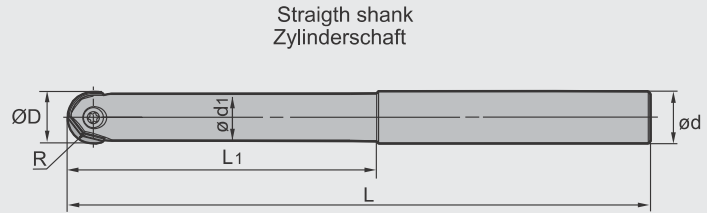




Profile milling tools · Profilfräser

BMR04 **P** **M** **K**



■ Specification of tools · Werkzeug Beschreibung

	Type Typ	Stock Lager	Dimensions (mm) Abmessungen						Weight Gewicht (kg)
			R	Ø D	ø d	ø d ₁	L ₁	L	
BMR04	-012-G12-M	●	6	12	12	11	35	125	0.1
	-012-G12-L	●	6	12	12	11	45	150	0.1
	-016-G16-M	●	8	16	16	14	40	150	0.2
	-016-G16-L	●	8	16	16	14	55	180	0.3
	-020-G20-M	●	10	20	20	18	65	180	0.4
	-020-G20-L	●	10	20	20	18	100	250	0.6
	-025-G25-M	●	12.5	25	25	23	70	200	0.7
	-025-G25-L	●	12.5	25	25	23	100	250	0.9
	-030-G32-M	●	15	30	32	27	80	250	1.2
	-030-G32-L	●	15	30	32	27	110	300	1.5
	-032-G32-M	●	16	32	32	29	80	250	1.4
	-032-G32-L	●	16	32	32	29	110	300	1.7

● Ex Stock / ab Lager ○ On demand / auf Anfrage

Applicable tool
Werkzeug

Tools code key
Werkzeug ISO

Grade selection guide
Sortenauswahl

Technical data
Technische Daten

B

Milling Tools
Fräser

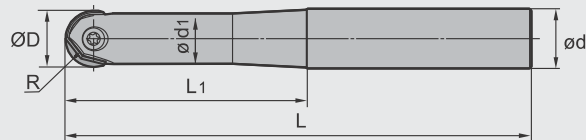
Profile milling tools · Profilfräser



BMR04 **P** **M** **K**



Straight shank
Zylinderschaft



■ Specification of tools · Werkzeug Beschreibung

	Type Typ	Stock Lager	Dimensions (mm) Abmessungen						Weight Gewicht (kg)
			R	Ø D	Ø d	Ø d1	L1	L	
BMR04	-012-G16-M	●	6	12	16	11	50	125	0.2
	-012-G16-L	●	6	12	16	11	70	150	0.2
	-016-G20-M	●	8	16	20	14	60	150	0.3
	-016-G20-L	●	8	16	20	14	80	180	0.3
	-020-G25-M	●	10	20	25	18	75	180	0.6
	-020-G25-L	●	10	20	25	18	95	200	0.6
	-025-G32-M	●	12.5	25	32	23	90	200	1.0
	-025-G32-L	●	12.5	25	32	23	110	250	1.3
	-030-G40-M	●	15	30	40	27	110	250	2.0
	-030-G40-L	●	15	30	40	27	125	300	2.4
	-032-G40-M	●	16	32	40	29	110	250	2.0
	-032-G40-L	●	16	32	40	29	125	300	2.4

● Ex Stock / ab Lager ○ On demand / auf Anfrage

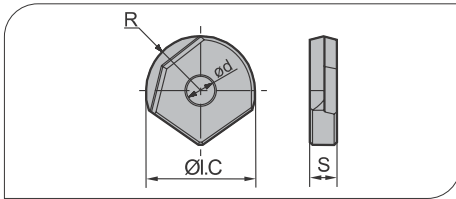
■ Spare parts · Ersatzteile

Diameter Durchmesser Ø D	Screw Schraube	Wrench Schlüssel	
			
Ø12	I90M4×09TT	WT15P	--
Ø16	I90M5×11TT	WT20P	--
Ø20	I90M5×13.5TT	WT20P	--
Ø25	I70M6×20TT	WT20P	--
Ø30	I70M8×25TT	—	WT30IT
Ø32	I70M8×25TT	—	WT30IT





■ Applicable inserts · Wendeschneidplatten

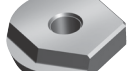


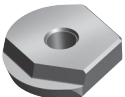
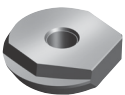
 Ideal Machining Condition
Gute Bearbeitungsbedingungen

 Normal Machining Condition
Normale Bearbeitungsbedingung

 Unfavorable Machining Condition
Ungünstige Bearbeitungsbedingungen

[illegible]

Insert WSP	Type Typ	Dimensions (mm) Abmessungen					CVD Coating CVD Beschicht.						PVD Coating PVD Beschicht.				Cermet Cermet	Carbide uncoat. unbe, Hartmetall							
		R	I.C	S	d	Applicable insert Zugehörige WSP	YBC301	YBC302	YBC401	YBM251	YBM253	YBM351	YBD152	YBD252	YBG102	YBG202	YBG205	YBG302	YBG152	YBG252	YNG151	YNG151C	YC30S	YD101	YD201
	ZOHX1203-GF	6	12	3	4	Φ12													●						
	ZOHX1604-GF	8	16	4	5	Φ16													●						
	ZOHX2005-GF	10	20	5	5	Φ20													●						
	ZOHX2506-GF	12.5	25	6	6	Φ25													○						
	ZOHX3007-GF	15	30	7	8	Φ30													●						
	ZOHX3207-GF	16	32	7	8	Φ32													●						
	ZOHX1203-GM	6	12	3	4	Φ12													●						
	ZOHX1604-GM	8	16	4	5	Φ16													●						
	ZOHX2005-GM	10	20	5	5	Φ20													●						
	ZOHX2506-GM	12.5	25	6	6	Φ25													○						
	ZOHX3007-GM	15	30	7	8	Φ30													●						
	ZOHX3207-GM	16	32	7	8	Φ32													●						



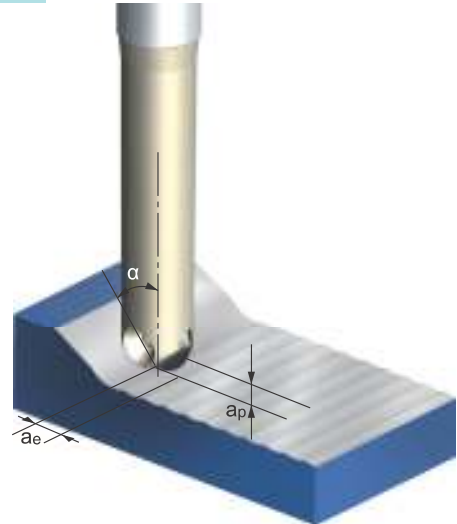
Calculation of cutting data for ball nose endmills (BMR02/04 series) Kalkulation der Schnittdaten für Kugelkopffräser (BMR02/04)

1. when tool axial line is vertical to the machined surface
Axiale Werkzeugachse zur vertikalen Fräsfläche:

$$N = \frac{1000 V_c}{\pi D c} (r/min)$$

$$Dc = 2\sqrt{a_p(D - a_p)}$$

N: revolution/min
Umdrehung/min
Vc: real cutting speed
effektive Schnittgeschwindigkeit
Dc: effective cutting diameter
effektive Ø
D: tool nominal diameter
nominale Ø
ap: axial cutting depth
axiale Schnitttiefe



2. When there is a inclined angle between the tool axial line and the machined surface, the recommended cutting speed should be multiplied by a factor in the follow table to obtain the cutting speed used for programming

Unter Berücksichtigung des Neigungswinkels, (Werkzeugachse / bearbeitenden Oberfläche) erhalten Sie die empfohlene Schnittgeschwindigkeit durch in der Tabelle angegebenen Multiplikator.

Diameter (mm) Durchmesser (mm) Ø		Ø12		Ø16		Ø20		Ø25		Ø30		Ø32	
depth of cut Schnitttiefe ap(mm)		0.2	0.5	0.2	0.5	0.5	1	0.5	1	0.5	1.5	0.5	1.5
Inclined angle Neigungs- winkel α	15°	1.00	1.00	1.00	1.00	1.00	1.02	1.00	1.01	1.00	1.00	1.00	1.00
	30°	1.04	1.01	1.05	1.01	1.02	1.04	1.03	1.04	1.04	1.01	1.04	1.00
	45°	1.16	1.07	1.18	1.10	1.12	1.06	1.14	1.08	1.16	1.06	1.16	1.06
	60°	1.42	1.24	1.47	1.30	1.34	1.21	1.38	1.25	1.42	1.21	1.43	1.22
	75°	2.02	1.60	2.14	1.73	1.83	1.53	1.93	1.62	2.01	1.53	2.04	1.55
	90°	3.92	2.50	4.48	2.87	3.20	2.29	3.57	2.55	3.9	2.29	4.03	2.37

Milling · Fräsen

Indexable Milling Tools · Wendeplattenfräser

Recommended Cutting data · Schnittdaten

Workpiece material Werkstückstoff		Hardness Härte HB	Grade Sorte	Cutting data Schnittdaten	Diameter Durchmesser Ø D					
					Ø12	Ø16	Ø20	Ø25	Ø30	Ø32
P	carbon steel leg. Kohlenstoff- stahl	HB≤180	YBG252	V(m/min)	100~200	100~200	100~200	100~200	100~200	100~200
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
				apmax(mm)	0.8	1	1.25	1.5	2	2
				aemax(mm)	0.8	1	1.25	1.5	2	2
	Alloy steel Leg. Stahl	HB180~280		V(m/min)	80~180	80~180	80~180	80~180	80~180	80~180
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
				apmax(mm)	0.8	1	1.25	1.5	2	2
				aemax(mm)	0.8	1	1.25	1.5	2	2
	Hardened steel gehärteter Stahl	HRC55~65		V(m/min)	60~100	60~100	60~100	60~100	60~100	60~100
				fz(mm/z)	0.15~0.25	0.2~0.3	0.2~0.3	0.25~0.35	0.25~0.35	0.25~0.35
				apmax(mm)	0.4	0.5	0.6	0.8	1	1
				aemax(mm)	0.4	0.5	0.6	0.8	1	1
M	Stainless steel Rostfreier Stahl	HB≤270		V(m/min)	70~150	70~150	70~150	70~150	70~150	70~150
				fz(mm/z)	0.1~0.2	0.1~0.25	0.1~0.25	0.2~0.3	0.2~0.3	0.2~0.3
				apmax(mm)	0.6	0.8	1	1.25	1.5	1.5
				aemax(mm)	0.6	0.8	1	1.25	1.5	1.5
K	Cast iron Gusseisen	HB180-250		V(m/min)	160~300	160~300	160~300	160~300	160~300	160~300
				fz(mm/z)	0.2~0.3	0.25~0.35	0.25~0.35	0.3~0.4	0.3~0.4	0.3~0.4
				apmax(mm)	1	1.5	1.8	2	2.5	2.5
				aemax(mm)	1	1.5	1.8	2	2.5	2.5

● Ex Stock / ab Lager ○ On demand / auf Anfrage