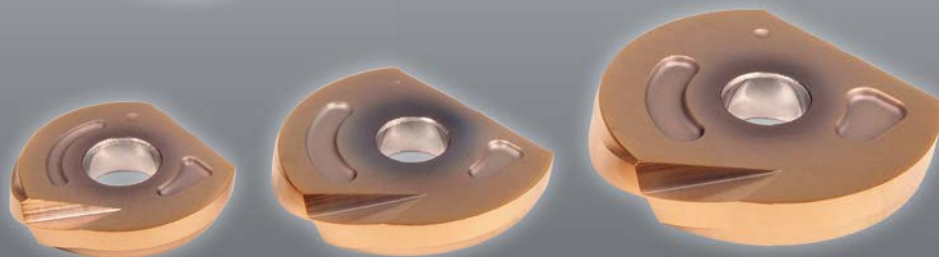


# **ABPE Precision *Eco* Series**

**Economical Selection for Precision Series D 8-25**



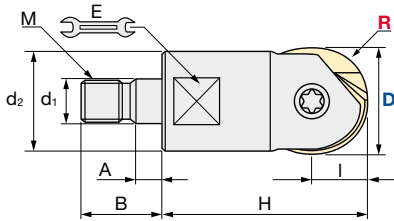
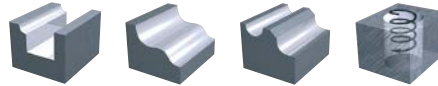
**D8 mm ~ D25 mm**  
• Modular &  
Shank Types



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## ABPEM | Ball Precision Eco – Modular Type

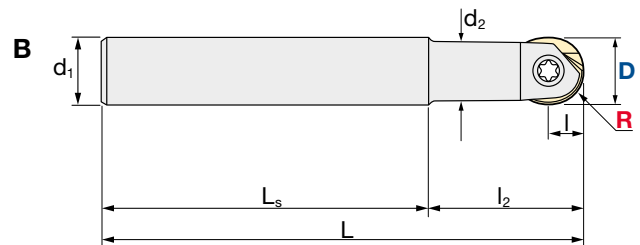
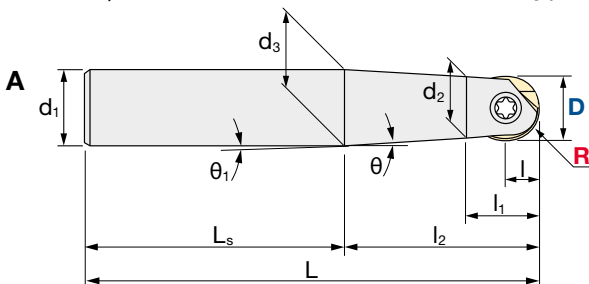
<b>V max</b> High Speed	<b>▽▽</b> Semi Finishing	<b>▽▽▽</b> Semi Finishing	<b>HRC</b> 65	<b>No. of Teeth</b> 2
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Diameter Holder only [mm]	Insert R Accuracy [mm]
<b>0/-0.02 mm</b>	<b>+/-0.01 mm</b>

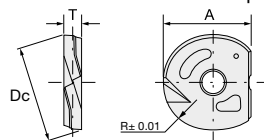
ID Code	Item Code	Z	D	R	I	H	d <sub>1</sub>	M	d <sub>2</sub>	A	B	E
FH249	<b>ABPEM-10</b>	2	10	5	5	26	6.5	M6	9.8	5.5	14.5	7
FH250	<b>ABPEM-12</b>		12	6	6							
FH251	<b>ABPEM-16</b>		16	8	8	32	8.5	M8	12.8		17	10
FH252	<b>ABPEM-20</b>		20	10	10	38	10.5	M10	17.8		19	15
FH253	<b>ABPEM-25</b>		25	12.5	12.5		12.5	M12	20.8		22	17

## ABPE | Ball Precision Eco – Shank Type



ID Code	Item Code	Z	D	R	L	d <sub>1</sub>	l	l <sub>2</sub>	l <sub>1</sub>	d <sub>2</sub>	d <sub>3</sub>	L <sub>s</sub>	θ	θ <sub>1</sub>	Type
FH238	ABPE-08S10-130-30	2	8	4	130	10	4	30	10	7.3	9.5	100	3.15	2.2	A
FH239	ABPE-10S10-130-30		10	5	150	12	5	30	-	9	-	100	0	-	B
FH240	ABPE-10S12-150-35		10	5					11.5		115	3	1.91	A	
FH241	ABPE-12S12-130-35		12	6	130	16	6	35	12	10.4	-	95	0	-	B
FH242	ABPE-12S16-160-60		12	6	160				60		13	15.5	100	3	2.12
FH243	ABPE-16S16-140-40		16	8	140	20	8	40	-	14.3	-	135	0	-	B
FH244	ABPE-16S20-200-65		16	8	200				65		16	18.5	135	2.45	2.01
FH245	ABPE-20S20-160-45		20	10	160	25	10	45	-	18	-	115	0	-	B
FH246	ABPE-20S25-220-80		20	10	220				80		20	24	140	2.9	2.05
FH247	ABPE-25S25-180-45		25	12.5	180	32	12.5	45	-	22.5	-	135	0	-	B
FH248	ABPE-25S32-250-100		25	12.5	250				100		25	29.5	150	2.7	2.29

## ABPE/ABPEM | Ball Precision Eco – Inserts





### NOTE:

To keep high-accuracy, please put marked side onto head side of the screw.  
 BCHG-Inserts for ABPE cannot be clamped onto ABPF body!

Item Code	Tolerance	Grade		Size			
		JP15E	JP08E	R	A	Dc	T
<b>BCHG080</b>	H class	WF350	WF344	4	9.5	8	2
<b>BCHG100</b>		WF351	WF345	5	11.5	10	2.5
<b>BCHG120</b>		WF352	WF346	6	12	12	2.5
<b>BCHG160</b>		WF353	WF347	8	14	16	3
<b>BCHG200</b>		WF354	WF348	10	16	20	3
<b>BCHG250</b>		WF355	WF349	12.5	21.5	25	4

**JP08E** High adhesion PVD coat + Micro grain substrate  
 Target: Tool steel, Hardened steel, Cast iron

**JP15E** High adhesion PVD coat + Micro grain substrate  
 Target: Tool steel, Pre-hardened steel, Cast iron

Parts	Clamp Screw			Wrench	
					
Diameter	ID Code	Item Code	Fastening Torque [Nm]	ID Code	Item code
8	ET153	<b>581-141</b>	1.1 Nm	ET13	<b>104-T8</b>
10	ET154	<b>581-142</b>	2.2 Nm	ET11	<b>104-T10</b>
12	ET155	<b>581-143</b>	4.9 Nm	ET14	<b>105-T20</b>
16 & 20	ET156	<b>581-144</b>	4.9 Nm	ET14	<b>105-T20</b>
25	ET168	<b>581-146</b>	9.8 Nm	ET167	<b>105-T30A</b>

## ABPE | Recommended Cutting Conditions

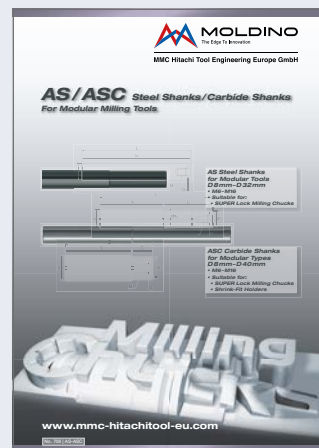
Work piece material	Recommend grade & Target hardness (HRC)	30	40	50	Emulsion	Air	Parameter	D 8			D 10			D 12			D 16			D 20			D 25		
								Semi Finishing			Semi Finishing			Semi Finishing			Semi Finishing			Semi Finishing			Semi Finishing		
								General			General			General			General			General			General		
								General	High feed	Finishing	General	High feed	Finishing	General	High feed	Finishing	General	High feed	Finishing	General	High feed	Finishing	General	High feed	Finishing
I II Carbon-Steel Alloy-Steel <30HRC	JP15E				•	•	V <sub>c</sub> m/min	175	265	350	175	265	350	175	265	350	185	280	370	185	280	370	185	280	370
					•	•	n min <sup>-1</sup>	6960	10540	13930	5570	8440	11140	4640	7030	9280	3680	5570	7360	2940	4460	5890	2360	3570	4710
					•	•	f <sub>z</sub> mm/t	0.2	0.4	0.1	0.2	0.4	0.12	0.2	0.4	0.15	0.2	0.4	0.2	0.2	0.4	0.25	0.2	0.4	0.3
					•	•	V <sub>f</sub> mm/min	2790	8440	2790	2230	6750	2670	1860	5620	2790	1470	4460	2940	1180	3570	2940	940	2850	2830
					•	•	a <sub>p</sub> mm	0.2	0.1	0.2	0.5	0.2	0.2	0.6	0.3	0.2	0.8	0.4	0.2	1	0.6	0.2	1.2	0.8	0.2
III Alloy-Steel Tool-Steel 30-40HRC	JP15E				•	•	V <sub>c</sub> m/min	160	220	310	160	220	310	160	220	310	170	235	325	170	235	325	170	235	325
					•	•	n min <sup>-1</sup>	6370	8750	12330	5090	7000	9870	4240	5840	8220	3380	4680	6470	2710	3740	5170	2160	2990	4140
					•	•	f <sub>z</sub> mm/t	0.15	0.25	0.1	0.15	0.25	0.12	0.15	0.25	0.15	0.15	0.25	0.2	0.15	0.25	0.25	0.15	0.25	0.3
					•	•	V <sub>f</sub> mm/min	1910	4380	2470	1530	3500	2370	1270	2920	2470	1010	2340	2590	810	1870	2590	650	1500	2480
					•	•	a <sub>p</sub> mm	0.2	0.1	0.2	0.5	0.2	0.2	0.6	0.3	0.2	0.8	0.4	0.2	1	0.6	0.2	1.2	0.8	0.2
IV Pre-Hardened Steel Tool-Steel 40-50HRC	JP15E				•	•	V <sub>c</sub> m/min	110	175	265	110	175	265	110	175	265	115	185	280	115	185	280	115	185	280
					•	•	n min <sup>-1</sup>	4380	6960	10540	3500	5570	8440	2920	4640	7030	2290	3680	5570	1830	2940	4460	1460	2360	3570
					•	•	f <sub>z</sub> mm/t	0.1	0.15	0.1	0.1	0.15	0.12	0.1	0.15	0.15	0.1	0.15	0.2	0.1	0.15	0.25	0.1	0.15	0.3
					•	•	V <sub>f</sub> mm/min	880	2090	2110	700	1670	2020	580	1390	2110	460	1100	2230	370	880	2230	290	710	2140
					•	•	a <sub>p</sub> mm	0.2	0.1	0.1	0.4	0.2	0.1	0.5	0.3	0.1	0.6	0.4	0.1	0.8	0.5	0.1	1	0.6	0.1
V Hardened steel Tool-Steel 50-55HRC	JP08E				•	•	V <sub>c</sub> m/min	90	130	220	90	130	220	90	130	220	95	140	235	95	140	235	95	140	235
					•	•	n min <sup>-1</sup>	3580	5170	8750	2860	4140	7000	2390	3450	5840	1890	2790	4680	1510	2230	3740	1210	1780	2990
					•	•	f <sub>z</sub> mm/t	0.1	0.15	0.1	0.1	0.15	0.12	0.1	0.15	0.15	0.1	0.15	0.2	0.1	0.15	0.25	0.1	0.15	0.3
					•	•	V <sub>f</sub> mm/min	720	1550	1750	570	1240	1680	480	1030	1750	380	840	1870	300	670	1870	240	530	1800
					•	•	a <sub>p</sub> mm	0.2	0.1	0.1	0.3	0.2	0.1	0.4	0.2	0.1	0.5	0.3	0.1	0.6	0.4	0.1	0.8	0.5	0.1
V Hardened steel Tool-Steel > 55HRC	JP08E				•	•	V <sub>c</sub> m/min	70	105	175	70	105	175	70	105	175	75	115	185	75	115	185	75	115	185
					•	•	n min <sup>-1</sup>	2790	4180	6960	2230	3340	5570	1860	2790	4640	1490	2290	3680	1190	1830	2940	950	1460	2360
					•	•	f <sub>z</sub> mm/t	0.1	0.15	0.1	0.1	0.15	0.12	0.1	0.15	0.15	0.1	0.15	0.2	0.1	0.15	0.25	0.1	0.15	0.3
					•	•	V <sub>f</sub> mm/min	560	1250	1390	450	1000	1340	370	840	1390	300	690	1470	240	550	1470	190	440	1410
					•	•	a <sub>p</sub> mm	0.2	0.1	0.1	0.3	0.2	0.1	0.4	0.2	0.1	0.5	0.3	0.1	0.6	0.4	0.1	0.8	0.5	0.1
VIII Cast-Iron GG EN-JL10** EN-GJL-***	JP15E				•	•	V <sub>c</sub> m/min	175	265	350	175	265	350	175	265	350	185	280	370	185	280	370	185	280	370
					•	•	n min <sup>-1</sup>	6960	10540	13930	5570	8440	11140	4640	7030	9280	3680	5570	7360	2940	4460	5890	2360	3570	4710
					•	•	f <sub>z</sub> mm/t	0.15	0.2	0.1	0.15	0.2	0.12	0.15	0.2	0.15	0.15	0.2	0.2	0.15	0.2	0.25	0.15	0.2	0.3
					•	•	V <sub>f</sub> mm/min	2090	4220	2790	1670	3370	2670	1390	2810	2790	1100	2230	2940	880	1780	2940	710	1430	2830
					•	•	a <sub>p</sub> mm	0.2	0.1	0.2	0.5	0.2	0.2	0.6	0.3	0.2	0.8	0.4	0.2	1	0.6	0.2	1.2	0.8	0.2
VIII Cast-Iron GGG EN-JS10** EN-GJS-***	JP15E				•	•	V <sub>c</sub> m/min	110	175	265	110	175	265	110	175	265	115	185	280	115	185	280	115	185	280
					•	•	n min <sup>-1</sup>	4380	6960	10540	3500	5570	8440	2920	4640	7030	2290	3680	5570	1830	2940	4460	1460	2360	3570
					•	•	f <sub>z</sub> mm/t	0.1	0.15	0.1	0.1	0.15	0.12	0.1	0.15	0.15	0.1	0.15	0.2	0.1	0.15	0.25	0.1	0.15	0.3
					•	•	V <sub>f</sub> mm/min	880	2090	2110	700	1670	2020	580	1390	2110	460	1100	2230	370	880	2230	290	710	2140
					•	•	a <sub>p</sub> mm	0.2	0.1	0.2	0.5	0.2	0.2	0.6	0.3	0.2	0.8	0.4	0.2	1	0.6	0.2	1.2	0.8	0.2
VI Stainless Steels High alloy Steels	JP15E				•	•	V <sub>c</sub> m/min	110	175	265	110	175	265	110	175	265	115	185	280	115	185	280	115	185	280
					•	•	n min <sup>-1</sup>	4380	6960	10540	3500	5570	8440	2920	4640	7030	2290	3680	5570	1830	2940	4460	1460	2360	3570
					•	•	f <sub>z</sub> mm/t	0.15	0.25	0.1	0.15	0.25	0.12	0.15	0.25	0.15	0.15	0.25	0.2	0.15	0.25	0.25	0.15	0.25	0.3
					•	•	V <sub>f</sub> mm/min	1310	3480	2110	1050	2790	2020	880	2320	2110	690	1840	2230	550	1470	2230	440	1180	2140
					•	•	a <sub>p</sub> mm	0.2	0.1	0.2	0.5	0.2	0.2	0.6	0.3	0.2	0.8	0.4	0.2	1	0.6	0.2	1.2	0.8	0.2

➔ For more information about Modular Tools and available Shanks please check our brochures:

### Indexable Modular No. 328.x



### AS/ASC Shanks No. 708.x



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### **Attentions on Safety**

#### **1. Cautions regarding handling**

- (1) When removing the tool from its case (packaging), be careful that the tool does not pop out or is dropped. Be particularly careful regarding contact with the tool flutes.
- (2) When handling tools with sharp cutting flutes, be careful not to touch the cutting flutes directly with your bare hands.

#### **2. Cautions regarding mounting**

- (1) Before use, check the outside appearance of the tool for scratches, cracks, etc. and that it is firmly mounted in the collet chuck, etc.
- (2) When preparing for use, be sure that the inserts are firmly mounted in place and that they are firmly mounted on the arbor, etc.
- (3) If abnormal chattering, etc. occurs during use, stop the machine immediately and remove the cause of the chattering.

#### **3. Cautions during use**

- (1) Before use, confirm the dimensions and direction of rotation of the tool and milling work material.
- (2) The numerical values in the standard cutting conditions table should be used as criteria when starting new work. The cutting conditions should be adjusted as appropriate when the cutting depth is large, the rigidity of the machine being used is low, or according to the conditions of the work material.
- (3) Cutting tools are made of a hard material. During use, they may break and fly off. In addition, cutting chips may also fly off. Since there is a danger of injury to workers, fire, or eye damage from such flying pieces, a safety cover should be attached when work is performed and safety equipment such as safety goggles should be worn to create a safe environment for work.
- (4) There is a risk of fire or inflammation due to sparks, heat due to breakage, and cutting chips. Do not use where there is a risk of fire or explosion. Please caution of fire while using oil base coolant, fire prevention is necessary.
- (5) Do not use the tool for any purpose other than that for which it is intended.

#### **4. Cautions regarding regrinding**

- (1) If regrinding is not performed at the proper time, there is a risk of the tool breaking. Replace the tool with one in good condition, or perform regrinding.
- (2) Grinding dust will be created when regrinding a tool. When regrinding, be sure to attach a safety cover over the work area and wear safety clothes such as safety goggles, etc.
- (3) This product contains the specified chemical substance cobalt and its inorganic compounds. When performing regrinding or similar processing, be sure to handle the processing in accordance with the local laws and regulations regarding prevention of hazards due to specified chemical substances.

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**Specifications for the products listed in this catalog are subject to change without notice due to replacement or modification.**

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