



WANZHI STEEL

2021

镀锌管产品介绍

Galvanized Steel Pipe

—— 万智 · 集团 ——

WANZHI GROUP



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万智钢铁是中国领先的钢铁产品生产商，负责协调销售，仓储，深加工，分销，出口，以满足客户对钢铁供应链的需求。

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公司概况

Company Profile

万智钢铁是中国领先的钢铁产品生产商，负责协调销售，仓储，深加工，分销，出口，以满足客户对钢铁供应链的需求。

我们的办公室位于河南省郑州市，工厂位于山东省，靠近青岛港。我们的产品涵盖碳钢，不锈钢，冷轧和热轧板，GI，GL，PPGI，PPGL，瓦楞屋顶板，夹心墙板，角钢，钢筋，钢管，钢带等，可根据客户要求定制。

Wanzhi Steel is a leading manufacturer of steel products in China, which coordinates sales, warehousing, deep processing, distribution, exporting to meet customers' steel supply chain needs. Our office is located in Zhengzhou, Henan Province, and the factory is in Shangdong Province, which is near to Qingdao Port. Our products cover carbon steel, stainless steel, cold-rolled and hot-rolled sheet, GI, GL, PPGI, PPGL, corrugated roofing sheet, sandwich wall panel, steel angle, steel bar, steel tube, steel strip, etc., which can be customized according to customers requirements.



工厂车间
Factory Workshop



工厂车间
Factory Workshop



镀锌圆管

Galvanized Steel Round Pipe

镀锌圆管是一种由镀锌带钢或镀锌板卷制成的圆形横截面的钢管。它是通过冷弯形成的，然后通过高频焊接。另一种方法是将预先准备的冷弯空心钢管制成，然后将镀锌圆管热浸镀锌。镀锌圆管在钢表面覆盖厚而致密的纯锌层，可以防止钢材接触任何腐蚀性溶液，并保护钢材不受腐蚀。因此镀锌圆管具有涂层均匀，附着力强，使用寿命长的优点。

Galvanized Steel Round Pipe is a kind of steel pipe with circular cross-section made from galvanized strip steel or galvanized coil. It is formed by cold bending and then welded by high frequency. Another method is to make the cold-formed hollow steel pipe prepared in advance and then hot-dip galvanized the galvanized round pipe. Galvanized round tubing has a thick and dense pure zinc layer covering the steel surface, which can prevent the steel substrate from being touched with any corrosive solution, and protect the steel substrate from corrosion. So galvanized round tube has the advantages of uniform coating, strong adhesion, and long service life.

项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	镀锌圆管 (Galvanized Steel Round Pipe)
厚度 (Thickness)	0.3mm-12mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
直径 (Diameter)	15mm-219mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	热轧, 冷轧 (ERW, Hot-rolled, Cold-rolled)
表面处理 (Surface Treatment)	1. 镀锌 2. PVC, 黑色和彩色喷漆 3. 透明油, 防锈油 4. 根据客户要求 (1. Galvanized 2. PVC, Black and color painting 3. Transparent oil, anti-rust oil 4. According to clients requirement)
产品应用 (Product Application)	广泛用于结构件, 配件, 建筑, 流体运输, 机械零件, 汽车拖拉机零件的受力零件等 (Widely used in Structure, Accessorize, Construction, Fluid transportation, machinery parts, the stress parts of the automobile tractor parts and so on)

镀锌圆管的理论重量计算: [外径 (mm) - 厚度 (mm)] * 厚度 (mm) * 长度 (m) * 0.02466 = (kg / pcs)

注意: 0.02466是该公式的系数, 该系数是固定的。例如, 镀锌钢管管外径为20mm, 厚度为2mm, 长度为6m, 则每片的重量将为5.33 kg [(20-2) * 2 * 6 * 0.02466 \approx 5.33kg / pcs]

Theoretical weight calculation of galvanized round pipe: [outer diameter (mm)-thickness (mm)] * thickness (mm) * length (m) * 0.02466 = (kg / pcs)

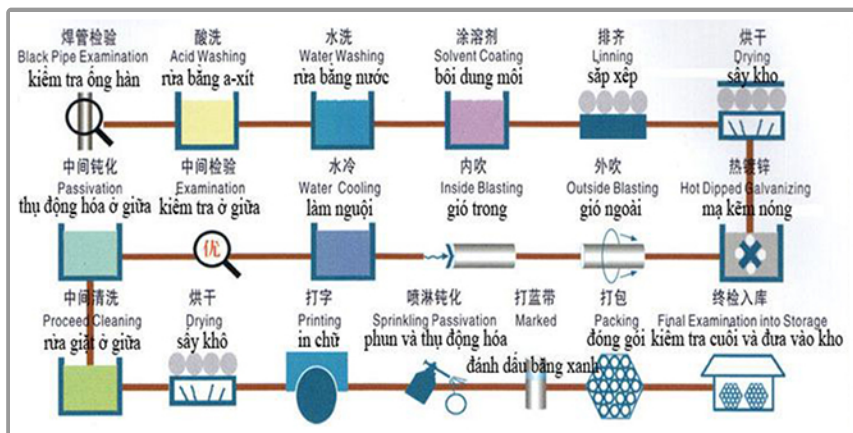
Note: 0.02466 is the coefficient of this formula, which is fixed. For example, if the outer diameter of the galvanized steel pipe is 20mm, the thickness is 2mm, and the length is 6m, the weight of each piece will be 5.33 kg [(20-2) * 2 * 6 * 0.02466 \approx 5.33kg / pcs]

镀锌圆管的制造工艺 (Galvanized Steel Round Pipe Making Process)

处理流程为：

黑管→碱洗→水洗→酸洗→水洗→浸泡剂→干燥→热浸镀锌→外吹→内吹→风冷→水冷→钝化→水洗→干燥→仓储

- 1.碱洗：去除钢管表面的油。
- 2.酸洗：去除钢管表面的氧化皮。
- 3.水冲洗：去除附着在钢管表面的残留酸和铁盐。
- 4.浸水剂：去除钢管表面上的所有杂质，确保钢管与锌液保持清洁接触，形成良好的涂层。
- 5.干燥：将钢管浸入锌锅中以防止爆炸。
- 6.热浸镀锌：将整个钢管浸入锌浴中，使钢管表面均匀地镀锌。
- 7.外部吹气和内部吹气：吹走钢管中多余的锌液，获得光滑整洁的外观。
- 8.水冷：为降低镀锌圆管的温度，水冷箱温度控制在80℃。
- 9.钝化：通过用钝化液喷涂和吹制成品管来对镀锌管的表面进行钝化。
- 10.冲洗：洗去多余的钝化液。
- 11.干燥：镀锌圆管穿过带有蒸汽加热管的干燥架，干燥后包装。



The process flow is:

Black tube→Alkaline washing→Water washing→Pickling→Water rinsing→Soaking agent→Drying→Hot dip galvanizing→Outside blowing→Internal blowing→Air cooling→Water cooling→Passivation→Water rinsing→Drying→Warehousing

1.Alkaline washing: to remove the oil on the surface of the steel pipe.

2.Pickling: to remove the oxide scale on the surface of the steel pipe.

3.Water rinsing: to remove residual acid and iron salts attached to the surface of the steel pipe.

4.Soaking agent: to remove all impurities on the surface of the steel pipe, ensure that the steel pipe is in clean contact with the zinc liquid to form a good coating.

5.Drying: to prevent explosion when a steel pipe is immersed in a zinc pot.

6.Hot Dip Galvanizing: the whole steel tube is soaked in a zinc bath so that the surface of the steel tube is evenly coated with zinc.

7.Outside Blowing & Internal Blowing: to blow away the excess zinc liquid of the steel pipe, obtain a smooth and clean appearance.

8.Water cooling: to reduce the temperature of the round galvanized pipe, the temperature of the water cooling tank is controlled at 80°C.

9.Passivation: the surface of the galvanized pipe is passivated by spraying and blowing the finished pipe with passivation liquid.

10.Water Rinsing: to wash off the excess passivation liquid.

11.Drying: the galvanized round pipes pass through a drying rack with steam heating pipes, and are packaged after being dried.

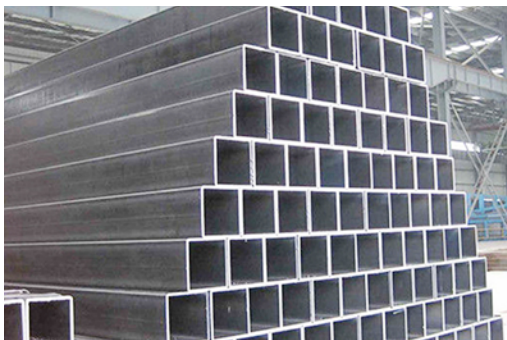
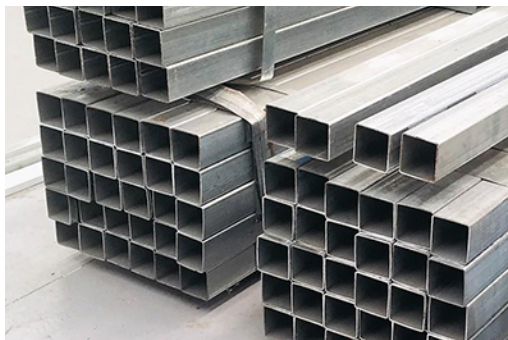
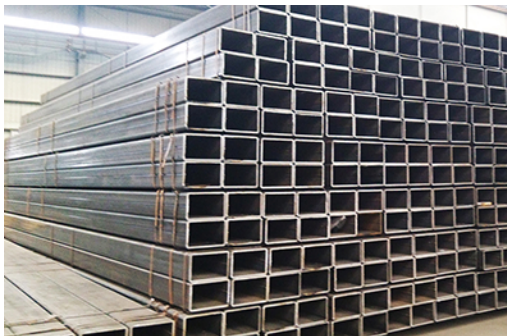


镀锌方管

Galvanized Steel Square Pipe

镀锌方管是一种具以热轧或冷轧镀锌带钢或镀锌卷板为坯料经冷弯曲加工成型后再经高频焊接制成的方形截面形状尺寸的空心方形的截面型钢钢管，或将事先做好的冷弯空心型钢再经热浸镀锌加工而成的镀锌方矩管。

Galvanized square pipe is a hollow square section steel pipe with a square cross-section shape and size made of hot-rolled or cold-rolled galvanized strip steel or galvanized coil as a blank, cold-bended and formed by high-frequency welding. , Or a galvanized rectangular tube made of cold-formed hollow steel pipe prepared in advance and then processed by hot-dip galvanizing.



项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	镀锌方管 (Galvanized Steel Square Pipe)
厚度 (Thickness)	0.6-15mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
直径 (Diameter)	15mm-219mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	热轧, 冷轧 (ERW, Hot-rolled, Cold-rolled)
表面处理 (Surface Treatment)	1. 镀锌 2. PVC, 黑色和彩色喷漆 3. 透明油, 防锈油 4. 根据客户要求 (1. Galvanized 2. PVC, Black and color painting 3. Transparent oil, anti-rust oil 4. According to clients requirement)
产品应用 (Product Application)	1. 用于低压液体输送, 例如水, 气和油 2. 用于建筑, 例如建造温室 3. 围栏管 (1. For low pressure liquid delivery such as water , gas and oil 2. For construction , e.g building greenhouse 3. For fence pipe)

镀锌方管每米理论重量的计算: $4 * \text{厚度} * (\text{边长}-\text{厚度}) * 0.00785$

其中, 边长和壁厚都以毫米 (mm) 为单位, 直接把数值代入上述公式, 得出即为每米方管的重量, 以千克为单位。

Calculation of theoretical weight per meter of galvanized square pipe: $4 * \text{thickness} * (\text{side length}-\text{thickness}) * 0.00785$

Among them, the side length and wall thickness are in millimeters (mm), and the values are directly substituted into the above formula, and the result is the weight of the square tube per meter, in kilograms.



镀锌方管从生产工艺上是分为热镀锌方管和冷镀锌方管的。正是由于这两种镀锌方管的加工不相同也就造就了它们很多不同的物理和化学性质。总的来说它们在强度、韧性和机械性能方面都有很多的区别。

热镀锌方管：是在使用钢板或者是钢带卷曲成型后焊接制成的方管，并在这种方管的基础上将方管置于热镀锌池中经过一系列化学反应后又形成的一种方管。热镀锌方管的生产工艺较为简单，且生产效率是很高的，品种规格也多，这种方管所需要的设备和资金很少，适合小型镀锌方管厂家的生产。但是从强度上来说这种钢管的强度是远远低于无缝方管的。

冷镀锌方管：而冷镀锌方管是在所用的方管上利用冷镀锌的原理来使方管具有防腐蚀的性能。与热镀锌不同冷镀锌涂料主要通过电化学原理来进行防腐，因此必须保证锌粉与钢材的充分接触，产生电极电位差，所以钢材表面处理很重要。

热镀锌区别：镀锌方管有热镀锌方管和电镀锌方管两大类。热镀锌方管有湿法、干法、铅锌法、氧化还原法等。不同热镀锌方法的主要区别在钢管酸浸清洗后，用什么方法活化管体表面提高镀锌质量。现生产中主要采用干法和氧化还原法，其特点见表。电镀锌的锌层表面十分光滑致密、组织均匀；具有良好的力学性能和抗腐蚀能力；锌耗比热镀锌低60%~75%。电镀锌在技术上有一定的复杂性，但对单面镀层，内外表面镀层厚度不同的双面镀层，以及薄壁管镀锌等皆须采用此法。

Galvanized square pipes are divided into hot-dip galvanized square pipes and cold-galvanized square pipes from the production process. It is precisely because the processing of these two galvanized square tubes is different that they have many different physical and chemical properties. In general, they have many differences in strength, toughness and mechanical properties.

Hot-dip galvanized square tube: It is a square tube made of steel plate or steel strip crimped and welded. On the basis of this kind of square tube, the square tube is placed in a hot-dip galvanizing bath after a series of chemical reactions. A square tube formed. The production process of hot-dip galvanized square tube is relatively simple, and the production efficiency is very high, and there are many varieties and specifications. This kind of square tube requires very little equipment and funds, and is suitable for the production of small galvanized square tube manufacturers. But in terms of strength, the strength of this steel pipe is far lower than that of a seamless square pipe.

Cold galvanized square pipe: Cold galvanized square pipe uses the principle of cold galvanizing on the square pipe used to make the square pipe have anti-corrosion performance. Unlike hot-dip galvanizing, cold-dip galvanizing coatings are mainly anti-corrosion based on electrochemical principles. Therefore, it is necessary to ensure sufficient contact between zinc powder and steel to produce electrode potential difference, so the surface treatment of steel is very important.



The difference between hot and cold galvanizing: galvanized square pipes are divided into two categories: hot-dip galvanized square pipes and electro-galvanized square pipes. Hot-dip galvanized square pipes include wet method, dry method, lead-zinc method, redox method and so on. The main difference between different hot-dip galvanizing methods is what method is used to activate the surface of the pipe body to improve the quality of galvanizing after the acid immersion cleaning of the steel pipe. The dry method and oxidation-reduction method are mainly used in production, and their characteristics are shown in the table. The surface of the electro-galvanized zinc layer is very smooth and compact, with uniform structure; it has good mechanical properties and corrosion resistance; the zinc consumption is 60% to 75% lower than that of hot-dip galvanizing. Electro-galvanizing has a certain degree of technical complexity, but this method must be used for single-sided coating, double-sided coatings with different inner and outer surface coating thicknesses, and thin-walled pipe galvanizing.

无缝管

Seamless Pipe

无缝钢管是用钢锭或实心管坯经穿孔制成毛管，表面上没有焊接，然后经热轧、冷轧或冷拔制成。镀锌无缝管是指表面镀锌的无缝管，分冷镀锌无缝管、热镀锌无缝管，前者已被禁用，后者还被国家提倡暂时能用。

Seamless steel pipes are made of steel ingots or solid tube blanks through perforation, without welding on the surface, and then made by hot rolling, cold rolling or cold drawing. Galvanized seamless pipe refers to the seamless pipe with galvanized surface, which is divided into cold-plated seamless pipe and hot-dip seamless pipe.



项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	无缝管 (Seamless Pipe)
壁厚厚度 (Wall Thickness)	4.5-60mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
外径 (Outer Diameter)	21.3mm-762mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	无缝钢管 (Seamless Steel Pipe)
表面处理 (Surface Treatment)	1. 镀锌 2. PVC, 黑色和彩色喷漆 3. 透明油, 防锈油 4. 根据客户要求 (1. Galvanized 2. PVC, Black and color painting 3. Transparent oil, anti-rust oil 4. According to clients requirement)
产品应用 (Product Application)	1. 栅栏, 温室, 门管, 温室 2. 低压液体, 水, 煤气, 油, 管道 3. 用于室内和室外建筑 4. 广泛用于脚手架建筑, 便宜又方便 (1. Fence, greenhouse, door pipe, greenhouse 2. Low pressure liquid, water, gas, oil, line pipe 3. For both indoor and outdoor the building construction 4. Widely used in scaffolding construction which is much cheaper and convenient)

无缝钢管根据用途不同, 有厚壁无缝钢管和薄壁无缝钢管。

According to different purposes, seamless steel pipes include thick-walled seamless steel pipes and thin-walled seamless steel pipes.

无缝管的分类

(Classification of seamless pipes)

热镀锌无缝管是使熔融金属与铁基体反应而产生合金层，从而使基体和镀层二者相结合。热镀锌是先将钢管进行酸洗，为了去除钢管表面的氧化铁，酸洗后，通过氯化铵或氯化锌水溶液或氯化铵和氯化锌混合水溶液槽中进行清洗，然后送入热浸镀槽中。热镀锌具有镀层均匀，附着力强，使用寿命长等优点。

冷镀锌就是电镀锌，镀锌量很少，只有10—50g/m²，其本身的耐腐蚀性比热镀锌管相差很多。正规的镀锌管生产厂家，为了保证质量，大多不采用电镀锌（冷镀）。只有那些规模小、设备陈旧的小企业采用电镀锌，当然他们的价格也相对便宜一些。今后不准用冷镀锌管作水、煤气管。

热镀锌无缝管：钢管基体与熔融的镀液发生复杂的物理、化学反应，形成耐腐蚀的结构紧密的锌—铁合金层。合金层与纯锌层、钢管基体融为一体。故其耐腐蚀能力强。

冷镀锌无缝管：锌层是电镀层，锌层与钢管基体独立分层。锌层较薄，锌层简单附着在钢管基体上，容易脱落。故其耐腐蚀性能差。在新建住宅中，禁止使用冷镀锌钢管作为给水管。



Hot-dip seamless pipe is to make the molten metal react with the iron matrix to produce an alloy layer, so that the matrix and the plating layer are combined. Hot-dip galvanizing is to first pickle the steel pipe. In order to remove the iron oxide on the surface of the steel pipe, after pickling, it is cleaned in a tank with ammonium chloride or zinc chloride aqueous solution or a mixed aqueous solution of ammonium chloride and zinc chloride, and then sent to In the hot dip plating tank. Hot-dip galvanizing has the advantages of uniform coating, strong adhesion and long service life.



Cold galvanizing is electro-galvanizing, and the amount of galvanizing is very small, only 10-50g/m², and its corrosion resistance is much worse than that of hot-dip galvanized pipes. Most of the regular galvanized pipe manufacturers do not use electro-galvanization (cold plating) in order to ensure the quality. Only those small enterprises with small scale and outdated equipment use electro-galvanization, and of course their prices are relatively cheaper. In the future, cold galvanized pipes are not allowed to be used as water and gas pipes.

Hot-dip galvanized seamless pipe: The steel pipe matrix undergoes a complex physical and chemical reaction with the molten plating solution to form a corrosion-resistant zinc-iron alloy layer with a compact structure. The alloy layer is integrated with the pure zinc layer and the steel pipe matrix. Therefore, its corrosion resistance is strong.

Cold galvanized seamless pipe: The zinc layer is an electroplated layer, and the zinc layer is layered independently with the steel pipe matrix. The zinc layer is thin, and the zinc layer simply adheres to the steel pipe substrate and is easy to fall off. Therefore, its corrosion resistance is poor. In newly-built houses, it is prohibited to use cold-galvanized steel pipes as water supply pipes.

焊管

Welded Pipe

焊接钢管也称焊管，是用钢板或带钢经过卷曲成型后焊接制成的钢管，一般定尺6米。焊接钢管生产工艺简单，生产效率高，品种规格多，设备投资少，但一般强度低于无缝钢管。是用带钢焊接的，所以在原来它的地位没无缝管高。

镀锌焊管是在焊接钢管的基础上再热镀锌(即在锌锅内将锌溶化，再将钢管浸入液体锌中一段时间取出，再冷却吹干)，使钢管内外壁同时有一层锌层附着。

Welded steel pipes, also called welded pipes, are steel pipes made of steel plates or strips welded after crimping, and are generally 6 meters in length. The production process of welded steel pipe is simple, the production efficiency is high, the variety and specification are many, and the equipment investment is small, but the general strength is lower than that of seamless steel pipe. It is welded with strip steel, so its status is not as high as a seamless pipe.

Galvanized welded pipe is hot-dip galvanized on the basis of welded steel pipe (that is, the zinc is melted in the zinc pot, the steel pipe is immersed in liquid zinc for a period of time, and then cooled and dried), so that the inner and outer walls of the steel pipe have a layer of zinc at the same time Attached.



项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	焊管 (Welded Pipe)
壁厚厚度 (Wall Thickness)	5.0-28mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
外径 (Outer Diameter)	219mm-3620mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	热轧或者冷轧 (Hot Rolled Or Cold Rolled)
表面处理 (Surface Treatment)	1. 镀锌 2. PVC, 黑色和彩色喷漆 3. 透明油, 防锈油 4. 根据客户要求 (1. Galvanized 2. PVC, Black and color painting 3. Transparent oil, anti-rust oil 4. According to clients requirement)
产品应用 (Product Application)	广泛用于结构管, 用于水油或天然气的低压 流体管, 锅炉管等 (Widely used in structural pipes, low-pressure fluid pipes for water, oil or natural gas, Boiler tube, etc.)

焊管常用材质为: Q235A, Q235C、Q235B、16Mn、20#、Q345、L245、L290、X42、X46、X60、X80、0Cr13、1Cr17、00Cr19Ni11、1Cr18Ni9、0Cr18Ni11Nb等。

Commonly used materials for welded pipes are: Q235A, Q235C, Q235B, 16Mn, 20#, Q345, L245, L290, X42, X46, X60, X80, 0Cr13, 1Cr17, 00Cr19Ni11, 1Cr18Ni9, 0Cr18Ni11Nb, etc.



在实际生产和应用中通常将焊管按焊接方式分为直缝焊管和螺旋焊管两种，较小口径的焊管大都采用直缝焊，大口径焊管则大多采用螺旋焊。

直缝焊管：通常为公称直径为DN15（4分管）-DN150（6寸管）的中小口径规格的焊管。直缝焊接工艺要比螺旋焊接工艺简单，焊接成本低，效率高，缺点是焊缝在同一直线上，抗压强度低，故直缝焊只适合生产中小口径的焊管使用。

螺旋焊管：通常为公称直径为DN200（8寸管）-DN600（24寸管）的大口径规格的焊管。螺旋焊接工艺可以用相同宽度的钢板生产不同管径的焊管，缺点是工艺复杂，相同长度的焊管螺旋焊焊缝比直焊缝长得多，造成生产成本高，生产效率低，故螺旋焊常用于大口径焊管的生产，同时螺旋的焊缝具有更高的抗压强度，保证了大口径焊管的抗压能力。

In actual production and application, welded pipes are usually divided into two types: straight seam welded pipe and spiral welded pipe according to the welding method. Most of the smaller diameter welded pipes are longitudinally welded, and the large diameter welded pipes are mostly spiral welded.

Longitudinal welded pipe: usually a welded pipe of medium and small diameter with a nominal diameter of DN15 (4 in charge)-DN150 (6 inch pipe). The straight seam welding process is simpler than the spiral welding process, the welding cost is low, and the efficiency is high. The disadvantage is that the welds are on the same straight line and the compressive strength is low. Therefore, the straight seam welding is only suitable for the production of small and medium diameter welded pipes.

Spiral welded pipe: usually a large diameter welded pipe with a nominal diameter of DN200 (8-inch pipe)-DN600 (24-inch pipe). The spiral welding process can produce welded pipes of different pipe diameters with the same width of steel plate. The disadvantage is that the process is complicated. The spiral welded seam of the welded pipe of the same length is much longer than the straight welded seam, resulting in high production costs and low production efficiency. Therefore, spiral welding is commonly used. For the production of large-diameter welded pipes, at the same time, the spiral weld has higher compressive strength, which ensures the compressive resistance of large-diameter welded pipes.

螺旋管

Spiral Tube

螺旋管也称螺旋钢管或螺旋焊管，是将低碳素结构钢或低合金结构钢带按一定的螺旋线的角度（叫成型角）卷成管坯，然后将管缝焊接起来制成的，它可以用较窄的带钢生产大直径的钢管。

螺旋管主要用于石油、天然气的输送管线，其规格用外径*壁厚表示。螺旋管有单面焊的和双面焊的，焊管应保证水压试验、焊缝的抗拉强度和冷弯性能符合规定。

Spiral pipe is also called spiral steel pipe or spiral welded pipe. It is made by rolling low-carbon structural steel or low-alloy structural steel strip at a certain spiral angle (called forming angle) into a tube blank, and then welding the pipe seam. , It can produce large-diameter steel pipes with narrower strip steel.

Spiral pipes are mainly used for oil and natural gas pipelines, and their specifications are expressed by outer diameter * wall thickness. Spiral pipes are welded on one side and on both sides. The welded pipe shall ensure that the water pressure test, the tensile strength of the weld and the cold bending performance meet the requirements.



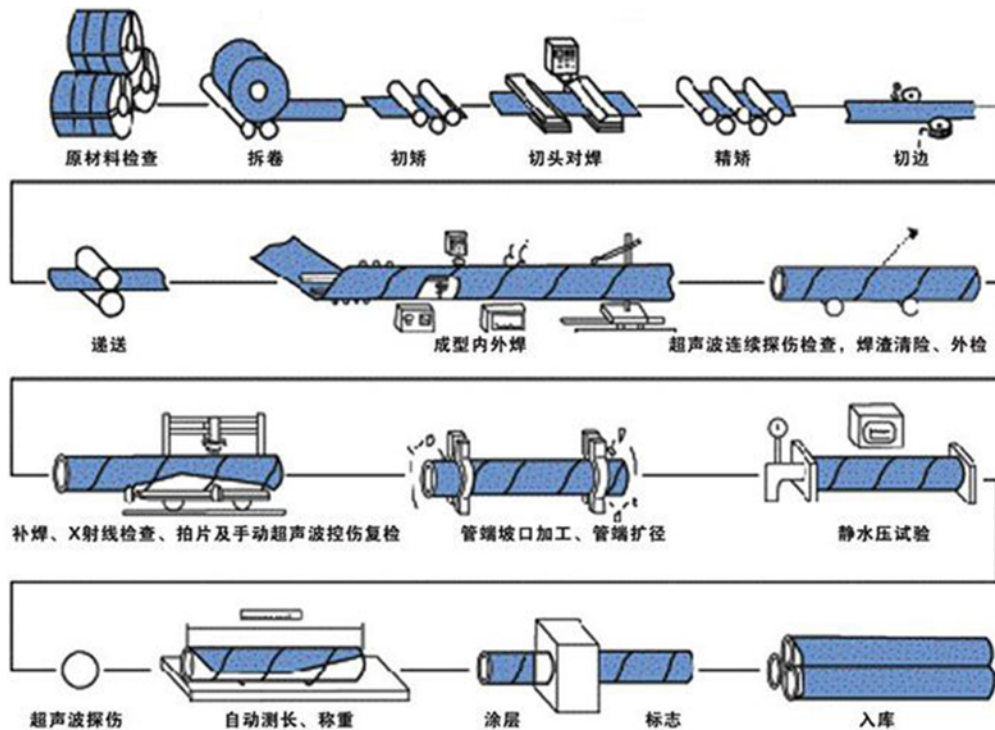
项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	螺旋管 (Spiral Tube)
壁厚厚度 (Wall Thickness)	5.2-30mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
外径 (Outer Diameter)	219mm-3000mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	热轧 (Hot Rolled)
表面处理 (Surface Treatment)	1. 镀锌 2. PVC, 黑色和彩色喷漆 3. 透明油, 防锈油 4. 根据客户要求 (1. Galvanized 2. PVC, Black and color painting 3. Transparent oil, anti-rust oil 4. According to clients requirement)
产品应用 (Product Application)	1. 栅栏, 温室, 门管, 温室 2. 低压液体, 水, 煤气, 油, 管道 3. 用于室内和室外建筑 4. 广泛用于脚手架建筑, 便宜又方便 (1. Fence, greenhouse, door pipe, greenhouse 2. Low pressure liquid, water, gas, oil, line pipe 3. For both indoor and outdoor the building construction 4. Widely used in scaffolding construction which is much cheaper and convenient)

螺旋管的常用标准一般分为:SY/T5037-2018、GB/T9711.1-1997、API-5L、SY/T5040-92。

Commonly used standards for spiral tubes are generally divided into: SY/T5037-2018, GB/T9711.1-1997, API-5L, SY/T5040-92.

螺旋管的生产工艺 (Spiral Tube Production Process)

- (1) 原材料即带钢卷，焊丝，焊剂。在投入前都要经过严格的理化检验。
- (2) 带钢头尾对接，采用单丝或双丝埋弧焊接，在卷成钢管后采用自动埋弧焊补焊。
- (3) 成型前，带钢经过矫平、剪边、刨边，表面清理输送和予弯边处理。
- (4) 采用电接点压力表控制输送机两边压下油缸的压力，确保了带钢的平稳输送。
- (5) 采用外控或内控辊式成型。





(5) Adopt external control or internal control roll forming.

(6) The welding seam gap control device is adopted to ensure that the welding seam gap meets the welding requirements, and the pipe diameter, the amount of misalignment and the welding seam gap are all strictly controlled.

(7) Both internal welding and external welding adopt American Lincoln electric welding machine for single-wire or double-wire submerged arc welding, so as to obtain stable welding specifications.

(8) The welded seams are all inspected by an online continuous ultrasonic automatic flaw instrument, which guarantees 100% non-destructive testing coverage of spiral welds. If there is a defect, it will automatically alarm and spray the mark, and the production workers will adjust the process parameters at any time to eliminate the defect in time.

(9) Use an air plasma cutting machine to cut the steel pipe into individual pieces.

(10) After cutting into single steel pipes, each batch of steel pipes must undergo a strict initial inspection system to check the mechanical properties, chemical composition, fusion status, surface quality of the steel pipes and pass non-destructive inspections to ensure that the pipe-making process is qualified. After that, it can be officially put into production.

(11) The parts with continuous sonic flaw detection marks on the weld are re-examined by manual ultrasonic and X-ray. If there are defects, after repairing, they will go through non-destructive inspection again until the defects are confirmed to be eliminated.

(12) The pipes where the strip steel butt welds and the D-shaped joints intersecting with the spiral welds are all inspected by X-ray television or filming.

(13) Each steel pipe undergoes hydrostatic pressure test, and the pressure adopts radial seal. The test pressure and time are strictly controlled by the steel pipe hydraulic microcomputer detection device. The test parameters are automatically printed and recorded.

(14) The pipe end is machined to accurately control the verticality of the end face, the bevel angle and the obtuse edge.

- (6) 采用焊缝间隙控制装置来保证焊缝间隙满足焊接要求，管径，错边量和焊缝间隙都得到严格的控制。
- (7) 内焊和外焊均采用美国林肯电焊机进行单丝或双丝埋弧焊接，从而获得稳定的焊接规范。
- (8) 焊完的焊缝均经过在线连续超声波自动伤仪检查，保证了100%的螺旋焊缝的无损检测覆盖率。若有缺陷，自动报警并喷涂标记，生产工人依此随时调整工艺参数，及时消除缺陷。
- (9) 采用空气等离子切割机将钢管切成单根。
- (10) 切成单根钢管后，每批钢管都要进行严格的首检制度，检查焊缝的力学性能，化学成份，溶合状况，钢管表面质量以及经过无损探伤检验，确保制管工艺合格后，才能正式投入生产。
- (11) 焊缝上有连续声波探伤标记的部位，经过手动超声波和X射线复查，如确有缺陷，经过修补后，再次经过无损检验，直到确认缺陷已经消除。
- (12) 带钢对焊缝及与螺旋焊缝相交的丁型接头的所在管，全部经过X射线电视或拍片检查。
- (13) 每根钢管经过静水压试验，压力采用径向密封。试验压力和时间都由钢管水压微机检测装置严格控制。试验参数自动打印记录。
- (14) 管端机械加工，使端面垂直度，坡口角和钝边得到准确控制。



- (1) Raw materials are strip steel coils, welding wires, and fluxes. Strict physical and chemical inspections are required before investment.
- (2) Butt joint of strip steel head and tail, adopt single wire or double wire submerged arc welding, after coiling into steel pipe, adopt automatic submerged arc welding repair welding.
- (3) Before forming, the strip undergoes leveling, edge trimming, edge planing, surface cleaning and conveying, and pre-bending treatment.
- (4) The electric contact pressure gauge is used to control the pressure of the cylinders on both sides of the conveyor to ensure the smooth conveying of the strip.

椭圆管

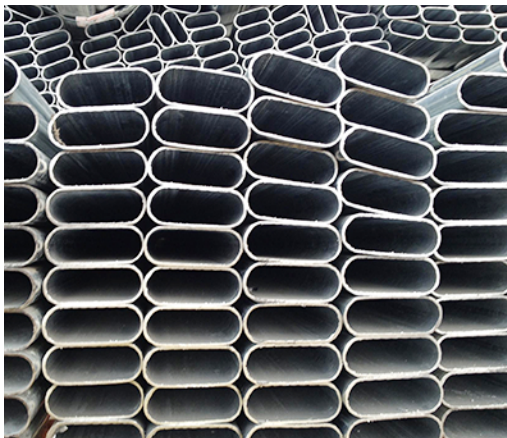
Galvanized Steel Oval Pipe

椭圆管，一般是在圆形管的基础上挤压成鸭蛋形状，椭圆异型管分为正椭圆和平椭圆，正椭圆是指弧度对称的鸭蛋形，平椭圆是指两个长面平行直线状，两个短面成圆弧状。

主要广泛用于石油、化工、医疗、食品、轻工、机械仪表等工业输送管道以及机械结构部件等。另外，在折弯、抗扭强度相同时，重量较轻，所以也广泛用于制造机械零件和工程结构。

The oval tube is generally extruded into a duck egg shape on the basis of a circular tube. The oval tube is divided into a regular ellipse and a flat ellipse. The regular ellipse refers to the shape of a duck egg with symmetrical arcs. The short sides are arc-shaped.

Mainly widely used in petroleum, chemical, medical, food, light industry, mechanical instrumentation and other industrial pipelines and mechanical structural parts. In addition, when the bending and torsion strength are the same, the weight is lighter, so it is also widely used in the manufacture of mechanical parts and engineering structures.



项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	椭圆管 (Galvanized Steel Oval Pipe)
壁厚厚度 (Wall Thickness)	0.3-12mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
外径 (Outer Diameter)	0.3mm-3000mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	冷轧, 热轧 (Cold Rolled, Hot Rolled)
表面处理 (Surface Treatment)	黑色退火, 光亮退火, 不退火, 镀锌, 根据客户要求 (Black annealing, bright annealing, no annealing, galvanizing, according to customer requirements)
产品应用 (Product Application)	广泛用于家具, 室内装饰, 流体管道, 石油天然气工业, 钻探, 管道, 结构 (Widely used in furniture, interior decoration, fluid pipeline, oil and gas industry, Drilling, pipeline, structure)

椭圆管是运用冷轧或是热扎的加工工艺方式将窄而长的厚钢板镶上一层锌, 分成热浸镀锌和磷化处理, 热浸镀锌的涂层较为匀称、粘附工作能力强并且使用期长, 具有较强的耐腐蚀性。

The oval tube is cold rolled or hot rolled to inlay a narrow and long thick steel plate with a layer of zinc, which is divided into hot-dip galvanizing and phosphating treatment. The hot-dip galvanizing coating is more uniform and adheres to work. Strong ability and long service life, with strong corrosion resistance.



异型管

Special Pipe

异型管是经冷拔制成各种异型的无缝钢管。异型管一般是根据断面来区分的，按材料来说又可分为无缝钢管异型管，铝合金异型管，塑料异型管。

异型无缝钢管广泛用于各种结构件、工具和机械零部件。和圆管相比，异型管一般都有较大的惯性矩和截面模数，有较大的抗弯抗扭能力，可以大大减轻结构重量，节约钢材。

Special-shaped pipes are seamless steel pipes made into various special-shaped shapes by cold drawing. Special-shaped pipes are generally distinguished according to the broken section, and can be divided into seamless steel pipe special-shaped pipes, aluminum alloy special-shaped pipes, and plastic special-shaped pipes according to the material.

Special-shaped seamless steel pipes are widely used in various structural parts, tools and mechanical parts. Compared with round pipes, special-shaped pipes generally have larger moments of inertia and section modulus, and have greater bending and torsion resistance, which can greatly reduce structural weight and save steel.



项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	异型管 (Special Pipe)
壁厚厚度 (Wall Thickness)	1mm-14mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc., other length is Available according to demands)
外径 (Outer Diameter)	8mm-114mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	热轧 (Hot Rolled)
表面处理 (Surface Treatment)	黑色 / 裸色 / 镀锌 (Black/naked/galvanized)
特点 (Features)	1. 安全, 健康, 环保等特征 2. 经济适用, 表面好 3. 耐腐蚀 4 易切割, 变形大 5 抗拉强度高, 柔韧性好等。 (1. Safety, health, environmental protection and other characteristics 2. Economical and applicable, good surface 3. Corrosion resistance 4 Easy to cut, large deformation 5 Good tensile strength, good flexibility)

异型管可分为椭圆形异型钢管、三角形异型钢管、六角形异型钢管、菱形异型钢管、八角形异型钢管、半圆形异型钢圆，不等边六角形异型钢管、五瓣梅花形异型钢管、双凸形异型钢管、双凹形异型钢管、瓜子形异型钢管、圆锥形异型钢管、波纹形异型钢管。

防腐处理方法:1.用沥青漆涂在异型管层2.水泥砂浆内衬+特殊涂层3.用环氧煤沥青涂异型管层4.环氧陶瓷内衬5.铝酸盐水泥涂层和硫酸盐水泥涂层6.用聚氨酯涂异型管层

Special-shaped pipes can be divided into oval shaped steel pipes, triangular shaped steel pipes, hexagonal shaped steel pipes, diamond shaped steel pipes, octagonal shaped steel pipes, semi-circular shaped steel rounds, unequal-sided hexagonal shaped steel pipes, five-petal plum shaped shaped steel pipes, Double convex shaped steel pipes, double concave shaped steel pipes, melon seeds shaped steel pipes, conical shaped steel pipes, corrugated shaped steel pipes.

Anti-corrosion treatment method: 1. Coat the special-shaped pipe layer with asphalt paint 2. Cement mortar lining + special coating 3. Coat the special-shaped pipe layer with epoxy coal pitch 4. Epoxy ceramic lining 5. Aluminate cement coating And sulfate cement coating 6. Coat special-shaped pipe layer with polyurethane.





衬塑管

Plastic Lined Pipe

衬塑管以镀锌无缝钢管、焊接钢管为基管，内壁去除焊筋后，衬入与镀锌管内等径的食品级聚乙烯（PE）管材，聚乙烯衬层厚度要求符合HG/T 20538-2016标准，最后加压加热一定时间后成型，是传统镀锌管的升级型产品。

The plastic-lined pipe is based on galvanized seamless steel pipe and welded steel pipe. After removing the welding ribs on the inner wall, it is lined with food-grade polyethylene (PE) pipe with the same diameter as the galvanized pipe. The thickness of the polyethylene lining meets HG/T 20538-2016 standard, it is finally formed after heating for a certain period of time. It is an upgraded product of traditional galvanized pipe.

项 (Item)	产品参数 (Product Parameter)
产品名称 (Product Name)	衬塑管 (Plastic Lined Pipe)
壁厚厚度 (Wall Thickness)	0.8mm-25mm
长度 (Length)	5.5m, 5.8m, 6m, 11.8m, 12m 等其他长度, 可根据要求提供 (5.5m, 5.8m, 6m, 11.8m, 12m etc , other length is Available according to demands)
外径 (Outer Diameter)	60mm-850mm
公差 (Tolerance)	壁厚: $\pm 0.05\text{mm}$ 长度: $\pm 6\text{mm}$ 直径: $\pm 0.3\text{mm}$ (Wall Thickness: $\pm 0.05\text{mm}$ Length: $\pm 6\text{mm}$ Diameter: $\pm 0.3\text{mm}$)
技术 (Technique)	热轧 (Hot Rolled)
表面处理 (Surface Treatment)	黑色漆面, 上油, 3PE, FBE, 环氧树脂, 镀锌 (Black Varnised, Oil coating, 3PE, FBE, Epoxy, Galvanized)
优点 (Advantages)	焊接更短、高精度尺寸、厚度均匀、良好的表面质量而且还可以承受高压。(Shorter welding, high-precision size, uniform thickness, good surface quality and can withstand high pressure)

衬塑管广泛应用于化工行业、电力工程、冶炼行业、矿山行业、制药行业、油田气田、农业喷灌、市政行业等多个行业。

Plastic-lined pipes are widely used in the chemical industry, power engineering, smelting industry, mining industry, pharmaceutical industry, oil field and gas field, agricultural sprinkler irrigation, municipal industry and many other industries.

镀锌管件

Galvanized Pipe Fittings

镀锌管件指的是对管件进行了镀锌的处理，热镀锌管件包括镀锌弯头，镀锌法兰，镀锌弯管，镀锌异径管，镀锌管帽封头。镀锌镀锌层厚，具有镀层均匀，附着力强，使用寿命长等优点。

Galvanized pipe fittings refer to the treatment of galvanized pipe fittings. Hot-dip galvanized pipe fittings include galvanized elbows, galvanized flanges, galvanized elbows, galvanized reducers, and galvanized pipe caps. Galvanized galvanized layer is thick, has the advantages of uniform coating, strong adhesion, long service life and so on.



管件基体与熔融的镀液发生复杂的物理、化学反应，形成耐腐蚀的结构紧密的锌-铁合金层。合金层与纯锌层、管件基体融为一体。故其耐腐蚀能力强。电镀锌成本低，表面不是很光滑，其本身的耐腐蚀性比热镀锌管件相差很多。镀锌的主要目的就是为了增强管件本身的防腐蚀能力。热镀锌管件主要用于输送煤气、暖气等管道工程，如果钢管管体需要进行镀锌防腐处理，相应的连接管件也要进行镀锌处理。热镀锌管件的主要生产流程为：脱脂→漂洗→酸洗→清洗→浸渍助镀剂→热空气烘干→热浸镀锌→内外吹→冷却→钝化和漂洗。

Complicated physical and chemical reactions occur between the pipe fitting matrix and the molten plating solution to form a corrosion-resistant zinc-iron alloy layer with a compact structure. The alloy layer is integrated with the pure zinc layer and the pipe fitting matrix. Therefore, its corrosion resistance is strong. The cost of electro-galvanization is low, the surface is not very smooth, and its corrosion resistance is much different than that of hot-dip galvanized pipe fittings. The main purpose of galvanizing is to enhance the corrosion resistance of the pipe itself. Hot-dip galvanized pipe fittings are mainly used for pipeline projects such as gas, heating, etc. If the steel pipe body needs to be galvanized, the corresponding connecting pipes should also be galvanized. The main production process of hot-dip galvanized pipe fittings is: degreasing → rinsing → pickling → cleaning → dipping flux → hot air drying → hot dip galvanizing → internal and external blowing → cooling → passivation and rinsing.



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