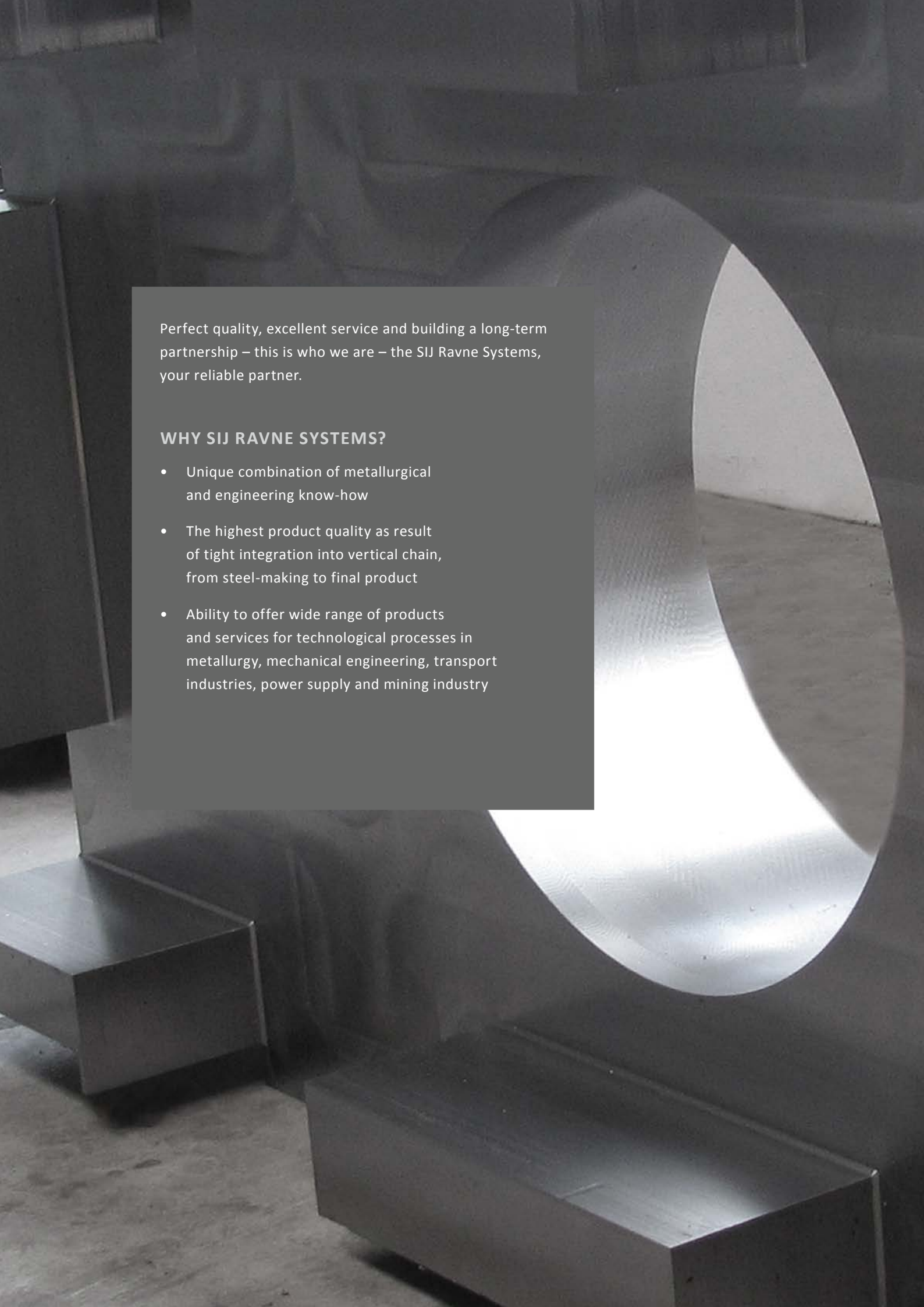


sij | ravne
systems




MECHANICAL
ENGINEERING



Perfect quality, excellent service and building a long-term partnership – this is who we are – the SIJ Ravne Systems, your reliable partner.

WHY SIJ RAVNE SYSTEMS?

- Unique combination of metallurgical and engineering know-how
- The highest product quality as result of tight integration into vertical chain, from steel-making to final product
- Ability to offer wide range of products and services for technological processes in metallurgy, mechanical engineering, transport industries, power supply and mining industry

The background of the image is a dark, monochromatic photograph of an industrial setting. It features a large, dark rectangular panel on the left and a vertical cylindrical structure on the right. The lighting is low, creating a moody and technical atmosphere. A semi-transparent grey rectangular box is positioned in the center-right of the image, containing white text.

Knowledge and rich experience in metallurgical, mechanical engineering, transport, power supply and mining industries combined with the knowledge of materials and technologies, and adequate equipment for production enable us to manufacture high quality products and equipment.

**YOUR COMPETITIVE
ADVANTAGE**





INCREASE YOUR PRODUCT'S LIFE TIME

Highest product quality based on world class production equipment and more than 400 years experience in steel making

INCREASE PRODUCTIVITY

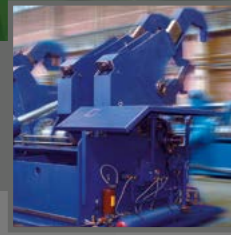
Implementation of turn-key capex projects, including implementation of hydraulics, electrical and civil engineering work

OPTIMIZE YOUR PRODUCTION PROCESSES

Extensive range of mechanical and heat treatment options to find the optimal product completion stage for your production process

EXCEED YOUR EXPECTATIONS

Strong in-house R&D department and wide applicational knowledge



SYSTEM INTEGRATED EQUIPMENT

Complex and demanding production processes involve complex requirements for manufacturing of machines. The equipment has to deliver long lasting performance and application without failure. With a broad knowledge and control over difficult mechanical and heat treatment procedures, we are able to satisfy high customer demands.

We produce mechanical assemblies and equipment for:

STEEL PLANTS

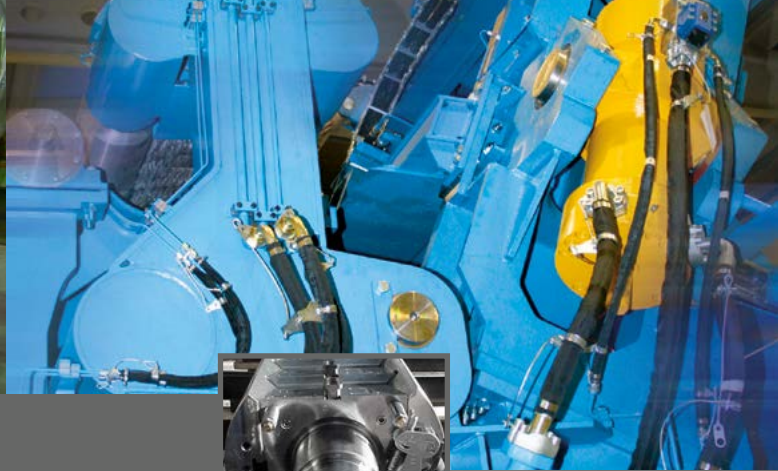
Equipment is produced in accordance with customer's documentation. We can offer our own research and development expertise with altering and adjusting of the construction and technological documentation to customer's specific needs.

ROLLING MILLS

In hot and cold rolling mills, a wide range of transport, straightening, coiling, cutting, packing and storing equipment is needed. We manufacture a wide range of equipment, machines, or complete production lines for production processes in rolling mills.

FORGING PLANTS

Our experience, knowledge and adequate production capacities enable us to manufacture a wide range of equipment for forging shops, such as hammers, presses and anvils.



COMPONENTS AND SPARE PARTS

Rich experience, knowledge and suitable production capacities enable our company to produce components and spare parts for technological processes in metallurgy, mechanical engineering, transport industries, power supply and mining industry.

PARTS FOR SUB-ASSEMBLIES FOR PROCESSING EQUIPMENT

- Coilers / uncoilers for sheet metal, for hot and cold rolling mills
- Bearing housing for hot and cold rolling mills. Cast, welded or forged execution
- Machine sub-assemblies and parts
- Hydraulic cylinders and parts
- Machined welding joints, forgings and castings

In the frame of our production capacities we manufacture:

- welded parts without machining (weight up to 35 t) and machining for welded parts,
- mechanical machining for forgings of larger dimensions,
- mechanical machining for castings of larger dimensions.



MACHINE AND DEVICE SPARE PARTS

Our production program covers a very wide product mix, which is supported by the field of spare parts production. We produce spare parts for different fields of metallurgical equipment on customer's request, from steel mills, hot and cold rolling mills, forging shops, power and conveying facilities, etc.

Spare parts are available for all sub-assemblies and lines produced in our company.

- Pilger mandrels
- Parts for forging hammers
- Parts for cold and hot rolling mills

SUBASSEMBLIES FOR TRANSPORT EQUIPMENT

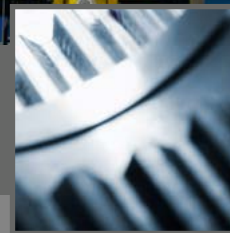
- Running wheels
- Sub-assemblies for conveying equipment
- Wagon and locomotive axles

SUBASSEMBLIES FOR POWER SUPPLY AND MINING INDUSTRY

- Parts for lifting devices in mining industry
- Components for hydroelectric power
- Large welded valves



PROFESSIONAL SERVICES



EQUIPMENT OVERHAULING & REFURBISHMENT

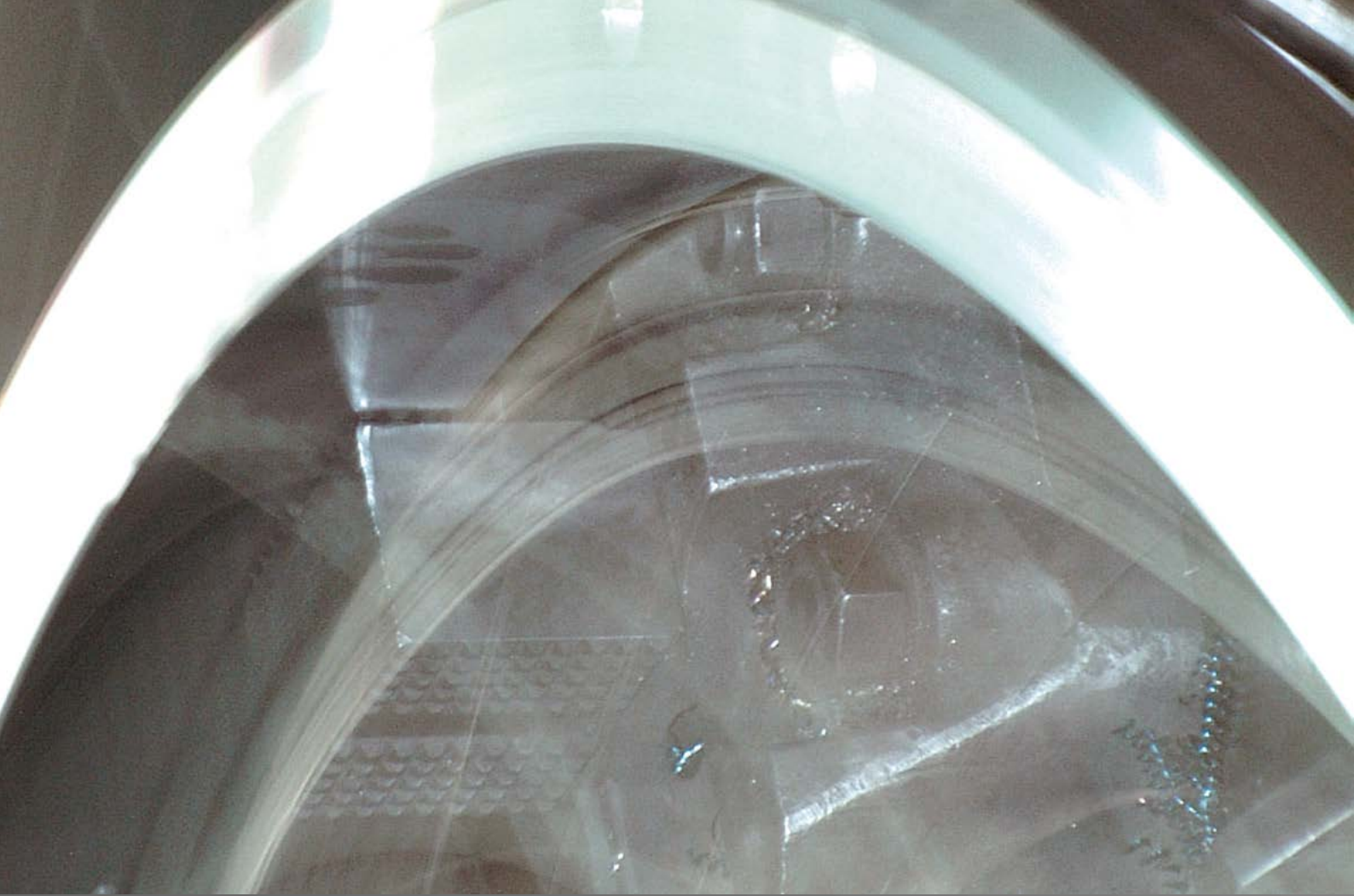
SIJ Ravne Systems overhauling & refurbishment programs bring old equipment back to their original condition.

- From single component to complete equipment overhauling & refurbishment
- Dedicated team of specialists
- High equipment efficiency and extended life time
- Costs and time savings

ENGINEERING & TECHNICAL IMPROVEMENTS

SIJ Ravne Systems, with its dedicated team of specialists constantly search and develop technical solutions on old or new equipment in order to reduce the operational and maintenance costs.

- New duties with existing equipment
- Efficiency and availability improving
- Process bottlenecks removal



TECHNICAL INSPECTION WITH DIAGNOSTIC AND DATA EVALUATION

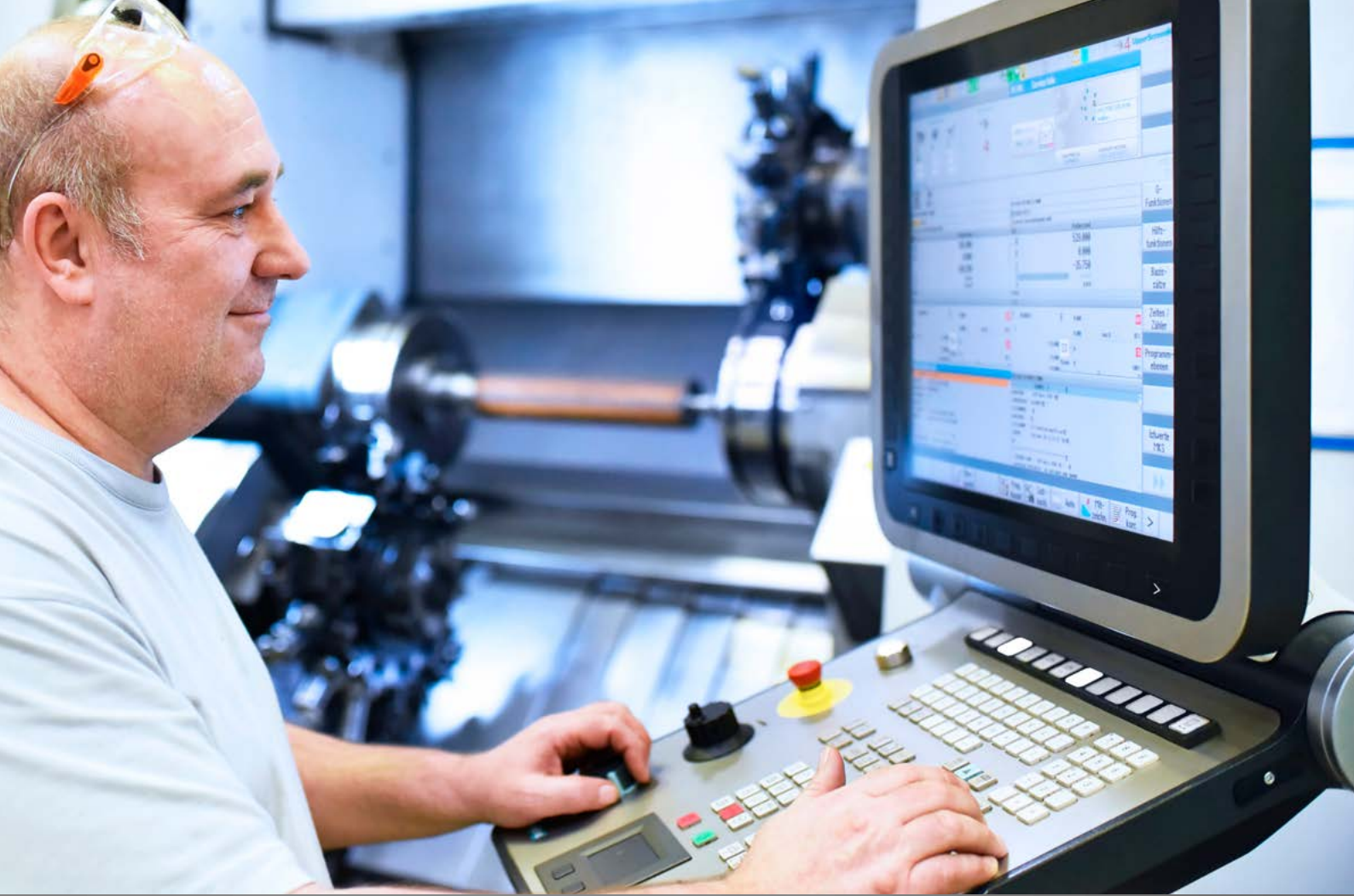
SIJ Ravne Systems, with on-site technical inspections and related diagnostic, offers support in equipment state evaluation, detection of process bottlenecks and in the relevant technical improvements.

- Specific measurements with advanced technologies
- Analyzing the data and providing relevant documented recommendations / solutions
- Process parameters understanding and cause damage analysis

REPAIRS & MAINTENANCE

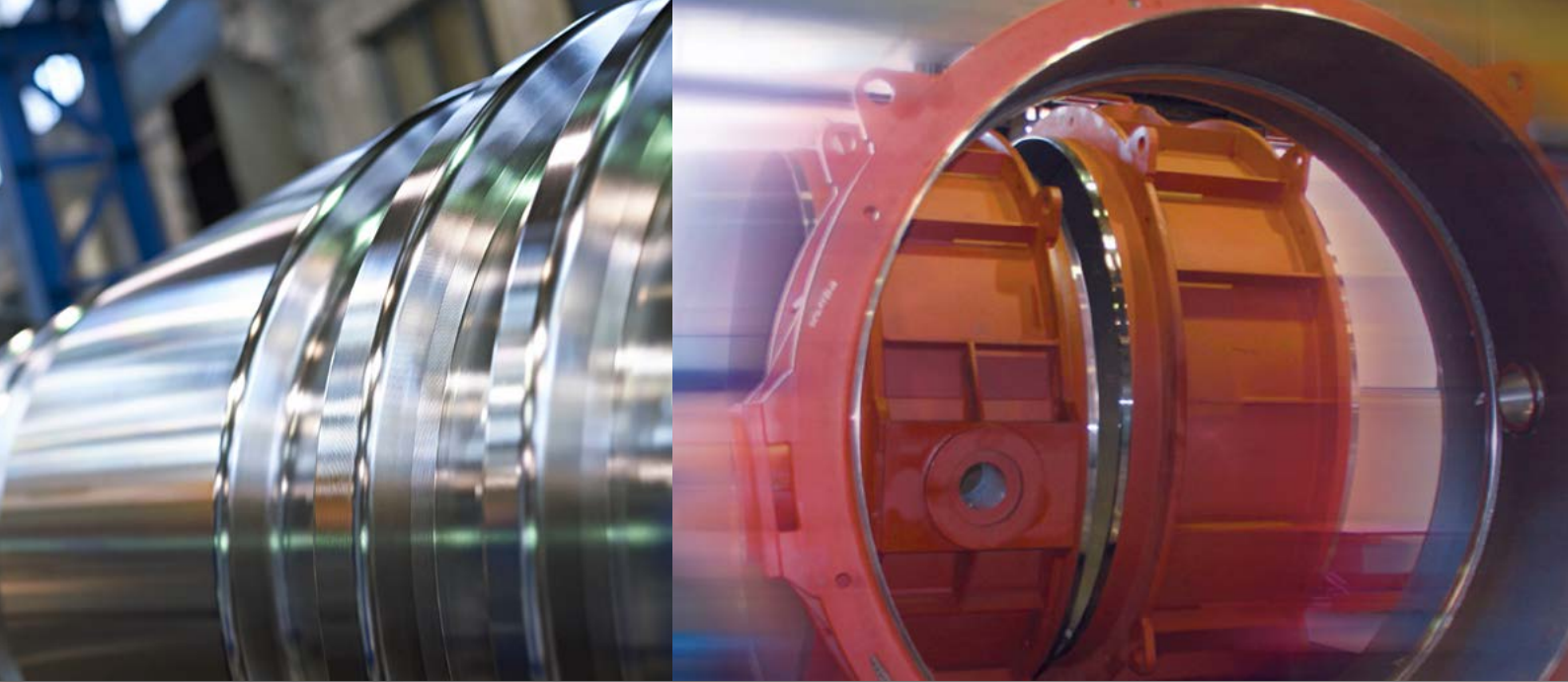
Periodical overhauling of machines and related components extend the life of equipment, ensuring prevention of possible breakdowns and increases the safety, reliability and efficiency.

- Maintenance planning
- Emergency repairs



PRODUCTION CAPACITIES





MACHINE CAPACITIES

MILLING

CNC milling centers

- max. workpiece weight 35 t
- up to 8.000 mm length
- up to 2.200 mm width
- up to 4.000 mm height

TURNING

CNC vertical turning

- max. workpiece weight 32 t
- up to 4.300 mm diameter
- up to 1.600 mm height

CNC and conventional turning between centers

- max. workpiece weight 14 t
- up to 950 mm diameter
- up to 5.400 mm length
- max. workpiece weight 10 t
- up to 720 mm diameter
- up to 11.000 mm length

EXTERNAL GRINDING

- max. workpiece weight 10 t
- up to 800 mm diameter
- up to 6.500 mm length

DRILLING

- max. workpiece weight 10 t
- up to 2.700 mm diameter
- up to 2.000 mm length
- up to 1.200 mm height

DEEP DRILLING

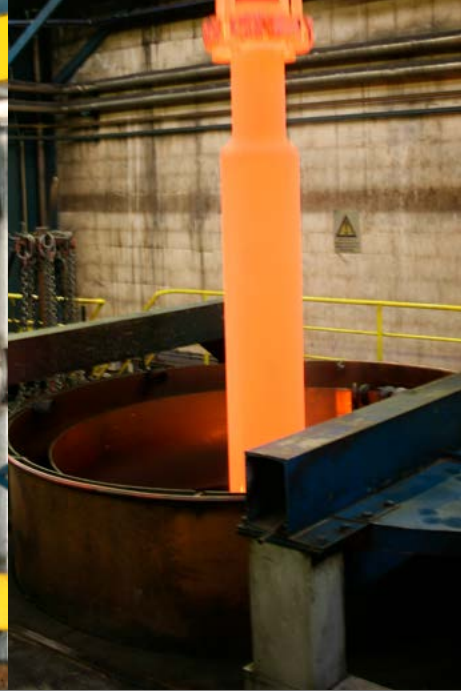
- max. workpiece weight 8 t
- up to 450 mm outside diameter
- up to 8.500 mm drilling length
- largest hole diameter up to 255 mm

HONING

- max. workpiece weight 5 t
- from 50 up to 290 mm diameter
- up to 2.500 mm length

3D-COORDINATE MEASURING MACHINE

- max. workpiece weight 15 t
- up to 3.500 mm length
- up to 3.000 mm width
- up to 1.500 mm height
- 5 micron accuracy



HEAT TREATMENT

VERTICAL HEAT TREATMENT FURNACES

ELECTRIC FIRED FURNACES

- Diameter: 850 – 1.450 mm and depth: 3.300 – 4.200 mm
- Diameter: 1.250 mm and depth 12.500 with possibility of extension till 13000 mm.

GAS FIRED FURNACES

- Diameter: 750 mm and depth 10.000 mm

PROGRESSIVE VERTICAL INDUCTION HARDENING

- Bi – frequency induction hardening machine
- Diameter: 150 – 830 mm, length till 5.500 mm and weight till 10 t

TYPES OF HEAT TREATMENT

- Quenching & tempering
- Hardening
- Tempering
- Flame hardening
- Hardening of tool and high - speed steel in salt bath
- 3D – induction surface hardening of various shapes (bearing raceways, teeth, roll necks, etc.)



OTHER

WELDING

- Demanding welded pieces of different shapes
- Demanding welded pieces up to 35 t in weight

At SIJ Group we are also able to weld and paint demanding pieces up to 35t weight.

ASSEMBLING

- Max. 38.400 mm × 19.000 mm
- 3.400 mm × 2.400 mm × 3.000 mm (assembling cave)

PAINTING

- Painting chamber and painting process according to ISO 14001
- Dimensional range: 11.460 mm × 7.000 mm × 4.000 mm, Tmax=80°



IN-HOUSE R&D DEPARTMENT

We are constantly striving to find optimal solutions for our customers, according to their needs and application. Our in-house R&D department with over 30 employees and modern testing equipment enable us to develop and implement turn-key capex projects to meet most complex and technically demanding tasks and need of our customers.

- Problem solving - unique products and solutions
- Innovative products outperforming average supplier on the market
- Development and testing of new steel grades as result of vertical integration in SIJ group

IN HOUSE ACCREDITED LABORATORIES

SIJ Ravne Systems among other departments consists of many well respected accredited laboratories with highly qualified staff, which perform a wide range of calibrations, tests and inspections according to ISO/IEC 17025 and ISO/IEC 17020. Services that laboratories provide are all performed following accredited internal procedures which conform to international standards.

Main services include:

- Calibration of length gauges and instruments, including shape and roughness testing
- Calibration of mechanical quantities: hardness, torque, force, etc.
- Non-destructive testing using RT, MT, PT, UT and VT methods
- Ultrasonic measuring instrument inspection
- Residual stress measuring

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