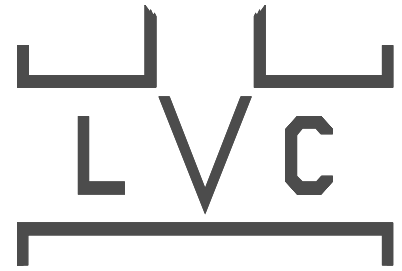


LINED VALVE COMPANY, INC.

FIGURE 53 INSTALLATION & MAINTENANCE



DESCRIPTION:

The LVC Fig 53 is a bonnetless knife gate valve. It has a rubber seat that seals on the parameter of the gate. It is a bi-directional valve, meaning that it can be installed in either direction. 4 rows of packing are used to seal between the gate and the body. The pressure rating of the 3" through 16" Fig 53 valves is 150 PSI CWP (Cold working pressure). The Fig 53 has an unlined ductile iron (3" through 16") or steel (18" through 36") body with a stainless steel gate.

SHIPPING & STORAGE:

For shipment the valve will be in the closed position. Small valves (3", 4", and 6") may be shipped in individual boxes. Larger valves and large quantities will be shipped on pallets, skids or in boxes, all of which will require a forklift for moving. Storage should be in a clean dry environment such as a warehouse.

INSTALLATION:

Since the Fig 53 is a bi-directional valve it is not necessary to determine an upstream or downstream side of the valve. It can be installed either way in the pipeline. The 3" through 16" valves are wafer style so they cannot be used at the end of a pipe line without a down stream flange supporting the downstream side of the valve with all bolts or studs installed. Except for the 2" and 3" sizes, all other sizes require some of the flange bolts or studs to be long enough to pass through both the inlet and outlet mating flanges, the valve and the flange nuts. Bolts must be installed in all flange hole positions.

Install the valve to the mating pipe flange using proper size bolts. See Chart 1 for bolt size. Bolt length is not included on Chart 1 since different flanges will require different length bolts. Note that some bolts are through bolts (flange to flange similar to wafer type valves). It is very important to choose the proper length of bolt for the bolt holes in the chest of the valve. These holes are bottom drilled and tapped and in some cases contain less than a bolt diameter of threads. Be careful not to bottom out bolts in the chest during installation. If necessary use washers to shorten the penetration of the bolt into the chest holes. Chart 2 gives recommended bolt torques to be used during installation, however, depending on the type of gaskets being used the required torques may be higher or lower. Use the cross torque pattern method for tightening the bolts. Mating flanges must be parallel and true with each other and the valve. Do not use the valve to pull together or force apart the two mating pipes.

After installation, open and close the valve once to assure smooth operation.

MAINTENANCE:

The only items requiring maintenance on the Fig 53 knife gate valve are the packing, the seat and the lubrication of the stem. The packing gland may require adjustment after installation, especially if the valve has been in storage for an long time. All sizes of the Fig 53 valve have four or more packing gland bolts. When adjusting packing on valves with four or more bolts it is best to tighten the bolts evenly on both sides of the packing gland using the cross torque method. Normally just a small amount of tightening per bolt is required. Do not tighten the bolts more than is necessary to stop the leaks. Try to adjust the packing gland down evenly to avoid the possibility of the gland rubbing on the gate as it moves. Generally, the more a valve is operated the more maintenance will be required to keep packing leaks under control.

To replace a seat first remove the valve from the line. Disconnect the stem clevis from the gate and remove the yoke assembly. Disassemble the valve body by removing the socket head cap screws that bolt the body halves together (Note: Use metric allen wrenches on 3" through 16" sizes). Remove and replace seat. Assemble valve body and install new packing. Install yoke assembly and attach clevis to gate. Tighten the allen bolts holding the body halves together only enough to stop seat and body leakage.

Lubricate the stem nut and stem by using a grease gun on the grease fitting at the top of the yoke.

CHART 1

VALVE SIZE (IN)	BOLT SIZE (IN)	NUMBER FLANGE HOLES	NUMBER OF THROUGH BOLTS
2"-3"	5/8-11	4	0
4"	5/8-11	8	4
6"	3/4-10	8	4
8"	3/4-10	8	4
10"	7/8-9	12	4
12"	7/8-9	12	4
14"	1-8	12	4
16"	1-8	16	4
18"	1-1/8-7	16	6
20"	1-1/8-7	20	6
24"	1-1/4-7	20	6
30"	1-1/4-7	28	12
36"	1-1/2-6	32	18

CHART 2

VALVE SIZE (IN)	RECOMMENDED TIGHTENING TORQUE (FT-LBS)
2"-3"	55 +/- 5
4"-8"	65 +/- 5
10"-12"	110 +/- 10
14"-16"	135 +/- 10
18"-24"	150 +/- 10
30"	200 +/- 10
36"	250 +/- 10