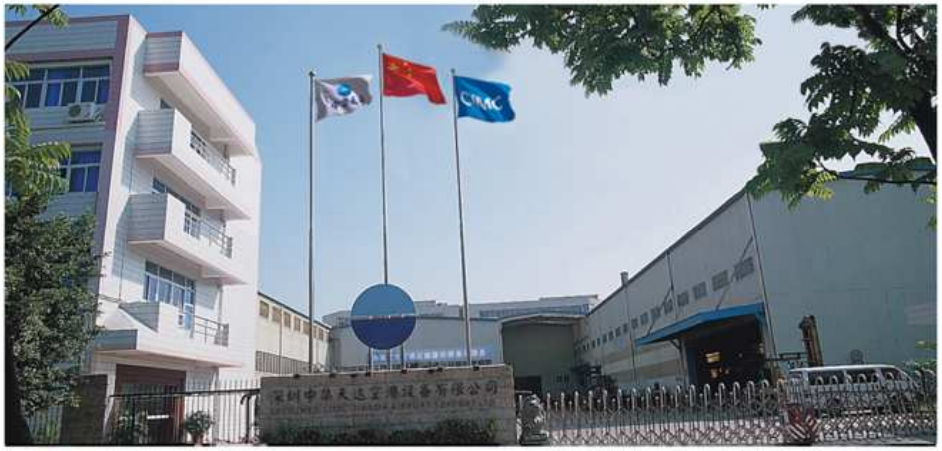


公司概述

深圳中集天达空港设备有限公司（简称中集天达）由中国国际海运集装箱（集团）股份有限公司（中集集团）与中国国际海运集装箱(香港)股份有限公司(中集香港)于1992年合资成立，是一家专门从事空港设备和现代物流设备开发、设计、制造、安装、成套设备工程、咨询及维修服务的专业化公司。主要产品包括：旅客登机桥、货物处理系统、飞机泊位引导系统、旅客登船桥、食品车、自动化停车系统等。

自1990年制造了第一台登机桥以来，中集天达已制造登机桥1600多台，国内市场占有率达90%以上。产品出口到世界各地。继登机桥之后，中集天达又成功开发了航空货物处理系统、飞机泊位引导系统、旅客登船桥、食品车、自动化停车系统等新产品。

中集天达的产品具有设计先进、安全可靠、维护简便等优点。专业、完善的售后服务以及充足的零部件供应更为设备的正常运行提供了有力保障。中集天达的产品不仅提高了机场和航空公司的工作效率和服务水平，而且降低了运营费用。

"尽心、尽力、尽善、尽美"是中集天达人对工作、生活的追求，也是我们对客户提供产品和服务过程中的承诺。凭借不断的技术创新和产品的出色性能，中集天达的产品深受广大用户的好评和信赖。

Shenzhen CIMC-TianDa Airport Support Ltd. was jointly founded by China International Marine Containers (Group) Ltd.(CIMC) & CIMC (Hong Kong). The core business of CIMC-TianDa is airport support equipment and modern logistics equipment, providing solutions and consulting services for modern logistics and transportation. The product ranges from passenger boarding bridge, air cargo handling system (CHS), visual guidance docking system (VGDS), seaport passenger boarding bridge, catering truck, auto-parking system, etc.

Since 1990, CIMC-TianDa has produced over 1600 units of passenger boarding bridges, dominating more than 90% domestic market share. The products have been exported worldwide. Following the success of passenger boarding bridge, CIMC-TianDa successively developed other products including CHS, VGDS, seaport passenger boarding bridge, catering truck and auto-parking system etc.

With advanced technology applied, safety, reliability and maintainability characterize themerits of CIMC-TianDa's products, upon which they are relied by air carriers and airports every day for efficient, cost effective operation. A professional service team relieves end-users from the annoyance of equipment malfunction and spare parts inadequacy.

Labeled simply on the nameplate but bear impressively in mind of end-users, "CIMC-TianDa" always stands for the concept of persistent technical innovation and outstanding performance.

A PBB to Meet Every Need

登机桥介绍

登机桥作为连接飞机与候机楼的桥梁，为进出机场的旅客提供全天候、舒适和安全的行走空间，同时也为不同的机场规划和停机坪布置提供经济、灵活的解决方案，因而受到各机场和航空公司的青睐。

中集天达现生产四种形式的登机桥：旋转伸缩式登机桥、柱座式登机桥、T型式登机桥和可服务支线客机的小型飞机登机桥。

中集天达是目前世界上唯一能够同时生产液压、机电和机液混合三种驱动方式登机桥的制造商，所生产的旅客登机桥不仅可满足服务各类机型的要求，而且可适应不同的地区环境。通道侧壁有波纹板，金属平板和玻璃等多种型式供用户选择。根据用户的要求，在桥体上可加挂400Hz电源、飞机空调（PCA）、饮水系统和可视引导系统（VDGS）等附属设备。

为了确保产品的质量和可靠性，中集天达采用了最新的工业标准和严格的质量控制体系，已通过ISO9001：2000质量体系认证、CE认证、NFPA417防火标准认证、UL安全认证及EMC测试等。

A PBB to Meet Every Need

Passenger Boarding Bridges (PBB) not only provide all weather, comfortable and safe walkway between terminal and aircraft, but also the flexible and cost efficient solution for individual airport planning and apron layout. Based on these advantages, most airport authorities and air carriers tend to use PBB for efficient, economic operation.

CIMC-TianDa currently produces Apron Drive PBB, Noseloader, T Type PBB and Commuter PBB.

CIMC-TianDa is the only manufacturer in the industry capable of producing hydraulic driven, electro-mechanical driven and combined driven PBB. The PBBs are designed to serve various ranges of aircrafts in different environment. The side walls of the PBB are available with metal or glass versions for customers' option. At the customer's request, CIMC-TianDa's PBB provides interfaces for ancillary equipment including 400 Hz Transformer, PCA, Potable Water System, Visual Guidance Docking System, etc.

In order to guarantee the quality and reliability of our products, the latest industrial standards and strict quality control system have been applied to the production process. All products are designed and manufactured to conform to or exceed ISO9001:2000, CE Certificate, NFPA 417, UL Listed and EMC test etc.

旋转伸缩式登机桥

旋转伸缩式登机桥是应用最广泛的一种登机桥，它活动范围大，布置方式灵活，对飞机停泊的精确度要求低，适应性强，可用于不同的站坪布置方式。

旋转伸缩式登机桥主要由旋转平台、活动通道、升降行走机构、接机台和接机口等部分组成。旋转平台是整个登机桥的回转中心；活动通道由两节或三节大小通道套接，可伸缩，后端与旋转平台连接；升降行走机构可带动活动通道、接机口在以旋转平台为中心的扇形区域内转动或前后伸缩，通过这种旋转伸缩的复合运动使登机桥由泊桥位置行驶到飞机舱门位置；接机口可左右旋转，与飞机舱门的位置相适应；接机口前端的遮蓬可伸出到与飞机机身贴紧的位置，以满足全天候服务旅客的要求。

Apron Drive PBB

Apron drive PBB is generally preferred by most of airports mainly for its maximum flexibility. It is well know that such apron drive PBB is designed to accommodate a wide range of aircrafts, and easily installed according to the various apron configurations.

The structure of an apron drive PBB consists of rotunda, telescopic tunnels, lifting and driving mechanism, cabin and cab. All flabellate travel of the PBB centers on the rotunda. The telescopic tunnels are integrated with two or three sleeve units for sliding extension and retraction. Driven by the lifting and driving mechanism to swivel around the rotunda, the PBB extends smoothly to approach the aircraft until its cab wiggles to conjoin the fuselage with its water-tight canopy.

玻璃侧壁登机桥

玻璃侧壁登机桥的通道由桁架结构支撑，两侧安装玻璃。为了使登机桥与候机楼的风格协调一致，玻璃的型式（如中空、夹胶）和颜色可以有不同的选择。玻璃侧壁登机桥为旅客提供了更为舒适的行走空间。旅客在通过登机桥通道时，能够透过玻璃观赏到机场的景观。

Glass-walled PBB

Structurally supported by the steel truss, the side walls of PBB can be covered with various types of glass (insulated or laminated glass etc.). To harmonize the architecture of terminal building, various types of glass with different colors are available for end-users' option. The glass-walled PBB offers passengers a pleasant transition and a comfortable overview of the airport.

金属结构侧壁登机桥

金属结构侧壁登机桥的侧壁有波纹钢板和平面金属板两种结构形式。与玻璃侧壁登机桥相比，金属结构侧壁登机桥自重轻、刚性好，可以具备更大的伸缩范围。经特别处理的金属表面、专业选择的涂料和与之配套的喷涂工艺可以长期保障桥体表面的质量，从而使登机桥的寿命更长，维护成本更低。

Metal-walled PBB

The side walls of metal-walled apron bridge are available with welded corrugated steel or flat metal panel. Compared with glass-walled PBB, the features of lightness and rigidity allow a higher level of telescopic extension. Specially formulated coating system not only long preserves the surface endurance but also extends the service life of PBB and reduces the refinishing cost to minimum.

内部通道

暖色调的通道及灯光照明为乘客营造舒适的行走空间，照明系统包括应急备用电源。

Interior Tunnel Decoration

Warm colors and lighting create a welcoming ambience for passengers.The lighting system includes an emergency power backup.

尾端升降通道
Rear-end Lifting Link Tunnels

尾端双通道
Scissor-shaped Link Tunnels

中集天达除了提供多种型式的活动登机桥外，还可提供各种类型的固定通道，以满足客户的不同需要。为满足机场实现进出港分离的要求，有两种方案可供选择 一种方案是使用一条固定通道连接候机楼和旋转平台，安装在固定通道尾端的液压或机电升降机构可将通道提升或降低，从而实现通道与离港区或进港区的连接 另一种方案是直接使用与旋转平台相连的两条固定通道分别连接离港区和进港区。

Besides various types of apron drive PBB, CIMC-TianDa provides diversiform fixed tunnels to comply with clients' requirements. In order to facilitate the passenger flow at arrival or departure area, there are two options available for this purpose: one is to connect the terminal building and rotunda by a stationary tunnel with its rear end mounted on the hydraulic or electro-mechanical lifting columns at the terminal building, so the rear end of tunnel can be positioned on either floor. The other is that two stationary tunnels from the rotunda directly link to the arrival and departure floors.

电缆传送机构
Cable Carrier

独特的电缆传送机构能够将所有的动力电缆、通讯电缆和饮水管等集中在一个传送机构中，具有保护性强，维修方便的特点。

Uniquely designed cable carrier collects power cable, portable water system, and communication lines in one device featuring full protection and convenience for maintenance.

自动调平机构
Automatic Leveler

自动调平机构可根据飞机因负载而造成的高度变化自动调节登机桥的高度，从而保证登机桥始终处于最佳的接机状态。

Leveling devices automatically levels the PBB as the height of aircraft varied by loading weight, ensuring the PBB to accommodate the aircraft in the best condition.

舱门保护开关
Safety Shoe

舱门保护开关可以防止因飞机舱门突然下降或误操作或系统失效而造成的损坏。

The safety shoe prevents damage to the aircraft door due to the aircraft suddenly descending or faulty operation or system failure.

减速及停止开关
Proximity Limit Switches

登机桥的接机口前端装有减速和停止开关。触动任何一个减速开关，登机桥的运行速度便会自动降到安全速度；触动任何一个停止开关，登机桥便会自动停止。

In the front of cab there are speed reduction switches and stop switches. Once any speed reduction switch is triggered, the speed of PBB will be automatically decelerated . The movement of bridge can be automatically stopped as any stop switch is activated.

Standard Control System

标准操作控制系统

中集天达登机桥的标准操作控制系统采用 PLC 控制，具有控制简单可靠、操作方便的特点。通过安装在接机口的控制台，操作员只需拨动操作手柄，便可自如地控制登机桥的运动方向和速度。控制台上的其它按钮分别用于控制立柱升降、接机口旋转、遮篷伸缩等功能。登机桥的状态参数（如接机口高度、轮架转角等）由相应的仪表分别显示。置于控制台中央的显示屏用于监视轮架周围的情况。此外，控制台上还装有急停按钮，以备出现紧急情况时立即停桥之用。

Standard Control System

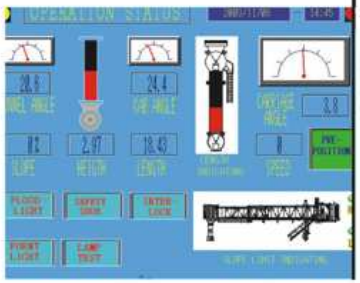
CIMC-TianDa's standard programmable logic controller (PLC) operating system enables a PBB to maneuver and dock with exceptional precision. From a console situated in the cab, the operator controls the direction and the speed of the PBB freely with a joystick. Buttons are used to operate the lifting columns, cab rotation, extension and contraction of the canopy, and other functions. The status parameters such as PBB height and rotation angle of cab can be metered and displayed as well. Surrounding underneath the PBB is monitored through the CRT which is mounted at the center of console. Additionally, the emergency stop button halts the PBB in case of any emergency.

操作控制系统选择项

在以上标准配置功能的基础上，登机桥的控制系统还可增加以下功能，用户可以根据自己的要求进行选择：

Options

Compared with the standard configuration, the Smart PBB is enhanced by the following major functions:



状态显示功能

置于登机桥控制台上的LCD可以实时显示登机桥的状态参数，如桥头角度、轮架角度、桥身摆角、接口平台高度、通道长度、桥身坡度等。所有的参数显示均有双重显示方式：既有模拟动态显示，又有数字显示，从而为操作人员提供形象、直观、准确的登机桥状态参数，大大方便操作。

Status Display

LCD screen displays real-time status parameters including tunnel rotation angle, cab rotation angle, steer rotation angle, PBB height, tunnel length and cab slope etc. All parameters can be displayed through a dual display model: dynamic simulation display and digital display, which provide visually precise status parameters for convenient operation.

自动预靠和自动泊桥功能

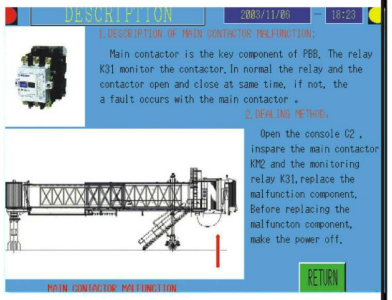
针对服务机型的不同，登机桥控制系统中可预置超过24种机型的设置。在自动预靠状态下，无论登机桥位于何处，操作员只需按一下LCD触摸屏上的预靠按钮，登机桥便会按相应的机型自动调整状态，如接机高度、桥头角度等，并自动驶向预定地点。

自动泊桥是与自动预靠相反的过程。通过选择LCD上的执行按钮，登机桥便会自动返回到预定的泊桥位置。

Automatic Pre-positioning & Parking

According to the different types of aircraft to be served, the control system can be programmed to over 24 settings. No matter where the PBB is located, only a simple touch on the LCD screen to choose appropriate aircraft type, then the PBB automatically adjusts its postures such as its cabin height and tunnel rotation angle. In the mean time, the PBB automatically moves to the positioning point.

Auto-parking is the reverse action of automatic pre-positioning. When choosing the Auto-parking function on the LCD screen, the PBB will move backward to the parking position.

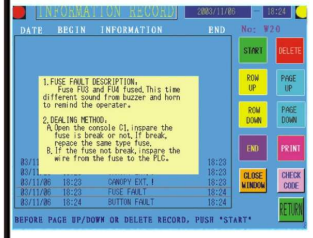


故障诊断功能

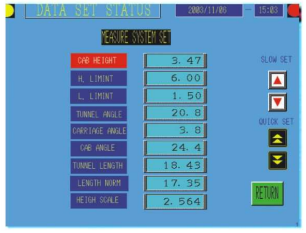
登机桥可以进行开机诊断和运行时的故障自动诊断，实时监测执行机构、控制器件及安全防护装置等的工作状态。当有故障出现时，LCD 将显示故障信息，同时，登机桥会自动报警。登机桥还具有了强大的在线帮助功能，LCD 不仅能显示故障描述和解决方案，还可显示维修指导画面，为排除故障提供了极大的方便。

Faulty Diagnosis

The PBB executes self-diagnosis during startup and operation through constant monitor over the operating mechanisms, control and safety devices. Once a fault occurs, information will be displayed on the LCD panel. At the same time, the alarm will be activated. Through the powerful on-line technical support, it not only provides the description of malfunction but also formulates the trouble-shooting solutions and graphic guidance for easier maintenance.



事件记录
Event/Fault Record



系统参数设定
System Parameter Setting

A380 PBB Commuter PBB

A380登机桥

为满足机场服务目前世界上最大的客机A380的需要，中集天达已研发出了可服务A380上二层U1舱门的旅客登机桥，拥有多项专利技术和完整的解决方案。中集天达A380登机桥已首先被法国巴黎戴高乐机场认可采用，并陆续获得了多个国际机场的A380桥订单。

A380 PBB

To service the giant A380 aircraft, CIMC-TianDa, with various patented technologies and integrated solutions, has developed and manufactured A380 Passenger Boarding Bridge (PBB) to accommodate upper deck U1 door of A380. The first user of the CIMC-TianDai˜s A380 PBB is Charles de Gaulle Airport in Paris. Consecutively, CIMC-TianDa was awarded contracts for supplying A380 PBB by various airport authorities.

小型飞机登机桥

小型飞机旅客登机桥是专为中、小型飞机设计，可实现旋转、伸缩及升降等功能，具有广泛的适应性。在服务机种方面，可根据客户的需要提供接靠B737型与ERJ145，BAE146，CRJ-200，ATR-72和多尼尔等各种中小型客机的组合设计。

Commuter PBB

CIMC-TianDa's commuter PBB is designed to accommodate medium and small sized aircrafts. It has the basic functions of rotation, telescopic movement and lifting. At client's request, combined designs of commuter PBB can be offered to accommodate B737, ERJ145, BAE146,CRJ-200,ATR-72 and Dornier etc.