

DAVI®

MCA
4 rolls machine **DIGITAL**



DAVI MCA: THE RIGHT 4 ROLLS MACHINE FOR ANY BENDING REQUIREMENT

MCA STANDARD EQUIPMENT



CENTRALIZED CONTROL CONSOLE

- Centralized operators console conveniently located at the front of the machine. Includes:
 - On / Off buttons.
 - Emergency stop button.
 - Joy Sticks for all the machine functions:
 - Analog dial indicators to read the position of the side bending rolls. (EASY PRO Programmable readouts available upon request).
 - Pre-set device of the clamping pressure

HYDRAULIC YOKE / DROP END

- Hydraulically actuated.
- It allows to open the machine for removal of closed shells.
- Drop end is equipped with a conical bushing which surrounds the roller bearing mounted to the top roll shaft.

SAFETY DEVICES

- A multiple safety system stops all the machine movements instantaneously and in safe conditions.
- Emergency stop button at the operators console.
- Safety Joystick Controls:
- Perimeter Safety Cable along the machine sides. If activated, all machine movements stop instantly.
- Top grade electric and electronic components that meet industrial safety standards are supplied by world class manufacturers.



ROLLS

- Davi rolls are made of select and certified high grade forged carbon steel.
- The rolls are crowned to compensate for deflection (reduces concave results)
 - The top roll is replaceable easily and fast (for eventual reduced diameter top roll) as the hydraulic drive is directly splined on the rolls shaft.

MCA OPTIONAL EQUIPMENT (AVAILABLE UPON REQUEST)

CONE ROLLING PACKAGE

- Cone-shoe-guiding-die
- Individual fast tilting of the side bending rolls
- The low frame design of the machine makes smaller diameter cones possible.
- The return to horizontal position is accurate and immediate; no need to re-adjust or re-set.



SECTIONAL BENDING ATTACHMENT

Used for rolling flat stock on edge, squares, tees and other symmetrical sections. The attachment includes the required set of hardened, universal, adjustable dies.

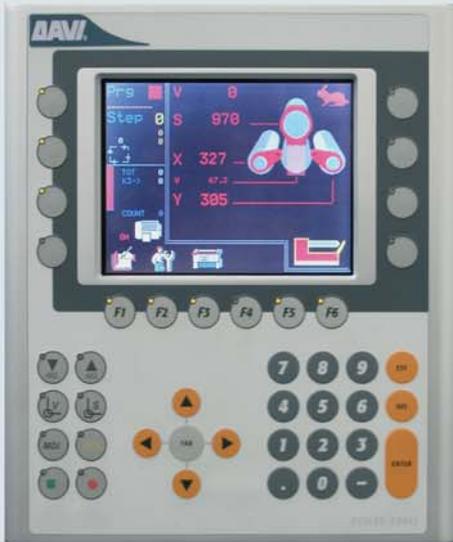
HDC - HYDRAULIC DEFLECTION COMPENSATION DAVI CROWNING (PATENT)

It hydraulically compensates the deflection of the clamping rolls according with the plate width and thickness.

OTHER OPTIONAL ACCESSORIES

- EASY PRO Programmable Digital Readout
- Rolls induction surface hardened
- Interchangeable reduced diameter top roll
- Oil Cooler

CNC DAVI "SMART-PRO"



Recommended to users that need to program as simple as possible single radius parts. This innovative CNC, thanks to its powerful Intel Pentium® processor, is selfprogramming, complete automatically, through the "Computer Program Mode" any single radius shape (the multi radii parts can be programmed Teach-in or in Editor mode).

Memory capacity: **1000 programs** (200 in the basic version);

Unlimited number of axis can be controlled (open system);

Multiple Serial Ports: two USB, RS232, Ethernet, compact flash slot;

Advanced diagnostic: with dedicated software and comprehensive trouble-shooting guide;

Advanced Tele-service: technical support online in real time connecting with Davi Tele Customer Service.

The **SMART PRO** is available also in the reduced "**BASIC**" version, the entry level model, that doesn't include the **COMPUTER PROGRAM MODE**.

CNC DAVI "LEONARDO®"

The New Leonardo®, is the most advanced CNC available today in the plate roll industry.

Its powerful Intel Pentium® processor **self-programs itself full automatically** (through Computer Program Mode) to roll either single radius than multi-radii parts (like oval, buckets, round-square, etc.)

It allows to **import .dxf files** directly from the office, and **carries a real CAD station onboard**.

Package CAD-Creator-3D installed on-board, that allows the operator to design parts and roll them automatically (CAD-CAM);

Memory capacity up to **5000 programs**;

Unlimited number of axis can be controlled (open system);

Multiple Serial Ports: two USB, RS232, Ethernet, compact flash slot;

Advanced diagnostic: with dedicated software and comprehensive troubleshooting guide;

Advanced Tele-service: technical support online in real time connecting with Davi Tele Customer Service.

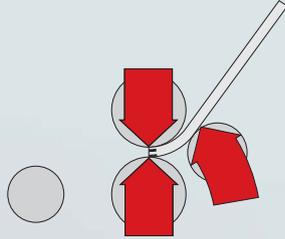


AUTOMATION

WHY CHOOSING A 4 ROLL DAVI "MCA" ?

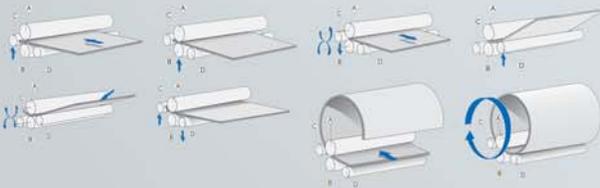
1) The flat end is the shortest

(excellent prebending) thanks to the two central rolls that can take the edge to the shortest and precise tangent clamp.



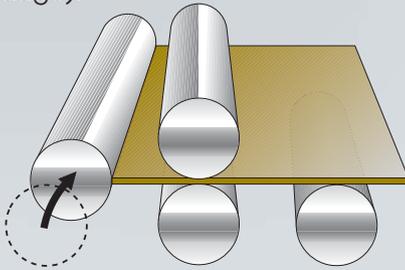
2) Single Pass Sequence

The entire shell could be **finished in one pass only**, including prebending of both edges. One only side roll position, one only **automatic** squaring, and no plate handling required at all.



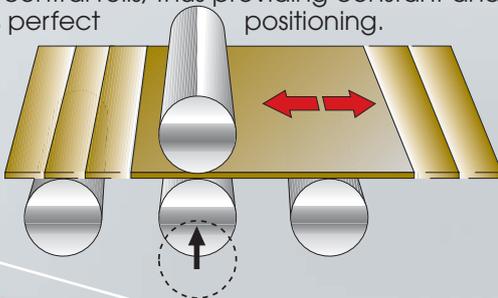
3) Squaring

Automatic and instant squaring of the plate against the back roll (serves as a real hydraulic back-gauge).



4) Plate Transfer

Plate is always hydraulically pinched in between the 2 central rolls, thus providing constant and nears perfect positioning.



5) High automation degree - High production

Squaring, pre-bending and rolling can be made, on the MCA, whilst keeping the plate always



horizontal at the feeding:

The possibility to use the optional gantry loader and an in-feed conveyor (together with the HI-TECH DAVI's CNC) makes the MCA the best solution to improve productivity, by shortening the cycle time and reducing the hand work needed for the plate handling.

The MCA becomes more than a simple rolling machine, the ideal solution to roll big quantities in the shortest time.

6) Cones

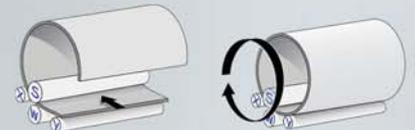
The 4 roll geometry helps to roll cones, as the bottom clamping roll can be tilted and clamps the back edge of the plate (at the large diameter of the cone), feeding faster its long development. The "cone attachment", at the



contrary, guiding the shorter edge of the plate (at the tight diameter of the cone) to slightly rotate according with the cone geometry, slows down the feeding of its shorter development. Side rolls must be tilted to form the cone at its right geometry. Davi 4 roll have, as standard feature, the electronic bottom clamping and side rolls tilting, up to a level substantial higher than the competition (Davi exclusive and benefit).

7) CNC Applications

4 roll is the most suitable machine for CNC: instant automatic squaring: reliable "start" position, ideal to be CNC programmed, as positive mechanical reference. The feeding of the plate is guaranteed by the hydraulic permanent clamp of the pinching rolls ensuring a constant, accurate and sure control of the position of the plate. Single pass bending process: the simplest to be CNC programmed.



A COMPACT MACHINE FOR BIG JOBS



THE FIRST DIGITAL ROLLING MACHINES



WHY CHOOSING A 4 ROLL DAVI "MCA" ?

THE FIRST RANGE OF DIGITAL ROLLING MACHINES

Digital technology
(100% reliable)
Easy trouble shooting
Teleservice Online



SWINGING GUIDES DAVI "PSG"

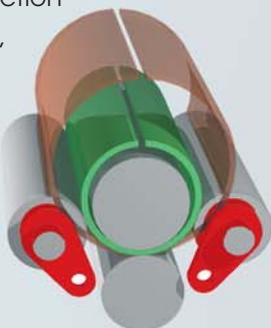
(1988 Davi patent on 4 roll machines):

The PSG system is based on the side rolls movement that is "hinged" on a strong central pin, the movement is therefore a circular movement around this central hinged point, without any linear friction.



STRUCTURE OF THE MACHINE

The natural external reaction of the plate during bending is "held" inside the structure. This allows the machine to have a "compact" and less obtrusive structure, while at the same time maintaining its strength and rigidity.



SMALL DIAMETER SHELLS

"Wrapped around" while "pressed" against the top roll, on a longer plate section than on the linear guides, reducing the natural material spring-back ("re-opening") effect. Much smaller diameter shells (and cones) are achievable (up to and even less than 1.1 times the top roll diameter), this means a 30% advantage in minimum diameter, when compared machines with linear guides.



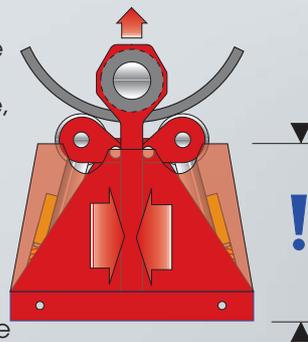
NO Lubrication

ABSOLUTE BEST PREBENDING

The side bending roll "rounds" the edge of the plate starting their stroke from a slightly more external position, swinging up, during the raising phase, approaching toward the top roll: The plate edge is therefore "pre-bent" with the benefit of a higher leverage arm, getting more strength on the material to be formed, more prebending power, reducing substantially, almost to disappear, the remaining flat end.

NO DEFLECTION

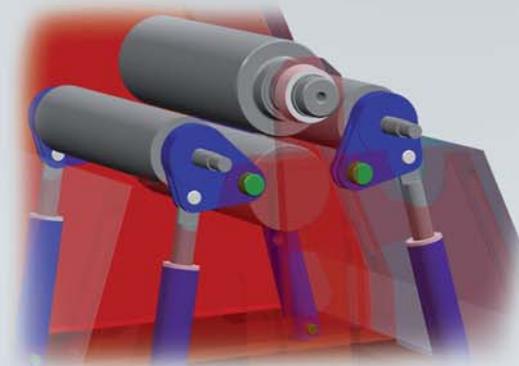
Using the "PSG" system has enables the machine to "hold" the traction forces inside the structure, without any outside deflection.



STRENGTH AND PRECISION WITH NO FRICTION

The rolls movement is rigid and stable but at the same time "round" and fluid, the lack of friction allows absolute accuracy. Originally born from the concept of high precision planetary gear drives, that concept has today been adopted by all modern hightech rolls manufacturers (e.g. Scandinavian and German) and on nearly all reputable brands of section benders.

DAVI SWINGING GUIDES



This technology nearly eliminates the slipping sliding friction for side rolls movement.

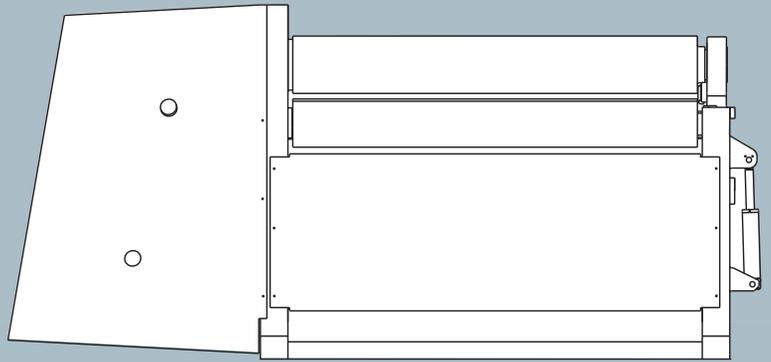
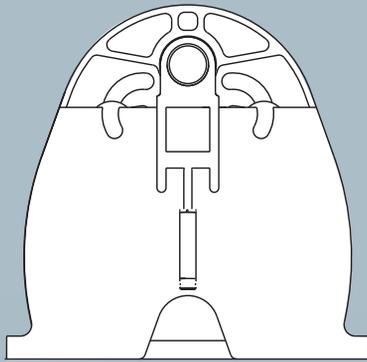
Maintenance free

Swing guides are not damaged by the mill-scale.

Premature wear due to the lack of regular maintenance is eliminated.

They extend the life of the machine and increase its value over time.

WHY CHOOSING A 4 ROLL DAVI "MCA" ?



MCA	Roll width	Rolling thickness	Prebending thickness	Top roll diameter	Bottom clamping roll diameter	Electric power
	mm	mm	mm	mm	mm	HP
2017	2050	7	4	170	160	5,5
2019	2050	9	6	190	180	5,5
2020	2050	11	8	205	190	10
2024	2050	16	13	240	230	15
2520	2.550	8	6	200	180	5,5
2522	2.550	10	8	220	200	10
2527	2.550	15	12	270	250	15
3017	3.100	6	3	170	160	5,5
3020	3.100	7	4	200	180	5,5
3022	3.100	9	6	220	200	10
3028	3.100	14	10	280	260	15
3030	3.100	15	12	300	280	15

* The above mentioned capacities are based on mild steel with max 60,000 Psi UTS (Ultimate Tensile Strength) and 36,000 Psi as YIELD (Elastic limit), and with the understanding that parts are formed in multiple passes to a diameter equal or larger than five times the top roll diameter. Tighter diameters can be achieved by reducing material thickness, width or tensile strength. On different materials, capacities may vary from our standard.

** Promau manufactures machines of all types and dimensions which, due to lack of space, cannot be published in full. Upon request, offers can be drawn up for machines of all performance levels; Promau in fact has the technical, design and production expertise to cope with any bending application.



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