

AUNSPACH CONTROLS COMPANY

RECOMMENDED PRODUCT SPECIFICATION

Application: Valves, Actuators, Gearboxes etc.

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Product: Model D80 and Model D87 Overtorque Clutch

Torque Limiting Device Specification

To protect the valve, actuator, gearbox or equipment from damage due to excessive input torque, a torque limiting device shall be used. This device shall transmit sufficient torque to operate the equipment, but physically declutch and prohibit transmission of torque beyond a preset amount regardless of the torque applied. The torque limiting device shall comply with the specifications and standards as detailed below:

OPERATION

- The device must transmit operating torque in either direction, up to a pre-set limit
- The device must physically prohibit torque damage to the equipment (e.g. valve, gate, actuator, gearbox etc.) regardless of force applied
- The device shall disengage automatically when excessive torque is applied in either direction, within 3% of the setpoint
- The device shall automatically reset at the original trip-torque without user intervention upon rotation when torque amount drops below setpoint

DIMENSIONS, WEIGHT & CAPACITY

- The device shall be Model D80 or Model D87 according to trip-capacity requirements, and shall have core dimensions, weight (excluding end-connections) and capacity of no larger/greater than:

| Model | Trip-Capacity (lbft) | Trip-Capacity (Nm) | Core Dimensions (inches) | Core Dimensions (millimeters) | Core Weight (pounds) | Core Weight (kilograms) |
|-------|----------------------|--------------------|--------------------------|-------------------------------|----------------------|-------------------------|
| D80 | 0 to 100 lbft | 0 to 140 Nm | ∅ 4-1/4" x 1-9/16" | ∅ 108mm x 40mm | 5.5 lbs | 2.6 kg |
| D87 | 100 to 500 lbft | 140 to 680 Nm | ∅ 4-1/2" x 3" | ∅ 115mm x 77mm | 10 lbs | 4.6 kg |

- The device shall have an operating temperature range of -10°F to 250°F (-23°C to 120°C)

CONSTRUCTION

- The device shall be furnished completely ready-to-mount, with integral pre-machined end-connections accommodating new or retrofit applications
- The device should not require any special tools for installation or calibration

MECHANISM

- The device mechanism shall not incorporate friction disks
- The device mechanism must be fail-safe
- The device mechanism shall consist of one (or multiple) Belleville spring-loaded, tapered, hardened drive rollers or balls operating in conjunction with multiple tapered, hardened detents
- The device shall be permanently lubricated with MoS2 (molybdenum disulfide) high-pressure grease meeting JIS K2220 or DIN K2220 specifications and capable of withstanding pressures up to 500,000 psi
- The device's Belleville springs must meet DIN 2093 specification

WATER-INGRESS

- The device shall be hermetically sealed and fully submersible
- The device shall exceed IP68 water ingress standard and be tested water tight when submerged to minimum of 70 meters (230 feet) water pressure



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Torque Limiting Device Specification (continued)

CORROSION PROTECTION

- The device shall be corrosion protected by fusion-bonded epoxy, inside and out, and must be compliant with AWWA C213 & C550
- The device shall have ultra-violet resistant top-coat
- All exposed fasteners shall be AISI 316 or 18-8 stainless-steel
- The device shall be designed to endure long periods (20-years) of active use buried underground and submerged in fresh/brackish/salt water
- The device shall be designed to endure a minimum of 10-years of inactive service with no effect on operation

PERFORMANCE

- The device shall be repeatable within $\pm 3\%$ of setpoint over 1,000 cycles
- The device shall be tested for over 10,000 cycles with no detrimental wear

MAINTENANCE

- The device shall require ZERO maintenance

CALIBRATION

- The device shall be factory calibrated
- The device must have a single-point of calibration
- The device shall be field adjustable without exposing mechanism and without disassembly or removal of housing
- The device shall feature a sealed and concealed, tamper-resistant calibration screw
- The device should require no special tools to calibrate

WARRANTY

- The device manufacturer shall warrant the product to be free from defects and perform as advertised for at least a period matching that of the equipment warranty for which it's installed – or - 5-years after date of manufacture

GENERAL

- The device must be 100% manufactured in the USA, with at least 50% of components sourced domestically
- The device must have a 10-year install history in municipal water distribution systems
- The manufacturer shall provide an envelope drawing (and have 3D model available upon request), detailing the device envelope and connection dimensions specifically for the application it is to be installed
- The torque limiting device shall be as manufactured by:
Aunspach Controls Company of High Ridge (St. Louis), Missouri



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