

APPLICATION CASE STUDY



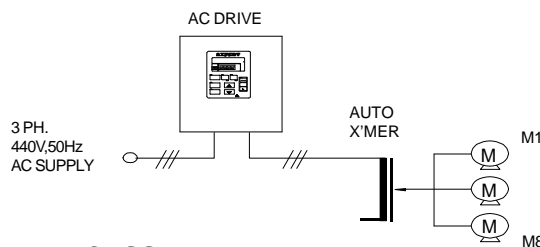
DOC.NO. : AMTCS-13

HOST ORGANISATION : SHREE SYNTHETICS, UJJAIN
INDUSTRY : SYNTHETIC YARN
APPLICATION : RAYON SPINNING MACHINE

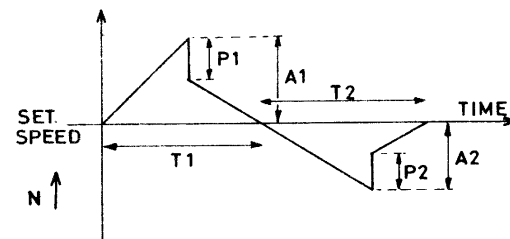
OBJECTIVE

The application requires accuracy in the set speed as well as its ability to sustain power fluctuation & dips because any interruption to the pumping process will cause changes in the viscosity of the molten material. If it increases it may lead to jamming of the pump and if it is decreased it will cause unusual thickness of the filament & hence its reduced elastic strength. Application wise this will always be requiring the PLCT option on complete power loss for 1.5 sec. which can be achieved by customised AC Variable Frequency Drive.

BLOCK SCHEMATIC



SPEED Vs TIME PROFILE FOR WOBBULATION CONTROL :



PROCESS

Synthetic yarn winding process is governed by following machines (1) Metering pump (2) Coated drum motor (3) Traverse motor (4) Friction roll (5) Draw and Twist machine (D/T machine)

PREVIOUS SYSTEM

In the previous system motor-generator set, AD generator coupling was used to vary the speed of the motors. As the system was electromechanical, it was inefficient and prone to maintenance. Because of down time the productivity was poor.

NEW SYSTEM

In this process because of application of static inverters along with special software package on wobble control. The process was more efficient and productive. For the ! even built -up of the yarn on the guide motion is controlled in very specific manner so that the required knitting of the yarn on bobbins is achieved.

MERITS OF NEW SYSTEM :

- 1.Reduction in starting current.
- 2.Frequency stability led to improvement in the quality of winding.
- 3.Elimination of motor generator set coupled with Eddy Current coupling for generating the required high frequency for operation.
- 4.Improvement in system efficiency by 30 % to 40 %.

Overall with installation of AC Variable Frequency drive with customised software improved efficiency & quality of product.

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