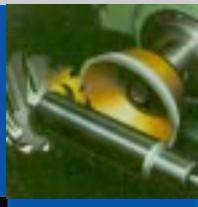
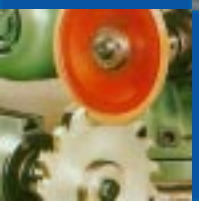
SAINT-GOBAIN
ABRASIVES

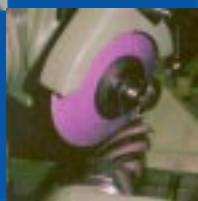
NORTON

SUPERABRASIVES





GRINDWELL NORTON LTD.



SUPERABRASIVES - AN INTRODUCTION

The Superabrasives, Diamond and Cubic Boron Nitride (CBN) prossess properties unmatched by the conventional abrasives such as Silicon Carbide and Aluminium Oxide. The hardness, abrasion resistance, compressive strength and thermal conductivity of Superabrasives make them logical choices for many difficult grinding, slitting, lapping and honing applications. Superabrasives can cut and grind the hardest materials known, making 'difficult-to-grind' application a routine operation.

DIAMOND AND CBN

DIAMOND :

Carbon with catalysts such as Iron, Chromium, Cobalt & nickel are subjected to tremendous heat and pressure to form Diamond crystals. This is done by a process called Synthesis. After this synthesis; carbon gets allotropically converted to synthetic diamond. By this process, diamond properties like hardness, toughness and friability and shape can be controlled and dramatically altered.

CBN :

This is synthesized in crystal form from Hexagonal Boron Nitride using a catalyst and using the same high pressure and temperature technology as that of Diamond synthesis.

By varying the temperature, pressure and catalyst contents, it is possible to produce Diamond and CBN abrasives of various sizes, shapes and crystal structures to suit a wide range of grinding applications.

ADVANTAGES OF SUPERABRASIVES

- Grits retain sharpness longer
- Cool cutting
  - Generate very less heat
- Grind hard/difficult materials
- No periodic dressing/truing
- No thermal damages imparted to work piece surfaces
- Improved quality of work piece:
  - Better dimensional accuracies
  - Better surface finishes
  - Better surface integrity
- Higher material removal rates
- Higher surface speeds of grinding
- Overall cost benefits