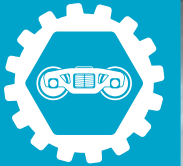




Atlas Copco

Rolling stock

Maintenance, Repair and Overhaul made efficient,
agile and secure



GETTING
RAIL ON
TRACK

Getting rail on track

We are in the middle of a remarkable evolution. The railway industry is growing rapidly, driven by modernization, technological advancements, and the importance of sustainable transportation.

Infrastructure upgrades, enhanced technology, and sustainable initiatives reinforce the significance of global railways. For all types of transportation. This evolution has its challenges for depots, and adaptations are needed to meet these challenges. We offer solutions for efficient maintenance, repair and overhaul that will ensure you can dispatch each train from your depot in the best possible condition. There is no slowing down.

Meeting the challenges head on

Modernizing maintenance operations in the railway industry is essential. We are taking on this challenge by integrating new technologies, such as smart tools with reporting capabilities and superior ergonomic features.



Atlas Copco Assembly Tower – Everything in one mobile place

Have it equipped with the tools you need for each process and with tightening strategies for every specific tightening, the Assembly Tower will guide the operator through the process with clear and visual instructions at every location. Completing the task with clear validation that everything is done correctly, and eliminating the 4-eye principle.

- 1

AC Node + Avantguard software
With any of the four AC Node models, you have full support for you digitalization and Industry 4.0 efforts. It provides process transparency and improves your productivity. An industrial computer with a 21,5"multi-touch screen gives you detailed operator guidance with parallel running processes, with indication possibilities though RFID/NFC reader (With configurable customized access levels).
- 2

Power Focus 8
The Power Focus 8 connects a wide range of Atlas Copco tools, giving you one controller platform for all needs.
- 3

Wireless socket selector
Support your operators with mobile picking of sockets or bits, improving your production quality and productivity.
- 4

Bar code reader
A wireless barcode reader connected to the AC Node through Bluetooth/Wi-Fi. Scanning a barcode tells the Assembly Tower what preset to ready and what operator guidance to initiate.
- 5

The Trolley
The base of this mobile solution. Depending on the size of battery and operations, the Assembly Tower will work without power supply from 2 to 8 hours.
- 6

A selection of tools
Your MRO Tower can be equipped with a variety of tools. All handpicked to fit your MRO needs and all suitable for safety critical tightenings. A few examples:

Tensor ITB-A Torque range (13 models): Drive type: Built-in controller: External controller type: Wireless connection:		SRB31 Torque range (2 models): Drive type: Built-in controller: External controller type: Wireless connection:	
1 - 200Nm Direct drive Yes (can work with out external controller) Power Focus 8, ToolControl Wi-Fi & Bluetooth		5 – 25 Nm Direct drive & Electric pulse No Power Focus 8, ToolControl Wi-Fi or Bluetooth	
Pulse tool TBP Torque range (5 models): Drive type: Built-in controller: External controller type: Wireless connection:		STR Wrench-Digital Torque wrench Torque range (2 models): Drive type: Built-in controller: External controller type: Wireless connection:	
12 - 150Nm Pulse No Power Focus 8, ToolControl Wi-Fi or Bluetooth		8 – 1000 Nm Manual Yes (can work with out external controller) Power Focus 8, ToolControl Wi-Fi & Bluetooth	
SRB81 Torque range (5 models): Drive type: Built-in controller: External controller type: Wireless connection:			
390 - 6500Nm Direct drive No Power Focus 8, ToolControl Wi-Fi & Bluetooth			

Compliance and documentation

With solutions from Atlas Copco compliance and documentation can be an automated procedure that makes your job so much easier. With the correct manufacturer specifics, smart tools with tightening strategies, and proper operator training and guidance everything is done according to plan. All while data has been collected so that there is real time documentation of the operator, the tool, the task and the result. Ready to download.

If you are not yet ready to invest in the Assembly Tower, any tool can be used separately.





Securing the pantograph

Detaching the pantograph and securing a new serviced one, is done with more efficiency and perfects the results when you have the proper equipment and conditions. With an Assembly Tower you can make sure that your operator has the right tool for the job, with the right tightening strategies and with clear visual operator guidance. Every tightening is confirmed with clear validation, so when your train passes the open landscape in 180 miles per hour – you can sit back and enjoy the view.



Getting started with Operator identification

You start out by logging in to the Assembly Tower with your personal operator identification card. With customized access levels you can be sure that every person is operating safely. From Workshop supervisor with full access – to Operator with a limited access.

The Assembly Tower will guide you through the process with clear and visual instructions at every station. Getting yourself and your station ready for work on the pantograph is easy, as well as completing the task with clear validation that everything is done correctly.



Scan barcode to configure tools and guidance

When you scan the bar code located on the Pantograph maintenance station, the Assembly Tower will provide you with clear guidance on what procedure to follow to get the job done according to manufacturer specifics. The Assembly Tower already carries the tools you need for the procedure.

1 **BARCODE SCANNER**



Tighten the highlighted group of bolts

Visual instructions will highlight the group of bolts that need your attention. The instructions will guide you through tightening the right set of bolts, with the right tool until they reach correct torque. With visual confirmation that the task is done correctly – before you can proceed to the next task.

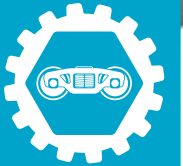
2 **ETP TBP131-150-13** is a battery powered, low reaction pulse tool with maximum flexibility and high torque.
Torque range: 55-150 Nm.



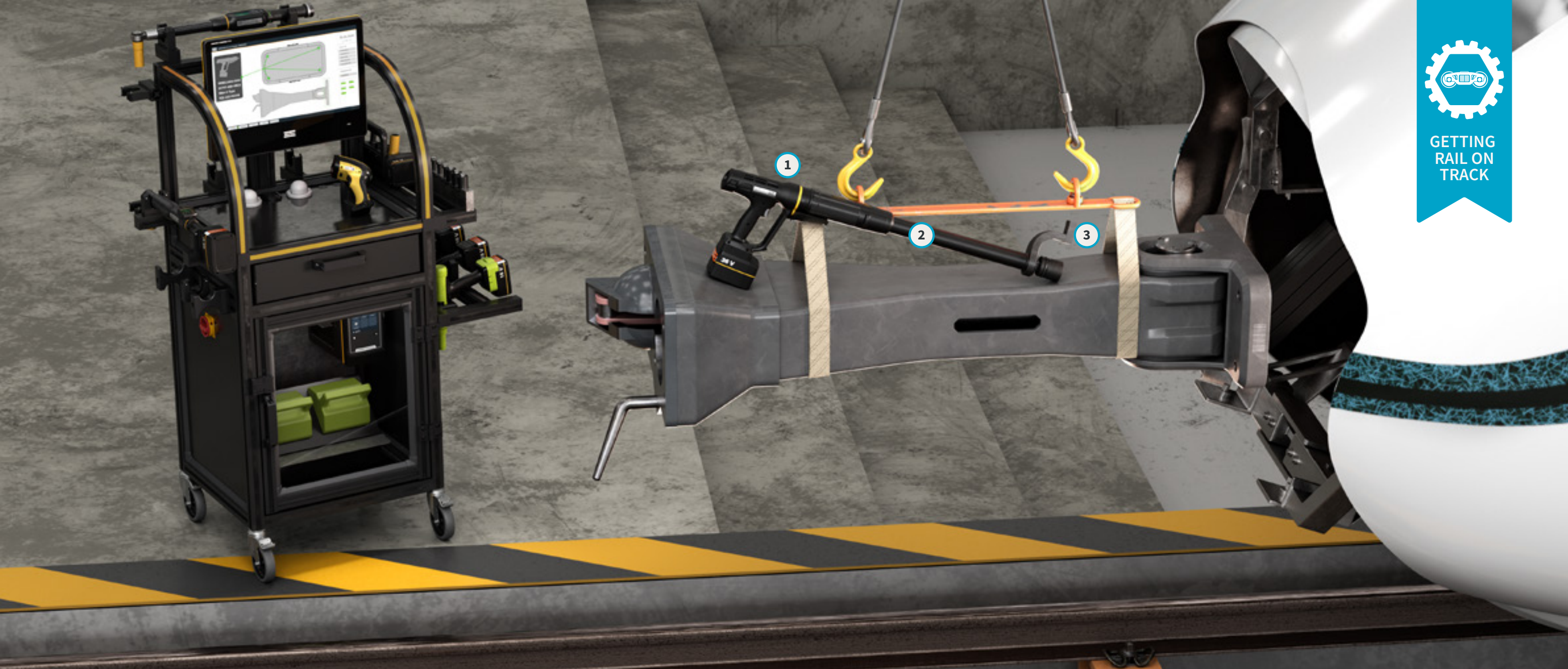
Tightening data collected to server

When your task is done and confirmed, data will be collected to a server and a digital report on the operations performed are now also available for download. The data collected includes date and time, operator name, Torque and tightening data with a link to tightened workpiece and quantity of okay tightening bolts.

3 **REMOTE DISPLAY TABLET**



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Couplings: The strongest link in the chain

Detaching and replacing the couplings of a train is a task that requires precision, and with the Assembly Tower you completely remove the factor of human error from the process. Your operator can safely secure the new serviced coupler with clear visual operator guidance, perfectly calibrated high-quality tools and with clear validation of every tightening. The Assembly Tower will safely guide your operators through every step of the process, ensuring that your train will leave the depot with couplings that are as good as new.



Properly aligned

Regular inspection and maintenance of couplers are important to ensure proper alignment over time. When attaching the couplers to the coupler pockets, alignment is key. With proper alignment you maintain safety and reliability of train operations and avoid excessive wear or even derailments.

- 1 **ETP SRB81-2400-25-HA** connects to the PF8, enabling the user to communicate in real time to the controller increasing process control and traceability. Torque range: 720-2400 Nm.



Securely attached

Tightening bolts to ensure a tight fit is an important task and the Assembly Tower will give your operator verification that every bolt has been tightened according to manufacturer specifics. Following the correct torque specifications helps prevent issues such as under-tightening, which can lead to lose bolts, or over-tightening, which can result in damaged threads or components.

- 2 **NOSE EXTENSION** 47-300-HR25 extends the reach of your SRB HA. For all those high torque tightenings in cramped spaces.



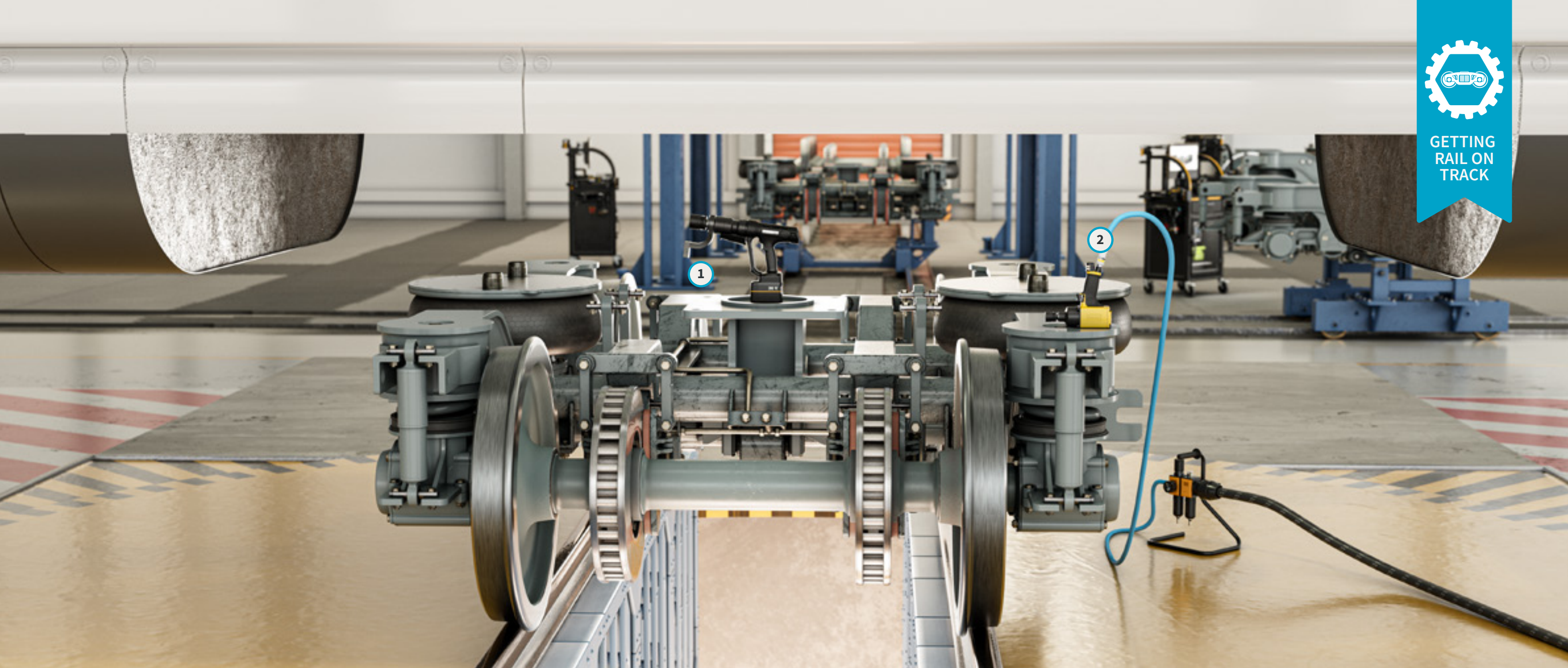
Fully functional

With couplers attached in alignment with manufacturer specifics you can send out the train on the tracks, knowing that they are in perfect condition and fully functional. Every step of the attachment process and all the data is documented and downloadable. This digitization means transparency and full traceability.

- 3 **S-TYPE REACTION BAR** takes the load off your arms. Attach it to your SRB HA or at the end of your extension.



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Splitting the bogie

When disassembling the bogie into its individual parts for maintenance or repair purposes, make sure to set up the best possible conditions for your team of operators to get the job done right. Routine inspections of the bogie are necessary to identify any signs of wear, damage, or malfunction. Your Assembly Tower has the tools and tightening strategies needed as your operator works their way through the process. Ensuring that maintenance is done according to manufacturer specifications – with validated results.

Setting yourself up for Safe and Easy

With The Assembly Tower rolled into place, your operator scans their personal operator identification card. Clear visual guidance will be provided on the screen, with the right authorization levels and the right procedure for the task.



Removing the bogie for maintenance

Once the train is lifted, you have everything you need to detach electrical and mechanical connections and any bolts and fasteners securing the bogie to the train. The Assembly Tower carries all the tools you need, with the right tightening strategies for the task and the right guidance for the procedure.

- 1 LMS48 HR13** is a non shut-off impact wrench with extraordinary power to weight qualities and virtually no reaction force during tightening. Typically used where fast tightening or disassembly is needed. Torque range: 100-1375 Nm.



Installing the new serviced bogie

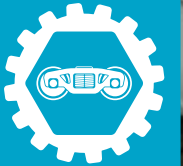
After the new bogie is positioned and aligned under the train, your Assembly Tower will guide operators through the next steps of the process. Bolts and fasteners are tightened with the designated torque according to manufacturer specifics. Electrical and mechanical connections are reconnected – and all the data from the procedure is saved to a server and accessible for download.

- 2 ETP SRB81-3400-25-HA-D** connects to the PF8, enabling the user to send live to the controller increasing process control and traceability. Torque range: 1020-3400 Nm.

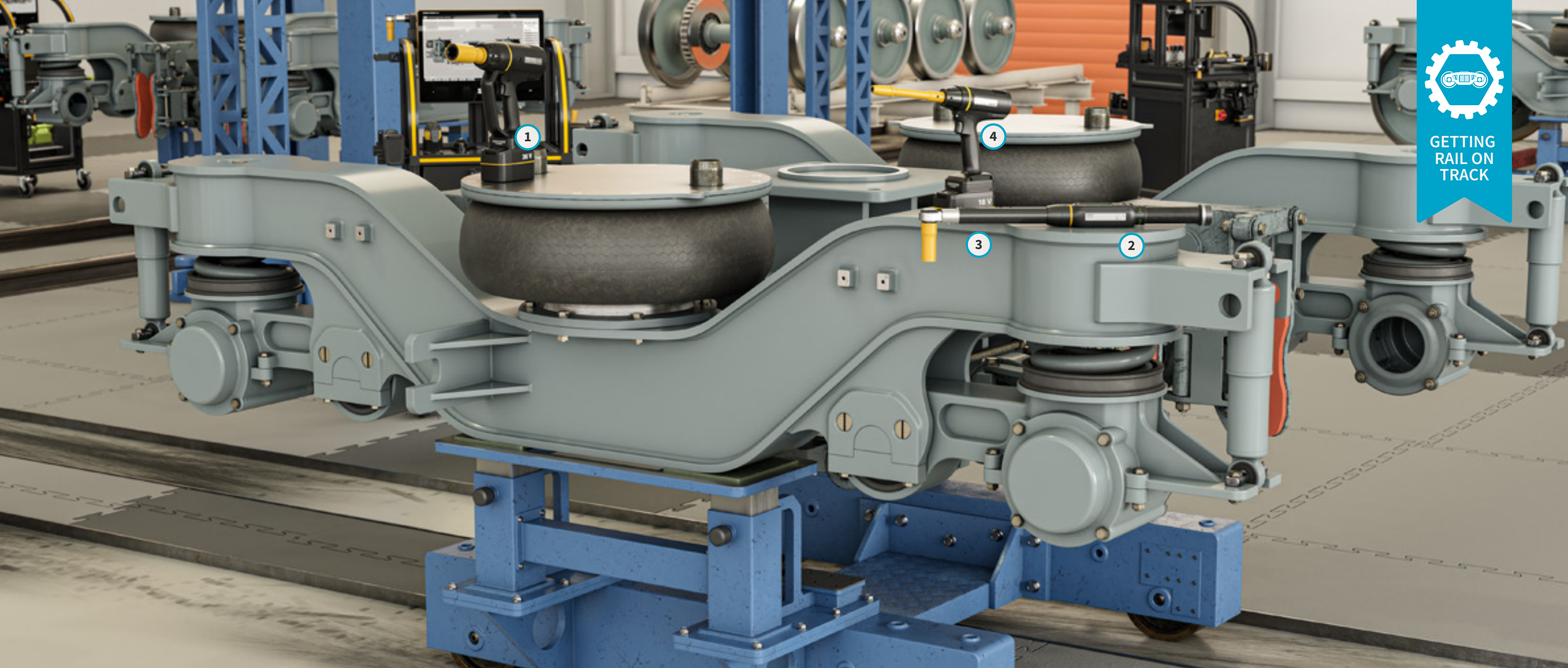


Tightening data collected to server

When your task is done and confirmed, data will be collected to a server and a digital report on the operations performed are now also available for download. The data collected includes date and time, operator name, torque and tightening data with a link to tightened workpiece and quantity of okay tightening bolts.



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Bogie structure

The structural integrity of the bogie frame is essential for overall stability and safety. And operators of assembly tools and equipment play a critical role in ensuring the efficient and accurate assembly of bogie structures during maintenance, repair and overhaul activities. The Assembly Tower removes the risk of human error by providing clear and precise guidance. Through the whole process, data such as information on operators, tools, and results are collected for full traceability.



Wheel bearings and wheel axles

When servicing wheel bearings and wheel axles your operator can rely on the guidance from the Assembly Tower. Inspections and maintenance to replace worn wheels are conducted according to preset guidelines. The tower carries the tools with the right tightening strategies and at the end of the process, operators receive visual clarification. Ensuring that maintenance is done according to manufacturer specifications – with validated results.

- 1 **ETP TBP131-150-13** is a battery powered, low reaction pulse tool with maximum flexibility and high torque.
Torque range: 55-150 Nm.



Axle boxes and bearings

Scan the bar code to set up the right operator profile with the right authorization level. The Assembly Tower will provide guidance for the specific task at hand throughout every process. Service and maintenance of axle boxes and bearings are no exception.

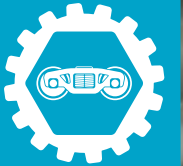
- 2 **STR WRENCH CONTROLLER COMPACT** is modular, built for quality checks after tightening is done and as a production tool for the cramped spaces where standard tools don't fit.
- 3 **STR WRENCH SMARTHEAD 250 NM** unlocks the full flexibility potential of the STRwrench family making it able to measure from 12,5Nm to 250Nm.



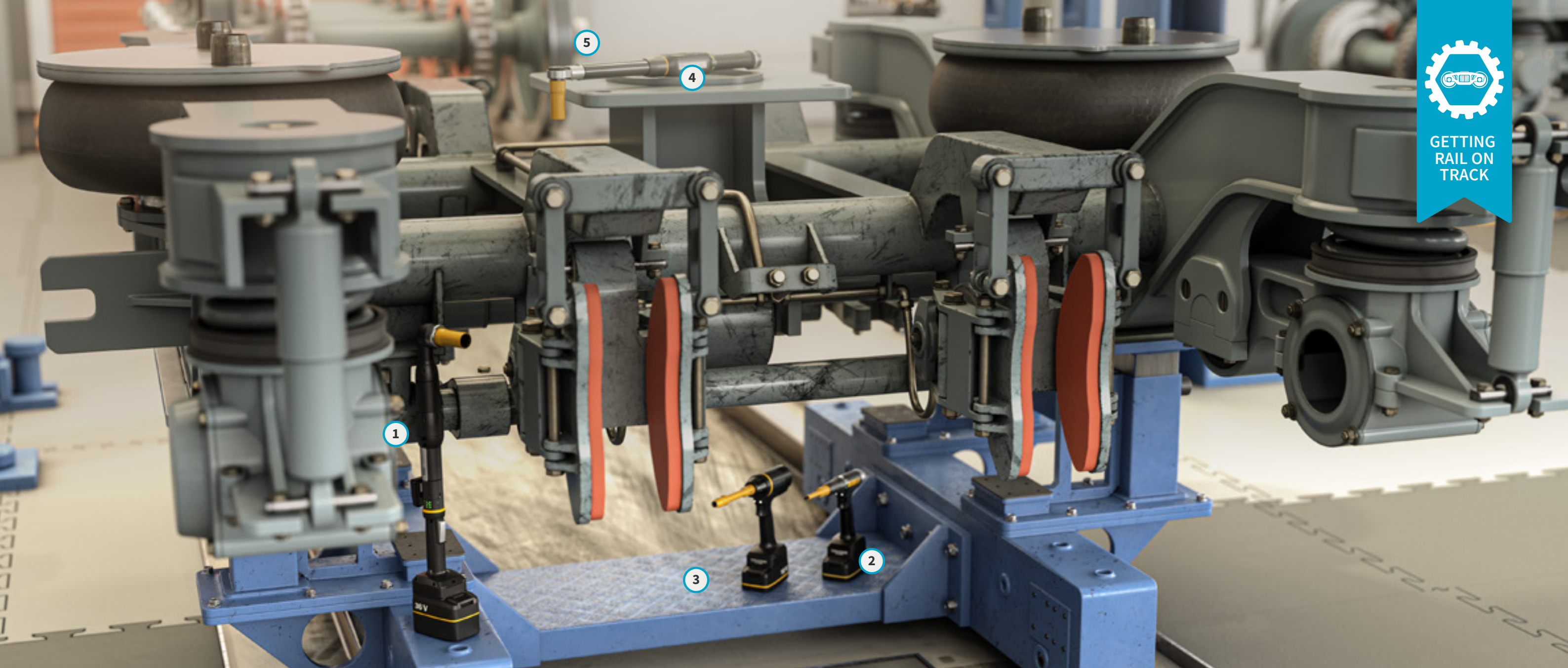
Secondary suspension

Making sure that the dampers and spring systems are in pristine condition when the train leaves the depot, is an insurance for the many future miles on track. Your operators can find everything they need for an efficient and correct procedure of maintenance on this part of the bogie structure. Not only enhancing comfort but stability and load distribution – preventing excessive wear on wheels and axles while ensuring consistent performance.

- 4 **ETP TBP81-55-10** is a battery powered, low reaction pulse tool with maximum flexibility and high torque.
Torque range: 20-55 Nm.



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Brake system

The bogie houses various components of the train's brake system, including brake calipers, discs, pads, and pneumatic or hydraulic systems. The Assembly Tower ensures that operator guidance includes all relevant steps, tools, and safety precautions to ensure thorough and consistent maintenance procedures. Providing operators with a detailed guide, walking them through brake system maintenance tasks systematically. This systematic approach makes the process efficient and safe with quality results.



Brake calipers

Maintenance on Brake calipers is essential to keep trains running and minimize downtime. Not to mention safety and efficiency of train operations. With the right program and tools you can make sure that the brake calipers will stay reliable and apply the right pressure to the brake pads.

1 ITB-A61-100-13-HMI offers values including Multistep tightening strategies, faster tightening speeds and improved wireless signal strength. Torque range: 20-200 Nm.

2 ETP SRB31-25-10 is ideal for low torque applications where the reaction forces are otherwise felt by the operators wrist. Torque range: 6-25 Nm.



Vertical damper

Misaligned dampers can cause uneven wear and affect the overall performance on the brake system. With the right tools for the job, and the clear and visual operator guidance you will ensure proper alignment of the vertical dampers with other suspension components to maintain stability.

3 ETP TBP61-32-42 is a battery-powered, low reaction pulse tool with maximum flexibility and high torque. Torque range: 12-35 Nm.

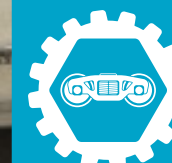


Emergency brake system

Providing a failproof mechanism for stopping the train in case of an emergency, this brake system has to be in the best possible condition. The tower will make sure that operators working on the brake system during maintenance have everything they need to ensure they are operational and reliable if and when needed.

4 STR WRENCH CONTROLLER COMPACT is built to satisfy the most challenging needs along the production line.

5 STRWRENCH SMARTHEAD 250 NM unlocks the full flexibility potential of the STRwrench family making it able to measure from 12,5Nm to 250Nm.



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Wagon interior

Loose fittings, damaged seats, or malfunctioning doors can pose safety hazards to passengers. Maintenance, repair and overhaul of the wagon interior is so much more than aesthetics. By addressing the condition of seats, coat racks, HVAC and handrails during the procedure, you are ensuring not only comfort, but safety of your passengers. All while complying with regulatory standards and maintaining the integrity of the train interior. With a proper setup and strategy, you can avoid double and tripple operations and get the job done in one step.



Take your seats please

Seat frames, cushions, armrests and reclining mechanisms. Maintenance on the seats is an important task and no bolt or fastener can be left to chance.

And when it comes to maintenance of passenger amenities such as tray tables, seatback pockets, and cup holders, you have a wide array of bolts and fasteners that need to be checked, tightened or replaced.

- 1 **ETP TBP61-32-10** is a battery powered, low reaction pulse tool with maximum flexibility and high torque.
Torque range: 12-35 Nm.



Window changeover

The window changeover process plays a critical role in maintaining safety, functionality and aesthetic appeal of rolling stock.

After scanning the barcode, the operator will be guided on the tablet screen through the process of selecting the proper tightening tool and strategy. When all the nuts are in place, all tightening data is documented for regulatory compliance and future reference.

- 2 **ITB-A61-70-13-HMI** offers values including Multistep tightening strategies, faster tightening speeds and an integrated controller, meaning improved wireless signal strength, perfect for working inside a metal wagon.
Torque range: 15-80 Nm.



Lighting fixtures

When precision and attention to detail is key, we have the perfect tools for you. Assembly, fastening and repair of interior lighting fixtures for either reading or finding your way to the emergency exit, is made easier with the right tools. And the right guidance.

- 3 **ETP SRB31-20-106** is ideal for low torque applications where the reaction forces are otherwise felt by the operators wrist.
Torque range: 5-20 Nm.
- 4 **INSULATED TOOL** With the SRB31 equipped insulated tool covers and sockets operators can work safely with live wires up to 1000V. (IEC60900).



Accessibility and Security features

Handrails, grab bars and wheelchair ramps – tightening or replacing the fasteners of crucial interior is an important task. And with procedures concerning accessibility and security there is no room for error. Make sure that your documentation and records of assembly, tightening and repair is automated and digitized for full traceability and proper protocol.



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Wagon exterior

Maintenance of the exterior of the train is essential not only for preserving appearance, but ensuring operational efficiency, and maintaining safety standards throughout its service life. Well-defined processes and having the proper tool for the job, ensures the safety of maintenance personnel as well as guaranteeing the safety of future passengers and cargo. When conducting maintenance and repairs of the exterior wagon standardization and documentation are key.



Weld flux removal

When welding frames, heat from the welding process creates a layer of hardened slag over the weld. This slag needs to be removed from the frame before continuing to ensure the structural integrity of the weld and prevent future issues.

- 5 **SCALER RVM08B** an efficient but still gentle power tool. This scaler can remove paint from window panes but also slag from welding. The chipping hammer's pointed end is designed to chip away at the slag, making it easier to remove and leaving a smooth surface behind.



Painting and Coating

Prepare your maintenance crew for professional and thorough surface preparation – protecting the train from corrosion, rust and weathering. With the right ergonomic tools and solutions for sanding and grinding, you will have a well-prepared surface to work on while protecting your operator from harmful vibrations and noise.

- 2 **ORBITAL SANDER G2438** is robust, durable and compact with composite housing and high-quality bearings.



Doors and hatches

Functionality, safety and longevity of doors and hatches on a train is important – regardless of what cargo the train carries. Maintenance may involve tools for surface preparation as well as tightening or correcting misalignments. Make sure your operators know the procedure and have the proper tool to get the job done.

- 7 **BELT SANDER LMB** is suitable for precision sanding where access with conventional sanders is difficult, such as spherical surfaces and tubes.



Grinding, Deburring and Cutting

Processing metal parts and surfaces require reliable and strong tools. Tough on the surfaces but friendly for the operator is a good rule of thumb.

- 6 **ANGLE TURBINE GRINDER GTG22** is a 2.3 kW power tool weighing in at only 1.9 kg. With 12 500 rpm it delivers unmatched material removal rate and is ideal for high productivity operations.
- 3 4 **LSV39 & ALU CUT** is ideal tool for the processing and cutting aluminium sheets.
- 1 **STRAIGHT DIE GRINDER LSF29** Robust and powerful one hand die grinder with the scatter damping option to lower vibrations.



Improve safety and quality with Rotaction

Our wide range of Saltus Sockets are the best choice on the market for any assembly. From tiny bits for delicate electronics – to large HEX sockets for bigger challenges. Characterized by high quality and durability, our sockets are a safe and smart choice for any part of maintenance and overhaul in Rolling Stock. Designed to optimize your assembly operations and to increase productivity, they are ready to ship in just about any size or shape. And for any need out of the ordinary, we can custom tailor sockets to meet your specific needs.

ROTACTION sockets

ROTACTION-sockets is a combination of freely rotating sleeves and covers for “tool-to-socket” and “extension-to-socket” connections that significantly improves operator safety, the tool, the task and the result.

The ROTACTION range includes numerous sockets, bits, bit sockets, QCAs, nut setters and extensions with rotating protection sleeves and covers to bridge gaps between extension and socket. Tool covers close the gap between tools and sockets, bits or extensions.





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