



at the

Leading Edge

of cutting tool technology



PRECISION TOOL COMPANY, INC.

PRODUCTS/ SERVICES Custom manufacturing of high-precision, close tolerance carbide and high-speed steel cutting tools
Regrinding, rebuilding, retipping, and alteration services are available for salvaging existing tooling
Production Blanchard surface grinding of single and parallel faced parts to close tolerances

PLANT Modern, single story 20,000 square foot facility
Strategically located in Muskegon, Michigan on the East shore of Lake Michigan

PEOPLE Highly skilled, non-union employees with over 400 cumulative years of tool-making experience

CUSTOMERS Serving aircraft/aerospace, automotive, heavy-duty trucking, military, furniture, construction, medical and many other industries including both first and second tier OEM and MRO accounts
Capabilities to serve industrial machine, screw machine, die cast, and spring forming manufacturers

EQUIPMENT CNC: State-of-the-art Walter 5-axis CNC Cutter Grinders, Tru-Tech Revolution CNC Centerless Grinder, CNC Mills, CNC Lathes
CONVENTIONAL: Surface Grinders, Drill Point Grinders, Honing, Welding, Brazing, and Heat Treat Capabilities
Qualified outside sources used for special heat treating, hardening and all types of coating

DESIGN Walter Cybergrind and Tool Studio design software interfaces with CNC Cutter Grinders
Qualified tool design department capable of original tool development and problem solving
Able to work with AutoCAD DXF formats utilizing PC based AutoCAD LT platform
Documentation of existing/old tooling from samples, prints, sketches, etc.

QUALITY Quality systems and employee training compliant with automotive QS/ISO 9000 requirements and aircraft NAS standards
SPC procedures used on volume runs
Received numerous awards and recognition for quality, delivery and service from major customers

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ABOUT PRECISION TOOL CO.



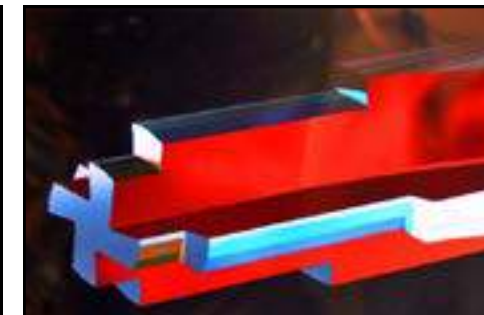
Our modern 20,000 square foot facility, strategically located in Muskegon, Michigan to serve major markets in the Midwest and the U.S.

HISTORY

Precision Tool Company's origins began in 1935 when the local machining industry needed specialized cutting tools made from high speed steels. William Reck Sr. watched the then recent development of the German "Widia" material, tungsten carbide, but patents and licensing arrangements prevented its availability for public use. By 1940, *Carboloy* reached his hands through a customer for experimentation, with great success in brazed tip cutting tool construction. In 1942, Mr. Reck established Precision Tool Company specifically to serve the growing demands for custom carbide-tipped cutting tools. World War II dramatically increased the need for specialized carbide tooling, leading to the construction of a 1,500 square foot building to house the then flourishing business. Through the following post-war depression years, PTC weathered the lean as well as boom years, while maintaining a reputation for exceptional quality, service and value to its customers. Today, you can see our expanded capabilities in this brochure.



State-of-the-Art CNC Grinding



CAD/CAM Capabilities



CNC Centerless Grinding

SERVICE

JUST-IN-TIME IS A FREQUENTLY OVERUSED PHRASE, BUT WE AT PRECISION TOOL HAVE MADE THAT OUR MOTTO FOR THE PAST 70 YEARS. PROMPT TURN-AROUND IS OUR WAY OF SAYING 'THANK-YOU' FOR MUCH APPRECIATED BUSINESS. OUR CUSTOMERS ALWAYS DESERVE OUR HIGHEST CARE AND ATTENTION. OUR HIGHLY TRAINED, EXPERIENCED, AND FRIENDLY CUSTOMER SERVICE/SUPPORT STAFF COMBINED WITH OUR SKILLED TOOLMAKERS AND CNC PROGRAMMERS ARE ALWAYS AT YOUR SERVICE.

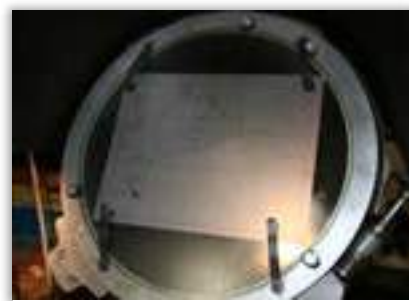
QUALITY



All tools are laser etched with our PTC initials, production control number, and customer tool number or drawing number, as applicable, for easy identification and lot control.



SPC techniques are used for volume runs and 100% inspection for short runs. ISO & QS 9000 compliant systems and procedures are followed.



Inspection fixtures, gauges and measurement equipment are used to assure precise manufacturing. CAD layouts are performed to confirm design dimensions.

VALUE



Extreme care is given to proper packaging, handling instructions, safety labeling, and documentation for each shipment.



Appearance - Not all tooling is created equal. Check out our finish on non-cutting surfaces. We take great pride on both new and reworked tools.

CNC CUTTER GRINDING

REPEATABILITY

PERFORMANCE

VALUE

- STATE-OF-THE-ART WALTER HELITRONIC 5-AXIS CUTTER GRINDERS
- HIGHLY EXPERIENCED, FACTORY-TRAINED PERSONNEL
- LATEST SOFTWARE FOR SPIRAL OR STRAIGHT FLUTES, TAPERED OR STRAIGHT FORMS, PROFILING, AND AUTHORIZED REGRIND FOR SPECIALIZED DRILL POINT GEOMETRY, INCLUDING GUHRING, SANDVIK, SUMITOMO, KENNAMETAL DYNA—POINT, HERTEL, AND OTHERS



CAPABILITIES INCLUDE THE FOLLOWING IN SOLID CARBIDE, CARBIDE TIPPED, AND H.S.S:

CYLINDRICAL CUTTERS

TAPERED HELICAL CUTTERS

DRILLS AND STEP DRILLS

STEPPED TOOLING

SIDE AND FACE MILLING CUTTERS

WOOD WORKING TOOLS

PROFILE TOOLS

CREST CUT TOOLS

REAMERS



CNC CENTERLESS GRINDING

CONSISTENCY

RAPID RESPONSE

CLOSE TOLERANCES

TRU TECH SYSTEMS O. D. GRINDERS - CARBIDE & TOOL STEELS

- ◆ DIAMETER, CONCENTRICITY AND STRAIGHTNESS TO .0001" OR LESS
- ◆ CAPABLE TO #2 MICRO-INCH FINISH

STATE OF THE ART TRU TECH 3-AXIS CNC TAPER / PLUNGE / FORM GRINDERS

- ◆ SPECIAL RADIUS, CHAMFERS, FORMS, STEPS, TAPERS & BACKTAPER



CUSTOM GRINDING OF BLANKS FOR:

- ◆ CYLINDRICAL CUTTERS
- ◆ TAPERED HELICAL CUTTERS
- ◆ DRILLS AND STEP DRILLS
- ◆ ROTARY FORM TOOLS
- ◆ STEPPED TOOLING
- ◆ PROFILE TOOLS
- ◆ BURNISHING TOOLS
- ◆ END MILLS
- ◆ REAMERS
- ◆ PUNCHES
- ◆ CORE PINS

- ◆ QUICK TURNAROUND
- ◆ COMPETITIVE PRICING
- ◆ SUPERB QUALITY



AIRCRAFT SPECIALIZED TOOLING



Solid Carbide Dagger Drills for Composites

MEETING ALL AIRCRAFT STANDARDS SUCH AS NAS897, NAS907 AND NAS965 FOR HSS CHUCKING REAMERS, DRILLS AND THREADED SHANK HSS AND HSCO DRILLS. SUPPLIER TO END-USERS SUCH AS BOEING, GRUMMAN, GENERAL DYNAMICS, GULFSTREAM, LOCKHEED AND OTHER AIRCRAFT AND AEROSPACE CUSTOMERS

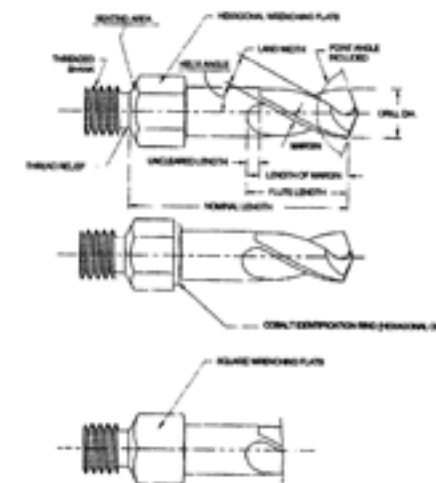
- SOLID CARBIDE
- CARBIDE - TIPPED
- HSS & HSCO STEELS

CUSTOM PRODUCTION AND DESIGN OF SPECIALIZED DRILLS, STEP DRILLS, ROUTERS, REAMERS AND FORM TOOLS FOR PRODUCTION AND REPAIR KITTING APPLICATIONS



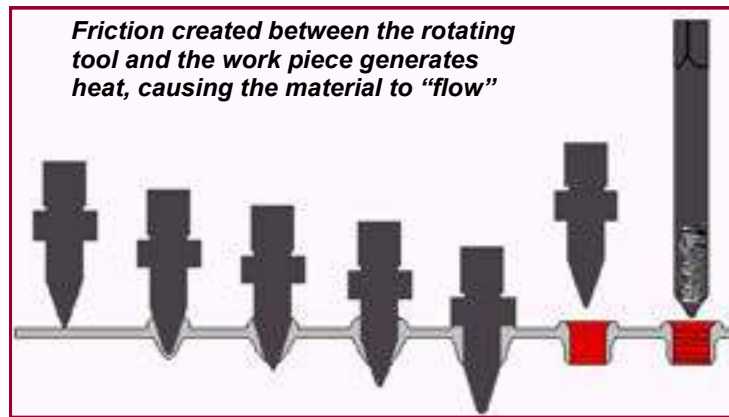
Threaded Shank Drills/Reamers

NAS 965 - HSS & HSCO THREADED SHANKS



HSS 6-Flute Piloted Finish Reamer, #2 MT shank, 12" OAL Diameter 1.2498" + .0002, - .0000" tolerance with TiN Coating

THERMAL DRILLING



CUSTOM FRICTION DRILLS ARE MADE TO CUSTOMER SPECIFICATION. SPECIAL GEOMETRIES AND SURFACE GRINDS ARE NO PROBLEM USING STATE-OF-THE-ART CNC GRINDING EQUIPMENT. SHANK VARIATIONS TO SUIT YOUR SPECIFIC NEEDS.



EXPANDER DRILLS



EXAMPLE OF FLOW DRILLING OF NATURAL GAS PIPE FOLLOWED BY FORM TAPPING - CHIPLESS!



FRICTION DRILLS



SPECIAL MICROGRAIN CARBIDE YIELDS GREATER TOOL LIFE, LOWERING COST PER HOLE.



DOUBLE-ENDED FRICTION DRILLS WITH LARGE SHANK

DRILLS



- **SOLID CARBIDE**
- **CARBIDE TIPPED**
- **HIGH SPEED STEEL**



- **RESHARPENING**
- **RETIPPING**
- **ALTERATION**
- **SPECIALIZED POINTS***

**AUTHORIZED CNC REGRIND FOR GUHRING, SANDVIK, SUMITOMO, KENAMETAL DYNA-POINT, HERTEL, WINSLOW, BICKFORD, RACON AND MORE.*

- **STEP DRILLS**
- **SUBLAND DRILLS**
- **COOLANT FEED**
- **BOX DRILLS**
- **CENTER DRILLS**
- **GUN DRILLS**



END MILLS & REAMERS

CUSTOM PRODUCTION AND DESIGN OF SPECIALIZED ROUGHING AND FINISHING TOOLS FOR STEELS, ALUMINUM & COPPER ALLOYS



High Speed Steel Roughing Mill

- SOLID CARBIDE
- CARBIDE TIPPED
- HIGH SPEED STEEL



Solid Carbide Special Geometry End Mill

- RESHARPENING
- RETIPPING
- ALTERATION
- SPECIALIZED GEOMETRY



Solid Carbide Form End Mill



Solid Carbide Reamer with Coolant Thru



Solid Carbide Reamer with Coolant Thru

MILLING CUTTERS

CUSTOM PRODUCTION , DESIGN, RESHARPENING, AND ALTERATION OF MILLING CUTTERS AND INSERTABLE BLADE TOOL HOLDERS



HSS Specialized Form Milling Cutter

- SOLID CARBIDE
- CARBIDE TIPPED
- HIGH SPEED STEEL



Indexable Carbide Insert Special Milling

- CUSTOM BUILD & DESIGN
- RESHARPENING
- RETIPPING
- ALTERATION



Carbide Tipped Milling Cutters Retip and Resharpen



Solid Carbide Milling Cutters

ROTARY TOOLS



Solid Carbide Christmas Tree Cutters

- FABRICATE NEW TOOLS TO PRINT
- ALTER EXISTING TOOLS
- REBUILD OR RETIP WORN TOOLS
- DESIGN ASSISTANCE



Carbide Tipped Combination Counterbore, Chamfer & Spot Facing Tool



Solid Carbide Multi-Step Porting Tool, Anti-Lock Brakes



Carbide Seating Reamer for Brass Regulators



Solid Carbide I.D. Recess Form and Groove Tooling



Carbide Tipped Multiple Step Finish Ream and Facing Tool

RECESS TOOLS

SPECIALTY TOOLING FOR SMALL HOLE BORING

- SOLID CARBIDE
- CARBIDE TIPPED
- HIGH SPEED STEEL



ROTARY STYLE - INTERNAL GROOVING WITH COMPLEX FORMS FOR PRECISE ACCURACY AND SPEED



FLAT STYLE - INTERNAL GROOVING WITH TIGHT TOLERANCES AND HIGH PRECISION



WEAR PARTS



MANDRELS



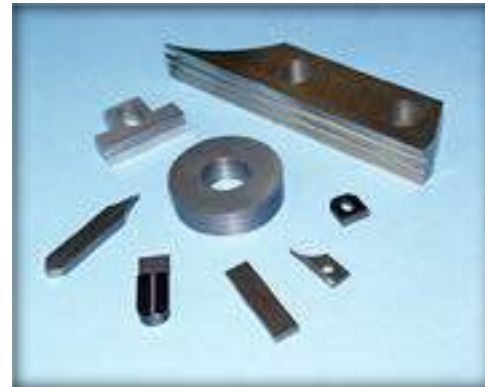
FORMING DIES



CENTERS



SUCTION ROLLS



COILING POINTS
ARBORS
GUIDES



SCRAPERS

CORE PINS

SERVICING THE ALUMINUM, MAGNESIUM, AND ZINC DIECAST INDUSTRIES



COMPLEX OR SIMPLE DESIGNS



QUICK RESPONSE

10 DAY TURNAROUND FOR ALTERATION OF STANDARD PINS

SINGLE POINT TOOLS



BORING
TURNING
CUT-OFF
GROOVING
CHAMFERING



LET OUR CAD DESIGN AND
PROBLEM-SOLVING SKILLS WORK
FOR YOU TO IMPROVE TOOL LIFE
AND CUTTING PERFORMANCE!

FORM TOOLS



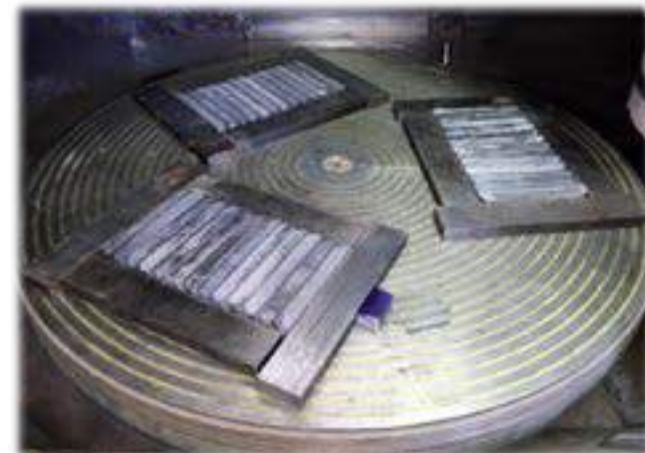
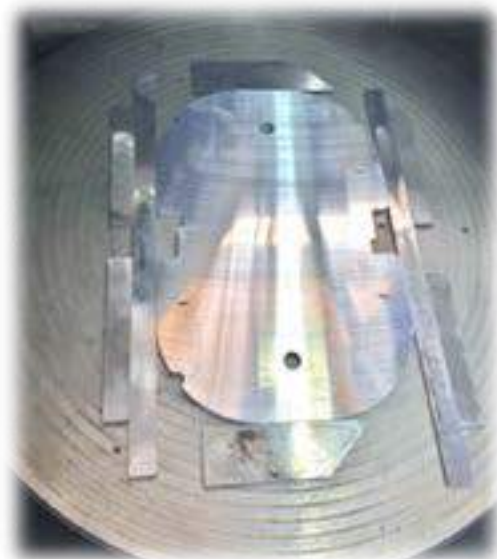
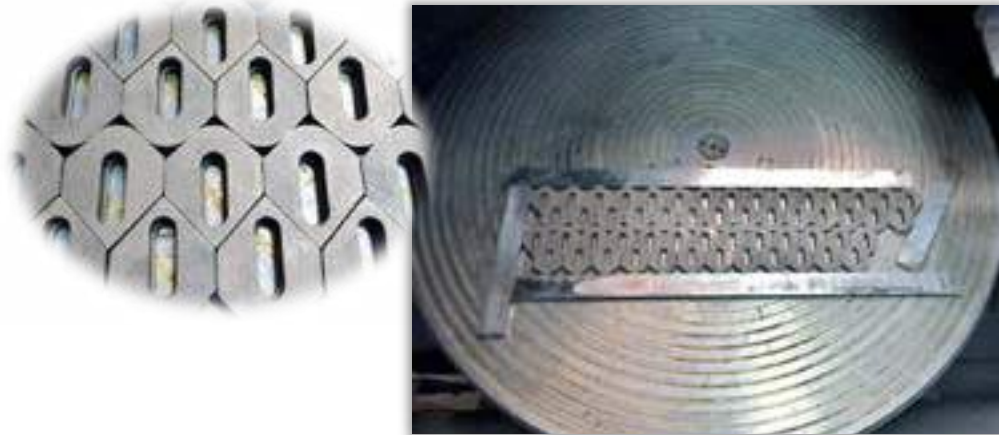
SPECIAL FORM TOOLS CUSTOM BUILT TO
PRECISE CUSTOMER SPECIFICATIONS IN
BOTH FLAT AND DOVETAIL CONFIGURATIONS

BLANCHARD GRINDING

BLANCHARD NO. 18
36-INCH MAGNETIC CHUCK



Production surface grinding of single and double-sided parallel faced parts to extremely close tolerances



REGRIND DULL TOOLS

Why buy new, when we can regrind tools multiple times?

Restore dull tools to like-new condition at significant cost savings.



End Mills – Flat, Radius or Ball Nose



Milling Cutters - Slot Cutters



Drills - Std, Hi-Performance, Step, Gun

- USING STATE-OF-THE-ART WALTER HELITRONIC 5-AXIS CNC CUTTER GRINDERS
- LATEST SOFTWARE FOR DUPLICATING ORIGINAL TOOL CUTTING GEOMETRY
- HIGHLY EXPERIENCED, FACTORY-TRAINED PERSONNEL
- SPECIAL SERVICES PROVIDED:
 - ◆ PICK UP / DELIVERY
 - ◆ SORT & COUNT WITH “NO OBLIGATION” COMPETITIVE QUOTE
 - ◆ RETURN OF “BEYOND REPAIR” OR “NOT COST-EFFECTIVE” TOOLS

