

# 316 Stainless Steel Bourdon Tube Pressure Switches

## Series D-40 Series D-80\*



### FEATURES:

External adjustment • Visible calibrated dial • Visible on-off operation  
 • Adjustable or fixed sensitivities  
 • Mercury or snap switch operation  
 • Minimum differential obtainable at any point in range scale • Working pressure ranges to 2500 psig.

### APPLICATION:

For gases, steam, or liquids not injurious to 316 stainless steel. To actuate a hermetically sealed mercury switch or snap action switch upon a change in pressure. Series D-80 for oil supervisory service.\* Use of a surge tank, snubber or capillary tubing connection is recommended where pulsation, high pressure surge or water hammer occur. For greater wear resistance, Delrin Bushed Movement B is recommended.

\*316 SS Bourdon Tube/Carbon steel bottom connection.

### Adjustable Differential Fully Automatic, Double Adjustments

**Type DA**  
 Equipped with two external adjustments, one for setting high pressure operating point, the other for setting low pressure operating point. Differential is adjustable over full scale.

### Fixed Differential Fully Automatic, Single Adjustment

**Type DS**  
 Equipped with single external adjustment for setting operating point only. A single pointer on scale sets pressure point at which switch action occurs. Fixed differential is factory set and cannot be altered in the field. Circuit will open or close upon pressure variance from set point.

### Semi-Automatic Manual Reset, Single Adjustment

**Type DR**  
 Equipped with single external adjustment for setting operating point to either open or close circuit automatically upon a pressure increase or decrease. Pushbutton reset must be operated manually to restore the circuit to original position after automatic operation. Regardless of degree of increase or decrease, circuit will not be restored until manually reset. Suffix "L" i.e. DR-11-153L, denotes control will operate automatically on increase; suffix "U" denotes control will operate automatically on decrease.

### Available Construction

Enclosures (See Pg. 7 for details)  
 General Purpose NEMA 1 (Standard)  
 Watertight, Dust-Tight NEMA 3S, 4 & 4X (Optional) Add prefix "W" i.e. DAW  
 Weather-Resistant, Rain-Tight NEMA 3R (Optional) Add prefix "RS" and "W" i.e. DRW  
 Weatherproof NEMA 1, 1A, 2, 3, 4 & 12 (Optional) Specify "Weatherproof Housing"  
 Explosion-Proof, Hazardous Area (Optional) Add prefix "H" i.e. DAH

Accessories	See Page Number
Flange for Surface Mounting (General Purpose only)	8
Remote Connections	8
Delrin Bushed Movement	9
<b>Special Features</b>	
Factory Mutual Approved	9
Multiple Circuit Combinations (Tilt-type mercury switches)	22
Manual Lock Reset	8
Exhaust-Dry & Cap Bourdon Tube (Spec. 23443)	-
Oxygen or Acetylene Service (Spec. 23444)	-
DAH for Panel Mounting	9
Breather & Drain for Explosion-Proof Enclosures	9
Diaphragm Seals	20-21
1 Amp Capacity for Code C	22
DC Ratings for Code E	22

\*Series D-80 switches, for oil supervisory service, are subject to limited UL, FM and CSA approvals. See Pages 51-57 for details.

### To Order:

Specify Type No., Circuit Suffix No., Range No., and optional construction, if desired.

## OPERATING RANGES/DIFFERENTIALS, SERIES D-40

WITH MERCURY SWITCH CONTACTS Series D-40, D-240, D-540

Range No.	Adjustable Operating Range (PSIG)	Adjustable Differential Type DA, Double Adjustments Minimum Differential			Fixed Differential Type DS, Single Adjustment
		DA-41 DAW-43 DAH-41	DA-541 DAW-543 DAH-541	DS-241 DSW-243 DSH-241	
26E	30" Hg Vac-75	7 psig	3.5 psig	14 oz.	
23E	5-75 psig	3 psig	2 psig	0.4 psig	
6E	10-100 psig	7 psig	3.5 psig	14 oz.	
24E	10-150 psig	6 psig	3 psig	0.75 psig	
9E	10-300 psig	18 psig	5 psig	3 psig	
21E	30-400 psig	30 psig	15 psig	5 psig	
22E	75-800 psig	75 psig	35 psig	12 psig	
11E	100-1000 psig	100 psig	45 psig	18 psig	
13E	200-2500 psig	210 psig	110 psig	50 psig	
Multiple Circuits' Electrical Ratings		See Page 22 See Code A	Not Available See Code B	Not Available See Code C	

\*Minimum differentials increase when using multiple circuits.

WITH SNAP-ACTION CONTACTS Series D-7040, D-7240

Range No.	Adjustable Operating Range (PSIG)	Adjust. Diff. Type DA, Double Adjustments Min. Diff.	Fixed Differential Type DS, Single Adjustment	
			SPDT DA-7041-153 DAW-7043-153 DAH-7041-153	(2) SPDT DS-7241-153 DSW-7243-153 DSH-7241-153
26E	30" Hg Vac-75	10 psig	3.5 psig	4 psig
23E	5-75 psig	8 psig	4 psig	2.5 psig
6E	10-100 psig	10 psig	3.5 psig	4 psig
24E	10-150 psig	11 psig	4 psig	2.5 psig
9E	10-300 psig	28 psig	8 psig	5.5 psig
21E	30-400 psig	52 psig	10 psig	10 psig
22E	75-800 psig	120 psig	25 psig	17 psig
11E	100-1000 psig	190 psig	35 psig	30 psig
13E	200-2500 psig	400 psig	75 psig	95 psig
Two SPDT Switches' Electrical Ratings		See Page 22 See Code D'	See Code E	Standard See Code F

\*Minimum differentials increase when using multiple circuits.

## OPERATING RANGES/DIFFERENTIALS, SERIES D-80

WITH MERCURY SWITCH CONTACTS Series D-80, D-280, D-580

Range No.	Adjustable Operating Range (PSIG)	Adjustable Differential Type DA, Double Adjustments Minimum Differential			Fixed Differential Type DS, Single Adjustment
		DA-81 DAW-83 DAH-81	DA-581 DAW-583 DAH-581	DS-281 DSW-283 DSH-281	
23K	5-75 psig	3 psig	2 psig	0.4 psig	
24K	10-150 psig	6 psig	3 psig	0.75 psig	
9K	10-300 psig	18 psig	5 psig	3 psig	
Multiple Circuits' Electrical Ratings		See Page 22 See Code A	Not Available See Code B	Not Available See Code C	

\*Minimum differentials increase when using multiple circuits.

WITH SNAP-ACTION CONTACTS Series D-7080, D-7280

Range No.	Adjustable Operating Range (PSIG)	Adjust. Diff. Type DA, Double Adjustments Min. Diff.	Fixed Differential Type DS, Single Adjustment	
			SPDT DA-7081-153 DAW-7083-153 DAH-7081-153	(2) SPDT DS-7281-153 DSW-7283-153 DSH-7281-153
23K	5-75 psig	8 psig	4 psig	2.5 psig
24K	10-150 psig	11 psig	4 psig	2.5 psig
9K	10-300 psig	28 psig	8 psig	5.5 psig
Two SPDT Switches' Electrical Ratings		See Page 22 See Code D'	See Code E	Standard See Code F

\*Minimum differentials increase when using multiple circuits.

## SWITCH ACTIONS

For Mercury Switch Contacts

Circuit Suffix No.	Switch Action
-2	SPST, OPENS on increase
-3	SPST, CLOSES on increase
-153	SPDT, one circuit OPENS as other CLOSES

For Snap-Action Contacts

Circuit Suffix No.	Switch Action
-153	SPDT, one circuit OPENS as other CLOSES
-804	Two SPDT, operate simultaneously in one direction upon increase or decrease

## ELECTRICAL RATINGS

For Mercury Switch Contacts

Code	Circuit Suffix No.	AC Capacity			DC Capacity		Horsepower	
		120V	240V	440V	120V	240V	AC	DC
A	-2, -3	10A	5A	3A	10A	5A	3/4	1/3
	-153	4A	2A	①	4A	2A	1/8	NA
B	-2, -3	5A	2A	NA	2-1/2A	1A	1/8	1/10
	②	0.3A	0.15A	NA	0.15A	0.07A	NA	NA

① -153 circuit available 1A, 440V AC on special order

② Also rated 0.9 Amps at 24V AC

For Snap-Action Contacts

Code	Circuit Suffix No.	AC Capacity			DC Capacity		Horsepower	
		120V	240V	440V	120V	240V	AC	DC
D	-153	15A	15A	15③	1/2A	1/4A	1/8	NA
				400V				
E	-153	15A	15A	NA	④	④	④	NA
F	-804	5A	5A	NA	⑤	⑤	NA	NA

① 1/4 HP at 120V AC, 1/2 HP at 240V AC

② DC rated controls (up to 10 Amps) see page 22

③ 5A, 30V DC resistive