Blanchard Stock Removal Capabilities

1.	Soft Steel	1 cubic inch per minute for every 10HP
2.	Cast Iron	2 to 4 cubic inches per minute for every 10 HP
3.	Hardened Steel	½ cubic inch per minute for every 10 HP
4.	High Speed Steel	1/16 to 3/8 cubic inch per minute for every 10 HP

The grinder will require a wheel holder to secure the wheel or segments used to remove stock from the work pieces. Generally, a solid cylinder wheel is used for obtaining finer finishes and segments wheel are used for stock removal. That does not mean, however, that stock can not be removed with a cylinder wheel and fine finishes can not be obtained using a segmented grinding wheel. All wheels 22" in diameter and larger are of the segmented design.

The most common segment types in use today are Cortland, Norton, Abrasive Associates and Sterling segments. The Cortland segment shape is in greater general usage and is recommended for use on all Blanchard grinders. Diamond wheel adapters are used to mount standard Type 2AaT diamond and borazon (CBN) wheels to the grinder faceplate.

Abrasive
Blanchard abrasive materials fall into three general classifications:

Aluminum Oxide

	Code	
Regular	A	The toughest or least friable not recommended for Blanchard Grinding
Semi-Friable	5A	It is extremely versatile and applicable to most Blanchard grinding applications except those on the hardest materials
Friable	9A	Recommended for grinding heat sensitive materials and hardened tool steels. Also applicable when working for fine finishes with light grinding pressures.

Silicon Carbide

Code	
C	Recommended for grinding nonferrous metals and nonmetallic materials.

Abrasive Mixtures

Code	
59A	Capable of heavy stock removal as well as grinding harden tool steels with fine grit sizes. Also works well on cast iron.
91A	Ideal for a wide variety of high stock removal applications
CA	Used in Resinoid bond to grind gummy materials such as aluminum, bronze and other nonferrous metals having a tendency to load the wheel.

Grain Size

The designating number (24, 30, 36, ect. For grain size) is derived from the number of openings per liner inch in sizing screen. A coarse to medium grain size, 24 or 30 is usually recommended for Blanchard grinding, providing both fast stock removal rates and very satisfactory finishes for most purposes.

Grade

A grinding wheel is a self-sharpening cutting tool. As grains dull with use, forces against them increase to the point that causes the grains to fracture or break away from the wheel entirely. This action presents new sharp cutting edges to the work.

The grade of the wheel refers to the strength of the bond holding the abrasive grains; the harder the grade the more securely the grains are held, requiring a grater force to break them out of the wheel. With softer grades the reverse is true.

Grade is therefore, a measure of how readily this self-sharpening takes place. Basic considerations for grade selection are:

A. The hardness of the material – harder and more abrasive resistant materials require softer grades.
B. The amount of grinding pressure – heavy feeds require harder grades, light feeds need softer grades.
C. The area of the ground surface – broad surfaces involve lower grinding pressures and require softer grades; narrow surfaces involve higher grinding pressures that require harder grades.
D. The finish and accuracy desired – when fine finishes and close tolerances are required, softer grades will usually produce the best results.

Segment Selection A, B, or C

Each group can be ground with the same segment. However, selection of a segment that will provide the desired stock removal rate, segment life and part finish will take time to select the correct stone. While the range of possible abrasive specifications is extensive, considering variations in grain type and size, grade, structure and bond, actually a very few specifications will accomplish most jobs with great efficiency. As a general rule, coarse to medium grain sizes (24 to 36) and softer grades (E to G) are recommended for most work. Finer grit sizes that those recommended will improve finish and harder grades will improve stone life, while softer grades will eliminate stone glazing and burn on the work surface.

Segment selection is dependant on application, grinder size, and horse power.

A. Boiler Plate
High Steel
Carbon Plate
Cast Iron
Cast Steel
Cast Stainless
Cast Aluminum
Annealed Tool
Steel & Forgings

B. Steel heat treated to 45 Rockwell and harder
Abrasion resistant metals and hardened tool steel

C. Bronze
Brass
Aluminum
High Nickel
High Chrome
Stainless
Gummy metals (nonmagnetic)