



DP-40

Vane operated Flowswitch for heavy-duty applications

Features

- / Leak proof body
- / Free-Swinging vane
- / Electrical unit can be replaced
- / Thread, tee or flange installation
- / Field adjustable multilayer vane
- / Up to 1000 or 2000 psig
- / 5000 psig on special request
- / Weatherproof NEMA4
- / ATEX or IECEx

Description:

The DP-40 Flow Switch is rugged and reliable, ideal for automatically protecting equipment and pipeline systems against damage from reduction or loss of flow. A unique magnetically actuated switching design gives superior performance. There are no bellows, springs, or seals to fail. Instead, a free swinging vane attracts a magnet within the solid metal switch body, actuating a snap switch by means of a simple lever arm. Time tested in thousands of pipeline installations and processing plants around the world this series is weatherproof, designed to meet NEMA 4 and explosion-proof (listing included in specifications). The DP-40 can be used in pipes 1 1/2" and up.

Application:

- / Protects pumps, motors and other equipment against low or no flow
- / Controls sequential operation of pumps
- / Automatically starts auxiliary pumps and engines
- / Stops liquid cooled engines, machines and processing when coolant flow is interrupted
- / Shuts down burner when air flow through heating coil fails
- / Controls dampers according to flow



Technical Specifications

| | |
|--------------------------------|---|
| Media / | Gases or liquids compatible with wetted materials. |
| max. Pressure / | Brass body 1000 psig (69 bar), 316 SS body 2000 psig (138 bar), optional 5000 psig (345 bar) available with 316 SS body and SPDT switch only. |
| max. Media-temp. / | -4. . .+275°F (-20. . .+135°C) standard, MT high temperature option +400°F (+205°C) [MT option not UL, CSA, ATEX or IECEx] |
| max. Ambient-temp. / | -4. . .+163°F (-20. . .+73°C) |
| Wetted materials / | |
| Vane: | 316 SS |
| Body: | Brass or 316 SS standard |
| Magnet keeper: | 430 SS standard, 316 SS optional |
| Options: | Other materials are also available on request. |
| Protection class / | Weatherproof and Explosion-proof. **Listed with UL and CSA for Class I, Groups C and D; Class II, Groups E, F, and G. |
| ATEX-Certificate No. / | KEMA 03 ATEX 2383 |
| ATEX-Certified / | ATEX CE 2813 Ex II 2 G Ex db IIB T6 Gb -20°C ≤ Tamb ≤ 73°C, -20°C ≤ Process Temps ≤ 73°C |
| ATEX Standards / | EN60079-0: 2012+A11: 2013 EN 60079-1: 2014 |
| IECEx-Certificate No. / | IECEx DEK 11.0071 |
| IECEx-Certified / | Ex db IIB T6 Gb -20°C ≤ Tamb ≤ 73°C -20°C ≤ Process Temp ≤ 73°C |
| IECE-Standards / | IEC 60079-0: IEC 60079-0: 2011 IEC 60079-1: 60079-1: 2014 |

Electrical Specifications:

| | |
|---|---|
| Switch type / | SPDT snap switch standard, DPDT snap switch optional. |
| Electrical rating / | |
| UL, FM, ATEX and IECEx models: | 10A @ 125/250 VAC (V~) |
| CSA models: | 5 A @ 125/250 VAC (V~) 5 A res., 3 A ind. @ 30 VDC (V) |
| MV option: | 1 A @125 VAC (V~); 1 A res. 5 A ind. @ 30 VDC (V) |
| MT option: | 5 A @ 125/250 VAC (V~) |
| [MT and MV option without UL, CSA, FM, ATEX or IECEx] | |
| Electrical connections / | |
| UL and CSA models: | 16 AWG, 6" (152 mm) long |
| ATEX and IECEx unit: | Terminal block |
| Conduit connection: | ¾" female NPT or M25 (BSPT) |
| Process connection: | 1½" NPT-male, BSPT |
| Mounting orientation: | Within 5° of vertical for proper operation. Units for horizontal installation (vertical pipe with up flow) available. |
| Set point adjustment / | |
| For universal vane: | five vane combinations |
| Weight: | 4 lb 8 oz (1.9 kg) |
| Agency approvals: | ATEX, CE, CSA, FM, IECEx, UL** |

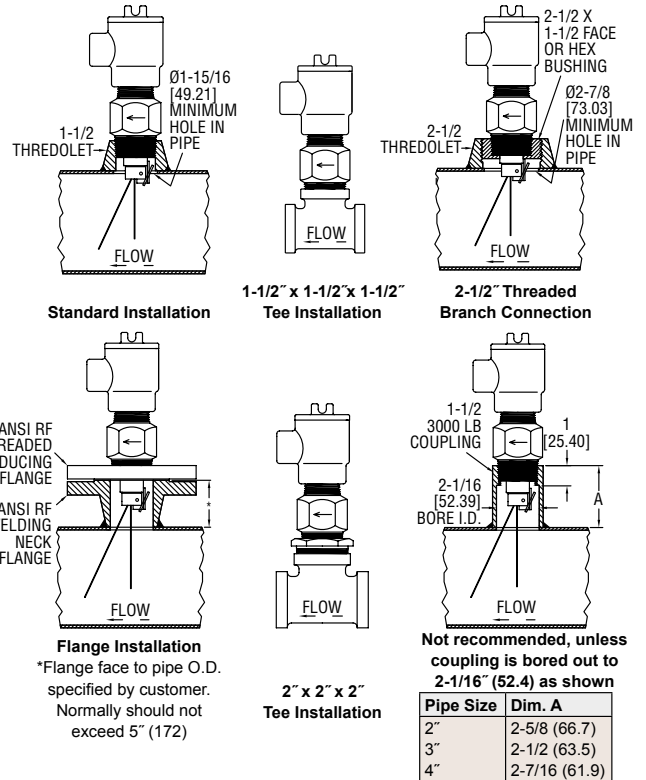
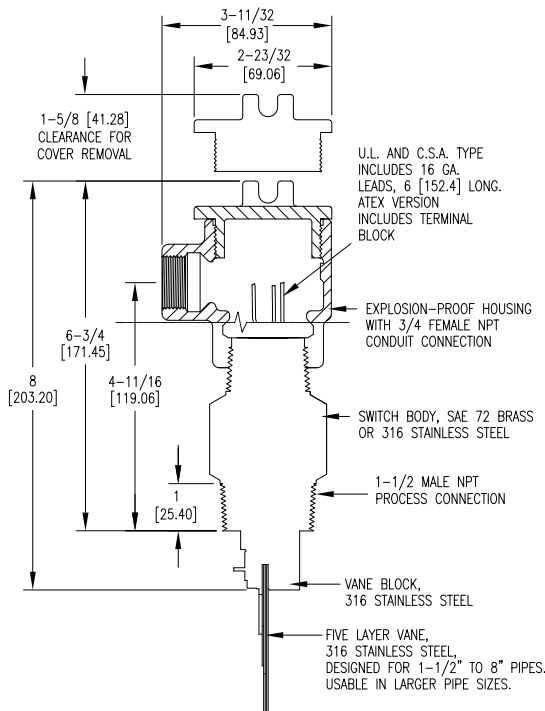
**No housing option (-NH) has no approvals

Ordering Codes:

| | | | | |
|--|---------------|-----------|-----------|----------|
| Order Number | DP-40. | 1. | 2. | D |
| DP-40 Vane operated flow switch, for heavy-duty applications | | | | |
| Housing / | | | | |
| 1 = brass body | | | | |
| 2 = 316 SS body | | | | |
| Process connection / | | | | |
| 1 = 1½" NPTM | | | | |
| 2 = 1½" BSPT | | | | |
| Options / | | | | |
| D = DPDT contacts | | | | |
| MV = gold plated contacts* | | | | |
| MT = high temperature, option rated 400°F (204°C)* | | | | |
| TRI = increasing flow time delay relay option with 2 SPDT contacts, adjustable from 0-1 to 0-31 minutes* | | | | |
| TRD = decreasing flow time delay relay option with 2 SPDT contacts, adjustable from 0-1 to 0-31 minutes* | | | | |
| 316 = 316 SS magnet keeper | | | | |
| V = vertical up flow, option for upward flow in vertical pipe | | | | |
| AT = ATEX compliant construction | | | | |
| IEC = IECEx certified construction | | | | |



Dimensions in mm:



Approximate Actuation/Deactuation Flow Rates for Cold Water; GPM (LPM)

| Vane Layers | 1.5" Pipe | 2" Pipe | 3" Pipe | 4" Pipe | 6" Pipe | 8" Rohr | 10" Pipe | 12" Pipe | 14" Pipe | 16" Pipe | 18" Pipe | 20" Pipe |
|-------------|----------------------|-------------------|----------------------|---------------------|----------------------|-----------------------|------------------------|------------------------|-------------------------|-------------------------|--------------------------|--------------------------|
| 1 | 7-3 (26.67-11.67) | 15-8 (56.7-30) | 45-22 (167-83.3) | 95-40 (367-150) | 210-120 (800-450) | 375-175 (1417-667) | 600-300 (2267-1133) | 900-450 (3400-1700) | 1200-600 (4550-2267) | 1400-800 (5300-3033) | 2000-1000 (7567-3783) | 2400-1200 (9083-4550) |
| 1 & 2 | | 7-4 (26.7-15) | 23-14 (86.7-53.3) | 50-35 (190-132) | 130-90 (500-333) | 230-150 (867-567) | 450-250 (1700-950) | 650-350 (2467-1317) | 900-500 (3400-1900) | 1200-650 (4550-2467) | 1450-800 (5483-3033) | 1800-1000 (6817-3783) |
| 1,2 & 3 | | | 11-7 (41.7-26.7) | 27-19 (102-71.7) | 80-60 (300-233) | 160-115 (600-433) | 300-180 (1133-683) | 450-275 (1700-1033) | 600-350 (2267-1317) | 750-450 (2750-2083) | 1000-600 (3783-2267) | 1200-700 (4550-2650) |
| 1,2,3 & 4 | | | | 17-12 (65-45) | 60-45 (233-167) | 120-90 (450-333) | 230-150 (867-567) | 310-200 (1167-750) | 430-280 (1633-1067) | 550-360 (2083-1367) | 700-450 (2650-1700) | 850-550 (3217-2083) |
| 1,2,3,4 & 5 | | | | | 40-30 (152-113) | 80-65 (300-250) | 135-100 (517-383) | 200-140 (750-533) | 290-200 (1100-750) | 360-250 (1367-950) | 460-325 (1733-1233) | 575-400 (2183-1517) |

Actuation rates are based on cold water at a specific gravity of 1.0.

For fluids of different specific gravity, actuation rates may be approximated by dividing the rate shown by the square root of the specific gravity.

Approximate Actuation/Deactuation Flow Rates for Cold Air; SCFM (LPS)

| Vane Layers | 1.5" Pipe | 2" Pipe | 3" Pipe | 4" Pipe | 6" Pipe | 8" Pipe | 10" Pipe | 12" Pipe | 14" Pipe | 16" Pipe | 18" Pipe | 20" Pipe |
|-------------|-----------------|------------------|---------------------|---------------------|----------------------|-----------------------|-------------------------|-------------------------|--------------------------|--------------------------|--------------------------|---------------------------|
| 1 | 32-17 (15-8) | 65-32 (30-20) | 210-105 (100-50) | 400-200 (190-90) | 950-475 (450-220) | 1550-850 (730-400) | 2400-1300 (1100-600) | 3450-1900 (1600-900) | 4700-2600 (2200-1200) | 6400-3500 (3000-1700) | 8000-4400 (3800-2100) | 10000-5500 (4700-2600) |
| 1 & 2 | | 23-13 (10-6) | 120-70 (60-30) | 195-140 (90-70) | 550-375 (260-180) | 1100-700 (520-330) | 1850-1200 (870-570) | 2700-1750 (1300-800) | 3400-2200 (1600-1000) | 4800-3100 (2300-1500) | 6000-3900 (2800-1800) | 7400-4800 (3500-2300) |
| 1,2 & 3 | | | 60-48 (30-20) | 135-100 (60-50) | 375-265 (180-130) | 725-500 (340-240) | 1200-850 (570-400) | 1850-1300 (870-610) | 2600-1800 (1200-800) | 3350-2350 (1600-1100) | 4300-3000 (2000-1400) | 5300-3700 (2500-1700) |
| 1,2,3 & 4 | | | | 65-50 (30-20) | 260-200 (120-90) | 500-400 (240-190) | 875-700 (410-330) | 1250-1000 (590-470) | 1900-1500 (900-710) | 2500-2000 (1200-900) | 3100-2500 (1500-1200) | 3900-3100 (1800-1500) |
| 1,2,3,4 & 5 | | | | | 130-100 (60-50) | 310-250 (150-120) | 650-525 (310-250) | 1000-800 (470-380) | 1600-1250 (760-590) | 2200-1750 (1040-830) | 2800-2250 (1300-1100) | 3550-2850 (1700-1300) |

Actuation rates are based on air at standard conditions.

For gases at other pressures, temperatures, or specific gravities, consult factory for equivalent flow approximations.

