

Flow-forming - An advanced, cost-saving technology that minimizes material loss and reduces production time.

Flow-forming is a high-technology metal forming technique for the production of seamless components. It can be compared to making pottery. In general, all metals can be flow-formed, even hardened steel and Titanium alloys as well as high-strength aerospace materials like 15-5 PH and PH13-8 Mo.

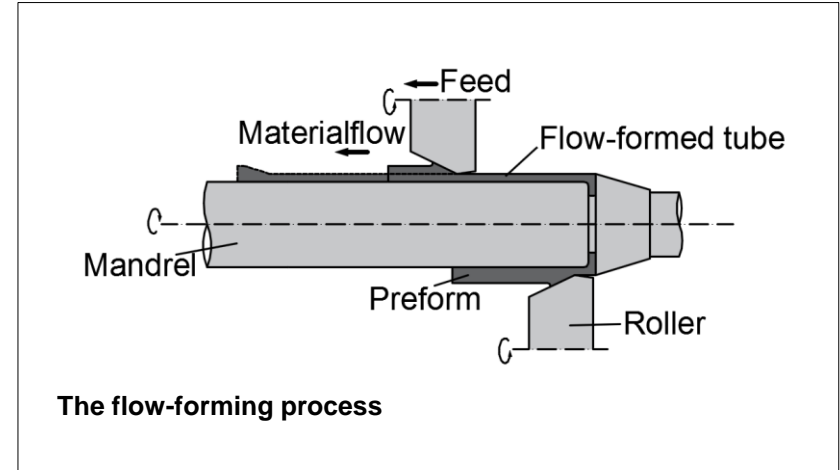
Advantages

- Reduced wall-thickness and weight savings due to superior mechanical properties (UTS, yield strength)
- Competitive pricing even for small order quantities
- Low tolerances achievable
- Precision, high-quality internal surface
- Very high length-to-diameter ratios
- Tapered wall thicknesses possible
- Integrated flanges or custom-designed end options
- Optimum material grain size and uniformity
- Wide range of materials (e.g. Aluminum, 15-5 PH, Inconel)

Contact:

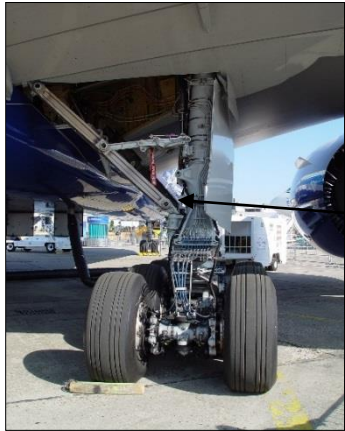
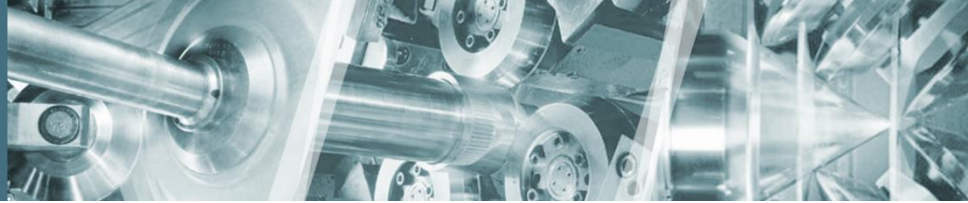
info@winkelmann-flowforming.us

www.winkelmann-flowforming.us

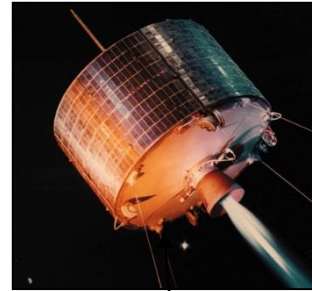


Examples for applications

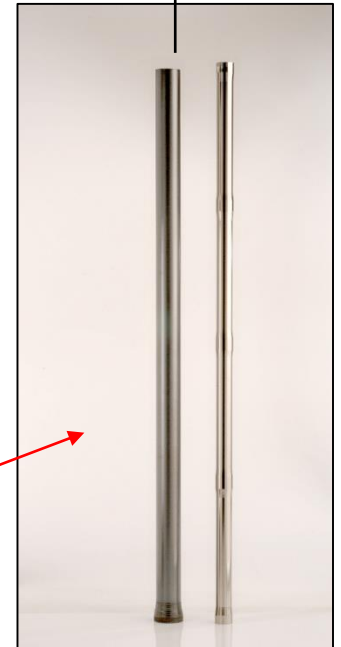
- Drive shafts for engines and helicopters
- Nozzles for satellite propulsion systems
- Hydraulic cylinders for landing gear actuation
- Actuators for thrust reversers
- Thrust struts



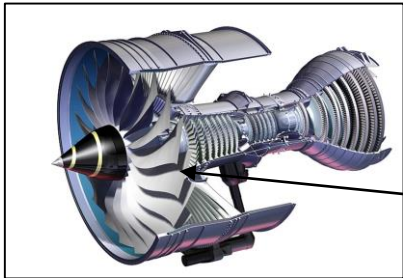
Hydraulic cylinder for landing gear (BOEING 777)



Engine nozzles for satellites



Drive shafts for tail rotors of helicopters, length 120", high-strength steel, Titanium alloy



Drive shafts for jet engines for commercial aircraft