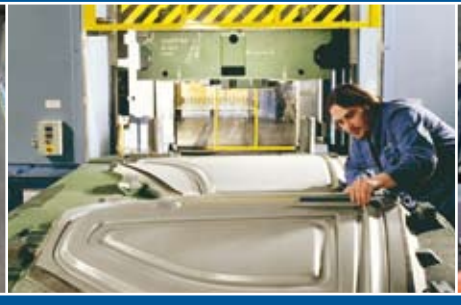
SCHULER

Hydraulic press systems

For superior part quality in the press shop



Forming the Future

For superior part quality in the press shop

The versatility of hydraulic presses makes for a wide range of applications in the press shop. Innovative hydraulic solution ensure a high production capacity, reliable production and optimum part quality.

HYDRAULIC SYSTEM SOLUTIONS AT A GLANCE

SINGLE PRESSES

Flexible application for a wide range of parts

TRANSFER PRESSES

Economical production of complex parts at every stage

PRESS LINES

Efficient and flexible series production in the automotive and supplier industry

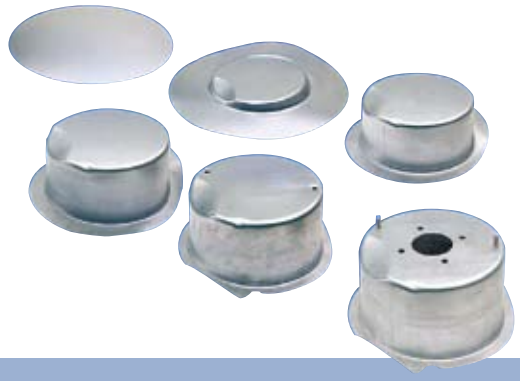
DIE SPOTTING AND TRYOUT PRESSES

Reliable die tryout

MANUFACTURING SYSTEMS FOR PRESS HARDENING

Reliable and effective manufacture of ultra-high-strength components

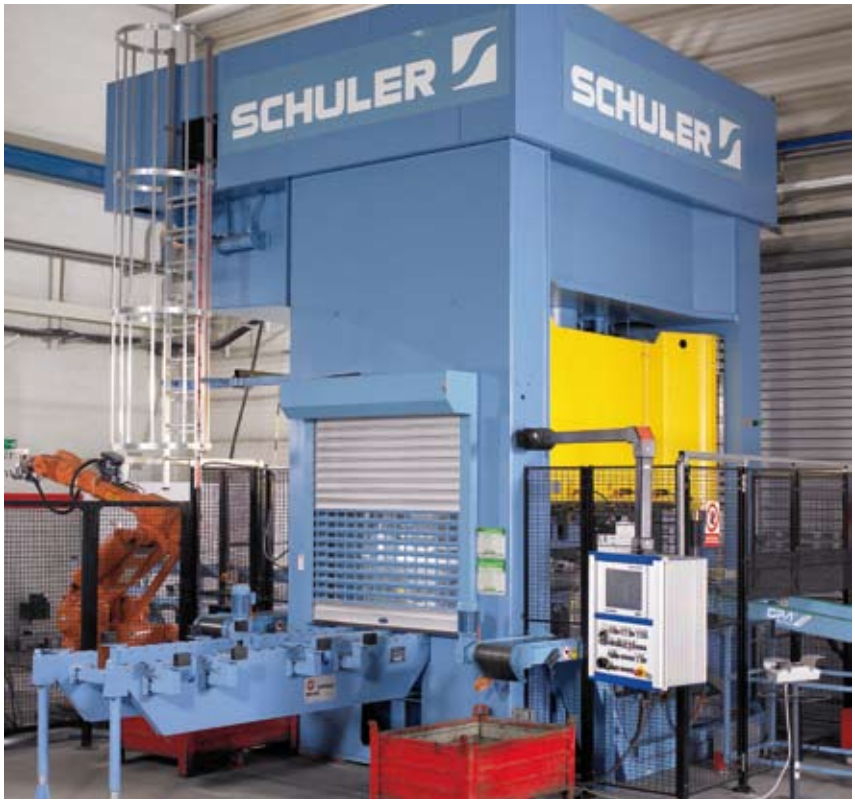
Hydraulic single press systems

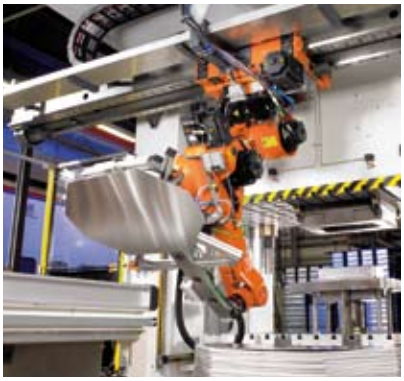


Hydraulic single press systems can be loaded or unloaded manually or fully automatically. In combination with coil lines, destackers/blankloaders or tri-axis transfer systems, they can be used to create turn-key system solutions for cost- effective part production. Equipped with hydraulic bed cushions, cutting shock dampening, slide parallelism control and dynamic cylinder mode switching, hydraulic presses meet all the requirements for efficient production in the stamping plant. A data analysis system supports the press operator with straightforward fault diagnostics of the entire system and helps raise productivity.

ADVANTAGES

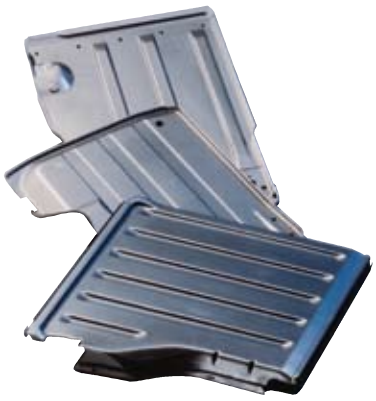
- Alternative manufacturing process for a wide range of parts
- Reduction of cost per unit thanks to dynamic cylinder mode switching
- Ease of operation thanks to user-friendly slide control
- Superior part quality with cutting shock dampening and hydraulic bed cushion
- Parallelism control increases part quality and protects the dies
- Efficient manufacturing using innovative hydraulic components and energy refeed solutions





Hydraulic single press. Schuler's SH-series for hydraulic single presses ranges from 1,600 up to 16,000 kN.

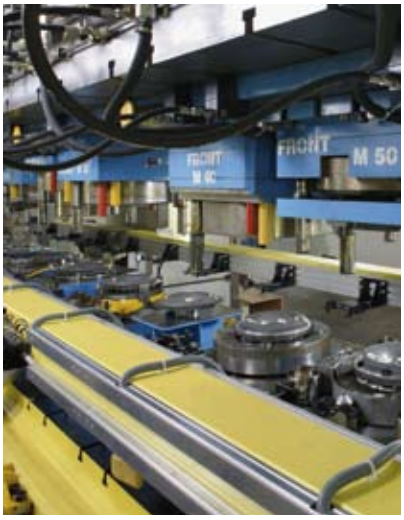
Hydraulic transfer presses

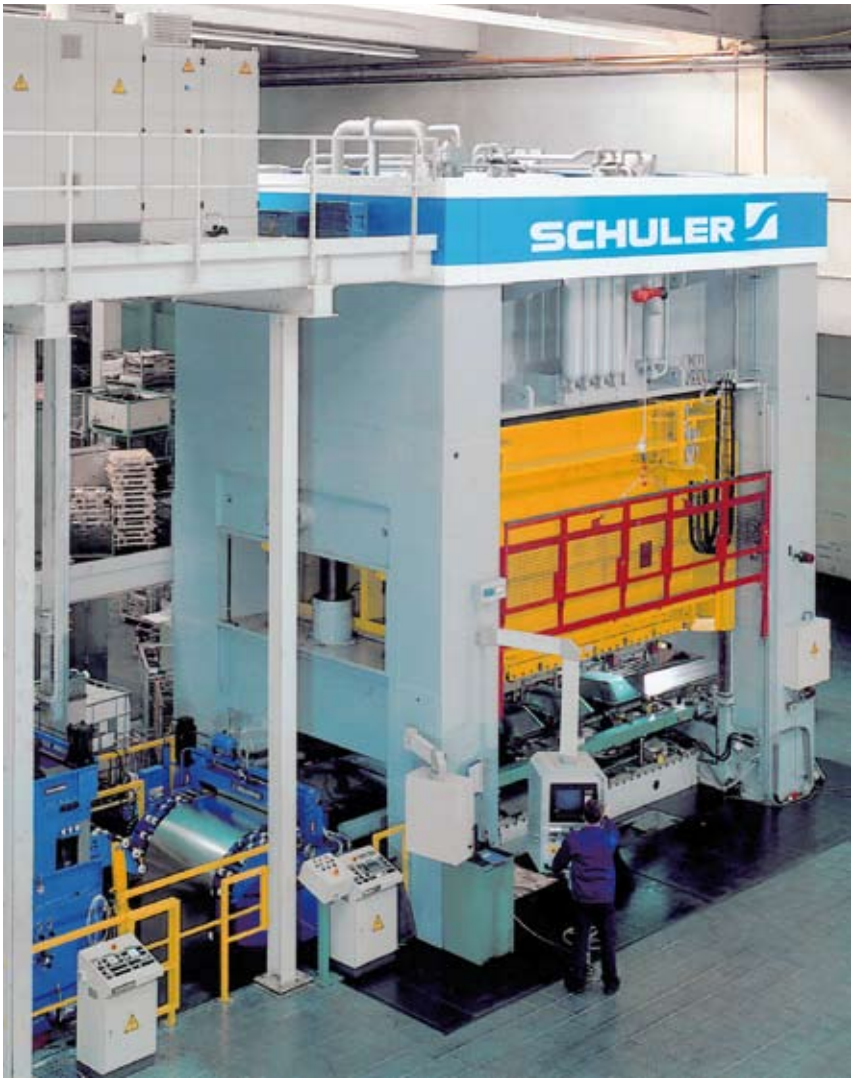


In combination with tri-axis transfer systems, hydraulic transfer presses enable part production on multi-station transfer dies. High throughput rates can be achieved through innovative hydraulic solutions, such as the Schuler ring valve technology and dynamic cylinder mode switching. In single-slide or multi-slide design (with options for one or more bed and/or slide cushions) the capacity range for these presses ranges from 5,000 up to 30,000 kN. The active electro-hydraulic slide parallelism control and hydraulic impact shock dampening functions ensure superior part quality and reliability in the forming process. Other auxiliary functions can be integrated directly into the die.

ADVANTAGES

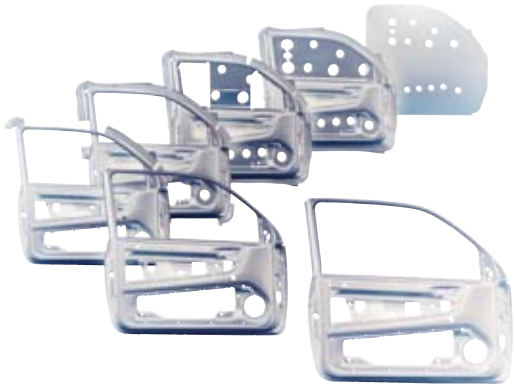
- Simple changeover to different dies
- Freely programmable motion characteristics
- Speed and press force are programmable
- Deep-drawn parts can be manufactured cost-effective with a counter-drawing process
- Easy set-up of new dies
- Parallelism control





Hydraulic transfer press with a capacity of 12,000 kN.

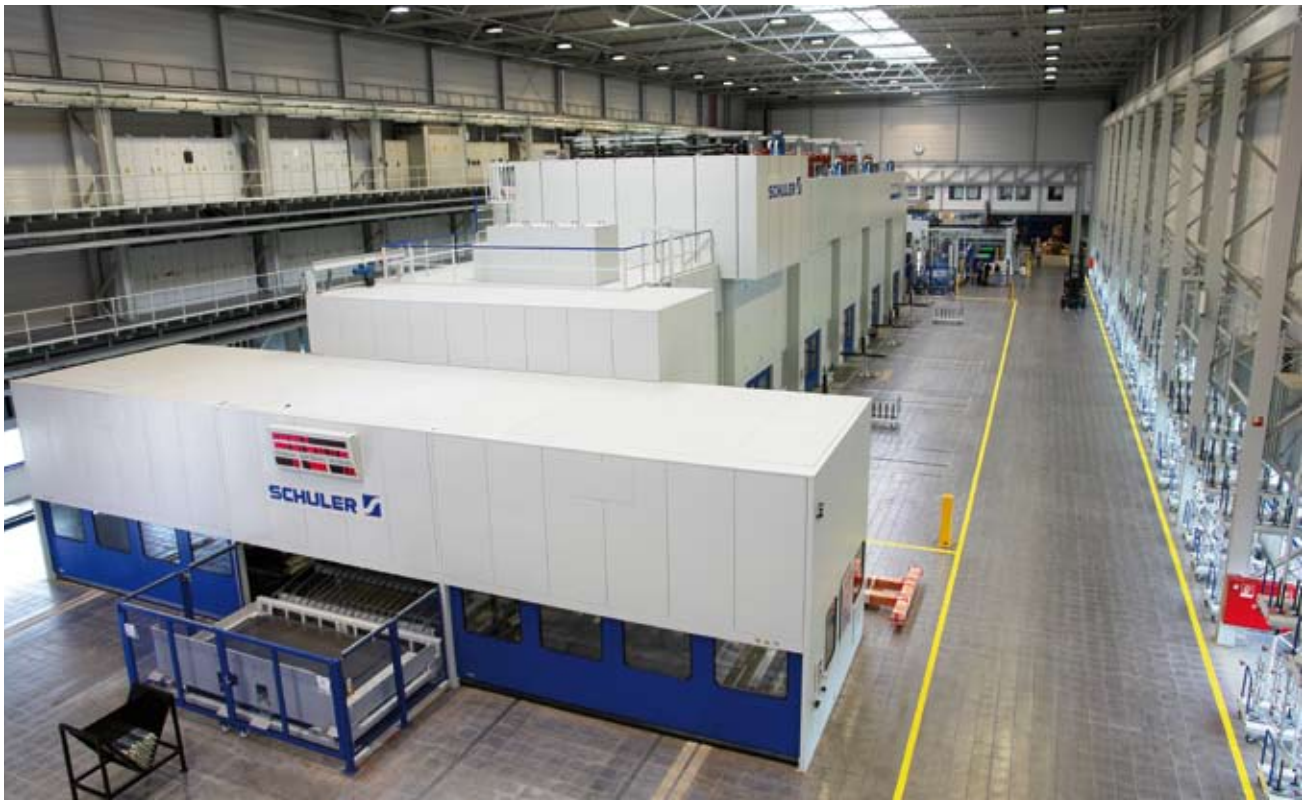
Hydraulic press lines



Hydraulic press lines are mainly used to manufacture a wide variety of parts in small to medium lot sizes. Depending on the required forming operations, the line typically consists of between four and six single presses. The production process is fully automated from the blank to the finished component. Depending on the requirements, automation is provided by either conventional robots or Schuler Crossbar Robots. The control and visualization systems of the hydraulic press lines provide a user-friendly operation environment. They also feature efficient fault diagnostics and clear administration of all the process and die data for presses and automation systems.

ADVANTAGES

- Easy and quick integration of new dies sets
- Schuler's dynamic cylinder mode switching and ring valve technology increases production rates
- Tooling and die automation ensures fast changeovers
- Precise slide guiding and rigid press frame
- Uniform control concept
- User-friendly operation and efficient fault diagnostics
- Fast start-up of new die sets



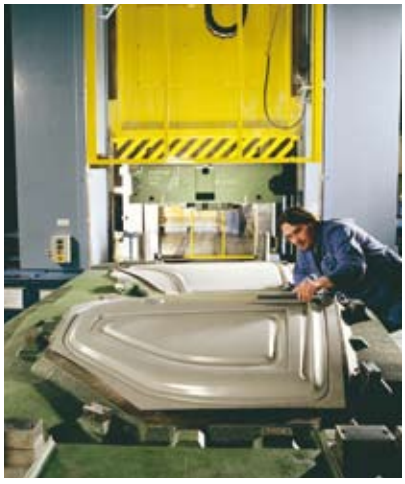
Hydraulic press line with blank loader and robot automation with a total capacity of 89,000 kN.

Hydraulic die-spotting and tryout presses

Hydraulic tryout presses ensure short tryout phases by providing conditions very close to real-life production. The operator has the full rated capacity available anywhere in the stroke, and can lower the upper die precisely onto the lower die as required. Sizes, performance specifications and auxiliary equipment are all tailored to customer needs for die testing and pilot lot production. Capacities range from 1,250 up to 25,000 kN. Multicurve presses – equipped with a hydraulic accumulator drive – simulate the slide motion of hydraulic and mechanical production presses.

ADVANTAGES

- Programmable speeds and press forces
- Slide return stroke possible at any point
- Sensitive control of slide motion by means of joystick
- Full rated capacity available over the entire stroke
- Simple adjustment to different die heights
- Double-action presses: Operation possible in single-action or double-action modes
- Provides the same rigidity as production presses
- Die cushion technology as in production presses ensures optimum start-up results



Tryout center with hydraulic tryout and multicurve presses.

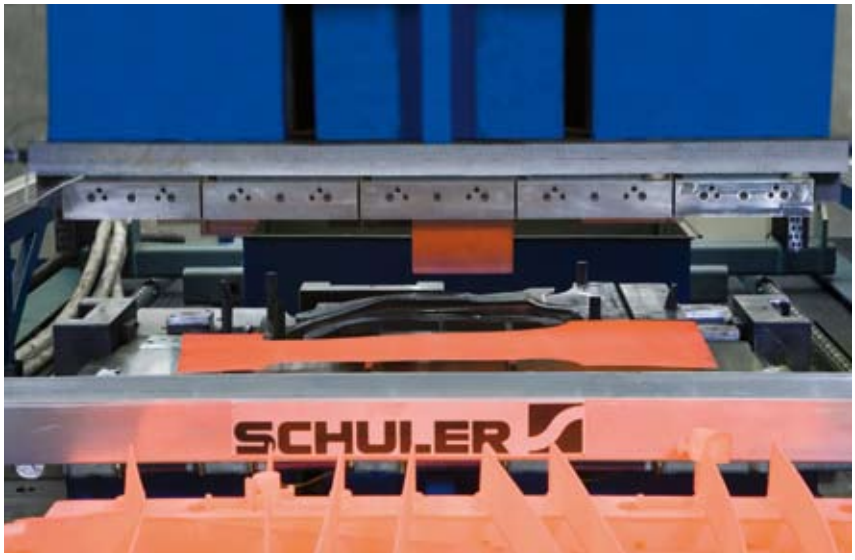
Manufacturing systems for press hardening

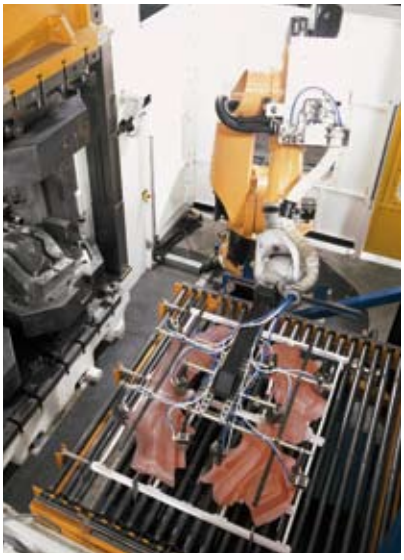
Press hardening (hot stamping) is a process used to manufacture of high-strength components. In this process, the parts are hardened through heating, forming with hydraulic presses and controlled cooling in the die. Steels with starting tensile strengths of 500 to 700 N/mm² achieve strengths of 1,300 to 1,600 N/mm² during the process. After heating, robots or transfer systems transport the hot components into the die of the hydraulic press. The controlled cooling takes place in water-cooled dies. The required capacity of the hydraulic presses can range from 8,000 to 16,000 kN. The finished parts are trimmed in mechanical presses or laser cells. Schuler has developed a cost-effective system solution with PCH technology (Pressure Controlled Hardening) for press hardening covering the entire process.

Pressure Controlled Hardening

ADVANTAGES

- Greater tensile strength with reduced component weight
- Improved rigidity of the auto body
- Improved crash characteristics
- New possibilities for component design
- Superior repeat accuracy without elastic expansion
- Use of less costly material instead of high-strength steels
- High press forces not required





Schuler continues to develop this process in the Press Hardening Competence Center.

SCHULER

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- Machine inspection
- Safety inspection
- Preventive maintenance
- Energy checks
- Teleservice
- Overhaul
- Machine relocation
- Machine installations

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- Modernization
- Die and process technology

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- Schuler Academy
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