



# MOLD/DIE POLISHING

DiaMold® Polishing Systems



**Engis**®

## ***Polishing Solutions from Engis® Corporation***

---

Engis is a world leader in the manufacture of diamond polishing compound. In fact, the very first product manufactured by Engis at its inception in 1938 was diamond compound for high precision military applications. We now not only have 70+ years of manufacturing experience behind us, but have complemented it with expertise in both diamond characterization and carrier chemistry. Our ISO 9001:2008 quality certification ensures that Engis brings strict disciplines to our manufacturing processes.

At the very core of the Engis Corporation is our “*Systems Approach*”. We not only offer quality products for sale, but we also provide complete solutions to our customers’ application challenges. For the mold and die polishing market this involves:

- *Diamond compounds as well as other polishing products*
- *Rotary and reciprocating hand tools*
- *Operator experience and techniques*

Engis truly is a single source for all of your polishing needs. Because we recognize that polishing is a system, Engis offers a full range of high quality rotary and reciprocating tools as well as machine accessories and consumables.

We know that it is customer service that will differentiate Engis from other suppliers. Our total commitment to our customers means that we service everything we sell. You can purchase from Engis knowing you will have complete factory support for technical questions and repairs.



And, to complete the package of total customer service, we have experienced tool and die makers on staff who can draw upon their own time on the bench to assist you with your polishing challenges or in selecting the right product.

In summary, at Engis it is our intent to go beyond being just a provider of quality products, but to partner with our customers to provide the best possible finishes in the shortest amount of time and at the lowest cost.

# ***Table of Contents***

<i><b>Products</b></i>	<i><b>Section</b></i>
<i><b>Diamond Compounds, Polishing Lubricants, High-Intensity Polish</b></i>	<i><b>1</b></i>
<i><b>Diprofil Finishing Systems, Tools and Accessories</b></i>	<i><b>2</b></i>
<i><b>Diprofil Files</b></i>	<i><b>3</b></i>
<i><b>Minimo Finishing Systems, Tools and Accessories</b></i>	<i><b>4</b></i>
<i><b>Rotary Finishing Tools</b></i>	<i><b>5</b></i>
<i><b>Finishing Sticks, Stones and Accessories</b></i>	<i><b>6</b></i>
<i><b>Micro-Welders and Accessories</b></i>	<i><b>7</b></i>



## ***DiaMold Diamond Compounds***

Engis® brings more than seven decades of experience to its manufacture of precision diamond compounds. As a diamond micronizer, we are able to mill, shape and grade diamond particles with an expertise unmatched in the industry.

Coupled with this experience is our expertise in chemistry, compounding techniques and application knowledge gained from hands-on bench experience.

This wealth of technical experience, combined with ISO9001:2008 certified quality systems, has made Engis DiaMold the most trusted name in diamond compounds for mold and die polishing in North America, the Pacific Rim and Europe.



## ***Compounds For Every Application***

Engis offers two formulations for mold and die polishing:

- Our world renowned **Five-Star®** brand is both oil and water soluble and combines the excellent cutting characteristics of natural diamond with the durability of manufactured diamond for superior finishing capability. Using Five-Star can eliminate steps in the polishing process and finish the job quickly with a better end result.
- Our **DiaMold®** range of diamond compound has been designed for the budget-minded finishing specialist who requires excellent quality on less demanding applications.

In addition, Engis has other standard formulations available for specialized applications. In many cases we can even customize a product to meet your own individual requirements.



*Engis Corporation has its roots in the development of diamond compounds for precision polishing and lapping operations. Originally developed during World War II, Engis' range of diamond compounds improved the precision of Norden Bomb Sights, which some experts believe to have hastened the end of the conflict.*

## Five-Star Diamond Compound - The Mold Finisher's Choice

**Five-Star** diamond compound is known the world over as the professional's choice in mold and die polishing. Thanks to Engis' superior micronizing skills, Five-Star compound is graded to closer tolerances than normal industry standards which results in faster and more consistent cut rates. Our Chemical Engineering Department has developed a carrier which not only offers superior finishes, but a product which can be cleaned with either oil or water based products.

The performance of Engis Five-Star compound often eliminates polishing steps, resulting in a better quality mold finish produced in less time.

### 2-Way Solubility

Five-Star diamond compound can be used with Hyprez® OS Type IV (oil soluble) or Type W (water soluble) lubricants which offers maximum versatility.

### Features and Benefits

- Faster cut rates (thanks to a unique blend of natural & synthetic diamond)
- Better finishes grit size to grit size
- Excellent surface tension
- Very consistent viscosity
- Will not evaporate
- Excellent adhesion to tools and surfaces
- Easily cleaned with either water or oil based products
- Offered in Medium, Standard and Strong concentrations

### Available Packaging

- 5 gram syringe
- 18 gram syringe



Micron Size	Product Code	Color	Application	Concentration	5 Gram Part No.	18 Gram Part No.
1/10	1/10-FS/US	Gray	Final Polishing	Medium	204.1022	204.1023
				Standard	204.1024	204.1025
				Strong	204.1026	204.1027
1/4	1/4-FS/US	Gray	Final Polishing	Medium	204.1028	204.1029
				Standard	204.1030	204.1031
				Strong	204.1032	204.1033
1/2	1/2-FS/US	Gray	Final Polishing	Medium	204.1034	204.1035
				Standard	204.1036	204.1037
				Strong	204.1038	204.1039
1	1-FS/US	Ivory	Final Polishing	Medium	104.1254	104.1255
				Standard	104.1256	104.1257
				Strong	104.1258	104.1259
3	3-FS/US	Yellow	Final Polishing	Medium	104.1260	104.1261
				Standard	104.1262	104.1263
				Strong	104.1264	104.1265
6	6-FS/US	Orange	Lapping and Pre-Polishing	Medium	104.1266	104.1267
				Standard	104.1268	104.1269
				Strong	104.1270	104.1271
9	9-FS/US	Green	Lapping and Pre-Polishing	Medium	104.1272	104.1273
				Standard	104.1274	104.1275
				Strong	104.1276	104.1277
15	15-FS/US	Blue	Lapping and Pre-Polishing	Medium	104.1278	104.1279
				Standard	104.1280	104.1281
				Strong	104.1282	104.1283
30	30-FS/US	Red	Rapid Stock Removal	Medium	104.1284	104.1285
				Standard	104.1286	104.1287
				Strong	104.1288	104.1289
45	45-FS/US	Brown	Rapid Stock Removal	Medium	104.1290	104.1291
				Standard	104.1292	104.1293
				Strong	104.1294	104.1295
60	60-FS/US	Natural	Rapid Stock Removal	Medium	104.1296	104.1297
				Standard	104.1298	104.1299
				Strong	104.1300	104.1301



## DiaMold Diamond Compound

### Premium Performance at an Economical Price

Not every polishing application demands a superior performing product, and many customers are on a tight budget. For general use, Engis® offers the DiaMold range of diamond compound.

Manufactured to the same specifications as our premium Five-Star® compound, DiaMold compound offers an economical solution for mold and die polishing applications.

DiaMold diamond compound is oil soluble and can be used with Hyprelube® and Hyprez® OS Type IV (oil soluble) lubricants.



### Features and Benefits

- Economical
- Good surface tension
- Consistent viscosity
- Will not evaporate
- Oil based
- No odor
- Good adhesion to tools and surfaces
- Easily cleaned with Hyprelube lubricant

### Available Packaging

- 10 gram syringe
- 20 gram syringe

Micron Size	Product Code	Color	Application	10 Gram Part No.	20 Gram Part No.
1	1-DiaMold	Ivory	Final Polishing	340.5120	340.5130
3	3-DiaMold	Yellow	Final Polishing	340.5121	340.5131
6	6-DiaMold	Orange	Lapping and Pre-Polishing	340.5122	340.5132
9	9-DiaMold	Green	Lapping and Pre-Polishing	340.5123	340.5133
15	15-DiaMold	Blue	Lapping and Pre-Polishing	340.5124	340.5134
30	30-DiaMold	Red	Rapid Stock Removal	340.5125	340.5135
45	45-DiaMold	Brown	Rapid Stock Removal	340.5126	340.5136
60	60-DiaMold	Natural	Rapid Stock Removal	340.5127	340.5137

**For Best Results Use DiaMold Lubricants....**

**They are specially formulated to work with our DiaMold Diamond Compound**

### VALUE KITS

1 ea. 10 gram syringe 3, 6 & 9 (item #340.5144)

1 ea. 10 gram syringe 1, 3, 6 & 9 (item #340.5143)

1 ea. 10 gram syringe 9, 15 & 30 (item #340.5145)



## Hyprez Lubricants

### Importance of Using Lubricants

The use of lubricants, in conjunction with your diamond compound, will not only reduce polishing cycle times, but decrease the amount of compound required to complete the job.

When selecting a lubricant for your application, care should be taken that it is chemically compatible with the compound formulation that you intend to use.

### Hyprelube®

Hyprelube is a synthetic based lubricant formulated to be used with either our Five-Star® or our DiaMold diamond compounds.

This superior lubricant, with its penetrating qualities and oil/water solubility, not only increases the cutting action, but assures superior lubrication of every diamond particle throughout the polishing cycle.

### OS Type IV Lubricant

This low-viscosity, oil soluble lubricant is compatible with DiaMold and other oil-based diamond compounds.

### W Lubricant

This water-based lubricant is compatible with Five-Star and other water based compounds.



### Hyprelube®

Can be used with either Five-Star or DiaMold diamond compounds



### OS Type IV Lubricant

Use with DiaMold and other oil-based diamond compounds



### W Lubricant

Use with Five-Star and other water-based diamond compounds

**All Hyprez lubricants are available in the following containers:**

	Hyprelube (Blue)	OS Type IV Lubricant (Purple)	W Lubricant (Yellow)
4 oz. glass bottle	510.HL.4OZ	510.2030	510.W.4OZ
1 pt. glass bottle	510.HL.1PT	510.2029	510.W.1PT
1 qt. glass bottle	510.HL.1QT	510.2028	510.W.1QT
1 gal.	510.HL.1GA	510.2162	510.W.1GA
5 gal.	510.HL.5GA	510.2063	510.W.5GA

**For Best Results Use DiaMold Diamond Compounds...**

**They are specially formulated to work with our DiaMold Lubricants**



## High Intensity Polish

DiaMold High Intensity Polish (HIP) safely removes haze, plate-out, oxidation and stains from any metal surface.

It's ideal for the final finish on all types of molds and dies resulting in a high luster sheen without any harsh odors.

Being easier to remove than other polishes, DiaMold HIP wipes off quickly without leaving any residue.

In addition, it is non-hazardous and non-corrosive and will clean and remove haze from the mold surface without causing spiral webs, cattails or other types of fine scratches.

### Features and Benefits

- No harsh odors
- Easy application and removal
- Imparts a high polished finish with very little effort
- Can be used on typical mold steels as well as brass, bronze, chrome and aluminum
- Removes haze, rust, tarnish, dirt and oils
- Leaves protective film which retards oxidation and rust



### ORDERING GUIDE

Size	Part No.
5 grams	HIP.5.SYR
50 grams	HIP.50
250 grams	HIP.250
500 grams (1/2 kilo)	HIP.500
1,000 grams (1 kilo)	HIP.1000



## ***Diprofil Finishing Systems***

Engis® Corporation is proud to be a valued distributor of Diprofil Finishing Systems and the **exclusive factory authorized repair facility for all Diprofil reciprocating and rotary tools**. Our relationship with Diprofil goes back more than 50 years, making Engis the oldest Diprofil distributor in North America.

In addition to the Diprofil Classic Series, often imitated but never equaled, we stock the new Di-Pro™ low vibration tools, Dipromini mini polishing machines, rotary tools and accessories.

The Diprofil brand is well known for its robust construction, high torque, reliability and precision. Many Diprofil tools see decades of service before requiring any type of repair. Not only does Engis stock spare parts, but our technicians can give rapid turnaround on any warranty or service work. No other Diprofil distributor can deliver on this promise!

So, for all of your Diprofil reciprocating and rotary tool requirements, questions or service, contact the professionals at Engis Corporation.

**DIPROFIL**

---

**ENGIS CORPORATION**

HAS BEEN AUTHORIZED AS

**AUTHORIZED DIPROFIL SERVICE CENTER**

Certified by:  
Tomas Skeppmark  
Managing Director, Diamantprodukter AB



### ***DiProfil - Table of Contents***



<b>Section</b>	<b>Products</b>
2-2	<i>Classic Reciprocating Polishing/Filing Tools</i>
2-3	<i>Di-Pro Low Vibration Reciprocating Tools</i>
2-4, 2-5	<i>Accessories for Classic and Di-Pro Tools</i>
2-6	<i>Electric Hanging Motors &amp; Accessories</i>
2-7	<i>Bench Mount Motor Hangers</i>
2-8	<i>Classic Tool Sets</i>
2-9	<i>Flex Shaft Driven Rotary Handpieces</i>
2-10	<i>Micro-Motor Driven Rotary Handpieces</i>
2-11	<i>Mini-Filing/Micro-Motor Systems</i>
2-12	<i>Power Packs</i>
2-13	<i>Diprosonic Ultrasonic System</i>
2-14	<i>High Frequency Polishing Machine</i>



## Classic Range of Reciprocating Polishing/Filing Tools

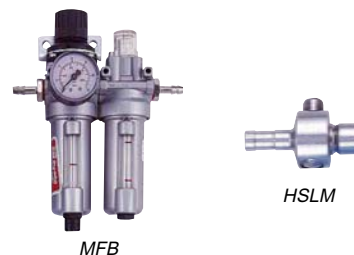
The Classic Series is the original reciprocating filing tool designed as an efficient, fast, precise tooling system to replace tedious hand operations. Each tool is lightweight with sturdy construction, enabling operators to perform even delicate work on intricate parts with ease. The Classic Series is easy to operate and performs operations such as filing, honing, polishing and lapping of both straight and curved surfaces.

Classic tools have been the benchmark of quality tooling to mold and die making for many, many years.

	FPC/R	FPS/R	FPH/R	FPD/R	FPL/R
<i>Each model is fit with an ergonomic rubber sleeve for maximum operator comfort!</i>					
Motor	Flexible Shaft with ball joint	Flexible Shaft with ball joint	Flexible Shaft with ball joint	Air	Air
Driver	Key hole	Key hole	Square hole	Lubricated Compressed Air	Lubricated Compressed Air
Tool Holder	ø3.5mm	ø6.4mm	ø6.4mm	ø3.5mm	ø6.4mm
Stroke Length - Maximum	0 - 6mm	0 - 6mm	0 - 6mm	0 - 6mm	0 - 6mm
Stroke Length - Recommended	0.5 - 3mm	0.5 - 3mm	0.5 - 3mm	0.5 - 3mm	0.5 - 3mm
Speed - Maximum	8,000 rpm	8,000 rpm	8,000 rpm	8,000 rpm	8,000 rpm
Speed - Recommended	5,000-7,000 rpm	5,000-7,000 rpm	5,000-7,000 rpm	5,000-7,000 rpm	5,000-7,000 rpm
Weight	585 - 615 g	585 - 615 g	585 - 615 g	750 - 780 g	750 - 780 g
Noise	<70 dbA @ 6,000 rpm	<70 dbA @ 6,000 rpm	<70 dbA @ 6,000 rpm	<70 dbA @ 6,000 rpm	<70 dbA @ 6,000 rpm
Vibration	3 - 10 m/s <sup>2</sup>	4 - 12 m/s <sup>2</sup>	4 - 12 m/s <sup>2</sup>	3 - 10 m/s <sup>2</sup>	4 - 12 m/s <sup>2</sup>





Frequency weighed hand/arm vibration principally in accordance with ISO 28927-8.  
For further details see diagram and other information in the Operation Guide.

Please note, FPD/R and FPL/R air-driven tools require a quick coupling (HSLM) as well as a MFB Dipro-Fog lubricator (see section 2-5). The air motors are manufactured to a precise level of accuracy and require lubricated and filtered air (to 5 microns) to assure trouble-free operation.



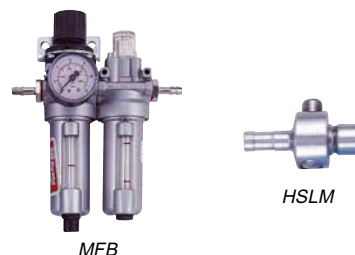
## ***Di-Pro™ Range of Low Vibration Reciprocating Tools***

The Di-Pro range of polishing/filing machines represents a new commitment from Diprofil to greater operator comfort and safety. The Di-Pro series has been engineered with enhanced ergonomic design to greatly reduce vibration levels, while at the same time providing adequate torque and reciprocation levels to get the job done right. With Di-Pro you don't need to sacrifice performance in order to improve ergonomics in the workplace!

	FXC	FXD	FXP	FXV/D
				
Motor	Flexible Shaft with ball joint	Internal Air Drive	Internal Micro-Motor	HPM-BL1 Micro-Motor (see page 2-10)
Driver	Key hole	Lubricated Compressed Air	HA-700 or DPU-3 Controller (see page 2-12)	HA-700 Controller (see page 2-12)
Tool Holder	ø3.5mm	ø3.5mm	ø3.5mm	ø3.5mm
Stroke Length - Maximum	0 - 6mm	0 - 6mm	0 - 6mm	0 - 6mm
Stroke Length - Recommended	0.5 - 4mm	0.5 - 4mm	0.5 - 4mm	0.5 - 4mm
Speed - Maximum	8,000 rpm	8,000 rpm	7,000 rpm	8,000 rpm
Speed - Recommended	5,000-7,000 rpm	5,000-7,000 rpm	5,000-7,000 rpm	5,000-7,000 rpm
Weight	750 g	880 g	960 g	725 g
Noise	<70 dbA @ 6,000 rpm	<75 dbA @ 6,000 rpm	<70 dbA @ 6,000 rpm	<70 dbA @ 6,000 rpm
Vibration	<2.5 m/s <sup>2</sup>	<2.5 m/s <sup>2</sup>	<2.5 m/s <sup>2</sup>	<2.5 m/s <sup>2</sup>

Frequency weighed hand/arm vibration principally in accordance with ISO 28927-8.  
For further details see diagram and other information in the Operation Guide.

Please note, the FXD air-driven tool requires a quick coupling (HSLM) as well as a MFB Dipro-Fog lubricator (see section 2-5). The air motor is manufactured to a precise level of accuracy and require lubricated and filtered air (to 5 microns) to assure trouble-free operation.





## Universal Tool Holder FMR/VH

Designed for Diprofil polishing/filing machines. Great choice for holding DiaMold polishing stones.

- Stainless steel hardened shank - 3mm (1/8")
- Shank length - approximately 35mm (1.375")
- Maximum tool thickness - 6mm (.236")



## Lightweight Tool Holder THPS-3

The reduced mass design of this tool holder suppresses potentially harmful vibrations from the stoning operation. Designed to be used with Diprofil reciprocating machines and polishing stones with a thickness of 3mm (1/8").

- Stone thickness capacity - 3mm (1/8")
- Steel hardend shank - 3mm (1/8")
- Shank length - approximately 18mm (11/16")
- Total tool holder length - 31.5mm (1-1/4")
- Jaw width - 8mm (5/16")
- Weight - 3.9g



## Lightweight Tool Holder THFS-1

The reduced mass design of this tool holder suppresses potentially harmful vibrations from the stoning operation. Designed to be used with Diprofil and other high frequency ultrasonic machines using ceramic stones with a thickness of 1mm (.039").

- Ceramic stone thickness capacity - 1mm (.039")
- Steel hardened shank - 3mm (1/8")
- Shank length - approximately 18mm (11/16")
- Total tool holder length - 31.5mm (1-1/4")
- Jaw width - 8mm (5/16")
- Weight - 4.3g



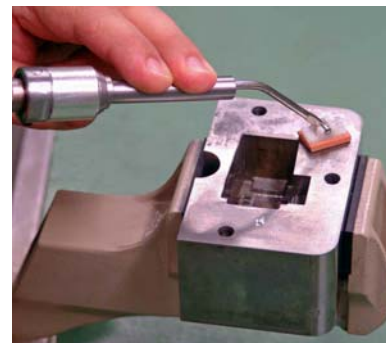
## Protective Finger Sleeves PFS-3.5 and PFS-6.4



The PFS-3.5 and PFS-6.4 Protective Finger Sleeves are designed to fit your existing Diprofil Classic and Di-Pro Series machines. This attachment covers the reciprocating tool rods and greatly reduces hand injuries during sustained tool operation.

**Old (wrong) way** ➡ **New (correct) way**

PFS-3.5 fits machines with a 3.5mm tool capacity  
PFS-6.4 fits machines with a 6.4mm tool capacity



## ***FNAK Lubricating Oil for Diprofil® Tools***

FNAK Lubricant is specially formulated for use on external oil points on Diprofil hand tools. When used properly this oil will reduce wear and prolong the life of your Diprofil reciprocating polishing/filing machines.

Part No.	Container Size	MSDS
FNAK	20 ml / .67 oz	659
FNAK 0.5	1/2 liter / 16 oz	659

*Please note: It is recommended that you read and follow the procedures outlined in the manufacturer's Operation Guide sent with each tool as they may require daily, as well as hourly, lubrication.*



## ***MFB Dipro-Fog In-Line Air Lubricator***

When using any Diprofil air operated tool, the MFB In-Line Air Lubricator is a MUST. The MFB not only serves as a micro particle air filter, but keeps the pressure constant and the unit lubricated. The MFB set includes tubing and a bottle of MFAK tool lubricant. We also recommend ordering the HSLM quick release hose connector when using Diprofil air operated tools.

### ***Technical data:***

Max. primary pressure:	16 bar / 232 psi
Max. capacity at 7 bar:	1200 l/min
Hose connection:	7mm / .275"
Secondary pressure:	0.5 – 10 bar / 7 - 145 lbs

*Please note: If your shop air has heavy contamination of dirt, oil or water, it is advisable to add a larger pre-filter to reduce contamination to 5 micron.*



## ***MFAK Dipro-Fog Lubricant***

The Dipro-Fog MFAK Oil is specially developed for the unique lubricating requirements of the Diprofil and the Air Rotary Handpieces through the Dipro-Fog MBF Air Lubricator.

Part No.	Container Size	MSDS
MFAK	1/2 liter / 16 oz	659







## ***HSLM Quick Release Hose Connector***

Each air-driven machine requires a quick coupling connector (type HSLM) as well as a Dipro-Fog lubricating device (MFB) to ensure sufficient lubrication at all times.



## Electric Motors and Accessories

M.LX.TXR Motor	M.LXH.TXR Motor	M.TX-TXR Motor
<p><u>High Torque / Low Speed</u>  <b>Key Drive Type</b>            1/10 HP            5,000 maximum rpm            Ball Bearing Design            115V Electrical Plug</p> 	<p><u>High Torque / Low Speed</u>  <b>Square Drive Type</b>            1/10 HP            5,000 maximum rpm            Ball Bearing Design            115V Electrical Plug</p> 	<p><u>Extra Torque / High Speed</u>  <b>Key Drive Type</b>            1/3 HP            15,000 maximum rpm            Ball Bearing Design            115V Electrical Plug</p> 
<p><u>INCLUDES:</u>            LX Motor            TXR Foot Pedal Speed Control            Outer Sheath #S-77N (36-1/4" long)            Inner Key Drive Shaft S-93 (39" long)</p>	<p><u>INCLUDES:</u>            LXH Motor            TXR Foot Pedal Speed Control            Outer Sheath #S-10801TX (63" long)            Inner Shaft #S-10823 (63-3/4" long)</p>	<p><u>INCLUDES:</u>            TX Motor            TXR Foot Pedal Speed Control            Outer Sheath #S-77N (36-1/4" long)            Inner Key Drive Shaft S-93 (39" long)</p>
<p><u>REPLACEMENT PARTS:</u>            C.TXR-1 Speed Control (foot pedal)            Outer Sheath #S-77N (36-1/4" long)            Inner Key Drive Shaft #S-93 (39" long)            MP319P Motor Brushes &amp; Brush Caps</p>	<p><u>REPLACEMENT PARTS:</u>            C.TXR-1 Speed Control (foot pedal)            Outer Sheath #S-10801TX (63" long)            Inner Shaft #S-10823 (63-3/4" long)            MP319P Motor Brushes &amp; Brush Caps</p>	<p><u>REPLACEMENT PARTS:</u>            C.TXR-1 Speed Control (foot pedal)            Outer Sheath #S-77N (36-1/4" long)            Inner Key Drive Shaft #S-93 (39" long)            MP319P Motor Brushes &amp; Brush Caps</p>
<p><u>HAND TOOLS THAT USE M.LX-TXR:</u>            FXC Di-Pro Machine (page 2-3)            FPC/R &amp; FPS/R Classic Machine (page 2-2)</p>	<p><u>HAND TOOLS THAT USE M.LXH-TXR:</u>            FPH/R Classic Machine (page 2-2)</p>	<p><u>HAND TOOLS THAT USE M.TX-TXR:</u>            30, 35, 44 Key Drive Handpieces (page 2-9). DO NOT USE ON DIPROFIL HAND TOOLS as M.TX motor rpm exceeds recommended rpm maximum.</p>
<div>  <div> <p><u>C.EMX-1 Rheostat Dial Speed Control</u></p> <p>Solid state motor speed control offers precise adjustment of motor speed and maintains speed for the operator unlike a foot pedal that requires constant foot pressure.</p> </div> </div>		



## ***MAMH-7 Bench Top Mount***

The Telescoping Motor Hanger is designed for fast and easy height and swivel adjustment by way of pole screws.

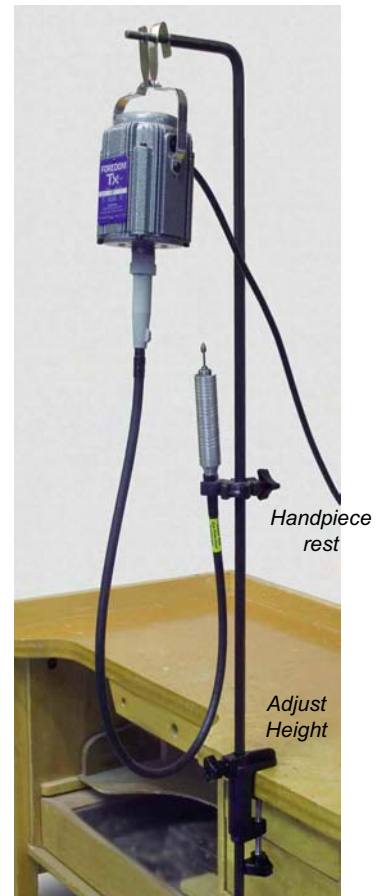
The pole base flange mounts permanently to your workbench top by three screws providing secure stable mounting. (Motor not included.)



## ***MAMH-5 Bench Clamp Mount***

This motor hanger allows you the flexibility to move the hanger assembly easily to any bench location by way of its screw clamp (2 1/4") capacity.

It also includes rest for #30 or #44 handpieces. (Motor and handpieces not included.)



## ***MAHH-30 Bench Handpiece Holder Clamp***

The MAHH-30 provides a secure bench-top mounting of handpieces #30, #35 and #44 (see page 2-9).

With the handpiece firmly held to the bench top, the operator has both hands free to hold and control the workpiece during grinding or polishing operations. (Handpiece not included.)



## DS3 - FPC/R Classic Tool with Key Drive

### Set Includes:

FPC/R:	Classic Diprofil Tool with Key Drive
M.LX-TXR:	Drive motor with key drive flex shaft and foot control
MAMH-5:	Bench clamp motor hanger
C.TXR-1:	Foot pedal
S-77N:	Outer sheath
S-93:	Inner key drive shaft
MP319P:	Motor brushes & caps

### Specifications:

Tool holder:	3.5 mm / 1/8"
Stroke length:	0-6 mm / 0-.235"
Motor:	5,000 rpm



## DS4 - FPS/R Classic Tool with Key Drive

### Set Includes:

FPS/R:	Classic Diprofil Tool with Key Drive
M.LX-TXR:	Drive motor with key drive flex shaft and foot control
MAMH-5:	Bench clamp motor hanger
C.TXR-1:	Foot pedal
S-77N:	Outer sheath
S-93:	Inner key drive shaft
MP319P:	Motor brushes & caps

### Specifications:

Tool holder:	6.4 mm / 1/4"
Stroke length:	0-6 mm / 0-.235"
Motor:	5,000 rpm



## DS5 - FPH/R Classic Tool with Key Drive

### Set Includes:

FPH/R:	Classic Diprofil Tool with Square Drive
M.LXH-TXR:	Drive motor with square drive flex shaft and foot control
MAMH-5:	Bench clamp motor hanger
C.TXR-1:	Foot pedal
S-10801TX:	Outer sheath
S-10823:	Inner square drive shaft
MP319P:	Motor brushes & caps

### Specifications:

Tool holder:	6.4 mm / 1/4"
Stroke length:	0-6 mm / 0-.235"
Motor:	5,000 rpm



*All Tool Kits are packed in a sturdy plastic case and come with operating wrenches.*

## Model H.30 Handpiece with Key Drive



The Model 30 Handpiece features a 3 jaw chuck with a shank accessory capacity of 0 to 5/32" (4mm).

Supplied with a #72 Chuck Key, the greased sealed ball bearings provide long trouble-free operation.

This handpiece is driven by a flex shaft drive motor with key drive and a TXR foot pedal speed control.

## Model H.35 Handpiece with Key Drive



This unique handpiece has a ball bearing spindle that is driven by an internal mechanism that produces 2.5 times the speed of the motor. Maximum operating speed should not exceed 35,000 rpm, so the motor should not exceed 14,000 rpm.

Comes standard with 1/8" collet.

### Additional Collets for use with the Model H.35 Handpiece

Part No.	Inch Size	Part No.	Metric Size
103115	3/32"	103124	3mm
103114	1/8"	103126	4mm
103113	3/16"	103199	6mm

## Model H.44T Handpiece with Key Drive



The Model 44 Handpiece accommodates rotary accessories with shank sizes up to 1/4" diameter.

It is supplied with three collets (3/32", 1/8" and 1/4"), spindle lock pin and collet wrench.

This Handpiece is driven by a flex shaft drive motor with key drive and a TXR foot pedal speed control.

### Additional Collets for use with the Model H.44T Handpiece

Part No.	Capacity	Range
442	3/32"	.085" to .093"
443	1/8"	.113" to .125"
444	5/32"	.144" to .156"
445	3/16"	.177" to .187"
447	1/4"	.238" to .250"



## ***Diprofil Rotary Handpiece C-HPM-B1***

This micro-motor driven rotary handpiece with carbon brush motor is used together with power unit DPU-3 or the twin power controller Marathon HA-700.

It features a quick change design for both the collet and the tool.

Supplied with 3.0mm collet; optional 2.35mm collet is available.

<i>Speed Maximum:</i>	38,000 rpm
<i>Consumed power:</i>	100 W
<i>Torque:</i>	4.0N cm
<i>Weight:</i>	285 g
<i>Vibration:</i>	2.5 m/s <sup>2</sup>



## ***Diprofil Brushless Rotary Handpiece C-HPM-BL1***

A micro-motor driven high speed rotary handpiece with brushless motor for use with HA-700 Marathon twin controller.

It features a quick change design for both the collet and the tool.

Supplied with 3.0mm collet; optional 2.35mm collet is available.

<i>Speed Maximum:</i>	40,000 rpm
<i>Consumed power:</i>	230 W
<i>Torque:</i>	7.6N cm
<i>Weight:</i>	350 g
<i>Noise:</i>	< 70 db(A) at 40,000 rpm
<i>Vibration:</i>	2.5 m/s <sup>2</sup>



## ***Diprofil Brushless Rotary Handpiece C-HPM-BL2***

A micro-motor driven ultra high speed rotary handpiece with brushless motor for use with HA-700 Marathon twin controller.

It features a quick change design for both the collet and the tool.

Supplied with 3.0mm collet; optional 2.35mm collet is available.

<i>Speed Maximum:</i>	50,000 rpm
<i>Consumed power:</i>	230 W
<i>Torque:</i>	7.6N cm
<i>Weight:</i>	350 g
<i>Noise:</i>	< 70 db(A) at 50,000 rpm
<i>Vibration:</i>	2.5 m/s <sup>2</sup>



## Dipromini Transverse Polishing/Filing Machine FMV/D

The Dipromini Transverse Polishing/Filing Machine provides left-to-right transverse movement of the head. This tool requires a HPM-B1 brush motor controlled by a DPU-3 power unit or HA-700 Marathon twin power unit.

*Frequency weighed hand/arm vibration, principally in accordance with ISO 28927-8. For further details, see diagram and other information in the Operation Guide.*

Tool holder:	Max. $\varnothing$ 3.5 mm
Stroke length:	Variable stroke 0-4 mm (measured 60 mm from the machine housing)
Speed:	Max. 12,000 rpm at 2 mm stroke length (Recommended 6,000 - 10,000) rpm
Dimension:	$\varnothing$ 24 mm
Weight:	195 - 240 g
Noise:	<75 dB(A) at 12,000 rpm
Vibration:	<2.5 m/s <sup>2</sup>



## Dipromini Reciprocating Polishing/Filing Machine FMR/D

The Dipromini Reciprocating Polishing/Filing Machine provides forward-back reciprocating movement of the head. It requires a HPM-B1 brush motor controlled by a DPU-3 power unit or HA-700 Marathon twin power unit. Available with three different stroke lengths:

Stroke Length	Part Number	Vibration
0.5 mm	FMR/D5	< 2.5 m/s <sup>2</sup>
1.0 mm	FMR/D10	< 2 - 2.8 m/s <sup>2</sup>
1.5 mm	FMR/D15	< 2 - 2.5 m/s <sup>2</sup>

*Frequency weighed hand/arm vibration, principally in accordance with ISO 28927-8. For further details, see diagram and other information in the Operation Guide.*

Tool holder:	Max. $\varnothing$ 3.5 mm
Stroke length:	0.5, 1.0 or 1.5 mm
Speed Maximum:	10,000 rpm (Recommended: 5,000 - 8,000 rpm)
Dimension:	$\varnothing$ 24 mm
Weight:	120 g
Noise:	<70 dB(A) at 7,000 rpm



## Micro-Motor HPM-B1

The DC Brush Micro-Motor powers the Diprofil Mini Polishing/Filing Machine types FMR/D, FMV/D and rotary handpiece type C-HPM-B1. This motor is controlled by a DPU-3 power unit or HA-700 Marathon twin power unit.

Speed maximum:	38,000 rpm
Consumed power:	Max. 100 W
Torque:	4.0N cm
Weight:	190 g
Dimensions:	L100 x $\varnothing$ 29.5 mm
Noise:	<70 db(A) at 38,000 rpm
Vibration:	<2.5 m/s <sup>2</sup>



## Brushless Micro-Motor HPM-BL1

The Brushless Micro-Motor powers the Di-Pro FXV/D Polishing/Filing Machine. This brushless motor is controlled by a HA-700 Marathon twin power unit.

Speed maximum:	40,000 rpm
Consumed power:	Max. 230 W
Torque:	8.5N cm
Weight:	255 g
Dimensions:	L100 x $\varnothing$ 27 mm
Noise:	<70 db(A) at 40,000 rpm
Vibration:	<2.5 m/s <sup>2</sup>



## Diprofil Power Unit DPU-3

This compact and ergonomic power unit replaces the DPU/2 and is designed for use together with dedicated rotary handpieces and micro-motor driven reciprocating Diprofil polishing/filing machines with carbon brush motors. It has high torque and electrical feedback circuitry. Other features include continuously variable speed, forward/reverse switch and automatic overload protection. The DPU-3 is supplied with foot control DPU-3-FC for optional speed adjustment.

### Technical data

Input:	AC 110/220 V at 50/60 Hz
Output:	DC 0 - 32 V, 1.2 A
Power:	Max. 100 W
Weight Power Unit:	1.7 kg
Dimensions Power Unit:	W115 x D147 x H96 mm
Weight Foot Control:	585 g



For brush-type motors only

## HA-700 Marathon Twin Power Unit

The Marathon Twin Power Unit features the versatility of powering and controlling carbon brush motors as well as brushless micro-motors (not simultaneously). The HA-700 offers hand dial variable speed control with digital display, forward/reverse switch and automatic overload protection.

- Supports brush and brushless type motors
- Easy to read digital display showing speed in rpm
- Precise rheostat speed dial control from 1,000 to 50,000 rpm
- Drives tools with high torque at all speeds for unstoppable power
- Error code display function/self diagnosis system

**Caution:** Be sure to remain within manufacturer's rpm recommendation for tool.

### Technical data

Input:	AC 200 ~ 240 V at 50/60 Hz
Output:	DC 0 - 32 V, 1.6 A BLDC 0 - 32 V, 1.6 A
Power DC:	Max. 185 W
Power BLDC:	Max 245 SW
Weight Power Unit:	2.9 kg
Dimensions Power Unit:	W137 x D232 x H180 mm
Weight Foot Control:	575 g



For both brush and brushless-type motors

## ***Diprosonic DUS-300 Ultrasonic Finishing/Polishing System from Diprofil***

The main advantage of the Diprosonic DUS-300 Ultrasonic Finishing/Polishing System is its very short stroke length (10 - 35  $\mu\text{m}$ ) at a very high frequency (18 - 25 kHz). This makes this unit ideal for working in narrow and confined spaces such as cavities and slots where a short stroke length is preferable. For this kind of delicate work, the Diprosonic will give you precise finishing with rapid stock removal in a relatively clean environment without the need for lubricating fluids, etc.

The unit is excellent for use together with ceramic fiber stones and sintered diamond files, but it is also possible to use electroplated diamond files as long as the shank of the used tool is kept as short as possible.

Operation is either by hand or the included foot switch and the unit will automatically find the right frequency for each tool.



### **System includes:**

- Ultrasonic Handpiece for DUS-300 (DUS-300-HP)
- Handpiece Cable (DUS-5)
- Power Cord - US type 110V (DUS-6)
- Foot switch (DUS-300-FS)
- 10/11 mm Spanner (DUS-8)
- 2.5 mm Hex-key (DUS-9)
- Handpiece stand (DUS-10)
- Tool-holder 1.1 mm (DUS-11)
- Tool-holder dia. 3 mm (DUS-30)
- Tool Kit Complete\* (DUS-300-TK), consisting of 1 ea.
  - Fiber Stone 4 x 1 x 50 mm, 250 grit
  - Fiber Stone 4 x 1 x 50 mm, 400 grit
  - Fiber Stone 4 x 1 x 50 mm, 700 grit
  - Fiber Stone 6 x 1 x 50 mm, 250 grit
  - Fiber Stone 6 x 1 x 50 mm, 400 grit
  - Fiber Stone 6 x 1 x 50 mm, 700 grit
  - Sintered Diamond File DLU-641, 400 grit
  - Sintered Diamond File DLU-642, 600 grit
  - Sintered Diamond File DLU-740, 200 grit
  - Sintered Diamond File DLU-741, 400 grit

\*Engis reserves the right to change or substitute standard accessories

### **Important Features**

- 36 W max. output
- Two output levels (high/low)
- Capable of long working periods
- Auto feedback system
- Small, compact and low weight

### **Technical Data**

#### **Control Unit**

Input:	AC 90 - 220 V, 50/60 Hz
Ultrasonic Power Output:	36 W
Frequency:	18 - 25 kHz
Stroke:	10 - 35 $\mu\text{m}$
Dimensions:	144W x 195D x 95H mm
Weight:	658 g

#### **Handpiece**

Cord length:	1500 mm
Dimensions:	$\varnothing$ 30 x 131 mm
Weight	185 g



## Air Driven High Frequency Polishing Machine HFP/SK

The Diprofil HFP/SK machine is a recommended alternative to ultrasonic finishing and polishing of small surfaces.

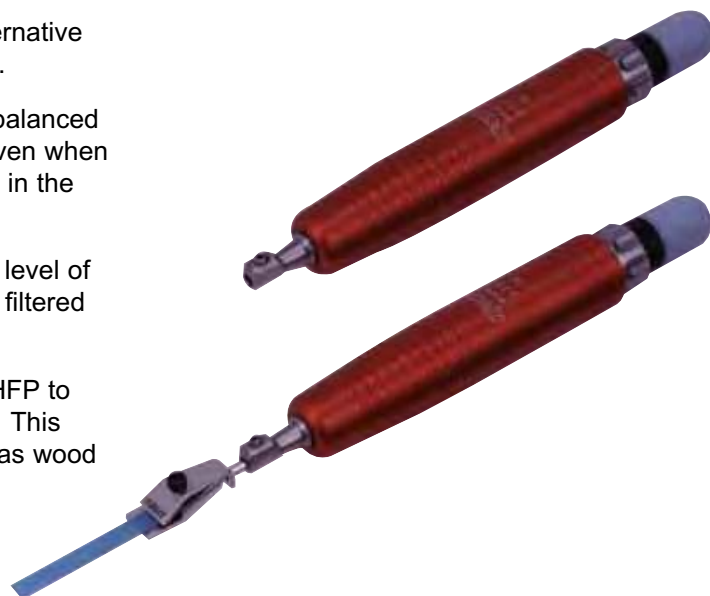
It is air driven and the stroke is generated by two unbalanced weights designed to avoid vibration in the handle. Even when working against a shoulder, no vibration is generated in the handle.

The internal air motor is manufactured to a very high level of accuracy and MUST BE supplied with lubricated and filtered air (to 5 micron) for trouble-free performance.

Use any DiaMold ceramic polishing stones with the HFP to finish slots, ribs and all work that requires fine detail. This machine also works great with diamond files as well as wood sticks and diamond compound for polishing.

The Diprofil HFP is packaged in a handy toolbox containing:

- 1 Polishing machine type HFP
- 1 Toolholder type FMR/VH
- 2 Hexagon keys
- 1.5m air tube
- 1 Tube coupling R 1/8"
- 1 Lubricating oil



### Technical Specifications:

Drive:	Lubricated air 4-6 bar 58-87 psi
Frequency:	20,000 strokes per minute
Tool-holder capacity:	Ø3.6 mm (.141")
Stroke:	0.25 mm (.010")
Weight:	190 grams
Noise:	< 78dB(A)
Vibrations:	< 2.5 m/s <sup>2</sup>

Frequency weighted hand/arm vibration, principally in accordance with ISO 28927-8. For further details, see diagram and other information in the tool Operation Guide.



MFB

Each air-driven machine requires a quick coupling (HSLM) as well as a fog lubricating device (MFB). Shown on page 2-5.

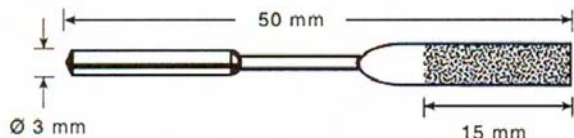
**Diprofil Diamond Files** are made from carefully selected quality diamonds, precisely bonded to obtain the best physical properties for added strength and resistance to wear. Diamond files are excellent for EDM scale removal and for use on carbide, hardened steel, ceramics and other hard materials.










<u>Page</u>	<u>Type</u>	<u>Intended Use</u>
3-2	DLA	Short machining files for general use. Designed with a semi-flexible shank to obtain a good contact with the work piece. These precision files are the basic type for use with the Diprofil Polishing Machines. Different shapes and grain sizes are available as well as safe-sided types. Medium to high stroke (3-5 mm).
3-2	DLE	Long precision machine files for general use. Low to medium stroke (2-4 mm). Different shapes and grain sizes are available as well as two safe-sided types. Low to medium stroke (2-4 mm).
3-3	DLF	Precision riffle type machine files. Especially recommended for use on shaped surfaces. Available in both medium and coarse diamond grains.
3-3	DLK	Large machine files for use together with the heavy-duty type machines with Ø6.4mm tool holder. Max 4 mm stroke recommended to avoid high levels of vibrations. Different shapes available as well as a safe sided type.
3-4	DLN	Precision mini hand files for delicate work. Different shapes.
3-4	DLG	"Habilis" type diamond hand files for general use. This file type can be comfortably used without a fitted handle.
3-5	DLH	Precision hand files for general use. Different shapes available as well as safe-sided types.
3-6	DLM	Short conical machine files for general use. Specially recommended for EDM scale removal and other preparation of thin slots, e.g. after wire-EDM machining. Different shapes and grain sizes are available.
3-7	DBE	Long machine files for general use. Low to medium stroke (2-4 mm). Different shapes and grain sizes are available.
3-8	DLB	Riffle type machine files. Especially recommended for use on shaped surfaces.
3-9	DLS	Conical hand files for general use. Specially recommended for EDM scale removal and other preparation of thin slots, e.g. after wire-EDM machining. Different sizes and grain sizes are available.
3-10	DBH	Hand files for general use.
3-11	DLL	Short conical hand files for general use. Specially recommended for EDM scale removal and other preparation of thin slots, e.g. after wire-EDM machining. Different sizes and grain sizes are available.
3-12	DLD	One sided riffle type hand files. Specially recommended for use on shaped surfaces.
3-13	DLQ	Extra long (200 mm) hand files for general use. Different shapes are available.
3-14	DLX	Hand files for general use. This file type can be comfortably used without a fitted handle.

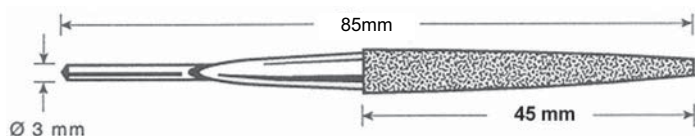
**Diprofil Precision Steel Files** are great for use on soft and semi-hard steel as well as other materials of low and medium hardness.









<u>Page</u>	<u>Type</u>	<u>Intended Use</u>
3-15	STL-1 – STL-6	Standard steel files for use in Diprofil polishing machines. Low to medium stroke (2-4 mm). Available in both medium (-00) and fine (-1) cut as well as in different shapes.
3-15	STL-11 – STL-16	Precision riffle type machine files. Especially recommended for use on shaped surfaces. Low to medium stroke (2-4 mm). Available in both medium (-00) and fine (-1) cut as well as in different shapes.
3-15	STL-21 – STL-26	Mini steel files for use in Diprofil polishing machines. Low to medium stroke (2-4 mm). Available in both medium (-00) and fine (-1) cut as well as in different shapes.
3-16	STL-31 – STL-36	Large machine files for use together with the heavy-duty type machines with Ø 6.4 mm tool holder. Max 4 mm stroke recommended to avoid high levels of vibrations. Available in both medium (-00) and fine (-1) cut as well as in different shapes.
3-16	STL-101	Medium sized steel files especially recommended for deburring of cast aluminum goods. Low to medium stroke (2-4 mm). Available in both medium (-00) and fine (-1) cut.

## DLA and DLE Precision Files For Diprofil Filing Machines



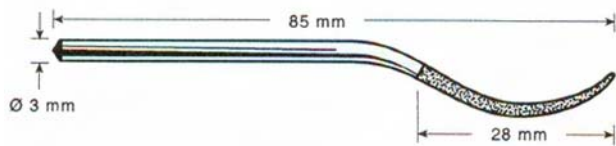
Shape	Size mm	Diamond D64* • 50 (fine)	Diamond D151* • 100 (medium)	Diamond D181* • 150 (coarse)
<b>Standard Files</b>				
	2 x 1 3 x 1 4 x 1 4 x 2 5 x 2	DLA-2x1S DLA-3x1S DLA-4x1S DLA-4x2S DLA-5x2S	DLA2x1S-D151 DLA3x1S-D151 DLA4x1S-D151 DLA4x2S-D151 DLA5x2S-D151	DLA2x1S-D181 DLA3x1S-D181 DLA4x1S-D181 DLA4x2S-D181 DLA5x2S-D181
	Ø1 Ø2 Ø3 Ø4	DLA-1 DLA-2 DLA-3 DLA-4	DLA-1 DLA-2 DLA-3 DLA-4	DLA-1 DLA-2 DLA-3 DLA-4
	2 x 2 x 2 3 x 3 x 3 4 x 4 x 4	DLA-T2S DLA-T3S	DLA-T2S DLA-T3S DLA-T4S	DLA-T2S DLA-T3S DLA-T4S
	r = 1 r = 1.5 r = 2	DLA-R2S	DLA-R1S DLA-R1.5S DLA-R2S	DLA-R2S
	r = 5 r = 2.5	DLA-R2.5xR5	DLA-R2.5xR5	DLA-R2.5xR5
<b>Safe-Sided Files</b>				
	2 x 1 3 x 1 4 x 1 4 x 2 5 x 2	DLA-2x1 DLA-3x1 DLA-4x1 DLA-4x2 DLA-5x2	DLA-2x1 DLA-3x1 DLA-4x1 DLA-4x2 DLA-5x2	DLA-2x1 DLA-3x1 DLA-4x1 DLA-4x2 DLA-5x2
	0.5 x 4 0.75 x 4 1 x 4		DLA-0.5x4 DLA-0.75x4 DLA-1x4	DLA-1x4
	2 x 2 x 2 3 x 3 x 3 4 x 4 x 4	DLA-T2 DLA-T3	DLA-T2 DLA-T3 DLA-T4	DLA-T2 DLA-T3 DLA-T4
	r = 1 r = 1.5 r = 2	DLA-R2	DLA-R1 DLA-R1.5 DLA-R2	DLA-R2



Shape	Size mm	Diamond D151* • 100 (medium)	Diamond D181* • 150 (coarse)
<b>Standard Files</b>			
	5 x 1	DLE11-D151	DLE11-D181
	Ø3	DLE2	DLE2-D181
	5 x 2	DLE30-D151	
	5 x 2	DLE4	
	3.5 x 3.5 x 3.5	DLE5	DLE5-D181
	Ø2.5	DLE6	DLE6-D181
<b>Safe-Sided Files</b>			
	5 x 1	DLE1	DLE1-D181
	5 x 2	DLE3	





\*Grain Sizes according to FEPA

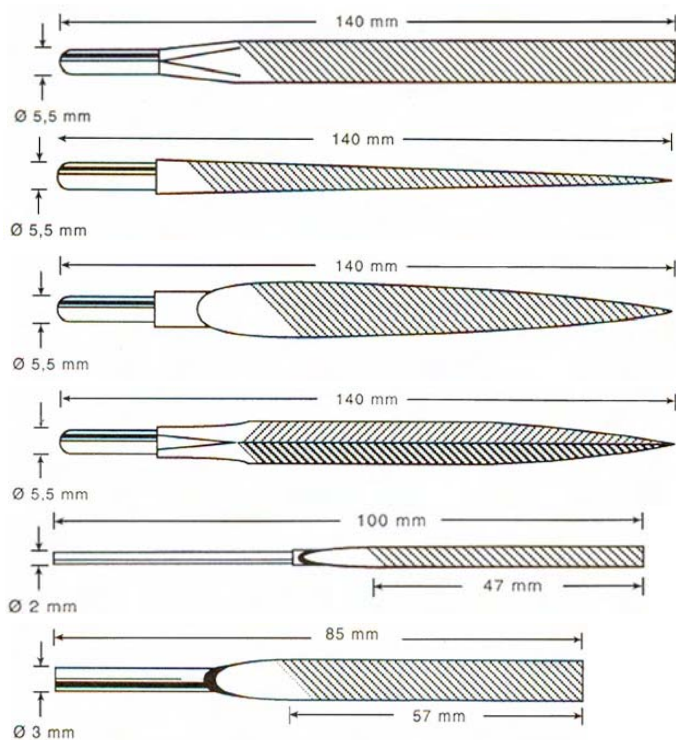
## DLF and DLK Precision Files For Diprofil Filing Machines








Shape	Size mm	Diamond D64* • 50 (fine)	Diamond D151* • 100 (medium)	Diamond D181* • 150 (coarse)
-------	---------	-----------------------------	---------------------------------	---------------------------------

### Standard Files


	4.5x2.5		DLF-1	DLF-1
	Ø3		DLF-2	DLF-2
	5x2.5		DLF4	DLF-4
	3x3		DLF6	DLF-6

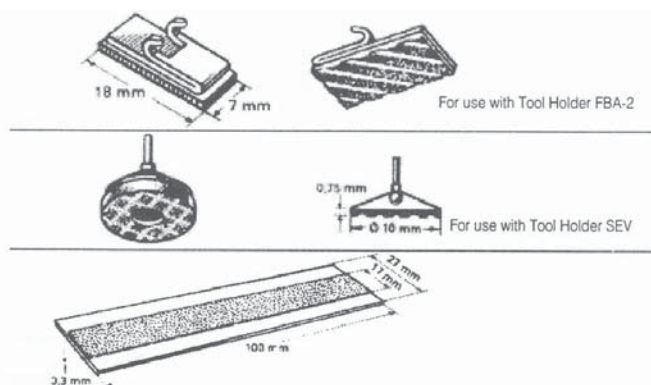


### Standard Files

	10 x 2.5		DLK-11	
	Ø6.3		DLK-2	
	12.2 x 3.7		DLK-3	
	9.6x9.6x9.6		DLK-5	
	Ø5.3		DLK-6	

### Safe Sided Files

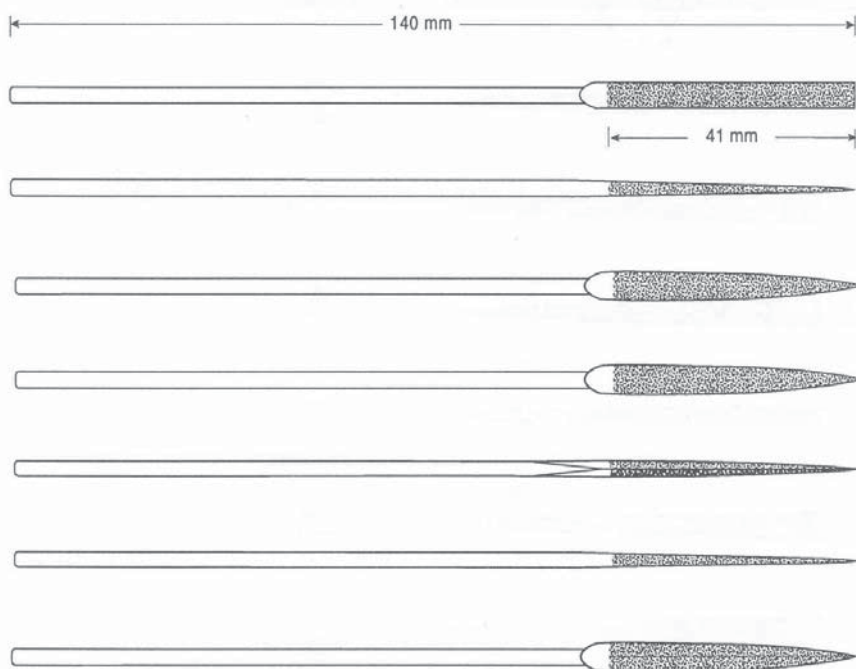
	10 x2.5		DLK-1	
---	---------	--	-------	--










DLC-7x18	DLC-7x18	DLC-7x18
DLD-10	DLD-10	DLD-10
	DTA	

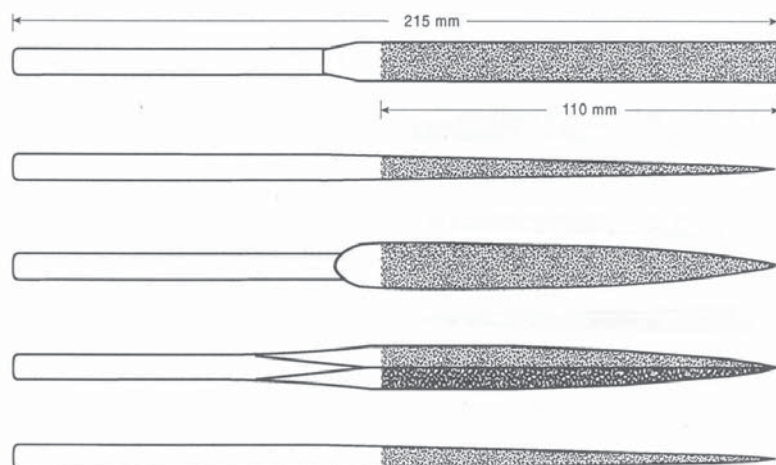


## DLN and DLG Precision Files For Diprofil Filing Machines








Shaft diameter 3mm

Shape	Size mm	Diamond D151* • 100 (medium)
	4 x 1.3	DLN-1
	Ø1.6	DLN-2
	4 x 1.8	DLN-3
	4 x 1.6	DLN-4
	3 x 3 x 3	DLN-5
	Ø1.9	DLN-6
	4.1 x 1.5	DLN-7
File set containing 7 files, one each of DLN1 to DLN-7.		DLN-100












Shaft diameter 6mm

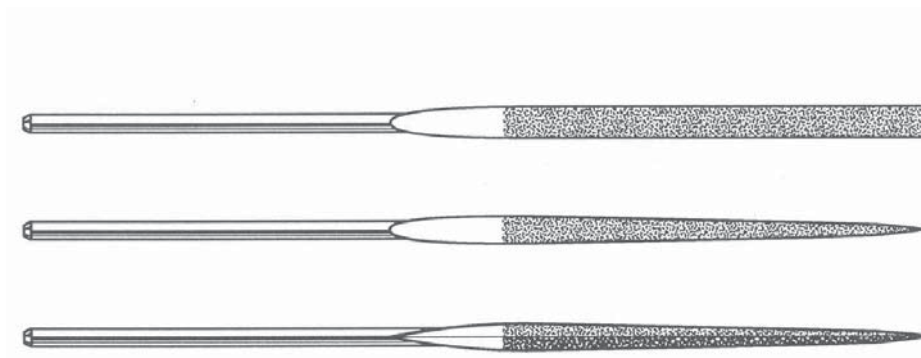
Shape	Size mm	Diamond D151* • 100 (medium)
	10.3	DLG-1
	Ø6.5	DLG-2
	12 x 4	DLG-3
	9.5 x 9.5 x 9.5	DLG-4
	Ø5.5	DLG-5
File set containing 5 files, one each of DL-1 to DLN-5.		DLG-100

\*Grain Sizes according to FEPA




## DLH Precision Hand Files



Shape	Size mm	Diamond D151* • 100 (medium)
	5.3 x 1.4	DLH-11
	Ø3	DLH-2
	5.1 x 2.2	DLH-4
	3.8 x 3.8 x 3.8	DLH-5
	∅2.6	DLH-6
	5.2 x 1.6	DLH-8
	5.0 x 1.6	DLH-9
	5.0 x 2.4	DLH-10
	5.6 x 1.9	DLH-30



### Safe-Sided Files

	4.8x1.1	DLH-1
	5.5x1.7	DLH-3
	4.9x2.1	DLH-7

Shaft diameter 3mm

File set containing 7 diamond files, one each of DLH-1 through DLH-7

DLH/100

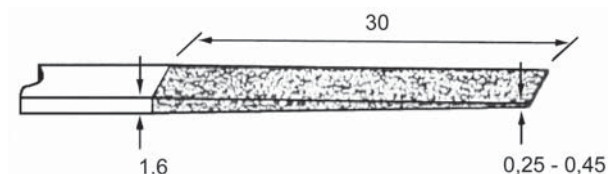
File set containing 7 diamond files, DLH-2, DLH-5, DLH-6, DLH-8, DLH-11 and DLH-30




DLH/100S

\*Grain Sizes according to FEPA

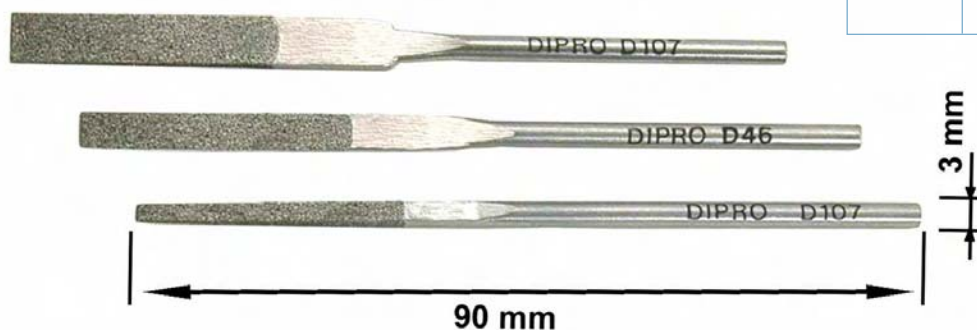
## DLM Dipro Conical Diamond Machine Files

### DIPROFIL CONICAL DIAMOND FILES FOR DIPROFIL FILING MACHINES



Shape	Size mm	Item Number Diamond D46	Item Number Diamond D107
	2.5 x 1.6	DLM-1-D46	DLM-1-D107
	4 x 1.6	DLM-2-D46	DLM-2-D107
	6 x 1.6	DLM-3-D46	DLM-3-D107

\*Grain Sizes according to FEPA



Max file length 90 mm  
Max shaft diameter 3 mm

### DLM-SET

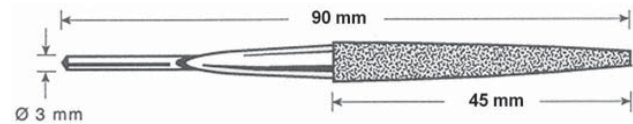
Set consisting of the 6 different DLM files  
(as specified above)









Item Number  
DLM/1

## DBE Dipro Diamond Machine Files

### DIAMOND FILES FOR DIPROFIL FILING MACHINES



Shape	Size mm	<i>FINE</i> Item Number Diamond D46	<i>MEDIUM</i> Item Number Diamond D76	<i>COARSE</i> Item Number Diamond 107
	4 x 2	DBE-1-D46	DBE-1-D76	DBE-1-107
	Ø3	DBE-2-D46	DBE-2-D76	DBE-2-D107
	5 x 2	DBE-3-D46	DBE-3-D76	DBE-3-D107
	5 x 2	DBE-4-D46	DBE-4-D76	DBE-4-D107
	3.5	DBE-5-D46	DBE-5-D76	DBE-5-D107
	2.5x2.5	DBE-6-D46	DBE-6-D76	DBE-6-D107

Total file length approx 90mm

\*Grain Sizes according to FEPA

### DBE- SET

Set consisting of the above 6 different DBE machine files



#### Item Number

DBE-SET-D46

DBE-SET-D76

DBE-SET-D107









## DLB Dipro Diamond Machine Files

### DIAMOND FILES FOR DIPROFIL FILING MACHINES



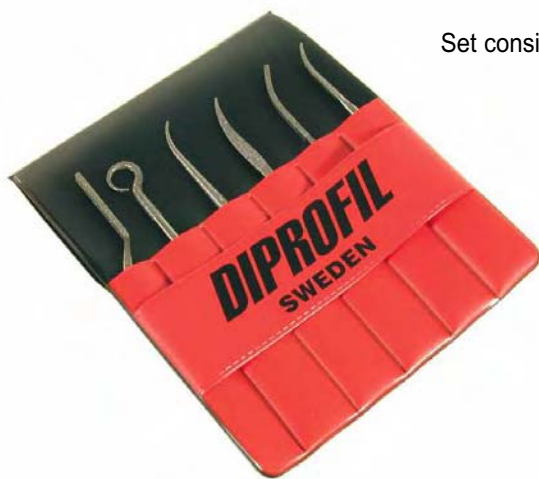
Approx file length 65 mm. Shaft diameter 3 mm.

Shape	Size mm	Item Number Diamond D107
	3.2 X 1.4	DLB-1-D107
	Ø3	DLB-2-D107
	Ø3	DLB-3-D107
	2.5	DLB-4-D107
	3.2 x 1.4	DLB-5-D107
	4 x 2	DLB-6-D107

\*Grain Sizes according to FEPA

### DLB SET

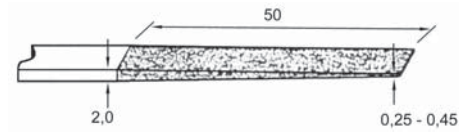
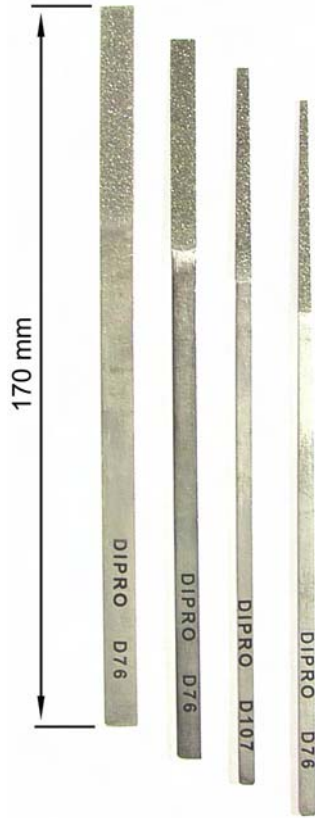
Set consisting of the above 6 different DLB machine files







Item Number  
DLB-SET-D107

## DLS Dipro Conical Diamond Hand Files

### DIAMOND FILES FOR DIPROFIL FILING MACHINES



Shape	Size mm	Item Number Diamond D46	Item Number Diamond D76	Item Number Diamond 107
	4 x 2		DLS-1-D76	
	4 x 3	DLS-2-D46	DLS-2-D76	DLS-2-D107
	6 x 6	DLS-3-D46	DLS-3-D76	DLS-3-D107
	8 x 8	DLS-4-D46	DLS-4-D76	DLS-4-D107

Total file length 170 mm

\*Grain Sizes according to FEPA

### DLS SET



Set consisting of the above 10 different DLS











Item Number  
DLS/1

## DBH Dipro Diamond Hand Files

### DIAMOND FILES FOR HAND FILING



Total file length approx 140mm  
Shaft diameter 3mm

Shape	Size mm	<i>FINE</i> Item Number Diamond D46	<i>MEDIUM</i> Item Number Diamond D76	<i>COARSE</i> Item Number Diamond 126
	6 x 1.5	DBH-1-D46	DBH-1-D76	DBH-1-D126
	Ø3	DBH-2-D46	DBH-2-D76	DBH-2-D126
	5 x 2	DBH-3-D46	DBH-3-D76	DBH-3-D126
	5 x 2	DBH-4-D46	DBH-4-D76	DBH-4-D126
	3.5	DBH-5-D46	DBH-5-D76	DBH-5-D126
	2.5 x 2.5	DBH-6-D46	DBH-6-D76	DBH-6-D126
	6 x 2	DBH-7-D46	DBH-7-D76	DBH-7-D126
	5.4 x 1.5	DBH-8-D46	DBH-8-D76	DBH-8-D126
	1.7 x 6	DBH-9-D46	DBH-9-D76	DBH-9-D126
	6 x 1.5	DBH-10-D46	DBH-10-D76	DBH-10-D126

\*Grain Sizes according to FEPA

### DBH SET



Set consisting of the above 10 different DBH hand files

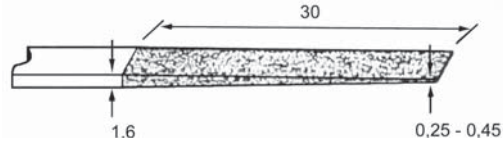
Item Number  
DBH-SET-D46  
DBH-SET-D76  
DBH-SET-D126





## DLL Dipro Conical Diamond Hand Files

### DIAMOND FILES FOR HAND FILING



Total file length approx 140mm  
Shaft diameter 3mm



Shape	Size mm	Item Number Diamond D30	Item Number Diamond D46	Item Number Diamond 76
	1.7 x 2	DLL-1-D30	DLL-1-D46	DLL-1-D76
	1.7 x 4	DLL-2-D30	DLL-2-D46	DLL-2-D76
	1.7 x 6	DLL-3-D30	DLL-3-D46	DLL-3-D76
	5 x 2	DLL-4-D30		

\*Grain Sizes according to FEPA

### DLL Set



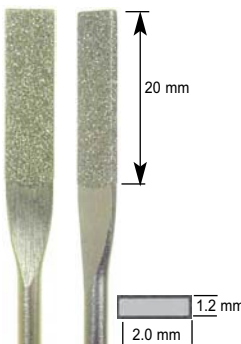
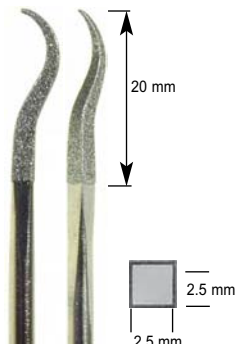
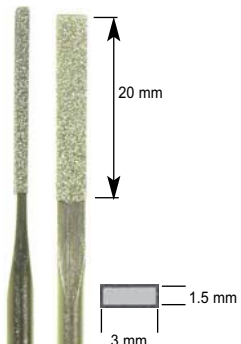
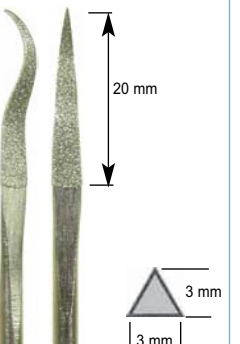
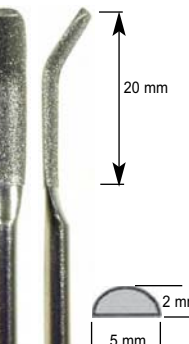
Set consisting of the above 10 different DLL hand files

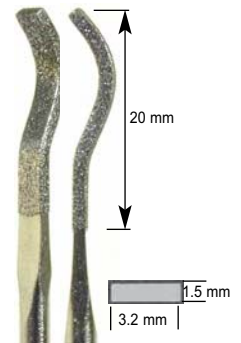
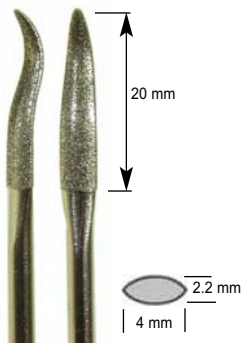
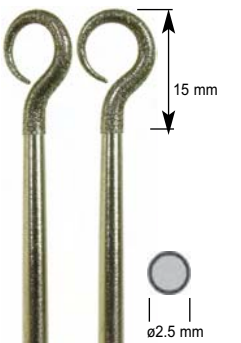
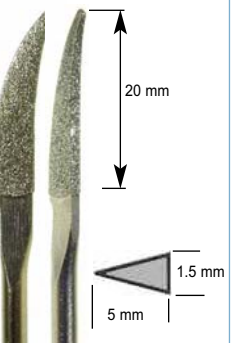
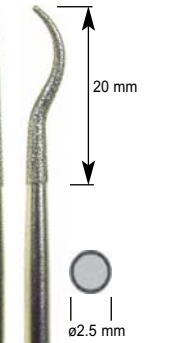
Item Number  
DLL-SET



## DLD Dipro Diamond Hand Files

### DIAMOND FILES FOR HAND FILING–Technical Specifications

 <p>20 mm</p> <p>1.2 mm</p> <p>2.0 mm</p>	 <p>20 mm</p> <p>2.5 mm</p> <p>2.5 mm</p>	 <p>20 mm</p> <p>1.5 mm</p> <p>3 mm</p>	 <p>20 mm</p> <p>3 mm</p> <p>3 mm</p>	 <p>20 mm</p> <p>2 mm</p> <p>5 mm</p>
<b>Item Number</b>				
DLD-1	DLD-2	DLD-3	DLD-4	DLD-5

 <p>20 mm</p> <p>1.5 mm</p> <p>3.2 mm</p>	 <p>20 mm</p> <p>2.2 mm</p> <p>4 mm</p>	 <p>15 mm</p> <p>ø2.5 mm</p>	 <p>20 mm</p> <p>1.5 mm</p> <p>5 mm</p>	 <p>20 mm</p> <p>ø2.5 mm</p>
<b>Item Number</b>				
DLD-6	DLD-7	DLD-8	DLD-9	DLD-10

### Item Number Diamond D107

DLD-1-D107	DLD-2-D107	DLD-3-D107	DLD-4-D107	DLD-5-D107
DLD-6-D107	DLD-7-D107	DLD-8-D107	DLD-9-D107	DLD-10-D107

### DLD Set








Set consisting of the above 10 different DLD hand files

**Item Number**  
DLD-SET-D107

Total file length approx. 140mm  
Shaft diameter 3mm

## DLQ Dipro Diamond Hand Files



Shape	Size mm	Item Number Diamond D126
	8.5 X 1.6	DLQ-1-D126
	Ø4	DLQ-2-D126
	7 x 2.5	DLQ-3-D126
	∅3.5	DLQ-4-D126
	4.5	DLQ-5-D126

\*Grain Sizes according to FEPA

Total file length approx 200mm  
Shaft diameter 4mm

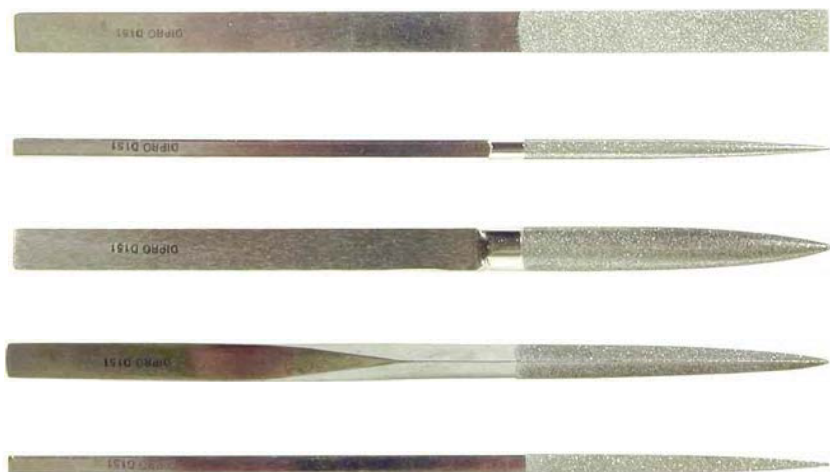
### DLQ SET








Set consisting of the above 5 different DLQ hand files

Item Number  
DLQ-SET-D126

## DLX Dipro Diamond Hand Files



Total file length approx 200mm

Shape	Size mm	Item Number Diamond D151
	11 X 3.5	DLX-1-D151
	Ø5	DLX-2-D151
	10.5 X 4.4	DLX-3-D151
	7.7	DLX-4-D151
	∅6.3	DLX-5-D151

\*Grain Sizes according to FEPA

## DLX SET

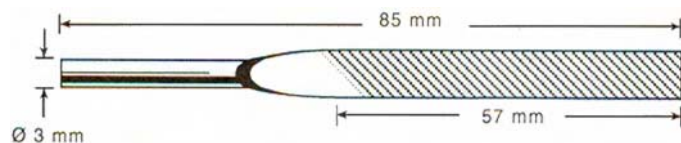








Set consisting of the above 5 different DLX hand files

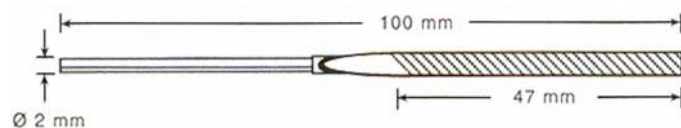
Item Number  
DLX-SET-D151







Steel Files are for use on soft and semi-hardened steel as well as other materials of low and medium hardness.

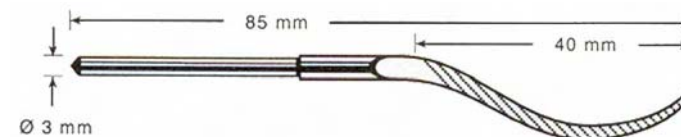
## STL 1 - STL 26 Precision Steel Files







Shape	Size mm	Coarse Cut -00	Fine Cut -1
	5 x 1.5	STL1.00	STL1.1
	Ø3	STL2.00	STL2.1
	5 x 2	STL3.00	STL3.1
	5 x 2	STL4.00	STL4.1
	3.5 x 3.5 x 3.5	STL5.00	STL5.1
	Ø2.5	STL6.00	STL6.1
Set consisting of one each of STL-1 to STL-6		STL. 1/6.00	STL. 1/6.1



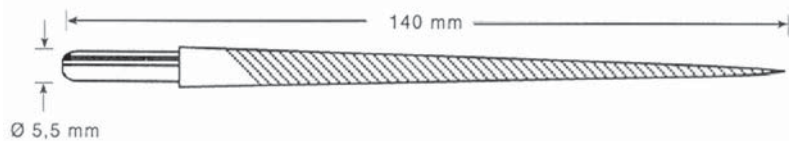
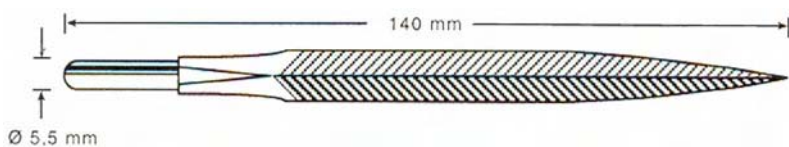
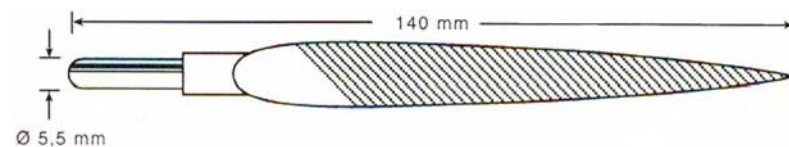
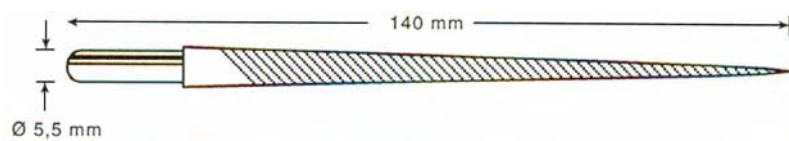
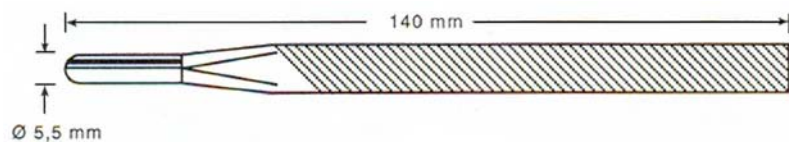
	3.3 x 1	STL21.00	STL21.1
	Ø2	STL22.00	STL22.1
	3.2 x 1.1	STL23.00	STL23.1
	3 x 1.3	STL24.00	STL24.1
	2.2 x 2.2 x 2.2	STL25.00	STL25.1
	Ø1.7	STL26.00	STL26.1
Set consisting of one each of STL-1 to STL-6		STL. 21/26.00	STL. 21/26.1








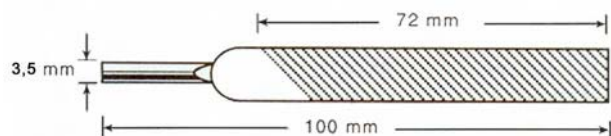
	4 x 2	STL11.00	STL11.1
	Ø3	STL12.00	STL12.1
	4.7 x 2.5	STL13.00	STL13.1
	Ø3	STL14.00	STL14.1
Set consisting of one each of STL-1 to STL-6		STL. 11/16.00	STL. 11/16.1




## STL 31 - STL 36 Precision Steel Files



Shape	Size mm	Medium Cut -00	Fine Cut -1
	10 x 2.5	STL31.00	STL31.1
	Ø6.3	STL32.00	STL32.1
	12.2 x 3.4	STL33.00	STL33.1
	9.4 x 9.4 x 9.4	STL35.00	STL35.1
	5.3	STL36.00	STL36.1
Set consisting of one each of STL-1 to STL-6			STL30.00



	10 x 2.5	STL101.00	STL101.1
		STL1A.00	STL1A.1

## Minimo One

The Minimo One Series hand finishing system is designed to provide unsurpassed accuracy, reliability, power and versatility, while being comfortable and natural to use with minimum fatigue. An innovative hand switch, built right into the handpiece itself, is just one of many new features that makes Minimo the most advanced and easy to use handpiece on the market.

Plus, when you use the Minimo One system in conjunction with DiaMold diamond compounds, lubricants and the full range of toolroom products from Engis, you can be assured of high precision results, time and time again. (Section 1 of this catalog contains a full description of our diamond compounds and lubricants.)

### Easy Exchange of Collets



Collets can be changed easily using a V wrench.

### Easy Exchange of Tools



Minimo rotary heads utilize a simple tool changing mechanism that does not require wrenches or keys. Tools can be easily changed out by a quick turn of the collet release ring. This facilitates the use of polishing tools with different shank diameters by simply switching out the collets.

### Versatility of Handpieces



The Minimo polishing system offers maximum flexibility with a wide range of both heads and motor assemblies. By optimizing the head and motor assembly combination for each application, you have the perfect tool for every job. The head can be mounted to a motor in a snap.

### Hand Switch for Maximum Control



In addition to the On/Off switch on the power supply, each motor is supplied with its own On/Off switch. This allows the operator to stop and start the handpiece quickly, even when working out of reach of the power supply. The switch is inset in the tool to minimize the risk of accidentally starting the motor.



Motor Model

Maximum Speed (x 1,000)



Removable Curled Power Cord

## Minimo One Handpieces and Head Attachments

Adding to the Minimo One's versatility is a complete array of attachments, including heads, clamp heads and gear reduction units for more power.

### Versatility of Handpieces

Minimo One Rotary Handpieces consist of a combination of various heads and motor assemblies of different specifications. Different combinations of heads, motor assemblies and other attachments can customize the tool for different applications. Heads can be mounted to motors in a snap.

### Variety of Handpieces

Engis offers a full selection of handpieces, ranging from Standard, Slender and Heavy Duty Rotary units to POLYTOR Ultrasonic systems – the ideal solution for removing EDM scale.



**Polytor Ultrasonic Handpiece**



**Standard Rotary Straight Head Handpiece**



**Anglon Angle Head Handpiece**



**Rubron Lateral Swing Handpiece**



**Recipron Reciprocating Handpiece**







**Mini-Belt Sander**

### Minimo One Series -- Table of Contents

Section	Products
4-3	Power Packs
4-4	Polytor Ultrasonic Systems
4-5, 4-6	Standard Rotary Handpieces
4-7	Slender Rotary Handpieces
4-8	Heavy Duty Rotary Handpieces
4-9	Rubron System
4-10 - 4-16	Anglon Systems & Tools
4-17	Recipron
4-18	Mini-Belt Sander
4-19, 4-20	Motors
4-21, 4-22	Heads
4-23 - 4-26	Accessories

## Compatible with Handpieces with ON/OFF Switches

Each Power Pack is equipped with a feedback feature to detect overloading. An audible beep lets you know when the handpiece is turned ON/OFF or when the tool is overloaded. This excellent feature allows the handpiece to perform to its full capability without damaging the handpiece or power pack.

	<b>P211</b> Polytor Power Pack	<b>C311</b> DC Power Pack	<b>C111</b> DC Power Pack	<b>P111</b> Polytor Power Pack
				
Handpiece Stations	3 (1 Ultrasonic, 2 Standard)	3 (3 Standard)	1 (1 Standard)	1 (Ultrasonic Only)
Rated Input	60 VA	60 VA	60 VA	30 VA
Input Voltage	AC115V $\pm$ 5% (50/60 Hz)	AC115V $\pm$ 5% (50/60 Hz)	AC115V $\pm$ 5% (50/60 Hz)	AC115V $\pm$ 5% (50/60 Hz)
Output Voltage	DC3-30V AC Max 80V (25 $\pm$ 5KHz)	DC3-30V AC	DC3-30V AC	80V AC
Dimensions	144mm (W) x 218mm (D) x 116mm (H)	144mm (W) x 218mm (D) x 116mm (H)	144mm (W) x 218mm (D) x 116mm (H)	144mm (W) x 218mm (D) x 116mm (H)
Optional Accessories	FS201 Foot Switch RM11 Rubber Cradle	RM11 Rubber Cradle	RM11 Rubber Cradle	US21 Ultrasonic Handpiece

• **Audible alert function** - Protecting against an over-current in the D.C. motor handpiece, it sounds before the overload protection function is activated. (Beep sound volume is adjustable).

• **Compatible with the handpiece ON/OFF switch** - Effective especially when work requires frequent switching ON/OFF or when working out of reach of the POWER PACK. (An extension cord for your handpiece is available as an option.)

• **Audible beep for starting or stopping the Handpiece** - The POWER PACK beeps when starting or stopping the handpiece for clear identification. This function is effective especially with the POLYTOR ultrasonic handpiece which makes almost no sound during its operation.

• **Soft start and quick brake mechanism** - Equipped with a mechanism that starts the handpiece softly and stops it quickly, it improves safety substantially.

• **Quadplex safety system** - Provided with fourfold protective circuits, the POWER PACK and the handpiece are protected from overloading and overheating.

• **Feedback mechanism** - Maintains constant rotation speed and preserves torque for the D.C. motor handpiece.

• **Handpiece is grounded** - The body of the handpiece also is grounded. (Grounding available only on handpieces of Minimo® One Series except the POLYTOR ultrasonic handpiece and Minimo® Seven Series.)

• **Rotation switch** - Reverse rotation capable for the D.C. motor handpiece.

• **Foot switch can be used** - Foot controlled operation is also possible with our foot switch.

• **Convenient carrying handle** - A foldable carrying handle that makes transportation easier.

• **Removable power cord** - Makes storage convenient.



## US21 Polytor (Ultrasonic)

The POLYTOR handpiece (US21) is indispensable for mold finishing, providing powerful and stable ultrasonic vibration. Typical applications include:

- Removing EDM scale
- Convenient for pattern cutting of printed circuit boards
- Ideal for deburring, grinding, cutting, polishing and honing
- Finishing precious metals and jewels

The US21 is great for small and intricate work especially in slots and ribs where hand work is difficult. Because the reciprocation is short and moves with ultrasonic speed, the tool tip can be used in corners, wall ends and for fine detail work.

Since the frequency is adjusted automatically, operation of the US21 is simple and easy. Because of the tool's aggressive cutting action, processing time is reduced dramatically, saving 70 to 75% of finishing time while improving quality. A large variety of tools for use with the US21 are available for cleaning up milled and EDM surfaces to mirror polishes.

### The Hand Switch provides quick and easy ON/OFF manipulation

The Hand Switch enables the tool to be switched ON/OFF on the handpiece side as well; this offers maximum convenience when work requires frequent switching ON/OFF or when working out of reach of the Power Pack. This adoption of the new mechanism improves the switch durability as well.

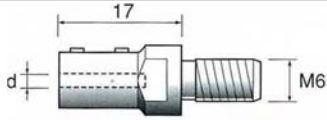
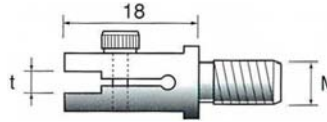
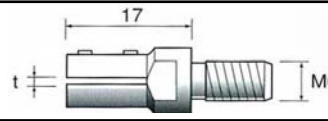
### POLYTOR HANDPIECE US21

- Compact and lightweight
- Built-in ON/OFF SWITCH
- Removable curled power cord makes storage convenient
- Employs an advanced high performance oscillating unit
- Compatible with P111 & P211 Power Pack

#### Standard Tools (1pc each):

SA8103 Holder with SA4102 Diamond File  
SA8151 Holder with SA5005 Ceramic Stone



Toolholder Selection for Polytor Ultrasonic		
SA8101 SA8102 SA8103 SA8104	d = ø1mm d = ø2mm d = ø3mm d = ø4mm	
SA8151 SA8152 SA8153 SA8154	t = 1mm t = 2mm t = 3mm t = 4mm	
SA8181 SA8182	t = 0.5mm t = 1 mm	

## Standard Rotary Handpieces

The Minimo One Handpieces are designed to provide the user with unsurpassed versatility with its quick-change H011/E Standard Head options. Minimo heads and motors have matching threads which make changing a straight tool to a 90 degree tool a very simple process. Tool change is a 1/4 turn process without the need of a special wrench or spanners.

Each motor has an On/Off switch on its side for one-hand operation.

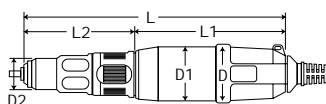
3/32" and 1/8" collets are standard with each handpiece. Seven other collets sizes are available and sold separately.

V11H/E		5,000 - 50,000 RPM
V21H/E		4,000 - 40,000 RPM
M11H/E		3,500 - 35,000 RPM
M21H/E		3,000 - 30,000 RPM
V21/E		2,500 - 25,000 RPM
M11/E		2,000 - 20,000 RPM
M21/E		1,500 - 15,000 RPM
M11G/E		660 - 6,600 RPM

**Minimo One Handpieces can be used with P211, C311 or C111 Power Packs**

## STANDARD ROTARY SPECIFICATIONS

• Model	V11H/E	M21H/E	M11H/E	V21H/E	M21/E	M11/E	V21/E	M11G/E
• Speed	Ultra-high speed	High speed	High speed	High speed	Medium speed	Medium speed	Medium speed	Geared low speed
• Motor Model	KV11H	KM21H	KM11H	KV21H	KM21	KM11	KV21	KM11G
• Head Model	H011/E	H011/E	H011/E	H011/E	H011/E	H011/E	H011/E	H011/E
• Hand Switch Color	Ivory	Red	Violet	Pink	Green	Blue	Orange	Yellow
• Speed Range RPM	5,000–50,000	3,000–30,000	3,500–35,000	4,000–40,000	1,500–15,000	2,000–20,000	2,500–25,000	660–6,600
• Input Voltage (D.C.V.)	3–30	3–30	3–30	3–30	3–30	3–30	3–30	3–30
• No-load Current (D.C.A.)	0.45	0.40	0.35	0.40	0.30	0.30	0.40	0.34
• Maximum Torque (cN.M)	2.3	2.8	3.4	2.7	5.9	4.5	3.9	9.8
• Weight (g) [not including cord]	204	290	232	240	290	232	240	273
• Dimensions (mm) L	147	167	160	149	167	160	149	176
L1	76	96	89	78	96	89	78	105
L2	71	71	71	71	71	71	71	71
D	ø29	ø33	ø29	ø33	ø33	ø29	ø33	ø29
D1	ø26.4	ø30.4	ø26.4	ø30.4	ø30.4	ø26.4	ø30.4	ø26.4
D2	ø14.5	ø14.5	ø14.5	ø14.5	ø14.5	ø14.5	ø14.5	ø14.5

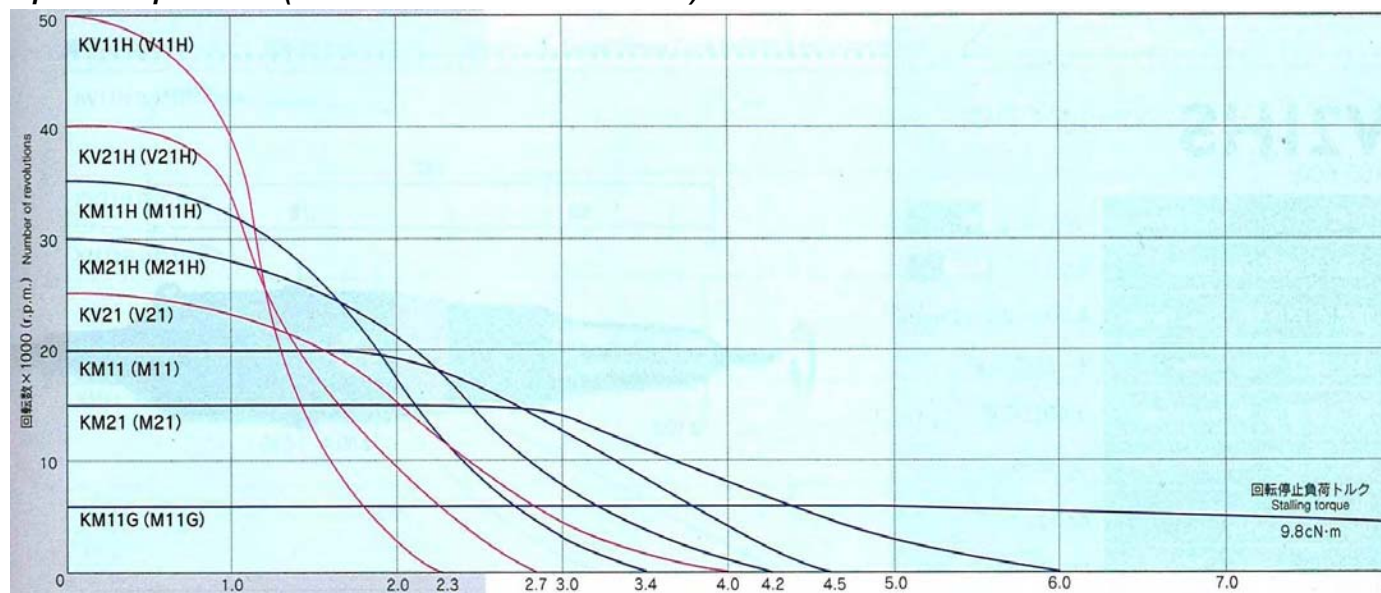


## COLLET SELECTION TABLE (Standard Rotary)



Code	KP-050	KP-051	KP-007	KP-005	KP-052	KP-031	KP-036	KP-032	KP-033
Inside Diameter (mm)	ø 1.0	ø 1.2	ø 1.4	ø 1.6	ø 1.8	ø 2.0	ø 2.34 (7/32")	ø 3.0	ø 3.175 (1/8")

## Speed/Torque Curve (data for different motor models)



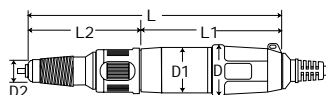
These are small and lightweight handpieces with precision balanced motors for vibration-free operation – very comfortable to hold and use for very long periods of time.

3/32" and 1/8" collets are standard with each handpiece. Seven other collets size are available and sold separately.

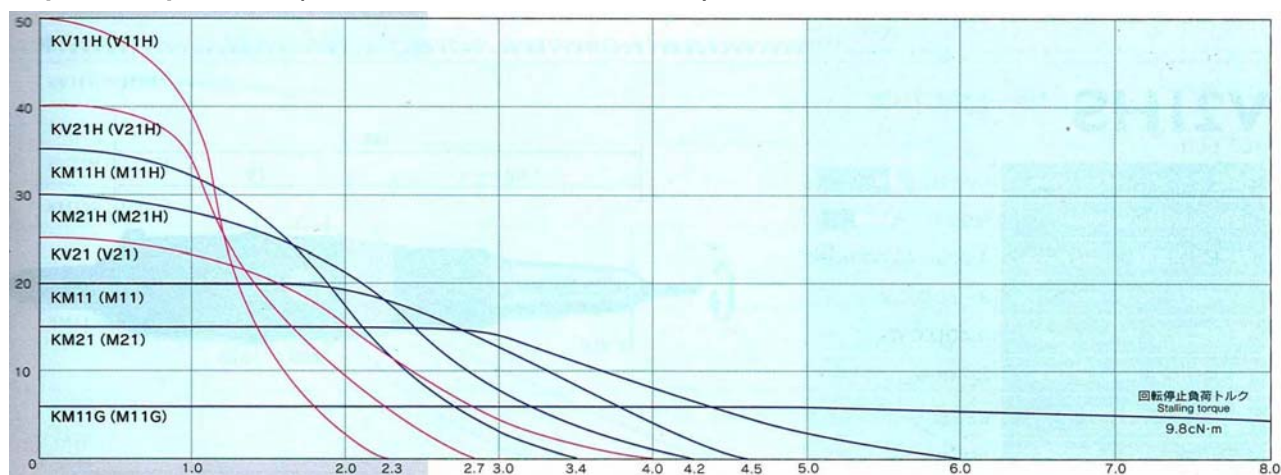
V11HS/E		5,000 - 50,000 RPM
M11HS/E		3,500 - 35,000 RPM
V21HS/E		4,000 - 40,000 RPM
M11S/E		2,000 - 20,000 RPM

## SLENDER ROTARY SPECIFICATIONS

• Model	V11HS/E	M11HS/E	V21HS/E	M11S/E
• Speed	Ultra-high speed	High speed	High speed	Medium speed
• Motor Model	KV11H	KM11H	KV21H	KM11
• Head Model	H021/E	H021/E	H021/E	H021/E
• Hand Switch Color	Ivory	Violet	Pink	Blue
• Input Voltage (D.C.V.)	3–30	3–30	3–30	3–30
• No-load Current (D.C.A.)	0.45	0.35	0.40	0.30
• Maximum Torque (cN.M)	2.3	3.4	2.7	4.5
• Weight (g) [not including cord]	192	221	228	222
• Dimensions: L	145	158	147	158
L1	76	89	78	89
L2	69	69	69	69
D	ø29	ø29	ø33	ø29
D1	ø26.4	ø26.4	ø30.4	ø26.4
D2	ø10.8	ø10.8	ø10.8	ø10.8



## Speed/Torque Curve (data for different motor models)





## Heavy Duty Handpieces

The Minimo Heavy Duty Handpiece Series is designed with a reinforced housing. It accepts shank sizes up to 6.35mm for heavy cuts and provides unsurpassed versatility with its quick-change head options. Minimo heads and motors have matching threads which makes changing a straight tool to a 90 degree tool a very simple process without the need of a special wrench or spanners. Each motor has an on/off switch on its side for one-hand operation.

### M21HD/E High Speed Handpiece

**Standard Rotary**

**Standard Collets: 1/8" & 1/4"**

**Speed Range: 3,000-30,000 RPM**

Offers a robust reinforced head housing for added strength and easy grip.

Accepts larger shank diameter tooling up to 1/4" diameter.

Head is easily removed from its screw mount and replaced with other optional heads.

Can be used with P211, C311 and C111 optional Power Packs.



### M21D/E Medium Speed Handpiece

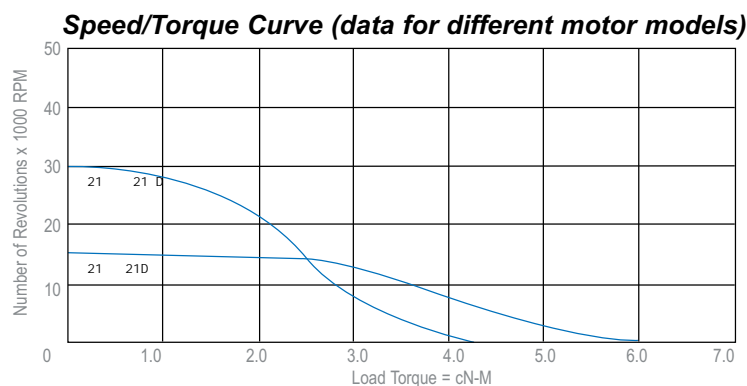
**Standard Rotary**

**Standard Collets: 1/8" & 1/4"**

**Speed Range: 1,500-15,000 RPM**

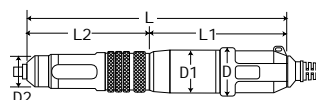
The lower RPM of this tool offers a higher torque load ratio than the faster RPM model shown above.

POWER PACK: Can be used with all listed power packs.



#### HEAVY DUTY ROTARY SPECIFICATIONS

Model	M21HD/E	M21D/E
Speed	High speed	Medium speed
Motor Model	KM21H	KM21
Head Model	H031/E	H031/E
Hand Switch Color	Red	Green
Speed Range rpm	3,000-30,000	1,500-15,000
Input Voltage (D.C.V.)	3-30	3-30
No-load Current (D.C.A.)	0.40	0.30
Maximum Torque (cN-M)	4.2	5.9
Weight (g) [not including cord]	350	351
Dimensions		
L	177	177
L1	96	96
L2	81	81
D	ø33	ø33
D1	ø30.4	ø30.4
D2	ø20.0	ø20.0



#### COLLECT SELECTION TABLE (Heavy Duty Rotary)



Code:	KP-061	KP-062	KP-063	KP-066	KP-067	KP-060	KP-064
Inside Diameter (mm):	ø2.34 (3/32")	ø3.0	ø3.175 (1/8")	ø4.0	ø5.0	ø6.0	ø6.35 (1/4")

## M21LRV Rubron System

The Rubron is a unique handpiece with lateral (side-to-side) movement adjustable up to 1.6mm, ideal for finishing narrow slots and grooves, plus deep recesses where precise control is needed.



Head: H311

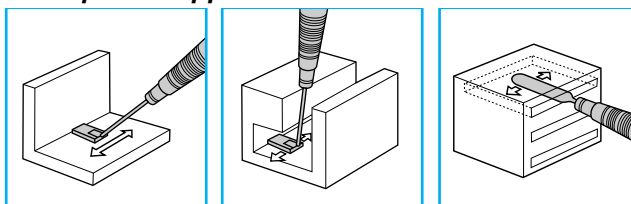
Motor: KM21L/800-8,000 RPM

The Rubron has a tapered tool-holder nose to aid in getting into those hard-to-reach areas.

The V-shaped tool holder chuck mounts shank sizes from 1.5 to 4.7mm shafts.

The motor has a built-in ON/OFF switch for easy one-hand operation and is powered by all listed Power Packs except P111.

### Examples of applications

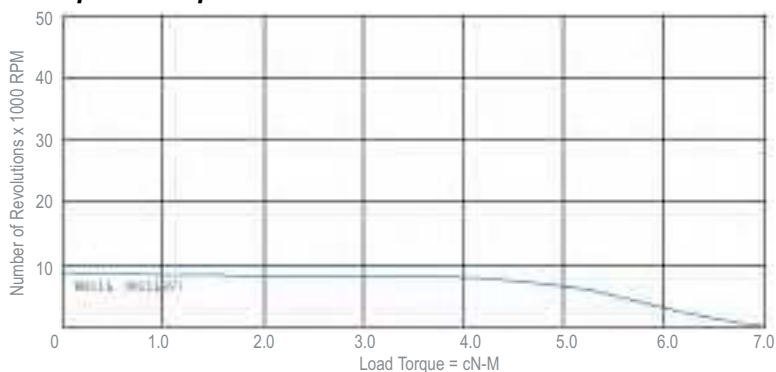


### RUBRON SPECIFICATIONS

• Model	M21LRV
• Frequency (times/min)	800 – 8,000
• Head Amplitude (mm)	0–1.6
• Tool Shank Diameters (mm)	1.5–4.7
• Input Voltage (D.C.V.)	3–30
• No-load Current (D.C.A.)	0.25
• Maximum Torque (cN-M)	6.9
• Hand Switch Color	Black
• Weight (g)	300

Note: The amplitude depends on the length of the tool used.

### Speed/Torque Curve



## Anglon System

Anglon tools are offered with heavy duty 90° or 120° angled head designs suitable for grinding and polishing of both flat and curved surfaces, especially on those hard-to-reach internal surfaces.

Each tool features a built-in ON/OFF switch, two standard collets (3/32" & 1/8") and a quick and easy tool changing mechanism - no wrenches are required!

### **M11GRAD/E**     **Low Speed Tool with 90° Angle Head**

**Standard Collets: 1/8" & 3/32"**

**Speed Range: 620 - 6,200 RPM**

High torque.

Can be used with Power Pack P211, C311 or C111.

Head: H221/E     Motor: KM11G



### **M21RAD/E**     **Medium Speed Tool with 90° Angle Head**

**Standard Collets: 1/8" & 3/32"**

**Speed Range: 1,420 - 14,200 RPM**

Can be used with Power Pack P211, C311 or C111

Head: H221/E     Motor: KM21



### **M11GA/E**     **Low Speed Tool with 120° Angle Head**

**Standard Collets: 1/8" & 3/32"**

**Speed Range: 630 - 6,300 RPM**

High torque.

Can be used with Power Pack P211, C311 or C111

Head: H231/E     Motor: KM11G



### **M21A/E**     **Medium Speed Tool with 120° Angle Head**

**Standard Collets: 1/8" & 3/32"**

**Speed Range: 1,440 - 14,400 RPM**

Can be used with Power Pack P211, C311 or C111

Head: H231/E     Motor: KM21

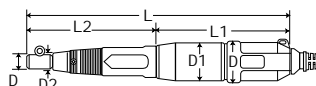


Anglon tools offer quick and easy tool exchange - simply turn the collet release ring to lock or remove the tool.



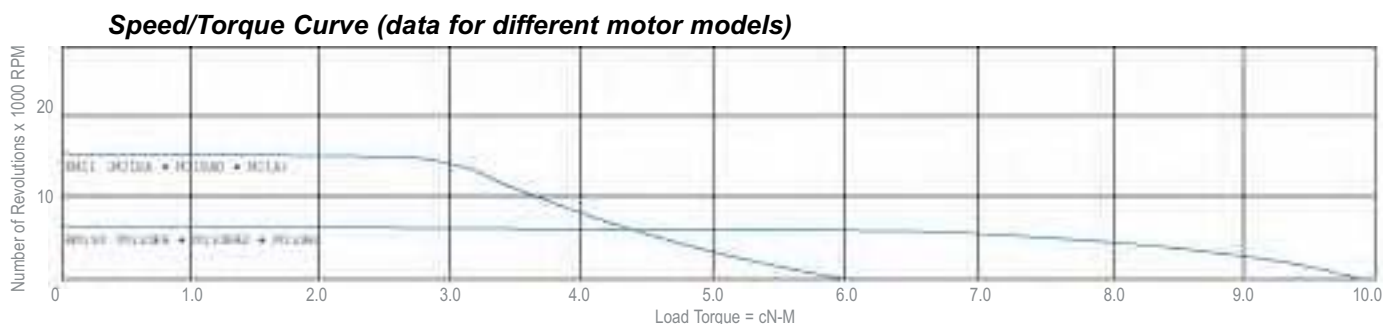
## • ANGLON SPECIFICATIONS

Model	M11GRAD/E	M21RAD/E	M11GA/E	M21A/E
Speed	Low speed high torque	Medium speed	Low speed high torque	Medium speed
Motor Model	KM11G	KM21	KM11G	KM21
Head Model	H221/E	H221/E	H231/E	H231/E
Hand Switch Color	Yellow	Green	Yellow	Green
Speed Range RPM	620–6,200	1,420–14,200	630–6,300	1,440–14,400
Input Voltage (D.C.V)	3–30	3–30	3–30	3–30
No-load Current (D.C.A.)	0.35	0.40	0.35	0.40
Maximum Torque (cN-M)	9.8	5.9	9.8	5.9
Weight (g) [not including cord]	368	387	351	395
Dimensions				
	L	167	158	174
	L1	105	96	96
	L2	62	62	78
	D	ø29	ø29	ø33
	D1	ø26.4	ø26.4	ø30.4
	H	47.5	47.5	47.5



## COLLET SELECTION TABLE (Anglon Tools)

Code	KP-050	KP-051	KP-007	KP-005	KP-052	KP-031	KP-036	KP-032	KP-033
Inside Diameter (mm)	ø 1.0	ø 1.2	ø 1.4	ø 1.6	ø 1.8	ø 2.0	ø 2.34 (9/32")	ø 3.0	ø 3.175 (1/8")





## Tools for Angle Rotary Handpieces

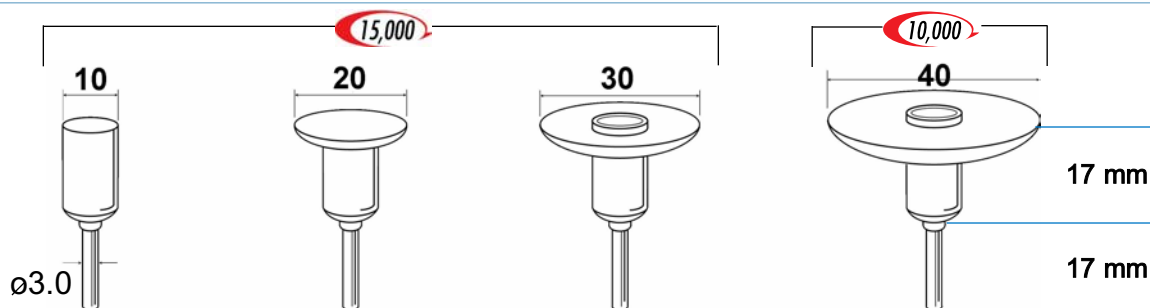
5

- Soft rubber pads are available in 4 different diameters (ø10 mm, ø20 mm, ø30 mm and ø40 mm).
- Pressure sensitive adhesive (PSA) backing enables you to replace discs in a snap. The backing also serves as a cushion to enable softer contact with work pieces.
- Sandpaper discs resist spalling and loading with aggressive cutting action.
- Zirconia discs utilize tough zirconia alumina abrasives developed especially for hard-to-cut materials.



## Abrasive Disc & Polishing Disc Holders

20



SHANK = ø3.0MM (ALL HOLDERS)

SA2001

SA2002

SA2003

SA2004

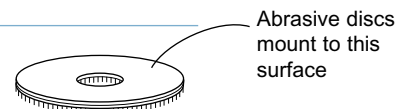
## Soft Rubber Pads

20

These rubber pads mount to the disc holder with PSA backing. The disc face has a Velco-type surface used to mount the PSA-backed disc above (SA3001, SA3002, SA3003).

### PSA Backing for Discs

ø21	SA3001
ø31	SA3002
ø40	SA3003

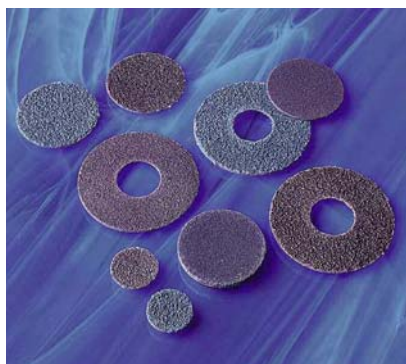


### PSA Backing for Disc Holders

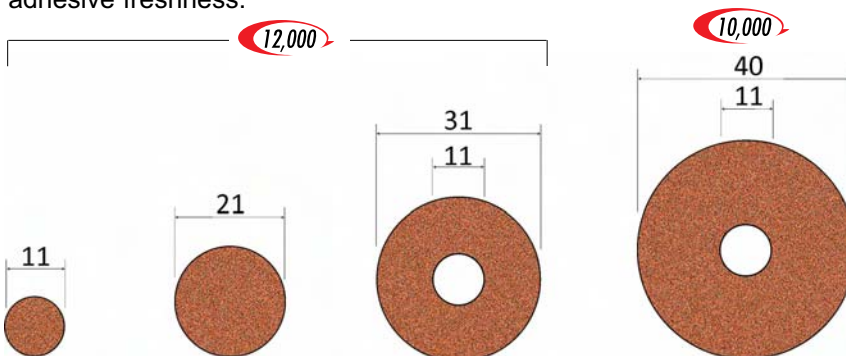
ø21	SA3011
ø31	SA3012
ø40	SA3013



## Sandpaper Disc (with PSA backing)



These flexible discs are made of aluminum oxide resin bonded for great durability. The pressure sensitive adhesive (PSA) backing can withstand the heat generated by high friction. PSA discs will hold until removed by hand. There is a peel-off backing on each disc to maintain adhesive freshness.



### Abrasive Disc

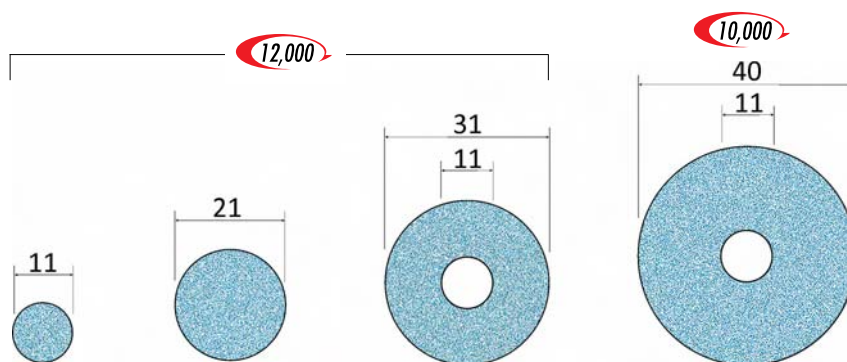
<b>Grit Size:</b>	#60	SA2111	SA2131	SA2151	SA2171
	#80	SA2112	SA2132	SA2152	SA2172
	#120	SA2113	SA2133	SA2153	SA2173
	#180	SA2114	SA2134	SA2154	SA2174
	#240	SA2115	SA2135	SA2155	SA2175
	#320	SA2116	SA2136	SA2156	SA2176
	#400	SA2117	SA2137	SA2157	SA2177
	#600	SA2118	SA2138	SA2158	SA2178
	#800	SA2119	SA2139	SA2159	SA2179
	#1000	SA2120	SA2140	SA2160	SA2180

## Zirconia Disc (with PSA backing)



These Zirconia discs are used on hard-to-grind materials. Fast and clean cutting, they are available in 4 grit sizes and supplied with PSA backing.

Suitable for grinding.



### Zirconia Disk

<b>Grit Size:</b>	#60	SA2211	SA2231	SA2251	SA2271
	#80	SA2212	SA2232	SA2252	SA2272
	#120	SA2213	SA2233	SA2253	SA2273
	#150	SA2214	SA2234	SA2254	SA2274

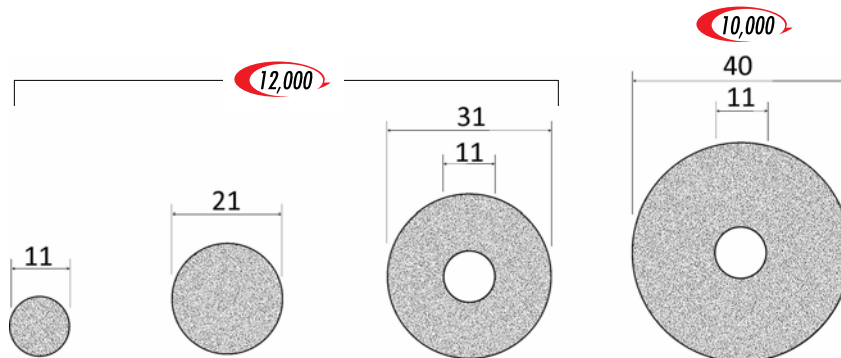


## Metal-based Diamond Disc (with PSA backing)



These metal-based diamond discs are thin metal discs plated with diamond grains. Suitable for various materials such as sintered hard alloy, ceramics, glass, etc.

Also supplied with PSA backing.

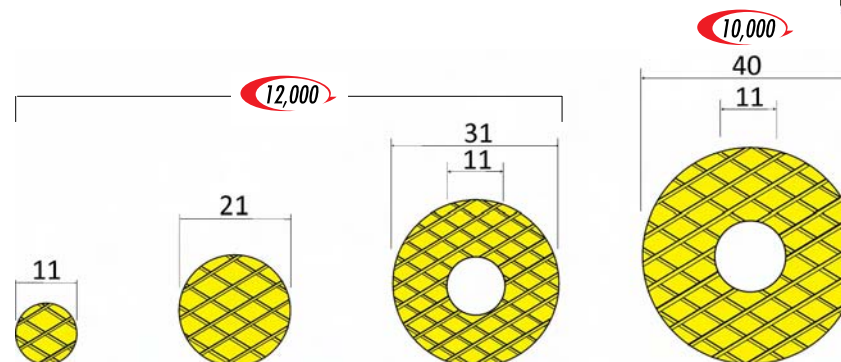


<b>Grit Size:</b>	#140	SA2811	SA2831	SA2851	SA2871
	#220	SA2812	SA2832	SA2852	SA2872
	#270	SA2813	SA2833	SA2853	SA2873
	#400	SA2814	SA2834	SA2854	SA2874
	#600	SA2815	SA2835	SA2855	SA2875
	#800	SA2816	SA2836	SA2856	SA2876
	#1000	SA2817	SA2837	SA2857	SA2877
	#2000	SA2818	SA2838	SA2858	SA2878

## Cloth-based Diamond Disc (with PSA backing)



These cloth-based diamond discs are soft cloth discs plated with diamond grains. Suitable for sintered hard alloy, ceramics and glass.



<b>Grit</b>	<b>Color</b>				
#120	Sky Blue	SA2911	SA2931	SA2951	SA2971
#180	Orange	SA2912	SA2932	SA2952	SA2972
#240	Green	SA2913	SA2933	SA2953	SA2973
#320	Purple	SA2914	SA2934	SA2954	SA2974
#400	Brown	SA2915	SA2935	SA2955	SA2975
#600	Red	SA2916	SA2936	SA2956	SA2976
#800	White	SA2917	SA2937	SA2957	SA2977
#1000	Pink	SA2918	SA2938	SA2958	SA2978
#1500	Blue	SA2919	SA2939	SA2959	SA2979
#3000	Yellow	SA2920	SA2940	SA2960	SA2980



## Rubber Disc (with PSA backing)

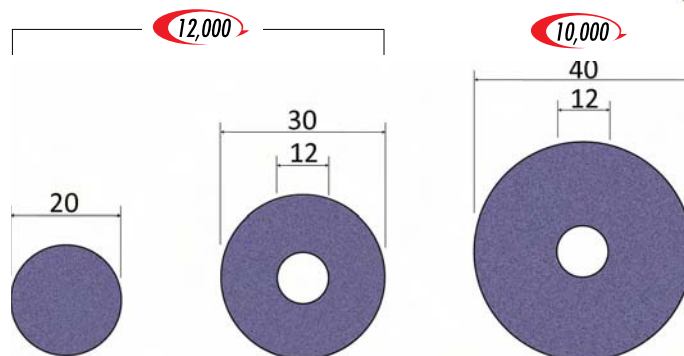


### WA Disc-formed abrasive rubber

These rubber discs are made of high elastic rubber which resists scratching and produces a uniform finish.

Thickness 1.5 mm

#60	SA2731	SA2751	SA2771
#80	SA2732	SA2752	SA2772
#120	SA2733	SA2753	SA2773



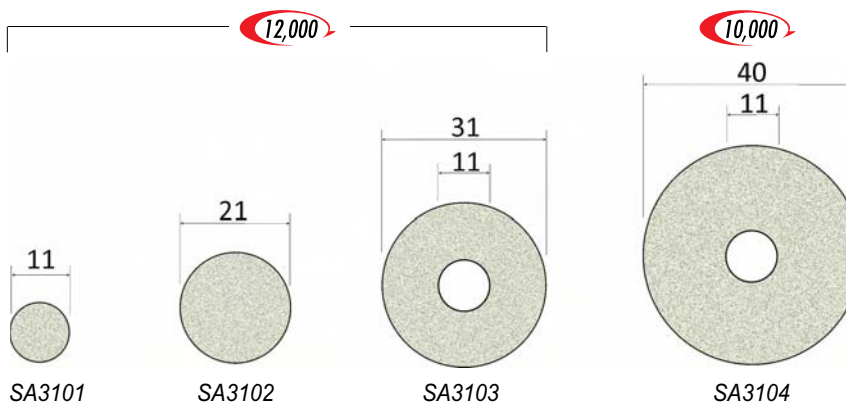
## Felt Disc (with PSA backing)



Thickness 2 mm

These felt discs are compressed dense structures of carefully selected fine quality wool.

These discs should be used with a DiaMold® diamond polishing compound and Hyprelube® lubricant (see Section 1). Rich in elasticity, they fit well in curved surfaces and are applicable to finish polishing.

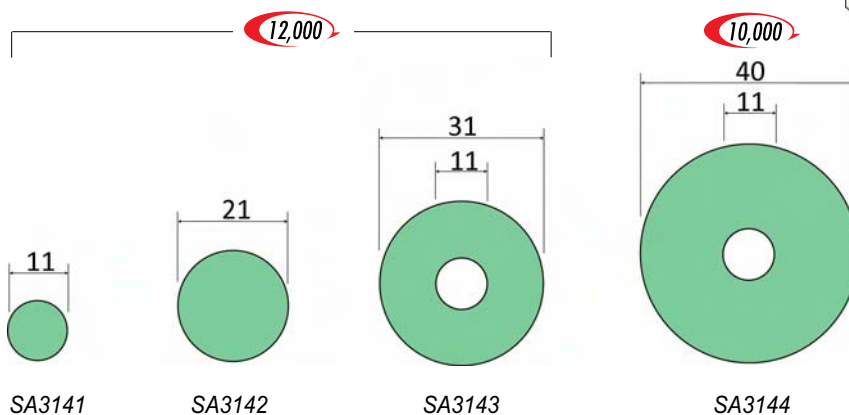


## Green Felt Disc (with PSA backing)



Compound impregnated  
Thickness 2mm

These green felt discs are compressed dense structure of carefully selected fine quality wool impregnated with chromium oxide polishing compound. They are directly applicable to finish polishing, precision polishing and glossing, and require no polishing compounds.





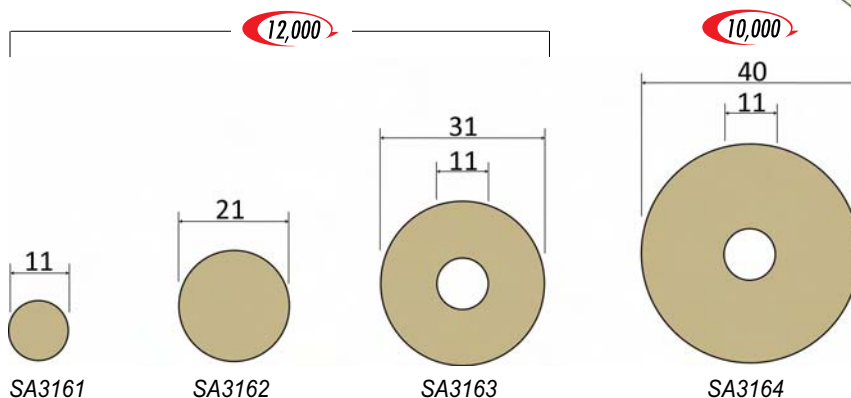
## Special Felt Disc (with PSA backing)



**Thickness 2 mm**

These special felt discs are compressed dense structures of pure quality rabbit hair, finer than felt disc wool. They are not susceptible to static electricity.

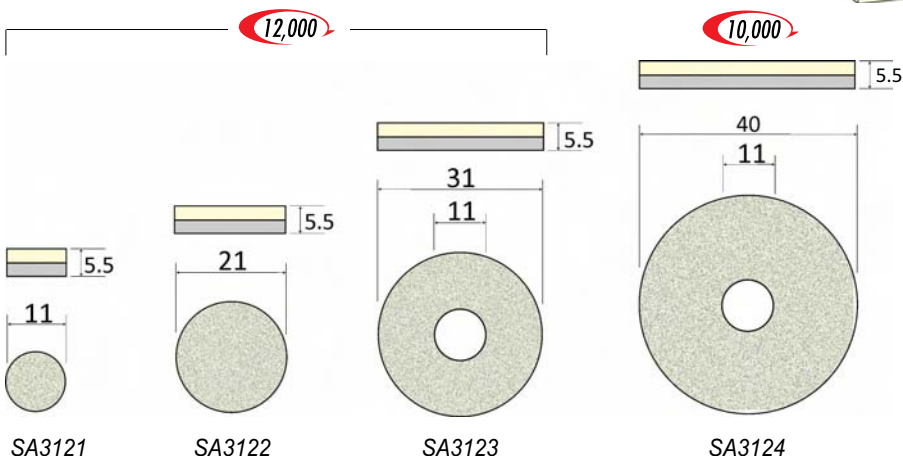
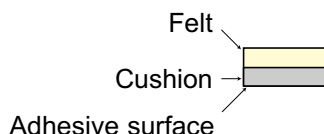
Capable of scratch-free polishing with soft contact.



## Felt Disc with Soft Cushion (with PSA backing)



These felt discs have a soft cushion inserted between the contact surface and felt disc so that they fit well in curved surfaces and enable impact-free polishing.



## Cushion Disc Non-Woven Cloth Impregnated with Polishing Compounds (with PSA backing)



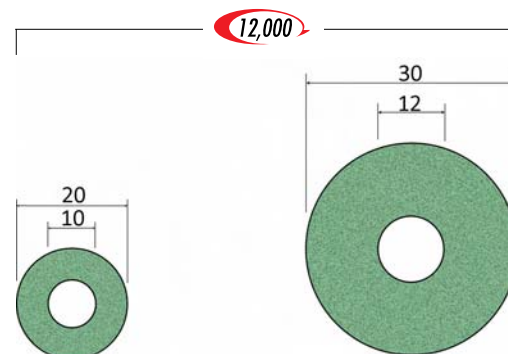
These cushion discs have high elasticity and fit well with work pieces. Resultant surfaces are smooth and free of irregularities. They also produce minimal debris and resist clogging, even with fine grains.

Elastic, pliable rubber discs are fit to polish flat and curved surfaces. These are extremely durable.



**Thickness 2 mm**

Grit Size:#	#240	SA2631	SA2651
	#320	SA2632	SA2652
	#400	SA2633	SA2653
	#600	SA2634	SA2654
	#800	SA2635	SA2655
	#1000	SA2636	SA2656
	#1500	SA2637	SA2657



## RE11, RE21

The Recipron handpiece generates a reciprocating stroke, ideal for filing, lapping, stoning, polishing and scraping operations. Comfortable hand fitting pistol grip with built-in ON/OFF SWITCH provides greater processing accuracy. Smooth operation, vibration free. Eliminates operation fatigue.

- Slim and smooth body shape allows more accurate processing.
- 2 modes of the tool holder action. When the spindle securing knob is released, the toolholder will rotate freely, ensuring tools to fit the surface of the workpiece.
- Built-in ON/OFF SWITCH.
- 2 models to choose from.



### RE11

Stroke range: 0 - 8 mm  
Stroke speed: 260 - 3,500 times/min.

- Stroke-oriented type

### RE21

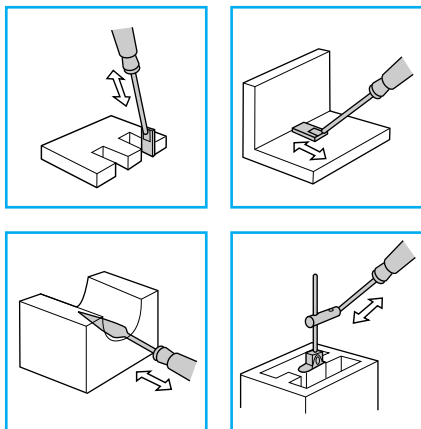
(Speed model) Stroke range: 0 - 2 mm  
Stroke speed: 460 - 7,000 times/min.

- Speed-oriented type

**POWER PACK:** Can be used with all listed power packs.

Both models will accommodate tools with shank size from 5/64" – 1/4" diameters.

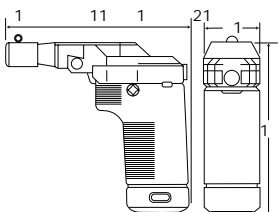
### Examples of applications



**Hand Switch enables quick and easy ON/OFF operations**

The Hand Switch is standard equipment on the pistol-shaped handpiece. To ensure manipulations by the fingertip only, the switch is recessed at a position on the grip where you can easily use it.

### RECIPRON SPECIFICATIONS

Model	RE11	RE21	Dimensions
Stroke (m/min)	0-8	0-2	
Speed range (times/min)	260-3,500	460-7,000	
Input Voltage (D. C. V.)	3-30	3-30	
No-load Current (D. C. A.)	0.3	0.35	
Diameter of Mountable Shafts (mm)	2.0-6.35	2.0-6.35	
Carbon Brush	KE-580	KE-580	
Weight (g)	790	783	

A handy type belt sander, equipped with ON/OFF SWITCH, that excels in deburring, grinding and polishing.

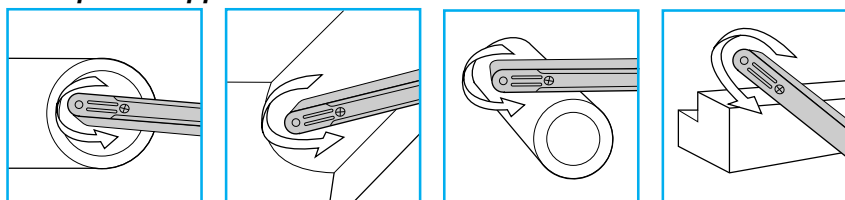
- Flexibly addresses machining of small parts and objects of complicated shapes.
- A large variety of sanding belts are available that are suitable for various materials including metals, ceramics, stone and wood.
- Quick and easy exchange of belts.
- Optional belt arms are available, which allow you to extend the scope of applications.
- Built-in ON/OFF SWITCH.
- Removable curled power cord makes storage convenient.

**POWER PACK:** Can be used with all listed power packs except P111.

**Hand Switch enables quick and easy ON/OFF operations**



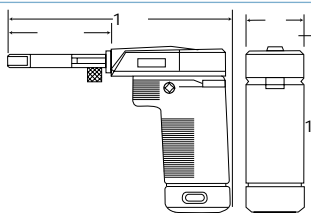
## Examples of applications



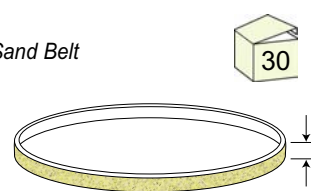
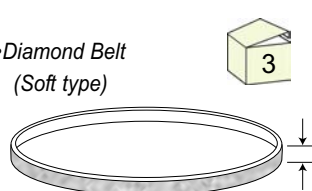
## BS31

The main body is equipped with the belt arm H82 as standard; belts with a width of 6 or 8 mm can be used.

### MINI BELT SANDER SPECIFICATIONS

Model	BS31	Dimensions
No-load Belt Speed (m/min)	49 - 2,700	
Input Voltage (D.C.V.)	3 - 30	
No-load Current (D.C.A.)	0.3	
Carbon Brush	KE-580	
Weight (g)	440	

### • Abrasive belt for the Mini Belt Sander (Circumference: 300mm)

Sand Belt		Diamond Belt (Soft type)	
			
<b>W = 4mm</b>		<b>W = 8mm</b>	
#80	F1001	#80	F1021
#120	F1002	#120	F1022
#180	F1003	#180	F1023
#320	F1004	#240	F1024
<b>W = 6mm</b>		#320	F1025
#80	F1011	#400	F1026
#120	F1012	#600	F1027
#180	F1013	#800	F1028
#320	F1014	#1000	F1029
#180	F1121	#600	F1125
#240	F1122	#800	F1126
#320	F1123	#1000	F1127
#400	F1124		

### • Belt Arm

#### Standard Outfit

H82 Standard belt arm (applicable belt width: 6 and 8 mm)



#### Option

H81 Thin belt arm (applicable belt width: 4 and 6 mm)



Ranging from ultra-high speed to the low speed geared type, nine types of micromotors, each with distinctive features, are available in the product line.

The motor and the head can each be purchased separately, or as a complete unit.

## **KV11H**      **Ultra-High Speed Motor**

**Speed Range:** 5,000-50,000 RPM

**Torque:** 2.3 cN-M

**Carbon brush:** KE-605

Hand Switch Color: Ivory



## **KV21H**      **High Speed Motor**

**Speed Range:** 4,000-40,000 RPM

**Torque:** 2.7 cN-M

**Carbon brush:** KE-580

Hand Switch Color: Pink



## **KM11H**      **Medium Speed Motor**

**Speed Range:** 3,500-35,000 RPM

**Torque:** 3.4 cN-M

**Carbon brush:** KE-575

Hand Switch Color: Violet



## **KM21H**      **Medium Speed Motor**

**Speed Range:** 3,000-30,000 RPM

**Torque:** 4.2 cN-M

**Carbon brush:** KE-580

Hand Switch Color: Red



## **KV 21**      **Medium Speed Motor**

**Speed Range:** 2,500-25,000 RPM

**Torque:** 3.9 cN-M

**Carbon brush:** KE-580

Hand Switch Color: Orange





## **KM11**      **Medium Speed Motor**

**Speed Range:** 2,000-20,000 RPM

**Torque:** 4.5 cN-M

**Carbon brush:** KE-575

Hand Switch Color: Blue



## **KM21**      **Medium Speed Motor**

**Speed Range:** 1,500-15,000 RPM

**Torque:** 5.9 cN-M

**Carbon brush:** KE-580

Hand Switch Color: Green



## **KM21L**      **Low Speed Motor**

**Speed Range:** 800-8,000 RPM

**Torque:** 6.9 cN-M

**Carbon brush:** KE-580

Hand Switch Color: Black



## **KM11G**      **Low Speed Gear-Type Motor**

**Speed Range:** 660-6,600 RPM

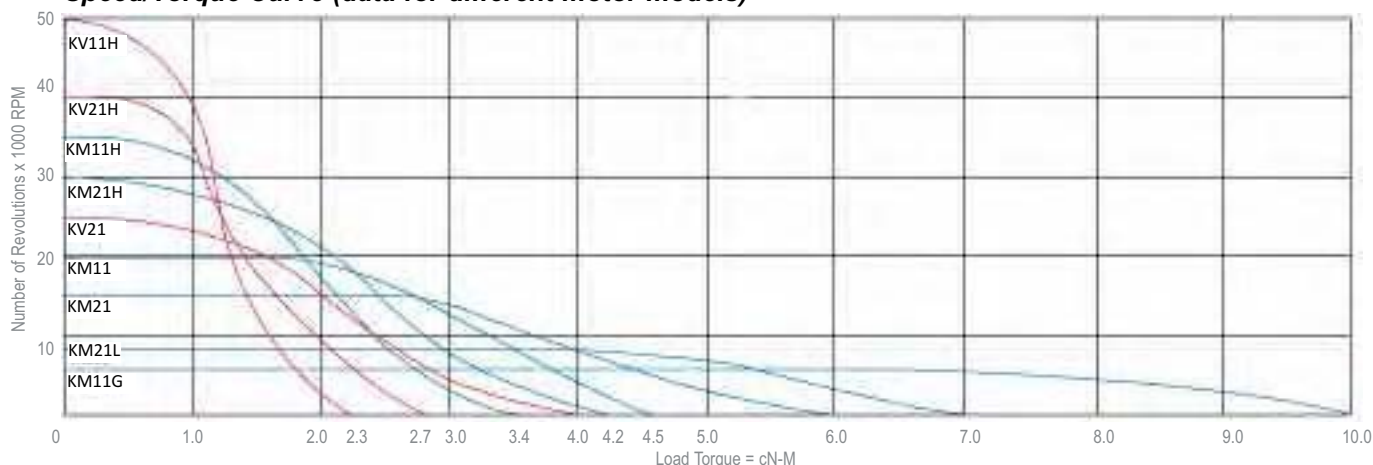
**Torque:** 9.8 cN-M

**Carbon brush:** KE-575

Hand Switch Color: Yellow



**Speed/Torque Curve (data for different motor models)**



Minimo offers the most complete line of heads for a wide range of applications. Grinding, deburring, drilling, lapping and polishing can be performed using a combination of these heads and motors. The heads and motors are attached in a snap.

## **H011/E**

### **Standard Head**

The most universal head.  
Standard collets 3/32" (KP-036) and 1/8" (KP-033)



## **H021/E**

### **Slender Head**

Slim & lightweight - suitable for delicate processing work.  
Standard collets 3/32" (KP-036) and 1/8" (KP-033)



## **H031/E**

### **Heavy-Duty Head**

Standard collets 1/8" (KP-063) and 1/4" (KP-064)



## **H041/E**

### **Long Slender Head**

Ideal for hard to reach areas with reach size 1/2" x 3-7/8".  
Standard collets 3/32" (KP-036) and 1/8" (KP-033)



## **H051/E**

### **Air Head**

Produces a jet of air around the tool to blow shavings and dust off work area.  
Standard collets 1/8" (KP-063) and 1/4" (KP-064)



## **HANDPIECE CROSS REFERENCE FOR MOTORS AND HEADS**

Head Selection	Motor Selection								
H011/E	KV11H	KV21H	KM11H	KM21H	KV21	KM11	KM21	KM21L	KM11G
H021/E	KV11H	KV21H	KM11H	KM21H	KV21	KM11	KM21	KM21L	KM11G
H031/E	KM21H	KV21	KM21L	KM11G					
H041/E	KV21H	KM11H	KM21H	KV21	KM11	KM21	KM21L	KM11G	
H051/E	KV11H	KV21H	KM11H						
H221/E	KM21	KM21L	KM11G						
H231/E	KM21	KM21L	KM11G						
H311	KM21L	KM11G							

## H221/E

### Heavy-Duty Anglon Head 90°

Maximum speed - 15,000 RPM.

Standard Collets 3/32" (KP-036) and 1/8" (KP-033).



## H231/E

### Heavy Duty Anglon Head 120°

Maximum speed - 15,000 RPM

Standard Collets 3/32" (KP-036) and 1/8" (KP-033).



## H311

### Rubron Head (Adjustable swing up to 1.6 mm at chuck edge)

Maximum speed - 8,000 RPM



### Collet Selection Table

#### Head Model

HO11/E

HO21/E

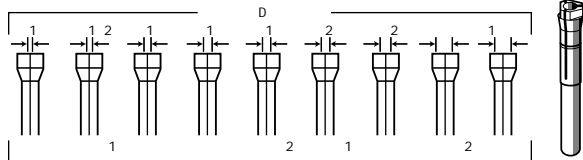
HO41/E

HO51/E

HO51P/E

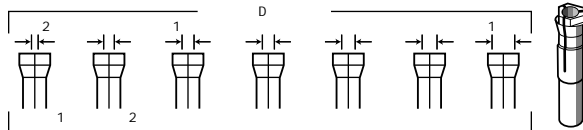
H221/E

H231/E



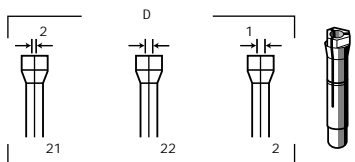
#### Head Model

HO31/E



#### Head Model

H211/E



## ***Diprofil Mini Filing Machines with Minimo Motor Connection***

The FMR/M5 and FMR/M10 Mini Filing Machine heads are made by Diprofil to fit the thread of the Minimo motors. It is recommended that each head be driven by a low rpm/high torque Minimo motor with controller, not exceeding 6,000 to 11,000 rpm.

- **Stroke length - FMR/M5:** **0.5mm**
- **Stroke length - FMR/M10:** **1.0mm**
- **Speed:**
  - Recommended: 6,000 - 11,000 rpm
  - Maximum: 12,000 rpm
  - (Recommended speed depends on the weight of the tool used.
  - For tools weighing more than 10g, speed should not exceed 9,000 rpm.)
- **Tool Holder:** **ø3.6mm**
- **Weight of inserted tool:**
  - Recommended: 1-15g
  - Maximum: 15g
- **Applied feed force:** **4N ± 2N**
- **Machine weight:** **~120g**  
(plus the weight of the micro motor)
- **Noise level:** **70-75 db(A) @ 12,000 rpm**
- **Vibration level:** **~1.5 - 3.0 ms<sup>2</sup>**  
(When the machine is operated according to the Guide.)



*Diprofil Mini Filing Machine FMR/M5 shown above with Minimo KM21L Motor*

*Frequency weighed hand/arm vibration principally in accordance with EN ISO 28927-8 Part 8: Polishing and filing machines with reciprocating action.*

## ***Minimo Mini Motor and Accessory Information***

- |                             |   |
|-----------------------------|---|
| <b>KM21L Low Speed Type</b> | Speed Range 800 - 8,000 rpm<br>Maximum torque 6.9cN-m   |
| <b>CC711</b>                | 3 Pin Power Cord (1 required for each motor)<br>Curled cord 1.5m long (4'6")                  |
| <b>RM11 Rubber Cradle</b>   | A safe, convenient way to rest your filing head and motor to avoid damage.<br>(see page 4-26) |
| <b>Minimo Power Packs</b>   | Minimo motors can be used with Power Packs P211, C311 and C111.<br>(see page 4-3)             |
| <b>FNAK Lubricant</b>       | Formulated to reduce tool wear and prolongs handpiece life (see page 2-5).                    |



## Foot Switch (can be used with all POWER PACKS)

### FS201

- An ON/OFF type foot switch.
- When pressed, the handpiece is on.  
When released, the handpiece will stop.  
(Cord length: 1.5 m / 4'6")



### FS211

- (2-mode changeover type)
- You can perform ON/OFF switching either in mode A or B. (Cord length: 1.5 m / 4'6")
  - A-mode: Once you step on the foot switch, the ON state continues even if you take your foot off the switch; step on it for a second time, and it changes into the OFF state.
  - \* B-mode: When pressed the handpiece is on, when released, the handpiece will stop.



### VC301

- In addition to ON/OFF switching, the speed and power control for the POLYTOR handpiece action is provided depending on how far the pedal is depressed. (Cord length: 1.5 m / 4'6")



## Power Cord for Handpiece

Cords for the D.C. motor handpiece (with a 3-pin connector)

### Curled cord CC711

- (Length: 1.5 m / 4'6")
- Power cord for the D.C. motor handpiece
  - Standard accessory with the handpiece



### Extension cord CB211

- (Length: 3 m / 9'6")
- Straight extension cord for connecting the POWER PACK and the curled cord (CC711).
  - Two or more extension cords can be connected.



### Curled cord CC811 - 4 Pin Connector

- (Length: 1.5 m / 4'6")
- Power cord for the POLYTOR US21 ultrasonic handpiece
  - Standard accessory with POLYTOR ultrasonic handpiece



### Extension cord CB311 - 4 Pin Connector

- (Length: 3 m / 9'6")
- Straight extension cord for connecting the POWER PACK and the curled cord (CC811).
  - Two or more extension cords can be connected.



## Power Cord for POWER PACK

Standard accessory with the POWER PACK

### CA10

- (Length: 2 m / 6'6")
- Power cord for all Minimo Power Packs (AC115V)



## ***Tool Cases***

---

### ***Aluminum-made Carrying Case***

- Conveniently portable, the robust aluminum carrying case houses the POWER PACK, handpieces and other accessories neatly and safely, with a padded interior

### ***BX01 Carrying Case (small)***

---

Outside dimensions: 365 (W) x 210 (D) x 280 (H) mm

Weight: 2.6kg



### ***BX02 Carrying Case (large)***

---

Outside dimensions: 470 (W) x 230 (D) x 340 (H) mm

Weight: 4.2kg

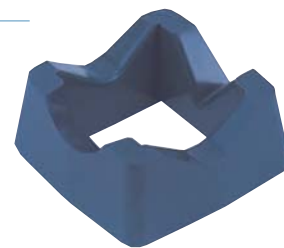


## Tool Stand/Rubber Cradle

### Rubber Cradle - RM11

Provides a safe and convenient resting place for your handpiece when not in use. Helps prevent handpiece damage from accidental drop.

- **Cradle made of rubber**
- **Can be used for all listed handpieces**
- **Outside dimensions: 72 (W) x 72 (D) x 30 (H) mm**



### Spherical Vise - V151

This 18.5 lb steel sphere mounted on a rubber base securely holds smaller parts during stoning and polishing operations. No need to clamp this vise to the bench.

- **V-shaped grooves on the mouth ensure an even grasp of the workpiece**
- **Detachable adjusting handle**

#### SPHERICAL BASE SPECIFICATIONS

• Sphere Diameter	130 mm / 5.118"
• Height	65 mm / 2.559"
• Base Width	60 mm / 2.362"
• Max Mouth Width	62 mm / 2.440"
• Sphere Depth	50 mm / 1.968"
• Clamping Capacity	44.5 mm / 1.75"
• Weight	8.5 kg / 18.75 lbs



## DiaMold® Mounted Wool Felt Bobs

max. rpm  
15,000



### Mandrel Mounted

DiaMold Felt Bobs are made of pure wool in a broad variety of sizes, shapes and degrees of hardness - for any finishing requirement. The mandrels are exactly centered for true-running operation. When ordering, specify part number and hardness desired.

### STANDARD SHAPES in Medium, Hard

Part No.	Standard Shapes		
	Width	Depth	Shank
503.MS.1A	1/2"	1"	1/8"
503.MS.1C	1"	2	1/4"
503.MS.2A	1/2"	1/2"	1/8"
503.MS.3C	3/8"	1/2"	1/8"
503.MS.3F	1/2"	1"	1/8"
503.MS.4B	1/2"	3/4"	1/8"
503.MS.5A	1/2"	3/4"	1/8"
503.MS.6A	1/2"	1/2	1/8"

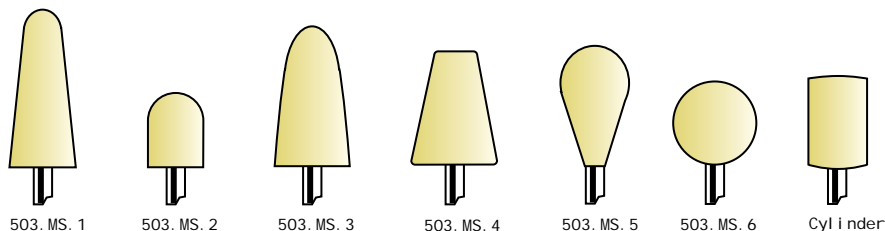
### CYLINDERS - Medium, Hard, Rock Hard

Part No.	Cylinder Shape		
	Width	Depth	Shank
503.CB.2	1/4"	1/4"	1/8"
503.CB.2A	3/8"	3/8"	1/8"
503.CB.3	3/8"	1/2"	1/8"
503.CB.4	1/2	1/2"	1/8"
503.CB.5	1/2"	3/4"	1/8"
503.CB.6	1/2"	1"	1/8"
503.CB.7	3/4"	3/4"	1/8"
503.CB.10	1"	1"	1/4"

### Ordering Example:

Prefix	P/N	Hardness
503.	MS.1A.	M*

\* M = Medium  
H = Hard  
RH = Rock Hard



### Felt Reciprocating Bob



LSB.2.MED  
3/8" x 3/8" x 1-1/2"

## DiaMold Felt Bob Assortment #40

max. rpm  
15,000

This assortment includes the following:

12 cylinders -

2 each of 4 sizes in each hardness: Medium, Hard, Rock Hard; all 1/8" mandrel

Sizes:

CB-2 1/4" x 1/4", CB-3 3/8" x 1/2", CB-4 1/2" x 1/2", CB-7 3/4" x 3/4"

8 standard shapes - 1 each of 4 sizes in Medium & Hard all 1/8" mandrel, 1/2" diameter - MS1A 1/2" x 1", MS2A 1/2" x 1/2", MS3F 1/2" x 1", MS6A 1/2" x 1/2"

6 Felt Finger Pads - 1" x 3" - 1/8" thick





## DiaMold® Wood Bobs



### Wood Bobs

DiaMold Bobs are available in Hydulignum, a highly-compressed hard wood laminated in layers with plastic. The grain direction is perpendicular to the circumference to assure uniform lapping surface and efficient charging. They are recommended for fast stock removal or where exact contour or shaping is required - use 15 micron or coarser Engis Diamond Compounds for these applications. Bobs are also available in selected soft pine for pre-finish before final felt polishing. Diamond Compounds grade of 15 micron or finer are recommended for use with these bobs.



### 1/8" Mandrel Mounted Cones and Cylinders

HYD-1/SFT-1

HYD-2/SFT-2

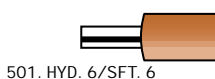
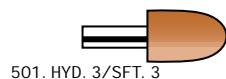
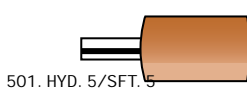
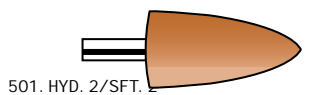
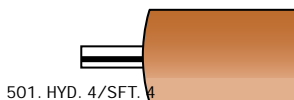
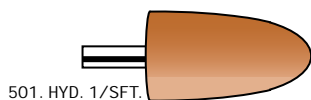
HYD-3/SFT-3

HYD-4/SFT-4

HYD-5/SFT-5

HYD-6/SFT-6

Hydulignum (Hard Wood)	Pine (Soft Wood)	Size	Shape	max. rpm 10,000
501.HYD.1	501.SFT.1	3/4" x 1-3/16"	Cone	
501.HYD.2	501.SFT.2	7/16" x 1-3/16"	Cone	
501.HYD.3	501.SFT.3	9/32" x 5/8"	Cone	
501.HYD.4	501.SFT.4	3/4" x 1-1/8"	Cylinder	
501.HYD.5	501.SFT.5	7/16" x 3/4"	Cylinder	
501.HYD.6	501.SFT.6	9/32" x 1/2"	Cylinder	



### DiaMold Wood Bobs

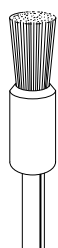


## **DiaMold® Polishing Brushes**

12

These top quality brushes will hold diamond compounds longer and provide more cutting action at lower production costs. They are made of natural stiff bristle for long life.

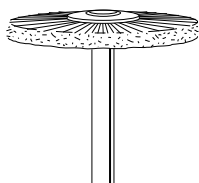
Available in three shapes with long shank for straight handpieces and in three shapes with short shank for contra-angle handpieces.



End Shape



Cup Shape



Wheel Shape

Brush No.	Shank Diameter	Shape	Description	max. rpm 10,000
<b>Use these brushes with any Straight Handpiece</b>				
504.7HL	1/8"	End Shape	Plastic Ferrule	
504.7HS	3/32"	End Shape	Metal Ferrule	
504.2HL	1/8"	Wheel Shape	Firm, natural bristles hold shape	
504.2HS	3/32"	Wheel Shape	Firm, natural bristles hold shape	
504.12HL	1/8"	Cup Shape	More bristles for longer life	
504.12HS	3/32"	Cup Shape	More bristles for longer life	
<b>Use these brushes with Contra-Angle Handpiece only - for hard-to-get-at places</b>				
504.73RC	3/32"	End Shape		
504.23RC	3/32"	Wheel Shape		
504.123RC	3/32"	Cup Shape		



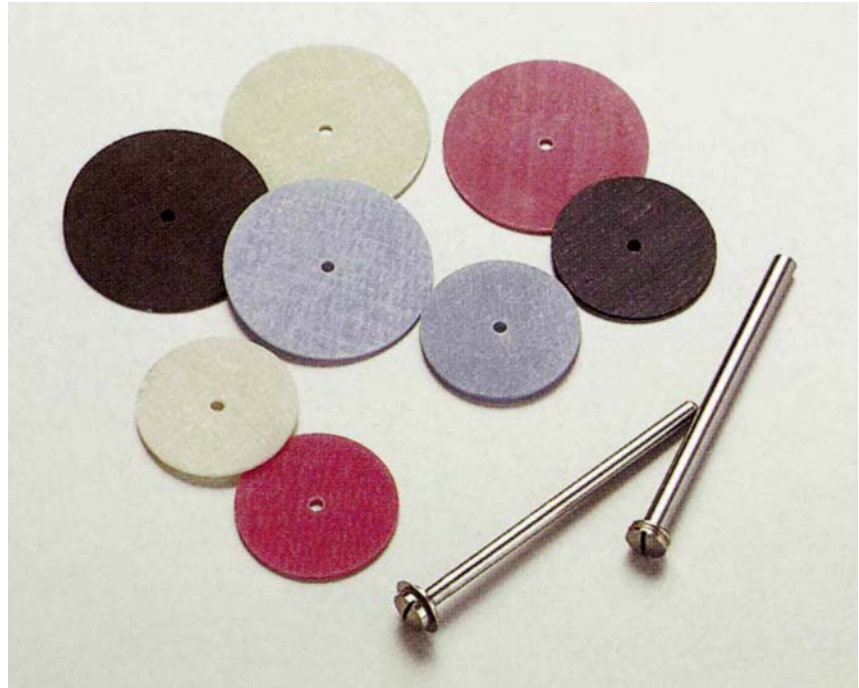
## DiaMold® Ceramic Polishing Discs



DiaMold ceramic discs are made of ceramic fibers that will not break under demanding conditions. They are solid ceramic, therefore, the entire disc can be used.

Great for achieving uniformity and consistency on die and mold components. Excellent results on copper, stainless steel, aluminum, alloys, plastics and many other materials.

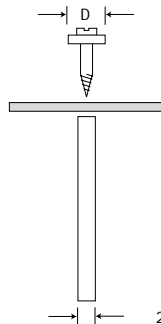
Discs mount to 3/32" diameter shafts and are used on Minimo rotary handpieces. See Max. RPM rating for safe operation.



<i>Dimensions (mm)</i>	<i>Black 240 Grit P/N</i>	<i>Blue 400 Grit P/N</i>	<i>White 600 Grit P/N</i>	<i>Red 1000 Grit P/N</i>	<i>Maximum RPM</i>
<b>FLAT</b>					
.6 x 13 Dia.	D2251	D2252	D2253	D2254	30,000
.6 x 19 Dia.	D2261	D2262	D2263	D2264	20,000
.6 x 22 Dia.	D2271	D2272	D2273	D2274	15,000
.6 x 25 Dia.	D2281	D2282	D2283	D2284	15,000
.6 x 30 Dia.	D2291	D2292	D2293	D2294	10,000

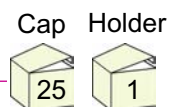
### DISC MANDREL

<i>Part No.</i>	<i>Size "D"</i>	<i>Shank Size</i>
B6011	3 mm Flange	3/32"
B6013	6 mm Flange	3/32"
B6016	14 mm Flange	3/32"



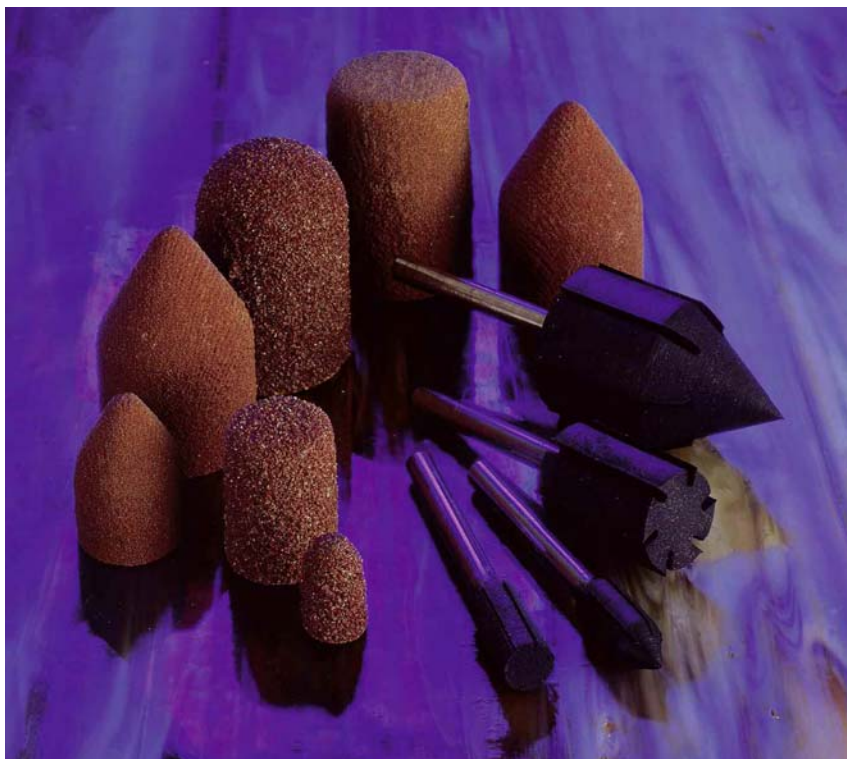


## ***Abra-Cap Seamless Throw-Away Caps***



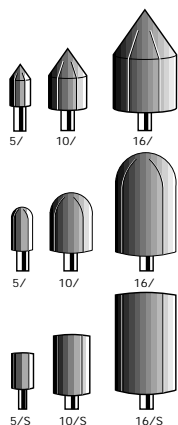
For grinding, deburring, tool and die work, and other production operations, Abra-Caps are efficient and economical. They are seamless, with multi-coated abrasives that assure constant cutting efficiency and uniform surface feet per minute. After repeated uses, only the throw-away cap is discarded - no need to waste an entire tool because of dimensional change. The hard rubber holder is never exposed to wear.

17 sizes and shapes in two grit sizes to meet all requirements in working flat and curved surfaces, slots and grooves.



### ***Abra-Cap Replacement Series No. 61***

Cap No	Grit	Cap Diameter	Cap Length	Use Rubber Holder No.	max. rpm 10,000
506.5PC	80	.20	.40	506.5P	
506.5PF	320				
506.10PC	80	.40	.63	506.10P	
506.10PF	320				
506.16PC	80	.63	.79	506.16P	
506.16PF	320				
506.5RC	80	.20	.40	506.5R	
506.5RF	320				
506.10RC	80	.40	.63	506.10R	
506.10RF	320				
506.16RC	80	.63	.79	506.6R	
506.16RF	320				
506.5SC	80	.20	.40	506.5S	
506.5SF	320				
506.10SC	80	.40	.59	506.10S	
506.10SF	320				
506.16SC	80	.63	.79	506.16S	
506.16SF	320				



**Series No. 61 Holders**



\*All caps in package are of one grit and size

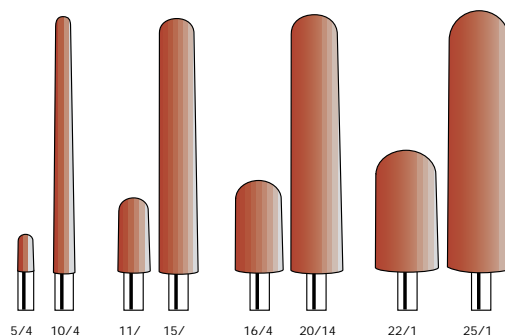




## ***Abra-Cap Replacement Series No. 70***

<b>Cap No</b>	<b>Grit*</b>	<b>Cap Largest Diameter</b>	<b>Cap Smallest Length</b>	<b>Cap Length</b>	<b>Use Rubber Holder No.</b>
506.5.CT	80	.20	.157	6.00	5/4 or 10/4
506.5.FT	150	.20	.157	6.00	5/4 or 10/4
506.10.CT	80	.40	.157	3.30	10/4
506.10.FT	150				
506.11.CT	80	.43	.354	1.00	11/9
506.11.FT	150				15/9
506.15.CT	80	.60	.354	3.30	15/9
506.15.FT	150				
506.16.CT	80	.63	.551	1.25	16/14
506.16.FT	150				20/14
506.20.CT	80	.79	.551	3.30	20/14
506.20.FT	150				
506.22.CT	80	.90	.748	1.60	22/19
506.22.FT	150				25/19
506.25.CT	80	1.00	.784	3.30	25/19
506.25.FT	150				

\*All caps in package are of one grit and size



**Series No. 70 Holders**



## Mounted Points for Mold and Die Work

Engis® mounted abrasive points are designed specifically for mold and die work and include:

- Popular "B" and "W" shapes in both medium (red) and hard (blue) grades
- Assortments containing the most popular shapes

Points are manufactured from premium aluminum oxide and special bonding materials to assure rapid stock removal and long life.



### Ordering and Packaging

Items shown in these listings are stocked and available for immediate shipment.

All items are packaged in quantities of 25.

### Operating Recommendations

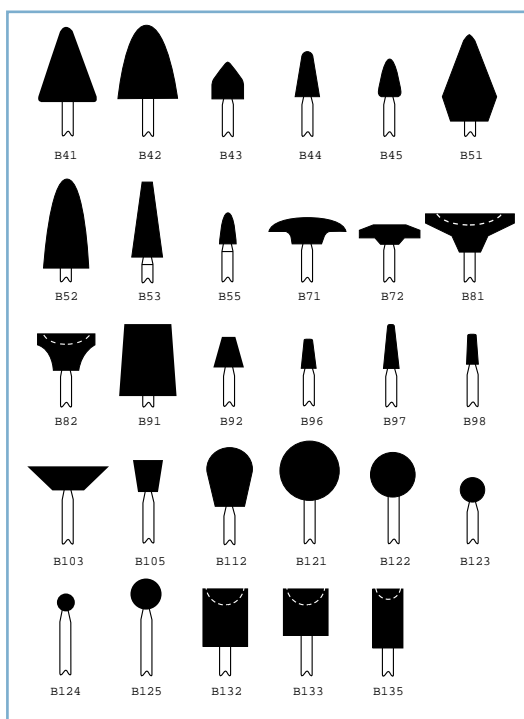
Use mounted points with safety precautions similar to larger grinding wheels. Before use inspect each point and mandrel for damage. Insert the mandrel into the collet as far as possible. Do not exert excessive pressure in the grinding operation. **WEAR ADEQUATE EYE AND FACE PROTECTION.**



Refer to the ANSI B7.1 for safe operating speeds and an understanding of the factors which affect safe use. The insert accompanying each shipment contains speed recommendations based upon ANSI B7.1 and "Do's and Don'ts".

Use of abrasive wheels can cause nuisance dust. Take precautions to minimize exposure.

### "B" SHAPES RED & BLUE GRADES



## "B" SHAPES RED (Medium) & BLUE (Hard) GRADES

Shape	Size (inches) Dia. Thick.	Mandrel (Inches)	Red Grade Item Number	Blue Grade Item Number
B41	5/8 5/8	1/8	204181	204183
B42	1/2 3/4	1/8	204281	204283
B43	1/4 5/16	1/8		204383
B44	7/32 3/8	1/8	204481	204483
B45	3/16 5/16	1/8		204583
B51	7/16 3/4	1/8		205183
B52	3/8 3/4	1/8	205281	205283
B53	1/4 5/8	1/8	205381	205383
B55	1/8 1/4	1/8		205583
B71	5/8 1/8	1/8		207183
B72	1/2 1/8	1/8		207283
B81	3/4 3/16	1/8		208183
B82	1/2 1/4	1/8		208283
B91	1/2 5/8	1/8	209181	
B92	1/4 1/4	1/8	209281	
B96	1/8 1/4	1/8	209681	209683
B97	1/8 3/8	1/8		209783
B98	3/32 1/4	1/8		209883
B103	5/8 3/16	1/8		210383
B105	1/4 1/4	1/8		210583
B112	3/8 1/2	1/8		211283
B121	1/2 1/2	1/8		212183
B122	3/8 3/8	1/8	212281	212283
B123	3/16 3/16	1/8	212381	212383
B124	1/8 1/8	1/8	212481	212483
B125	1/4 1/4	1/8	212581	
B132	3/8 1/2	1/8	213281	
B133	3/8 3/8	1/8		213383
B135	1/4 1/2	1/8	213581	213583

Standard Packaging is 25.

### KITS

### Item Number

KIT 1, 48 POINTS 299901

Three medium (red) and three hard (blue)  
each of the following:

B44, B52, B96, B123, W144, W152,  
W162, W170, W175, & W200

KIT 2, 100 POINTS 299902

Ten hard (blue) each of the following:

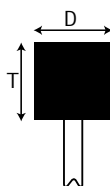
B44, B52, B96, B123, W144, W152,  
W162, W170, W175 & W200

## "W" SHAPES RED (Medium) & BLUE (Hard) GRADES



Shape	Size (inches) Dia. Thick.	Mandrel (Inches)	Red Grade Item Number	Blue Grade Item Number
W140	1/4 5/64	1/8		214083
W141	3/32 5/32	1/8	214181	
W142	3/32 1/4	1/8	214281	214283
W144	1/8 1/4	1/8	214481	214483
W145	1/8 3/8	1/8	214581	214583
W146	1/8 1/2	1/8	214681	214683
W149	5/32 1/4	1/8		214983
W152	3/16 1/4	1/8	215281	
W153	3/16 3/8	1/8	215381	215383
W154	3/16 1/2	1/8	215481	215483
W160	1/4 1/4	1/8	216081	216083
W161	1/4 5/16	1/8		216183
W162	1/4 3/8	1/8	216281	216283
W163	1/4 1/2	1/8	216381	216383
W164	1/4 3/4	1/8		216483
W168	5/16 5/16	1/8		216883
W169	5/16 3/8	1/8	216981	
W170	5/16 1/2	1/8	217081	217083
W175	3/8 3/8	1/8		217583
W176	3/8 1/2	1/8	217681	217683
W178	3/8 1	1/8		217883
W182	1/2 1/8	1/8	218281	
W185	1/2 1/2	1/8		218583
W189	1/2 2	1/4	218941	
W200	3/4 1/8	1/8	220081	220083
W208	3/4 2	1/4	220841	
W216	1 1/4	1/8		221683
W220	1 1	1/4	222041	
W222	1 2	1/4	222241	
W225	1-1/4 1/4	1/4	222541	
W235	1-1/2 1/4	1/4	223541	
W236	1-1/2 1/2	1/4	223641	
W242	2 1	1/4	224241	

Standard Packaging is 25.



All "W" shapes are basically rectangular or square in their form. The diameter (D) and thickness (T) are detailed in the charts.



## Tungsten-Carbide Cutters


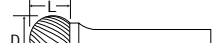



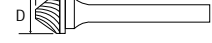



### For use with Air and Electric Rotary Handpieces

The precision construction and design of the Engis Tungsten-Carbide cutters makes them ideal for use on all materials from 25 RC thru 65 RC, including brass, cast iron, aluminum, bronze, fiberglass, plastics, etc. These all-purpose cutters are ideal for hard to reach operations such as dies, small cavities, etc.

### 1/8" Shank Diameter - 1-1/2" Overall Length

Part No. Cutting Head Diameter (D) Cutting Head Length (L)

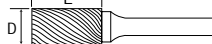
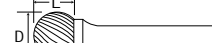
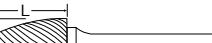
EA1	1/16"	1/4"	
EA2	3/32"	7/16"	
EA3	1/8"	9/16"	
EC4	3/32"	7/16"	
EC5	1/8"	9/16"	
ED6	3/32"	3/32"	
ED7	1/8"	1/8"	
EE8	1/8"	7/32"	
EF9	1/8"	1/4"	
EF10	1/8"	1/2"	
EG11	1/8"	1/4"	
EG12	1/8"	3/8"	
EH13	1/8"	1/4"	
EJ14	1/8"	60°	
EK15	1/8"	90°	
EL16	1/8"	8°	
EL17	1/8"	8°	
EM18	1/8"	12°	
EM19	1/8"	14°	
EM20	1/8"	7°	
EN21	1/8"	10°	

When ordering, indicate part number and description



### 1/4" Cutting Head Diameter - 1/8" Shank Diameter - 1" Shank Length

Part No. Cutting Head Length or Incl. Angle

EA22	1/2"	
EB23	3/16"	
EC24	1/2"	
ED25	1/4"	
EE26	3/8"	
EF27	1/2"	
EG28	1/2"	
EM29	22°	
EN30	10°	

When ordering, indicate part number and description





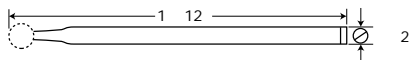
## Diamond Wheels and Points



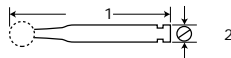
### Single Layer - 3/32" Shanks

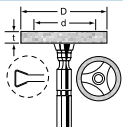
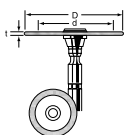
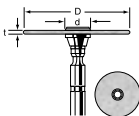
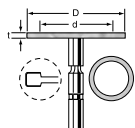
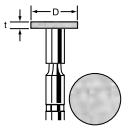
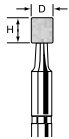
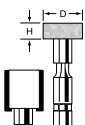
Fifteen shapes and a total of 49 sizes permit a broad selection of single layer diamond wheels and points for every type of grinding job. These tools are precision made with a special bond of metal plating that holds the diamonds in an exposed position for fast, constant cutting action.

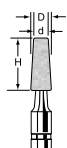
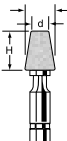
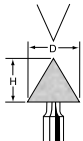
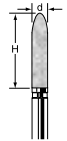
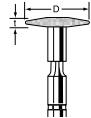
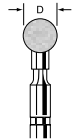

- For long shank, used in all straight handpieces, specify "H" in ordering.



- For short shank, for contra-angle handpiece #55 only, specify "R" in ordering (see \* below)



Part No.	D	d	t/h	
DT72PH	.677	.575	.094	
DT124PH	.602	.512	.018	
DT125PH	.721	.630	.018	
DT126PH	.799	.709	.020	
DT127PH	.878	.787	.020	
DT76APH	.591	.276	.012	
DT74APH	.787	.276	.014	
DT128PH	.361	.276	.020	
DT56PH	.343	.268	.051	
DT132PH	.748	.453	.039	
DT129PH	.248	--	.020	
DT105PH	.252	--	.035	
DT130PH	.157	--	.030	
DT107PH	.102	--	.118	
DT100PH	.098	--	.276	
DT114PH	.087	--	.276	
DB305PH	.075	--	.196	
DT110PH	.071	--	.102	
DT304PH	.067	--	.196	
DT111PH	.165	--	.059	
DT116PH	.232	--	.236	

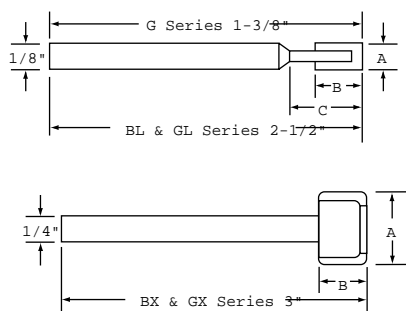
Part No.	D	d	t/h	
DT113H	.102	.069	.276	
DT108H	.102	.059	.114	
DT236H	.287	60°	.236	
DT93H	.201	27°	.374	
DT103H	.169	80°	.106	
DT94H	.122	31°	.189	
DT117H	.094	--	.295	
DT509H	.063	--	.394	
DT510H	.094	--	.394	
DB902a	.051	--	.158	
DT112H	.161	--	.059	
DT109H	.366	--	.051	
DB108H	.098	--	--	
DB102H	.051	--	--	
DB2/0H	.032	--	--	
DB104H	.067	--	--	
DB105H	.071	--	--	
DT101H	.118	--	--	
DT119H	.158	--	--	
DT531H	.386	--	.134	



## Precision Plus Electroplated Diamond & CBN Grinding Pins

Featuring hardened steel shanks and bonded diamond or CBN particles, these precision grinding pins are ideal for use on jig and internal grinding machines and/or hand tools. Through our Electrogrip® process, particle exposure is maximized, assuring a free cutting action that greatly reduces heat and wear.

When ordering: Specify catalog number and grit size.  
Special pins quoted upon request (please furnish print or sketch).



### BL (CBN) & GL (Diamond) Series Pins - Specifications

CBN Grit Size	Catalog Number	Diamond Grit Size	Catalog Number	A	B	C
140/170	BL.20	Coarse	GL.20	.020	1/16"	1/8"
	BL.25	(140/170)	GL.25	.025	3/32"	1/4"
	BL.30	Fine	GL.30	.030	3/32"	1/4"
	BL.35	(200/230)	GL.35	.035	3/32"	1/4"
80/100	BL.40	Coarse	GL.40	.040	1/8"	3/8"
	BL.45	(140/170)	GL.45	.045	1/8"	3/8"
	BL.50	or	GL.50	.050	1/8"	3/8"
	BL.50-1	Fine	GL.50-1	.050	1/8"	1"
	BL.55	(200/230)	GL.55	.055	1/8"	3/8"
	BL.60	Coarse	GL.60	.060	1/8"	3/8"
80/100	BL.60-1	(100/120)	GL.60-1	.060	1/8"	1"
	BL.70	or	GL.70	.070	5/32"	1/2"
	BL.70-1	Fine	GL.70-1	.070	5/32"	1"
	BL.80	(200/230)	GL.80	.080	5/32"	1/2"
	BL.80-1		GL.80-1	.080	5/32"	1"

CBN Grit Size	Catalog Number	Diamond Grit Size	Catalog Number	A	B	C
80/100	BL.90		GL.90	.090	5/32"	1/2"
	BL.90-1	Coarse	GL.90-1	.090	5/32"	1"
	BL.100	(100/120)	GL.100	.100	5/32"	1/2"
	BL.100-1	or	GL.100-1	.100	5/32"	1"
	BL.110	Fine	GL.110	.110	5/32"	1/2"
	BL.110-1	(200/230)	GL.110-1	.110	5/32"	1"
	BL.125		GL.125	.125	5/32"	1/2"
	BL.125-1		GL.125-1	.125	5/32"	1"
80/100	BL.141	Coarse	GL.141	.141	1/4"	—
	BL.156	(100/120)	GL.156	.156	1/4"	—
	BL.188	or	GL.188	.188	1/4"	—
	BL.218	Fine	GL.218	.218	1/4"	—
	BL.250/2	(200/230)	GL.250/2	.250	1/8"	—
	BL.250/4		GL.250/4	.250	1/4"	—



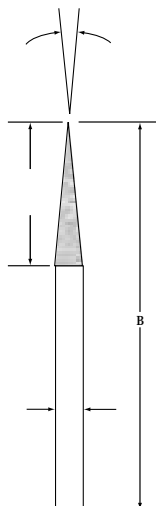
## Precision Plus Diamond-Plated Taper Pins

These diamond-plated taper pins are ideal for grinding or ripping tungsten carbide drawing dies for the wire and tube industries, and for cold heading dies. You get fast, efficient and precise grinding, with long wear.

### Specifications

Part Number	A	B	C
GLT.125.10	1/8"	2-1/2"	10
GLT.125.12	1/8"	2-1/2"	12
GLT.125.16	1/8"	2-1/2"	16
GLT.125.26	1/8"	2-1/2"	26
GLT.250.10	1/4"	3"	10
GLT.250.12	1/4"	3"	12
GLT.250.16	1/4"	3"	16
GLT.250.26	1/4"	3"	26

When ordering: Specify grit desired;  
80/100 Coarse or 200/230 Fine.  
Price sheet available on request.



### G (Diamond) Series Pins — Specifications

Diamond Grit Size	Catalog Number	A	B	C
Coarse	G.20	.020	1/16"	1/8"
(140/170)	G.25	.025	3/32"	1/4"
Fine	G.30	.030	3/32"	1/4"
(200/230)	G.35	.035	3/32"	1/4"
Coarse	G.40	.040	1/8"	3/8"
(100/120)	G.45	.045	1/8"	3/8"
or	G.50	.050	1/8"	3/8"
Fine	G.55	.055	1/8"	3/8"
(200/230)	G.60	.060	1/8"	3/8"
Coarse	G.70	.070	5/32"	1/2"
(100/120)	G.80	.080	5/32"	1/2"
or	G.90	.090	5/32"	1/2"
Fine	G.100	.100	5/32"	1/2"
(200/230)	G.110	.110	5/32"	1/2"
	G.125	.125	5/32"	1/2"

### BX (CBN) & GX (Diamond) Series Pins - Specifications

CBN Grit Size	Catalog Number	Diamond Grit Size	Catalog Number	A	B
	BX.141		GX.141	9/64"	1/4"
	BX.156		GX.156	5/32"	1/4"
	BX.188	Coarse	GX.188	3/16"	1/4"
	BX.218	(100/120)	GX.218	7/32"	1/4"
80-100	BX.250/2	or	GX.250/2	1/4"	1/8"
	BX.250/4	Fine	GX.250/4	1/4"	1/4"
	BX.312/2	(140/170)	GX.312/2	5/16"	1/8"
	BX.312/4		GX.312/4	5/16"	1/4"
	BX.312/6		GX.312/6	5/16"	3/8"
	BX.375/2		GX.375/2	3/8"	1/8"
	BX.375/4	Coarse	GX.375/4	3/8"	1/4"
	BX.375/6	(100/120)	GX.375/6	3/8"	3/8"
80/100	BX.500/4	or	GX.500/4	1/2"	1/4"
	BX.500/6	Fine	GX.500/6	1/2"	3/8"
	BX.500/8	(140/170)	GX.500/8	1/2"	1/2"
	BX.750/4		GX.740/4	3/4"	1/4"
	BX.750/8		GX.750/8	3/4"	1/2"



## Fax Quotation Request

1-847-808-9430

Co. Name: \_\_\_\_\_ Contact: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_

Zip: \_\_\_\_\_ Phone: \_\_\_\_\_

Fax: \_\_\_\_\_ E-mail: \_\_\_\_\_

Machine to be used: \_\_\_\_\_ Avail. RPM: \_\_\_\_\_

Coolant: Yes \_\_\_\_\_ No \_\_\_\_\_ Do you use superabrasive grinding machines? \_\_\_\_\_

If yes, how many per: Week \_\_\_\_\_ Month \_\_\_\_\_ Year \_\_\_\_\_ CBN \_\_\_\_\_ Diamond \_\_\_\_\_ Grit Size \_\_\_\_\_

Explain process: \_\_\_\_\_

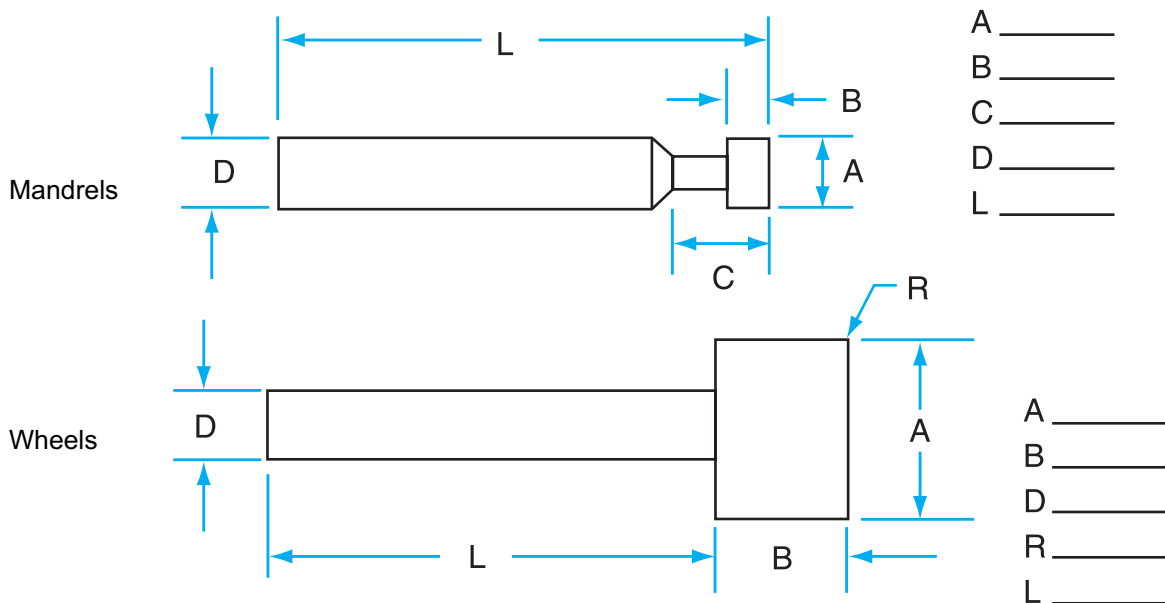
---



---



---





## DiaMold Polishing Stones

Engis offers a complete range of vitrified finishing stones for hand and machine polishing applications. Our stones come in a wide variety of grit sizes and formulations to provide you with the right tool for each job.

DiaMold stones are available in both standard and premium white aluminum oxide as well as green silicon carbide to cover a broad range of mold materials. Please consult the chart below to identify the right stone for your application.

All of our stones are manufactured in the USA.



## Materials and Applications

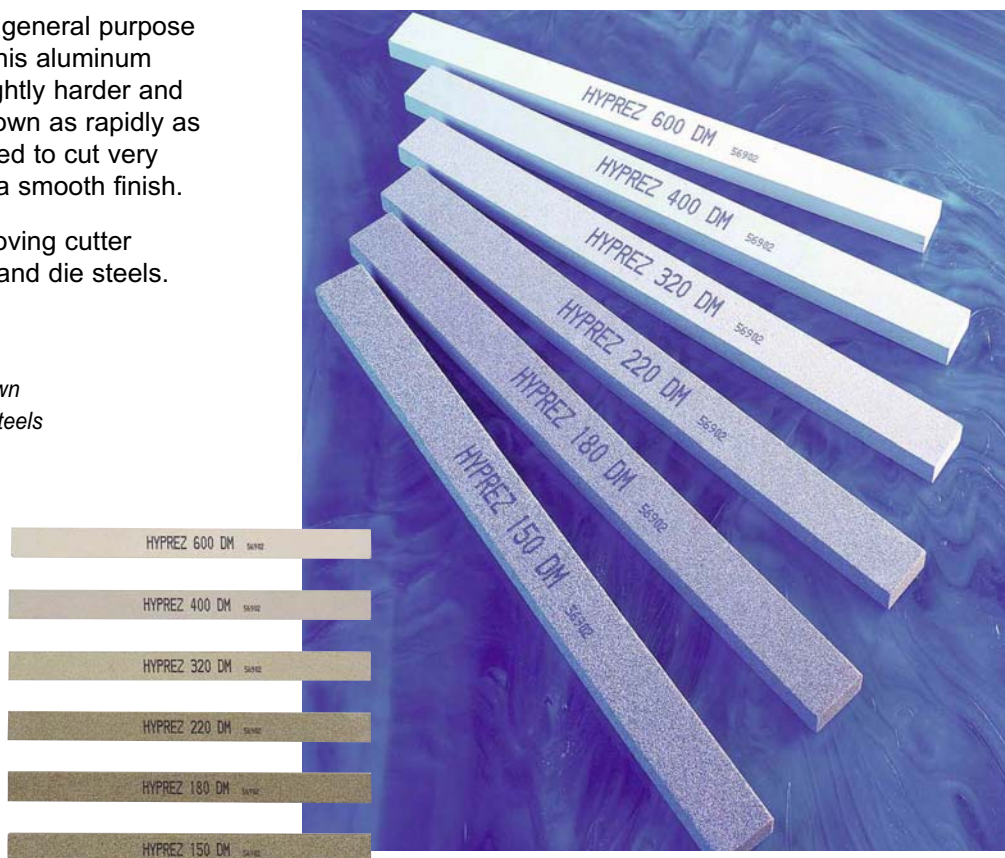
Section	Type	Abrasive	Color	Grits	CHARACTERISTICS AND APPLICATION
6-2	DM	Aluminum Oxide	Gray	150-600	Similar to the DS general purpose finishing stone. This stone is slightly harder and does not break down as rapidly as the DS. Engineered to cut very fast, yet provide a smooth finish. Excellent for removing cutter marks on all tool and die steels.
6-3	EDM	White Aluminum Oxide	Dark Brown	100-600	The EDM stone is engineered for the removal of EDM scale. This stone is a soft grade which breaks down fast and cuts freely. Specially designed for hand applications.
6-3	RG	Green Silicon Carbide	Green	120-600	A medium stone with premium silicon carbide grains. Cuts very fast, yet provides an excellent finish on most die and mold steel types ranging from 28 to 58 Rc. Also permits finishing on aluminum, cast iron and bronze.
6-4	DS	Regular Aluminum Oxide	Green / Tan	100-900	Very popular medium hard stone for all types of steel. Fast cutting, provides a fine, even finish and has the perfect breakdown for a finishing stone.
6-4	A/L	White Aluminum Oxide	Tan	150-600	A specially treated, medium hard stone that cuts fast and leaves an excellent finish. It works well on aluminum, not scratching or tearing the surface.
6-5	HY	White Aluminum Oxide	Cream/Ivory	120-600	Extremely well liked, this medium hard stone is treated with a special oil to resist loading. Cuts very fast yet provides smooth finishes on most tool and die sheets. 220 grit and 320 grits work well on hard EDM scale.

## DM

Similar to the DS general purpose finishing stone. This aluminum oxide stone is slightly harder and does not break down as rapidly as the DS. Engineered to cut very fast yet provides a smooth finish.

Excellent for removing cutter marks on all tool and die steels.

- General purpose
- Fast cutting
- Consistent breakdown
- For use on all tool steels



Size (inch)	Pcs/ Box	150	180	220	320	400	600
1/16 x 1/4 x 6	12	0810179		0812039	0813239	0814059	0816119
1/16 x 1/2 x 6	12	0810129		0812109	0813249	0814099	0816209
1/8 x 1/8 x 6	12	0810159	0811129	0812159	0813299	0814129	0816259
1/8 x 1/4 x 6	12	0810199	0811179	0812239	0813339	0814199	0816299
1/8 x 1/2 x 6	12	0810229	0811239	0812259	0813359	0814219	0816319
1/8 x 1 x 6	12	0810259	0811289	0812319	0813369	0814229	0816339
5/32 x 5/32 x 6	12	0810309	0811359	0812359	0813399	0814259	0816399
1/4 x 1/4 x 6	12	0810379	0811399	0812369	0813409	0814369	0816409
1/4 x 1/2 x 6	12	0810429	0811429	0812429	0813429	0814429	0816429
1/4 x 1 x 6	6	0810459	0811499	0812739	0813499	0814499	0816469
3/8 x 3/8 x 6	12	0810489		0812789	0813539	0814529	0816559
1/2 x 1/2 x 6	6	0810539	0811549	0812839	0813549	0814559	0816629
1/2 x 1 x 6	4	0810579	0811579	0812869	0813559	0814609	0816649
1 x 1 x 6	2	0810629	0811639	0812899	0813599	0814659	0816699
1/4 TRI x 6	6	0810659		0812909	0813619	0814699	
3/8 TRI x 6	6	0810699		0812919	0813649	0814709	
1/4 RND x 6	6	0810739		0812959	0813679	0814889	0816709
3/8 RND x 6	6	0810789		0812979	0813719	0814899	0816759
1/2 RND x 6	6	0810999		0812999	0813749	0814959	

## EDM

The EDM stone is engineered for the removal of EDM scale. This white aluminum oxide stone is a soft grade which breaks down fast and cuts freely. Specially designed for hand application.

Size(inch)	Pcs/ Box	100	120	150	180	220	280	320	400	600
1/16 x 1/4 x 6	12		0212609	0213709	0214809	0215909	0217009	0218109	0219209	0221409
1/16 x 1/2 x 6	12	0211609	0212709	0213809	0214909	0216009	0217109	0218209	0219309	0221509
1/8 x 1/8 x 6	12				0215009	0216109		0218309	0229409	0221609
1/8 x 1/4 x 6	12	0211809	0212909	0214009	0215109	0216209	0217309	0218409	0219509	0221709
1/8 x 1/2 x 6	12	0211909	0213009	0214109	0215209	0216309	0217409	0218509	0219609	0221809
1/8 x 1 x 6	12	0212009	0213109	0214209	0215309	0216409	0217509	0218609	0219709	
5/32 x 5/32 x 6	12		0213209		0215409	0216509		0218709	0219809	0222009
1/4 x 1/4 x 6	12	0212309	0213409	0214509	0215609	0216709	0217809	0218909	0220009	0222209
1/4 x 1/2 x 6	12	0212409	0213509	0214609	0215709	0216809	0217909	0219009	0220109	0222309
1/4 x 1 x 6	6	0212509	0213609	0214709	0215809	0216909	0218009	0219109	0220209	0222409

## RG

A medium stone with premium silicon carbide grains. Cuts very fast, yet provides an excellent finish on most die and mold steel types ranging from 28 to 58 Rc. Also permits finishing on aluminum, cast iron and bronze.

Size(inch)	Pcs/ Box	120	150	220	320	400	600
1/16 x 1/2 x 6	12		0352059	0353059	0355059	0356059	0358059
1/8 x 1/4 x 6	12	0351139	0352139	0353139	0355139	0356139	0358139
1/8 x 1/2 x 6	12	0351179	0352179	0353179	0355179	0356179	0358179
5/32 x 5/32 x 6	12				0355259	0358259	0358259
1/4 x 1/4 x 6	12	0351299	0352299	0353299	0355299	0356299	0358299
1/4 x 1/2 x 6	12	0351339	0352339	0353339	0355339	0356339	0358339
1/4 x 1 x 6	6		0352379	0353379	0355379	0356379	0358379
3/8 x 3/8 x 6	12		0352419	0353419	0355419	0356419	
1/2 x 1/2 x 6	6		0352459	0353459	0355459	0356459	0358459
1/2 x 1 x 6	4		0352499	0353499	0355499	0356499	0358499
1 x 1 x 6	2		0352539	0353539	0355539	0356539	0358539
1/4 RND x 6	6			0353739	0355739	0356739	

## DS

Very popular medium hard aluminum oxide stone for all types of steel. Fast cutting - provides a fine, even finish and has the perfect breakdown for a finishing stone.

Size (inch)	Pcs/ Box	100	150	180	220	280	320	400	500	600	900
1/16 x 1/4 x 6	12	0232109	0233409		0236009	0237309	0238609	0239909	0241209	0242509	0245109
1/16 x 1/2 x 6	12	0232209	0233509		0236109		0238709	0240009		0242609	0245209
1/8 x 1/8 x 6	12	0232309	0233609	0234909	0236209		0238809	0240109		0242709	0245309
1/8 x 1/4 x 6	12	0232409	0233709	0235009	0236309	0237609	0238909	0240209	0241509	0242809	0245409
1/8 x 1/2 x 6	12	0232509	0233809	0235109	0236409	0237709	0239009	0240309	0241609	0242909	0245509
1/8 x 1 x 6	12	0232609	0233909	0235209	0236509	0237809	0239109	0240409	0241709	0243009	
5/32 x 5/32 x 6	12	0232709	0234009	0235309	0236609		0239209	0240509	0241809	0243109	0245709
1/4 x 1/4 x 6	12	0232909	0234209	0235509	0236809	0238109	0239409	0240709	0242009	0243309	0245909
1/4 x 1/2 x 6	12	0233009	0234309	0235609	0236909	0238209	0239509	0240809	0242109	0243409	0246009
1/4 x 1 x 6	6	0233109	0234409	0235709	0237009	0238309	0239609	0240909	0242209	0243509	0246109
3/8 x 3/8 x 6	12	0233159	0234459		0237059	0238359	0239659	0240959		0243559	
1/2 x 1/2 x 6	6	0233209	0234509	0235809	0237109	0238409	0239709	0241009	0242309	0243609	0246209
1/2 x 1 x 6	4	0233309	0234609	0235909	0237209	0238509	0239809	0241109	0242409	0243709	0246309
1 x 1 x 6	2	0233319	0234619	0235919	0237219		0239819	0241119	0242419	0243719	
1/4 TRI x 6	6		0234639		0237239		0239839	0241139			
3/8 TRI x 6	6		0234649		0237249		0239849	0241149			
1/4 RND x 6	6		0234669		0237269		0239869	0241169		0243769	
1/2 RND x 6	6		0234689		0237289		0239889	0241189			
3/8 RND x 6	6		0234679		0237279		0239879	0241179		0243779	

## A/L

A specially treated, medium hard white aluminum oxide stone that cuts freely and leaves an excellent finish. It works well on aluminum, not scratching or tearing the surface.

Size (inch)	Pcs/ Box	150	220	320	400	600
1/8 x 1/4 x 6	12	0381929	0383529	0384329	0385129	0385929
1/8 x 1/2 x 6	12	0381969	0383569	0384369	0385169	0385969
1/4 x 1/4 x 6	12	0382089	0383689	0384489	0385289	0386089
1/4 x 1/2 x 6	12	0382129	0383729	0384529	0385329	0386129
1/4 x 1 x 6	6	0382169	0383769	0384569	0385369	0386169





## HY

Favored by professionals, this medium hard white aluminum oxide stone is treated with a special oil to resist loading. It cuts very fast yet provides smooth finishes on most tool and die sheets. 220 grit and 320 grits work well on hard EDM scale.

Size (inch)	Pcs/ Box	120	150	220	320	400	600
1/16 x 1/4 x 6	12	0331019	0332019	0334019	0336019	0337019	0339019
1/16 x 1/2 x 6	12	0331059	0332059	0334059	0336059	0337059	0339059
1/8 x 1/8 x 6	12	0331099	0332099	0334099	0336099	0337099	0339099
1/8 x 1/4 x 6	12	0331139	0332139	0334139	0336139	0337139	0339139
1/8 x 1/2 x 6	12	0331179	0332179	0334179	0336179	0337179	0339179
1/8 x 1 x 6	12	0331219	0332219	0334219	0336219	0337219	
5/32 x 5/32 x 6	12	0331259	0332259	0334259	0336259	0337259	0339259
1/4 x 1/4 x 6	12	0331299	0332299	0334299	0336299	0337299	0339299
1/4 x 1/2 x 6	12	0331339	0332339	0334339	0336339	0337339	0339339
1/4 x 1 x 6	6	0331379	0332379	0334379	0336379	0337379	0339379
3/8 x 3/8 x 6	12	0331419	0332419	0334419	0336419	0337419	
1/2 x 1/2 x 6	6	0331459	0332459	0334459	0336459	0337459	0339459
1/2 x 1 x 6	4	0331499	0332499	0334499	0336499	0337499	0339499
1 x 1 x 6	2	0331539	0332539	0334539	0336539	0337539	0339539
1/4 TRI x 6	6				0336699	0337699	
3/8 TRI x 6	6	0331739		0334739		0337739	
1/2 TRI x 6	6	0331779					
1 TRI x 6	4	0331819					
1/4 RND x 6	6	0331899	0332899	0334899	0336899	0337899	0339899
3/8 RND x 6	6	0332939		0334939	0336939	0337939	0339939
1/2 RND x 6	6			0334979	0336979	0337979	0339979

## Polishing Stone Application Chart

		Surface					Method			Use	
		Tool Steel	Aluminum	Non-Ferrous	Stainless Steel	EDM	Hand	Profiler	Ultrasonic	Dry	Wet
<b>EDM Stone</b>	<b>EDM</b>	◆				◆	◆	◆		◆	◆
<b>General Purpose</b>	<b>DS</b>	◆	◆	◆	◆		◆	◆		◆	◆
	<b>RB</b>	◆	◆				◆	◆		◆	◆
	<b>DM</b>	◆	◆	◆	◆		◆	◆		◆	◆
<b>Specialty Stones</b>	<b>A/L</b>	◆	◆				◆	◆			◆
	<b>HY</b>	◆				◆	◆	◆			◆
	<b>ROM</b>	◆					◆	◆		◆	◆
<b>Silicon Carbide Stone</b>	<b>RG</b>	◆	◆	◆			◆	◆		◆	◆

## DiaMold Ceramic Stones

DiaMold ceramic stones are made from the finest ceramic fiber with a special resin binder and were originally developed for the aerospace industry. These virtually unbreakable polishing stones work well in the finishing of small detail areas such as slots, ribs and other narrow areas of molds and dies. They can be used either by hand or with a reciprocating or ultrasonic Diprofil polishing system.






Since these high quality ceramic stones can be easily shaped and come in a broad range of sizes and grits, they are one of the most versatile tools for precision finishing of molds and dies.

- High strength, resists breakage
- High efficiency
- Uniform finishes
- Resists loading or clogging
- Low heat generation
- Efficient cleaning of EDM scale
- Fast removal of fine burrs
- Variety of grits available

### USAGE

- Precision finishing of ribs, edges, etc., on dies and molds
- No loading or clogging of the stone even on some materials such as aluminum
- Can be used in very narrow areas without the risk of breakage
- Can be used on complex shapes where uniform finishing can be a challenge
- Can be used by hand or with Diprofil reciprocating or rotary systems

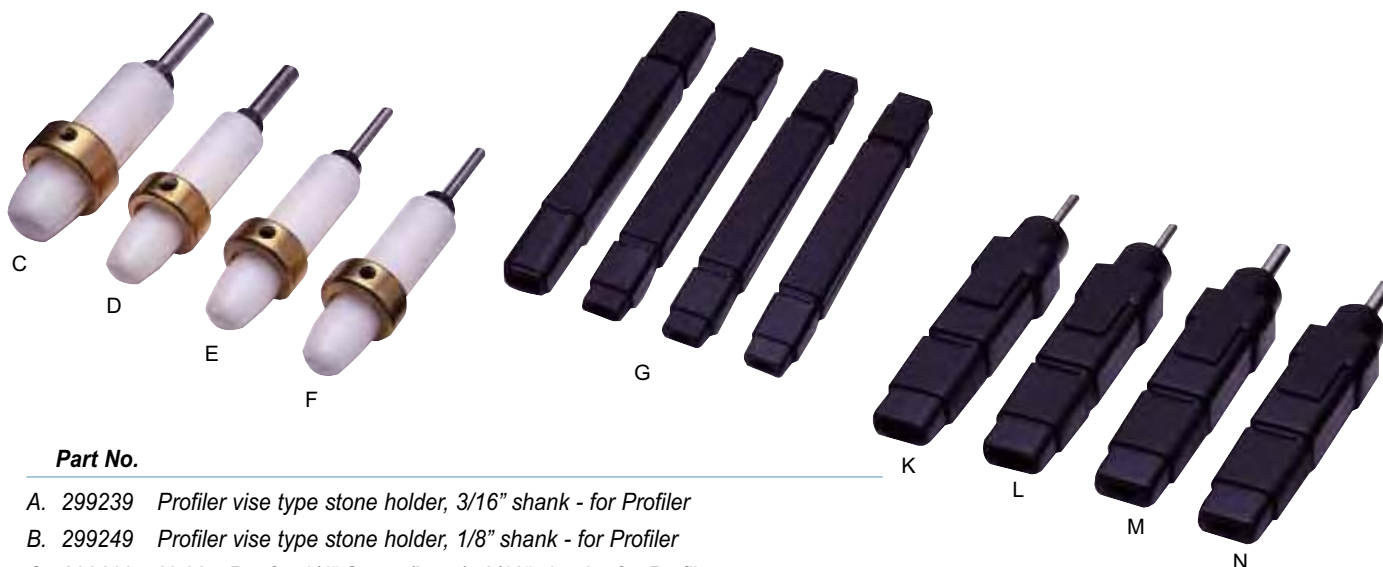
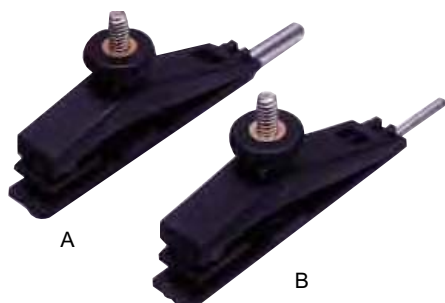
## Stone Holders

	Item Number	Length	Width of stick	
	29950	For Profiler	1/8" Mandrel	A
	29925	5-1/2"	3mm round	B
	29940	5-3/4"	8-10mm stick	C
	29935	5-3/4"	6mm stick	D
	29930	5-3/4"	2-4mm stick	E
	29945	Set of above three		

Size (inch)	Gold 120 Grit P/N	Lt. Brown 180 Grit P/N	Orange 220 Grit P/N	Dk. Brown 320 Grit P/N	Blue 400 Grit P/N	White 800 Grit P/N	Red 1000 Grit P/N
.5 x 2 x 100	CS052100LB	CS052100O	CS052100DB	CS052100B	CS052100W	CS052100R	
.5 x 4 x 100	CS054100G	CS054100LB	CS054100O	CS054100DB	CS054100B	CS054100W	CS054100R
.5 x 6 x 100	CS056100G	CS056100LB	CS056100O	CS056100DB	CS056100B	CS056100W	CS056100R
.8 x 4 x 100	CS084100G	CS084100LB		CS084100DB	CS084100B		
.8 x 6 x 100	CS086100G	CS086100LB		CS086100DB	CS086100B		
.8 x 10 x 100	CS0810100G						
1 x 2 x 100	CS12100G	CS12100LB	CS12100O	CS12100DB	CS12100B	CS12100W	CS12100R
1 x 4 x 100	CS14100G	CS14100LB	CS14100O	CS14100DB	CS14100B	CS14100W	CS14100R
1 x 6 x 100	CS16100G	CS16100LB	CS16100O	CS16100DB	CS16100B	CS16100W	CS16100R
1 x 10 x 100	CS110100G	CS110100LB	CS110100O	CS110100DB	CS110100B	CS110100W	CS110100R
1.5 x 4 x 100	CS154100G	CS154100LB	CS154100O	CS154100DB	CS154100B		
1.5 x 6 x 100	CS156100G	CS156100LB	CS156100O	CS156100DB	CS156100B		
3mm dia. x 100	CS3100G	CS3100LB	CS3100O	CS3100DB	CS3100B	CS3100W	CS3100R

## DiaMold Polishing Stone Holders

A selection of Polishing Stone Holders is available from Engis. Holders for hand and machine polishing are listed below.



### Part No.

- A. 299239 Profiler vise type stone holder, 3/16" shank - for Profiler
- B. 299249 Profiler vise type stone holder, 1/8" shank - for Profiler
- C. 299609 Holder Pro for 1/4" Stone (Long), 3/16" shank - for Profiler
- D. 299639 Holder Pro for 1/4" Stone (Short), 3/16" shank - for Profiler
- E. 299679 Holder Pro for 1/8" Stone (Short), 3/16" shank - for Profiler
- F. 299549 Holder Pro for 1 mm ceramic stone, 3/16" shank
- G. 29915 4 piece hand stone holder kit. Holds round and all sizes of square and rectangular polishing stones from 1/16" to 1/2"
- K. 299199 1/8" x 1/2" & 1/4" x 1/4" - 1/8" Shank - for Profiler
- L. 299189 1/8" x 1/4" - 1/8" Shank - for Profiler
- M. 299169 1/8" x 1/4" - 3/16" Shank - for Profiler
- N. 299179 1/8" x 1/4" & 1/4" x 1/4" - 3/16" Shank - for Profiler

## DiaMold Lapping Sticks

### Hard Wood Lapping Sticks

Laminated 6" lapping sticks are designed especially for fast stock removal using Engis diamond compounds. Made of highly compressed wood layers with alternating grain direction, saturated and bonded with synthetic resin, they are dense, easily formed, shape retaining, and perform like a cast iron lap of top quality such as Meehanite. The many shapes available include square and rectangular with 45° bevels or round with conical points.

### Soft Wood Lapping Sticks

Designed for immediate and final polishing. Square and rectangular shapes are beveled to 45°; round sticks are pointed. All shapes are 6" long.



Wood Selection		Description All One Size and Wood Hardness Contained in Each Package		
Hard	Soft	In Each Pack	Size	Shape
502.D	502.SD	20	1/8" x 1/8" x 6"	Square
502.E	502.SE	20	1/8" x 1/4" x 6"	Rectangle
502.F	502.SF	20	1/4" x 1/4" x 6"	Square
502.G	502.SG	20	3/16" x 3/16" x 6"	Square
502.H	502.SH	20	5/16" x 1/2" x 6"	Rectangle
502.I	502.SI	20	5/16" x 3/4" x 6"	Rectangle
502.J	502.SJ	20	1/8" x 6"	Round
502.K	502.SK	20	3/16" x 6"	Round
502.L	502.SL	20	1/4" x 6"	Round



## Special Group Combinations of Lapping Sticks

Wood Selection		Description All One Size and Wood Hardness Contained in Each Package		
Hard	Soft	Quantity	Size	Shape
Group 502.A	Group 502.SA	6	1/8" x 1/8" x 6"	Square
		6	1/8" x 1/4" x 6"	Rectangle
		4	1/4" x 1/4" x 6"	Square
		4	3/16" x 3/16" x 6"	Square
		2	5/16" x 1/2" x 6"	Rectangle
		2	5/16" x 3/4" x 6"	Rectangle
Group 502.B	Group 502.SB	12	1/8" x 1/8" x 6"	Square
		12	1/8" x 1/4" x 6"	Rectangle
		12	1/4" x 1/4" x 6"	Square
Group 502.C	Group 502.SC	5	5/16" x 1/2" x 6"	Rectangle
		5	5/16" x 3/4" x 6"	Rectangle
Group 502.M	Group 502.SM	10	1/8" x 6"	Round
		8	3/16" x 6"	Round
		4	1/4" x 6"	Round



## Stones, Lapping Stick & File Holders

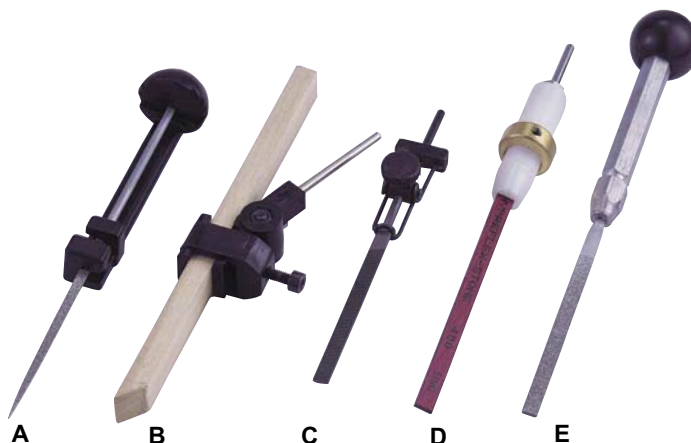
The DiaMold Stone and Stick Holder (VEA) will hold sticks and stones up to 1/2" diameter, round, square and rectangular at an angle for those hard-to-reach operations (45 to 90° angles).

The VEA is used with the Di-Profilor Reciprocating Hand Machine. It is designed to add greater flexibility to lapping operations.

### Stone Holder Kit with accessories – Part No. 508.SHK 101

Kit include one each:

- Holder VEA
- Abrasive Stones 1/4" x 1/2" x 6"  
(Stone Part Numbers: 0249109, 0254709, 0356339, 0358339, 0286409)
- Hyprez Lapping Sticks  
D, SE, F, SG, H, SJ, K and SL



- A. FH.1 - File Holder
- B. VEA - Stick & Stone Holder
- C. FVA - File & Shoe Holder
- D. 29950 - Hyprez Ceramic Stone Holder
- E. IF-20 - File Holder

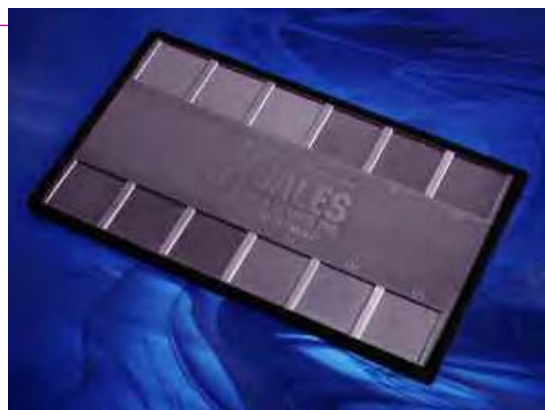
## S.P.I. Mold Finish Guide

The first ever Pocket-Sized Mold Finish Reference Guide that goes with you anywhere. It has a 72 RC hard finished surface that will retain exact finishes for years to come and is quick and easy to read.

Includes a direct cross-reference between the Roughness Average and S.P.I. Scales for ease in comparisons. (No other gauge does this.)

The Pocket S.P.I. Mold Finish Guide comes with a handy carrying sheath for convenience.

**Part No. SPI**



## Mold Medic Weld Pro SW-V01

The DiaMold Mold Medic Weld Pro SW-V01 is designed for in-house repair of your production molds. Any loss of production due to cracks or chips in a mold is minimized as the SW-V01 allows you to repair molds on the spot, rather than sending them out for repair.

The SW-V01 offers maximum versatility by performing both resistance and TIG pulse welding operations in a single machine. It also features a new five-function control face panel, making it easy to operate....there is no need to guess at the proper heat and time settings.

### Handles a wide range of mold welding applications & materials

- |                 |                     |                      |
|-----------------|---------------------|----------------------|
| • Parting Lines | • Pin Gate Areas    | • Slide Edges        |
| • Pin Holes     | • Dents             | • Scratches          |
| • Ejector Pins  | • Vent Areas        | • Tunnel Gate Areas  |
| <hr/>           |                     |                      |
| • Plastic molds | • Die casting molds | • Press molds        |
| • Glass molds   | • Blow molds        | • Copper alloy molds |



The SW-V01 is specifically designed to generate very little heat during the weld diminishing the chance of any damage during the repair operation.

### 5 New Functions -

*Makes it the Easiest and Most Efficient TIG Welding System*

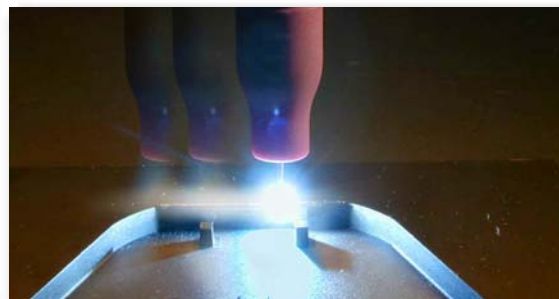
#### Ultra Precision Mode

By selecting the FINE mode, this welder makes it possible to weld even a fine core pin (dia. 0.2") which is too small for an ordinary welder.



#### Continuous TIG Mode

When a large area will be welded, the continuous TIG mode provides smoother welding more quickly than laser welding. (Interval time: 0.1- 0.2 sec)



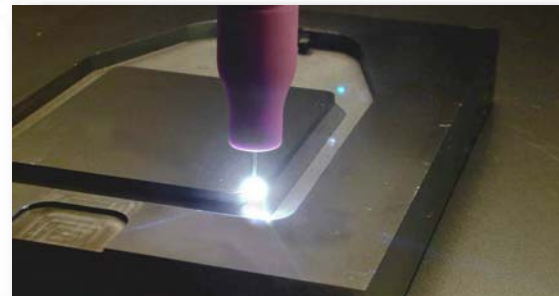
#### Weld Navigation

Appropriate current and welding time will automatically be set and displayed by setting the welding target area, welding material and size.



#### Lead Arc

By emitting a minute arc (2A) to the welding target point in advance, the target portion can be welded more precisely.



#### Data Memory Mode

With the SAVE mode, data for welding conditions fixed by an operator can be stored and read out again the next time.



## Mold Medic Weld Pro SW-V01

### Standard Accessories



1. Tool box
2. Foot switch
3. Gas hose
- 4\* Output cord for resistance welding: for  $\varnothing 13\text{mm}$   
Handpiece for resistance welding for  $\varnothing 2\text{-}\varnothing 3\text{mm}$
- 5\* Output cord for resistance welding: for  $\varnothing 18\text{mm}$   
Handpiece for resistance welding for  $\varnothing 5\text{mm}$
6. Torch cord for TIG welding
7. Work cord
8. Silver tungsten electrode for resistance welding
9. Tungsten electrode for TIG welding  $\varnothing 1.6\text{ mm}$
10. Metal cutter

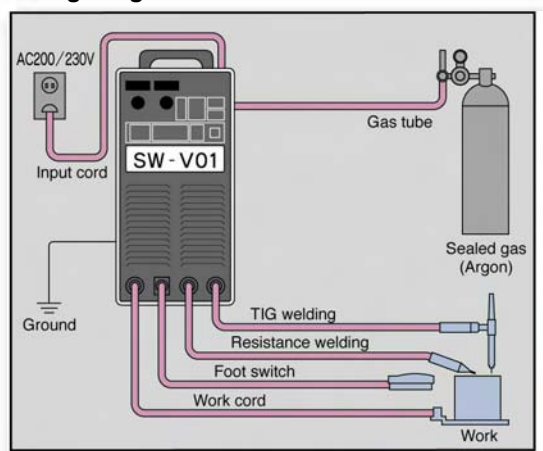
\*Either 4 or 5 shall be attached as a standard configuration.

NOTE: Engis reserves the right to change or substitute standard accessories.

### Unit Specifications

	Resistance Welding	TIG Welding
Input voltage	Single phase AC 200/230V 50/60 Hz	
Rated output current	10.4 kVA (peak value)	
	6.3 kVA	
Maximum voltage of no-load	- -	About 76 V
Output current	30 to 750 A	2 to 250 A
Welding time	1 to 30 mins	1 to 600 mins
Repetition period	400 mins	0.1 to 2.0 sec
Control method	Inverter method	
Cooling method	Forced air cooling	
Dimensions	204 (W) x 425 (D) x 390 (H) mm	
Weight	23.8 kg	

### Wiring Diagram



NOTE:  
Gas regulator and  
gas cylinder are  
not included.



## Mold Medic II

The Mold Medic II is designed for fast, on-the-spot minor repairs which require resistance welding. The unit can utilize yarn, porous, powdered or plate materials to repair the damaged area. The Mold Medic II generates very little heat diminishing the possibility of damage to the mold during the repair operation.

### Broad Material and Application Range

- Plastic molds
- Press molds
- Glass molds
- Die casting molds
- Rubber molds
- Blow molds

- Cover small pinholes
- Repair parting lines, mounting or edges
- Repair scratches in slide area
- Repair excessive cutting away after machining
- Shape sharp tips or fine dents

### Excellent Workability

- Superior weldability using condenser spot welding
- Easy to machine with mill or electrical discharge machining after repairs
- Excellent performance for the repair of narrow and small areas
- Easy padding by layering several thin welding plates on top of each other
- Newly designed handpiece reduces heat build-up and boosts workability

### Very User Friendly

- Easy viewing operation panel makes work status apparent at a glance
- Highly portable - lightweight and compact design makes it easy to move
- Built in alarm light will check for overheating upon an overloaded operation
- Standard foot switch boosts work convenience since both hands will be free to use
- Features high insulation performance and high voltage capacity
- The design allows anyone to learn how to operate the equipment



### Application Examples



Repair parting areas



Repair corner areas



## Supplies for Mold Medic Welders



### WELDING ROD/WIRE MATERIAL

Item No.	Material	Diameter (inches)	Length (inches)
W4001	P-20	0.032	78-3/4
W4002	P-20	0.023	78-3/4
W4003	P-20	0.015	78-3/4
W4004	P-21	0.032	78-3/4
W4005	H-13	0.032	78-3/4
W4006	H-13	0.023	78-3/4
W4007	H-13	0.011	78-3/4
W4008	D-2, A-2	0.032	78-3/4
W4009	D-2, A-2	0.023	78-3/4
W4010	D-2, A-2	0.015	78-3/4
W4011	STAVAX	0.032	78-3/4
W4012	STAVAX	0.023	78-3/4
W4014	M-2, D-2, S-7	0.032	78-3/4
W4015	M-2, D-2, S-7	0.023	78-3/4
W4016	M-2, D-2, S-7	0.015	78-3/4
W4017	RIGOR	0.032	78-3/4
W4018	ORVAR	0.032	78-3/4
W4019	IMPAX	0.032	78-3/4
W4020	MAS-1	0.032	78-3/4
W4021	303 SS	0.015	275
W4022	303 SS	0.011	59
W4023	Ni-42	0.032	78-3/4
W4024	S50C	0.032	197
W4025	S50C	0.023	197
W4029	Copper Beryllium	0.015	80
W4030	Copper Beryllium	0.032	80

## Supplies for Mold Medic Welders



Item No.	Old Item No.	Metal Ribbon Material	Hardness	Size
W2004		P-20	Rc 30-50	.196" x .004" x 40"
W2004-1		P-20	Rc 30-50	.196" x .008" x 40"
W2002	A-011	P-21	Rc 38-40	.196" x .004" x 40"
W2002-1	A-01	P-21	Rc 38-40	.196" x .008" x 40"
W2005	A-08	420 SS	Rc 30-33	.196" x .004" x 40"
W2005-1	A-09	420 SS	Rc 30-33	.196" x .008" x 40"
W2016		304 SS	Rc 50-52	.196" x .004" x 40"
W2016-1		304 SS	Rc 50-52	.196" x .008" x 40"
W2008		H13	Rc 40-53	.196" x .004" x 40"
W2008-1	A-11	H13	Rc 40-53	.196" x .008" x 40"
W2007		D2, A2	Rc 50-60	.196" x .004" x 40"
W2007-1	A-10	D2, A2	Rc 50-60	.196" x .008" x 40"
W2009		M2, D2, S7	Rc 60 min	.196" x .004" x 40"
W2009-1		M2, D2, S7	Rc 60 min	.196" x .008" x 40"
W2010		STAVAX	Rc 50-60	.196" x .004" x 40"
W2010-1		STAVAX	Rc 50-60	.196" x .008" x 40"

Item No.	Old Item No.	Powder Metal	Hardness	Quantity
W2031	B-03	P-20	Rc 30-50	50 grams
W2033	B-05	P-21	Rc 38-40	50 grams
W2032	B-07	420 SS	Rc 30-33	50 grams
W2038		316 LSS		50 grams
W2035	B-09	H13	Rc 40-53	50 grams
W2034	B-23	D2, A2	Rc 50-60	50 grams
W2036	B-13	M2, D2, S7	Rc 60 min	50 grams
W2037		STAVAX	Rc 50-60	50 grams

Item No.	Old Item No.	Paste Metal	Hardness	Quantity
W2031-1	C-03	P-20	Rc 30-50	50 grams
W2033-1	C-05	P-21	Rc 38-40	50 grams
W2032-1	C-07	420 SS	Rc 30-33	50 grams
W2038-1		316 LSS		50 grams
W2035-1	C-09	H13	Rc 40-53	50 grams
W2034-1	C-23	D2, A2	Rc 50-60	50 grams
W2036-1	C-11	M2, D2, S7	Rc 60 min	50 grams
W2037-1		STAVAX	Rc 50-60	50 grams

Item No.	Porous Metal	Thickness	Size
W2052	P-20	.027"	.196" x 40"
W2055	P-21	.027"	.196" x 40"
W2054	420 SS	.027"	.196" x 40"
W2053	STAVAX	.027"	.196" x 40"
W2051	316 LSS	.027"	2" x 3"

Item No.	Yarn Metal	Description	Unit
W2062	P-20	Steel wool like material	Plastic jar
W2065	P-21	Steel wool like material	Plastic jar
W2064	420 SS	Steel wool like material	Plastic jar
W2063	STAVAX	Steel wool like material	Plastic jar
W2061	316 LSS	Steel wool like material	Plastic jar

### ENGIS MOLD MEDIC II ELECTRODES

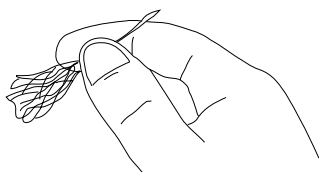
Item No.	Description	Size
W1009	Pointed, .078" diameter	2" long
W1010	Round, .078" diameter	2" long
W1011	Round, .118" diameter	2" long
W1013	Round, .196" diameter	2" long
W1014	Flat	.06" x .196" x 2"

### MAGNETIC ELECTRODES

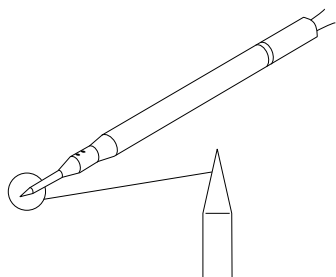
W1015	Round, .078" diameter	2" long
W1016	Round, .118" diameter	2" long
W1017	Round, .157" diameter	2" long
W1018	Round, .196" diameter	2" long

## Mold & Die Welding Equipment & Supplies

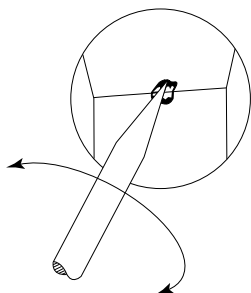
### Using Yarn



1. Yarn is effective for precision welds. Yarn is a patented product and looks similar to steel wool. Yarn is effectively used for small welds in corners that need repairing, V-grooves, pin holes, etc.

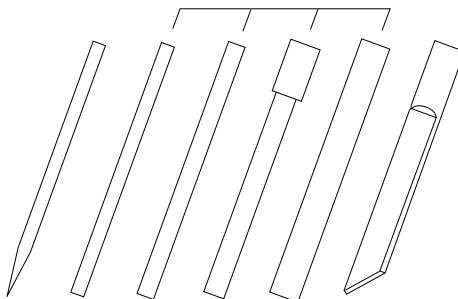


2. Choose an electrode. Shape the electrode tip to the weld point.



3. Weld the yarn to the base material. Set the weld mode to PRECISION.
- For weld current, see the "Setting Current" table in instruction manual.

### Electrodes



Item No.	Product Name	Length	Material
W1009	Pointed .078"	2"	Silver Tungsten
W1010	Round .078"	2"	Silver Tungsten
W1011	Round .118"	2"	Silver Tungsten
W1012	Round .157"	2"	Silver Tungsten
W1013	Round .196"	2"	Silver Tungsten
W1014	Flat .06 x .196 x 2"		Silver Tungsten

### Electrode Holders (Hand Piece)

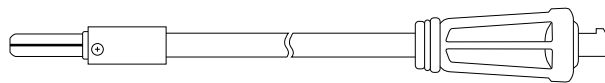


Item No.	Product Name	Specifications
W1001	For .078" electrodes	For PRECISION mode

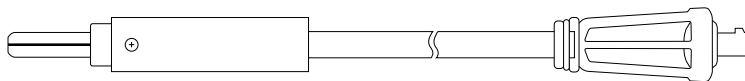


Item No.	Product Name	Specifications
W1002	For .118", .157", .196"	For STANDARD mode

### Output Cable

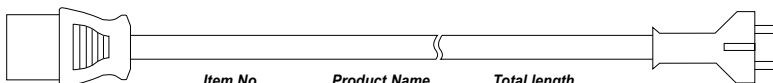


Item No.	Product Name	Specifications	Total Length
W1003	Precision electrode holder cable	For .078" & .118" electrode holder	51"



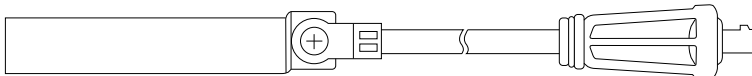
Item No.	Product Name	Specifications	Total Length
W1004	Standard electrode holder cable	For .196" electrode holder	51"

### Power Supply Cable



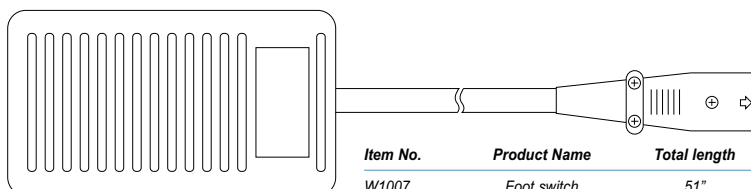
Item No.	Product Name	Total length
W1005	Power supply cord	98"

### Grounding Cable







Item No.	Product Name	Total length
W1006	Grounding cable (with grounding plate)	40"

### Foot Switch



Item No.	Product Name	Total length
W1007	Foot switch	51"
W3003	Foot switch	

	<b>W3001</b>	Welding torch
	<b>W3002</b>	Electrode cable (78" long)
	<b>W3003</b>	Foot switch
	<b>W3006-1</b>	Tungsten electrode 1/16" x 6" (10 piece set)
	<b>W3008</b>	Helmet Shield – Welding helmet with adjustable and automatic variable darkness shield, 9-12 shades. Comfortable to wear and easy to use.
	<b>W3009</b>	2 Axis Torch Stand – Use for support of welding torch to make small precise adjustments in movement. Comes with magnetic base and connecting rod.
	<b>W3010</b>	Gas Regulator with Flow Meter
	<b>W3012</b>	Microscope with Magnetic Base Auto-Lens Shield – 10X microscope with adjustable stand with a magnetic base. Comes complete with automatic and variable darkening lens shield, 9-12 shades.
	<b>W3013</b>	Replacement ceramic tip for TIG torch
	<b>W3014</b>	Collet for TIG electrode - 1/16" I.D.



# Leaders in Superabrasive Finishing Systems



## Engis (UK) Ltd.

Henley-on-Thames  
Oxfordshire, RG9 1DS ENGLAND  
Tel: 44-1491-411117  
Fax: 44-1491-412252  
Email: sales@engis.uk.com



## Engis Corporation

Wheeling, IL U.S.A.  
Tel: (847) 808-9400  
Fax: (847) 808-9430  
Email: info@engis.com



## Engis Japan K.K.

Yokohama, JAPAN  
Tel: 81-45-474-0666  
Fax: 81-45-474-0677  
Email: email@engis.co.jp



## Engis Asia Pacific Pte. Ltd.

SINGAPORE  
Tel: 65-6745-1923  
Fax: 65-6745-2907  
Email: sales@engis.com.sg



## Engis (Hong Kong) Ltd.

Kwai Chung, HONG KONG  
Tel: 852-26100903  
Fax: 852-24234509  
Email: sales@engis.com.hk



## Engis of Canada Ltd.

Burlington, Ontario, CANADA  
Tel: (905) 632-3016  
Fax: (905) 632-4250  
Email: engiscanada@engis.com



## Helical Lap & Mfg. Company

Fraser, MI U.S.A.  
Tel: (586) 293-6900  
Fax: (586) 293-6903  
Email: info@helicallap.com



## Engis Korea Co., Ltd.

Gyeong Gi-Do, KOREA  
Tel: 82-31-354-1426  
Fax: 82-31-354-1430  
Email: mkkim@engis.co.kr



## Engis (H.K.) Ltd., Beijing R.O.

Beijing, CHINA  
Tel: 86-10-64848398  
Fax: 86-10-64848396  
Email: lianjie@engis.com.hk

### Hyprez® Lapping/Polishing Systems

Beginning-to-end flat finishing systems – machines, plates, pads, diamond powders, slurries, lubricants and other accessories – plus customized equipment, specialized formulas, testing labs and technical support for process and technology development.

### Hyprez® DiaMold® Toolroom Products

Comprehensive line of diamond polishing compounds, abrasive stones, sticks, bobs, brushes and files – plus powered hand finishing systems for every toolroom application.

### Engis Single-Pass Bore Finishing Systems

Single-pass bore finishing systems-standard models and custom machines-plus diamond and CBN plated finishing tools, parts holders/fixtures and integrated automation systems.

### Electrogrip® Grinding Systems

Advanced superabrasive grinding, cutting and dressing systems utilizing diamond and CBN materials. Specializing in the aerospace, medical, ceramic, automotive, and composite industries.



® Leaders in Superabrasive Finishing Systems  
**ENGIS CORPORATION**