

Solutions Through Welding Technology

NBC-9621



ROLL FORMER This 3-roll former automatically is fed blanks, one at a time, from a bottom feeding magazine. 9620



WELDER

This motor shell welder produces shells at a rate of 200 per hour

MOTOR FRAME / SHELL MANUAL PROCESSING

Application: Manual production of fractional horsepower steel motor frames or other cylindrical shells, starting with flat steel sheets or blanks, forming to predetermined diameters and lengths and then seam welding.

Production: Dependent on material thickness and shell length. Housings 6.00" (150 mm) long of .060" (1.5 mm) thickness, are produced at a rate of 200 per hour.

Cost Savings: These machines are designed to minimize cost by using operators instead of automation for low volume production.

| Capacities: | Minimum | Maximum |
|--------------------|-----------------|----------------|
| Material Thickness | .040" (1.0 mm) | .104" (2.6 mm) |
| Diameter | 3.25" (82.5 mm) | 6" (150 mm) |
| Lengths | 1.75" (44.5 mm) | 12" (300 mm) |

SEQUENCE of MANUAL OPERATION

1. Feeding blanks automatically one at a time from a bottom feeding magazine into 3-roll forming machine, producing a cylindrical shape.
2. Formed shells are placed on weld mandrel. Shell edges are aligned automatically, overlapping them under controlled conditions and clamping on weld mandrel. Welding is by a pressurized, traveling upper weld roll head, with the shell automatically stripped from mandrel.
3. Welded shell is then placed on the nipper, both ends are nipped at the same time.
4. For the final operation the shell is placed on the expander mandrel and expanded for final sizing.

Note: These machines, are essentially single purpose units, specific capacity of each machine within specified ranges requires factory consultation.

NEWCOR®

Bay City Division

INNOVATIVE MANUFACTURING SYSTEMS

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DUAL EXPANDER This expanding head mounted horizontally reduces the contamination of the hardened and ground expander segments from material flaking off the shell during expanding.

STANDARD DESIGN FEATURES

Manual Machines: Operator loads and unloads each machine either in sequence or there are separate operators for each machine.

Positive Clamping System: Through three sequentially actuated clamps which maintain cylindrical consistency - one for gaging, one for wraparound and one for final overlap fix.

Removable Welding Mandrel Nose-Piece: Consists of a water-cooled core with laminated phenolic plastic or cast copper with hardened tool steel wear inserts on the OD with replaceable welding insert.

Automatic Edge Alignment: Pusher mounted on each clamp at weld station locates all errors due to nonparallel blanks to one end of the shell.

Trouble-Free Weld-Head Bearing: Special Newcor patented anti-friction bearing assembly for pressure application with spring-loaded, laminated silver contact.

Rigid Mandrel Support: Through an air-operated outboard support to eliminate mandrel deflection during clamping and welding cycles.

Variable Welding Speeds: Weld head stroke, air-hydraulic actuated and adjustable up to 300 inches per minute (7.5 meters / minute).

Automatic Shell Ejection: By an arrangement that permits welded shells to be stripped from mandrel as new shell moves in place.



NIPPER

This standard design nipper, nips both ends of shell at same time.

AUXILIARY EQUIPMENT: To meet stringent quality or size factors in volume processing of cylindrical shapes, above equipment can be provided completely automated, including:

1. Cooling conveyor or transfer between welding station and subsequent processing steps.
2. Duckbill Transfer-which removes shell from welder ejection point, rotates it for orientation and deposits it on shuttle transfer.
3. Multiple-station shuttle transfer, electrically operated, with air clamps to carry shells in vertical position for planishing and expanding.
4. Vertical planishing to flatten weld beads to within 10% buildup of parent metal thickness.
5. Vertical expanding to modify shape or achieve close control of final size.
6. Automatic Nipping - to eliminate extrusions at ends of welded joint.
7. Automatic quality control - through air-jet gaging unit which makes 100% check of average ID of shells.
8. Automatic machining of both shell ends including chamfering and facing, maintaining parallelism, runouts and lengths to specified tolerances.

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