



汉武钢铁

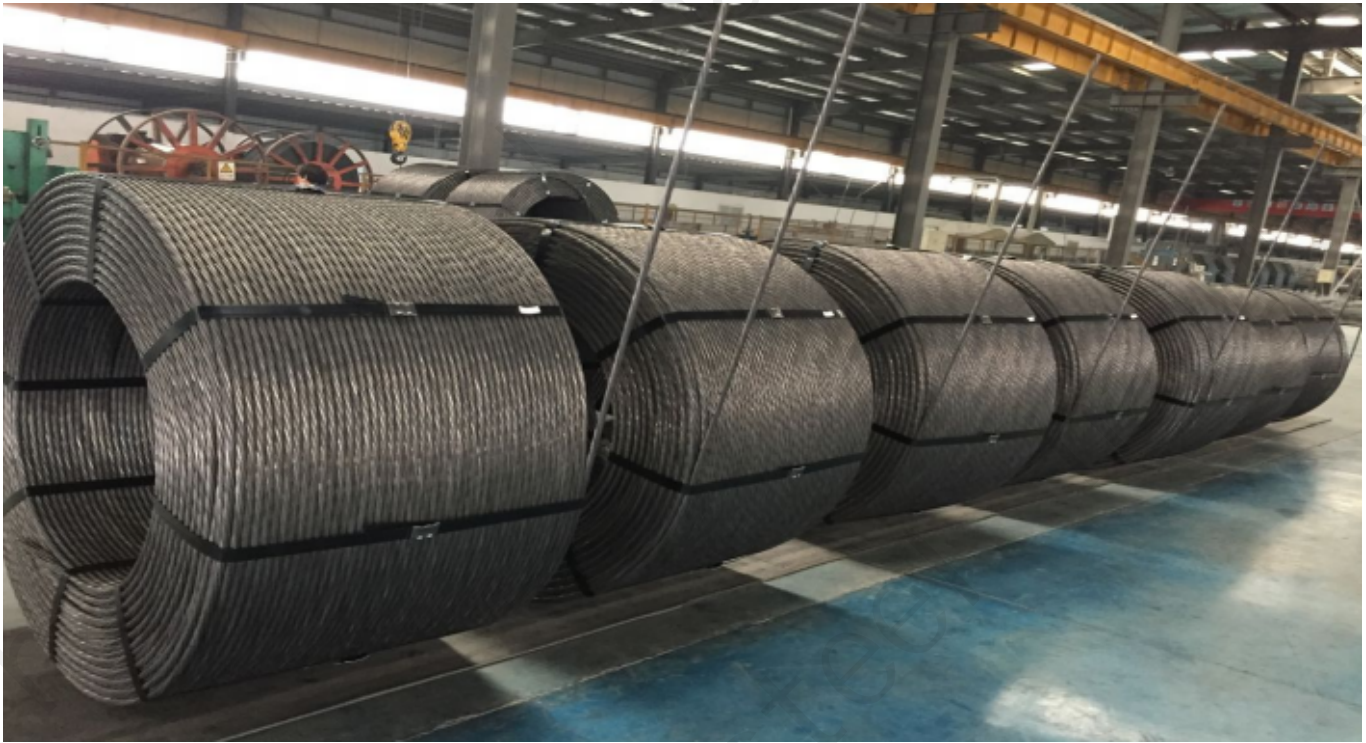
HANWU STEEL

Wire Products

- Steel Wire
- Steel Wire Mesh
- Steel Wire Rope



Hanwu Iron and Steel (Shandong) Co., Ltd.
amie@hw-steel.com



Steel strand

- Steel Wire for Prestressed Concrete:** The product is mainly used to produce prestressed concrete components of various structural shapes using various tensioning techniques. In the construction of large-scale railways, highway bridges, roof trusses, crane beams, industrial and civil prefabricated panels, wall panels, prestressed concrete TV towers, nuclear power plants, and other engineering projects. Produce two surface forms: smooth and spiral ribs. American standards ASTM A416, ASTM A421, British standard BS5896, Japanese standard JISG3536, international standard ISO6934, European standard EN10138
- Steel Strand for Prestressed Concrete:** This product is mainly used for reinforcing prestressed concrete structures. Such as large-span railway and highway bridges, crane beams, geotechnical anchoring engineering, multi-layer industrial factories, coal mines, sports venues, etc. Main executive standard: ASTM A416
- Unbonded Steel Strand for Prestressed Concrete:** Post tensioned unbonded prestressed steel strands are used for cast-in-place floor slabs, prefabricated beams with large loads, and other specially designed structures in large-span and large-span buildings. It has the characteristics of no need for reserved holes, no need for grouting, simple construction, material saving, and easy bending.

| Grade | Nominal Dia.(mm) | Tolerance (mm) | Nominal Section Area (mm ²) | Mass Per 1000m (Kg/1000m) | Minimum Breaking Load | Min Load at 1% Extension (KN) | Lo≥610mm (%) | The Relaxation at 1000 h (Initial load to 70% of nominal max load) (r/%) |
|---------------|------------------|----------------|---|---------------------------|-----------------------|-------------------------------|--------------|--|
| 250 [1725] | 9.5 | ±0.40 | 51.6 | 405 | 89.0 | 80.1 | 3.5 | Low-Relaxation: Normal-Relaxation: 3.5 |
| | 11.1 | | 69.7 | 548 | 120.1 | 108.1 | | |
| | 12.70 | | 92.9 | 730 | 160.1 | 144.1 | | |
| | 15.20 | | 139.4 | 1094 | 240.2 | 216.2 | | |
| 270 [1860] | 9.53 | +0.65 -0.15 | 54.84 | 432 | 102.3 | 92.1 | 3.5 | Low-Relaxation: Normal-Relaxation: 3.5 |
| | 11.11 | | 74.19 | 582 | 137.9 | 124.1 | | |
| | 12.70 | | 98.71 | 775 | 183.7 | 165.1 | | |
| | 15.24 | | 140.00 | 1102 | 260.7 | 234.6 | | |



Wire



Stainless steel wires $\phi 0.013$ mm

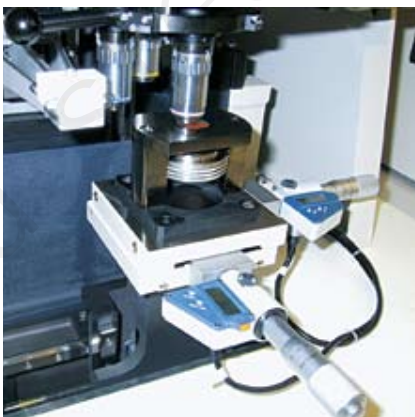


Diamond dies for wire drawing

We make full use of the proprietary wire processing technologies, such as bright solution thermal treatment, ultra-fine wire drawing, and die forming to manufacture fine stainless steel wires with diameters from $\phi 0.013$ to $\phi 0.50$ mm.

Features

- Continuous drawing and bright solution thermal treatment performed in-house to enable production of stainless steel wires with an ultra-fine diameter of 0.013mm.
- Diamond dies used in wire drawing are formed and polished in-house to enable production of wires with intermediate sizes (manufacturing of wires with diameters at 2- μ m intervals is possible).
- Our high precision rolling press machine manufactures ultra-fine pressed wires ($t=0.015$ mm).
- All of the production facilities required for wire drawing are owned in-house, allowing special wires with stiffness that is not specified by JIS standards to be manufactured.



Micro-Vickers hardness tester



Material tester



Die shape meter



- W1 Stainless-steel soft wire conforming to JIS G4309, manufactured with the bright solution thermal treatment process.
 - WPB Stainless-steel hard wire (for spring) conforming to JIS G 4315, manufactured with the continuous wire drawing process.
 - WHT High-strength stainless steel hard wire manufactured with the special continuous wire drawing process.
 - Flat Wire High-accuracy stainless steel pressed wire manufactured using a high-precision rolling press machine.
- Note: The level of refining can be selected from soft, hard and intermediate.



Inside the wire drawing machine

Specifications

Round wire

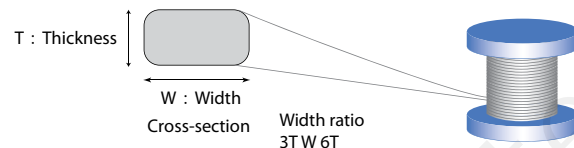


| Type | ØD : Outer Diameter (mm) | | Tensile Strength (N/mm ²) |
|------|--------------------------|-------|---------------------------------------|
| | Min. | Max. | |
| W1 | 0.030 | — | 680~1,030 |
| H | 0.016 | 0.660 | 1,650~2,750 |
| WHT | 0.013 | 0.130 | 2,900~3,500 |

- Notes : • Materials — SUS304, SUS316.
• PTFE coating is available.

Flat wire

| T : Thickness (mm) | |
|--------------------|-------|
| Min. | Max. |
| 0.015 | 0.090 |



- Notes : • Materials — SUS304, SUS316.
• W1 and H can be manufactured as flat wires.

Chemical components of wire materials (JIS G4308)

The type of stainless steel used in our wires is SUS304. The type used for non-magnetic applications is SUS316.

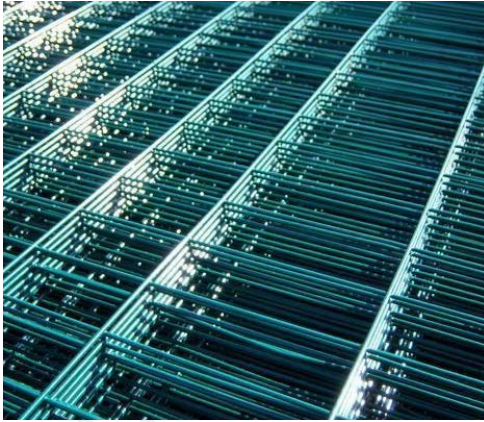
| Type | Characteristics | C % | Cr % | Ni % | Si % | Mn % | Mo % |
|--------|--|-------|---------------------|---------------------|-------|--------|------|
| SUS304 | Most commonly used. Possesses corrosion resistance, heat resistance and low-temperature tolerance. | 0.08> | 18.00 20.00 | 8.00 - 10.50 | 1.00> | 2.00.> | |
| SUS316 | With the addition of Mo, this is superior to SUS304 in terms of corrosion resistance to dilute sulphuric acids and sulphurous acids. | 0.08> | 16.00 - 18.00 | 10.00 - 14.00 | 1.00> | 2.00> | 2.00 |

Physical properties of wire materials

| AISI No. | Modulus of elasticity (103N/mm) | Density (g/cm ³) | Resistivity (10 ⁻⁸ Ω·m) | heat capacity (kJ/kg·°C) | Coefficient of thermal conductivity (W/m·°C) | | Coefficient of thermal expansion (10 ⁻⁶ /°C) | | | | Melting point (°C) |
|----------|---------------------------------|------------------------------|------------------------------------|--------------------------|--|-----------|---|-------|---------|-----------|--------------------|
| | | | | | 100°C | 500°C | 25~100 | | 25~700 | | |
| | | | | | | | 100°C | 300°C | 500°C | 700°C | |
| 304 | 167~193 | 7.93 | 72~74 | 460~502 | 16.3~25.1 | 21.3~28.9 | 16.3~17.3 | 17.8 | 18~18.4 | 18.4~18.9 | 1398~1453 |
| 316 | 193 | 7.98 | 74 | 16.1 | 16.1 | 21.4 | 16.0 | 17.5 | 18.0 | 18.5 | 1370~1397 |



Welded Wire Mesh Is the Material of Infill Panels, Cages and Trellis



Welded wire mesh can be divided into 2 types according to different flexibility: welded mesh panel and welded mesh roll. Panel common size is 1800 mm × 3000 mm, we also accept other requirements. Welded mesh roll has better flexibility.

Welded wire mesh is made of low carbon steel wire, which has galvanized and PVC coated surfaces, which have great anti-corrosion, anti-rust and weather resistance.

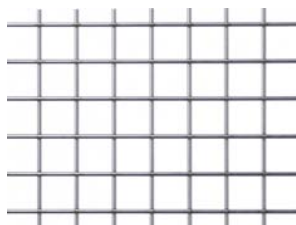
Firm structure and high tensile strength are also the features of welded wire mesh, which make it be widely used to make gabion, plaster walls, animal cages and plant trellis.

Feature

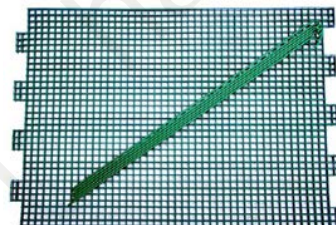
- Firm structure.
- Aesthetic design.
- High tensile strength.
- Good flexibility.
- Corrosion resistance and anti-rust.
- Weather resistance.
- Long service life.
- Appropriate price.

Specification

- **Material:** low carbon steel wire, stainless steel wire and aluminum-magnesium alloy wire.
- **Wire gauge:** 12–24 gauge, or other custom size.
- **Mesh size:** 1/4 inch – 2 inch, or other custom size.
- **Tensile strength:** 300–450 N/mm².
- **Elongation:** min. 15%.
- **Surface treatment:** galvanized (electro or galvanized), PVC coated, etc.
- **Coated thickness:** 0.5 mm – 1 mm.
- **Color:** white, green, black, accept customers' special request.



Galvanized welded wire mesh



PVC coated welded wire mesh

Steel Wire Mesh



- **Process:** welded after galvanized and galvanized after welding.
- **Welded mesh roll length:** 5 m, 10 m, 30 m or other custom size.
- **Welded mesh roll width:** 0.5 m – 1.8 m or other custom size.
- **Panel size:** 1800 mm × 3000 mm (or more).
- **Mesh type:**



Welded Mesh Roll



Welded Mesh Panel

Table 1: Tolerances on Mesh Dimensions

| Mesh dimensions mm | Tolerance mm |
|-----------------------|-----------------|
| < 50 | ±2.0 |
| ≥50 to < 200 | ±3.0 |

Table 2: Mesh Size and Wire Diameter

| Mesh Size | | Wire Diameter Before & After PVC Coat | | |
|-------------|---------|---------------------------------------|-----------------------|----------------------|
| mm | inch | BWG No. | Before Coated (mm) | After Coated (mm) |
| 6.4 | 1/4 | 24–22 | 0.56–0.71 | 0.90–1.05 |
| 9.5 | 3/8 | 23–19 | 0.64–1.07 | 1.00–1.52 |
| 12.7 | 1/2 | 22–16 | 0.71–1.65 | 1.10–2.20 |
| 15.9 | 5/8 | 21–16 | 0.81–1.65 | 1.22–2.30 |
| 19.1 | 3/4 | 21–16 | 0.81–1.65 | 1.24–2.40 |
| 25.4 × 12.7 | 1 × 1/2 | 21–16 | 0.81–1.65 | 1.24–2.42 |
| 25.4 | 1 | 21–14 | 0.81–2.11 | 1.28–2.90 |
| 38.1 | 1 1/2 | 19–14 | 1.07–2.11 | 1.57–2.92 |
| 25.4 × 50.8 | 1 × 2 | 17–14 | 1.47–2.11 | 2.00–2.95 |
| 50.8 | 2 | 16–12 | 1.65–2.77 | 2.20–3.61 |

Table 3: Welded Wire Mesh Roll Size

| Mesh Inch | Width × Length |
|-----------|----------------|
| 1/2 | 3 ft. × 50 ft. |
| 1/2 | 4 ft. × 50 ft. |
| 1/2 | 5 ft. × 50 ft. |
| 1/2 | 6 ft. × 50 ft. |
| 3/4 | 3 ft. × 50 ft. |
| 3/4 | 4 ft. × 50 ft. |
| 3/4 | 5 ft. × 50 ft. |
| 3/4 | 6 ft. × 50 ft. |
| 1 | 3 ft. × 50 ft. |
| 1 | 4 ft. × 50 ft. |
| 1 | 5 ft. × 50 ft. |
| 1 | 6 ft. × 50 ft. |



Table 4: Mesh Panel Common Specification

| Mesh | | Wire Diameter | |
|---------------------|-----------------|---------------|-------------|
| Expressed in Inches | Millimeters | Diameter | Millimeters |
| 1" × 1" | 25 mm × 25 mm | 11 G – 14 G | 2 mm – 3 mm |
| 2" × 1" | 50 mm × 25 mm | 8 G – 14 G | 2 mm – 4 mm |
| 2" × 2" | 50 mm × 50 mm | 8 G – 14 G | 2 mm – 4 mm |
| 3" × 2" | 75 mm × 50 mm | 6 G – 14 G | 2 mm – 5 mm |
| 3" × 3" | 75 mm × 75 mm | 6 G – 14 G | 2 mm – 5 mm |
| 4" × 2" | 100 mm × 50 mm | 4 G – 14 G | 2 mm – 6 mm |
| 4" × 4" | 100 mm × 100 mm | 4 G – 14 G | 2 mm – 6 mm |
| 5" × 5" | 125 mm × 125 mm | 4 G – 14 G | 2 mm – 6 mm |
| 6" × 6" | 150 mm × 150 mm | 4 G – 14 G | 2 mm – 6 mm |

Note: Special specifications can be customized.

Application

- Animal cages.
- Plant trellis panels.
- Floor heating system.
- Plaster walls.
- Slab reinforcement.
- Gridwall panel or display panel.
- Stair rail infill panel.
- Wire container.
- Wire decking.
- Welded gabion.



Welded wire mesh plant trellis



Welded wire mesh gabion landscape



Welded wire mesh wire container



Welded wire mesh zoo cage



Introduction

CIVMATS produces high quality stainless steel wire rope. Our annual production capacity is roughly 8000 tons, among which stainless steel wire rope amounts to 400 tons per month. The tolerance of our stainless steel wire rope can be as small as $\pm 0.01\text{mm}$. CIVMATS produces strictly according to ISO9001:2000. Every product delivered from CIVMATS is a reputation warranty.

Wire rope can be divided into multi-strand wire rope and single-strand wire rope. It is structured with at least two layers of steel wire or a plurality of strands spirally wound around a center or a core. Stainless steel wire rope refers to a steel wire rope made of stainless steel.

In dynamic systems, stainless steel wire ropes are widely applied in the lifting of cranes and elevators, the transmission of mechanical power, the control of automobile cockpit poles and the operation of aircraft control systems, etc. In static systems, stainless steel wire ropes are also employed in various industries such as the stability of the sling bridge's pulling support tower and the design of new railings.

Stainless steel wire rope features high temperature resistance, good fatigue resistance, excellent breaking force, long service life and durability. It is widely used in coal, petroleum, metallurgy, chemical industry, shipbuilding, bridge, electric power, rubber, military, tourism, water conservancy and light industry. The products can be produced according to ISO, BS, DIN, JIS, ABS, LR and other international and foreign advanced standards

Specifications

• Dimensions:

Specifications: 1×7, 1×12, 1×19, 1×37, 6×7, 6×12, 6×19, 6×25, 6×29, 6×31, 6×36, 6×37, 7×7, 7×18, 7×19, 7×35, 7×37, 17×39, 19×43

Diameter: $\Phi 0.15\text{mm} - \Phi 50\text{mm}$

*Customized size needs to be confirmed with us

Features

Good toughness and flexibility, anti-corrosion, anti-fatigue, heat resistance, durability

Applications

Petroleum, chemical industry, textile industry, machinery, aerospace, precision instrument, construction, medical industry, auto parts, fishing, etc.

Standards

ASTM A492, JIS G3535, GB/T 9944



PRODUCT PACKAGING

Standard Export Seaworthy Package (Waterproof paper, and steel strip packed). Suit for all kinds of transport, or as required. Every cartons loaded with good shoring and strengthening. Use 6m loaded by 20ft container, 12m loaded by 40ft container. We will take container loading pictures and seal the container. Transportation speed is quick. And keep customer eachstep informed.



汉武钢铁
HANWU STEEL

Hanwu Iron and Steel (Shandong) Co., Ltd.

✉ amie@hw-steel.com

☎ +86 13064098902

🌐 hanwu-steel.com

📍 Building 1, Zhongjian Jinxiu Plaza,
Huaiyin District, Jinan City, Shandong
Province

