

CATALOG

## INDEX

DIAMOND AND CBN ELECTROPLATED EC TOOLS - page 1- DIAMOND ELECTROPLATED EC FILES- page 2

- DIAMOND ELECTROPLATED EC DISCS- DIAMOND AND CBN ELECTROPLATED EC WHEEL- page 9
- DIAMOND AND CBN ELECTROPLATED EC FOR INTERNAL GRINDING- page 10
- DIAMOND AND CBN ELECTROPLATED EC 12 C 9 TYPE
- DIAMOND ELECTROPLATED EC DIPROFIL FILES ..... - page 14- page 11
- DIAMOND ELECTROPLATED EC CONICAL WHEELS ..... - page 15
- DIAMOND ELECTROPLATED EC SPHERICAL WHEELS ..... - page 16
- DIAMOND ELECTROPLATED EC VARIOUS FORMS WHEELS ..... - page 17
- DIAMOND ELECTROPLATED EC WHEELS FOR FIBERGLASS ..... - page 19
DIAMOND PASTE ..... - page 20
- DIAMOND PASTE PLUS-LITD ..... - page 21
POLYCRYSTALLINE AND NATURAL DIAMOND TOOLS ..... - page 22
- NOT REVERSIBLE SINGLE POINT DRESSER ..... - page 23
- REVERSIBLE SINGLE POINT DRESSER ..... - page 24
- CHISEL SHAPED DIAMOND TOOLS ..... - page 25
- DIAMONDS CLUSTER TOOLS ..... - page 26
- MULTIPLE DRESSING DIAMOND WHEEL ..... - page 27
- CIRCULAR MULTI-DIAMONDS DRESSING TOOLS ..... - page 28
- DIAMOND PLATES- page 29
- GRINDING HAND TOOLS DIAMAX 3 ..... page 31
- AGGLOMERATED GRAINS DRESSING TOOLS ..... - page 33
ROTATING FRAMING ROLLS ..... - page 34
DIAMOND AND CBN WHEEL RESIN OR METAL BOND ..... - page 35
MECHANICAL HARD METAL WORKING ..... - page 39


# DIAMOND AND CBN ELECTROPLATED EC TOOLS 

## Technical specifications and recommendations for use

With a particular procedure, called EC, the LITD $^{\circledR}$ produces a wide range of grinding wheels and abrasive tools, able to meet the demands of many sectors of industry. The EC allows great speed of removal, constant profile and low cost.

## Granulometry

The particle sizes used in the construction of the diamond grinding wheels and CBN are classified according to the FEPA standards which are described below in comparison with other standards.

Comparative table of grain size and fields of use

| USE | FEPA | DIN | MESH |
| :---: | :---: | :---: | :---: |
| FINISH | D64 | D 50 | $230 / 270$ |
| MEDIA FINISHING | D107 | D 100 | $140 / 170$ |
| ROUGHING | D151 | D 150 | $100 / 120$ |
|  | D181 | $80 / 100$ |  |
| SPECIAL USES | D302 |  | $56 / 60$ |
|  | D502 | - | $35 / 45$ |
|  | D1181 |  | $16 / 20$ |

Concentration
It is always the maximum, being the abrasive grains arranged with continuity on a single layer.

## Coolants

In grinding operations with diamond or CBN wheels, it is advisable to use a liquid coolant. In this way you avoid the possible phenomena of clogging or the degradation of the abrasive band.

## Installation of the grinding wheel

The mounting operation of the grinding wheel on the spindle is of the utmost importance to the effects of the quality of finish and performance. You need to check, with the aid of a comparator, that the flatness and concentricity errors on the axis of rotation are not more than 0.02 mm .

## Dressing

In case of loss of sharpness, it is necessary to revive it with an abrasive stick.

## Cutting speed

The cutting speed is the relative speed of sliding between the diamond band and the workpiece surface to be machined. Generally this velocity is given by the single peripheral speed of the diamond wheel as the workpiece has a negligible movement with respect to the grindstone. The peripheral speed is expressed in meters per second ( $\mathrm{m} / \mathrm{sec}$ ).

## DIAMOND ELECTROPLATED EC FILES

## 160 Series



| RE160 | Rectangular $6 \times 1.6$ |
| :---: | :---: |
| ST160 | Semiround $6 \times 2$ |
| TR160 | Triangular L $=4.5$ |
| Q160 | Squared $3 \times 3$ |
| RO160 | Rounded $\varnothing 3.5$ |
| CO160 | Knife $6.2 \times 2$ |
| OL160 | Oliva $5.6 \times 2.5$ |

ITEM IN STOCK
Available in stock grit D64 (Fine), D107 (Medium) and D151 (Big) Grain and / or dimensions available on request (minimum production)

All files ending in a tip, excluding rectangular.
The sheath color indicates the grain: BLUE = Fine, GREEN = Medium, RED = Big.
In case of order complete the code with F, M or G, corresponding to grain required. es: rounded diamond file, length 160 mm in coarse-grained: RO160G.

## SERIES

These products may also be sold in series:

| SERIE5160 | 5 PZ (RE, ST, TR, Q, RO) |
| :---: | :---: |
| SERIE6160 | 6 PZ (RE, ST, TR, Q, RO, CO) |
| SERIE7160 | PZ 7 (RE, ST, TR, Q, RO, CO, OL) |

In case of order, complete the code with $\mathrm{F}, \mathrm{M}$ or G , corresponding to grain required. eg: diamond files $160 \mathrm{~mm}, 5$ pcs set big-grained: SERIE5160G.

## DIAMOND ELECTROPLATED EC FILES

140 Series


| RE140 | Rectangular $5.5 \times 1.5$ |
| :---: | :---: |
| ST140 | Semiround $5 \times 2$ |
| TR140 | Triangular L $=4$ |
| Q140 | Squared $3 \times 3$ |
| RO140 | Rounded $\varnothing 3.5$ |
| CO140 | Knife $5.2 \times 2$ |

ITEM IN STOCK
Available in stock grit D64 (Fine), D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)
All files ending in a tip, not including rectangular.
The sheath color indicates the grain: BLUE = Fine, GREEN $=$ Medium, RED $=$ Big.
In case of order, complete the code with $\mathrm{F}, \mathrm{M}$ or G , corresponding to grain required. es: rounded diamond file, length 140 mm in fine-grained: RO140F.

## SERIES

These products are also sold in series:

| SERIE5140 | 5 PZ (RE, ST, TR, Q, RO) |
| :---: | :---: |
| SERIE6140 | 6 PZ (RE, ST, TR, Q, RO, CO) |

In case of order, complete the code with $\mathrm{F}, \mathrm{M}$ or G , corresponding to grain required. eg: diamond files $140 \mathrm{~mm}, 5 \mathrm{pcs}$ set medium-grained: SERIE5140M.

## DIAMOND ELECTROPLATED EC FILES

## 210 Series



| RE210 | Rectangular $10 \times 3$ |
| :---: | :---: |
| TR210 | Triangular $\mathrm{L}=9$ |
| Q210 | Squareed $6 \times 6$ |
| RO210 | Rounded $\varnothing 6$ |
| ST210 | Half-rounded $12 \times 3.5$ |

ITEM IN STOCK
Available in stock grit D151 (Big)
Grain and / or dimensions available on request (minimum production)
All files ending in a tip, not including rectangular. The handle has a rectangular section.
These products are also available in series of 5 pcs (1 for each code) with reference: SERIE5210G In case the order indicate the code in the first column. eg: half-rounded diamond file, length 210 mm in coarse-grained: ST210.

## DIAMOND ELECTROPLATED EC FILES

5 " Series

| SERIE 5" | SEZIONE | $\square$ | - |  | , | $\square$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PRODOTTE IN D151 $=\mathrm{G}$ | DIMENSIONE | $12.7 \times 2.7$ | $7 \times 7 \times 7$ | $4.5 \times 4.5$ | $\varnothing 4.5$ | $12 \times 3.5$ |
|  | CODICE | RE 5 | TR 5 | Q 5 | RO 5 | ST 5 |
|  |  |  |  |  |  |  |


| RE5 | Rectangular $12.7 \times 2.7$ |
| :---: | :---: |
| TR5 | Triangular $L=7$ |
| Q5 | Squareed $4.5 \times 4.5$ |
| RO5 | Rounded $\varnothing 4.5$ |
| ST5 | Half-rounded $12 \times 3.5$ |

ITEM IN STOCK
Available in stock grit D151 (Big)
Grain and / or dimensions available on request (minimum production)

All files ending in a tip, not including rectangular.
These products are also available in series of 5 pcs (1 for each code) with reference: SERIE5G.

In case the order indicate the code in the first column.
eg: triangular section diamond file, length 5 "in coarse-grained: TR5.

## DIAMOND ELECTROPLATED EC FILES

## Escapement and Dies Series

| TIPO SCAPPAMENTO SEZIONE | - | $\wedge$ |  | $\square$ | $\square$ |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | STR | SQ | SRO | SST |
|  |  |  |  |  |  |


| SRE | Rectangular $4 \times 1$ |
| :---: | :---: |
| STR | Triangular $L=3.5$ |
| SQ | Squared $2 \times 2$ |
| SRO | Rounded $\varnothing 1.5$ |
| SST | Half-rounded $1.5 \times 4$ |

ITEM IN STOCK
Available in stock grit D107 (Medium)
Grain and / or dimensions available on request (minimum production)
All files ending in a point, excluding rectangular files. The handle has a rectangular section.
These products are also available in series of 5 pcs (1 for each code) with reference: SERIE5SCM In case the order indicate the code in the first column.
eg: escapement series diamond file, round section $\varnothing 1,5$ average-grain: SRO.

Trafile files


| TRAF140M | Rounded $\varnothing 3$ |
| :--- | :--- |

ITEM IN STOCK
Available in stock grit D107 (Medium)
Grain and / or dimensions available on request (minimum quantities required)
In case the order indicate the code in the first column.
eg: dies series file, length 140 mm in average grain: TRAF140M.

DIAMOND ELECTROPLATED EC FILES
Rifloirs Series


| LR1M | Form $1-$ Rectangular |
| :---: | :---: |
| LR2M | Form 2 - Oliva |
| LR3M | Form 3 - Triangular |
| LR4M | Form 4 - Squared |
| LR5M | Form 5 - Rounded |
| LR6M | Form $6-$ Half-rounded |
| LR7M | Form 7 - curved |

ITEM IN STOCK
Available in grit D107 (Medium)
Grain and / or dimensions available on request (minimum production)
These products are also available in series of 7 pcs ( 1 for each code) with reference: SERIE7LRM.
In case the order indicate the code in the first column.
es: Rifloirs files (form 6) medium grit: LR6M.

IL DIAMANTE NELLINDUSTRIA

## DIAMOND ELECTROPLATED EC MACHINE WORK FILE AND WIRE

Machine Work Files
LIME A MACCHINA
LIME A MACHINE
MACHINE WORK FILES

| SEZIONE |  |  |  | 0 |
| :---: | :---: | :---: | :---: | :---: |
| DIMENSIONE | $9 \times 3.2$ | $8 \times 8$ | $8 \times 8 \times 8$ | $\varnothing 63$ |
| CODICE | REM | QM | TRM | ROM |

PRODOTTE IN D107 = M
D151 $=G$


| REM | Rectangular $9 \times 3.2$ |
| :---: | :---: |
| QM | Square $8 \times 8$ |
| TRM | Triangular $L=8$ |
| ROM | Round $\varnothing 6.3$ |

ITEM IN STOCK
Available in grit D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)
In case of order, complete the code with M or G , corresponding to grain required. es: rectangular diamond machine work file in average grain: REMM

Diamond wires

| FILO DIAMANTATO - FIL DIAMANTE - DIAMOND WIRE |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | $\stackrel{100}{ } \longleftrightarrow$ |  |  |  |  |  |  |  |
| $\varnothing$ | 0,6 | 0,8 | 1 | 1,25 | 1,5 | 2 | 2,5 | 3 | 3,5 |
| CODICE | Fi 60 | Fi 80 | Fi 100 | Fi125 | Fi 150 | Fi 200 | Fi 250 | Fi 300 | Fi 350 |
| PRODOTTI IN D64 = F |  |  | PRODOTTI IN D64 = - D107 = M - D151 = G |  |  |  |  |  |  |

ITEM IN STOCK
Available in grit D64 (Fine), D107 (Medium) and D151 (Big) Grain and / or dimensions available on request (minimum production)

In case of order, complete the code with $\mathrm{F}, \mathrm{M}$ or G , corresponding to grain required. eg: diamond wire $\varnothing 1.00$ in coarse-grained: F100G

## DIAMOND AND CBN ELECTROPLATED EC DISCS TYPE 1A1R CONTINUOUS OR WASTE

## 1A1R Type DIAMOND or CBN



| D050 | $\varnothing 50$ | Standard hole $\varnothing 20$ <br> Other available on demand | L = 2 |
| :---: | :---: | :---: | :---: |
| D075 | $\varnothing 75$ |  | L = 2 |
| D100 | $\varnothing 100$ |  | L = 3 |
| D150 | $\varnothing 150$ |  | L = 3 |
| D200 | $\varnothing 200$ |  | L = 3 |

The discs can be produced in grits:

- 100: 100/120 mesh (D30, D46, D64, D107, D151)
- 60: 60/80 mesh (D181, D213, D252)
- 40: 40/60 mesh (D302, D427, D502)

Available also in CBN (B64, B107, B151, B181)
Dimension H (drawing) is a function of grain employed. The thickness of the steel body varies from 0.8 to 1.5 mm depending on the diameter of the disc.

In the case of band with discharges it is necessary to attach to the order a dimensioned drawing.
Other dimensions available on request.
In case of order, complete the code with -40, -60 or -100 , corresponding to grain required. Please also indicate the diameter of the hole if different from $\varnothing 20$.
eg: diamond disc type 1A1R to continuous band $150 \varnothing$ hole 20 in fine-grained: D150-40 F = 20 .

## DIAMOND AND CBN ELECTROPLATED EC WHEEL

RF Type

## DIAMOND and CBN


-

| RF018 | $\varnothing 18$ | $\mathrm{~F}=6$ |
| :---: | :---: | :---: |
| RF020 | $\varnothing 20$ | $\mathrm{~F}=6$ |
| RF025 | $\varnothing 25$ | $\mathrm{~F}=6$ |
| RF030 | $\varnothing 30$ | $\mathrm{~F}=6$ |
| RF040 | $\varnothing 40$ | $\mathrm{~F}=6$ |
| RF050 | $\varnothing 50$ | $\mathrm{~F}=6$ |

ITEM IN STOCK
Diamond: Available grit D107 (Medium) and D151 (Big)
CBN (Borazon): Available grit B107 (Medium) and B151 (Large)
Grain and / or dimensions available on request (minimum production)
Hole Standard diameter: 6. Production capability with optional hole.
In case of order of DIAMOND grinding wheels complete the code with MD or GD. In case of order of CBN grinding wheels complete the code with BM or BG.
eg: RF type $\varnothing 25$ with hole $\varnothing 6$ medium grit diamond: RF025MD.

## DIAMOND AND CBN ELECTROPLATED EC FOR INTERNAL GRINDING

Type R 340 (stem Ø 3)

## DIAMOND and CBN



| R3005 | $\varnothing 0.50$ | $\mathrm{H}=4$ |
| :---: | :---: | :---: |
| R3006 | $\varnothing 0.60$ | $\mathrm{H}=4$ |
| R3007 | $\varnothing 0.70$ | $\mathrm{H}=4$ |
| R3008 | $\varnothing 0.80$ | $\mathrm{H}=4$ |
| R3009 | $\varnothing 0.90$ | $\mathrm{H}=4$ |

ITEM IN STOCK
Diamond: Available grit D64 (Fine)

| R3100 | $\varnothing 1.00$ | $\mathrm{H}=4$ |
| :---: | :---: | :---: |
| R3150 | $\varnothing 1.50$ | $\mathrm{H}=4$ |
| R3200 | $\varnothing 2.00$ | $\mathrm{H}=5$ |
| R3250 | $\varnothing 2.50$ | $\mathrm{H}=6$ |
| R3300 | $\varnothing 3.00$ | $\mathrm{H}=6$ |
| R3350 | $\varnothing 3.50$ | $\mathrm{H}=6$ |
| R3400 | $\varnothing 4.00$ | $\mathrm{H}=6$ |
| R3450 | $\varnothing 4.50$ | $\mathrm{H}=6$ |
| R3500 | $\varnothing 5.00$ | $\mathrm{H}=6$ |
| R3600 | $\varnothing 6.00$ | $\mathrm{H}=7$ |

ITEM IN STOCK
Diamond: Available in grit D107 (Medium) and D151 (Big)
CBN (Borazon): Available grit B107 (Medium) and B151 (Big)
Grain and / or dimensions available on request (minimum production)
In case of order of DIAMOND grinding wheels complete the code with MD or GD.
In case of order of CBN grinding wheels complete the code with BM or BG.
es: EC grinding wheel stem $\varnothing 3$ for internal grinding $\varnothing 2,50$ medium grit diamond: R3250MD.

## DIAMOND AND CBN ELECTROPLATED EC FOR INTERNAL GRINDING

 Type R 670 (stem Ø 6)
## DIAMOND and CBN



| R 6060 | $\varnothing 6$ | $\mathrm{H}=7$ |
| :---: | :---: | :---: |
| R 6070 | $\varnothing 7$ | $\mathrm{H}=8$ |
| R 6080 | $\varnothing 8$ | $\mathrm{H}=9$ |
| R 6090 | $\varnothing 9$ | $\mathrm{H}=10$ |
| R 6100 | $\varnothing 10$ | $\mathrm{H}=10$ |
| R6120 | $\varnothing 12$ | $\mathrm{H}=10$ |
| R6140 | $\varnothing 14$ | $\mathrm{H}=10$ |
| R 6150 | $\varnothing 15$ | $\mathrm{H}=10$ |
| R6160 | $\varnothing 16$ | $\mathrm{H}=10$ |

ITEM IN STOCK
Diamond: Available grit D64 (Fine), D107 (Medium) and D151 (Big)
CBN (Borazon): Available grit B107 (Medium) and B151 (Large)
Grain and / or dimensions available on request (minimum production)

In case of order of DIAMOND, complete the code with FD, MD or GD.
In case of order of CBN, complete the code with BM or BG, corresponding to grain required. eg: EC grinding wheel stem $\varnothing 6$ for internal grinding $\varnothing 16$ in average diamond grain: R6160MD.

## DIAMOND AND CBN ELECTROPLATED EC 12C9 TYPE

12C9 type

## DIAMOND and CBN



| $12 C 9100$ | DIAMOND range $\varnothing 100+10+4$ corner radius $(R=1$ to 0.5$)$ |
| :---: | :---: |
|  | DIAMOND range $\varnothing 100+10+4$ SHARPED EDGE |
|  | CBN range $\varnothing 100+10+4$ corner radius $(R=1$ to 0.5$)$ |

## ITEM IN STOCK

Diamond: Available grit D64 (Fine), D107 (Medium) and D151 (Big)
Diamond sharped edge: Available in grit D107 (Medium) and D151 (Big)
CBN (Borazon): Available grit B107 (Medium) and B151 (Large)
Grain and / or dimensions available on request (minimum production)
The wheel body is made of steel.
In case of order of DIAMOND complete the code with FD, MD or GD.
In case of order of DIAMOND SHARPED EDGE, complete the code with MDSV or GDSV. In case of order of CBN grinding wheels complete the code with BM or BG.
eg: standard grinding wheel type 12C9 Ø100 fine-grained diamond: 12C9100FD.

## DIAMOND ELECTROPLATED EC DIPROFIL FILES

Diamond files for Diprofil equipment ( $\varnothing$ stem 3)


## $\square \square \square O$ ○ $\Delta \Delta \Delta \nabla$

| DRE2 | Rectangular $2 \times 1$ |
| :---: | :---: |
| DRE3 | Rectangular $3 \times 1$ |
| DRE4 | Rectangular $4 \times 1$ |
| DRE5 | Rectangular $5 \times 2$ |
| DRO1 | Rounded $\varnothing 1$ |
| DRO2 | Rounded $\varnothing 2$ |
| DRO3 | Rounded $\varnothing 3$ |
| DRO4 | Rounded $\varnothing 4$ |
| DRO5 | Rounded $\varnothing 5$ |
| DRO6 | Rounded $\varnothing 6$ |

ITEM IN STOCK
Available in grit D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)
In case of order, complete the code with M or G , corresponding to grain required. eg: diamond file for round Diprofil equipment $\varnothing 4$ in average grain: DRO4M.

DIAMOND ELECTROPLATED EC CONICAL WHEELS
MC Types ( $15^{\circ}, 30^{\circ}, 60^{\circ}$ and $90^{\circ}$ Total degree)
MC15 ${ }^{\circ}$
Mola Conical $15^{\circ}$ Total
MC30 ${ }^{\circ}$
Mola Conical $30^{\circ}$ Total
MC60 ${ }^{\circ}$
Mola Conical $60^{\circ}$ Total
MC90 ${ }^{\circ}$
Mola Conical $90^{\circ}$ Total


| MC153 | Conical $15^{\circ}$ total $\varnothing 3 \times 13$ |
| :--- | :--- |
| MC303 | Conical $30^{\circ}$ total $\varnothing 3 \times 5,6$ |
| MC304 | Conical $30^{\circ}$ total $\varnothing 4 \times 7.5$ |
| MC305 | Conical $30^{\circ}$ total $\varnothing 5 \times 9.5$ |
| MC306 | Conical $30^{\circ}$ total $\varnothing 6 \times 11.5$ |
| MC603 | Conical $60^{\circ}$ total $\varnothing 3 \times 2.6$ |
| MC604 | Conical $60^{\circ}$ total $\varnothing 4 \times 3.5$ |
| MC605 | Conical $60^{\circ}$ total $\varnothing 5 \times 4.5$ |
| MC606 | Conical $60^{\circ}$ Total $\varnothing 6 \times 5.5$ |
| MC608 | Conical $60^{\circ}$ Total $\varnothing 8 \times 7$ |
| MC903 | Conical $90^{\circ}$ Total $\varnothing 3 \times 1.5$ |
| MC904 | Conical $90^{\circ}$ total $\varnothing 4 \times 2$ |
| MC905 | Conical $90^{\circ}$ total $\varnothing 5 \times 2.5$ |
| MC906 | Conical $90^{\circ}$ total $\varnothing 6 \times 3$ |
| MC908 | Conical $90^{\circ}$ total $\varnothing 8 \times 4$ |

ITEM IN STOCK
Available in grit D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)
In case of order, complete the code with M or G , corresponding to grain required. es: conical diamond wheel $90^{\circ}$ total $\varnothing 4$ in average grain: DRO4M.

## DIAMOND ELECTROPLATED EC SPHERICAL WHEELS

Type: MS in Diamond

## MS <br> Mola Spherical



| MS2 | Spherical Ø 2 |
| :---: | :---: |
| MS3 | Spherical Ø 3 |
| MS4 | Spherical Ø 4 |
| MS5 | Spherical Ø 5 |
| MS6 | Spherical Ø 6 |
| MS7 | Spherical Ø 7 |
| MS8 | Spherical Ø 8 |
| MS9 | Spherical Ø 9 |
| MS10 | Spherical Ø 10 |
| MS12 | Spherical Ø 12 |

ITEM IN STOCK
Available in grit D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)

In case of order, complete the code with M or G , corresponding to grain required. es: spherical grindstone $5 \varnothing \varnothing$ shank 3 in average grain: MS5M.

## DIAMOND ELECTROPLATED EC VARIOUS FORMS WHEELS

Types: MD, MOL, MF, MFR, MR Diamond
MD
Mola Disc
MOL
Mola in Oliva
MF
Mola Flame
MFR
Mola Flame Rounded

cylindrical grinding wheel for
grinding

| MD5 | Disc $\varnothing 5 \times 1$ |
| :---: | :---: |
| MD6 | Disc $\varnothing 6 \times 1.5$ |
| MD8 | Disc $\varnothing 8 \times 2$ |
| MD10 | Disc $\varnothing 10 \times 2.5$ |
| MOL8 | Oliva $8 \times 3$ |
| MF3 | Flame $\varnothing 3 \times 15$ |
| MFR5 | Rounded Flame $\varnothing 5 \times 12$ |
| MR6 | Cylindrical $\varnothing 6 \times 12$ |

ITEM IN STOCK
Available in grit D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)
In case of order, complete the code with M or G , corresponding to grain required. eg: disc form grinding wheel $\varnothing 6 \times 1.5$ shank $\varnothing 3$ in average grain: MD6M.

## DIAMOND ELECTROPLATED EC VARIOUS FORMS WHEELS

MTR, MP, MPR, MTC, MTCR Types


| MTR2 | Rounded Head $2 \times 4$ |
| :---: | :---: |
| MTR3 | Rounded Head $3 \times 6$ |
| MTR4 | Rounded Head $4 \times 8$ |
| MP6 | Pear $6 \times 12$ |
| MPR6 | Upturned Pear $6 \times 12$ |
| MTC2 | Truncated Cone $2 \times 6$ |
| MTC3 | Truncated Cone $3 \times 6$ |
| MTCR3 | Upturned Truncated Cone $3 \times 5$ |
| MTCR4 | Upturned Truncated Cone $4 \times 5$ |
| MTCR5 | Upturned Truncated Cone $5 \times 5$ |
| MTCR6 | Upturned Truncated Cone $6 \times 5$ |

ITEM IN STOCK
Available in grit D107 (Medium) and D151 (Big)
Grain and / or dimensions available on request (minimum production)
In case of order, complete the code with M or G , corresponding to grain required. es: rounded head grinding wheel $4 \times 8$ shank $\varnothing 3$ in average grain: MTR3M.

## DIAMOND ELECTROPLATED EC WHEELS FOR FIBERGLASS

VTR Type


| VTR1 | Form 1 - Cylindrical rounded | $\varnothing 4$ | $\mathrm{H}=20$ |
| :---: | :---: | :---: | :---: |
| VTR2 | Form 2 - Cylindrical rounded | $\varnothing 6$ | $\mathrm{H}=16$ |
| VTR3 | Form 3 - Cylindrical rounded | $\varnothing 7$ | $\mathrm{H}=30$ |
| VTR4 | Form 4 - Cylindrical rounded | $\varnothing 9$ | $\mathrm{H}=38$ |
| VTR5 | Form 5 - Conical 12th rounded | $\varnothing 6$ | $\mathrm{H}=15$ |
| VTR6 | Form 6 - Conic 12 ${ }^{\circ}$ rounded | $\varnothing 7$ | $\mathrm{H}=12$ |
| VTR7 | Form 7 - Conic 12 ${ }^{\circ}$ rounded | $\varnothing 9$ | $\mathrm{H}=35$ |
| VTR8 | Form 8 - Cylindrical | $\varnothing 16$ | $\mathrm{H}=25$ |
| VTR9 | Form 9 - Spherical | $\varnothing 12$ | - |
| VTR10 | Form 10 - Cylindrical | $\varnothing 20$ | $\mathrm{H}=8$ |

ITEM IN STOCK
Available in grit D502
Grain and / or dimensions available on request (minimum production)
Mole shank for processing plastic materials, reinforced plastics and fiberglass grit D502.
The total length of the grinding wheels is 60 mm , the diameter of the stem is $\varnothing 6 \mathrm{~mm}$.
In case the order is sufficient to indicate the code in the first column.
eg: grinding wheel form VTR 6 ( $12^{\circ}$ conical rounded) diamond part $\varnothing 9 \mathrm{H}=12$ grit D502: VTR6.

## DIAMOND PASTE

## PLUS LITD ${ }^{\circledR}$

The L.I.T.D. ${ }^{\circledR}$ diamond paste, recognized by our customers as PLUS, is a high quality product. The constant increase in labor costs has made the use diamond abrasive economically advantageous for all those roughing, lapping and polishing operations where other systems were used. Today the industry requires consistent, high quality products, with low times of shrinking processes. The diamond despite being a product of natural origin, turns out to be the most suitable technological answer for long durations and uniformity of the treated surface.

## Technical features

Our diamond paste exploits the exclusive dispersion technology of diamond powders, which allows an exact dosage of the diamond necessary to the mechanical processing of superfinishing. It is a high quality product with a unique composition on the market. The formulation has been specially designed by our engineering department in collaboration with experts in the cosmetics industry. The PLUS pastes are not volatile, they have a good thermal capacity, they are not chemically aggressive and table to high temperatures. Made with pure products, harmless to the skin and eyes, the PLUS does not develop bacteria or molds capable of damaging over time its structure and its use.

## Thinners and coolants

To improve the quality of machining of steels and metals, in general, you should use refrigerants. The L.I.T.D. ${ }^{\oplus}$ diamond paste should only be diluted with vegetable oils or water, and not with chemical diluents or other additives.

## Use

The procedure for a more correct use provides the succession of the following operations:

- Thoroughly clean the work area and the workpiece.
- Wash with alcohol in the particular processing being careful to remove any residue of diamond paste employed previously.
- Replace the tool support of the pasta in the various steps to avoid contamination.


## Grits

The paste PLUS is composed of diamond powder with different dimensions, depending on the grain, expressed in microns: 1 micron $=1 / 1000$ of a millimeter (or 0.001 mm ).
The particle size can be identified by different colors, according to the table.

## Formats

The diamond paste PLUS-LITD is available in standard 5 gram syringe format.
Also available in different formats.

## DIAMOND PASTE PLUS-LITD

PLUS - LITD ${ }^{\circledR}$


| PLUS1/4 | 1/4 Micron | GREY | LAPPING |
| :---: | :---: | :---: | :---: |
| PLUS1 | 1 Micron | BLUE |  |
| PLUS3 | 3 Micron | GREEN | POLISHING |
| PLUS6 | 6 Micron | YELLOW |  |
| PLUS8 | 8 Micron | PINK | PRE-POLISHING |
| PLUS14 | 14 Micron | BEIGE |  |
| PLUS25 | 25 Micron | MAHOGANY |  |
| PLUS45 | 45 Micron | VIOLET | ROUGHING |
| PLUS60 | 60 Micron | ORANGE |  |
| PLUS90 | 90 Micron | WHITE |  |

ITEM IN STOCK
Available in 5 g syringes
Grain and / or dimensions available on request (minimum production)
In case the order of 5 g syringes is sufficient to indicate the code in the first column. In case of order of syringes sizes different from 5 g , complete the code with .10 g or .20 g . eg: 14 micron diamond paste PLUS-LITD from 5 grams syringe: PLUS14.

## POLYCRYSTALLINE AND NATURAL DIAMOND TOOLS

## Technical features

Chioose of diamond quality is subordinate to the type of gringing wheel (diameter, band and grain), on the operation performed and the diamond cost per workpiece.

| SIGLA QUALITÀ |  |  | US | WA | SAN | SAS | SAX | BN |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { RETTIFICA } \\ & \text { PIANA } \end{aligned}$ | ESTERNA | SGROS. | $\bigoplus$ | $\bigoplus$ | $\bigoplus$ |  |  |  |
|  |  | FINIT. |  |  |  | $\nabla$ | $\nabla$ | $\bigoplus$ |
|  |  | INTERNA MOLE MAX Ø 80 |  |  |  | $\bigoplus$ | $\bigoplus$ | $\bigoplus$ |
| SENZA CENTRI |  | MOLA RETT. |  |  | $\bigoplus$ | $\nabla$ | $\nabla$ | $\circledast$ |
|  |  | RULLO TRASCIN. |  | $\bigoplus$ |  |  |  |  |
| SAGOMATURA SEMPLICE |  |  |  |  |  |  | $\bigoplus$ | $\bigoplus$ |
| LAPIDELLI TANGENZIALI |  |  |  | $\bigoplus$ | $\bigoplus$ | $\bigoplus$ | $\bigoplus$ |  |
| USO MANUALE |  |  | $\square$ |  |  |  |  |  |

## Recommendations for use

For proper use of the tool we recommend the following:

- open the jet of the coolant before the diamond-grinding wheel contact;
- $\quad$ ranging of spark-out depth average: 0.03 mm ;
- maximum depth of pass: 0.05 mm ;
- coarse feed during roughing;
- $\quad$ slow feed during super-finishing on hard grinding wheel.

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POSIZIONAMENTO CORRETTO PER EVITARE VIBRAZION
POSITION CORRECTE POUR EVITER DES VIBRATIONS
CORRECT POSITIONING TO PREVENT VIBRATIONS
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EVITARE IL POSIZIONAMENTO SOPRA L'ASSE EVITER LE POSITIONNEMENT SUR L'AXE EVOID POSITIONNING ON THE AXIS

## NOT REVERSIBLE SINGLE POINT DRESSER

Quality US


| US025 | 0.25 kt . | Wheel diameter to be ground mm Ø100-125 |
| :---: | :---: | :---: |
| US035 | 0.35 kt . |  |
| US050 | 0.50 kt . |  |
| US075 | 0.75 kt . | Wheel diameter to be ground mm $\varnothing 150-250$ |
| US100 | 1.00 kt . |  |
| US125 | 1.25 kt . | Wheel diameter to be ground mm $\varnothing 250-300$ |
| US150 | 1.50 kt . |  |
| US175 | 1.75 kt . | Wheel diameter to be ground mm $\varnothing 400-600$ |
| US200 | 2.00 kt . |  |
| US250 | 2.50 kt . | Wheel diameter to be ground mm Ø600-700 |
| US300 | 3.00 kt . |  |

ITEM IN STOCK
Available on stem Ø 10 and conical CM1 (in carats: from 0.50 to $1.00-1.50$ to 2.00) Carat weights and dimensions available on request (minimum production)

Standard Stems: Stem $\varnothing 10 \mathrm{~mm}$ (ST10) and conical morse stem (CM1). Specials on request.
In case of an order to complete the code with ST10 or CM1, depending on the desired stem. es. single diamond tool US quality $1,00 \mathrm{kt}$. Stem Ø 10 mm : US100ST10.

Quality WA

| Quality WA | not reversible | high quality Diamonds |
| :---: | :---: | :---: |

Dresser of high quality, with only one usable tip. The tool is not reversible.
For dresser WA quality, the type and size of the stem is at the customer's request.
In case of order, the code is composed of the quality followed by carat weight (expressed in cents). Please indicate the desired stem if different from $\varnothing 10$.
es. single stone tool with quality WA $1,00 \mathrm{kt}$ : WA100.

## REVERSIBLE SINGLE POINT DRESSER

Superior quality SAN, SAS, SAX and BN


| SAN Quality | Up to 3 usable tips | superior quality diamonds with <br> different tips usable |
| :---: | :---: | :---: |
| SAS Quality | Up to 4 usable tips |  |
| SAX Quality | Up to 5 usable tips |  |
| BN Quality | Up to 6 usable tips |  |

Dressing pointy single with natural diamond not work superior.
In reversible dresser, the type and size of the stem is on customer's request.
In case of order, the code is composed of the quality followed by carat weight (expressed in cents). Indicate the desired stem if different from $\varnothing 10$.
es. single stone tool with quality SAX $1,00 \mathrm{kt}$. Stem with $\varnothing 12$ : SAX100 with $\varnothing 12$ stem.

## CHISEL SHAPED DIAMOND TOOLS

Type: Diaform (Diamond "chisel")


|  | Degrees | Size range |  |  |
| :---: | :---: | :---: | :---: | :---: |
| DIAF40 | $40^{\circ}$ | 0,125 | 0.25 | 0.50 |
| DIAF60 | $60^{\circ}$ |  |  |  |
| DIAF90 | $90^{\circ}$ |  | 0.5 |  |

ITEM IN STOCK
Special sizes on request (minimum production)
Stones of superior quality with sharp corner and carefully controlled radius.
Available with natural diamond and synthetic.
When ordering complete the code in the first column with the desired radius. es. tool Diaform to natural diamond worked angle $60^{\circ} R=0.25$ : DIAF60-0,25.

Type: Optidress (Diamond "cone")


| OPT | $60^{\circ}$ | $80^{\circ}$ | $90^{\circ}$ |
| :---: | :---: | :---: | :---: |
| OPT |  |  |  |

Special sizes on request (minimum production)
Stones of superior quality with sharp corner and carefully controlled radius.
Available with natural diamond and synthetic (OPT-SINT).
In case of an order to complete the code in the first column with the desired angle.
es. natural diamond tool OPTIDRESS worked angle $60^{\circ}$ : OPT60.

## DIAMONDS CLUSTER TOOLS

Type MTQ, LM, MS and LMS


| MTQ2 | 2.00 kt . | $\mathrm{D}=12$ |  | MTQ Type Squared head |
| :---: | :---: | :---: | :---: | :---: |
| MTQ3 | 3.00 kt. | $\mathrm{D}=14$ | 4 layers |  |
| MTQ5 | 5.00 kt . | $\mathrm{D}=16$ | 5 layers |  |
| LM24 | 2.00 kt . | $\mathrm{D}=13$ | 3 layers | LM Type <br> Diamonds $1^{\text {st }}$ choice |
| LM36 | 2.00 kt . | $\mathrm{D}=14$ |  |  |
| LM50 | 2.00 kt . | $\mathrm{D}=13$ |  |  |
| LM60 | 2.00 kt . | $D=13$ | 4 layers |  |
| LM100 | 3.00 kt . | $\mathrm{D}=15$ |  |  |
| LM150 | 3.00 kt . | $D=15$ | 6 layers |  |
| MS24 | 2.00 kt . | $D=13$ | 3 layers | MS Type Diamonds $2^{\text {nd }}$ choice |
| MS36 | 2.00 kt . | $D=14$ |  |  |
| LMS61 | 1.00 kt . | $D=16$ | 1 layer | LMS Type Cylindrical head 6 diamond grindstone contact |
| LMS62 | 1.50 kt . | $D=16$ |  |  |
| LMS121 | 1.75 kt . | $D=16$ | 2 layers |  |
| LMS122 | 2.50 kt . | $D=16$ |  |  |
| LMS182 | 2.00 kt . | $D=16$ | 3 layers |  |
| LMS183 | 3.00 kt . | $\mathrm{D}=16$ |  |  |

Dressing for external grinding and tangential.
MTQ Type: Tool with manually positioned grain diamonds on more layers.
LM Type: Tool with quality selected diamonds, manually placed on one or more layers.
MS Type: tool with $2^{\text {nd }}$ choice diamonds, manually positioned on one or more layers.
LMS Type: tool with selected diamonds for large size grain or very porous structure.
Performance and returns deviates between them are possible because they are related to technological, technical and human factors that often change during use and tool life.

In case the order is sufficient to indicate the code in the first column.
es. LMS type multiple dressing tool 2.50 kt . $\mathrm{D}=16 \mathrm{H}=8 \mathrm{~d}=10$ : LMS122.

## MULTIPLE DRESSING DIAMOND WHEEL

ROP Type


| ROP66 | 0.50 kt . | $\mathrm{D}=18$ | Diamonds arranged 1 single-layer row | 6 Diamonds |
| :---: | :---: | :---: | :---: | :---: |
| ROP61 | 1.00 kt . | $D=18$ |  | 6 Diamonds |
| ROP62 | 1.50 kt . | $\mathrm{D}=18$ |  | 6 Diamonds |
| ROP81 | 1.00 kt . | $D=18$ |  | 8 Diamonds |
| ROP82 | 2.00 kt . | $\mathrm{D}=18$ |  | 8 Diamonds |
| ROP482 | 2.00 kt . | $D=18$ | Diamonds arranged 4 single-layer rows | 48 Diamonds |
| ROP602 | 2.00 kt . | $D=18$ |  | 60 Diamonds |
| ROP802 | 2.00 kt . | $D=18$ |  | 80 Diamonds |
| ROP1003 | 3.00 kt . | $\mathrm{D}=18$ |  | 100 Diamonds |
| ROP1005 | 5.00 kt . | $\mathrm{D}=21$ |  | 100 Diamonds |
| ROP1006 | 6.00 kt . | $\mathrm{D}=21$ |  | 100 Diamonds |

Diamonds grain positioned on 1 or 4 single-layer rows.
In case the order is sufficient to indicate the code in the first column.
es. ROP type multiple dressing diamond wheel 2.00 kt . $\mathrm{D}=18$ with diamonds on 4 rows: ROP802.

## CIRCULAR MULTI-DIAMONDS DRESSING TOOLS

ROPF Type


| ROPF211 | 1.00 kt. | $\varnothing 21$ |  |
| :---: | :---: | :---: | :---: |
| ROPF212 | 1.50 kt. | $\varnothing 21$ |  |
| ROPF251 | $1.00 \mathrm{kt}$. | $\varnothing 25$ |  |
| ROPF252 | $2.00 \mathrm{kt}$. | $\varnothing 25$ |  |
| ROPF8 | $1.00 \mathrm{kt}$. | $\varnothing 25$ | 8 selected natural diamonds <br> (natural angles) |
| ROPF8 / SF | SINT-8 DIAM | $\varnothing 25$ | Synthetic diamond sharp worked <br> to 70-75 |

Needlelike diamonds manually positioned and accurately aligned on one row.
In case the order is sufficient to indicate the code in the first column.
es. ROPF type circular dressing tool $\mathrm{D}=252.00 \mathrm{kt}$.: ROPF252.

## DIAMOND PLATES

RTL Type: positioned diamonds (P) or agglomerated grains (A)


| RTL10 | $\mathrm{L}=10$ | $\mathrm{H}=10$ |  |
| :--- | :--- | :--- | :--- |
| RTL15 | $\mathrm{L}=10$ | $\mathrm{H}=15$ |  |
| RTL20 | $\mathrm{L}=20$ | $\mathrm{H}=10$ |  |
| RTL25 | $\mathrm{L}=20$ | $\mathrm{H}=15$ |  |

Positioned diamonds: diamonds manually positioned according to pre-established pattern.
Agglomerated granules: natural grains arranged uniformly and randomly over the entire surface.
All types can be provided rigid (braised) or suitable for mechanical fastening (swiveling).
In orders to complete the code with P for positioned diamonds or with A for agglomerated granules. es. diamond plate type RTL positioned stones $L=20 \mathrm{H}=15$ : RTL25A.

## DIAMOND PLATES

RTC Type: positioned diamonds (P) or agglomerated grains (A)


| RTC10 | $\mathrm{L}=10$ | $\mathrm{H}=10$ |  |
| :--- | :--- | :--- | :--- |
| RTC15 | $\mathrm{L}=10$ | $\mathrm{H}=15$ |  |
| RTC20 | $\mathrm{L}=20$ | $\mathrm{H}=10$ |  |
| RTC25 | $\mathrm{L}=20$ | $\mathrm{H}=15$ |  |

Positioned diamonds: diamonds manually positioned according to pre-established pattern.
Agglomerated granules: natural grains arranged uniformly and randomly over the entire surface.
All types can be provided rigid (braised) or suitable for mechanical fastening (swiveling).
In orders to complete the code with P for positioned diamonds or with A for agglomerated granules.
es. diamond plate RTC type agglomerated granules $L=20 \mathrm{H}=15$ : RTC25A.

## GRINDING HAND TOOLS DIAMAX 3

DP Type: positioned diamonds


| DP1 | $3.00 \mathrm{kt}$. | $15 \times 15$ | $\mathrm{~L}=10$ |
| :---: | :---: | :---: | :---: |
| DP2 | $2.00 \mathrm{kt}$. | $15 \times 15$ | $\mathrm{~L}=8$ |
| DP3 | $1.00 \mathrm{kt}$. | $15 \times 18$ | $\mathrm{~L}=5$ |

ITEM IN STOCK
Special sizes on request (minimum production)
The main characteristics that diversify the DIAMAX 3 from what has been presented on the market are: handling, accident-prevention safety, great cutting capacity and long service life. These qualities make indispensable the DIAMAX 3 in replacement of inefficient sticks of silicon carbide.

In case of order is sufficient to indicate the code in the first column.
es. dressing manual tool DP type with positioned stones $2.00 \mathrm{kt} \mathrm{L}=8$ : DP2.

## GRINDING HAND TOOLS DIAMAX 3

DA Type: agglomerated grains


The main characteristics that diversify the DIAMAX 3 from what has been presented on the market are: handling, accident-prevention safety, great cutting capacity and long service life. These qualities make indispensable the DIAMAX 3 in replacement of inefficient sticks of silicon carbide.

In case the order is sufficient to indicate the code in the first column.
es. dressing manual tool DA type with agglomerated granules $3.00 \mathrm{kt} \mathrm{L}=8$.: DA2.

## AGGLOMERATED GRAINS DRESSING TOOLS

RP Type


|  |  | GRAIN TYPE | WHEEL |
| :---: | :---: | :---: | :---: |
| RP5 | $\mathrm{D}=5$ | L50 | $320-600$ |
| RP5 | $\mathrm{D}=5$ | L70 | $220-320$ |
| RP6 | $\mathrm{D}=6$ | L100 | $180-220$ |
| RP6 | $\mathrm{D}=6$ | L150 | $140-180$ |
| RP8 | $\mathrm{D}=8$ | L200 | $100-140$ |
| RP8 | $\mathrm{D}=8$ | L250 | $80-100$ |
| RP10 | $\mathrm{D}=10$ | L300 | $70-80$ |
| RP10 | $\mathrm{D}=10$ | L400 | $60-70$ |
| RP12 | $\mathrm{D}=12$ | L500 | $56-60$ |
| RP12 | $\mathrm{D}=12$ | L700 | $46-56$ |

Special sizes on request (minimum production)
Dresser for external and tangential grinding. Natural granules sintered in a metal matrix.
In case of an order to indicate the desired grain type.
es. dressing tool agglomerate type RP D $=10$ L700 Grain Type: RP12 / L700.

## ROTATING FRAMING ROLLS

## Technical features

L.I.T.D. ${ }^{\circledR}$ S.r.I., having operated in the diamond tool market and being present in all the applications of the diamond industry for seventy years, has developed an advanced technology in the construction of the diamond roller. Throught intensive researches aimed at obtaining the maximum anchorage of the diamond and therefore optimum performance and durability, have enabled our technicians the realization of a process of chemical-physical interaction by which diamonds are actually bounded and welded to the matrix and not simply trapped in it . With this technology, the durability of the roller is higher than those made with conventional sintering techniques.

## Types

Our production consists of the followings: DDS units, made with selected diamond granules, distributed statically on the working surface; the distance among diamonds is dictated by their granulometry size. PMD units, made by manual positioning of diamonds to specific layouts, according to the profile of the roller; size and shape of the diamond are selected depending on the complexity of the profile.

## Technical and economic benefits

The technical and costs-benefit advantages of using dressing-forming diamond rollers are several:

- Finish grinding operations can be made by automatic operations.
- Dressing can be done without drastic reduction of reject rate
- Elimination of downtime for dressing.
- Uniformity of production with considerable waste reduction.
- Reproducible profiles
- Reduced of the highly skilled workforce.

These and other technical-economic aspects lead to using diamond rollers, whenever the following requirements apply:

- High production output rates
- Rigid machine and dressing-forming device


## Assistance and projects

Our technical service is available to customers for insights and help to determing the the most suitable roller for each specific need.

## DIAMOND AND CBN WHEEL RESIN OR METAL BOND

## Technical specifications and recommendations for use

Over the last years, technological progress has made new ultra-hard materials resistant to wear and abrasion: consequently there has been the need to design grinding wheels suitable for their processing. The schedule suggests what kind of super-abrasive to use. Both CBN and diamond wheels have similar standardized shapes, that's the reason why we have grouped them together.


## Granulometry

Grains of CBN and diamond wheels are classified according to FEPA standards, shown hereinafter in comparison with those ones commonly used.

| Designazione FEPA della grana | Nórma inglese BS 1987 | Norma U.S.A. U.S. | Norma tedesca DIN 848 |  |
| :---: | :---: | :---: | :---: | :---: |
|  |  |  | Serie 2 | Serie 1 |
| D 1181 | 14/16 | 16/18 |  | D1100 |
| D 1001 | 16/18 | 18/20 | - | D 900 |
| D 851 | 18/22 | 20/25 | - | D 700 |
| D 711 | 22/25 | 25/30 | - | D 700 |
| D 601 | 25/30 | 30/35 | D 550 | D 500 |
| D 501 | 30/36 | 35/40 | D 450 | D 500 |
| D 426 | 36/44 | 40/45 | - | D 350 |
| D 356 | 44/52 | 45/50 | - | D 350 |
| D 301 | 52/60 | 50/60 | D 280 | D 250 |
| D 251 | 60/72 | 60/70 | D 220 | D 250 |
| D 213 | 72/85 | 70/80 | D 180 | D 150 |
| D 181 | 85/100 | 80/100 | D 180 | D 150 |
| D 151 | 100/120 | 100/120 | D 140 | D 150 |
| D 126 | 120/150 | 120/140 | D 110 | D 100 |
| D 107 | 150/170 | 140/170 | D 90 | D 100 |
| D 91 | 170/200 | 170/200 | D 90 | D 70 |
| D 76 | 200/240 | 200/230 | D 65 | D 70 |
| D 64 | 240/300 | 230/270 | D 55 | D 50 |
| D 54 | 300/350 | 270/325 | D 45 | D 50 |
| D 46 | 350/400 | 325/400 | D 45 | D 50 |


| D 1182 | $14 / 18$ | $16 / 20$ | - | - |
| :---: | :---: | :---: | :---: | :---: |
| D 852 | $18 / 25$ | $20 / 30$ | - | D 700 |
| D 602 | $25 / 36$ | $30 / 40$ | - | D 500 |
| D 427 | $36 / 52$ | $40 / 50$ | - | D 350 |
| D 252 | $60 / 85$ | $60 / 80$ | - | - |

## Concentration

The choice of the concentration depends on several considerations such as: cutting speed, use of refrigerants or less, profile resistance, type of processed material, grain used, etc. High performance of the wheel isn't always ensured by high concentration.

| DENOMINAZIONE - | SIMBOLO | ${\text { ct. } / c m^{3}}^{\prime 2}$ |
| :--- | :---: | :---: |
| BASSA - BASSE - LOW | C50 | 2,2 |
| MEDIA - DEMIE - MEDIUM | C75 | 3,3 |
| FORTE - FORTE - STRONG | C100 | 4,4 |
| EXTRA - EXTRA - EXTRA | C150 | 6,6 |

## Coolants

In grinding operations with diamond grinding wheels and CBN, where possible, it is advisable to use coolants, in order to prevent obstructions in diamond band: in this way you can avoid the possible phenomena of clogging of the abrasive band with thermal degradation of the grinding wheel.

## Installation of the grinding wheel

The mounting operation of the grinding wheel on the spindle is of utmost importance to the effects of the quality of finish and performance. Furthermore, you need to check by a gauge, that the flatness and concentricity errors on the axis of rotation don't exceed $0,02 \mathrm{~mm}$.

## Dressing

In the event of loss of sharpness of the grinding wheel is necessary to revive it through a stone of common abrasive by a slight pressure in order not to damage the diamond or CBN crystals.

## Grain and roughness

The drawing schematically illustrates the roughness values obtained with the use of various grain sizes. These directions should be considered approximate, being guessed that the actual roughness is influenced not only by the grain, the working conditions, the rigidity of the machine, the characteristics of the refrigerant fluid, the extent of the contact surfaces.

| GRAIN FEPA | Ra $(\mathrm{uM})$ | CLA $\left(\mu{ }^{\prime \prime}\right)$ |
| :---: | :---: | :---: |
| 181 | 1.8 to 3.2 | $63-126$ |
| 107 | $0.8-1.6$ | $32-63$ |
| 76 | $0.4-0.8$ | $16-32$ |
| 54 | Of $0.2-0.4$ | $8-16$ |
| 15 | $0.1-0.2$ | $4-8$ |
| 7 | $0.005-0.1$ | $2-4$ |

## Peripheral speed

The peripheral speed is the relative speed of sliding between the diamond band and the workpiece surface to be machined. The peripheral speed is expressed in meters per second ( $\mathrm{m} / \mathrm{sec}$ ):

$$
V p .=\frac{3,14 \times D \times n}{60 \times 1000}(\mathrm{M} / \mathrm{sec})
$$

$\mathrm{D}=$ diameter of the grinding wheel in $\mathrm{mm}-\mathrm{n}=$ number of revolutions per minute
The peripheral speed for the grinding wheels with metallic binder has to be comprised between 15 and $20 \mathrm{~m} / \mathrm{sec}$ (metal bonds have to work only wet).

The peripheral speed for resinoid wheels, which can work both wet and dry is generally as follows:
WET TO
$25-30 \mathrm{~m} / \mathrm{sec}$
DRY
$10-15 \mathrm{~m} / \mathrm{sec}$

Lower peripheral speed in dry machining avoid a dangerous increase of the contact temperature due to the friction between the workpiece and the diamond band.
A peripheral speed too low gives a surface with a low degree of finish and can accelerate the wear of the grinding wheel.
A too high peripheral speed can cause burns on the worked piece and make the wheel harder.

| DIAMETRO <br> mm | 2 <br> $\mathrm{~m} / \mathrm{sec}$ | 4 <br> $\mathrm{~m} / \mathrm{sec}$ | 6 <br> $\mathrm{~m} / \mathrm{sec}$ | 8 <br> $\mathrm{~m} / \mathrm{sec}$ | 10 <br> $\mathrm{~m} / \mathrm{sec}$ | 15 <br> $\mathrm{~m} / \mathrm{sec}$ | 20 <br> $\mathrm{~m} / \mathrm{sec}$ | 25 <br> $\mathrm{~m} / \mathrm{sec}$ | 30 <br> $\mathrm{~m} / \mathrm{sec}$ | 35 <br> $\mathrm{~m} / \mathrm{sec}$ |
| :---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| 5 | 7.600 | 15.300 | 22.900 |  |  |  |  |  |  |  |
| 10 | 3.800 | 7.700 | 11.500 | 15.400 | 19.000 |  |  |  |  |  |
| 15 | 2.500 | 5.100 | 7.600 | 10.100 | 12.600 | 19.100 |  |  |  |  |
| 20 | 1.900 | 3.800 | 5.700 | 7.600 | 9.500 | 14.300 | 19.100 |  |  |  |
| 25 | 1.500 | 3.000 | 4.600 | 6.100 | 7.600 | 11.500 | 15.300 | 19.100 |  |  |
| 30 | 1.250 | 2.500 | 3.800 | 5.000 | 6.300 | 9.500 | 12.700 | 15.900 | 19.000 |  |
| 40 | 960 | 1.900 | 2.900 | 3.800 | 4.800 | 7.200 | 9.600 | 11.900 | 14.300 | 16.700 |
| 50 | 760 | 1.500 | 2.300 | 3.100 | 3.800 | 5.700 | 7.600 | 9.500 | 11.400 | 13.400 |
| 75 | 500 | 1.000 | 1.500 | 2.000 | 2.500 | 3.800 | 5.100 | 6.400 | 7.700 | 9.000 |
| 100 | 380 | 770 | 1.150 | 1.550 | 1.900 | 2.900 | 3.800 | 4.800 | 5.700 | 6.700 |
| 125 |  | 600 | 900 | 1.200 | 1.500 | 2.300 | 3.000 | 3.800 | 4.600 | 5.300 |
| 150 |  | 500 | 750 | 1.000 | 1.260 | 1.900 | 2.500 | 3.200 | 3.800 | 4.500 |
| 175 |  |  | 650 | 870 | 1.080 | 1.600 | 2.200 | 2.700 | 3.300 | 3.800 |
| 200 |  |  | 570 | 760 | 950 | 1.400 | 1.900 | 2.400 | 2.900 | 3.400 |
| 250 |  |  | 450 | 600 | 750 | 1.150 | 1.500 | 1.900 | 2.300 | 2.700 |
| 300 |  |  |  | 510 | 640 | 950 | 1.300 | 1.600 | 1.900 | 2.200 |
| 350 |  |  |  |  | 545 | 820 | 1.100 | 1.400 | 1.600 | 1.900 |
| 400 |  |  |  |  | 480 | 725 | 960 | 1.200 | 1.450 | 1.700 |

## Spark-out depth

This parameter is related to the particle size of the diamond and influence the state of surface finish of the machined workpiece. Usually in roughing operations, for which endeavor medium to coarse grain sizes can be made increased from 0.03 to 0.06 mm or more. In the finish, with fine grains, it should not exceed 0.006 mm per pass. From the spark-out depth also it depends on the more or less rapid consumption of the grinding wheel.

## Choice of super-abrasive (diamond or CBN)

The diamond can be used to work any type of material. The CBN is also an high hardness material, particularly suitable for steel. In the resinoid wheels is used super-abrasive "armored", coated with metallic materials, which increase its performance.

## Form

The L.I.T.D. ${ }^{\circledR}$ srl produces any type of grinding wheel, according to customer specifications, with diameters ranging from 20 mm up to 500 mm of various thicknesses and shapes of wing. The shapes of grinding wheel varies on its application, below are some of the most common forms.
(

|  | 6 A2 | 11A2 |  |
| :---: | :---: | :---: | :---: |
|  |  <br> 12V2 |  |  |
|  | 6A9 |  |  |
|  1V1 |  | RODATORI | STRIPS T851 |

## RESINOID BONDS - DIAMOND

Resinoid bonds contain a percentage of polyamide resin that polymerize around $150-200^{\circ} \mathrm{C}$. In order to prevent overheating and provide higher toughness, the diamond is usually metal-coated.

## RCS - peripheral wheels

The RCS bond is a resinoid binder mainly used for peripheral band (1A1 or 14A1 type). It is specially studied for diamond, but can also be used with CBN. It is used for traditional, tangential and "center-less" grinding. This bond is also used for frontal wheels, used in specific works where a strong removal is required.
The use of this binder involves the use of a refrigerant to prevent the burning of the grinding band.

## RSF - frontal wheels and cutting discs

The RSF bond is a resinoid binder used for frontal grinding wheels (6A2, 12C9 or 11V9 type) and very narrow peripheral band (1A1R or 14A1R discs). It is used for sharpening, lapping, splitting and processing of hard metal. In the mixture there is a special lubricant material, which helps keeping the wheel cooler during the cutting process, avoiding burns.
This binder allows you to work dry, even though wet conditions are always recommended.

## R5R - shaped bands

The R5R bond is a hybrid resin-type binder, designed for particular shaped bands, with the use of both frontal and peripheral bands. This binder, which contains a very fine specific metal powder, is particularly suitable for hard metal profiling as well as for sharpening it. This powder acts as a heat collector, avoiding burns. The use of this binder involves the use of a refrigerant to prevent burns.

RLS - lapping tools
The RLS bond is a resinoid binder mainly used for peripheral lapping bands. It is studied in particular for wheels that contain fine diamond (micrometric powder). It is used for low removal, especially on hard metal. It can also be used with fine grained CBN.
The use of this binder involves the use of a refrigerant.

## SBR70 - Hagaton

The SBR70 bond is a resinoid binder mainly used for Hagaton wheel type. It is used on Hagaton type machines, for sharpening hard metal plaques.
The use of this binder involves the use of a refrigerant to prevent burning of the grinding wheel.

## RESINOID BONDS - CBN

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## MECHANICAL HARD METAL WORKING

## General overview

L.I.T.D. ${ }^{\circledR}$ srl is an ISO certified company that deals with the production of specific equipment for molding since 1947. This activity offers a wide range of applications.

## Machining

The L.I.T.D. ${ }^{\circledR}$ srl is able to provide precision machining, such as turning, milling and grinding, also thanks to recent investments for lathes and CNC machining centers. It's already present as leader in the field of molds and mold holders.

## Special processing

We are able to satisfy all your special requests on drawing on: steel, aluminum and hard metals.

## Testing

Thanks to a metrology lab equipped with advanced measuring instruments, is able to provide you a proven product.


#### Abstract

Assistance Our technicians are always at the customer's disposal, to resolve any technical problems and useful tips to a better application of our products.



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[^0]:    RSU - CBN
    The RSU bond is a resinoid binder mainly for CBN, both peripheral and frontal wheels. It is specifically studied for CBN. It is used for steel grinding, sharpening and cutting.
    This binder allows you to work dry, even though wet work is always recommended.

    ## AUN - CBN small wheels

    The AUN bond is a resinous binder used for small sized wheels, with or without stem, both frontal and peripheral (type 1A1W, 1A8W and 1A1F). It is specifically designed for wheels that contain CBN. It is used for steel sharpening and grinding (internal and external).
    The use of this binder involves the use of a refrigerant to prevent burning of the grinding wheel.

