

Webinar, 21 Ottobre 2021

CIFI Collegio Ingegneri Ferroviari Italiani



VTG: l'innovazione nella ferrovia

Relatori

Dott. Guido Gazzola — *Area Manager Head of Branch*

Ing. Alessandro Lupieri — *Sales Manager*

Sensors



Connect & Traigo



R2L



SWS - Powerbox



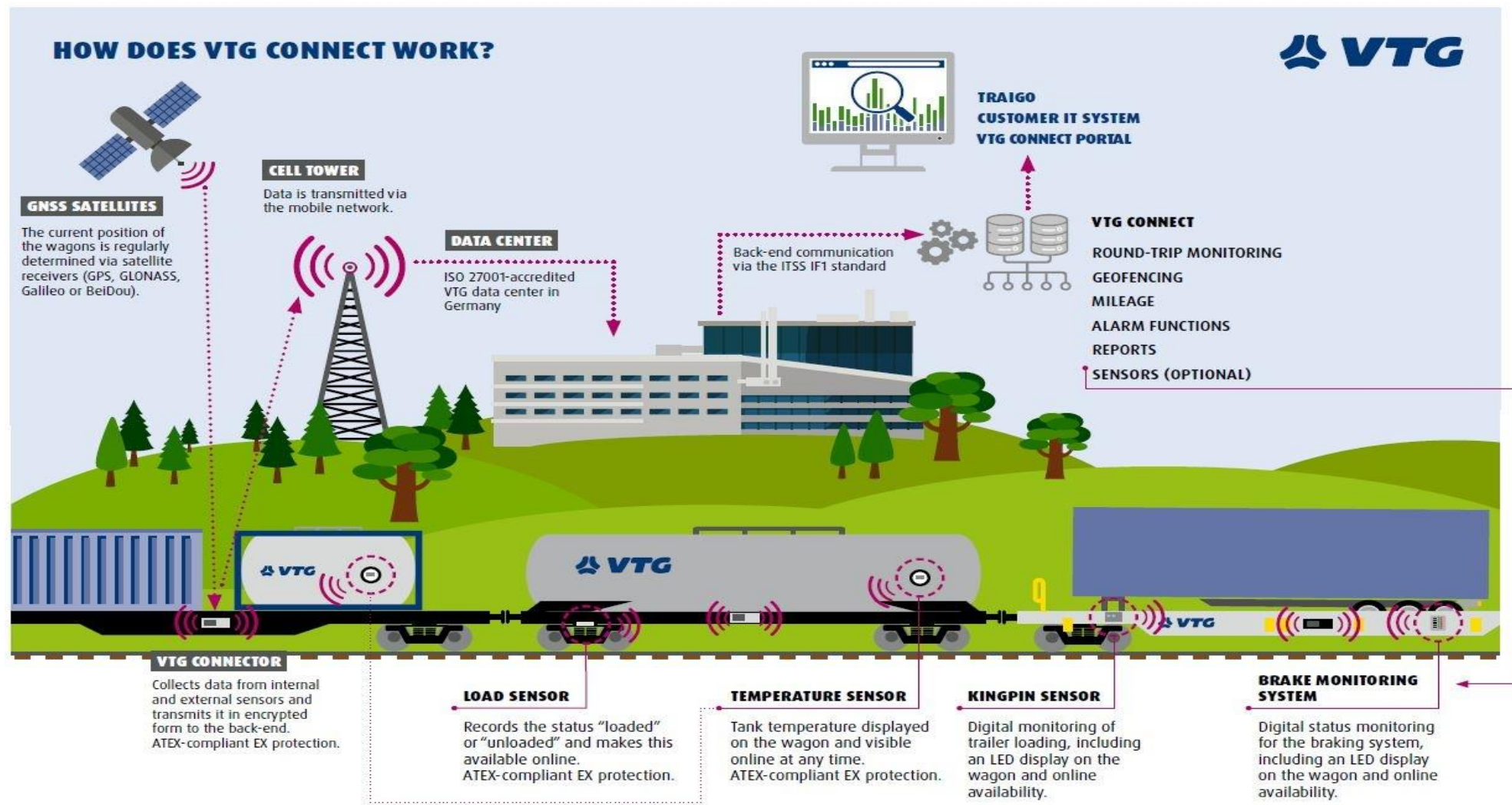
M²



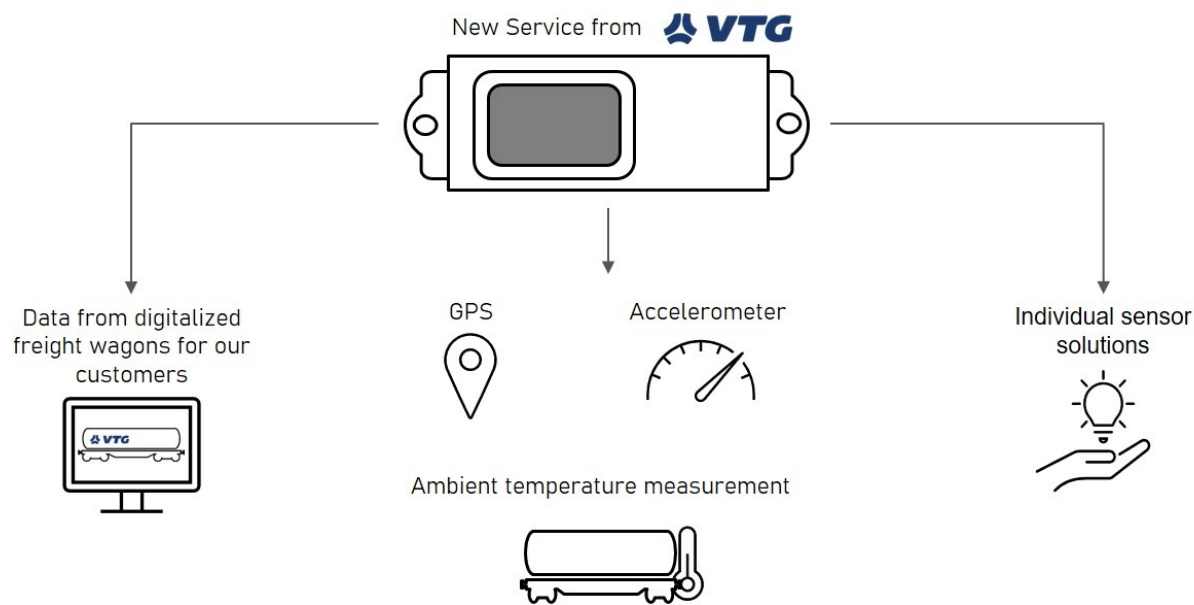
DAC4EU



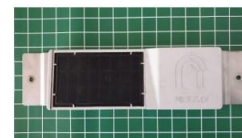
VTG: l'innovazione nella ferrovia



VTG: l'innovazione nella ferrovia



1. Generation



Non-ATEX

Manufacturer's identification PX.1A
VTG Article number 18620
Measurements 360 x 100 x 42,5 mm
Weight --

2. Generation "Grey Edition"



ATEX/IECEx

II 2G Ex ib IIB T4 Gb
II 2D Ex ib IIIC T135°C
Manufacturer's identification AX.1B / AX.1C
VTG Article number 18621 / 19318
Measurements 360 x 100 x 42,5 mm
Weight 1.150 g

3. Generation "Black Edition"



ATEX/METLab

II 2G Ex ib IIC T4 Gb
II 2D Ex ib IIIC T135°C
Manufacturer's identification AX2.A
VTG Article number 20235
Measurements 365 x 150 x 50 mm
Weight 1.320 g

4. Generation "Silver Edition" and IMT CLT20-Ex



ATEX/IECEx

II 2G Ex ib IIC T4 Gb
II 2D Ex ib IIIC T135°C
Manufacturer's identification AX.3A
VTG Article Number 21377
Measurements 360 x 111 x 53 mm
Weight 2.530 g

Equipment only for Tanktainer!

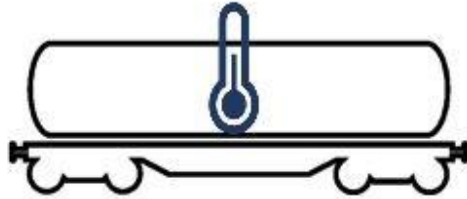


ATEX/IECEx

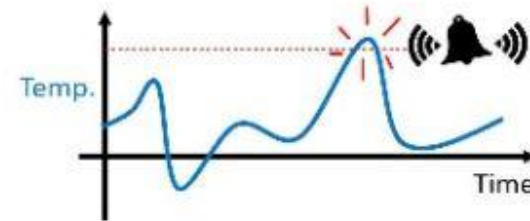
II 2G Ex ib IIC T4 Gb
II 2D Ex ib IIIC T135°C
Manufacturer IMT
Manufacturer's identification CLT20-Ex
VTG Artikel Nummer 21406
Measurements 238 x 138 x 79 mm
Weight 2.970 g

*Available end of Q1 2021!
for VTG RE + VTG UK*

VTG: l'innovazione nella ferrovia



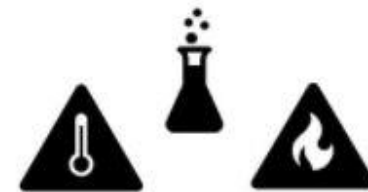
Temperature measurement



Set temperature alerts



Product-monitoring everywhere & anytime

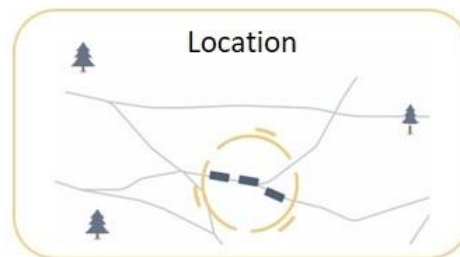
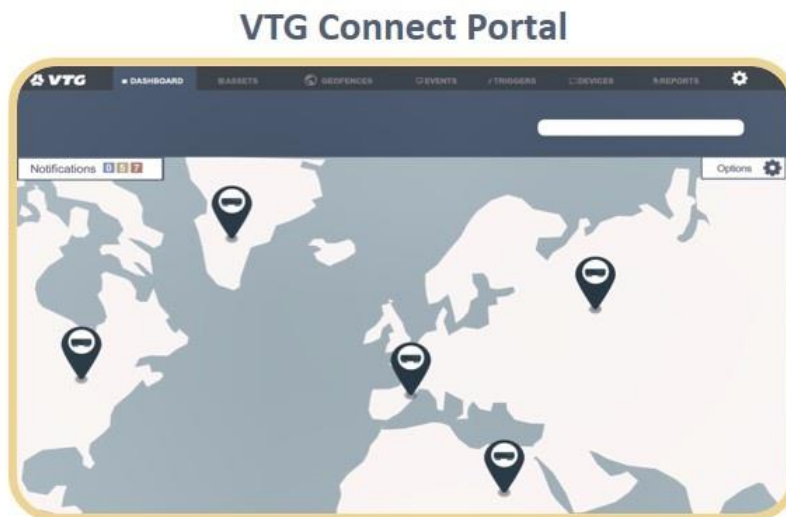
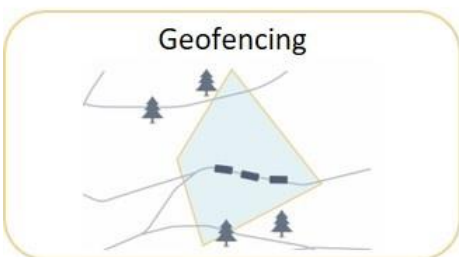
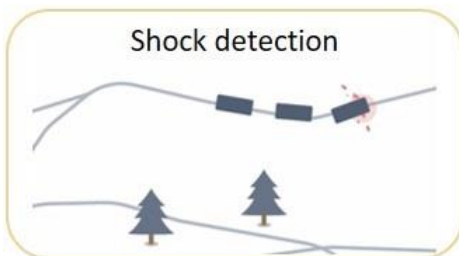


More control over sensible products

VTG: l'innovazione nella ferrovia



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VTG: l'innovazione nella ferrovia

• <http://www.traigo.com>

Services

Contract Management

ETA Calculation

Fleet Management

Idle Times

Wagon Tracking

Wagons

0

0

22

0









Status



1 issue

0 hints

Report

For further information, download a detailed report in Excel format.

Export file 

Contracts

Reset table 

Search for contract

Select contract status

Configure table

Hide columns

Contract 

Title 

Start date 

End date 

Contract status 

Wagons 



20200457

-

01.01.2021

31.12.2021

Expires in < 3 months

22 

Show contract 

VTG: l'innovazione nella ferrovia

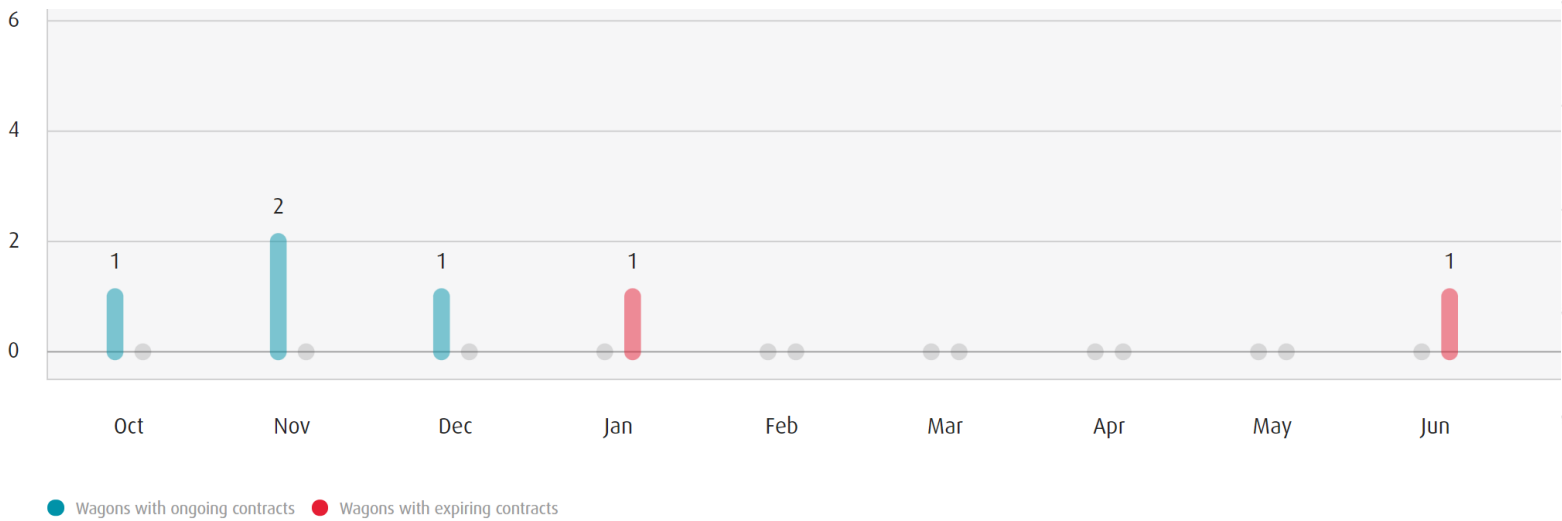
• Traigo / Fleet Status

	Wagon Number ↑	UIC	Brake	Construction ↑	Next Revision ↑	Rent / d	Rental status
	31 74 4956 108-1	Sdggmrss	K	2008	12.06.2024		active
	31 74 4956 116-4	Sdggmrss	K	2008	10.07.2024		active
	31 80 4993 030-4	Sdggmrs	LL	2001	20.10.2023		active

Status ↑		Wagon Number ↑	UIC ↑	Next Revision ↑	Segment	Load	Tank Code	Capacity	Length	Axle Load	Brake	Construction ↑	Mileage
		33 68 4955 631-9	Sdggmrs	28.10.2021	POCKET	CONTAINERS		100 t	34.20 m	22.50 t	LL	2004	 73,722 km of 150,000 km
		31 80 4993 352-2	Sdggmrs	05.11.2021	POCKET	CONTAINERS		100 t	34.20 m	22.50 t	LL	2004	 73,793 km of 150,000 km
		31 80 4993 256-5	Sdggmrs	06.11.2021	POCKET	CONTAINERS		100 t	34.20 m	22.50 t	LL	2004	 64,121 km of 150,000 km

VTG: l'innovazione nella ferrovia

•Traigo / REVs overview



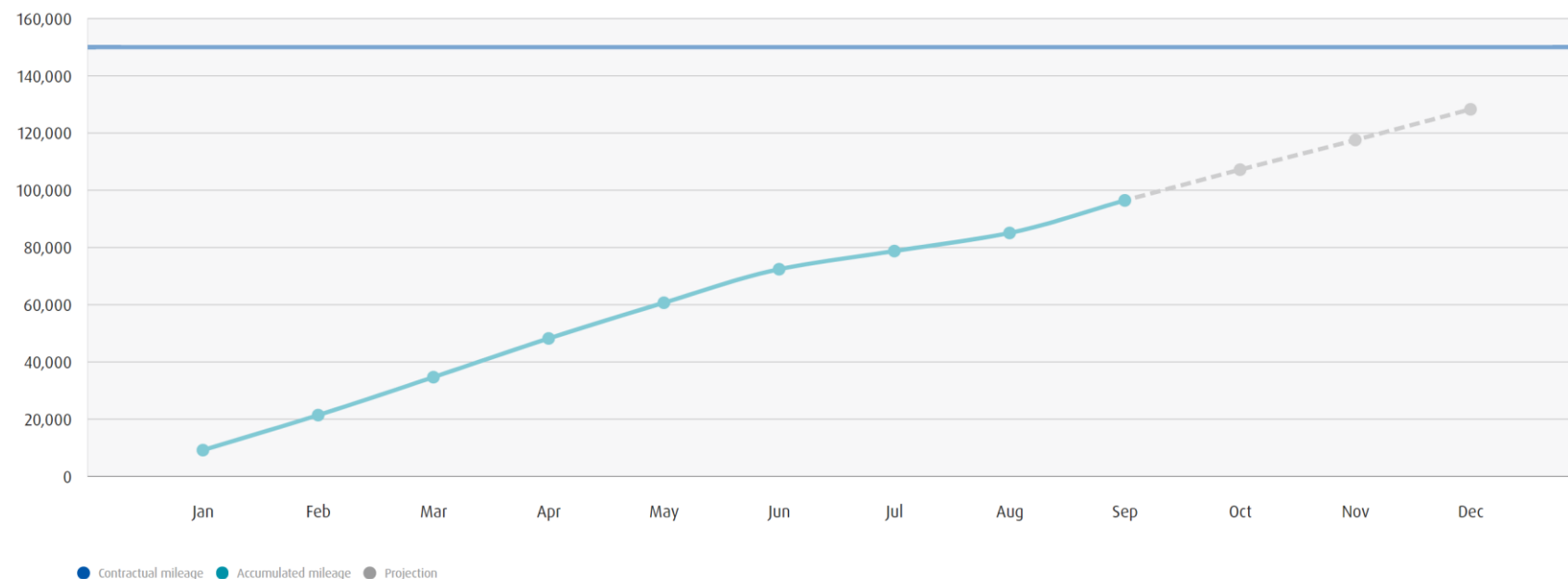
Condition Monitoring		Fleet Capacity	Fleet Status
Status Type		Wagons	
	Revision overdue	0	
	Revision in less than 3 months	5	
	Revision in less than 6 months	0	
	In workshop	0	
	No revision scheduled	17	
	Mileage exceeded	0	
	Noise remediation required	0	

VTG: l'innovazione nella ferrovia

•Traigo / Mileage Projection

Wagon Number ↑	Current Mileage ↑	Contractual Mileage ↑	Mileage Projection ↑
📍 31 74 4956 108-1	97,331 km	150,000 km	128,290 km

< 2021 >



VTG: l'innovazione nella ferrovia

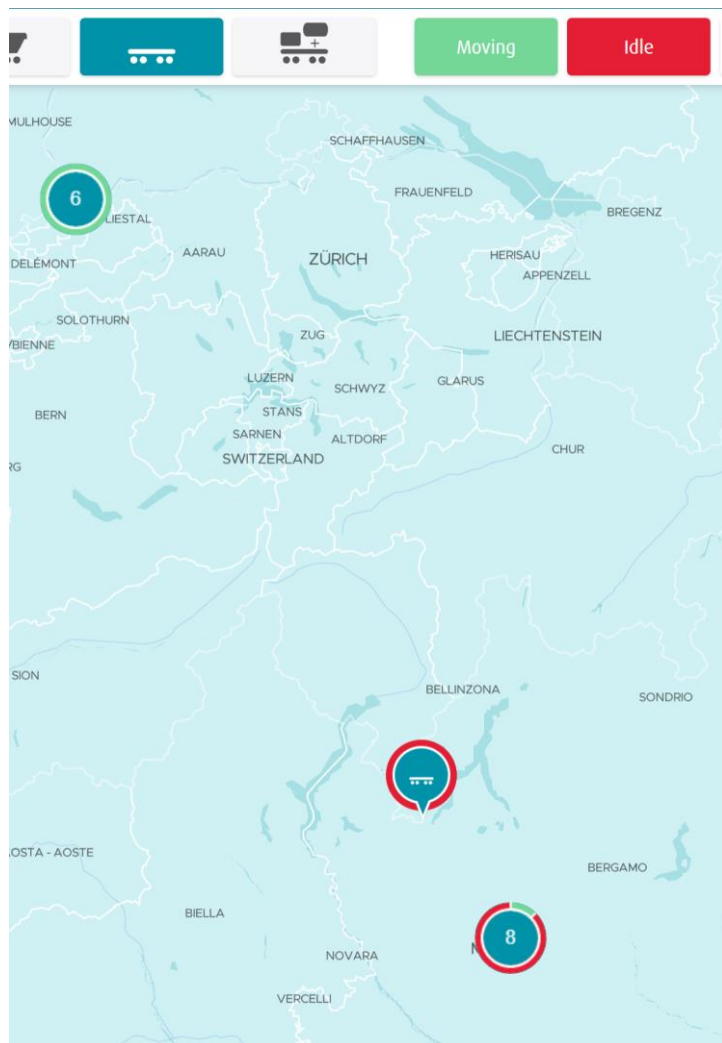
• Traigo / Idle Times

Wagon Number ↑	UIC ↑	Load ↑	Location ↑	Start of idle time ↓	End of idle time ↑	Total idle time
 37 84 4993 117-9	Sdggmrs	Containers	Netherlands, Rotterdam	18.10.2021, 14:32	still idle	1d 20h
 31 74 4956 116-4	Sdggmrss	Containers	Netherlands, Rotterdam	18.10.2021, 09:46	still idle	2d 1h
 37 84 4993 047-8	Sdggmrs	Containers	Netherlands, Rotterdam	18.10.2021, 09:46	still idle	2d 1h

Wagon Number ↑	UIC ↑	Load ↑	Last location ↑	Last update ↑
 31 74 4956 108-1	Sdggmrss	Containers	Italy, Meda	08.10.2021, 20:19
 31 80 4993 352-2	Sdggmrs	Containers	Switzerland, Balerna	08.10.2021, 15:08

VTG: l'innovazione nella ferrovia

• Traigo / Trace & Tracking



← 37 84 4992 059-4 ↗

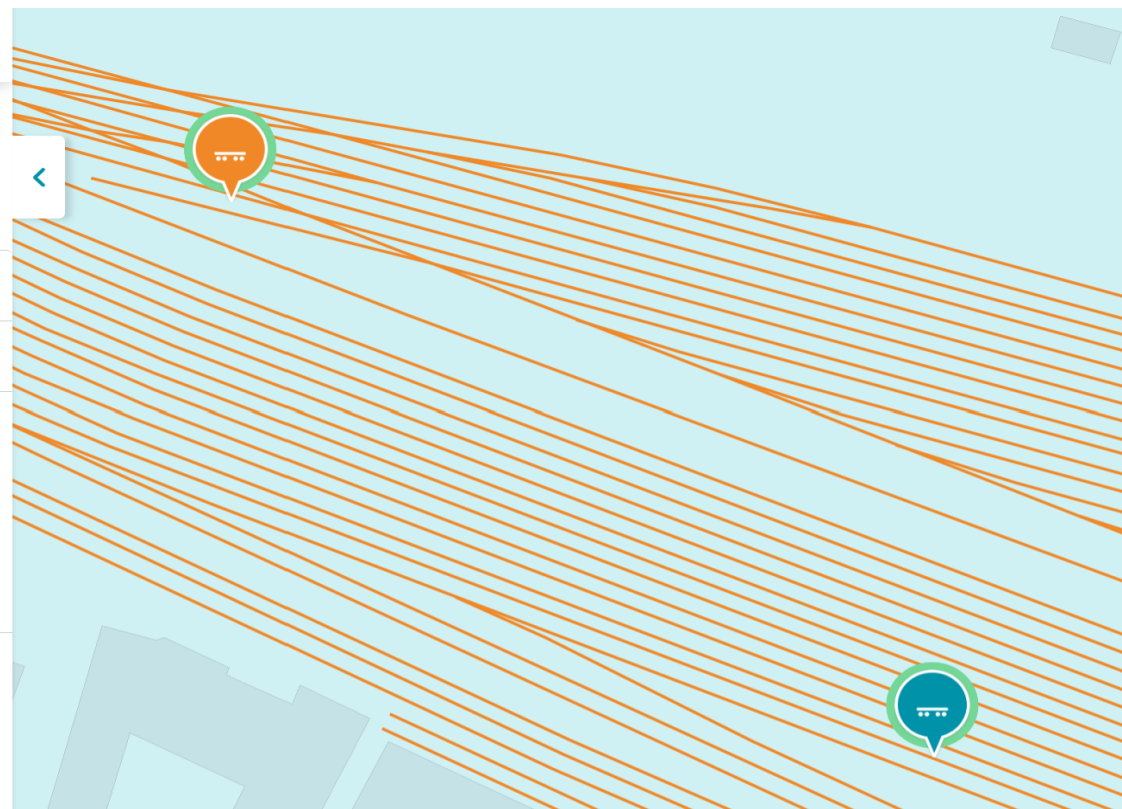
 Sdggmrss
📍 Switzerland, MuttENZ
Moving

General ▾

Contract ▾

Technical ▴

Tare weight	35.5t
Length over buffer	34.03m
Brake	K



VTG: l'innovazione nella ferrovia

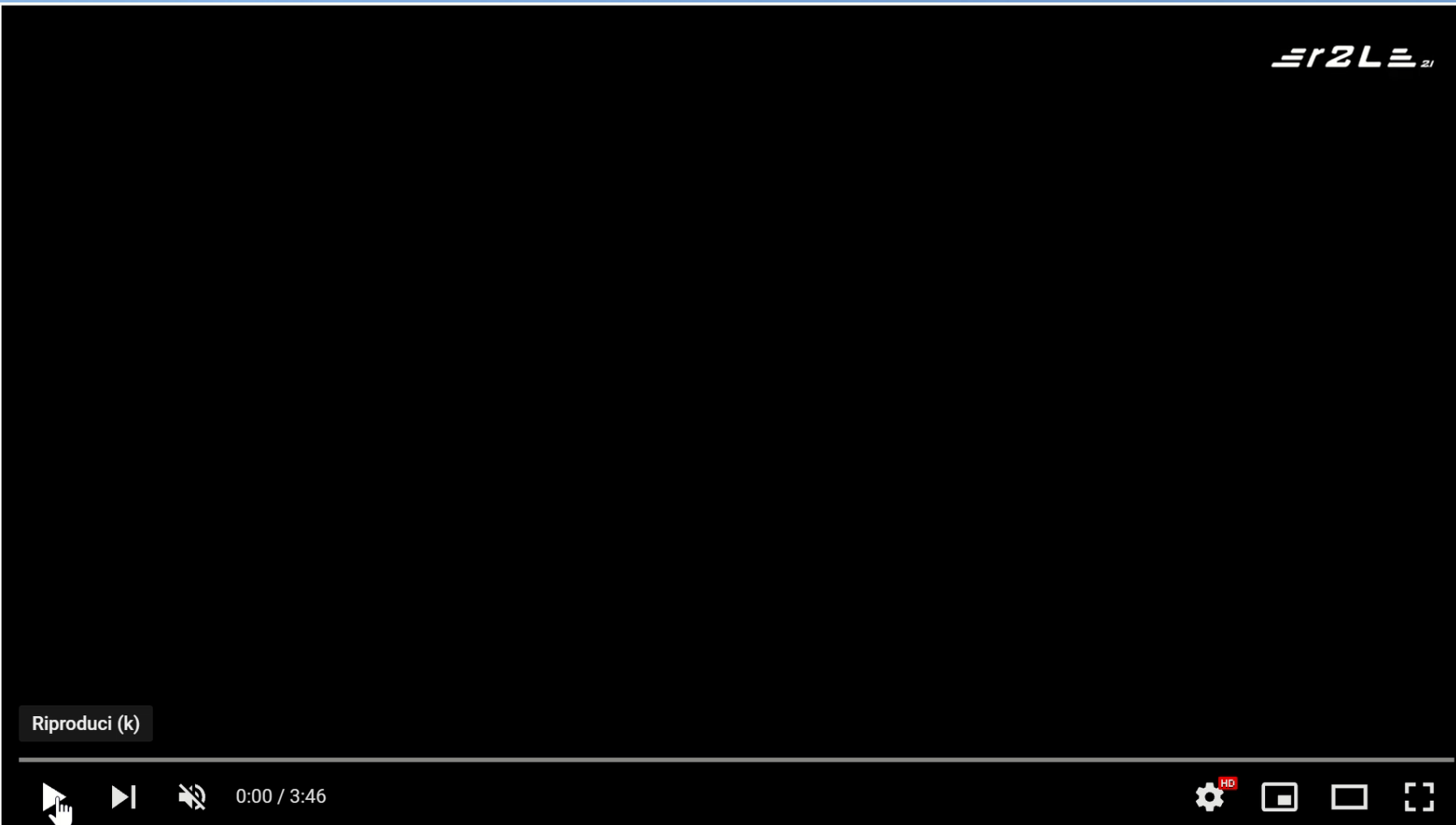
• Traigo / Condition Monitoring

Condition Monitoring		Fleet Capacity	Fleet Status								
Condition	Wagons	 Brake Shoe	Last measurements								
 limit exceeded	4	< 15 mm	<table><tr><th>Measurement date and location</th><th>Components</th></tr><tr><td>01.10.2021 10:10, Wesseling</td><td> 1 x < 20 mm</td></tr><tr><td>01.10.2021 06:39, Aachen-Mitte</td><td> 1 x < 15 mm, 1 x < 20 mm</td></tr><tr><td>30.09.2021 04:41, Brohl-Lützing</td><td> 1 x < 15 mm</td></tr></table>	Measurement date and location	Components	01.10.2021 10:10, Wesseling	 1 x < 20 mm	01.10.2021 06:39, Aachen-Mitte	 1 x < 15 mm, 1 x < 20 mm	30.09.2021 04:41, Brohl-Lützing	 1 x < 15 mm
Measurement date and location	Components										
01.10.2021 10:10, Wesseling	 1 x < 20 mm										
01.10.2021 06:39, Aachen-Mitte	 1 x < 15 mm, 1 x < 20 mm										
30.09.2021 04:41, Brohl-Lützing	 1 x < 15 mm										
 without anomalies	225										

VTG: l'innovazione nella ferrovia

R2L - RoadRailLink

• [r2l\VTG_r2L_basket_EN.pdf](#)



- NL Venlo <> PL Poznan
- IT Brindisi <> IT Villaselva
- IT Trieste <> DE Ludwigshafen
- NL Tilburg <> LT Kaunas
- FR Lyon <> DE Ludwigshafen
- DE Lubeck <> ES Barcelona
- Will follow...



VTG: l'innovazione nella ferrovia

- Culle a stock



- Culla caricata nel carro pronta all'uso

VTG: l'innovazione nella ferrovia

- Movimentazione della culla vuota



- Esempio carico camion frigo



VTG: l'innovazione nella ferrovia





VTG: l'innovazione nella ferrovia

- Camion NON gruabile
- Rappresenta circa il 90% della flotta circolante in Europa





VTG: l'innovazione nella ferrovia



- Possibilità di carico di ogni tipo di camion, ed anche container e/o casse mobili, senza alcuna interferenza

VTG: l'innovazione nella ferrovia

r2L Solution Double Pocket Wagons

Fact Sheet

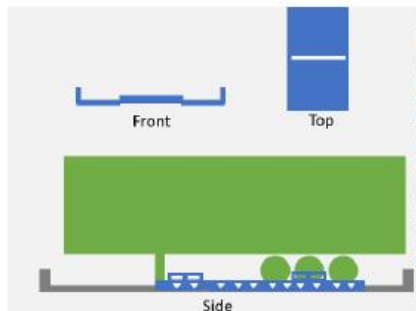


r2L Basket Solution for Non Craneable Trailers

Physical Product



Schematic Design



- Transport of non-craneable trailers up to 36t
- Loading directly on terminal floor (no ramp necessary)
- Vertical handling within terminals
- Transport of craneable trailers (basket remains in wagon)
- No limitations in containers and WAB transport
- Optional: loading of short trailers with additional equipment mounted to the basket
- Design characteristics:
 - 55 mm height
 - Centering guides by entry

Loading possibilities



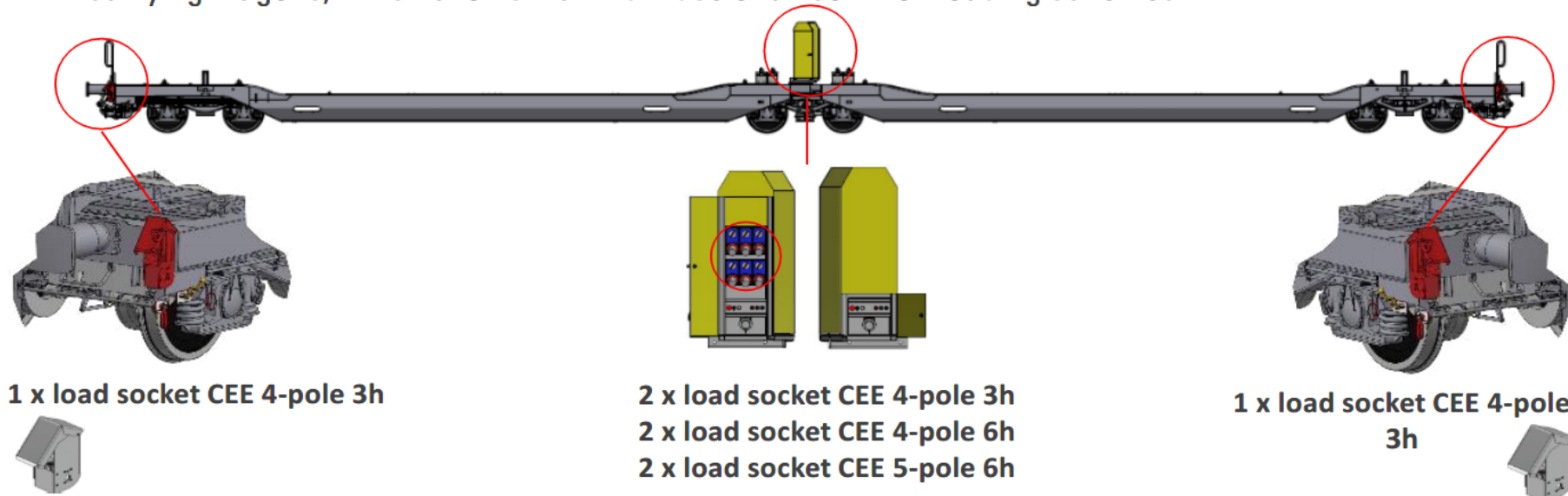
VTG: l'innovazione nella ferrovia

SWS - Powerbox

POWER SOLUTIONS

Loading scheme of all common loading units

The SWS-PowerBox® is positioned on the centre bogie on 80' & 90' as well as TWIN container carrying wagons, which allows maximum use of all common loading schemes



VTG: l'innovazione nella ferrovia

SWS - Powerbox Loading diagram container wagon

	TYPE	LOADING SCHEME
	80' ARTICULATED WAGON	2 x 40' Reefer Container 4 x 20' Reefer Container
	90' ARTICULATED WAGON	2 x 45' (40') Reefer Container 4 x 20' Reefer Container 4 x 7.45m Refrigerated Swap Body
	ARTICULATED POCKET WAGON	2 x 45' refrigerated semi-trailer 2 x 45' (40') Reefer Container 4 x 20' Reefer Container 4 x 7.82m Refrigerated Swap Body

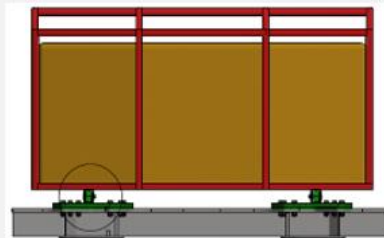
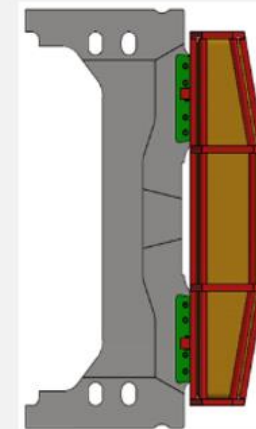
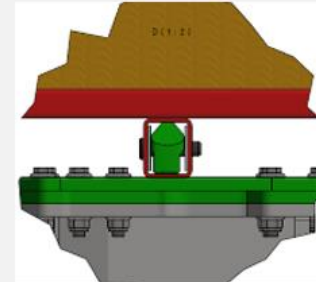
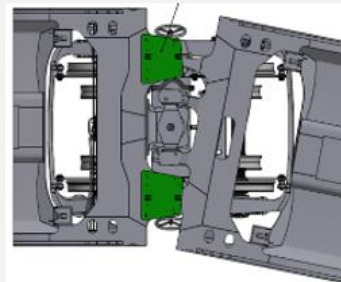
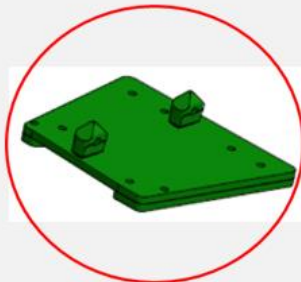
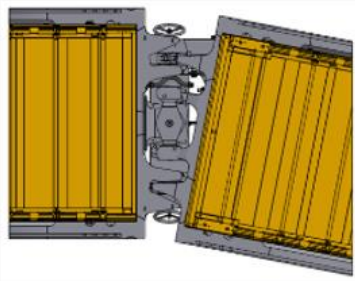
© 2021 SWS PC POWER SOLUTIONS GMBH

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VTG: l'innovazione nella ferrovia

SWS - Powerbox

1. Wagon-specific additional equipment required
2. Required additional equipment on the container carrying wagon: Installation of 2 adapter plates with normed container pins



VTG: l'innovazione nella ferrovia

SWS - Powerbox

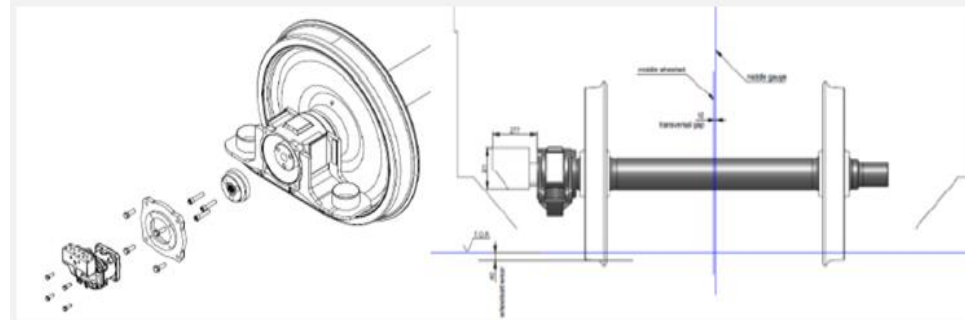
Geschw.	Drehzahl (rpm)		Hydraulik	Rekuperation
km/h	am Rad	Generator	Druck (Bar)	Generator
10	58	254	8	0
20	115	508	8	0
30	173	761	189	4.0 kW
40	231	1015	194	5.5 kW
50	288	1269	199	6.5 kW
60	346	1523	204	8.2 kW
70	404	1776	210	9.0 kW
80	461	2030	214	14.5 kW
90	519	2284	214	15.0 kW
100	577	2538	217	16.0 kW
110	634	2791	220	16.5 kW
120	692	3045	224	17.5 kW

Produzione energia
elettrica durante il moto

1. The axial piston fixed pump powers the generator in the SWS-PowerBox®. The pump is mounted on the wheelset. The connection between pump and generator is made with 3 hydraulic hoses.



2. Installation of hydraulic pump on wheelset :



VTG: l'innovazione nella ferrovia

SWS - Powerbox

Charging stations

- In terminal or while standing on the connection track
- Charging Station via CEE-Plug 32A for power grid connection

In terminal the battery will be charged while standing on the connection track via type 2 charging plugs, which are located on each side of the SWS-PowerBox®. The European standard charging plug for electric vehicles according to EN 62196 allows charging at a standard charging station or with an adapter cable to CEE 32A 5-pin loading sockets.

The software automatically switches to mains operation and charges the batteries.



VTG: l'innovazione nella ferrovia

SWS - Powerbox

The SWS PowerBox® in combined transport

The SWS-PowerBox® is a mobile box that is placed on the trolley in 4 container pegs provided for this purpose and secured with 4 bolts. The box can be removed from the trolley at any time without great effort.

Declaration

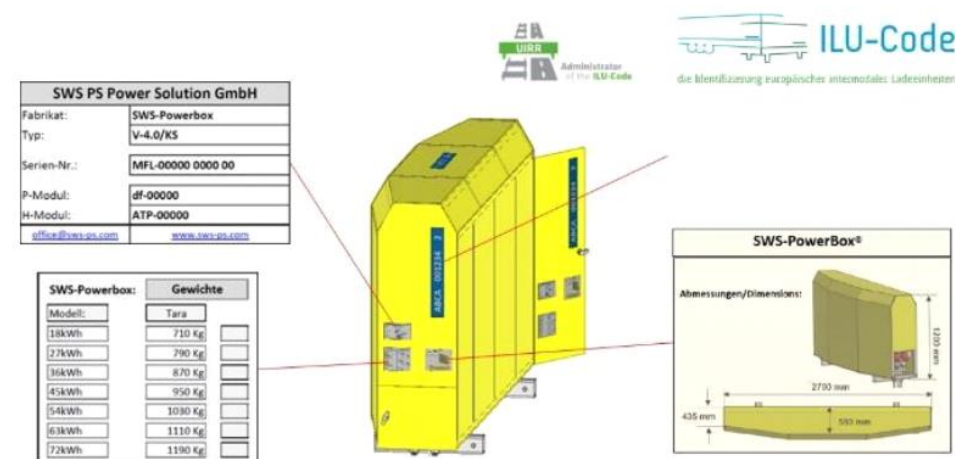
The SWS-PowerBox® is considered a load.

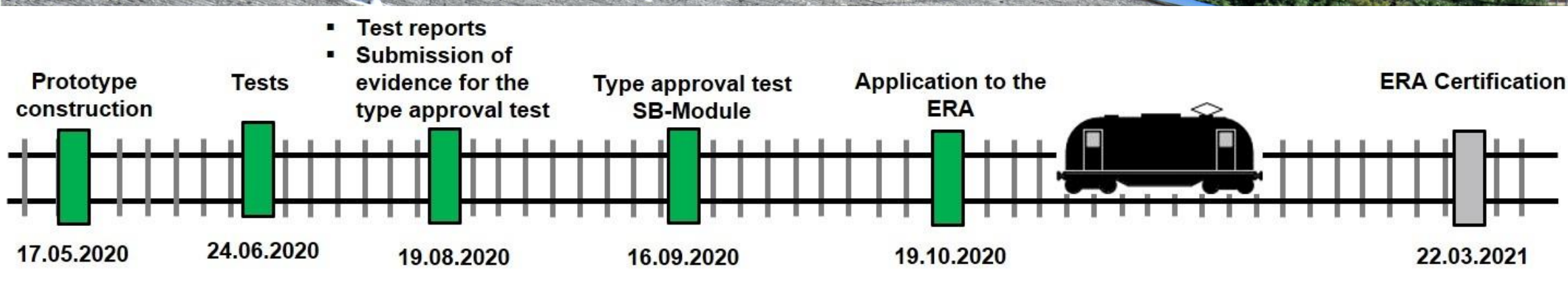
Labelling

ILU code (owner identification)

Documents

- Installation and operating instructions
- Loading example
- Safety concept
- Declaration of conformity
- EMC report





VTG: l'innovazione nella ferrovia

M2 – project together with other partners

3 main welded components, joined between each other with bolts:



Suspension Module

- For mounting:
 - Bogie
 - Buffer
 - Draw gear
- with toothed interface for FLU
- Prepared for automatic coupling

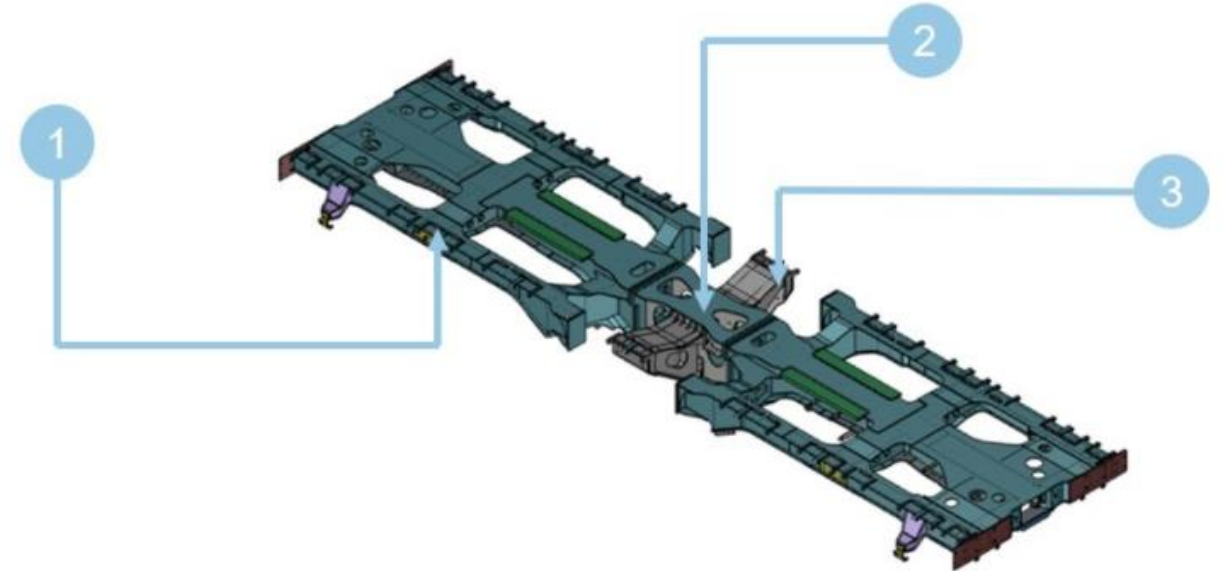
Central Beam

- Available in different lengths
- For mounting:
 - Cross beams
 - Outer longitudinal beams
- Defined interface between central beam and cross beams
- Independent procurement of central (longitudinal) beam and cross beam

Cross Beam

- Bolted connection
- Specially designed as a series product
- Design options for FLU containers significantly expanded
- Non-necessary cross beams are omitted to reduce weight

35' Modular Wagon

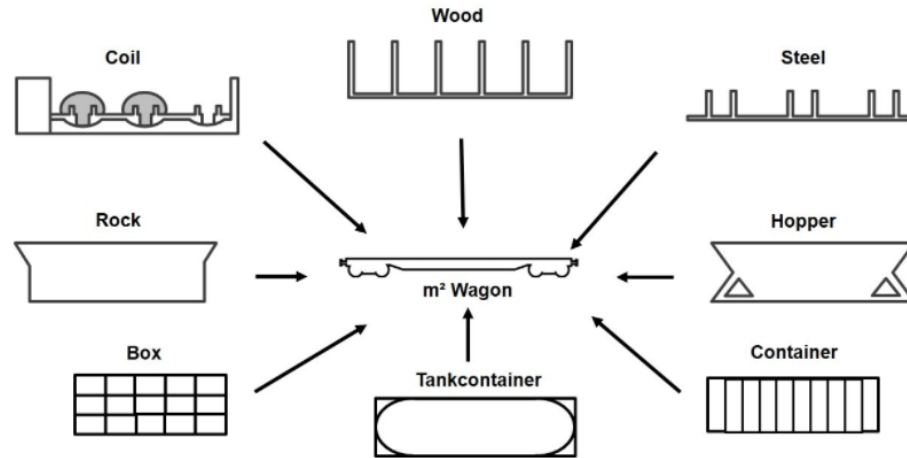


VTG: l'innovazione nella ferrovia

M2 – project together with other partners

Superstructures

Different types of superstructures make our wagons more flexible in their functionality. This part of the project is only a concept and is not yet being developed v the project.



Possible Variations

Running gear	2-axe	4-axe
Length	35' 40' 45' 47'	52' 60' 74,3'
Brakes	K-brake pads	Disks CFCB (K-brake pads)
Cross Beam position	10' 13' 15' 20' 30' 40' 45'	

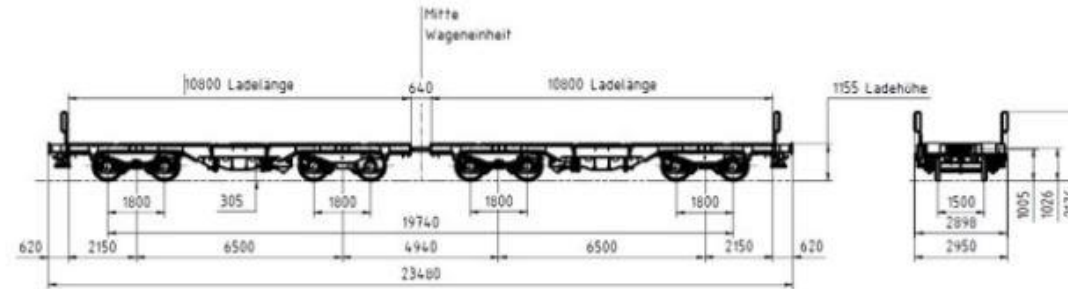
VTG: l'innovazione nella ferrovia

M2 – project together with other partners

VTG prototype built in Waggonbau Graaff

Short coupled 8-axle:

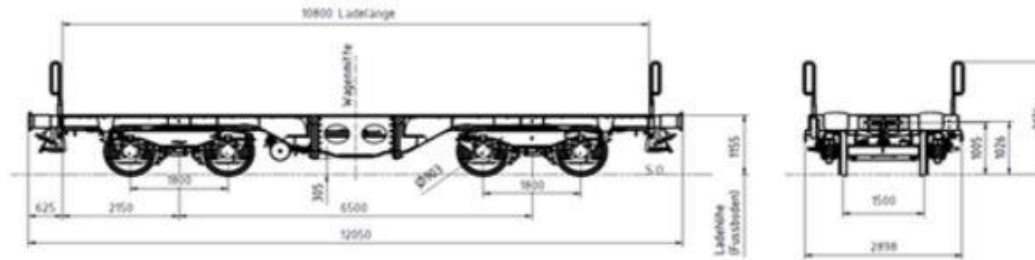
- 2 x 35' short coupled
- Length between buffers: 23.480mm
- Disk brakes
- Tare: 2 x 17,5 t = 35 t
- Load limit 2 x 72,5 t



VTG prototype built in Waggonbau Graaff

4-axle:

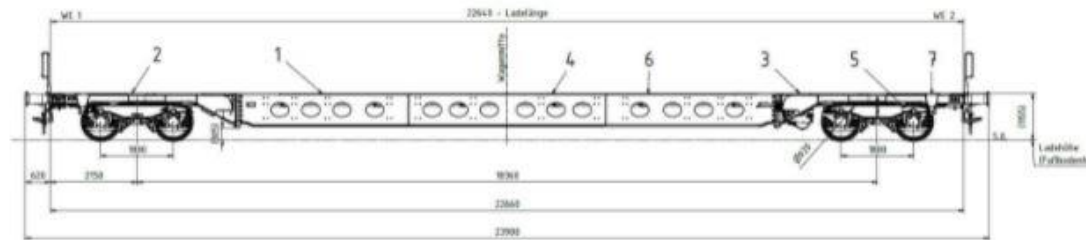
- 35'
- Length between buffers: 12.050 mm
- Compact brakes CFCB
- Tare: 16,2 t
- Load limit: 73,8 t



DB prototype built in DB Rybnik

4-axle:

- 74,3'
- Length between buffers: 23.910mm
- Compact brakes CFCB
- Tare: 19,5 t
- Load limit: 70,5 t

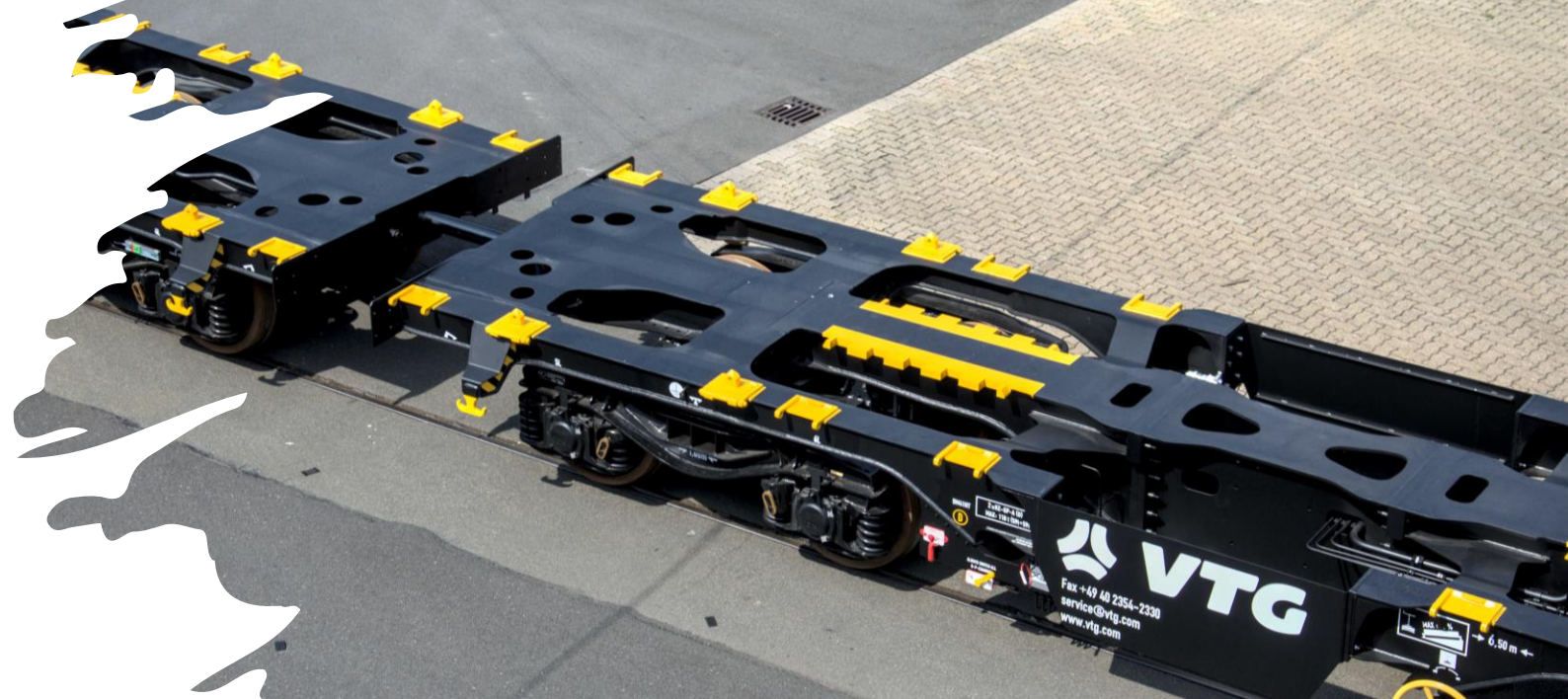


VTG: l'innovazione nella ferrovia

M2 – project together with other partners

VTG: l'innovazione nella ferrovia

M2 – project together with
other partners



VTG: l'innovazione nella ferrovia

M2 – project together with other partners





VTG: l'innovazione nella ferrovia

DAC4EU



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Implementation: DAC and automation use cases

Functionality (DAC/automation use case)

- 1 Automated coupling + manual uncoupling
- 2 Automatic brake test & calculation of braking capacity
- 3 Recording of train composition
- 4 Heavier trains & longer trains (within existing infra limitations)
- 5 Increased payload
- 6 Train integrity (for movi. block ops.) + abandon of rear signal
- 7 Increased speed via improved longitudinal forces
- 8 Increased speed via better braking performance
- 9 Wagon condition/performance info (incl. derailment detection)
- 10 Telematics for customers
- 11 Automated parking brake
- 12 Automatic uncoupling (remote)
- 13 Automated technical wagon inspection
- 14 Longer trains up to 1500m

Basis additional automation component

- DAC* -
- DAC* automatic braking test device
- DAC* -
- DAC* -
- DAC* (elimination of buffers, modified new vehicle design)
- DAC* train integrity system (+ ETCS level 3)
- DAC* -
- DAC* electro-pneumatic brake
- DAC* wagon telematics
- DAC* wagon telematics
- DAC* automated parking brake system
- DAC* actuator + automated parking brake system
- DAC* wagon telematics + video gate + infra check points
- DAC* (infrastructural adaptations +) ep-brake/distributed power



Benefit allocation to process steps			
Shun-ting	Train prep	Train run	Mainte-nance
X			
	X		
	X		
		X	
		X	X
		X	
		X	
	X	X	
	X	X	
	X		X
		X	
X	X		
X	X		
	X		
		X	
		X	

Future automation use cases

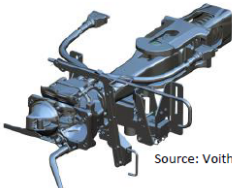
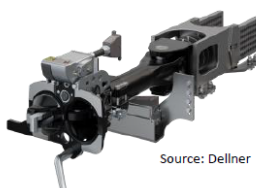
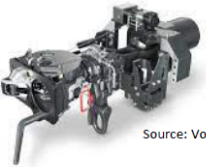
- 15 Dynamic coupling and uncoupling
- DAC* actuator + dynamic coupling system

** incl. infrastructural adaptions for safe DAC operation (e.g. buffer stops, ..)*

1. Cost-benefit assessment for all use cases
2. Selection of use cases and linked technology packaging for roll-out to be defined based on CBA results

benefits = gains in process
(time, system time, cost savings, capacity,
reliability, quality, safety
+ induced modal shift)

Status of technical specifications for DAC, hybrid coupler, electrical energy system, e-coupler and communication system

1 DAC specification   Source: Voith Source: Dellner 74 DAC requirements – of which 13 to be clarified 22 Vehicle requirements – of which 3 to be clarified  	3 Electrical energy system specification 37 requirements for the electrical power line, of which 6 to be clarified 28 requirements for wagon power supply system, of which 16 to be clarified 51 requirements for locomotive power supply system, of which 19 to be clarified   
2 Hybrid coupler (HC) specification  Source: Voith 83 HC requirements – of which 7 to be clarified 18 Vehicle requirements – of which 4 to be clarified  	4 Electrical coupler specification Specification of type, amount and layout of electrical contacts in the e-coupler just started – dependent on ep, communication-technology, redundancy,...)  5 Communication system specification Work on SPEC not started, as physical layer for communication system has to be defined at first 

Webinar, 21 Ottobre 2021

GRAZIE PER L'ATTENZIONE !

A photograph showing several hands raised in a gesture of attention or questions. The hands are of various skin tones and are positioned in the center of the frame, with a light blue rectangular box overlaid on them containing the text "DOMANDE ?".

DOMANDE ?

