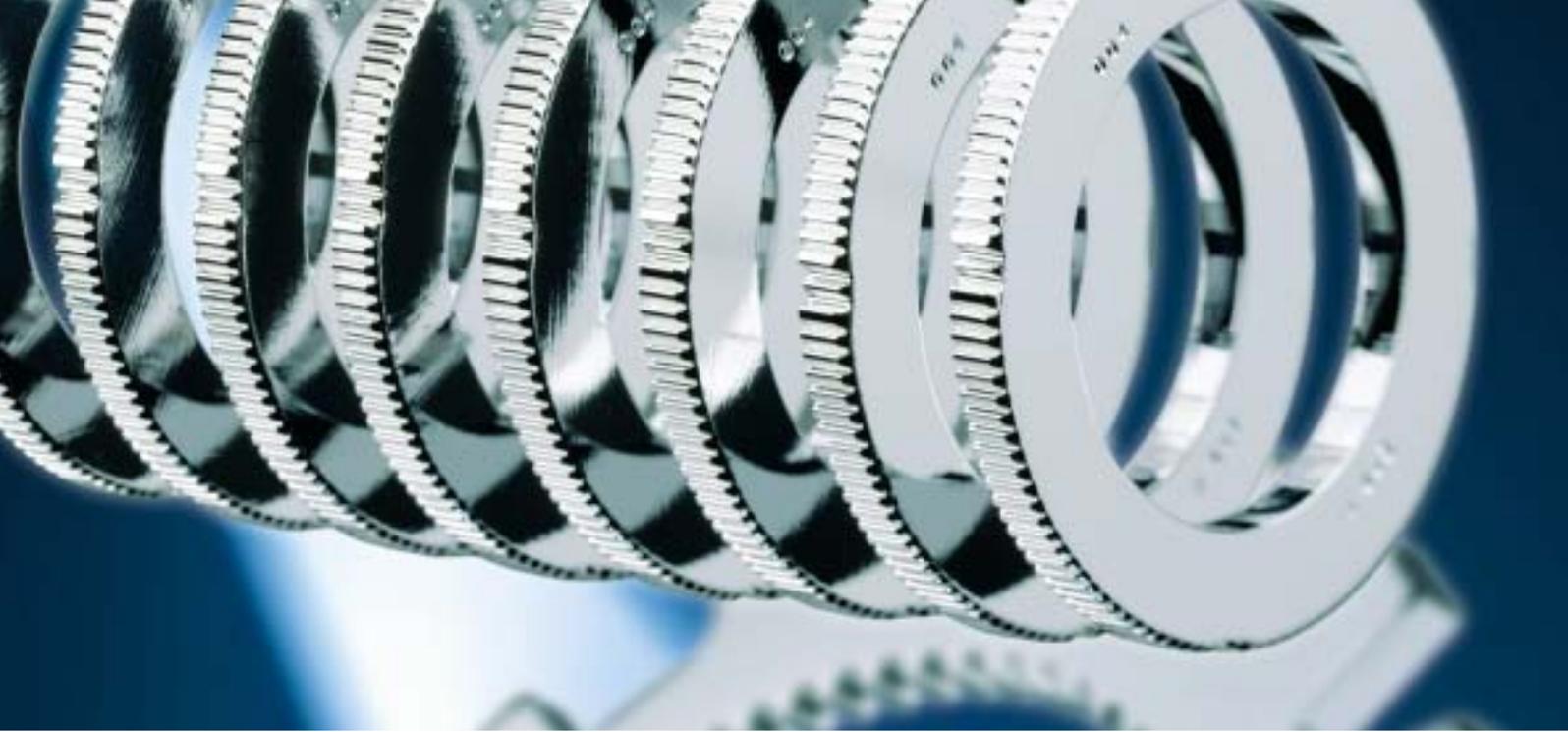




Fine blanking and Systems engineering



HYDREL.

Your development partner for serial precision-parts

The HYDREL brand – today's name for fine-blanked parts and components that meet the most demanding requirements. Hydrel GmbH, the Swiss national company of Schaeffler KG of Germany (based in Herzogenaurach, Bavaria) has been using this technology since the late 1950s. Together with the workforce at Schaeffler France (Haguenau, Alsace), over 300 employees work on the fine blanking product line. Both factories are equipped with excellent machinery and they are constantly investing in the latest manufacturing technologies.

In close cooperation with our customers, we are creating innovative and application-specific solutions every day. Being involved in the development process at an early stage, they ensure that designs are appropriate for fine blanking – so cost-effective production is optimised. Their ability to access the technical resources and know-how of an international group of companies also yields major benefits.

Our customers especially appreciate our excellent manufacturing depth, which enables them to obtain ready-to-install components. As well as our core process of fine blanking, we also offer a variety of secondary operations such as grinding, turning, drilling, milling as well as heat and surface treatment and assembling component groups.

As a supplier to the automobile industry, our quality goal is "zero defect".

We are happy to show you the convincing benefits we can offer.



Two factories – one goal: continuously improving fine blanking technology

A total of 300 employees work on ultramodern machinery at Hydrel in Romanshorn/Switzerland (top) and Schaeffler France in Haguenau (bottom)

Fine blanking

The creative technology for serial precision-parts



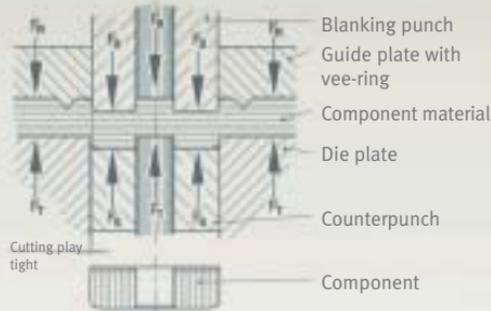


Tool technology is at the heart of fine blanking. In our own tool shop, we use ultramodern methods such as FEM simulation to produce complex tools and dies that combine blanking, drawing, coining and bending processes in one course.



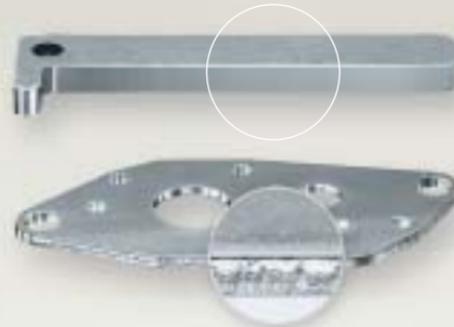
Fine blanking – the precision technology for serial parts

The fine blanking process creates high-precision fine-blanked parts with cut surfaces that are smooth and free of tears. Unlike normal stamping, the fine blanking process yields **high-precision serial parts** with excellent flatness and tight tolerances for dimensions, form and position. With HYDREL as your development partner, you will achieve cost-optimised designs featuring optimal fine blanking technology. Users from a variety of industries put their trust in our know-how.



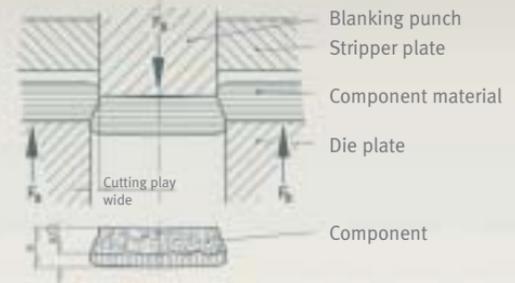
Fine blanking

The hydraulic fine blanking press moves the tool elements with 3 to 5 individually controllable forces within the various work stages.



Comparison of cut surfaces

The fine-blanked shear face is free of tears (top illustration) so that it meets with the highest technical and visual requirements.



Conventional stamping

With normal stamping, the blanking punch presses the material through the die plate.



Components by the complete-blanking-die process

Our 20 fine-blanking presses with total force ranging from 1,000 to 10,000 kN can process strip steel and non-ferrous metal up to 20 mm thick and 450 mm wide. By the **complete-blanking-die production method**, the components are produced in one single working stage and with one press stroke. After the fine blanking, only one follow-up operation – removal of burrs – is usually required.



Counting disc (Ø 230 mm)
for pulse take-off in truck transmissions.



Flange (Ø 65 mm)
in stainless steel – the perfect sealing function
requires a highly flat surface.



Intermediate plate (Ø 210 mm)
for transmission hydraulics – with 77 bore holes,
including 0.8 mm diameter by a material thickness
of 1.2 mm.



Components with gearing

Fine blanking is the most cost-effective production method for **high-precision gearing** on medium to large series.

The high quality of the cut surfaces guarantees the smooth and quiet running that is required, for low wear during operation.

Gearwheels, toothed quadrants or toothed racks – HYDREL's many years of experience and ongoing development work is the basis of our know-how that is essential to minimise the die roll caused by the process.



Toothed rack (Ø 400 mm),
long and narrow – our extensive tool design
know-how guarantees dimensional stability.



Chainwheel (Ø 110 mm)
The tooth flanks are coined in on both sides
by the tool.



Pulser wheel (Ø 50 mm)
The form and surface of the teeth is 100% clean –
a decisive factor for reliable functioning.



Components with cold forming

Combining the fine blanking and **cold forming** processes makes it possible to produce complex multifunctional parts. A single component unites features that used to require several different parts. Forming operations integrated in the tool, such as bending, semi-piercing, drawing and coining now replace costly secondary operation. Consequently, the core competence in fine blanking is tool technology – and this is why HYDREL has run its own tool shop since the very beginning – almost 50 years ago.



Backrest adjuster (Ø 175 mm)
with precision toothing to adjust the backrest
without play.



Shift finger (Ø 180 mm)
Truck transmission components require precise
bending radii regardless of the thickness of the
material.



Counter disk (Ø 140 mm)
Integrated coining processes eliminate the need for
further work stages.



Components with extensive secondary operations

If your aim is to minimise the effort of coordination and logistics, ready-to-install components are the answer. Our **wide range of follow-on machining facilities** can help here. When we implement these processes, we believe it is important to set a sequence of operations that is creative and well thought-out. As well as deburring, we offer grinding, turning, drilling, milling, welding and heat treatment – to name just a few examples. When it comes to large scale production, we use machining centres that are designed to match the specific needs of the parts.



Retaining plate (Ø 140 mm)

Follow-on machining through to the finished part, including ball coining, turning and face grinding.



Valve plate (Ø 25 mm)

Component for a high pressure pump in the Common Rail diesel injection system.



Front cover (Ø 90 mm)

The groove of the camshaft adjuster is coined in by the fine-blanking die.



Complete sub-assemblies

Purchasing **complete sub-assemblies** is a preventive solution for potential interface problems. Buying complete systems is especially suitable if the supplier has the specific expertise in technologies that are to be integrated, such as combining bearing technology with fine-blanked parts.



Angle lever (Ø 275 mm)

Riveting of plates, mounting and caulking the roller bearings for the shaft drive of a weaving loom.



Open jaw and lock (Ø 110 mm)

Three-part sub-assembly, induction-hardened, with reset spring.



Internal transmission

Complete development and production of a 6-gear transmission system.

HYDREL: fast – precise – economic



Reduced Time-to-Market: speed is our strength

The time taken from launching an idea until it is ready for serial production is often the key success factor.

HYDREL plays a major part in reducing development times by using ultramodern CAD/CAM tools and leading tool manufacture technology. The result: initial sample parts straight from the production tool in record-breaking delivery times.

Fit for Quality: we aim for satisfied customers

Our supreme goal is to satisfy our customers. We work at various levels to attain this goal:

- System level: our quality management system according to TS/ISO 16949 is continuously optimised.
- Employee level: the quality approach has to be actively put into practice and visualised if it is to be effective. HYDREL raises employees' awareness by various parallel methods such as information, visualisation and achievement bonuses, etc.
- Process level: preventive error avoidance by analysing the production sequences leads to stable processes.

Focus on cost-effectiveness: we think systematically

The fine blanking process convinces by its impressive cost-effectiveness – finished components leave the die, and in ideal cases only deburring is required.

As our customers focus increasingly on their core business, the demand for ready-to-install or complete sub-assemblies is growing. We have taken advantage of this opportunity, in conjunction with the Schaeffler Group and its more than 60,000 employees, to establish our presence as a system supplier.



Our world from A to Z



Air conditioning technology

Automobiles

Bicycles

Commercial vehicles

Electronic equipment

Garden equipment

Household appliances

Hydraulics



Gears

Machine tools

Measurement technology

Metal fitting technology

Motorcycles

Power tools

Textile machinery

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