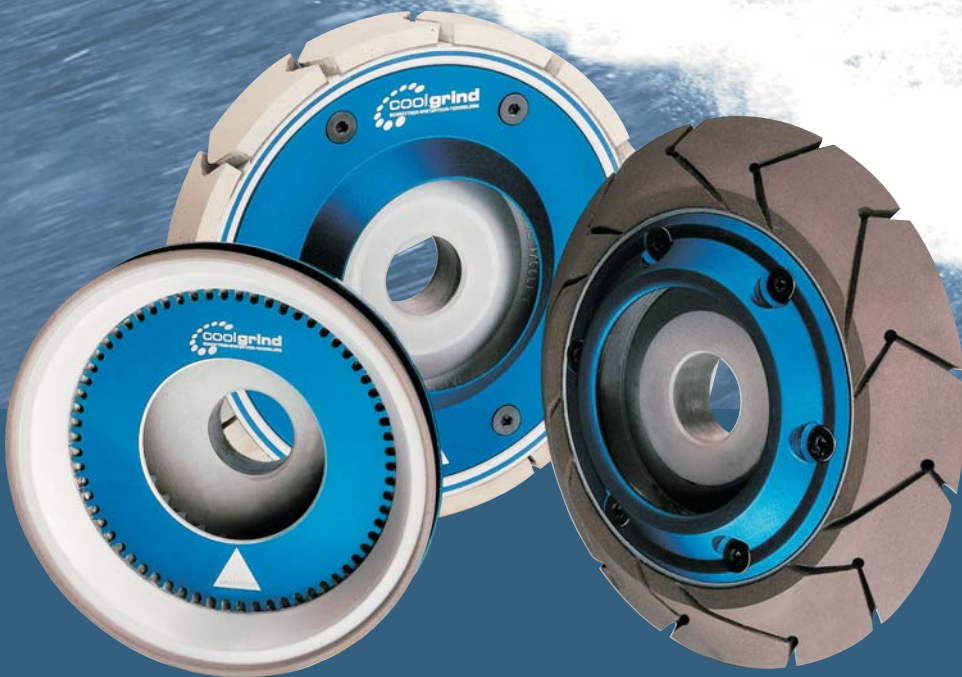




WINTERTHUR
TECHNOLOGY GROUP

There is no cooler way to grind!



 **coolgrind**[®]
SCHROTTNER-WINTERTHUR-TECHNOLOGIE

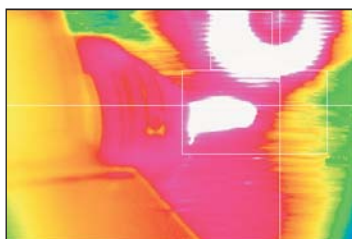
T h e r e i s n o c o o l e r w a y t o

A cool cut delivered from the centre of the grinding wheel!

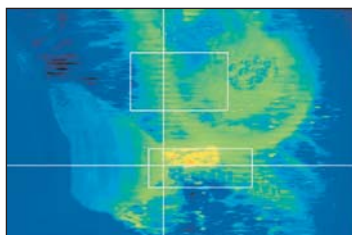
Following the development of a revolutionary inner cooling system, a full range of wheels for tool grinding is now available – giving grinding results and economic advantages previously unheard of in the manufacture and the re-sharpening of carbide and high speed steel cutting tools. After many unsuccessful trials of grinding wheels with inner cooling systems, finally a patented design has reached the market that is fully in line with user expectations.

The hydrodynamic design of the Coolgrind® system transports the grinding fluid at the wheel's peripheral speed, precisely into the grinding zone, flooding the contact area and delivering coolant fluid and lubrication to where it is most needed. Best of all, your grinding machines will not require any modifications!

The advantages of this system can, therefore, be achieved without any additional investments. Set-up times for Coolgrind® wheel sets are the same as for conventional wheel sets. Additionally, the extended tool life of Coolgrind® wheels increases valuable machine time and thereby improves your bottom line.



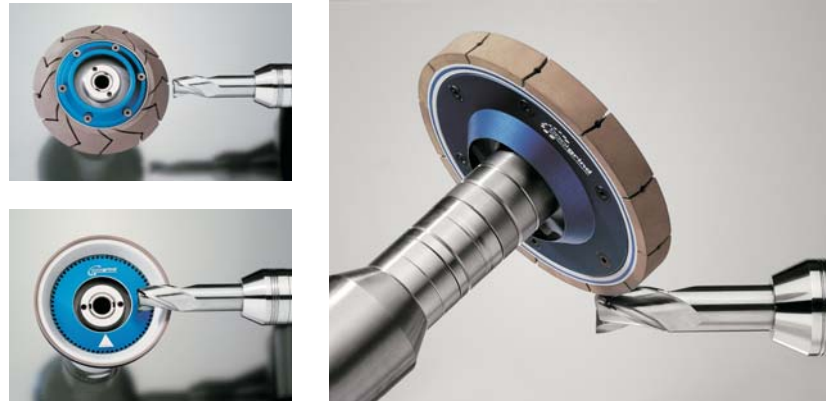
Thermal load measured using a conventional grinding wheel.



Thermal load measured using a Coolgrind® wheel.

The thermal load on the workpiece, the wheel arbour and the wheel itself has been dramatically reduced. In a very "cool" way Rappold-Winterthur has removed thermal damage from the grinding scene. At the same time, cycle times have gone down and profitability up. This revolutionary concept opens up manufacturing options that have yet to be fully explored.

Given the increased process stability, unmanned shifts for the manufacture of large diameter solid carbide tools have become a reality - at greatly improved process parameters as illustrated by the case history in this brochure.



The heart of every Coolgrind® wheel consists of a turbine located within the wheel body. The slow-wearing super-abrasive rim on the wheel body can be replaced in due course by Rappold-Winterthur, thereby further improving the overall economy of the system. Furthermore, Rappold-Winterthur offers Coolgrind® seminars to demonstrate and to teach the full practical potential of this new grinding system, showing how limits can be pushed even further than imagined.

Tool grinding		HSS	VHM
Flute and creep-feed grinding	1A1, 1V1, 1A1, 14V1	42B107 R100 BX80/BA BXW107 100 MH4C/E 50B126 N15A VPHM770C125/12/1/A 60B126 N15A VPHM770C125/12/1/A	73D64 R100 B522/BA 73D64 R100 B5212/BA SDK64 100 MH3/E
Relief surfaces	11V9, 12V9	42B126 R100 BX506/BA 32B91/1 O15A VP800C100/12/4/BA	73D64 R100 B841/BA
End face and gash geometry	12V9, 1V1-45°, 11V9*	42B126 R100 BX506/BA 50B126 N15A VPHM770C125/12/1/A 60B126 N15A VPHM770C125/12/1/A	73D64 R100 B841/BA

*32B91/1 O15A VP800C100/12/4/BA

Cutting insert grinding	
Agathon; Wendt	78D46 R100 B181/A oder B182 83D30 R100 B181/A oder B182

Automotive industry	
Camshaft	
Finish grinding	21B126/1 R15C VPMF800C150/12/1/S/E
Rough grinding	50B252/15 VPMK800C175/14/1/S/R
Crankshaft	50B126 N16 VPMM770C135/14/1/S/E



Case history

Production of a large diameter solid carbide end mill.

3-flute, 30°, right hand

Diameter: 20 mm

Total length: 104 mm

Cutting length: 38 mm

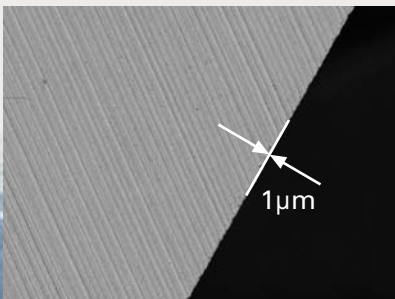
Material: TSM33 Ceratizit

Machine tool: Walter Helitronic Power Production, 24 kW spindle power

Grinding fluid: Oil, Superfin HM Petrofer, viscosity 4,75 mm²/40°C

Pump capacity: 120 l/min at 6 to 20 bar

Filtration: paper filter



Operation	Type of wheel	Passes	V _c	V _f	a _e	Q' _w
Flute grinding and back clearance						
Roughing	1A1 125-15-5-20 Coolgrind D 64	1	18	135	3,7	8,3
Finishing	1A1 125-15-5-20 Coolgrind D 64	1	18	180	0,3	-
Secondary relief angle (diameter)	11V9 100-10-2-20 Coolgrind D 64	1	28	200	-	-
Primary relief angle (diameter)	11V9 100-10-2-20 Coolgrind D 64	1	30	200	-	-
End gashing	1V1 125-15-V=45° Coolgrind D 64	1	18	100	-	-
Secondary end relief	11V9 100-10-2-20 Coolgrind D 64	1	28	200	-	-
Primary end relief	11V9 100-10-2-20 Coolgrind D 64	2	30	200	-	-
Primary end relief chamfering	11V9 100-10-2-20 Coolgrind D 64	1	30	250	-	-

coolgrind[®]
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