

Multifunctional milling cutter with center cutting edge

DOM^{ULTI}REC

Tungaloy Report No. 548S1-G

Multifunctional milling cutter with center cutting capability now offering **additional nose radii and modular cutting heads**



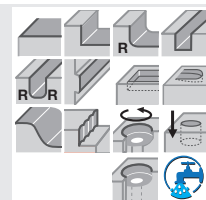
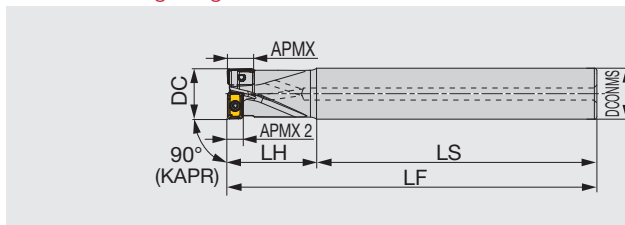


For more information

EVLX08/10/12

Multi-functional square shoulder milling cutter, with screwed-on inserts and center cutting edge

GAMP: Center insert $-2.6^\circ \sim -4.4^\circ$, Peripheral insert $+6.1^\circ \sim +7.1^\circ$
GAMF: Center insert $+0.2^\circ \sim +1.3^\circ$, Peripheral insert $-15.7^\circ \sim -15^\circ$



Designation	APMX	APMX 2	DC	CICT	DCNMS	LS	LH	LF	WT(kg)	Air hole	Insert
EVLX08M016C16.0R02	7	4	16	2	16	100	30	130	0.18	With	LXMU08...
EVLX08M016C16.0R02L	7	4	16	2	16	130	50	180	0.25	With	LXMU08...
EVLX08M017C16.0R02L	7	4	17	2	16	155	25	180	0.26	With	LXMU08...
EVLX10M020C20.0R02	9	4	20	2	20	110	35	145	0.31	With	LXMU10...
EVLX10M020C20.0R02L	9	4	20	2	20	130	60	190	0.41	With	LXMU10...
EVLX10M021C20.0R02L	9	4	21	2	20	160	30	190	0.42	With	LXMU10...
EVLX12M025C25.0R02	11	6	25	2	25	105	45	150	0.51	With	LXMU12...
EVLX12M025C25.0R02L	11	6	25	2	25	150	75	225	0.77	With	LXMU12...
EVLX12M026C25.0R02L	11	6	26	2	25	190	35	225	0.8	With	LXMU12...

SPARE PARTS



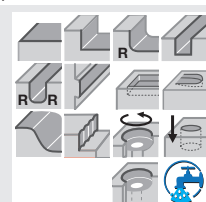
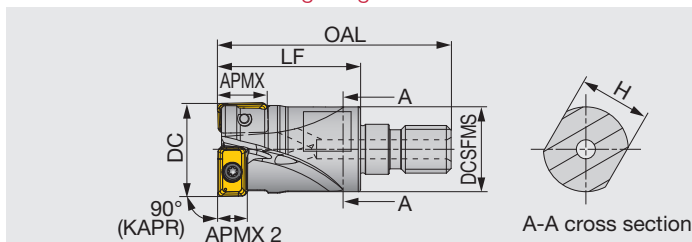
Designation	Clamping screw	Wrench
E/HVLX08...	CSPB-2.2	IP-7D
E/HVLX10...	SR-M2.5x0.45-L6IP7	IP-7D
E/HVLX12...	TS30100I/HG-P	IP-9D

Recommended clamping torque: CSPB-2.2, SR-M2.5x0.45-L6IP7 = 1 N·m, TS30100I/HG-P = 2 N·m

HVLX08/10/12-M

Multi-functional square shoulder modular milling cutter (TungFlex), with screwed-on inserts and center cutting edge

GAMP: Center insert $-2.6^\circ \sim -4.4^\circ$, Peripheral insert $+6.1^\circ \sim +7.1^\circ$
GAMF: Center insert $+0.2^\circ \sim +1.3^\circ$, Peripheral insert $-15.7^\circ \sim -15^\circ$



Designation	APMX	APMX 2	DC	CICT	OAL	LF	H	DCSFMS	CRKS	WT(kg)	Air hole	Insert
HVLX08M016M08R02	7	4	16	2	42	25	10	14.5	M8	0.03	With	LXMU08...
New HVLX08M017M08R02	7	4	17	2	42	25	10	14.5	M8	0.04	With	LXMU08...
HVLX10M020M10R02	9	4	20	2	49	30	15	17.8	M10	0.05	With	LXMU10...
New HVLX10M021M10R02	9	4	21	2	49	30	15	17.8	M10	0.06	With	LXMU10...
HVLX12M025M12R02	11	6	25	2	57	35	17	23	M12	0.1	With	LXMU12...
New HVLX12M026M12R02	11	6	26	2	57	35	17	23	M12	0.1	With	LXMU12...

SPARE PARTS

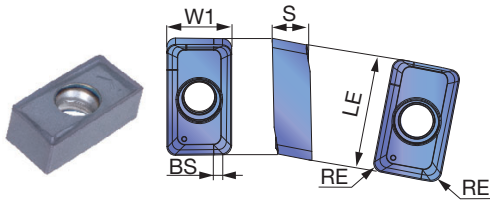


Designation	Clamping screw	Wrench
HVLX08M016M08R02	CSPB-2.2	IP-7D
HVLX10M020M10R02	SR-M2.5x0.45-L6IP7	IP-7D
HVLX12M025M12R02	TS30100I/HG-P	IP-9D

Recommended clamping torque: CSPB-2.2, SR-M2.5x0.45-L6IP7 = 1 N·m, TS30100I/HG-P = 2 N·m

INSERT

LXMU-MM



P	Steel	★	☆		
M	Stainless	★			
K	Cast iron		☆	★	
N	Non-ferrous				
S	Superalloys	☆		★	
H	Hard materials			★	

★ : First choice
☆ : Second choice

Designation	RE	APMX	Coated			LE	W1	S	BS
			AH3225	AH120	AH8015				
LXMU080304PER-MM	0.4	7	●	●	●	7.7	5	2.8	0.8
New LXMU10T304PER-MM	0.4	9	●	●	●	10	6	3.2	1.2
LXMU10T308PER-MM	0.8	9	●	●	●	10	6	3.2	0.8
New LXMU120404PER-MM	0.4	11	●	●	●	12.2	7.1	4.2	1.2
LXMU120408PER-MM	0.8	11	●	●	●	12.2	7.1	4.2	0.8

● : New product
● : Line up

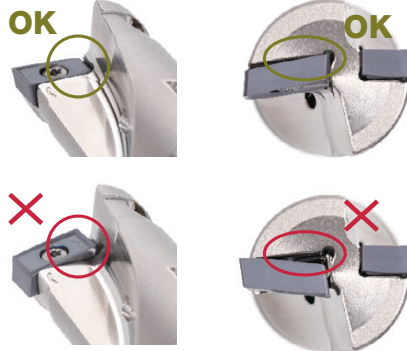
Caution when installing the inserts

Ensure that the insert is not lifted in the seat and there is no gap between the insert and seat.

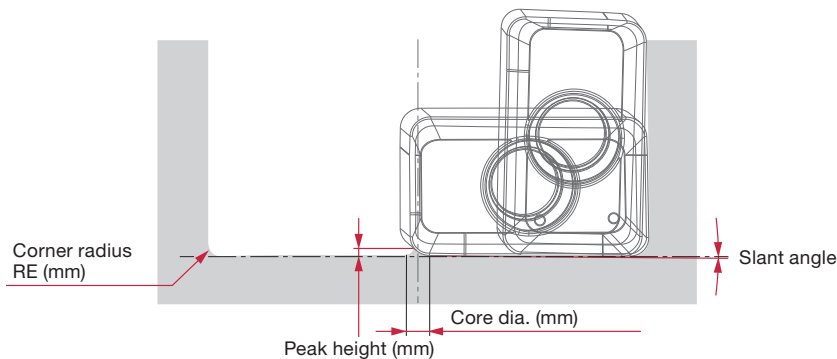
Peripheral edge



Center edge



HOLE BOTTOM PROFILE AFTER DRILLING



DC	D16	D17	D20		D21		D25		D26	
Insert	LXMU08...		LXMU10...				LXMU12...			
RE (mm)	0.4		0.4	0.8	0.4	0.8	0.4	0.8	0.4	0.8
Peak height (mm)	0.43	0.86	0.1	0.24	0.86	0.86	0.45	0.45	0.86	0.86
Core dia. (mm)	0.9	1.9	0.21	1.02	1.22	2.02	0.7	1.37	1.59	2.36
Slant angle	Conical shape with $\approx 0.3^\circ$ slant angle									

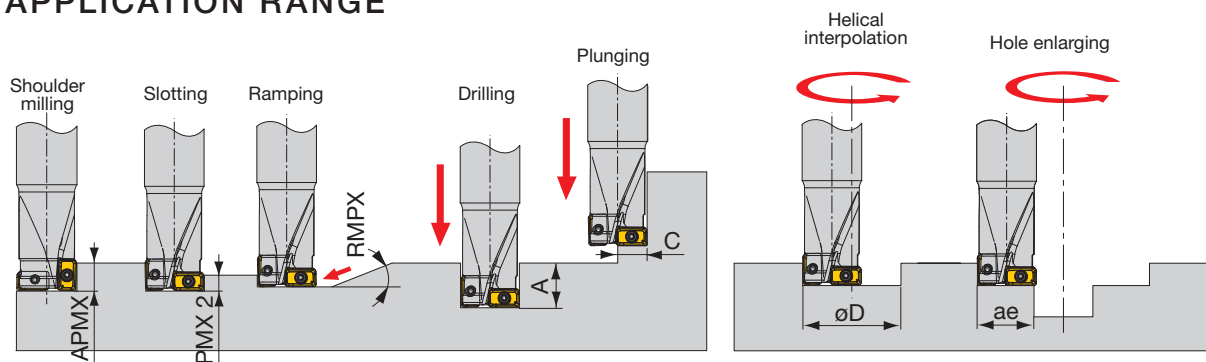
STANDARD CUTTING CONDITIONS

ISO	Workpiece materials	Hardness	Grades	Cutting speed Vc (m/min)	Drilling (ZEFP = 1)*	Shouldering / Helical interpolation*	
					Feed per revolution f (mm/rev)	Feed per tooth fz (mm/t)	
						08	10 / 12
P	Low carbon steel S15C, SS400, etc. C15E4, E275A, etc.	- 200 HB	AH3225	100 - 300	0.03 - 0.08	0.05 - 0.25	0.05 - 0.3
	Carbon steel and alloy steel S55C, SCM440, etc. C55, 42CrMo4, etc.	- 300 HB	AH3225	100 - 250	0.03 - 0.08	0.05 - 0.25	0.05 - 0.3
	Prehardened steel NAK80, PX5, etc.	30 - 40 HRC	AH3225	100 - 200	0.03 - 0.06	0.05 - 0.2	0.05 - 0.25
M	Stainless steel SUS304, SUS316, etc. X5CrNi18-9, X5CrNiMo17-12-3, etc.	-	AH3225	80 - 180	0.03 - 0.08	0.05 - 0.2	0.05 - 0.22
K	Grey cast iron FC250, FC300, etc. 250, 300, etc.	150 - 250 HB	AH8015	100 - 300	0.03 - 0.1	0.05 - 0.25	0.05 - 0.3
	Ductile cast iron FCD400, FCD600, etc. 400-15S, 600-3, etc.	150 - 250 HB	AH8015	100 - 250	0.03 - 0.08	0.05 - 0.2	0.05 - 0.25
S	Titanium alloys Ti-6Al-4V, etc.	-	AH3225	20 - 60	0.03 - 0.06	0.04 - 0.15	0.04 - 0.15
	Superalloys Inconel 718, etc.	-	AH8015	20 - 40	0.03 - 0.06	0.04 - 0.15	0.04 - 0.15
H	Hardened steel	SKD61, etc. X40CrMoV5-1, etc.	40 - 50 HRC	50 - 150	0.03 - 0.05	0.04 - 0.15	0.04 - 0.15
		SKD11, etc. X153CrMoV12, etc.	50 - 60 HRC	40 - 70	0.03 - 0.05	0.04 - 0.15	0.04 - 0.15

*In the following cases, feed as if the cutter has a single effective cutting edge (ZEFP = 1):

- Hole making
- Helical interpolating for holes with a hole diameter (ϕD) $\leq 1.25 \times$ the tool diameter (DC)
- The axial D.O.C. exceeds APMX2 (See below for APMX2)

APPLICATION RANGE



Designation	DC	Max. depth of cut		Max. drilling depth*	Max. cutting width in plunging	Max. ramping angle	Hole diameters (w/ flat bottom) machinable		Hole diameters machinable		Max. cutting width engagement
		APMX	APMX 2	A	C	RMPX	ϕD_{min}	ϕD_{max}	ϕD_{min}	ϕD_{max}	ae
E/HVLX08M016...	16	7	4	12	8	90°	17	30.75	16	31.75	14
E/HVLX08M017...	17	7	4	12	8.5	90°	19	32.75	17	33.75	15
E/HVLX10M020...	20	9	4	15	10	90°	22	37.95	20	39.15	18
E/HVLX10M021...	21	9	4	15	10.5	90°	23.35	39.95	21	40.95	19
E/HVLX12M025...	25	11	6	18.5	12.5	90°	26.65	47.85	25	48.95	23
E/HVLX12M026...	26	11	6	18.5	13	90°	28.65	49.85	26	50.95	24

*Use pecking or dwelling method when drilling holes deeper than 5 mm.



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