TŘINECKÉ ŽELEZÁRNY MORAVIA STEEL

# COMPANY PROFILE

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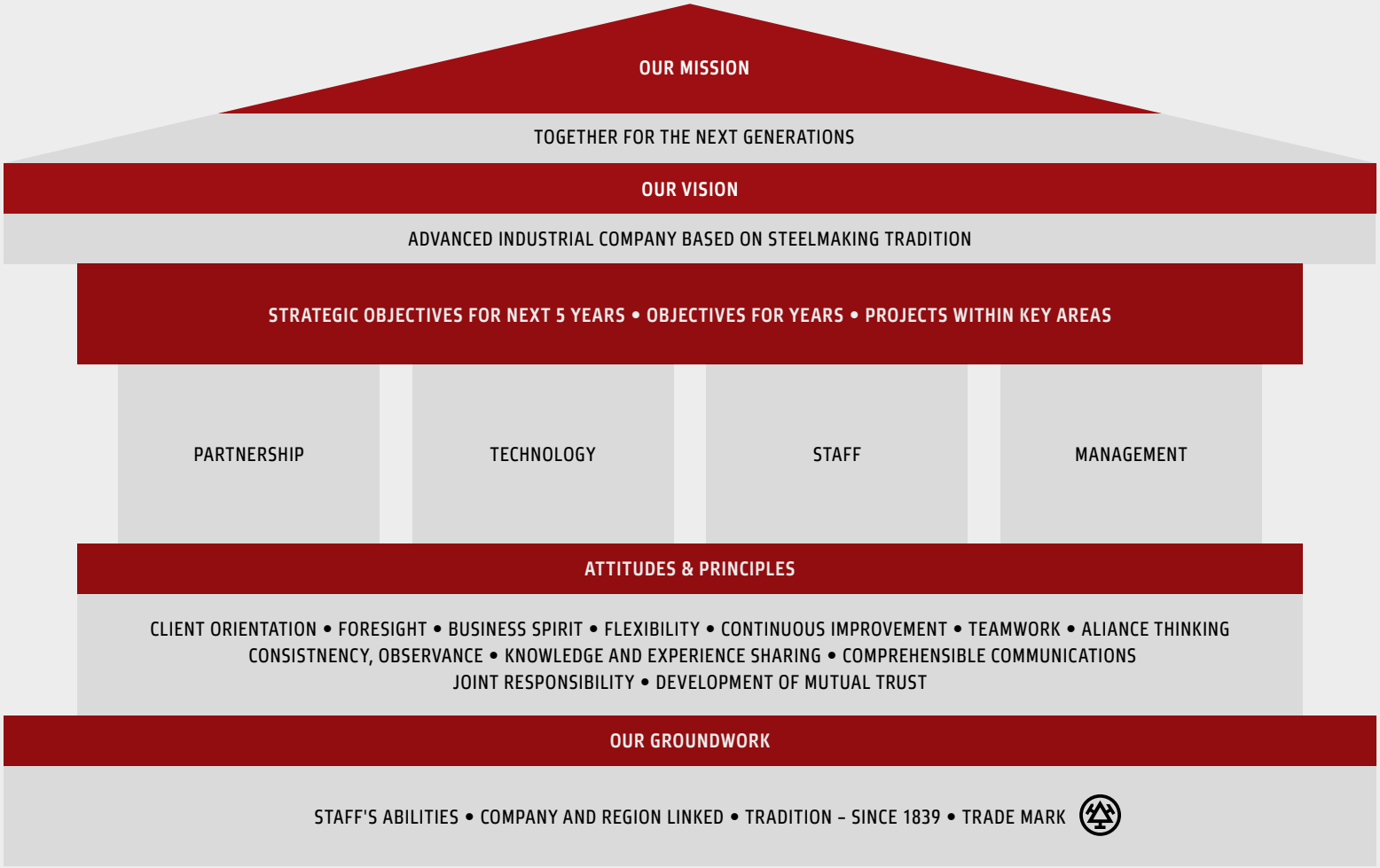




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# HISTORY AND PRESENT

**1839**

**Třinecké železárny, joint stock company, belongs to the industrial companies with the longest tradition of iron and steel making in the Czech Republic.** The company was established in 1839 by the Chamber of Těšín which was then owned by the archduke Karl von Habsburg. The beginnings of the operation of Třinecké železárny are connected with the production of foundry pig iron in the charcoal blast furnace. Favorable position of the company, its connection to the railroad Košice–Bohumín and access to raw materials made it possible for the owners – the Chamber of Těšín – to centralize their plants from the vicinity to Třinec in the 1870s

**1929**

In 1929 Třinecké železárny's **crude steel production share in the Czechoslovakia was 23 % and that of rolled products was even 31 %.**

*„First in the World – electric drive at the rolling mill, Třinec 1906*

**1906**

**In 1906 Třinecké železárny became the most significant part of the Mining and Metallurgical Company.** The aggressive modernization policy of the financially strong Mining and Metallurgical Company soon changed the appearance of Třinecké železárny. In 1920s Třinecké železárny was one of the most up-to-date integrated steelmakers in the Central Europe. The logo of the company "three hammers in a circle" accompanying the steel products from Třinec up to the present days was originated at that time.

*„The companies within the Třinecké železárny – Moravia Steel Group belong among the most significant industrial groups in Europe.*

## 1995

**Since 1995 the whole amount of steel has been produced in BOF converters and electric arc furnaces, while almost 95 % of produced steel is continuously cast.** Nowadays, Třinecké železárny is an integrated steelmaking company producing long rolled products. The political changes in 1989 have led to gradual privatization of Třinecké železárny. In 1991 Třinecké železárny was transformed to the form of joint stock company with 100 % share of the state. During the period of 1994 to 1996 the capital share of state has been gradually decreasing. Since 1996 Třinecké železárny has been a fully privatized company and its major shareholder is the joint stock company Moravia Steel.

## 1946

**Třinecké železárny was not significantly damaged in the World War II and was nationalized in 1946.** The development continued in the period of the socialistic Czechoslovakia, when the development of heavy industry had special importance. The steel production volume reached its historical peak in 1980s. The implementation of up-to-date technologies had special emphasis too. One of the most significant investment projects was the construction of the Basic Oxygen Furnace steel plant with subsequent bloom and billet continuous casting machines.

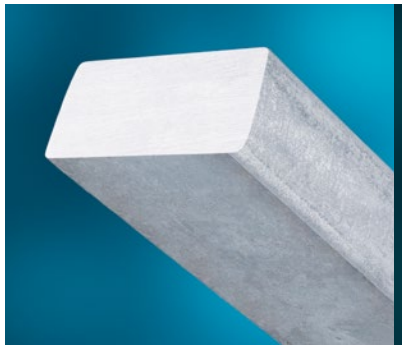
## 2013

**Since 2013, Moravia Steel has become the sole shareholder of Třinecké železárny.** We produce ca 2.5 million tons of crude steel annually. Třinecké železárny participates in almost 30 companies, which are the part of the product chains.

# PRODUCTION RANGE

CONTINUOUSLY CAST ROUNDS, BLOOMS AND BILLETS

BLOOMS



SLABS

BILLETS

RAILWAY RAILS

RAILWAY SUPERSTRUCTURE ACCESSORIES

GROOVE RAILS

SWITCH RAILS

WIRE ROD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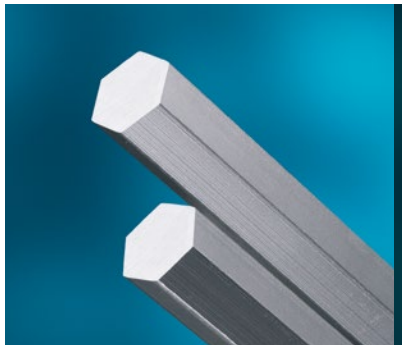
# PRODUCTION RANGE

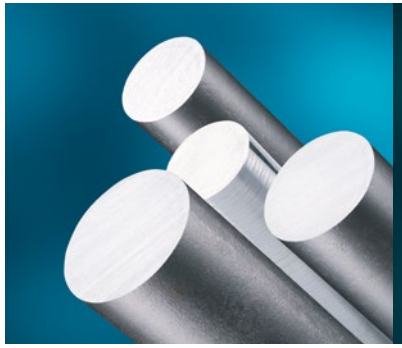
SQUARES

ROUND STEEL IN COILS AND BARS

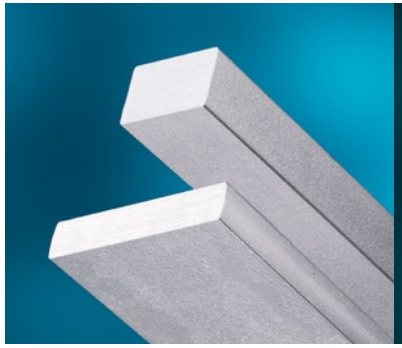


HEXAGONAL STEEL

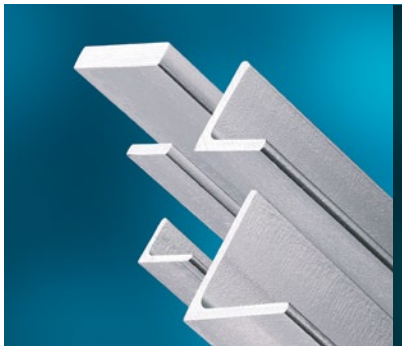
PEELED BARS



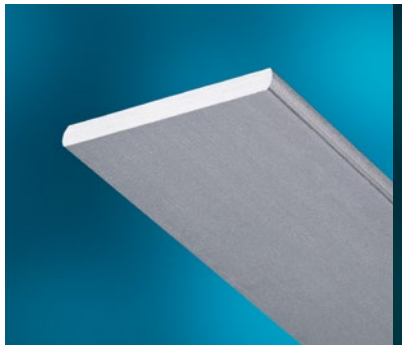
SPECIAL BAR QUALITY



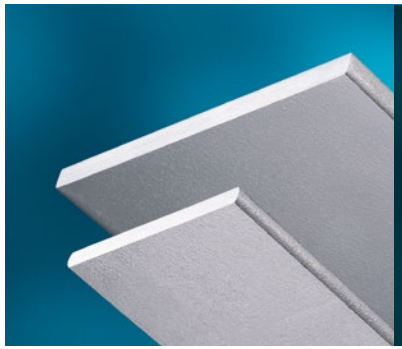
FLAT STEEL



ANGLES



FLAT STEEL FOR LEAF SPRINGS



WIDE STEEL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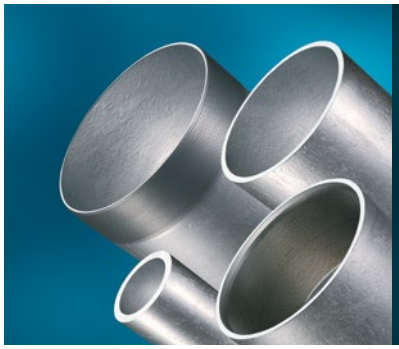
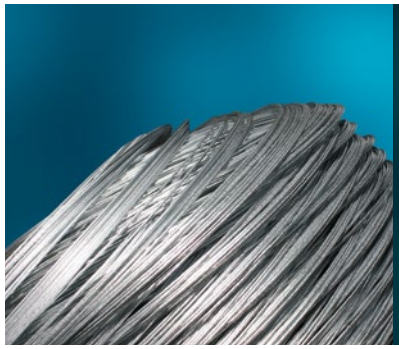
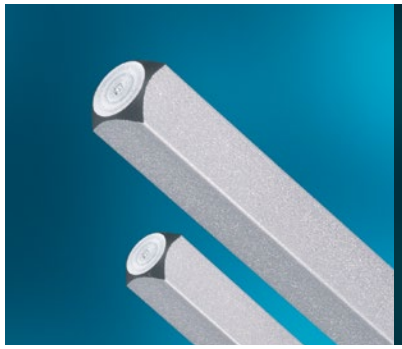


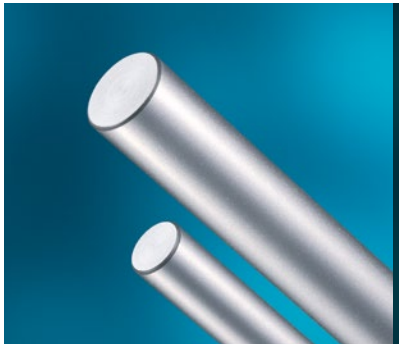
SEAMLESS TUBES



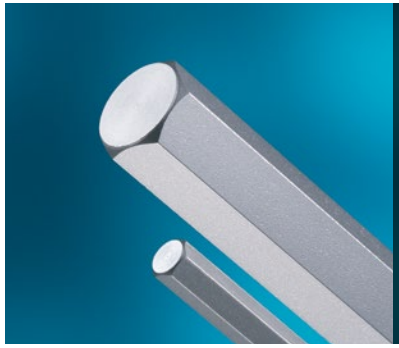
DRAWN WIRE



COLD DRAWN SQUARE



COLD DRAWN ROUND BARS

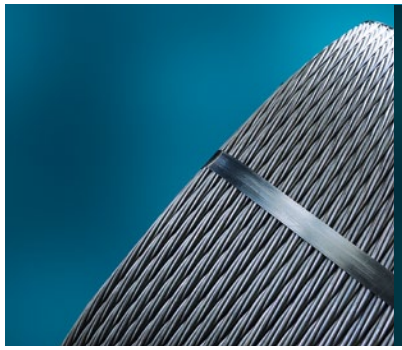


COLD DRAWN HEXAGONAL BARS

CHAINS

SCREWS

SPRINGS



STEEL ROPES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# OTHER PRODUCTS

## COKE AND CHEMICAL PRODUCTS

- Blast furnace coke
- Tar
- Benzol
- Ammonium sulfate

## METALLURGICAL BY-PRODUCTS

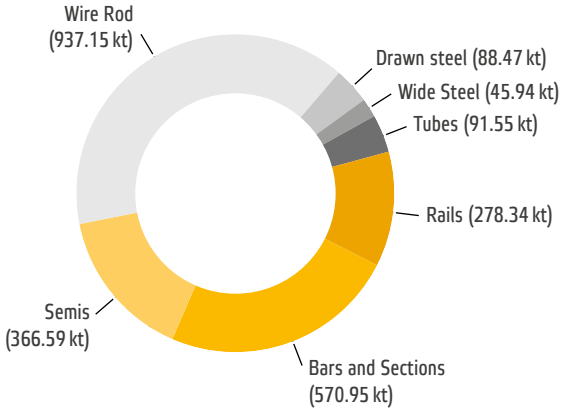
- Artificial normal weight aggregate for road building
- Granulated blast furnace slag for building and production of cement
- Fe correction for production of alite in cement factories
- Scrap and metallic admixtures for reprocessing in the steel production
- Mixture of artificial aggregates for the land reclamation

*„By the pulverized coal injection we have decreased the coke consumption*

# SALES OF PRODUCTS

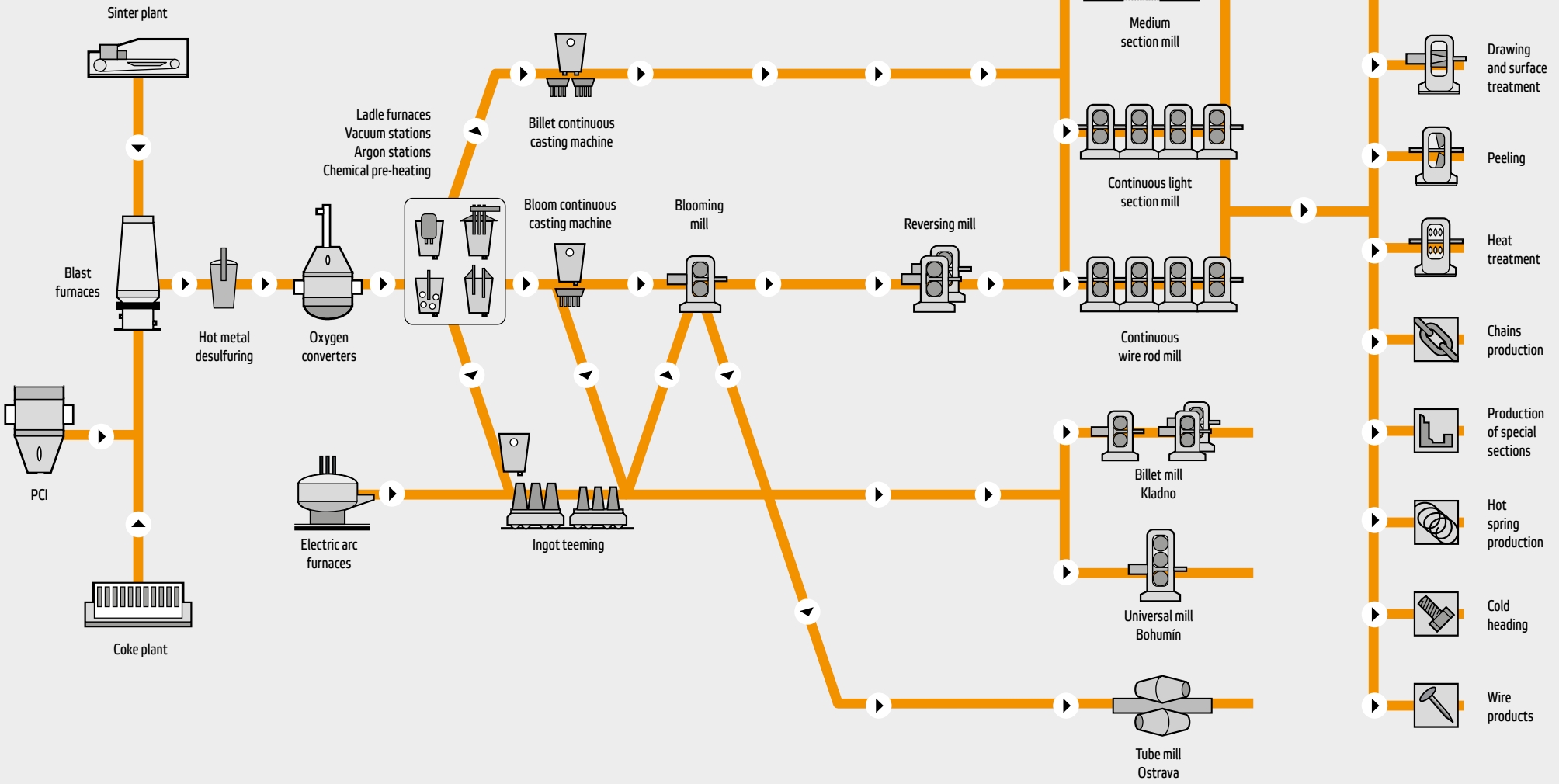
Long rolled products that form a basic product range of Třinecké železárny are largely sold through the selling network of Moravia Steel, its parent company. The main activity of the mother joint stock company Moravia Steel is purchasing the input raw materials for Třinecké železárny and sales of rolled products produced in Třinecké železárny and other companies in the group. The joint stock company Moravia Steel provides also the transport services connected with purchasing and sales. Thus, we provide better services for our customers. Approximately half of this production is sold to domestic consumers mainly to the metallurgical secondary producers, engineering and car industry as well as to the building industry.

## PRODUCT PORTFOLIO 2015




The other half of the produced rolled products is shipped to more than 50 countries all over the world. In a long-term view the largest volumes of our products are exported to the neighboring countries, especially to Germany and Slovakia. The Třinecké železárny products can be found in countries like Great Britain, USA, Canada, Spain as well as Finland, Norway or Belgium. Besides others, Fiskars products, Mercedes cars, bridge constructions or cranes can be made of Třinec steel.

# MATERIAL FLOWS AND TECHNOLOGY





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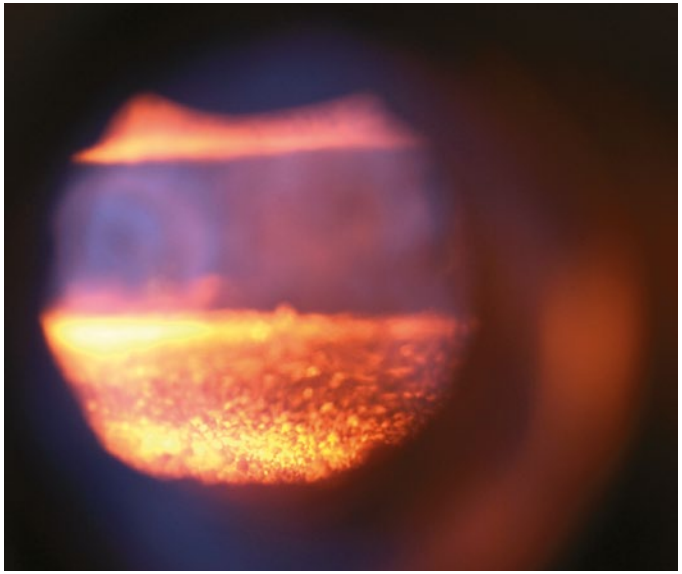
# CHARGE PREPARATION



## COKE-OVEN PLANT

Coke production has a long-standing tradition in Třinecké železárny. The first coke was produced here in 1873. The technological process of coke production has undergone numerous changes since that time. Today's coking and chemical operations comply with the requirements of modern technology, and at the same time fulfill strict environmental implications relevant to the coke production. Two coke-oven batteries of the annual capacity of 700 thousand tons of coke are operated using a rammed process with quick rammers. The coke-oven batteries are equipped with coke wet quenching facility. The coke gas is desulfurized and supplied to the gas network of Třinecké železárny.

Tar, benzol and ammonia sulfate are the by-products generated during the coke production. The coke-oven plant is equipped with a rotary drier for drying the coke which is used as a carburizing agent in steel plants. Waste phenol-ammonia waters of the coking plant are treated together with city sewage waters of Třinec at a biological sewage treatment plant. Since 2012, as a part of the coke oven plant facility is intended for blowing pulverized coal into the blast furnaces. This new technological device replaces a portion of the needs of metallurgical coke in the production of hot iron.

## SINTER PLANT

Sinter for blast furnaces is produced in two sintering plants on four sintering bands. Sinter plant No. 1 also produces sinter for steel plants to be used at the BOF plant. The production capacity of the sintering plants is 2.7 million tons of sinter annually. The input material comprises powder iron ores imported mainly from Ukraine and Russia, dolomitic limestone, dolomite and powder coke as well as wastes produced in the process of steelmaking in Třinecké železárny. Both of two sinter plants are equipped with modern facilities for a gas de-dusting, which guarantee that the amount of solid emissions is below the EU approved.

# IRON AND STEEL PRODUCTION

## BLAST FURNACES

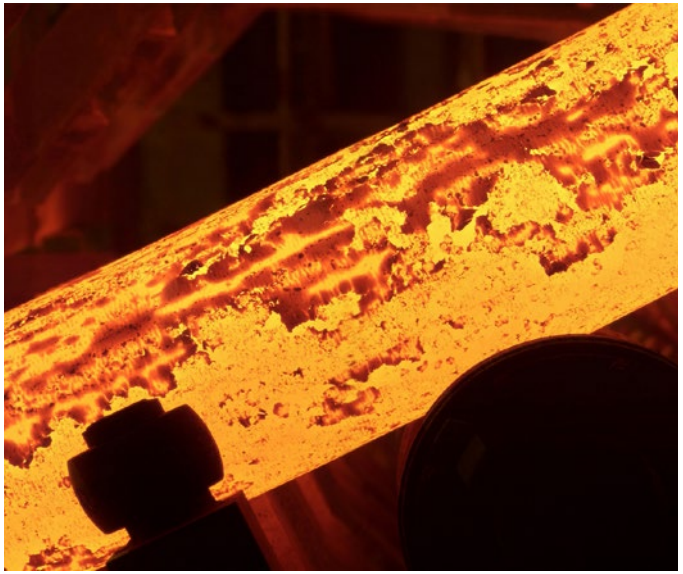
The first charcoal furnace in Třinecké železárny was put in operation in 1839 – the year considered as the beginning of metallurgical production in Třinec. Since that time the blast furnace plant has gone through many changes. Today, pig iron is produced in two blast furnaces with bell-free charging devices of the annual capacity of 2,100 kt. Hot pig iron is transported in torpedo mixers to the BOF steel plant. Blast furnace teeming halls are equipped with de-dusting equipment. All generated blast furnace slag is processed into artificial compact aggregates and slow-setting binders for their further utilization in the civil engineering.

## STEEL PLANTS

### BASIC OXYGEN FURNACES STEEL PLANT

Is equipped with two 180t converters of the annual capacity of 2.5 million tons of steel. For the production of a broad range of high-grade and plain steels a quality pig iron and scrap are used. The converters are furnished with argon or nitrogen bottom stirring, a sublance and a dynamic process control model, system of bins for metal and non-metal additions, gas cleaning station and utilization of converter gas. The Z-BOP control model for calculation of charged materials, positioning of oxygen lances, oxygen blowing patterns and batching of additions has been introduced.

The whole converter process including converter gas cleaning and recovery are controlled by a computer control system. The BOF steel plant is also furnished with a ladle metallurgy facilities which enables chemical and thermal homogenization, fine alloying, heating and vacuum degassing of steel in a ladle. The plant comprises also an argon rinsing station and two vacuum degassing stations of RH type. For steel heating a system of chemical heating, IR – UT, and the ladle furnaces are used. We have also implemented a gas cleaning station modernization of converter containers No. 1 and 2 to ensure effective gas purification.



## ELECTRIC STEEL WORKS

In the electric steel works are located 3 electric arc furnaces and a caisson for vacuum treatment of steel in a ladle. The product mix of the works consists of high-grade and high alloy steels. The electric steel works supplies steel also for foundries. The works' yearly production amounts to 20 kt of steel.

## CONTINUOUS CASTING

Converter steel is cast on two continuous casters. The first is a 5-strand bloom caster, the second is a 8-strand billet caster. On the bloom caster also round blooms are produced. The billet continuous caster output was increased by the implementation of the so called convex mold. The cast billets and slabs are then treated in final rolling mills in Třinec, Kladno and Ostrava or there are delivered directly to the customers. The cast billets are particularly inputs for continuous light section rolling mill, continuous wire rod rolling mill and medium rolling mill. Special ceramics for continuous casters is produced in Třinec by the company Vesuvius Czech Republic.

*"Třinecké železárny continues to maintain the position as the largest steel producer in the Czech Republic*

# STEEL ROLLING

## ROLLING MILLS

The first products of Třinecké železárny's rolling mills were rails and tires of railway wheels in 1878. In 1906, in the Třinec rolling mills an electric drive was introduced on the reversing rolling mill for the first time in the world. The production range of the rolling mills was gradually focused on the production of long rolled products. Current production is provided by the blooming mill connected to the reversing mill and six finishing rolling mills – medium section mill, continuous light section mill and continuous wire rod mill in Třinec, billet mill in Kladno universal mill in Bohumín and tube mill in Ostrava.

## BLOOMING MILL

At the blooming mill are rolled cast blooms of rectangular or round diameter heated in a walking beam furnace or ingots heated in soaking pits. The blooming mill works in-line with the reversing mill. The product mix of the blooming mill consists of blooms and slabs for further processing.

## REVERSING MILL

Reversing mill is equipped with four two-high stands in an open arrangement. The first stand is used only for rolling of billets. The main products of the mill are rails of the length up to 75 m, accessories for railway superstructure and billets which are all processed on the other finishing mills. The mill is followed by a rails and section straightener, an ultrasonic line for internal defects inspection, a device for inspection of surface defects of rails, laser devices for rails straightness and dimensions measurements and a finishing line.



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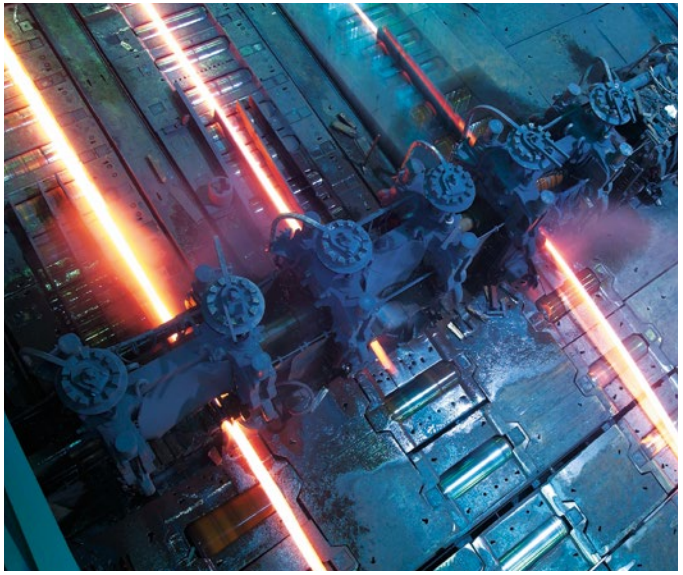


## MEDIUM ROLLING MILL

The main product range consists of round, square and flat bars, spring steel for parabolic springs, spring strips with rib and groove as well as mine rails, railway superstructure accessories and special profiles.

## RAIL FASTENING SYSTEM

Rail fastening handles rolled semi-products from medium and rolling reversing mill, from which produces parts of railway superstructure accessories, such as couplings, anchoring clips and bearing plates. They are divided by cutting on a presses or on a band saws. Grooves in the ribs of bearing plates are milled on the single-purpose milling lines.

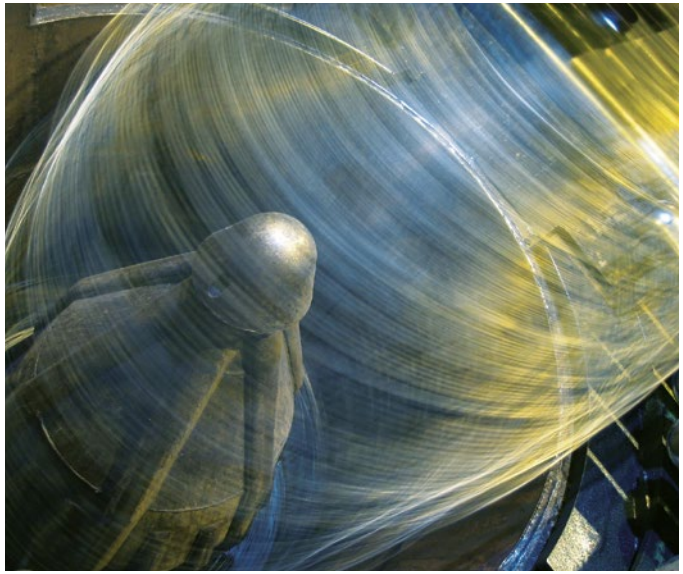
## CONTINUOUS LIGHT SECTION MILL

The mill produces round, square and hexagonal steel in bars and in coils, flats, rounded flats, angles and rebars. The cast billets as well as the billets rolled on the reversing mill are preheated in the walking beam furnace. The walking beam furnace is followed by the water jet descaling and preparatory one-strand mill consisting of four rolling stands. It is followed by two-strand roughing mill with eight stands and separate left and right finishing trains. The right train is followed by the ASC block enabling the precision rolling with controlled cooling. The right mill enables rolling of the SBQ bars up to the diameter of 80 mm. The sections from both trains move to the cooling beds.

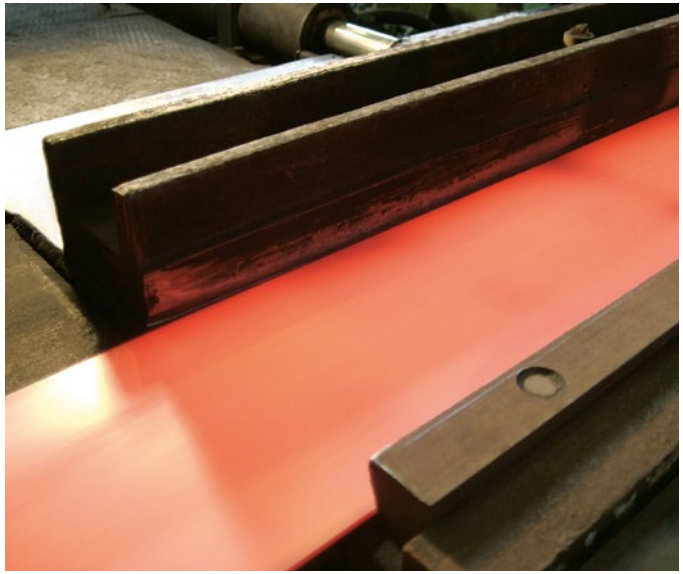
The products of lenght 80–110 m advance from the right cooling bed to the conditioning line. They are divided by the saws and bond at the binding line. The latest Garret coilers enable coiling of wire rod into coils in course and slowly cooling of wire rod coils in insulated tunnels. The left train is for rolling rebars with a diameter of between 10–16 mm while slitting system is used. Classic rolling happens from a diameter 18–32 mm. A substantial portion of production is further treated in the finalizing shop – annealing, peeling, shot blasting, drawing, pointing, and checking of internal, and surface defects.

## CONTINUOUS WIRE ROD ROLLING MILL

Continuous wire rod rolling mill was extensively reconstructed and modernized in 2014. The cast billets and the billets from the reversing mill, after their heating in a walking-beam furnace, are rolled on the preparatory, roughing and intermediate trains. Next, the rolled material is fed via a controlled loop into the CL double stand with overhung rolls. Through loop table no. 1 travels to the other wire CL double stand and then through the loop table no. 2 to 6-stand block, which reduces the material to a desired size to finish rolling in blocks RSM. After the last modernization, the smallest diameters of the produced wire achieves the rolling speed output value up to 110 m/s.

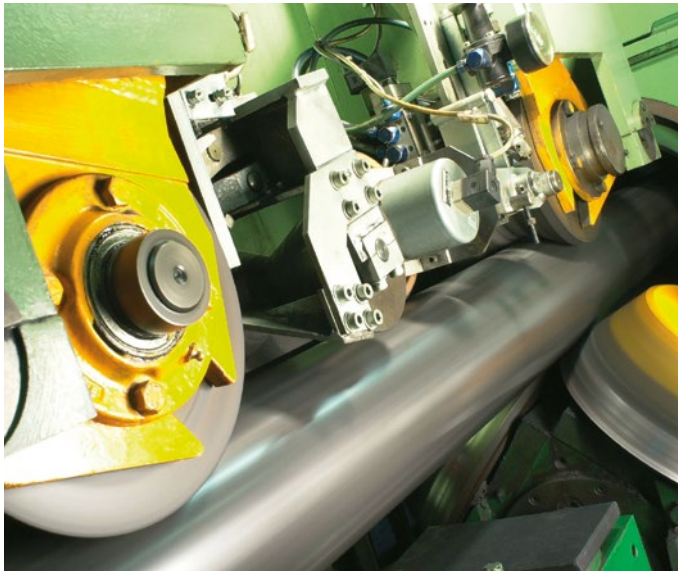


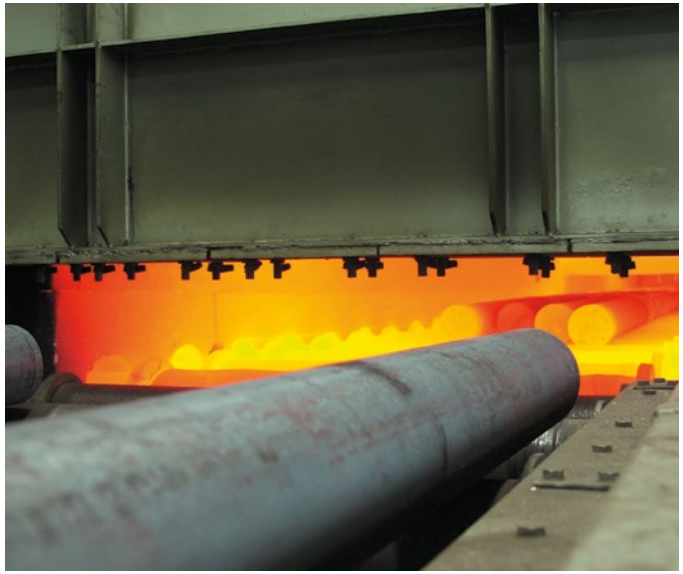
Heat treatment of a wire rod is carried out on each strand in four sections of water cooling. Next phase of heat treatment is performed in an unfold loop on the roller conveyer Stelmor where air cooling is applied. Then, a coil of wire rod of the weight about 2 t is collected in a reception chamber, from which it is transported by a hook conveyer to the presses where coils are pressed and prepared for shipment by means of railway or road transport. The mill produces wire rod of the diameter 5.5–20 mm.



## UNIVERSAL ROLLING MILL IN BOHUMÍN

The universal rolling mill in Bohumín has been one of the TŽ rolling mills since the beginning of 2002. The charge (slabs, blooms, billets) and continuously cast semis are pre-heated in the pusher type furnace and rolled at the three-high rolling stand with one pair of separately driven vertical rolls. The rules, shears for hot cutting the final lengths, and hot straightening machine are situated behind the three-high stand. Material is then straightened at the cold straightening machines. The product portfolio of the universal mill is flat and wide steel in width of 150–520 mm and thickness of 6–60 mm. The sheet billets of alloyed and stainless steel grades are a minor part of the product portfolio.





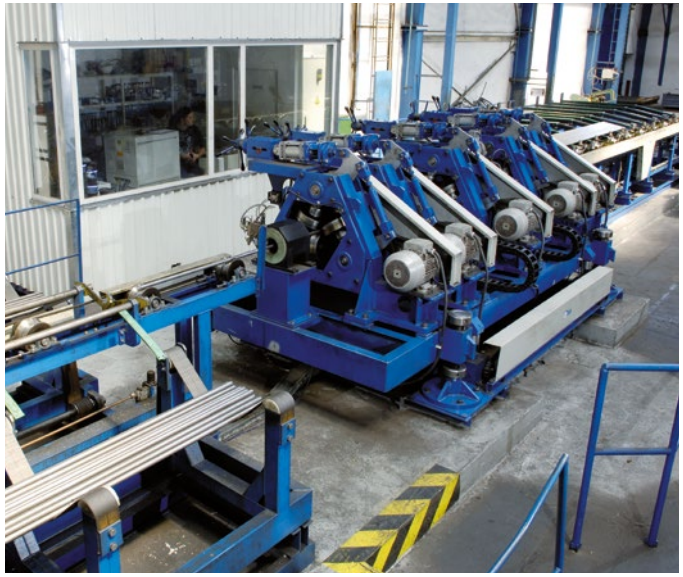
## BILLET ROLLING MILL IN KLADNO

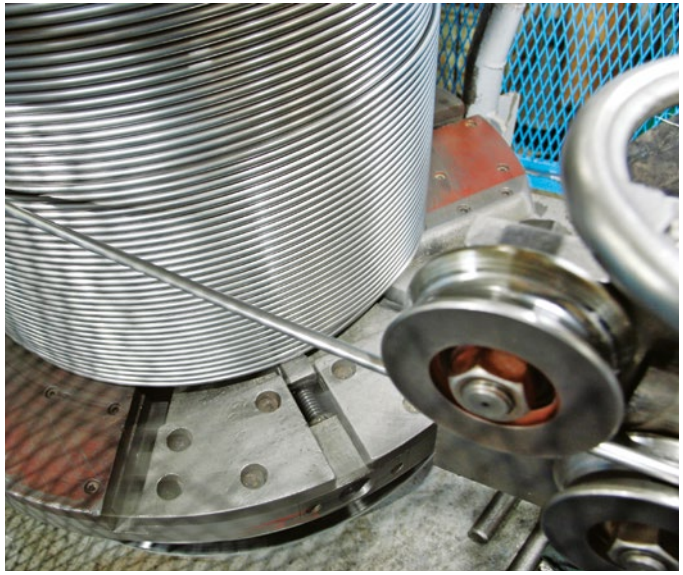
The rolling mill comprises new walking-beam heating furnace of the latest construction and 6 soaking furnaces, blooming mill and three blooming stands of the billet train for rolling rounds and billets, ingots and pre-rolled semis. The line is equipped with the descaling mechanism and appliance for hot dimension measuring of shapes. The product portfolio consists of carbon, carbon manganese and alloyed structural steel, in smaller size corrosion-proof and tool steel also. The company produces round bars ⌀ 70–300 mm, billets 70–165 mm and squares 170–300 mm. To ensure higher added value, considerable share of production undergoes heat treatment (upgrading, annealing) or peeling. There are three heat treatment and two annealing furnaces running. The main kinds of heat treatment is quenching, tempering, soft annealing, normalizing, stress relief annealing and spheroidizing. Finalizing is equipped with defects testing devices for surface and internal defects testing, mobile optical spectrometer for chemical material analyses, 2 peeling machines with the possibility of bar peeling up to diameter 290 mm, lengths from 3 up to 7 m with the dimension tolerance up to h11.

## TUBE MILL IN OSTRAVA

The tube mill operates two Manesmann mills which production portfolio comprises seamless hot-rolled steel tubes of the diameter 60.3 up to 406.4 mm with the wall thickness of 5 up to 65 mm produced from non-alloyed and alloyed steels. The tubes are produced according to the most common international standards ČSN, DIN, ASTM, GOST, NFA, API etc. These tubes are used in construction of pipelines, production of energetic facilities, chemical industry, in automotive field, engineering and building industry. Oil tubes Casing 7"–13 3/8" and Line Pipe 5"–16" for oil and gas mining and for prospecting have dominant position. Pickling and heat treatment is a part of final treatment operations.

# STEEL PROCESSING AND FABRICATION





## STEEL PROCESSING AND FABRICATION

Steel processing and fabrication increases the utility value of our products. Rolled material, especially steel bars and wire rod, goes through the final operations, such as drawing, peeling, or heat treatment according to customer's wishes and requirements. The steel bars in Třinecké železárny are further annealed and peeled. The annealing is done in three chamber furnaces of the annealing plant. The main types of annealing are soft annealing together with spheroidizing annealing, stress relief annealing, and normalizing. For peeling of bars, there are three peeling lines installed in the annealing plant with the total annual production capacity of 60 kt. Defect testing is one of the final operations. The Circoflux equipment is used for surface defects testing of the black bars. Peeled bars are tested on the facility Circograph. For internal defects testing, the Karl Deutsch – Echograph and Starmans DIO 2000 are installed. Wire rod annealing runs in up-to-date STC furnaces, i.e. furnaces with the short time cycle. At present, 3 furnaces are operating, each one with the capacity of 9 kt/year. The coils and bars can be annealed with the use of different modes of heat treatment, mainly:

- soft annealing together with spheroidize annealing
- recrystallization annealing
- stress relief annealing

Wire drawing and surface treatment is running at the STAKU line that comprises of an application of phosphatizing and further treatment. The line capacity is ca. 10 kt/year depending on the diameter of wire rod treated. The wire rod of input diameter 10–20 mm is drawn to the diameter from 8 mm up to 19 mm. The wire surface is treated by phosphatizing. Wire fabricated this way is used for further drawing and treatment as cold forming. It is also protecting it against corrosion. A workplace for wire rod surface control is a part of the line. It is testing cross as well as longitudinal defects. Peeling and processing line of steel wire rods consists of straightening line and also facilities

for detection of steel bars internal defects, peeling line with peeling technology, smoothing/polishing, defectoscopy, dividing, cutting, deburring and alignment fronts bars, hexagonal packing into bundles and tying. The last part is the processing line, allowing processing of rolled round bars for induction hardening and tempering temperature. Cooling from the hardening temperature is controlled by spraying with water this line with a capacity of 70 kt/year represents an increase in value-added manufactured steel rods, which produces our light section mill. Products that pass the line, are designed primarily for forges and mostly used in automotive and engineering industries.

## WIRE DRAWING MILL IN STARÉ MĚSTO

Wire rod drawing mill in Staré Město close to Uherské Hradiště produces drawn steel from coils to bars, from bars to bars or from coils to cold drawn coils. Descaling of the rolled material is done in mechanical way. Then there is drawing, dividing, straightening and polishing, beveling, milling of the front ends, non-destructive testing and binding. Annealing of the coils and bars is the part of treatment of several products and is provided by the input material supplier.

The product line of drawing mill consists of:

- Round drawn steel cross section
- Hexagonal drawn steel cross section
- Rectangular drawn steel cross section

# SECONDARY RAW MATERIALS

## SECONDARY RAW MATERIALS

A cycle of metallurgical production of Třinecké železárny is closed by the processing of large-scale wastes that are generated particularly in the process of pig iron and steel production. In the past, the blast furnace and steel plant slags were utilized only partially and the remained unprocessed part was dumped at a heap. Presently all blast furnace and steel plant slags are processed. Further, metallurgical debris, blast furnace and converter sludges as well as slags from the dump heap are processed.

The equipment for large-volume wastes processing includes slag outpouring facilities, crushing and classifying lines for processing of blast furnace slag and metallurgical debris, a slag mill mainly for the processing of the steel plant slags currently generated as well as the slags from the dump heap. The processed metallurgical wastes are utilized both within the company in metallurgical production and by external consumers, especially in the building industry.

The multi-purpose environmental area is used for handling with dangerous large volume wastes. Converter sludge, dust exhausts from the ladle metallurgy, and oily scales are treated there. The multi-function ecological area disposes of four separate sections for manipulating these wates.

## THE MAIN PRODUCTS ARE:

- Metal-containing materials (granulate and concentrate Fe)
- Artificial normal weight and heavy weight aggregates for road building
- Granulated blast furnace slag for building and production of cement
- Fe correction for production of alite in cement factories
- Scrap and metallic admixtures for reprocessing in the steel production
- Mixture of artificial aggregates for the land reclamation

The wastes processing and their utilization as secondary raw materials is very important for Třinecké železárny particularly from an economic viewpoint.

Transport, sorting and disposal of all kinds of small volume wastes originating in departments of Třinecké železárny and its subsidiaries is ensured by means of the small volume wastes stock.

Complex treatment of metallurgical wastes followed by utilization of the recovered secondary raw materials is also significant for the environment not only in the vicinity of the works but also at any place where secondary raw materials are utilized and replacing natural raw materials.

# VÚHŽ, A.S.

www.vuhz.cz

**The company VÚHŽ a.s. seated in Dobrá u Frýdku Místku became a subsidiary of TŘINECKÉ ŽELEZÁRNY in 2007. The company is building on the tradition of the research institute, which was established in former Czechoslovakia in 1948. Nowadays it produces high-tech automation and measuring equipment for the steel companies as well as the technologies for the secondary metallurgy and material engineering.**

It includes the rolling mill of special sections, which are used mainly in the automotive industry, then the centrifugal foundry, machine works, and the Metaltest division, which is involved in production and coating of tools nad molds. VÚHŽ is certified according to ISO 9001, ISO 14001. It has its own research and development department including the laboratories and test rooms. Approximately half of the VÚHŽ a.s. production is exported to the numerous countries worldwide.

## WHAT DO WE PRODUCE IN PARTICULAR?

- Electromagnetic mold level detector for measurement of molten steel level in the mold of continuous casting machine
- Special sections for manufacturing of hinges for vehicle doors
- Centrifugally casted reduction rolls for tube rolling mills
- Centrifugally cast rolls for food industry
- Centrifugally cast stainless steel rings, tubes and cases
- Production and repair of molds and tools
- Feeders of cored wires, regulation systems for steel, cast iron, and non-ferrous metals metallurgy, and other special equipment for steel producers and foundries
- Coated tools with long service life – technology CVD, PACVD and PVD
- Coating of molds, cores, and casting chambers for die casting of aluminum, molds for pressing of the plastic and rubber, cutting tools, and plate stamping tools
- Surface treatment on the electrochemical anodizing line
- Testing, research and development, accredited laboratories



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# MATERIÁLOVÝ A METALURGICKÝ VÝZKUM, S.R.O.

www.mmvyzkum.cz

**MATERIÁLOVÝ A METALURGICKÝ VÝZKUM s.r.o. belongs to the workplaces qualified for complex applied research in the field of metallurgy and material engineering in the Czech Republic**

The basic mission and strategic plan of the company is conducting independent research and development, assurance of technological innovation and provision of services in the field of metallurgy and material engineering in order to increase the competitiveness of Czech metallurgy and mechanical engineering.

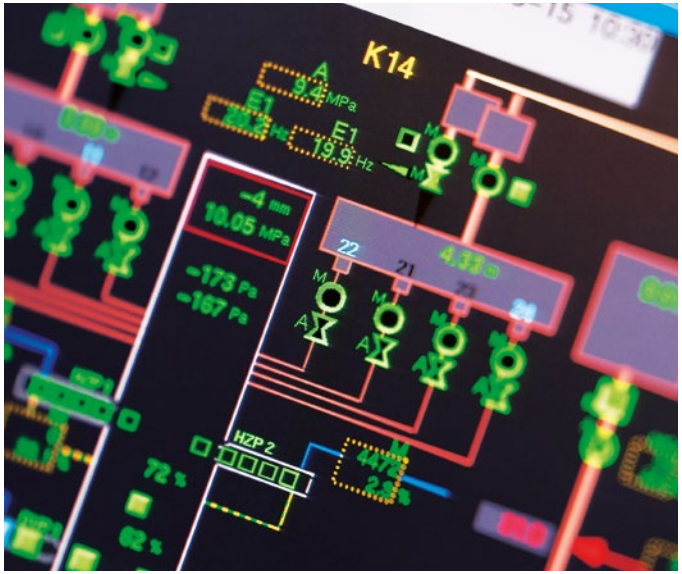
The experimental and production facilities are concentrated in the accredited or non-accredited laboratories as well as in the hall of pilot production. The quality system has been certified in accordance with the ČSN EN ISO 9001.

The MMResearch company offers especially:

- Research of new steel sophisticated production technologies
- Research of secondary steel metallurgy and steel solidification in the ingot molds
- Research of advanced forming technologies and managed forming processes using mathematical modeling and numerical simulation
- Evaluation of conventional and unconventional material properties testing laboratory accredited by CIA c. 1300, o.p.s.
- Creep material properties testing
- Structural and phase analyses of metal materials
- Analyses of defects reasons of nonstandard metal materials
- Development and production of testing and laboratory equipment according to customer requirements
- Grey, alloyed and special alloys production up to 2,080 kg

# ENERGETIKA TŘINEC, A.S.

**www.etas.trz.cz**




**The company Energetika Třinec, a. s. presents energetic complex, which supplies with energy not only its mother company but also other companies and municipal sphere. At the same time, it delivers the thermal energy for the town of Třinec and its vicinity.**

The main activity of the company Energetika Třinec, which has two production plants – thermal energetic and heating station – is to produce, distribute and sell electric energy, hot water, technological steam, blast and compressed air, service and drinking water and its distribution, further natural gas treatment as well as treatment of heating gases acquired as by-product of metallurgical production. The company also operates central storage of fuel oils, coal thawing plant, sewage piping and sewage treatment plants.

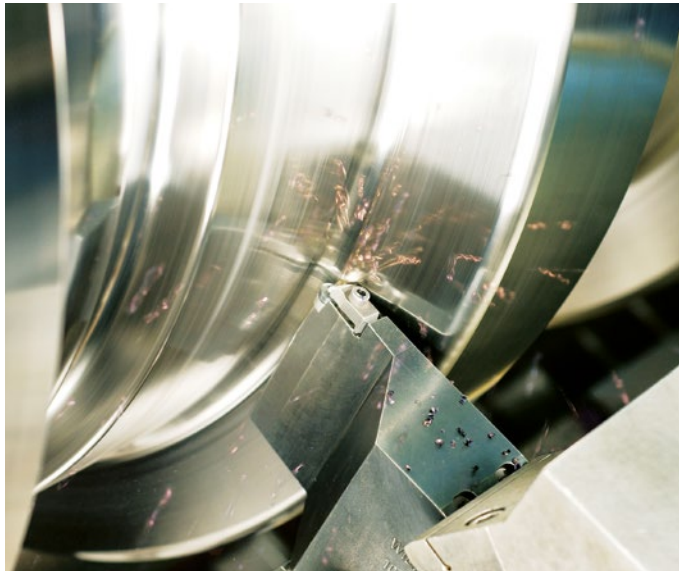
Production of electricity and heat is implemented through the combined production of electricity and heat with high efficiency of energy conversion. The rated capacity is 101.5 MW; the heat power is 583 MW.

Construction and launch of two boilers with circulating fluid layer contributed to considerable drop of emissions to the air and launch of terminal sewage treatment plant resulted in remarkable decrease of water pollution.

The company has implemented a quality system according to EN ISO 9001, environmental management system in accordance with EN ISO 14001 and is certified as a Safe Company.

# STROJÍRNY A STAVBY TŘINEC, A.S.

**www.sas-trinec.cz**



**The Company Strojírny a stavby Třinec, a.s. is 100% subsidiary of TŽ. Its tradition dates back to 1885.**

The basis of the company consists of six production plants and independent authority as Konstrukce (Constructions) consists of design activities. Current activities are focused on tailor-made production order in the field of engineering and construction.

In the field of engineering, production activities are focused mainly on repairs-maintains service operation for the mother company Třinecké železárny and external markets, where the company supplies technological equipment, especially for metallurgical plants and rolling mills, trimmed weldments and offshore weldments, steel constructions and halls, cranes on key, forged bars and shafts and other engineering units according to customer requirements.

Construction activity is mainly focused on industrial and civil buildings and road construction, including repairs.

The main strategy of the company is to respond flexibly to the needs of the parent company and to apply comprehensively large projects, not only within the region and the Czech Republic, but also abroad.

# SLÉVÁRNY TŘINEC, A.S.

www.slevarny.trz.cz

**The company Slévárny Třinec, a.s. continues almost 180-year-old tradition of the foundry industry in Třinec. Its key business activity is production and sale of steel castings, cast iron and to a lesser extent, non-ferrous metals.** Present production is concentrated in the complex of grey-iron and steel foundries. Production of non-ferrous metals is the part of plants. The foundries which include also wood pattern shop and manual forge shop production including treatment. Castings delivers according to the requirements in the raw state, founded, roughed machined or trimmed in our own machine tool center or in cooperation. As regards to client´s requests performs non-descructive tests – e.g. X-ray, ultrasound, magnetic watering test and others. Almost 60 % of production is exported mainly to Europe, and in some cases even overseas.

**PRODUCT RANGE COMPRISES:**

- Castings for machinery
- Castings for automotive field
- Castings for agriculture
- Serial produced castings on the automatic moulding line HWS
- Oil sumps, boxes, lids, skeletons of electric motors
- Castings of counterweights for handling machines and devices
- Molds for steel plants and forges
- Stools and accessories
- Rolls for different rolling mills
- Spare parts for metallurgical aggregates
- Coolers and tuyeres for blast furnaces
- Abrasion components for stone and coal treatment machines
- Components and accessories for building machines (band plates, excavator teeth)
- Bearing plates and railway frogs
- Castings for press tools especially in the automotive field
- Castings according customer's specification

# REFRASIL, S.R.O.

**www.refrasil.cz**

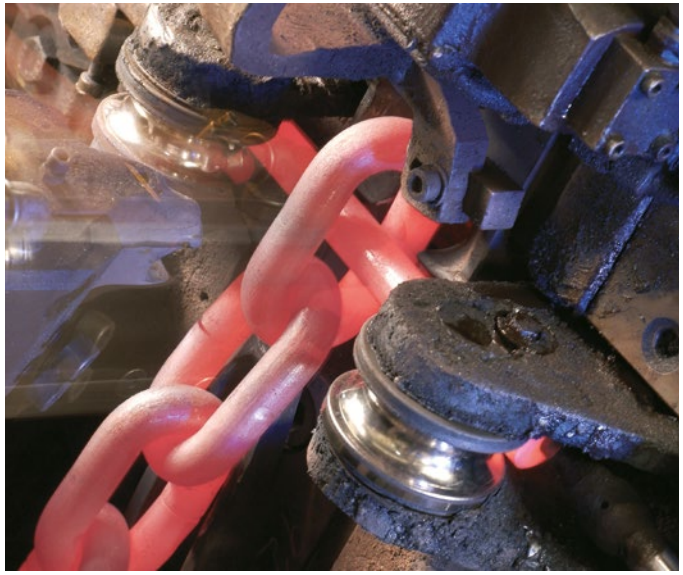
**Refrasil company belongs to the leading manufacturers of refractory materials in the Czech Republic. Together with production provides special technical services related to the application of refractories, and provides technical comprehensive services in the refractory segment when installing their materials at customers.**

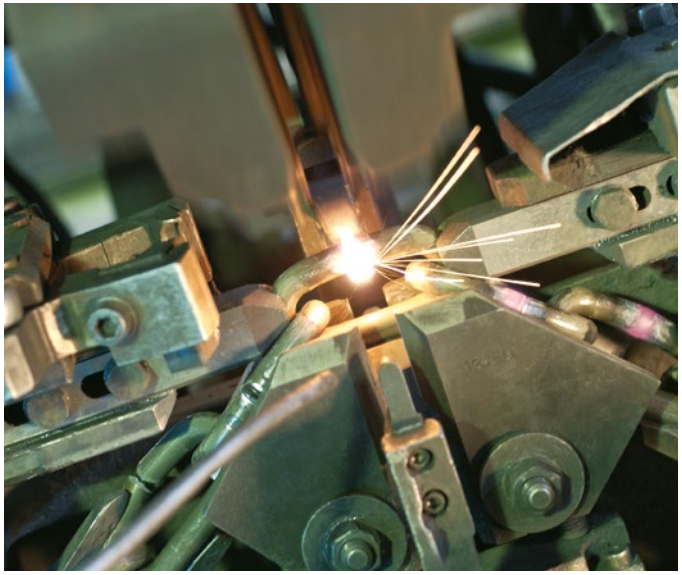
The product portfolio includes fireclay and high alumina bricks, insulation materials, substances, mortars, cements, refractory and monolithic refractory castables. Refractory products are intended for the metallurgical industry, foundries, building industry, ceramic and glass industry, cement and lime mills, energy and other industries that require the use of refractories.

Refrasil is a member of the Association of Czech and Slovak producers of refractories (AČSVŽ), which gathers all the biggest manufacturers in this field in the Czech Republic and Slovak Republic and as well is a member of the European Association of Refractories (PRE).

# ŘETĚZÁRNA A.S.

**www.retezarna.cz**





**The chain production in Česká Ves u Jeseníka has more than a hundred year tradition. The main production program of the company focuses on the production of welded chains from ø 2 mm to ø 60 mm in the grade 24 to 100. Beside this, we produce chain forged accessories, such as various hooks, shackles, connectors etc. These products are drop forged up to the weight of 7.5 kg. The other main group of our products is drawn wire which is drawn from ø 1.8 to ø 16 mm.**

The chains are supplied in metres or in exact sections or as a part of other chain products. Those include the following items: sling chains, tyre protective chains for wheel loaders, snow chains for vans, trucks, buses, forklifts, and tractors, meshing chains for forestry, chains for various conveyors, mining chains, fishing chains as well as various other components.

The company produces approx. 10,000 tons of all kinds of our products annually. Approximately 85 % of our products are sold at the domestic market and we export to more than 50 countries worldwide. The biggest users of our chains are in Germany as well as in Poland, Great Britain, Norway, Slovakia, USA, China, Australia etc.

Qualified employees, long term experience, modern machinery and facility with very well established and functional quality management system according to ISO 9001:2008, environmental management system according to ISO 14001:2004, and also labour safety and health protection according to OHSAS 18001:2007 that guarantee the high quality products. This quality, inter alia, declares the products certification granted by the Testing laboratory (BG) of Germany in Hannover for chains for manual and electric hoists, slings chains and suspension components of quality 80 which own only a dozen companies in the world.

# ŠROUBÁRNA KYJOV, SPOL. S R. O.

**www.sroubk.cz**

**Šroubárna Kyjov, spol. s r.o. is a long-term traditional producer of fasteners of hot forming technologies. The product portfolio consists of products for railways, mines, construction, machinery and automotive industry.**

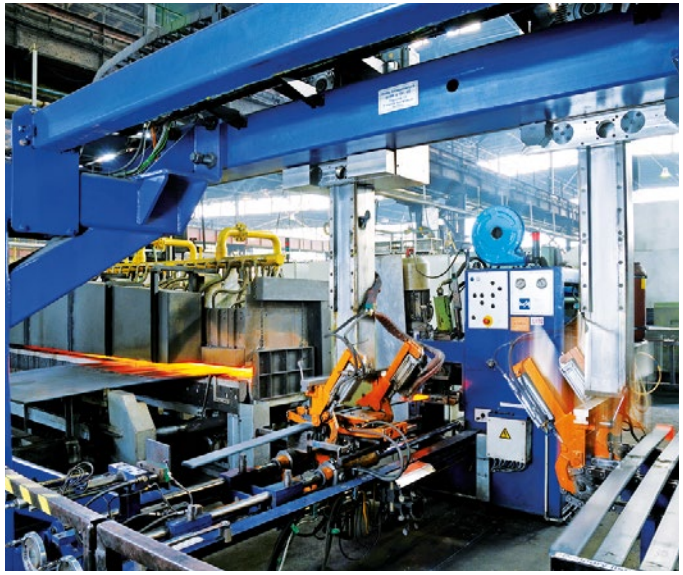
The core business presents production of screw spikes, construction screws and hook screws, screws for railway superstructure and nuts, where belongs to the most significant European manufacturers. Another carrier range is the production of forgings bearing rings and the subsequent processing of these forgings and forgings production of cams for camshafts.

Supplementary assortment is then production the fasting components for special applications such as rivets, turnbuckles, anchor bolts, insulator hooks. For hot forging are used a special automatic forging lines which produce steel or wire rod by electrical medium-frequency heating system. The threads are manufactured by cold rolling or cutting, both external and internal or hot produced on special lines by own design.

Three quarters of the company's production is intended for export. The company's products are applied in the markets of EU countries as well as in the US and countries in South America, Africa and Asia. It is also certified according to ISO 9001 and ISO 14001 standards of the Lloyd's Register Quality Assurance Company.

# HŽP, A.S.

**www.hzap.cz**



**In 2008, the company HŽP, a.s., before Hanácké železárny a pérovny, a.s. became a part of the Třinecké železárny – Moravia Steel Group. The production of undercarriage springs for railway and automotive industry has had aged tradition here.**

The product portfolio of the company consists of hot rolled undercarriage springs, which are used in automotive and railway industry. The main products are screw springs, leaf and parabolic springs.

The company produces various types of springs made from round and flat steel annually. More than 80 % of the production is designed for export, particularly to EU countries. Global companies as Scania, Iveco, Alstom or Bombardier belong to our biggest customers. The most of deliveries follow strict rules of automotive field i.e. supply accuracy in just-in-time mode.

A matter of course is the certification of the company in accordance with the standards ISO TS 16949 of automotive industry and ISO 14001. The company also gained the prestigious IRISDB certificate of railway industry that are giving the guarantee of the highest quality to customers.

# KOVÁRNA VIVA A.S.

**www.viva.cz**

**The company Kovárna VIVA a.s., Zlín is a significant Czech industrial forge. It has become a part of the Třinecké železárny – Moravia Steel Group since 2009. It specializes in swage forgings made out of alloyed, micro alloyed, carbon and structural steel.**

The weight dimension of its products varies from 0.10 up to 35 kg. The company offers to its customers, top EU producers, and a complex production portfolio for swage forgings from its development, construction and finalizing i.e. chemical-heat treatment, machining, surface treatment.

The company VIVA is equipped with complete production facilities from forging development to its final treatment:

- Dying
- Zinc-coating
- Nickel-coating

Forgings are produced with the latest technologies, with high accuracy, highest quality, from standard and special materials. There are used e.g. in cars and trucks (gearboxes, bogie-components etc.), hydraulics, agriculture etc.

All the production process is thoroughly checked according to TS 16949 and ISO 14001 standards.

# METALURGIA S.A.

**www.metalurgia.pl**

**METALURGIA S.A., located in Radomsko (Poland), is a leading producer of wire rod and further products manufactured out of wire rod in Europe and in the world. The tradition of the company dates back to 1879 when it was established by investors with French capital. In 1992, the company was transformed into incorporated company with the trade name "METALURGIA" and after next three years it was included into the Privatization Program of the Republic of Poland. Since 2009, it has been a part of the Třinecké Železárny – Moravia Steel Group.**

METALURGIA S.A. is a company with the tradition in the field of wire rod production and its further treatment. Its final goods are exported into almost all EU countries. Its major advantage is its large technological base e.g. zinc works, wire rod drawing mill, annealing shop, nail works, galvanizing and tool shop, and insulated pickling line for wire rod with closed pickling cycle together with the station for acids recovery. The key success of the company is highly qualified technical staff and own technical laboratories.

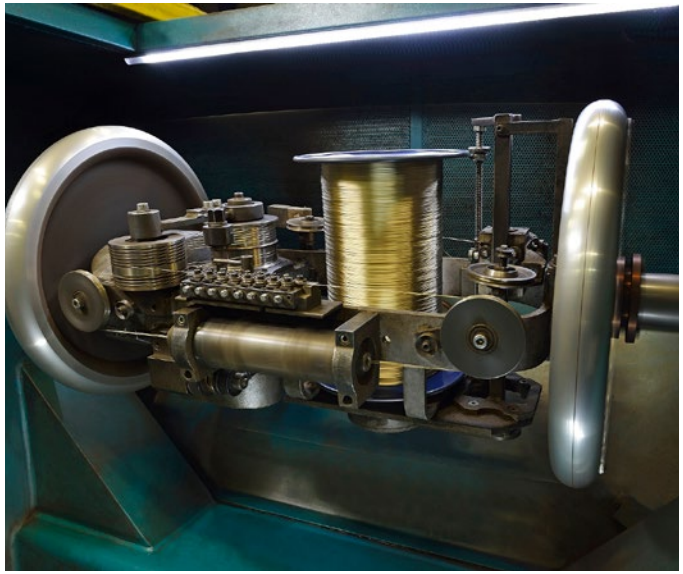
**THE PRODUCT PORTFOLIO CONSISTS OF MORE THAN FIVE THOUSANDS ITEMS IN THE FOLLOWING GROUPS OF PRODUCTS:**

- Steel wire rod uncoated: stiff, semi-stiff, soft-annealed, calibrated
- Steel wire rod coated: zinc, copper or PCV
- Welded wire rod
- Wire rod out of non-ferrous metals
- Wire rod made of stainless steel
- Barbed wire rod
- Nails of different kinds
- Garden meshes and panels

All the products of the company METALURGIA S.A. meet the requirements of foreign and domestic standards. In 2003 the company gained the certificate of the quality management system according to ISO 9001:2000 that proves products quality as well.

# ŽDB DRÁTOVNA A.S.

**www.dratovna.cz**



**ŽDB DRÁTOVNA a.s. has been following more than 130 year tradition of steel production in Bohumín which is mainly focused on wire rod processing, especially in Třinecké železárny. Since 2012 has become its subsidiary.**

The company consists of the following operations: drawing plant patented wire, drawing of low-carbon wire rod, steel cords, wire rope steel mill, spring production, wire production and drawing die. More than eighty percent is designed for export. Its products are used primarily in the automotive, machinery and furniture industry.

The Quality Management System has been developed at individual plants since 1994. Company is certified according to EN ISO 9001: 2008 in the field of unpatented wire and spring production and also is a holder of certify ISO / TS 16949:2009. In the field of quality management where the emphasis is above permanent development QMS strictly given in the Quality Policy of ŽDB DRÁTOVNA a.s.

**RANGE OF PRODUCT PORTFOLIO CONSISTS:**

- High carbon wires
- Screw and low carbon wires
- Steel cords
- Steel ropes
- Springs
- Wire rod products
- Dies

# TAŽÍRNA DRÁTU D&D DRÓTÁRU ZRT.

**www.drotaru.hu**

**D&D Drótáru Zrt. and its predecessors have been manufacturing steel wire products since their foundation in 1912. Since the sixties, the company is the only manufacturer of prestressing steel in Hungary.**

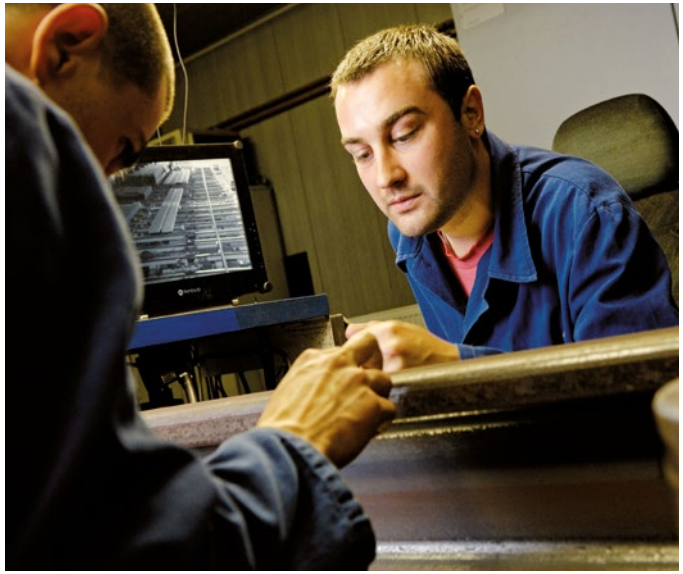
D&D manufactures its products according to national standards of most European countries, and its interim certification of products are maintained at a high technical level and adapted to the new technological trends. These products fully agree with the highest international requirements for steel reinforcing material supply in the construction industry.

Deliveries are heading do Europe and even overseas – the USA. We put emphasis on product quality, "just in time" delivery and complete service for the customers. This join-stock company has become subsidiary of Třinecké železárny since 2011. D&D Drótár products are used in the building field for the pre- and post-tensioned concrete structures.

**PRODUCTS PORTFOLIO:**

- Stabilized prestressing strand – 7-wire prestressing strands are mainly used for pre-tensioned concrete elements such as beam bridges, hollow-core slabs, lintels and the static cal anchorage of different objects (bridges, roofs, buildings, rocks, etc.).
- Stabilized prestressing wire – Prestressing wires are mainly used for pre-tensioned concrete elements, such as beams, concrete poles, railway sleepers, piles. Produced in a smooth or profiled version.
- Cold drawn wire – Cold drawn wire is used for less loaded pre-stressed concrete elements.
- Steel wire fibre – Steel wire fiber are used as dispersed reinforcement in concrete for industrial floors, tunnel linings, concrete pipes and shafts. Fully replace traditional reinforced wire of concrete.

# QUALITY AND ENVIRONMENTAL MANAGEMENT SYSTEM



In 1993, we implemented a quality management system according to EN ISO 9001. It has been further enhanced with the ISO TS 16949: 2009, which is required for suppliers to the automotive industry. In 2001, we introduced a system of environmental protection according to the environmental standards of EN ISO 14 001. Since 2016, we have introduced and use the energy management system according to EN ISO 50001. Together with our parent company Moravia Steel, we annually announce a joint policy of quality, environment and occupational health and safety.

The basic principles of the management include the linear organizational structure as well as process and project management. None of the principles are applied in isolation; management is based on their well-considered combination.

CLIMATE ACTION Member
worldsteel ASSOCIATION
5-year member recognition

To obtain necessary feedback to identify and monitor the implementation of strategic objectives, a system of indicators for performance management Balanced Scorecard (BSC) and a system of regular reporting are set up.

CSR – SPOLEČENSKÁ ODPOVĚDNOST ORGANIZACÍ
NÁRODNÍ CENA ČR

# ENVIRONMENT

Environmental protection programme has been a part of the TŽ business plan for number of years. TŽ has been focusing on permanent efforts to decrease the environment burden in its vicinity. The long-term conceptual work in this area brings gradually positive effects in the surrounding landscape. Permanent reduction of the amount of discharged solid and gaseous emissions and dust is visible in gradual revitalization of the surrounding Beskydy forests. Today, every metallurgical and power facility is equipped with effective dedusting facilities. In addition, the power facilities are furnished with desulfurization units, accordingly used for desulphuring of coke-oven gas at coke and chemical plant.

An elaborate water system with a high degree of recirculation and a number of water treatment stations and other water works ensures high efficiency of water utilization and makes it possible for TŽ to discharge a required quality of waste water into the Olše water course as well. The handling of wastes that are generated in the production processes of TŽ also complies with the requirements of present time. A major part of the wastes is recycled and reused in the technology of metallurgical production, another part is transformed into the form of certified products and utilized in the other branches of industry. The waste that cannot be recycled or otherwise processed is transferred to the authorized professional subjects for further disposal.

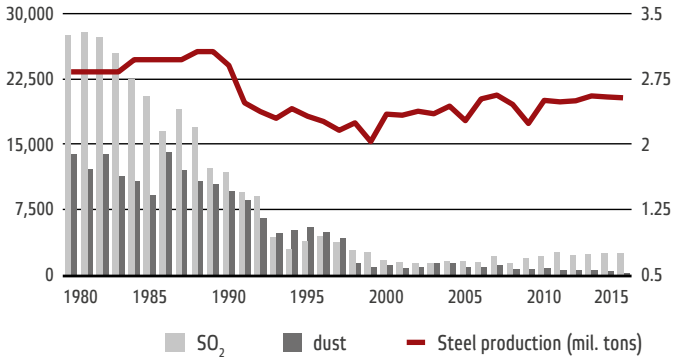
In line with the EU regulation, there is ensured the implementation of obligations regarding registration, evaluation and licensing of chemicals and preparations market oriented (REACH), for detection of influences on health of people and on environment or with the aim of utilization restriction of these chemicals in TŽ-MS Group. Our plan of environmental protection always includes the care of natural greens at the territory of iron and steel works. As a matter of course is care of a bio-corridor along the Olše river which flows through the works on the distance of almost 7 km. An important activity is a solution of old environmental burdens where authorized companies provide gradual sanitization of the contaminated area.

TŽ fulfils all statutory duties regarding green-house emissions, since 2005 has been a part of the European Union Emission Trading Scheme (EU-ETS) and has been searching for all available possibilities to reducing of green-house emissions. All TŽ production facilities run according to the gained integrated permissions from the Regional Authority of Moravskoslezský Region in line with the law No. 76/2002 Code on integrated prevention. Třinecké železárny has implemented the environmental management system in accordance with the standard EN ISO 14 001, which is integrated with the quality system. The environmental policy is focused on observing the more severe emission limits corresponding to the standards and demands of the European Union.

The most significant environmental projects Třinecké železárny recently invested in are:

- Reconstruction of Exhausts of Blast furnace teeming halls
- Secondary de-dusting of the BOF Steel Plant hall
- De-dusting of fumes and nodes at Sinter Plant No. 2
- Reconstruction and modernization of Coke-oven Battery No. 11

## AIR POLLUTION

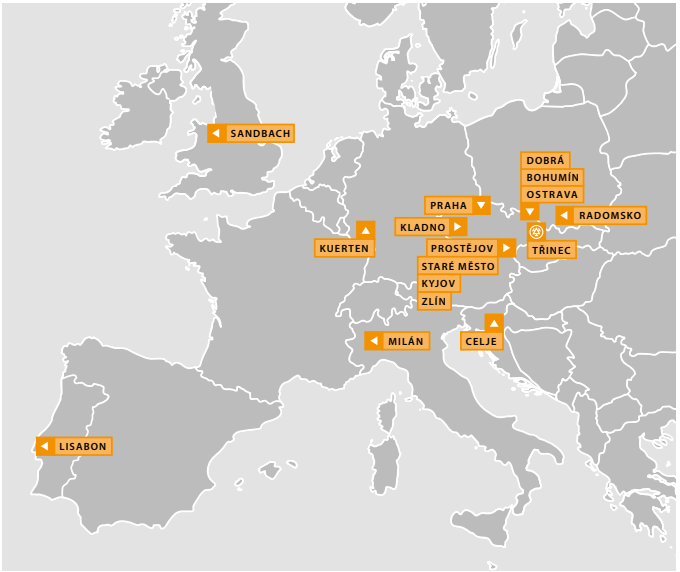


# TŘINECKÉ ŽELEZÁRNY AND THE REGION

Třinecké železárny has been influencing the life in its outskirts by its industrial activities for generations. By the volume of its business activities Třinecké železárny is one of the biggest industrial companies in the region of North-Eastern Silesia and provides directly or indirectly numerous job opportunities. The development of the steel production in Třinecké železárny has not changed the look of surroundings only but it has also been a stimulus for the transition of small village of Třinec to the town with today's almost 40,000 inhabitants. Třinec was promoted to the town in 1931 mainly thanks to the growing industrial importance of Třinecké železárny. The dominant position of Třinecké železárny in the surrounding region is retained up to the present days. The regional policy of the company owners, which has been coming out of this fact, is concentrated on the support of development of social, cultural and sport activities of local population, whose significant part are the company's employees. The important part of this regional policy is the sponsorship of numerous communities and social organizations, support of education and youth as well as health care and charity.

Třinecké železárny received the National Award for Corporate Social Responsibility of the Czech Republic as one of the first Czech companies and it is also the first-ever recipient of the Moravian-Silesian Region for social responsibility. Intensive environmental investments in recent years allow substantially reduce the burden on the environment. Třinecké železárny has significantly reduced dust emissions in particular. We also participated in the project "Green Company" and expanded its portfolio of activities related to improving the environment. We participate in the environmental project Climate Action Member within the global steel organization worldsteel.

# CONTACTS

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