

"Case Study for Tool disc on MCV-400 S"

Customer name : M/s. , Bangalore.

Case Study No. : TSG-CS-017/TR-004. (Conducted at customer end.)

Machine Details : MCV- 400S, Fanuc Oi - Mate System

Main Features : Spindle-BT-40 taper, 6000 rpm, Hardened Guide ways for all 3 Axes, Traverse (X, Y&Z) - 600 / 450 / 500 mm, Spindle Power 5.5/7.5 kw

Component Name : Tool Holder for Turret & Slotted Tool Disc.

Component Material : EN 18 – Toughened, 20 to 23 HRC.

Output



MCV-400S



Slotted Tool Disc.



Tool Holder for Turret.

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)	Axial DOC (mm)	Radial DOC (mm)	Cutting Time (min.)
1	Roughing	Ø 80 Face Milling Cutter	750	300	2.0	80%	2.2
2	Step Milling	Ø 63 SQ SH Milling Cutter	900	250	1.25	40%	2.9
3	Slot Milling	Ø 25 Milling Cutter	1000	200	0.5	35%	4.5
4	Semi Finishing	Ø 10.0 SC Flat End Mill Cutter	2000	350	0.25	80%	4.9
5	Finishing	Ø 8.0 SC Flat End Mill Cutter	2500	390	0.05	80%	5.6

Achievements:

- Time taken on machine for complete profile machining is 20.1 min. @ 21.12 min.(Cam Time)
- Customer is satisfied with Machine performance, Accuracy, Surface finish & Cycle time.
- Surface finish is very good within permissible limits, Approx. 0.2 to 0.3 Ra.
- Heavy rough machining on steel material even though machine has been maintaining good accuracy.
- Component symmetry with respect to Tennon, and perpendicularity maintained as per drawing requirements.

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

