BELL Flow Systems

NFX

LOW FLOW GLASS TUBE VARIABLE AREA FLOWMETER

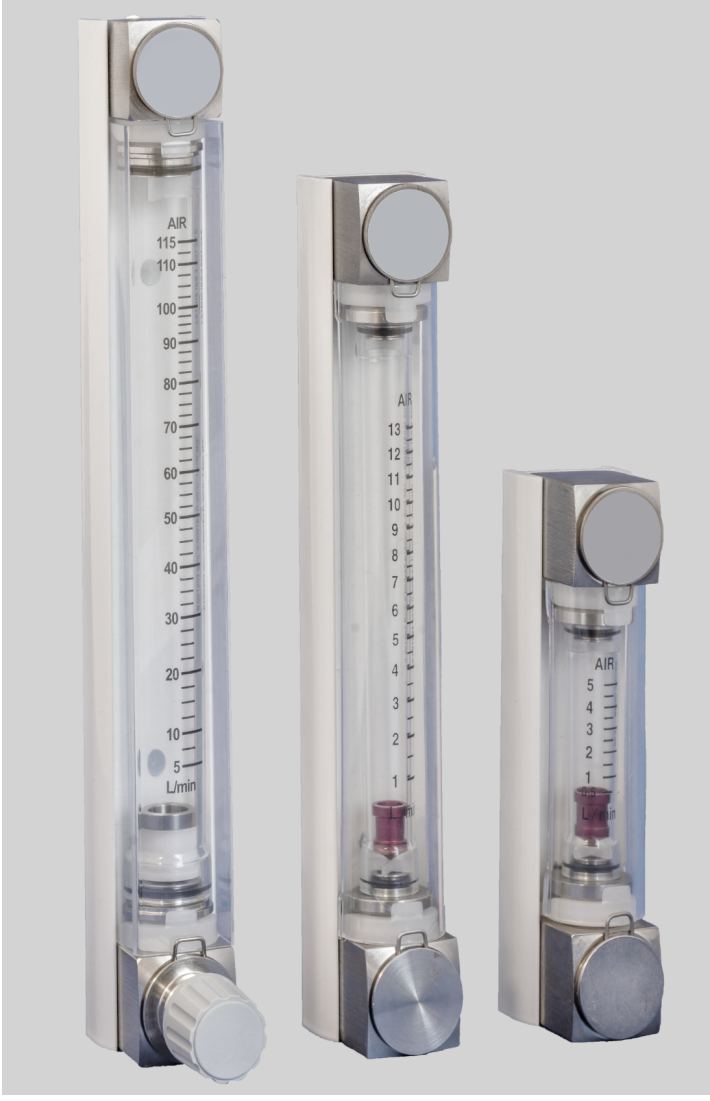
Introduction

The NFX Glass Tube Variable Area Flowmeter is available in a full range of lengths and is available scaled for liquid or gas measurement. Customised scales match the meter to specific conditions. There is a choice of three scale lengths for optimum readability or compact installation. Repeatability is better than 0.5% of reading to improve process control. An optional needle valve is available for precise control at reduced cost.

The tubes are removable from the frame for easy cleaning/replacement. Angled or straight connections allow for flexible pipe layout. The meters can be simply mounted to reduce installation costs. The instruments have a retained polycarbonate cover to ensure operator safety in the event of a breakage. The units are aesthetically styled to suit integration into original equipment.

Technical Data

Flow Ranges	**Gas Range** 5 cc/min - 115 l/min (Air Equivalent) **Liquid Range** 1.0 cc/min - 4.8 l/min (Water Equivalent)
Scale Length Options	140mm / 100m / 30mm
Accuracy Class - %	2.5 / 4 VDI/VDE
Temperature Range	-15°C to +120°C
Maximum Pressure	20 Bar Non Shock
Connections	Stainless Steel or Nickel Plated Brass 1/4" BSP Female Or NPT Option
Seals	Viton, other options available
Flow Tubes	Borosilicate Glass
Float	Stainless Steel, Duraluminium & PEEK



Bell Flow Systems Ltd
Unit 7 Swan Business Centre, Osier Way, Buckingham, Bucks, MK18 1TB
sales@bellflowsystems.co.uk +44(0)1280 817304

BELL Flow Systems

BELL Flow Systems

NFX

LOW FLOW GLASS TUBE VARIABLE AREA FLOWMETER

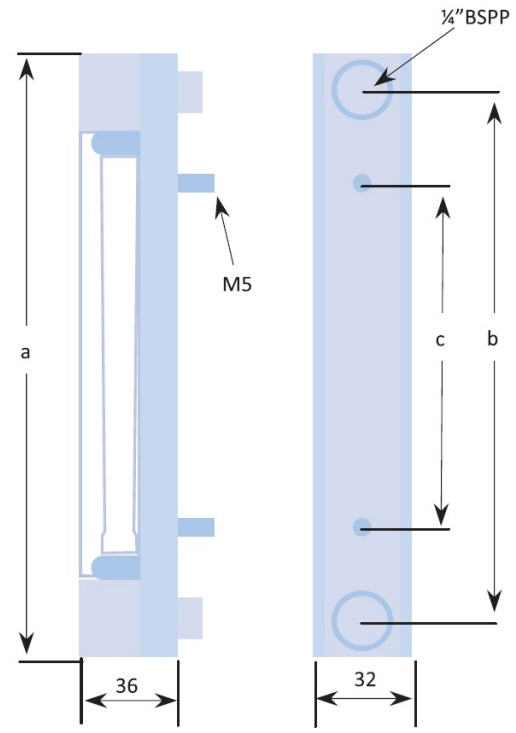
Operating Principle

Fluid flowing vertically through a tapered tube exerts an upward force on the float such that the float takes up a point of equilibrium where the downward weight is balanced by the upward thrust of the fluid. This point then represents a specific flowrate. Increase in fluid velocity will cause the float to rise again until the next equilibrium point is reached, and this represents a higher specific flowrate. The tube may thus be scaled in terms of flowrate in an almost linear manner.

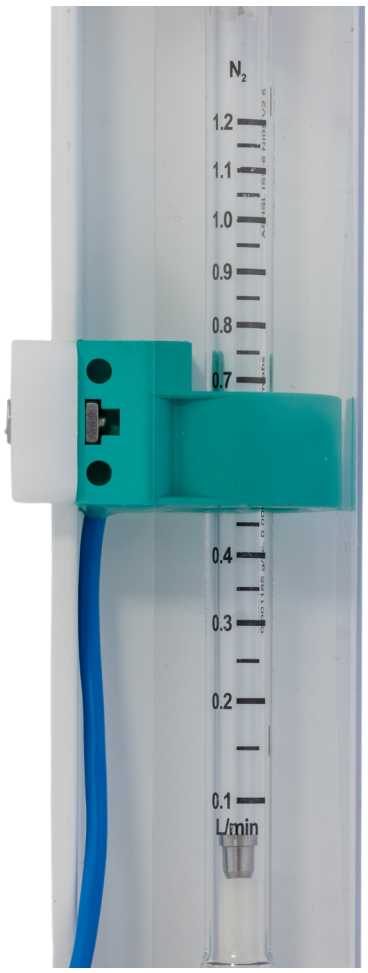
Ranging and scaling depends on three main factors:

- Shape and density of the float
- Taper of the tube
- Fluid density, viscosity & pressure (gases)

Several special versions of the NFX flowmeter are available. The long series provide maximum readability and extended flow ranges, suitable for laboratory and calibration applications. Accuracy of 1% of reading to fully traceable standards is available on request. An infrared alarm can be fitted which can be user Set to provide a switched output on safety critical applications. Units can be fitted with a bench stand for laboratory applications. Anaesthetic flow tubes for use in medical equipment are available for air, oxygen and nitrous oxide.



mm	Compact	Standard	Long
a	133	210	250
b	108	184	226
c	65	121	121



Bell Flow Systems Ltd
Unit 7 Swan Business Centre, Osier Way, Buckingham, Bucks, MK18 1TB
sales@bellflowsystems.co.uk +44(0)1280 817304

BELL Flow Systems

BELL Flow Systems

NFX

LOW FLOW GLASS TUBE VARIABLE AREA FLOWMETER

Sizing Tables

Compact Glass Tubes					
Units	Air	Float Material	Tube Size	Tubes Floats are St.Steel	Tubes Water H_2O
cm^3/min	20-200	Dural	5	cm^3/min	-
	50-500	Dural	9		15-80
l/min	0.2-1	Dural			-
	0.5-2.5	Dural			25-250
	0.5-5	Dural			10-700
	2-12	Dural		l/min	0.2-1
	5-25	St.Steel			-

Long Glass Tubes					
Units	Air	Float Material	Tube Size	Floats are St.Steel	Water H_2O
l/min	0.05-1.6	St.Steel	5	cm^3/min	2-80
	0.3-4.6	PEEK	9		30-380
	0.5-16	Dural	15	l/min	0.5-1.5
	1-33	St.Steel			0.1-3.4
	5-115	St.Steel			0.1-4.8

	Standard Glass Tubes												
Units	Water H_2O	Air AIR	Argon AR	Butane C_4H_{10}	Carbon Dioxide CO_2	Carbon Monoxide CO	Cracked Ammonia N:3H	Helium He	Hydrogen H_2	Methane CH_4	Nitrogen N_2	Oxygen O_2	Propane C_3H_8
cm^3/min	-	5-200	5-80	20-130	10-100	10-100	10-120	5-100	20-250	10-150	5-100	5-90	10-140
cm^3/min	1-10	20-250	20-200	50-290	20-250	20-270	30-360	20-280	40-600	40-360	20-250	20-220	40-300
cm^3/min	2-25	60-600	60-560	100-700	60-600	50-700	-	50-800	-	0.05-0.9	60-600	40-600	100-700
cm^3/min	4-60	50-750	40-660	100-800	50-750	50-800	-	0.05-1.1	0.1-2	0.1-1.1	50-800	50-700	100-850
cm^3/min	-	0.1-1.2	0.1-1	0.1-1.1	0.1-1.1	0.1-1.2	0.1-1.8	0.1-1.8	0.2-3.4	0.1-1.7	0.1-1.2	0.1-1.1	0.1-1.2
cm^3/min	-	0.2-2	0.2-1.7	0.4-2	0.2-1.8	0.2-2	0.3-3	0.2-3	0.4-5.6	0.4-2.8	0.2-2	0.2-1.8	0.3-2.2
cm^3/min	30-280	0.3-3.4	0.2-2.9	0.5-3	0.3-3	0.3-3.5	0.4-5.8	0.3-5.8	0.5-10	0.4-4.8	0.3-3.5	0.3-3.2	0.3-3.4
cm^3/min	40-480	0.6-5	0.4-4	0.8-4	0.6-4.4	0.6-5	1-8	0.5-9	1-15	1-7	0.6-5	0.4-4.4	0.8-4.8
cm^3/min	50-750	1-10	1-8	1.5-8	1-8.5	1-10	2-18	2-20	3-34	2-14	1-10	1-9.5	1.5-9
cm^3/min	-	1-13	1-11	1-10	1-11	1-12	2-22	1-28	2-45	1-18	1-13	1-12	1-11
l/min	0.1-1.2	2-26	2-22	2-19	2-20	2-26	4-48	2-60	5-95	3-36	2-27	2-25	2-22
l/min	0.3-3	4-50	4-44	4-36	4-40	6-54	10-90	5-120	10-180	5-70	4-50	4-50	4-40
l/min	0.4-4.4	10-100	10-90	10-70	10-80	20-180	20-180	20-270	40-400	15-140	10-100	10-100	10-85
	Customised scales can also be supplied to suit any more specific fluids, gases and operating conditions												

Bell Flow Systems Ltd
Unit 7 Swan Business Centre, Osier Way, Buckingham, Bucks, MK18 1TB
sales@bellflowsystems.co.uk +44(0)1280 817304

BELL Flow Systems