Industry: Mining
Application: Replacing Existing Motor with Alternative Variable Speed Motor
Solution: Baldor•Reliance 25 HP V*S Master Motor

DOCUMENTED SAVINGS
CASE STUDY NO. 2

The Challenge

The feeder for the crusher at a mining company was running too fast. In order to keep it from over filling the crusher with ore, the feeder would have to be shut down (to allow the crusher to catch up) and then restarted. The customer had been using a motor on a variable speed drive at the slowest speed possible—6 Hz. However, even this was too fast. Therefore the company was considering replacing the entire drive system with a hydraulic system at a cost of $90,000.

The Baldor Solution

After determining that no extra torque was required for the system, it was suggested that the company replace the existing 25 HP motor with a Baldor•Reliance 25 HP V*S Master motor. The total cost of the Baldor•Reliance V*S Master motor was compared to the existing hydraulic system by determining the total installation costs and downtime costs associated with each solution.*

* See back page for details of data analysis.

The Savings

The V*S Master motor was a quick change-out for the company and cost about $3,000—versus replacing the entire drive system with a hydraulic system at $90,000.

The Conclusion

By listening to the customer and understanding their needs, we were able to provide a variable speed motor that would allow the application to run at a speed of 1 Hz, while maintaining all other functions. Not only was the replacement motor less expensive than replacing the entire drive system, the customer saved money in shipping and downtime costs.

The Step-by-Step Calculation

ANNUAL OPERATING COST

Competitors' Hydraulic Drive System

Baldor Solution Total Savings of: $89,292

Step 1 —

For each product that was analyzed, Baldor asked the following questions:

- What was the amount of time required to perform each of the following activities?
  - Lock out conveyor drive and belt
  - Remove the existing drive
  - Select and purchase new components
  - Install a new drive
- What was the number of employees required for each activity?
- What was the labor rate for each activity?
- What was the cost of parts for each activity?
- What was the replacement frequency of each component?
- What were the downtime costs ($ per hour)?

Step 2 —

We calculated the total operating costs for the existing and proposed solutions using the following formulas:

Installation Cost = [(Time Spent on Activity/60 Minutes) x (# of Employees for Each Activity) x (Labor Rate) x (Replacement Frequency)]

Downtime Cost = [Downtime Cost ($ per Hour) x (Time Spent on Activity) x (Replacement Frequency)]

Efficiency Cost per Unit = [(kW Spent*) x (# of Operating Hours) x ($kW per Hour) x (# of Years in Operation) x (# of Units)]

* kW Spent = Unit HP x 1/Unit Efficiency

RESULT:

Existing or Alternative Total Operating Cost	$ 3,000
Baldor Total Operating Cost	$ 500
SAVINGS	**$ 2,500**

Step 3 —

We compared the purchase price of the existing and proposed solutions to illustrate an accurate assessment of overall costs.

RESULT:

Existing or Alternative Purchase Price	$ 90,000
Baldor Purchase Price	$ 3,208
SAVINGS	**$ 86,792**

Step 4 —

Based on these calculations, we were able to discover and document a **TOTAL DOCUMENTED SAVINGS OF:** **$ 89,292**

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