

BISON® CASE STUDY

CONTACT BISON



 Food & Beverage Market


762 Series Offset Parallel Shaft Gearmotor

Nugget/Flake Ice Machine Application

Bison® can provide a custom solution when a standard off-the-shelf gearmotor will not work. Learn how Bison® solved five unique challenges in one complicated project.

Background

Bison® was approached in the 1980s by a key player in the ice making industry, who wanted to partner with a gearmotor supplier to develop a new solution for their nugget / flake ice machine. They were experiencing in-warranty failure rates as high as 25% with their existing supplier, negatively impacting them and others in the space. Bison® accepted the challenge to solve the field failure issues and provide robust solutions to the market.

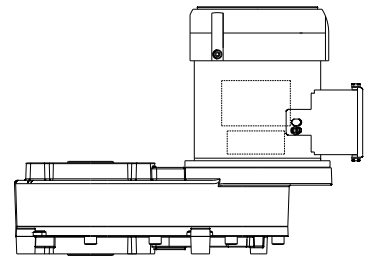


762 Series Gearmotor
Offset Parallel Shaft
AC Model

BISON® CASE STUDY

Ice Making Application

762 Series Offset Parallel Shaft Gearmotor



CHALLENGES:

- **Load Variations** – Flow rate and water quality relative to mineral content impact variations in load within the ice making cycle and leads to potential freeze up conditions, requiring the gearmotor to survive stall situations.
- **Voltage and Thermal Challenges** – Voltage drop, inconsistencies in the field maintenance of the machine, and various global ambient conditions create load and thermal challenges on the gearmotor.
- **High Thrust Loads** – The application generates high thrust loads into the gearbox during the ice harvesting process.
- **Water Ingress** – Presence of water dripping and running down on top of the output shaft / gearbox, given the typical setup within the ice machines.
- **Tight Tolerance Requirement** – Critical to limit deflection of output shaft given its interface with the auger system within the machine.

SOLUTION:

Bison's customized offset parallel shaft gearmotor was developed after creatively defining the application torque profile under various conditions and understanding the application challenges.

- **New Geartrain and Bearing System** – Increased load capacity and reliability.
- **Sophisticated Seal Solutions** – Provided water management features to prevent water ingress into the gearbox.
- **Stall Condition Mitigation** – Developed innovative system solutions to detect, mitigate and survive stall conditions in the application.
- **Rigorous Testing** – The design was then qualified by our customer through a battery of challenging tests, intended to replicate worst case field conditions.

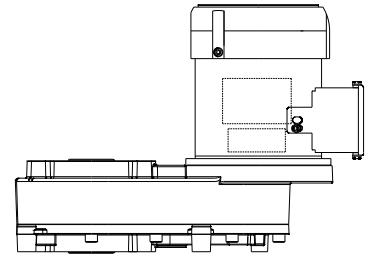
RESULTS:

- **Successful Launch** – The initial solution was developed in the 1980s and was successfully launched into the market.
- **Industry Impact** – The robust results of the Bison® design addressing both the functional needs and reliability issues were shared within the industry, leading to an expansion of the customer base.
- **Product Expansion** – More than five custom platforms have been developed to serve the market, spanning residential and commercial applications.

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Ice Making Application

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ABOUT BISON

For more than 100 years, Bison®, an AMETEK business, has helped customers differentiate their products by developing robust, flexible and durable motors, blowers and pumps under the brand names – Bison® Gear Motors, Lamb® Vacuum Motors, Nautilair® Combustion Blowers, Prestolite Motors DC Brushed Motors, ROTRON® Regenerative Blowers, ROTRON® Transportation and Windjammer® Brushless Blowers.

Bison® engineers thrive on technical challenges and provide customers with collaborative, customizable and optimized fluid-moving, fractional and integral horsepower solutions. Bison® has worldwide sales representative support, research facilities and manufacturing facilities in the United States, China, and Mexico. The company is headquartered in Kent, Ohio.

Bison® is a business of AMETEK – a leading global provider of industrial technology solutions

