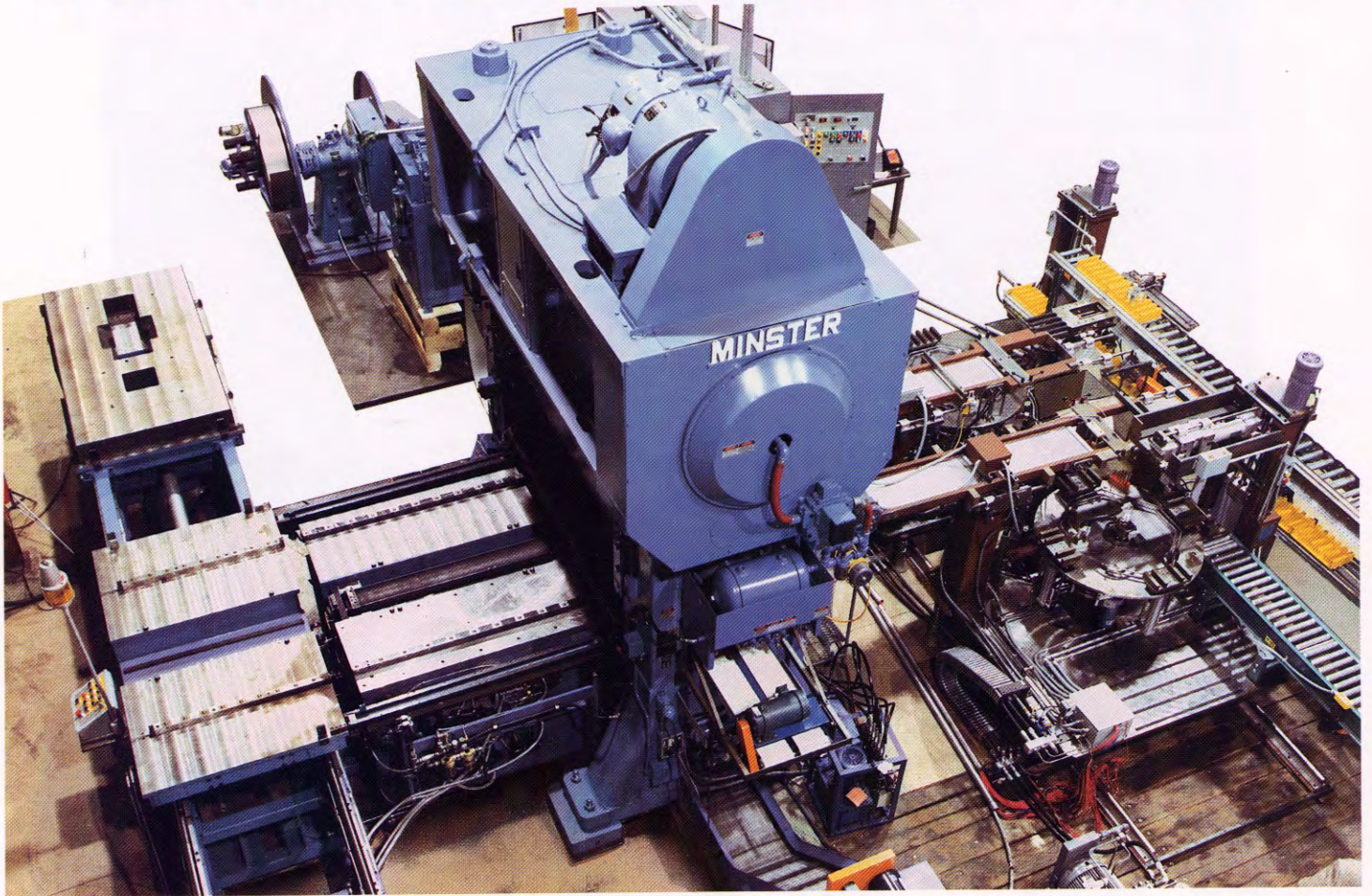


# Efficiency in Lamination Production . . . The Minster/Onan System.



*The Minster/Onan System during set-up at Minster's systems facility.*

Taking a systems approach to generator lamination production allowed The Onan Corporation to increase production speed by over two hundred percent, reduce changeover time by over ninety percent and realize many other benefits in quality and productivity.

The new system, shown here during a system function check at Minster's Systems Prove-Out Facility, consists of a Minster Series E2 300 ton press, double end reel, high speed straightener, precision cam feed, quick die change automation, and lamination stacking system.

The quick die change and lamination stacking systems combine to eliminate a major problem common to Onan and others in the lamination industry . . . the tremendous time

required to changeover from one part to another.

Prior to installing the system, Onan needed twenty-four to thirty-two hours to change dies and the associated chutes, involving two or three people and an overhead crane. Now, total changeover is accomplished in ONE hour. That is an especially important factor in this case because seven different laminations are run on this new system, some with runs of less than twenty-five thousand parts.

After installation at Onan, the Minster E2-300 *HeviStamper* in the system is currently running at two hundred thirty strokes-per-minute, as opposed to the sixty to one hundred twenty s.p.m. speed of the previous presses.



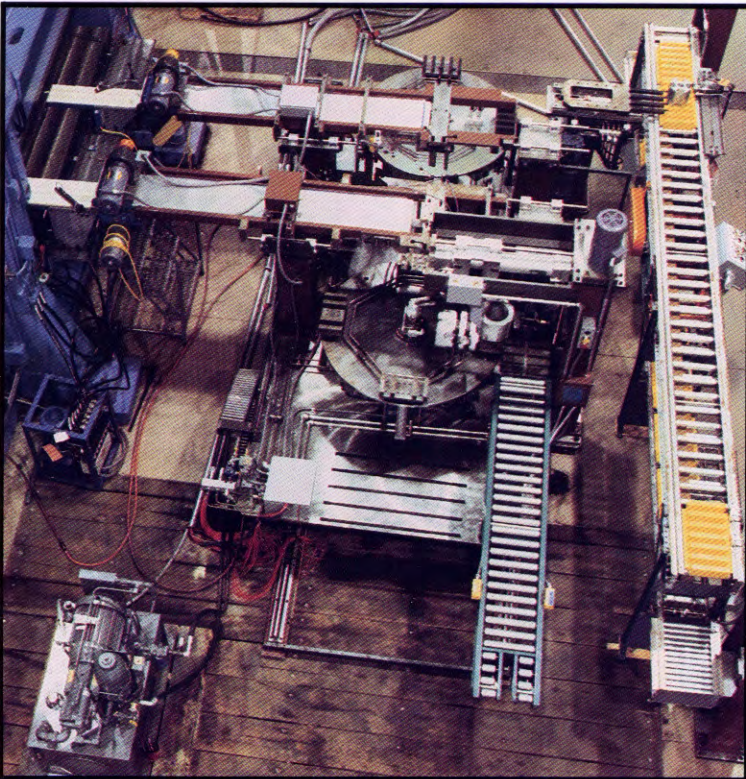
This method of unloading and stacking laminations offers three significant advantages to Onan: It contributes a great deal to the reduction in changeover time by eliminating removal of heavy, cumbersome chutes and attachment and filling of the replacement chutes. The new stacking system handles seven different laminations with only minor adjustments.

Secondly, it contributes to reduced waste because bad parts can be detected immediately. With the previous chute system, it was possible to run as many as seven thousand bad parts before the first one would reach the end of the chute and be detected.

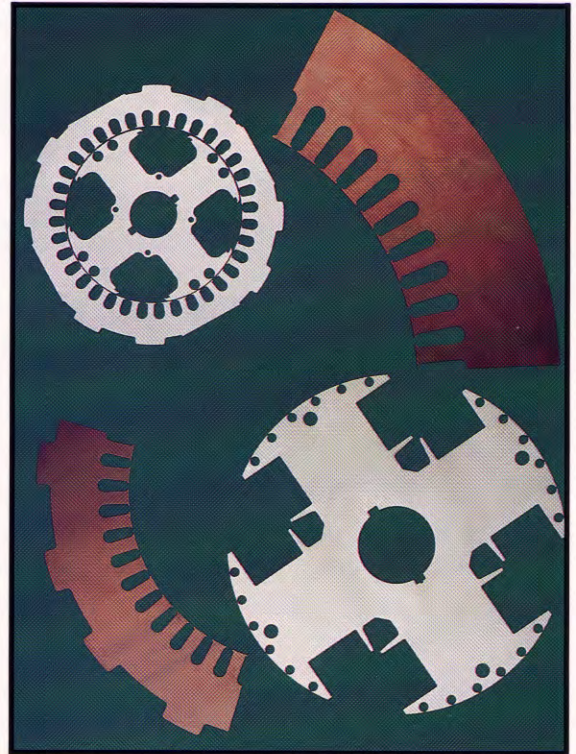
Thirdly, no floor pit is required under the press to accommodate chutes.

Speed of changeover is further enhanced by the die change automation incorporated in the Onan system. Die changes are now accomplished in less than FIVE MINUTES, as compared to TWO HOURS previously.

The system incorporates a powered rolling bolster approach which allows a set-up of the die on the bolster to occur off-line while the press continues to run. In fact, if changeover is frequent, it is often practical to dedicate a bolster to a specific die and leave it mounted, except for sharpening and maintenance.



*The rotor stacking section of The Minster/Onan System.*



*Typical laminations produced on the Minster/Onan System.*

Controls for individual components were integrated and centralized to meet Onan's requirements. A programmable controller monitors the system for proper operation of the press, material handling equipment, die changer and automated parts stacking equipment.

The Onan system was tested in production in a dedicated facility at Minster, and after the line was installed at Onan, Minster provided on-site operation and maintenance training on all system components.

Faster production . . . more consistent quality . . . greater flexibility . . . lower stamping costs. Minster systems have delivered these results in a wide range of applications. Find out what they can do for you. Talk to the systems specialists at Minster.