

# Radial solution for radical milling



NEW

## RAD-INTEG

### Conical & Tangential Endmills

PHP  
NEW  
GRADE

PHH  
NEW  
GRADE

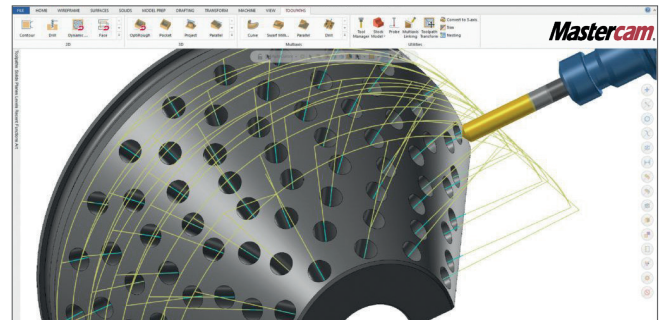


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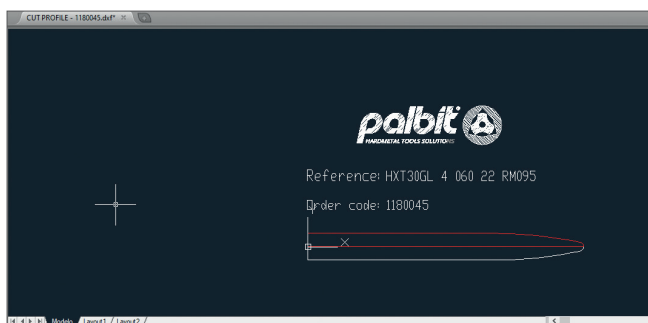
RAD-INTEG is Palbit's response to an ever evolving world of machining technology. Only with advanced CAM software and 5 axis machining centers will this tool takes its user to the productivity climax.

## Advanced CAM Software (e.g. Mastercam®)

A CAM software with 5 axis strategies and free-form surface machining capabilities will allow the user to easily make the most of RAD-INTEG.



Mastercam®, Accelerated Finishing™, and Dynamic Motion™ are trademarks of CNC Software, Inc. All other trademarks are the property of their respective owners. © 2019 All rights reserved.

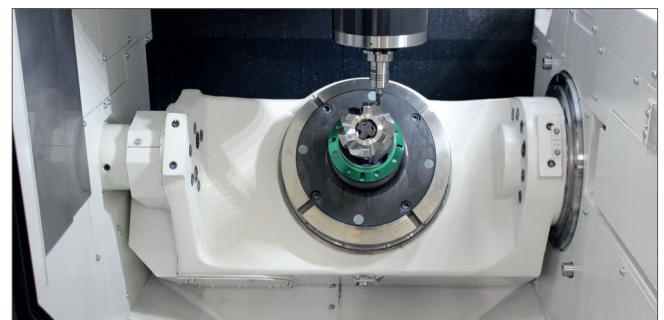


## Cut Profile .DXF/.STEP file

Downloadable from our website. The cut profile file can be uploaded to most CAM software to ensure the most accurate machining.

## 5 axis Machining Center

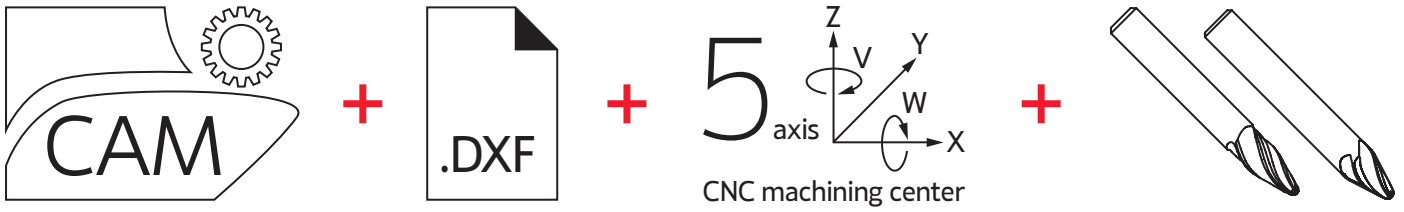
In a 5 continuous axis machining center, this tool is given the freedom to efficiently machine at its maximum potential.



## RAD-INTEG

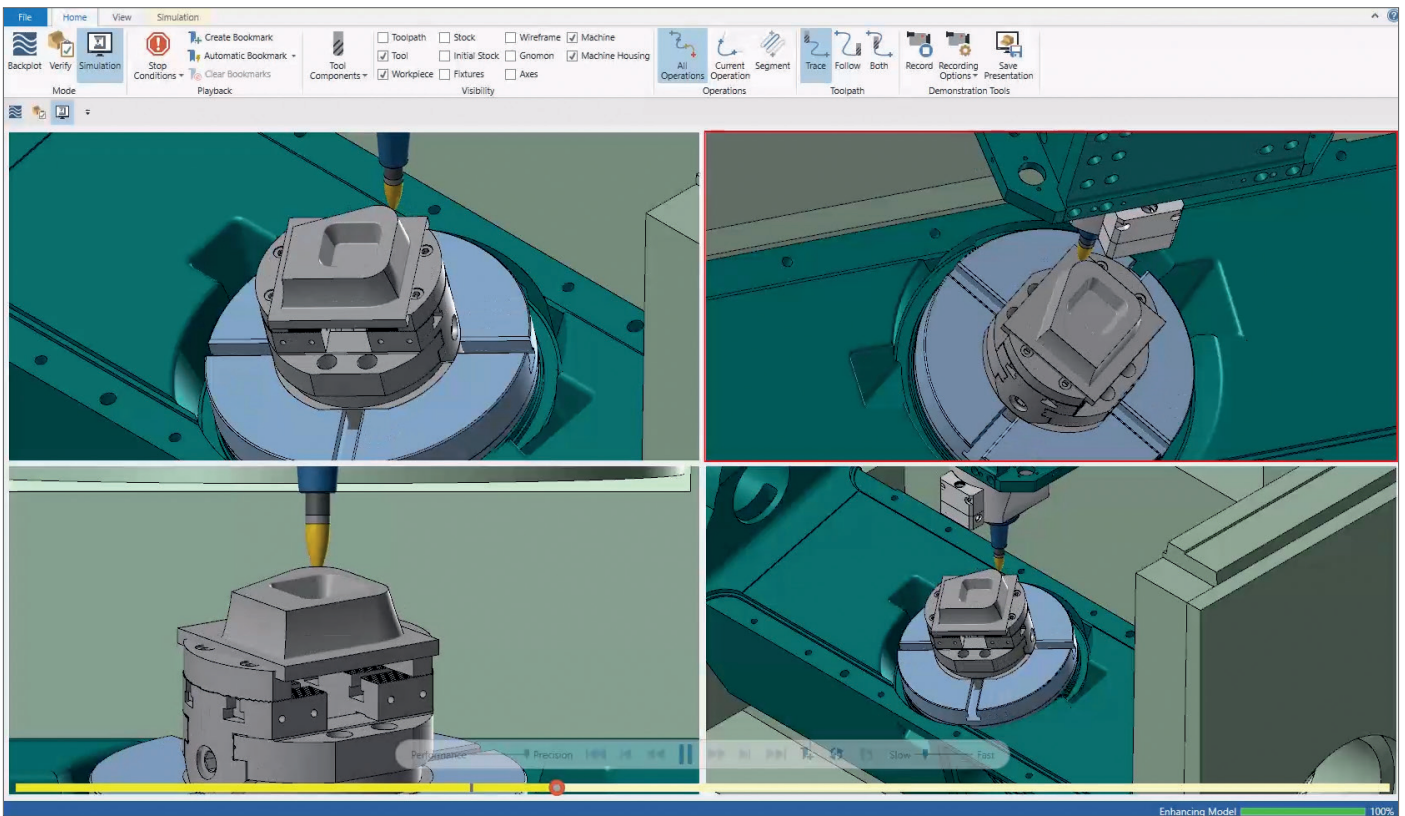
Conical / tangential segment endmills designed to use the most recent machining technology and put it to good use.



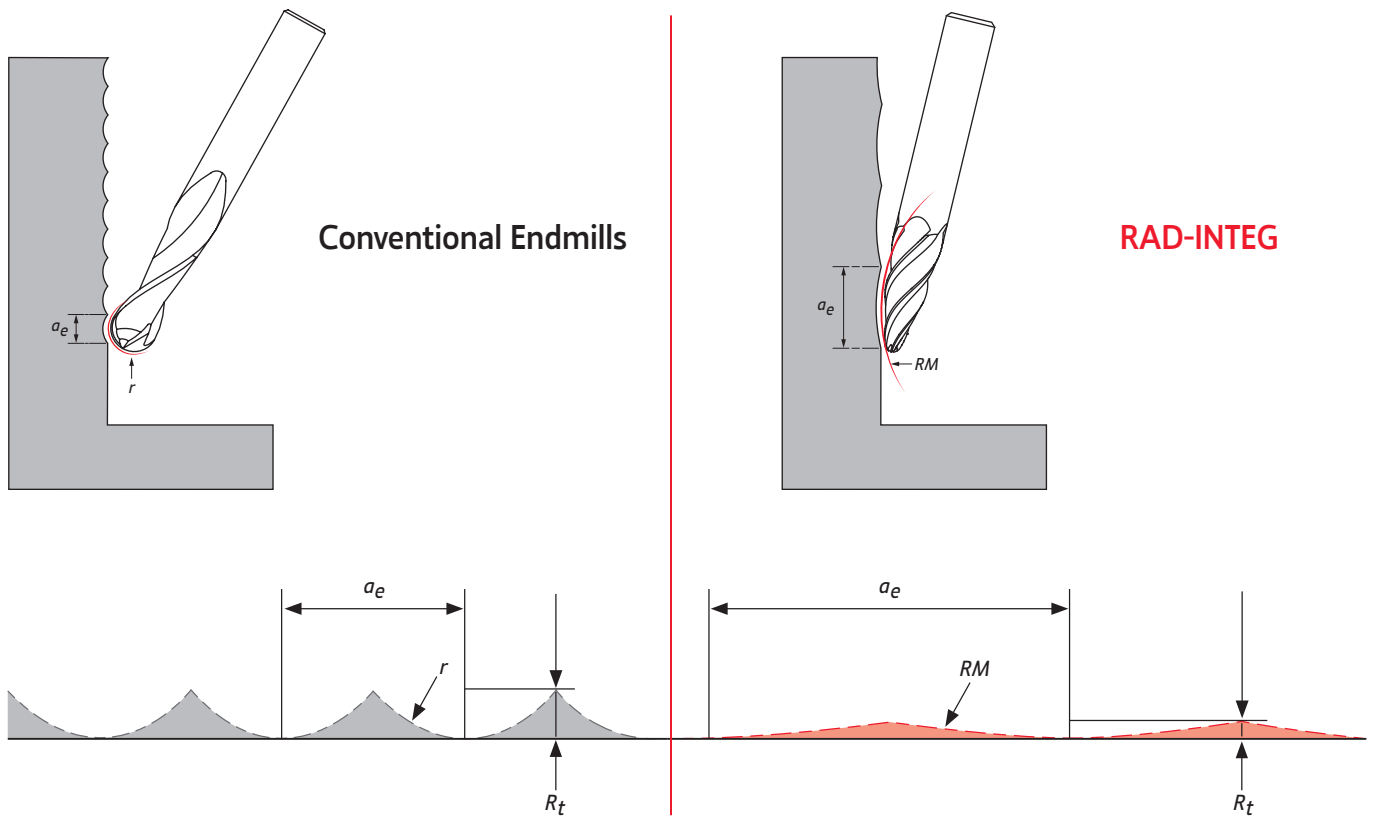


With all these tools combined we can achieve

**NEW MILLING POSSIBILITIES AND BOOSTED PRODUCTIVITY**



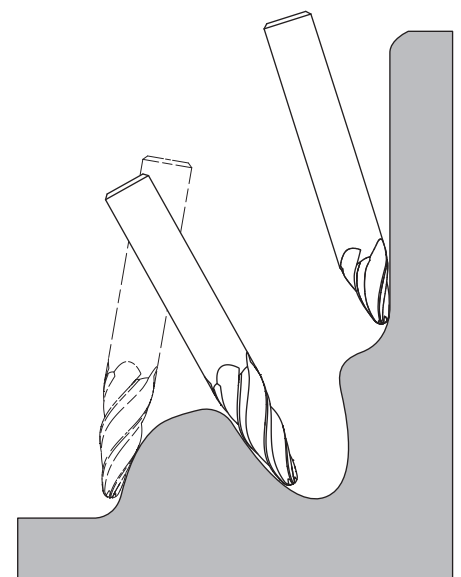
RAD-INTEG is a radial solution for radical milling. With its unique shape it opens a whole new range of machining possibilities. Its curved form allows an exceptional finishing even with higher stepover.



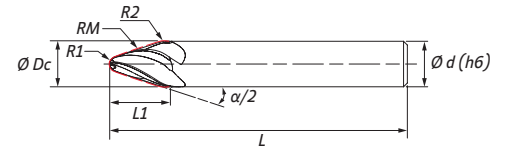
Higher productivity and better finishing even at higher stepover

## New milling possibilities

- + Hard to reach and free-form surface machining;
- + Large side cutting radius;
- + Machining time greatly reduced;
- + Better surface quality;
- + Ballnose alternative for profiling in mold-making and turbine blades production.



## HXC30GL Conical



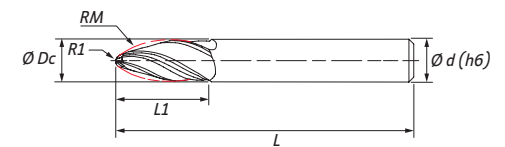
All order codes are cylindrical shank.  
Weldon shank available under request.

(1) Geometry code	(2) Grade code Reference Referência Referencia	⊕	T1		Y3		Dimensions   Dimensões   Dimensiones (mm)					
			PHP920	PHH920	ØDc	Ød (h6)	α/2	RM	R1	R2	L1	L
1180046	HXC30GL 4 080 10 18RM030	4	⊕	⊕	8	8	18	300	1	1	10	75
1180047	HXC30GL 4 120 14 18RM045	4	⊕	⊕	12	12	18	450	2	2	14	83
1180048	HXC30GL 4 160 18 18RM120	4	⊕	⊕	16	16	18	1200	3	3	18	95
1180049	HXC30GL 4 160 12 28RM080	4	⊕	⊕	16	16	28	800	3	3	12	95
1180050	HXC30GL 4 160 16 18RM120	4	⊕	⊕	16	16	18	1200	4	4	16	110
1180051	HXC30GL 4 160 11 28RM080	4	⊕	⊕	16	16	28	800	4	4	11	110

⊕ Stock item | Produto de stock | Itens de stock    ○ Available under request | Disponível sobre consulta | Disponible bajo consulta

Endmill order code = (1) Geometry Code + (2) Grade Code

## HXT30GL Tangential



All order codes are cylindrical shank.  
Weldon shank available under request.

(1) Geometry code	(2) Grade code Reference Referência Referencia	⊕	T1		Y3		Dimensions   Dimensões   Dimensiones (mm)				
			PHP920	PHH920	ØDc	Ød (h6)	RM	R1	L1	L	
1180045	HXT30GL 4 060 22 RM095	4	⊕	⊕	6	6	95	1	22	63	
1180037	HXT30GL 4 080 24 RM095	4	⊕	⊕	8	8	95	1	24	70	
1180038	HXT30GL 4 100 28 RM085	4	⊕	⊕	10	10	85	2	28	72	
1180039	HXT30GL 4 120 28 RM090	4	⊕	⊕	12	12	90	2	28	83	
1180691	HXT30GL 4 160 30 RM080	4	⊕	⊕	16	16	80	3	30	110	

⊕ Stock item | Produto de stock | Itens de stock

Endmill order code = (1) Geometry Code + (2) Grade Code

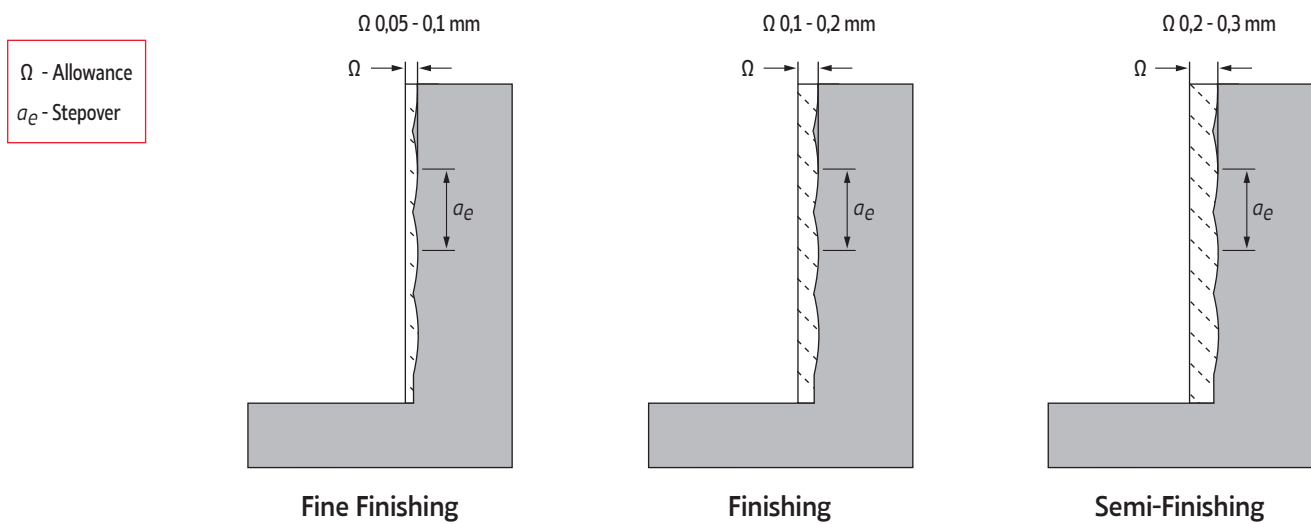
○ Available under request | Disponível sobre consulta  
Disponible bajo consulta



## GRADES SELECTION GUIDE | Guia para seleção de graus | Tabla para selección de calidades

ISO	Material	Grades	
		PHP920	PHH920
P	Unalloyed Steel	☉	
	Low-Alloyed Steel	☉	
	High-Alloyed Steel	☉	
M	Stainless Steel (Ferritic / Martensitic)		☉
	Stainless Steel (Austenitic)		☉
	Stainless Steel (Austenitic/Ferritic/Duplex)		☉
K	Malleable Cast Iron	☉	
	Grey Cast Iron	☉	
	Nodular Cast Iron	☉	
S	Heat Resistant Super Alloys		☉

## RECOMMENDED CUTTING CONDITIONS | Condições de corte recomendadas | Condiciones de corte recomendables



ISO	Workpiece Material	Vc (m/min)	fz (mm/t)				
			HXC30GL - Conical		HXT30GL - Tangential		
			$\Omega$ 0,05 - 0,1 mm	$\Omega$ 0,1 - 0,2 mm	$\Omega$ 0,05 - 0,1 mm	$\Omega$ 0,1 - 0,2 mm	$\Omega$ 0,2 - 0,3 mm
P	Unalloyed Steel	180	$0,007 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,007 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$
	Low-Alloyed Steel	160	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$	$0,004 \times \text{ØDc}$
	High-Alloyed Steel	150	$0,005 \times \text{ØDc}$	$0,004 \times \text{ØDc}$	$0,005 \times \text{ØDc}$	$0,004 \times \text{ØDc}$	$0,004 \times \text{ØDc}$
M	Stainless Steel (Ferritic / Martensitic)	120	$0,005 \times \text{ØDc}$	$0,004 \times \text{ØDc}$	$0,005 \times \text{ØDc}$	$0,004 \times \text{ØDc}$	$0,004 \times \text{ØDc}$
	Stainless Steel (Austenitic)	120	$0,004 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,004 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$
	Stainless Steel (Austenitic/Ferritic/Duplex)	110	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,002 \times \text{ØDc}$
K	Malleable Cast Iron	220	$0,007 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,007 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$
	Grey Cast Iron	210	$0,007 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,007 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$
	Nodular Cast Iron	190	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$	$0,006 \times \text{ØDc}$	$0,005 \times \text{ØDc}$	$0,005 \times \text{ØDc}$
S	Heat Resistant Super Alloys	60	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,003 \times \text{ØDc}$	$0,002 \times \text{ØDc}$

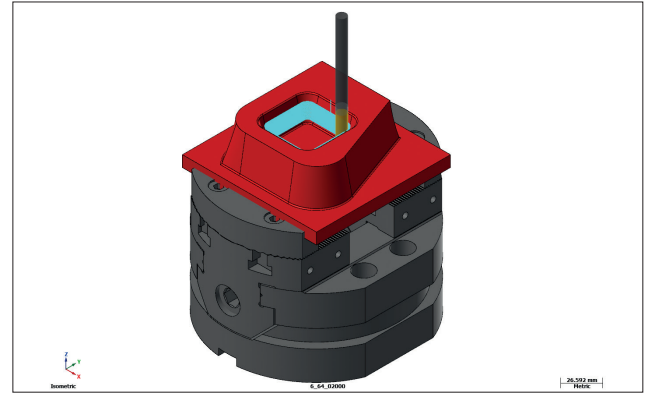
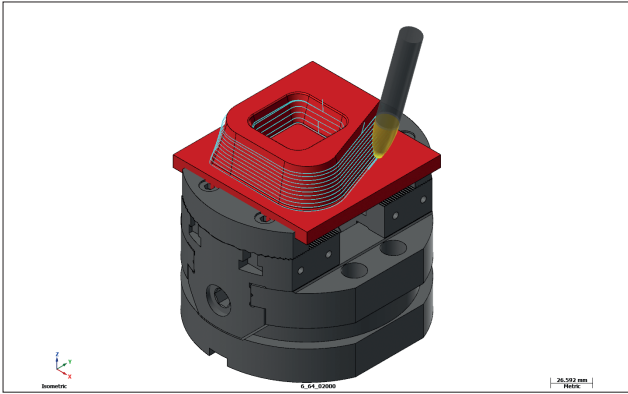


TEST REPORT || Relatório de teste | Informe de prueba

**Ø12 RAD-INTEG** | HXC30GL 4 120 14 18RM045  
**Ø16 RAD-INTEG** | HXT30GL 4 160 30 RM080

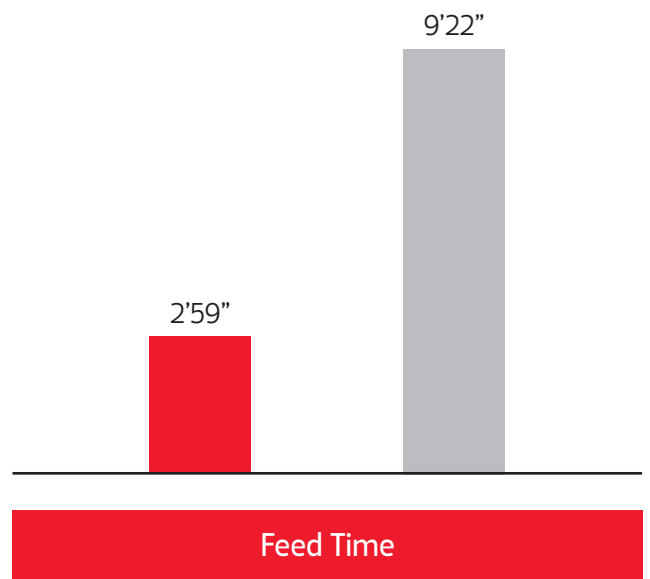
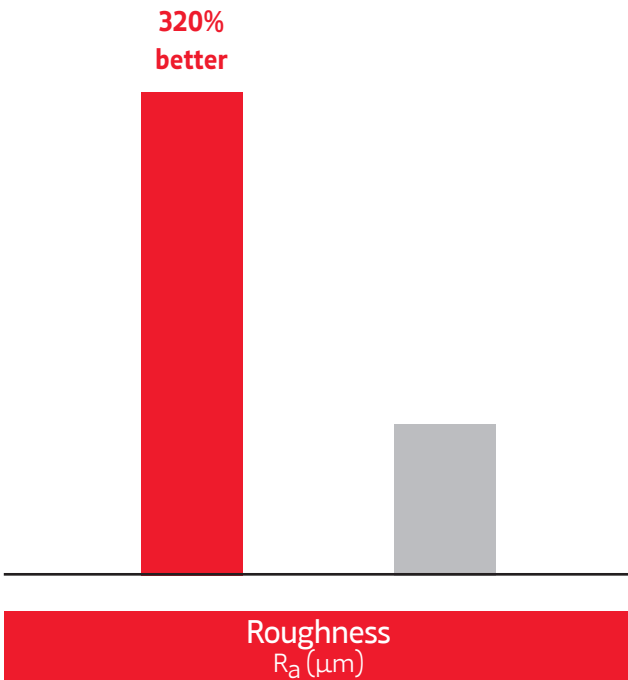
VS

Conventional Ball Endmill Ø12



Cutting Speed ( $V_c$ )	200 m/min
Feed per tooth ( $f_z$ )	0,07   0,11 mm/t
Stepover ( $a_e$ )	4,0   3,0 mm
Feed time ( $t_f$ )	2'59"
Expected Roughness ( $R_a$ )	1,1   3,6 $\mu$ m

Cutting Speed ( $V_c$ )	200 m/min
Feed per tooth ( $f_z$ )	0,08 mm/t
Stepover ( $a_e$ )	1,2 mm
Feed time ( $t_f$ )	9'22"
Expected Roughness ( $R_a$ )	7,7 $\mu$ m



- RAD-INTEG
- Conventional Ball Endmill Ø12mm



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