CV3S-103, 203, 303 or 403 Series
Valve Adjustment & Stem Replacement

Please follow your company's safety procedures whenever working on Kadant Johnson valves and read all of the instructions completely before proceeding.

Please refer to the assembly drawings for part identification. If you have further questions, please contact your representative or Kadant Johnson.

OPERATION
Figure 1 shows the valve in its normal position. The lower valve is closed and the upper valve is open.

When the air cylinder is energized the upper valve closes while the lower valve opens allowing flow through only the lower valve.

VALVE REPLACEMENT
Since the valves and seats are hardened stainless steel, replacement is seldom required. Generally if leakage is detected, we find that the valve is usually out of adjustment (see next section, "Adjustment") or foreign matter is on the valve seat. If replacement is warranted the following steps will aid in the procedure.

Parts required:
(2) Valve & Seat Sets (Item No. 9 and No. 10)
(2) Retainers (Item No. 31)
(2) Gaskets (Item No. 6)
(1) Packing Set if required (Item No. 15)
1. Turn off all pressure sources.

2. Remove the four hex head cap screws (No. 5) from bottom cap (No. 2).

3. Remove cap and lower valve assembly. Floating valve stem (No. 14A) will drop out at the same time.

4. Remove the four hex head cap screws (No. 5) from the upper yoke assembly (No. 7). This will allow access to the upper valve and seat (No. 9).

5. Using an appropriate size socket wrench remove both valve seats (No. 9).

6. After putting a thin layer of permatex on the nose of the seats (No. 9) reinstall the new seats using approximately 80-100 Ft. Lbs. of torque. Overtightening may distort the sealing surface. (Valves and seats are lapped sets.)

7. Remove old retainer clips (No. 31) and replace the valve (No. 10).

8. Using a new gasket reinstall the bottom cap and its valve assembly.

9. Reinstall the floating valve stem (No. 14A) through the upper opening. Make sure it drops into the recess of the lower valve. Generally it is not necessary to replace the floating valve stem unless it is bent or badly mushroomed on the end(s). If not replacing the floating valve stem, skip step 10.

10. Shorten the floating valve stem (No. 14A) by grinding the end so that the upper valve (No. 9) is closed when the lower valve (No. 9) is bottomed out in the cap (No. 2). Then remove an additional 1/16” of stock from the end of the floating valve stem (No. 14A).

11. With the remaining gasket install the yoke on the upper end of the valve making sure the floating valve stem engages into the upper valve recess.

PACKING REPLACEMENT

If packing replacement appears warranted, the following steps will aid in the procedure.

1. Loosen hex nut (No. 16) and unscrew valve stem (No. 14).

2. Remove hex nut (No. 16) and slide the valve stem down and out of the yoke assembly.

3. Remove packing nut (No. 4) and old packing. New preformed packing rings are available from the factory for ease of replacement. Install new packing, alternating the ring cuts and loosely reinstall the packing nut.

4. Insert the valve stem into the lower part of the yoke assembly. Since the new packing will offer resistance, screw the threaded stem through the packing to avoid stearing off pieces of the packing.

5. Thread hex nut (No. 16) onto the end of the stem and then thread the stem into the coupling (No. 8).

ADJUSTMENT

If the valve seats and valves were replaced or leakage is present at the lower valve, adjustment may be warranted. Leave the line pressure to the lower valve turned on and perform the following steps:

1. Disconnect or turn off the air supply to the cylinder.

2. Move the cylinder valve stem (No. 14) up and down. If in proper adjustment, you should be able to move it 1/16”-3/32” without opening the lower valve.

3. If adjustment is required, loosen locknut (No. 16) and turn valve stem in or out of coupling (No. 8) as required. 1-1/2 turns will move stem approximately 1/16”.

If the valve stem (No. 14) is threaded INTO the coupling too far, the floating valve stem (No. 14A) may drop out of its recess in the top valve.

If the valve stem (No. 14) is threaded OUT of the coupling too far, the bottom valve will remain open allowing flow.

Dimensions are for reference only and subject to change. Certified drawings are available on request.

The Kadant Johnson Warranty

Kadant Johnson products are built to a high standard of quality. Performance is what you desire: that is what we provide. Kadant Johnson products are warranted against defects in materials and workmanship for a period of one year after date of shipment. It is expressly understood and agreed that the limit of Kadant Johnson’s liability shall, at Kadant Johnson’s sole option, be the repair or resupply of a like quantity of non-defective product.