



EU-wide Certification and Authorisation for Railways: Objectives achieved?

On 16 June 2019, the new EU-wide certification and authorisation procedure at the European Union Agency for Railways (ERA) came into effect in many EU member states according to the technical pillar of the 4th Railway Package (4RP). By the end of 2020, it will have been implemented across the entire EU. It has already been supposed to be applied to freight wagons EU-wide since June 2019. One year later and with some hindsight, it's time to take stock.

By Dr Jens Engelmann, CEO railiable GmbH

One of the objectives of the technical pillar of the 4th Railway Package (4RP) was to provide a harmonised approach and framework for the vehicle authorisation and safety certification processes for railways across Europe with a positive impact upon time and cost efficiency. Legally, it's based upon the Recast Interoperability Di-

rective (EU) 2016/797 and the Commission Implementing Regulation (EU) 2018/545. A new process entails changes, new systems, roles and terms that need to be understood and adequately implemented by all parties involved. Let's have a closer look at these changes.

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Dear business partners

Fast, flexible, and cost-efficient – these attributes are indispensable in our industry. This is nothing new, but further progress is possible and essential. With the new EU-wide Certification & Authorisation for Railways, ERA's got the key in its hands to reduce time and costs for innovations. It's good news that the processing of applications has already become much faster.

In our interview (pages 4 and 5), Dr Doppelbauer at ERA is looking ahead and calls for a higher quality of application documents. He also appeals to our industry to get organised and to use our expert knowledge for creating complementary guidelines in order to further simplify and accelerate proceedings. Wascosa is more than ready to contribute. What about you?

Whether in especially challenging construction site logistics (page 7) or in 'ordinary' freight traffic: We are very proud to see that the trend to use modular and flexible wagon systems, which Wascosa kicked off about ten years ago, has definitely been well received in the industry by now. DB Cargo and VTG also clearly demonstrate this with a joint initiative. Together they pursue the objective to bring the first freight wagon platform authorised by ERA upon the market (page 6).

Glencore also depends upon efficient grain wagons. On page 9, we talk about our long-standing partnership in the development of wagons with an optimised loading volume that are easier to operate and therefore more (cost) efficient.

Enjoy reading this exciting edition of our infoletter!

Philipp Müller
Chairman of the Board of Directors

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Main changes to the vehicle authorisation process for freight wagons

There are four main changes in the context of the authorisation procedure for freight wagons (see also chart on page 3):

1. The ERA is the only authorising entity in Europe for TSI (Technical Specifications for Interoperability) compliant freight wagons (i.e., fully interoperable for cross-border rail services in Europe) or rather the coordinator of NSAs (National Safety Authorities) for projects with national requirements.
2. The management of applications and corresponding documents is done through ERA's IT system, the so-called 'one-stop-shop' acting as a single-entry point for all applications.
3. With 4RP the idea to market products in the EU on one's own responsibility after proof of compliance with the relevant fundamental requirements also applies to railway vehicles. Consequently, there will be, for instance, no authorisation for commissioning any-

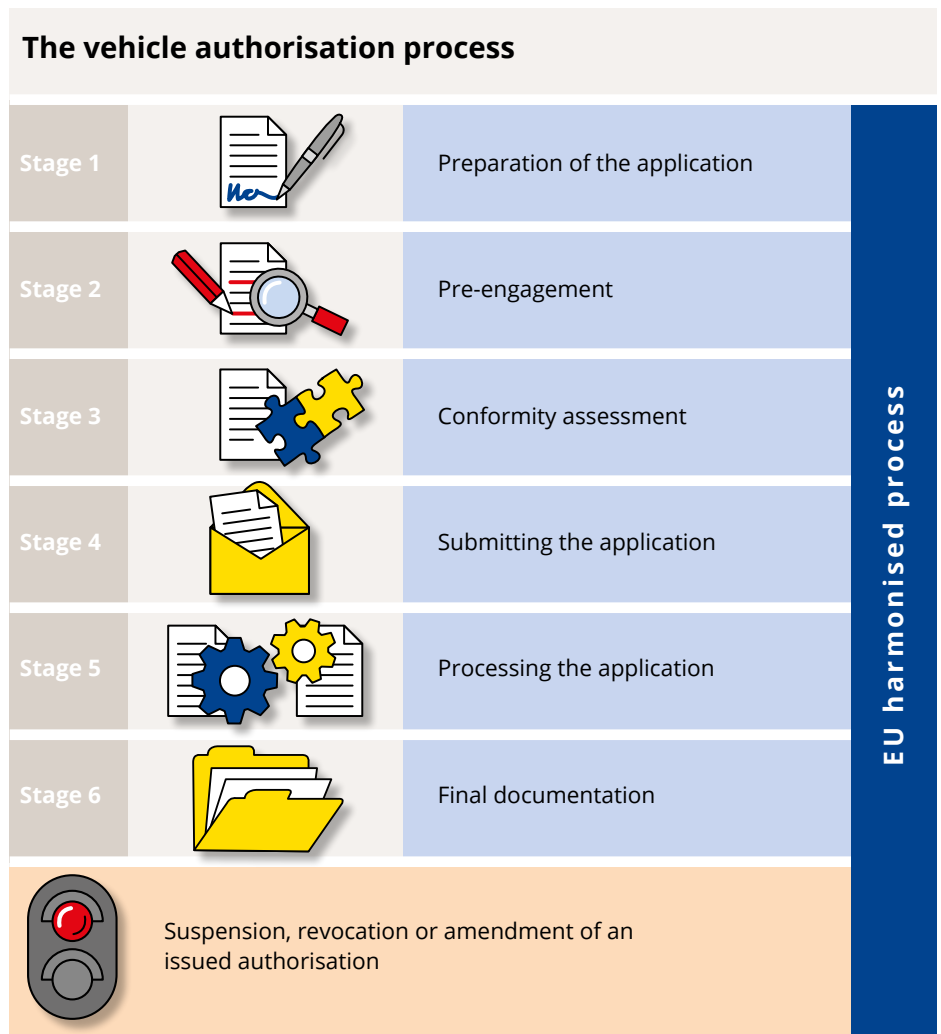
more but rather the notion of 'vehicle authorisation for placing on the market'.

4. The subsequent check whether a vehicle can run on certain routes is up to the railway undertaking using the vehicle. In order to do so, a 'route compatibility check' is done together with the railway infrastructure manager.

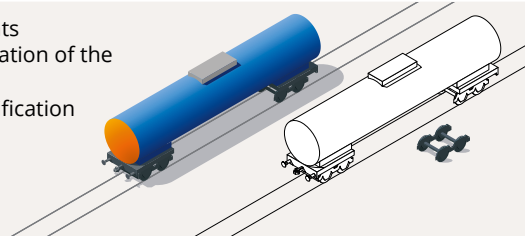

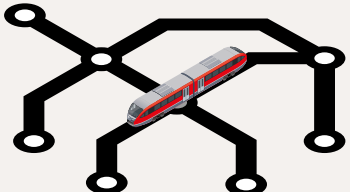
Authorisation process according to mailbox principle

The process between applicant and authority follows the mailbox principle: The applicant (usually the manufacturer) submits the complete stack of documents for authorisation through the one-stop-shop on a specific day. Consequently, there is no concurrent handover of documents during the process anymore.

During the **preparation** phase, the applicant has to capture the applicable requirements. It is strongly recommended to request **pre-engagement** with ERA in order to avoid impediments and to come to an agreement about the pre-engagement baseline. In fact, this is non-binding as the system of rules effective at the point in time when the application is submitted



The vehicle authorisation process in the context of railway operations

Activity		>1 MS	Only 1 MS
1	Placing on the market of mobile subsystems <ul style="list-style-type: none"> • Essential requirements • No need for authorisation of the mobile subsystem • EC declaration of verification 	Applicant	
2	Vehicle authorisation for placing on the market / Vehicle type authorisation <ul style="list-style-type: none"> • Technical compatibility of the subsystems within the vehicle • Safe integration of the subsystems within the vehicle • Technical compatibility of the vehicle with the network in the area of use 	Authorising entity The Agency in collaboration with NSAs The Agency or NSA (Applicant's choice) One-Stop-Shop	
3	Check before the use of authorized vehicle <p>Route compatibility on the basis of the Register of Infrastructure (RINF) and national rules</p> 	Railway Undertaking	
4	Supervision <p>In case of non-compliance to essential requirements noticed during operation by Railway undertakings or ultimately by NSA and inducing safety risks (e.g. during supervision activities) authorisation can be suspended, revoked or amended.</p>	NSA(s)	

requires compliance (now valid across Europe). However, this is an opportunity to minimise risks that may occur during the process.

After the risk and **conformity assessment**, the upload of supporting documents into the ERA register, and the preparation of the application through the one-stop-shop (together with all declarations, technical dossiers, and certificates), it will be submitted (**submitting the application**).

Afterwards, the application is processed by ERA (**processing the application**). The verification of completeness and plausibility is supposed to take no longer than one month. If the application is incomplete, the process is suspended by the ERA until the applicant has clarified the issue(s). Thereafter, the assessment will take up to four months or less depending upon the application's quality.

Once the application has been successful, ERA provides a first authorisation for a new type of vehicle which is registered with the

ERATV (European Register of Authorised Types of Vehicles) (**final documentation**). Based upon this type authorisation, the applicant can request further authorisations for individual vehicles which conform to this type (conformity to type/CTT). These cases can be combined during the application process.

Important: The applicant is responsible for capturing all applicable requirements and ensuring that they are met. This has always been part of the applicant's role but now turned into a (pre)requisite.

Same procedure for modifications

The procedure for modification projects is the same as for new types of vehicles. The advantage is the EU-wide specification of criteria for authorisation by, amongst others, basic design characteristics in TSI. When planning modifications below these criteria, the applicant enjoys more freedom as required by the industry. However, the applicant is also responsible for evaluating whether the intended modifications could possibly affect the overall safety level of

the respective vehicle. Whenever a modification is not subject to authorisation, the party making them is solely responsible for its safety.

Authorisations of modifications must be based upon an existing type authorisation according to 4RP which creates another challenge. Of course, it does not exist for almost all older vehicles. Consequently, available documents need to be scrutinised. Whether and how they can be used, still needs to be clarified.

Help still needed?

Since the beginning of 2020, the author has organised 4RP training sessions for the Association of the German Railway Industry (VDB Verband der Bahnindustrie in Deutschland e.V.). The participants' feedback primarily indicates a need for guidelines and methodologies when modifications are made and safety levels are supposed to be evaluated but also when dealing with modification projects authorised under a previous regime.

“The transition went smoothly. Now we are optimising the process.”

In an interview with Dr Jens Engelmann, CEO at railiale GmbH, the Executive Director at the European Union Agency for Railways ERA, Dr Josef Doppelbauer, talks about his satisfaction with the new EU-wide Authorisation procedure for freight wagons. He suggests that the industry develops and provides own guidelines for further optimisation.



Dr Josef Doppelbauer, Executive Director of the European Union Agency for Railways

“We will start discussions with the Commission this year in order to propose fixed tariffs. These will help us reduce the administrative burden and costs.”

How many types and vehicles have been authorised by the ERA since June 2019? What are the status quo and trends as to duration and costs?

From June 2019 up to the end of August 2020, we have authorised 19 types of freight wagons (first authorisations or modifications) and approximately 7,400 freight wagons in conformity to type (CTT). The time needed for completing type authorisations depends upon the quality of the application. It's somewhere between three weeks and five months (the legal maximum). In fact, the applicant and the quality of documentation have a major impact upon the time needed for the entire procedure. In the medium or long term, I expect faster procedures way below the legal time frame. However, this requires high-quality applications. With CTT authorisations, the average to date is 7.5 working days per authorisation for all cases completed since 16 June 2019. We were able to achieve an average of three working days in August 2020 which is even below our target of five working days. However, we continue to improve and optimise our internal processes.

We have not gained sufficient experience yet in order to make a sound statement about costs for first authorisations. For conformity to type, however, we will soon start discussions with the European Commission in order to propose fixed tariffs based upon our experiences from the first year. These will help us reduce the administrative burden and costs.

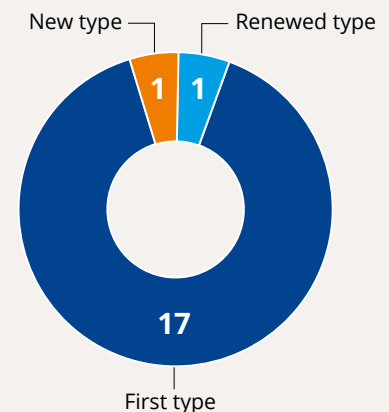
What kind of problems do applicants usually experience? What do they need to consider in particular?

The use of our one-stop-shop as a single-entry point for all applications works pretty well. There were not too many initial problems. When we look at the questions coming in, we can see that more often than not users have problems with capturing requirements and finding out what kind of certificates and declarations are needed. So, in the first place, applicants should familiarise themselves with the practical arrangements for the railway vehicle authorisation and railway vehicle type authorisation processes, i.e. the Commission Implementing Regulation (EU) 2018/545 (especially Appendix No. I) and

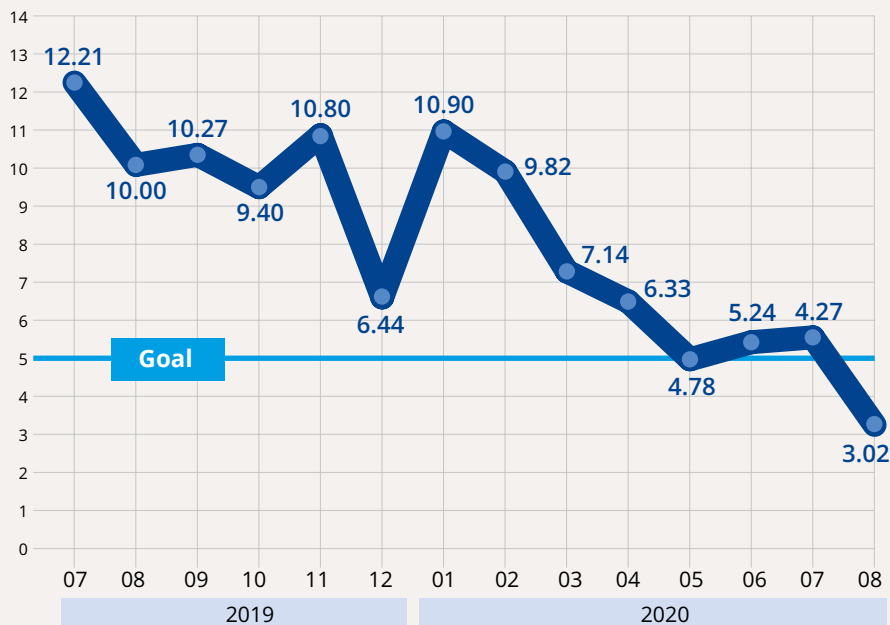
the Commission Implementing Regulation (EU) 402/2013. Secondly, they should consult the applications guidelines as well as the information and clarifications provided regularly by ERA on our website. Thirdly, they should actively request pre-engage-

Number of ERA freight wagon type authorisations

16.06.2019 – 31.08.2020



Average duration of processing CTT authorisations (Workdays)



“The applicant and the quality of documentation have a major impact upon the time needed for the procedure. In the medium or long term, I expect faster procedures way below the legal time frame. However, this requires high-quality applications.”

ment prior to starting the application process or seek our chargeable services for advice. In addition, we are currently considering a request for proposals in order to collect additional guidelines for requirements capture and a list of other EU laws and regulations that a vehicle needs to comply with. These are frequent flaws in the applications. Up to now, we have not received any reports about major difficulties with route compatibility.

Are there any difficulties with obtaining a type licence for modifications?

Modifications often require a close cooperation between applicants and the ERA teams. At the moment, this does not seem to be a critical issue. Some concrete cases are currently being clarified.

What kind of support can we expect from the ERA and when? Where do you see major training needs?

Elements like requirements capture are basically not new. Applicants themselves have always been supposed to identify and define which requirements they (need to) comply with. However, we realise that the industry does not seem to be familiar with the formal presentation of risk analyses. Therefore, we plan to provide assistance in the first half-year of 2021 with up-to-date guidelines or explanations that can also be used in training activities. This applies to questions about modifications as well, e.g.: ‘Could the overall safety level of the vehicle concerned be adversely affected

“The industry does not seem to be familiar with the formal presentation of risk analyses. We plan to provide assistance in the first half-year of 2021 with up-to-date guidelines or explanations that can also be used in training sessions.”

by the planned works? [Interoperability Directive, Article 21, 12. (b)]. Knowledge and evidence are usually available within the industry. Therefore, we would very much appreciate the industry’s participation in developing and providing guidelines for

the authorities. We could then possibly organise a knowledge exchange together with the industry and the National Safety Authorities in order to ensure that we all have the same understanding. This would significantly reduce the burden on all parties involved in the applications process.

Are there still any national requirements that may be obstructive to the process? What about the cooperation with the National Safety Authorities?

For mere TSI vehicles like ‘go everywhere’ freight wagons, for instance, this is irrelevant. In the (rare) case of vehicles with national special features we cooperate very well with our national colleagues. The previous joint efforts of the ERA and all member states to revise national regulations are key here. It’s obviously not always very helpful to have discussions like this during an authorisation procedure.

Tried and tested: The first Freight Wagon Platform to be authorised by the ERA

The needs of today's logistics industry are constantly changing. In order for freight wagons not to lose even more ground against commercial road vehicles, it's important to make the design of assets more flexible and to change technologies as well as authorisation methodologies. This is exactly what DB Cargo AG, VTG AG, and their business partners have realised by creating the freight wagon platform m².

By Dr Holger Schmidt, Director Technical Management Wagons, DB Cargo AG

The freight wagon platform m² is scalable and has been designed and developed along three dimensions:

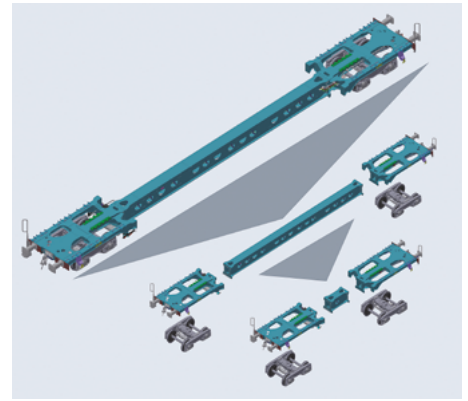
1. The length of wagons can be changed (loading length from 10,800 to 22,600 millimetres).
2. Potential loading scenarios are flexible due to different points of force transmission.
3. Different components qualified for this purpose are assembled.

Completed with customer-specific containers, a freight wagon that has been configured from this platform system can turn into an integral part of the customer's logistics supply chain. Changing customer needs are flexibly met by a simple modification of the freight wagon within the system.

Objective: authorisation of platform system instead of single vehicles

A prerequisite for the described technological possibilities to become fully effective, though, is a flexible authorisation of the freight wagon. Therefore, the platform system m² is supposed to be licenced as a whole. With this objective in mind, DB Cargo AG and VTG AG approached the ERA when they started their joint project one and a half years ago. Together with ERA experts, the Railway Approvals GmbH acting as NoBo, and the LogoMotive GmbH as development partner they have designed a concept for this to be realised.

A verification concept demonstrated which freight wagon configuration derived from the platform m² is the most critical one in each case concerning different authorisation criteria. The result was the starting point for test planning.



Freight wagon platform m² – with variable length, functional and convertible according to customer needs



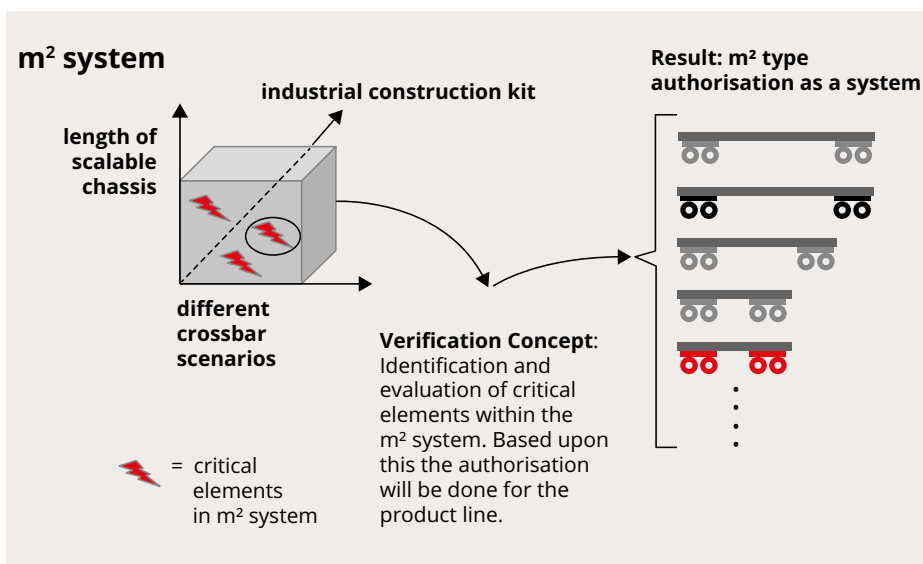
Preparation of tests with special container for simulating the worst-case load

Different prototypes for testing the most critical construction levels

For authorisation test purposes, DB Cargo AG and Waggonbau Graf GmbH designed different prototypes. So, they were able to test authorisations with the most critical construction levels of the m² platform system. The TSI noise tests, for instance, were done with the shortest, the derailing tests with the longest vehicles of the system. The simulation of different critical loading conditions turned out to be a particular challenge. A platform has been developed especially for testing the system's maximum load (i.e., longest vehicle, maximum load and centre of gravity height).

Due date for authorisation: 1st quarter of 2021

In the meantime, all tests have been successfully completed. Based upon the results the final documents are now submitted to NoBo and AsBo (TÜV Nord) in order to continue as agreed with the ERA. The objective is to provide the sector with the first authorised freight wagon platform system in the 1st quarter of 2021.



Preparation of tests with special container for simulating the worst-case load

Freight Wagons for Construction and Maintenance of Rail Infrastructure

Freight wagons are not only used for the transportation of goods for industry and commerce but also for the construction and maintenance of the rail infrastructure itself. The characteristics of rail construction sites require multi-functional freight wagons. It's quite a challenge to always have the right amount of suitable freight wagons available for these tasks.

By Rudi Hoz, Director of Customer Service and Market Support at Sersa Group AG (Switzerland)

Rail construction sites have the following special characteristics: In many cases, reconstructions have to take place at off-peak times, e.g. at night. Moreover, supply and disposal at construction sites are usually done by rail. This requires rail-bound logistics concepts that allow for a fast, precisely synchronised, and efficient delivery and removal of material needed like old and new ballast, switches, or rails. The latter, for instance, are partly delivered with a length of 72 metres or more. The work needs to be done in strict sequence which requires a corresponding replacement of wagons. To ensure efficiency, the right type of freight wagons are needed that, for instance, allow for a continuous loading of material upon single-track routes.



Construction site for switch replacement with excavator: walking-floor bulk freight wagon with screen and 'Reiner' crawler chassis (background on the left), flat wagon for yoke transport (background in the middle on the right) and rail crane for discharging switches (on the right)

Example: freight wagons for the replacement of old switches

Bulk Fans-u wagons are used for the removal of excavated material and old ballast. With an on-board aggregate, they can be tilted directly at the (re)processing plant or waste disposal.

The transportation of new ballast and interlayers like PPS (formation protection layer) is done with bulk freight wagons like Fcs (bulk freight wagon with discharge hoppers) or Xans 74 (bulk freight wagon with vibrating and telescopic discharge conveyor).

Special wagons are used to quickly remove excavated material. These are bulk freight wagons with a 'walking-floor' system. The wagon floor consists of a conveyor belt that allows for goods to be transported from one wagon to another. These wagons are partly equipped with crawlers in order to also run on routes where the train tracks have been temporarily removed. The loading is done with special loading hoppers directly at the switch construction site.

More often than not new switches are delivered in one piece and just-in-time. Here special wagons with huge loading platforms are needed. These can be tilted into the structure gauge and thus allow for the transportation of huge switch parts during the normal wagonload traffic.

Two- and four-axle flat type Ks, Res, or Rs wagons as well as covered freight wagons like Gbs or Hbis are used to transport material on pallets (tools and additional material like cables).

Road vehicles like, for instance, suction dredgers or flushing vehicles, are brought to the construction site with the piggyback low-floor wagon Saadkms.

You will find an overview of the most important freight wagons used for rail construction sites on the last page of this infoletter.

Challenge: the right number of the right type of wagons

Work activities are often done with special freight wagons that can only be used for these specific purposes. However, there are also multifunctional wagons that carry other goods by rail like Wascosa's chemical tank wagon for the transportation of wastewater during tunnel cleaning procedures. The availability of the 'right' freight wagon at a given time is a key and challenging issue for Sersa Switzerland as well as for other organisations and railway companies. In order to be flexible, the Sersa Group uses twenty of Wascosa's state-of-the-art multifunctional (and multimodal) 48' container wagons. Due to flexible container spigots different containers and swap bodies can be arranged upon the wagon. Flexibility in quantity and operation: these are the key challenges of rail infrastructure logistics. Wascosa, as a high-performance and innovative freight wagon leasing company, makes a great contribution towards successfully dealing with these challenges.



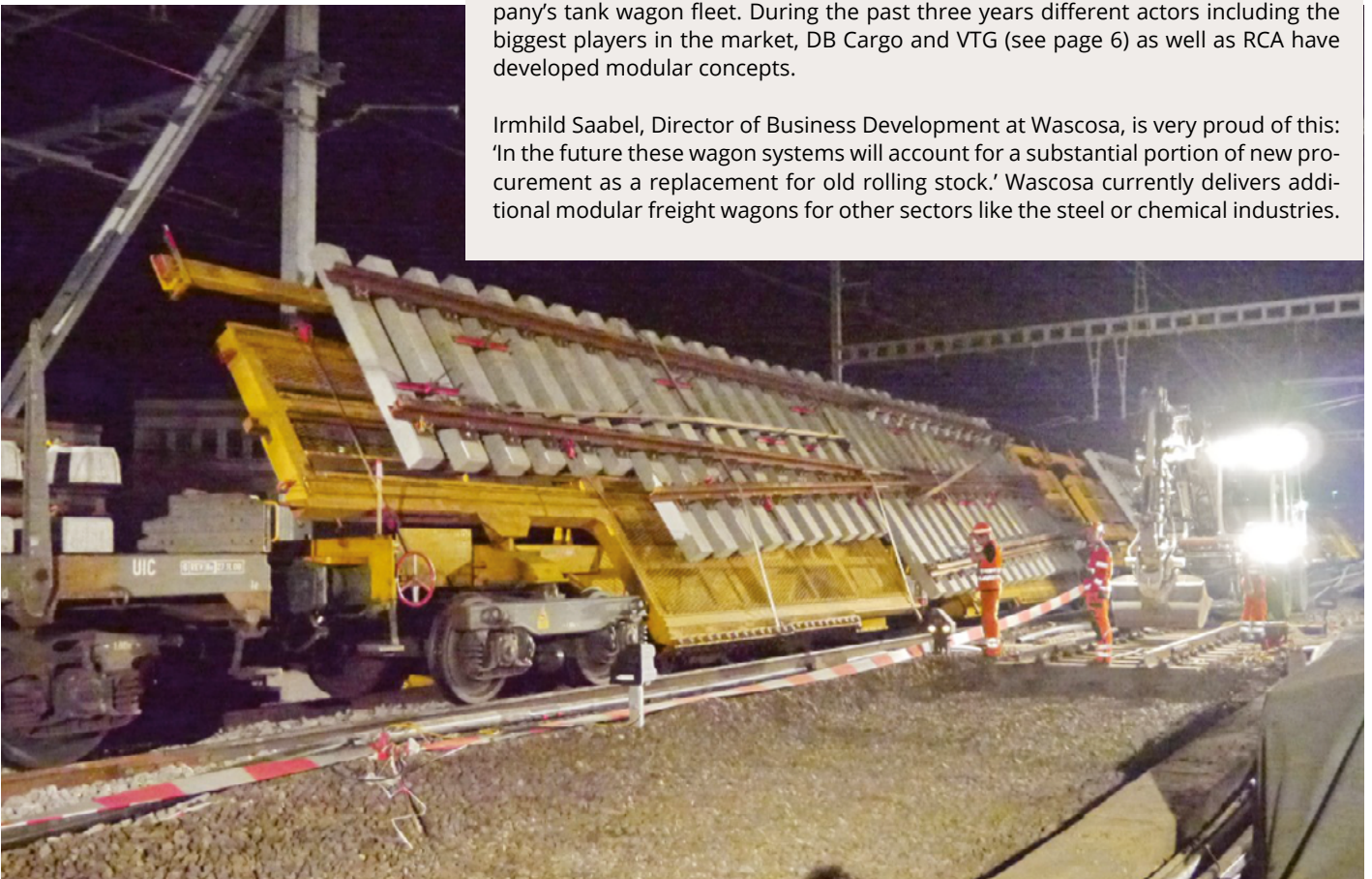
Wascosa's 48' Sgmmns multipurpose wagon with adapted swap platforms with tiltable sidewalls

Wascosa flex freight system®: From product idea to industry trend

About ten years after launching the 'flex freight system®' Wascosa has delivered its 500th modular freight wagon. This multipurpose wagon type Sgmmns as displayed above is used by Sersa Switzerland with different superstructures for rail-bound construction site logistics.

Wascosa launched this pioneering product idea in 2009 at the transport logistic industrial fair in Munich. Back then industry representatives appeared to be quite reluctant and sceptical. However, as the years went by this convincing product idea became widely accepted within the market. The breakthrough was in 2017 when BASF SE in Ludwigshafen, the world's largest chemical company in terms of revenue, together with Wascosa presented the first modular tank wagons replacing the company's tank wagon fleet. During the past three years different actors including the biggest players in the market, DB Cargo and VTG (see page 6) as well as RCA have developed modular concepts.

Irmhild Saabel, Director of Business Development at Wascosa, is very proud of this: 'In the future these wagon systems will account for a substantial portion of new procurement as a replacement for old rolling stock.' Wascosa currently delivers additional modular freight wagons for other sectors like the steel or chemical industries.



WTW Switch transport wagon at a construction site for switch replacement

Long-standing Partnership in the Development of efficient Grain Wagons

Glencore Agriculture and Wascosa have been working together on the development of new, more efficient grain wagons since 2012. The first step was the Tagnpps 130 m³ grain wagon with its swing roof for moisture-sensitive products, with added value in low density products. The project was so successful that Glencore Agriculture contacted Wascosa once again in 2017, this time resulting in the Tagnpps 95 m³ wagon.

Each year, Glencore Agriculture transports one million metric tonnes of agricultural products across Europe by rail, including corn, wheat, barley, rapeseed, sunflower seeds as well as sunflower and soybean flour. Glencore Agriculture is confident that rail transport will continue to be a key method for transporting these products well into the future. Hajo Barth, Operations Manager Grains at Glencore Agriculture explains: "We believe that rail is one of the most reliable methods to move our goods. With the structural challenges caused by water levels on rivers like Rhine and Danube, we anticipate an increasing

volume by rail. Last but not least, rail is the most sustainable means of transportation as well."

Three wagon sizes available

The Tagnpps 95 m³ grain wagon, developed by Glencore Agriculture and Wascosa, is used for the transportation of high-density bulk products, such as corn and wheat. With its low tare weight of only 19.7 tons and the resulting payload of around one ton more than standard wagons of this size on the market, it fits in perfectly with Glencore Agriculture's Tagnpps 130 m³ grain wagon fleet from an economic point

of view. Wascosa has already built a total of 500 grain wagons in these two sizes for Glencore Agriculture over the past six years. In addition, Wascosa also offers medium size grain wagons with a capacity of 102 m³ for other customers.

User-friendly and efficient

Apart from these technical specifications, it is crucial for Glencore Agriculture that the wagons are well maintained and easy for employees to operate at the terminals. The grain wagons developed by Wascosa also score well in other respects compared to other wagons in the market, thanks to their large openings which mean they can be loaded and unloaded quickly and efficiently. The handling is simple because the roof can be opened completely from the ground.

Innovative, forward-looking partnership

Hajo Barth particularly appreciates Wascosa's innovative way of thinking, and how it constantly strives for improvement. "Communication at all levels is very transparent and efficient. In addition, Wascosa has an excellent understanding of our needs and knows how to meet them", Hajo Barth said. "How we dealt with the challenges in our deliveries during the COVID-19 pandemic is another good example of the cooperation between Glencore Agriculture and Wascosa. In a difficult environment issues were negligible."



Headquartered in Rotterdam (Netherlands), **Glencore Agriculture** is a global leader in the origination, handling, processing and marketing of agricultural commodities and products. With operations in 37 countries and a workforce of over 16,000 people, Glencore Agriculture's strategic network of storage, processing and transport assets enable them to meet the needs of their customers worldwide in an efficient and effective manner.

The Tagnpps 95 m³ Grain Wagon: Facts and Figures

Length over buffers	14,800 millimetres
Length of chassis	13,560 millimetres
Width of loading openings	800 millimetres
Length of loading openings	12,800 millimetres
Number of loading openings	2
Tare weight	19,700 kilograms
Maximum payload	70,300 kilograms
Maximum load per meter with 22.5 tons axle-load	6,081 kilograms
Minimum curve radius	35 metres

Wascosa Carefree Module: Maintenance of Freight Wagons

Technical and administrative tasks in fleet management are becoming ever more complex and require professional partners. Working closely with these partners Wascosa offers its customers an all-inclusive carefree package: the Wascosa Carefree Module.

Maintenance begins as soon as the freight wagons are delivered from the manufacturer. The wagon type and its integrated components are key. As 'Entity in Charge of Maintenance' (ECM) Wascosa receives maintenance instructions from the manufacturer regarding the wagon and its specific components. After an internal assessment, the manufacturer's instructions and recommendations are incorporated in Wascosa's own guidelines. Together with the VPI European Maintenance Guidelines they form the basis of the maintenance services which are provided.

The maintenance process starts with an audit. Six to twelve months before the audit's due date, a suitable workshop is

selected in agreement beforehand with the lessee. Aspects to be particularly considered are the category and type of wagon, the routes (relations) where it is usually operated, and the product loaded if hazardous goods have been carried.

For safety reasons any tank wagon which has carried hazardous substances must be cleaned before the audit and tank examination. The lessee can organise the cleaning itself or have it done at its own premises. Alternatively, a workshop with appropriate cleaning equipment can be selected with the help of Wascosa.

For the maintenance services, Wascosa and the workshops agree upon on the re-

quired lead times and guarantee suitable capacities. In order to comply with these contractual agreements, the workshops and Wascosa are dependent on the wagon arriving in good time at the workshop.

Once the wagon arrives at the premises, an initial reception inspection is carried out at the workshop. The chassis, buffers, brake components, and other wagon parts are checked for visible damage, and a decision is taken on which spare parts need to be ordered. The workshop provides Wascosa with a report and a cost estimate so that the necessary extent of the work can be agreed.

Afterwards the maintenance process gets underway: the chassis, the bogies, and the wheel sets are measured and checked according to the guidelines. In addition, the tank wagon's tank is inspected intermediately or repeatedly depending upon the due dates.

Once inspections and any maintenance work have been completed, the wagon is available for operation again. By preparing and submitting the required forms and reports, the workshop provides Wascosa with the so-called operational release. Based upon this, Wascosa as ECM grants the official permission for the wagon to return to service. Thus the wagon is once again fully operational and can once more be used by the lessee.



Calendar of events

Due to the Covid 19 pandemic, several events that should have taken place in 2020 were cancelled or postponed. Further changes are possible in 2021. It is recommended to consult the individual websites of the organisers for the definitive dates.

Date	Event	Location	Website
2020			
09.12.2020	RNE General Assembly	Online Meeting	http://rne.eu/calendars/
10.12.2020	Rail Freight Day	Online Meeting	http://rne.eu/calendars/
11.12.2020	UIC Digital Conference 2020	Online Meeting	https://uic.org
2021			
12.01.2021	11 th VPI Symposium	Online Meeting	https://www.vpihamburg.de/veranstaltungen
Not yet defined	RFG Member's Party	London, UK	http://www.rfg.org.uk/allevnts/
19. - 20.01.2021	14 th BME/VDV Rail Freight Transport Forum	Berlin, DE	https://www.vdv.de/Termine.aspx
02. - 04.02.2021	Railtech Infra Forum	Online Meeting	https://events.railtech.com
Not yet defined	European Railway Award 2021	Brussels, BEL	http://www.europeanrailwayaward.eu
23. - 26.02.2021	10 th International Railway Summit	Online Meeting	http://www.irits.org
Not yet defined	VPI Austria, General Assembly	Vienna, AT	http://www.vpirail.at
16.03.2021	3 rd International Railway Standardisation Conference	Paris, FR	https://uic.org
23. - 25.03.2021	Multimodal	Birmingham, UK	https://www.multimodal.org.uk
23. - 26.03.2021	Intertraffic 2021	Amsterdam, NL	https://www.intertraffic.com/amsterdam
30.03. - 01.04.2021	Railtech Europe 2021	Utrecht, NL	https://events.railtech.com
13. - 15.04.2021	Semaine Internationale du Transport et de la Logistique (SITL)	Paris, FR	https://www.sitl.eu
Mid April 2021	IBS Spring Convention	not yet defined	https://www.ibs-ev.com
Postponed to 20. - 23.09.2022	InnoTrans 2021	Berlin, DE	https://www.innotrans.de/en/
04. - 07.05.2021	Transport Logistic	Munich, DE	https://www.transportlogistic.de/en/
05.05.2021	Rail Freight Transport Forum	Zurich, CH	https://cargorail.ch/en/
May 2021	RFG Spring Group Meeting	Not yet defined	http://www.rfg.org.uk
11. - 13.05.2021	RAILTEX / INFRARAIL 2021	Birmingham, UK	https://www.uk-railhub.com/2021/en/
Not yet defined	F&L Meeting	Geneva, CH	https://www.europeanfreightleaders.eu
19.05.2021	RNE General Assembly	Vienna, AT	http://rne.eu/calendars/
19. - 20.05.2021	UIRR 50th +1 Anniversary and UIRR General Assembly	Brussels, BEL	http://www.uirr.com/en.html
26. - 28.05.2021	ITF Summit 2021	Leipzig, DE	https://2021.itf-oecd.org
10. - 11.06.2021	AFWP / UIP General Assembly	Nice, FR	http://afwp.asso.fr

Impressum

Publisher	Wascosa AG, Werftrasse 4, 6005 Lucerne, Switzerland
Contact	T +41 41 727 67 67, infoletter@wascosa.ch
Concept, text and design	Taktkomm AG and Wascosa AG
Translation	Karrieretextur, Freiburg i.Br.
Printing	Druckerei Ebikon AG

Print run	4,500 copies
Produced	Appears twice a year in German and English
Photos	Wascosa AG; European Union Agency for Railways; DB Cargo AG; Sersa Group AG (Schweiz); InRoll AG/Milad Perego
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Construction and Maintenance of Rail Infrastructure: The most important freight wagons at a glance



Bulk Freight Wagon Fcs

Length over buffers: 10.34 metres

Maximum payload: 27 tons

Loading volume: 44 m³

Tare weight: 13 tons

Functions: 3 discharge openings on both sides

Load: ballast, gravel, sand



Bulk Freight Wagon Fanps

Length over buffers: 15.84 metres

Maximum payload: 69 tons

Loading volume: 60 m³

Tare weight: 21 tons

Functions: 3 discharge openings on both sides

Load: ballast, gravel, sand



Bulk Freight Wagon Xans - 74

Length over buffers: 15 metres

Maximum payload: 63 tons

Loading volume: 40 m³

Tare weight: 26.7 tons

Functions: telescopic conveyor; vibrator discharge aid

Load: ballast, gravel, sand



Bulk Freight Wagon Fans-u

Length over buffers: 12.74 metres

Maximum payload: 59.3 tons

Loading volume: 2 x 20 m³

Tare weight: 30.7 tons

Functions: 2 tiltable containers (to both sides)

Load: ballast, gravel, sand, excavated material



Flatcar Rens

Length over buffers: 19.9 metres

Maximum payload: 65 tons

Tare weight: 25 tons

Loading platform: 49 m²

Functions: tiltable stanchions

Load: construction material, long and piece goods



48' Container Wagon Sgmmns

Length over buffers: 16 metres

Maximum payload: 74 tons

Tare weight: 16 tons

Loading platform: 14.7 metres

Functions: Wascosa flex freight system® for combination with different railcar superstructures

Load: tipping container, loading bridge with tiltable sidewalls, aggregate container, offset device platform etc.



Piggyback Low-floor Wagon Saadkms

Length over buffers: 18.35 metres

Maximum payload: 44 tons

Loading height: 316 millimetres

Tare weight: 20 tons

Functions: 2 laterally swivelling buffer beams

Load: commercial road vehicles, construction equipment



Switch Transport Wagon WTW

Length over buffers: 25.26 metres

Maximum payload: 48.5 tons

Tare weight: 41.5 tons

Functions: hydraulically tiltable platform

Load: complete switches and switch parts



Loading Wagon AVES +

Length over buffers: 25.26 metres

Maximum payload: 40 tons

Loading space: 40 m³

Tare weight: 50 tons

Functions: walking floor-silo with conveyor, diesel engine and crawlers

Load: ballast, substructure material