



Company Profile and Boarding Bridge features



AERO-SYS GmbH is a German company with global partners having both innovative design and manufacturing capability employing professional experienced personnel to manage specialized project mainly engaged in the logistic and transportation industry. This includes customers from Automotive, Automation, Conveying, Logistic, Airports and Airlines; by providing both hardware and software integration capabilities in simulated real-time operational modelling delivering services that meets customer expectations and beyond.

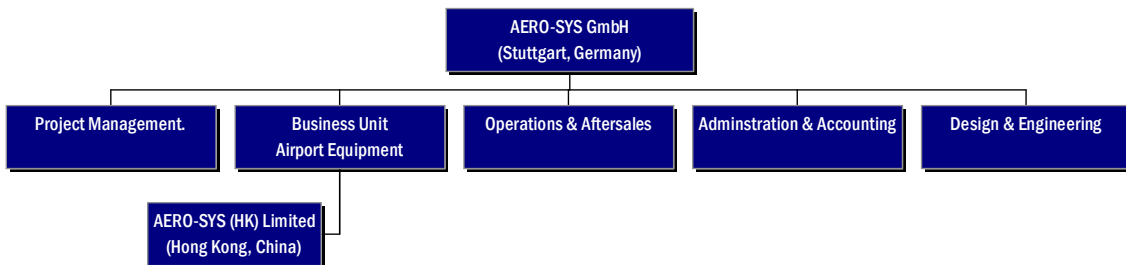
AERO is a privately funded company having the flexibility to adept to customers' needs in the global business environment while providing a seamless professional ethical service to meet customers' demands. Headquartered in the city of Stuttgart, Germany, AERO had nurtured a highly technical skill team in design and system integration with experienced of over 25 years has evolved from the automotive industry that is now completely automated requiring manual intervention for final touches, into other associated industry necessitating the demands of efficiency of less manual intervention and more automation.





AERO has manufacturing capability of producing AERO Boarding Bridges (ABBs) in both Asia and Europe providing the highest technological design and value for money manufacturing established in low cost regions managed by Germany Engineers and managers. Building on top of existing designs and standards established in the Boarding Bridge industry, AERO has developed design to address short comings where exiting Boarding Bridge suppliers do not address to improve the efficiency of daily airport operation. Currently AERO has the capacity to manufacture comfortably four ABBs per month and is capable to increase this when challenge to meet higher demands on large projects.

AERO today, our customers are able to move people, power, aircraft conditioned cool air, potable water and other essentials from terminal through the AERO boarding bridge to the parked aircraft. AERO is able to provide a wide range of gate equipment and operational services to airport customers around the globe seamlessly supported by local teams who understands the local culture for project execution and after-sales services.



AN EXPERIENCE ORGANIZATION TO MEET CUSTOMER NEEDS



AERO has an organization structure, which excels in providing superior service, attention to detail, and long-term support. Our combined project management team will carefully manage the project to assure on-time performance and full compliance to contract requirements as well as anticipating airport operational requirement. The Operations & Aftersales group provides site service management, installation and maintenance operations. They also provide superb training tools including dedicated experience personnel who travel the globe providing training in classroom and in the field, supervision, and troubleshooting assistance. The team with fully stock Spare Parts inventory also provides quick turnaround for immediate delivery.

Other AERO team includes Sales, Airport Gate Design, Manufacturing and Engineering group consisting of approximately 25 Engineers and managers dedicated strictly to boarding bridge and related equipment working on constant improvement design and technical support in providing better equipment to airport customers.

Within the region, AERO service infrastructure for Asia is extensive for both spare parts and service. AERO currently maintains spare part facilities in China, Thailand and Stuttgart to ensure we can provide the immediate response to airport customer with a pre-signed authorization contract so that commercial proceeding does not present bottleneck for speedy parts delivery.

SAFETY AND RELIABILITY

AERO Boarding bridges service a full range of aircraft from CODE C, D, E and F commercial jets.

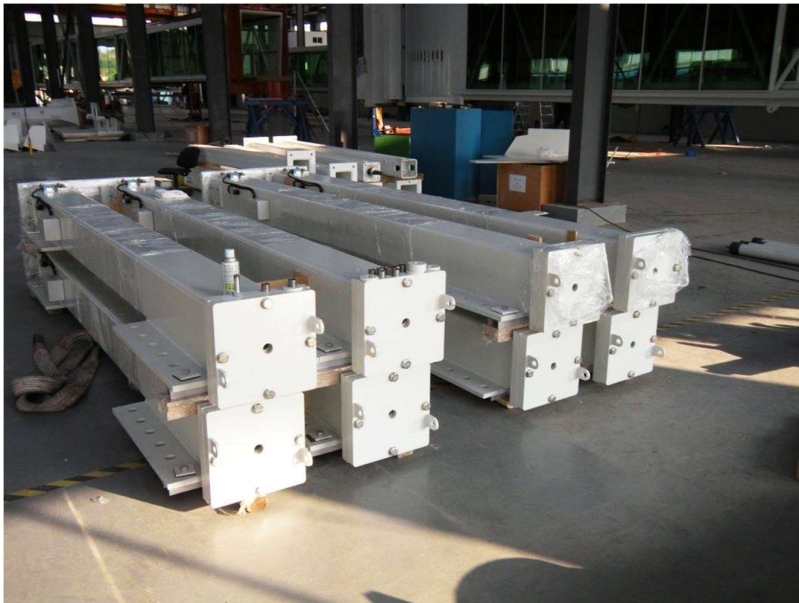
Since Boarding bridge downtime also can result in costly flight delays and airport image degradation, AERO has also worked to perfect its reliability to minimize unscheduled downtime with a simple and effective preventative maintenance program design for in-service time for most installations exceeds 99%. This reliability means airports and airlines have come to recognize an AERO boarding bridges to be ready to dock safely with incoming aircraft more than other bridge suppliers.

BRIDGE AUTO-LEVELING FEATURE

As commercial aircraft are parked at the gate, the door sill height of the aircraft varies during different stages of an aircraft turn. As the aircraft arrives with passengers and cargo is unloaded and loaded, and refueling operation is underway, the aircraft sill height will vary during its turn as the aircraft settles on its hydraulic landing gear. In order to accommodate this vertical travel without damaging the aircraft door which is open situated inside the boarding bridge cab area, the boarding bridge must accurately



synchronize the up and down movement with the aircraft throughout the docking cycle. The AERO boarding bridges are equipped with auto-level system by a physical contact wheel that tracks the vertical movement of the aircraft fuselage. The auto-level system utilizes multiple safeguards and back-up systems to assure accurate tracking of the aircraft is effective. AERO is also working on a non-contact imaging system to track the aircraft vertical movement to replace the door safety shoe sensor option soon to be release as an optional upgrade for existing and new customers.



Components destined for Spare Part Inventory

OPERATOR VISIBILITY

One critical factor in safe aircraft docking is the degree to which operators can clearly view aircraft docking points during a boarding bridge docking. Bridge driving is often done with the bridge cab doors closed for environmental and safety reasons. AERO's full vision cab and cab door design allows full viewing of the critical aircraft area as well as the auto-level wheel assembly while the cab doors are closed. At AERO, we offer both large window swing door and a complete transparent roll up door, These optional selection is complete provide to fulfill the desire of the airport's architectural theme.



TECHNICAL ASPECTS

AERO has the experience and capabilities to manufacture and supply both steel and glass wall boarding bridges based on a steel truss structure design platform. The options of selecting either glass or steel wall construction is entirely up to the airport customer's selection pending on the aesthetics look they wish to achieve as the model theme suitable for their airport location. Both the steel and glass wall boarding bridge is designed to meet in full compliance of NFPA-415 fire safety code.

AESTHETICS, FIRE & CORROSION RESISTANCE

AERO Boarding Bridge design will comply with the fire test requirements of NFPA-415 which is to withstand fire temperatures of 700°C for 5 minutes without breaking and without letting the inside surface temperature to rise above 120°C. The glass proposed in AERO's base proposal uses low emissivity/(tinted) glass. This will both reduce the radiant heat from sunlight into the bridge and improve the bridge aesthetics. Other structural features of AERO Boarding bridge include a crowned roof profile to ensure no rain water pooling will be form on the roof. This roof eliminates corrugation on the roof where water and debris can collect and attack the paint system. Other features such as zinc rich paint and non-corrosive hardware used extensively throughout the bridge will act to reduce the potential for any corrosion problems to develop.

EXTERNAL ELECTRICAL CABLING

To eliminate direct exposure to UV sunlight and damage to electrical cabling, no exposed cabling is used on the roof. All cabling is generally run under the bridge to increase cable life. Additionally, AERO uses an electrical cabling system on the "C" tunnels in lieu of individual conduits to reduce corrosion potential, increase upgrade flexibility, improve accessibility for inspection and improve aesthetics.

AERO's cabling system is design for ease of accessibility for maintenance crews and yet concealed from view of passenger traffic. The cables are protected from over bending and UV exposure to prolong cable life. AERO has designed and selected a cabling system to bring electrical for both the ABB and ancillaries across the telescoping tunnel sections of the bridge. This includes the electrical power of both 400Hz and PC-Air cabling as an optional requirement. The system is open and easily accessible directly from below, but concealed from passenger view. Additionally, since the design minimizes the cable bending radius, cable life is significantly increased.

For all other external wiring, AERO uses conduits and high-quality connections. These practices are not used by all bridge manufactures and AERO believe they are paramount to the overall durability, maintenance, and aesthetic aspects of the bridges.



ABB Tunnel being fitted to customer Requirement

ELECTRICAL GEAR MOTORS

AERO utilizes as standard cyclo drive gear motors in lieu of helical gear boxes units that require oil bath lubrication. Cyclo drive reducers are greased for life using synthetic lubrication. These eliminate maintenance requirements for motor assemblies and prevent premature failure of the motors when inadequate maintenance is performed. Additionally, through our experience, AERO's designs have evolved to minimize potential damage from ground crew traffic and GSE by locating the horizontal drive motors on the wheel bogie close to the axis point to reduce the overall footprint of the wheel bogie. The AERO bogie design include both chain drive and direct drive option for customer selection preference.

CANOPY CLOSURE

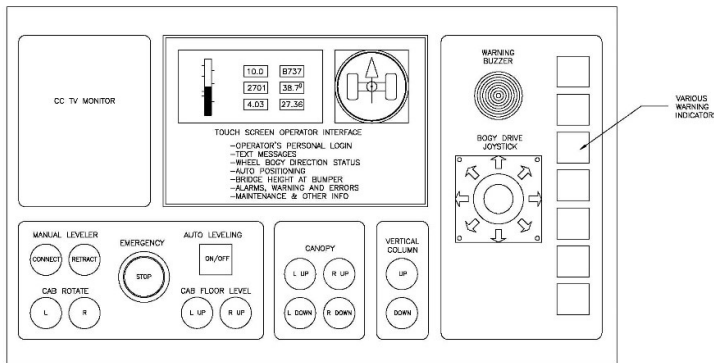
The canopy closure mechanism is a flexible accordion-like system, which closes over the open aircraft door to form a tight seal between the boarding bridge and the aircraft. The closure must be highly flexible for close fits, soft and pliable in order to avoid damage to aircraft skins, fire resistant in order to comply with NFPA-415 requirements, and highly resistant to UV and environmental factors. Unlike most of Jetway's competitors, our closure is constructed to layers of special materials. The inner layer consists of a highly pliable layer of fire resistant material while the outer layer provides a highly durable shell, resistant to UV, salt, and water damage. This design provides one of the most long lasting and reliable closure mechanisms in the industry.



ABB ADVANCED CONTROL FEATURES

AERO provides a standard PLC based technology for bridge control functions. Basic CPU engines are PLC while other microprocessor platform is available as options. User interface for the operator utilizes state of the art touch screen technology. This simplifies the tasks of both operators and maintenance personnel. The touch screen provides real-time monitoring of numerous functions and enables on-line help information to the operator, user information, maintenance reminders, fault logs, programming and more. While all bridge movement functions still utilize hardwired button/switches, numerous non-movement functions can be controlled through the touch screen.

Since bridge information is processed digitally, the AERO boarding bridge serves as the perfect apron interface with the building information system. Through the standard Ethernet connection (as option) a considerable amount of additional information can be easily transmitted from the bridge to the building information system such as maintenance information, specific bridge faults, operator ID number as well as other critical information for accounting and management purposes.



TYPICAL CONTROL LAYOUT
(Subjected to Change without notice)

STEER BY WIRE JOY STICK CONTROL

Through PLC control, both steering and movement are combined into a single control stick. The wheels automatically align themselves to the direction pointed selected by the operator using the control joy stick. As a result, bridge movements correspond to the directional inputs coming from the control joy stick and the cab direction will be automatically rotated to the pointed direction. This feature is referred by AERO as “Auto Steering”, since the operator simply points the stick in the direction, and the computer automatically steers and drives in the direction the joy stick is pointing. This feature makes the operation of the ABB much easier drive and minimizes unintended contacts with any part of the aircraft over conventional push button manual steering systems.

TROUBLE SHOOTING/DIAGNOSTICS



Troubleshooting and diagnostic information will be directly display on the touch screen which greatly assisting maintenance personnel in assessing potential problems. Should a problem arise, the ABB touch screen will display numerous switches/pop up and can pinpoint problems quickly and efficiently minimizing troubleshooting down time.

PRE-DOCK POSITIONING

The PLC Boarding Bridge allows pre-dock positioning (Optional) of horizontal, vertical, swing, and cab rotation while most pre-dock positioning systems simply control vertical height. This ability means operators can simply drive the bridge to a pre-programmed 3D apron location by a touch of a single button. This will simplify operator functions, increase docking efficiency and minimize contact errors.

ONLINE MAINTENANCE SCHEDULE/LOG

The computer database on the ABB allows for monitoring and scheduling of bridge maintenance. Preventative maintenance schedules can be programmed into the bridge allowing automatic message reminders of preventative maintenance and maintenance instructions. Furthermore, past maintenance records can be retrieved on the system indicating information on previous maintenance. The Log data base capacity depends on what customer has selected as their option, the standard AERO data record storage capacity is 5,000 events before its cycle for deletion.

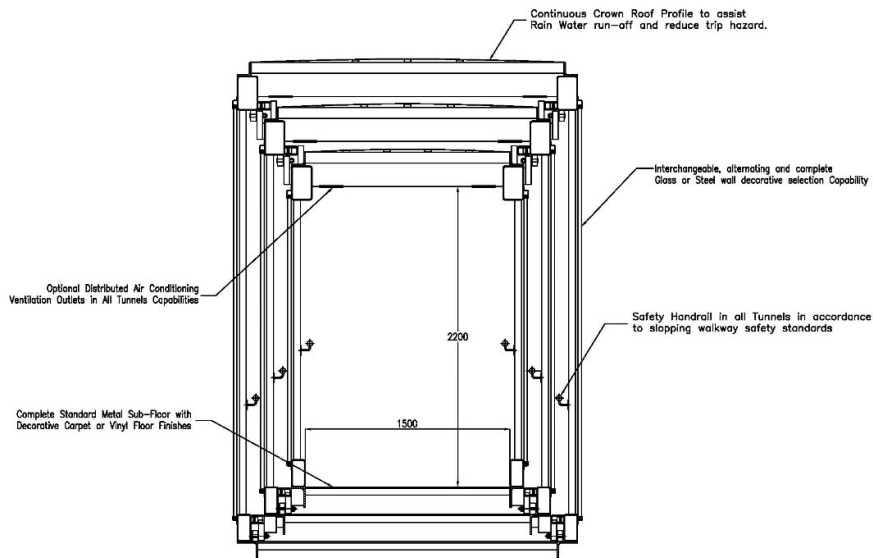


An ABB is being installed on site.



PASSENGER COMFORT AND SAFETY

AERO boarding bridges come standard with gently sloping tunnel transition ramps that minimizes trip hazards and roof top air conditioner to enhance passenger comfort. The AERO tunnel transition slope over a distance of 3 Meters, creating near seamless transition between tunnels. The standard refrigeration capacity of 5 ton roof top air conditioner (unless otherwise requested optionally) to provide a cool comfort for passenger at the cab end of the ABB and has optional selection of integrated distributed air ducts along all its tunnels. AERO boarding bridges also comply fully with Slipping Walkway Safety Standard with Fitted Handrails for All Tunnels.



GATE SERVICE MANAGEMENT SYSTEM (GSMS)

AERO has develop and is available to supply gate management information systems that process digital information and can send numerous information packets via a Local Area Network (LAN) to terminal management system. This allows the use of digital communications network for real time live streaming applications including operational security. The advantage here is that digital information is transmitted in computer readable form, on a single LAN, greatly reducing the cabling and hardware requirements compared with systems using individual lines for each item monitored.

Each apron control room can incorporate full graphic displays of all gates and fault panels simultaneously in real time. By simply viewing the screens, graphic icons can display the information required in the specification.



ANCILLARIES

The AERO Boarding Bridge is designed with a need to carry ancillaries such as PCA, GPU together with Hose and Cable Retrievers. AERO can also supply all the ancillary equipment needed when required including PCA, GPU, Hose and Cable Retriever requirement if need under options.

Bridge or Stand Mount Pre-Conditioned Air Unit



Stand Mount 400hz Ground Power Unit for Remote Gates



Bridge Mount 400hz Ground Power Unit with or without Output Cable Retrieval

