ITALCERTIFER S.P.A (Italcertifer) is the Italian benchmark for Certification and Inspection and one of the leading players in Europe in the conformity assessment of rail and metro transport systems.

The Company, belonging to the Italian State Railways Group (FS Group), represents a unique Joint Venture between rail industry and university, having among its main shareholders four of the most prestigious Italian academic realities (University Federico II of Naples, University of Florence, University of Pisa, and Polytechnic University of Milan) and the Tuscany Region. Italcertifer's link with top Italian Universities enhances its technical know-how related to the rail industry, fostering Company innovation and offering continuous learning opportunities for its own personnel. With its headquarters in Florence, Italcertifer has also offices in Rome and a Rolling Stock Test Laboratory near Florence (Osmannoro).

Notified Body (NoBo) and accredited by the Italian Ministry of Transport and Infrastructure to certify railway subsystems and interoperability components, Italcertifer is recognized by the Italian Rail Safety National Agency (ANSF) as Independent Safety Assessor (ISA) and is accredited as Product Certification Body (UNI EN ISO 17065) and Inspection Body (UNI CEI IEC EN/ISO 17020 type "A").

The officially recognized Rolling Stock Test Laboratory (ISO/IEC 17025) is largely equipped for performing static and dynamic tests on locomotives, railcars, passenger coaches etc., and operates in accordance with the ISO 9001 Standard.

Thanks to its extensive experience, acquired within the Italian Railway and Metro, with a consolidated expertise in managing a wide range of international certification projects, Italcertifer is considered the ideal partner for rail operators, providing customer-oriented services globally. The Company supports its Client's strategy with specific operations under each aspect of the railway regulations, certification and inspection, for both Public and Private Companies. Therefore, its added-value services can significantly increase customers' competitive edge.

Italcertifer is also a DeBo accredited by the Greek Ministry of Infrastructure and has received formal acknowledgments as Independent and competent Assessor by the Abu Dhabi Department of Transport, the Saudi Railway Organization, and by the Indian Research Designs & Standards Organisation (RDSO).

Rail and Non-Rail Acknowledgements

Notified Body (NoBo)	Transport authorized to carry out: ✓ Conformity Assessment procedures for use of interoperability constituents (Annex IV of the Legislative Decree 191/2010). ✓ CE Verification procedure (Annex VI Legislative Decree 191/2010) with reference to subsystems (Annex II Legislative Decree 191/2010). ✓ Certification Body for Entities in Charge of Maintenance (ECM) of Freight Wagons in accordance with Regulation (EU) 445/2011.
Body for Products Certification	Italcertifer is accredited according to the international standard ISO/IEC 17065, for all rail subsystems (Recognized by ISA/Multi-Lateral Agreements).
Independent Safety Assessor	Italcertifer is accredited by the Italian National Railway Safety Agency (ANSF) for evaluating the Conformity to Safety Requirements of

(ISA)	components and for setting up the Type-Approval procedures for all the subsystems, of conventional and high-speed rail systems, combined transport and Common Safety Methods (CSM). Italcertifer is also accredited as ISA (Independent Safety Assessor) to perform conformity verification to the CENELEC Standards EN 50126, EN 50128 and EN 50129 for the signaling subsystem.
Type "A" Inspection Body	Italcertifer is accredited according to the international standard ISO/IEC 17020 for Design Verification of all rail subsystems aimed at obtaining the validation for: "Building construction, civil engineering and industrial plants".
Rolling Stock Test Laboratory	Italcertifer's Laboratory is recognized according to the international standard ISO/IEC 17025 to carry out static and dynamic tests of railway subsystems and constituents.

Independent Safety Assessor (ISA) approved by the Government of India – Ministry of Railways - for Railway Signaling Systems and Products.

Designated Body for verification of domestic technical rail regulations by the Greek Ministry of Infrastructure, Transport and Networks - Decision dated 15/12/2014.

Services

Notified Body (NoBo)

EC Conformity Verification to TSIs of all Interoperability subsystems Dir. 2008/57/CE:

- ✓ Infrastructure
- ✓ Energy
- ✓ Control Command & Signalling
- ✓ Rolling Stock
- ✓ Freight Wagons
- ✓ Operation and Maintenance
- ✓ Telematics applications for passengers and freight service
- ✓ Passengers with reduced mobility
- ✓ Safety in Railway Tunnels
- ✓ Noise

Inspection Body (IB)

Inspection for conformity to relevant sector norms and standards for transport and civil engineering:

- ✓ Test & Commissioning Supervision and Verification
- ✓ Test Centers & Test Circuits Design
- ✓ Testing Authority for Rolling Stock
- ✓ Entity in Charge of Maintenance (ECM)
- ✓ Risk Analysis and Risk Assessment
- ✓ Application of Common and Safety Methods
- ✓ Safety Verification Engineer (SVE)
- ✓ Independent Competent Person (ICP)

Designed Body/Independent Safety Assessor (DeBo/ISA)

Conformity Verification to National Rules and Regulations

Type "A" Inspection Body (CAB IB Type A)/ Independent Checking Engineer (ICE)

- ✓ Design Verification Engineer (DVE)
- ✓ Independent Checking Engineer (ICE)
- ✓ Quality Controls in Building Phase (BSS)
- ✓ Technical Control Surveyor (TCS)

Product Certification Body (CAB PC)

Independent Certification Body for components in the railway sector.

Testing laboratories

DYNAMIC TESTS

VEHICLE

Braking, Pantograph, Noise, Traction Performance, Electromagnetic Compatibility, Harmonic currents, Running Dynamics, Electromagnetic Emissions, Comfort, Measurement of acceleration, Whole Body and Hand-Arm Human Exposure to Vibrations, Aerodynamics, Pressure Measurement, Temperature Measurement, Rail and Wheel Profiles, On-Board Technology System.

INFRASTRUCTURE

Dynamic testing of materials, Concrete and rail components, Steel Hardness, Tensile on Plastics and Elastomers, Electrical Resistance on Rail-sleeper Coupling Systems, Clamping Force on Rail-sleeper Coupling Systems, Stress of Longitudinal Rail Restraint on Rail-sleeper Coupling Systems.

STATIC TESTS

VEHICLE

Weighing Test, Twist Test, Sway Test, Roll Coefficient determination, Measurement of bogie to body rotation torque, Braking test bench, Bodyshell Compression test Bench

INFRASTRUCTURE

Strain Gauges, Climate Chamber, Radon Gas Measurement, Microclimate Measurement, Illuminance Measurement, Track Geometry, Rail and Wheel profiles, Electromagnetic Field Measurement, Artificial Optical Radiation Measurement.

Design Verification

DESIGN VERIFICATION ENGINEER
also
Independent Checking Engineer
and
Independent Competent Person

Italcertifer verifies the design of civil works and installations in accordance with Customer Requirements and the Rules required by National and International Standards, ensuring to the customer an independent evaluation in design verification and on engineering products as Third Party.
Italcertifer verifies the conformity of the "as built" to the approved design
Italcertifer manages the fulfillment of contractual requirements during the design and construction phases utilizing the software application DOORS.

SAFETY VERIFICATION ENGINEER

Italcertifer verifies the Safety of structural civil works for design and construction phase.

Training & Technical Support

TRAINING

- ✓ Management of the Conformity Verification Process for subsystems (energy, infrastructure, signaling, rolling stock) and components
- ✓ Application of Common Safety Methods to Risk Analysis and Risk Assessment and to the implementation of a Safety Management System (railway undertakings and infrastructure managers)
- ✓ Surveillance of Entity in Charge of Maintenance for rail rolling stock
- ✓ Management and performance of testing activities for subsystems and components

TECHNICAL SUPPORT

Italcertifer, thanks to its deep experience, is the best technical support in creating National Authority Agencies for the railway sector.

Our Technical Skills Applied to Safety & Functionality

RAIL OPERATION

Design verification and Conformity assessment of:

- ✓ Freight trains operation (conventional and hazardous materials)
- ✓ Passenger trains operation (high speed, conventional and mass transit)

MAINTENANCE

Design Verification and Conformity Assessment of:

- ✓ RAMS Demonstration Program
- ✓ Operation and Maintenance documents
- ✓ Driving and Maintenance Manuals
- ✓ Training Programs and Documents
- ✓ Spare Parts Documents
- ✓ Maintenance Plants and Facilities, also sizing equipment and tools

ROLLING STOCK

Design Verification, Testing and Conformity Assessment of:

- ✓ Running Dynamics
- ✓ On Board Signaling
- ✓ Train Event Recording
- ✓ Crashworthiness
- ✓ Braking Performance
- ✓ Traction Performance
- ✓ Fire Safety
- ✓ Electrical Safety
- ✓ Electromagnetic Compatibility
- ✓ Noise Emissions
- ✓ Aerodynamic issues
- ✓ Bogies and wheelsets

SIGNALLING

Design Verification, Testing and Conformity Assessment of:

ON BOARD:

- ✓ ATP/ATC/ATO systems
- ✓ Train-Ground Based Communications
- ✓ Traffic Management

TRACK SIDE:

- ✓ Electronic interlocking
- ✓ Axle counter
- ✓ ERTMS lev. 1 and lev. 2
- ✓ WTMS waring trackside monitoring system
- ✓ Level crossing protection system
- ✓ SCC-CTC

ENERGY

Design Verification, Testing and Conformity Assessment of:

- ✓ Electric supply system
- ✓ Conversion Substations
- ✓ Overhead contact line
- ✓ Main Switches and protection systems
- ✓ Safety Rules and Measures
- ✓ Electromagnetic Interference

INFRASTRUCTURE

Design Verification, Testing and Conformity Assessment of:

- ✓ Track Alignment
- ✓ Switches and Crossings
- ✓ Ballasted and un-ballasted track
- ✓ Bridges and Structures
- ✓ Anti-noise barriers
- ✓ Environmental protection

Our Laboratories

- ✓ Infrastructure and New Technologies – Rome
- ✓ Railway Laboratories - Osmannoro (Florence)
- ✓ Wind Tunnel - Milan Polytechnic
- ✓ Test Train ETR500-Y1 (High Speed lines)
- ✓ Test Train Archimede (Conventional lines)
- ✓ Coaches for Mechanical, Electrical and Braking

Our Main References

Key Projects – Italy

CLIENT	SUBJECT	YEAR	ACTIVITY
RFI (Italian Infrastructure Manager)	Rome-Naples High Speed Line (204 km)	2009	E.C. Certification of the Control Command and Signalling (CCS) Subsystem
RFI	Bologna-Milan High Speed Line (214 km)	2009	E.C. Certification of the Control Command and Signalling (CCS), Infrastructure (INF), Energy (ENE) Subsystems
	Turin-Milan High Speed Line (148 km)	2010	E.C. Certification of INF, ENE and CCS subsystems
	Florence-Bologna High Speed Line (78 km)	2011	E.C. Certification of the INF, ENE, CCS, Safety in Railway Tunnels (SRT), Person with Reduced Mobility (PRM) Subsystems
	Bologna High Speed Railway Junction	2012	E.C. Certification of INF, ENE, SRT, PRM, CCS
THALES, SITE	Axle Counter Equipment	2010	Independent Safety Assessment (ISA) according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128
ANSALDO STS (Hitachi Rail)	SIL 4 Train Inspection Portal	2011	Independent Safety Assessment according to RFI (Italian Infrastructure Manager) and CENELEC standards
RFI, TRENITALIA	SCC (Italian Driving Support System)	2014-2016	Independent Safety Assessment (trackside and on-board)
ALSTOM, ANSALDO STS (Hitachi Rail), BOMBARDIER	Electronic Interlocking Generic Application and Specific Application	2015-2016	Independent Safety Assessment: Evaluation of the conformity to the requirements of Safety Integrity Level 4 (SIL 4) of CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128.
ANSALDO (Hitachi Rail), SELTA, ECM	ENCODER	2016-2017	E.C. Certification and Safety Assessment according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128
TRENITALIA	SCMT (Italian ATP)	2016-2017-2018	Independent Safety and functional Assessment on different locomotives
SIRTI, ECM	Electronic Interlocking Generic Application and Specific Application	2017-2018	Independent Safety Assessment: Evaluation of the conformity to the requirements of Safety Integrity Level 4 (SIL 4) of CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128

CEMAT	Wagon Maintenance System	2013	SYSTEM CERTIFICATION ECM REG 445/2011
TRENITALIA	Wagon Maintenance System	2013	SYSTEM CERTIFICATION ECM REG 445/2011
TRENITALIA CARGO	Safety and Maintenance Management System	2013	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons
CEMAT	Safety and Maintenance Management System	2013	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons
EMILIA ROMAGNA RAILWAYS	Safety and Maintenance Management System	2014	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons

UDINE CIVIDALE RAILWAYS	Safety and Maintenance Management System	2014	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons
EUROGATEWAY	Safety and Maintenance Management System	2014	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons
OMNIA TRASPORTI SPECIALI	Safety and Maintenance Management System	2014	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons
RFI	Safety and Maintenance Management System	2014	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons
SISTEMI TERRITORIALI	Safety and Maintenance Management System	2014	Certification against REGULATION (EU) No 445/2011 certification of entities in charge of maintenance for freight wagons

Key Projects – Design Verification

CLIENT	SUBJECT	YEAR	ACTIVITY
Brenner Base Tunnel (BBT)	BRENNER BASE TUNNEL L E63 - Mules 2 e L H61 - Mules 3	2014	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2016
	BRENNER BASE TUNNEL L H71 - Isarco Underpass	2016	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2017
	BRENNER BASE TUNNEL L H81 - New access road Riol	2015	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2018
	BRENNER BASE TUNNEL - Isarco Underpass extension main tunnel and junction South tunnel entrances	2017	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2019
MM4 Consortium (Impregilo-Astaldi-Ansaldo Breda-ATM-Ansaldo STS-Sirti)	METRO MILAN LINE 4 - S. Cristoforo-Sforza Policlinico and Sforza Policlinico-Linate	2012	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2020
AUTORITÀ PORTUALE MARINA DI CARRARA	Technical-functional completion of the Levante Pier of the Port of Carrara	2015	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2021
SISTEMI TERRITORIALI	Installation of security system SCMT/EDS (train control system with signal encoder) Adria-Mestre railway line	2016	Independent Checking Engineering (ICE) - Design Review according to art. 26 Leg.Decree 50/2022

Key Projects – Europe and Russia

COUNTRY	SUBJECT	YEAR	ACTIVITY
Poland	Panewnik – Radoszowy: conventional line	2015	E.C. Certification INF, PRM, ENE, CCS
	Głogów – Zielona Góra – Rzepin – Dolna Odra: conventional lin	2015	E.C. Certification PRM

Poland	Wroclaw – Zgorzelec: conventional line	2015	E.C. Certification INF, ENE
	Miechów i Słomniki: conventional line	2015	E.C. Certification INF, PRM
	Section GLC – GSA: convetional line	2015	E.C. Certification INF, ENE
	Rudna Gwizdanów – Głogów: conventional line	2015	E.C. Certification INF
	Poznań Główny-Szczecin Główny: conventional line, 18 km	2015	E.C. Certification INF
	Błotnica Strzelecka - Opole Groszowice: viaduct	2015	E.C. Certification INF
	Kozuby - Zduńska Wola Karsznice: conventionl line, 10 km	2016	E.C. Certification INF, ENE
	Suchedniów – Łączna: conventional line, 5 km	2016	E.C. Certification INF
	Jaworzyna Śląska station: platforms, canofies and underpasses	2016	E.C. Certification PRM
	Kalwaria Zebrzydowska Lanckorona – Bielsko Biała: bridge	2016	E.C. Certification INF
	Wrocław – Szczecin, p.o. Kisielin: conventional line	2016	E.C. Certification PRM
	Marciszów – Janowice Wielkie: conventional line, platforms	2016	E.C. Certification PRM
	Stations: Błotnica Strzelecka, Strzelce Opolskie, Szymiszów e Tarnów Opolski	2016	E.C. Certification CCS
	Poznan Starołeka station	2016	E.C. Certification INF
	Port Gdański	2016	E.C. Certification CCS
	Kalwaria Zebrzydowska Lanckorona – Bielsko Biała: bridge	2016	E.C. Certification INF
	Kraków Sanktuarium	2016	E.C. Certification INF, PRM
	Gliwice station	2016	E.C. Certification ENE
	Tychy - Łaziska Średnie: conventional line	2016	E.C. Certification CCS
	Głogów - Bytom Odrzański: conventional line	2016	E.C. Certification CCS
	Train 36WEB	2016	E.C. Certification Rolling Stock
	Skarzysko Kamienna – Suchedniów: conventional line	2017	E.C. Certification INF, ENE, CCS
Austria/Italy	Brenner Tunnel: high speed line 55 km - speed 250 km/h	2013	Design Review and E.C. Certification INF, ENE, CCS

Switzerland	Electronic Interlocking Chiasso	2015	Design Verification INFRA, ENE, CCS
	Paradiso station (Lugano): renewal of electric traction	2015	Design Verification INFRA, ENE
	GSM-R Stabio (CH) - Varese (IT)	2017	Design Verification INFRA, ENE
Sweden	Haparanda: high speed line 114 km, 8 stations, ETCS Lev.2	2010	E.C. Certification Radio Block Centre (RBC)
Germany	Train Velaro: ERTMS L1, speed 250 km/h (Siemens)	2014	Conformity Assessment for the use on Turkish rail network
	EbcaB2000 with integrated STM SCMT (Bombardier)	2017	Conformity Assessment for the use on Italian network
Spain	High Speed Train: ERTMS L1 & L2, speed 250/300 km/h (Talgo)	2014	Safety Verification Engineering for the use on the Mecca-Medina High Speed line
	Locomotive R365/465 (CAF)	2016	ISA Assessment and Dynamic running tests
	Locomotive E401 (CAF)	2017	Pre-operation test
Finland	Ring Rail Line Helsinki : conventional line 18 km (7 in tunnel)	2010	E.C. Certification INF, SRT
Czech Republic	Poricany - Kolin: conventional line 22km, 3 stations, ETCS Lev.2	2010	E.C. Certification CCS, RBC
Serbia	Level crossing system	2011	ISA (Independent Safety Assessment) Certification
	External and connecting train doors	2014	ISA Certification
	Axle Counter	2014	SA/Certification Generic Product and Application
	Interlocking of Pancevo Station	2016	ISA Certification
Greece	ERTMS L1 on board equipments	2013	E.C. Certification
	Athens Station - Tris Gefyres: conventional line 5 km	2014	Design review INF, SRT
	Thitorea - Domokos: high speed double track line 106 km, 5 stations, ETCS lev. 1	2014	E.C. Certification INF, PRM, SRT, ENE, CCS
	Acharnes -Thitorea: conventional line	2015	E.C. Certification ENE
	Tris Gefyres - SKA (A.D. 265): conventional line	2017	E.C. Certification CCS
	Thessaloniki-Eidomeni-section Polycastro-Eidomeni: conventional line	2017	E.C. Certification INF
Bulgaria	Plovdiv - Burgas: conventional line 122 km - Speed 130 km/h	2013	E.C. Certification INF, ENE
Romania	Fundulea - Lehliu: technical assistance,	2015	Material Verification

	conventional line		
	Bucarest-Costanza	2015	Technical Assistance
	Frontiera-Simeria 2A-2B: conventional line	2017	E.C. Certification INF, ENE
Russia	MoU with Russian Railways	2015	Certification Procedures

Key Projects – Mediterranean Region, Africa & Middle East

COUNTRY	SUBJECT	YEAR	ACTIVITY
Turkey	Ankara - Konya: high speed line 210 km, speed 250 km/h, ETCS Lev.1; increase 300 km/h, ETCS Lev.2, ERTMS	2010	E.C. Certification INF, ENE and CCS
	Ankara - Sinkhan: conventional line 16 km	2010	E.C. Certification INF and ENE
	Mersin - Toprakkale, Bogazkopru - Yenice: conventional lines >200 km	2012	E.C Certification CCS
	Irmak - Zonguldak: conventional line 414 km	2013	E.C Certification INF and CCS
	Gezbe - Kosekoy: conventional line 56 km - ETCS L.1	2013	E.C. Certification INF, ENE and CCS
	Inonu - Kosekoy: conventional line 136 km	2013	E.C. Certification INF, ENE and CCS
	Ankara - Konya: High Speed Line 210 km, upgrade to 300 km/h and ETCS L.2	2014	E.C. Certification INF, ENE and CCS
	Train Velaro, ERTMS L1, speed 250 km/h	2014	Conformity Assessment for the use on Turkish network
	Karaman - Konya: doubling of conventional line 200 km	2015	E.C. Certification INF
	Eskisehir station	2015	E.C. Certification INF, ENE and CCS
	Sincan-Ankara-Kayaş Lines ()Başkent Ray Project)	2017	E.C. Certification INF
Egypt	Alessandria - Cairo - Asyut: ETCS L.1	2014	ISA of CCS migration
Morocco	Casablanca – Tanger	2015	Design Review CCS
Arabian Emirates	Shan - Habshan - Ruways: conventional lines 270 km	2012	E.C Certification CCS
Saudi Arabia	Mecca - Medina: high speed line 444 km, Speed 320 km/h, ETCS L. 2	2012	E.C. Certification INF, SRT, ENE, CCS
	Riyadh: Metro line 3, 42 km	2013	Indipendent Checking Engineering (ICE)

	Riyadh: Metro line 3	2017	Indipendent Checking Engineering (ICE) - Design Review
Oman	Support to the Ministry of Transport and Communication (MOTC) for the governance and regulation of the railway sector	2015	Technical Assistance

Key Projects – Asia

COUNTRY	SUBJECT	YEAR	ACTIVITY
Iran	Support to Iranian Railways for Design of Test Center for Rolling Stocks and Infrastructure	2015	Technical Assistance
	Mashhad Metro Line 2	2015	Independent Safety Assessment (ISA) according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	CBG-HH Sleepers	2016	Test
	Elettronic Interlocking	2017	Independent Safety Assessment (ISA) according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	Audio Frequency Track Circuit	2017	ISA, Tests and Training
India	TPWS system- Chennai - Gummipundi suburban line 46 km, ETCS L.1, including the assessment of the on-board equipment and the integration trackside and onboard	2012	Independent Safety Assessment (ISA) according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	Train Collision Avoidance System (TCAS)	2015	ISA according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	Electronic Interlocking System (EIXL) Generic application and first Specific application	2016	ISA according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	Train Collision Avoidance System (TCAS)	2016	ISA according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	Axle Counter	2016	ISA according to CENELEC Standards applicable to Railway Applications EN 50129, EN 50126 and EN50128 for CCS subsystem
	TPQA for Navi Mumbai Metro Line – 1 Project from Belapur to Pendhar, 11 km	2016	Third Party Quality Assurance services, Inspection and tests at suppliers' work, Rolling Stock Inspection and Testing (Mechanical and Electrical), Design Review for Rolling Stock Sub-Systems
	Independent Safety Assessment of Signalling works of Bhaupur-Khurja Section of Eastern DFC Project -1, conventional line	2017	ISA for Generic Application (GA) and Specific Application (SA) of signalling system and cross acceptance of Interlocking (IXL)

	ISA Signalling and Generic Products Freight Corridor Rewari-Makarpura (Phase-I), conventional line	2017	ISA of Signalling System including TPWS and ISA of Signalling products: (a) Electronic Interlocking, (b) Digital Axle Counter, (c) Train Protection & Warning System
	Independent Safety Assessment of Signalling Works of Mughalsarai – New Bhaupur Section of Eastern DFC Project - 2, 402 km conv. Line	2018	ISA of GA and SA of Signalling System and Cross acceptance of Interlocking (IXL)
China	Zhengzhou - Xi'an: high speed line about 500 km, 10 stations, local adaptation to ETCS L. 2	2012	ISA Specific Application of RBC

Key Projects – Oceania and South America

COUNTRY	SUBJECT	YEAR	ACTIVITY
Australia	Rio Tinto Company AutoHaul Project: Iron mine conventional line about 1300 km ETCS modified (driverless)	2013	ISA of Signalling System including ATO, ATP, Locomotive Control Subsystem (LCS), Video Image Capture Subsystem (VICS), Vital Safety Server Subsystem (VSS), Train Control Subsystem (TCS), Wayside Subsystem, Communication Infrastructure Subsystem
	Roy Hill Company: mine conventional line 350 km - local ETCS modified (satellite location & communication)	2013	ISA of Signalling System
	Moreton Bay Link, conventional line	2014	ISA of Signalling System
Chile	Roger 800 (test and inspection vehicle)	2015	Functional assessment
Peru	Signalling and SCADA Metro Lima, lines 2 and 4	2016	ISA for CCS and SCADA (Supervisory Control and Data Acquisition)

Key Projects – Rolling Stock

COUNTRY	SUBJECT	YEAR	ACTIVITY
Alstom Ansaldo-Breda (Hitachi Rail)	Trains ETR 500 PLT, 600, 610, 485, ERTMS L1 and L2, speed 250/300 km/h	2008	Conformity Assessment to TSI and Cenelec for STB; ISA for the Italian and Swiss rail networks
Ansaldo STS (Hitachi Rail)	Various Trains for China, France, India, ERTMS L1 & L2, speed 250/300 km/h	2009	Conformity Assessment to TSI and Cenelec for STB
Ansaldo-Breda (Hitachi Rail) Bombardier	Train V300 (ETR 1000), L1 & L2, 400 km/h	2013	Conformity Assessment to TSI and Cenelec for STB, Fire & Smoke, Safety in rail Tunnels, Pantograph, Dynamic Behaviour. CE and ISA Certification of the whole train for the Italian rail network
Siemens Ansaldo-Breda (Hitachi Rail)	Loco OSC 120, ERTMS L1, speed 150 km/h	2014	Conformity Assessment to TSI and Cenelec for STB; ISA for the Italian rail network

Siemens	Train E 189, speed 180 km/h	2009	Conformity Assessment to TSI and Cenelec for STB; ISA for the Italian rail network
Siemens	Train Vectron, ERTMS L1, speed 250 km/h	2011	Conformity Assessment to TSI and Cenelec for STB, Fire & Smoke, Safety in rail Tunnels, Pantograph, Dynamic Behaviour; CE and ISA for the Italian rail network
Siemens	Train Velaro, ERTMS L1, speed 250 km/h	2014	Conformity Assessment for the use on Turkish network
Talgo	High Speed Train, ERTMS L1 & L2, speed 250/300 km/h	2014	Safety Verification Engineering for the use on the Mecca-Medina High Speed line
Mermec	Roger 800 (test and inspection vehicle)	2015	Functional assessment
Newag	Train 36WEB	2016	E.C. Certification Rolling Stock

Key Projects – Track Machines

CLIENT	SUBJECT	PERIOD	ACTIVITY
MATISA	TAMPING MACHINE B 66 U (6 AXES)	Since 2010	De.Bo. for APIS (Authorisation for Placing In Service)
	TAMPING MACHINE B 66 U (5 AXES)		De.Bo. for APIS (Authorisation for Placing In Service)
	TAMPING MACHINE B 66 UC (6 AXES)		De.Bo. for APIS (Authorisation for Placing In Service)
	RAIL GRINDING WAGON C 107		De.Bo. for APIS (Authorisation for Placing In Service)
	WAGON WB 10		De.Bo. for APIS (Authorisation for Placing In Service)
	RAILROAD TRACK DIAGNOSTIC MACHINE PV7		De.Bo. for REDEVELOPMENT
SPENO-MECNAFER	RAIL GRINDING TRAIN RR 16 MS-9	Since 2010	De.Bo. for APIS (Authorisation for Placing In Service)
	RAIL GRINDING TRAIN LRR 16M-38		De.Bo. for performing running tests on RFI rail network
	RAIL GRINDING TRAIN RR 32MX-1		De.Bo. for performing running tests on RFI rail network
	RAIL GRINDING TRAIN MINI 8M-14		De.Bo. for performing running tests on RFI rail network
	RAIL GRINDING TRAIN LRR 16M-38		De.Bo. for performing running tests on RFI rail network
	SELF-PROPELLED OTM US1E-1 (2 AXES)		De.Bo. for performing running tests on RFI rail network
	SELF-PROPELLED OTM US2-2 (4 AXES)		De.Bo. for performing running tests on RFI rail network
PLASSER & THEURER	TRACK DIAGNOSTIC MACHINE EM SAT 100	Since 2010	De.Bo. for APIS (Authorisation for Placing In Service)
GLEISFREI	OTM WAGON H 850	Since 2010	De.Bo. for APIS (Authorisation for Placing In Service)
	OTM WAGON H 1100		De.Bo. for APIS (Authorisation for Placing In Service)
	DIAGNOSTIC		De.Bo. for APIS (Authorisation for Placing In

MERMEC	VEHICLE CAR.ON.TE. 1	Since 2010	Service)
	DIAGNOSTIC VEHICLE CAR.ON.TE. 2		De.Bo. for APIS (Authorisation for Placing In Service)
	DIAGNOSTIC VEHICLE FOR CHILEAN INFRASTRUCTURE MM600 EFE		De.Bo. for performing run tests on RFI rail network
	TRACK DIAGNOSTIC MACHINE MM800TCDD (Turkey)		De.Bo. for performing running tests on RFI rail network
	TRACK DIAGNOSTIC MACHINE MM400 TCDD (Turkey)		De.Bo. for performing running tests on RFI rail network
	TRACK DIAGNOSTIC MACHINE M800 BHP (Australia)		De.Bo. for performing running tests on RFI rail network
	TRACK DIAGNOSTIC MACHINE MM400 MFV (Singapore)		De.Bo. for performing running tests on RFI rail network