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Model DP-2 Dry Pilot Actuator For Deluge and Preaction Systems Dry Pilot Release Service

IMPORTANT
Refer to Technical Data Sheet TFP2300 for warnings pertaining to regulatory and health information.

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docs.jci.com/tycofire/tfp1381

General Description

The TYCO Model DP-2 Dry Pilot Actuator is an auxiliary releasing device designed for use with TYCO Deluge and Preaction Valves having dry pilot release systems. Also, the Model DP-2 is used for TYCO Preaction Valves having double-interlock electric/pneumatic release. The Model DP-2 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-2 actuates, it permits water pressure to be released from the deluge or preaction valve pilot line, thereby allowing the deluge or preaction valve to open.

NOTICE

The Model DP-2 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 C-UL Listed
FM Approved

Maximum Inlet Water Pressure
300 psi (20,7 bar)

Physical Characteristics

Body	Brass UNS C37700
Head	Brass UNS C37700
Socket Head Cap Screw	Stainless Steel with Loctite 263
Threaded Adapter	Brass UNS C37700
Differential Chamber Washer	Stainless Steel
Differential Chamber Diaphragm	EPDM
Differential Chamber Piston	Urethane
Differential Chamber Piston Spring	Stainless Steel
Head O-Ring Gasket	EPDM
Main Seal/Diaphragm Spring	Stainless Steel
Roll Pin	Stainless Steel
Set Screw	Stainless Steel
Main Seal Plate with Overmold Facing	Brass UNS C37700 with EPDM Facing
Main Diaphragm	EPDM
Main Seal Throttling Plate	Brass UNS C37700
Philips Pan Head Screw	Stainless Steel with LOCTITE 263

Operation

When the TYCO Model DP-2 Dry Pilot Actuator is in service, the pilot line or sprinkler line pressure is applied to the system connection on the DP-2 (6) holds the differential piston (7) in the closed position. There by building pressure which closes the main seal assembly (G). The main seal assembly is held closed hydraulically by water supplied from the deluge/preaction valve's pilot line.

With activation of an automatic sprinkler in the sprinkler system or pilot line a pressure decay occurs at the system connection (B). The decay of pressure allows the spring (8) to overcome the force from system air pressure and opens an internal flow path. The internal flow path reduces the pressure above the main seal assembly (G) which causes it to lift open, now allow the drain connection (C) in communication with the pilot line connection (A). This communication permits the flow of water from the deluge/preaction valve's pilot line thus tripping the valve.

The relationship between air pressure and water pressure is ratio metric in the DP-2. Setting the DP-2 requires that air pressure be set according to the maximum water pressure the valve would see in its installed location. Refer to Graph A for recommended air pressure settings based on water pressure.

Features	
Item	**Description**
A	Valve pilot line connection
B	Dry pilot system connection
C	Drain connection
D	Neutral Chamber
E	DP-2 Inlet Waterway
F	Drain Waterway
G	Main Seal

Parts	
Item	**Description**
1	Body
2	Head
3	Socket Head Cap Screw
4	Threaded Adapter
5	Differential Chamber Washer
6	Differential Chamber Diaphragm
7	Differential Chamber Piston
8	Differential Chamber Piston Spring
9	Head O-Ring Gasket
10	Main Seal/Diaphragm Spring
11	Roll Pin
12	Set Screw
13	Main Seal Plate with EPDM Facing
14	Main Diaphragm
15	Throttling Plate
16	Phillips Pan Head Screw

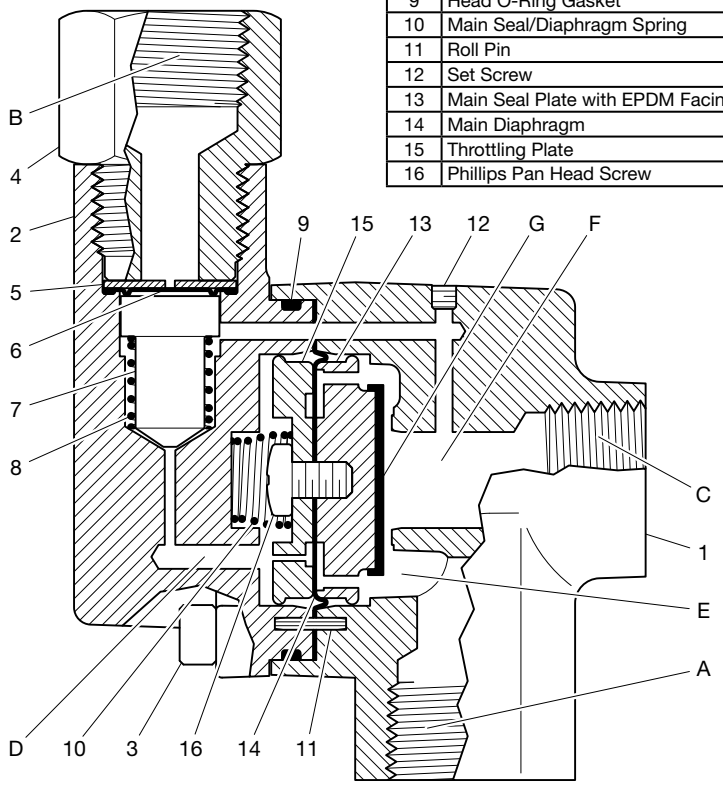
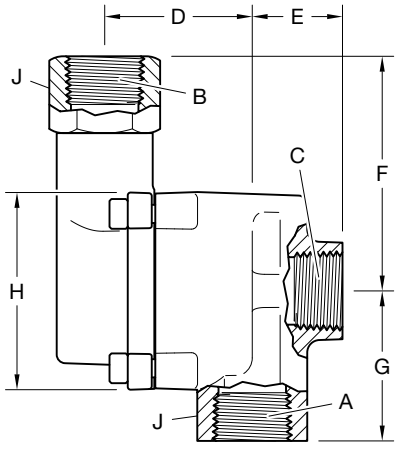


FIGURE 1
MODEL DP-2 DRY PILOT ACTUATOR ASSEMBLY



Dim.	Dimension in. (mm)	Description
A	1/2 in. NPT	Valve differential chamber connection
B	1/2 in. NPT	Dry pilot system connection
C	1/2 in. NPT	Drain connection
D	1.53 (38,6)	
E	0.94 (23,9)	
F	2.44 (62,0)	
G	1.56 (39,6)	
H	2.06 (52,3)	Diameter, maximum depth
J	1.00 (25,4)	Hex wrench area

FIGURE 2
MODEL DP-2 DRY PILOT ACTUATOR DIMENSIONS

Installation

The Model DP-2 Dry Pilot Actuator, which as applicable is provided as a trim component for TYCO Deluge or Preaction Valves, must be installed in accordance with the specific instructions provided with the TYCO 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-2 may lower the air pressure at which the Model DP-2 will open.*

Set Condition	
Item	**Description**
1	Valve pilot line water pressure
2	Dry pilot system air/nitrogen pressure
3	Dry pilot piston extended, neutral chamber closed
4	Dry pilot piston extended, neutral chamber closed
5	Main seal extended, valve differential chamber pressurized
6	Drain closed, open to atmosphere

Operated Condition	
Item	**Description**
1	Valve pilot line pressure relief
2	Dry pilot system open to atmosphere
3	Dry pilot piston retracted, neutral chamber vented
4	Dry pilot piston retracted, neutral chamber vented
5	Main seal retracted, valve differential chamber vented
6	Drain open, flow to drain

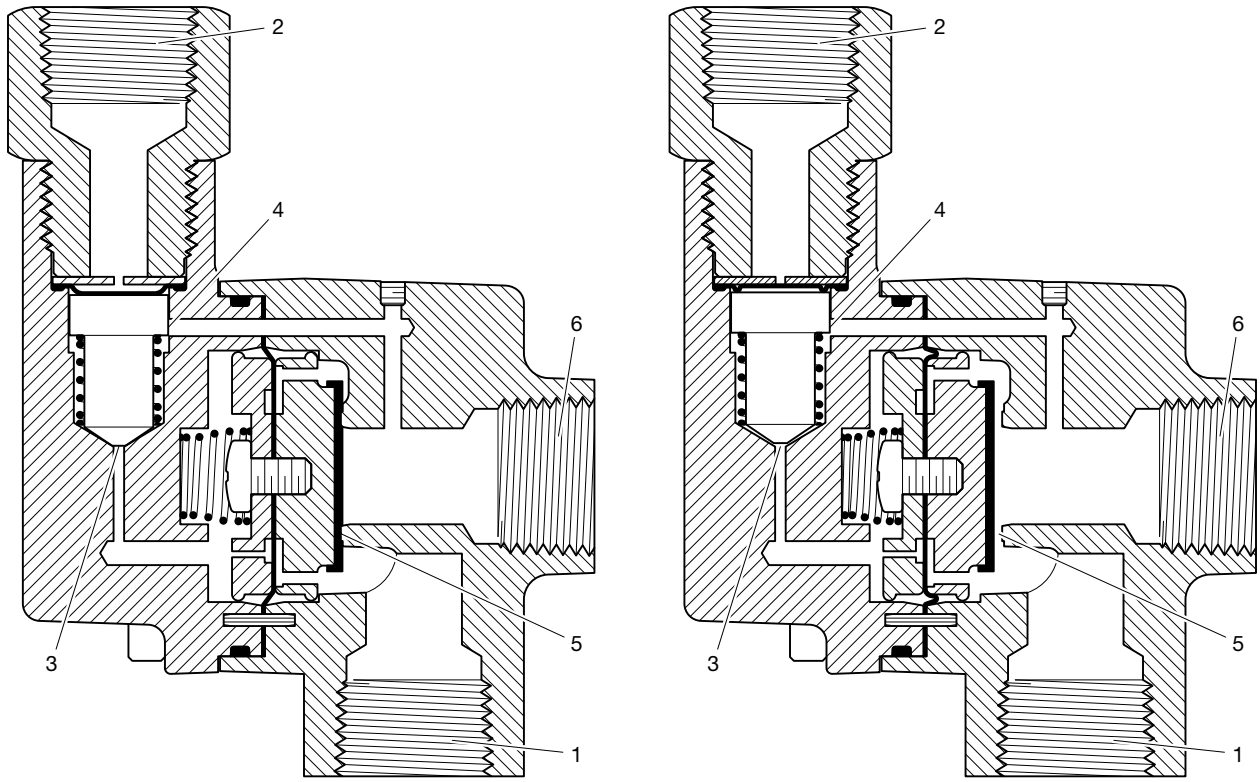


FIGURE 3
MODEL DP-2 DRY PILOT ACTUATOR OPERATION

Care and Maintenance

The TYCO Model DP-2 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.

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-2 Dry Pilot Actuator. The complete assembly must be replaced if their is indication of malfunction.*

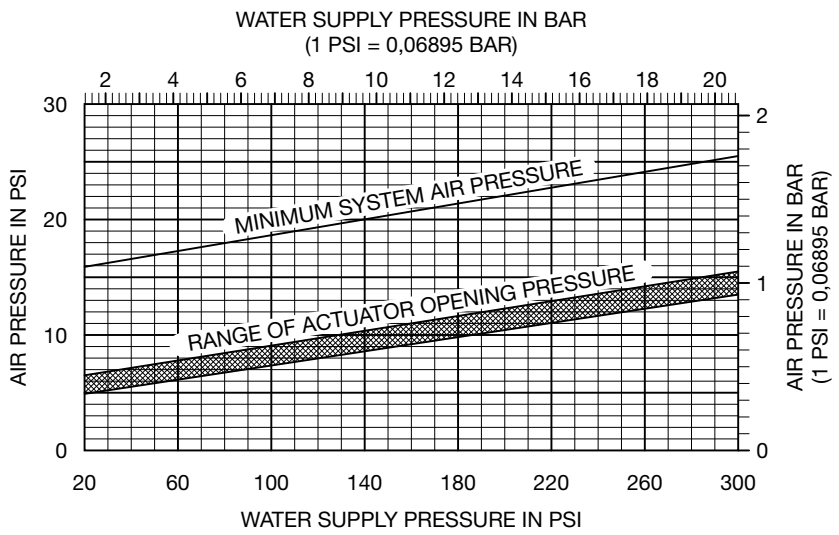
The following inspection procedure must be performed as indicated, in addition to any specific requirements of the NFPA, and any impairment must be immediately corrected:

Inspection Procedure
The Model DP-2 Dry Pilot Actuator must be inspected quarterly in accordance with the following instructions, and any impairment must be corrected by replacing the DP-2.

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-2 opens within the specified range of pressures and that flow out of the Model DP-2 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.



NOTES:

1. The dew point of the pilot line air pressure must be maintained below the lowest ambient temperature to which the dry pilot actuation system will be exposed. Accumulation of water in the pilot line connection to the Actuator will lower the air pressure at which the actuator will open and possibly prevent proper operation. Also, introduction of moisture into the pilot lines exposed to freezing temperatures can create an ice buildup that could prevent proper operation of the Actuator.
2. An air dryer must be installed where the moisture content of the air supply is not properly controlled at less than the required value.
3. It is recommended that an AMD-3 Nitrogen Maintenance Device be utilized in dry pilot actuation system applications where the dew point must be maintained below -20°F (-29°C). Refer to Technical Data Sheet TFP1241.

GRAPH A
DP-2 DRY PILOT LINE
AIR PRESSURE REQUIREMENTS

Limited Warranty

For warranty terms and conditions, visit 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-2
Specify: Model DP-2 Dry Pilot Actuator, P/N 52-280-2-001

1467 Elmwood Avenue, Cranston, RI 02910 | Telephone +1-401-781-8220

Johnson Controls