

CUSTOM ENGINEERING TURNS NORD GEAR REDUCERS INTO ACTUATORS

To create its new, highly accurate rotary actuator series, **Jordan Controls in Milwaukee, WI**, a manufacturer of electric actuators and related control products, needed an accommodating gearbox manufacturer. It required gear reducers that could be modified and used as a base for the new product line. Additionally, Jordan was searching for a bold look and a full torque range.

NORD Gear Corp. (Waunakee, Wis.), was selected after an extensive search. Beyond the fitting appearance of its heavy-duty reducers, NORD offered the high ratios and customization abilities that Jordan was looking for.

Whereas many of Jordan's prospective gearbox providers were unwilling to deviate from their standard product, NORD embraced the opportunity to provide a custom solution. Jordan's senior project engineer, Bob Yach, explains, "NORD was more appealing in that they said, 'you know, if you have special requirements we can take a look at them and see what we can do for you on that.' And they did."



NORD gear drive integrated into Jordan SM-6000 rotary actuator



SM-6000 Series rotary actuators from Jordan Controls are internally geared to produce up to 26,000 ft-lbs.

The SM-6000 Series Actuators would produce up to 26,000 lb-ft. of torque, but as damper style actuators, their output shaft's rotation would be limited to 90 degrees. This would be an entirely new application for NORD's reducers, which typically had a shaft rotation of 360 degrees, 24 hours a day. However, NORD's advanced engineering and customization services, along with its more-than-sufficient torque range, easily made up for the lack of experience.

Jordan's initial attraction to NORD was as much about the fit and finish of its products as it was their customizability. "The reducer is a heavy-duty looking unit with a bulking arrangement for the base mounting that is both rugged and looks nice," describes Bob. "And when I toured the NORD facility, I was impressed with the paint line and the coating

that was applied to the product." Such factors, as well as lubricant and coupling qualities, would lend themselves to the high temperature applications that Jordan often pursued. As a result, the SM-6000 could and would be offered in both a 185-degree F and 225-degree F version.

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Bob worked with NORD representative Ted McCabe throughout the process of converting the gear

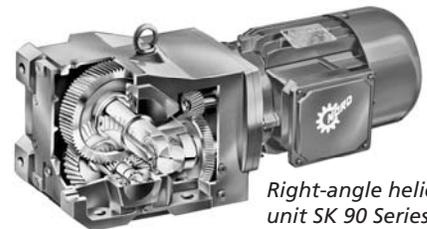
reducers into precisely controllable rotary actuators. Together they developed a custom shaft that could accommodate a Jordan encoder mechanism for sending rotational feedback to the user. The device monitors the position of the output shaft on the gearbox, used to open and close vanes, valves, dampers, etc. Unlike traditional actuators, the SM-6000's accuracy wouldn't be vulnerable to any backlash or power gearing issues that might arise with the motor, because the data would be sent directly from the final drive arm element of the actuator.

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As it turned out, Jordan also needed some custom work done with regards to the output shaft's material. Jordan's actuators are sometimes placed outside by their end users, in an environment more conducive to rusting and corrosion than NORD's standard iron shafting was prepared to handle. As an alternative shafting material, NORD selected stainless steel to optimize the shaft's longevity. The choice would eliminate the foreseeable rusting problems. What's more, NORD's in-house machining capabilities would allow the customizations to be made without dramatically affecting the cost or delivery time of the product. Even in rush order situations, NORD would still deliver the actuators on time. "NORD was very quick to upset their process to get our products through – we were very happy with that," recalls Bob.

Jordan's customers have also enjoyed the timely delivery of a high-performance product. "It's being wellreceived," says Bob of the SM-6000. "They like that it's a heavy-duty unit and are very pleased with its ability to position continuously and shift quickly." With NORD as the product's base, customers can choose from among ten different sizes, both vertical and horizontal in orientation, with a full range of speed-to-torque ratio options. The smallest units have a shift time of just 10 seconds for 90 degrees, and the largest, an impressive 42 seconds.

Jordan has been extremely pleased with the new product line's performance. The SM-6000 delivers the precision control it was designed for, and at the base of it all, there's NORD.



Right-angle helical bevel unit SK 90 Series



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