



High Performance Metal Solutions

# High Performance Solutions for Large Extrusion Applications

H.C.Starck 

High Performance Metal Solutions

# Maximize Material Yields through Extrusion Technology

H.C. Starck Solutions is one of the largest producers of refractory materials with world class extrusion capabilities and services. We help customers solve material processing and fabrication challenges with extrusion technology and an extensive knowledge in the processing and metallurgy of a wide spectrum of metals and alloys.

Our extrusion services offer the ability to convert material to meet the size and shape requirements of customers. With a highly qualified staff of Engineers and Production Developers, we can assist with specifications for your material process and design needs. H.C. Starck Solutions focuses on extrusion process development to optimize extrusion quality and material yields. By producing near-net-shapes and pipes, extrusion reduces machining costs and improves material yields.

H.C. Starck Solutions can also provide extruded products, such as pipe and shapes, in many ferrous and nonferrous metals. We have one of the only extrusion operations in the world that can produce extruded pipe with a flange. As a fully-integrated supplier, we can manage the entire process from material procurement, extraction billet preparation to a wide range of finishing processes, including heat treatment, cleaning, straightening, and cutting.

Our extrusion expertise comprises specialty metals and alloy based systems including titanium, molybdenum, tantalum, niobium and other metals for large extrusion applications.

## Extrusion Services and Product Offerings for a Wide Variety of Markets



Aerospace & Defense



Chemical Processing



Electronics



Medical



Automotive



Energy

# H.C. Starck Solutions is a World Class Leader in Extrusion Technology

## Technology & Capabilities

### Premiere High Temperature Extrusion Source

Forward extruded shapes and pipe  
Back extruded heavy wall pipe

### Force

5,000 metric tons (5,500 tons)

### Extrusion Ram Speed

1.27 – 203 mm/sec (0.05 – 8.0 inch/sec)

### Billet Temperature

260 – 1315 °C (500 – 2400 °F) *gas fired controlled atmosphere*  
815 – 1925 °C (1500 – 3500 °F) *induction inert atmosphere*

### Input Billet Diameter

152 – 432 mm (6 inch – 17 inch) diameters

H.C. Starck Solutions is unique in its ability to extrude almost any metal in any size range. From concept to production, from small 6 inch diameter to large scale 17 inch diameter billet, we provide extrusion services to deliver specified material, size and shape to your specific needs. H.C. Starck Solutions' extensive extrusion capabilities allow us to provide extrusion services with as little as two weeks lead-time.

At H.C. Starck Solutions we utilize our 5,000 metric ton (5,500 ton) extrusion press to extrude rods, tubes and shapes from difficult to extrude materials, including:

### Copper and Copper Alloys

C10100 | C15000 | C16200 | C17200 | C17500 | C18200  
C63000 | C70600 | C71500 | Copper and Niobium

### Stainless Steels

300 series | 400 series | 15-5 PH | 17-4 PH | Duplex

### Nickel Base Alloys

C276 | 400 | 625 | 718 | 800H | 925

### Titanium and Titanium Alloys

CP2 | 6Al | 4V

### Refractory Metals

Molybdenum and Molybdenum Alloys  
Tantalum and Tantalum Alloys  
Niobium | Chrome

### Aluminum Metal Matrix Composites

### Composite Billets

Superconductor Materials  
Clad Materials

### PIPE MATRIX

		WALL THICKNESS												
		inches	0.375	0.500	0.625	0.750	0.875	1.000	1.125	1.250	1.375	1.500	1.625	
OD	3.0													76.2
	3.5													88.9
	4.0													101.6
	4.5													114.3
	5.0													127.0
	5.5													139.7
	6.0													152.4
	6.5													165.1
	7.0													177.8
	7.5													190.5
	8.0													203.2
	8.5													215.9
	9.0													228.6
	9.5													241.3
	10.0													254.0
	10.5													266.7
	11.0													279.4
			9.5	12.7	15.9	19.1	22.2	25.4	28.6	31.8	34.9	38.1	41.3	mm
		WALL THICKNESS												
			Copper & Copper Alloys			Stainless Steels			Nickel Base Alloys					

Pipe capability at 20 feet (6 m) minimum extruded lengths.  
Please inquire for other sizes and metals.

## USA

### **H.C. Starck Inc.**

21801 Tungsten Road  
Euclid, OH 44117-1117 USA  
T +1 216 692 3990  
F +1 216 692 0029

### **H.C. Starck Inc.**

45 Industrial Place  
Newton, MA 02461 USA  
T +1 617 630 5800  
F +1 617 630 5879

### **H.C. Starck Inc.**

460 Jay Street  
Coldwater, MI 49036 USA  
T +1 517 279 9511  
F +1 517 269 9512

## United Kingdom

### **H.C. Starck Ltd.**

1 Harris Rd.  
Calne, Wiltshire SN11 9PT UK  
T +44 1249 822 122  
F +44 1249 823 800

## Germany

### **H.C. Starck Hermsdorf GmbH**

Robert-Friese-Straße 4  
Hermsdorf, Germany 07629  
T +49 36601 922 0  
F +49 36601 922 111

## Japan

### **H.C. Starck Fabricated Products GK**

3F Shiodome Building,  
1-2-20 Kaigan,  
Minato-ku, Tokyo  
105-0022 JAPAN  
T +81-3-6721-8177  
F +81-3-6733-8896

## Korea

### **CMT Co., Ltd.**

20, Gangnam-daero 47-gil,  
Seocho-gu, Seoul  
(Seocho-dong, 2F), 06729, Korea  
T +82 2 597 6207

## Taiwan

### **H.C. Starck International Sales GmbH**

Room 1307, 13F, No. 88, Sec. 2,  
Zhongxiao E. Rd., Zhongzheng  
Dist.,  
Taipei City 100, Taiwan ROC  
T +886 2 2393 3337  
F +886 2 2393 2083

## China

### **H.C. Starck Specialty Materials (Taicang) Co., Ltd.**

Taicang Zhongyu Science Park  
No.111 N. Dongting Rd of Taicang  
Taicang City Jiangsu Province 215400  
T +86 512 5318 8278  
F +86 512 5318 8282

## India

### **H.C. Starck (India) Pvt. Ltd.**

Level 2 Raheja Centre Point  
294 CST Road Near  
Mumbai University Off Bandra-Kurla  
Complex, Santacruz (E)  
Mumbai, Maharashtra 400 098 India  
T +91 72 5917 7599  
F +91 22 6162 3086

### **H.C. Starck (India) Pvt. Ltd.,**

#148, Prestige Featherlite Tech Park,  
2nd Phase, EPIP Zone, Whitefield,  
Bangalore – 560 066  
T +91 7259177599

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