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INTERNATIONAL TOOL MACHINES

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Your First Choice for High Precision & High Production Grinding



ITM's UFGG

Universal Flute/Gunnose Grinder

*Customer: Sandvik Sweden,
Germany & Asia*

- Relief Grinding with up to 15 strokes per second
- For Standard Inch and Metric Taps
- Diameters from 1/8" to 2"
- Special high helix left and right hand Taps
- Highly rigid machine body with vibration damping to produce top quality surface finish
- CNC Flute form generation with FANUC CNC & 2 Axis Interpolation Dresser
- 150+ UFGG running worldwide

ITM holds over 30 patented machine designs.



UFGG: Displayed with automatic loader



The ITM UFGG is a Flute Grinding Machine for taps or similar parts with an optional automatic part loading system. With five CNC controlled axes, setup time is fast (usually 10 minutes or less), making the machine economical for both large or small production runs.

This machine can be set-up to grind straight flutes, straight flutes and gun point, or spiral flutes in one clamping.

Other features include fully automatic grinding of Taps form 1/8" to 1" with ITM's automatic loader, grinding of Taps up to 2" with handloading. ITM's heavy grinding spindle (120mm) enables for grinding with multiple rib and single rib wheels for thread grinding and chamfer grinding with a second grinding wheel. The wheels will be dressed in the machine by a hydraulic or electric diamond roll dresser.

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

ITM Machines are designed for 24 hour Production...7 days a week!

ITM FLUTE GRINDERS

Universal Flute Grinders (UFG-12, UFG-25 & UFG-50)

- *CNC Wheel Head Angle Flute*
-90° to +52°
- *Water-cooled direct drive Motor-spindles, 50HP, 20HP, 10HP with HSK quick change flanges*
- *Diameters from 1/32" to 2"*
(see model number)
- *Inch/Metric switchable*

UFG-25: Displayed with automatic loader



Precision vs. Mass Production

One of the age-long problems with mass production has to do with how machines maintain nano-precision accuracy under un-manned operations. Recently, engineers at ITM undertook this proposition and initiated two weeks of testing on the PPG-500 Peel/Plunge Grinding System and UFG-25 Flute Grinding System. Together with technology partner Renishaw U.K., ITM calibrated both machines with laser interferometer to meet the highest accuracy standards. ITM mass production grinders are capable of meeting the recognized standards such as ISO230-2, ANSIB5.54, VDI 3441, VDI2617, and JIS-B6330.

Engineering experiments were performed to optimize linear position, angular accuracy (pitch, roll and yaw), straightness, parallelism, flatness, as well as thermal drift of axis drives under dynamic behaviors.

Following are the test results:

Machine	Tool Type	Tool Size	Flute Len.	No. Flutes	Core Dia.	Land Wid.	Rake	Feed	Flute Time	Dress Time	Total Time
UFG-25	Reamer	.357"x7"	1.75"	6 Straight	.228"	0.041"	3.0 Deg.	86"/min	27.5 sec.	12.5 sec.	40 sec.
UFG-25	Reamer	.500"x8"	2.00"	6 R.H.	.301"	0.051"	2.1 Deg.	63"/min	44.0 sec.	12.0 sec.	56 sec.
UFG-25	Reamer	.875"x10"	2.675"	8 Straight	.589"	0.081"	2.5 Deg.	63"/min	104.9 sec.	13.0 sec.	118 sec.
UFG-25	Reamer	1.375"x12"	3.25"	12 Straight	1.029"	0.083"	2.8 Deg.	63"/min	289.1 sec.	13.0 sec.	302 sec.

Machine	Tool Type	Tool Characteristics and Grinding Performance	Runout	Total Time
PPG-500	Carbide Blank	Two steps: OD (1) 11.2mm (71mm long), OD (2) 17.2mm (35mm long)	<3 micron	81 sec.
PPG-500	Carbide Drill Blank	OD 16.5mm, OAL 211mm, (2 rough and 1 finish passes)	<3 micron	142 sec.
PPG-500	Carbide Drill Blank	OD 12mm, OAL 164mm, Finish OD 10mm (2 rough and 1 finish passes)	<3 micron	177 sec.

ITM calibrated machines with laser interferometer to meet the highest accuracy standards..



For more information on ITM machines, please visit us at www.itmfl.com