

Model DP-1 Dry Pilot Actuator For Deluge And Preaction Systems Dry Pilot Release Service

General Description

The Model DP-1 Dry Pilot Actuator is an auxiliary releasing device designed for use with Tyco Fire Products Deluge and Preaction Valves having dry pilot release systems. Also the Model DP-1 is used for Tyco Fire Products Preaction Valves having double interlock electric/pneumatic release. The Model DP-1 actuates these automatic water control valves upon release of air (nitrogen) pressure. In the case of dry pilot actuation, air pressure is released due to opening of a pilot sprinkler, or in the case of double interlock preaction systems air pressure is released from the system piping due to the opening of an automatic sprinkler. When the Model DP-1 actuates, it permits water pressure to be released from the deluge or preaction valve differential chamber, thereby allowing the deluge or preaction valve to open.

The Model DP-1 Dry Pilot Actuator is a redesignation for the Central Model DP, Gem Model B-1, and Star Model S440.

WARNING

The Model DP-1 Dry Pilot Actuator described herein must be installed and maintained in compliance with this document, as well as with the applicable standards of the National Fire Protection Association, in addition to the standards of any other authorities having jurisdiction. Failure to do so may impair the integrity of this device.

The owner is responsible for maintaining their fire protection system and devices in proper operating condition. The installing contractor or sprinkler manufacturer should be contacted relative to any questions.

Technical Data

Approvals

UL and ULC Listed. FM and LPCB Approved.

Maximum Inlet Water Pressure

250 psi (17,2 bar).

Maximum Air (Nitrogen) Pressure

50 psi (12,1 bar). Refer to Figure 2.

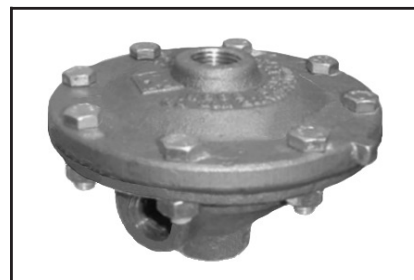
Assembly

The body and cover in Figure 1 are bronze. The elastomer water seal is Buna-N, and the diaphragm is nitrile coated nylon.

Operation

When the Model DP-1 Dry Pilot Actuator is in service, the pilot line or sprinkler line pressure (11 - Fig. 1), as applicable, holds the Diaphragm (7 - Fig. 1) depressed and the Disc (8 - Fig. 1) seated against the water pressure (12 - Fig. 1) from the differential chamber of the deluge or preaction valve.

Operation of a pilot sprinkler or automatic sprinkler, as applicable, relieves the air pressure from the diaphragm. The Spring (6 - Fig. 1) and water pressure from the differential chamber of the deluge or preaction valve then combine to force the the Model DP-1 open, which permits water to begin flowing through the 1/8 inch diameter holes located in the wall of the Guide (5 - Fig. 1). As the air pressure continues to decrease, the flow out of the Model DP-1 (13 - Fig. 1) increases to a rate which is greater than can be replenished through the restricted water supply to the differential chamber of the deluge or preaction valve, which in turn permits the deluge or



preaction valve to open and allow a flow of water into the system piping.

The relationship of the air pressure which should be maintained for system water pressures to 250 psi (17,2 bar) and the opening pressure drop required for opening of the Model DP-1 Dry Pilot Actuator are plotted in Figure 2.

Installation

The Model DP-1 Dry Pilot Actuator, which as applicable is provided as a trim component for Tyco Fire Products Deluge or Preaction Valves, must be installed in accordance with the specific instructions provided with the Tyco Fire Products Deluge or Preaction Valve Technical Data Sheets.

NOTE

The dewpoint of the pilot line or sprinkler system air pressure must be maintained below the lowest ambient temperature to which the piping system will be exposed. Accumulation of water in the air connection to the Model DP-1 will lower the air pressure at which the Model DP-1 will open.

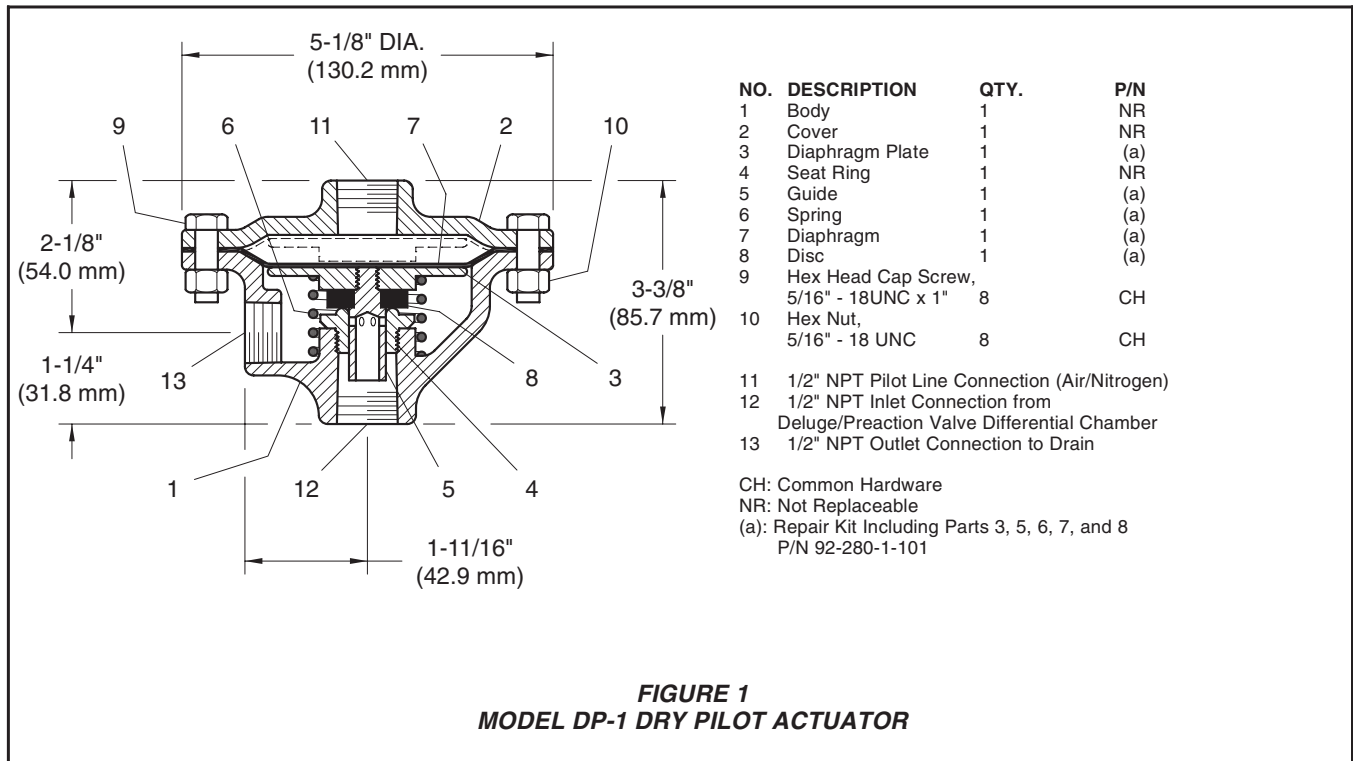


FIGURE 1
MODEL DP-1 DRY PILOT ACTUATOR

Care and Maintenance

The following inspection procedure must be performed as indicated, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected.

The owner is responsible for the inspection, testing, and maintenance of their fire protection system and devices in compliance with this document, as well as with the applicable standards of the National Fire Protection Association (e.g., NFPA 25), in addition to the standards of any authority having jurisdiction. The installing contractor or product manufacturer should be contacted relative to any questions.

It is recommended that automatic sprinkler systems be inspected, tested, and maintained by a qualified Inspection Service.

NOTES

Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system which it controls, permission to shut down the effected fire protection system must first be obtained from the proper authorities and all personnel who may be affected by this action must be notified.

After placing a fire protection system

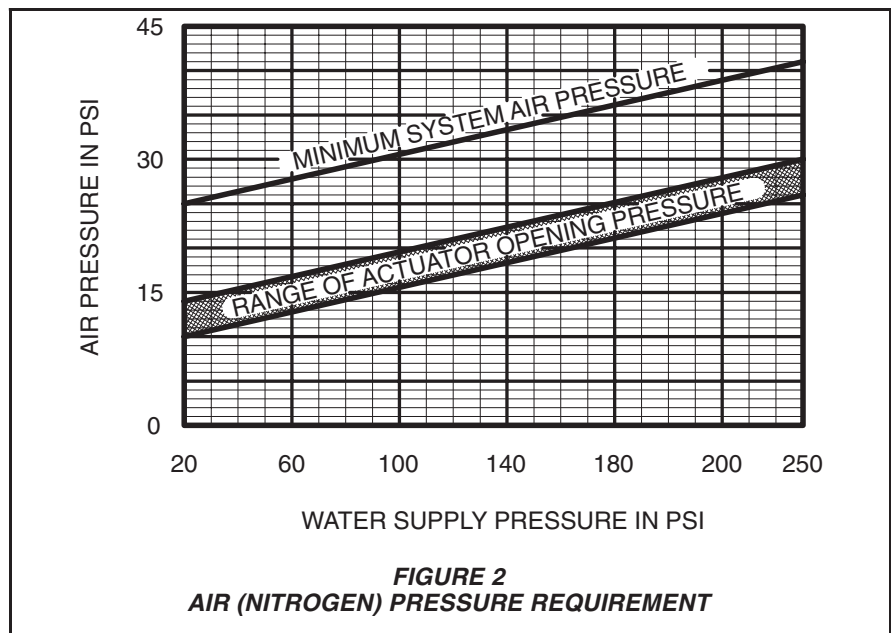


FIGURE 2
AIR (NITROGEN) PRESSURE REQUIREMENT

in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

INSPECTION PROCEDURE

The Model DP-1 Dry Pilot Actuator must be inspected quarterly in accordance with the following instructions:

Step 1. The Model DP-1 opens within the specified range of pressures.

Step 2. Flow out of the Model DP-1

increase to a rate which will trip the deluge or preaction valve.

Step 3. Inspect the drain for evidence of continued leakage past the Model DP-1. Determine and correct the cause of the leakage problem, as applicable.

Step 4. It is recommended that at least every 5 years, the Diaphragm Cover be removed and the Diaphragm inspected. The Diaphragm should be re-

placed if there are any sign of deterioration due to age.

Step 5. It is recommended that accumulated moisture be removed from air supply moisture filtration equipment, at least quarterly. More frequent inspections may be necessary in particularly humid environments.

Limited Warranty

Products manufactured by Tyco Fire Products are warranted solely to the original Buyer for ten (10) years against defects in material and workmanship when paid for and properly installed and maintained under normal use and service. This warranty will expire ten (10) years from date of shipment by Tyco Fire Products. No warranty is given for products or components manufactured by companies not affiliated by ownership with Tyco Fire Products or for products and components which have been subject to misuse, improper installation, corrosion, or which have not been installed, maintained, modified or repaired in accordance with applicable Standards of the National Fire Protection Association, and/or the standards of any other Authorities Having Jurisdiction. Materials found by Tyco Fire Products to be defective shall be either repaired or replaced, at Tyco Fire Products' sole option. Tyco Fire Products neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of products or parts of products. Tyco Fire Products shall not be responsible for sprinkler system design errors or inaccurate or incomplete information supplied by Buyer or Buyer's representatives.

IN NO EVENT SHALL TYCO FIRE PRODUCTS BE LIABLE, IN CONTRACT, TORT, STRICT LIABILITY OR UNDER ANY OTHER LEGAL THEORY, FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO LABOR CHARGES, REGARDLESS OF WHETHER TYCO FIRE PRODUCTS WAS INFORMED ABOUT THE POSSIBILITY OF SUCH DAMAGES, AND IN NO EVENT SHALL TYCO FIRE PRODUCTS' LIABILITY EXCEED AN AMOUNT EQUAL TO THE SALES PRICE.

THE FOREGOING WARRANTY IS MADE IN LIEU OF ANY AND ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Ordering Information

Orders for the DP-1 and replacement parts must include the description and Part Number (P/N).

DP-1:

Specify: Model DP-1 Dry Pilot Actuator, P/N 52-280-1-001

Repair Kit for

DP-1 Dry Pilot Actuator:

Repair Kit for use with Model DP-1 Dry Pilot Actuator, P/N 92-280-1-101.

