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FAÇADE SYSTEMS

 屋面系统
ROOF SYSTEMS

 洁净室围护
CLEANROOM SYSTEMS

 冷库围护
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 模块化智慧空间
MODULAR INTELLIGENT SPACE

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BERBSON Cold Storage Systems

柏博森冷库围护系统

www.berbson.com

BERBSON Cold Storage Systems

柏博森冷库围护系统

 **Brrbson**
Shandong Liqiang Metal Technology Co., Ltd.

科技与创新赋能绿色建筑 Green Buildings Empowered by Technology & Innovation

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守护新鲜与美味

Keep It Fresh & Tasty



柏博森丽彩晶®聚氨酯冷库板生产车间 | Production Workshop of Berbson Colorspar® PU Cold Storage Panel

产品概述 Product Overview

现代冷库主要由制冷、保温、控制等系统组成，其中冷库围护系统是冷库保温系统的主体构件，产品包括冷库保温板、冷库保温门等，它决定了冷库建筑的安全和保温节能性能。柏博森是专业的冷库围护系统全面解决方案供应商，其产品遵循先进的装配式建筑理念，为客户提供从方案设计、材料制造到安装施工全方位、高品质的产品和服务。万事达冷库围护产品广泛应用于食品加工、屠宰冷藏、冷链物流、生物医药、果蔬气调、菌菇养殖、低温科研、中央厨房、预制菜加工和智能温室等领域，为冷链行业贡献独特价值。

A modern cold storage facility is mainly composed of refrigeration, insulation, control and other systems, among which, the cold storage envelope system is the main component of the cold storage thermal insulation system, and the products include cold storage insulation panel, cold storage insulation door, and more, determining the safety and energy-saving performance of cold storage buildings. Berbson is a specialized supplier of total solutions for cold storage envelope systems, and its products follow advanced prefabricated building concepts, so as to provide the client with a full range of high-quality products and services from solution design, material manufacturing to installation and construction. Wiskind's cold storage envelope products are widely used in food processing, slaughtering refrigeration, cold chain logistics, biomedicine, fruit & vegetable modified atmosphere packaging (MAP), mushroom cultivation, low-temperature scientific research, central kitchen, prepared food processing, and smart greenhouses, etc., contributing unique value to the cold chain industry.

客户价值

Customer Benefits



渤海水产有限责任公司海产品深加工冷藏项目 | Seafood Deep Processing & Refrigeration Project of Bohai Sea Foods Co., Ltd.



鞍山市九股河食品有限责任公司 | Anshan Jiuguhe Food Co., Ltd.



选材精良

柏博森冷库围护产品十分注重主辅材料选材标准和质量控制，并采用国际先进的生产设备和智能制造体系，确保产品在严酷的冷链环境中性能稳定可靠，经久耐用。



系统完善

一流的产品系统设计，充分体现标准化生产、模块化建造、一体化解决方案的理念，不仅确保冷库项目的整体品质，而且施工便捷，降低综合成本。



专业服务

凭借数字化智能系统，万事达冷链专业团队为客户提供设计、订单、生产、交付、施工和售后全方位服务，兑现“让客户省心、放心和荣耀”的承诺。



综合配套

作为行业享有盛誉的建筑围护供应商，万事达具备建筑钢结构、建筑外围护、洁净室围护等产品的综合配套能力，为客户提供一站式采购的便利。

Well-chosen Materials

Berbson cold storage envelopes attach great importance to the selection standards and quality control of main and auxiliary materials, while adopting international advanced production equipment and intelligent manufacturing system to ensure stable and reliable performance and durability in the harsh cold chain environment.

Complete System

The state-of-the-art product system design fully embodies the concept of standardized production, modular construction, and integrated solution, which not only ensures the overall quality of the cold storage project, but also facilitates construction and reduces costs.

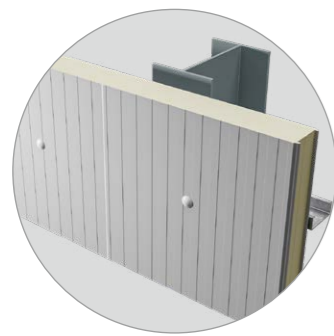
Professional Services

With the digital intelligent system, Wiskind's dedicated cold chain team provides the client with a full range of design, order, production, delivery, construction and aftersales services, fulfilling the promise of "Committed to the Convenience and the Prestige of Our Clients".

Comprehensive Package

As a prestigious building envelope supplier in the industry, Wiskind boasts comprehensive supporting capabilities, including steel structure, building exterior envelope, cleanroom envelope and other products, to provide the client with the convenience of one-stop shopping.

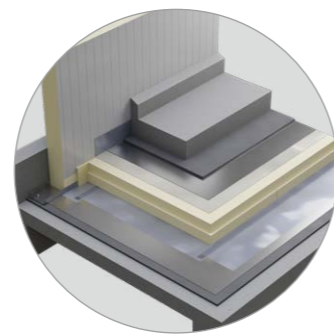
柏博森冷库围护系统解决方案
Total Solution for
berbson Cold Storage Systems



冷库墙面系统
Cold Storage Wall System



冷库吊顶系统
Cold Storage Ceiling System



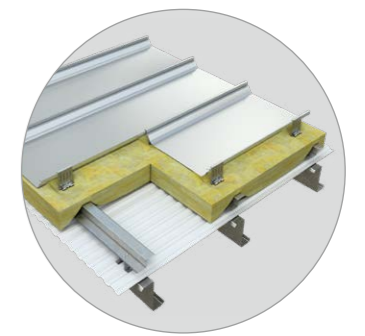
冷库地坪系统
Cold Storage Floor System



冷库门系列
Cold Storage Door Series



冷库外墙系统
Cold Storage Façade System



冷库屋面系统
Cold Storage Roofing System

装配式冷库

Prefabricated Cold Storage

装配式冷库采用金属面绝热夹芯板等轻质复合材料作为保温隔热围护结构，并现场组装的冷库。一般为轻钢结构的单层冷库，可根据不同场地拼装成不同外形尺寸和高度的冷库，可在室外或室内安装，也可拆装搬运。绝热夹芯板采用特殊结构的子母企口拼装、固定，以保证冷库良好的隔热、气密性。

装配式冷库特点

- 良好的保温隔热和防潮防水性能。
- 使用范围可在 $-80^{\circ}\text{C} \sim +100^{\circ}\text{C}$ 。
- 重量轻，不易霉烂，阻燃性能好。
- 抗压强度高，抗震性能好。
- 库体组合灵活，安装便捷。

装配式冷库按冷库保温绝热材料与主结构的相对位置，可分为小型室内库、内结构库（外包库）和外结构库（内包库），不同类型的冷库对结构钢材要求各不相同。

内结构库

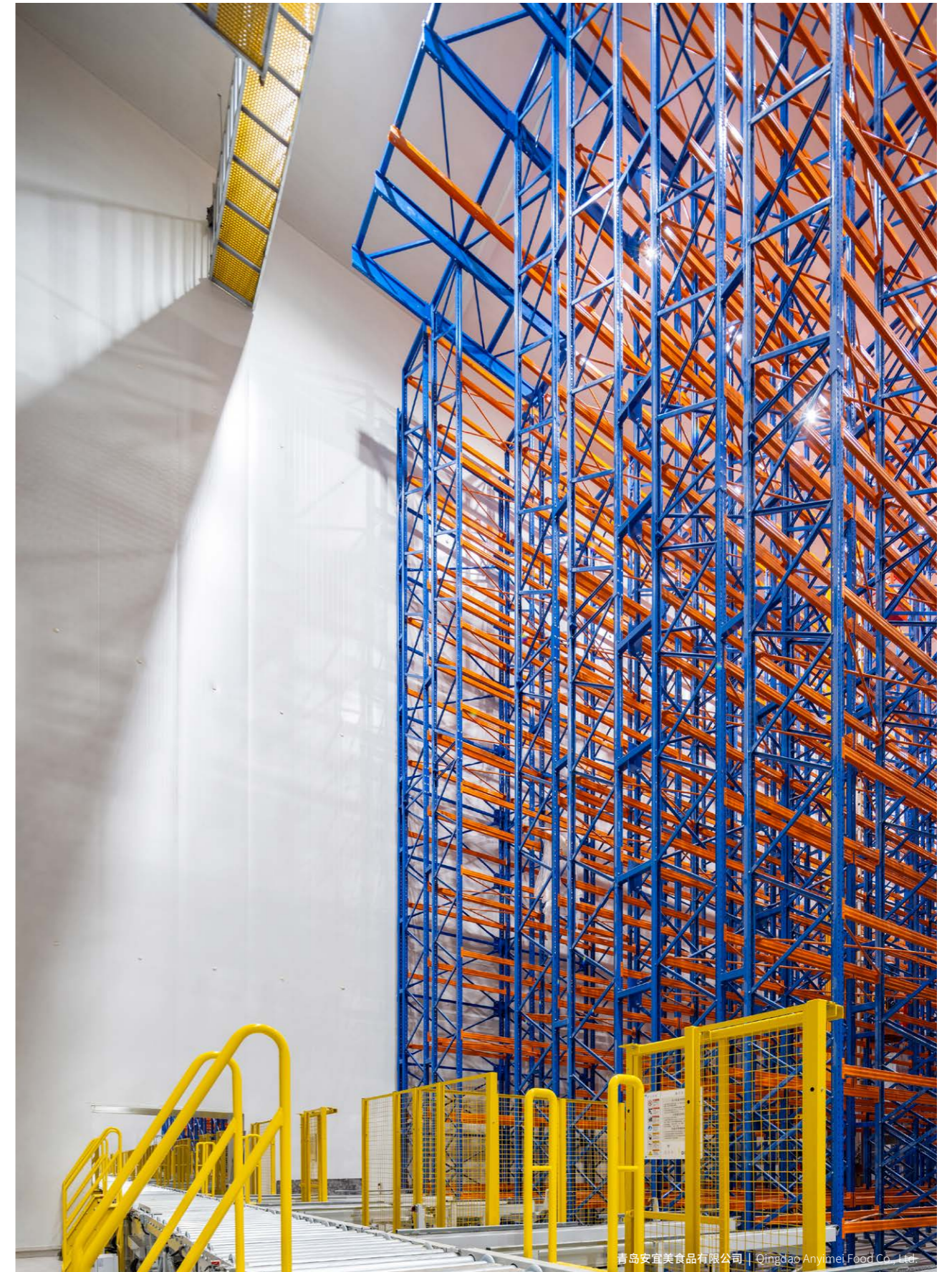
也称为美式冷库。库内钢结构长期处于低温条件下，对钢材的材质和连接节点要求较高，应采用低温性能好的钢材，并且设计上需考虑温度应力的影响，柱脚需进行断桥隔热处理。内结构库的优点是降温后结构变形稳定，结构维修工作量小，便于制冷和照明等设备安装。但库房利用率低，需采用耐低温钢材，屋面隔气防水难度高。

外结构库

对于大体量的外结构库，为避免内部钢柱穿出冷库顶板而产生的能量损失，多采用内部无柱的大跨度结构。由于框架处于常温下，可用普通钢材。外结构库的利用率较高，防火墙、防火分区等消防规范要求容易做到，且建筑外立面不受影响，但外结构库外框架受外界影响较大，维修工作量较大。

小型室内库

指位于室内的小型冷藏、加工、贮存产品的场所。可根据使用者的需求改变空间容量，具有灵活的拆卸功能，组装便捷，便于运输。



The prefabricated cold storage, which is assembled on site, adopts lightweight composite materials such as the insulated metal sandwich panel as the thermal insulation envelope. Usually, it is in the form of a single-story cold storage with a light steel structure that is able to be assembled into cold storage facilities of different dimensions and heights according to different sites. The product can be installed either outdoors or indoors, and can also be disassembled and transported. Thermal insulation sandwich panels are assembled and fixed with a special snap-in structure to ensure outstanding thermal insulation and air tightness of the cold storage.

Characteristics of Prefabricated Cold Storage

- Great thermal insulation, and resistance to moisture and water.
- Able to be applied in the temperature range of -80°C+100°C.
- Lightweight, not easily moldy, with good flame retardant performance.
- High compressive strength and excellent shock resistance.
- The cold storage body is able to be flexibly combined and easily installed.

Prefabricated cold storage can be divided into small indoor cold storage, inner structure cold storage (externally enveloped), and outer structure cold storage (internally enveloped) according to the relative position of the cold storage thermal insulation material and the main structure. Different types of cold storage have different requirements for structural steel.

Inner Structure Cold Storage

Also known as American-style cold storage. The steel structure in the cold storage facility is under low temperature conditions for a long time, with high requirements for the material and connection joint of the steel. Steel with great low temperature performance should be used, and the influence of temperature stress should be considered in the design, while the column base should be subjected to bridge cutoff and heat insulation treatment. The advantages of the inner structure cold storage are stable structure after cooling, little structure maintenance workload, and easy installation of equipment such as refrigerator and lighting. However, the utilization rate of the cold storage is low, low-temperature-resistant steel is required, and it is difficult to realize airtightness and watertightness of the roof.

Outer Structure Cold Storage

For the large outer structure cold storage facilities, in order to avoid energy loss caused by internal steel columns penetrating through the roof of the cold storage, a large-span structure without internal columns is mostly adopted. Since the frame is at room temperature, ordinary steel can be used. The utilization rate of the outer structure cold storage is high, the fire protection specifications such as firewall and fire partition are easy to achieve, and the building façade is not affected, but the external frame of the outer structure cold storage is greatly affected by the outdoor elements with heavy maintenance workload.

Small indoor cold storage

Refer to small indoor sites for refrigerating, processing, and storing products. The space capacity can be changed according to the user's needs, with flexible disassembly feature, allowing for easy assembly and convenient transportation.

冷库热负荷与节能

Cold Storage Heat Load and Energy Saving

低温冷库的库温一般在 -25°C左右。夏季白天气温可达 30°C以上，在冷库围护结构两侧形成 60°C左右温差，加之阳光辐射，成为冷库热负荷的主要来源；冷库经常需要人员进出、装卸货物，冷库门开启频繁，库外高温空气渗入和人员热量带入也会产生一定的热负荷。降低冷库的热负荷，对节能降耗、提高冷库运行效益具有重要意义。

The temperature of a low-temperature cold storage is generally around -25°C. In summer, the daytime temperature can reach more than 30°C, so a temperature difference of about 60°C is created on both sides of the cold storage envelope structure. Coupled with sunlight radiation, it has become the main source of heat load in the cold storage. The cold storage often requires personnel to enter and exit, to load and unload products, so the doors are frequently opened. The infiltration of high-temperature air outside the storage and the heat brought in by personnel will also generate a certain heat load. Reducing the heat load of the cold storage is of great significance for saving energy and improving the operating efficiency of the cold storage.



柏博森聚氨酯冷库板

BERBSON PU Cold Storage Panel

柏博森研发的新一代聚氨酯冷库板，保温及防火性能俱佳，具有优异的高低温稳定性和更高的防火等级，ODP 值为 0，GWP 值极低，生产过程无氟利昂排放，绿色环保，是建设各类冷库项目的最佳材料。产品系列包括聚氨酯冷库保温板、聚氨酯屋面保温板、聚氨酯隐钉外墙板。

产品特点

保温隔热
柏博森®聚氨酯冷库板采用新一代聚氨酯戊烷 B1 发泡技术的硬质芯材，聚氨酯硬质泡沫导热系数小于 0.023mW/(m·K)。绵密的发泡与面材充分粘接形成不间断热屏蔽，有效阻断热传导，保温性能极佳。适用 -170°C ~+100°C 的工作温度。

防水性能
聚氨酯硬泡保温材料的闭孔率可达 95% 以上，吸水率 ≤ 2%，优于国标要求 (GB/T21558-2008)。使用二十年以上的板材，97.6% 未发现渗水现象，93% 的保温性能退化不超过 1%。

防火阻燃
新一代聚氨酯戊烷 B1 硬质芯材为热固性材料，遇火遇热无熔融滴落，结构稳定性好，满足客户对更高防火性能的需求。聚氨酯与金属面材复合，可进一步提高板材的阻燃性能。

经久耐用
柏博森®聚氨酯冷库板选用高品质彩涂钢板或不锈钢板面材，耐腐蚀性能优良。冷库板生产线采用国际先进的生产设备和智能制造体系，确保产品质量稳定。

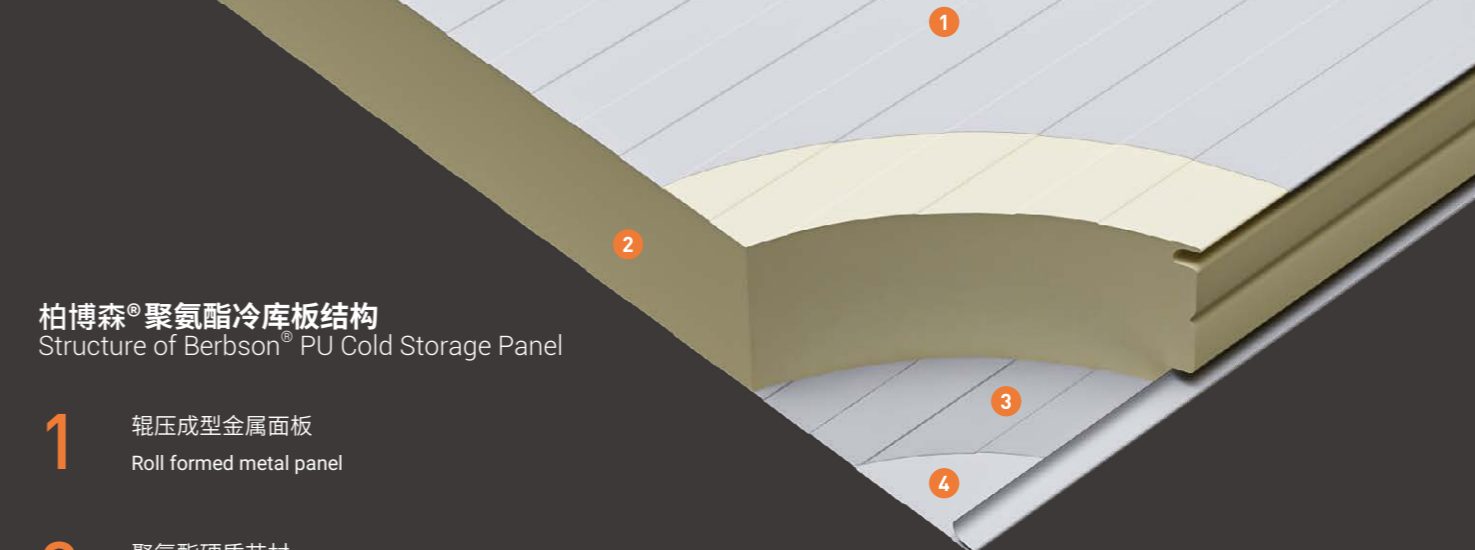
健康环保
柏博森®聚氨酯冷库板表面的高品质涂层系统，可防止水分和污物侵蚀，最大限度减少细菌和寄生虫滋生，严密的插接板缝便于卫生保洁，适应冷链行业各种复杂情况和严苛的环保要求。

安装便捷
柏博森®聚氨酯冷库板在工厂预制成型，安装系统设计成熟，辅配件配套完善，使现场安装更加简便快捷，大大缩短施工周期，降低施工人力成本和材料损耗。



亚洲首个 BMB 生物质平衡冷库板 ISCC Plus 认证

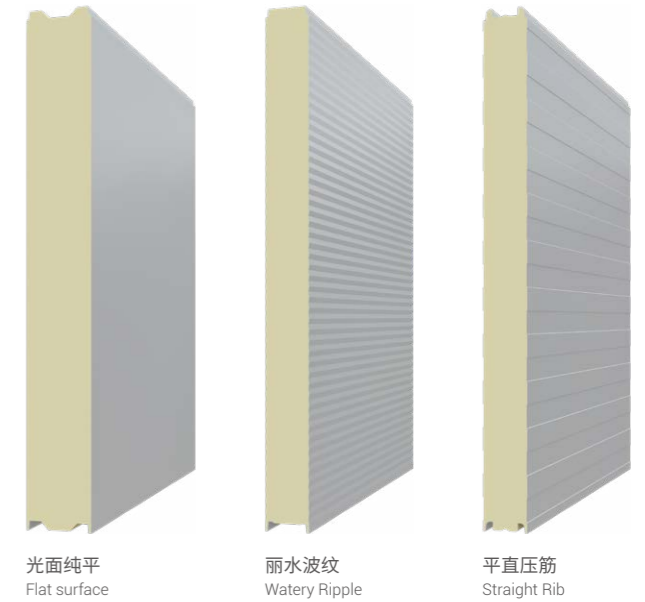
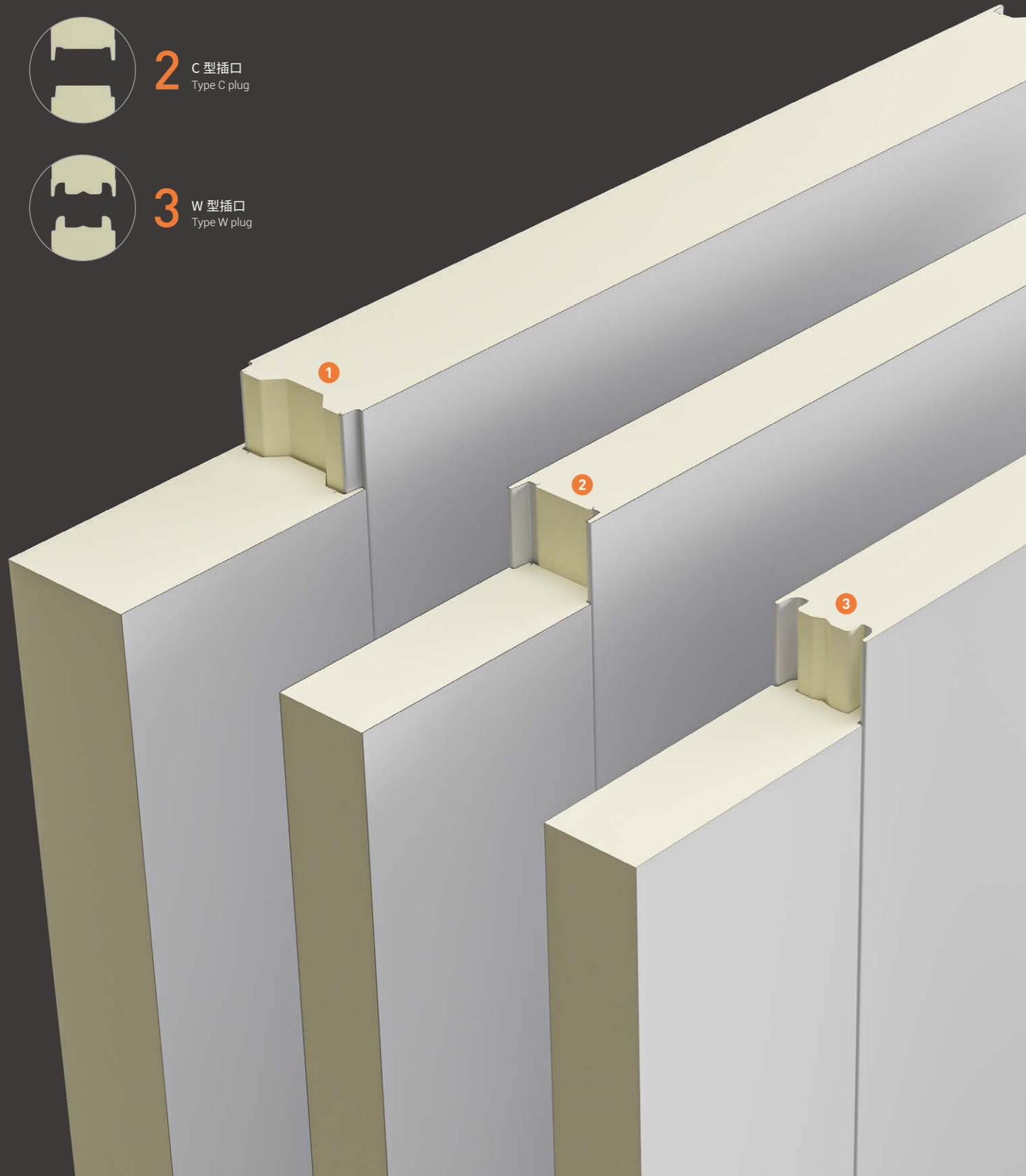
Asia's first ISCC PLUS certification on the biomass balanced cold storage panels



柏博森®聚氨酯冷库板结构
Structure of Berbson® PU Cold Storage Panel

- 1 辊压成型金属面板
Roll formed metal panel
- 2 聚氨酯硬质芯材
Rigid PU core
- 3 环保粘结剂
Eco-friendly adhesives
- 4 辊压成型金属背板
Roll formed metal back panel

三种插接口样式，满足不同强度需求
Three types of plugs meet different strength needs



柏博森®聚氨酯冷库板三种表面纹理可选
Three surface textures available for Berbson® PU cold storage panel

Berbson® is a new generation of PU cold storage panel developed by Wiskind. It features excellent thermal insulation and fireproof performance, as well as excellent high and low temperature stability, and higher fire rating, with an ODP value of 0, along with an extremely low GWP value. The production process is free of Freon emissions, thus is green and environmentally friendly, making it the best material for the construction of various cold storage projects. The product lineup includes PU cold storage insulation panel, PU roof insulation panel, and PU secret nail façade panel.

Product Characteristics

Thermal Insulation

Berbson® PU cold storage panel adopts the rigid core material of the new generation PU pentane B1 foaming technology, and the thermal conductivity of the PU rigid foam is less than 0.023 mW/(m·K). The dense foam and face material are fully bonded to form an uninterrupted heat shield, which effectively blocks heat conduction and boasts excellent thermal insulation performance. Applicable to working temperature of -170°C+100°C.

Water Resistance

The closed cell rate of the PU rigid foam insulation material can reach more than 95%, and the water absorption rate is $\leq 2\%$, which surpasses the national standard requirements (GB/T21558-2008). For the panels that have been in service for more than 20 years, 97.6% of them have not been found with water seepage, and 93% have insulation performance degradation of no more than 1%.

Fire Retardancy

The new generation PU pentane B1 rigid core material is a thermosetting material, which exhibits no melt dripping in the event of heat with great structural stability, thus able to meet the needs of the client for higher fire resistance. The composite of the PU and the metal face material is able to further improve the flame retardant performance of the panel.

Durable

Berbson® PU cold storage panels are made of high-quality color-coated steel plates or stainless steel plates with excellent corrosion resistance. The cold storage panel production line adopts international advanced production equipment and intelligent manufacturing system to ensure stable product quality.

Healthy Eco-friendly

The high-quality coating system on the surface of Berbson® PU cold storage panel prevents moisture and dirt erosion, and minimizes the growth of bacteria and parasites, while the tight plug-in joint of the panel is convenient for hygiene and cleaning, able to adapt to various complex situations and strict environmental protection requirements in the cold chain industry.

Easy Installation

Berbson® PU cold storage panel is prefabricated in the factory, the installation system is mature, and the auxiliary accessories are complete, which makes the onsite installation easier and faster, greatly shortens the construction period, and reduces the construction labor cost and material loss.

产品规格参数

Product Specifications

面材	长度 (mm)	< 24,000
	宽度 (mm)	920-1,130
	厚度 (mm)	0.5-0.8 (涂镀钢板) 0.46-0.7 (不锈钢板)
	涂层	PVDF / HDF / PE
芯材	材料	PIR / PUR 聚氨酯
	容重 (kg/m ³)	40±2
	厚度 (mm)	30-300
	导热系数 (w/m·k)	≤ 0.023
	防火等级	B1 级
其他	企口	两面企口 板型: W 型 / C 型 / E 型
	中缝处理	聚氨酯发泡填充
	表面纹理	光面纯平 / 平直压筋 / 丽水波纹
	制造工艺	连续产线生产

Face Material	Length (mm)	< 24,000
	Width (mm)	920-1,130
	Thickness (mm)	0.5-0.8 (coated steel panel) 0.46-0.7(stainless steel panel)
	Coating	PVDF / HDF / PE
Insulated core	Core Material	PIR / PUR
	Density (kg/m ³)	40±2
	Thickness (mm)	30-300
	Thermal Conductivity (w/m·k)	≤ 0.023
	Fire Rating	B1
Others	Matchboard	Two-sided Matchboard Panel Type: Type W / Type C / Type E
	Central Seam Treatment	PU foam filling
	Surface Texture	Flat Surface / Straight Rib / Watery Ripple
	Manufacturing Process	Continuous line production

冷库板面材

Cold Storage Panel Face Material

彩涂钢板

彩涂钢板适用于干燥的环境。柏博森®聚氨酯冷库板选用的彩涂钢板以冷轧镀锌钢板为基板，经连续辊涂、烘烤工艺加工而成。彩涂钢板常用涂料有聚偏氟乙烯（PVDF）、高耐候聚酯（HDP）、聚酯（PE）等。作为冷库板主材，万事达实行严格的选材标准，合格的彩涂钢板都经过漆膜厚度、抗腐蚀（盐雾）、抗褪色及粉化、抗灰尘粘附、铅笔硬度及光泽度、T弯实验及反向冲击性能、机械性能（屈服强度、抗拉强度、延伸率）等相关检测。

不锈钢板

针对潮湿或洁净需求较高的环境，柏博森®聚氨酯冷库板采用304或316L不锈钢作为面材。不锈钢粘接面经过特殊工艺处理，使板材与聚氨酯料的粘接度达到95%以上，防止脱胶现象。不锈钢面冷库板具有耐腐蚀性强、耐候性好、阻燃、无毒、坚固耐压、平整度高、外形美观、使用寿命长、易于清洁保养等特点。板材表面覆不锈钢专用保护膜，防止运输、安装和撕揭过程带来的损伤。

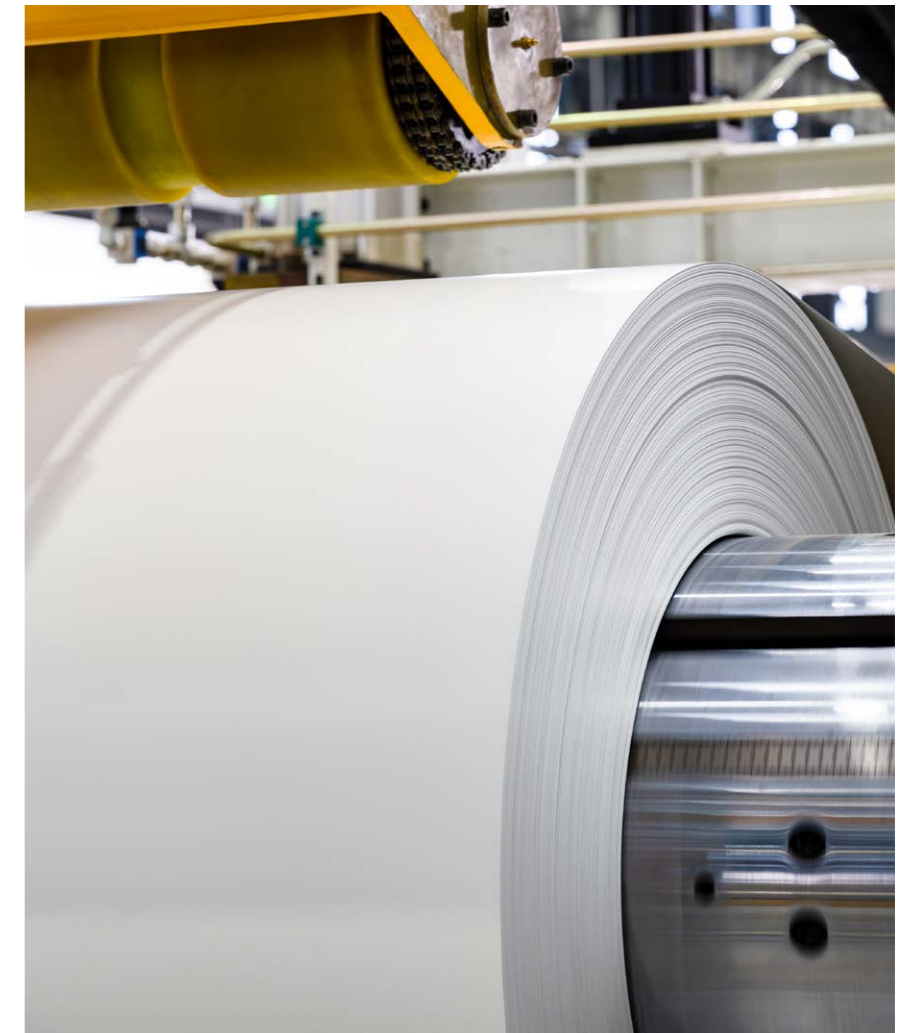


Color Coated Steel Plate

Color-coated steel plates are suitable for dry environments. The color-coated steel plates selected for Berbson® PU cold storage panels are based on cold-rolled galvanized steel plates, and are processed through continuous roller coating and baking processes. Commonly used coatings for color-coated steel plates include polyvinylidene fluoride (PVDF), high durable polyester (HDP), and polyester (PE). As the main material of cold storage panels, Berbson implements strict material selection standards. Qualified color-coated steel plates have passed paint film thickness, corrosion resistance (salt spray), resistance to fading & powdering, resistance to dust adhesion, pencil hardness & gloss, T-bend test & reverse impact performance, mechanical properties (yield strength, tensile strength, elongation) and other related tests.

Stainless Steel Plate

For environments with high humidity or cleanliness requirements, Berbson® PU cold storage panel adopts 304 or 316L stainless steel as the surface material. The bonding surface of the stainless steel has been treated with a special process, to achieve a bonding degree of over 95% between the plate and the PU material, thus preventing degumming. The stainless steel faced cold storage panel features strong corrosion resistance, great weather resistance, flame retardancy, non-toxicity, strong pressure resistance, high flatness, aesthetic appearance, and long service life, while being easy to clean and maintain. The surface of the panel is covered with a special protective film for stainless steel, to prevent damage caused by transportation, installation and tearing.



Brrbson BERBSON 柏博森

柏博森与巴斯夫联手呈现冷库保温解决方案

BERSON and BASF
jointly present cold storage insulation solutions

Elastopir® 高效能隔热材料

Elastopir® 是巴斯夫在聚异氰酸酯-PIR 的基础上研制的新一代聚氨酯-PU 硬质泡沫组合料系统，以满足市场对更强防火性能复合板的需求。Elastopir® 系统防火性能卓越，能源效率更高，整体成本更节约，它助力客户打造节能、安全、耐用的工业建筑和冷库房。

Elastopir® high-performance thermal insulation material

Elastopir® is a new generation of PU rigid foam composite system developed by BASF based on PIR, to meet the market demand for composite panels with stronger fire resistance. Elastopir® system boasts excellent fire protection performance, higher energy efficiency and lower overall cost, thus able to help the client build energy-saving, safe, and durable industrial buildings and cold storage chambers.

万事达丽彩晶®聚氨酯冷库板车间

Production Workshop of Wiskind Colorspar® PU Cold Storage Panel

冷库板芯材

Cold Storage Panel Core Material

聚氨酯保温芯材的主要原料之一是聚氨酯硬泡组合聚醚，又称白料，与聚合 MDI 共称黑白料。聚氨酯泡沫保温板的保温隔热原理是依靠闭孔发泡隔离空气为微小气泡单元，通过降低空气流动实现隔热保温效果，是目前所有保温材料中导热系数最低的。硬质聚氨酯泡沫板导热系数低，热工性能出色，当容重为 38~42kg/m³，导热系数仅为 0.018~0.023w/m·k。硬质聚氨酯的闭孔率在 95% 以上，属于憎水性材料，不会因吸潮增大导热系数，墙面也不易渗水。聚氨酯在添加阻燃剂后是一种阻燃材料，燃烧时表面会形成碳化层，有助隔离下层泡沫，有效防止火灾蔓延，并且在高温中不产生有害气体。聚氨酯材料孔隙是闭孔结构，结构稳定，抗变形、抗冻融、不易开裂、隔音吸声，使用寿命长达 30 年以上。

柏博森联手国际化学巨擘巴斯夫，共同研发新一代聚氨酯 PIR 夹芯保温板，采用国际先进的六组份在线发泡技术，绵密的发泡与面材充分粘接形成不间断热屏蔽，有效阻断热传导，保温性能极佳。适用 -170°C ~+100°C 的工作温度，先进的无氟戊烷发泡工艺，更好的保护地球臭氧层免受破坏。

PUR 和 PIR 有何不同？

PUR

称为“聚氨基甲酸酯”，泡沫防火性能通常为 B3、B2 级，较难做到 B1 级。PUR 粘结性好、物理性能强、生产工艺简单、板面平整度好，但防火性能较低，燃烧烟雾较大。

PIR

称为“聚异氰酸酯”，泡沫防火性能较易做到 B1 级，亦称改良聚氨酯材料。PIR 防火性能优异、发烟指数低、氧指数高、热工性能更优、泡沫稳定性好，工艺复杂。

One of the main raw materials of PU insulation core material is PU rigid foam combined with polyether, also known as white material, and together with polymeric MDI, they are collectively known as black and white materials. How the PU foam insulation panel insulates heat relies on closed-cell foaming, which isolates air into tiny bubble units, and achieves thermal insulation effect by reducing airflow. Currently, it is the material with the lowest thermal conductivity among all thermal insulation materials. Rigid PU foam panel possesses low thermal conductivity and excellent thermal performance. When the density is 38-42kg/m³, the thermal conductivity stands only at 0.018-0.023w/m·k. The closed cell rate of rigid PU is above 95%, making it a hydrophobic material. It will not increase the thermal conductivity due to moisture absorption, and the wall will not easily seep water. PU is a flame-retardant material after adding flame retardant. When burning, a carbonized layer is formed on the surface, which helps isolate the underlying foam, effectively prevents the spread of fire, and produces no harmful gases at high temperatures. The pores of the PU material features a closed-cell structure, which is stable in structure, resistant to deformation, freezing and thawing, and not easy to crack, while insulating and absorbing sound, with a service life of over 30 years.

Berbson has teamed up with the international chemical giant BASF to jointly develop a new generation of PIR sandwich insulation panel, which adopts the internationally advanced six-component online foaming technology. The dense foam is fully bonded with the surface material to form an uninterrupted heat shield, effectively blocking heat conduction with an excellent thermal insulation performance. Applicable to working temperatures of -170°C+100°C, the advanced fluorine-free pentane foaming process is able to better protect the ozone layer of our planet from damage.

What is the difference between PUR and PIR?

PUR

is referred to as "polyurethane", and the fire rating of the foam is usually B3 and B2, as it is difficult for it to achieve B1. PUR is characterized by good adhesion, strong physical properties, simple production process, and outstanding panel flatness, but its fire rating is low with heavy combustion smoke.

PIR

is referred to as "polyisocyanurate", AKA improved polyurethane material. It is very easy for the foam to achieve a fire rating of B1. PIR is characterized by excellent fire resistance, low smoke index, high oxygen index, better thermal performance, outstanding foam stability and complex process.



不同材料隔热性能对比

Comparison of Thermal Insulation Performance of Different Materials

材料种类	容重 (kg/m ³)	导热系数 (w/m·k)	等效保温厚度 (mm)
聚氨酯	40	0.018-0.023	35
岩棉	120	0.036-0.041	60
红砖	1,600	0.81	475
混凝土	2,300	1.28	1,075

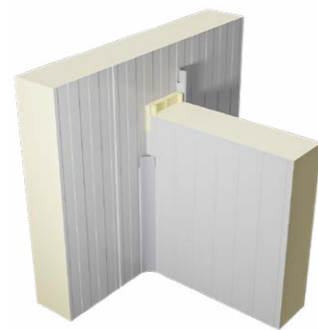
Materials	Density (kg/m ³)	Thermal Conductivity (w/m·k)	Equivalent Insulation Thickness (mm)
PU	40	0.018-0.023	35
Rockwool	120	0.036-0.041	60
Red Brick	1,600	0.81	475
Concrete	2,300	1.28	1,075

常用安装节点

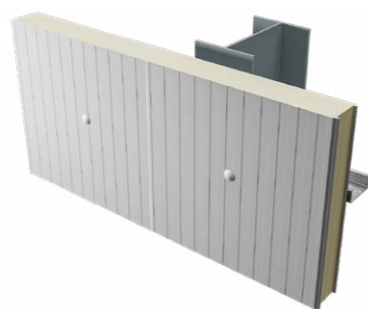
Common Installation Details



墙板与顶板转角
Wall Panel and Top Panel Corner



墙板与隔墙
Wall Panel and Partition



墙板加固安装
Reinforced Installation of Wall Panel



墙板转角
Wall Panel Corner



墙板安装
Wall Panel Installation



顶板吊挂系统
Top Panel Hanging System



板缝处理技术

Panel Joint Processing Technology

装配式冷库的板缝密封处理占整个项目密封处理的 85%-90%，万事达冷库围护系统的五道密封技术，降低整个冷库项目热负荷，确保冷库运行的高效节能。

The panel joint sealing treatment of prefabricated cold storage accounts for 85%-90% of the sealing treatment of the whole project. The five sealing technologies of Wiskind cold storage envelope system reduce the heat load of the whole cold storage project, and ensure efficient and energy-saving cold storage operation.



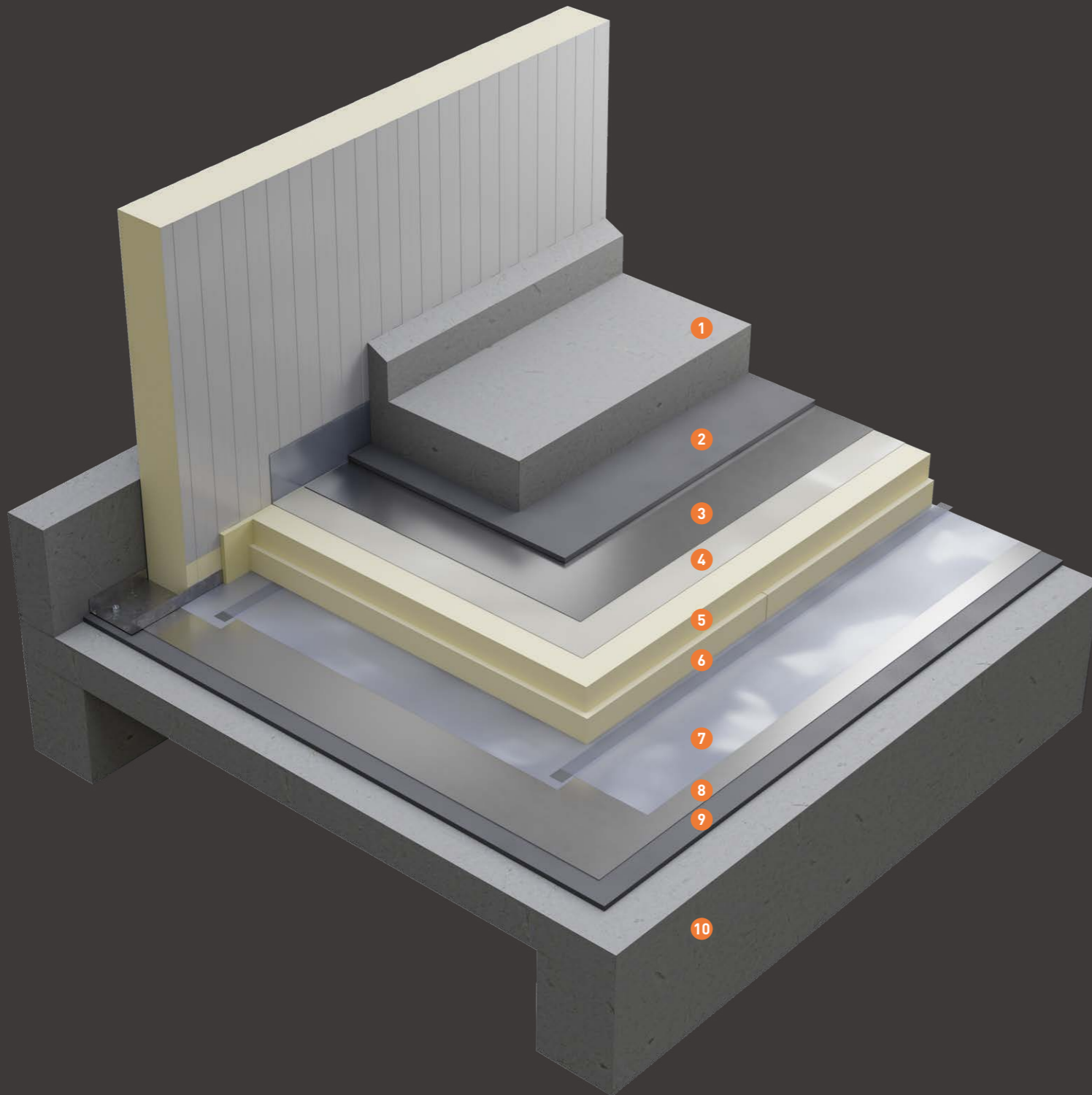
- 1** 板缝：中性硅酮耐候密封胶
Panel Joint: Weatherproof Neutral Seal Silicone
- 2** 面材接触处：中性硅酮耐候密封胶
Face Material Contact: Weatherproof Neutral Seal Silicone
- 3** 芯材接触处：聚氨酯填缝剂
Core Material Contact: PU Filler
- 4** 面材接触处：中性硅酮耐候密封胶
Face Material Contact: Weatherproof Neutral Seal Silicone
- 5** 板缝：中性硅酮耐候密封胶
Panel Joint: Weatherproof Neutral Seal Silicone

冷库地坪安装节点

Cold Storage Floor Installation Details

在装配式冷库项目中，板材与地面保温接触处的密封处理约占整个密封系统的2%-5%。板材入地需切除彩钢板用机械喷涂填充，形成有效断桥，以防止库内低温传入地面，造成地面冻裂，影响主体结构和使用寿命。

In a prefabricated cold storage project, the sealing treatment at the contact between the panel and the floor insulation accounts for about 2%-5% of the whole sealing system. When the panel is installed to the floor, the color-coated steel plates need to be cut off and filled with mechanical spraying to form an effective bridge cutoff effect, to prevent the low temperature in the cold storage from being transmitted to the floor, causing the floor to freeze and crack, thus affecting the main structure and service life.



1 混凝土层
Concrete layer

2 水泥砂浆保护层
Mortar protective layer

3 防水卷材
Waterproof coiled material

4 防潮隔气膜
Moisture barrier film

5 保温层
Thermal insulation layer

6 保温层
Thermal insulation layer

7 防潮隔气膜
Moisture barrier film

8 防水卷材
Waterproof coiled material

9 水泥砂浆找平层
Mortar leveling layer

10 地坪通风架空层
Ventilation raised access floor

特种板

Special Panels

屋面聚氨酯夹芯板

PU Sandwich Roofing Panel

- 表面材质有彩涂钢、铝箔、玻璃钢等可选
- 母口叠边工艺，搭接更严密，避免边部锈蚀
- 三波峰设计，峰高 34mm，增强屋面荷载和导水能力
- 离水槽结构，可防止屋面渗水现象发生
- Optional surface materials are color-coated steel, aluminum foil, glass fiber reinforced plastic, etc.
- The edge-folding process of the female plug ensures a tighter overlap and avoids edge corrosion
- With a peak height of 34mm, the 3-wave peak design enhances roof load and water drainage capacity
- The off-sink structure prevents roof seepage



压花铝聚氨酯板

Embossed Aluminum PU Panel

- 纯铝双面复合外板，抗紫外线、高效防渗水
- 双面砂浆网格布外板基层，抗裂、耐酸碱
- 高密度聚氨酯芯材，防火阻燃、保温隔热、耐酸防腐
- 多种板材厚度规格，可定制
- Pure aluminum double-sided composite outer panel, anti-ultraviolet, highly effective in preventing water seepage
- Double-sided mortar mesh outer panel base, anti-cracking, acid- and alkali-resistant
- High-density PU core material, fire retardant, thermal insulating, acid resistant and anti-corrosion
- Various panel thickness specs, and customizable



外墙聚氨酯夹芯板

PU Sandwich Façade Panel

- 保温隔热性能优异，降低建筑物能耗
- 隐钉式连接，建筑外立面更美观
- 独特的双支撑插接口设计，抗风压性能优越
- 多种板型可选，呈现不同效果
- Excellent thermal insulation performance reduces building energy consumption
- Secret nail connection allows the building façade to be more aesthetic
- Unique double support plug-in design offers superior wind pressure resistance
- A variety of panel types are available, creating different effects



冷库防火分区专用板

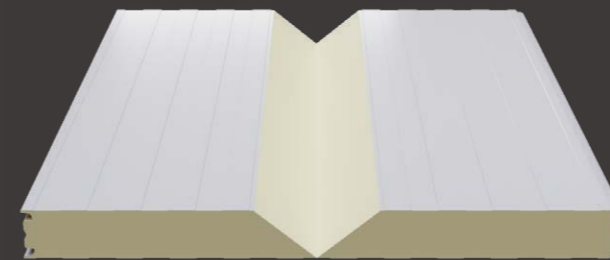
Fire Partition Panel For Cold Storage

- 芯材优选高品质 98% 憎水率岩棉
- 工厂自动化设备将钢板和岩棉复合成型，板材可靠性更高
- 卓越的防火阻燃性能，防火等级达到 A 级
- 100/150/200mm 三种板厚可选，满足不同需求
- The core material adopts the high-quality 98% hydrophobic rock wool.
- Steel plate and rockwool are composited using factory automation equipment, making the panel more reliable
- Excellent fire retardant performance, fire rating reaches up to Class A
- Three thicknesses, namely 100/150/200mm, are available to meet different needs

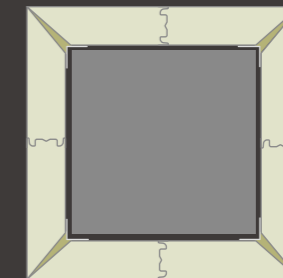


异形板

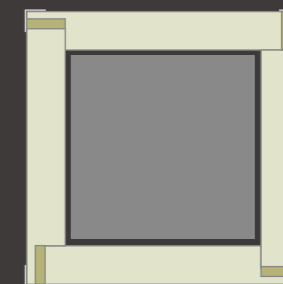
Special-shaped Panels



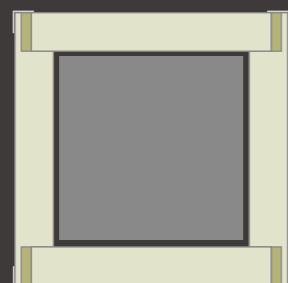
一体转角板
Integrated Corner Panel



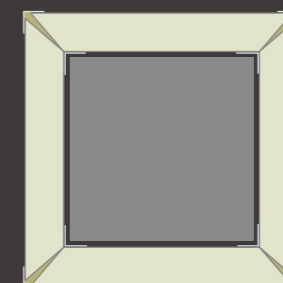
L型转角板
L-shaped Corner Panel



平口板
Flush Panel



拼角板
Joint Corner Panel



冷库保温门

Cold Storage Insulation Door

冷库门指安装在冷库设备、冷冻库房等冷冻环境中起保温、密闭作用的门。万事达冷库保温门采用高强度铝合金型材或不锈钢门框，强度高、不变形、外形美观、经久耐用。门扇面材选用高标准彩涂钢板或不锈钢板材，适应不同等级环保和食品安全要求。门扇四周采用铝合金包边，结构合理，坚固耐用。门扇芯材为聚氨酯高压注射发泡一体化成型，门框、面板以及预埋件等形成牢固的整体，确保隔热保温性能、整体强度和表面平整美观。冷库门导轨采用双向“浮开沉闭”技术，实现平缓的开启和关闭功能，确保冷库保温门高效运行。冷库门辅配件选材精良，进口零部件和原装成品，美观耐用，保证冷库门在冷冻环境中的性能可靠。

Cold storage doors refer to doors installed in freezing environments such as cold storage equipment and cold storage chambers for insulation and sealing purposes. Wiskind cold storage insulation doors are made of high-strength aluminum profile or stainless steel door frames, which feature high strength, no deformation, aesthetic appearance and durability. The door leaf surface is made of high-standard color-coated steel plates or stainless steel plates to adapt to different levels of environmental protection and food safety requirements. The door leaf is wrapped by aluminum alloy edging, which has a reasonable structure and is strong and durable. The core material of the door leaf is integrated with high-pressure injected PU foaming, while the door frame, panel and embedded parts form a solid whole to ensure thermal insulation performance, overall strength, as well as smooth and aesthetic surface. The guide rail of the cold storage door adopts two-way "floating open and sinking close" technology to achieve gentle opening and closing features, ensuring the efficient operation of the cold storage insulation door. The auxiliary accessories of the cold storage door are made of well-selected materials, imported parts and original finished products, which are aesthetic and durable, ensuring the reliable performance of the cold storage door in the refrigerated environment.

柏博森冷库保温门系列

- 电动 / 手动平移门
- 半埋 / 全埋平开门
- 快速提升门
- 冷链物流专用提升门

BERBSON cold storage insulation door series

- Electric/manual sliding door
- Half-buried / full-buried swing door
- Quick lifting door
- Special lifting door for cold chain logistics



冷库平移门

Cold Storage Sliding Door

产品规格参数

最大规格	宽 3,000mm × 高 8,000mm
电源	220V, 50HZ, 电机功率 0.75-1.5KW 电气元件和机械部件加热电缆 30W/m
运行速度	0.3-1.0m/s
工作寿命	不低于 1,000,000 循环次
开启功能	遥控、手动、电动开启（拉伸或按钮）、相关设备联动
保温性能	热传导系数 0.183W/m ² K
门体厚度	100/150mm, 断冷桥结构
门体材质	彩涂钢板：厚度 0.6-0.8mm, PE, 颜色可定制 不锈钢板：厚度 0.8-1.0mm, 标准颜色

Product Specifications

Max Dimensions	W 3,000mm x H 8,000mm
Power Supply	220V, 50HZ, motor power of 0.75-1.5KW, heating cable of 30W/m for electrical components and mechanical parts
Operating Speed	0.3-1.0m/s
Operating Life	Not less than 1,000,000 cycles
Operation Mode	Remote control, manual, motorized (pull cord switch or button), linkage with relevant equipment
Insulation Performance	Thermal conductivity of 0.183W/m ² K
Door Thickness	100/150mm, cold bridge cutoff structure
Door Material	Color-coated Steel Plate: Thickness of 0.6- 0.8mm, PE, color customizable Stainless Steel Plate: Thickness of 0.8- 1.0mm, standard color



冷库平开门
Cold Storage Swing Door

产品规格参数

最大规格	宽 3,000mm × 高 5,000mm
电源	220V, 50HZ, 电气元件和机械部件加热电缆 30W/m
工作寿命	不低于 1,000,000 循环次
保温性能	热传导系数 0.183W/m ² K
门体厚度	100/150mm, 断冷桥结构
门体材质	彩涂钢板: 厚度 0.6-0.8mm, PE, 颜色可定制 不锈钢板: 厚度 0.8-1.0mm, 2B 面 / 拉丝 / 表面压纹处理

Product Specifications

Max Dimensions	W 3,000mm x H 5,000mm
Power Supply	220V, 50HZ, 30W/m of heating cable for electrical components and mechanical parts
Operating Life	No less than 1,000,000 cycles
Insulation Performance	Thermal conductivity of 0.183W/m ² K
Door Thickness	100/150mm, cold bridge cutoff structure
Door Material	Color-coated Steel Plate: Thickness of 0.6-0.8mm, PE, color customizable; Stainless Steel Plate: Thickness of 0.8-1.0mm, 2B finish / brushed / embossed



冷库快速提升门
Cold Storage Quick Lifting Door

产品规格参数

最大规格	宽 3,000mm × 高 5,000mm
电源	220V, 50HZ, 电机功率 1.5KW 电气元件和机械部件加热电缆 30W/m
运行速度	0.8m-2.4m/s
工作寿命	不低于 1,000,000 循环次
开启功能	遥控、手动、电动开启 (拉伸或按钮)、相关设备联动
保温性能	低热传导材料, 快速开启阻挡空气对流, 降低能耗
门体厚度	10-60mm 断冷桥结构
门体材质	耐低温 PVC 门帘, 颜色可定制

Product Specifications

Max Dimensions	W 3,000mm x H 5,000mm
Power Supply	220V, 50HZ, motor power of 1.5KW, heating cable of 30W/m for electrical components and mechanical parts
Operating Speed	0.8m-2.4m/s
Operating Life	Not less than 1,000,000 cycles
Operation Mode	Remote control, manual, motorized (pull cord switch or button), linkage with relevant equipment
Insulation Performance	Low thermal conductivity material, quick opening to block air convection and reduce energy consumption
Door Thickness	10-60mm, cold bridge cutoff structure
Door Material	Low temperature resistant PVC door curtain, color customizable



冷链物流提升门

Cold Chain Logistics Lifting Door

产品规格参数

最大规格	宽 4,000mm × 高 7,000mm
电源	220V, 50HZ, 电机功率 1.5KW; 电气元件和机械部件加热电缆 30W/m
运行速度	0.8m-2.4m/s
工作寿命	不低于 1,000,000 循环次
开启功能	手动开启 (拉绳)、雷达、地磁、遥控、设备联动
保温性能	传热系数 0.183 W/m ² ·K
门体厚度	100/150mm
门体材质	PVC 门体 / 铝合金断桥型材门体, 颜色可定制

Product Specifications

Max Dimensions	W 4,000mm x H 7,000mm
Power Supply	220V, 50HZ, motor power of 1.5KW, heating cable of 30W/m for electrical components and mechanical parts
Operating Speed	0.8m-2.4m/s
Operating Life	Not less than 1,000,000 cycles
Operation Mode	Manual (pull cord), radar, geomagnetic, remote control, equipment linkage
Insulation Performance	Heat transfer coefficient 0.183 W/m ² ·K
Door Thickness	100/150mm
Door Material	PVC door / cold bridge cutoff aluminum profile door, color customizable





万事达山东制造基地 | Berbson Shandong Manufacturing Base

制造基地 Manufacturing Bases

山东制造基地 Shandong Manufacturing Base

位于山东滨州市博兴县经济开发区，占地 460 亩。已建成投产生产线包括：夹芯保温板、幕墙板、压型板、冷库板、洁净板、洁净门窗、集成房屋等。

Situated in Economic Development Zone of Boxing County, Binzhou City, Shandong Province, covering a lot area of 460 mu. The production lines that have been completed and put into production include those of sandwich insulation panels, curtain wall panels, profiled panels, cold storage panels, cleanroom panels, cleanroom doors and windows, and modular housing.



万事达江苏制造基地 | Berbson Jiangsu Manufacturing Base

江苏制造基地 Jiangsu Manufacturing Base

江苏制造基地位于江苏镇江经济技术开发区，占地 150 亩。已建成投产生产线包括夹芯保温板、洁净板等生产线。江苏基地是柏博森钢品的示范工厂，也是工业建筑围护系统行业的标杆企业，对推进行业的智能制造具有开创性的意义。

Covering a lot area of 150 mu, Jiangsu Manufacturing Base is located in Zhenjiang Economic and Technological Development Zone, Jiangsu Province. The production lines that have been built and put into production include those of sandwich insulation panels, cleanroom panels and so on. The base in Jiangsu is a demonstration factory of Berbson steel products, as well as a benchmark enterprise in the industrial building envelope system industry, which is of pioneering significance for advancing intelligent manufacturing in the industry.





柏博森®聚氨酯冷库板生产线 | Production Line of Berbson Colorspar® PU Cold Storage Panel

冷链生产线

Cold Chain Production Line

柏博森冷链生产线引进意大利 OMS 先进的设备和技术，生产线全长 320 米，双履带长达 42 米。超长的双履带为聚氨酯发泡提供了充足的熟化反应时间，大大提高了板材的粘结和成形性能，确保产品品质。设备可生产 40mm-300mm 厚度的冷库板，超过目前行业 250mm 厚度极限，满足客户对低温环境的特殊需求。最大板长小于 24 米，适用高架库和立体库项目。六组份全自动发泡，包括发泡剂、催化剂、黑白料等全自动在线生产。先进的聚氨酯戊烷发泡工艺，不仅发泡质量更好，而是真正实现了生产过程氟化物零排放，保护地球环境。

Berbson's cold chain production line introduces advanced equipment and technology from OMS, Italy. The total length of the production line is 320 meters, and the double tracks are 42 meters long. The extra-long double tracks provide sufficient curing reaction time for PU foaming, which greatly improves the bonding and forming performance of the panel while ensuring product quality. The equipment is able to produce cold storage panels with a thickness of 40mm-300mm, exceeding the current thickness limit of 250mm in the industry, meeting the client's special needs for low-temperature environments. The max panel length is less than 24 meters, suitable for high-bay warehouse and three-dimensional warehouse projects. Six-component fully automatic foaming includes fully automatic online production of foaming agent, catalyst, black and white materials, etc. The advanced PU pentane foaming process not only achieves better foaming quality, but also truly achieves zero emission of fluoride during the production process, thus helping protect the global environment.

数字化与智能制造

Digital & Intelligent Manufacturing

近年来柏博森引领行业发展，大力推进数字化建设。在智能制造领域，将先进装备、技术与信息技术深度融合，贯穿从设计、采购、生产、储运、服务等产品交付全过程，实现自感知、自决策、自执行、自适应、自学习的智能制造特征，旨在提高制造业质量、效率和柔性的先进生产方式。

柏博森在全国设有多个生产基地，引进多条具有世界先进制造工艺水平的生产设备，针对不同的应用场景，不同的生产线提供定制化解决方案。以上设备精度高、加工精准、自动化水平高、动态调整方便、响应速度快，生产效率高。为客户提供高精度、高稳定性、超平整、高品质、高效能、低损耗，且更为绿色节能的新材料。依托先进的数字化系统，把智能设计、智能制造、智慧物流、智慧施工四大产业链条打通并紧紧关联在一起。

In recent years, Berbson has been leading the development of the industry, and vigorously advancing digital construction. In the field of intelligent manufacturing, advanced equipment, technology and information technology are deeply integrated, which goes through the whole process of product delivery from design to procurement, production, storage, transportation and service, with the aim of achieving the self-perception, self-decision-making, self-execution, self-adaptation, and self-learning features of intelligent manufacturing, so as to improve manufacturing quality and efficiency, as well as the advanced flexible production approach.

Berbson has built multiple production bases across the country, and introduced a number of production equipment that comes with manufacturing technologies on par with world advanced level, to provide custom solutions for the client with different application products and different production lines. The mentioned equipment enjoys high precision, precise processing, high level of automation, convenient dynamic adjustment, fast response and high production efficiency, enabling the provision of high-precision, high-stability, ultra-flat, high-quality, high-efficiency, low-loss, more green and more energy-efficient new materials for the client. Relying on the advanced digital system, the four industrial chains of intelligent design, intelligent manufacturing, intelligent logistics, and intelligent construction have been integrated and closely linked together.



客户服务

Customer Service

1 方案设计

柏博森专业技术人员分析客户工程项目总体方案，进一步了解客户的个性化需求、建筑师的设计意图，听取总包和施工方的意见和建议，结合万事达产品的技术特点，对产品应用方案进行优化和深化设计，计算各类产品的用量和造价。

2 达成合作

柏博森深化设计方案得到客户、建筑师和施工方的确认。万事达业务人员与客户进行协商洽谈，就重要商务条款达成一致。在此基础上，双方签订供货和服务协议，万事达启动履约流程，及相关备料和产前准备。

3 订单生产

在项目履约过程中，万事达依据客户工程施工进度需要，密切配合施工方的实际需求，严格按照客户下达的订单规格、数量、技术要求和交期安排生产。从原材料进厂、生产线排产到成品检验实行全过程、无缝隙品质管控。

4 运输交付

柏博森与大型物流企业合作，构建起覆盖全国的快速交付网络。结合先进的数字化技术，万事达采用规范的产品包装、物料标识、装车标准，确保产品安全、高效地运达，并为施工现场物料管理和便捷施工创造良好条件。

5 施工指导

为配合客户项目的顺利开展，万事达为每个项目配备专业的现场安装指导工程师，负责万事达产品的安装培训、技术交底，以及协调、解决施工现场遇到的各种问题，确保产品按规范要求安装施工，实现设计效果。

6 售后服务

柏博森设置专业的售后服务岗位，对完工交付的项目登记备案。完工初期开展大样本客户满意度调查，了解客户对万事达产品质量、产品交付和客户服务的评 价，为工作改善和流程优化提供依据。在产品使用期，定期或不定期回访了解使用情况，发现问题及时处理。



1 Solution Design

Specialized technicians from Berbson analyze the overall plan of the client's engineering project, to further understand their custom needs, as well as the architect's design intention, while listening to the opinions and suggestions of the general contractor and the constructor, and then combine the technical characteristics of Berbson products, to optimize the product application plan and detail the design, in addition to calculating the usage and cost of various products.

2 Reach Cooperation

After the detailed design plan of Berbson is approved by the client, architect and constructor, our business personnel negotiate with the client and reach an agreement on important business terms. On this basis, the two sides sign a supply and service agreement before Berbson starts the contract performance process, including preparation of related materials, along with pre-production preparations.

3 Make-to-order

During the project performance process, Berbson works closely with the constructor to meet their actual needs based on the construction progress of the client's project, and schedules production in strict accordance with the specifications, quantity, technical requirements and delivery date specified in the client's order, implementing a whole process, seamless quality control from arrival of raw materials, to production scheduling, then to finished product inspection.



万事达江苏制造基地 | Wiskind Jiangsu Manufacturing Base



万事达江苏制造基地 | Wiskind Jiangsu Manufacturing Base

4 Shipping and Delivery

Berbson has built a fast delivery network covering the whole country through cooperating with large logistics companies. Based on advanced digital technologies, Berbson adopts standardized product packaging, material identification, and loading standards to ensure safe and efficient delivery of products, and create favorable conditions for onsite material management and convenient construction.

5 Construction Guidance

To facilitate the smooth development of the client's project, Berbson designates specialized onsite installation guidance engineers for each of them, who are responsible for the installation training and technical knowledge transfer of products, as well as coordination and resolution of various issues encountered on the construction site, so as to ensure that the products are installed to the specifications, thus achieving the design effects.

6 Aftersales Service

Berbson has set up specialized aftersales service roles to register and archive all delivered projects. At the early stage of project completion, a large-sample customer satisfaction survey is carried out to understand their comments on Berbson's product quality, product delivery and customer service, which will serve as a basis for work improvement and process optimization. During the lifecycle of a product, regular or irregular return visits are made to understand the usage, and timely handle any problems found.

工程解决方案

Construction Solutions

柏博森集团凭借四十余年的行业经验和资源优势，为客户提供最具价值的钢结构建筑工程服务解决方案，在设计咨询、生产制造、工程安装、跟踪服务方面为客户提供标准化、专业化、品牌化的一体化服务；坚持施工前、施工中、施工后全链路的施工服务规范，为客户打造精品工程。万事达始终认为让客户省心、放心和荣耀是我们永远的责任。



设计咨询

由柏博森工程设计专家组成顾问团，根据业主需求对各阶段设计过程中的关键技术、经济问题组织专家研讨，提出咨询意见。结合业主需求与现状，严格分析结构施工的合理性、数据的准确性、实施的可行性，最终提出一整套环境友好、绿色可持续的最佳方案。



生产制造

为客户提供装配式的保温节能建筑材料，在生产过程中采用进口先进制造设备降低能耗，助力环保事业，实现柏博森《绿色工厂中长期规划》。依托万事达连续智能产线，为客户提供可追溯、可把控、可调度的配套产品和零部件。



工程施工

以TPM-5S为管理模式，以SOP文件为执行标准，使安全管理、质量管理、人员管理等现场施工管理更规范、更高效。采用装配式模块化安装形式，结合先进施工技术，提升安装效率，降低施工误差，促进工程的顺利开展。



跟踪服务

重视项目施工过程，从建筑工程实践的具体工作开始，在施工过程中前后期随时做好施工质量影响因素把控。从项目初期到项目落地，我们始终有专业的技术人员在您身边，将TPM管理模式全面扩展至工程现场管理，全力打造五星级工程现场管理模式。



On the strength of its over 40 years of industry experience and resource advantages, Berbson Group provides the client with the most valuable solutions for steel structure engineering services, offering them standardized, specialized, branded and integrated services in terms of design consulting, manufacturing, engineering installation, and tracking, while adhering to the full-link service specifications before, during and after construction, in a bid to create high-quality projects for them. Berbson always believes that it is our eternal responsibility to allow our clients to be free from worry, reassured and honored.



Design Consulting

A consultant team composed of Berbson engineering and design experts organizes expert discussions on key technical and economical issues, and offers suggestions in each stage of the design process as per the owner's needs. Based on the owner's needs and current situation, rigorously analyze the rationality of structural construction, the accuracy of data, and the feasibility of implementation, and in the end propose a set of optimal solutions that are ecofriendly, green and sustainable.



Manufacturing

Provide the client with prefabricated thermal insulation and energy-saving building materials, adopt imported advanced manufacturing equipment to reduce energy consumption during the production process, boost environmental protection, and finally realize the "Medium & Long-Term Green Factory Plan" of Wiskind. Relying on its continuous intelligent production line, Berbson offers the client traceable, controllable, and schedulable supporting products and components.



Construction

With TPM-5S as the management model and SOP (Standard Operating Procedure) as the implementation standard, onsite construction management such as safety management, quality management, and personnel management is made more standardized and more efficient. The prefabricated modular installation is adopted, in combination with advanced construction technologies, to improve installation efficiency, reduce construction errors, and ensure the smooth development of the project.



Tracking Service

Attach great importance to the project construction process starting from the specific tasks of the construction engineering practice, in an attempt to well control the factors that affect the construction quality at any time before, during and after the construction process. From the early stage to the completion of a project, our specialized technicians are always with you, fully extending the TPM management model to construction site management, as we strive to create a 5-star construction site management model.

行业应用 Application

食品加工

- | | |
|------------------|--------------|
| 天津雀巢素食肉生产车间 | 山东益客包装制品有限公司 |
| 和路雪（中国）有限公司太仓分公司 | 山东民胜食品有限公司 |
| 广东珠海华发大健康食品项目 | 泰安佳裕食品有限公司 |
| 鞍山市九股河食品有限责任公司 | 聊城希杰食品速冻食品项目 |
| 江苏正源创辉食品科技发展有限公司 | 青岛福德隆食品车间 |
| 徐州润客食品有限公司 | 惠发食品股份有限公司 |
| 正大食品（徐州）有限公司 | 济南高贝食品有限公司 |
| 濮阳德信食品有限公司 | 东阿阿胶集团冷库项目 |



天津赛格海晶股份有限公司 | Tianjin Saige Haijing Co., Ltd



山东民胜食品有限公司 | Shandong Minsheng Food Co., Ltd.

养殖业

- 天津渤化海晶建设发展有限公司
- 沈阳辽中昊明禽业有限公司
- 内蒙古忘形肉食及马铃薯加工车间
- 蒙阴御苑生物建设食用菌车间
- 蒙阴御苑生物食用菌车间
- 山东艾泽福吉香菇厂房
- 凤祥食品屠宰车间
- 宁夏伊利吴忠奶产业园
- 河北东风养殖有限公司
- 烟台龙口安德利果汁冷库
- 菏泽益客食品 1 号屠宰车间
- 菏泽鄆城益客生态养殖车间
- 青岛新希望琴牌乳业
- 阳信亿利源清真肉类有限公司



恒大上海高科技农业基地智慧温室
Evergrande Shanghai High-tech
Agricultural Base Smart Greenhouse

现代农业

- | | |
|--------------------|------------------|
| 昆山市永宏温室有限公司 | 北京首农大兴国家粮食储备库 |
| 甘肃张掖超越发展农业有限公司温室工程 | 益海嘉里（兖州）粮油冷库 |
| 上海由由集团崇明中荷现代农业创新园 | 南通顺星农副产品有限公司 |
| 海升集团白银温室 | 阜南优质小麦高质量精深加工项 |
| 上海虹华松江温室 | 健力源特色农产品物流加工项目 |
| 山东凯盛浩丰农业产业园 | 华宜生态港珠澳现代农业示范园 |
| 恒大上海高科技农业基地智慧温室 | 滨州市滨城区军粮供应站 |
| 河北恒大高科技农业基地 | 耐特菲姆（广州）农业科技有限公司 |
| 山东泰安浩宇园艺科技有限公司 | 青岛兆丰农业有限公司 |
| 余姚市鼎绿生态农庄有限公司 | |

中央厨房和预制菜

- 鄆城益客中央厨房
- 日照正基国际冷链中央厨房
- 中裕食品净菜车间冷库
- 隆达众成食品净化车间及冷库
- 德善食品预制菜项目



益海嘉里（兴平）食品工业有限公司 | Yihai Kerry (Xingping) Food Industry Co., Ltd.



宝龙药业有限公司 | Baolong Pharmaceutical Co., Ltd.

生物医药

- 复星医药（徐州）有限公司
- 江苏银兴生物冷库
- 江苏奥洁生物科技项目
- 恒业生物信宇冷库项目
- 江苏万邦生化医药集团有限责任公司
- 烟台东诚北方制药
- 青岛根源生物技术集团有限公司
- 二叶制药菏泽工厂冷库项目
- 武汉中原瑞德血液制品冷库项目
- 河北弘亚制药设备项目
- 山东赢城宏济堂中药生产项目



山东艾泽福吉香菇厂房
Mushroom Factory of Shandong Aize Fuji



中青大冷（青岛）物流有限公司 | Zhongqing Daileng (Qingdao) Logistics Co., Ltd.

冷链物流

- | | |
|-----------------|--------------------|
| 中青大冷（青岛）物流有限公司 | 启橙供应链北京顺义项目 |
| 中外运（上合）智慧物流园 | 蒙城农投小辛集乡冷链物流中心 |
| 胶东全食材产业链项目 | 青岛保税区启泰物流中转库房 |
| 滕州市农副产品物流中心有限公司 | 山东凤祥 2 万吨标准化冷链物流仓储 |
| 青岛健力源城市配送中心 | 居尚食品电商产业冷链物流园 |
| 万科西安高新安和物流冷库 | 济南银座低温配送中心 |
| 远洋集团昆山玉山冷链物流项目 | 南京空港鑫马鲜生供应链冷库 |
| 宁波梅山国际冷链供应链平台 | 上岛智慧供应链中心冷链项目 |

Food processing

- Nestlé Vegetarian Meat Production Workshop in Tianjin
- Taicang Branch of He Lu Xue (China) Co., Ltd.
- Big Health Food Project of Guangdong Zhuhai Huafa
- Anshan Jiuguhe Food Co., Ltd.
- Jiangsu Zhengyuan Chuanghui Food Technology Development Co., Ltd.
- Xuzhou Runke Food Co., Ltd.
- Zhengda Food (Xuzhou) Co., Ltd.
- Puyang Dexin Food Co., Ltd.
- Shandong YIKE Packing Products Co., Ltd.
- Shandong Minsheng Food Co., Ltd.
- Taian Jiayu Foodstuff Co., Ltd.
- Quick Frozen Food Project of Liaocheng Xijie Food Co., Ltd.
- Workshop of Qingdao Fudelong Foodstuff Co., Ltd.
- Huifa Foodstuff Co., Ltd.
- Jinan Gaobei Food Co., Ltd.
- Cold Storage Project of Dong'e Ejiao Group



Biomedicine

- Fosun Pharma (Xuzhou) Co., Ltd.
- Cold Storage of Jiangsu Yinxing Bio
- Jiangsu Aojie Biotechnology Project
- Xinyu Cold Storage Project of Hengye Biotechnology
- Jiangsu Wanbang Biochemical Pharmaceutical Group Co., Ltd.
- Yantai Dongcheng Beifang Pharmaceutical Co., Ltd.
- Qingdao Genyuan Biotechnology Group Co., Ltd.
- Cold Storage Project of Erye Pharmaceutical Heze Factory
- Blood Products Cold Storage Project of Wuhan Zhongyuan Ruide
- Hebei Hongya Pharmaceutical Equipment Project
- Traditional Chinese Medicine Production Project of Shandong Yingcheng Hongjitang



Central Kitchen & Prepared Food

- Central Kitchen of Juancheng Yike
- Cold Chain Central Kitchen of Rizhao Zhengji International
- Cleaning Workshop Cold Storage of Zhongyu Food
- Food Purification Workshop and Cold Storage of Longda Zhongcheng
- Prepared Food Project of Deshan Food



Modern Agriculture

- Kunshan Yonghong Greenhouse Co., Ltd.
- Greenhouse Project of Gansu Zhangye Chaoyue Development Agriculture Co., Ltd.
- Chongming Sino Dutch Agriculture Innovation Park of Shanghai YouYou Group
- Silver Glass Greenhouse Project of Haisheng Group
- Songjiang Greenhouse Project of Shanghai Honghua
- Agricultural Industrial Park of Shandong Kaisheng Haofeng
- Evergrande Shanghai High-tech Agricultural Base Smart Greenhouse
- Evergrande High-tech Agricultural Base in Hebei
- Shandong Taian Haoyu Horticultural Technology Co., Ltd.
- Yuyao Dinglu Ecological Farm Co., Ltd.
- Beijing Shouong Daxing National Grain Reserve
- Yihai Kerry (Yanzhou) Grain and Oil Cold Storage
- Nantong Shunxing Agricultural Products Co., Ltd.
- Funan High-quality Wheat Intensive Processing Project
- Logistics Processing Project of Jianliyuan Specialty Agricultural Products
- Huayi Hong Kong-Zhuhai-Macao Modern Agriculture Demonstration Park
- Binzhou Military Food Supply Station in Bincheng District
- Netafim (Guangzhou) Agricultural Technology Co., Ltd.
- Qingdao Zhaofeng Agricultural Products Co., Ltd.

Breeding Industry

- Tianjin Bohua Haijing Construction Development Co., Ltd.
- Shenyang Liaozhong Haoming Poultry Co., Ltd.
- Meat and Potato Processing Workshop of Inner Mongolia Wangxing
- Edible Fungus Workshop of Mengyin Yuyuan Bio Construction
- Edible Fungus Workshop of Mengyin Yuyuan Bio
- Mushroom Factory of Shandong Aize Fuji
- Slaughter Workshop of Fengxiang Food
- Ningxia Yili Wuzhong Milk Industrial Park
- Hebei Dongfeng Breeding Co., Ltd.
- Cold Storage of Yantai Longkou Andre Juice
- No. 1 Slaughterhouse of Heze Yike Food
- Eco Breeding Workshop of Heze Juancheng Yike
- Qingdao New Hope Qinpai Dairy Co., Ltd.
- Yangxin Yiliyuan Halal Meat Co., Ltd.



Cold Chain Logistics

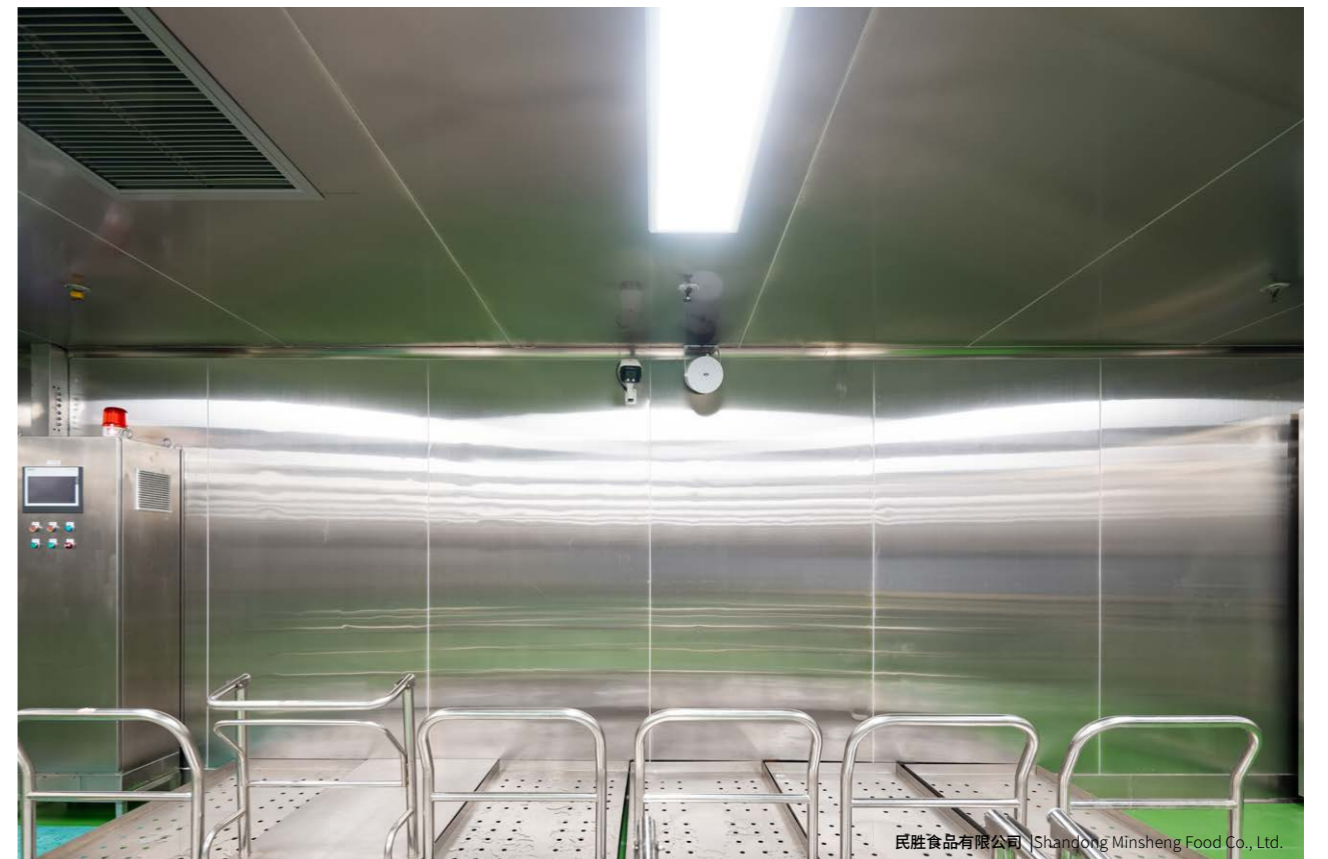
- Zhong Qing Daleng (Qingdao) Logistics Co., Ltd.
- SinoTrans (SCO) Smart Logistics Park
- Jiaodong Full Food Industry Chain Project
- Tengzhou Agricultural and Sideline Products Logistics Center Co., Ltd.
- Qingdao Jianliyuan City Distribution Center
- Anhe Logistics Cold Storage in Xi'an High-tech Zone
- Kunshan Yushan Cold Chain Logistics Project of Sino-Ocean Group
- Ningbo Meishan International Cold Chain Supply Chain Platform
- Beijing Shunyi Project of Qicheng Supply Chain
- Xiaoxinji Township Cold Chain Logistics Center of Mengcheng Agricultural Investment
- Qitai Logistics Transfer Warehouse in Qingdao Free Trade Zone
- 20,000-ton Standardized Cold Chain Logistics Warehousing in Fengxiang of Shandong
- E-commerce Industry Cold Chain Logistics Park of Jushang Food
- Jinan Yinzuo Low-temperature Distribution Center
- Hema Fresh Supply Chain Cold Storage at Nanjing Airport
- Cold Chain Project of Shangdao Smart Supply Chain Center



启橙供应链北京顺义项目 | Beijing Shunyi Project of Qicheng Supply Chain



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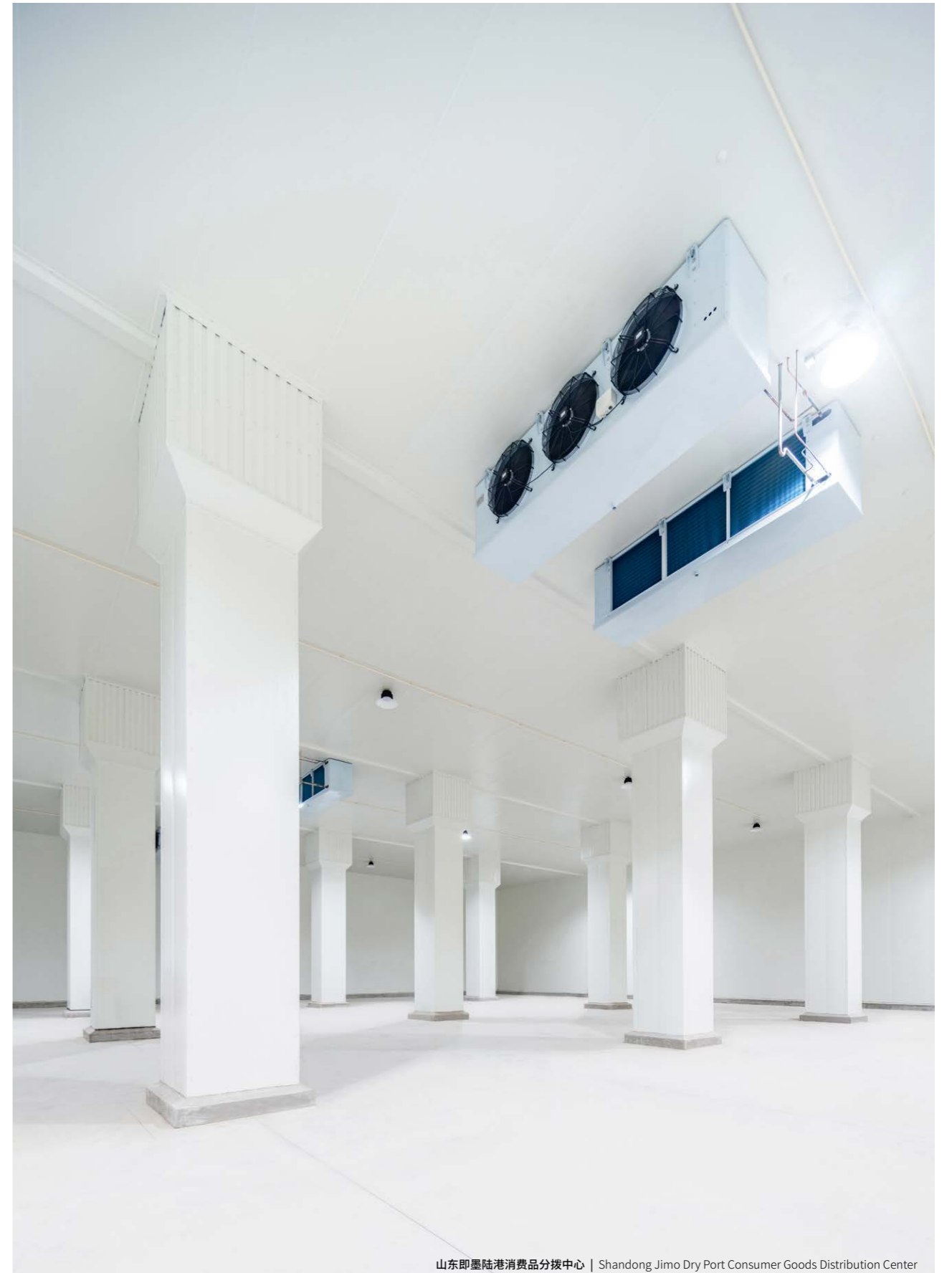
民胜食品有限公司 | Shandong Minsheng Food Co., Ltd.



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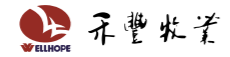
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