

鋼金塑木

METAL WOOD





甚麼是鋼鑫塑木？ What is Metal Wood?

在戶外木地板演變過程中，鋼鑫塑木革命性突破了創新，並製造了新一代金屬塑木，將鋁合金金屬物料混入人造塑木物料內，一體成形，解決其他戶外木長期於露天出現熱脹冷縮、變形、粉裂、擠壓斷裂及蟲菌侵蝕等問題。

鋼鑫塑木是一種可替代木材的低碳、綠色、可循環和可再生的新型態複合材料。

鋼鑫塑木以全新PVC為基材，採用微發泡嵌入式共擠技術，嵌入高強度鋁合金，一體成形，把冷熱循環的尺寸變化率控制在0.1%以內，安全不變形，有效解決了一般塑木熱脹冷縮、粉裂等致命問題。

鋼鑫塑木表層採用強耐候「ASA」物料全面包覆共擠技術，具有優越的抗老化和熱穩定性，99.9%像素級還原了原木質感，且耐磨性好、不變形、不龜裂、不粉化，具有高強度防水防火防腐防滑等優點。其基材防火等級達到B1級，遇火自熄，不會產生有害氣體。

In the evolution of outdoor wood flooring, Metal Wood has made a revolutionary breakthrough in innovation, and has manufactured a new generation of metal wood. Aluminum alloy materials are added into artificial plastic wood materials to form an integrated structure. That solves the problems which are caused by long-term exposure of outdoor woods to the open air, such as thermal expansion and contraction, deformation, cracking, extrusion fracture, insect and bacterial corrosion and etc.

Metal Wood is a new ecological and environmentally friendly composite material that can substitute wood. It is low-carbon, green, recyclable and renewable.

Metal Wood uses brand new PVC as substrate, and is embedded with high strength aluminum alloy to form into one piece by adopting Microfoam Co-extrusion Technology. The changing rate in dimension under thermal cycle is controlled within 0.1%, which makes it safe and not deform. This effectively solves the fatal problems of general plastic woods such as thermal expansion and contraction, cracking, etc.

The surface of Metal Wood adopts Fully Covered Co-extrusion Technology with strong weather-resistant ASA material, which has excellent anti-aging and thermal stability. It has 99.9% restored the texture of a log, and its advantages such as highly wear-resistant, non-deforming, no cracking or powdering, and highly waterproof, fireproof, corrosion-resistant and anti-slip. The fire rating of its substrate has reached the B1 class, and it will extinguish itself when encountering fire and will not produce harmful gases.

使用長達30年 質量保用15年
Up to 30 Years of Service Life
15 Years of Quality Assurance

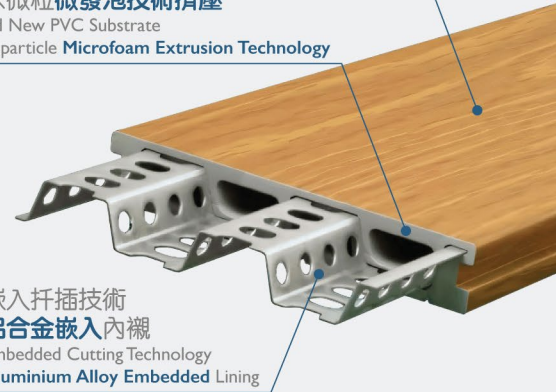
技術創新 性能升級 Technological Innovation & Performance Upgrade

| | |
|----------------------------------|-------------------------|
| 高抗壓 Highly Pressure-resistant | 更耐用 More Durable |
| 易安裝 Easy to Install | 免維修 Maintenance-free |

ASA 全包覆共擠技術
99.9%像素級復刻原木質感
ASA Fully Covered Co-extrusion Technology
99.9% "Pixel Level" Restoration of the Log Texture

全新PVC基材
納米微粒微發泡技術擠壓
Brand New PVC Substrate
Nanoparticle Microfoam Extrusion Technology

嵌入扦插技術
鋁合金嵌入內襯
Embedded Cutting Technology
Aluminium Alloy Embedded Lining



為甚麼研發鋼鑫塑木材料？ Why are Metal Wood materials invented?

- ✓ 保護天然資源
To protect natural resources
- ✓ 取代天然木材
To replace natural wood
- ✓ 助力生態建設
To help with ecological construction



隨着經濟及社會急速發展，森林資源越趨寶貴，傳統原木板材使用壽命週期極其短暫，加劇了資源的極大浪費，破壞生態環境。隨着世界各地對環保保護力度的不斷加大，以及市場對新型環保耐用運材的逼切需求，新型綠色環保複合材料——鋼鑫塑木就此應運而生。作為天然板材的最佳替代品，它的外觀不但近乎原木質感，可批量生產，還可以循環利用，保護可再生資源，加強綠色發展，助力生態文明建設。

With the rapid development of the economy and society, forest resources are becoming more and more precious. The service life of traditional log materials is extremely short, which aggravates the great waste of resources and damages the ecological environment. With the increasing efforts in environmental protection from all over the world, as well as the urgent market demand for new environmentally friendly and durable building materials, the new type of green and environmentally friendly composite materials — Metal wood has come into being. As the best substitute for natural boards, its appearance is not only close to the texture of logs, but can also be mass-produced and recycled. This way helps protect renewable resources, strengthen green development and build construction of ecological civilization.

1 高度還原原木質感 High Quality Restoration of the Log Texture

- 採用先進生產工藝，表面使用了ASA全包覆膜層，讓地板擁有實木的天然紋理，也具備抗褪色、耐污、易清洗的性能。

Advanced production technology is adopted to wrap its surface with a fully covered ASA film layer, which gives the flooring a natural texture of solid wood, as well as the properties of anti-fading, stain-resistant, and easy cleaning.

- 通過立體壓紋，還原天然實木質感，呈現各種優質天然木材的裝飾效果。

The natural wood texture is restored through 3D embossing, so as to present the decorative effects of various high-quality natural woods.

內外兼修 打造高級感 Polished Both Inside & Outside, Creating a Sense of Luxury

- 經歷多次打磨程序，還原木材本身的溫潤肌理，觸感舒適無毛刺。

After multiple polishing processes, the warm texture of the wood itself is restored, and the touch is comfortable without burrs.



鋼鑫塑木 Metal Wood



天然木材 Natural Wood



2 超低變化率 <0.1% Ultra Low Changing Rate in Dimension <0.1%



- 鋼鑫塑木以全新PVC為基材，採用嵌入式鋁合金內襯，把冷熱循環的尺寸變化率控制在0.1%以內，完全不變形。增強抗壓強度的同時，也令使用壽命更長，維修成本更低。

Metal wood uses brand new PVC as substrate and adopts aluminum alloy embedded lining to control the changing rate in dimension under thermal cycle to be within 0.1% and not deforming at all. Not only does this increase the pressure resistance, but also extend the service life and lower maintenance costs of the product.

- 一般塑木以PE、PP為基材。冷熱循環的尺寸變化率高達3%至6%，容易變形彎曲。

General plastic woods adopt PE and PP as substrate. The changing rate in dimension under thermal cycle reaches 3% to 6%, making them easy to deform and bend.

| 對比項目 Comparing Item | 鋼鑫塑木 Metal Wood | 一般塑木 General Plastic Wood |
|-----------------------------------|--------------------|------------------------------|
| 變化率 Changing Rate in Dimension | <0.1% | 3%-6% |

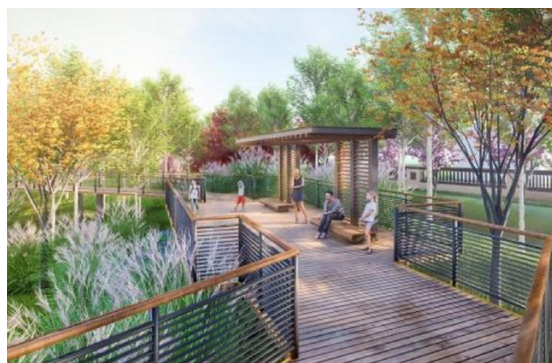
3 防腐防潮 防蟲防蛀 Corrosion-resistance and Moisture-/ Insect-/ Moth-proof

- 以鋁合金與PVC材質共擠製造，有效防止白蟻的威脅。在面對郊區公園、海濱長廊、大型屋苑、獨立屋後花園等，長期蟲害出現頻率較高的戶外場地，有超強的實用性。

Made of aluminum alloy and PVC materials, it effectively prevents the threat of termites. It is also highly applicable in outdoor areas with long-term and frequent insect infestation, such as country parks, seaside promenades, large housing estates, and backyard gardens of independent houses.

- 從根本上解決在多水潮濕的環境下容易腐爛變形的問題，具有強大的耐腐蝕抗酸鹼性，更加適合海邊、山頂等長期多雨潮濕的地區。

It solves fundamentally the problem of easy corrosion and deformation in a watery and humid environment. It has strong corrosion, acid and alkali resistance, which makes it more suitable for long-term rainy and humid areas such as seaside and mountain tops.



| 對比項目 Comparing Item | 鋼鑫塑木 Metal Wood | 一般塑木 General Plastic Wood |
|-----------------------------------|--------------------|------------------------------|
| 變化率 Changing Rate in Dimension | 0.01% | 0.1% |

4 高硬度 抗折強度高 High Stiffness and High Flexural Strength



- 鋼鑫塑木內含鋁合金，採用微發泡共擠技術，材料可承重跨度更大、更強，防止熱脹冷縮，減少維修成本。

Metal Wood contains aluminum alloy and adopts Microfoam Co-extrusion Technology. The material can bear a larger load span, prevents thermal expansion and contraction, and reduces maintenance costs.

強度高於傳統塑木3至5倍

The strength is 3 to 5 times higher than traditional plastic woods

橫跨度500mm，其破壞強度達5500N以上

A span of 500mm possesses a failure strength of above 5500N

* 傳統塑木橫跨度300mm，破壞強度在2200N

Traditional plastic woods with a span of 300mm possesses a failure strength of 2200N



5 防滑度、耐磨系數高 High Coefficient of Anti-slip and Wear Resistance

R12以上防滑等級*

Anti-slip level of R12 or above*

戶外及公共場所乾態/濕態
Dry/ wet state in outdoor and public areas

- ✓ 靜摩擦系數 > 0.7
Static Friction Coefficient > 0.7
- ✓ 滑動摩擦系數 ≥ 0.9
Sliding Friction Coefficient ≥ 0.9

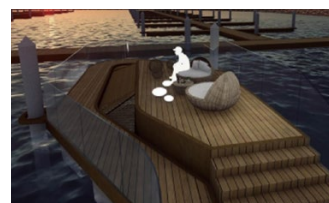
AC5等級耐磨度

Wear resistance level of AC5

- ✓ 表面硬度 (邵氏硬度) 為82°至85°
The surface hardness (Shore Hardness) is from 82° to 85°

適用於有防滑需求的水景園林公園、游泳池、休閒廣場等公共場所。

It is suitable for public places with high anti-slip requirements, such as waterscape parks, swimming pools and recreation plaza.



* 防滑標準分為R9至R13共5個等級，其中R9為最低等級，R13為最高等級。標準要求公共場所使用地板材料防滑系數，應達到R9級別及以上，以確保使用者的安全。

The anti-slip standard is divided into five levels from R9 to R13, with R9 being the lowest level and R13 being the highest level. The standard requires that the anti-slip coefficient of flooring materials used in public places should reach level R9 or above in order to ensure the safety of users.

6 抗老化性能和熱穩定性強 High Anti-aging Property and Thermal Stability



ASA樹脂全包覆共擠技術 ASA Resin Fully Covered Co-extrusion Technology

■ 通過 SGS 1000小時戶外加速老化測試，依然達到4級以上水平。

Still reaches Level 4 after passing the SGS 1000-hour outdoor accelerated aging test.

■ 材質表面為ASA樹脂材料，具有抗光老化性能和熱穩定性，不褪色、不開裂、不變色，廣泛用於汽車後視鏡外殼、旅行拖車、汽車住房組件，以及水面運輸設備的水殼、溫泉泳池階梯、雪地汽車等。

ASA resin material is used as surface material, which possesses anti-light aging performance and thermal stability. It does not fade, crack or discolor. It is widely used in car rearview mirror shells, travel trailers, car housing components, as well as water shells for water transportation equipment, stairs of hot spring swimming pool, snowmobiles, etc.

■ 更加適合用於高低溫差較大、氣候較惡劣的戶外環境。

It is more suitable for outdoor environments with large temperature differences and harsh climates.

7 B1 等級基材防火阻燃 B1 Level Substrate that is Fireproof and Flame Retardant

安全性能符合國家標準 Complies the national standard

■ 製造選材採用具有B1防火等級的PVC基材。

It is made of PVC substrate with a fire rating of level B1.

■ 能有效阻燃，遇火自熄，不產生任何有毒有害氣體，不受環境影響而收縮、變形或彎曲。

It can be effectively flame retardant and self-extinguishing in case of fire. It does not produce any toxic or harmful gases, and does not shrink, deform or bend under environmental impacts.

■ 是公共場所等高火險發生地的首選板材，可作為防火隔離地帶，有效防止火災的蔓延。

It is the first choice for public places with high fire risk, and can be used as a fireproof isolation zone to effectively prevent the spread of fire.

■ 其防火安全性能亦是家庭別墅、天台、大平台、前及後花園的首選。

Its fire safety performance also makes it the first choice for family villas, rooftops, large platforms, front and back gardens.



↓ 阻燃、遇火自熄 flame retardant and self-extinguishing ↓



8 綠色環保 可持續型材料 Green and Environmentally Friendly Sustainable Material

SGS

檢測報告 編號: CANIN23009445602 日期: 2023年09月26日 第2頁, 共4頁

檢測結果:

| 樣品 | SGS 樣品 ID | 樣品描述 |
|-------------------------------|---------------|---------|
| (1) 1 mg/kg = 1 ppm = 0.0001% | 456-0001 C001 | "鋼鑫木地板" |

(2) MDL = 方法檢測限
(3) ND = 未檢出 (< MDL)
"-" = 未規定

CARB 最終管制全二烯類化合物木質材料甲酯排放的有機物質空氣傳播控制措施以及《加利福尼亞州規則法典》第 17 章第 93120.2 (a) 和美國有毒物質控制法 (TSCA) 第 VI 節, US EPA 40 CFR 770.10 - 复合木制品甲酯釋放量

檢測方法: 參考 ASTM D6007-14 和其中的標準正面和背面配置檢測, 採用 UV-Vis 進行分析。

| 檢測項目 | 單位 | MDL | 002 |
|------------|-----|------|-----|
| 甲酯含量 | ppm | 0.01 | ND |
| 甲酯釋放量 | ppm | 0.01 | ND |
| 甲酯釋放量(校正值) | ppm | 0.01 | ND |

助力生態建設發展 Helps ecological construction and development

- 使用天然綠色可再生原料，這種環保、可持續的新型材料無輻射，不含甲醛、苯等有害物質，重金屬檢測亦符合國家行業標準。

Natural green renewable sources are used. This new environmentally friendly and sustainable material is non-radiating and does not consist of harmful or toxic substances like formaldehyde, benzene, etc. It also complies the national industry standards in heavy metal testing.

- 性能在裝飾上都能替代木材，減少對自然資源的開採破壞。通過採用鋁合金的技術，結構更堅硬，使用壽命更長。

Its performance makes it able to substitute wood in terms of decoration, reducing the exploitation and destruction of natural resources. By using aluminum alloy technology, the structure is stronger and the service life is longer.



9 穩定供應 滿足大型工程 Stable Supply that Fulfills Large-scale Projects

- 鋼鑫塑木通過標準化生產，質量穩定，生產供應穩定。

Metal Wood is produced in a standardized manner, with stable quality, production and supply.

- 供貨週期短，不會產生大面積色差，色澤均衡可控。

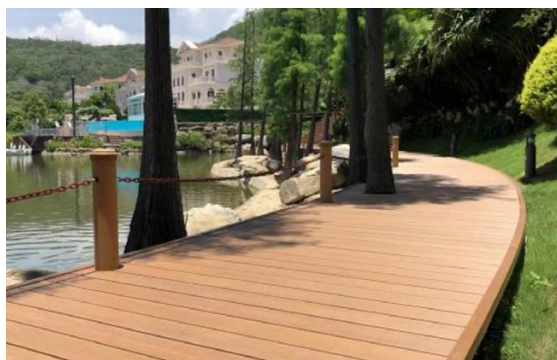
The delivery cycle is short. There is no large-area color difference and the color is balance and controllable.

- 也可提供特殊定製，根據項目要求訂製。

Special customization can also be provided according to project requirements.



10 高性價比 超長使用壽命 High Cost Performance Ratio with Ultra Long Service Life



易維修、壽命超長的優勢

The advantages of being easy to maintain and having a long service life

- 鋼鑫塑木性能優越，不易出現開裂、吸污變色等問題，一次安裝終身免拆，維修成本低，可使用30年。

Metal Wood has superior performance, in which it is not prone to problems such as cracking, dirt absorption, discoloration, etc. One-off installation is possible without demolishing in the future. The maintenance cost is low and it can be used for 30 years.

| 鋼鑫塑木 Metal Wood | 對比項目 Comparing Items | 一般塑木 General Plastic Wood |
|--|---------------------------|---|
| <p>採用納米微粒微發泡技術擠壓生產，產品密度約為0.85-0.9kg/cm²，比重較輕。</p> <p>Nanoparticle Microfoam Co-extrusion Technology is adopted in the production. The product density is around 0.85-0.9kg/cm² which is relatively lower.</p> | 密度 Density | <p>採用顆粒無發泡擠壓生產，粒徑粗，產品密度約為0.94-1.2kg/cm²，比重較重。</p> <p>Non-foaming Granular Extrusion is adopted in the production. The granular diameter is large and the product density is around 0.94-1.2kg/cm², which is relatively higher.</p> |
| <p>採用全新物料一步成型，立體材料含量高，約50%-60%，填充物較低（鈣粉、木粉），產品剛柔兼並，耐用性較強。</p> <p>Brand new materials are used and shaped in one step. The main material content is as high as around 50-60%, and the filler content is lower (calcium powder, wood powder). The product is strong and flexible with a higher durability.</p> | 材料 Material | <p>採用二級或三級回收料（新料價格高，市場無法接受）造粒二步成型，立體材料含量低，約20-32%左右，填充物高（鈣粉、木粉顆粒等），產品性能脆、易碎。</p> <p>Secondary or tertiary recycled materials (as new materials are costly and not accepted by the markets) are used and shaped in two steps. The main material content is as low as around 20-32%, and the filler content is higher (calcium powder, wood powder granules). The product is fragile and brittle.</p> |
| <p>採用自主研發嵌入扞插技術，把高強度鋁合金嵌入產品中，解決一般塑木無法解決的痛點，並採用強耐候ASA全包覆共擠技術包裹產品，使得產品使用壽命是一般塑木的3-5倍。</p> <p>Self-developing Embedded Cutting Technology is adopted to embed high strength aluminium alloys inside the product, so as to solve the fatal problem of general plastic woods. At the same time, ASA Fully Covered Co-extrusion Technology is adopted to wrap the product, which makes the service life 3-5 times longer than general plastic woods.</p> | 穩定性 Stability | <p>因採用二次式或多次式回收料回收加工，雖然採用沙林樹脂全包裹共擠技術，但填充物含量高，容易脆、開裂，一般使用壽命為3-5年。</p> <p>Since they are processed with secondary or multiple recycled materials, though Sarcosine Resin Fully Covered Co-extrusion Technology is adopted, filler content is high and the product is brittle and easy to crack. The general service life is 3-5 years.</p> |
| <p>1. 彎曲破壞強度 Bending Strength : 5414N 2. 蠕變恢復率 Creep Recovery Rate : 89.8 3. 線性膨脹率 Linear Expansion Rate : 長度變化率 Changing Rate in Length : 0.01% 闊度變化率 Changing Rate in Width : 0.01% 厚度變化率 Changing Rate in Thickness : 0.01%</p> | 強度 Strength | <p>1. 彎曲破壞強度 Bending Strength : 4034N 2. 蠕變恢復率 Creep Recovery Rate : 82 3. 線性膨脹率 Linear Expansion Rate : 長度變化率 Changing Rate in Length : 0.1% 闊度變化率 Changing Rate in Width : 0.1% 厚度變化率 Changing Rate in Thickness : 0.1%</p> |
| <p>不褪色（產品通過 SGS 1000小時戶外加速老化測試，依然達到4級以上水平）、防火阻燃 (B1級)。</p> <p>Non-fading (the product still reaches Level 4 or above after passing the SGS 1000-hour outdoor accelerated aging test), fireproof and flame retardant (Class B1).</p> | 耐候性 Weather Resistance | <p>在戶外日曬雨淋下，耐候性差，很容易褪色，一般3個月左右開始褪色，抗氧化和抗光分解能力較差，就算加入抗氧化劑和UV吸光劑，效果也不太理想，還會影響產品強度和色牢度。</p> <p>Since they are processed with secondary or multiple recycled The weather resistance is poor and the color is easy to fade when exposed to sunny and rainy outdoor environment. It usually starts to fade in about 3 months. The resistance to oxidation and light decomposition is also poorer. Even if antioxidants and UV reflectors are added, the effect is not ideal and the strength and color fastness of the product will also be affected.</p> |
| <p>以全新PVC為基材，使用ASA全包覆技術，通過改性，並採用嵌入式鋁合金內襯，把冷熱循環的尺寸變化率控制在0.1%以內，安全不變形。</p> <p>Brand new PVC substrate and ASA Fully Covered Co-extrusion Technology is adopted. By changing its performance and using aluminum alloy embedded lining, the changing rate in dimension under thermal cycle is controlled within 0.1%, which makes it safe and not deform.</p> | 熱穩定性 Thermal Stability | <p>是以PE、PP為基材的塑木，冷熱循環尺寸變化率高達3-6%，容易變形翹曲。</p> <p>PE and PP are used as substrate. The changing rate in dimension under thermal cycle is as high as 3-6%, which makes them easy to deform or bend.</p> |

鋼鑫木環保複合材料 Metal Wood Environmentally Friendly Composite Materials

更強的戶外適應性能 Stronger outdoor adaptability

可抗-50℃低溫及+85℃高溫
Ability to withstand a low temp. of -50℃ & a high temp. of +85℃

防水防潮防腐
Properties of being waterproof, moisture-proof and corrosion resistant

抗折强度高
High anti-bending strength

基材阻燃B1級
Fire retardant substrate of Class B1

不易變形粉化
Unlikely deformation or powdering

熱穩定性強
Strong thermal stability



一般塑木 (PE/PP) General Plastic Woods (PE/PP)

使用壽命短 Short service life

低溫易裂、高溫散熱差
Likely cracking issues & poor heat radiation

長期潮濕易腐
Likely corrosion issues under long-term humidity



抗壓力較差
Lower pressure resistance

易燃
High flammability

易變形
Easy deformation

易褪色粉化
Easy fading & powdering

SGS 檢測報告
SGS Test Reports



耐磨性能/磨擦系數
Wear Resistance/
Friction Coefficient



含水率及蠕變恢復
Moisture Content and
Creep Recovery



吸水率和厚度膨脹率
Water Absorption and
Thickness Expansion



甲醛釋放量
Formaldehyde Release



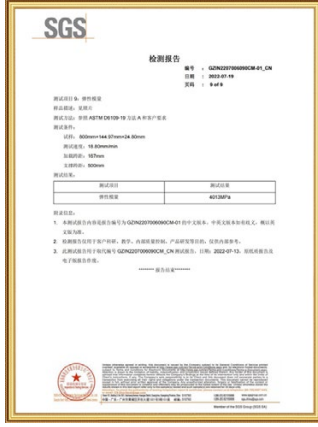
重金屬含量
Heavy Metal Content



抗凍融測試
Freeze-thaw Resistance



破壞強度
Failure Strength



彈性模量
Elastic Modulus

專利證書
Patent Certificates



A 金屬支架 Metal Bracket

- 優點：防水、抗壓、不變形、堅固耐用、壽命長久

Advantages: waterproof, pressure-resistant, sturdy and durable, long service life

- 適合對象：住宅、辦公室、別墅、餐廳、酒店和政府設施等

Suitable for: residences, offices, villas, restaurants, hotels, government facilities, etc.



不鏽鋼支架
Stainless Steel Bracket

可選擇304/316，使用316材質支架壽命較長久
304/316 are available; Longer service life for 316 bracket



鉛水通支架
Lead Water Pipe Bracket

採用質料優良的鍍鋅鐵方通，附有證書
High quality galvanized iron square tubes are used, provided with certificate



鋁合金支架
Aluminium Alloy Bracket

採用6063-T5優質鋁合金，堅固耐用
High quality galvanized 6063-T5 premium aluminium alloys are used, is sturdy and durable

B 萬能支撐架 Adjustable Plastic Pedestals



- 優點：施工期短、成本低、材料較輕、高度可調節、日後可重用、不怕長期浸水（防水防潮防腐）、不會破壞現場地台、耐高溫、可承受壓力達2500kg

Advantages: short construction period, low cost, light materials, adjustable heights, possible re-use in the future, not afraid of long-term water immersion (properties of being waterproof, moisture-proof and corrosion resistant), no damage caused to the platform, strong heat-resistance, ability to withstand up to 2500kg of pressure

萬能支撐器工藝 The Craftsmanship of Adjustable Plastic Pedestals

- ✓ 施工安裝簡易，工期短（省時）
Short construction time and easy installation
- ✓ 不會破壞地台防水
No damage to the waterproof layer of platform
- ✓ 檢修清理維修方便簡單
Easy maintenance
- ✓ 高度可調節，更方便
Adjustable height
- ✓ 造價成本低
Low costs
- ✓ 材料較輕便
Light materials

Y系列——基本型 Yiwen Basic Series



使用條件 Applicable Conditions

標準架空，板材厚度為20至80mm，架空高度為70至990mm，可滿足正常人行走
Standard overhead, plate thickness of 20 to 80mm, overhead height of 70 to 990mm, able to satisfy normal walking of people

適用項目 Applicable Projects

鏡面水景、景觀噴泉、旱式噴泉、屋頂花園架空、廣場等
Mirror waterscape, landscape fountain, dry fountain, roof garden, square, etc.

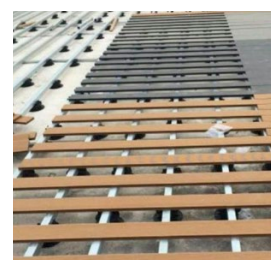
承受壓力 Pressure Tolerance

1500-2500kg

適用場景 Applicable Scenarios



龍骨安裝 Keel Installation



萬能支撐器在屋頂、龍骨、塑木地板、木地板等安裝中的工程應用
Application of Adjustable Plastic Pedestals in the installations of roof, keel, plastic wood floor, wood flooring etc.

