MCA

Technical Features Summary



DAVI

Davi MCA

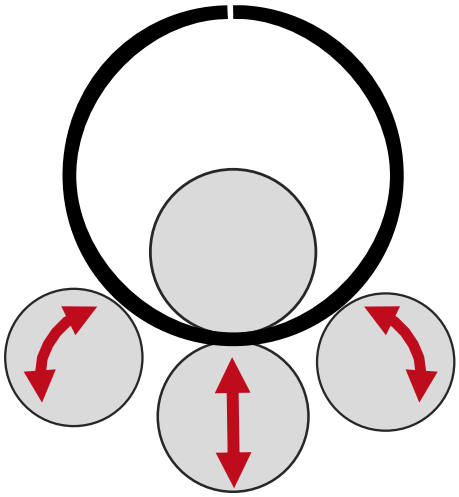
4-Roll Plate Bending Machine

Whenever **repeatability, productivity** and **ease of use** are of essence, the 4-roll is the technology of choice.

In a 4-roll machine, latest development of the rolling technology, the bottom roll clamps the plate guaranteeing a **perfect control over its position** throughout the whole forming process.

The side rolls, actuated by the unique Davi **planetary guides** technology, provide the necessary bending force **achieving the tightest diameters per capacity on the market** (1.1 of the top-roll) obtaining the highest accuracy thanks to the **perfect parallelism** offered by the **patented Servo-Tronic© system**.

Compared to other technologies, 4-roll machines stand out for allowing **fully CNC-automated production processes**, significantly **decreasing the reliance on operators' skills** and, hence, making it the **most suitable tech for mass-production**.





Tightest Achievable Diameters

Thanks to Planetary Guides

The bending power of a 4-roll machine is exerted to the plate by two side rolls.

Unlike other solutions on the Market, Davi exclusive design provisions a planetary actuation of the side rolls whereas, rather than being guided up and down, the mechanism rotates around a pivoting point.

Thanks to this system:

• **maximum performance** thanks to force multiplier effect by leverage arm (distance between pivoting point and cylinder force application point)

• **reduced top-roll deflection** due to **circular force application**

• **forming the tightest diameters** thanks to favorable geometry (with side rolls wrapping around small diameters cans)





Best Rolls Parallelism

Thanks to Patented Servo-Tronic© System

The rolls movement is actuated by hydraulic cylinders installed at the two ends of the machine.

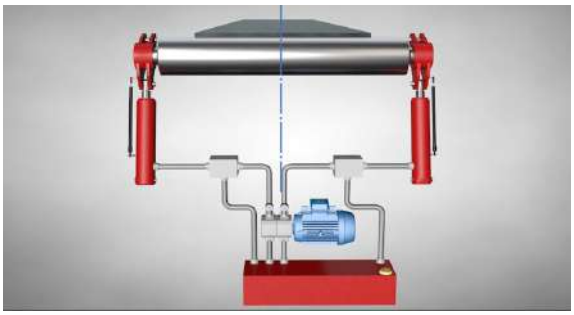
The patented **Servo-Tronic© system**, actuated by Davi exclusive and fast-responding **roll-by-wire control system architecture**, guarantees the machine's rolls **parallelism at all times** thanks to its dual, independent but integrated, parallelism control system.

This system features **dedicated pumping groups and circuits** guaranteeing that each cylinder **receives oil at the very same pressure and mass flow**, with electro-valves for **fine-tuning only**.

This way, even in case of electronics failure, the **rolls parallelism is hydraulically and mechanically maintained** and the machine **can keep operating with excellent results**.

The Servo-Tronic© allows for:

- **maximum accuracy** of the rolls positioning
- limited reliance on electronics with **reduced downtimes** in case of its failure
- **best geometrical tolerances** on the workpiece
- **automatic compensation** for unbalanced loads





Great Operability and Maintainability

Thanks to the New Machine Design

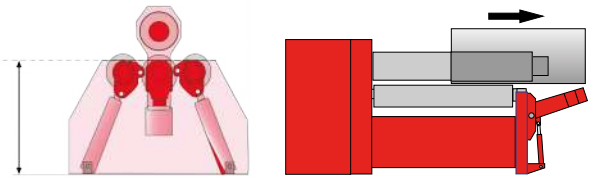
The **improved design** of the machine allows for increased operability during the whole process, provisioning:

- **free deflection of all the rolls** under load, with limited stress on shaft-hub connection to the benefit of **bearings reliability and durability**
- **compact frames to easily eject the formed workpiece** and to make extreme cones with no interference

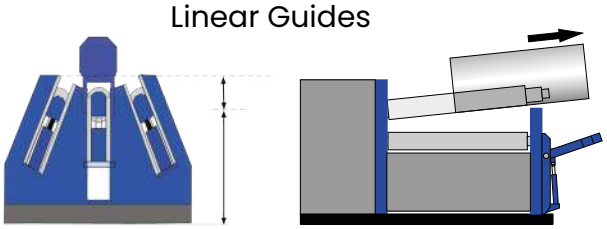
Moreover, the planetary guides technology **significantly reduces the required machine maintenance**, thanks to:

- **no need for regular lubrication** with **friction free** movements (permanently lubricated bearings)
- **maximum energy efficiency and durability** with **eliminated risk of guides wearing** on accumulated mill-scale

Planetary Guides



Linear Guides





Machine Ready for Upgrade

Thanks to Built-In Provision for Retrofitting

Davi R&D Department will process your requirements and help you select **the optimum technical and commercial solution** to maximize the **return on your investment** as much as possible.

However, what would happen if your **production schedule requirements had to change in the future**?

Davi MCA machines and control systems **are designed to allow easy retrofitting of accessories**.

May the need for **greater plate handling** capability, **higher feeding** capacity, **improved process automation** or, even, the **ability to fabricate special parts** within machine capacity needing special tools arise, Davi R&D and Service & After Sales (SAS) departments will help you select the **most appropriate retrofitting strategy** and **auxiliary equipment to suit it** (such as overhead and side supports, gantry loaders,



With more than **50 years of experience** designing and supplying first class plate rolling machines, Davi understands that **every customer need is different**.



Special Solutions for Your Needs

Thanks to the Highest Level of Customization on the Market

Because of differences in output volume, required accuracy, processed materials, etc. **each industrial sector demands for specific fabrication strategies**.

When it comes to rolling, accommodating such strategies requires **expanding the stand-alone machine capability** using **specifically designed and fully customized accessories**.

Among many others, the following upgrades can be selected when needed:

- accurate **plate handling devices**, such as side and overhead supports
- enhanced **plate feeding systems**, such as conveyors and gantry loaders
- **conical rolls** and **special conical packages**, allowing for the manufacturing of extreme tapered sheets
- **interchangeable top roll with fast changing device**, allowing for the manufacturing of very small diameters cans and cones, slightly derating the machine capacity to compensate deflections







Highest Automation

With Rolling Lines Powered by State-of-the-art Control System

The so-called "fourth industrial revolution" or, more commonly, **Industry 4.0** is changing the way fabricators perceive their workshops.

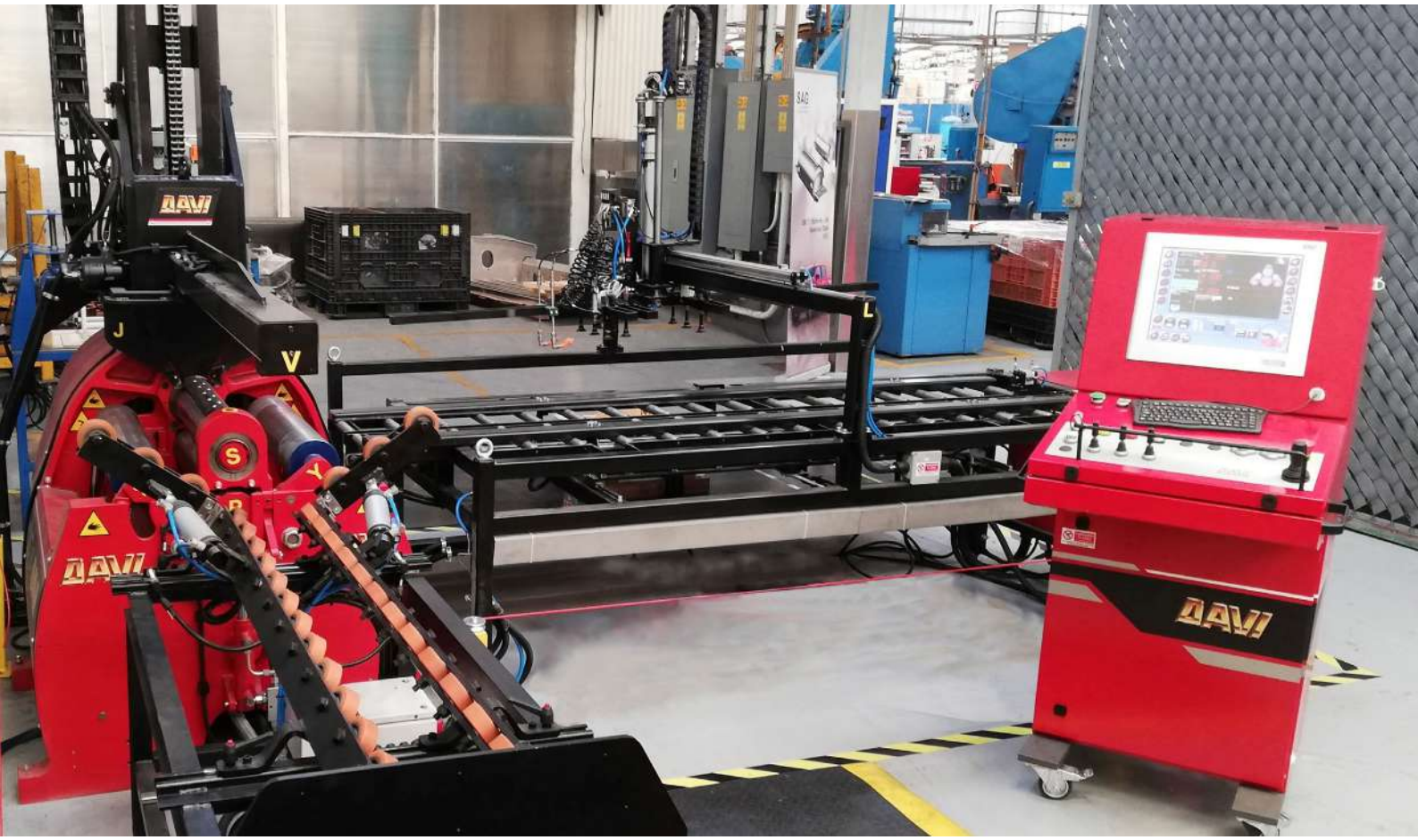
Davi MCA machines are equipped **with 4.0 ready state-of-the-art control systems**, specifically designed by Davi R&D Department **to help you get the most out of your 4-roll plate rolling machine**.

Davi CNC system, tailored for the highest possible level of automation on the Market, features, among others, the possibility of automatically generating a fully functional CNC program:

- importing the **workpiece CAD file**
- recalling workpiece data from local network database through a **barcode reader-based system**
- making use of offline **capacity and spring back performance test**

Thanks to Davi CNC system, **all operators**, even the most inexperienced ones, will finally have the **ability to match the required tolerances with maximum repeatability**: a real **boost to competitiveness**.





Easy Installation

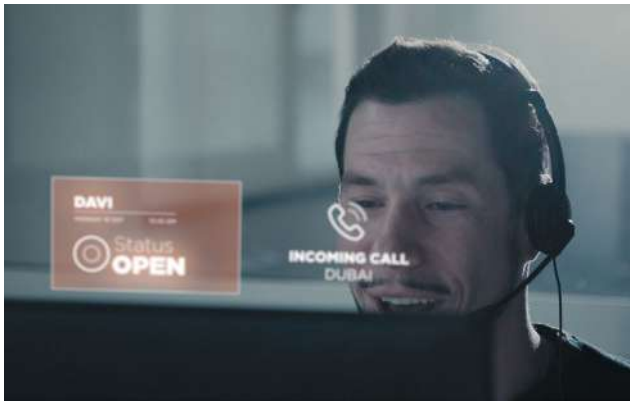
With Our on Site or Remote Assistance Always Available

Thanks to the very compact pit-free design, **your own team** will be able to install the machine on the workshop floor right after delivery completion, **without relying on external contractors**.

May the need for assistance arise, your team will be able to connect to **Davi "Remote" Engineering Team**, specifically trained to provide **outstanding and seamless support without the need of being physically on site**.

Obviously, in case of more complex automated lines, **Davi "On Site" Engineering Team** will provide shift and timely mechanical, hydraulic, electrical & control installation followed by **accurate machine and accessories commissioning for production**.

Depending on the machine complexity and your preference, **operators training** can be provided both remotely and on site.





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