

# APPLICATION CASE STUDY



DOC.NO. : AMTCS-23

**HOST ORGANIZATION** : SAURABH FILAMENTS LTD., SURAT.

**INDUSTRY** : TEXTILE PROCESSING HOUSE

**APPLICATION** : TEXTURISING MACHINE ( GUIDICCI )

**PREVIOUS SYSTEM** : The 25 HP main motor of the GUIDICCI machine was driving the drum shaft through pulley & belt arrangement. The motor had STAR-DELTA starter & hydraulic pulley arrangement with clutch for smooth start of machine. Maximum processing speed of 500 meter/minute was accomplished at 50 Hz by pulley changing arrangement.

**PROBLEMS OBSERVED** :

1. To maintain yarn quality different speed setting required which was accomplished by pulley setting which was tedious and time consuming process.
2. Production suffered when supply frequency was below 50Hz.
3. Jerk starting due to star delta starter was causing wear & tear & also frequent maintenance of timing belts.
4. Higher Breakages of yarn observed due to starting jerk.
5. High inrush current 6 to 7 times during starting & hence higher capacity D-G set required.
6. Machine restart with 25% or more doff was not possible, after power failure.

**NEW SYSTEM** : 25 HP AXPART KVFG AC variable frequency drive is connected directly to main motor and pulley ratio adjusted in such a way to obtain top speed of 600 meter /minute at 50 Hz.

**MERITS OF NEW SYSTEM** :

1. The smooth starting of the inverter has reduced the high inrush current and hence maximum demand of KVA. Which inturn reduces D-G set KVA capacity hence results into lower capital investment.
2. Breakages at time of starting and stopping reduced due to soft start & stop.
3. The inverter is supplying constant frequency irrespective of input supply frequency fluctuations. Also frequency boosting is possible which increase the production.
4. Quality of the yarn is improved by simple & stepless speed control without changing pulley.
5. The life of mechanical moving parts such as bearings, timing belts, shaftings, gears increased and hence life of machine is also increased. The maximum wears and tears were due to the heavy jerk start which is eliminated by inverter smooth start.
6. Synchronization of traverse motor with main motor is also possible.

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