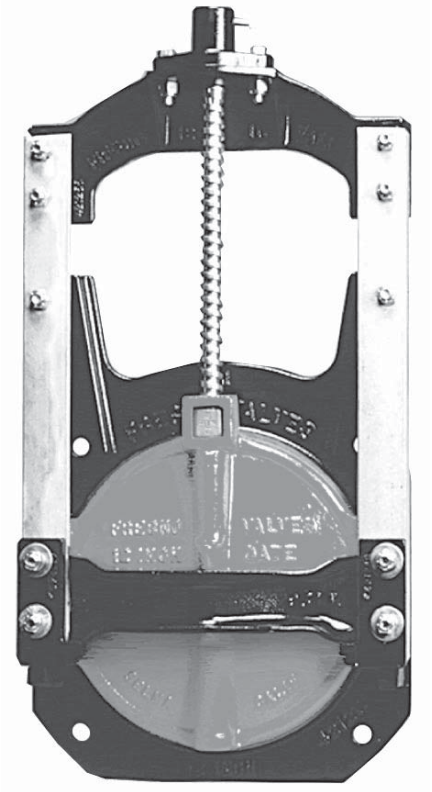
SERIES 4200
TYPE W PRESSURE GATE

Installation, Operation & Maintenance Manual



Manufactured by:

FRESNO
Valves & Castings, Inc.

Fresno Valves & Castings, Inc. Selma, CA (800) 333-1658

The purpose of this booklet is to give information on Fresno Valves & Castings' Type W Pressure Gates. These gates were accurately machined, assembled, and inspected before leaving the factory.

The mounting method covered in this manual is as follows:

- Flat back gate with setting collar for easy installation in concrete pipe.
- Flat Back gate mounted on flat surface or head wall. (Flat back gate may have the mounting flange machined at extra cost for mounting on flat machined round flanges.)

CAUTIONARY STATEMENT FOR INSTALLATION MANUAL

This manual describes the recommended procedures for installation, adjustment, operation and maintenance of Fresno Valves & Castings' Pressure Gates. When it is used in conjunction with installation drawings that have been supplied by Fresno Valves & Castings', this manual will be sufficient for most installations. Proper care and precautions must be taken in handling and storing the gates at the delivery site. For further details on the handling, storing, and installation of gates for a specific project, contact Fresno Valves.

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DO'S & DON'TS

In order for you to complete this installation in the most effective manner, we recommend that the personnel responsible for installation of the gates study these instructions and the Installation, Operation and Maintenance Manual before the gate shipment arrive, and follow the directions carefully during installation.

Fresno Valves & Castings' products are precision machined, shop adjusted, and quality checked water control equipment, intended for low leakage characteristics. Although durably constructed, attention must be given to proper storage, careful handling, and accurate location of embedded items for the gate structures to operate as designed.

INSTALLATION

Some DO'S and DON'TS to assure your achieving a proper gate installation:

DO read and follow the Installation, Operation and Maintenance Manual instructions.

DO carefully inspect the gates and accessories when received, prior to unloading trucks or cars. Report ALL shortages or suspected damage by marking the Bill of Lading and Receiving Reports at this time. Shortage or Damage must be reported to the freight carrier with 30 days.

DO store gates evenly on planks or timbers. Even the heaviest castings are subject to permanent warpage if unevenly blocked during storage.

DO accurately locate and brace any embedded items during placement of concrete.

DO contact your Fresno Valves representative with any questions you may have regarding products. Fresno Valves' products benefit from a combined gate design and manufacturing experience of over 100 years - 70 plus of Armco and 30 - plus of Fresno Valves and Castings, Inc., a treasured background of expertise and development.

DON'T stack gates in unstable and unevenly supported stacks. Avoid stacks taller than gate is wide.

DON'T disassemble' the gates for installation.

DON'T allow excess concrete to overlap gate thimble or frame.

DON'T tighten nuts for studs or anchors unevenly, or try to pull a gate frame tightly against an uneven wall surface. This, in most cases, will cause excessive leakage.

PROCEDURE A

INSTALLING FLAT BACK GATE ON CONCRETE WALL WITH GROUT PAD

1. Cast anchor bolts in concrete wall according bolt location on gate or as shown on installation drawing of catalog data page.

   A. Flat back gates can be mounted on existing walls by installing epoxy grouted or chemical adhesive anchors.
   Expansion type anchors are not recommended since they generally do not have enough thread length for grout, nut and gate flange.

2. Run a nut on each anchor as far as they will go.

3. Mount assembled gate over anchor bolts.

4. Install second nut on each anchor.

5. Be sure gate is fully closed with seat and wedges making firm contact. Check seating face alignment and clearance. Open and reclose gate. Seating faces should match at the top and bottom. Seats and wedges should make firm contact. If not, loosen the bolts or caps screws holding the stops to the frame and slide or drive the wedge block up or down as required. **CAUTION** slightly loosen stop bolts, just enough to allow stop block to be moved. Loosening too much will result in damage or improperly adjusted gate.

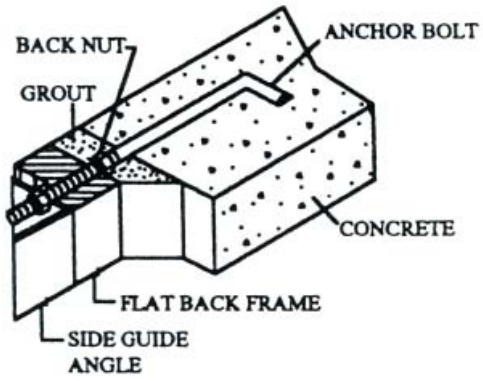
Check seating face contact or clearance with a 0.004 inch thickness gauge. If areas with gaps of significantly more than 0.004 inches exist, the seat has been distorted during installation. This can be corrected by either remounting of loosening bolts and moving the seat into contact with the cover (slide).

6. Plumb and align gate. Run both front and back nuts into snug contact with gate seat being careful not to warp or distort gate seat. Tighten nut firmly..

7. Recheck seat contact. (See step #5 above.)

8. Pack space between gate and wall with “non-shrink” grout. Do not use expanding grout since damage to gate will occur.

   Use a cement-based “non-shrink” grout such as U.S. Grout Corporation’s “5 Star Grout”. As an alternative that is readily available, Quikrete commercial grade nonshrink grout may be used.



LEAKAGE

Allowable leakage through gates may be between 0.1 to 0.4 gallons per minute per linear foot of seating perimeter at pressure up to the gate rating. If the rated head is exceeded or installation and adjustment is not correct, more leakage must be expected.

MAINTENANCE & LUBRICATION

Lubrication and maintenance of the gate seating faces and wedges is usually not required. However a light film of grease on the iron seating faces to prevent rust prior to "watering up" the gate is a good idea. Inspection of the gate, seating faces, and wedges as site conditions permit along with cleaning and repainting will improve the gate's service life.

Stem operating threads must be greased on a regular basis to maintain operating efficiency. The stem should be regreased approximately every 100 cycles or every 6 months. Regreasing of the lift bearings and\or gears through the zerk fitting is also required every 100 cycles or 6 months.

MAINTENANCE SUMMARY AND LUBRICATION SHEET

1. GENERAL CLEANING AND INSPECTION

   Frequency: As often as conditions require or permit, or every year.

2. INSPECT STEM THREADS AND LIFT NUT FOR WEAR

   Frequency: Initial inspection after 24 cycles, subsequent inspection after 48 cycles, operational inspection after each 100 cycles, or every 6 months, whichever occurs first.

3. CHECK STEM FOR LUBRICANT, ADDING LUBRICANT IF NECESSARY

   After 100 cycles, or every 6 months, whichever occurs first. Fiske Brothers "Lubriplate No. 630 AAA", or a good grade of multipurpose grease.* When grease is dried and\or contains foreign material.

4. PRESSURE GREASING OF LIFT THROUGH THE GREASE FITTINGS

   Frequency: After each 100 cycles, or 6 months, whichever occurs first.

*Equivalents to Fiske Brothers "Lubriplate No. 630 AAA or AA."

Conoco's "All Purpose Superlube"
Texaco's "Multi Fak Heavy Duty No. 2"
Shell Oil Company's "Alvania NO. 1"
Mobil's "Mobilux EP2"
Fiske Brothers "Lubriplate No. 630 AA"
Exxon "Ronex MP"

TROUBLESHOOTING

EXCESS LEAKAGE & OPERATING DIFFICULTIES POSSIBLE CAUSES AND CORRECTIONS

Leakage all around:

A. Gate not completely and firmly closed: Close gate completely.
B. Head pressure exceeds rating: Reduce head or instal gate of correct rating.
C. Stops incorrectly adjusted: Readjust according to step #4 Procedure “A”.
D. Dirty seating faces: Clean the seats or exercise the gate against head to scrape and flush dirt.

Leakage behind gate:

A. Grout not sealing: Regrout or caulk
B. Anchor bolt not tight or uniformly tight: Retighten
C. Gasket or mastic inadequately squeezed or washed-out: Reinstall mastic and readjust gate

Leakage around bottom of gate:

A. Gate seat distorted: Loosen anchor bolts and shim or wedge seat into contact with cover (slide)

Leakage around top of gate:

A. Gate seat distorted: Loosen anchor bolts and shim or wedge seat into contact with slide
B. Gate closed too tightly with stem causing distortion of the slide: Back of operator handwheel or crank a fraction of a turn to relax the stem. Do not pull gate out of wedges.

Difficult to close or open gate:

A. Dry or dirty stem and lift: Clean and lubricate stem and lift. (See Maintenance & Lubrication Summary Sheet)
B. Trash and debris in gate: Clean and remove; try to flush or break up by cautiously opening and closing the gate.
C. Excess head pressure: Reduce head or install gate of proper rating.
D. Dirty seating faces: Clean the faces or exercise the gate against head to scrape and flush the dirt.
E. Bent or bending stem: Check tightness of stem guide of check for missing stem guides, straighten or replace stem.
F. Stem and lift misaligned: Check plumb and alignment with level, plumb line and tape measure. Stem must move through lift mechanism in a straight line.
G. Bent or damaged frame, causing binding: Straighten or replace gate or parts.
H. Broken gate parts, wedges cross bar etc., caused by over pressure, debris or abusive closing force: Replace parts or gate.

Handwheel turns but gate or stem doesn’t move

A. Worn out lift nut threads: Replace lift nut. Perform routine maintenance and lubrication.
B. Stem separated or disconnected from gate caused by excessive force: Replace stem or broken parts.

LONG TERM STORAGE INSTRUCTIONS
FOR
GATES AND ACCESSORIES

1. Gate assemblies shall be stored horizontal and flat, with the back side (flange side) down. The storage area must be flat, graded, compact soil; concrete; or asphalt.

2. Place timber (minimum 4” X 4”) to provide substantially complete perimeter support under the gate frame assembly. Longitudinal timbers, spaced a maximum of 4 feet, may also be used.

3. Stacking of gates is permissible. The stacked height should not exceed 3/4 of the bottom gate width or height. Stack gates of different sizes in a pyramid fashion. Do not stack large gates on top of smaller gates.

4. Stacked gates should be separated with timber. The separating timbers should form a flat and level base for the gate above.

5. Wall thimbles may be stored similar to above. They may be stored with the machined flange face up or down. Substantial level blocking is essential. Uneven support of gate assemblies and thimbles causes the gates or thimbles to warp and voids the manufacturer’s warranty.

6. Store lift assemblies either upright with plastic plugs/caps in place to keep dirt our of nut threads or leave in original shipping carton. Do not store the lifts directly on the ground.

7. Stems and stem covers should be stored horizontally on timbers spaced 4 to 8 feet apart. Protective sleeves should be left on stem threads and stem covers.

8. Miscellaneous accessories and hardware should be stored off the ground.

9. Bronze stem blocks, wedges, lift nuts and stainless steel accessories are targets for theft and resale as scrap. Report all shortages at once and note the same on all shipping papers. Hydro Gate cannot be held responsible for theft and loss of equipment stored on the job site.

10. Inside dry storage is the best for all equipment. Covering equipment stored outside with tarpaulins is recommended to minimize degradation of paint from rain and sunlight, until finish paint is applied. Uncovered outdoor storage may result in staining of painted surfaces from rain and sunlight.

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