



WINTER | 2020



**SPECIAL OFFER ENDS ~~APRIL 30~~  
EXTENDED !**

**ADAPTIVE MILLING:**  
How our customer **SAVED**  
5.5 weeks of productivity

Our team is often tasked with improving tool life while also decreasing cycle time, with the only variables being the tool and operating parameters. However, from time to time the scenario allows us to choose tooling and tool paths as well. This makes for the best-case scenario for us to really dig deep for productivity and cost savings.

**For more on this story see pg. 4**

# FEATURED PRODUCTS



## Filtermist Mist Collectors

Low Cost, Highly Efficient Mist and Smoke Collectors Designed Specifically for the Metalworking Industry



5-year warranty, 4 sizes

- Safe - Increases visibility while reducing air pollution and oil mist in shop
- Save - Returns coolant to machine, reduces heat, and better shop cleanliness
- Productive - Attract & keep talented employees with a cleaner environment
- Flexible - Can mount to top of machine tool, on stand, or suspended



**45-DAY RISK-FREE GUARANTEED PERFORMANCE TRIAL!**



## TOOL TIP!

### Right or Left-Hand Toolholders For Slant Bed Turning

Almost all slant bed turning centers allow machinists to use either right or left-hand tooling. If holding tools designed to machine in a direction toward the workholding device (Z minus), right-hand tools require an M03 (spindle forward) direction, and left-hand tools require an M04 (spindle reverse) direction.

Because right-hand version tooling is more readily available and some operations like tapping and right-hand threading must be performed with right-hand tools, most CNC users prefer them. However, your turning center's rigidity will be better with left-hand-tooling. With left-hand tools, the cutting force is thrown into the machine's bed and machining will be very stable.



## SX Collet System

Ultimate Precision Collet Chuck Designed for Drilling & Finish Milling

- 4X more accurate than ER
- 2X the driving torque of ER
- Compact designed for close clearance
- Wide Tool Diameter Range .0031"-1"
- Non-Pull out collets available for weldon flats

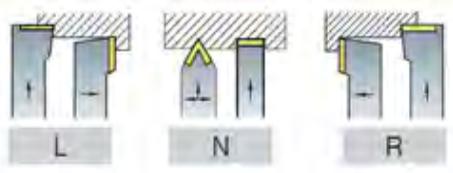
**BUY ANY HOLDER, GET A FREE COLLET OR BUY 3 HOLDERS, GET ONE FREE\***

*\*Promotions can not be combined*



On the other hand, when right-hand tools are used, the cutting force tends to pull the turret away from the machine bed, and machining is less stable.

For light duty machining, it may not matter which hand of tooling you use. But when performing heavy roughing operations, left-hand tools are better. And by the way, if you experience inconsistent sizing, using left-hand tools will improve the stability of machining.



# FEATURED PRODUCTS



## HARVI I TE



- Unmatched Feed Rates because of asymmetric divided and variable helix
- Twisted end face increases corner stability, enabling soft cutting action even at highest ramping angles
- Chip gashes within the flutes create aggressive chip evacuation



**ASK ABOUT A TEST TOOL TODAY!**



## DIAL INDICATOR & STAND KIT

### KIT CONTAINS:

#### 1 - 0-1" Dial Indicator

- .001" Graduation
- Includes limit pointers & bezel clamp

#### 1 - Universal Magnetic Stand

- 176lb & 3/8" stem
- With fine adjust

**\$149.99**



PART NUMBER:  
KIT-DIALIND/BASE



## BENCHTOP TIGHTENING FIXTURES

	BALL BEARING	TOP & SIDE MOUNT	TOP MOUNT
<b>Cat40</b>	17846B - SALE - \$166.50	17870 - SALE - \$206	17884 - SALE - \$135
<b>Cat50</b>	17785B - SALE - \$221	17872 - SALE - \$268.50	17885 - SALE - \$212.50



## EZ- LIFT LIFTING MAGNETS



Part No.	Plate	Round	List	Sale
ELM-100	220 lbs.	99 lbs.	\$328	\$209.99
ELM-300	660 lbs.	330 lbs.	\$745	\$459.99
ELM-600	1,320 lbs.	600 lbs.	\$1235	\$759.99
ELM-1000	2,200 lbs.	990 lbs.	\$1985	\$1,239.99
ELM-2000	4,400 lbs.	1,980 lbs.	\$3855	\$2,399.99
ELM-3000	6,600 lbs.	2,970 lbs.	\$5746	\$3,499.99



## NITRO SERIES

### RIGHT ANGLE DIE GRINDER

MODEL DGR31

- 1/4" collet
- 16,000 RPM
- .3 Hp

**\$109.99**



### STRAIGHT DIE GRINDER

MODEL DGS31

- 1/4" collet
- 25,000 RPM
- .3 Hp

**\$89.99**



### NITROFILE

MODEL NF1

- 18" Abrasive Belt
- Pivots 360° for work in accessible areas
- .5 Hp

**\$339.99**



## EMUGE TAPPING FLUID



PART NUMBER: FZ191900JM322

\*Also available in 5 gallon & 55-gallon

- Extreme duty for tapping & drilling
- Extends tool life, reduces cutting forces, & improves finish
- Thick like honey and pleasant odor

**\$9.99** | 16oz bottle

**\$109.99** | Case of 12



Pictured above: Left: Zack McNabb, Right: Craig Knoblock

## Adaptive Milling: True Customer Experience

Our customer ZACK MCNABB of Gulf Coast Mfg. in Houma, LA recently contacted his local QTS salesman, CRAIG KNOBLOCK, about a repetitive job that he felt could be done more efficiently, but wanted help on execution.

The job required a substantial amount of material to be milled away prior to a 3D milling operation. Gulf Coast had tried both solid carbide and indexable milling cutters. They had settled on an indexable milling cutter but still were not satisfied.

The parts were being machined from 17" diameter 4140 bar stock. Gulf Coast chose a CV50 taper Mori Seiki machining center and large 4 jaw chuck for work-holding. Initial programming with a traditional milling strategy by the customer established a 3-hour cycle time and 1 part per insert rotation. They used a 1-1/2" 4 flute indexable milling cutter at 490SFM with a .200" depth of cut at .600" step over and feed per tooth of .005". This equaled a metal removal rate of 2.93 cubic inches per min.

Assessing the situation, the machine had plenty of available horsepower, torque, and rigidity. QTS salesman CRAIG KNOBLOCK and Applications Director, JUSTIN BAHAM, determined they could increase the cutter diameter, number of flutes, depth of cut, width of cut and a grade of insert to run a higher SFM. They chose a 2" 6-flute Walter F4042 cutter using 12mm ADMT inserts in a WKP35S grade. They chose starting parameters of 650SFM, .005" feed per tooth, .375" depth of cut and a .600" width of cut. They decided to utilize the ProfitMilling® adaptive milling strategy proprietary to the Esprit® CAM package that Gulf Coast already had available to them but were unfamiliar with. This type of milling strategy allowed Gulf Coast to take deeper depths of cut using nearly the entire cutting-edge length of

**For an in-depth review of your most costly machining process by our applications team, just ask your QTS salesman!**

the insert, while never taking more than .600" in radial width of cut.

This prevents the cutter from sudden load spikes, greatly improving process reliability. QTS chose a .375" depth of cut because of the proven "1/3rd or 2/3rds" rule. This rule states that your depth of cut for an indexable milling cutter should be either less than 1/3rd, or greater than 2/3rds the length of the cutting edge. The cutting-edge length was .472" so QTS chose .375" being it was over 2/3rds and it allowed the operation to have an equal depth of cut for all Z level passes.

After the new cutter, parameters, and adaptive milling strategy, QTS achieved an initial improved metal removal rate of **8.38 cubic inches per minute** and **4 parts per insert rotation vs the initial 1**. Since the initial change, ZACK further increased the width of cut to .800" **decreasing cycle time to 1 hour** while maintaining the tool life improvements.



Walter F4042 Milling Cutter

Results were a **380% increase in productivity** and **400% increase in tool life at 11.17 cubic inches per minute** removal rate. With an estimated part count of 100 per year and a \$120 hourly rate, **this customer's documented annual savings were \$26238.50 or an additional 5-1/2 weeks of productivity.**



Since our initial testing, ZACK has further increased the width of cut to .800" decreasing their cycle time to 1 hour while maintaining the 4 parts per insert rotation tool life.

	BEFORE	AFTER
Removal Rate	2.93 cu in/min	11.17 cu in/min
Hourly Rate	\$120.00	\$120.00
Cycle Time	3Hr/16m	1Hr/1m
Insert Price	\$0.00	\$19.62
Tooling Cost Per Part	\$0.00	\$15.12
Insert Index Time Per Part	5m	2m
Machining Cost Per Part	\$402.00	\$124.50
Total Cost Per Part	\$402.00	\$139.62
Machining Cost Annually	\$40,200.00	\$13,961.50
<b>Annual Cost Savings</b>	<b>\$26,238.50</b>	

\*Calculations based on customer receiving competitors inserts for FREE