

# APPLICATION CASE STUDY



DOC.NO. : AMTCS-18

**HOST ORGANISATION** : RAINBOW PAPER LIMITED.RAJPUR., KADI  
**INDUSTRY** : PULP & PAPER  
**APPLICATION** : REFINER PUMP  
**METHOD OF CONTROL** : THROTTLING CONTROL  
**OBJECTIVE** : TO DEMONSTRATE THE ENERGY SAVINGS WHICH CAN BE ACHIEVED BY USING AC VARIABLE FREQUENCY DRIVE ON THE 30 HP REFINER PUMP.  
**POTENTIAL USERS** : PULP & PAPER MILLS

## POWER CONSUMPTION BY PRESENT METHOD OF THROTTLING

CONSUMPTION	THROTLING VALVE OPENING
19.4 KW/HR	100%

## ACTUAL POWER CONSUMPTION USING AC VARIABLE SPEED DRIVE & THROTTLING VALVE FULLY OPEN

CONSUMPTION	THROTLING VALVE OPENING
9.7 KW/HR	100%

* NET POWER SAVING	:	19.4 KW - 9.7 KW = 9.7 KW/HR
* MOTOR OPERATION	:	12 HRS/DAY
* UNITS SAVING/DAY	:	116 KWH
* UNITS SAVING/MONTH	:	3492 KWH
* TARRIF RATE	:	US \$ 10119.0 / UNIT
* ENERGY SAVING/MONTH	:	US \$ 353.3 APPROX.
* ENERGY SAVING/YEAR	:	US \$ 4238.0 APPROX.
* INVESTMENT	:	US \$ 2381.78

## MERITS OF THE SYSTEM :

1. Starting current has reduced from 280 Amp to 40-45 Amp only
2. Reduction in power consumption by approx. 3500 units per month
3. Pump and motor is running at reduced speed and hence noise has reduced
4. Life of the bearing increased
5. Motor is totally electronically protected
6. No variation in set flow requirement irrespective of mains voltage and frequency variation
7. Power factor is unity
8. 100% depreciation during the very first year and easy finance from financial institutions.

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