

Annual report 2020



TO BE THE FIRST CHOICE

DEAR LADIES AND GENTLEMEN,

In 2020, the Tatravagónka a.s. team, in cooperation with its business partners, significantly increased the volume of manufactured freight railway wagons, bogies and wagon subassemblies for the third year in a row. I am confident that thanks to the continuing favourable situation in the rail freight segment, as well as thanks to the trust of our business partners, we will be able to maintain this trend in the coming years.

The key to achieving this goal is our consistent ability to adapt and respond to new situations and challenges in production or social arenas. The Covid-19 pandemic is an example of a new, unexpected situation that drastically affected our lives, both at work and in personal life. In this context, I must express my great gratitude and admiration to all our employees. In conditions of growing insecurity, they were willing and able to fulfil their job responsibilities, even under the strictest epidemiological measures, several of which affected their work comfort.

We are incredibly grateful to our work team because, when balancing the year 2020, we can speak about the production volume of 3.8 thousand pieces of wagons and 10 thousand pieces of bogies. The growing production volume reflects an increase in sales volume, which reached Euro 413 mil.

In addition to the work team, our business partners also helped us to achieve this goal. More than ever before, it has been confirmed that our success depends on long-term fair business relationships that benefit all parties involved.

I hope that our cooperation and support to help us overcome all the obstacles that the future will bring us, whatever they may be.

Mudák

Ing. Juraj Hudáč
General Director

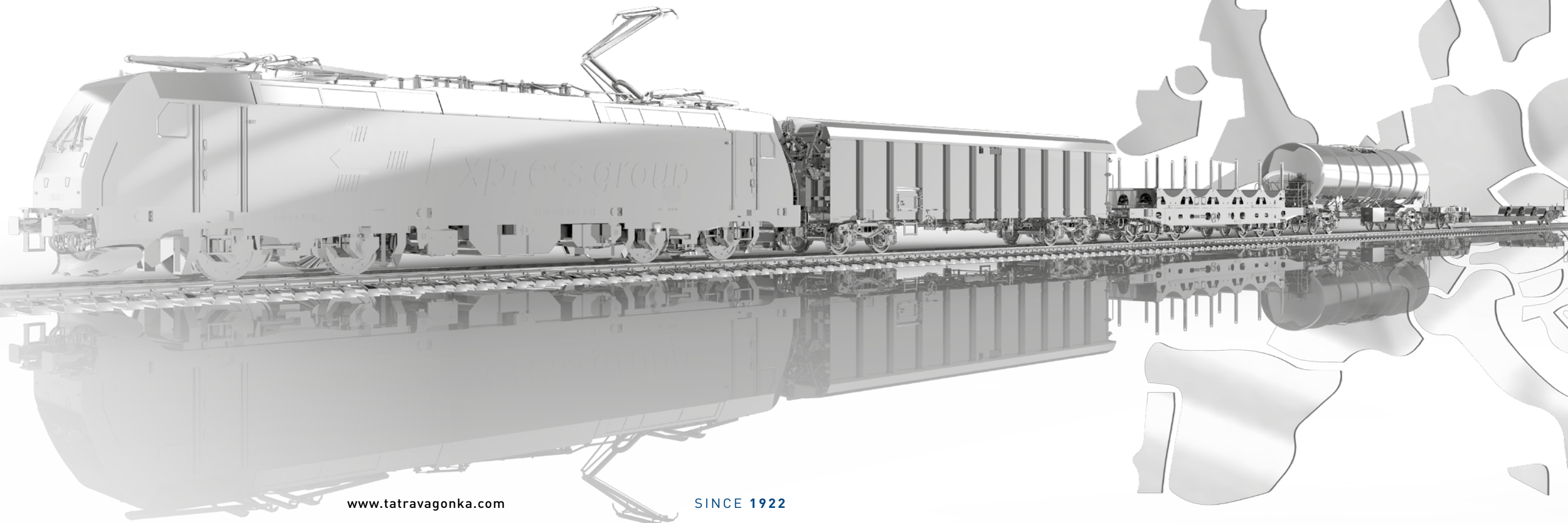
3 800

wagons - we manufactured in 2020



10 000

bogies - we manufactured in 2020





BASIC INFORMATION ABOUT THE COMPANY

Business name:

TATRAVAGÓNKA, a. s.,

Head office:

Štefánikova 887/53, 058 01 Poprad

Business ID No.:

31699847

Tax ID No.:

2020514496

ID number for taxes

SK2020514496

Founded in:

December 1st, 1994 on the basis of National property fund decision of 29th September 1994

Subject of business:

- development, production and sales of: railway vehicles for transportation of freight and passengers, railway vehicle components, special-purpose conversion vehicles, sub-assemblies of railway vehicles, non-standard (single-purpose) machinery and equipment for machining and welding, air-technology equipment, transport devices for metal constructions, sectional and sectional technical blocks
- maintenance and repair of railway vehicles
- automated data processing – providing of software
- manufacture of protective means and working clothes, manufacture of protective clothes
- metal production /small objects – gates, fences, grillage/
- work with crane and earth-mover, crane and binding courses, courses for drivers of motor vehicles, organisation of trainings and courses, performance of welding courses

- lease of real estate, lease of motor vehicles, lease of machines and tools, lease of movable goods
- retail of ironware and metallurgical materials
- repair and maintenance of machines and devices with mechanical drive, repair and maintenance of machines and devices with electric drive
- road freight transportation
- production of technical gasses
- heating works, gas fitting, water fitting
- repairs of lifts and lifting specified technical equipment, greasing service, repair of motor transportation carts, revision of specified electric and lifting devices
- elaboration of technological processes, proposal of technological devices
- development and production of tools for engineering production
- constructor - performance of simple constructions and sub-deliveries, masonry
- activity of account advisers, activity of organisational and economic advisers, accounting services, administrative services
- organisation and providing of cultural and public events and programs, innkeeper activity
- business activities, except goods which need special state permission, administration of market areas
- business in the area of handling with other than dangerous waste, business in the area of handling with dangerous waste
- accommodation services, accommodation services in accommodation facilities with inn keeping activities, operation of athletic facilities and facilities for regeneration and recondition
- examination of working gauges except reserved gauges, defectoscopic tests of materials (except defectoscopic test of cables, cableways), performance of weld destructive tests
- assembly, repair and maintenance of electric devices within

- the range of: objects without the danger of explosion – objects with the danger of explosion – devices with voltage over 1000 V with restriction of voltage up to 52 kV - devices with voltage up to 1000 V – lightning conductors – electrical devices note: electrical devices up to 10 kV in vol. class A, B,
- forwarding business
 - operation of health care institution: general ambulance in the field of general medicine, operation of health care institution: ambulance of specialized ambulance health care in the field of common certified working activities – audiometry, operation of health care institution: ambulance in specialized field of internal medicine
 - promotional and marketing services
 - computer services, services related to computer processing of data
 - repair and maintenance of tools for household, sport tools and products of fine mechanics
 - operating of railway, operating of travel on the railway
 - electro-energetics, scope of business: delivery of electricity, distribution of electricity.

BOARD OF DIRECTORS

Ing. Alexej Beljajev Snr.
Chairman of the Board of Directors

Ing. Peter Malec
Vice-Chairman of the Board of Directors

Ing. Michal Škuta
Member of the Board

Ing. Alexej Beljajev Jr.
Member of the Board

Ing. Juraj Hudáč
Member of the Board

SUPERVISORY BOARD

JUDr. Michal Lazar

Ivan Petříček

Ing. Jaroslav Vittek

JUDr. Ľudovít Wittner

Ján Soska

Jarmila Sivčová

SHAREHOLDING STRUCTURE

The amount of the company's basic capital is represented in the amount of EURO 86,392,566 as of December 31st 2020. The amount of paid-in capital is EURO 86,392,566. It is divided into 1,267,258 unregistered stocks in the form of booked commercial papers priced at EURO 33.2 per share, 100 unregistered stocks at the price of EURO 33,194 and 205,001 unregistered stocks at the price of Euro 200.

COMPOSITION OF UNREGISTERED STOCKS

	Basic capital share		Voting rights
	EUR	%	%
Optifin Invest, s. r. o.	43 196 283	50,00	50,00
BUDAMAR LOGISTICS, a. s.	43 196 283	50,00	50,00
Total	86 392 566	100,00	100,00



BASIC INDICATORS OF THE COMPANY

in €	2014	2015	2016	2017	2018	2019	2020
Revenues	229 363 328	211 282 715	190 797 507	221 893 952	286 764 810	368 569 775	413 009 385
Average numb. of employees	2 067	1 958	1 804	1 828	1 947	2 108	2 185
Assets	246 624 864	244 328 854	243 241 156	249 645 105	278 185 884	306 161 666	328 017 846
Fixed assets	143 947 923	150 430 213	147 016 496	151 906 786	155 204 382	165 829 706	170 651 157
Basic capital	45 392 366	45 392 366	86 392 566	86 357 826	86 357 826	86 357 826	86 357 826
Profit before tax	11 652 909	21 917 208	9 707 223	10 411 693	13 242 277	18 027 701	36 387 546
Investments	3 528 000	2 888 354	5 474 573	7 591 737	8 536 434	20 432 936	10 552 655

In the terms of the annual report's content pursuant to § 20 of Act on Accounting, no material events took place in the period from December 31st 2020 to the date of issuing the annual report.

PRODUCTION PROGRAM

FREIGHT WAGONS

Sgmmnss 40'

4-axle container wagon with length of 40' designed for transportation of 20' and 40' containers and swap bodies. The wagon is suitable for transportation of heavier materials due to its tare of 16 t, 15.5 t respectively. The maximal weight of loaded wagon is 90 t. It is equipped with foldable bridge, which enables easier unloading, and thus it is a very useful user element.

Sgns(s) 60'

4-axle container wagon with length of 60' designed for transportation of ISO containers and swap bodies. The wagon is approved for operation on tracks with 1,435 mm and 1,668 mm track gauge. Based upon type of used bogie, the wagon tare ranges from 17.9 t +/- 2 %. The maximal weight of loaded wagon is 90 t.

Sgmmns 48'

4-axle freight wagon designed for transportation of heavy containers with weight up to 74 t. It is also suitable for transportation of ISO containers. The wagon is characterised by lightweight frame construction. The wagon is equipped with Y 25 Ls-K bogies with mechanical brake. The wagon tare is 16.5 t +/- 2% and the loading weight is 73.5 t +/- 2%. Weight of loaded wagon is 90 t.

Sgmmns 41'

4-axle freight wagon designed for transportation of heavy containers and superstructures with 74 t weight. The wagon is characterised by lightweight frame construction. The wagon is equipped with headstock-free Y 25 bogie with a disc brake. The wagon tare is 17.1 t +/- 2 % and weight of loaded wagon is 100 t.

Sggnss 80'

4-axle freight wagon designed for transportation of High Cube containers with height of 2,896 mm and High Cube pallet wide containers with height of 2,896 mm and width of 2,500 mm. It is suitable for transportation of ISO containers 20', 26', 30', 40', 45' classified in UIC 592-2, Class I. Variability of the containers enables minimally 30 different loading combinations. The wagon tare is 21.5 t and loading weight is 68.5 t. Weight of loaded wagon is 90 t. This wagon is manufactured also in a version with a bogie with a disc brake. An advantage of this version is a lower noise. The tare of the wagon with the disc brake is 22.3 t and the loading weight is 67.7 t. Weight of loaded wagon is 90 t.

Sggrs 90' / 80' InnoWaggon

8-axle short-coupled 80/90' two segment container wagon is designed for transportation of various types of containers and container swap bodies, which enables it to offer flexible transportation solutions with one wagon type. Low wagon weight of 29.5 t enables transportation of heavy containers, including special ones. The wagon is equipped with Y25 Ls-C-K bogie with compact brake CFCB for 1,435 mm track gauge, as well as for the track gauge of 1,524 mm.

Sggrss 80'

6-axle freight wagon designed for transportation of ISO containers 20', 26', 30', 40' classified in UIC 592-2, Class I. The wagon is designed for operation on tracks with 1,435 mm track gauge. The wagon is designed for operation on tracks with 1,435 mm track gauge. The wagon is equipped with Y 25 Ls1-K bogie. The wagon tare is 27.5 +/- 1.5 % t. Weight of loaded wagon is 90 t.

Sggmrss 90'

6-axle freight wagon designed for transportation of ISO containers 20', 26', 30', 40', 45' classified in UIC 592-2, Class I. The wagon is designed for operation on tracks with 1,435 mm track gauge. The wagon is equipped with Y 25 Ls1-K bogie. The wagon tare is 28.5 +/- 1.5 % t. Weight of loaded wagon is 90 t.

Sggmrss 90' Esp

6-axle freight wagon designed for transportation of ISO containers 20', 26', 30', 40', 45' classified in UIC 592-2, Class I. The wagon is designed for operation on tracks with 1,435 mm track gauge, but mainly on tracks with 1,668 mm track gauge. The wagon is equipped with Y 25 Lss(f)e-K bogie. The wagon tare is 29.4 +/- 2% t. Weight of loaded wagon is 90 t.

Sggmrss 80' Esp

6-axle freight wagon designed for transportation of ISO containers 20', 26', 30', 40' classified in UIC 592-2, Class I. The wagon is designed for operation on tracks with 1,435 mm track gauge, but mainly on tracks with 1,668 mm track gauge. The wagon is equipped with Y 25 Lss(f)e-K bogie. The wagon tare is 28.5 +/- 2% t. Weight of loaded wagon is 90 t.

T3000e/ Sdggmrss

Two-segment recess wagon of articulated design with two bogies of type Y25 Lss1-K and standardized bogie Y25 Ls(s)1f. The wagon is designated for transportation of megatrailers and other saddle semi-trailers and standardized swap bodies/containers manipulated by crane in all European railway networks with normal track gauge. At each wagon end, there is installed a king pin saddle with Crash-elements for protection of the king pin and the semi-trailer. The wagon tare is 35 t and weight of loaded wagon in s/ss mode is 135/120 t.

T3000eD/ Sdggmrss

Two-segment recess 6-axle wagon of articulated design with a disc brake is a version of the wagon T3000e, whereby each of six wheelsets is equipped with two brake discs. The wagon tare is 36 t and weight of loaded wagon in s/ss mode is 135/120 t.

Samms 489

6-axle flat freight wagon designed for transportation of heavy loads and heavy military vehicles. The wagon tare is 31 t and the max. weight of loaded wagon is 135 t.

Sgns 63’/ Snps

4-axle freight wagon equipped with stanchion system suitable for transportation of timber, or with 12 detachable pins for transportation of 3 x 21’ containers designed for transportation of wooden chips. The wagon is equipped with Y 25 Ls-K bogie with mechanical one-sided brake. Tare of completely equipped wagon is max. 23 t. Weight of loaded wagon is 90 t.

Laaerss

4-axle freight two-segment and double-deck wagon suitable for transportation of cars. The wagon tare is 36 t. Weight of loaded wagon is 90 t.

Tagnpps 101 m3

4-axle covered discharging wagon with 101 m3 volume of a vessel is designed for transportation of agricultural products, mainly grain and other similar bulk products sensitive to humidity. This user-friendly wagon has significantly reduced maintenance requirements. The wagon has totally three discharging reservoirs with an inclination of max. 50° to the vertical axis, six discharging openings with discharging by means of vaulted segmented flaps into the rail centre. The wagon tare is 21 t. Weight of loaded wagon is 90 t.

Zacens 73 m3

4-axle tank wagon with volume of 73 m3 with heating and insulation is designed for transportation of dangerous goods of class 3.6 and 9 according to RID. The wagon is designed for climatic conditions with temperatures from -25°C to + 50°C. The wagon tare is max. 22 t and the overall wagon weight is 90 t.

Zans 98 m3

4-axle tank wagon with volume of 98 m3 is designed for transportation of light oil products. The wagon is designed for operation without limitations on all European railway tracks with normal track gauge. The wagon complies with requirements for GE marking. The wagon tare is 21.7 t ± 2 % and max. weight of loaded wagon is 90 t.

Zans 93 m3

4-axle tank wagon with volume of 93 m3 is designed for transportation of chemical products - ACN. The wagon is equipped with safety elements such as detector against derailment, Crash buffers, anti-climbing protection and also with the second transition platform. The wagon is designed for operation without limitations on all European railway tracks with normal track gauge. The wagon complies with requirements for GE marking. The wagon tare is 22.6 t ± 2 % and max. weight of loaded wagon is 90 t.

Zans 88 m3

4-axle tank wagon with volume of 88 m3 is designed for transportation of light oil products. The wagon is designed for operation without limitations on all European railway tracks with normal track gauge. The wagon complies with requirements for GE marking. The wagon tare is 21.4 t ± 2 % and max. weight of loaded wagon is 90 t.

Zags 85 m3

4-axle tank wagon with volume of 85 m3 is designed for transportation of compressed gases of class 2 (UN 1086 and UN 1063) according to RID. The wagon is designed for operation without limitations on all European railway tracks with normal track gauge. The wagon complies with requirements for GE marking. The wagon tare is 22.8 t ± 3 % and max. weight of loaded wagon is 90 t.

BOGIES

Y 25 Ls1-K

2-axle bogie for freight wagons with axle load of 22.5. Max. speed loaded 100km/h. Max. speed empty 120 km/h. Track gauge is 1,435 mm. Weight is 4.6 t.

Y 25 Lsi-K, Y 25 Lsif-K

2-axle bogie with integrated brake for freight wagons with axle load of 22.5 t, hand brake in version f. Max. speed loaded 100 km/h. Max. speed empty 120 km/h. Track gauge is 1,435 mm. Weight is 4.7 t.

Y 25 Ls-K

2-axle headstock-free bogie for freight wagons with axle load of 22.5. Max. speed loaded 100km/h. Max. speed empty 120 km/h. Track gauge is 1,435 mm. Weight is 4.2 t.

Y 25 Lsi-C-K

2-axle headstock-free bogie for freight wagons with axle load of 22.5 with compact CFCB brake. Max. speed loaded 100 km/h. Max. speed empty 120 km/h. Track gauge is 1,435 mm. Weight is 4.2 t. The Y 25 Lsi-C-K bogie is manufactured also in the version for 1,524 mm track gauge (Finland).

Y 25 Lse-K

2-axle headstock-free bogie for freight wagons with axle load of 22.5. Max. speed loaded 100km/h. Max. speed empty 120 km/h. Track gauge is 1,435 mm, as well as for the track gauge of 1,668 mm (Spain). Weight is 4.3 t.

Y 25 Lss(f)e-K

2-axle bogie for freight wagons with axle load of 22.5. Max. speed loaded 100km/h. Max. speed empty 120 km/h. Track gauge is 1,435 mm, as well as for the track gauge of 1,668 mm (Spain). Weight is 4.7 t.

TVP NG-DBS

2-axle headstock-free bogie for freight wagons with axle load of 22.5 t with disc brake. From the standard Y25 bogie, it differs mainly in modified suspension and in using of the cross-coupling for improvement of running characteristics and for reduction of wheel wear.

QUALITY POLICY AND OBJECTIVES

The Quality Management System in TATRAVAGÓNKA a.s. Poprad is certified in accordance with the standard EN ISO 9001:2015 and also ISO/TS 22163:2017 (IRIS). The system has been certified since 1994 and it is verified through regular annual audits performed by reputable auditing companies.

In terms of the Quality Management System, we put the emphasis on the requirements arising from the standards EN ISO 9001:2015 and ISO/TS 22163:2017 by focusing on constant improvement of management, supporting but mainly principal company processes with regard to the requirements and needs of the customer. The Quality Policy determines the long-term

direction, from which specific quality objectives and obligations arise. The quality objectives are created according to the SMART method (Specific, Measurable, Achievable, Realistic, Time-framed), whereby they are specified for the one year period with regular monthly, quarterly or annual monitoring, within the corresponding company processes.

FUNDAMENTAL PRINCIPLES OF THE QUALITY MANAGEMENT SYSTEM:

The top management, as well as each employee, is a part of quality management system and his/her work affects quality of products and services,

All processes and operations have to be conducted according to regulations,

The system is regularly monitored and analysed for the purpose of continuous improvement,

The functioning of the decision making process is based upon facts,

By means of feedback, we provide applicability of the company processes, whereby we monitor their development, effectiveness and influence upon satisfaction of customer requirements, which are materialized in the product. In the process, corrective and preventive measures are introduced for their improvement,

A systems approach provides mutual interconnection and functionality of the processes based upon determination of their mutual interaction and definition of inputs and outputs.



KPI - key performance indicators are used for measurement of company processes. According to measured results, we make improvements in stability and process capability. The KPI assessment results are linked with motivational elements. We continue in process optimization by using progressive quality tools such as the 8D method with subsequent monitoring of the corrective action Problem Solving Monitor. All company processes are managed and monitored by means of a SAP information system, with use of outputs also from other supporting systems such as Windchill, Lotus Notes, etc. During the year, our quality management system is verified by internal QMS audits according to the approved schedule of internal audits for the corresponding year, and a wide range of independent audits resulting from TSI regulations and other legislative requirements. The external audits arise from the requirements of the market and they are used also for monitoring of customer requirements fulfilment. The following certificates represent our commitment and capability to function effectively in our company processes and their adjustment.



CERTIFICATES



DET NORSKE VERITAS GL Rotterdam

Quality management CERTIFICATE
according to EN ISO 9001:2015



DET NORSKE VERITAS GL Rotterdam

Quality management CERTIFICATE
according to ISO/TS 22163:2017



ŽSSK Cargo Bratislava

Acknowledgement of the company's professional competency for production, modernisation, reconstruction and repairs of railway freight wagons, for production and repairs of spare parts for railway freight wagons, for repair of brake gear devices of rolling stock



Office for railway transportation regulation, Bratislava

Authorization for welding of railway vehicles, production, repairs and reconstruction of determined technical pressure equipment and non-destruction testing of rolling stock.



SVV Praha

CERTIFICATE for quality management in welding according to the Standard ČSN EN ISO 3834-2:2006 + ČSN EN ISO 14554-1
Certificate for processes of gluing at the level A2 according to the standard DIN 6701-2:2015



SLV Hannover

Certificate of the competency in welding railway vehicles and their components according to the CL1 level of DIN EN 15085-2.



TÜV SÜDDEUTSCHLAND Mnichov

Certificate for quality management in production and repairs of pressure equipment according to EN 14025



Dražní úřad Praha

Certificate of the competency in welding of tanks of railway tank wagons designated for transportation of dangerous substances according to RID regulations

For all types of wagons and bogies, we provide product certification according to the regulations of TSI by reputable Notified Bodies.

PRODUCTION AND SALES IN 2020

The strength of TATRAVAGÓNKA trademark represents an almost 100-year history of determined and tireless work. In 2020, we continued growing; we even managed to secure more orders than in the previous year. To fulfil these orders, we needed additional capacities from our functional departments placed across the whole of Europe. Thanks to the hard work of all our employees, our company manufactured, as of 2020, more than 140 thousand freight wagons in more than 100 different design versions and almost 400 thousand bodies. Due to this performance, we rank among the prominent manufacturers in the European market. We have more than 40% share. This year, we expected a turnover of almost Euro 400 million. In reality, it was much more.

PRODUCTION

The production capacity of our company is almost 4 thousand railway freight wagons and more than 10 thousand bogies per year. Composition of the production in this year was diverse, and it consisted of the car-carrying wagons, Bracoil, long 80', articulated 80' and 90', 60', Innofreight, T3000, BASF 54, 40' and grain wagons.

In 2020, 3,831 wagons and 10,011 bogies were manufactured in total. In comparison with 2019, the number of manufactured wagons grew by 389 wagons. From the total amount of the bogies, 1,139 bogies were manufactured for external customers. In comparison with 2019, the number of manufactured bogies grew by 735 bogies.

In 2020, we operated 9 specialized production lines, i.e. we were able to manufacture 9 different freight wagon types at once. Monthly capacity of each production line is 100 freight wagons. Great consumption of production capacities and this amount of various wagon types required a thorough organisation of production and its accuracy, timely provision of material inputs, and, last but not least, additional investments into renewal of technologies and also maximal focus of involved employees.

In six production lines, we manufactured intermodal and con-

tainer wagons. Among the standard container wagons, the type Sggnss with loading length of 80', which is characterised by its articulation-free execution, stood out the most. It is suitable for transportation of light containers, or goods with lower weight. Another significant representative of the intermodal transportation was the wagon of type T3000e, which is used for transportation of truck semi-trailers.

From the overall amount of wagons, the Poprad plant manufactured 3,120 wagons in 2020, which represents 81.4 % of the overall production.

The container wagons had the greatest share of the production. They created up to 77% of the overall production (Poprad + Trebišov). They are represented mainly by wagons of type Sggnss 80' and Sggrs 80'.

Within the Sggnss 80' project it is a great boom in production of this 4-axle container wagon, as it is a successful project, which is manufactured in our company with small pauses for several years already. In 2020, we manufactured and dispatched more than 750 wagons of this type. The wagons are manufactured in the year-long production line, and this year we manufactured these wagons for six different customers.

Lately, we started with the production of the wagons of type Sggrs 80' for the Polish national railway forwarder PKP Cargo. The project is significant in that it is a part of an extensive tender. The overall volume of the order is represented by 936 different freight wagons. From this amount, there are 468 pieces of specified 6-axle articulated container wagons. This order also contains 324 pieces of 40' wagons of type Sgmmnss and this order also contains production of 90' wagon of type Sggrmrss, which was taken over in 2020 by the companies Wascosa, VTG and PCC Intermodal.

At the end of November 2020, we dispatched the first 25 wagons of type Sgns 60' designed for the Polish company Kronospan – L.S. Silva. They are standard 60-foot wagons approved for the "s" mode of operation. Totally, we shall manufacture 150 of these wagons; the project should end in February 2021.

Another wagons manufactured in 2020 are from the category of tank wagons in six different versions. The greatest share has the

type Zacens 73 m3 (frame and frame-less execution), which is designed for transportation of heavy oil products and polyacrylamides. This wagon was dispatched to five customers in 2020.

Then, there is the tank wagon of type Zacns 93 m3 with a frame-less disgn. It is a new wagon in our production, as well as at the market. the wagon is manufactured for the company Wascosa, and it is used for transportation of very dangerous and poisonous substance - vinyl-chloride. We manufactured 100 of these wagons in this year.

Another significant tank wagon, manufactured by our company, is Zagns 85 m3 designed for transportation of vinyl-chloride and chloromethan and which was ordered in 2020 by the company Atir.

In 2020, continued production of type Zacns 88 m3, which started to be delivered 5 years ago, and this wagon found its customers across all Europe. This year, we manufactured the last 20 wagons for the customer ČD, and thus we rounded the overall amount of these wagons to 100, and we will get back to the production of this wagon again in the first half of 2021. Meanwhile, this type will be dominating at our new production line in Tatravagónka Bratstvo Subotica.

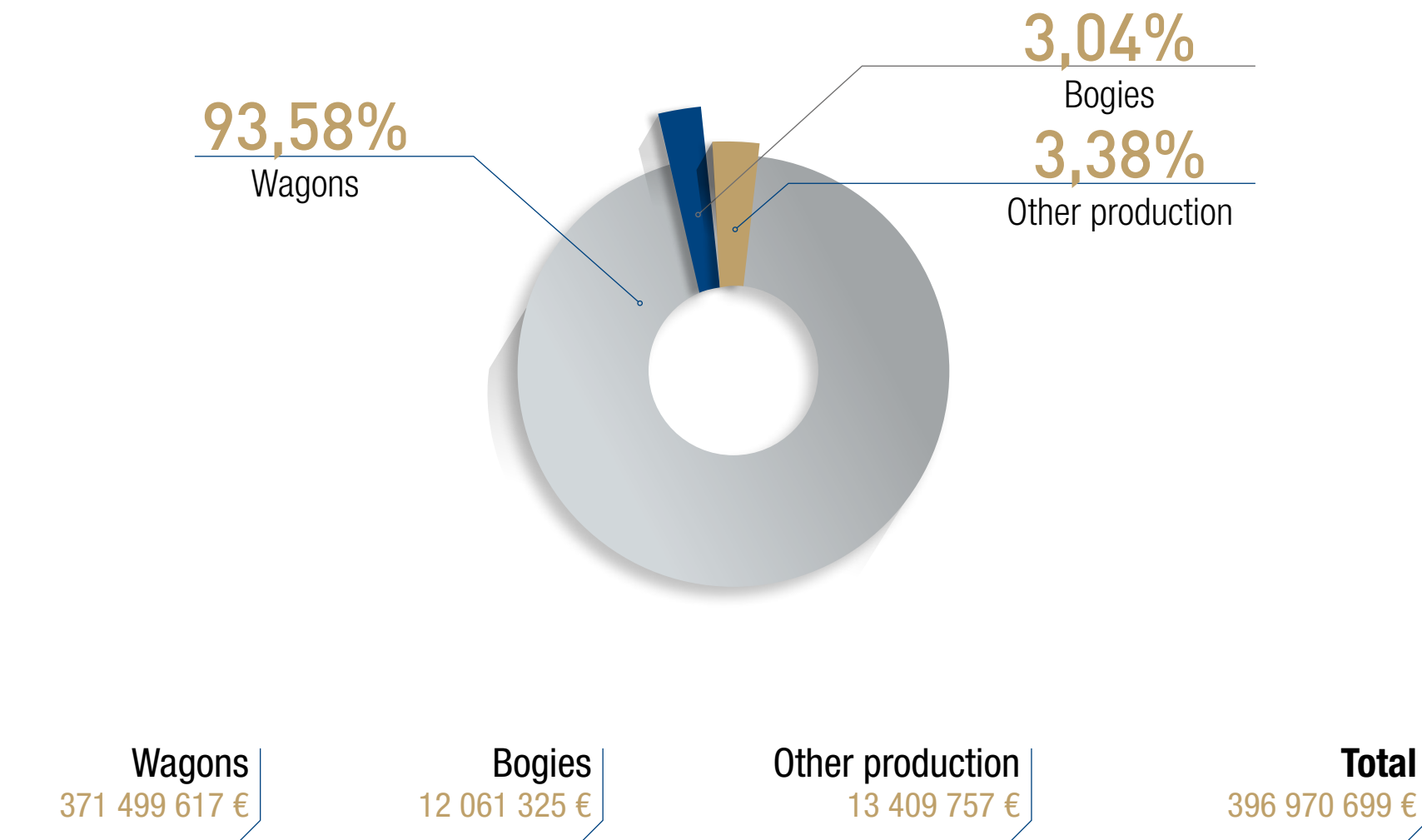
The last tank type is Zans 98 m3 also designed for light mineral oils. At the end of 2020, these wagons were manufactured for the companies ERR and OnRail.

After several-year pause, we restarted the production line for the grain wagons Tagnpps 101 m3. It is a high-sided covered wagons for transportation of bulk products. 156 of these wagons were manufactured. In 2020, this wagon type was manufactured for the companies Ermewa, Vrail and Interfracht.

February of this year was the last month of production of the special wagon of type Saghmmns-ty, which is known under the trade name BraCoil, and which was designed for one customer, for the German state company Deutsche Bahn, which will used it for transportation in the so called Innovative train.

In 2020, we also continued with production of double-deck wagons, so called car-carrying wagons, for transportation of cars. The wagons are designated for the German state company DB. At the end of the year, we started, again after some pause, pro-

PRODUCTION IN 2020



duction of the flat wagons Snps designed for transportation of timber for the company Transwaggon.

The remaining 18.6 % (711 wagons) of the overall wagon production took place in the Plant Trebišov, which is a part of Tatravagónka a.s. since 2009.

As in the previous years, the production program of the Plant Trebišov was focused on production of two-segment recess wagon of articulated design of type T3000. In 2020, Trebišov plant manufactured this wagon type for seven different customers in the amount of 360 wagons. The longest lasting project of T3000e production is the project for the customer GATX.

Except for the above specified wagons, we manufactured 142 wagons of type Sggmrss 90' in 2020.

Furthermore, the wagons of type Sggrss 80' were manufactured

in Trebišov in the amount of 100 wagons for the company Me-trans.

Remaining wagons were of type Sggmrss 80' Esp for the customer VTG (59 wagons) and specially modified prolonged version of the container wagon Sggmrss 92' (50 wagons), which is used for transportation of refrigerating containers. These wagons were ordered by the French logistic company Modalis.

The first tank wagons of type Zans 98 m3 were from the portfolio of our workshop TVB Subotica, where production of new freight wagons started in addition to revisions, reconstructions and production of subassemblies.

The portfolio of bogies and frames consisted of several types in 2020. Standard bogies of type Y25 were manufactured, as well as headstock-free bogies that are more attractive for the

customers. The greatest amount of 2-axle headstock-free bogies of type Y25 was manufactured for the customer Niesky - 681 bogies.

The overall number of manufactured bogies and frames was 10,011 (1,139 bogies for external customers). In comparison with the last year, 735 more bogies and frames were manufactured.

A non-wagon production was also a part of the portfolio of Tatravagónka in 2020. In this area, we manufactured 41 underframes of the wagon DB Laaers for the company ELH Waggonbau Niesky. At the beginning of this year, we delivered the last underframes, i.e. Components for the passenger trains, for our business partner - French corporate company Alstom.

SALES

In 2020, Tatravagónka a.s. was able to sell products and services in the total value of Euro 413 mil., which represents a decrease in comparison with the defined annual plan by Euro 55.2 mil. (11.8%). In comparison with the previous year, the incomes

grew by Euro 44.4 mil.

From the overall volume of incomes, the incomes from sale of the freight wagons are represented by 86.8 %. Another 3 % is represented by incomes from sale of bogies and bogie frames.

Remaining 10 % are represented by incomes for the additional production program.

The result of the company economy in 2020 was a profit after taxation in the amount of Euro 29.3 mil.



SALES IN 2020

86,81%

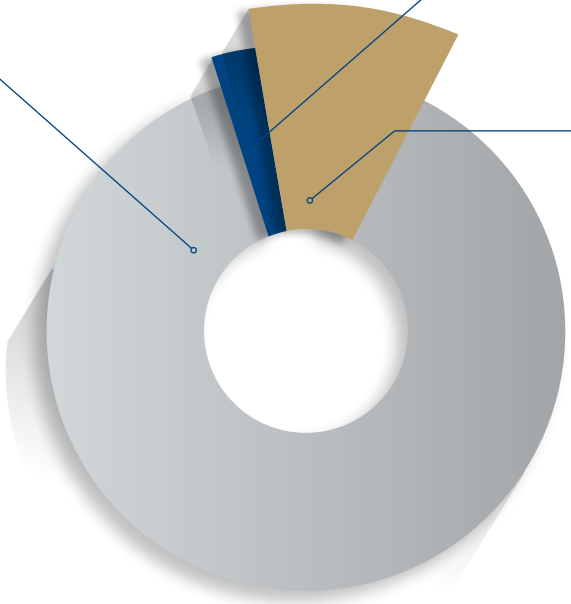
Wagons

3,01%

Bogies

10,18%

Other sales



Wagons

358 529 157 €

Bogies

12 451 186 €

Other sales

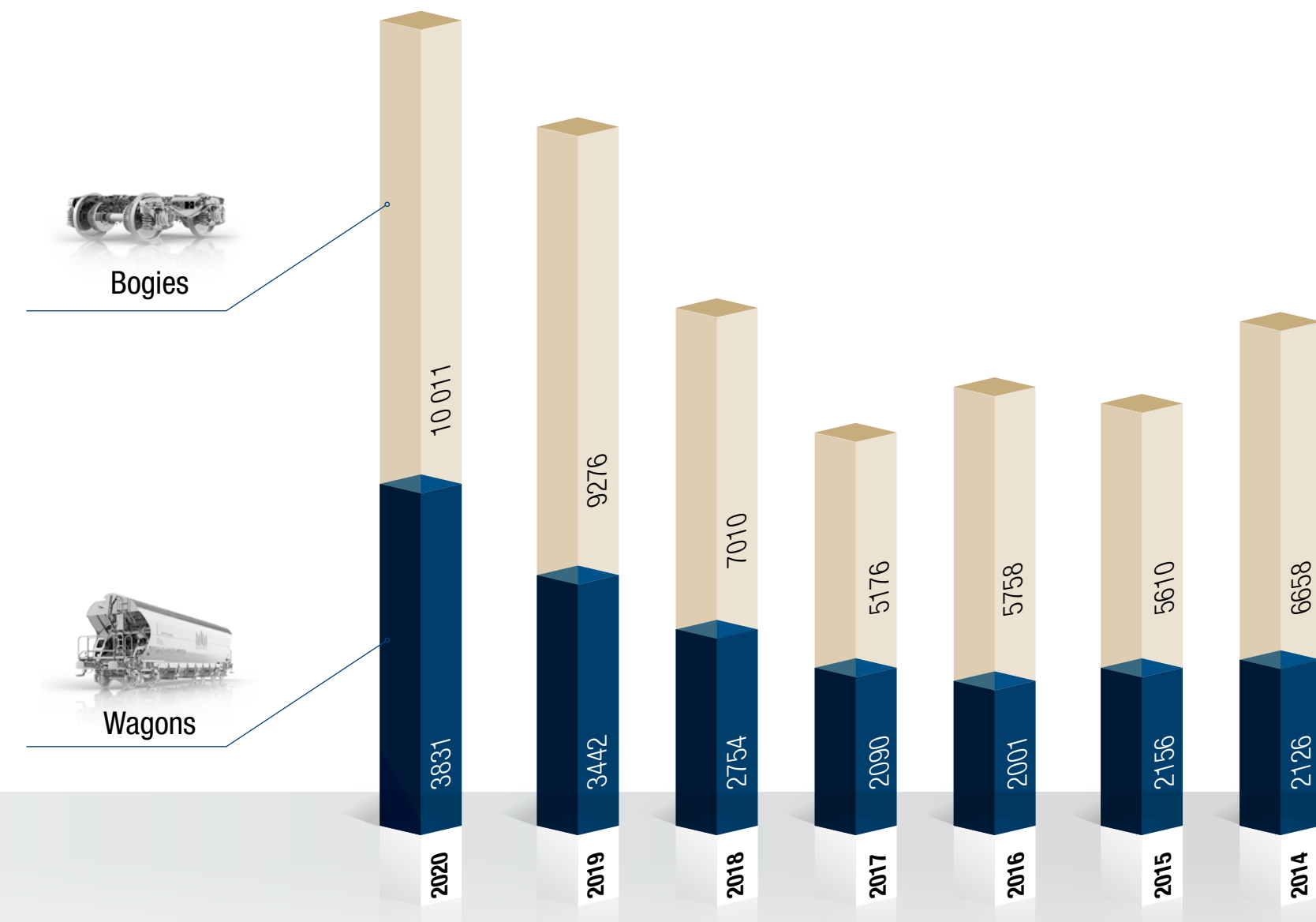
42 029 042 €

Total

413 009 385 €



DEVELOPMENT OF WAGON AND BOGIE PRODUCTION IN PIECES



SINCE 1922

PRESENTATION OF THE COMPANY IN THE WORLD

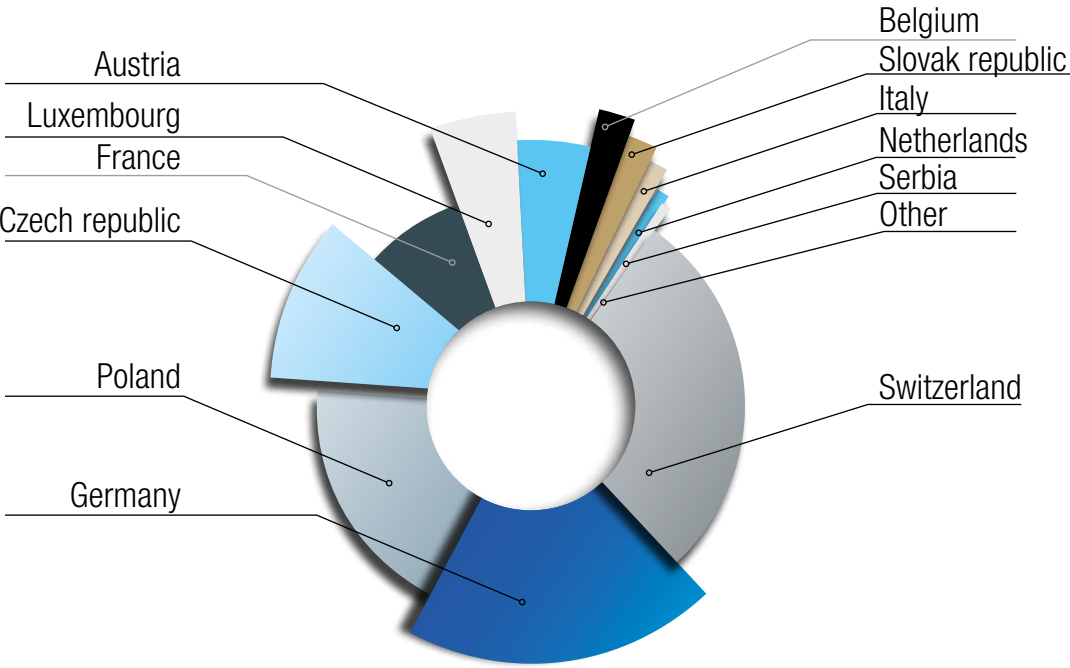
In this year, in order to present the company at the international scene and to acquire knowledge from the competitive environment, but due to global epidemiological situation, we attended only one fair within the field of railway industry. At the beginning of the year, there was an event called Middle East Rail 2020 held in Dubai, which was attended by more than 300 exhibitors and 5,500 attendants participating at six expert conferences. Our company once again attended the fair in the Middle Est region, which belongs among the most dynamically developing world regions. Infrastructure development belongs among the key projects of further progress, and therefore Tatravagónka a.s. is very interested in possibilities to deliver freight wagons to these markets.

EXPORT

In 2020, Tatravagónka a.s. exported to the foreign markets 98.2 % of its production. From the territorial structure of sales, it is clear that the first four countries kept their ranking from the previous year. The Swiss market maintained the first position in our portfolio from the last years, but it recorded decrease by 6.8 %. We register significant decline of share of incomes in case of sale of products and services to Germany (decrease by 13.5 % in comparison with 2019). On the other hand, 7.3 % increase, in comparison with 2019, was recorded in export to Poland. The fourth place in export was maintained by the Czech Republic (9.7 % overall). Other significant countries for deliveries of the company were France, Luxembourg, Austria, Belgium, Italy, Netherlands and Serbia. The volume of sales at the Slovakian market in the last year grew from Euro 7.1 mil. to Euro 7.4 mil.



TERRITORIAL SALE IN €



Territorial sale	in €	in %
Switzerland	113 701 807	27,53%
Germany	79 175 420	19,17%
Poland	74 102 007	17,94%
Czech republic	39 951 565	9,67%
France	33 842 700	8,19%
Luxembourg	18 616 490	4,51%
Austria	18 058 155	4,37%
Belgium	11 929 890	2,89%
Slovak republic	7 491 255	1,81%
Italy	7 176 000	1,74%
Netherlands	4 482 000	1,09%
Serbia	2 771 914	0,67%
Other	1 710 183	0,41%
Total	413 009 385	100%

INVESTMENTS

In 2020, Euro 10.4 mil. was put into investments. The investment activity was mainly focused upon increase of work safety, modernization and renewal of machinery, technologies and production premises with an objective to make the production processes simpler, faster and more qualitative, to enlarge production capacities and also to stimulate the employees towards better performance.

In 2020, we invested in purchasing the machining centres DNM 750 II from the company Doosan with Heidenhain control system. These machines replaced several milling and drilling machines, operational life and reliability of which ended.

Within innovation of machines and improvement of competitiveness, our company invested resources into modernisation of two robotised workstations - workstation for welding of longitudinal beams and welding of Y25 bogie transverse beams. Advantage of modernisation is greater cadence of pieces, and welding is now completely performed by the robot.

In August 2020, the oldest machine - thermal cutting machine - was replaced at BU01 for a new and more powerful machine Omnimat 7500.

The workstation for welding of axle guide stays was also modernised. The task is now performed by the welding robot QIROX QRC 350 with working space diameter of 3.4 m and with the max. bearing capacity of 15 kg.

In the field of renovations, stable foundations for new CNC technologies were built in the hall HL-L1 (BU2 – bearing installation). Currently, the first of two turning lathes GT 2600 is installed in the hall, and shortly they shall be supplemented with the machining centre BF 4200. In 2020, a new boring machine of type VH 10 was installed at BU09. The machine was introduced to the production process at the end of 2020.

A significant novelty of 2020 was the fact that in October the company Tatravagónka a.s. Poprad became the owner of 98.44% of shares of the company Zastrova a.s. Spišská Stará Ves. This company has a long-term experience in production of welding components for rail and road freight vehicles, steel constructions and metal containers. The company is the largest employer in the region with 250 employees and self-employed persons. It

designs its own pressure vessels, jigs, positioners, welding automatic machines, and this development is directly connected with the current production program and requirements of the customers. A program in the wagon production consists of manufacture of rolling stock underframes, overhangs, hinged handles and other wagon subassemblies. In the field of road vehicles, the company manufactures bogies of trailer frames, bogies of container frames, components for utility vehicles, lifting arms and ramps, piston-rods, separators and manipulators for oil industry. The company manufactures also steel pressure vessels for brake systems of rail and road vehicles.

Historical, technological and mainly personnel background of the company Zastrova creates an assumption of stable and long-lasting cooperation in fulfilment of production planes of all companies in Tatravagónka Group. Established program of Zastrova will be supplemented mainly by production of wagon parts, and its quick launch will be an assumption for further strengthening of capacities of this company.



EMPLOYEES

As of 31.12.2020, Tatravagónka a.s. company employed 2,204 employees.

We find the employees to be a key factor for successful running of the company. At the same time, their qualification and expertise are the headstone of the company. Provision of satisfaction and security of the employees and their families ranks among the top priorities in our company.

We tried to provide qualitative, professionally prepared employees by means of an intensive recruitment, we make every effort to adapt and stabilize them. The unfavourable pandemic situation caused the recruitment to be very difficult; to obtain suitable candidates, we tried to use advertising through the employment office at ISTP, through our company's website, LinkedIn; we realized the print form of advertising mainly through Region Press in regional newspapers and we also used the services of recruitment agencies.

We make professional preparation of our employees more qualitative by means of trainings in the Company Welding school. A great support in provision of engineering workers is Secondary Technical School (SOŠT) on Kukučínova street, with which we cooperate in the form of dual education, and during the study, we prepare the graduates for the future work in Tatravagónka a.s.

MEN/WOMEN RATIO

Year	Men	Women	Total
2014	1 760	307	2 067
2015	1 670	288	1 958
2016	1 545	259	1 804
2017	1 570	258	1 828
2018	1 683	264	1 947
2019	1 839	269	2 108
2020	1 906	279	2 185



EDUCATION IN THE COMPANY

Education and training of employees form an integral part of the strategy of Tatravagónka a.s. Poprad. The main goal is to provide qualified, educated and competent employees, who are the main prerequisite for the company's competitiveness and who are its driving engine. With the growing demands of the

company's customers, the demands on the professional level of employees increase. Trainings and schoolings help to achieve this trend.

In 2020, the company provided 7,269 re-trained employees with development and growth through managerial, professional,

computer, development and language courses provided by an internal or external company. In the given year, the trend in the implementation of basic and preparatory courses in the company's Welding School continued.

COOPERATION WITH SCHOOLS

Long-term planning in the field of human resources prevents negative impact in production caused by labour shortages, retirement and natural staff turnover. One source of potential employees is secondary school and university students. Within the cooperation with secondary schools and universities, the company Tatravagónka a.s. organises professional practice, internships, excursions or it provides consultations for bachelor's and

master's theses. In 2020, the company continued in the system of dual education in cooperation with the Secondary Vocational Technical School in Poprad and with the Secondary Vocational Electro-engineering School in Matejovce. The system of dual education is currently attended by 21 students of the program Metal machining, and 37 students of the program Programmer of CNS machines and devices, as well as 3 students of Mecha-

nist electrical engineer program and 2 students of the Electrical engineer program. The Trebišov plant cooperates in the system of dual education with the Church Secondary Vocational School of St. Josaphat in Trebišov. In 2020, 7 students were trained in the field of mechanical engineer.

THE DEVELOPMENT OF EMPLOYMENT SINCE 2014

	2014	2015	2016	2017	2018	2019	2020	% podiel
Average number of employees	2 067	1 958	1 804	1 828	1 947	2 108	2 185	100,00%
thereof	production workers	1 163	1 084	993	1 023	1 098	1 223	55,97%
	indirect labour	403	357	343	333	356	402	18,40%
	administrative w.	501	517	468	472	493	560	25,63%

NUMBER OF TRAINED EMPLOYEES 2020

	January	February	March	April	May	June	July	August	September	October	November	December	Total
Welding school	71	47	78	5	38	72	57	108	49	72	76	47	709
Training total	688	871	539	359	571	754	606	481	833	589	513	465	7 269

SOCIAL RESPONSIBILITY

Information on activities in the field of environmental, social and employment, respect for human rights, the fight against corruption and bribery are published on the company's website <https://tatravagonka.sk/vizia-spolocnosti-tatravagonka/>.

Tatravagónka a.s. has long been building a relationship with its customers based on four basic pillars:

- to achieve a dominant position in the production of freight wagons and bogies by the quality and flexibility of deliveries using traditional values, experience and modern technology,
- to develop and produce innovative products that satisfy all customer requirements through satisfied and qualified employees,
- to be a stable and attractive employer through an open corporate culture focused on teamwork, connecting employees through management and an individual approach,
- by strict adherence to safety standards and norms, creating a social and work environment for employees in which they behave responsibly towards their health and the health of their colleagues

With regard to the environment, the company is committed to acting responsibly in order to achieve the following result:

- We ensure that our products, activities and services comply with applicable environmental legislation and regulations.
- We maintain and continually improve our environmental management systems to comply with more stringent requirements required by specific market or local regulations.
- We conduct our activities in a manner that aims to continuously improve environmental sustainability through recycling, conservation of resources, protection against pollution, product development and the promotion of environmental responsibility among our employees.
- We responsibly manage the use of hazardous materials in connection with our activities, products and services.

Environmental goals are adopted and defined each year based on the requirements of management and the company.

In compliance with the principles of social responsibility in the field of human rights and labour policy, Tatravagónka respects the basic principles set out in the Universal Declaration of Human Rights. The company's core values, and culture reflect the company's commitment to ethical business practices and a suitable work environment. Our procedures and practices require uncompromising integrity and the promotion of human rights in the conduct of our business activities within the sphere of company influence:

1. Voluntary choice of employment - we support the elimination of all forms of forced labour or involuntary work of prisoners.
2. Prohibition of child labour – the company is against any form of child labour abuse, and does not employ child labour and supports the elimination of child labour abuse.
3. Minimum wages - our employees receive wages and bonuses that meet or exceed the statutory minimum.
4. Working hours - we do not require our employees to work more than the maximum number of hours worked required by local law.
5. No discrimination - we support and approve the elimination of discriminatory employment practices and promote diversity in all areas of our business activities. Our practices prohibit discrimination based on race, skin colour, age, gender, sexual orientation, gender identity and expression, nationality, religion, physical imperfections, military affiliation, and nationality or any preferred group.
6. Prohibition of inappropriate or inhuman treatment - physical abuse, maltreatment or any threats are prohibited. We provide a safe and healthy work environment for all our employees.
7. Freedom of association - we exercise the rights of employees associated in trade unions in accordance with local laws and established procedures.
8. Business rules - the company's suppliers are obliged to announce and promote legal rights.

In the social field, emphasis is placed on:

- Responsibility - we behave professionally and we want to constantly learn new things and improve both humanly and professionally. We approach the living, social and cultural environment responsibly.
- Cooperation - is based on two pillars, self-confidence and humility. Each of us believes in ourselves and remembers that we can do it together. We work together to achieve our common goal We are all members of one team and work together for integrity, responsibility, quality, excellence and expertise. An important element of our cooperation is open communication across the entire company. We share not only the same values, but also the same information.
- Innovation - we are appropriately curious and with an open mind we create, implement and look at innovative solutions in the rail freight market The personal development and education of all our employees brings us creative solutions, approaches and perspectives from little things to big projects. We push the boundaries and look for new challenges that materialize in real products thanks to our creativity.
- Trust - is our common moral value, by which we express our unequivocal attitude towards the Tatravagónka a.s. company as well as towards every single colleague. This value unites us and manifests itself in loyalty to the company. We trust each other, and at the same time we are trustworthy. We also show trust to our colleagues, whether it is a superior or a subordinate within the vertical organizational structure. We also treat our partners openly, transparently and ethically, building our credibility and respect in business relationships.
- Safety - is paramount for all of us. We value human life the most. Our highest priority is to create a safe work environment. We do not compromise on security, nor is it affected by the achievement of the company's goals, quality, costs and deadlines. We are aware of our responsibility for our own safety. At the same time, we assume collective responsibility for the safety and health of each one of us.

Another important area of support from the company is the area of philanthropy. On a monthly basis, Tatravagónka a.s. devotes itself to redistributing a certain amount of funds for the development of sports and cultural events, organizations and projects in the region. We support all activities aimed at children and people with disabilities, where we give priority to such disadvantaged children of our employees. Tatravagónka a.s. complies with the conditions in the area of public procurement through public tenders.



IMPACT OF THE COMPANY'S ACTIVITIES UPON THE ENVIRONMENT

Authorised employees integrate Environmental protection legislative into the company's acts of management, operational and safety regulations, working processes etc. They methodically and professionally guide head workers and employees at all levels of management regarding the environmental protection, and they regularly control observance of legal state. They cooperate with state authorities of environmental protection and hygienic supervision, they elaborate reports, notifications and concepts in the field of environmental protection, they provide necessary measurements and analyses, contract with corresponding companies, etc.

There is established an individual greasing and tribotechnic service, which provide manipulation with oil substances (oils, cooling emulsions, machine greasing). Regarding technical devices, there is built a demulsification and neutralizing station for neutralizing of sewage and waste water and cutting emulsions, which is a device for disposal of dangerous waste. There operates own industrial water conduit, washing ramps for washing of cars and motor transportation carts with oil catchers, gravitation separator of oil substances in rain canalization leading into the stream of Husí potok, diesel fuel dispensing pump with strengthened base and catcher of oil substances. Tatravagónka has safe storerooms for paints and oils, strengthened areas for impounding reservoir for manipulation with metal splinters from tool machines polluted with harmful pollutants, separating devices at shot-blasting lines for air protection against solid emissions. It regularly provides replacement of filter sleeves on spraying and drying cabins for elimination of emissions, in two technologies, catalytic combustion of waste gases with content of organic evaporative substances is built, etc.

Except sources of power, where heating medium is natural gas, they are sources of pollution with solid substances such as shot-blasting lines, and pollution with organic solvents during surface treatment. For operated sources of air pollution, the company pays annually amounts corresponding with the volume of emissions according to demonstrated calculations. The total amount of pollution by solid substances is significantly reduced thanks to cleaning and replacement of filters in

shot-blasting machines, by disassembly of several shot-blasting machines that were replaced by more modern technologies and also by thorough maintenance of these machines.

For the business period of 2013-2020, Tatravagónka a.s. is not a member of the business scheme. It was excluded from the scheme of trading with emission quotes as of 31.12.2013 due to reduction of heat rate of the facilities that burn the natural gas. All kinds of wastes were disposed of by ecologically clean methods. In Tatravagónka, the activities connected with waste disposal are fully provided by the external company. Our production departments are ordered to treat waste through an introduced system of complex waste treatment. The organisation's directive is elaborate, and defines an exact method for waste treatment, i.e. system of its separation, storage within specified vessels and export from the departments for disposal or handing over as the secondary material. Furthermore, the organisational directives are elaborated in the company that relate to treatment of metal scrap, collection of waste paper and wood, to manipulation with oil products, oil replacement, etc.

Totally, TATRAVAGÓNKA a.s. operates 52 sources of air pollution in the following classification:

Source type	Poprad	Trebišov
Small	6	12
Medium	22	5
Large	6	1
Total	52	



RESULTS OF COMPANY'S OPERATIONS AS OF DECEMBER 31, 2020

SHORT FORM OF THE BALANCE SHEET BY IFRS
(IN THOUSANDS OF EURO)

ASSETS	as of 31. 12. 2020	as of 31. 12. 2019
Intangible assets	7 183	8 316
Property, plant and equipment	115 395	111 519
Investment property	1 171	1 165
Financial Assets	46 901	44 831
Deffered tax asset	0	0
Total non-current assets	170 651	165 830
Intangible assets of discontinuing operation	0	0
Property, plant and equipment of discontinuing operation	0	0
Property available for sale	0	0
Inventory	24 225	25 080
Marketable investments	0	0
Trade and other receivables	96 809	83 337
Tax receivables	4 388	6 545
Cash and cash equivalents	31 945	25 370
Total current assets	157 367	140 332
TOTAL ASSETS	328 018	306 162
EQUITY AND LIABILITIES	as of 31. 12. 2020	as of 31. 12. 2019
Subscribed equity	86 358	86 358
Funds	13 398	11 916
Retained earnings	62 806	42 919
Equity in total	162 562	141 192
Long-term finance liabilities	44 105	10 439
Other non-current liabilities	295	211
Deferred tax liability	7 125	8 069
Non-current reserves	7 559	6 447
Non-current liabilities - total	59 084	25 167
Trade and other liabilities	68 572	75 509
Short-term reserves	0	0
Tax liabilities	3 878	1 830
Short-term financial liabilities	33 922	62 464
Liabilities directly associated with assets classified as held for sale	0	0
Assets liabilities of a discontinuing operation	0	0
Current liabilities - total	106 372	139 803
Total Liabilities	165 456	164 969
TOTAL EQUITY AND LIABILITIES	328 018	306 162

SHORT FORM OF INCOME AND EXPENSE STATEMENT BY IFRS
(IN THOUSANDS OF EURO)

	as of 31. 12. 2020	as of 31. 12. 2019
Revenues from the main activity	413 009	368 570
Revenue from the sale of merchandise	27 398	12 488
Revenue from the sale of own products and services	385 611	356 082
Capitalization	558	1 386
Changes in inventories of finished goods and own production	5 971	-2 502
Cost of main activity	378 731	347 085
Other operating income	3 817	2 603
Other operating expenses	8 442	5 356
Interest	-960	-866
Other financial expenses - net	1 651	731
Other financial income - net	2 816	2 007
Profit before tax	36 387	18 028
Tax expenses	7 018	3 209
Profit for the period of continuing operation	29 369	14 819
Profit for the period of discontinued operation	0	0
PROFIT AFTER TAXES FOR ACCOUNTING PERIOD	29 369	14 819
Other components of comprehensive income in total	0	0
Total comprehensive income for accounting period	29 369	14 819

CASH FLOW (V TIS. EUR)

	as of 31. 12. 2019	as of 31. 12. 2018
Profit before tax	36 388	18 028
Items modifying profit before tax to cash flows from operating activities:	3 992	6 178
Operating profit before changes of working capital	40 380	24 206
Changes in assets and obligations:	-8 983	5 257
Net operating cash flow	31 397	29 463
Interest received	156	198
Interest paid	-1 116	-1 063
Income from financial operations	0	0
Income tax paid	-5 914	-2 149
Net cash flow form operations	24 523	26 448
Expenses for acquisition of subsidiary and associated enterprises	-2 439	-1 910
Purchase of long-term tangible assets	-11 545	-13 531
Purchase of long-term intangible assets	0	0
Expenses for sold assets	0	0
Income from sale of long-term assets	458	228
Income from sale of shares of subsidiary companies	0	0
Expenses for long-term loans provided by accounting unit of other accounting unit, which is a part of consolidated unit (-)	-2 857	0
Income form sale of long-term loans	0	980
Return of advance payment for purchase of investment	0	0
Income from dividends and other shares of profits	0	0
Income from interest received	0	0
Other expenses used in investment activities	0	0
Other income connected with investment operations	0	0
Net cash flow from investment activities	-16 383	-14 233
Income from registered stocks and business shares	0	0
Interest paid	0	0
Dividends paid	0	0
Income from changes of loans and long-term obligations	6 436	1 772
Expenses for settlement of loans (-)	0	0
Expenses for paid dividends and other shares of profits	-8 000	-5 000
Expenses for other financial activities	0	0
Net cash flow from financial activities	-1 564	-3 228
Net increase of financial resources and equivalents	6 575	8 987
Financial resources and equivalents at the beginning of account period	25 370	16 383
Exchange rate differences enumerated for financial resources and equivalents	0	0
FINANCIAL RESOURCES AND EQUIVALENTS AT THE END OF THE ACC. PERIOD	31 945	25 370

OBJECTIVES AND TARGETS FOR 2021

The COVID-19 pandemic, caused by the spread of the SARS-CoV-2 virus, not only affected economic development across all sectors and countries in 2020, but its consequences and their mitigation will have a significant impact on economic developments in 2021 and beyond. Potential instability caused by the unpredictable development of a pandemic could result in changes in the decision-making of all economic actors around the world, and the so-called “new normal” will be reflected in every aspect of the normal operation of companies.

The unexpected situation forces us to react more quickly to the coming changes, to quickly assess possible risks and threats, and to pay consistent and uncompromising attention to the increased protection of the health of our employees. However, a very important task in the coming year 2021 will be to maintain the trust of our customers and to continue the responsible fulfilment of the obligations of our business contracts.

In 2020, Tatravagónka a.s., despite all the unfavourable circumstances, managed to achieve the historically highest numbers of manufactured wagons and bogies. And although at the beginning of 2021 Tatravagónka a.s. faced a decrease in performance in connection with an increase in COVID-19 disease, currently the outage has been covered by the additional production capacities, and we expect to maintain the production trend also with regard to further planned increases in production capacity in 2021.

From a business point of view, we expect further positive growth for 2021. Orders for 2021 fully cover the production capacities of Tatravagónka a.s., which are almost completely contracted for both 2022 and 2023. Thanks to investments in modern-

ization and new production facilities, we are able to keep up with the growing volume of orders on the rail freight market in Europe.

Increased demand is the result of several factors. One of the main ones is the permanent reduction of rail transport fees, which aims to improve the competitiveness of rail transport compared to other transport options and to reduce the environmental impact of transport of goods and commodities. The EU's “Green policy” in particular has a significant impact in this area. The constant trend of demand for the car-carrying wagons continues, with car manufacturers trying to change their transport of produced cars from production plants to their dealers and distributors in the target countries from road to rail. Another major impact on the demand for freight wagons is the commitment of airlines to reduce the number of local flights that will be replaced by rail. As the air transport makes a high contribution to CO2 emissions, this is a significant step forward for green policy within Germany and the EU. That is why distribution companies such as DHL, Amazon, and UPS are looking for new shipping solutions at a time when the purchase of everyday household needs has moved to online space and the demand for fast shipping is growing. One of the solutions already discussed is freight trains with a speed of 140 km/h to 160 km/h. There is also a growing demand for wagons with refrigerated containers for transport of food (fruit, vegetables, meat products,...).

The strategy of the company in the field of freight wagon development is still governed by three basic EU documents, which are based upon the EU environment policy and upon the climate agreement of Paris of December 12, 2015. The specified documents are: “Transport 2050 – EU White paper”, “Masterplan

Schienenengüterverkehr DE” and “White Paper - The intelligent Freight Train”. In the field of freight wagon development for 2021/22 and for further years, there still persists a trend of development of new innovative types of freight wagons and bogies with a focus upon minimization of freight wagon weight, reduction of noise and increasing versatility. The field of intermodal wagons is focused upon development of wagons for transportation of new container and swap body types.

In the field of rail freight in Europe, the TIS initiative “White Paper - The Intelligent Freight Train IF2” is important, describing a roadmap for the rail freight future, which is characterized by the transition from an innovative freight wagon to an intelligent freight train. In practice, this means the gradual equipping of freight wagons with monitoring systems for monitoring both the movement of the wagon, the consignment of the goods, as well as the parameters related to the operating condition of the wagon. Furthermore, wagons need to be prepared for the possibility of incorporating an automatic coupling (a strategy called “DAC Charter”, which aims to automatically connect freight wagons by 2030), and in practice gradually move from pneumatic to electro-pneumatic brake as a necessary condition for automatic coupling of wagons. The trend towards the DAC is noticeably more pronounced than in the previous period, so all the designs of the new wagons are gradually being modified, so that DAC can be incorporated once it will be approved Europe. The first activities are beginning to take place in the EU for the development of an innovative measuring system that can create a digital twin of a freight wagon during its run. This digital twin will help improve train handling and freight wagon maintenance.

TO BE THE FIRST CHOICE



TO BE THE FIRST CHOICE