

# APPLICATION CASE STUDY



DOC.NO. : AMTCS-26

HOST ORGANIZATION : **BELL CERAMIC LTD.**  
INDUSTRY : CERAMIC  
APPLICATION : BELT ELEVATOR MACHINE (FOR TILES)  
**PREVIOUS SYSTEM** : TWO DIFFERENT MOTORS WITH ELECTROMECHANICAL BRAKE  
: Unfinished tiles were shifted from conveyor belt to rack for final proces. For that purpose up down movement of the belt was accomplished by belt elevator machine which required two motors for two speed operation with forward - reverse logic and electro - mechanical brakes were used to brake the motor.

## **PROBLEM OBSERVED** :

1. Two motors were operated on DOL starters with Electromechanical brake which resultd into jerk & vibration of the elevator belt. Also it resultd into breakages & internal crakes of unfinished tiles.
2. Poor accuracy of whole system because of electromechanical parts.
3. Maintenance of the electromechanical brake system was very high which resulted into total breakdown of the machine.

**PRESENT SYSTEM** : AXPERT 5HP AC drive is used with single motor with two speed operation & forward reverse logic without any mechanical brake.

## **MERITS OF NEW SYSTEM:**

1. Only one motor is required with all logic such as forward- reverse, brake & two speed operation, which has reduced most of contactor logic, results into less maintenance & high reliability.
2. Smooth start / stop without vibration results into 20% reduction of tiles breakages.
3. Instead of two electromechanical system same has replaced by one motor with electronic brake which has reduced capital cost as well as maintenance of system.

**ECONOMICAL ANALYSIS** : 1. Finally with the usage of AC drive instead of previous system total breakages of tiles has reduced by 20% which results saving of US \$ 119.04 per months. This given payback of 5 months (approx).  
2. Instead of two motor & brake only one motor is required which saves capital cost of US \$ 119.04(approx)

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