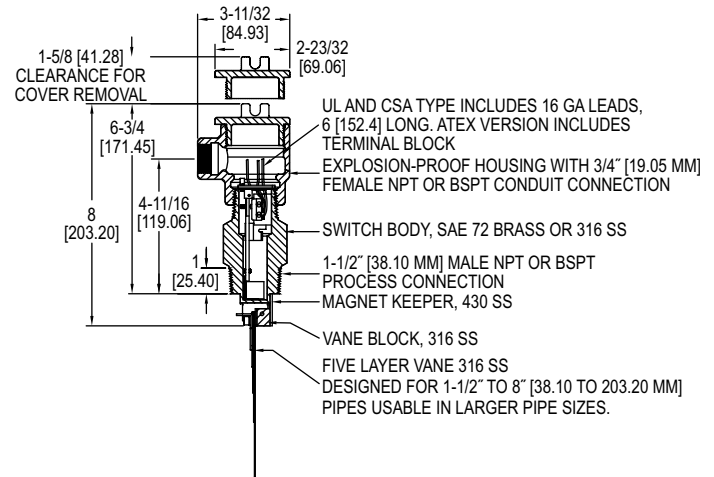


FLOTECT® VANE OPERATED FLOW SWITCH

Field Adjustable — Dependable Protection Against Flow Variation or Stopping in Pipelines for Fluids, Gases and Flowing Solids



The **Series V4 Flotect® Vane Operated Flow Switch** is rugged and reliable, ideal for automatically protecting equipment and pipeline systems against damage from reduction or loss of flow. 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). This series can be used in pipes 1-1/2" (38.10 mm) and up.

BENEFITS/FEATURES

- Superior performance with unique magnetically-actuated switching design
- Increased product life due to free-swinging vane, which attracts a magnet within the solid metal switch body and actuates a snap switch by means of a simple lever arm with no bellows, springs, or seals to fail
- Meets application requirements with durable leak-proof body machined from bar stock
- Save time and money on maintenance with electrical assembly that can be easily replaced without removing the unit from installation so that the process does not have to be shut down
- Quick installation with fitting that installs directly and easily into pipeline with a threadolet, tee, or flange (see application drawings)
- Meets the most demanding applications with high pressure rating of 1000 psig (69 bar) for the brass body and 2000 psig (138 bar) for the SS body
- Solves customer flow application needs with choice of custom vane calibrated specifically for your application, Model V4, or field adjustable multilayer vane, Model V4-2-U (see set point chart)

APPLICATIONS

- 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

SPECIFICATIONS

Service: Gases or liquids compatible with wetted materials.

Wetted Materials: Vane: 316 SS; Body: Brass or 316 SS standard; Magnet keeper: 430 SS standard, 316 SS optional; Options: Other materials also available, consult factory (e.g. PVC, hastelloy, nickel, monel, titanium).

Temperature Limit: -4 to 275°F (-20 to 135°C) standard, MT high temperature option 400°F (205°C) [MT option not UL, CSA, ATEX or IECEx] ATEX and IECEx options, ambient temperature -4 to 163°F (-20 to 73°C); Process temperature -4 to 163°F (-20 to 73°C).

Pressure Limit: 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.

Enclosure Rating: Weatherproof and Explosion-proof. **Listed with UL and CSA for Class I, Groups C and D; Class II, Groups E, F, and G.

ATEX 2813 II 2 G Ex db IIB T6 Gb -20°C≤Tamb≤73°C.

-20°C≤Process Temp≤73°C.

EU-Type Certificate No.: KEMA 03 ATEX 2383.

ATEX Standards: EN 60079-

0:2012+A11:2013; EN 60079-1:2014.

IECEx Certified: For Ex db IIB T6 Gb

-20°C≤Tamb≤73°C. -20°C≤Process Temp≤73°C.

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

IECEx Certificate of Conformity: IECEx DEK 11.0071.

IECEx Standards: IEC 60079-0:2011;

IEC 60079-1:2014.

Zone I. Also FM approved.

Switch Type: SPDT snap switch

standard, DPDT snap switch optional.

Electrical Rating: UL, FM, ATEX and

IECEx models 10 A @ 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 not 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: 3/4" female NPT

or 19.05 mm standard or M25 with

-BSPT option.

Process Connection: 1-1/2" male NPT

or 1-1/2" male BSPT or 38.10 mm.

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).

Compliance: ATEX, CE, CSA, FM,

IECEx, UL**.

MODEL CHART

Model	Description	Connection Type
V4-2-U	Brass body, universal vane	NPT
V4-SS-2-U	316 SS* body, universal vane	NPT
V4-2-U-NH**	Brass body, universal vane, no housing	NPT
V4	Brass body, custom vane	NPT
V4-SS	316 SS* body, custom vane	NPT
V4-NH**	Brass body, custom vane, no housing	NPT
V4-2-U-BSPT	Brass body, universal vane	BSPT
V4-SS-2-U-BSPT	316 SS* body, universal vane	BSPT
V4-BSPT	Brass body, custom vane	BSPT
V4-SS-BSPT	316 SS* body, custom vane	BSPT

*316 SS body with 430 SS magnet keeper.

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

†When both values are supplied, note which is critical.

Note: Consult factory for price and availability of fittings for V4 installation.

Threadlets, bushings, and tees are available in a variety of sizes and materials.

Note: For custom vane models, please supply factory with following information: pipe size, flow direction (horizontal, up), mounting, pressure, temperature, specific gravity, flow rates (maximum normal, actuation/deactuation†), etc.

OPTIONS

To order add suffix:	Description
-316	316 SS magnet keeper, option to replace standard 430 SS
-AT	ATEX compliant construction
-BSPT	Female BSPT process connection and M25 conduit connection
-D	DPDT contacts
-IEC	IECEx certified construction
-MT	High temperature, option rated 400°F (204°C)*
-MV	Gold plated contacts, options for dry circuits*
-TRD	Decreasing flow time delay relay option with 2 SPDT contacts, adjustable from 0-1 to 0-31 minutes*
-TRI	Increasing flow time delay relay option with 2 SPDT contacts, adjustable from 0-1 to 0-31 minutes*
-V	Vertical up flow, option for upward flow in vertical pipe

*See electrical rating in specification, no listings or approvals.

USA: California Proposition 65

WARNING: This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

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V4 UNIVERSAL VANE FLOW CHARTS

Values shown in both charts are nominal. If normal flows exceed actuation rates by less than 10%, custom vanes are recommended. Figures are based on standard vertical installation in a 1-1/2" threaded branch connection in a horizontal run of pipe.

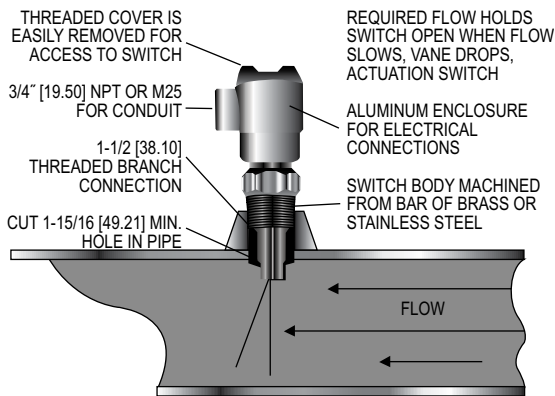
APPROXIMATE ACTUATION/DEACTUATION FLOW RATES FOR COLD WATER; GPM (LPM)												
Vane Layers	1.5" Pipe	2" Pipe	3" Pipe	4" Pipe	6" Pipe	8" Pipe	10" Pipe	12" Pipe	14" Pipe	16" Pipe	18" Pipe	20" Pipe
1	7-3 (26.67-11.67)	15-8 (56.7-30)	45-22 (167-83.3)	95-40 (367-150)	210-120 (800-450)	375-175 (1417-667)	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 and 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 and 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 and 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 and 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)

Note: Actuation rates are based on cold water at a specific gravity of 1.0.
Note: For fluids of different specific gravity, actuation rates may be approximated by dividing the rate shown by the square root of the specific gravity.

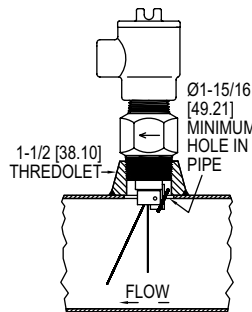
APPROXIMATE ACTUATION/DEACTUATION FLOW RATES FOR COLD AIR; SCFM (LPS)												
Vane Layers	1.5" Pipe	2" Pipe	3" Pipe	4" Pipe	6" Pipe	8" Pipe	10" Pipe	12" Pipe	14" Pipe	16" Pipe	18" Pipe	20" Pipe
1	32-17 (15-8)	65-32 (30-20)	210-105 (100-50)	400-200 (190-90)	950-475 (450-220)	1550-850 (730-400)	2400-1300 (1100-600)	3450-1900 (1600-900)	4700-2600 (2200-1200)	6400-3500 (3000-1700)	8000-4400 (3800-2100)	10000-5500 (4700-2600)
1 and 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 and 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 and 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 and 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)

Note: Actuation rates are based on air at standard conditions.
Note: For gases at other pressures, temperatures, or specific gravities, consult factory for equivalent flow approximations.

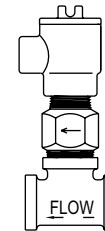
APPLICATION DRAWINGS FOR FLOTECT® AUTOMATIC FLOW SWITCHES



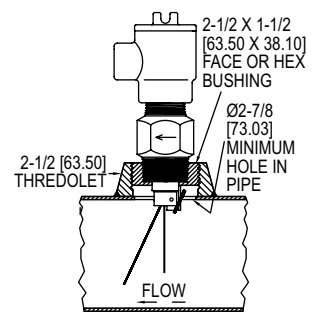
Threaded branch connection installation.
May also be installed using tee, flange or coupling.



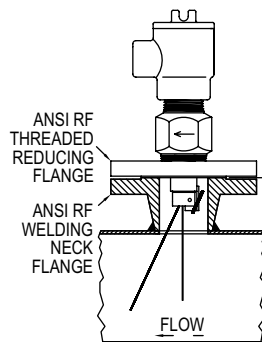
Standard installation



1-1/2" x 1-1/2" x 1-1/2" (38.10 x 38.10 x 38.10 mm) tee installation



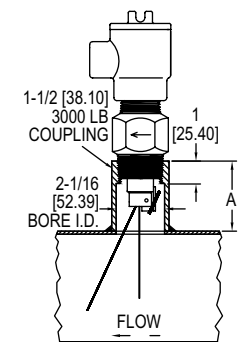
2-1/2" (63.50 mm) threaded branch connection



Flange installation
*Flange face to pipe O.D. specified by customer. Normally should not exceed 5" (127)



2" x 2" x 2" (50.80 x 50.80 x 50.80 mm) tee installation



Not recommended, unless coupling is bored out to 2-1/16" (52.4) as shown

Pipe Size	Dim. A
2" (50.80 mm)	2-5/8 (66.7)
3" (76.20 mm)	2-1/2 (63.5)

USA: California Proposition 65
WARNING: This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.