

**EQUIPMENT**

MC-25-F Kine-Roller  
Two Cylindrical Die  
Rolling Machine

**FUNCTION**

Annular, Axial and Helical Roll Forming, Finishing and Straightening within its torque, radial die load and geometric capacity. Typical capabilities, assuming correct die design, setup and tooling, and suitable material rollability and form, are listed below:

**Primary Operations—Thrufeed and Cutoff**

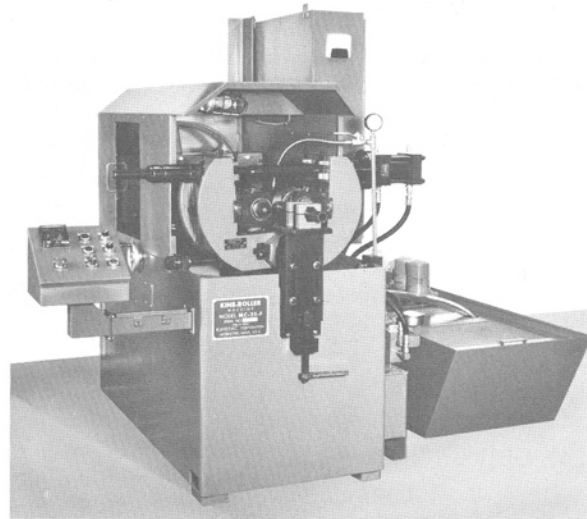
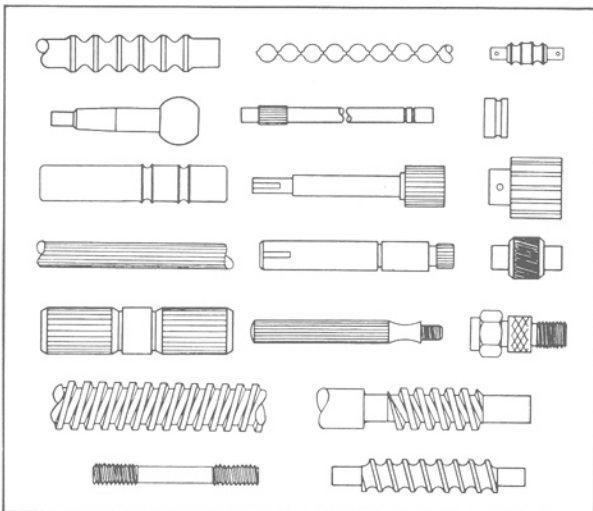
- Simple shafts and pins from 1/16" x 3/4" long to 3/8" x 2 1/2" long
- Ball blanks from 1/16" to 3/8"
- Roller blanks from 1/16" x 1/2" long to 5/16" x 2" long

**Bar Processing—Thrufeed—Unlimited Length**

- Threaded rod up to 2 1/2" diameter
- Worm rolling up to 2" diameter x 10 diametral pitch
- Annular forms up to 2 1/2" in diameter
- Shallow involute forms up to 2 1/2" in diameter
- Knurled or shallow finned bar up to 2 1/2" in diameter

**Secondary Rolling Operations—Infeed**

- UNC threads to 2 1/4" diameter x 4 1/2" long
- Fine pitch threads to 3" diameter x 5 1/2" long
- Worms to 2" diameter, 10 diametral pitch x 3" long
- Knurls and shallow involute forms to 3 1/2" in diameter x 5 1/2" long
- Annular forms to 4" in diameter, depending on depth and length of form



MC-25-F T/I Kine-Roller with standard hydraulic power unit.

**Roll Finishing and Denicking**

- Thrufeed to 2 1/2" diameter and unlimited length
- Infeed to 4" diameter and 5 1/2" long

**Roll Straightening**

- Thrufeed to 1 1/8" diameter

**PRODUCTIVITY**

**Typical Thrufeed Production Rates**

- 3/8"-16 UNC low carbon steel threaded rod—100 feet per minute
- 1 1/2"-8 UNC B-7 studs—8 feet per minute
- 2" diameter, 20 TPI knurled bar—1045 steel—9 feet per minute
- Roll finished 2" diameter 416 stainless steel bar—12 feet per minute
- Roll straightened 1" diameter 1045 steel—30 feet per minute

**Typical Infeed Rolling Times (No Handling) with standard hydraulic infeed actuation**

- .500" diameter 36 TPI Kine-Grip serration x 4 1/2" long, stressproof steel—.75 seconds
- 3/4"-10 thread x 4 1/4" long, 4140 heat-treated steel—.7 seconds
- 2 3/4"-8 thread x 4" long, 8620 steel—5 seconds
- 2 1/2" diameter 10 diametral pitch worm x 3" long, 1045 steel—9 seconds
- 4" diameter, 3/8" deep flange, 1060 steel—20 seconds

**BUILDING BLOCK SPINDLE UNITS**

**Standard Skewable Spindle Unit**

- Spindle Diameter—2½"
- Die Length—4½"
- Die Diameter Range—4½" to 6"
- Skew Range—0 to ± 12°
- Key—¾" x ¾"
- Die Center Distance Range—4¾" to 8¾"

**Extended Length Skewable Spindle Unit**

Specifications same as above except die length 5½"

**Overhung Large Diameter Die Spindle Unit**

Available for rolling parts with large shoulders near rolled area, for multiple form rolling of small parts with segment dies, or for thrufeed and cutoff.

**DIE DRIVE TRAIN**

Its high efficiency spur gear drive system with ground and hardened gears and roller bearing universals has a torque capability of 750 foot pounds. The sealed gearbox with a 3" diameter pass through hole has self-contained oil bath lubrication. For normal operation a 1.9 to 1 ratio is used. For high speed operation a 1 to 1 ratio is available.

**DIE DRIVE UNITS**

**Standard 25 HP Adjustable Speed Unit**

with speed ranges from 150 to 500 RPM

**Optional 25 HP Variable Speed Unit**

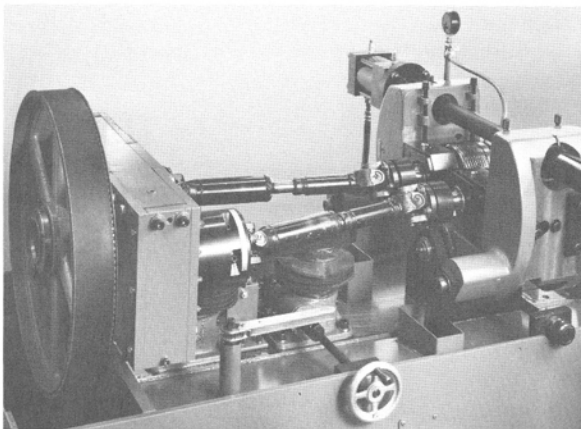
with infinite adjustment over 3:1 maximum to minimum selected speed range

**Optional High Speed 30 HP Unit**

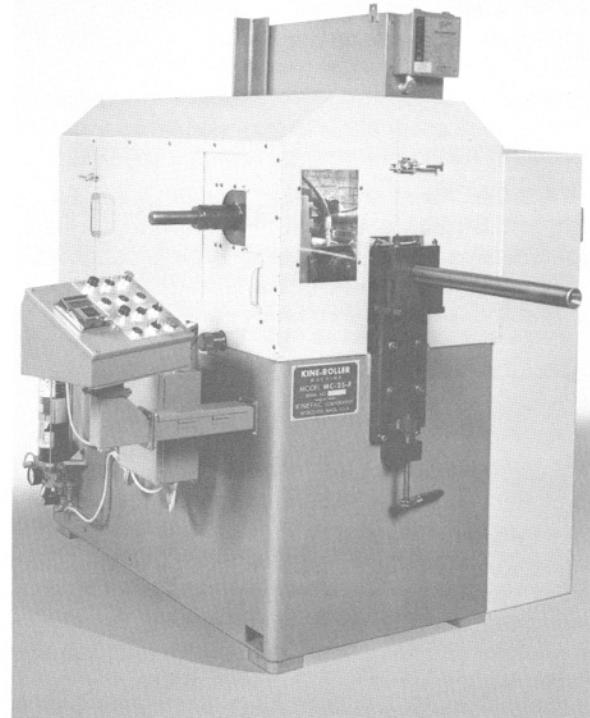
with selected die speeds up to 1200 RPM

**Optional Low Speed 15 HP Unit**

with speed ranges from 75 to 250 RPM



MC-25-FT/I Kine-Roller with guards removed showing die drive system and easily accessible adjustments for size, rolling height, rear work-support position, and rotary match.



MC-25-FT/I Kine-Roller shown with optional sound enclosure.

**HIGH STIFFNESS STRESS FRAME**

A rugged steel stress-frame with patented single pivot is combined with the rugged prestressed drawbar and stiff machine base to provide very low deflection under full-rated die load.

**THRUFEED ROLLING  
DIE CONTROL**

On the thru-feed machine the prestressed drawbar with a micrometer size-adjustment nut sets and holds the required die gap to excellent repeatability.

**COMBINATION INFEEED AND THRUFEED ROLLING  
DIE ACTUATION**

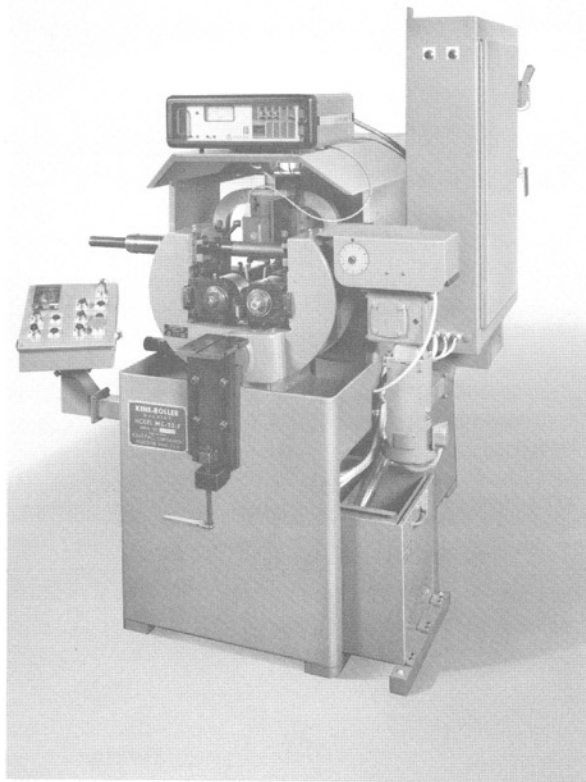
For infeed or in-and-thru-feed operation, die actuation is provided by a 4" hydraulic cylinder operating through the drawbar. The cylinder, operating at 3000 PSI with a 1.7 mechanical advantage, provides a radial load in excess of approximately 54,000 pounds with outstanding closed die position repeatability.

A field-proven 5 HP, 5 GPM hydraulic system using a Vickers variable volume pump and manifold-mounted flow control valves provides the hydraulic power.



**SPECIAL HIGH SPEED INFEED ROLLING DIE ACTUATION**

For infeed rolling applications requiring production rates from 30 to 120 per minute, a mechanical die actuation unit is available. Its die closing cam is driven by a hydraulic motor to provide continuously adjustable cycle speeds through the full range. It also provides a timed power takeoff for any mechanically actuated feed unit.



MC-25-FI Kine-Roller with Kine-Tronic control and high precision infeed actuation.

**SPECIAL ELECTRONICALLY CONTROLLED HIGH PRECISION INFEED ROLLING DIE ACTUATION**

Where high-precision pitch or form diameter control is required, regardless of variations in material hardness or other characteristics, the Kine-Tronic presettable electronic size control system is available. Through the use of direct die position monitoring, to provide constant die position feedback to the electromechanical die actuation drive, it is possible to achieve a die position repeatability of approximately .0002" regardless of other process variables. Furthermore, this system enables the user to electronically select fast approach, initial penetration, final penetration, and dwell of the cycle.

**TAPER ADJUSTMENT**

Single-point precision adjustment of taper is achieved through the use of a micrometer screw system which provides precise repeatability with independent dial readout.

**AUTOMATIC DOUBLE ACTING DIE POSITIONING**

A simple linkage system automatically positions the rolling dies and their support arms symmetrically about the horizontally-fixed rolling centerline. This permits die diameter and die size adjustment without the need to horizontally adjust either the die system or any work support and/or feed mechanism.

**EXTERNALLY ADJUSTABLE MICROMETER ROLLING SUPPORT UNIT**

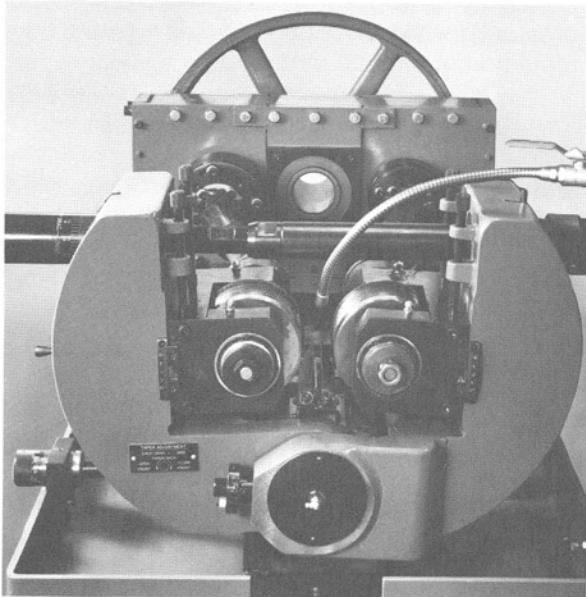
A cam-operated support unit actuated by an externally mounted micrometer dial provides precisely repeatable positioning of work-support blade or other fixtures.

**STANDARD AXIAL MATCH**

A micrometer matching dial with matching spring or optional variable backup spacer permits axial die match to within .001".

**OPTIONAL ROTARY MATCH**

An adjustable unit, mountable on the rear end of the left gearbox output hub, permits precise adjustment of the angular match of the left die to the right.



MC-25-FT/I Kine-Roller with cover removed showing die area

**ROLLING COOLANT AND LUBRICANT UNIT**

Standard unit has a 55-gallon tank, mechanical filter, and 1/2 HP submerged gear pump. The tank is equipped with removable vented top cover and a slanted end to permit easy cleaning.

**OPTIONAL CENTRIFUGAL COOLANT CLEANER**

A 1/2 HP centrifuge unit with quick clean basket and gravity load and discharge can be supplied for high material residue rolling applications.

**OPTIONAL AUTOMATIC GREASE LUBRICATION**

Automatic greasing can be supplied to meet any special customer requirements.

**STANDARD SPLASH AND SAFETY GUARDS**

This system of covers and doors retains the coolant and prevents operator contact with the die drive system, but does not provide special point-of-work guarding—*which is the user's responsibility*.

**OPTIONAL COMPLETE MACHINE ENCLOSURE**

This unit provides complete machine enclosure, including sound absorption and oil return plus a plexiglass point-of-work guard door which may be modified by the user to accommodate any work handling fixture.

**STANDARD FRONT AND REAR WORK SUPPORT UNITS**

Rugged front and rear work-support units, supported by externally adjustable jackscrews, are provided for the mounting of guide tubes or other input and output fixturing.

**MANUAL WORK HANDLING FIXTURES**

The open work area, the easily adjustable front and rear work-supports and the fixed horizontal rolling centerline permit the use of simple manual work-handling fixtures. A wide range of these standard and semistandard units are available to meet the needs of most common applications.

**AUTOMATED EQUIPMENT**

Automated part loading and unloading, including input and output conveyors, Kine-Mat loading and unloading units, and microprocessor controls, can be provided to meet customer requirements.

**BLANK PREPARATION SYSTEMS**

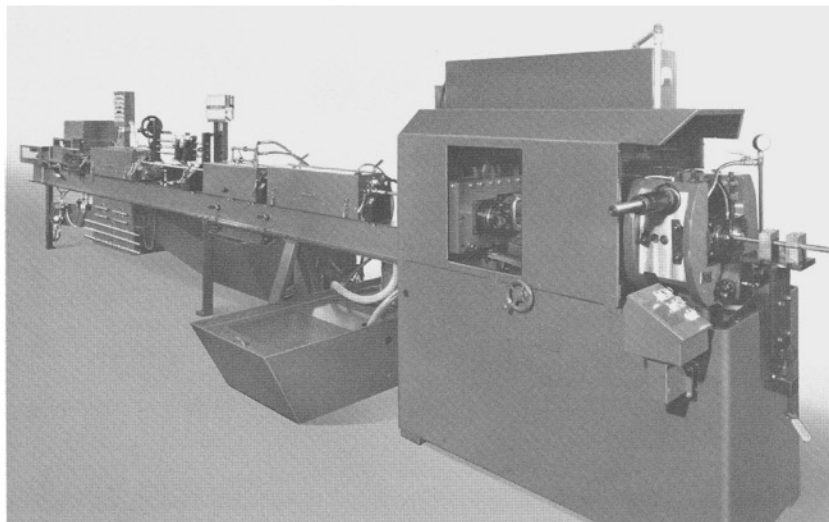
Complete high volume production systems operating at 15 to 40 pieces per minute which include preparatory operations and all necessary part transfer equipment and controls can be provided on a component or turnkey basis.

**DIE AVAILABILITY**

A complete die design, manufacturing, stocking and regrinding program assures the user of a reliable and economical tooling source.

**APPLICATION ENGINEERING SUPPORT**

Our long experience as the leader in difficult, unusual rolling jobs enables Kinefac to provide Kine-Roller users with imaginative engineering support in almost any possible rolling application. Telefax your applications to receive prompt engineering advice.



MC-25-FT Kine-Roller with Kine-True shaft heat treating and straightening system.