

# APPLICATION CASE STUDY

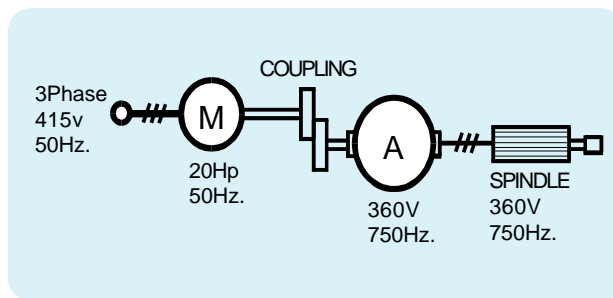


DOC.NO. : AMTCS-24

**HOST ORGANIZATION** : MAHINDRA SONA LIMITED, NASIK  
**INDUSTRY** : MACHINE TOOL.  
**APPLICATION** : VOUMARD INTERNAL GRINDING MACHINE  
**OBJECTIVE** : ENERGY SAVING & PRODUCTIVITY ENHANCEMENT.

**PREVIOUS SYSTEM** : MOTOR ALTERNATOR SET

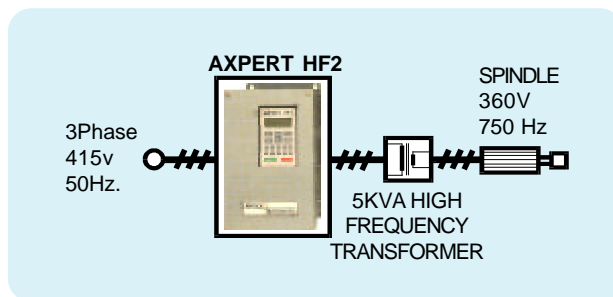
In motor alternator set 20 HP motor is coupled with 750Hz alternator whose output was used to drive the 5HP spindle of Voumard internal grinding machine.



**PROBLEM OBSERVED** :

1. For changing the speed, machine shutdown is required, results into production loss.
2. Motor - alternator set system is inefficient & consuming excessive energy (efficiency 60 to 70%)
3. Frequent maintenance of motor - alternator set leads to breakdown of the system.
4. Speed variation in fixed step only.
5. High current kick during 20HP motor start.
6. Poor regulation due to frequency variation in utility supply.

**PRESENT SYSTEM** : AXPERT HF2 5HP drive is directly connected to 5 HP spindle of Voumard internal grinding machine through high frequency transformer.



**MERITS OF NEW SYSTEM** :

1. Replacement by AC drive has saved maintenance cost.
2. Use of AC drive has reduced down time of the machine & hence directly improved the production.
3. Precise & smooth grinding of job is possible due to speed variation accuracy by AC drive.
4. Energy saving because of improved efficiency of the total new system

**ECONOMICAL ANALYSIS** : Finally due to improvement of such system customer has saved US \$ 3214.28 per year by saving energy and increased productivity. Hence payback period is of 11/2 months.

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