INSTALLATION GUIDELINES

5-1/4" B-84-B-5 AMERICAN-DARLING® WITH EARTHQUAKE JOINT BASE FIRE HYDRANT

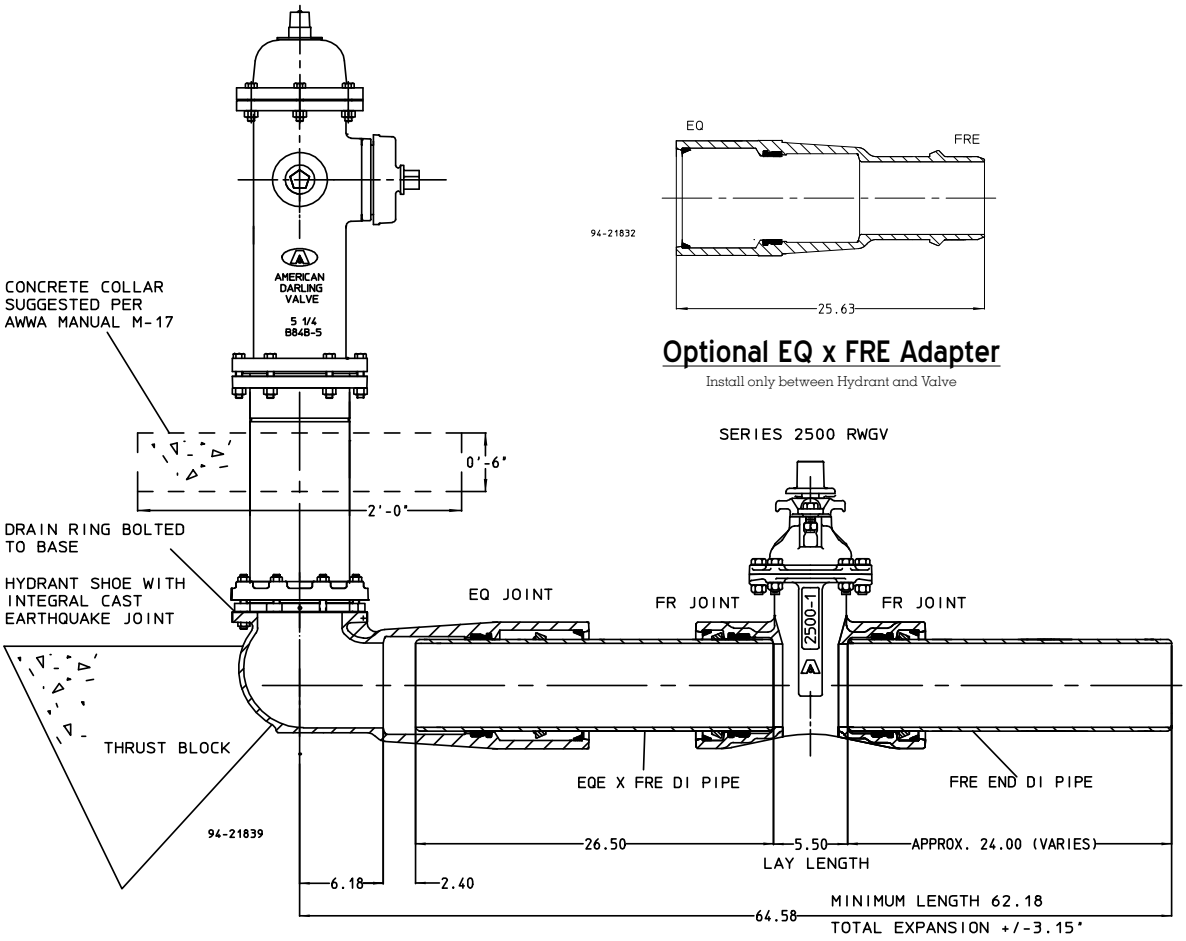
AMERICAN

FLOW CONTROL

THE RIGHT WAY

AMERICAN Flow Control Submittal Information

5-1/4 AMERICAN-DARLING® B-84-B-5 FIRE HYDRANT WITH INTEGRAL CAST EARTHQUAKE JOINT SYSTEM



Optional EQ x FRE Adapter

Install only between Hydrant and Valve

Standard Earthquake Joint Configuration

NOTES:

1. Allowable joint deflection as follows:
   Earthquake joint (EQ) - 3 degrees per joint; +/- 2.4" longitudinal extension
   Flex-ring joint (FR) - 5 degrees per joint ; +/- 3/8" longitudinal extension
   (3/4" joint pull out per joint)

5-1/4" AMERICAN-DARLING® B-84-B-5 WITH EARTHQUAKE (EQ) JOINT BASE INSTALLATION

This instruction is issued as a recommendation to the customer for the proper use of the AMERICAN Flow Control manufactured fire hydrants. AMERICAN recommends you follow the general Inspection and Installation guidelines outlined in AWWA Manual *M17 for Installation, Field Testing, and Maintenance of Fire Hydrants* and/or as recommended below. **WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.**

Receiving Inspection

On receipt, inspect for direction of opening, correct nozzle threads and operating nuts and shipping damage. Report any problems to carrier, note on bill of lading and have the driver sign your copy.

Installation

1. When hydrants are received, they should be handled carefully to avoid breakage and damage to flanges. Keep hydrants closed until they are installed. Protect stored hydrants from the elements.
2. **Before installation of hydrant, clean piping, base and drain ring of hydrant of any rocks, sand and/or foreign material. Check for loose bolts at base, ground line and cover. Tighten if necessary.**
3. Hydrants shall be located as shown or as directed and in a manner to provide complete accessibility, and also in such a manner that the possibility of damage from vehicles or injury to pedestrians will be minimized. Locate hydrants as detailed in AWWA M17 and/or in accordance with applicable fire codes, the requirements of local fire authority, or the applicable municipal design standard.
4. All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the curb, with the pumper nozzle facing the curb, except that hydrants having two hose nozzles 90° apart shall be set with each nozzle facing the curb at the angle of 45°. Hydrants shall be set to the established grade, with nozzles at least 18 in. above the ground, as shown or as directed by the engineer.

5. a. It is strongly suggested to install an auxiliary or secondary gate valve in the lateral between the hydrant and the main to permit inspection and repair of the hydrant without shutting down mains. The use of an AMERICAN Flow Control Series 2500 Resilient Wedge Gate Valve with Flex-Ring ends is imperative to complete the AFC EQ hydrant system.

5. b. The Flex-Ring gate valve should be installed approximately 38 inches from centerline of hydrant barrel to centerline of gate valve utilizing the spigot pipe provided, in order to locate the valve for the appropriate +/- 2.4 inches of longitudinal travel allowance provided in the expandable EQ base joint. Only a Flex-Ring End spigot pipe, furnished by AMERICAN, should be used to attach to either socket of the AFC gate valve with Flex-Ring ends. Any other end-type of the adjoining pipe will not provide proper joint restraint.

6. On traffic hydrants, surrounding soil must be adequately compacted around the barrel to support the lower barrel against transferring the force of a vehicular impact to the base. If the soil is too sandy and will not support the loads, pour a concrete pad around the barrel at or near the ground line at least 6 inches thick and 36 inches in diameter for barrel support.
7. Whenever a hydrant is set in soil that is pervious, drainage shall be provided at the base of the hydrant by placing coarse gravel or crushed stone mixed with coarse sand, from the bottom of the trench to at least 6 inches above the drain opening in the hydrant and to a distance of 1 foot around the elbow.
8. Whenever a hydrant is set in clay or other impervious soil, a drainage pit 2 feet in diameter and 3 feet deep shall be excavated below each hydrant and compactly filled with coarse gravel or crushed stone mixed with coarse sand under and around the elbow of the hydrant and to a level of 6 inches above the drain opening.
9. Where there is a high ground water level or other conditions which prevent the use of hydrants with drains, "non-draining" hydrants should be used. Hydrants of this type are provided with either a solid seat and/or plugged drains and are marked to pump after use. This is especially important to avoid damage to the hydrant in areas where freezing temperatures are likely. Non-draining hydrants should be checked upon installation and during semi-annual inspections to make sure the hydrant stays dry inside the lower and upper barrel.
10. An appropriately sized thrust blocking system is required with the AFC EQ hydrant system, in order to properly restrain the hydrant base from lateral movement due to pipeline thrust. Care should be taken to prevent blocking the hydrant drains if they are to remain operable. The size and configuration of the thrust blocking will depend on surrounding soil conditions and possibly the bedding and backfilling requirements of the subject project. As a minimum, thrust blocking design shall be as recommended by Ductile Iron Pipe Research Association (DIPRA) for a dead end line installations.
11. When first installed, the hydrant should be operated from full closed to full open position and back to make sure no obstructions are present.
12. After the line, as well as the hydrant, have been hydrostatically tested, the hydrant should be flushed and checked for proper drainage, if applicable.

5-1/4" AMERICAN-DARLING® B-84-B-5 WITH EARTHQUAKE (EQ) JOINT BASE TESTING

As applicable, AMERICAN Flow Control recommends you follow the General Inspection and Installation Guidelines outlined in AWWA Manual M17 for Installation, Field Testing, and Maintenance of Fire Hydrants and/or as recommended below. When the AMERICAN Flow Control EQ hydrant system is utilized, it is imperative to fully backfill the piping section from the main up to and incuding the hydrant base with the proper bedding/backfilling requirements prior to any hydrostatic testing. All thrust blocking must also be securely in place. ANSI/AWWA C502 permits dry barrel hydrants with unplugged drain outlets to have an allowable leakage of 5 fluid oz/min (0.25 mL/s) through the drain valve. Therefore, the hydrant should not be opened at the same time that the water main is tested. The auxiliary valve should be closed during water main tests (see ANSI/AWWA C600). If it is necessary to test the hydrant and water main at the same time, the installer may elect to temporarily plug the drain outlets by installing a non-draining seat. **WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.**

Pressure Test at Main Pressure

WARNING: FAILURE TO RELIEVE PRESSURE CAN RESULT IN THE CAP BLOWING OFF, CAUSING INJURY OR DEATH.

1. Confirm adequate thrust blocking has been installed and hydrant and hydrant lead have been backfilled.
2. Remove an outlet nozzle cap and open the hydrant valve enough turns to close the drain. Allow the hydrant to fill until water is at the bottom of the outlet nozzle.
3. Replace the outlet nozzle cap and leave it loose to permit all air to escape.
4. After all air has escaped, tighten the outlet nozzle cap.
5. Open the hydrant completely. (Opening the hydrant fully before all the air has escaped will compress the air and cause a safety hazard.)
6. Check for leakage at all joints and outlet nozzles.
7. If leakage is noted, safely repair or replace the necessary components or the entire hydrant using the instructions found in this publication.
8. Repeat the test until results are satisfactory.

Pressure Test at Pressures Above Main Pressure

WARNING: FAILURE TO RELIEVE PRESSURE CAN RESULT IN THE CAP BLOWING OFF, CAUSING INJURY OR DEATH.

1. Confirm adequate thrust blocking has been installed and hydrant and hydrant lead have been backfilled. Make sure the thrust blocking design for the hydrant base allows for pressures above the main pressure.
2. Connect a pressure test pump to one of the hydrant's outlet nozzles.
3. Open an outlet nozzle cap. Open the hydrant valve a few turns. Allow the hydrant to fill until the water level is at the bottom of the outlet nozzle.
4. After all the air has escaped, tighten the outlet nozzle cap.
5. Open the hydrant completely.
6. Close the auxiliary valve.
7. Safely pump up to the test pressure but do not exceed the rated working pressure of the hydrant or system components.
8. Check for leakage at all joints and outlet nozzles.
9. Safely repair or replace hydrant, if necessary, using the instructions found in this publication.
10. Repeat the test until results are satisfactory.
11. Close the hydrant and relieve pressure. Open the auxiliary valve.

Drainage Test for Dry Barrel Hydrants (Draining Type)

WARNING: FAILURE TO RELIEVE PRESSURE CAN RESULT IN THE CAP BLOWING OFF, CAUSING INJURY OR DEATH.

1. Following the pressure test, close the hydrant main valve.
2. Carefully remove one outlet nozzle cap and place the palm of one hand over the outlet nozzle opening.
3. Drainage should be sufficiently rapid to create a noticeable suction.
4. If the hydrant fails the drainage test, replace and tighten the nozzle cap, partially open the hydrant (1 or 2-turns) with the outlet nozzle caps on to create a pressure that will flush and clear the drain assembly. If this fails to restore proper drainage, then the drain assembly should be removed and inspected. If the drain assembly is clear, then the problem may be that the drain outlets are plugged from outside the hydrant. Repair will require digging down around the outside of the hydrant and clearing the drain outlets.

Placing a Hydrant Into Service

1. After testing and backfilling, the hydrant should be safely flushed and tested to be sure that it is bacteriologically safe before it is put into service.
2. Tighten the outlet nozzle caps so they will not be excessively tight, but tight enough to prevent their removal by hand.
3. Clean the hydrant exterior to remove dirt accumulated during installation. Touch up any areas where factory coating was damaged during handling or installation. Use an appropriate top coating or contact factory for touch-up coatings.

5-1/4" AMERICAN-DARLING B-84-B-5 OPERATION, INSPECTION, AND MAINTENANCE

Operation

AMERICAN Flow Control recommends you follow the general Inspection and Installation guidelines outlined in AWWA Manual M17 for Installation, Field Testing, and Maintenance of Fire Hydrants and/or as recommended below. The thrust bearing hydrant requires a minimum of torque to operate. **WARNING: Special care should be taken in the installation, inspection and repair of pressure containing devices such as valves and hydrants. FAILURE TO FOLLOW PROPER PRACTICE AND GUIDELINES CAN RESULT IN SERIOUS INJURY OR DEATH. High pressure and water hammer, due to rapid opening or closing of a hydrant or valve, can also cause major damage to the hydrant, valve, water main, fire hose, or other attached equipment.** It is possible to damage the hydrant by forcing it beyond its limits of travel with excess torque; therefore:

1. Check direction of opening as marked on the hydrant cover.
2. To open, turn the operating nut until the main valve is fully open and the travel stop nut limits further opening. **Do not force the hydrant in the opening direction beyond fully-open as indicated by sudden resistance to turning**. If water does not flow when the hydrant is open, it is probably due to a closed valve upstream from the hydrant. Always open the hydrant completely, never only partially. A hydrant that is partially open will allow pressurized flow through the drain valve, which may wash away the soil from the area surrounding the base, or the partially open main valve may trap small stones or other debris between the valve seal and seat.
3. To close, turn the operating nut until the valve stops the flow. **It is not necessary to close this style of hydrant with great force.** Once the flow has stopped, turn the operating nut in the opening direction about 1/4 turn to take the strain off the operating parts of the hydrant. If the hydrant does not shut off completely, do not attempt to force the hydrant to close. Debris and small stones may be trapped in the valve seat and may be preventing the hydrant from closing. Partially open and close the hydrant several times to help dislodge the debris. If this does not work, safely remove the hydrant operating rod assembly, remove the debris and repair as detailed in subsequent sections of this manual.
4. **WARNING: FAILURE TO RELIEVE PRESSURE CAN RESULT IN THE CAP BLOWING OFF, CAUSING INJURY OR DEATH.** Make sure the auxiliary gate valve in the lateral between the main and the hydrant is closed and that the hydrant is not charged with pressure when removing caps.

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