

Poultry Feather Picker Machine

Baldor Feather Picker Motor


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Feather-picking machine (1)



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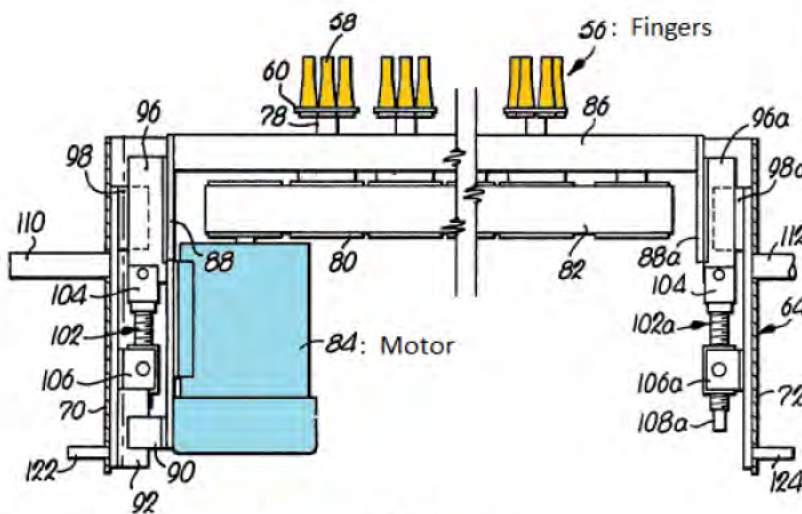


Introduction

The need to clean and sanitize food processing areas with hot water and caustics at high pressure creates unique challenges for the motor and mechanical power transmission equipment. One of the most demanding food processing applications is the poultry feather picker machine. Unlike conveyor applications downstream where product can sometimes be diverted, downtime at the picker machines shuts down processing, so motor reliability is absolutely essential.

Application Review

After the birds make it through live receiving, hang, and the kill area they enter one side of the picker machine hung upside down by their feet. On the inside of the machine there are numerous rotating wheels with rubber fingers. These rotating fingers impact the birds and remove the feathers as the birds travel down the length of the machine.



Fingers

Motor and Fingers (2)

The rotary wheels are driven by a serpentine belt drive system that is typically a two groove v-belt or sometimes a flat belt design. The cabinet will contain 4 to 10 motors depending on size and they are normally aligned with one right on top of the other driving picker wheels on the top and bottom of the machine.



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Opportunity

Because of the harsh operating and washdown conditions, conventional motors tend to have a short life inside picker machines. Working with a poultry customer during an Installed Base Evaluation (IBE), Baldor uncovered a picker motor reliability problem and committed our Industry Solutions, Baldor District Office and Fort Smith Motor Marketing teams to develop an engineered solution.



Solution

Baldor engineered a special picker motor with a unique feature set to enhance the motor life. Using some of the features of the very successful Baldor SSE encapsulated motor, Baldor designed a picker motor that was dimensionally interchangeable with the existing competitors motor, and for the first time encapsulated a white washdown picker motor that met the unique combination of HP, frame and speed. The result is a 3 HP, 1800 rpm, white washdown motor in a 145T frame with an encapsulated winding.

We presented our new motor design to the poultry processor, who agreed to put it on test. The first Baldor encapsulated picker motor was installed on June 15, 2011. The customer agreed to measure the performance and compare it to the average life of the existing motors being used. The new motor has currently run over twice as long as the existing design, and continues to run to this day (3/30/2012)



As a result of this successful test and continued success with other installations, this customer has decided to standardize on the Baldor feather picker motor. After providing Baldor with the purchase history and locations where these motors are utilized, we have identified \$279,000 of new business and have now presented our solution to all of the 16 plants with 14 plants to date placing orders to convert this business from competitor to Baldor.



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Documented Savings

SAVINGS CATEGORY	DATA	NOTES
DOWNTIME (UNPLANNED)		
		Application Pictures
Cost of Unplanned Downtime (\$/hr) or (\$/min)	\$100.00	
Number of Unplanned Downtime Failures (X/yr)	25	
Time Spent on Failure Replacement (hr) or (min)	30	
Number of Dodge/Reliance Downtime Failures (X/yr)	12	
Time Spent on Dodge/Reliance Replacement (hr or min)	30	
DOWNTIME SAVINGS SUB-TOTAL	\$39,000.00	
LABOR		
Labor Rate (\$/hr) or (\$/min)	\$40.00	
Number of Total Failures (X/yr)	25	
Time Spent on Failure Replacement (hr) or (min)	0.5	
Number of Total Dodge/Reliance Failures (X/yr)	12	
Time Spent on Dodge/Reliance Replacement (hr or min)	0.5	
LABOR SAVINGS SUB-TOTAL	\$260.00	
MATERIALS		
Cost of Replaced Product (\$ each)	\$600.00	
Number of Total Failures/Replacements (X/yr)	25	
Cost of Dodge/Reliance Product (\$ each)	\$400.00	
Number of Dodge/Reliance Failures/Replacements (X/yr)	12	
Cost of Other Materials - Shafting, etc. (\$ each)		
Reduction of Inventory Required		
Replacements of Other Materials - Dodge/Reliance (X/yr)		
MATERIALS SAVINGS SUB-TOTAL	\$10,200.00	
EFFICIENCY		
Existing System (Motor/Gearbox) Efficiency (%)		
Dodge System (Motor/Gearbox) Efficiency (%)		
Horsepower (HP)		
Number of Units		
Cost of Energy (\$ / kW Hr)		
Annual Hours of Operation (Hrs)		
EFFICIENCY SUB-TOTAL	\$0.00	
ANNUAL Cost Savings- One application		\$49,460.00
* During IBE competitor picker motor identified as highest failure rate at plant		
* Plant purchases and tests new Baldor Encapsulated picker motor		
* Through maintenance history average life is determined to be 4.5 months		
* Baldor test motor has ran 9 consecutive months up to the date this cost savings was created 3-15-2012		

Reference

- (1) image from USDA Agricultural Research Service
- (2) drawing from US patent # 4217678



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