



5800E Installation Instructions

Control Valve Kits Designed by Chesterton to Fit Masoneilan® Control Valves

1. **Precaution:** System should be shut down, depressurized, drained, and cool before valve is handled. Observe all plant safety requirements. *Refer to valve manufacturer installation and operation manual for additional safety requirements and/or for instructions on proper disassembly as required.*
2. **Check the condition of the valve for the following:**
 - A 10 to 32 RMS (7.5 to 24 Ra) stem finish is required.
 - The stuffing box bore should be 125 RMS (94 Ra) or better finish.
 - The stem run out should not exceed ± 0.010 TIR/FT (± 0.25 TIR/FT).
3. The stuffing box must be clean, i.e. completely free of any previous packing or foreign material. The valve stem must be clean, free of nicks, scratches and burrs.
4. The split carbon bushing(s) must be cut to proper height before installation. The supplied bushing(s) are NOT pre-cut to the proper height at the factory; stuffing box depths may vary for a given valve type. To determine the required split carbon bushing height, measure the depth of the stuffing box with a machinists scale. The carbon bushing height = measured stuffing box depth - measured packing set height. The packing set height is equal to approximately six times the cross section of the 5800E set. (See the *Packing Configuration Picture*.)
NOTE: The minimum height of a carbon sleeve is 1.5 x cross section. If two bushings are utilized, two equal height pieces or near equal height pieces are recommended. *Example: 1.5 x .250" cross section = .375" bushing height, minimum.*
5. Cut bushing(s) to length. The cut surface should be parallel to supplied finished end < .007". Install the Split Carbon Sleeve(s) (5101) in the bottom of the stuffing box. Make sure the two halves align and are seated properly on the stuffing box bottom.
6. Install the first 477-1 end ring using a Chesterton Valve Tamping Tool. Care must be taken to insure the skive-cut ends are properly mated. Firmly tamp the ring to the bottom of the box.
7. Carefully install graphite wedge sealing rings starting with an End Cap, followed by an I.D. Sealing Ring, O.D. Sealing Ring, I.D. Sealing Ring, and End Cap. (See *drawing*)
 - a) Install rings over the valve stem by twisting slightly, never open rings with a hinge like action.
 - b) Stagger ring joints 90°.
 - c) Use outer most or next ring to push previously installed rings into stuffing box until all rings are in place.

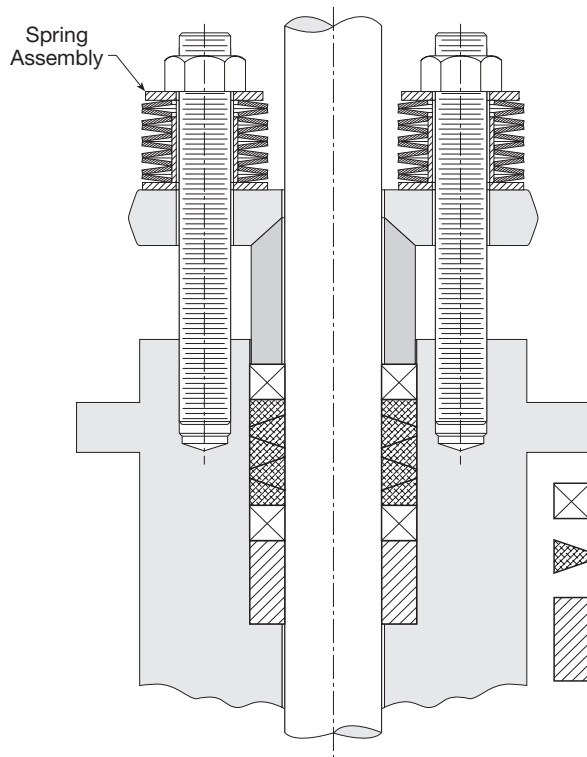
DO NOT USE A TAMPING TOOL, you may damage the sealing surface on the wedge shaped rings.

8. Install top end ring. Always install the complete 7 ring set of packing. The last ring should fit completely inside the stuffing box, with the upper surface just below the chamfer at the top of the box. (See the *Packing Configuration*.) If the complete packing set does not fit properly, contact your local Chesterton representative or Chesterton's Application Engineering Department.
9. Gently seat the packing set with the Chesterton Tamping Tool.
10. Install the packing follower and packing gland flange. Make sure the packing follower enters into the stuffing box.
11. Lubricate the studs, bottom of the nuts, and live loading assembly components (Belleville springs and flat washer) with Chesterton recommended anti-seize compound. Verify the springs and flat washers are properly stacked as shown in the chart. (See *Configuration*)
12. **New studs and nuts are required for live loading installation.** B8 studs and Grade 8 nuts are typically provided for the standard carbon steel version 10000 series, 21000 series, and 41000/41005 series valves. Verify the replacement studs and nuts utilized are ASTM A 193 B8 (studs) and ASTM A 194 Grade 8 (nuts), or a similar or better grade of material.
13. Install a live loading assembly on each stud.
14. Install the two packing gland nuts. Tighten each nut until finger tight. Using a calibrated torque wrench, alternately tighten the gland nuts to the recommended torque. Verify that the packing gland is square and perpendicular to the stem.
15. To properly consolidate the packing: Actuate the valve 10 times, retighten the packing gland nuts at the end of the last down / in-stroke. Actuate the valve 10 more times, retighten the packing gland nuts at the end of the last down / in-stroke.
16. Follow all plant safety requirements when returning the valve to service. *Refer to valve manufacturer installation and operation manual for additional safety requirements.*
17. It is advisable to check gland adjustment after a few hours of service. Take up as necessary.

If the valve does not actuate properly at the compressed assembly height, release all packing gland load completely. Then gradually tighten the packing gland nuts until no leakage is observed. Do not tighten to the point where the stem will not actuate. *Reference the Masoneilan Torque and Packing Friction values in the chart if necessary.*

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PACKING CONFIGURATION



Radial Min.	Axial Min.	Uncomp. Height	Compress. Height	Bolt Diameter	Spring Configuration	Inner Guide	AWC Live Load Item #
0.625"	1.921"	1.916"	1.736"	0.500"	2 in par / 8 in series	YES	015477
0.625"	0.865"	0.860"	0.730"	0.500"	1 in par / 6 in series	YES	024480
0.555"	0.723"	0.718"	0.607"	0.500"	1 in par / 6 in series	NO	025229
0.625"	0.782"	0.777"	0.621"	0.500"	1 in par / 6 in series	YES	025496
0.458"	0.766"	0.761"	0.702"	0.375"	2 in par / 4 in series	NO	025740
0.405"	0.632"	0.627"	0.579"	0.375"	2 in par / 4 in series	NO	025895
0.625"	1.087"	1.082"	1.003"	0.500"	2 in par / 4 in series	YES	031382
0.625"	0.756"	0.751"	0.709"	0.500"	2 in par / 2 in series	YES	032857

* Maximum Estimated Stuffing Box Depth. (see Step 4.)

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MODEL / STYLE : 10000 series											
Pipe Size	Pressure Class	Stem O.D.	Box I.D.	Cross Section	* Stuffing Box Depth	Stud Qty. / Size	5101 Bushing Qty. / Hgt.	Live Load Item #	Chesterton Kit Item #	Calculated Packing Friction lbs.	Torque Ft-lbs / Nm
2"	150-600	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
3"	150-600	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
4"	150-300	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	025895	148224	178	3 / 4
4"	600	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
6"	150-300	0.625"	1.000"	0.187"	3.500"	2ea / .500"	1 @ 2"	025496	148225	235	5 / 7
6"	600	0.625"	1.000"	0.187"	3.500"	2ea / .500"	1 @ 2"	025496	148225	246	5 / 7
8"	150-300	0.750"	1.250"	0.250"	3.500"	2ea / .500"	1 @ 2"	025496	148226	230	5 / 7
8"	600	0.750"	1.250"	0.250"	3.500"	2ea / .500"	1 @ 2"	024480	148227	394	9 / 12

MODEL / STYLE : 21000 series											
Pipe Size	Pressure Class	Stem O.D.	Box I.D.	Cross Section	* Stuffing Box Depth	Stud Qty. / Size	5101 Bushing Qty. / Hgt.	Live Load Item #	Chesterton Kit Item #	Calculated Packing Friction lbs.	Torque Ft-lbs / Nm
3/4" & 1"	150-600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
1.5" & 2"	150-600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
3"	150-300	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	025895	148224	178	3 / 4
3"	600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
4"	150-300	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	025895	148224	178	3 / 4
4"	600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	025895	148224	197	3 / 4
6"	150-300	0.750"	1.250"	0.250"	3.500"	2ea / .500"	1 @ 2"	025496	148226	230	5 / 7
6"	600	0.750"	1.250"	0.250"	3.500"	2ea / .500"	1 @ 2"	024480	148227	394	9 / 12

MODEL / STYLE : 41000/41005 series											
Pipe Size	Pressure Class	Stem O.D.	Box I.D.	Cross Section	* Stuffing Box Depth	Stud Qty. / Size	5101 Bushing Qty. / Hgt.	Live Load Item #	Chesterton Kit Item #	Calculated Packing Friction lbs.	Torque Ft-lbs / Nm
1.5"	150-600	0.500"	0.875"	0.187"	3.560"	2ea / .375"	1 @ 2", 1 @ 1"	025895	148228	197	3 / 4
2"	150-600	0.500"	0.875"	0.187"	3.540"	2ea / .375"	1 @ 2", 1 @ 1"	025895	148228	197	3 / 4
2"	900-1500	0.500"	0.875"	0.187"	3.540"	2ea / .375"	1 @ 2", 1 @ 1"	025740	148229	493	8 / 11
3"	150-600	0.625"	1.000"	0.187"	4.250"	2ea / .500"	1 @ 2", 1 @ 1"	025496	148230	246	5 / 7
3"	900-1500	0.625"	1.000"	0.187"	4.250"	2ea / .500"	1 @ 2", 1 @ 1"	032857	148231	616	13 / 18
4"	150-600	0.625"	1.000"	0.187"	4.250"	2ea / .500"	1 @ 2", 1 @ 1"	025229	148232	246	5 / 7
4"	900-1500	0.625"	1.000"	0.187"	4.250"	2ea / .500"	1 @ 2", 1 @ 1"	032857	148231	616	13 / 18
6"	150-600	0.750"	1.250"	0.250"	5.810"	2ea / .500"	2 @ 2", 1 @ 1"	024480	148233	394	9 / 12
6"	900-1500	0.750"	1.250"	0.250"	5.810"	2ea / .500"	2 @ 2", 1 @ 1"	015477	148234	986	21 / 29
8"	150-600	1.000"	1.625"	0.312"	6.500"	2ea / .500"	2 @ 2", 1 @ 1"	031382	148235	657	14 / 19