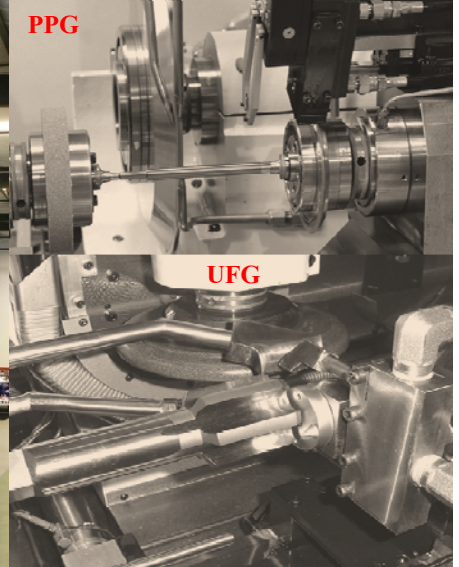


ITM

PRECISION CNC GRINDING MACHINES

Advantage Through Knowledge Vol. 66

PEEL & PLUNGE GRINDER (PPG) was developed for grinding cylindrical or tapered parts with multiple steps or profiles.



ITM Design & Manufacturing Facility

5 Industry Drive

Palm Coast, Florida USA 32137

Tel.: 386-446-0500

Fax.: 386-445-5700

Peel & Plunge Grinder (PPG)

tele.: 386-446-0500
email: info@itmfl.com

Your First Choice for High Production & Precision OD Grinding

ITM PEEL GRINDER DEMO. IN JAN. 2014!

➤ ITM PEEL GRINDERS



PPG with touch screen and gauging system

Peel & Plunge Grinder (PPG, PFG, UODG)

- *For High Performance OD Grinding for blanks and parts*
- *Diameters from 1mm to 50mm*
- *Materials: High Speed Steel, Stainless, Carbide, Ceramic & PCB*
- *Square Drivers, Collet, High Precision Chuck & Tail Stock Centers*
- *Comes Standard with HSK Quick Change Wheel Flanges*
- *Wheels: Conventional, CBN & Diamond*
- *FANUC Controls*

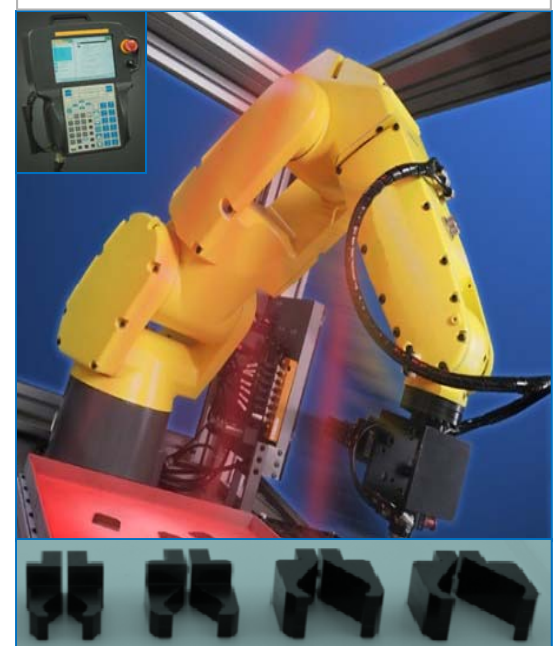
ITM's **Peel & Plunge Grinder (PPG-500)** was developed for grinding cylindrical or tapered parts with multiple steps or profiles. To hold the tightest tolerances (1 micron repeatability) the parts are clamped between high precision centers, which allow grinding along the complete part length without the necessity of reclamping. The PPG has a 15" screen panel along with an integrated computer interface for ease of use. Machines are built with easy access for wheel and tool changes. First piece tool setup time including wheel change, tool change, software programming is only 10 minutes.

The Peel Grinder is capable of grinding materials such as High Speed Steel (HSS) and Carbide. Customers prefer the advantages of producing their own blanks in high production batches with high precision accuracy. Thus, they avoid the cost of purchasing expensive blanks.

For loading and unloading, ITM offers a cassette loading system. Up to 300 pieces can be pre-loaded in cassettes for long periods of unattended operation.

You will find more info about this machine or any other ITM machine by visiting our web site! www.itmfl.com

Optional Robot Loader



Peel & Plunge Grinder (PPG)

tele.: 386-446-0500
email: info@itmfl.com

PEELSERIES: ITM PEEL GRINDER READY IN JAN. 2014!

Peel & Plunge Grinder

For grinding cylindrical or tapered parts with multiple steps or profiles..

- 5 CNC Axes
- Motor spindles up to 30HP

WORKPIECE DATA

- Min. Diameter 1mm
- Max. Diameter 50mm
- Max OAL 350mm (14")
- Other dimensions upon request!

GRINDING WHEELS

- Diameter 350mm (14")
- Width Peelgrind 3 - 6mm (1/8 - 1/4")
- Width Plunge grind up to 30mm (1 1/4")
- Diamond, CBN, Conventional
- Up to 150 m/s (30,000 sfm)

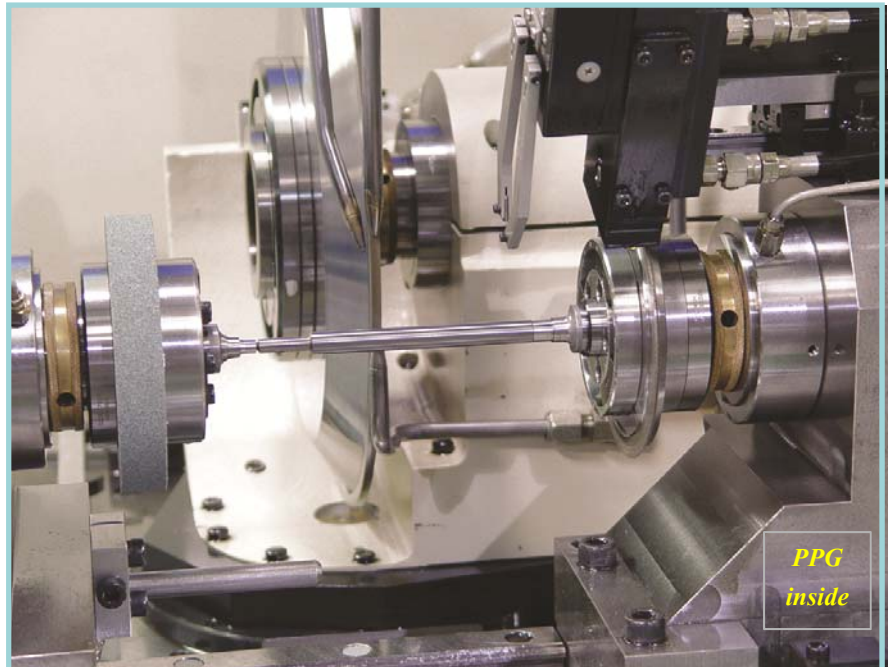
MACHINE DIMENSIONS

- Height: 2440mm (96")
- Width: 2530mm (100")
- Depth: 2600mm (102")
- Weight: 5,000 kg (11,000 lbs)

SAMPLE PARTS



ITM holds over 30 patented machine designs.



GRINDING OPERATIONS

Straight OD's, Contours, Tapers, Chamfers, Profiles, Shoulders, Grooves, Flats, Squares etc.

MACHINE FEATURES & OPTIONS

- Grinding between centers without workpiece drivers (dogs)
- Workpiece Rotation up to 5,000 rpm
- CNC Wheel Head Angle adjustment 60°
- Water-cooled direct drive Motorspindles, 30HP, 20HP, 10HP with HSK quick change flanges
- Reliable GE-Fanuc Controls with built-in PC
- Inch/Metric switchable
- Internal dressing of diamond and CBN wheels with silicon carbide wheels and diamond roll
- Automatic Probing of Wheel diameter after dressing
- CNC Adjustment of Workhead (Center) Distance
- Built-In Measuring Gage (Pre-, In-, Postprocess)
- Multiple wheel arrangements for Peel & Plunge grinding in one set-up
- Easy to use Windows based Software with Simulation Mode for grinding a great variety of part contours
- Automatic Cassette Loader with double gripper

PEELSERIES: Peel & Plunge Grinder (PPG)

ITM will have a PPG for machine demonstration at the beginning of 2014!

Contact us if you are interested in further information 386-446-0500.

Technical Brief: High Speed Peel Grinding

High speed peel grinding represents the latest development in grinding technology. The concept behind peel grinding finds its roots in CNC turning centers. Turning centers are extremely powerful due to their flexibility. CNC turning center can produce a variety of tool geometry through the use of multi-axis interpolation. Grinding machines have been unable to simulate this turning concept due to the limitations of standard grinding wheels. Standard wheels are not suitable for the higher cutting speeds involved in peel grinding and would wear too quickly to maintain single line of contact between wheel and workpiece. However, advancements in wheel technology have brought the peel grinding concept to reality.

In peel grinding, a superabrasive wheel (CBN) or Diamond Wheel that is relatively narrow in width (3mm – 6mm) is arranged perpendicular to the workpiece. The line of contact between the wheel and workpiece is kept to a minimum. The small contact area reduces the cutting forces generated during grinding thus reducing deflection and heat generation. This in turn increases grinding accuracy and allows for higher cutting speeds (up to 23,600 sfm) without causing surface damage to the workpiece. The higher cutting speeds utilize the full potential of the superabrasive wheels and allow for high traverse rates. The creation of simple, as well as complex geometry is accomplished through interpolation of the machine axes. Listed below are the primary benefits realized through the use of peel grinding:

Increased Productivity: Peel grinding utilizes higher feed rates and high traverse rates to produce cycle times that are consistent with the needs of today's tool producers. In addition, a peel grinder uses multi-axis interpolation to create tool geometry, a changeover to a new tool simply requires the new program to be retrieved on the control rather than a complete wheel change as would be needed with a plunge grinder. Superabrasive wheels have a longer lifecycle and require less dressing as compared to standard wheels used on plunge grinders. All of these factors result in a machine process that is more productive.

Increased Flexibility: Peel grinding utilizes the full potential of the machine through multi-axis interpolation. Production of workpieces with complex geometry often requires a piece to be ground in several steps on different machines. For example, plunge grinding on one machine, form grinding of tapers on another machine, thread grinding on a third machine, etc. A peel grinder however would be capable of producing all of this geometry in a single setup. Not only is this process more flexible, it also ensures higher accuracy because the part was produced in one machine.

Reduced Cost: The advantages illustrated above ultimately result in a machine that produces parts at a lower cost.

ITM MODELS

PPG



UFG



UFGG



RTG



AFS-8-200



FLUTESERIES

Universal Flute Grinder

- UFG-25, UFG-50

UFG

7 CNC AXIS
FLUTE GRINDING WITH
CONVENTIONAL OR
SUPERABRASIVE WHEELS



Universal Flute & Gunnose Grinder

- UFGG

UFGG

UP TO 9 CNC AXIS
STRAIGHT FLUTES, RIGHT AND
LEFT HAND FLUTES, GUNNOSE
& CHAMFER



PEELSERIES

Chamfer Grinder

UODG

4 CNC AXES
TAPS: CHAMFER WITH OR
W/O RELIEF. COUNTERSINKS
& ROUTERBITS

Form Grinder

PFG

MOTORSPINDLES UP TO 30HP
2 CHUCKS FOR GRINDING
BOTH PART ENDS MAINTAINS
0.01MM CONCENTRICITY

Peel & Plunge Grinder

- PPG-250 & PPG-500

PPG

GRIND BETWEEN CENTERS
HSS, CARBIDE & STAINLESS
BLANKS GROUND TO
HIGH TOLERANCE



ROTARYSERIES

Rotary Transfer Grinder - Multi Station

COMPLETE PRODUCTION OF TOOLS & PARTS IN UP TO 5 STATIONS!

- For Automotive, Aerospace, Cutting Tool & Medical Industries
- RTG Mini (Production of small tools)
- RTG-3/2 & RTG-3/3 (Index Table with 3 Collets)
- RTG-6/3, RTG-6/4 & RTG-6/5 (Index Table with 6 Collets)



THREADSERIES

UP TO 5 CNC AXES WITH MOTORSPINDLES UP TO 20HP

- **Taps:** Thread and Chamfer in the same clamping
- **Thread Gages & Form Taps**
- **Bone Screws**
- **Thread Rolls** with up to 400 starts
- **General Thread Grinding** with or without relief
- **Multi-rib or Single-rib Grinding**



FILTRATIONSYSTEMS

- AFS-8-200 Coolant Filtration System
- Cleaning rate per filter dome 200-300 l/min (53-80gpm)
- Up to 50 bar (800 psi) coolant pressure
- Large Oil Reservoir up to 2000 liters (530 gallons)
- Stand-Alone Sludge Drying Unit
- Integrated Sludge Dryer to Recycle & Prolong Oil Usage

Advanced 5µ Filtration



High Precision & High Production Grinding



International Tool Machines

**5 Industry Drive
Palm Coast, Florida 32137 USA**

info@itmfl.com

www.itmfl.com

Tel.: (+1) 386-446-0500 Fax: (+1) 386-445-5700