

TAKING UNPREDICTABILITY OUT OF MECHANICAL APPLICATIONS

— Our range of single crystal and polycrystalline synthetic diamond products is subject to tightly controlled growth conditions and stringent quality control procedures. The result - an engineered material that is highly consistent and has predictable properties and behaviour required for cutting tool, wire drawing, dressing and super-finishing applications.

OUR COMPREHENSIVE MECHANICAL RANGE

* Custom shapes available on request.

GENERIC APPLICATION	PRIMARY APPLICATION	PRODUCT RANGE	CRYSTAL GROWTH PROCESS	PRODUCT FAMILY	KEY PRODUCT FEATURES	ORIENTATION	SHAPE AVAILABILITY	SIZE RANGE	FORMAT
CUTTING TOOLS & WEAR PARTS	Ultra precision machining acrylics, copper, germanium Generates very high surface finishes	MCC PT2 MCC PT4	Single Crystal CVD - Colourless (Low nitrogen content)	MONODITE	Premium product having a unique combination of high wear and very high thermal conductivity	2 pt / (110) plates 4 pt / (100) plates	Primarily rectangles, also squares, triangles and circles.*	Typically up to 5 mm edge lengths	Polished plates with precise laser cut edges
	Wide-ranging laser cut shape and size for Precision machining of MMC and CFRP materials	CDM	Polycrystalline CVD - Opaque (Low nitrogen content)		CVDITE	Polycrystalline CVD with high abrasion resistance and thermal stability. Suitable for dry or MQL machining	Polycrystalline	Primarily rectangles, also squares, triangles and circles.*	Available laser cut and disc format up to diameter 60.0mm
	Wide-ranging laser cut shape and size for Precision machining of MMC, CFRP and woodworking materials.	CDE		Polycrystalline CVD, electrically conductive to facilitate EDM		Polycrystalline	Primarily rectangles, also squares, triangles and circles.*	Available laser or EDM cut and in disc format up to diameter 60.0 mm	Available as grown, lapped or polished
	Long edge length requirements (e.g. profile tools)	MSP		MONODITE	Individually priced large edge length plates available through www.e6mono.com	Primarily 4 pt / (100) plates Also 2 pt / (110) plates	Basically square	5 to 12 mm	Large sawn plates for individual selection with optional laser cutting service
	Long edge length requirements (e.g. controlled waviness tools)	MLP	Long edge length polished near rectangular logs		4 pt / (100) plates	Near rectangular	One guaranteed edge length up to 7.0mm	Large polished near rectangular plates having one full guaranteed edge length	
	Engineered cutting tools and wear parts for superfinishing, burnishing and wire guides Convenient cut shapes	MT L (RECTANGLE) MT T (TRIANGLE) MT R (ROUND)	Highly engineered polished plates, laser cut to specific dimensions		4 pt / (100) plates also available in 2pt / (110) on request	Primarily rectangles, also squares, triangles and circles*	Typically up to 8 mm edge length & 2 mm thickness	Polished plates with precise laser cut edges	
	Superfinishing and precision machining e.g. precious metals and MMC materials	MXP	Single Crystal HPHT - Pale yellow (Medium nitrogen content)		Near square plates having guaranteed inscribed square	4 pt / (100) plates	Near square	2 to 4.5 mm edge length and up to 1.5 mm thickness	Inscribed square size >=75% of edge length
		MWS PT4		Near round plates having guaranteed inscribed circle		Near round		Inscribed circle diameter >=80% of edge length	
		MWS PT2		Engineered polished plates benefiting from 2 point orientation	2pt / (110) plates	Near rectangular	Typically up to 3 - 4 mm edge length up to 1.5 mm thickness	Polished plates	
	DRESSING	Single point, multi-point, blade, roller and rotary dressing	MDL	MONODRESS	Designed for abrasive wear resistance in dressing and parting tool applications. Good thermal stability	4 pt / (100) plates	Rectangular logs and squares	Standard sizes 2.5 to 5.0 mm in length	Polished squares or rectangles with precisely laser cut edges
Chisel dressing / chisel form dressing		MM	Alternative to natural diamond macles		3 pt / (111) plates	Triangular / macle shaped. Also available in laser cut triangles up to 3.0 mm edge length	3.0 to 5.00 mm edge lengths	Polished macle plates	
Strong and more wear resistant grade for single point and blade dressers		CDD	CVDRESS	Polycrystalline CVD engineered specifically for high abrasive resistance needed for dresser applications. Used in single point, multipoint and blade dressers	Polycrystalline	Primarily rectangles and squares.*	Available laser cut and disc format up to diameter 60.0 mm. Standard thickness 0.5 mm	Available as grown, lapped or polished	
General purpose grade for cutting tools and rotary dressers		CDM		Polycrystalline CVD - Opaque (Low nitrogen content)					Polycrystalline CVD with high abrasion resistance and thermal stability. Suitable rotary dressing applications
WIRE DRAWING	Wire drawing of ferrous, non ferrous precious and refractory metals	MD	HPHT Pale Yellow (Medium nitrogen content)	MONODIE	Wire Drawing die blanks with specific quality controlled inscribed circle. Exceptional wear resistance due to 3 pt crystal orientation	3 pt / (111) plates	Hexagonal polyhedra	0.5 to 1.80 mm thickness	Polished die blanks having a guaranteed usable inner volume defined as an inscribed circle.

MONODITE MCC: TWO-POINT & FOUR-POINT DIRECTION



FEATURES

- Unique combination of extreme wear resistance, excellent chip resistance and high thermal conductivity combined with low thermal expansion
- Produced under ultra-high purity conditions
- Colourless

BENEFITS

- High quality surface finishes on abrasive workpiece materials
- Outperforms natural diamond due to its consistent and predictable material properties
- Offers superior edge quality in ultra-precision machining operations

TOOL FABRICATION

Being an engineered material, MCC is produced in standard sizes that can reduce fabrication times for tool production.

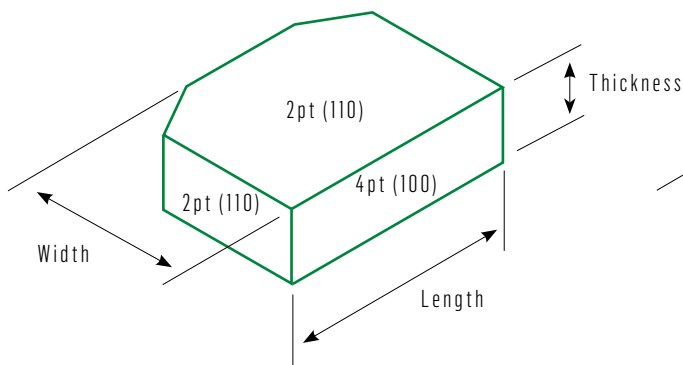
The high chemical purity and consistency also offers potential savings in processing this material. It can be fabricated into finished tools using standard manufacturing technologies including laser cutting, polishing, brazing and grinding.

For further information please refer to our Processing Guidelines.

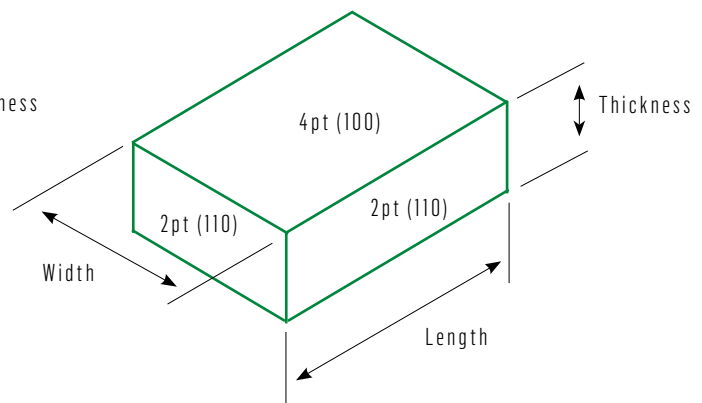
SIZE AVAILABILITY

PRODUCT NOMENCLATURE	DIMENSIONS [MM] (LENGTH X WIDTH X THICKNESS)
MCC L453012	4.5 x 3.0 x 1.2
MCC L403012	4.0 x 3.0 x 1.2
MCC L303012	3.0 x 3.0 x 1.2
MCC L302512	3.0 x 2.5 x 1.2
MCC L403010 PT4PT2	4.0 x 3.0 x 1.0

As well as standard sizes, customers may request particular dimensions. Availability is conditional on the precise dimensions and specification required.



Example of an MCC 2pt product of nomenclature MCC L403012.
Length = 4.0mm, Width = 3.0mm and Thickness = 1.2 mm.



Example of MCC 4pt2pt product nomenclature MCC L403010PT4PT2.
Length = 4.0mm, Width = 3.0mm and Thickness = 1.0mm.

CVDITE: CDM & CDE

— *Electrically conductive CVD Diamond*

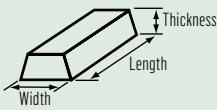
NOMENCLATURE EXAMPLES

CDE R



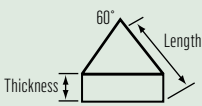
CDE R2605-360PL is a CDE grade 'round', 2.6 mm in diameter and 0.5 mm thickness. PL for polished finish.

CDE L



CDE L603005PL is a CDE grade, 6 mm in length, 3.0mm wide, 0.5 mm thickness. PL for polished finish.

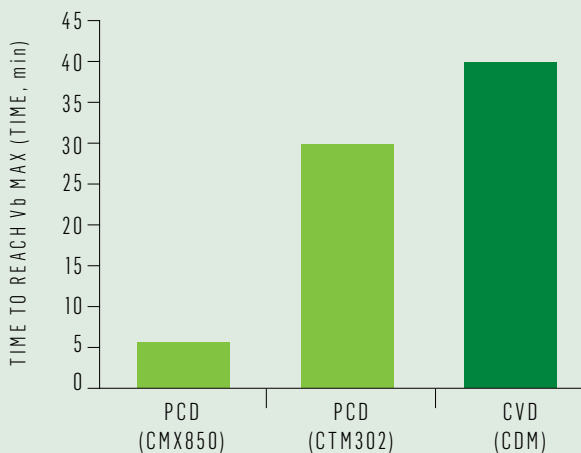
CDE T



CDE T3005-60PL is a CDE grade equilateral triangle having 3.0 mm edge length and 0.5 mm thickness. PL for polished finish.

A minimum order charge may be incurred for small volumes of new parts.

TIME TO REACH 0.2MM FLANK WEAR IN CONTINUOUS OUTSIDE DIAMETER TURNING OF METAL MATRIX COMPOSITE (AMC225xe (S))



In applications where tool wear is dominated by abrasive wear CVD has been observed to show greater abrasion resistance compared to PCD. Therefore CVD is particularly suitable for highly abrasive continuous turning operations.

FEATURES

- High resistance to abrasive wear & high thermal stability
- Chemically inert material

BENEFITS

- Improved cutting edge quality and better chip flow characteristics
- Reduced friction for wear parts due to polished surface

SUGGESTED APPLICATION

CVDITE CDE

- Cutting tools using electrical discharge machining (EDM) or electrical discharge grinding (EDG)

CVDITE CDM

- General purpose cutting tools

CVDITE CDE & CDM

- Dry machining of metal matrix composites and high volume fraction glass fibre reinforced materials operating at high temperatures

TOOL FABRICATION

- Typical natural diamond tool fabrication techniques can be applied. Synthesized as flat plates and processed to exact requirements and high standards of the diamond toolmaking industry. Prepared with fine lapped surface preferred for bonding
- Brazing to tungsten carbide substrates can be carried out in a vacuum furnace or reducing gas atmosphere using high temperature active braze alloys
- Highly polished face is recommended for use as the top table or rake face of the tool as beneficial in producing a sharp, chip-resistant cutting edge

AVAILABLE SIZES

CVDITE (CUTTING TOOLS)

CDE	CDM
CDE 05 PL	CDM 05 PL

CDE 05 PL (0.5 mm thick Polished).

DEFINITIONS

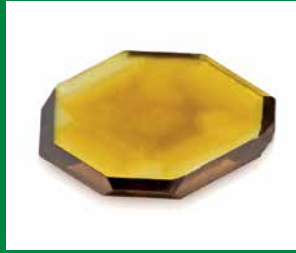
The standard surface finish has a polished face (Ra<100nm) and a lapped face (Ra<400nm) designated with the suffix PL. Unprocessed material is also available- designated NP. The surface finish of NP is either 'as grown' or with any finish to meet the specified thickness.

MONODITE MSP: FOUR-POINT DIRECTION

— *Unique stones selection, available from our online catalogue*

WHERE TO FIND OUR UNIQUE PLATES

Visit our catalogue
www.e6mono.com

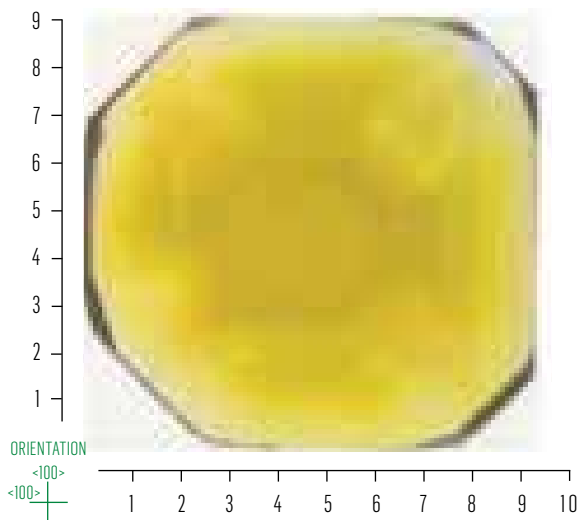


OUR UNIQUE PRODUCT SELECTION SYSTEM

Our unique section system – Monoscan, helps toolmakers to choose the appropriate product for their application.

For each product our Monoscan shows the following:

- Product dimensions and shape
- Clarity
- The crystallographic orientation of the product edges
- Unique order reference number



An example Monoscan from the Monodite catalogue.

OUR LASER CUTTING SERVICE

- Available at no extra cost for the first two cuts
- Orders should be accompanied by a copy of the appropriate Monoscan indicating cut positions

FEATURES

- Large synthetic single crystal diamond plates supplied in a range of specified dimensions from 5 mm to 10 mm in usable length
- Produced with standard thickness up to 2 mm
- Supplied with minimal deviation from the precise crystallographic four-point plane
- Manufactured by our proprietary high pressure, high temperature synthesis process

BENEFITS

- Can be individually selected by customers (with laser cut option) through an online catalogue
- A versatile format for various applications

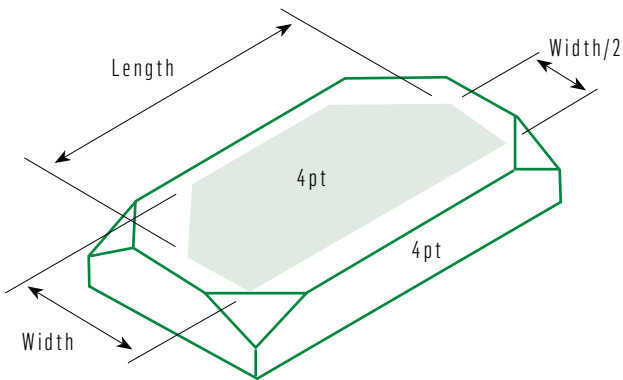
AVAILABLE SIZES

PRODUCT NOMENCLATURE	LENGTH (MM)
MSP L55	5.5 - 5.9
MSP L60	6.0 - 6.4
MSP L65	6.5 - 6.9
MSP L70	7.0 - 7.4
MSP L75	7.5 - 7.9
MSP L80	8.0 - 8.4
MSP L85	8.5 - 8.9
MSP L90	9.0 - 9.4
MSP L95	9.5 - 9.9
MSP L100	10.0 - 11.9

ORDERING YOUR UNIQUE MONODITE PRODUCT

- The Product Nomenclature defines the edges length class in 0.5 mm increments as shown in the table.
- The plate in the Monoscan example (left) has an edge length of 9.4 mm (in the four point direction) and is described as an MSP L90 (rounded to the nearest half mm).
- The full description for this product would be MSP L90-17D017, for example, in which 17D017 is the unique reference number of the plate.

MONODITE MLP: FOUR-POINT DIRECTION



Guaranteed minimum lateral dimensions as defined in the nomenclature and as show in the shaded area above.

FEATURES

- Readily available source of long edge in synthetic single crystal diamond
- More regular in shape than other whole stones
- Manufactured by our proprietary high pressure, high temperature synthesis process

BENEFITS

- Suits precision machining applications where long edge lengths are required
- Available at volume

SUGGESTED APPLICATION

- Particularly suited to ultra-precision machining requiring long edge length diamond

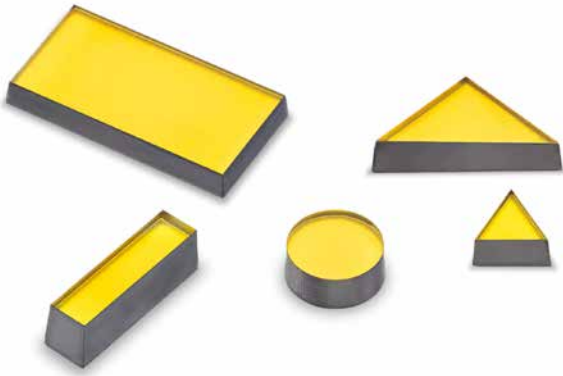
AVAILABLE SIZES

Our Monodie MLP can be ordered by edge length and thickness. Introductory sizes are shown below.

AVAILABLE SIZES

PRODUCT NOMENCLATURE	LENGTH (MM)	WIDTH (MM)	THICKNESS (MM)
MLP 502510	5.0	2.5	1.0
MLP 502512	5.0	2.5	1.2
MLP 552810	5.5	2.75	1.0
MLP 552812	5.5	2.75	1.2
MLP 603010	6.0	3.0	1.0
MLP 603012	6.0	3.0	1.2
MLP 653210	6.5	3.25	1.0
MLP 653212	6.5	3.25	1.2
MLP 703510	7.0	3.5	1.0
MLP 703512	7.0	3.5	1.2

MONODITE MT: LASER DEFINED SHAPES



Monodite MT is a highly engineered and tightly specified product.

SUGGESTED APPLICATION

- Particularly suited to ultra-precision machining such as superfinishing
- Engineered cutting tools and wear parts for superfinishing, burnishing and wire guides. Convenient cut shapes

FEATURES

- Available as 4pt and 2pt orientation
- Available in standard cut geometries rectangles, triangles and rounds up to 8 mm maximum edge length and in thickness up to 1.5 mm
- Custom shapes are also available on request
- Produced in standard thicknesses: 1.0 mm, 1.2 mm, 1.5 mm
- Manufactured by our proprietary high pressure, high temperature synthesis process

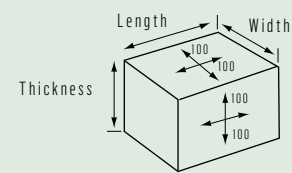
BENEFITS

- Near net sizes facilitates reduced grinding times in tool manufacture
- Laser cut standard geometries allow ease of replacement for conventional Carbide and PCD turning and milling applications
- Available at volume

AVAILABLE SIZES

MONODITE MTL PRODUCT NOMENCLATURE DIMENSIONS (MM) (LENGTH X WIDTH X THICKNESS)

MT L403012	4.0 x 3.0 x 1.2
MT L303012	3.0 x 3.0 x 1.2
MT L302012	3.0 x 2.0 x 1.2
MT L301512	3.0 x 1.5 x 1.2



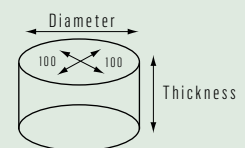
MONODITE MTT PRODUCT NOMENCLATURE DIMENSIONS (MM) (EDGE LENGTH X THICKNESS) ANGLE (°)

MT T3012-90	3.0 x 1.2	90
MT T3010-60	3.0 x 1.2	60



MONODITE MTT PRODUCT NOMENCLATURE DIMENSIONS (MM) (DIAMETER X THICKNESS) ANGLE (°)

MT R2512-360	2.5 x 1.2	360
MT R2012-360	2.0 x 1.2	360

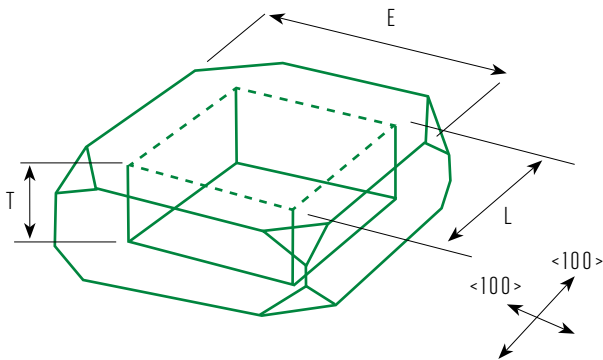


OTHER SIZES AVAILABLE ON REQUEST INCLUDING 2PT AND CUSTOM PRODUCTS

MONODITE MXP: FOUR-POINT DIRECTION



Our diamond is engineered in our proprietary synthetic process ensuring material consistency and uniformity at volume.



*E = Nominal Length T = Nominal Thickness
L = Edge Length of Inscribed Square (at least 75% of E)
$\langle 100 \rangle$, four point stone orientation*

FEATURES

- Premium synthetic diamond supplied in a range of specified dimensions from 3 mm to 4.5 mm (four-point direction) in usable edges length
- Manufactured by our proprietary high pressure, high temperature synthesis process

BENEFITS

- Wide range of standard stock sizes
- Guaranteed inscribed square edge length of 75% minimum of the nominal plate length
- Available at volume

SUGGESTED APPLICATION

- General applications
- Superfinishing and precision machining e.g. precious metals and MMC materials

AVAILABLE SIZES

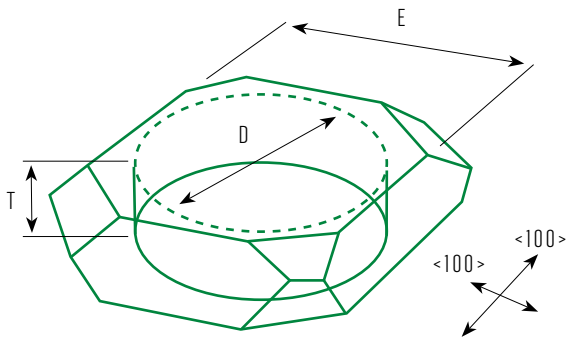
The large range of available sizes gives toolmakers an increased choice and optimises diamond usage.

AVAILABLE SIZES

PRODUCT NOMENCLATURE	NOMINAL LENGTH (MM)	MINIMUM EDGE LENGTH OF INSCRIBED SQUARE (MM)	MINIMUM THICKNESS (MM)
MXP L3010	3.0	2.2	1.0
MXP L3012	3.0	2.2	1.2
MXP L3510	3.5	2.6	1.0
MXP L3512	3.5	2.6	1.2
MXP L4010	4.0	3.0	1.0
MXP L4012	4.0	3.0	1.2
MXP L4510	4.5	3.3	1.0
MXP L4512	4.5	3.3	1.2

Other sizes available on request, including thickness of up to 1.5 mm.

MONODITE MWS: FOUR-POINT DIRECTION



E = Nominal Length T = Nominal Thickness
 D = Diameter of Inscribed Circle (at least 80% of E)
 $\langle 100 \rangle$, four point stone orientation

FEATURES

- Synthetic single crystal diamond supplied in a range of specific dimensions from 2 mm to 4.5 mm in usual edge length
- Manufactured by our proprietary high pressure, high temperature synthesis process

BENEFITS

- Wide range of standard stock sizes
- Guaranteed inscribed circle (diameter) of 80% minimum of the nominal plate length
- Available at volume

SUGGESTED APPLICATION

- General applications
- Superfinishing and precision machining e.g. precious metals and MMC materials

AVAILABLE SIZES

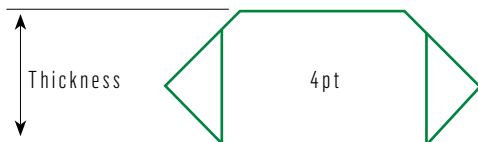
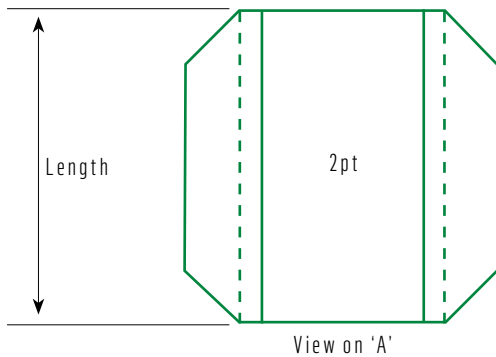
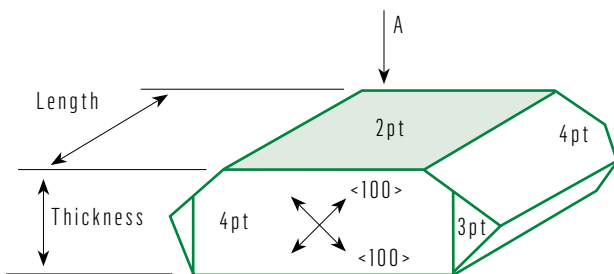
The large range of available sizes gives toolmakers an increased choice and optimises diamond usage.

AVAILABLE SIZES

PRODUCT NOMENCLATURE	NOMINAL LENGTH (MM)	MINIMUM EDGE LENGTH OF INSCRIBED SQUARE (MM)	MINIMUM THICKNESS (MM)
MWS L2008	2.0	1.6	0.8
MWS L2010	2.0	1.6	1.0
MWS L2508	2.5	2.0	0.8
MWS L2510	2.5	2.0	1.0
MWS L3010	3.0	2.4	1.0
MWS L3012	3.0	2.4	1.2
MWS L3510	3.5	2.8	1.0
MWS L3512	3.5	2.8	1.2
MWS L4010	4.0	3.2	1.0
MWS L4012	4.0	3.2	1.2
MWS L4510	4.5	3.6	1.0

Other sizes available on request, including thickness of up to 1.5 mm.

MONODITE MWS: TWO-POINT DIRECTION



FEATURES

- Synthetic single crystal diamond supplied in as standard sizes
- Guaranteed window in 2pt and 4pt directions
- Manufactured by our proprietary high pressure, high temperature synthesis process

BENEFITS

- Wide range of standard sizes with in a range of specific dimensions from 3.0 to 4.0 mm and 1.0 to 1.2 mm thickness
- With increased abrasive resistance, this format provides an ideal alternative to Two-Point natural diamond plates
- Available at volume

SUGGESTED APPLICATION

- Particularly suited to ultra-precision machining such as superfinishing in aluminium alloys, acrylic and precious metals

LARGE RANGE OF AVAILABLE SIZES

PRODUCT NOMENCLATURE	EDGE LENGTH (MM)	THICKNESS (MM)
MWS L3010PT2	3.0	1.0
MWS L3012PT2	3.0	1.2
MWS L4010PT2	4.0	1.0
MWS L4012PT2	4.0	1.2

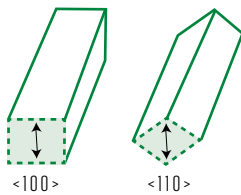
Other sizes available on request, including thickness of up to 1.5 mm.

MONODRESS MDL: FOUR-POINT DIRECTION

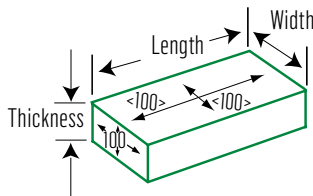


Monodress MDL is supplied in a range of length and square cross sections which are laser cut to exact dimensions to facilitate tool manufacturers.

Simply by rotating the logs through 45° about their central axis, the two point direction can be revealed, offering the option to make a tool with even greater wear resistance. As the MDL has a constant dresser width, no resetting is needed.



Each product has $\{100\}$ (four point) orientation on all faces that are easily defined and located with their grinding directions.



Non-standard dimensions are available by request for this product.

TOOL FABRICATION

Two methods of tool fabrication are suitable for use with Monodress MDL – non-ferrous metal sintering or brazing onto a dresser body using an active braze alloy in a non-oxidising environment. Using diamond grinding, the dressers can be shaped in-situ to make cone, chisel and rounded shapes.

FEATURES

- Supplied as rectangles or square shaped logs in various length
- Excellent thermal stability

BENEFITS

- Consistent wear from dresser to dresser
- Uniform wear over the entire length of the dresser
- Easy-to-use toolmaking material
- Constant dresser cross-section - no resetting needed

SUGGESTED APPLICATIONS

- All dresser types, for example: single point, multi-point and blade dressing
- Developed to offer high resistance to abrasive wear in dressing and parting tool applications

SIZE AVAILABILITY

PRODUCT NOMENCLATURE	DIMENSIONS [MM] (LENGTH x WIDTH x THICKNESS)
MDL 251212	2.5 x 1.2 x 1.2
MDL 251515	2.5 x 1.5 x 1.5
MDL 300404	3.0 x 0.4 x 0.4
MDL 300606	3.0 x 0.6 x 0.6
MDL 300808	3.0 x 0.8 x 0.8
MDL 301010	3.0 x 1.0 x 1.0
MDL 301212	3.0 x 1.2 x 1.2
MDL 301515	3.0 x 1.5 x 1.5
MDL 400404	4.0 x 0.4 x 0.4
MDL 400606	4.0 x 0.6 x 0.6
MDL 400808	4.0 x 0.8 x 0.8
MDL 401010	4.0 x 1.0 x 1.0
MDL 401212	4.0 x 1.2 x 1.2
MDL 401515	4.0 x 1.5 x 1.5
MDL 500404	5.0 x 0.4 x 0.4
MDL 500606	5.0 x 0.6 x 0.6
MDL 500808	5.0 x 0.8 x 0.8
MDL 501010	5.0 x 1.0 x 1.0
MDL 501212	5.0 x 1.2 x 1.2
MDL 501515	5.0 x 1.5 x 1.5

MONODRESS MM 111: THREE-POINT DIRECTION

Monodress Macles are a range of monocrystalline diamond within the Monodress product family. This range uses a high-pressure, high temperature process and is a specially developed alternative to natural diamond macles. They can be used in all applications in which natural diamond macles are used, such as chisel dressing and chisel form dressing.

ADVANTAGES

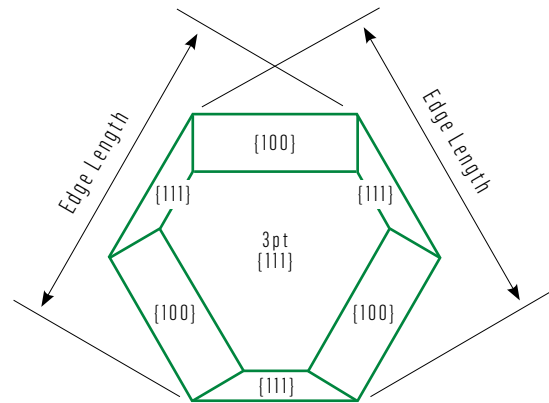
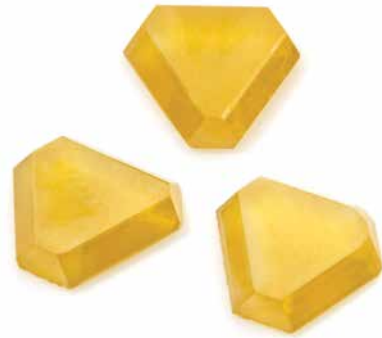
- Specific process and quality for use in chisel dressing and chisel form dressing
- All purchased items immediately usable for tools (unlike natural). Size range 3-5 mm edge length
- Consistent 3pt / (111) orientation
- Available as grown stones but can be laser cut to requirements

BENEFITS

- A readily available alternative to natural diamond macles
- Economic volume alternative
- Larger and flatter with less rounding and irregularity than natural
- Enhanced and more consistent performance

SUGGESTED APPLICATION

- Engineered for chisel form dressing



MM111

NOMENCLATURE	EDGE LENGTH	THICKNESS
MM 111/3010	3.0	1.0
MM 111/3012	3.0	1.2
MM 111/4010	4.0	1.0
MM 111/4012	4.0	1.2
MM 111/5010	5.0	1.0
MM 111/5012	5.0	1.2

Also available as laser cut in thicknesses of up to 1.2 mm.

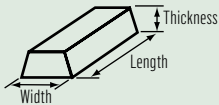
CVDRESS: CDD & CDM

NOMENCLATURE EXAMPLES



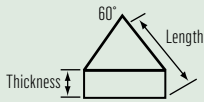
CDD R

CDD R2608-360 is a CDD grade 'round', 2.6 mm in diameter and 0.8 mm thickness



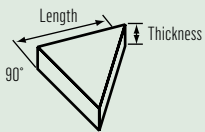
CDD L

CDD L500808NP is a CDD grade 'log', 5 mm in length, 0.8 mm wide, 0.8mm thickness and having an unprocessed surface finish



CDD T

CDD T3015-60 is a CDD grade equilateral triangle having 3.0 mm edge length and 1.5 mm thickness



CDM T

CDM T3015-90 is a CDM grade, 90° triangle having two 3.0 mm edges and 1.5 mm thickness

A minimum order charge may be incurred for small volumes of new parts.

FEATURES

- Excellent thermal stability independent of orientation (as no binder phase)

BENEFITS

- High resistance to chipping and fracture
- Uniform wear over the entire length of the dresser
- Performance independent of dresser orientation

SUGGESTED APPLICATION

CVDRESS CDD

- Suitable for all dresser types - single point, multipoint and blade

CVDRESS CDM

- Suitable for rotary dressing applications that are commonly used in high volume production form grinding

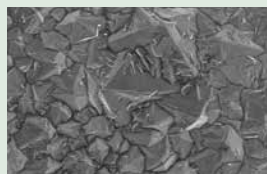
TOOL FABRICATION

- Ideal for secure mounting when using traditional non-ferrous metal sintering
- Dressers can be brazed onto a dresser body using an active braze allow in a non-oxidising environment
- Industry standard grinding techniques can be used to shape dressers in situ to make cone, chisel and radiused shapes

MECHANICAL CVD GRADES

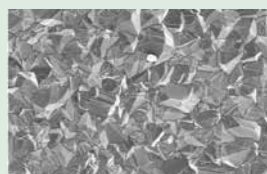
CDM

General purpose grade for cutting tools and rotary dressers.



CDD

Stronger and more wear resistant grade for single point and blade dressers.



CVDRESS (DRESSING TOOLS)

CDD		CDM
CDD 02		CDM 02 NP
CDD 03	CDD 03 NP	CDM 03 NP
CDD 04	CDD 04 NP	CDM 04 NP
CDD 05	CDD 05 NP	CDM 05 NP
CDD 06	CDD 06 NP	CDM 06 NP
CDD 07	CDD 07 NP	CDM 07 NP
CDD 08	CDD 08 NP	CDM 08 NP
CDD 10	CDD 10 NP	CDM 10 NP
CDD 12	CDD 12 NP	CDM 12 NP
CDD 15	CDD 15 NP	CDM 15 NP

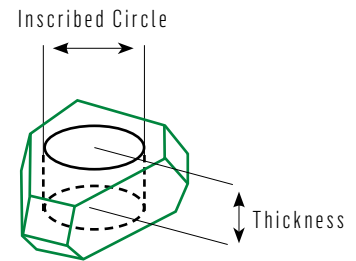
CDD 02 = 0.2 mm thick lapped finish.

CDD 03 NP = 0.3 mm thick as grown finish.

MONODIE MD111 & MD111 XP: THREE-POINT DIRECTION

In every application from electronics to construction, wire drawing dies are the essential tools used to produce the millions of miles of wire drawn. For applications of drawing non-ferrous, ferrous, precious and refractory metals that require ultra-fine finishes, single crystal diamond is the preferred wire drawing material.

The Monodie synthetic single crystal diamond range of wire drawing die blanks, developed by Element Six takes the unpredictability out of wire drawing applications.



SIZE AVAILABILITY

PRODUCT NOMENCLATURE	NOMINAL THICKNESS [MM]	THICKNESS TOLERANCE [MM]	MINIMUM INSCRIBED CIRCLE DIAMETER [MM]
MD111/05	0.5	0.46 - 0.55	0.6
MD111/06	0.6	0.56 - 0.65	0.7
MD111/07	0.7	0.66 - 0.75	0.8
MD111/08	0.8	0.76 - 0.85	0.9
MD111/09	0.9	0.86 - 0.95	1.0
MD111/10	1	0.96 - 1.05	1.1
MD111/11	1.1	1.06 - 1.15	1.2
MD111/12	1.2	1.16 - 1.25	1.3
MD111/13	1.3	1.26 - 1.35	1.4
MD111/14	1.4	1.36 - 1.45	1.45
MD111/15	1.5	1.46 - 1.55	1.5
MD111/16	1.6	1.56 - 1.65	1.6
MD111/17	1.7	1.66 - 1.75	1.7
MD111/18	1.8	1.76 - 1.85	1.8

FEATURES

- High level of product quality and consistency
- Exceptional wear resistance
- High thermal stability
- High thermal conductivity

BENEFITS

- Reliable die life, reduced hole wear distortion and optimal die life due to consistent (111) orientation
- High quality finish on drawn wire
- Consistent tool life

SUGGESTED APPLICATION

- Wire drawing die blank products

MONODIE MD111

Monodie MD111 offers the highest level of quality and consistency in wire drawing die blanks. Each diamond blank is produced by a stringently controlled single crystal synthesis process. Properties of the material include exceptional wear resistance resulting from its 3 point (111) crystal orientation. Coupled with excellent thermal conductivity and thermal stability at temperatures up to 1100°C in a non-oxidising environment, the end user benefits are consistent tool life and a high quality finish on the drawn wire.



MONODIE MD111 XP

Monodie MD111 XP is an Element Six patented post synthesis treatment for further enhanced diamond performance.

The hardness of diamond makes it the ultimate material in terms of wear. Post synthesis treatment of the diamond targets isolated regions within the crystal, which facilitates controlled fracture and breakdown behaviour in application on a nano-scale. The integration of these behaviours results in an improved diamond toughness.

Due to its unique mechanical properties Monodie MD111 XP is particularly suited to the drawing of hard wires.

Monodie MD111 XP is commercially available in standard sizes, please contact us for more information.



ELEMENT SIX

Element Six, part of the De Beers Group of Companies, designs, develops and produces synthetic diamond and other supermaterials, and operates worldwide with primary manufacturing facilities in China, Germany, Ireland, South Africa, the UK and US.

Element Six supermaterial solutions are used in applications such as cutting, grinding, drilling, shearing and polishing, while the extreme properties of synthetic diamond beyond hardness are opening up new applications in a wide array of industries such as optics, power transmission, water treatment, semiconductors and sensors.

If you would like to know more about Element Six please visit our website www.e6.com or contact us at any of the addresses below.

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