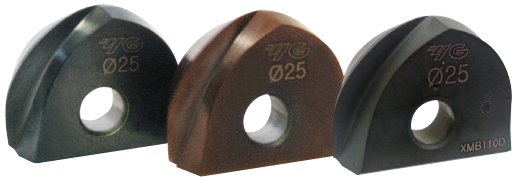
i-Xmill END MILLS

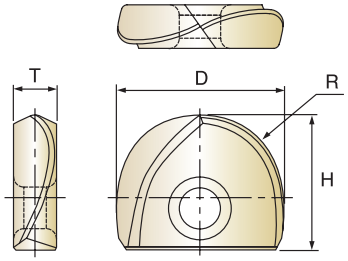
XMB110A
XMB120C
XMB110D

i-Xmill BALL INSERTS
i-Xmill WECHSELPLATTE mit RUNDER STIRN

- ▶ Indexable Ball End Mill for economic use
- ▶ Three Types of Inserts are available
  - For General Purpose (~HRc50)
  - For Hardened Material (HRc40~HRc65)
  - For Graphite
- ▶ Special Geometry and Coating for Excellent Performance

- ▶ Kopierfräser mit Wechselplatte für wirtschaftlichen Einsatz.
- ▶ Drei Typen von Schneideinsätzen lieferbar
  - Für allgemeinen Einsatz (HRc50)
  - Für gehärtete Materialien (HRc40~HRc65)
  - Für graphit
- ▶ Spezielle Geometrie und Beschichtung für höchste Leistu





cutting conditions : p.643

Unit : mm

EDP No.			Radius of Ball Nose	Mill Diameter	Height	Thickness
PVD Coated		Diamond Coated				
For General Material	For Hardened Material	For Graphite	R	D	H	T
XMB110A080	XMB120C080	XMB110D080	R4.0	**8.0**	8	2.4
XMB110A100	XMB120C100	XMB110D100	R5.0	**10.0**	9.5	2.7
XMB110A120	XMB120C120	XMB110D120	R6.0	**12.0**	11	3.2
XMB110A160	XMB120C160	XMB110D160	R8.0	**16.0**	13	4.2
XMB110A200	XMB120C200	XMB110D200	R10.0	**20.0**	16	5.2
XMB110A250	XMB120C250	XMB110D250	R12.5	**25.0**	19.5	6.2
XMB110A300	XMB120C300	XMB110D300	R15.0	**30.0**	23.5	7.2
XMB110A320	XMB120C320	XMB110D320	R16.0	**32.0**	24.5	7.2

• The ball radius tolerance is ±0.01mm and the set-up accuracy is ±0.02mm

◎ : Excellent ○ : Good

	Carbon Steels		Alloy Steels		Tool Steels		Cast Iron	Hardened Steels	Stainless Steels	Aluminum	Graphite
	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc35~	~HRc35	HRc50~	~HRc28	~HRc8	
XMB110A	◎	○	◎	○	◎	○	○		○	○	
XMB120C	○	◎	○	◎	○	◎	◎	◎			
XMB110D	○		○		○					○	◎

i-Xmill END MILLS

RECOMMENDED CUTTING CONDITIONS
EMPFOHLENE SCHNEIDKONDITIONEN

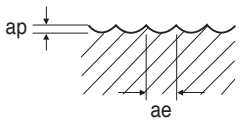
i-Xmill BALL INSERTS
i-Xmill WECHSELPLATTE MIT RUNDER STIRN

XMB110A, XMB120C, XMB110D SERIES

WORK MATERIAL		NON-ALLOYED STEELS ALLOY STEELS CAST IRON				ALLOY STEELS HEAT RESISTANT STEELS			
HARDNESS	HB	~280				280~380			
	HRc	~30				30~40			
STRENGTH	N/mm²	~1000				1000~1250			
i-Xmill TYPE		XMB110A				XMB110A			
CUTTING CONDITION Roughing~Finishing		RPM [rev/min]	Feed(Vf) [mm/min]	Vc [m/min]	fz [mm/t]	RPM [rev/min]	Feed(Vf) [mm/min]	Vc [m/min]	fz [mm/t]
8.0		6370~12730	2550~5090	160~320	0.20~0.20	4770~11140	1910~4460	120~280	0.20~0.20
10.0		5090~11460	2040~4580	160~360	0.20~0.20	3820~9550	1530~3820	120~300	0.20~0.20
12.0, 13.0		4240~10080	1700~4030	160~380	0.20~0.20	3180~9280	1270~3710	120~350	0.20~0.20
16.0, 17.0		3180~9550	1590~5730	160~480	0.25~0.30	2390~7560	1190~4540	120~380	0.25~0.30
20.0, 21.0		2550~9230	1270~7380	160~580	0.25~0.40	1910~6680	950~5350	120~420	0.25~0.40
25.0, 26.0		2040~7640	1020~7640	160~600	0.25~0.50	1530~6110	760~6110	120~480	0.25~0.50
30.0, 32.0		1700~7430	850~8910	160~700	0.25~0.60	1270~5840	640~7000	120~550	0.25~0.60

WORK MATERIAL		DIE TOOL STEELS PRE-HARDENED				HARDENED STEELS			
HARDNESS	HB	380~480				480~740			
	HRc	40~50				50~65			
STRENGTH	N/mm²	1250~1500				1500~			
i-Xmill TYPE		XMB110A, XMB120C				XMB120C			
CUTTING CONDITION Roughing~Finishing		RPM [rev/min]	Feed(Vf) [mm/min]	Vc [m/min]	fz [mm/t]	RPM [rev/min]	Feed(Vf) [mm/min]	Vc [m/min]	fz [mm/t]
8.0		3980~8750	1190~3500	100~220	0.15~0.20	3180~7160	640~2860	80~180	0.10~0.20
10.0		3180~8280	950~3310	100~260	0.15~0.20	2550~6370	510~2550	80~200	0.10~0.20
12.0, 13.0		2650~7430	800~2970	100~280	0.15~0.20	2120~5840	420~2330	80~220	0.10~0.20
16.0, 17.0		1990~6960	800~4180	100~350	0.20~0.30	1590~5170	480~3100	80~260	0.15~0.30
20.0, 21.0		1590~6370	640~5090	100~400	0.20~0.40	1270~5090	380~4070	80~320	0.15~0.40
25.0, 26.0		1270~5730	510~5730	100~450	0.20~0.50	1020~4580	310~4580	80~360	0.15~0.50
30.0, 32.0		1060~5310	420~6370	100~500	0.20~0.60	850~4240	250~5090	80~400	0.15~0.60

WORK MATERIAL		GRAPHITE			
HARDNESS	HB				
	HRc				
STRENGTH	N/mm²				
i-Xmill TYPE		XMB110D			
CUTTING CONDITION Roughing~Finishing		RPM [rev/min]	Feed(Vf) [mm/min]	Vc [m/min]	fz [mm/t]
8.0		11940~15920	4770~6370	300~400	0.20~0.20
10.0		9550~12730	3820~5090	300~400	0.20~0.20
12.0, 13.0		7960~10610	3180~4240	300~400	0.20~0.20
16.0, 17.0		5970~7960	2980~4770	300~400	0.25~0.30
20.0, 21.0		4770~7640	2860~5350	300~480	0.30~0.35
25.0, 26.0		3820~7130	2670~5700	300~560	0.35~0.40
30.0, 32.0		3180~6900	2550~6900	300~650	0.40~0.50



ae : Roughing - 0.1 x D
Finishing - Under Ø12 : 0.25mm
Ø12~Ø17 : 0.30mm
From Ø20 : 0.40mm
ap : Roughing - Under Ø16 : 0.025 x D
From Ø16 : 0.05 x D
Finishing - 0.1mm

▶ Recommend to reduce the feed rate to 70 ~ 85% when you use long tools.

RPM = rev./min.
FEED = mm/min.
Vc = m/min.
fz = mm/t