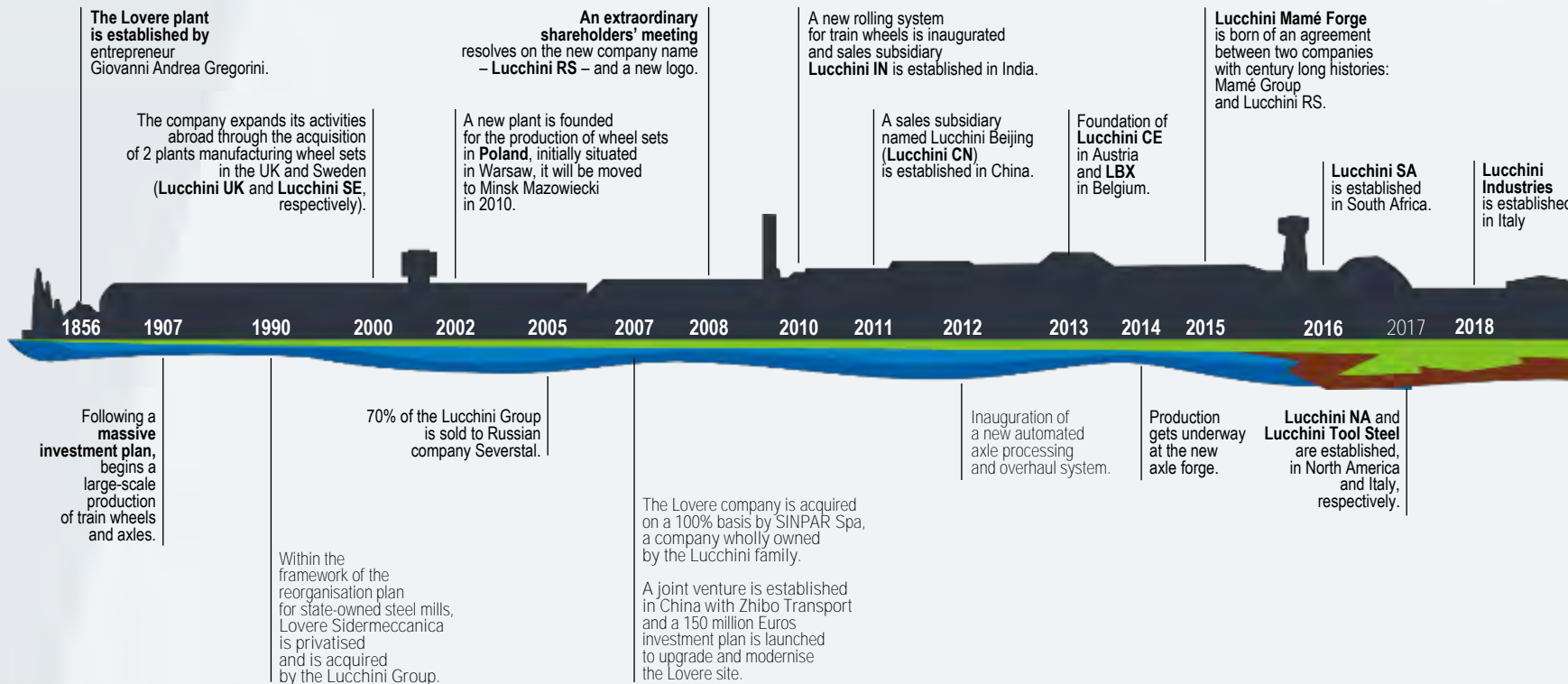


Railway Division

LOOK BEYOND



GROUP
LUCCHINIRS



The global and reliable **Partner**
for the sustainable progress of mobility and industry.
Passion, talent and creativity for
advanced **Customer-orientated solutions**.



ALLinONE

Integrated production
from furnace
to final products



1,500 people
in Italy
~2,500 globally

More than 100
certifications and
approvals



Environmental, safety and energy policies are applied in accordance with international standards set by:

- **UNI EN ISO 14001**
- **UE Regulation 333/2011**
- **ISO 50001**
- **OHSAS 18001**



~ 50 M€

investment in health&safety and environmental
in the last 10 years,
50% frequency incident lower
than industry average

eco✓adis
SUSTAINABLE SUPPLY MANAGEMENT

Company Profile

Lucchini RS Group



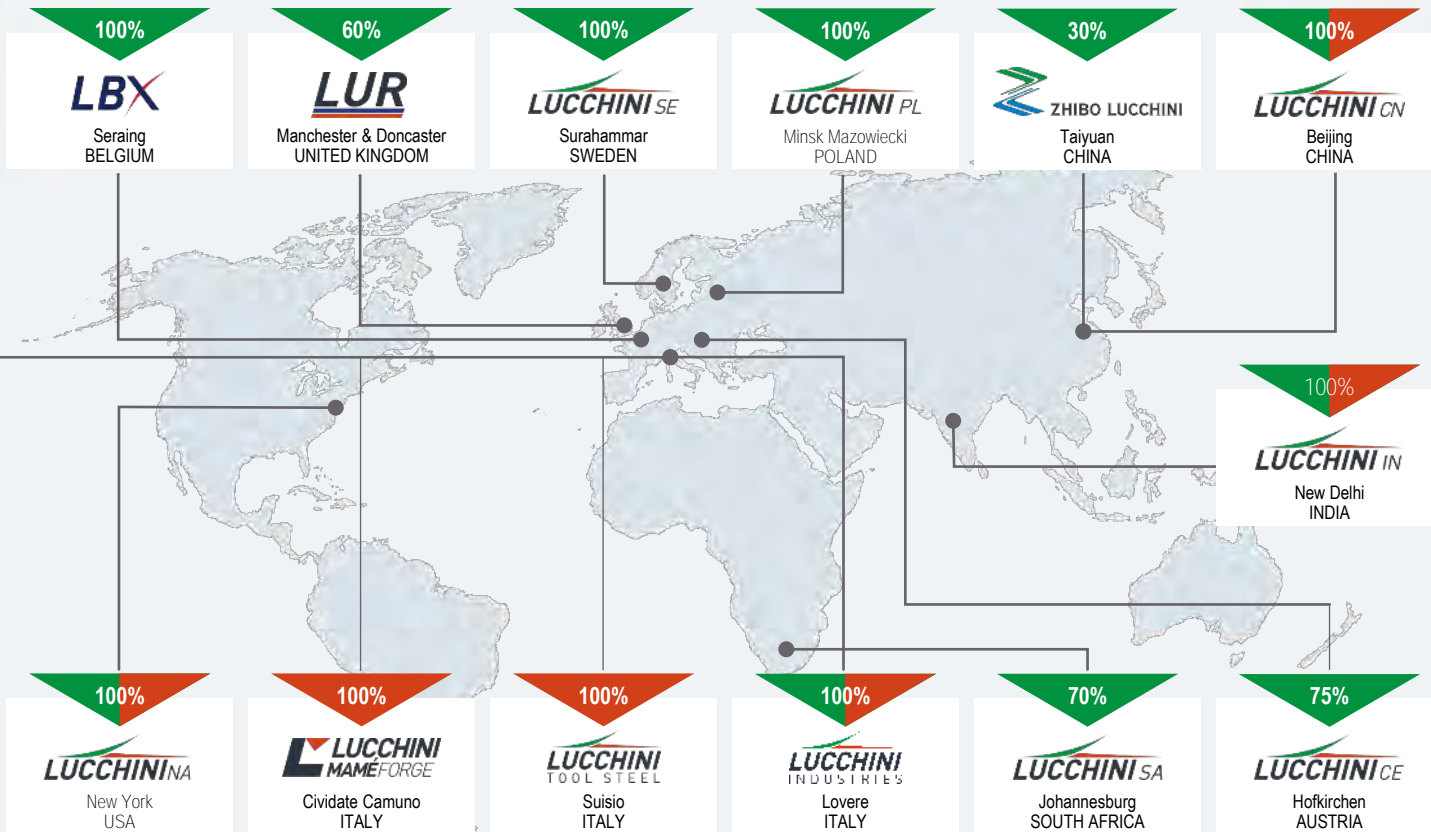
SINPAR S.p.a.
(Lucchini Family)

100%



LOVERE - ITALY

- Railway Division
- Forging & Casting Division





HEAD OFFICE:	Loveire - Italy
AREA (sqm):	249,300
SHAREHOLDING:	100% Lucchini RS
EMPLOYEES:	~ 300
SERVICE PORTFOLIO:	Wheelset Overhaul / Gearbox Overhaul / Laboratory Service according to ISO 17025
PRODUCT PORTFOLIO:	Wheels, Axles, Wheelsets, Round Bars / Columns / Discs / Pipes / Bushes / Sheels / Flanged Shafts / Rolls / Rings /Pinions / Plates



HEAD OFFICE:	Loveire - Italy
AREA (sqm):	150,000
SHAREHOLDING:	100% Lucchini RS
EMPLOYEES:	~ 950
SERVICE PORTFOLIO:	Wheelset Overhaul / Gearbox Overhaul / Laboratory Service according to ISO 17025
PRODUCT PORTFOLIO:	Wheels, Axles, Wheelsets, Round Bars / Columns / Discs / Pipes / Bushes / Sheels / Flanged Shafts / Rolls / Rings / Pinions / Plates



HEAD OFFICE:	Minsk Mazowiecki - Poland
AREA (sqm):	10,600
SHAREHOLDING:	100% Lucchini RS
EMPLOYEES:	~ 145
SERVICE PORTFOLIO:	Wheelsets Maintenance (Wheel replacement, Overhaul of axles, Overhaul of drive units) / Bogies revision / Gearboxes Maintenance
PRODUCT PORTFOLIO:	Wheelsets (Passenger, Freight, Trams) / Axles / Wheels / Wheels centers / Tyres



HEAD OFFICE:	Surahammar - Sweden
AREA (sqm):	10,300
SHAREHOLDING:	100% Lucchini RS
EMPLOYEES:	~ 70
SERVICE PORTFOLIO:	Overhaul of wheelsets / gearboxes / bogies
PRODUCT PORTFOLIO:	Manufacturing of wheels / axles / wheelsets



HEAD OFFICE: Beijing
SHAREHOLDING: 100% Lucchini RS
COMMERCIAL OFFICE



HEAD OFFICE:
SHAREHOLDING:
COMMERCIAL OFFICE

New York
100% Lucchini RS



HEAD OFFICE:
SHAREHOLDING:
COMMERCIAL OFFICE

New Delhi
100% Lucchini RS



HEAD OFFICE:	Hofkirchen - Austria
AREA (sqm):	1,400
SHAREHOLDING:	75% Lucchini RS - 25% SMW
EMPLOYEES:	~ 15
PRODUCT PORTFOLIO:	Wheels



HEAD OFFICE:	Germiston - South Africa
AREA (sqm):	10,000
SHAREHOLDING:	70% Lucchini RS - 30% Kusini Investments
EMPLOYEES:	~ 50
PRODUCT PORTFOLIO:	Wheels



智奇公司职工技能大比武



HEAD OFFICE: Taiyuan - P.R. China
AREA (sqm): 115,000
SHAREHOLDING: 70% ZHIBO TRANSPORT Equipment Co. LTD - 30% Lucchini RS;
EMPLOYEES: ~ 510
SERVICE PORTFOLIO: Railway Material Testing / Measurement
PRODUCT PORTFOLIO: Railway wheels / Axles, Railway Wheelsets and related service maintenance



HEAD OFFICE:	Manchester - UK
AREA (sqm):	23,000
BOGIE DIVISION:	Doncaster - UK
AREA (sqm):	8,000
SHAREHOLDING:	60% Lucchini RS - 40% Unipart Rail
EMPLOYEES:	~ 400
SERVICE PORTFOLIO:	Bogie Overhaul / Wheelset Overhaul / Gearbox Overhaul
PRODUCT PORTFOLIO:	Bogies / Wheels / Axles / Wheelsets / Gearboxes



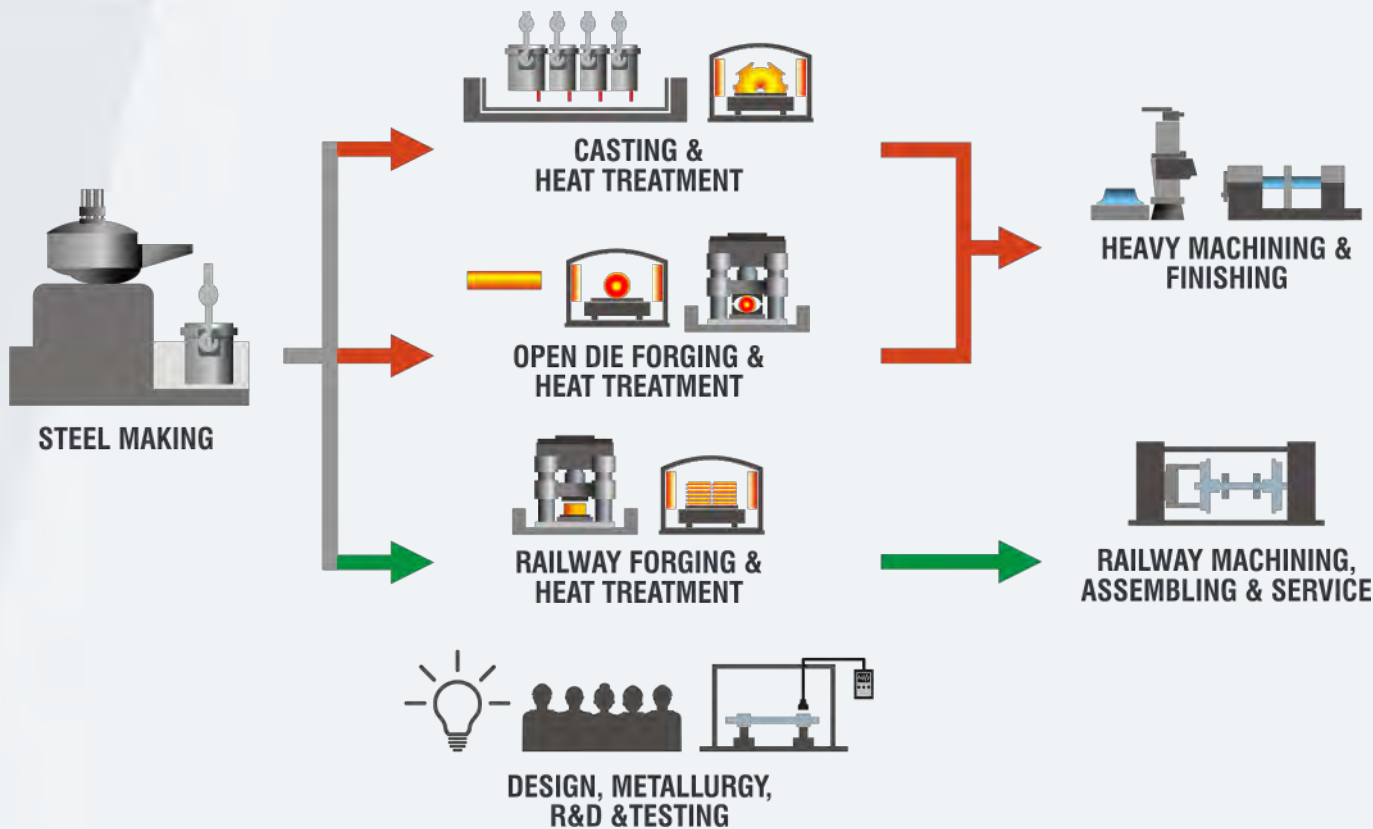
HEAD OFFICE: Seraing - Belgium
AREA (sqm): 10,000
SHAREHOLDING: 100% Lucchini RS
EMPLOYEES: ~ 40
SERVICE PORTFOLIO: Wheelset overhaul, including components like bearings / brake discs / gear boxes
PRODUCT PORTFOLIO: Spare Wheels / Wheelsets / Axles / Crane wheels / Galets Tyres



HEAD OFFICE:	Civate Camuno (BS) - Italy
AREA (sqm):	44,000
SHAREHOLDING:	90% Lucchini RS - 10% Third parties
EMPLOYEES:	~ 190
SERVICE PORTFOLIO:	Tool working machining / Laboratory Service according to ISO 17025
PRODUCT PORTFOLIO:	Round Bars / Columns / Discs / Pipes / Bushes / Sheels / Flanged Shafts / Rolls / Rings / Pinions / Plates



HEAD OFFICE:	Suisio (BG) - Italy
AREA (sqm):	
SHAREHOLDING:	100% Lucchini RS
EMPLOYEES:	~ 20
SERVICE PORTFOLIO:	Tool working machining / Laboratory Service Distributors and Service Centers
PRODUCT PORTFOLIO:	Tool Steels



Company Profile

Divisions

RAILWAY DIVISION



wheels
up to 260,000



axles
up to 40,000



tyres
up to 15,000



wheelsets
up to 12,000



services



applications

FORGING & CASTING DIVISION



ingots
up to 300,000
tons



castings
up to 5,500
tons



forgings & bars
up to 50,000
tons



tool steel
up to 25,000
tons



services



applications





60 t Electric Arc Furnace (EAF) / (Power 40 MVA)

2 Ladle Furnace (LF) Plant

2 Tank Degassing VD - VOD type

Pits for bottom pouring

ESR Plant (Max Weight 32 t)

Carbon, Alloyed, Stainless Steel

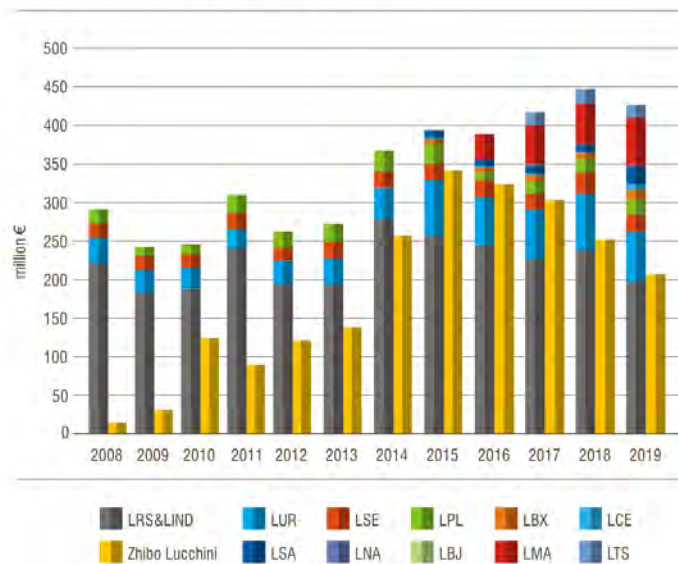
Liquid Steel for castings up to 300 t

Round & Polygonal Ingots, weight from 3 t up to 85 t

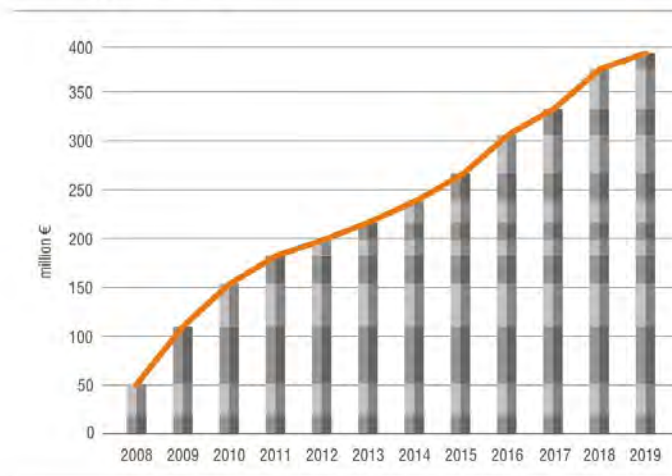
ING. LEONE TAGLIAFERRI
S.P.A. MILANO



Consolidated Turnover

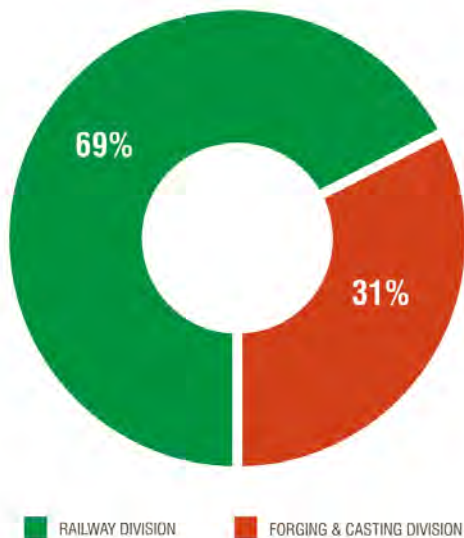


Investments

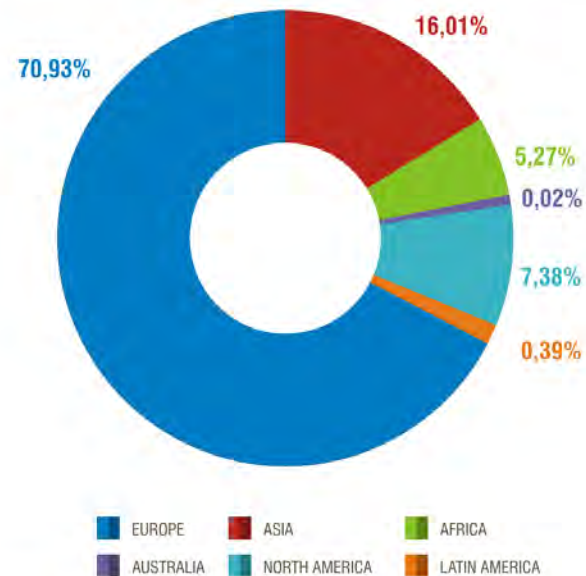




Sales by product line



Sales by geographical area





UP[®]
LOS

SUPER[®]
LOS

ARCTIC[®]
LOS

SAND[®]
LOS

HYPER[®]
LOS

BEST FOR

Improvement
within current
standards

Severe environmental
and loading conditions

Applications for
Nordic and freezing
environments

Applications for
desert
environments

Application with
tread-braked
wheels

MARKETS

Freight Wagons
Mass Transit,
Light Rail Vehicles
Metro, Locomotives

High Speed
Heavy Haul

High Speed
Heavy Haul

High Speed
Heavy Haul

High Speed
Freight Wagons

**REFERENCE
STANDARD**

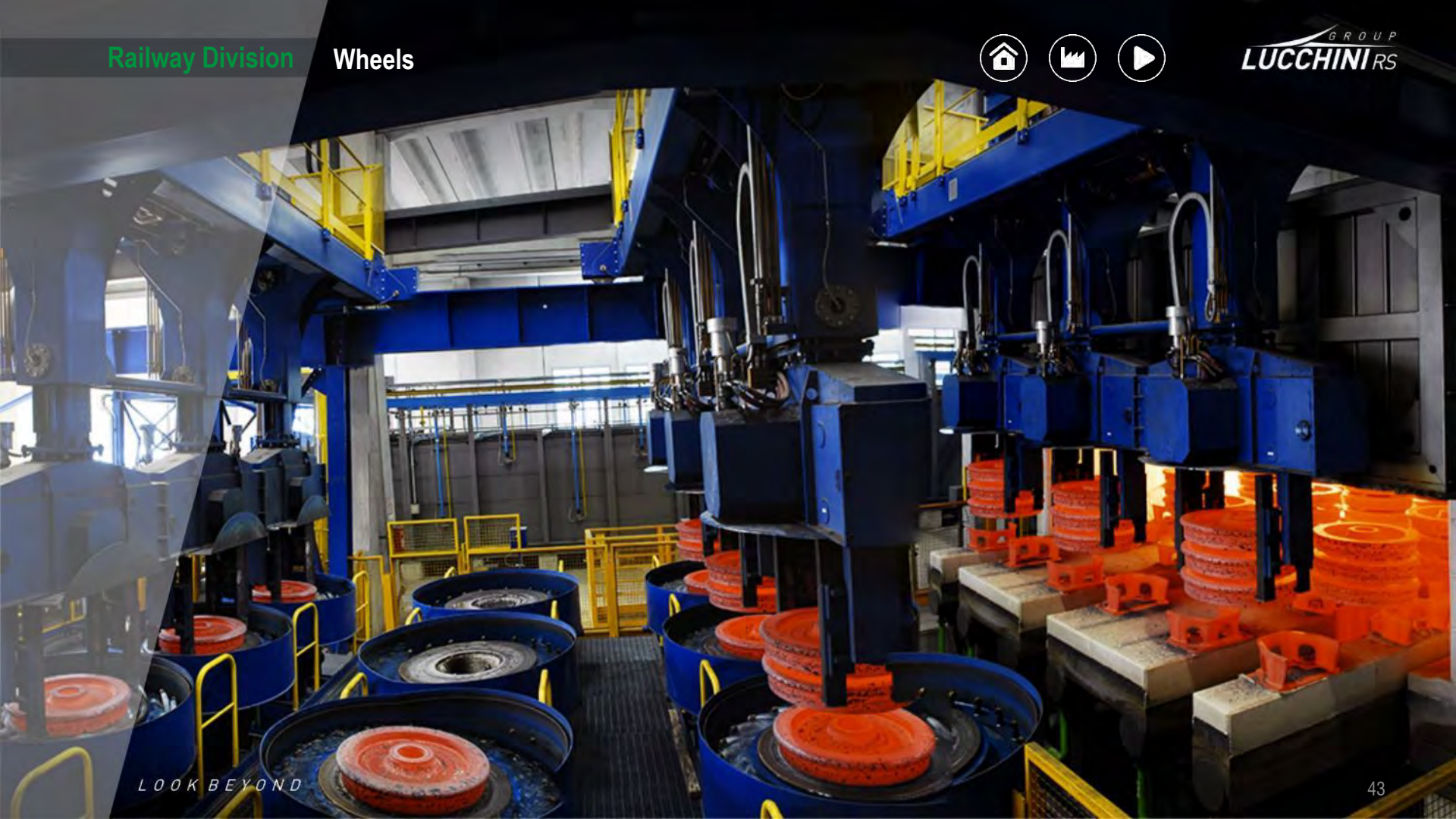
EN
AAR
JIS
GOST

EN
BS
High Speed
in China

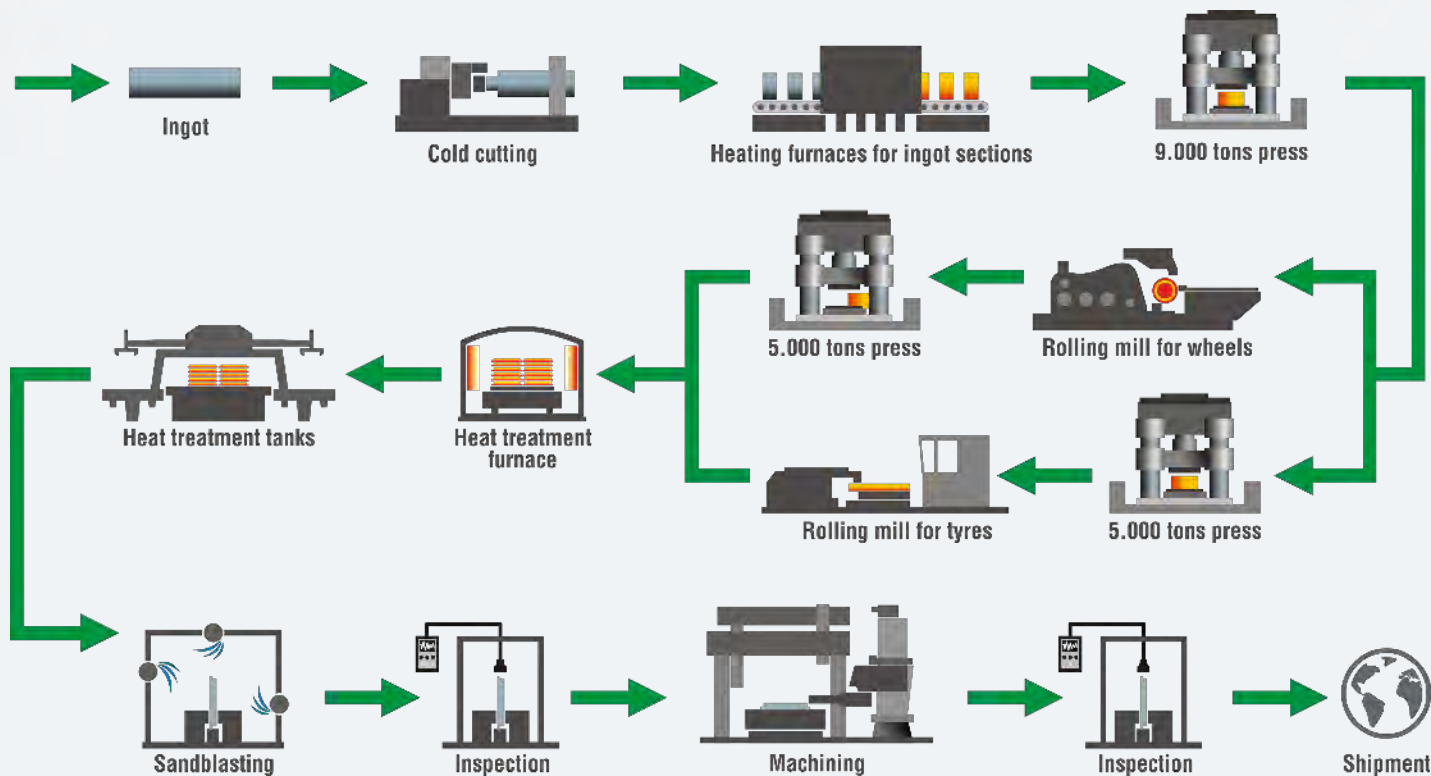
EN

AAR

EN





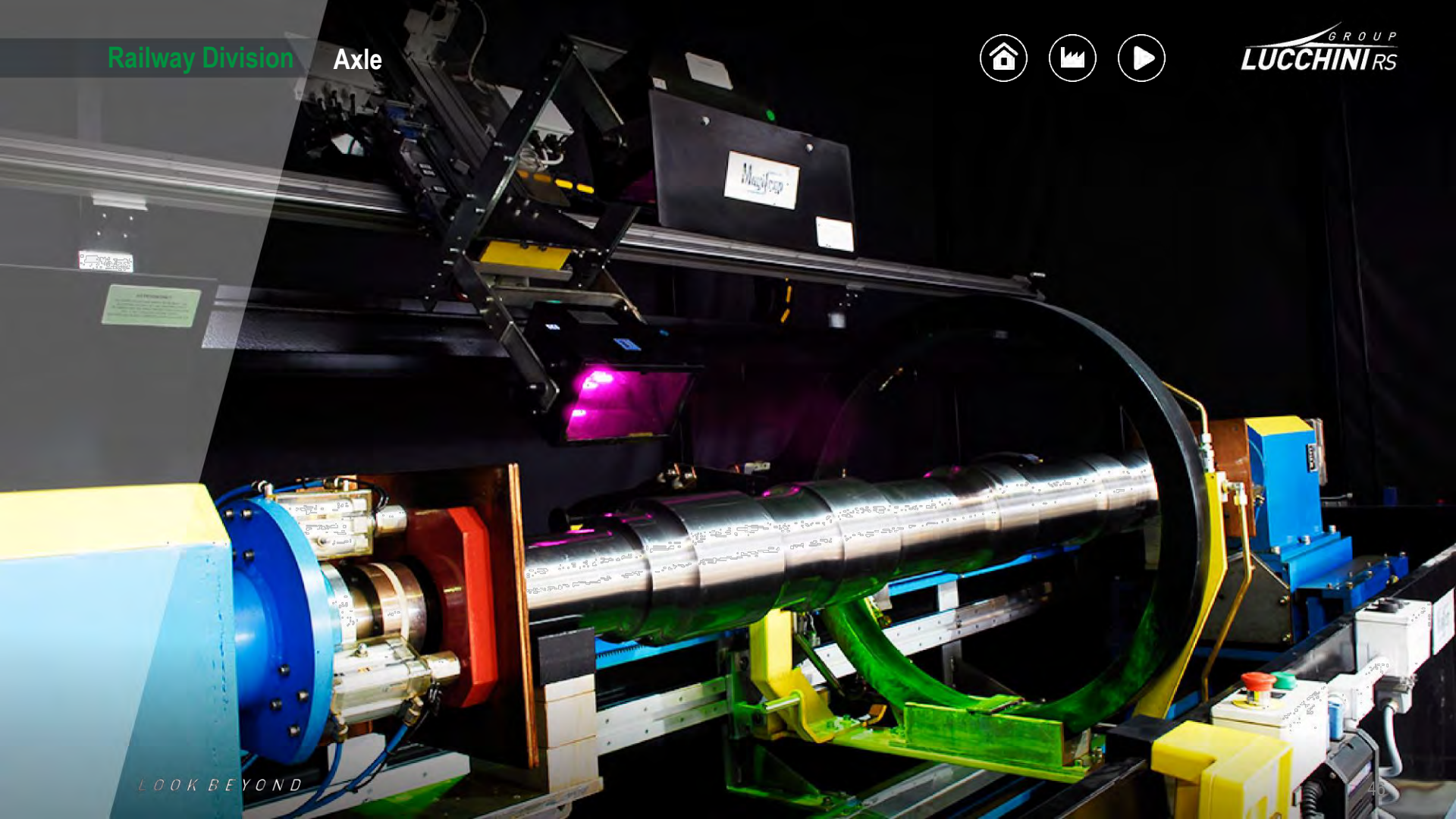


Railway Division

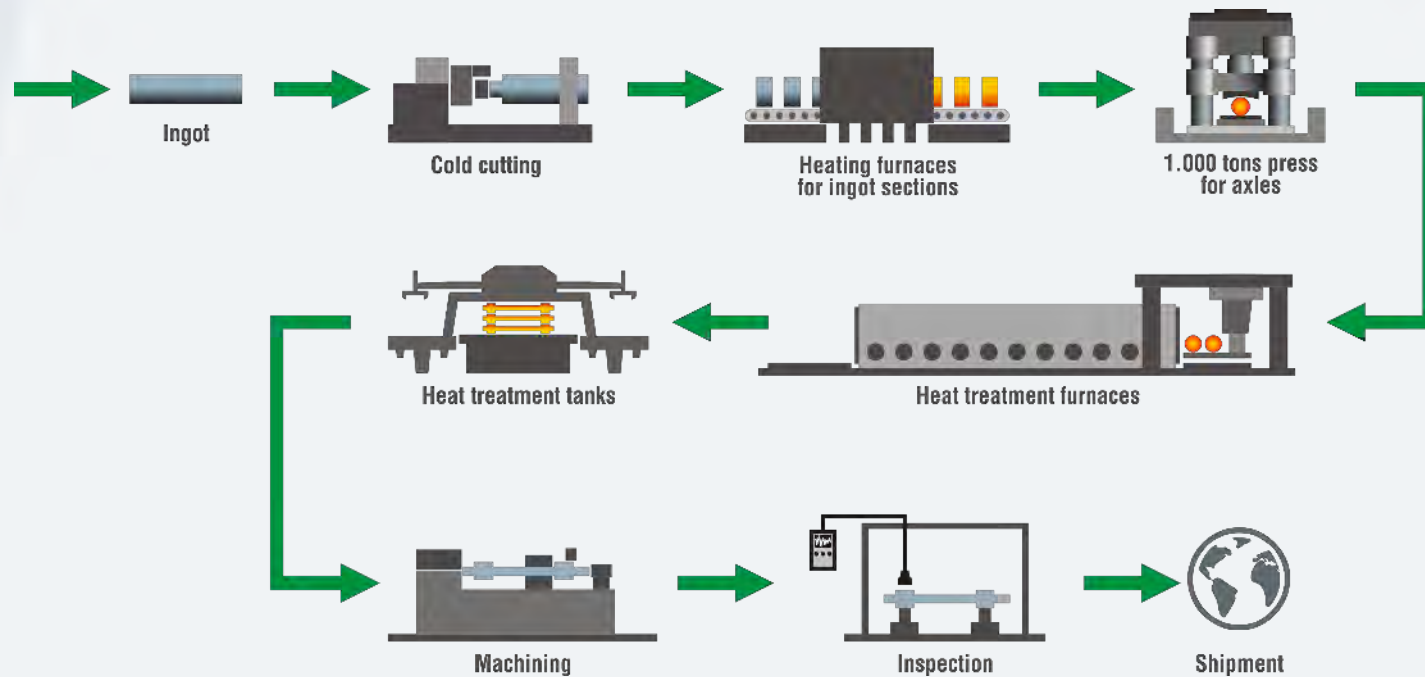
Axle

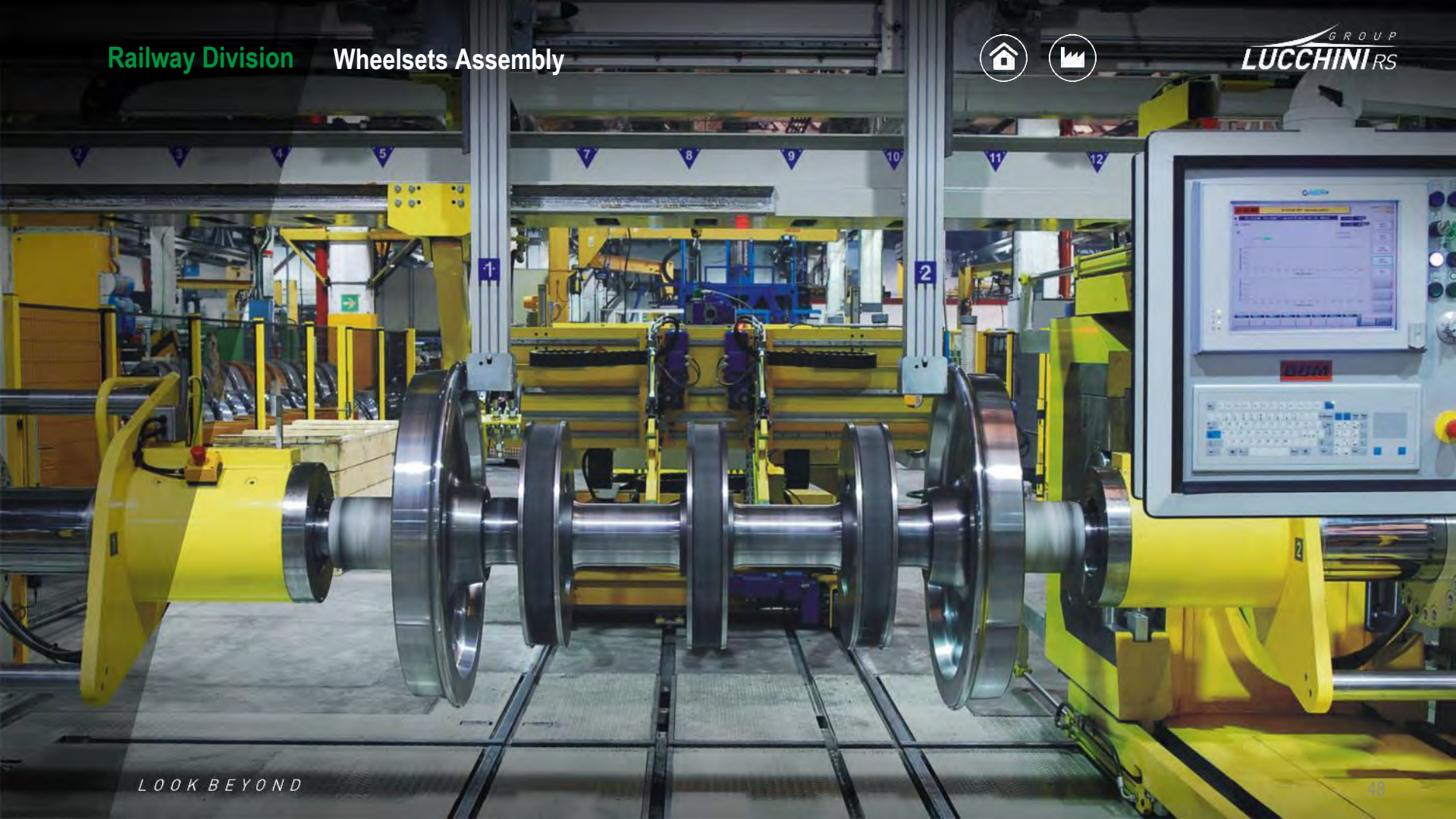


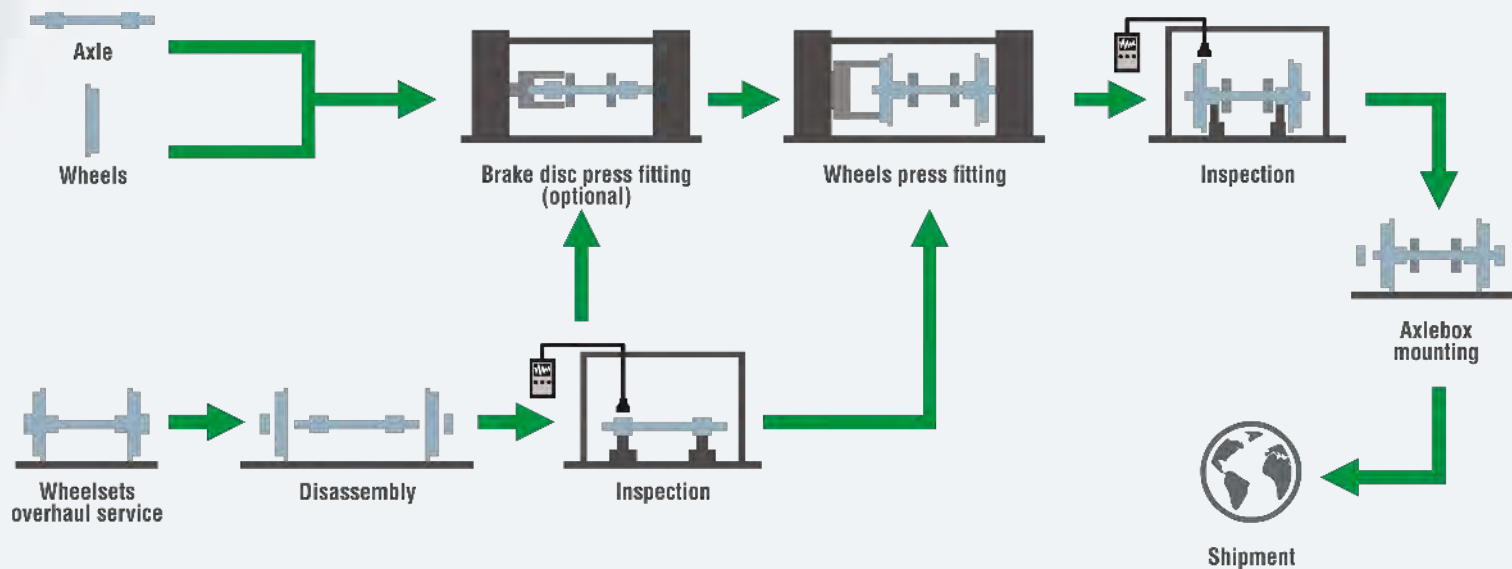
GROUP
LUCCHINIRS



LOOK BEYOND









Wheels replacement



Overhaul of axles



Overhaul of axles boxes and bearings



Overhaul of drive units



Overhaul of brake discs

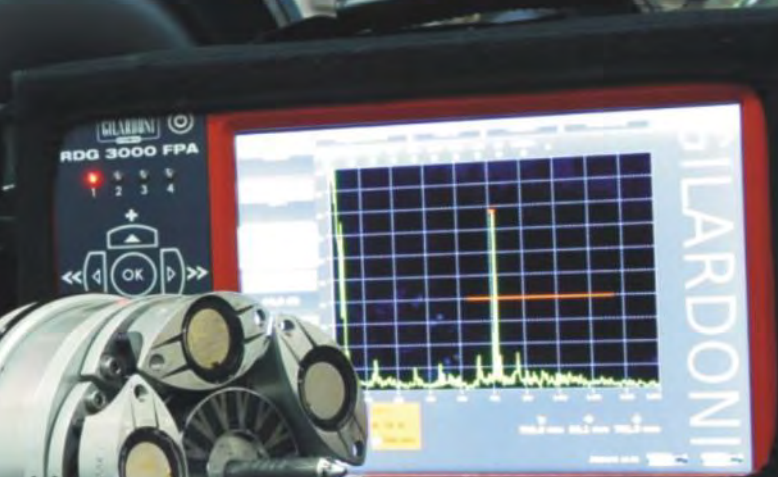


Overhaul of bogies

CHECK INTEGRITY
OF PLASTIC
INSERTS BEFORE
LOADING!



EMIC
EUROPEAN METALLURGICAL INSPECTION CENTRE





EMIC

The European Metallurgical Inspection Centre carries out non-destructive tests during production or in-service inspections. Thanks to constant updating of methods and technologies, EMIC is now one of the European benchmark for NDT staff training and in-service inspection.



Lucchini RS Training & Examination Centre

EMIC operates through two Training centers:

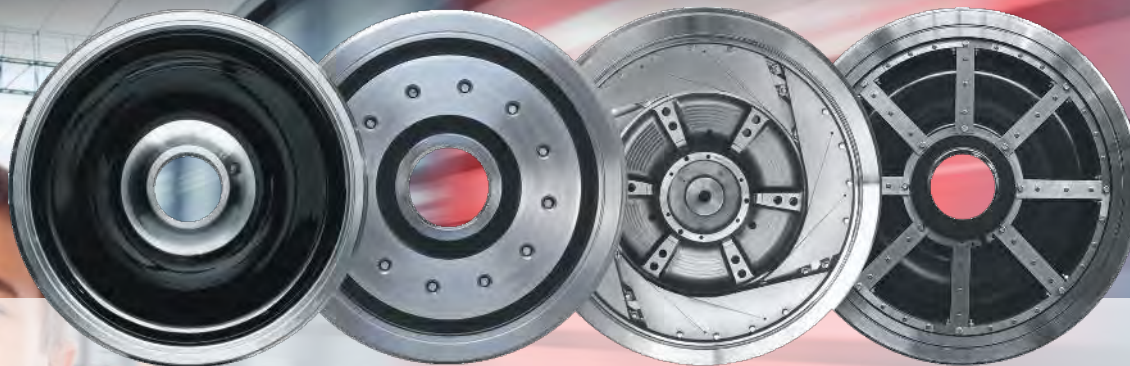
- Lovere, Italy
- Minsk Mazowiecki, Poland

EMIC trains and qualifies operators for non-destructive tests, in accordance with all the main International Standards (ISO 9712 – ASNT SNT-TC- 1A) and the guidelines provided by the Italian Welding Institute (Certification Body).

EMIC works alongside the operational units of Lucchini RS, giving them access to the most sophisticated equipment and a team of highly specialized and qualified staff.



Thanks to its research activity in the field of noise reduction, Lucchini RS is able to offer a complete range of solutions for all kind of wheels.



Syope

For solid wheels mounted under passenger coaches and high speed vehicles.

Syope_{braw}

For solid wheels with web mounted disc brakes.

Galene

For resilient wheels to reduce squealing noise.

Hypno

For tread braked wheels on freight Vehicles and passenger coaches.



Lursak[®]

Lurshell[®]

Axle permanent anti-impact protection
designed by **AkzoNobel**





Protection System for wheelset components against oxidation, gritting, corrosive products and ballast impacts, suitable for high speed, very high speed, passenger and freight applications.



guarantees total protection of railway axle **against corrosion and damages from ballast impacts.**

Lurshell

easy removable and reusable mechanical protection system for axles. It has been developed to protect the axle from high power impacts and to allow magnetic particle inspection during wheelset overhaul. The system has to be mounted on painted axle surfaces to guarantee also protection against corrosion.





FreiSet[®]



FreiSet *One solution
many advantages*

Innovative wheelsets for Freight vehicles.
Higher safety for less service maintenance costs.

LA_{X141}

EA1N axle with higher safety factors and optimized geometry.

Sura

Thermostable and low stress freight wheel. UIC 510-5 and TSI certified.

Lursak

Permanent anti-ballast coating to cancel surface defects that today require EVIC procedures during maintenance.

Hypno

Solution for reducing the noise from tread braked wheels.

blind hole

Innovative axle-end design (blind hole) to enhance in-service ultrasonic inspection of solid axle by the application of automated rotating phased array probe







Sura[®]

Patented low stress wheel for freight applications

Sura[®]light

Patented low stress wheel with light design for freight applications

Sura[®]nordic

Special wheel designed for Scandinavian EMUs





SmartSet®



SmartSet

Wheelsets diagnostic solution:

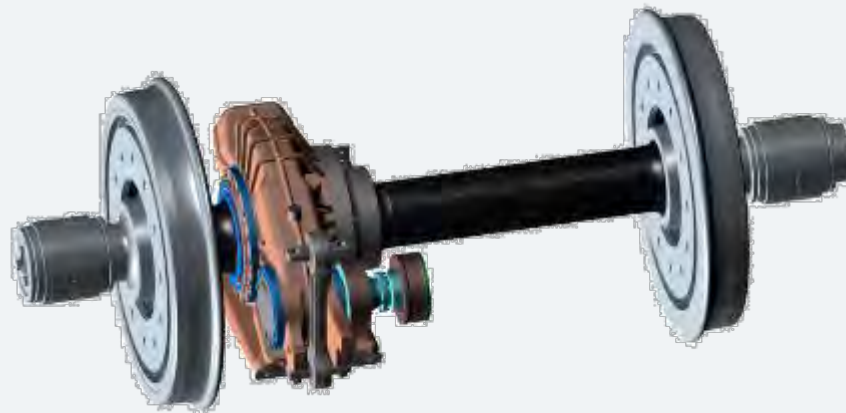
constant monitoring of bending and torsional loads on wheelset axles directly installed on the axle surface without any modification of wheelset geometry.

Compatible with coating Lursak® coating.

Data are continuously processed, periodically transmitted and accessible.

They are used for:

- real-time overload alerts (built-in GPS)
- vehicle design approval
- optimisation of NDT inspection intervals



ADDED VALUE

**REDUCTION OF THE COSTS OF MAINTENANCE
FOR EACH SINGLE FLEET**



Limoset[®]



LimoSet

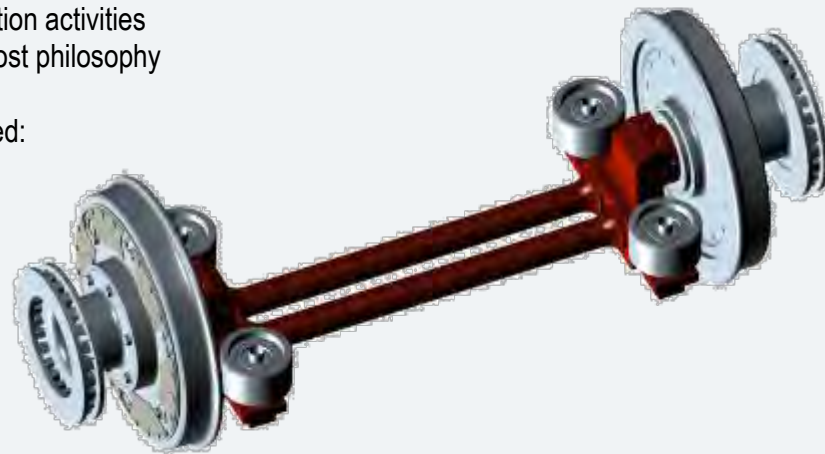
Lucchini RS solution for low-floor applications, aims to:

- reduce the unsprung masses of the wheelset -> **Light**
- grant modularity with respect to wheelset design interfaces -> **Modular**
- grant easy assembly, disassembly and inspection activities
-> easy-to- maintain wheelset with design-to cost philosophy

The complete wheelset can be easily dismantled:

Also wheels assembly/disassembly and
NDT Inspection can be easily performed.

TLCC is estimated to be very competitive and
Lower than benchmark.



ADDED VALUE

REDUCTION OF THE COSTS OF MAINTENANCE
FOR EACH SINGLE FLEET



High Speed



Commuter & Metro



Locomotives



LRV



Freight



Lucchini RS supplies most of the global fleet of high speed and very high speed trains.

The extensive know-how of Lucchini RS in the high speed sector allows the company to offer customized products and solutions.

Lursak[®] technology for protection against ballast impact and Syope[®] panel to reduce acoustic emissions are the most popular solutions adopted for high speed wheelsets.

Our wheels and axles made equipped the Chinese CRH380 fleet, which achieved the world speed record for commercial service and the Italian Frecciarossa 1000, the most advanced train in the world.





Trains equipped with Lucchini RS wheelsets carry people all over the world.

Lucchini RS supplies the leading global manufacturers of intercity, urban and suburban trains, as well as fleet operators.





Lucchini RS's rolling mill can manufacture the largest locomotive wheels, up to a diameter of 1450 mm.

Lucchini RS supplies products and solutions worldwide for all service conditions and offers special steel grades to improve performance on heavy applications such as locomotives.





Lucchini RS designs and builds products and solutions ranging from low-floor trams to tram-trains.

Limoset® is our innovative solutions for very low-floor LRV thanks to its clean design, low weight and high maintainability level.

Developed by Lucchini RS on the basis of design-to-cost principles, it can be adapted to different gauges and reduces unsprung masses.

All Lucchini RS resilient wheels may be equipped with noise reduction systems.





Lucchini RS wheelsets equip freight fleets all over the world, guaranteeing reliability and reducing fleet management costs.

Thanks to our special steel grades, we can support freight operators to improve fleet performances in all service and environmental conditions, from deserts to the most Northern regions of the world.

Freiset® is the innovative solution offered by Lucchini RS for the freight market, featuring the best safety-oriented design and an optimal LCC.







Wheelset design / testing



Full scale fatigue test of axles



Test rigs



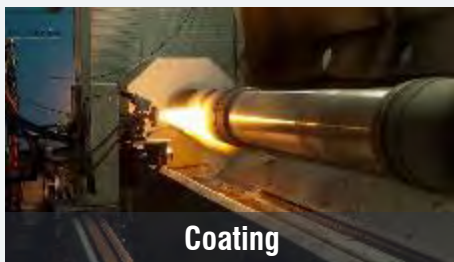
**Simulation of Dynamic Loading
Service Condition**



Crack propagation analysis



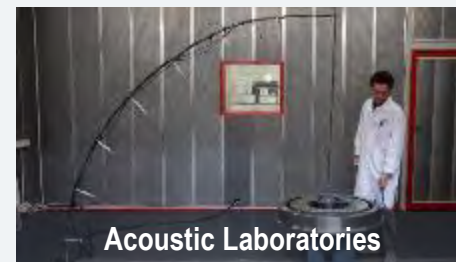
NDT inspection



Coating



Test on rubber of resilient wheel



Acoustic Laboratories

Railway Division Quality



GROUP
LUCCHINI RS



LOOK BEYOND



MAIN GLOBAL REFERENCE STANDARDS

ASME III	ISO 14001	ISO 50001	OHSAS 18001
JIS	ISO 9001	ECOVADIS CRS	



MAIN GLOBAL REFERENCE STANDARDS

IRIS	AAR M-1003	RISAS/003/01
ISO 3834-2	EN 15085-2	ISO 9712
UIC		

MAIN GLOBAL CERTIFICATION

ITALCERTIFER	VPI	CHINA RAILWAY
TRENITALIA	DB	SNCF
RENFE	INDIAN RAILWAYS	SBB
ÖBB	SNCB	NED TRAIN

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LOOK BEYOND

GROUP
LUCCHINI RS

