

FRANKEN

Machining Technology



EMUGE
FRANKEN

Diamond - PCD - CBN
High-performance milling tools

Diamond coatings

The steadily growing importance of graphite as a material for electrodes for sink-erosion (instead of copper and copper-tungsten) created the need for new coatings. Graphite which is mainly machined by milling is extraordinarily abrasive, and requires the application of diamond coatings with the highest possible hardness for wear protection. Diamond coatings are also used for the machining of aluminium cast alloys with a high silicon percentage, e.g. 17%. For such applications, smooth and thick coating types are usually preferred.

Milling tools for graphite:

- End mills (ø 2 - 12 mm)
- Ball nose cutters (ø 0,5 - 12 mm)
- Torus cutters (ø 2 - 12 mm)
- Milling bodies with rhombic indexable inserts
 - IC 4,6 mm (ø 10 - 20 mm)
 - IC 9,2 mm (ø 20 - 125 mm)
- Milling bodies with round indexable inserts
 - IC 6 mm (ø 10 - 35 mm)
 - IC 8 mm (ø 16 - 25 mm)
 - IC 10 mm (ø 20 - 80 mm)
 - IC 12 mm (ø 25 - 100 mm)

Note:

- All milling bodies for indexable inserts are made with internal coolant supply (IKZ)

Diamond-coated tools are available under catalogue no.:

- End mills: 1934G, 1939G, 1800D, 1850D and 2802D
- Torus cutters: 2801D
- Ball nose cutters: 1820D, 2800D
- Rhombic indexable inserts: 9635G
- Round indexable inserts: 9613G

Milling tools for aluminium:

- End mills (ø 2 - 12 mm)
- Ball nose cutters (ø 0,5 - 12 mm)
- Milling bodies with rhombic indexable inserts
 - IC 4,6 mm (ø 10 - 20 mm)
 - IC 9,2 mm (ø 20 - 125 mm)
- Milling bodies with round indexable inserts
 - IC 6 mm (ø 10 - 35 mm)
 - IC 8 mm (ø 16 - 25 mm)
 - IC 10 mm (ø 20 - 80 mm)
 - IC 12 mm (ø 25 - 100 mm)

Note:

- All milling bodies for indexable inserts are made with internal coolant supply (IKZ)



PCD

Polycrystalline diamond

is a synthetically produced cutting material which consists of firmly united diamond crystals in a random order. The main application for PCD coatings includes:

Aluminium and aluminium alloys with more than 4% Si, non-ferrous metals and precious metals (silver and gold), green carbide, synthetics and rubber, titanium alloys, chip and fibre boards, ceramics, glass-fibre- and carbon-fibre-reinforced synthetics (GFK and CFK).

Available under catalogue no.:

- End mills: 2805, 2856, 2857
- Torus cutters: 2804
- Ball nose cutters: 2803
- Rhombic indexable inserts: 9679

Milling tools:

- End mills
 - with 2 cutting edges (ø 4 - 12 mm)
 - with 3 cutting edges (ø 10 - 20 mm)
 - with 5 cutting edges (ø 14 - 20 mm)
- Ball nose cutters (ø 4 - 12 mm)
- Torus cutters (ø 4 - 12 mm)
- Milling bodies with rhombic indexable inserts
 - IC 4,6 mm (ø 10 - 20 mm)
 - IC 9,2 mm (ø 20 - 125 mm)

Note:

- PCD inserts soldered onto a solid carbide carrier tool
- All tools are made with internal coolant supply (IKZ)



CBN

Cubic boron nitride

is a polycrystalline cutting material consisting of cubic boron nitride grains which are sintered into shape under high pressure. The hardness of CBN is second only to that of diamond. This cutting material was developed for the machining of materials which cannot be cut with PCD. The main application includes:

Iron materials with a hardness from 45 HRC, cast iron, Cr hard castings and difficult-to-machine alloys on a cobalt, nickel or iron basis.

Available under catalogue no.:

- End mills: 2810
- Torus cutters: 2809
- Ball nose cutters: 2808

Milling tools:

- End mills (ø 4 - 12 mm)
- Ball nose cutters (ø 4 - 12 mm)
- Torus cutters (ø 4 - 12 mm)

Note:

- CBN inserts soldered onto a solid carbide carrier tool





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