

**WAREHOUSING**

AUTOMATED STORAGE AND RETRIEVAL SYSTEM

COLD
ENVIRONMENT

HIGH SPEED

LONG STROKE
LENGTH

MULTI-AXIS

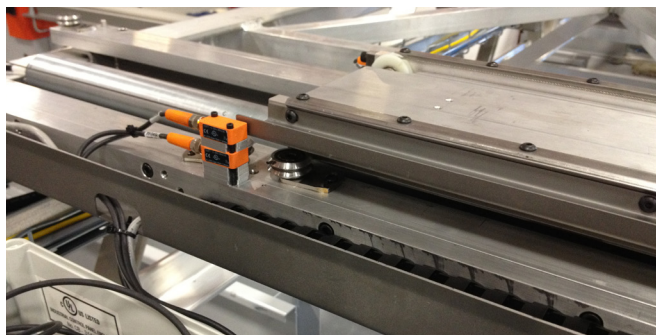
Aerospace Carbon Fiber Handling in Sub-Zero Freezer Storage Conditions

Bastian Solutions, an equipment systems integrator, was tasked with automating the storage and retrieval of very long aerospace grade carbon fiber in a sub-zero temperature environment. The system needed a double extending conveyor for material retrieval from a rack along with a conveyor to place the material into a machining center.

CHALLENGE

COMPACT LINEAR MOTION SYSTEM THAT CAN WITHSTAND A SUB-ZERO TEMPERATURE ENVIRONMENT

Carbon fiber segments up to 40 feet long needed to be stored at a temperature of -20° Fahrenheit so that the material would remain pliable for further processing. An automated retrieval system was needed to operate within this cold environment and retrieve a segment within a 3-minute cycle more than 10 times per day. The custom machine required 8 conveyor segments with double extending articulating action to pick and place the materials on a standard warehouse racking system. A low-profile guide bearing was needed that could double extend within tight flatness and level requirements across all touching fingers.



Cold storage and retrieval vertical lift module with telescoping actuator using DualVee wheels and track



Studded DualVee guide wheels and track mounted to conveyor frames provide motion for a double extending telescopic solution.

SOLUTION

DUALVEE GUIDE WHEELS AND TRACK THAT EXCEL IN HARSH & EXTREME ENVIRONMENTS

The system designer selected DualVee® Linear Guide Wheels and Tracks to provide the motion. Stainless steel linear track and compact height studded guide wheels were mounted to the conveyor frames in an arrangement that provided for the double extension into and out of the rack shelves. The ability for DualVee® to operate within low temperatures, over long travel lengths, and within a compact installation height make DualVee® well suited for this application. The component based linear track and guide wheel products can be easily arranged and attached to a variety of mounting structures to provide telescoping motion.

CHALLENGE SOLVED

LOW TEMPERATURE GUIDE WHEELS FOR COMPACT SPACES AND LONG LENGTHS

The DualVee® linear guides provided an ideal solution for necessary motion within the storage and retrieval articulating conveyor system. Guide wheels with low temperature grease are designed to operate well below the required temperature and are constructed from corrosion resistant stainless steel to help keep the environment clean. Low profile studded wheel bearings enable very compact assembly heights so that a double extending telescopic solution could be designed within limited space. Long linear track lengths make for continuous support for long travel requirements.