	MATERIAL	OPERATION	CONDITION	EDGE PREP.	GRADE	Vc (m/min)	fn (mm/rev)	COOLANT
H	Hardened steel	finishing ap < 0.5 mm	◯	SE	NBL050C	140 **190** 240	0.06 **0.14** 0.22	💧
			⟲	UE	NBL150C tool life	120 **170** 220	0.06 **0.15** 0.24	
					NBL250C reliability	100 **150** 200		
			⚙	RE	NBL350C	80 **120** 160	0.06 **0.16** 0.26	
	Bearing steel	finishing ap < 0.5 mm	◯	SE	NBL050C	120 **170** 220	0.05 **0.10** 0.15	💧
			⟲	UE	NBL150C tool life	100 **150** 200	0.06 **0.13** 0.20	
					NBL250C reliability	80 **130** 180		
			⚙	RE	NBL350C	60 **110** 160	0.06 **0.14** 0.22	
		roughing ap > 0.5 mm **SOLID PCBN**	◯ ⟲	UE	NBH900U	100 **140** 180	0.15 **0.30** 0.45	
			⚙	UE	NBH950U	80 **120** 160	0.10 **0.25** 0.40	
	Tool steel	finishing ap < 0.5 mm	◯	SE	NBL150C	100 **140** 180	0.04 **0.09** 0.14	💧
			⟲	UE	NBL250C	80 **120** 160	0.05 **0.12** 0.19	
			⚙	RE	NBL350C	60 **100** 140	0.06 **0.13** 0.20	
		roughing ap > 0.5 mm **SOLID PCBN**	◯ ⟲	UE	NBH900U	60 **100** 140	0.10 **0.30** 0.50	
			⚙	UE	NBH950U	40 **80** 120	0.10 **0.25** 0.40	
	High speed steel	finishing ap < 0.5 mm	◯	UE	NBL150C	100 **120** 140	0.05 **0.08** 0.11	
	White cast iron	finishing ap < 0.5 mm	◯ ⟲	UE	NBH500C	60 **120** 180	0.10 **0.30** 0.50	
			⚙	UE	NBH900U	40 **80** 120	0.10 **0.25** 0.40	
		roughing ap > 0.5 mm **SOLID PCBN**	◯ ⟲	UE	NBH500C	60 **90** 120	0.20 **0.40** 0.60	
			⚙	UE	NBH950U	40 **60** 80	0.20 **0.35** 0.50	
K	Gray cast iron	finishing ap < 0.5 mm	◯ ⟲	UE	NBH450C	400 **800** 1200	0.10 **0.25** 0.40	💧
			⚙	UE	NBH500C	600 **1000** 1400	0.10 **0.20** 0.30	
		roughing ap > 0.5 mm **SOLID PCBN**	◯ ⟲	UE	NBH500C	600 **1000** 1400	0.20 **0.40** 0.60	💧
			⚙	UE	NBH900U tool life	400 **800** 1200	0.20 **0.35** 0.50	
					NBH950U reliability	400 **700** 1000		
	ADI cast iron	finishing ap < 0.5 mm	◯ ⟲	UE	NBL150C	500 **600** 700	0.05 **0.15** 0.25	
			⚙	UE	NBL250C	400 **500** 600	0.05 **0.15** 0.25	
		roughing ap > 0.5 mm **SOLID PCBN**	◯ ⟲	UE	NBH500C	300 **400** 500	0.10 **0.25** 0.40	
			⚙	UE	NBH900U tool life	200 **250** 300	0.10 **0.25** 0.40	
					NBH950U reliability	180 **230** 280		
P	Sintered powder metal, high alloyed	finishing ap < 0.5 mm	◯	UE	NBL150C	80 **160** 240	0.05 **0.10** 0.15	
	Sintered powder metal, low alloyed	finishing ap < 0.5 mm	◯	UE	NBH450C	140 **220** 300	0.10 **0.20** 0.30	

◯ Stable machining, continuous cut ⟲ General machining, light interruption ⚙ Unstable machining, interrupted cut

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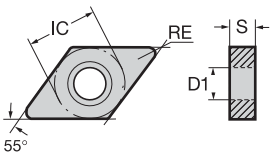
DN

PCBN
Negative



4 edges

Size	IC	S	D1
MICRO DN	7.00	3.18	3.60
1504□□	12.70	4.76	5.16
1506□□	12.70	6.35	5.16

ISO513	BL NBL050C	BL NBL150C	BL NBL250C	BL NBL350C	BH NBH450C	BH NBH500C	BH NBH900U	BH NBH950U
P		80 240			140 300			
M								
K					400 1200	300 1400	200 1200	180 1000
N								
S								
H	120 240	100 220	80 200	60 160	60 160	60 180	40 180	40 160

◀ SINTERED POWDER METAL

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / –	Toughness – / +
■ main application	General machining, light interruption		
■ applicable	Unstable machining, interrupted cut		

SHARP	SE H MICRONEGA, vertical	MICRO	DN.R02S-SE-4V	RE 0.2	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.05 **0.10** 0.15		▲																	
			DN.R04S-SE-4V	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.12** 0.18		▲																	
			DN.R08S-SE-4V	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.13** 0.20		▲																	
	SE H vertical	DNGA	150404S-SE-4V	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.12** 0.18	○	○																	
			150408S-SE-4V	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.13** 0.20	○	○																	
	SE H 	DNGA	150604S-SE-4S	RE 0.4	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.12** 0.18	○	○																	
			150608S-SE-4S	RE 0.8	a_p ▸ 0.06 **0.13** 0.20 f_n ▸ 0.06 **0.13** 0.20	○	○																	
UNIVERSAL	UE K H MICRONEGA, vertical	MICRO	DN.R02S-UE-4V	RE 0.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.06 **0.12** 0.18			▲		▲														
			DN.R04S-UE-4V	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.14** 0.20			▲		▲														
			DN.R08S-UE-4V	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22			▲		▲														
	UE K H vertical	DNGA	150404S-UE-4V	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.14** 0.20		○	●																
			150408S-UE-4V	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22		○	●																
		DNGA	150604S-UE-4V	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.14** 0.20							●												
			150608S-UE-4V	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22						●	●												
			150612S-UE-4V	RE 1.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.16** 0.24							●												
	UE H 	DNGA	150604S-UE-4S	RE 0.4	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.14** 0.20	○	●	●																
			150608S-UE-4S	RE 0.8	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.15** 0.22	○	●	●																
			150612S-UE-4S	RE 1.2	a_p ▸ 0.07 **0.16** 0.25 f_n ▸ 0.08 **0.16** 0.24	○	○	○																

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

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HOLDERS INTERNAL p. 123

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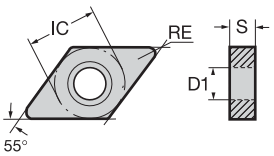
DN

PCBN
Negative



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ISO513	BL NBL050C	BL NBL150C	BL NBL250C	BL NBL350C	BH NBH450C	BH NBH500C	BH NBH900U	BH NBH950U
P		80 240			140 300			
M								
K					400 1200	300 1400	200 1200	180 1000
N								
S								
H	120 240	100 220	80 200	60 160	60 160	60 180	40 180	40 160

◀ SINTERED POWDER METAL

GRADE APPLICATION AREA	Stable machining, continuous cut	Hardness + / Toughness −
■ main application	General machining, light interruption	
■ applicable	Unstable machining, interrupted cut	Hardness − / Toughness +

REINFORCED

RE H

DNGA	150604S-RE-4S	RE 0.4	a_p ▸	0.08	**0.17**	0.26				○													
			f_n ▸	0.08	**0.14**	0.20																	
	150608S-RE-4S	RE 0.8	a_p ▸	0.08	**0.17**	0.26				○													
			f_n ▸	0.08	**0.16**	0.24																	
	150612S-RE-4S	RE 1.2	a_p ▸	0.08	**0.17**	0.26				○													
			f_n ▸	0.08	**0.17**	0.26																	

○ non-standard stock

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HOLDERS INTERNAL p. 125