

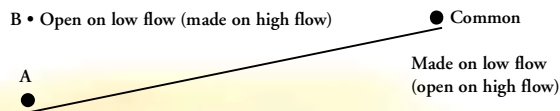
Description

A protective flow switch from the Birflo range of flow control equipment. The Birflo range of products are designed and manufactured to the highest specification using top quality materials.

Operating Principle

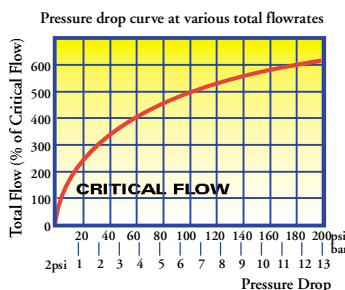
The TRUFLO functions by diaphragm action brought about by change in differential pressure created by a flow through a calibrated nozzle. The movement of the diaphragm is used to operate a microswitch.

The underside of the diaphragm is in direct contact with the inlet flow, the upperside with the outlet flow from the calibrated nozzle. With no flow through the TRUFLO a spring loaded plunger holds the diaphragm in the down position and the microswitch is in the position as shown.



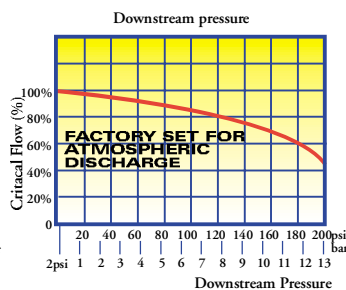
Flow through the calibrated nozzle causes a pressure differential between top and bottom of the diaphragm, with the higher pressure on the underside of the diaphragm, pushing it upwards. This in turn causes the plunger to move, which changes over the microswitch.

When used in protection against insufficient flow (the most usual case) a critical flow rate of, for example, 10 galls/min.(45L/min.) requires a minimum flow of 12 galls/min. (54L/min.), 10 galls/min. +20% to initially activate the TRUFLO. This difference between the activating flow and the critical flow is the 'dead band'. Provision in the system design should be made to have at least the flow above the critical flow represented by the 'dead band'. The TRUFLO will, on falling flow, indicated at any flow equal to or below the critical flow regardless of the 'dead band'. Each TRUFLO is factory calibrated to operate at its stated critical flow.



Graph No.1

Shows the flow rates where pressure is in excess of 2 psi.



Graph No.2

Shows the effect of downstream back pressure on theoretical flow rate. Allowance must be made to the assessed flow requirements when the Truflo is not arranged for open discharge.

Materials

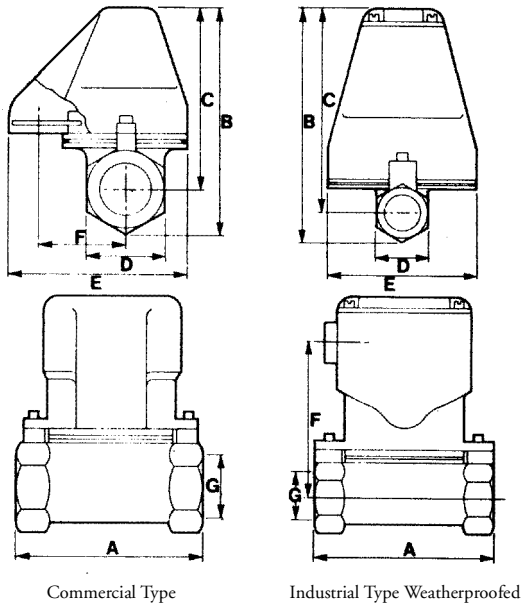
Body	Gunmetal BS1400/LG.2
Flange Plate	Brass BS251*
Pressure Plate and Plunger	Stainless Steel EN58
Main Diaphragm	Nitrile (Standard) Silicone to order. Other materials available on request.

* May be plated for special fluids.

Operating Characteristics

Maximum Pressure	150 psi (10.6 kg/cm ²)
Minimum Pressure	3 psi (0.21 kg/cm ²)
Pressure Differential to Activate Switch	2 psi
Maximum Temperature	70°C (160°F)
Minimum Temperature	1°C (34°F)
Electrical Data	125,250 or 480V AC-15 amps 250V DC-1/4 amp 125V DC-1/2 amp
Life Expectancy	500000 ops at 15 amps 600000 ops at 5 amps

DRAWINGS



No. SIZE	Commercial		Marine Industrial	
	102194 1/2" B.S.P.T.	102917 1/4" B.S.P.T.	102988 94424 1/2" B.S.P.T.	102989 94425 1/4" B.S.P.T.
A	108mm	113mm	108mm	113mm
B	122mm	121mm	125mm	153mm
C	106mm	117mm	109mm	120mm
D	27mm	51mm	27mm	51mm
E	119mm	119mm	82mm	82mm
F	54mm	54mm	81mm	94mm
G	1/2" B.S.P.T.	1/4" B.S.P.T.	1/2" B.S.P.T.	1/4" B.S.P.T.

Models Available

Standard Commercial (Fresh water etc.)

Industrial (Waterproof and for Demineralised water)

Marine M.O.D. (N) and NATO materials Silicone (Diaphragm)

Description

To warn against insufficient flow as standard or to warn against excessive flow on request.

Installation

1. It is advisable that the Truflo switch be fitted downstream of all items of equipment which require its protection. Should a Truflo be fixed upstream, and a burst takes place downstream, then no warning will be given.
2. Always fit a Truflo switch in a non-turbulent part of the circuit, i.e. always away from needle valves, sharp bends, etc., as these can cause switch 'Flutter'.
3. Do not grip the switch bracket when installing, always use the spanner flats provided. Do not use excessive pressure when making connections on to the terminals.
4. The Truflo switch is a precision, factory calibrated instrument, and any interference with its setting or with the switch mounting brackets will result in a variation of the flow warning rate.
5. The switch may be connected to a warning light, cut-off switch, or contactor relay.
6. For low flow rates, particularly of 1/2 G.P.M. and below, and where the fluid is likely to be unclean, we recommend that a strainer be fitted upstream.
7. If it is desired to restrict excess flow whilst protecting against minimum flow we suggest fitting a 'Constaflo' flow control unit upstream of the Truflo, this should be chosen to give a flow-rate of 50% above critical. The total pressure drop requirement then being 18 psi.

How to Order

Model Numbers 102194,94424 & 102988 with female 1/2" BSPT (BS21/ISO R7) end connections. Intermediate sizes fitted with reducers as required below.

Model Number	FLOW SUFFIX	WATER FLOW (2 p.s.i.-136 atm)		AIR FLOW (2 p.s.i.-136 atm)		MIN PIPE DIAMETER
		galls/min	Litres/min	cu.ft/min	m3/hr	
Commercial Type 102194	/01N	1/10	-	-	.75	
	/02N	-	.50	1/2	-	
	/03N	1/8	-	-	-	
	/04N	-	.65	3/8	1.00	
	/05N	-	.75	3/4	1.25	
	/06N	3/16	-	-	-	Reducers to 1/4 inch or 3/8
Industrial Type 94424	/07N	1/5	.88	7/8	1.50	BSPT if required
	/08N	-	1.00	1	1.75	
	/09N	1/4	1.13	1 1/8	2.00	
	/10N	-	1.25	1 1/4	2.13	
Marine Type 102988	/12N	5/16	-	1 3/8	2.50	
	/14N	3/8	1.50	1 3/8	2.75	
	/15N	-	1.75	1 7/8	3.00	
	/16N	-	2.00	2	3.50	
	/17N	1/2	2.25	2 1/4	3.75	
	/18N	-	2.50	2 1/2	4.25	
	/20N	5/8	3.00	2 7/8	4.75	
	/21N	3/4	3.25	3 1/4	5.50	
	/22N	-	3.50	3 3/8	6.00	
	/23N	7/8	4.00	4	7.00	Reducers to 3/8 inch
/24N	1	4.50	4 1/2	7.75		
/25N	1 1/8	5.00	5	8.50		
/26N	1 1/4	5.50	5 5/8	9.50	BSPT if required	
/27N	1 3/8	6.25	6 1/4	10.00		
/28N	1 1/2	7.25	7 1/4	12.25		
/29N	1 3/4	8.00	8	14.00		
/30N	2	9.00	9	15.00		
/31N	2 1/4	10.00	10 3/8	17.00		
/32N	2 1/2	11.00	11 1/4	19.00	1/2 inch	
/33N	2 3/4	12.50	12 1/2	21.50		
/34N	3	14.00	14 1/4	24.00	BSPT	
/35N	3 1/2	16.00	16	27.00		
/36N	4	18.00	18	31.00		
Model numbers 102917, 94425 and 102989 with 1 1/4" BSPT (BS21/ISO R7) female end connections. May be fitted with reducers as stated.						
Commercial Type 102917	/37N	4 1/2	20.00	20	34.00	Reducers to 3/4 inch or 1" BSPT if required
	/38N	5	23.00	23	38.00	
	/39N	5 1/2	25.00	26	45.00	
	/41N	6 1/4	29.00	29	48.00	
Industrial Type 94425	/43N	7	32.00	32	54.00	
	/45N	8	36.00	36	61.00	
	/47N	9	41.00	41	69.00	Reducers to 1" BSPT if required
	/48N	10	45.00	45	77.00	
	/50N	11	51.00	51	86.00	
	/52N	12 1/2	57.00	57	96.00	
Marine Type 102989	/55N	14	64.00	63	107.00	
	/58N	16	73.00	72	123.00	
	/61N	18	82.00	81	138.00	1 1/4" BSPT
/63N	20	91.00	90	153.00		

When ordering please quote:

- Model No. and Flow Suffix
- Pipe size
- Fluid
- Max. Pressure
- Max. Temp
- Critical Flow
- Switch Action

Example	
=	102194/24N
=	3/8
=	Fresh Water
=	120 psi
=	60°C
=	1gall/min
=	To make on Flow Falling to 1 gall/min

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In response to ongoing research and development, we reserve the right to alter technical specifications without prior notice.