

PCBN Tools for CV Joints

EBC52X turning grade and HFS12 PCBN endmills with four or six flutes: applications, cutting examples and tool comparisons.

Match turning and milling to the component

EHWA offers PCBN tools for machining heat-treated steel components of constant-velocity joints. The EBC52X grade supports continuous and interrupted turning. PCBN endmills complement the range for cutting the joint geometry.

EHWA describes cutting as an increasingly used alternative to grinding in CV-joint machining and develops precise, high-quality endmills for these applications. The appropriate process sequence depends on the component, material condition and surface requirements.



CV joint as a component in the vehicle drivetrain.



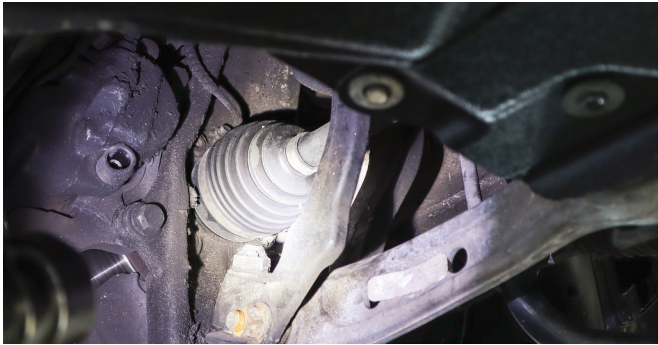
Driveshaft, wheel and suspension components in the application image.



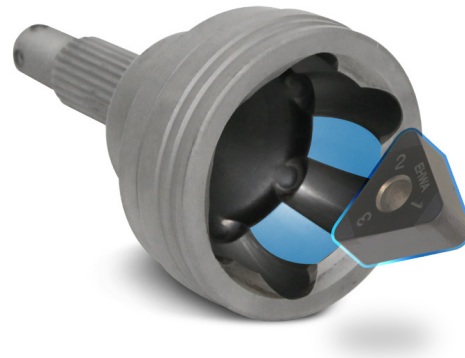
CV joint in the front-axle area.

EBC52X for heat-treated steel

EBC52X is a high-content PCBN grade developed by EHWA for continuous and interrupted cutting of heat-treated CV-joint steel. EHWA describes high performance even under demanding machining conditions. The product sheet does not quantify the CBN content.



CV-joint detail in the drivetrain.



Outer race with the illustrated EBC52X insert.



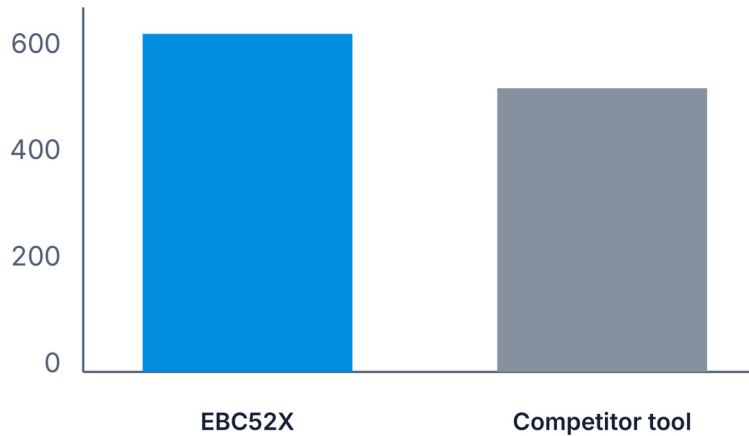
Inner race with the illustrated EBC52X insert.

Two complete turning examples

Parameter	Outer race turning	Inner race turning
Workpiece	Forged steel	Forged steel
Cutting speed	120 m/min	200 m/min
Feed rate	0.10-0.12 mm/rev	0.20 mm/rev
Depth of cut ap	0.10-0.20 mm	0.09-0.15 mm
Coolant arrangement	Dry	Dry
Cut	Interrupted	Interrupted

The examples compare EBC52X with an unspecified competitor tool. EBC52X has the higher bar in both charts. The outer-race axis shows 0, 200, 400 and 600; the inner-race axis shows 0, 100, 200, 300 and 400. The document gives neither an axis unit nor exact bar values. The comparison retains the geometry and original scales.

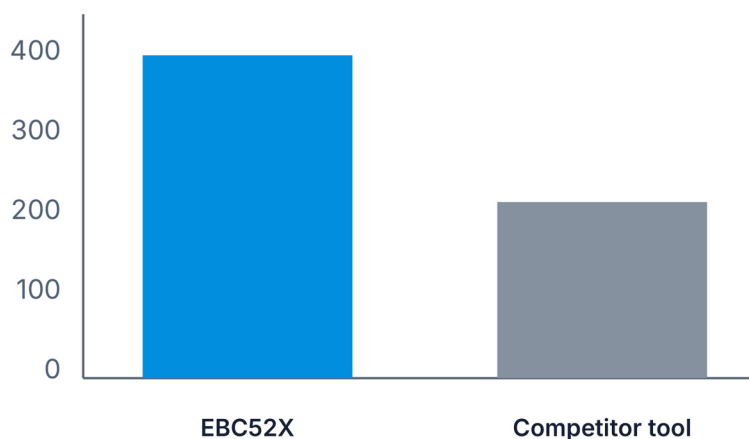
Outer race turning



EHWA source comparison; unit not stated

Outer race: EBC52X compared with the competitor tool.

Inner race turning



EHWA source comparison; unit not stated

Inner race: EBC52X compared with the competitor tool.

The cutting data describe the two stated applications. Material condition, cutting edge and machine are considered when transferring them to your machining task.

PCBN endmills for the joint geometry

EHWA develops high-precision, high-quality PCBN endmills for CV-joint machining. The six-flute version introduced in the product sheet targets high tool life in high-speed machining. EHWA describes strong cutting performance and customised tooling solutions.



Housing and internal components of a CV joint.



Machining an internal joint contour.



Machined raceways inside the joint housing.



Assembled CV joint as an application example.



Joint components and balls in an exploded view.

HFS12 with four or six flutes

Parameter	Four-flute version	Six-flute version
Body type	HFS12	HFS12
Cutting material	PCBN	PCBN
Number of flutes	4 F	6 F
Design	See the four-flute tool view	See the six-flute tool view



HFS12: four-flute tool view.



HFS12: six-flute tool view.



PCBN endmill pair from the cover view.

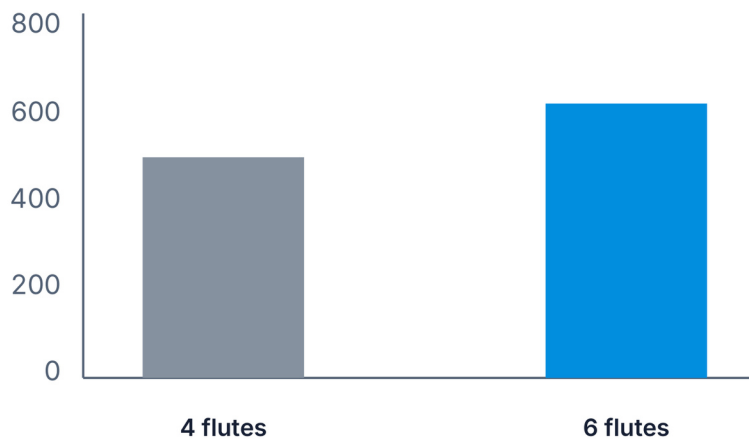


Additional view of the PCBN endmills.

Endmill tool-life comparison

The EHWA chart compares the tool life of the four- and six-flute versions. The six-flute version has the higher bar. The original axis contains 0, 200, 400, 600 and 800. Neither a unit nor exact numerical bar labels are provided; the chart therefore retains the original bar proportions without adding minutes, component counts or a percentage improvement.

Tool life: four and six flutes



EHWA source comparison; unit not stated

Tool-life comparison: four and six flutes on the original scale.

Develop your CV-joint tooling solution

EHWA offers customised endmill designs and tooling solutions to meet your requirements. Provide the component drawing, material and heat treatment, required contour, machine and tool holder. Add cut type, cutting speed, feed rate, depth of cut, coolant arrangement, surface requirements and current tool utilisation.

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Documents and edition

The technical basis comprises the complete one-page EHWA EBC52X CV-joint product sheet and the complete two-page EHWA PCBN endmill document. The endmill document bears the print date 06/2024; the EBC52X sheet does not state a print date. EHWA DIAMOND: since 1975. Editorial edition of this combined publication: 13 October 2026.