

**PROFESSIONAL MANUFACTURER**  
**KNITTED MESH**  
**VARIOUS COMPONENTS**

专业金属针织网及网垫组件生产商



**燕大国海**  
YANDA-GUOHAI

**秦皇岛燕大国海不锈钢业有限公司**  
Qinhuangdao Yanda-Guohai Stainless Steel Co., Ltd.

**尊重顾客 善待员工 追求卓越**

RESPECT CUSTOMERS  
TREAT EMPLOYEES KINDLY  
PURSUE EXCELLENCE





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# 01 公司简介

## COMPANY INTRODUCTION

秦皇岛燕大国海不锈钢业有限公司为金属针织网及网垫组件的专业生产企业。产品广泛应用于汽车、化工、电子、通讯、航空航天、军事、机械、医疗、测试设备等产业。

公司拥有多条规模化自动生产流水线，完善的生产工艺和专业的产品研发团队，具备产品工艺开发、产品自主设计、自动化生产设备设计及制造的能力。在确保技术要求及使用性能的前提下，从设计到样品试制再到批量生产的同时也能为客户提供一个产品开发过程的良好体验。

产品应用于多种方式：吸收震动与冲击、气体与液体过滤、噪声抑制、衬垫及密封、传热保温、EMI/RFI 屏蔽、消除雾气和工艺分离、发动机催化剂等。

我们有能力接受各种批量的产品订单，并进行自动化生产。在确保产品质量一致性的前提下能够最大程度上的降低生产成本，提高市场竞争力。我们拥有广泛的生产能力，通过针织，拉伸，冲孔，冲压，挤压，烧结和焊接、压接、拉丝、退火、甚至零件组装等工艺获得专为满足您的需求而设计的高质量解决方案。我们提供从半成品到成品零件，从完整的系统到组装组件的所有产品。无论是产品开发还是流程和运营的优化，我们都能够为您提供帮助。





Qinhuangdao Yanda-Guohai Stainless Steel Co., Ltd is a professional manufacturer of knitted mesh and various components. The products are widely used in various industries such as automobile, chemicals, electronics, aviation, military, commerce, industrial consumer goods, telecommunication, medicine, test equipment etc.

The company has a number of large-scale automatic production lines, perfect production technology and professional product research and development team, with product process development, product independent design, automated production equipment design and manufacturing capabilities. On the premise of ensuring technical requirements and performance, our company can provide customers with a good experience in the product development process from design to sample trial production to mass production.

Our products can be used in many applications such as vibration& shock absorber, gas& liquid filtration, noise damping, seal& gasket, heat insulation, EMI/RFI shielding, mist elimination& technology separation, and engine catalyst etc.

We have the ability to accept product orders in various batches and automate production. On the premise of ensuring product quality consistency, it can reduce production costs to the greatest extent and improve market competitiveness. We have a wide range of production capabilities to obtain high-quality solutions designed to meet your needs through processes such as knitting, drawing, punching, stamping, extrusion, sintering and welding, crimping, wire drawing, annealing, and even parts assembly. We offer everything from semi-finished to finished parts, from complete systems to assembled components. Whether product development or the optimization of processes and operations, we will be pleased to serve you.





# 02 企业资质

## CERTIFICATE QUALIFICATIONS



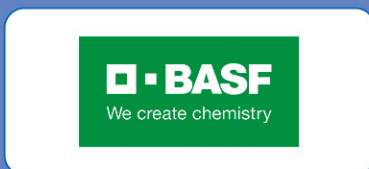


# 03 服务与合作伙伴

## SERVICES AND PARTNERS

专注产品质量与性能的研发。生产流程全部采用自动化、机械化流水线作业，现已成为颇具实力的现代化企业。

Focus on the research and development of product quality and performance. The entire production process adopts automated and mechanized assembly line operations, which has made our company a powerful modern enterprise.



# 04 产品概述

## PRODUCT INTRODUCTION

针织网由各种金属的金属丝或其他材料的线组成，这些金属线被编织成网状结构，从而形成一个互锁环的矩阵，可以在同一平面上自由移动而不会扭曲网格。（每个环实际上可以在三个方向上自由移动，并且完成的金属针织品允许双向拉伸。）

此外，每个环在承受压应力时充当一个小弹簧。因此，压缩针织金属网过滤器在承受冲击和振动应力时会产生压力，但根据结构的不同，当力被移除时，可以立即恢复到其原始尺寸的 90%。

Knitted mesh consists of wires of various metals or threads of other materials that are woven into a net-like structure, resulting in a matrix of interlocking rings that can move freely on the same plane without distorting the grid. (Each loop can actually move freely in three directions, and the finished metal knit allows for bi-directional stretching.) In addition, each ring acts as a small spring when subjected to compressive stress. As a result, compression knitted metal mesh filters generate pressure when subjected to shock and vibration stresses, but depending on the structure, can be immediately restored to 90% of their original size when the force is removed.

**适用于要求苛刻和复杂环境及广泛的多功能性应用**

**Versatility for Demanding Filtration Applications**





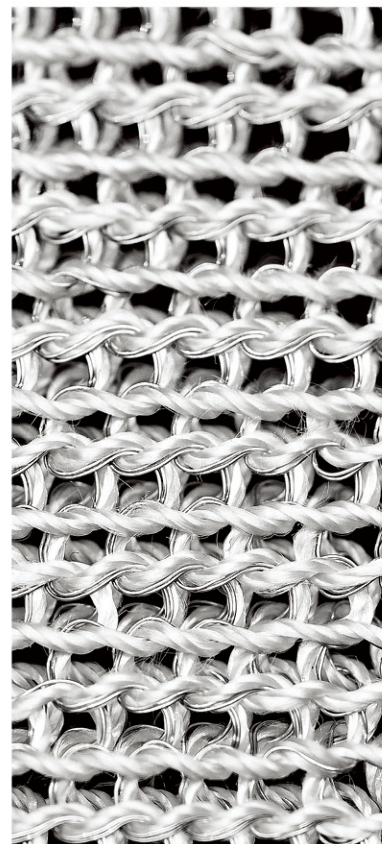
## 针织网特性 Characteristics of Knitted Mesh

针织网是可以做多种材料灵活搭配使用的。它可以由任何金属、非金属或金属和非金属材料的组合制成。通过仔细选择材料组合，可以在腐蚀性环境、超高温和低温以及放射性污染的粉尘颗粒、油或其他极端操作条件下提供适当的过滤、抗震、降噪、密封等功能。

使用针织网可产生“平面”或“三维度”的形式，提供具备以上功能的夹带和理想的曲折路径。这是可以通过仔细平衡线径、股数、压制单元的密度和厚度、材料配置等变量来实现的。

The knitted wire mesh can be flexibly used in combination with various materials. It can be made of any metal, non-metal, or a combination of metal and non-metal materials. Through careful selection of the material combination, it can provide functions such as appropriate filtration, vibration resistance, noise reduction, and sealing in corrosive environments, extremely high and low temperatures, as well as in the presence of radioactive contaminated dust particles, oil, or other extreme operating conditions.

The use of knitted wire mesh can produce "flat" or "three-dimensional" forms, providing entrainment with the above functions and an ideal tortuous path. This can be achieved by carefully balancing the following variables: Wire Diameter, Number of Strands, Density and Thickness of the Pressed Unit, Material Configuration.



## 应用行业 Application Industry



# 05 产品参数

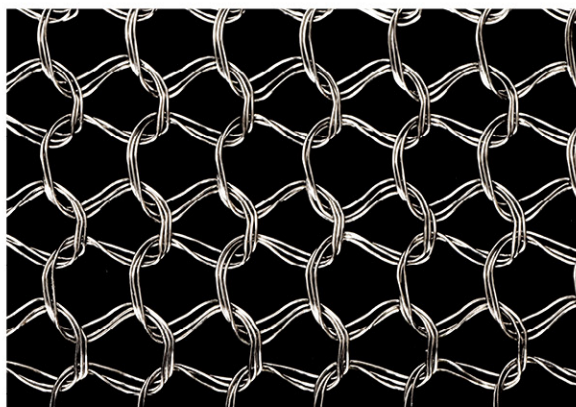
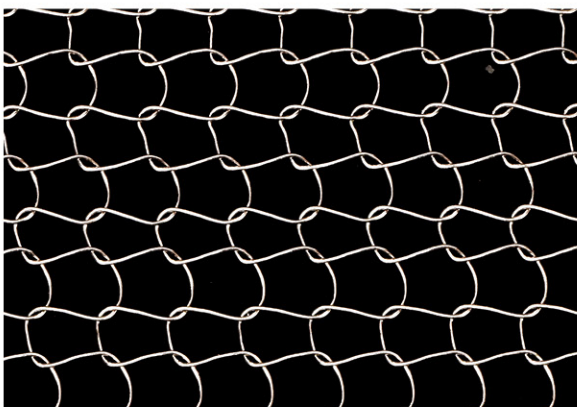
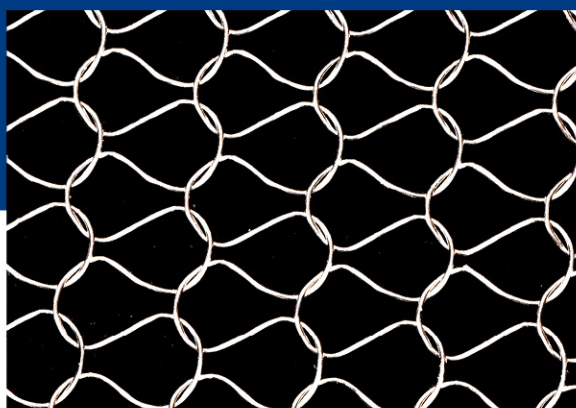
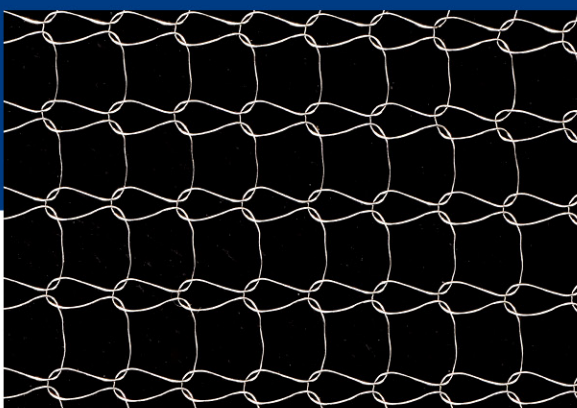
## PRODUCT PARAMETERS

### 主要材料 Main Raw Materials

不锈钢( 200,300 和 400 系列 )、碳钢、铝、铜、镀锡铜、钛、镍合金、蒙乃尔、哈氏合金、钨、钽、铂、金合金、镀金铜、镀银铜、镀银黄铜、聚丙烯、聚乙烯、尼龙, 聚四氟乙烯。

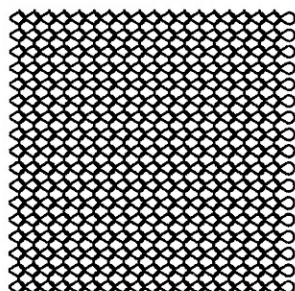
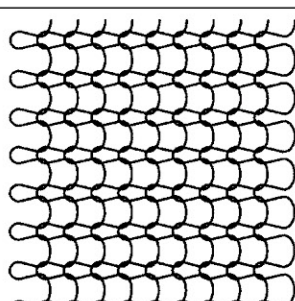
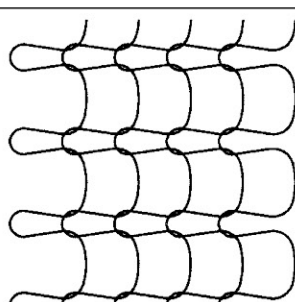
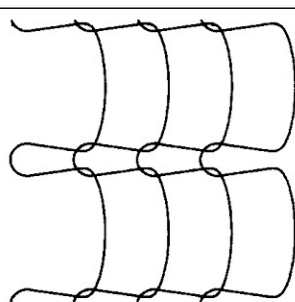
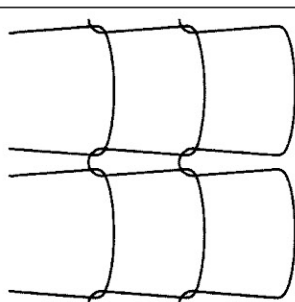
A wide range of materials are available including Stainless Steel (200,300 and 400 series), Carbon Steel, Aluminum, Copper, Tinned Copper, Titanium, Nickel Alloy, Monel, Hastelloy, Tungsten, Tantalum, Platinum, Gold Alloy, Gold Plated Copper, Silver Plated Copper, Silver Plated Brass, Polypropylene, Polyethylene, Nylon, Teflon.

### 网孔形式 Mesh Form





## 针织网类型 Knitted Mesh Type

精密网 Fine Mesh		
常规线径 Typical wire diameter (mm)	网宽范围 Range of natural width (mm)	
0.05 – 0.15	20 – 165	
每厘米长度方向针数 Typical number of stitches per cm on length	每厘米宽度方向针数 Typical number of stitches per cm across lay flat	
3.5	4.4	
中密网 Medium-Fine Mesh		
常规线径 Typical wire diameter (mm)	网宽范围 Range of natural width (mm)	
0.15	40 – 500	
每厘米长度方向针数 Typical number of stitches per cm on length	每厘米宽度方向针数 Typical number of stitches per cm across lay flat	
2.4	3.5	
标准网 Standard Mesh		
常规线径 Typical wire diameter (mm)	网宽范围 Range of natural width (mm)	
0.2 – 0.35	40 – 500	
每厘米长度方向针数 Typical number of stitches per cm on length	每厘米宽度方向针数 Typical number of stitches per cm across lay flat	
0.6	1.9	
粗网 Coarse Mesh		
常规线径 Typical wire diameter (mm)	网宽范围 Range of natural width (mm)	
0.2 – 0.35	150 – 500	
每厘米长度方向针数 Typical number of stitches per cm on length	每厘米宽度方向针数 Typical number of stitches per cm across lay flat	
1.6	0.74	
超粗网 Super-Coarse Mesh		
常规线径 Typical wire diameter (mm)	网宽范围 Range of natural width (mm)	
0.4 – 0.6	150 – 350	
每厘米长度方向针数 Typical number of stitches per cm on length	每厘米宽度方向针数 Typical number of stitches per cm across lay flat	
0.5	0.5	

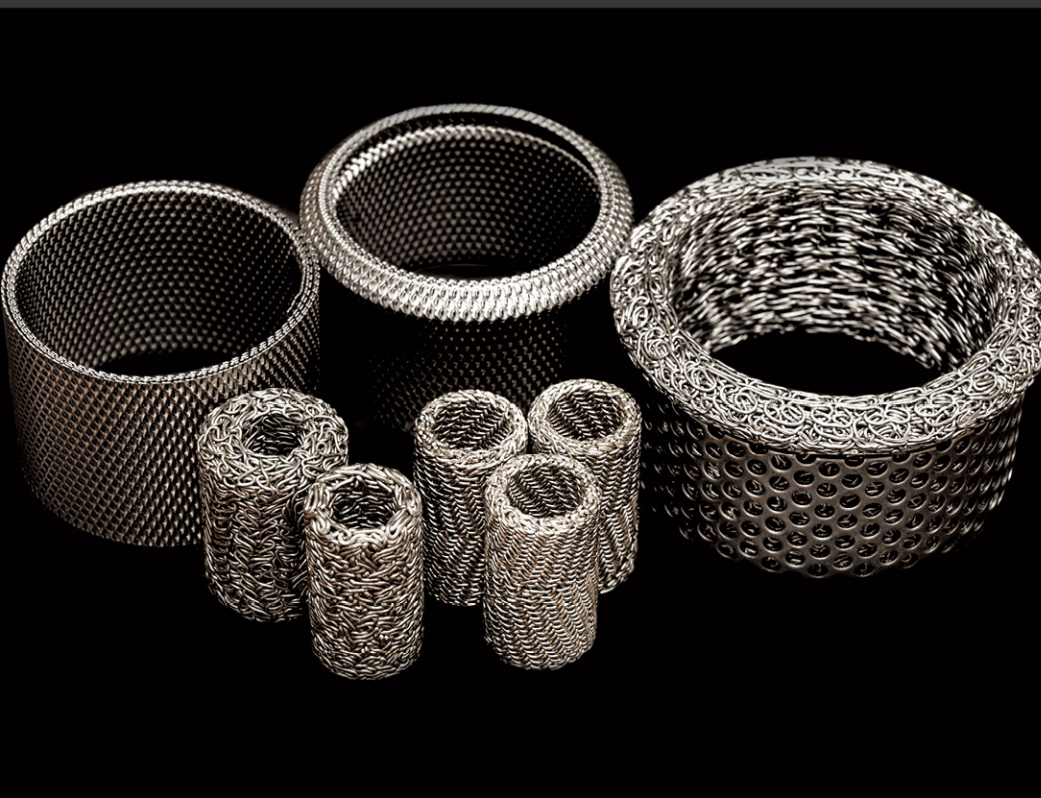
# 06 应用方式

## APPLICATION WAYS

### 气液过滤/分离 Gas-Liquid Filtration / Separation

利用针织金属丝网制造的液体和空气过滤器可用在需要抗降解、耐腐蚀、耐机械或抗热冲击的情况下，以及需要弹性产品来安装到型腔的情况下。针织金属丝网过滤器提供了一种经济、坚固的替代方案。从低温到高温的工作环境下，针织金属丝网过滤器即使在承受极高振动和暴露于破坏性气体环境时也能保持其完整性。

Knitted wire mesh, liquid and air filters can be used in situations where resistance to degradation, corrosion, mechanical or thermal shock is required, and where elastic products are required to fit into the cavity, metal textile filters offer an economical and robust alternative. Operating in environments ranging from low to high temperatures, knitted wire mesh filters maintain their integrity even when subjected to extremely high vibrations and exposure to damaging gases.







## 密封 Seal Gaskets

金属针织丝网高温密封垫片满足弹性、抗压强度，针对性应用等要求所需，并满足不同材料、不同几何形状或尺寸的选择。最重要的是它们在在高温，低温或腐蚀性等恶劣环境中提供卓越的性能，其他材料会因分解或变形而失效。

Metal Textiles knitted wire mesh high temperature seal gaskets provide resiliency, strength in compression, and a nearly unlimited choice of materials, geometries, or sizes for specific applications. Most importantly, they provide superior performance in hostile environments such as high temperature seal gaskets, cryogenic or caustic environment applications where other materials would fail as a result of decomposition or deformation.







## 噪声/抗震动 Noise Suppression & Vibration Reduction

### 优异的抗冲击和振动阻尼性能

金属针织网以压缩形式出现，可以承受与材料本身屈服强度一样高的冲击载荷。这是任何其他制造材料都无法达到的水平。通过正确选择材料或材料组合，可以在腐蚀性环境或超高温或低温以及肮脏、油性和其他极端条件下提供抗振动或抗冲击的控制能力。

### 出色的噪音抑制和分散性能

由于其基本结构，金属针织网垫可以非常有效地吸收高能声音。除了充当物理屏障外，网状物还会导致声音在传递到表面时产生振动，从而将声音转换为热能，有效地阻尼、吸收和消散设备产生的噪音。金属针织网垫将所有三种消音方法结合在一个复合结构中：它充当反射屏障、减振器和吸音器。它可以完美装配到现有产品中，而无需改变其设计规格和制造。





### **Proven performance in shock and vibration damping**

Knitted wire mesh, in a compressed form, can handle shock loadings as high as the yield strength of the material itself. In fact, it is not uncommon for a one-inch-thick disc to absorb up to 100,000 pounds of loading—a level not obtainable with any other fabricated material. By proper selection of the material or combination of materials, it is possible to provide vibration or shock control in corrosive atmospheres or at ultra-high or cryogenic temperatures, as well as radioactive, dirty, oily, and other extreme conditions.

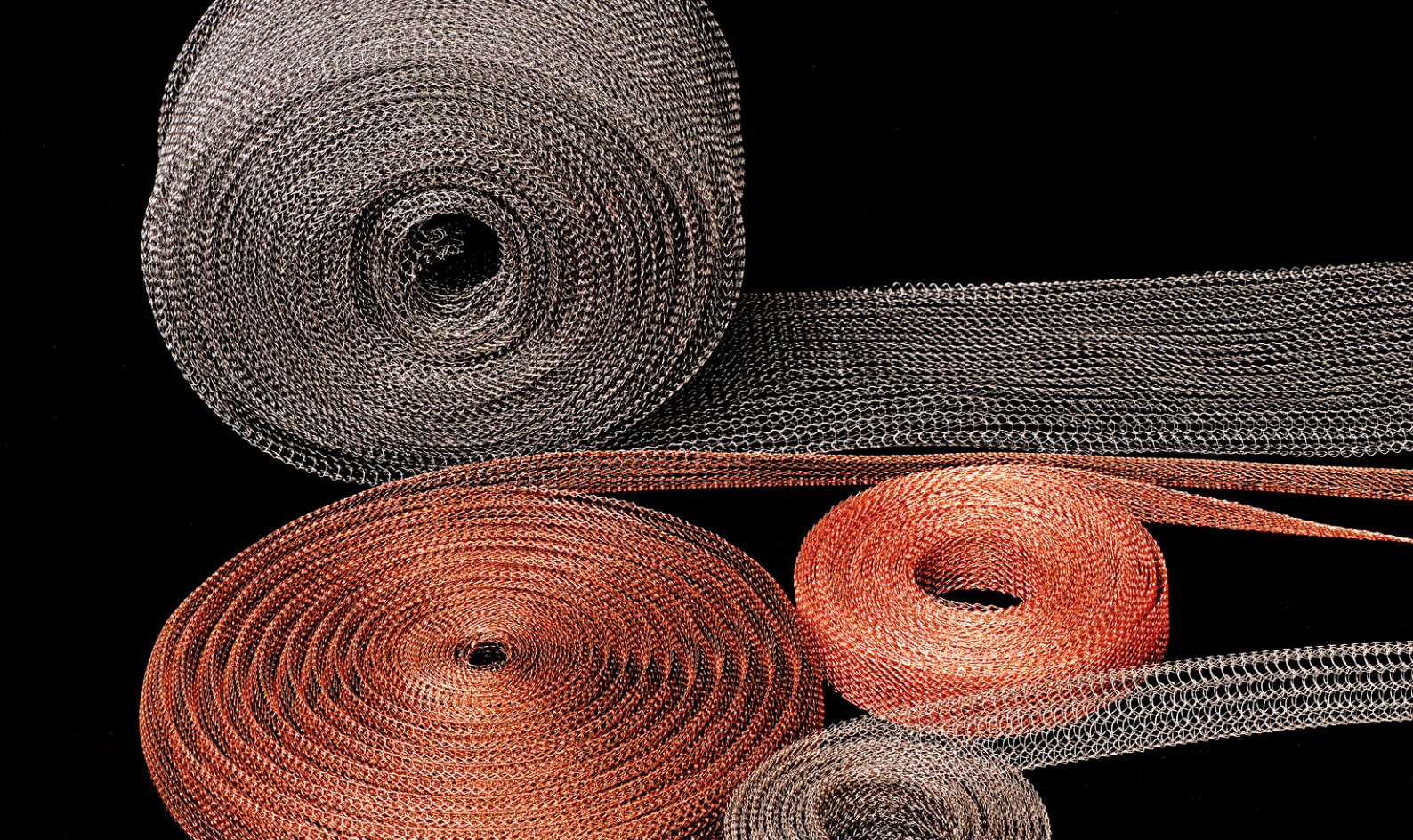
### **Exceptional Noise Suppression and Dispersion with Knitted Wire Mesh**

Due to its inherent structure, knitted wire mesh provides exceptionally efficient absorption of high-energy sound. Beyond acting as a physical barrier, mesh also causes sound to vibrate as it imparts the wire surface, thereby converting sound to thermal energy, effectively dampening, absorbing, and dissipating equipment and plant-generated noise through an intricate path between a sound source and the ear.

This three-in-one combination makes it ideal for pneumatic tool mufflers and other general noise suppression applications. It is cost effective and is easier to design with reduced space requirements. It can be incorporated into existing products without changing their design specifications or manufacturing.







## 电磁屏蔽/微波 Electromagnetic Shielding/Microwave

### RFI/EMI 屏蔽

针织网为 RFI/EMI 屏蔽提供了一种非常有效且经济实惠的解决方案。

所有对电磁干扰 (EMI) 敏感的电子设备都必须屏蔽外部干扰源。除此之外，任何产生电磁辐射的设备都必须隔离，以防止对周围电气和电子设备的性能造成任何下降。

### 非常适合填补空隙

针织金属丝网在 RFI/EMI 屏蔽方面为许多应用提供了完美的解决方案，特别是在需要填补电子外壳中的间隙和泄漏点的情况下。带材和型芯可以生产成许多不同的横截面形式，用于安装到挤压缝隙中。金属丝网的外层提供了出色的屏蔽，而弹性体或网芯则提供了高水平的弹性。

### 提供垫圈和缠绕网

压缩垫片可以由金属针织网制成，可以做理想接地线周围的 RFI/EMI 屏蔽。

电缆缠绕网以连续的扁平且双层胶带的形式提供，用于屏蔽电缆和电气组件。通过重叠包裹，多层网眼提供了极好的屏蔽。针织金属丝网由单根连续长丝制成，可产生非常高的 EMI 屏蔽性能。





### **RFI/EMI Shielding**

Knitted mesh offers a very effective and cost-effective solution for RFI/EMI shielding. All electronic devices that are sensitive to electromagnetic interference (EMI) must be shielded from external sources of interference. In addition to this, any equipment that generates electromagnetic radiation must be isolated to prevent any degradation in the performance of the surrounding electrical and electronic equipment.

### **Perfect for filling gaps**

Knitted wire mesh offers the perfect solution for many applications when it comes to RFI/EMI shielding, especially when gaps and leaks need to be filled in electronic housings. Strips and cores can be produced in many different cross-sectional forms for mounting into extrusion gaps. The outer layer of wire mesh provides excellent shielding, while the elastomer or mesh core provides a high level of elasticity.

### **Gaskets and winding meshes**

Knitted Mesh Compressed Shielding Gaskets represent a breakthrough in providing effective protection against EMI and RFI. Cable wrap meshes are supplied in the form of continuous flat stockings, two layers of tape to shield cables and electrical components. By overlapping the wrapping, the multi-layer mesh provides excellent shielding. Knitted wire mesh is made from a single continuous filament that produces very high EMI shielding performance.



## 制氢/清洁能源 Hydrogen Production / Clean Energy

金属针织网在制氢中的应用技术主要有以下几种：

### 作为电解水制氢的电极材料

- ◎ **增强导电性和稳定性：**金属针织网具有良好的导电性和化学稳定性，如镍丝针织网，可作为电极在电解槽中传导电流，促使水电解反应发生，且在强碱等电解质环境中不易被腐蚀。
- ◎ **增大反应面积：**其多孔结构增大了电极与电解质的接触面积，使更多的水分子能够在电极表面发生反应，提高制氢效率。
- ◎ **改善贴合性：**在一些电解水制氢槽单片结构中，金属网与电极隔板之间设置针织弹性网作为弹性极片，可确保电极片与电极隔板紧密贴合，增加接触面积，提高生产效率。

### 用于制氢过程中的气体分离与过滤

- ◎ **氢气分离：**金属针织网可用于分离电解水制氢过程中产生的混合气体，其对氢气有良好的透过性，能让氢气通过，同时阻止其他气体通过，从而实现氢气的初步分离和提纯。
- ◎ **杂质过滤：**制氢过程中产生的气体可能含有水蒸气、氧气、二氧化碳等杂质，金属针织网可作为过滤器，依据其孔径大小和表面特性，有效过滤这些杂质，进一步提高氢气的纯度。

### 作为制氢催化剂的载体

- ◎ **负载催化剂：**金属针织网具有较大的比表面积，可通过等离子熔射喷涂等工艺在其表面负载雷尼镍、镍铝合金等催化剂，为制氢反应提供更多的活性位点，加速氢离子的还原反应，从而提高制氢反应速率。





The application technologies of metal knitted nets in hydrogen production mainly include the following aspects:

**As electrode materials for hydrogen production by electrolyzing water:**

- ◎ **Enhancing conductivity and stability:** Metal knitted nets have good electrical conductivity and chemical stability. For example, nickel wire knitted nets can be used as electrodes to conduct current in the electrolyzer, facilitating the occurrence of the water electrolysis reaction, and are not easily corroded in electrolyte environments such as strong alkalis.
- ◎ **Increasing the reaction area:** Its porous structure enlarges the contact area between the electrodes and the electrolyte, enabling more water molecules to react on the surface of the electrodes and improving the hydrogen production efficiency.
- ◎ **Improving the adhesion:** In the single-piece structure of some electrolytic water hydrogen production tanks, a knitted elastic net is set between the metal net and the electrode separator as an elastic pole piece, which can ensure that the electrode sheet is closely attached to the electrode separator, increase the contact area, and improve the production efficiency.



**Used for gas separation and filtration in the process of hydrogen production:**

- ◎ **Hydrogen separation:** Metal knitted nets can be used to separate the mixed gases generated in the process of hydrogen production by electrolyzing water. They have good permeability to hydrogen, allowing hydrogen to pass through while blocking other gases, thus realizing the preliminary separation and purification of hydrogen.
- ◎ **Impurity filtration:** The gases generated in the process of hydrogen production may contain impurities such as water vapor, oxygen, and carbon dioxide. Metal knitted nets can be used as filters. Based on their pore size and surface characteristics, these impurities can be effectively filtered to further improve the purity of hydrogen.

**As carriers for hydrogen production catalysts:**

- ◎ **Loading catalysts:** Metal knitted nets have a relatively large specific surface area. Catalysts such as Raney nickel and nickel-aluminum alloys can be loaded on their surfaces through processes such as plasma spraying, providing more active sites for the hydrogen production reaction, accelerating the reduction reaction of hydrogen ions, and thus increasing the hydrogen production reaction rate.



## 秦皇岛燕大国海不锈钢业有限公司

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