APPLICATION CASE STUDY

AMTECH

DOC.NO. : AMTCS-29

HOST ORGANISATION : NAHAR SPINNING MILL LTD., LUDHIANA

INDUSTRY : TEXTILE

APPLICATION : CIRCULAR KNITTING MACHINE (CIRCULAR LOOMS)

PREVIOUS SYSTEM :

1. Motor directly connected to line (DOL Starter).
2. Motor was running at full speed during whole operation.
3. Forward / Reverse / Jog achieved through contactor logic.

PROBLEMS OBSERVED :

1. High starting jerk hence more breakage of yarn during starting.
2. Inching operation at slow speed was not possible.
3. Mechanical wear and tear were more.
4. Input supply frequency variation caused motor speed variation & quality detoriated.
5. More vibration of machine
6. Machine speed could not be increased beyond 50Hz (rated rpm)

PRESENT SYSTEM :

1. Motor is connected to AXPERT AC variable frequency drive.
2. Flywheel is connected to motor shaft through pully & belt arrangement.
3. Forward / Reveres / Jog operation of motor is done through AC drive and all contactor are eliminated.

MERITS OF NEW SYSTEM :

1. Smooth & soft-start of motor and whole machine hence reduced the breakage of yarn.
2. Less wear and tear of mechanical system and motor.
3. Less vibration of machine.
4. Speed of the machine can be increased up to 20% higher than normal speed for more production gain (5-6. inch production increased per minute).
5. Ease of operation of machine with multi remote controls.
6. Inching at slow speed is achieved by push button and the speed is adjustable from zero to maximum speed as per requirement.

ECONOMIC ANALYSIS:

1. Increase in production 5-6 inch per minute.
2. 200kg production gain per month.
3. Payback period in 7 month.

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