FLOW TUBE CONFIGURATIONS

Step 1. Factory Authorized Flow Tube Configurations vary widely depending on the Riptide™ in use, or the Authorized Stacking Configuration that has been assembled. In all cases, Flow Tubes must be used together to allow for the even distribution of water. Please refer to the factory provided spreadhseets on page 12 for Authorized Flow Tube Configurations. Only factory Authorized Flow Tube Configurations are permitted. All relevant instructions under Assembly, Field Ops, Service, Authorized Stacking Configurations, Authorized Flow Tube Configurations and Authorized Reduced Orifice Insert Configurations apply.

REDUCED ORIFICE INSERT CONFIGURATIONS

Step 1. When appropriate based on site conditions and source characteristics, Riptide™ Reduced Orifice Inserts may be used to capture lower flow rates. Evaluate the condition of the equipment. Look for damage and gasket integrity. Fix or replace any component found to be deficient, prior to use. All relevant instructions under Assembly, Field Ops, Service, Authorized Stacking Configurations, Authorized Flow Tube Configurations and Authorized Reduced Orifice Insert Configurations applies.

Step 2. Factory Authorized Reduced Orifice Insert Configurations include 1.125" and 1.750" iterations in Single, Double, Triple and Quad Action Riptides™, as well as 3.250" in the LDH 4" Riptide™. Please refer to the factory provided spreadhseets on pages 13-17 for Authorized Reduced Orifice Insert Configurations. All relevant instructions under Assembly, Field Ops, Service, Authorized Stacking Configurations, Authorized Flow Tube Configurations and Authorized Reduced Orifice Insert Configurations apply.

Step 3. Insert the desired Reduced Orifice Insert into the desired Flow Tube so that the machined keyway notch on the discharge side shrouds the Pitot. Do not attempt to use the 1.125" or 1.750" Reduced Orifice Inserts in the LDH 4" Riptide™.

Step 4. Connect/thread the female end of a 2.50" diameter fire hose, or 4" for LDH, to the source being tested.

Step 5. Follow all remaining steps under General Use, 3 through 11.

TYPHOON REMOTE MANIFOLD

Step 1. Evaluate the condition of the equipment. Look for broken ball valves, sheared threads, kinked or cut tubing, damaged Quick Connect Fittings, etc. Fix, replace or calibrate any component found to be deficient, prior to use. All relevant instructions under Assembly, Field Ops, Service, Authorized Stacking Configurations, Authorized Flow Tube Configurations and Authorized Reduced Orifice Insert Configurations apply.

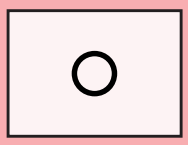
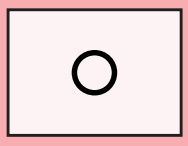
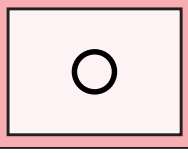
Step 2. Beginning at a location adjacent to the Diffusers, unravel the Jacketed Tube Assembly towards the desired destination where readings will be observed. Ensure that there are no twists, kinks or loops.

Step 3. After unraveling, return to the Diffuser(s) and securely attach the female Quick Connects on the ends of each tube to the male Quick Connect Plugs on each Street 90*, affixed to each Flow Tube that will be used during testing. Up to eight Flow Tubes in a single stack (two Quad Action Riptides™) can be monitored with the Typhoon Remote Manifold™. Do not use one Typhoon™ to monitor different Diffuser stacks.

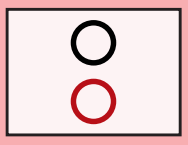
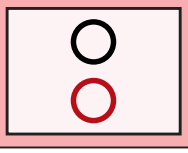
Step 4. Return to the desired destination where readings will be observed and securely attach the female Quick Connects on the ends of each tube to the male Quick Connect Plugs on each ball valve across the top of the Manifold. Then securely attach the liquid filled, calibrated, 1% accuracy Riptide™ gauge to the side of the Manifold with the Quick Connect Plug.

AUTHORIZED REDUCED ORIFICE INSERT CONFIGURATIONS

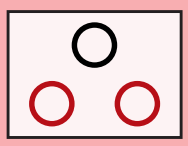
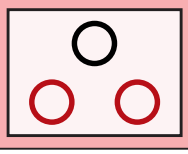
SINGLE ACTION ORIFICE CHART

TIER 3 	SINGLE ACTION	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 2 	SINGLE ACTION	2.50”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”
TIER 1 	SINGLE ACTION	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	2.5”	1.75”	1.125”

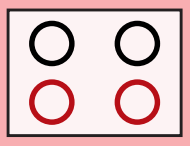
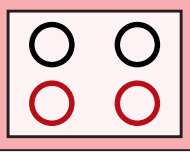
DOUBLE ACTION ORIFICE CHART

TIER 2 	DOUBLE ACTION	2.50” 2.50”	1.75” 2.50”	1.75” 1.75”	1.75” 1.75”	1.75” 1.75”	1.125” 2.50”	1.125” 1.75”	1.125” 1.75”	1.125” 1.75”	1.125” 1.125”	1.125” 1.125”	1.125” 1.125”	1.125” 1.125”	1.125” 1.125”	1.125” 1.125”
TIER 1 	DOUBLE ACTION	2.50” 2.50”	2.50” 2.50”	2.50” 2.50”	1.75” 2.50”	1.75” 1.75”	2.50” 2.50”	2.50” 2.50”	1.75” 2.50”	1.75” 1.75”	2.50” 2.50”	1.75” 2.50”	1.75” 1.75”	1.125” 2.50”	1.125” 1.75”	1.125” 1.125”

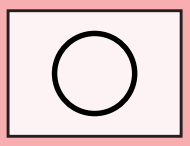
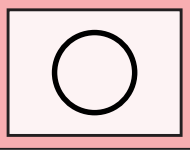
TRIPLE ACTION ORIFICE CHART

TIER 2 	TRIPLE ACTION	2.50” 2.50” 2.50”	1.75” 2.50” 2.50”	1.75” 1.75” 1.75”	1.75” 1.75” 1.75”	1.75” 1.75” 1.75”	1.125” 2.50” 2.50”	1.125” 1.75” 1.75”	1.125” 1.75” 1.75”	1.125” 1.75” 1.75”	1.125” 1.125” 1.125”	1.125” 1.125” 1.125”	1.125” 1.125” 1.125”	1.125” 1.125” 1.125”	1.125” 1.125” 1.125”	1.125” 1.125” 1.125”
TIER 1 	TRIPLE ACTION	2.50” 2.50” 2.50”	2.50” 2.50” 2.50”	2.50” 2.50” 2.50”	1.75” 2.50” 2.50”	1.75” 1.75” 1.75”	2.50” 2.50” 2.50”	2.50” 2.50” 2.50”	1.75” 2.50” 2.50”	1.75” 1.75” 1.75”	2.50” 2.50” 2.50”	1.75” 2.50” 2.50”	1.75” 1.75” 1.75”	1.125” 2.50” 2.50”	1.125” 1.75” 1.75”	1.125” 1.125” 1.125”

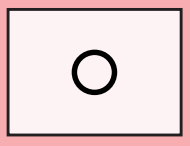
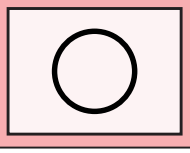
QUAD ORIFICE CHART

TIER 2 	LDH 4" ACTION	2.50"	1.75"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"
		2.50"	1.75"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"
		2.50"	2.50"	1.75"	1.75"	1.75"	2.50"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"
		2.50"	2.50"	1.75"	1.75"	1.75"	2.50"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"
TIER 1 	QUAD ACTION	2.50"	2.50"	2.50"	1.75"	1.75"	2.50"	2.50"	1.75"	1.75"	2.50"	1.75"	1.75"	1.125"	1.125"
		2.50"	2.50"	2.50"	1.75"	1.75"	2.50"	2.50"	1.75"	1.75"	2.50"	1.75"	1.75"	1.125"	1.125"
		2.50"	2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	1.75"	1.125"
		2.50"	2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	1.75"	1.125"

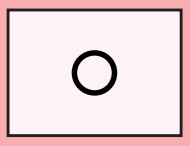
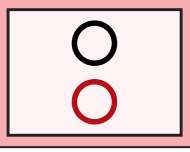
LDH 4" ORIFICE CHART

TIER 2 	LDH 4" ACTION	4"	3.25"	3.25"
TIER 1 	LDH 4" ACTION	4"	4"	3.25"

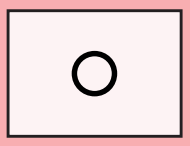
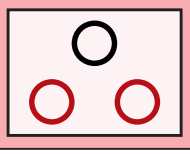
SINGLE/LDH 4" ORIFICE CHART

TIER 2 	DOUBLE ACTION	2.50"	1.75"	1.125"	2.50"	1.75"	1.125"
TIER 1 	QUAD ACTION	4"	4"	4"	3.25"	3.25"	3.25"

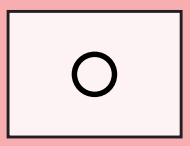
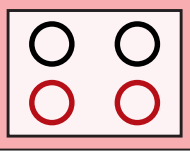
SINGLE/DOUBLE ORIFICE CHART

TIER 2 	SINGLE ACTION	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 1 	DOUBLE ACTION	2.50” 2.50”	2.50” 2.50”	1.75” 2.50”	1.75” 1.75”	2.50” 2.50”	1.75” 2.50”	1.75” 1.75”	1.125” 2.50”	1.125” 1.75”	1.125” 1.125”

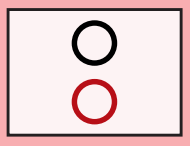
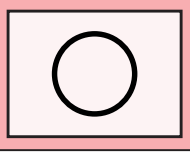
SINGLE/TRIPLE ORIFICE CHART

TIER 2 	SINGLE ACTION	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 1 	TRIPLE ACTION	2.50” 2.50” 2.50”	2.50” 2.50” 2.50”	1.75” 2.50” 2.50”	1.75” 1.75” 1.75”	2.50” 2.50” 2.50”	1.75” 2.50” 2.50”	1.75” 1.75” 1.75”	1.125” 2.50” 2.50”	1.125” 1.75” 1.75”	1.125” 1.125” 1.125”

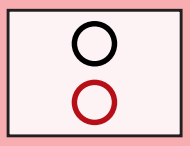
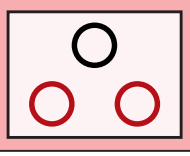
SINGLE/QUAD ORIFICE CHART

TIER 2 	SINGLE ACTION	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 1 	QUAD ACTION	2.50” 2.50” 2.50” 2.50”	2.50” 2.50” 2.50” 2.50”	1.75” 1.75” 2.50” 2.50”	1.75” 1.75” 1.75” 1.75”	2.50” 2.50” 2.50” 2.50”	1.75” 1.75” 2.50” 2.50”	1.75” 1.75” 1.75” 1.75”	1.125” 1.125” 2.50” 2.50”	1.125” 1.125” 1.75” 1.75”	1.125” 1.125” 1.125” 1.125”

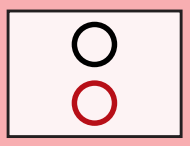
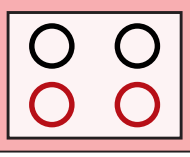
DOUBLE/LDH 4”ORIFICE CHART

TIER 2 	DOUBLE ACTION	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	2.50”	1.75”	1.125”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”
TIER 1 	LDH 4” ACTION	4”	4”	4”	4”	4”	4”	3.25”	3.25”	3.25”	3.25”	3.25”	3.25”

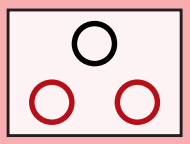
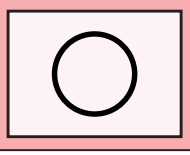
DOUBLE/TRIPLE ORIFICE CHART

TIER 2 	DOUBLE ACTION	2.50”	1.75”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	1.75”	1.75”	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 1 	TRIPLE ACTION	2.50”	2.50”	2.50”	1.75”	1.75”	2.50”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”
		2.50”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”
		2.50”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”

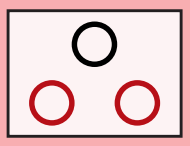
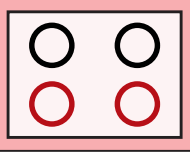
DOUBLE/QUAD ORIFICE CHART

TIER 2 	DOUBLE ACTION	2.50”	1.75”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	1.75”	1.75”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 1 	QUAD ACTION	2.50”	2.50”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	1.125”	1.125”
		2.50”	2.50”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	1.125”	1.125”
		2.50”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	1.75”	1.125”
		2.50”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	1.75”	1.125”

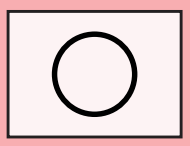
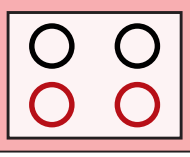
TRIPLE/LDH 4” ORIFICE CHART

TIER 2 	TRIPLE ACTION	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	2.50”	1.75”	1.125”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”
		2.50”	2.50”	1.75”	2.50”	1.75”	1.125”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”
TIER 1 	LDH 4” ACTION	4”	4”	4”	4”	4”	4”	3.25”	3.25”	3.25”	3.25”	3.25”	3.25”

TRIPLE/QUAD ORIFICE CHART

TIER 2 	DOUBLE ACTION	2.50”	1.75”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	1.75”	1.75”	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	1.75”	1.75”	2.50”	1.75”	1.75”	1.75”	1.125”	1.125”	1.125”	1.125”	1.125”
TIER 1 	QUAD ACTION	2.50”	2.50”	2.50”	1.75”	1.75”	2.50”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	1.125”	1.125”
		2.50”	2.50”	2.50”	1.75”	1.75”	2.50”	2.50”	1.75”	1.75”	2.50”	1.75”	1.75”	1.125”	1.125”
		2.50”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	1.75”	1.125”
		2.50”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	2.50”	1.75”	2.50”	2.50”	1.75”	1.75”	1.125”

LDH 4”/QUAD ORIFICE CHART

TIER 2 	LDH 4” ACTION	4”	4”	4”	4”	4”	4”	3.25”	3.25”	3.25”	3.25”	3.25”	3.25”
TIER 1 	QUAD ACTION	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”
		2.50”	1.75”	1.75”	1.125”	1.125”	1.125”	2.50”	1.75”	1.75”	1.125”	1.125”	1.125”
		2.50”	2.50”	1.75”	2.50”	1.75”	1.125”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”
		2.50”	2.50”	1.75”	2.50”	1.75”	1.125”	2.50”	2.50”	1.75”	2.50”	1.75”	1.125”

THE RIPTIDE FLOW TESTING SYSTEM™

PSI	1.125"	1.75"	2.5"	PSI	1.125"	1.75"	2.5"	PSI	1.125"	1.75"	2.5"
1	-	-	-	51	178.8	456.2	882.0	101	251.6	642.0	1241.1
2	-	-	-	52	180.5	460.7	890.6	102	252.8	645.2	1247.3
3	-	-	-	53	182.2	465.1	899.1	103	254.1	648.3	1253.4
4	-	-	-	54	184.0	469.4	907.5	104	255.3	651.5	1259.4
5	-	-	-	55	185.7	473.8	915.9	105	256.5	654.6	1265.5
6	-	-	-	56	187.3	478.1	924.2	106	257.7	657.7	1271.5
7	-	-	-	57	189.0	482.3	932.4	107	259.0	660.8	1277.5
8	-	-	-	58	190.7	486.5	940.5	108	260.2	663.9	1283.4
9	-	-	-	59	192.3	490.7	948.6	109	261.4	667.0	1289.4
10	79.2	-	-	60	193.9	494.8	956.6	110	262.6	670.0	1295.3
11	83.0	-	-	61	195.5	498.9	964.6	111	263.7	673.0	1301.1
12	86.7	-	-	62	197.1	503.0	972.4	112	264.9	676.1	1307.0
13	90.3	-	-	63	198.7	507.1	980.2	113	266.1	679.1	1312.8
14	93.7	-	-	64	200.3	511.1	988.0	114	267.3	682.1	1318.6
15	97.0	-	-	65	201.8	515.0	995.7	115	268.5	685.1	1324.4
16	100.1	255.5	494.0	66	203.4	519.0	1003.3	116	269.6	688.0	-
17	103.2	263.4	509.2	67	204.9	522.9	1010.9	117	270.8	691.0	-
18	106.2	271.0	524.0	68	206.4	526.8	1018.4	118	271.9	693.9	-
19	109.1	278.5	538.3	69	207.9	530.6	1025.9	119	273.1	696.9	-
20	112.0	285.7	552.3	70	209.4	534.5	1033.3	120	274.2	699.8	-
21	114.7	292.7	565.9	71	210.9	538.3	1040.6	121	275.4	702.7	-
22	117.4	299.6	579.3	72	212.4	542.1	1047.9	122	276.5	705.6	-
23	120.1	306.4	592.3	73	213.9	545.8	1055.2	123	277.6	708.5	-
24	122.6	313.0	605.0	74	215.4	549.5	1062.4	124	278.8	711.4	-
25	125.2	319.4	617.5	75	216.8	553.2	1069.5	125	279.9	714.2	-
26	127.6	325.7	629.7	76	218.2	556.9	1076.6	126	281.0	717.1	-
27	130.1	331.9	641.7	77	219.7	560.6	1083.7	127	282.1	719.9	-
28	132.5	338.0	653.5	78	221.1	564.2	1090.7	128	283.2	722.7	-
29	134.8	344.0	665.1	79	222.5	567.8	1097.7	129	284.3	725.6	-
30	137.1	349.9	676.4	80	223.9	571.4	1104.6	130	285.4	728.4	-
31	139.4	355.7	687.6	81	225.3	574.9	1111.5	131	286.5	731.2	-
32	141.6	361.4	698.6	82	226.7	578.5	1118.3	132	287.6	734.0	-
33	143.8	367.0	709.4	83	228.1	582.0	1125.1	133	288.7	736.7	-
34	146.0	372.5	720.1	84	229.4	585.5	1131.9	134	289.8	739.5	-
35	148.1	377.9	730.6	85	230.8	589.0	1138.6	135	290.9	742.2	-
36	150.2	383.3	741.0	86	232.2	592.4	1145.3	136	291.9	745.0	-
37	152.3	388.6	751.2	87	233.5	595.9	1151.9	137	293.0	-	-
38	154.3	393.8	761.3	88	234.8	599.3	1158.5	138	294.1	-	-
39	156.3	398.9	771.2	89	236.2	602.7	1165.1	139	295.1	-	-
40	158.3	404.0	781.1	90	237.5	606.0	1171.6	140	296.2	-	-
41	160.3	409.0	790.8	91	238.8	609.4	1178.1	141	297.3	-	-
42	162.2	414.0	800.4	92	240.1	612.7	1184.6	142	298.3	-	-
43	164.2	418.9	809.8	93	241.4	616.1	1191.0	143	299.4	-	-
44	166.1	423.7	819.2	94	242.7	619.4	1197.4	144	300.4	-	-
45	167.9	428.5	828.5	95	244.0	622.6	1203.7	145	301.4	-	-
46	169.8	433.3	837.6	96	245.3	625.9	1210.0	146	-	-	-
47	171.6	438.0	846.7	97	246.6	629.2	1216.3	147	-	-	-
48	173.4	442.6	855.6	98	247.8	632.4	1222.6	148	-	-	-
49	175.2	447.2	864.5	99	249.1	635.6	1228.8	149	-	-	-
50	177.0	451.7	873.3	100	250.3	638.8	1235.0	150	-	-	-

All laboratory instrumentation used in the creation of this chart is ISO 17025 traceable.

Readings were found to be accurate to within +/-2%.

D (in)	AVERAGE C
1.125"	0.6629
1.750"	0.6990
2.493"	0.6659

$$Q = 29.84 \times C \times D^2 \times \sqrt{(P)}$$

1.125"

Refer to the data in this column when operating The Riptide™ with a 1.125" Reduced Orifice Insert.

1.75"

Refer to the data in this column when operating The Riptide™ with a 1.75" Reduced Orifice Insert.

2.50"

Refer to the data in this column when operating The Riptide™ without a Reduced Orifice Insert.

MULTI-STREAM OPERATION

Readings should be taken at each stream with each independent correlating GPM added together to determine the total volume flowing.

THE RIPTIDE FLOW TESTING SYSTEM™

PSI	3.25"	4"	PSI	3.25"	4"
1	-	-	51	1812.3	2481.7
2	-	-	52	1830.0	2505.9
3	-	-	53	1847.5	2529.9
4	-	-	54	1864.8	2553.7
5	-	-	55	1882.0	2577.2
6	-	-	56	1899.0	2600.5
7	-	-	57	1915.9	2623.6
8	-	-	58	1932.7	2646.6
9	-	-	59	1949.2	2669.3
10	-	-	60	1965.7	2691.8
11	841.7	1152.6	61	1982.0	2714.1
12	879.1	1203.8	62	1998.2	2736.3
13	915.0	1253.0	63	2014.2	2758.3
14	949.5	1300.3	64	2030.2	2780.1
15	982.8	1345.9	65	2046.0	2801.7
16	1015.1	1390.0	66	2061.6	2823.2
17	1046.3	1432.8	67	2077.2	2844.5
18	1076.7	1474.4	68	2092.6	2865.6
19	1106.2	1514.8	69	2108.0	2886.6
20	1134.9	1554.1	70	-	2907.5
21	1162.9	1592.5	71	-	2928.2
22	1190.3	1630.0	72	-	-
23	1217.0	1666.6	73	-	-
24	1243.2	1702.4	74	-	-
25	1268.8	1737.6	75	-	-
26	1294.0	1772.0	76	-	-
27	1318.6	1805.7	77	-	-
28	1342.8	1838.9	78	-	-
29	1366.6	1871.4	79	-	-
30	1390.0	1903.4	80	-	-
31	1412.9	1934.9	81	-	-
32	1435.5	1965.8	82	-	-
33	1457.8	1996.3	83	-	-
34	1479.7	2026.3	84	-	-
35	1501.3	2055.9	85	-	-
36	1522.6	2085.1	86	-	-
37	1543.6	2113.8	87	-	-
38	1564.3	2142.2	88	-	-
39	1584.8	2170.2	89	-	-
40	1605.0	2197.9	90	-	-
41	1624.9	2225.2	91	-	-
42	1644.6	2252.1	92	-	-
43	1664.1	2278.8	93	-	-
44	1683.3	2305.1	94	-	-
45	1702.3	2331.2	95	-	-
46	1721.1	2356.9	96	-	-
47	1739.8	2382.4	97	-	-
48	1758.2	2407.6	98	-	-
49	1776.4	2432.6	99	-	-
50	1794.4	2457.3	100	-	-

All laboratory instrumentation used in the creation of this chart is ISO 17025 traceable.

Readings were found to be accurate to within +/-2%.

D (in)	AVERAGE C
3.250"	0.8051
4.000"	0.7279

$$Q = 29.84 \times C \times D^2 \times \sqrt{(P)}$$

3.25"

Refer to the data in this column when operating The Riptide™ with a 3.25" Reduced Orifice Insert.

4"

Refer to the data in this column when operating The Riptide™ without a Reduced Orifice Insert.

MULTI-STREAM OPERATION

Readings should be taken at each stream with each independent correlating GPM added together to determine the total volume flowing.