Sustainable process optimization when fettling

Maximum efficiency due to excellent tool life and stock removal rate

Comfortable working with low dust and vibration loads for the user
Electroplated Diamond Tools
Information on Processing Grey and Nodular Cast Iron

The use of high performance tools in surface finishing and when cutting materials is an important factor for efficiency in lots of working processes and industries. Thanks to their excellent tool life and consistent dimensional stability, electroplated diamond tools have asserted themselves in many fields. Particularly in processing grey and nodular cast iron they achieve sustainable process and costing optimization.

Diamond

The abrasive Diamond is termed “superhard” because it significantly beats the conventional abrasives aluminium oxide and silicon carbide in terms of hardness. This feature is the basis for the very high tool life of diamond tools.

Electroplated bond

Electroplated diamond tools have a monolayer of abrasive coating on a metal substrate. The individual diamond grits are bonded through an electroplated nickel layer. They project well out of the bond so that very open, easy cutting tools with exceptionally large chip spaces are created.

Advantages for cast machining

Electroplated diamond tools have a range of advantages in processing grey and nodular cast iron which increase the efficiency of fettling:

- Less tool changes and lower set-up costs due to the excellent tool life.
- Reduced wage costs due to quick, aggressive grinding with maximum stock removal rates.
- Optimal machining of deep-set hard to reach areas due to the constant tool diameter.
- Comfortable and quick removal of metal penetrations due to the superhard abrasive diamond.
- Low dust load due to the dimensional stability of the grinding tool (no tool wear).
- Reduced vibration load due to the form stability of the tool (no imbalance).
- Dressing work and cost savings due to the consistent tool shape.
- Relief of the tool user due to the reduction of the necessary contact pressure.

Note

Due to the single layer configuration and the specific wear behavior, electroplated tools do not have to be dressed.

Dressing leads to destruction of the tool!

Conditions of use in cast machining

For the successful use of electroplated diamond tools, the following conditions must be taken into account for processing grey and nodular cast iron:

- Only for processing grey cast iron (cast iron with flake graphite inclusions – GJL) and nodular iron (cast iron with nodular graphite inclusions – GJS)
- Use high performance tool drives with exact concentricity and precise holder requirements.

PFERD offers advice for the successful use of diamond tools and the necessary conditions of use for cast processing – on-site in your own premises.

Please contact us. Our specialist team for electroplated diamond tools would be happy to advise you!

More information on electroplated diamond tools can be found in the PFERD Tool Manual (catalogue 205 “Diamond and CBN Tools”) and in PRAXIS “Electroplated Diamond and CBN Tools”.

Electroplated Diamond Tools
Standard and Special Range for Processing Grey and Nodular Cast Iron

Standard range

Electroplated diamond cut-off wheels are used on manually guided angle grinders and on stationary tool machines. They are fast-cutting and have a higher cutting performance than conventional cut-off wheels.

Workpiece materials:
Grey and nodular cast iron

Application:
Removal of feeders, riders, lugs, molds separation and cast fins

Recommendation for use:
Work with low contact pressure.

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Special range

Electroplated diamond tools can be manufactured cost-efficiently and in customized versions. Tool blanks of nearly any shape can be placed with diamonds.

Custom made tools according to customers specifications is one of PFERD’s particular strengths. Individual customer wishes can be taken into account with a high degree of flexibility. Smaller batches and even individual tools can be produced economically.

For example, PFERD manufactures grinding discs, cut-off wheels, grinding rolls or grinding tools with a shank and thread in your requested dimensions. By choosing the grit size, the properties of electroplated grinding tools can be varied and adapted to suit the needs of your processing task. Please enclose a technical drawing or fully scaled hand sketch and state the required grit size with the enquiry or order.

The recoating of electroplated grinding tools is possible and economic in lots of cases. Our sales and technical customer advisors are also available on-site for the optimization of your working processes. PFERD works on application-related special solutions with you and helps you to find the right tool for your application.
Our System-based Program
Further PFERD Solutions for Processing Grey and Nodular Cast Iron

Burrs for work on grey and nodular cast iron can be found in catalogue 202 "Burrs".
The 3 and 3 PLUS cuts achieve stock removal and high quality surface finish. The 3R and 3RS cuts are robust, high performance and minimize tooth chipping/breakage, splintering and burr head failures. They are specially developed for tough applications with high impact loads and can be used well in combination with long shank variants.

Mounted points for work on grey and nodular cast iron can be found in catalogue 203 "Mounted Points".
Mounted points in hardness grade R with extremely hard, sharp-edged abrasive grit achieve a high tool life, especially in foundries and when fettling. Wedge-shaped abrasive segments are excellently suited to processing intersections and removing separators on sand molds and cores in foundries.

Tools made from coated abrasives for work on grey cast and nodular iron can be found in catalogue 204 “Fine Grinding and Polishing Tools”.
All tools made from coated abrasives in the aluminium oxide A, ceramic oxide CO and CO-COOL versions, especially COMBIDISC® abrasive discs and COMBICLICK® fiber discs, are particularly suitable for processing grey and nodular cast iron.

Cut-off, grinding and flap discs, cup wheels and ring wheels for work on grey and nodular cast iron can be found in catalogue 206 “Grinding and Cut-Off Wheels”.
Cut-off and grinding wheels with the abrasives zirconia alumina/aluminium oxide (ZA) and aluminium oxide/silicon carbide (AC), flap discs POLIFAN®-STRONG and POLIFAN®-CURVE, cup wheels with silicon carbide (C) and ring wheels offer a high material stock removal rate and very good tool life when working on grey and nodular cast iron.

Stationary cut-off wheels for work on grey and nodular cast iron can be found in catalogue 207 "Stationary Cut-Off Wheels".
Stationary cut-off wheels from the SG-TABLE line with the abrasives silicon carbide (C) and the SG-HEAVY DUTY line with the zirconia alumina/aluminium oxide (ZA) abrasives are particularly distinguished by their short cutting cycles and high tool life. PFERD offers a special laboratory program for preparing samples for metallography. We would be happy to advise you on custom made tools for your special applications.

Brushes for work on grey and nodular cast iron can be found in catalogue 208 “Industrial Power Brushes”.
The extensive range contains high quality technical brushes for the professional processing of grey and nodular cast iron. We would also be happy to advise you on custom made tools for your special applications.