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# Reinforcing steel cutting machines for high performances and more flexibility

The performance of a reinforcing steel bending shop essentially depends on the cutting machines used. The processing of reinforcing steel bars has lost none of its importance. On the contrary, the time pressure is steadily increasing. In the context of major projects, it must also be possible to process thicker bar diameters quickly and flexibly - and that while taking into account the entire logistics. The sometimes very large quantities should be optimised before cutting to allow effective cutting as well as tidy collection and storage and so that only minimal residual quantities remain. Fixed and bending lengths must be clearly separated. Bending lengths should be automatically fed right away to the appropriate machines, which should be part of a complete cutting and bending line. What applies to bending shops also applies to precast plants, which have to plan and prepare in a similar way, even if smaller quantities are involved here.

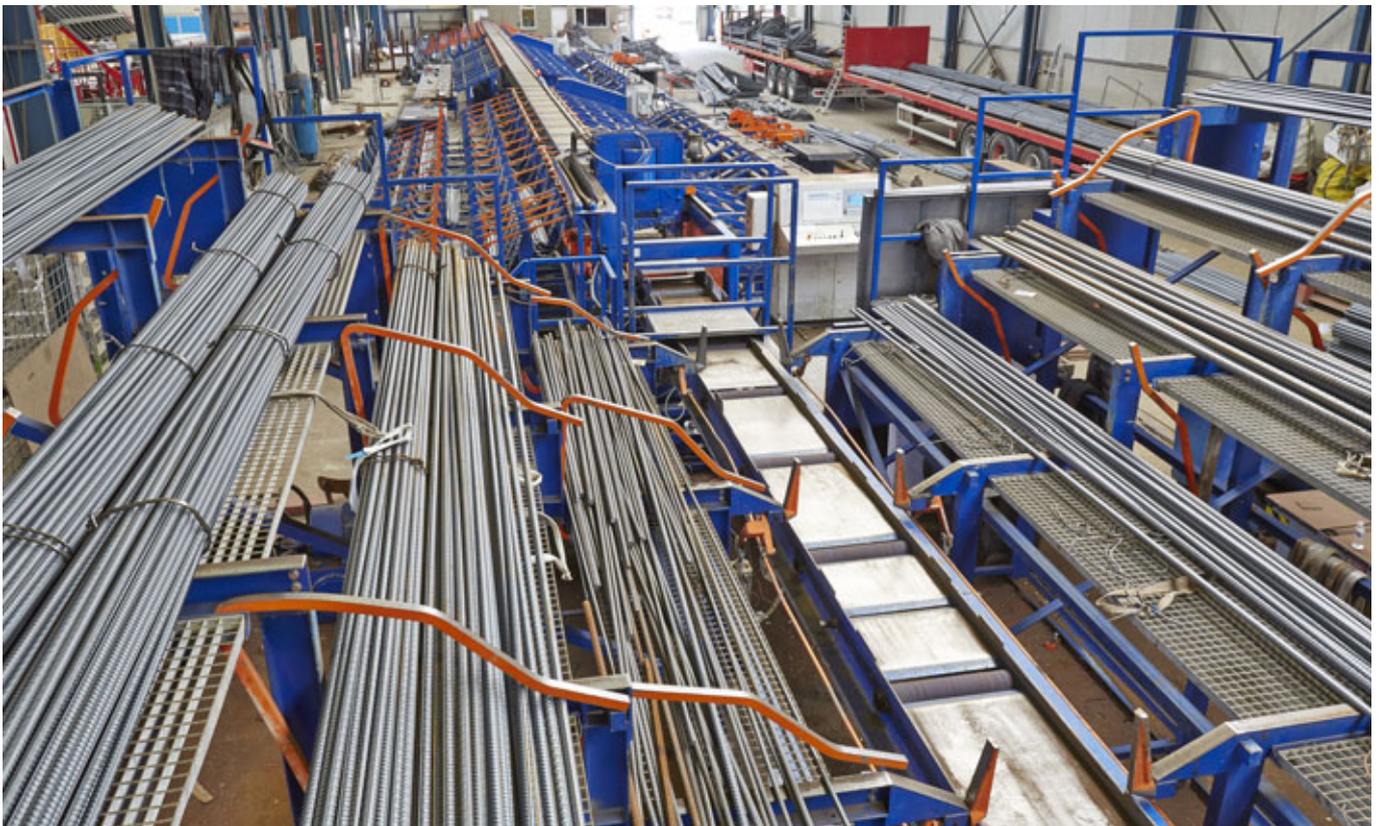


Figure 1: Stationary Cadomatic 500 bar cutting machine as a volume cutting system with integrated automatic bending machines.

The performance of a reinforcing steel cutting machine is determined by several factors: by the cutting width, the cutting force and the number of strokes of the shears, by the intake or roller conveyor speed, by the distribution of material after cutting and by the manual input or automatic transfer of production data.

The structure of the cutting lists is also essential. Material diameter, cutting length and number of pieces per item are crucial criteria for the cutting performance. The performance, including that of automated systems, naturally also depends on the quality and motivation of the staff. Significant differences in performance are frequently

found with the same machines and the same cutting lists.

## Versions of cutting systems

Distinction is made between stationary and mobile reinforcing steel cutting systems. Both systems have their right to exist and their advantages and disadvantages.

In the case of stationary cutting machines, the reinforcing steel to be cut is brought to the machine and processed there within a closed system. Mobile cutting machines drive crosswise in front of a bar store, cut the bars, collect the cut lengths and transfer the steel to further processing stations fol-

lowing appropriate transverse movements. The layout of a bending shop also depends on the geographical features. Whereas mobile cutting machines are usually used in German-speaking countries for traditional reasons, stationary machines are mostly used internationally. That essentially depends on the number of rebar diameters and lengths of the material.

## Stationary cutting machines

In North America, the Middle East and Southeast Asia, in fact wherever large-scale building goes on, you will find many high-performance cutting systems for high



Figure 2: Bending lengths are transported to double bending machines via pocket systems and transverse chain conveyors. This system includes two double benders.



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Figure 3: View of the positioning track and the collection boxes for fixed lengths located on both sides. The collection boxes each offer 6 compartments and thus sufficient storage space for different batches.

throughputs. Pedax has various machines in its portfolio that contain shears for cutting widths of up to 300, 500 or even 600 mm. These machines have a modular construction and can therefore be tailored very accurately to the desired performance, the available space and the necessary flow of material.

### Cadormatic 500 automatic cutting machine

Figure 1 shows a plant implemented as a cutting and bending line. The plant is equipped with a powerful frame shear for cutting widths of up to 500 mm.

This shear simultaneously cuts 8 bars with a diameter of 40 mm, 13 bars with a diameter of 32 mm, 15 bars with a diameter of 28 mm, 21 bars with a diameter of 20 mm or even 42 bars with a diameter of 10 mm.

The complete system consists in detail of:

1. two material storage systems, each with four stages, for holding a total of

40 t reinforcing steel and eight different diameters;

2. a fast, 500 mm wide feeding track, which transports the bars at a speed of 120 m/min;
3. the framework shear described above with a cutting width of 500 mm, which is movably arranged in a frame and positions itself precisely to size in the intermediate area;
4. a measuring track with pneumatic stops arranged at a distance of 1000 mm to each other which, together with the mobile, precisely positioning framework shear, ensure exact lengths with the closest tolerances. At the same time, the pneumatic stops take care of the positioning of the cut lengths, which are set down on the left-hand or right-hand side by a transfer device;
5. for setting down the cut lengths, this machine was extended by a six-way collection box and also fitted with

pocket systems in which the bending lengths are collected. Pocket systems allow chaotic feeding and extraction of lengths to be bent; this significantly improves the already high flexibility and waiting times at the bending stations are virtually ruled out. The lengths to be bent are placed in a chain conveyor, which then feeds them to the double bending machine.

The process is controlled by a Siemens S7 controller. The data are generated in the computer system and transmitted online. The advantages of optimisation programs are used here to ensure minimum wastage and reduced material costs. The boxes for bending lengths or fixed lengths are determined automatically by the program.

Pedax offers stationary cutting systems with various equipment levels and performance classes and thus a genuinely ideally matched system concept for every requirement. ■

### FURTHER INFORMATION



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