

Opportunities for

PROCESS MANUFACTURING IN A CIRCULAR ECONOMY HØYANGER



HØYANGER

INTRODUCTION

Circular economic models are starting to make their mark on the global economy. New technologies and processes are providing new opportunities for better exploitation of resources, and they reduce need for virgin raw materials. The town of Høyanger in Western Norway is looking to be part of this shift.

Høyanger has rich and long-standing industrial traditions. The industrial town grew out of the aluminium works now operated by Hydro, a major local employer, and for more than a century it has cultivated an industrial culture and an array of manufacturers and suppliers that continue to grow to this day.

We want to play host to green industrial growth and help build a more sustainable and modern industrial society, preserve our natural environment and cultural heritage, and be a driving force for smart, energy-efficient and eco-friendly technologies. We believe Høyanger is perfectly placed to realise these visions.

Ample access to renewable energy has laid the foundations for the industrial development seen in Høyanger since the early 1900s.



HØYANGER TOWN

Høyanger is a compact little town, and it is only 1.5 km between Høyanger Industrial Park in the north-east and Leira Industrial Park's factory in the south-west. This industrial town has a population of 2,000 and all the services and amenities you need for a comfortable life.





OPPORTUNITIES

Høyanger is home to a highly skilled process manufacturing industry and a number of high-performing companies.

Access to qualified labour is good, and the local community has a long-standing tradition of tolerance towards round-the-clock operation and shift work. The town also boasts long-established logistics, maintenance and automation sectors.

Høyanger is able to offer low-cost renewable energy to promising manufacturing projects.

Høyanger's infrastructure, corporate and local culture are ideal for establishing and running new manufacturing operations.

Høyanger has extensive expertise on:

- Lean
- Process manufacturing
- Maintenance
- Lab
- Energy
- HR
- Project management
- Automation
- Health and safety
- Logistics and the natural environment

Leira Industrial Park **FACTORY WITH ARCFUME TECHNOLOGY**

The Leira Industrial Park factory is a 4,200 m² industrial complex adjacent to the aluminium works in Høyanger.

The building has great potential for circular manufacturing, and there is scope for expansion and extension if needed.



Permits issued by the Norwegian Environment Agency:

- Leach products or similar alloys.
- Red dust from secondary steel manufacturing.
- 50,000 tonnes/year.

Sector:

37.100 – Recycling of metal waste.

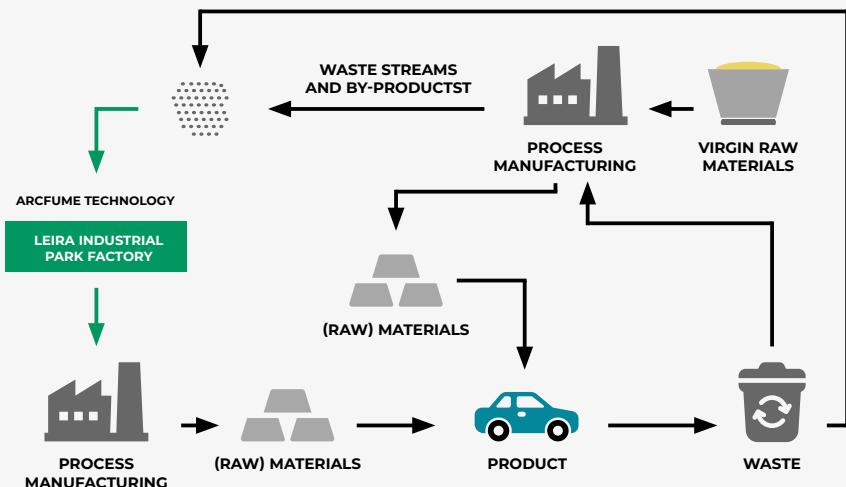
Category:

- 2.5 – Processing of non-ferrous metals.
- 5.1 – Facilities for the disposal and recycling of hazardous waste.

Health, safety and the environment:

Joint industrial safety system for the entire industrial park with reinforcements for fire protection, environmental and chemical protection, smoke and chemical diving. The park offers occupational health services with a qualified doctor.

VALUE CHAIN



Leira Industrial Park factory **INFRASTRUCTURE**

The ISPS port facility in the industrial park is run by Hydro, and there are plans for a roll-on/roll-off berth. Crane with 20-tonne capacity

Storage capacity: raw materials 4,000 tonnes, products 1,500 tonnes and slag

Connected to LNG plant

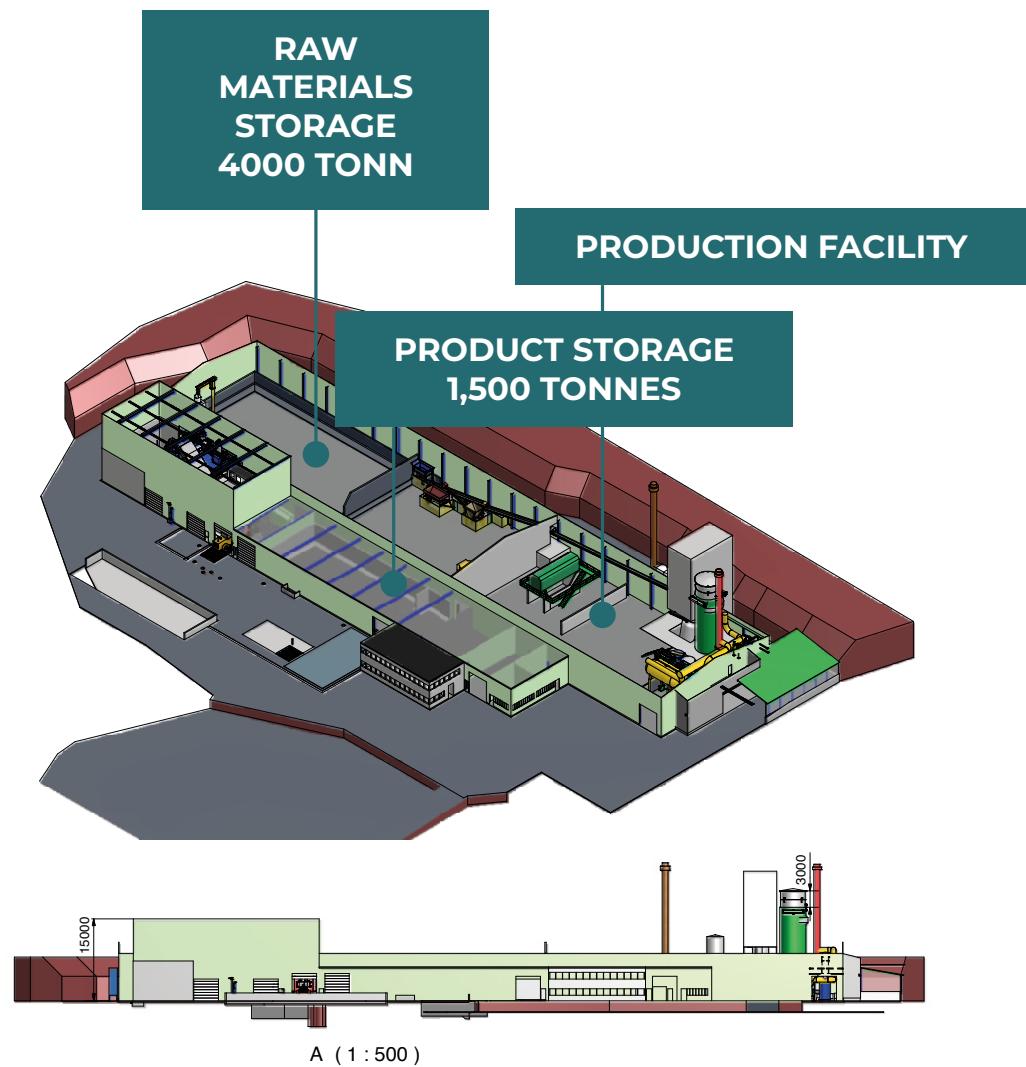
High voltage system

Process water including emergency system in event of loss of power. High capacity ($>400 \text{ m}^3/\text{h}$)

Dry pressurised air (instrument air -30°C) ($> 4,500 \text{ Nm}^3/\text{h}$, pressure 5.2 bar)

Compressor for plasma generators

Nearby waste disposal sites: Førde, Kaupanger and Voss



The factory has considerable expansion potential if the tenant needs more space.

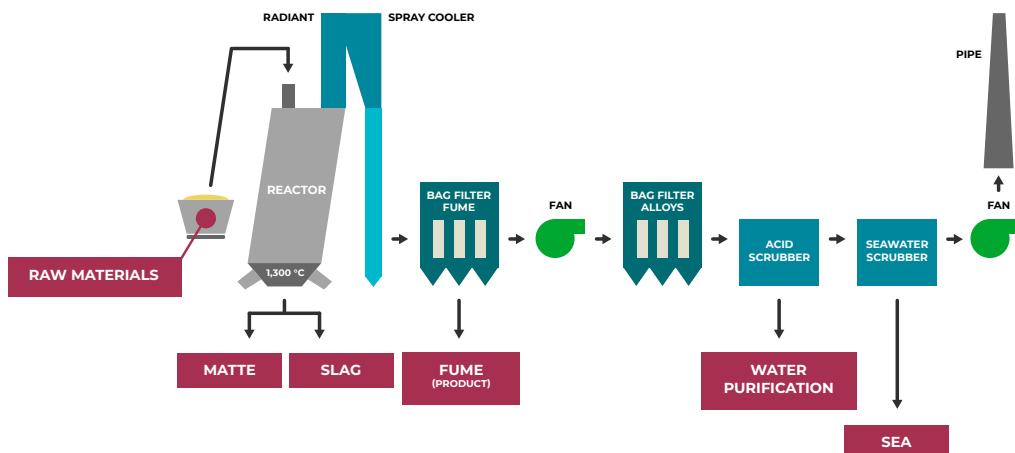
ARCFUME

ArcFuming is a pyrometallurgical alternative for processing industrial and hazardous waste which allows metals to be extracted from waste streams and by-products at very high temperatures. The ArcFume process is highly flexible and offers a range of options when designing a metallurgical process.

Plasma arc furnaces are an attractive technology for processing waste such as EAF dust and by-products from primary zinc production thanks to high energy efficiency and metallurgical recovery.

CO₂ emissions are low as the furnaces use electrical energy rather than fossil fuels.

The ArcFume technology leaves a relatively modest industrial footprint. Unlike other similar technologies, ArcFume requires little space.



Plasma arc furnace with ArcFume technology in the Leira Industrial Park factory.

Høyanger Industrial Park AN INDUSTRIAL ESTATE WITH GREAT POTENTIAL

A 22,000 m² industrial estate on the outskirts of central Høyanger well suited to a range of different manufacturing and production processes.



The factories in Leira Industrial Park and Høyanger Industrial Park both have flexible production facilities, workshops, offices and easy access to the ISPS and deepwater quay.

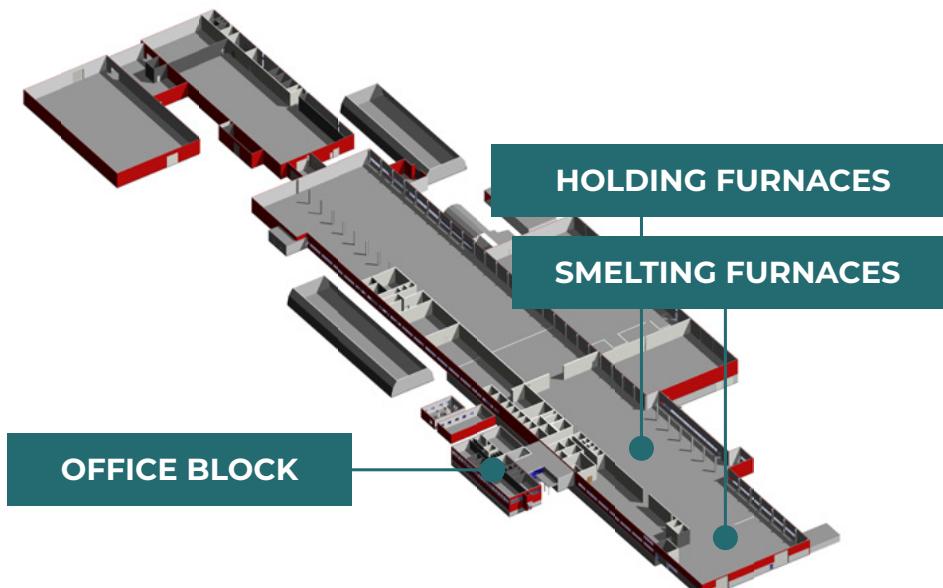


Høyanger Industrial Park

SMETLING AND HOLDING FURNACES FOR METALLURGICAL MANUFACTURING

Høyanger Industrial Park has two holding furnaces each with a capacity of 7 tonnes and one holding furnace with a capacity of 12 tonnes. There are also two smelting furnaces on site with a capacity of 22 and 32 tonnes respectively.

The LNG powered smelting furnaces can achieve temperatures of up to 1,000 °C. The electrical holding furnaces can achieve temperatures of up to 900 °C.



Technology and plant

Høyanger Industrial Park

FLEXIBLE PREMISES

The industrial park has premises suitable for a range of different manufacturing and production processes. The park can be partitioned according to the tenants' needs and wishes. There are also offices, warehouses, a canteen and changing room facilities on site.



Høyanger Industrial Park

EXTENSIVE OUTDOOR AREA

The industrial park has extensive outdoor area on three sides of the buildings suitable for storage.

There is scope for expanding into the mountainous terrain to the north.



Høyanger Industrial Park **OFFICE AND WORKSHOP BUILDING**

Høyanger Industrial Park also consist of a freestanding building constructed in the year 2000 with an overall area of 4100m² situated 150 meters from the main building.

This smaller building is also well suited for different types of business activities with its office facilities and flexible workshop and production premises.





OUR FACTORY PREMISES IN LEIRA
INDUSTRIAL PARK AND HØYANGER
INDUSTRIAL PARK ARE IDEAL FOR
DEVELOPING NEW SUSTAINABLE PROCESS
MANUFACTURING SOLUTIONS

WELCOME TO HØYANGER

Høyanger was founded on industry. The town has the infrastructure, facilities, expertise and culture needed for industrial development and manufacturing.

It is our ambition to play a proactive role in the process manufacturing industry in the circular economy of the future, and we are looking to make contact with enterprises with similar visions. Robust, forward-looking projects focusing on the optimal use of resources in the industrial value chain will be met with goodwill and interest from both the local community and their political leaders.

Get in touch if you want to learn more about the opportunities that Høyanger has to offer.

Petter Sortland
Mayor



Telephone: +47 57 71 15 52
Mobile: +47 91 16 45 46
Email: petter.sortland@hoyanger.kommune.no