

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

## General Description

The TYCO Model DP-1 Dry Pilot Actuator is an auxiliary releasing device designed for use with Tyco Fire Protection Products (TFPP) Deluge and Preaction Valves having dry pilot release systems. Also, the Model DP-1 is used for TFPP 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.

### NOTICE

*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 (NFPA), 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. Contact the installing contractor or product manufacturer with any questions.*

## Technical Data

**Approvals**  
UL and ULC Listed  
FM Approved  
LPCB Approved

**Maximum Inlet Water Pressure**  
250 psi (17,2 bar)

**Maximum Air (Nitrogen) Pressure**  
50 psi (3,4 bar) (Ref. Graph A)

### Physical Characteristics

Body ..... Bronze  
Cover ..... Bronze  
Elastomer Water Seal ..... Buna-N  
Diaphragm ..... Nitrile-coated Nylon

## Operation

Parts and features described in this section are depicted in Figure 1.

When the TYCO Model DP-1 Dry Pilot Actuator is in service, the pilot line or sprinkler line pressure, as applicable, at the Inlet (No. 11) holds the Diaphragm (No. 7) depressed and the Disc (No. 8) seated against the water pressure from the Deluge/Preaction Valve Differential Chamber (No. 12).

Operation of a pilot sprinkler or automatic sprinkler, as applicable, relieves the air pressure from the diaphragm. The Spring (No. 6) and water pressure from the differential chamber of the deluge or preaction valve then combine to force the Diaphragm (No. 7) and Disc (No. 8) open, which permits water to begin flowing through the 1/8 inch diameter holes located in the wall of the Guide (No. 5). As the air pressure continues to decrease, the flow out of the Outlet (No. 13) 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 Graph A.

## Installation

The Model DP-1 Dry Pilot Actuator, which as applicable is provided as a trim component for TFPP Deluge or Preaction Valves, must be installed in accordance with the specific instruc-



tions provided with the TFPP Deluge or Preaction Valve Technical Data Sheets.

**Note:** *The dew point 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.*

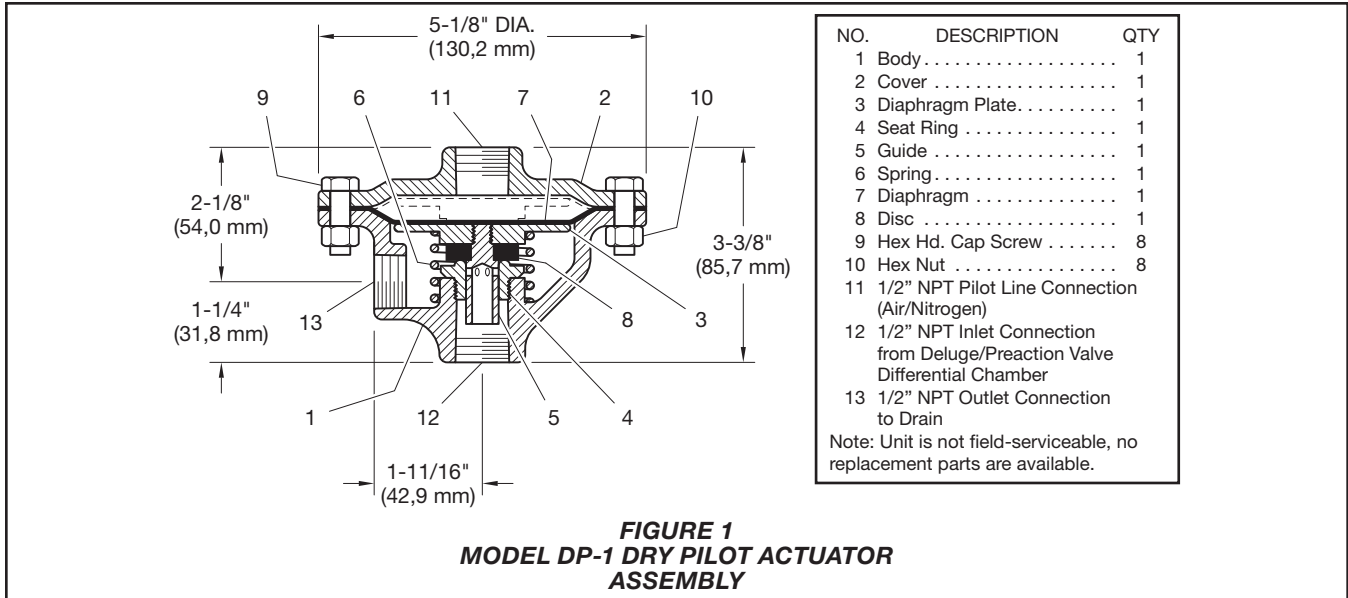
## Care and Maintenance

The TYCO Model DP-1 Dry Pilot Actuator must be maintained and serviced in accordance with this section.

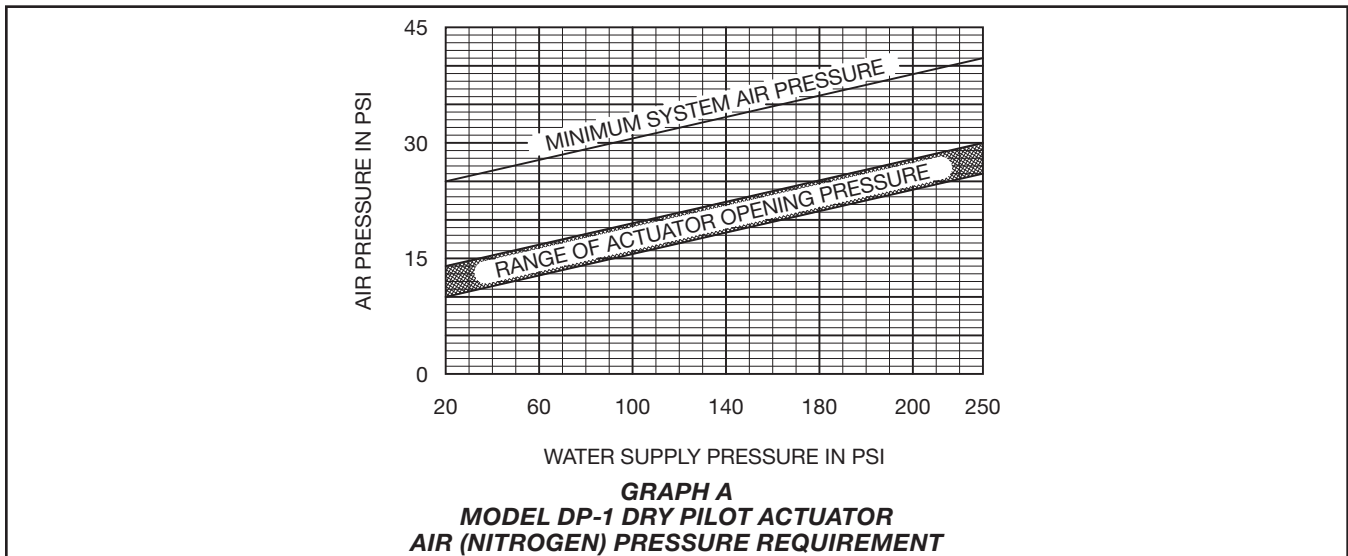
Before closing a fire protection system control valve for inspection or maintenance work on the fire protection system which it controls, permission to shut down the affected fire protection system must first be obtained from the proper authorities and all personnel who may be affected by this action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

After placing a fire protection system in service, notify the proper authorities and advise those responsible for monitoring proprietary and/or central station alarms.

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. Contact the installing contractor or product manufacturer with any questions.



**FIGURE 1**  
**MODEL DP-1 DRY PILOT ACTUATOR ASSEMBLY**



**GRAPH A**  
**MODEL DP-1 DRY PILOT ACTUATOR AIR (NITROGEN) PRESSURE REQUIREMENT**

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

**Note:** No attempt is to be made to repair an impaired Model DP-1 Dry Pilot Actuator. The complete assembly must be replaced if there is indication of malfunction.

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:

**Inspection Procedure**

The Model DP-1 Dry Pilot Actuator must be inspected quarterly in accordance with the following instructions, and any impairment must be corrected by replacing the DP-1.

**Step 1.** When in the set position there should not be any air or water leakage from the outlet connection to drain.

**Step 2.** During the quarterly test of actuation devices, verify that the Model DP-1 opens within the specified range of pressures and that flow out of the Model DP-1 increases to a rate which will trip the deluge or preaction valve.

**Step 3.** 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**

For warranty terms and conditions, visit [www.tyco-fire.com](http://www.tyco-fire.com).

**Ordering Procedure**

Contact your local distributor for availability. When placing an order, indicate the full product name and part number (P/N).

**Model DP-1**

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