

# ŠTOREQSTEEL

Internal information magazine, nr. 1 - 13



# Importance of developing

*In these uncertain times, when there is no fix and clear predictions, is running of the business process management more difficult. There are needed big daily efforts to adjust to ever different and changing demands of customers.*



However, despite turbulent times we do not ignore our long-term views, do not resign from the vision of continuous development and innovation, a continuous training and employment of young people.

With scientific sphere has there been established an extensive cooperation in the field of developing of new types of steel.

We encourage innovation processes in the company. Improvements given by our employees are taken into account and discussed.

Also our owners are aware of strategic importance of the company's development and therefore they supported start of investment into a new device for continuous casting of steel.

With our development- focused orientation we take care for long-term partnership with our customers and thus provide them a reliable source of steel supply for the future.

Marjan Ma košek, Managing Director

*In the photo: Managing Director, Marjan Ma košek with a group of younger engineers and one of the mentors, dr. Miha Kova i*

# Creativity and innovativity

*Being creative and innovative is a great advantage for both – for an individual and consequently for the company. Our company encourages the employees to bring out their innovation proposals which are depending on their effects also rewarded. The number of proposals received has been increasing since the year 2005 and yearly are there noticed from 10 to 20 proposals.*

Authors who have so far contributed more than 10 proposals are: Miha Kovačič, Vojko Slapšak and Robert Turnšek. Most innovation proposals were made in the rolling mill – till now 35 ones.

Since the year 2009 we have participated at the invitation called "Innovations of the Celje region," given by the Celje regional chamber of commerce where in the year 2009 our worker Vladislav ŠELEKAR received the bronze award for his technical innovation called "Moving chair with a chain attractor"

With a degree awarded innovations were:

- An improvement of the feeding system on the MAIR peeling machine (Štefan Šuhel, 2009),
- Improvements on the SAS polishing machine (Jože Zajc, 2009),
- Clamping of samples of specific shapes into the electronic microscope and an improvement of conductivity of samples embedded into plastic (Robert Turnšek, Franci Zupanc, Aleksander Pesjak, 2010),
- A hanger for sliding closing (Miran Vahen, 2011),
- A measuring instrument for measuring of microplus sounds (Roman Pavli, 2011),
- A tester of time relays (Roman Pavli, 2012),
- A device for testing of SSI transmitters (Martin Dobovišek, 2012),
- A reconstruction of clamping and sealing of the stands' encoder (the continuous rolling mill line) (Martin Dobovišek, Urban Rožej, 2013),
- A reconstruction of clamping of the CNC lathe tailstock (Vinko Zidar, Leopold Sebi, 2013).

The following photos show three of the award-winning innovations "Hanger for sliding closing" (Miran Vahen, 2011), "Reconstruction of clamping and sealing of the stands' encoder (continuous rolling mill line)" (Martin Dobovišek, Urban Rožej, 2013) and "Reconstruction of clamping of the CNC lathe tailstock" (Vinko Zidar, Leopold Sebi, 2013).

The hanger for the sliding closing is used in the steel mill. It enables an easier and safer fitting and dismantling of the sliding closing on the ladle. On the old type of closing was there necessary to push the closing towards the bottom of the ladle which is placed on a rack in a horizontal position.

For this task were there previously needed four workers, but at working with the hanger is the task performed by one or at most by two workers.



The reconstruction of housing of the encoder enabled more effective sealing and with reconstruction of the encoder clamping holder was there enabled a better access to the coupling and facilitated its change. Its changing time was shortened by 80 % - from 3 hours to 30 minutes.

Due to the age of the CNC lathe which is used for machining of rolls for the rolling mill and consequently its wearing out was there no longer possible a reliable fixing of tailstock onto ways of the lathe. There was a risk that a piece (a roll) during its processing slides from nibs of the lathe and falls onto the ways what would result in a great damage due to production still standing. The authors proposed a solution which includes installing of an additional mechanical protection which prevents pushing off of the tailstock. They constructed a mechanical part which through an eccentric fixes the tailstock on the toothed lath.

*In the photo: The hanger for the sliding closing*

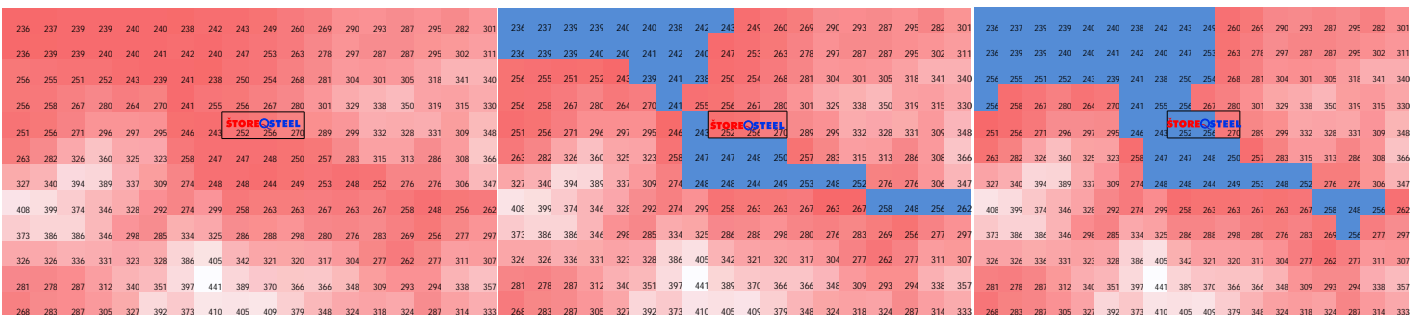


Since the year 2010 have been there in cooperation with the Štore Training Centre organized 12 workshops under name "Innovativity and creativity for young people" intended to pupils who try in three days available to solve some actual problems of the company Štore Steel in the field of mechanical engineering, ecology, chemistry, logistics, metallurgy and electrical engineering. Until now we were at these workshops occupied with more than 40 topics and among them are:

- creating of a model of transforming of material during the rolling process,
- creating of a model of flood and consequently of implementation of measures for flood preventing,
- creating of a model for selecting of an optimal steel casting with regard to inhomogeneity of chemical elements in a billet and of a programming interface for a smart phone,
- creating of a model for weekly forecasting of consumption of natural gas in connection to the production plan and weather forecast,

- creating of a system for an automated planning of dispatch of material on basis of the material urgency, material storage location and weight,
- determining of storage space on basis of technology and current occupation of the warehouse.
- determining of capacity and position of a shelf warehouse,
- measuring of symmetry of groove of a special profile with help of computer sight and measuring of temperature in annealing furnaces by means of a thermocouple.

The following picture shows a programming interface for creating of model of flood which was in the year 2012 with help of Excel produced by students of Prva Gimnazija Celje (a secondary school) and can be interactively used for interpretation of results reached with implementation of some measures as for example deepening of the Voglajna riverbed, construction of dams, barriers, etc..



Graphic: 1. Topography of Štore Steel vicinity

2. Floodplain at moderate flood

3. Floodplain at extreme flood

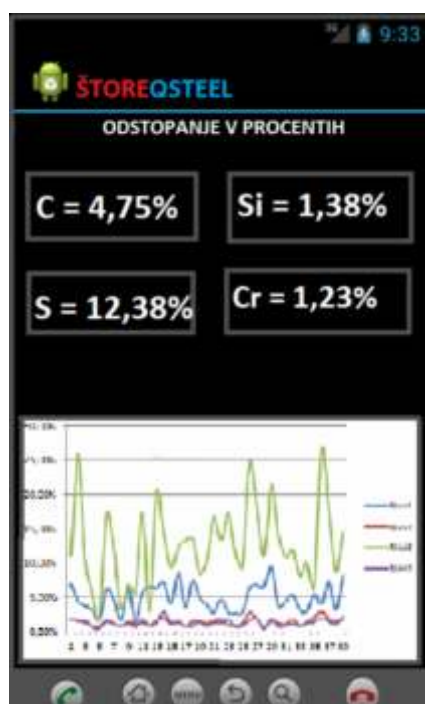
The following picture shows a system designed for an automatic planning of dispatch of material depending on its urgency, material storage location and weight. It was created in Excel by the pupils of the Štore elementary school in the year 2011. On basis of the available data for material

being placed on the sales store (weight, location) and its delivery urgency, based on the known locations of the material, the number and capacity of vehicles available, is automatically (by pressing a button) created a material delivery plan for particular vehicle..

Foto above left: Reconstruction of clamping and sealing of the stands' encoder, right: Reconstruction of clamping of the CNC lathe tailstock

	A	B	C	D	E	F	G	H	I	J
		TEŽA	DATUM	NUJNO		TOVORNJAK 1		TOVORNJAK 2		
1						47 t		8 t		14 t
2	0,70681	3	25.12.2011			50 t	3 t	20 t	0 t	0
3	0,387774	7	29.11.2011				7 t		0 t	0
4	0,380116	3	23.9.2011				3 t		0 t	0
5	0,383286	8	27.7.2011				8 t		0 t	0
6	0,643044	5	10.4.2011				5 t		0 t	0
7	0,352282	2	15.9.2011				2 t		0 t	0
8	0,54967	9	12.2.2012	X	CommandButtc		9 t		0 t	0
9	0,171844	1	12.6.2011				1 t		0 t	0
10	0,895981	2	25.2.2012				2 t		0 t	0
11	0,48054	6	10.3.2011				6 t		0 t	0
12	0,331552	1	26.8.2011		CommandButti		1 t		0 t	0
13	0,360808	5	12.1.2012	X					5 t	5
14	0,07239	9	10.8.2011						9 t	9
15	0,782777	9	13.10.2011						9 t	
16	0,704255	6	23.4.2011						6 t	
17	0,520183	5	3.4.2011						5 t	
18	0,174574	10	22.5.2011						10 t	
19	0,15497	6	11.7.2011						6 t	
20	0,868932	2	30.9.2011						2 t	
21	0,695894	1	3.4.2011						1 t	
22	0,78782	7	22.12.2011						7 t	
23	0,923852	18	25.1.2012						18 t	
24	0,54094	1	5.11.2011						1 t	
25										
26										
27	ncena	18 t								

Picture: Programming interface for an automatic planning of material dispatch in Excel - Left is list of material on the sales store (weight, location), thereupon follow commands for releasing of dispatch, right is material delivery plan for particular vehicle;



The following picture shows a planning interface on a smart phone (Android operating system) created with Eclipse software tool that helps at selecting of temperature and casting speed in order to reduce a nonuniform distribution of chemical elements in a billet. On basis of data showing presence of elements disposed within the billet's cross section, material chemical composition measured in tundish and the casting temperature and speed was there created a mathematical model that predicts which distribution irregularity of chemical elements in a billet can be expected.

The model was installed into the programming interface of a smart phone. An user can be on basis of chemical composition in tundish informed about the most suitable casting temperature and speed and on an average deviation of chemical composition measured on the billet's cross-section from that measured in tundish.

Miha Kovačič, Head of Quality  
Ivan Končan, Technologist for plastic deformation

Picture: A smart phone with a program that calculates an irregular distribution of chemical elements in a billet, depending on casting temperature, casting speed and chemical composition in tundish.

# Green light for investment into a new caster

*Due to recent significant changes of our production program intended for customers in automotive industry which require steel of the best quality, we started with a project for obtaining of a new continuous caster as the existing one is not anymore able to meet with ever increasing customers' requirements.*



At the last assembly of the company owners it was there decided that the project called "Device for continuous casting of steel" could start. There were also defined the deadlines for its completion. The device must be put into operation in 16 months after signing of the contract and the total value of the investment must not exceed the value of 10 million Å. They also gave their confirmation to the selected equipment supplier and authorized the project team members to continue negotiations with the supplier on value and other terms and conditions of supply of the device.

The project team, who leads the investment project, has unanimously chosen the company Concast from Switzerland as the best tendering firm. Among this company's advantages were beside price reported also good references in the field of technology of continuous casting of steel. The equipment will be fully manufactured in Europe.

The characteristics expected from the device are: an increased productivity, a highest level of quality of surface and inwardness of rolled steel products, an increasing automation, an increased yield, an improved traceability, an easier handling, less deadlocks and lastly - easier maintenance.

Thinking about placing of the device was a considerable mental effort. It is important that the device is installed on such a place that there is no blocking of regular production of steel during its building and that there is allowed further development of our steelworks. Facts about the device's installation and the following technical solutions were accepted by all the project team members.

It is essential that there had been for the device chosen the most modern elements being available. It will be consisted of two strands with radius of 9 m and with casting format of square 180 mm which can be increased also to 200 mm.

*Picture left above: a pulling-straightening machine and a dummy bar on a reference device.*

*Picture at the bottom left: the whole system of crystalisator with an electromagnetic stirrer (M-EMS)*

*Picture at the bottom right: a changing part, so called "CARTRIDGE" type.*

*The pictures are property of SMS Concast AG*





Instead of a classic ladle rack will there be placed a robust rotating tower with two depositing places and weighing machines and on all eight ladles will be there installed some slag detectors in order to prevent the flow of slag into the tundish after their emptying. The next procedure will be fitting of two bogies with weighing systems on which will be there placed two tundishes having a larger volume. This will result in better stabilizing and homogenizing of melt. All this will be followed by the most important part – a solidification system in the crystalliser where there will be placed a 900 mm long CONVEX<sup>®</sup> shaped copper mold. In this set is there also included hydraulic regulation of oscillating and fix mounted electro magnetic stirrers (M-EMS). In the second half of the radial part – it is placed at the end of the secondary cooling with showers - will be ready a place for fitting of final magnetic stirrers (F-EMS) if they will be later needed. The casting system will be fully automated and equipped with an automatic start. Between the pulling- straightening machines and cutting machines will be there placed a system of controlled cooling – so called "surface quenching" system. Beside will be there placed two gas

cutting machines which will also allow cutting of samples for baumann print. As each billet will travel approximately 3.5 m at fixed-point 0 will it be lifted from the pit with an elevator. After that will there follow marking of each billet and its transport to one of the two cooling benches. Both benches will have a possibility to accept billets in lengths from 2 to 6 m. The whole device will be automatic run and controlled by the level-1 respectively level-2 supervision.

An important part at deciding for the chosen supplier played also some visits and examination of operating of "their" devices in some steel mills in Switzerland and Germany which have similar production programs as we. After last adjustments in technical field were there also defined all working procedures and equipment that will be delivered by local contractors and this is estimated to have a value of about 40 % of the total investment.

Florjan Gol man,  
Head of the project Modernization of the steel mill

*Above: Lifting of billets with an elevator onto the cooling bench on a reference device. (The picture is property of SMS Concast AG)*

## Environmental management - processing of slag

*In the European Union is each year discarded a volume of 2.7 billion tons of waste, of which 98 million tons are hazardous. On average are in the EU re-used or recycled only 40% of solid waste materials, other waste is transported to special landfills or is incinerated. In the strategy called Europe 2020 is as the main goal to be followed defined a tendency for the Europe to be a resource-efficient area and there is also stated an orientation for waste to become a source.*



In the 7. article of the Slovenian waste regulation act is written: "As a rule it is clear what is waste and what is not." It is clarified when we can speak of a by-product and not of waste: " ... when there is ensured further use of a production residual and its further use will not effect adversely on environment and human health. "However, there appeared many questions regarding this interpretation of the afore mentioned definition as there is no any black-and-white distinction. The fact which defines that one material is waste or not depends on specific factual circumstances. A manufacturer must have a guaranteed market for the whole volume of a product. It cannot be determined that for example one half is waste and other half is a by-product. According to REACH directive is it also necessary to get a registration which confirms suitability of a product for its marketing.

In the year 2011 the Commission adopted the first regulation on cessation of waste status and defined criteria for scrap, steel and aluminum. The regulation defines that clean and safe metal scrap does not have to be classified as waste if a manufacturer performs a quality assurance system and if he is able for each consignment of metal scrap to issue a declaration of conformity and in this way to demonstrate compliance with the criteria.

Black steel mill slag is a residue of steel production.

With a proper preparation of slag is there generated a high-quality building material which is comparable to natural material from igneous rock. Benefits of using of the black steel slag in road constructions are: conservation of natural resources, a reduced environmental impact and an improved execution of a carriageway.

In Slovenia is into aggregate in a controlled and mastered process transferred black steel slag from the company Acroni. An integrated technological process includes collecting of slag under the furnace, its transferring to a temporary storage in barriers, wetting and cooling of slag and production of aggregates in production facilities and processing devices. After completing of process of melting in the electric arc furnace is slag with pouring under control removed into a trough below the furnace which has a limited capacity and is there necessary to provide a permanent, regular and undisturbed removal of slag out of the furnace. The process of slag cooling is one of the most important stages during its processing. The primary cooling is done already directly under the furnace with a backhoe removing it and after that is the slag put into an intermediate store on barriers where takes place a controlled - some days lasting cooling with water showers. We say that slag is getting old.

*In the photo: The steel mill workers are emptying the pit with the poured off slag*





In this way is there for the treated slag ensured an optimal cooling process (an appropriate crystal structure is reached) and especially carbonization of lime which remains in slag. This stage is one of the most important for reaching of an adequate quality level of final products. The aged slag is during the next phase, using combination of dry and wet procedures, associated into a comprehensive technological solution, processed into aggregates. Here are performed the following technological procedures: adding, multi-stage extracting of steel, two-stage crushing and multi-stage sowing. Taking into account best practices from abroad at treatment and processing of black slag in combination with the best equipment, custom designed and constructed for this type of material, is there produced an aggregate of premium and constant quality.

In the year 2012 was within the Štore industrial zone profitable used (processed) a volume of 51,1 % of all waste, including there processing of rolling mill and steel mill scale and black steel mill slag. There was also made an estimation of white steel mill slag. White steel slag meets with the criteria for waste processing as it is considered as non-hazardous waste. This type of slag was not processed in the year 2012 as the current processor wants to get into its processing only completely separated black and white slag. We want a profitable use of our waste and to this end was there opened a project of improvements IZB018: Processing of by-products at production of steel, led by Mr. Viktor Kovačič. Some time ago he said for the EOL 77 magazine as follows:

"In the company Štore Steel, d.o.o. are as by-products at production of steel generated both – the slag that is intended for processing and is used as raw material in building industry and the slag which is not intended for processing and is placed

on a landfill of non-hazardous waste. Irrespective of whether it is intended for slag processing or disposal, the company handles with it like it is waste. The slag which is intended for processing would probably be considered as raw material as it is for its further use in building industry only necessary to get it old and to treat it mechanically. For the slag which is intended for processing is there no obligation to pay any environmental contributions for its depositing as it is a rule for the slag being removed (in our case disposed). For both types of slag is there required the same documentation and is managed by the same record (Regulation about waste treatment). However, the company Štore Steel wants to direct as big as possible volume of by-products being generated at production of steel (slag, mill scale, etc.) into a profitable use and in this way to contribute to a sustainable development. We would also want that slag, a by-product at production of steel, is not treated as waste, but as raw material, which can completely replace some materials in building industry, which have to be otherwise extracted from natural environment. The fact is that use of slag as raw material in the building industry is supported by numerous researches and studies and at the end of last year we could start with discharging of the by that time existing slag landfill and began with sending of slag into a profitable use."

Brigita Koklič,  
Management Systems Administrator

*In the photo: processing of slag in the company Ekoplana*

# Current news at internal transport and storage

*In actual troubled times are changes constant in all spheres of activities and there is practically no escape for anybody. But detection of novelties is not always a reflection of already completed project activities. It is more important that changes happen and reflect in everyday life - therefore in practice.*



In our STC (storage and transport centre) were there in the previous period introduced quite a few novelties. One of the major ones is staff and organizational unification of two separate departments (internal transport and dispatching) having different types of work and staff.

Today we have a well-established system of recruitment, covering both fields of training in such a way that there every worker is able to work at transport and also at storage. And the level of capability of running of various transport devices is connected with the actual progression system.

In this way we achieve greater flexibility required by each day working process circumstances as well as a better interchangeability of employees absent due to vacations or sick leave.

Another area where we had wanted and also achieved some changes is our rolling stock (traction engines). Our locomotive DHL-600, which was a reserve vehicle during some last years, was sold to Slovenian Railways and substituted by one other – a rail-road shunting vehicle. This deal was realized in May of this year with the purchase of the second-hand Zaphir LOK 10170 (130 KW) – construction year 2002 vehicle. With this vehicle are bound some interesting coincidences. It was stored at the Trieste port for a period of 5 years – up to the moment when it was sold to the company Zaphir.

*In the photo: the railway workers are leading DHL-600 locomotive to Celje*

This company executed maintenance of it and it had been lending to buyers of their vehicles as a replacement vehicle during refits. The groundbreaking decision of Zaphir that was firstly ready to sell an used vehicle was also a result of a correct cooperation between Zaphir and Štore Steel being practiced after buying of the first rail-road shunting vehicle from them. For our newly bought vehicle we have agreed an one - year warranty on all wearless parts. There are noticed only 3.500 hours of use of the vehicle and thus we expect a normal operating without any major defects. Considering selling of the previous mentioned locomotive and its spare parts seems the price of the used vehicle favourable as it represents only 1/2 of value of a new vehicle (Å 160,000).

The following are the advantages brought by purchasing:

An increased operational safety for all production units, especially for the steel mill, which can be assured without so far existing contract agreed with the Slovenian Railways. An increased volume of our own preventive and less curative actions carried out by external contractors. In comparison with the locomotive properties we expect approximately 2/3 less fuel consumption, significantly lower maintenance costs, an improved ergonomics of the vehicle, etc.



Some novelties were also made in the field of storage and material delivery.

In years 2007/2008, when an annex to the end finishing building was built, was there planned as a sufficient space for commercial store a place that is able to store about 5000-6000 tons of steel. But with the finished construction of a new continuous rolling mill line and moving of the Bronx straightening machine was there the original area reduced to the extent which allows storage of only 3500-4500 tons of steel. Traditionally were there bundles of steel being ready for dispatch laid up to height of 1.5 m, but larger quantities were cross-stacked into higher heights. As underlay were there used pine wood pieces in size of square 80 mm and in length of up to 1.2 m. A big flow of material into and out of the warehouse was a permanent problem regarding tidiness of the warehouse. Wooden pieces fall apart after some time of use and broken ends were lying everywhere around the warehouse. From the employees was there required a constant bothering cleaning of the warehouse and broken wooden parts were taken away as waste.

Searching for the wooden underlay substitution was not so easy - otherwise it would have been found earlier. Without going into details, we found at the company ISOKON from Slovenske Konjice an

appropriate support. They were ready to find a solution. We received a sample quantity of underlay pieces in size of square 80 mm made from their Polietilen Pehdr material which is extremely tough and has a durable surface with almost unlimited life time.

Together with testing of the underlay pieces have been there in the storage gradually in last two years built in also 70 pieces of needle-like shelves and in this way changed the current concept of storage. Today are the needle-like shelves and the polyethylene underlay already introduced into regular use. In comparison with the previous state of the warehouse is situation now better and more transparent and we can talk also about an improved safety of the employees.

With regard to actual volume of production would there be cost for use of wooden underlays ranged between 70.000 and 100.000 Å / year, but the one-time investment into purchase of polyethylene underlays for dispatching department amounted only Å 20.000.

Stane Verbi ,  
Head of Transport and Storage Centre

## Work beginners and development of human resources

*In the field of human resource development in the company Štore Steel is much attention given to actual employees as well as to beginners who are being introduced into new jobs and tasks.*



With the aim to acquire new knowledge and development of competency enables the company to all the employed taking part at various programs of education and training. For the newly employed are there prepared some programs of introduction into work procedures with support of mentors. And our scholarship-holders, being university students of metallurgy and mechanical engineering, have been included into a systematic process of staff development already during their time of study.

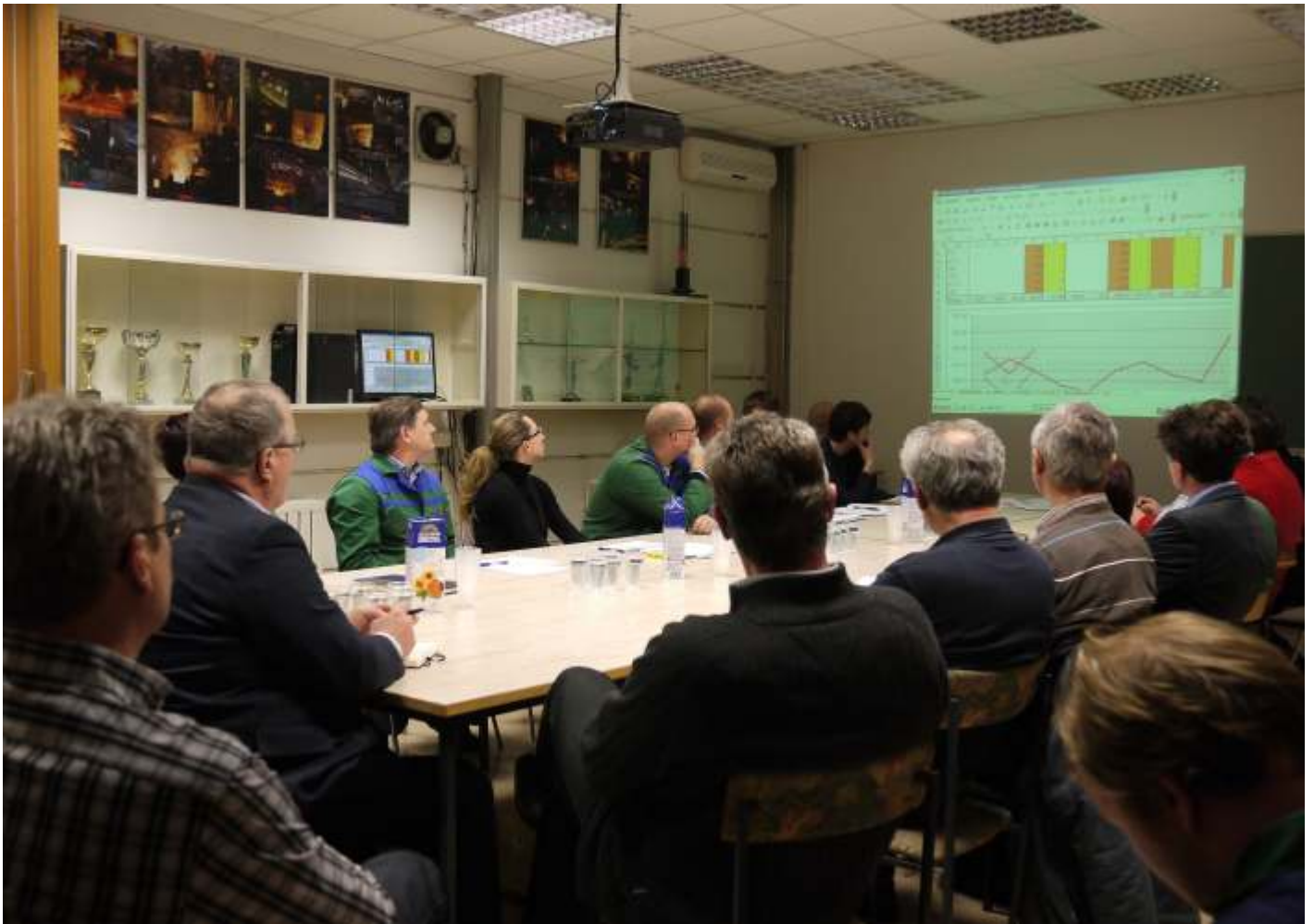
The process of introducing into work starts for each new employee with defining of a mentor who monitors a beginner through the whole introductory period, controls his introduction and takes care about transferring of knowledge and skills needed for performing of particular tasks and duties. Beside training for specific working operations is the mentor responsible also for a general part of introduction which includes learning about internal rules of the company, its organization and operating. The general part of an introduction includes also a tour through the company and an explanation about its production processes.

The company is aware of importance of knowledge being reached by generations of workers that will retire in the coming years. That was the reason that

we in the year 2010 started with a more systematic development of mentoring for a more effective transfer of knowledge and skills between generations. All potential mentors in the company have been included into an extensive training program of mentoring skills which consisted of five modules and of an individual counseling for particular mentors. The objective of the project was qualifying of a group of mentors being than capable for implementing of the mentoring process and helping them at creating of their own mentoring programs. During this education were there qualified 12 mentors and at the end of the training was each of them involved into creating of a concrete mentoring plan for a particular working place.

The company also supports approving of scholarships for schooling at different education levels in metallurgical and mechanical engineering educational programs. The company scholars do in the company their compulsory trainee work and summer holiday work. All this enables them to meet with the company before their employment. Beside this are scholars of final years of university studies already included into the company's assessment of potential for career planning.

*In the photo: schoolboys during training in the maintenance*



The company started with a systematic development of its human resources potential in the year 2006 when there was made an estimation of the company's expert and leading potential. On this basis were there designed individual development plans for a group of 58 employees. Some of them have already occupied important leading and managing positions.

Through the year 2011 we were continuing with assessing of the company's potential. There was made testing in a group of 10 scholars being before the end of study. At that time was into the assessment included another 7 scholars with whom we have already completed individual interviews, after which is, on basis of the test results' analysis verified the compliance with individual expectations of each scholar.

With the assessment of potential of students and with defining of a frame career plan gets the company a base - a group of potential candidates that can be appointed as replacement to various professional and leading positions. But for beginners – for them is an assessment an important feedback regarding their job profile and a guide at their own career development. Interviews are conducted in a relaxing atmosphere and the scholars are satisfied with the fact that they get many useful instructions

about directing of their careers.

In this year the company continues with assessing of potential for professional and leading personnel in such a way that there will be performed – with the aim to plan obtaining suitable replacement persons for future retirements - some tests for assessing of potential for a group of employed people in all our plants and departments. Currently are being – in cooperation with all heads of plant and heads of departments – prepared some indicative lists of potential candidates.

We believe that our employees have a potential to acquire new knowledge and to develop their skills – and therefore are they also systematically included into a number of developmental and educational activities, both, inside and outside the company.

However, we are also due to requirements of the standard Investors in People obliged to perform a systematic development of the employees. The next audit is planned to be carried out in the year 2014 when we will re-examine implementation of recommendations and will also identify some topics for further development.

Marija Lukež  
Human Resources Department

*In the photo: an extensive analysis of use of steelmaking technologies was beside senior fellows introduced also by younger engineers*

## Health promotion program is being in the middle of its performing

*The company's management supported the idea for executing of a health promotion program which can be co-created also by the employees.*



We have decided that there will be within the health promotion program in the company made some considerable efforts to improve occupational health and safety of the employees. With regard to the fact that there in the company are noticed many sick leaves due to injuries occurred outside of work will be there within the occupational health promotion some attention given also to this issue.

We have taken some measures for the employees to live healthy lifestyle. We expect that consequently there would be less absenteeism. To find out effectiveness of the program will be there performing of the measures regularly monitored.

### Actions for promoting of breakfast as a meal

The company has decided to offer breakfast to employees. The action will be performed twice for a period of 3 weeks (due to shift work) in such a way that there will workers in a period of 3 weeks get buns and in next 3 weeks apples for breakfast. At the same time we will also inform the employees on importance of breakfast as a meal and will in this way contribute to healthy lifestyle of the employees.

To this end will there each employee in a period of one week at arrival at job get one bun respectively an apple. The action will take place in September and October.

### Measures to take care of own-health

In our first aid room is being executed a campaign of measuring of blood pressure and blood sugar. At the same time we will also with some leaflets inform employees about importance of regular checking of blood pressure and blood sugar level. The action has been performing since March.

### Measures for promotion of sport movement of the employees

In the company are being performed some campaigns on promoting of sport movement of employees as for example: sale of ski tickets under favourable conditions, the Rogla ski- center ski competition, a bicycle trip, a football tournament, various self-

organized hikings,... As these activities are ever less interesting for the employees we have decided to organize better promotion for them – in such a way that they will be better explained and propagandized on notice boards which are accessible to all employees. Beside this will the actions be promoted also by leaflets informing the employees about importance of movement as one of healthy lifestyles.

During months April and May was there organized a nordic- walking course. The course was conducted by an external expert and organized on basis of number of entries of participants.

In June and September will be there organized a hiking to the Resevna and Žusem hills. The participants will have a possibility to decide between an easier or more pretending route. The company Štore Steel will donate a light meal. The hikings will be executed with help of a guide and organized upon number of entries.

In October will there be with help of various leaflets promoting importance of movement as a condition for a healthy lifestyle.

### Measures for reducing of use of alcohol and other psychoactive substances

In July will there be organized a campaign for reducing of consumption of alcohol and other psychoactive substances in such a way that the employees will be informed about possible risks when consume them. On notice boards will there be placed some posters warning the employees about the fact that alcohol and other psychoactive substances can have a harmful effect to health.

### Measures for safer work at home

A number of employees in the company are engaged in various dangerous activities at home which can lead to injuries. To improve this situation will be there during months of July and August organized some lectures on safe use of chainsaw (the exact date will depend on interest of employees).

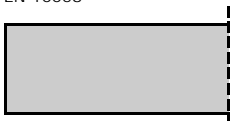
Irena Novak

Advisor for Occupational Health Promotion

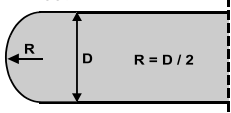
*In the photo: A course of nordic walking performed at the Levec airport*

**CROSS-SECTION SHAPES**

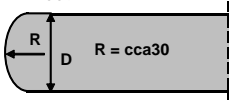
FLAT BARS WITH SHARP EDGES  
EN 10058



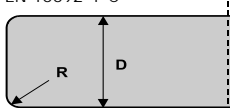
FLAT BARS  
EN 10092-1-A



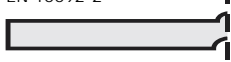
FLAT BARS  
EN 10092-1-B



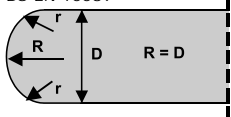
FLAT BARS  
EN 10092-1-C



FLAT BARS  
EN 10092-2



FLAT BARS  
BS EN 10089



SPRING STEEL:  
EN 10089: 51CrV4, 52CrMoV4, 56SiCr7, 56Si7, 61SiCr7, 55Cr3  
WNR.:1.5025: 51Si7  
WNR.:1.7792: 58CrMoV4

ENGINEERING STEEL:

Forging steel:

EN 10025-2: S355J2, S235JR  
EN 10083-2: od C22R, C35R, C40R, C45R, C50R, C55R, C60R  
EN 10084: 16MnCr(S)5, 20MoCr(S)5, 20MnCr(S)5  
EN 10083-3: 30MnB5, 25CrMo(S)4, 34CrMo(S)4, 42CrMo(S)4,  
DIN 17350: 31CrV3, 51CrV4

Carbon steel – for case – hardening:

EN 10084: C10E, C15E, C10R, C15R

Alloyed steel - for case – hardening:

EN 10084: 17Cr3, 16MnCr5, 20MnCr5, 18CrMo4, 20MoCr4, 17CrNi6-6, 20NiCrMo2-2, 18CrNiMo7-6

Carbon steel – for hardening and tempering:

EN 10083-2: C22E, C35E, C45E, C55E, C50E, C60E

Alloyed steel - for hardening and tempering:

EN 10083-3: 30CrNiMo8, 34CrNiMo6, 34Cr4, 41Cr4, 25CrMo4, 34CrMo4, 42CrMo4, 50CrMo4, 51CrV4

Structural steel:

EN 10025-2: S235JR, S275JR, S355J2, E295, E335, E360,

Steel for welded chains:

DIN 17115: 27MnSi5, 20NiCrMo2, 23MnNiMoCr54

Steel for cold forging:

EN 10263: C4C, 17Cr3, 17CrNi6-6, 18CrMoS4, 34CrNiMo4, 20NiCrMoS2-2,  
38Cr2, 34Cr4, 37Cr4, 41Cr4, 16MnCrS5, 20MnCrS5, 25CrMo4, 34CrMo4, 22B2

Alloyed steel:

WNR.:1.5231: 38Cr4

EN 10083-3: 30CrNiMo8, 34CrNiMo6, 34CrS4, 37CrS4, 41CrS4, 25CrMoS4, 34CrMoS4, 42CrMoS4, 50CrMo4, 51CrV4

EN 10085: 31CrMoV9

Structural steel for housings of bearings:

DIN EN ISO 683-17: 100Cr6, 100CrMnSi6-4

Steel for heavy duty automotive parts:

WNR.:1.5231: 38MnVS5

VW-TL 1427: 27MnSiVS6, 27MnSiVS6+Ti, 30MnSiVS6

VW-500-30: 36MnVS4, 70MnVS4, 46MnVS5

EXEM STEEL WITH IMPROVED MACHINABILITY:

po WNR.: 20MnV6 EX, 38MnVS6 EX, 30MnB4+Ti EX

EN 10084: C15R EX, 16MnCrS5 EX, 20NiCrMoS2-2 EX, 20MnCrS5 EX,

EN 10084 in UNI 7846: 16CrNi4 EX,

EN 10025-2: S235JR EX, S355J2 EX,

EN 10083-2: C22R EX, C35R EX, C40R EX, C45R EX,

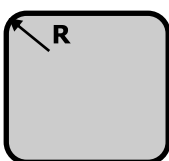
EN 10083-3: 25CrMo4 EX, 41CrS4 EX, 42CrMoS4 EX

UNI 7845: 39NiCrMo3 EX,

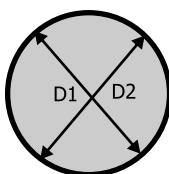
UNI 7846: 18NiCrMo5 EX,



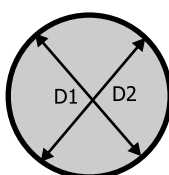
SQUARE BARS  
WITH ROUND EDGES  
EN 10059



ROUND BARS  
EN 10060



BRIGHT ROUND BARS  
EN 10278



SQUARE		FLAT	
Dimension mm	Radius mm	Standard	Dimensions mm
40 x 40	6	EN 10058	50-200 x 8-62
45 x 45	6	EN 10092-1-A	60-150 x 8-36
50 x 50	6	EN 10092-1-B	50-200 x 8-35
55 x 55	8	EN 10092-1-C	60-120 x 14-67
60 x 60	10	EN 10092-2	120 x 12-20
65 x 65	10	BS EN 10089	60-120 x 27-42
70 x 70	10		

ROUND	
Standard	Diameter / Process
EN 10060	20-68, 70, 72, 73, 75, 77, 78, 80, 82, 83, 85, 90, 95, 100, 105 mm / rolled
EN 10278 (h11)	18-105 mm / peeled
EN 10278 (h9)	18-100 mm / peeled



ISO 9001  
ISO 14001  
OHSAS 18001  
BUREAU VERITAS  
Certification



INVITATION IN PEOPLE

ISO/TS 16949  
BUREAU VERITAS  
Certification



extreme  
machinability

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