

APPLICATION CASE STUDY



DOC.NO. : AMTCS-8

HOST ORGANISATION : SOMANI PILKINGTON'S LIMITED. KADI. (SOMANI GROUP)
INDUSTRY : CERAMIC TILES
APPLICATION : DUST COLLECTOR FAN (SUCTION FAN)
METHOD OF CONTROL : DAMPER CONTROL
OBJECTIVE : To demonstrate the energy savings which can be achieved by using ac variable frequency drive on the 100 hp Dust Collector fan (Suction fan).
POTENTIAL USERS : CERAMIC & CEMENT PLANTS

POWER CONSUMPTION BY PRESENT METHOD OF THROTTLING

CONSUMPTION	THROTLING VALVE OPENING
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54 KW/HR	100%
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ACTUAL POWER CONSUMPTION USING AC VARIABLE SPEED DRIVE & THROTLING VALVE FULLY OPEN

CONSUMPTION	THROTLING VALVE OPENING
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34 KW/HR	100%
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NET POWER SAVING : 54 KW - 34 KW = 20 KW/HR

MOTOR OPERATION : 24 HRS/DAY

UNITS SAVING/DAY : 480 KWH

UNITS SAVING/MONTH : 14,400 KWH

TARRIF RATE : US \$ 9523.81 / UNIT

ENERGY SAVING/MONTH : US \$ 1214.28 /- APPROX.

ENERGY SAVING/YEAR : US \$ 14571.43 /- APPROX.

INVESTMENT : US \$ 8333.33

ECONOMIC ANALYSIS : The total air vacuum pressure developed in tiles manufacturing shop was excessive. With application of ac variable frequency drive, and based upon specific vacuum pressure generation figures obtained from monitoring periods, The reduction in electricity consumption by 100 hp fan motor is estimated by 14400 kWh / months.

The shop area is operational all times of the year and thus it's electricity consumption forms apart of the base demand of the infirmiry.In considering financial savings,the higher cost components of the electricity tariff are therefore applicable.

Analyses of monitored data showed that average electrical demand of motor was reduced by 45% and the total saving achieved by used by inverter are estimated Rs. 6 lacs hence payback of the system is only 7 months

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