

Glass Tube Full-View® Flowmeters



*Model 1110
Full-View Flowmeter
(NPT Connections)*



*Model 1140
Full-View Flowmeter
(Flange Connections)*

FEATURES AND BENEFITS

- Wide choice of application-specific materials and connections
- Rugged dowel-pin, side-plate construction
- Precision-bore, plain or ribbed borosilicate glass metering tubes
- Reliable, externally-adjustable packing glands for ease of maintenance
- Flanged or NPT connections with horizontal or vertical inlet and outlet orientation
- Connections rotatable 360° at 90° intervals

Brooks® 1110 and 1140 Series

DESCRIPTION

The Brooks® Full-View® glass tube meters are designed to offer a wide variety of meter configurations to meet a broad range of metering applications. The packing gland seal construction provides for long-term, leak-free, and reliable flow measurement.

SPECIFICATIONS

Capacities and Pressure Drops

150 mm scale, Rib Guided Tubes, Spherical Float:

Refer to Table 3

250 mm scale, Rib Guided Tubes, Spherical Float:

Refer to Table 4

250 mm scale, Rib Guided Tubes, Standard Float:

Refer to Table 5

127 mm scale, Rib Guided Tubes, Standard Float:

Refer to Table 6

250 mm scale, Plain Tapered Tubes, Rod Guided Float:

Refer to Table 7

Accuracy

Standard Flow Accuracy (127, 150, 250mm Tubes):

±2% Full Scale

Optional Flow Accuracy (127, 150, 250mm Tubes):

±1% Full Scale

Repeatability

0.5% Full Scale

Pressure Ratings

Refer to Table 1 for maximum non-shock pressure for rib guided and plain tapered tubes.

Pressure Equipment Directive (PED) 97/23/EC See Table 1

Scales

Standard: Detachable aluminum plate

Length: 127mm, 150mm and 250mm

Graduations: Choice of direct reading units, millimeter or percentage of maximum flow

Ambient Temperature Limits

33°F to 125°F (1°C to 52°C)

Operating Fluid Temperature Limits

Maximum: 250°F (121°C) for metallic end fittings

Reduced ratings on meters with non-metallic end fittings. Refer to Table 1

Minimum: 33°F (1°C)

MATERIALS OF CONSTRUCTION:

Metering Tube

Borosilicate glass

Protective Tube Sleeve, Size 7 (1/2") and larger

UV stabilized polycarbonate

Floats (Figure 2)

Standard Sizes 2-7 (spherical): sapphire, tantalum, glass,

Carboloy®, 316 stainless steel, Monel® (Size 7 only)

Standard Sizes 8-13: 316 stainless steel

Optional Sizes 8-13: Hastelloy C®

Float Stops

Standard, Sizes 2-8: 316 SS spring

Optional, Sizes 2-8: Hastelloy C

Standard, Sizes 9-13: Aluminum for brass & steel fittings,

316 SS for 316 SS fittings

Guide Rods and Cartridges

Standard: 316 stainless steel

Optional: Hastelloy C

Housing and Window Bezel

Standard: Aluminum with polyurethane paint

Optional: 18-8 stainless steel

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End Fittings

316 stainless steel, steel, Hastelloy C, CPVC Sizes 2-8, PVC Sizes 9-10, brass, (Brass, Hastelloy C, CPVC/PVC fittings not available with flanged connection)

Window

Scratch resistance, UV stabilized polycarbonate

Packing Material

Standard: Teflon®, Neoprene®, Viton® fluoroelastomers

O-rings

Standard: Teflon®, Buna, Viton® fluoroelastomers

Gland Rings

Standard: Steel
Optional: 18-8 stainless steel

Gland Followers

Standard: Sizes 2-9 aluminum, Sizes 10-13 steel
Optional: 18-8 stainless steel

Side Plate Gaskets

Anchorite

Bolts

18-8 stainless steel

Connection Orientation

Vertical or horizontal optional on inlets and outlets
Connection rotatable 360° at 90° intervals

Connections

Standard:
150 lbs, 300 lbs RF flanges per ANSI B 16.5
NPT female connections
(Refer to Table 2)

Optional:

125/175 RA flange finish
Flat faced flanges

Meter Dimensions

Refer to Figure 1

Ordering Information and Model Code

Refer to Tables 8 through 10

OPTIONAL EQUIPMENT

Mountings, Valves, Flow Controller

- **Mountings:** Brackets for flush or front of panel
- **Valves:** Available for connection Sizes 1/4" through 1" only. Horizontal stem in outlet or inlet and fitting Sizes 2 through 10.
- **Flow Controller:** Brass or 316 stainless steel integrally piped to Sizes 2-6. See Brooks publications DS-FCA.

Table 1 Pressure Ratings

Meter Size	End Fitting Material	Maximum Operating Pressure (psig) ²				PED CAT.
		@ 70°F (21°C)	@ 150°F ¹ (66°C)	@ 250°F (121°C)	SEP	
2	CPVC	100	100	Not Available	SEP	
	Metal	500	500	500		
6	CPVC	100	100	Not Available		
	Metal	450	450	450		
7	CPVC	100	100	Not Available		
	Metal	350	350	350		
8	CPVC	100	100	Not Available		
	Metal	300	300	300		
9	PVC	100	100 (Note 1)	Not Available		
	Metal	175	175	175		
10	PVC	100	100 (Note 1)	Not Available		
	Metal	100	100	100		
12	Metal	75	75	75	SEE NOTE 3	
13	Metal	100	100	100		

NOTES:

¹ Maximum temperature rating for nonmetal end fittings is 150°F (66°C) for all materials except PVC, which is 140°F.

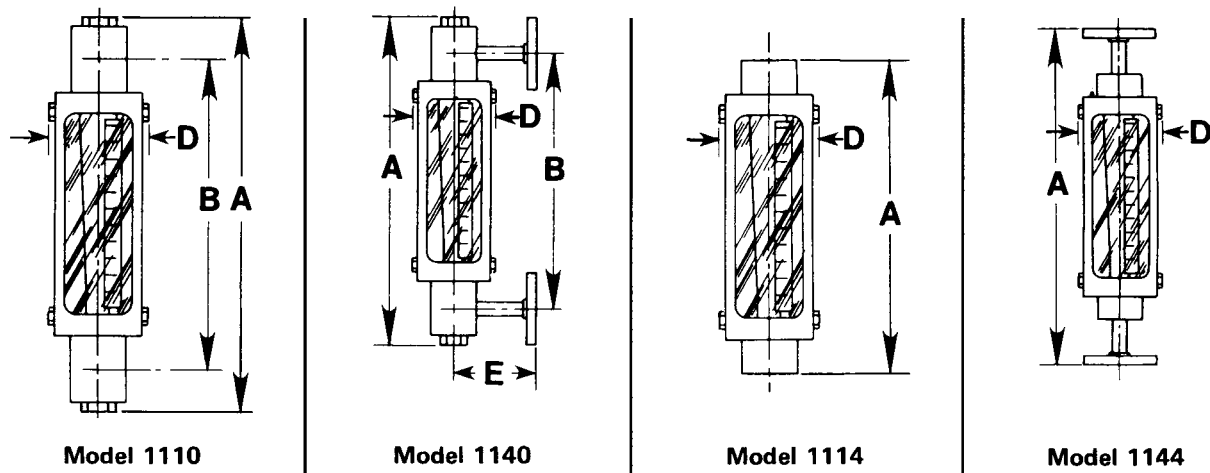
² Flanged unit pressure ratings are limited to ANSI flange or tube ratings whichever is lower.

³ Sizes 12 and 13 do not conform to Pressure Equipment Directive 97/23/EC, therefore it cannot be sold or used in the EU/EFTA.

Table 2 Connections

Meter Size	Model 1110 Inlet&Outlet Horizontal (NPT)	Model 1114 Inlet&Outlet Vertical (NPT)	Model 1140 Inlet&Outlet Horizontal (Flange)	Model 1144 Inlet&Outlet Vertical (Flange)
2 to 6	1/4"	1/4"	1/2"	1/2"
7 and 8	1/2"	1/2"	1/2"	1/2"
9	3/4"	3/4"	1"	1"
10	3/4"	1"	1"	1"
12	1-1/2"	1-1/2"	1-1/2"	1-1/2"
13	1-1/2"	2"	2"	2"

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All Dimensions in Inches

Meter Size	1110 - 1140				1114		1144		All Meters	All Meters
	Nominal Scale Length (MM)				Nominal Scale Length (MM)		Nominal Scale Length (MM)			
	127		250		127	250	127	250		
	A	B	A	B	A	A	A	A		
2-6*	10.12	8.59	15.12	13.59	9.63	14.63	14.88	19.88	2.38	3.5
7&8	15.38	11.5	20.38	16.5	12	17	17.88	22.88	3.25	3.5
9	17	12.5	22	17.5	12.25	17.25	17.75	22.75	3.75	4
10	17.88	12.5	22.88	17.5	12.25	17.25	17.5	22.5	4.44	4
12	20.12	15.5	25.12	20.5	15.88	20.88	21.38	26.38	4.38	5
13	21.25	15.5	26.25	20.5	15.12	20.12	20.63	25.63	4.88	5

* Also available in 150mm scale length. Dimensions are identical to 127mm scale length
Flange dimensions apply to 150# & 300# raised face or flat face flanges

All Dimensions in Millimeters

Meter Size	1110 - 1140				1114		1144		All Meters	All Meters
	Nominal Scale Length (MM)				Nominal Scale Length (MM)		Nominal Scale Length (MM)			
	127		250		127	250	127	250		
	A	B	A	B	A	A	A	A		
2-6*	257.0	218.2	384.0	345.2	244.6	371.6	378.0	505.0	60.5	88.9
7&8	390.7	292.1	517.7	419.1	304.8	431.8	454.2	581.2	82.6	88.9
9	431.8	317.5	558.8	444.5	311.2	438.2	450.9	577.9	95.3	101.6
10	454.2	317.5	581.2	444.5	311.2	438.2	444.5	571.5	112.8	101.6
12	511.0	393.7	638.0	520.7	403.4	530.4	543.1	670.1	111.3	127.0
13	539.8	393.7	666.8	520.7	384.0	511.0	524.0	651.0	124.0	127.0

* Also available in 150mm scale length. Dimensions are identical to 127mm scale length
Flange dimensions apply to 150# & 300# raised face or flat face flanges

Figure 1 Dimensions - 127mm, and 250mm Full-View Flowmeters

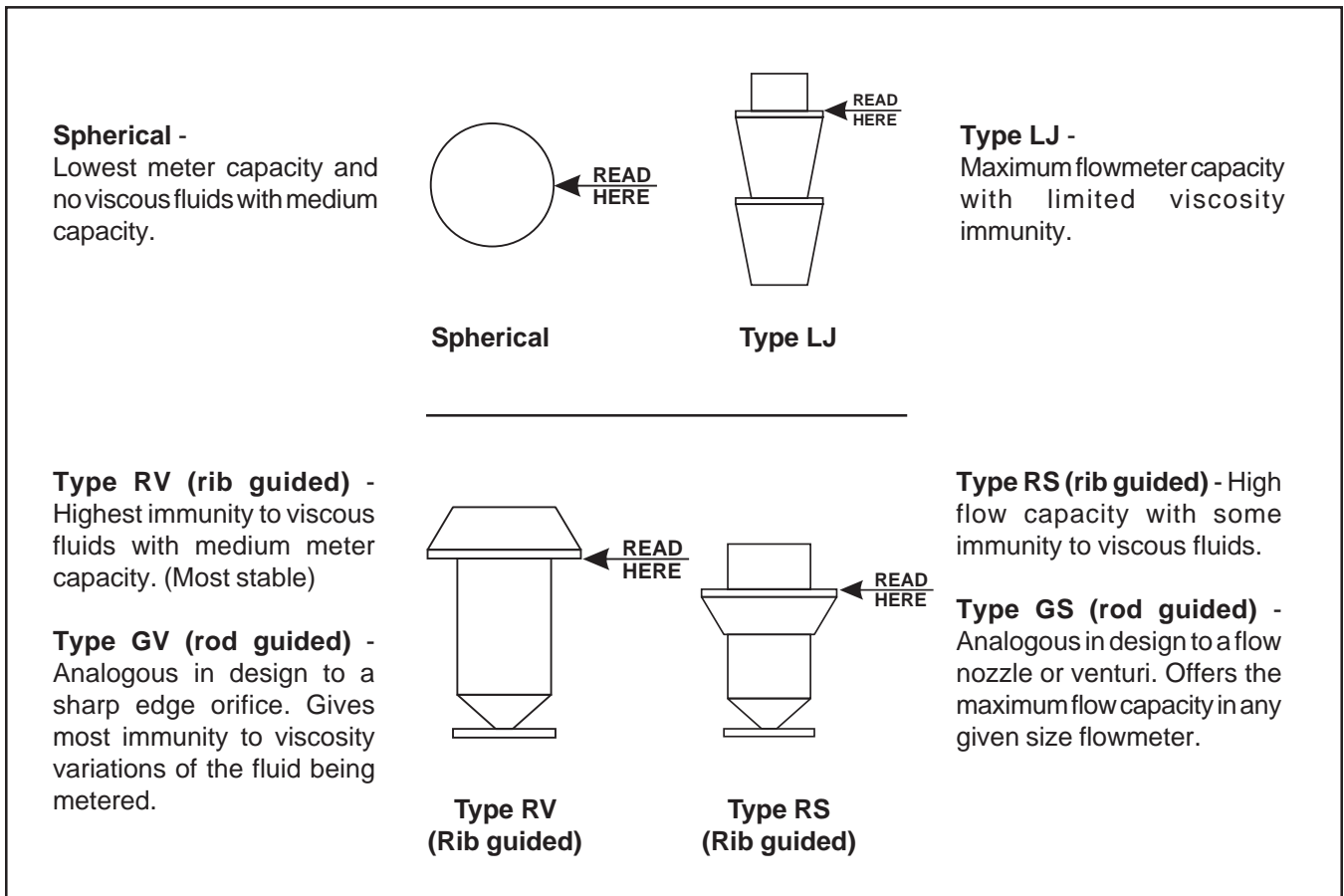


Figure 2 Float Types

Brooks® 1110 and 1140 Series

Table 3 Capacities 150mm Scale, Rib Guided Tube, Spherical Float

METER SIZE	TUBE	FLOAT	MAXIMUM FLOW RATE	
			WATER (CC/MIN.)	AIR @ 14.7 PSIA AND 70°F (21°C)
2	R-2-15-AAA SEE NOTE BELOW *	GLASS *	0.524	47.1 SCC/MIN
		SAPPHIRE	1.02	73.3 SCC/MIN
		STN. STL.	2.42	140.0 SCC/MIN
		CARBOLOY	4.77	238.0 SCC/MIN
		TANTALUM	5.31	260.0 SCC/MIN
	R-2-15-AA	GLASS	0.96	83.8 SCC/MIN
		SAPPHIRE	1.86	128.0 SCC/MIN
		STN. STL.	4.34	245.0 SCC/MIN
		CARBOLOY	8.37	416.0 SCC/MIN
		TANTALUM	9.30	454.0 SCC/MIN
	R-2-15-D	GLASS	5.58	361.0 SCC/MIN
		SAPPHIRE	10.20	491.0 SCC/MIN
		STN. STL.	19.80	790.0 SCC/MIN
		CARBOLOY	31.90	1170.0 SCC/MIN
		TANTALUM	34.40	1250.0 SCC/MIN
	R-2-15-A	GLASS	16.1	0.8 SLPM
		SAPPHIRE	25.2	1.0 SLPM
		STN. STL.	44.2	1.6 SLPM
		CARBOLOY	67.7	2.3 SLPM
		TANTALUM	72.5	2.5 SLPM
R-2-15-B	GLASS	50.6	2.3 SLPM	
	SAPPHIRE	76.2	2.9 SLPM	
	STN. STL.	127	4.4 SLPM	
	CARBOLOY	189	6.4 SLPM	
	TANTALUM	202	6.7 SLPM	
R-2-15-C	GLASS	81.1	3.7 SLPM	
	SAPPHIRE	123	4.8 SLPM	
	STN. STL.	208	7.2 SLPM	
	CARBOLOY	312	10.1 SLPM	
	TANTALUM	333	10.6 SLPM	
6	R-6-15-A	GLASS	191	8.3 SLPM
		SAPPHIRE	284	10.6 SLPM
		STN. STL.	468	15.7 SLPM
		CARBOLOY	690	22.0 SLPM
		TANTALUM	735	23.3 SLPM
	R-6-15-B	GLASS	548	22.6 SLPM
		SAPPHIRE	809	28.6 SLPM
		STN. STL.	1290	41.6 SLPM
		CARBOLOY	1850	58.1 SLPM
		TANTALUM	1960	61.4 SLPM

* R-2-15-AAA TUBE WITH GLASS FLOAT NOT AVAILABLE WITH 1% ACCURACY.

Table 4 Capacities 250mm Scale, Rib Guided Tube, Spherical Float

METER SIZE	TUBE	FLOAT	MAX. FLOW RATE	
			WATER (CC/MIN.)	AIR @ 14.7 PSIA AND 70°F (21.1°C)
2	R-2-25-D	GLASS	5.5	366 SCC/MIN
		SAPPHIRE	10.1	500 SCC/MIN
		STN. STL.	19.8	810 SCC/MIN
		CARBOLOY	32.2	1200 SCC/MIN
		TANTALUM	34.8	1280 SCC/MIN
	R-2-25-A	GLASS	16.8	0.84 SLPM
		SAPPHIRE	26.8	1.11 SLPM
		STN. STL.	46.5	1.7 SLPM
		CARBOLOY	71.5	2.46 SLPM
		TANTALUM	77.0	2.62 SLPM
	R-2-25-B	GLASS	49.0	2.2 SLPM
		SAPPHIRE	74.5	2.86 SLPM
		STN. STL.	124	4.3 SLPM
		CARBOLOY	186	6.2 SLPM
		TANTALUM	198	6.6 SLPM
R-2-25-C	GLASS	82	3.78 SLPM	
	SAPPHIRE	125	4.95 SLPM	
	STN. STL.	212	7.45 SLPM	
	CARBOLOY	318	10.3 SLPM	
	TANTALUM	342	10.9 SLPM	
R-6-25-A	GLASS	196	8.6 SLPM	
	SAPPHIRE	292	11.0 SLPM	
	STN. STL.	485	16.2 SLPM	
	CARBOLOY	715	22.8 SLPM	
	TANTALUM	760	24.2 SLPM	
R-6-25-B	GLASS	550	22.8 SLPM	
	SAPPHIRE	810	29.0 SLPM	
	STN. STL.	1300	42.0 SLPM	
	CARBOLOY	1860	58.5 SLPM	
	TANTALUM	1980	62.0 SLPM	
R-6M-25-1	GLASS	275	12.3 SLPM	
	SAPPHIRE	412	15.6 SLPM	
	STN. STL.	676	22.8 SLPM	
	TANTALUM	1087	33.9 SLPM	
7	R-7M-25-1	GLASS	605	24.2 SLPM
		STN. STL.	1286	42.7 SLPM
		MONEL	1360	44.8 SLPM

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Table 5 Capacities 250mm Scale , Rib Guided Tubes, Standard Float

METER SIZE	TUBE	FLOAT	WATER				AIR @ 14.7 PSIA AND 70°F (21°C)			
			GPM	LPM	PRESSURE DROP INCHES W.C.	VISCOSITY IMMUNITY CELING, CS (**)	SCFM	SLPM	PRESSURE DROP INCHES W.C.	PSI CRITICAL (*)
8	R-8M-25-2	8-RV-3	0.55	2.08	2.0	2.0	2.22	62.9	3.0	0
		8-RV-8	0.78	2.95	5.0	3.3	3.22	91.2	6.0	0
		8-RS-8	1.00	3.79	6.0	1.7	4.18	118.4	7.0	0
		8-RV-14	1.04	3.94	8.0	4.6	4.28	121.2	9.0	0
		8-RS-14	1.32	5.00	11.0	1.8	5.48	155.2	12.0	0
		8-RV-31	1.50	5.68	17.0	6.0	6.12	173.3	19.0	30
		8-RS-31	1.89	7.15	22.0	2.6	7.76	219.8	25.0	30
	8-LJ-48	3.01	11.39	45.0	1.0	13.01	368.4	51.0	30	
	R-8M-25-4	8-RV-3	0.78	2.95	4.0	2.0	3.17	89.8	4.0	0
		8-RV-8	1.09	4.13	7.0	3.7	4.45	126.0	8.0	0
		8-RS-8	1.40	5.30	10.0	1.8	5.86	166.0	11.0	0
		8-RV-14	1.45	5.49	12.0	5.4	5.88	166.5	14.0	0
		8-RS-14	1.83	6.93	17.0	1.9	7.56	214.1	19.0	0
		8-RV-31	2.06	7.80	23.0	7.0	8.32	235.6	28.0	30
8-RS-31		2.59	9.80	33.0	3.1	10.66	301.9	37.0	30	
8-LJ-48	4.88	18.47	93.0	1.0	20.32	575.5	106.0	30		
9	R-9M-25-1	9-RV-33	1.90	7.19	5.0	10.0	7.96	225.4	6.0	0
		9-RS-33	2.52	9.54	6.0	2.3	10.46	296.2	7.0	0
		9-RV-87	3.08	11.66	12.0	15.0	12.56	355.7	14.0	30
		9-RS-87	4.04	15.29	14.0	3.4	16.84	476.9	16.0	30
		9-LJ-160	6.88	26.04	31.0	1.0	30.45	862.3	35.0	30
	R-9M-25-3	9-RV-33	2.53	9.58	6.0	11.0	10.45	295.9	7.0	0
		9-RS-33	3.24	12.26	7.0	2.4	13.45	380.9	8.0	0
		9-RV-87	3.92	14.84	14.0	17.0	16.25	460.2	16.0	30
		9-RS-87	5.12	19.38	17.0	3.5	21.20	600.4	20.0	30
		9-LJ-160	9.65	36.53	43.0	1.0	44.18	1251.2	49.0	30
10	R-10M-25-1	10-RV-64	4.54	17.18	8.0	14.0	18.05	511.2	9.0	0
		10-RS-64	5.64	21.35	10.0	3.0	23.65	669.8	12.0	0
		10-RV-138	6.42	24.30	17.0	22.0	26.60	753.3	19.0	30
		10-RS-138	8.02	30.36	21.0	5.0	34.60	979.9	23.0	30
		10-LJ-238	14.91	56.43	52.0	1.0	66.00	1869.1	59.0	30
	R-10M-25-3	10-RV-64	6.28	23.77	11.0	15.0	25.76	729.5	13.0	0
		10-RS-64	7.84	29.67	15.0	3.7	32.15	910.5	17.0	0
		10-RV-138	8.84	33.46	23.0	23.0	36.10	1022.4	26.0	30
		10-RS-138	10.93	41.37	29.0	5.5	45.90	1299.9	33.0	30
		10-LJ-238	23.10	87.43	98.0	1.0	105.70	2993.4	112.0	30
12	R-12M-25-4	12-RV-221	9.33	35.31	8.0	28.0	37.81	1070.8	9.0	0
		12-RV-343	11.71	44.32	12.0	35.0	47.12	1334.4	14.0	30
		12-RS-221	12.46	47.16	9.0	4.0	50.65	1434.4	10.0	0
		12-RS-343	15.43	58.40	13.0	4.3	62.75	1777.1	15.0	30
		12-LJ-740	30.00	113.55	31.0	1.0	123.30	3491.9	36.0	30
	R-12M-25-5	12-RV-221	17.21	65.14	10.0	29.0	70.80	2005.1	11.0	0
		12-RV-343	20.95	79.30	15.0	36.0	86.45	2448.3	17.0	30
		12-RS-221	22.40	84.78	12.0	4.2	91.85	2601.2	14.0	0
		12-RS-343	26.90	101.82	18.0	4.5	112.00	3171.8	20.0	30
		12-LJ-740	67.60	255.87	65.0	1.0	299.50	8481.8	75.0	30
13	R-13M-25-1	13-RV-510	19.94	75.47	12.0	40.0	81.55	2309.5	14.0	0
		13-RV-760	23.79	90.05	18.0	50.0	96.00	2718.7	20.0	30
		13-RS-510	26.89	101.78	15.0	7.3	108.00	3058.6	17.0	0
		13-RS-760	31.85	120.55	21.0	9.0	131.00	3709.9	24.0	30
		13-LJ-1394	54.60	206.66	46.0	1.0				
	R-13M-25-3	13-RV-510	31.78	120.29	17.0	42.0	130.90	3707.1	19.0	0
		13-RV-760	37.60	142.32	24.0	52.0	155.20	4395.3	27.0	30
		13-RS-510	42.52	160.94	23.0	7.6	176.60	5001.3	26.0	0
		13-RS-760	49.55	187.55	32.0	9.3	217.70	6165.3	36.0	30

Data Sheet

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Table 6 Capacities 127mm Scale , Rib Guided Tubes, Standard Float

METER SIZE	TUBE	FLOAT	WATER				AIR @ 14.7 PSIA AND 70°F (21°C)			
			GPM	LPM	PRESSURE DROP INCHES W.C.	VISCOSITY IMMUNITY CELING, CS (**)	SCFM	SLPM	PRESSURE DROP INCHES W.C.	PSI CRITICAL (*)
8	R-8M-127-1	8-RV-3	0.50	1.89	2.0	2.0	2.05	58.1	2.0	0
		8-RV-8	0.74	2.80	3.0	3.3	3.01	85.2	4.0	0
		8-RS-8	0.92	3.48	4.0	1.7	3.84	108.7	4.0	0
		8-RV-14	0.96	3.63	6.0	4.6	3.95	111.9	6.0	0
		8-RS-14	1.22	4.62	6.0	1.8	5.03	142.4	7.0	0
		8-RV-31	1.38	5.22	11.0	6.0	5.60	158.6	13.0	30
		8-RS-31	1.70	6.43	13.0	2.6	6.98	197.7	15.0	30
	8-LJ-48	2.59	9.80	22.0	1.0	10.93	309.5	25.0	30	
	R-8M-127-4	8-RV-3	0.72	2.73	2.0	2.0	2.94	83.3	2.0	0
		8-RV-8	1.02	3.86	4.0	3.7	4.19	118.7	5.0	0
		8-RS-8	1.30	4.92	5.0	1.8	5.40	152.9	6.0	0
		8-RV-14	1.34	5.07	7.0	5.4	5.46	154.6	8.0	0
		8-RS-14	1.69	6.40	8.0	1.9	6.98	197.7	10.0	0
		8-RV-31	1.85	7.00	14.0	7.0	7.53	213.2	15.0	30
8-RS-31		2.30	8.71	16.0	3.1	9.45	267.6	18.0	30	
8-LJ-48	4.40	16.65	35.0	1.0	18.10	512.6	40.0	30		
9	R-9M-127-1	9-RV-33	1.70	6.43	4.6	10.0	7.00	198.2	6.0	0
		9-RS-33	2.20	8.33	5.3	2.3	9.05	256.3	6.0	0
		9-RV-87	2.64	9.99	11.5	15.0	11.08	313.8	13.0	30
		9-RS-87	3.46	13.10	13.0	3.4	14.40	407.8	15.0	30
	9-LJ-160	5.91	22.37	26.6	1.0	26.03	737.2	31.0	30	
	R-9M-127-3	9-RV-33	3.90	14.76	8.4	11.0	15.75	446.0	10.0	0
		9-RS-33	4.90	18.55	10.8	2.4	20.35	576.3	13.0	0
		9-RV-87	5.55	21.01	18.1	17.0	23.30	659.9	21.0	30
		9-RS-87	6.75	25.55	21.7	3.5	28.75	814.2	25.0	30
9-LJ-160		17.20	65.10	79.0	1.0	83.40	2361.9	90.0	30	
10	R-10M-127-1	10-RV-64	4.28	16.20	7.0	14.0	17.90	506.9	8.0	0
		10-RS-64	5.40	20.44	8.4	3.0	22.85	647.1	10.0	0
		10-RV-138	5.93	22.45	14.0	22.0	25.30	716.5	16.0	30
		10-RS-138	7.41	28.05	16.2	5.0	31.50	892.1	19.0	30
		10-LJ-238	13.65	51.67	36.0	1.0	57.90	1639.7	41.0	30
	R-10M-127-3	10-RV-64	6.02	22.79	9.2	15.0	24.33	689.0	11.0	0
		10-RS-64	7.56	28.61	11.4	3.7	30.80	872.3	13.0	0
		10-RV-138	8.01	30.32	17.2	23.0	33.45	947.3	20.0	30
		10-RS-138	9.94	37.62	21.0	5.5	41.63	1179.0	24.0	30
		10-LJ-238	22.47	85.05	61.0	1.0	109.30	3095.4	70.0	30
12	R-12M-127-1	12-RV-221	8.60	32.55	8.0	28.0	35.23	997.7	9.0	0
		12-RV-343	10.74	40.65	12.0	35.0	43.55	1233.3	14.0	30
		12-RS-221	11.49	43.49	8.0	4.0	47.10	1333.9	10.0	0
		12-RS-343	13.97	52.88	13.0	4.3	56.70	1605.7	15.0	30
		12-LJ-740	24.30	91.98	28.0	1.0	99.80	2826.3	32.0	30
	R-12M-127-3	12-RV-221	16.61	62.87	10.0	29.0	67.65	1915.8	11.0	0
		12-RV-343	19.68	74.49	14.0	36.0	80.30	2274.1	17.0	30
		12-RS-221	21.83	82.63	12.0	4.2	89.70	2540.3	13.0	0
		12-RS-343	24.72	93.57	16.0	4.5	101.80	2883.0	19.0	30
		12-LJ-740	72.00	272.52	57.0	1.0				
13	R-13M-127-1	13-RV-510	19.28	72.97	12.0	40.0	78.25	2216.0	14.0	0
		13-RV-760	22.90	86.68	17.0	50.0	92.80	2628.1	20.0	30
		13-RS-510	26.35	99.73	14.0	7.3	105.30	2982.1	16.0	0
		13-RS-760	31.30	118.47	20.0	9.0	126.10	3571.2	23.0	30
	13-LJ-1394	47.45	179.60	38.0	1.0					
	R-13M-127-3	13-RV-510	30.40	115.06	16.0	42.0	125.00	3540.0	18.0	0
		13-RV-760	34.90	132.10	22.0	52.0	144.20	4083.7	25.0	30
		13-RS-510	41.30	156.32	20.0	7.6	175.25	4963.1	23.0	0
		13-RS-760	46.50	176.00	27.0	9.3	199.80	5658.3	31.0	30

Brooks® 1110 and 1140 Series

Table 7 Capacities 250mm Scale , Plain Tapered Tubes, Rod Guided Float

METER SIZE	TUBE	FLOAT	WATER				AIR @ 14.7 PSIA AND 70°F (21.1°C)			
			GPM	LPM	PRESSURE DROP INCHES W.C.	VISCOSITY IMMUNITY CEILING, CS (**)	SCFM	SLPM	PRESSURE DROP INCHES W.C.	PSI CRITICAL (*)
8	8M-25-3	8-GV-7	1.18	4.47	11.0	4.7	4.82	136.5	12.0	0
		8-GS-7	1.54	5.83	17.0	1.6	6.50	184.1	19.0	0
		8-GV-12	1.56	5.90	19.0	6.2	6.40	181.2	21.0	0
		8-GS-12	2.06	7.80	31.0	1.6	8.60	243.6	35.0	0
		8-GV-26	2.24	8.48	39.0	9.1	9.23	261.4	45.0	30
		8-GS-26	2.96	11.20	64.0	1.7	12.45	352.6	74.0	30
		8-LG-27	3.84	14.53	106.0	1.0				
		8-LG-28	5.33	20.17	202.0	1.0				
		8-LG-37	6.40	24.22	293.0	1.0				
9	9M-25-2	9-GV-29	2.30	8.71	8.0	10.1	9.66	273.6	10.0	0
		9-GS-29	3.23	12.23	13.0	1.8	13.53	383.2	15.0	0
		9-GV-75	3.90	14.76	23.0	16.3	16.40	464.4	26.0	0
		9-GS-75	5.22	19.76	34.0	2.1	21.60	611.7	38.0	0
		9-LG-60	7.02	26.57	52.0	1.0				
		9-LG-88	8.91	33.72	81.0	1.0				
		9-LG-124	11.00	41.64	121.0	1.0				
10	10M-25-2	10-GV-54	5.60	21.20	22.0	13.0	23.52	666.1	25.0	0
		10-GS-54	7.84	29.67	48.0	1.7	33.12	938.0	55.0	0
		10-GV-119	8.52	32.25	38.0	19.4	35.48	1004.8	43.0	30
		10-GS-119	11.71	44.32	81.0	2.0	49.75	1408.9	93.0	30
		10-LG-191	16.00	60.56	146.0	1.0				
		10-LG-113	19.14	72.44	194.0	1.0				
		10-LG-164	25.20	95.38	327.0	1.0				
		10-LG-194	31.39	118.81	493.0	1.0				
12	12M-25-3	12-GV-201	11.44	43.30	15.0	26.7	48.00	1359.4	17.0	0
		12-GV-315	14.43	54.62	23.0	33.3	60.25	1706.3	27.0	30
		12-GS-201	16.06	60.79	23.0	4.0	66.35	1879.0	27.0	0
		12-GS-315	20.05	75.89	35.0	5.0	82.70	2342.1	41.0	30
		12-LG-391	36.58	138.46	94.0	1.0				
		(***) 12-LG-490	43.90	166.16	131.0	1.0				
		12-LG-461	58.95	223.13	220.0	1.0				
13	13M-25-2	13-GV-465	23.66	89.55	28.0	40.0	100.00	2832.0	32.0	0
		13-GV-696	29.60	112.04	43.0	48.8	122.20	3460.7	49.0	30
		13-GS-465	33.31	126.08	47.0	6.0	139.00	3936.5	53.0	0
		13-GS-696	41.50	157.08	71.0	7.3	177.10	5015.5	81.0	30
		13-LG-822	64.40	243.75	151.0	1.0				
		13-LG-844	69.20	261.92	172.0	1.0				
		(***) 13-LG-866	85.60	324.00	252.0	1.0				
		(***) 13-LG-950	102.6	388.34	352.0	1.0				
		13-LG-1402	118.0	446.63	464.0	1.0				
		13-LG-1465	129.5	490.16	551.0	1.0				

(*) MINIMUM OPERATING DOWNSTREAM PRESSURE FOR GAS SERVICE (PSIG)

(**) VISCOSITY IMMUNITY CEILING LISTED IS FOR STAINLESS STEEL FLOAT AND FLUID SP.GR. 1.0.

(***) FLOAT DOES NOT PROVIDE 10:1 FLOW RANGE. RANGE WILL BE 5:1.

Table 8 Ordering Information and Model Code for 1110-1140 Series, 127/150/250 mm, Ribbed Tube

MODEL	INDUSTRIAL GLASS TUBE VARIABLE AREA FLOWMETER (127/150/250/600 MM, RIBBED TUBE)									BASE	
	CONNECTION SIZE										
		SIZE 2	SIZE 6	SIZE 7	SIZE 8	SIZE 9	SIZE 10	SIZE12	SIZE 13		
111	THREADED	1/4"	1/4"	1/2"	1/2"	3/4"	3/4" (A)	1-1/2"	1-1/2" (B)	TABLE A	
114	FLANGED	1/2"	1/2"	1/2"	1/2"	1"	1"	1-1/2"	2"	TABLE A	
	(A)	3/4" HORIZONTAL CONNECTIONS, 1" VERTICAL CONNECTIONS									
	(B)	1-1/2" HORIZONTAL CONNECTIONS, 2" VERTICAL CONNECTIONS									

CODE	CONNECTION ORIENTATION	ADD
0 D	INLET-HORIZONTAL OUTLET-HORIZONTAL	NC
4 D	INLET-VERTICAL OUTLET-VERTICAL	NC
6 D	INLET-HORIZONTAL OUTLET-VERTICAL	NC
7 D	INLET-VERTICAL OUTLET-HORIZONTAL	NC

CODE	METER SIZE	ADD
C	SIZE 2	NC
G	SIZE 6	NC
H	SIZE 7	NC
J	SIZE 8	NC
K	SIZE 9	NC
L	SIZE 10	NC
M	SIZE 12	NC
N	SIZE 13	NC

		TUBE DESIGNATOR								ADD
CODE		SIZE 2	SIZE 6	SIZE 7	SIZE 8	SIZE 9	SIZE 10	SIZE12	SIZE 13	
0	R-2-15-A									NC
1	R-2-15-AA	R-6M-127-1	R-7M-127-1	R-8M-127-1	R-9M-127-1	R-10M-127-1	R-12M-127-1	R-13M-127-1		NC
2	R-2-15-AAA	R-6-15-A	R-7M-25-1	R-8M-127-4	R-9M-127-3	R-10M-127-3	R-12M-127-3	R-13M-127-3		NC
3	R-2-15-B	R-6-15-B		R-8M-25-2	R-9M-25-1	R-10M-25-1	R-12M-25-4	R-13M-25-1		NC
4	R-2-15-C	R-6-25-A		R-8M-25-4	R-9M-25-3	R-10M-25-3	R-12M-25-5	R-13M-25-3		NC
5	R-2-15-D	R-6-25-B								NC
6	R-2-25-A	R-6M-25-1								NC
7	R-2-25-B									NC
8	R-2-25-C									NC
9	R-2-25-D									NC

		FLOAT DESIGNATOR								ADD
CODE		SIZE 2-6	SIZE 7	SIZE 8	SIZE 9	SIZE 10	SIZE12	SIZE 13		
1		SPHERICAL	SPHERICAL	8-RV-3	9-RV-33	10-RV-64	12-RV-221	13-RV-510	NC	
2				8-RV-8	9-RS-33	10-RS-64	12-RS-221	13-RS-510	NC	
3				8-RS-8	9-RV-87	10-RV-138	12-RV-343	13-RV-760	NC	
4				8-RV-14	9-RS-87	10-RS-138	12-RS-343	13-RS-760	NC	
5				8-RS-14	9-LJ-160	10-LJ-238	12-LJ-740	13-LJ-1394	NC	
6				8-RV-31					NC	
7				8-RS-31					NC	
8				8-LJ-48					NC	

CODE	FLOAT MATERIAL	ADD
A	GLASS	NC
B	SAPPHIRE	NC
C	316 STN. STL.	NC
D	CARBOLOY	NC
E	TANTALUM	NC
F	MONEL	NC
G	HAST. C-276 (INCLUDED WITH HASTELLOY C OR PVC END FITTING ONLY)	NC

111 0D J 2 4 C D D A A TYPICAL MODEL CODE

Brooks® 1110 and 1140 Series

Table 8 Ordering Information and Model Code for 1110-1140 Series, 127/150/250 mm, Ribbed Tube (Continued)

CODE	SCALE			
A	NO INSCRIPTION (BLANK) (GAS)			
1	NO INSCRIPTION (BLANK) (LIQUID)			
B	MM SCALE (GAS)			
2	MM SCALE (LIQUID)			
C	0-100 LINEAR (GAS)			
3	0-100 LINEAR (LIQUID)			
D	% OF MAX FLOW (LIQUID)			
E	% OF MAX FLOW (GAS)			
F	CC/MIN WATER SP. GR. 1.0, VISC 1.0 CP			
G	CC/MIN AIR @ STP			
H	LPM AIR @ STP			
J	GPM WATER SP. GR. 1.0, VISC 1.0 CP			
K	LPM WATER SP. GR. 1.0, VISC 1.0 CP			
L	SCFM AIR @ STP			
M	SPECIAL INSCRIPTION (SPECIAL CALIBRATION NOT REQ'D) (GAS)			
4	SPECIAL INSCRIPTION (SPECIAL CALIBRATION NOT REQ'D) (LIQUID)			
N	SPECIAL CALIBRATION WITH SCALE 2% FS AIR (GAS)			
P	SPECIAL CALIBRATION WITH SCALE 2% FS WATER (LIQUID)			
Q	SPECIAL CALIBRATION WITH SCALE 2% FS OIL (VISCOSITY)			
R	SPECIAL CALIBRATION WITH SCALE 1% FS AIR (GAS)			
S	SPECIAL CALIBRATION WITH SCALE 1% FS WATER (LIQUID)			

CODE	MATERIALS OF CONSTRUCTION (Teflon O-ring and Packing - Standard)			
	FITTING	PACKING	O-RING	END CONNECTIONS
A	STEEL	TEFLON	TEFLON	NPT OR FLANGE
B	STEEL	NEOPRENE	BUNA	NPT OR FLANGE
C	STEEL	VITON	VITON	NPT OR FLANGE
D	316 S.S.	TEFLON	TEFLON	NPT OR FLANGE
E	316 S.S.	NEOPRENE	BUNA	NPT OR FLANGE
F	316 S.S.	VITON	VITON	NPT OR FLANGE
G	BRASS	TEFLON	TEFLON	NPT ONLY
H	BRASS	NEOPRENE	BUNA	NPT ONLY
J	BRASS	VITON	VITON	NPT ONLY
K	HAST C	TEFLON	TEFLON	NPT ONLY
L	HAST C	NEOPRENE	BUNA	NPT ONLY
M	HAST C	VITON	VITON	NPT ONLY
N	PVC	TEFLON	TEFLON	NPT ONLY
P	PVC	NEOPRENE	BUNA	NPT ONLY
Q	PVC	VITON	VITON	NPT ONLY

CODE	CONNECTION TYPE
A	NPT
B	150# R.F. FLG

CODE	ACCESSORIES (SELECT UP TO 3)
A	NONE
C	ALL STAINLESS STEEL EXTERNAL TRIM AND SCALE
G	HORIZONTAL VALVE ON INLET (TO SIZE 10 ONLY)
H	HORIZONTAL VALVE ON OUTLET (TO SIZE 10 ONLY)
J	TRIPOD BASE W/ SPIRIT LEVEL & LEVELING SCREWS FOR TABLE TOP USE
M	FLUSH PANEL MOUNTING BRACKETS
N	FRONT OF PANEL MOUNTING BRACKETS
Q	CLEAN FOR OXYGEN SERVICE
R	NIST TRACEABLE
S	DUAL DETACHABLE SCALES

111 0D J 2 4 D D A A TYPICAL MODEL CODE

Data Sheet

DS-VA-1110-1140-eng

March, 2008

Brooks®1110 and 1140 Series

Table 9 Ordering Information and Model Code for 1110-1140 Series, Rod Guided, Plain Tapered

MODEL INDUSTRIAL GLASS TUBE VARIABLE AREA FLOWMETER (ROD GUIDED FLOAT, PLAIN TAPER TUBE)						
		CONNECTION SIZE				
		SIZE 8	SIZE 9	SIZE 10	SIZE 12	SIZE 13
111	THREADED	1/2"	3/4"	3/4" (A)	1-1/2"	1-1/2" (B)
114	FLANGED	1/2"	1"	1"	1-1/2"	2"
(A)		3/4" HORIZONTAL CONNECTIONS, 1" VERTICAL CONNECTIONS				
(B)		1-1/2" HORIZONTAL CONNECTIONS, 2" VERTICAL CONNECTIONS				

CODE	CONNECTION ORIENTATION
0 D	INLET-HORIZONTAL OUTLET-HORIZONTAL
4 D	INLET-VERTICAL OUTLET-VERTICAL
6 D	INLET-HORIZONTAL OUTLET-VERTICAL
7 D	INLET-VERTICAL OUTLET-HORIZONTAL

CODE	METER SIZE/TUBE DESIGNATOR
J5	SIZE 8 8M-25-3
K5	SIZE 9 9M-25-2
L5	SIZE 10 10M-25-2
M5	SIZE 12 12M-25-3
N5	SIZE 13 13M-25-2

FLOAT DESIGNATOR						
CODE	SIZE 8	SIZE 9	SIZE 10	SIZE 12	SIZE 13	
6		9-GV-29	10-GV-54	12-GV-201	13-GV-465	
B	8-GV-12	9-LG-88	10-LG-113	12-LG-490	13-LG-844	
C	8-GS-12	9-LG-124	10-LG-164	12-LG-461	13-LG-866	
D	8-GV-26		10-LG-194		13-LG-950	
E	8-GS-26				13-LG-1402	
F	8-LG-27				13-LG-1465	
G	8-LG-28					
H	8-LG-37					

CODE	FLOAT MATERIAL
C	316 STN. STL.
G	HAST. C-276 (INCLUDED WITH HASTELLOY C END FITTING)

CODE	SCALE
A	NO INSCRIPTION (BLANK) (GAS)
1	NO INSCRIPTION (BLANK) (LIQUID)
B	MM SCALE (GAS)
2	MM SCALE (LIQUID)
C	0-100 LINEAR (GAS)
3	0-100 LINEAR (LIQUID)
D	% OF MAX FLOW (LIQUID)
E	% OF MAX FLOW (GAS)
F	CC/MIN WATER SP. GR. 1.0, VISC 1.0 CP
G	CC/MIN AIR @ STP
H	LPM AIR @ STP
J	GPM WATER SP. GR. 1.0, VISC 1.0 CP
K	LPM WATER SP. GR. 1.0, VISC 1.0 CP
L	SCFM AIR @ STP
M	SPECIAL INSCRIPTION (SPECIAL CAL. NOT REQ'D) (GAS)
4	SPECIAL INSCRIPTION (SPECIAL CAL. NOT REQ'D) (LIQUID)
N	SPECIAL CALIBRATION WITH SCALE 2% FS AIR (GAS)
P	SPECIAL CALIBRATION WITH SCALE 2% FS WATER (LIQUID)
Q	SPECIAL CALIBRATION WITH SCALE 2% FS OIL (VISCOSITY)
R	SPECIAL CALIBRATION WITH SCALE 1% FS AIR (GAS)
S	SPECIAL CALIBRATION WITH SCALE 1% FS WATER (LIQUID)
T	SPECIAL CALIBRATION WITH SCALE 1% FS OIL (VISCOSITY)

111 0D J5 6 C D D A A TYPICAL MODEL CODE

Brooks® 1110 and 1140 Series

Table 9 Ordering Information and Model Code for 1110-1140 Series, Rod Guided, Plain Taper (Continued)

CODE	MATERIALS OF CONSTRUCTION (Teflon O-ring and Packing - Standard)			
	FITTING	PACKING	O-RING	
A	STEEL	TEFLON	TEFLON	
B	STEEL	NEOPRENE	BUNA	
C	STEEL	VITON	VITON	
D	316 S.S.	TEFLON	TEFLON	
E	316 S.S.	NEOPRENE	BUNA	
F	316 S.S.	VITON	VITON	
G	BRASS	TEFLON	TEFLON	NPT ONLY
H	BRASS	NEOPRENE	BUNA	NPT ONLY
J	BRASS	VITON	VITON	NPT ONLY
K	HAST C	TEFLON	TEFLON	NPT ONLY
L	HAST C	NEOPRENE	BUNA	NPT ONLY
M	HAST C	VITON	VITON	NPT ONLY

CODE	CONNECTION TYPE
A	NPT
B	150# R.F. FLG

CODE	ACCESSORIES (SELECT UP TO 3)
A	NONE
C	ALL STAINLESS STEEL EXTERNAL TRIM AND SCALE
G	HORIZONTAL VALVE ON INLET (TO SIZE 10 ONLY)
H	HORIZONTAL VALVE ON OUTLET (TO SIZE 10 ONLY)
J	TRIPOD BASE W/ SPIRIT LEVEL & LEVELING SCREWS FOR TABLE TOP
M	FLUSH PANEL MOUNTING BRACKETS
N	FRONT OF PANEL MOUNTING BRACKETS
Q	CLEAN FOR OXYGEN SERVICE
R	NIST TRACEABLE
S	DUAL DETACHABLE SCALES

111 0D J5 6 C D D A A TYPICAL MODEL CODE

Table 10 Approximate Weights (lbs.)

MODEL	SCALE LENGTH	METER SIZE						
		2-6	7	8	9	10	12	13
1110	127/250 MM	6	12	12	18	25	26	40
1140	127/250 MM	10	13	13	20	29	35	52

TRADEMARKS

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Brooks® 1110 and 1140 Series

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Brooks Instrument provides sales and service facilities around the world, ensuring quick delivery from local stock, timely repairs and local based sales and service facilities.

Our dedicated flow experts provide consultation and support, assuring successful applications of the Brooks flow measurement and control products.

Calibration facilities are available in local sales and service offices. The primary standard calibration equipment to calibrate our flow products is certified by our local Weights and Measures Authorities and traceable to the relevant international standards.

START-UP SERVICE AND IN-SITU CALIBRATION

Brooks Instrument can provide start-up service prior to operation when required.

For some process applications, where ISO-9001 Quality Certification is important, it is mandatory to verify and/or (re)calibrate the products periodically. In many cases this service can be provided under in-situ conditions, and the results will be traceable to the relevant international quality standards.

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Due to Brooks Instrument's commitment to continuous improvement of our products, all specifications are subject to change without notice.



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