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YELLOW FLEET - GLOBAL MARKET & TRENDS

Installed base, Suppliers, Development

2025



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Installed Base – Suppliers - Development

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Mark Vetter (Project Lead)

Christian Reuter
Maxence Cardot
Ulf Manhold

Supervision, Editorial & Layout

Nicolas Wille
Nicole Heinrichs
Antorlina Mandal

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CONTENT

YELLOW FLEET	3
1 Executive Summary	8
2 Market overview per region	26
2.1 Europe	26
2.2 Asia	31
2.3 North America	36
2.4 South / Central America	40
2.5 The CIS	44
2.6 Africa / Middle East	48
2.7 Australia / Pacific	52
3 Country market analysis	57
3.1 Germany	57
3.2 France	62
3.3 Italy	67
3.4 Switzerland	72
3.5 The United Kingdom	77
3.6 Spain	83
3.7 Poland	88
3.8 USA	93
3.9 China	99
3.10 India	105
4 Market competition	112
4.1 Plasser & Theurer	113
4.2 Matisa	114
4.3 Harsco Rail	115
4.4 Linsinger	116
4.5 Loram	117
4.6 Mermec	118
4.7 System7	119
4.8 Windhoff	120
4.9 Nordco	121
4.10 SVI SPA	122
4.11 Tesmec	123
4.12 Speno	124

4.13	Gemac Engineering Machinery.....	125
4.14	New Sorema Ferroviaria.....	126
4.15	Vossloh.....	127
5	Annex.....	129
5.1	Market delimitation and methodology of the study.....	129
5.2	Market Analysis Methodology.....	133
5.3	Definitions, abbreviations, sources and figures.....	136

Executive Summary



The global yellow fleet market

– a term denoting specialized, self-propelled railway construction and maintenance machinery – remains an essential pillar of the railway industry’s modernization and operational reliability.

Infrastructure investment and regulatory dynamics drive the market

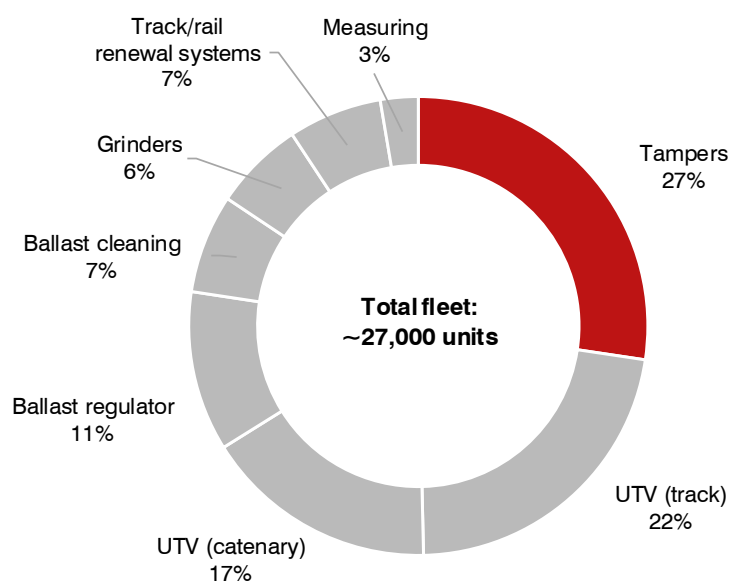
The global market for the yellow fleet is driven by significant infrastructure upgrades, expansion projects, and the implementation of digitised signalling systems such as ETCS and ERTMS, particularly in Europe and Asia. High-profile programmes, such as [REDACTED]

[REDACTED]

Even in the Americas and Australia, the export of raw materials and the scale of long-distance freight networks impose specific requirements: Modularity, long range capability, and the ability to work in remote regions.

Specialized railway maintenance machinery [REDACTED]

Worldwide: Yellow fleet overview per type of vehicle [amount of units]



Source: SCI Database

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Figure 1: Yellow fleet overview worldwide per vehicle type

Technological change and product innovation

Digitalisation and efficiency targets are transforming the market for rail construction and maintenance vehicles, with a clear trend toward automation, network connectivity, and multi-functionality. Modern high-performance machines, such as [REDACTED]

[REDACTED]

In this context, Speno's cooperation with Skoda for ETCS retrofits is illustrative of the demand for digital integration and operational flexibility.

[REDACTED]

Drivers	Relevance	Trend
<p>Infrastructure upgrades</p> <ul style="list-style-type: none"> Large-scale renewal of existing mainline routes and urban networks to address aging infrastructure, capacity constraints, and safety requirements. <p>[REDACTED]</p>		
<p>Fleet structure and technical obsolescence</p> <ul style="list-style-type: none"> Accelerated replacement cycles due to stricter emission standards, digitalisation mandates, and the incompatibility of legacy machinery with current infrastructure. <p>[REDACTED]</p>		
<p>Construction of new lines</p> <ul style="list-style-type: none"> Strategic expansion of high-speed, urban and suburban rail corridors, particularly in Asia, the Middle East, and regions of rapid population growth. <p>[REDACTED]</p>		

Segmentation

Yellow fleet machinery is the backbone of railway construction and maintenance, ensuring tracks remain safe, precise, and reliable under constant train traffic. These specialised assets – ranging from single vehicles to multi-unit systems – each play a critical role in keeping the network functional. Without them, railways would face rapidly deteriorating track conditions, reduced safety margins, and costly service disruptions. Their efficiency allows essential maintenance and upgrades to happen with minimal downtime, ultimately protecting both the infrastructure investment and the smooth, safe flow of rail transport.



SCI distinguishes the following main categories of the yellow fleet:

Track/rail construction and maintenance machines

Specialised machines used to maintain and repair railway tracks.

Usually single units.

Types

Tamper, ballast regulator, ballast cleaning, grinder, measuring vehicle

Utility track vehicles (UTV)

Versatile vehicles adapted for support tasks such as transporting workers, tools, and materials.

UTVs for track work handle general maintenance, while UTVs for catenary work are equipped for maintaining overhead electrical wires, often with elevating platforms or specialised equipment.

Types

UTV for track work, UTV for catenary work

Track/rail construction and maintenance systems

Integrated systems designed for large-scale construction or renewal of railway tracks, usually with several units composed as one construction train.

Construction systems lay new tracks, while renewal systems replace or upgrade existing tracks.

Types

Track construction systems, Track/rail renewal systems

Other vehicles

Covering a wide range of self-driven machines used for different types of track work, which do not fit into the other main classifications of the yellow fleet.

No further description and elaboration of these vehicles is provided in the present study.

Types

Conveyor, welding machine, snow plough, vegetation control cars, etc.

Note: The scope of this study is limited to self-propelled, rail-bound vehicles.

[...]

Overall, the worldwide yellow machinery fleet amounts to approx. 27,000 self-driven railway vehicles.



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27,000

self-driven railway vehicles.

- With almost [REDACTED] **tampers**, this type represents the largest share of individual vehicles inside the total fleet.
- Utility track vehicles (**UTV**) usually consist of smaller auxiliary vehicles with the purpose to assist the track or catenary work. With their indispensable use on construction sites, they are commonly deployed in the various world regions and together account for over [REDACTED] vehicles. The share between UTV for track work and those for catenary works is 58 to 42%.
- On average, one **ballast regulator** (including spreader ditchers) can be attributed to 2.6 tampers. The processing of tamping and regulating is usually linked to each other.
- **Ballast cleaning** machines are vehicles that clean bed and ballast of the tracks on behalf of undercutting bars that collect the ballast and mesh the ballast and return it to the tracks as fresh ballast.
- **Grinders** and **measuring** vehicles represent a different purpose, as these are not directly used for the process of construction, but rather serve to maintain and monitor the condition of the tracks.
- The remaining vehicles of the yellow fleet include **track rail/rail renewal systems**, usually large vehicles composed of several machines related to track (re-)laying processes.

Market forecasts indicate that the main fleet types (tampers and UTVs) will maintain dominance, with Western Europe showing an overall younger vehicle age profile than Eastern Europe, where a substantial proportion exceeds 40 years. [REDACTED]

Supplier Country of origin	Focus Regional	Product range and fields of activity						
		Trackside: Ballast work			Rail		Integrated solutions	
		Tamping	Regulating	Cleaning	Grinding	Measuring	Systems	UTV
Plasser & Theurer Austria	Worldwide							
Matisa Switzerland	Nearly worldwide							
Windhoff Germany	EU, USA, Australia							
Harsco USA	Worldwide							
Loram USA	North America							
Speno Switzerland	Worldwide except USA							
Linsinger Austria	Europe, North America, Asia							

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Figure 2: Selection of main active manufacturers for yellow machinery

In addition to **Plasser & Theurer's** dominant position, other manufacturers play crucial roles across the international railway infrastructure equipment market, including:

- **Matisa**, [...].
- **Windhoff** [...]
- **Harsco**, [...]
- **Loram**, [...]
- **Speno**, [...]
- **Linsinger** [...]

2 Market overview per region

2.1 Sample region: Europe

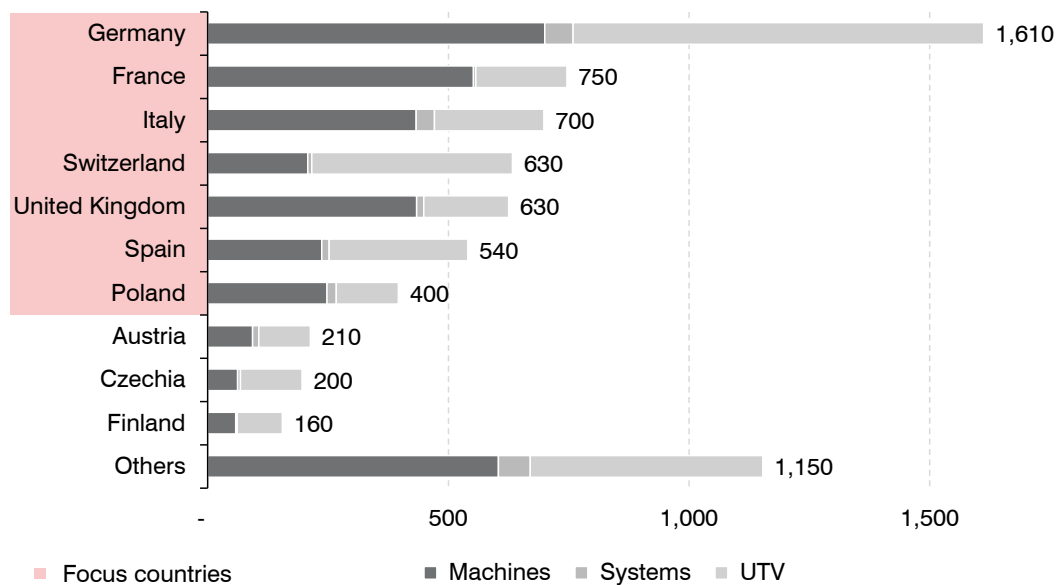


Infrastructure market – key facts	
Mainline railway network (km)	█
<i>thereof electrified</i>	52%
<i>thereof standard gauge</i>	█
High speed rail network (km)	~11,300
<i>thereof electrified</i>	█
<i>thereof standard gauge</i>	█
Urban railway network (km)	█
<i>thereof electrified</i>	100%
<i>thereof standard gauge</i>	█
Network operators	█
Passenger transport performance (million pkm)	█
Freight transport performance (million tkm)	█

2.1.1 Installed base

[...]

Yellow fleet per country in Europe (units)



Source: SCI Database

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Figure 3: Yellow fleet per country in Europe

The UTV segment is equally shaped by national concentrations, with Germany holding the largest share, followed by Switzerland and Spain; these three countries combined represent half of Europe's total UTV fleet. Outside these markets, road-rail and hand-operated machines have a comparatively higher presence. It is also notable that UTVs designed for track-related tasks outnumber those used for catenary work.

[...]

2.1.2 Manufacturers

With several thousand vehicles delivered to date, the Austrian manufacturer Plasser & Theurer is by far the largest supplier in Europe. Except grinders, Plasser & Theurer offers a complete range of rail construction and maintenance vehicles. The main markets are Germany and other Western European countries, however the company is active in almost every part of the region.

[...]

2.2 Sample country: Italy

2.2.1 Market environment

Infrastructure overview

The Italian railway infrastructure is managed entirely by Rete Ferroviaria Italiana (RFI), a subsidiary of Ferrovie dello Stato Italiane (FS Group). RFI oversees both the conventional mainline network and the country's extensive high-speed system. Over the past years, [...]

Key actors and market structure

RFI retains a strong central position in the Italian market, directly operating and managing measurement activities and employing a fleet of yellow fleet machinery for routine maintenance, including tamping operations. However, [...]

Operational challenges

Overall, the Italian network is considered to be in a satisfactory condition, particularly on its mainline corridors, due to a systematic approach to upkeep that has prevented major cumulative maintenance gaps. However, [...]

Railway infrastructure activities

In contrast to France and Germany, Italy faces a comparatively lower need for large-scale renewal, as the maintenance of its network has not been significantly neglected in recent decades. [...]

Project name	Type	Distance (km)	Description
Brenner base tunnel	New line	235	[...]
[REDACTED]	New line	8.35	The project involves the creation of a rail tunnel under Florence, to improve travel times for high-speed services in the node of Florence but also to increase the reliability of rail services by splitting the different types (high-speed, regional). The end of the construction works is planned for 2028, and the overall costs should amount to EUR 2.73 billion.

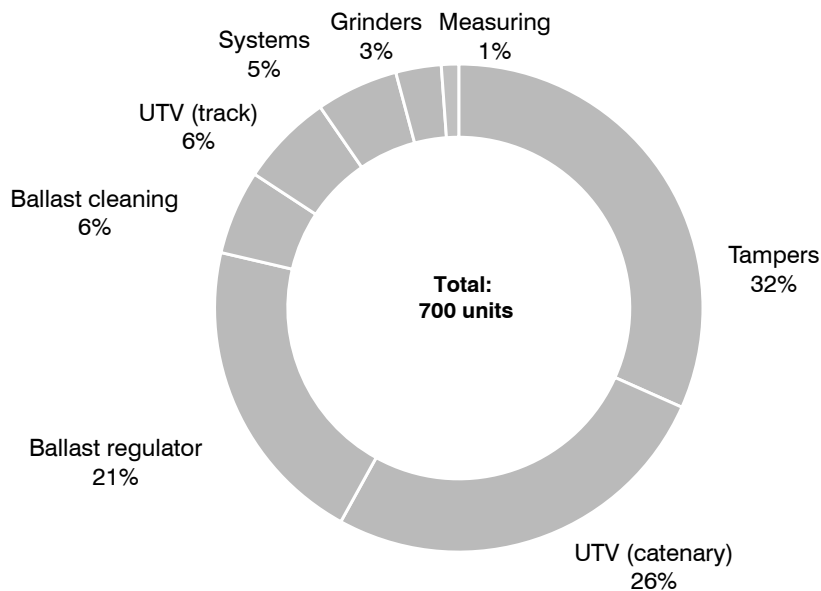
Project name	Type	Distance (km)	Description
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
Salerno-Reggio Calabria	New line	220	The project aims to improve rail transport in the South and to better connect this part of the country with the other Italian regions. The operational speed will be comprised between 200 and 300 km/h and the investment costs will amount to EUR 17.5 billion. Currently, the section Battipaglia-Buonabitacolo is under construction while the other ones are in preliminary stages.

Regarding the rollout of ETCS, Italy is probably, among the large countries in Europe, the most dynamic one. At the end of 2023, the Italian high-speed network (approximately 900 kilometres) was completely fitted with ETCS while 270 kilometres of the conventional network had been equipped. [...]

2.2.2 Fleet overview

In Italy, the yellow fleet is relatively young. Many vehicles have been procured during the last 15 years. [...]

Yellow fleet in Italy – Type segmentation (units)



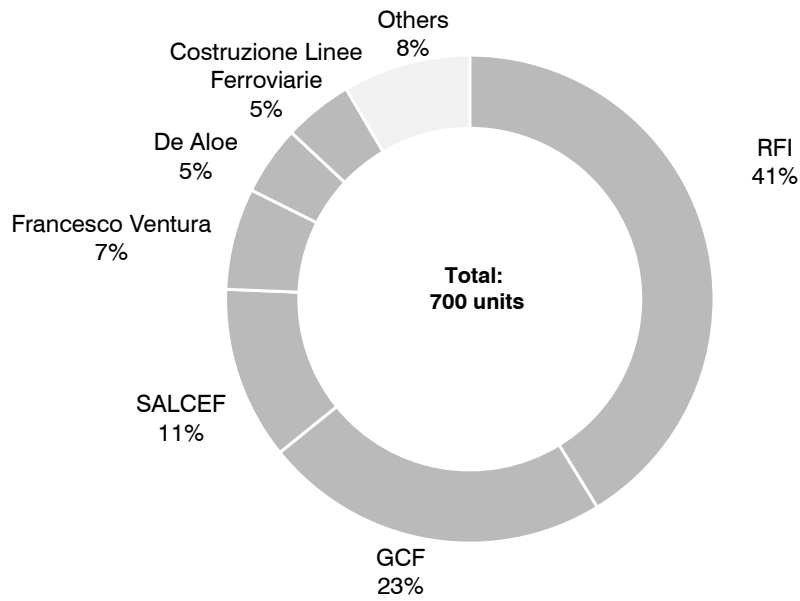
Source: SCI Database

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Figure 4 Yellow fleet per type segment in Italy

[...]

Yellow fleet in Italy – Operator overview (units)



Source: SCI Database

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Figure 5: Yellow fleet repartition per operator in Italy

[...]

2.2.3 Market forecast

Italy: Yellow fleet key facts			
Current market volume	Future market volume	Largest market segment	Highest market growth
41	21	Measuring	Tampers
EUR million (OEM, 2024)	EUR million (OEM, 2029)	2024	2024 to 2029

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[...]

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SCI Verkehr GmbH is an independent medium-sized management consultancy focused on strategic issues in the international rail, infrastructure and logistics business. We know our markets worldwide and have been supporting our international clients in the development and realisation of their strategies since 1994.

Mark Vetter
SCI Verkehr GmbH

Vor den Siebenburgen 2
50676 Cologne
Germany
Tel +49 221 931 78 0
m.vetter@sci.de
www.sci.de