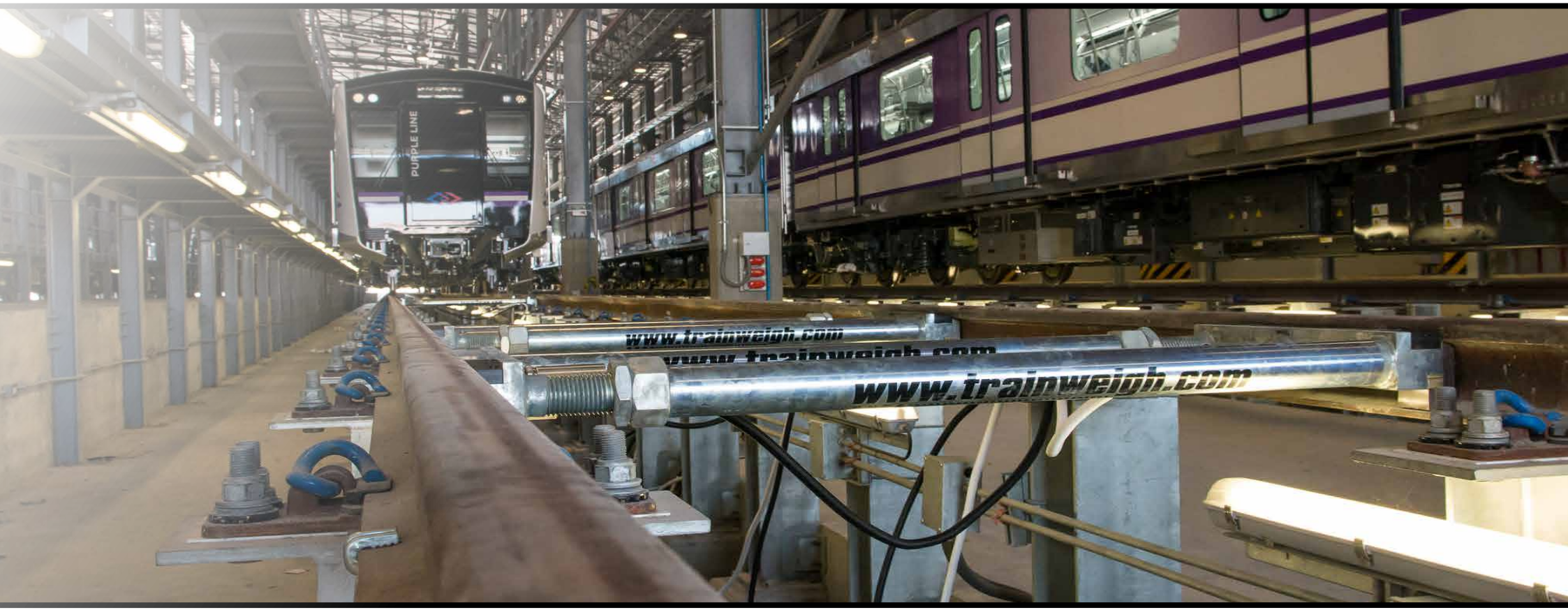
TRAINWEIGH

RAIL WEIGHING SOLUTIONS

Part of the Weighbridge Services Group



PRODUCT BROCHURE

Trainweigh – Rail Weighing Specialists

Weighbridge Services Ltd is a family run business based in Sheffield, UK. With over 40 years experience of designing, building and installing both road and rail weighing equipment, our team of enignineers cover almost every aspect of the weighing industry.

Our Trainweigh brand of products, offered solely by Weighbridge Services Ltd, offer a vast range of rail weighing solutions. Over the past 10 years our product range has benefited profoundly from increased R & D budgets, a stronger supply chain and the increased expertise of our workforce by bringing in experienced engineers from other parts of the rail weighing industry.

The Trainweigh range is designed for application into any rail infrastructure from factory installed weighers and testing systems to out-in-the-field weighing and data collection services.

We are now positioned as one of the leading train weighing specialists and can supply a vast range of products worldwide, both off-the-shelf and bespoke manufactured.

We look forward to working with you.

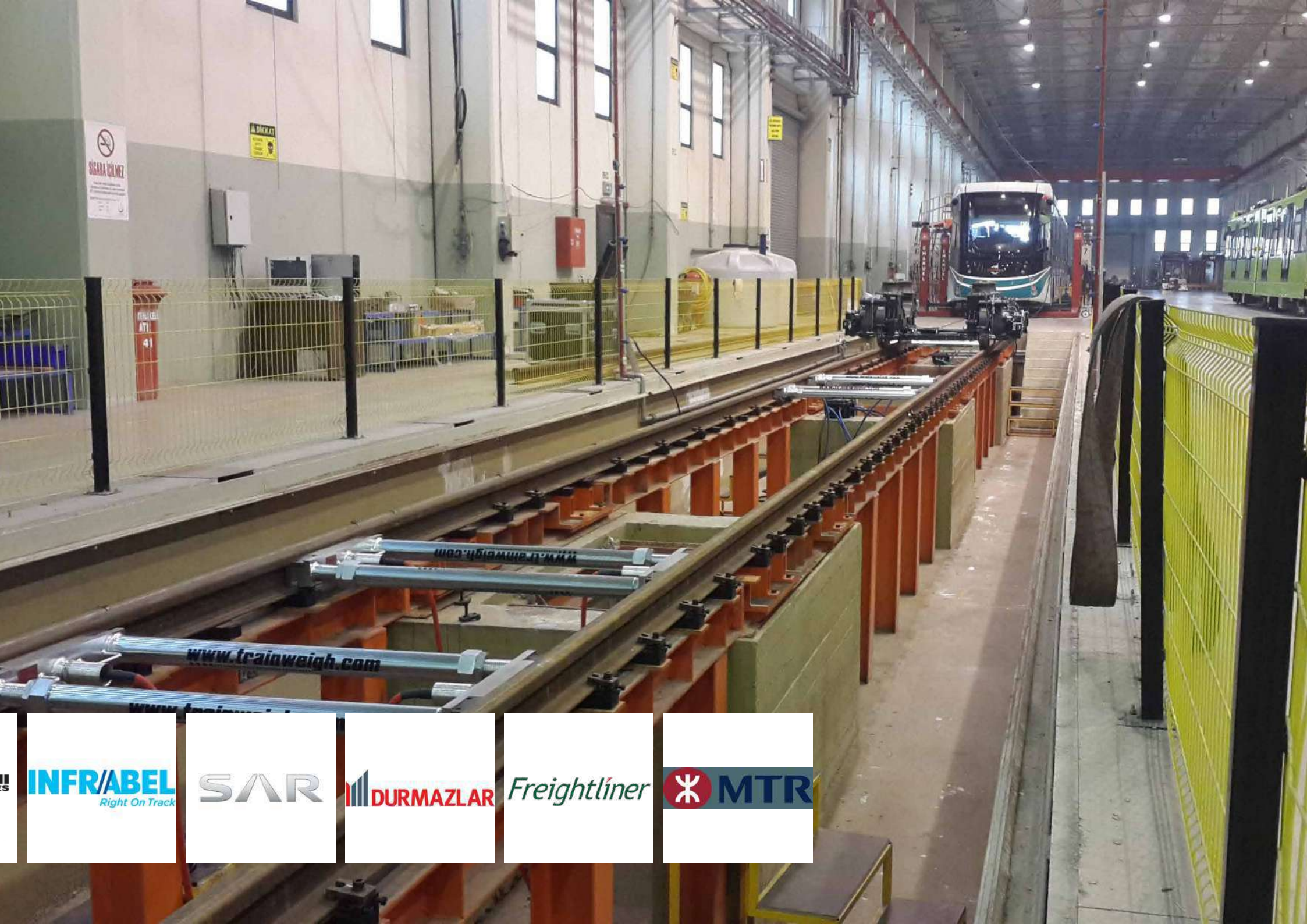
Regards,

The Trainweigh Department

WEIGHBRIDGE SERVICES

Proudly trusted by our existing clients:

SNCF HYUNDAI Rotem KERETA API ScotRail การรถไฟฟ้าขนส่งมวลชนแห่งประเทศไทย Mass Rapid Transit Authority of Thailand LAFARGE TARMAC SIEMENS MITSUBISHI HEAVY INDUSTRIES


SİGARA İÇİLMEZ
DİKKAT
www.trainweigh.com
INFRABEL
Right On Track
SAR
DURMAZLAR
Freightliner
MTR

AX SERIES™

TAKE THE SCALE TO THE TRAIN

Fully Mobile and takes minutes to install onto virtually any track throughout the World. The AX Series can be carried into place, and set up by two men, no need for special fixings or lifting equipment.

The Trainweigh AX Series of scales is designed to:

- Ensure all product weights are correct for delivery to your customer.
- Improve Safety
- Show Wheel Imbalance problems.
- Assist prevention in derailment.
- Prevent increased wear to rail vehicles and infrastructure.
- Eliminate wheel flat spots and brake lock ups.
- Increase fuel economy.
- Ensure symmetrical loading and highlight any off centre loading.

EASY SETUP

The AX Series can be setup in minutes and install onto virtually any type of track throughout the world.

PRECISE MEASUREMENT

Get precise measurement of individual wheel and axle weights within seconds.

FULLY PORTABLE

The AX Series can be brought to the train in any light vehicle, carried into place and set up and run by two people.

OIML APPROVAL

Optional trade approval can be added for static weighing giving greater accuracy and “legal for trade weighing”.

STATIC WEIGHING

The AX Series is ideal for train manufacturing workshops who test Locomotives, Bogies and Coaches when building from new, repairing, overhaul or general maintenance. Single or multiple units can be used for the highest accuracy proven to within 0.01%.

DYNAMIC WEIGHING

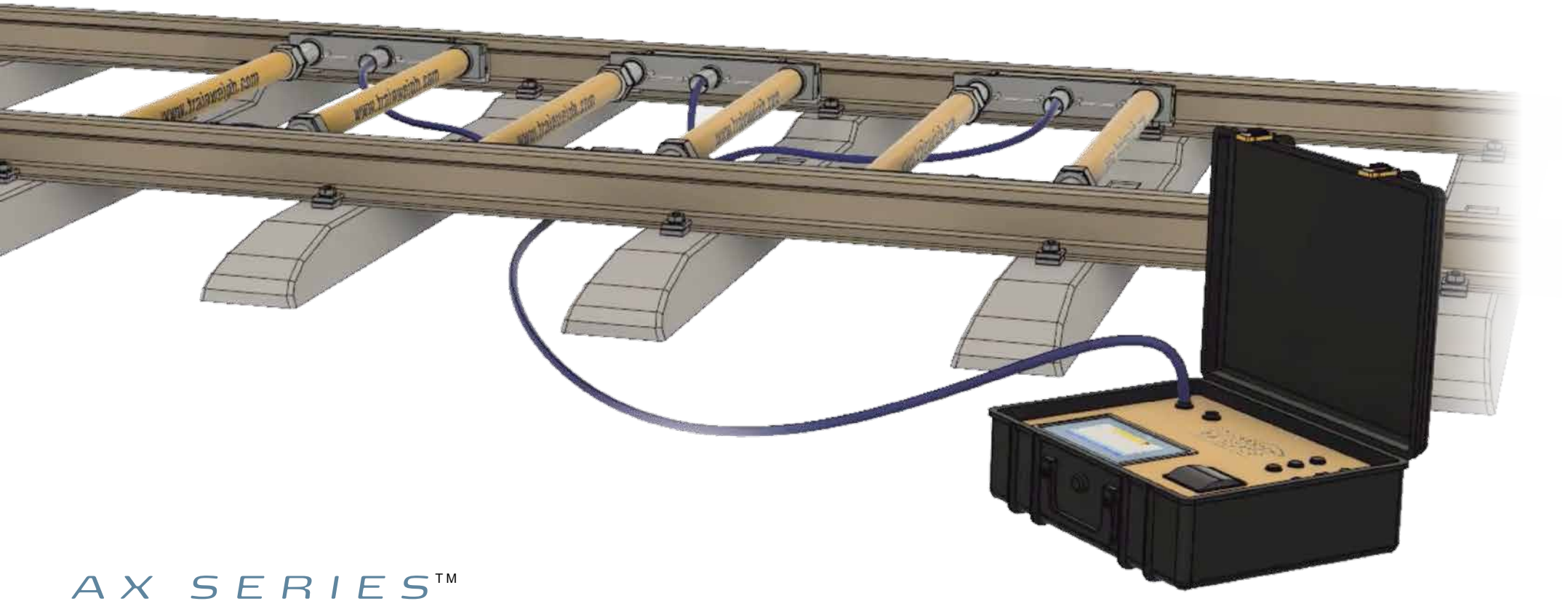
The AX-300™ can be used dynamically with individual wheel weights. This is ideal for goods and freight Trains. Automatic weighing ensures correct wheel, axle, wagon and total train loadings and weight distribution down to 1% accuracy depending on track conditions.

AX Series™ Scale	Static Axle Weighing	Static Bogie Weighing	Static Wagon Weighing	Dynamic Option Available
AX300	●			✓
AX400		●		✓
AX600		●		✓
AX800		●	●	✓
AX1200		●	●	✓

AX SERIES WIRED

Wired benefits include:

- Fast Data Transmission
- Stable data flow connection
- Offers multiple configuration of data capture and reports
- Easy to install, maintain and operate
- Built in thermal printer allows fast ticketing options
- USB data collection built in
- Built in rechargeable battery provides on average 5 days use



AX SERIES™

AX SERIES WIRELESS

Wireless benefits include:

- Fast data transmission
- Removes the risk of cable damage
- Up to 800 metres wireless connection
- Instant production of digital reports, weigh tickets, storage files or printing to a standard desktop printer.
- Offers multiple configuration of data capture and report options
- Easy to install, maintain and operate
- Up to 2 years battery life (2 x AA batteries required for each wheel)

AX SERIES TECHNICAL INFORMATION

- Robust High Quality Tool steel design of Load Cells and Body
- Fully Hermetically Sealed
- 2 weighing sensors per weigher
- Fits to all standard rail types
- Fits to all standard rail gauge types
- Commission time: 10 minutes
- Decommission time: 5 minutes
- Data transmission: BUS, Ethernet, USB, WiFi
- Data Export Format: .txt, .csv and others
- PC interface for Microsoft™ Windows™

Weighing Capacity	15 tonnes/wheel - 30 tonnes/axle
Division Size	10kg (Static) - 20kg (Dynamic)
Accuracy	0.01%-1% (Static) 1%-3% (Dynamic)
Max. Dynamic Weighing Speed	3mph / 5kmph
Protection Class	IP67
Instrument Class	0.5%
Linearity Error	<0.02%
Unit Length	600mm
Unit Weight	39kg
Rated Operating Temperature Range	-30°C to +70°C
Transducer Characteristics	0.1mV / V Accuracy 0.2%
Measuring Amplifier	24 Bit
Sample Rate	10 kHz
Power Supply	Wired - 12V, 40V, 90V, 110V, 240V Wireless - AA Batteries


www.trainweigh.com
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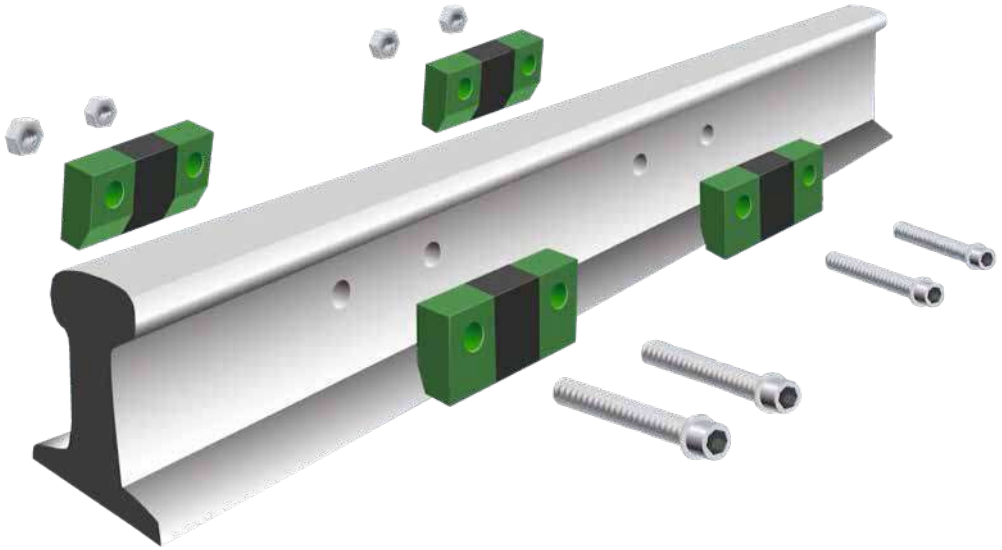
FORCE WIM™

HIGHLY ACCURATE WEIGHING IN MOTION

The Force WIM (Weighing in Motion) is a bolt-on sensor system that connects directly to the existing rail to provide an extremely accurate dynamic weighing system.



EASY SETUP

No need to Sensors bolt to any type of existing rail. No need to modify.

PRECISE ACCURACY

Accuracy at 2-20 kmph <0.5%
Accuracy at 60-120 kmph <1.0%

MULTI CONNECTIVITY

Connect multiple systems for a multi locational data collection system.

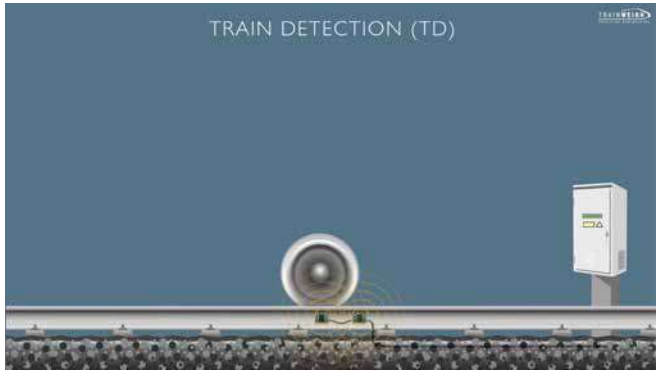
OIML APPROVAL

Optional trade approval can be added for legal for trade weighing.

FORCE WIM FUNCTIONALITY

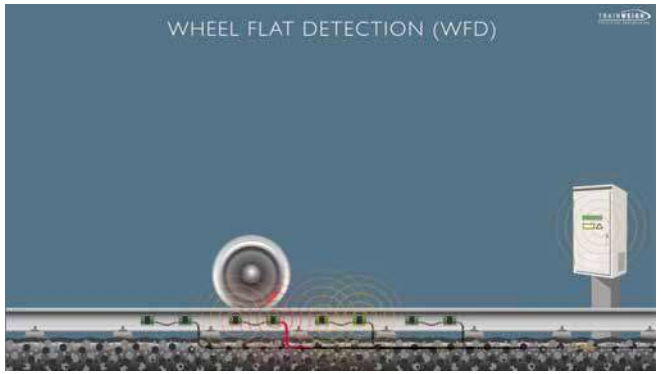
Train Detection System

Force WIM sensors can be installed as a train detection system. This can benefit early warning systems as it can instantly highlight when a train has passed over the sensor. If a train is on the incorrect track or arrives earlier than expected collisions can be avoided in advance.



Wheel Flat Detection System

Multiple set-ups of Force WIM sensors can be used as a wheel flat detection system as a train passes over them. Early warning systems can be advised that a train has developed a wheel flat enabeling operators to rectify the situation before derailment or damage occurs.

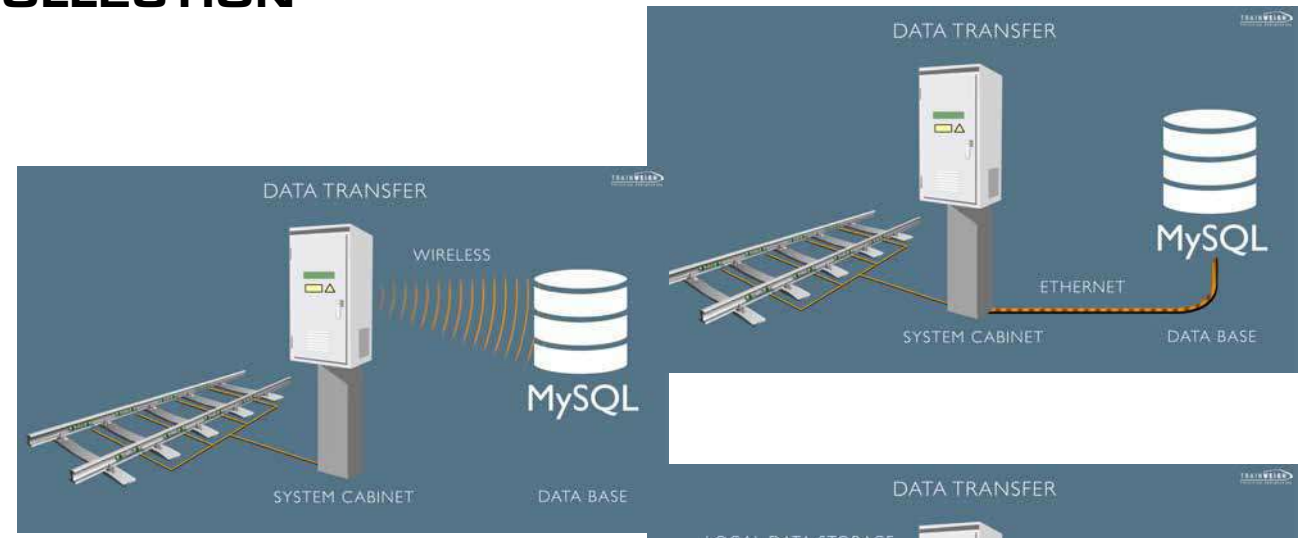


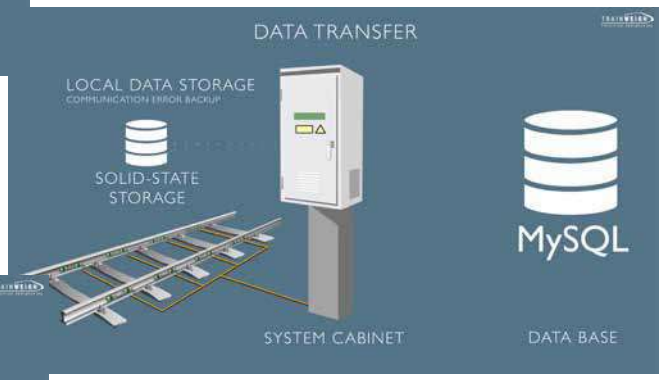
Train Classification Recognition System

The accuracy of the Force WIM sensors can be used to identify the class of many locomotives and cars by measuring the wheel distance and weight already stored in its internal database. This is crucial for keeping records of which trains are currently active on the tracks.

FORCE WIM DATA COLLECTION

Data recorded by the Force WIM system can be sent directly to a SQL server account for distribution across you infrastructure. This can be done wirelessly or by Ethernet. There is also an on-site SSD hard drive built into the equipment to make sure even if the link is lost, your data isn't.

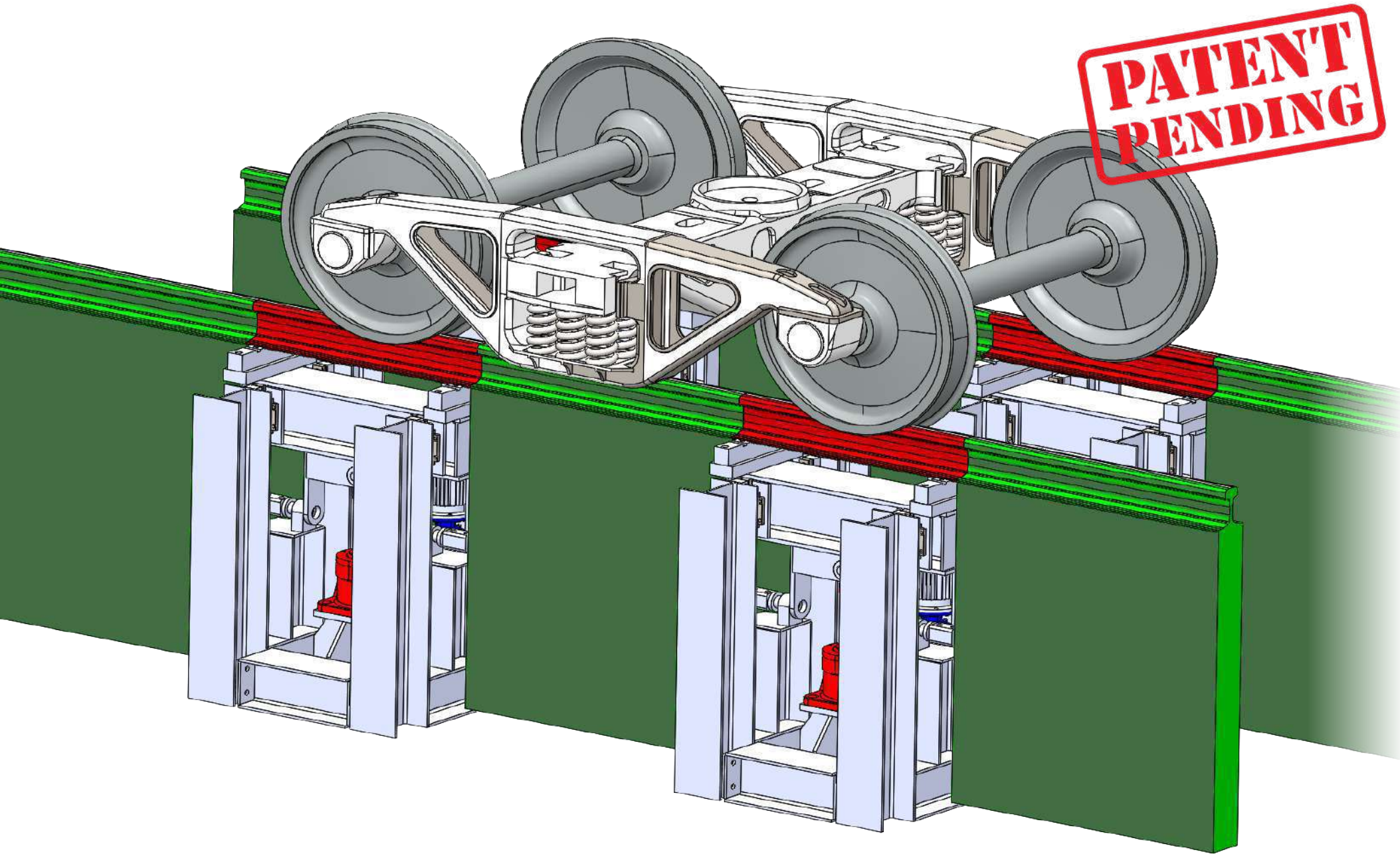




Once the data is uploaded to the SQL server account it can then be viewed anywhere in the world by all major browser platforms. The data can then be sorted and filtered for any type of analysis required.

DQ SERIES™

HIGHLY ACCURATE WEIGHING IN MOTION



Wheel Unloading Test System

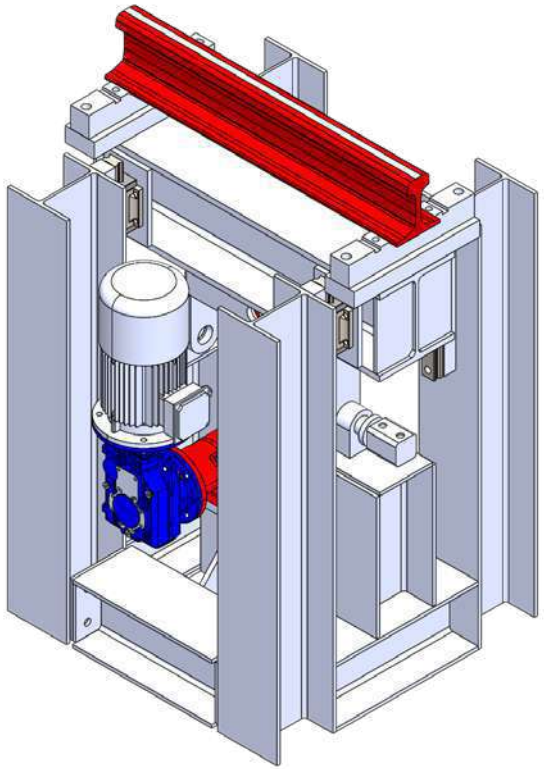
After many years of producing our AX Series train weighing scales, it seemed there was a real demand for a system to perform other tests within the Rail Industry Guidance which are not possible with a standard, flat, weighing surface. To meet the railway group standards, wheel weights need to be weighed at a selection of different height measurements by simulating track twists.

We found the solution needed was a workshop weighing station that is capable of weighing the wheels of a bogie while the operator selects different height measurements via a PLC controller.

Our answer to the problem is the DQ Series. The DQ Series has been developed to meet requirements of speed, efficiency and accuracy.

The DQ Series can be used for:

- Weighbridge Test
- Wheel Unloading Test
- Offset Loaded Container Wagon Test
- Bogie Rotational Resistance Test
- Sway Test
- Δ Q/Q (Delta Q over Q)

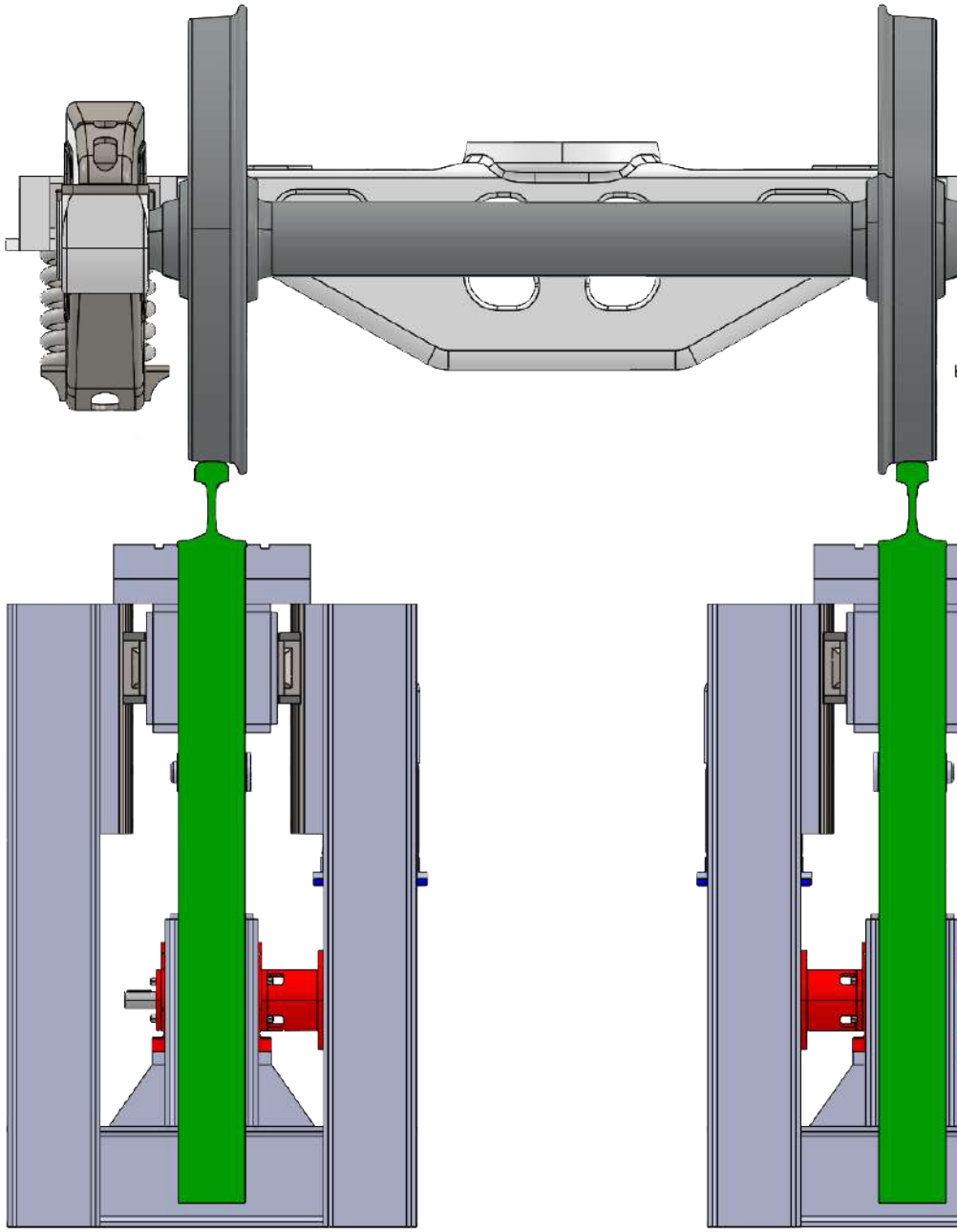


The DQ Series is available as two options:

DQ400 for twin axle rail cars
DQ800 for four axle rail cars

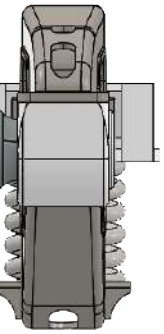
How does the DQ Series system work?

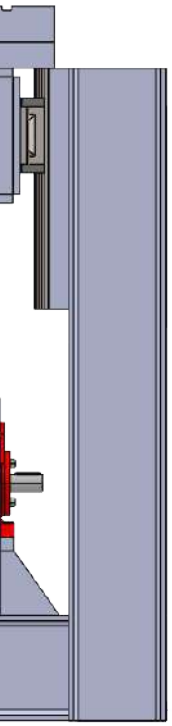
The operator uses pre-determined level programs which automatically adjust the height of each wheel weighing unit to a tolerance of 0.1mm. Once the wheels are in position a report is produced showing the data information.
The equipment has several safety features to ensure a wheel does not become completely unloaded or overloaded by dynamically measuring the wheel weight while the height movements are being automatically made

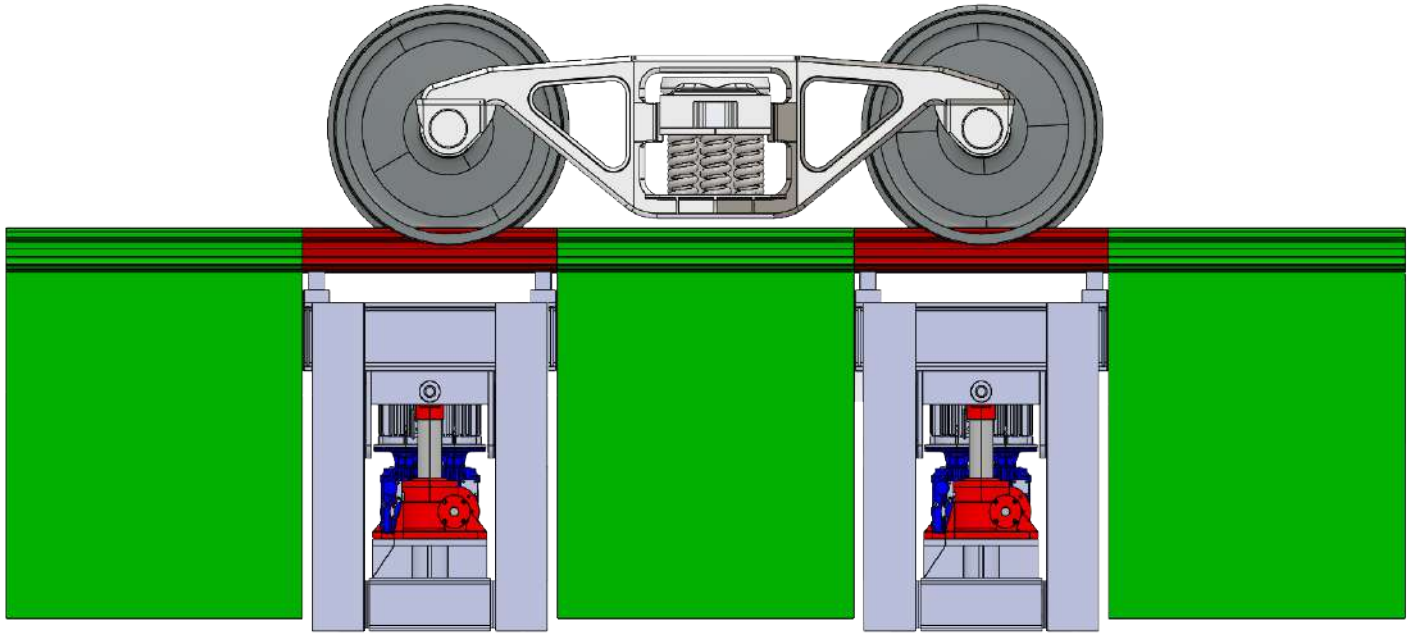


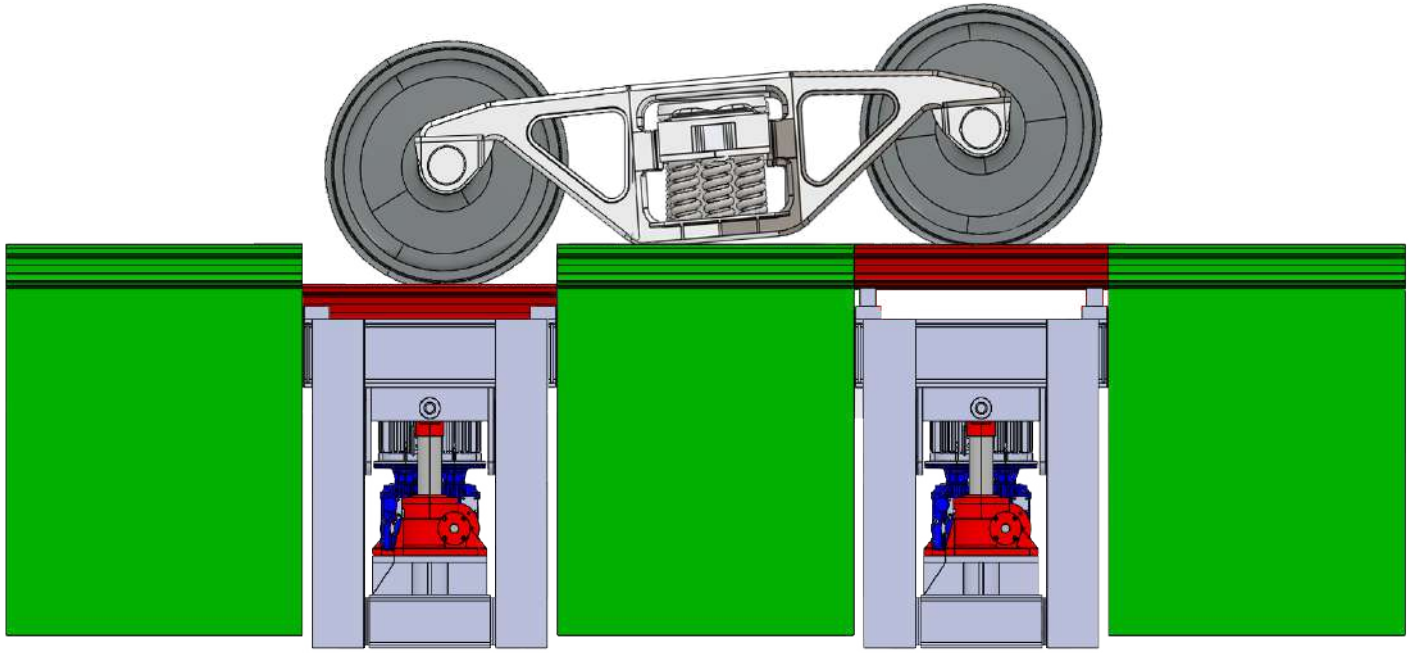
The state of the art DQ Series conforms to the following procedure guidances:

EN14363:2016
GMRT2641
GMRT2141
GMRT2173
GERT8006









Train Weighing Systems & Products
TELEPHONE: (+44) 0114 321 6364
EMAIL: trainweigh@weighbridgeservices.com
Website www.trainweigh.com

Specification

AX-300 Mobile Train Weighing Scale

(Pictures shown are for illustration purposes only)

AX-300 Specification

- AX-300 can be used for Static weighing
- Heavy Duty
- Can be used on any Rail in any weather condition, outside or inside a workshop.
- High accuracy 10Kg Division.
- Capacity: 30 Tonnes per Axle
- Each Individual wheel weight, percentage loadings and centre of gravity can be graphically displayed and printed. Other outputs are also available.
- 10 Minutes install per unit.
- Power supply: 12V to 220V to 240V – 50Hz. Battery or Mains (12hrs use per charge)
- Accuracy Static 1-2% or better, allowing for good track conditions
- Remote servicing and maintenance with dial in technology

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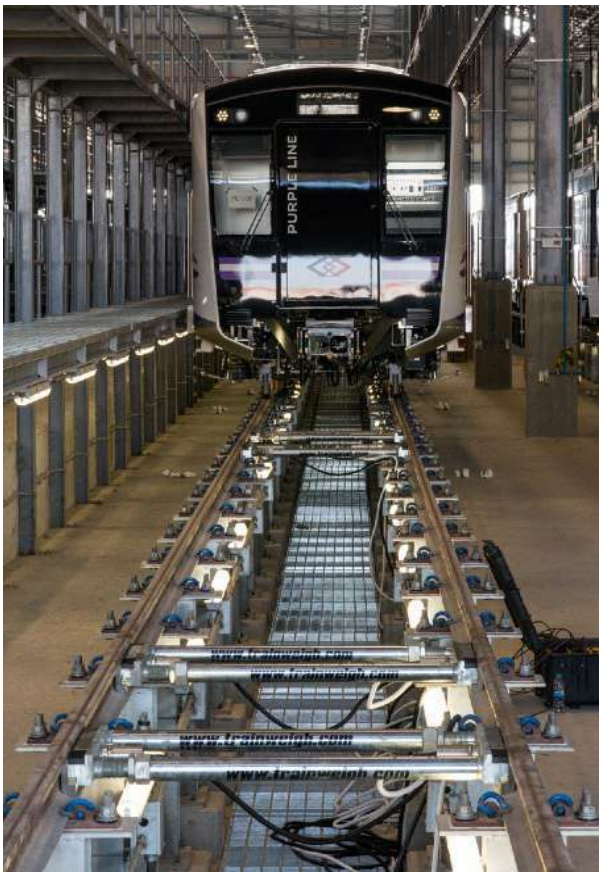

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(Model shown may change subject to final specification)

1 x AX-300 base unit (2 weighing wheels)
2 x Spacer Poles to suit Gauge size (T.B.C)
1 x Set of Rail Adaptors (T.B.C)
2 x Cable protection cover
1 x Set of Sensor connector armoured cables
1 x Digital weight terminal with thermal printer and data output.
1 x 95mm Spanner
1 x Height measure set
1 x Set of packing shim and tool case
1 x Instruction manual set
1 x Data reporter software installed
1 x Wheeled and lockable heavy duty cargo case
1 x Set of various ancillaries and tools

Data Output & Software

Data Output

Fully Automatic weighing operation. Calculates and displays / prints, Individual Wheel, Axle and Wagon and Total Train weights.

Sample of a Static printed report printed from the Integral Printer:-

```
ID: 0000566

09:45 23/05/12
Weighing Mode: Static
Direction:     Left/Right

Wheel 1    Wheel 2    Axle total WC KPH

Bogie 1
   7470 kg  8910 kg   16380 kg   0  0
   6350 kg  9520 kg   15870 kg   0  0
                      -----------
                         32250 kg

Bogie 2
   7050 kg  7410 kg   14460 kg   0  0
   7420 kg  7820 kg   15240 kg   0  0
                      -----------
                         29700 kg

Total Coach Weight
                         61950 kg
```

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Data Recorder Software

Information can be stored to PC via Data transfer.

Other PLC integration connection are available such as WI-FI, 4-20mA, USB, RS232 and RS485 (please advise if required).

The following Screen shots give an example of the date and reports generated by the Trainweigh Data Recording software