

# 3M™ Cubitron™ II Vitrified Wheels for Centerless Grinding

If the task is grinding long and/or thin, cylindrical components made of flexible or brittle materials in large batches, there are rarely alternatives for centerless OD grinding. Moreover, centerless grinding is the only way to use grinding wheel sets that are capable of accomplishing several tasks in one cycle, like, for example, roughing and finishing.

## Application examples:

- Gears
- Steering systems
- Injection systems
- Gear shafts
- Camshaft pipe grinding
- Balance shafts
- Valves
- Bearing industry



## The advantages at a glance:

- Doubled material removal rate  $Q'_w$
- Up to 45% faster cycle time per part
- Half the dressing amount
- Perfect surfaces at maximum material removal capacity
- Up to 6 times more parts per dressing cycle
- Minimal risk of burning

## Recommended operating parameters

Cutting speed ( $v_c$ )	40–50 m/s
Material removal rate	8–12 mm <sup>3</sup> /mm/s

# Examples for frequently used specifications

Please get a recommendation as to the appropriate specification for your application from our local sales office.

Applications		Product Code	Specifications
Main specifications	General application with hardened materials	92 VJ	93DA80/80 L6V901W
Special specifications	For high requirements as to roundness and cylindricity		93DA80/80 N5V901W
	For higher material removal rate requirements		93DA80/80 J7V901W
	For example, finer surfaces, thin-walled components		93DA120/120 J7V901W
	General application hardened materials, coarser		93DA60/60 L6V901W
	Soft materials, high surface requirements		93DA120/120 L6V901W
	Roughing wheel for high material removal rate		93DA60/60 J7V901W

## Investment appraisal centerless grinding of a spindle blank with a wheel set (bearing industry)

Operating Parameters	Competitors	3M™ Cubitron™ II 92VJ
Grinding wheel dimension	300×96×127 mm	300×96×127 mm
Grinding wheel price	\$244.00	\$610.65
Machine-hour rate	\$122.13	\$122.13
Usable grinding wheel diameter	95	95

Performance Results	Competitors	3M™ Cubitron™ II 92VJ
Maximum material removal rate	3.1 mm <sup>3</sup> /mm/s	6.3 mm <sup>3</sup> /mm/s
Number of dressing cycles per wheel	8×0.02 mm	3×0.01 mm
Grinding time per 2 workpieces (loading)	56 sec	24 sec
Dressing time per 2 workpieces (loading)	1 sec	1 sec
Total wear of the grinding wheel per workpiece	0.16 mm	0.03 mm
Number of workpieces per grinding wheel	375	2,000

Productivity Result	Competitors	3M™ Cubitron™ II 92VJ	Reduction
Grinding costs per workpiece	\$0.07328	\$0.03664	46%
Dressing costs reduction per spindle blank		63%	63%
Total costs machine-hour rate	\$1.35564	\$1.1236	18%



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