

## GROOVING

Grade table	.C2
Grade details	.C3
Quick guide	.C4
NDB	.C5
NCG	.C13
BGF	.C15

# GROOVING Grade table

ISO 513	CARBIDE			PCBN	DIAMOND
	CVD COATED	PVD COATED	UNCOATED	UNCOATED	PCD
P Steel	P01				
	P10	JC8025	JP5120		
	P20		JP5125		
	P30		JP5130		
	P40				
M Stainless steel	M01				
	M10		JP5120		
	M20		JP5125		
	M30		JP5130		
	M40				
K Cast iron	K01			MBH450U	
	K10	JC7010	JP5120		
	K20		JP5125		
	K30				
N Non-ferrous materials	N01				
	N10				
	N20			JUG015	
	N30				ND120
H Hardened steel	H01				
	H10				
	H20			MBH450U	
	H30			MB350	

GRADE	SUBSTRATE	HARDNESS HV	COATING		APPLICATION	FEATURES
			TECHNOLOGY	COMPOSITION		
<b>JC7010</b>	carbide	1.830	CVD	TiCN+Al <sub>2</sub> O <sub>3</sub>	<b>K</b> K05 K25	High wear resistance. First choice for grey cast iron general machining.
<b>JC8025</b>	carbide	1.700	CVD	TiCN+Al <sub>2</sub> O <sub>3</sub> +TiN	<b>P</b> P20 P30	All around grade suitable for a wide range of applications. Excellent reliability even on medium interrupted cut.
<b>JP5120</b>	micrograin carbide	1.830	PVD	TiAlN	<b>P</b> P10 P20	Special coating technology balances wear resistance and toughness. The post-coating surface treatment effectively prevents built-up edge.
					<b>M</b> M10 M20	
					<b>K</b> K10 K20	
<b>JP5125</b>	micrograin carbide	1.830	PVD	TiAlN	<b>P</b> P20 P30	High Co micrograin carbide substrate with high toughness and latest coating technology. Universal use with great reliability and long tool life.
					<b>M</b> M20 M30	
					<b>K</b> K20 K30	
<b>JP5130</b>	micrograin carbide	1.830	PVD	TiAlN	<b>P</b> P20 P35	High toughness substrate combined with super-smooth coating designed for precision applications.
					<b>M</b> M20 M35	
<b>JU6015</b>	micrograin carbide	1.950	-	-	<b>N</b> N10 N20	Uncoated carbide for universal use, from finishing to roughing, on non-ferrous materials.
<b>NB350</b>	Low volume CBN 75%	3.400	-	-	<b>H</b> H20 H35	Hardened steel machining with a perfect combination between toughness and wear resistance. Available only for BGF system.
<b>NBH450U</b>	High volume CBN 95%	4.400	-	-	<b>K</b> K01 K20	Gray cast iron machining at very high cutting condition and with great wear resistance. Available only for BGF system.
<b>ND120</b>	diamond 95%	6.000	-	-	<b>N</b> N10 N30	High productivity grooving of non-ferrous materials. Available only for BGF system.

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

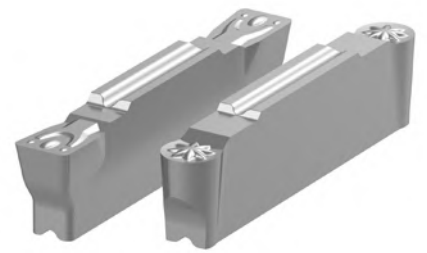
E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

- A - TURNING
- B - THREADING
- C - GROOVING**
- D - MILLING
- E - DRILLING
- F - ACCESSORIES
- G - SPARE PARTS

	NDB	NCG	BGF
	<input type="checkbox"/> C5	<input type="checkbox"/> C13	<input type="checkbox"/> C15
	 EXTERNAL   INTERNAL	 EXTERNAL   INTERNAL	 EXTERNAL
Pressed type inserts	✓	✗	✗
Ground type inserts	✓	✓	✓
Available sizes (CW)	2.00 / 3.00 / 4.00 / 5.00 / 6.00 / 8.00 mm	1.10 ÷ 2.15 mm	1.00 ÷ 4.00 mm
Maximum depth (CDX)	14 / 20 / 25 / 25 / 30 / 30 mm	1.30 ÷ 1.85 mm	1.80 ÷ 4.50 mm
Coolant holes	✓	✗	✗
Workpiece material	<b>P M K N</b>	<b>P M</b>	<b>K N H</b>
No. of cutting edges	2	3	1
No. of geometries	6	1	2
Special features	All-around system	Can be installed on threading tool holders	Easy tailor-made
Grooving 	✓	✓	✓
Turning 	✓	✗	✗
Profiling 	✓	✗	✗
Cut-off 	✓	✗	✗
Versatility	■ ■ ■ ■ ■	■ ■ ■ ■ ■	■ ■ ■ ■ □
Strength	■ ■ ■ ■ □	■ ■ ■ □ □	■ ■ ■ ■ ■
Precision	■ ■ ■ □ □	■ ■ ■ ■ ■	■ ■ ■ ■ □
Finishing	■ ■ ■ ■ □	■ ■ ■ ■ □	■ ■ ■ ■ □
Range	■ ■ ■ ■ □	■ ■ ■ □ □	■ ■ ■ □ □



## GROOVING NDB

Inserts .C6

Holders .C8

Parameters .C10

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

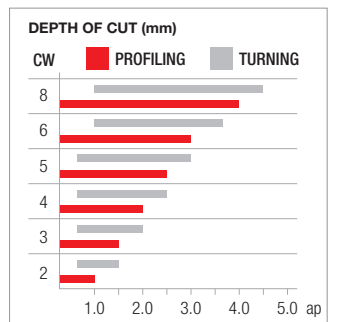
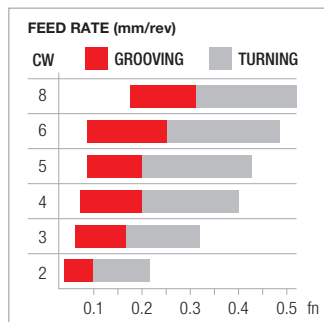
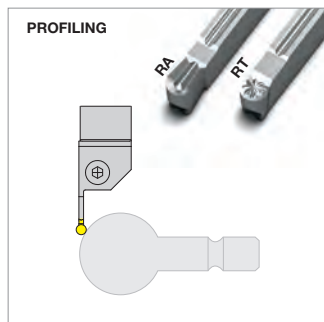
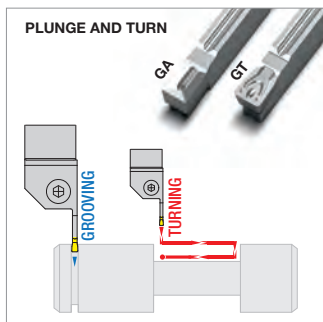
F - ACCESSORIES

G - SPARE PARTS

<h1>NDBD</h1>	HC: Coated carbide HF: Micrograin carbide CVD: Chemical vapour deposition PVD: Physical vapour deposition					HC	HC	HF	HF	HF																																																																							
	CVD PVD HF					<b>JC7010</b> <b>JC8025</b> <b>JP5120</b> <b>JP5125</b> <b>JU6015</b>																																																																											
<h2>NDB system</h2>																																																																																	
<ul style="list-style-type: none"> <li>• Double sided grooving insert</li> <li>• Available for PMKN materials</li> <li>• Max. grooving depth depends on INSL value and holder specifications</li> <li>• Improved holding system, automatically positioned, reliable and efficient</li> </ul>																																																																																	
Stable machining, light cut ● 1 <sup>st</sup> choice ○ suitable General machining, medium cut ● 1 <sup>st</sup> choice ○ suitable Unstable machining, heavy cut ⚡ 1 <sup>st</sup> choice ⚡ suitable																																																																																	
<b>Dimensions</b>					<b>ISO</b>						<b>Vc(m/min) - suggested cutting speed range (bold: 1<sup>st</sup> choice)</b>																																																																						
					<table border="1"> <tr> <td><b>P</b></td> <td>140 330</td> <td>90 200</td> <td>70 180</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>M</b></td> <td></td> <td>60 150</td> <td>50 140</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>K</b></td> <td>130 380</td> <td>90 190</td> <td>60 180</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>N</b></td> <td></td> <td></td> <td></td> <td>200 1000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>S</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td><b>H</b></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>						<b>P</b>	140 330	90 200	70 180								<b>M</b>		60 150	50 140								<b>K</b>	130 380	90 190	60 180								<b>N</b>				200 1000							<b>S</b>											<b>H</b>															
<b>P</b>	140 330	90 200	70 180																																																																														
<b>M</b>		60 150	50 140																																																																														
<b>K</b>	130 380	90 190	60 180																																																																														
<b>N</b>				200 1000																																																																													
<b>S</b>																																																																																	
<b>H</b>																																																																																	

Designation	CW	CWTOL	RE	INSL	S	Stock													
						●	●	●	●	●	●	●	●	●	●				
<b>PLUNGE AND TURN</b> GT <b>P M K</b>  straight edge pressed type	NDBD20R02M-GT	2	±0.050	0.2	16	3.5	●	●											
	NDBD30R04M-GT	3	±0.050	0.4	21	4.8	●	●											
	NDBD40R04M-GT	4	±0.050	0.4	21	4.8	●	●											
	NDBD50R04M-GT	5	±0.050	0.4	26	5.8	●	●											
	NDBD60R08M-GT	6	±0.050	0.8	26	5.8	●	●											
	NDBD80R08M-GT	8	±0.050	0.8	31	6.5	●	●											
<b>PLUNGE AND TURN</b> GA <b>N</b>  ALU straight edge ground and polished	NDBD20R02G-GA	2	±0.025	0.2	16	3.5											●		
	NDBD30R04G-GA	3	±0.025	0.4	21	4.8												●	
	NDBD40R04G-GA	4	±0.025	0.4	21	4.8												●	
<b>PROFILING</b> RT <b>P M K</b>  full radius edge pressed type	NDBD20R10M-RT	2	±0.050	1	16	3.5												●	
	NDBD30R15M-RT	3	±0.050	1.5	21	4.8													●
	NDBD40R20M-RT	4	±0.050	2	21	4.8	●												●
	NDBD50R25M-RT	5	±0.050	2.5	26	5.8	●												●
	NDBD60R30M-RT	6	±0.050	3	26	5.8	●												●
	NDBD80R40M-RT	8	±0.050	4	31	6.5													●
<b>PROFILING</b> RA <b>N</b>  ALU full radius edge ground and polished	NDBD20R10G-RA	2	±0.025	1	16	3.5												●	
	NDBD30R15G-RA	3	±0.025	1.5	21	4.8													●
	NDBD40R20G-RA	4	±0.025	2	21	4.8													●

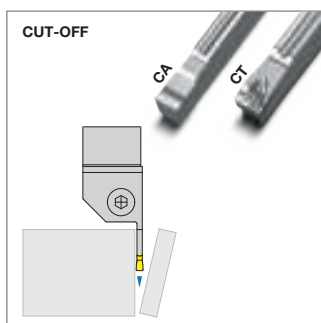
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



<h1>NDBD</h1>	HC: Coated carbide HF: Micrograin carbide CVD: Chemical vapour deposition PVD: Physical vapour deposition					HC	HC	HF	HF	HF	
						CVD	CVD	PVD	PVD		
<h2>NDB system</h2>							<b>JC7010</b>	<b>JC8025</b>	<b>JP5120</b>	<b>JP5125</b>	<b>JU6015</b>
<ul style="list-style-type: none"> <li>• Double sided grooving insert</li> <li>• Available for PMKN materials</li> <li>• Max. grooving depth depends on INSL value and holder specifications</li> <li>• Improved holding system, automatically positioned, reliable and efficient</li> </ul>		Stable machining, light cut ● 1 <sup>st</sup> choice ○ suitable					●	○	●	○	●
		General machining, medium cut ● 1 <sup>st</sup> choice ○ suitable					●	●	●	●	●
		Unstable machining, heavy cut ⚡ 1 <sup>st</sup> choice ⚡ suitable					⚡	⚡		⚡	⚡
		<b>Dimensions</b>		<b>ISO</b>		<b>Vc(m/min) - suggested cutting speed range (bold: 1<sup>st</sup> choice)</b>					
		<b>P</b>		140	90	70					
		<b>M</b>		330	200	180					
		<b>K</b>		130	90	60	50				
		<b>N</b>		380	190	150	140				
		<b>S</b>						200			
<b>H</b>						1000					

	Designation	CW	CWTOL	RE	INSL	S	Stock				
CUT-OFF	 NDBD20R02M-CT concave edge medium feed rate	2	±0.050	0.2	16	3.5			●	●	
		NDBD30R02M-CT	3	±0.050	0.2	21	4.8			●	●
CUT-OFF	 NDBD20R02M-CA concave edge ground and polished	2	±0.025	0.2	16	3.5				●	
		NDBD30R02G-CA	3	±0.025	0.2	21	4.8				●

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



CW	P	Steel	M	Stainless Steel	N	Aluminium
3	CA	0.06 ÷ 0.10		CT	0.08 ÷ 0.12	
	CT	0.10 ÷ 0.18				
	CA	0.04 ÷ 0.08		CT	0.06 ÷ 0.10	
2	CA	0.04 ÷ 0.08		CT	0.08 ÷ 0.14	
	CT	0.08 ÷ 0.14				

0.05 0.10 0.15 0.20 fn

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

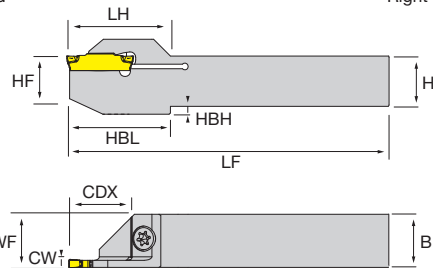
G - SPARE PARTS

# NDB E

## NDB system

- External holders for NDB double sided grooving insert
- Different grooving depth (CDX) available for different groove width
- Clamp fastened and loosened by screw
- Improved holding system, automatically positioned, reliable and efficient

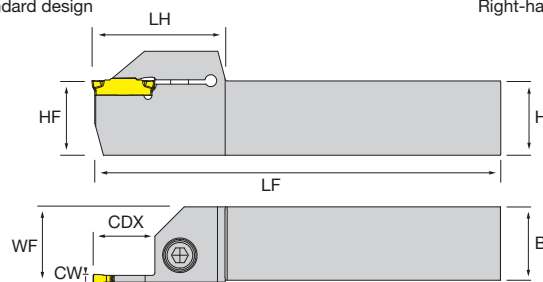
Radial reinforced



Right-hand shown



Standard design



Right-hand shown



Designation	Stock		CW	CDX	H	B	WF	LF	LH	HF	HBL	HBH
	L	R										
WITH RADIAL REINFORCEMENT												
NDB E <sup>1/2</sup> 1212-2-CDX14	●	●	2	14	12	12	12.2	120	25	12	24	2
NDB E <sup>1/2</sup> 1616-2-CDX14	●	●	2	14	16	16	16.2	120	25	16	24	2
NDB E <sup>1/2</sup> 1616-3-CDX20	●	●	3	20	16	16	16.3	120	31	16	30	2
STANDARD DESIGN												
NDB E <sup>1/2</sup> 2020-2-CDX14	●	●	2	14	20	20	21	125	38	20	-	-
NDB E <sup>1/2</sup> 1616-3-CDX10	●	●	3	10	16	16	16.2	120	35	16	-	-
NDB E <sup>1/2</sup> 2020-3-CDX10	●	●	3	10	20	20	21	125	38	20	-	-
NDB E <sup>1/2</sup> 2020-3-CDX20	●	●	3	20	20	20	21	125	40	20	-	-
NDB E <sup>1/2</sup> 2525-3-CDX10	●	●	3	10	25	25	26	150	40	25	-	-
NDB E <sup>1/2</sup> 2525-3-CDX20	●	●	3	20	25	25	26	150	45	25	-	-
NDB E <sup>1/2</sup> 2020-4-CDX10	●	●	4	10	20	20	21	125	35	20	-	-
NDB E <sup>1/2</sup> 2020-4-CDX25	●	●	4	25	20	20	21	125	50	20	-	-
NDB E <sup>1/2</sup> 2525-4-CDX10	●	●	4	10	25	25	26	150	40	25	-	-
NDB E <sup>1/2</sup> 2525-4-CDX25	●	●	4	25	25	25	26	150	50	25	-	-
NDB E <sup>1/2</sup> 2525-5-CDX10	●	●	5	10	25	25	26	150	40	25	-	-
NDB E <sup>1/2</sup> 2525-5-CDX25	●	●	5	25	25	25	26	150	50	25	-	-
NDB E <sup>1/2</sup> 2525-6-CDX15	●	●	6	15	25	25	26	150	45	25	-	-
NDB E <sup>1/2</sup> 2525-6-CDX30	●	●	6	30	25	25	26	150	56	25	-	-
NDB E <sup>1/2</sup> 2525-8-CDX15	●	●	8	15	25	25	26.5	150	43	25	-	-
NDB E <sup>1/2</sup> 2525-8-CDX30	●	●	8	30	25	25	27	150	55	25	-	-

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

Spare parts	Locking screws	Flag wrenches	Locking screws	L wrench
NDB E <sup>1/2</sup> 1212-2-CDX14	NT-ST076	NT-FT15	-	-
NDB E <sup>1/2</sup> 1616-2-CDX14	NT-ST077	NT-FT15	-	-
NDB E <sup>1/2</sup> 1616-3-CDX10	-	-	NT-SC001	NT-WR040
NDB E <sup>1/2</sup> 1616-3-CDX20	NT-ST077	NT-FT15	-	-
NDB E <sup>1/2</sup> 2020-○-CDX∞	-	-	NT-SC001	NT-WR040
NDB E <sup>1/2</sup> 2525-○-CDX∞	-	-	NT-SC002	NT-WR040



<h1>NDB I</h1>	Right-hand shown	
<h2>NDB system</h2>		
<ul style="list-style-type: none"> <li>• Internal holders for NDB double-headed grooving insert</li> <li>• Vortex boring bar (high quality steel) with coolant through</li> <li>• Special chip evacuation path</li> <li>• Clamp tightened by screw</li> </ul>		

Designation	Stock		CW	CDX	DMIN	DCON	WF	LF	OHN	GAMO		
	L	R										
NDB I/1620V-2-CDX04	●	●	2	4	20	16	11.5	150	25	15°		
NDB I/2025V-2-CDX06	●	●	2	6	25	20	14.5	180	30	15°		
NDB I/2025V-3-CDX06	●	●	3	6	25	20	14.5	180	30	15°		
NDB I/2532V-3-CDX08	●	●	3	8	32	25	19	200	40	15°		
NDB I/3240V-3-CDX10	●	●	3	10	40	32	23.5	200	50	15°		
NDB I/2532V-4-CDX08	●	●	4	8	32	25	19	220	40	15°		
NDB I/3240V-4-CDX10	●	●	4	10	40	32	23.5	220	50	15°		

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

Spare parts	Insert screws	L wrench
NDB I/1620V-2-CDX04	NT-ST40115T15	NT-TX15
NDB I/16000V-0-CDX00	NT-ST051	NT-TX20

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

ISO 513	MATERIAL	HARDNESS HB	JG8025			JP5120			JP5125					
			min	start	max	min	start	max	min	start	max			
P1 - P2	Free cutting steel and low carbon (ex. 1.0715/9 smn 28/avp, 1.0503/c45)	≤ 200	○	170	250	330	●	100	150	200	○	100	140	180
			●	160	225	290	●	90	130	170	●	80	120	160
			⊕	140	195	250					⊕	70	100	130
P3 - P4	Medium and high alloy steel (ex. 1.7225/42 CrMo 4, 1.3505/100 Cr 6)	200 ÷ 300	○	150	220	290	●	90	130	170	○	80	120	160
			●	140	205	270	●	80	110	140	●	70	100	120
			⊕	130	190	250					⊕	60	80	100
P5 - P6	High tensile strength and tool steel (ex. 1.2344/X 40 CrMoV 5 1/ORVAR, Hardox400®)	300 ÷ 400	○	140	205	270	●	80	115	150	○	70	100	130
			●	130	190	250	●	70	100	130	●	60	90	120
			⊕	120	170	220					⊕	60	80	100
ISO 513	MATERIAL	HARDNESS HB	JP5120			JP5125								
P7	Ferritic and martensitic stainless steel (ex. 1.4021/X 20 Cr 13/AISI420)	≤ 200	●	100	150	200	○	100	140	180				
			●	90	130	170	●	80	120	160				
			⊕				⊕	70	100	130				
P8	Precipitation hardening stainless steel (ex. 1.4548/X 5 CrNiCuNb 17 4/17-4-PH)	≤ 450	●	70	90	110	○	60	80	100				
			●	60	80	100	●	50	70	90				
			⊕				⊕	50	60	70				
M1	Austenitic stainless steel (ex. 1.4305/X 10 CrNiS 18 9/AISI303)	> 200	●	70	110	150	○	60	100	140				
			●	60	100	140	●	50	90	130				
			⊕				⊕	50	80	110				
M2 - M3	Austenitic and Duplex stainless steel (ex. 1.4401/X 5 CrNiMo 17 12 2/AISI316)		●	70	100	130	○	60	90	120				
			●	60	90	120	●	60	80	100				
			⊕				⊕	50	70	90				
ISO 513	MATERIAL	HARDNESS HB	JG7010			JP5120			JP5125					
K1	Grey cast iron (ex. 0.6025/GG 25/EN-GJL-250)	150 ÷ 250	●	180	280	380	●	110	150	190	○	100	140	180
			●	150	225	300	●	90	130	170	●	80	115	150
			⊕	130	195	260					⊕	60	90	120
K2	Nodular cast iron (ex. 0.7050/GGG 50/EN-GJS-500-7)	150 ÷ 350	●	150	200	250	●	90	130	170	○	80	120	160
			●	130	175	220	●	80	110	140	●	70	95	120
			⊕	120	160	200					⊕	60	80	100
K3 - K4	Austenitic and ADI cast iron (ex. 0.6660/GGL-NiCr 20 2/Ni-Resist 2, GJS-1000-5/ADI1000)	250 ÷ 500	●	140	190	240	●	80	110	140	○	70	105	140
			●	120	165	210	●	70	100	130	●	60	90	120
			⊕	110	155	200					⊕	50	75	100
ISO 513	MATERIAL	HARDNESS HB	JU6015											
N1	Aluminium alloys ≤ Si 12% (ex. 3.4365/AlZn5.5MgCu/ERGA)		●	400	700	1000								
			●	300	500	700								
			⊕	200	400	600								
N2	Aluminium alloys Si > 12% (ex. 3.2382/G-AlSi12)		●	200	300	400								
			●	200	250	300								
			⊕	100	150	200								

Complete workpiece materials p. H1.

DESIGNATION		Grooving			Turning and Profiling						Cut-off		
		FEED RATE			DEPTH OF CUT			FEED RATE			FEED RATE		
		fn (mm/rev)			ap (mm)			fn (mm/rev)			fn (mm/rev)		
		min	start	max	min	start	max	min	start	max	min	start	max
STRAIGHT EDGE	NDBD20R020-Go	0.06	<b>0.08</b>	0.10	0.30	<b>0.90</b>	1.50	0.10	<b>0.13</b>	0.16	-	-	-
	NDBD30R040-Go	0.07	<b>0.10</b>	0.13	0.40	<b>1.20</b>	2.00	0.16	<b>0.18</b>	0.20	-	-	-
	NDBD40R040-Go	0.10	<b>0.12</b>	0.14	0.50	<b>1.50</b>	2.50	0.18	<b>0.21</b>	0.24	-	-	-
	NDBD50R040-Go	0.11	<b>0.15</b>	0.19	0.60	<b>1.80</b>	3.00	0.20	<b>0.25</b>	0.30	-	-	-
	NDBD60R080-Go	0.13	<b>0.19</b>	0.25	0.70	<b>2.10</b>	3.50	0.24	<b>0.33</b>	0.42	-	-	-
	NDBD80R080-Go	0.18	<b>0.26</b>	0.34	0.80	<b>2.65</b>	4.50	0.32	<b>0.44</b>	0.56	-	-	-
FULL RADIUS	NDBD20R10-Ro	0.06	<b>0.09</b>	0.12	0.00	<b>0.50</b>	1.00	0.14	<b>0.18</b>	0.22	-	-	-
	NDBD30R15-Ro	0.08	<b>0.11</b>	0.14	0.00	<b>0.75</b>	1.50	0.18	<b>0.23</b>	0.28	-	-	-
	NDBD40R20-Ro	0.10	<b>0.13</b>	0.16	0.00	<b>1.00</b>	2.00	0.20	<b>0.27</b>	0.34	-	-	-
	NDBD50R25-Ro	0.12	<b>0.16</b>	0.20	0.00	<b>1.25</b>	2.50	0.24	<b>0.33</b>	0.42	-	-	-
	NDBD60R30-Ro	0.13	<b>0.19</b>	0.25	0.00	<b>1.50</b>	3.00	0.24	<b>0.37</b>	0.50	-	-	-
	NDBD80R40-Ro	0.18	<b>0.26</b>	0.34	0.00	<b>2.00</b>	4.00	0.32	<b>0.49</b>	0.66	-	-	-
CONCAVE EDGE	NDBD20R02M-CA	-	-	-	-	-	-	-	-	-	0.04	<b>0.06</b>	0.08
	NDBD30R04M-CA	-	-	-	-	-	-	-	-	-	0.06	<b>0.08</b>	0.10
	NDBD20R02M-CT	-	-	-	-	-	-	-	-	-	0.06	<b>0.10</b>	0.14
	NDBD30R04M-CT	-	-	-	-	-	-	-	-	-	0.08	<b>0.13</b>	0.18

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS





## GROOVING NCG

Inserts .C14

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

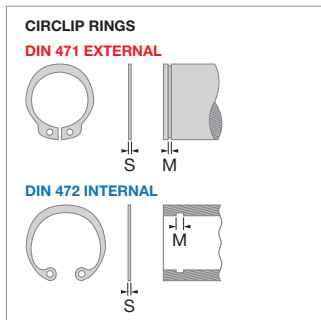
F - ACCESSORIES

G - SPARE PARTS

<h1>NCG</h1>	HF: Micrograin carbide PVD: Physical vapour deposition	HF PVD
	<b>JP5130</b>	
<h2>Circlip Grooving</h2>	Stable machining, light cut ● 1 <sup>st</sup> choice ○ suitable General machining, medium cut ● 1 <sup>st</sup> choice ○ suitable Unstable machining, heavy cut ▲ 1 <sup>st</sup> choice ▲ suitable	
<ul style="list-style-type: none"> <li>Triple head top mounted grooving insert</li> <li>Available for P/M materials</li> <li>According to DIN 471/472</li> <li>Can share holders with 16IR/ER threading inserts</li> </ul>	<b>Dimensions</b> 	<b>ISO</b> P 60-180 M 50-110 K N S H
<b>Vc(m/min) - suggested cutting speed range (bold: 1<sup>st</sup> choice)</b>		
P 60-180		
M 50-110		
K		
N		
S		
H		

Designation		CW	CWTOL	CDX	RE	IC	Stock	
<b>EXTERNAL</b> 	<b>P M</b> NCG16ER 110-010	1.1	0/+0.02	1.3	0.1	9.525	●	
	NCG16ER 130-010	1.3	0/+0.02	1.6	0.1	9.525	●	
	NCG16ER 160-010	1.6	0/+0.02	1.85	0.1	9.525	●	
	NCG16ER 185-010	1.85	0/+0.02	1.85	0.1	9.525	●	
	NCG16ER 215-010	2.15	0/+0.02	1.85	0.1	9.525	●	
<b>INTERNAL</b> 	<b>P M</b> NCG16IR 110-010	1.1	0/+0.02	1.3	0.1	9.525	●	
	NCG16IR 130-010	1.3	0/+0.02	1.6	0.1	9.525	●	
	NCG16IR 160-010	1.6	0/+0.02	1.85	0.1	9.525	●	
	NCG16IR 185-010	1.85	0/+0.02	1.85	0.1	9.525	●	
	NCG16IR 215-010	2.15	0/+0.02	1.85	0.1	9.525	●	

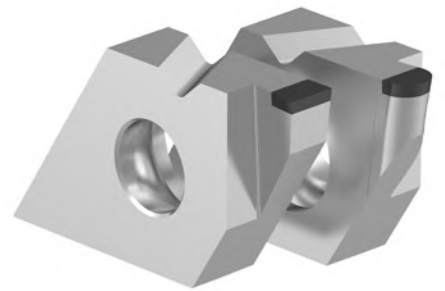
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



RING (S)	GROOVE (M)	TOLL.	INSERT
1.00	1.10	H13	NCG 16 <sup>ER/IR</sup> 110-010
1.20	1.30	H13	NCG 16 <sup>ER/IR</sup> 130-010
1.50	1.60	H13	NCG 16 <sup>ER/IR</sup> 160-010
1.75	1.85	H13	NCG 16 <sup>ER/IR</sup> 185-010
2.00	2.15	H13	NCG 16 <sup>ER/IR</sup> 215-010

Code	Material	Speed Range
P1-P2	Low carbon and soft steel	60÷180
P3-P4	Medium and high alloy steel	60÷160
P5-P6	High tensile strength steel	60÷140
P7	Ferritic stainless steel	60÷120
P8	PH stainless steel	40÷70
M1	Austenitic stainless steel	50÷110
M2-M3	Difficult stainless steel	40÷80

	ER	IR
NCG 16 <sup>ER/IR</sup> 110-010	0.03÷0.07	0.01÷0.05
NCG 16 <sup>ER/IR</sup> 130-010	0.04÷0.08	0.02÷0.06
NCG 16 <sup>ER/IR</sup> 160-010	0.04÷0.08	0.02÷0.06
NCG 16 <sup>ER/IR</sup> 185-010	0.04÷0.10	0.03÷0.07
NCG 16 <sup>ER/IR</sup> 215-010	0.04÷0.10	0.03÷0.07



## GROOVING BGF

Inserts .C16

HOLDERS .C17

# BGF

## Advanced Grooving

- Tangentially mounted brazed-tip advance material grooving inserts
- Available with PCD and CBN type for K / H or N materials
- Reliable and quick change clamping system

BL: Low volume CBN  
BH: High volume CBN  
DP: Polycrystalline diamond

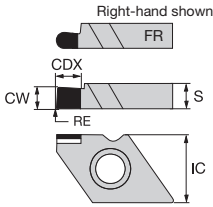
BL BH DP  
**MB350** **MBH4500** **MD120**

Stable machining, light cut ● 1<sup>st</sup> choice ○ suitable

General machining, medium cut ● 1<sup>st</sup> choice ○ suitable

Unstable machining, heavy cut ⚠ 1<sup>st</sup> choice ⚠ suitable

**Dimensions** ISO **Vc(m/min) - suggested cutting speed range (bold: 1<sup>st</sup> choice)**



<b>P</b>				
<b>M</b>				
<b>K</b>	340	1000		
<b>N</b>		450	2400	
<b>S</b>				
<b>H</b>	60	150		

**Designation**

**CW CWTOL CDX RE IC**

**Stock**

Designation	CW	CWTOL	CDX	RE	IC	Stock		
<b>LEFT-HAND</b> <b>N H</b> 	BGFL 100-010	1	±0.050	1.8	0.1	12.7	○	
BGFL 150-010	1.5	±0.050	2.6	0.1	12.7		○	
BGFL 200-020	2	±0.050	3	0.2	12.7		○	
BGFL 250-020	2.5	±0.050	3.5	0.2	12.7	▽	○	
BGFL 300-020	3	±0.050	4.5	0.2	12.7		○	
BGFL 350-020	3.5	±0.050	4.5	0.2	12.7	▽	○	
BGFL 400-020	4	±0.050	4.5	0.2	12.7		○	
<b>LEFT-HAND</b> <b>FR N H</b> 	BGFL 100-050FR	1	±0.050	1.8	0.5	12.7		○
BGFL 150-075FR	1.5	±0.050	2.6	0.75	12.7		○	
BGFL 200-100FR	2	±0.050	3	1	12.7		○	
BGFL 250-125FR	2.5	±0.050	3.5	1.25	12.7		○	
BGFL 300-150FR	3	±0.050	4.5	1.5	12.7		○	
BGFL 350-175FR	3.5	±0.050	4.5	1.75	12.7		○	
BGFL 400-200FR	4	±0.050	4.5	2	12.7		○	
<b>RIGHT-HAND</b> <b>N H</b> 	BGFR 100-010	1	±0.050	1.8	0.1	12.7	▽	○ ○
BGFR 150-010	1.5	±0.050	2.6	0.1	12.7		○ ○	
BGFR 200-020	2	±0.050	3	0.2	12.7		○ ○	
BGFR 250-020	2.5	±0.050	3.5	0.2	12.7	▽	○ ○	
BGFR 300-020	3	±0.050	4.5	0.2	12.7		○ ○	
BGFR 350-020	3.5	±0.050	4.5	0.2	12.7		○ ○	
BGFR 400-020	4	±0.050	4.5	0.2	12.7		○ ○	
<b>RIGHT-HAND</b> <b>FR N H</b> 	BGFR 100-050FR	1	±0.050	1.8	0.5	12.7		○ ○
BGFR 150-075FR	1.5	±0.050	2.6	0.75	12.7		○ ○	
BGFR 200-100FR	2	±0.050	3	1	12.7		○ ○	
BGFR 250-125FR	2.5	±0.050	3.5	1.25	12.7		○ ○	
BGFR 300-150FR	3	±0.050	4.5	1.5	12.7	▽	○ ○	
BGFR 350-175FR	3.5	±0.050	4.5	1.75	12.7		○ ○	
BGFR 400-200FR	4	±0.050	4.5	2	12.7		○ ○	

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

**BGF cutting speed (m/min)**

N1	Alluminium alloy Si ≤ 12%	450÷2400
N2	Alluminium alloy Si > 12%	250÷700
N3	Copper alloy	350÷1400
H1	Case-hardened steel	60÷150
H2	Bearing steel	60÷130
H3	Hardened tool steel	50÷100

**BGF feed rate (mm/rev)**

	<b>N</b>	<b>K H</b>
BGF <sup>FR</sup> / <sub>R</sub> 100	0.04÷0.12	0.04÷0.06
BGF <sup>FR</sup> / <sub>R</sub> 150	0.04÷0.12	0.04÷0.06
BGF <sup>FR</sup> / <sub>R</sub> 200	0.06÷0.14	0.04÷0.08
BGF <sup>FR</sup> / <sub>R</sub> 250	0.06÷0.14	0.04÷0.08
BGF <sup>FR</sup> / <sub>R</sub> 300	0.06÷0.14	0.04÷0.08
BGF <sup>FR</sup> / <sub>R</sub> 350	0.08÷0.16	0.06÷0.10
BGF <sup>FR</sup> / <sub>R</sub> 400	0.08÷0.16	0.06÷0.10

A - TURNING

B - THREADING

C - GROOVING


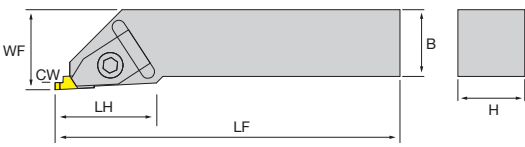
D - MILLING

E - DRILLING

F - ACCESSORIES






G - SPARE PARTS




<h1>BGF-HLD</h1>	Right-hand shown	
<h2>Advanced Grooving</h2>		
<ul style="list-style-type: none"> <li>External holders for tangential mounted advanced grooving insert</li> <li>Clamp tightened by screw</li> </ul>		

Designation	Stock		H	B	WF	LF	LH				
	L	R									
BGF-HLD 1616 <sup>+</sup> /R		▽	16	16	30	150	45				
BGF-HLD 2020 <sup>+</sup> /R	●	●	20	20	30	150	45				
BGF-HLD 2525 <sup>+</sup> /R	●	●	25	25	30	150	45				

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

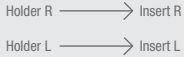
Spare parts	Insert screws	Flag wrenches	Clamp	Clamp screws	L wrench
BGF-HLD ○○○○R					
BGF-HLD ○○○○L	NT-ST50110T20	NT-FT15	NT-CS300R	NT-SC300	NT-WR040
	NT-ST50110T20	NT-FT15	NT-CS300L	NT-SC300	NT-WR040

**RELIABLE CLAMPING**



1. Install the insert and screw lightly
2. Firmly fix the clamp
3. Screw tight the insert

**HOLDER AND INSERT COUPLING**



Holder R → Insert R  
Holder L → Insert L

- A - TURNING
- B - THREADING
- C - GROOVING
- D - MILLING
- E - DRILLING
- F - ACCESSORIES
- G - SPARE PARTS

