To: JMP INDUSTRIES, INC. (bturung@faysharpe.com)

Subject: TRADEMARK APPLICATION NO. 78583235 - DIAMOND INSERT - JMPE 5 00016

Sent: 8/31/2006 7:12:34 PM

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Attachments: Attachment - 1
Attachment - 2
Attachment - 3
Attachment - 4
Attachment - 5
Attachment - 6
Attachment - 7
Attachment - 8

UNITED STATES PATENT AND TRADEMARK OFFICE

SERIAL NO: 78/583235

APPLICANT: JMP INDUSTRIES, INC.

CORRESPONDENT ADDRESS:
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P.O. Box 1451
Alexandria, VA 22313-1451

If no fees are enclosed, the address should include the words "Box Responses - No Fee."

MARK: DIAMOND INSERT

CORRESPONDENT'S REFERENCE/DOCKET NO: JMPE 5 00016

CORRESPONDENT EMAIL ADDRESS:
bturung@faysharpe.com

Please provide in all correspondence:

1. Filing date, serial number, mark and applicant's name.
2. Date of this Office Action.
3. Examining Attorney's name and Law Office number.
4. Your telephone number and e-mail address..

Applicant is requesting reconsideration of a Final Office Action refusal dated January 9, 2006. After careful consideration of the law and facts of the case, the examining attorney must deny the request for reconsideration and adhere to the final action as written since no new facts or reasons have been presented that are significant and compelling with regard to the point at issue.

Applicant now asserts for the first time that it coined the term "DIAMOND INSERT" for a particular type of extruder insert. Additionally, applicant claims that it has extensively used and marketed the

marks "DIAMOND and DIAMOND INSERT for its particularly shaped extruder inserts and that the registered mark and proposed mark are well known in the extruder industry. Applicant provides no evidence or supporting documentation as to these assertions. As stated in the final refusal this is not sufficient evidence of distinctiveness. Regardless, the applicant has not claimed Acquired Distinctiveness under Section 2(f) in whole or in part as a basis for registration. Moreover, the fact that an applicant may be the first and sole user of a merely descriptive or generic designation does not justify registration where the evidence shows that the term is merely descriptive of the identified goods and/or services. *In re Acuson*, 225 USPQ 790 (TTAB 1985) (COMPUTED SONOGRAPHY descriptive of ultrasonic imaging instruments); *In re National Shooting Sports Foundation, Inc.*, 219 USPQ 1018 (TTAB 1983) (SHOOTING, HUNTING, OUTDOOR TRADE SHOW AND CONFERENCE held apt descriptive name for conducting and arranging trade shows in the hunting, shooting and outdoor sports products field); TMEP §1209.03(c).

Applicant also claims that it knows of no third party usage of either DIAMOND or DIAMOND INSERT. However, in direct contradiction to those statements the examining attorney has already provided evidence of multiple parties using DIAMOND and DIAMOND INSERTS to describe their extruding machine parts, die plates, die plate holders, die inserts and dies. (see attached evidence from the Examining Attorney's Final Office Action dated January 9, 2006 and attached new websites) Clearly, third parties are using such language to describe like goods in the marketplace today.

Moreover the diamond shape is a common shape used for extruder die inserts. In support of this statement please see the attached website of J&M Diamond Tool, Inc. showing various shapes including several different diamond shaped inserts.

Applicant also argues that the word element DIAMOND as used in the proposed mark is prominently used in a larger font and different font from the word element INSERT thus proving its use as a source identifier. Applicant attempts to dissect its own mark. Regardless, a review of the proposed mark shows that the word elements in the mark are very close in size and presented in the same font with only a reversal of the background. The average consumer will not perceive the proposed mark as DIAMOND and INSERT as the word elements are presented in such as way as to be read together as DIAMOND INSERT.

It has long been held that a mark that combines descriptive terms may be registrable if the composite creates a unitary mark with a separate, nondescriptive meaning. However, if each component retains its descriptive significance in relation to the goods or services, the combination results in a composite that is itself descriptive. *In re Tower Tech, Inc.*, 64 USPQ2d 1314 (TTAB 2002) (SMARTTOWER merely descriptive of "commercial and industrial cooling towers and accessories therefor, sold as a unit"); *In re Sun Microsystems Inc.*, 59 USPQ2d 1084 (TTAB 2001) (AGENTBEANS merely descriptive of computer software for use in development and deployment of application programs on global computer network); *In re Putman Publishing Co.*, 39 USPQ2d 2021 (TTAB 1996) (FOOD & BEVERAGE ONLINE held to be merely descriptive of news and information service for the food processing industry); *In re Copytele Inc.*, 31 USPQ2d 1540 (TTAB 1994) (SCREEN FAX PHONE merely descriptive of "facsimile terminals employing electrophoretic displays"); *In re Entenmann's Inc.*, 15 USPQ2d 1750 (TTAB 1990), *aff'd per curiam*, 928 F.2d 411 (Fed. Cir. 1991) (OATNUT held to be merely descriptive of bread containing oats and hazelnuts). Here both the DIAMOND and INSERT components retain their descriptive significance in relation to the goods, the combination results in a composite that is itself descriptive of the goods.

Here the proposed mark is DIAMOND INSERT and design not DIAMOND. Moreover, prior decisions and actions of other trademark-examining attorneys in registering different marks are without evidentiary value and are not binding upon the Office. Each case is decided on its own facts, and each

mark stands on its own merits. *AMF Inc. v. American Leisure Products, Inc.*, 177 USPQ 268, 269 (C.C.P.A. 1973); *In re International Taste, Inc.*, 53 USPQ2d 1604 (TTAB 2000); *In re Sunmarks Inc.*, 32 USPQ2d 1470 (TTAB 1994); *In re National Novice Hockey League, Inc.*, 222 USPQ 638, 641 (TTAB 1984); *In re Consolidated Foods Corp.*, 200 USPQ 477 (TTAB 1978).

Accordingly, applicant's request for reconsideration is *denied.* The time for appeal runs from the date the final action was mailed. 37 C.F.R. Section 2.64(b); TMEP Section 715.03(c).

/JSD/

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Fax: 859-525-6404

INDEXABLE CARBIDE

- **Advent**- Indexable Thread Milling Tools
- **ANC-American National Carbide**- Turning and Milling Inserts and Toolholders
- **Belcar**-Carbide Turning, Milling and Cutoff inserts and Cutoff Blades
- **Ceratip**- Ceramic, Silicone Nitride, CBN Inserts
- **Circle Cutting Tools**- Devlieg Style Boring Cartridges and Boring Bars
- **Circle Machine Tools**- Small Hole Boring Bars, Threading and Grooving Bars in Solid Carbide and HSS
- **Criterion**- Boring Bars and Heads
- **D'Andrea**- Boring Heads
- **Dapra**- Turning and Milling Tools
- **Dexport**- Standard Cap Screw Counterbore Tools, Port Cutters, and Specials
- **Fette LMT**- Indexable Slot Milling, Face Milling
- **Harroun Enterprises**- Brazed and Indexable Mold Milling Tools
- **Horizon Carbide**- Grooving and Face Grooving Tools, Turning
- **K-Tool**- Indexable Milling Cutters, Indexable Counterbore Cutters, and Spot Drills
- **Komet**- Indexable Drilling and Boring Tools
- **Love Joy**- Indexable Facemills and Ballnose Endmills
- **Madison**- Indexable Spade Drills, Hektobore System, Scami Reamers
- **Manchester**- Indexable Cutoff, Grooving and Trepanning Tools
- **Maxwell Tool**- Automatic Recessing and Back Spot Facing Tools
- **Metcut**- Indexable Carbide Drills and Carbide Tipped Counterbore Cutters
- **Mitsubishi Carbide**- Indexable Turning, Milling and Drilling Products
- **New Tech Cutting Tools**- Indexable Concave and Convex Radius Endmills
- **OTM On Time Machine**- Indexable Milling and Drilling Products and Specials
- **PH Horn**- Grooving Tools and Cutoff Tools
- **Rigibore Tooling Systems**- Indexable Boring Bars and Holders
- **RTW**- Indexable Turning, Milling and Drilling Products
- **STS**- Indexable Quad Thread Threading and Thread Milling Tools and Grooving Inserts
- **Speciality Tools Inc.**- Solid Carbide Round Tools
- **Taegu Tec**- Indexable Turning, Milling and Drilling Products
- **Thinbit**- Small Grooving and Face Grooving Tools
- **Tool Flo Mfg.**- Standard and Special Threading, Grooving and Milling Inserts
- **Tungaloy**- Silicon Nitride, Ceramics, Gundrills, Standard Inserts and Drilling Products
- **Triad Tooling**- Standard and Special Indexable Toolholders
- **Urma Bore**- Precision Modular Indexable Boring System
- **Vardex, VNE Corp**- Indexable Threading and Thread Milling Tools

- **Walter Waukesha-** Indexable Turning, Milling and Drilling, CBN Inserts
- **Zinner**- Indexable Slot Milling, Cutoff and Grooving Tools

SOLID CARBIDE

- **ABC Tool-** Solid Carbide Round Tools
- **Advent**- Solid Carbide Thread Milling Tools
- **Allen Benjamin**- Solid Carbide Taps
- **Atom Precision**- Solid Carbide Drills and Specials
- **Bassett**- Solid Carbide Round Tools
- **Bay State Carbide**- Solid Carbide Round Tools
- **Custom Carbide**- Solid Carbide Round Tools and Specials
- **Drill Master**- Gundrills, Speed Bits and Accessories
- **Elliot**- Carbide Roller Burnishing Tools
- **Fullerton Tool**- Standard $ Special Stepdrills, G Drills, Reamers, Endmills
- **George Whalley**- Carbide Tipped Coolant Fed Drills and Extended Length Drills
- **Hi-Tech Tools**- Chucking Reamers and Taps
- **M.A. Ford**- Solid Carbide Round Tools
- **Melcut**- Special Carbide Tipped Round Tools
- **Mitsubishi Carbide-** Solid Carbide Round Tools
- **Moon Cutter**- Standard and Special Milling Cutters
- **National Carbide Tool**- Special Solid and Coolant-Fed Carbide Round Tools
- **Robb Jack**- Solid Carbide Endmills and Slitting Saws
- **Rock River Tool**- Standard and Special Carbide Tipped Round Tools
- **Sterling Carbide**- Solid Carbide Drills and Endmills
- **Superion**- Standard and Special Solid Carbide Burnishing Drills and Endmills
- **Titex**- Solid Carbide and Coolant-Fed Drills, and Micro Drills
- **Wolverine**- Solid Carbide Tapered Endmills
- **YG1**- Micro-Grain Endmills
- **YMW**- Solid Carbide Inch and Metric Taps

DIAMOND AND CBN

- **CDP Diamond-** Diamond Tipped Round Tools & Diamond tipped Gundrills
- **Clapp Dieco-** Diamond Rotary Tools & Inserts
- **Engis Corp.**- CBN & Diamond Plated Wheels, Bore Finishing, Diamond Lapping & Dressing tools. Full line of Mold & Die Finishing Products
- **J&M Diamond-** Diamond and CBN Tipped Inserts
- **Mitsubishi Carbide-** Diamond and CBN Turning and Milling Products
- **SP3-** Diamond Coated Inserts, Drills & Endmills
- **Tascon-** CBN and Diamond Tipped Inserts

BAND SAW BLADES

- **Arntz-** Band Saw Blades
- **Marvel-** Band Saw Blades
- **Bahco-** Band Saw Blades and Hand Tools
- **Simonds**- Files and Band Saw Blades

HSS CUTTING TOOLS

- **Alesa-** HSS Indexable Milling and Turning Inserts
- **Elliot**- Roller Burnishing Tools
- **F&D**- HSS Drills, Endmills, Taps and Dies
- **Fastcut**- HSS Endmills and Taps
- **Fette-** High Performace Taps and Carbide Form Taps
- **George Whalley**- HSS Coolant-Fed Drills
- **Hi-Tech Tools**- Chucking Reamers, Taps, Fixed Limit Gaging
- **Keo Cutters**- Center Drills Countersinks, Keyslot and Keyseat Cutters
- **Melcut**- HSS Specials and Subland Drills
- **Melin**- HSS and Cobalt Endmills
- **Metcut**- HSS Counterbore and Countersink Cutters, Reamers, and Back Spot Facers
- **Morse Cutting Tools**- HSS Drills, Taps Reamers and Endmills

- **National Twist Drill**- HSS Drills, Taps, Reamers and Endmills
- **Nelco Chromeclad**- Chrome Coated Taps
- **North American Tool**- Special 24 Hour Delivery, HSS & Carbide Taps and Gages
- **Pohl Tool**- HSS Standard and Special Round Tools
- **Prototyp**- High Performance Taps
- **Regal Beloit**- Standard and Special HSS Endmills, Reamers and Taps
- **Severence**- HSS Carbide Countersinks and Carbide Burs
- **Showa**- HSS and Cobalt Spade Drills and Spade Blades
- **Titex**- HSS and Cobalt Drills, Endmills and Taps
- **Viking Drill**- HSS and Cobalt Drills and Taps
- **Weldon**- Cobalt Roughing and Finishing Endmills
- **Wolverine**- HSS Tapered Endmills
- **Yankee Reamers**- Reamers
- **YG1**- HSS Endmills and Keyway Cutters
- **YMW**- High Performance Taps

ABRASIVES

- **Amplex**- Grinding Wheels and Abrasives
- **Arc Abrasives**- Coated Abrasives
- **Carborundum**- Wheels and Abrasives
- **Noritake**- Vitrified and Resinoid Bonded Wheels, Diamond and CBN Wheels
- **Norton Co**.- Grinding Wheels
- **Permatach**- Diamond Dressers, CBN and PCD Jig Grinding Pins

CERAMIC

- **Ceratip**- Ceramic, CBN, Silicone, Nitride Inserts
- **NTK**- Ceramic Inserts
- **RTW**- Ceramic, CBN, Silicone Nitride Inserts
- **Romay**- Ceramic and Silicone Nitride Inserts
- **SPK Cutting Tools**- Ceramic and Silicone Nitride Turning Products
- **Stellram**- Ceramic & Silicone Nitride Inserts
- **Taegu Tec**- Ceramic & Silicone Nitride Inserts
- **Toshiba Tungaloy**- Ceramic and Silicone Nitride Inserts

PRECISION TOOLS

- **Fowler**- Precision Measuring Tools and Gaging Systems
- **Command**- Measuring Systems
- **Hi-Tech Tool**- Fixed Limit Gaging
- **Southern Gage**- Gages
- **Vermont Gage**- Plug Gages

ACCESSORIES

- **Abbott Aluminum**- Pie Jaws, Chuck Jaws
- **Albrecht**- Chucks and Accessories
- **Aloris Tool Co** - Tool Post and Quick Change Lathe Tooling
- **Balcrank**- Jet Pulser High Pressure Coolant Pumps
- **Dacc Jaws**- Chuck Jaws and Accessories
- **Dake**- Presses and Cold Saws
- **DC Morrison**- Key Seaters, Schaur Speed Lathes and Accessories
- **Dorian**- Lathe Tooling Blocks and Accessories
- **Equipto**- Shelving, Cabinets, Racks, Benches and Mezzanines
- **Everett Ind**.- Cold Saws and Abrasive Cutoff
- **Loc-line**- Coolant Lines
- **Royal Products**- Live Centers, Collet Chucks, Deburring Tools, Clamps, Edge Finders, 5C Collets and Collet Closers
- **Torit**- Cyclone Collectors, Dryflo Mist Collectors and Trunkline Weld Fume Collectors
- **Wearwell Mats**- Machine Tool and Operator Mats
- **Wilton**- Machine Tools and Accessories

ROTARY HOLDERS

- **Big Sheppard-** Coolant-Fed Heads, Right Angle Heads, and Milling Holders
- **Bilz-** Tap Holders
- **Briney-** Rotary Toolholders, Universal and Erickson Style Quick Change Tooling
- **Centaur Precision Tools-** Rotary Toolholders and Collets
- **Collis-** Rotary Toolholders, Drill and Tap Drivers and Accessories
- **Command-** Rotary Toolholders and Accessories
- **Edward Andrews-** Lathe Tooling, VDI Tooling and Boring Bar Lathe Bushings
- **Jacobs-Bilz-** Tap Holders
- **Lyndex-** Rotary Toolholders and Accessories
- **Narex-** Rotary Toolholders and Universal Boring and Facing Heads
- **NSK-** Air Spindles
- **Parlec-** Collets, Collet Chucks, Endmill Holders
- **Precision Components-** Extended Length Rotary Toolholders
- **Rego-Fix-** Rotary Collect Chucks and ER Collet Systems
- **Showa Tool-** Rotary Toolholders and Accessories
- **T.M. Smith-** Quick Change Toolholding Systems
- **Tapmatic-** CNC, Automatic and Manual Auto Reversing Tapping Heads
- **Tecnara-** Rotary Toolholders and Right Angle Milling Heads
- **Valco-** Coolant Inducers and Coolant-Fed Collet Systems

MATERIAL HANDLING

- **Aleco-** Clear Flex II Strip Doors
- **Cerus-** Workstation Seating
- **Complex Steel & Wire-** Wire Partition and Storage Lockers
- **D-Mac Industries-** Corrugated Decking
- **Diamond Gates-** Scissor Folding Gates, Port-A-Gates
- **Equipto-** Shelving, Cabinets, Racks, Benches and Mezzanines
- **PFI and C&H Products-** Authorized Dealer
- **Quantum Storage Systems-** Containers, Bins, Hoppers
- **Rousseau Cabinets-** Record Storage, Industrial Shelving, Modular Drawers', Shelving, Workstations
- **Spruill Products-** Storage Racks and Accessories
- **Wearwell-** Ergonomic, Anti Fatigue and Safety Matting, Dock Bumpers

FIXTURE AND WORKHOLDING

- **Advanced Tool Systems-** Barfeed Collet Chucks for CNC Lathes
- **Buck Chuck-** Lathe Chucks- CNC and Manual
- **Cushman Industries-** Lathe Chucks- CNC and Manual
- **Huron-** Howa Chucks and Chuck Rebuilding
- **Kitagawa-** Lathe Chucks- CNC and Manual
- **Kurt Mfg.-** Manual and Power Machine Vises and Power Draw Bars
- **LNS-** Bar Feeders
- **Progressive Machinery Sales-** Bar Pullers and Combination Cutoff Bar Pullers
- **Rohm-** Lathe Chucks, Live and Dead Centers and Face Drivers
- **SMW Systems-** CNC Lathe Chucks, Bar Feeders, Manual Pallet Changers and Indexers
- Sowa Tools- Gerardi Modular Vises and Skoda live Centers
- **Tecnara-** CNC Rotary Tables
- **Teco-** Clamping Components
- **Tsudakoma-** Rotary Tables and Pallet Changers
- **Turbo Conveyor-** Chip Conveyors
- **Yuasa-** CNC Machine Accessories, Rotary Tables, Vises, ETC

COOLANTS

- **Ondea Nalco-** Coolants, Oil, Rust Prevent
- **Innovative Chemical Solutions-** Coolants, Oil, Rust Prevent

values of s and, consequently, R. Then $V = iR_1 + iR_2 + iR_3$ and the total power dissipated as a function of filament region is given by:

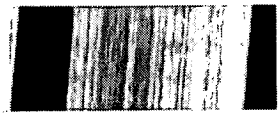
$$P = i^2 R_1 + i^2 R_2 + i^2 R_3 = i^2 \rho_1(l_1/s_1) + i^2 \rho_2(l_2/s_2) + i^2 \rho_3(l_3/s_3)$$

Explore the effect of filament thickness on the three regions of the filament using the Three Filament Thickness Tester.

Now take a short quiz on how the filament thickness affects failure.

A Closer Look:

Tungsten is obtained as mining ore powder, which is sintered and shaped into feedstock to manufacture the filaments. The tungsten is drawn through diamond extruding molds at a high temperature to yield very long, thin filament wire. The wire is then wound into spirals and double spirals to allow the filament to more efficiently maintain the high temperatures needed. The spiral shape minimizes the convective cooling of the filament by the inert gas in the bulb.

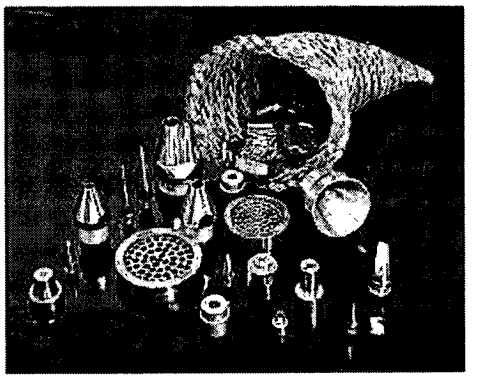


Filament thickness tester

PRODUCTS

Accessories and Spare Parts

Quality Engineered Tips, Dies, Spare Parts ... for Extrusion Crossheads



Features

Always a cut above the rest ... because B&H has pioneered the extrusion crosshead industry for many years. Count on our engineering capabilities (figuring draw ratios, angles, etc.) to give you the level of perfection you need.

B&H Dies - Replacement Parts
B&H maintains a complete inventory of replacement parts for our extrusion crossheads and breaker plates ... available Off-The-Shelf for rapid, world-wide delivery.

Standard round dies, oval dies, figure 8, serrated, tracer dies for single as well as multiple conductors, and self-supporting cable are manufactured either to our design or your specifications, and can be stocked in any stage of completion to assure continuity of your production.

B&H manufactures tooling and spare parts for ALL sizes and makes of crossheads.

B&H Extrusion Tips
Made to your design and specifications. While stainless steel tips suffice for normal wear, long tip life demands diamond or tungsten carbide inserts in the stainless tip. Carbide inserts are custom made in single and multiple conductors for all sizes and makes of extruders and crossheads. These inserts are made flush with the steel tip for backing-in strength affording less exposure to shock and breakage. The cone tip is maintained concentric, with lead-in angle obstruction-free with no shoulders.

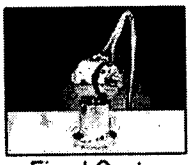
B&H Tungsten Carbide or Diamond inserts are recommended for longer tip life, lower operating costs, fewer wire breaks, dependable, uniformly repeatable quality.

B&H Breaker Plates
B&H produces breaker plates in stainless steel or Hastelloy® alloy for any type or size extruder from 1" (25.4 mm) to 10" (254 mm) diameter.

We furnish our breaker plates designed for minimal compound blockage or those made to your specifications, applying our years of extrusion experience to your advantage.

All B&H Breaker Plates feature tapered entrance and exit flows for minimal compound back pressure.


Adjustable Center Crossheads


Fixed Center Crossheads


In-line Dies


Spare Parts & Accessories

Custom Extruder Screws & Barrels

For all makes and models of Extruders, Blow Molders, Injection Molders and other Plastic Machinery

New Screws and Barrels for all makes/models of Extruders, Injection molding and blow molding machines are manufactured by Wayne with expert engineering assistance to solve all your screw and barrel problems. We REBUILD worn screws and RELINE worn barrels. Why not let us handle them for you?

Precision custom manufacturing of new screws and barrels for extruders, injection molding machines, blow molding machines and food extruders has been a major part of the company mission at Wayne Machine and Die Company since 1958.

Wayne custom builds new screws and rebuilds worn screws **for all makes and models of machines**, foreign or domestic. In fact, that is the first product that the company offered to the plastics industry! The primary reasons you might consider buying replacement screws from Wayne instead of the original equipment manufacturer include **higher quality, lower price and custom design engineering assistance** that OEMs (Original Equipment Manufacturer) usually do not offer. Also, the OEM may be out of business. The Wayne advantage is that Wayne is also a manufacturer of high quality extrusion machinery , so we have the benefit of **hundreds of installed extruders** running virtually every thermoplastic available. We also have **hundreds of screw and barrel drawings from many manufacturers**. Other Screw and barrel manufacturers that are only machine shops cannot hope to match our decades and generations of extrusion machine building experience! Wayne can duplicate your existing screws and barrels exactly to your existing specifications, or we can offer a wide variety of different materials, designs and processing information **to help solve your problems or achieve your particular objectives**. We can help you convert your existing equipment to run highly corrosive polymers like flouropolymers, highly abrasive glass filled resins, solve mixing problems when you need to run colors or eliminate burning when you need to run heat sensitive resins like PVC. To meet the industry's demand for quality, CAD is utilized to achieve cost effective and optimum performance designs. Finally, we are a **family owned and operated company that has been under the same management since 1958** with a long proud history of service to our customers. With our decades of experience we can give you sound advice about the best way to deal with your problems. We are at your service, just give us a call.

SIZES:

Any screw or barrel can be manufactured by Wayne from the smallest 1/4" diameter screws used in research to the 8" diameter production size screws. Any L/D can also be accommodated.

MATERIALS:

Wayne will recommend the best material or combination of materials to solve your particular problem and optimize your process. We often recommend -
For standard thermoplastics like virgin PE,PS,PP:

- 4140 Flame Hardened
- Chrome plating

For abrasive plastic compounds with fillers like glass and minerals:

- 4140 Flame Hardened
- Nitrided NITRALLOY®
- CPM 9V and CPM 10V®
- Tool Steels D-2,S-7,A-11,H-13 and others.

Hard-surfacing of flights with:

- STELLITE® 6 &12
- COLMONOY ®56
- Screw Coatings:
- ARMOLOY®
- Titanium Nitride
- UCAR®
- BOROFUSE®
- CARBORIDE®

For mildly corrosive polymers like PVC or flame retardant compound:

- Stainless Steels 17-4PH® and 15-5PH®
- Chrome plating
- POLYOND®

For highly corrosive polymers like FEP, PFA, ETFE, ECTFE :

- HASTELLOY® C-276 in standard, cold reduced and pre-stressed modes.
- INCONEL® 625 and hardened 718
- MONEL K-500®
- DURANICKEL®
- Electroless Nickel Plating

DESIGN OPTIONS:

- Single or multi stage
- Mixing sections including Maddock UCC, Spiral Maddock, Pins, Diamond, Blister , Dulmage, Knobby sections, gas injection mixers, foam designs and others
- Barrier flights
- Variable Lead or Pitch
- Lead Changes
- Flights with single, double or triple leads
- Keyways -single or double
- Splines - American or DIN/ISO,
- Lead - right or left hand
- Noses - fixed or removable and offset
- Cored holes to any depth

BARRELS:

- Abrasive resistant
- Corrosion resistant
- INCONEL® faced flange
- Bi-metallic
- Nitrided
- Tungsten Carbide
- Feed throats
- Vents added/deleted
- Injection Ports
- Grooved/Smooth feed sections

Accessories and Extrusion or Injection Related Products:

- CHECK VALVES
- BREAKER PLATES are available for all types of extruders in standard and special designs and materials
- BARREL END CAPS
- INJECTION VALVES
- DIE NIPPLES to fit all types of extruders and made to custom fit any configuration

Back to the Wayne Home Page

Extrusion Tools

We provide a new generation of High Precision Wire Guides with Diamond Inserts, with the following advantages:

- Diamond inserted right at the edge
- Perfect conductor guiding
- Easy to clean
- High longevity
- High concentricity
- Hardened Stainless Steel 60 Hrc
- Pre-Guiding for 100% alignment

Click here to go straight to the Extrusion Tools Index

Technical Description

The tolerances of manufacturing of cables are more and more tight. To guarantee a precise machining with a realistic manufacturing price, the life time of the tools is very important.

We provide a complete range of extrusion tools as requested by your specification. We are convinced that the quality of the tools and the choice of the materials will give you full satisfaction.

For us, the precision of a tool is not only the dimension tolerance on the drawing, but also the exact geometric shape. All of the extrusion tools have been controlled individually, to ensure the highest quality.

The dies and guides can be cleaned in pyrolysis ovens with temperatures up to 480°C.

The guides with hard metal or diamond inserts are fixed through a mechanical system and are therefore at the extremity of the guide. This allows a perfect guiding and centring of the wire and also a better concentricity.

Steel used in the manufacturing

Type	Designation	Features	Specificity
A	Stainless Steel	Basic Steel for Tools	Chrome steel, good resistance against corrosion and wear.
B	Hastelloy C-276	For tools used in very corrosive environment and with high temp.	Steel with high nickel-chrome content
C	Tungsten Carbide	Very hard material, used for small tools and high abrasion	Hardness > 70 HRc
E	Tungsten Carbide Insert	Hard contact insert for bigger tools and high abrasion	Hardness > 70 HRc
G	Diamond Insert	Tooling for high speed lines or very abrasive copper	The highest resistance to abrasion

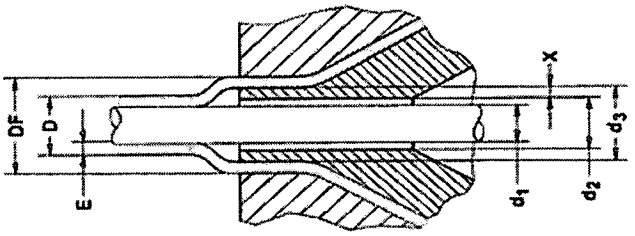
Calculation of a tubing tool

Two main elements are necessary for the calculation of a tubing tool:

Two main elements are necessary for the calculation of a tubing tool:

- **DDR = Draw Down Ratio**
- **DRB = Draw Ratio Balance**

The DDR is in correlation with the polymer and the DRB has to be close to 1



DF	=	Ø Die outlet
D	=	Ø Over insulation
E	=	Thickness insulation
d_1	=	Ø From the wire
d_2	=	Ø Inside wire guide
d_3	=	Ø Outside wire guide
X	=	Ø Thickness wall wire guide

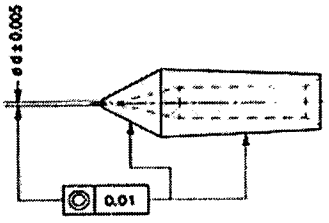
For the calculation of the tools, we use the following:

$$\text{DDR} = \frac{DF^2 - d_3^2}{D^2 - d_1^2}$$

$$\text{DRB} = \frac{DF / D}{D_3 / d_1} = 1$$

Quality control of the tooling

We guarantee you following dimensions:

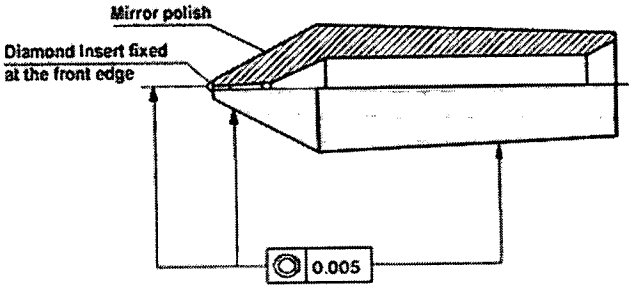


Guide with "Diamond Insert"

A new concept of insertion of diamond inserts has been developed. The particularity is that the insert has been fixed mechanically right at the front edge of the guide. This guarantees a perfect concentricity and avoid that any polymer can fill the gap between the edge and the diamond. The mechanical hold of the insert also guarantees that the insert cannot be removed also by differences in diameter of the copper wire.

This new technology gives the best quality / price ratio. It allows us also to have a hardened stainless steel guide and to clean the tools in vacuum pyrolysis ovens.

Example: EX - 1111 - G Series Compression Guide



Advantages using Guide with Diamond Inserts:

- Long life time
- Best quality / price ratio
- Shock resistant
- Perfect concentricity also by the start up
- Short deliveries by sizes up to 2.5mm

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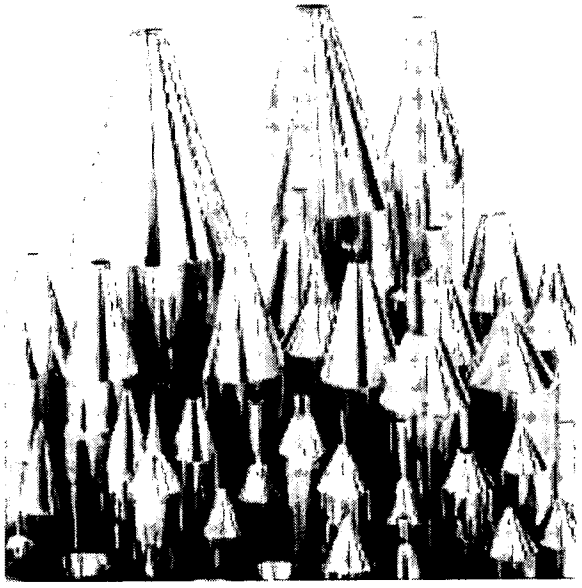
Molds and Dies, Mold and Die Related Equipment BOOTH NO. 50914

EXTRUSION DIE and GUIDE

FIX CENTERING CROSSHEAD



Other than round wire, production of tooling for profiled wire (8 figured type, flat type, double round type, hybrid type of compression + tube), and tubes (tube for medical catheter etc.). Other than tools manufactured by quenched and hardened steel, there are tungsten carbide tooling, wire guide by diamond chip (nipple).

[Wire guide (nipple)]
Wire guides of MICRODIA SA. are manufactured from under mentioned 5 materials.

- •Hardened steel
- •Tungsten carbide
- •Stainless steel body + tungsten carbide insert
- •Stainless steel body + natural diamond insert
- •Hastelloy for fluoro plastics

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Plastic Extrusion Services

Plastic extrusion services suppliers specialize in extruding plastics and polymer compounds into custom and standard profiles and shapes.

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About Plastic Extrusion Services

Plastic extrusion services suppliers specialize in extruding plastics and polymer compounds into custom and standard profiles and shapes. Services commonly offered by suppliers of plastic extrusion services include design assistance or review, die or tool fabrication, prototype or short run production, high volume production, assembly services, and specialty packaging. Plastics processed by providers of plastic extrusion services include ABS, acrylic, butyrate, fiberglass, nylon or polyamide, polycarbonate, polyethylene (PE), polyethylene terepthalate glycol (PETG), polypropylene (PP), polystyrene, PTFE, polyurethane or urethane, and PVC. Common shapes produced by of plastic extrusion services providers include thin film, sheet, rod or wire, custom profiles or cross sections, construction or building products, tubing or hose, pipe, gaskets or seals, and heat sinks.

Extrusion methods used by suppliers of plastic extrusion services include hot extrusion, cold extrusion, co-extrusion, dual or multi-durometer extrusion, hydrostatic extrusion, impact extrusion, pultrusions, reverse or backwards extrusion, and wire drawing. Hot-working extrusion processes use the good deformability of heated metallic or thermoplastic materials for shaping them. Extrusion at elevated temperatures enables considerable changes of shape to be achieved in a single operation where otherwise shaping them is impractical. The cold working plastic extrusion process is performed at or near room temperature. High stresses dictate robust tooling for this process. The material undergoes significant cold working, and thus strengthening, and is usually not susceptible to the same levels of oxidation inherent in the thermal cycling associated with hot extrusion. Co-extrusion is a technique in which multiple layers are extruded together; most widely used in sheet, film, and tubular extrusion applications. Dual plastic extrusion and multi-durometer extrusion are techniques wherein materials of different hardnesses are combined in a single extrusion. One common application is a rigid material being combined with a flexible material in one cross section; the rigid component can add strength and structural alignment, while the flexible component may have a function such as sealing. Hydrostatic plastic extrusion is similar to impact extrusion, hydrostatic extrusion relies on a more gradual ram application than the impact extrusion technique. Impact extrusion is a technique in which a small amount of material is forced through a die by a ram, often in a tubular or similar cross section. Very significant material deformation makes this suitable for relatively soft materials such as aluminum, lead, or tin. Pultrusion is a manufacturing process where resin-impregnated reinforcement fibers are pulled

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though a heated steel die. The fibers are typically pulled from rolls through a resin impregnator then through the die, where the die heat initiates curing into a solid, constant cross section of fiber-reinforced plastic (FRP). Reverse or backwards extrusion is a technique in which the material blank is forced to flow in the direction opposite the extruding pin, plunger, or ram. It may be combined with impact or hydrostatic extruding. Rod or wire forming process wherein a material is forced through successively smaller dies, thereby reducing the cross section. "Drawing" refers to the wire or rod being assisted in being pulled through the die.

Secondary operations offered by providers of plastic extrusion services include machining, grinding, EDM cutting, water and abrasive jet cutting, heat treating or stress relieving, welding, anodizing, electroplating, painting or powder coating, and printing and labeling. Certifications and quality requirements met by providers of plastic extrusion services can include ISO 9001, ISO 9002, QS 9000, and MIL-SPEC. Other materials that can be processed if necessary include aluminum, bronze or brass, ceramics, composites, copper, exotic metals and alloys, precious metals, rubber or silicone and steel or stainless steel.

Plastic Extrusions

Suppliers of plastic extrusions specialize in extruding plastics and polymer compounds into custom plastic extrusions, standard plastic extrusions and stock plastic extrusions. Services commonly offered by suppliers of plastic extrusion services include design assistance or review, die or tool fabrication, prototype or short run production, high volume production, assembly services, and specialty packaging. Plastics processed by providers of plastic extrusion services include ABS, acrylic, butyrate, fiberglass, nylon or polyamide, polycarbonate, polyethylene (PE), polyethylene terepthalate glycol (PETG), polypropylene (PP), polystyrene, PTFE, polyurethane or urethane, and PVC. Common shapes produced by of plastic extrusion services providers include thin film, sheet, rod or wire, custom profiles or cross sections, construction or building products, tubing or hose, pipe, gaskets or seals, and heat sinks.

Extrusion methods used by suppliers of plastic extrusions include hot extrusion, cold extrusion, co-extrusion, dual or multi-durometer extrusion, hydrostatic extrusion, impact extrusion, pultrusions, reverse or backwards extrusion, and wire drawing. Hot-working extrusion processes use the good deformability of heated metallic or thermoplastic materials for shaping them. Extrusion at elevated temperatures enables considerable changes of shape to be achieved in a single operation where otherwise shaping them is impractical. The cold working plastic extrusion process is performed at or near room temperature. High stresses dictate robust tooling for this process. The material undergoes significant cold working, and thus strengthening, and is usually not susceptible to the same levels of oxidation inherent in the thermal cycling associated with hot extrusion. Co-extrusion is a technique in which multiple layers are extruded together; most widely used in sheet, film, and tubular extrusion applications. Dual plastic extrusion and multi-durometer extrusion are techniques wherein materials of different hardnesses are combined in a single extrusion. One common application is a rigid material being combined with a flexible material in one cross section; the rigid component can add strength and structural alignment, while the flexible component may have a function such as sealing. Hydrostatic plastic extrusion is similar to impact extrusion, hydrostatic extrusion relies on a more gradual ram application than the impact extrusion technique. Impact extrusion is a technique in which a small amount of material is forced through a die by a ram, often in a tubular or similar cross section. Very significant material deformation makes this suitable for relatively soft materials such as aluminum, lead, or tin. Pultrusion is a manufacturing process where resin-impregnated reinforcement fibers are pulled though a heated steel die. The fibers are typically pulled from rolls through a resin impregnator then through the die, where the die heat initiates curing into a solid, constant cross section of fiber-reinforced plastic (FRP). Reverse or backwards extrusion is a technique in which the material blank is forced to flow in the direction opposite the extruding pin, plunger, or ram. It may be combined with impact or hydrostatic extruding. Rod or wire forming process wherein a material is forced through successively smaller dies, thereby reducing the cross section. "Drawing" refers to the wire or rod being assisted in being pulled through the die.

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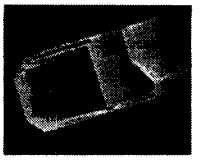

Canoe Gunnel
United Plastic Components Inc.

Running Board Part (Nose Piece)
United Plastic Components Inc.

Functional Plastic Extrusions
Crescent Plastics, Inc.

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Standard CBN Inserts

CCMW

Insert	Dimensions		
	I.C.	T	R
CCMW 21.51	.250	.094	.016
CCMW 21.52	.250	.094	.031
CCMW 32.51	.375	.156	.016
CCMW 32.52	.375	.156	.031

CDCD

Insert	Dimensions		
	I.C.	T	R
CDCD 505	.156	.047	.007
CDCD 51	.156	.047	.016
CDCD 52	.156	.047	.031

CPGM

Insert	Dimensions		
	I.C.	T	R
CPGM 21.51	.250	.094	.016
CPGM 21.52	.250	.094	.031
CPGM 32.51	.375	.156	.016
CPGM 32.52	.375	.156	.031

CNMA

Insert	Dimensions		
	I.C.	T	R
CNMA 431	.500	.187	.016
CNMA 432	.500	.187	.031
CNMA 433	.500	.187	.046

DCMW

Insert	Dimensions		
	I.C.	T	R
DCMW 21.51	.250	.094	.016
DCMW 21.52	.250	.094	.031
DCMW 32.51	.375	.156	.016
DCMW 32.52	.375	.156	.031

DNMA

Insert	Dimensions		
	I.C.	T	R
DNMA 431	.500	.187	.016

DNMA 432	.500	.187	.031
DNMA 433	.500	.187	.046

TPMW

Insert	Dimensions		
	I.C.	T	R
TPMW 21.51	.250	.094	.016
TPMW 21.52	.250	.094	.031
TPMW 32.51	.375	.156	.016
TPMW 32.52	.375	.156	.031

TCMW

Insert	Dimensions		
	I.C.	T	R
TCMW 21.51	.250	.094	.016
TCMW 21.52	.250	.094	.031
TCMW 32.51	.375	.156	.016
TCMW 32.52	.375	.156	.031

TDED

Insert	Dimensions		
	I.C.	T	R
TDED 505	.156	.047	.007
TDED 51	.156	.047	.016
TDED 52	.156	.047	.031

TP

Insert	Dimensions		
	I.C.	T	R
TP 40	.250	.094	*
TP 41	.250	.094	.016
TP 42	.250	.094	.031
TP 61	.375	.125	.016
TP 62	.375	.125	.031

TPG

Insert	Dimensions		
	I.C.	T	R
TPG 221	.250	.125	.016
TPG 222	.250	.125	.031
TPG 321	.375	.125	.016
TPG 322	.375	.125	.031
TPG 431	.500	.187	.016
TPG 432	.500	.187	.031

TNG

Insert	Dimensions		
	I.C.	T	R
TNG 221	.250	.125	.016
TNG 222	.250	.125	.031
TNG 321	.375	.125	.016
TNG 322	.375	.125	.031
TNG 332	.375	.187	.031
TNG 431	.500	.187	.016
TNG 432	.500	.187	.031
TNG 433	.500	.187	.046

TNG 433	.500	.187	.046

TNMA

Insert	Dimensions		
	I.C.	T	R
TNMA 221	.250	.125	.016
TNMA 222	.250	.125	.031
TNMA 321	.375	.125	.016
TNMA 322	.375	.125	.031
TNMA 331	.375	.187	.016
TNMA 332	.375	.187	.031
TNMA 432	.500	.187	.031
TNMA 433	.500	.187	.046

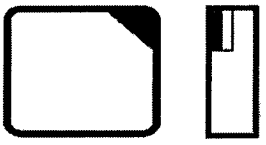
TBEE

Insert	Dimensions		
	I.C.	T	R
TBEE 521	.156	.062	.016
TBEE 522	.156	.062	.031

SNMA

Insert	Dimensions		
	I.C.	T	R
SNMA 322	.375	.125	.031
SNMA 323	.375	.125	.046
SNMA 432	.500	.187	.031
SNMA 433	.500	.187	.046

SNG



Insert	Dimensions		
	I.C.	T	R
SNG 322	.375	.125	.031
SNG 323	.375	.125	.046
SNG 422	.500	.125	.031
SNG 423	.500	.125	.046
SNG 432	.500	.187	.031
SNG 433	.500	.187	.046

VNMA

Insert	Dimensions		
	I.C.	T	R
VNMA 331	.375	.187	.016
VNMA 332	.375	.187	.031
VNMA 431	.500	.187	.016
VNMA 432	.500	.187	.031

Other Special Inserts Available

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