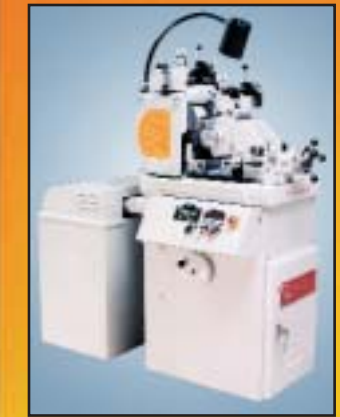
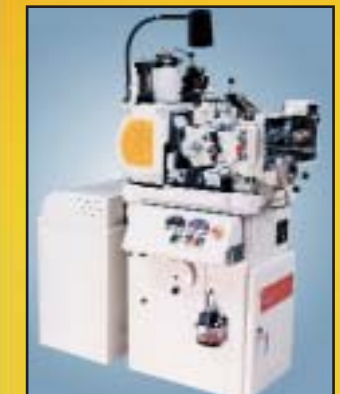


Product Line



TG-12x3/TG-12x4 Series

TG-12x3 and TG-12x4 series can be equipped as an infeed or thrufeed machine, or a combination of both. The TG-12x3 has a 12 inch (304mm) diameter and a 3 inch wide (76mm) grinding wheel, and the TG-12x4 has a 12 inch (304mm) diameter and a 4 inch wide (100mm) grinding wheel. Both models have single point diamond dressing capabilities and the ability to hold micron tolerances.



Both machine models are highly versatile with the ability to grind multiple steps diameter parts.

Equip the system with an automatic infeed unit, and automatic loading for unattended operation. Other popular options include Microsize systems with glass scales, Lateral Regulating Wheel adjustment, Superabrasive Grinding wheels, HI-Accuracy systems and CNC Dressing.



CG-12x3

Royal Master's Crush Grinders are manufactured in both 3 and 4 inch wide (76mm and 101mm) wheel faces with crush capabilities up to three inch (76mm) profile lengths on both models. Our crush grinders have additional versatility with single point diamond dressers for both the work and regulating wheel.

CG-12x3 / CG-12x4



Crush forming is an accurate technique for placing a form into the grinding wheel. Often a configuration may not be dressed into the grinding wheel using a single point diamond and template form, such as a small radius adjacent to a 90 degree shoulder, a flange in the middle of a part, or a slot: whereby crush form infeed grinding is required.

DWT-12x4

Now you can infeed grind carbide, ceramic, and other hard materials requiring a super abrasive grinding wheel and still have all of the convenience and speed of redressing a conventional abrasive type wheel.



This truing feature allows for the mounting of a diamond work wheel to the machine, having it trued to the spindle, and re-trued as needed in minutes without ever having to remove the wheel from the machine.

The Royal Master Model DWT-12x4, is specially built to include an extended machine bed for a permanently mounted diamond wheel dresser.

The diamond wheel dresser is PLC controlled with x and y slideways and a reciprocating rotating diamond disc. The wheel dressing function will be initiated on demand by the touch of one button. Once activated, the diamond wheel dresser will perform a preprogrammed dress function and then reset itself for the next dress requirement.

DRF-12 x 3 & DRF-12 x 4

Royal Master's diamond roll form grinders are manufactured in both 3 and 4 inch (76mm and 101mm) wide wheel faces with diamond roll form capability up to 3 inch (76mm) profile lengths on both models.



Diamond roll form dressing is an ideal solution for rapid dressing of high volume intricately shaped parts. This accompanied with automatic size compensation between dresses provides the user the opportunity to narrow the total tolerance range on a given part.

Generation 5.1 CNC Guidewire Profile Centerless Grinder



Since its introduction in 1999 the Generation 5.1 CNC Guidewire Grinding machine has become the choice of companies around the world for their production Guidewire Grinding requirements. The system with its sensors spaced .0025" apart make for the most accurate tapers without any radical offsets or calculations to make tapers "fit".



The Generation 5.1 is the standard in the industry for grinding Guidewires with anything from long single tapers or up to 15 tapers, at a production rate of 1" (25mm) per second. The longevity of the Royal Master Systems are world renowned as many of our first Generation 1 and 2 systems are still grinding production.

The Royal Master SA-449 Laser Gauging system gauges guidewires or other small diameter applications and displays their length and diameter dimensions pictorially on a screen in-between the programmed tolerances. This is used for a quick reference for the operator, or for a more through analysis, the system automatically can assign and dimension the intersections of the wire automatically choosing between three algorithms. With over 20 new software additions integrated into the system, the system is even easier to use, and program.

Generation X Micro Machining System



Micro-Machining is a relatively newer form of machining very small parts. Royal Master has developed the Generation X with its 5 axis of motion and its sub-spindle making the machine's profiling capabilities limitless. Machining as small as .010" raw material, as large as .100", and lengths as short as .030".

The Generation X uses a high speed CBN grinding wheel at 9000 sf/m and is unique to any other system that takes raw material from a spool and automatically feeds it into the machine. This machine like small Swiss screw machines, has a sub-spindle so when the part has a profile or feature on both sides of the part, the machine will hand it off, and finish machining it, thus eliminating the need for secondary operations. This machine has the capabilities to make helix's on parts by controlling the rotational speed of the work spindle. The ability also exists to stop rotation to create flats on the parts or plunge in to make notches.



This is an advantage during thrufeed grinding that the guides do not have to be readjusted when you swivel. Also the swivel is gauged by a digital indicator, and the adjustment is made by a easily accessed handle. We have also added a servo drive regulating wheel system. The electrical system is easily

accessed by way of a JIC electrical enclosure mounted in a space saving position over the coolant tank. The accuracy of the system was tested on customer applications, and the results were impressive. We were able to achieve roundness to less than .000010", and straightness to less than .000010". We are able to make size compensations with this system in .000010" as well. The positioning system consists of a servo driven ball screw unit and the system's movements are verified with a glass scale with .000004" resolution.

Product Line

Automation Systems



Cross Transfer Systems

Available in two varieties, high speed or standard units, these stress efficiency, and fast loading of infeed applications. Fed from a bowl, the part will be accepted into a shuttle head, and injected into the grinding area. After grinding, the part will either be dropped from the work rest blade when using the standard system, or ejected back to the operator's side of the machine using a "part kicker." Depending on the grind time, these loaders will load up to 15 parts per minute.



Magazine Loader

This type of part loader can be used for infeed grinding or thrufeed grinding. Flexibility is realized from an extended range of adjustments to containment guides and part movement drive cylinders. Load the 24" long tray, or fill the 22 square inch hopper with unground pieces. The machine will accept one part at a time, and insert it into the wheels. After grinding, the part will drop off of the Work Rest Blade, into a tray. Upon the start of the next cycle, it will be swept from under the wheels, into a collection bin.



Machines in Series

Putting machines in series is an excellent way to use your personnel to their greatest potential. A bowl feeder into the first roughing machine, and inline v tracks in-between the machines make for uninterrupted production. Make the system complete with an air wipe and in-process laser gage with feedback in .000010" (.00025mm) increments to the HI-Accuracy finishing machine.



Overhead Gantry Pick & Place

A universal unit available in one, two or three picking heads. Increasing the number of heads, gives the ability to add a parts washing, or gaging station, while still maintaining an operator free unit. Commonly the unit will have a walking beam system to bring the parts into position, and exit them from the grinder area. This unit uses a three head system for three stations (incoming walking beam, grinding area, and exit station).



Dual Conveyor

This unit is a great solution for infeed applications where quantities are low, and different part configurations are high. There are two conveyors on the operator side of the machine. These two conveyors have a timing belt used to keep the parts separated from each other, and the separators are sized for your part diameter.



The parts will travel down the conveyor, and be placed into the loading "V". When the machine requires a part, it will be indexed into the machine and ground. When finished, it will drop off the blade and be swept out from beneath the wheels.



Vacuum Loader

A new loading system which is ideal for the smallest of infeed and thrufeed applications. Specializing in flexibility, it will handle multiple lengths, and diameters from .008" (2mm) to .030" (76mm) diameter without marring the surface of the part. Interfaced into a PLC changeovers for short or long production runs are as easy as a few key strokes.



Vibratory Bowl System

Vibratory bowls are excellent tools to increase efficiency of thrufeed grinding applications. Whether you have a bowl with a high stand for applications which are shorter in length, and smaller in diameter, or a bowl with an inline feeder for your longer larger diameter applications, you will notice an immediate impact in your production output.

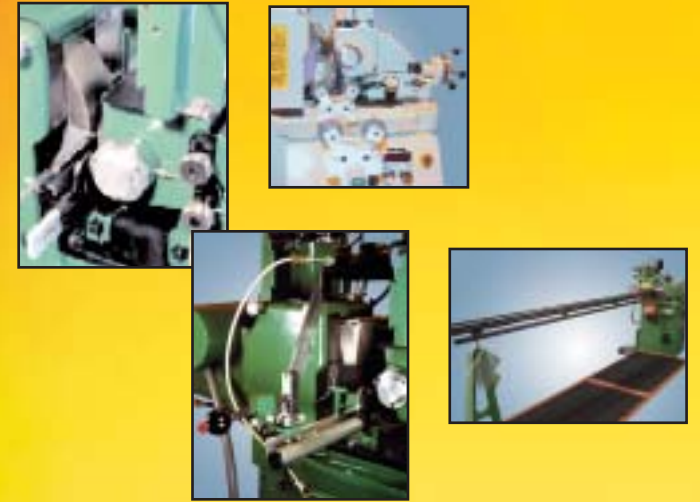


Adapt unique features such as laser gage feedback for automatic bowl shut-off.

Automation Systems

Operator Assist Systems

Operator assist mechanisms such as the pictured parallelogram loader system, and also bolt action loaders are coordinated with the machine to initiate the machine cycle. The purpose of these and other assist mechanisms offered is to facilitate the operator's loading of small or hard to handle applications or to help support long parts such as bar stock.



Rod Loader

Load up to 48" long rods up to .250" diameter into the hopper and have up to 4 hours of uninterrupted grind time. The system will segregate the parts, and push one part into the system at a time to either taper a rod or for thrufeed grinding. After grinding the parts can be loaded into tubes for easy collection. This loader can be married to either the standard TG-12x4 grinders, Hi-Accuracy Grinders, or Generation X grinders.



Royal Master Grinders, Inc is a manufacturer of high quality, compact Centerless Grinders since 1950. Royal Master was originally organized as a sub-contractor manufacturing

gauges for propeller blades. Since its inception we have grown into an International Company with factory trained engineering in Europe, Asia, Mexico, Africa and South America, with many different languages spoken.



In addition to the Medical Device Industry, Royal Master serves the automotive, aerospace, cutting tool, medical fiberoptics, electronics and supporting job shop suppliers of all of the listed industries.

Royal Master's product line has included computerized machine controls since the early 1970's, and in 1994 we added a CNC Machine control which uses a windows format. This particular machine is used in the Medical Device manufacturing industry for grinding Heart Catheter Guidewires used in the angioplasty process. These wires are often 1/2 the diameter of a human hair at their smallest diameter.

We welcome you to visit us anytime. Come with an application, and we can grind it for you, or just come by to learn about centerless grinding, our door is always open.



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