METALLTECHNIK MENGES GMBH

Rundkneten · Radialschmieden

Your experts for
non-cutting forming

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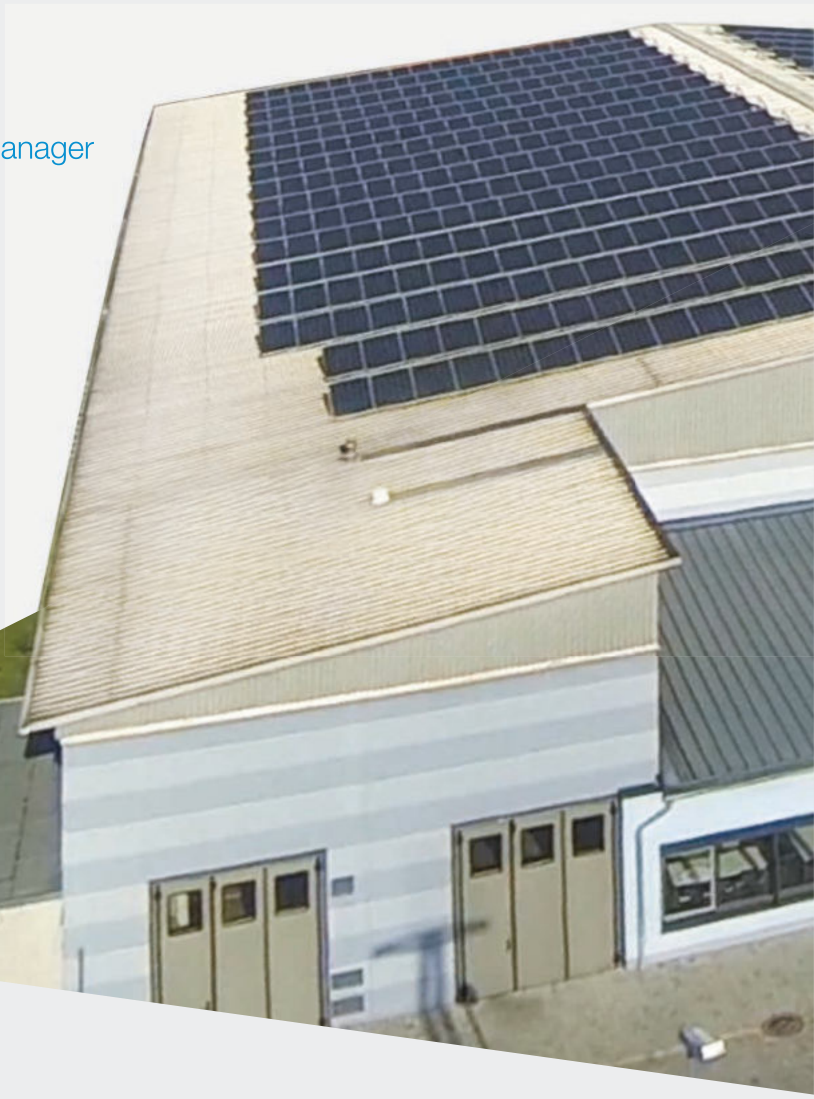


Opening **new** dimensions

For more than **30 years**, Metalltechnik Menges GmbH has been active in the fields of non-cutting forming, rotary swaging and radial forging.

Our team is made up of experts in their fields. We are experienced, knowledgeable and committed to the work we do.

The machinery we use is versatile and optimally set up for the required tasks. We have streamlined all our procedures to enable optimum results to be achieved at fair prices.

We are your partner for rotary swaging and radial forging, manufacturing forged parts from prototypes through to serial components.

Rotary swaging for speed

Rotary swaging is a precision process for the non-cutting forming of tubes, rods and other rotationally symmetrical workpieces.

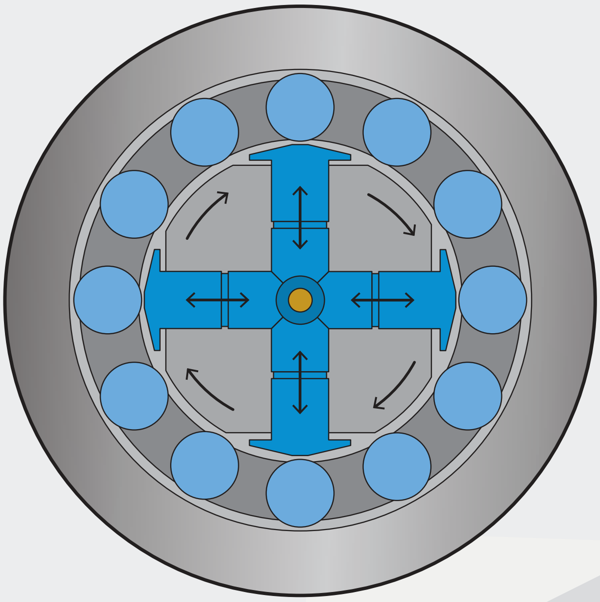
Manufacturing process

A distinction is made in rotary swaging between **infeed swaging** (for long, reduced cross-sections with comparatively flat transition angles) and **plunge swaging** (for local cross-sectional reduction with steeper transition angles).

In infeed swaging, the workpiece is continuously moved in an axial direction by oscillating dies. The dies rotate around the workpiece. Calibration plates are located in the swaging head between the hammers and dies.

In plunge swaging, the dies not only oscillate but also perform a radial closing movement. This closing movement is made possible using wedge-shaped hammers and calibration plates. Plunge swaging enables cross-sectional reductions between the ends of the workpiece.

It is possible to **combine** the **different processes** of infeed and plunge swaging. This means the work-piece is loaded between the open dies. The dies plunge in and then the workpiece is moved axially through the closed dies. As a result, undercuts of any length can be achieved.



Advantages

- Short processing times
- Close tolerances
- Smooth grain flow
- High-quality surface
- Material savings
- Weight reduction of the workpiece
- Fewer manufacturing steps
- Environmentally friendly

Example: *Steering column*

Radial forging for **strength**

Radial forging is an incremental forming process for cold, semi-hot or hot forming of complex workpiece profiles.

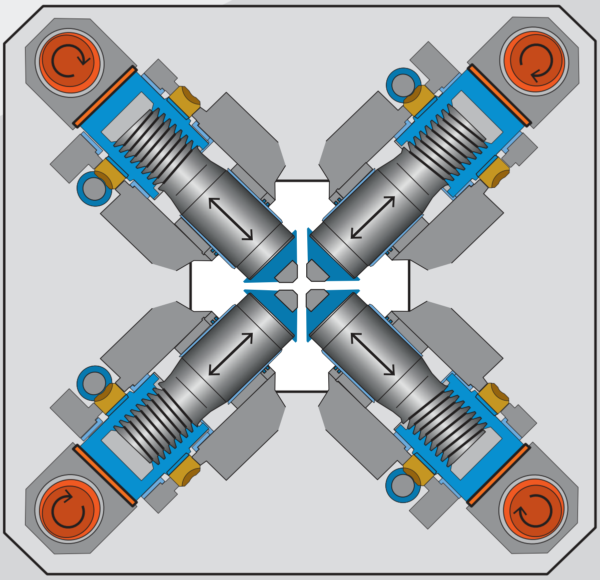
Manufacturing process

Four mechanically driven dies positioned on a single plane radially form the workpiece. The workpiece is actively set into a specified rotation by a chuck head.

The hammer stroke is achieved by **fast moving eccentric shafts**. An adjustment unit between the eccentric shaft and die ensures exact positioning to produce both **stepped** and **conical workpiece profiles**.

The power transfer is performed via an electric motor, gearbox, eccentric shafts and ram units.

Special attention has been paid to the diameter adjustment system. A highly advanced, patented system guarantees highly precise die adjustment over a large range.



Advantages

- Cold, semi-hot and hot forming
- Combined axial–radial forming
- High forming forces
- Large die adjustment range
- No temperature or material restrictions
- Material savings
- Oil-free and emission-free production
- Complex inner profiles
- Minimum tolerances

Manufacturing example: *Rotor shaft*

A multitude **of applications**

The following industrial sectors use our products:

- Drive-systems engineering
- Automobile
- E-Mobility
- Aerospace
- Mechanical and plant engineering
- Medical technology
- Measurement and control engineering
- Furniture
- Shooting sports technology
- Dental technology
- And many more

Examples of **manufacturing** for ...

- **Interior moulds** (e.g.: coupling sleeves, diverse inner profiles, tubes with involute toothing, barrel blanks etc.)
- **Exterior moulds** (e.g.: reducer nozzles, outer hexagonal tubes, stemmed glasses, guide tubes, conical tubes, plungers, etc.)
- **Complete machining** (e.g.: steering columns, drive shafts, flange shafts, gear shafts, stator shafts, etc.)
- **Surface finishing** (e.g.: inner surfaces of pipes with low roughness (Ra < 0.2) and high contact ratio (> 85 %))

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