

WIRE MESH PRODUCTS

HAYER STANDARD

INDIA PRIVATE LIMITED
(In joint venture with Haver & Boecker, Germany)

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ABOUT US

Haver Standard India Pvt Ltd (HAST) is the largest manufacturer of wire mesh and demister pads in India, and the only company manufacturing sieves in India which are compliant to DIN, ISO and ASTM standards. We are also a renowned producer of silver granular and wire mesh catalysts for over 50 years and cater to more than 60% of Formaldehyde plants in India.

We have been in the wire weaving business since 1958, and since 1988 we have an active joint venture with Haver & Boecker, Germany who are in this business since 1887. We are ISO 9001-2008 compliant since 1996.

Based on our combined expertise of more than 100 years of experience in wire fabric technology, we provide innovative systems for particle analysis and the most suitable woven wire cloth for every demand. Meticulous handling of production processes, with special attention to quality control measures, is the hallmark of our company. Emphasis on quality is instilled into every process right from the bottom to the top. This combined with our mindset of continuous learning and improvement, ensures that we deliver high quality products and service at competitive prices.





Our products are used in a wide range of industries which include oil refinery, agriculture, desalination, OEM, chemical, polymer, pharmaceutical and minerals. Our products are also approved by leading inspection agencies and engineering contractors including EIL, TUV, DNV and BVIS. The company has an established market in India as well as Europe, and Middle & Far East Asia.

the manufacturing plant is in excess of 100,000 sq.ft. with further land area for expansion, and has the largest installed capacity for woven wire cloth in the country. All our products are now manufactured under one roof in accordance to ISO standards.

Our aim is to make you, our Customer, happy by satisfying all your filtration needs.

At HAST we have a fully equipped state-of-the-art manufacturing facility at Halol, the outskirts of Baroda, Gujarat. The total area of



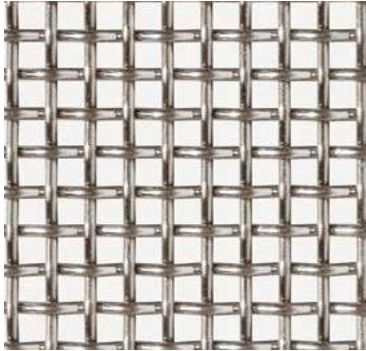


MESH PRODUCTION

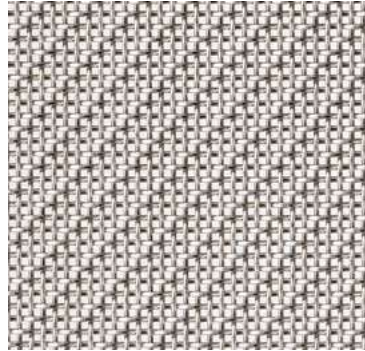
HAST uses only the best raw material which is thoroughly inspected to manufacture our wire meshes. These top quality wires are then in clean room conditions in a special air conditioned building, using state of art looms developed in house by our specialists. For particularly challenging applications, these

fine meshes can be cleaned and inspected electronically using purpose designed equipment, also developed in house. This exhaustive level of quality assurance and process security guarantee a premium value and 100% product responsibility.

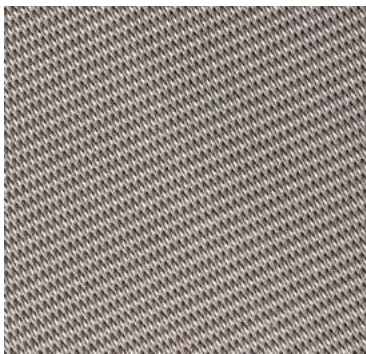
TYPES OF WEAVES:



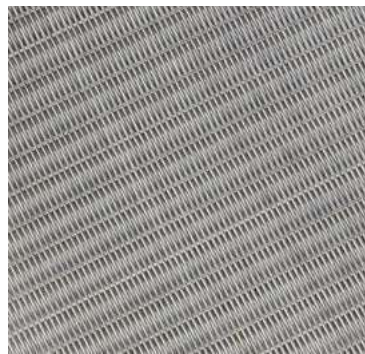
Plain Weave



Twill Weave



Reverse Plain Dutch Weave



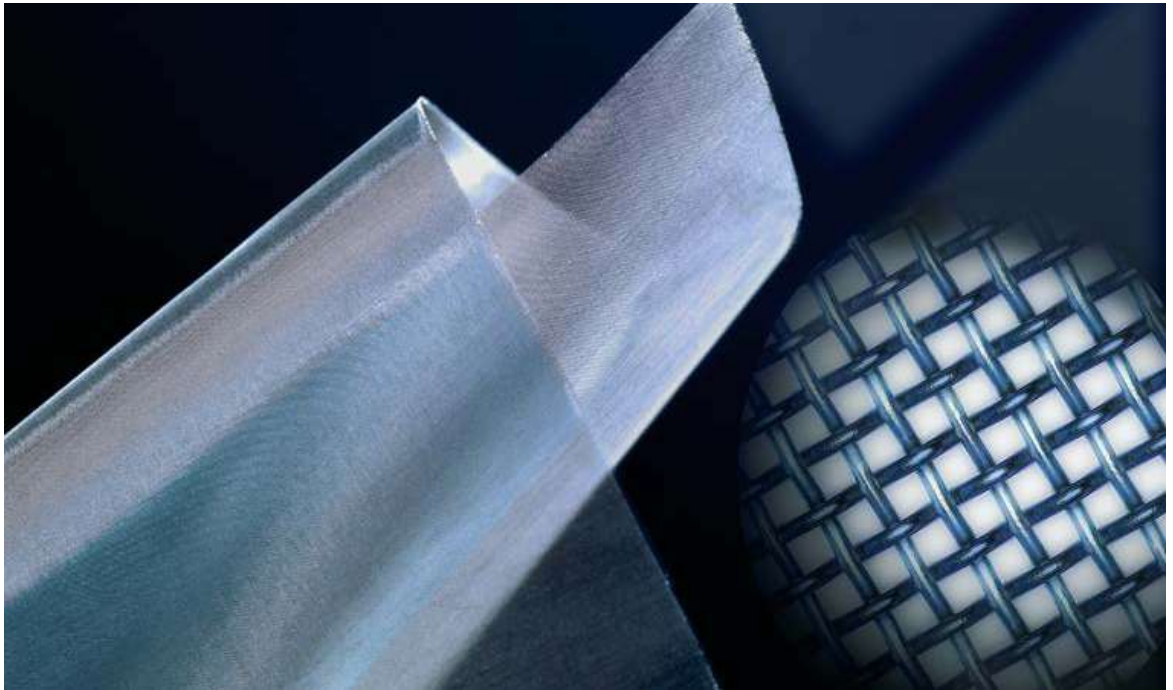
Single Plain Dutch Weave



Dutch Twill Weave

MESH PROPERTIES

- Advance Level of Precision
- Extremely Limited Thickness Tolerance
- Stable Weave
- Clean Uniform Surface Area
- Excellent Abrasion Resistance
- Uniform Appearance , No Transition (Mesh Striping)
- Easy To Fabricate



WIRE CLOTH TERMINOLOGY ACCORDING TO ISO 9044

Aperture Width W is the distance between two adjacent wrap or weft wires, measured in projected plane at the mid-position.

Wire diameter d is the diameter of the wire in the woven cloth (the wire diameter may be altered slightly during the weaving process)

Pitch p is the distance between the middle point of the two adjacent wires or the sum of the aperture width and the wire diameter d .

Wrap: All wires running lengthwise of the cloth as woven.

Weft: All wires running across the cloth as woven.

The number of aperture per unit length n is the number of aperture which are contained in a row one behind the other for a given unit length. The unit length may be 1 cm, 1 dm, Inch or any other unit of length. (the number of aperture with a length of 24.5 mm is designed as "Mesh")

Mesh = number of aperture per English inch
= 25.4: p

N/cm = number of aperture per cm = 10: p

N/cm^2 = number of aperture per cm^2 = $(10:p)^2$

Open screening area A_0 : The percentage of area of all the aperture are of all the aperture in the total screening surface or the ratio of the square of the nominal aperture width w and the square of the nominal pitch p ($= w + d$), rounded to a full percentage value:

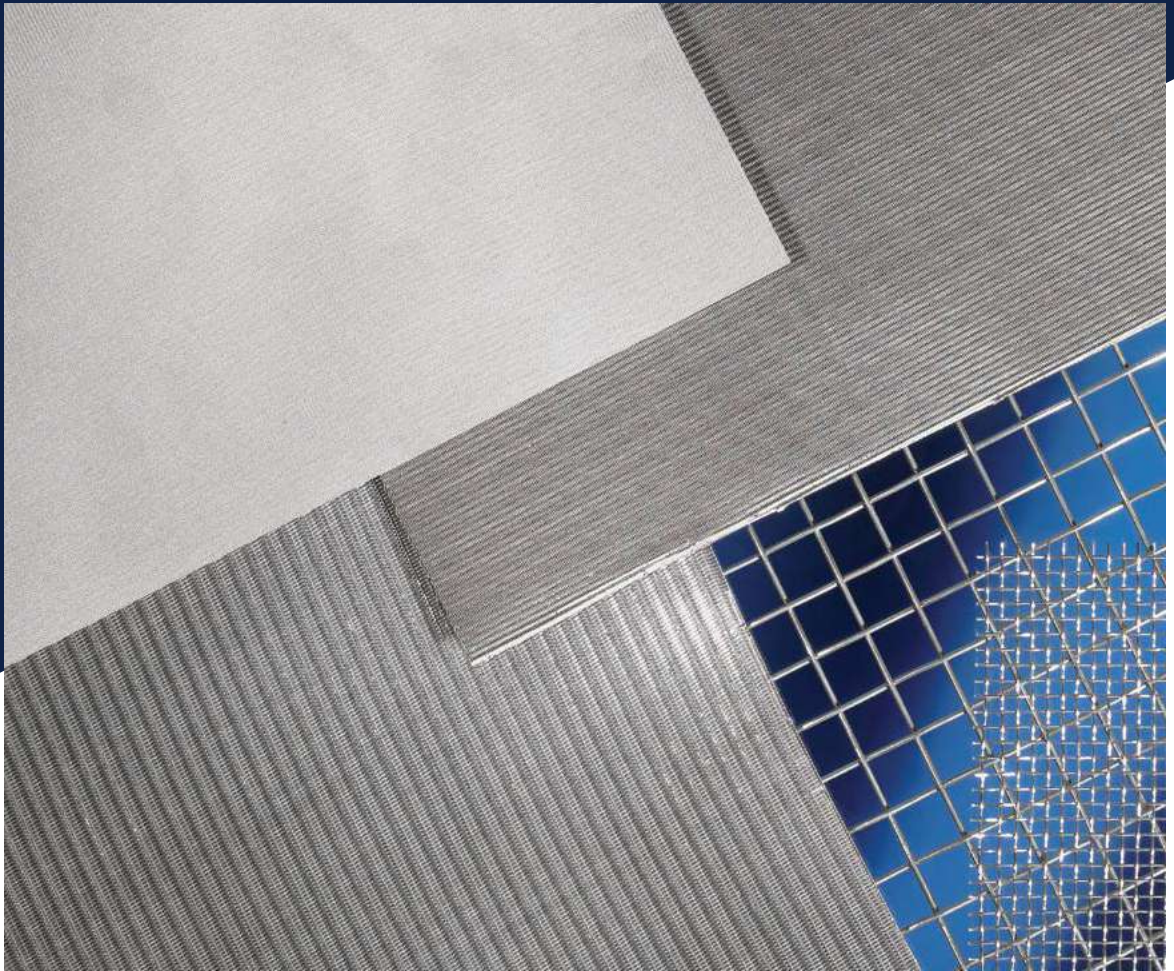
$$A_0 = 100 \cdot (w:p)^2$$

Type of weave is the way in which the wrap and weft wires cross each others.

Weigh G of the steel wire cloth screen section in kg per m^2

$$G = (12.7 \cdot d^2): p$$

$$G = \text{Mesh} \cdot d^2 / 2$$



The actual value can be calculated using the following equation

$$d = \sqrt{G \cdot p / 12.7}$$

$$d = \sqrt{2 \cdot G / \text{Mesh}}$$

Material: it is up to the user to specify the choice of material with respect to;

- A. The final application of the wire cloth (e.g. resistance to environmental corrosion, suitability d=for food product etc)
- B. The further processing (e.g. suitability for shaping, welding and surface treatment).

Material should be designed in accordance in accordance with appropriate standards, or if none exist, according to commercial specification.

DELIVERY

Roll length: a standard roll is 25 or 30.5 m long and half rolls are 12.5 m long. The length of rolls may be + or – 10 %. The delivered length is the one invoiced.

Partial length: a wire cloth roll may consist of a maximum of three roll pieces. The minimum length of roll is 2.5 m.

Cloth width: for a rolls and rolls pieces, the width of the cloth shall not be less than the nominal width, but may be up to 2% in excess.

Strips and cut-to-size-pieces: For strips, the width shall be specified. Width order of quantities of less than a standard roll, the length of individual strips may be reduced accordingly. For cut-to-size pieces. The sides, length, angles and radii shall be specified.



LABELLING

Woven wire cloth shall be labeled with the following information:

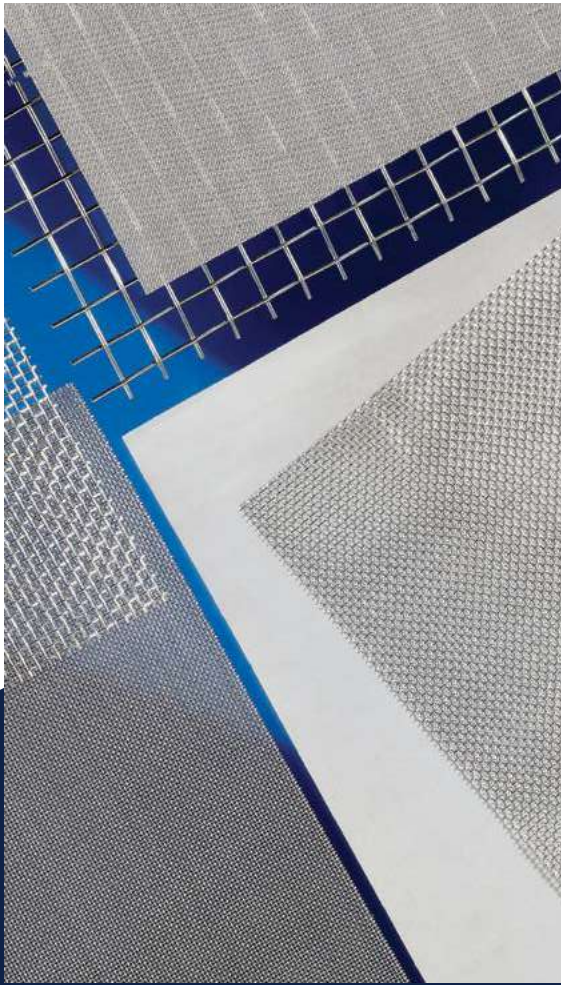
- The name and the trademark of the manufacturer
- The material of the wire
- The nominal aperture width w
- The nominal wire diameter d
- The type of weave, if not plain

- The length and width of the roll or strips or the size and number of pieces
- The weight (mass) if required.

If the cloth roll consists of several roll pieces, the length of each piece shall be indicated.

Woven wire cloth in strips or pieces shall be so labeled on the outer packing.

The length and width of each rolled strip (coil) shall be specified subject to agreement.



REQUIRED DETAILS FOR WIRE CLOTH ORDERS

1. Quantity: number of pieces or rolls
2. Dimensions: length and width of rolls
3. Material
4. Aperture width: w
5. Mesh count (per liner inch) or number of meshes per cm^2 may likewise be stated instead of the aperture width.
6. Wire diameter: d
7. Type of weave—if necessary
8. Post weaving processing—if desired
9. Shaped parts or filters: provide samples, sketches or drawing, preferably with permissible tolerance.
10. Sample: should you have sample of the wire cloth used previously, kindly send it to us, we shall then analyze the specification.
11. Repeat orders: so as to furnish you with the correct material either let us have a roll-label or provide the exact technical data of the previous order.

TESTING OF WOVEN WIRE CLOTH ACCORDING TO ISO 9044

DETERMINATION OF THE WIRE DIAMETER

The wire diameter after weaving may be determined by using one of the procedures:

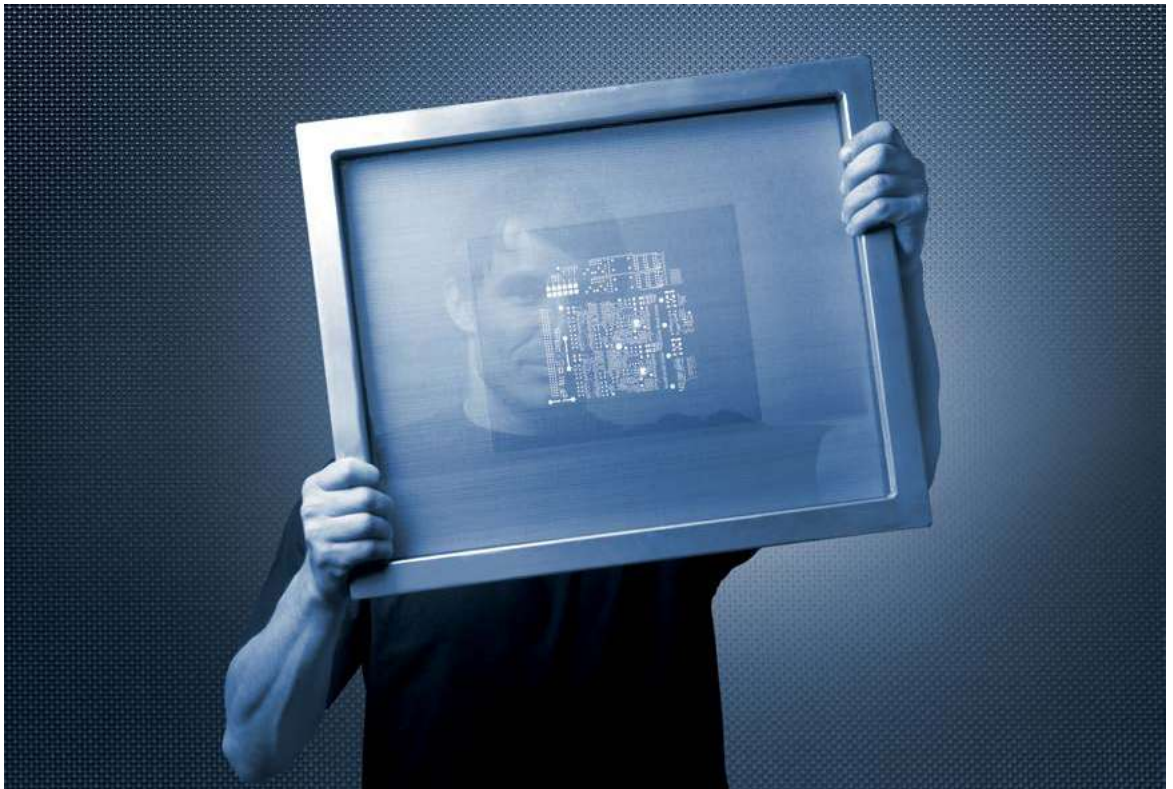
1. By measuring the wire which have been loosened from the woven wire cloth (e.g. by using micrometer screw)
2. By measuring the wires in the cloth, if there is a sufficient space for the measuring instrument.

The tolerance of the wire before weaving can do longer be determined in the woven wire cloth, because of its heavy deformation during weaving the nominal wire diameter; however, can be calculated using empirical weight formula.

APERTURE WIDTH (MEASURING ROW METHOD)

In this simplified method, the number of pitches (p) in a given (L) is determined. The given length is then divided by the number of pitches to give the average pitch. Subtraction of the wire diameter (d) from the average pitch then gives the aperture width (w).

When measuring aperture width between 16 & 1 mm 10 pitches have to be checked; smaller aperture width up to 0.1mm—should be checked within 20 pitches.





POST WEAVING PROCESSING—IF DESIRED

- **Stretching:** the wire cloth is stretched under tension after weaving to straighten the wire and make it flat.
- **Degreasing/cleaning:** wire cloth rolls, strips or pieces can be cleaned in ultrasonic bath.
- **Tycclean:** bright annealing under inert gas or vacuum.
- **Calendaring:** the wire cloth is passed through the steel rollers to reduce it to a predetermined thickness without altering the wire diameter and mesh opening.

Shaped parts or filters: provide samples, sketches or drawing, preferably with permissible tolerance.

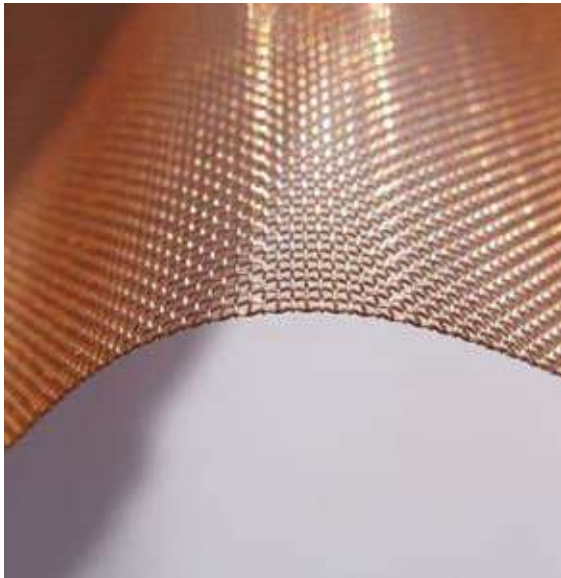
Sample: should you have sample of the wire cloth used previously, kindly send it to us, we shall then analyze the specification

Repeat orders: so as to furnish you with the correct material either let us have a roll-label or provide the exact technical data of the previous order.



HAST began producing wire cloth in Vadodara in 1988. Today, we are India's leading wire weaving companies with a global reach for our customers.

Our work is based upon experienced, continuous research and manufacturing processes, along with the knowledge and ability of our staff. This combination of tradition and innovations or customers.



MATERIAL FOR WOVEN WIRE CLOTH

Technical woven wire cloth manufactured by HAST is used for screening and filtration in almost every industrial sector: chemical, plastic, automobile, aviation, aerospace, electronics industrial screening (mining & quarrying), test sieving, and food processing industry and lost of other applications. In addition to its technical properties, HAST woven wire cloth has high aesthetic appeal. Architects and designer started combining the two in early 2000s. We weave all types of material.

- Stainless steel: chrome steel, chrome-nickel steel, chrome-nickel-molybdenum steel, heat resisting steel.
- Non-ferrous metals: aluminum, nickel, MONEL-metal, phosphor bronze, brass, copper.
- Special material: titanium, hastelloy, silver, platinum and many others.

The selection of material, quality and processing are of great importance for the properties of the woven wire cloth product. Certain requirement can be fulfilled only by

using certain material. Here is the coast for various materials can vary widely. Knowledge about which material are best suited for particular application and which process may be used are especially important for assuring the fulfillment of the requirement of the function, stability, safety, and economy.

Using certified test and measurement procedure, proof provided that the wire cloth from HAST fulfils the respective requirements.

Moreover, we have also developed our own processes for quality assurance. During the reception of wire material, wire cloth production and before the delivery our laboratory conducts special analysis along with the classic material and quality checks.

Our certified quality management system as to DIN EN ISO 9001:2008 provides additional assurance.

In connection with differentiated quality assurance of incoming wire material until finished product as to DIN ISO 9044. First class woven wire cloth quality is guaranteed.

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Tel. : +91 8758 221115 / 6

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