

Reading
Sample

WORLDWIDE ROLLING STOCK MANUFACTURERS

Market insights and factsheets for
Top 25 manufacturers and overview of
160 companies and 340 production sites

2023

Worldwide Rolling Stock Manufacturers

Market Insights and Factsheets for Top 25 Manufacturers and Overview of 160 Companies and 340 Production Sites

Available in English from July 2023

Now you can also purchase the **data annex in Excel format** (see overview data sheets on page 5 for more information).

SCI Verkehr presents the current product and service range of around 160 rolling stock manufacturers and also offers company figures and information about the current and future orientation of the world leaders in the manufacture of rolling stock in this MultiClient study. Furthermore, the study shows their production sites in detail, analysed by regional distribution and capacities. The market is analysed and explained along the revenues with new rolling stock. Prior to the publication of this study, SCI Verkehr surveyed the 25 largest manufacturers of rolling stock.

In concrete terms, this MultiClient Study includes:

- Worldwide trends and market volumes in the rolling stock industry
- Analysis of the production sites by product segment and production capacities
- Manufacturer analysis by regional presence, products and profitability
- Detailed profiles of the 25 most important rolling stock manufacturers worldwide, including corporate key figures, product and service range as well as information on current and prospective strategy
- Contact addresses and basic information on more than 340 rolling stock manufacturing sites worldwide in the annex to the study

SCI Verkehr is an independent consultancy company for the transportation sector with activities around the world. We specialise in strategic advice to the bus, railway and logistics industry. We have close connections to these industries, with consultants in a wide range of specialist fields. We have an extensive network of experts in Germany and abroad, and we specialise in market and strategy aspects for the mobility sector. Our activities focus on companies in the transport, bus and rail industry, logistics, public and private transport companies and transport and economics departments in public administration at federal, regional and community level.

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DATA SHEETS OVERVIEW

1 Market Overview Manufacturers

- 1.1 Manufacturers Worldwide (Pivot)
- 1.2 Top 10 by Product Segment (Pivot)
- 1.3 Development by Product Segment (Pivot)
- 1.4 Manufacturers Worldwide (Data)
- 1.5 Top 10 by Product Segment (Data)
- 1.6 Development by Product Segment (Data)

Zellenbeschriftungen	Unit	2019
Alstom		
After sales / components revenue	EURm	0
Other rail revenue	EURm	0
Non-rail revenue	EURm	0
New rolling stock revenue	EURm	0
EBIT margin	%	0%
Bombardier Transportation		
After sales / components revenue	EURm	0
Other rail revenue	EURm	0
Non-rail revenue	EURm	0
New rolling stock revenue	EURm	0
EBIT margin	%	0
CRRC		
After sales / components revenue	EURm	0
Other rail revenue	EURm	0

2 Installed Base

- 2.1 Production Sites (Pivot)
- 2.2 Capacities per Region (Pivot)
- 2.3 Development Capacities per Region (Pivot)
- 2.4 Production Sites (Data)
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- 2.6 Development Capacities per Region (Data)

Region	Product Subsegment	Unit	Year	Value
World market overview	Total	Locomotives	2019	XXX
World market overview	Total	Locomotives	2024	XXX
Africa / Middle East	Total	Locomotives	2019	XXX
Africa / Middle East	Total	Locomotives	2024	XXX
Asia	Total	Locomotives	2019	XXX
Asia	Total	Locomotives	2024	XXX
Australia / Pacific	Total	Locomotives	2019	XXX
Australia / Pacific	Total	Locomotives	2024	XXX
CIS	Total	Locomotives	2019	XXX
CIS	Total	Locomotives	2024	XXX
Eastern Europe	Total	Locomotives	2019	XXX
Eastern Europe	Total	Locomotives	2024	XXX
North America	Total	Locomotives	2019	XXX
North America	Total	Locomotives	2024	XXX
South/Central America	Total	Locomotives	2019	XXX
South/Central America	Total	Locomotives	2024	XXX
Western Europe	Total	Locomotives	2019	XXX
Western Europe	Total	Locomotives	2024	XXX
World market overview	Total	Cars	2019	XXX
World market overview	Total	Cars	2024	XXX

3 Deliveries

- 3.1 Company Business Data (Pivot)
- 3.2 Breakdown of Revenue (Pivot)
- 3.3 Capacities and Employees (Pivot)
- 3.5 Company Business Data (Data)
- 3.6 Breakdown of Revenue (Data)
- 3.7 Capacities and Employees (Data)

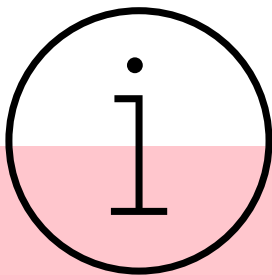
Manufacturer	Subriteria	Unit	Region HQ	Ye 2015
Alstom	Revenue	EURm	Western Europe	6.881
	EBIT	EURm	Western Europe	-226
	ROS	%	Western Europe	-0
	Employees	-	Western Europe	-
Altvagon	Order Intake	EURm	Western Europe	-
	Revenue	RUBm	CIS	10.036
	EBIT	RUBm	CIS	-215
	ROS	%	CIS	0
Bombardier	Employees	-	CIS	-
	Revenue	USDm	Western Europe	8.281
	EBIT	USDm	Western Europe	465
	ROS	%	Western Europe	0
CAF	Employees	-	Western Europe	-
	Order Intake	USDm	Western Europe	-
	Revenue	EURm	Western Europe	1.284
	EBIT	EURm	Western Europe	60
	ROS	%	Western Europe	0
	Employees	-	Western Europe	-

4 Additional Tables

- 4.1 Worldwide Production Sites (Pivot)
- 4.2 Worldwide Production Sites (Data)

Executive Summary

The overall market for rolling stock grew in 2022 and reached EUR XX billion (2021: EUR XX billion). Locomotives generated revenues of EUR XX billion (2021: EUR XX billion) while freight wagons sales reached a market volume of EUR XX billion (2021: EUR XX billion). [...]



Three major trends could be observed for the rolling stock manufacturing market in the year 2022:

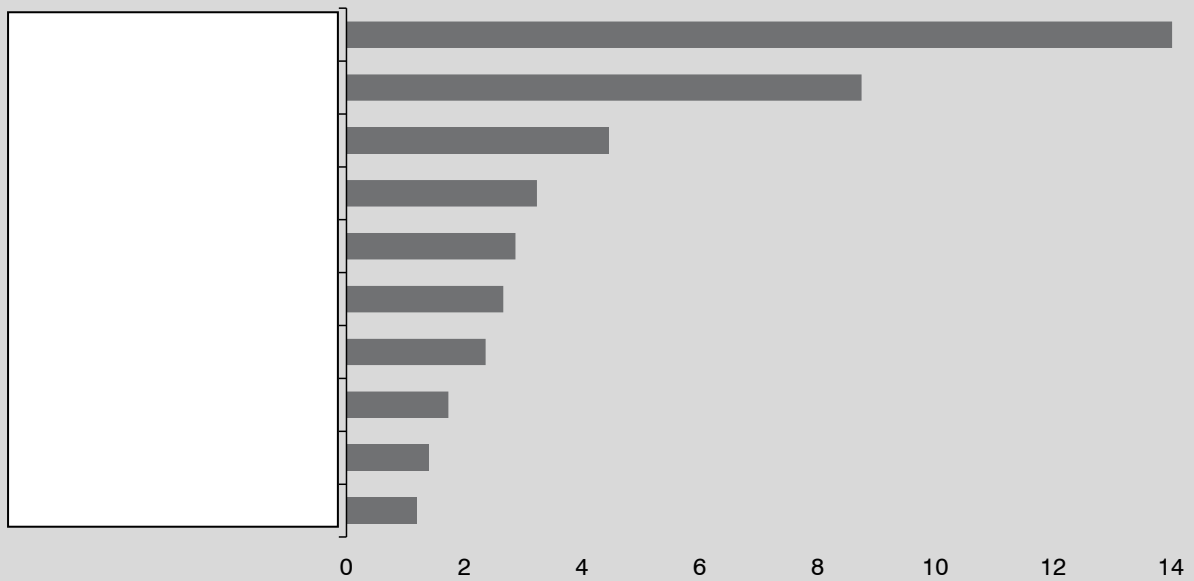
1. the manufacturer landscape is on the move with CRRC and Alstom facing stagnation in growth while smaller suppliers are strengthening their positions,
2. manufacturers focus on expansion and diversification to strengthen their business through digitalisation, signalling, modernisation/repair and overhaul (MRO) and sustainability,
3. global crises have shaken the rail industry. Supply chain instabilities and inflation have disrupted rolling stock production, but for most manufacturers the worst is over. An exception remains in Russia, where the impact of sanctions related to the Ukrainian war force the local industry to restructure.

[...]

The crises have shown: companies with several supplementary revenue streams have a higher resilience and at the same time can be more competitive on the market. [...]

The global rolling stock manufacturing landscape witnessed a year of global unrest, geopolitical uncertainty and one of the most extensive supply-chain shortages of the youngest history. [...]

Top 10 rolling stock manufacturers ranked by estimated new rolling stock revenue 2022¹
(EUR billion²)



¹ New vehicles' revenue partly estimated. Financial years ending in the first half of 2023 have been assigned to the year 2022.

² Foreign currencies have been converted with the average yearly exchange rate of the reporting period.

Figure 1: The top ten manufacturers of new rail vehicles worldwide 2022

The merger of Alstom and Bombardier [...]

CRRC remains in [...][...]

How SCI Verkehr derives new vehicle revenue

How SCI Verkehr derives new vehicle revenue

SCI Verkehr breaks down the total revenue of the companies that manufacture rolling stock into four revenue sources:

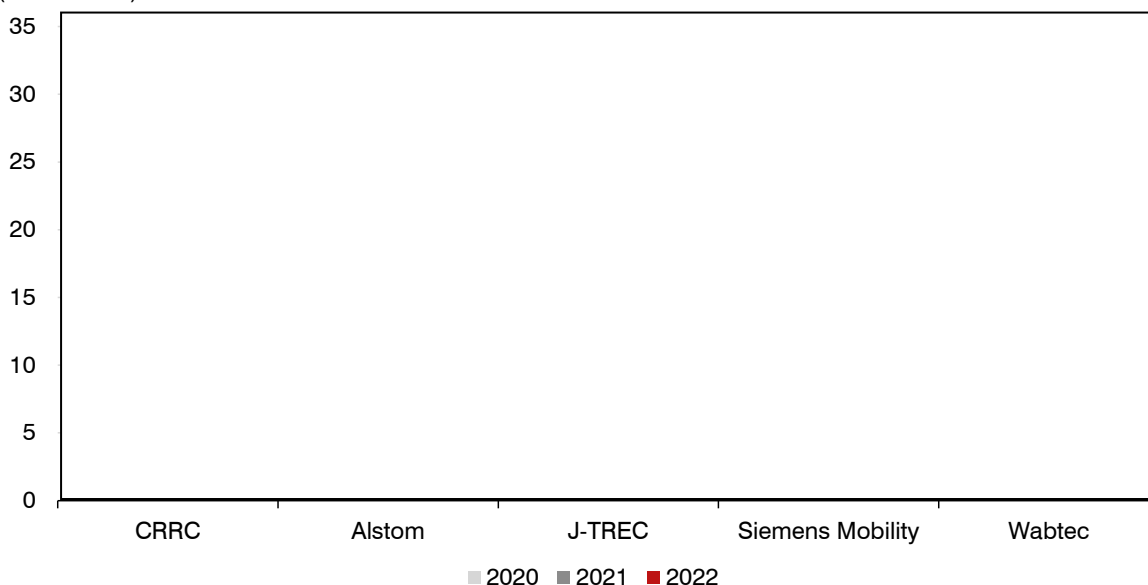
- New rolling stock (or new rail vehicles)
- After-sales services and components for rolling stock
- Other rail revenue (often signalling and rail automation technologies, but also railcar leasing or infrastructure-related)
- Non-rail revenue [...]

Before the publication of this study, SCI Verkehr has also contacted the largest manufacturers of rolling stock. The manufacturers were presented with their company factsheets, containing all researched and calculated information, and were asked to verify, complete, or correct the information. Many companies took the opportunity to comment on and complement their respective factsheet.

Overall company revenues of players active in rolling stock manufacturing

To better understand the overall market, the following analysis includes a view of total company revenues of the major players that are active in the manufacturing of rolling stock and had a total revenue of more than EUR X billion in 2022. Company revenues do not only include revenues from the production of new rolling stock, but could include – depending on the manufacturer – revenues from the production of components, signalling technology, services etc. As can be seen in the graphs below, some companies have strong overall revenues, but the revenues derived from new rolling stock are considerably lower compared to other companies.

Total company revenue¹ of the five largest players active in rolling stock manufacturing 2020-2022
(EUR billion²)



¹ Total company revenues include e.g., rolling stock manufacturing, components, signaling technology, services and others

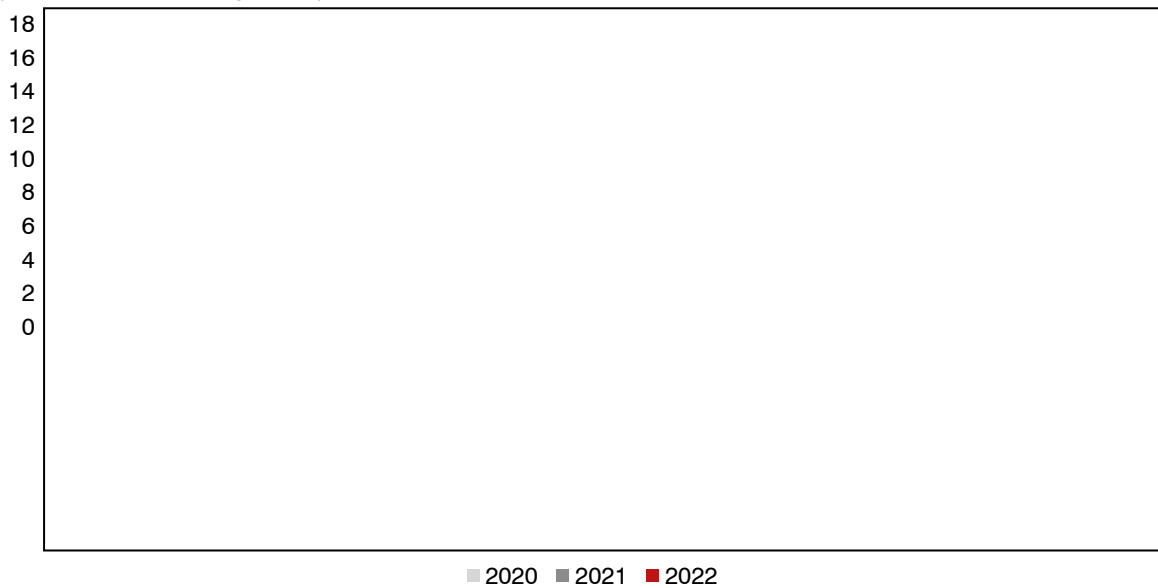
² Foreign currencies have been converted with the average yearly exchange rate of the reporting FY by company

Figure 2: Total company revenue development of the five largest players 2020-2022

With the combined revenue through the acquisition of Bombardier Transportation in January 2021, **Alstom** [...]

The revenues of **XX** increased steadily within the last five years and reached EUR XX billion in 2022 – a growth of XX% compared to 2021. About XX% of the overall turnover are achieved by new rolling stock revenues.

Total company revenue¹ of the largest players active in rolling stock manufacturing 2020-2022
(EUR billion², excluding CRRC)



¹ Total company revenues include e.g., rolling stock manufacturing, components, signaling technology, services and others

² Foreign currencies have been converted with the average yearly exchange rate of the reporting FY by company

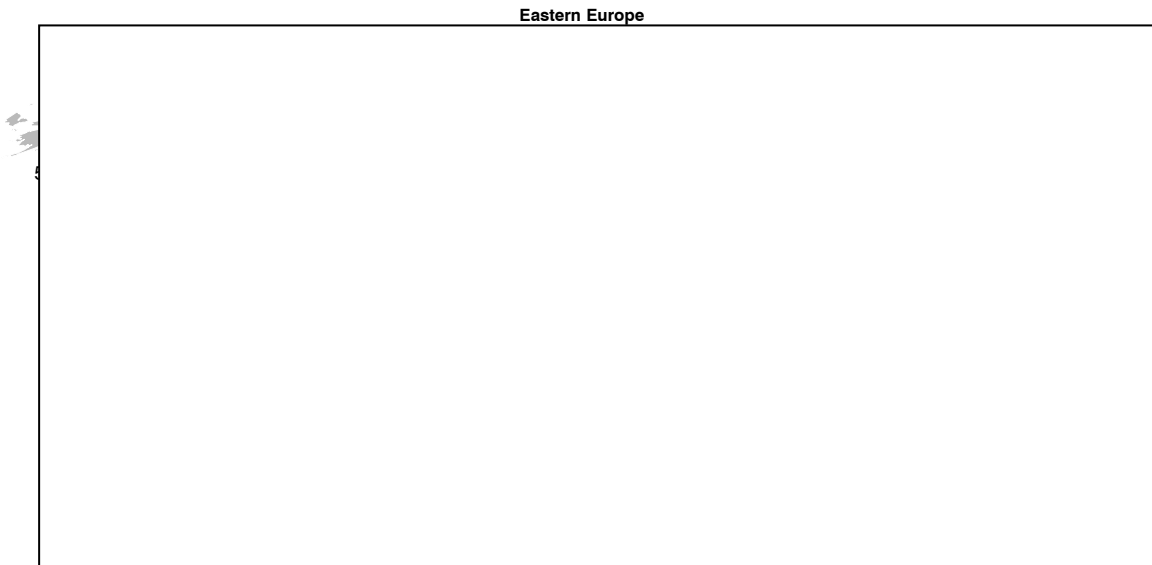
Figure 3: Total company revenue of the largest players 2020-2022 (excluding CRRC)

[...]

Production sites and capacities in the regions

Around 160 companies produce rolling stock at approximately 340 sites worldwide. Many manufacturers are integrated rail technology groups and provide components for rolling stock, vehicle services such as maintenance or refurbishment, as well as infrastructure and systems technology related products and services.

Manufacturers¹ and production sites² worldwide 2022



¹ Manufacturers refers to all rolling stock companies with their global headquarter in the region.

² Sites refers to all rolling stock manufacturing facilities in the region, including plants of manufacturers from other regions

Figure 4: Worldwide distribution of manufacturers and sites

SCI Verkehr divides the manufacturing market into **three main rolling stock segments**:

1. Locomotives
2. Passenger (rail) vehicles
3. Freight wagons

The products within each segment are technologically and structurally similar and therefore usually utilise the same production lines. This is also reflected in the fact that more than 70% of all manufacturers are specialised in one segment, and less than a dozen companies (around 5%) manufacture in all three segments. However, even the diversified manufacturers also mostly have specialised manufacturing plants: 85% of all plants only produce in one main rolling stock segment, and only 2% are prepared to manufacture all three main types. The mixed-segment manufacturers are mostly passenger vehicle suppliers that have diversified their activities to locomotive production.

As on the demand side, SCI Verkehr divides the manufacturing market for rolling stock into **eight world market regions**:

1. Africa/Middle East
2. Asia
3. Western Europe
4. Eastern Europe
5. CIS
6. North America
7. South/Central America
8. Australia/Pacific

This differentiation is reasonable and important as the markets vary regarding their rail transport characteristics and general industry policies. These market properties are explanatory variables for the composition of the domestic vehicle suppliers' industry.

Worldwide number of manufacturing sites by region and segment				
Region	Loco	PV	FW	Total
Africa/Middle East				
Asia				
Western Europe				
Eastern Europe				
CIS				
North America				
South/Central America				
Australia/Pacific				
World total				

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Table 1: Regional distribution of manufacturing sites by rolling stock segments (includes double counting)

The region with the most production sites globally is [...]

Regional market characteristics

Africa/Middle East
[...]

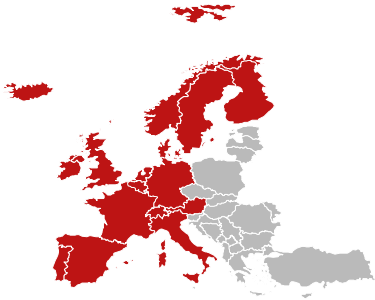


Asia
[...]



Western Europe

Western Europe is home to several important rolling stock manufacturers like Alstom, [...]



Eastern Europe

[...]



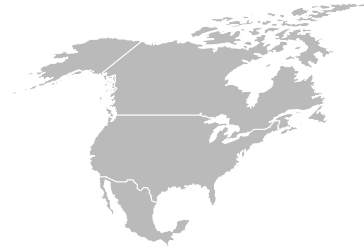
CIS

[...]



North America

[...]



South/Central America

[...]



Australia/Pacific

Australia/Pacific is characterised by its small production capacity from a low number of manufacturers. [...] The only producing country in this region is Australia. The production focus lies on locomotives and passenger vehicles. Freight wagons are mostly imported from abroad, mainly from China.



2. Rolling Stock Manufacturers

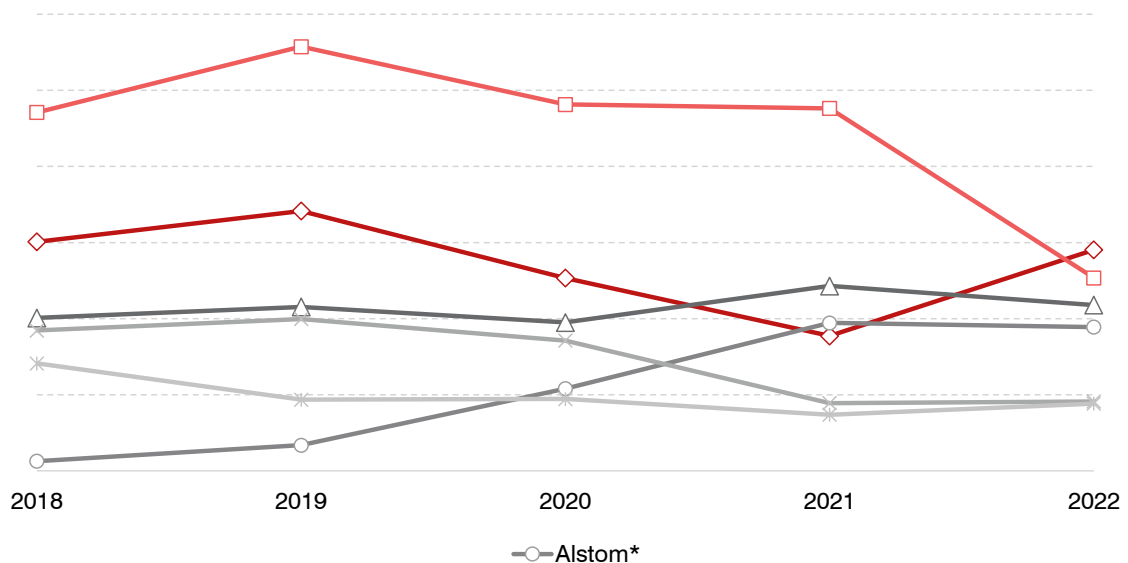
2.1 Worldwide manufacturers of locomotives

Worldwide competition in the locomotive segment consists of around XX active manufacturers. The total market volume for 2022 is estimated at EUR XX billion, with the top 10 manufacturers holding an overall market share of more than XX% in terms of estimated new locomotive revenue. Although many manufacturers have both electric and diesel locomotives in their portfolios, there has been a clear shift towards electric locomotives in the last few years. Some manufacturers have more expertise in the manufacture of one specific locomotive type than another. For example, there are many specialised diesel locomotive manufacturers, but only a few specialised electric locomotive manufacturers. [...]

Development

As only few manufacturers report revenues for their locomotive business, the figures are mostly generated through the SCI Database. Data from the SCI Database are based on the number of deliveries and are not necessary equivalent to the revenues generated in this period. Figure 8 outlines the output of the top 5 manufacturers of locomotives between 2018 and 2022 indicated in delivered units. [...]

Output of the largest manufacturers of locomotives 2018-2022
(number of cars¹)



¹ Based on SCI Database

*Alstom including Bombardier from 2021

Figure 5: Output of the top five locomotive manufacturers 2018-2022

In general, most of the locomotive manufacturers rely on their domestic markets thus these markets generate the major share of the manufacturer's delivered locomotives.

2.1.3 Capacities and utilisation per region 2022

The worldwide manufacturing capacity for locomotives is expected to [...]. The only regions negating this trend are [...]. After the COVID-19 pandemic stalled production for the past two years, slowing down or delaying capacity expansions, [...].

Region	Capacity 2022	Capacity 2026	Expected growth 2022-2026 (CAGR)	Utilisation 2022
Africa/Middle East	XXX	XXX	XXX	
Asia	XXX	XXX	XXX	
Western Europe	XXX	XXX	XXX	
Eastern Europe	XXX	XXX	XXX	
CIS	XXX	XXX	XXX	
North America	XXX	XXX	XXX	
South/Central America	XXX	XXX	XXX	
Australia/Pacific	XXX	XXX	XXX	
World total	XXX	XXX	XXX	

The short-term capacity (standard capacity) is usually around 70% of the maximum long-term capacity. The depicted utilisation rate relates to the standard capacity.

Relevance for procurement: ● = very high, ● = high, ● = medium, ● = low, ○ = none

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Table 2: Capacities and utilisation of locomotive production per region

Africa/Middle East

The production of locomotives in the region only takes place in three countries: [...]

North America

Production capacity remains steady among manufacturers in this region, although utilisation has been quite low as it has been in the past few years. There is a “Buy America” policy to increase localisation and domestic production, while at the same time de-facto prohibiting imports of rolling stock to the US, the largest market of the region. [...]

[...]

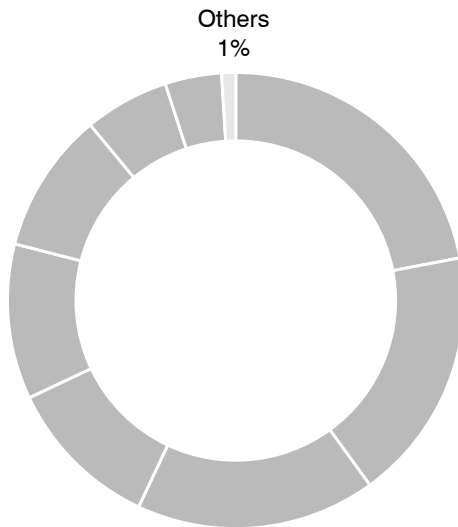
2.1.4 Market shares of locomotive manufacturers

Electric locomotives

About XX electric locomotives were delivered worldwide between 2018 and 2022. Deliveries increased at a sharp XX% year-on-year rate between 2018 and 2019 and slightly decreased in the wake of the pandemic, and its impact on the rolling stock manufacturers. [...]

[...]

E-Locomotives – World market share per manufacturer 2018-2022



Source: SCI Database

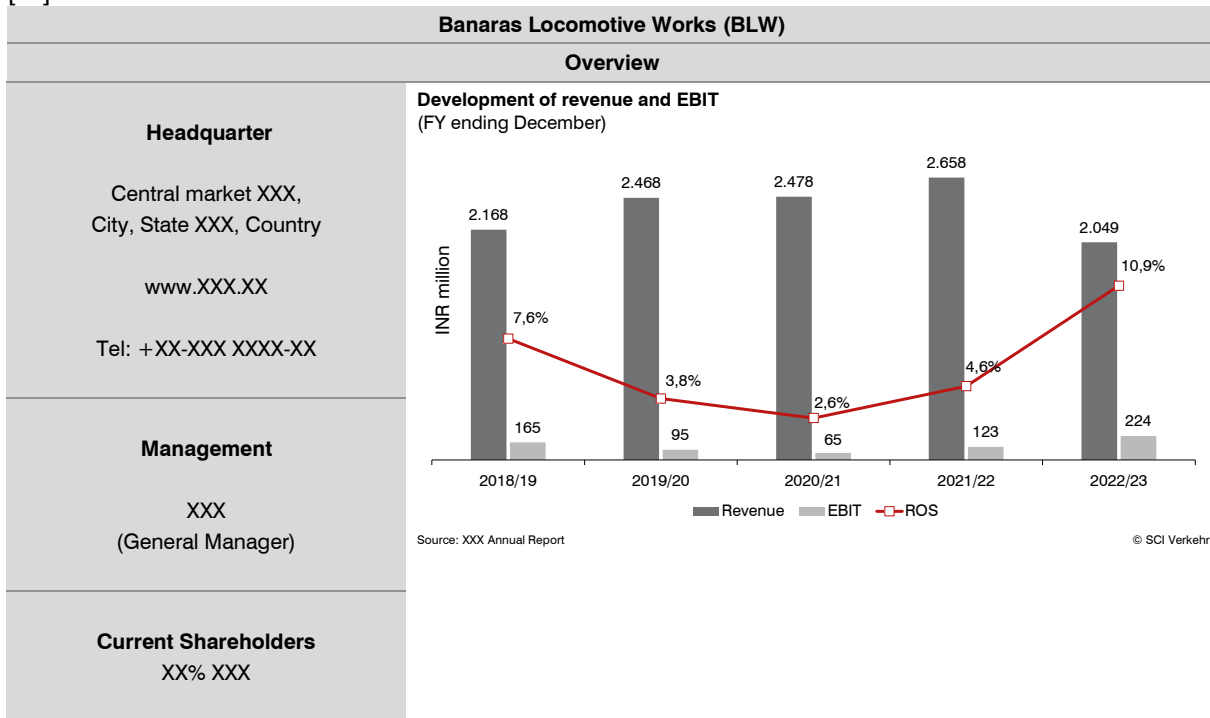
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Figure 6: Electric locomotives - worldwide market shares 2018-2022

[...]

3. Factsheets of the largest vehicle manufacturers

[...]



Year	Employees	Revenue (EUR mn)	EBIT (EUR mn)	Order intake (EUR mn)
2022/23	-	XX	XX	XX ^e
2021/22	XX	XX	XX	XX ^e
2020/21	-	XX ^e	-	-
2019/20	XX	XX	-	-
2018/19	-	XX	-	-

Breakdown of revenue by activities FY 2020/21							
New rolling stock	Rolling stock after-sales services, spare parts & components	Infrastructure				Other rail revenue	Non-rail revenue
		Track systems	Electrification	CCS	PIT		
XX% ^e	X% ^e	0% ^e	0% ^e	0% ^e	0% ^e	0% ^e	0% ^e

Company description

Company introduction

Banaras Locomotive Works (BLW) is an Indian manufacturer of diesel-electric and electric locomotives. In 2020, the company changed its name from Diesel Locomotive Works (DLW) to Banaras Locomotive Works (BLW). BLW is a production company of Indian state railway IR and works together with companies such as EMD, Siemens and Alco. Aside from diesel and electric locomotives, the portfolio also includes gen-sets and spare parts. BLW has procured drive systems from EMD through a technology transfer agreement. [...]

Company history

BLW was founded in 1961 as a co-operation between IR and the American company Alco. [...] Today, BLW is solely owned by IR and is part of IR's manufacturing arm. IR manufactures almost exclusively for its own operations, although it exports a small number of units every year.

Company description

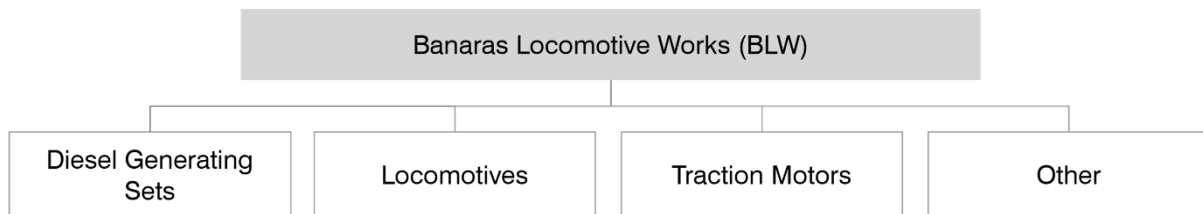
Current relevant company information

In FY 2018/19, BLW produced for the first time in history more electric locomotives than diesel locomotives. In the FY 2020/2021 ~96% of BLW's manufactured locomotives were electric ones.

Medium- and long-term outlook for the company

In the FY 2020/21, BLW manufactured 285 locomotives. This includes, among others, 275 electric locomotives. Due to the COVID-19 pandemic, BLW produced 25 fewer locomotives compared to the previous FY. The company is clearly concentrating on the production of electric locomotives.

Company Structure



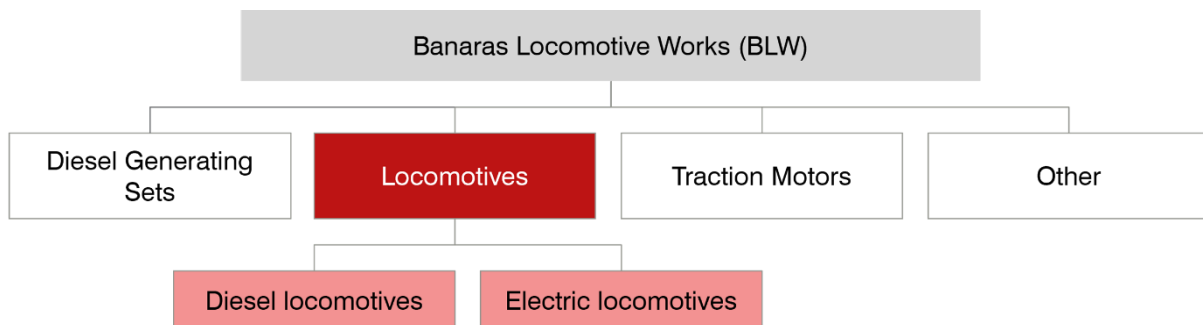
Source: BLW

Strategic focus

Geographical presence	Indian focus	BLW is focusing on its domestic market India. BLW produces its locomotives [...]
Product strategy	Focus on electric locomotives	BLW is IR's in-house supplier of locomotives. Between 2016-2021, it completely changed its focus from diesel to electric power.
Value creation	Low vertical integration	BLW is mainly an assembly plant, purchasing most parts of the locomotives, [...]
New markets	Deliveries to other Asian markets	IR will remain the largest customer of BLW. They account for both domestic and export demand, the latter being dependent on political deals.

Rolling Stock

Company Structure Rolling Stock



Source: BLW

Rolling Stock Business Overview

Recent business development

Revenue and net profit development

The financial reports for FY 2022/23 and FY 2021/22 have not been published, yet. In the FY 2019/20, revenues reached INR [...]

Production development

BLW has manufactured XX locomotives (all types) until 31st June 2023 since its inception of production. It includes XX HHP, XX electric, XX export and XX locomotives for NRC. In the FY 2022/23, BLW produced a total of XX locomotives of which XX were electric locomotives and ten others.

Order intake and important contracts

BLW clearly concentrates on the production of XX locomotives. Plans for FY 2022/23 include the production of XX locomotives of which XX will be electric and XX export locomotives.

New product platforms

New electric locomotives: in 2019, BLW presented the first electric locomotive converted from a diesel locomotive. The 10,000 HP freight locomotive has been converted from two units of old diesel locomotives of 2,600HP each with indigenous [...]

Developing dual mode locomotive (WDAP-5): BLW developed a dual mode locomotive [...]

Facilities and co-operations Rolling Stock

BLW produces diesel and electric locomotives at its plant in Varanasi, India. Whereas BLW initially only produced diesel locomotives, it currently also produces electric locomotives at this site due to IR's long-term electrification plan.

Production sites development

Continuously increasing capacities: BLW has continuously increased capacities at its only facility in Varanasi. Since 2005, BLW has almost doubled its production capacity to around XX locomotives per year. Today, the capacity is XX locomotives per year.

Important co-operations and joint ventures

Licensed production: Production of XX and EMD XX locomotives is done under [...].

Sites of final assembly Rolling Stock

Region	Country	Site	Products	Remarks
Asia	XX	XX	XX	Employees: XX Production capacity: XX locomotives p.a.

Product segments Locomotive

Segment	Market shares (2016 – 2020)	Important platforms	Description and main customers
E-Loco	~xx% (AS)	WAG-9H	BLW's first freight electric locomotive has been in production since 2019. With a power output of 4,400 kW, it hauls freight at speeds up to 100 km/h.
	~xx% (WW)	WAP-7	The 4,500 kW WAP-7 is the passenger variant of the freight locomotive WAG 9. The WAP 7 (Wide/broad Gauge AC Electric Passenger, Class 7) is a three-phase AC electric passenger locomotive and can haul loads of 24-26 passenger coaches. BLW built its first WAP-7 in February 2017.

11 List of worldwide production sites for rolling stock

Africa / Middle East (AME), Asia (AS), Australia / Pacific (AP), Commonwealth of Independent States (CIS), Eastern Europe (EE), North America (NA), South / Central America (SA), Western Europe (WE)

Region	Company	Country	City	HQ	Loco	PV	FW	Address
AS	Alna Sharyo (Hankyu Group)	Japan	XX	X		X		XX
AME	Alstom	Algeria	XX			X		XX
AP	Alstom	XX	XX			X		XX
SA	Alstom	XX	XX			X		XX
SA	Alstom	XX	XX			X		XX
NA	Alstom	XX	XX			X		XX
AS	Alstom	XX	XX			X		XX
WE	Alstom	XX	XX		X			XX

[...]

SCI/Verkehr



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.

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