M.A. FORD
High Performance Cutting Tools
100th ANNIVERSARY
1919 - 2019

*Where **high performance** is the **standard**®*

# M.A. Ford® PCD

***M.A. Ford® Integrated Manufacturing Solutions***

Providing ***Creative, Ingenious*** & ***Innovative*** custom cutting tool solutions for our customers




CUSTOM
Tool Division
Engineering & Manufacturing Excellence

M.A. FORD® A.P.G.
www.maford.com

# M.A. Ford® PCD

**M.A. Ford® PCD,** a part of M.A. Ford®'s Advanced Product Group, features a wide range of high performance, polycrystalline diamond (PCD) tipped tools to improve your productivity.

PCD tooling is ideal for more efficient machining of non-ferrous metals, plastics, composite materials, graphite and other hard to machine and abrasive materials.

**M.A. Ford® PCD** offers end mills and drills. Special tools are quoted upon request.

**M.A. Ford® PCD** is dedicated to continually developing innovative products manufactured with efficient state-of-the-art technology while offering great value and top quality at reasonable prices.

**Page**



| Inch | |
|---|---|
| **D1** | **Tolerance** |
| 1/8" - 3/16" | +0/-.001 |
| 1/4" & above | +0/-.002 |

| Metric (mm) | |
|---|---|
| **D1** | **Tolerance** |
| 3mm - 20mm | +0/-.050 |

| Inch | |
|---|---|
| **L1** | **Tolerance** |
| All Sizes | +/- .040 |

| Metric (mm) | |
|---|---|
| **L1** | **Tolerance** |
| All Sizes | +/- 1 |

| Inch | |
|---|---|
| **L2** | **Tolerance** |
| All Sizes | +.040/-.000 |

| Metric (mm) | |
|---|---|
| **L2** | **Tolerance** |
| All Sizes | +1/-0 |

| Inch | |
|---|---|
| **D2** | **Tolerance (h6)** |
| 1/8" - 3/16" | +0/-.00031 |
| 1/4" - 3/8" | +0/-.00035 |
| 1/2" - 5/8" | +0/-.00043 |
| 3/4" | +0/-.00051 |

| Metric (mm) | |
|---|---|
| **D2** | **Tolerance (h6)** |
| 3mm | +0/-.006 |
| 4mm - 6mm | +0/-.008 |
| 8mm - 10mm | +0/-.009 |
| 12mm - 16mm | +0/-.011 |
| 20mm | +0/-.013 |

**M.A. Ford® PCD End Mill Numbering System - Inch**

| First Character | Second Character | Third Character | Fourth Character | Fifth Character | Sixth Character | Seventh Character | Eighth Character |
|---|---|---|---|---|---|---|---|
| Diamond | End Mill | No. of Flutes | End Style | Nominal Cutting Diameter | Nominal Cutting Diameter | Nominal Cutting Diameter | Nominal Cutting Diameter |
| D | E | 1 | S | 1 | 2 | 5 | 0 |
| | E=End Mill | | S=Square End B=Ball End | | | | |

**M.A. Ford® PCD End Mill Numbering System - Metric**

| Diamond | End Mill | No. of Flutes | End Style | Metric | Nominal Cutting Diameter | Nominal Cutting Diameter | Nominal Cutting Diameter | Nominal Cutting Diameter |
|---|---|---|---|---|---|---|---|---|
| D | E | 1 | S | M | 0 | 3 | 0 | 0 |
| | E=End Mill | | S=Square End B=Ball End | | | | | |

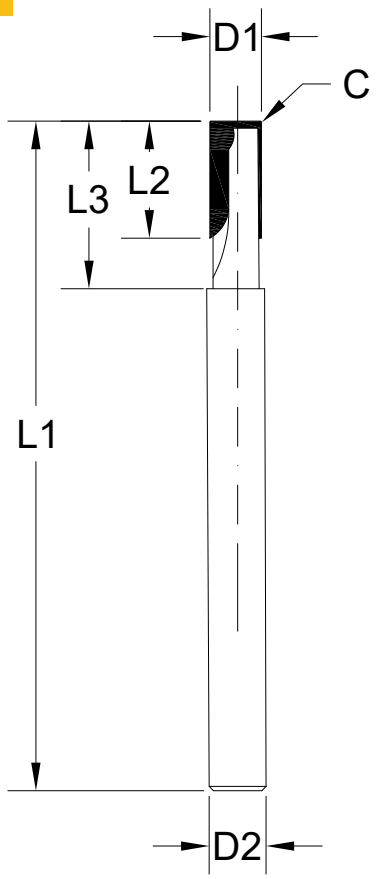
⚠**WARNING:** This product can expose you to chemicals including nickel, cobalt, and lead, which are known to the State of California to cause cancer, and chemicals including lead which are known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

**Safety Note**

Always wear the appropriate personal protective equipment such as safety glasses and protective clothing when using solid carbide or HSS cutting tools. Machines should be fully guarded.

# End Mill Square End Series DES

A straight flute PCD tipped end mill available with 1 or 2 flutes depending on tool size and configuration. These end mills combine a PCD tip with a carbide body for maximum rigidity and optimal performance. Offers excellent results in CFRP (Carbon-Fiber-Reinforced Polymer), fiberglass, aluminum and other very abrasive materials.




## Standard Flute PCD Flat End Mills - Inch

Center Cutting

| Tool No. | EDP | D1 | D2 | L1 | L2 | L3 | C | # of Flutes |
|---|---|---|---|---|---|---|---|---|
| DE1S1250 | 90100 | 1/8 | 1/8 | 1-1/2 | 1/4 | .625 | .005 | 1 |
| DE1S1875 | 90101 | 3/16 | 3/16 | 2 | 5/16 | .875 | .005 | 1 |
| DE2S2500 | 90102 | 1/4 | 1/4 | 2 | 3/8 | .875 | .010 | 2 |
| DE2S3750 | 90103 | 3/8 | 3/8 | 2-1/2 | 1/2 | 1 | .010 | 2 |
| DE2S5000 | 90104 | 1/2 | 1/2 | 3 | 5/8 | 1-3/8 | .010 | 2 |
| DE2S6250 | 90105 | 5/8 | 5/8 | 3-1/2 | 7/8 | 1-3/4 | .010 | 2 |
| DE2S7500 | 90106 | 3/4 | 3/4 | 4 | 1 | 2 | .015 | 2 |

Additional sizes available upon request.
Multi-flute styles on page 4.

## Standard Flute PCD Flat End Mills - Metric

Center Cutting

| Tool No. | EDP | D1 | D2 | L1 | L2 | L3 | C | # of Flutes |
|---|---|---|---|---|---|---|---|---|
| DE1SM0300 | 90107 | 3 | 3 | 38 | 6 | 14 | .130 | 1 |
| DE1SM0400 | 90108 | 4 | 4 | 50 | 6 | 15 | .130 | 1 |
| DE2SM0500 | 90109 | 5 | 5 | 50 | 8 | 18 | .250 | 2 |
| DE2SM0600 | 90110 | 6 | 6 | 64 | 10 | 22 | .250 | 2 |
| DE2SM0601 | 90111 | 6 | 6 | 64 | 15 | 26 | .250 | 2 |
| DE2SM0800 | 90112 | 8 | 8 | 64 | 10 | 24 | .250 | 2 |
| DE2SM0801 | 90113 | 8 | 8 | 64 | 15 | 29 | .250 | 2 |
| DE2SM1000 | 90114 | 10 | 10 | 75 | 15 | 30 | .250 | 2 |
| DE2SM1200 | 90115 | 12 | 12 | 75 | 15 | 30 | .250 | 2 |
| DE2SM1201 | 90116 | 12 | 12 | 75 | 25 | 40 | .250 | 2 |
| DE2SM1600 | 90117 | 16 | 16 | 92 | 20 | 42 | .250 | 2 |
| DE2SM2000 | 90118 | 20 | 20 | 100 | 25 | 50 | .250 | 2 |

Additional sizes available upon request.
Multi-flute styles on page 4.

Technical Data on page 5

# End Mill Square End Series DES

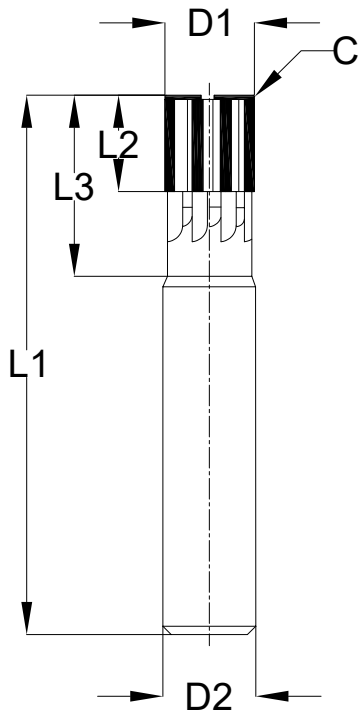
A straight flute PCD tipped end mill available with 3 to 9 flutes depending on tool size and configuration. These end mills combine a PCD tip with a carbide body for maximum rigidity and optimal performance. Offers excellent results in CFRP (Carbon-Fiber-Reinforced Polymer), fiberglass, aluminum and other very abrasive materials.

## Standard Multi-Flute PCD Flat End Mills - Inch

Non-Center Cutting

| Tool No. | EDP | D1 | D2 | L1 | L2 | L3 | C | # of Flutes |
|---|---|---|---|---|---|---|---|---|
| DE3S3750 | 90143 | 3/8 | 3/8 | 2-1/2 | 1/2 | 1 | .010 | 3 |
| DE5S3750 | 90144 | 3/8 | 3/8 | 2-1/2 | 1/2 | 1.15 | .010 | 5 |
| DE3S5000 | 90145 | 1/2 | 1/2 | 3 | 1/2 | 1-1/4 | .010 | 3 |
| DE5S5000 | 90146 | 1/2 | 1/2 | 3 | 1/2 | 1-1/4 | .010 | 5 |
| DE7S5000 | 90147 | 1/2 | 1/2 | 3 | 1/2 | 1-1/4 | .010 | 7 |
| DE9S5000 | 90148 | 1/2 | 1/2 | 3 | 1/2 | 1-1/4 | .010 | 9 |
| DE3S6250 | 90149 | 5/8 | 5/8 | 3-1/2 | 5/8 | 1-1/2 | .010 | 3 |
| DE5S6250 | 90150 | 5/8 | 5/8 | 3-1/2 | 5/8 | 1-3/8 | .010 | 5 |
| DE7S6250 | 90151 | 5/8 | 5/8 | 3-1/2 | 5/8 | 1-3/8 | .015 | 7 |
| DE9S6250 | 90152 | 5/8 | 5/8 | 3-1/2 | 5/8 | 1-3/8 | .015 | 9 |

Additional sizes available upon request.
1 and 2 flute styles on page 3.




## Standard Multi-Flute PCD Flat End Mills - Metric

Non-Center Cutting

| Tool No. | EDP | D1 | D2 | L1 | L2 | L3 | C | # of Flutes |
|---|---|---|---|---|---|---|---|---|
| DE3SM0800 | 90153 | 8 | 8 | 64 | 11 | 26 | .250 | 3 |
| DE3SM1000 | 90154 | 10 | 10 | 75 | 13 | 30 | .250 | 3 |
| DE5SM1000 | 90155 | 10 | 10 | 75 | 13 | 30 | .250 | 5 |
| DE3SM1200 | 90156 | 12 | 12 | 75 | 13 | 32 | .250 | 3 |
| DE5SM1200 | 90157 | 12 | 12 | 75 | 13 | 32 | .250 | 5 |
| DE7SM1200 | 90158 | 12 | 12 | 75 | 13 | 32 | .250 | 7 |
| DE9SM1200 | 90159 | 12 | 12 | 75 | 13 | 32 | .250 | 9 |
| DE3SM1600 | 90160 | 16 | 16 | 92 | 16 | 38 | .250 | 3 |
| DE5SM1600 | 90161 | 16 | 16 | 92 | 16 | 42 | .250 | 5 |
| DE7SM1600 | 90162 | 16 | 16 | 92 | 16 | 42 | .250 | 7 |
| DE9SM1600 | 90163 | 16 | 16 | 92 | 16 | 37 | .250 | 9 |

Additional sizes available upon request.
1 and 2 flute styles on page 3.

Technical Data on page 5

# End Mill Ball End Series DEB

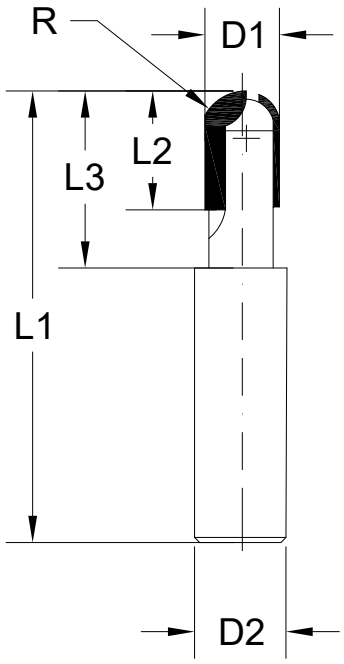
A straight flute PCD tipped ball nose end mill available in 1 or 2 flutes depending on tool size. These end mills combine a PCD tip with a carbide body for maximum rigidity and optimal performance. Offers excellent results in CFRP (Carbon-Fiber- Reinforced Polymer), fiberglass, aluminum and other very abrasive materials.

## Standard Flute PCD Ball End Mills - Inch

Center Cutting

| Tool No. | EDP | D1 | D2 | L1 | L2 | L3 | # of Flutes |
|---|---|---|---|---|---|---|---|
| DE1B1250 | 90119 | 1/8 | 1/8 | 1-1/2 | 1/4 | .625 | 1 |
| DE1B1875 | 90120 | 3/16 | 3/16 | 2 | 5/16 | .875 | 1 |
| DE2B2500 | 90121 | 1/4 | 1/4 | 2 | 3/8 | .875 | 2 |
| DE2B3750 | 90122 | 3/8 | 3/8 | 2-1/2 | 1/2 | 1 | 2 |
| DE2B5000 | 90123 | 1/2 | 1/2 | 3 | 5/8 | 1-1/2 | 2 |
| DE2B6250 | 90124 | 5/8 | 5/8 | 3-1/4 | 7/8 | 1-3/4 | 2 |
| DE2B7500 | 90125 | 3/4 | 3/4 | 4 | 1 | 2 | 2 |

Additional sizes available upon request.




## Standard Flute PCD Ball End Mills - Metric

Center Cutting

| Tool No. | EDP | D1 | D2 | L1 | L2 | L3 | # of Flutes |
|---|---|---|---|---|---|---|---|
| DE1BM0300 | 90126 | 3 | 3 | 38 | 6 | 15 | 1 |
| DE1BM0400 | 90127 | 4 | 4 | 50 | 6 | 17 | 1 |
| DE1BM0500 | 90128 | 5 | 5 | 50 | 8 | 20 | 1 |
| DE2BM0600 | 90129 | 6 | 6 | 64 | 10 | 24 | 2 |
| DE2BM0800 | 90130 | 8 | 8 | 64 | 10 | 27 | 2 |
| DE2BM1000 | 90131 | 10 | 10 | 75 | 15 | 35 | 2 |
| DE2BM1200 | 90132 | 12 | 12 | 75 | 15 | 35 | 2 |
| DE2BM1600 | 90133 | 16 | 16 | 92 | 20 | 42 | 2 |
| DE2BM2000 | 90134 | 20 | 20 | 100 | 25 | 50 | 2 |

Additional sizes available upon request.

| Inch | |
|---|---|
| R | Tolerance |
| All Sizes | +0/-.001 |

| Metric (mm) | |
|---|---|
| R | Tolerance |
| All Sizes | +0/-.025 |

## CFRP Milling Parameters

**DES & DEB Series**

| Diameter | Speed | Speed | Feed |
|---|---|---|---|
| in | SFM | RPM | IPT |
| 3/16 | 450 | 9168 | 0.0030 |
| 1/4 | 450 | 6876 | 0.0040 |
| 3/8 | 450 | 4584 | 0.0045 |
| 1/2 | 450 | 3438 | 0.0050 |
| 5/8 | 450 | 2750 | 0.0060 |

**DES & DEB Series**

| Diameter | Speed | Speed | Feed |
|---|---|---|---|
| mm | SMM | RPM | mmPT |
| 5 | 140 | 9168 | 0.0800 |
| 6 | 140 | 6876 | 0.1000 |
| 10 | 140 | 4584 | 0.1150 |
| 12 | 140 | 3438 | 0.1300 |
| 16 | 140 | 2750 | 0.1500 |

Technical data provided should be considered advisory only as variations may be necessary depending on the particular application.

To order M.A.Ford® PCD Specials contact M.A. Ford® Custom Tool Division

## DWD (M.A.Ford® PCD Cross Center Tip Drill)

The cross center tip drill offers excellent performance in CFRP (Carbon-Fiber-Reinforced Polymer), fiberglass, aluminum and other very abrasive materials. Available as a special from 1/8” to 5/8” and 3mm to 16mm.

1. Fill in information requested on drawing.
2. E-mail M.A. Ford at sales@maford.com.

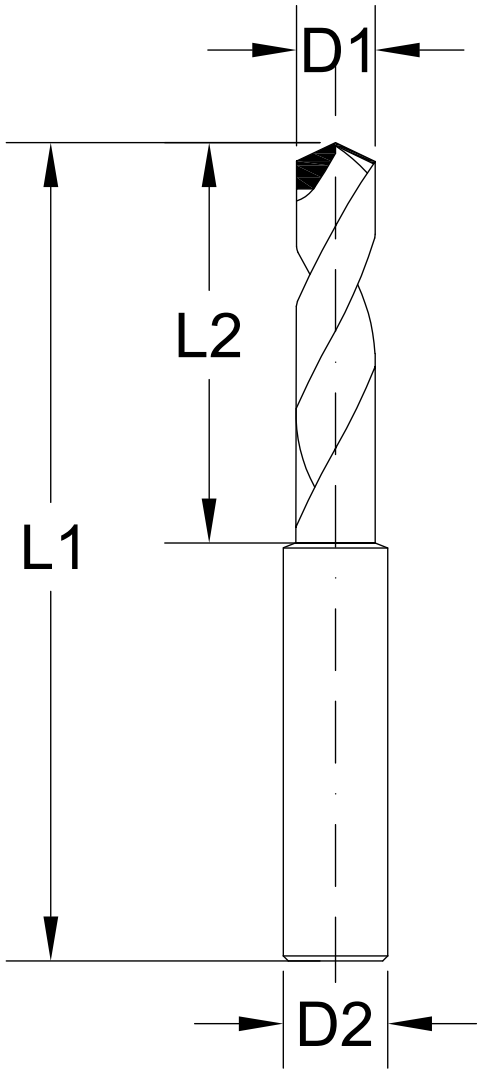
☐ **Request approval drawing**

D1= _____

D2= _____

L1= _____

L2= _____




Customer Name: _____

Phone: _____ e-mail: _____

Distributor: _____

Quantities (2 pc. minimum) _____

To order M.A. Ford® PCD Specials contact M.A. Ford® Custom Tool Division

## PCD Specials

**Drills and Step Drills • Reamers and Step Reamers • Form Tools • Step and Multi-Step Tools • Re-conditioning and Re-tipping**

**Manufactured to Customer Specification.**

Contact:
M.A. Ford® Custom Tool Division
Ph: 877-522-2885
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customtools@maford.com

M.A. FORD
High Performance Cutting Tools
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1919 - 2019

*Where **high performance** is the **standard**®*

# M.A. Ford® PCD

## High Performance PCD Tools

CUSTOM Tool Division
Engineering & Manufacturing Excellence


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