

RIPTIDE



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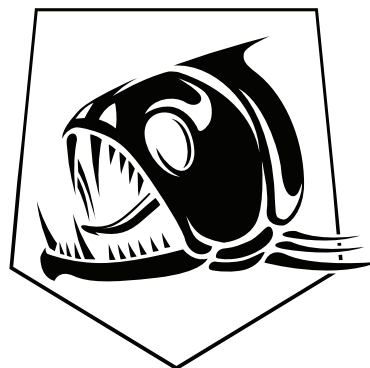
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INTRODUCTION

FIRE PUMP FLOW TESTING EQUIPMENT UNIT EX29051 THE RIPTIDE FLOW TESTING SYSTEM

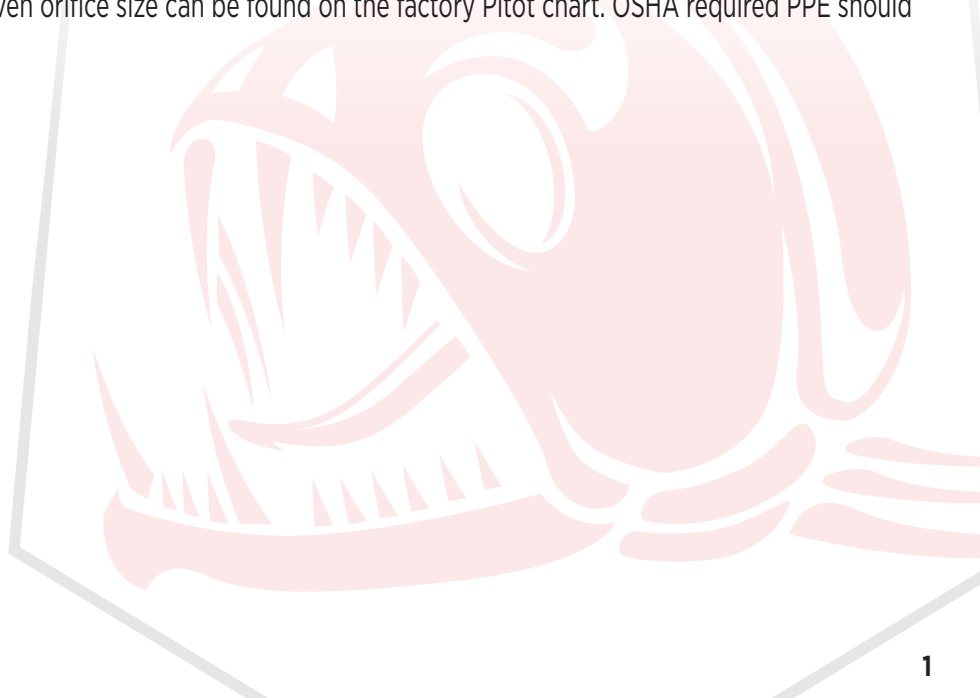


HYDRA-TAP



AS TO FLOW MEASUREMENT ACCURACY SPECIFIED BY THE MANUFACTURER WHEN
INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS

Performance of The Riptide™ Flow Testing System™ requires proper assembly, use, service, adhering to approved Stacking Configurations and Flow Tube Configurations, proper Reduced Orifice Insert Configurations, utilizing the appropriate fire hose diameter, as well as storage when not in use. UL Classification Mark applies to the Hose Coupling, Flow Tube, Reduced Orifice Inserts, Pitot Tubes, and Diffuser Box assembly. Accuracy claims may be impacted by any fittings, connections, and gauges downstream of the Pitot threads. Branded and calibrated Riptide™ gauges are optimal for accuracy and ergonomic comfort due to their 3 o'clock and 9 o'clock connection orientations. Correlating volumes for a given orifice size can be found on the factory Pitot chart. OSHA required PPE should be worn at all times.



ISOMETRIC IMAGES

SINGLE ACTION RIPTIDE™



DOUBLE ACTION RIPTIDE™



TRIPLE ACTION RIPTIDE™



QUAD ACTION RIPTIDE™



LDH 4" RIPTIDE™



TYPHOON REMOTE MANIFOLD



1.125" REDUCED ORIFICE INSERT



1.750" REDUCED ORIFICE INSERT



3.250" REDUCED ORIFICE INSERT



2.50" PITOT ALIGNMENT TOOL



RIPTIDE SPANNER WRENCH



+/-1% ACCURACY 9 O'CLOCK GAUGE



+/-1% ACCURACY 3 O'CLOCK GAUGE



2.50" TFT COUPLING



4" TFT COUPLING



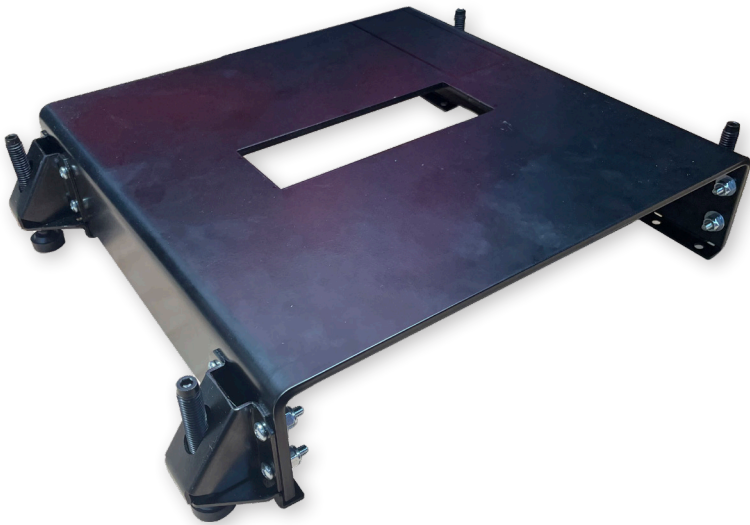
2.50" PITOT



4" PITOT



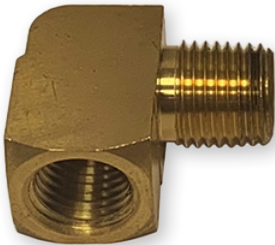
RIPTIDE LEVELING TABLE



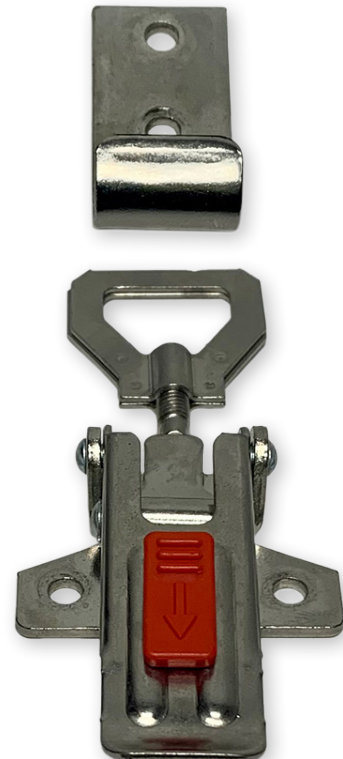
RIPTIDE RUBBER FOOT KIT



STREET 90°



CAM-LOCK



QUICK CONNECT ASSEMBLY



ASSEMBLY

GENERAL ASSEMBLY

Each Riptide™ Diffuser comes with the following loose items:

- | | |
|-------------------------|------------------------------------------|
| ☐ 26 Machine Screws | ☐ 4 Cam-Locks |
| ☐ 26 Nylon Locking Nuts | ☐ 4 Hooks |
| ☐ 26 Washers | ☐ 1 Quick Connect Assembly per Flow Tube |
| ☐ 10 Rubber Feet | ☐ 1 Street 90° per Flow Tube |

Step 1. Insert one Machine Screw through the bottom of each of the Rubber Feet. The bottom has an indentation with a visible integral metal washer.

Step 2. Insert the Rubber Foot/Machine Screw combination through any of the holes on the bottom of The Riptide™.

Step 3. Within the Diffusing Box where the Machine Screw now protrudes, apply a Washer and Nylon Locking Nut, then tighten with a Phillips screwdriver and an 11/32" box wrench by turning clockwise until snug. Repeat for all of the holes on the bottom of The Riptide™. Do not over tighten.

Step 4. Insert one Machine Screw through each of the two holes on the Hooks and insert them into the holes towards the bottom of The Riptide™. The back of the Hooks should sit flush against the body of the Diffusing Box with the Cam-Lock Eyelet Seat of the Hooks closest to the bottom of The Riptide™, and oriented out.

Step 5. Within the Diffusing Box where the Machine Screws now protrude, apply a Washer and Nylon Locking Nut to each, then tighten with a Phillips screwdriver and an 11/32" box wrench by turning clockwise. Repeat for all of the holes towards the bottom of The Riptide™. Tighten to 30lb. in. of torque.

Step 6. Insert one Machine Screw through each of the two holes on the Cam-Locks and insert them into the holes towards the top of The Riptide™. The back of each should sit flush against the body of the Diffusing Box with the buckle portion oriented out and the arrow on the Locking Spring Loaded Red Safety Tabs pointing down.

Step 7. Within the Diffusing Box where the Machine Screws now protrude, apply a Washer and Nylon Locking Nut to each, then tighten with a Phillips screwdriver and an 11/32" box wrench by turning clockwise. Repeat for all of the holes towards the top of The Riptide™. Tighten to 30lb. in. of torque.

Step 8. Apply Teflon tape to the male NPT end of the Quick Connect Plug and thread into the female end of the Street 90°, turning clockwise until hand tight.

Step 9. Using an 11/16" box wrench as a holdback on the Street 90°, tighten the Quick Connect Plug with an additional 9/16" box wrench by turning clockwise, until liquid tight or 90lb. in. of torque.

Step 10. Apply teflon tape to the male NPT end of the Street 90° and thread into the female NPT outlet on the Pitot, turning clockwise until hand tight.

Step 11. Using an 11/16" box wrench as a holdback on the Pitot hex, tighten the Street 90° by turning clockwise with an additional 11/16" box wrench until liquid tight or 90lb. in. of torque. The female end of the Street 90° should be indexed perpendicular to the Flow Tube it has been installed upon. On Triple and Quad Action Riptides™, the 90°'s should directionally oppose one another. Ensure that the orientation of the Pitot is still correct after installation of the Street 90°.

Step 12. Apply teflon tape to the male NPT end on The Riptide™ branded gauge and thread into the female NPT end of the Quick Connect Plug by turning clockwise until hand tight.

Step 13. Using a 3/4" box wrench as a holdback on the Quick Connect Plug, tighten The Riptide™ branded gauge with an additional 5/8" box wrench by turning clockwise until liquid tight or 90lb. in. of torque.

Step 14. Securely connect the female end of the Quick Connect Plug to the male end of the Quick Connect Plug in the Street 90° referenced above.

Step 15. Repeat Steps 8-14 if there are multiple Flow Tubes.

FIELD OPS

GENERAL USE

Step 1. Evaluate the condition of the equipment. Observe the Rubber Feet, Coupling gasket(s), Pitot Orientation(s), Cam-Locks, Hooks, Nylon Locking Nuts, Machine Screws, etc. Fix, replace or calibrate any component found to be deficient, prior to use. If stacking is uncommon, it is acceptable to remove and store the Cam-Locks and Hooks in a safe place. Nylon Locking Nuts/Machine Screws/Washers should be left in place on The Riptide™ Core as retainers. All relevant instructions under Assembly, Field Ops, Service, Authorized Stacking Configurations, Authorized Flow Tube Configurations and Authorized Reduced Orifice Insert Configurations applies.

Step 2. Connect/thread the female end of a 2.50" diameter fire hose to the source being tested, or 4" for LDH. Repeat this step if a plurality of Flow Tubes will be used.

Step 3. Place The Riptide™ Diffuser on a flat surface and connect/thread the same 2.50" fire hose, or 4" for LDH, referenced above into the Coupling on The Riptide™. Do not over tighten or excessively compress internal gaskets. Repeat this step if a plurality of Flow Tubes will be used.

Step 4. Using the provided Street 90°/Quick Connect configuration, attach the gauge to the Pitot built into the Flow Tube. Repeat this step if a plurality of Flow Tubes will be used.

Step 5. Straighten the fire hose referenced above, removing twists and kinks.

Step 6. Make observations regarding potential situational hazards that may impede the ability to flow water. It is strongly recommended that high visibility traffic cones, barriers, caution tape, etc. are used to aid in securing the work area.

Step 7. Slowly open the source being tested so as to introduce water into the 2.50"/4" fire hose referenced above until it reaches The Riptide™ Diffuser. Having observed discharge, continue to open the source to a satisfactory point. The recommended discharge per 2.50" Flow Tube is 500 GPM. For each additional 500 GPM, another Flow Tube should be used.

Step 8. Approach The Riptide™ Diffuser adjacent to the path of the fire hose and observe the gauge(s). Take note of the reading(s) and reference The Riptide™ factory Pitot chart to determine the volume flowing. If flushing only, this step is not required.

Step 9. After flow rates have been achieved, very slowly begin to close the source being tested. It is vital that the source is closed in a predictable, controlled manner without haste or aggressive turns to avoid potential source damage.

Step 10. Post flow, disconnect the fire hose from The Riptide™. Dry it off and if desired, wipe down the interior of the Flow Tube(s) with a rag and Blaster Surface Shield Rust Protectant. Store in a safe, secure place for future use.

Step 11. Return the work area to the state it was found in upon arrival. Do not leave tools or equipment behind.

STACKING CONFIGURATIONS

Step 1. Factory Authorized Stacking Configurations include up to (3) Single Action Riptides™ or (2) of any other combination of Riptide™ Diffusers. Please refer to the factory provided spreadsheets on page 11 for Authorized Stacking Configurations. Only factory Authorized Stacking 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.

Step 2. When stacking, place the bottom most (First Tier) Riptide™ on a flat surface. Then place the subsequent Riptide™ (Second Tier) on top of the First Tier. Swing all Cam-Lock Eyelets on the First Tier up and onto the Cam-Lock Eyelet Seats on the Second Tier. They are threaded for field adjustment so as to not over/under tighten when the Cam-Locks have been fully engaged. Close the Cam-Lock buckles until the Locking Spring Loaded Red Safety Tabs are past the Safety Hasps.

Step 3. When properly attached with all Cam-Locks fully engaged between the First and Second Tier, Eyelets on Cam-Lock Eyelet Seats and Locking Spring Loaded Red Safety Tabs past the Safety Hasps, the Rubber Feet in between each Tier should be slightly compressed with no independent movement between the First and Second Tier. Do not over tighten Cam-Locks or damage will occur. Repeat steps 2 and 3 within the bounds of factory Authorized Stacking Configurations for a Third Tier if desired. Please refer to the factory provided spreadsheets on page 11 for Authorized Stacking Configurations.

Step 4. After all Cam-Locks are fully engaged, using the provided Street 90°/Quick Connect configuration, securely attach the gauges to the Pitots built into each Riptide™.

Step 5. In addition to removing twists and kinks, due to the number of connections, extra care must be taken to not cross or tangle the firehose when connecting/threading each Coupling. Utilization of the Typhoon Remote Manifold™, which is inclusive of color-coordinated tubing, can aid in tracking steam performance by providing the ability to operate ball valves and independently assess Flow Tube activity.

Step 6. While flowing, observe each gauge on each independent Flow Tube in use and take note of the readings. Reference the factory Pitot chart to convert the observed and noted readings from PSI to GPM for each independent Flow Tube. After a value in GPM has been determined for each independent Flow Tube, they should be added together to determine the total volume flowing. The recommended discharge per 2.50" Flow Tube is 500 GPM. For each additional 500 GPM, another Flow Tube should be used.

Step 7. Post flow, disengage all Cam-Locks by sliding the Locking Spring Loaded Red Safety Tabs down so that they clear the Safety Hasps, then lift the buckles and unhook the Eyelets in between each Tier from each Eyelet Seat.

Step 8. Refer to steps 9–11 under General Use for further instruction on demobilization.

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.

Step 5. Close all ball valves on the Manifold to protect the gauge from initially acute pressures.

Step 6. Follow Steps 1-3, and 5-7 under General Use.

Step 7. After water has been introduced and the source has been opened to a satisfactory point, slowly open the bleeder ball valve located on the side of the Manifold opposite from the gauge to purge trapped air until a steady stream of water presents. Then slowly close this ball valve.

Step 8. Independently capture Pitot readings from each Flow Tube by opening one ball valve at a time on the Typhoon Remote Manifold™. Observe and document the reading on the gauge while a given ball valve is fully open. Then close said ball valve and open another until all ball valves in service have been independently opened and closed with readings documented. Please note that any dissimilarity in elevation between the Manifold and the Flow Tube actively being monitored will affect readings due to head loss/gain at 0.433 PSI per foot. It is recommended that the Manifold be held at the same level as the Flow Tube being monitored to provide accurate readings.

Step 9. After flow rates have been achieved, very slowly begin to close the source being tested. It is vital that the source is closed in a predictable, controlled manner without haste or aggressive turns to avoid potential source damage.

Step 10. Detach and coil the Jacketed Tube Assembly. Dry off and store all components in a safe, secure place for future use.

Step 11. Return the work area to the state it was found in upon arrival. Do not leave tools or equipment behind.

SERVICE

REPLACING THE PITOT

Step 1. Using an 11/16" box wrench, remove the old Pitot from the Flow Tube on The Riptide™ Diffuser by turning it counter-clockwise. Discard the old Pitot after use.

Step 2. Apply teflon tape to the exterior threads of the new Pitot prior to installation.

Step 3. Thread the new Pitot into the 3/8" threaded hole on the Flow Tube by turning clockwise until hand tight.

Step 4. Insert the Pitot Alignment Tool into the end of the Flow Tube referenced above, on the Coupling side. Use the 2.500" tool for all 2.500" Flow Tubes and the 4" tool for the LDH 4". Take note of the Target Hole at the bottom of the Pitot Alignment Tool.

Step 5. Using an 11/16" box wrench, turn the new Pitot clockwise until the entry port of the Pitot is centered within the Target Hole as viewable at the bottom of the Pitot Alignment Tool.

Step 6. Remove the Pitot Alignment Tool from the Flow Tube.

Step 7. Set The Riptide™ on the Leveling Table so the the Flow Tube is pointing straight up, and the handle on the back of the Diffusing Box is sitting within the center cutout of the Leveling Table. Facing The Riptide™ place a magnetic digital angle finder at the 3 o'clock or 9 o'clock orientation on the Flow Tube and observe the angle on the display. Continue to adjust teh legs on the Leveling Table until the angle finder shows 90°.

Step 8. With The Riptide™ in the vertical position as described in Step 7 and the Flow Tube at 90°, place the 11/16” Riptide™ Spanner Wrench cutout on the Pitot hex, then set a magnetic digital angle finder on top of the Spanner. Make micro-adjustments by tuning the orientation of the Pitot with the Spanner until the angle finder reads 0°, +/- 1°. When complete, the Flow Tube should be at 90°, the Pitot should be at 0°, +/- 1° and the dimple on the Pitot hex should be pointing towards the Coupling.

REPLACING THE COUPLING

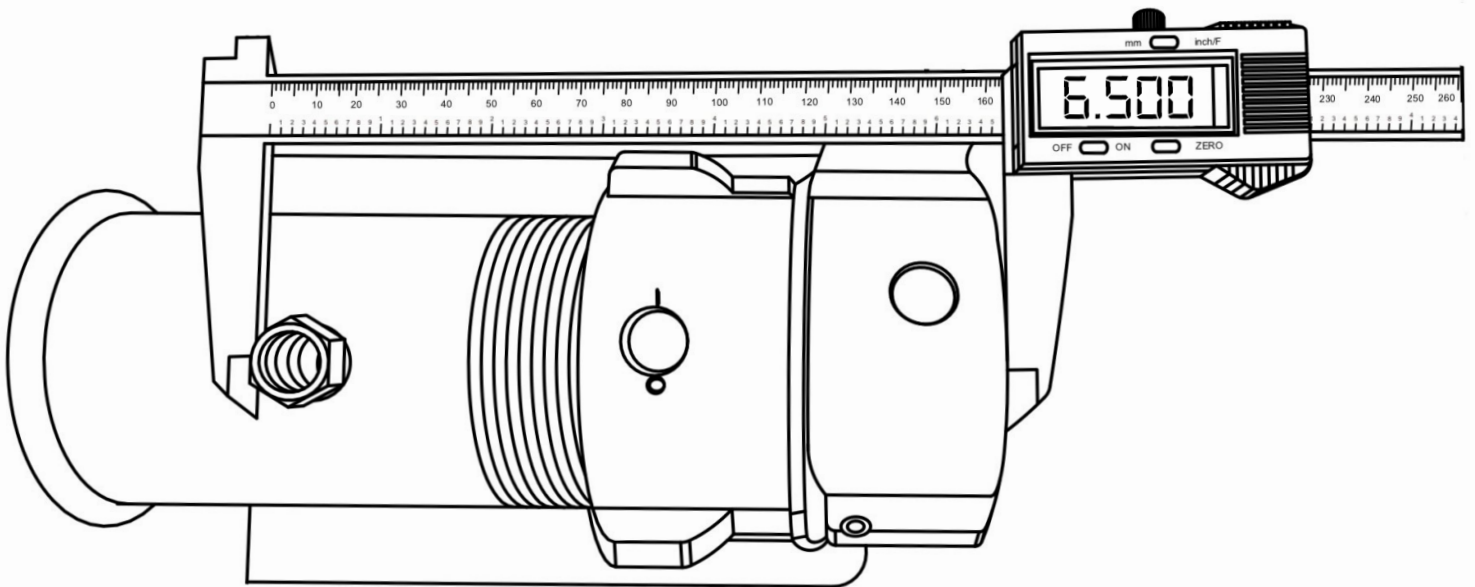
Step 1. Set The Riptide™ on a smooth, flat, level surface. With the Pitot orientation properly tuned to 0°, +/- 1°, use digital calipers to measure from the back of the Pitot hex, which is the side closest to the Diffusing Box, to the front of the Coupling. This measurement is called a “C-Dimension” and is required to be 6.500”, +/- 0.100”, for all 2.50” Flow Tubes and the LDH 4”.

Step 2. Using a strap wrench with a nylon or fabric strap, remove the old Coupling on The Riptide™ Diffuser by turning it counter-clockwise on the NPT (National Pipe Thread) side. Discard the old Coupling after removal.

Step 3. Apply teflon tape to the exterior threads on the Flow Tube prior to installation of the new Coupling.

Step 4. Thread the 2.50”, or 4” for LDH, NPT side of the new Coupling onto the 2.50”, or 4” for LDH, NPT threads on the Flow Tube referenced above, turning clockwise until hand tight.

Step 5. Using a strap wrench with a nylon or fabric strap, continue to tighten the new Coupling by turning it clockwise. In between turns, capture new C-Dimensions and compare them to the required C-Dimension noted in Step 1 to confirm the proper set of the new Coupling. The new C-Dimension must be 6.500”, +/- 0.100” for all 2.50” Flow Tubes and and the LDH 4”.



OTHER COMPONENTS

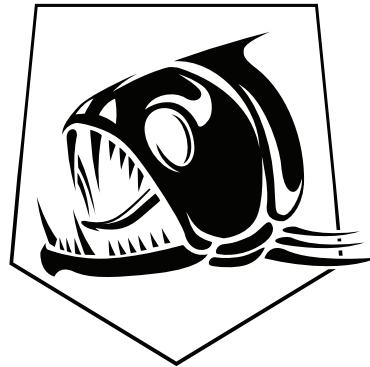
Please refer to the Assembly portion of this guide on page 2 for instructions on how to service other elements of The Riptide™.

DISCLAIMER

FIRE PUMP FLOW TESTING EQUIPMENT UNIT EX29051 THE RIPTIDE FLOW TESTING SYSTEM



HYDRA-TAP



AS TO FLOW MEASUREMENT ACCURACY SPECIFIED BY THE MANUFACTURER WHEN INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS

Use of this product is subject to all terms and conditions found at www.hydra-tap.com. Flowing water is inherently dangerous. The purchaser and all users of The Riptide™ Flow Testing System accept all liability for any damage to property or injury to person, including death, that may occur. Modifications, misuse, abuse, use with damaged components, use with an improper fire hose diameter or improperly maintained fire hose, and repairs without factory provided parts will void all warranties. All information in this user guide is subject to change without notice at any time. It is the responsibility of the purchaser and all users to stay up to date on revisions. By purchasing and/or using this product you agree to all terms and fully release Hydra-Tap LLC, suppliers of raw materials, fabricators, and distributors of all liabilities.

AUTHORIZED STACKING CONFIGURATIONS

TIER 3		○					
TIER 2	○	○	○	○ ○	○	○ ○	○ ○ ○
TIER 1	○	○	○ ○	○ ○	○ ○ ○	○ ○ ○	○ ○ ○

TIER 3									
TIER 2	○	○	○ ○	○ ○ ○	○ ○ ○ ○	○	○	○ ○	○ ○ ○
TIER 1	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○	○	○	○	○



AUTHORIZED FLOW TUBE CONFIGURATIONS

In this section, solid black circles indicate active Flow Tubes (flowing). Open black circles indicate inactive Flow Tubes (not flowing).

TIER 3								
TIER 2								
TIER 1								

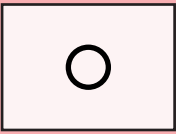
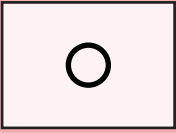

TIER 3								
TIER 2								
TIER 1								

TIER 3								
TIER 2								
TIER 1								

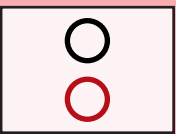
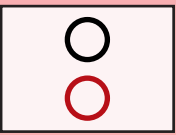
TIER 3									
TIER 2									
TIER 1									

AUTHORIZED REDUCED ORIFICE INSERT CONFIGURATIONS

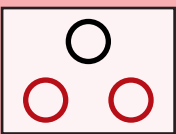
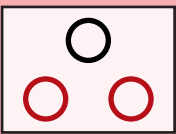
SINGLE ACTION ORIFICE CHART

TIER 3 	SINGLE ACTION	2.50"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"
		2.50"	2.50"	1.75"	1.75"	2.50"	1.75"	1.75"	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"
		2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	2.5"	1.75"	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"
		2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	2.50"	1.75"	2.50"	2.50"

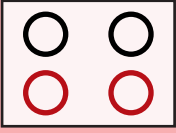
DOUBLE ACTION ORIFICE CHART

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 	DOUBLE 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"

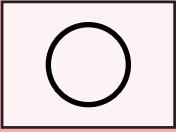
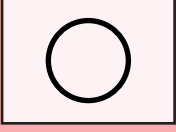
TRIPLE ACTION ORIFICE CHART

TIER 2 	TRIPLE 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 	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"


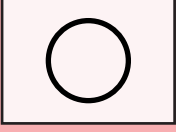
QUAD ORIFICE CHART

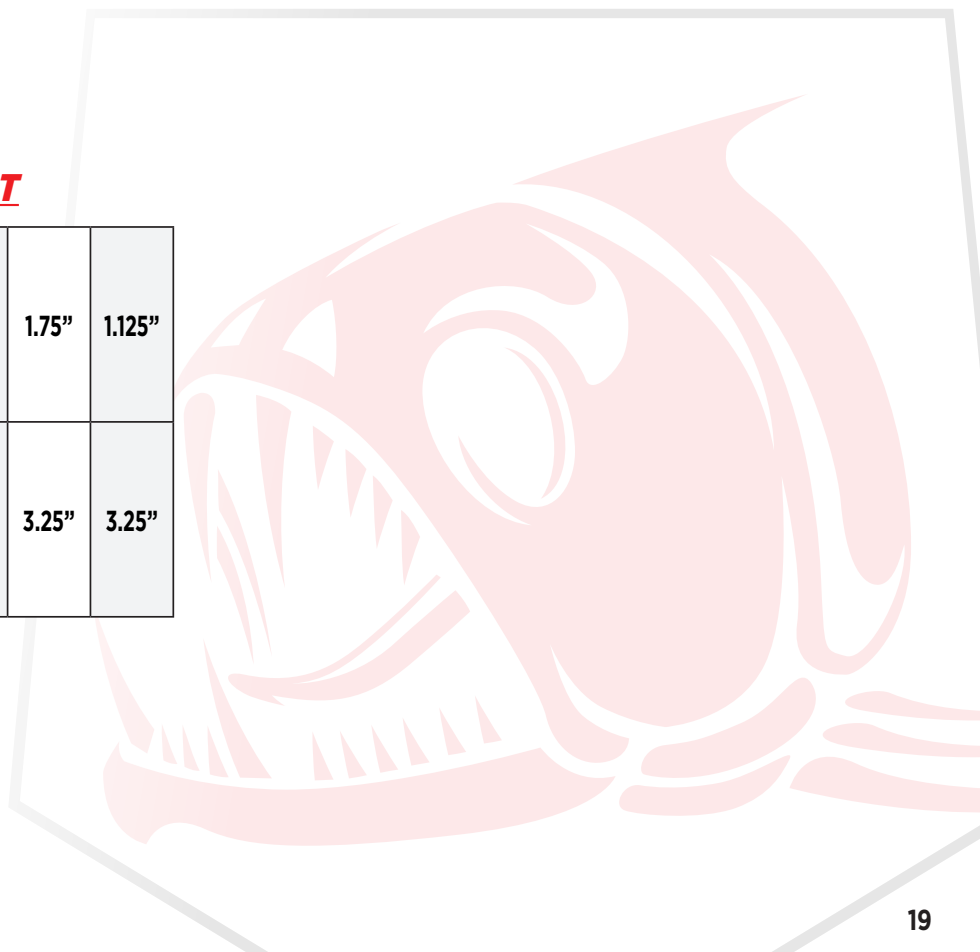
TIER 2 	LDH 4" ACTION	2.50"	1.75"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	
		2.50"	1.75"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	1.125"	
		2.50"	2.50"	1.75"	1.75"	1.75"	2.50"	1.75"	1.75"	1.75"	1.125"	1.125"	1.125"	1.125"	1.125"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

LDH 4" ORIFICE CHART

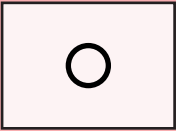
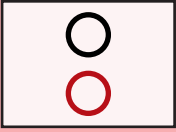
TIER 2 	LDH 4" ACTION	4"	3.25"	3.25"
		4"	4"	3.25"
TIER 1 	LDH 4" ACTION	4"	4"	3.25"

SINGLE/LDH 4" ORIFICE CHART

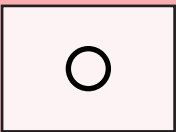
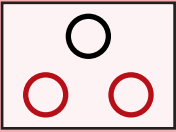
TIER 2 	DOUBLE ACTION	2.50"	1.75"	1.125"	2.50"	1.75"	1.125"
		4"	4"	4"	3.25"	3.25"	3.25"
TIER 1 	QUAD ACTION	4"	4"	4"	3.25"	3.25"	3.25"



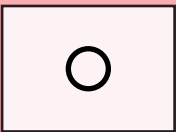
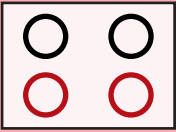
SINGLE/DOUBLE ORIFICE CHART

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"	1.75"	1.75"	2.50"	1.75"	1.75"	1.125"	1.125"	1.125"
		2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	2.50"	1.75"	1.125"

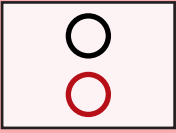
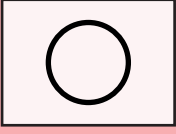
SINGLE/TRIPLE ORIFICE CHART

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"	1.75"	1.75"	2.50"	1.75"	1.75"	1.125"	1.125"	1.125"
		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"	1.75"	2.50"	2.50"	1.75"	2.50"	1.75"	1.125"

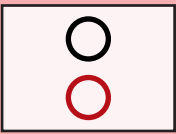
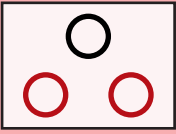
SINGLE/QUAD ORIFICE CHART

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"	1.75"	1.75"	2.50"	1.75"	1.75"	1.125"	1.125"	1.125"
		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"	1.75"	2.50"	2.50"	1.75"	2.50"	1.75"	1.125"
		2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	2.50"	1.75"	1.125"

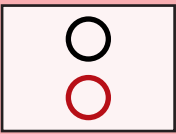
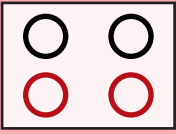
DOUBLE/LDH 4" ORIFICE CHART

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"

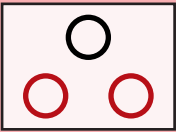
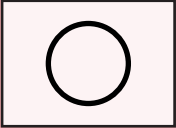
DOUBLE/TRIPLE ORIFICE CHART

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"
		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"
		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"

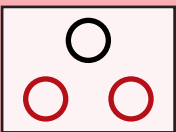
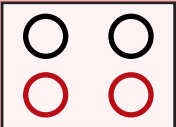
DOUBLE/QUAD ORIFICE CHART

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"
		2.50"	2.50"	1.75"	1.75"	1.75"	1.75"	1.75"	1.75"	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"
		2.50"	2.50"	2.50"	1.75"	1.75"	2.50"	1.75"	1.75"	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"
		2.50"	2.50"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	2.50"	2.50"	1.75"	1.75"

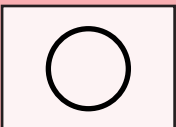
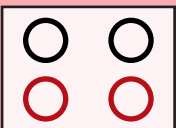
TRIPLE/LDH 4" ORIFICE CHART

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"	
		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"	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"	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"	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"
2.50"	1.75"	1.75"	1.125"	1.125"	1.125"	2.50"	1.75"	1.75"	1.125"	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"	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"	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.



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USE OF THIS PRODUCT IS AT YOUR OWN RISK





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.



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NOTES



RIPTIDE



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