

**ESTEP 2025 Annual Event**

28-30 October 2025  
Udine (ITALY)

How decarbonisation, digitisation  
and circular solutions forge the  
sustainable European steel future?

**Joachim von Schéele**  
**Mikhail Lukin**

Linde Technology

# **DEVELOPMENT AND SUCCESSFUL FULL- SCALE IMPLEMENTATION OF HYDROGEN AS A FUEL IN FLAMELESS OXYFUEL COMBUSTION**



**DIGIMET**



**DANIEMI AUTOMATION**



**UNIVERSITÀ  
DEGLI STUDI  
DI UDINE**  
HIC SUNT FUTURA

# Steel Reheating Tests with REBOX<sup>®</sup> Hyox

Linde Technology Center, Sweden, October 2019



**Material tested from four steel companies, including engineering steel and stainless steel grades**



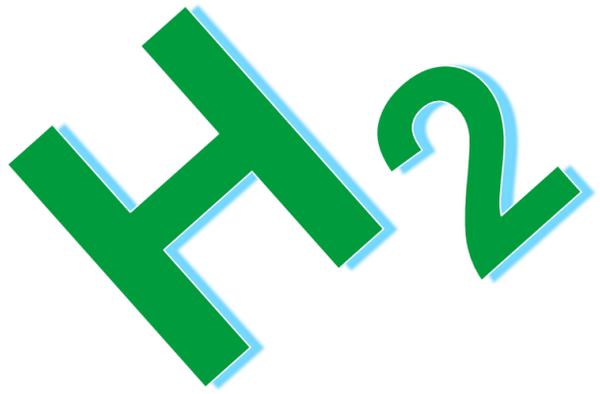
# World's First Fossil Free Heated Steel

## Ovako Steel, Hofors, Sweden

**OVAKO**



**March 2020**  
**25 tonnes of ball-bearing steel heated with REBOX Flameless Oxyfuel using 100% Hydrogen**



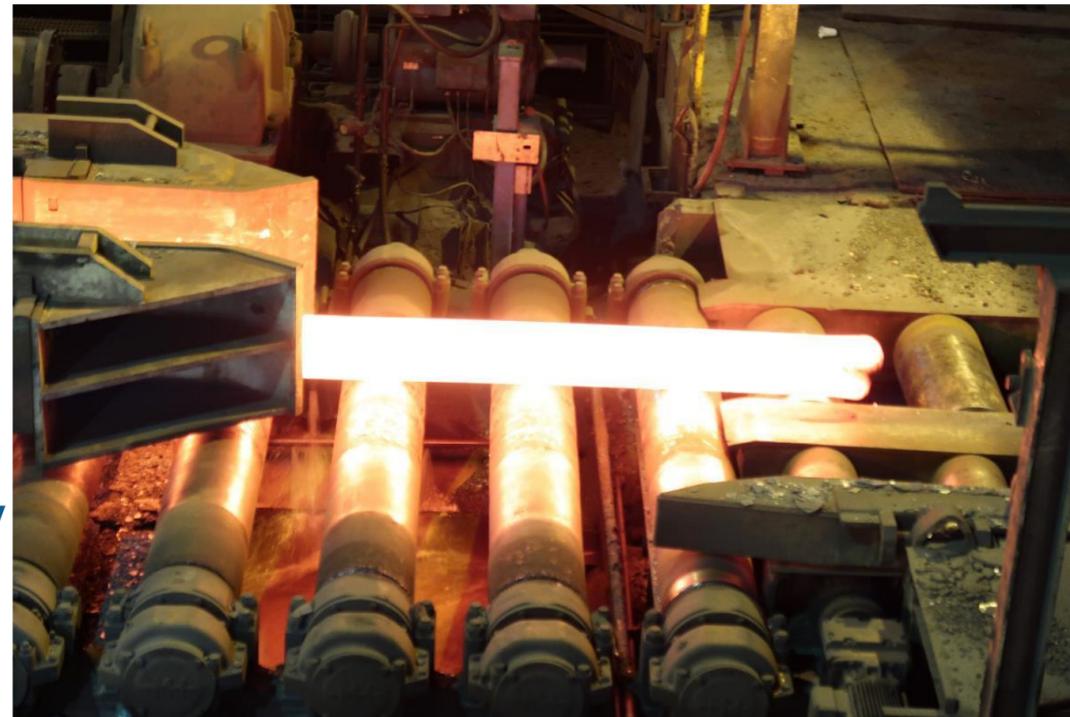
**Early 2024**  
**Full-scale permanent installation commissioned, 48 Soaking Pit Furnaces.**  
**To date more than 400,000 tonnes have been heated.**

# Full-Scale Permanent Operation REBOX<sup>®</sup> Hyox, 100% O<sub>2</sub>+H<sub>2</sub>

**OVAKO**



- No Change of Heating Power
- No Change of Heating Profile
- No Negative Impact On:
  - Rolling forces
  - Dimensions
  - Scale losses
  - Temperature uniformity



**20 MW Alkaline  
Electrolyzer  
100% Renewable Power**



**H<sub>2</sub>**