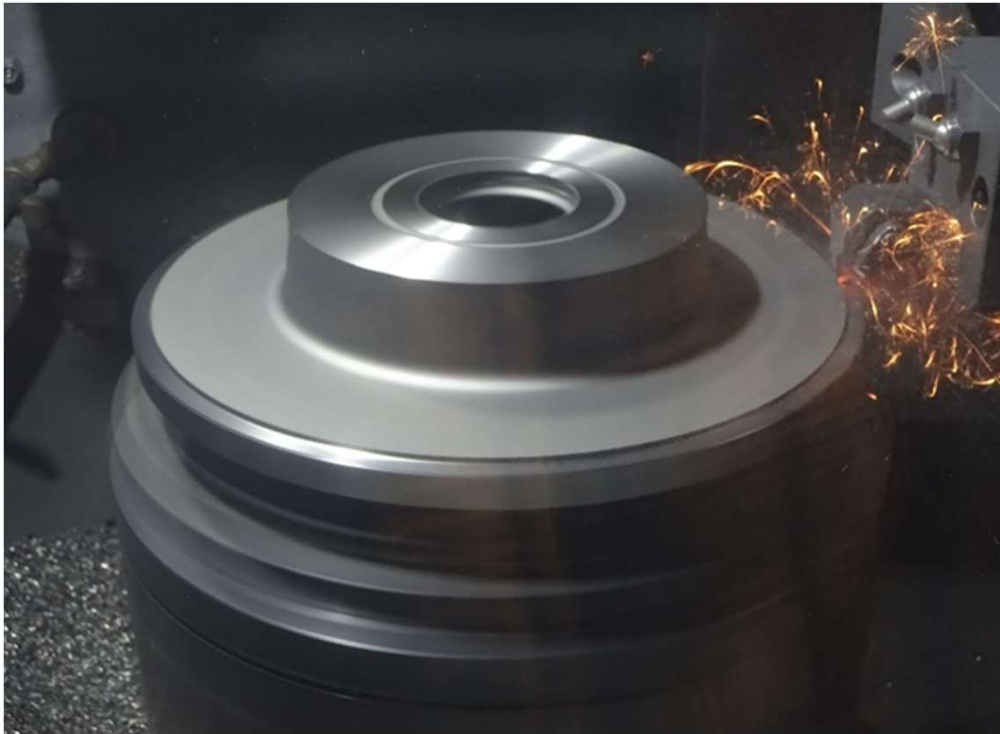


Application Case of Brake Disc

Industry – Auto parts - Brake disc



Workpiece name: Brake disc
 Workpiece material: HT250
 Workpiece hardness: HB190-210
 Machining position: Brake surface
 Machining type: Continuous, rough machining
 Inserts grade: FBN7600
 Insert specification: SNMN120712
 Cutting type: Dry cutting
 Cutting parameters: $V_c=800\text{m/min}$
 $a_p=2\text{-}3\text{mm}$
 $f = 0.45\text{mm/r}$

Funik CBN cutting tool:

The life is improved by 400%

The efficiency is promoted by 29%

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s /pcs)	Life (pcs/edge)
European ceramics	700	7	200
Funik FBN7600	800	5	1000

Industry – Auto parts - Brake disc



Workpiece name: Brake disc

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: Brake surface, inner diameter

Machining type: Continuous, rough machining

Inserts grade: FBN7600

Insert specification: CNMN120716

Cutting type: Dry cutting

Cutting parameters: $V_c=600\text{m/min}$

$a_p=3\text{mm}$

$f = 0.6\text{mm/r}$

Funik CBN cutting tool:

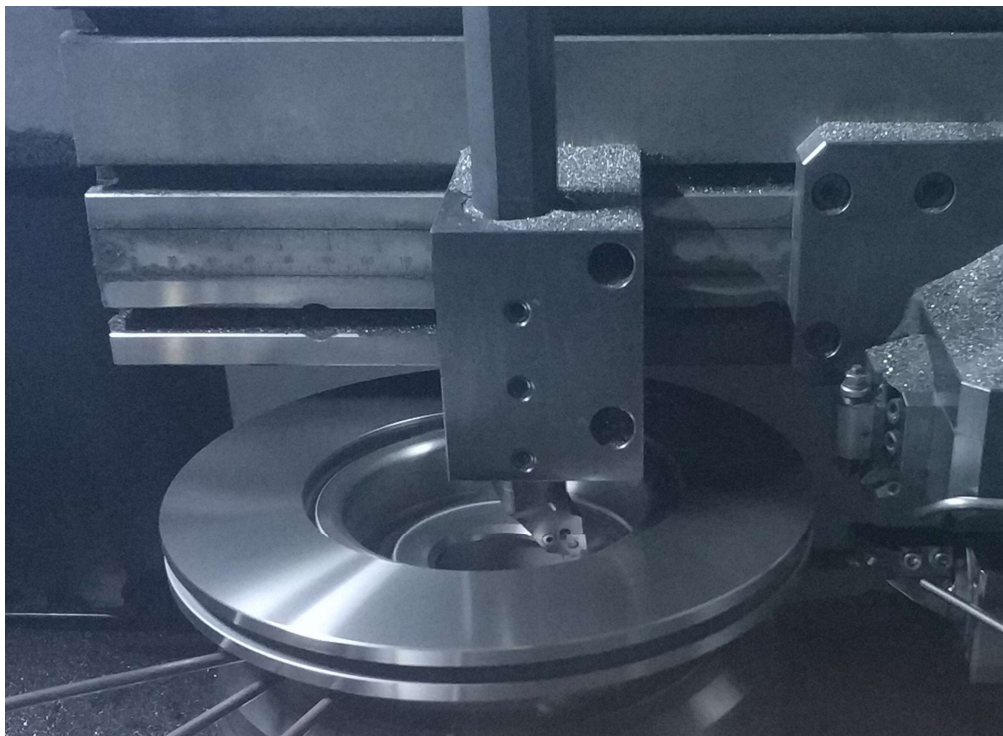
The life is improved by **350%**

The efficiency is promoted by **33%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s/pcs)	Life (pcs/edge)
Japanese and Korean alloy	300	30	20
Funik FBN7600	600	20	90

ISO90001 / ISO14001 / BS-OHSAS18001 认证

Industry – Auto parts - Brake disc



Workpiece name: Brake disc

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: Inner diameter

Machining type: Fine car

Inserts grade: FBV7200

Insert specification: CNGA120408F

Cutting type: Dry cutting

Cutting parameters: $V_c=800\text{m/min}$

$a_p=0.5\text{mm}$

$f = 0.2\text{mm/r}$

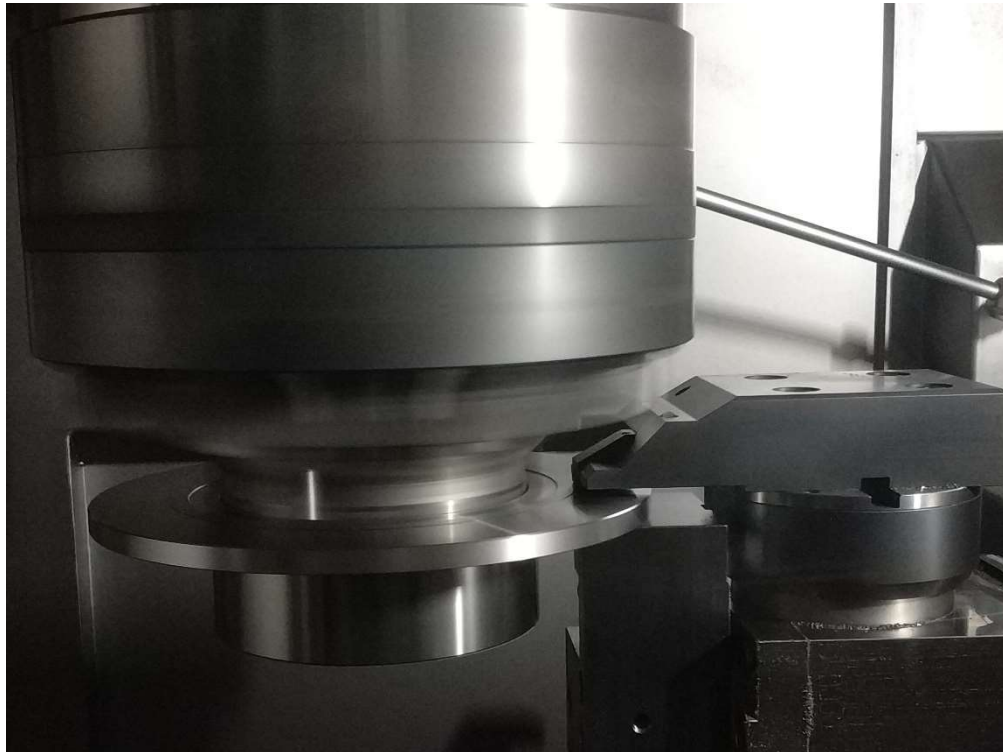
Funik CBN cutting tool:

The life is improved by **450%**

The efficiency is promoted by **25%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
European ceramics	600	20	100
Funik FBV7200	800	15	550

Industry – Auto parts - Brake disc



Workpiece name: Brake disc
 Workpiece material: HT250
 Workpiece hardness: HB190-210
 Machining position: Brake surface
 Machining type: Continuous, finishing
 Inserts grade: FBV7200
 Insert specification: SCGN090408FC
 Cutting type: Dry cutting
 Cutting parameters: $V_c=600\text{m/min}$
 $a_p=0.25\text{mm}$
 $f=0.3\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **300%**

The efficiency is promoted by **30%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s/pcs)	Life (pcs/edge)
domestic CBN	450	30	30
Funik FBV7200	600	20	120

Application Case of Brake Drum

Industry – Auto parts - Brake drum



Workpiece name: Brake drum

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: Inner diameter of brake surface

Machining type: Continuous, rough machining

Inserts grade: FBN7600

Insert specification: CNMN120716

Cutting type: Wet cutting

Cutting parameters: $V_c=700\text{m/min}$

$a_p=2-3\text{mm}$

$f = 0.45\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **900%**

The efficiency is promoted by **75%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Japanese coated alloy	220	12	10
Funik FBN7600	700	3	100

Industry – Auto parts - Brake drum



Workpiece name: Brake drum
 Workpiece material: HT250
 Workpiece hardness: HB190-210
 Machining position: Outer circle, inner diameter
 Machining type: Continuous, rough machining
 Inserts grade: FBN7600
 Insert specification: CNMN120716
 Cutting type: Wet cutting
 Cutting parameters: $V_c=1130\text{m/min}$
 $a_p=2-3\text{mm}$
 $f = 0.5\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **300%**

The efficiency is promoted by **43%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min/pcs)	Life (pcs/edge)
domestic CBN	920	3.5	15
Funik FBN7600	1130	2	60

Industry – Auto parts - Brake drum



Workpiece name: Brake drum
 Workpiece material: HT250
 Workpiece hardness: HB190-210
 Machining position: Inner hole of brake surface
 Machining type: Fine car
 Inserts grade: FBV7200
 Insert specification: WNGA080412
 Cutting type: Wet cutting
 Cutting parameters: $V_c=550\text{m/min}$
 $a_p=0.5\text{mm}$
 $f = 0.2\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **350%**

The efficiency is promoted by **33%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Coated alloy	280	3	20
Funik FBV7200	550	2	90

Application Case of Air Conditioning Compressor

Industry – Air conditioning compressor - Air cylinder



Workpiece name: Air cylinder

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: End face, outer circle

Machining type: Rough machining

Inserts grade: FBN7600

Insert specification: SNGN120712

Cutting type: Dry cutting

Cutting parameters: $V_c=760\text{m/min}$

$a_p=1\text{mm}$

$f = 0.4\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **25%**

The efficiency is promoted by **20%**

Cutting tool contrast	Rotational speed n(r/min)	Efficiency (s / pcs)	Life (pcs/ edge)
domestic brand	1800	37	1200
Funik FBN7600	2200	30	1500

Industry – Air conditioning compressor - Upper bearing



Workpiece name: Upper bearing

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: Outer circle of shank, end face

Machining type: Finishing

Inserts grade: FBV5800

Insert specification: DNGA150408

Cutting type: Dry cutting

Cutting parameters: $V_c=450\text{m/min}$

$a_p=0.3-0.5\text{mm}$

$f = 0.3\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **30%**

The efficiency is promoted by **20%**

Cutting tool contrast	Rotational speed $n(\text{r/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Somedomestic brand	1800	50	1000
Funik FBV5800	2300	39	1300

Industry – Air conditioning compressor - Lower bearing



Workpiece name: Lower bearing

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: Outer circle, end face

Machining type: Rough machining

Inserts grade: FBV5800

Insert specification: WNGA080412

Cutting type: Dry cutting

Cutting parameters: $V_c=510\text{m/min}$

$a_p=0.8\text{-}1\text{mm}$

$f = 0.4\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **20%**

The efficiency is promoted by **23%**

Cutting tool contrast	Rotational speed $n(\text{r/min})$	Efficiency (s / pcs)	Life (pcs/ edge)
domestic brand	1800	26	1900
Funik FBV5800	2300	20	2300

Application Case of Engine Cylinder Block

Industry – Automobile - Engine cylinder block



Workpiece name: Engine cylinder block

Workpiece material: HT250

Workpiece hardness: HB190-210

Machining position: Top face of cylinder block

Machining type: Interrupted, finishing

Inserts grade: FBN5800

Insert specification: SNEN090412

Cutting type: Dry cutting

Cutting parameters: $V_c=470\text{m/min}$

$a_p=0.5\text{mm}$

$F = 2000\text{mm/min}$

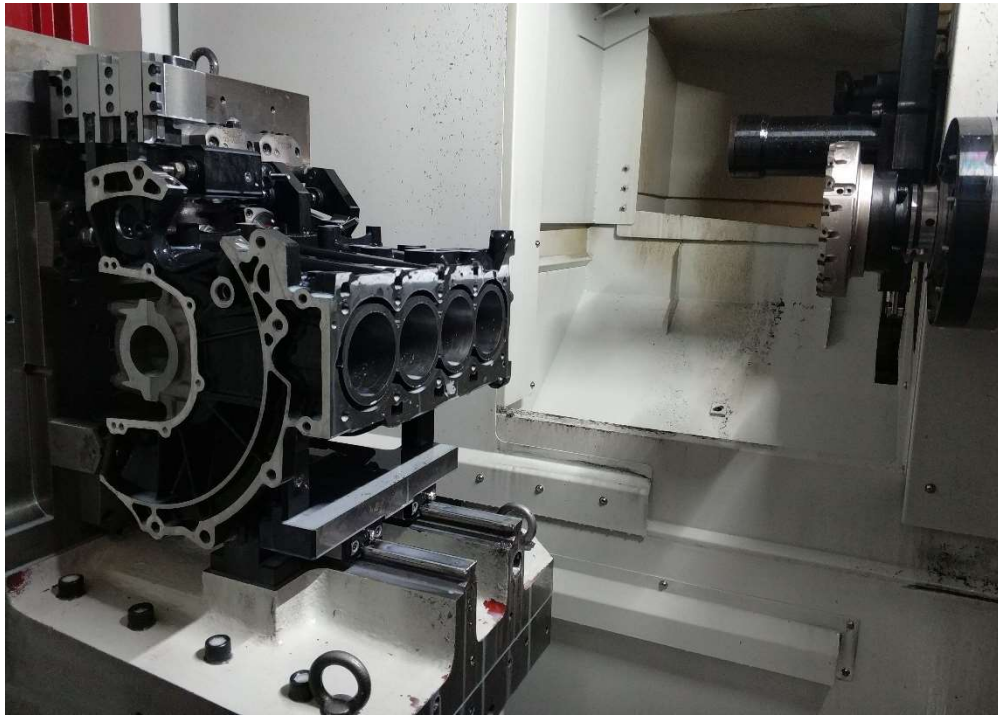
Funik CBN cutting tool:

The life is improved by **460%**

The efficiency is promoted by **86%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s pcs)	Life (pcs/ edge)
Some European alloy	180	84	90
Funik FBN5800	470	12	500

Industry – Automobile - Engine cylinder block



Workpiece name: Triplex engine cylinder block

Workpiece material: HT250

Workpiece hardness: HB220

Machining position: Top face of cylinder block

Machining type: Interrupted, rough machining

Inserts grade: FBN5800

Insert specification: SNEN090408

Cutting type: Dry cutting

Cutting parameters: $V_c=500\text{m/min}$

$a_p=2.5\text{mm}$

$F = 2064\text{mm/min}$

Funik CBN cutting tool:

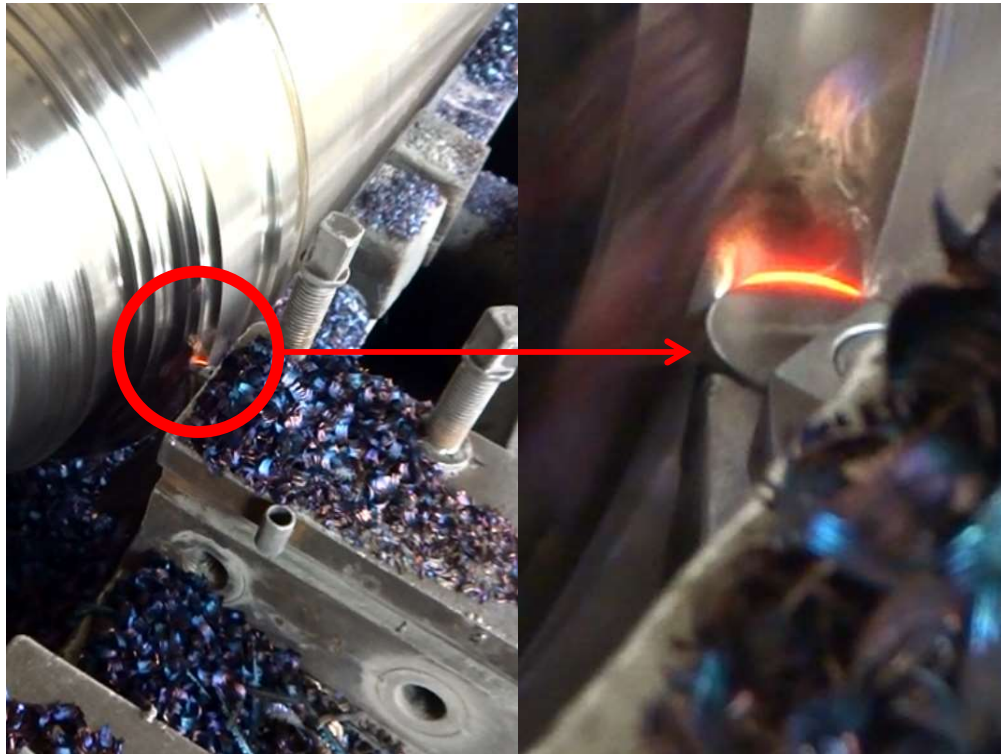
The life is improved by **100%**

The efficiency is promoted by **70%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
American alloy	300	17	230
Funik FBN5800	500	5	460

Application Case of Roll

Industry – Roll - Strip roll



Workpiece name: Strip roll
 Workpiece material: High NiCr
 Workpiece hardness: HSD75-85
 Machining position: Shoulder, roll body
 Machining type: Rough machining
 Inserts grade: FBN7600
 Insert specification: RNMN201000
 Cutting type: Dry cutting
 Cutting parameters: $V_c=40\text{m/min}$
 $a_p=10\text{mm}$
 $f=0.5\text{mm/r}$

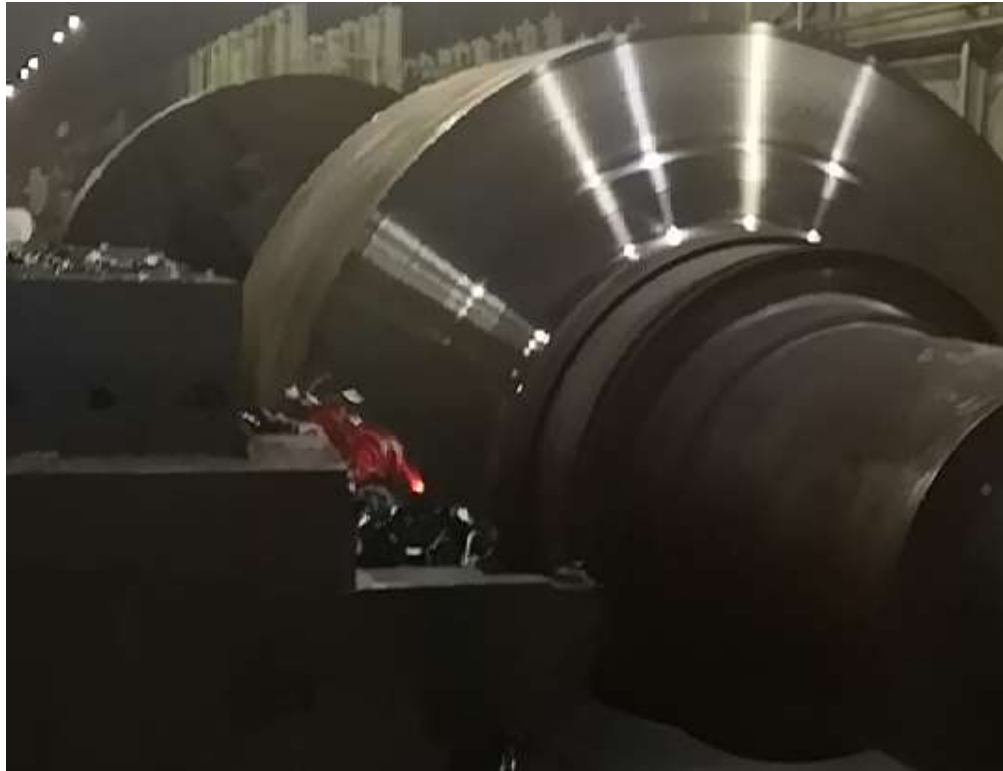
Funik CBN cutting tool:

The life is improved by **100%**

The efficiency is promoted by **25%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min /pcs)	Life (pcs/edge)
domestic brand	30	200	1
Funik FBN7600	40	150	2

Industry – Roll - H-shaped steel roll



Workpiece name: H-shaped steel roll

Workpiece material: High carbon semi-steel

Workpiece hardness: HSD55-65

Machining position: Roll body, end face

Machining type: Rough machining

Inserts grade: FBN7600

Insert specification: RNMN201000

Cutting type: Dry cutting

Cutting parameters: $V_c=94\text{m/min}$

$a_p=10\text{mm}$

$f = 0.4\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **100%**

The efficiency is promoted by **40%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min /pcs)	Life (pcs/edge)
、 European brand	56	85	0.5
Funik FBN7600	94	50	1

Industry – Roll - Strip roll



Workpiece name: Strip roll

Workpiece material: High chromium steel

Workpiece hardness: HSD70-80

Machining position: Roll body

Machining type: Rough machining

Inserts grade: FBN7600

Insert specification: SNMN201020

Cutting type: Dry cutting

Cutting parameters: $V_c=50\text{m/min}$

$a_p=8\text{mm}$

$f = 0.5\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **50%**

The efficiency is promoted by **40%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
domestic brand	30	200	1
Funik FBN7600	50	120	1.5

Industry – Roll - Strip roll



Workpiece name: Strip roll
 Workpiece material: High NiCr
 Workpiece hardness: HSD75-85
 Machining position: Roll body
 Machining type: Rough machining
 Inserts grade: FBN7600
 Insert specification: SNMN150716
 Cutting type: Dry cutting
 Cutting parameters: $V_c=30\text{m/min}$
 $a_p=5\text{mm}$
 $f=0.5\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **100%**

The efficiency is promoted by **45%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
domestic brand	20	200	0.5
Funik FBN7600	40	110	1

Industry – Roll - Screw thread steel roll



Workpiece name: Screw thread steel roll

Workpiece material: High speed steel

Workpiece hardness: HSD80-85

Machining position: Outer circle of roll body, groove

Machining type: Rough machining

Inserts grade: FBN7600

Insert specification: RCMX120700Y

Cutting type: Dry cutting

Cutting parameters: $V_c=72\text{m/min}$

$a_p=2\text{mm}$

$f = 0.4\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **200%**

The efficiency is promoted by **33%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min/pcs)	Life (pcs/edge)
domestic brand	48	60	1
Funik FBN7600	72	40	3

Industry – Roll - Screw thread steel roll



Workpiece name: Screw thread steel roll

Workpiece material: High speed steel

Workpiece hardness: HSD80-85

Machining position: Outer circle of roll body, groove

Machining type: Finishing

Inserts grade: FBN7200

Insert specification: RCMX090700Y

Cutting type: Dry cutting

Cutting parameters: $V_c=103\text{m/min}$

$a_p=0.3\text{mm}$

$f = 0.2\text{mm/r}$

Funik CBN cutting tool:

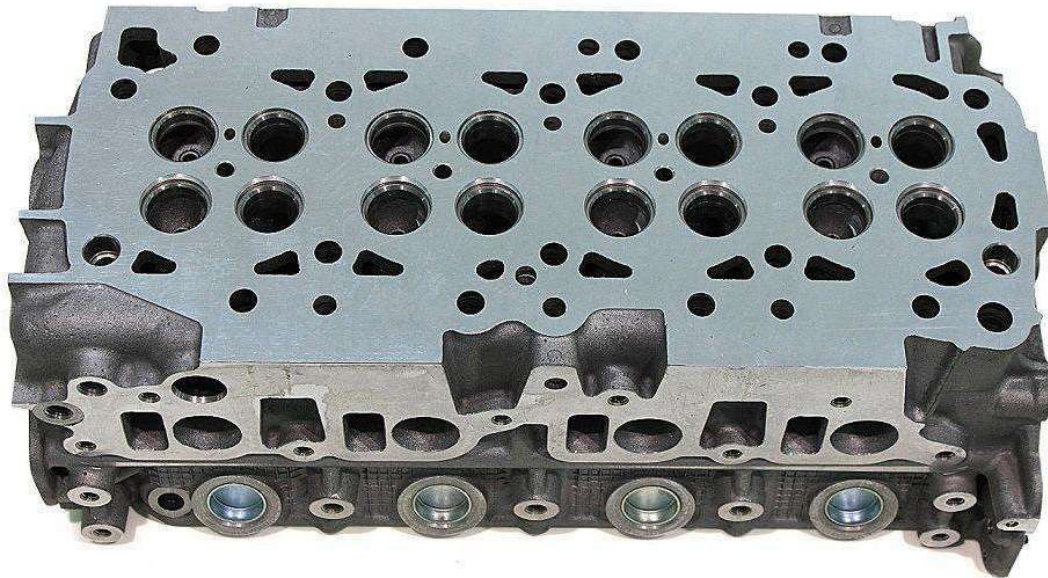
The life is improved by **100%**

The efficiency is promoted by **33%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min/pcs)	Life (pcs/edge)
domestic brand	68	90	1
Funik FBN7200	103	60	2

Application Case of Engine Cylinder Head

Industry – Automobile - Engine cylinder head



Workpiece name: Engine cylinder head

Workpiece material: HT250

Workpiece hardness: HB220

Machining position: Above cylinder block

Machining type: Finishing

Inserts grade: FBN5800

Insert specification: SNEN090408

Cutting type: Dry cutting

Cutting parameters: $V_c=500\text{m/min}$

$a_p=0.3\text{mm}$

$F = 2000\text{mm/min}$

Funik CBN cutting tool:

The life is improved by 260%

The efficiency is promoted by 20%

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Some European alloy	220	10	55
Funik FBN5800	500	8	200

Application Case of Gearbox

Industry – Automobile - Gearbox



Workpiece name: Gearbox shell

Workpiece material: HT250

Workpiece hardness: HB200

Machining position: Milling face

Machining type: Finishing

Inserts grade: FBN5800

Insert specification: SNEN090412ENS

Cutting type: Wet cutting

Cutting parameters: $V_c=667\text{m/min}$

$a_p=2\text{mm}$

$f = 0.1\text{mm/tooth}$

Funik CBN cutting tool:

The life is improved by **900%**

The efficiency is promoted by **62%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
European ceramics	235	1.3	10
Funik FBN5800	667	0.5	100

Application Case of Flywheel

Industry – Automobile - Flywheel



Workpiece name: Flywheel
 Workpiece material: HT250
 Workpiece hardness: HB190
 Machining position: Plane and inner diameter
 Machining type: Finishing
 Inserts grade: FBN7600
 Insert specification: RCMX090700Y
 Cutting type: Dry cutting
 Cutting parameters: $V_c=247\text{m/min}$
 $a_p=0.5\text{mm}$
 $f = 0.2\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **54%**

The efficiency is promoted by **25%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s /pcs)	Life (pcs/edge)
domestic brand	178	24	65
Funik FBN7600	247	18	100

Application Case of Powder Metallurgy

Industry – Powder metallurgy - Planet carrier



Workpiece name: Planet carrier

Workpiece material: Powder metallurgy

Workpiece hardness: HB190-210

Machining position: Inner hole

Machining type: Finishing

Inserts grade: FBK7520 C07

Insert specification: VCGW160404

Cutting type: Dry cutting

Cutting parameters: $V_c=200\text{m/min}$

$a_p=0.2\text{mm}$

$f=0.15\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **200%**

The efficiency is promoted by **60%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
domestic brand	120	50	100
Funik FBK7520C0 7	200	20	300

Industry – Powder metallurgy - Synchronous meshing gear



Workpiece name: Synchronous meshing gear

Workpiece material: Powder metallurgy

Workpiece hardness: HRC38 (Particle hardness HRC57)

Machining position: End face

Machining type: Finishing

Inserts grade: FBK7520 C07

Insert specification: CNGA120408

Cutting type: Dry cutting

Cutting parameters: $V_c=180\text{m/min}$

$a_p=0.2\text{mm}$

$f = 0.2\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **33%**

The efficiency is promoted by **50%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/ edge)
European brand	120	40	150
Funik FBK7520C07	180	20	200

Application Case of CV Joint

Industry – Auto parts - CV joint



Workpiece name: CV joint
 Workpiece material: S55C (No. 55 steel)
 Workpiece hardness: HRC58-62 (No quenching in the chuck)
 Machining position: Outer circle
 Machining type: Finishing
 Inserts grade: FBK9550C06
 Insert specification: DNGM150408FV
 Cutting type: Dry cutting
 Cutting parameters: $V_c=120\text{m/min}$
 $a_p=0.2\text{-}0.3\text{mm}$
 $f = 0.2\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **20%**

The efficiency is promoted by **17%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Japanese brand	100	30	250
Funik FBK9550C06	120	25	300

Application Case of Crankshaft

Industry – Auto parts - Crankshaft



Workpiece name: Crankshaft
 Workpiece material: QT800
 Workpiece hardness: HRC30-35
 (Isothermal quenching)
 Machining position: Outer circle
 Machining type: Finishing
 Inserts grade: FBV5800
 Insert specification: CNGA120408
 Cutting type: Dry cutting
 Cutting parameters: $V_c=150\text{m/min}$
 $a_p=0.5\text{-}0.7\text{mm}$
 $f = 0.3\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **200%**

The efficiency is promoted by **48%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
domestic alloy	80	230	1
Funik FBV5800	150	120	3

Application Case of Turbocharger

Industry – Auto parts - Turbocharger



Workpiece name: Turbocharger
 Workpiece material: Alloy cast iron
 Workpiece hardness: HRC55-60
 Machining position: Inner hole
 Machining type: Finishing
 Inserts grade: FBK7520C07
 Insert specification: VCGW160404
 Cutting type: Dry cutting
 Cutting parameters: $V_c=120\text{m/min}$
 $a_p=0.2\text{mm}$
 $f = 0.1\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **30%**

The efficiency is promoted by **33%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
domestic brand	80	75	70
Funik FBK7520C0 7	120	50	90

Application Case of Slurry Pump

Industry – Engineering machinery - Slurry pump



Workpiece name: Impeller

Workpiece material: Wear resistant white cast iron

Workpiece hardness: HRC50

Machining position: Chamfer

Machining type: Heavy interrupted, rough machining

Inserts grade: FBN7600

Insert specification: SNGN120712

Cutting type: Dry cutting

Cutting parameters: $V_c=55\text{m/min}$

$a_p=2-3\text{mm}$

$f = 0.3\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **100%**

The efficiency is promoted by **40%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
domestic CBN	40	15	1
Funik FBN7600	55	9	2

Application Case of Rolling Mortar Wall

Industry – Engineering machinery - Rolling mortar wall



Workpiece name: Rolling mortar wall
 Workpiece material: High manganese steel
 Workpiece hardness: HB240
 Machining position: Inner conical surface
 Machining type: Continuous, rough machining
 Inserts grade: FBN7600
 Insert specification: SNMN150716
 Cutting type: Dry cutting
 Cutting parameters: $V_c=60\text{m/min}$
 $a_p=6\text{mm}$
 $f = 0.4\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **200%**

The efficiency is promoted by **14%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
European CBN	60	70	1
Funik FBN7600	75	60	3

Industry – Engineering machinery - Rolling mortar wall



Workpiece name: Rolling mortar wall

Workpiece material: Mn18

Workpiece hardness: HB300

Machining position: Inner conical surface

Machining type: Continuous, rough machining

Inserts grade: FBN7600

Insert specification: SNMN150716

Cutting type: Dry cutting

Cutting parameters: $V_c=100\text{m/min}$

$a_p=5\text{mm}$

$f = 0.5\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **200%**

The efficiency is promoted by **36%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Japanese and Korean alloy	40	140	0.3
Funik FBN7600	100	90	1

Application Case of Gear Shaft

Industry – Automobile - Gear shaft



Workpiece name: Intermediate shaft

Workpiece material: 20CrMnTiH

Workpiece hardness: HRC58-62

Machining position: Cylindrical surface
at both ends

Machining type: Continuous, finishing

Inserts grade: FBK9540 C06

Insert specification: CNGA120408KD

Cutting type: Dry cutting

Cutting parameters: $V_c=200\text{m/min}$

$a_p=0.25\text{mm}$

$f = 0.1\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **570%**

The efficiency is promoted by **50%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
European CBN	120	30	60
Funik FBK9540C0 6	200	15	400

Industry – Automobile - Gear shaft



Workpiece name: Intermediate shaft

Workpiece material: 20CrMnTiH

Workpiece hardness: HRC58-62

Machining position: Cylindrical surface
at both ends

Machining type: Continuous, finishing

Inserts grade: FBK9540 C06

Insert specification: DNGA150408

Cutting type: Dry cutting

Cutting parameters: $V_c=180\text{m/min}$

$a_p=0.25\text{mm}$

$f = 0.08\text{mm/r}$

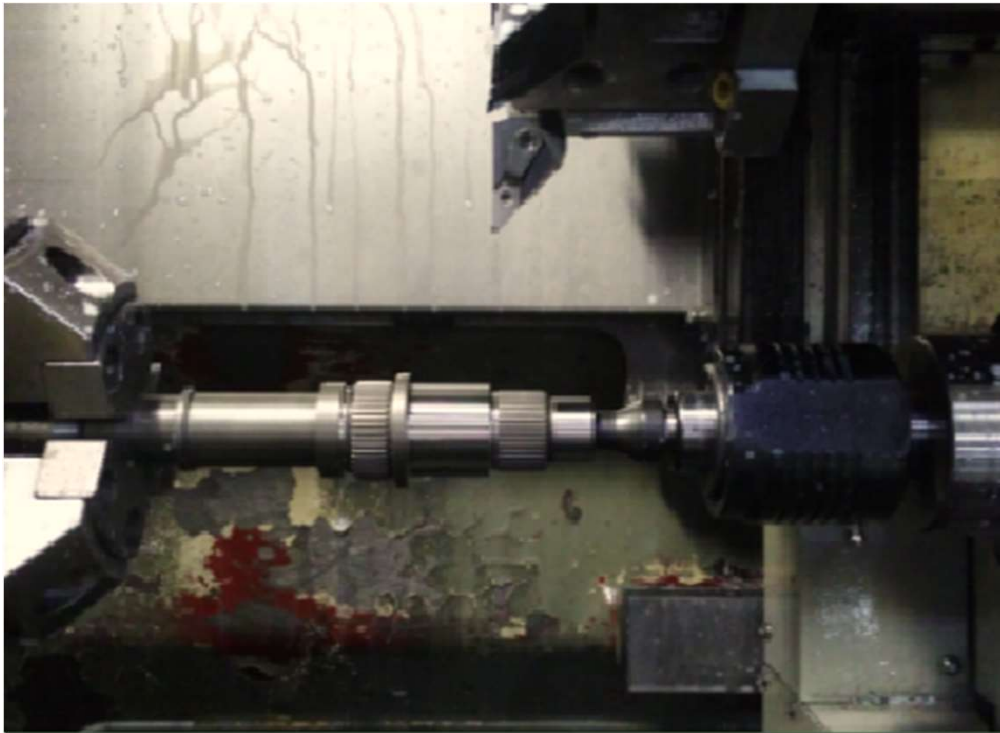
Funik CBN cutting tool:

The life is improved by **11%**

The efficiency is promoted by **25%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Japanese CBN	150	12	120
Funik FBK9540C0 6	180	9	600

Industry – Automobile - Transmission shaft



Workpiece name: Transmission shaft

Workpiece material: 20CrMo

Workpiece hardness: HRC58-65

Machining position: Cylindrical surface
at both ends

Machining type: Light interrupted,
finishing

Inserts grade: FBK9560 C06

Insert specification: VNGA160408

Cutting type: Wet cutting

Cutting parameters: $V_c=180\text{m/min}$

$a_p=0.1\text{mm}$

$f = 0.15\text{mm/r}$

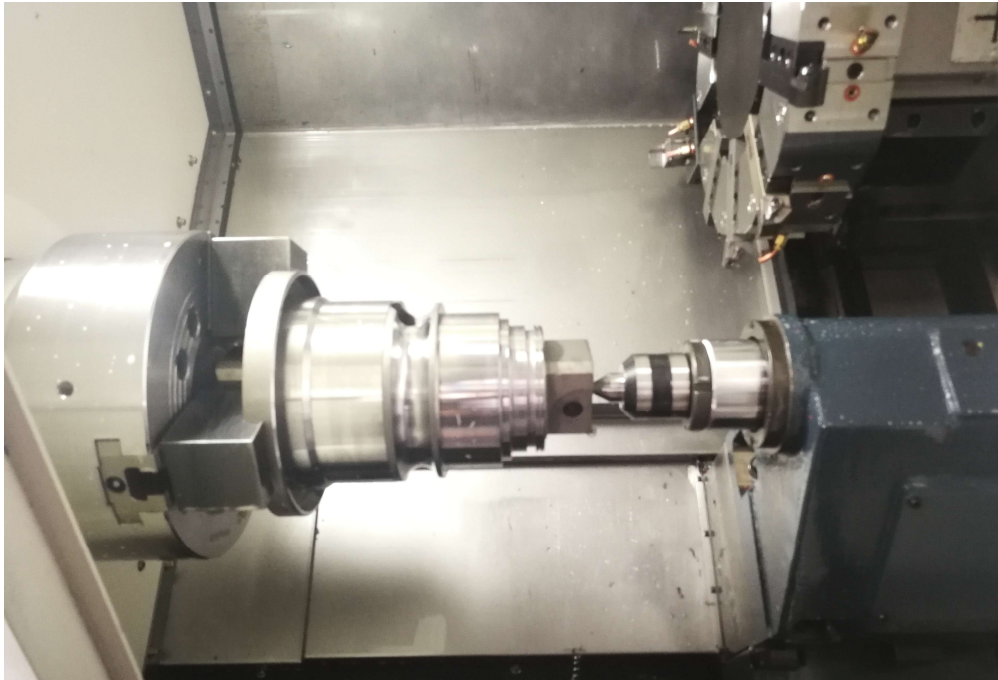
Funik CBN cutting tool:

The life is improved by **200%**

The efficiency is promoted by **40%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Japanese and Korean CBN	130	10	100
Funik FBK9560C0 6	180	6	300

Industry – Mining machinery -Rolling shaft



Workpiece name: Rolling shaft
 Workpiece material: 15CrNiMo
 Workpiece hardness: HRC58-62
 Machining position: Outer circle
 Machining type: Semi-finishing
 Inserts grade: FBV5800 C06
 Insert specification: CNGA120412
 Cutting type: Dry cutting
 Cutting parameters: $V_c=180\text{m/min}$
 $a_p=0.2\text{mm}$
 $f=0.25\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **25%**

The efficiency is promoted by **20%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
domestic brand	150	10	4
Funik FBV800 C06	180	8	5

Application Case of Belt Pulley

Industry – Automobile - Driven belt pulley shaft



Workpiece name: Driven belt pulley shaft

Workpiece material: 20CrMnTiH

Workpiece hardness: HRC58-62

Machining position: Outer circle

Machining type: Semi-finishing

Inserts grade: FBK9560 C06

Insert specification: CNGA120412

Cutting type: Dry cutting

Cutting parameters: $V_c=140\text{m/min}$

$a_p=0.15\text{mm}$

$f=0.25\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **50%**

The efficiency is promoted by **5%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
domestic brand	100	2	80
Funik FBK9560 C06	140	1.9	120

Application Case of Gear

Industry – Automobile - Driven gear



Workpiece name: Driven gear
 Workpiece material: 20CrMnTiH
 Workpiece hardness: HRC58-62
 Machining position: End face, outer circle
 Machining type: Continuous, finishing
 Inserts grade: FBK9560 C06
 Insert specification: CNGA120408
 Cutting type: Dry cutting
 Cutting parameters: $V_c=140\text{m/min}$
 $a_p=0.07\text{mm}$
 $f = 0.08\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **570%**

The efficiency is promoted by **8%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
European CBN	130	12	150
Funik FBK9560C06	140	11	1000

Industry – Automobile - Cylindrical gear



Workpiece name: Cylindrical gear
 Workpiece material: 22CrMoH2
 Workpiece hardness: HRC58-62
 Machining position: Inner hole, end face
 Machining type: Continuous, finishing
 Inserts grade: FBK9550 C06
 Insert specification: CNGA120408
 Cutting type: Dry cutting
 Cutting parameters: $V_c=190\text{m/min}$
 $a_p=0.1\text{-}0.2\text{mm}$
 $f=0.11\text{mm/r}$

Funik CBN cutting tool:

The life is improved by 400%

The efficiency is promoted by 10%

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Japanese and Korean CBN	160	10	40
Funik FBK9550C06	190	9	200

Industry – Automobile - Planetary gear



Workpiece name: Planetary gear

Workpiece material: 20CrMnTi

Workpiece hardness: HRC58-65

Machining position: Spherical end face

Machining type: Continuous, finishing

Inserts grade: FBK9540 C06

Insert specification: TNGA160408

Cutting type: Dry cutting

Cutting parameters: $V_c=200\text{m/min}$

$a_p=0.15\text{mm}$

$f = 0.08\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **11%**

The efficiency is promoted by **20%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s /pcs)	Life (pcs/edge)
Japanese CBN	190	5	450
Funik FBK9540C0 6	200	4	500

Industry – Automobile - Bevel gear



Workpiece name: Bevel gear
 Workpiece material: 20CrMnTiH
 Workpiece hardness: HRC58-62
 Machining position: Inner hole, end face
 Machining type: Continuous, interrupted, finishing
 Inserts grade: FBK9560 C06
 Insert specification: CNGA120408
 Cutting type: Dry cutting
 Cutting parameters: $V_c=170\text{m/min}$
 $a_p=0.1\text{mm}$
 $f = 0.12\text{mm/r}$

Funik CBN cutting tool:

The life is improved by 700%

The efficiency is promoted by 25%

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/ edge)
domestic CBN	150	12	10
Funik FBK9560C06	170	9	80

Industry – Automobile - Rear axle gear



Workpiece name: Rear axle gear
 Workpiece material: 20CrMnTiH
 Workpiece hardness: HRC58-62
 Machining position: Outer circle + end face
 Machining type: Finishing
 Inserts grade: FBV5800 C06
 Insert specification: CNGA120412
 Cutting type: Dry cutting
 Cutting parameters: $V_c=160\text{m/min}$
 $a_p=0.15\text{mm}$
 $f=0.12\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **25%**

The efficiency is promoted by **20%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
domestic brand	140	1.5	120
Funik FBV5800C06	160	1.2	150

Industry – Automobile - Gear ring



Workpiece name: Gear ring
 Workpiece material: SCM420H
 Workpiece hardness: HRC45-48
 Machining position: Inner end face
 Machining type: Finishing
 Inserts grade: FBK9560 C06
 Insert specification: CNGA120412
 Cutting type: Dry cutting
 Cutting parameters: $V_c=140\text{m/min}$
 $a_p=0.13\text{mm}$
 $f=0.12\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **25%**

The efficiency is promoted by **13%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
domestic brand	120	40	80
Funik FBK9560 C06	140	35	100

Industry – Automobile - Main rotating hub



Workpiece name: Main rotating hub

Workpiece material: 20MnCr5

Workpiece hardness: HRC58-62

Machining position: End face

Machining type: Semi-finishing

Inserts grade: FBV5800 C06

Insert specification: DNGA150408

Cutting type: Wet cutting

Cutting parameters: $V_c=160\text{m/min}$

$a_p=0.8\text{mm}$

$f=0.3\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **120%**

The efficiency is promoted by **10%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
domestic brand	120	5	50
Funik FBV5800 C06	160	4.5	125

Industry – Automobile - Combined gear



Workpiece name: Combined gear of gearbox

Workpiece material: 16MnCr5

Workpiece hardness: HRC58-62

Machining position: Inner hole, end face

Machining type: Continuous, finishing

Inserts grade: FBK9550 C06

Insert specification: VBGW160404

Cutting type: Dry cutting

Cutting parameters: $V_c=160\text{m/min}$

$a_p=0.1\text{mm}$

$f = 0.01\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **400%**

The efficiency is promoted by **25%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Japanese and Korean CBN	140	4	50
Funik FBK9550C06	160	3	250

Application Case of Slewing Ring

Industry – Wind power - Slewing ring



Workpiece name: Slewing ring

Workpiece material: 42CrMo

Workpiece hardness: HRC47-55

Machining position: Raceway

Machining type: Interrupted, finishing

Inserts grade: FBN9500

Insert specification: RCMX090700

Cutting type: Dry cutting

Cutting parameters: $V_c=90\text{m/min}$

$a_p=0.3\text{mm}$

$f = 0.3\text{mm/r}$

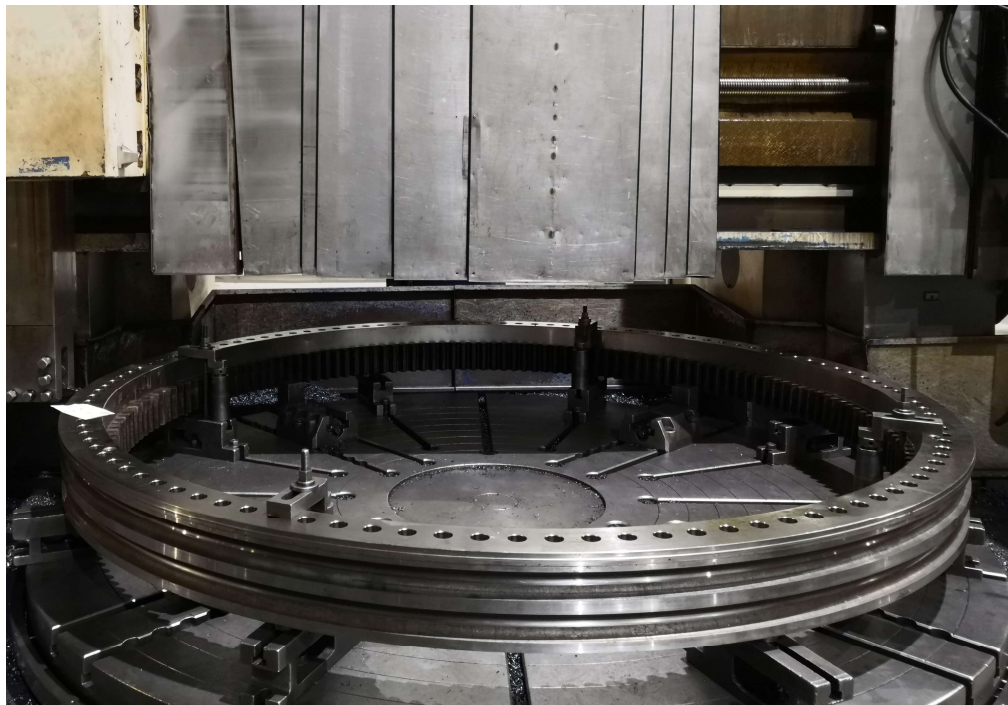
Funik CBN cutting tool:

The life is improved by **300%**

The efficiency is promoted by **16%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
European ceramics	70	60	1
Funik FBN9500	90	50	4

Industry – Wind power - Slewing ring



Workpiece name: Slewing ring
Workpiece material: 42CrMo
Workpiece hardness: HRC58-62
Machining position: Raceway
Machining type: Grooving finishing
Inserts grade: FBN9500
Insert specification: RNGN090400
Cutting type: Dry cutting
Cutting parameters: $V_c=140\text{m/min}$
 $a_p=1.5\text{mm}$
 $f=0.3\text{mm/r}$

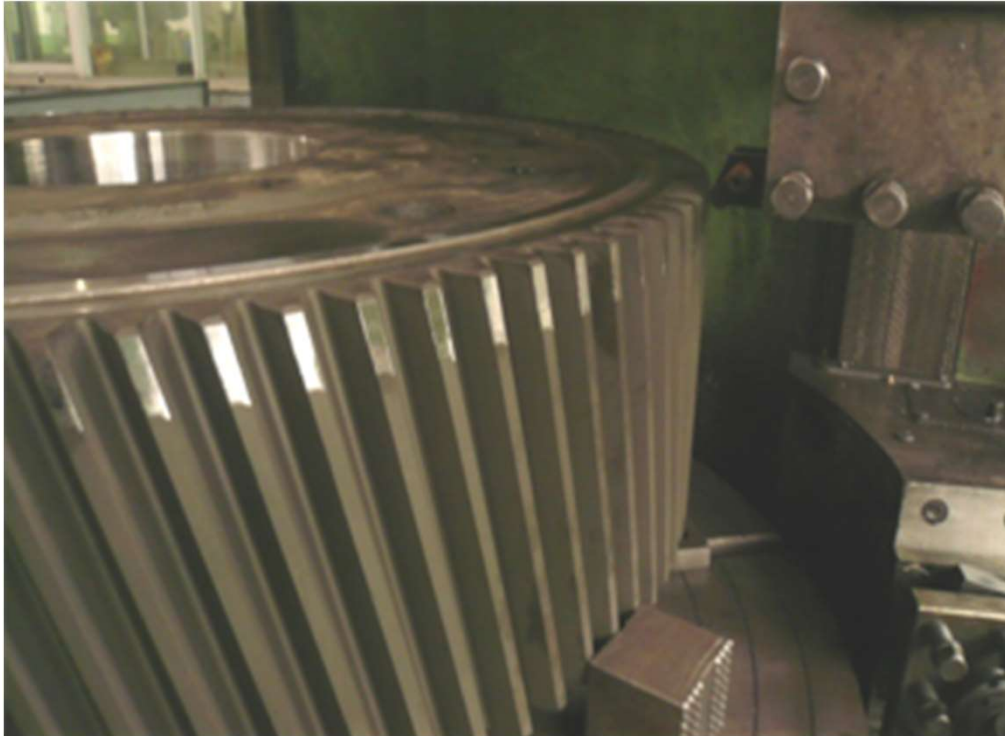
Funik CBN cutting tool:

The life is improved by **100%**

The efficiency is promoted by **40%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/ edge)
domestic brand	100	50	1
Funik FBN9500	140	30	2

Industry – Wind power - Large gear



Workpiece name: Gear

Workpiece material: 42CrMo

Workpiece hardness: HRC45-55

Machining position: Gear tip circle

Machining type: Heavy interrupted, rough machining

Inserts grade: FBN9500

Insert specification: SNMN150716

Cutting type: Dry cutting

Cutting parameters: $V_c=97\text{m/min}$

$a_p=4\text{mm}$

$f = 0.7\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **700%**

The efficiency is promoted by **90%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (hour / pcs)	Life (pcs/edge)
European alloy	20	20	0.25
Funik FBN9500	97	2	2

Application Case of Wheel Hub Bearing Unit

Industry – Automobile - Wheel hub bearing



Workpiece name: Wheel hub bearing
 Workpiece material: 65Mn
 Workpiece hardness: HRC58-62
 Machining position: Raceway
 Machining type: Continuous, finishing
 Inserts grade: FBK9540 C06
 Insert specification: DNGA150408
 Cutting type: Dry cutting
 Cutting parameters: $V_c=200\text{m/min}$
 $a_p=0.15\text{mm}$
 $f = 0.14\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **500%**

The efficiency is promoted by **20%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Japanese CBN	180	1.2	150
Funik FBK9540C06	200	1	900

Industry – Automobile - Bearing



Workpiece name: Bearing
 Workpiece material: 65Mn
 Workpiece hardness: HRC58-62
 Machining position: Raceway
 Machining type: Continuous, finishing
 Inserts grade: FBK9550C06
 Insert specification: VBGW160408
 Cutting type: Wet cutting
 Cutting parameters: $V_c=120\text{m/min}$
 $a_p=0.5\text{mm}$
 $f = 0.15\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **370%**

The efficiency is promoted by **67%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Japanese CBN	120	9	15
Funik FBK9550C06	120	3	70

Industry – Auto parts - Wheel hub bearing



Workpiece name: Wheel hub bearing unit

Workpiece material: 65Mn

Workpiece hardness: HRC58-63

Machining position: Raceway

Machining type: Continuous, finishing

Inserts grade: FBV5800 C06

Insert specification: VNGA160408

Cutting type: Dry cutting

Cutting parameters: $V_c=185\text{m/min}$

$a_p=0.15\text{mm}$

$f = 0.1\text{mm/r}$

Funik CBN cutting tool:

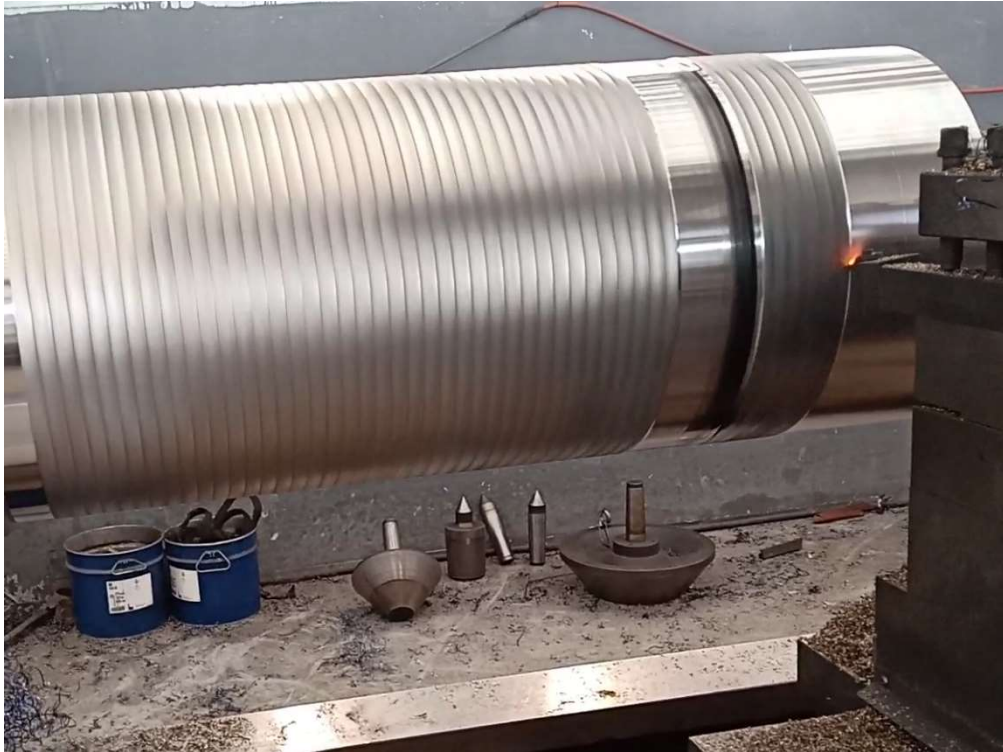
The life is improved by **22%**

The efficiency is promoted by **50%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
Somedomestic CBN	120	1.5	90
Funik FBV5800C06	185	1	110

Application Case of Laser Cladding

Industry – Mining machinery - Piston rod



Workpiece name: Piston rod
 Workpiece material: 20Cr2Ni4A
 Workpiece hardness: HRC58-60
 Machining position: Outer circle
 Machining type: Continuous, finishing
 Inserts grade: FBN9500
 Insert specification: RNGN090400
 Cutting type: Dry cutting
 Cutting parameters: $V_c=120\text{m/min}$
 $a_p=0.4\text{-}0.5\text{mm}$
 $f = 0.25\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **700%**

The efficiency is promoted by **60%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (min / pcs)	Life (pcs/edge)
European alloy	48	75	0.5
Funik FBN9500	120	30	4

Application Case of Belt Pulley

Industry – Auto parts - Belt pulley



Workpiece name: Belt pulley

Workpiece material: Gray cast iron

Workpiece hardness: HB220

Machining position: Outer circle, end face

Machining type: Continuous finishing

Inserts grade: FBK7520C07

Insert specification: DNGA150408

Cutting type: Wet cutting

Cutting parameters: $V_c=427\text{m/min}$

$a_p=0.2\text{mm}$

$F = 0.035\text{mm/r}$

Funik CBN cutting tool:

The life is improved by 20%

The efficiency is promoted by 32%

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Japanese and Korean CBN	301	19	250
Funik FBK7520C07	427	13	300

Application Case of Cylinder Liner

Industry – Auto parts - Cylinder liner



Workpiece name: Cylinder liner
 Workpiece material: Alloy cast iron
 Workpiece hardness: HB230-260
 Machining position: Inner hole
 Machining type: Continuous finishing
 Inserts grade: FBV7200
 Insert specification: SCGW09T308
 Cutting type: Wet cutting
 Cutting parameters: $V_c=300\text{m/min}$
 $a_p=0.6\text{mm}$
 $F = 0.25\text{mm/r}$

Funik CBN cutting tool:

The life is improved by **600%**

The efficiency is promoted by **13%**

Cutting tool contrast	Cutting speed $V_c(\text{m/min})$	Efficiency (s / pcs)	Life (pcs/edge)
Japanese and Korean ceramics	250	80	100
Funik FBV7200	300	70	700