ROTTLER

P69 5 Axis Head Porting Machine

PERFORMANCE RACING AND ENGINE REMANUFACTURING MACHINERY AND EQUIPMENT

THE CUTTING EDGE

P69

5 Axis Head Porting Machine

Features and Benefits

PC Based Single Processor Control System by Direct Motion

Highly interactive and very responsive there are no communication lags between user interface and machine. Allows machine to do complex and sophisticated functions that are only possible within PC.

Rapid Rate of Movement

Machine rapids at 600 ipm (15.2 mpm) and feeds at 100 ipm (2.54 mpm) with infinite look-a-head capabilities, allows for fast production times. Small block V8 head ported in about 1 hour.

High Spindle Speeds

Up to 24000 rpm allows for high cutting speeds and excellent surface finishes.

Standard Windows User Interface with Animated Training

Most operators are comfortable with Windows based programs so training time/ learning time is reduced. Operator can take full advantage of available features which will improve operator speed and efficiency

Upgradeable Software

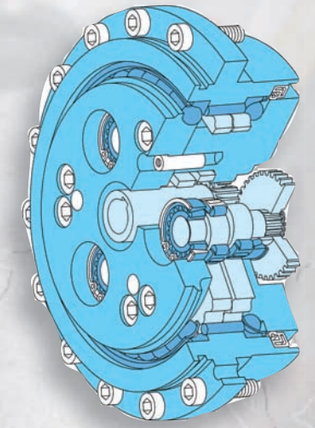
Gives owner more years of productive use. New features can be added with upgrades.

Remote Diagnostics (Black Box)

Gives operator hard record of what happened if something goes wrong providing mechanism to identify and resolve problems even if they are very infrequent.If problems occur they can be resolved over the internet resulting in faster lower cost repairs to the machine owner.

Optional:

Digitizing probe system works directly on machine (no need for separate system) allows operator to copy a ported cylinder head.



Cycloidal gear drive gives less than 1 arc-min of backlash on 4th and 5th axis. This helps ensure no step in port area where tool paths meet.

Large Coolant Tank with Rollers

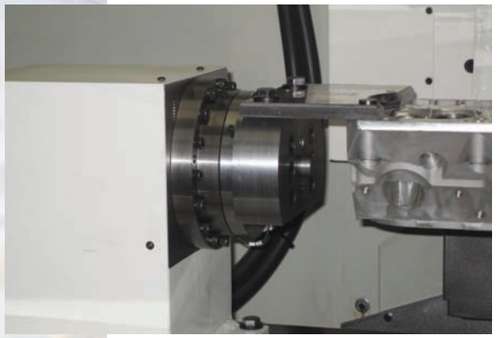
Large 35 gallon coolant tank rolls out the front of machine for easy fast cleaning

Near Zero Backlash on XYZ axis

Overall accuracy to .001 (.025 mm) allows operator to accurately match the hand ported sample and ensures ports will line up with no steps. No hand work necessary! CNC ported head will normally flow within 1% of sample head.

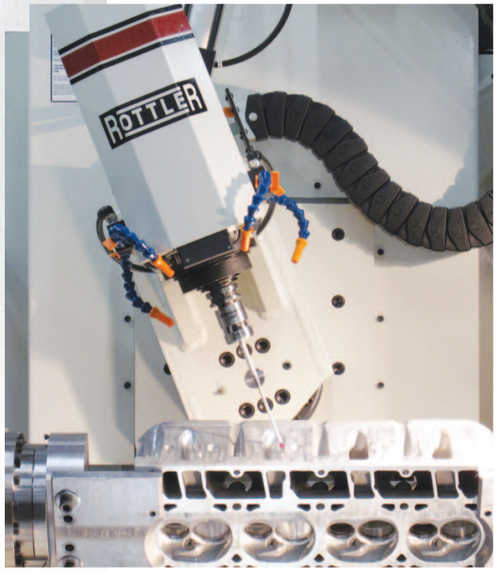
THE CUTTING EDGE

Features and Benefits



4th & 5th Axis Offer Cycloidal Gear Drives

that provide high-end performance in a very compact & rigid design. These units on both 4th & 5th axis incorporate rolling contact elements to reduce wear, extend life and lower backlash along with integrated angular contact bearings for greater load bearing support.



Advanced Direct Motion Software Tools

Allows manipulation of port design and minimizes digitizing time. This allows operator to pickup data once and tweak the design on the screen. Operator can tweak hand ported design if necessary.

Precision Digital Readout / Pulse Generator .0001 (.0025mm) Resolution

Allows operator to perform set-ups quickly and easily.

CNC Touch Screen Control

Jog machine and all other functions on touch screen, context sensitive, allows only appropriate actions on screen. Can be changed like other elements of the software.

Standard PC Hardware and Software

Offers the highest performance, can be networked, easily upgradeable and repairable.

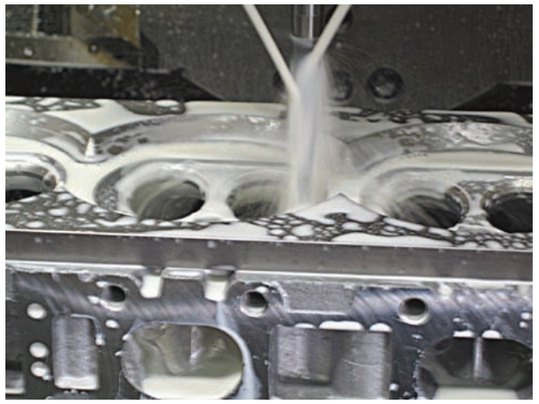
5th Axis is Center of Ball Cutter

Allows +/- of 60 degrees on 5th axis to access all port geometry. X axis does not chase the 5th axis motion making machine very accurate and ports all the same.

Baldor Servo Motors

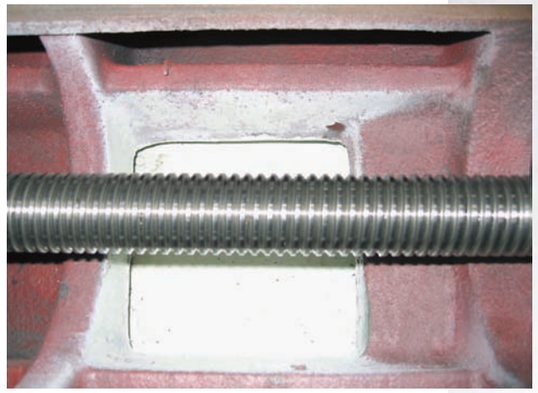
High quality, reliable Baldor servo motors can run at high temperatures and are serviceable off the shelf through Baldor's extensive international organization.

The P69 unique 5th axis design increases speed and accuracy of machining since the machine always works around the center of the cutter. This design allows extreme angles of 60 degrees in both directions for a total of 120 degrees of motion. Since the machine always operates around the cutter center there is no step on the dividing line where the tool paths meet in the port.



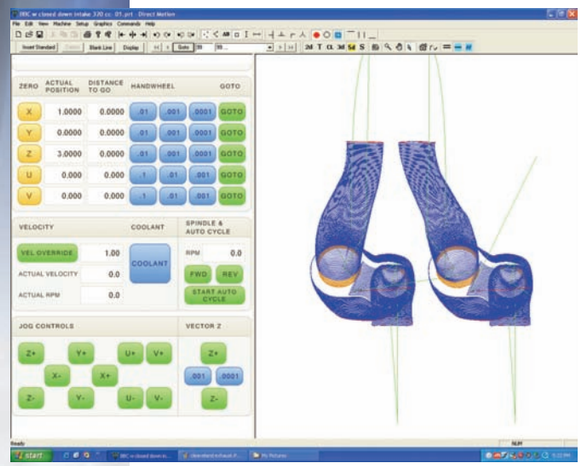
Convenient coolant nozzles allow for a flood of coolant in the hard to reach areas that prevent clogging of cutting tools.

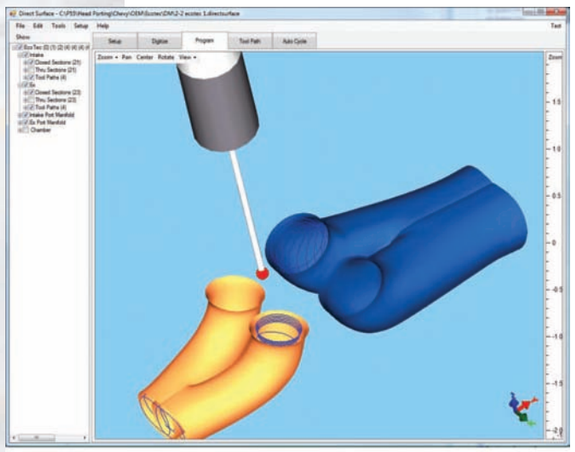
Neat organized electrical enclosure for fast easy troubleshooting of electrical components.



Direct drive ball screws on XYZ axis offer near zero backlash for more accurate machining of heads.

Software



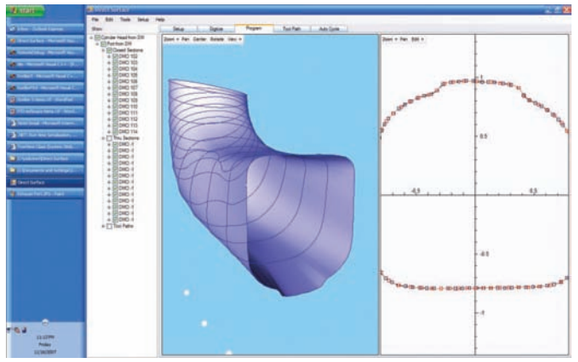


Advanced Rottler software allows operator to view cross sectional dimension of port area

Software can calculate cross section area to ensure that actual cross section area is calculated as port shape changes

With P69 software why hand port the first head? You can digitize cast head and then use P69 software to modify ports rather than grinding by hand.

This software allows technician back at Rottler to trouble shoot machine by taking control of machine with simple internet connection saving time and money over service calls to your facility.



Rottler/Direct Motion software gives you the advantage!

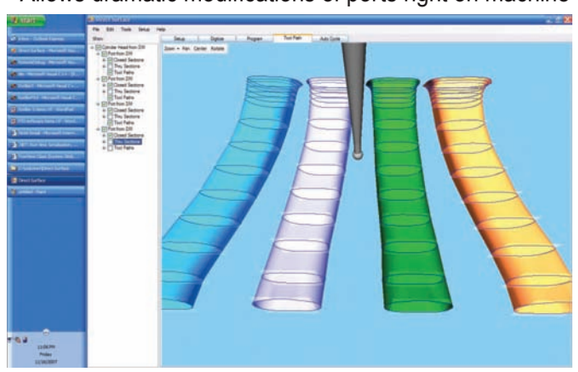
Specially designed software for head porting allows entire programming process to be done on machine.

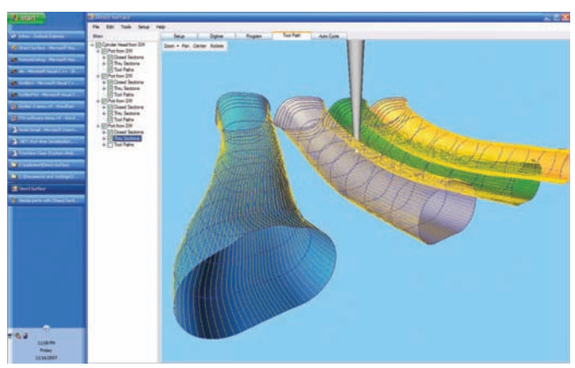
Compatibility with CAD/CAM software systems

Rottler software allows operator to import and export to most common CAD/CAM software such as Master Cam or Surf Cam.

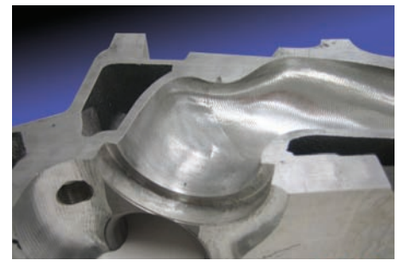
100% Windows based software is the most user friendly software on market. Anyone with basic computer knowledge can learn this system.

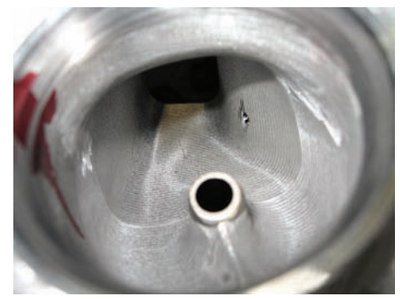
Software Includes:
- Ability to digitize new cylinder ports
- Generate Port Surfaces
- Create Tool paths right on machine
- Allows dramatic modifications of ports right on machine





Examples of port work done on the P69 machine





P69 Specifications

MADE IN U.S.A.

Length Capacity	37" 939mm	**Spindle Taper**	BT #30
X Travel	40" 1016mm	**Spindle Rotation**	0 - 24,000 rpm
Y Travel	20" 508mm	**Table Size**	20" x 59" 508mm x 1498mm
Z Travel	21" 533mm	**Rapid Travel X, Y, Z Axis**	600 ipm 15.2 mpm
5th Axis Rotation	60 degrees either side of vertical	**Feed Rate**	0 - 100 ipm 0 - 2.54 mpm
Machine Dimensions	107" x 128" x 96" 2717mm x 3251mm x 2438mm	**Axis Motors**	1/3 hp
Working Dimensions	112" x 128" x 96" 2845mm x 32517mm x 2438mm	**Electrical requirements**	208/230 volts 1ph 30 amp
Machine Weight	8000 lbs. 3636kg	**Air Requirements**	90psi
Shipping Weight	9000 lbs. 4690kg		

Specifications and design subject to change without notice.

Ordering Information

Digitizing Options

Order machine with digitizer gives operator ability to copy hand ported cylinder head. (Price includes one week of training on machine). If you decide not to purchase digitizing option you can send cylinder heads to Rottler for digitizing and programming so machine is ready to run when you take delivery.

Optional Equipment

Measuring Instruments

APD-PROBE	"On the Machine" Automatic Port Digitizing with Renishaw Probe, Advanced DM Software Tools Allow Manipulation of Port Design to Minimize Digitizing Time

Software

DIG-PROG	Program Development (digitizing and programming of customer cylinder head) when not purchasing digitizing option.

Porting Fixture Assemblies

PFIX-SBC	Porting Fixture - Small Block Chevy
PFIX-BBC	Porting Fixture - Big Block Chevy
PFIX-SBF	Porting Fixture - Small Block Ford
PFIX-BBF	Porting Fixture - Big Block Ford 429, 460
PFIX-BBF1	Porting Fixture - Big Block Ford 390,427,428
PFIX-BBM	Porting Fixture - Big Block Mopar 440
PFIX-BBM1	Porting Fixture - Big Block Mopar 426 Hemi
PFIX-B16	Porting Fixture - Honda B16
PFIX-Buick	Porting Fixture - 3800
PFIX-LS1	Porting Fixture - LS1
PFIX-SBF	Porting Fixture - 289,302,351W,351C
PFIX-SBM	Porting Fixture - 318,340,360

Porting Tool Holders

PTH-250-BT30	1/4" Diameter X BT30 Taper
PTH-375-BT30	3/8" Diameter X BT30 Taper
PTH-500-BT30	1/2" Diameter X BT30 Taper
PTH-625-BT30	5/8" Diameter X BT30 Taper
PTH-750-BT30	3/4" Diameter X BT30 Taper

Porting Tools

PT500-250-54	1/2 diamater shank X 1/4 diameter ball mill X 5.40" long
PT500-250-60	1/2 diamater shank X 1/4 diameter ball mill X 6.00" long
PT500-375-60	1/2 diamater shank X 3/8 diameter ball mill X 6.00" long
PT625-375-54	5/8 diamater shank X 3/8 diameter ball mill X 5.40" long
PT625-375-60	5/8 diamater shank X 3/8 diameter ball mill X 6.00" long
PT625-375-64	5/8 diamater shank X 3/8 diameter ball mill X 6.40" long
PT625-375-70	5/8 diamater shank X 3/8 diameter ball mill X 7.00" long
PT625-750-68	5/8 diamater shank X 3/4 diameter ball mill X 6.80" long
PT750-750-68	3/4 diamater shank X 3/8 diameter ball mill X 6.80" long

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ROTTLER

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