

AUNSPACH CONTROLS COMPANY

RECOMMENDED PRODUCT SPECIFICATION

Application: Butterfly Valves, Ball Valves, Resilient & Metal Seat Gate and other Valves

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Product: Model D86 Valve 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 de-clutch 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, and must physically prohibit torque damage to the equipment on which it's installed regardless of force applied
- The device shall disengage automatically when excessive torque is applied in either direction, within $\pm 3\%$ of the setpoint
- The device shall automatically reset upon further rotation, without user intervention, and begin to transmit again at the original torque limit set-point

DIMENSIONS, WEIGHT & CAPACITY

- The device shall be Model D86-250 or D86-500 according to trip-capacity requirements, and shall have core dimensions, weight 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)
D86-250	25 to 250 lbft	35 to 340 Nm	Φ 4-1/2 x 6-1/2"	Φ 115mm x 165mm	12.5 lbs	5.7 kg
D86-500	50 to 500 lbft	70 to 680 Nm				

- 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
- The device shall have an integral (male) cast-iron housing featuring a 2-inch tapered square AWWA operating nut with arrows and the word "OPEN" cast into the base to indicate direction to open
- The device shall have an integral 2-inch (female) tapered square socket to fit over a 2-inch AWWA tapered operating nut
- The unit must accommodate new or retrofit applications
- The device should not require any special tools for installation or calibration
- The device must be capable of installation on direct-bury applications
- The device shall be made to mount within a 6-inch diameter stem riser tube or in a valve box and mount directly on the valve nut or on top of stem extension
- The device shall be designed to endure long periods (years) of active or inactive use buried underground and submerged in fresh/brackish/salt water



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MECHANISM

- *The device mechanism shall not incorporate friction disks*
- *The device mechanism must be fail-safe*
- *The device mechanism shall be fully sealed and enclosed inside of a rugged cast/ductile-iron housing*
- *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's Belleville springs must meet DIN 2093 specification*
- *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*

WATER-INGRESS

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

CORROSION PROTECTION

- *The device shall be corrosion protected by fusion-bonded epoxy, inside and out, in compliance with AWWA C213 & C550 standards*
- *The device shall have ultra-violet resistant top-coat*
- *All exposed fasteners shall be AISI 316 or 18-8 stainless-steel*

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 35-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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REV 11SEPT2024