





**HI-FEED FINISH FACE MILL** 

- Ø2.000" Ø8.000" cutter diameter range
- Inserts stepped both axially and radially
  - No wiper run-out
  - Very efficient and stable chip formation
  - Capable of 4µ" Ra at high feed-rates
- Balanced cutter bodies
- Long crowned wiper minimizes mismatch
- High-shear insert geometries





#### **60 DEGREE LEAD, WEDGE-HELD, FACE MILL FAMILY**

• Ø4.000" - Ø14.000" cutter diameter range

Ideally suited to deep depths of cut across all material types

- Maximum .475" depth of cut
- Heavy-duty COMPANY insert for massive chip-loads thru scale and interruptions
  Multi-purpose "high-shear" insert for smooth chip formation in hi-temps and stainless











#### **OUR HIGHEST POSITIVE MILLING INSERT GEOMETRY POWERED BY BOMT INSERTS!**

- 2X positive rake and 2X face clearance when compared to APKT: For higher efficiency, less heat and more aggressive ramping
- Ø.500" Ø8.000" cutter diameter range
- R.015" .250" insert corner offering
- Max DOC's: BOMT09 at .35": BOMT13 at .47": BOMT17 at .63"
- 32-63 Ra surface finishes when using integrated wiper
- Cutters ported with coolant-thru







PCD Tip







**Chip Splitter** 

**Polished for Aluminum** 

**Heavy Duty** 





## GOLD OTRIO 06, 10, 13

### **3-EDGED GOLD-TRIO INSERTS PRICED** LIKE 2-EDGED HI-POS = ONE FREE EDGE!

- Superb general purpose 90° mills that blend performance & economy
- Ø.625" Ø6.000" cutter diameter range
- R.015" .125" insert corner offering
- Max DOC's: THLS06 at .27"; THLS10 at .41"; THLS13 at .57"
- 32-63 Ra surface finishes when using integrated wiper
- Cutters ported with coolant-thru

Multi-Purpose

SS/Hi-Temp/Ti





**Polished for Aluminum** 







#### INDUSTRY'S EASIEST LOADING 5mm INSERT WITH NO STRESS ON THE SCREW!

- Ideal for live spindles on lathes, swiss machines and small machine centers
- Modular design with Solid-ER-Shank promotes blend of quick-change and rigidity
- Double-dovetail pocket promotes easy insert indexing Insert clamps in pocket while affixing the screw
- · Double-dovetail pocket clamps the insert in place such that cutting forces do not stress the insert screw
- 32-63 Ra surface finishes when using integrated wiper
- Ø.500" Ø2.000" cutter diameter range
- R.008"-.031" insert corner options





#### SMALL DIAMETER INDEXABLE END MILLS WITH 4-EDGE ECONOMY...A GREAT SOLID CARBIDE ALTERNATIVE!

- 90° shoulder mills & backdraft finishing cutter design styles
- Unique insert & pocket design with wide seating surface for utmost cutting edge support and durability
- Concave face design accommodates aggressive ramp, corkscrew, and drill-mill functions
- Diverse adaption selection designed to accommodate any machine setup....including knee mills
- Ø.625" Ø2.000" cutter diameter range with .24" max. depth of cut
- R.015"-.062" insert corner options









### CONTOURING DISC SLOTTER

- Excellent options for internal and external contour milling!
- Radial drive, axial drive and modular (M20 connection) cutter bodies
- 8mm, 10mm, 12mm IC button inserts
- Well-designed insert geometries & premium milling grades
- Available with integral (M20) CAT40, CAT50 and cylindrical shanks
- Anti-rotating insert clamping (excluding 8mm insert)
- Ultra-reliable machining performance!





**Polished for Aluminum** 





#### **CERAMIC BUTTON CUTTERS**

- Ideal for high temperature alloy machining!
- .500" IC ceramic button, single & double sided inserts
- Interchangeable clamping system accommodates dimple or flat rake face style inserts
- Grades IN72N & New TC3030
- Face mill & end mill cutter bodies
- 1.25, 1.50, 2.00, 2.50 & 3.00 inch diameter cutters





### M20 Modular Connection

- M20 connection offers excellent rigidity and strength
- Milling flexibility and increased performance for long reach application
- Standard CAT40, CAT50, HSK and straight shank holders
- Special holders available upon request
- Stock standard M20 Top-On cutters for slotting, hi-feed and contouring applications





#### 13mm IC INSERT FOR HI-FEED MILLING UP TO 2mm MAX. DEPTH OF CUT

- True radius style hi-feed performance, exceptionally strong!
- Available in end mill, modular head and face mill type
- Double-sided insert technology, offering 6 cutting edges for great economy!
- Unique insert seating design provides excellent stability in the cut
- Thicker insert and larger M5 insert screw offer increased strength
- High rake chip former for smooth, free cutting, shearing action during machining
- Three cutting edge styles for application flexibility
- Premium insert grades
- Through coolant cutter bodies





#### 9mm IC INSERT FOR HI-FEED MILLING APPLICATIONS

- True radius style hi-feed performance, exceptionally strong!
- Available in end mill, modular head and face mill type
- High-density cutters equals faster feed rates!
- •.060" (1.5mm) DOC capability for increased productivity
- 4 indexes for cost-effective machining
- Strong positive insert rake face angles for efficient milling.
- Through coolant cutter bodies
- Rigid clamping with unique pocket design & high tensile clamping screw, M3.5











## MILL WITH COOLANT

### DELIVERED PRECISELY AT THE CUTTING EDGE

- Precision Chip-Surfer Thrust Cool shanks direct coolant parallel to the shaft for optimal chip evacuation
- "Thrust Cool" design promotes effective cooling of the carbide cutting edges
- "Thrust Cool" design promotes utmost core strength integrity
- Durable & economical; made of steel



### SOLID CARBIDE MODULAR HI-FEED TIPS WITH POSITIVE AND NEUTRAL GEOMETRY

- Hi-Feed geometry for roughing near net shapes
- Well suited for roughing small pockets, contouring irregular forms and picking out corners
- Shallow depth of cut strategy accommodates very aggressive feed rates... 3x-6x that of a ball nose
- Ideal for long reach applications
- Coolant through options





#### TAPER FORM TIPS FINISH 3X FASTER THAN A BALL NOSE... AND WITH IMPROVED SURFACE QUALITY!

- · Ideal for finish milling blisks, impellers & turbine rotors using multi-axis machines
- Large crowned cutting edge (barrel geometry) offers 3X cutting length when compared to ball nose
- Radius blends ensure minimum scallop height for utmost finish
- Precision cutting edge profile tolerance of +/-.0004"
- Tips repeat on and off the shank within +/-.0005"
- Sharp & polished tips for aluminum and non-ferrous materials
- Coated tips for Aerospace and Die-Mold materials







#### VARIABLE PITCH END MILL TIPS: FIVE-FLUTE FRENZY FOR AERO-CENTRIC MATERIALS

- Unique edge and coating ideally suited for stainless steels, hi-temp alloys & titanium
- 5 unequally-spaced flutes disrupt harmonics to promote a vibration-free roughing environment
- 25% higher feed rates compared to standard 4-flute end mills
- Creates smoothest possible blends when stepping down
- Ø.750" Ø1.000" diameter range









#### DOVETAIL WITH POSITIVE-RAKE-ANGULAR ADVANTAGE AND SIX FLUTE PRODUCTIVITY PERFORMANCE

- Ideal for aerospace fixturing and pocket undercutting.
- 200% feed rate benefit when compared to indexable versions.
- At least 3x tool life increase when compared to indexable versions.





#### CORNER ROUND TIPS: BRILLIANT CORNERING PRODUCES BEAUTIFUL CURVES

- · 4-degree flares off the radius form promote smooth blends with no mismatch lines
- Ideal for finish work of aerospace materials and eliminates the need for filing!
- 200% feed rate acceleration with 4 flutes.





.187'

9

TJS GJET ER32 N 373599061

Max.40 bi

RI

POWEROROUNDS

• Ø .125" - .187" with .250" shank

• Ø 3-5mm with 6mm shank

• 4-Flute square end



### HIGH SPEED COOLANT-DRIVEN SPINDLES - 35K-55K RPM!

- Plug & Play! No wires, machine modifications or pre-installation required.
- Maximize productivity, prolong tool life, reduce cycle time & improve surface quality
- Compatible with milling centers, turn/mills and lathes,
- Wide range of tool diameter capability, from 0.5-5.0mm (.020"-.197")
- GreenJet spindles suitable for machines with 290 580 psi
- HPC spindles suitable for machines with 580 1000 psi
- New 3 bearing system reduces radial force overload & spindle wear
- CAT, ER32, BT, HSK, C-Adapter (ISO 26623-1) & straight shank connections
- Real time wireless speed monitoring



#### PROGROUNDS

- 2-Flute and 4-Flute ball nose
- Ø 3-5mm with 6mm shank
- Ø .125" .187" with .250" shank





#### CHIPOSURFER"

- Modular ER11 Shanks and Carbide Tips
- Solid ER11 shanks more rigid than spring ER collets
- Tip options include square end, ball nose, engravers and drills
- •Ø.062" .250"







#### **INDEXABLE STRAIGHT THREAD MILLS**

- New design for all inserts and toolholders
- Additional thread forms now available
- Nickel-plated holders provide resistance to corrosion/abrasion
- Easy-to-decipher nomenclature



#### A FAMILY OF 3-EDGED INDEXABLE DEEP HOLE DRILLS

- Expanded diameter range .551" (14 mm) to 1.102" (28 mm) for MC and GD styles
- TPHT series of inserts with 3 full cutting edges, chip-splitter and positive geometry for all 3 families

#### DEEPOTRIOMC

- · Conventional style drill for lathes or mills
- Standard and cross-hole style
- Lengths 10xD, 15xD and 25xD
- Ø.551 Ø1.102" diameter range

#### DEEPOTRIO

- Gundrill style drill
- Standard and cross-hole style
- Lengths up to 94.488" OAL
- Ø.551 Ø1.102" diameter range
- 60", 72" and 90" lengths in stock

#### DEEPOTRIO

• BTA drilling head available for STS & DTS

• Ø.630" - Ø1.102" diameter range



#### TRE DIGITAL FINE BORING HEADS

- New TRE32 and TRE40 for diameters as small as 1.337"
- .0001"/.002mm adjustability
- Digital display...direct measuring of slide movement
- Coolant-thru
- Minimal backlash compensation
- IP67 rated for dust and coolant protection



#### PSC LINE (ISO 26623-1/-2)

- Integral fine boring heads (TRM & TRE) now with PSC (ISO 26623-1/-2) connection
- Compatible with existing competitive boring systems
- Connection range of C4 C8
- Kits also available







#### COOLANT THROUGH HOLDERS FOR ISO TURNING INSERTS

• Very stable, multidirectional clamping system

- User-friendly, single-screw clamping motion
- Rigid design allows higher feed rates and cutting depths compared to most coolant through holders
- Two coolant exit holes
  - Coolant through the clamp provides pinpoint coolant directly to the cutting tip/edge
  - Coolant under the clamp provides excellent chip evacuation
- Standard holders for CNMG43x and WNMG43x inserts
- •.750", 1.000" & 1.250", right and left hand holders
- Flexible high pressure steel hoses and fittings also available



· Ingersoll

• Ingersoll



### **TT7025 GRADE ADDITION FOR CAST IRON TURNING**

- Optimal solution for low speed, interrupted cuts in cast iron
- Ideal substrate/coating combination for ductile iron
- Multi-colored appearance for easy identification of insert wear
- Post-coat Gold-Rush treatment for edge stability and reduced build up
- Complements Ingersoll's existing line of Black-Rush grades











#### **ANTI-VIBRATION BORING BARS WITH EXCHANGEABLE HEADS**

- Features a built-in dampening system that absorbs vibrations
- Up to 10xD boring depth capability.
- Exchangeable heads for CCMT, DCMT, VBMT, & Rhino Turn DNMG inserts
- Coolant through the tool directed to the cutting edge
- Shank diameters from 16mm 60mm
- Exponential improvement in surface finish and tool life







#### HOLDERS FOR SWISS APPLICATIONS

- Double-sided inserts!
- Now available for CNMG, DNMG, VNMX & YNMG inserts
- H-Type holders provide convenient, fast insert changes
- · Hook Lever design provides very stable, multi-directional clamping
- Thicker inserts provide heat dissipation through a wider cross section for longer tool life



onsessel

## RHINOOTURN

#### **VNGX INSERT WITH ML CHIPBREAKER**

- · Complete, economical solution for machining gummy-like materials
- 35 degree included angle, high-positive, chipbreaker
- Double-sided, "G" tolerance inserts for high accuracy
- Corner radius as small as .004" (0.1mm)
- Peripheral ground to provide a sharper cutting edge that reduces cutting force and minimizes built-up-edge
- Produces longer, more consistent tool life and excellent surface finish





#### FM CHIPBREAKER FOR POSITIVE ISO TURNING INSERTS

- Medium and semi-finish machining for steel and stainless steel
- · Low cutting force chipbreaker geometry with wide chip breaking range
- Pressed to size inserts provide high durability and excellent economy
- Five different insert shapes, and multiple insert sizes
- Over 200 unique inserts to choose from





#### **ISO TURNING GRADE TT8080 PRODUCT EXPANSION**

- Excellent machining performance under low cutting speed and interrupted cutting conditions
- Eliminates coating layer delamination due to a strong coating adhesion
- Superior resistance to chipping
- The latest PVD coating technology with enhanced wear resistance
- Now available in positive inserts for difficult boring or chamfering applications







### TC3020 - SIAION-BASED CERAMIC

- Ideal for high-temperature alloy machining; Runs at parameters similar to whisker reinforced ceramic grades.
- Superior wear resistance due to high chemical stability
- Better flank and notch wear resistance compared to the competition
- Excellent high temperature strength and fracture toughness
- Can be applied in turning, profiling and grooving applications

#### TC3030 - SiAION-BASED CERAMIC

- · Ideal for high temperature alloy machining
- The grade's extreme toughness enables higher feed and heavier depth of cut machining
- Tougher substrate compared to whisker reinforced ceramic grades
- Suitable for parts with scale and/or roughing applications
- Excellent thermal shock resistance and thermal conductivity
- Can be applied in turning, profiling, grooving and milling applications



#### **OPTIMIZED PARTING AND GROOVING LINE**

- 30% lower price compared to longer parting & grooving inserts!
- · Ideal for small component and shallow depth of cut parting & grooving
- Vibration minimized due to the insert's shorter length and improved center of gravity
- Optimized holder pocket design for better clamping
- C-type chipbreaker features a frontal land for strength in general purpose applications
- J-type chipbreaker has a positive cutting edge making it ideal for soft & gummy materials
  Grade options TT9080, TT7220 & TT8020 provide a solution for a wide variety of materials
- Grade options 119080, 117220 & 118020 provide a solution for a wide variety of materials and applications





Double-End



- All new user interface
- Graphical mega menu
- Powerful full-text AKITA search
  - By description,
  - By product line
  - By item number
  - By item name
- Precise product categories
- Comprehensive filtering
- Detailed product view
- Tabular organization
- Smart menu layout
- Exhaustive support resources
- Service & support contact forms
- ISO 13399 compliant drawings and tables
- Works on all platforms, including mobile devices







#### **Ingersoll Cutting Tools For Americas**

Marketing & Technology Center 845 S. Lyford Road Rockford, IL 61108-2749 U.S.A. Tel: 815.387.6600 Fax: 815.387.6968 Email: info@ingersoll-imc.com Internet: www.ingersoll-imc.com

Ingersoll Mexico Blvd. Cuauhtemoc Num 2411 Locales 6 y 7 Esquina Calle Manuel Perez Trevino Fracc. Residencial Los Pinos CP 25198 Saltillo, Coahuila, Mexico Tel: 52-844-4-85-32-20 Fax: 52-844-4-85-32-23 Email: info@ingersoll-imc.com

#### Ingersoll Cutting Tools For Europe

Marketing & Technology Center Ingersoll Werkzeuge GmbH Kalteiche-Ring 21-25 35708 Haiger, Germany Tel: 02773.742 0 Fax: 02773.742 812/814 Email: info@ingersoll-imc.de Internet: www.ingersoll-imc.de

Ingersoll France s.a.r.l. 21, rue Galilée F-77420 CHAMPS-sur-MARNE Tel: +33 (0)1 64 68 45 36 Fax: +33 (0)1 64 68 45 24 Email: info@ingersoll-imc.fr

Ingersoll Italien Via Monte Grappa, 78 20020 Arese (Milano) Telefon: +39 02 99 76 67 00 Telefax: +39 02 99 76 67 10 Email: crespi@taegutec.it

#### Ingersoll Cutting Tools For Asia

Ingersoll Japan Head Office 11-1 Yoshima-Kogyodanchi Iwaki City Fukushima 970-1144 Tel. +81 246 36 8501 Fax +81 246 36 8542

Ingersoll China 7B21, Hanwei Plaza, GuangHua Road, Chaoyang District, Beijing, P.R.C.,100004. Tel:+86 10 656 10261/2/3 Fax:+86 10 656 10264

