

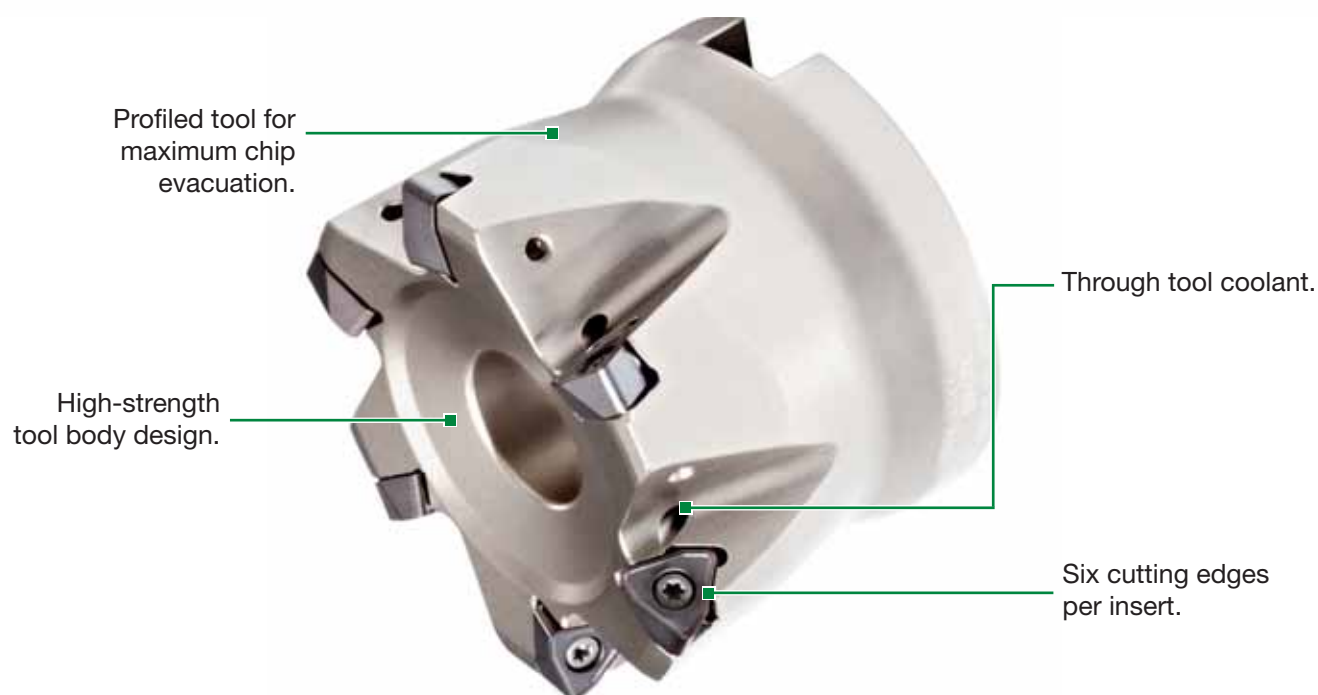
High-Feed Applications • M370™ Series

Designed for high feed rate productivity, M370 Series provides the latest insert technology with outstanding performance and reliability. Its double-sided concept and six cutting edges provide security and optimal metal removal with an efficient cost per edge.

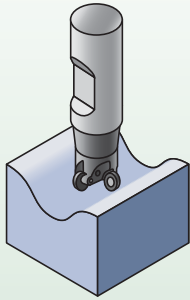


M370™

- Double-sided design offers six cutting edges per insert.
- Extremely high metal removal rates.
- First choice for high-feed roughing applications.



Copy Mills

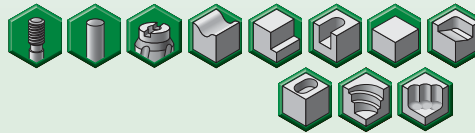
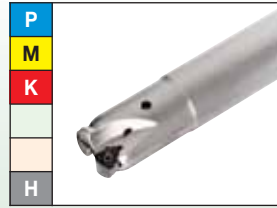


M370™

Max depth of cut:
1,25mm

Diameter: 25mm–80mm

Pages: B44–B49



Insert Geometry		Recommended Use
	MH	First choice for high-feed roughing in steel and cast iron materials.
	MM	First choice for soft steel and stainless steel. Lower cutting forces.

M370 Application Example:

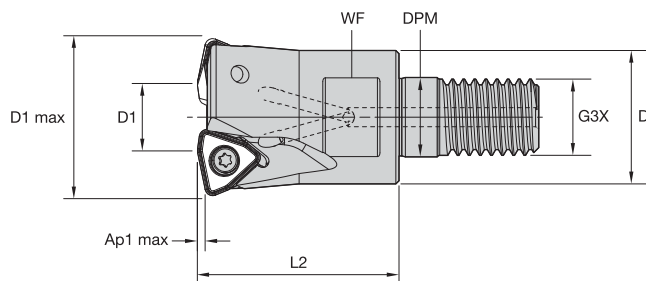
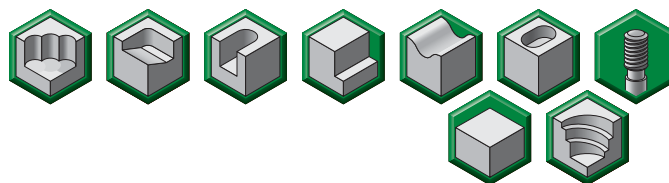
M370 MH geometry versus conventional High-Feed cutter

- Application: pocketing and face milling
- Material: 1.2311
- Component: injection mould
- Holder: 80mm
- Workpiece dimensions:
400mm x 300mm x 400mm



Tool:	Diameter 32; M370D032Z04M16WO08
Insert:	W0EJ080412SRMH TN6525
vc:	200 m/min
fz:	1,5mm per tooth
Ap:	0,5mm
ae:	80–100%
vf:	12.000 mm/min
Coolant:	MQL
Comment:	25% higher tool life versus 3-edged, single-sided competitor, plus M370 offers 2x the number of edges with our unique double-sided design.

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



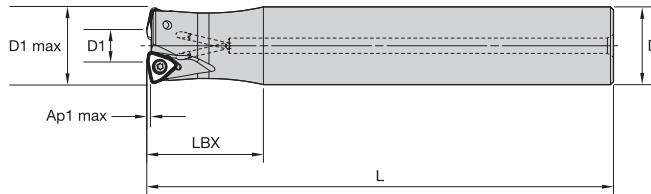
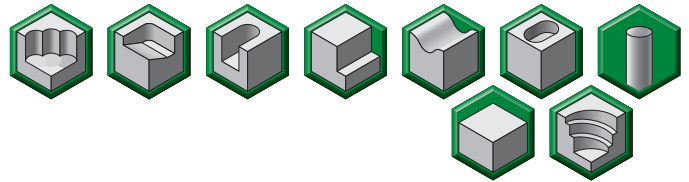
■ M370

order number	catalogue number	D1 max	D1	D	DPM	G3X	L2	WF	Ap1 max	Z	max RPM	coolant supply	kg
4056186	M370D025Z02M12W008	25	11	21	12,5	M12	35	17	1,25	2	46000	Yes	0,09
4170918	M370D025Z03M12W008	25	11	21	12,5	M12	35	17	1,25	3	46000	Yes	0,09
4056187	M370D032Z04M16W008	32	18	29	17,0	M16	43	24	1,25	4	38700	Yes	0,21
4056188	M370D042Z05M16W008	42	28	29	17,0	M16	43	24	1,25	5	32500	Yes	0,57

■ Spare Parts

D1 max	insert screw	Nm	wrench
25	MS1966	1,8	170.028
32	MS1966	1,8	170.028
42	MS1966	1,8	170.028

- Double-sided, six cutting edges.
- Highest metal removal rates.
- First choice for roughing applications.



M370

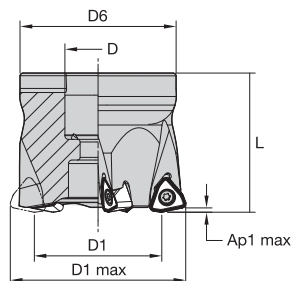
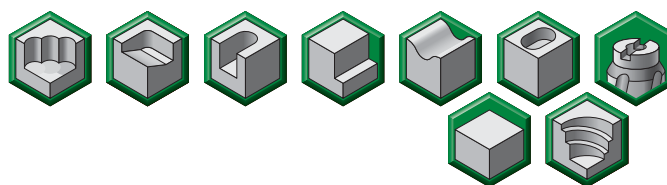
order number	catalogue number	D1 max	D1	D	L	LBX	Ap1 max	Z	max RPM	coolant supply	kg
4008281	M370D025Z02A25W008L200	25	11	25	200	50	1,25	2	46000	Yes	0,68
4170920	M370D025Z02A25W008L300	25	11	25	300	40	1,25	2	46000	Yes	1,08
4056189	M370D025Z03A25W008L150	25	11	25	150	40	1,25	3	46000	Yes	0,50
4170919	M370D025Z03A25W008L200	25	11	25	200	40	1,25	3	46000	Yes	0,69
4056190	M370D028Z03A25W008L200	28	14	25	200	40	1,25	3	42400	Yes	0,70
4170921	M370D032Z03A32W008L300	32	18	32	300	40	1,25	3	38700	Yes	0,84
4056191	M370D032Z04A32W008L150	32	18	32	150	40	1,25	4	38700	Yes	0,84
4056192	M370D032Z04A32W008L200	32	18	32	200	50	1,25	4	38700	Yes	1,14

Spare Parts



D1 max	insert screw	Nm	wrench
25	MS1966	1,8	170.028
28	MS1966	1,8	170.028
32	MS1966	1,8	170.028

- Double-sided, six cutting edges.
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- First choice for roughing applications.



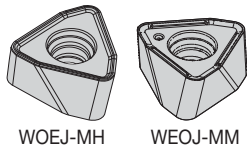
■ M370

order number	catalogue number	D1 max	D1	D	D6	L	Ap1 max	Z	max RPM	coolant supply	kg
4056193	M370D040Z04W008	40	26	16	37	40	1,25	4	33500	Yes	0,19
4170922	M370D040Z05W008	40	26	16	37	40	1,25	5	33500	Yes	0,19
4008276	M370D050Z05W008	50	36	22	44	40	1,25	5	29200	Yes	0,29
4171223	M370D050Z06W008	50	36	22	44	40	1,25	6	29200	Yes	0,29
4056194	M370D052Z05W008	52	38	22	44	50	1,25	5	28600	Yes	0,41
4171224	M370D052Z06W008	52	38	22	44	50	1,25	6	28600	Yes	0,40
4056195	M370D063Z06W008	63	49	22	60	50	1,25	6	25500	Yes	0,74
4008277	M370D066Z06W008	66	52	27	60	50	1,25	6	24900	Yes	0,77
4171225	M370D080Z07W008	80	66	27	60	50	1,25	7	24900	Yes	2,36

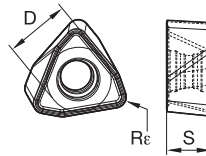
■ Spare Parts



D1 max	insert screw	Nm	wrench	socket-head cap screw	socket-head cap screw with coolant groove
40	MS1966	1,8	170.028	125.825	MS1294CG
50	MS1966	1,8	170.028	12146120500	12146101000
52	MS1966	1,8	170.028	12146120500	12146101000
63	MS1966	1,8	170.028	12146120500	12146101000
66	MS1966	1,8	170.028	MS2038	MS2038CG
80	MS1966	1,8	170.028	MS2038	MS2038CG



WOEJ-MH WOEJ-MM



- first choice
- alternate choice

P	●	○	○	○	○
M	●	○	○	○	○
K	●	○	○	○	○
N	●	○	○	○	○
S	●	○	○	○	○
H	●	○	○	○	○

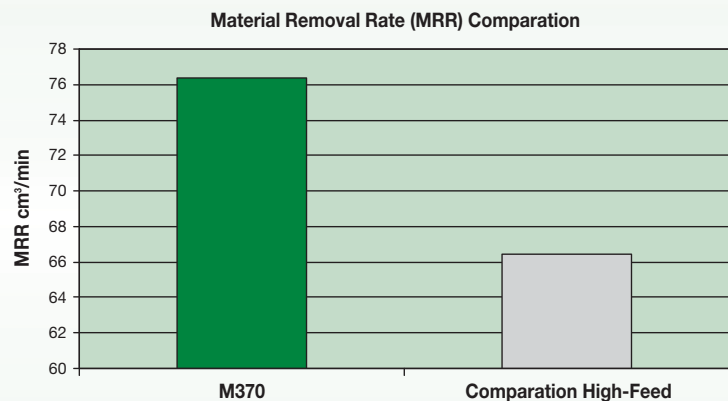
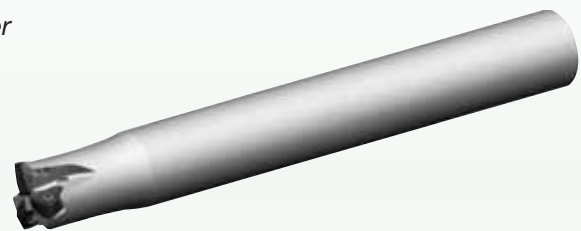
■ WOEJ-MH and -MM

catalogue number	cutting edges	D	S	Re	TN5515	TN6520	TN6525	TN6540
WOEJ080412SRMH	6	7,79	4,75	1,22	●	●	●	●
WOEJ080412SRMM	6	7,79	4,70	1,22	●	●	●	●

M370 Application Example:

M370 MM geometry versus conventional High-Feed cutter

- Application: pocketing — roughing
- Material: P5 high-alloy steel, 300HB
- Component: forging die
- Machine: BT40 vertical milling centre



M370 improves tool life and productivity in comparison to conventional single-sided High-Feed platforms.

Tool:	M370D025Z03A25WO08L150
Insert:	WOEJ080412SRMM TN6540
vc:	160 m/min
fz:	0,9mm
Ap:	0,5mm
ae:	Variable
vf:	6.150 mm/min
Coolant:	Dry
Comment:	Considering the weakness from the machine, M370 achieves 32% longer tool life operating with higher cutting condition, improving productivity by 20%.

		TN5515			TN6520			TN6525			TN6540		
Edge Geometry		feed per tooth fz (mm)											
..-MM ..-MH		0,35 0,35	0,8 1,1	1,5 1,8	0,35 0,35	0,8 1,0	1,5 1,6	0,35 0,35	0,8 1,0	1,5 1,6	0,35 0,35	0,9 1,1	1,6 1,8
Material Group		vc (m/min)											
P	1				—	—	—	350	270	230	290	220	190
	2				—	—	—	240	180	160	200	150	130
	3				—	—	—	200	150	130	170	130	110
	4				—	—	—	210	160	130	170	130	110
	5				—	—	—	170	130	110	140	100	90
	6				230	170	140	230	170	140	190	140	120
	7				170	130	120	170	130	120	140	110	100
	8				150	120	100	150	120	100	130	100	80
	9				130	100	80	130	100	80	110	80	60
	10				170	140	130	170	140	130	140	120	100
	11				120	90	70	120	90	70	100	70	60
	12				—	—	—	220	170	140	180	140	120
	13.1				—	—	—	190	140	120	160	120	100
13.2				—	—	—	100	70	60	80	60	50	
M	14.1							190	120	90	160	100	70
	14.2							150	90	70	130	80	60
	14.3							120	70	50	100	60	40
	14.4							100	60	40	80	50	40
K	15	530	390	280	380	280	200	—	—	—	—	—	—
	16	410	310	230	300	220	170	—	—	—	—	—	—
	17	460	310	230	340	220	170	240	180	160	200	150	130
	18	300	220	170	220	160	120	200	150	130	170	130	110
	19	370	290	220	270	210	160	—	—	—	—	—	—
	20	310	230	180	220	170	130	—	—	—	—	—	—
N	21												
	22												
	23												
	24												
	25												
	26												
	27												
	28												
	29												
	30												
S	31												
	32												
	33												
	34												
	35												
	36												
	37												
H	38.1							120	90	70			
	38.2							—	—	—			
	39.1							—	—	—			
	39.2							—	—	—			

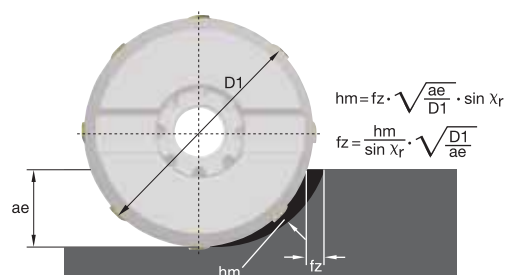
First choice starting feed (fz) is in **bold** type.

Use corresponding speed (vc).

fz and vc are valid for ae ≥ 0,4 D1.

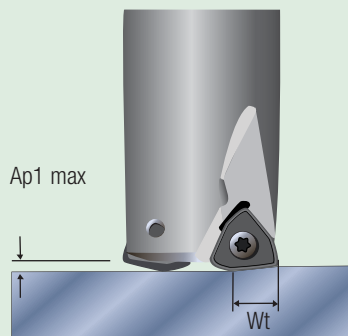
For smaller ae, fz and vc should be multiplied by the factor given below:

ae/D1 =	0,2	0,3	0,4
fz-Factor	1,5	1,3	1,0
vc-Factor	1,3	1,2	1,1

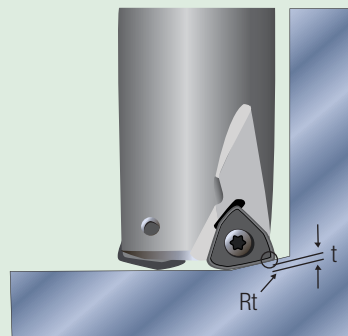


Applying High-Feed Tools

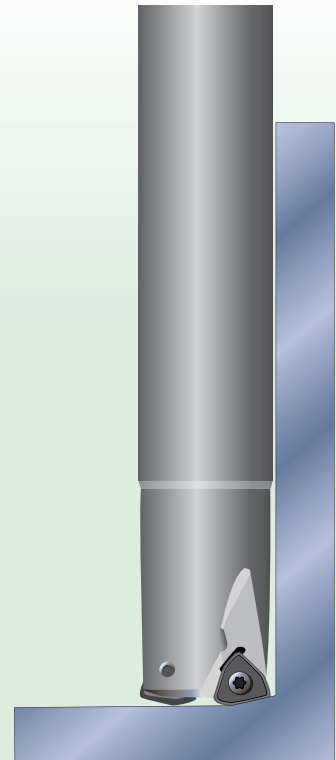
The High-Feed concept bases its strategy on small depth of cut and higher fz values, which result in a higher MRR and productivity with low radial forces.



Small Ap1 values and higher feed rates generate lower cutting forces versus traditional milling strategies.



For CAM programming, the tools can be programmed as a toroidal tool type by using the Rt value as the insert radius.



Recommended when long overhang is necessary due to lower radial forces. Maximum L/D ratio of 10 x D.

General Programming Information for Applying M370

L/D ratio	starting Ap1	starting fz range
<3	0,9mm	1mm–1,3mm
>3–<5	0,6mm	1mm–1,3mm
>5–<7	0,4mm	0,6mm–1mm

Rt	t	Wt
2,5mm	1mm	7,5mm

Maximum Linear Ramping and Helical Interpolation from Solid

cutter diameter	max linear ramp angle (straight line)	min hole diameter	max hole diameter	Ap1 max per revolution
25	3,1°	30,2	49,5	1,25
28	2,6°	36,1	55,5	1,25
32	2,9°	44,1	63,5	1,25
40	1,6°	60,0	79,5	1,25
42	1,5°	64,0	83,5	1,25
50	1,3°	80,0	99,5	1,25
52	1,2°	84,0	103,5	1,25
63	1,0°	106,0	125,5	1,25
66	1,0°	112,0	131,5	1,25
80	0,8°	140,0	155,5	1,25

