



TIDELION



泰宁

北京泰宁科创雨水利用技术股份有限公司



虹吸雨水排放收集系统

Siphonic Rainwater Drainage System

www.tidelion.com

4006-501-510



北京市著名商标

中国雨水资源化产业引领者

The industry leader in Chinese Rainwater Resource

海绵城市建设全产业链服务商

The leading provider of construction industry chain of sponge city

TIDELION

泰宁



雨水综合利用系统

Rainwater Harvesting System



虹吸雨水排放收集系统

Siphonic Rainwater Drainage System



同层排水系统

Same Floor Drainage System



公司简介

About Tidelion

北京泰宁科创雨水利用技术股份有限公司于2003年4月在中关村科技园区昌平园成立。公司坚持走自主创新之路，雨水控制与综合利用业务覆盖建筑小区、市政道路、城市绿地与广场、城市水系、河道生态综合治理、设施农业、岛屿等领域，并引领中国雨水资源化产业的发展。同时泰宁作为海绵城市建设领域的最早期实践者之一，在全国率先成为集“规划与设计、建设与管理、全产业链协同、运营与维护、投融资服务”于一体的海绵城市建设全产业链服务商。

公司以一系列具有自主知识产权的高新技术为基础，在雨水控制与综合利用领域取得了突破性的研究成果，相关技术申报国内外专利150余项，已获批108项国家专利，其中27项发明专利，海外发明专利1项。同时，凭借多年的技术积累和业务创新，公司已成为国内多项国家标准及行业规范的编制或起草者之一，参与编制了国家标准《建筑与小区雨水控制利用工程技术规范》GB50400-2016、国家行业标准《建筑屋面雨水排水系统技术规程》CJJ142-2014、北京市地方标准《雨水控制与利用工程设计规范》DB11/685-2013、河北省地方标准《雨水控制与利用工程技术规范》DB13(J)175-2015等十多部国家与地方行业标准和规范，并参与了国家住房和城乡建设部《海绵城市建设技术指南》的编制。

公司已累计完成包括国家、省、市级重点工程在内的3500多个项目的设计和施工。先后完成了21项奥运及奥运配套工程，其中包括国家游泳中心、北京奥林匹克中心区、北京首都机场改扩建、五棵松体育馆、国家会议中心等项目。此外，公司还完成了包括上海虹桥机场、深圳机场、广州机场等机场建设与改扩建工程；完成了北京APEC会议主会场，上海世博会美国馆、澳大利亚馆、西班牙馆，以及深圳大运会主体育场、广州亚运会主体育场、南京青奥会议中

心、北京园博会、上海中国博览会会展综合体等大型场馆工程；完成了北川县城重建、北京香山公园、昌平新城滨河森林公园、北京未来科技城等一大批重点工程。同时，公司大力开拓国外市场，已经在新加坡、刚果、印尼、南非、马尔代夫等海外市场承建项目。

公司2006年承建的奥运工程项目，被北京市工业促进局立项为北京市重点工程项目，同年被建设部科学技术委员会评为节水技术“中国建设科技自主创新优势企业”；2007年获得了“节水与雨水利用项目”住宅产业化金奖；2008年获得了“中关村园区参与奥运建设重点企业”；同年被中国建筑学会建筑给排水研究分会授予“雨水综合利用实验示范基地”称号，被北京市科委评为“科技奥运先进集体”；“第十一届北京技术市场金桥奖”等多项荣誉。2009年获得“中关村20年创新和发展做出突出贡献企业”，被中国水利协会评为“最具成长水业品牌”，“泰宁”品牌也于同年获得“北京市著名商标”称号。2011年，“泰宁”被评为“中关村十大新锐品牌”。2012年，泰宁被评为“中关村信用双百企业”，并荣获“国家火炬计划重点高新技术企业”。2013年，泰宁“储水方块”入选中国科学技术部“国家重点新产品”。2014年，泰宁被北京建筑业联合会评为“北京建筑行业诚信企业”。2015-2016年，泰宁海绵城市建设示范项目获得了国家住房和城乡建设部领导及全国各省、市领导的高度好评。目前公司以不同的身份和角色，全面参与了全国多个海绵城市建设试点城市的示范项目建设，已成为中国海绵城市建设的最佳实践者。

CHAPTER 1

Trust Originates from Technical Strength 信赖源于技术实力

水力实验室 Hydraulic Laboratory

泰宁陆续建立了雨水斗测试平台，管材管件测试平台以及虹吸系统整体试验测试平台。对于不断改进的虹吸雨水斗进行准确检测，为设计提供准确的数据，包括雨水斗流量、斗前水深、局部阻力系数等参数。对于不同材质的管材管件，HDPE管材管件、不锈钢管材管件及涂塑钢管管材管件，采用压力传感器、水位传感器和数据采集系统，实时记录动态下的各项数据变化，并经过计算机处理和储存，为泰宁设计软件提供完整准确的测试数据。完整准确的实验数据可以很好的保证我们科研人员开发出符合您要求的系列产品。

Tidelion has successively set up the roof drain test platform, pipes and fittings test platform and siphon system integral testing test platform. It is designed to conduct the accurate detection in respect to such siphon roof drain as of continuous improvement, so as to provide the accurate data for the design, which would include such parameters as the flow of the roof drain, water depth before the drain and coefficient of local resistance. In respect to the pipes and fittings of different materials, such as the HDPE pipes and fittings, stainless steel pipes and fittings and plastic-coated steel pipes and fittings, it is designed to use the pressure sensor, water level sensor and data acquisition system to make the real-time recording of the dynamic changes of various data, which would, after the computer processing and storage, provide the complete and accurate test data for Tidelion to design the software. The complete and accurate experimental data could excellently guarantee our scientific research personnel to develop such series of products that would satisfy your demands.



完整的系统供应 Complete System Supply

作为系统整体供应商, 公司拥有机电安装资质, 所有产品均能满足国家相关要求。雨水斗、管材、固定系统等产品严格按照标准要求生产, 核心产品拥有自主知识产权。系统的整合性充分体现泰宁的优势之所在。

As a supplier of the complete system, the company has obtained the qualification for the electromechanical fixture, and all the products could satisfy the related state requirement, such products as from the roof drain to the pipes and fixed system have been made in strict accordance with the company's requirements, the core product with independent intellectual property rights. The system integration is the advantage of Tidelion.

泰宁为公司所有产品的制造设计及专业承包, 已在太平洋财产保险股份有限公司投保1000万。

In respect of the manufacturing design and professional contracting of all the company's products, Tidelion has insured RMB 10 million yuan with the Pacific Property Insurance Co., Ltd.



严格的设计和和生产标准 *Strict Design and Production Standards*

泰宁作为国内最早从事虹吸雨水排水系统的企业，凭借多年的技术积累和业务创新，公司已成为国内多项国家标准及行业规范的编制或起草者之一，主编了《虹吸雨水斗》CJ/T245-2007，参与编制了《建筑与小区雨水控制利用工程技术规范》GB50400-2016、国家标准图集《雨水综合利用》10SS705、《雨水斗选用及安装》09S302、《虹吸式屋面雨水排水系统技术规程》CECS183：2005等国内十余项国家标准及行业规范。泰宁虹吸屋面雨水排放、收集系统的研发、设计咨询及销售已通过国际及国内ISO9001质量管理体系认证。

As one of China's enterprises that are first engaged in the siphonic rainwater drainage system, Tidelion has participated in the compilation of the "Technical Specifications for the Rainwater Control and Utilization Engineering of Buildings and Housing Estates" (GB50400-2016), the national standard atlas of the "Comprehensive Utilization of Rainwater" (10SS705), the "Siphon Roof Drain" (CJ/T245-2007), the "Selection and Installation of Roof Drain" (09S302) and the "Technical Regulations on the Siphonic Roof Rainwater Drainage System" (CECS183:2005). The research and development, design consultancy and marketing of Tidelion siphonic roof rainwater drainage and collection systems have passed the international and domestic ISO9001 quality management system certification.

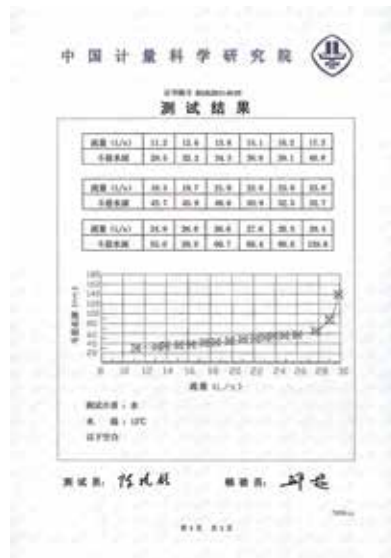
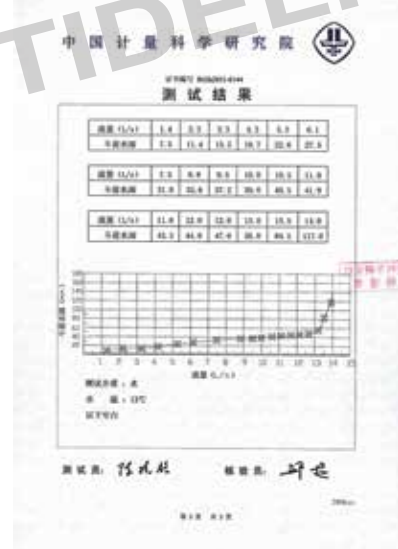


权威的检测报告 Authoritative Test Reports

泰宁所用的系统核心产品均通过国家权威检测机构检测, 可靠的参数, 保证良好运行。

All the system core products of Tidelion have passed the tests made by the state authoritative testing organizations, and their reliable parameters could ensure their good working.

- 虹吸雨水斗通过国家计量院检测。
- The siphon roof drain has passed the test of the National Institute of Metrology.
- HDPE管材管件通过国家化学建筑材料测试中心测试, 1%-1.5%的线性膨胀系数, 大于0.09Mpa的管道负压检测, 让您放心在系统使用。
- The HDPE pipes and fittings have passed the testing of the linear expansion coefficient 1%-1.5% and the detection of the pipe negative pressure greater than 0.09 Mpa, which could make you rest assured to use them in the system.
- 悬吊系统经过72小时盐雾检测, 具有良好的防腐性。
- The suspension system has gone through the 72-hours salt spray testing, which has been proved to all have good anticorrosive property.



CHAPTER 2

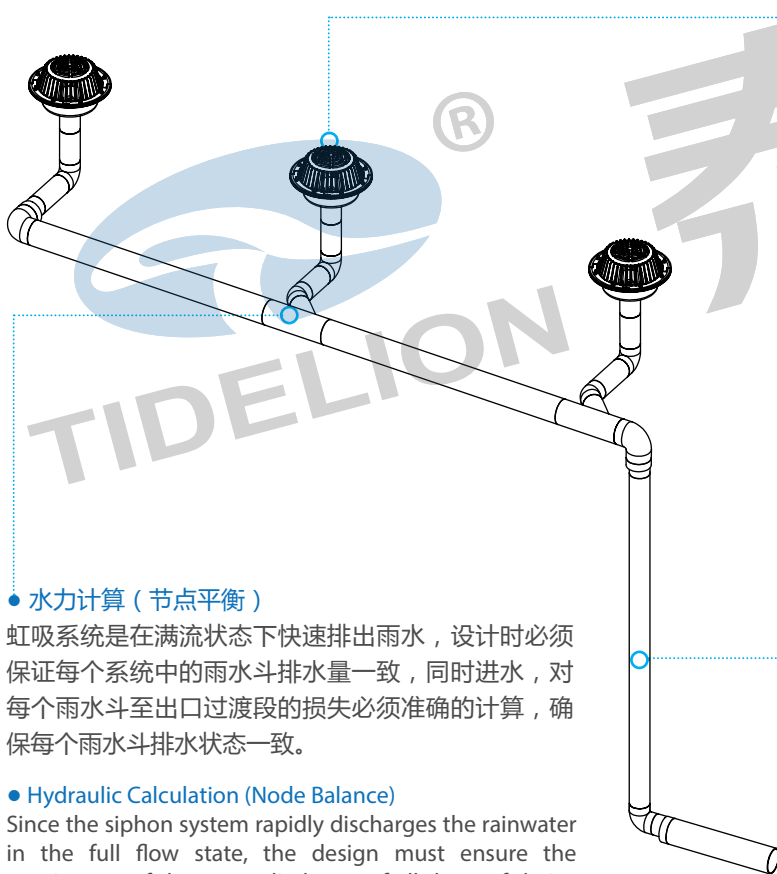
Principle of Siphonic System

虹吸系统原理

形成虹吸的必要条件 *Essential Conditions of Siphon Formation*

虹吸雨水排放收集系统利用“伯诺里”方程，经过周密的计算，充分利用屋面和地面的高差产生的能量形成虹吸作用，系统在满流状态快速排出雨水，并为后期雨水收集提供便利。

In respect of the siphonic rainwater drainage and collection systems, the siphon action shall be formed by full use of the energy produced from the altitude difference between the roof and the ground that is carefully calculated by use of the “Bernoulli” equation, in which the system would rapidly discharge the rainwater in the full flow state and provide convenience for the subsequent rainwater collection.



• 虹吸雨水斗

作为系统的核心产品，采用独特反涡流装置，雨水在流入斗室前变得均匀分散，并破坏其形成旋涡的条件，隔绝空气进入，系统中呈满管流状态。虹吸雨水斗能够在较小的斗前水深的情况下，达到满流状态，可有效降低屋面（天沟）积水深度，减小屋面荷载。

• Siphon Roof Drain

As the core product of the system, it adopts the unique backward eddy current device, in which the rainwater becomes evenly dispersed before it flows into the drain bucket, so as to destroy the conditions to form eddies and isolate the air from entering, when the system would present the full pipe flow state. The siphon roof drain could reach the full flow state in the condition of the smaller water depth before the drain, so as to effectively reduce the ponding depth of the roof (roof gutter) and reduce the roof load.

• 水力计算（节点平衡）

虹吸系统是在满流状态下快速排出雨水，设计时必须保证每个系统中的雨水斗排水量一致，同时进水，对每个雨水斗至出口过渡段的损失必须准确的计算，确保每个雨水斗排水状态一致。

• Hydraulic Calculation (Node Balance)

Since the siphon system rapidly discharges the rainwater in the full flow state, the design must ensure the consistency of the water discharge of all the roof drains in the system; and at the same time, the inflow water loss for each transition section from the roof drain to the outlet must be accurately calculated, so as to ensure the consistency of the water discharge state of each roof drain.

• 立管高度（重力势能）

虹吸系统是利用屋面和地面的高差势能，水流在立管中呈加速流动状态，从而带动悬吊管的抽吸作用，悬吊管中呈负压，产生虹吸效果，快速排出屋面雨水。

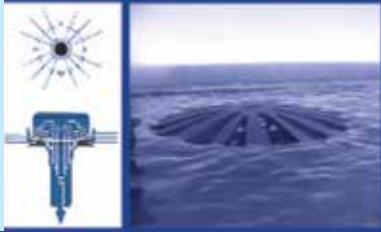
• Stand Pipe Height (Gravitational Potential Energy)

The siphon system makes use of the altitude difference potential energy between the roof and the ground, in which the water flow in the stand pipe would present the accelerated flow state, so as to drive the chimney effect of the hanging pipe, and the hanging pipe would present the negative pressure to produce the siphon effect, so as to rapidly discharge the roof rainwater.

与重力排水系统对比 Comparison with the Gravity Drainage System

虹吸雨水斗

破坏气旋、使雨水规则地流入斗体内，无气体进入，降低屋面积水深度。



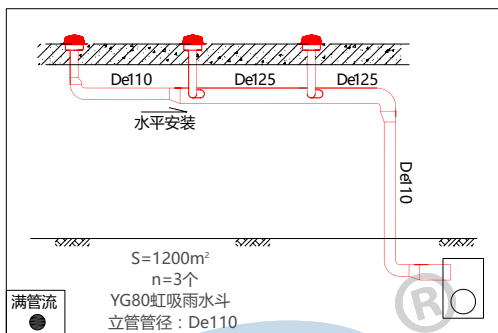
重力雨水斗

形成气旋，雨水成旋涡状流入斗体，呈气水混合流。



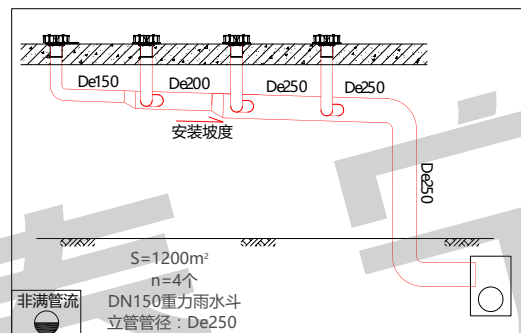
● Siphon Roof Drain

It would destroy the cyclones to make the rainwater regularly flow into the drain bucket with no air entering, so as to reduce the ponding depth of the roof.



● Gravity Roof Drain

It would form cyclones to make the rainwater flow into the drain bucket in swirling state, which would present the air-water mixed flow.



泰宁虹吸排水系统

- 雨水斗及管道布置灵活。
- 系统可带多个雨水斗，数量不受限制。
- 立管数量减少，管径减小，相应减少室外检查井数量，减少地面开挖。
- 系统工程量减少，采用承压管道，系统寿命超过50年。
- 雨水在管道内高速满管流动，可实现自净功能。
- 悬吊管无坡度安装，有利于建筑空间的充分利用。

Tidelion Siphon Drainage System

- The roof drain and piping layout is flexible.
- The system can be accompanied with multiple roof drains, with the quantity being unlimited.
- The reduction of the stand pipe quantity and reduction of the pipe diameter would correspondingly reduce the quantity of the outdoor inspection shafts and reduce the ground excavation.
- With the reduction of the system engineering quantity and the adoption of the pressure-bearing pipes, the service life of the system could exceed 50 years.
- With the high-speed tight flow of the rainwater inside the pipe, it could realize the self-purification function.
- The non-gradient installation of the hanging pipes would facilitate the full use of the architectural space.

传统重力排水系统

- 雨水斗及管道布置受限制。
- 系统所带雨水斗数量有限，总数不应超过4个。
- 立管数量繁多，管径较大，室外检查井数量多，地面开挖工程量较大。
- 采用普通排水管道，系统寿命短。
- 雨水在管道内呈气水混合流状态，流速慢，需要在悬吊管上设置多处检查口，防止管道堵塞。
- 悬吊管需较大安装坡度，不利于长距离悬吊安装。

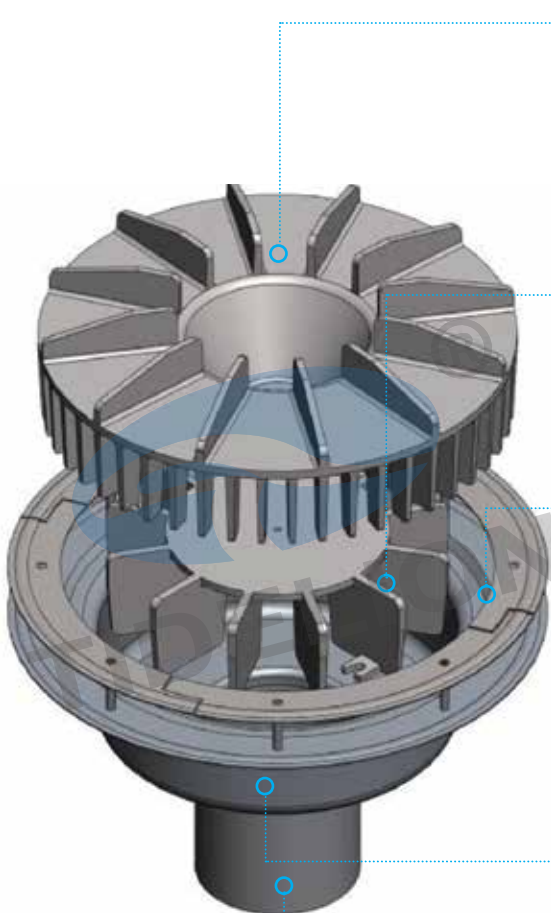
Traditional Gravity Drainage System

- The roof drain and piping layout is restricted.
- The system can only be accompanied with the limited number of roof drains, with the total number being not more than four.
- The numerous stand pipes with the larger pipe diameter would increase the quantity of the outdoor inspection shafts and increase the engineering quantity of the ground excavation.
- With the adoption of the ordinary drainage pipes, the service life of the system would be shorter.
- Since the rainwater presents the air-water mixed flow state inside the pipe with the slow flow velocity, it is required to set up multiple inspection holes on the hanging pipes to prevent the pipes from blocking.
- The hanging pipes would need the greater installation gradient, which would be not good for the long-distance hanging installation.

CHAPTER 3

Configuration of Siphonic System 虹吸系统组成

虹吸雨水斗 Siphon Roof Drain



- 导流罩

硅铝合金材质，适用于各种不同环境。不断改进的导流罩格栅间距，确保进水流量同时，阻止大的杂物进入系统。

- Fairwater

Made of silicon-aluminum alloy material, it is applicable for various different environments. The fairwater grating separation distance of continuous improvement could not only ensure the inflow water flow, but also prevent large sundries from entering into the system.

- 整流器

硅铝合金材质，独特的反涡流设计，使雨水平稳进入系统。

- Rectifier

With the silicon-aluminum alloy material and the unique backward eddy current design, it could make the rainwater smoothly enter into the system.

- 防水压板/安装片

不锈钢材质，A型雨水斗适用于混凝土屋面或防水卷材屋面，特有的压板设计，将防水材料与雨水斗紧密连接，保证密封性。B型雨水斗适用于钢天沟，与钢天沟焊接。

- Waterproof pressure plate/mounting plate

It is made of the stainless steel material. Type-A roof drain is applicable for the concrete roof or waterproof roll roof, in which its unique pressure plate design could make the waterproof materials closely connected with the roof drain to ensure the tightness. Type-B roof drain is applicable for the steel roof gutter, which should be welded with the steel roof gutter.

- 下沉斗体

不锈钢材质，整流器置于下沉斗体内，有效降低屋面（天沟）积水深度。

- Sink drain bucket

Made of the stainless steel material, the rectifier shall be put inside the sink drain bucket, so as to effectively reduce the ponding depth of the roof (roof gutter).

- 出口尾管

根据使用管材的不同，选择不同材质出口尾管。有HDPE尾管、不锈钢尾管、沟槽连接不锈钢尾管。

- Outlet pipe

Such outlet tail pipes as of different materials should be selected according to the difference of the pipes to be used. There are HDPE tail pipe, stainless steel tail pipe and groove-connected stainless steel tail pipe.

虹吸雨水斗产品 Siphon Roof Drain Products



YG100



YG125-II



YG80-C

● 雨水斗性能参数 / Roof Drain Performance Parameters

雨水斗型号 Model of Roof Drain	最佳流量范围 Optimum Flow Range	屋面预留洞尺寸 Dimension of Roof Reserved Hole
YG50	6~13 L/s	Φ200mm
YG65	13~24 L/s	Φ300mm
YG80	24~30 L/s	Φ300mm
YG100	30~42 L/s	Φ300mm
YG125	42~71L/s	Φ240mm
YG150	70~120 L/s	Φ240mm

注：所有雨水斗参数均通过国家计量院检测。

Notes: All the roof drain parameters have passed the tests made by the National Institute of Metrology.

融雪型雨水斗 Snow-Melting Roof Drain

针 对寒冷地区研发融雪型雨水斗，避免冬、春交接季节，雪水夹带半融的雪团阻塞雨水斗出口，保证雨水顺利通过雨水斗流入系统。该产品采用自控温技术，根据环境温度自动调节发热功率，可以有效的防止雪水在雨水斗内冻结，保持排水口排水通畅，维持屋面排水系统的正常排水功能，确保建筑物及人身安全，创造良好的生态环境。

It is designed in allusion to the cold regions to prevent the roof drain outlet from being blocked by the snow water with the semi-melted snow blocks in the period of winter-spring season change and ensure the rainwater to smoothly flow into the system through the roof drain. This product adopts the temperature automatic control technology, in which the heating power would be automatically regulated according to the ambient temperature, so as to effectively prevent the snow water from being frozen inside the roof drain, to keep the smooth drainage of the outlet, maintain the normal water drainage function of the roof drainage system, to ensure the building and personnel safety and to create a pleasant ecological environment.



YG100-R

半有压流雨水斗 Half Pressure Flow Roof Drain

半有压流雨水斗及半有压流加热雨水斗, 出口管径有 DN80、DN100、DN150 三种。它有别于传统 87 型重力雨水斗, 不仅可以安装在混凝土屋面上, 还适用于钢结构屋面天沟。改进的雨水斗的压板、紧固螺栓均采用不锈钢材质制作, 出水短管材质有 PVC-U、HDPE 及不锈钢三种材质。导流罩采用铝硅合金压铸成形, 密封圈采用硅橡胶压制, 半有压流雨水斗寿命可达 50 年。

As for the half pressure flow roof drain and half pressure flow heating roof drain, there are such three kinds of outlet pipe diameters as of DN80, DN100 and DN150. It is different from the traditional Type-87 Gravity Roof Drain, which can not only be installed on the concrete roof, but also be applicable for the steel-structured roof gutter. The improved pressure plate and fastening bolt of the roof drain are both made of the stainless steel materials. And there are such two kinds of short pipe materials as of the stainless steel and HDPE. The fairwater is moulded by the die-casting of aluminum-silicon alloy, with the sealing ring moulded by the compression of silicon rubber. The service life of the half pressure flow roof drain could reach 50 years.



BYL80-GR



BYL100



BYL150-G

● 半有压流雨水斗性能参数 / Performance Parameters of Half Pressure Flow Roof Drain

雨水斗型号 Model of Roof Drain	最佳流量范围 Optimum Flow Range	屋面预留洞尺寸 Dimension of Roof Reserved Hole
BYL80	0~10 L/s	Φ180mm
BYL100	0~17 L/s	Φ180mm
BYL150	0~36 L/s	Φ180mm

管材 & 管件 Pipes & Fittings

● 高密度聚乙烯 (HDPE) 管材 & 管件 /High density polyethylene (HDPE) Pipes & Fittings

高密度聚乙烯管，以聚乙烯为主要原材料，添加少量的抗氧化剂，抗紫外线吸收剂及色料等制成。作为虹吸雨水排放系统最常用的管材，其具有重量轻、便于运输和施工、密封性能良好等特点。管材管件符合标准：《建筑排水用高密度聚乙烯(HDPE)管材及管件》CJT250-2007。

- 管材、管件规格齐全，规格型号：De15~De400，承压等级：PN3.2~PN20，满足各种工程需要。
- 使用在虹吸雨水排水系统中的管材需满足生产标准要求，管材、管件均采用PE100原材料生产，管道承压等级大于等于PN6，所有管材经过耐-0.09Mpa负压检测。
- 管道具有较强的韧性、抗老化性、抗冲击型、耐磨、耐酸碱腐蚀性。
- 管材使用寿命长，使用寿命超过50年。
- HDPE管材重量轻，便于运输和施工安装，采用热熔和电熔连接，具有良好的密封性。
- 管材出厂前管道经过特殊工艺处理，管道线性膨胀系数小于1.5%
- 管材弹性模量小，可吸收管内水流噪音。



The high density polyethylene pipe is made of polyethylene as the main raw material, with the addition of a handful of such materials as of the antioxidant, ultraviolet-resistant absorbent and pigment. As the most common pipes used for the siphonic rainwater drainage system, it has such characteristics as of light weight, convenience for transportation and construction, and perfect sealing performance.

- The pipes and fittings are complete in specifications, with the Model and Specification: De15~De400, and the Pressure Bearing Grade: PN3.2~PN20, which could satisfy various engineering demands.
- The pipes used for the siphonic rainwater drainage system need to satisfy the requirements of the production standards, in which the pipes and fittings shall all be made of such raw material as of PE100, with the pipe pressure bearing grade being greater than PN6 and all the pipes being subject to the 0.09 Mpa-resistant negative pressure test.
- The pipelines shall be of strong toughness, aging resistance, impact resistance, wear resistance, acid-base resistance and corrosion resistance.
- The pipes have a long service life, which could exceed 50 years.
- The light weight of the HDPE pipe could make it convenient for transportation, construction and installation, and the adoption of the hot-melting and electric-melting connection could make it of perfect tightness.
- Before the delivery, the pipes have gone through the special technology processing to make the pipeline linear expansion coefficient less than 1.5%
- With the small modulus of elasticity, the pipes can absorb the water flow noise inside the pipe.

● 高密度聚乙烯 (HDPE) 注塑成型管件 / High density polyethylene (HDPE) Injection-moulded pipe fittings

为减少管件的局部阻力，保证水流通畅，泰宁开发一次注塑成型的HDPE管道配件，包括45°弯头，90°弯头，135°斜三通，偏心异径管。

In order to reduce the local resistance of the pipe fittings and ensure the smooth water flow, Tidelion has developed the one-time injection-moulded HDPE pipe fittings, including the 45° elbow, 90° elbow, 135° inclined T-cock and eccentric different-diameter pipe, of which the elbow curvature radius is greater than 4D.



● 高密度聚乙烯 (HDPE) 白色系列管材 & 管件 / High density polyethylene (HDPE) White series Pipes & Fittings

为满足某些建筑特殊要求，泰宁配有白色系列管材、管件。明露安装时，白色管材更能适应建筑装饰要求。避免黑色管道刷漆附着力较差，且由于PE管道伸缩量较大引起的油漆脱落问题。

In order to cope with the requirements for the exterior facades of the buildings, Tidelion has developed the white series of pipes and fittings. In case of the exposed installation, the white pipes would even more adapt to the requirements for the building decoration, which could avoid the poor paint adhesion of the black pipelines and the paint peeling problem caused by the greater expansion amount of the PE pipelines.



● 不锈钢管材&管件/Stainless steel Pipes & Fittings

不锈钢管材主要有以下特点：

- 管材、管件具有良好的耐腐蚀性。
- 外表光洁美观，具有良好的装饰效果。
- 管道热胀冷缩系数小。
- 抗正、负压能力强。
- 防火性能好，为世界所公认。
- 施工安装方便。
- 优良的力学和物理性能，不锈钢管强度高，是镀锌管的2倍、铜管的3倍、PP-R管的8-10倍，能很好地经受振动冲击，具有不漏水、不爆裂、防火、抗震等特点，因此安全可靠使用寿命长。
- 抗腐蚀试验数据标明不锈钢管使用寿命可达100年，不锈钢管维护简单，因此，其性价比好，运行成本较低，经济效益显著。

The stainless steel pipes basically have the following features:

- The pipes and fittings have the perfect corrosion resistance.
- With the bright, clean and beautiful appearance, they are of perfect decoration effect.
- The pipelines have a small coefficient of the heat-caused expansion and cold-caused contraction.
- They have the strong ability of positive and negative pressure resistance.
- They have the perfect fireproof performance, which is universally acknowledged in the world.
- They are of convenient construction and installation.
- They have the excellent mechanical and physical properties. Since the stainless steel pipes have the higher strength, which is two times of that for the galvanized pipes, three times of that for the copper pipes three times and 8-10 times of that for the PP-R pipes, they could perfectly stand the vibration and impact. And they also have such characteristics as of water-tightness, bursting resistance, fire prevention and seismic resistance. So they are of safety, reliability and long service life.
- It is indicated by the corrosion-resistance test data that the service life of the stainless steel pipes could reach 100 years. And the stainless steel pipes are of simple maintenance. So they are of good cost-performance ratio, low operating cost and remarkable economic benefit.

● 涂塑钢管管材&管件/Plastic-coated steel Pipes & Fittings

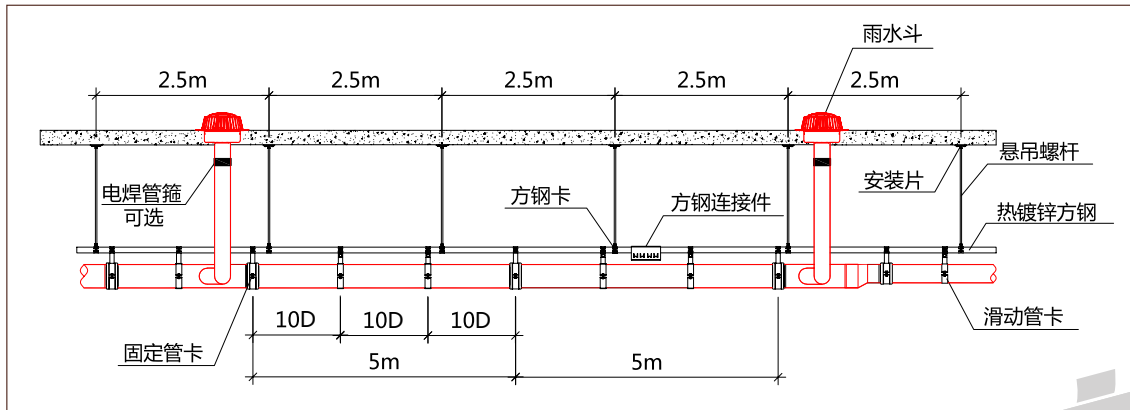
符合CJ/T120-2008《给水涂塑复合钢管》标准的泰宁涂塑钢管管材及管件是虹吸排水系统中经常使用的管材、管件，泰宁公司选用保护层致密均匀、附着力强、稳定性比较好的涂塑钢管管材、管件满足整体工程需要。

Tidelion plastic-coated steel pipes and fittings in conformity with the standards of the "Plastic-Coated Composite Steel Pipes Used for Water Supply" (CJ/T120-2008) are such pipes and fittings that are largely used in the projects of siphon drainage system. In order to match up the requirements for various buildings, Tidelion Company would select such plastic-coated steel pipes and fittings that are of compact and uniform protective layer, strong adhesion and perfect stability to satisfy the requirements for the whole project.



固定系统 Fixed System

● HDPE 管固定系统 / HDPE Pipe Fixed System



固定系统是针对HDPE管应用于虹吸系统特殊安装要求而开发。虹吸雨水排放系统悬吊管内呈负压状态，为避免系统漏气，系统不设置伸缩节，泰宁使用“固定安装”限制管道的伸缩方式，将HDPE管温度变化引起的轴向应力直接通过固定管卡固定点传送到平行安装的方形钢管上。通过在雨水排放系统的实践经验，固定系统的最大工作温差可达到50℃。

该装置有以下优点：

- 方形钢管与建筑结构悬挂点少，广泛应用于各种新型结构。
- HDPE管材的伸缩量通过固定管卡转化为轴向应力，不用伸缩节，避免伸缩节漏气的隐患。
- 配件表面经热镀锌处理，比传统现场制作的支架更美观，更经久耐用。
- 所有配件均在工厂内生产完成，施工现场只需要进行简单的装配。



The fixed system has been developed in allusion to the requirements for the special installation of the HDPE pipes applied to the siphon system. The inside of the hanging pipes of the siphonic rainwater drainage system presents the negative state. In order to avoid the air leakage of the system, the system would set up no expansion joint. Tidelion would use the “fixed installation” to limit the stretch mode of the pipeline, in which the axial stress caused by the temperature change of the HDPE pipes would directly be transmitted to the parallely-installed square steel pipes through the fixed points of the fixed pipe clamp. Through the practical experience in the rainwater drainage system, the maximum working temperature difference of the fixed system can reach 50℃

This device has the following advantages:

- Since the square steel pipe has less suspension points with the building structure, it is widely applied to various new-type structures.
- The expansion amount of HDPE pipes is translated into the axial stress through the fixed pipe clamps with no expansion joint being used, so as to avoid the air leakage hidden trouble of the expansion joints.
- After the surface of the fittings goes through the hot galvanizing treatment, they are even more beautiful and durable than the traditional field-fabricated hooks. more durable.
- All the fittings are made in the factory, so what to do on the construction site would only need to make the simple assembly thereof.

● 钢管固定系统/Steel Pipe Fixed System

针对薄壁不锈钢管、涂塑钢管、镀锌钢管，泰宁开发出专用的管卡，管卡均采用热镀锌处理，防腐性能良好。针对不同结构形式，泰宁开发出多种适用于不同结构形式的悬吊支架。

In respect to the thin-walled stainless steel pipes, plastic-coated steel pipes and galvanized steel pipes, Tidelion has developed the special pipe clamps, which are all subject to the hot galvanizing treatment with the perfect corrosion resistance. For different structural forms, Tidelion has developed various such pipe-hanging hooks that are applicable to the different structural forms.



北京首都机场T3航站楼 (T3A)



郑州新郑国际机场二期扩建工程



上海虹桥机场2号航站楼



一汽大众天津工厂焊装车间

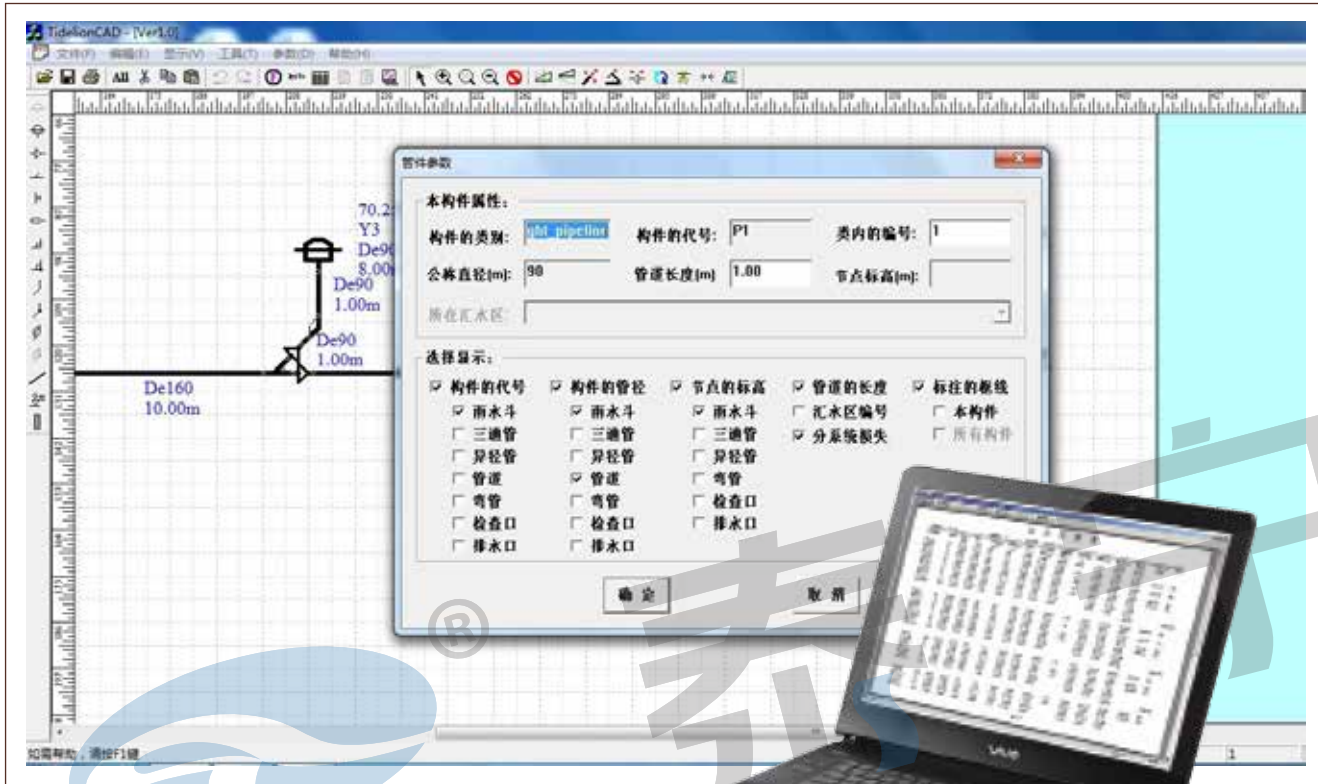


深圳机场T3航站楼



国家游泳中心 (水立方)

系统水力计算 System Hydraulic Calculation



精确的水力计算是形成虹吸的重要因素。泰宁虹吸式屋面雨水排水系统计算辅助设计软件（TidelionCAD）是公司自主研发和开发的计算机辅助设计软件，是根据国内外相关的规范、标准建立的计算数字模型，并建立了大量的数据库。所采用计算数据均来源于泰宁水力实验室，更符合实际的水流工况。符合现行的《建筑给水排水设计规范》（GB50015）、《虹吸式屋面雨水排水系统技术规程》（CECS183）的要求。软件通过了中国工程建设标准化协会、中国建筑金属结构协会给水排水设备分会的联合鉴定。

The accurate hydraulic calculation is the important factor to form the siphon. The CAD software (TidelionCAD) of Tidelion siphonic roof rainwater drainage system is such CAD software that has been independently researched and developed by the company itself. It is such a digital model that has been set up according to both the domestic and foreign related specifications and standards, for which a mass of database has been established. The calculating data in use are all from Tidelion hydraulic laboratory, which are even more in line with the actual working condition of the water flow. They conform to the requirements of the current "Design Specifications for the Building Water Supply and Drainage" (GB 50015) and "Technical Regulations on the Siphonic Roof Rainwater Drainage System" (CECS183). The software has passed the joint appraisal of China Association for Engineering Construction Standardization (CECS) and the Water Supply and Drainage Equipment Branch of China Construction Metal Structure Association

CHAPTER 4

Rich Construction Experiences

丰富的施工经验

施工经验 Construction experience

泰宁拥有从事虹吸系统施工指导10年以上的施工人员，拥有专业的施工队伍。具有丰富的施工经验，可靠的施工质量，是确保系统正常运行的重要保障。并且在多年的施工实践中，总结出许多不同类型的管道固定系统，虹吸系统具有较大的设计流速，在运行过程会出现较大震动，牢固的固定系统是系统长时间正常运行的保证。

泰宁拥有完善的施工质量控制体系，针对每一个实施的工程项目，由公司质量控制部实行全面的质量检查。

Tidelion has such construction personnel who have been engaged in the construction guidance of the siphon system for more than 10 years, and it has the professional construction team. The rich construction experience and reliable construction quality are the important guarantee to ensure the normal operation of the system. In its construction practice of many years, it has summarized many pipeline fixed systems of various kinds. Since the siphon system has greater design flow velocity, it would see greater vibration in the operational process. The secure fixed system is the guarantee for the long-time and normal operation of the system. Tidelion has the perfect construction quality control system, in which the Company's Quality Control Department would carry out the overall quality inspection in respect to each of the engineering projects for implementation.



长城汽车股份有限公司徐水分公司



新中国国际展览中心



北京雁栖湖国际会展中心



长城汽车股份有限公司徐水分公司



HOW MANY ? 我们一起走过！

我们承接了3500多项工程，累计
我们先后完成了21项奥运及奥运配
主体育场、主体育馆等重点项目，并获
“企业”等多项殊荣。

*We have undertaken more than 3500 projects, cumulated
signed and finished 21 Olympic and Olympic
of Guangzhou Asian Games, main stadium
Olympic " and honor of "Key enterpri*



泰宁·海绵城市全产业链产业基地

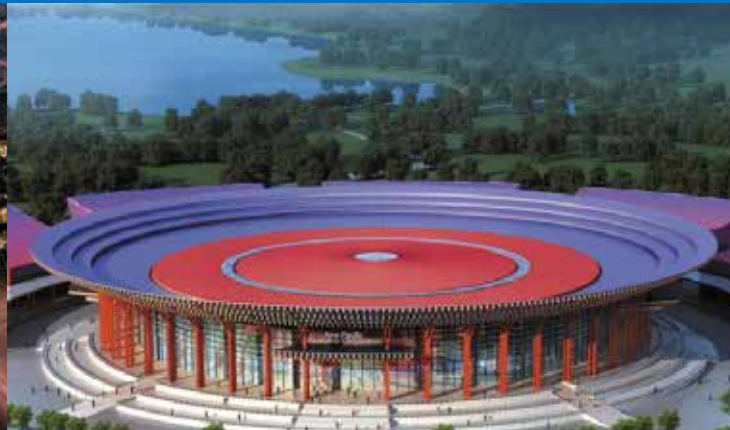
屋面面积超过**9000**万平方米；

套工程，2010年上海世博会美国馆、西班牙馆、澳大利亚馆工程，2010年广州亚运会主体育场，2011年深圳大运会
获得“北京市著名商标”，“奥运传播使者”，科学技术部“创新型试点企业”及中关村科技园区“参与奥运建设重点

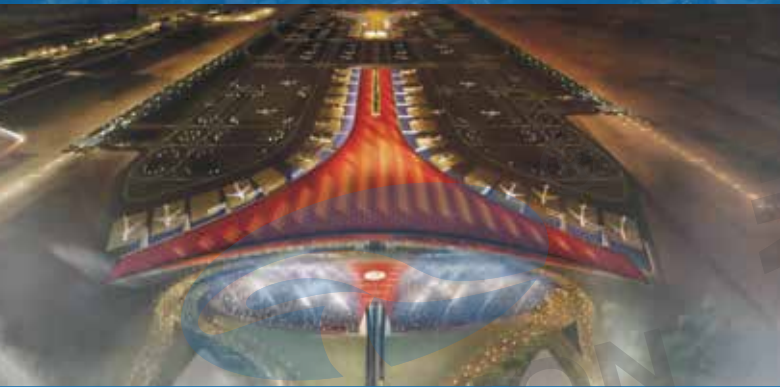
500 projects and the total roof area is more than **90** million square meters. Especially, We have successfully
and Olympic ancillary projects, USA Pavilion, Spain Pavilion and Australia Pavilion of Shanghai Expo, main stadium
adium of Shenzhen Universiade Sports Center, so we won the title of "Beijing Famous Mark" "Envoys spread the
ses participating in Olympic construction", which awarded by Zhongguancun Science Park.



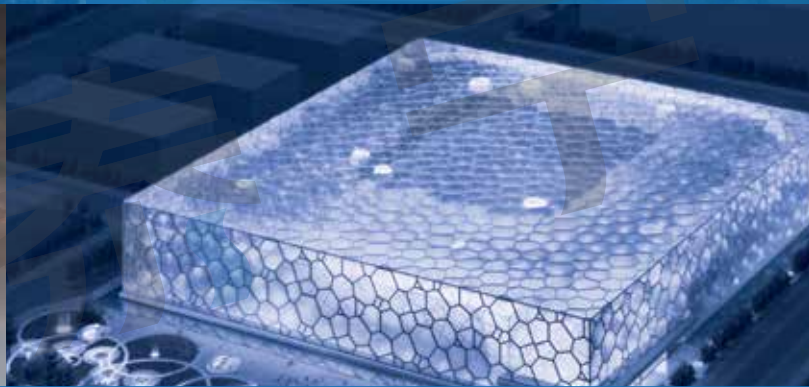
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China Expo exhibition projects in Shanghai Hongqiao business district
屋面面积/Roof area：420000m²



工程名称：北京雁栖湖国际会展中心
Beijing Yanqi Lake International Convention & Exhibition Center
屋面面积/Roof area：26070m²



工程名称：北京首都机场T3航站楼（T3A,T3C,GTC）
Beijing Capital International Airport Extension Project (Including T3A,T3C and GTC)
屋面面积/Roof area:367800m²



工程名称：国家游泳中心（水立方）
National Swimming Center
屋面面积/Roof area:32000m²



工程名称：北京用友软件园
Beijing UFIDA Software Park
屋面面积/Roof area：455000m²



工程名称：北京奔驰发动机联合厂房
New Engine Plant of Beijing Benz
屋面面积/Roof area：37060m²



工程名称：中国国家博物馆扩建工程
Extension Project of the National Museum of China
屋面面积/Roof area:38700m²



工程名称：新中国国际展览中心
China New International Exhibition Center
屋面面积/Roof area:122120m²



工程名称：奥林匹克公园（B区）国家会议中心
Olympic Park (B zone) National Convention Center
屋面面积/Roof area:105000m²



工程名称：中央电视台电视文化中心TVCC
CCTV Television Cultural Center TVCC
屋面面积/Roof area:16465m²



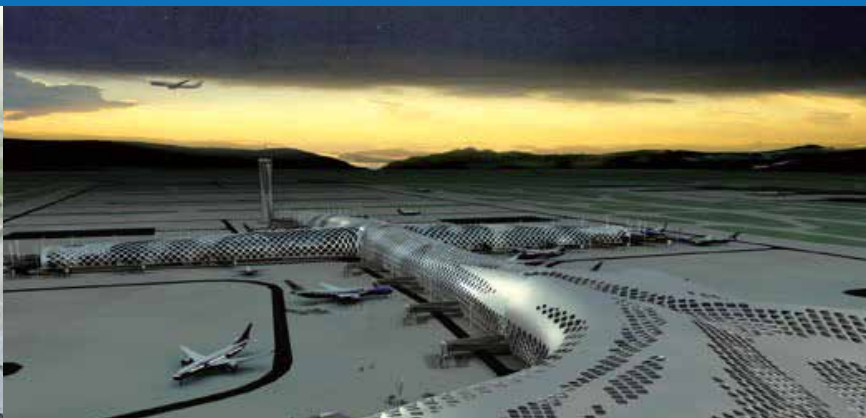
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Biomass Energy Project of Beijing Shougang Company Limited
屋面面积/Roof area：21300m²



工程名称：北京欧阁有机农庄
Beijing Ouge Organic Farm Village
屋面面积/Roof area：3110m²



工程名称：上海虹桥机场2号航站楼
Shanghai Hongqiao Airport
屋面面积/Roof area:168500m²



工程名称：深圳机场T3航站楼
T3 Air Terminal of Shenzhen Airport
屋面面积/Roof area:230,000m²



工程名称：上海浦东国际机场一号机库
Shanghai Pudong 1# Hanger
屋面面积/Roof area:31800m²



工程名称：深圳北站交通枢纽工程
Shenzhen North Railway Station Transportation Junction Project
屋面面积/Roof area : 242200m²



工程名称：北京亚运会主体育场
Beijing Asiad Main Stadium
屋面面积/Roof area:39000m²



工程名称：广州亚运会综合体育馆
Integrated Gymnasium of Guangzhou Asian Games
屋面面积/Roof area : 33000m²



工程名称：深圳大学生运动会主体育场
Main Stadium of Shenzhen World University Games
屋面面积/Roof area : 39000m²



工程名称：天津滨海国际机场二期扩建
Tianjin Binhai International Airport Phase II Expansion
屋面面积/Roof area:109290m²



工程名称：沈阳桃仙机场航站区扩建
Shenyang Taoxian International Airport Terminal Area Expansion
屋面面积/Roof area：105240m²



北京A380机库
A380 Hangar
Roof area：40832m²



工程名称：奥运会篮球比赛馆
Olympic Basketball Gymnasium
屋面面积/Roof area:16500m²



工程名称：2010上海世博会西班牙馆
Spain Pavilion, World Expo 2010
屋面面积/Roof area:4700m²



工程名称：2010上海世博会美国馆
US Pavilion, World Expo 2010
屋面面积/Roof area:4400m²

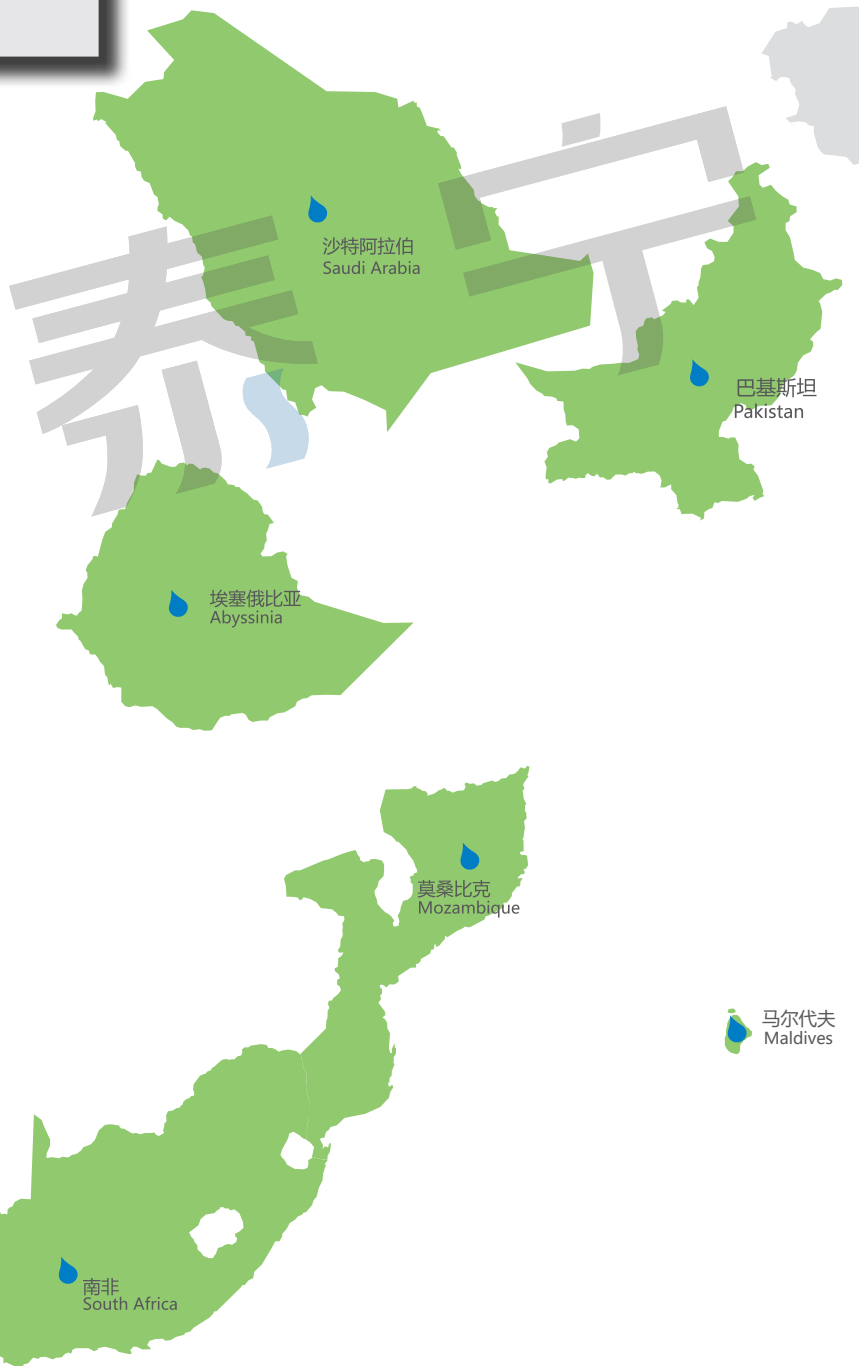
WHERE ? 泰宁在哪儿 ?



北京泰宁科创雨水利用技术股份有限公司
Beijing Tidelion S&I Rainwater Harvesting Technology CO., Ltd



分公司及办事处或承建项目
Branch Company / Office / Tidelion Project



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Saudi Arabia

巴基斯坦
Pakistan

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Abyssinia

莫桑比克
Mozambique

南非
South Africa

马尔代夫
Maldives







泰宁

北京泰宁科创雨水利用技术股份有限公司
Beijing Tidelion S&I Rainwater Harvesting Technology Co., Ltd

www.tidelion.com 泰宁全国统一客服专线：4006-501-510

泰宁

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西安
XIAN

山西
SHANXI

贵阳
GUIYANG

长沙
CHANGSHA

南宁
NANNING

福州 ...
FUZHOU...