ELKONITE MACHINING

--The following information are guidelines only--

Cutting Tools

Carboloy Tools - grade 883 or equivalent. Grind Tools should have 0° rake, 8° to 12° clearance, and .010" to .125" nose radius. The nose radius can increase with the size of the work.

Turning and Boring

All turning operations - inside and outside - can be accomplished with common tools made from tungsten carbide listed in the ISO groups of machine cuttings K 05 to K 20. Using tungsten carbide turning tools, cuts without chamfer, with a setting angle of 6°, and a face angle of 6°-12° should be selected. For cutting, positive rakes are preferred with a chip breaker and without chamfers. Cutting speeds of 80 - 120 m/min can be achieved. Also high speed turning is possible. Cooling agents are not required.

Roughing: 0.030" depth of cut 0.020" feed
Finishing: 0.002" to 0.005" depth of cut 0.001" to 0.002" feed
Turning Speed: 300 surface feet per minute Do not use lubricant or coolants

Drilling and Tapping

Drilling requires drills made from high-speed steel (preferably material NR 1.3342 or 1.3343) or tungsten carbide of the ISO group of machine cuttings K 10 suitably. The tip angle of the drill should be 120°. Depending on the choice of the tool material cutting speeds from 20 to 80 m/min are possible. Since no cooling agent is used, the drill made of high-speed steel needs often to be ventilated, in order not to let the cutting edge of the drill to rise over a temperature of 550^0 C.

Use carbide micro-grain drills for best results.
Use spiral point taps.
Coated taps are recommended. Rigidity is important

Milling

Face Mills with positive indexing inserts, made from tungsten carbide of the ISO machine cutting groups K10 / K20 or P20 to P30, have proven to work well. With an angle of the major cutting edge of 80^0, the face angle of the indexing insert should be 6^0 - 10^0. Likewise, the angles of inclination should be 6^0, and the setting angle 6^0. A cutting speed 80 - 120 m/min is recommended. High Speed Milling is possible. No cooling agent is needed.

Parameters: 0.5" wide x (up to) 0.6" deep cut
Spindle Speed: 395 RPM
Table Speed: 8" per minute

Grinding

For sharpening Tungsten alloys, ceramic bound grinding wheels made of silicon carbide can be used. With a granulation of 50-120 the degree of hardness of the disk should be H to K. For cooling of the disk and reliable clearing of the splinters, the grinding area must be rinsed with a strong jet of cooling agent. The cooling agent can be a mixture of water and a commonly used additive.

Use 80 grit resin bonded wheels of medium hardness.
0.015" per pass on S10WC and S20WS.
Use a water soluble oil coolant.