Cylindrical Wheels

Cylindrical wheels are used most often when the part is held between centers and in chucks. There are three methods of cylindrical grinding: plunge, traverse, and angular

- Plunge grinding – wheel is thrust or plunged into the part
- Traverse grinding – wheel moves across the part
- Angular grinding – wheel contacts the part at an angle

Typical Industries

- Automotive
- Aerospace
- Shipbuilding
- Engine building
- Turbine blades – land- and air-based
- Bearing
- Toolroom

BETTER Norton 32A Wheels – Ideal for medium to heavy stock removal

FEATURES	*BENEFITS*
• Sharp monocrystalline aluminum oxide grain – the industry's most versatile abrasive	• Free cutting on a wide range of applications and materials • Outstanding form holding

BETTER 86A Wheels – 50% to 80% longer wheel life than standard aluminum oxide

FEATURES	*BENEFITS*
• Premium abrasive; superior bond system	• High grinding G-Ratios (metal removal/wheel wear) increase productivity • Decrease in dress frequency and/or dress compensation • Less wheel dressing means lower abrasive costs • Hold form for better part geometry
• Engineered for easy use	• Grind cycles do not need to be altered • No special operator training is needed

GOOD 64A Wheels – Versatile performance at an economical price

FEATURES	*BENEFITS*
• Specially blended aluminum oxide abrasive coupled with a superior bond	• Will maintain high grinding rates without wheel breakdown
• Broad availability	• Quick delivery on popular sizes
• Versatile	• Engineered to grind a variety of materials

GOOD Gemini Non-stock Wheels - Economical, versatile general purpose wheels new!

FEATURES	*BENEFITS*
• Specially blended aluminum oxide abrasive for many cylindrical applications	• Consistent performance at an economical initial price
• Durable, vitrified bond	• High stock removal on narrow to medium contact areas; cool cutting
• Versatile	• Ideal when a broad range of tool steel parts are ground on one machine or in small to mid-sized shops

TECHtips

To make a wheel act softer:
- Increase work speed
- Increase traverse speed
- Increase infeed
- Decrease wheel speed
- Increase dresser traverse rate
- Increase depth of dress per traverse
- Dress more often

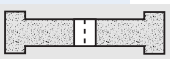
To make a wheel act harder:
- Decrease work speed
- Decrease traverse speed
- Decrease infeed
- Increase wheel speed (do not exceed MAX RPM marked on wheel)
- Dress at slower traverse rate
- Decrease depth of dress per traverse

Cylindrical Wheels

SIZE D X T X H	STD. PKG.	BETTER SPEC	BETTER UPC NO.	STD. PKG.	GOOD SPEC	GOOD UPC NO.
TYPE 01 STRAIGHT						
16 x 1/2 x 5	3			3	Gemini 60-K Gemini 80-K Gemini 100-K	66253057299* 66253057301* 66253057303*
16 x 1 x 5	1	32A60-K5VBE	66253464837	1 2	64A60-K8V127 Gemini 60-K Gemini 80-K Gemini 100-K	66253466722 66253057305* 66253057307* 66253057309*
16 x 1 x 8	1	32A60-K5VBE	66253464826			
16 x 1-1/2 x 5	1	32A46-H8VBE	66253464925			
16 x 2 x 5	1	32A46-J8VBE 32A60-K5VBE	66253464995 66253464960	1 2	64A60-K8V127 Gemini 60-K Gemini 80-K Gemini 100-K	66253466721 66253057312* 66253057314* 66253057315*
16 x 3 x 5				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057317* 66253057319* 66253057320*
18 x 1/2 x 5				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057321* 66253057323* 66253057324*
18 x 1/2 x 8				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057367* 66253057368* 66253057371*
18 x 1 x 5				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057327* 66253057328* 66253057334*
18 x 1 x 8				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057374* 66253057373* 66253057375*
18 x 2 x 5				1	64A60-K8V127 Gemini 60-K Gemini 80-K Gemini 100-K	66253466719 66253057341* 66253057362* 66253057363*
18 x 2 x 8				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057376* 66253057378* 66253057379*
18 x 3 x 5				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057364* 66253057365* 66253057366*
18 x 3 x 8				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057380* 66253057381* 66253057383*
20 x 1/2 x 8				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057386* 66253057387* 66253057388*
20 x 1/2 x 10				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057412* 66253057413* 66253057415*
20 x 1 x 8	1	86A60-J8V127 86A80-J8V127	69078608982 69078608983	1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057390* 66253057391* 66253057394*
20 x 1 x 10				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057418* 66253057420* 66253057427*
20 x 1-1/2 x 5	1	32A46-H8VBE	69078665382			
20 x 2 x 5	1			1	64A60-J8V127	69078666713
20 x 2 x 8	1	32A46-I8VBE 32A60-K5VBE	69078665433 69078665490	1	64A60-K8V127 Gemini 60-K Gemini 80-K Gemini 100-K	69078666712 66253057396* 66253057399* 66253057401*
20 x 2 x 10				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057429* 66253057432* 66253057434*
20 x 2 x 12	1	32A46-I8VBE	69078665455			

*** ALL GEMINI CYLINDRICAL WHEELS ARE NON-STOCK AND ARE AVAILABLE IN STANDARD NON-STOCK LEAD-TIMES. SHOWN HERE ARE UPC NUMBERS FOR POPULAR SIZES AND SPECIFICATIONS, CREATED FOR EASE OF ORDERING.**

Cylindrical Wheels (CONTINUED)

SIZE D X T X H	STD. PKG.	BETTER SPEC	BETTER UPC NO.	STD. PKG.	GOOD SPEC	GOOD UPC NO.
TYPE 01 STRAIGHT						
20 x 3 x 8				1	64A46-I8V127 64A60-J8V127 Gemini 60-K Gemini 80-K Gemini 100-K	69078666447 69078608140 66253057404* 66253057407* 66253057409*
20 x 3 x 10				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057436* 66253057437* 66253057438*
24 x 1/2 x 12				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057393* 66253057395* 66253057397*
24 x 1 x 12				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057400* 66253057402* 66253057405*
24 x 2 x 12				1	64A60-K8V127 64A80-K8V127 Gemini 60-K Gemini 80-K Gemini 100-K	69083166710 69083166711 66253057408* 66253057410* 66253057411*
24 x 3 x 12				1	Gemini 60-K Gemini 80-K Gemini 100-K	66253057414* 66253057416* 66253057419*
30 x 1 x 12				1	Gemini 60-K Gemini 80-K	66253057421* 66253057422*
30 x 2 x 12				1	64A60-J8V127 Gemini 60-K Gemini 80-K	69210466704 66253057423* 66253057425*
30 x 3 x 12	1			1	64A60-J8V127 64A60-K8V127 Gemini 60-K Gemini 80-K	69210466697 69210466698 66253057426* 66253057428*
30 x 4 x 12	1				64A60-J8V127	69210401774
TYPE 07 RECESSED TWO SIDES 						
18 x 2 x 8 Rec 2/S 10-1/2 x 1/2	1	32A46-I8VBE	66253465110			
20 x 2 x 8 Rec 2/S 11-1/2 x 1/2	1	32A46-I8VBE	69078665537			
20 x 3 x 8 Rec 2/S 11-1/4 x 1/2	1	23A46-I8VBE 32A46-I8VBE	69078665582 69078665686			
20 x 3 x 10 Rec 2/S 12-1/4 x 5/8	1	32A46-I8VBE	69078665575			
20 x 6 x 10 Rec Side A 12-1/4 x 2 Rec Side B 12-1/4 x 1	1	32A46-I8VBE	69078665854			

*** ALL GEMINI CYLINDRICAL WHEELS ARE NON-STOCK AND ARE AVAILABLE IN STANDARD NON-STOCK LEAD-TIMES. SHOWN HERE ARE UPC NUMBERS FOR POPULAR SIZES AND SPECIFICATIONS, CREATED FOR EASE OF ORDERING.**

See 55A-VH Blank Stock on page 170 for additional (FastTrack) Cylindrical specifications.

Ask your distributor about our revolutionary new Norton Quantum ceramic made-to-order cylindrical wheels – a quantum leap in technology.

Cylindrical Wheels (CONTINUED)

SPECcheck

Stationary Dressing Tool Recommendations for Cylindrical Wheels

General Purpose (BC) and Norton Standard (NS) Stationary Tool Recommendations for Cylindrical Grinding Wheels

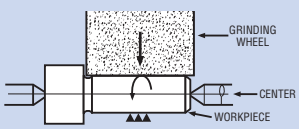
		SINGLE POINT	MULTI-POINT (GRIT)			
GRINDING WHEEL DIAMETER	CARAT WEIGHT	TOOL PRODUCT NO. 0° ANGLE	TOOL PRODUCT NO. 0° ANGLE	SHAPE	TOOL PRODUCT NO. 15° ANGLE	SHAPE
16" - 20"	3/4	BC7M7	BC62	1/4 x 1/2 Rect.	BC63	1/4 x 1/2 Rect.
		NS7M7	2A6D7		2A6E7	
21" +	1	BC10M7	BC61	1/4 x 3/4 Rect.	BC60	1/4 x 3/4 Rect.
		NS10M7	1A6A7		1A6C7	

NS SINGLE POINT DIAMOND TOOLS ARE RESETTABLE. BC DIAMOND TOOLS ARE NOT RESETTABLE. ALL TOOLS SPECIFIED ABOVE HAVE 7/16" DIAMETER SHANKS.

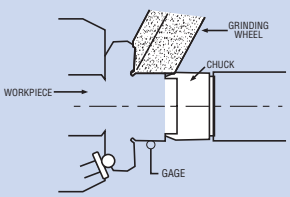
Troubleshooting Guide

PROBLEM	POSSIBLE CAUSE	SUGGESTED CORRECTION
Burn or cracks on workpiece	Wheel too hard Dress is too fine Nozzle not directing coolant properly Work speed too slow or wheel speed too fast Wheel feed too slow causing excess contact time	Try softer wheel or make wheel act softer (see previous Tech Tip) Dress faster Redirect flow Adjust speeds Increase feed rate
Chatter marks on workpiece	Loose spindle, end play, bearing failure Work drive faults, out-of-truth plate Wheel too hard, poor truing, poor mounting	Check wheel spindle on assembly Check gear action, truth, drive on pin pressure Use softer grade; dress wheel correctly; secure mounting
Poor quality finish	Poor quality dressing Diamond insecurely held Misalignment of head and tail stocks Dirty coolant Scored workpiece centers	Reduce final depth of dress on wheel Check and replace diamond and secure properly Check for properly aligned workpiece Clean coolant frequently; use efficient filter Check and lap center holes as required

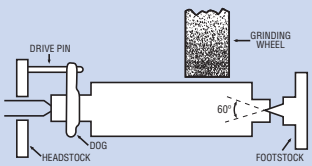
CYLINDRICAL PLUNGE GRINDING



CYLINDRICAL ANGULAR APPROACH



CYLINDRICAL TRAVERSE GRINDING



Gemini Cylindrical Non-stock Wheel Availability

new!

All Gemini cylindrical wheels are non-stock, made-to-order, with standard lead-times and are ideal for the initial-price conscious customer and small job shops.

Wheel Types :	**Type 01 Straight, Type 05 Recessed One Side, and Type 07 Recessed Two Sides**
Abrasive:	**Cylindrical grinding aluminum oxide blend**
Diameter:	**16" - 30"**
Thickness:	**3" - 10"; varies with diameter**
Grit sizes:	**36 - 180; varies with thickness**
Grades:	**I - R**
Bond:	**Vitrified bond**
Wheel Faces:	**15 standard faces**