

SPHERE & DIAMOND COATED END MILLS





www.europatool.co.uk

DESIGNED FOR
SURPASSING MILLING
OPERATION DRY CUTTING &
HIGH SPEED CUTTING

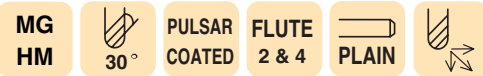
Europa Tool 8TH EDITION

SPHERE & DIAMOND COATED END MILLS CONTENTS

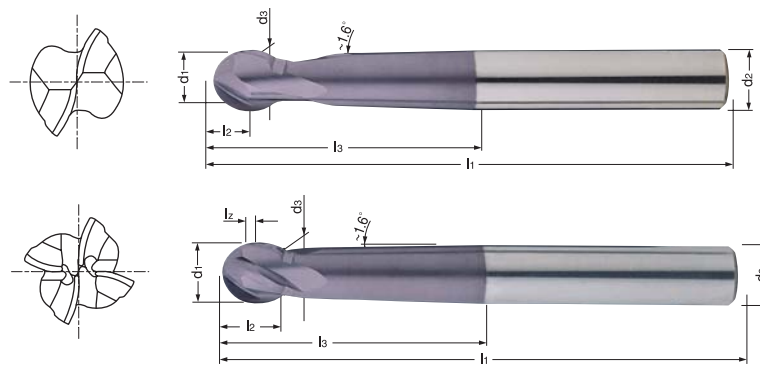
(Carbide for surpassing milling operation & dry cutting condition)

PRODUCTS	SERIES	SHANK TYPE	DESCRIPTION	PAGE
	152320	• STRAIGHT	SPHERE 2 FL PULSAR COATED LONG CARBIDE BALL END MILLS	71
	154320	• STRAIGHT	SPHERE 4 FL PULSAR COATED LONG CARBIDE BALL END MILLS	71
	113325	• STRAIGHT	DIAMOND COATED 2 FL LONG CARBIDE BALL END MILLS	72
	114325	• STRAIGHT	DIAMOND COATED 2 FL LONG REACH CARBIDE BALL END MILLS	72
CUTTING DATA				73

2&4 FLUTE, LONG BALL NOSE CARBIDE "PULSAR" COATED END MILLS



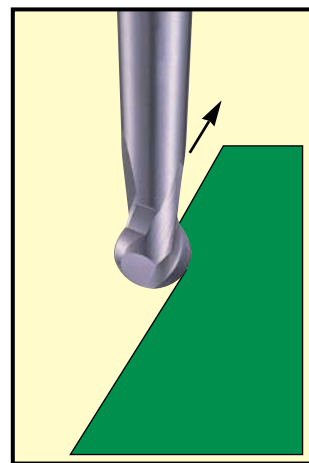
Series No. 152320, 154320



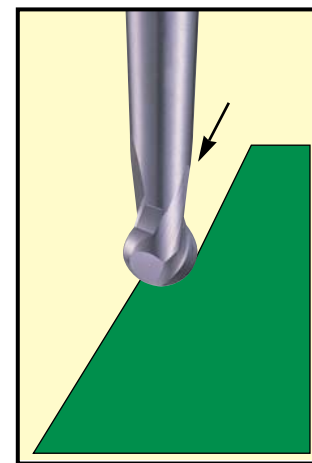
EDP. No 2FLUTE	EDP. No 4FLUTE	d1 h9	r ±0.01	d3	l2	l3	l1	d2 h6	l2
1523200300	-	3.0	1.5	2.5	4.0	30.0	80.0	6.0	1.5
1523200400	-	4.0	2.0	3.3	5.0	30.0			
1523200500	1543200500	5.0	2.5	4.1	6.0	43.0			
1523200600	1543200600	6.0	3.0	4.7	7.0	30.0	100.0	8.0	2
1523200800	1543200800	8.0	4.0	6.5	9.0	36.0			
1523201000	1543201000	10.0	5.0	8.2	11.0	43.0			
1523201200	1543201200	12.0	6.0	9.8	13.0	52.0	12.0	10.0	3
1523201600	1543201600	16.0	8.0	13.4	15.0	61.0			

ADVANCED TECHNIQUE

NORMAL MILLING



Favorable Back Milling
Vorteilhaftes Rückwärtsfräsen

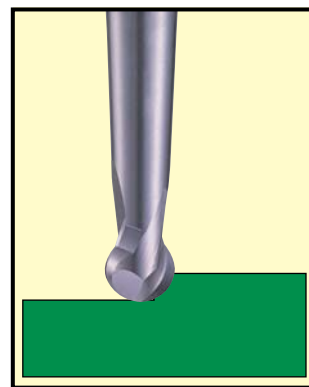


Normal Ball Nose
Unvorteilhaftes Fräsen

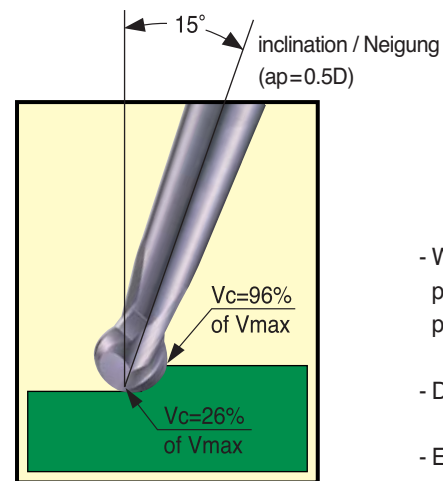
- Operating angle 14° ~ 16°, higher speed and feed are possible by decreased cutting resistance at the cutting edges contacting the workpiece.

- Excellent surface roughness and higher milling process.

- Enable to milling with higher speed and feed when Back Milling.



Normal Ball Nose
Unvorteilhaftes Profilfräsen



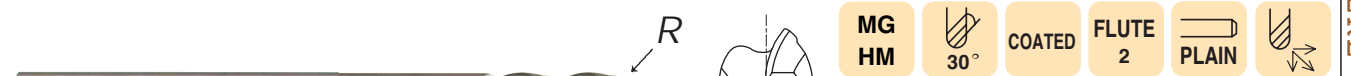
Favorable Profiling
Vovorteilhaftes Profilfräsen

- When 15° inclination milling operation, more productivity and higher speed and feed are possible.

- Decreased cutting force.

- Excellent surface roughness and brightness.

2 FLUTE, DIAMOND COATED LONG CARBIDE END MILLS

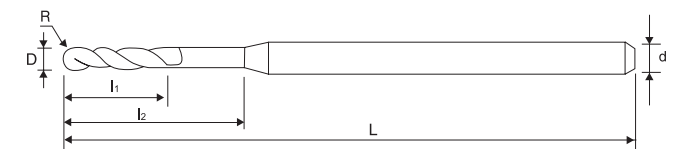


Series No. 113325

EDP. No	Radius ±0.02	MILL DIAMETER D (e8)	SHANK DIAMETER d (h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	OVERALL LENGTH L
1133250200	1.0	2.0	4.0	10.0	20.0	80
1133250300	1.5	3.0		15.0	25.0	
1133250400	2.0	4.0		20.0	30.0	
1133250500	2.5	5.0	6.0	30.0	50.0	100
1133250600	3.0	6.0		30.0	50.0	
1133250800	4.0	8.0	8.0	40.0	60.0	110
1133251000	5.0	10.0	10.0	50.0	70.0	120
1133251200	6.0	12.0	12.0	55.0	75.0	130

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in µm / Tolerance range in µm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73
h6	0 -6	0 -8	0 -9	0 -11	0 -13



2 FLUTE, DIAMOND COATED LONG REACH CARBIDE END MILLS

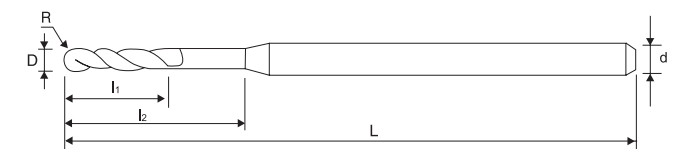


Series No. 114325

EDP. No	Radius ±0.02	MILL DIAMETER D (e8)	SHANK DIAMETER d (h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	OVERALL LENGTH L
1143250200	1.0	2.0	4.0	10.0	20.0	100
1143250300	1.5	3.0		15.0	25.0	
1143250400	2.0	4.0		20.0	30.0	
1143250500	2.5	5.0	6.0	30.0	50.0	120
1143250600	3.0	6.0		30.0	50.0	
1143250800	4.0	8.0	8.0	40.0	60.0	150

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in µm / Tolerance range in µm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
e8	-14 -28	-20 -38	-25 -47	-32 -59	-40 -73
h6	0 -6	0 -8	0 -9	0 -11	0 -13



DIAMOND & SPHERE CUTTING CONDITION

DIAMOND CUTTING CONDITION

113325, 114325 

CUTTING SPEED : 200~400m/min

FEED : 0.05~0.15mm/teeth

SPHERE CARBIDE LONG BALL CUTTING CONDITION

152320 

HIGH SPEED CUTTING

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		NON-ALLOYED STEELS ALLOY STEELS CAST IRON	ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		
	~HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65			~HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65
STRENGTH	~1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ²		~1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
3	35000	2800	33000	2600	12000	900	47000	3700	44000	3500	17000	1400
4	26000	2300	25000	2200	9000	800	35000	3200	33000	3000	13000	1200
5	21000	2100	20000	2000	7000	700	28000	2800	27000	2600	10000	1100
6	17000	1900	16000	1800	6000	650	23000	2600	22000	2400	8000	950
8	13000	1700	12000	1600	4500	550	18000	2300	17000	2100	6000	850
10	10500	1450	10000	1400	3500	500	14000	2000	13000	1900	5000	750
12	9000	1400	8000	1300	3000	450	12000	1800	11000	1800	4000	700
16	6000	1200	5500	1100	2000	400	9000	1600	8000	1500	3300	600

R.P.M = rev./min, Feed = mm/min

SPHERE CARBIDE LONG BALL CUTTING CONDITION

154320 

HIGH SPEED CUTTING

MATERIAL	NON-ALLOYED STEELS ALLOY STEELS CAST IRON		ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		NON-ALLOYED STEELS ALLOY STEELS CAST IRON	ALLOY STEELS HEAT RESISTANT STEELS		STAINLESS STEELS		
	~HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65			~HRc30		HRc30 ~ HRc40		HRc45 ~ HRc65
STRENGTH	~1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ²		~1000N/mm ²		1000 ~ 1250N/mm ²		1500N/mm ²	
DIAMETER	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED	RPM	FEED
5	21000	4000	20000	4000	7000	1400	28000	5600	27000	5300	11000	2100
6	17000	4000	16000	3500	6000	1300	23000	5100	22000	4900	9000	1900
8	13000	3500	12000	3000	4500	1100	18000	4600	17000	4300	7000	1700
10	10500	3000	10000	2500	3500	1000	14000	3900	13000	3700	5000	1400
12	9000	2800	8000	2500	3000	950	12000	3700	11000	3500	4500	1300
16	6000	2800	5500	2200	2000	800	9000	3100	8000	3000	3300	1100

R.P.M = rev./min, Feed = mm/min

