



High Performance Metal Solutions

# High Performance Solutions using Rotary Forging

H.C. Starck   
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# Precision Rotary Forging Minimizes Material Losses

Manufacturing efficiency and scrap reduction are critical factors when dealing with expensive materials. H.C. Starck Solutions has the capabilities to produce precision forged bar products through its state-of-the-art rotary forging technology.

H.C. Starck Solutions developed this process to reduce cost and waste associated with machining. Cost savings are gained from the use of less material and therefore less scrap as well as the reduction or elimination of machining.

In addition to precision forged bar, our CNC controlled forging machine can process produce tapers and steps for near net shape products. A state-of-the-control system samples power, tonnage, temperature and other process data once per second for piece to piece consistency.

## Rotary Forging Services and Products

H.C. Starck Solutions produces a wide variety of sizes from a wide spectrum of materials; soft metals such as copper and difficult to forge materials like Cobalt and Nickel Alloys.

We can minimize end effects and outside diameter losses, enabling us to consistently deliver high quality products to our customers. As a fully-integrated supplier, we can take your project from material procurement through billet preparation and forging, to final processing.

### Wide spectrum of materials:

- > Cobalt and Nickel Alloys
- > Titanium Alloys
- > High Strength Stainless Steels
- > Cu-Be Alloys
- > Pure Metals

## Rotary Forge Capabilities

### Geometry

At H.C. Starck Solutions we are capable of producing stepped and tapered products. Geometries depend on the tooling available and the workpiece properties at the desired forging temperature. Tooling can be manufactured for specific applications and requirements. H.C. Starck Solutions' CNC controlled rotary forging machine can typically hold a total forged tolerance of 1 mm (0.040 inch).

## Length

The maximum forged length for automatic unload is 6.25 meters (20.5 feet). If needed, longer lengths can be pushed manually to 6.85 meters (22.5 feet). Maximum lengths are dependant on material type and temperature requirements.

## Furnace

Our gas fired furnace is 36 inch wide by 36 inch tall by 10 feet deep. We can maintain temperatures ranging from 1500 °F to 3000 °F.

### ROUND FORGING INPUT SIZES

6.375	SM	LF	MF	
6.000	SM			HF
5.750	SM		LF	
5.500				MF
5.000				HF
4.500		LF		
	25	28	30	31.5
	Minimum Length (inch)			

- Cold Forged:  Work piece starts at room temperature
- Cold Working:  Hardening of material during working process
- Hot Working:  No hardening of material during working process

- Maximum Start Length: 110 inch
- Maximum Weight: 750 kg
- Minimum Forged Diameter: 1.18 inch (30 mm)

#### HF = High Flow Stress Materials:

- > Co Superalloys
- > Ni Superalloys
- > Ti Alloys

#### MF = Medium Flow Stress Materials:

- > Tool Steel
- > Precipitation Hardening S.S.
- > Heat Resistant Alloys

#### LF = Low Flow Stress Materials:

- > Medium Alloy Steels
- > Low Alloy Steels
- > 300 Stainless Steels
- > 400 Stainless Steels
- > Cu-Be Alloys

#### SM = Soft Metals:

- > Copper
- > Pure Al and others

The Rods chart above defines starting billet diameters and length.

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