

THINK SMALL ACHIEVE BIG

Norton NQN ID grinding wheels provide :

-  **Longer wheel life**
-  **Higher grinding efficiency**
-  **Optimal surface finishing and perfect final geometry**

Key application:

ID(inner diameter) grinding

Key Industry:

Bearing, Automotive, General Engineering, Tool Room





ID (inner diameter) grinding is essential to many industries in terms of quality, efficiency and manufacturing cost. Taking bearing industry for example, ID grinding takes a big chunk of labor and machining time and plays a key role in determining final surface finishing, taper and roundness of the work piece, which is critical to the product quality. In order to achieve consistent quality, ID grinding wheel needs frequent dressing and changeover, but on the other hand, it slows down the production cycle.

ID grinding wheel, though small in size, has a big impact on your business. Sometimes, you need to think small to achieve big results. Norton NQN small wheel is developed for the fastest, finest and consistent ID grinding. It is an ideal solution for low pressure applications on materials ranging from cast iron to stainless steel as well as hard-to-grind Nickel-based alloys and titanium.



FEATURES AND BENEFITS

Norton NQN ID grinding wheel uses Norton's next-generation NQN grain, which has the same hardness as NQ grain, but higher friability for optimized self-sharpening effect. This revolutionary ceramic grain multiplies the cutting efficiency by controlling the grain breakdown at the micrometric level. With innovative vitrified bonds specially developed to enhance grain performance, it provides higher cutting efficiency, longer wheel life and better surface quality. It performs extremely well in the low pressure application on hard-to-grind materials.

Features	Advantages	Benefits to customers
Engineered ceramic grain and grain boundaries	<ul style="list-style-type: none"> The freest cutting action Cold grinding at low temperature 	<ul style="list-style-type: none"> Increase machine infeed and improve grinding efficiency Increase wheel life Avoid burn and bring in better surface quality
Special bond formulations	<ul style="list-style-type: none"> High form holding capability 	<ul style="list-style-type: none"> Increase wheel life and grinding precision

Wheel life/Efficiency

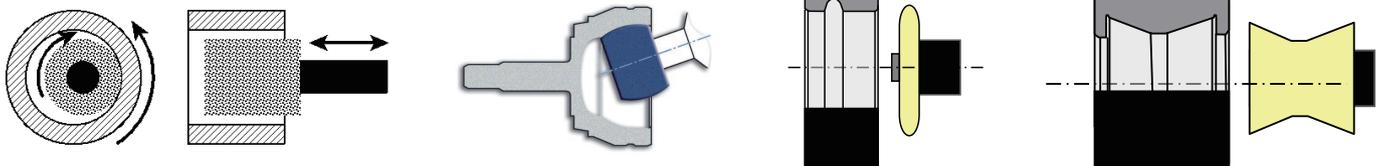


NORTON NQN ID PRODUCT FAMILY

With different grain recipes, Norton NQN ID grinding wheels are developed into a series of specifications such as 1NQN, 3NQN, 5NQN and NQN. They differ in terms of wheel life, cutting efficiency and price level. According to your specific application, we can recommend the most appropriate one to boost your performance and lower overall grinding cost.

AVAILABILITY

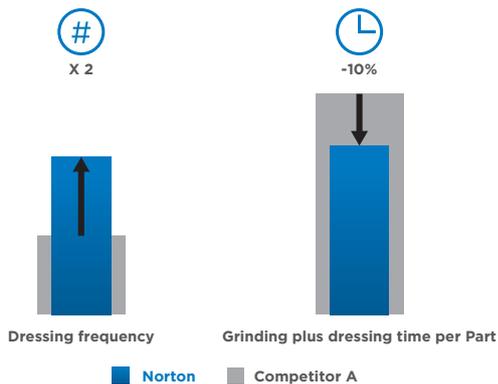
GRAIN	GRIT SIZE	BOND	OUTER DIAMETER (MM)	THICKNESS (MM)	HOLE(MM)
1NQN, 3NQN, 5NQN, NQN	#46-#150	VSN, VS3N	13-90	3-75	5-20



CASE STUDY 1

Application: Race grinding of outer rings
Norton: NQN_120_L_8_VS3N
Competitor A: 100% ceramic grain wheel from a tier-1 international wheel supplier
Wheel size: 55mmx20mmx16mm
Material: SUJR, HRC=62
Machine: O.ERRE.PI
Surface requirement: Ra0.5
Total stock removal: 0.3mm

Specification	Norton	Competitor A
Dressing frequency (#parts)	40	20
Grinding plus dressing time per Part (s)	9.5	10.5



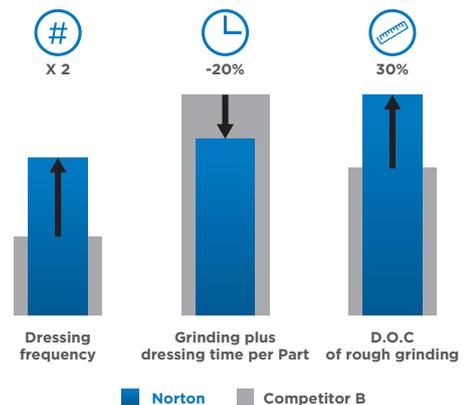
RESULTS:

- Norton wheel had two times wheel life as that of competitor A
- 10% less manufacturing time per part was needed for Norton wheel than competitor A
- By using Norton wheel, the work piece had perfect surface finishing without burn

CASE STUDY 2

Application: ID grinding of Inner rings
Norton: NQN_80_L_10_VS3PN
Competitor B: the wheel from a leading international wheel supplier
Wheel size: 42mmx44mmx20mm
Material: GCr15, HRC60-63
Machine: Tai Wan ST surper
Surface requirement: Ra0.6
Total stock removal: 0.2mm

Specification	Norton	Competitor B
Dressing frequency (#parts)	2	1
Grinding plus dressing time per Part (s)	192.5	240.8
D.O.C of rough grinding (mm)	0.013	0.01



RESULTS:

- Norton wheel had two times wheel life as that of competitor B
- 20% less manufacturing time per part was needed for Norton wheel than competitor B
- Norton wheel cut 30% deeper per pass than competitor B
- By using Norton wheel, the work piece had perfect surface finishing without burn



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