



# INDEXABLE INSERTS

Carbide, cermet, coatings, PCD and PcBN – the entire range of modern cutting materials for every workpiece material and for every machining task is available for the range of tools with guide pads. The latest manufacturing technology employed in the production of the indexable inserts enables any chip former and chip breaker shape to be achieved – even with the super-hard materials such as PCD and PcBN. A clamping groove ensures the indexable inserts are securely retained; together with the clamping plate and adjusting elements the clamping groove forms a force-closure system. This stability is a prerequisite for long tool lives and prevents the indexable inserts settling.

## Introduction

Designation key _____	62
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## WP indexable inserts

Indexable inserts with AS lead _____	64
Indexable inserts with AD lead _____	66
Indexable inserts with AZ lead _____	68
Indexable inserts with DZ lead _____	70
Indexable inserts with EK lead _____	72

## HX indexable inserts

HX indexable inserts without clamping groove _____	74
HX indexable inserts with clamping groove _____	76
HX indexable inserts for EasyAdjust system _____	78

## TEC indexable inserts

TEC indexable inserts for EasyAdjust system _____	80
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# Designation key

Indexable inserts

## WP indexable inserts



A	S
---	---

Lead geometry

9	2
---	---

Indexable insert size

R
---

Cutting direction

0
---

Rake angle size

## HX indexable inserts



H	X
---	---

Lead geometry

1
---

Chip form geometry

3
---

Blade size

8
---

Cutting lead

## TEC indexable inserts



T	E	C
---	---	---

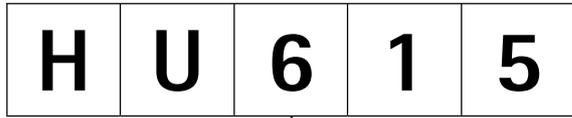
Insert form

2
---

Indexable insert size

F	0	1
---	---	---

Cutting edge design



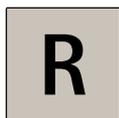
Cutting material



Cutting direction



Cutting material



Cutting direction



Additional clearance angle (if present)



Position of the chip groove

Only if corner tipped

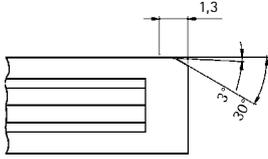
Chip groove



Cutting material

# Indexable inserts with AS lead

For tools with guide pads



Cutting material	Carbide						
MMG*	P	M	K	N			
Cutting material types	1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2	2	
	HP425	HP425	HC418		HP612	HP115	HU615
						Short chipping	Long chipping

Rake angle	Size	Specification	Order No.							
Negative	81	SP-AS81R0-...								
	90	SP-AS90R0-...								
	91	SP-AS91R0-...								
	92	SP-AS92R0-...								
	93	SP-AS93R0-...								

Neutral	81	SP-AS81R0-...			<b>30685593</b>				30669433	
	90	WP-AS90R0-...			<b>30685594</b>				30668828	
	91	WP-AS91R0-...			<b>30655643</b>				30668841	
	92	WP-AS92R0-...			<b>30667458</b>				30668851	
	93	WP-AS93R0-...			<b>30685595</b>				30668860	

Positive	81	SP-AS81R6-...	<b>30669444</b>	<b>30669444</b>	30685596	<b>30685596</b>	30685601	30669442	<b>30669441</b>	30669441
	90	WP-AS90R6-...	<b>30668839</b>	<b>30668839</b>	30595623	<b>30595623</b>	30685602	30668837	<b>30668836</b>	30668836
	91	WP-AS91R6-...	<b>30668850</b>	<b>30668850</b>	30644887	<b>30644887</b>	30685603	30668848	<b>30668847</b>	30668847
	92	WP-AS92R6-...	<b>30668859</b>	<b>30668859</b>	30586603	<b>30586603</b>	30685604	30668858	<b>30668857</b>	30668857
	93	WP-AS93R6-...	<b>30250310</b>	<b>30250310</b>	30606052	<b>30606052</b>	30404618	30668869	<b>30668868</b>	30668868

Highly positive	81	SP-AS81R2-...	30669439	30669439			<b>30685605</b>	30669438		<b>30669437</b>
	90	WP-AS90R2-...	30218895	30218895			<b>30685606</b>	30668835		<b>30668833</b>
	91	WP-AS91R2-...	30543337	30543337			<b>30685607</b>	30668845		<b>30668844</b>
	92	WP-AS92R2-...	30668856	30668856			<b>30685608</b>	30668854		<b>30668853</b>
	93	WP-AS93R2-...	30668865	30668865			<b>30685609</b>	30668864		<b>30668863</b>

\* MAPAL machining groups.  
The order number for the MAPAL recommendation / first choice is printed in bold.



Carbide		
<b>S</b>		<b>H</b>
1 - 2	2	1.1
HU615		HP454

Cermet	
<b>P</b>	
1   2.1   3.1	
CP122	CU134

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN	
<b>K</b>	<b>H</b>
1.1   2.1	1.1 - 1.2
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	
<b>30685610</b>	<b>30038481</b>
<b>30685611</b>	<b>30669193</b>
<b>30170242</b>	<b>30018103</b>
<b>30685612</b>	<b>30043230</b>

		<b>30685598</b>
		<b>30685599</b>
		<b>30292770</b>
		<b>30292768</b>




	30669441	
	30668836	
	30668847	
	30668857	
	30668868	

<b>30668838</b>	30668772
<b>30668849</b>	30668775
<b>30357069</b>	30668778
<b>30305745</b>	30668867

<b>30669189</b>	
<b>30669191</b>	
<b>30669194</b>	
<b>30669197</b>	
<b>30669199</b>	


<b>30669437</b>	
<b>30668833</b>	
<b>30668844</b>	
<b>30668853</b>	
<b>30668863</b>	

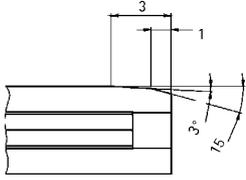
30222409	30668832
30668846	30668843
30668855	30668777
30668866	30668862



Cutting data recommendation from page 436.  
Cutting edges also available with special lead on request.

# Indexable inserts with AD lead

For tools with guide pads



Cutting material	Carbide					
MMG*	P	M	K	N		
	1 - 6	1 - 3	1.1	2 - 3	1.2	2
Cutting material types	HP425	HP425	HC418		HP115	HU615
					Short chipping	Long chipping

Rake angle	Size	Specification	Order No.					
Negative	81	SP-AD81R0-...						
	90	SP-AD90R0-...						
	91	SP-AD91R0-...						
	92	SP-AD92R0-...						
	93	SP-AD93R0-...						

Neutral	81	SP-AD81R0-...			<b>30685613</b>			30669381	
	90	WP-AD90R0-...			<b>30685614</b>			30669388	
	91	WP-AD91R0-...			<b>30655644</b>			30669398	
	92	WP-AD92R0-...			<b>30605079</b>			30669409	
	93	WP-AD93R0-...			<b>30678199</b>			30669417	

Positive	81	SP-AD81R6-...	<b>30689243</b>	<b>30689243</b>	30685615	<b>30685615</b>	30669385	<b>30669384</b>	30669384
	90	WP-AD90R6-...	<b>30669397</b>	<b>30669397</b>	30685616	<b>30685616</b>	30669396	<b>30669395</b>	30669395
	91	WP-AD91R6-...	<b>30669407</b>	<b>30669407</b>	30685617	<b>30685617</b>	30669406	<b>30669405</b>	30669405
	92	WP-AD92R6-...	<b>30669416</b>	<b>30669416</b>	30630630	<b>30630630</b>	30669415	<b>30669414</b>	30669414
	93	WP-AD93R6-...	<b>30244016</b>	<b>30244016</b>	30606054	<b>30606054</b>	30669424	<b>30669423</b>	30669423

Highly positive	81	SP-AD81R2-...	30324210	30324210			<b>30669383</b>		<b>30669382</b>
	90	WP-AD90R2-...	30669393	30669393			<b>30669392</b>		<b>30669391</b>
	91	WP-AD91R2-...	30306945	30306945			<b>30669403</b>		<b>30669402</b>
	92	WP-AD92R2-...	30543329	30543329			<b>30669413</b>		<b>30669412</b>
	93	WP-AD93R2-...	30543326	30543326			<b>30669421</b>		<b>30669420</b>

\* MAPAL machining groups.  
The order number for the MAPAL recommendation / first choice is printed in bold.



Carbide		
S		H
1	2	
HU615		HP454

Cermet	
P	
CP122	CU134

PCD	
N	
PU620	

PcBN	
K	H
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	





	30669384	
	30669395	
	30669405	
	30669414	
	30669423	



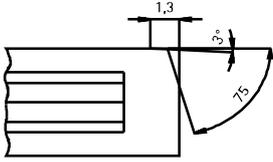

	<b>30669382</b>	
	<b>30669391</b>	
	<b>30669402</b>	
	<b>30669412</b>	
	<b>30669420</b>	




Cutting data recommendation from page 436.  
Cutting edges also available with special lead on request.

# Indexable inserts with AZ lead

For tools with guide pads



Cutting material	Carbide							
MMG*	P	M	K	N				
	1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2		2	
Cutting material types	HP425	HP425	HC418		HP612	HP115	HU615	
							Short chipping Long chipping	

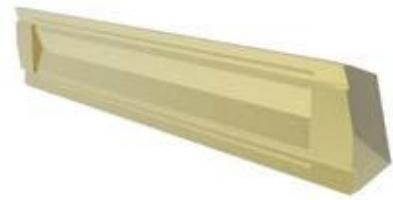
Rake angle	Size	Specification	Order No.						
Negative	81	SP-AZ81R0-...							
	90	SP-AZ90R0-...							
	91	SP-AZ91R0-...							
	92	SP-AZ92R0-...							
	93	SP-AZ93R0-...							

Neutral	81	SP-AZ81R0-...			<b>30685624</b>				30668873
	90	WP-AZ90R0-...			<b>30670062</b>				30668879
	91	WP-AZ91R0-...			<b>30685625</b>				30668887
	92	WP-AZ92R0-...			<b>30664930</b>				30668895
	93	WP-AZ93R0-...			<b>30664935</b>				30668905

Positive	81	SP-AZ81R6-...	<b>30685622</b>	<b>30685622</b>	30685626	<b>30685626</b>	30685634	30668877	<b>30668876</b>	30668876
	90	WP-AZ90R6-...	<b>30668886</b>	<b>30668886</b>	30658176	<b>30658176</b>	30685635	30668885	<b>30668884</b>	30668884
	91	WP-AZ91R6-...	<b>30668894</b>	<b>30668894</b>	30655755	<b>30655755</b>	30685636	30668892	<b>30668891</b>	30668891
	92	WP-AZ92R6-...	<b>30250608</b>	<b>30250608</b>	30664472	<b>30664472</b>	30685637	30668904	<b>30668903</b>	30668903
	93	WP-AZ93R6-...	<b>30668914</b>	<b>30668914</b>	30636429	<b>30636429</b>	30685638	30668913	<b>30668912</b>	30668912

Highly positive	81	SP-AZ81R2-...	30685623	30685623			<b>30685639</b>	30685633		<b>30668875</b>
	90	WP-AZ90R2-...	30586217	30586217			<b>30685640</b>	30668882		<b>30668881</b>
	91	WP-AZ91R2-...	30310878	30310878			<b>30685641</b>	30681700		<b>30668889</b>
	92	WP-AZ92R2-...	30668901	30668901			<b>30685642</b>	30668900		<b>30668899</b>
	93	WP-AZ93R2-...	30668910	30668910			<b>30685643</b>	30668909		<b>30668908</b>

\* MAPAL machining groups.  
The order number for the MAPAL recommendation / first choice is printed in bold.



Carbide			
<b>S</b>		<b>H</b>	
1	2	1.1	
HU615		HP454	

Cermet	
<b>P</b>	
1   2.1   3.1	
CP122	CU134

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN	
<b>K</b>	<b>H</b>
1.1 - 2.1	1.1 - 1.2
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	
<b>30685648</b>	<b>30685651</b>
<b>30685649</b>	<b>30014568</b>
<b>30685650</b>	<b>30669213</b>
<b>30530294</b>	<b>30019399</b>

		<b>30685628</b>
		<b>30685629</b>
		<b>30685630</b>
		<b>30283100</b>




	30668876	
	30668884	
	30668891	
	30668903	
	30668912	

<b>30685644</b>	30668883
<b>30668893</b>	30668890
<b>30412539</b>	30668902
<b>30668915</b>	30668911

<b>30669205</b>	
<b>30669207</b>	
<b>30669210</b>	
<b>30669215</b>	
<b>30669218</b>	

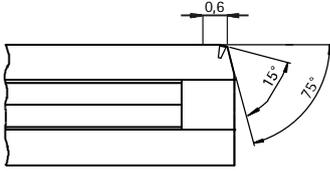

	<b>30668875</b>	
	<b>30668881</b>	
	<b>30668889</b>	
	<b>30668899</b>	
	<b>30668908</b>	




Cutting data recommendation from page 436.  
Cutting edges also available with special lead on request.

# Indexable inserts with DZ lead

For tools with guide pads



Cutting material	Carbide						
MMG*	P	M	K	N			
	1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2		2
Cutting material types	HP425	HP425	HC418		HP612	HP115	HU615
							Short chipping Long chipping

Rake angle	Size	Specification	Order No.							
Negative	81	SP-DZ81R0-...								
	90	SP-DZ90R0-...								
	91	SP-DZ91R0-...								
	92	SP-DZ92R0-...								
	93	SP-DZ93R0-...								

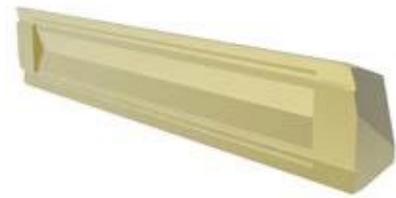
Neutral	81	SP-DZ81R0-...			<b>30685653</b>				30668920	
	90	WP-DZ90R0-...			<b>30685654</b>				30668930	
	91	WP-DZ91R0-...			<b>30664932</b>				30668938	
	92	WP-DZ92R0-...			<b>30685655</b>				30668953	
	93	WP-DZ93R0-...			<b>30667699</b>				30668962	

Positive	81	SP-DZ81R6-...	<b>30668928</b>	<b>30668928</b>	30685656	<b>30685656</b>	30685660	30668927	<b>30668926</b>	30668926
	90	WP-DZ90R6-...	<b>30668785</b>	<b>30668785</b>	30651866	<b>30651866</b>	30685661	30668936	<b>30668935</b>	30668935
	91	WP-DZ91R6-...	<b>30668950</b>	<b>30668950</b>	30596193	<b>30596193</b>	30685662	30668949	<b>30668947</b>	30668947
	92	WP-DZ92R6-...	<b>30668961</b>	<b>30668961</b>	30601514	<b>30601514</b>	30641835	30668960	<b>30668959</b>	30668959
	93	WP-DZ93R6-...	<b>30668970</b>	<b>30668970</b>	30641280	<b>30641280</b>	30328346	30668969	<b>30668968</b>	30668968

Highly positive	81	SP-DZ81R2-...	30325543	30325543			<b>30685663</b>	30668924		<b>30668923</b>
	90	WP-DZ90R2-...	30204674	30204674			<b>30685664</b>	30668934		<b>30668933</b>
	91	WP-DZ91R2-...	30685652	30685652			<b>30685665</b>	30668943		<b>30668942</b>
	92	WP-DZ92R2-...	30285943	30285943			<b>30685666</b>	30668957		<b>30668956</b>
	93	WP-DZ93R2-...	30668967	30668967			<b>30685667</b>	30668966		<b>30668965</b>

\* MAPAL machining groups.

The order number for the MAPAL recommendation / first choice is printed in bold.



Tools with guide pads

Carbide		
<b>S</b>		<b>H</b>
1 - 2		1.1
HU615		HP454

Cermet	
<b>P</b>	
CP122	CU134

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN	
<b>K</b>	<b>H</b>
1.1 - 2.1	1.1 - 1.2
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	
<b>30262157</b>	<b>30011418</b>
<b>30490660</b>	<b>30020729</b>
<b>30174899</b>	<b>30669469</b>
<b>30502436</b>	<b>30669472</b>

		<b>30615403</b>
		<b>30685658</b>
		<b>30685659</b>
		<b>30567615</b>




	30668926	
	30668935	
	30668947	
	30668959	
	30668968	


	<b>30669224</b>
	<b>30669464</b>
	<b>30669467</b>
	<b>30669471</b>
	<b>30669473</b>

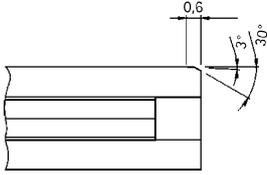

	<b>30668923</b>	
	<b>30668933</b>	
	<b>30668942</b>	
	<b>30668956</b>	
	<b>30668965</b>	




Cutting data recommendation from page 436.  
Cutting edges also available with special lead on request.

# Indexable inserts with EK lead

For tools with guide pads



Cutting material	Carbide						
MMG*	P	M	K		N		
	1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2	2	
Cutting material types	HP425	HP425	HC418		HP612	HP115	HU615
							Short chipping Long chipping

Rake angle	Size	Specification	Order No.							
Negative	181	SP-EK181R0-...								
	150	SP-EK150R0-...								
	151	SP-EK151R0-...								
	152	SP-EK152R0-...								
	153	SP-EK153R0-...								

Neutral	181	SP-EK181R0-...			<b>30685668</b>				30681701	
	150	WP-EK150R0-...			<b>30685669</b>				30668971	
	151	WP-EK151R0-...			<b>30685670</b>				30668980	
	152	WP-EK152R0-...			<b>30685671</b>				30668989	
	153	WP-EK153R0-...			<b>30685672</b>				30669002	

Positive	181	SP-EK181R6-...	<b>30681707</b>	<b>30681707</b>	30685673	<b>30685673</b>	30685684	30681706	<b>30681705</b>	30681705
	150	WP-EK150R6-...	<b>30668979</b>	<b>30668979</b>	30685674	<b>30685674</b>	30685685	30668978	<b>30668977</b>	30668977
	151	WP-EK151R6-...	<b>30389077</b>	<b>30389077</b>	30685675	<b>30685675</b>	30685686	30668987	<b>30668986</b>	30668986
	152	WP-EK152R6-...	<b>30669000</b>	<b>30669000</b>	30685676	<b>30685676</b>	30685687	30668999	<b>30668998</b>	30668998
	153	WP-EK153R6-...	<b>30669010</b>	<b>30669010</b>	30685677	<b>30685677</b>	30685688	30669009	<b>30669008</b>	30669008

Highly positive	181	SP-EK181R2-...	30681704	30681704			<b>30685689</b>	30681703		<b>30681702</b>
	150	WP-EK150R2-...	30668976	30668976			<b>30685690</b>	30668975		<b>30668974</b>
	151	WP-EK151R2-...	30208444	30208444			<b>30685691</b>	30668984		<b>30668983</b>
	152	WP-EK152R2-...	30668996	30668996			<b>30685692</b>	30668994		<b>30668993</b>
	153	WP-EK153R2-...	30208445	30208445			<b>30685693</b>	30669007		<b>30669006</b>

\* MAPAL machining groups.

The order number for the MAPAL recommendation / first choice is printed in bold.



# HX indexable inserts without clamping groove (for series MN6023/MN6024)

For tools with guide pads

Cutting material				Carbide						
MMG*	P	M	K	N						
	1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2	2				
Cutting material types				HP425	HP425	HC418		HP115	HU615	
									Short chipping	Long chipping

Rake angle	Size	Lead	Specification	Order No.							
Negative	2	R0,8	WP-HX28RL-...								
	3	R0,8	WP-HX38RL-...								
Neutral	2	R0,8	WP-HX28RL-...			<b>30685698</b>				<b>30669061</b>	
	3	R0,8	WP-HX38RL-...			<b>30685699</b>				<b>30669110</b>	
Positive	2	R0,8	WP-HX28R-...	<b>30513105</b>	<b>30513105</b>	30809524	<b>30809524</b>		<b>30669077</b>		<b>30669076</b>
	3	R0,8	WP-HX38R-...	<b>30685697</b>	<b>30685697</b>	30809525	<b>30809525</b>		<b>30685702</b>		<b>30669123</b>

\* MAPAL machining groups.

The order number for the MAPAL recommendation / first choice is printed in bold.



Tools with guide pads

Carbide			
<b>S</b>		<b>H</b>	
1 - 2		1.1	
HU615		HP454	

Cermet			
<b>P</b>			
1   2.1   3.1			
CP140	CU140		

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN			
<b>K</b>		<b>H</b>	
1.1 - 2.1		1.1 - 1.2	
FU485		FU801	

Order No.		

Order No.	

Order No.

Order No.	
<b>30026939</b>	<b>30011956</b>
<b>30007569</b>	<b>30020309</b>

	<b>30685700</b>
	<b>30685701</b>


<b>30669555</b>
<b>30669556</b>


<b>30669076</b>	
<b>30669123</b>	

<b>30669079</b>	30669075
<b>30685703</b>	30669122



# HX indexable inserts with clamping groove

For tools with guide pads

Cutting material		Carbide							
MMG*	P	M	K	N					
	1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2	2			
Cutting material types		HP122	HP342	HC419		HP612	HU612		
							Short chipping	Long chipping	

Rake angle	Size	Lead	Specification	Order No.							
Negative	2	R0,8	WP- K1288-2133-...								
	3	R0,8	WP- K1288-2123-...								
Neutral	2	R0,8	WP- 606087689-...	30688942		<b>30688944</b>				30687082	
	3	R0,8	WP- 606087714-...	30688973		<b>30688981</b>				30688971	
Positive	2	R0,8	WP-HX228RL-...	<b>30197811</b>	<b>30685704</b>	30685706	<b>30685706</b>			<b>30320977</b>	30320977
	3	R0,8	WP-HX238RL-...	<b>30669024</b>	<b>30685705</b>	30670511	<b>30670511</b>			<b>30669021</b>	30669021
Highly positive	2	R0,8	WP-HX128RL-...	30669014	30669012		30672598		<b>30685707</b>		30669011
	3	R0,8	WP-HX138RL-...	30669018	30669016		30630602		<b>30685708</b>		30669015

\* MAPAL machining groups.

The order number for the MAPAL recommendation / first choice is printed in bold.



Carbide	
<b>S</b>	<b>H</b>
1 - 2	1.1
HU612	HP141

Cermet	
<b>P</b>	
1   2.1   3.1	
CP122	CU134

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN	
<b>K</b>	<b>H</b>
1.1 - 2.1	1.1 - 1.2
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	
<b>30009396</b>	<b>30033403</b>
<b>30008170</b>	<b>30097476</b>

	<b>30688948</b>
	<b>30688982</b>


	30538941
	30538988



<b>30222667</b>	30669019
<b>30222666</b>	30668789



	<b>30669011</b>
	<b>30669015</b>

30308283	30495194
30304830	30668788

	<b>30538957</b>
	<b>30539009</b>


# HX indexable inserts for EasyAdjust system

For tools with guide pads

Cutting material		Carbide							
MMG*		P	M	K			N		
		1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2		2	
Cutting material types		HP122	HP342	HC419		HP612		HU612	
								Short chipping	Long chipping

Rake angle	Size	Lead	Specification	Order No.						
Negative	2	R0,8	WP- K1288-2133-...							
	3	R0,8	WP- K1288-2123-...							
Neutral	2	R0,8	WP- 606087689-...	30688942		<b>30688944</b>			30687082	
	3	R0,8	WP- 606087714-...	30688973		<b>30688981</b>			30688971	
Positive	2	R0,8	WP-HX228RL-...	<b>30197811</b>	<b>30685704</b>	30685706	<b>30685706</b>		<b>30320977</b>	30320977
	3	R0,8	WP-HX238RL-...	<b>30669024</b>	<b>30685705</b>	30670511	<b>30670511</b>		<b>30669021</b>	30669021
Highly positive	2	R0,8	WP-HX128RL-...	30669014	30669012		30672598	<b>30685707</b>		<b>30669011</b>
	3	R0,8	WP-HX138RL-...	30669018	30669016		30630602	<b>30685708</b>		<b>30669015</b>

\* MAPAL machining groups.

The order number for the MAPAL recommendation / first choice is printed in bold.



Carbide	
<b>S</b>	<b>H</b>
1 - 2	1.1
HU612	HP141

Cermet	
<b>P</b>	
1   2.1   3.1	
CP122	CU134

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN	
<b>K</b>	<b>H</b>
1.1 - 2.1	1.1 - 1.2
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	
<b>30009396</b>	<b>30033403</b>
<b>30008170</b>	<b>30097476</b>

	<b>30688948</b>
	<b>30688982</b>


	30538941
	30538988



<b>30222667</b>	30669019
<b>30222666</b>	30668789



	<b>30669011</b>
	<b>30669015</b>

30308283	30495194
30304830	30668788

	<b>30538957</b>
	<b>30539009</b>


# TEC indexable insert for EasyAdjust system

For tools with guide pads

Cutting material		Carbide								
MMG*		P	M	K	N					
		1 - 6	1 - 3	1.1	2 - 3	1.1 - 1.2	2			
Cutting material types		HP122	HP342	HC419		HP612	HU612			
								Short chipping	Long chipping	

Rake angle	Size	Lead	Specification	Order No.							
Negative	2	R0,4	WP-TEC2-04-...								
	3	R0,8	WP-TEC3-08-...								
Neutral	2	R0,4	WP-TEC2-04-...	30688949		<b>30688951</b>				<b>30688954</b>	
	3	R0,8	WP-TEC3-08-...	30688955		<b>30688956</b>				<b>30688960</b>	
Highly positive	2	R0,4	WP-TEC2-04-...	<b>30689032</b>	<b>30685235</b>		30689041		<b>30685231</b>		<b>30685213</b>
	3	R0,8	WP-TEC3-08-...	<b>30689043</b>	<b>30539043</b>		30685911		<b>30665767</b>		<b>30689046</b>

\* MAPAL machining groups.

The order number for the MAPAL recommendation / first choice is printed in bold.



Carbide	
<b>S</b>	<b>H</b>
1 - 2	1.1
HU612	HP141

Cermet	
<b>P</b>	
1   2.1   3.1	
CP122	CU134

PCD	
<b>N</b>	
1 - 2	
PU620	

PcBN	
<b>K</b>	<b>H</b>
1.1 - 2.1	1.1 - 1.2
FU485	FU801

Order No.	

Order No.	

Order No.	

Order No.	
<b>30539027</b>	<b>30688967</b>
<b>30539039</b>	<b>30688969</b>

	<b>30688952</b>
	<b>30688958</b>


	30539029
	30539040


	<b>30685213</b>
	<b>30689046</b>

<b>30539033</b>	30689042
<b>30689049</b>	30689048

	<b>30539034</b>
	<b>30539046</b>
