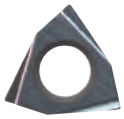
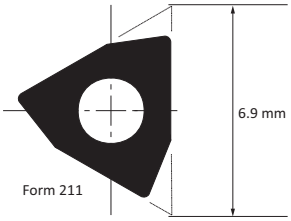
Insert Form 211

Cermet | Carbide

121 Geometry



650 Geometry



		Cermet					Carbide											
		Uncoated			Coated		Uncoated		Coated									
Steel	P	▼▼▼							▼▼▼		▼▼▼			▼▼▼		▼▼▼		
Stainless Steel	M								▽▽▽		▼▼▼			▼▼▼		▼▼▼		
Cast Iron	K	▽▽▽					▽▽▽		▼▼▼		▽▽▽			▼▼▼		▽▽▽		
Non-Ferrous Materials	N	▽▽▽					▼▼▼			▼▼▼								
Titanium	S						▽▽▽				▼▼▼			▼▼▼		▼▼▼		
Hard Materials	H													▼▼▼				

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHT10	WHT12	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
121	0.10	0.004	F21101GN121	WBGX030101	**397675**										✱			◔			
121	0.20	0.008	F21102GN121	WBGX030102	**397676**										✱			◔			
650	0.10	0.004	F21101GL650	WBGX030101	**097755**		●				●		●	●						◔	
650	0.20	0.008	F21102GL650	WBGX030102	**097454**		●				●		●							◔	

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◔	Average - Main Application
✱	Difficult - Main Application

Reference Key

Symbol	Insert Type
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
211	**215377**	M2 x 0.4 x 4	**415507**	**115537**	0.6 Nm	T6

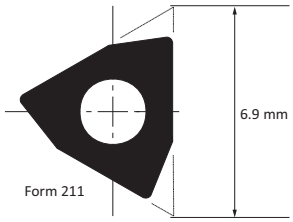
Insert Form 211

CBN | PCD


730 Geometry


735 Geometry


748 Geometry



		Ceramic					CBN								PCD			
		Uncoated			Coated		Uncoated						Coated					
Steel	P																	
Stainless Steel	M																	
Cast Iron	K									▼▼▼								
Non-Ferrous Materials	N														▼▼▼	▼▼▼		
Titanium	S																	
Hard Materials	H							▼▼▼										
Geometry	Radius mm	Radius in	Description	ISO Code	Part No.			WBN150	WBN200	WBN300	WBN450				PKDD30	PKDD50		
730	0.10	0.004	F21101GN730	WBGX030101	397763										●			
730	0.20	0.008	F21102GN730	WBGX030102	097557										●	●		
735	0.20	0.008	F21102GN735	WBGX030102	397237										●			
748	0.10	0.004	F21101GN748	WBGX030101	097486				●		●					●		
748	0.20	0.008	F21102GN748	WBGX030102	097552				●		●							

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
211	215377	M2 x 0.4 x 4	415507	115537	0.6 Nm	T6

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

Reference Key

Symbol	Insert Type
▼▼▼	Finishing - Main Application

Insert Form 20

Cermet | Carbide

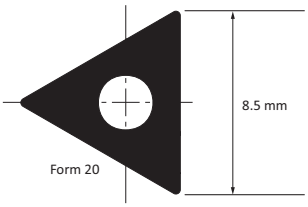
121/121W Geometry

128 Geometry

155 Geometry

650 Geometry

840 Geometry



		Cermet					Carbide										
		Uncoated			Coated		Uncoated		Coated								
Steel	P		▼▼▼		▼▼▼	▼▼▼			▼▼▼		▼▼▼			▼▼▼		▼▼▼	
Stainless Steel	M				▽▽▽	▽▽▽			▽▽▽		▼▼▼			▼▼▼		▼▼▼	
Cast Iron	K		▽▽▽		▽▽▽		▽▽▽	▽▽▽	▼▼▼		▽▽▽			▼▼▼		▽▽▽	
Non-Ferrous Materials	N		▽▽▽				▼▼▼	▼▼▼		▼▼▼							
Titanium	S						▽▽▽	▽▽▽			▼▼▼			▼▼▼		▼▼▼	
Hard Materials	H													▼▼▼			

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHT10	WHT12	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136
121	0.10	0.004	F02001GN121	TOGX080201	**397672**										✱			◕		
121	0.20	0.008	F02002GN121	TOGX080202	**397673**										✱			◕		
121	0.40	0.016	F02004GN121	TOGX080204	**397674**										✱			◕		
121W	0.20	0.008	F02002GX121W	TOGX080202	**397916**													◕		
121W	0.40	0.016	F02004GX121W	TOGX080204	**397917**													◕		
128	0.10	0.004	F02001GN128	TOGX080201	**297473**							●	●							
128	0.20	0.008	F02002GN128	TOGX080202	**297541**							●	●	●						
128	0.40	0.016	F02004GN128	TOGX080204	**297542**							●	●	●						
155	0.20	0.008	F02002MN155	TOMX080202	**397688**				◕											
155	0.40	0.016	F02004MN155	TOMX080204	**397689**				◕											
650	0.10	0.004	F02001GL650	TOGX080201	**097153**		●			◕	●		●							◕
650	0.20	0.008	F02002GL650	TOGX080202	**097546**		●			◕	●		●							◕
650	0.30	0.012	F02003GL650	TOGX080203	**097154**						●		●							◕
650	0.40	0.016	F02004GL650	TOGX080204	**097599**		●			◕	●		●							◕
650	0.80	0.031	F02008GL650	TOGX080208	**397764**						●									◕
840	0.20	0.008	F02002GR840	TOGX080202	**097701**		●						●							

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application
✱	Difficult - Main Application

Reference Key

Symbol	Insert Type
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
20	**115535**	M2 x 0.4 x 5	**415508**	**115591**	0.9 Nm	T7

Insert Form 20

CBN | PCD


720 Geometry


730 Geometry


735 Geometry


741 Geometry

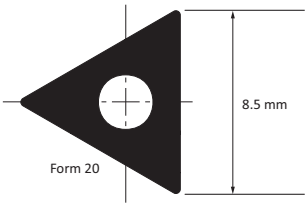

742 Geometry


742T Geometry


745 Geometry


748 Geometry


768 Geometry



		CBN								PCD			
		Uncoated						Coated					
Steel	P												
Stainless Steel	M												
Cast Iron	K			▼▼▼	▼▼▼	▼▼▼							
Non-Ferrous Materials	N									▼▼▼	▼▼▼		
Titanium	S												
Hard Materials	H		▼▼▼	▼▼▼				▼▼▼					

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WBN150	WBN200	WBN300	WBN450	WBN448		WBC300		PKDD30	PKDD50		
720	0.20	0.008	F02002GN720	TOGX080202	297692									◕			
720	0.40	0.016	F02004GN720	TOGX080204	297845									◕			
730	0.20	0.008	F02002GN730	TOGX080202	097487									◕	◕		
730	0.40	0.016	F02004GN730	TOGX080204	097686									◕	◕		
730	0.80	0.031	F02008GN730	TOGX080208	097877									◕			
735	0.20	0.008	F02002GN735	TOGX080202	397133									◕			
735	0.40	0.016	F02004GN735	TOGX080204	397301									◕			
741	0.20	0.008	F02002GN741	TOGX080202	297260		◕										
741	0.40	0.016	F02004GN741	TOGX080204	297262		◕										
742	0.20	0.008	F02002GN742	TOGX080202	297264			●									
742	0.40	0.016	F02004GN742	TOGX080204	397610			●									
742T	0.20	0.008	F02002GN742T	TOGX080202	397961					◕		●					
742T	0.40	0.016	F02004GN742T	TOGX080204	397551					◕		●					
745	0.10	0.004	F02001GN745	TOGX080201	297259		◕										
748	0.20	0.008	F02002GN748	TOGX080202	297780				◕								
748	0.40	0.016	F02004GN748	TOGX080204	297782				◕								
768	0.20	0.008	F02002GN768	TOGX080202	397146				◕								
768	0.40	0.016	F02004GN768	TOGX080204	397192				◕								

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
20	115535	M2 x 0.4 x 5	415508	115591	0.9 Nm	T7

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application

Reference Key

Symbol	Insert Type
▼▼▼	Finishing - Main Application

Insert Forms 161, 163

Cermet | Carbide


122 Geometry


129 Geometry


145 Geometry

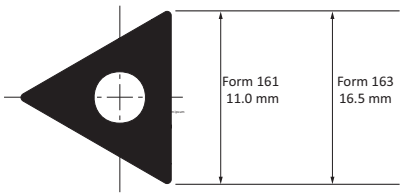

146 Geometry


158 Geometry


192 Geometry


711 Geometry


850 Geometry



		Cermet					Carbide											
		Uncoated			Coated		Uncoated		Coated									
Steel	P	▼▼▼	▼▼▼						▼▼▼	▼▼▼	▼▼▼	▼▼▼	▼▼▼	▼▼▼			▼▼▼	
Stainless Steel	M								▽▽▽		▼▼▼	▼▼▼	▽▽▽	▼▼▼				
Cast Iron	K	▽▽▽	▽▽▽					▽▽▽	▼▼▼	▼▼▼		▽▽▽	▼▼▼	▼▼▼			▼▼▼	
Non-Ferrous Materials	N	▽▽▽	▽▽▽					▼▼▼										
Titanium	S							▽▽▽			▼▼▼	▼▼▼		▼▼▼				
Hard Materials	H									▽▽▽				▼▼▼			▽▽▽	

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHT10	WHT12	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC81	WHC88	WHC190	WHC79	WHC111	WHC114	WHC136	WHC164
122	0.40	0.016	F16104MN122	TCMT110204	**097953**	●															
129	0.20	0.008	F16102GN129	TCGT110202	**397769**							●	●								
129	0.40	0.016	F16104GN129	TCGT110204	**397770**							●	●								
129	0.40	0.016	F16304GN129	TCGT16T304	**397771**							●	●								
145	0.40	0.016	F16104GN145	TCGT110204	**297993**													●			
146	0.40	0.016	F16104MN146	TCMT110204	**397977**									●	✱						
146	0.80	0.031	F16108MN146	TCMT110208	**397026**									●	✱						
146	0.40	0.016	F16304MN146	TCMT16T304	**397990**									●	✱						
146	0.80	0.031	F16308MN146	TCMT16T308	**397974**									●	✱						
158	0.40	0.016	F16304MN158	TCMT16T304	**297604**												◕				
192	0.40	0.016	F16104MN192	TCMT110204	**397663**											✱					◕
192	0.40	0.016	F16304MN192	TCMT16T304	**397654**											✱					◕
192	0.80	0.031	F16308MN192	TCMT16T308	**397772**											✱					
711	0.40	0.016	F16304MN711	TCMT16T304	**397898**									●							
711	0.80	0.031	F16304MN711	TCMT16T308	**397899**									●							
850	0.20	0.008	F16102GL850	TCGT110202	**097512**		●														

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application
✱	Difficult - Main Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
161	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
163	**115673**	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15

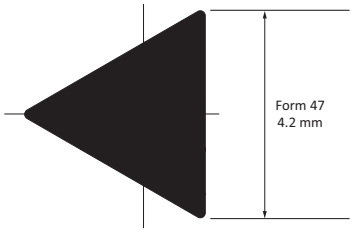
Reference Key

Symbol	Insert Type
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form 47

Cermet | Carbide

650 Geometry



		Carbide									
		Uncoated		Coated							
Steel	P					▼▼▼					
Stainless Steel	M					▽▽▽					
Cast Iron	K	▽▽▽				▽▽▽					
Non-Ferrous Materials	N	▼▼▼									
Titanium	S	▽▽▽									
Hard Materials	H										

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHW01	WHW16	WHC05	WHC18	WHC20	WHC79	WHC111	WHC114	WHC136	WHC164
650	0.10	0.004	F04701FL650	TOFX040101	**097832**	●				●					
650	0.20	0.008	F04702FL650	TOFX040102	**097833**	●				●					

Reference Key

Symbol	Machining Conditions
●	Good - Main Application

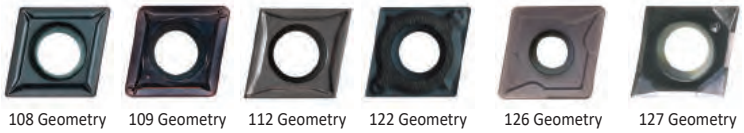
Reference Key

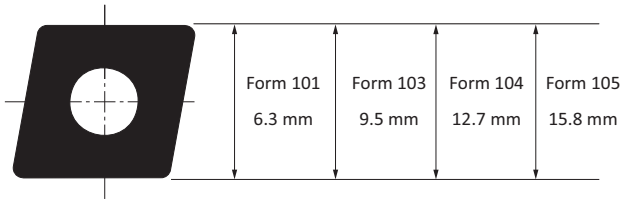
Symbol	Insert Type
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form	Countersunk Screw		Clamping Jaw	Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
47	**315324**	M1.8 x 0.35 x 4	**315323**	–	**115537**	0.5 Nm	T6

Insert Forms 101, 103, 104, 105

Cermet | Carbide





		Cermet						Carbide										
		Uncoated				Coated		Uncoated	Coated									
Steel	P	▼▼▼			▼▼▼ ▽									▼▼▼ ▼			▼▼▼ ▼	
Stainless Steel	M													▼▼▼ ▼			▼▼▼ ▽	
Cast Iron	K	▽▽▽			▽▽▽				▽▽▽ ▽					▽▽▽ ▽			▽▽▽ ▽	
Non-Ferrous Materials	N	▽▽▽			▽▽▽				▼▼▼ ▼		▼▼▼ ▼							
Titanium	S								▽▽▽ ▽								▼▼▼ ▼	
Hard Materials	H																	

Geometry	Radius mm	Radius in	Description	ISO Description	Part No.	WHT10	WHT12	WHT16	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
108	0.20	0.008	F10102MN108	CCMT060202	297833													●				
108	0.40	0.016	F10104MN108	CCMT060204	297537													●				
108	0.40	0.016	F10304MN108	CCMT09T304	297891													●				
108	0.80	0.031	F10308MN108	CCMT09T308	397118													●				
108	0.40	0.016	F10404MN108	CCMT120404	297725													●				
108	0.80	0.031	F10408MN108	CCMT120408	297724													●				
109	0.20	0.008	F10102MN109	CCMT060202	397352																●	
109	0.40	0.016	F10104MN109	CCMT060204	397765																●	
109	0.40	0.016	F10304MN109	CCMT09T304	397354																●	
109	0.80	0.031	F10308MN109	CCMT09T308	397355																●	
109	0.40	0.016	F10404MN109	CCMT120404	397356																●	
109	0.80	0.031	F10408MN109	CCMT120408	397357																●	
112	0.20	0.008	F10102GN112	CCGT060202	297485				●													
112	0.40	0.016	F10104MN112	CCMT060204	297434				●													
112	0.20	0.008	F10302GN112	CCGT09T302	297534				●													
112	0.40	0.016	F10304MN112	CCMT09T304	297387				●													
122	0.20	0.008	F10102MN122	CCMT060202	097899	●																
122	0.40	0.016	F10104MN122	CCMT060204	097926	●																
122	0.20	0.008	F10302MN122	CCMT09T302	097862	●																
122	0.40	0.016	F10304MN122	CCMT09T304	097957	●																
126	0.80	0.031	F10508MN126	CCMT160508	297557																●	
126	1.20	0.047	F10512MN126	CCMT160512	297558																●	
127	0.20	0.008	F10102GN127	CCGT060202	097529								●		●							
127	0.40	0.016	F10104GN127	CCGT060204	097445								●		●							
127	0.20	0.008	F10302GN127	CCGT09T302	297550								●		●							
127	0.40	0.016	F10304GN127	CCGT09T304	097497								●		●							
127	0.40	0.016	F10404GN127	CCGT120404	097496								●		●							

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
101	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
103	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
103	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
104	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20
105	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

Reference Key

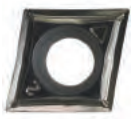
Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application

Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Forms 101, 103, 104

Cermet | Carbide

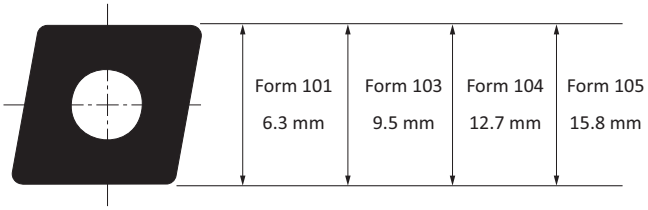


129 Geometry

145 Geometry

146 Geometry

155 Geometry



		Cermet				Carbide															
		Uncoated		Coated		Uncoated	Coated														
Steel	P			▼▼▼				▼▼▼ ▽			▼▼▼ ▼	▼▼▼ ▼		▼▼▼ ▼						
Stainless Steel	M			▽▽▽				▽▽▽				▼▼▼ ▼		▼▼▼ ▼						
Cast Iron	K			▽▽▽			▽▽▽ ▽	▼▼▼ ▼			▼▼▼ ▼			▼▼▼ ▼						
Non-Ferrous Materials	N						▼▼▼ ▼		▼▼▼ ▼											
Titanium	S						▽▽▽ ▽	▽▽▽ ▽				▼▼▼ ▼		▼▼▼ ▼						
Hard Materials	H										▽▽▽ ▽			▼▼▼ ▽						

Geometry	Radius mm	Radius in	Description	ISO Description	Part No.	WHT10	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC18	WHC19	WHC79	WHC81	WHC88	WHC98	WHC111	WHC114	WHC136	WHC164
129	0.05	0.002	F101005GN129	CCGT0602005	**397738**						●	●										
129	0.10	0.004	F10101GN129	CCGT060201	**397737**						●	●										
129	0.20	0.008	F10102GN129	CCGT060202	**297545**						●	●	●									
129	0.40	0.016	F10104GN129	CCGT060204	**297546**						●	●	●									
129	0.20	0.008	F10302GN129	CCGT09T302	**297547**						●	●	●									
129	0.40	0.016	F10304GN129	CCGT09T304	**297548**						●	●	●									
145	0.40	0.016	F10104GN145	CCGT060204	**297980**														●			
145	0.80	0.031	F10108GN145	CCGT060208	**397742**														●			
145	0.40	0.016	F10304GN145	CCGT09T304	**297994**														●			
145	0.80	0.031	F10308GN145	CCGT09T308	**297995**														●			
146	0.40	0.016	F10104MN146	CCMT060204	**397953**											●	⧓					
146	0.40	0.016	F10304MN146	CCMT09T304	**397142**											●	⧓					
146	0.80	0.031	F10308MN146	CCMT09T308	**397946**											●	⧓					
146	0.40	0.016	F10404MN146	CCMT120404	**397469**												⧓					
146	0.80	0.031	F10408MN146	CCMT120408	**397143**											●	⧓					
146	1.20	0.047	F10412MN146	CCMT120412	**397939**												⧓					
155	0.20	0.008	F10102MN155	CCMT060202	**397662**			◕														
155	0.40	0.016	F10104MN155	CCMT060204	**397739**			◕														
155	0.40	0.016	F10304MN155	CCMT09T304	**397740**			◕														

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data Torque	Technical Data Key Size
101	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
103	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
103	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
104	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20
105	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application

Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

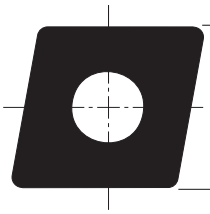
Insert Forms 101, 103, 104

Carbide

158 Geometry

174W Geometry

192 Geometry



		Carbide										
		Uncoated		Coated								
Steel	P			▼▼▼ ▽		▼▼▼ ▼	▼▼▼ ▼		▼▼▼ ▼			▼▼▼ ▼
Stainless Steel	M			▽▽▽		▼▼▼ ▼	▽▽▽ ▽		▼▼▼ ▼			
Cast Iron	K			▼▼▼ ▼		▽▽▽ ▽	▼▼▼ ▼		▼▼▼ ▼			▼▼▼ ▼
Non-Ferrous Materials	N											
Titanium	S					▼▼▼ ▼			▼▼▼ ▼			
Hard Materials	H								▼▼▼ ▼			▽▽▽

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHW01	WHW16	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
158	0.20	0.008	F10102MN158	CCMT060202	297248						◕		●			
158	0.40	0.016	F10104MN158	CCMT060204	297377						◕		●			
158	0.40	0.016	F10304MN158	CCMT09T304	297239						◕		●			
158	0.80	0.031	F10308MN158	CCMT09T308	297240						◕		●			
158	0.40	0.016	F10404MN158	CCMT120404	297242						◕		●			
158	0.80	0.031	F10408MN158	CCMT120408	297241						◕		●			
158	0.80	0.031	F10508MN158	CCMT160508	297559			●			◕					
158	1.20	0.047	F10512MN158	CCMT160512	297560						◕					
174W	0.40	0.016	F10104MN174W	CCMT060204	397766					✱						◕
174W	0.40	0.016	F10304MN174W	CCMT09T304	397767					✱						◕
174W	0.80	0.031	F10308MN174W	CCMT09T308	397768											◕
192	0.20	0.008	F10102MN192	CCMT060202	297531					✱						◕
192	0.40	0.016	F10104MN192	CCMT060204	297658					✱						◕
192	0.80	0.031	F10108MN192	CCMT060208	297588					✱						◕
192	0.20	0.008	F10302MN192	CCMT09T302	297958					✱						
192	0.40	0.016	F10304MN192	CCMT09T304	297653					✱						◕
192	0.80	0.031	F10308MN192	CCMT09T308	397614					✱						◕
192	0.40	0.016	F10404MN192	CCMT120404	397666					✱						◕
192	0.80	0.031	F10408MN192	CCMT120408	297878					✱						◕
192	1.20	0.047	F10412MN192	CCMT120412	397632											◕

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application
✱	Difficult - Main Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
101	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
103	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
103	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
104	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20
105	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

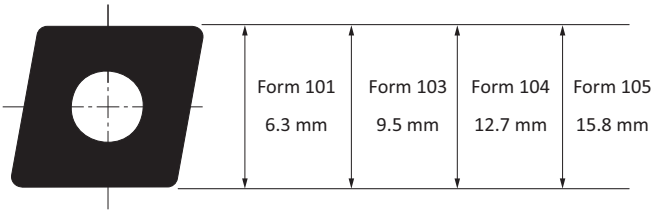
Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Forms 101, 103, 104

Cermet | Carbide

199 Geometry | 200 Geometry | 711 Geometry | 860 Geometry



		Cermet						Carbide											
		Uncoated				Coated		Uncoated	Coated										
Steel	P					▼▼▼				▼▼▼ ▼			▼▼▼ ▼			▼▼▼ ▼	▼▼▼ ▼	▼▼▼ ▼	
Stainless Steel	M					▽▽▽				▼▼▼ ▽						▼▼▼ ▼	▼▼▼ ▼	▼▼▼ ▼	
Cast Iron	K							▽▽▽ ▽		▼▼▼ ▼			▼▼▼ ▼			▼▼▼ ▼	▽▽▽ ▽	▽▽▽ ▽	
Non-Ferrous Materials	N							▼▼▼ ▼											
Titanium	S															▼▼▼ ▼	▼▼▼ ▼	▼▼▼ ▼	
Hard Materials	H												▽▽▽			▼▼▼ ▽			

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHT10	WHT12	WHT16	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC18	WHC19	WHC77	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
199	0.20	0.008	F10102MN199	CCMT060202	397164																●		
199	0.40	0.016	F10104MN199	CCMT060204	397165																●		
199	0.20	0.008	F10302MN199	CCMT09T302	397702																●		
199	0.40	0.016	F10304MN199	CCMT09T304	397166																●		
199	0.80	0.031	F10308MN199	CCMT09T308	397167																●		
199	0.40	0.016	F10404MN199	CCMT120404	397191																●		
199	0.80	0.031	F10408MN199	CCMT120408	397168																●		
200	0.20	0.008	F10102GN200	CCGT060202	397585															●			
200	0.40	0.016	F10104GN200	CCGT060204	397586															●			
200	0.20	0.008	F10302GN200	CCGT09T302	397587															●			
200	0.40	0.016	F10304GN200	CCGT09T304	397588															●			
200	0.40	0.016	F10404GN200	CCGT120404	397589															●			
711	0.40	0.016	F10104MN711	CCMT060204	097637												●						
711	0.40	0.016	F10304MN711	CCMT09T304	097629												●						
711	0.80	0.031	F10308MN711	CCMT09T308	297910												●						
711	0.80	0.031	F10408MN711	CCMT120408	297911												●						
860	0.10	0.004	F10101GL860	CCGT060201	097324						◕	●		●								●	
860	0.20	0.008	F10102GL860	CCGT060202	097241						◕	●		●								●	
860	0.40	0.016	F10104GL860	CCGT060204	097242							●		●								●	
860	0.20	0.008	F10302GL860	CCGT09T302	097245							●		●								●	
860	0.40	0.016	F10304GL860	CCGT09T304	097244							●		●								●	
860	0.40	0.016	F10404GL860	CCGT120404	097738							●										●	
860	0.80	0.031	F10408GL860	CCGT120408	097247							●		●								◕	
860	0.80	0.031	F10508ML860	CCMT160508	097249							●		●								◕	

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application

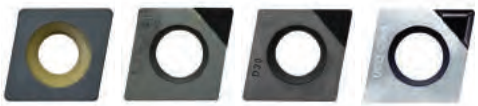
Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
101	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
103	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
103	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
104	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20
105	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

Reference Key

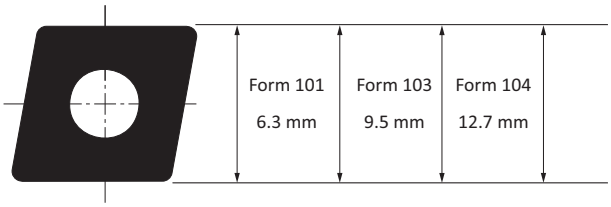
Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Forms 101, 103, 104

Ceramic | CBN | PCD



711 Geometry 720 Geometry 730 Geometry 735 Geometry



		Ceramic					CBN								PCD			
		Uncoated			Coated		Uncoated						Coated					
Steel	P																	
Stainless Steel	M																	
Cast Iron	K	▼								▼▼▼ ▼								
Non-Ferrous Materials	N														▼▼▼ ▼	▼▼▼ ▼		
Titanium	S																	
Hard Materials	H																	

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WCN06					WBN150	WBN200	WBN300	WBN450					PKDD30	PKDD50		
711	0.40	0.016	F10304GN711	CCGW09T304	**297561**	●																
711	0.80	0.031	F10308GN711	CCGW09T308	**297192**	●																
711	0.80	0.031	F10408GN711	CCGW120408	**297249**	●																
711	1.20	0.047	F10412GN711	CCGW120412	**297234**	●																
720	0.20	0.008	F10102GN720	CCGT060202	**297501**														◕			
720	0.40	0.016	F10104GN720	CCGT060204	**297502**														◕			
720	0.20	0.008	F10302GN720	CCGT09T302	**297578**														◕			
720	0.40	0.016	F10304GN720	CCGT09T304	**297483**														◕			
730	0.20	0.008	F10102GN730	CCGW060202	**097462**														◕	◕		
730	0.40	0.016	F10104GN730	CCGW060204	**297164**														◕	◕		
730	0.80	0.031	F10108GN730	CCGW060208	**297165**														◕			
730	0.20	0.008	F10302GN730	CCGW09T302	**397251**														◕	◕		
730	0.40	0.016	F10304GN730	CCGW09T304	**297533**														◕	◕		
730	0.40	0.016	F10404GN730	CCGW120404	**397257**														◕	◕		
730	0.80	0.031	F10408GN730	CCGW120408	**297871**														◕	◕		
735	0.20	0.008	F10102GN735	CCGT060202	**297872**														◕			
735	0.40	0.016	F10104GN735	CCGT060204	**397244**														◕			
735	0.20	0.008	F10302GN735	CCGT09T302	**397252**														◕			
735	0.40	0.016	F10304GN735	CCGT09T304	**297870**														◕			

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application
✱	Difficult - Main Application

Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
101	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
103	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
103	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
104	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

Insert Forms 101, 103, 104

CBN


741 Geometry


742 Geometry

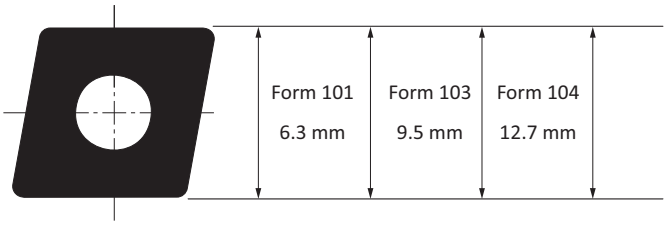

742D Geometry


747 Geometry


748 Geometry


749 Geometry


768 Geometry



		CBN							
		Uncoated						Coated	
Steel	P								
Stainless Steel	M								
Cast Iron	K	▽▽▽ ▽		▼▼▼ ▽	▼▼▼ ▼	▼▼▼ ▼			
Non-Ferrous Materials	N								
Titanium	S								
Hard Materials	H	▼▼▼ ▽	▼▼▼ ▽	▼▼▼ ▽				▼▼▼ ▽	

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WBN150	WBN200	WBN300	WBN450	WBN448		WBC300	
741	0.20	0.008	F10102GN741	CCGW060202	**297290**		◕						
741	0.40	0.016	F10104GN741	CCGW060204	**297291**		◕						
741	0.40	0.016	F10304GN741	CCGW09T304	**297303**		◕						
742	0.20	0.008	F10102GN742	CCGW060202	**297293**			●					
742	0.40	0.016	F10104GN742	CCGW060204	**297294**			●					
742	0.40	0.016	F10304GN742	CCGW09T304	**297306**			●					
742D	0.20	0.008	F10102GN742D	CCGW060202	**397949**					●		●	
742D	0.40	0.016	F10104GN742D	CCGW060204	**397999**					●		●	
742D	0.40	0.016	F10304GN742D	CCGW090204	**397931**					●		●	
742D	0.80	0.031	F10308GN742D	CCGW090208	**397958**					●		●	
747	0.40	0.016	F10404GN747	CCGW120404	**397260**	◕			◕				
748	0.20	0.008	F10102GN748	CCGW060202	**297787**				◕				
748	0.40	0.016	F10104GN748	CCGW060204	**297788**				◕				
748	0.20	0.008	F10302GN748	CCGW09T302	**297790**				◕				
748	0.40	0.016	F10304GN748	CCGW09T304	**297419**				◕				
749	0.80	0.031	F10408GN749	CCGW120408	**397261**	◕			◕				
768	0.20	0.008	F10102GN768	CCGT060202	**297486**				◕				
768	0.40	0.016	F10104GN768	CCGT060204	**297659**				◕				
768	0.20	0.008	F10302GN768	CCGT09T302	**397439**				◕				
768	0.40	0.016	F10304GN768	CCGT09T304	**297660**								

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
101	**115676**	M2.5 x 0.4 x 5	**415514**	**115590**	1.2 Nm	T8
103	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
103	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
104	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

Reference Key

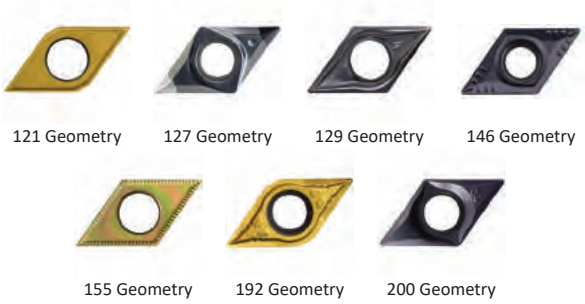
Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application

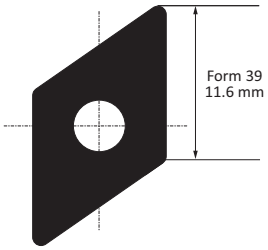
Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form 39

Cermet | Carbide





		Cermet						Carbide											
		Uncoated				Coated		Uncoated		Coated									
Steel	P					▼▼▼				▼▼▼ ▼	▼▼▼ ▼	▼▼▼ ▽		▼▼▼ ▽			▼▼▼ ▼	▼▼▼ ▼
Stainless Steel	M					▽▽▽				▽▽▽ ▽		▼▼▼ ▽		▼▼▼ ▽				▼▼▼ ▼
Cast Iron	K					▽▽▽			▽▽▽ ▽	▼▼▼ ▼	▼▼▼ ▼			▼▼▼ ▼			▼▼▼ ▼	▽▽▽ ▽
Non-Ferrous Materials	N								▼▼▼ ▼									
Titanium	S								▽▽▽			▼▼▼ ▽		▼▼▼ ▽				▼▼▼ ▼
Hard Materials	H										▽▽▽			▼▼▼			▽▽▽	

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHT10	WHT12	WHT16	WHT32	WTC15	WTC121	WHW01	WHW16	WHC05	WHC81	WHC88	WHC98	WHC111	WHC114	WHC136	WHC164	WHC190
121	0.20	0.008	F03902MN121	DCMT11T302	397787																	✱
121	0.40	0.016	F03904MN121	DCMT11T304	397788																	✱
127	0.20	0.008	F03702GN127	DCGT070202	397234								●									
127	0.40	0.016	F03704GN127	DCGT070204	097787								●									
127	0.20	0.008	F03902GN127	DCGT11T302	397235								●									
127	0.40	0.016	F03904GN127	DCGT11T304	097559								●									
129	0.20	0.008	F03702GN129	DCGT070202	397708								●									
129	0.20	0.008	F03902GN129	DCGT11T302	397816								●	●								
129	0.40	0.016	F03904GN129	DCGT11T304	397817								●	●								
146	0.40	0.016	F03704MN146	DCMT070204	397968										●	✱						
146	0.80	0.031	F03708MN146	DCMT070208	397047											✱						
146	0.40	0.016	F03904MN146	DCMT11T304	397591										●	✱						
146	0.80	0.031	F03908MN146	DCMT11T308	397598										●	✱						
155	0.20	0.008	F03902MN155	DCMT11T302	397809					◕												
155	0.40	0.016	F03904MN155	DCMT11T304	397810					◕												
192	0.20	0.008	F03902MN192	DCMT11T302	397783																◕	✱
192	0.40	0.016	F03904MN192	DCMT11T304	297721																◕	✱
192	0.80	0.031	F03908MN192	DCMT11T308	397784																◕	✱
200	0.20	0.008	F03902GN200	DCGT11T302	397785													●				
200	0.40	0.016	F03904GN200	DCGT11T304	397786													●				

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application
✱	Difficult - Main Application

Reference Key

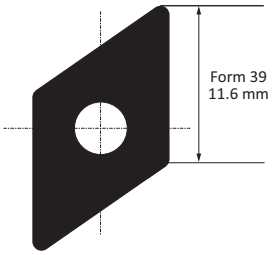
Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
39	115673	M3.5 x 0.6 x 9	414510	115664	3.0 Nm	T15

Insert Form 39

CBN | PCD

730 Geometry 735 Geometry 747 Geometry



		CBN								PCD			
		Uncoated						Coated					
Steel	P												
Stainless Steel	M												
Cast Iron	K	▽▽▽			▼▼▼								
Non-Ferrous Materials	N									▼▼▼			
Titanium	S												
Hard Materials	H	▼▼▼ ▽											

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WBN150	WBN200	WBN300	WBN450	WBN200				PKDD30	PKDD50		
730	0.20	0.008	F03902GN730	DCGW11T302	**397269**									◕			
730	0.40	0.016	F03904GN730	DCGW11T304	**397270**									◕			
735	0.20	0.008	F03902GN735	DCGT11T302	**397271**									●			
735	0.40	0.016	F03904GN735	DCGT11T304	**397272**									●			
747	0.20	0.008	F03902GN747	DCGW11T302	**397273**	◕			◕								
747	0.40	0.016	F03904GN747	DCGW11T304	**397274**	◕			◕								

Reference Key

Symbol	Machining Conditions
◕	Average - Main Application
◕	Difficult - Main Application

Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
39	**115673**	M3.5 x 0.6 x 9	**414510**	**115664**	3.0 Nm	T15

Insert Forms 112, 113, 114

Carbide


108 Geometry


127 Geometry


145 Geometry

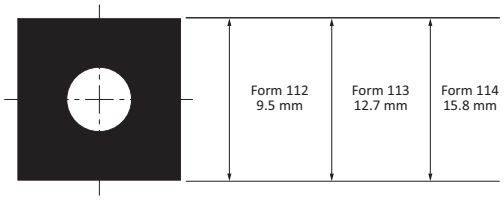

146 Geometry


158 Geometry


192 Geometry


199 Geometry


711 Geometry



		Carbide														
		Uncoated		Coated												
Steel	P				▼	▼	▼	▼	▼	▼	▼	▼		▼	▼	
Stainless Steel	M				▼		▽		▼	▼	▼	▼			▼	
Cast Iron	K		▽		▽	▼	▼	▼		▽	▼	▽		▼	▽	
Non-Ferrous Materials	N		▼													
Titanium	S		▽		▼				▼		▼	▼			▼	
Hard Materials	H					▽		▽			▽			▽		

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHW01	WHW16	WHC05	WHC30	WHC77	WHC79	WHC81	WHC88	WHC98	WHC111	WHC114	WHC136	WHC164	WHC190
108	0.40	0.016	F11204MN108	SCMT09T304	**297535**									◕					
108	0.80	0.031	F11308MN108	SCMT120408	**397110**									◕					
127	0.40	0.016	F11204GN127	SCGT09T304	**097539**		●												
127	0.40	0.016	F11304GN127	SCGT120404	**397590**		●												
127	0.80	0.031	F11308GN127	SCGT120408	**097566**		●												
145	0.80	0.031	F11208GN145	SCGT09T308	**297996**										●				
145	0.80	0.031	F11308GN145	SCGT120408	**297997**										●				
146	0.40	0.016	F11204MN146	SCMT09T304	**397940**							●	✱						
146	0.80	0.031	F11208MN146	SCMT09T308	**397992**							●	✱						
146	0.40	0.016	F11304MN146	SCMT12T304	**397049**								✱						
146	0.80	0.031	F11308MN146	SCMT12T308	**397969**							●	✱						
158	0.80	0.031	F11308MN158	SCMT120408	**297497**						◕								
158	1.20	0.047	F11412MN158	SCMT150512	**097252**				✱										
192	0.40	0.016	F11204MN192	SCMT09T304	**397741**													◕	✱
192	0.80	0.031	F11208MN192	SCMT09T308	**397640**													◕	✱
192	0.80	0.031	F11308MN192	SCMT120408	**397709**													◕	✱
192	1.20	0.047	F11312MN192	SCMT120412	**397710**														✱
199	0.40	0.016	F11204MN199	SCMT09T304	**397703**											◕			
199	0.80	0.031	F11208MN199	SCMT09T308	**397704**											◕			
199	0.80	0.031	F11308MN199	SCMT120408	**397705**											◕			
711	0.80	0.031	F11308MN711	SCMT120408	**297212**					◕									

Reference Key

Symbol	Machining Conditions
●	Good - Main Application
◕	Average - Main Application
✱	Difficult - Main Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
112	**115672** (<Ø37 mm)	M3.5 x 0.6 x 7.5	**415510**	**115664**	3.0 Nm	T15
112	**115673** (>Ø36 mm)	M3.5 x 0.6 x 9	**415510**	**115664**	3.0 Nm	T15
113	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20
114	**215149**	M4.5 x 0.75 x 11.5	**415543**	**215150**	5.0 Nm	T20

Reference Key

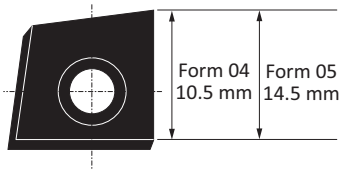
Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application
▽▽▽	Finishing - Extended Application

Insert Forms 04, 05

Carbide

880 Geometry

811 Geometry



		Carbide										
		Uncoated		Coated								
Steel	P									▼	▼	▼
Stainless Steel	M									▽	▽	▼
Cast Iron	K									▼	▼	▼
Non-Ferrous Materials	N											▽
Titanium	S											▽
Hard Materials	H											

Geometry	Radius mm	Radius in	Description	ISO Code	Part No.	WHW16	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC170	WHC168	WHC198
880	0.40	0.016	F00404ML880	–	**397595**											●
880	0.40	0.016	F00504ML880	–	**397593**										■	●
880	0.80	0.031	F00508ML880	–	**397594**									■	■	●
811	0.80	0.031	F00508ML811	–	**397844**										■	

Reference Key

Symbol	Machining Conditions
●	Average - Main Application
■	Difficult - Main Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
04	**415977**	M4 x 0.7 x 7.9	**415510**	**115664**	3.0 Nm	T15
05	**415949**	M4 x 0.7 x 11	**415543**	**215150**	5.0 Nm	T20

Reference Key

Symbol	Insert Type
▼	Roughing - Main Application
▽	Roughing - Extended Application

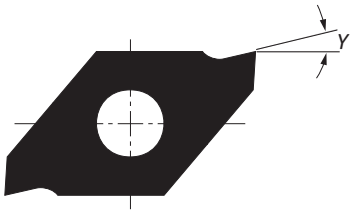
Radial Grooving Insert Forms 89, 90, 91

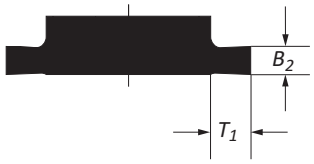
Carbide

Insert Form 89

Insert Form 90

Insert Form 91





		Carbide												
		Uncoated			Coated									
Steel	P											▼▼		
Stainless Steel	M											▽▽		
Cast Iron	K			▽▽								▼▼		
Non-Ferrous Materials	N			▼▼										
Titanium	S			▽▽								▼▼		
Hard Materials	H													

	Insert Form	B_2	Y	T_1	Ring Width	Part No.	WHW01	WHW16	WHW20	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
	89	1.24	13°	1.30	1.00	**097257**			●								●	
	89	1.44	13°	1.30	1.20	**097258**			●								●	
	89	1.74	13°	1.50	1.50	**097259**			●								●	
	90	1.99	9°	2.40	1.75	**097256**			●								●	
	90	2.29	9°	2.40	2.00	**097253**			●								●	
(m)	**90**	2.79	9°	2.40	2.50	**097254**			●								●	
	90	3.29	9°	2.40	3.00	**097255**			●								●	
	91	2.79	9°	2.40	2.50	**097260**			●								●	
	91	3.29	9°	2.40	3.00	**097261**			●								●	
	91	4.29	9°	3.30	4.00	**097262**			●								●	
	91	5.29	9°	4.50	5.00	**097294**			●								●	

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
89	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
90	**115531**	M3 x 0.5 x 7.5	**415514**	**115590**	1.2 Nm	T8
91	**115802**	M3 x 0.5 x 12	**415514**	**115590**	1.2 Nm	T8

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

Reference Key

Symbol	Insert Type
▼▼	Universal - Main Application
▽▽	Universal - Extended Application

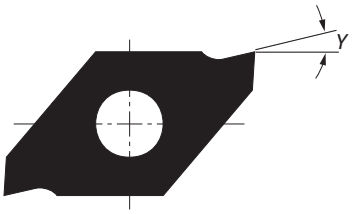
Radial Grooving Insert Forms 89, 90, 91

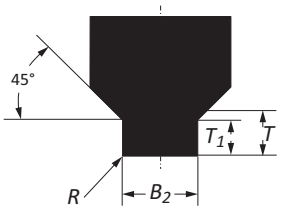
Carbide

Insert Form 89

Insert Form 90

Insert Form 91





										Carbide												
										Uncoated			Coated									
Steel									P												▼▼	
Stainless Steel									M												▽▽	
Cast Iron									K												▼▼	
Non-Ferrous Materials									N													
Titanium									S												▼▼	
Hard Materials									H													
	Insert Form	Boring Ø	B_2	Y	R	T_1	T	Ring Width	Part No.	WHW01	WHW16	WHW20	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
	89	24.00 - 26.00	1.44	13°	0.10	0.54	0.65	1.20	297937											●	
	89	28.00 - 30.00	1.44	13°	0.10	0.64	0.75	1.20	297938											●	
	89	31.00 - 32.00	1.44	13°	0.10	0.78	0.91	1.20	297939											●	
	89	34.00	1.74	13°	0.10	0.78	0.91	1.50	297940											●	
	89	35.00 - 38.00	1.74	13°	0.10	0.93	1.06	1.50	297941											●	
Ⓜ	90	40.00 - 48.00	1.99	9°	0.15	1.18	1.31	1.75	297942											●	
	90	50.00 - 63.00	2.29	9°	0.15	1.43	1.58	2.00	297943											●	
	91	65.00 - 78.00	2.79	9°	0.20	1.43	1.58	2.50	297944											●	
	91	80.00 - 82.00	2.79	9°	0.20	1.68	1.84	2.50	297945											●	
	91	85.00 - 100.00	3.29	9°	0.20	1.68	1.84	3.00	297946											●	
	91	102.00 - 145.00	4.29	9°	0.20	1.94	2.14	4.00	297947											●	

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
89	**115676**	M2.5 x 0.45 x 5	**415514**	**115590**	1.2 Nm	T8
90	**115531**	M3 x 0.5 x 7.5	**415514**	**115590**	1.2 Nm	T8
91	**115802**	M3 x 0.5 x 12	**415514**	**115590**	1.2 Nm	T8

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

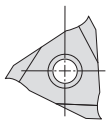
Reference Key

Symbol	Insert Type
▼▼	Universal - Main Application
▽▽	Universal - Extended Application

Axial Grooving Insert Blanks Form 304

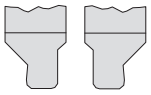
Carbide

				Carbide									
				Uncoated			Coated						
Steel	P												
Stainless Steel	M												
Cast Iron Non-Ferrous Materials	K					▽▽							
Non-Ferrous Materials	N					▼▼							
Titanium	S					▽▽							
Hard Materials	H												
	Geometry	S_1	Part No.	WHW01	WHW16	WHW20	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
m		3.50	297150			●									
		4.30	297151			●									
		5.30	297152			●									
		6.50	297154			●									
		7.50	297493			●									
		3.50	397850			●									
		4.30	397851			●									
		5.30	397852			●									
		6.50	397853			●									
		7.50	397854			●									



Other insert types available upon request.

Two-Sided Cutting Form



Single-Sided Cutting Form (Right / Left)

Two-Sided Angle Cutting

With Corner Radius

Full Radius

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

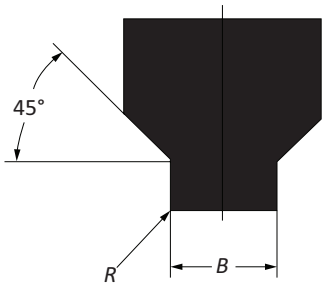
Reference Key

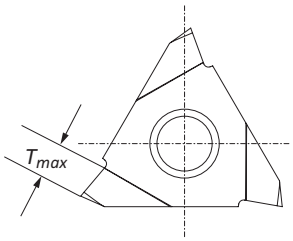
Symbol	Insert Type
▼▼	Universal - Main Application
▽▽	Universal - Extended Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
304	215392	M5 x 0.8 x 12.9	415543	215150	5.0 Nm	T20

Axial Grooving O-Rings for Single Cutter Tools Insert Form 304

Carbide





		Carbide												
		Uncoated			Coated									
Steel	P											▼▼		
Stainless Steel	M											▽▽		
Cast Iron Non-Ferrous Materials	K											▼▼		
Non-Ferrous Materials	N													
Titanium	S											▼▼		
Hard Materials	H													

	Geometry	Boring Range	O-Ring Cross Section	$B + 0.05$	B_{max}	T_{max}	$R \pm 0.05$	Part No.	WHW01	WHW16	WHW20	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
m		20 - 54	1.00	1.50	1.50	1.65	0.20	**297969**											●	
		20 - 54	1.50	2.20	2.20	2.35	0.30	**297970**											●	
		20 - 54	2.00	2.90	2.90	3.15	0.40	**297971**											●	
		20 - 54	2.50	3.50	3.50	3.85	0.50	**297972**											●	
		20 - 54	3.00	4.10	4.10	4.45	0.60	**297973**											●	
		20 - 54	4.00	5.40	5.40	4.95	0.80	**297974**											●	
		20 - 54	5.00	6.80	6.80	4.95	0.80	**297975**											●	

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

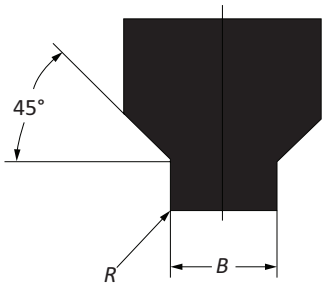
Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
304	**215392**	M5 x 0.8 x 12.9	**415543**	**215150**	5.0 Nm	T20

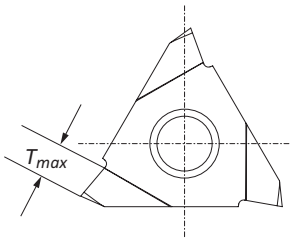
Reference Key

Symbol	Insert Type
▼▼	Universal - Main Application
▽▽	Universal - Extended Application

Axial Grooving O-Rings for Twin Cutter Tools Insert Form 304

Carbide





											Carbide										
											Uncoated			Coated							
Steel	P																		▼▼		
Stainless Steel	M																		▽▽		
Cast Iron Non-Ferrous Materials	K																		▼▼		
Non-Ferrous Materials	N																				
Titanium	S																		▼▼		
Hard Materials	H																				
	Geometry	Boring Range	O-Ring Cross Section	*B + 0.05*	B_{max}	T_{max}	*R ± 0.05*	Part No.	WHW01	WHW16	WHW20	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
ⓜ		53.00 - 1000.00	1.00 - 1.50	1.50	2.50	1.65	0.20	**297976**											●	
		53.00 - 1000.00	1.50 - 2.40	2.20	3.70	2.35	0.30	**297977**											●	
		53.00 - 1000.00	2.40 - 4.00	3.40	5.70	3.65	0.50	**297978**											●	
		53.00 - 1000.00	4.00 - 5.50	5.40	9.10	4.95	0.80	**297979**											●	

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

Insert Form	Countersunk Screw		Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
304	**215392**	M5 x 0.8 x 12.9	**415543**	**215150**	5.0 Nm	T20

Reference Key

Symbol	Insert Type
▼▼	Universal - Main Application
▽▽	Universal - Extended Application

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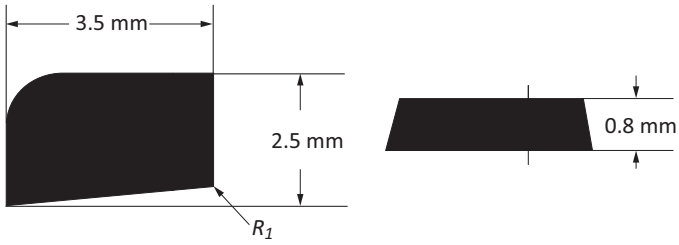
Insert Form 325

Carbide



		Carbide											
		Uncoated			Coated								
Steel	P											▼▼▼	
Stainless Steel	M											▼▼▼	
Cast Iron Non-Ferrous Materials	K			▼▼▼								▽▽▽	
Non-Ferrous Materials	N			▽▽▽									
Titanium	S											▼▼▼	
Hard Materials	H												

Geometry	Radius R_1	Description	Part No.	WHW01	WHW16	WHW20	WHC05	WHC18	WHC19	WHC79	WHC98	WHC111	WHC114	WHC136	WHC164
860	0.10	**F32501CN860**	**097831**			●								●	

Insert Form	Countersunk Screw		Clamping Jaw	Torque Driver	Service Key	Technical Data: Torque	Technical Data: Key Size
325	**315321**	M1.6 x 0.35 x 3	**315320**	-	**315322**	0.3 Nm	0.5x3

Reference Key

Symbol	Machining Conditions
●	Average - Main Application

Reference Key

Symbol	Insert Type
▼▼▼	Finishing - Main Application
▽▽▽	Finishing - Extended Application