"Case Study for Graphite component cutting on Winner"

Customer name : **M/s.** , **Bangalore.**

Case Study No. : TSG-CS-039/TR-011. **(Conducted at customer end.)**

Machine Details : Winner, Fanuc O M System

Main Features : Spindle-BT 40 taper, 6000 rpm with Indirect drive, Box type Guide ways for all 3 Axes, Traverse (X, Y& Z)- 500 / 400 / 350 mm, Spindle Power 5.5 / 3.7 kw. Nikken CNC 180 Rotary table with chuck mounted and both side Vacuum pipe for suck the graphite powder during profile or hole making. Machine with manual head tilting up to ± 20 Degree for generate helix angle on comp.

Component Name : Reamer Flute, Gun Drill tip and etc.

Component Material : **Graphite** (Green **Carbide)**.

Output

WINNER

CARBIDE TOOLS

Example of Cutting operations & its Cycle time: (Few opn.only).

Actual cutting parameters and cycle time depends on Component material, Tools, Tool holders and Fixture concept.

Sl. No.	Operation	Tool	Spindle speed (rpm)	Feed (mm/min)	DOC (mm)	Cutting Time (min : Sec)
1	Drilling	Ø 1.0 HSS with Diamond coated	1700	60	-	01 : 52
2	Drilling	Ø 5.0 HSS with Diamond coated	900	50	-	01 : 05
3	Chamfering	Ø 10 X 45˚Chamfer Tool (Diamon.coat)	1000	75	0.5	01: 49
4	Profile Cutter	Ø 75 Diamond coated form cutter	800	100	5.0	02 : 53

Achievements:

1. Time taken on machine for complete profile machining is 07.39 min/Sec. @ 07.30 min/Sec.
2. Customer is satisfied with Machine performance, Accuracy, Surface finish & Cycle time.
3. Surface finish is good within permissible limits, since it is 16 years old machine.
4. Component Individual profile angle with respect to center bore, Slot width and symmetry maintained as per drawing.

The objective of the case study is to show the Machine performance, Capability, Quality & Surface finish.