

Diamond Technology Innovations

2025

WATERJET PRODUCT GUIDE



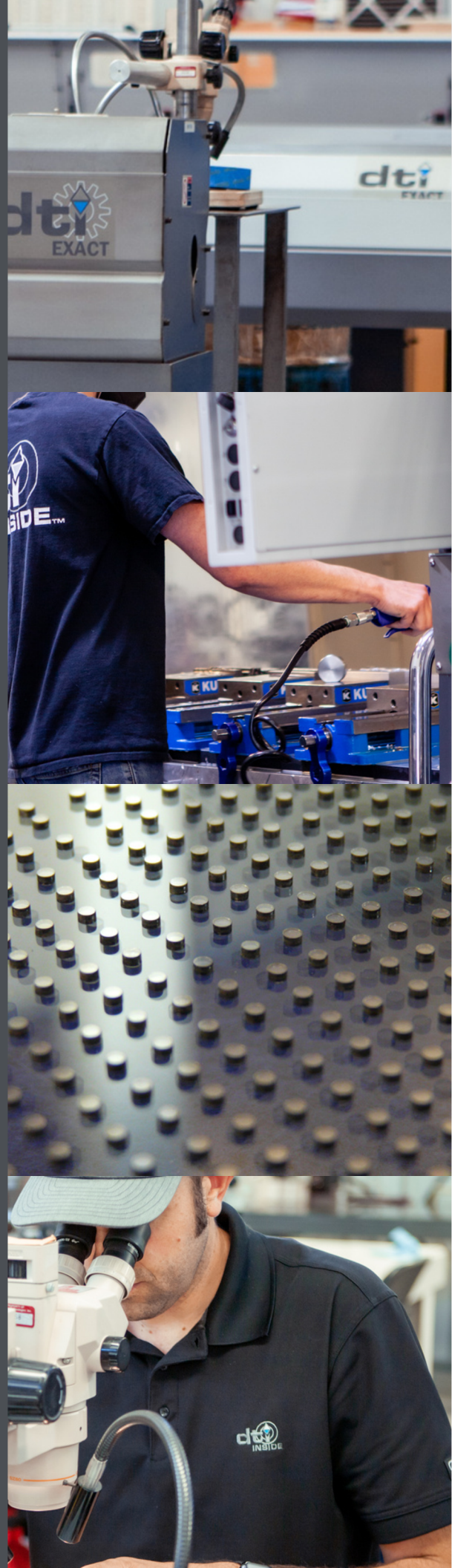
THE DIAMOND INSIDE

A superior waterjet system begins with selecting the finest orifice available. Whether opting for Ruby, Sapphire, dtiCORE™ Diamond, or tetraCORE™, a dti™ waterjet orifice is meticulously designed and rigorously tested to ensure consistent and optimal performance. This commitment to quality is the reason dti™ waterjet orifices are the gold standard.

ABOUT US

For over 30 years, Diamond Technology Innovations (dti™) has been the global leader in waterjet orifice manufacturing for the UHP waterjet cutting and cleaning industries. Founded on our commitment to innovation and unbeatable quality, our mission is continuous improvement and optimization of our products, processes, and the waterjetting industries. As a key supplier to waterjet OEMs and distributors, dti™ adds unparalleled value as a strategic partner offering American-made quality, expert engineering, trusted reliability, and proven performance.

Located in Olympia, WA, USA, dti™ boasts more than 30,000 square feet of manufacturing space, outfitted with cutting-edge equipment designed to surpass our customer's expectations.



CORE™

PREMIUM GRADE DIAMOND

- THE MOST RELIABLE WATERJET ORIFICE ON THE MARKET
- REPEATABLE 1,000+ HOURS OF UNINTERRUPTED CUTTING
- ZERO DEGRADATION OF INTERNAL GEOMETRY OVER USE
- PROPRIETARY PRECISION JETSTREAM ALIGNMENT
- THE ONLY ORIFICE DESIGNED TO ENDURE 90,000 PSI

tetraCORE™

PERFORMANCE GRADE DIAMOND

- PROPRIETARY PCD DIAMOND
- EXCELLENT RELIABILITY UP TO 60,000 PSI
- CONSISTENTLY DELIVERS 500+ HOURS OF CUTTING
- AFFORDABLE MID-GRADE ALTERNATIVE ORIFICE

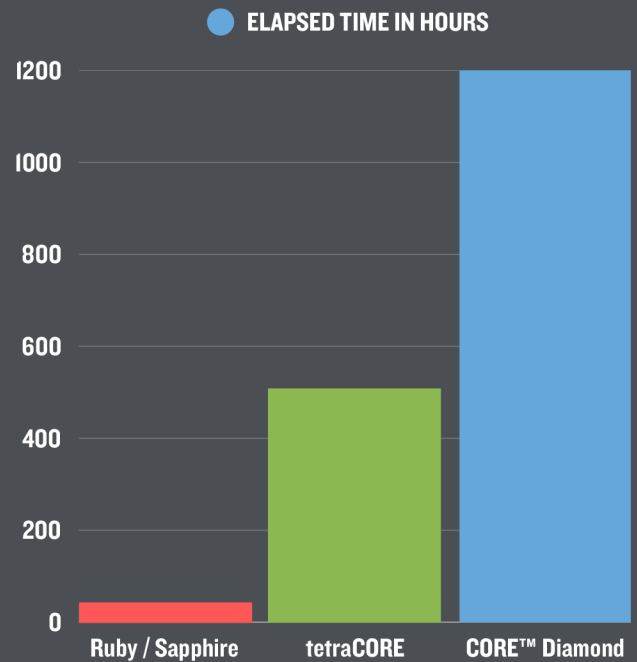
UTILITY™

RUBY & SAPPHIRE

- UTILITY-GRADE CORUNDUM ORIFICE
- HIGH-QUALITY RAW MATERIALS
- SUITABLE FOR APPLICATIONS UP TO 60,000 PSI
- PROVEN PERFORMANCE AT A LOW COST

ORIFICE LIFETIME COMPARISON

WHAT DOES YOUR DOWNTIME REALLY COST?



SPOT THE DTI™ DIFFERENCE

AEROSPACE-GRADE TITANIUM MOUNTING MATERIALS DESIGNED FOR EXCEPTIONAL DURABILITY AND LONGEVITY

HIGHEST-QUALITY RAW MATERIALS

ELIMINATION OF STRESS POINTS FOR INCREASED LIFE & ORIFICE VERSATILITY

HIGH-PRECISION FEATURES DESIGNED TO ENHANCE FATIGUE STRENGTH AND ENSURE CONSISTENT FLOW RATES.

LASER MARKED DTI LOGO ON ALL DIAMOND ORIFICES

CUSTOMIZE YOUR ORDER

CHOOSE YOUR ORIFICE, STYLE, & SIZE

PART NUMBER CONFIGURATION

ORIFICE TYPE - NOZZLE STYLE - SIZE

XX - XX - XX

EXAMPLE PART #: SA-05P-10 REFERS TO A SAPPHIRE ORIFICE IN DTI-05 WITH A PLASTIC RETAINER IN A SIZE .010"

ORIFICE TYPE



DA - PREMIUM DIAMOND

TA - TETRACORE

SA - SAPPHIRE

RA - RUBY



NOZZLE STYLES

SAPPHIRE AND RUBY RETAINER CUSTOMIZATION

ADD ONE OF THE FOLLOWING LETTERS TO THE PART STYLE, BASED ON YOUR RETAINER PREFERENCE.

P - PLASTIC

B - BRONZE

THIS CUSTOMIZATION IS ONLY AVAILABLE ON SAPPHIRE AND RUBY ASSEMBLIES

STANDARD ORIFICE SIZES



.006" - .035"

ADDITIONAL SIZES

.002" - .005" | .036" - .085"

PARTNER WITH



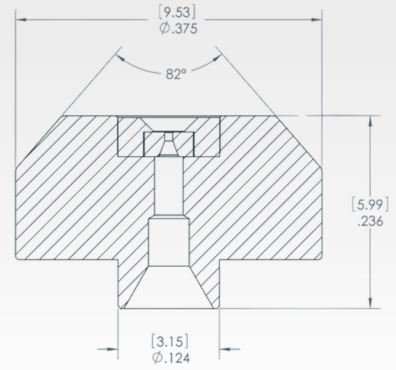
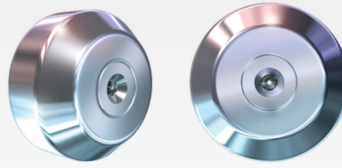
DEVELOP YOUR DESIGNS AND PRODUCTS WITH DTI ENGINEERS.

CONTACT US ABOUT CUSTOM NOZZLE SOLUTIONS AND INNOVATIVE PRODUCT DEVELOPMENT, INCLUDING:

- ORIFICE SIZES, AND DIMENSIONS
- SPECIALIZED MOUNT, RETAINER, AND/OR ORIFICE MATERIALS
- ADDITIONAL TESTING OPTIONS
- CUSTOM PACKAGING, LABELING AND/OR LASER MARKING



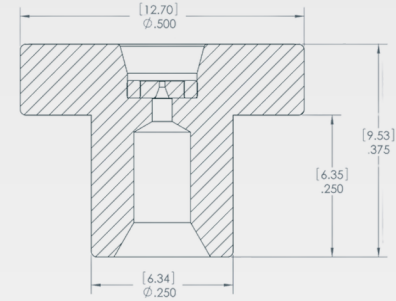
DTI-05



SIMILAR TO THE FOLLOWING:
STANDARD
COMADUR TYPE 18

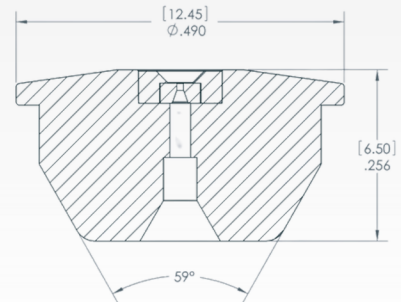
For Water-Only applications, please use part number #DTI-05W

DTI-06



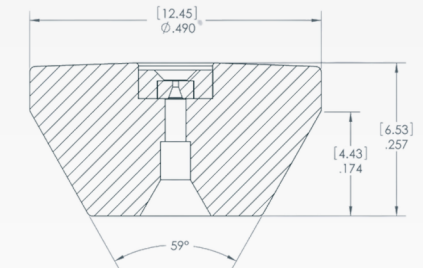
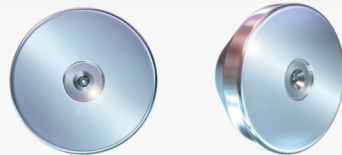
SIMILAR TO THE FOLLOWING:
PL-2
COMADUR TYPE 30

DTI-14



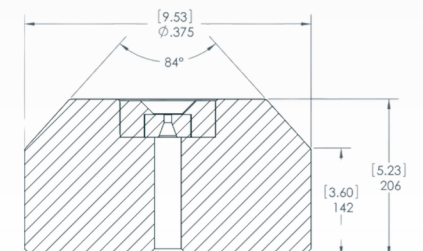
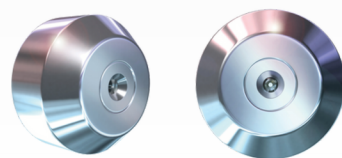
SIMILAR TO THE FOLLOWING:
P5
COMADUR TYPE 26

DTI-16



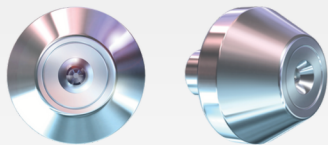
SIMILAR TO THE FOLLOWING:
P3
COMADUR TYPE 23

DTI-20

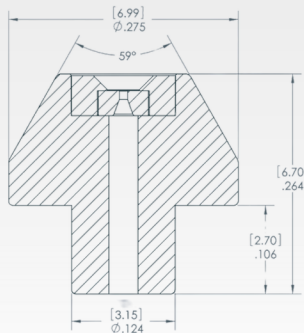


SIMILAR TO THE FOLLOWING:
P - IV
PASER 4

DTI-28

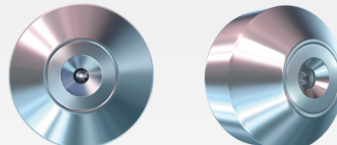


SIMILAR TO THE FOLLOWING:
SHORT STEM
COMADUR TYPE 27

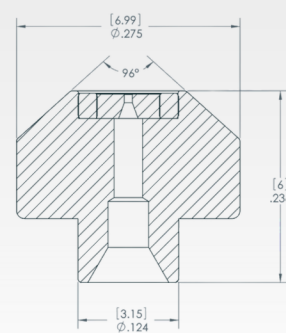


For Water-Only applications, please use part number # **DTI-28W**

DTI-65

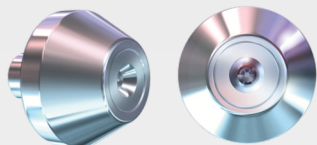


SIMILAR TO THE FOLLOWING:
SHORT STEM LOW MASS
COMADUR TYPE 27

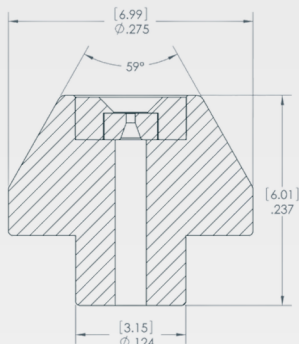


For Water-Only applications, please use part number # **DTI-65W**

DTI-30

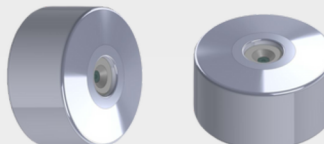


SIMILAR TO THE FOLLOWING:
COMADUR TYPE 25

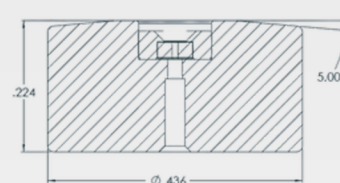


For Water-Only applications, please use part number # **DTI-30W**

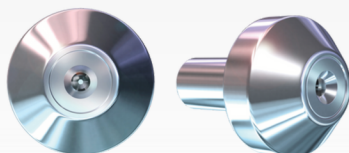
DTI-123



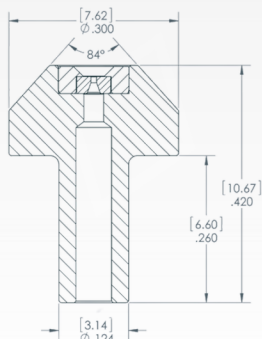
SIMILAR TO THE FOLLOWING:
TYPE HT



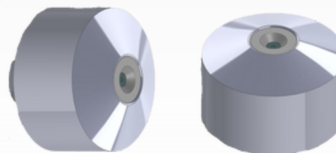
DTI-57W



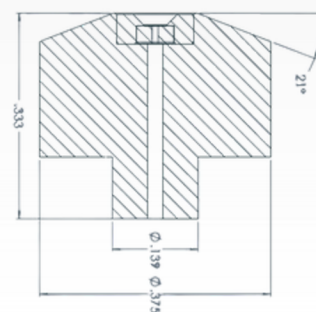
SIMILAR TO THE FOLLOWING:
LOW MASS



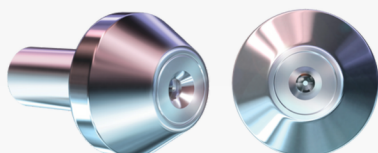
DTI-149W



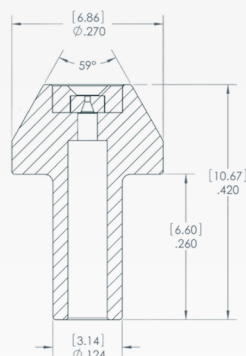
SIMILAR TO THE FOLLOWING:
90K
AUTOLINE PRO



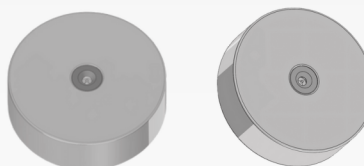
DTI-58W



SIMILAR TO THE FOLLOWING:
LONG STEM
COMADUR TYPE 10



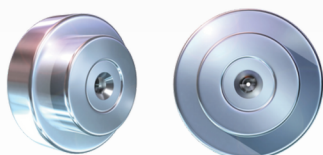
DTI-152



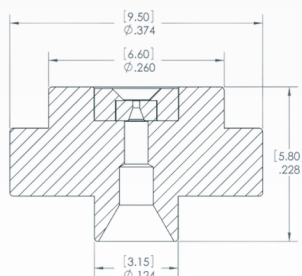
SIMILAR TO THE FOLLOWING:
COMADUR TYPE 42
MAXJET



DTI-62



SIMILAR TO THE FOLLOWING:
P II - STEP
COMADUR TYPE 14



For Water-Only applications, please use part number # **DTI-62W**

DON'T SEE YOUR ORIFICE?

SEND US AN EMAIL AT
ORDERS@DTIINSIDE.COM
OR CALL US AT (360)866-1337

SLICE2 CUTTING HEAD

1 DTI CORE™ DIAMOND

- Every SLICE2 is equipped with the #1 diamond orifice in the world, as chosen by the leading original equipment manufacturers, top distributors and their customers throughout the waterjet cutting industry.
- The dtiCORE™ Diamond ensures perfect alignment every time and boasts an impressive average life of over 1,000 hours.

2 SLIM LINE DESIGN

- Sleek, compact external geometry and lightweight design, built for closer head placement and easy adaptability to a variety of motion systems.
- Slim line design and incredibly tight tolerances make SLICE2 the best choice for multi-axis, steep angle cutting.

3 HIGH PRESSURE OPTIONS

Optional Roctec 500 mixing chamber upgrade boosts maximum protection and wear resistance in extreme high pressure applications as well as typical cutting applications.

4 INCREASED ADAPTABILITY

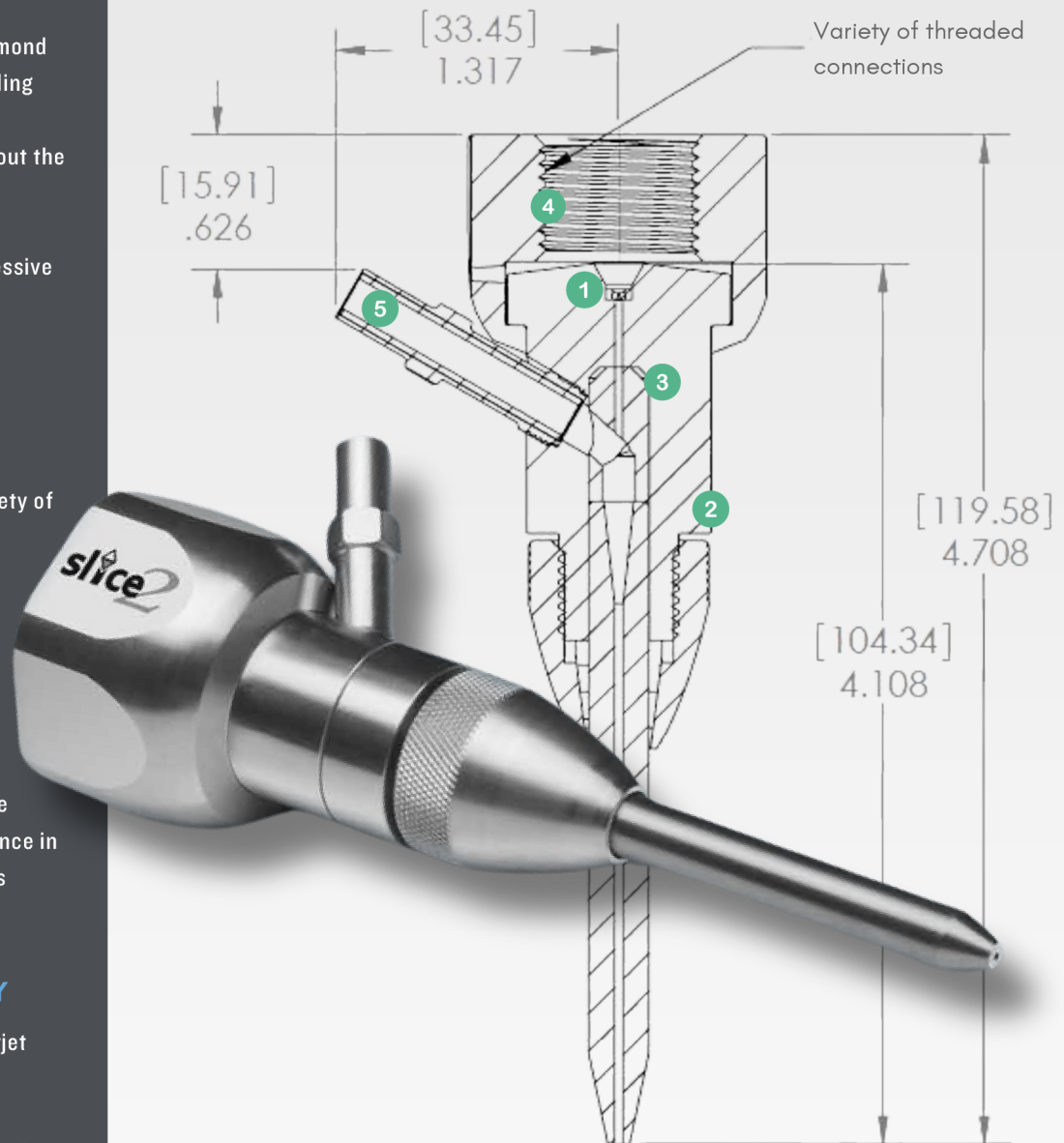
SLICE2 is adaptable to a wide range of waterjet systems worldwide.

Our current offering includes, but is not limited to,

- 3/4-16 Right Handed
- 3/4-16 Left Handed
- M20 x 1.5
- M14 x 1.5
- M16 x 1.5

5 ABRASIVE INLET

- 360° abrasive inlet rotation, makes SLICE2 the first cutting head design in the industry engineered to align with any abrasive tube location. With the ability to pivot 360 degrees, cutting head replacements have never been easier.



INTERNAL GEOMETRY

- Enhanced internal design with wear-resistant, carbide insert maximizes particle entrainment into the jet stream to ensure optimized abrasive usage and long life.
- Mixing chamber, engineered to accelerate garnet particles to high velocity, for superior cut quality and the fastest cutting speeds.
- PACT™ Technology (Precision Aligned Cartridge Technology) is a revolutionary technology that ensures true alignment of the jet stream from the integral orifice through the entire cutting head assembly. This extends focusing tube life and maximizes energy on the material being cut, to reduce scrapped material and increase uptime.

ACCESSORIES SLICE2

ADDED VERSATILITY

CUSTOMIZE your SLICE2 to align precisely with your operational requirements. It's adaptability to a wide range of waterjet systems worldwide significantly enhances versatility, ensuring that the cutting head is specifically tailored to meet your unique needs.



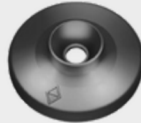
DA-ABR-01
Abrasive Inlet



D-NUT-18
Mixing Tube Clamp Nut



M-COL-02
Collet



D-GRD-02
Splash Guard

PROTECT YOUR INVESTMENT WITH A DIAMOND GUARD FILTER

More details on page 8

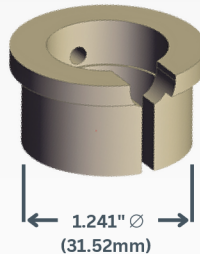


CUTTING HEAD CLAMP ADAPTER

FEATURES

- Compatible Design for Common Waterjet Systems
- Simple Assembly of Adapter to Cutting Head
- Precise, Secure, and Repeatable Z-Axis Positioning
- Brass Alloy for Strength, Durability, and Corrosion Resistance
- Designed for Quick Changeover
- Cost Savings Option for High Quality Cutting Head

Part #: M-ADP-14



CHOOSE YOUR SLICE2

CUSTOMIZE YOUR ORDER

SLC2- ☒ - ☒ ☒

SLC2- ☒ - ☒ ☒ - R5

With Rotech® 500 Mixing Chamber

R (3/4-16 Right Handed)

L (3/4-16 Left Handed)



D (M20 x 1.5)

B (M14 x 1.5)

M (M16 x 1.5)



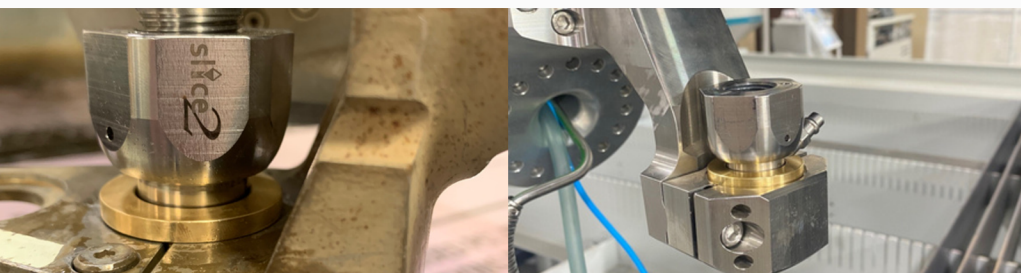
Orifice Size

Standard Orifice Size Range: .008" - .018"

Designed for standard .281" or
7.14mm nozzle
(nozzle not included)



dti
INSIDE™
DIAMOND TECHNOLOGY INNOVATIONS



DTI SOLUTIONS

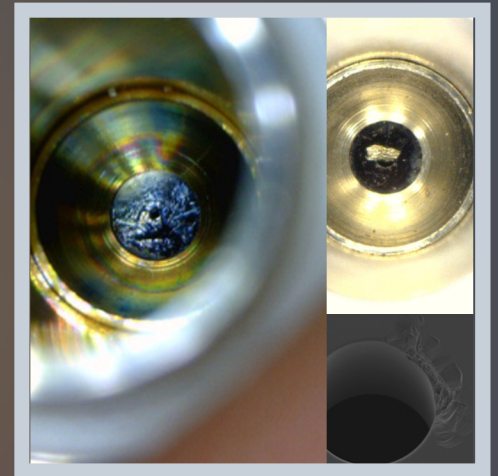
DIAMOND GUARD FILTER



*Showing part # M-FIL-01

THE PROBLEM

- Plugged or Chipped Orifices
- Premature Wear of Cutting Head Components
- Reduced Jet Stream Coherency
- Inefficient Cutting



Within the internal components of every waterjet system, errant particles become dislodged and travel through the high-pressure lines. These particles end up at the waterjet orifice, impacting and potentially damaging the orifice edge. When debris is larger than the hole in the orifice, the orifice assembly becomes plugged or partially blocked.

THE SOLUTION

THE dti™ DIAMOND GUARD FILTER

THE SOLUTION

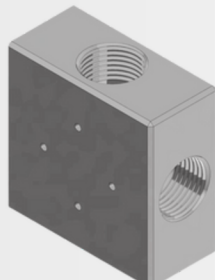
The dti™ Diamond Guard Filter is designed to simply and effectively capture debris larger than .0055" (0.14mm) from impacting or blocking the orifice. Any particles small enough to pass through the DG Filter will also exit safely through the hole of the waterjet orifice.

DG Filters and Adapters allow for ease of installation in any waterjet system's 1/4" or 3/8" high-pressure lines. The DG Filter is installed as close to the waterjet orifice assembly as possible, with the most common location being in the HP fitting at the on/off valve assembly. When paired with any dti™ orifice assembly, the dti™ Diamond Guard Filter ensures precision cutting throughout every job.



M-DGF-01

9/16" ELBOW, 90° WITH DGF SEAT (NO FILTER ELEMENT)

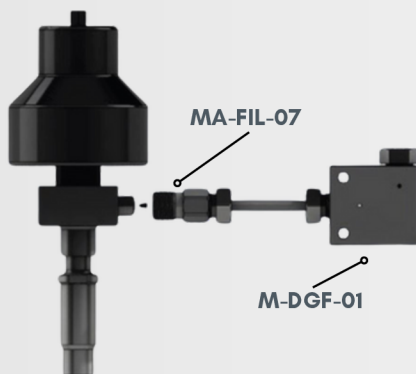


M-DGF-02

3/8" CROSS, WITH DGF SEATS (NO FILTER ELEMENT)

INSTALL EXAMPLE

*PRO TIP: DOUBLE UP YOUR FILTERS IF YOUR SYSTEM ALLOWS.



DIAMOND GUARD ADAPTERS

PROTECT YOUR ORIFICE

M-FIL-01

DIAMOND GUARD FILTER ELEMENT

MA-FIL-03

3/8" DIAMOND GUARD FILTER & INSERT COMBO

M-ADP-06

3/8" DIAMOND GUARD INSERT

M-INS-22

1/4" DIAMOND GUARD FILTER INSERT

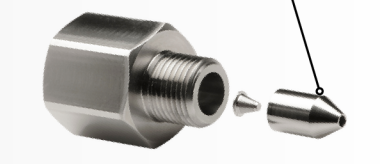


MA-FIL-07

1/4" F TO 3/8" M DIAMOND GUARD FILTER ASSEMBLY

MA-FIL-07-NF

1/4" F TO 3/8" M DGF BODY & INSERT (NO FILTER ELEMENT)



MA-FIL-08

1/4" F TO 1/4" M 90K PSI DIAMOND GUARD FILTER ASSEMBLY

MA-FIL-08NF

1/4" F TO 1/4" M 90K PSI DGF BODY & INSERT (NO FILTER ELEMENT)



MA-FIL-02

3/8" F TO 3/8" M DIAMOND GUARD FILTER ASSEMBLY

MA-FIL-02NF

3/8" F TO 3/8" M DGF BODY (NO FILTER ELEMENT)



MA-FIL-09

M16 F TO M16 M DIAMOND GUARD FILTER METRIC M16X1.5 THREADS

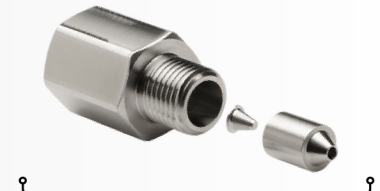
MA-FIL-09NF

M16 F TO M16 M DGF BODY & INSERT (NO FILTER ELEMENT)



M-HOU-02

3/8" F TO 3/8" F DIAMOND GUARD FILTER INLINE HOUSING (NO FILTER ELEMENT)



MA-FIL-06

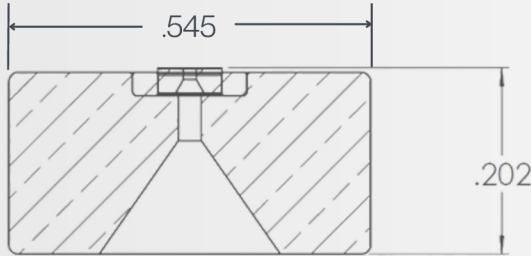
1/4" F TO 1/4" M DIAMOND GUARD FILTER ASSEMBLY

MA-FIL-06NF

1/4" F TO 1/4" M DGF BODY & INSERT (NO FILTER ELEMENT)

WATERJET GUIDED LASER NOZZLES

DTI-141



PART #	SIZE
DTI-141-02	.002" / 50µm
DTI-141-03	.003" / 75µm
DTI-141-04	.004" / 100µm
DTI-141-05	.005" / 125µm
DTI-141-06	.006" / 150µm

DTI-154



PART #	SIZE
DTI-154-02	.002" / 50µm
DTI-154-03	.003" / 75µm
DTI-154-04	.004" / 100µm
DTI-154-05	.005" / 125µm
DTI-154-06	.006" / 150µm

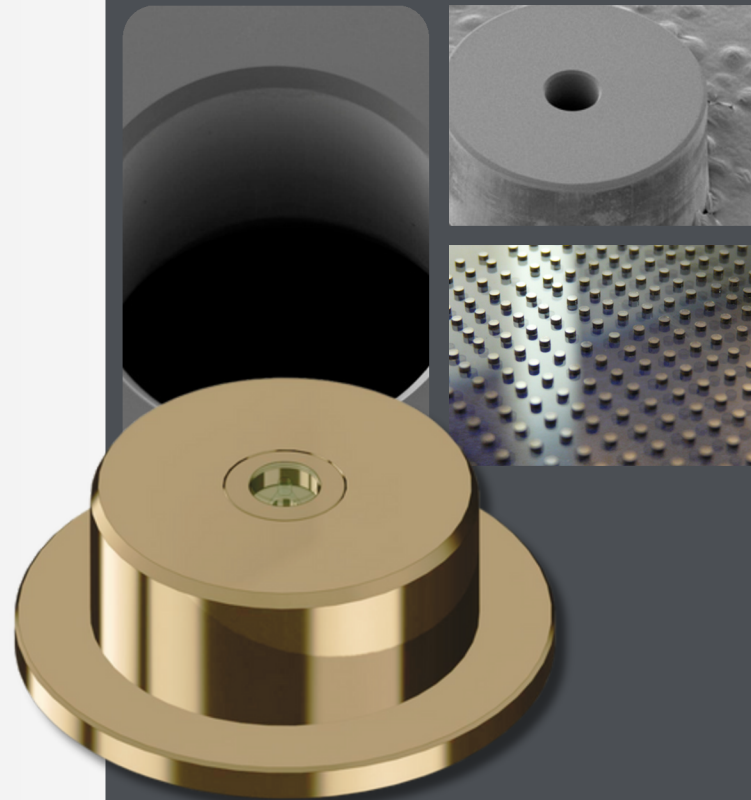
PRODUCT FEATURES

- Premium single crystal dti™ CORE diamond or sapphire
- Precision jet stream alignment for optimal accuracy
- Thoroughly tested for Jet stream coherency and stability
- Concentricity tolerance of + - .00001" | ID tolerance of .0002"
- .002" orifices are only available in diamond. Additional sizes available upon request

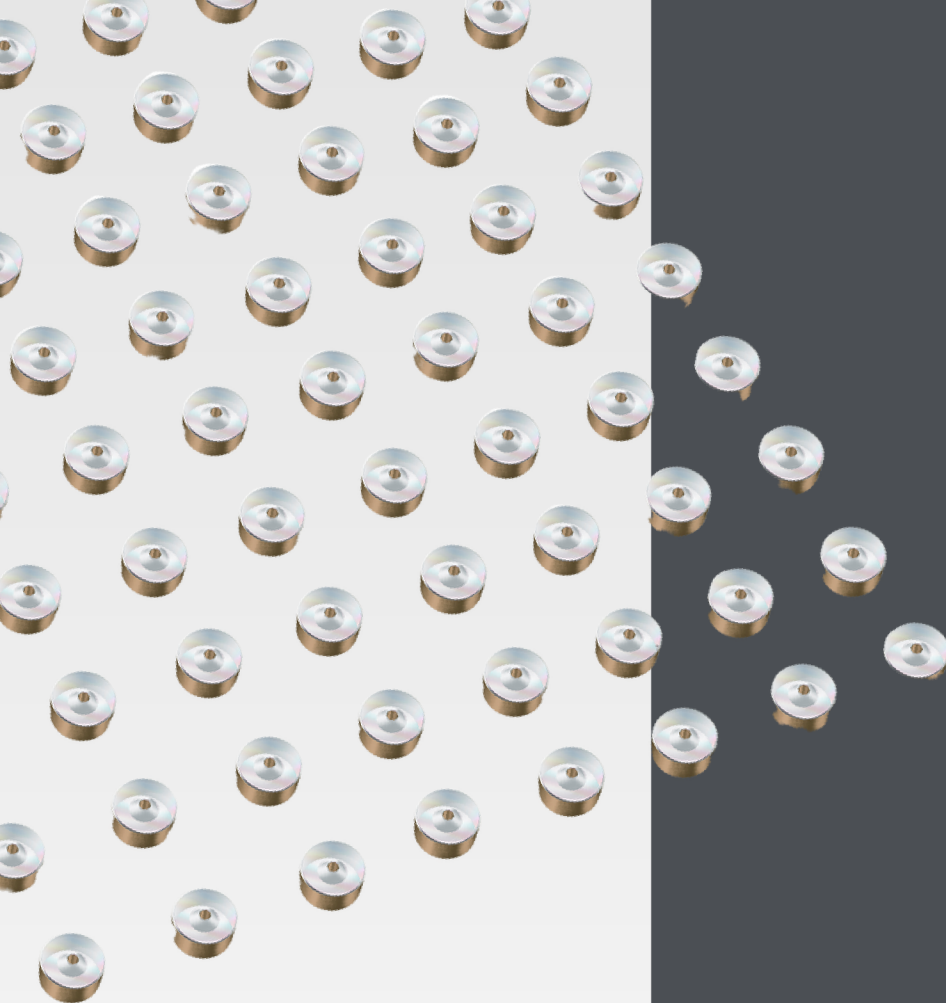
PRECISION PERFECTED

dti™ is proud to introduce our state-of-the-art nozzles designed specifically for waterjet guided laser systems. Leveraging our advanced diamond processing equipment and technological expertise, we guarantee optimal performance and precise cutting through the consistent and focused delivery of high-pressure water.

Discover the difference with dti™ cutting-edge nozzles and achieve unparalleled accuracy and efficiency in your cutting operations.



*SHOWING PART # DTI-154



dti™ is a manufacturer of orifices and cutting heads for OEMs and distributors. To place an order, contact your waterjet supplier or contact us for your nearest authorized dealer.



DIAMOND TECHNOLOGY INNOVATIONS

1043 Kaiser Rd SW | Olympia, WA 98512

360.866.1337

Orders@dtiINSIDE.com

Disclaimer: We are not affiliated with, endorsed by, or associated with any of the companies or brands listed in this catalog. All product names, trademarks, and registered trademarks are the property of their respective owners. The use of these names, trademarks, and brands does not imply endorsement.