

TECHTORQUE NEWS

Volume 5
Issue 6

Welcome to the sixth issue of Techtorque for 2008. Your feedback about our newsletters as well as your suggestions for any particular products or applications that you would like to read about is always welcome. With your input, we will do our best to provide you with informative and relevant reading matter. Please email your comments and requests to our Sales and Marketing Manager, Chris Hoare, at choare@acrodyne.com.au.

YTC visits Acrodyne

Mr. M.G. Lee, Engineering Manager for YTC Korea visited Acrodyne in September for marketing and business discussions as well as providing technical training to our sales and production departments. During his visit, he introduced the YT2700 (yet to be released) which is a smaller version of the YT2500 Fail Freeze smart positioner released a few months ago. With many of the same features, the YT2700 is designed primarily for smaller valves (with smaller capacity actuators) for both rotary and linear applications. It will be ideally suited to angle seat valves and smaller globe valves as well as smaller rotary control valves.



Mr. Lee also discussed some new products and upgrades due for release next year

QTRCO

The QTRCO Q-Series ¼ Turn Rack & Gear™ actuators offer many benefits not found in common rack and pinion or scotch yoke actuators. The offset pistons eliminate internal, life shortening, cantilever loads while the patented saddle assembly contributes to having the lowest friction actuator on the market. Low friction, combined with the rack and gear operating mechanism produce an exceptional throttling control capability as well as economical on-off operation. Many additional features, as well as the fact that the Q-Series actuators are made of 316 stainless steel – inside and out – make the QTRCO an excellent choice for actuating all ¼ turn valves. We back it with a 3 year Warranty.



PROXIMITY



Rotary Position Indicator

- Mark 1 - Magnetically Coupled Switches
- Mark 3 - Multi-Turn Switches
- Mark 4 - Thru-Shaft Switches
- Mark 6 - Hermetically Sealed Reed Switch

NEW J3 RANGE



NEW J3 RANGE

- All new IP65 weatherproof housing
- LED status light
- Plug & play failsafe and/or modulating conversion kits
- 4 models covering torques from 25 to 90Nm
- (2 new models: 35 & 85)

CHARACTER FIRST COMPASSION

Investing whatever is necessary to help others
... Care for others.
... Build community.
... Practice everyday compassion.



5 Keys to Building Compassion:

- "Stop to Help" – make the needs of others a priority.
- "Listen Carefully" – understand the needs and fears of others.
- "Clarify Your Response" – identify your responsibility, and respond.
- "Get Involved" – compassion goes beyond feelings to actions.
- "Heal Hurts" – take action and patiently wait for results.

Why is Compassion important?

Compassion enables us to invest ourselves in others. This builds enduring relationships and have positive impact.

For more information regarding Character First contact Philip Greenwood at People and Culture on (03) 9018 7971 or 0411 131 449
www.peopleandculture.com.au

Employee Profile - David Mohorovicic

David Mohorovicic joined us in August filling the position of External Sales Engineer. David is 44 years of age is married to Vanessa, has 2 daughters and resides in Wantirna South. David is a qualified mechanical engineer and has spent most of his career in utilities and automotive research and development. In between spending time with his family, David enjoys golf and riding motor bikes.



Motor Technology

How it works series

TECHTORQUE ARTICLE

Electric motors for valve actuators vary widely in their design and application. They can be broadly classified into two groups:

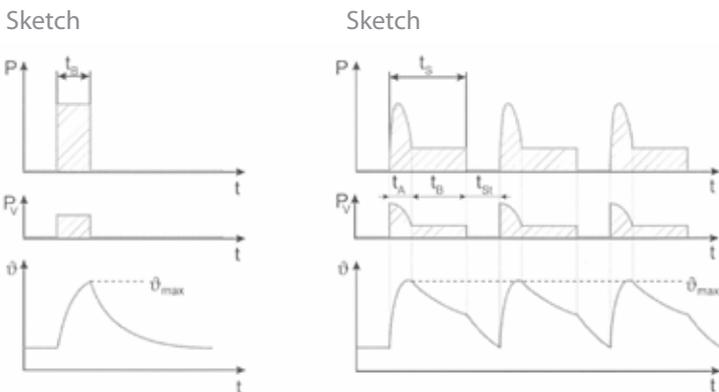
- 1) Motors for on / off control (Fully open or fully closed Valve)
- 2) Motors for Valve positioning and modulating control.

Electric motors for valve actuation are required to work in conjunction with the following basic components (see figure 2) to provide the required torques to open, close or position the valve in accordance with the process requirement:

- 1) Gear train assembly,
- 2) Hand-wheel & declutch mechanism,
- 3) Torque & limit /position switches or sensors.

The motor is usually a high speed, low inertia reversible type, connected through a gear train to reduce the speed & thereby increase the torque at the valve stem. Its rotation is reversed to open or close or change direction of the valve. This is achieved by changing the direction of the current in the winding or interchanging a phase in the case of a 3 phase supply. The de-clutch mechanism disconnects the motor from the gear assembly and allows the valve to be operated by the hand-wheel.

Limit switches de-energise the motor when the valve has reached a specified position. Torque switches de-energise the motor when the amount of turning force reaches a specified value. This turning force or torque is the largest when the valve is seated or unseated. This feature can prevent damage to the valve & motor if the valve jams in any position. The motor is also provided with Thermal cut-outs embedded in the windings to prevent over-heating due to a locked rotor situation.



P Power
Pv Loss
V temperature
Vmax max temperature

T time
T_A starting-up time
T_B loading time
T_S cycle time
T_{St} pause time

Motor Operation & Duty Cycle.

The duty cycle is related to the allowed load to the electric motor in use. It defines the limiting values for which the actuator may be used.

IEC 34-1, 8 ratings are defined as S1 to S9. S1 (continuous service) is automatically valid when no rating is specified.

For electrical valve actuators the selection of an electrical motor for continuous service would result in huge over-dimensioning for usually realistic on / off & modulating service. Therefore S2 & S4 ratings are assigned for such services as follows:

- S2 Control or on / off service
- S4 Regulating or modulating service.

Duty cycle S2. Short time service.

This duty cycle considers application of a constant load which is not long enough so that the thermal limits of the motor are not exceeded. Then a break is required of such duration to allow the motor to cool.

The duty cycle S2 is designated by the code S2 and the duration of the operating time.

Example S2 10 min

Duty Cycle S4, intermittent service influenced by start-up operation.

This duty cycle has sequences of similar cycles, each of which consists of a noticeable start-up period, a period of constant load and a pause.

The duty cycle S4 is designated by the code S4 followed by the ratio of motor on time to total cycle time as a%, plus the number of cycles per hour.

Example S4 25% ED 1200C/hr (where ED denotes extended duty)

As the heat dissipation from the motor is influenced by the temperature of the surrounding, the duty rating must be specified along with the ambient temperature.

Duty Cycle S2 & S4 according to IEC 34-1,8

Figure 2 - Electric Actuator Components

