

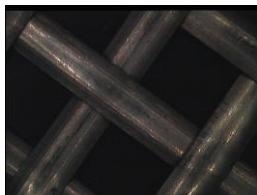
DuraSteel™ metallic wires

In the paper and board making, metallic wires are normally found on heavy packaging grades using cylinder moulds and long board making felt technology.

On these particular board machines, the forming cylinders are equipped with metallic wires working in front of the long board making felt under a soft nip with a very low and smooth pressure applied by couch rolls.

There are normally 2 wires, wrapped around the moulding cylinders:

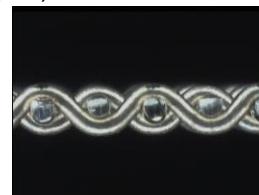
The 1st wire (so called bottom wire) acts as a base between the cylinder rings and the top wire. This **DuraSteel™** bottom metallic wire can be made from 5 to 13 Mesh with either a half round metallic yarn, or a round one.



Half round yarns



Round yarns



Bottom wires are removed when they start to deform due to the couch roller pressure. The planarity of **DuraSteel™** metallic wires (thus the quality of weaving process and the quality of material used) is a key parameter for a good paper sheet construction and a long life on machine.

The 2nd wire (so called top wire) sits on top of the bottom wire. These wires are of fine mesh, ranging from 33 to 71 Mesh, in relation with the production speed, are usually made of a round yarn. These sufficiently fine wires transfer the pulp onto the long board making felt.

All stainless steels grades used to produce **DuraSteel™** metallic wires are from the AISI 316 L families for a high corrosion resistance. The Mo or C contents (Molybdenum and Carbon) are set up in relation with the exact applications constraints (pH, non-marking or any other identified requirements).

Microplasma welding

The welding quality is a key concern for an efficient application, as determining directly the corrosion resistance and the non-marking level.

Based on the microplasma welding technology for the **DuraSteel™** metallic wires, Argon is used as plasma gas, and Argon (10) Hydrogen (90) as protector gas.

For coarse bottom wires, the welding uses a high Silicium (Si from 0,65 to 1%) content contribution stainless Steel material for a better arc stability, meaning no inclusions within the welding, increasing corrosion resistance.

For the fine **DuraSteel™** metallic wires, the welding applied uses an alloy of gold (Au: 78 – Cu: 14 – Ni: 8) to obtain a mechanically perfect welding, thus an absolutely marking free seaming. The diagonal seaming can be from 45° to 60° in relation with the mechanical constraints of each concerned application.

