Solutions Through Welding Technology

NBC-9611

LINE-FLOW MOTOR FRAME / SHELL WELDER

Application: Automatic 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, can be produced at a rate of 600 per hour.

Capacities:	Minimum	Maximum
Material Thickness	.040" (l.0 mm)	.104" (2.6 mm)
Diameter	3.25" (82.5 mm)	6" (150 mm)
Lengths	1.75" (44.5 mm)	12" (300 mm)

Machine Specifications:

Dimensions ...Width 54" (1371.6 mm) Length 85" (2159 mm)

Weight .....12,000 lbs (5443 kg)

Transformer (contingent on material) .....100 to 250 Kva

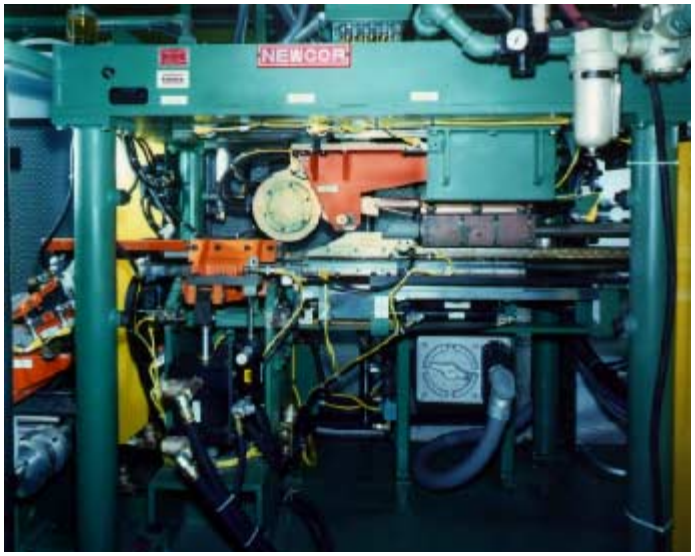
Water requirements .....6 to 10 gal/min (27 to 45 liters/min)

TYPICAL SEQUENCE of OPERATION

1. Feeding blanks automatically one at a time from a bottom feeding magazine.
2. Forming a cylindrical shape by 3-roll former.
3. Stripping formed shell out of former, transferring to weld station.
4. Aligning shell edges automatically, overlapping them under controlled conditions and clamping on weld mandrel.
5. Welding is by a pressurized traveling upper roll weld head and then automatically stripping the shell from mandrel.

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.



This motor shell welder produces shells at a rate of 600 per hour.

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

STANDARD DESIGN FEATURES

Automatic Transfer: Through air operated pusher device which strips formed shell from roll station and progressively transfers it for clamping at weld station.

Positive Clamping System: Through three sequentially actuated clamps which maintain cyclindrical 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 and spring-loaded, laminated silver contact shoes for maximum current conduction.

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

NEWCOR® Bay City Division

INNOVATIVE MANUFACTURING SYSTEMS

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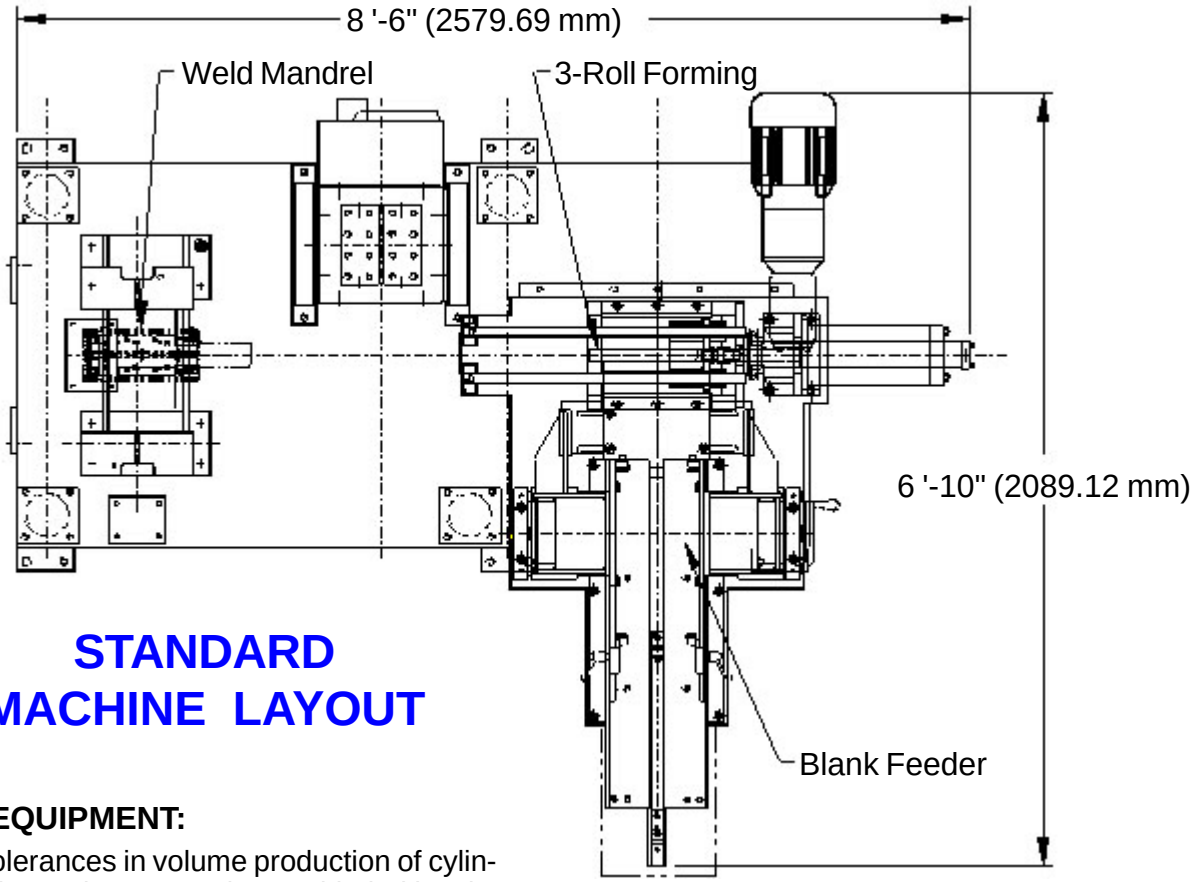
NBC-9611 Innovative Welding Technology

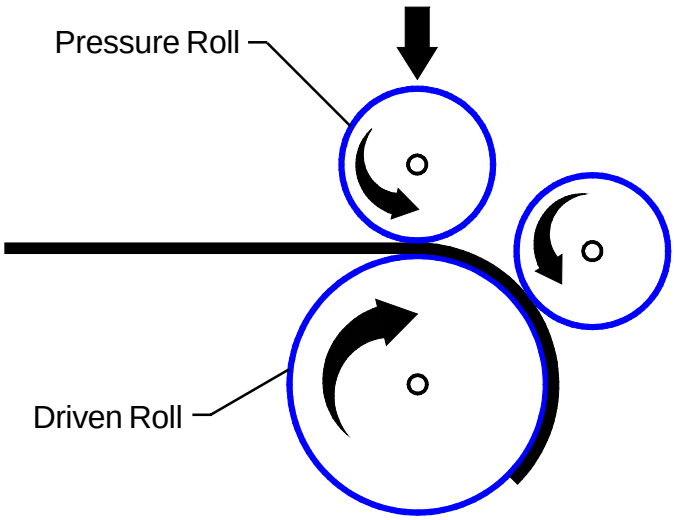


STANDARD MACHINE LAYOUT

AUXILIARY EQUIPMENT:

To meet tight tolerances in volume production of cylindrical shapes, the equipment can be provided with units for more complete automation, 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 bead 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.



Three Roll Forming

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