

# Zamus Classic Series


















Zamus Classic Series

**WIDIN**

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Zamus Classic Series

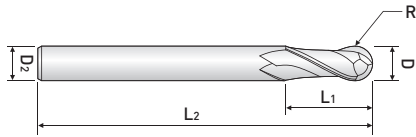


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Zamus Classic Series



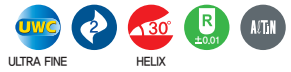
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### 2 FLUTE, SHORT LENGTH, BALL NOSE

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Suitable for copy milling.

## DB402 ...series

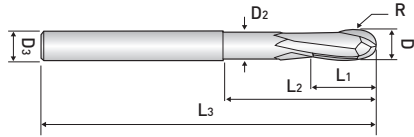


EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
DB402010	1	0.5	3	38	4	•
DB402012	1.2	0.6	3	38	4	•
DB402015	1.5	0.75	3	42	4	•
DB402020	2	1	3	42	6	•
DB402025	2.5	1.25	3	42	6	•
DB402030	3	1.5	4	50	6	•
DB402035	3.5	1.75	4	50	6	•
DB402040	4	2	5	50	6	•
DB402045	4.5	2.25	5	50	6	•
DB402050	5	2.5	6	50	6	•
DB402055	5.5	2.75	6	50	6	•
DB402060	6	3	7	50	6	•
DB402070	7	3.5	8	60	8	•
DB402080	8	4	9	60	8	•
DB402090	9	4.5	10	70	10	•
DB402100	10	5	11	70	10	•
DB402120	12	6	12	75	12	•
DB402140	14	7	14	80	14	•
DB402160	16	8	16	82	16	•
DB402200	20	10	20	100	20	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

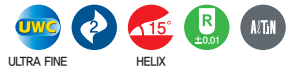
※ Items can be changed for quality improvement without notice.



**2 FLUTE, 15° HELIX STUB CUT LENGTH, BALL NOSE with EXTENDED NECK**

- Designed for high hardened materials up to HRC 62.
- Suitable for high speed machining.

**DB412 ...series**

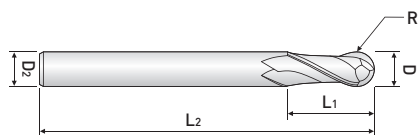


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
DB412010	1	0.5	1	3	50	0.95	4	•
DB412015	1.5	0.75	2	5	50	1.4	4	•
DB412020	2	1	3	6	50	1.9	6	•
DB412030S	3	1.5	4	8	50	2.9	4	•
DB412030					75		6	•
DB412030L								•
DB412040S	4	2	5	10	50	3.9	4	•
DB412040					75		6	•
DB412040L								•
DB412050	5	2.5	5	10	50	4.9	6	•
DB412060S	6	3	6	12	50	5.9	6	•
DB412060				75	•			
DB412060L				16	100			•
DB412080	8	4	8	16	60	7.9	8	•
DB412080L				25	100			•
DB412100	10	5	10	20	70	9.9	10	•
DB412100L				30	100			•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

※Items can be changed for quality improvement without notice.



### 2 FLUTE, LONG LENGTH, BALL NOSE

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Suitable for copy milling.

## DB512 ...series

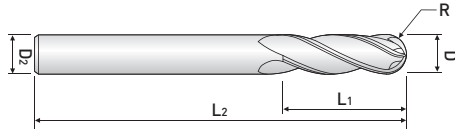


EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
DB512010	1	0.5	3	50	4	•
DB512010					6	•
DB512015	1.5	0.75	4	50	6	•
DB512020	2	1	5	60	4	•
DB512020					6	•
DB512025	2.5	1.25	6	60	6	•
DB512030	3	1.5	8	70	4	•
DB512030					6	•
DB512035	3.5	1.75	8	70	6	•
DB512040	4	2	8	70	4	•
DB512040					6	•
DB512045	4.5	2.25	10	70	6	•
DB512050	5	2.5	12	80	6	•
DB512055	5.5	2.75	12	80	6	•
DB512060	6	3	12	90	6	•
DB512065	6.5	3.25	12	90	8	•
DB512070	7	3.5	15	90	8	•
DB512080	8	4	15	100	8	•
DB512090	9	4.5	20	100	10	•
DB512100	10	5	20	100	10	•
DB512101			25	150		•
DB512110	11	5.5	25	110	12	•
DB512120	12	6	25	110	12	•
DB512121			30	150		•
DB512122			35	200		•
DB512130	13	6.5	30	110	14	•
DB512140	14	7	30	110	14	•
DB512150	15	7.5	35	140	16	•
DB512160	16	8	35	140	16	•
DB512161			40	200		•
DB512162			45	250		•
DB512180	18	9	40	150	18	•
DB512200	20	10	40	160	20	•
DB512201			45	200		•
DB512202			50	250		•
DB512250	25	12.5	50	180	25	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

※Items can be changed for quality improvement without notice.



### 4 FLUTE, LONG LENGTH, BALL NOSE

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Suitable for copy milling.

## DB514 ...series



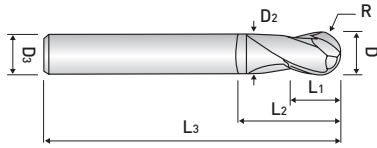
EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
DB514030	3	1.5	8	70	6	•
DB514040	4	2	8	70	6	•
DB514050	5	2.5	10	80	6	•
DB514060	6	3	12	90	6	•
DB514070	7	3.5	15	90	8	•
DB514080	8	4	15	100	8	•
DB514090	9	4.5	20	100	10	•
DB514100	10	5	20	100	10	•
DB514110	11	5.5	25	110	12	•
DB514120	12	6	25	110	12	•
DB514130	13	6.5	30	110	14	•
DB514140	14	7	30	110	14	•
DB514150	15	7.5	35	140	16	•
DB514160	16	8	35	140	16	•
DB514180	18	9	40	150	18	•
DB514200	20	10	40	160	20	•
DB514250	25	12.5	50	180	25	•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,02	h6

※ Items can be changed for quality improvement without notice.

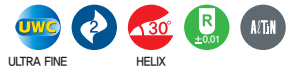




### 2 FLUTE, STUB CUT LENGTH, BALL NOSE with EXTENDED NECK

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Suitable for copy milling.
- Designed to high strength.

## DB502 ...series

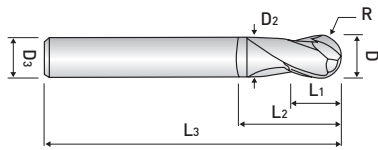


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
DB502010	1	0.5	1	3	50	0.95	6	•
DB502015	1.5	0.75	1.5	4	50	1.45	6	•
DB502020	2	1	2	6	60	1.9	6	•
DB502030	3	1.5	4	9	70	2.85	6	•
DB502040	4	2	5	12	70	3.85	6	•
DB502050	5	2.5	6	15	80	4.7	6	•
DB502060	6	3	7	18	90	5.7	6	•
DB502080	8	4	10	24	90	7.7	8	•
DB502100	10	5	12	30	100	9.5	10	•
DB502120	12	6	14	36	110	11.5	12	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

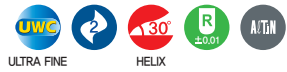
※Items can be changed for quality improvement without notice.



### 2 FLUTE, EXTENDED NECK-LONG SHANK

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Suitable for copy milling.
- Suitable for deep copy milling with long neck type.

## DB522 ...series

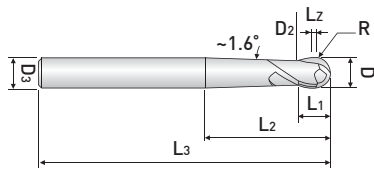


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
DB522030	3	1.5	4	35	100	2.9	6	•
DB522040	4	2	6	35	100	3.9	6	•
DB522050	5	2.5	7	40	115	4.9	6	•
DB522060	6	3	8	45	115	5.9	6	•
DB522061							8	•
DB522070	7	3.5	10	45	125	6.9	8	•
DB522080	8	4	12	55	125	7.9	8	•
DB522081							10	•
DB522090	9	4.5	15	65	140	8.9	10	•
DB522100	10	5	15	65	140	9.9	10	•
DB522120	12	6	18	75	150	11.9	12	•
DB522140	14	7	23	75	155	13.9	14	•
DB522160	16	8	30	75	155	15.9	16	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,02	h6

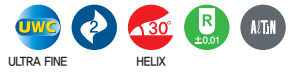
※Items can be changed for quality improvement without notice.



### 2 FLUTE, MMC-SPHERE TYPE

- For copy milling & steep sloped machining in mold & die.
- AlTiN coated for high wear resistance.

## DB532 ...series

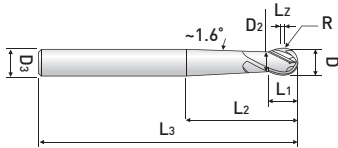


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	L <sub>z</sub>	STOCK
DB532030	3	1.5	4	30	80	2.5	6	1.5	•
DB532031			2.3					-	
DB532040	4	2	5	30	80	3.3	6	1.5	•
DB532041			3.1					-	
DB532050	5	2.5	6	43	80	4.1	6	2	•
DB532051			3.9	38				-	
DB532060	6	3	7	30	100	4.7	6	2	•
DB532061			4.9	28				-	
DB532080	8	4	9	36	100	6.5	8	3	•
DB532081			6.3	33				-	
DB532100	10	5	11	43	100	8.2	10	3	•
DB532101			7.9	40				-	
DB532120	12	6	13	52	100	9.8	12	3	•
DB532121			9.5	49				-	
DB532160	16	8	15	61	150	13.4	16	3	•
DB532161			12.4	59				-	

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

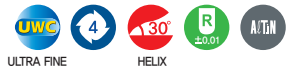
※Items can be changed for quality improvement without notice.



### 4 FLUTE, MMC-SPHERE TYPE

- For copy milling & Steep sloped machining in Mold & Die.
- ALTiN coated for high wear resistance.

## DB534 ...series

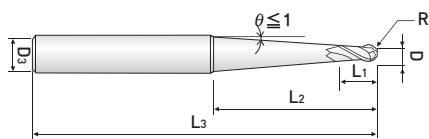


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	L <sub>z</sub>	STOCK
DB534050	5	2.5	6	43	80	4.1	6	2	•
DB534051			3.9	38				-	
DB534060	6	3	7	30	100	4.7	6	2	•
DB534061			4.9	28				-	
DB534080	8	4	9	36	100	6.5	8	3	•
DB534081			6.3	33				-	
DB534100	10	5	11	43	100	8.2	10	3	•
DB534101			7.9	40				-	
DB534120	12	6	13	52	100	9.8	12	3	•
DB534121			9.5	49				-	
DB534160	16	8	15	61	150	13.4	16	3	•
DB534161			12.4	59				-	

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,02	h6

※ Items can be changed for quality improvement without notice.



## 2 FLUTE, BALL NOSE with TAPER NECK

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Suitable for copy milling.
- Suitable for deep copy milling with taper long neck type.

## DB54(5)2 ...series

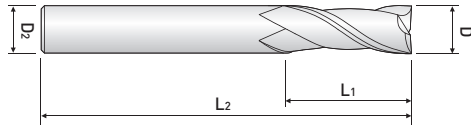


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>3</sub>	STOCK
DB542020	2	1.0	3	63	110	6	•
DB552020			5	85	155		•
DB542030	3	1.5	5	65	110	6	•
DB552030			7	87	155		•
DB542040	4	2.0	7	67	110	6	•
DB552040			10	90	155	8	•
DB542050	5	2.5	10	70	110	6	•
DB552050			15	95	155	8	•
DB542060	6	3.0	18	78	155	10	•
DB552060			20	110	200		•
DB542080	8	4.0	30	100	155	12	•
DB552080				120	200		•
DB542100	10	5.0	40	100	155	12	•
DB552100				120	200		•
DB542120	12	6.0	50	110	155	16	•
DB552120				130	200		•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

※Items can be changed for quality improvement without notice.



### 2 FLUTE, REGULAR LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZE502 ...series

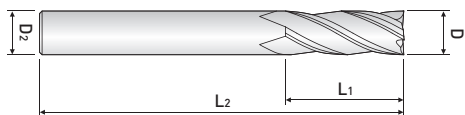


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE502010	1	3	42	4	•
ZE502010				6	•
ZE502015	1.5	4	42	6	•
ZE502020				4	•
ZE502020	2	6	42	6	•
ZE502025				6	•
ZE502025	2.5	8	42	6	•
ZE502030				4	•
ZE502030	3	10	50	6	•
ZE502035				6	•
ZE502040	4	12	50	4	•
ZE502040				6	•
ZE502045	4.5	14	50	6	•
ZE502050	5	15	50	6	•
ZE502055	5.5	15	50	6	•
ZE502060	6	15	50	6	•
ZE502065	6.5	18	60	8	•
ZE502070	7	20	60	8	•
ZE502075	7.5	20	60	8	•
ZE502080	8	20	60	8	•
ZE502085	8.5	23	70	10	•
ZE502090	9	25	70	10	•
ZE502095	9.5	25	70	10	•
ZE502100	10	25	70	10	•
ZE502105	10.5	28	75	12	•
ZE502110	11	30	75	12	•
ZE502115	11.5	30	75	12	•
ZE502120	12	30	75	12	•
ZE502125S12	12.5	30	80	12	•
ZE502130S12	13	30	80	12	•
ZE502130			85	14	•
ZE502130S16			90	16	•
ZE502140	14	35	85	14	•
ZE502140S16			90	16	•
ZE502150			90	16	•
ZE502160	15	40	90	16	•
ZE502170	16	40	90	16	•
ZE502170	17	40	100	16	•
ZE502180	18	45	100	18	•
ZE502190	19	45	100	20	•
ZE502200	20	45	100	20	•
ZE502220	22	45	100	20	•
ZE502240	24	50	120	25	•
ZE502250	25	50	120	25	•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,02	h6

※Items can be changed for quality improvement without notice.



### 4 FLUTE, REGULAR LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZE504 ...series

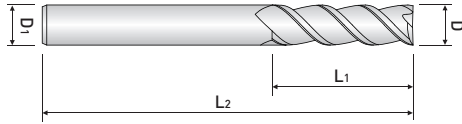


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE504010	1	2.5	42	6	•
ZE504015	1.5	4	42	6	•
ZE504020	2	6	42	4	•
ZE504020				6	•
ZE504025	2.5	8	42	6	•
ZE504030	3	10	50	4	•
ZE504030				6	•
ZE504035	3.5	10	50	6	•
ZE504040	4	12	50	4	•
ZE504040				6	•
ZE504045	4.5	14	50	6	•
ZE504050	5	15	50	6	•
ZE504055	5.5	15	50	6	•
ZE504060	6	15	50	6	•
ZE504065	6.5	18	60	8	•
ZE504070	7	20	60	8	•
ZE504075	7.5	20	60	8	•
ZE504080	8	20	60	8	•
ZE504085	8.5	23	70	10	•
ZE504090	9	25	70	10	•
ZE504095	9.5	25	70	10	•
ZE504100	10	25	70	10	•
ZE504105	10.5	28	75	12	•
ZE504110	11	30	75	12	•
ZE504115	11.5	30	75	12	•
ZE504120	12	30	75	12	•
ZE504125S12	12.5	30	80	12	•
ZE504130S12	13	35	80	12	•
ZE504130			85	14	•
ZE504130S16			90	16	•
ZE504140	14	35	85	14	•
ZE504140S16			90	16	•
ZE504150	15	40	90	16	•
ZE504160	16	40	90	16	•
ZE504170	17	40	100	16	•
ZE504180	18	45	100	18	•
ZE504190	19	45	100	20	•
ZE504200	20	45	100	20	•
ZE504220	22	45	100	20	•
ZE504240	24	50	120	25	•
ZE504250	25	50	120	25	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

※Items can be changed for quality improvement without notice.



### 3 FLUTE, REGULAR LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZE503 ...series



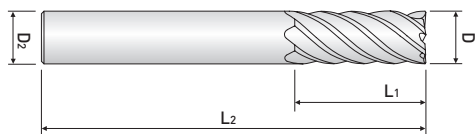
EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE503060	6	15	50	6	•
ZE503070	7	18	60	8	•
ZE503080	8				•
ZE503090	9	22	70	10	•
ZE503100	10				•
ZE503110	11	26	75	12	•
ZE503120	12				•
ZE503130	13	32	85	14	•
ZE503140	14				•
ZE503150	15	35	90	16	•
ZE503160	16				•
ZE503180	18	40	100	18	•
ZE503200	20	40	100	20	•
ZE503250	25	50	120	25	•
ZE503320	32	70	150	32	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.





### 6 FLUTE, REGULAR & LONG LENGTH

- Designed for highly hardened materials up to HRc 55.
- Suitable for high speed & finishing machining.

## ZE506 ...series

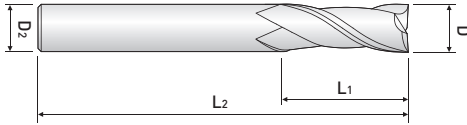


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE506060	6	15	50	6	•
ZE506061		26	70		•
ZE506070	7	18	60	8	•
ZE506080	8	18	60	8	•
ZE506081		36	90		•
ZE506090	9	22	70	10	•
ZE506100	10	22	70	10	•
ZE506101		46	100		•
ZE506110	11	26	75	12	•
ZE506120	12	26	75	12	•
ZE506121		56	110		•
ZE506130	13	32	85	14	•
ZE506140	14	32	85	14	•
ZE506150	15	35	90	16	•
ZE506160	16	35	90	16	•
ZE506161		66	130		•
ZE506180	18	44	100	18	•
ZE506200	20	44	100	20	•
ZE506201		76	150		•
ZE506250	25	50	120	25	•
ZE506251		92	180		•
ZE506320	32	70	150	32	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※Items can be changed for quality improvement without notice.



### 2 FLUTE, MEDIUM LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZM502 ...series

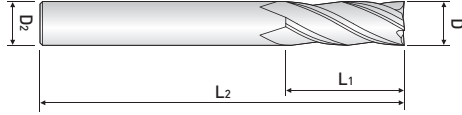


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZM502020	2	8	40	4	•
ZM502030	3	12	50	6	•
ZM502040	4	15	50	6	•
ZM502050	5	20	60	6	•
ZM502060	6	20	60	6	•
ZM502080	8	25	70	8	•
ZM502100	10	30	90	10	•
ZM502120	12	30	90	12	•
ZM502140	14	40	110	16	•
ZM502160	16	50	110	16	•
ZM502180	18	50	110	20	•
ZM502200	20	55	110	20	•
ZM502250	25	75	140	25	•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 4 FLUTE, MEDIUM LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZM504 ...series

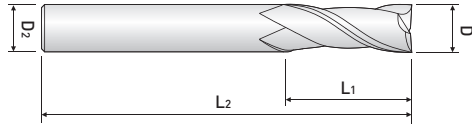


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZM504020	2	8	40	4	•
ZM504030	3	12	50	6	•
ZM504040	4	15	50	6	•
ZM504050	5	20	60	6	•
ZM504060	6	20	60	6	•
ZM504080	8	25	70	8	•
ZM504100	10	30	90	10	•
ZM504120	12	30	90	12	•
ZM504140	14	40	110	16	•
ZM504160	16	50	110	16	•
ZM504180	18	50	110	20	•
ZM504200	20	55	110	20	•
ZM504250	25	75	140	25	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 2 FLUTE, MEDIUM CUT LONG SHANK TYPE

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZM522 ...series

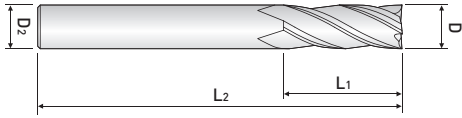


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZM522030	3	10	70	6	•
ZM522040	4	12	70	6	•
ZM522050	5	15	80	6	•
ZM522060	6	15	80	6	•
ZM522080	8	20	100	8	•
ZM522100	10	25	100	10	•
ZM522120	12	30	110	12	•
ZM522160	16	40	125	16	•
ZM522200	20	45	150	20	•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 4 FLUTE, MEDIUM CUT LONG SHANK TYPE

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZM524 ...series

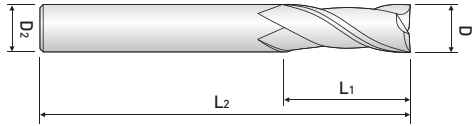


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZM524030	3	10	70	6	•
ZM524040	4	12	70	6	•
ZM524050	5	15	80	6	•
ZM524060	6	15	80	6	•
ZM524080	8	20	100	8	•
ZM524100	10	25	100	10	•
ZM524120	12	30	110	12	•
ZM524160	16	40	125	16	•
ZM524200	20	45	150	20	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※Items can be changed for quality improvement without notice.



### 2 FLUTE, LONG LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZE522 ...series

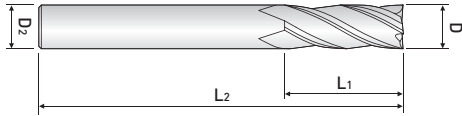


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE522030	3	25	75	6	•
ZE522040	4	25	75	6	•
ZE522050	5	30	80	6	•
ZE522060	6	30	80	6	•
ZE522070	7	35	85	8	•
ZE522080	8	35	85	8	•
ZE522090	9	45	100	10	•
ZE522100	10	45	100	10	•
ZE522101		60	155		•
ZE522110	11	50	110	12	•
ZE522120	12	55	120	12	•
ZE522121		65	155		•
ZE522140	14	60	120	14	•
ZE522160	16	60	120	16	•
ZE522161		75	165		•
ZE522180	18	60	120	18	•
ZE522200	20	60	120	20	•
ZE522201		75	165		•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 4 FLUTE, LONG LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZE524 ...series

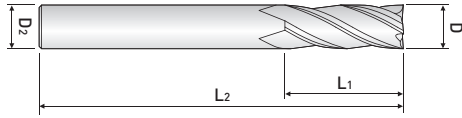


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE524030	3	25	75	6	•
ZE524040	4	25	75	6	•
ZE524050	5	30	80	6	•
ZE524060	6	30	80	6	•
ZE524070	7	35	85	8	•
ZE524080	8	35	85	8	•
ZE524090	9	45	100	10	•
ZE524100	10	45	100	10	•
ZE524110	11	50	110	12	•
ZE524120	12	55	120	12	•
ZE524140	14	60	120	14	•
ZE524160	16	60	120	16	•
ZE524180	18	60	120	18	•
ZE524200	20	60	120	20	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 4 FLUTE, EXTRA LONG LENGTH

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.

## ZE534 ...series



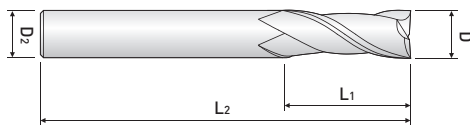
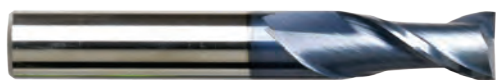
EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE534040	4	30	130	6	•
ZE534050	5	35	130	6	•
ZE534060	6	40	130	6	•
ZE534061		50	155		•
ZE534081	8	60	155	8	•
ZE534082		80	200		•
ZE534101	10	60	155	10	•
ZE534102		80	200		•
ZE534121	12	60	155	12	•
ZE534122		80	200		•
ZE534161	16	80	155	16	•
ZE534162		100	200		•
ZE534163		120	250		•
ZE534201	20	80	165	20	•
ZE534202		100	200		•
ZE534203		130	250		•
ZE534252	25	100	200	25	•
ZE534253		150	250		•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,03	h6

※Items can be changed for quality improvement without notice.





### 2 FLUTE, 35° HELIX REGULAR LENGTH

- Designed for high hardened materials up to HRc 62.
- Suitable for high speed machining.

## ZE512 ...series

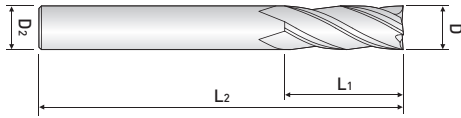


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE512010	1	3	40	6	•
ZE512015	1.5	4	40	6	•
ZE512020	2	5	40	6	•
ZE512025	2.5	6	40	6	•
ZE512030	3	8	45	6	•
ZE512035	3.5	10	45	6	•
ZE512040	4	10	45	6	•
ZE512045	4.5	11	45	6	•
ZE512050	5	13	50	6	•
ZE512055	5.5	13	50	6	•
ZE512060	6	13	50	6	•
ZE512065	6.5	16	60	8	•
ZE512070	7	18	60	8	•
ZE512080	8	19	60	8	•
ZE512100	10	22	70	10	•
ZE512120	12	26	75	12	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,02	h6

※ Items can be changed for quality improvement without notice.



### 4 FLUTE, 45° HELIX REGULAR LENGTH

- Designed for high hardened materials up to HRc 62.
- Suitable for high speed machining.

## ZE514 ...series

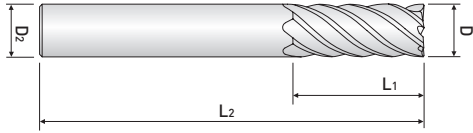


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE514020	2	5	40	6	•
ZE514025	2.5	6	40	6	•
ZE514030	3	8	45	6	•
ZE514040	4	10	45	6	•
ZE514050	5	13	50	6	•
ZE514060	6	13	50	6	•
ZE514080	8	19	60	8	•
ZE514100	10	22	70	10	•
ZE514120	12	26	75	12	•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,02	h6

※Items can be changed for quality improvement without notice.



### 6 FLUTE, 50° HELIX REGULAR LENGTH

- Designed for high hardened materials up to HRc 62.
- Suitable for high speed machining.

## ZE516 ...series

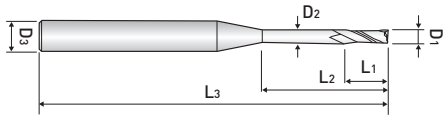


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZE516060	6	13	50	6	•
ZE516080	8	18	60	8	•
ZE516100	10	22	70	10	•
ZE516120	12	26	75	12	•
ZE516160	16	35	90	16	•
ZE516200	20	44	100	20	•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,02	h6

※ Items can be changed for quality improvement without notice.



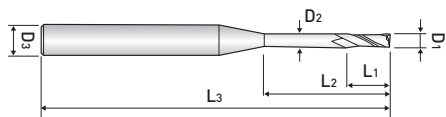
### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## ZE612 ...series



EDP. No.	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
ZE6120402	0.4	0.6	2	45	0.37	4	•
ZE6120403			3				•
ZE6120404			4				•
ZE6120405			5				•
ZE6120406			6				•
ZE6120408			8				•
ZE6120502	0.5	0.7	2	45	0.45	4	•
ZE6120503			3				•
ZE6120504			4				•
ZE6120505			5				•
ZE6120506			6				•
ZE6120508			8				•
ZE6120510			10				•
ZE6120602	0.6	0.9	2	45	0.55	4	•
ZE6120603			3				•
ZE6120604			4				•
ZE6120605			5				•
ZE6120606			6				•
ZE6120608			8				•
ZE6120610			10				•
ZE6120612			12				•
ZE6120702	0.7	1	2	45	0.65	4	•
ZE6120704			4				•
ZE6120706			6				•
ZE6120708			8				•
ZE6120710			10				•
ZE6120802	0.8	1.2	2	45	0.75	4	•
ZE6120804			4				•
ZE6120806			6				•
ZE6120808			8				•
ZE6120810			10				•
ZE6120812			12				•
ZE6120906	0.9	1.4	6	45	0.85	4	•
ZE6120908			8				•
ZE6120910			10				•
ZE6121003	1	1.5	3	45	0.95	4	



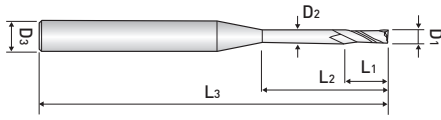
### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## ZE612 ...series



EDP. No.	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK	
ZE6121004	1	1.5	4	45	0.95	4	•	
ZE6121005			5				•	
ZE6121006			6				•	
ZE6121008			8				•	
ZE6121010			10				•	
ZE6121012			12				•	
ZE6121014			14	50			•	
ZE6121016			16				•	
ZE6121018			18				•	
ZE6121020			20				•	
ZE6121025			25				60	•
ZE6121206			1.2				1.8	6
ZE6121208	8	•						
ZE6121210	10	•						
ZE6121212	12	50		•				
ZE6121216	16			•				
ZE6121220	20			•				
ZE6121225	25			60	•			
ZE6121406	1.4	2.1	6	45	1.35	4	•	
ZE6121408			8				•	
ZE6121410			10				•	
ZE6121412			12	50			•	
ZE6121414			14				•	
ZE6121416			16				•	
ZE6121420			20				•	
ZE6121506	1.5	2.3	6	45	1.45	4	•	
ZE6121508			8				•	
ZE6121510			10				•	
ZE6121512			12				50	•
ZE6121514			14	•				
ZE6121516			16	55			•	
ZE6121518			18				•	
ZE6121520			20				•	
ZE6121525			25	60			•	
ZE6121606			1.6	2.5			6	45
ZE6121608	8	•						



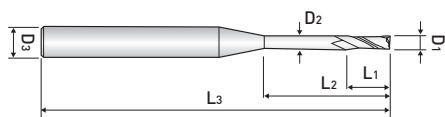
### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## ZE612 ...series



EDP. No.	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK	
ZE6121610	1.6	2.5	10	45	1.55	4	•	
ZE6121612			12				•	
ZE6121614			14	50			•	
ZE6121616			16				•	
ZE6121618			18	55			•	
ZE6121620			20				•	
ZE6121806	1.8	2.8	6	45	1.75	4	•	
ZE6121808			8				•	
ZE6121810			10				•	
ZE6121812			12				50	•
ZE6121814			14	•				
ZE6121816			16	55			•	
ZE6121818			18				•	
ZE6121820			20	•				
ZE6122006	2	3	6	45	1.95	4	•	
ZE6122008			8				•	
ZE6122010			10				•	
ZE6122012			12				50	•
ZE6122014			14	•				
ZE6122016			16	55			•	
ZE6122018			18				•	
ZE6122020			20	60			•	
ZE6122022			22				•	
ZE6122025			25	70			•	
ZE6122030			30				•	
ZE6122035			35	80			•	
ZE6122040			40				•	
ZE6122508			2.5	3.7			8	45
ZE6122510	10	•						
ZE6122512	12	50			•			
ZE6122514	14				•			
ZE6122516	16	55			•			
ZE6122518	18				•			
ZE6122520	20	60			•			
ZE6122525	25				•			
ZE6122530	30	70			•			



### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## ZE612 ...series

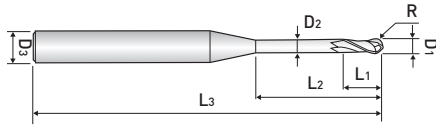


EDP. No.	D <sub>1</sub>	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
ZE6122535	2.5	3.7	35	70	2.45	4	•
ZE6122540			40	80			•
ZE6123008	3	4.5	8	45	2.85	6	•
ZE6123010			10				•
ZE6123012			12				•
ZE6123014			14	50			•
ZE6123016			16				•
ZE6123018			18	55			•
ZE6123020			20				•
ZE6123025			25	60			•
ZE6123030			30	70			•
ZE6123035			35	80			•
ZE6123040	40	90	•				
ZE6123045	45		•				
ZE6123050	50	100	•				
ZE6124010	4	6	10	50	3.85	6	•
ZE6124012			12				•
ZE6124016			16	60			•
ZE6124020			20				•
ZE6124025			25	70			•
ZE6124030			30				•
ZE6124035			35	80			•
ZE6124040			40	90			•
ZE6124045			45				•
ZE6124050			50	100			•
ZE6125016	5	7.5	16	60	4.85	6	•
ZE6125020			20				•
ZE6125025			25	70			•
ZE6125030			30				•
ZE6125035			35	80			•
ZE6125040			40	90			•
ZE6125045			45	100			•
ZE6125050			50				•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,02	h6

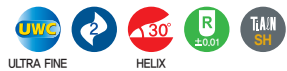
※Items can be changed for quality improvement without notice.



### 2 FLUTE, for RIB PROCESSING

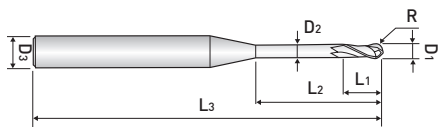
- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## DB612 ...series



EDP. No.	D <sub>1</sub>	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
DB6120502	0.5	0.25	0.5	2	45	0.45	4	•
DB6120503				3				•
DB6120504				4				•
DB6120505				5				•
DB6120506				6				•
DB6120508				8				•
DB6120510				10				•
DB6120602	0.6	0.3	0.6	2	45	0.55	4	•
DB6120603				3				•
DB6120604				4				•
DB6120605				5				•
DB6120606				6				•
DB6120608				8				•
DB6120610				10				•
DB6120612	12	•						
DB6120702	0.7	0.35	0.7	2	45	0.65	4	•
DB6120704				4				•
DB6120708				8				•
DB6120802	0.8	0.4	0.8	2	45	0.75	4	•
DB6120804				4				•
DB6120805				5				•
DB6120806				6				•
DB6120807				7				•
DB6120808				8				•
DB6120810				10				•
DB6120812				12				•
DB6120816				16	50			•
DB6121003	1	0.5	1	3	45	0.95	4	•
DB6121004				4				•
DB6121005				5				•
DB6121006				6				•
DB6121007				7				•
DB6121008				8				•
DB6121009				9				•
DB6121010				10				•
DB6121012				12				•





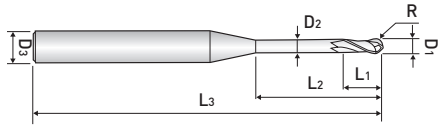
### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## DB612 ...series



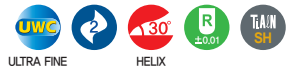
EDP. No.	D <sub>1</sub>	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK	
DB6121014	1	0.5	1	14	50	0.95	4	•	
DB6121016				16				•	
DB6121018				18				•	
DB6121020				20	55			•	
DB6121022				22	60			•	
DB6121025				25				•	
DB6121204	1.2	0.6	1.2	4	45	1.15	4	•	
DB6121206				6				•	
DB6121208				8				•	
DB6121210				10				•	
DB6121212				12	50			•	
DB6121216				16				•	
DB6121220				20				55	•
DB6121224				24				60	•
DB6121406	1.4	0.7	1.4	6	45	1.35	4	•	
DB6121408				8				•	
DB6121412				12	•				
DB6121416				16	50			•	
DB6121503	1.5	0.75	1.5	3	45	1.45	4	•	
DB6121504				4				•	
DB6121506				6				•	
DB6121508				8				•	
DB6121510				10				•	
DB6121512				12				50	•
DB6121514				14	•				
DB6121516				16	50				•
DB6121518				18	•				
DB6121520				20	55			•	
DB6121522				22	60			•	
DB6121525				25				•	
DB6121530				30				70	•
DB6121535				35	•				
DB6121606	1.6	0.8	1.6	6	45	1.55	4	•	
DB6121608				8				•	
DB6121610				10				•	
DB6121612				12				•	



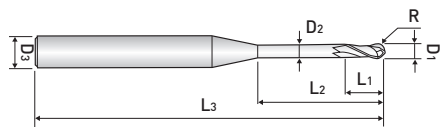
### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## DB612 ...series



EDP. No.	D <sub>1</sub>	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
DB6121616	1.6	0.8	1.6	16	50	1.55	4	•
DB6121620				20	55			•
DB6121806	1.8	0.9	1.8	6	45	1.75	4	•
DB6121808				8				•
DB6121812				12				•
DB6121816				16	50			•
DB6121820				20	55			•
DB6122004	2	1	2	4	45	1.95	4	•
DB6122006				6				•
DB6122008				8				•
DB6122010				10				•
DB6122012				12				•
DB6122014				14				50
DB6122016				16	•			
DB6122018				18	55			•
DB6122020				20	•			
DB6122022				22	60			•
DB6122025				25	65			•
DB6122030				30	70			•
DB6122035				35	•			
DB6122040				40	80			•
DB6122045	45	•						
DB6122508	2.5	1.25	2.5	8	50	2.4	4	•
DB6122510				10				•
DB6122516				16				•
DB6122520				20	60			•
DB6122525				25	•			
DB6122530				30	70			•
DB6122535	35	•						
DB6123006	3	1.5	3	6	50	2.85	6	•
DB6123008				8				•
DB6123010				10				•
DB6123012				12				•
DB6123014				14	55			•
DB6123016				16	•			
DB6123018				18	60			•



### 2 FLUTE, for RIB PROCESSING

- Designed for machine tool steel, alloy steel, mold steel and other high hardened materials.
- Long neck design for deep machining near walls.

## DB612 ...series

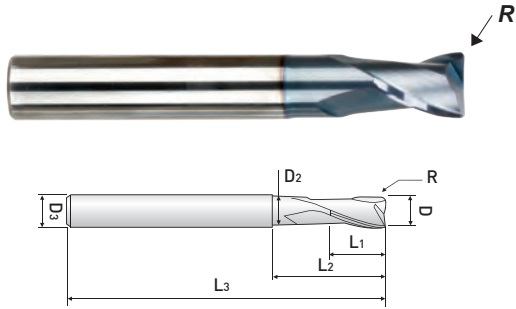


EDP. No.	D <sub>1</sub>	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
DB6123020	3	1.5	3	20	60	2.85	6	•
DB6123025				25	65			•
DB6123030				30	70			•
DB6123035				35	80			•
DB6123040				40				•
DB6123045				45	90			•
DB6123050				50	100			•
DB6123060				60				•
DB6124008	4	2	4	8	60	3.85	6	•
DB6124010				10				•
DB6124012				12				•
DB6124016				16				•
DB6124020				20	65			•
DB6124025				25				70
DB6124030				30	80			•
DB6124035				35				•
DB6124040				40	90			•
DB6124045				45				•
DB6124050				50	100			•
DB6124060				60				•
DB6125015	5	2.5	5	15	60	4.85	6	•
DB6125020				20				•
DB6125025				25	70			•
DB6125030				30	80			•
DB6125035				35				•
DB6125040				40	90			•
DB6125045				45				•
DB6125050				50	100			•
DB6125060	60	•						

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

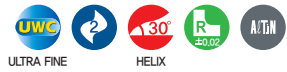
※Items can be changed for quality improvement without notice.



**2 FLUTE, STUB CUT LENGTH,  
CORNER RADIUS with EXTENDED NECK**

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.
- Increased feed rate.

**ZR502 ...series**

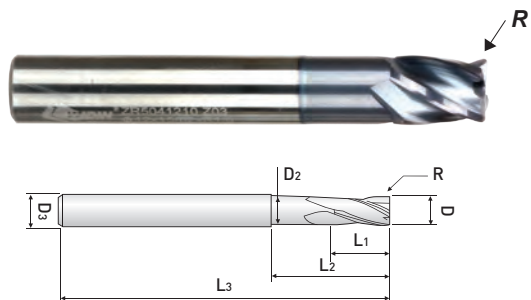


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
ZR5020405	4	0.5	6	10	55	3.7	6	•
ZR5020410		1						•
ZR5020605	6	0.5	8	15	55	5.7	6	•
ZR5020610		1						•
ZR5020805	8	0.5	10	20	65	7.7	8	•
ZR5020810		1						•
ZR5020815		1.5						•
ZR5020820		2						•
ZR5021005	10	0.5	12	28	80	9.5	10	•
ZR5021010		1						•
ZR5021015		1.5						•
ZR5021020		2						•
ZR5021205	12	0.5	15	30	82	11.5	12	•
ZR5021210		1						•
ZR5021215		1.5						•
ZR5021220		2						•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,02	h6

※Items can be changed for quality improvement without notice.



### 4 FLUTE, STUB CUT LENGTH, CORNER RADIUS with EXTENDED NECK

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.
- Increased feed rate.

## ZR504 ...series

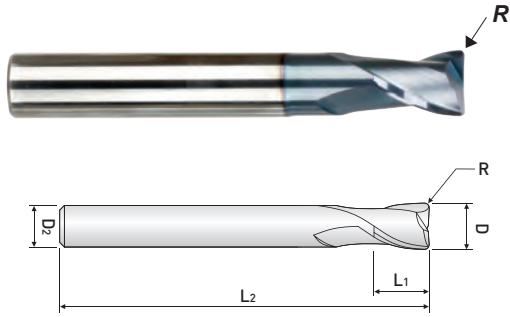


EDP. No.	D	R	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	D <sub>3</sub>	STOCK
ZR5040405	4	0.5	6	10	55	3.7	6	•
ZR5040410		1						•
ZR5040605	6	0.5	8	15	55	5.7	6	•
ZR5040610		1						•
ZR5040805	8	0.5	10	20	65	7.7	8	•
ZR5040810		1						•
ZR5040815		1.5						•
ZR5040820		2						•
ZR5041005	10	0.5	12	28	80	9.5	10	•
ZR5041010		1						•
ZR5041015		1.5						•
ZR5041020		2						•
ZR5041205	12	0.5	15	30	82	11.5	12	•
ZR5041210		1						•
ZR5041215		1.5						•
ZR5041220		2						•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

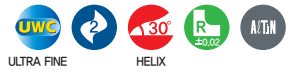
※ Items can be changed for quality improvement without notice.



### 2 FLUTE, REGULAR LENGTH, CORNER RADIUS

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.
- Increased feed rate.

## ZR512 ...series

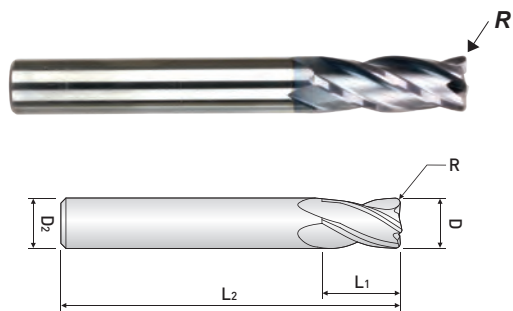


EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZR5120605	6	0.5	15	55	6	•
ZR5120610		1				•
ZR5120805	8	0.5	20	65	8	•
ZR5120810		1				•
ZR5120815		1.5				•
ZR5120820		2				•
ZR5121005	10	0.5	25	80	10	•
ZR5121010		1				•
ZR5121015		1.5				•
ZR5121020		2				•
ZR5121025		2.5				•
ZR5121030	3	•				
ZR5121205	12	0.5	30	82	12	•
ZR5121210		1				•
ZR5121215		1.5				•
ZR5121220		2				•
ZR5121225		2.5				•
ZR5121230	3	•				
ZR5121605	16	0.5	40	100	16	•
ZR5121610		1				•
ZR5121615		1.5				•
ZR5121620		2				•
ZR5121630	3	•				
ZR5122005	20	0.5	45	110	20	•
ZR5122010		1				•
ZR5122015		1.5				•
ZR5122020		2				•
ZR5122030		3				•

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 4 FLUTE, REGULAR LENGTH, CORNER RADIUS

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.
- Increased feed rate.

## ZR514 ...series

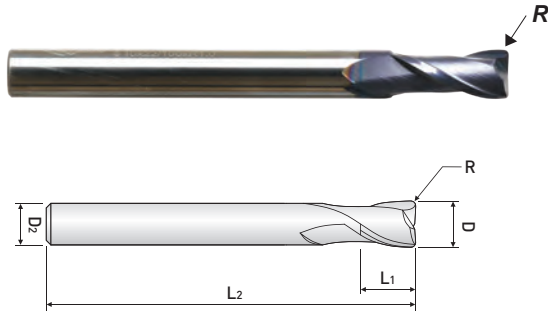


EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZR5140605	6	0.5	15	55	6	•
ZR5140610		1				•
ZR5140805	8	0.5	20	65	8	•
ZR5140810		1				•
ZR5140815		1.5				•
ZR5140820		2				•
ZR5141005	10	0.5	25	80	10	•
ZR5141010		1				•
ZR5141015		1.5				•
ZR5141020		2				•
ZR5141025		2.5				•
ZR5141030	3	•				
ZR5141205	12	0.5	30	82	12	•
ZR5141210		1				•
ZR5141215		1.5				•
ZR5141220		2				•
ZR5141225		2.5				•
ZR5141230	3	•				
ZR5141605	16	0.5	40	100	16	•
ZR5141610		1				•
ZR5141615		1.5				•
ZR5141620		2				•
ZR5141630	3	•				
ZR5142005	20	0.5	45	110	20	•
ZR5142010		1				•
ZR5142015		1.5				•
ZR5142020		2				•
ZR5142030		3				•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

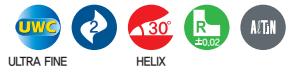
※Items can be changed for quality improvement without notice.



### 2 FLUTE, LONG LENGTH, CORNER RADIUS

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.
- Increased feed rate.

## ZR522 ...series



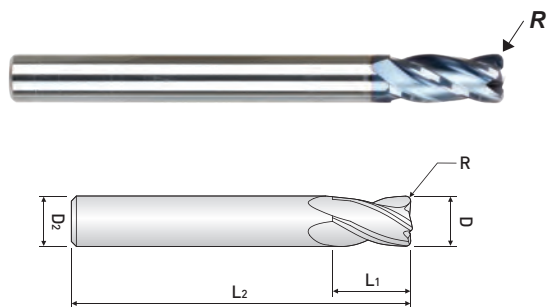
EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZR5220302S4	3	0.2	8	60	4	•
ZR5220302					6	•
ZR5220305S4		0.5			4	•
ZR5220305					6	•
ZR5220402S4	4	0.2	11	70	4	•
ZR5220402	4	0.2	11	70	6	•
ZR5220405S4		0.5			4	•
ZR5220405		0.5			6	•
ZR5220410		1			6	•
ZR5220502	5	0.2	13	80	6	•
ZR5220505		0.5				•
ZR5220510		1				•
ZR5220602	6	0.2	13	90	6	•
ZR5220605		0.5				•
ZR5220610		1				•
ZR5220805	8	0.5	19	100	8	•
ZR5220810		1				•
ZR5220815		1.5				•
ZR5220820		2				•
ZR5221005	10	0.5	22	100	10	•
ZR5221010		1				•
ZR5221015		1.5				•
ZR5221020		2				•
ZR5221025		2.5				•
ZR5221205	12	0.5	26	110	12	•
ZR5221210		1				•
ZR5221215		1.5				•
ZR5221220		2				•
ZR5221225		2.5				•
ZR5221230		3				•

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0,02	h6

※ Items can be changed for quality improvement without notice.





### 4 FLUTE, LONG LENGTH, CORNER RADIUS

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- Superior workpiece finishes.
- Increased feed rate.

## ZR524 ...series

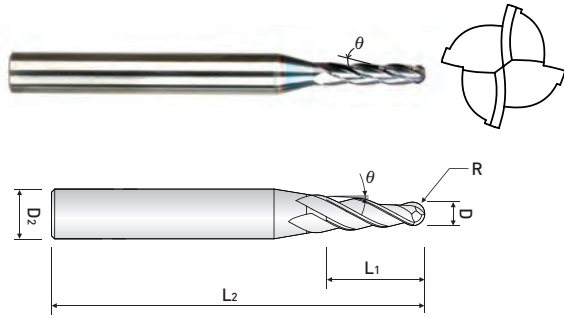


EDP. No.	Dia.	R	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZR5240302S4	3	0.2	8	60	4	•
ZR5240302					6	•
ZR5240305S4		0.5			4	•
ZR5240305					6	•
ZR5240402S4	4	0.2	11	70	4	•
ZR5240402					6	•
ZR5240405S4		0.5			4	•
ZR5240405					6	•
ZR5240410S4	1	4	•			
ZR5240410		6	•			
ZR5240502	5	0.2	13	80	6	•
ZR5240505		0.5			•	
ZR5240510		1			•	
ZR5240602	6	0.2	13	90	6	•
ZR5240605		0.5			•	
ZR5240610		1			•	
ZR5240805	8	0.5	19	100	8	•
ZR5240810		1			•	
ZR5240815		1.5			•	
ZR5240820		2			•	
ZR5241005	10	0.5	22	100	10	•
ZR5241010		1			•	
ZR5241015		1.5			•	
ZR5241020		2			•	
ZR5241025		2.5			•	
ZR5241205	12	0.5	26	110	12	•
ZR5241210		1			•	
ZR5241215		1.5			•	
ZR5241220		2			•	
ZR5241225		2.5			•	
ZR5241230		3			•	

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.02	h6

※Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
  - Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold
- Taper Tolerance :  $\pm 10'$

## TPRB4...-050 series



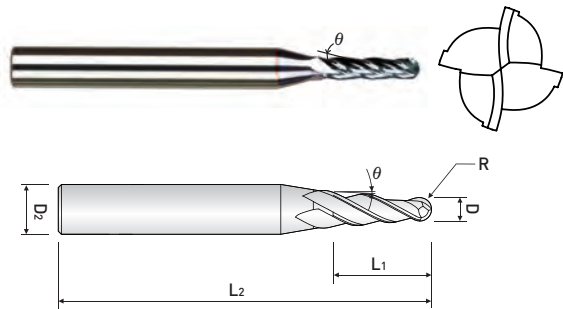
EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4006-04-050	0.3	30'	4	40	4	
TPRB4006-06-050			6			
TPRB4008-06-050	0.4	30'	6	45	4	
TPRB4008-08-050			8			
TPRB4008-10-050			10			
TPRB4010-06-050	0.5	30'	6	45	4	
TPRB4010-08-050			8			
TPRB4010-10-050			10			
TPRB4010-12-050			12			
TPRB4010-16-050			16			
TPRB4012-06-050	0.6	30'	6	45	4	
TPRB4012-08-050			8			
TPRB4012-10-050			10			
TPRB4012-12-050			12			
TPRB4012-16-050			16			
TPRB4015-08-050	0.75	30'	8	45	4	
TPRB4015-10-050			10			
TPRB4015-12-050			12			
TPRB4015-16-050			16			
TPRB4015-20-050			20			
TPRB4016-08-050	0.8	30'	8	45	4	
TPRB4016-10-050			10			
TPRB4016-12-050			12			
TPRB4016-16-050			16			
TPRB4016-20-050			20			
TPRB4018-08-050	0.9	30'	8	45	4	
TPRB4018-10-050			10			
TPRB4018-12-050			12			
TPRB4018-16-050			16			
TPRB4018-20-050			20			
TPRB4020-10-050	1.0	30'	10	45	4	
TPRB4020-12-050			12			
TPRB4020-16-050			16			
TPRB4020-20-050			20			
TPRB4020-25-050			25			
TPRB4025-10-050	1.25	30'	10	45	4	
TPRB4025-12-050			12			
TPRB4025-16-050			16			
TPRB4025-20-050			20			
TPRB4025-25-050			25			

※ These tools are manufactured based on order received.

■ Tolerance

Radius (mm)	Shank Dia.
$\pm 0,01$	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
- Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold

■ Taper Tolerance :  $\pm 10'$

## TPRB4...-075 series



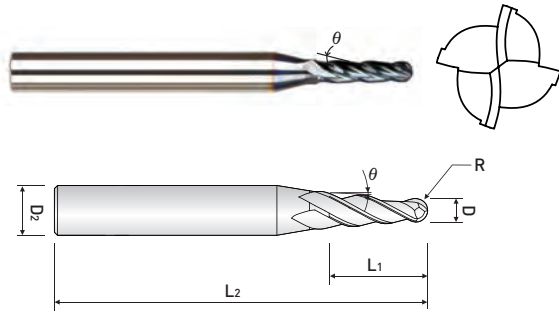
EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4006-04-075	0.3	45'	4	40	4	
TPRB4006-06-075			6			
TPRB4008-06-075	0.4	45'	6	45	4	
TPRB4008-08-075			8			
TPRB4008-10-075			10			
TPRB4010-08-075	0.5	45'	8	45	4	
TPRB4010-10-075			10			
TPRB4010-12-075			12			
TPRB4012-08-075	0.6	45'	8	45	4	
TPRB4012-10-075			10			
TPRB4012-12-075			12			
TPRB4012-16-075			16			
TPRB4015-08-075	0.75	45'	8	45	4	
TPRB4015-10-075			10			
TPRB4015-12-075			12			
TPRB4015-16-075			16			
TPRB4015-20-075			20			
TPRB4016-08-075	0.8	45'	8	45	4	
TPRB4016-10-075			10			
TPRB4016-12-075			12			
TPRB4016-16-075			16			
TPRB4016-20-075			20			
TPRB4018-08-075	0.9	45'	8	45	4	
TPRB4018-10-075			10			
TPRB4018-12-075			12			
TPRB4018-16-075			16			
TPRB4018-20-075			20			
TPRB4020-10-075	1.0	45'	10	45	4	
TPRB4020-12-075			12			
TPRB4020-16-075			16			
TPRB4020-20-075			20			
TPRB4020-25-075			25			
TPRB4025-10-075	1.25	45'	10	45	4	
TPRB4025-12-075			12			
TPRB4025-16-075			16			
TPRB4025-20-075			20			
TPRB4025-25-075			25			

※ These tools are manufactured based on order received.

■ Tolerance

Radius (mm)	Shank Dia.
$\pm 0.01$	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

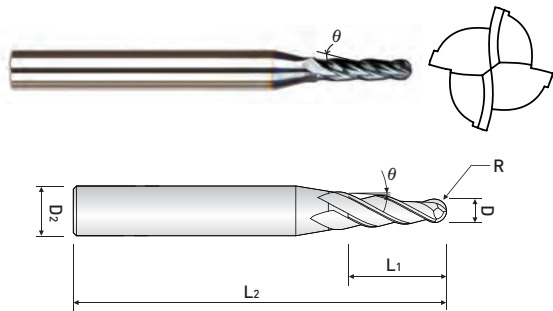
- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
- Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold
- Taper Tolerance :  $\pm 10'$

## TPRB4...-100 series



EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4006-04-100	0.3	1°00'	4	40	4	
TPRB4006-06-100			6			
TPRB4008-06-100	0.4	1°00'	6	45	4	
TPRB4008-08-100			8			
TPRB4008-10-100			10			
TPRB4010-06-100	0.5	1°00'	6	45	4	
TPRB4010-08-100			8			
TPRB4010-10-100			10			
TPRB4010-12-100			12			
TPRB4010-16-100			16			
TPRB4012-06-100	0.6	1°00'	6	45	4	
TPRB4012-08-100			8			
TPRB4012-10-100			10			
TPRB4012-12-100			12			
TPRB4012-16-100			16			
TPRB4015-08-100	0.75	1°00'	8	45	4	
TPRB4015-10-100			10			
TPRB4015-12-100			12			
TPRB4015-16-100			16			
TPRB4015-20-100			20			
TPRB4016-08-100	0.8	1°00'	8	45	4	
TPRB4016-10-100			10			
TPRB4016-12-100			12			
TPRB4016-16-100			16			
TPRB4016-20-100			20			
TPRB4018-08-100	0.9	1°00'	8	45	4	
TPRB4018-10-100			10			
TPRB4018-12-100			12			
TPRB4018-16-100			16			
TPRB4018-20-100			20			

※ These tools are manufactured based on order received.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
- Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold

■ Taper Tolerance :  $\pm 10'$

## TPRB4...-100 series



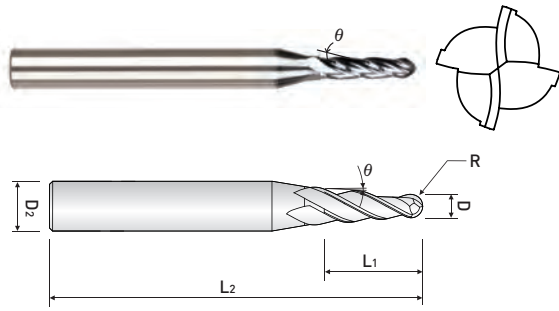
EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4020-10-100	1.0	1°00'	10	45	4	
TPRB4020-12-100			12			
TPRB4020-16-100			16	50		
TPRB4020-20-100			20	55		
TPRB4020-25-100			25			
TPRB4025-10-100	1.25	1°00'	10	45	4	
TPRB4025-12-100			12			
TPRB4025-16-100			16	50		
TPRB4025-20-100			20	55		
TPRB4025-25-100			25			

※ These tools are manufactured based on order received.

■ Tolerance

Radius (mm)	Shank Dia.
$\pm 0,01$	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

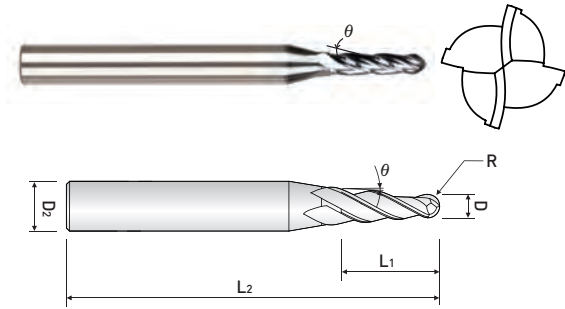
- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
  - Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold
- Taper Tolerance :  $\pm 10'$

## TPRB4...-150 series



EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4006-04-150	0.3	1°30'	4	40	4	
TPRB4006-06-150			6			
TPRB4008-06-150	0.4	1°30'	6	45	4	
TPRB4008-08-150			8			
TPRB4008-10-150			10			
TPRB4010-06-150	0.5	1°30'	6	45	4	
TPRB4010-08-150			8			
TPRB4010-10-150			10			
TPRB4010-12-150			12			
TPRB4010-16-150			16			
TPRB4012-06-150	0.6	1°30'	6	45	4	
TPRB4012-08-150			8			
TPRB4012-10-150			10			
TPRB4012-12-150			12			
TPRB4012-16-150			16			
TPRB4015-08-150	0.75	1°30'	8	45	4	
TPRB4015-10-150			10			
TPRB4015-12-150			12			
TPRB4015-16-150			16			
TPRB4015-20-150			20			
TPRB4016-08-150	0.8	1°30'	8	45	4	
TPRB4016-10-150			10			
TPRB4016-12-150			12			
TPRB4016-16-150			16			
TPRB4016-20-150			20			
TPRB4018-08-150	0.9	1°30'	8	45	4	
TPRB4018-10-150			10			
TPRB4018-12-150			12			
TPRB4018-16-150			16			
TPRB4018-20-150			20			

※ These tools are manufactured based on order received.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
  - Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold
- Taper Tolerance :  $\pm 10'$

## TPRB4...-150 series



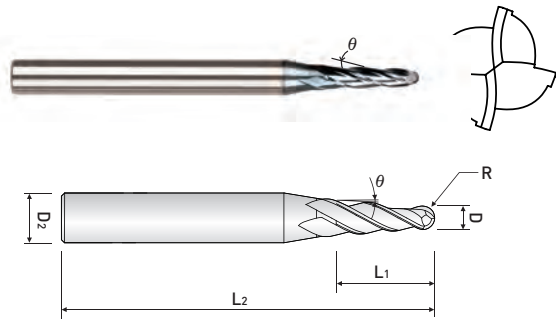
EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4020-10-150	1.0	1°30'	10	45	4	
TPRB4020-12-150			12			
TPRB4020-16-150			16	50		
TPRB4020-20-150			20	55		
TPRB4020-25-150			25	60		
TPRB4020-30-150			30			
TPRB4025-10-150	1.25	1°30'	10	45	4	
TPRB4025-12-150			12			
TPRB4025-16-150			16	50		
TPRB4025-20-150			20	55		
TPRB4025-25-150			25	60		
TPRB4025-30-150			30			

※ These tools are manufactured based on order received.

■ Tolerance

Radius (mm)	Shank Dia.
$\pm 0,01$	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
- Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold
- Taper Tolerance :  $\pm 10'$

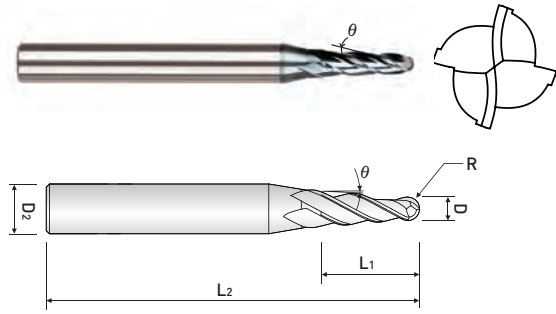
## TPRB4...-200 series



EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK	
TPRB4006-04-200	0.3	2°00'	4	40	4		
TPRB4006-06-200			6				
TPRB4008-06-200	0.4	2°00'	6	45	4		
TPRB4008-08-200			8				
TPRB4008-10-200			10				
TPRB4010-06-200	0.5	2°00'	6	45	4		
TPRB4010-08-200			8				
TPRB4010-10-200			10				
TPRB4010-12-200			12				
TPRB4010-16-200			16				50
TPRB4012-06-200	0.6	2°00'	6	45	4		
TPRB4012-08-200			8				
TPRB4012-10-200			10				
TPRB4012-12-200			12				
TPRB4012-16-200			16				50
TPRB4015-08-200	0.75	2°00'	8	45	4		
TPRB4015-10-200			10				
TPRB4015-12-200			12				
TPRB4015-16-200			16				50
TPRB4015-20-200			20				55
TPRB4016-08-200	0.8	2°00'	8	45	4		
TPRB4016-10-200			10				
TPRB4016-12-200			12				
TPRB4016-16-200			16				50
TPRB4016-20-200			20				55
TPRB4018-08-200	0.9	2°00'	8	45	4		
TPRB4018-10-200			10				
TPRB4018-12-200			12				
TPRB4018-16-200			16				50
TPRB4018-20-200			20				55

※ These tools are manufactured based on order received.





### MULTIPLE FLUTES – TAPER BALL ENDMILLS for RIB PROCESSING

- Applying high hardened taper angle on the tool leads to highly efficient Rib processing
  - Suitable to do machining performance on the inclined workpiece for electricity and electronic precise mold
- Taper Tolerance :  $\pm 10'$

## TPRB4...-200 series



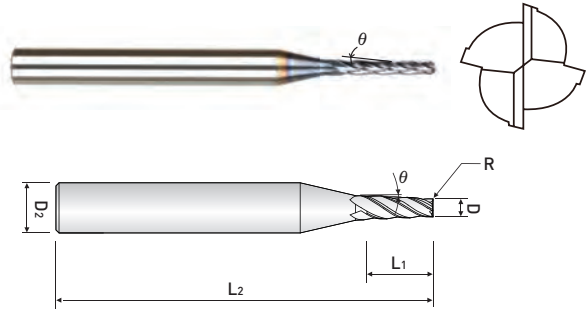
EDP. No.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRB4020-10-200	1.0	2°00'	10	45	4	
TPRB4020-12-200			12			
TPRB4020-16-200			16			
TPRB4020-20-200			20	55		
TPRB4020-25-200			25			
TPRB4020-30-200			30	60		
TPRB4025-10-200	1.25	2°00'	10	45	4	
TPRB4025-12-200			12			
TPRB4025-16-200			16			
TPRB4025-20-200			20	55		
TPRB4025-25-200			25			
TPRB4025-30-200			30	60		

※ These tools are manufactured based on order received.

■ Tolerance

Radius (mm)	Shank Dia.
$\pm 0,01$	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

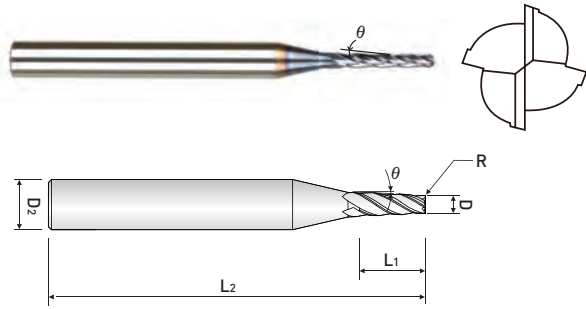
■ Taper Tolerance :  $\pm 10'$

## TPRE4...-050 series



EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4004-02-050	0.4	30'	2	40	4	
TPRE4004-03-050			3			
TPRE4004-04-050			4			
TPRE4005-02-050	0.5	30'	2	40	4	
TPRE4005-04-050			4			
TPRE4005-06-050			6			
TPRE4006-04-050	0.6	30'	4	40	4	
TPRE4006-06-050			6			
TPRE4007-06-050	0.7	30'	6	40	4	
TPRE4007-08-050			8			
TPRE4008-06-050	0.8	30'	6	45	4	
TPRE4008-08-050			8			
TPRE4008-10-050			10			
TPRE4009-06-050	0.9	30'	6	45	4	
TPRE4009-08-050			8			
TPRE4009-10-050			10			
TPRE4010-06-050	1.0	30'	6	45	4	
TPRE4010-08-050			8			
TPRE4010-10-050			10			
TPRE4010-12-050			12			
TPRE4010-16-050			16	50		
TPRE4012-06-050	1.2	30'	6	45	4	
TPRE4012-08-050			8			
TPRE4012-10-050			10			
TPRE4012-12-050			12			
TPRE4012-16-050			16	50		
TPRE4014-08-050	1.4	30'	8	45	4	
TPRE4014-12-050			12			
TPRE4014-16-050			16	50		

※ These tools are manufactured based on order received.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

■ Taper Tolerance :  $\pm 10'$

## TPRE4...-050 series



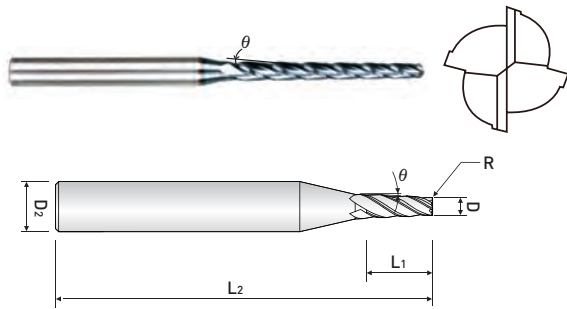
EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4015-08-050	1.5	30'	8	45	4	
TPRE4015-10-050			10			
TPRE4015-12-050			12			
TPRE4015-16-050			16			
TPRE4015-20-050			20			
TPRE4016-08-050	1.6	30'	8	45	4	
TPRE4016-10-050			10			
TPRE4016-12-050			12			
TPRE4016-16-050			16			
TPRE4016-20-050			20			
TPRE4018-08-050	1.8	30'	8	45	4	
TPRE4018-10-050			10			
TPRE4018-12-050			12			
TPRE4018-16-050			16			
TPRE4018-20-050			20			
TPRE4020-10-050	2.0	30'	10	45	4	
TPRE4020-12-050			12			
TPRE4020-16-050			16			
TPRE4020-20-050			20			
TPRE4020-25-050			25			
TPRB4025-10-150	2.5	30'	10	45	4	
TPRB4025-12-150			12			
TPRB4025-16-150			16			
TPRB4025-20-150			20			
TPRB4025-25-150			25			
TPRB4025-30-150			30			

※ These tools are manufactured based on order received.

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

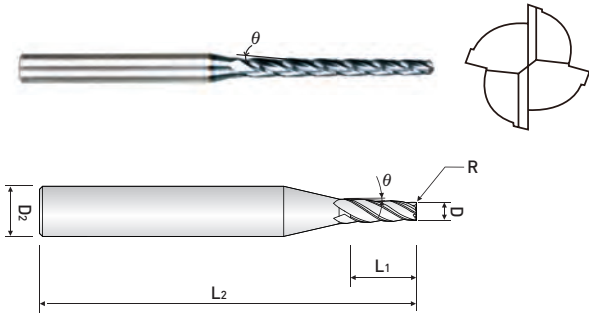
■ Taper Tolerance :  $\pm 10'$

## TPRE4...-075 series



EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4004-02-075	0.4	45'	2	40	4	
TPRE4004-03-075			3			
TPRE4004-04-075			4			
TPRE4005-04-075	0.5	45'	4	40	4	
TPRE4005-06-075			6			
TPRE4006-04-075	0.6	45'	4	40	4	
TPRE4006-06-075			6			
TPRE4007-06-075	0.7	45'	6	40	4	
TPRE4007-08-075			8			
TPRE4008-06-075	0.8	45'	6	45	4	
TPRE4008-08-075			8			
TPRE4008-10-075			10			
TPRE4009-06-075	0.9	45'	6	45	4	
TPRE4009-08-075			8			
TPRE4009-10-075			10			
TPRE4010-08-075	1.0	45'	8	45	4	
TPRE4010-10-075			10			
TPRE4010-12-075			12			
TPRE4012-08-075	1.2	45'	8	45	4	
TPRE4012-10-075			10			
TPRE4012-12-075			12			
TPRE4012-16-075			16	50		
TPRE4015-08-075	1.5	45'	8	45	4	
TPRE4015-10-075			10			
TPRE4015-12-075			12			
TPRE4015-16-075			16	50		
TPRE4015-20-075			20	55		

※ These tools are manufactured based on order received.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

■ Taper Tolerance :  $\pm 10'$

## TPRE4...-075 series



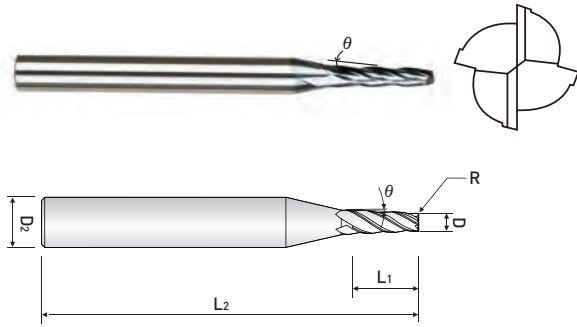
EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4016-08-075	1.6	45°	8	45	4	
TPRE4016-10-075			10			
TPRE4016-12-075			12			
TPRE4016-16-075			16			
TPRE4016-20-075			20			
TPRE4018-08-075	1.8	45°	8	45	4	
TPRE4018-10-075			10			
TPRE4018-12-075			12			
TPRE4018-16-075			16			
TPRE4018-20-075			20			
TPRE4020-10-075	2.0	45°	10	45	4	
TPRE4020-12-075			12			
TPRE4020-16-075			16	50		
TPRE4020-20-075			20			
TPRE4020-25-075			25	55		
TPRE4025-10-075	2.5	45°	10	45	4	
TPRE4025-12-075			12			
TPRE4025-16-075			16	50		
TPRE4025-20-075			20			
TPRE4025-25-075			25	55		
TPRE4025-30-075			30			
TPRE4030-25-075	3.0	45°	25	55	4	
TPRE4030-40-075			40	80	6	

※ These tools are manufactured based on order received.

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

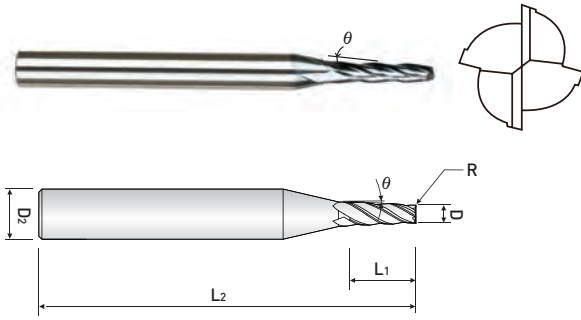
■ Taper Tolerance :  $\pm 10'$

## TPRE4...-100 series



EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4004-02-100	0.4	1°00'	2	40	4	
TPRE4004-03-100			3			
TPRE4004-04-100			4			
TPRE4005-02-100	0.5	1°00'	2	40	4	
TPRE4005-04-100			4			
TPRE4005-06-100			6			
TPRE4006-04-100	0.6	1°00'	4	40	4	
TPRE4006-06-100			6			
TPRE4007-06-100	0.7	1°00'	6	40	4	
TPRE4007-08-100			8			
TPRE4008-06-100	0.8	1°00'	6	45	4	
TPRE4008-08-100			8			
TPRE4008-10-100			10			
TPRE4009-06-100	0.9	1°00'	6	45	4	
TPRE4009-08-100			8			
TPRE4009-10-100			10			
TPRE4010-06-100	1.0	1°00'	6	45	4	
TPRE4010-08-100			8			
TPRE4010-10-100			10			
TPRE4010-12-100			12			
TPRE4010-16-100			16	50		
TPRE4012-06-100	1.2	1°00'	6	45	4	
TPRE4012-08-100			8			
TPRE4012-10-100			10			
TPRE4012-12-100			12			
TPRE4012-16-100			16	50		
TPRE4014-08-100	1.4	1°00'	8	45	4	
TPRE4014-12-100			12			
TPRE4014-16-100			16	50		

※ These tools are manufactured based on order received.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

■ Taper Tolerance :  $\pm 10'$

## TPRE4...-100 series



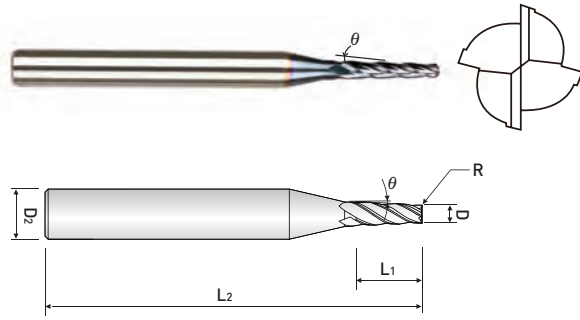
EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4015-08-100	1.5	1°00'	8	45	4	
TPRE4015-10-100			10			
TPRE4015-12-100			12			
TPRE4015-16-100			16			
TPRE4015-20-100			20			
TPRE4016-08-100	1.6	1°00'	8	45	4	
TPRE4016-10-100			10			
TPRE4016-12-100			12			
TPRE4016-16-100			16			
TPRE4016-20-100			20			
TPRE4018-08-100	1.8	1°00'	8	45	4	
TPRE4018-10-100			10			
TPRE4018-12-100			12			
TPRE4018-16-100			16			
TPRE4018-20-100			20			
TPRE4020-10-100	2.0	1°00'	10	45	4	
TPRE4020-12-100			12			
TPRE4020-16-100			16			
TPRE4020-20-100			20			
TPRE4020-25-100			25			
TPRE4025-10-100	2.5	1°00'	10	45	4	
TPRE4025-12-100			12			
TPRE4025-16-100			16			
TPRE4025-20-100			20			
TPRE4025-25-100			25			
TPRE4025-30-100			30			
TPRE4030-25-075	3.0	1°00'	25	55	4	
TPRE4030-40-075			40	80	6	

※ These tools are manufactured based on order received.

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

■ Taper Tolerance :  $\pm 10'$

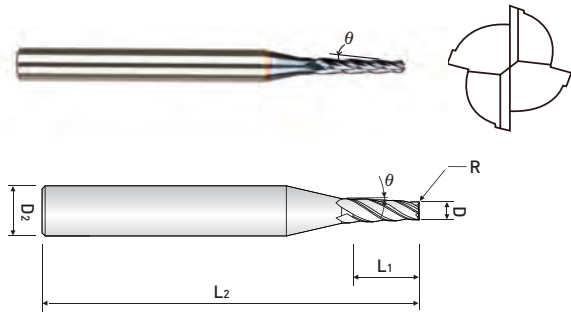
## TPRE4...-150 series



EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4004-02-150	0.4	1°30'	2	40	4	
TPRE4004-03-150			3			
TPRE4004-04-150			4			
TPRE4005-04-150	0.5	1°30'	4	40	4	
TPRE4005-06-150			6			
TPRE4006-04-150	0.6	1°30'	4	40	4	
TPRE4006-06-150			6			
TPRE4007-06-150	0.7	1°30'	6	40	4	
TPRE4007-08-150			8			
TPRE4008-06-150	0.8	1°30'	6	45	4	
TPRE4008-08-150			8			
TPRE4008-10-150			10			
TPRE4009-06-150	0.9	1°30'	6	45	4	
TPRE4009-08-150			8			
TPRE4009-10-150			10			
TPRE4010-06-150	1.0	1°30'	6	45	4	
TPRE4010-08-150			8			
TPRE4010-10-150			10			
TPRE4010-12-150			12			
TPRE4010-16-150			16	50		
TPRE4012-06-150	1.2	1°30'	6	45	4	
TPRE4012-08-150			8			
TPRE4012-10-150			10			
TPRE4012-12-150			12			
TPRE4012-16-150			16	50		
TPRE4014-08-150	1.4	1°30'	8	45	4	
TPRE4014-12-150			12			
TPRE4014-16-150			16	50		

※ These tools are manufactured based on order received.





### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

■ Taper Tolerance :  $\pm 10'$

## TPRE4...-150 series



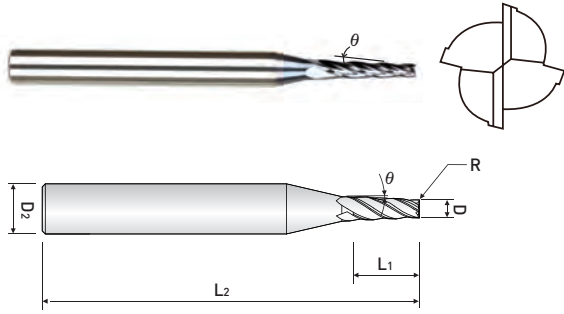
EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4015-08-150	1.5	1°30'	8	45	4	
TPRE4015-10-150			10			
TPRE4015-12-150			12			
TPRE4015-16-150			16			
TPRE4015-20-150			20			
TPRE4016-08-150	1.6	1°30'	8	45	4	
TPRE4016-10-150			10			
TPRE4016-12-150			12			
TPRE4016-16-150			16			
TPRE4016-20-150			20			
TPRE4018-08-150	1.8	1°30'	8	45	4	
TPRE4018-10-150			10			
TPRE4018-12-150			12			
TPRE4018-16-150			16			
TPRE4018-20-150			20			
TPRE4020-10-150	2.0	1°30'	10	45	4	
TPRE4020-12-150			12			
TPRE4020-16-150			16			
TPRE4020-20-150			20			
TPRE4020-25-150			25			
TPRE4025-10-150	2.5	1°30'	10	45	4	
TPRE4025-12-150			12			
TPRE4025-16-150			16			
TPRE4025-20-150			20			
TPRE4025-25-150			25			
TPRE4025-30-150			30			
TPRE4030-25-150	3.0	1°30'	25	60	6	
TPRE4030-40-150			40	80		

※ These tools are manufactured based on order received.

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

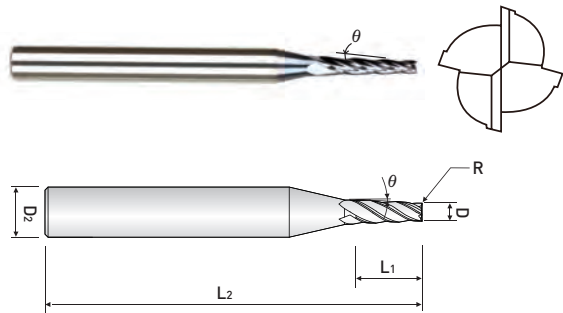
■ Taper Tolerance :  $\pm 10'$

## TPRE4...-200 series



EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4004-02-200	0.4	2°00'	2	40	4	
TPRE4004-03-200			3			
TPRE4004-04-200			4			
TPRE4005-04-200	0.5	2°00'	4	40	4	
TPRE4005-06-200			6			
TPRE4006-04-200	0.6	2°00'	4	40	4	
TPRE4006-06-200			6			
TPRE4007-06-200	0.7	2°00'	6	40	4	
TPRE4007-08-200			8			
TPRE4008-06-200	0.8	2°00'	6	45	4	
TPRE4008-08-200			8			
TPRE4008-10-200			10			
TPRE4009-06-200	0.9	2°00'	6	45	4	
TPRE4009-08-200			8			
TPRE4009-10-200			10			
TPRE4010-06-200	1.0	2°00'	6	45	4	
TPRE4010-08-200			8			
TPRE4010-10-200			10			
TPRE4010-12-200			12			
TPRE4010-16-200			16	50		
TPRE4012-06-200	1.2	2°00'	6	45	4	
TPRE4012-08-200			8			
TPRE4012-10-200			10			
TPRE4012-12-200			12			
TPRE4012-16-200			16	50		
TPRE4014-08-200	1.4	2°00'	8	45	4	
TPRE4014-12-200			12			
TPRE4014-16-200			16	50		

※ These tools are manufactured based on order received.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.
- Taper Tolerance :  $\pm 10'$

## TPRE4...-200 series



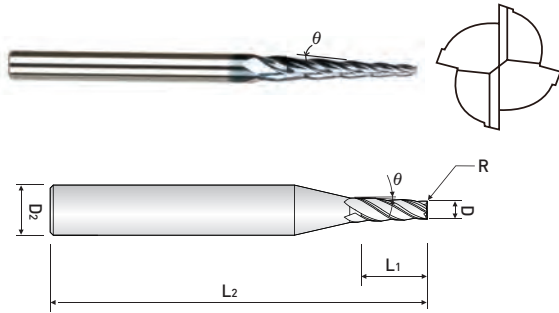
EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4015-08-200	1.5	2°00'	8	45	4	
TPRE4015-10-200			10			
TPRE4015-12-200			12			
TPRE4015-16-200			16			
TPRE4015-20-200			20			
TPRE4016-08-200	1.6	2°00'	8	45	4	
TPRE4016-10-200			10			
TPRE4016-12-200			12			
TPRE4016-16-200			16			
TPRE4016-20-200			20			
TPRE4018-08-200	1.8	2°00'	8	45	4	
TPRE4018-10-200			10			
TPRE4018-12-200			12			
TPRE4018-16-200			16			
TPRE4018-20-200			20			
TPRE4020-10-200	2.0	2°00'	10	45	4	
TPRE4020-12-200			12			
TPRE4020-16-200			16			
TPRE4020-20-200			20			
TPRE4020-25-200			25			
TPRE4025-10-200	2.5	2°00'	10	45	4	
TPRE4025-12-200			12			
TPRE4025-16-200			16			
TPRE4025-20-200			20	55	6	
TPRE4025-25-200			25			
TPRE4025-30-200			30			
TPRE4030-25-200	3.0	2°00'	25	60	6	
TPRE4030-40-200			40	80		

※ These tools are manufactured based on order received.

■ Tolerance

Mill Dia. (mm)	Shank Dia.
0 ~ -0.03	h6

※ Items can be changed for quality improvement without notice.



### MULTIPLE FLUTES - TAPER ENDMILLS for RIB PROCESSING

- Rigid taper end mill for highly productive rib processing.
- Can also be used for side milling operation.

■ Taper Tolerance :  $\pm 10'$

## TPRE4...-300 series



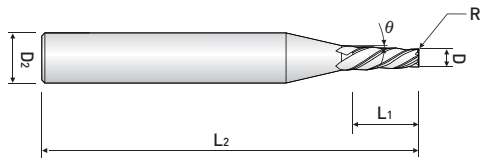
EDP. No.	Dia.	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TPRE4005-04-300	0.5	3°00'	4	40	4	
TPRE4006-04-300	0.6	3°00'	4	40	4	
TPRE4007-06-300	0.7	3°00'	6	40	4	
TPRE4008-06-300	0.8	3°00'	6	45	4	
TPRE4008-10-300			10			
TPRE4009-08-300	0.9	3°00'	8	45	4	
TPRE4010-08-300	1.0	3°00'	8	45	4	
TPRE4010-12-300			12			
TPRE4012-10-300	1.2	3°00'	10	45	4	
TPRE4012-16-300			16	50		
TPRE4015-12-300	1.5	3°00'	12	45	4	
TPRE4015-20-300			20	55		
TPRE4016-12-300	1.6	3°00'	12	45	4	
TPRE4016-20-300			20	55		
TPRE4018-12-300	1.8	3°00'	12	45	4	
TPRE4018-20-300			20	55		
TPRE4020-16-300	2.0	3°00'	16	50	4	
TPRE4020-25-300			25	60	6	
TPRE4025-20-300	2.5	3°00'	20	60	6	
TPRE4025-30-300			30	65		
TPRE4030-25-300	3.0	2°00'	25	60	6	
TPRE4030-40-300			40	80	8	

※ These tools are manufactured based on order received.

■ Tolerance

Mill Dia, (mm)	Shank Dia,
0 ~ -0,03	h6

※ Items can be changed for quality improvement without notice.



### 3 FLUTE, TAPER END MILL

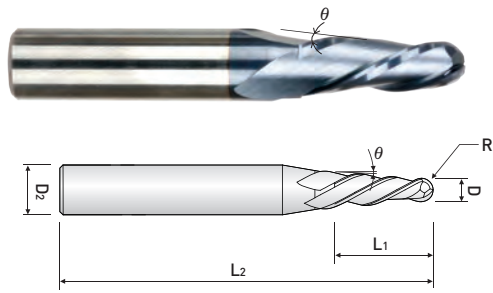
- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ALTiN coated for high wear resistance.

## TE503 .....series



EDP. No.	Dia.	$\theta^\circ$	L <sub>1</sub>	N.D	L <sub>2</sub>	D <sub>2</sub>	STOCK
TE50303106	3	1	10	3.4	50	6	
TE50303206		2		3.7			
TE50303306		3		4			
TE50303506		5		4.8			
TE50304106	4	1	15	4.5	50	6	
TE50304206		2		5			
TE50304306		3		5.6			
TE50304508		5		6.6			
TE50305106	5	1	20	5.7	60	6	
TE50305208		2		6.4		8	
TE50305308		3		7.1			
TE50305508		5		(17.1)		8.5	
TE50306108	6	1	20	6.7	60	8	
TE50306208		2		7.4			
TE50306308		3		8.1			
TE50306510		5		9.5			
TE50308110	8	1	25	8.9	70	10	
TE50308210		2		9.8			
TE50308312		3		10.6	75	12	
TE50308512		5		(22.8)			
TE50310112	10	1	35	11.2	90	12	
TE50310212		2	28	12.4			
TE50310314		3	35	13.7		14	
TE50310516		5	16.1	16			

※ These tools are manufactured based on order received.



### 3 FLUTE, TAPER BALL END MILL

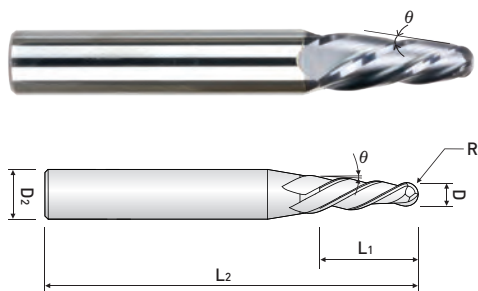
- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ALTiN coated for high wear resistance.

## TB503 ...series



EDP. No.	Dia.	R	$\theta$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TB50315306	3	1.5	3°	12	60	6	
TB50320306	4	2		15	60	6	
TB50325308	5	2.5		18	60	8	
TB50330310	6	3		22	70	10	
TB50340312	8	4		26	75	12	
TB50350312	10	5		19	75	12	
TB50360316	12	6		36	90	16	
TB50315506	3	1.5	5°	12	60	6	
TB50320508	4	2		15	60	8	
TB50325510	5	2.5		18	70	10	
TB50330510	6	3		22	70	10	
TB50340512	8	4		26	75	12	
TB50350516	10	5		30	90	16	
TB50360520	12	6		36	100	20	
TB50315706	3	1.5	7°	12	60	6	
TB50320708	4	2		15	60	8	
TB50325710	5	2.5		18	70	10	
TB50330712	6	3		22	75	12	
TB50340716	8	4		26	90	16	
TB50350716	10	5		30	90	16	
TB50360720	12	6		36	100	20	

※ These tools are manufactured based on order received.



### 4 FLUTE, TAPER BALL END MILL

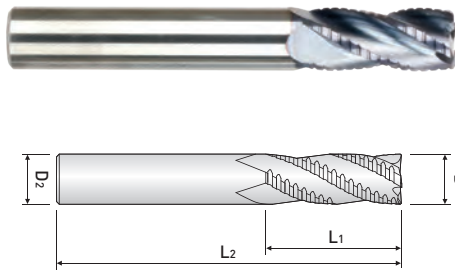
- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- ALTiN coated for high wear resistance.

## TB504 ...series



EDP. No.	Dia.	R	$\theta^\circ$	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
TB50425308	5	2.5	3°	18	60	8	
TB50430310	6	3		22	70	10	
TB50440312	8	4		26	75	12	
TB50450312	10	5		19	75	12	
TB50460316	12	6		36	90	16	
TB50425510	5	2.5	5°	18	70	10	
TB50430510	6	3		22	70	10	
TB50440512	8	4		26	75	12	
TB50450516	10	5		30	90	16	
TB50460520	12	6		36	100	20	
TB50425710	5	2.5	7°	18	70	10	
TB50430712	6	3		22	75	12	
TB50440716	8	4		26	90	16	
TB50450716	10	5		30	90	16	
TB50460720	12	6		36	100	20	

※ These tools are manufactured based on order received.



### 3~6 FLUTE, ROUGHING & FINISHING END MILL

- Designed to machine tool steel, alloy steel, mold steel and other high hardened materials.
- AlTiN coated for high wear resistance.
- Rough & finish type.

## ZF60 ....series

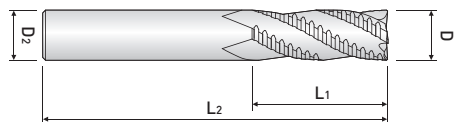


EDP. No.	Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
ZF603040	4	10	50	6	•
ZF603050	5	13	50	6	•
ZF603060	6	15	50	6	•
ZF603070	7	18	60	8	•
ZF603080	8	18	60	8	•
ZF604090	9	22	70	10	•
ZF604100	10	22	70	10	•
ZF604110	11	26	75	12	•
ZF604120	12	26	75	12	•
ZF604130	13	32	85	14	•
ZF604140	14	32	85	14	•
ZF604150	15	35	90	16	•
ZF604160	16	35	90	16	•
ZF604180	18	44	100	18	•
ZF604200	20	44	100	20	•
ZF605250	25	50	120	25	•
ZF606320	32	70	150	32	•

■ Tolerance μm = 1/1000mm

Tolerance \ Dia.	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
Cutting Edge(h10)	0 -40	0 -48	0 -58	0 -70	0 -84
Shank(h6)	0 -6	0 -8	0 -9	0 -11	0 -13





### 3~5 FLUTE, ROUGHING END MILL - FINE Pitch DIN6527L / DIN6535-HA, DIN6535-HB

- Designed for machine tool steel, alloy steel, mold steel and other highly hardened materials.
- High velocity milling of hardened steels.
- For dry and wet milling.
- Fast chip ejection.

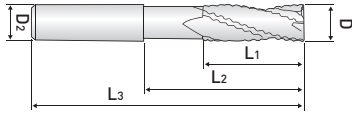
## ZF61 ....series



EDP. No.		Dia.	L <sub>1</sub>	L <sub>2</sub>	D <sub>2</sub>	STOCK
PLAIN SHANK	FLAT SHANK					
ZF613040	ZF613040F	4	10	50	6	•
ZF613050	ZF613050F	5	13	50	6	•
ZF613060	ZF613060F	6	16	57	6	•
ZF613070	ZF613070F	7	16	63	8	•
ZF613080	ZF613080F	8	16	63	8	•
ZF614090	ZF614090F	9	19	72	10	•
ZF614100	ZF614100F	10	22	72	10	•
ZF614120	ZF614120F	12	26	83	12	•
ZF614140	ZF614140F	14	32	83	14	•
ZF614160	ZF614160F	16	35	92	16	•
ZF614180	ZF614180F	18	40	100	18	•
ZF614200	ZF614200F	20	44	104	20	•
ZF615250	ZF615250F	25	50	120	25	•

■ Tolerance

Tolerance	Dia.	μm = 1/1000mm				
		from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
Cutting Edge(h10)	0	0	0	0	0	
	-40	-48	-58	-70	-84	
Shank(h6)	0	0	0	0	0	
	-6	-8	-9	-11	-13	



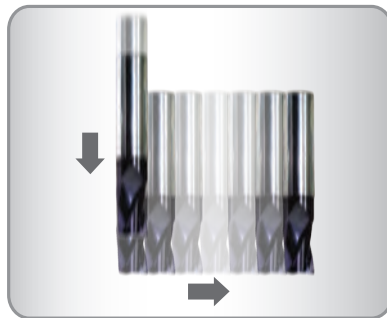
### 3 FLUTE, Z - AXIS ROUGHING END MILL

- Reducing cycle time by 1 pass operating from Z-axis to slotting.
- Preventing the working interruption as Neck type.

## PK503 ...series



EDP. No.	D	L <sub>1</sub>	L <sub>2</sub>	L <sub>3</sub>	D <sub>2</sub>	Z	STOCK
PK503060	6	9	15	57	6	3	•
PK503080	8	12	20	63	8		•
PK503100	10	15	25	72	10		•
PK503120	12	18	30	83	12		•
PK503140	14	21	35	83	14		•
PK503160	16	24	40	92	16		•
PK503200	20	30	50	104	20		•



■ Tolerance μm = 1/1000mm

Tolerance \ Dia.	from 1 to 3	over 3 to 6	over 6 to 10	over 10 to 18	over 18 to 30
Cutting Edge(d11)	-20 -85	-30 -105	-40 -150	-50 -180	-65 -225
Shank(h6)	0 -6	0 -8	0 -9	0 -11	0 -13