

TTR Group Inc.

The Engineered Valve
& Speciality Products Company



Continued Education Program

**AWWA C504
BUTTERFLY VALVE &
ACTUATORS**

OWWCO

**Director Approved
Training Course**

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* .7 CEU's



CONTACT

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Established 2009



Valve & Application Solutions for the Municipal, Industrial, Mining and Power Industries



Course Outline

8:00 - 8:15	Coffee & Prep	Introduction / Attendance
8:15 - 8:30	Experience	TTR Background /Distribution/Manufacturing/Engineering
8:30 - 10:00	Butterfly Valves	Transparency of the Manufacturers • AWWA C504 Latest Revision Standard Guidelines 150 & 250lb • AWWA Velocity Rating / Pressure Class and Actuator Selection • AWWA C516-10 Standard 72 inch and larger • Coatings and AWWA Butterfly Valves AWWA C550 • AWWA Available Manual of Practice • M44 & M49 AWWA Standards of Practice • AWWA Butterfly Manufacturers Brands & Objective Comparisons • AWWA Seat in Body vs. Seat on Disc Designs • Flow Direction & Torque Effects- Static, Dynamic & Shaft Orientation • AWWA Butterfly Valves vs. Industrial Butterfly Valves • AWWA Butterfly Valves Typical Failures & Causes • Reality of Seat Field Replacement and Adjustability
10:00 - 10:15	Break	Break
10:15 - 12:00	Butterfly Valves	Tuberculation Effects and Valve Performance • Elastomer Performance and Durometer Degradation • Cast Iron vs. Ductile Iron Bodies • AWWA Butterfly Valve Design Limitations & Minimum Requirements • AWWA Butterfly Valves on Control • Proper Sizing of Control Valves • Avoiding Cavitation • Proper Operation of an AWWA Butterfly Valve • Piping Orientations / Installation & Operation • Proper Handling / Lifting / Storage • Maintenance Requirements and Adjustments • Municipal Migration of Triple Off set Zero Leakage BFVs Suggested Specifications / Features Benefits / Options • Specifying without limiting • Considerations for Specification Creation
12:00 - 12:30	Lunch	In - House Lunch
12:30 - 2:00	Actuation	AWWA C504 & AWWA C540 Latest Revisions • Worm Gear vs. Travelling Nut/AWWA C540 review • Actuation in Chambers & Buried Service - Why Grease Pack • Actuator Mounting Orientations and Sizing • Open Left & Open Right • Oil filled vs. Grease Filled Actuators • Actuator Sizing & Specifications – Unidirectional & Bidirectional flow • Actuator Removal / Packing Retaining Safety Issues • Actuator & Valve Shaft Locking Devices & Requirements • Typical Actuator Failures & Causes & Prevention.
2:00 - 2:15	Break	Break
2:15 - 2:45	Actuation	Actuator Performance Specifications and Industry Standards • Preventing Field Failures • Installation Options and Submerged Actuation • Electric Actuation & Memory Failure • Manual Override Operation & Handwheel Sizing • Maintenance Requirements and Adjustments • Considerations for Specification Creation
2:45 - 3:00	Engineered Shaft Extensions & Torque Tubes	Free Standing Torque Tubes Design Requirements & Applications Shaft Extensions Torsional Calculations & Maximum Deflection Specification Importance • Typical Field Failures and Issue. Considerations for Specification Creation
3:00 - 3:20	Test	Test
3:30 - 4:00	Adjourn	Test Review



Course Overview

This seminar will be comprised of classroom and some hands on activities. With the utilization of the following:

- PowerPoint presentations
- AWWA standards & documentation
- Cutaway samples

The attendees will learn the proper operation and maintenance of AWWA Butterfly Valves, worm gear and travelling nut type AWWA actuators. This will include, and not limited to, the safe operation of the products as they apply to the standards and various applicable applications. Attendees will have an opportunity to handle the various components to understand the operation of the products.

Course Objectives

- Familiarize the attendees with AWWA C 504, AWWA C 516 for Butterfly Valves and AWWA C 540 for Actuation. Where and how to apply these standards specific for In-Plant applications, direct buried service and chambered service. We will identify the different specification requirements and necessary modification to specifications preventing field failures on specific installations.
- Familiarization of M44 and M49 AWWA standards and their applicable roles associated to AWWA C 504 Butterfly Valves.
- The proper operation of AWWA valves preventing injury to the operator and or damage to the valve and actuator.
- Proper sizing of AWWA Butterfly Valves for control and impact of velocities on uni-directional and bi-directional applications at various operating angles. The maximum velocity ratings of AWWA valves and options available for higher velocities.
- Provide details on the proper installation of AWWA Butterfly Valves, shaft orientation and how installation affects hydrostatic, bearing and dynamic torque in AWWA Butterfly Valves.
- Provide information on the proper selection of AWWA Butterfly Valves for control and avoiding cavitation.
- The various manufacturers and acceptable designs that are accepted by AWWA C 504 and associated actuator mounting issues. We will review different methods and importance of packing retention for various actuator mounted applications.
- Various methods of valve indication for actuators used in submerged or chambered service and position indication options that prevent the over torquing of manual AWWA actuation.
- The effects of flow on AWWA Butterfly Valves under uni-directional and bi-directional applications. How actuation is undersized.
- The importance of engineered shaft extensions and torque tubes used in Water and Wastewater Treatment Plants. We will identify the minimum requirements for torsional rigidity and maximum allowable deflection on valve extensions based on typical valve seating surfaces. Generic standard specifications for ancillary equipment will be reviewed and offered.
- Valve performance evaluation based on acceptable AWWA C 504 minimum guidelines or distribution systems and plant operations for high cycle and long periods of inactivity.
- Provide information on the proper handling, lifting and site storage and potential damaging conditions that are to be avoided.
- Review the intent of AWWA C 504 latest revision regarding field replaceable seats, the practicality, requirements and procedure for in field seat replacement. Review of the conflict regarding WSIB.
- The proper method for sizing manual and electric actuators specific to their application.
- The prevention of actuator under sizing and associated limitations of valve shaft diameters and actuator sizing.
- The unnecessary oversizing of actuators preventing damage to the valve.
- Proper methods and safety concerns associated to actuator mounting and removal of the actuator in the field.
- Identify the minimum requirements for submerged actuators and options for indication or remote indication without entering confined space.

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Course Outline

- Introduction & Company Experience
- Butterfly Valves : Transparency of the Manufacturers
- Butterfly Valves : Valve Performance and Operation
- Actuation
- Engineered Shaft Extensions & Torque Tubes
- Test & Course Evaluation Documentation

About the Presenter

- 4 Valve related Patents and Designs
- 35 years experience
- Valve manufacturing experience
- AWWA Committee member
- Founding President of Bray Valve and Controls Canada

Full agenda available upon course registration

TTR Course Request Form

Organization: _____

Contact Person / Title: _____

Billing Address: _____

Course Location: _____

City: _____ Province: _____ Postal Code: _____

Phone: _____ Fax: _____ E-mail: _____

Date(s) Requested: _____ Alternative Date(s): _____

Time Requested: _____ Set-Up Time Needed: _____

Contact Signature Required: _____

Number of Attendees: _____

** Costs determined by attendees and number of sessions*

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