

AŽD

FAST, SAFE AND
ENVIRONMENT
FRIENDLY





Integrated management system

The integrated management system (IMS) guarantees quality, safety and environmental compatibility of the wide range of AŽD activities. The system of management is in place also in the area of environmental protection including certification under ČSN EN ISO 14001 and is subject to regular certification process by EZU Praha s.p.

Education

Systematic education of AŽD staff in specialized areas of environmental protection (water, air, waste, landscape, chemical substances and preparations, energy saving) as well as application of environmental friendly technologies is the company's contribution to sustainable development of the society.

Marketing

Awareness of the market demands and ecological parameters in the segment of signalling technology is crucial for the success of the company's products and technologies with customers.





Research and development

Responsible approach to the development of new products and signalling systems minimizes environmental impact. We focus on the decisive stages in the life cycle of a new product. We analyze material inputs from the point of environment protection, energy intensity, the product future after its expiry and possibilities of recycling.

Design work

High quality preparation of structures in the design stage and accommodation to all requirements set by state administration authorities in the area of environment guarantees compliance with legislation and optimization of costs during the construction.

Business

The selection of a responsible subcontractor and well designed contracts guarantee the quality, safety and environmental compatibility of works included in the contract.

Production

Modern machining centers used in mechanical engineering contribute to environmental performance. Adoption of high technology in the areas of electronics and assembly of printed circuit boards forms the basis of high quality of components for own products and for external customers.



Assembly

Assembly work on landscape line constructions requires careful and responsible attitude to the environment. The construction staff and management are obliged to comply with all the decisions of state administration authorities in the area of water management and environmental protection.

Logistics

Modern fleets meeting the mandatory emission limits provide for supply of material to the manufacturing and assembly plants of the company and secure supplies for our customers.

Service

The decreasing number of service calls concerning the signalling and telecommunication systems reflects the quality of AŽD products. The service area is also governed by the motto „Fast, safe and environment friendly.“

INTEGRATED MANAGEMENT SYSTEM



The introduction of the quality management system under ČSN EN ISO 9001 in 1997, which partially addressed environmental issues, brought the system of company management also to the area of development and protection of the environment. The process of detailed identification of environmental issues within the company started at the end of 2003 and was finished in the first half of 2004 by the initial environmental review of the entire range of activities. Research and development, design, production, service and logistics – all these areas were subject to the review. The process of certification of the environmental management system was finished by awarding the certificate under ČSN EN ISO 14001 to AŽD and all its organizational units. A demanding certification audit was performed by EZU Praha, s.p., a certification body.

The backbone of AŽD system management in the area of environment consists of a set of eight directives issued by the company headquarters:

RSP-SM-146/01
Environmental aspects

RSP-SM-147/01
Traffic/Operation management in EMS

RSP-SM-147/02
Environmental protection in objects managed by the company headquarters

RSP-SM-147/03
Management of chemical substances and compounds

RSP-SM-147/04
Waste management

RSP-SM-147/05
Management of operations of ZTE (Technical Plant) and DSE (Service Division) in the area of environment

RSP-SM-147/06
Water management, air protection, nature and landscape protection, prevention of environmental damage

RSP-SM-147/07
Agreement ADR

The process of integration of the company management systems was completed in 2005, and the integrated management system (IMS) was introduced, consisting of:

QMS
Quality management system

EMS
Environmental management system

SM BOZP
Occupational health and safety management system

Each organizational unit of the company AŽD has an integrated management system in place in accordance with ČSN EN ISO 9001:2016, ČSN EN ISO 14001:2016 and ČSN ISO 45001:2018 standards.

The IMS is subject to supervision audits annually and to recertification process every three years. The latest recertification audit by EZU Praha, s.p. was performed in March 2020.



ENVIRONMENTAL STRATEGY AND POLICY

AŽD presents itself as a company which through its Integrated Management System Policy (IMS) stresses not only quality, safety and occupational safety and health, but also environmental protection, achieved by:

- continuously improving the standard of management in the care for the environment and prevention of pollution
- efforts to eliminate or minimize negative impacts of its activities, products and services on the environment, health of employees and residents in the vicinity of its plants and structures,
- continuous and consistent analysis of raw and other materials, focusing on their maximum utilization and minimizing waste from technological processes and construction,
- observing the principle of sustainable development, with emphasis on the effective use and introduction of technologies and devices friendly to the environment, respect for expert opinions and proposals for effective prevention of negative impacts and accidents, including their consequences.



HUMAN RESOURCES POLICY AND ENVIRONMENT



One of the main priorities in the human resources policy is consistent improvements of working environment based on environment friendly technologies used in manufacturing, assembly as well as service areas. First aid courses, training of action following leakage of pollutants into water and handling hazardous substances are organized for employees. All the managers, specialized staff and professionals in the area of environmental management are included into the company educational scheme. Staff authorized with management of processes related to the environmental issues are employed in each organizational unit.



STRATEGY OF TECHNICAL DEVELOPMENT AND ENVIRONMENT



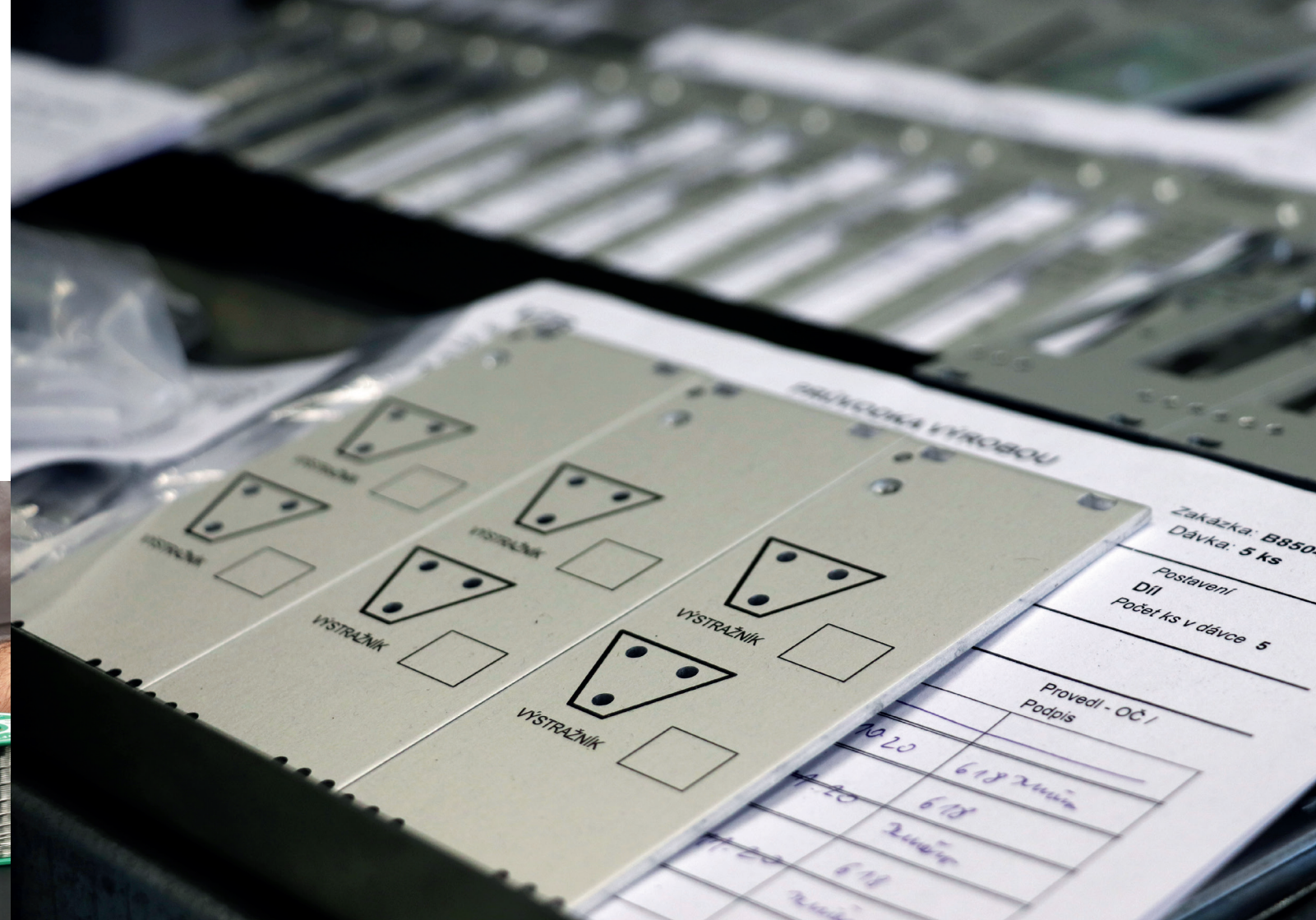
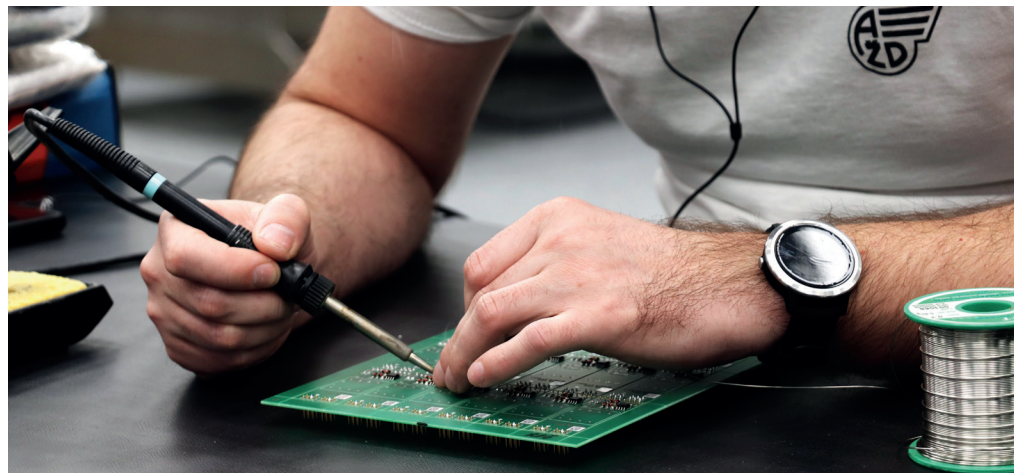
Following the Directive of the European Parliament and of the Government of Czech Republic on the restriction of the use of certain hazardous substances in electrical and electronic equipment, the company had to deal with these issues.

Under the Directive, electrical and electronic equipment placed to the market must not contain some dangerous substances.

In the context of AŽD, the task was resolved by Production Plant Brno, Olomouc and Logistic Plant Olomouc.

Information, systems for technical preparation of production and trade systems have been introduced for the control and registration of items with data on the implemen-

tation of the Regulation on Restriction on the Use of Certain Hazardous Substances. The items thus introduced are regularly reviewed and continuously compared with other suppliers and customers databases. From these databases it is then possible to get a simple overview of whether the items supplied or manufactured are in compliance with the applicable legislative requirements. The knowledge of stages in the product life cycle enables the marketing staff identifying important sources of negative environmental impact, which can be managed and systematically decreased.



ENERGY SOURCES SAVE MONEY AND ENVIRONMENT

In 2022, energy audits were performed in the respective AŽD plants in accordance with Act No. 406/2000 Coll. as amended. The outcomes of the audit identified possibilities of energy savings through measures with medium to long-term return.

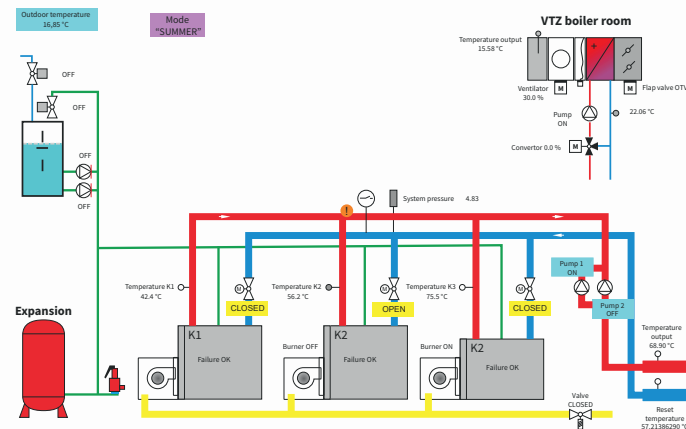
In previous years the windows were replaced in certain buildings, thermal insulation was installed in selected buildings.

The system of heat recuperation was implemented in the manual and automatic paint shop of Production Plant Olomouc.

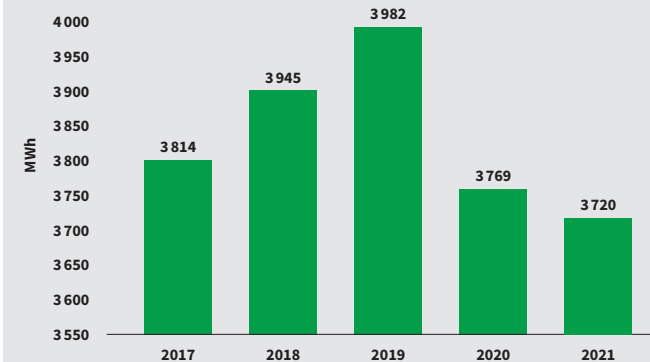
Heating of several organizational units is procured by connection to the centralized heat supply (CZT). Logistic Plant Olomouc, the Division of Teleinformatics and the company headquarters in Prague have their own gas boiler rooms.

In the gas boiler room of the company's headquarters building, the equithermal regulation was replaced with a new one, which, in addition to the outdoor temperature, also uses control according to the indoor temperature in the reference rooms. Furthermore, part of the boilers were replaced by more energy-efficient condensing boilers with a saving of approx. 20% of gas fuel.

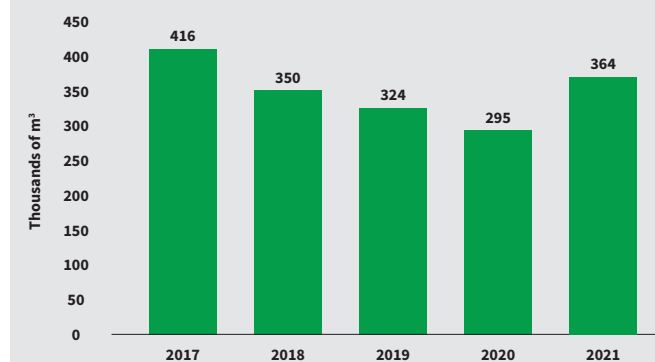
All the outdated, energy demanding and noisy sources of pressurized air for central distribution in production plants were replaced with a new type of compressor with lower input and lower consumption of lubricants. In this type of compressors, the condensate from dewatering is filtered to reduce the content of oil substances.



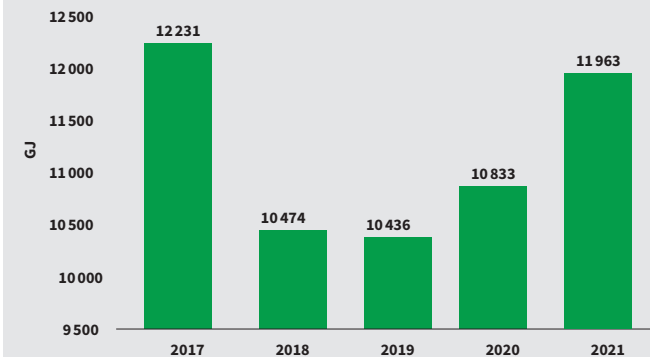
ELECTRICITY CONSUMPTION



GAS CONSUMPTION



HEAT CONSUMPTION



ENERGY COST





LOGISTIC AREA



From the original field of railway transport signalling, AŽD has expanded the portfolio of products and services offered to other sectors during more than sixty years of its tradition. Among these other areas, it is the field of logistics.

The Logistic Plant Olomouc (ZOZ) is the logistics center of the entire company. All purchases of necessary supplies for production and assembly activities are carried out here, as well as all sales of products and components to other customers. Logistic Plant specifications are a great asset for logistics. It is mainly a convenient location, two halls with an area of 8,248 m² and an outdoor area of two hectares. Another advan-

tage is experienced and trained employees, two cable rewinding devices, an extensive fleet of vehicles that can transport goods of larger dimensions and other characteristics, as well as a siding that is installed right up to the ramps of the Plant's warehouses.

ZOZ provides a wide range of material for the needs of AŽD production and assembly plants in full extent, which corresponds to their focus in all areas (rail transport, road transport, telecommunications, other technology, logistics). It mainly deals with warehousing, delivery completion, shipping, customs declaration, transport and many other logistics activities.

ZOZ also ensures deliveries outside the AŽD company and its subsidiaries, and is able to transport, store or prepare a logistic route for any assortment of signalling and telecommunication technology, and any other area.

ZOZ provides a substantial part of supplies for the Czech Railways, the Railway Administration, the Slovak Railways or for the construction of the metro. The Logistic Plant currently has 35,000 items and more than 1,100 suppliers in its list of supplied products and materials.



PRODUCTION AREA

AŽD makes investment into modernization of manufacturing technologies in its production plants not only for the sake of performance growth but also in order to improve its image in the area of environment protection. The restructuring of manufacturing operations means a significant economic asset.

Production Plant Brno (VZB), as part of the company's strategy, specializes in the production of electronic and electromechanical assemblies and the supply of vacuum technology. The production process is oriented towards the production of small to medium production series of a wide range of products. The production of **VZB** can be divided into two main areas - the realization of products of own industrial production and the realization of deliveries of electromechanical vacuum assemblies and units.

The area of products of own industrial production includes the production of electronic units and assemblies for station interlocking, line signalling, level crossing and train signalling safety devices, electrotechnical elements of track circuit equipment and signal technology. Production for external customers includes the realization of electronic assemblies on printed circuit boards and the supply of electromechanical vacuum assemblies and units in clean production areas according to requirements of the customer. Part of the services provided in this area include ensuring the pur-



chase of materials, creating and managing the supply chain, assembly, testing and development activities.

Production Plant Olomouc (VZO) is one of the company's production bases. It covers the field of engineering and electromechanical production and mainly ensures the production of outdoor elements for the safeguarding the turn-outs and level crossings, which must be resistant not only to the effects of weather, but also to the effects of railway traffic. It also ensures the production of cabinets for AŽD technological equipment.

Within the free capacity, **VZO** uses its experience and machinery to provide services primarily in the area of engineering production including structural and technological design in CAD, CAM (3D and 2D).

VZO actively takes care of environmental issues and actively approaches health and safety protection at work. Along with quality, these management systems are certified and integrated into a single integrated management system (IMS).

The basic activity of **VZO** is machining, carried out at a high level mainly thanks to multi-axis machining centers, CNC cutting and shaping of material, including cutting/machining with a water jet. **VZO** also uses plasma cutting and dividing of material, laser engraving and micro impact marking of metal parts. For final surface treatment, it uses its own closed degreasing

system, which is followed by final treatment in a machine or manual paint shop.

Other activities carried out are turning work, milling work, drilling work and thread rolling, as well as locksmith work, welding work, electromechanical work and own tooling work. Adequate metrological equipment is a matter of course, including a Spectrometer for checking the composition of the material and a portable 3D measuring device.



ASSEMBLY WORK AREA



Division of Teleinformatics (DTI) pursues engineering and implementation activities in the field of modern information and telecommunication technology. The division's activities can be divided into three basic areas: signalling equipment for the metro, telecommunication equipment and complete solutions for orders within the Czech Railways.

In addition to these basic activities, **DTI** carries out the laying and assembly of metallic and fiber optic cables, radio equipment, EZS, EPS, structured cabling and telephone exchanges, and the construction of radio systems. In addition, it also includes engineering activities in investment construction and the complete production of legal entity protocols.



INSTALLATION PLANT KOLIN (MZK)

Installation plant Kolin (MZK) specializes in the assembly of complete integrated supplies of signalling, telecommunication, automation and information technologies for railways. These deliveries primarily include the installation of station interlocking, level crossing, line and train signalling systems, safety devices for intra - company tracks and, last but not least, dispatcher's devices for effective centralized control of railway traffic. In recent years, the Plant has also successfully implemented ETCS - type orders on railway corridors – the European Train Control System of the latest generation. The Plant carefully monitors the quality of its deliveries and activities, as it operates in an area that requires absolute reliability and safety of the technologies used. Minimizing the negative effects of its products and services on the environment, the health of employees and other interested parties is an integral part of the Plant's activities.



INSTALLATION PLANT OLOMOUC (MZO)

Installation plant Olomouc (MZO) concentrates top certified experts in the field of low - current electrical assembly and operation of special construction machines and mechanisms. It provides complete assembly work and supplies of signalling equipment for railway lines in the Czech Republic, Slovakia, Lithuania, Turkey, Greece, Poland, which provide an increase of the safety at railway stations, line sections and on railway sidings. **MZO** introduces new technologies improving the quality of railway transport management at integrated line sec-

tions by construction of centralized traffic control centers (e.g. in Praha and Prerov). Lately, **MZO** has been implementing the ETCS – European Control System in the Slovakia and the Czech Republic. It implements the construction of new level crossing systems and thereby contributes to increasing the road traffic safety at critical locations. **MZO** participates in turnout overhauls by replacing of hook locks with jaw locks, including renovation throwing and control system. It thereby contributes to increasing an environmental protection by saving lubricants.



PLUM LINE



In November 2014, the railway line No. 113 Čížkovice – Obrnice was one of five lines that the Czech government, through the Railway Infrastructure Administration (now the Railway Administration), offered for sale. In 2016, the company AŽD s.r.o. bought this line.

It was a business plan to build up a testing polygon on this line, where a private company will test its existing telecommunication and signalling technologies, as well as new products that are still under secrecy.

The company AŽD fulfilled its intention when buying this line in full extent and repaired not only the track superstructure but also sensitively the objects around the line. Třebívlice station even unexpectedly got into the final of the Most Beautiful railway Station competition in 2017 and took a nice second place. In addition, the AŽD company, under the slogan „The Plum Line Lives“, began to organize not only extraordinary steam train rides, but also followed the activities of enthusiasts and continued the operation of the seasonal weekend tourist line T4 in line section Lovosice-Most, which winds through the magical landscape of the Bohemian Central Mountains. It was the popularity of the weekend tourist line that led the Usti nad Labem Regional leaders to open negotiations with the AŽD company, at the end of which was the signing of a contract for the daily railway operation on the line section Litoměřice upper station

Most from December 15, 2019.

Thanks to common sense, a good business plan, the installation of modern technologies that can only be found on corridor lines, and an increase of the line speed up to 100 km/h, the Plum Line became the most modern and at the same time the fastest regional line on the Czech railway network.

The AŽD has not forgotten about the environment, despite the mentioned state-of-the-art technologies. During 2019, more than 130 plum and other trees were planted near train stations in the municipalities of Třebenice and Třebívlice. The company intends to continue in improvement and protection of an environmental in the vicinity of the Plum Line, including the planting of other plum and other trees, in the future.



WASTE MANAGEMENT

The system of consistent waste separation into labeled containers was introduced as part of the waste management program. Besides separating waste in the production plants, it is also separated on construction sites during assembly performed by our units and departments.

All waste produced is handed over to certified companies and the waste management process is properly recorded in IS ENVITA on the intranet.

AŽD organisational units and plants in the respective regions observe the “Waste Management Plans” and respect the following goals:

- reducing specific waste production,
- minimizing negative impacts on human health and the environment,
- separation of municipal waste (paper, glass, plastic)
- separation of hazardous waste,
- consistent application of recollection of used products
- reducing the proportion of waste for land-

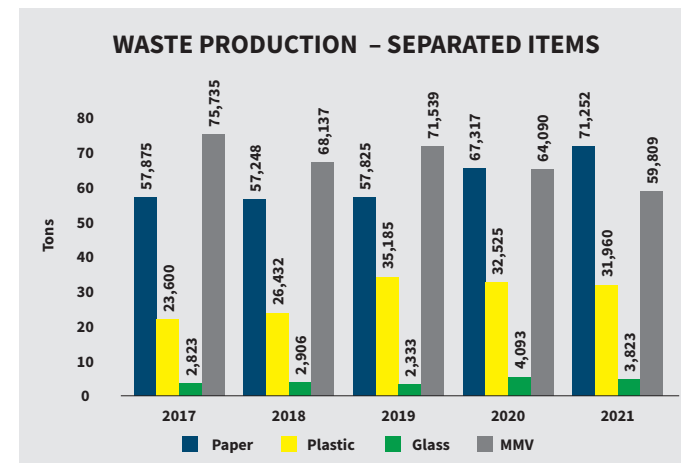
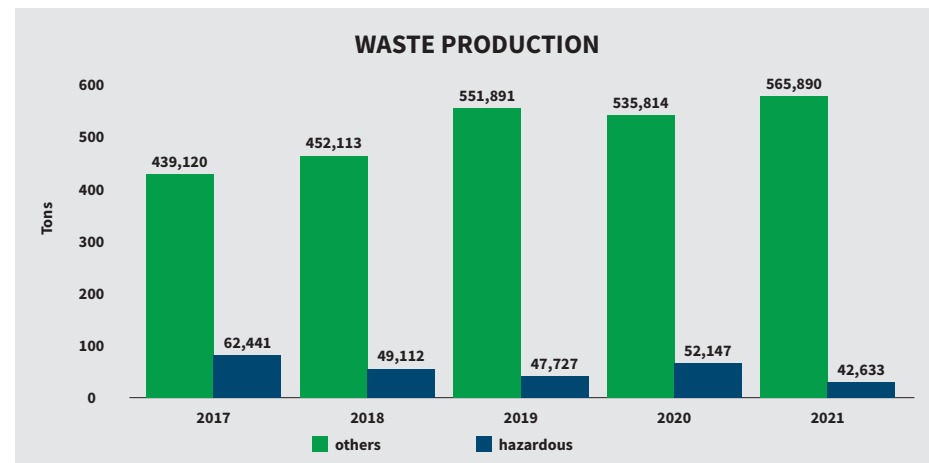
fill disposal (giving preference to recycling and energy recovery)

- increasing the proportion of internal returnable packaging.

Large investment was made into designing the system of waste separation (containers) and of due storage of the waste until the hand-over to certified companies for other disposal. A new waste management structure was built in the premises of **Production Plant Olomouc (VZO)** and special certified mobile containers with a sump tray are used

for temporary waste storage. Mobile containers are primarily used on construction sites, but also in the premises of our plants.

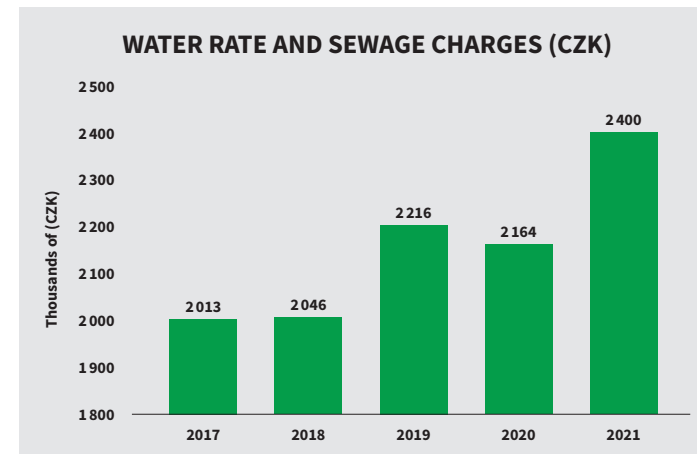
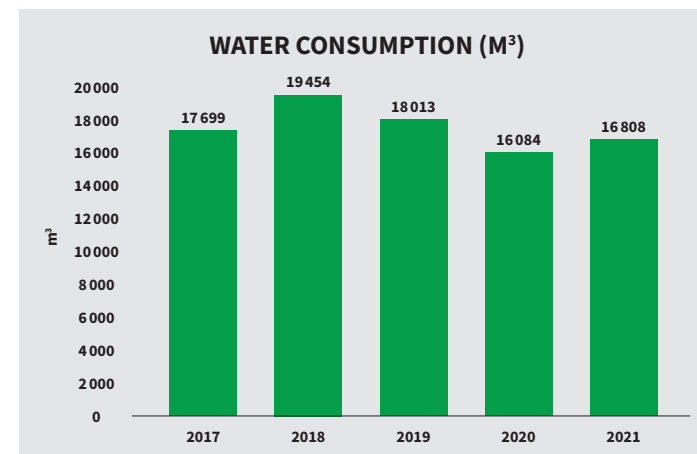
Waste production is influenced by both the volume of industrial production and the nature of construction and assembly work on construction sites, in particular the emergence of construction waste during the implementation of landscaping in connection with ground works.



WATER PROTECTION

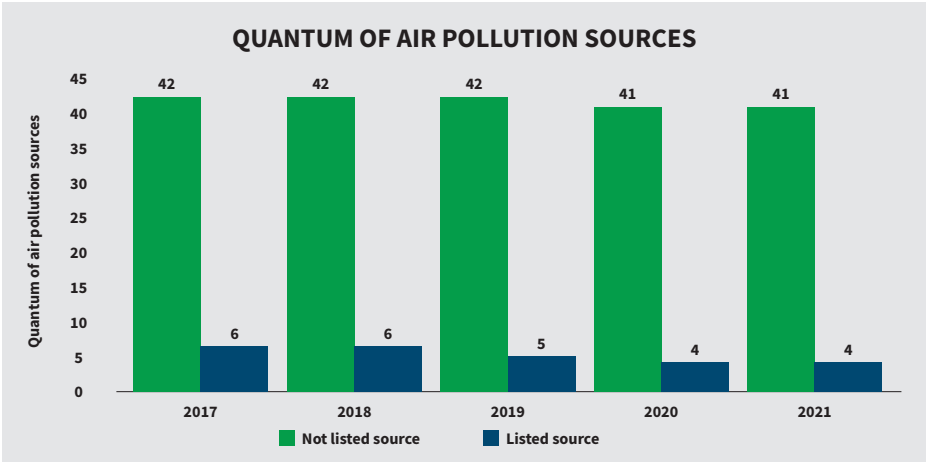
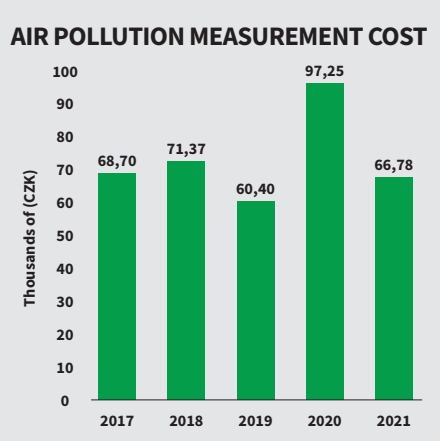


AŽD also operates technologies (degreasing surfaces prior to surface treatment, galvanizing, paint spraying etc.) that require a lot of input water and which produce industrial waste water. The waste water is treated in our own waste water treatment plants (neutralization stations in the production plants in Brno, Olomouc and Logistic Plant Olomouc) to keep the pollution level under the limits permitted by the decision of the respective local water management authority before discharging the waste water into sewerage system. There are other substances dangerous to water used in production plants which have to be stored in a due manner. Storehouses are regularly inspected for water tightness. The handling of water pollutants is regulated by the “Plan of Action in Case of Accidental Degradation of Water Quality” in the respective AŽD plants, which includes provision of emergency resources for the primary remedial intervention. In case of handling water pollutants during assembly operations in line structures, attention must be paid to conditions prescribed by the competent water management authority within approval of construction documents, in particular with respect to water protection zones, and protection of nature and landscape.



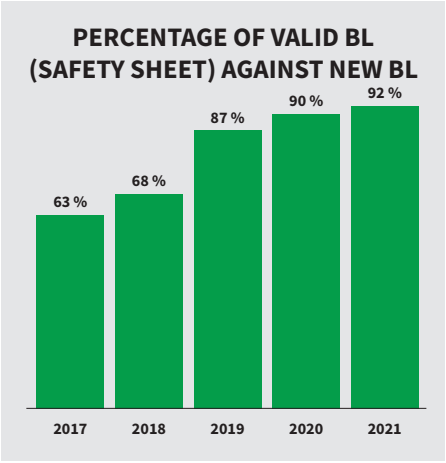
AIR PROTECTION

Priorities in terms of air protection are for AŽD limiting emissions of selected pollutants and improving air quality. All the sources of pollution are duly registered and they are inspected in order to operate in compliance with the legislation. The listed sources of pollution are measured by authorized measuring groups within required periods. When upgrading machine and manual paint shop in Production Plant Brno and Olomouc, the system was equipped with carbon filters for capturing volatile organic compounds (VOC) in addition to filters for solid particles.



HANDLING OF CHEMICAL SUBSTANCES

The AŽD company has established clear and proper obligations in the handling of chemical substances and mixtures (CHLS), which are described in the internal organizational directive. The aim of these measures, such as the correct labeling and packaging of CHLS, the transport of CHLS or the obligation to have a valid safety data sheet for each CHLS, is to protect the health of employees and limit possible negative impacts on the environment. All employees handling CHLS are regularly trained once a year on their hazardous properties. CHLS are stored in properly labeled cabinets equipped with catch trays in case of spills or drips. A safety data sheet is available for all purchased



and used CHLS, which is stored in the application on the „Safety Data Sheet Record“, which can be accessed by any employee with a computer connected to the company intranet.



NATURE AND LANDSCAPE PROTECTION



Due to possibilities in the respective AŽD plants and divisions, green areas are to be found only in the premises of Logistic Plant Olomouc. Exemplary care of the green areas created a pleasant environment in the vicinity of the plant. Cramped conditions in the premises of the other organizational units do not allow for lawn and planting. Complex situations frequently arise for assembly plants that work on construction of railway corridors passing through protected landscape areas, natural monuments, bird sanctuaries, etc., which require specific and responsible approach to nature

and landscape. Consistent application of all decisions of state administration in the area of nature and landscape protection is a necessary prerequisite for all construction projects. The decisions form an inseparable part of the building permit or of the environment section in the tender documentation, comprised in the implementation documentation of structures. A considerate approach to landscape is particularly important in line structures (cable routes, movement of machinery, etc.).



PREVENTION OF ENVIRONMENTAL DAMAGE AND ADR AGREEMENT

ENVIRONMENTAL DAMAGE

In order to comply with statutory obligations regarding prevention of environmental damage, AŽD performed the physical assessment of relevance of requirements contained in Act No. 167/2008 Coll., Government Order No. 295/2011 Coll. and Methodological Instructions of the Ministry of Environment in all of its plants. All the final reports have shown that under Section 14 Act No. 167/2008 Coll., AŽD is not obliged to procure a financial security for covering potential preventive or remedial measures in the event of environmental damage in any of its plants.

ADR AGREEMENT

ADR Agreement establishes and classifies hazardous substances and articles according to their hazardous properties, determines the conditions for their transport, packaging and marking, prescribes the use and manner of filling out the prescribed accompanying documents. It also specifies the requirements for packing a piece, entries in transport documents, means of transport, including technical requirements for the vehicle by class, and also prescribes rules such as the limitation of the quantity of goods transported, surveillance, way of standing, parking, etc.

ADR Agreement imposes on any undertaking whose activities involve the transport of dangerous goods by road or operations related to such transport to designate one or more safety advisers responsible for helping to prevent the risks associated with such activities with regard to persons, property and the environment.

In order to ensure the issue of the dispatch, transport and receipt of dangerous goods, AŽD has the designated internal security advisor of ADR.



RAILWAY SYSTEMS

The most significant production volume of the company represent the systems for managing and ensuring the safety of the operation of the railway transport. They are available in different configurations for corridor and non-corridor tracks, including junctions, and can be equipped with superstructure systems for diagnostics, graphic and technological documentation, and remote control. AŽD also manufactures and supplies the relevant outdoor equipment, for example, for controlling and securing switches, light signals and many others. AŽD also supplies road traffic control and control systems, such as light controlled crossings, tunnel traffic control, parking and entry, recognition of registration marks and road traffic rules control.



Railway systems

- Station interlocking systems
- Line signalling systems
- ERTMS/ETCS and autonomou control system – trackside
- ERTMS/ETCS and autonomou control system - onboard
- Level crossing safeguarding systems
- Power supply systems
- Outdoor elements – others
- Outdoor elements – train detection systems
- Outdoor elements – point programme
- Outdoor elements – signals
- Systems for metro

ROAD SYSTEMS



Road systems

- Urban and suburban solution
- Tunnel systems
- Public lights
- Systems for kid's playground

Telecommunications

**Camera systems and EZS
(Electronic Security System)**







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