



Electric motor lamination blanking lines Automated for series production



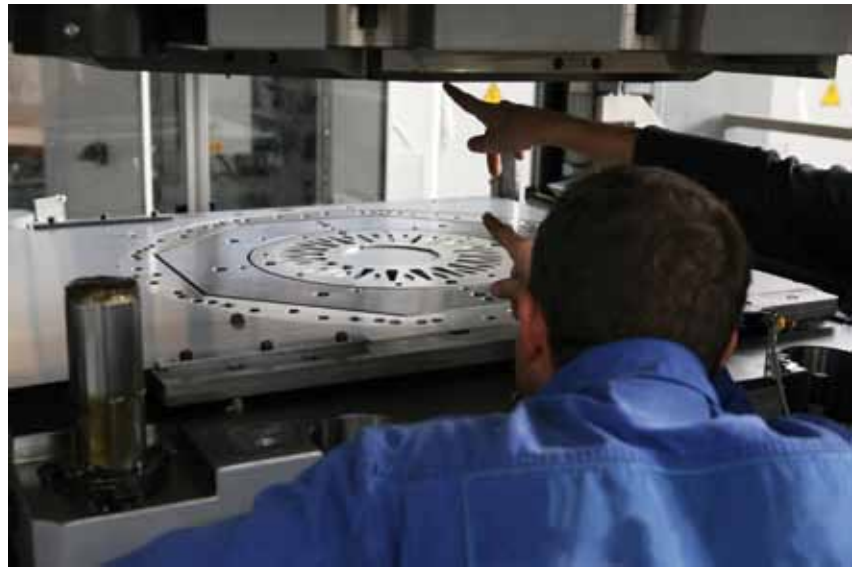
FORMING THE FUTURE

Automated for series production

Schuler is a system supplier offering innovative and flexible systems tailored to customer requirements for manufacturing electric motor laminations using progressive and compound blanking processes.

Our equipment can efficiently produce blanks for applications ranging from segments, stators and rotor plates to pre-cut round blanks in various sizes. The blanking machines are highly automated and used for large and medium-sized blanks.

Using compound blanking dies, one or two blanks can be produced precisely with each press stroke.



ELECTRIC MOTOR LAMINATION BLANKING LINES

Blanking press

Our blanking presses are optimally designed using FEM calculation. To balance the mass in the press, the two connecting rod drive is designed in transverse direction with two herringbone main gears rotating in opposite directions. The slide runs play-free with 8-way roller guides and positive locking to the hardened guide rails of the press frame. The hydraulically controlled ejector system is located in the slide. The pressure pins can be directly controlled using dynamic cams to consistently eject the blanks from the top die. The slide counterbalance and the hydraulic overload protection, combined with automatic re-circulating lubrication, assure reliable production.

The very low deflection of the press bed and slide reduce strain on the dies, increasing their service life. The bed, slide bolster plates for clamping dies and scrap removal through the bed are designed according to customer requirements.

ADVANTAGES

- Complete lines from a single source
- High productivity
- High reliability and line availability
- Many different versions
- Long die service lives

OPTIONS

- Hydraulic or manual die clamping
- Motorized or manual die change
- Scrap conveyor systems
- Stroke adjustment
- Sound protection measures



Die technology

Tailor-made progressive and compound blanking dies provide economical production.

To keep material costs down by reducing scrap, the blanks are optimally arranged on the coil.

The design of active parts in tool steel, PM steel or tungsten carbide is state of the art, and is carried out according to customers' requirements.



Press control and visualization system



The electric motor lamination blanking line is operated using a Windows-based visualization system. It is easy, clear, convenient to use and user-friendly. Furthermore, parameters such as stroke, stroke rate, press force and shovel stroke etc. can easily be entered by the machine operator. The visualization and control system for the entire line has been developed by the Schuler Group.

The entire line can be controlled from the main control panel. Additionally, secondary control stations are provided at the corresponding line components for more straightforward operation and an improved overview.

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Coil feed line

The coil feed lines, integrated into the overall system, are designed for the special requirements to process magnetic steel. The product range for coil feed lines includes an extremely wide variety of options and can be adapted to specific requirements and equipment variations.

Our Power Feed roll feed with direct servo drive, as well as low-play and maintenance-free planetary gear units, provide dynamic performance and system accuracy. Furthermore, the roller coating is optimized for the particular application.



Unloading device and stacking system

COMPONENTS

The end-of-line system is made up of three components:

- Steel fabrication including conveyor belt systems for transporting the blanks
- Shovel system
- Two stacking stations with blank transport



The lightweight unloading shovel is electronically linked to the press, with continuous comparison of the nominal and actual positions of the slide and the shovel. Sensors confirm the presence of parts in the shovel for production process reliability. The movement of the unloading shovel can be programmed by the main control. Therefore, the operator can flexibly adapt the line to the specific die and blank sizes. The result is a shovel stroke rate that is optimized to each blank, increasing production output and the productivity of the overall line.

SUCCESSFULLY ACHIEVED

The following advanced technology for removal technology are field proven:

- Removal of two blanks at the same time on the upper and lower sides of the shovel
- Integration of the nose transfer technique or operation without shovel system
- Stacking onto hydraulically retractable mandrels
- Integration of buffer conveying systems
- Simple removal system to control cost - with one stacking station and no shovel

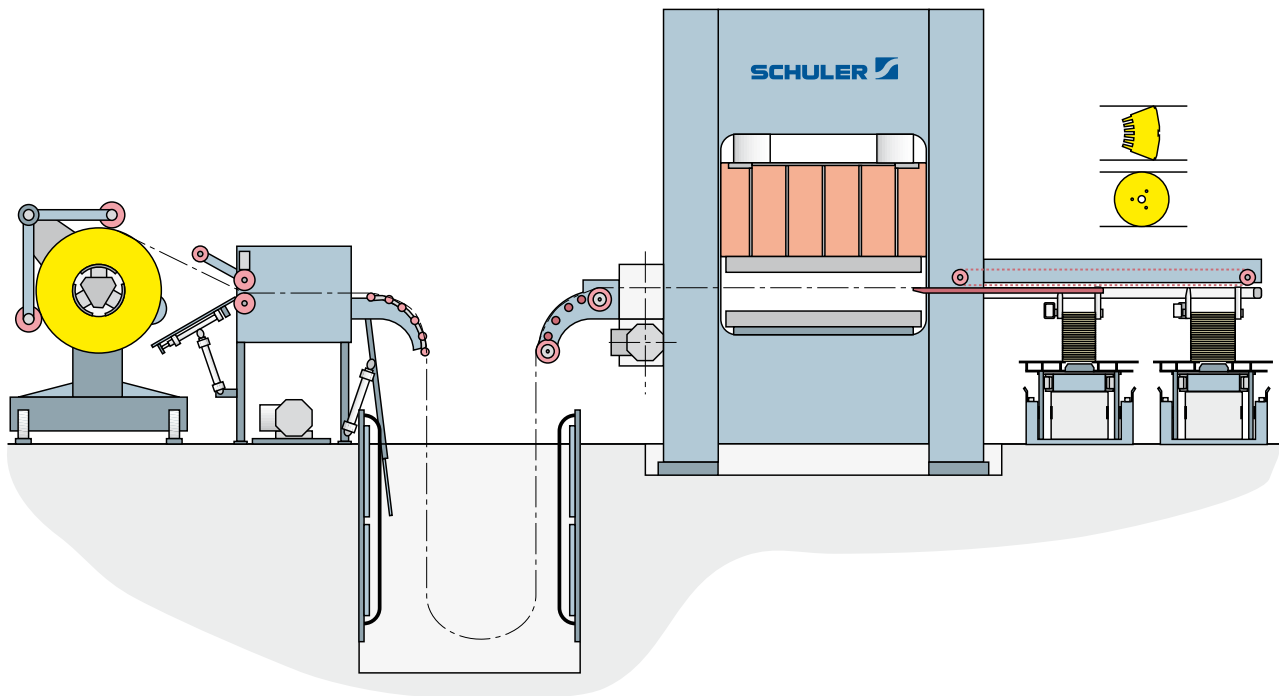


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Technical specifications

Press force [kN]	2,500 - 6,300
Bed sizes [mm]	1,300 x 1,300
	1,600 x 1,600
	2,400 x 1,600
Standard design	Monoblock
Press drive	Transverse shaft
Range of blanks	Circular blanks/segments
Die technology	1 or 2 blanks per stroke
Production type	Progressive and compound blanking
Removal technology	Shovel /nose transfer
Stacking technology	Pallets (also multiple stacking) and mandrels
Stacking stations	Either 1 or 2

Additional sizes according to customer requirements. Subject to technical modifications.



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