Industry: Mining
Application: Installation and Maintenance Costs for Replacement of Bearings
Products: DODGE® IMPERIAL® Bearings

DOCUMENTED SAVINGS
CASE STUDY NO. 3

The Challenge
An open-pit coal mine had been using a competitor's four-bolt flanged bearings on their coal feeders, which were very wet and dusty. The existing bearings were only giving them about 2,000 hours of life before failing and having to be replaced.

The Baldor Solution
By comparing the customer's existing bearings with our DODGE IMPERIAL bearings, we were able to show an overall cost savings by illustrating the reduced installation and maintenance time, as well as the significant downtime savings (due to the extended life of the proposed bearings).*

* See back page for details of data analysis.

The Savings
Not only did the DODGE IMPERIAL bearings cost $200 less than the existing bearings, the ease of removal and installation saved the customer another $620. In addition to the installation and maintenance savings, DODGE IMPERIAL bearings provide 2,000 more hours of life than the existing bearings—resulting in a total savings of $727.

The Conclusion
By listening to the customer and understanding their needs, we were able to provide a bearing that met and exceeded their application needs. Replacing the existing bearings with DODGE IMPERIAL bearings proved not only less expensive, but it provided longer running time and was easier to remove and install—making it the perfect solution for the customer. As a result, the DODGE IMPERIAL bearing is now standard equipment for this customer's mining application.

The Step-by-Step Calculation

ANNUAL OPERATING COST

Existing Bearings

Baldor Solution Total Savings of: $727

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	$ 984
Baldor Total Operating Cost	$ 457
SAVINGS	**$ 527**

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	$ 540
Baldor Purchase Price	$ 340
SAVINGS	**$ 200**

Step 4 —

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

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$ 727

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