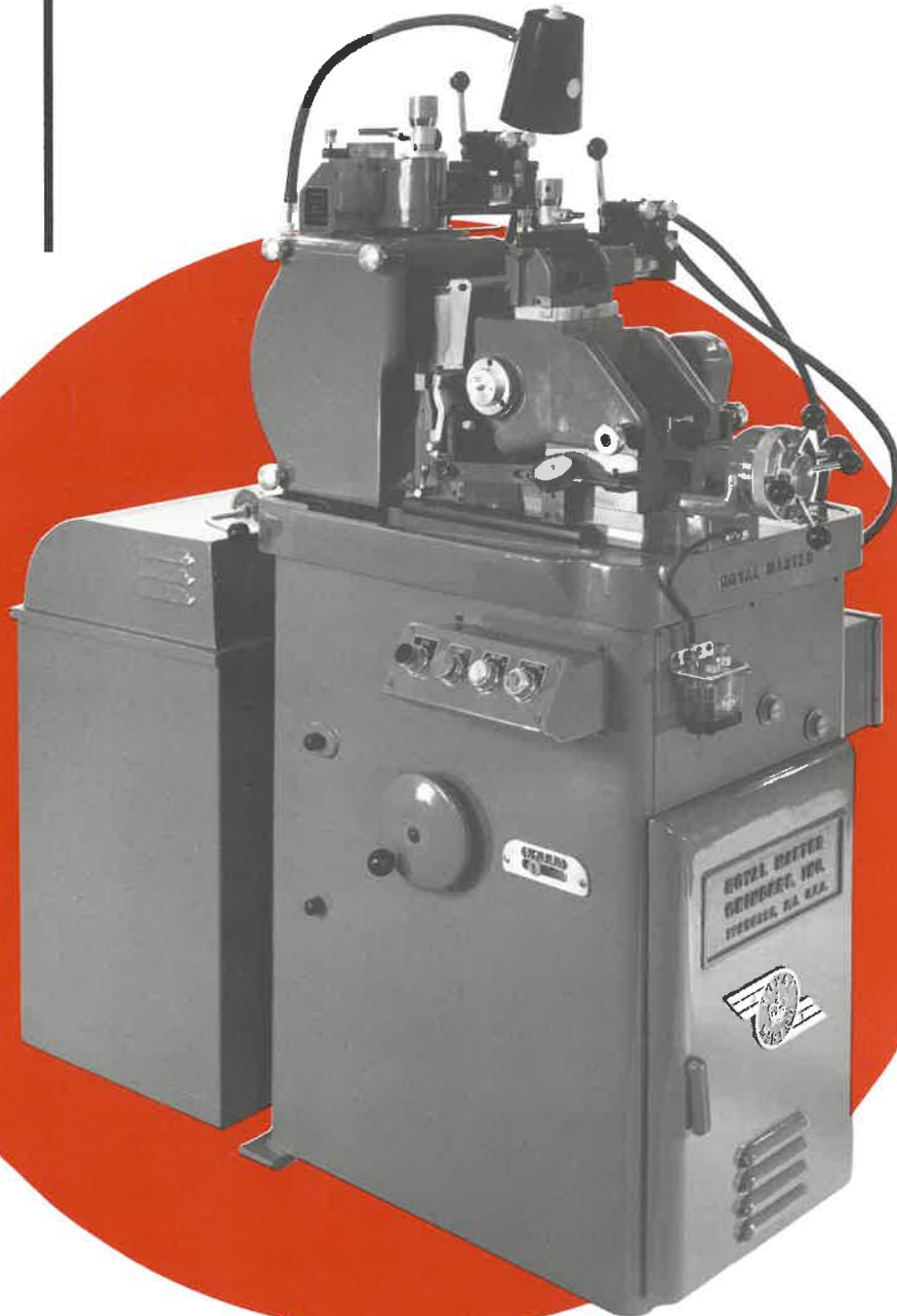


Infeed and
thru-feed
grinding.
Tolerances
for today's
requirements.
Manual, semi
or fully
automatic.

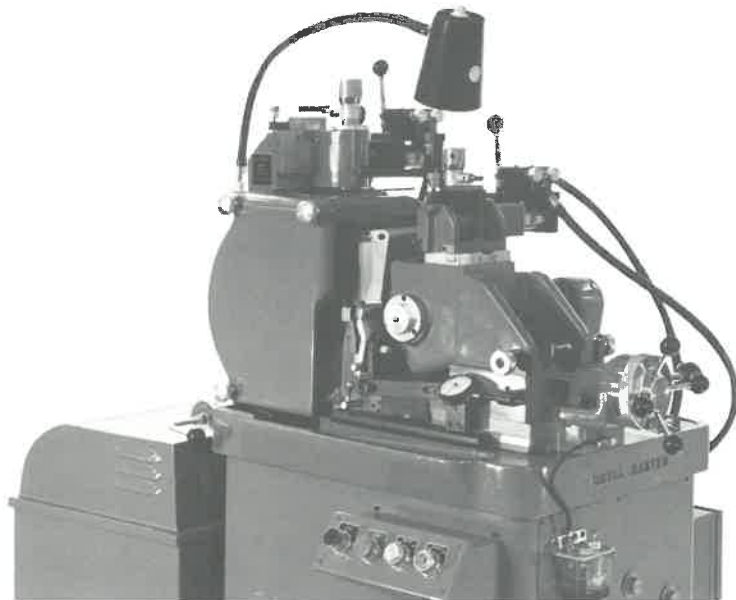
TG-12X3

CENTERLESS GRINDER



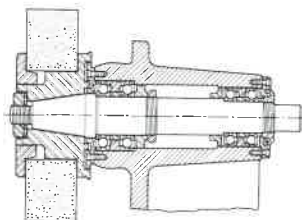
ROYAL MASTER GRINDERS, INC.
143 Bauer Drive, Oakland, N.J., U.S.A. 07436 Phone: 201-337-8500 TWX: 710-988-5680

TG-12X3 INFED AND TI WITH TOLEREN



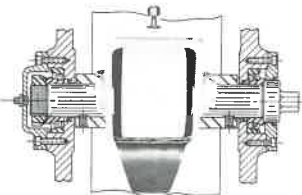
DESIGN FEATURES

WORK WHEEL SPINDLE



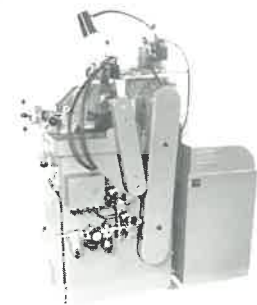
The rugged, heat treated alloy spindle is mounted in super precision, pre-loaded ball bearings, factory lubricated for life and protected with labyrinth seals at each end of spindle housing. Spindle is mounted directly into normalized and stress relieved cast-iron headstock to assure smooth running, vibrationless spindle. No warm-up time required due to pre-loaded ball bearing design. This feature is important to small shops, where a variety of jobs may be set-up and run during one day and just as valuable for larger shops where machine may be used intermittently.

REGULATING WHEEL SPINDLE



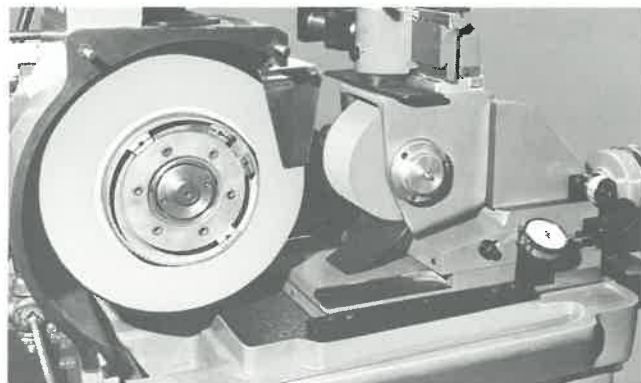
The rugged design of the regulating wheel housing and spindle insures close tolerances, roundness repeatability with provision for fast changes of the regulating wheel. The heavy-duty heat treated regulating wheel spindle is mounted between precision grade taper roller bearings with a "take up" feature and is protected from grit and coolant by springloaded double lip seals. This between bearing design and construction prevents spindle deflection.

COOLANT SYSTEM



A three way coolant control valve directs coolant flow through our exclusive coolant chute design to wheel part contact area, to tip of diamond during wheel dressing, or to coolant off position. A separate 40 gallon (151 l.) capacity coolant tank contains two individual tank insertions to improve sludge settling action. It is mounted on casters for easy movement to cleaning area. A removable 12 GPM centrifugal pump, powered by a 1/6 HP sealed electric motor, is located in the main compartment for quick pumping action.

- Grinds sizes from .004" to 1 1/2" diameters
- Tolerances better than .0001 total
- Precision grinds to low micro finishes
- Grinds all materials with a change of work wheel
- Change work wheel in less than 5 minutes
- Minimum floor space — 8 square feet
- Fast setup from one operation to another
- Convenient operation from ONE position
- Accessories available to satisfy every production requirement
- Full automation available
- Lowest overall cost — operating and maintenance expense
- Top grade materials and rugged construction assure maximum trouble free operation
- Efficient operation on long or short runs
- Consistent quality with high output
- Versatile — Dependable — Accurate
- American ingenuity and craftsmanship at its finest



WORK WHEEL AND WHEEL MOUNT

The work wheel capacity is 12" diameter, 3" face, and 5" bore. A smaller wheel width may be utilized with the use of a spacer to reduce wheel costs. The wheel mount has four channeled weights for quick, easy balancing. An arbor is inserted into the wheel mount and placed on a set of balancing ways to balance the work wheel.

RAM AND RAM BED

The ram bed is positioned on the machine by a fixed and loose guide. The ram (upper slide) moves on a large dovetailed section. Wear adjustment is made with a straight gib. Movement of the ram is controlled by a large micrometer hand wheel graduated in .001" (.01 MM) increments. Provision is made for the inclusion of an American Gauge Design .0001" (.002 MM) indicator for control of sizes to 'tenths'. The infed lever is conveniently located for easy movement by the operator. An oil lubricating system with oil ports along the dovetails and slide surface ensures maximum lubrication between ram and ram bed.

THRU-FEED CENTERLESS GRINDER DESIGNS FOR TODAY'S REQUIREMENTS

PERFORMANCE

The **TG-12X3** is a precision grinder, factory guaranteed to produce parts of the highest quality on long or short runs. It does not require any spindle warm up period prior to operation. Dependent upon operator skill and experience, the type of material being ground and the wheel being used, tolerances can be held to better than .0001" (.0025 MM). The relative simplicity of operation does not detract from its proven capability to produce parts from every type of material consistently and accurately.

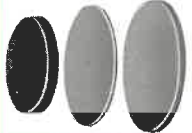
VERSATILITY

The **TG-12X3** is unmatched for its versatile capability to work all materials with quick easy changeover from Infeed to Thrufeed grinding. The 12" diameter work wheel efficiently grinds the complete range of steels, aluminum, beryllium, copper, glass, rubber, wood, inconel, quartz, sapphire, cork, plastics, and new exotic materials. For carbides and fully fired ceramics, a LOW COST diamond wheel is available.

OPERATION

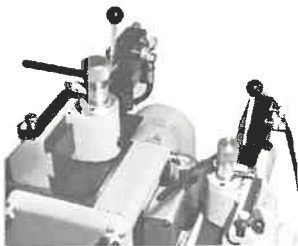
The **TG-12X3**, though a precision grinder, does not always require a highly skilled operator. Tolerances required and type of material being ground will dictate skill level requirements of operator. Due to its compact size, the operator can perform all operations from his normal position; i.e. check the work, remove pieces, dress the wheels and make all necessary adjustments, etc. One operator can monitor two or more machines if automatic loading is incorporated.

THE MODEL TG-12X3 GRINDS THESE TYPICAL TYPES OF PRODUCTS & MATERIALS

 WAFERS CERAMIC GLASS QUARTZ	 WIRE TUNGSTEN, MUSIC, EDM .004" DIA.	 GEAR HUBS STEEL	 PUNCH TOOL STEEL
 CHECK VALVE STEEL	 STARTER DRIVE GEAR STEEL	 TOOL BLANKS TUNGSTEN CARBIDE	 RODS PHENOLIC, TEFLON, NYLON

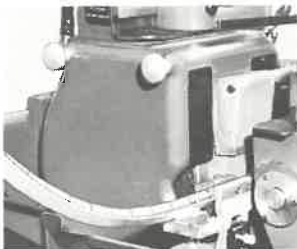
SEVERAL OPTIONAL ACCESSORIES*

HYDRAULIC PROFILE DRESSERS SA-73A & SA-74A



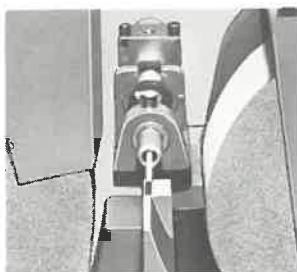
Additional versatility is given to this equipment with convenient directional controls and built-in flow control valves for constant and accurate profile dressing. The template follower is mounted on a slide, which travels over the precision ground ways, controlling the diamond reproducing the template form into the work wheel and regulating wheels. Cam action level raises and lowers work wheel and regulating wheel diamonds.

INCLINE "V" FEED CHUTE SA-87



The "V" type chute is used for the successive loading of parts during thrufeed operations. It's safer because it eliminates need for hand feeding and assures a constant flow of parts to the work wheel.

AIR EJECTOR AND POSITIVE STOP SA-78



This multiple purpose unit will position and eject parts from between the wheels. The ejector rod, which is used as a stop, can be adjusted to the length of grind required. Highly accurate and a definite time saver on long production runs, the air ejector activates on the retract phase when used with automatic cycling.



LONG BAR FIXTURE (ADJ. ROLLERTYPE) SA-69A

Conveniently mounts in a matter of minutes on the thrufeed work-rest holder with the rollers being completely adjustable for up to 1" diameter material 5' long. Additional sections are available for 12' bars.



AUTOMATIC CYCLING SA-94

A versatile 6 phase, air operated unit which consistently repeats the various pre-set cycle phases. A valuable accessory* item for greater piece part consistency; reducing work wheel breakdown and operator fatigue on long runs. Each infeed cycle phase can be independently pre-set by the timer and controls for optimum performance infeed applications.

The 6 phases are: 1 — Advance to grind; 2 — Grind; 3 — Dwell for Sparkout; 4 — Retract to open position; 5 — Dwell in open position; 6 — Optional load position.*



HOPPER FEED

This time saving unit is of necessity **custom-designed** for specific applications and parts. The standard design uses a vibratory principle. We offer Air Assist for feeding and removal of extremely small parts from the work wheel.

*A complete line of automatic loading and unloading equipment for many types of parts is available



TG-12X3

CENTERLESS GRINDER

TG-12X3 Standard Equipment: 7 1/2 HP, 1750 R.P.M., 230/460 volt, 60 cycle, 3-phase, ball bearing motor, 110 volt magnetic controls with overload protection, coolant tank (mounted on casters) with built-in centrifugal pump and 230/460 volt motor, regulating wheel (6" x 3" x 1"), contour type manually operated work wheel and regulating wheel dressers (less diamonds), balancing arbor, spray shields, wrenches, and instruction and parts manuals. All standard parts and accessories for our machines are usually in stock and can be shipped on a same day basis.

SPECIFICATIONS

CAPACITY	Infeed Thrufeed Length	.004" to 1.5" dia. .004" to 1.5" dia. 12 feet on .5" dia.	.1MM to 38MM dia. .1MM to 38MM dia. 366CM on 25MM dia.
WHEELS	Grinding wheel (max.) Grinding wheel (min.) Regulating wheel (max.)	12" dia. x 3" wide 10" dia. x 1/4" wide 6" dia. x 3" wide	304MM dia. x 76MM wide 254MM dia. x 6MM wide 152MM dia. x 76MM wide
SPINDLE SPEEDS	Grinding wheel Regulating wheel	constant speed 2040 R.P.M. infinitely variable 25 to 480 R.P.M.	
COOLANT EQUIPMENT	Coolant tank	40 gallons	151 liters
FLOOR SPACE		24" x 48"	61cm x 122cm
WEIGHT	Approximate Net Weight	2300 lbs.	1043 kgs.
MOTORS	Main Drive Coolant Pump Hydraulic Pump	7 1/2 H.P., 1725 R.P.M., double end spindle T.E.F.C. 1/6 H.P., 3450 R.P.M., 12 gal./min. at 5 P.S.I. 45.5 l/min. at .35 kg/cm ² 1/4 H.P., 1725 R.P.M., .5 gal./min. at 150 P.S.I. 1.9 l/min. at 10.5 kg/cm ²	

The two "intangible" features which are just as important and at times — More important to you, the potential buyer.

EXPERIMENTAL GRINDING LABORATORY SERVICE.

Prior to purchase of our equipment we will "test grind" your material or parts and give production rates, specific finishes possible, wheel type, coolant, etc. for your complete evaluation. After purchase and as long as you have our grinder our test laboratory will be available to you to provide technical assistance in production of new parts. Send us sample parts and blue prints with specifications.

FIELD SERVICE.*

Our field service engineer will call as soon as the new machine is installed in your plant to set-up and instruct your operators in the most efficient use of our equipment. There is NO charge for this initial call. Royal Master service does not terminate at this point; for regardless of how long you have the machine, our service engineers will be available to assist with any problem in its operation.

Specifications and design subject to change without notice.

Some guarding was removed for clarification of subject matter.

* This service available in the original 48 states and the Eastern industrialized area of Canada at no charge. Available world wide at a nominal cost.



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