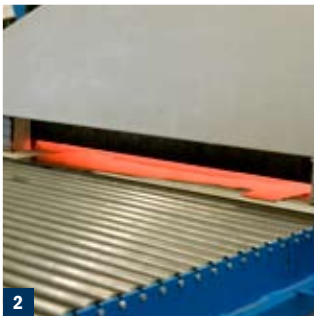
Quick and safe. AP&T's automation range of SpeedFeeders and transfer systems guarantees quick part unloading from the press and, naturally, can withstand the hot environment.

7 Control System

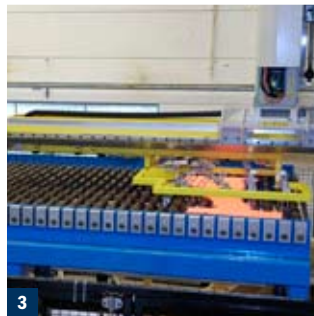
Full control over the process with monitoring of all functions is particularly important in a production where cycle time is not only important to productivity but above all to product quality. AP&T's central control system ensures rapid product changeover of the production line.



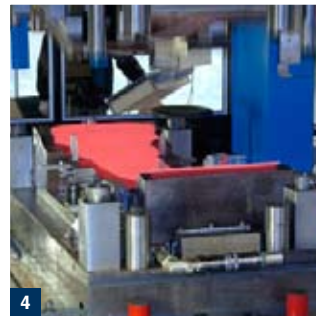
1



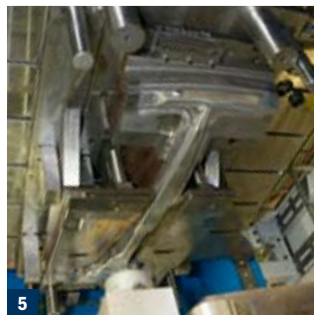
2



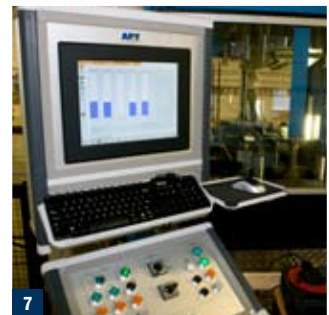
3



4



5



7

APT

AUTOMATION • PRESSES • TOOLING



Strong but light metal parts – at the right manufacturing cost

Press hardening is an excellent manufacturing method for vehicle parts that must be able to handle large deformation energies. It is also a competitive advantage for parts where advanced geometries, high strength and low weight must work together. Here are some examples of press hardened parts.



B-pillar



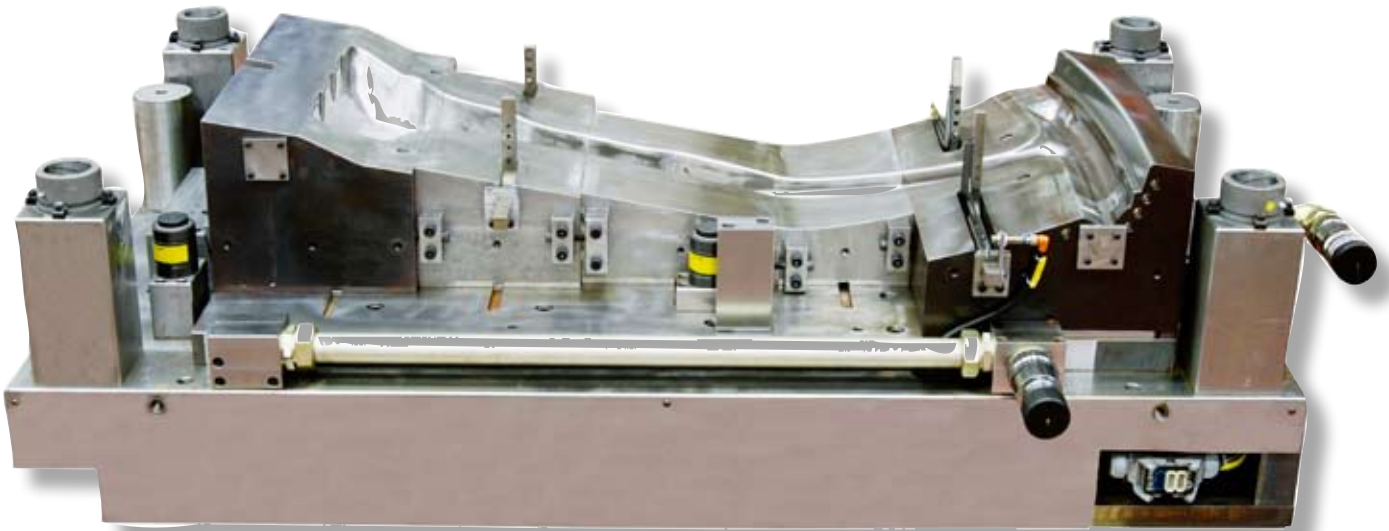
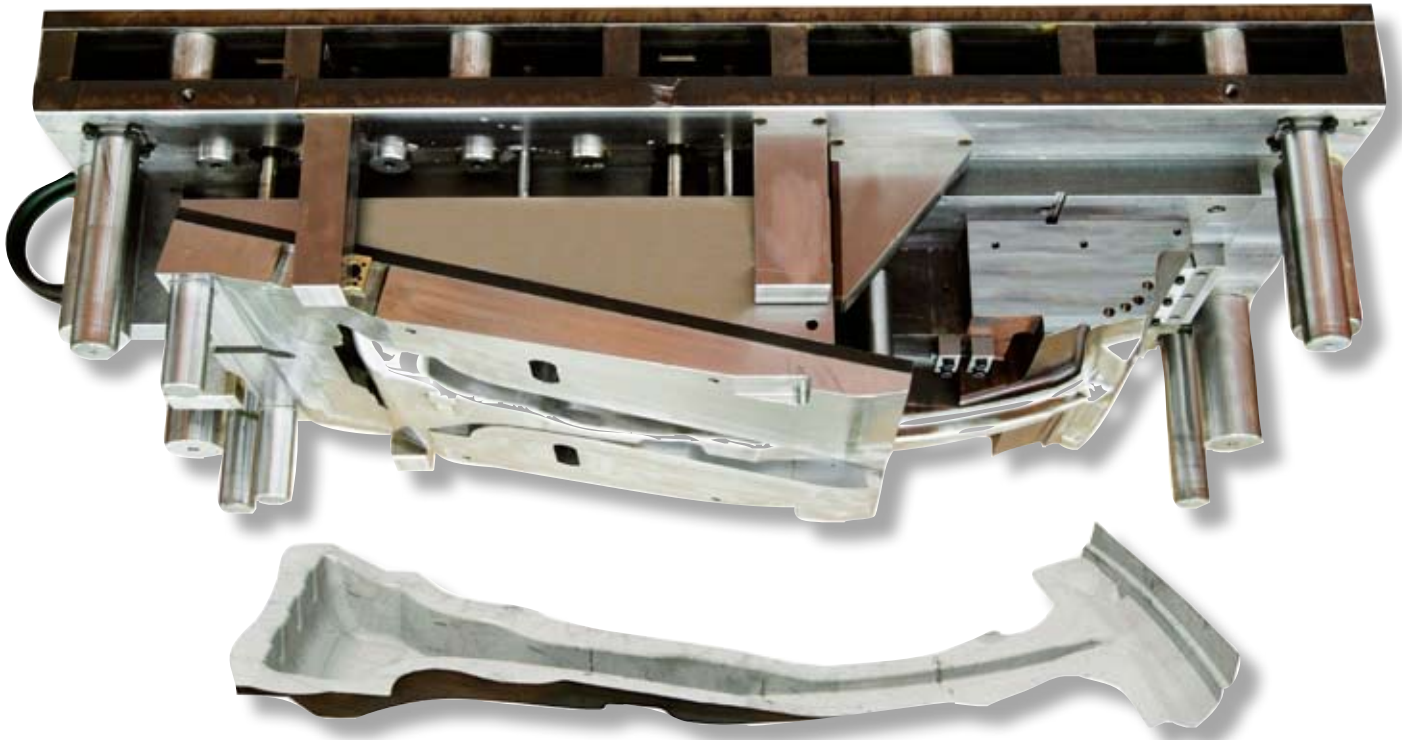
Rear axle



Bumper



Tunnel reinforcement



The right tool is half the work

AP&T has the expertise and resources in house to develop the right tool solution for your press hardening line. Our total focus on production gives us greater opportunities to optimize the tool for both product quality and process reliability.





AP&T is One Responsible Partner®

AP&T designs, manufactures and markets automation, presses, tools and complete production lines for the metal forming industry. We are experts in forming technology and automated flows and can deliver everything from stand-alone presses, automation products and tools to complete manufacturing solutions. We are totally committed as a supplier - a concept we call One Responsible Partner®.

Our customers are from the automotive, household appliance and indoor climate industries, among others, and we offer a complete line of products to meet the needs of most companies who work with sheet metal forming. We have a presence in more than 20 markets through our own divisions as well as through our agents. Our philosophy is simply to be where our customers are.