TURNKEY RAIL SOLUTIONS
YOUR PROJECT DELIVERED
Alstom Transport

ALSTOM IS THE “ONE-STOP-SHOP” COMPANY FOR TURNKEY PROJECTS

Alstom offers you in-depth expertise in each segment of the rail transport industry and an international track-record of achievement. The “Turnkey rail system” that we will offer you will integrate all our competencies in an optimized solution to meet your transport service objectives.

Alstom Turnkey contracts include our commitment to deliver your system on-time and to-cost.

TURNING TO TURNKEY

For new and established rail network owners and operators looking to simplify the tendering process, shrink the overall schedule and mitigate the risks associated with new systems projects, signing a single global contract can make good sense. For one thing, this “all-in” turnkey approach reduces the risks of extended tender negotiations and interface management between myriad suppliers and sub-contractors. Uneven project management typically leads to scheduling delays, cost overruns and greater disturbance of local life. A global contract awarded to a single supplier - one that has design and manufacturing capabilities, in house testing and, above all, systems engineering and project management expertise - minimizes incompatibility issues between critical subsystems (such as signaling, track and rolling stock). This makes commissioning surprise-free and allows a smooth introduction of the new, high performance transport system on-time and to-cost.

THE MULTISPECIALIST ADVANTAGE

Possessing the industry’s broadest expertise, with optimized solutions for every segment of the rail market, Alstom is the multispecialist in rail transport. Alstom draws on its advanced technology and service-proven products, industrial capacity and workforce to offer its customers world-class turnkey solutions. Our dedicated specialists have more than 20 years experience in the management of turnkey projects, working with tramway, metro and mainline rail owners and operators worldwide.

Our teams know how to mobilize the required resources to keep your project moving through all phases with well-honed processes. These phases include: design, specification, partner supplier selection, project management and sourcing, site installation, testing and commissioning, training, warranty and maintenance. We are committed to deliver safe, dependable and effective turnkey projects - our track record proves it.
Today you are considering:

- How many different rFPs (Requests For Proposals) you will need to issue?
- How many contracts you will need to sign?
- How many contractors will need to coordinate?
- How to make sure that different subsystems from different suppliers will be interfaced and integrated correctly and on-time?
- How to manage and account for project risk within your organization?

Alstom offers you a turnkey solution that provides:

- Service-proven subsystems optimized for integrated system performance
- Partnering with you to define the scope of project management and project risk you wish us to take on for your peace-of-mind
- Collaboration with your in-house team to choose suppliers of equipment we do not make, but which we will integrate or interface
- Assurance that we assume responsibility to deliver on-time and to-contract price

FROM A SET OF TECHNOLOGY ADVANCED SUBSYSTEMS...

WITHOUT ALSTOM TURNKEY SOLUTION

TO AN OPTIMIZED TRANSPORT SYSTEM.

WITH ALSTOM TURNKEY SOLUTION

SIX REASONS TO CONSULT ALSTOM FOR TURNKEY RAIL SOLUTIONS:

1. Alstom meets its contractual obligations: delivery on-time, to-cost, with performance guarantees respected.
2. Alstom is a multispecialist supplier of products, systems and services to rail transport operators and owners worldwide.
3. Alstom has more than 20 years of successful experience in rail transport systems engineering and turnkey project management to draw on for your project.
4. Alstom offers a complete portfolio of capabilities and technologies: track work, line electrification, station, tunnel, depot utilities and equipment, rolling stock, rail control systems and maintenance.
5. Alstom supplies innovative solutions in rail technology and train design and is a pioneer of interoperability.
6. Alstom stands by its products: ask our turnkey rail systems customers!
A FULL PORTFOLIO OF CAPABILITIES AND TECHNOLOGIES TO BUILD YOUR EFFICIENT PUBLIC TRANSPORT SYSTEM

TRAMWAY, METRO AND MAINLINE
Alstom is capable of integrating all rail systems: tramway, metro, mainline and very high speed. Our full portfolio of capabilities and technologies allows us to develop the turnkey solution that best meets the needs of each individual project.

PROJECT MANAGEMENT, SYSTEM ENGINEERING, TESTING AND COMMISSIONING
Beyond design and supply, Alstom brings genuine:
- Project management with solid processes
- System engineering expertise to integrate equipment and subsystems with the right specifications
- Testing and commissioning to deliver a fully validated system

These three capabilities serve to deliver the performance, the resilience as well as the provisions for expansion and for future upgrade that our customers expect.

IN-HOUSE EXPERTISE AT YOUR SERVICE
Track work
We offer track solutions - design, engineering and construction - for all type of trains and terrains. We apply advanced technology and tools to assure success in each project. An example of this is our APPITRACK technology for tramways which we use for specific track laying contracts to carry out this work faster and with less disruption.

Line electrification
Alstom offers catenary and 3rd rail power supply and substations for new and existing urban and mainlines as well as innovative solutions for energy savings and environmental respect. Alstom has installed more than 10,000 km of catenary worldwide and contributed to hundreds of power supply projects. We offer APS, our ground-level power supply for tramways to eliminate overhead wires and to preserve the city’s character.

Rolling stock
We design, build and commission a full range of rolling stock for urban and mainline use: tramways, automatic and standard metros, commuter and regional trains (EMU and DMU) and very high speed trains.

Rail control systems
Alstom designs, builds and commissions train control systems, interlocking systems, control centers with Automatic Train Supervision, SCADA power and auxiliaries management, telecommunications as well as security and passenger information systems for all kinds of urban and mainline rail networks.

Station, tunnel and depot utilities and equipment
We offer a full range of electromechanical (E&M) equipment for stations, tunnels and depots, supported by systems engineers and local installation teams: lighting, ventilation, elevators, escalators, platform screen doors, ticketing and fare collection.

Maintenance
Alstom provides life-cycle maintenance services for trains, signaling and fixed infrastructure for any duration, with contractual guarantees for availability, spare parts and integrated logistics.

LOCAL AND INTERNATIONAL PARTNERING
Complementing our in-house offering, we have established partnerships with leading companies worldwide, providing expertise in:
- Civil works
- Engineering
- Project financing
- Operations for concession contracts

Track work for the Lausanne metro (Switzerland)
Control center in Bologna (Italy)
INNOVATIVE AND PROVEN TECHNOLOGIES

FOR TRAMWAYS

APPRITRACK™, a new high quality way to lay track
APPRITRACK, an innovative process developed by our experts for laying tracks on concrete, makes track-laying faster, cleaner and quieter. It can be used for all light rail projects with all types of surfacing. By 2010, Alstom will have laid over 100 km of track with APPRITRACK in Algiers (Algeria), Reims and Orleans (France).

APS, for open sky operations
Alstom engineers pioneered development of aesthetic power supply for transport in city centers in creating our clean APS technology. By supplying electricity at ground level, APS makes it possible to do away with catenary, allowing cities to provide modern street-level public transport without unattractive overhead wires.

HESOP™, cutting energy consumption
HESOP is a new and innovative power supply system which optimizes energy use and thereby reduces operating energy costs by as much as 15%.

FOR METROS

URBALIS™, CBTC technology
With URBALIS, Alstom provides proven CBTC technology (Communication Based Train Control) with 5 customer references in service of which 3 are driverless metro systems.

Metro track work for attenuated vibration and noise
Alstom provides solutions to build metro lines that reduce noise and vibrations generated when trains go by.

FOR MAINLINE RAIL METROS

HSL electrification
Alstom offers a full range of High Speed Line electrification engineering and installation services including catenary for trains to run at up to 360 km/h and 2 x 25 kV substations.

ATLAS™, integration of signaling
Alstom installs trackside signaling equipment and can supply our internationally interoperable ATLAS solution (ERTMS standard, European Rail Traffic Management System) as well as equipment that are compliant with national signaling systems.

FOR TRAMWAYS

APPITRACK™, a new high quality way to lay track
APPRITRACK, an innovative process developed by our experts for laying tracks on concrete, makes track-laying faster, cleaner and quieter. It can be used for all light rail projects with all types of surfacing. By 2010, Alstom will have laid over 100 km of track with APPRITRACK in Algiers (Algeria), Reims and Orleans (France).

APS, for open sky operations
Alstom engineers pioneered development of aesthetic power supply for transport in city centers in creating our clean APS technology. By supplying electricity at ground level, APS makes it possible to do away with catenary, allowing cities to provide modern street-level public transport without unattractive overhead wires.

HESOP™, cutting energy consumption
HESOP is a new and innovative power supply system which optimizes energy use and thereby reduces operating energy costs by as much as 15%.

INNOVATIVE AND PROVEN TECHNOLOGIES

FOR TRAMWAYS

Alstom is a world leader in light rail train solutions, providing complete solutions for urban integration. Our innovative APS technology has made us the reference in wireless tramway solutions. First in Bordeaux (France), APS will soon be in use on Dubai’s entire Al Safooh line (United Arab Emirates), as well as along 2 km in Reims (France). Alstom’s professional engineering also ensures optimization of train downtime, energy consumption and noise reduction.

TRAMWAY TURNKEY SOLUTIONS

Alstom is a world leader in light rail train solutions, providing complete solutions for urban integration. Our innovative APS technology has made us the reference in wireless tramway solutions. First in Bordeaux (France), APS will soon be in use on Dubai’s entire Al Safooh line (United Arab Emirates), as well as along 2 km in Reims (France). Alstom’s professional engineering also ensures optimization of train downtime, energy consumption and noise reduction.

Tramway Turnkey solutions
Brasilia (Brazil), Oran (Algeria), Constantine (Algeria), Algiers (Algeria), Reims (France), Orleans (France), Dubai (United Arab Emirates), Bordeaux (France), Barcelona (Spain).

Bordeaux, France
Bordeaux, one of France’s most visited cities, was the first city to recognize the APS advantage. The open-sky system, integrated over 13 km of its 44 km tramway network, has a 99.8% rate of availability. Alstom was the technical and contractual leader of the project, supervising and managing the various interfaces among the contractors. The activities of the companies in the consortium – covering rolling stock, track and ground level power supply – were managed as a system.

Barcelona, Spain
Trambaix and Trambesos, Barcelona’s two tram lines, are BOT (Build, Operate, Transfer) contracts. City transport authority ATM awarded the network project – 58 stations, 30 km of track, 750V d.c. – to an Alstom-led consortium in 2000. Alstom provided engineering and construction of the complete electro-mechanical package, including rolling stock. Construction was carried out on several sections at once to ensure rapid progress. The lines were delivered on-time in 2004.

We understand the invasive nature of tramway projects and work hard to minimize disruptions to local community life during construction. Under our highly professional project management, each stage is carefully planned in advance to ensure a tight work schedule during execution and on-time delivery of an optimized transport system.
**METRO TURNKEY SOLUTIONS**

City residents depend on their metro for daily mobility. Major or repeated metro failures can create chaos in a city and generate news stories and action meetings. That’s why, along with safety, reliability is a metro system’s most important attribute. As a world leader in metro systems - and the reference in automatic heavy metros - Alstom can deliver the optimized system you need.

Lausanne M2, Switzerland

A good illustration of our ability to provide fitting solutions is the Lausanne metro. Alstom supplied a driverless metro able to negotiate the Swiss city’s steepest gradients (12% over 6 km), prior to being awarded a metro turnkey contract. For this, we delivered a full driverless system that integrates and optimizes performance of 15 two-car rubber-tyre metro trains.

Circle Line, Singapore

Singapore’s Land Transport Authority awarded an E&M turnkey contract to Alstom for its second driverless metro line. This contract was based on our work for LRT’s first driverless line: North East Line, for which we provided the signaling and rolling stock. Circle Line is 40 three-car trains, 29 stations, 34 km and includes maintenance depots and stabling yards.

Metro Turnkey solutions

Mexico (Mexico), Lausanne (Switzerland), Sao Paulo (Brazil), Singapore, Caracas (Venezuela).

**MAINLINE AND VERY HIGH SPEED TURNKEY SOLUTIONS**

Whether new or existing, regional or nation-spanning, conventional or very high speed, mainline railway networks are vital national infrastructure assets. They require significant investment to build them and to maintain them.

By assuming the leadership role and full responsibility for the main line project in a turnkey contract, Alstom can provide the professionalism needed to guarantee success.

Seoul-Pusan, Korea

The first Very High Speed (VHS) turnkey system ever exported: the 477 km Seoul-Pusan KTX line, delivered on-time, serves six cities with a fleet of 44 series trains, transporting 120 million passengers annually in comfort and safety. As project manager of this VHS turnkey rail contract, Alstom was responsible for the core system’s design, engineering, manufacturing, installation, integration and commissioning, as well as VHS technology transfer for local manufacturing of catenary, traffic control system and technical training.

High Speed Rail Turnkey solutions

Athens Suburban (Greece), Channel Tunnel Rail Link (UK), Stockholm Arlanda express (Sweden), Seoul - Pusan (Korea).
TURNKEY WITHIN ALSTOM’S GLOBAL OFFER

INDIVIDUAL LOTS
All of the state-of-the-art products, systems and services offered within the turnkey package can be contracted on a lot-by-lot basis. The scope of activity is determined by the customer:

- Track work and electrical power
- Rolling stock and signaling
- Control and security centers
- Rail stations and maintenance depots
- Trainlife maintenance services

FULL TURNKEY
Alstom activates partnerships with civil works specialists to respond to your tender offer for a complete rail system solution. This turnkey partnership contract assures system definition, engineering and optimization, interfacing and project management.

E&M TURNKEY
Alstom supplies the electrical and mechanical (E&M) core system. Typically, this includes track, power supply, signaling, train and station equipment, depot, control and security centers. We define the E&M architecture and functions.

CONCESSION (BOT: BUILD, OPERATE, TRANSFER / PPP: PUBLIC PRIVATE PARTNERSHIP)
In response to your need for project financing, lifetime operations and maintenance services, Alstom acts as part of a concession company consortium of experts, which will finance the project through loans and long-term capital investment based on projections of future revenue.

Alstom’s 80,000 employees, working in 70 countries, are shaping the future. We are doing this by developing and transforming infrastructure for power generation and public transport. It’s through the application of expertise to the delivery of excellence, that we aim to contribute to better living and working conditions for people everywhere, in a more sustainable planet.