

Further information

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Working group members



Research and Technology Association at the
West Saxon University of Applied Sciences
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Machining with CO₂

- Clever cooling -

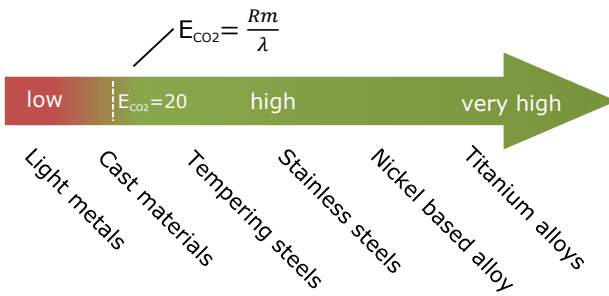


We support you

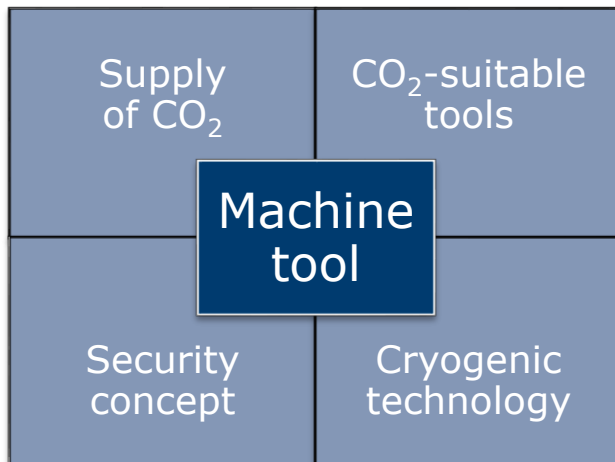
Advantages of CO₂-Cooling

- Increase of productivity (Roughing)
- Significant cost and time reduction
- Dry machining
- Improved workpiece quality

Effects depending on material



System components available



Example aerospace

Roughing part of landing flap

Milling



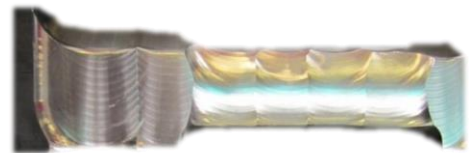
(TiAl6V4; 3.7164; $V_{Ref}=1000 \text{ cm}^3$)

Comparison	Emulsion (30 bar)	CO ₂
Part cycle time	15,3 min	8,7 min
Costs per part ($C_{Fix}+C_{ML}+C_T+C_{cooling}$)	61,80 €	51,10 €
Basic parameters	$v_c=50 \text{ m/min}$ $Q=67 \text{ cm}^3/\text{min}$	$v_c=90 \text{ m/min}$ $Q=120 \text{ cm}^3/\text{min}$
	$f_z=0,70 \text{ mm};$ $a_p=1,50 \text{ mm};$ $C_{MLR}=100 \text{ €/h};$ $T = \text{const.}$	

Example energy

Roughing turbine blade

Milling



(X12CrNiWTiB16-13; 1.4962; $V_{Ref}=1480 \text{ cm}^3$)

Comparison	Dry	CO ₂
Part Cycle time	23,1 min	15,9 min
Costs per part ($C_{Fix}+C_{ML}+C_T+C_{cooling}$)	60,50 € (w/o $C_{cooling}$)	49,30 €
Basic parameters	$v_c=320 \text{ m/min};$ $f_z=0,40 \text{ mm};$ $Q=65 \text{ cm}^3/\text{min}$	$v_c=400 \text{ m/min};$ $f_z=0,55 \text{ mm};$ $Q=95 \text{ cm}^3/\text{min}$
	$a_p=3,00 \text{ mm};$ $C_{MLR}=100 \text{ €/h};$ $T = \text{Const.}$	