Innovative steel for a better engineered future

Carbon Neutral Operations

2900 Employees

0.8 LTIFR Safety at Work

1000 kton Capacity

1000 EURm Revenue

HQ Stockholm

9 Production Sites

30 Countries
Nippon Steel - Sanyo Special Steel - Ovako
Creating customer value through collaboration

- A global leader in long products specialty steel
  - Bar steel
  - Special profiles
  - Wire rod and wire
  - Mechanical tube
  - Rings
- ~100,000 employees
  - Specialty steel ~10,000
  - Ovako ~3,000

- Sweden
  - Hofors
  - Smedjebacken
- Finland
  - Imatra
- Japan
  - Yawata
  - Himeji
  - Wakayama
  - Kimitsu
  - Muroran
- India
  - Khopoli
Rooted in a long history, with our eyes on the future

- Rooted in a 500-year old steelmaking

- Leader in long, low-alloy, high-performing steel products that enable lighter designs, energy and CO2 savings

- More than 500 steel grades of bar, tube, and ring – for customers in the automotive, mining, energy, and other sectors

- Strong investments in R&D, innovative thinking and close customer collaboration
Focus on steel circularity and carbon neutrality

- High-performing clean steels that enable energy and CO₂ savings
- 100% Carbon Neutral Operations and products with leading carbon footprint
- Steel that are 97% scrap-based
- Focus on projects to further improve sustainability position
YEAR 0 - 1700
- 0: High quality forged iron products produced near Hofors
- 1549: Iron production starts at Hofors Bruk
- 1631: First iron production on Hällefors site

1700 - 1900
- 1754: Boxholms Bruk is founded
- 1856: Smedjebacken Walswerk is formed

1900 – 2000
- 1915: Production in Imatra started
- 1916: SKF acquires Hofors AB
- 1930: First EAF installed
- 1977: 100% EAF. Last Blast furnace closed

2000 - NOW
- 2005: Ovako is formed by the merger of Ovako Steel, Fundia and Imatra Steel
- 2018: Nippon Steel Sumitomo Metals acquires Ovako
- 2019: Ovako becomes a subsidiary of Sanyo Special Steel and a member of Nippon Steel Corporation group

1900 - 2000
- 1995: Oxyfuel conversion of heating furnaces started

2000 - NOW
- 2003: Flameless OF (Rebox) installations started
- 2012: Conversion of fossil fuels to electricity in heat treatment furnaces started
- 2015: First Life cycle analyze all three process flows
- 2017: Fossil free electricity at all Swedish production sites
- 2018: Upgraded degassing facility in Imatra
- 2018: Verified Climate declarations published.
- 2018: Fossil free electricity at Imatra, Finland
- 2019: Verified EPD:s published for all process flows
- 2020: World first successful trials heating steel with hydrogen
- 2020: New degassing facility in Smedjebacken
- 2021: First full-scale hydrogen project launched
- 2022: Carbon Neutral Operations
- 2022: Bearing with 90% lower CO2 footprint with SKF
- 2023: Heating of steel with hydrogen in Hofors
Our position

Ovako in the world
Steel company analysis Sept/Nov 2021

Fig. 2: CO₂ emissions per tonne of crude steel at major global steelmakers (Scope 1 + 2 basis)

CO₂ per tonne of crude steel

- China Steel (Taiwan)
- JSW Steel (India)
- US Steel (US)
- POSCO (South Korea)
- JFE Steel
- Nippon Steel
- ArcelorMittal (Europe)
- Baoshan Iron & Steel (China)
- BlueScope (Australia)
- SSAB (Europe)
- ToitoSteel (US)
- Daido Steel
- Sumitomo Special Steel
- Seata Steel Dynamics (US)
- Commercial Metals (US)
- Nucor (US)
- ArcelorMittal (US)
- Tokuy Steel Mfg
- Kobe Steel

Oxera (Steel Specialties subsidiary)

Fig. 3: CO₂ emission reduction targets at major global steelmakers (through to around 2030)

- Oxera
- Toito Steel Mfg
- Sumitomo Special Steel
- Daido Steel
- Kobe Steel
- Yawata Kogin
- Nippon Steel
- ThyssenKrupp
- BHP Group
- SSAB
- Cleveland-Climax
- ArcelorMittal
- Commercial Metals
- JFE HD
- POSCO
- JSW Steel
- BlueScope
- Severstal

8
A better engineered future – depends on what we do today

- Continuous improvements
  - to ensure safety and quality, boost productivity, and secure sustainability

- Always seeking new ways to lower our environmental impact
  - Ambitious activities to lower emissions
  - 100% fossil-free electricity
  - Circular thinking

- Aim for zero emissions but invest in carbon neutrality now
  - We call the initiative Carbon Neutral Now
Our CO2 emissions Today and tomorrow

- From an already world leading position
- Towards even tougher targets for a more sustainable future
- Committed to the Science Based Targets initiative and support the UN-led Race to Zero Campaign
- Published verified Environmental Product Declarations (EPD:s), based on LCA
From 1\textsuperscript{st} of January 2022: Carbon Neutral Operations

Stockholm, September 28 2021

Ovako’s steel production to be carbon-neutral from January 2022

Ovako continues to lead the way in sustainable steel production, including an innovative approach to heating steel with fossil-free hydrogen. To accelerate its environmental work, the company now takes the next step by adopting carbon-neutral steel production from January 1, 2022.

While we continue our journey towards zero carbon emission!
Still not satisfied, we’re doing more – Committing to climate compensation

- As of January 2022, we are using carbon offsets to counterbalance the remaining emissions
  - All Scope 1 and 2 emissions according to the Greenhouse Gas Protocol, verified by KPMG

- Reducing climate impact now. The use of offsets will gradually decrease as we invest in new technology and improve our processes

- Carbon offset projects verified by either The Gold Standard or VCS (Verified Carbon standard)
Example of carbon offsets project

- Wind-generated electricity serving the Republic of South Africa
  - As one third of the world’s wind turbines feature Ovako’s steel, we wanted to close the loop
  - A positive contribution to the optimization and diversification of the country’s energy mix, currently dominated by coal-fired power plants

- Biodiversity project that aims to reduce Indonesia’s emissions by preserving some 64,000 hectares of tropical forest
  - This area, rich in biodiversity including the Bornean orangutan, was slated for conversion into four palm oil estates
Ovako’s Roadmap: CO₂ emissions, scope 1&2
– Tonnes CO2e, all operations, fixed volume (2021)

-57%
-80%
-90%

- Non-fossil electricity
- Furnace conversions
- Process and energy efficiency
- Upgrade and change of techniques
- Optimization of furnaces
- Energy efficiency district heating, steam

- Internal transport
- Rolling mill furnaces conversion to hydrogen
- Heat treatment furnace conversion electricity
- Fuel conversions steel mills
- Efficiency Internal flows
- Improved yield

- Energy efficiency district heating, steam
- Process and energy efficiency

- Process emissions steel mills
- Efficiency internal flows
- Improved yield
- Process and energy efficiency
- Other to be identified

2015 Adj: 485,000 Tonne CO₂
2021 Act: 210,000 Tonne CO₂
2030 target: 97,000 Tonne CO₂
2040 target: 48,000 Tonne CO₂
## CO₂e emissions

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<td>Ovako Group emission with VER</td>
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<td>Carbon offsets</td>
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<td>Ovako Group emission without VER</td>
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<td>9 192</td>
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<td>1 299</td>
<td>704</td>
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CO₂e in tonnes
* Increased emissions due to 15 months in financial year reporting  ** Estimated emissions for FY2022
The hydrogen project
A key development path
Ovako has one main area remaining for electrification

- ✓ Melting steel  >1400°C
- → Heating steel for hot-forming  ~1200°C
- ✓ Heat treatment for product properties  <1000°C
2019-2020: Technical proof of concept

PROPANE + OXYGEN

HYDROGEN + OXYGEN
2021-2023: First implementation of H2 for steel heating

Partnership is the new Leadership
- Sweden’s Energy Agency
- Volvo Group
- Hitachi Energy
- H2 Green Steel
- Nel Hydrogen
- And our customers!
Investing in hydrogen to tackle climate change
- Starting in Hofors

**New electrolyze plant**
- Project launched 2021
- Ground work and building in place
- Environmental Court hearing 5th of October
- Planned production start is Q1 2023

**Challenges/learning:**
- Environmental Permit processes
- Competence (internal and authorities)
- Future availability of reliable fossil-free electricity
The hydrogen concept is flexible and easy to accelerate - We will move forward as quickly as possible.

In summary

- Sweden’s largest electrolyzer
  - In 2021, we obtained the financing needed to bring our first hydrogen plant on stream

- Broad societal benefits
  - Fossil-free hydrogen for refueling of fuel-cell powered trucks
  - The residual heat will be used for district heating of nearby communities
  - Possible to stabilizing the power grid.

6-7 hydrogen plants by 2030
We’re doing this because we have the road map, technology, the possibility and it’s the right thing to do. And we’re doing it now!