COLONIAL VALVE
A DIVISION OF COLONIAL ENGINEERING, INC.

6400 Corporate Avenue
Portage, MI 49002
269-323-2495 or 800-374-0234
Fax 269-323-0630 or 866-879-5982
www.colonialengineering.com

- **411SV Shut-off Butterfly Valve for gravity-flow pipe that drains into surge tank, or for use in ponds or other low pressure / drainage applications.**
- **Submersible**
- **Full boot seal for durable performance. No gaskets required**
- **ANSI B16.5 Class 150 Flange Pattern.**
- **Stainless Steel 2" Operating nut is retained by rails, which also stop rotation in the full-open or full-closed position, (with no locking positions between).**

INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

PLEASE READ THE FOLLOWING INFORMATION PRIOR TO INSTALLING AND USING COLONIAL VALVES, STRAINERS, AND OTHER ASSOCIATED PRODUCTS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN SERIOUS INJURY.

1. Colonial Valve warrantees its products against defective material and workmanship only. Colonial Valve does not assume responsibility for damage or injuries resulting from improper installation, misapplication, or abuse of any product.
2. Colonial Valve does not assume responsibility for damage or injury resulting from chemical incompatibility between its products and the process fluids to which they are subjected. Compatibility charts provided in Colonial Valve literature are based on ambient temperatures of 73º F. The charts are based on information provided by raw material suppliers, and are for reference only. The installer should always test to determine application suitability.
3. The maximum recommended fluid velocity through any Colonial Valve product is FIVE feet per second. Higher flow rates can result in possible damage due to water hammer effect. Also note that maximum operating pressure is dependent upon material selection as well as operating temperature. Consult Colonial Valve literature to determine operating pressure and temperature limitations before installing any Colonial Valve product.
4. Colonial Valve products are designed primarily for use with non-compressible liquids. They should NEVER be used or tested with compressible fluids such as compressed air or gas.
5. Systems should always be depressurized and drained prior to maintenance on butterfly valves.
6. Temperature effect on piping systems should always be considered when the systems are initially designed. Piping systems must be designed and supported to prevent excess mechanical loading on Colonial Valve equipment due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.
7. Because PVC and CPVC plastic products become brittle below 34F, Colonial Valve recommends caution in their installation and use below this temperature.
8. Published operating torque requirements are based upon testing of new valves using clean water at 70F. Valve torque is affected by many factors including fluid chemistry, viscosity, flow rate, and temperature. These should be considered when sizing electric or pneumatic actuators.

INSTALLATION

1. Colonial 411SV Butterfly Valves should be installed between two pipe flanges on the gravity pipe draining water from the gutter of a commercial pool or water feature to a surge tank, or for use in ponds or other low pressure / drainage applications.

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2. When installed between two existing flanges, the flanges should be separated to provide clearance on the face to face of the valve. This will prevent the valve sealing surfaces from distortion during installation. Pipe flanges should be clean and, free of debris including old gasket material. A light coating of a silicone or soap-based lubricant, applied to the flange sealing surface and disc seating area, will aid in installation.
3. Colonial Valve Butterfly Valves are designed for use with all pipe flanges that have bores equal to or larger than Schedule 80 pipe. The inside of the pipe flange must be chamfered at a 45 degree angle to a diameter listed if the inside bore is smaller than listed. Sharp edges and burrs must be removed.
4. **Valves must be opened to approximately 15º when installed. Do not open or close fully during installation to prevent damage to the edge of the disc by the mating flanges.**
5. Install the valves using well lubricated studs or bolts and nuts. For plastic flanges, metal washers are recommended between nut/bolt head and pipe flange***. With a torque wrench, uniformly tighten nut to approximately the foot pounds specified in the chart below, in an alternating sequence, diametrically opposed to the previously tightened nut. Final tightening should be performed in the same sequence following the recommended torque***.
6. For plastic Schedule 80 pipe the maximum allowable displacement is 1/8" off center in any direction. Maximum angular misalignment of 1/16" is allowable.
7. Normal pipe hanger spacing is recommended. *Do not allow valve to support the weight of pipe*.

OPERATION

1. When installation is complete, check for proper alignment. The operating nut on top of the valve is designed to fit a standard 2" valve key.
2. **Optional Colonial V417681 or V417681S Valve Key Kit (**See details at bottom of page.)
3. Fully open and close the valve 3 or 4 times to ensure proper operation. Note that the valve is "right – to close"
4. Since this valve has no throttling stops between open and close, the maximum operating pressure at ambient temperature is 15 PSI

MAINTENANCE & DISASSEMBLY OF VALVE

I. Minimal valve maintenance is required. The Operating Nut is field-repairable.
   A. Operating Nut system can be replaced by simple removal of the for fastening bolts.
   B. Part number for replacement Operating Nut Kit: For 8-10": ON810SSKIT. For 12": ON12SSKIT.

FLANGE ASSEMBLY INFORMATION

Torque Recommendations
Flange: ANSI / ASME B16.5 Class 150

Size(")	No. of Bolt Holes	Bolt Hole Ø	Rec. Torque ft-lbs
4	8	5/8	20-30
6	8	3/4	25-35
8	8	3/4	35-40
10 & 12	12	7/8	45-55

Valve Key Kit: includes T-handle with 44" length of ¾" steel pipe (you can weld additional pipe as needed) and a 2" Key that can be welded to the end of the pipe. Welding required by installer.

Part No	**Material**
V417681	**Carbon Steel**
V417681S	**304S**

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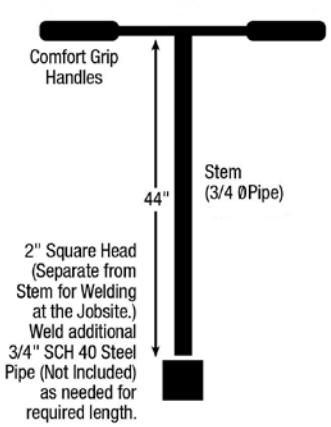

V417681 2 INCH VALVE KEY KIT (NOTE: WELDING REQUIRED)

[V417681S Stainless Steel]

WELDING / ASSEMBLY

1. **V417681 2 INCH VALVE KEY KIT** is designed for use with a standard 2" Operating Nut. The T – handle is welded to a 43" length of ¾" steel pipe with a beveled end. (44" length total)
2. The 2" Key has a flat top surface designed as a welding point. The installer can weld the two parts together, OR can add additional ¾" pipe (not included) between the handle and the key, as needed to result in the length needed to actuate the valve. Be sure to keep the pipe aligned and perpendicular to the 2" Key when welding.
3. Follow American Welding Society (AWS) Standards AWS D10.12, AWS D1.1, and any other applicable codes in relation to the welding process.

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3. The maximum recommended fluid velocity through any Colonial Valve product is FIVE feet per second. Higher flow rates can result in possible damage due to water hammer effect. Also note that maximum operating pressure is dependent upon material selection as well as operating temperature. Consult Colonial Valve literature to determine operating pressure and temperature limitations before installing any Colonial Valve product.
4. Colonial Valve products are designed primarily for use with non-compressible liquids. They should NEVER be used or tested with compressible fluids such as compressed air or gas.
5. Systems should always be depressurized (and drained for items other than the True Union Ball Valve) prior to installing or maintaining Colonial Valve products.
6. Temperature effect on piping systems should always be considered when the systems are initially designed. Piping systems must be designed and supported to prevent excess mechanical loading on Colonial Valve equipment due to system misalignment, weight, shock, vibration, and the effects of thermal expansion and contraction.
7. Because PVC and CPVC plastic products become brittle below 40F, Colonial Valve recommends caution in their installation and use below this temperature.
8. Published operating torque requirements are based upon testing of new valves using clean water at 70F. Valve torque is affected by many factors including fluid chemistry, viscosity, flow rate, and temperature. These should be considered when sizing electric or pneumatic actuators.