THE MACHINE OF THE MONTH

Plate bending machines: Lengths with multiple shapes

The optimization of the productive process leads companies to review their production phases and, where possible, cut down output time and costs. For example, in the construction of large tanks, the use of long plate bending machine helps to reduce further processes, such as welding, yet keeping a high quality standard.

In a period in which the economic crisis is influencing the markets worldwide, MG in Fossano (Cuneo), with over 50 years' experience, records an increasing demand for big plate and section machines. With its productivity of 2, 3 and 4 rolls plate bending machines, special machines, section bending machines with accessories, MG can satisfy all demands from a minimum length of 20" to a maximum of 27", and for a thickness from .040" to 12". Normally plate bending machine inquiries are from 40" to 10' length; however, lately the trend seems to be towards longer machines - considerably longer from 12' to 27'.

"*It's basically* – says Massimo Roccia, President and Co-owner - *a range of machines dedicated to the constructions of big tanks for the transport and storage of fluids and fuels."*

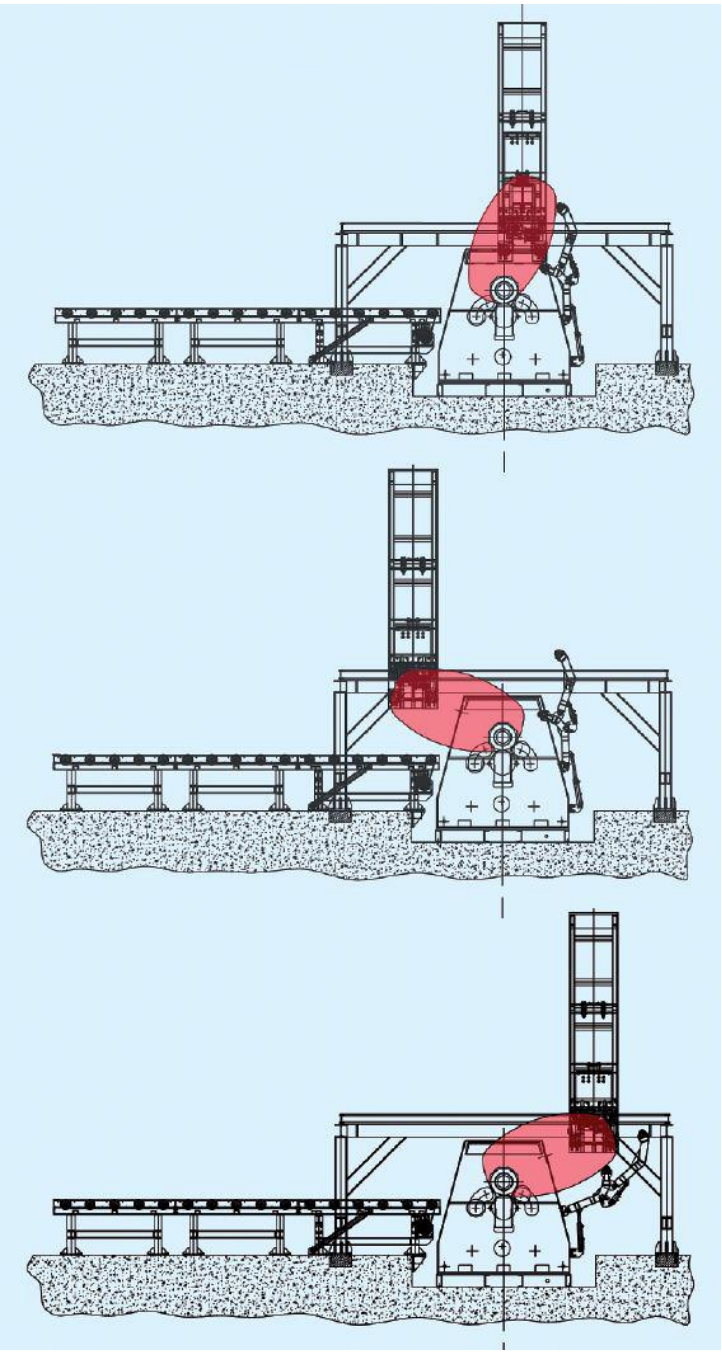
This tendency meets the need to optimize the various processes in the realization of the final product - to bend a longer piece means reducing weld joints, thus, saving time and money.

The importance of the support

The 4 roll 20' long plate bending machine model MG608D is a perfect example. It has been created to realize long variable shape tanks.

"*We have concentrated our energy* – adds Mr. Roccia - *in the research to improve some accessories already present on our machines, in order to make this particular bending process easier and smoother."*

Most of these improvements have been on the Vertical Support and on the Numerical Control (CNC) called Touch Command EVO. Taking into consideration the various shapes of a long tank, MG's development team has come out with a special vertical support able to drive the plate during the whole working phase of the bending. The vertical (also called, central support) literally supports the plate when large diameters are made and, this is the case, when a large radius goes along with a variable geometry, the shape not being simply round. Beside its typical vertical movement, there is a translational one. Its moving arm goes along with the metal plate during the creation of the shape, in other words, the vertical support will rise and fall as it follows the profile being rolled. The movement will be automatically programed when you program the part. The result is a high standard quality bending together with a continuous weight support that will preserve the final result. The support is necessary for long plate bending machines; it can be adapted to shorter workings, as well, with benefits to the operator.



1) The vertical (also called, central support) literally supports the plate when large diameters are made and, this is the case, when a large radius goes along with a variable geometry, the shape not being simply round.

2) CNC Touch Command EVO

The auto calculating CNC

MG is continuously innovating. The striking example is definitely the CNC Control, known as Touch Command Evo. Already famous for being the first CNC completely touch screen, it's comes now a new graphic and new calculation possibilities.

Completely developed by Delsy, a software house acquired by MG in 2011, Touch Command Evo can now program the central support movements, as well. *"With our CNC* – points up Mr. Massimo Roccia – *once we have all the material features, we can input the data into the library files and choose among several different shapes that the control can then carry out. Or, we can import the data directly from a file into Dxf format."*

After the various diameters of the shape are input by the operator, the CNC starts the auto-calculation to get the desired shape. If necessary, the vertical support is included in the calculation. Both the plate bending machine and the support will follow the control steps handling the plate to the complete rolling.

Developed on Linux platform, the CNC software generates the best bending possibility with the plate features that have been written into the library file. It registers the rolling phase while the machine is working and, if necessary, corrects the step. This way very little material is wasted in the production cycles. New hardware and software elements have been added, among which a new Intel processor Dual Core CPU board, the latest generation SODram memory and a led touch screen that offers the best light with no energy wasting. "*All the hardware* – states Mr. Massimo Roccia – *is of course first quality; however, what makes us different is the fact that we own the company that creates the software. This means we can customize a program and give a reply to every kind of bending demand, certainly an advantage for our clients because our feedback is immediate".* It's an important benefit if we consider the fact MG is known not only in Italy but worldwide.

The advantage of the eccentric and torsion bars

Mr. Massimo Roccia, President of MG

Among the features that mark MG 4 roll plate bending machines MH series is the automatic synchronous balancing system, the eccentric bar for the central roll control and the torsion bars for the planetary movement side rolls. "*Our plate bending machines* – Mr. Roccia points out – *have a roll parallelism controlled by massive torsion bars in forged steel that work in symbiosis with sophisticated valves to control the oil flow. This system avoids the continuous resetting of the rolls parallelism for the whole machine life."*

There is no way to compress these bars when the machine is working. This is why MG can grant the maximum precision even when the machine is working at its maximum capacities, in other words, with such a system it is impossible to lose pressure when the plate is pinched.

"*Our machines* –Mr. Roccia concludes – *do not have linear guides, but a planetary movement system for the side rolls in which there are no frictions or scrolling in between the gears, and thus, wearing of mechanical parts. Also, there is no need of extraordinary maintenance, a great advantage for the customer. It is as well an highly energy saving because without frictions taking away part of the machine force, all the power goes into the bending and does not straggle into the various gears. The power we declare the machine has is definitely the one needed for the job."*

By Di Gianandrea Mazzola