

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

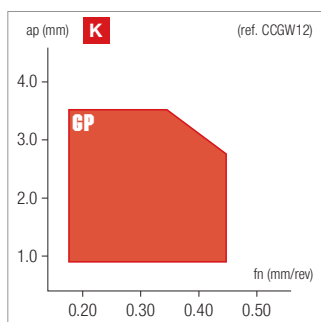
E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

<h1>CC</h1>	CN: Silicon nitride ceramic Si3N4		CN					
	ISO - with hole		<b>MSM400</b>					
<ul style="list-style-type: none"> <li>The most popular insert shape due to high versatility</li> <li>Clearance angle 7°, bigger than 5°, less likely to have chip jamming when boring</li> <li>80° corner can be used for both turning and facing operations</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>						
		<b>M</b>						
		<b>K</b>	400 1000					
		<b>N</b>						
		<b>S</b>						
		<b>H</b>						
<b>Designation</b>		<b>RE</b>	<b>IC</b>	<b>S</b>	<b>D1</b>	<b>LE</b>	<b>Stock</b>	
UNIVERSAL 	<b>GP</b> <b>K</b>							
	CCGW09T308-GP	0.8	9.525	3.97	4.4	8.9	○	
	CCGW09T312-GP	1.2	9.525	3.97	4.4	8.5	●	
	CCGW120408-GP	0.8	12.7	4.76	5.5	12.1	○	
	CCGW120412-GP	1.2	12.7	4.76	5.5	11.7	●	

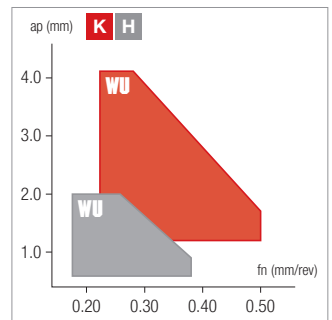
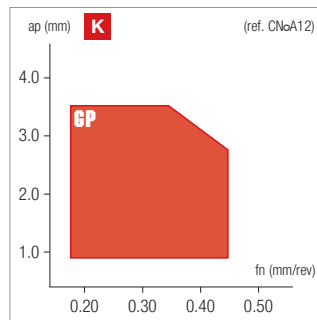
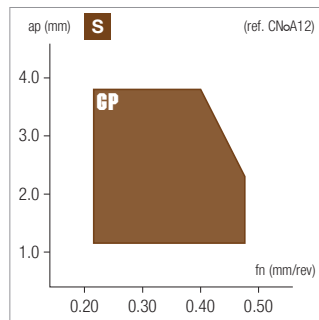
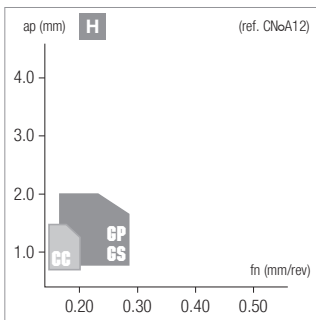
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



<h1>CN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> PVD: Physical vapour deposition							CM	CM	CM	CN	CN	CN	CN		
	ISO - with hole	MAC150	MAC200	MAC250	NSA6000	NSN350	NSN400	NSN450								
<ul style="list-style-type: none"> <li>The most popular insert shape due to high versatility</li> <li>80° corner can be used for both turning and facing operations</li> <li>Opposite 100° corners can be used for general roughing applications (especially facing), providing maximum economy of 8 total cutting edges</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>															
	<b>M</b>															
	<b>K</b>			400	600			500	400	400						
	<b>N</b>															
	<b>S</b>							150	400							
	<b>H</b>	100	70	60												

	Designation	RE	IC	S	D1	LE	Stock													
							●	○	▲	▼	●	○	▲	▼	●	○	▲	▼		
UNIVERSAL		CNGA120404-GP	0.4	12.7	4.76	5.16	12.5	●												
		CNGA120408-GP	0.8	12.7	4.76	5.16	12.1	●	●	●										
		CNGA120412-GP	1.2	12.7	4.76	5.16	11.7	●	●	○										
		CNMA120408-GP	0.8	12.7	4.76	5.16	12.1					○	●	○						
		CNMA120412-GP	1.2	12.7	4.76	5.16	11.7					○	●	○						
		CNMA120416-GP	1.6	12.7	4.76	5.16	11.3					○	●	○						
		CNGA160612-GP	1.2	15.87	6.35	6.35	14.9	●												
		CNGA160616-GP	1.6	15.87	6.35	6.35	14.5	○												
		CNMA160612-GP	1.2	15.87	6.35	6.35	14.9						●							
CNMA160616-GP	1.6	15.87	6.35	6.35	14.5						●									
UNIVERSAL		CNGA120404-GS	0.4	12.7	4.76	5.16	12.5	●												
		CNGA120408-GS	0.8	12.7	4.76	5.16	12.1	●	●											
		CNGA120412-GS	1.2	12.7	4.76	5.16	11.7	●	○											
SHARP		CNGA120404-CC	0.4	12.7	4.76	5.16	12.5	○	●											
		CNGA120408-CC	0.8	12.7	4.76	5.16	12.1	●	●											
		CNGA120412-CC	1.2	12.7	4.76	5.16	11.7	○	○											
WIPER		CNGA120410-WU	1	12.7	4.76	5.16	11.9	○					●							

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



A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

**CN**

CM: Mixed ceramic Al<sub>2</sub>O<sub>3</sub>  
CN: Silicon nitride ceramic Si<sub>3</sub>N<sub>4</sub>  
CR: Whisker reinforced ceramic

ISO - without hole

- The most popular insert shape due to high versatility
- 80° corner can be used for both turning and facing operations
- Opposite 100° corners can be used for general roughing applications (especially facing), providing maximum economy of 8 total cutting edges

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

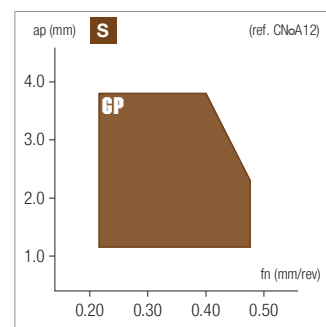
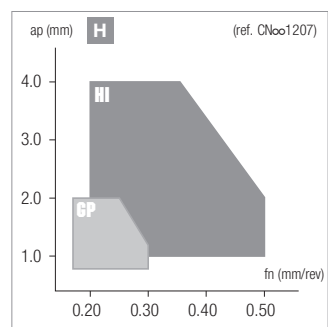
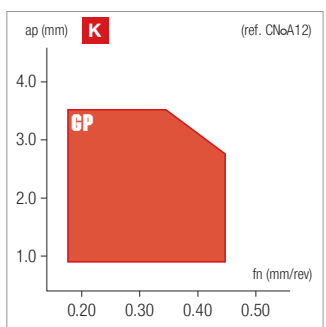
**Dimensions** **ISO** **Vc(m/min) - suggested cutting speed range (bold: 1<sup>st</sup> choice)**

4 edges

<b>P</b>																				
<b>M</b>																				
<b>K</b>	400 600					500 1000	400 1000	400 800												
<b>N</b>																				
<b>S</b>			150 350	150 400	150 250							250 500	200 450							
<b>H</b>	70 180	60 150																		

Designation		RE	IC	S	D1	LE	Stock																		
UNIVERSAL	GP <b>K S H</b>																								
	CNMN120412-GP	1.2	12.7	4.76	-	11.7																	○		
	CNMN120416-GP	1.6	12.7	4.76	-	11.3																		○	
	CNGN120708-GP	0.8	12.7	7.94	-	12.1	○	▽																	○
	CNGN120712-GP	1.2	12.7	7.94	-	11.7	○	▽	▽																○
CNGN120716-GP	1.6	12.7	7.94	-	11.3	○																		○	
UNIVERSAL	GP <b>K S H</b>																								
	CNGX120708-GP	0.8	12.7	7.94	-	12.1	●																		
	CNGX120712-GP	1.2	12.7	7.94	-	11.7	●																		
	CNMX120712-GP	1.2	12.7	7.94	-	11.7			▽	▲			●												
CNMX120716-GP	1.6	12.7	7.94	-	11.3				▲			●	●	●											
REINFORCED	HI <b>H</b>																								
	CNGN120712-HI	1.2	12.7	7.94	-	11.7					○														
CNGN120716-HI	1.6	12.7	7.94	-	11.3					○															

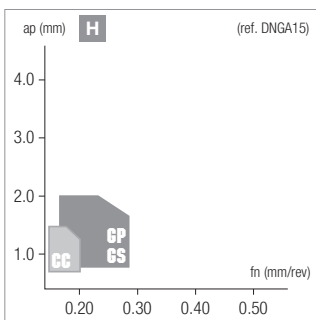
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



<h1>DN</h1>	CM: Mixed ceramic Al2O3 PVD: Physical vapour deposition			CM	CM	CM			
	ISO - with hole			<b>MAC150</b>	<b>MAC200</b>	<b>MAC250</b>			
<ul style="list-style-type: none"> <li>• Generally the 1st choice for profile/copy turning applications</li> <li>• Able to "In-Copy" (plunge turn into a smaller diameter) at an angle of 30°</li> <li>• 7° clearance angle, less risk of chip jamming in boring</li> <li>• Somewhat weaker edge strength than a triangle insert</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>							
		<b>M</b>							
		<b>K</b>			400 600				
		<b>N</b>							
		<b>S</b>							
		<b>H</b>	100 200	70 180	60 150				

	Designation	RE	IC	S	D1	LE	Stock			
							●	○	▲	
UNIVERSAL		DNGA150604-GP	0.4	12.7	6.35	5.16	15.1	●		
		DNGA150608-GP	0.8	12.7	6.35	5.16	14.7	14.7	●	●
		DNGA150612-GP	1.2	12.7	6.35	5.16	14.3	14.3	●	○
		DNGA150616-GP	1.6	12.7	6.35	5.16	13.9	13.9	○	
UNIVERSAL		DNGA150604-GS	0.4	12.7	6.35	5.16	15.1	○	●	
		DNGA150608-GS	0.8	12.7	6.35	5.16	14.7	14.7	●	●
		DNGA150612-GS	1.2	12.7	6.35	5.16	14.3	14.3	○	
SHARP		DNGA150604-CC	0.4	12.7	6.35	5.16	15.1	○	●	
		DNGA150608-CC	0.8	12.7	6.35	5.16	14.7	14.7	○	
		DNGA150612-CC	1.2	12.7	6.35	5.16	14.3	14.3	○	●

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



A - TURNING

B - THREADING

C - GROOVING

D - MILLING

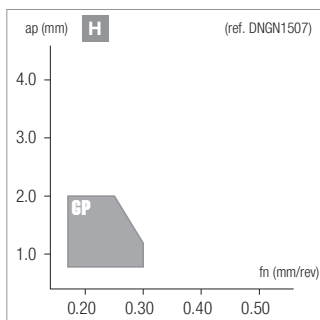
E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

<h1>DN</h1>	CM: Mixed ceramic Al2O3						CM	
	<h2>ISO - without hole</h2>						<b>MAC200</b>	
<ul style="list-style-type: none"> <li>• Generally the 1st choice for profile/copy turning applications</li> <li>• Able to "In-Copy" (plunge turn into a smaller diameter) at an angle of 30°</li> <li>• 7° clearance angle, less risk of chip jamming in boring</li> <li>• Somewhat weaker edge strength than a triangle insert</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>						
		<b>M</b>						
		<b>K</b> 400 600						
		<b>N</b>						
		<b>S</b>						
	<b>H</b> 70 180							
<b>Designation</b>		<b>RE</b>	<b>IC</b>	<b>S</b>	<b>D1</b>	<b>LE</b>	<b>Stock</b>	
<b>UNIVERSAL</b> 	<b>GP H</b>							
	DNGN150708-GP	0.8	12.7	7.94	-	14.7	○	
	DNGN150712-GP	1.2	12.7	7.94	-	14.3	○	
	DNGN150716-GP	1.6	12.7	7.94	-	13.9	○	

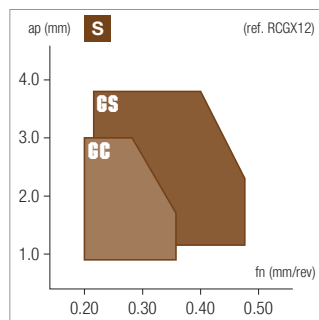
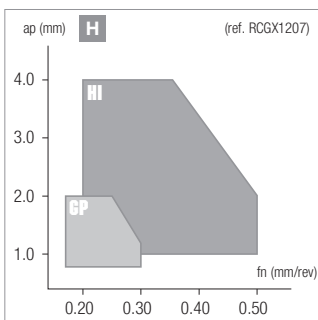
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



<h1>RC</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> CR: Whisker reinforced ceramic PVD: Physical vapour deposition		CM	CM	CM	CN	CN	CN	CR	CR																																																																																				
	ISO - without hole		MAC150	MAC200	MAC250	NSA600	NSA6000	NSA650	NWR700	NWR750																																																																																				
<ul style="list-style-type: none"> <li>Very strong and robust shape and style, able to confront diverse challenges during the machining process</li> <li>Cornical tail secures the seating in the insert pocket of the holder</li> <li>Different edge preparation with wide range of grades covering the majority of application area</li> </ul>	Stable machining, light cut <input checked="" type="radio"/> 1 <sup>st</sup> choice <input type="radio"/> suitable	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>																																																																																					
	General machining, medium cut <input checked="" type="radio"/> 1 <sup>st</sup> choice <input type="radio"/> suitable	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>																																																																																				
	Unstable machining, heavy cut <input checked="" type="radio"/> 1 <sup>st</sup> choice <input type="radio"/> suitable	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>																																																																																				
	Dimensions <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></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>M</b></td> <td></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>K</b></td> <td></td><td>400</td><td>600</td><td></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></td><td></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>150</td><td>150</td><td>150</td><td>250</td><td>250</td><td>200</td><td>450</td><td></td> </tr> <tr> <td><b>H</b></td> <td>100</td><td>70</td><td>60</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> <tr> <td></td> <td>200</td><td>180</td><td>150</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td> </tr> </table>										<b>P</b>												<b>M</b>												<b>K</b>		400	600									<b>N</b>												<b>S</b>				150	150	150	250	250	200	450		<b>H</b>	100	70	60										200	180	150							
<b>P</b>																																																																																														
<b>M</b>																																																																																														
<b>K</b>		400	600																																																																																											
<b>N</b>																																																																																														
<b>S</b>				150	150	150	250	250	200	450																																																																																				
<b>H</b>	100	70	60																																																																																											
	200	180	150																																																																																											

	Designation	RE	IC	S	D1	LE	Stock													
UNIVERSAL 	RCGX060700-GP	3.175	6.35	7.94	-	-														
	RCGX090700-GP	4.76	9.525	7.94	-	-														
	RCGX120700-GP	6.35	12.7	7.94	-	-														
UNIVERSAL 	RCGX060600-GS	3.175	6.35	6.35	-	-														
SHARP 	RCGX060600-CC	3.175	6.35	6.35	-	-														
	RCGX090700-CC	4.76	9.525	7.94	-	-														
	RCGX120700-CC	6.35	12.7	7.94	-	-														
REINFORCED 	RCGX090700-HI	4.76	9.525	7.94	-	-														
	RCGX120700-HI	6.35	12.7	7.94	-	-														
	RCGX151000-HI	7.935	15.87	10	-	-														
	RCGX191000-HI	9.525	19.05	10	-	-														

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



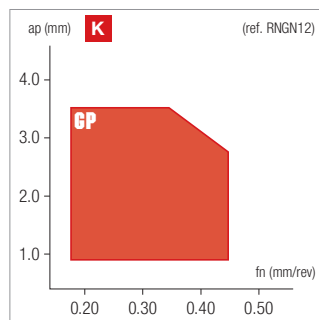
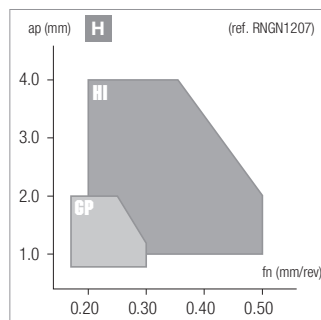
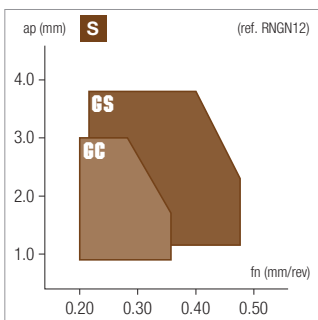
A - TURNING  
 B - THREADING  
 C - GROOVING  
 D - MILLING  
 E - DRILLING  
 F - ACCESSORIES  
 G - SPARE PARTS

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

<h1>RN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> CR: Whisker reinforced ceramic PVD: Physical vapour deposition										
	ISO - without hole	CM PVD	CM	CM	CN	CN	CN	CN	CR	CR	
<ul style="list-style-type: none"> <li>Very strong and robust shape and style, able to confront diverse challenges during the machining process</li> <li>Different edge preparation with wide range of grades covering the majority of application area</li> <li>Other thicknesses available upon request</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>									
		<b>M</b>									
		<b>K</b>	400 600					400 1000			
		<b>N</b>									
		<b>S</b>			150 350	150 400	150 250		250 500	200 450	
		<b>H</b>	100 200	70 180	60 150						

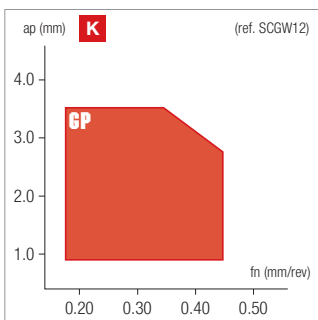
	Designation	RE	IC	S	D1	LE	Stock										
UNIVERSAL 	GP <b>K S H</b>	RNGN120400-GP	6.35	12.7	4.76	-	-	●								○	○
		RNGN120700-GP	6.35	12.7	7.94	-	-	○	○	○	▽		▽	○	○	○	
		RNGN190700-GP	9.525	19.05	7.94	-	-							▽			
SHARP 	CC <b>S</b>	RNGN120400-CC	6.35	12.7	4.76	-	-						●				
		RNGN120700-CC	6.35	12.7	7.94	-	-							●			
REINFORCED 	HI <b>H</b>	RNGN120700-HI	6.35	12.7	7.94	-	-	●	●	●							
REINFORCED 	HT <b>H</b>	RNGN120700-HT	6.35	12.7	7.94	-	-	●	●								

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



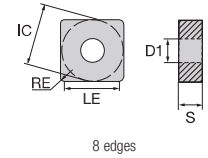
<h1>SC</h1>	CN: Silicon nitride ceramic Si3N4		CN				
	ISO - with hole		<b>MSN400</b>				
<ul style="list-style-type: none"> <li>• Very strong 90° corner with excellent economy (4 edges on positive inserts)</li> <li>• More used on roughing</li> <li>• Unable to turn or face up to a shoulder (must be used in a tool holder with min. 5° lead angle)</li> <li>• High radial forces push against the workpiece when used for turning</li> <li>• Should always be used in a stable set-up</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>					
		<b>M</b>					
		<b>K</b>	400 1000				
		<b>N</b>					
		<b>S</b>					
		<b>H</b>					
<b>Designation</b>	<b>RE</b>	<b>IC</b>	<b>S</b>	<b>D1</b>	<b>LE</b>	<b>Stock</b>	
<b>UNIVERSAL</b> 	<b>GP K</b>						
	SCGW09T308-GP	0.8	9.525	3.97	4.4	8.7	●
	SCGW120408-GP	0.8	12.7	4.76	5.5	11.9	●



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



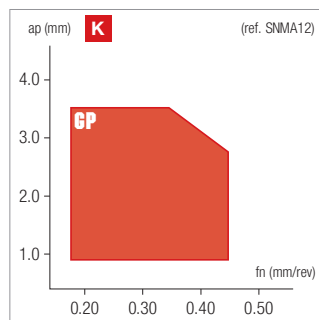
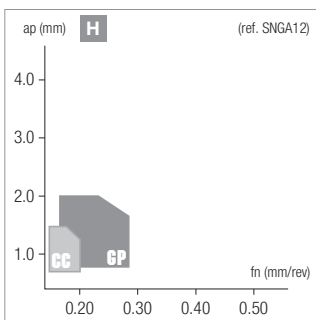


A - TURNING  
B - THREADING  
C - GROOVING  
D - MILLING  
E - DRILLING  
F - ACCESSORIES  
G - SPARE PARTS

<h1>SN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub>	CM	CN	
		<b>MAC200</b>	<b>NSN400</b>	
ISO - with hole				
<ul style="list-style-type: none"> <li>Very strong 90° corner with excellent economy (4 edges on positive inserts)</li> <li>More used on roughing</li> <li>Unable to turn or face up to a shoulder (must be used in a tool holder with min. 5° lead angle)</li> <li>High radial forces push against the workpiece when used for turning</li> <li>Should always be used in a stable set-up</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>		
		<b>M</b>		
		<b>K</b>	400 600	<b>400</b> <b>1000</b>
		<b>N</b>		
		<b>S</b>		
		<b>H</b>	70 180	

Designation		RE	IC	S	D1	LE	Stock	
UNIVERSAL 	GP <b>K H</b>							
	SNGA120404-GP	0.4	12.7	4.76	5.16	12.3	●	
	SNGA120408-GP	0.8	12.7	4.76	5.16	11.9	●	
	SNGA120412-GP	1.2	12.7	4.76	5.16	11.5	●	
	SNMA120408-GP	0.8	12.7	4.76	5.16	11.9		●
	SNMA120412-GP	1.2	12.7	4.76	5.16	11.5		●
	SNMA120416-GP	1.6	12.7	4.76	5.16	11.1		○
SHARP 	CC <b>H</b>							
	SNGA120404-CC	0.4	12.7	4.76	5.16	12.3	●	
	SNGA120408-CC	0.8	12.7	4.76	5.16	11.9	○	
	SNGA120412-CC	1.2	12.7	4.76	5.16	11.5	●	

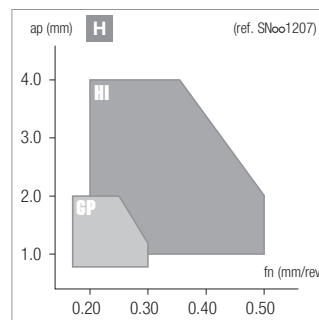
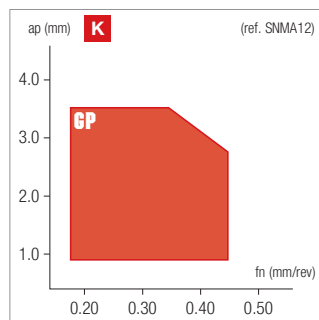
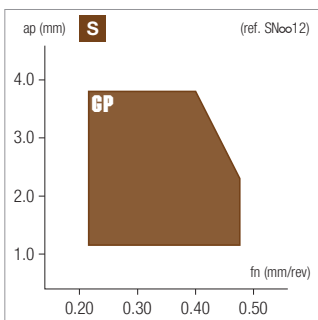
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▼ stock exhaustion



<h1>SN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> CR: Whisker reinforced ceramic PVD: Physical vapour deposition							
	CM PVD	CM	CM	CN	CN	CN	CN	CR
ISO - without hole	<b>MAC150</b>	<b>MAC200</b>	<b>MAC250</b>	<b>NSA600</b>	<b>NSA6000</b>	<b>NSN400</b>	<b>NSN450</b>	<b>NWR750</b>
<ul style="list-style-type: none"> <li>• Very strong 90° corner with excellent economy (4 edges on positive inserts)</li> <li>• More used on roughing</li> <li>• Unable to turn or face up to a shoulder (must be used in a tool holder with min. 5° lead angle)</li> <li>• High radial forces push against the workpiece when used for turning</li> <li>• Should always be used in a stable set-up</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 Vc(m/min) - suggested cutting speed range (bold: 1<sup>st</sup> choice)</b>							
	<b>P</b>							
	<b>M</b>							
	<b>K</b>	400 600			400 1000	400 800		
	<b>N</b>							
	<b>S</b>			150 350	150 400		200 450	
	<b>H</b>	100 200	70 180	60 150				

	Designation	RE	IC	S	D1	LE	Stock													
UNIVERSAL		<b>GP K S H</b> SNGN120408-GP	0.8	12.7	4.76	-	11.9													
		SNGN120412-GP	1.2	12.7	4.76	-	11.5						○	●	●	▽				
		SNNM120416-GP	1.6	12.7	4.76	-	11.1													
		SNGN120708-GP	0.8	12.7	7.94	-	11.9	●	●											
		SNGN120712-GP	1.2	12.7	7.94	-	11.5		●											
		SNGN120716-GP	1.6	12.7	7.94	-	11.1		○											
UNIVERSAL		<b>GP K S H</b> SNGX120708-GP	0.8	12.7	7.94	-	11.9		●											
		SNGX120712-GP	1.2	12.7	7.94	-	11.5		●											
		SNNM120712-GP	1.2	12.7	7.94	-	11.5						▲	●						
		SNNM120716-GP	1.6	12.7	7.94	-	11.1					▽	▲	●						
REINFORCED		<b>HI H</b> SNGN120716-HI	1.6	12.7	7.94	-	11.1			○										
		SNGN120720-HI	2	12.7	7.94	-	10.7			○										
		SNGN120724-HI	2.4	12.7	7.94	-	10.3			○										

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

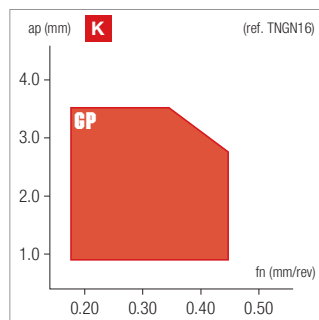
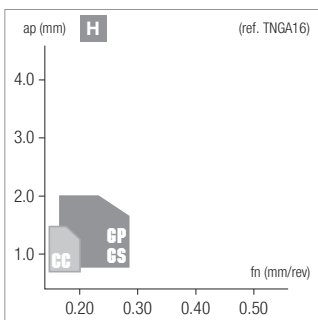


- A - TURNING
- B - THREADING
- C - GROOVING
- D - MILLING
- E - DRILLING
- F - ACCESSORIES
- G - SPARE PARTS

<h1>TN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> PVD: Physical vapour deposition				CM	CM	CM	CN
	ISO - with hole	MAC150	MAC200	MAC250	MSN400			
<ul style="list-style-type: none"> <li>Very versatile insert shape, can be used for turning, facing, boring, copy turning and basic profiling, sometimes even threading</li> <li>Good economy with up to 6 cutting edges</li> <li>Very stable seating of the insert in pocket of a holder, especially advantaged in boring operation</li> <li>Edge is measurably weaker than 80° diamond shape inserts</li> </ul>	Stable machining, light cut <input checked="" type="radio"/> 1 <sup>st</sup> choice <input type="radio"/> suitable	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>			
	General machining, medium cut <input checked="" type="radio"/> 1 <sup>st</sup> choice <input type="radio"/> suitable	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>			
	Unstable machining, heavy cut <input type="radio"/> 1 <sup>st</sup> choice <input type="radio"/> suitable	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>			
	Dimensions	ISO	Vc(m/min) - suggested cutting speed range (bold: 1 <sup>st</sup> choice)					
	P							
	M							
	K		400 600		400 1000			
	N							
	S							
	H	100 200	70 180	60 150				

Designation		RE	IC	S	D1	LE	Stock				
UNIVERSAL 	TNGA160404-GP	0.4	9.525	4.76	3.81	16.1	●				
	TNGA160408-GP	0.8	9.525	4.76	3.81	15.7	●	●	○		
	TNGA160412-GP	1.2	9.525	4.76	3.81	15.3	●	●	●		
UNIVERSAL 	TNGA160404-GS	0.4	9.525	4.76	3.81	16.1	●	●			
	TNGA160408-GS	0.8	9.525	4.76	3.81	15.7	●	●			
	TNGA160412-GS	1.2	9.525	4.76	3.81	15.3	●	○			
SHARP 	TNGA160404-CC	0.4	9.525	4.76	3.81	16.1	●	●			
	TNGA160408-CC	0.8	9.525	4.76	3.81	15.7	●	●			
	TNGA160412-CC	1.2	9.525	4.76	3.81	15.3	●				

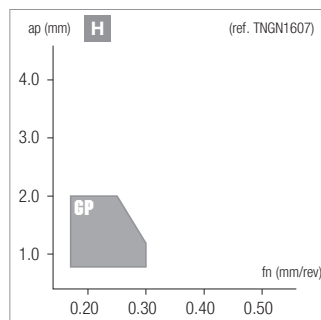
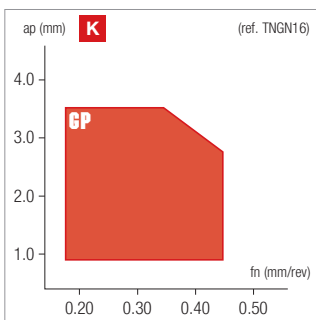
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion



<h1>TN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub>	CM	CN		
		<b>MAC200</b>	<b>NSN400</b>		
ISO - without hole					
<ul style="list-style-type: none"> <li>Very versatile insert shape, can be used for turning, facing, boring, copy turning and basic profiling, sometimes even threading</li> <li>Good economy with up to 6 cutting edges</li> <li>Very stable seating of the insert in pocket of a holder, especially advantaged in boring operation</li> <li>Edge is measurably weaker than 80° diamond shape inserts</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>			
		<b>M</b>			
		<b>K</b>	400 600	400 1000	
		<b>N</b>			
		<b>S</b>			
		<b>H</b>	70 180		

UNIVERSAL	GP <b>K H</b>	Designation	RE	IC	S	D1	LE	Stock	
								●	○
		TNGN160408-GP	0.8	9.525	4.76	-	15.7	●	
		TNGN160708-GP	0.8	9.525	7.94	-	15.7	○	○
		TNGN160712-GP	1.2	9.525	7.94	-	15.3	○	○

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



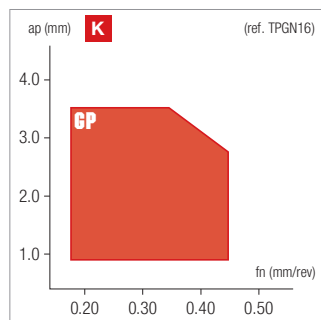
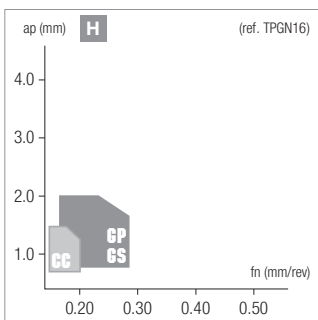
A - TURNING  
B - THREADING  
C - GROOVING  
D - MILLING  
E - DRILLING  
F - ACCESSORIES  
G - SPARE PARTS

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

<b>TP</b>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> PVD: Physical vapour deposition	CM PVD	CM PVD	CN PVD	
ISO - without hole		<b>MAC150</b>	<b>MAC200</b>	<b>NSN400</b>	
<ul style="list-style-type: none"> <li>• Very versatile insert shape, can be used for turning, facing, boring, copy turning and basic profiling, sometimes even threading</li> <li>• Good economy with up to 3 cutting edges</li> <li>• Very stable seating of the insert in pocket of a holder, especially advantaged in boring operation</li> <li>• Edge is measurably weaker than 80° diamond shape inserts</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> <b>M</b> <b>K</b> 400 600 / 400 1000 <b>N</b> <b>S</b> <b>H</b> 100 200 / 70 180			

Designation		RE	IC	S	D1	LE	Stock			
UNIVERSAL 	<b>GP K H</b>	0.2	6.35	3.18	-	10.8	●			
	TPGN110302-GP	0.4	6.35	3.18	-	10.6	●	○		
	TPGN110304-GP	0.8	6.35	3.18	-	10.2	●	●		
	TPGN160304-GP	0.4	9.525	3.18	-	16.1	●	○		
	TPGN160308-GP	0.8	9.525	3.18	-	15.7	●	●		
	TPGN160312-GP	1.2	9.525	3.18	-	15.3			●	
UNIVERSAL 	<b>GS H</b>	0.2	6.35	3.18	-	10.8	○			
	TPGN110302-GS	0.4	6.35	3.18	-	10.6	●			
	TPGN110304-GS	0.8	6.35	3.18	-	10.2	○			
	TPGN160304-GS	0.4	9.525	3.18	-	16.1	●			
	TPGN160308-GS	0.8	9.525	3.18	-	15.7	●			
SHARP 	<b>CC H</b>	0.2	6.35	3.18	-	10.8	○	●		
	TPGN110302-CC	0.4	6.35	3.18	-	10.6	○	●		
	TPGN110304-CC	0.8	6.35	3.18	-	10.2	●	○		
	TPGN160304-CC	0.4	9.525	3.18	-	16.1	●	●		
	TPGN160308-CC	0.8	9.525	3.18	-	15.7	●	●		
TPGN160312-CC	1.2	9.525	3.18	-	15.3			●		

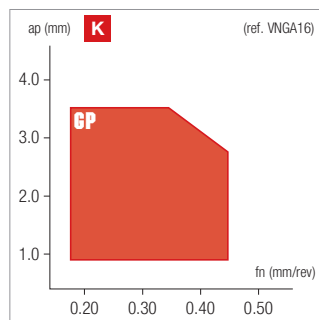
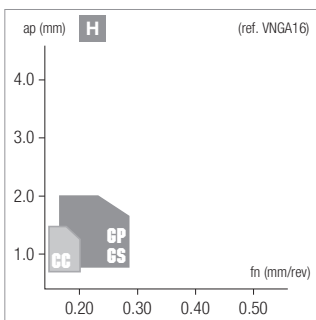
● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▼ stock exhaustion



<h1>VN</h1>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub> PVD: Physical vapour deposition				CM	CM	CM	CN
	ISO - with hole	MAC150	MAC200	MAC250	MSN400			
<ul style="list-style-type: none"> <li>• 1st choice for intricate shape copy turning</li> <li>• Can "In-Copy" (plunge turn into a smaller diameter) at an angle up to 49°</li> <li>• Can work extremely close to the tailstock/ live center</li> <li>• The weakest turning insert shape among all, ap and fn should be lighter</li> <li>• Double sided style should mainly be used for external applications</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							
	Dimensions	ISO	Vc(m/min) - suggested cutting speed range (bold: 1 <sup>st</sup> choice)					
	P							
	M							
	K		400 600		400 1000			
	N							
	S							
	H	100 200	70 180	60 150				

	Designation	RE	IC	S	D1	LE	Stock			
							●	○	▲	▽
UNIVERSAL	GP <b>K H</b> VNGA160404-GP VNGA160408-GP VNGA160412-GP	0.4	9.525	4.76	3.81	16.2	●	○		
		0.8	9.525	4.76	3.81	15.8	15.8	●	○	●
		1.2	9.525	4.76	3.81	15.4	15.4	○	○	○
UNIVERSAL	GS <b>H</b> VNGA160404-GS VNGA160408-GS VNGA160412-GS	0.4	9.525	4.76	3.81	16.2	●	●		
		0.8	9.525	4.76	3.81	15.8	15.8	●	●	
		1.2	9.525	4.76	3.81	15.4	15.4	○	○	
SHARP	CC <b>H</b> VNGA160404-CC VNGA160408-CC VNGA160412-CC	0.4	9.525	4.76	3.81	16.2	●			
		0.8	9.525	4.76	3.81	15.8	15.8	●	●	
		1.2	9.525	4.76	3.81	15.4	15.4	○	○	

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

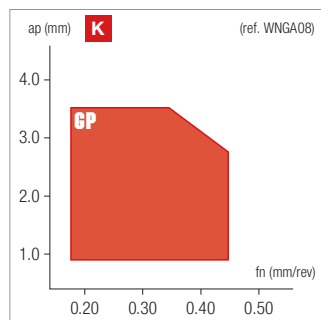
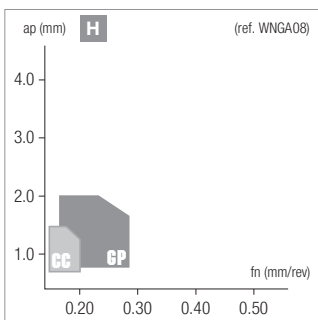


- A - TURNING
- B - THREADING
- C - GROOVING
- D - MILLING
- E - DRILLING
- F - ACCESSORIES
- G - SPARE PARTS

<b>WN</b>	CM: Mixed ceramic Al <sub>2</sub> O <sub>3</sub> CN: Silicon nitride ceramic Si <sub>3</sub> N <sub>4</sub>	CM	CN																		
ISO - with hole		<b>MAC200</b>	<b>NSN400</b>																		
<ul style="list-style-type: none"> <li>6-corner 80° diamond shape that can increase economy compared to CNMG-style inserts</li> <li>Generally used on more moderate depths of cut and feedrates than CNMG-style inserts</li> <li>Seating of insert in pocket is less stable as CNMG-style inserts</li> <li>Cannot take as deep a depth of cut as similar sized CNMG-style insert</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" style="font-size: 0.8em;"> <tr><td style="background-color: #00aaff; color: white;">P</td><td></td><td></td></tr> <tr><td style="background-color: #ffff00; color: black;">M</td><td></td><td></td></tr> <tr><td style="background-color: #ff9966; color: black;">K</td><td style="font-size: 0.7em;">400 600</td><td style="font-size: 0.7em;">400 1000</td></tr> <tr><td style="background-color: #99cc99; color: black;">N</td><td></td><td></td></tr> <tr><td style="background-color: #cc9966; color: black;">S</td><td></td><td></td></tr> <tr><td style="background-color: #cccccc; color: black;">H</td><td style="font-size: 0.7em;">70</td><td style="font-size: 0.7em;">180</td></tr> </table>	P			M			K	400 600	400 1000	N			S			H	70	180	
P																					
M																					
K	400 600	400 1000																			
N																					
S																					
H	70	180																			

Designation		RE	IC	S	D1	LE	Stock	
UNIVERSAL 	<b>GP K H</b> WNGA080404-GP	0.4	12.7	4.76	5.16	8.3	●	
	WNGA080408-GP	0.8	12.7	4.76	5.16	7.9	● ○	
	WNGA080412-GP	1.2	12.7	4.76	5.16	7.5	● ●	
SHARP 	<b>CC H</b> WNGA080404-CC	0.4	12.7	4.76	5.16	8.3	●	
	WNGA080408-CC	0.8	12.7	4.76	5.16	7.9	●	
	WNGA080412-CC	1.2	12.7	4.76	5.16	7.5	○	

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



A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS



A - TURNING

ISO 513	MATERIAL	HARDNESS HB	NAC200			NSN350			NSN400					
			min	start	max	min	start	max	min	start	max			
<b>K1</b>	Grey cast iron (ex. 0.6025/GG25/EN-GJL-250)	150 ÷ 250	●	400	500	600	●	600	800	1000	○	500	750	1000
			○				○	500	700	900	●	400	650	900
<b>K2</b>	Nodular cast iron (ex. 0.7050/GGG50/EN-GJS-500-7)	150 ÷ 350	●	300	400	500					○	450	600	750
											●	400	500	600
ISO 513	MATERIAL	HARDNESS HRC	NAC150			NAC200			NAC250					
			min	start	max	min	start	max	min	start	max			
<b>H1</b>	Case-hardened steel (ex. 1.7131/16MnCr5)	50 ÷ 56	●	100	150	200	●	80	130	180	○	70	110	150
							●	70	110	150	●	60	100	140
<b>H2</b>	Bearing steel, quenched and tempered steel (ex. 1.3505/100Cr6)	54 ÷ 62	●	80	130	180	●	70	100	130	○	60	90	120
							●	60	80	100	●	50	60	70
ISO 513	MATERIAL	HARDNESS HRC	NSA6000			NSA650			NWR700					
			min	start	max	min	start	max	min	start	max			
<b>S1 - S2 - S3</b>	Fe/Ni/Co based heat resistant alloys (ex. Hastelloy, Inconel 625, Inconel 718)	50 ÷ 56	○	200	300	400					●	300	400	500
			●	180	250	320	○	150	200	250	○	250	300	350
			⊕	150	200	250								

Complete workpiece materials p. H1.

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS

<b>NSN450</b>								
min	start	max						
● 400	600	800						
⊕ 400	500	600						
<b>NWR750</b>								
min	start	max						
○ 250	350	450						
● 200	250	300						

Complete workpiece materials p. H1.

- 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

DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
CCGW09T308-GP <b>K</b>	1.00	2.00	3.00	0.12	0.23	0.34
CCGW09T312-GP <b>K</b>	1.00	2.00	3.00	0.13	0.26	0.36
CCGW120408-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40
CCGW120412-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNGA120404-CC <b>H</b>	0.20	0.70	1.20	0.04	0.08	0.12
CNGA120404-GP <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
CNGA120404-GS <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
CNGA120408-CC <b>H</b>	0.20	0.70	1.20	0.05	0.10	0.15
CNGA120408-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
CNGA120408-GP <b>S</b>	1.00	2.50	4.00	0.14	0.27	0.40
CNGA120408-GS <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
CNGA120410-WU <b>H</b>	0.40	1.20	2.00	0.12	0.26	0.40
CNGA120410-WU <b>K</b>	1.00	2.50	4.00	0.20	0.35	0.50
CNGA120412-CC <b>H</b>	0.20	0.70	1.20	0.06	0.13	0.20
CNGA120412-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
CNGA120412-GP <b>S</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNGA120412-GS <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
CNGA160612-GP <b>H</b>	1.00	2.50	4.00	0.14	0.27	0.40
CNGA160616-GP <b>H</b>	1.00	2.50	4.00	0.15	0.30	0.45
CNGN120708-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
CNGN120708-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40
CNGN120708-GP <b>S</b>	1.00	2.50	4.00	0.14	0.27	0.40
CNGN120712-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
CNGN120712-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNGN120712-GP <b>S</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNGN120712-HI <b>H</b>	1.00	2.50	4.00	0.16	0.28	0.40
CNGN120716-GP <b>H</b>	0.40	1.20	2.00	0.14	0.26	0.38
CNGN120716-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
CNGN120716-GP <b>S</b>	1.00	2.50	4.00	0.18	0.33	0.48
CNGN120716-HI <b>H</b>	1.00	2.50	4.00	0.20	0.32	0.44
CNGX120708-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
CNGX120712-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
CNMA120408-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40
CNMA120412-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNMA120416-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
CNMA160612-GP <b>K</b>	2.00	4.00	6.00	0.20	0.35	0.50
CNMA160616-GP <b>K</b>	2.00	4.00	6.00	0.22	0.38	0.54
CNMN120412-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNMN120416-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
CNMX120712-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
CNMX120716-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
DNGA150604-CC <b>H</b>	0.20	0.70	1.20	0.04	0.08	0.12
DNGA150604-GP <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
DNGA150604-GS <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
DNGA150608-CC <b>H</b>	0.20	0.70	1.20	0.05	0.10	0.15
DNGA150608-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
DNGA150608-GS <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
DNGA150612-CC <b>H</b>	0.20	0.70	1.20	0.06	0.13	0.20
DNGA150612-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
DNGA150612-GS <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
DNGA150616-GP <b>H</b>	0.40	1.20	2.00	0.14	0.26	0.38
DNGN150708-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
DNGN150712-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
DNGN150716-GP <b>H</b>	0.40	1.20	2.00	0.14	0.26	0.38
RCGX060600-CC <b>S</b>	1.00	1.50	2.00	0.18	0.28	0.38
RCGX060600-GS <b>H</b>	0.40	1.20	2.00	0.10	0.24	0.38

DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
RCGX060700-GP <b>H</b>	0.40	1.20	2.00	0.10	0.24	0.38
RCGX060700-GP <b>S</b>	1.00	2.00	3.00	0.18	0.32	0.46
RCGX090700-CC <b>S</b>	1.00	2.00	3.00	0.22	0.32	0.42
RCGX090700-GP <b>H</b>	0.60	1.80	3.00	0.12	0.26	0.40
RCGX090700-GP <b>S</b>	1.00	2.50	4.00	0.22	0.38	0.54
RCGX090700-HI <b>H</b>	0.60	1.80	3.00	0.15	0.30	0.45
RCGX120700-CC <b>S</b>	1.00	2.00	3.00	0.22	0.32	0.42
RCGX120700-GP <b>H</b>	0.60	1.80	3.00	0.12	0.26	0.40
RCGX120700-GP <b>S</b>	1.00	2.50	4.00	0.22	0.38	0.54
RCGX120700-HI <b>H</b>	0.60	1.80	3.00	0.15	0.30	0.45
RCGX151000-HI <b>H</b>	1.00	2.50	4.00	0.20	0.40	0.60
RCGX191000-HI <b>H</b>	1.00	2.50	4.00	0.25	0.45	0.65
RNGN120400-CC <b>S</b>	1.00	2.00	3.00	0.22	0.32	0.42
RNGN120400-GP <b>H</b>	0.60	1.80	3.00	0.12	0.26	0.40
RNGN120400-GP <b>S</b>	1.00	2.50	4.00	0.22	0.38	0.54
RNGN120700-CC <b>S</b>	1.00	2.00	3.00	0.22	0.36	0.50
RNGN120700-GP <b>H</b>	0.60	1.80	3.00	0.12	0.26	0.40
RNGN120700-GP <b>S</b>	1.00	2.50	4.00	0.22	0.32	0.42
RNGN120700-HI <b>H</b>	0.60	1.80	3.00	0.15	0.30	0.45
RNGN120700-HT <b>H</b>	0.60	1.80	3.00	0.15	0.30	0.45
SCGW09T308-GP <b>K</b>	1.00	2.00	3.00	0.12	0.23	0.34
SCGW120408-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40
SNGA120404-CC <b>H</b>	0.20	0.70	1.20	0.04	0.08	0.12
SNGA120404-GP <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
SNGA120408-CC <b>H</b>	0.20	0.70	1.20	0.05	0.10	0.15
SNGA120408-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
SNGA120412-CC <b>H</b>	0.20	0.70	1.20	0.06	0.13	0.20
SNGA120412-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
SNGN120408-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
SNGN120412-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
SNGN120708-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
SNGN120712-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
SNGN120716-GP <b>H</b>	0.40	1.20	2.00	0.14	0.26	0.38
SNGN120716-HI <b>H</b>	1.00	2.50	4.00	0.20	0.32	0.44
SNGN120720-HI <b>H</b>	1.00	2.50	4.00	0.22	0.35	0.48
SNGN120724-HI <b>H</b>	1.00	2.50	4.00	0.24	0.37	0.50
SNGX120708-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
SNGX120712-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
SNMA120408-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40
SNMA120412-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
SNMA120416-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
SNMN120416-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
SNMX120712-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
SNMX120716-GP <b>K</b>	1.00	2.50	4.00	0.18	0.33	0.48
TNGA160404-CC <b>H</b>	0.20	0.70	1.20	0.04	0.08	0.12
TNGA160404-GP <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
TNGA160404-GS <b>H</b>	0.40	1.20	2.00	0.06	0.14	0.22
TNGA160408-CC <b>H</b>	0.20	0.70	1.20	0.05	0.10	0.15
TNGA160408-GP <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
TNGA160408-GS <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
TNGA160408-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40
TNGA160408-GS <b>H</b>	0.40	1.20	2.00	0.10	0.20	0.30
TNGA160412-CC <b>H</b>	0.20	0.70	1.20	0.06	0.13	0.20
TNGA160412-GP <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
TNGA160412-GP <b>K</b>	1.00	2.50	4.00	0.16	0.31	0.46
TNGA160412-GS <b>H</b>	0.40	1.20	2.00	0.12	0.23	0.34
TNGN160408-GP <b>K</b>	1.00	2.50	4.00	0.14	0.27	0.40

DESIGNATION	DEPTH OF CUT			FEED RATE		
	ap (mm)			fn (mm/rev)		
	min	start	max	min	start	max
TNGN160708-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.10	<b>0.20</b>	0.30
TNGN160708-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.14	<b>0.27</b>	0.40
TNGN160712-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.12	<b>0.23</b>	0.34
TNGN160712-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.16	<b>0.31</b>	0.46
TPGN110302-CC <b>H</b>	0.20	<b>0.60</b>	1.00	0.04	<b>0.06</b>	0.08
TPGN110302-GP <b>H</b>	0.40	<b>0.80</b>	1.20	0.05	<b>0.10</b>	0.15
TPGN110302-GS <b>H</b>	0.40	<b>0.80</b>	1.20	0.05	<b>0.10</b>	0.15
TPGN110304-CC <b>H</b>	0.20	<b>0.60</b>	1.00	0.04	<b>0.07</b>	0.10
TPGN110304-GP <b>H</b>	0.40	<b>0.80</b>	1.20	0.04	<b>0.11</b>	0.18
TPGN110304-GP <b>K</b>	1.00	<b>2.00</b>	3.00	0.10	<b>0.20</b>	0.30
TPGN110304-GS <b>H</b>	0.40	<b>0.80</b>	1.20	0.04	<b>0.11</b>	0.18
TPGN110308-CC <b>H</b>	0.20	<b>0.60</b>	1.00	0.05	<b>0.09</b>	0.13
TPGN110308-GP <b>H</b>	0.40	<b>0.80</b>	1.20	0.06	<b>0.15</b>	0.24
TPGN110308-GP <b>K</b>	1.00	<b>2.00</b>	3.00	0.12	<b>0.23</b>	0.34
TPGN110308-GS <b>H</b>	0.40	<b>0.80</b>	1.20	0.06	<b>0.15</b>	0.24
TPGN160304-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.04	<b>0.08</b>	0.12
TPGN160304-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.06	<b>0.14</b>	0.22
TPGN160304-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.12	<b>0.23</b>	0.34
TPGN160304-GS <b>H</b>	0.40	<b>1.20</b>	2.00	0.06	<b>0.14</b>	0.22
TPGN160308-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.05	<b>0.10</b>	0.15
TPGN160308-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.10	<b>0.20</b>	0.30
TPGN160308-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.14	<b>0.27</b>	0.40
TPGN160308-GS <b>H</b>	0.40	<b>1.20</b>	2.00	0.10	<b>0.20</b>	0.30
TPGN160312-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.06	<b>0.13</b>	0.20
TPGN160312-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.16	<b>0.31</b>	0.46
VNGA160404-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.04	<b>0.08</b>	0.12
VNGA160404-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.06	<b>0.14</b>	0.22
VNGA160404-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.12	<b>0.23</b>	0.34
VNGA160404-GS <b>H</b>	0.40	<b>1.20</b>	2.00	0.06	<b>0.14</b>	0.22
VNGA160408-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.05	<b>0.10</b>	0.15
VNGA160408-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.10	<b>0.20</b>	0.30
VNGA160408-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.14	<b>0.27</b>	0.40
VNGA160408-GS <b>H</b>	0.40	<b>1.20</b>	2.00	0.10	<b>0.20</b>	0.30
VNGA160412-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.06	<b>0.13</b>	0.20
VNGA160412-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.12	<b>0.23</b>	0.34
VNGA160412-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.16	<b>0.31</b>	0.46
VNGA160412-GS <b>H</b>	0.40	<b>1.20</b>	2.00	0.12	<b>0.23</b>	0.34
WNGA080404-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.04	<b>0.08</b>	0.12
WNGA080404-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.06	<b>0.14</b>	0.22
WNGA080408-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.05	<b>0.10</b>	0.15
WNGA080408-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.10	<b>0.20</b>	0.30
WNGA080408-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.14	<b>0.27</b>	0.40
WNGA080412-CC <b>H</b>	0.20	<b>0.70</b>	1.20	0.06	<b>0.13</b>	0.20
WNGA080412-GP <b>H</b>	0.40	<b>1.20</b>	2.00	0.12	<b>0.23</b>	0.34
WNGA080412-GP <b>K</b>	1.00	<b>2.50</b>	4.00	0.16	<b>0.31</b>	0.46

A - TURNING

B - THREADING

C - GROOVING

D - MILLING

E - DRILLING

F - ACCESSORIES

G - SPARE PARTS