1724 Low E Installation Instructions

Live Load Kit Designed by Chesterton to fit Masoneilan® Control Valves

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.*

1. **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/M).
   - The Packing Box Ring should be in the bottom of the stuffing box.
2. 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.
3. The split carbon bushing(s) must be cut to proper height before installation. The supplied bushing(s) are NOT pre-cut to 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 sleeve height = measured stuffing box depth - measured packing set height. The packing set height is equal to approximately five times the cross section of the 1724 Low E set. (*See the Packing Configuration Picture.)*

   NOTE: The minimum height of a carbon bushing is 1.5x cross section. If two bushings are utilized, two equal height pieces or near equal height pieces are recommended. *Example: 1.5 x .375" cross section = .562" bushing height minimum.*
4. Cut bushing(s) to length. The cut surface should be parallel to supplied finished end ≤ .007". Install the Split Carbon Bushing(s) (5101) in the bottom of the stuffing box. Make sure the two halves align and are seated properly on the stuffing box bottom.
5. Install one ring of 1724 Low E packing 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. Install remaining rings in the same manner, staggering joints 90°. *(See the Packing Configuration.)*

   NOTE: Always install the complete 5 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. If the complete packing set does not fit properly, contact your local Chesterton representative or Chesterton's Application Engineering Department.
6. Install packing follower and packing gland flange. Make sure the packing follower enters into the stuffing box smoothly.
7. 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. *(See the Packing Configuration.)*
8. **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 material.
9. Install a live loading assembly on each stud.
10. 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.
11. To properly consolidate the packing, reference torque values in Torque and Friction Values table (page 2). When seating the packing set, torque bolts to the higher value supplied (for corresponding valve size). Actuate the valve 5 times, retighten the packing gland nuts at the end of the last down/in-stroke. Loosen gland nuts, then torque to the lower value supplied. Actuate the valve 5 more times then check the gland nut torque. Torque the packing gland nuts at the end of the last down stroke as necessary, using the lower value supplied. All final torques will use the lower torque value supplied.
12. Follow all plant safety requirements when returning the valve to service. *Refer to valve manufacturer installation and operation manual for additional safety requirements.*
13. 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. *(Ref.Torque and Friction Values.) It should be further noted that stem and stuffing box conditions greatly affect sealability in this type of service.*

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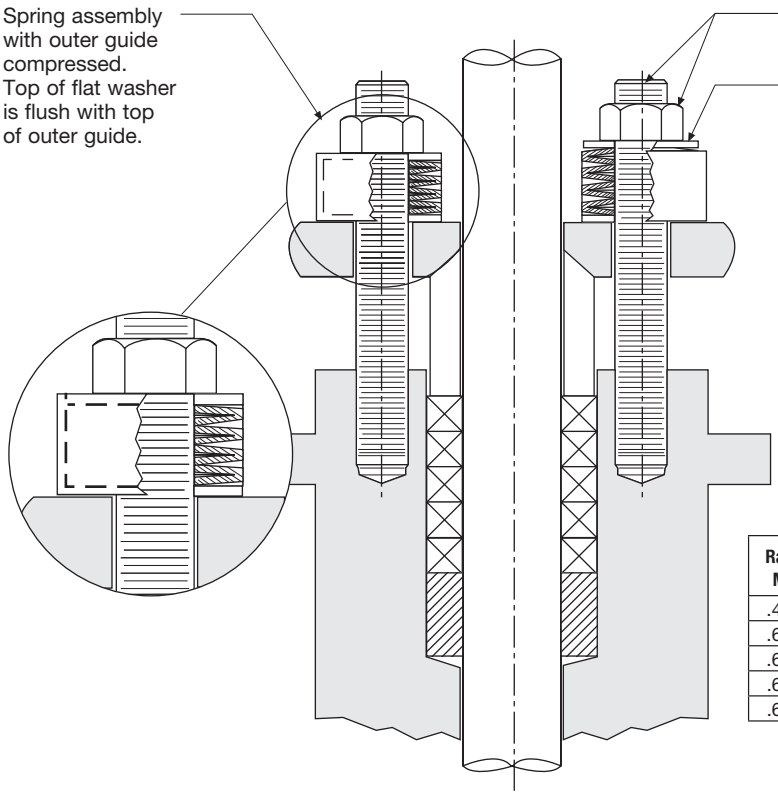
PACKING CONFIGURATION



Radial Min.	Axial Min.	Uncomp. Height	Compress. Height	Bolt Diameter	Spring Configuration	AWC Live Load Item#
.405"	.632"	.627"	.575"	.375"	2 / 4	291108
.625"	.782"	.692"	.594"	.500"	1 / 5	291115
.625"	.865"	.751"	.641"	.500"	1 / 5	291116
.625"	.865"	.789"	.677"	.500"	1 / 6	291238
.625"	.756"	.689"	.656"	.500"	2 / 2	291118

1724 Low E Control Valve Kits Designed by Chesterton to fit Masoneilan® Valves

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 #	Installed Torque		Operational Torque		Calculated Packing Friction Lbs.
										Ft-lbs	Nm	Ft-lbs	Nm	
2"	150-600	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
3"	150-600	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
4"	150-600	0.500"	0.875"	0.187"	2.812"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
6"	150-600	0.625"	1.000"	0.187"	3.500"	2ea / .500"	1 @ 2", 1 @ 1"	291115	336712	8	11	6	8	145
8"	150-600	0.750"	1.250"	0.250"	3.500"	2ea / .500"	1 @ 2"	291116	336713	13	18	11	15	232
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 #	Installed Torque		Operational Torque		Calculated Packing Friction Lbs.
										Ft-lbs	Nm	Ft-lbs	Nm	
3/4" & 1"	150-600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
1.5" & 2"	150-600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
3"	150-600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
4"	150-600	0.500"	0.875"	0.187"	2.810"	2ea / .375"	1 @ 2"	291108	336711	5	7	4	6	116
6"	150-600	0.750"	1.250"	0.250"	3.500"	2ea / .500"	1 @ 2"	291116	336713	13	18	11	15	232
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 #	Installed Torque		Operational Torque		Calculated Packing Friction Lbs.
										Ft-lbs	Nm	Ft-lbs	Nm	
1.5"	150-600	0.500"	0.875"	0.187"	3.560"	2ea / .375"	1 @ 2", 1 @ 1"	291108	336714	5	7	4	6	116
2"	150-1500	0.500"	0.875"	0.187"	3.540"	2ea / .375"	1 @ 2", 1 @ 1"	291108	336714	5	7	4	6	116
3"	150-600	0.625"	1.000"	0.187"	4.250"	2ea / .500"	2 @ 2"	291115	336716	8	11	6	8	145
3"	900-1500	0.625"	1.000"	0.187"	4.250"	2ea / .500"	2 @ 2"	291238	336717	8	12	6	8	145
4"	150-1500	0.625"	1.000"	0.187"	4.250"	2ea / .500"	2 @ 2"	291115	336716	8	11	6	8	145
6"	150-1500	0.750"	1.250"	0.250"	5.810"	2ea / .500"	2 @ 2", 1 @ 1"	291116	336719	13	18	11	15	232
8"	150-600	1.000"	1.625"	0.312"	6.500"	2ea / .500"	2 @ 2", 1 @ 1"	291118	336721	20	27	17	23	387

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