HSEE REPORT 2020
WITH INTEGRATED ENVIRONMENTAL STATEMENT
ZELTWEG LOCATION

Environmental Protection. Climate Protection. Health Protection. Employee Protection. CSR.

voestalpine Railway Systems GmbH
voestalpine Turnout Technology Zeltweg GmbH
voestalpine Signaling Austria GmbH
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HSEE REPORT WITH INTEGRATED ENVIRONMENTAL STATEMENT

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In accordance with the Directive (EG) No. 1221/2009 (EMAS III Directive) of the European Parliament and the Council from November 25, 2009 concerning the voluntary participation of organisations in a joint environmental management and environmental operational auditing system (EMAS) and the Directive (EU) 2017/1505 from August 28, 2017 amending Annexes I, II, III and IV and the consideration of the new regulations of ISO 14001: 2015.

The HSEE report (Health, Safety, Environment and Energy) of the voestalpine location in Zeltweg also incorporates integrated aspects, projects and data relating to employee protection (health and safety) as well as energy management and corporate social responsibility.

In addition, company environmental statements can also be studied on our homepage: http://www.voestalpine.com/railway-systems

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1. INTRODUCTION OF THE BOARD OF DIRECTORS

Since the introduction in 1996 of a management system in line with the EMAS Directive, it is with pleasure and pride that we have been able point to our successes in both the economic and HSEE management (Health, Safety, Environment & Energy) fields during the intervening period.

Beginning with one company at the time of the initial certification, **three companies** have now developed at the voestalpine premises in Zeltweg, which participate jointly in EMAS as the "Zeltweg location".

The early 1980s already witnessed the early consideration of aspects of HSEE, as indicated by the fact that we were one of the first companies to install an energy control system. This took place in 1989 and reduced our energy consumption by around 40%. In the years following the commencement of EMAS participation and the related development of a process-oriented management system, which takes into account the aspects of quality, health, safety and the environment in an integrative manner, and the subsequent **systematisation of and focus on preventive mechanisms**, we have been able to establish a series of **milestones** since the introduction of the management system in 1996.
Of these, we regard the following as being of special importance:

- The **attainment of an 80-90% reduction in the dust levels** in the halls and subsequently also in the environment through the minimisation of (fine) dust emissions by means of a modern dust collection and removal concept.
- The largely independent positioning of the company with regard to energy and a **CO_2-neutral location balance** since 2010, which has resulted from numerous measures aimed at increased efficiency and reduced consumption, as well as the successful commissioning by Bioenergie GmbH of biomass-fired district heating and the PenzVAEE GmbH small-scale hydropower plant on the nearby River Pöls.
- The achievement of a notable cut in annual energy consumption of approximately 2,000 MWh, which was due largely to our personnel and partners. This was because in particular the energy savings issue required numerous **measures relating to the thermal renovation of production buildings** and in recent years these confronted our production, logistics and maintenance teams with a major challenge, as despite the construction work delivery dates had to be met.
- The **reduction in accident rates and lost time/costs at both the location and throughout the entire group** because the protection of life and health undoubtedly possesses the highest priority.

However, for us the significance of HSEE aspects lies not only in the manufacturing area, but i**n the interests of our customers**, also in the **product design field**, which commences with research and development work, and extends to include our range and the shape of our **services**.
2020 saw a significant development in this regard with the merger of the company's rail, turnout and signal technology business areas under the **common umbrella of the new voestalpine Railway Systems GmbH** holding to form the "Rail", "Turnout & Fixations" and "Signaling" profit centres and the "Track Solution" competence centre. This has created **advantages and synergies during the development of holistic solutions**, which should further strengthen the railways as a means of transport through the **optimisation of the life cycle costs** of our customers.
For its part, as the holding company for 66 production and sales locations on every continent, voestalpine Railway Systems GmbH has concentrated its focus in the HSEE field on the **information, motivation, coordination and control of the subsidiaries**. For these companies, the definition of global, minimum HSEE standards and the completion of conscientious audits within the scope of investment and acquisition projects have subscribed greatly to the prevention of relevant risks and impacts upon both employees and/or the environment. Moreover, the **costs avoided** through resource savings **provide a significant, long-term contribution to the viability, competitiveness and security of employment.** Therefore, we are especially proud of the **large number of HSEE achievements that the subsidiaries have accomplished worldwide**.

Thanks to the endeavours and achievements of all our **competent and committed employees**, we have also been able to receive a completely unexpected number of **awards at provincial, federal and European level**.

The future and hence the expenditure with respect to HSEE-related activities at the Zeltweg location will assume two directions:

- Firstly, it will be important to **retain the performance level already achieved**, irrespective of whether maintenance, audits, repairs, reinvestments in plant components of HSEE relevance, or further training and the updating of organisational system content, and the systematic employment of related management and communications methodology are used to secure an appropriate awareness of HSEE and establish a related culture.
- Secondly, **further technical and organisational measures will be implemented** to further enhance HSEE performance (please see our related HSEE objectives).

We have proven the **compatibility of HSEE successes and economy** at the Zeltweg location over many years and thanks to the **competence and commitment of our employees and partners**, we are convinced that we will be able to demonstrate this in the future as well.

The following is a compilation of what we regard as the most important information that has been collated in the Environmental Statement designed by our personnel. In closing, should you have any questions or suggestions do not hesitate to contact us.

VOESTALPINE RAILWAY SYSTEMS GMBH - Chief Members of the Board

Günter Neureiter
CEO/CSO

Thomas Stocker
CFO

Frederick Kübler
CMO

Jochen Holzfeind
CTO

Executive Members of the Board

Eva Aigner
S-VP Legal

Wolfgang Schriefl
S-VP Q-HSEE & S-VP Investments

VOESTALPINE TURNOUT TECHNOLOGY ZELTWEG GMBH

Helmut Kreiter
CEO

Harald Reumüller
CFO

Markus Lerchbacher
CTO/COO

VOESTALPINE SIGNALING AUSTRIA GMBH

Heinz Schatz
CEO
CU DLD/S

Gerald Knapp
CFO

Holger Pütz
CSO

Johannes Kreinbucher
CEO
CU DMT Infra

Abbrevations: S-VP = Senior Vize President

CU DLD/S = Competence Unit DLD/S (Drives, Lockings, Detection Systems and Signaling Solutions)

CU DMT Infra = Competence Unit DMT Infra (Diagnostic and Monitoring Technologies for Infrastructure)

2. THE MANAGERIAL POLICY FOR HEALTH, WORK SAFETY, ENVIRONMENTAL PROTECTION, ENERGY AND CSR AT THE ZELTWEG LOCATION

THE SECURING OF THE NATURAL BASES FOR YPROTECTION REPRESENT PRIMARY CORPORATE GOALS FOR VOESTALPINE TURNOUT TECHNOLOGY ZELTWEG GMBH, VOESTALPINE SIGNALING AUSTRIA GMBH AND VOESTALPINE RAILWAY SYSTEMS GMBH. THESE ISSUES RELATE NOT ONLY TO TECHNOLOGICAL LEADERSHIP, BUT ALSO A ROLE AS A FORERUNNER WITH REGARD TO ECOLOGICAL AND SAFETY MATTERS IN THE COMPONENT AREA OF THE ENVIRONMENT-FRIENDLY RAILWAY SECTOR AND THE ACCEPTANCE OF SOCIAL CORPORATE RESPONSIBILITY.

Consequently, we are committed to both comprehensive **quality, safety, environmental and energy management** subject to compliance with statutory requirements and the objective of continuous improvement. Therefore, the fundamental, integrated principles of our corporate activities in the areas of health, work safety, environment and energy **(HSEE-policy)** comprise the following:

- **An adherence to all relevant laws and stipulations** concerning environmental and employee protection and a declared commitment to the principles of **sustainable development and social responsibility**.
- On the basis of the UN Charter and the European Convention On Human Rights, **human rights are seen as a fundamental value** that is to be respected and observed by the entire workforce. Our corporate culture recognises and greets the fact that every person is unique and valuable and is to be esteemed for his or her individual abilities. Therefore, in our company we do not tolerate any form of discrimination or exploitation and attach particular importance to the safeguarding of the rights of children and young people. In this connection, we would also refer to the voestalpine AG's **code of conduct**.
- A commitment to the **continuous improvement** of operational environmental protection, work safety and energy efficiency with the aim of eradicating environmental impact and accident and health hazards to an extent that is economically viable and possible using the best available technology.
- **Involvement of our employees and staff representatives** in planning and implementing HSEE activities, as well as promoting a **sense of responsibility** regarding environmental protection, employee protection and energy consumption at all levels.
- Efforts aimed at achieving the highest quality, safety and reliability, as well as user- and environment-friendliness during **product development**, whereby reduced maintenance, the protective use of raw materials and resources in production, and the minimisation of environmental impact during transport, consumption and disposal are of special relevance.
- The **avoidance of waste** and where this is impossible, its environmentally compatible return to the material cycle.
- The employment of **active risk management** in which materials and processes are logged and evaluated according to specific company requirements, in order to facilitate the advance planning of essential, operational safety measures.
- The on-going consideration of health, work safety, environmental and energy issues during the **planning and operation** of working facilities, production equipment and infrastructure.
- **A focus on preventive measures** for the retention of the health of our workforce, as well as the avoidance of accidents and their related after-effects on both people and the environment.
- T**he involvement of our suppliers**, waste disposal companies and external enterprises in the implementation of both our HSEE guidelines and mutual dialogue aimed at further improvements in operational environmental protection and work safety as well as energy efficiency.
- Candid and objective **communications with our customers, the general public and the responsible authorities**, as well as a request for suggestions and criticism in order to jointly reduce environmental impact and risks.
- Active **strategic and operative energy management** targeted on the greatest possible energy self-sufficiency at the Zeltweg location on the basis of renewable and sustainable energy sources, as well as maximum efficiency with regard to energy use during production and the life cycle of our products (not only taking into consideration the energy consumption of the products themselves, but also characteristics of relevance to energy consumption during railway operations).
- For voestalpine Railway Systems GmbH as a holding company, it is a matter of great importance that its **subsidiaries improve their HSEE performance continually** and live up to their individual responsibilities. Accordingly, without releasing them from their obligations, voestalpine Railway Systems GmbH fulfils the following functions for its subsidiaries:
  - The provision of information and motivation concerning actual HSEE-topics and developments
  - Advice regarding technical questions
  - Coordination, especially in connection with projects involving various locations or inter-group activities
  - The design of due-diligence audits in the case of acquisitions or enlargements of existing locations
  - Controls with the help of the supervisory board
- In those areas deemed as being of relevance, in line with group risk management, **the subsidiaries are allotted obligatory, minimum requirements** concerning employee and operational environmental protection, which may also exceed the respective national stipulations. The subsidiaries then have to provide periodic progress reports at supervisory board meetings.
- Furthermore, useful synergy effects result from these control and advisory functions, which allow the appropriate use and promotion of an **exchange of experience between locations** with the intention that sustainable ideas and exemplary solutions be communicated within the voestalpine Railway Systems Group on an inter-company and cross-border basis.

3. THE LOCATION, ITS COMPANIES AND THE GROUP STRUCTURE

THE ZELTWEG LOCATION HAS A MORE THAN 160-YEAR HISTORY OF TURNOUT PRODUCTION AND TODAY IS HOME TO THE VOESTALPINE RAILWAY SYSTEMS GMBH, THE VOESTALPINE TURNOUT TECHNOLOGY ZELTWEG GMBH UND THE VOESTALPINE SIGNALING AUSTRIA GMBH.

voestalpine Railway Systems GmbH

PC Turnout & Fixations

Regions

Europe South	Europe North	North America	South America	Asia [1]	Australia	Africa
voestalpine Turnout Technology Zeltweg GmbH	voestalpine Turnout Technology Germany GmbH	voestalpine Nortrak Inc.	voestalpine VAE Brasil Produtos Ferroviários Ltda.	CNTT Chinese New Turnout Technologies Co., Ltd.	voestalpine Railway Systems Australia Pty Ltd	voestalpine VAE SA (Pty) Ltd.
Weichenwerk Wörth GmbH	voestalpine Turnout Technology Netherlands B.V.	Nortrak-Damy Cambios de Via, S.A.P.I. de C.V.		voestalpine Railway Systems (Thailand) Co., Ltd.		
WS Service GmbH	voestalpine Railway Systems Latvia SIA			voestalpine Railway Systems Beijing Co. Ltd.		
TSF-A GmbH	voestalpine Railway Systems Lietuva, UAB			voestalpine VAE VKN India Private Limited		
voestalpine Kardemir Demiryolu Sistemleri San. Tic. AS	voestalpine Turnout Technology UK Limited			Ruzhou Zhengzhou Railway Sanjia Turnout Co., Ltd.		
voestalpine Railway Systems Saudi Arabia Ltd.						
voestalpine Railway Systems Romania SA						
Travertec S.R.L.						
voestalpine Railway Systems Bulgaria OOD						
VAMAV Vasúti Berendezések Kft.						
JEZ Sistemas Ferroviaros S.L.						
Materiel Ferroviaire d'Arberats SASU						
voestalpine Railway Systems France SAS						

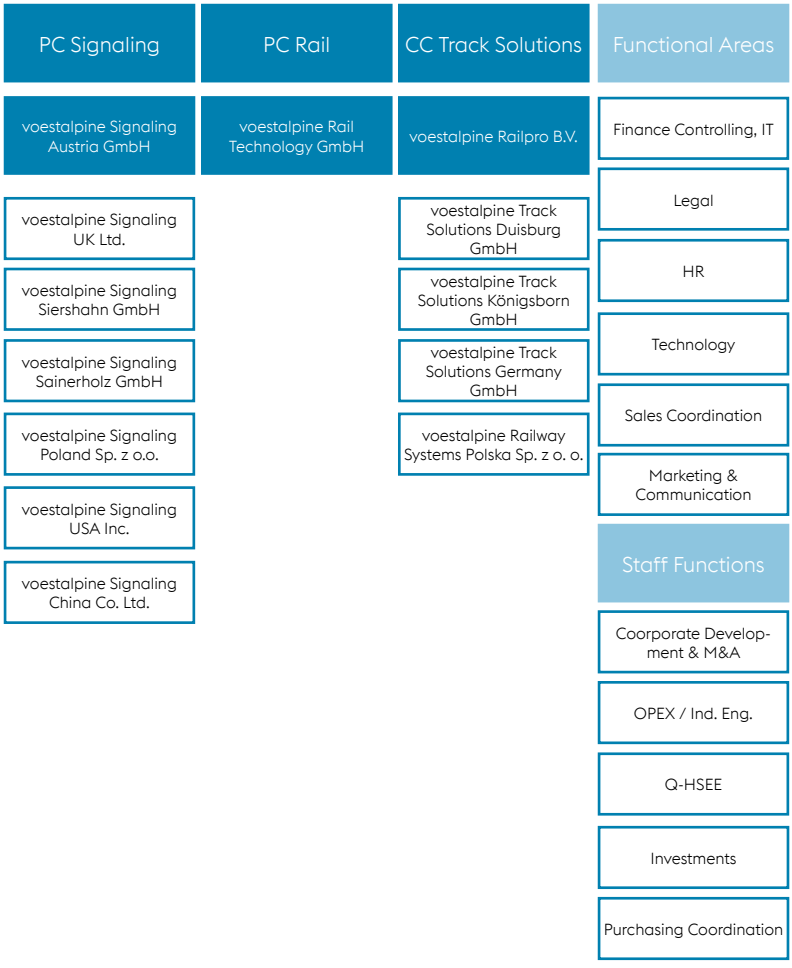
Abbreviations and footnotes:

PC Profit Center

CC Competence Center

[1] no leading company existing - organiszational region ist steered by a board

Detailed information regarding products and information is available on our homepage https://www.voestalpine.com/railway-systems



3.1 VOESTALPINE RAILWAY SYSTEMS

Together with its subsidiaries, **voestalpine Railway Systems GmbH** is the leading global supplier of **railway infrastructure system solutions** for all types of rail traffic (high-speed, heavy load and combination, metro and tramway).

The group's business activities include:

- The **development and manufacture of rails, turnouts, signal and monitoring systems.**
- The **related logistics** (supply of long rails and plug-in turnouts with special wagons, etc.)
- The **related services** (from planning to support during commissioning, training and servicing/assistance in the operational phase up to recycling).

voestalpine Railway Systems GmbH

- Is a **fully owned subsidiary of the voestalpine Metal Engineering GmbH divisional management company, which in turn is a fully owned subsidiary of the listed voestalpine AG**,
- Serves as a **holding** for a total of **66 production, sales and service locations** worldwide, which are found on every continent and offer **over 7,000 people** employment.
- Was formed in 2020 from the predecessor company voestalpine VAE GmbH and
- Itself disposes over some 100 employees, who are located in three rented offices (Zeltweg, Leoben-Donawitz and Vienna), whereby the objects in Vienna and Zeltweg belong to the management system of the Zeltweg location and the facilities in Leoben-Donawitz are part of the location's managerial system.

Business activities are divided into **three profit centres** (Rail; Turnout & Fixations; Signaling) and one **competence centre** (Track Solutions) (see diagram).

3.2 VOESTALPINE TURNOUT TECHNOLOGY ZELTWEG

voestalpine Turnout Technology Zeltweg GmbH is a subsidiary of voestalpine Railway Systems GmbH and the **leading systems partner in the turnout field.**

Vignol and tramway turnouts, crossovers, slips, crossings and complete layouts in line with international standards or special customer requirements are developed and produced using all available rail profiles and gauges. The product portfolio is rounded off by innovative point drives, locking and monitoring equipment, diagnostic systems for fixed infrastructure and rolling stock, as well as a multifaceted service range.

With some **600 employees** at the Zeltweg location, the company seeks to make a significant contribution to personal mobility and transport systems worldwide.

The Austrian participations of voestalpine Turnout Technology Zeltweg GmbH are as follows:

» **Weichenwerk Wörth GmbH**, which was founded in St.Pölten, Lower Austria, as a joint venture between voestalpine and Austrian Railways (ÖBB). Weichenwerk Wörth is a full line supplier in the turnout manufacturing field and offers products and services that cover the entire product cycle. The location has a workforce of around 120.

» **TSF-A GmbH** was founded as a joint venture by voestalpine and Kirchdorfer Fertigteilholding GmbH and produces concrete turnout sleepers for the central and eastern European markets. This special competence is also employed for the further development of turnouts as a complete product.

voestalpine Turnout Technology Zeltweg GmbH also acts as a management company for plants in the Southern Europe Group (from west to east: Spain, France, Hungary, Bulgaria, Romania, Turkey and Saudi Arabia).

Sustainability and environmental awareness has played a major role throughout the more than 160-year history of the company. A fact mirrored by numerous certificates and awards (ISO/EMAS, European and Austrian EMAS Award, European Safety Prize, National Work Safety Prize, Energy Globe Austria and other forms of recognition). Following the commissioning of its own hydropower plant in 2010, the company possessed an autonomous, electricity supply and therefore achieved a **neutral, overall CO_2 balance** at the Zeltweg for the first time.

3.3 VOESTALPINE SIGNALING AUSTRIA

voestalpine Signaling Austria GmbH, which currently has a workforce of around 130 employees, specialises in point drives, locking and monitoring equipment. As early as the 1990s, the company **research and development department** in Zeltweg produced individual products suitable for combination and complete system solutions in connection with innovative power transfer systems. Furthermore, the Diagnostic and Monitoring Technologies (DMT) business area possesses key competences in the railway infrastructure monitoring area. Inventive monitoring systems and tools facilitate the implementation of intelligent maintenance practices in order to effectively prevent system failures.

With the concentration of all of voestalpine's track competences in the new Railway Systems business area, April 2020 saw the change of name to voestalpine Signaling Austria GmbH and the allocation to the Signaling profit centre (Signaling PC).

The Signaling PC combines all the global activities of voestalpine Railway Systems in the signal technology field, which are divided into the following four competence units:

- **Drive, Locking, Detection & Signalling (DLD/S)** competence unit (CU) - point drives, locking devices, monitoring and signalling equipment for all railway applications
- **Diagnostic & Monitoring Technologies for Rolling Stock (DMT RS)** competence unit – diagnostic and monitoring technologies for rolling stock
- **Diagnostic & Monitoring Technologies for Infrastructure (DMT Infra)** competence unit - diagnostic and monitoring technologies for infrastructure
- **Axle Counting Systems (AxC)** competence unit – axle counting systems for all railway applications

The Signaling PC has the following locations with a workforce of around 650 employees:

- Zeltweg / Austria
- Siershahn / Germany
  - Waddinxveen / Netherlands
  - Sydney / Australia
- Sainerholz / Germany
- Fareham / UK
- Sopot, Trabki / Poland
- Loveland / USA
- Suzhou / PR China

as well as 16 sales & service centres worldwide.

4. THE ZELTWEG LOCATION, ITS PRODUCTS AND PROCESSES

4.1 LOCATION DESCRIPTION AND HISTORY

Situated in the district of Murtal some 190km from Vienna, the voestalpine location in Zeltweg can look back on a long industrial history.
The “Hugo Hütte” founded by Hugo Graf Henckel von Donnersmark in 1851 and a subsequent, systematic and innovative involvement with the topic of the railways has culminated in the voestalpine Railway Systems GmbH, voestalpine Turnout Technology Zeltweg GmbH and voestalpine Signaling Austria GmbH of today.

History - 160 years of competence and experience

1851: Foundation of the „Hugo Hütte“ by Hugo Graf Henckel von Donnersmark
1866: Begin of industrial turnout production
1973: Part of the nationalised VOEST-Alpine
1990: Start of a new historical era. Foundation of VAE as an independent company – begin of internationalisation
2000: Integration of the Zeltweg location in VAE Eisenbahnsysteme GmbH as an independent company within the VAE Group
2000: First plug-in turnout with “just in time” delivery (JIT)
2002: Foundation of the HYTRONICS business unit - start of industrial production
2003: voestalpine AG - Division Bahnsysteme becomes the new VAE Group owner with VAE GmbH as a holding
2011: Splitting of VAE Eisenbahnsysteme GmbH into the newly founded voestalpine Weichensysteme GmbH and voestalpine HYTRONICS GmbH
2014: Renaming of voestalpine HYTRONICS group as voestalpine SIGNALING group
2016: 150 years turnout production in Zeltweg
2018: Concentration of competences in the railway infrastructure sector (high-tech turnouts, premium rails and intelligent, customised signal technology solutions) under the „Railway Systems“ umbrella
2019: Future Zone: creation of an apprentice teaching area in production
2020: Foundation of the voestalpine Railway Systems GmbH holding (as the successor to voestalpine VAE GmbH) with currently 66 worldwide locations on six continents.

The voestalpine **premises cover an area of approx. 164,000 m²** and apart from the voestalpine companies, this industrial park also houses the neighbouring Sandvik Mining & Construction GmbH and Sepero GmbH, and is bordered to the south and east by the River Mur.

The historically intertwined evolution of the town and the company site has led to the current situation in which the industrial estate is in the immediate vicinity of residential areas. Consequently, the voestalpine location in Zeltweg feels obliged to not only provide independent problem solutions in the areas of noise and waste gas emissions, but also to conduct active and open communications with the local population. **Participation in the EMAS since 1996** and the issue of yearly environmental statements offer an appropriate framework for the realisation of these intentions.

4.2 PRODUCTION AT THE ZELTWEG LOCATION

In addition to the latest turnout solutions for heavy load, high speed and local transport, the Zeltweg location is also where the bulk of the innovative products from the signalling area are developed and manufactured. These are supplied to customers as intelligent turnout systems on a plug-in and just-in-time basis and are offered along with services for all product areas.

4.2.1 PRODUCT RANGE IN THE TURNOUT TECHNOLOGY BUSINESS AREA

- Intelligent turnout systems – pre-assembly in the plant and ready-to-install delivery to the construction site
- Turnout systems and components, vignol and grooved rails with every type of section for heavy load, high speed and local transport applications
- Special railway components
- Crossings, expansion joints, check rails
- Bearings, fastenings, setting support systems
- Turnout recycling in cooperation with WWG

4.2.2 PRODUCT RANGE IN THE SIGNALLING AREA

- Hydraulic drive and setting systems, low-maintenance and easy to install for low life cycle costs
- Electronic surveillance and safety systems
- Danger warning systems
- Diagnosis of integrated systems such as turnouts and crossings, etc.

4.2.3 THE PLUG-IN TURNOUT

Owing to the realisation of a completely new concept, it is now possible to also deliver fully assembled turnouts **("just in time" – JIT turnouts)**. The supply of these plug-in components to the construction site permits precise and rapid installation and thus the speedy availability of the line **without lengthy track closures.** In-plant pre-assembly enables the attainment of maximum installation standards and thus markedly extended turnout life. The system is characterised by high reliability and safety levels, low maintenance expenditure (eradication or enormous reduction in the lubrication requirement, above all due to the integration of signalling solutions) and minimised wear, which are all aspects of major economic and ecological relevance.

4.3 PRODUCTION PROCESSES AT THE ZELTWEG LOCATION

Turnout terminology:

» The moving part, which initiates the change of direction of the rail vehicle, is called a “switch”.
» The rail running through the turnout is called the “stock rail”.
» The actual crossing area is designated as a “frog” and can be supplied in numerous variations (up to moving frogs).
» The rails are mostly attached to the sleepers with so-called “ribbed plates”, which are individually produced for the turnout area in accordance with the prevailing geometry.
» The tongue rails move on “sliding plates” and are secured in their final position by locking systems. Various mechanical designs exist for this purpose.
» Turnout setting can occur using either electromechanical or electrohydraulic systems. voestalpine Signaling Austria GmbH has created a globally unique innovation in this area, which is already established in the market, with complete and integrated drive, locking and surveillance systems.
» According to customer requirements, sleepers can be made from concrete, impregnated wood, or steel.

The most important production processes for these main turnout components (please see the exemplary and simplified model lay-out in the subsequent diagram) are:

» The cutting to length of rails and webs with saws and shears.
» Mechanical processing through milling, planing, drilling and bending.
» Component welding using a variety of processes (butt welding, submerged arc welding, etc.).
» Weld grinding (in particular switch and frog grinding).
» Pressing and forging of the lower switch sections at the transition point to the complete rail section.
» Heat treatment and inductive hardening to achieve special material qualities.
» Production of ribbed plates, sliding plates and chairs (shears, drilling, milling, welding, grinding).
» Bonding of special components (e.g. insulated rail joints).
» Demagnetisation.
» Accompanying quality assurance processes (X-ray, cobalt 60, ultrasonic and penetration testing, etc.).
» Prior to delivery, all turnouts are assembled and adjusted, coated on request (corrosion protection) and subsequently disassembled, marked, packed and dispatched to the customer. (or supplied as JIT complete components).

In the **NACE categorisation** for the international classification of economic activities:
» On the basis of its processes, the main activity of voestalpine Turnout Technology Zeltweg GmbH has meant its allocation to the 24.10 Group, “Manufacture of basic iron, steel and ferroalloys”, sub-group “Manufacture of railway track materials”
» voestalpine Signaling Austria GmbH has been allocated to Group 30.20 “Manufacture of railway locomotives and rolling stock” and 27.90 ”Manufacture of other electrical equipment and devices” and
» voestalpine Railway Systems GmbH has been allocated to C 33.20.-0 “Repair and installation of machinery and equipment”.

STOCK RAIL

HYDRAULI

S


FROG
C DRIVE AND SETTING SYSTEMS
RIPPED PLATES AND SLIDING PLATES
WITCH
ELECTRONIC SURVEILLANCE AND SAFETY SYSTEMS




4.4 HSEE ASPECTS OFTHE PRODUCTS

The finished products are not only of technical safety importance during that materials are employed for as long as feasible and with the greatest possible efficiency in order that typical environmental problems are either reduced or avoided entirely.

For this reason, the entire cycle is considered from material selection/design to raw material purchasing, manufacture and the product transportation route, up to the longest possible utilisation phase (including servicing) and recycling.

Product design including material selection

During the evaluation of purchasing strategies rails and turnouts, we support infrastructure operators with our reliability, availability, maintainability and safety (RAMS) strategies and **software solutions for the determination of life cycle costs (LCC).** We also offer signalling products and overall solutions in which we render transparent the advantages and disadvantages, and above all the costs of various approaches by taking into account the entire life cycle (manufacture, operating phase including maintenance/repairs and disposal). The following is an example of an LCC analysis of three differing types of turnout:

» Concrete/60E1/R260/Standard/Composite
» Concrete/60E1/350HT/FAKOP/castMn13
» Soled Concrete besohlt/60E1gen./R400HT/FAKOP/castMn13EDH

A period of around 30 years was considered in all three cases. While in the case of Variation 1, the turnout would require reinvestment after 25 years, the life cycle of Variation 3 would first end after 35 years. This means that through a **suitable choice of material** such as R400HT rail quality steel, or the strengthening of the tongue, in combination with an optimised sub-structure (e.g. with soled concrete sleepers), **the product can be used for a maximum period**. Moreover, the maintenance cycles for activities such as tamping, grinding and deburring can also be prolonged through an appropriate choice of material.

As far as resource and energy savings are concerned, the following are worthy of special mention:

» **Special steel qualities for rails (ideally HSH® in combination with UHC400® or 340 Dobain® in line with the track traffic load and curve radius)** offer a high degree of wear resistance and thus combine **long service life with maximum operational safety.** For example, the microstructure of the new 340 Dobain® HSH® multi-phase steel design prevents the development of head checks (damage to the rail running surface). A self-polishing effect is triggered in response to heavy load situations and reduces the deformation of the upper surface to a minimum.

A type of lotus effect is thus applied to rails and consequently we can offer a rail with a minimum maintenance requirement and hence ideal life cycle costs.

» In the case of **frogs** (the actually crossing area), special metallurgical materials and technologies, and in particular **hard manganese steels** and the explosion hardening of manganese frogs, can also make a major contribution to extended service life and correspondingly **high run over speeds**.

» In the turnout area, the steadily increasing **use by customers of concrete sleepers**, which are **recyclable** and free of **impregnation agents**, is contributing to a lasting reduction in environmental impact and the burdens upon employees caused by the handling of chemical substances.

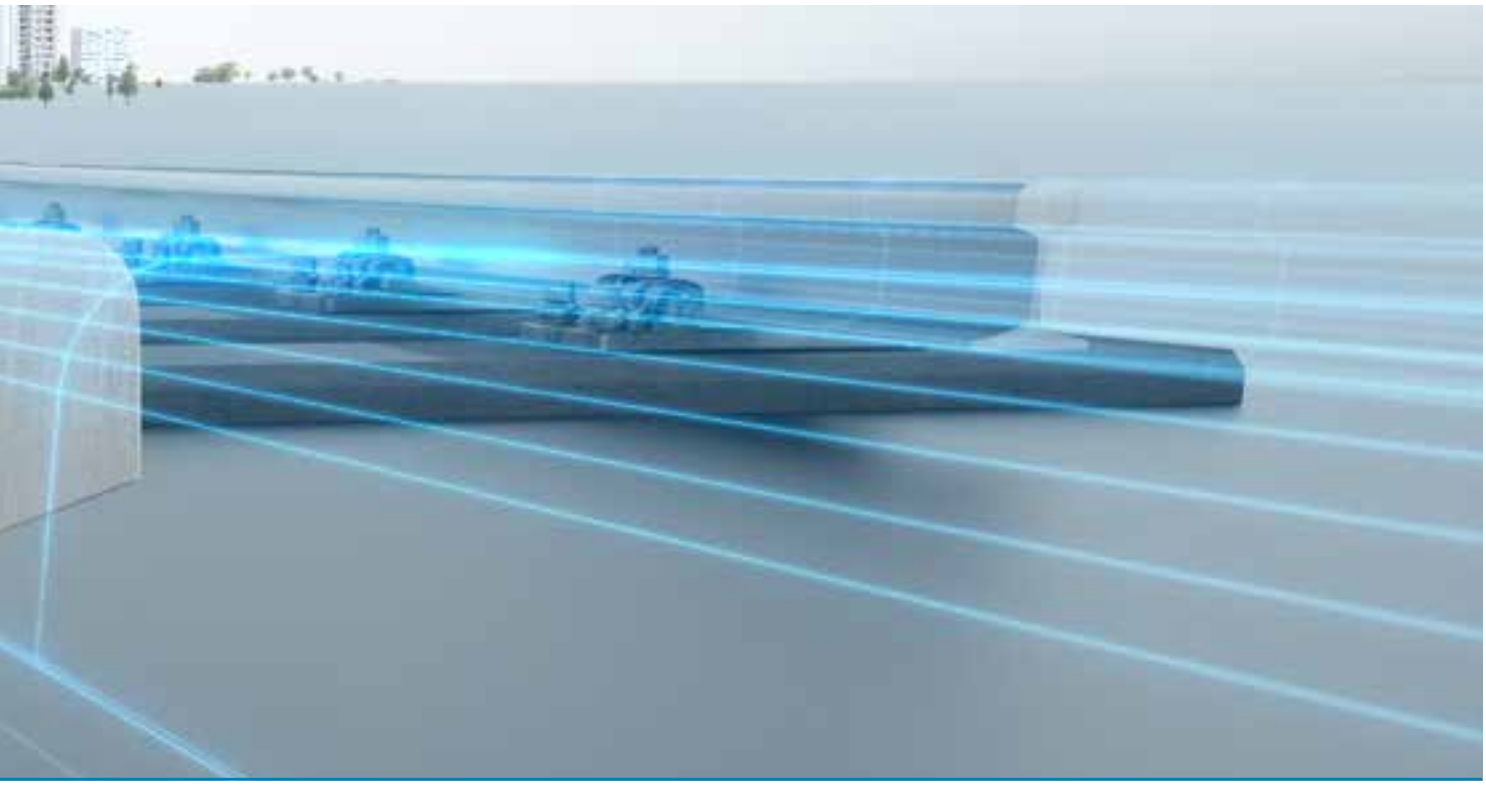
» In the case of **wood sleepers**, an **ecologically acceptable origin** (suppliers employing sustainable forestry) and the use of the **best possible impregnation agents and procedures** (regarding pollutant and odorous substance content) are taken into account for the protection of both company personnel and those of the customer.

» **Natural linseed oil** has been used as corrosion protection **instead of coatings containing solvents and even heavy metals** since the 1980s, particularly for deliveries to European customers. However, in the case of overseas transports, the employment of anti-corrosion coatings is unavoidable, although these are selected on the basis of the lowest possible environmental impact.

» Turnout geometry optimisation and appropriate component design permit increases in both axle loads and run-over speeds and thus **energy/CO_2-savings derived from reduced train braking and reacceleration**.

» In addition, the use of diagnosis systems for integrated systems such as the "ROADMASTER" for turnouts, contributes to a **major improvement in line availability**. A customer study has shown that on a highly frequented stretch of line, **turnout faults have been reduced by 41%.** The stand- stills or need for reduced train speed zones caused by such defects result in increased energy consumption and costs for railway operators. For example, a 1,000t train requires roughly 150 kWh to attain the necessary reacceleration from 40 to 120 km/h following a go-slow area, which when the average European current mix is applied (pursuant to ENTSO-E), is linked to CO**2**-emissions of **around 60 kg per train and fault**. This figure multiplies with every train and hour of disruption and therefore in view of the large number of turnouts (e.g. approx. 16,000 in Austria and 70,000 in Germany) **represents significant potential for cost and emission reductions**. Moreover, it is even higher when diesel locomotives are involved, as is the case in many countries (USA, Canada, Australia, etc.), rising to around 120 kg of CO_2 emissions per train and fault.

» **Hydraulic switching systems** are not only virtually noiseless and vibration-free, but also facilitate the mechanical tamping of the track bed as they lie inside the rails. In addition to improved track quality, this again leads to a prolongation of turnout service life.



Raw material purchasing

Systemic suppliers are subjected to an examination, which includes the HSEE and CSR aspects. In this connection, it is of special note that the manufacture of rails and webs, which are further processed at the Zeltweg location, takes place within a production chain formed by voestalpine companies possessing environmental certification:

» **Steel production at voestalpine Stahl Donawitz GmbH and**
» **Rail production at voestalpine Rail Technology GmbH.**

In addition, an environmental product declaration (EPD) exists for rails and further EPDs are undergoing completion. Preference is also given to the production of turnouts in the **environmentally certificated foundries** (ISO 14001) of voestalpine and the vaRS Group.

All in all, numerous suppliers already possess certificated safety/health, environmental or energy management systems as required by our type of supplier evaluation.

Production

Quality assurance steps before, during and after the production process ensure that rejects and reworking are reduced to a minimum. Within the framework of value flow implementation, so-called **quality gates** have been installed within the plant. These are checkpoints in the production sequence at which employees can examine product characteristics (e.g. geometric dimensions) for themselves.
The primary objective of the use of quality gates is to prevent reworking, repeat production and error costs and recognise their causes at an early stage. Defect reduction results in greater efficiency, lower expenses, less waste and reduced energy consumption.

The **scrap and chippings** emanating from the production process are largely subjected to external recycling by regional disposal companies.

The **life** of the cooling lubricant used has been **extended** from four to 12 months.

Investment in an RT scanner for the digital rather than the analogue evaluation of radiographic examinations has totally eradicated the need for development and fixing baths and hence the occurrence of **hazardous waste**.

Use phase/Service activities

» Essential component lubrication and the possible, resultant **contamination of track gravel due to grease and oil are largely avoided**. On the one hand, encapsulated signalling products facilitate a reduction in the use of lubricants and on the other, prevent the escape of contaminants. This innovative technology and the employment of special, lubricant-free sliding plate systems in the turnouts are in line with the clear-cut environmental thinking of the company.

» The extensive use of **innovative technologies with low-maintenance and partially entirely maintenance-free components** in turnouts allows a major prolongation of maintenance and inspection periods. As a consequence, necessary **maintenance work** can be completed in combination with the use of electronic surveillance systems in a **requirement-oriented rather than time-oriented manner**.

» Reduced maintenance and inspection expenditure and the use of **remote diagnosis devices also minimise the accident risk** for the service personnel commissioned with the work, as the necessary time spent in the danger zone on the track is far shorter.

» Danger reporting systems of the latest generation subject the wheels and brakes of trains at full run-over speed to a diagnosis with regard to their technical condition and the possibility of overheating due to a malfunction. These systems thus make a sizeable contribution to the **increased safety of people, the environment and transported freight.**

» The delivery of **pre-assembled turnouts using special logistics and transport wagons** means that individual components need no longer be assembled at the construction site. This enhances product quality, while at the same **reducing the essential amount of time spent in the danger zone on the track by assembly crews and minimising work in the night and cold and wet weather**. An improvement that is entirely in line with **safety and health protection**.

» **Service activities** such as initial turnout maintenance, grinding and servicing are carried out in cooperation with WS Service GmbH, in order to still further optimise the **availability and hence the economic viability** of the complete turnout and track system.

Recycling

The average service life of a turnout is around thirty years. However, even after this amount of time, their melting down is still unnecessary. In cooperation with the subsidiary WWG, the topic of **turnout recycling** was considered and related logistical and technical solutions developed. Above all, the recycling and preparation of components that remain usable offer solutions that are well suited to areas subject to limited loads and also serves to save resources. As compared to newly manufactured parts, recycled steel components facilitate the prevention of approximately two tonnes of CO_2 for every tonne of steel employed. In Austria, 15% of all the turnouts installed have been recycled.

Consequently we can offer a **turnout recycling with notification process** as a service (dependent upon a positive agreement) for the return of turnouts and with impregnated wood or concrete sleepers.

COMPLETE SOLUTION IN TURNOUT LOGISTICS

4.5 THE HYDROPOWER PLANT

With its participation in the construction of the small-scale power plant on the River Pöls (PenzVAEE power plant), voestalpine Weichensysteme GmbH moved into a new, **sustainable energy management dimension**. The objective was a maximum degree of autonomy with regard to the electricity supply of the voestalpine location using **clean, CO_2-neutral hydropower** while taking into account economic viability and the preservation of the water rights and aspects of environmental relevance in the course of the construction and operation of the power plant.

The small-scale hydropower plant on the Pöls offers advantages on a number of levels, as underlined by an expertise from the Graz University of Technology, which points to total Austrian value added of over EUR 10 million and thus underlines the **special national and regional economic interests inherent to the construction of the plant.** A considerable portion of electricity production is employed for the new inductive furnace for rail forging. This not only replaces the natural gas fired furnace used to date, thus saving some 340t of CO_2 emissions per year in the long-term, but also secures technological market leadership and roughly fifty jobs in tongue production at the location.

The key technical data of the power plant is also impressive, as is clearly demonstrated by a comparison with the figures from the Penz power plant, which went into operation at the beginning of the 1980s and has continued in use until now. This data was first achieved by a series of optimisation measures taken with regard to the turbines, generators and the plant as a whole:

	FORMER PENZ POWER PLANT	PENZ VAEE POWER PLANT
Output (kW)	290	2,576
Power generation/year (MWh)	1,300	12,900 up to max. 14,100
Gross head height (m)	4.44	31.44
Turbines (output in kW) (efficiency in %)	215 and 116 85 and 84	jrespectively 1,447 respectively 92.5
Generators (output in kVA) (efficiency in %)	320 and 160 92.5 and 91.0	respectively 1,750 respectively 96.2
Design inflow (m3/s)	10,00	12.44
Conduction line length (m)	200 (open duct)	2,810 (DN 2400 pipeline)

» With a length of around 3km, the **penstock** is among the largest in Austria. The pressure pipes have a clear width of 2.4m and a length of 6m, which meant that over long stretches, their laying represented a logistical masterpiece. This was because the route not only ran across agricultural land, but also near a residential area, which as in the works necessitated complex pipe installation.
» **The turbines** were precisely matched to local conditions and circumstances by means of **technical flow optimisation** and their respective efficiency raised once again to 92.5%. Moreover, the performance and efficiency of the **generators** were also increased (from 92.5% and 91.0% to 96.2% respectively).
» Optimisation was not only completed with regard to machine technology, but also **structural improvements** throughout the entire power plant, which successfully cut the net head height losses by approximately 15%.

Since 2010, average annual power generation has amounted to approximately 12,100 MWh, whereby **on average 87% of own consumption at the Zeltweg location was covered** (in the summer months virtually 100%). The surplus electricity produced, especially in the afternoon and night hours, was fed into the national grid. Naturally, the **officially stipulated levels of residual water flow in the Pöls were maintained by means of electronic regulation** (1,500 l/sec in the winter half-year, 2,200 l/sec (dynamic up to 3,500 l/sec in the summer half-year).

On the basis of the Western European average value for the composition of electricity (UCTE Mix 2009 – approx. 440 kg CO_2/MWh) the planned power generation saves **some 5,600t of CO_2/year**. As a comparison, the annual quantity of electricity corresponds with the consumption of roughly **3,500 average family homes** and thus a conurbation of roughly the same size as the urban district of Zeltweg. Were this volume of electricity to be produced in a (modern) coal-fired power plant this would require approx. 3,700t of hard coal annually, or in the case of a (modern) gas-fired power plant, approx. 2.2 million m^3 of gas per year.

Clearly, **the construction and operation of a power plant cannot occur without any environmental disruption**. However, as a result of numerous ecological structuring and supportive measures, impact has been limited to the greatest possible extent and hence to a tolerable level:
» In addition to a **fish ladder**, an especially innovative feature was installed in the **water catchment** area in the shape of a so-called water hydropower screw, which on the one hand operates as a residual water turbine, as the water not conducted into the penstock is used for the production of electrical energy (30 kW output; approx. 200,000 kWh of electricity production per year), and on the other, acts as a **fishway**.
» The **upgrading and dynamisation of the residual water reach** was achieved by measures such as the use of activation stones and the retention of existing island areas.
» In the **backwater area** of the power plant, a hydro-geological link was formed between the residual water reach and the River Mur with a simultaneous hydro-geological separation of the outflow area of the power station in order to prevent fish from swimming into the turbine backflow.

All these achievements and successes would have been impossible without our partners Robert Zotter and Rochus Penz, the cooperating authorities and political decision-makers, as well as our neighbours along the construction road and the anglers with fishing permits. **Accordingly, our sincere gratitude goes to all these persons for their constructive cooperation and understanding.**

5. INTEGRATED MANAGEMENT SYSTEMS (IMS)

THE VARIOUS COMPANIES AT THE VOESTALPINE LOCATION IN ZELTWEG POSSESS INTEGRATED MANAGEMENT SYSTEMS, WHICH REGULATE THE REQUIRED SEQUENCES AND TASKS WITHIN THE COMPANY IN AN INTER-DEPARTMENTAL AND INTER-DISCIPLINARY MANNER ON A PROCESS-ORIENTED BASIS. IN PARTICULAR, THIS APPLIES TO THE AREAS OF ENVIRONMENT AND ENERGY, HEALTH AND OCCUPATIONAL SAFETY, QUALITY, ENGINEERING AND FINANCE.

The requirements relating to the form, content and interplay of the elements derived from respective specialist stipulations are fulfilled entirely by systems in line with the following:

» The **EMAS III Directive, as well ISO 14001:2015** with regard to **environmental management**,
» **ISO 45001:2018** with regard to **occupational safety and health management**,
» **ISO 50001:2018** with regard to **energy management** and
» **ISO 9001:2015** with regard to **quality management**

In this connection, the prefix **"HSEE" (Health, Safety, Environment & Energy)** classifies interdivisional elements such as policy, targets, etc.

In accordance with the most expedient solution, the companies at the location employ joint or independent processes and specification documentation. However, in all cases the interfaces between selective processes are coordinated and the relevance of the documents is left to the individual companies.

5.1 IMS CORNERSTONES

The integrated management system (IMS) guarantees the implementation of our HSEE policy, as well as established HSEE objectives and individual targets. This facilitates the **retention of the high level already attained** and where meaningful from a contentual perspective and economically acceptable, **a continual improvement in performance with regard to operational environment protection, health and safety, and quality.** The IMS is documented in the integrated process landscapes of the three companies and regulates the main operational procedures in holistic form.

5.2 HSEE ORGANISATION AND RESPONSIBILITY

5.2.1 OVERALL RESPONSIBILITY

Executive management bears overall responsibility for environmental protection at the individual companies. It must establish HSEE policy and examine the effectiveness of the environmental management system in the course of regular managerial reviews.

From an operative perspective, the HSEE Department has been divided into:

» The **HSEE Department of voestalpine Turnout Technology Zeltweg GmbH, which will also serve voestalpine Signaling Austria GmbH** and thus the two production companies at the Zeltweg location
» The **HSEE Department of voestalpine Railway Systems GmbH**, which will be responsible for the support of the holding including the internationalisation agenda (acquisitions, company foundations) and consulting of the existing subsidiaries.

The respective HSEE departmental heads bear responsibility for the design and management of the system and provide the various executive managements with basic information for the management reviews and the planning of environmental targets and programmes.

5.2.2 SPECIFIC FEATURES OF THE SAFETY AND HEALTH PROTECTION AREA

With regard to safety and health protection:

- **Responsible officers** are appointed that are answerable for defined areas of legal responsibility relating to employee protection in accordance with the stipulations contained in the Austrian Work Inspectorate Act.
- Executive management, responsible officers and company employees receive advice from trained and **state approved prevention specialists** in line with Austrian directives.
  - The two HSEE departments will furnish a total of **three safety specialists.**
  - An **occupational physician** from the Donawitz Occupational Medicine Centre has been appointed for the location.
- Furthermore, in cooperation with AUVA (Austrian General Accident Insurance Fund, **safety officers (some 30 persons)** have attended 3-day training courses, the content of which was designed specially to match our requirements. AUVA experts not only gave the safety officers instruction regarding the general principles emanating from various special areas, but also informed them of the specific relevance and the concrete applications of the teaching content at the locations in interaction with the company's safety specialists. The safety officers agree HSEE focal points at monthly meetings.
- The **Work Safety Committee** holds an annual meeting, in which line management (including masters and forepersons), internal specialists and the safety officers participate. Above all, these gatherings focus on the communication and discussion of information and special issues.
- **The consultations and examinations** (suitability and regular medical checks) provided by the occupational physician and the Donawitz Occupational Medicine Centre are of singular importance. These are carried out on the basis of legal stipulation and voluntary additions in connection with occupational burdens. **Work psychology consultations** constitute a special service and the Occupational Medicine Centre possesses the very latest diagnostic possibilities in this regard.

5.2.3 OTHER PLAYERS

- A **waste officer** has been appointed for the location.
- In addition a radiation protection officer (+ deputy), a fire and disaster officer (+ deputy), a laser protection officer and an external hazardous materials officer have been chosen.
- A major contribution to overall success is provided by the integration into and support of HSEE activities by the **blue and white collar works councils.**

5.3 EMPLOYEE MOTIVATION AND TRAINING

5.3.1 EMPLOYEE INVOLVEMENT

The involvement of the entire workforce in HSEE activities represents an important element in company policy. Indeed, **every employee is called upon to "breathe life" into the aspects of HSEE policy pertinent to his or her workplace**. Personnel are motivated to act on their own initiative and use innovative thinking by means of internal/external training, open discussions, idea management within the framework of the **continuous improvement process (CIP)**, as well as **bonuses for implemented improvements** and the HSEE-related awards received. These measures ensure that HSEE objectives are attained with greater efficiency.

5.3.2 TRAINING PROGRAMME

As a result of the implementation of the Austria-wide training programme at the Zeltweg location, from 2015 onwards the range of training available in the areas of environment, health and occupational safety was further intensified and made available to the entire workforce. The desired objective of **longer-term employee health**, not only benefits the individual employee per se (especially in view of an extended working lifetime), but also the company. In addition, the training programme offers the possibility to acquire **further and higher professional qualifications**, which assist personal development, once again with a special focus on job loads, and further enhance the operational flexibility of the company.

5.3.3 TRAINING AND EDUCATION

HSEE-relevant instruction is structured as follows:

- Onboarding (first day in the company)
- Safety instruction video
- HSEE instructions, theoretical and practical part
- Training on the safety course
- Safety Day for apprentices
- Instruction for external companies
- Instruction for visitors
- Training in conduct-based work safety

Departmental training

- Internal auditor training (ISO 9001, 14001, 45001 and 50001, 8 units each)
- Lean production (WIT production system)
- Hazardous materials training (2 units)
- Load safety (8 units)
- Crane and forklift license (21units resp. 20,5 units)
- Crane refresher course (8 units)

Education

- Safety specialist (300 units)
- Safety officer (24 units)
- First aider (16 units)
- Fire protection officer (24 units)
- Radiation protection officer (16 units)
- Waste officer (35 units)
- Laser protection officer (16 units)

1 teaching unit = 45-60 min

5.3.4 ADDICTION PREVENTION

An **active approach** to this problem area, which on a social level is preferably ignored, has been adopted through participation in the **"Clean & Dry" programme**. This is used throughout the voestalpine Group and is targeted on the early recognition of addictive behaviour and the offer of external help to those affected with the healing of their illness. Managers and subsequently, first and foremost, employees are appropriately trained and informed, in order to create an atmosphere, which will ultimately result in **quality of life for sufferers and the retention or recovery of their working capacity by the company**.

5.3.5 "TOP FIT" OCCUPATIONAL HEALTH CAMPAIGN

In April 2017, an **occupational health campaign** was launched at the location. This has the aim of developing company structures and processes, which apart from the statutory basis formed by workplace evaluation and occupational medicine examinations, should achieve work and workplace design that is conducive to good health.

The **"Top Fit"** campaign project incorporates all the measures targeted on improving health and well-being in the workplace. Our educational programme already includes numerous health-related offers, but in addition other employee needs were determined through health and job satisfaction surveys, and the appropriate measures instituted.

The prime motivation behind these moves is provided by the fact that only healthy employees, who feel at ease in the working environment, can remain in company service on a long-term basis.

5.3.6 ACCIDENT DATA MONITORS

Special **"accident data monitors" have been installed** at prominent points in order to show the current accident statistics.

5.4 ELECTRONIC DATA MANAGEMENT

The administration of obligations relevant to HSEE and plant data is carried out **using "Gutwin" legal and task management software**. In particular this incorporates:

- The management of the **legal register** and the resultant one-off and recurring legal obligations.
- The management of a **directives register** and the resultant one-off and recurring obligations.
- The preparation of a report pursuant to §82b Commercial Code (incl. §134 Water Rights Act) and multifaceted **evaluation possibilities for the evaluation of the legal conformity of company plants.**
- Management of an **equipment database** (currently includes approx. 840 items including the working facilities ad-ministered according to the same principles:
  - The categorisation of decrees relating to equipment/plants (= creation of a **directive history for the plants**; at present over 300 directives are of relevance for the location of which the majority affect or relate to the approval of a large number of plants or plant alterations).
  - The categorisation of the **obligations affecting the respective plants** (to date a total of over 1,850 one-off and more than 240 recurring obligations have been categorised).
  - **Approval management** in connection with the construction or alteration of plants (preparation and administration of documents submitted for approval procedures, especially in the form of plant datasheets with data of rele-vance to approval and the required enclosures (e.g. EC conformity declarations, measurement reports, technical machine descriptions or audits, planning documents, etc.)).
- Management of a **materials database** including system-integrated, electronic work flows for material evaluation and release prior to sourcing and the administration of manufacturer safety datasheets (at present roughly 380 materials (in the sense of products) are in use).
- Registration and processing of occupational accidents and critical situations using the **accident management tool.**
- Provision of **work station danger assessments ("evaluation")** including the preparation of the resultant docu-mentation:
  - **Safety and health protection documents**, which deal with all the relevant factors and in particular:
    - Technical safety.
    - Exposure to working materials (including dust), noise, vibrations, radiation, etc.,
    - The resultant examination obligations and restrictions in use (apprentices, female employees, pregnant employ-ees, possibly employees with handicaps).
    - The required personal protection equipment.
  - **Company directives regarding the required instructions, bans, danger warnings and conduct,**
  - **as a special area, evaluations in the case of accidents or incidents (critical situations/near misses).**
- Completion of **general task management** with regard to the plants, e.g. derived from:
  - Internal or external audits
  - Company improvement suggestion scheme
  - Company walkabouts
  - CIP entries (= continuous improvement measures)

Additional systems that supply or administer data of relevance to HSEE are:

- The SAP system, especially in connection with input-output data (material quantities)
- The SAP maintenance module

5.5 DATA COLLECTION AND EVALUATION METHODOLOGY

On the basis of many years of qualified consideration, **checklists that are specifically suited to company activities** have been drawn up for the collation of aspects of environmental, energy and health and safety relevance.

For example, onion layer model evaluation checklists have been prepared for the area relating to the evaluation of dangers to health and safety in the workplace:

- **Workplaces –** criteria catalogue for the evaluation of buildings and premises
- **Equipment –** criteria catalogue for the evaluation of machinery and work stations
- **Materials** – criteria catalogue for the evaluation of the chemical substances employed
- **Specific activity-related details/dangers** (e.g. moving parts)

This classification ensures that **capacities are deployed in a highly efficient manner**, e.g. that it is unnecessary to administer the entire workplace for every machine. This is based on the "first layer" level, as the machines represent the "second layer" (whereby the identical places in this model are ideally suited to grouping!). Materials constitute the "third layer" (and can be again allocated to particular activities without multiple management of the plants/processes).

The **evaluation model for the assessment of danger and establishment of priorities** is equally straightforward. In line with the general basic principle, risks are determined and classified as the product of their potential impact and the probability of occurrence. The following categories were employed

Factor	Impact	Probability of occurrence
1	Slight	Improbable
2	Moderate	Seldom/possible
3	Serious	Occasional/already occurred
4	Major	Frequent/probable

4	4	8	12	16
3	3	6	9	12
2	2	4	6	8
1	1	2	3	4
Impact/Probability	1	2	3	4

The numerical values correspond with the following activity priority classes, which can be called up in accordance with this evaluation (please see the extract from the evaluation template below):

Points	Action requirement/Priority
1	Residual risk acceptable
2	Long-term action requirement exists
3-4	Medium-term action necessary
6-8	Short-term action necessary
9-16	Immediate action necessary

This evaluation can be stored directly in the Gutwin software evaluation tool for task management. In addition, the resultant assignments can be administered in line with responsibility, schedule surveillance (one-off and recurring activities) along with the related documentation of completion.

The identical basic principle is also employed in the environmental and energy areas for measure prioritisation. However, a modification does occur, as in these areas the risk of an accident/damage is less pertinent than the determination of a ratio between the extent of impact/effects/resource consumption and the respective potential offered by an improvement or the exertion of influence. The following **matrix of the environmental and energy aspects** results:

Colour matrix for yearly amounts/ Possible % of improvement	Low emission volume	Medium emission volume	High emission volume
No or slight % improvement possible	P4	P4	P3
Improvement possible	P4	P3	P2
Sizeable improvement possible	P4	P2	P1
(Resultant Priority Classes: P1 to P4)			

Risk assessment at the time of evaluation (Risk = Impact x Probability of occurrence

Risk assessment following the completion of corrective measures

Points and colours signify measure priority/urgency and the safety level subsequently achieved (= new starting situation)

Apart from the determination and evaluation of plant status and the resultant measures, which have already been implemented successfully in the HSEE programmes of past years, at any early stage the main focus was on **prevention** and thus the avoidance of potential problems, especially through the optimum planning of new activities. For many years (since approx. 2001), project managements and the purchasing and HSEE departments have drawn up appropriate **HSEE project specifications** in both the investment (machinery, buildings) and maintenance (repairs, servicing, audits) areas, which then have to be implemented by both internal and external contributors. **This planning, which integrates HSEE from the outset**, has not only saved large amounts of subsequent effort and expense, but also secured the safe and legally compliant operation of plants immediately after completion.

The **documentation** for these specifications is constantly updated for future projects in line with the experience gathered and new stipulations (laws, etc.) and a continuous improvement process. Moreover, in accordance with this precautionary principle **the evaluation of materials has been completed prior to purchase ever since the system was introduced in 1996** (exclusion of unsuitable products, classification of permissible variants pursuant to HSEE criteria). To this end, it was also integrated into the Gutwin software in 2013 as an electronic workflow.

The data gathering and evaluation principles employed constitute a solid foundation for the determination of HSEE programmes as a significant element in the company's continuous improvement process.

5.6 CONTROLS AND ENVIRONMENTAL AUDITS

The ISO 9001, ISO 14001, ISO 45001, EMAS and ISO 50001 management standards foresee the introduction of a closed circuit ("**PDCA cycle**"), which contains the following measure sequence:

» **P**lan (= planning of improvement projects with the involvement of the relevant persons)
» **D**o (= completion of the project in line with planning)
» **C**heck (= surveillance as to whether problems or deviations occur during implementation, or the desired success is finally achieved)
» **A**ct (= take action in order to carry out possible corrections)

This cycle is employed for all operational activities and its repetition leads to a steady rise in standards and in the course of time, the realisation of a **continuous improvement process** (CIP).

The implementation of policies, objectives and legal stipulations of relevance to HSEE, as well as the effectiveness of the measures taken are monitored by:

» Regular **internal audits** (in the meantime more than 40 employees from differing departments have been trained as **internal auditors**)
» Input-/output analyses
» The evaluation of HSEE-relevant factors (in particular the evaluation of workplaces, materials, etc.)
» The results of regular audits on the basis of legal guidelines, as well as guidelines emanating from commercial authority and water rights directives

These measures then form the **annual environmental audit.**

Apart from system-oriented internal audits, voestalpine Turnout Technology Zeltweg carries out so-called "**LPA Audits**" (LPA - Layered process audit). These involve the examination by management from differing hierarchical strata of adherence to standards at area level. Checklists are employed for this purpose and if possible any deviations are corrected immediately, or suitable measures are initiated. Completion and the findings of the LPAs are visualised in an appropriate and clear manner, and are then shown in the company on the LPA Board.

300 scheduled and 50 random LPA audits have been designed for audit planning and take place in the course of a fi-nancial year in a systematic sequence. In addition, audits take place in forty defined areas and thus guarantee a uniform approach. More than 60 nominated LPA auditors complete the audits. The scrutiny of standards employs checklists related to the 5S thematic areas comprised by Workplace Organisation, HSEE, Training & Authorisation, Marking & Tracing, Process Conformity and Office Standards. Furthermore, the findings are visualised in the form of active shop floor management and shown on the LPA Board.

5.7 CONFIRMATION OF ADHERENCE TO MANDATORY REGULATIONS

The legal register at the Zeltweg location is administered using the gutwin software system.

» Current regulations (statutes and directives at federal and provincial level, as well as EU directives) with HSEE-relevant aspects are communicated by the gutwin legal compliance service and are subsequently examined by the HSEE departments with regard to their relevance of the locations and the resultant assignments are then entered into gutwin task management.
» Where necessary, relevant content is communicated to those affected, or is incorporated into related processes/instructions.
» Notifications including requirements are also entered into the gutwin software system (= notification register) and administered along with the resultant one-off and recurrent tasks.

The main elements for the securing of legal conformity are:
» Approval and notification procedures
» Internal documentation
» Legal authorisation audits
» Employee instruction content
» Processes
» Internal audits and inspections
» Management reviews

The following mandatory regulations have received positive examination and been recognised as important for the HSEE area and the retention of legal conformity: the Trade, Commerce and Industry Regulation, the Water Rights, Waste Disposal, Radiation Protection, Energy Efficiency and Worker Protection Acts, as well as the Styrian Building Act and its related directives.

The procedures for the retention of legal conformity are examined and assessed annually by the executive management in the course of the management review.

5.8 THE “SYNCHRONISED TURNOUTS” PRODUCTION SYSTEM

The “Synchronised Turnouts” production system of vaTTZ adheres to the principles applied in this connection by Toyota. When production is synchronised to match the rhythm used by the external customers and, starting from final assembly, all the upstream areas only produce what is currently needed, one refers to a pull system operating on a just in time (JIT) basis.

What are the principles of the “Synchronised Turnouts” production system?

» **The elimination of waste** (process efficiency in both the production and administrative areas)

Work is composed of value added and waste. The former consists of machine processing times, while waits on the part of the equipment operator following the end of the machining process, or the unnecessary transport of parts, constitute the latter. Therefore, the objective is to substitute value added for the waste caused by over-production, superfluous movements, waiting times, overwork, large material stocks, reworking and rejects. This also involves the prevention of accidents, sick leave, wasted materials and energy.

» **Process synchronisation** (process and product orientation)
Production is limited to only that which is currently required. Rapid reset procedures make the production of small lots possible and cost efficient. Throughput times are minimised and ideally are virtually identical with pure machining time. The material stream is constantly in motion and this is achieved largely by a switch from batch size production in line with the workshop principle to individual workpiece output according to the flow principle. The method for tool change time optimisation is called the single minute exchange of die (SMED).

» **Process standardisation** (visualisation and standardisation)
Standards must be universally visible. However, the publication of standards is only meaningful if one can see at a glance that they are adhered to. Both employees and the responsible managers must be able to recognise if the process standard is being observed or not. For this purpose, we employ the visualisation process in the “Synchronised Turnouts” system, as deviations from standards must immediately catch the eye. Moreover, in order to secure lasting adherence to standards, these must be audited. Managerial staff from all hierarchical levels, as well as employees from every area, participate in the auditing process.

» **Defect prevention** (zero defect strategy)
With the “Synchronised Turnout” production system, we wish to attain a zero defect target by means of various measures such as automatic surveillance (Jidoka), machine and/or employee self-supervision. In addition, structured measures such 8d, PDCA and Poka Yoke, which roughly translated means the “avoidance of unintentional errors”, are implemented. The topics of accident and waste prevention, resource conservation and energy efficiency are again integrated into this strategy.

» **Production plant improvements** (optimised plant availability)
The personnel in the "Synchronised Turnouts" production system are trained with regard to maintenance and to a certain degree are capable of correcting faults themselves. Only when the repair cannot be completed within a defined period, or special know-how or authorisation is required to correct the fault, the central maintenance team is called into action (autonomous servicing). In the case of a defect, the aim is to find the actual cause and remove it on a lasting basis. The "6W method" is employed as an approach, as five "Whys?" and one "How" are almost always sufficient to find the real root of the problem.

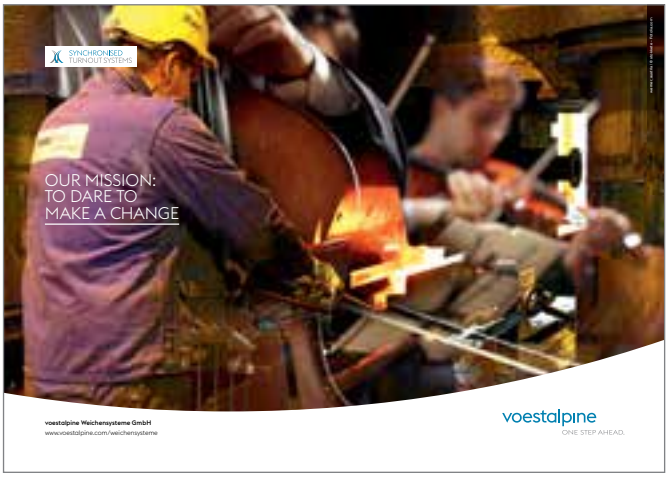
» **Employee qualification and training** (employees as a key factor)
Investments in employee qualifications create a decisive competitive advantage in the fight for quality and lower costs. In the "Synchronised Turnouts" production system, the continuous improvement process (CIP) also means constant employee training.

» **Continuous improvement process** (PDCA cycle; 8D problem solution process)
In the "Synchronised Turnouts" production system, we wish to give every employee an opportunity to improve the conditions in their workplaces and hope for the release of the considerable creative potential that our workforce possesses. In the workplace, the employee is the expert and not the engineer, who planned this station months, or even years earlier. Personnel have to deal with day-to-day problems and frequently ask, "Why so and not differently?" A sense of personal identification is only created following workplace design and both the 5S method and an effective and non-bureaucratic continuous improvement process (CIP) serve this purpose.

» **Process and product orientation** (module formation)
By means of the "Synchronised Turnouts" production system we intend to create the structural and sequential organisational framework required for efficient output in line with customer rhythm. Among other tools, to this end we utilise production on the basis of the key components in a turnout (production orientation), as well as the required planning team, in order to reduce interfaces wherever possible (process orientation).

» **Management via key figures** (Performance Measurement System)
In order to know just where we stand in the "Synchronised Turnouts" production system, we have introduced a key figure system at company level under the motto, "We do not want to look in the rear view mirror, but rather see the obstacles ahead in the headlights".
With this in view, key figures were drawn up for the company areas (production, logistics, ...) and the production area (shop floor, modules, ...). The shop floor parameters were published for each module in the "Synchronised Turnouts" communications boxes and made known to all employees. Apart from the current actual figures, these will also provide us with the established target values. In this connection, please see the diagram and details in Section 5.9.2.

Achieving these objectives also demands a corresponding **corporate culture orientation**, as expressed in our **Guiding Principles.**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5.9 "SYNCHRONISED TURNOUTS" – CONDUCT-BASED SAFETY

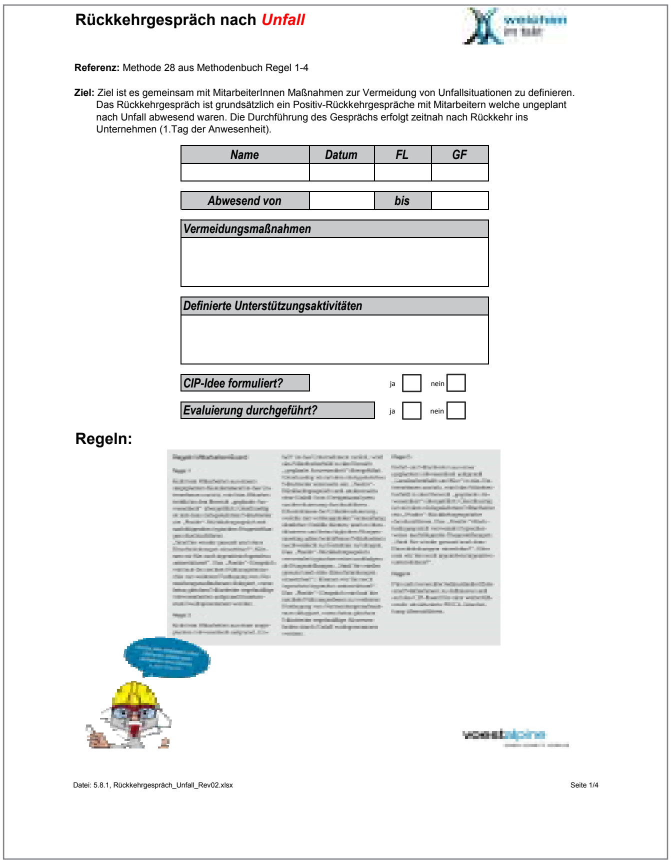
Employee safety measures were characterised by a focus on technical protection. However, the methods employed demonstrated limitations and the number of accidents could not be reduced further. In addition, the accident pyramid, which shows the ratio between the seriousness and frequency of work accidents, indicated that severe accidents were merely the tip of the iceberg. It was evident that to achieve a further improvement, not only was there a need to provide technical equipment and draw up suitable rules and regulations, but a new awareness of work safety had to be created.

The conduct-based approach now adopted not only takes into account the previously prepared pyramid but also extends its base. Apart from every near miss, principally **all examples of risky and unsafe behaviour on the part of employees** are taken into account ("that was a close shave." - near misses). We have thus placed the accident pyramid on a new and secure foundation.

The accident pyramid creates a ratio between serious work accidents and their frequency. It shows that serious accidents merely represent the tip of the iceberg. According to estimates, for every fatality, 10,000 to 70,000 near misses occur.

5.9.1 ONGOING HSEE ACTIVITIES

- All **work accidents** and **near misses** are evaluated and visualised using an incident analysis (in order to discover the accident cause, whereby this is questioned several times with five "Whys?" and one "How?", "Good or bad luck?", and then measures are established), which includes the partial drawing up of **lessons learned**.
- During **module meetings** on a **weekly basis at vaTTZ** and **monthly at vaSIGAT**, under the auspices of the Production Manager, employees from production control/planning, work and process technology, the master craftsmen, supervisors, maintenance and quality management, as well safety specialists discuss matters that include current topics such as work safety and accidents, incident and near miss analyses.
- Following the end of sick leave, a **discussion** is held with the returning, injured employee. The aim is to jointly define measures for both the prevention of accident situations and a reduction in problematic stresses and strains.
- A **HSEE Newsletter** is published monthly for vaTTZ and quarterly for vaSIGAT. This contains statistics such as vaTTZ's overall LTIFR and the accident trend in the modules, along with current issues, highlights and a report on occupational health promotion. All the incident analyses are included in the "Learning from Accidents" supplement to the "Newsletter", which is also employed during the module meetings and the team talks between the masters, supervisors and employees.
- **Monthly safety officer meeting:** quarterly tasks are assigned to the safety officers and are dealt with at the monthly meetings.
- **Monthly safety specialist photo safari** at vaTTZ with positive and negative findings. Presentation of the photos during the masters' circle. At vaSIGAT, the tours take place on a quarterly basis.



Rückkehrgespräch nach *Unfall*

Referenz: Methode 28 aus Methodenbuch Regel 1-4

Ziel: Ziel ist es gemeinsam mit MitarbeiterInnen Maßnahmen zur Vermeidung von Unfallsituationen zu definieren. Das Rückkehrgespräch ist grundsätzlich ein Positiv-Rückkehrgespräche mit Mitarbeitern welche ungeplant nach Unfall abwesend waren. Die Durchführung des Gesprächs erfolgt zeitnah nach Rückkehr ins Unternehmen (1.Tag der Anwesenheit).

Name	Datum	FL	GF

Abwesend von		bis	

Vermeidungsmaßnahmen

Definierte Unterstützungsaktivitäten

CIP-Idee formuliert? ja ☐ nein ☐

Evaluierung durchgeführt? ja ☐ nein ☐

Regeln:

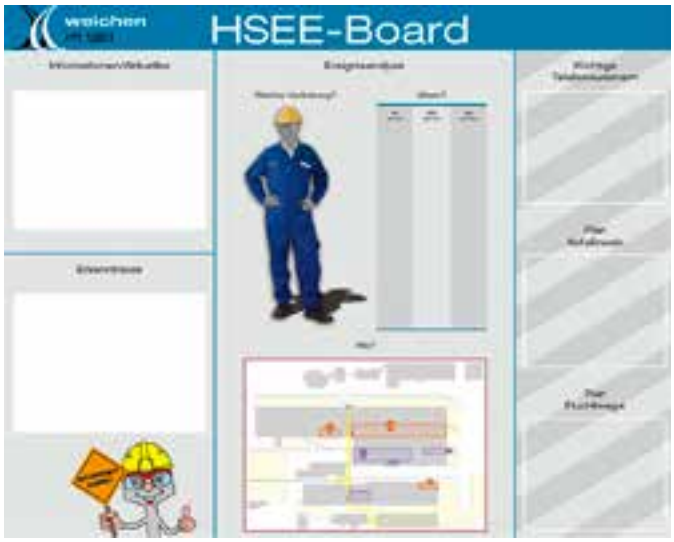
voestalpine

Datei: 5.8.1, Rückkehrgespräch_Unfall_Rev02.xlsx

Seite 1/4

5.9.2 VISUALISATION ON THE HSEE BOARD

The HSEE Board, which is part of the Module Box, serves the monitoring of accident events, operative HSEE occurrences, as well as the extrapolation of measures on the CIP Board.



Procedure and findings

1. Every work accident and near miss is evaluated in the basis of an incident analysis.
2. Each work accident and near miss is represented by a magnet pin in the incident analysis (3W):
   - » What injury?
   - » Where? (geographic classification)
   - » When? (temporal classification).
3. Subsequently, the result is placed in the “findings” field for all employees as information/coaching/instruction.
4. Finally, in the module box, the superior runs through the instructions following the accident with the victim and the team.

Information/News

- » During the weekly module meeting, a note is made under “S” for safety, which shows whether or not an accident occurred during the past week. Green stands for no accident, red for an accident.
- » On the HSEE Board, a smiley also shows whether or not an accident had taken place in the preceding month. A sad smiley represents an accident, while a happy smiley denotes zero accidents and the period during which the module has been accident-free.
- » Under the Information/News heading, one can also find current topics such as PSA tests, noise measurements, etc.
- » In addition, all employees are instructed to enter all findings/observations from plant tours such as near misses, un-safe conduct, weak points, potential dangers, etc. into the CIP (continous improvement programme) topic cards, as the personnel on the spot know best.

The monthly accident statistics for the respective modules and vaTTZ overall are posted on the **Key Figure Board**.

5.9.3 RAISING OF AWARENESS REGARDING DANGERS, INFORMATION AND TRAINING

Safety principle visualisation

» In order to increase danger awareness, **safety principles** have been defined and linked to suitable images form the private sphere.
» These pictures are used in the form of roll-ups at the time clocks and are exchanged every month.
» In addition, the images have been used in a calendar and poster for our apprentices.

Further sensitisation through the deployment of beach flags
Following a work accident, a beach flag is installed at the accident site for three days. It marks the spot in the company where an accident has occurred and should give cause for reflection:
» **What** has happened?
» And **why**?
» Moreover, **how** can a recurrence be prevented in future?
In the final analysis, the flags should also prompt a positive change in our attitude towards safety.

Information
» A 16-page **brochure** was designed for the workforce.
» A comprehensive 80-page **manual** has been drawn up for the safety officers..

Work safety, first aid and health promotion course

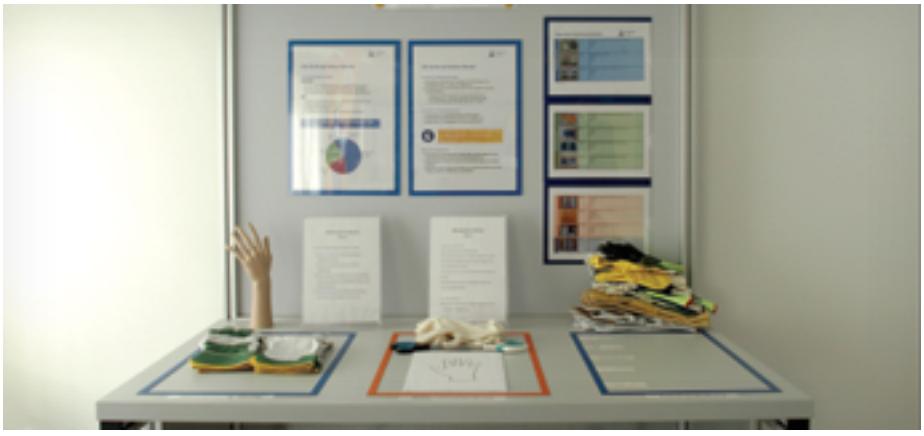
In 2017, a safety course was created at the location with the aim of achieving **"learning by doing"**.
The course's ten stations deal with a variety of issues relating to work safety in a clear manner. The themes are:
» Personal protection equipment
» Eye injuries
» Hand injuries
» The handling of chemicals, chemical spillage, hygiene and skin protection
» Noise and hearing protection
» Ergonomics and first aid
» A practice crane and lifting gear
» Seeing and being seen
» View and visibility on the forklift
» In-company health promotion with the topics health training and addiction prevention

The individual stations are so designed as to allow the coaching of employees with regard to both the causes of injuries and their prevention. For example, during the classification exercises, personnel should themselves find errors, or the correct personal protection article, while the respective perception exercises serve the creation of awareness regarding the importance of personal health.

The safety course serves both annual instruction and the coaching of new employees.


SICHERHEITSPARCOURS
LERNEN DURCH ERLEBEN
Arbeitssicherheit, Erste Hilfe, Gesundheitsförderung


SEHEN UND
GESEHEN WERDEN
SICHT UND SICHTBARKEIT
AM STAPLER



First Aid Board, Skin Protection Board

Apart from numerous first aid stations, First Aid Boards have been installed at two central points. These are equipped with eyewash bottles, a first aid case, plaster dispenser, etc. and in an emergency thus facilitate a speedy response.

The skin protection plan has been revised and standardised in the form of boards (Skin Protection and Skin Cleaning Boards). These are to be found in all changing and washrooms.

Onboarding (First day in the company)

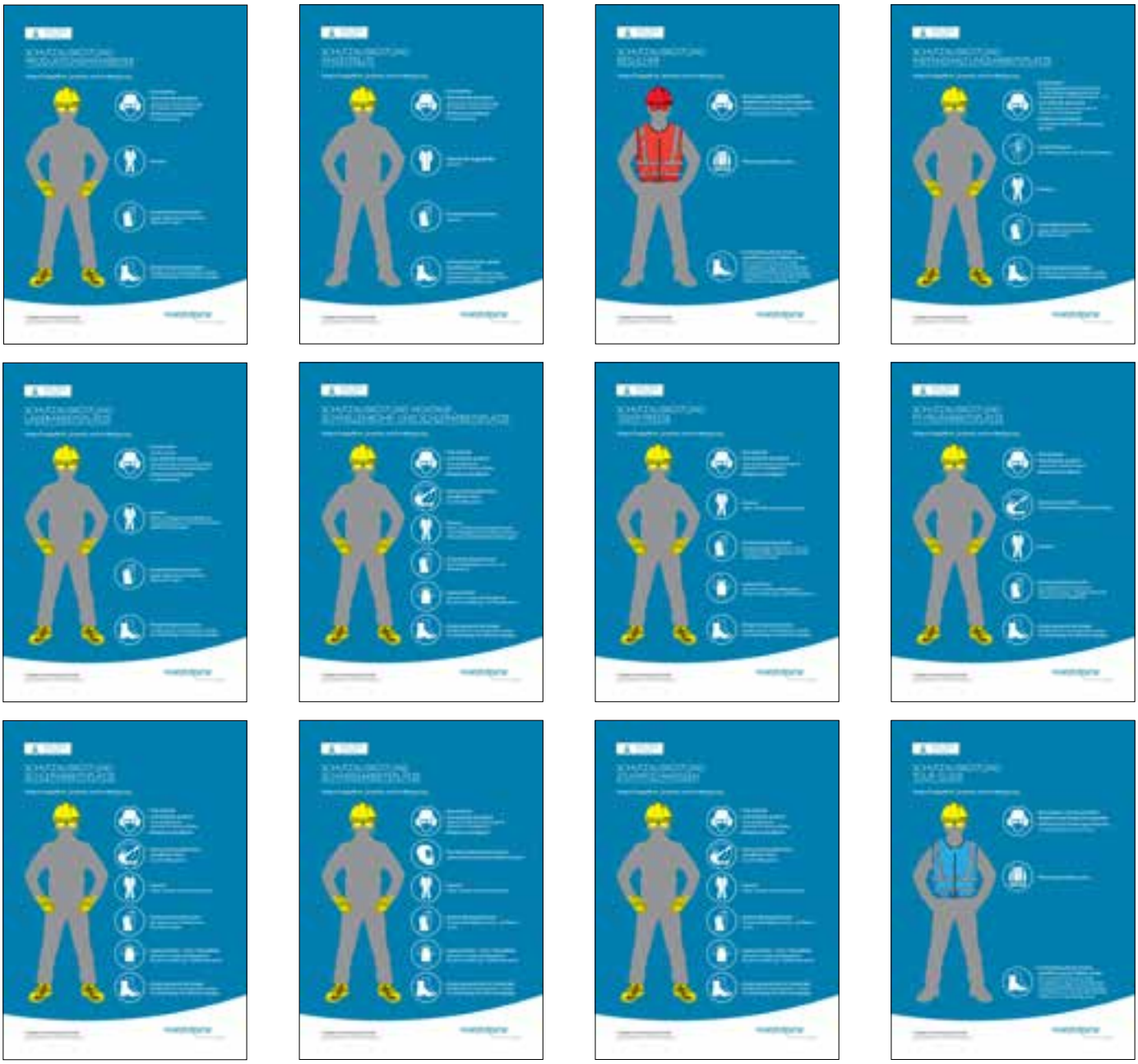
In order to ensure the attainment of company objectives, onboarding and quick training help newly recruited employees to understand the established standards and methods.

Topics and content:

- Production/modules
- Plant layout
- Logistics
- Quality management
- Maintenance
- HSEE
- WIT production system
- Guiding principles
- CIP/PDCA
- 5S standardisation
- Value added
- OEE, MDE, BDE

Personal Safety Equipement standards

PSE standards have been drawn up for all production and white-collar personnel, and visitors. Twelve differing standards illustrate mandatory wear, as well symbols and their meaning. The standards are shown in each of the “affected” areas and thus facilitate the quick recognition of the correct PSE for the workplace.



Safety instruction video

The safety instruction film for personnel at the location supports annual instruction. The film resulted from a joint project with the company apprentices.

5.10 INTERNAL AND EXTERNAL COMMUNICATIONS

The head of HSEE is responsible for the coordination of related communications:

- **Internally** through the HSEE report, HSEE Newsletter as well as messages and notices, above all in the module boxes, accident monitors and regular reports in works council journals.
- **Externally** through the handling of enquiries, suggestions or complaints, the active distribution of the HSEE report (Internet download possible via www.voestalpine.com/railway-systems), numerous publications and lectures.

5.11 CORPORATE SOCIAL RESPONSIBILITY (CSR)

Achieving compliance between economic requirements, the principles of social responsibility and sustainable business practice is a major challenge that we are pleased to face and understand less as a basic contradiction and burden, and much more as an opportunity. And in this regard, we may not only present words but deeds:

- The numerous **activities and successes in the area of health, safety, environment and energy** both at the Zeltweg location and the worldwide subsidiaries of the VAE Group (please see the separate chapter in this HSEE report) represent a major cornerstone in this regard. The many **awards** received at a regional, national and European level reflect this commitment.
- In addition, the **upholding of human rights** is an integral part of our corporate policy and **fair working conditions and contracts** are a major feature of the orientation of our group.
- These claims are also lent expression by **membership of the UN Global Compact**, to which not only the Zeltweg location and the VAE Group belong, but also the entire voestalpine Group.
- We attach equal importance to the **support of our employees with their careers**:
  - Therefore, at the Zeltweg location for example, we offer a range of opportunities that extends from plant visits, internships and trial apprenticeships to bachelor and diploma studies and provides school and college students with **initial contacts to the world of work** and directional possibilities in order to determine their talents and interests. The "Girls' Day" is a special event in this regard and is intended to awaken their interest in the technical professions.
  - In the final analysis, **apprentice training** provides us with the employees with whom we can successfully hold our ground in the global markets.
  - It is also important to proceed against the potential area of conflict caused by work and family. This is achieved through **flexible working time models** (sliding time and part-time working arrangements), in order that employee needs are met as far as possible.
  - **Further training programmes** support employees' careers and in view of the rise in the pensionable age, should facilitate internal transfers, when in spite of the best possible equipment from a technical and ergonomic perspective, with advancing age the workload in certain areas becomes too great. However, naturally the overriding principle is the retention of working capacity until retirement by means of design measures, occupational medical care and motivation to participate in health programmes.
  - The accommodation of the special needs of **personnel with physical disadvantages** is systematically pursued through appropriate evaluations and a separate representative committee for these employees.
- For VAE, **local projects and cooperations** are of special importance as exemplified by the following activities at the Zeltweg location:
  - Teamwork with the **Zeltweg Volunteer Fire Service**
  - The special range of leisure activities for all ages offered by the **works orchestra**, which with its high artistic standards enjoys great public popularity
  - The clubs organised by employees themselves for their own diverse hobbies (running, cycle tours, water sports, ice hockey, ..), of which we are especially proud
  - Sports, cultural and social **sponsoring**, which rounds off this range of offers and for example includes the involvement of numerous members of the management in the regional Lions Club in activities aimed at helping to improving the lot of underprivileged members of our society
- Reference should also be made to **financial matters**:
  - The participation of the workforce in the company and its success is long established (**employee holdings** amount to roughly 14% of voestalpine AG stock)
  - Location agreements regarding **employee bonuses** in line with company success
  - Offers regarding participation in **company pension schemes**
- Another central issue is naturally **behaviour towards suppliers and customers**
  - Unconditional compliance with our **Code of Conduct** in order to prevent conduct that is corrupt or in breach of anti-trust law through information and training, and to identify and without exception sanction possible infringements.
  - **Supplier qualification and assessment** in line with our processes in this regard as an important part of our sourcing procedures and the related "**CSR questionnaire**" and evaluations.
  - **VAE is a leading company in its region** and is therefore not

only a source of direct employment, but also an important local economic factor due to the allocation of orders for services and materials

» Participation in rating processes such as **Ecovadis and BSCI (Business Social Compliance Initiative)**, which is very much in line with the interests of our customers.

More information regarding the topic of corporate responsibility at group level in available in the **voestalpine AG Corporate Responsibility Report, which follows the Global Reporting Initiative (GRI) standard** and can be downloaded from the voestalpine AG homepage: http://www.voestalpine.com/group/en/group/corporate-responsibility/

ecovadis

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Valid until: December 2020

6. HSEE-ASPECTS AT THE LOCATION:

GREEN FACTORY

Energy/CO_2

CO_2-neutral production location based on three keystones:

Autonomous electricity supply

» Own mini-hydropower plant
» CO_2 reduction through high level of in-company electricity production
» CO_2 compensation through the feeding of surplus power into the public grid
» CO_2-free electricity purchases

District heating

» Heating of approx. 75 % of building volume
» CO_2 reduction through heating energy from replenishable sources instead of natural gas

Increased efficiency

» Thermal renovation of facades, roofs and skylights
» Technical measures (inductive heating instead of natural gas, use of waste heat from compressors, etc.)
» Technical heating measures
» Central control technology

Air

» 50 extractor and filter systems
» Reduction in the exposure to dust of both employees and the environment
» Minimal fine dust emissions

Noise

» Plant layout – design
» Measures at the noise sources
» Noise-insulated facades and windows

Green mobility

» Increased incentives to use bicycles and e-vehicles

Green and safe products

» Lubricant-free turnouts (Ecogliss, Hydrostar, Hydrolink)
» Reduced installation times owing to JIT logistics including CO_2 savings through rail rather than road transport
» Lower maintenance level with the help of diagnosis systems
» Energy savings for customers during operation owing to the avoidance of slow running stretches
» Contribution to noise minimisation (design, turnout servicing and grinding)
» Increased service life through material selection
» Fewer personnel hours on dangerous stretches of track
» Hazardous content avoidance/reduction
» Material recyclability + “turnout recycling” offer
» Life cycle cost advantages (LCC)
» Life cycle assessment (LCA) in combination with LCC

Water/wastewater

» Lower water consumption

Waste

» High levels of material recycling
» Waste reduction

Emergency safeguards

» Preventive measures for emergencies involving impacts of environmental relevance

EVALUATION, DATA, PERFORMANCE

Health and safety
- 60 % reduction in the lost time injury frequency rate = LTIFR (2016-2020)
- 60 % working accident reduction (absolute)
- 95.8% health rate = HR

Safety in discussion
- Behaviour-based safety training

Work accident and critical situation analysis
- Accident prevention; event analysis, lessons learned
- Beach flags
- Return discussion
- Monitors, Newsletter

Emergency planing
- Fire protection and emergency plan
- Technical measures
- Fall safety system
- Personal emergency signal system
- Call stand-by emergency folder
- First aid boards, defibrillators

SAFE FACTORY

Training/Instruction
- Onboarding – 1st day in the company
- Safety instruction video
- Theoretical training (instruction)
- Practical training
- Safety course
- Employee brochure
- Safety officer manual

Information/Visualisaton
- Module discussions
- HSEE Board
- Newsletter

Specific PPE concept
- 12 PPE standards

Ergonomic and technical safety – factor optimisation:
- 80-90% reduction in dust levels in the halls
- Load lifting/carrying
- Standing/sitting (ergo mats, office design)
- Noise factors (plants, interior acoustics)
- Chemical materials (CMR)

Technical projects
- Machine safety concepts
- Cranes, stackers
- Securing of blind spots

Company health promotions
- "Turnouts In Synch "– health training in heavy duty workplaces
- "Turnouts In Synch" – health training in offices

Psychological factors/Stress
- Return discussion
- Evaluation of psychosocial factors in the workplace
- Employee job satisfaction analyses
- Annual appraisal discussion
- Working hours design (flexitime regulation)
- Workplace design (feel good factors

Addiction prevention
- Clean&Dry

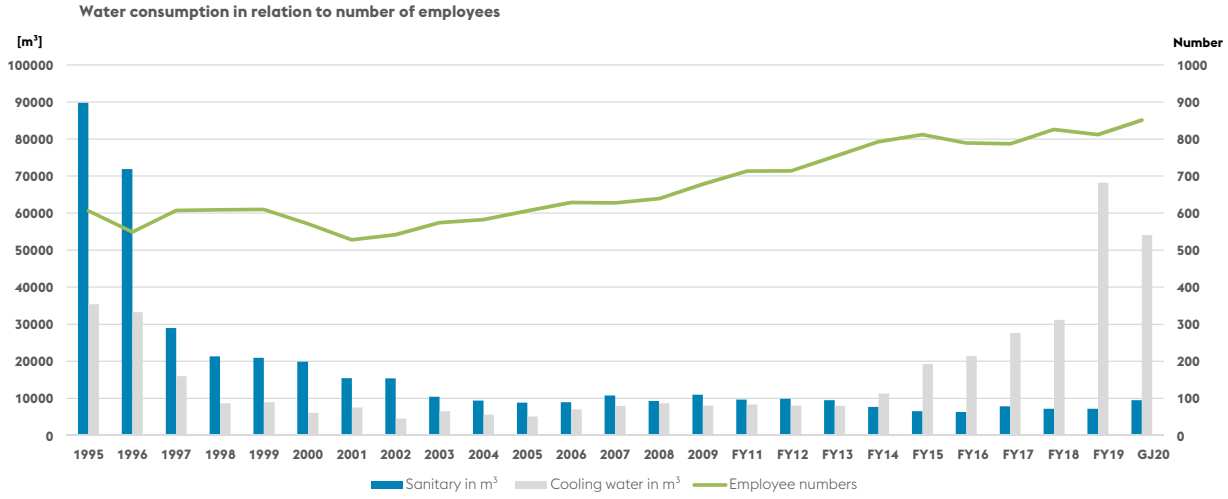
6.1 WATER

THE LOCATION STANDS OUT DUE TO ITS AUTONOMOUS WATER SUPPLY AND 60% CONSUMPTION SAVINGS AND THE FACT THAT NO LARGE AMOUNTS OF PROCESS WASTEWATER ARE CREATED.

6.1.1 WATER

The plant's own well supplies both voestalpine's production facilities and the neighbouring firms at the Zeltweg industrial location with drinking and process water. The total extracted volume currently amounts to approx. 130,000 m^3/y.

Numerous measures such as the implementation of a meter concept, related leakage monitoring and minimisation, as well as savings in the consumer area mean that in spite of a marked increase in production and employee numbers (>35%), since 1995 water consumption (sanitary water) at the Zeltweg location **has been reduced by over 90 % to below 10,000 m^3/y.**



6.1.2 WASTEWATER

Wastewater of the following types, ordered in terms of volume, is produced at the location:

- **Cooling water** (direct discharge into the River Mur)
- Wastewater from the **hygiene area** (indirect discharge into the treatment plant of the Zeltweg Wastewater Association)
- Wastewater from plant cleaning (two wash boxes; treatment through modern oil and solids separation systems and subsequent **indirect discharge** into the treatment plant of the Zeltweg Wastewater Association)
- **Process wastewater** from rail descaling can be completely avoided by switching to inductive heating process.

The induction plant, as well as changes to other cooling units and systems, have resulted in a further marked increase in the **cooling water requirement**. This step has been taken deliberately on the basis of concepts drawn up with experts and involving the analysis of alternative solutions. As a result, we can avoid the use of cooling unit lubricants containing CFCs and this fact in combination with the electricity consumption of the cooling systems currently provides a superior overall ecological evaluation for water throughput cooling, especially as sufficient water is available. Moreover, apart from a limited and acceptable increase in temperature, the cooling water is not subject to any chemical impact.

The following table contains the measurement and maximum permitted values in line with the authorisations for the discharges subject to annual checks:

BG... Building

Plant	BG	Testing date	Emission parameter	Measured value	Maximum value
Cooling water Pumps 1000t press	3	29 July 2020	Temperature Hydrocarbon Index Wastewater volume	14.8 °C < 0.05 mg/l 17 m^3/day	30 °C < 0.5 mg/l 40 m^3/day
Treated flow oil separator Locomotive filling station	3	08 June 2020	Temperature Hydrocarbon Index Wastewater volume	21.3 °C < 0.05 mg/l 3.6 m^3/h	30 °C < 0.5 mg/l 72 m^3/h
Cooling water Induction systems	14	29 July 2020	Hydrocarbon Index	<0.1 mg/l	5 mg/l
Cooling water Eroding machine	11	29 July 2020	Temperature Filterable substances Chlorine Hydrocarbon Index Adsorbable org. halogen compunds (AOX) as Cl Wastewater volume	16.1 °C <1.0 mg/l <0.05 mg/l <0.05 mg/l <0.005 mg/l 33 m^3/day	30 °C 30 mg/l 0.2 mg/l 0.5 mg/l 0.5 mg/l 60 m^3/day

Examples of successful measures from HSEE programmes implemented to date:

Measure	Result/Success	Realisation
WASSER/ABWASSER		
Water savings though meter concept + water saving armatures (ZI)	Reduction in hygiene water consumption by 50% (approx. 5,200m^3/y) due to water saving armatures	2001
Latest technology oil separator for the washing box (vaSIGAT)	Installation of a 3-stage oil separator Residual hydrocarbon impact in the treated flow less than 10 mg/l	2003
Wastewater-free small part washing unit for without halogenated cleaning agents containing hydrocarbons (vaSIGAT)	Completely wastewater-free small part washing unit with solvent-free cleaning agents Waste minimisation due to cleaning agent circulation including oil /heavy material separation	2003
Renewal of approx. 300 m of rain water sewer and drinking water pipeline at the Zeltweg location (northern branch Stage 1) (ZI)	The replacement of the roughly 60-year-old DN 150 pipeline saves leakages and electricity for spring pumps	2012
Renewal of approx. 150 m of rain water sewer and drinking water pipeline at the Zeltweg location (northern branch Stage 2) (ZI)	The replacement of the roughly 60-year-old DN 150 pipeline saves leakages and electricity for well pumps	2016
Renewal of approx. 250 m of rain and hygiene water sewer at the Zeltweg location (northern branch Stage 1+2) (ZI)	Refurbishment will prevent leaks in the sewer system	2013+2017
Sewer and water pipe renewal (southern branch Stage 2) (ZI)	Renewal of approx. 200 m of sanitation and rainwater sewer, as well as 50 m of drinking water pipeline and thus leakage prevention Extension of the extinguishing water pipeline by around 150 m	2017
New design of the NDT testing area (vaTTZ)	Transfer from BG4 to BG3 Cleaning of the tongues after PT testing in order to prevent testing agent carryover Testing agent savings	2020

Abbreviations: vaTTZ = voestalpine Turnout Technology Zeltweg GmbH, vaSIGAT= voestalpine Signaling Austria GmbH, vaRS = voestalpine Railway Systems GmbH (Holding), ZI = joint, superordinated activities at the Zeltweg location

6.2 AIR

More than 50 extractor and filter systems are in operation at the location for the capture of dust emissions (from grinding and welding), cooling lubricant aerosols (from mechanical machining centres) and solvent emissions (bonding areas). Using the type of extractor best suited to the individual situation, the greatest volume of emissions possible is captured in order to protect employees and prevent diffuse emissions. Moreover, filter systems of the highest standard are utilised to remove the maximum amounts of pollutants that is feasible, in order to reduce environmental impact and allow the direct recirculation of cleaned air into the halls and thus save energy and CO_2 emissions. The results are impressive:

» A 90% reduction in dust levels in the halls.
» Separation rates of over 99% in the dust filters, resulting in clean gas values that are largely under 1 mg/Nm^3 and thus more than 90% below the permitted limits.

6.2.1 DUST

Welding and grinding represent two of the major phases in turnout production and are indelibly linked to the generation of welding smoke and grinding dust. Measures leading to significant improvements in this regard have been implemented through the following phased plan as part of a dust capture concept, which enables an average filtration of 6,500kg dust from the air annually:

» **Phase 1:** extraction at the point of origin. If impossible ...
» **Phase 2:** extraction using an adjustable extractor arm. If impossible ...
» **Phase 3:** encapsulation by means of an extractor hood or cabin

In addition, grinders and welders are subjected to regular industrial medicine examinations.

Due to the discontinuous production process, a statement concerning total dust emissions is impossible. However, information can be provided with regard to the residual dust emissions in the waste air.

Table. Residual dust emissions from the extractor and filter systems and the legal limits (testing body: ÖSBS, Leoben). Testing interval: 3 years.

Filter system	BG	Measurement date	Emission parameter	Measurement value (average)	Limit
1,000t press	4	15 June 2020	Dust/smoke	1.1 mg/m^3	10 mg/m^3
Frog grinding cabins 1-4	3	15 June 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Frog grinding cabins 5	3	05 August 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Frog grinding cabins 6	3	10 August 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Frog grinding cabins 7+8	3	10 August 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Frog grinding cabin 9	3	10 August 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Tongue grinding cabins 1+2	5	12 August 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Deburring tongues	**5**	06 August 2020	Grinding dust **	< 1.0 mg/m^3	10 mg/m^3
Butt welding machine	5	04 August 2020	Welding smoke	< 1.0 mg/m^3	10 mg/m^3
Frog nose welding	9	04 August 2020	Welding smoke**	< 1.0 mg/m^3	10 mg/m^3
Tool grinding shop	11	07 August 2020	Grinding dust**	< 1.0 mg/m^3	10 mg/m^3

BG: building;
<1 = under 1 mg/m3;
Measurement values in relation to waste gas under standard conditions
** The officially defined limits for chrome (5 mg/m3) and nickel (1 mg/m3) relating to these plant systems were also clearly undercut.

6.2.2 FINE DUST

The voestalpine location in Zeltweg has undertaken the following measures to combat fine dust:

- Fitting of diesel powered cars in the company fleet with **particle filters** since 2005.
- Equipping of new **loaders with electric or natural gas drives** (instead of diesel engines) since 2001.
- The taking of fine **dust measurements** (measurement for PM10, PM2.5 und PM1.0 particles) downstream of the filters during the grinding and welding production processes (i.e. from emitted clean gas) by ÖSBS (Austrian Dust and Silicosis Control Office). These measurements have established that emissions are extremely low.
- During the operation of the 1,000t press, the burning of the separating agent (oil) leads to smoke formation and naturally a larger fine dust fraction. Here, too, the ÖSBS has carried out measurements of the PM10, PM2.5 und PM1.0 fraction, which furnished a platform for a **study of immissions in the immediate vicinity**, which was prepared by the "KWI" environmental engineering office. This study demonstrated that even under unfavourable conditions, at 1.1 µg/m3, the theoretically calculable, maximum load in the adjacent building is extremely low and is irrelevant to the fine dust problem (corresponding limit = mean daily value = 50 µg/m3).

* There are various definitions of fine dust. The PM (= particulate matter) definition attempts to model the removal patterns of the upper respiratory passages and lungs. Smaller particles are included in their entirety along with a certain percentage of larger particles. The designations PM10, PM2.5 und PM1.0 derives from the fact that with an aerodynamic diameter of 10, 2.5 or 1µm, precisely half of the particles are included in the respective weighting.

6.2.3 VOLATILE ORGANIC CARBONS (VOC)

These emanate largely from quality checks, painting, bonding and maintenance work (for example from the solvents contained in paints and adhesives, volatile elements in cleaning agents, as well as the propellant gases in spray cans) and are balanced on the basis of the amounts consumed and safety data sheets. As a result of various measures, over the years the absolute emission volume has been **cut by roughly a third** from a figure of 4,200 kg (1995). Nonetheless, due to a constant increase in production output and maintenance activities, this figure has recently increased to currently stand at around 4,100 kg/y (please see table and diagram). However, in terms of the product volume delivered **specific VOC emissions have fallen by 50% from 0.20 kg/t to 0.10 kg/t.**

VOC emission trend in kg/year

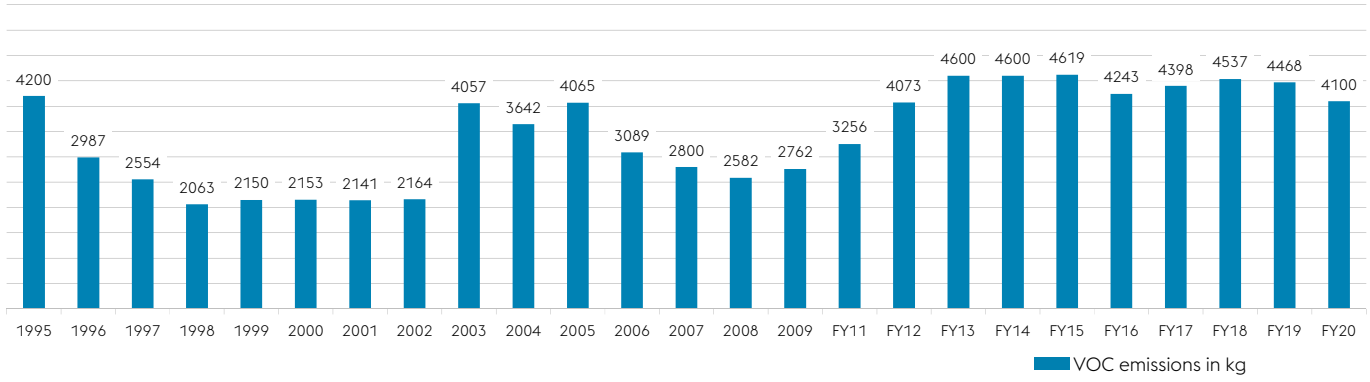


Table. TOC concentrations in the waste air from bonding work areas (testing body: ÖSBS, Leoben)

Plant	BG	Measurement date	Emission parameter	Measurement value (average)	Limit
Insulation and slide rod bonding	11	8 August 2014	TOC	23 mg/m³	100 mg/m³
Plausibility check		24 October 2019	Exhaust stream	5,900 m³/h	Compliance plausible

TOC: total organic carbon = sum of all organic solvents; measurement values in relation to waste gas under standard conditions; BG = company building

In accordance with §9(1) Clause 1 of the VOC Plant Directive, a second technical measurement (required once during start-up) was completed for the aforementioned plant in order to demonstrate that limits were adhered to. In future, pursuant to §9(1) Clause 1 the functionality of the VOC plant is to be examined every five years and no further concentration measurements are required, as long as the plant is not subject to modification.

6.2.4 OTHER EMISSIONS

In principal, the combustion of propane, acetylene and natural gas (for heating and process heat purposes) is a constant source of nitrogen oxides (NOx) and carbon monoxide (CO). However, due to the quality of the fuels used, as well as the status and setting of the plant burners, these emissions can be adjudged as low. The subsequent table shows the NOx emission values of the our gas-fuelled furnaces - the evaluation basis is provided by the limitation on emissions of pollutants from iron and steel production plants (2016 Iron and Steel Act) (Federal Law Gazette II, No. 54/2016) § 4 Para. 5. As a result of the partial switch to natural gas powered loaders and proper maintenance, the exhaust emissions of the company vehicle fleet can also be regarded as minimised and thus low. .

Table. NOx emissions of the annealing furnace (testing body: ÖSBS, Leoben). Testing interval: 3 years

Plant	BG	Measurement date	Emission parameter	Measurement value (average)	Limit
LOI annealing furnace-chamber 1+2	4	03 September 2020	NOx	98.37 mg/m^3	500 mg/m^3

NOx: nitrogen oxides, defined as nitrogen dioxide (NO2); measured values in relation to standard waste gas and 5 Vol% O_2

The table below contains the measurements and limits stipulated in the official authorisations for the natural gas heating boiler, air heater and overhead radiant tube systems, which have to be checked annually. In 2009, the majority of the heating systems were switched to biomass-fuelled district heating.

Table. CO and NOx emission levels of the heating systems in 2020 (testing body: manufacturing company) completed; testing interval: 1 year

System	CO	Limit	NOx	Limit
Water heaters BG8 (FW) and BG9 (FO)				
Water heater (FW) BG8	16	80	55	120
Water heater (FO) BG9	17	80	0	120

Examples of successful measures from HSEE programmes implemented to date:

Measure	Result/Success	Realisation
AIR (DUST, VOC ETC.)		
Planning and construction of nine frog and two tongue grinding cabins for optimum dust capture and ergonomic relief of the frog and tongue grinders by means of the installation of the very latest extractor and filter systems (vaTTZ)	Cartridge filters with the latest dust separation technology 80-90% reduction in dust impact in the halls and hence diffuse emissions 25- 50% reduction in dust impact on the grinders in the cabins Post-filtration exhaust air values of less than 1mg/m^3 and thus over 90% below the statutory limits; also permits air recirculation in winter 10 dB(A) noise reduction due to absorbent surfaces of the cabins Optimum lighting	In several stages 2002 - 2015
Improvement in dust capture in the 5 and 6 frog grinding cabins (vaTTZ)	Additional extractor/filter system for cabin 6 with a resultant doubling of extraction performance to 10,000 m^3/h per cabin	
Grinding cabin incl. extractor and filter system for “Tongues cleaning” (vaTTZ)	Equipping the workplace with a grinding cabin including an extraction and filter system Reduction of dust exposure in the hall	2018
Filter breakage sensor (vaTTZ)	Retrofitting of filter breakage sensors on twelve clean gas filter systems for clean gas monitoring. Should value limits be exceeded (1 mg/m3), the sensors activate a clearly visible optical alarm and in the case of systems fitted with exhaust/circulatory air switching, an automatic changeover to exhaust air	2015

Renewal of the extraction and filter systems on the 1,000t press for improved smoke capture (vaTTZ)	Wet separator with five times the extraction capacity of the old system Optimised capture construction with three extractor hoods and pneumatic shield for blowing out 65% reduction in total dust/smoke in the surrounding hall as well as a 33% reduction in fine dust 45% reduction in dust/smoke impact directly in the work station to approx. 10% of the permitted limit (MAK)	2005
Renewal of the butt welding machine extractor hood and filter system (vaTTZ)	Cartridge filter system with a removal rate of over 99.9% 40% reduction in dust impact in the surrounding area of the hall 10% reduction (peak reduction of up to 50%) of welding smoke impact in the immediate working area Undercutting of the emission limit by over 90% Optimised extractor design with moving shield for the highest possible degree of welding smoke capture Doubling of the design air volume to approx. 8,000 m^3/h A fire protection package consisting of optimised spark protection, a cyclone for spark pre-removal, integrated fire alarm and extinguishing connection Recirculation of the clean air during the heating period with resultant savings of approx. 75 MWh of heating energy and approx. 15 t CO_2 per year	2016
Ribbed plate grinding extractor/filter system + ergonomics package (vaTTZ)	Cartridge filter system with the latest dust separation technology 50% reduction in total dust in the BG7-West hall area and 40% reduction in respirable dust Clean gas values below 1 mg/Nm^3, possibility for recirculation of the clean air during the heating period with resultant savings of approx. 140 MWh of heating energy and approx. 28 t CO_2 per year Noise reduction of approx. 10 dB due to cabins Installation of a height-adjustable working surface Design of the cabins with ergonomic safety mats	2013
Optimisation of the extraction and filter systems for the welding robots and submerged arc welding in BG 07 (vaTTZ)	Cartridge filters with dust separation technology with removal levels of >99.9% Saving of approx. 51 MWh annually and thus approx. 10t CO_2 by recirculation of clean air Optimised dust capture with a 40% reduction in impact on both employees and the hall area surrounding submerged arc welding	2011
Crossing point welding extractor-filter system + ergonomics package (vaTTZ)	Improved extraction performance to up to 4,500 m^3/h Fitting of the work station with a lifting table and an ergo mat, in order to ease the physical strain on the employee	2015
Optimised central extractor system for insulated rail joint and slide rod bonding in BG 11 (vaTTZ)	Integration of the previously divided working areas 2.5 times the extraction performance and a doubling of the extraction areas Ex-protected design of the extraction system Optimum capture of solvents in the work stations through downward suction on the tables Underfloor pipe laying in order to prevent the danger of tripping	2011
Avoidance of VOC emissions/spray cans (vaTTZ)	Avoidance of approx. 3,000 spray cans during colour penetration testing due to a refillable system with compressed air = prevention of 520 kg of VOC emissions and 400 kg of waste per year	2008
Replacement of the existing cooling lubricant-aerosol separators on the machining centres with wet cartridge separators centres with wet cartridge separators (vaTTZ, vaSIGAT)	Markedly improved and more constant separation performance and a reduced maintenance requirement	2009
Encapsulation of lathes and machining centres (vaSIGAT)	Two encapsulated lathe and machining centres with extractor/filter systems for coolant mist (80% prevention of diffuse emissions)	2018
Extractor units for soldering areas in BG25 (vaSIGAT)	Two flexibly usable extractor/filter systems for solder smoke fitted with HEPA fine filters (99.97% removal) and activated carbon filters.	2014
Extractor and filter system in deburring work stations (vaSIGAT)	Equipping of a deburring work station with an extractor and filter system Extraction performance of 2,000 m^3/h, Reduced dust emissions	2019

6.3 ENERGY AND CO_2

AS A RESULT OF THE IMPLEMENTATION OF AN ENERGY CONCEPT BASED ON THE FOLLOWING THREE MAIN ASPECTS, THE LOCATION DISPOSES OVER A LARGELY AUTONOMOUS ENERGY SUPPLY AND CO_2-NEUTRAL BALANCE. IN PARTICULAR, THE FUNDAMENTAL CONSIDERATION OF THIS COMPLEX OF ISSUES HAS ITS ROOTS IN MEMBERSHIP IN THE "CORPORATE CLIMATE ALLIANCE" OF WHICH THE LOCATION HAS BEEN A MEMBER SINCE 2001.

6.3.1 MAIN ENERGY MANAGEMENT ELEMENTS

» **1. Measures for a reduction in CO_2 emissions and greater efficiency** with regard to energy: The central, electronic energy/building control system for the steering and monitoring of electricity, heating, compressed air, etc. provides a valuable basis in this connection, as does the integration of energy aspects into the planning of machinery and buildings.

» **2. Switch of approx. 75 % of the heating requirement from natural gas to a district heating system**, which is fired with CO_2-neutral biomass:

  » Biomass is utilised as energy source. This derives from material that would otherwise not be used such as bark, branches, treetop cuttings and damaged wood, which originates from the immediate area of the Aichfeld and thus contributes to local value added.

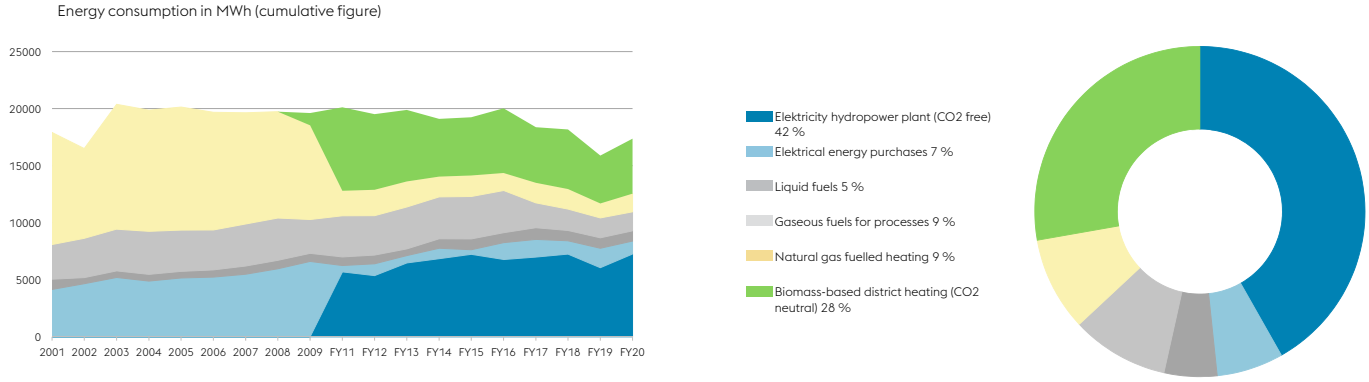
  » In addition, the district heating system is fed from the Pöls pulp and paper plant via a regional waste heat network.

» **3. The construction and operation of a small-scale hydropower plant** on the River Pöls (PenzVAEE GmbH) have brought the high-quality, autonomous supply of the location with CO_2-free electricity from waterpower. In addition, surplus electricity can be fed into the grid thus preventing CO_2, which is credited to the balance of the voestalpine location and thus compensates for the current remaining CO_2 emissions from fossil fuels (above all natural gas for furnaces, fuel for the vehicle fleet, purchases in the case of electricity requirement peaks). (description see page 22).

It is important to note that these measures did not derive from ecologically utopian ideas, but rather are in line with the economic criteria of cost viability, as well as future attainment stability of energy prices. They therefore constitute an **important element in the sustainable development of the location, whereby competitiveness and jobs** were and are secured.

6.3.2 ENERGY AND CO_2 BALANCE

In 2020, the voestalpine location in Zeltweg consumed 17,400 MWh of energy. As a result of the implementation of the energy concept, the type and number of the processes of energy relevance have changed, as is evident in the following diagram:



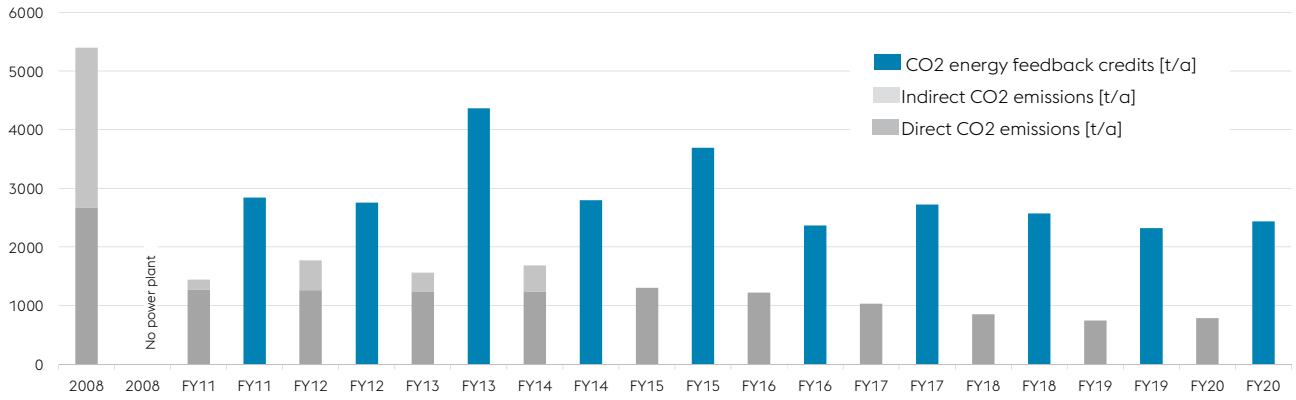
The energy consumption data is employed to determine the CO_2 emissions. Total emissions in 2020 (direct and indirect emissions at the location) amounted to 789t. As a result of the feeding of 4,646 MWh of electrical energy from hydropower into the national grid, 2,437t of CO_2 from conventional electricity production were prevented with the consequence that a clearly positive balance of approx. 1,648t resulted.

Table. Energy and CO_2 balance in the 2020 financial year

Energy	Quantity	Unit	Energy content	MWh	Translation factors	CO_2	t
Power plant electricity	7,258	MWh	7,258	MWh	0 t/MWh (CO_2-neutral biomass)	0	t
Electricity purchases	1,135	MWh	1,135	MWh	0 t/MWh (Bezugsmix 2018)	0	t
INDIRECT TOTAL			8,394	MWh		0	t
Diesel	81,238	l	840	MWh	0.002443t/l **	198	t
Petrol	6,403	l	59	MWh	0.002144 t/l **	14	t
Heating: district heating	4,825	MWh	4,825	MWh	0 t/MWh (CO2-neutral biomass)	0	t
Heating: natural gas	143,186	Nm^3	1,595	MWh	0.002028 t/Nm^3 **	290	t
Process gas: natural gas	84,000	Nm^3	936	MWh	0.002028 t/Nm^3 **	170	t
Process gas: natural gas stackers	38,799	Nm^3	432	MWh	0.002028 t/Nm^3 **	79	t
Process gas: propane	21,600	kg	278	MWh	0.001597 t/Nm^3 **	35	t
Process gas: acetylene	791	kg	11	MWh	0.0034 t/kg	3	t
DIRECT TOTAL			8,976	MWh		789	t
Total Zeltweg location			17,370	MWh		789	t
FEED INTO THE NATIONAL GRID	4,646	MWh	4,646	MWh	0.525 t/MWh (ENTSO-E-Mix*)	- 2,437	t
Credit difference						- 1,648	t

* An extrapolated value calculated by voestalpine Turnout Technology Zeltweg on the basis of Entso-E-Mix mean value 2015-17 in line with the Austrian Power Labelling Directive.
** On the basis of the Federal Environmental Ministry's CO_2 computer – direct greenhouse gas emissions 2019.

CO_2 balance trend in t/y

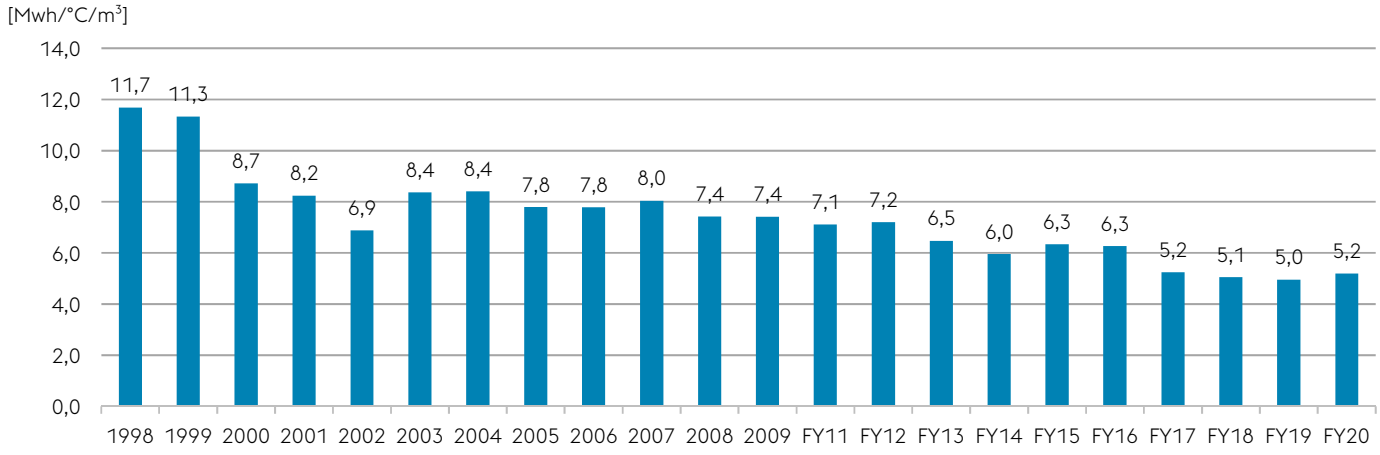


6.3.3 CHANGES TO THE HEATING SYSTEM AT THE ZELTWEG LOCATION

Until 1998, the heat for offices and halls was obtained in the form of hot water from the central boiler house (large, natural gas fired boiler) of a neighbouring company. The heating system was then optimised in several partial steps during the years up to 2009, when 75% of requirements were switched to district heating obtained from biomass and the regional heating network fed from pulp production in Pöls. Consequently, while in 1998 62% of energy consumption at the location related to heating, today it only amounts to 37%.

The following diagram shows heat consumption in terms of the heating degree days and the heated buildings, i.e. the outdoor temperatures of the respective comparative years and the changes in heated volume are taken into account.

Heating consumption per heating degree day and heated building volume



As a result of numerous measures (improved heating systems, thermal renovation, optimised control through a central energy control system) **between 1998 and 2019/20 heating consumption per heating degree day and cubic metre of heated building volume was slashed by approximately 50%.**

6.3.4 GENERAL INFORMATION

Following the achievement of the first CO_2-neutral balance in the 2010 financial year, the energy mix at the location was subject to further positive ecological changes brought about by subsequent investments and the gradual transition to an inductive heating system using electricity, which replaced the gas-fired furnace employed previously. As a result, approximately 320 t/y of CO_2 emanating from natural gas firing were avoided through the utilisation of clean water from the hydropower plant. Naturally, electricity sales were reduced, which in turn lowered the "surplus" in the CO_2-balance, but nevertheless in terms of average electricity production over a number of years (dependent upon the slight fluctuations in water levels in the River Pöls), as well as current production volumes, a retention of a CO_2-neutral location balance is anticipated.

The office in Vienna uses around 100 MWh of electricity annually (corresponds with approx. 18.8 t CO_2) and roughly 150 MWh of district heating.

6.3.5 COMPANIES IN THE CLIMATE ALLIANCE

The voestalpine location Zeltweg has been a **Climate Alliance company since April 2001** and was the first industrial company in Styria to join the Corporate Climate Alliance.

Examples of successful measures from HSEE programmes implemented to date:

Measure	Result/Success	Realisation
ENERGIE/CO_2		
Technical heating renovation of the 11-storey office block (BG1) (ZI)	Renewal of the windows and facade insulation with an improvement in the kf-values Reduction in the heating characteristic by approx. 65% and real savings relating to heating and air conditioning of 230 MWh, which corresponds with the prevention of 42t CO_2/y (related to aliquot volume of natural gas) Halogen-free insulation/building materials	2003
Energetically optimised choice of construction materials and building technology for Newly built production hall and office block (vaSIGAT) Extension of the production hall (vaSIGAT) Modification and extension of the BG8 office block (vaTTZ)	Facades, windows, roofs and floor insulation of a high heat insulation technical quality Halogen-free insulation materials Energy control system for building lighting and heating Minimum air conditioning energy requirement due to concrete core activation in the BG2 and BG3 office buildings with free cooling unit and optimised ergonomics (no draughts, contamination, etc.) Quick closing doors in the halls, insulated section doors with cold air curtains	2003 2007 2004
Installation of a hall ventilation system with heat recovery in the mechanical production area in BG25 (vaSIGAT)	Installation of a central ventilation system with a capacity of 15,000 m^3/h including a cross-flow heat exchanger Heat savings of approx. 130 MWh/y, which corresponds with a 56t reduction in annual CO_2 emissions Ergonomic improvements in the atmospheric conditions (draughts, temperature, damp and odours) through the optimised ventilation concept with air intake fans and local and hall waste air extractors Noise minimisation through a design incorporating internal and external control	2012
Energy-efficient extension to mechanical production in BG25 (vaSIGAT)	Energy-conscious construction material selection: Roof with an internal acoustic ceiling offering 90% sound absorption Integration of lighting and heating lighting into the central energy control system Integrated fire alarm and smoke heat extractor system	2014
Renovation of the skylights in BG 3,4,6,7 and 11 (vaTTZ)	Replacement of approx. 3,300 m^2 of armoured glass by polycarbonate sheets Heating savings of approx. 300 MWh/y, which corresponds with the prevention of approx. 60 t CO_2/y (related to aliquot volume of natural gas)	2009

Measure	Result/Success	Realisation
Renovation of the roofs on BG6 South and BG7 (vaTTZ)	Thermal renovation of approx. 3,100m^2 of roofing, as well as 520m^2 of skylights and 130 m^2 of gables Reduction in heat consumption of approx. 160 MWh/y, which corresponds with the avoidance of approx. 32 t CO_2 of emissions/y* Technical optimisation of the fire protection system Noise-absorbent inner side	2012
Renovation of the BG6 North roof (vaTTZ)	Renovation of the remainder of the roof on BG6 (first section renovated in 2010) with an area of approx.1,300 m^2 A reduction in the heating requirement of approx.20%, which corresponds with approx.67 MWh/y and the prevention of approx.13.3 t/ CO_2 annually* Roof with an internal acoustic ceiling offering approx. 60% sound absorption Improvement in average sound insulation Non-inflammable roof construction and an increase in snow bearing capacity	2016
Renovation of the facades and roof of BG8 (vaTTZ)	Renovation of a hall with a floor area of approx. 1,700 m^2 and a spatial volume of some 19,000 m^3 A 34% reduction in the heating requirement, which corresponds with approx. 220 MWh/y and the prevention of approx. 40 t CO_2 annually Roof with an internal acoustic ceiling offering 90% sound absorption Improvement in the exterior sound insulation of roof, windows and facade A more than quadrupling of the effective natural lighting area Integration of lighting and heating into the central energy control system Non-inflammable roof construction and an increase in snow bearing capacity Integrated fire alarm and smoke heat extractor system Integrated LED lighting including safety and escape route orientation lighting	2014
Facade renovation of BG 3 + 5 + 6+ 7 (vaTTZ)	Renovation of facades with a length of approx. 360 m and an area of approx. 4,100 m^2 New insulation of over 200m of heating pipes Reduction in heating consumption by around 16.4% in line with the energy certificate, which corresponds with approx. 438 MWh/y and the prevention of approx.86 t CO_2/y* Installation of a noise insulation facade (windows and walls): Improved lighting and above all visual linkage	2016
Renovation of the BG9 facades and roof (vaTTZ)	Renovation of the facades and roof with an area of approx. 1,600 m^2 Non-inflammable roof design instead of the previous construction with wood soffits and multilayer tar paper Installation of noise insulation windows Installation of noise insulation facade, BG 9 East Integrated fire alarm and smoke heat extractor system Integrated LED lighting including safety and escape route orientation lighting	2017
Renovation of the BG11 roof aisle (vaTTZ)	Renovation of the roof with an area of approx. 1,100 m^2 A reduction in the annual heating requirement of approximately 54 MWh and hence the prevention of roughly 10.7t CO_2 per year* Ergonomic improvements to atmospheric conditions (draughts, temperature)	2017
	Note regarding CO_2 savings. Owing to the fact that in December 2009 the heating of the bulk of the Zeltweg location (all buildings except BG8+9) was switched from natural gas to CO_2-neutral district heating (based on biomass and regional waste heat use), we do not include the projects marked with " * " in further CO_2 savings. However, we do enable the district heating operators to employ the heat savings for further subsequent projects. Therefore, where natural gas heating has been replaced, the listed annual reductions in tonnes of CO_2 emissions were saved for this energy volume.	

Measure	Result/Success	Realisation
Complete renewal of the electricity supply system at the location (ZI)	175 MWh annual loss savings (= approx. 3% of electricity consumption) Prevention of 77t of CO_2 annually (pursuant to UCTE Index 2006) All plants PCB-free and all transformers with sumps	2007
Completion of the small-scale hydropower plant (PenzVAEE GmbH) on the River Pöls (ZI)	Annual operating capacity of the power plant of over 12,000 MWh Over 90% own supply of the voestalpine location in Zeltweg with the electricity thus generated Cost savings and prevention of approx. 2,600t of CO_2 emissions from the electricity mix of otherwise essential electricity purchases (UCTE/ENTSO-E-Index 2009)	2009
Installation of a hydropower screw in the area of the residual water discharge on the power plant weir (ZI)	Generation of another approx. 200 MWh electricity/year (corresponds with the prevention of approx. 86t CO_2/year pursuant to UCTE/ENTSO-E Index 2009) and fishway Installation of the electronic regulation of the residual water in the River Pöls	2010
Conversion of a large part of the heating system (BG1-7,10-14,24,25) from natural gas fired boilers to biomass-fired district heating in cooperation with Bioenergie GmbH (ZI)	Conversion of 75% of the heating requirement from natural gas to CO_2-neutral, biomass and waste heat fired district heating; resultant prevention of approx. 1,400t of CO_2 emissions per year Ergonomic improvements in the halls through the renewal of hot air blowers (uniform warmth, removal of cold poles, fewer draughts)	2009
Use of circulatory air in the frog and tongue grinding cabins, as well as other extractor/ filter systems (vaTTZ)	The energy content in the recirculation of approx. 100,000 m^3/h of air corresponds with heating savings of approx. 1,100 MWh/y In terms of an aliquot value of natural gas, as a comparative value this equals the prevention of approx. 210 t CO_2/y	2011
Use of the waste heat from compressed air compressors for the sanitation water in the changing rooms in BG3+4 and BG11 (vaTTZ)	Use of the waste heat from compressed air compressors in BG11 (approx. 150 changing room places) and BG3+4 (approx. 220 changing room places) for sanitary water (for roughly 75% of the workforce at the location) In winter, surplus waste heat is also used for the heating system in BG10/11 The waste heat from the compressors amounts to approx. 120 kW, the savings in energy purchases total approx. 450 MWh per year (corresponds with approx. 165t CO_2/y)	2012 (BG11) 2014 (BG3+4)
Compressor replacement (vaTTZ)	Energy savings of 231 MWh	2018
Renovation of the social and hygiene amenities in BG11 for approx. 150 employees (vaTTZ)	Thermal renovation of the floors, walls, windows and ceilings Mechanical ventilation concept with cross-flow heat exchanger (61.4% efficiency level), which saves 53 MWh of heating energy and 10.5t of CO_2 emissions annually, as well as ensuring an excellent room atmosphere with regard to damp, odour and freedom from draughts Water-saving armatures and energy-saving lighting Modern interior fittings from an optical, hygienic and safety perspective (fire alarm system, escape route lighting, etc.)	2012
Loading gear for narrow gauge turnouts (vaTTZ)	Special device for the delivery of pre-assembled turnouts (JIT switches); also suitable for narrow gauge railways instead of truck transports A 229 MWh reduction in fuel-related energy consumption and the prevention of 56 t CO_2 emissions annually	2015
Switch of tongue heating from a natural gas furnace to inductive heating (electricity) (vaTTZ)	87% reduction in the energy consumed for each tongue heating With the changeover level achieved at the end of 2016, energy savings of approx.1,800 MWh/y, which corresponds with a CO_2 reduction of approx. 323 t, as natural gas has been replaced by electricity from hydropower	2016

Measure	Result/Success	Realisation
LED lighting BG8 (vaTTZ)	Automatic dimming in line with external/daylight levels and integration into the central energy control system Integrated safety lighting Reduction in the integrated power requirement by approx. 20% A positive ergonomic effect and electricity savings of approx. 14 MWh/y, which corresponds with the prevention of approx. 4.8t of CO_2 emissions (on the basis of the ENTSO-E average 2015)	2014
LED lighting BG6 (vaTTZ)	Reduction in the integrated power requirement by approx. 37% A positive ergonomic effect and electricity savings of approx. 29 MWh/y, which corresponds with the prevention of approx. 15t of CO_2 emissions (on the basis of the ENTSO-E average 2015)	2016
BG9 (vaTTZ)	Electricity savings of approx. 13 MWh/y, which corresponds with the prevention of approx. 7t of CO_2 emissions (on the basis of the ENTSO-E average 2015)	2017
BG5 (vaTTZ)	Electricity savings of approx. 19 MWh/y, which corresponds with the prevention of approx. 10t of CO_2 emissions (on the basis of the ENTSO-E average 2015)	2018
BG7,11 (vaTTZ)	Electricity savings of approx. 51 MWh/y, which corresponds with the prevention of approx. 27t of CO_2 emissions (on the basis of the ENTSO-E average 2015)	2020

Abbreviations: vaTTZ = voestalpine Turnout Technology Zeltweg GmbH, vaSIGAT= voestalpine Signaling Austria GmbH, vaRS = voestalpine Railway Systems GmbH (Holding), ZI = joint, superordinated activities at the Zeltweg location

Abbreviations: vaW = voestalpine Weichensysteme GmbH, vaSZ= voestalpine SIGNALING Zeltweg GmbH, VAE = voestalpine VAE GmbH (Holding), ZI = joint, superordinated activities at the Zeltweg location

6.4 SOIL PROTECTION AND WASTE MANAGEMENT

SOIL PROTECTION AND WASTE PREVENTION CONSTITUTE MAJOR FACTORS FROM BOTH AN ECOLOGICAL AND ECONOMIC PERSPECTIVE. IN ADDITION, RECYCLING OF 90% MEANS THAT MATERIAL CYCLES ARE CLOSED TO THE GREATEST POSSIBLE EXTENT.

6.4.1 CONTAMINATION RESEARCH

In 1996, a research regarding contamination was carried out in the course of the creation of an environmental management system according to EMAS-VO, as the possibility of soil and groundwater pollution in the course of a company history dating back to 1851 could not be excluded. In 2006, the existing data was supplemented and summarised by means of a comprehensive, state-of-the-art location expertise completed by the "Gruppe Wasser" civil engineering office. The results of these investigations confirm that there is **no contamination at the voestalpine location in Zeltweg and therefore the company premises do not pose a threat to the environment through soil or groundwater pollution.**

6.4.2 MATERIAL AND WASTE STORAGE

A special focus is placed on the **prevention of future damage** and therefore, especially in the case of material and waste storage, great value is attached to the smallest possible danger potential, above all in connection with soil contamination and/or groundwater and surface water pollution. Where material leakage is possible from new plants, **oil-tight foundations** are installed and naturally enough **chemicals are stored on sumps. Tanks** are also placed on sumps or have double walls with leak gauges. In this connection, careful plant testing and maintenance are of major significance, together with **employee training** regarding correct material handling.

The floor of the **waste collection and separation station** is impervious and slopes backwards towards a sump with the result that should a leak occur, soil or surface water contamination can be excluded. A covered, wastewater-free storage area has been designed for the **cooling lubricant covered swarf emanating from mechanical production**. This solves the precipitation problem and prevents cooling lubricants being washed into the soil.

6.4.3 WASTE BALANCE

The following table lists the amounts of waste accumulated at the location during the 2019 calendar year.

Waste designation	Key number	Quantity (kg)
Scrap	35103	2,471,130
Treated waste wood	17202	88,490
Waste paper	18718	46,140
Rubble	31409	5,360
Used filters with special non-hazardous content	31434	180
Hard disk drives	35202	214
Copper PVC cable	35314	2,749
Used air filters, not oil contaminated	54933	130
CDs and DVDs	57129	194
Commercial waste	91101	94,304
Filters/absorbents with hazardous content	31435*	240
Other electrical devices, hazardous	35201*	1,712
Refrigerators (domestic appliances)	35205*	110
Monitors	35212*	212
Large electrical devices > 50cm, hazardous	35220*	112
E-scrape, hazardous	35230*	89
Lead-acid batteries	35322*	1,300
Lithium ion batteries >0,5kg	35337*	11
Grinding sludge with oil content	54710*	94
Oil-contaminated supplies	54930*	6,226
Abrasives, grinding disks	31444	7,960
Printing ink residues, copier toner, non-hazardous	55509	203
Detergent washing and cleaning agents	59402	215
Medical waste, non-hazardous	97104	6
Impregnated wood	17209*	39,320
Ferrous metal packaging with hazardous residues	35106*	12
Fixing baths	52707*	172
Developed baths	52723*	251
Used oil for thermal reuse	54102*	6,230
Fuels with a flash point <55°C	54104*	30
Oil sludge	54201*	7,900
Mineral oil fats	54202*	10
Fissile emulsions	54402*	52,510
Oil separator content > 30% solid	54702*	17,700
Aliphatic amines	55352*	294
Used paints and dyes	55502*	834
Non-hardened residues	55903*	1,016
Plastic packaging with hazardous residues	57127*	20
Lab waste/chemical residues (liquid)	59305*	69
Spray cans containing residues	59803*	1,141
Ferrous dust without hazardous content (MAD)	35101	6,454
Total without scrap		390,214
Total with scrap		2,861,344

Key number in accordance with the current S 2100 standard

* Hazardous waste according to S 2100

Material and thermal reuse 95,0 %	2,718,997
Disposal and thermal disposal 4,8 %	135,893
Landfill 0,2%	6,454

In addition to the fractions listed in the table, organic waste, white and coloured glass, metal packaging and plastic packaging ("yellow bin", approx. 16,500 kg/y) are collected separately by our workforce and subsequently transferred to treatment. As a result of the large percentages of metals and paper in our waste, **the recycling share remains high at around 90%**. Scrap is largely transported to external recycling by the regional disposal companies, Trügler GmbH and Kuttin GmbH.
All the on-site construction measures are accompanied by soil analyses and excavated materials are disposed of correctly in line with the Landfill Directive.

The volume of waste generated annually, and hence the waste trend, is highly dependent upon the order situation and is also influenced by special activities such as interior renovation, demolition work, cleaning, etc.

Packaging:

The packaging that we deliver largely consists of non-impregnated wood (crates, boards, packing), metal strip and a small amount of plastic. Domestic deliveries are withdrawn via an **ARA licensing agreement** (no. 10527) and are intended for material and energy use.

Examples of successful measures from HSEE programmes implemented to date:

Measure	Result/Success	Realisation
SOIL AND WASTE		
Creation of a storage area for cooling lubricant-covered swarf (ZI)	Covered and thus wastewater-free Oil/liquid impermeable floor plate angled towards the rear with a collecting gutter for drops of cooling lubricant	2002
Building of a new store for flammable liquids (VbF-store) at the Zeltweg location (ZI)	Store for 5,000l of flammable liquids (flash point < 100 °C) Explosion protection including extraction near to floor level Sump with a retention capacity of 9,700l for stored volumes and extinguishing agents in an emergency pursuant to TRVB C 145	2003
Building of a waste store for the collection and separation of hazardous wastes (ZI)	Waste store with an area of125 m^2 Oil/liquid impermeable floor plate angled towards the rear with a collecting gutter for 500l in the case of leaks	2004
Uniform design of waste islands and collection bins (ZI) Waste collection station BG11 (vaTTZ)	Definition of optimum locations and design of waste islands	2015 2019
Switching of emptying to the logistics train system (ZI)	Bin emptying using the logistics train system instead of single stacker trips (reduced driving) Further improvement in separation quality through the prevention of overfilled bins by means of adjusted emptying routes/cycles	2015
Pilot project in five machining centres in BG7 for the prolongation of coolant life (vaTTZ)	Use of belt skimmers, circulatory pumps and new mixing devices for coolant preparation Prolongation of coolant life from four to 12 months Reduction in annual coolant consumption by approx.56% and cost savings of approx.57%	2016
Cooling lubricant switch (vaTTZ)	Changeover to a standard cooling lubricant Lower concentration and thus reduced consumption Cleaner machines through reduced carryover Reduced odour level Cost savings	2017
Replacement of X-ray chemicals with digital imaging (vaTTZ)	Prevention of hazardous waste through an investment in an RT scanner Cessation of X-ray film, developer and fixing bath purchasing Cessation of the disposal of approx. 600 kg of X-ray chemicals per year Reduction in electricity consumption	2019

6.5 NOISE AND RADIATION PROTECTION

FOLLOWING THE FOUNDATION OF THE LOCATION IN 1851, HOUSING AND THE TOWN ITSELF GREW UP AROUND THE WORKS, WHICH WAS THEN A HIGHLY PRACTICAL SITUATION. ACCORDINGLY, IN VIEW OF THE FACT THAT RESIDENTIAL AREAS SURROUND THE LOCATION, VOESTALPINE PAYS SPECIAL ATTENTION TO THE AVOIDANCE OF NOISE IMPACT.

6.5.1 NOISE

The main aspects of noise avoidance are

1. Measures at the noise source involving the selection and design of tools and machinery
2. Noise insulation measures such as the encapsulation of plant units (e.g. motors) and working areas (e.g. through grinding cabins) or extractor silencers
3. Structural noise protection where possible through the layout of processes and buildings, and the selection of construction materials

In particular, the **company noise register** lists in-house noise sources, which from an employee protection standpoint, must be kept below a defined limit of 85 dB(A) by means of safeguards. In these noise zones, our employees are supplied with especially efficient, **individually fitted hearing protection** and from 80 dB(A) upwards, industrial medicine examinations are offered. The measurement technology monitoring of the workplaces benefit employees, the environment and neighbours to an equal extent.

In 2005, a notable improvement with regard to the main noise impact on the closest neighbours was achieved by means of an optimised cooling system concept for the computer rooms, which provided a marked reduction in impact (22 dB(A) at 1m distance and of approx. 9 dB(A) on the site perimeter as compared to the old system).

Noise insulation was also taken into account during the initial planning phase of the installation of the **hall ventilation system** in BG25, as well as other structural projects such as the renovation of the skylights in BG7, the BG6+7 roof, the BG8 hall and the extension of mechanical production in BG25.

The **installation of a noise insulation facade** (including noise insulation windows) on the northern side of BG 3+5 and the eastern side of BG5-7 represent the latest, comprehensive measures in this connection. Moreover, a heat and noise insulation housing was used for the filter system in the northern section of BG3.

6.5.2 RADIATION PROTECTION

X-ray and radiography testing serve the identification of internal workpiece defects and take place in the company's own **radiation bunker.** The radiation application room is fitted with a protective shield comprised of reinforced concrete and a steel cover. Once the activity required for testing technology has subsided, the cobalt 60 radiation source is re-enriched by the Seibersdorf Research Centre near Vienna and then used again. Employees working in this area are monitored by means of person-related dosimeter. Statutory limits are clearly undercut and there is no external radiation of relevance. In addition, the facility is subject to regular official inspections by the authorities.

Examples of successful measures from HSEE programmes implemented to date:

Measure	Result/Success	Realisation
NOISE & RADIATION PROTECTION		
Purchase of fitted hearing protection for employees (according to noise impact priority) (ZI)	Approx. 250 employees in line with the priorities established by noise measurements in the work station have already been equipped with fitted hearing protection	Laufend ab 2006
Refurbishing of the company locomotive (with the target of reduced noise and ergonomic improvements) (vaTTZ)	Statutory noise limits in the driver's cab and the directly surrounding area undercut by 10 dB. 70-80 % reduction in contaminants through the new EURO IIIA standard engine, as compared to the old locomotive with regard to CO, NOX, soot and unburned fuel Ergonomic improvements in the driver's cab (heating, cooling, vibration reduction)	2008
Testing for noise reduction during rail turning (vaTTZ)	The turning crossheads have proved to be an effective means of not only reducing noise, but also creating greater safety	2006
Cooling unit concept for the computing room (vaRS)	Approx. 9 DB(A) reduction for the closest neighbours on the property limits	2005
Renewal of the skylights in BG 7 (vaTTZ)	Double glazing of approx.900 m^2 of skylights providing an additional noise reduction of 4 dB (Rw)	2009
Renovation of the BG6/7 roof (vaTTZ) Renovation of the BG6 southern and northern roofs (vaTTZ)	Technical noise insulation optimisation: improvement in the noise insulation of the roof by 6 dB(A) to Rw = 41 dB(A)	2012 2016
Hall ventilation/heat recovery in the mechanical production in BG25 (vaSIGAT)	Technical minimisation of the noise impact on neighbours (assembly area, noise insulation housing, high-quality blow-out sound absorbers)	2012
Hall renovation in BG8 (vaTTZ)	Provision of the roof with an inner acoustic ceiling with 90% sound absorption Improvement in the external sound insulation from approx. 35 dB(A) to 52 (roof), from approx. 30 dB(A) to 36-39 (windows) and from 30 dB(A) to 44 (facade cassettes)	2014
Renovation of the northern facades of BG3 + 5 and the eastern facades of BG5+6+7 (vaTTZ)	Installation of a noise insulation facade with a resultant improvement in the Rw value and through noise insulation from approx.31 dB(A) to 43 (windows) and from 34 dB(A) to 50 (walls)	2016
Noise and heat insulation housing for BG3's external filter system during the facade renovation (vaTTZ)	Reduction in noise for the closest neighbours by means of a filter housing with through noise insulation of 43 dB (A) for the roof and 50 dB (A) for the walls	2016
Radiation application room (vaTTZ)	Incident analysis and revised safety concept The protective shield of the radiation application room consisting of reinforced concrete and a steel cover.	2020

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6.6 TECHNICAL SAFETY IMPROVEMENTS FOR EMPLOYEES AND THE ENVIRONMENT

IN ADDITION TO THE TECHNICAL SAFETY AND HEALTH FACTORS MENTIONED IN THE PRECEDING SECTIONS, E.G. DUSTS, CHEMICALS, STORAGE, NOISE, ETC. IN PARTICULAR THE FOLLOWING ASPECTS MUST BE SEPARATELY MENTIONED WITH REGARD TO MECHANICAL DANGERS AT THE LOCATION:

6.6.1 MACHINE SAFETY CONCEPTS, ABOVE ALL THE SECURING OF AUTOMATICALLY RUNNING UNITS

In particular, automatically running units require appropriate safety measures in order to prevent entry by unauthorised persons, protect the operating personnel and provide a safeguard against malfunctions. From the outset, the planning of new plant and alterations to existing systems involves related statutory requirements (including the CE conformity stipulations), as well as the state-of-the-art. Competent planning partners from the plant manufacturers, civil engineers commissioned by the company and in particular the TÜV Austria, are of special importance for the attainment of objectives in this connection and also help to prevent planning errors and subsequent costs in advance (e.g. modification or accident-related).

6.6.2 INTERNAL COMPANY TRANSPORT

The transport of our long and heavy workpieces represents a technical safety challenge. Every effort must be made to achieve the **optimum design of the means of transport** (e.g. cranes with electronic overload safety devices, collision prevention devices, tandem running controls, infra-key identification systems for the prevention of confusion when using remote controls, heating of the cross travel rails during winter operations, insulated conductor lines, and the selection and design of optimised lifting gear such as multiple rail and special tongs, etc.). In addition the entire vehicle fleet (over 80 cranes alone) has to be maintained in a reliable condition from a technical safety standpoint by employing the appropriate **maintenance and checks.**

Unnecessary transport and lifting procedures can be avoided in advance by means of the logistical planning of the works layout and corresponding storage design. In this regard, mention should be made of the purchase of long goods trailers (**rail transport wagons**) for stackers, the use of which allows crane lifting to be avoided and the completion of difficult crane or works railway transports at shop floor level.

6.6.3 INSTRUCTIONS/INFORMATION

The preparation and communication of appropriate **working and operational instructions** of relevance to health and safety in relation to machines and processes constitute an important management system instrument. However, special value is also attached to individual and **personal discussions.**

6.6.4 ERGONOMICS AND WELL-BEING IN THE WORKPLACE

Who does not wish to have an orderly working environment? On the one hand, employees have to secure this themselves through the appropriate order and cleanliness in the workplace and the careful use of equipment, but on the other, measures are also required on the part of the management such as optimised illumination and lighting, sun protection, ventilation, heating and, if needed, heating, noise protection and absorption, as well as suitable room design, fixtures and fittings.

6.6.5 SELECTION AND USE OF PERSONAL PROTECTION EQUIPMENT

Especially with regard to personal protective clothing, we not only regard adherence to mandatory regulations and inclusion of economic aspects as important, but also testing and subsequent selection in **teamwork with the workforce in the course of pilot projects**.

As a final result, protective articles can be introduced, which not only fulfil technical safety requirements (CE/design tests, etc.), but also offer wearer comfort and are economically viable. In addition, during the selection process importance is attached to the fact that the protective equipment is manufactured using **health and environmentally compatible materials**.

A comprehensive **roof safety system** and the purchase of a **telescopic lifting platform** prevent dangerous situations during working at heights.

Examples of successful measures from HSEE programmes implemented to date:

Measur	Resultat/Success	Realisation
SICHERHEITSTECHNISCHE VERBESSERUNGEN FÜR MITARBEITER UND UMWELT		
Ergonomic measures (ZI)	Optimised heating and the related controls Optimised ventilation and glare/radiated heat protection on skylights Draught-free, office air conditioning in BG 2+8 with concrete core activation Noise-absorbent dividing wall in BG6/7, as well as noise-absorbent roof soffits on BG 6,7,8,11 North Installation of cabins of perforated sheet design for frog, tongue and ribbed plate grinding 10 dB reduction in the noise level Equipping of the cabins with Ergo safety mats Purchase of numerous lifting tables with a height-adjustable working surface	From 2000
Interior hall and office block renovation (ZI) Eastern section BG6	Interior renovation of over 29,000 m^2 of hall area Paints and coatings with low solvent content, as well as carbon-free cleaning agents used wherever possible Project completion with SiGe-Plan pursuant to BauKG Renovation of approx.1,700 m^2 of hall flooring	2001 - 2004 2017
Renovation of the changing rooms and social amenities (vaTTZ)	New buildings or the renovation of social amenities and hygiene facilities for all employees	2006, 2008 2012, 2014
Apprentice amenities (ZI)	New social and break room for apprentices Design and completion by voestalpine apprentices	2013
Redesign of the tool issue, measuring machine and template store working areas (vaTTZ)	Ergonomic improvements (flooring, lights, windows, roof, draughts, temperature)	2017
Redesign of the testing laboratory (vaTTZ)	Installation of a state of the art lab table and a sample preparation station with integrated extractor	2017
PSA concept (ZI)	Functional, ergonomic and economic selection in joint tests with employees for: Safety shoes (wearer comfort) Helmets (weight, adjustability) Safety glasses (mirroring, field of vision) Working and winter clothing Fitted ear protection Ventilated welder helmets with automatic darkening Ventilated grinder helmets	Since 2000 ongoing
PSA dispenser (vaTTZ, vaSIGAT)	Employees are provided with standard PSA articles such as protective gloves and dust masks by a PSA dispenser	2018, 2019
Use of a lifting table for the tack welding robot (vaTTZ)	Easing of the physical strain on employees	2014
Load manipulators for machining centres (vaTTZ, vaSIGAT)	Easing of the physical strain on employees	2015 2018
Redesign of the storage area in front of BG25 (vaSIGAT)	Installation of a high-bay warehouse and acquisition of a side loader for removals from the shelving Ergonomic and technical safety improvements	2019
Safety and health management with AUVA (ZI)	Focused training for the entire workforce with video material within the scope of the Life Program Special, company-related, basic/further SVP training	2008 and ongoing
Training and employing motivation Introduction of the 5-S Programme for both turnout and signalling products (vaTTZ)	Positive effects on safety, health and the environment through the central aspects of cleanliness/order, as well as the desired strengthening of self-discipline	Since 2011
Implementation of measures derived from employee suggestions (ZI)	From monthly team meetings in the modules From HSEE-related operational improvement suggestions From ongoing evaluation updates	ongoing

Evaluation of psycho-social factors in the workplace and Employee job satisfaction survey (ZI)	Completion of anonymous data gathering using the "KFZA questionnaire" in an inter-divisional project Project completion in cooperation with work psychology experts Subsequent evaluation and analysis of possible improvement measures Employee job satisfaction analysis every three years	2013 - 2014 2016
Introduction of company health promotion (ZI)	Start of the "really healthy" project Health survey, result analysis Creation of structures and processes for health promoting work and workplace design	Ongoing from 2017
WiT blue collar worker (vaTTZ) and white collar employee (ZI) health training	Development of a training program for blue collar workers (frog grinding, butt welding machine and 1,000t press) and white collar employees together with a physiotherapist	2017
Merger of the HSEE databases (ZI)	Integration of the various databases/administrative systems for plant, materials, evaluations, etc. into gutwin plant and assignment management software	2014
HSEE Strategy Workshop (vaTTZ)	One-day workshop with twelve participants from differing areas Presentation of HSEE statistics and ongoing initiatives Analysis of the main accident causes and determination of measures to reduce work accidents in groups	2016
"Safety in a Nutshell" employee manual (ZI)	Reference work with important HSEE information for everyday working, e.g. proper use of personal protection equipment, appropriate conduct in the case of emergencies, accidents and leaks, the meaning of signs and pictograms, correct waste separation, etc.	2016
Integrated planning of safety concepts on over 50 new and modified milling and planning machines, machining centres, saws, welding units and presses (ZI)	Optimised concepts through TÜV support from the planning phase, thus avoiding problems in advance Safety integrated controls (where necessary) Installation of light barriers, safety contact switch strip, safety mats, closing/ locking of entries, etc.	From 2000
Retrofit of the 1,000t press (vaTTZ)	Increase in technical safety during operations and maintenance, in particular due to the installation of a retention system on the pressing head to prevent it dropping unintentionally	2013
Technical plant safety optimisation (vaTTZ)	Control retrofit and optimisation of the technical safety concept for milling and planing machines	2014
Interior surveillance systems for the feeding area of drilling/sawing centres in the course of extension for 60m rails (vaTTZ) Retrofit	LLogic system for presence recognition in the feeding area and thus correct plant control from a safety technology viewpoint Lock system for entry/exit counts No weather dependence, as in the case of light barriers Separate safety level for the roller conveyor increases line availability with for feeding Installation of scrap removal, camera systems and noise reduction in the hall	2005 2018
Renewal of the half-portal crane in BG5, the bridge crane in the outdoor storage area and other cranes (vaTTZ)	Enhanced safety due to improved lifting height, increased load capacity, stay cable system and all-wheel trolley drive Overall optimum controllability and load stabilisation	2011 ff.
Replacement of all open (non-insulated) contact lines on the cranes (vaTTZ)	Replacement of all open contact lines (approx. 720m) with insulated safety versions for the prevention of electrical accidents (above all danger during work in the hall by external companies)	2011
Use of crush-free lifting tongs (vaTTZ)	Switch to rail tongs with crush-free design lever arms at ten operational points	2014
Enclosure of the roller conveyors in the Mur storage area (vaTTZ)	Avoidance of crushing areas Noise reduction	2017
Purchase of new lifting platform (vaTTZ)	Increased safety as compared to ladders, scaffolding and cages Avoidance of exhaust gases in the hall by means of e-drive	2018
Equipping of stackers with direction indicators (ZI)	Technical safety improvement LED lights project the direction in front of the stacker	Ab 2019
Shelf inspection (ZI)	Inspection of all shelves and uniform labelling and signage Monthly shelf checks	2017 2019

6.7 ACCIDENTS, EMERGENCIES, PREVENTIVE MEASURES

NO EMERGENCIES OF ENVIRONMENTAL RELEVANCE HAVE OCCURRED AT THE ZELTWEG PLANT. THE FIRE AND DISASTER PROTECTION PLAN REGULATES THE RELATED RESPONSIBILITIES AND MEASURES FOR POSSIBLE EMERGENCIES OR ACCIDENTS. INCIDENTS, WHICH CANNOT BE AVOIDED IN A PRODUCTION COMPANY, SUCH AS THE SPILLING OF SMALL AMOUNTS OF OIL, ARE HANDLED WITH APPROPRIATE CARE.

In addition to the appropriate staff training and events, as well as exercises involving the Zeltweg Volunteer Fire Service, the following technical measures are used for prevention purposes:

- The purchase of **emergency kits for leaks**, consisting of portable containers with binders, sealing mats and booms for sewer entries and gutters, which in the case of accidents, can be used to prevent the entry of pollutants into the surface water sewers and subsequently the River Mur.
- Installation of **automatic fire alarms** in line with TRVB S123 in the BG1, BG2, BG8/9, BG10, BG13 and BG 25 office buildings, the electrical switchgear and boiler rooms and in the chemicals storage area in BG11 (in total over 500 optical smoke alarms, 40 fire alarms and 100 push button fire alarms).
- Installation of **automatic fire alarms** in line with TRVB S123 in the BG8+9 and BG25 production halls, and in the maintenance workshops in BG10 (the latest smoke alarm systems, which due to the possibilities for evaluation and setting can be ideally adjusted to the hall atmosphere resulting from dust loads). In addition, the installation of **smoke heat extraction systems** in BG3, 4, 6, 7, 11 and 25.
- Installation of **safety lighting and escape route lights** in the office buildings and in the BG3/4 changing rooms, BG4 (hot parts), BG5,6 and BG8,9.
- **Technical measures** in the storage area such as a retention reservoir for flammable liquids in the warehouse and the use of collecting basins, etc.
- Technical storage measures such as a reservoir in the flammable liquids store and the use of sumps, etc.
- Equipping of the plant with **defibrillators.** In line with the concept of extended first aid, the voestalpine companies at the Zeltweg location decided to purchase defibrillators in co-operation with neighbouring companies and locate them at suitable spots throughout the plant site, in order to provide cover for the entire labour force at the Zeltweg location on an inter-company basis.
- Not least, the **extensive roof safety systems installed on all buildings** ensure emergency assistance should the roofs have to be freed from the weight of very heavy snowfalls.

Examples of successful measures from HSEE programmes implemented to date:

Measure	Result/Success	Realisation
PREVENTIVE MEASURES FOR ACCIDENT AND EMERGENCY AVOIDANCE (RISK MANAGEMENT)		
Purchase of emergency sets for leakages (ZI)	Nine portable containers with sewer lid cover mats, booms, barrel bandages and binders for escapes of liquid following vehicle accidents, or problems with barrels, etc.	2005 ff.
Installation of a gas bottle store in BG8 Improved safety cabinet and new storage bins (vaTTZ)	Installation of a licenced fire protection store with an EI90 rating pursuant to EN13501 for a total of 48 gas bottles (oxygen, acetylene). Safety cabinet for the BG6 assembly module and new storage bins	2014
Improved fall safety systems for the roofs of the company buildings for repair work and clearance in snowy winters (ZI)	Installation of fall safety systems purs. to ÖNORM 795 by specialist companies on 20 buildings with an area of 39,000m^2 System for full roof access along the ropes without re-roping on supports or corners Complete system consisting of 2,800 m of fixed ropes, 85 individual anchorage points, 70 safety hooks on steep roofs, 80 m of roof railings Employee training Improvement of the roof statics in BG6,7, 8 and 11	2003-2008
Fire alarms for all office buildings and the production buildings BG 8,9,10 und 25 (ZI)	Fire alarms in accordance with TRVB S123 for approx. 21,000 m^2 of working area Installation of more than 750 smoke alarms, 40 fire alarms and 100 press button alarms Installation of a new type of smoke extractor system with calibrated central alarms (instead of single alarm systems) in order to prevent false alarms in the halls BG8,9 and 10 due to basic dust loads	2003 - 2010
Escape route or safety orientation lighting (vaTTZ)	Installation of a new escape route and safety orientation lighting system in BG1, 2, 4, 5, 8, 13 and BG25	2009
Personal emergency signal system (ZI)	Purchase of a personal signal system for individual working areas with integrated localisation possibility for the pinpointing of accident victims in an actual emergency	2011
Revision and optimisation of the fire and disaster planning (ZI)	Optimisation of the content, sequences and graphic aspects of the fire and disaster protection plans for a further improvement in the safe and rapid handling of a possible emergency Exercises (internal and with the Zeltweg Fire Service)	2012 and ongoing
New extinguishing water supply concept (ZI)	Connection of a roughly 1,000m tap line to the penstock of the company's small-scale hydropower plant at the location (unique synergetic advantage) Pressure-loss optimised design secures full-area extinguishing water coverage in the works with volumes of approx. 3,800 l/min Due to own pressure, supply is independent of electrical power and diesel engines and is therefore fail-safe to an extremely high degree	2012
Fire protection section improvements (vaTTZ)	The main danger of an outbreak is posed by old roofs with wood and tar paper on the inside Reduction of these areas by approx. 4,400m2 through the renovation of the roof on BG6/7, approx. 1,700 m^2 through the renovation of the roof on BG8 as well as approx. 1,100 m2 through the renovation of the roof on BG11 North Installation of two additional 5m-wide separating strips for the division of the roofs into the fire sections in BG3/4 and BG11 (installation of approx. 850 m^2 of roof fire blockers)	2012 ff
Fire service exercise (ZI)	Exercise with the fire services for improved communications and coordination in an emergency	2013, 2019
Complete overhaul of the signs and danger marking at the location (ZI)	Renewal of the building and gate signs for general orientation and the emergency services Renewal of the danger signs, pipeline markings and locks both on the spot and on planning documentation	2014 and ongoing
New emergency management folder (ZI)	Collation of the most important points for the members of the on-call standby team at the Zeltweg location	2017
Emergency Board installation (vaTTZ)	Installation of three emergency boards in the hall corridors and apprentice area Equipped with: stretchers, fire extinguishers, fire blanket, megaphone, first aid kit, plaster box, eyewash and capsule dispenser for hearing protection	2017 2019

6.8 EXTERNALLY COMPLETED ACTIVITIES

The most important current activities of HSEE relevance that have been allocated to external companies are:

- **The galvanising and hardening of metallic parts**
- **Sleeper impregnation**
- **Product painting**
- **Frog explosion hardening**

We also attach great importance to the external transfer of our environmental protection concept. For this reason, wherever possible production steps that cannot be completed at the location are allocated to external companies, which concur with our **efforts towards low-environmental impact and safe production**. A basis for this judgement is provided by documentation concerning the processes and materials (safety data sheets), company tours/audits by our employees, as well as supplier assessments coordinated by Purchasing. Wherever feasible we attempt to work with companies that have certified environmental and safety management systems.

Part of our supplier qualification and evaluation system is a **CSR questionnaire**, which makes environmental, safety and social responsibility aspects into topics of decision relevance.

The greatest technical safety challenge in connection with external companies is the appropriate **co-ordination of activities on the plant site** and the fulfilment of construction co-ordination tasks, especially with regard to the preparation of health and safety schemes during the planning and construction phases.

7. FACTS AND FIGURES FOR THE LOCATION 2020

7.1 INPUT/OUTPUT BALANCE AND CORE INDICATORS

THE PRESENTED INPUT/OUTPUT BALANCE COVERS ALL THE IN- AND OUTGOING MATERIAL FLOWS OF THE VOESTALPINE LOCATION IN ZELTWEG. THE FOLLOWING DATA RELATES TO THE 2020 FINANCIAL YEAR (1 APRIL 2019 – 31 MARCH 2020).

The following tables contain the **environmental indicators for the location** in line with EMAS III-VO for the key areas of material efficiency, energy efficiency, water, waste, emissions and biological diversity. On the one hand, the data for these areas is provided in absolute figures and on the other, in relation to total annual output, for which the volumes delivered are included in kilograms.

The **core indicators (CI)** are then subsequently calculated on the basis of these measurements and benchmarks:

- **Material efficiency.** The data listed here consists of all goods receipts in terms of weight and the consumables and supplies used.
- **Energy efficiency.** The energy consumption data derives from company maintenance and servicing. The share of renewable energy relates to the respective energy suppliers.
- **Water.** Water consumption is registered in terms of volume.
- **Waste.** The annual volumes of non-hazardous and hazardous waste are listed separately along with the share of scrap, which dominates in terms of volume.
- **Emissions.** Some CO_2 emissions are of relevance and can be measured in terms of volume. In the case of other emissions, e.g. dust NOx, etc. discontinuous operation makes it impossible to define large-volume flows and the comparative measurements and limits are contained in the tables in the "Air and Wastewater" section.
- **Biological diversity.** As required, the area consumption of the sealed areas in terms of square metres is used. As this value remains virtually unaltered, the definition of an efficiency figure in this connection lacks any significance.

It must be pointed out that **the stating of core indicators as stipulated by EMAS III**, which include the receipt of working materials, energy, emissions or waste quantities, etc. with regard to a certain reference quantity of the finished end product (per metric ton, per million euros of sales revenue, etc.), **can only be employed to a very limited extent for an assessment concerning the performance pattern at the voestalpine location in Zeltweg,**

as the company merely completes single item or small batch production. In addition, we not only offer complete units, but also every type of spare part and individual components, and these various parts are all linked to differing environmental effects. In this connection, neither physical dimensions such as mass, length, etc., nor financial values (e.g. sales revenues, value added) provide a reliable benchmark for the preparation of environmental key figures, the precision of which would also be linked to a control effect. By contrast, the preparation of typical technical safety key figures, their relationship to the number of employees, working hours, etc. is more meaningful and data in this regard is contained in the "Accident Statistics" section.

Notwithstanding the problem of the limited control exactitude of macroscopic key indicators, the juxtaposition of values prior to the introduction of the integrated management system (1966) with current values does allow the recognition of the enormous improvements and increases in efficiency achieved through the efforts and competence of the company's workforce:

Year	Employees	Well water consumption [m^3]	Total energy consumption [Mwh]	Delivered product mass [t]
1996 (prior to management system introduction)	549	105,187	20,940	19,219
Financial years 2018 - 2020 (mean value for the 3 financial years)	830	59,113	17,294	42,117
Changes in absolute values in %	+51%	-44%	-17%	+119%
Consumption per employee		192 (1996) 71 (2018-20)	38 (1996) 21 (2018-20)	
Change in the consumption per employee key figure in %		-63%	-45%	
Consumption per supplied product tonne		5.5 (1996) 1.4 (2018-20)	1.1 (1996) 0.4 (2018-20)	
Change in the consumption per supplied product tonne key figure in %		-74%	-62%	

The data in the table mean that:

» Although between 1996 and 2018 - 20 (mean value for the three financial years) **the size of the workforce at the Zeltweg location increased by 51% and the volume of products delivered doubled,** in absolute terms the overall consumption of well water (= drinking and groundwater) and energy did not rise to an equal extent. **On the contrary, total well water consumption fell by over 44% and total energy consumption declined by 17%!**

» Accordingly, **as key figures in ratio to the number of employees, the efficiency of well water consumption improved by almost 60% and that relating to energy consumption by over 40%!**

» Moreover, as key figures in terms of the mass of products delivered, **the efficiency of well water consumption again improved by around 75%, while efficiency in relation to energy use improved by 60%!**

Financial year (April 1 - March 31)	2019/20		2018/19		2017/18	
Mass delivered in kg [kgAM]	42,900,000		39,700,000		43,800,000	
MATERIAL EFFICIENCY	2019/20	CI[kg/kgAM]	2018/19	CI[kg/kgAM]	2017/18	CI[kg/kgAM]
Chemical materials and supplies [kg]	53,879	0.0013	57,155	0.0014	56,057	0.0013
Used chem. materials/supplies						
Machine oils and lubricant grease	12,614		19,525		17,163	
Oil binders	740		1,080		1,080	
Cooling lubricants	12,403		9,849		9,822	
Cleaning agents for workpieces and supplies	1,949		1,670		1,611	
Cleaning agents for the hygiene sector	852		1,163		1,516	
Adhesives and sealants	2,349		2,382		2,652	
Paints/varnishes	2,210		914		1,040	
Linseed oil	904		1,505		1,914	
Winding bitumen	0		0		0	
Specific supplies (anti-freeze agents...)	14		16		20	
Penetration agents	2,727		2,891		2,905	
Photografic chemicals	0		60		60	
Explosives [1]	14,691		13,435		13,229	
De-icing salt	1,700		1,950		2,600	
Other chemical substances	725		716		445	
ENERGY EFFICIENCY	2019/20	CI[MWh/kgAM]	2018/19	CI[MWh/kgAM]	2017/18	CI[MWh/kgAM]
Total energy consumption [MWh]	17,370	0.00040	16,337	0.00040	18,175	0.00041
Total renewable energy consumption [MWh] from electricity [2] and district heating and the share in %	13,219	76%	12,415	76%	13,640	75%
Energy supplies [MWh] and the share of renewable energy in %						
Electricity	8,394	100%	8,209	100%	8,421	100%
Petrol/diesel	899		911		898	
Natural gas for processes and gas filling station	1,657		1,746		1,874	
Natural gas for heating	1,595		1,264		1,763	
Biomass-based district heating	4,825	100%	4,207	100%	5,219	100%
WATER	2019/20	CI[m^3/kgAM]	2018/19	CI[m^3/kgAM]	2017/18	CI[m^3/kgAM]
Water consumption [m^3]	63,600	0.0015	75,400	0.0019	38,400	0.0009
WASTE [3]	2019	CI[kg/kgAM]	2018	CI[kg/kgAM]	2017	CI[kg/kgAM]
Waste non-hazardous [kg]	252,599	0.006	264,668	0.007	267,300	0.006
Waste hazardous [kg]	137,615	0.003	159,041	0.004	162,700	0.004
Scrape [kg]	2,471,130	0.058	2,584,959	0.065	2,833,900	0.065
EMISSIONS [4] (CO_2 EMISSIONS)	2019/20	CI[kg/kgAM]	2018/19	CI[kg/kgAM]	2017/18	CI[kg/kgAM]
CO_2 emissions [kg]	789,000	0.02	746,000	0.02	855,000	0.02
CO_2-credit from electricity inputs [kg]	2,437,000		2,321,000		2,570,000	
CO_2-balance Zeltweg location [kg]	1,648,000		1,575,000		1,715,000	
BIOLOGICAL DIVERSITY	2019/20	CI[m^2/kgAM]	2018/19	CI[m^2/kgAM]	2017/18	CI[m^2/kgAM]
Surfaces areas [m^2]	73,650	0.002	73,650	0.002	73,650	0.002

[1] not directly stored on site, but employed at VA Eisenerz
[2] Electricity from own hydropower plant from 1/2010, district heating from biomass from 12/2009
[3] Calendar Year 2019
[4] The share with regard to cooling agent amounts to < 5kg, which corresponds with less than 10,000 kg of emissions and ist thus irrelevant
With regard to CO_2-neutral location balance, please see the Energy % CO_2 section

7.2 USE OF PLANT AREA

Use of the plant area remained unchanged. The overwhelming majority of the plant is utilised for technical production purposes. Green spaces are found along the bank of the River Mur and the edges of the site.

Surfaced areas (halls, asphalted areas)	73,650 m^2
Unsurfaced areas (gravelled and green spaces)	90,650 m^2
Total plant area	164,300 m^2

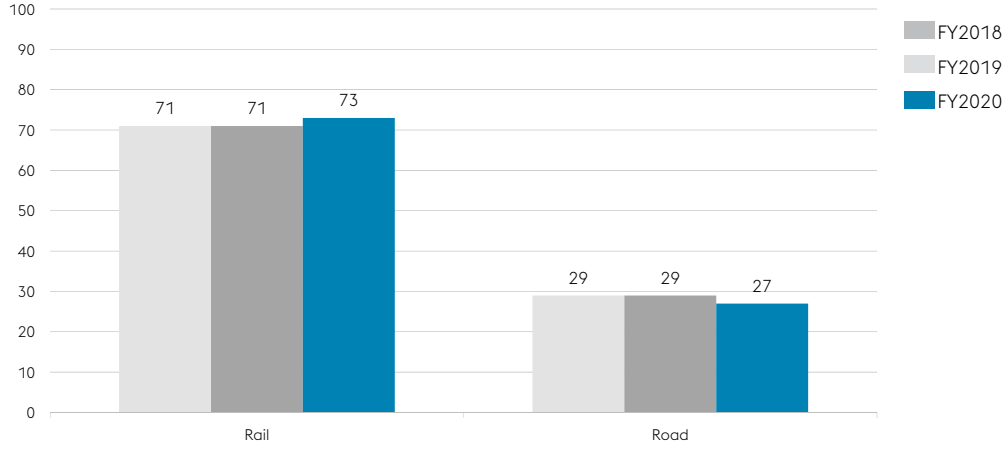
The **hall areas** are concreted or asphalted, which can prevent the penetration of pollutants into the soil. The relevant areas around machine foundations must also be watertight (hydraulics area, cooling lubricant reservoir, etc.). In the **storage technology** area, appropriate preventive measures with regard to soil and water pollution are taken in the form of pits and double-walled tanks, etc. In line with a water legislation judgement, **precipitation** from sealed surfaces is no longer regarded as slightly contaminated and is largely discharged into the River Mur via the company's rainwater drains, while partial seepage takes place where the soil allows. In areas such as asphalted wood sleeper storage facilities where pollution is possible, seepage takes place with the help of state-of-the-art basins with a humus cover. This means that should any hydrocarbons penetrate this bioactive layer, they are captured and then degraded. The humus is also subject to regular chemical examinations. The precipitation on the unsurfaced areas is also free of contamination due to bedding, etc. and the water is permitted to seep away.

7.3 TRANSPORT

The share of the freight volume **transported** from the plant **by rail** during the 2020 financial year amounted to more than **70%**. The remaining transport traffic related to trucks, road transport being required owing to the urgency of deliveries and destinations that could only be reached by road. 17% of outgoing freight is transferred from road and rail to shipping for delivery to global destinations.

2 diesel locomotives, numerous electric cranes, diesel, natural gas and electric loaders carry out transport within the works.

Transport balance - % in terms of tonnage



7.4 ACCIDENT STATISTICS

The following diagrams show the trend with regard to accidents at the voestalpine location in Zeltweg and are prepared on the basis of the following key figures, which also permit a branch comparison:

» **Accident rate** (accidents per 1,000 employees)
» **Accident frequency – Lost Time Injury Frequency Rate** (accidents per 1 million working hours)
» **Accident severity** (time lost per accident in days)

In accordance with the regulations of the Austrian Safety Act and the statistical gathering criteria of the Austrian Allgemeinen Unfallversicherungsanstalt (AUVA – General Accident Insurance Fund) for so-called "notifiable occupational accidents", these are accidents, which result in sick leave of more than three days. The following data relates to the total of accidents involving blue- and white-collar workers, apprentices, trainees and leasing staff, excluding accidents during travel to and from work. Within voestalpine the LTIFR is used as a key figure for work safety.

The accident statistics of voestalpine Turnout Technology Zeltweg GmbH tend to be above the branch average. This is due to the fact that turnout manufacturing is characterised by relatively limited possibilities for automation and the resultant necessity for manual production and transport steps involving components that are difficult to handle naturally entails major accident risks, particularly with regard to hand and arm injuries. By contrast, the accident statistics for voestalpine Signaling Austria GmbH are below the branch average.

Since the middle of the 1990s, a continuous and sizeable reduction in the accident figures and the costs related to lost working hours has been achieved by means of numerous technical and organisational measures. Examples of special milestones in this regard include the "Reflections on Safety" promotion with the Graz branch of the AUVA. Nonetheless, in recent years the LTIFR stood at around the 40 mark.

Analyses have shown that **only in exceptional cases accidents are caused by technical factors** and that first and foremost, it is unsafe conduct (either conscious or unconscious). Accordingly, **primarily organisational measures**, that include the supply of information and training, as well as the visualisation of correct conduct, have been initiated in order to raise danger awareness levels.

From the 2016/17 financial year, oestalpine Turnout Technology Zeltweg GmbH showed a satisfactory trend. As a result of the measures adopted as part of the "Synchronised Turnout" production system such as the weekly module and team meetings, the evaluation of work accidents and critical situations as well as the training of the employees in the safety course the LTIFR was reduced by 60%.
However, our LTIFR target of ≤12 was not achieved and in the past year stood at 19.

Nonetheless, voestalpine Turnout Technology Zeltweg GmbH's aim of reducing LTIFR to ≤ 12 remains unchanged.

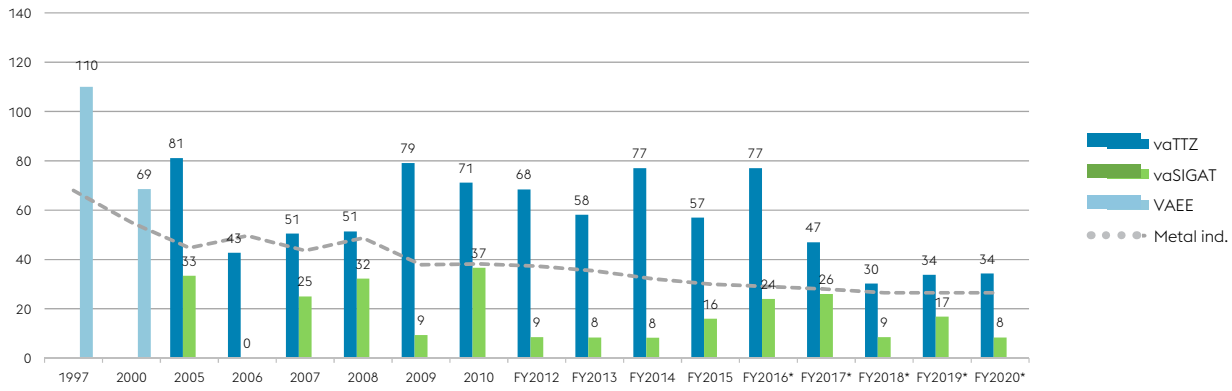
The voestalpine Signaling Austria GmbH LTIFR amounted to around 9.5 and therefore the <10 target was achieved.

As a holding company, v**oestalpine Railway Systems GmbH** has no production facilities and is very rarely affected by accidents (accident-free for more than ten years).

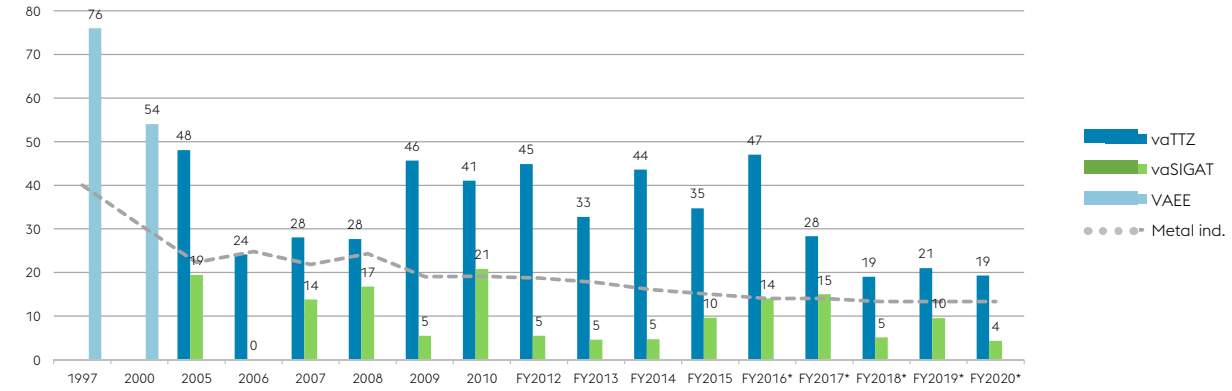
Since the 2020 financial year, the **safety officers** will play a special role with regard to the targets for accident and unsafe handling reduction. Quarterly focal points will be established, which will be dealt with during the monthly meetings.

The following diagrams show the accident rate, frequency (LTIFR) and severity patterns at the voestalpine location in Zeltweg beginning in 1997, and in separate form for oestalpine Turnout Technology Zeltweg GmbH and voestalpine Signaling Austria GmbH from 2005 onwards. The figures show notifiable accidents of the permanent staff (blue- and white-collar workers, apprentices) excluding accidents during travel to and from work and of the total staff (blue- and white-collar workers, apprentices, trainees, leasing personnel) from 2016 onwards marked with *. The data are also shown in relation to the average in the metallurgical industry branch in Austria (on the basis of AUVA data).

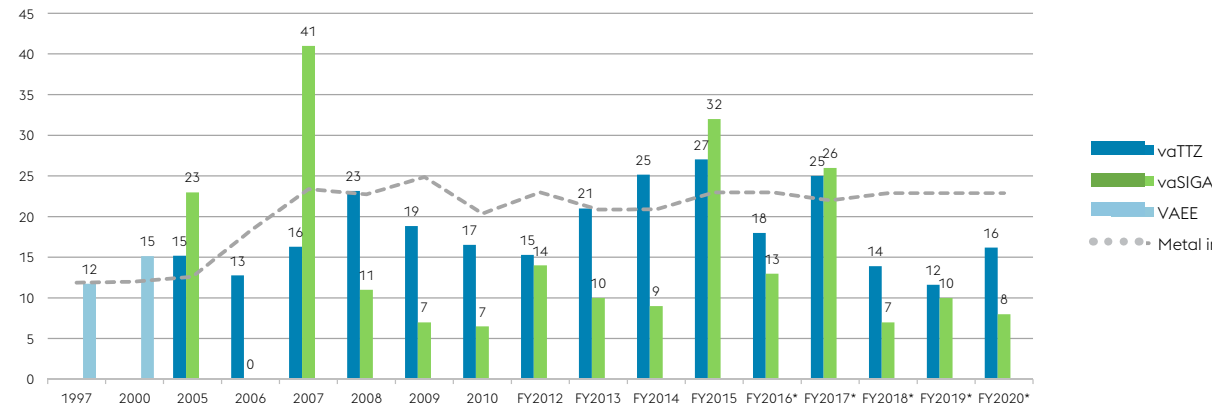
Accident rate (accidents per 1,000 employees)



Accident frequency trend (accidents per 1 million working hours)



Accident severity (time lost per accident in days)



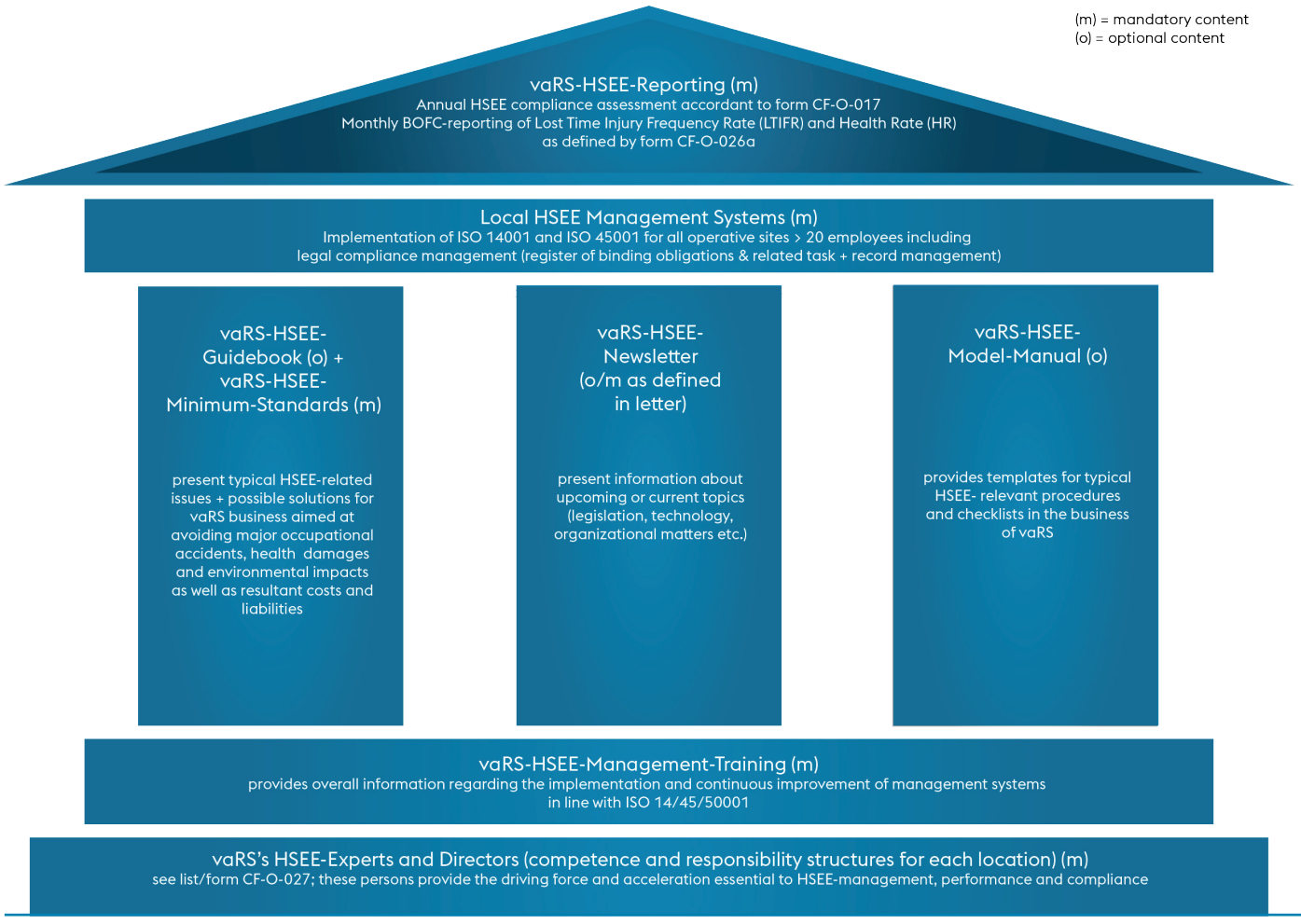
voestalpine Turnout Technology Zeltweg GmbH (vaTTZ), voestalpine Signaling Austria GmbH (vaSIGAT);

8. HSEE ASPECTS AT VOESTALPINE RAILWAY SYSTEMS GMBH AND ITS SUBSIDIARIES

AS A HOLDING COMPANY, VOESTALPINE RAILWAY SYSTEMS (VARS) GMBH SEES ITS POSSIBILITIES TO INFLUENCE ENVIRONMENTAL AND SAFETY ISSUES AS NOT BEING LIMITED TO STANDARD TOPICS IN ITS OWN OFFICE ACTIVITIES (SUCH AS ENERGY SAVING MEASURES, WASTE SEPARATION AND THE ERGONOMIC DESIGN OF WORK STATIONS), BUT RATHER IN LINE WITH HSEE POLICY, THROUGH THE INFORMATION, MOTIVATION, CONSULTING AND CONTROL OF THE SUBSIDIARIES WITH REGARD TO THEIR BUSINESS ACTIVITIES.

8.1 THE MAIN VARS-HSEE MANAGEMENT ELEMENTS

The vaRS-HSEE management "house" consists of **7 main elements**:



- Naturally enough, **the persons serving as the directors responsible for HSEE and the HSEE experts working at the locations** form the basis of the entire system. Without them, all the other elements would be valueless, as through their competence and commitment they represent the driving force behind the system.
- It is also clear that without training and information nothing would function. Therefore, in order to generate and support the necessary competences and motivation the "**vaRS HSEE Management Training**" has been introduced. This information and coaching package contains:
  - 17 sections with a total of 8.5 hours of video training, which demonstrate the most important aspects of the creation of new managerial systems and the continual improvement of existing structures in accordance with ISO 14001, OHSAS 18001 / ISO 45001 and ISO 50001, and thus create a common thread running through the material. In this way, the reasons for and motivation factors relating to an integrated HSEE management system are described, and the main elements in both the development and subsequent phases of the system consisting of "legal, technical and organisational work packages" are dealt with.
  - Together with the following regulative documents and templates (Guidebook + directives, Model Manual, Newsletter), the training documentation **is available on the vaRS HSEE Sharepoint**.
- voestalpine Railway Systems GmbH has drawn up these points for its subsidiaries in the "vaRS HSEE Guidebook", which is globally valid and portrays typical safety, health, environmental and energy-related problems in our business area, and naturally enough offers technical and organisational suggestions for solutions.
  - In addition to its informative aspects, the Guidebook also contains about **200 mandatory vaRS HSEE minimum standards** with the aim of contributing to the prevention of serious personal injury, environmental damage and the related (subsequent) costs.
  - There are **supplementary vaRS HSEE guidelines (vaRS HSEE Directives)**, which holistically combine special groups of issues, e.g.
    - stipulations for sleepers (wood, concrete, etc.) and packaging wood as well as
    - stipulations in connection with the relevant material content in products.

    This also ensures that legal statutes and customer stipulations in the product sector are communicated to all of the affected subsidiaries and can thus be adhered to, e.g. general requirements relating to chemical law (REACH, GHS/CLP etc.), or the special demands with regard to the woods employed contained in biocide law and the plant conservation legislation for the prevention of plant diseases and pests.
- Furthermore, the "**vaRS HSEE Newsletter**" is published, which covers current topics (e.g. legal or technical developments) and is sent to the locations in order to create awareness in this connection and aid the efficient handling of the main aspects.
- A **vaRS HSEE Model Manual** has also been prepared, which especially in the case of new company foundations is also intended to serve as a basis and source of ideas for subsidiaries for the design of organisational, operational procedures, in order to include the requirements of ISO 9001, ISO 14001 and OHSAS 18001 / ISO 45001 from the outset in line with the concept of an integrated management system. These templates incorporate instructions and checklists, which greatly facilitate the integration of aspects of HSEE relevance into the following important processes:
- **Purchasing** – in particular:
  - The integration of HSEE aspects during the specification and sourcing of machinery as well as the construction of buildings or related conversion and renovation work with the clear objective of HSEE-integrated planning from the initial steps onward (also with the aid of clear, HSEE-integrated specifications) instead of subsequent laborious and expensive modifications)
  - The assessment of chemical materials and supplies prior to purchase (using safety data sheets, etc.)
  - The inclusion of HSEE+CSR aspects in supplier qualification and assessments
- **Maintenance process** – in particular:
  - Integration of HSEE Aspects in maintenance procedures (e.g. The organisation of work involving the danger of fire)
  - Determination of the necessary acceptance tests and periodic checks (with the appropriate regulation of the required documentation)
- **HSEE-related training/instruction,** e.g.:
  - General employee coaching
  - The correct use of personal safety equipment (PSE)
  - Training with regard to specific assignments (e.g. crane and stacker transports, the use of technical gases, especially during welding, the handling of special materials such as impregnated, wooden sleepers or cooling lubricants)
  - The drawing up of specific working instructions for procedures and operating instructions for machinery
  - Special instructions for visitors, external companies operating at the location, track working for customer companies, etc.
  - Including the respective appropriate collation of documentation
- **HSEE-related accidents and incidents** – in particular:
  - The obligatory notification of accidents and incidents (near misses)
  - Cause evaluation and the extrapolation of improvement/ corrective measures

- **HSEE-related determination of dangers and risk evaluation**– in particular:
  - Determination and evaluation of risks of environmental relevance in our field of activities
  - Determination and evaluation of safety and health hazards in the workplace
  - Drawing up of emission monitoring programmes
  - Drawing up of monitoring programmes regarding influence in the workplace of relevance to health
  - Drawing up of programmes for the monitoring of employee medical health
  - Including the respective appropriate collation of documentation
- **HSEE-related procedures** – in particular:
  - Waste management (prevention, separation, correct disposal and documentation)
  - Emergency precautions (fire protection, leaks, forces of nature…)
  - Input-output statistics (resources)
  - Accident statistics (LTIFR/HR)
- **Energy-related aspects** (above all in connection with ISO 50001) – in particular:
  - Templates from voestalpine Railway Systems Latvia (for data gathering/evaluation, extrapolation from improvement programmes, completion of Reviews)
  - Templates from voestalpine Turnout Technology Zeltweg (Energy audit in line with the points contained EN 16247)
- **Superordinated documents of HSEE relevance,** e.g.:
  - Gap-analysis (weak point analysis)
  - List of interested parties and the resultant obligations
  - Tables differentiating between the demands of standards and the aforementioned system elements/templyte documents (what covers which demand)

- In order to be able to systematically fulfil all the binding stipulations (legal, holding/group and customer requirements, etc.) and in addition utilise the advantages derived from chance, risk and know-how management, **it is our declared aim that all subsidiaries develop and subsequently maintain local management systems in line with ISO 9001, 14001 and 45001** (excluded are companies that have a purely administrative function and production firms with fewer than 20 employees). In this connection, the subsidiaries must also ensure that: :
  - Relevant requirements are identified and then a resultant register of the binding obligations with regard to one-off, recurrent and permanent tasks (chapter 6.1.3 of the ISOs) is drawn up.
  - Task management in this connection is installed (in the sense of the allocation of responsibilities and deadlines for one-off and recurrent assignments/checks).
  - A systematic result/document management for the management of evidence showing that tasks have been completed (record management).
  - The conformity of the company in this regard is evaluated (see the CF-O-017 report form in line with ISO chapter 9.1.2, which is described in the following item).
- Naturally, functional reporting within the **vaRS group is also important**. Of special significance are:
  - The CF-O-17 form with which the subsidiaries report on their status with regard to HSEE-related compliance (i.e. adherence to HSEE-related statutes, directives, contracts and the minimum HSEE stipulations of vaRS and voestalpine AG) in the course of the autumn advisory committee meetings. Reports of successes are just as important as identified deviations and the related corrective/improvement measures.
  - The CF-O-026a form, which is employed for the definition of the identical, inter-group statistics concerning work accidents (Lost Time Injury Frequency Rate – LTIFR) and sick leave (Health Rate – HR).
  - The CF-O-044 form for the description and analysis of accidents LTIFR relevance.

The **C-P 12.02.00 vaRS Cornerstone HSEE Directive** establishes the elements and contents described above as cornerstones for the vaRS Group subsidiaries.

Extract from the section on work safety in the vaRS HSEE Guidebook

RAILWAY SYSTEMS	C-D 16.00.00 Rev. 0	Chapter 4 Page: 14 of 26 pages

7. Guarding of V-belts, gear wheels or similar rotating parts of machinery: guards shall cover such parts in any case [by 31.12.2008]. See for example V-belt and wheels at press in figure 4.8.

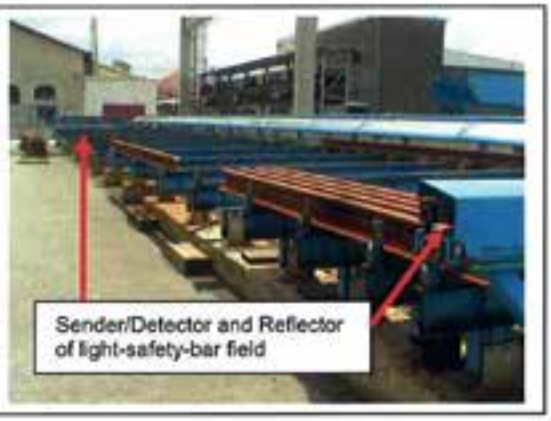
Figure 4.8a: Unprotected belt and wheels – beyond 2,5 m height it is dangerous for employees in direct way, but above 2,5 m e.g. the chain or hook of crane can be caught and a catastrophe initiated...

Figure 4.8b: Simple cover for dangerous parts,

8. Housekeeping: Very easy but efficient: Keep the site and working-places clean. Accidents due to falls because of unnecessary parts lying on the floor are the most common reason for injuries and days of loss! [by immediate effect]
9. Some examples of safety-devices:

Figure 4.9a: Safety light bars: Can be used in vertical position for avoidance of entry.....

Figure 4.9b: .....and in horizontal position additionally for surveillance that nobody is staying within an area – see example automatic conveyor area of sawing-drilling unit. There are different classes of light/lasers (different range in covered distance and number of rays per meter (for different stages of safety like "finger-proof", "arm-proof" or "body-proof")); outdoor and especially above 30m distance light bars will be problematic due to false signals (rain/fog/birds...)



Examples of successfully introduced HSEE programme measures:

Result	Result/Success	Implementation
VARS HSEE MANAGEMENT		
vaRS HSEE Newsletter (including updates of the vaRS HSEE Guidebook and the vaRS HSEE Directives)	Information about current topics and changes in the areas of law, technology and organisation, as well as company experience (selected examples): » Information about current topics and changes in the areas of law, technology and organisation, as well as company experience (selected examples): » April 2016: issue of the vaRS HSEE Management Training Package » January 2018: establishment of the voestalpine Health & Safety Values and minimum standards in the vaRS-HSEE Guidebook » May 2018: opening for subsidiaries of the vaRS HSEE Sharepoint with all the HSEE and training documentation, including the User Guide » June 2018: new and efficient regulation of the internal procedures regarding HSEE questions from customers » July 2018: update of the requirements regarding the handling of hazardous substances (in particular CMR-T materials), as well as work clothing (update of Annex 4 of the Guidebook) » March 2019: coordination and sequences relating to product sustainability » Julix2019: safe machine stops and restarts in emergencies » October 2019: housekeeping campaign against tripping and falls (+ collation of the best countermeasures in March 2020) » March 2020: new edition of the vaRS HSEE 16.01.01 Directive with regard to the stipulations for all types of sleeper and packaging wood » April 2020: update + summary of the regulations regarding the investigation and reporting of accidents (LTIFR and HR definitions) » July 2020: updates of the » vaRS HSEE Cornerstone Directive » The CF-O-017 report form regarding the HSEE compliance of subsidiaries » Summary of all the HSEE reporting obligations for subsidiaries » August 2020: safe turnout lifting » September 2020: new version of the 16.02.01 vaRS HSEE Directive regarding material-related legal and customer stipulations (including the topics of material bans/restrictions, conflict minerals, material imports/exports, mixtures and products, and reporting obligations in connection with materials of special relevance)	Continuous since 2008
vaRS HSEE Model Manual	Template and idea provider for the installation and further development at subsidiaries of processes/sequences and checklists for integrated management systems from ISO 9001, ISO 14001, ISO 50001 and OHSAS 18001/ISO 45001 Ongoing maintenance of the template in line with new regulations and company experience values	Continous since 2010
vaRS HSEE Management Training Package	Fundamental information concerning aspects of both the development of new management systems and the continuous improvement of existing solutions pursuant to ISO 14001, OHSAS 18001 / ISO 45001 and ISO 50001 17 chapters with a total of 8.5h of video training Call up possibility via the vaRS HSEE SharePoint	Continuous since 2016
HSEE content from CEO Conferences	Presentations/workshops regarding ongoing data and specific focal points, e.g. » “HSEE-related legal compliance management” (re. the chapters 6.1.3 Compliance Obligations and 9.1.2 Legal Compliance Assessment of the new ISO series) » Workshop and identification of improvement potential with regard to accident numbers (LTIFR improvement) » Presentation of new and important directives/regulations	Continuous since 2016
Support of subsidiaries during the implementation (certification of management systems pursuant to ISO 14001, OHSAS 18001 / ISO 45001 or ISO 50001	Basis information Collation of templates Supportive consulting	Continuous
Support of subsidiaries with regard to HSEE-related question	Regarding investment /technical questions Organisational development (in particular legal compliance checks, development/improvement of integrated management systems)	Continuous

8.2 ACCIDENT AND HEALTH STATISTICS OF VOESTALPINE RAILWAY SYSTEMS GMBH AND ITS SUBSIDIARIES

Two uniformly defined Key Performance Indicators (KPI) have been established throughout voestalpine, namely:

» **The Lost Time Injury Frequency Rate (LTIFR** = Number of accidents per 1 million working hours) and
» **The Health Rate (HR** = the percentage of time that employees are fit enough to work).

(At the end of the section there are definitions for the recording and calculation of the LTIFR and HR at voestalpine)

The following tables show the related initial values in the 2015/16 financial year, the values for the past three financial years (FY 2017/18, 2018/19 and the 2019/20 year expired), as well as the developments regarding the initial values in terms of the preceding financial year.

The following pleasing reduction in the lost time Injury Frequency Rate (LTIFR) results for the entire Railway Systems Business Unit (BU), the Profit Centres (PC) and the Competence Centre (CC):

» **Railway Systems BU: reduction of 68% (from initial figure of 25.9 in the 2015/16 financial year) to 8.3 in the 2019/20 financial year**
» **Turnout & Fixations PC: reduction of 71% (from initial figure of 25.8 in the 2015/16 financial year) to 7.4 in the 2019/20 financial year**
» **Signaling PC: reduction of 73% (from initial figure of 17.1 in the 2015/16 financial year) to 4.6 in the 2019/20 financial year**
» **Rail Technology PC: reduction of 46% (from initial figure of 34.8 in the 2015/16 financial year) to 15.i in the 2019/20 financial year**
» **Track Solutions CC: reduction of 2% (from initial figure of 20.0 in the 2015/16 financial year) to 19.5 in the 2019/20 financial year**

However, we do not intend to rest on our laurels with respect to this status and instead, true to the principle that any work accident is one too many, have established ambitious targets in line with the aim of continuous further improvement::

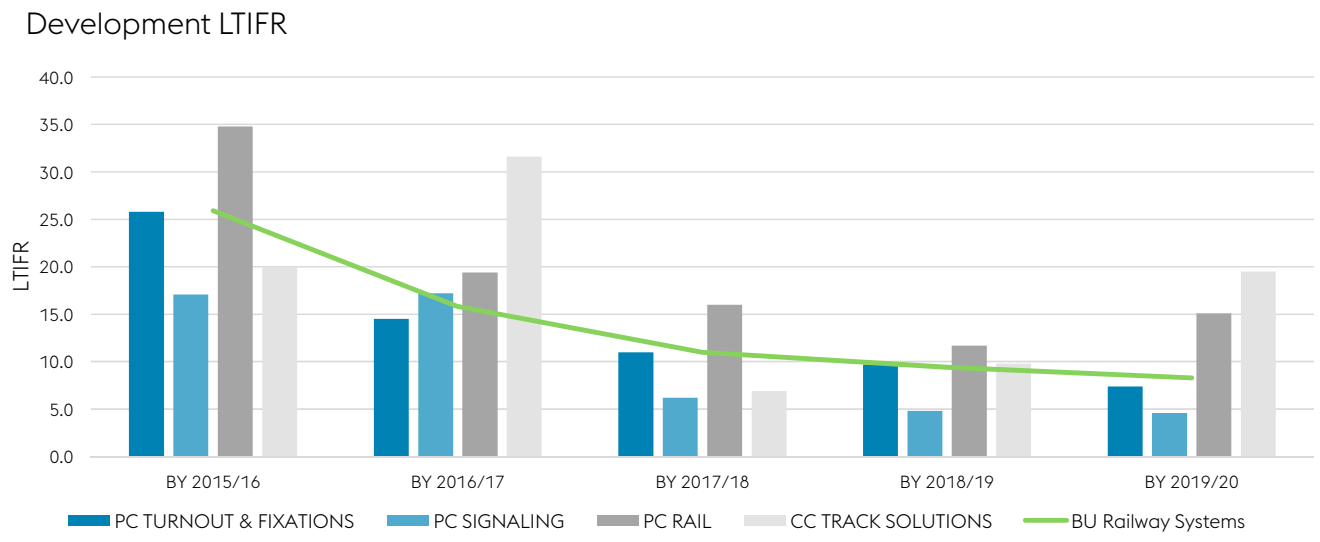
» **Railway Systems BU: LTIFR ≤ 7.7**
» **Turnout & Fixations PC: LTIFR ≤ 7.5**
» **Signaling PC: LTIFR ≤ 3.7**
» **Rail Technology PC: LTIFR ≤ 12**
» **Track Solutions CC: LTIFR ≤ 11**

Equally the Health Rate (HR) of the Railway Systems BU has been maintained at the already achieved high level of approx. 96%:

» **Initial 2015/16 financial year result = 96.2%**
» **2017/18 financial year result = 96.5%**
» **2018/19 financial year result = 96.6%**
» **2019/20 financial year Result = 96.4%**

The aim is the further development of HR to a level of ≥ 97%.

The significance and importance of the LTIFR and HR are underpinned by the fact that **both KPIs must be reported on every board meeting**, whereby related **measures for improvements** must also be included.



Development LTIFR in the Railway Systems BU

Company	Development Total		Development last FY			
	Development in % (FY 15/16 to FY 19/20)	FY 2015/16	FY 2017/18	FY 2018/19	FY 2019/20	Development in % since last year (18/19 to 19/20)
BU Railway Systems	-68%	25.9	11.0	9.4	8.3	- 12%
voestalpine Railway Systems GmbH	Zero Level	0.0	0.0	0.0	0.0	Zero Level
voestalpine VAE Italia S.r.l.	Zero Level	0.0	0.0	0.0	0.0	Zero Level
PC TURNOUT & FIXATIONS	-71%	25.8	11.0	9.7	7.4	-24%
Northern Europe Group						
voestalpine Turnout Technology Germany GmbH	-72%	48.8	34.5	20.3	13.5	-33%
voestalpine Turnout Technology Netherlands B.V.	-100%	14.1	14.2	7.6	0.0	-100%
voestalpine Railway Systems Latvia SIA	-100%	12.0	0.0	0.0	0.0	Zero Level
voestalpine Railway Systems Lietuva, UAB	2%	8.3	8.5	34.0	8.5	-75%
voestalpine Turnout Technology UK Limited	-100%	14.4	0.0	12.6	0.0	-100%
Southern Europe Group						
voestalpine Turnout Technology Zeltweg GmbH	-59%	47.1	19.0	21.0	19.3	-8%
Weichenwerk Wörth GmbH	-69%	69.6	32.9	18.8	21.8	16%
TSF-A GmbH	-75%	105.4	0.0	66.2	26.8	-60%
voestalpine Kardemir Demiryolu Sistemleri Sanayi ve Ticaret Anonim Sirketi	82%	6.2	6.0	10.0	11.3	13%
voestalpine Railway Systems Saudi Arabia Limited	Zero Level	0.0	17.6	0.0	0.0	Zero Level
voestalpine Railway Systems Romania SA	++	0.0	1.7	3.1	3.1	0%
Travertec S.R.L.	---	---	---	0.0	0.0	Zero Level
voestalpine Railway Systems Bulgaria OOD	-12%	5.1	4.8	0.0	4.5	++
VAMAV Vasúti Berendezések Kft.	86%	10.6	8.3	20.0	19.7	-2%
JEZ Sistemas Ferroviarios S.L.	-98%	174.6	12.8	13.4	3.4	-75%
Materiel Ferroviaire D'Arberats SASU	-85%	105.6	33.5	43.0	15.9	-63%
voestalpine Railway Systems France SAS	New company	---	---	---	---	New company
North America Group	-62%	8.5	4.1	3.1	3.2	3%
voestalpine Railway Systems Nortrak Inc.	-69%	6.4	3.5	2.5	2.0	-20%
Nortrak-Damy, Cambios de Via, S.A.P.I de C.V.	-20%	24.0	8.5	8.7	19.1	120%
South America Group	-70%	31.3	12.8	10.8	9.5	-12%
voestalpine VAE Brasil Produtos Ferroviários Ltda.	-70%	31.3	12.8	10.8	9.5	-12%
Africa Group	-22%	9.5	0.0	2.3	7.4	222%
voestalpine VAE SA (Pty) Ltd.	-22%	9.5	0.0	2.3	7.4	222%
Australia Asia Group	++	0.0	1.8	1.6	1.0	-38%
CNTT Chinese New Turnout Technologies Co., Ltd.	++	0.0	0.0	4.4	1.7	-61%
Ruzhou Zhengzhou Railway Sanjia Turnout Co., Ltd.	New company	---	---	---	---	New company
voestalpine Railway Systems Beijing Co. Ltd.	Zero Level	0.0	0.0	0.0	0.0	Zero Level
voestalpine Railway Systems Australia Pty Ltd	++	0.0	14.5	4.4	4.1	-7%

voestalpine VAE VKN India Private Limited	Zero Level	0.0	0.0	0.0	0.0	Zero Level
voestalpine Railway Systems (Thailand) Co., Ltd.	Zero Level	---	0.0	0.0	0.0	Zero Level
PC SIGNALING	-73%	17.1	6.2	4.8	4.6	-4%
voestalpine Signaling Austria GmbH	-70%	14.4	5.1	9.5	4.3	-55%
voestalpine Signaling UK Ltd.	Zero Level	0.0	0.0	0.0	0.0	Zero Level
voestalpine Signaling Siershahn GmbH	-100%	12.8	12.8	0.0	0.0	Zero Level
voestalpine Signaling Sainerholz GmbH	-58%	34.8	18.9	11.1	14.6	32%
voestalpine Signaling Poland Sp. z o.o.	Zero Level	0.0	0.0	0.0	0.0	Zero Level
voestalpine Signaling USA Inc.	Zero Level	---	0.0	0.0	0.0	Zero Level
PC RAIL	-57%	34.8	16.0	11.7	15.1	29%
voestalpine Rail Technology GmbH	-57%	34.8	16.0	11.7	15.1	29%
CC TRACK SOLUTIONS	-3%	20.0	6.9	9.8	19.5	99%
voestalpine Railpro B.V.	-22%	10.9	0.0	0.0	8.5	++
voestalpine Track Solutions Duisburg GmbH	8%	67.7	12.1	26.9	72.9	171%
voestalpine Track Solutions Königsborn GmbH	Zero Level	0.0	50.3	34.0	0.0	-100%
voestalpine Railway Systems Polska Sp. z o. o.	Zero Level	0.0	0.0	0.0	0.0	Zero Level
voestalpine Track Solutions Germany GmbH	Zero Level	0.0	0.0	16.7	0.0	-100%

++ No percentages are given for initial LTIFR values lower than three.

Definition of LTIFR (Lost Time Injury Frequency Rate / Accident frequency)
= Number of notifiable occupational accidents in terms of 1 million actual working hours

$$\frac{\text{Number of notifiable occupational accidents/injuries} * 1.000.000}{\text{Total actual working hours}}$$

- The entire workforce is involved (blue- and white-collar workers, apprentices, leasing personnel, as well as interns and work students). External firms (e.g. construction and cleaning companies, etc., which are active at the locations) are excluded for reasons of administrative complexity.
- Occupational accidents are notifiable, when they cause sick leave of more than three calendar days (whereby the accident day is excluded). Accidents en route to and from work are not included, but are counted separately. As far as the cause is concerned, actual accidents and not illnesses must be involved (occupation-related illnesses are incorporated into the Health Rate).
- Total actual working hours consist of disposable working time less every type of absence and in particular sick leave and holidays, but incorporating overtime (accordingly all working hours are included in which the employee is actually working and could in theory suffer an accident).
- Should an employee be incapable of continuing his or her original activities as a consequence of an accident and only be able to assume a substitute assignment, this is handled in the statistics as a loss (which means the possibility for a related massage of the statistics is excluded). Equally, it is not permitted to send accident victims on leave.

Development HR in the Railway Systems BU

Company	Development Total		Development last FY			
	Development in % (FY 15/16 to FY 19/20)	FY 2015/16	FY 2017/18	FY 2018/19	FY 2019/20	Development in % since last year (18/19 to 19/20)
BU Railway Systems	0,2	96.2	96.5	96.6	96.4	-0.2
voestalpine Railway Systems GmbH	-0.2	97.2	97.9	98.5	97.0	-1.5
voestalpine VAE Italia S.r.l.	---	*	*	*	*	---
PC TURNOUT & FIXATIONS	0.2	96.5	96.7	96.9	96.7	-0.2
Northern Europe Group						
voestalpine Turnout Technology Germany GmbH	-2.9	94.5	93.4	93.6	91.6	-2.0
voestalpine Turnout Technology Netherlands B.V.	-5.5	97.0	95.9	94.9	91.5	-3.4
voestalpine Railway Systems Latvia SIA	5.2	93.1	96.6	98.0	98.3	0.3
voestalpine Railway Systems Lietuva, UAB	2.7	93.1	93.8	94.9	95.8	0.9
voestalpine Turnout Technology UK Limited	1.7	96.3	95.4	99.0	98.0	-1.0
Southern Europe Group						
voestalpine Turnout Technology Zeltweg GmbH	0.3	94.9	95.5	95.0	95.2	0.2
Weichenwerk Wörth GmbH	1.3	93.9	93.4	95.2	95.2	0.0
TSF-A GmbH	---	*	*	*	*	---
voestalpine Kardemir Demiryolu Sistemleri Sanayi ve Ticaret Anonim Sirketi	-0.6	98.7	98.3	99.0	98.1	-0.9
voestalpine Railway Systems Saudi Arabia Limited	0.0	100.0	99.6	99.1	100.0	0.9
voestalpine Railway Systems Romania SA	-0.8	98.2	98.0	97.7	97.4	-0.3
Travertec S.R.L.	---	---	---	98.1	98.8	0.7
voestalpine Railway Systems Bulgaria OOD	0.6	94.8	94.2	93.2	95.4	2.2
VAMAV Vasúti Berendezések Kft.	1.0	95.2	96.5	95.0	96.2	1.2
JEZ Sistemas Ferroviarios S.L.	4.2	91.1	91.9	92.8	95.3	2.5
Materiel Ferroviaire D'Arberats SASU	0.0	94.7	91.5	95.6	94.7	-0.9
voestalpine Railway Systems France SAS	New company	---	---	---	---	New company
North America Group	0.2	98.8	99.2	99.2	99.0	-0.2
voestalpine Railway Systems Nortrak Inc.	0.1	98.9	99.2	99.2	99.0	-0.2
Nortrak-Damy, Cambios de Via, S.A.P.I de C.V.	1.2	98.0	99.0	99.0	99.2	0.2
South America Group	1.7	95.7	98.3	98.2	97.4	-0.8
voestalpine VAE Brasil Produtos Ferroviários Ltda.	1.7	95.7	98.3	98.2	97.4	-0.8
Africa Group	2.7	95.2	97.8	97.7	97.9	0.2
voestalpine VAE SA (Pty) Ltd.	2.7	95.2	97.8	97.7	97.9	0.2
Australia Asia Group	0.4	98.8	99.3	99.2	99.2	0.0
CNTT Chinese New Turnout Technologies Co., Ltd.	0.3	99.4	99.6	99.4	99.7	0.3
Ruzhou Zhengzhou Railway Sanjia Turnout Co., Ltd.	New company	---	---	---	---	New company
voestalpine Railway Systems Beijing Co. Ltd.	---	*	*	*	*	---
voestalpine Railway Systems Australia Pty Ltd	1.3	96.1	96.8	97.4	97.4	0.0

voestalpine VAE VKN India Private Limited	0.3	99.1	99.7	99.6	99.4	-0.2
voestalpine Railway Systems (Thailand) Co., Ltd.	-0.3	99.1	99.4	99.1	98.8	-0.3
PC SIGNALING	-0.1	96.4	96.2	96.5	96.3	-0.2
voestalpine Signaling Austria GmbH	0.5	96.9	97.3	97.9	97.4	-0.5
voestalpine Signaling UK Ltd.	-0.7	99.2	98.2	98.3	98.5	0.2
voestalpine Signaling Siershahn GmbH	-1.3	97.4	96.1	96.5	96.1	-0.4
voestalpine Signaling Sainerholz GmbH	0.6	94.1	93.7	93.7	94.7	1.0
voestalpine Signaling Poland Sp. z o.o.	-0.2	97.4	99.2	98.8	97.2	-1.6
voestalpine Signaling USA Inc.	---	*	*	*	*	---
PC RAIL	-0.7	96.0	95.4	95.1	95.3	0.2
voestalpine Rail Technology GmbH	-0.7	96.0	95.4	95.1	95.3	0.2
CC TRACK SOLUTIONS	3.3	90.7	94.7	94.9	94.0	-0.9
voestalpine Railpro B.V.	2.8	92.5	96.1	97.3	95.3	-2.0
voestalpine Track Solutions Duisburg GmbH	10.4	81.1	90.9	88.2	91.5	3.3
voestalpine Track Solutions Königsborn GmbH	---	*	*	*	*	---
voestalpine Railway Systems Polska Sp. z o. o.	---	*	*	*	*	---
voestalpine Track Solutions Germany GmbH	-3.1	95.6	94.1	96.1	92.5	-3.6

* For reasons of data protection, no HR data is published for companies with fewer than twenty employees.

Definition HR (Health Rate)
= The health rate is the percentage of time that an employee is fit to work.

$$HR = \frac{\text{Total disposable working time - hours lost due to illness *100}}{\text{Total disposable working time}}$$

» The entire workforce is again included (blue- and white-collar workers, apprentices, Leasing personnel, as well as interns and work students), but external firms are excluded.

» The hours lost due to illness relate to both private and work-related illness, as well as absences caused by private and occupational accidents.

8.3 ACTIVITIES OF VOESTALPINE RAILWAY SYSTEMS GMBH SUBSIDIARIES

The subsidiaries at the Zeltweg location are not the only ones to successfully implement HSEE projects. voestalpine Railway Systems GmbH takes pride in the ability of its **subsidiaries on every continent to attain special HSEE goals**, especially when one considers the fact that in some countries the related general situation and preconditions are anything but straightforward. Therefore, the local managements, HSEE experts and employees are all due appropriate recognition.

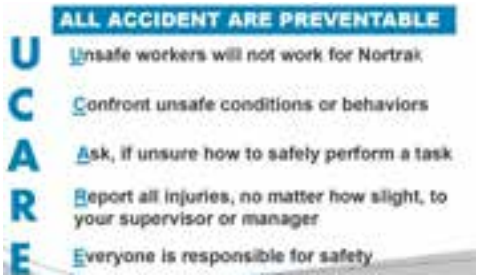
For example, particularly within the course of acquisitions (during the takeover of locations and premises) or the construction of new production halls, a total of more than **95,000t of contaminated soil** has been dealt with (pollution above all due to oil, coolants, ash/slag, or rubble dating respectively from the historic prior use of the locations) at locations of the group which adds up to over 4,000 truck loads! These activities were completed in line with our basic principle that in order to avoid risks, plants may only be built and operated on clean ground. Below are a few **more examples from other subject areas!**

Examples of HSEE measures implemented successfully by voestalpine Railway Systems GmbH subsidiaries:

Country - Subsidiary	Measures/ Results / Success
Turkey: VADEMSAS	During the **completion of the new plant in 2010/11, the project team paid close attention to the integration of health, safety, environmental and energy aspects from the initial planning phase.** Among the technical measures implemented were, e.g. » The careful choice of construction materials with regard to the release of pollutants and the optimum heat insulation of facades, roofs and windows against summer heat and winter cold » Technical safety optimisation regarding accident prevention by means of the correct, sequential technical layout, the material flow concept and plant completion » Effective lighting and heat reduction in summer through sun protection and ventilation concepts » Clean natural gas heating units, due primarily to a highly efficient dark radiator system in the production halls » Modern fire alarms in the halls and offices, as well as emergency electricity/batteries and lighting » A secure extinguishing water supply with separate storage tanks, hydrants and pressure increase system » Ergonomic office fixtures and fittings » Employee-friendly design of the social and sanitary amenities » Fix-mounted roof safety systems for maintenance » Separate, environment-friendly sewers for precipitation and sanitation wastewater **Creation of an integrated management system** in line with ISO 9001 + ISO 14001 + OHSAS 18001
Saudi Arabia: voestalpine TSSA	During the **completion of the new plant in 2011/12, the project team paid close attention to the integration of health, safety, environmental and energy aspects from the initial planning phase.** Among the technical measures implemented were, e.g. » The considered selection of pollutant-free construction materials and the optimum heat insulation of facades, roofs and windows against daytime heat and night time cold » Technical safety optimisation with regard to accident prevention by means of the correct, sequential technical layout, the material flow concept and plant completion » Modern fire alarms in the halls and offices, as well as emergency electricity/batteries and lighting » A secure extinguishing water supply with separate storage tanks, hydrants and pressure increase system » Ergonomic office fixtures and fittings » Employee-friendly design of the social and sanitary amenities » Separate, environment-friendly sewers for precipitation and sanitation wastewater **Creation of an integrated management system** in line with ISO 9001 + ISO 14001 + OHSAS 18001

Country - Subsidiary	Measures/ Results / Success
Germany: voestalpine Turnout Technology Germany GmbH	**Creation of an integrated management system** in line with ISO 9001, ISO 14001, ISO 45001 and ISO 50001 **Manifold successes due to employee involvement**, e.g.: » Employee islands for HSEE information/communications » Safety Days designed by employees for employees with individual thematic focal points » "Accident-Lui" eye-catcher for sensitisation with regard to accident hot spots/occurrences » Implementation of company health management » Energy savings (through LED lighting, renewal of the compressed air supply in Brandenburg (30% energy saving), optimised furnace charging, etc.) » Updated waste/recycling management (information, collection islands, etc.) **CSR rating by Ecovadis – Platinum Level for the first time in 2020** **Creation of a maintenance hall for turnout grinding trains ("Turnout grinding hall") in Brandenburg involving the installation of:** » Optimised heat insulation » Highly efficient dark radiation heating in the halls » Air absorption heat pumps for the heating of the office and warehousing areas » A modern oil separation system for cleaning wastewater » Prior to completion: excavation and disposal of approx. 17,500 t of contaminated soil, which contained approx. 355,000 kg of oil from past cooling lubricant leaks, as well as approx. 4,100 t of contaminated demolition material (primarily concrete) » Turnout grinding with these special trains provides railway operators with a sustainable service offer because it prolongs turnout life (resource conservation) and reduces the noise emissions from railway operations
Germany: voestalpine Signaling Sainerholz GmbH	**Technical noise optimisation of the extension by means of:** » Advantageous building layout » Appropriate design of the transport logistics, routes, entrances and doors » Construction material selection » Plant design
Netherlands: voestalpine Turnout Technology Netherlands B.V	**During the completion of the new plant in 2012 (transfer from Utrecht to Hilversum) the project team paid close attention to the integration of health, safety, environmental and energy aspects from the initial planning phase.** Among the technical measures implemented were, e.g. » Technical elements analogous to VADEMSAS as described above » **Installation of geothermal heating** At the beginning of 2013, the **Dutch railway network operator ProRail** awarded voestalpine WBN a Level 5 **CO_2 Awareness Certificate, which meant that it had reached the highest rung on the Netherlands' "CO_2 performance ladder".** In the first five years of system participation (2011-2016) **CO_2 emissions were reduced by a notable 64%** (direct and indirect CO_2 emissions 2011 = 558.3 t; 2016 = 201.7 t)
Hungary: VAMAV	**Participation of 114 employees in a national health programme,** consisting of: » A health check with 37 different part examinations and tests (involving, e.g. determination of cholesterol and sugar levels, lung function, body fat, vein and artery status, internal eye pressure, skin cancer prevention, lactose intolerance, etc.) » Subsequent health consulting » First aid training Installation of a new, **central waste store** for the separation and storage of non-hazardous and hazardous waste: » Purchase of special containers for the hazardous waste with integrated sumps for protection against liquid leakages » All in all, 17 m^3 of liquid and 12 m^3 of solid hazardous waste can be stored » In addition, one container is heated for the primarily purpose of safeguarding aqueous liquids against the effects of frost in winter » The floor of the building is sealed with an impervious and chemical resistant coating for the prevention soil and ground water pollution

Country - Subsidiary	Measures/ Results / Success
Bulgaria voestalpine Railway Systems Bulgaria OOD	**Structural and technical heat renovation of all building facades** (office wing and two production hall aisles with a total surface area of 4,400 m²). » EPS insulation sheets for the brickwork (approx. 2,070 m²) » Exchange of the old windows (approx. 690 m²) for insulated versions, which typically offer 75% better heat insulation **Improvement of the heating system,** which benefited both the workforce and the environment
United Kingdom: voestalpine Turnout Technology UK Ltd.	Completion of a **legal compliance check with a specialist consultancy** » **Including the creation of a register of binding obligations** » Simultaneously, the above formed the basis for the **creation of a management system pursuant to ISO 14001 and ISO 45001 for the locations** in Edinburgh und Harworth
United Kingdom: voestalpine Signaling UK Ltd.	A special focus on the **„Working on Railway Infrastructure"** process and the collation of all relevant regulations in the clearest and most easily comprehensible form
Spain und France: Jez and MFA	Both foundries (for manganese frogs) have **ISO 14001 and OHSAS 18001** certification and are fitted with **modern extractor and filter systems in both the casting and deburring areas** An **innovative storage system** has been implemented at MFA, which keeps material of fire protection relevance in an area separated from the production halls. The materials are supplied to the respective work stations by means of piping, which markedly reduces both the danger of fire and the fire load
France voestalpine Railway Systems France	In 2019/20 the turnout plant, which was built in 2012,was enlarged for the production of "Just in time turnouts" (delivery of finished, preassembled turnout segments using special transport wagons): » **Selection of high-quality construction materials (heat, noise and fire insulation** for facades, windows and roof) » **Biomass heating** » **Top class fire protection concept** (fire alarms, smoke/heat extractor system, automatically closing fire protection doors, extinguishing water reservoir, extinguishing water retention system, etc.) » **Noise insulation walls** to protect the neighbours to the greatest possible extent » **Roofed turnout storage** (odour and wastewater minimisation) » **Modern wastewater concept** (roof water drainage, oil separator for transport surfaces, small treatment system for sanitation wastewater) » **Fully electrical internal transports:** e-stackers and an e-shunter for wagons » **LED lighting throughout the entire plant** » **A crane safety package** (infra key registration, overload protection, collision protection, master-slave switching, etc.) » Employee-friendly design of the social and sanitary amenities



Country - Subsidiary	Measures/ Results / Success
Austria: Weichenwerk Wörth GmbH (WWG)	**Comprehensive heat and noise protection renovation of the building's facades, ceilings/roofs, skylights and windows:** » Over 12,000 m² of renovated structural surfaces, which roughly equal two football pitches, and hence the thermal refurbishment of approx. 80% of the facades, ceilings and roofs of the heated building » In a before and after comparison (adjusted using heating degree days) the thermal renovation measures have resulted in an approx. **47% reduction in the heating energy requirement**, which in turn corresponds with roughly 1,600 MWh annually and on the basis of the modern natural gas central heating to approx. 338 t CO_2/year **Installation of a central energy management system**, which governs the heating, lighting and main lock on the compressed air system and thus leads to additional energy savings. **Transition to LED lighting in all the production and storage halls.** Originally 250 sodium vapour lights with an output of 600 W each (including ballast) were used in these areas. Owing to the lower output requirement of the LED system, not only has an improvement in lighting quality been achieved, but also a simultaneous cut in the electricity requirement for the lights of approx.60% **Noise protection:** » Technical noise encapsulation of various noise sources » Installation of noise protection walls along the entire eastern perimeter (with a height of approx. 5m) in order to offer the residential neighbours the best possible protection **Realisation of a wood sleeper storage concept using roofed areas to achieve an odour reduction for the neighbours** (above all in connection with protection against damp and sunlight) **First class extractor and filter systems** for tongue grinding, butt and manual welding, and autogenous cutting During the **switch of the WWG water supply** to the public mains, the entire main ring pipe, which was around 50-years-old, was replaced and leakages have thus been prevented **Safe storage technology** has been created through the installation of a gas store, a store for flammable liquids and a store for other auxiliary chemical materials **A comprehensive fire protection concept** has been implemented with fire alarms in all buildings, structural fire protection and a secured extinguishing water supply, as well as the installation of a complete lightning conductor system. **Machine safety concepts and audits** **Construction of a modern, automated sleeper flattening centre**, which has eased the burdens on employees caused by noise, vibrations and activities/postures that were extremely unfavourable from an ergonomic perspective **The interior renovation of halls and all offices**, as well as the sanitary and social amenities **Remediation of a land purchase**: WWG purchased strips of land with an area of roughly 4,800 m2 that bordered its eastern perimeter, In the course of the transaction, under the auspices of the authorities known contamination was removed in teamwork with the seller, Austrian Railways (ÖBB), The contamination originated from an oil tank, which was previously required for the firing of the Wörth heating system, which was converted to gas in the early 2000s. A total of 1,064 t of oil-contaminated material and 346 t of concrete rubble was disposed of in an environmentally compatible process. **Creation of the "Turnout Academy"**, which centres of two linkable seminar rooms, each of which can accommodate roughly 25 persons and are fitted with modern presentation equipment.
Austria: voestalpine Rail Technology GmbH	Rail production at the Donawitz location disposes over a **proven, integrated management system pursuant to ISO 9001, ISO 14001, ISO 45001 and ISO 50001 and in addition the plant has been a registered EMAS participant (registration no. AT-000183) since 1999** Please see the voestalpine Rail Technology GmbH **Environmental Statement** under http://www.voestalpine.com/railway-systems/de/standorte/voestalpine-rail-technology/

Country - Subsidiary	Measures/ Results / Success
USA and Canada: voestalpine Railway Systems Nortrak Ltd.	A significant **reduction in accident rates and the related lost working time costs (-90%)** **The key element in this success is the focus on "Behaviour Based Safety (BBS)".** Above all, this focuses on the human accident factor. Accordingly: » Frequent short audits are completed » **Safe actions and conduct result in positive feedback, while the reverse leads to corrective instruction** » As a consequence, intensive communications have been established together with an increased awareness regarding safe procedures » All employees (including directors) and specialist departments participate in the system and are thus involved accordingly **Implementierung der Nortrak Safety Principles „UCARE":** » **U**nsafe workers will not work for Nortrak » **C**onfront unsafe conditions or behaviour » **A**sk, if unsure how to safely perform a task » **R**eport all injuries, no matter how slight, to your supervisor or manager » **E**veryone is responsible for safety Extensive and thorough **risk analyses**: » Broadening of the residual risk analyses at all locations » Broadening of the workplace safety analyses » Introduction of a classification and analysis system regarding the influence of human factors in accidents and near misses
Mexico: Nortrak-Damy	A marked **reduction in dust levels through the installation of grinding cabins** with an efficient extractor and filter system **An employee health programme:** » Consisting of medical examinations, e.g. audiometry (hearing capacity) and spirometry (breathing capacity), as well as blood testing that includes diabetes (sugar) and arteriosclerosis (cholesterol). » The resultant findings are then used for further medical advice, e.g. in connection with nutrition and proposed medication.
Brasil: voestalpine VAE Brasil.	Installation of **42 roof ventilators** for improved working conditions in the production halls during hot weather Full coverage implementation of the 5S concept
Südafrika: voestalpine VAE SA	**Following floor renovation, new runways and roller conveyors**, which thus prevent creeping floor contamination due to droplet losses, as well high physical loads upon and dangers to the personnel involved The replacement of an underground, single-wall tank with a controllable tank above ground, which means that **no underground tanks are in use** at the locations **Sumps** have been installed in the cooling lubricant removal stations **Installation of three frog grinding cabins fitted with extractor/filter systems:** » This has not only markedly reduced the exposure to dust of the employees involved directly in grinding, but also that of all the other personnel in the surrounding hall area (typically by approx. 80%) » The highly efficient filter system prevents diffuse dust emissions into the environment » In addition, the cabins cut the **noise level in the hall** and the enhanced illumination of the working area in the cabins has resulted in ergonomic improvements The Isando location saw the installation of the **first photovoltaic system in the vaRS Group**. The system has an area of 2,250 m^2 and the design data show an **output of approx. 350 kWp and annual electricity production of approx. 483 MWh, which results in the prevention of approx. 466 t CO_2 per year.**
India: voestalpine Railway Systems VKN India	The early **introduction in 2010 of an integrated management system** pursuant to ISO 9001, ISO 14001 and OHSAS 18001 for the foundry and rail production, which resulted in an exemplary role within heavy industry in this emerging market.
Australia: voestalpine Railway Systems Australia Pty. Ltd.	**Both locations possess a certificated management system pursuant to ISO 9001, ISO 14001, ISO 45001 and AS/NZ4801.** A special focus on employee information, conduct and training has resulted in a steady reduction in accident rates.

AT THIS JUNCTURE, WE WOULD LIKE TO THANK LOCAL EMPLOYEES, MANAGERS, EXTERNAL PARTNERS AND AUTHORITIES FOR THE CONSTRUCTIVE TEAMWORK WITHOUT WHICH NONE OF THESE SUCCESSES WOULD HAVE BEEN POSSIBLE. UNFORTUNATELY, OR PERHAPS FORTUNATELY, IT WOULD EXCEED THE CAPACITY OF THIS REPORT IF WE WERE TO DESCRIBE ALL THE MANY ADDITIONAL TECHNICAL AND ORGANISATIONAL MEASURES THAT HAVE BEEN IMPLEMENTED AT THE LOCATIONS BOTH MENTIONED AND UNMENTIONED. IT SHOULD ALSO BE STATED THAT NUMEROUS LOCATIONS HAVE ALREADY RECEIVED ISO14001/ISO45001 CERTIFICATION, OTHERS ARE HEADING IN THIS DIRECTION AND MANY EMPLOYEES AND MANAGERS HAVE ALREADY ESTABLISHED NEW AND AMBITIOUS OBJECTIVES FOR FURTHER DEVELOPMENT AND CONTINUOUS IMPROVEMENTS.

9. ENVIRONMENTAL, HEALTH AND SAFETY OBJECTIVES & SUCCESSES

THE FOLLOWING IS AN OVERVIEW OF THE STATUS AND IMPLEMENTATION OF OUR ACTIVITIES IN THE HSEE FIELD AND ABOVE ALL, OUR OBJECTIVES FOR THE COMING YEARS. NATURALLY ENOUGH, THE PROGRAMME OF MEASURES IS SUBJECT TO CONTINUOUS FURTHER DEVELOPMENT IN LINE WITH THE KNOWLEDGE AND REQUIREMENTS EMANATING FROM ONGOING OPERATIONS AND WE ARE PLEASED TO STATE THAT DURING THIS YEAR WE WERE ONCE AGAIN ABLE TO PINPOINT ADDITIONAL CHALLENGES, WHICH HAVE ALREADY LARGELY BEEN DEALT WITH SUCCESSFULLY. SUMMARIES REGARDING ESPECIALLY IMPORTANT PROJECTS FROM EARLIER HSEE PROGRAMMES THAT HAVE ALREADY BEEN CONCLUDED CAN BE FOUND IN THE SECTION "HSEE ASPECTS AT THE LOCATION", OR IN PREVIOUS ENVIRONMENTAL STATEMENTS FROM THE LOCATION).

Key

- Completed measures
- Ongoing measures
- Newly established measures
- Measures adopted from the last environmental programme (open or adapted objective)
- Measures that proved impractical or were replaced by alternatives

Abbreviations:
vaTTZ = voestalpine Turnout Technology Zeltweg GmbH,
vaSIGAT= voestalpine Signaling Austria GmbH,
VARS = voestalpine Railway Systems GmbH (Holding),
ZL= joint, superordinated activities at the Zeltweg location

Measure	Objective or success	Realisation	Status
WATER/WASTEWATER			
Renewal of WCs, sanitation and sewage piping BG1 (vaRS, vaTTZ)	Renewal of the WCs, water and sewage piping on all 11 floors	May 2020	
Sewer and water pipe renewal (southern branch, Stage 3) (ZI)	Renewal of approx. 150 m of sanitation and rainwater sewer and thus leakage prevention	March 2021	
AIR (DUST, VOC ETC.)			
Magnet powder test for tongue fillers (vaTTZ)	Emission prevention	March 2021	
Improved dust capture in the frog grinding cabins 1 and 2 (vaTTZ)	Doubling of extractor performance to 10,000 m^3/h per cabin (existing extractor/filter system now only in cabins 3 and 4; additional systems in cabins 1 and 2)	March 2022	

ENERGY/CO_2

General renovation of the BG10b roof and facades (vaTTZ)	Renovation of the facades and roof with an area of approx. 670 m^2 Facade fitted with rock wool insulation and fire protection panels Heat insulation glazing Integrated fire alarm and smoke heat extractor system Integrated LED lighting including safety and escape route orientation lighting	November 2021	
General renovation of the BG3/4 roof and facades (vaTTZ)	Renovation of the facades and roof with an area of approx. 7,000m^2 Non- inflammable roof design instead of the previous construction with wood soffits and multilayer tar paper Installation of noise insulation windows Installation of noise insulation facades Integrated fire alarm and smoke heat extractor system Integrated LED lighting including safety and escape route orientation lighting	November 2021	
Replacement of old natural gas and diesel stackers with e-stackers (ZI)	Complete changeover to e-stackers with a resultant reduction of approx. 80 t of residual CO_2 emissions annually	November 2021	
Conversion of the BG8/9 heating system from natural gas to biomass-fired district heating in cooperation with Bioenergie GmbH (vaTTZ)	Conversion of the heating from 75% at present to 100% CO_2-neutral, biomass-fired district heating with the consequential avoidance of approx. 250 t CO_2 emissions per year	March2022	
Switch of the hall lighting to LEDs (ZI)	Gradual transition of the lighting in other halls to LED systems that include safety lighting Further projects: BG24, BG13, free areas	Target 2025	
Increase in e-mobility (ZI)	Encouragement of the use of public transport and e-vehicles Support of the prevention of individual vehicles within the range of bicycling and walking distance	March 2022	

SOIL AND WASTE

Waste officer training (ZI)	Training of an additional employee as a waste officer in companies creating hazardous waste	January 2021	

DOCUMENTATION, INFORMATION AND TRAINING

Electronic instruction (general HSEE) for blue and white collar personnel (ZI)	Electronic instruction in the form of e-learning for all employees (start of general HSEE coaching)	March 2022	
Electronic instruction for visitors, forwarding and external companies (ZI)	Electronic instruction in the form of e-learning at the porter's desk	March 2022	
Behaviour Based Safety (BBS) training for all employees (vaTTZ)	Training in conduct-based work safety for all employees Workshop for the plant management Cross-sectional survey Workshop for trade masters, foremen and –women Workshop for employees Workshop for apprentices	Start October 2020	
Redesign of the LPA audit (vaTTZ)	Electronic processing of the LPA audits	April 2021	
Redesign of the module boards (vaTTZ)	Redesign of the HSEE Boards	March 2021	
Introduction of the Sycat management documentation system (ZI)	Pilot vaSIGAT Rollout at vaTTZ and vaRS Redesign of existing processes and instructions	Start November 2020	

ERGONOMIC, PSYCHOLOGICAL AND SAFETY IMPROVEMENTS FOR EMPLOYEES AND THE ENVIRONMENT

Turning of the frog grinding cabins to the material flow direction (vaTTZ)	Improved safety: No workpiece rotation required Workpieces no longer extend into the stacker driving area	November 2021	
Redesign of the BG8-11 assembly area (vaTTZ)	New floor slabs, scaffolding and connections Preparation of mobile sleeper transport wagons	March 2021	
PPE rainwear and winter clothing (vaTTZ)	Equipping of employees working outdoors with new clothing	December 2020	
Hot lunches (ZI)	Installation of a canteen area	November 2021	
Renovation of the sanitary facilities in BG14 and BG9 (vaTTZ)	Renovation of the sanitary facilities in BG14 and BG9	March 2021	

Introduction of company health promotion (ZI)	Start of the “really healthy” project Health survey, result analysis Creation of structures and processes for health promoting work and workplace design	Ongoing from May 2017	
Equipping of office workplaces with height-adjustable table tops (vaTTZ)	Ergonomic improvements	Until 2025	
PREVENTIVE MEASURES FOR ACCIDENT AND EMERGENCY AVOIDANCE (RISK MANAGEMENT)			
Pilot working at heights project at the Mur storage area (vaTTZ)	Redesign of the Mur loading area Equipping with stationary and mobile scaffolding Examination of alternative possibilities for further loading areas	June 2020 From January 2021	
New gas store location (vaTTZ)	Transfer of the gas store Ergonomic and technical safety improvements	March 2021	
Analysis of eye movements in internal company traffic (vaTTZ)	Dangers are made visible through the recording of eye movements using tracking eyewear Joint project with AUVA	April 2021	
Revision of the VEXAT documents (ZI)	Joint document revision/ adaptation with TÜV	July 2020	
Purchase of additional leakage sets (vaTTZ, vaSIGAT)	12 emergency sets for leakages are now available at the location in order to facilitate a rapid first response	October 2020	
Revision of the transport concept Securing of blind spots (ZI)	Installation of traffic mirrors Warning lights at blind spots Signage and speed limits	Ongoing	
Ongoing evaluation of work accidents and near misses (ZI)	Accident/near miss reconstructions using event analysis and implementation measures on the HSEE board	Ongoing	
VARS-HSEE-MANAGEMENT			
vaRS-HSEE Newsletter (including updates of the vaRS-HSEE Guidebook and the vaRS-HSEE directives)	Continuous production of new or updated “Newsletters” with information regarding current topics, changes in the legal, technical and organisational fields, and operational experience: » Exemplary selection of “Newsletters“ to date, see Chapter 8.1 - selection for 2020: » March 2020: new version of the vaRS 16.01.01 HSEE Directive regarding the requirements for all types of sleeper and wood packaging » April 2020: update and summary of the regulations in connection with the determination and reporting of accidents (LTIFR and HR definitions) » July2020: update of » The vaRS HSEE Cornerstone Directive » The CF-O-017 report form regarding HSEE compliance by the subsidiaries » Summary of all the HSEE reporting obligations of the subsidiaries » August 2020: safe frog lifting » September 2020: new version of the vaRS-HSEE Directive 16.02.01 regarding the material requirements emanating from mandatory and customer stipulations (including the topics of material bans/restrictions, conflict materials, material imports/exports, mixtures and products, and reporting obligations in connection with materials of special relevance » Planned June 2021: machine safety guidelines / CE	Ongoing	
vaRS-HSEE model manual	Model Manual = template and idea source for the preparation and further development of manuals, processes/procedures and checklists for integrated management systems from ISO 9001, ISO 14001, ISO 50001 and ISO 45001 at subsidiaries. Ongoing updates of the template in line with new requirements and empirical, values from the companies.	Ongoing	
vaRS-HSEE management training package	Fundamental information on aspects of importance for the creation and continuous improvement of new and existing management systems pursuant to ISO 14001, ISO 45001 und ISO 50001 Ongoing supplementation and updating	Ongoing	

vaRS-HSEE Sharepoint	For simple access to current issues of specifications and information documentation Ongoing supplementation and updating	Ongoing	
Collation of accident statistics (LTIFR), targets and health rates (HR)	Analysis of accidents and the time lost due to sick leave at the subsidiaries Development and objectives relating to the "LTIFR" key indicators (regarding the accident) and HR (regarding the time lost due to sick leave) shown in Chapter 8.2	Annually	
Safety Campaign 2020: "Safe Material Handling"	Definition of divisional focal points (Safety Campaign) relating to the topic of "Safe Material Handling" (loading/unloading of trucks/wagons, stacker and crane transports, machine feeding) Evaluation of subsidiary contributions (determination of good practice examples and possibly the derivation of new minimum standards)	December 2021	
Preparation of the first directional life cycle analysis (LCA) of a turnout (cradle to gate) (Master's thesis by Ms Evelyn Uitz / Graz University)	First directional analysis of contributions to CO_2 emissions and energy consumption » From the preliminary phases » Either from, or influenced directly by. turnout production in Zeltweg » Either from, or influenced directly by, the operational phase of a turnout	January 2018	
In-depth continuation of the topic of life cycle analysis (LCA) of a turnout (cradle to gate) (Master's thesis by Mr Philipp Koller / Graz University of Technology)	Refining of the material balance (more precise material specification/ classification) Broadening of the analytical scope to include the complete service life in the track Study/evaluation of differing, complete turnouts systems with regard to sleeper types (wood, concrete and soled concrete sleepers)	February 2019	
Preparation of environmental product declarations (EPD)	"Rails EPD" was drawn up in August 2019 Next objective= Preparation of "Frogs EPD " and " Concrete Sleeper EPD "	June 2022	
Certification of all vaRS production locations (> 20 employees) pursuant to ISO 14001 and ISO 45001	Assistance by vaRS through: » Start information "vaRS-HSEE-Management Training Package" » Compilation of all relevant vaRS stipulation documents and informative templates at the vaRS HSEE Sharepoint » Assistance with concrete questions	December 2022	

10. GENERAL INFORMATION

DURING RECENT YEARS, EXPERT JURIES HAVE PRESENTED OUR COMPANY WITH NUMEROUS AWARDS AT EUROPEAN, NATIONAL AND REGIONAL LEVEL FOR SPECIAL ACHIEVEMENTS WITH REGARD TO OPERATIONAL EMPLOYEE, ENVIRONMENTAL AND CLIMATE PROTECTION:

10.1 ENERGY AWARDS

VOESTALPINE ZELTWEG LOCATION IS A DOUBLE ENERGY GLOBE WINNER

In November 2010, the **Energy Globe STYRIA AWARD** was presented for the tenth time by the Netzwerk Öko-Energie Steiermark (NOEST) and the LandesEnergieVerein (LEV), and for the third time in cooperation with the Wirtschaftsinitiative Nachhaltigkeit (WIN).

The overall winner was the **voestalpine location in Zeltweg for the successful implementation of its holistic energy concept.** This contained numerous measures, which resulted in a CO_2-neutral location balance and thus represented a pioneering achievement for an iron and steel processing company.

The energy concept is based on three cornerstones:

- Measures for increased efficiency and the saving/prevention of energy consumption, e.g. through the thermal renovation of buildings, heating system optimisation, the use of waste heat from production, employee training and the raising of awareness levels with regard to an efficient approach to energy.
- Conversion of the heating systems from natural gas to district heating using biomass and waste heat from a regional system in teamwork with Bioenergie GmbH.
- Electricity supply from the company's hydropower plant in cooperation with Energie Zotter GmbH and Mr. Rochus Penz.

Shortly afterwards, the location was also honoured at the Energy Globe Austria Gala in Wels with the **Energy Globe AUSTRIA AWARD in the Air Category**. In the explanation of its judgement, the expert jury stressed the significance of the company's holistic approach as an example for the entire world.

In addition, the implemented energy concept, "With local cooperation and the latest domestic technology to a CO_2-neutral iron and steel processing company" was in the **Final of the Fast Forward Award 2010** (the official Styrian business and innovation prize).

Since 5 April 2001, the voestalpine location in Zeltweg is a Climate Alliance company and was thus the **first Styrian industrial enterprise in the Corporate Climate Alliance**.

10.2 SAFETY AND HEALTH AWARDS

EUROPEAN GOOD PRACTICE AWARDS FOR SAFETY AND HEALTH AT WORK 2003 AND 2011

Every two years, the European Agency for Safety and Health Protection in the Workplace (EU-OSHA), which has the objective of designing working environments in Europe that are safer, healthier and more productive, offers an invitation to participate in the European **Good Practice Award** competition. The competition itself focuses on certain key issues.

voestalpine Turnout Technology Zeltweg GmbH and voestalpine Signaling Austria GmbH were pleased to accept this challenge and with the **"Safe Maintenance through Engineering and Organisation"** project, which was presented in 2010/11 were nominated by the national jury for the main European competition. Subsequently, the companies were awarded the **Good Practice Award 2011** in Budapest.

The Zeltweg location had already won the **Good Practice Award in November 2003**, with its **"Dust and pollutant agent reduction package"**, the prize having been presented in Bilbao, Spain.

HATTRICK! NATIONAL PRIZE FOR WORK SAFETY 2002, 2003 AND 2007

Beginning in 2002, the Federal Ministry of Labour and Industry awarded a National Work Safety Prize, initially annually and from 2003 onwards, on a biennial basis. The objective of the prize is to recognise companies that contribute to work safety and health care through exceptional initiatives aimed at improving working conditions.

In 2002, the Zeltweg location won the **National Prize for Work Safety** gold medal for the innovative and sustainable achievements related to its "Safety and Health Protection Programme 2001". The decisive factors in the capture of this award were the extent of the measures involved and the systematic inclusion of employee protection in operative activities.
For the 2003 National Prize for Work Safety, the company submitted its **"Programme of Measures for the Reduction of Dust, Pollutants and Noise".** All these solutions required an intensive study of the relevant working areas and a related selection of alternatives; activities that were not only carried out by specialists from the management, but first and foremost, by the employees from the affected areas. The effort involved was again rewarded with **second place in the 2003 National Work Safety Prize**.
In **July 2007**, the voestalpine location in Zeltweg won its third **National Work Safety Prize** in what was the fourth competition to be held. On this occasion, the company was again the overall winner.
The submitted project, **"Innovative approaches to the securing of partially and fully obscured danger zones"** not only included inventive technical solutions for a variety of potential hazards, but also a systematic approach to problem identification, the investigation and analysis of proposed solutions, and the implementation and verification (including external TÜV audits) of their effectiveness.

10.3 ENVIRONMENTAL MANAGEMENT AWARDS

AUSTRIAN AND EUROPEAN EMAS AWARD

Since 2005, the EU Commission (Environment Department) has presented the annual European EMAS award, whereby the national prizewinners are subsequently nominated for the EU EMAS Award.

The criteria for the **competition in 2006** related to the external presentation of EMAS. As compared to consumer goods producers, we are certainly not in a position to communicate with a mass public by means of product marketing, but are nonetheless able to point to a diversity of activities regarding communications via environmental declarations.

Accordingly, the voestalpine location in Zeltweg won the **Austrian EMAS Award 2006** and in addition was nominated for the **European EMAS Award 2006**.
The **special thematic focus in 2009 was on "green procurement"**, or in other words the technical environmental aspects involved in sourcing.
The company captured the **Austrian EMAS Award 2009** and naturally we were absolutely delighted when we were announced as the winner of the **European EMAS Award 2009** in Stockholm in November 2009. This was the first time that this environmental prize, which is the highest ranking in Europe, had been won by an Austrian industrial company.

The **thematic focal point in 2014 was formed by "Effective eco-innovations supporting improvements in environmental performance".** In this regard the company was able to present numerous achievements in the areas of:
» Products and services
» Measures implemented at the Zeltweg production location
» Measures implemented within the globally active vaRS Group

Particularly in view of the fact that numerous employees from the three companies at the voestalpine location in Zeltweg worked with great energy and commitment on the projects, it was a special pleasure for us to be announced as the winner of the **European EMAS Award 2014** at a ceremony held in Hanover during April 2014. This is thus the second time that we have captured the continent's most prestigious honour.

The Zeltweg location's **Environmental Statements** already received awards in **2000** and **2005** as part of the **EMAS Prize** (formerly the **Eco-Audit Prize**). The company also won this honour in **1997** for its successes in the course of the establishment of an environmental management system in line with the EMAS Directive.

EMAS PRIZE 2009 FOR THE BEST ENVIRONMENT TEAM

In June 2009, we were awarded the EMAS Prize of the Austrian Federal Ministry of the Environment in the newly created **"Best Environmental Manager/Environment Team"** category.
For the expert jury, the decisive factor in this award was comprised by the numerous successes of the Zeltweg environment team since participation in the EMAS Prize in 1997. The prize also related to the **more than 100 projects that had been successfully implemented at Zeltweg in the course of the first decade**.

AUSTRIAN INDUSTRY ENVIRONMENT PRIZE 1998

The 1998 Austrian Industry Environment Prize, awarded by the Austrian Chamber of Commerce was presented to us for our measures in the areas of resource conservation and emission reductions. The project "**Reduction of the use and formation of environment-relevant substances"** received the recognition prize during the **1999 Austrian Industry Environment Prize** and both projects were nominated for the **European Environment Award (EEA) 2000**.

ENVIRONMENTAL PROTECTION PRIZE OF THE FEDERAL PROVINCE OF STYRIA 1997 AND 2006

The award in June 2007 of the 2006 Environmental Protection Prize of the Federal Province of Styria in the Industry and Business Category richly rewarded the efforts of the Zeltweg location with regard to its submitted project, **"Package of measures for (fine) dust reduction and climate protection"**.

Following the capture of the Environmental Protection Prize of the Federal Province of Styria in 1997, this was the second time that our company was honoured with this award, which in the thirty-year history of this competition is a unique achievement.

RECOGNITION FOR 20 YEARS OF ENVIRONMENTAL MANAGEMENT

During the EMAS Conference in June 2017, voestalpine Zeltweg location was awarded the EMAS Pioneer Certificate for 20 years of participation.
EMAS certification represents recognition of the numerous measures implemented in recent years in the environmental field, as well as an obligation to pursue further continuous improvements.

REPUBLIK ÖSTERREICH
BUNDESMINISTERIUM FÜR LAND- UND FORSTWIRTSCHAFT, UMWELT UND WASSERWIRTSCHAFT

EMAS
Geprüftes Umweltmanagement

EMAS-PIONIER

Seit 20 Jahren erfolgreicher Anwender des EMAS-Umweltmanagements

voestalpine VAE GmbH
voestalpine Weichensysteme GmbH
voestalpine SIGNALING Zeltweg GmbH

AT-000060

WIEN, IM MAI 2017

ANDRÄ RUPPRECHTER
BUNDESMINISTER

10.4 PRODUCT/INNOVATION AWARDS

FAST FORWARD AWARD FINALIST AND NOMINATION FOR THE EUROPEAN ENVIRONMENTAL INNOVATION PRIZE

The market launch of the product "ROADMASTER LIGHT" and the supplemented "ECOSTAR" range from the **signalling product area** was chosen by the expert jury of the **Fast Forward Award 2009** (the official Styrian innovation and business prize) as one of the federal province's **TOP 3 projects**. Decisive in this regard were the technical and economic aspects of the products (such as higher availability) and technical environmental advantages (e.g. no lubrication, as in earlier mechanical systems).

At virtually the same time, an Austrian expert jury selected the Signaling business unit's product range for the coverage of the demands of all customer areas (from heavy loads to high-speed, combined traffic, metros and tram systems) **as one of the three best national entries** for the European Environmental Press Award 2009 (EEP), the European Environmental Innovation Prize, **and thus nominated it for the European competition**.

The joint project in the Turnout Technology and Signaling area for the production and supply of **"just in time turnouts" (plug-in turnouts)** was already ranked under the top 3 projects in the **Fast Forward Award 2006**.

10.5 AWARD FOR APPRENTICE TRAINING

On 6 May 2019, a festive ceremony was held during which the best apprentices and their trainers were awarded the honorary "Stars of Styria" title.

Gertraud Zwinger and Klaus Dieter Klicnik collected the award for the training scheme at voestalpine Turnout Technology Zeltweg GmbH, while Philipp Hörtler, Philipp Kogler and Marvin Schaffer were the prize-winners in the category of apprentices with excellent final exam results.

10.6 GLOBAL VARS-HSEE MANAGEMENT AWARD

NATIONAL PRIZE FOR WORK SAFETY 2009 AND EUROPEAN GOOD PRACTICE COMMENDATION 2009 FOR THE VOESTALPINE RAILWAY SYSTEMS HOLDING

Expert juries have awarded the voestalpine Railway Systems holding company with:

- The **National Prize for Work Safety 2009** on behalf of the Austrian Federal Ministry of Work and Social Affairs
- The **European Good Practice Commendation 2009** for the European Agency for Safety and Health in the Workplace (EU-OHSA, Bilbao)

The project in question was the **"vaRS HSE Guidebook"**, which was drawn up by voestalpine Railway Systems and is globally valid within the voestalpine VAE Group (66 production locations on six continents, about 7,000 employees). This Guidebook presents typical health, safety and environmentally relevant problems in "turnout business" and offers suggestions regarding technical and organisational solutions, which are naturally important.

As a result, the National Prize went to Zeltweg for the fourth time in five competitions.

10.7 YOUR DISCUSSION PARTNERS

We trust that with this HSEE Report, we have succeeded in not only providing a view of our current efforts towards achieving the ecological, safety and health efficiency of the procedures and processes at our location, but also that we have aroused interest for innovative and active health, safety and environmental management. Questions and suggestion should be directed to our respective HSEE department heads (HSEE – Health, Safety, Environment & Energy Strategies).

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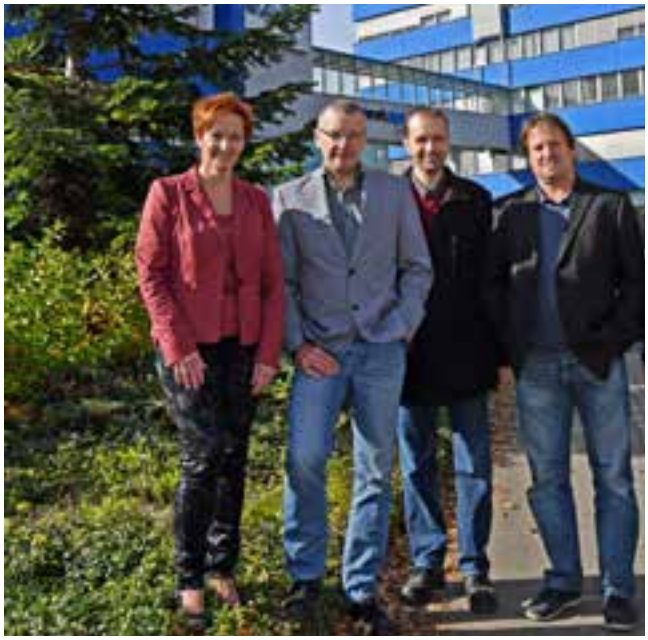

(Astrid Raschhofer, Martin Findl, Manfred Torschitz, Harald Kaddoura)

10.8 ENTRY INTO THE ORGANISATIONAL ROSTER AND DATE OF THE NEXT HSEE-REPORT WITH INTEGRATED ENVIRONMENTAL STATEMENT

This location disposes over an environmental management system in line with the EMAS Directive and is registered in the organisational roster (Register No. A-000060). In line with the EMAS III directive, the next HSEE-Report with integrated Environmental Statement will be published in December 2021.

10.9 VALIDATION AND CERTIFICATES

The information contained in this environmental statement – if relevant and essential with regard to the overall environmental impacts of the Zeltweg site – was audited by the environmental auditing organisation, “Lloyd’s Register Quality Assurance (LRQA)”, Opernring 1/R/741-744, A-1010 Vienna, represented by Mr Harald Ketzer and found to correspond with the EMAS III directive.

Imprint
Publisher: voestalpine Turnout Technology Zeltweg GmbH
Graphic design: Astrid Raschhofer

VALIDIERUNG VOESTALPINE RAILWAY SYSTEMS , VOESTALPINE TURNOUT TECHNOLOGY ZELTWEG , VOESTALPINE SIGNALING AUSTRIA

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

Lloyd's Register Quality Assurance Ltd., with EMAS environmental verifier registration number AT-V-0022 and accredited for the scope:

Research, design, manufacture, sales and servicing of railway systems, especially including turnout systems, turnout installations, turnout components, rail expansion joints, fastening systems as well as associated drive and setting devices, signaling, detection and safety-related systems for infrastructure and rolling stock including related surveying, servicing, logistics and training.

NACE Code: see appendix

declares to have verified:

voestalpine Railway Systems GmbH
voestalpine Turnout Technology Zeltweg GmbH
voestalpine Signaling Austria GmbH
Alpinestraße 1, 8740 Zeltweg
Austria

registration number AT-000060
meets all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS) amended by commission regulation (EU) 2017/1505.

By signing this declaration, LRQA declares that:

- the verification and validation has been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
- the data and information presented in the Environmental Statement of the organisation reflect a reliable, credible and correct image of all the organisation's activities within the scope mentioned in the environmental statement

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-alone piece of public communication.

LRQA Ref No: VNA0005048-04

Date of verification: 18 November 2020
Verification Expiry: 17 November 2023
Date of validation: 18 November 2020
Validation Expiry: 17 November 2021

DI Harald Ketzer, Lead Verifier
Lloyd's Register EMEA, Niederlassung Wien
1010 Wien, Opernring 1/R/741-744, Österreich
on behalf of Lloyd's Register Quality Assurance Limited
Akkreditierungsnummer: AT-V-0022

Lloyd's Register EMEA Niederlassung Wien, Opernring 1/R/741-744, 1010 Wien, Österreich, FN 239257 Z
Die Gültigkeitserklärung gilt zusammen mit der Validierung als Nachweis über die Verifizierung und Validierung. Sie werden bei der

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

CERTIFICATE SCHEDULE

Locations:	Activities:
voestalpine Railway Systems GmbH Alpinestraße 1, 8740 Zeltweg Austria	Research, design and sales of railway systems, especially including turnout systems, turnout installations, turnout components, rail expansion joints, fastening systems, sleepers/bearers as well as associated drive and setting devices, signaling, detection and safety-related systems for infrastructure and rolling stock including related surveying, servicing, logistics and training.
voestalpine Railway Systems GmbH Kerpelystraße 199, 8700 Leoben Austria	Corporate management, strategy and product management.
voestalpine Turnout Technology Zeltweg GmbH Alpinestraße 1, 8740 Zeltweg Austria	Research, design, manufacture, sales and servicing of turnout systems, turnouts, turnout components and rail expansion joints.
voestalpine Signaling Austria GmbH Alpinestraße 1, 8740 Zeltweg Austria	Research, design, manufacture, sales, inspection and servicing of signaling and detection systems as well as monitoring solutions and safety-related systems, drive, setting and locking devices, as well as research, design and sales of hollow steel sleepers for railways.
voestalpine Railway Systems GmbH Rotenturmstraße 5-9, 1010 Vienna Austria	Sales of railway systems, especially including rails, turnout systems, turnout installations, turnout components, rail expansion joints, fastening systems, sleepers/bearers as well as associated drive and setting devices, signaling, detection and safety-related systems for infrastructure and rolling stock including related surveying, servicing, logistics and training.

DI Harald Ketzer, Lead Verifier
Lloyd's Register EMEA, Niederlassung Wien
1010 Wien, Opernring 1/R/741-744, Österreich
on behalf of Lloyd's Register Quality Assurance Limited
Akkreditierungsnummer: AT-V-0022

Lloyd's Register EMEA Niederlassung Wien, Opernring 1/R/741-744, 1010 Wien, Österreich, FN 239257 Z

ENVIRONMENTAL VERIFIER'S DECLARATION ON VERIFICATION AND VALIDATION ACTIVITIES

CERTIFICATE SCHEDULE

Locations:	Activities:
voestalpine Turnout Technology Zeltweg GmbH Rotenturmstraße 5-9, 1010 Vienna Austria	Sales of turnout systems, turnouts, turnout components and rail expansion joints.
voestalpine Signaling Austria GmbH Rotenturmstraße 5-9, 1010 Vienna Austria	Sales of signaling and detection systems as well as monitoring solutions and safety-related systems, drive, setting and locking devices, as well as sales of hollow steel sleepers for railways.

DI Harald Ketzer, Lead Verifier
Lloyd's Register EMEA, Niederlassung Wien
1010 Wien, Opernring 1/R/741-744, Österreich
on behalf of Lloyd's Register Quality Assurance Limited
Akkreditierungsnummer: AT-V-0022

Applicable NACE-Codes:

- C 24.10 Manufacture of basic iron and steel and of ferro-alloys
- C 27.90 Manufacture of other electrical equipment
- C 30.20 Manufacture of railway locomotives and rolling stock
- C 33.20 Installation of industrial machinery and equipment

Lloyd's Register EMEA Niederlassung Wien, Opernring 1/R/741-744, 1010 Wien, Österreich, FN 239257 Z

VOESTALPINE RAILWAY SYSTEMS

Current issue date: 26 November 2020
Expiry date: 25 November 2023
Certificate identity number: 10329873

Original approval(s):
ISO 14001 - 18 November 2007
ISO 45001 - 14 February 2019
ISO 50001 - 19 November 2014
ISO 9001 - 11 April 2001

Certificate of Approval

This is to certify that the Management System of:

voestalpine Railway Systems GmbH

Kerpelystraße 199, 8700 Leoben, Austria

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015

Approval number(s): ISO 14001 – 0018687, ISO 45001 – 0026637, ISO 50001 – 0018686, ISO 9001 – 0018684

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:
Research, design and sales of railway systems, especially including rails, turnout systems, turnout installations, turnout components, rail expansion joints, fastening systems, sleepers/bearers as well as associated drive and setting devices, signaling, detection and safety-related systems for infrastructure and rolling stock including related surveying, servicing, logistics and training. Information, coordination and controlling of the subsidiaries of voestalpine Railway Systems GmbH concerning health-, safety-, environmental-, energy- and quality-related technical, organisational and legal affairs on basis of internal requirements for sustainable development and corporate social responsibility.

Paul Graaf
Area Operations Manager North Europe
Issued by: Lloyd's Register EMEA Niederlassung Wien
for and on behalf of: Lloyd's Register Quality Assurance Limited

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Issued by: Lloyd's Register EMEA Niederlassung Wien, Opernring 1/R/741-744, 1010 Wien, Austria for and on behalf of: Lloyd's Register Quality Assurance Limited, 1 Trinity Park, Bickenhill Lane, Birmingham B37 7ES, United Kingdom

Certificate identity number: 10329873

Certificate Schedule

Location	Activities
voestalpine Railway Systems GmbH Alpinestraße 1, 8740 Zeltweg, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Research, design and sales of railway systems, especially including rails, turnout systems, turnout installations, turnout components, rail expansion joints, fastening systems, sleepers/bearers as well as associated drive and setting devices, signaling, detection and safety-related systems for infrastructure and rolling stock including related surveying, servicing, logistics and training. Information, coordination and controlling of the subsidiaries of voestalpine Railway Systems GmbH concerning health-, safety-, environmental-, energy- and quality-related technical, organisational and legal affairs on basis of internal requirements for sustainable development and corporate social responsibility.
voestalpine Railway Systems GmbH Kerpelystraße 199, 8700 Leoben, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Corporate management, strategy and product management.
voestalpine Railway Systems GmbH Rotenturmstr. 5-9, 1010 Wien, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Sales of railway systems, especially including rails, turnout systems, turnout installations, turnout components, rail expansion joints, fastening systems, sleepers/bearers as well as associated drive and setting devices, signaling, detection and safety-related systems for infrastructure and rolling stock including related surveying, servicing, logistics and training.

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VOESTALPINE TURNOUT TECHNOLOGY ZELTWEG

Lloyd's Register

Current issue date: 18 November 2020
Expiry date: 9 December 2023
Certificate identity number: 10308998

Original approval(s):
ISO 14001 - 3 December 1999
ISO 45001 - 19 February 2019
ISO 50001 - 18 November 2014
ISO 9001 - 21 October 1992

Certificate of Approval

This is to certify that the Management System of:

voestalpine Turnout Technology Zeltweg GmbH

Alpinestr. 1, 8740 Zeltweg, Austria

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015

Approval number(s): ISO 14001 – 0026634, ISO 45001 – 0026636, ISO 50001 – 0018683, ISO 9001 – 0026634

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:
ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015
Research, design, manufacture, sales and servicing of turnout systems, turnouts, turnout components and rail expansion joints.

Paul Graaf
Area Operations Manager North Europe
Issued by: Lloyd's Register EMEA Niederlassung Wien
for and on behalf of: Lloyd's Register Quality Assurance Limited

Lloyd's Register

Certificate identity number: 10308998

Certificate Schedule

Location	Activities
Alpinestr. 1, 8740 Zeltweg, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Research, design, manufacture, sales and servicing of turnout systems, turnouts, turnout components and rail expansion joints.
Rotenturmstr. 5-9, 1010 Wien, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Sales of turnout systems, turnouts, turnout components and rail expansion joints.

VOESTALPINE SIGNALING AUSTRIA

Lloyd's Register

Current issue date: 18 November 2020
Expiry date: 9 December 2023
Certificate identity number: 10309040

Original approval(s):
ISO 14001 - 3 December 1999
ISO 45001 - 19 February 2019
ISO 50001 - 18 November 2014
ISO 9001 - 21 October 1992

Certificate of Approval

This is to certify that the Management System of:

voestalpine Signaling Austria GmbH

Alpinestraße 1, 8740 Zeltweg, Austria

has been approved by Lloyd's Register to the following standards:

ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015

Approval number(s): ISO 14001 – 0026639, ISO 45001 – 0026640, ISO 50001 – 0019139, ISO 9001 – 0026638

This certificate is valid only in association with the certificate schedule bearing the same number on which the locations applicable to this approval are listed.

The scope of this approval is applicable to:
ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015
Research, design, manufacture, sales, inspection and servicing of signaling and detection systems as well as monitoring solutions and safety-related systems, drive, setting and locking devices, as well as research, design and sales of hollow steel sleepers for railways.

Paul Graaf
Area Operations Manager North Europe
Issued by: Lloyd's Register EMEA Niederlassung Wien
for and on behalf of: Lloyd's Register Quality Assurance Limited

Lloyd's Register

Certificate identity number: 10309040

Certificate Schedule

Location	Activities
Alpinestraße 1, 8740 Zeltweg, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Research, design, manufacture, sales, inspection and servicing of signaling and detection systems as well as monitoring solutions and safety-related systems, drive, setting and locking devices, as well as research, design and sales of hollow steel sleepers for railways.
Rotenturmstraße 5-9, 1010 Wien, Austria	**ISO 14001:2015, ISO 45001:2018, ISO 50001:2018, ISO 9001:2015** Sales of signaling and detection systems as well as monitoring solutions and safety related systems, drive, setting and locking devices, as well as sales of hollow steel sleepers for railways.

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