



LUNKENHEIMER EXTERNAL DISC VALVES

FIGURE K4100/K4150

Installation, operation and maintenance instructions

WARNING

For Safety reasons, it is important to take the following precautions before working on the valve:

1. *SLURRY VALVES ARE NOT TO BE USED AS AN END OF LINE SERVICE VALVE.*
2. *Ensure that the procedures below meet or agree with the site procedures if not review with your site safety officers.*
3. *Personnel making any adjustments to the valve should utilize equipment and clothing normally used to work with the process where the valve is to be installed.*
4. *The line must be depressurized, drained and vented before installing or working on the valve.*
5. *Handling and installation of all valves, operators and actuators must be carried out by personnel trained in all aspects of installation and manual/mechanical handling techniques using site occupational health and safety procedures.*
6. *Ensure the valve pressure/temperature limitations marked on the nameplate are above or equal to the service conditions.*
7. *IF UNSURE PLEASE ASK FOR ADVICE.*

1 STORAGE INSTRUCTIONS

The valves discs, seats, stems and end connections should be adequately protected against damage. The protective end covers should not be removed until ready for installation.

For long term storage of Lunkenheimer valves the manufacturer would recommend the following procedures be adopted:

Protection

The internals of valve are to be sprayed with a moisture exclusion/corrosion inhibitor material. To achieve this, wearing the correct personal protection equipment and clothing, remove inlet end covers and open valve by rotating wrench and direct the atomized spray mist into the open valve cavity. Spray around seat and disc and close valve. Spray onto stem and yoke bush. Reseal the end covers.

Operation

Valves are to be cycled every three months. The cycle operation should be to the full open then to the full closed position.

Storage

All valves should be stored in the fully closed position end protection caps or covers should remain on the valve at all times.

2 PIPE COMPATIBILITY

Lunkenheimer valves are suitable for installation into most piping systems. The standard end connections are Flanged ASME Class 150 and PN10. Other end connections are available upon request.

3 SELECTION

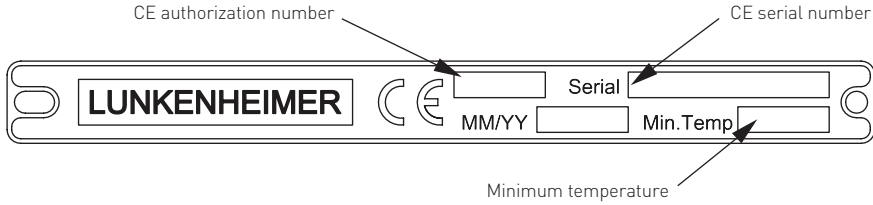
Ensure the valve's materials of construction and pressure/temperature limits shown on the nameplate are suitable for the process fluid and conditions. If in doubt contact the manufacturer.

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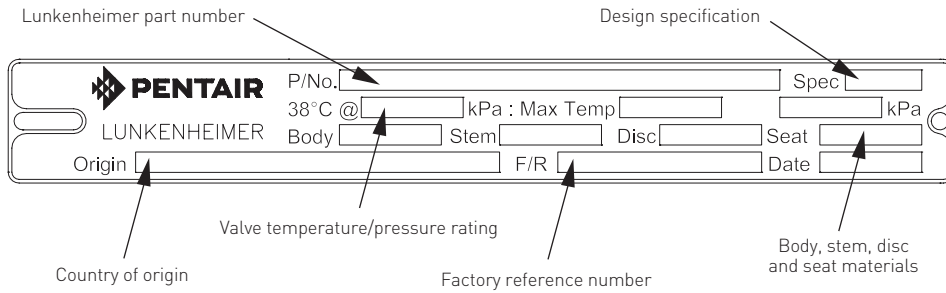
FIGURE K4100/K4150

4 NAME PLATES

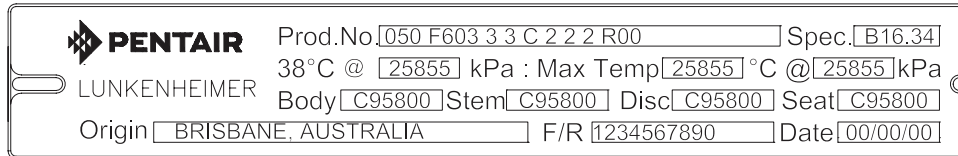
PED PLATE (FOR PED VALVES ONLY)



SMALL IDENTIFICATION PLATE (NPS 2 – 12 (DN 50 - 300))



LARGE IDENTIFICATION PLATE (NPS 14 – 20 (DN 350 - 500))



NOTE

Data filled is typical only.

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FIGURE K4100/K4150

5 UNPACKING

Valves are shipped on pallets or sealed wooden frame cases. Protective end coverings should remain on the valves until ready for installation.

On receipt, all valves should be inspected for loose or damaged parts and, if necessary, claims promptly submitted to the point of purchase.

6 SAFETY PRECAUTIONS

Whenever a valve is being installed or removed from the pipeline, ensure the line is not pressurized and any hazardous fluid is drained away.

Cycle the valve to ensure there is no extraneous media in cavity area and leave in the open position. Check that the seat and body pressure ratings are suitable for the service prior to installation. These ratings must not be exceeded.

CAUTION

Valve may contain hot fluid and may result in valve surface being hot to touch.

7 GENERAL

The preferred direction of flow for K4100 and K4150 Lunkenheimer valves is from the lower port below the disc, exiting from the side port. Gaskets are required to fit between valve flanges and pipeline. Check gaskets are suitable for duty.

8 LINE INSTALLATION

Caution should be exercised to prevent damage of the valve sealing mechanism during installation. The following steps will assist in complying with the correct installation procedure.

Remove the protective end covers prior to installation. The gasket faces should be wiped with clean solvent to ensure gasket faces are clean.

Ensure that the flange facings are clean and undamaged. No visual defects (scratches/impacts, etc) is tolerated on flange facings as minor defects in contact with critical fluids could induce rapid corrosion and leakage to atmosphere.

Substantial supports should be provided for the free ends of the pipeline and for the valve during installation. Unsupported pipelines hung from valves can cause high stress in valve body leading to possible damage.

For valves where the mating component has been removed from the remainder of the valve, the disc should be in the closed position before refitting to the installed mating component. This will allow the disc to hold the seat in the correct position to ensure the valve will seal after refitting the mating component.

Where possible, leave valve in 'open' position until entire construction work has been completed, pipeline cleaned and plant is ready for startup.

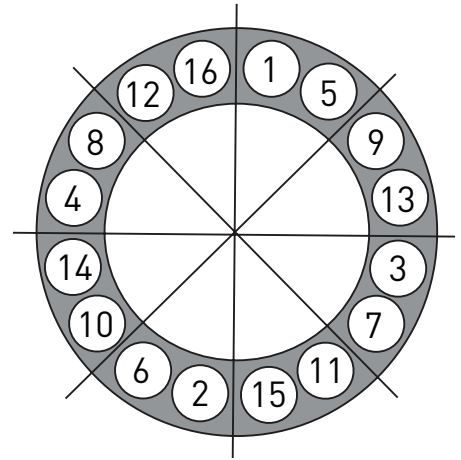
9 FLANGED VALVES

Fit gaskets of suitable material, place in position on the flanges, install bolts and run up nuts. Tighten flange nuts to correct torque (see chart page 3) using suitable wrenches and working diagonally opposite nuts in sequence around the periphery.

10 TESTING INSTALLATIONS

When pipeline or vessel installations are being tested it is desirable to have all Valves in the 'open' position. DO NOT USE Lunkenheimer Valves as Block Valves when testing pipelines or vessels as foreign matter may seriously damage sealing mechanism. Should valves be used for such testing, the Manufacturer takes NO RESPONSIBILITY for any damage which may affect the valves sealing mechanism and all Guarantees are withdrawn. If the user decides to test such installations with the valves 'closed', caution should be exercised to ensure that the sealing mechanism is not subjected to pressure differentials in excess of the maximum operating pressure of the valve seat design.

FLANGE TIGHTENING SEQUENCE



NOTE

Typical flange showing tightening sequence.

LUNKENHEIMER EXTERNAL DISC VALVES

FIGURE K4100/K4150

11 OPERATING INSTRUCTIONS

Operation of Lunkenheimer valves utilize the following items:

- 700** Handwheel
- 430** Stem guide

To open and close valve

1. Rotate the Handwheel (700) to open and close valve. Clockwise rotation of the Handwheel closes the valve.
2. Note that the Position of the Stem Guide (430) against the Yoke will indicate an approximate position of the disc.

MATERIALS (FIGURE K4100)

Item	Description
100	Body
110	Seat
120	Gasket-yoke
121	Gasket-seat
130	Studs/nuts-yoke
131	Studs/nuts-mating component
150	Mating component
200	Yoke
210	Packing
230	Packing gland
236	Spring washer-eyebolts
400	Stem
430	Stem guide
500	Disc
700	Handwheel
705	Protection hood
965	Tag plate

MATERIALS (FIGURE K4150)

Item	Description
100	Body
110	Seat
120	Gasket-yoke
121	Gasket-seat
130	Studs/nuts- yoke
131	Studs/nuts- mating component
150	Mating component
200	Yoke
210	Packing
230	Packing gland
236	Spring washer-eyebolts
400	Stem
430	Stem guide
500	Disc
700	Handwheel
705	Protection hood
965	Tag plate

FIGURE K4100

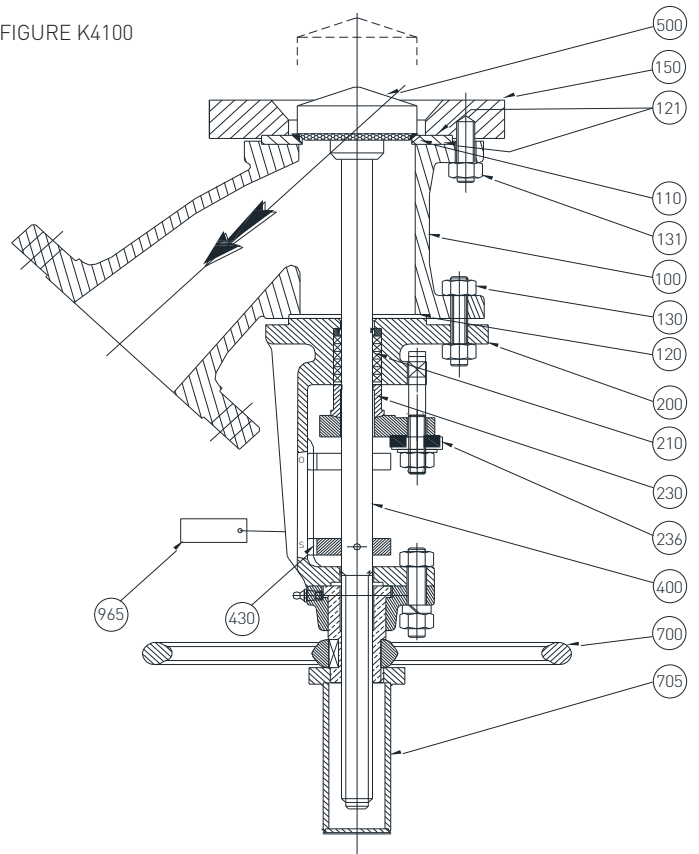
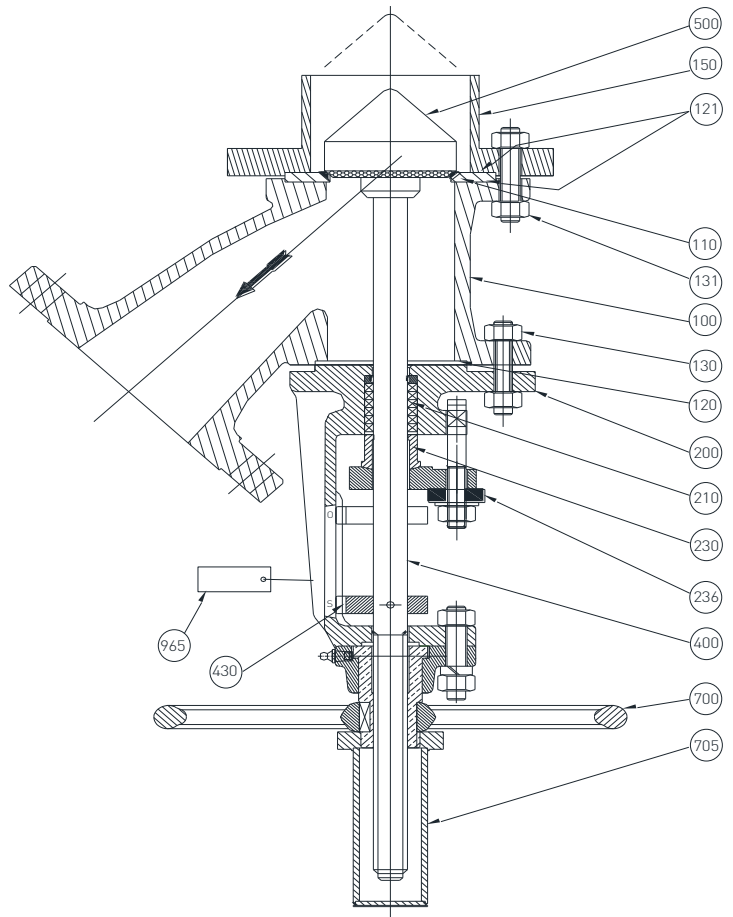


FIGURE K4150



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FIGURE K4100/K4150

12 REGULAR MAINTENANCE

1. ENSURE CORRECT PROTECTIVE CLOTHING AND EQUIPMENT IS WORN AT EACH INSTALLATION.
2. Ensure that periodic inspection of the internal body and parts for possible erosion and corrosion damage is made.
3. Ensure threads and bearings are kept free from dirt and lubricated regularly. Grease nipples are provided to assist with bearing lubrication.
4. The gland packing will require regular tensioning to ensure that the gland remains tight. Ensure that each gland nut is tensioned an equal amount so that gland is pulled down evenly. Do not over tighten; as this will cause difficult operation of the valve and premature gland wear.

Note: see page 6 'GLAND EYEBOLT TORQUES' for recommended torque values.

5. After prolonged valve usage the gland packing will need to be replaced. The following steps need to be followed:
 - a. Open valve, ensure pressure is removed from line and fluid is drained. Emerson does not recommend repacking with the line under pressure, as scale build up will often prevent back seating of stem.
 - b. Undo the two gland nuts.
 - c. Remove the disc springs and Belleville washers.
 - d. Lift gland and remove all old packing from stuffing box.
 - e. Replace packing with correct size and style packing for the duty. Check with Emerson or their agent for spares recommendations. Insert one ring at a time and compact into position.
 - f. When all rings are positioned and compressed, position gland and refit Belleville washers, tighten gland nuts to the correct tension. Note care should be taken to ensure both nuts are tightened evenly.

BOLT TORQUES FOR BOTH LUBRICATED AND TEFLON COATED BOLTS

Lubricated B7/2H, L7/GR4			PTFE COATED B7/2H, L7/GR4, B16/GR4		
Stud size	Torque		Stud size	Torque	
(inches)	lb-ft	Nm	(inches)	lb-ft	Nm
M10	25	34	M10	17	23
M12	43	58	M12	29	39
M14	70	95	M14	47	64
M16	106	144	M16	71	96
M18	151	205	M18	101	137
M20	216	293	M20	144	195
1" - UNC	477	647	1" - UNC	318	431

NOTES

Above torques are based on B7/2H, L7/GR4 and B16/GR4 Stud Bolts/Nuts only to produce 60% of yield stress.
Please contact Emerson or their agents prior to using the above Torque values on Stud Bolts other than B7 and B16.

LUNKENHEIMER EXTERNAL DISC VALVES

FIGURE K4100/K4150

GLAND EYEBOLT TORQUES

Size		Eyebolt / T-Bolt Torque	
NPS	DN	ft-lb	Nm
2	50	1.0	1.4
3	80	1.8	2.4
4	100	1.5	2.0
5	125	2.7	3.6
6	150	2.7	3.6
8	200	4.1	5.6
10	250	9.0	12.2
12	300	5.8	7.9
14	350	7.0	9.5
16	400	11.1	15.1
18	450	13.7	18.6
20	500	16.7	22.6

WARNING

Do not over tighten gland nuts, as this will cause difficult operation of the valve and premature gland wear.

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