

# ALUPRO 76090

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

MILLING

Overview

Face milling

Hifeed milling

Shoulder milling

Profile milling

Hardmill

Center & Chamfer

Spotface

End Mills

Spare parts

Technical Data

### SHOULDERING

ISO	PSM	Material	HB (Brinell)	Vc (m/min)	Width of Cut ae (mm)	Depth of Cut ap (mm)	Feed fz(mm/t)
				PH0910			
N	10	Aluminium and Non Ferrous	30-130	350-3000	$\leq 25\% \varnothing D_c$	$\leq 5.0$	0,35 - 0,40
						5.0 - 10.0	0,30 - 0,35
						10.0 - 15.0	0,25 - 0,30
					$< 50\% \varnothing D_c$	$\leq 5.0$	0,35 - 0,40
						5.0 - 10.0	0,30 - 0,35
						10.0 - 15.0	0,25 - 0,30
					$\leq 75\% \varnothing D_c$	$\leq 5.0$	0,30 - 0,35
						5.0 - 10.0	0,25 - 0,30
						10.0 - 15.0	0,20 - 0,25

### SLOTTING

ISO	PSM	Material	HB (Brinell)	Vc (m/min)	Width of Cut ae (mm)	Depth of Cut ap (mm)	Feed fz(mm/t)
				PH0910			
N	10	Aluminium and Non Ferrous	30-130	350-3000	100% $\varnothing D_c$	$\leq 5.0$	0,25 - 0,35
						5.0 - 10.0	0,20 - 0,30
						10.0 - 15.0	0,15 - 0,25

(Note 1) Cutting conditions  $a_e/D_c = 70\%$ .

(Note 2) It's possible to occur vibrations in certain cases. Please reduce depth of cut and / or reduce cutting conditions in following cases:

- When using long shank;
- When using long tool overhang with arbor type;
- When application has poor clamping rigidity or when using a low rigidity machine.

(Note 3) Use internal coolant supply

## OPERATIONAL GUIDE || Guia operacional | Guía operativa

- The maximum allowable revolutions are shown in Table 1. Ensure that the cutter operates under the maximum allowable revolutions. The maximum allowable revolutions for safety purposes are determined in accordance with ISO 15641 (Milling Cutters for high speed machining—Safety requirements).

Table 1 - Maximum allowable revolutions:

$\varnothing D_c$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
RPM (min <sup>-1</sup> )	40000	38000	33000	29000	24000	21000	19000	16000

- Even when operating under the maximum allowable spindle speed, if the spindle speed is equal or higher than the values shown in Table 2, it is recommended that the balance quality (with the arbor or chuck) according ISO 1940.

Table 2 - Maximum revolutions when balancing with the arbor or chuck has not been achieved:

$\varnothing D_c$	$\varnothing 20$	$\varnothing 25$	$\varnothing 32$	$\varnothing 40$	$\varnothing 50$	$\varnothing 63$	$\varnothing 80$	$\varnothing 100$
RPM (min <sup>-1</sup> )	15000	12000	9500	8500	7600	6800	6000	5400

- When setting the spindle speed, take into consideration the maximum allowable revolutions of arbor or chuck.

- Use the specified set bolt when using the arbor type with internal coolant supply.

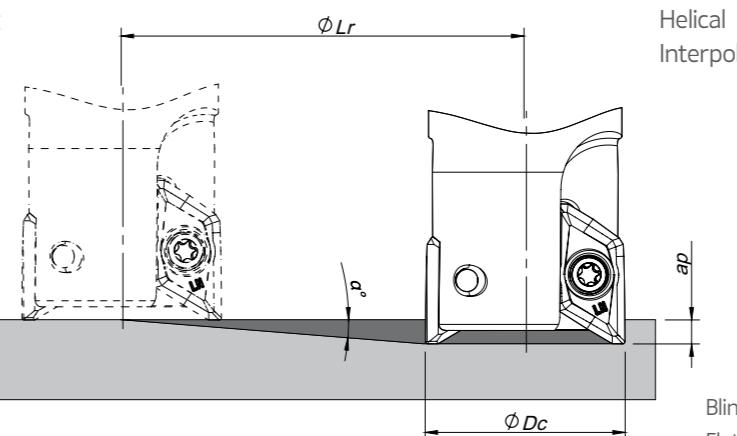
## ALUPRO 76090

XDGX

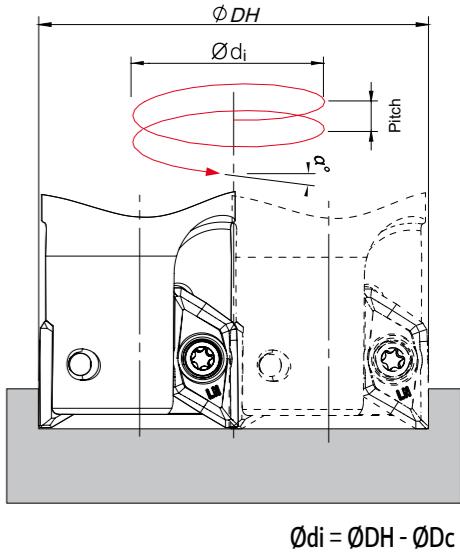
## RAMPING AND HELICAL INTERPOLATION

Descida em rampa e interpolação helicoidal | Bajada en rampa e interpolación circular

Ramping



Helical Interpolation



$$\varnothing di = \varnothing DH - \varnothing Dc$$

Cutter Type	$\varnothing D_c$	Ramping			Helical Interpolation		Max Pitch/Rev.
		Max Ramp $a^o$	Max ap	Min Lr	$\varnothing DH_{min}$	$\varnothing DH_{max}$	
A	20	23	15,0	35,3	36,2	-	21,6
	25	21	15,0	39,1	46,2	-	24,5
	32	15	15,0	56,0	60,2	-	25,6
	40	10	15,0	85,1	76,2	-	23,7
	50	8	15,0	106,7	96,2	-	22,4
	63	6	15,0	142,7	122,2	-	19,5
	80	4	15,0	214,5	156,2	-	16,7
	100	2,5	15,0	343,6	196,2	-	13,2
B	20	20	13,5	37,1	36,2	-	18,5
	25	18,5	13,5	40,3	46,2	-	21,0
	32	13,5	13,5	56,2	60,2	-	22,3
	40	8,5	13,5	90,3	76,2	-	22,9
	50	7	13,5	109,9	96,2	-	17,0
	63	5,5	13,5	140,2	122,2	-	18,0
	80	3,5	13,5	220,7	156,2	-	14,6
	100	2,5	13,5	309,2	196,2	--	13,5

(1) using insert radius 0,8 mm

Note: During helical interpolation do not exceed maximum pitch.

When using different insert radius to calculate the  $\varnothing DH_{min}$  and  $\varnothing DH_{max}$  use the equation below:

- Minimum Diameter:  $\varnothing DH_{min} = 2 \times (\varnothing D_c - (R \text{ corner radius} + F \text{ width of edge wiper})$

- Maximum Diameter:  $\varnothing DH_{max} = 2 \times (\varnothing D_c - R \text{ corner radius})$