

## NEWS AND INFORMATION

for our current and prospective customers January 2015

### Editorial



Dear readers,

Leadership in technology, reliability, success orientation

These are the qualities and values that vonRoll casting and its employees focus on: they form the cornerstone of our corporate culture. We aim to be a reliable partner, collaborating with our customers to create innovative, technologically convinc-

ing solutions that enable us and our partners to evolve successfully.

One example of this is the production of cylinder heads for combustion engines, which you can read about in this newsletter. In recent years, our Delémont plant has concentrated on the production of core-intensive castings and has worked hard to develop and expand its expertise in this field. Emmenbrücke is less reliant on the use of cores and has extensive expertise in thin-walled casting technology. Our foundry group can thus offer technologically advanced products, which together with our excellent reliability record in areas such as delivery performance, are the key to our success and that of our customers.

I hope you enjoy reading this newsletter and wish you much success in the New Year!

Danilo Fiato,  
CEO vonRoll casting Group

### Agenda

#### Technical conferences in 2015:

- 10th/11th June in Emmenbrücke
- 24th September in Delémont

#### Workshop 2015:

- 3rd December in Emmenbrücke

#### Dates for apprentice courses in 2015:

- From the end of February until the beginning of May

### Legal information

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vonRoll casting Ltd, with the subsidiaries at Emmenbrücke and Delémont, is a company of vonRoll infratec (holding) Ltd. Other companies within the group are:

vonRoll hydro: The leading Swiss provider of products and services for water and gas supply systems.

vonRoll itec: An outsourcing specialist in the IT sector

vR bikes: The Swiss supplier of electric mobility solutions

vR handling: Roller conveyor systems for the printing and converting industry

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## Inside casting



### New Manager Marketing & Sales

In spring 2014, Roman Inderbitzin has been engaged as Manager Marketing & Sales and strengthens the casting team at both production sites.

His role:  
Business Development, Marketing and Member of the Executive board.

Previous experience:  
project management, customer consultancy, key account management, marketing and sales management in a variety of technologies and sectors.

Hobbies:  
family, hiking, skiing, jogging, mountain biking, reading professional literature

His verdict so far: vonRoll casting offers a very good service package and our engineering expertise in particular gives us an edge in the market. Nevertheless, benefits could accrue from improved marketing, by which I mean in particular that we need to communicate our achievements. His credo: You never stop learning

We would like to wish Roman Inderbitzin and his team every success.

## Cylinder head expertise

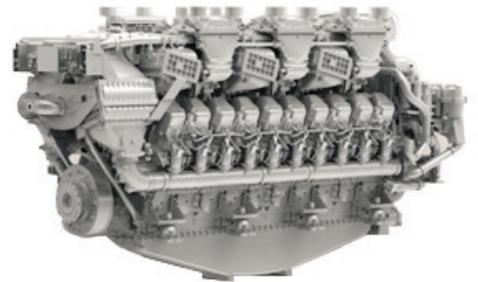
Along to the engine block, the cylinder head is the most complex casting in an engine. This is because it accommodates an extremely high level of functional density within a very limited space – the intake and exhaust ports, the valve gear for the charge changing, oil channels for lubricating the valve train components and coolant channels on water-cooled engines, as well as spark plugs on petrol engines.

Choosing the right materials and optimising the structural design are vital, if the cylinder head is to cope with the very high mechanical and thermal stresses during operation. A controlled and uniform metallurgy are also critical, and this is something that can be checked and adjusted with the aid of thermal and spectral analysis. Spheroidal graphite cast iron with high silicon content is being used increasingly in engine fabrication. These solid-solution hardened types of cast iron (i.e. EN-GJS-500-14) demonstrate increased yield strength and twice the ultimate tensile strength. Our expertise is already effective right at the beginning development phase, thanks to specialized simulation tools (for casting simulation and finite element analysis) which we continually refine and improve. These tools enable our Engineering Center to accelerate development times and provide optimum design solutions for our customers.

Our Delémont plant is our competence centre for cylinder head production. We supply leading gas and diesel engine manufacturers, whose products are as diverse as marine engines, power generators and rail drive systems. We continuously invest in our production facilities.



MWM - gaz power unit TCG 2020 V12  
(Source: Caterpillar Energy Solutions)



The 1163 series diesel engine from MTU, which produces up to 7,400 kW

ties. From our core making shop, to our moulding and after-treatment shops, right through to our 100% quality control, we maintain the very high process stability that is so essential for the production of defect-free parts. There can absolutely be no porosity in the cylinder head base plate, no burrs in the internal ducts, no debris, and no metal penetration – just some of the many requirements that ensure the trouble-free operation of the engines.

As a full service provider, we also offer machining, painting and pre-assembly. Our customers, who are steadily growing in number, put their trust on our expertise and the quality of our comprehensive range of services.

Cylinder head – raw castings for gas engines with 12-24 cylinders and outputs of up to 4.4 megawatts.



## Apprentice training – casting technology course

For some years now, our plant in Emmenbrücke has offered trainee designers a three-day course on casting technology. The course was originally developed together with the career development specialists at the Schindler Group, the Swiss elevator manufacturer. The course is a well-established part of our annual programme of inter-company courses for designers which are run by the Schindler HR department. Every year, around 30 apprentices from up to 15 participating companies attend these courses, which offer an introduction to the casting process – from pattern making to pouring. Each young designer is able to gain considerable insight into the design process.

The course, held in the spring each year, is ideally suited to young designers in the second year of their apprenticeship. The trainees make a two-piece model of a small anvil in the pattern-making area. From this, they make a mould into which they are allowed to pour. Having removed the anvil from the mould and deburred it, they are allowed to take it home.

vonRoll casting has been active in apprenticeship training for many years. In addition to providing apprenticeship places for a variety of occupations, we make a useful contribution to the training of apprentices by making this course available to other companies in the engineering industry and passing on to them our knowledge of casting.

## New certifications

In July 2014, our plant in Emmenbrücke acquired the certifications «Manufacturer-related Product Qualification (MPQ)» for the track superstructure as well as for the wheelset bearing housings and the brake disks, which qualify us to supply these products to Deutsche Bahn AG.

These new certifications augment the existing «general manufacturer» HPQ from 1993 for the production of rail vehicle products, which was also acquired by our Delémont plant in 2002. vonRoll casting has many years of ex-

perience in supplying key components for bogies and engines such as spring cups, trailing arms and wheelset bearing housings. As a full-service provider, we not only supply raw castings but, increasingly, finished, painted and ready to install components. Even though our activities are already quite extensive,



Peter Schübl, Head of Quality Management, inspects a wheelset bearing housing

further opportunities continue to occur in this segment of the market.

«The requirements of Deutsche Bahn AG set the standards in the rail sector,» says Peter Schübl, head of Quality Management, «and these have become noticeably tougher in recent years. This trend is also evidenced by the increasing number of in-plant inspections and by a growing insistence to prevent and detect errors.» The new certifications show our customers that they are dealing with a supplier who puts quality first. After all, reliability and integrity are absolutely essential when you are dealing with safety-critical parts. «vonRoll casting supplies products to a very demanding industry,» says Peter Schübl, «and our customers recognise our quality standards.»

## Expert conferences and workshop

We were pleased to welcome a large number of development/design and purchasing professionals to this year's conferences in June and September as well as to the workshop at the beginning of December. These events all shared the subject of «The foundry as a development partner». The conferences were held in Emmenbrücke in German and in Delémont in French. The accompanying workshop takes place

at Emmenbrücke and is aimed primarily at designers. It offers an opportunity to examine the conference topics in greater depth and to put theory into practice during the practical group exercises.

The focus was put on the following topics:

- Possibilities and applications of cast iron materials
- Casting design
- Casting process simulation
- Advanced pattern making
- Load and stress-oriented design of castings applying the finite element method
- Quality assurance: advanced testing methods and adjustment to requirements (e.g. surface cleanliness)

Participants were able to choose from a wide range of topics to help refresh their knowledge of foundry technology. Our instructors for foundry technology, engineering, production, pattern making and quality management provided competent answers to questions and, during the subsequent tour to our production facilities, were able to show how the theory translates into practice. The very positive feedback received has encouraged us to hold further events.



Production manager Ulrich Wittwer with his group in the core shop



Showing a keen interest in our cores