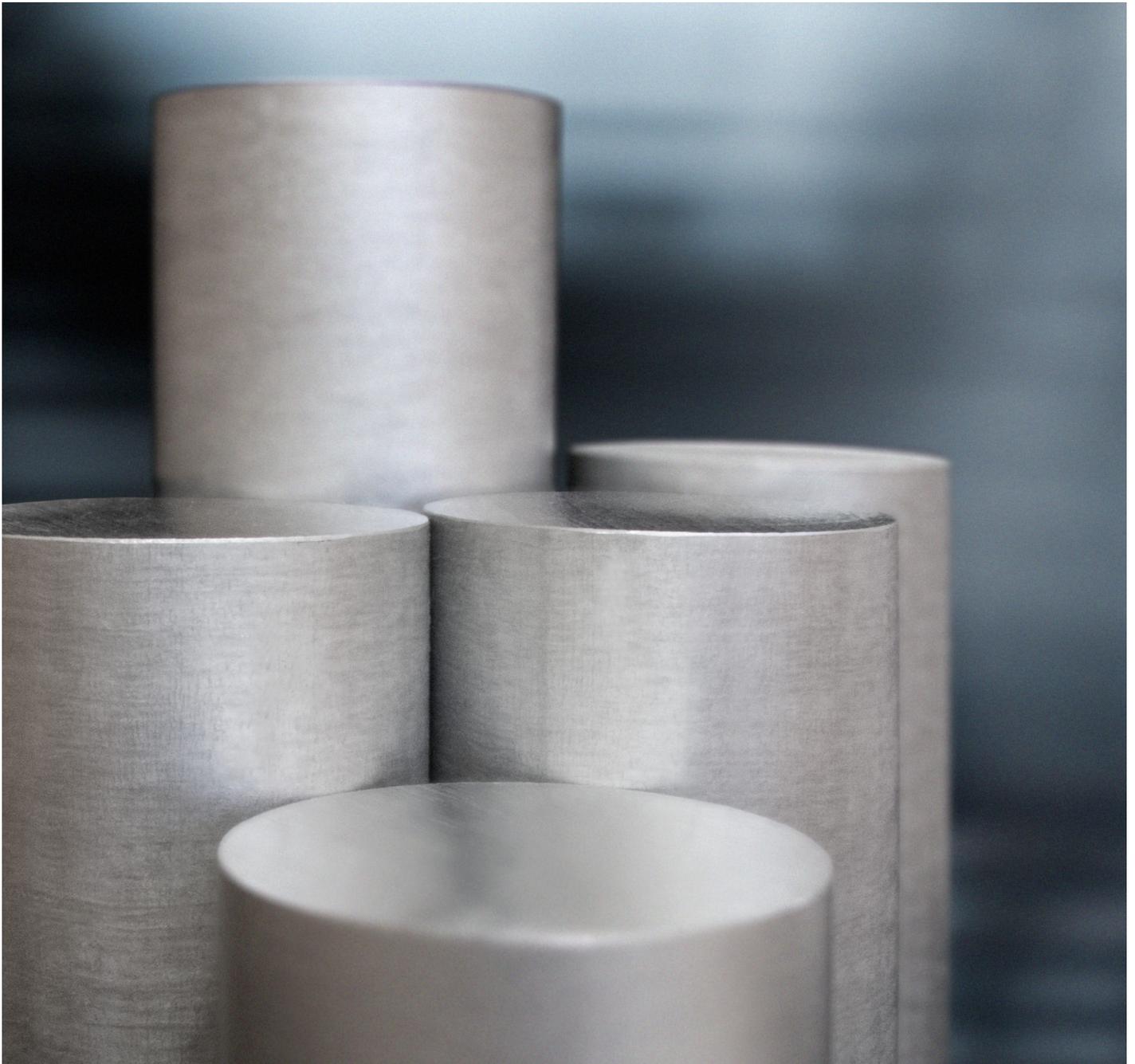




HyForge™

High-quality forging material



Hydro

We are the only 360° company in the global aluminium industry, with operations in 40 countries all over the world. By combining local expertise, worldwide reach and unmatched capabilities in R&D, our 35,000 employees create innovative aluminium solutions throughout the value chain.

Headquartered in Norway, Hydro is rooted in more than a century of expertise in hydropower, development of technology and product innovation. We are present within all market segments for aluminium, from production of the primary metal to recycling and repurposing it. Our sales and trading activities throughout the value chain serve more than 30,000 customers.

From extracting the bauxite and refining the alumina to producing primary metal and offering specialized products to a wide range of industries, our commitment remains the same: To strengthen the viability of our customers and communities through innovative and sustainable aluminium solutions.

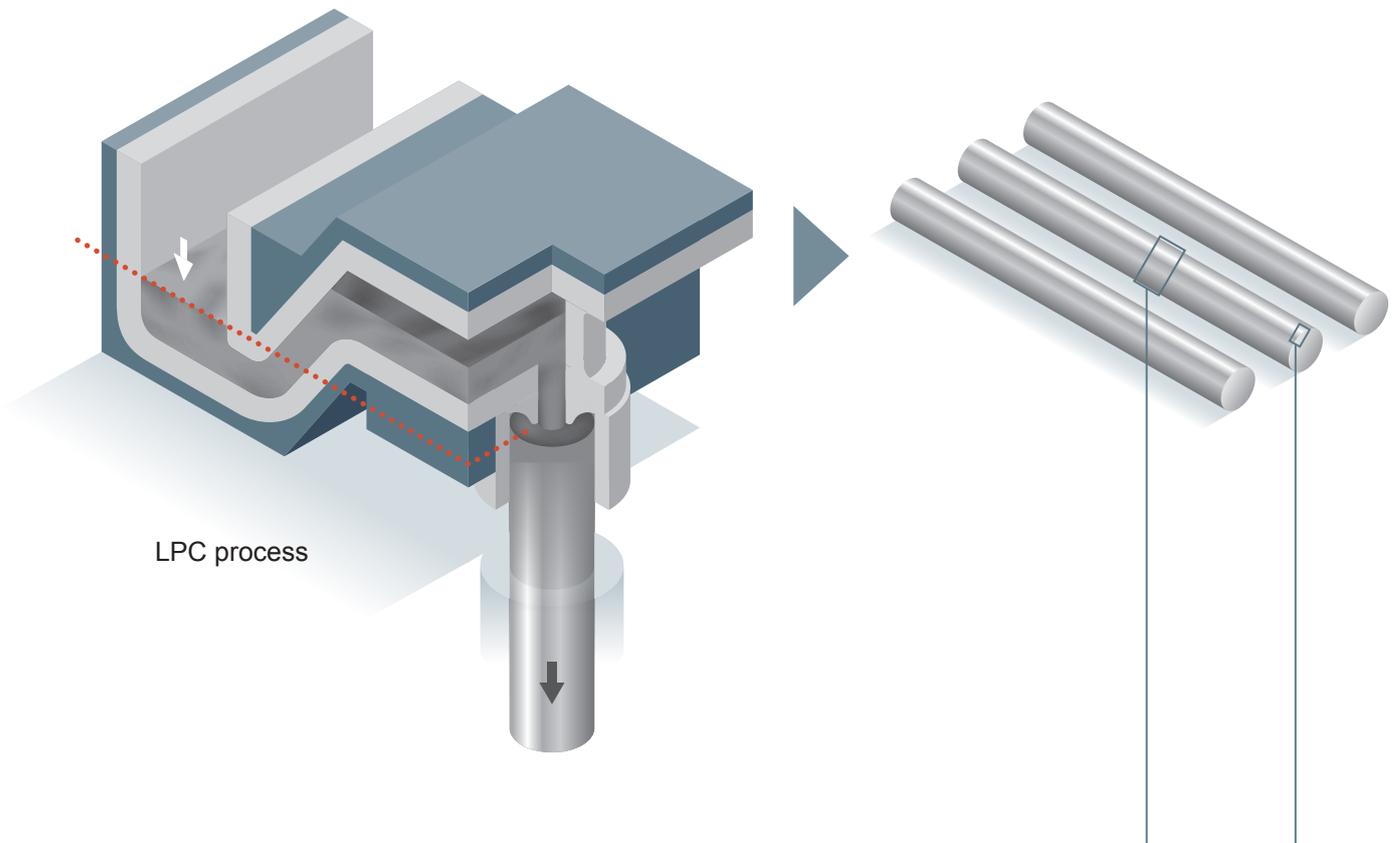
Key facts

- Legal name: Norsk Hydro ASA
- Founded: 1905
- Business areas: Bauxite & Alumina, Primary Metal, Rolled Products, Extruded Solutions, Energy
- Number of employees: 35,000
- Company presence in around 40 countries worldwide
- President and CEO: Hilde Merete Aasheim



HyForge™

Hydro's high-quality aluminium forge stock HyForge™ is produced based on Hydro's new innovative technology called Low Pressure Casting (LPC).



LPC process

Typical Applications

- Steering Knuckles
- Control Arms
- Wheel Carriers
- Suspension arms
- Drive Train Parts
- Brake Systems
- Pneumatic / hydraulic systems
- Bicycle and motorbike parts

HyForge™

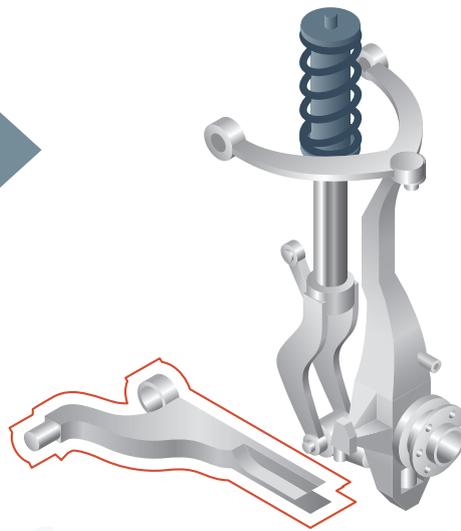
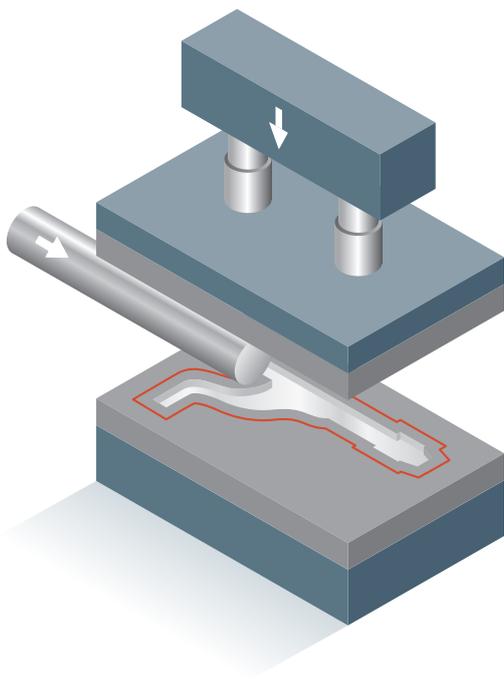


Standard



Surface

Micro
Structure



Key features

- High quality surface
- Limited inverse segregation zone <math>< 50\mu\text{m}</math>
- Uniform grain size distribution
- Isotropic properties
- Ready-to-use
- Low carbon footprint according to the Hydro REDUXA® certificate
- Alloy flexibility

Assembly of forged parts

HyForge™

Product Specifications

Our HyForge™ forging stock production is based on primary aluminium. Consistent high metal quality is ensured by using top-grade raw materials, standardized production processes and continuous quality control.

The forging stock is tailored to meet individual customer specifications. We also offer customized variants of common forging alloy groups.

Our forging stock meet the specifications in accordance with ISO, EN and JIS standards.

Hydro's R&D work focuses on the continuous improvement of conventional alloys as well as the development of new generation alloys which meet the ever-increasing demands of customers for improved material properties.

Main alloy types

EN 573-3:2009 (D) Numeric

EN AW-6005A
EN AW-6060
EN AW-6061
EN AW-6082A
EN AW-6110A
EN AW-6181
EN AW-6182

EN 573-3:2009 (D) Chemical symbols

EN AW-Al SiMg(A)
EN AW-Al MgSi
EN AW-Al Mg1SiCu
EN AW-Al Si1MgMn
EN AW-Al Mg0,9Si0,9MnCu
EN AW-Al Si1Mg0,8
EN AW-Al Si1MgZr

Other alloys on request

Diameters and dimensions

Diam. (mm)	Diam.tol. (mm)	Length tol. (mm)	(kg/m)	Length (mm)	Curvature (mm/m)	Max. Surface roughness Rz (µm)	US-Class
90	+/- 0,4	+/- 10	17,2	6000-7000	1	15	A
105	+/- 0,4	+/- 10	23,4	6000-7000	1	15	A
110	+/- 0,4	+/- 10	25,7	6000-7000	1	15	A

Other diameters and lengths on request

HyForge™ forging ingots are delivered 100% ultrasonic tested according to ASTM B-594 Class A (Flat Bottom Hole - 1,2 mm).

The metal is treated in-line with Hycast SIR 60 technology and a ceramic foam filter, securing low Hydrogen level and excellent metal cleanliness. Hydrogen < 0,17 ml/100 g Al measured with Alscan.

Homogenizing: on customer request

Sawn ends: square to 90° ± 0,5°, Rz < 25 µm

Marking: By ink at the end of the forging ingot. Labeling on demand.

A woman with blonde hair, wearing a dark blue jacket and a high-visibility green safety vest, is looking intently at a large, dark metal car suspension component. She is wearing black gloves and has her hands raised near the part. The background is a blurred industrial setting with various mechanical parts and equipment.

Suitable for high
performance forged
car suspension parts

Quality and environmental awareness

Quality Assurance in all parts of our production ensures accuracy and consistency in all our products. Good working environments, low emission and discharge rates, and optimal energy efficiency ensure that our production has the least possible effect on the environment and humans.

Our focus on quality and our environmental awareness are documented in the certificates for the following standards:

ISO 9001:2015 – Quality

ISO 14001:2015 – Environment

IATF 16949:2016 - Automotive quality management

ISO 45001:2018 – Occupational health and safety management

Aluminium Stewardship Initiative - certified against both Performance Standard and Chain of Custody.





Hydro REDUXA

Pushing the boundaries for low-carbon aluminium.

Hydro REDUXA is our series of low-carbon aluminium. Through the use of renewable energy sources like hydro power, we reduce the carbon footprint per kg aluminium to less than a fourth of the global average. The result is aluminium with one of the world's lowest carbon footprint to date. Minimizing the carbon footprint of our products and maximizing opportunities for our customers.

Through the use of renewable energy from water, wind and solar, we can produce cleaner aluminium than ever before.

The Hydro REDUXA 4.0 has a maximum carbon footprint of 4.0 kg CO₂ per kg aluminium produced. One-fourth of the global average.

We certify that dedicated parts of our production hold among the highest standards in the world, also in a climate perspective, because we believe that when our customer's footprint shrinks, their opportunities expand.

Hydro's product line 4.0 is verified according to ISO 14064 by DNV GL, covering all carbon emissions from bauxite mining and alumina refining to the production of aluminium in electrolysis and casting.

Hydro REDUXA is available in all grades and forms from our Norwegian aluminium plants and can be shipped worldwide.

- Low-carbon extrusion ingots
- Low-carbon foundry alloys
- Low-carbon sheet ingots
- Low-carbon wire rod
- Low-carbon forge stock



Where to find us

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We are aluminium

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Hydro is a fully integrated aluminium company with 35,000 employees in 40 countries. Rooted in more than a century of experience in renewable energy, technology and innovation, Hydro is engaged in the entire aluminium value chain, from bauxite, alumina and energy to primary aluminium, rolled and extruded products and recycling.