

Tool Test

Cutting conditions:

Material: AISI 4142 pre heat treated Rc 35 - 40
Cutting parameters:
Cutter Ø 1.000
of teeth 3
Depth of cut .100
Radial engagement .720
Surface feet per minute (SFM) 430
Revolutions' per minute (RPM) 1643
Feed per tooth (IPT) .005
Feed per Revolutions (FPR) .015
Volume of metal removal per cut cycle 11.679 Cu in

Tool Data (New, Two identical):

Tool holder Kennametal CV40EM100400 MM#1025946
Kennametal Insertable End Mill KIPR100AN162304C MM#1279131
Inserts ANGT16232PPER3LG Grade 725M MM#1112575

Retention Knobs:

Tool #7 J&M Machine JM31226HT High Torque Retention Knob Tool #8 Command RC4E-0002 Standard Retention Knob
Each knob torqued to 60 ft/lbs.
Observed movement on Taper Test Fixture (axial movement): Tool #7 ½ line (.00005)
Tool #8 10 lines (.001)

Machine Data:

Mazak V-10 15HP (special 6000 RPM geared spindle)
Cat 40 spindle
Year 1987
New rebuild on Bellville Washers 2250 Lbs pull force

Results:

See File Tool Test #1 02-16-2011.xlsx

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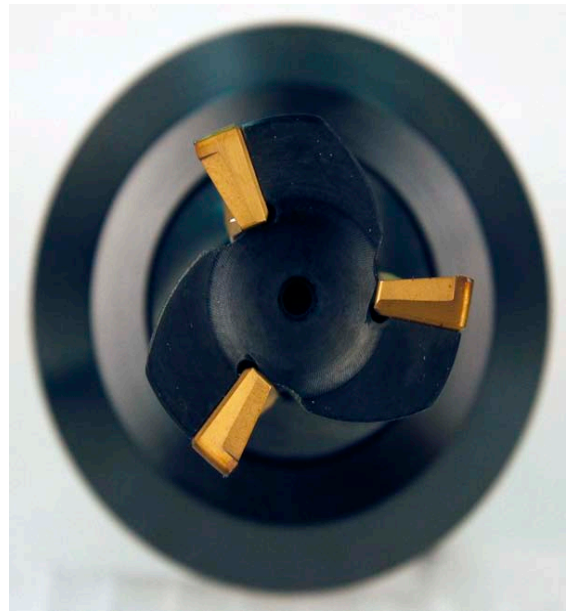
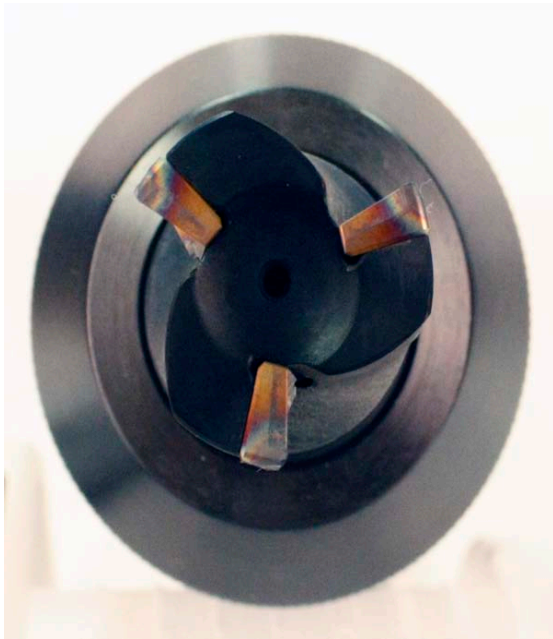
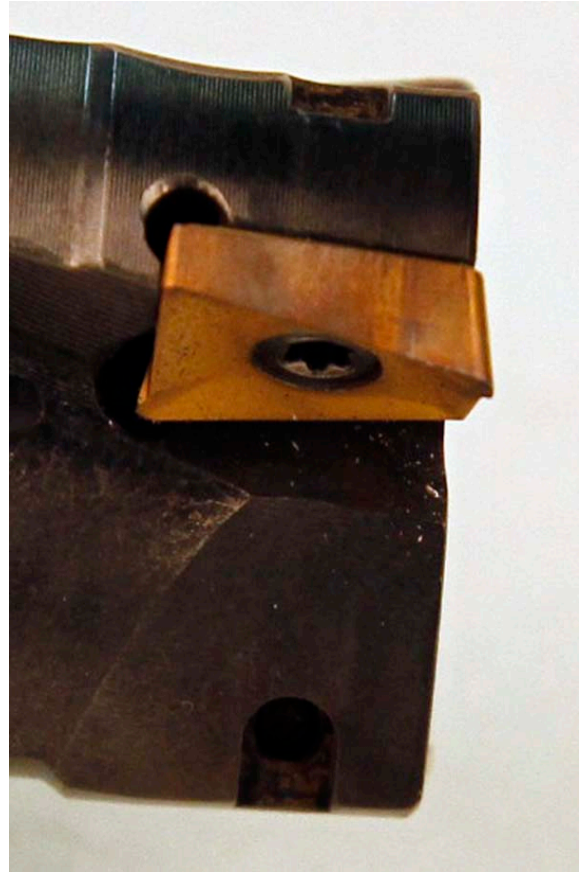
Parties: J&M Machine, Inc. and Logisync Inc

Pass Number	Tool Number	Retention Knob Description	Supplier	Retention Knob Part Number	Spindle Load %	Z Axis Counter Balance Load	Observed Sound Level (dB)	Insert and Notable Observations
(1) Material removed 11.679 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	30	19	90 - 93	No wear
	#8	Standard Retention Knob	Command	RC4E-0002	32	21	92 - 94	No wear
(2) Material removed 23.358 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	30	19	91 - 94	No wear
	#8	Standard Retention Knob	Command	RC4E-0002	32	21	93 - 95	No Wear
(3) Material removed 35.037 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	30	19	92 - 94	No Wear
	#8	Standard Retention Knob	Command	RC4E-0002	32	21	93 - 95	No Wear
(4) Material removed 46.716 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	30	19	92 - 94	No Wear
	#8	Standard Retention Knob	Command	RC4E-0002	32	21	93 - 95	No Wear
(5) Material removed 58.395 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	30	19	92 - 94	No Wear
	#8	Standard Retention Knob	Command	RC4E-0002	32	21	93 - 95	Some Edge Chipping
(6) Material removed 70.074 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	30	19	91 - 94	Slight Wear
	#8	Standard Retention Knob	Command	RC4E-0002	32	23	94 - 96	Stopped After 6th Pass Beginning to Fail. Heavy Edge deformation
(7) Material removed 81.756 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	29 - 30	19 - 20	92 - 94	Slight Wear
	#8	Standard Retention Knob	Command	RC4E-0002	36	14 - 25*	90 - 95	Heavy And large Area Edge Deformation Extreme Spindle Rattle
(8) Material removed 93.435 Cu in	# 7	High Torque Retention Knob	J&M	JM31226HT	29 - 30	19 - 20	92 - 94	Slight Wear
	#8	Standard Retention Knob	Command	RC4E-0002	38	14 - 25*	94 - 97	Removed From Test Failure Iminent

Tool Test #1 02-16-2011

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Pass Number	Tool Number	Retention Knob Description	Supplier	Retention Knob Part Number	Spindle Load %	Z Axis Counter Balance Load	Observed Sound Level (dB)	Insert and Notable Observations
(9) Material removed 105.114 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	29 - 30	19 - 20	92 - 94	Slight Wear
(10) Material removed 116.793 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	30	19	92 - 94	Slight Wear
(11) Material removed 128.472 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	29 - 30	19 - 20	91 - 94	Slight Wear
(12) Material removed 140.151 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	29 - 30	19 - 20	91 - 94	Slight Wear
(13) Material removed 151.830 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	29 - 30	20	91 - 94	Slight Wear
(14) Material removed 163.509 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	29 - 30	19 - 20	91 - 94	Slight Wear
(15) Material removed 175.188 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	30	19 - 20	92 - 94	Slight Wear
(16) Material removed 186.867 Cu in	# 7 Removed	High Torque Retention Knob	J&M	JM31226HT	30	19 - 20	92 - 94	Slight Wear





JM PERFORMANCE PRODUCTS, INC.
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JM Performance Products, Inc.
1234 High St., Fairport Harbor, Ohio 44077
Toll Free: 800-322-7750 Fax 440-357-1129
sales@jmppinc.com www.jmperformanceproducts.com