INSTRUCTIONS

Bel-Art SP SCIENCEWARE™

RITEFLOW® FLOWMETERS AND KITS

BEL-ART – SP SCIENCEWARE

Contents

BEL-ART RITEFLOW® FLOWMETERS AND KITS

FLOWMETERS

150mm

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H40401-0075	Riteflow® Flowmeter	Plain Ends	150mm	Size 2
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H40401-0215	Riteflow® Flowmeter	Plain Ends	150mm	Size 4
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65mm

H40400-0005	Riteflow® Flowmeter	Plain Ends	65mm	Size 1
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H40400-0020	Riteflow® Flowmeter	Plain Ends	65mm	Size 4
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H40406-0025	Riteflow® Aluminum Frame		65mm	Size 5
H40406-0030	Riteflow® Aluminum Frame		65mm	Size 6
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H40404-0015	Riteflow® Teflon® Frame		65mm	Size 3
H40404-0020	Riteflow® Teflon® Frame		65mm	Size 4
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H40404-0030	Riteflow® Teflon® Frame		65mm	Size 6
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H40402-0015	Riteflow® Flowmeter Guarded Complete		65mm	Size 3
H40402-0020	Riteflow® Flowmeter Guarded Complete		65mm	Size 4
H40402-0025	Riteflow® Flowmeter Guarded Complete		65mm	Size 5
H40402-0030	Riteflow® Flowmeter Guarded Complete		65mm	Size 6

BEL-ART RITEFLOW® FLOWMETERS

Bel-Art Flowmeters feature precision formed glass flowtubes and are available in three formats: Plain Ends which is a glass flowtube with floats and Teflon® end plugs; Guarded, which has a plastic safety guard over the flowtube; and Mounted, which has an anodized aluminum frame to hold the flowtube and facilitate mounting the unit on an instrument panel or use with a base, free-standing on a lab bench.

PRINCIPLE OF OPERATION

Bel-Art Flowmeters are fabricated from heavy walled, shock resistant, borosilicate glass with permanently fused ceramic scales. Bores are uniformly tapered with internal rib guides. Floats are retained by Teflon® plugs. Useful metering ratios are 10:1 or better. Ratio can be increased to 20:1 by replacing the glass float with stainless steel float or Carboloy (heavy gauge steel) for size 5 (150mm), size 6 (65mm).

Flowmeters must be installed in a vertical position in the line carrying the gas or liquid to be measured. Gas or liquid enters through the opening at the bottom end, and exits through the opening at the top end. Upward pressure causes the float to rise. Flow takes place through the circular area between the float and the inside surface of the Flowmeter. As the float rises, the flow area increases, due to the tapered bore of the Flowmeter. Dynamic equilibrium results when the upward force, due to the air or liquid pressure, balances the weight of the float.

The vertical position of the float at equilibrium corresponds exclusively to one flow rate.

This flowrate is obtained by reading the scale etched on the flowtube calibration chart for the particular fluid.

Flow rates are determined by reading the scale graduation at the center of the spherical float. To increase the accuracy and reproduction of the metering a vertical locator line is incorporated into the geometry of the scale graduation.

SPECIFICATIONS

FLOWTUBES

Flowtubes are fabricated from heavy walled, shock resistant, borosilicate glass with permanently fused on ceramic scales. Bores are uniformly tapered with internal rib guides. Floats are retained by Teflon® plugs. Flow ranges are linear; low differential pressures are independent of flow rate changes.

PLAIN ENDS

Maximum operating pressure: 200 PSIG

Maximum operating temperature: 250°F (121°C)

Materials that come in contact with fluids are:

Flowtubes: Borosilicate glass

Floats: Glass (color: black) and Stainless Steel (color: metallic) with 150mm size 1,2,3,4, and 65mm size 1,2,3,4, & 5

Glass (color: black) and Carboloy (color: metallic, magnetic) with 150mm size 5 and 65mm size 6

Float Stops: Teflon®

Dimensions:

Overall Length: 65mm scale = 80mm (3 3/16")
150mm scale = 190mm (7 1/2")

Size	65mm Tube Inlet/Outlet Inches	Inlet/Outlet mm	150mm Tube Inlet/Outlet Inches	Inlet/Outlet mm
1	3/8" / 3/8"	8.5 / 8.5	3/8" / 3/8"	8.5 / 8.5
2	3/8" / 3/8"	8.5 / 8.5	3/8" / 3/8"	8.5 / 8.5
3	3/8" / 3/8"	8.5 / 8.5	3/8" / 3/8"	8.5 / 8.5
4	3/8" / 3/8"	8.5 / 8.5	1/2" / 1/2"	12.7 / 12.7
5	31/64" / 15/32"	12.3 / 11.9	1/2" / 9/16"	12.7 / 14.3
6	9/16" / 1/2"	14.3 / 12.7	–	–

GUARDED

Maximum operating pressure: 200 PSIG

Maximum operating temperature: 150°F

Materials that come in contact with fluids are:

Flowtubes:	Borosilicate glass
Floats:	Glass (color: black) and Stainless Steel (color: metallic) with 150mm size 1,2,3,4, and 65mm size 1,2,3,4,5 Glass (color: black) and Carboloy (color: metallic, magnetic) with 150mm size 5 and 65mm size 6
NPT Fittings:	Viton-A, 316 Stainless Steel, Teflon®

Dimensions:

Overall Length: 65mm scale = 152mm (6")
150mm scale = 263mm (10 3/8")

	65mm	150mm
End Bushings:	1/4" NPT	1/4" NPT
O.D.:	1"	1"

MOUNTED FLOWMETER - TEFLON®

Maximum operating pressure: 60 PSIG

Maximum operating temperature: 150°F

Materials that come in contact with fluids are:

Flowtubes:	Borosilicate glass
Floats:	Glass (color: black) and Stainless Steel (color: metallic) with 150mm size 1,2,3,4, and 65mm size 1,2,3,4,5 Glass (color: black) and Carboloy (color: metallic, magnetic) with 150mm size 5 and 65mm size 6
Valve:	Teflon® and Kel F
Frame:	Aluminum (black anodized)

Dimensions:	65mm	150mm
Height:	6.156”	10.469”
Width:	1.250”	1.250”
Mounting Hole Dimensions		
Center to Center:	5.031”	9.344”
O.D.:	0.575”	0.575”

Inlet/Outlet Connections: Compression glass fittings for 3/8” I.D. tubing

MOUNTED FLOWMETER - ALUMINUM

Maximum operating pressure: 200 PSIG

Maximum operating temperature: 250°F

Materials that come in contact with fluids are:

Flowtubes:	Borosilicate glass
Floats:	Glass (color: black) and Stainless Steel (color: metallic) with 150mm size 1,2,3,4, and 65mm size 1,2,3,4,5 Glass (color: black) and Carboloy (color: metallic, magnetic) with 150mm size 5 and 65mm size 6
Valve:	Buna N, 316 Stainless Steel, and Delrin

Frame: Aluminum (black anodized)

Dimensions:	65mm	150mm
Height:	5.5”	9.813”
Width:	1.250”	1.250”
Mounting Hole Dimensions		
Center to Center:	4.5”	8.813”
O.D.:	0.625”	0.624”

Inlet/Outlet Connections: 1/8” NPT polypropylene hose barbs fittings for 5/16” to 3/8” I.D. tubings. Can be removed for use of male 1/8” NPT fitting.

OPERATION

Flow input should be connected to the bottom of the Flowmeter and output to the top. Insure that input and output tubings are securely connected; check specifications to determine maximum pressure ratings of each format (Plain End, Guarded or Mounted). For most accurate readings, flowtubes should be exactly vertical to prevent friction of floats on flowtube walls.

BEFORE USE

65 MM

Each 65mm Flowmeter is supplied with a glass float (color: black) inside the flowtube. An additional float is supplied in a vial on the side; stainless steel (color: metallic) for Sizes 1-5, Carboloy (color: metallic, magnetic) for Size 6.

150MM

Each 150mm Flowmeter is supplied with two floats in the tube. Flowmeters are more accurate when only one float is used, however two floats can be used with Size No.'s 2 to 5 if they are not too close to each other in the desired range of flow. Always place the heavier (metallic) float on the bottom and read the float that is closest to or above the middle of the scale. Size #1 can only be used with one float; one float must be removed before use.

See Cleaning and Changing Floats (Page 11) for proper float removal and handling.

READING A FLOWRATE

To obtain accurate flow readings locate the center of the float and read the scale graduations as follows:

1. Position your head in front of the Flowmeter, with your eyes level with the float.
2. Move your head horizontally to the left until the contour of the float appears to just touch the locator line tangentially.
3. The intersection of the locator line with the horizontal graduation at the center of the float pinpoints the appropriate reading value.
4. The number on the scale corresponds to a flowrate for the given gas or liquid on the appropriate calibration chart.

Universal millimeter scales permit maximum utilization of a single Flowmeter for a variety of gases and liquids through the use of flow calibration curves and tables corrected for differences in specific gravity, pressure and temperature.

The contrasting background is designed to minimize eye fatigue associated with periods of repetitive readings.

Contact Bel-Art for flowcharts for fluids being metered.

PLAIN ENDS

Flowtube should be mounted vertically on a ring stand or other appropriate support. Input tubing should be connected to the bottom, output tubing to the top.

GUARDED

Guarded Flowmeters utilize a 1/8" wall C.A.B. plastic cylinder to shield the Flowmeter, offering protection against possible flowtube breakage when being operated under higher pressures (up to 200 max p.s.i.). The Guarded Flowmeter should be mounted vertically on a ring stand or other appropriate support and input tubing should be connected to the bottom 1/4" NPT stainless steel fitting, output tubing to the top one.

MOUNTED

Mounted Flowmeters are designed to enable mounting on an instrument panel or use while standing on a bench (when mounted on the levelling base). They are available in Aluminum of Teflon® models in both 65mm and 150mm sizes for different chemical resistance needs. See "Specifications" (pages 5 and 6) for complete materials listing. The flowtubes are installed in an anodized aluminum frame which has a convenient precision needle valve for regulating the flow through the flowtube. In addition, the frame features an exclusive tubelock design, which facilitates simple installation and replacement of tubes in frame by preventing them from turning while being tightened during assembly.

For use on a bench, use the Levelling Base (cat. no. 94040-9000). This base contains a level which allows adjustment of the Flowmeter to an exactly vertical position, which enhances accuracy by eliminating friction between the float and the flowtube.

The Aluminum model has 1/8" polypropylene hose barb fittings which accept input/output tubing from 5/16" to 3/8" i.d. The Teflon® model has 3/8" o.d. straight glass connectors for input/output tubing. Input should be connected to the bottom; output tubing to the top.

Mounted Flowmeters are available in Teflon® or Aluminum models in both 65mm and 150mm sizes.

FLOWMETER KITS

Kits are designed to allow the use of the entire Riteflow® line of 150mm Flowmeters on one stand for a wide range of flow measuring capability.

Mounted Aluminum 150mm Flowmeter Kits (H40409-0000) include an aluminum frame, an acrylic leveling base, large orifice for high flowrate measurements, 4 flowtubes (Size No. 1,2,3 and 5), 8 floats (2 in each of the flowtubes), top and bottom Viton gaskets for all Flowmeters, two support brackets, two mounting rods, two rod clamps, 5 vials for float storage and a Flowmeter cleaning kit (94040-9026).

Mounted Teflon® 150mm Flowmeter Kits (H40408-0000) include a Teflon frame, an acrylic leveling base, 4 flowtubes (Size No. 1,2,3 and 4), 9 floats (2 in each of the flowtubes and 1/4" dia. Carboloy in a vial), two support brackets, two mounting rods, two rod clamps, 5 vials for float storage and a Flowmeter cleaning kit (94040-9026).

DISASSEMBLY AND ASSEMBLY

Each Guarded and Mounted Flowmeter contains a flowtube, which can be removed or replaced using the following procedure (See Figure 1).

GUARDED FLOWMETER:

1. Unscrew two end bushings.
2. Remove flowtube from plastic guard.
3. Reassemble in the following order:
    a. Insert top rubber gasket (P) in upper bushing (M).
    b. Screw plastic tube (N) on upper bushing.
    c. Insert flowtube (B) into plastic tube until top of Flowmeter seats against rubber gasket.
    d. Insert rubber gasket (P) into lower bushing (M).
    e. Screw lower bushing (M) into plastic tube until lower end of the Flowmeter seats against rubber gaskets.
    f. Plastic tube will almost completely cover the thread on bushings and provide a tight seal against the inner rubber gasket.

g. Meter may be directly piped into a system, or hose ends may be used for connection with rubber tubing. For quick disconnect, use Bel-Art's Stat-O-Lok™ system (19723-0802/0202, 19724-0804/0204)

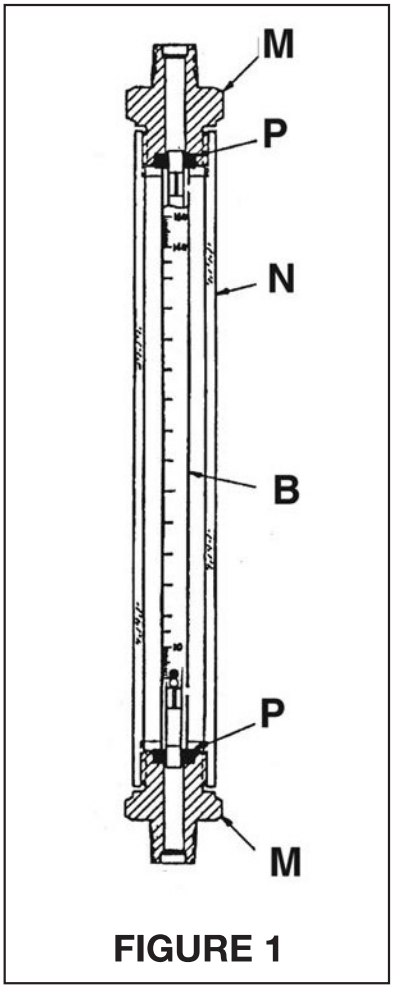

FIGURE 1

MOUNTED FLOWMETER:

1. Remove front panel by unscrewing four socket head screws.
2. Remove back panel by unscrewing the two large nuts. These nuts also hold the support brackets against the back panel, and these brackets will also have to be removed. If Flowmeter is panel mounted, this step can be omitted.
3. Turn knurled nut on top counter-clockwise as far as it will go. If it sticks, a pin may be inserted in the hole in the nut to start it.
4. Push flowtube up and swing it out bottom first.
5. To reassemble, reverse the above order. Be sure the scale is facing out.

MOUNTED FLOWMETER: (ALUMINUM MODELS)

1. Remove front panel by unscrewing four socket head screws.
2. Remove back panel by unscrewing the two large nuts. These nuts also hold the support brackets against the back panel, and these brackets will also have to be removed. If Flowmeter is panel mounted, this step can be omitted.
3. Insert a 5/32" hex wrench into the pressure nut at the top of the flowmeter. While holding the flowtube between your thumb and forefinger, turn the wrench, counter clockwise to release the flowtube. Carefully remove the flowtube so as not to damage it.
4. To reassemble, reverse the above order. Be sure the scale is facing out.

GASKETS

Note that Viton gaskets are provided at the end of the Flowmeter in Guarded and Aluminum bench mounted Flowmeter assemblies.

Always use the gasket with the largest diameter tubing that will fit into the Flowmeter. The tubing will center the Flowmeter in the guard.

CLEANING AND CHANGING FLOATS

See below for details on Bel-Art's Flowmeter Cleaning Kit (94040-9026).

For thorough cleaning, floats and float stops should be removed using the following procedures:

For Size Nos. 1, 2 and 3, push bottom float stop upward using the small diameter rod provided. Push until both stops and floats pop out at the top. Be careful not to scratch inside of flowtube.

For Size.Nos. 4 and 5, pull float stops out from each end by using the wire hooks provided. Insert one prong through tube past float stop, hook end on far side of stop and pull.

Clean flowtubes using a thin stiff brush with mild laboratory detergent such as Bel-Art's Aquet® (Catalog No. F17094-0030). More stubborn stains can be removed from glass parts only by using Chromerge® (F17089-0000), Bel-Art's chromic-sulfuric acid concentrate. Rinse and dry flowtube by blowing clean dry air or Bel-Art's Blow Hard®, O.S. extra (F17080-0100) through it.

Do not handle floats as that may deposit a film that could cause sticking. Observe the following procedures:

1. Dump floats from flowtube into a plastic cup or on a lint-free surface.
2. Using tweezers, dip each float into a cleaning solution. Never touch floats with your hand.
3. Dip float into an anti-static agent.
4. Remove and dry using clean dry air. Do not breathe on floats, as moisture impairs the clean surface.
5. Replace floats in flowtubes or into their container.

FLOWMETER CLEANING KIT

Bel-Art's Flowmeter cleaning kit (94040-9026) contains the following:

94040-9013	Cleaning solution, 1/2 oz.
94040-9015	Anti-Static agent, 1/2 oz.
F17080-0100	Blow Hard® o.s. extra
94040-9017	Stiff Brush
94040-9016	Tweezers
94040-9003	Push Rod Long
94040-9001	Rod, Push

FLOAT INFORMATION, 65MM MODELS

SIZE	FLOATS SUPPLIED
1	1/8" Glass and Stainless Steel
2	1/8" Glass and Stainless Steel
3	1/8" Glass and Stainless Steel
4	3/16"Glass and Stainless Steel
5	1/4" Glass and Stainless Steel
6	1/4" Glass and Carboloy

FLOAT INFORMATION, 150MM MODELS

SIZE	FLOATS SUPPLIED
1	1/8" Glass and Stainless Steel
2	1/8" Glass and Stainless Steel
3	1/8" Glass and Stainless Steel
4	1/4" Glass and Stainless Steel
5	1/4" Glass and Carboloy

TO ORDER ADDITIONAL FLOATS

PART NO.	DESCRIPTION
94040-1037	1/8" Stainless Steel Float (color: metallic)
94040-1126	1/4" Glass Float (color: black)
94040-1127	1/4" Stainless Steel Float
94040-1039	1/8" Glass Float
94040-8001	1/4" Carboloy Float (color: metallic, magnetic)
94040-1036	1/8" Sapphire Float, (color: red)
94040-1040	1/8" Carboloy Float
94040-8002	1/4" Sapphire Float

Other sizes and type floats are available under special order.

PREDICTABILITY FLOW TABLE FOR AIR & WATER FOR 65MM FLOWMETERS

		Size No. 1		Size No. 2		Size No. 3		Size No. 4		Size No. 5		Size No. 6	
	Reading at center of the ball	40400-0005 40406-0005 40404-0005 40402-0005		40400-0010 40406-0010 40404-0010 40402-0010		40400-0015 40406-0015 40404-0015 40402-0015		40400-0020 40406-0020 40404-0020 40402-0020		40400-0025 40406-0025 40404-0025 40402-0025		40400-0030 40406-0030 40404-0030 40402-0030	
		Glass	Stainless	Glass	Stainless	Glass	Stainless	Glass	Stainless	Glass	Stainless	Glass	Carboloy
AIR, ML./MIN @ 1 ATM & 70˚F	65	5.77	16.77	48.70	145.00	202.10	522.00	1,249.00	2,520.00	6,318.01	12,058.16	22,574.92	58,500.00
	60	5.16	14.82	43.60	129.10	181.20	474.00	1,140.00	2,339.00	5,940.28	11,429.93	21,085.50	54,300.00
	55	4.61	13.15	37.10	113.40	159.80	429.00	1,025.00	2,140.00	5,552.99	10,627.67	19,116.10	49,900.00
	50	4.08	11.70	31.60	97.20	139.80	383.00	902.00	1,945.00	5,123.61	9,854.41	17,175.60	45,400.00
	45	3.58	10.20	26.30	82.50	117.90	334.00	785.00	1,747.00	4,718.20	9,083.36	15,657.97	40,900.00
	40	3.18	9.00	21.40	67.00	97.50	287.00	675.00	1,540.00	4,298.72	8,323.04	13,927.77	35,900.00
	35	2.79	7.75	18.00	55.20	79.00	241.60	550.00	1,320.00	3,854.23	7,487.53	12,000.46	31,100.00
	30	2.37	6.53	14.70	45.20	63.20	198.00	440.00	1,096.00	3,393.69	6,603.74	10,052.57	26,600.00
	25	1.94	5.37	11.70	36.00	49.80	158.00	310.00	854.00	2,922.54	5,716.80	8,124.28	22,237.00
	20	1.64	4.25	8.60	27.20	38.60	125.00	215.00	610.00	2,433.65	4,856.00	6,790.97	18,004.00
	15	1.25	3.20	6.10	18.90	28.30	94.00	120.00	370.00	1,938.11	3,928.76	4,972.22	14,031.00
	10	0.95	2.28	4.00	12.30	20.00	61.00	70.00	185.00	1,423.40	2,977.83	3,443.03	9,900.00
	5	0.75	1.40	2.80	8.10	13.10	45.00	28.00	90.00	853.82	1,973.16	1,991.52	6,082.00
WATER, ML./MIN.@70˚F	65	0.07	0.28	0.55	2.38	2.64	12.01	26.97	70.67	147.00	364.00	521.74	1,866.25
	60	0.06	0.26	0.49	2.10	2.33	10.88	22.93	63.29	137.00	341.00	492.61	1,728.00
	55	0.05	0.23	0.43	1.82	2.02	9.57	19.18	57.58	128.00	315.00	451.13	1,584.16
	50	0.05	0.20	0.37	1.59	1.74	8.28	15.74	51.28	116.00	294.00	408.86	1,428.57
	45	0.04	0.17	0.32	1.34	1.48	7.04	11.02	44.71	104.00	267.00	367.53	1,287.13
	40	0.04	0.14	0.27	1.16	1.22	5.84	8.58	37.95	94.00	242.00	327.10	1,107.69
	35	0.03	0.11	0.22	0.91	1.00	4.70	6.81	31.60	85.00	222.00	283.91	986.84
	30	0.03	0.08	0.17	0.73	0.80	3.74	5.37	23.33	70.00	190.00	240.00	829.49
	25	0.02	0.06	0.13	0.56	0.63	2.89	4.27	13.54	62.00	162.00	197.69	693.07
	20	0.02	0.05	0.10	0.40	0.50	2.21	3.43	9.74	45.00	133.00	155.71	582.52
	15	0.02	0.04	0.06	0.30	0.38	1.65	2.78	7.50	33.00	104.00	115.61	435.48
	10	0.01	0.03	0.04	0.20	0.27	1.14	1.49	5.06	19.00	74.00	72.12	311.57
	5	0.01	0.02	0.01	0.10	0.18	0.76	0.56	3.73	4.00	42.00	36.20	176.21

PREDICTABILITY FLOW TABLE FOR AIR & WATER FOR 150MM FLOWMETERS

Reading at center of the ball	Size No. 1			Size No. 2			Size No. 3			Size No. 4			Size No. 5		
	40401-0035 40403-0055 40407-0035 40405-0035			40401-0075 40403-0095 40407-0075 40405-0075			40401-0125 40403-0145 40407-0125 40405-0125			40401-0215 40403-0235 40407-0215 40405-0215			40401-0305 40403-0325 40407-0305 40405-0305		
	Glass	Sapphire	Stainless	Glass	Sapphire	Stainless	Glass	Sapphire	Stainless	Glass	Stainless	Carboloy	Glass	Stainless	Carboloy
AIR, ML./MIN @ 1 ATM & 70˚F															
150	25.65	36.90	75.50	375.0	522.45	827.0	2,313	3,079	4,562	9,229	17,430	24,442	23,121	42,650	61,161
140	23.00	32.90	67.30	345.0	483.80	773.0	2,170	2,874	4,295	8,625	16,287	22,871	21,556	40,023	57,235
130	20.35	29.10	59.30	317.0	446.93	719.0	2,050	2,690	4,040	8,014	15,194	21,354	19,908	37,175	52,788
120	17.95	25.50	52.50	286.0	410.12	666.0	1,932	2,510	3,780	7,344	14,057	19,769	18,403	34,477	48,527
110	15.30	22.00	46.00	257.0	370.53	612.0	1,807	2,340	3,520	6,680	12,944	18,242	16,762	31,446	43,998
100	13.05	18.90	40.00	225.0	330.62	556.0	1,674	2,165	3,256	6,051	11,814	16,704	15,149	28,522	39,659
90	11.30	16.10	34.40	195.0	289.91	503.0	1,535	1,982	2,990	5,414	10,607	15,040	13,499	25,514	35,485
80	9.40	13.60	29.20	165.0	249.33	443.0	1,392	1,790	2,708	4,832	9,462	13,409	11,881	22,547	31,089
70	8.00	11.40	24.70	138.0	207.38	380.0	1,240	1,610	2,400	4,228	8,307	11,766	10,278	19,622	26,905
60	6.75	9.30	20.50	112.0	167.51	320.0	1,085	1,403	2,117	3,628	7,156	10,159	8,699	16,627	22,698
50	5.60	7.50	16.70	89.0	133.12	257.0	928	1,210	1,780	3,006	5,977	8,527	7,152	13,673	18,617
40	4.40	6.00	13.20	67.0	100.77	200.0	763	980	1,500	2,322	4,732	6,808	5,587	10,893	14,659
30	3.45	4.50	10.20	50.0	74.28	146.0	590	760	1,145	1,628	3,454	5,052	4,095	8,080	10,812
20	2.65	3.30	7.50	37.0	52.25	103.0	395	525	868	961	2,225	3,334	2,621	5,321	6,977
10	1.70	2.20	5.00	25.5	35.26	69.0	185	276	480	357	959	1,523	1,115	2,550	3,285
WATER, ML./MIN.@70˚F															
150	0.31	0.56	1.25	5.72	10.64	20.47	53.5	77.80	130.4	215.5	521.6	769.86	558.9	1,319.9	1,903
140	0.27	0.49	1.08	5.28	9.65	18.91	50.7	73.50	123.0	199.6	486.1	716.59	518.0	1,232.4	1,778
130	0.24	0.42	0.94	4.63	8.70	17.36	47.7	69.36	116.0	184.4	450.8	665.85	474.0	1,135.7	1,644
120	0.22	0.37	0.81	3.96	7.77	15.82	44.7	64.69	107.5	168.9	412.9	612.78	434.1	1,047.7	1,523
110	0.20	0.32	0.70	3.40	6.79	14.31	41.5	60.00	101.0	154.7	376.1	559.53	391.5	952.0	1,389
100	0.15	0.27	0.61	2.87	5.82	12.77	38.1	55.00	93.0	135.7	341.0	508.18	351.8	859.4	1,257
90	0.13	0.23	0.52	2.43	4.95	11.26	34.6	50.14	85.0	119.2	305.0	455.30	313.0	763.6	1,123
80	0.12	0.19	0.45	2.01	4.15	9.53	30.9	45.34	77.0	104.3	271.0	406.28	275.4	670.7	990
70	0.10	0.16	0.38	1.64	3.33	7.82	26.9	39.70	69.0	87.9	236.6	355.84	235.2	580.4	860
60	0.08	0.13	0.32	1.30	2.55	6.24	22.6	34.50	60.7	69.9	202.5	306.09	197.2	491.4	729
50	0.07	0.11	0.27	1.00	1.90	4.73	18.2	29.18	51.6	52.3	167.2	254.37	159.2	403.0	598
40	0.05	0.09	0.22	0.75	1.40	3.51	13.5	23.50	42.4	35.0	128.7	198.78	122.0	314.5	470
30	0.04	0.08	0.18	0.55	1.00	2.46	9.2	17.60	33.0	20.1	88.9	140.66	83.7	228.3	347
20	0.03	0.07	0.14	0.40	0.69	1.70	5.2	11.50	22.2	7.9	51.4	85.34	48.6	146.10	224
10	0.02	0.06	0.09	0.26	0.49	1.11	1.6	5.00	9.4	2.8	18.6	32.46	17.7	59.9	99

REPLACEMENT PARTS-RITEFLOW® FLOWMETERS

Item	Size 1	Size 2	Size 3	Size 4	Size 5	Size 6
Frame Only, Teflon® 150mm	94040-8000	94040-8000	94040-8000	94040-8000	94040-8000	
Frame Only, Teflon® 65mm	94040-4000	94040-4000	94040-4000	94040-4000	94040-4000	94040-4000
Frame Only, Aluminum,150mm	94040-9033	94040-9033	94040-9033	94040-9033	94040-9033	
Frame Only, Aluminum, 65mm	94040-6015	94040-6015	94040-6015	94040-6015	94040-6015	94040-6015
Teflon® Stop Set/2	94040-1038	94040-1076	94040-1128	94040-1216	94040-1306	
Bench Mounting Kit, Complete (bracket & base)	94040-1000 For All Sizes					
Long Push Rod	94040-9003 For Sizes 4 & 5					
Push Rod	94040-9001 For Sizes 1,2, & 3					

Bel-Art SP SCIENCEWARE™

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