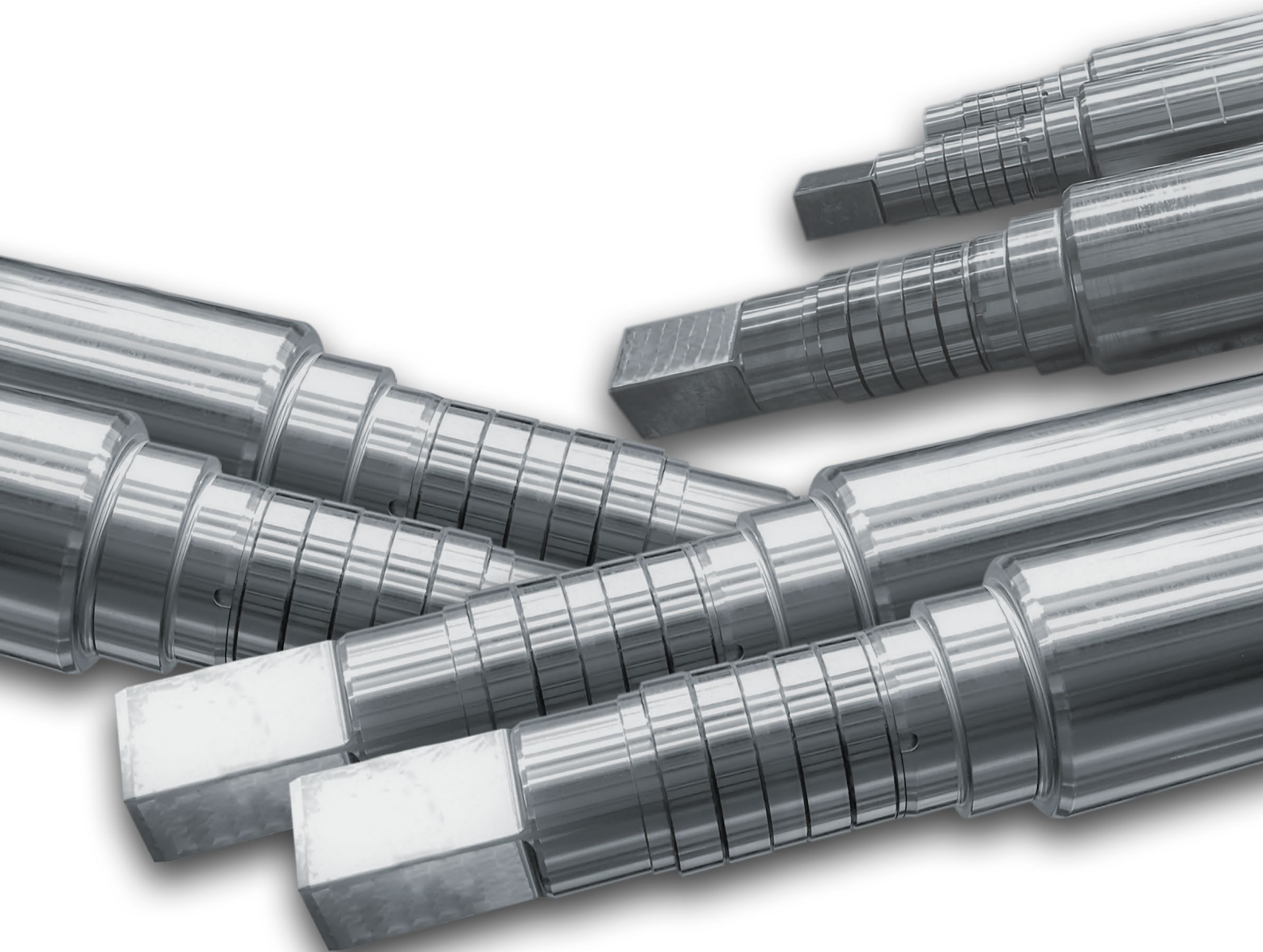


# FORGED ROLLS



SURFACE HARDENED ROLLS  
DURALIFE EXTRA | DURALIFE SUPREME

**sij** | ravne systems

SURFACE HARDENED ROLLS

For all types of rolling mills.

Our forged rolls withstand high pressure and are characterized by uniform hardness within +/- 0.5 HRC throughout the working barrel and a homogeneous steel microstructure. Hardness drop throughout the hardened layer is max. 3%.

Our own heat treatment facilities for optimal mechanical characteristics is available – optimal working hardness is guaranteed by a **bi-frequency** induction hardening machine, which was developed, designed, and produced in-house.

**A highly advanced 3-D induction hardening machine** (manually adjustable induction frequency) for the best mechanical characteristics of roll necks.

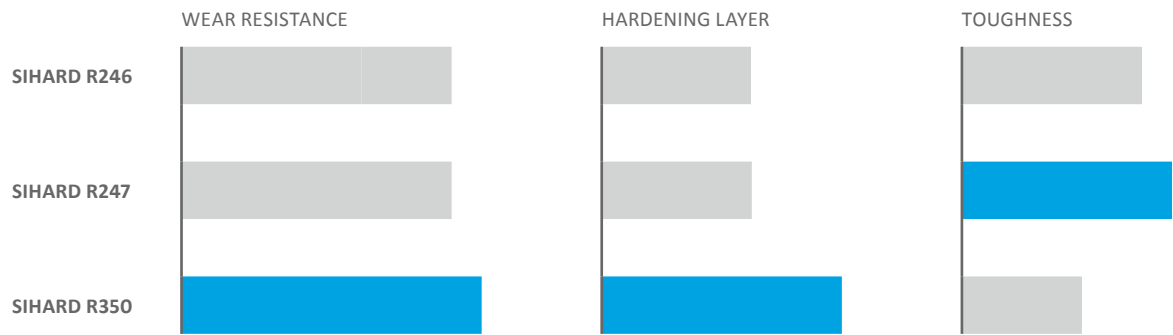
**Cryogenic treatment** – a step forward in the heat treatment hardening process, which completes the transformation of the steel microstructure from austenite to a stronger martensistic structure with greater hardness. Steel hardness increases by raising the percentage of martensite in the steel structure – hence, wear resistance increases as it correlates positively with hardness.

Surface hardened rolls are made from high-quality steels and in accordance with customer requirements.

MOST FREQUENTLY USED STEEL GRADES

Ravne brand name	W.Nr.	DIN	Directional Chemical Composition (%)					Hardnes HRC
			C	Cr	Mo	V	Ni	
SIHARD 2327	1.2327	86CrMoV7	0.85	1.70	0.30	0.10	/	≤ 67
SIHARD 2375	1.2375	83CrMoV9	0.88	2.10	0.25	0.10	/	≤ 67
SIHARD R246	/	/	0.80	3.00	0.50	0.10	/	≤ 67
SIHARD R247	/	/	0.80	3.00	0.40	0.10	0.50	≤ 67
SIHARD R340	/	/	0.80	4.00	0.50	0.10	/	≤ 67
SIHARD R350	/	/	0.80	5.00	0.50	0.10	/	≤ 67

Comparison of the main properties:



## DURALIFE EXTRA | DURALIFE SUPREME

The **DURALIFE** family of rolls is the next generation of **high-alloy rolls** for cold rolling, with the brand names **DURALIFE EXTRA** (tool steel with 5% chromium content) and **DURALIFE SUPREME** (tool steel with 8% chromium content).

**DURALIFE brand rolls** have a longer life time, better resistance to wear and resistance to damage, and therefore longer campaigns. One of their many advantages is that, thanks to the higher levels of ferroalloys, they have longer roughness retention and chrome plating is not required.

### Chemical composition

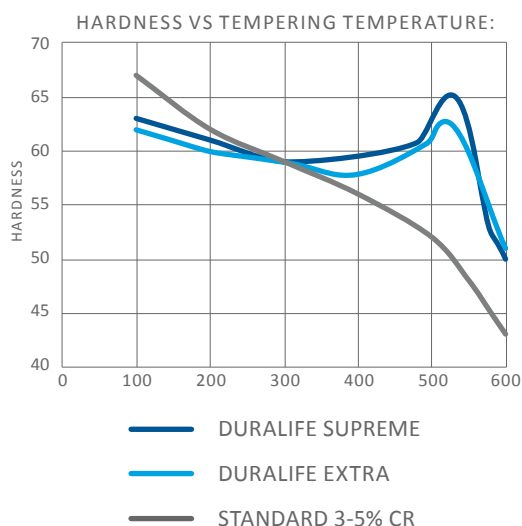
#### DURALIFE EXTRA

Element	C	Si	Mn	Cr	Mo	V
Min.	0.50	0.50	0.20	5.00	1.00	0.20
Max.	1.00	1.50	1.00	5.50	2.00	1.00

### Chemical composition

#### DURALIFE SUPREME

Element	C	Si	Mn	Cr	Mo	V
Min.	0.70	0.50	0.20	7.00	1.50	0.20
Max.	1.30	1.50	1.00	9.00	3.00	1.00



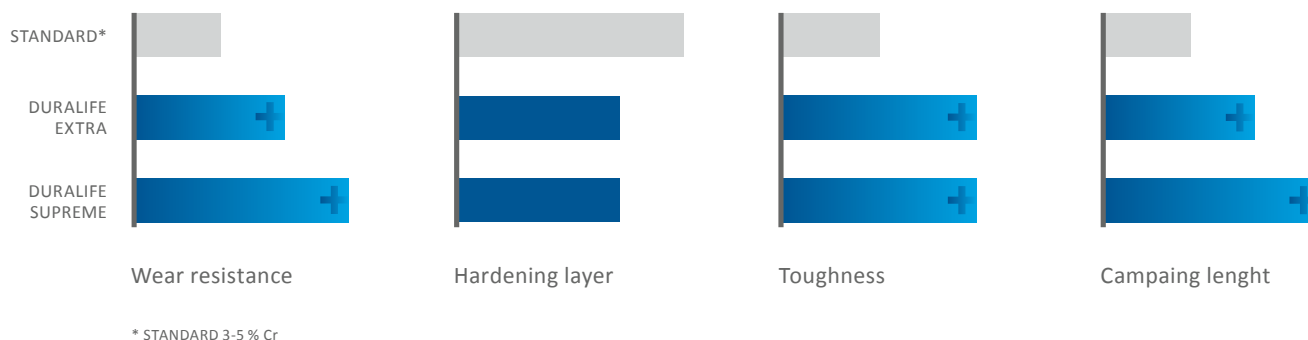
### Production data

Dimensional Range	≥ Ø 100 - 600 mm
Melting Method	(LF+VD)/ESR
Hardening Method	Inductive
Tempering Temperature	450-550 °C, depends on the required hardness

### DURALIFE steels offer you the following benefits:

- Extremely high wear resistance
- Lower grind offs
- Better tonnage in cycle
- Resistance to local overheating
- Extended surface roughness retention
- Outstanding resistance to mill incidents
- Extended campaign length

### Comparative properties



## BETTER SOLUTIONS WITH LONGER LIFE TIME!

Wide range of **high-alloy rolls** for cold rolling provides our customers with a definitive competitive advantage.

## WHY SIJ RAVNE SYSTEMS?

Perfect quality, excellent service and the desire to build a longterm partnership.  
This is who we are – SIJ Ravne Systems, your reliable partner.

A unique combination of metallurgical and engineering know-how.

The highest product quality as a result of tight integration in a vertical supply chain, from steelmaking to the final product.

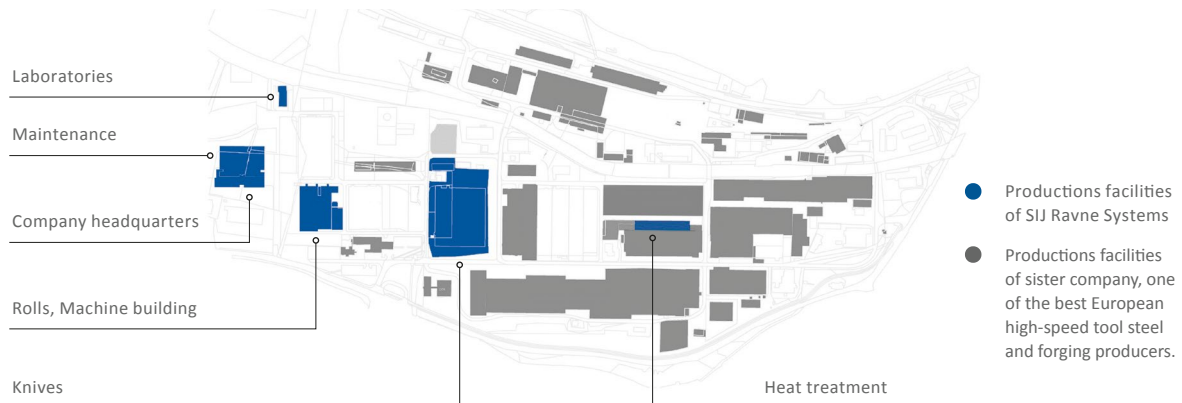
Rolls made from ultra-clean steel as a result of the ESR method.

Accredited in-house laboratories that perform a wide range of non-destructive tests, inspections and calibrations.

The ability to offer a complete package of products and services for the steel mills; from complete assembled equipment, subassemblies, components, spare parts and industrial knives for metal, to maintenance, reconstruction and revamping.



## VERTICALLY INTEGRATED COMPANY



### Headquarters:

#### SIJ RAVNE SYSTEMS d.o.o.

SI 2390 Ravne na Koroškem  
Slovenija

T: +386 2 87 06 200

F: +386 2 87 06 230

E: [info@ravnesystems.com](mailto:info@ravnesystems.com)

[www.ravnesystems.com](http://www.ravnesystems.com)

#### SIJ Ravne Systems UK

12 Conqueror Court,  
Sittinbourne,  
ME10 5BH Kent  
England

#### KOPO INTERNATIONAL

331 Newman Springs Road  
Building 1, Suite # 104,  
Red Bank  
NJ 07701  
T: 1 732 737 4225

