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May 13, 1995
Revised November 28, 2012
Revised December 11, 2012
Revised December 11, 2013
Revised July 18, 2016

INSTRUCTIONS FOR INSTALLATION OF CHEMVALVE FULLY PLASTIC LINED PLUG VALVES MODELS – 790EB-150 AND 790EB-300

1. Flange Protection:

Remove the flange protectors, but do not remove them until the valve is ready to be installed. Flange protectors prevent damage to the gasket-sealing surface. Flange protectors should be replaced after inspection and when a valve is removed from service.

2. Gaskets:

Auxiliary TFE envelope gaskets, such as Texolon (ph.-713-466-4174 – FAX – 713-466-3721), must be used when flanging lined valves to flanges of dissimilar material. For example, similar materials would be plastic lined pipe flanged to plastic lined valves. Dissimilar materials would be steel or alloy steel pipe (such as Monel, Alloy 20, or Hastelloy) flanged to our fully lined valves. Also, if the piping is a solid plastic, and therefore, has a lower flange bolt torque requirement than the one indicated for our valves, the TFE envelope gaskets will allow the use of the lower bolt torque with our valves. Otherwise, gaskets are not required except when repeated connections and disconnections are made.
Install gaskets if necessary.

3. BODY TO BONNET BOLT / NUT TORQUE REQUIREMENT

Valve size	Bolt torque – Foot Pounds
1"	30
1.5"	38
2"	60
3"	98
4"	98
6"	120
8"	150

4. Required Bolt Torque Of Pipe Line Flange Bolts:

- Grease all bolts and nuts with a suitable grease.
- Finger-tighten all nuts.
- With a torque wrench, using a criss-cross method, tighten each bolt to the torque listed below (or in the case of solid plastic piping – the torque as recommended by the pipe manufacturer – if it is lower):



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RECOMMENDED PIPE LINE FLANGE BOLT TORQUES FOR INSTALLATION

PFA AND GRPFA (TEFLON) LINED VALVES		PVDF (KYNAR) AND POLYPROPYLENE LINED VALVES	
Valve Size	Bolt Torque – Foot Pounds	Valve Size	Bolt Torque – Foot Pounds
1"	10	1"	20
1.5"	15	1.5"	25
2"	25	2"	40
3"	40	3"	65
4"	40	4"	65
6"	50	6"	80
8"	70	8"	100

5. IMPORTANT NOTE:

- A. After 24 – 30 hours, or a complete temperature or pressure cycle, the torque on the flange bolts should be checked and those falling below the above recommended torques should be re-torqued. If leakage at the flange joint occurs after the bolts have been re-torqued to the recommended level, increasing above that level can be done (but not above the level recommended by the pipe manufacturer) until leakage is stopped, provided the torques are not exceeded by a factor of 1.5. If the leakage cannot be stopped, the flange joint should be disassembled and auxiliary gaskets installed per number 2 above.
- B. Additionally, the 4 (for 1" through 3" sizes) or the 6 (for 4" through 8" sizes) body to bonnet flange bolts and nuts torque should be checked. They should be per the torques indicated in # 3 above. **BE SURE TIGHTEN THEM IN A "CRISS – CROSS" FASHION!!**

6. **Packing Flange Nuts:**

- A. Old Style Liveload System – see our drawing – LIVELOAD – Rev.- 3 attached:

Check the packing flange adjusting nuts to see if the live loading system (2 flat washers and 4 Belleville springs on each side) are tightened enough until the Belleville springs are just flat. Refer to the attached drawing - LIVELOAD – Rev.-3. **If adjustment is required, tighten the packing flange nuts a quarter turn at a time - alternately, until the Belleville springs are just flat. DO NOT OVER TIGHTEN THESE NUTS!!** There is a possibility that they may have become loose from the time of assembly to the time of installation of the valve. Additionally, the packing flange nuts should be checked, from time to time, to insure that the live loading system – the Belleville springs – remain just flat.

- B. New Style Liveload System – see our drawing – NEW-LIVELOAD-SYSTEM:

1. After the valve is installed the first time, the new "liveload" system should be checked to insure that there is not more than 1/16" of "yellow" showing (when viewed from straight on at the side) at either one of the adjusting caps,



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2. If there is, the packing flange nuts should be tightened – one quarter turn at a time – alternately – until there is less than 1/16” showing (again, when viewed from straight on at the side).
3. After the newly installed valve has been through one complete thermal cycle of the process or 48 hours after initial startup, the adjusting caps of the new “liveload” system should be checked. If there is more than 1/16” of “yellow” showing, the adjustment procedure in number 2. above should be done.
4. If, after several “adjustments” of the packing flange nuts, the bottom of the packing flange is within 1/16” of the top of the valve bonnet, the valve should be scheduled to be replaced or repaired. **ONCE THE BOTTOM OF THE PACKING FLANGE HITS THE TOP OF THE VALVE BONNET, THE COMPRESSION ON THE CHEVRON V-RING PACKING WILL BE REDUCED. THIS WILL RESULT IN STEM LEAKAGE!**
5. There needs to be a periodic inspection procedure set up to check for needed adjustment of these “adjustment caps”. After one month of operation after initial startup, the “liveload” system should be checked again. Adjustments should be made, if necessary, per # 2. above. After that, no further inspections should be required. However, if there are frequent thermal cycles, or the valve is cycled very frequently (more than 6 times per 24 hours), our suggestion is to have them inspected at least once a month. However, more frequent inspections may be required depending on the specific service conditions.

7. Removal of Valves from the System:

Valves should not be removed from the system when their temperature exceeds the following:

PFA – Teflon – 200°F
GRPFA – Teflon – 200 °F
PVDF – Kynar – 150°F
Polypropylene – 120°F

Each flange shall be covered with a flange protector or faceplate immediately after removal from the system regardless of the removal temperature.

8. Welding:

No welding shall be performed on the valve.

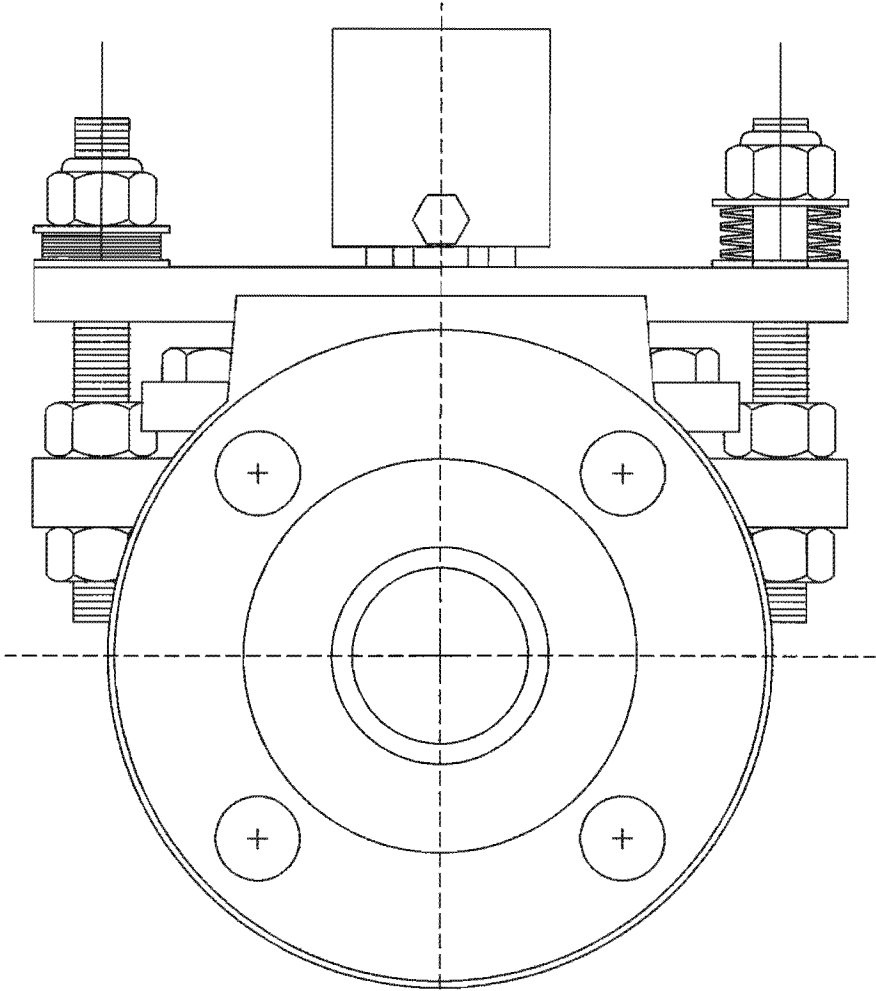
9. Testing:

- A. Caution must be exercised when steam is used for field testing. For details in conducting a steam test call the factory at (800) 879-3720.
- B. For the Model 790 plug valves – if for any reason a positive shut-off is not achieved or stem leakage occurs, tighten the packing flange nuts – one quarter turn at a time – alternately – until leakage is stopped. If further assistance is required, call the factory at (800) 879-3720.

LIVE LOADING OF PACKING FLANGE

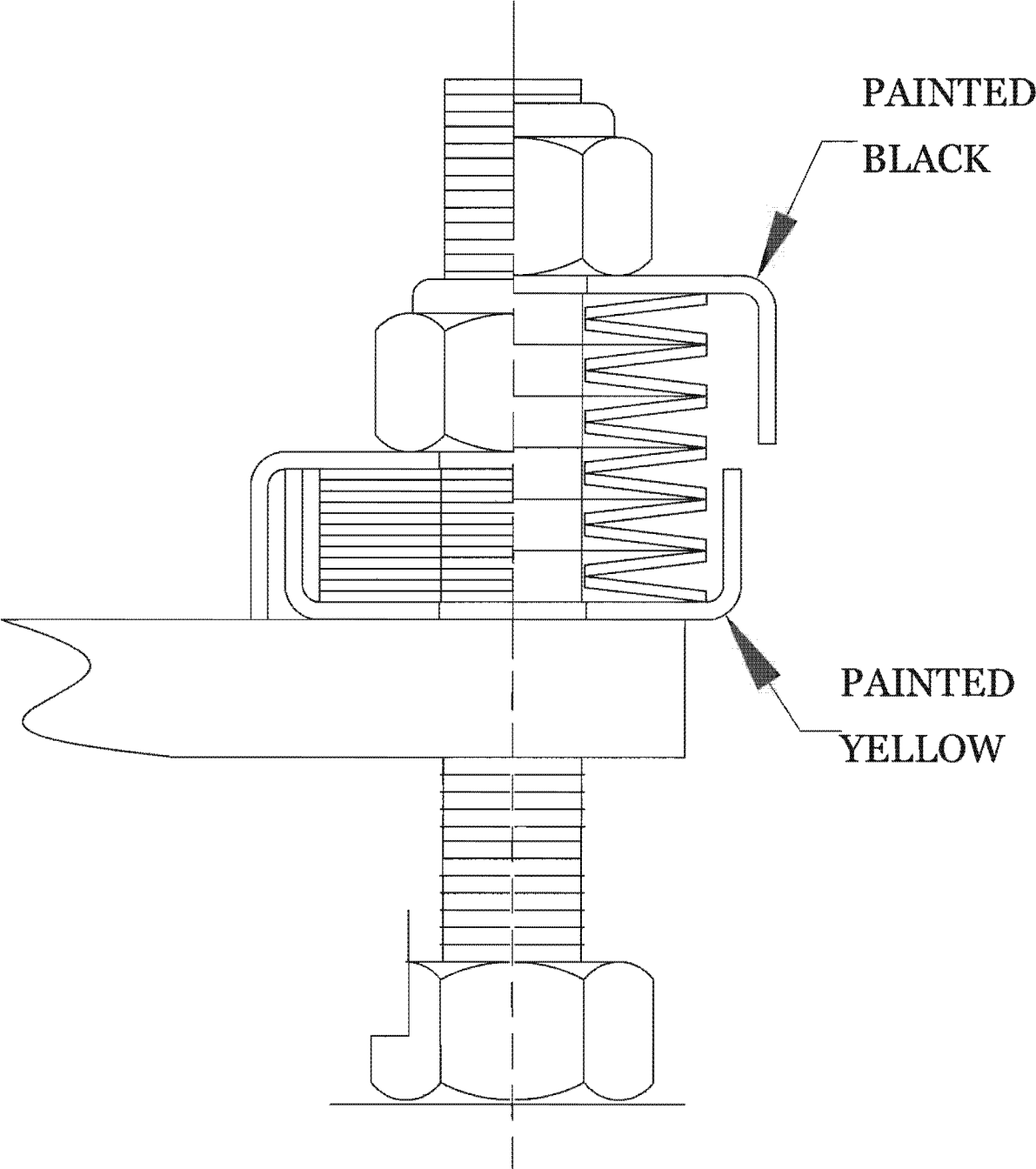
NOTES:

- 1. RIGHT SIDE SHOWS BELLEVILLE SPRINGS RELAXED.
- 2. LEFT SIDE SHOWS BELLEVILLE SPRINGS COMPRESSED.
- 3. BE SURE THE SPRINGS ARE TIGHTENED TO WHERE THEY ARE JUST FLAT. DO NOT OVER TIGHTEN!!
- 4. BE SURE THE PACKING FLANGE IS LEVEL.
- 5. BE SURE TO ONLY TIGHTEN THE PACKING FLANGE NUTS ONE QUARTER TURN AT A TIME - EACH SIDE - UNTIL THE BELLEVILLE SPRINGS ARE "JUST FLAT".



				This drawing shall not be reproduced, copied, lent, disclosed, published, or disposed of, directly or indirectly, nor used for any purpose other than that for which it was specifically furnished	ChemValve, Inc. Tomball, Texas		
4	CHANGED TO 8 BELLEVILLE SPRINGS ON EACH SIDE.	9-19-11	B.K.		Model Number 790-LIVE LOADING SCHEMATIC		
3	ADDED NOTE 5	3-2-04	B.K.		Part Name		
2	CHANGED TO 4 BELLEVILLE SPRINGS ON EACH SIDE.	6-17-03	B.K.				
1	CHANGED TO NEW FORMAT AND CHANGED "STACK-UP" OF B'VILLES	11-21-01	B.K.		Checked:		
					Approved: B.K.		
					Date: 4-30-96		
No.	Revision Description	Date	Chk'd		Drawing Number LIVELOAD		Rev. 4

ASSEMBLY



				This drawing shall not be reproduced, copied, lent, disclosed, published, or disposed of, directly or indirectly, nor used for any purpose other than that for which it was specifically furnished	Chem Valve, Inc. Tomball, Texas		
					Model Number NEW LIVELOAD SYSTEM		
					Drawn: B.K.	Part Name	
					Checked:	NEW-LIVELOAD-SYSTEM	
					Approved: B.K.	Drawing Number	Rev.
No.	Revision	Description	Date	Chk'd	Date: 1-31-12	NEW-LIVELOAD-SYSTEM	