

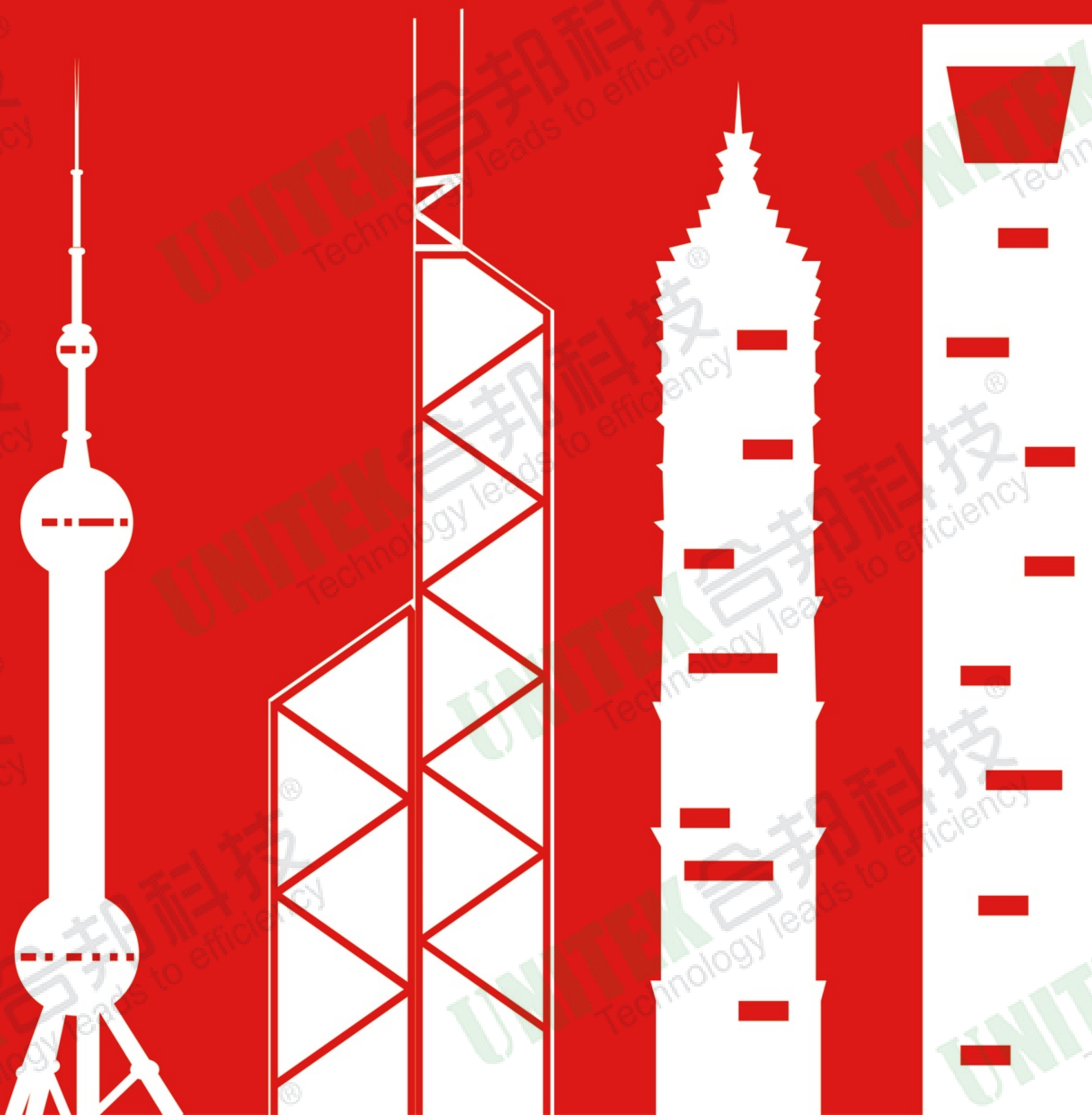
# 泰尼克



TECHNIK

## Bi-Metal 紧固件应用手册

*Bi-Metal Fastener Application Manual*







合邦寄语

做负责任的螺丝钉

Make the responsible screws





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# 01

## COMPANY

Enterprise brief introduction

### 企业简介



嘉兴合邦机械科技有限公司具备完善的不锈钢热处理和表面处理工艺，是制造优良不锈钢紧固件的实力型企业。公司以马氏体不锈钢（SUS410）钻尾自攻螺钉、自攻螺钉、不锈钢工程螺栓类紧固件为主打产品，产品应用于多种钢结构建筑、户外设施设备及地铁、隧道、公路、电网、汽车、造船等行业。

Jiaxing Unitek Machinery Co., Ltd. Has perfect stainless steel heat treatment and surface treatment technology. Company to martensitic stainless steel (SUS410) drill tail self-drilling screw, self-tapping screw, give priority to dozen of product engineering bolt fasteners, stainless steel products used in a variety of steel structure building, outdoor facilities and subway, tunnels, roads, power grids, automobile, shipbuilding and other industries.

公司座落于风景秀丽的江南水乡—浙江省嘉兴市经济技术开发区，沪杭高速、申嘉湖高速、乍嘉苏高速、杭浦高速穿境而过，长三角地理中心，与上海、杭州、苏州、绍兴、湖州均50分钟车程，与宁波、无锡1.5小时车程内。

The company is located in the beautiful scenery of watery region-Economic and Technological Development Zone of Jiaxing, Zhejiang Province. Huhang high-speed, Shenjiahu high-speed, Zhajiasu high-speed, Hangpu high-speed passing through, geographical center of Yangtze river delta. To Shanghai, Hangzhou, Suzhou, Shaoxing, Huzhou all 50 minutes drive, and to Ningbo, Wuxi within 1.5 hours.





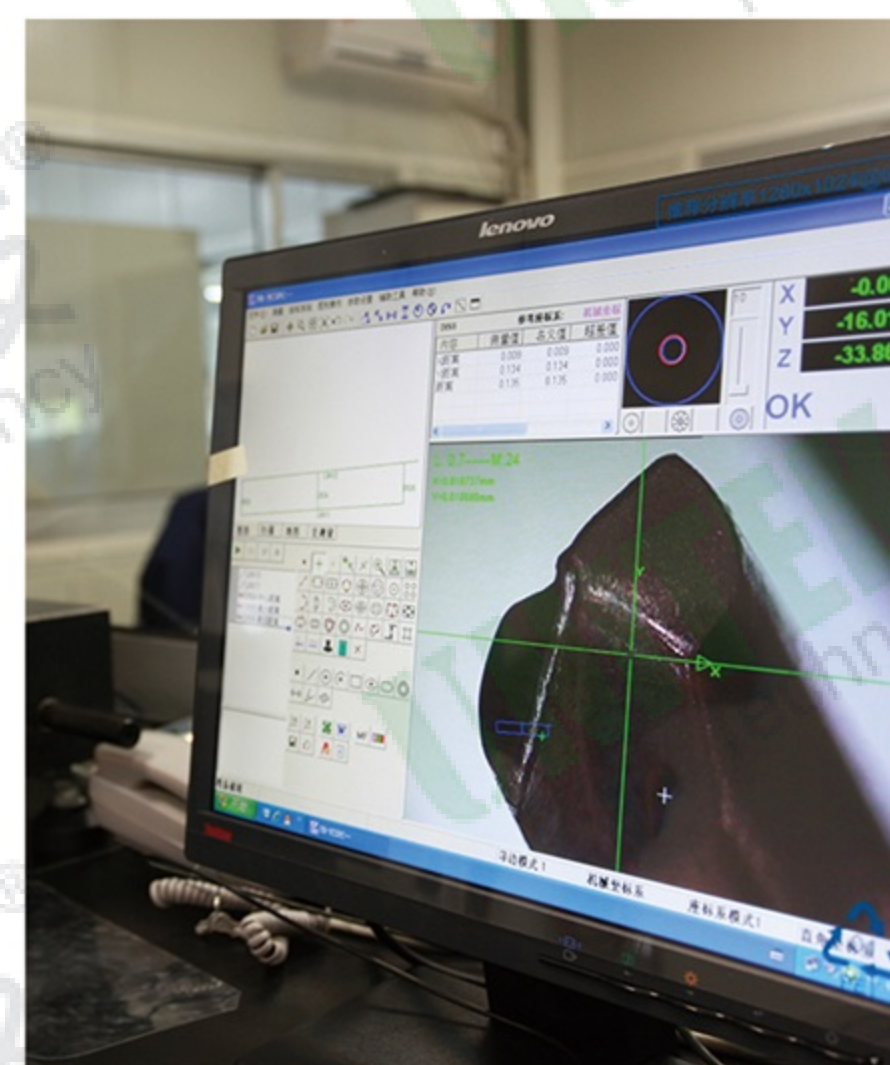
TECHNIK

合邦科技于2008年成功开发出TECHNIK双金属复合钻尾自攻螺钉，此系列产品是由奥氏体不锈钢与马氏体不锈钢的组合，而目前市场上均是奥氏体不锈钢与低合金碳素钢组合的产品。这自然也使得我司产品在攻钻性能和耐腐蚀性能上更胜一筹。此突破得益于公司拥的马氏体不锈钢热处理的核心技术。且公司产品交付迅捷，一般交期可达10天。

2014-2015年度，服务于上海迪斯尼项目及杭州亚运主场馆杭州奥体中心项目近千万支产品的成功顺利应用，亦展示了TECHNIK产品的成熟和品质的稳定。

UNITEK in 2008 successfully developed TECHNIK double metal composite drilling self tapping screw, this series product is composed of austenitic stainless steel with a combination of martensite stainless steel, and are on the market at present is combination of austenitic stainless steel and low alloy carbon steel products. This naturally makes our products superior in drilling performance and corrosion resistance. This breakthrough is due to the company's own martensite stainless steel heat treatment core technology. And the company's products delivered quickly, the general delivery date can be up to 10 days.

From 2014 to 2015, almost ten millions products were successfully applied to the Shanghai Disneyland project the Hangzhou Olympic Games Main Stadium and Hangzhou Olympic Sports Center project. It also showed the maturity and quality stability of TECHNIK products.





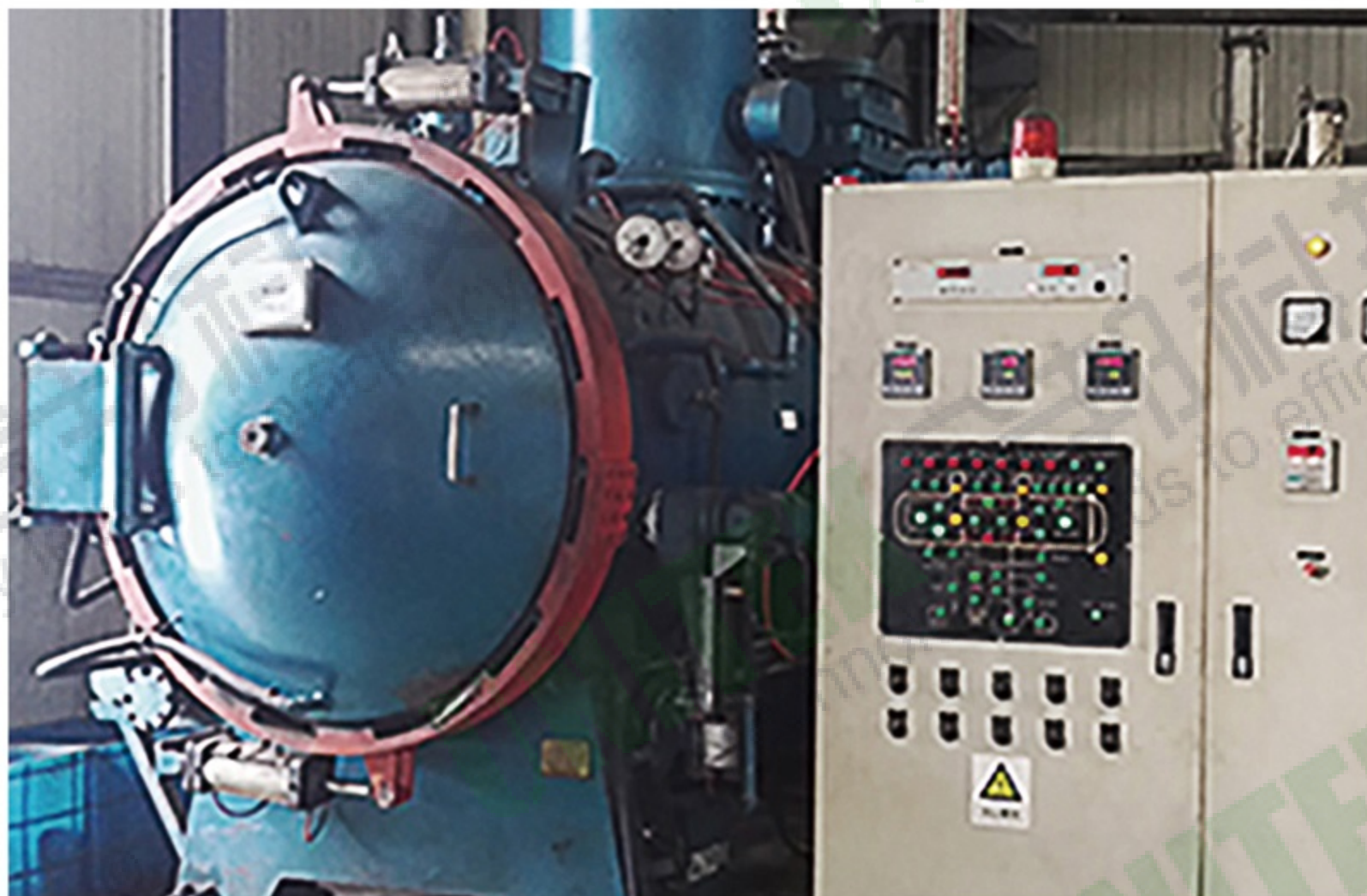
# 02

## ADVANTAGE

Technical advantage

### 技术优势

#### ■ 热处理 Heat treatment



真空热处理被当代热处理界称为高效、节能和无污染的清洁热处理。真空热处理的零件具有无氧化、无脱碳、脱气、脱脂、表面质量好、变形小、综合力学性能高、可靠性好、重复性好、寿命稳定等一系列的优点。因此，真空热处理受到国内外广泛的重视和普遍的应用。并把真空热处理普及程度作为衡量一个国家热处理技术水平的重要标志。

Vacuum heat treatment is called high efficiency, energy saving and pollution-free clean heat treatment by modern heat treatment. The vacuum heat treatment parts have the advantages of no oxidation, no decarburization, degassing, degreasing, good surface quality, small deformation, high comprehensive mechanical properties, good reliability, good repeatability, stable life and so on. Therefore, the vacuum heat treatment is widely used in China and abroad. The popularization of vacuum heat treatment is an important symbol to measure the level of heat treatment technology in a country.

合邦科技先后从日本引进不锈钢热处理和表面处理技术。经过热处理，螺钉表面硬度在HV580以上，从而能快速地完成自钻孔、自攻牙的紧固过程，大大节省施工时间，提高工作效率，并且联结紧固；经过合邦特殊的热处理加工之后的不锈钢螺钉，会在表面形成一层致密的硬化层，该硬化层不仅硬度高，同时具备良好的耐腐蚀性。

UNITEK has introduced stainless steel heat treatment and surface treatment technology from Japan. After heat treatment, surface hardness of screw is in HV580 above, which can quickly complete the fastening process of drilling, tapping, greatly save the construction time, improve work efficiency, and tighten connection; After the special heat treatment process of hebang stainless steel screws, a dense hardening layer will be formed on the surface, which is not only high hardness, but also good corrosion resistance.



## ■ 表面处理 Surface treatment

### 泰尼克涂层介绍

产品表面涂层采用锌合金涂层，符合AS3566.2-2002防腐技术标准；金相剖面显微密度8级要求，确保镀层结合力；底涂锌合金，360度滚镀；面涂铝环氧聚合物；

- 1、CLASS3防腐等级：涂层锌含量75-80%，其他元素含量20-25%，涂层厚度 $\geq 25\mu$ ，盐雾试验可达1000H 以上无红锈，通过酸雨15个循环以上。
- 2、AS3566 CLASS2防腐等级：涂层锌含量100%，涂层厚度12-19 $\mu$ ，盐雾试验可达240H以上无红锈。

The product's surface coating is treated by zinc alloy coating, conforming to AS3566.2-2002 anticorrosion technology standard, metallographic section micro density 8 level requirements, ensuring coating adhesion force. Bottom coated zinc alloy, 360 degree barrel plating. Surface coated aluminum epoxy polymer.

1. Class 3 protection grade: The zinc content of coating 75-80%, the other elements are 20-25%, coating thickness is more than 25 $\mu$ , salt spray test can reach more than 1000H without red rust, acid rain by more than 15 cycles.
2. Class 2 protection grade: The zinc content of coating 100%, coating thickness of 12-19 $\mu$ , salt spray test can reach more than 240H without red rust.

(高耐蚀——1000小时无红锈) High corrosion resistance-1000 hours without red rust

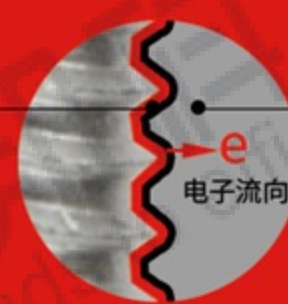
皮膜层 Coating		防锈结构 Rustproof structure
第1层 1st layer	金属电镀层 Metallic zinc layer	铁材被防腐性电镀保护 The steel/iron substrate is protected from corrosion by the self-sacrificial galvanic effect of zinc coating.
第2层 2nd layer	化学成分皮膜层金属 Chemical conversion coating layer	防锈性加强，并在化成层和涂装层作不活性电镀和附着面 Rustproof performance is improved, as the chemical conversion inactivates the zinc plated surface and attributes to tight adhesion between chemically converted layer and paint-layer
第3层 3rd layer	表面烧附层 Baked ceramic surface coating layer	包含以强韧防锈材料之皮膜 Intrusion of corrosive factors are intercepted by the strong paint film made of ceramic materials.

(超耐蚀——2000小时无红锈) Super corrosion resistance 2000 hour salt spray without red rust

高耐腐蚀性 High corrosion resistance	盐水喷雾试验2000小时以上 Salt spray test for more than 2000 hours
无氢脆 No hydrogen brittleness	基材为不锈钢、处理过程无酸洗，毫无氢脆之虞 The base material is stainless steel, the treatment process has no pickling, millisecond. Risk of hydrogen embrittlement
绿色环保 Environmental protection	不含有害物质，如铬酸、铅、镉 Do not contain harmful substances, such as chromic acid, lead, cadmium.
低温处理 Subzero treatment	低200℃温度处理过程不会造成物质变化 Low temperature 200 °C process will not result in a material change
耐药物性 The drug resistance	耐碱、耐紫外线、强烈耐酸雨 Alkali resistance, uv resistance, strong acid rain.
耐候性 weather resistance	-60℃-550℃ -60℃-550℃

锌 (Zn)  
螺钉电镀层  
Screw plating

阳极：金属锌失去电子，形成锌金属氧化  
Anode: metal zinc loses electrons, forming zinc metal oxidation.

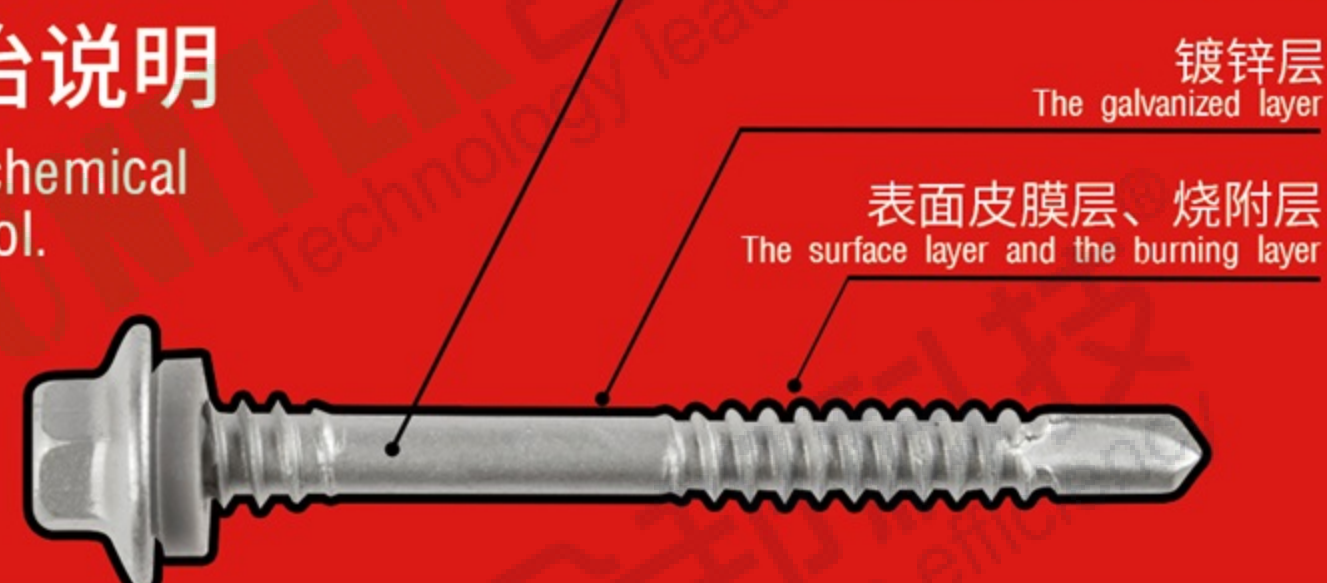


钢 (Steel)  
彩钢内部断面  
Color steel internal section.

阴极：金属钢获得电子，形成阴极保护  
Cathode: metal steel gains electrons to form cathodic protection.

SUS410螺钉基材  
SUS410 screw base material

电化学腐蚀防治说明  
Description of electrochemical corrosion control.





# 03

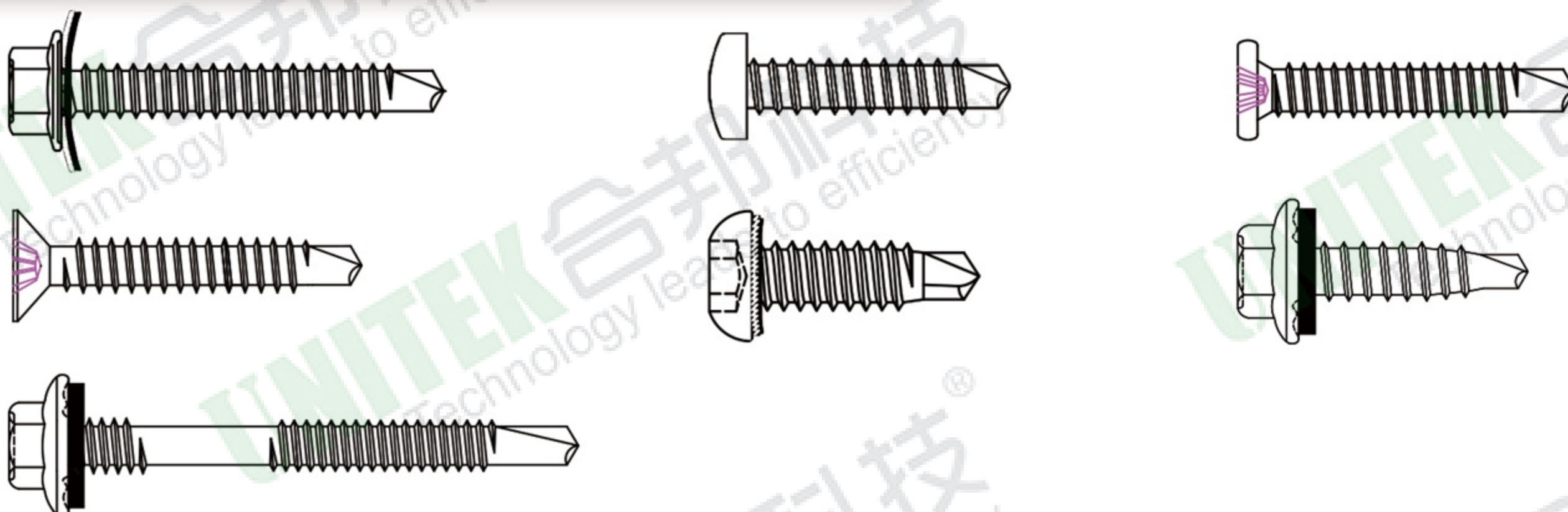
## SELECTION

Guidance for selection

### 选择指南

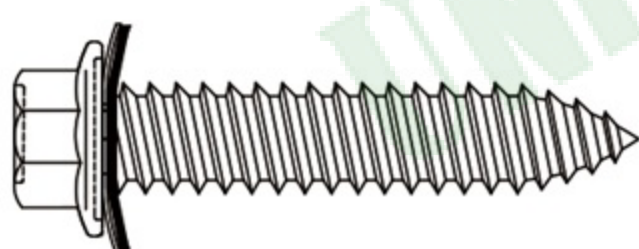
1

钻尾钉系列 (Self-Drilling Screw)



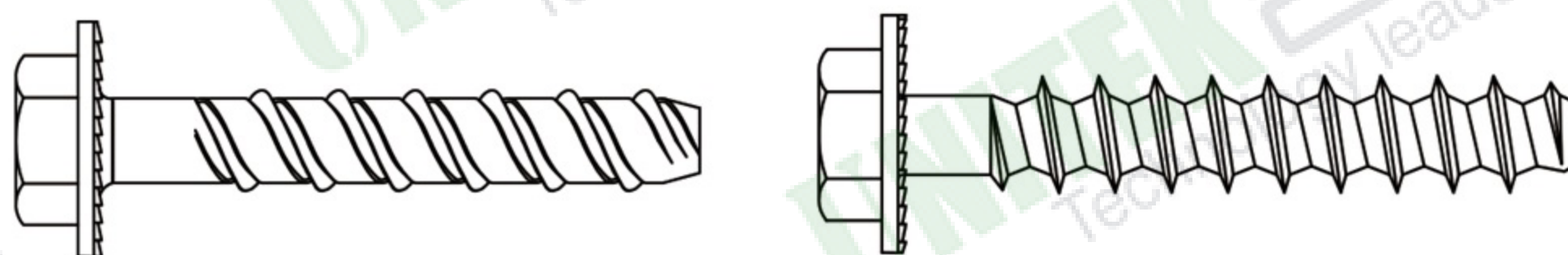
2

自攻钉系列 (Self-Tapping Screw)



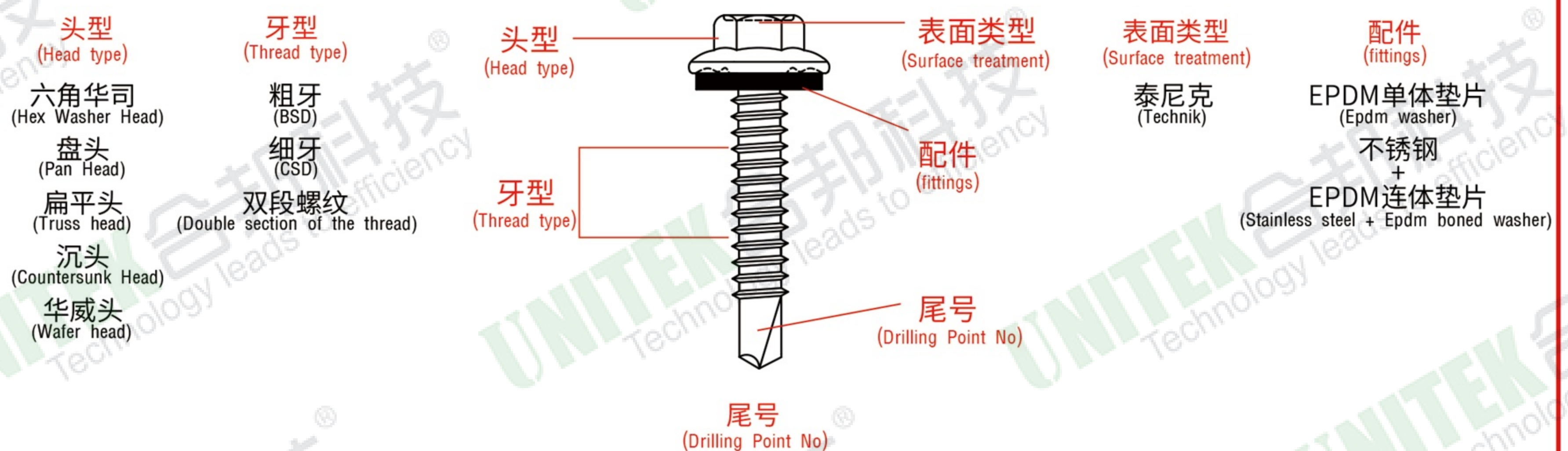
3

水泥锚栓系列 (Concrete anchor Screw)





## 产品基本构成 Basic product composition



1号尾、2号尾、3号尾用于在钢板中下钻并紧固，5号尾、7号尾用于在厚钢檩条中下钻并紧固  
Drilling point no.1, no.2 and no.3 are used to drill and tighten in the steel plate.drilling point no.5 and no.7 are used to drill and tighten in the thick steel purline.

## 螺钉标识说明 Screw identification

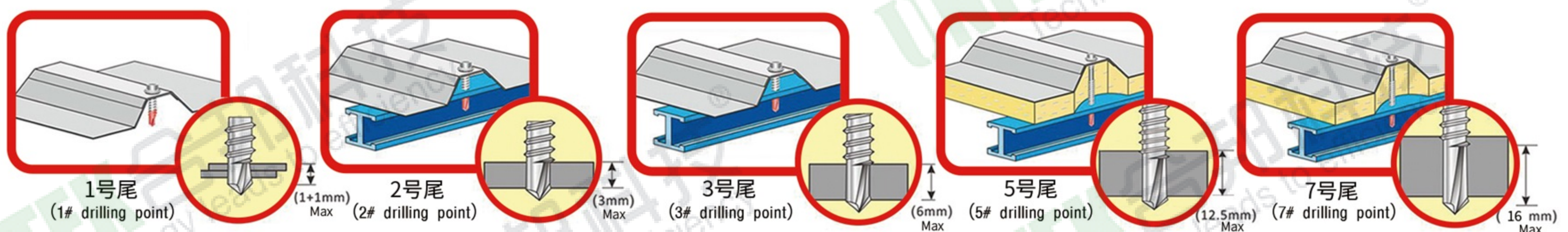
**12 - 14 X 25 - H**

螺钉头型 Head Style of Screw  
螺钉长度 Length(mm)  
每英寸牙纹 Threads per inch  
螺钉外径 Thread Diameter

## 规格尺寸对照表 Specification and size comparison table.

规格对照表 Specification table								
规格 Specifications	#6	#7	#8	#10	#12	#14	1/4	#17
公制尺寸 (mm) Metric size (mm)	3.5	3.9	4.2	4.8	5.5	6.3	6.3	7.5
英制尺寸 (inch) Inch size (inch)	.140	.150	.160	.190	.210	.240	.250	.286

## 攻钻能力介绍 Introduction of drilling capability.



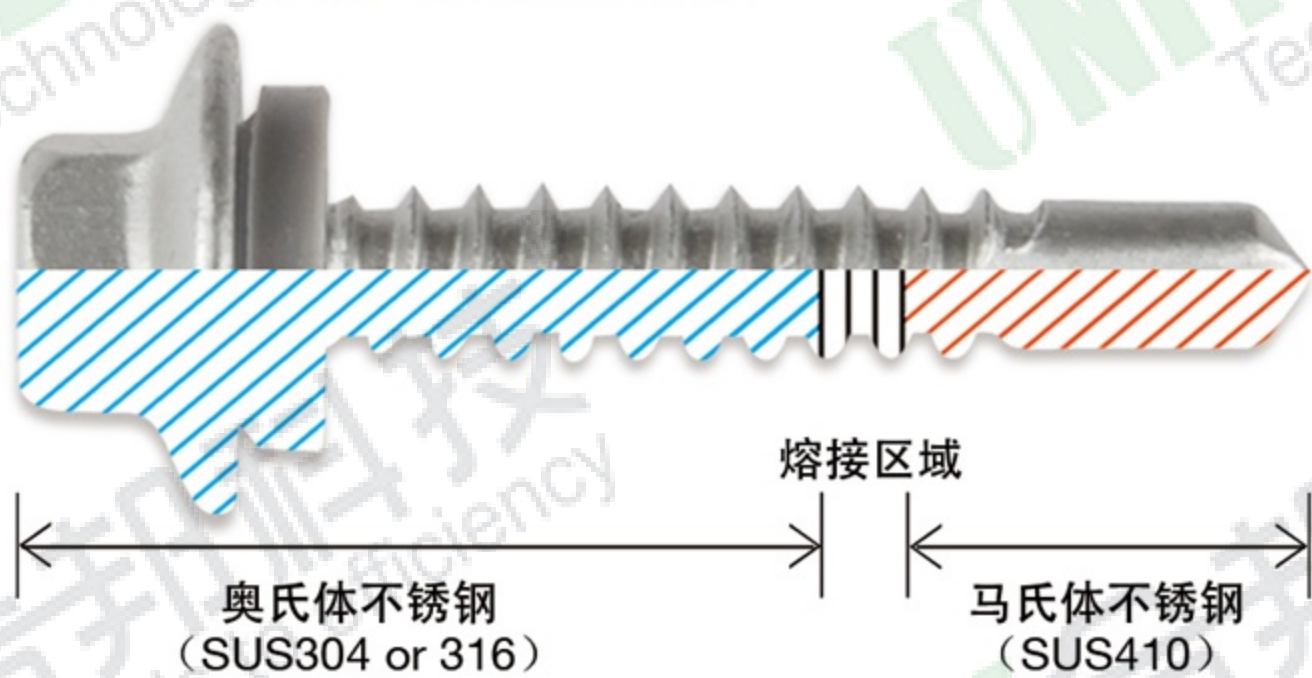


# INTRODUCTION

Product introduction

## 产品介绍

### 4.1 钻尾钉系列 Drilling screw series



本产品采用复合金属制法。螺丝锁紧部分及头部为奥氏体不锈钢材质，攻牙及先端钻尾部分为SUS410材质，表面特殊处理，腐蚀寿命更长久。

The product adopts composite metal manufacturing method screw locking body & head for austenitic stainless steel material, and apex drilling stainless steel 410 material, special treatment on the surface, corrosion life is longer

### 产品应用 Product application



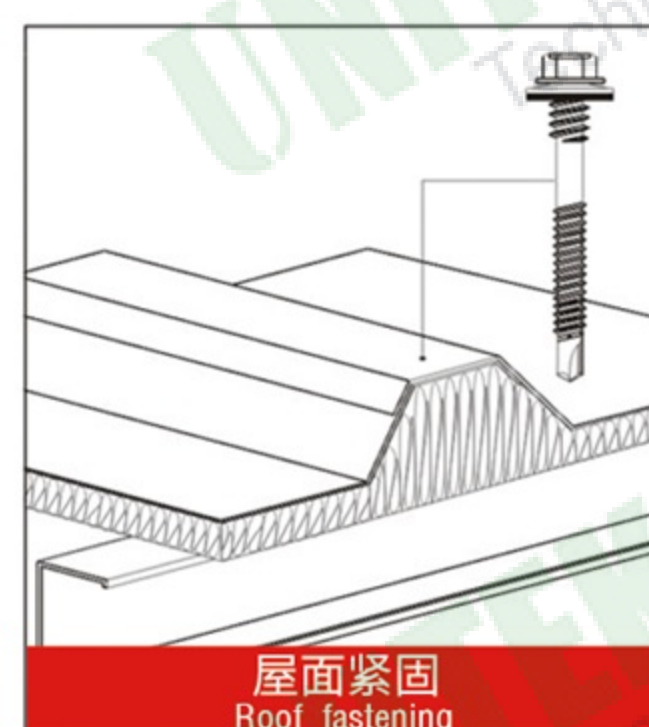
固定座紧固  
Fixed seat fastening  
盘头钻尾钉 Pan Head Self Drilling Screw  
沉头钻尾钉 Countersunk Head Self Drilling Screw  
华夫头钻尾钉 Wafer Head Self Drilling Screw  
六角华司钻尾钉 Hexagon Washer Head Self Drilling Screw



墙面紧固  
Metope fastening  
六角华司钻尾钉 Hexagon Washer Head Self Drilling Screw  
盘头钻尾钉 Pan Head Self Drilling Screw



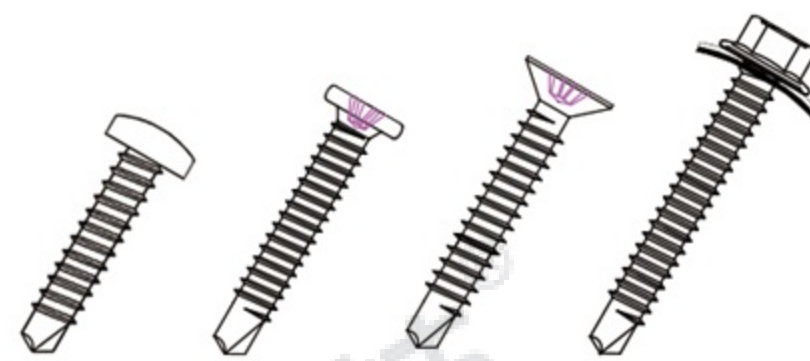
钢板缝合  
Steel plate suture  
六角大华司缝合钉 Hex Washer Self Drilling Screw  
大盘头梅花槽缝合钉 Torx With Pin Pan Head Fix Screw



屋面紧固  
Roof fastening  
六角华司钻尾钉 Hexagon Washer Head Self Drilling Screw

### 薄钢板材+轻钢龙骨系列

Thin steel plate and light steel keel series



名称 Name	驱动槽型 Driving type	规格 Size	螺纹类型 Threads type	长度 Length (mm)	钻尾 Drilling point		总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
					钻尾型号 Drilling point NO	攻钻厚度(mm) Drilled thickness		
盘头钻尾钉 Pan Head Self Drilling Screw	十字、梅花、四方 Philips Torx Square	8#-18*25	8#-18	25	3	4	15	TECHNIK1000
		8#-18*35	8#-18	35	3	4	25	
沉头钻尾钉 Countersunk Head Self Drilling Screw	十字、梅花、四方 Philips Torx Square	8#-18*25	8#-18	16	3	4	12	TECHNIK1000
		8#-18*35	8#-18	19	3	4	22	
华夫头钻尾钉 wafer head Self Drilling Screw	十字、梅花、四方 Philips Torx Square	8#-18*25	8#-18	25	3	4	15	TECHNIK1000
		8#-18*35	8#-18	35	3	4	25	
六角华司钻尾钉 Hexagon Washer Head Self Drilling Screw	防水垫片：EPDM单体垫片或不锈钢+EPDM连体垫片 Waterproof washer: Epdm washer or stainless steel + Epdm boned washer	12#-14*25	12#-14	25	3	6	12	TECHNIK1000 或 TECHNIK2000
		12#-14*38	12#-14	38	3	6	25	
		12#-14*45	12#-14	45	3	6	32	
		12#-14*70	12#-14	70	3	6	55	
		12#-24*25	12#-24	25	3	6	12	



名称 Name	驱动槽型 Driving type	规格 Size	螺纹类型 Threads type	长度 Length (mm)	钻尾 Drilling point		总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
					钻尾型号 Drilling point NO	攻钻厚度(mm) Drilled thickness		
六角华司 钻尾钉 Hexagon Washer Head Self Drilling Screw	防水垫片: EPDM 单体垫片或不锈钢+EPDM 连体垫片 Waterproof washer: Epdm washer or stainless steel + Epdm boned washer	12#-24*38	12#-24	38	3	6	25	TECHNIK1000 或 TECHNIK2000
		12#-24*45	12#-24	45	3	6	32	
		14#-14*25	14#-14	25	3	6	12	
		14#-14*38	14#-14	38	3	6	25	
		14#-14*45	14#-14	45	3	6	32	
		14#-20*25	14#-20	25	3	6	12	
		14#-20*38	14#-20	38	3	6	25	
大盘头梅花 钻尾钉 Torx With Pin Pan Head Self Drilling Screw	不锈钢+EPDM连体垫片 stainless steel + Epdm boned washer	12#-14*45	12#-14	25	3	6	12	TECHNIK1000 或 TECHNIK2000
		12#-14*38	12#-14	38	3	6	25	
		12#-14*45	12#-14	45	3	6	32	
		14#-14*25	14#-14	25	3	6	12	

## 薄钢板材+重型钢（厚钢）系列

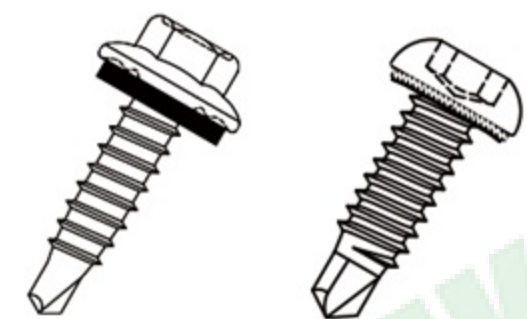
Thin steel sheet + heavy steel (thick steel) series



名称 Name	防水垫片 Waterproof washer	规格 Size	螺纹类型 Threads type	长度 Length (mm)	钻尾 Drilling point		总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
					钻尾型号 Drilling point NO	攻钻厚度(mm) Drilled thickness		
六角华司 钻尾钉 Hexagon Washer Head Self Drilling Screw	EPDM单体垫片或 不锈钢+EPDM垫片 Epdm washer or stainless steel + Epdm boned washer	12#-24*25	12#-24	25	5	12	10	TECHNIK1000 或 TECHNIK2000
		12#-24*38	12#-24	38	5/7	12/16	20/17	
		12#-24*45	12#-24	45	5/7	12/16	30/24	
		12#-24*70	12#-24	70	5/7	12/16	53/49	
		14#-20*38	14#-20	38	5/7	12/16	20/17	
		14#-20*45	14#-20	45	5/7	12/16	30/24	

## 薄钢板材缝合钉系列

Thin sheet steel plate suture series



名称 Name	防水垫片 Waterproof washer	规格 Size	螺纹类型 Threads type	长度 Length (mm)	钻尾 Drilling point		总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
					钻尾型号 Drilling point NO	攻钻厚度(mm) Drilled thickness		
六角大华司缝合钉 Hex washer fixing screw	不锈钢+EPDM连体垫片 stainless steel + Epdm boned washer	14#-14*22	14#-14	22	1	1.2	9	TECHNIK1000 或 TECHNIK2000
大盘头梅花槽缝合钉 Torx With Pin Pan Head Fix Screw	不锈钢+EPDM连体垫片 stainless steel + Epdm boned washer	14#-14*22	14#-14	22	1	1.2	9	TECHNIK1000 或 TECHNIK2000

## 双段螺纹钻尾钉系列

Double thread self drilling series






名称 Name	防水垫片 Waterproof washer	规格 Size	螺纹类型 Threads type	长度 Length (mm)	钻尾 Drilling point		总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
					钻尾型号 Drilling point NO	攻钻厚度(mm) Drilled thickness		
六角华司双螺纹 钻尾钉 Hexagon Washer Head Self Drilling Screw With Double Thread	EPDM单体垫片 或不锈钢+EPDM 连体垫片 Epdm washer or stainless steel + Epdm boned washer	12#-14/ 14#*45	12#-14/ 14#-14	45	3	6	33	TECHNIK1000 或 TECHNIK2000
		12#-14/ 14#*68	12#-14/ 14#-14	68	3	6	56	
		12#-14/ 14#*125	12#-14/ 14#-14	125	3	6	113	

注: 螺纹类型一栏中"/"左指主螺纹, "/"右指首下螺纹。

Note: "/" left refers to the main thread in the type of thread, "/" right refers to the first thread.




机械性能 Mechanical properties

钻尾号 Drilling point NO	规格 Size	 扭断力 N.m (min) Wring force	 抗拉强度 kgf (min) Tensile strength	 剪切力 kgf (min) The shear stress
3号尾 3#	#8 (Ø4.2)	6	—	—
	#10 (Ø4.8)	7	—	—
	#12 (Ø5.5)	10	820	625
	#14 (Ø6.3)	15	950	700
5号尾 5#	#12 (Ø5.5)	10	950	650
	#14 (Ø6.3)	15	1060	750
7号尾 7#	#12 (Ø5.5)	10	950	650
	#14 (Ø6.3)	15	1060	750

注：以上数据是在实验室条件下测出的平均数值，在设计时要考虑安全系数。  
Note: the above data is the average value measured in laboratory conditions. Safety factor should be considered when designing.

拉拔力测试 Pullout test

	测试钢板厚度 (mm) Test plate thickness	拉拔力kgf(min) Drawing force			
		#12 (Ø5.5)		#14 (Ø6.3)	
		3号尾 3#	5号尾 5#	3号尾 3#	5号尾 5#
		2	300	—	320
	3	550	—	580	—
	4	800	—	820	—
	6	820	—	950	—
	10	—	950	—	1060
	12	—	950	—	1060

注：以上数据是在实验室条件下测出的平均数值，在设计时要考虑安全系数。  
Note: the above data is the average value measured in laboratory conditions. Safety factor should be considered when designing.

攻速测试 Drilling test

螺纹规格 Thread specification	测试板厚度 (mm) Test plate thickness	轴向力 (N) Axial force	拧入时间 (S) Max Drilling speed	载荷下螺钉转速/min Drilling speed under load
ST4.2	1.5+1.5=3	250	5	1800-2500
ST4.8	2+2=4	250	7	1800-2500
ST5.5	2+3=5	350	11	1000-1800
ST6.3	2+3=5	350	13	1000-1800

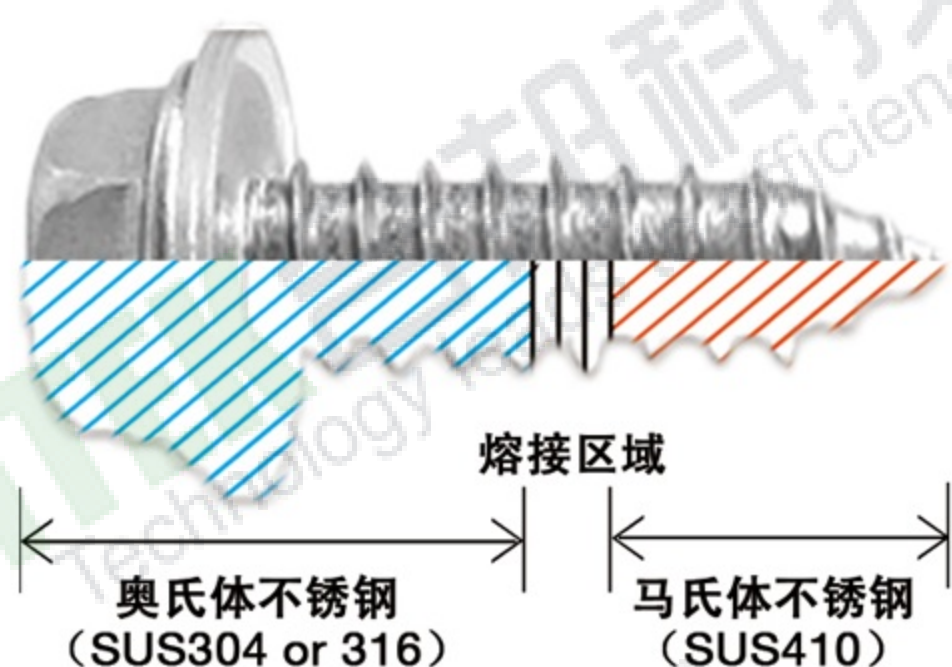
注：以上数据是在实验室条件下测出的平均数值，在设计时要考虑安全系数。  
Note: the above data is the average value measured in laboratory conditions. Safety factor should be considered when designing.





TECHNIK

## 4.2 自攻钉系列 Tapping screw series



奥氏体不锈钢材料耐腐蚀性能优异，SUS410马氏体不锈钢耐蚀性稍逊，但拥有高强度和硬度，螺钉装配后，螺纹缔结部份和裸露在外的头部均为奥氏体不锈钢，可耐风雨和一定酸碱环境侵蚀。

The corrosion resistance of austenitic stainless steel material is excellent, SUS410 martensitic stainless steel corrosion resistance less, but with high strength and hardness, screw assembly, thread forming part and bare head for austenitic stainless steel, resistant to wind and rain erosion and acid and alkali environment.

## 产品应用 Product application

### 薄钢板材+重型钢（厚钢）系列

Thin steel sheet + heavy steel (thick steel) series



名称 Name	防水垫片 Waterproof washer	规格 Size	螺纹类型 Threads type	长度 Length (mm)	所需预钻孔孔径(mm) Predrilling hold	总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
六角华司自攻钉 Hex Washer Head Self Tapping Screw	不锈钢+EPDM连体垫片 Stainless steel + Epdm boned washer	11/32"-12*25	尖尾三角牙 Pin Triangle	25	6.7	13	TECHNIK1000 或 TECHNIK2000
		11/32"-12*65		68	6.7	56	
		11/32"-12*125		125	6.7	113	
		3/8"-12*25		25	7.3	13	
		3/8"-12*68		68	7.3	56	
		3/8"-12*125		125	7.3	113	

## 机械性能 Mechanical properties

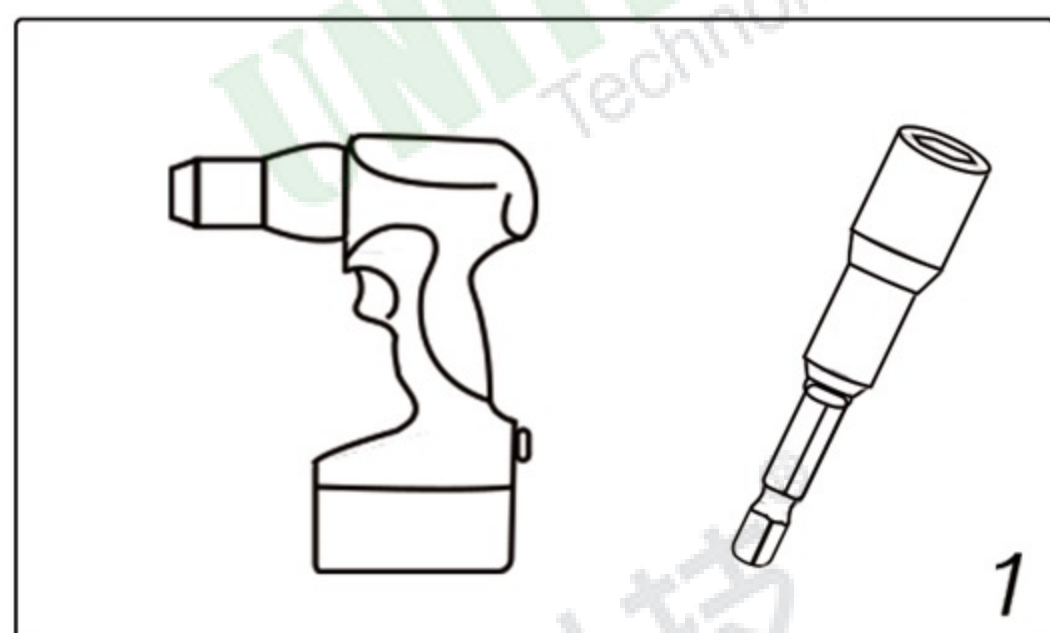
规格 Size	扭断力 N.m (min) Wring force	抗拉强度 kgf (min) Tensile strength	剪切力 kgf (min) The shear stress
11/32	16	2400	1450
3/8	18	2800	1700

注：以上数据是在实验室条件下测出的平均数值，在设计时要考虑安全系数。

Note: the above data is the average value measured in laboratory conditions. Safety factor should be considered when designing.

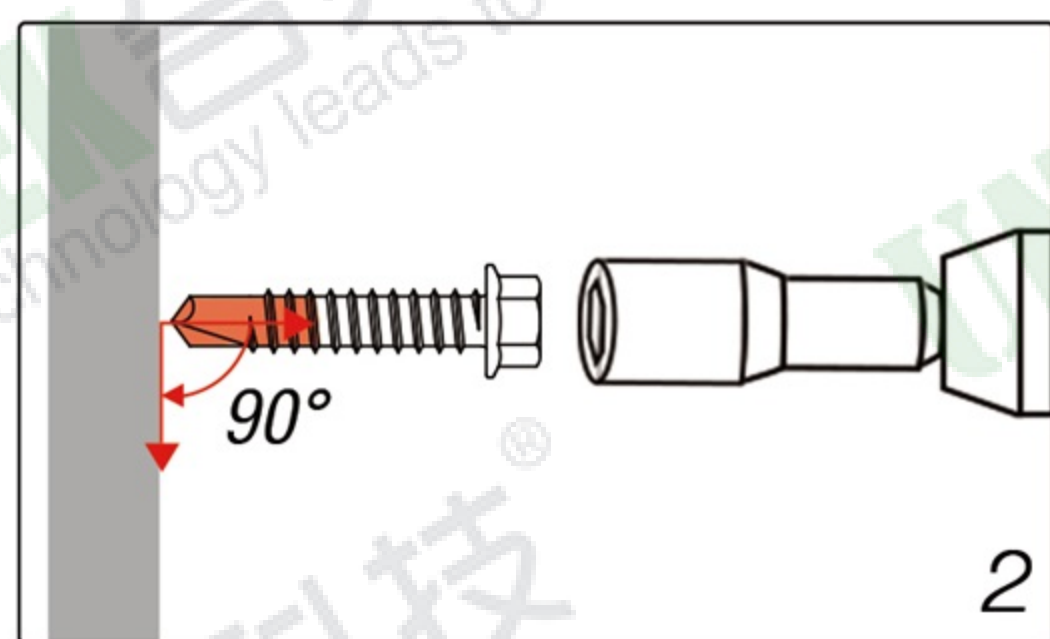


## 安装规范与步骤 Installation specifications and steps



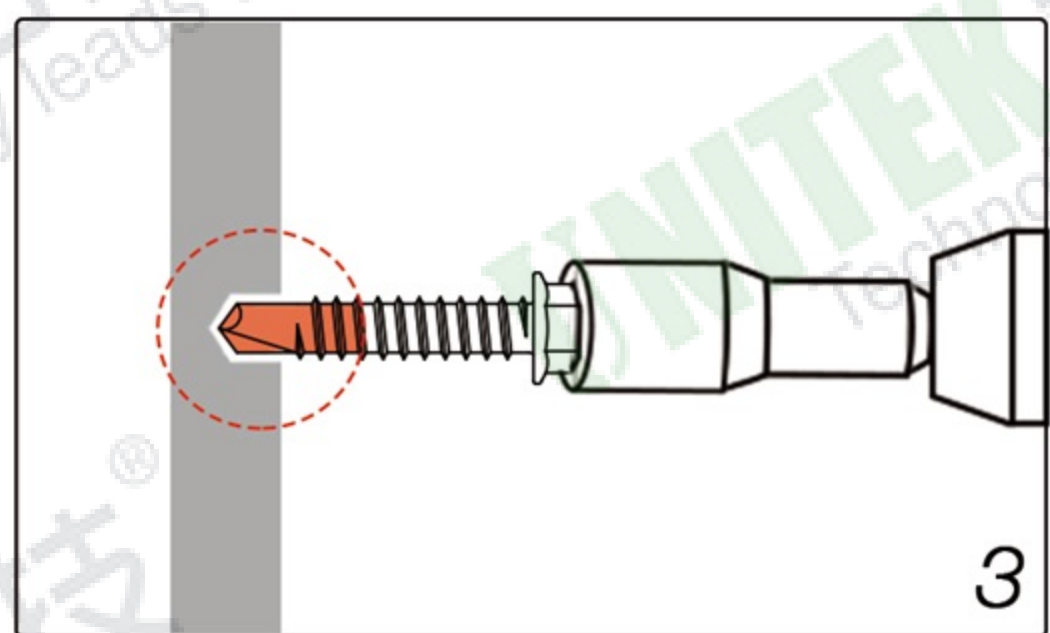
### 1、准备工具

- 选择功率为350-500W的手电钻，如果有定位器则将电钻的定位器调整到合适的位置，以保证螺钉下钻到正确位置。  
Choose the electric drill with 350W-500W power, adjust the positioner to the right place, to make sure the screw drill into the right position.
- 将选择好的相应套筒安装在电钻上，再将螺钉套入套筒中。  
Choose the sockets and assemble on the electric drill, then put the screw into the sockets.



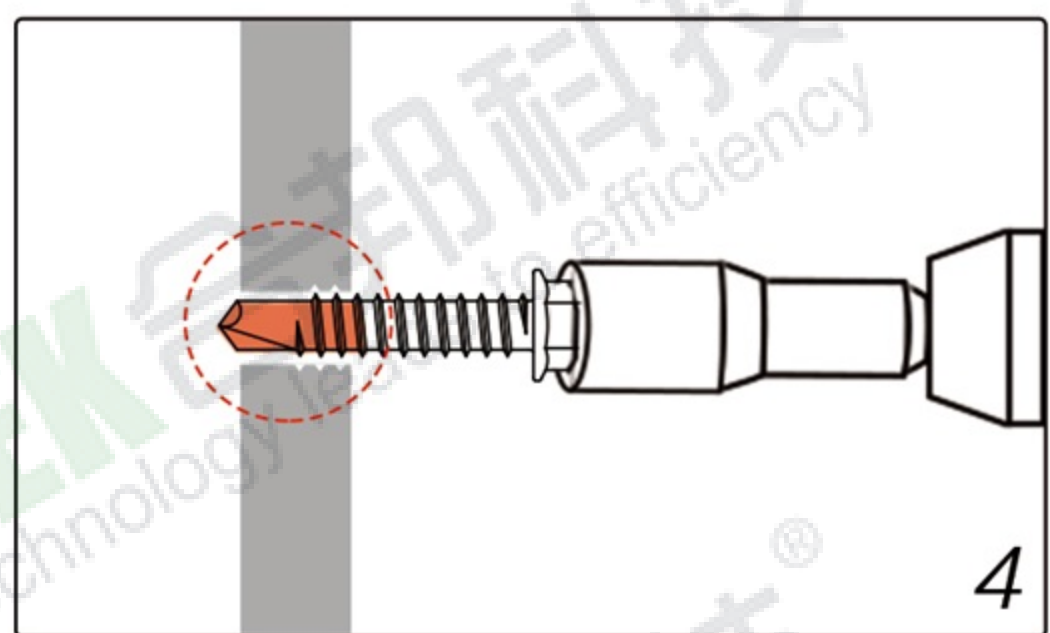
### 2、定位

- 施工作业前，作业者注意身体站立方位和站姿，保证身体重心稳定及施力时方便舒适。  
The worker should mention the body posture, keep body stability and use power conveniently.
- 安装时螺钉与电钻必须垂直于压型钢板的表面，并用力挤压开创一中心点，以防螺钉滑动飘移。  
Make the screw and electric drill perpendicular to the surface of the steel, press hard to lead a center hole, prevent screw from sliding.



### 3、钻孔

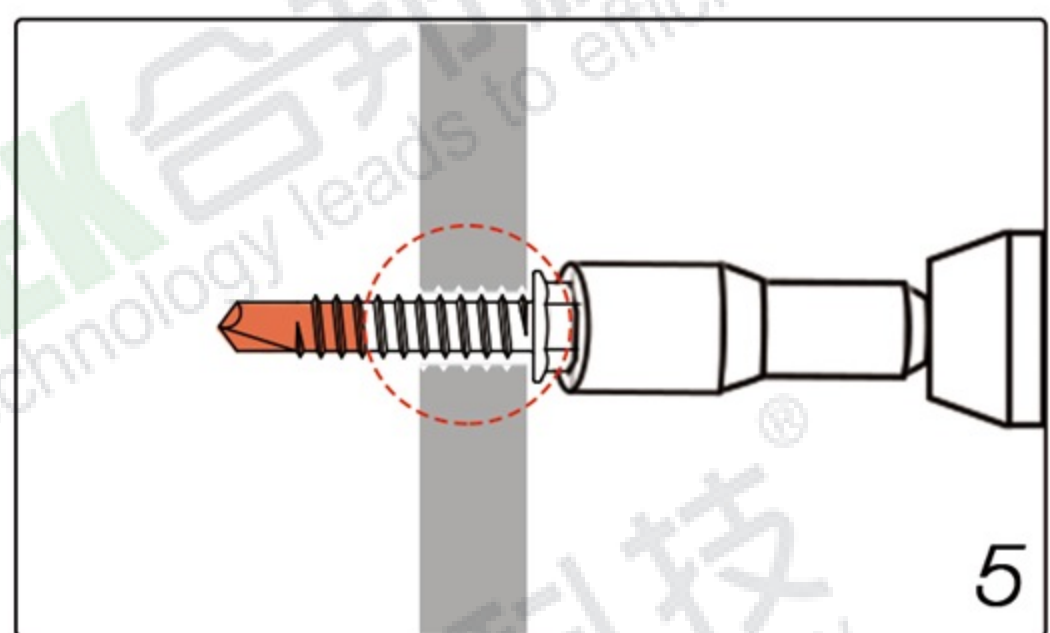
- 启动电动开关，先用2-5公斤的力慢速使螺钉成功切出铁屑，然后逐渐施加力量至10-25公斤，同时视攻钻情况逐渐加快转速，注意始终保证用力方向与中心点在同一垂直线上（这点非常重要），并保持电钻转速在1800-2200转/分。  
Turn on the switch of electric drill, drill out the iron scurf slowly with power 2kg-5kg, add power from 10kg to 25kg. If drill smoothly, please drill faster. Make the power direction and center hole on the same vertical line. (This is very important.)



### 4、攻牙

- 螺钉穿透基材后，排屑即行停止，电钻攻钻声音有明显变化，此时电钻转速保持不变，并随时留意电钻旋转扭力，当旋转变轻松时，即表明业已攻好丝路。

When you drill through the steel, the sound of drilling will be changed obviously. Keep the drilling speed, and mention the rotate torsion of eclectic drill. The rotating become easier, the process of drilling are finished.



### 5、牵引固定

- 当电钻旋转变轻松时，即表明螺钉前端已经攻牙完毕，进入牵引紧固阶段，此时应迅速减慢电钻转速并减轻或停止施加力量，小心地将螺钉旋紧固定到位。

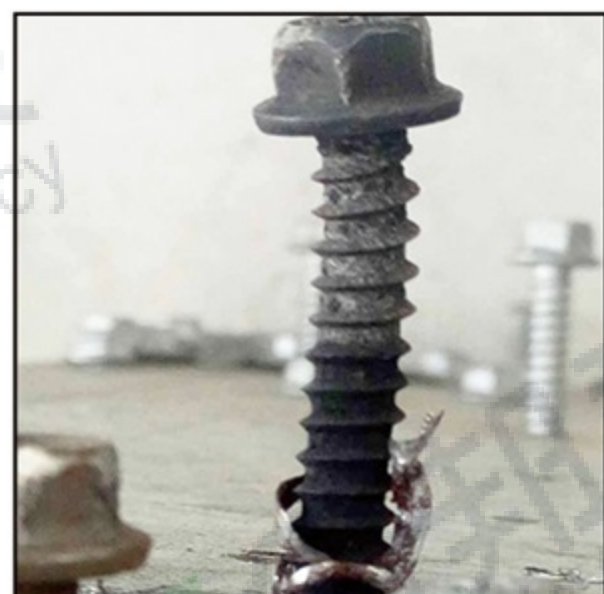
The rotate torsion of eclectic drill become easier, indicate the front point drilling have been finished, the next step is fasten. The worker should slow down the speed of the electric drill and reduce the power or stop adding the power. Fasten the screw to the right place carefully.





TECHNIK

## 施工作业中常见失效现象 Common failures in construction work



弯曲  
Bend



断裂  
Break



卡死  
Stuck



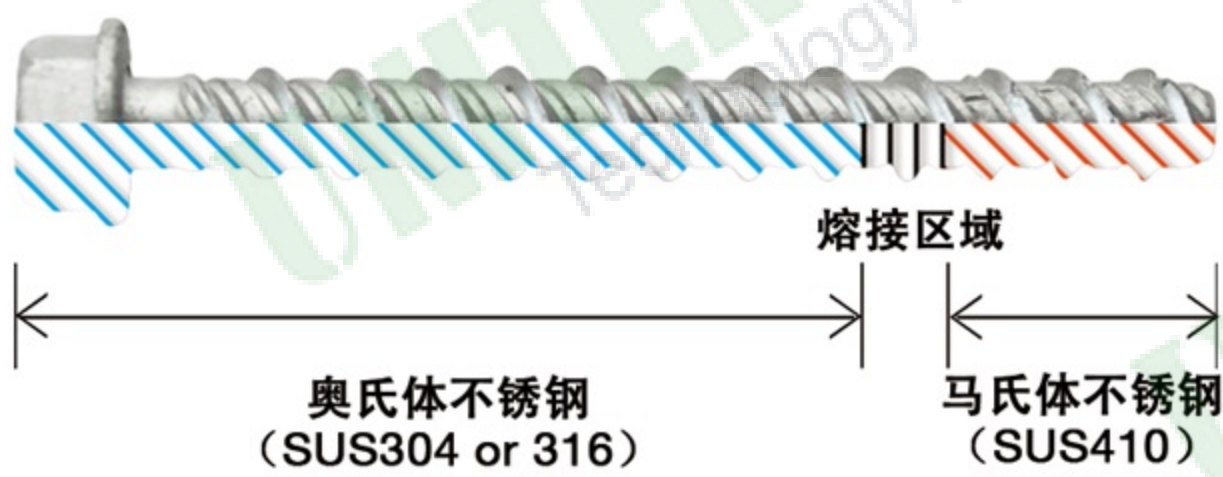
头部驱动滑脱  
Socket slide

## 解决方法 Solution

现象 Problem	原因 Reason	解决方法 Solution
弯曲 Bend	1、作业中施力方向和螺杆中心线方向不一致； The power direction and center hole are not on the same vertical line 2、施力过大； Overexertion 3、转速过快； Drill too fast	1、施工作业时，作业者注意身体站立方位和站姿，以始终保证施力方向、螺杆中心线方向与中心点在同一垂直线上 Mention the body posture, Make The power direction and center hole on the same vertical line 2、启动电动开关后，先用较小的力量慢速使螺钉成功切出铁屑，然后在保持正确施力方向的基础上逐渐施加力量直至穿透 Turn on the switch of electric drill, drill out the iron scurf with small power, keep the power direction with more power till drilling through the steel. 3、作业时，电钻要缓慢启动，并视攻钻情况逐渐加快转速 At the beginning, drill slowly, if drill smoothly then drill faster
断裂 Break	1、扭力过大； Torsion too much 2、熔接不牢； Welding not strong	1、当螺钉卡住不前时，请不要行蛮用力，以防将螺钉扭曲变形甚至拧断，此时可将螺钉缓慢退出，换一支接着攻钻 When the screw get stuck, don't be overexertion, prevent screw from bending to break. The worker should take it out and change it. 2、作业时，可将螺钉钻尾及前端螺纹部分蘸些润滑油脂后再试用 It will be better to add some lube oil on the point and the front thread 3、如果断口两端颜色明显不一致，且此不良比列超出5%，此应属熔接不牢，出现此情况请即时致电供应商 If there are two color between the broken pieces, and the qualified rate is more 5%, please contact supplier as soon as possible.
卡死 Stuck	1、钻尾至螺纹段衔接不当； Not good at the welding place 2、奥氏体材质段螺纹不良； Defective austenite material thread	1、请不要行蛮用力，可将螺钉缓慢退出，换一支接着攻钻；或作业时，可将螺钉钻尾及前端螺纹部分蘸些润滑油脂后再试用 Don't be overexertion, prevent screw from bending to break. The worker should take it out and change it. It will be better to add some lube oil on the point and the front thread
头部驱动滑脱 Socket slide	1、螺钉头部磨损、驱动槽磨损或驱动槽浅； Screw head broken, socket broken. 2、电钻套筒不配套； Wrong socket.	1、螺批或套筒必须和螺钉驱动槽或头部垂直、紧密地插劳，不得有侧歪和偏斜 The socket should fix to the screw drive. keep straight. 2、换用正规螺丝驱动套筒，或致电供应商提供 Change and use the right socket or contact the screw supplier.



4.3水泥锚栓系列 Concrete anchor series



六角头水泥锚栓采用一体式设计，是具备重负荷的锚栓。具有安装简单，易于识别，可拆卸和耐振动等特点。此锚栓拥有多项独特的设计适用于多种基材。传统的膨胀锚栓有外扩力，容易导致基材开裂。此锚栓克服了这些缺点，省时省力，且不需要复杂的安装步骤。

The concrete screw bolt adopt one type design, which is a heavy load anchor bolt. It has the features of simple installation, easy recognition, disassembly and vibration resistance. This bolt has a number of unique designs suitable for a variety of substrates. The traditional expansion bolt has the external expansion, which can easily cause the crack of the base material. This anchor bolt overcomes these shortcomings, saves time and labor, and also does not need complex installation steps.

产品应用 Product application



非开裂混凝土  
Uncracking concrete



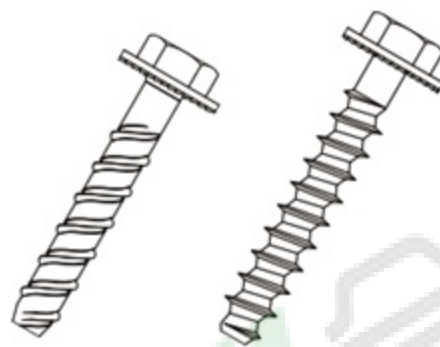
开裂混凝土  
Cracking concrete



实心砖/砌体  
Solid red brick



实心石灰砂砖  
Grout filled block



名称 Name	驱动槽型 Drive type	规格 Size	螺纹类型 Threads type	长度 Length(mm)	总紧固厚度(mm) Fastening thickness	表面处理 Surface treatment
盘头水泥锚栓 Pan Head Concrete anchor	十字、梅花、四方 Philips Torx Square   	M5*35	高低牙 High-low thread	35	10	TECHNIK1000
		M5*55		55	10	
		M6*70		70	10	
沉头水泥锚栓 Countersunk Head Concrete anchor	十字、梅花、四方 Philips Torx Square   	M5*35	高低牙 High-low thread	35	10	TECHNIK1000
		M5*55		55	35	
		M6*70		70	10	
		M8*90		90	15	
六角华司水泥锚栓 Hexagon Washer Head Concrete anchor	可加配垫片 fit a washer	M6*70	高低牙 High-low thread	70	10	TECHNIK1000
		M6*90		90	10	
		M8*70		70	15	
		M8*90		90	15	
		M8*120		120	15	
		M10*90	双底径牙 Double bottom thread	90	15	
		M10*120		120	15	
		M10*150		150	15	
		M12*90		90	15	
		M12*120		120	15	
		M12*150		150	15	
		M14*90		90	15	
		M14*120		120	15	
		M14*150		150	15	



性能数据

Performance data

混凝土极限承载能力 (kN)  
Ultimate bearing capacity of concrete.

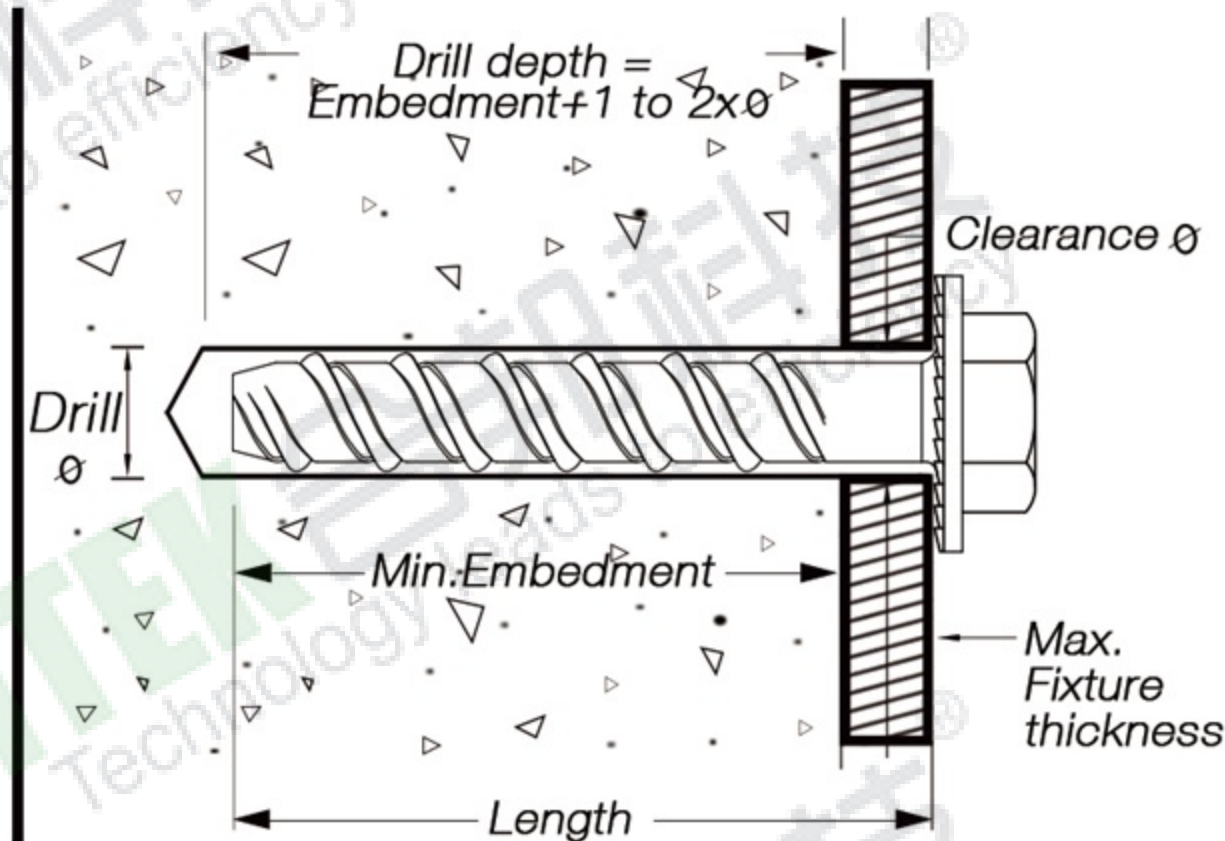
规格 Size	埋深(mm) Embedment depth	15 MPa 混凝土 15MPa Concrete		30 MPa 混凝土 30MPa Concrete		40 MPa 混凝土 40MPa Concrete	
		抗拉强度 $N_A$ Tension	剪切力 $V_A$ Shear	抗拉强度 $N_A$ Tension	剪切力 $V_A$ Shear	抗拉强度 $N_A$ Tension	剪切力 $V_A$ Shear
6	25	4.4	4.2	7.4	8.4	7.9	9.9
	30	7.2	10.3	9.1	11.5	9.5	11.6
	45	9.9	11.2	15.0	11.9	17.6	13.5
8	35	8.9	10.6	12.2	14.4	13.0	18.9
	40	10.5	13.6	14.2	18.3	15.6	20.2
	60	17.7	19.1	22.0	19.1	29.1	20.3
10	40	11.8	14.6	14.7	19.7	16.7	29.7
	50	14.3	19.8	18.1	25.6	20.9	29.7
	75	22.1	24.8	28.5	26.1	35.3	29.7
	90	28.1	29.3	36.8	29.9	44.1	30.6
12	50	20.1	26.3	21.8	29.7	26.5	36.1
	60	21.4	29.9	27.7	34.3	31.7	36.8
	90	31.9	34.7	52.3	37.7	56.1	37.7
	110	32.2	34.7	58.4	38.7	61.6	38.8

注：抗压强度性能数据是基于在未加钢筋混凝土中进行的试验  
Note: the compressive strength performance data is based on the test in unreinforced concrete.

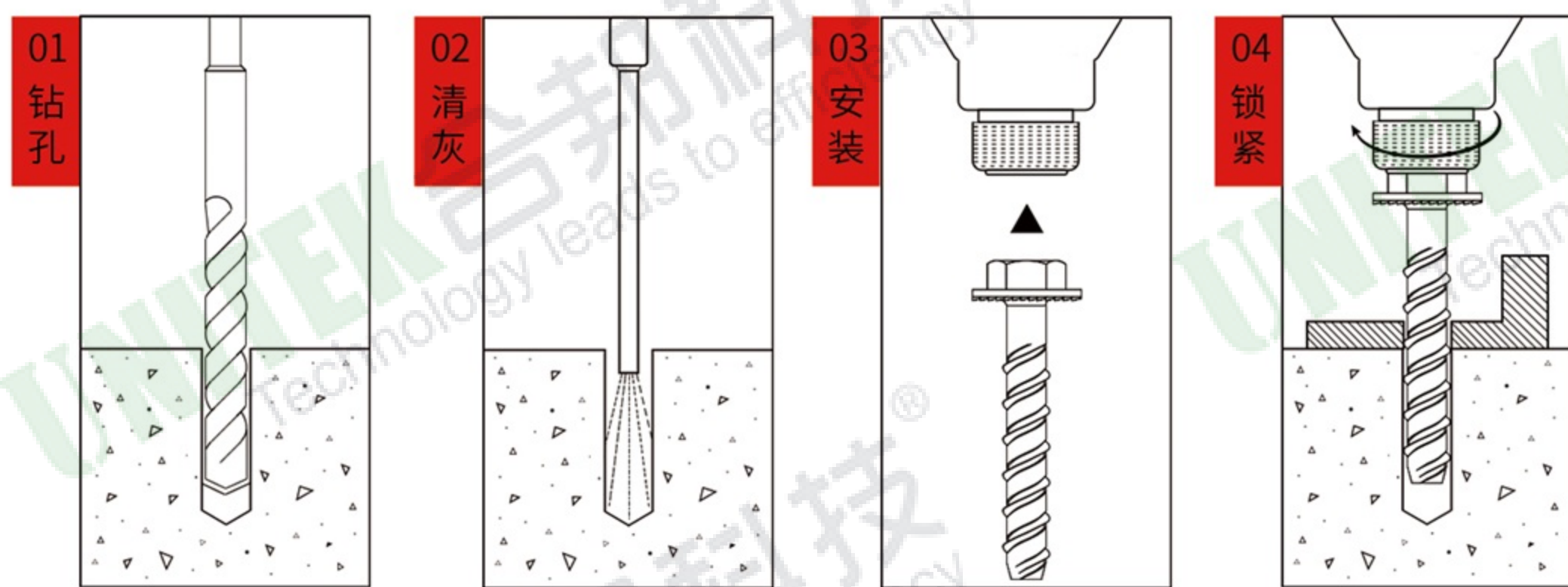
安装规范与步骤

Installation specifications and steps.

钻孔深度  
Drill hole depth



安装步骤  
Installation steps



最大安装扭矩(Nm)  
Maximum mounting torque

基材 Base material	规格 Size				
	M6	M8	M10	M12	M14
15 MPa 混凝土 15MPa Concrete	7	14	35	65	90
30 MPa 混凝土 30MPa Concrete	14	34	45	70	90
40 MPa 混凝土 40MPa Concrete	14	34	45	70	90
石灰砖 Grout filled block	14	15	20	45	70
实心砖 Solid red brick	14	15	30	70	90



# 05

## ENGINEERING

Engineering Projects

工程案例



上海迪士尼



迪拜塔



杭州奥体中心



澳门银河酒店





TECHNIK



成都双流机场



银川机场



上海虹桥站



西安咸阳机场



天津机场



沙特YAMAMA





**北美洲**  
North America  
美国、加拿大  
USA, Canada



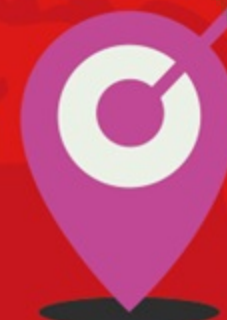
**欧洲**  
Europe  
德国、土耳其、瑞士、英国、俄罗斯  
Germany, Turkey, Switzerland, Britain, Russia



**亚洲**  
Asia  
日本  
Japan



**南美洲**  
South America  
巴西、阿根廷  
Brazil, Argentina



**大洋洲**  
Oceania  
澳大利亚、新西兰  
Australia, New Zealand

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