DRIVE SYSTEMS FOR
THE AIRPORT INDUSTRY

CASE STUDY: Daifuku Logan Teleflex

NORD DRIVESYSTEMS

Airport Baggage Conveyors

Full featured conveyor lines powered by gearmotors & integrated VFD's.

Inclined Claim Conveyor

VFD control to ensure smooth starting and stopping

Queue Conveyors

Integrated dynamic braking for rapid start/stop applications

NORD Helical Bevel Gearmotors

2 & 3 stage Helical Bevel Gearmotors
Power & torque in a UNICASE™ housing

NORD AC Vector Drives

SK200E distributed control

The modular design of NORD's solutions are extremely beneficial to commissioning and maintaining baggage handling applications.

Airport Baggage Industry
Complex Conveyor Lines
Queue Conveyors
Inclined Claim Conveyors

Helical Bevel Gearmotors
90.1 Series
92.1 /93.1 Series

Distributed Control
AC Vector Drive
SK200E

PROJECT CHALLENGE

For many years, Logan Teleflex, which is a segment of Daifuku Airport Technologies, has searched for a distributed control solution for their baggage handling system designs.

When quoting a recent airport terminal renovation in the U.S., the project had been originally specified with centralized controls. After consulting the project's baggage handling system consultant, Daifuku elected to present a distributed control solution to the airport after learning of NORD's solution.

Airport baggage handling systems are intricate arrangements of complex conveyor lines that must operate with precision and reliability. With the ability to customize not only the mechanical side of the project, but also the electronic controls, the NORD solution provides a completely engineered system to meet all of the application needs.

Integrated dynamic brake control is necessary in queue conveyor segments of the baggage handling system. This is needed for rapid starting and stopping of the conveyors as baggage travels through the system. Each NORD motor frame size has a number of available brake sizes and a multitude of options. NORD brakemotors with distributed control AC drives have the brake rectifier integrated directly into the AC drive. This eliminates the need for the standard brake rectifiers and associated brake control relay circuits.

The baggage handling system incorporated hundreds of gearmotors. A central control cabinet solution presented the challenge of supplying dedicated motor power wiring to each gearmotor throughout the expanse of the conveyor system. This would make for a very time consuming installation and commissioning process. NORD's decentralized AC drive solution and M12 quick disconnect receptacles allowed for a simplified installation process.

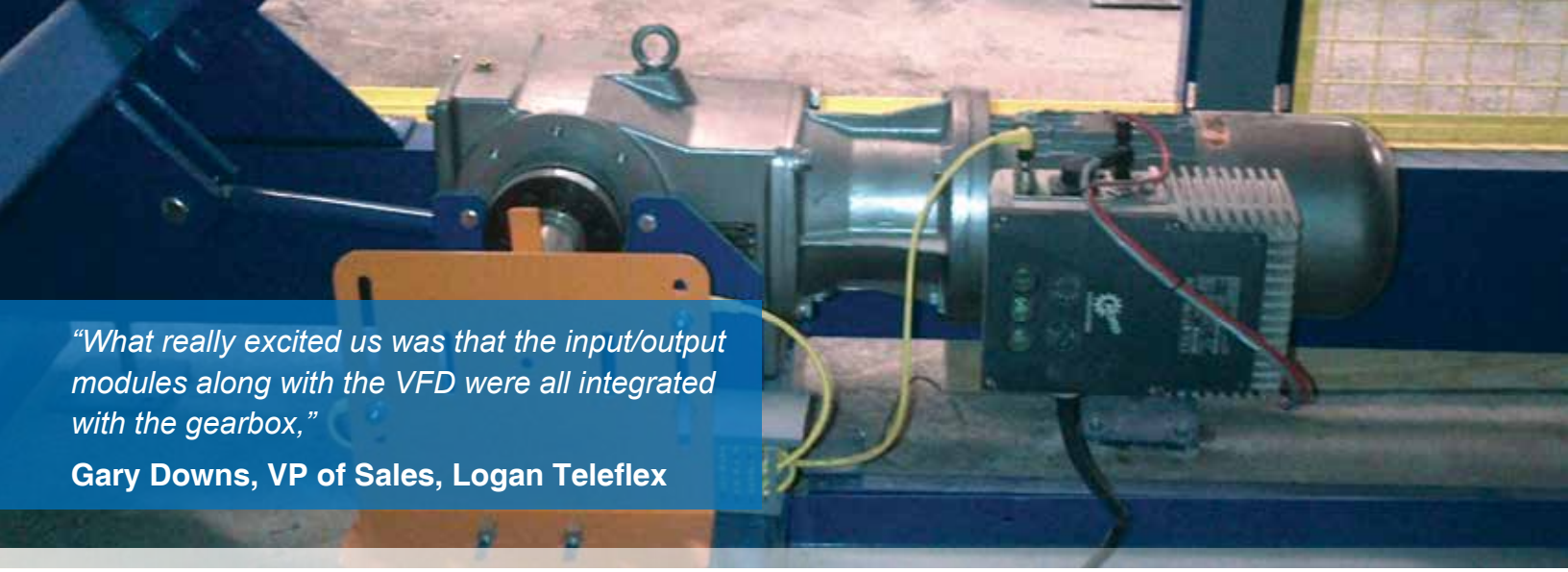
Because of the cost effectiveness of the NORD product and the flexibility to select various options based on the specific system requirements, "we quote NORD almost exclusively on our projects," says Gary Downs, VP of Sales at Logan Teleflex.

FOCUS ON THE CUSTOMER

For over 70 years Daifuku Airport Technologies, a business division of Daifuku Co., Ltd. has been developing state of the art automated material handling solutions. Daifuku Airport Technologies has forged together BCS Group, Daifuku Logan, Elite Line Services, Jervis B Webb, and Logan Teleflex into a world-class solutions provider for airports worldwide. Our breadth of products and services are coupled with vast knowledge and resources, through our global operations, to provide innovative baggage handling as well as airport operations & maintenance solutions.

DAIFUKU
Airport Technologies

Daifuku Airport Technologies, North America



"What really excited us was that the input/output modules along with the VFD were all integrated with the gearbox,"

Gary Downs, VP of Sales, Logan Teleflex

APPLICATION SOLUTION

With high quality drive systems that combine gearmotors with integrated distributed controls, NORD Drivesystems provides both a reliable and cost-effective solution for the special requirements of the airport baggage handling industry. "What really excited us with NORD was that the input/output modules along with the VFD are all integrated with the gearbox," says Downs. The integrated electro-mechanical drive solution equipped with quick connectors allowed for preassembly at Daifuku's assembly shop which minimized assembly and field wiring costs. Additionally, this preassembly saved on installation time and commissioning the system.

NORD's modular design is also beneficial for continued maintenance and support of airport baggage systems. "What really stands out for me with this project was that it was so uneventful. The fewest issues I can recall," says Aaron Thompson, NORD District Sales Manager.

The helical-bevel and 2-stage bevel gearmotors supplied on this project included NORD's SK 200E AC vector drives for precision and motion control of the baggage handling system.

The following features were selected in order to provide additional safety measures as well as reduce the hardware and cableing required to wire the baggage system:

Safe Torque Off Safety Circuit (STO): This is an emergency method that removes the 24V power that controls the transistors that produce the pulse width modulated (PWM) output signal for the motor. If the STO circuit is tripped, the AC vector drive will not be able to control the motor until the STO is reset.

DeviceNET™ network control: The AC drive is controlled by a centralized PLC over a DeviceNET™ communication network. This allows for reduced control wiring by eliminating the need for control cable runs to each AC vector drive. Higher resolution feedback from the AC vector drive is also available for the PLC to evaluate.

Local/OFF/Remote Selector Switch: A switch that allows the AC vector drive to be run in a local/manual mode. If ever the DeviceNET™ network is down or the network cable becomes damaged, the AC drive may be put into manual operation via a switch mounted to the AC drive.

From induction conveyors to Inclines, NORD has a product that will fit your airport baggage system requirements.

FOCUS ON THE PROJECT

The modernization and reconfiguration of a U.S. international airport terminal included a little over 100 gearmotors on the baggage handling system supplied by NORD Gear Corporation. The many conveyor belts are equipped with either 90.1 series helical-bevel or 92.1/93.1 2-stage helical bevel gearmotors, many with distributed drive controls.

- Cost-Effective
- Easy to Install
- Easy for Maintenance and Support

MORE REFERENCES AND CASE STUDIES MAY BE FOUND AT :

- www.nord.com/references

DRIVESYSTEMS
www.nord.com

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Global Vision, Local Support

NORD makes its wide product range easily available through a global network that includes representation in over 60 countries. By providing all of our customers with prompt delivery, and expert support services, we are firmly committed to exceeding customer expectations and being responsive to the ideas and specifications of every customer, anywhere in the world.