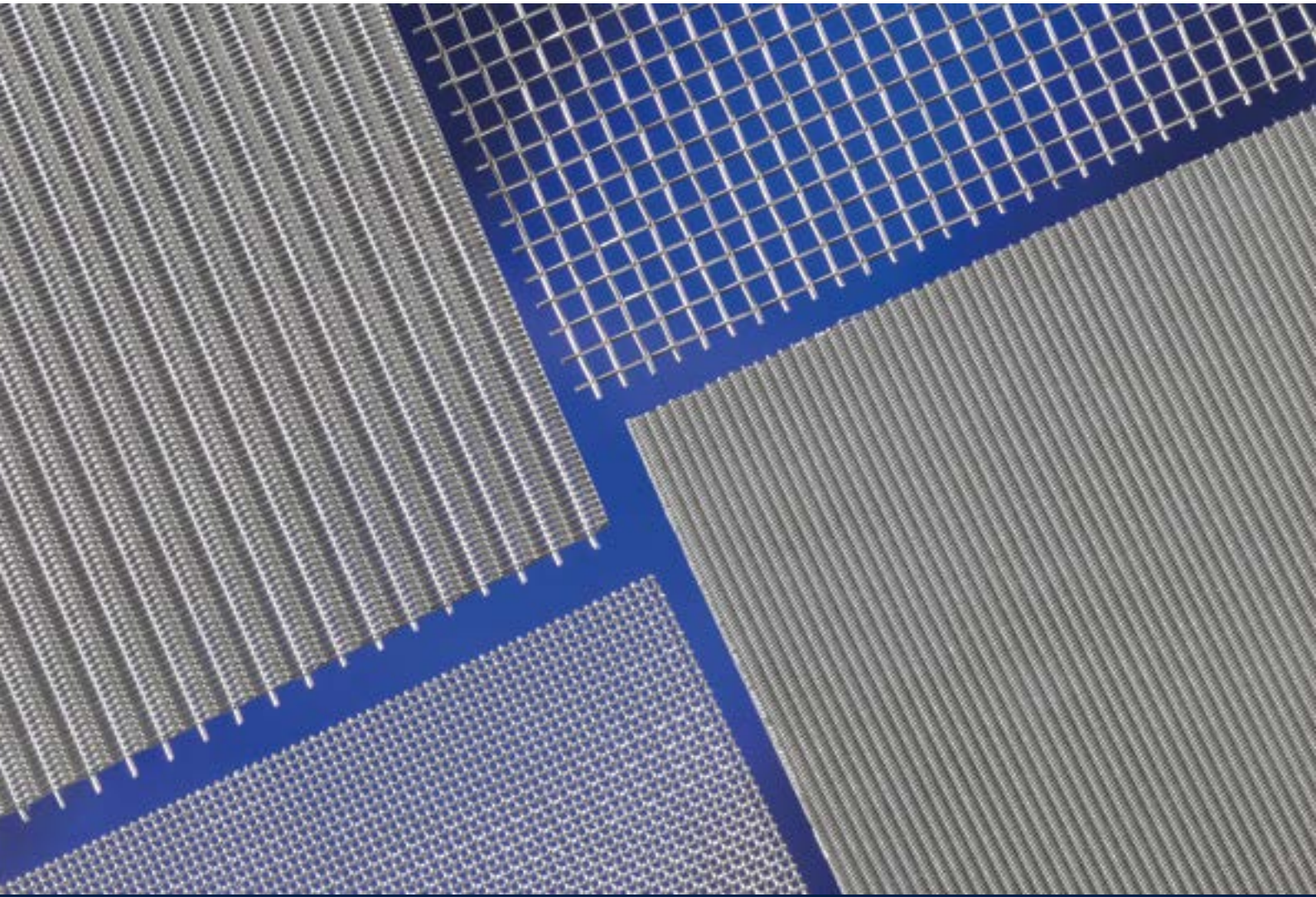
HAVER & BOECKER

DIE DRAHTWEBER

WHICH FILTER MESH FITS TO MY APPLICATION?

THE FINE DIFFERENCE: OPEN AND TWILLED WEAVES.

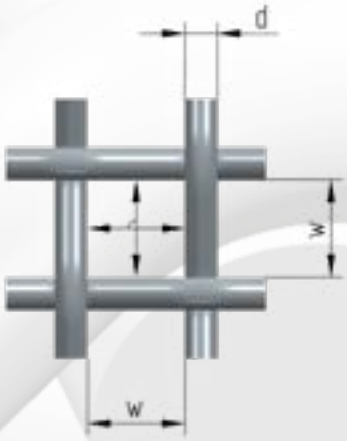


THE IDEAL TYPE OF WEAVE TO YOUR REQUIREMENT.

"Which type of weave is the correct one for me?" - Initially we could give only one answer to your question:
"It depends upon your concrete application and the individual requirements."
However, we know that: this answer it not very satisfactory. However it is the most honest answer – and, above all, the one which is most target-oriented.
In the multi-faceted world of woven wire cloth, it is essential to obtain an exact overview of your application, your goals and your practical requirements for obtaining optimal filtration.

As a first step one poses another fundamental question: "What **type of weave** is actually the correct one for me?"
Regarding types of weave, one differentiates between **open square or rectangular meshes** and **twilled weaves**.

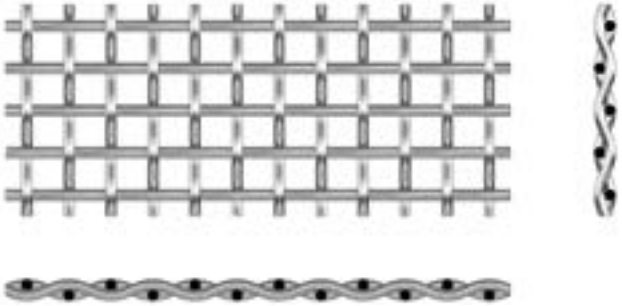
The different properties and individual advantages of these two types of weave are described below:



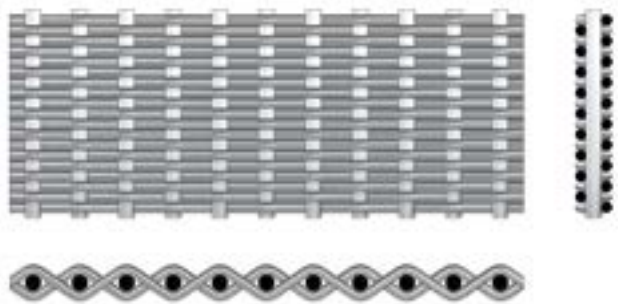
At first glance

If one places an open square or rectangular mesh and a twilled weave next to each other – also when they are a very fine type of weave – the difference is easily visible at first glance: The open mesh allows light to pass through it while the twilled weave is opaque. This is because the warp and weft wires of an open mesh are always situated a defined distance from each other – this is what we call the aperture width (w). Warp and weft wires usually all have the same diameter (d).

In the case of twilled weaves, the warp and weft wires are situated next to each other as tightly as possible (zero aperture). Instead of an aperture width, the fabric has a pore channel. The filter fineness is thus measured in terms of the geometrical pore size. It is determined in advance mathematically as a characteristic value and indicates the diameter of a spherical object which can still just pass through the filter cloth (X_{max}).



Open square meshes do not just allow for transparency but also a high capacity.



In the case of twilled weaves, the warp and weft wires are situated as tightly next to each other as possible.

Capacity and separation efficiency

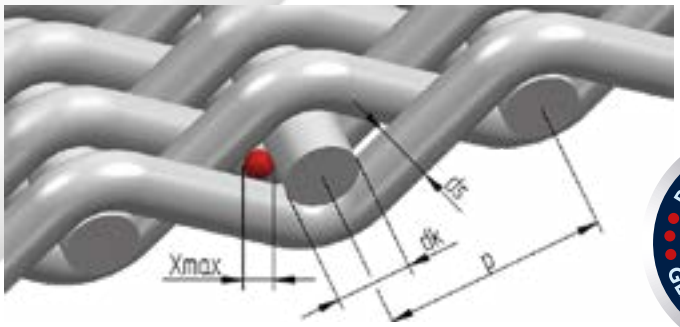
According to the particle form, open square or rectangular meshes offer a particle more opportunities to pass through the meshes. An oblong particle which is somewhat longer, but can also be narrower than the aperture width, could fall upright or diagonally through the mesh while an almost round particle is held back. In this way open types of weave can achieve a very high performance.

This particle would tend not to be able to pass through a twilled weave since it would be held back at the latest by the pore channel according to the type of twilled weave used. This means that a twilled weave is extremely selective. It is very efficient at only letting through those particles whose diameter, length and surface are below the specified X_{max}. One exception is the elastic body, for example a gel particle.

Stability

In the case of an open fabric, the woven wire is generally no thicker than the required aperture width. For example, for a mesh width of 40 µm, there will only be wires interwoven which have a maximum diameter of 0.040 mm. The finer the product to be filtered, the finer the woven wire cloth. This affects the stability of the woven wire cloth. This is the reason why fine meshed filter elements are usually multi-layered: The fine filter cloth is supported by coarser woven wire cloth, the support mesh.

In the case of twilled weave, far thicker wires can be woven compared to the required geometrical pore size. In this case the warp and weft wires are woven without separation from the neighbouring wire. In this way it also has a high strength.



In the case of a twilled weave, the particle must pass through a pore channel. The decisive factor is the geometrical pore size (X_{max}) .

Conclusions

- **Square or rectangular meshes allow an incomparably high performance.**
- **Twilled weaves have an extremely high separation efficiency.**
- **Twilled weaves are extremely fine and yet stable.**

We will be happy to advise you

Performance, separation efficiency, stability? What is the highest priority for my application? These central questions are the basis for the advice we would give. We go more deeply into individual cases in order to most successfully arrive at the best use of a filter medium. This is because the different types of mesh provide targeted filtration properties which we are happy to explain.

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