

**Indexable Milling Tools**

**ABPF | Ball High Precision Finish - Carbide Shank**

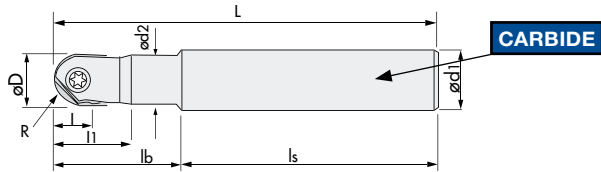
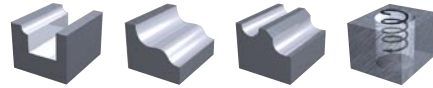
**V max**  
High Speed

**▽▽**  
Semi Finishing

**▽▽▽**  
Finishing

**HRC**  
65

**No. of Teeth**  
2



R	± 0.005
Set-up	± 0.010



**ABPF-W** Ball High Precision Finish - Carbide Shank Regular

ID Code	Item Code	Stock	Flutes	ØD	R	L	l	l <sub>1</sub>	l <sub>b</sub>	l <sub>s</sub>	Ød <sub>1</sub>	Ød <sub>2</sub>	Inserts x1
FH 393	<b>ABPF-08S08W</b>	■	2	8	4	100	4.4	18	30	70	8	7.8	ZPFG080
FH 394	<b>ABPF-10S10W</b>	■	2	10	5	100	5.5	23	35	65	10	9.8	ZPFG100
FH 395	<b>ABPF-12S12W</b>	■	2	12	6	110	6.6	26	45	65	12	11.8	ZPFG120
FH 478	<b>ABPF-16S16W</b>	■	2	16	8	140	8.8	19	35	105	16	15.5	ZPFG160
FH 479	<b>ABPF-20S20W</b>	■	2	20	10	160	11	22	40	120	20	19.5	ZPFG200
FH 480	<b>ABPF-25S25W</b>	■	2	25	12.5	180	13.7	25	45	135	25	24.5	ZPFG250
FH 481	<b>ABPF-32S32W</b>	■	2	32	16	180	17.6	30	55	125	32	31.5	ZPFG320



**ABPF-WL** Ball High Precision Finish - Carbide Shank Long Neck

ID Code	Item Code	Stock	Flutes	ØD	R	L	l	l <sub>1</sub>	l <sub>b</sub>	l <sub>s</sub>	Ød <sub>1</sub>	Ød <sub>2</sub>	Inserts x1
FH 396	<b>ABPF-08S08WL</b>	■	2	8	4	130	4.4	18	65	65	8	7.8	ZPFG080
FH 397	<b>ABPF-10S10WL</b>	■	2	10	5	140	5.5	23	75	65	10	9.8	ZPFG100
FH 398	<b>ABPF-12S12WL</b>	■	2	12	6	150	6.6	26	85	65	12	11.8	ZPFG120



**ABPF-WE** Ball High Precision Finish - Carbide Shank Extra Long

ID Code	Item Code	Stock	Flutes	ØD	R	L	l	l <sub>1</sub>	l <sub>b</sub>	l <sub>s</sub>	Ød <sub>1</sub>	Ød <sub>2</sub>	Inserts x1
FH 458	<b>ABPF-16S16WE</b>	■	2	16	8	200	8.8	19	120	80	16	15.8	ZPFG160
FH 459	<b>ABPF-20S20WE</b>	■	2	20	10	250	11	22	150	100	20	19.8	ZPFG200
FH 460	<b>ABPF-25S25WE</b>	■	2	25	12.5	300	13.7	25	190	110	25	24.8	ZPFG250
FH 482	<b>ABPF-32S32WE</b>	■	2	32	16	350	17.6	30	230	120	32	31.8	ZPFG320

■ = Stock | Germany

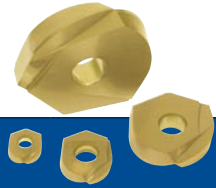
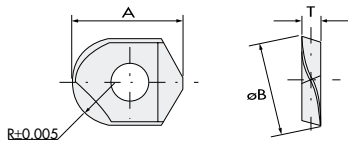
Inserts p. 7

**Parts** **Clamp Screw** **Wrench**

	Body	ID-Code	Item-Code	ID-Code	Item-Code
<b>ABPF-W</b>		<b>ABPF-08S08W</b>	ET 153	581-141	ET 13 104-T8
		<b>ABPF-10S10W</b>	ET 154	581-142	ET 11 104-T10
		<b>ABPF-12S12W</b>	ET 155	581-143	ET 14 105-T20
		<b>ABPF-16S16W</b>	ET 156	581-144	ET 14 105-T20
		<b>ABPF-20S20W</b>	ET 157	581-145	ET 9 101-T25S
		<b>ABPF-25S25W</b>	ET 168	581-146	ET 167 105-T30A
		<b>ABPF-32S32W</b>	ET 169	581-147	ET 167 105-T30A
<b>ABPF-WL</b>		<b>ABPF-08S08WL</b>	ET 153	581-141	ET 13 104-T8
		<b>ABPF-10S10WL</b>	ET 154	581-142	ET 11 104-T10
		<b>ABPF-12S12WL</b>	ET 155	581-143	ET 14 105-T20
<b>ABPF-WE</b>		<b>ABPF-16S16WE</b>	ET 156	581-144	ET 14 105-T20
		<b>ABPF-20S20WE</b>	ET 157	581-145	ET 9 101-T25S
		<b>ABPF-25S25WE</b>	ET 168	581-146	ET 167 105-T30A
		<b>ABPF-32S32WE</b>	ET 169	581-147	ET 167 105-T30A

**Indexable Milling Tools** | Grades Overview

**INSERTS** | Ball High Precision Finish



ID Code	Item Code	Grade	C-Coated		G-Coated		TH-Coated		R	I(A)	T	W(B)
			PCA08M	PCA12M			PTH08M					
WF 645	<b>ZPFG-080</b>	PTH08M					■		4	9.7	2.1	8
WF 594	<b>ZPFG-080</b>	PCA08M	■						4	9.7	2.1	8
WF 547	<b>ZPFG-080</b>	PCA12M		■					4	9.7	2.1	8
WF 646	<b>ZPFG100</b>	PTH08M					■		5	12.1	2.7	10
WF 595	<b>ZPFG100</b>	PCA08M	■						5	12.1	2.7	10
WF 548	<b>ZPFG100</b>	PCA12M		■					5	12.1	2.7	10
WF 647	<b>ZPFG120</b>	PTH08M					■		6	14.6	3.2	12
WF 596	<b>ZPFG120</b>	PCA08M	■						6	14.6	3.2	12
WF 549	<b>ZPFG120</b>	PCA12M		■					6	14.6	3.2	12
WF 648	<b>ZPFG160</b>	PTH08M					■		8	16.6	4.2	16
WF 597	<b>ZPFG160</b>	PCA08M	■						8	16.6	4.2	16
WF 598	<b>ZPFG160</b>	PCA12M		■					8	16.6	4.2	16
WF 649	<b>ZPFG200</b>	PTH08M					■		10	20.3	5.2	20
WF 599	<b>ZPFG200</b>	PCA08M	■						10	20.3	5.2	20
WF 600	<b>ZPFG200</b>	PCA12M		■					10	20.3	5.2	20
WF 650	<b>ZPFG250</b>	PTH08M					■		12.5	24.1	6.2	25
WF 601	<b>ZPFG250</b>	PCA08M	■						12.5	24.1	6.2	25
WF 602	<b>ZPFG250</b>	PCA12M		■					12.5	24.1	6.2	25
WF 651	<b>ZPFG320</b>	PTH08M					■		16	30	7.2	32
WF 603	<b>ZPFG320</b>	PCA08M	■						16	30	7.2	32
WF 604	<b>ZPFG320</b>	PCA12M		■					16	30	7.2	32

■ = Stock | Germany

ISO														
P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30	K40
PTH08M										PTH08M				
PCA08M										PCA08M				
PCA12M					PCA12M					PCA12M				
N01	N10	N20	N30	N40	S01	S10	S20	S30	S40	H01	H10	H20	H30	H40
												PTH08M		
												PCA08M		
												PCA12M		

**Indexable**  
**Milling**  
+Modular Series

No. 322

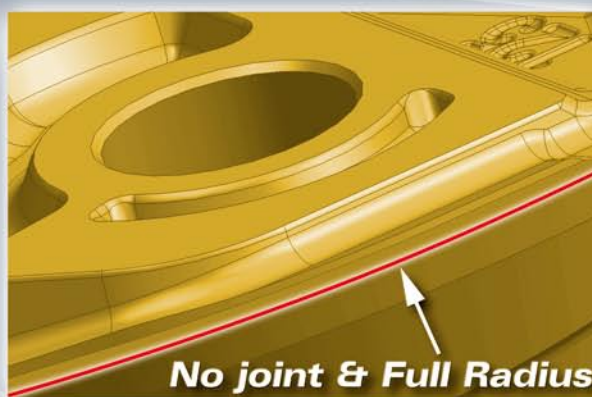
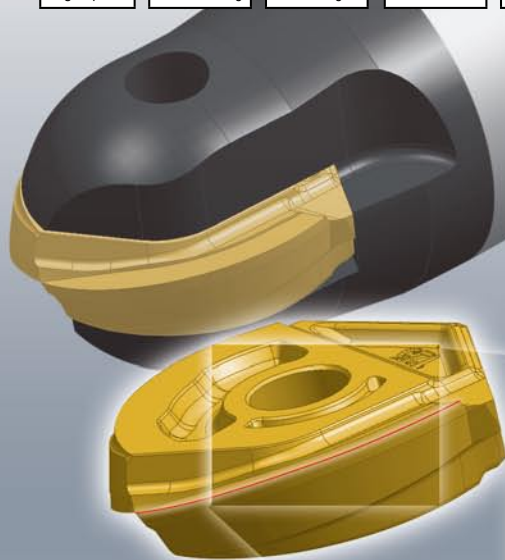
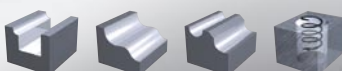
# ZDFG High Speed Precision

Advanced Nano-Composite Coating **ATH+ACS**

**Tool Life +**

ZDFG | W Type Inserts for ABPF

<b>V max</b>			<b>HRC</b>	<b>No. of Teeth</b>
High Speed	Semi Finishing	Finishing	65	2



Vertical Wall Machining

**Hardened Steel:**  
Strong edge for long tool life

**Mild Steel, Cast Iron:**  
Sharp edge for best surface quality

ID Code	Item Code	Grade	ATH-Coated ATH80D	ACS-Coated ACS05E	R	A	ØB	T
WF164	ZDFG160-WH	ATH80D	■		8	16.6	16	4.2
WF168	ZDFG160-WF	ACS05E		■				
WF165	ZDFG200-WH	ATH80D	■		10	20.3	20	5.2
WF169	ZDFG200-WF	ACS05E		■				
WF166	ZDFG250-WH	ATH80D	■		12.5	24.1	25	6.2
WF170	ZDFG250-WF	ACS05E		■				
WF167	ZDFG320-WH	ATH80D	■		16	30.2	32	7.2
WF171	ZDFG320-WF	ACS05E		■				

