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Welded elbows' manufacturing process (cold welding)

Stainless steel welded elbows are used for diverting pipes' flows and they are manufactured by means of cold welding starting from electrically welded stainless steel tubes.

As it can be seen in their [product page](#), welded elbows can be either 3D or 5D (radius = 1,5 X diameter or radius = 2,5 X diameter) and they are used for butt welding with plain ends.

How does cold welding as manufacturing process for stainless steel welded elbows work?

Just like all the other [welded fittings](#), welded elbows are manufactured starting from electrically welded tubes.

The first manufacturing stage involves the storage of pipes and a first visual inspection (diameter, labelling and length). The pipes – whose standard length is 6 meters – are then cut into small logs. The logs' dimension may vary according to the diameter, kind (3D or 5D) and radius of the final elbow.

Once cut, the small logs are put into specific baskets labelled with the logs' casting, material and diameter. In this way, throughout the whole process the original pipe of any log can be easily traced back. Moreover, logs are grouped according to their production batch (the maximum number of logs that can belong to the same production lot is established by the law EN10253).

The second stage begins with a surface treatment of logs in sifters (with sand and millet).

Then, the next pivotal manufacturing stages are:

Folding: logs are placed into a special press that “folds” them and therefore creates the 90-degree elbows

Wire drawing: the folding phase creates small dents in the middle of the logs – because of the higher stress suffered in that spot – which are finished by means of a sphere (die plate) unifying the curved surfaces.

End milling: once folded and drawn, the logs are placed at exactly 90 degrees inside of an end milling machine which cuts off the extremities in order to perfectly flatten them, removing the logs' waste.

Subsequently, unrefined elbows undergo a second surface treatment in the sifters. Standard raw elbows are now finished and ready to be stocked and sold.

On specific request raw elbows can be finished by means of peculiar methods, such as sandblasting, pickling, external polish, external polish with internal satin finish, external satin finish, internal and external satin finish.

The very last stage of welded elbows' manufacturing process is about labelling: finished elbows' dimensions are doublechecked, then they are labelled with the following pieces of information: manufacturer, material used, reference standard, production batch and casting.