

## **WARNING/ ATTENTION/ AVISO**

# **READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS.**

1. When installing and using this equipment, basic safety precautions shall always be followed including the following: **IMPORTANT SAFETY INSTRUCTIONS**
2. **READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS.**
3. Any modification that increases the flow rate of the circulation system shall require re-evaluation of the cover/grate and sump to ensure that the flow rating of the Suction Outlet Fitting Assembly (SOFA) is not exceeded.
4. Missing, broken, or cracked covers/grates, sumps, mud-frames, or any other SOFA component shall be replaced before bathers are allowed to use the pool.
5. Loose covers/grates shall be reattached before bathers are allowed to use the pool
6. **SAVE THESE INSTRUCTIONS.**

# Suction Outlet Fitting Assemblies Parts List

MODEL NUMBER	ASSEMBLY PART NUMBER	GRATE PART NUMBER	SUMP PART NUMBER	FRAME PART NUMBER
<b>MLD SG-0909</b>	1001- 9895	1000-8344	1002-1110	n/a
<b>MLD SG-1212</b>	1001-9893	1000- 8345	1000-8357	n/a
<b>MLD SG-1818</b>	1001-9894	1000- 8346	1000-8358	n/a
<b>FI- SG-1836</b>	1000-8099	1000- 8343	1002-3254	n/a
<b>FI- SG-1854</b>	1000-8122	1000- 8343	1002-3255	n/a
<b>FI- SG-1872</b>	1000-8137	1000- 8343	1002-3256	n/a
<b>MLD FG-0909</b>	1001- 9898	1000-8344	n/a	1002-1094
<b>MLD FG-1212</b>	1001-9896	1000- 8345	n/a	1000-8337
<b>MLD FG -1818</b>	1001-9897	1000- 8346	n/a	1000-8338
<b>FI-FG-1836</b>	1000-8329	1000- 8343	n/a	1000-8314
<b>FI-FG-1854</b>	1000-8300	1000- 8343	n/a	1000-1443
<b>FI-FG-1872</b>	1000-8311	1000- 8343	n/a	1002-1095

Fastener and inserts part number: 1000-8309

## **READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS.**

### **MAXIMUM RATED FLOW RATES**

#### **BLOCKABLE SUCTION OUTLET ASSEMBLIES**

**MLD-SG-1818 (18" X 18") – FLOOR: 816 GPM; WALL: 696 GPM**

**MLD-SG-1212 (12" X 12") - FLOOR: 365 GPM; WALL: 340 GPM**

**MLD-SG-0909 (9" X 9") - FLOOR: 237 GPM; WALL: 199 GPM**

#### **UNBLOCKABLE SUCTION OUTLET ASSEMBLIES**

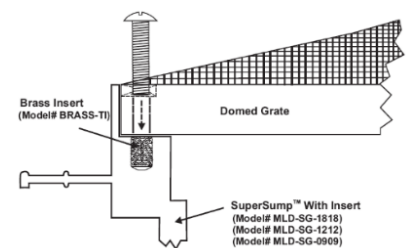
**FI-SG-1836 (18" X 36") – FLOOR: 2,080 GPM; WALL: 1,496 GPM**

**FI-SG-1854 (18" X 54") - FLOOR: 3,120 GPM; WALL: 2,244 GPM**

**FI-SG-1872 (18" X 72") - FLOOR: 4,160 GPM; WALL: 2,992 GPM**

1. IMPORTANT SAFETY INSTRUCTIONS When installing and using this equipment, basic safety precautions shall always be followed.
2. Read all general, safety, and installation literature first and then keep them for future reference. If there are any questions or further information is needed, call **1-866-926-8420** for assistance.
3. Only Suction Outlet Fitting Assemblies (SOFAs) configurations listed in the manual shall be installed in accordance with the following instructions.
4. Any field modifications not authorized by the installation instructions shall void the SOFA certification.
5. No modifications shall be made to the SOFA structure or flow path unless the new configuration has been certified as a new SOFA.
6. The SOFA-configuration specific flow ratings (i.e. floor or wall) shown above are NOT to be exceeded at any time the pool is open to bathers.
7. A SOFA or combination of SOFAs are to be selected so that the individual suction system flow rating is greater than the pumping systems maximum system flow rate.
8. Skimmers, gutters, and other overflow systems may not always be operational and could divert all the pumps flow through the SOFA suction system, therefore the flow capacity of these systems shall not be included when evaluating an individual suction system flow rating.
9. WARNING! This is a BLOCKABLE VGBA Suction Outlet that must ONLY be installed in a multiple VGBA Suction Outlet system. (FI-SG-1836, FI-SG-1854, FI-SG-1872 is an UNBLOCKABLE VGBA Suction Outlet that may be installed as the sole source of water for a single suction outlet).
10. The flow rating for pools with multiple blockable SOFAs piped together in one body of water without isolation valves shall be determined by combining the flow rating of all SOFAs minus the flow rating of one. If the flow rating of each SOFA is not equal, subtract the flow rating of the SOFA with the highest flow rating.
11. The flow rating for pools with a single, or multiple unblockable SOFAs shall be determined by combining the flow rating of all SOFAs piped together in one body of water.
12. SOFAs shall not be located on seats or the backrests for seats.

13. Blockable SOFAs shall be installed in a multiple SOFA system only.
14. Blockable SOFAs shall be used in multiple-outlet systems for new pools and shall be arranged such that the two outermost sumps/frames shall have a minimum separation of three feet, measured center to center. If they are to be installed closer than three feet center to center, they shall be installed on two different planes, i.e., one SOFA shall be located on the pool floor and the other on a vertical wall.
15. Cover/grates marked blockable in existing pools with single SOFA systems shall also be installed in conjunction with an additional device or system to prevent suction entrapment.
16. A single blockable SOFA in a system that does not have an additional device or systems shall result in a flow rate of zero.
17. Cover/grates marked unblockable are permitted for use in multiple SOFA systems and single SOFA systems.
18. The SOFAs listed above are intended to be installed in pools with a concrete surface. FI-SG-1836, FI-SG-1854, FI-SG-1872 have the option to include an adapter for use in a vinyl lined pool.
19. Inspect grate, data tag, fasteners, and other components for burrs. If any burrs are found remove burrs with a file or sandpaper until the surface is smooth.
20. Install the 2" hydrostatic relief valve(s) with Teflon tape or thread compound. If not required, cap off the outlets with a 2" PVC male threaded plug.
21. Install perforated collection tee into 2" socket on underside of sump. Use PVC primer and glue. Avoid glue contact with hydrostatic valve.
22. Connect the side outlet to the suction line. Use PVC primer and glue.
23. Encase the perforated pipe with 1" free draining gravel.
24. When installed the cover/grate shall not protrude more than 2 inches from finished surface of the pool.
25. Ensure the sump is correctly secured, level and square prior to pouring concrete.
26. Ensure SOFA *components* and fastener receptacles are clean and free of debris or obstructions during installation.
27. When the concrete is dry, start installation of the supplied screws by hand to ensure proper thread engagement and to prevent cross threading. Using a hex key, install the grate and tighten the screws supplied to 10 in/lbs torque. **DO NOT USE POWER TOOLS TO INSTALL FASTENERS.**
28. Hand check cover/grate for snugness to the sump/frame after installation.
29. Adhesives and permanent attachment methods are prohibited.
30. Use only stainless-steel fasteners provided.
  - a. MLD-FG-0909 – (4) 1/4" X 20 X 5/8" (Model # BOLT-01-SS)
  - b. MLD-FG-1212 – (4) 1/4" X 20 X 5/8" (Model # BOLT-01-SS)
  - c. MLD-FG-1818 - (4) 1/4" X 20 X 15/16" (Model # BOLT-02-SS)
31. **TESTING: MAXIMUM TEST PRESSURE OF 15 PSI.** When testing the piping to the sump, use water test only, not compressed air. The 1/2" NPT machined into the test plate inside the sump can be used to introduce the hydrostatic test, or to purge the air from the pipe for proper testing. If testing by other means use the 1/2" NPT plug (included) to plug the hole. After testing, remove the plug to relieve pressure and to drain off water. Use a Roto-zip or similar tool to cut away the test plate. Do not cut outside the circular groove. If additional testing is required after the test plate has been removed, use a blow-up test ball braced into the pipe to keep the ball from sliding.
32. SAVE THESE INSTRUCTIONS.



## **READ, FOLLOW, AND UNDERSTAND ALL INSTRUCTIONS AND WARNINGS.**

### **MAXIMUM RATED FLOW RATES**

#### **BLOCKABLE SUCTION OUTLET ASSEMBLIES**

**MLD-FGD-1818 (18" X 18") – FLOOR: 816 GPM; WALL: 712 GPM**

**MLD-FGD-1212 (12" X 12") - FLOOR: 365 GPM; WALL: 340 GPM**

**MLD-FGD-0909 (9" X 9") - FLOOR: 261 GPM; WALL: 248 GPM**

#### **UNBLOCKABLE SUCTION OUTLET ASSEMBLIES**

**FI-SG-1836 (18" X 36") – FLOOR: 2,080 GPM; WALL: 1,496 GPM**

**FI-SG-1854 (18" X 54") - FLOOR: 3,120 GPM; WALL: 2,244 GPM**

**FI-SG-1872 (18" X 72") - FLOOR: 4,160 GPM; WALL: 2,992 GPM**

**NOTE: The flow rates above are assumed values under standard conditions  
which are to be reviewed and approved by an RDP with sufficient licensure in  
the region/or state.**

1. IMPORTANT SAFETY INSTRUCTIONS When installing and using this equipment, basic safety precautions shall always be followed.
2. Read all general, safety, and installation literature first and then keep them for future reference. If there are any questions or further information is needed, call **1-866-926-8420** for assistance.
3. All Suction Outlet Fitting Assemblies (SOFAs) shall be installed in accordance with the following instructions.
4. Any field modifications not authorized by the installation instructions shall void the SOFA certification.
5. No modifications shall be made to the SOFA structure or flow path unless the new configuration has been certified as a new SOFA.
6. The SOFA-configuration specific flow ratings (i.e. floor or wall) shown above are NOT to be exceeded at any time the pool is open to bathers.
7. A SOFA or combination of SOFAs are to be selected so that the individual suction system flow rating is greater than the pumping systems maximum system flow rate.
8. Skimmers, gutters, and other overflow systems may not always be operational and could divert all the pumps flow through the SOFA suction system, therefore the flow capacity of these systems shall not be included when evaluating an individual suction system flow rating.
9. WARNING! This is a BLOCKABLE VGBA Suction Outlet that must ONLY be installed in a multiple VGBA Suction Outlet system. (FI-SG-1836, FI-SG-1854, FI-SG-1872 is an UNBLOCKABLE VGBA Suction Outlet that may be installed as the sole source of water for a single suction outlet).
10. The flow rating for pools with multiple blockable SOFAs piped together in one body of water without isolation valves shall be determined by combining the flow rating of all SOFAs minus the flow rating of

one. If the flow rating of each SOFA is not equal, subtract the flow rating of the SOFA with the highest flow rating.

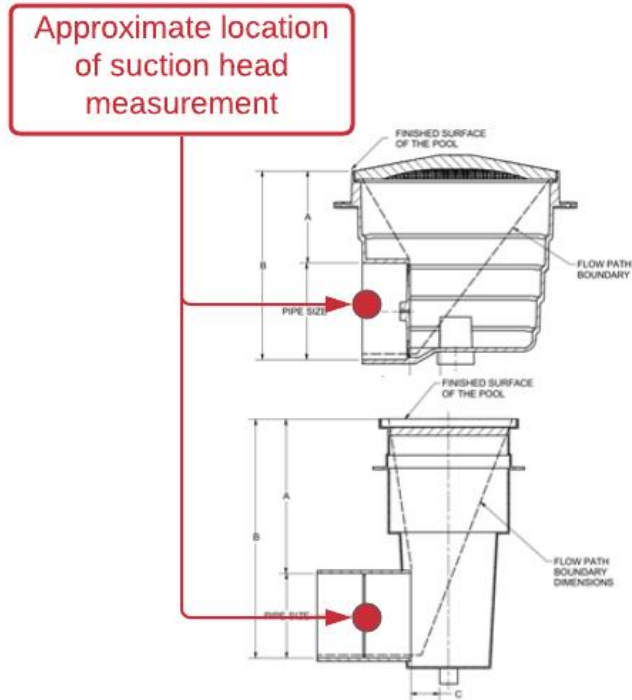
11. The flow rating for pools with a single, or multiple unblockable SOFAs shall be determined by combining the flow rating of all SOFAs piped together in one body of water.
12. SOFAs shall not be located on seats or the backrests for seats.
13. Blockable SOFAs shall be installed in a multiple SOFA system only.
14. Blockable SOFAs shall be used in multiple-outlet systems for new pools and shall be arranged such that the two outermost sumps/frames shall have a minimum separation of three feet, measured center to center. If they are to be installed closer than three feet center to center, they shall be installed on two different planes, i.e., one SOFA shall be located on the pool floor and the other on a vertical wall.
15. Cover/grates marked blockable in existing pools with single SOFA systems shall also be installed in conjunction with an additional device or system to prevent suction entrapment.
16. A single blockable SOFA in a system that does not have an additional device or systems shall result in a flow rate of zero.
17. Cover/grates marked unblockable are permitted for use in multiple SOFA systems and single SOFA systems.
18. The SOFAs listed above are intended to be installed in pools with a concrete surface. FI-SG-1836, FI-SG-1854, FI-SG-1872 have the option to include an adapter for use in a vinyl lined pool.
19. When installed the cover/grate shall not protrude more than 2 inches from finished surface of the pool.
20. Inspect grate, data tag, fasteners, and other components for burrs. If any burrs are found remove burrs with file or sand paper until surface is smooth.
21. When installed with a field built sump the grates shall be installed in accordance with the Registered Design Professional's (RDP) plans.
22. For large aperture applications the maximum gap allowed is 1" (25 mm) and for small aperture application the maximum gap allowed is 1.18" (30 mm).
23. Edges and pinch points should not exceed 0.311" (7.9 mm) for small aperture applications
24. Edge and pinch points created by molding lines, text, and symbols shall not exceed 0.025" (0.64 mm)
25. During the concrete pour, block-outs are required for installation of the PVC frame.
  - a. Minimum block-out:
    - i. MLD-FGD-0909 -> 12" x 12" x 1 1/2"
    - ii. MLD-FGD-1212 -> 15" x 15" x 1 1/2"
    - iii. MLD-FGD-1818 -> 21" x 21" x 1 3/4"
    - iv. MLD-FG-1836 -> 21" x 39" x 1 3/4"
    - v. MLD-FG-1854 -> 21" x 57" x 1 3/4"
    - vi. MLD-FG-1872 -> 21" x 75" x 1 3/4"
26. Ensure the frame is correctly secured, level and square prior to pouring grout.
27. Ensure SOFA *components* and fastener receptacles are clean and free of debris or obstructions during installation.
28. When the concrete is dry, start installation of the supplied screws by hand to ensure proper thread engagement and to prevent cross threading. Using a hex wrench, install the grate and tighten the screws supplied to 10 in/lbs torque. DO NOT USE POWER TOOLS TO INSTALL FASTENERS.

29. Hand check cover/grate for snugness to the sump/frame after installation.

30. Use only stainless-steel fasteners provided.

SuperSump™

Large Area  
Fiberglass Sump



\*Flow path indicated in the above drawing is the minimum allowable flow path zone. \*

A is the minimum pipe opening depth below the finish surface of the pool,

B is the minimum sump depth

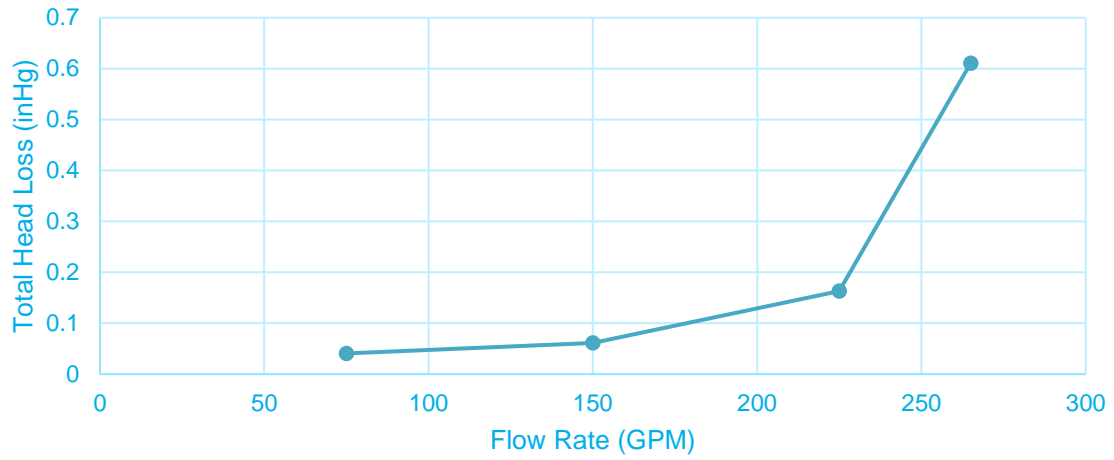
	Pipe size	A	B	C	Pipe Length
<b>MLD-SGD-0909</b>	4"	6 7/16"	10 15/16"	1 5/16"	20"
<b>MLD-SGD-1212</b>	6"	6 5/8"	13 3/8"	2 9/16"	30"
<b>MLD-SGD-1818</b>	8"	8 3/16"	16 13/16"	2 11/16"	40"
<b>FI-SG-1836</b>	12"	20 7/16"	31 5/8"	3 13/16"	60"
<b>FI-SG-1854</b>	14"	23 7/16"	36 5/8"	4 1/4"	70"
<b>FI-SG-1872</b>	16"	25 3/8"	40 5/8"	4 1/4"	80"

Pipe size: Pipe sizes shown are the only allowable pipe size for connecting to the sump.

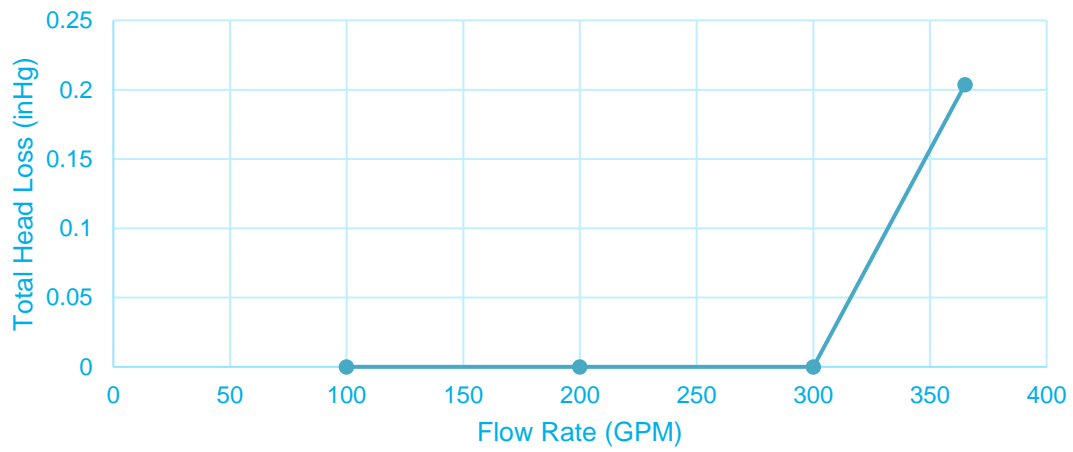
Pipe length: The minimum pipe length before any reduction in pipe size.

The pipe orientation enters horizontally on the side of the sump

Assembly # 1001-9895 / 1000-8099 Head Loss Data

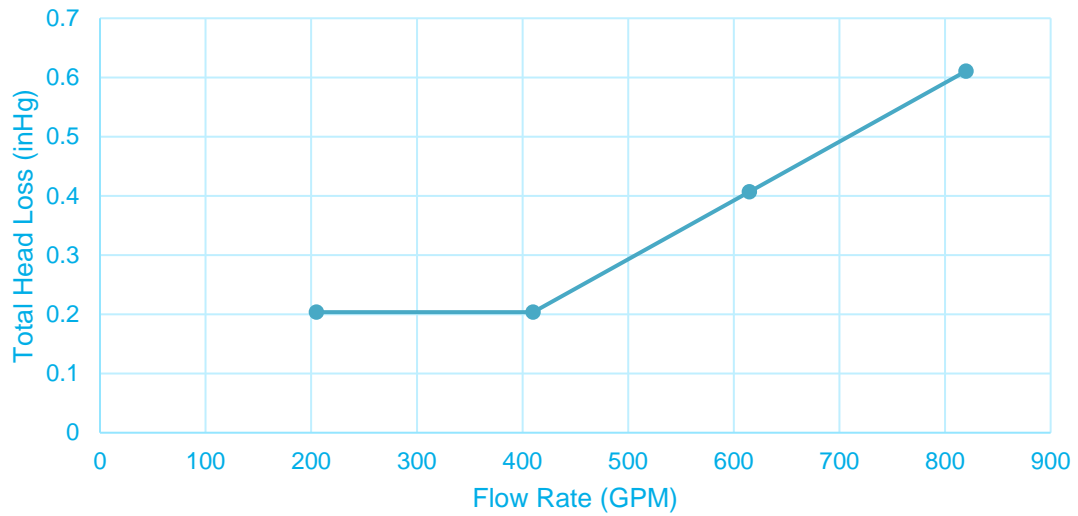


Assembly # 1001-9893 / 1000-8122 Head Loss Data

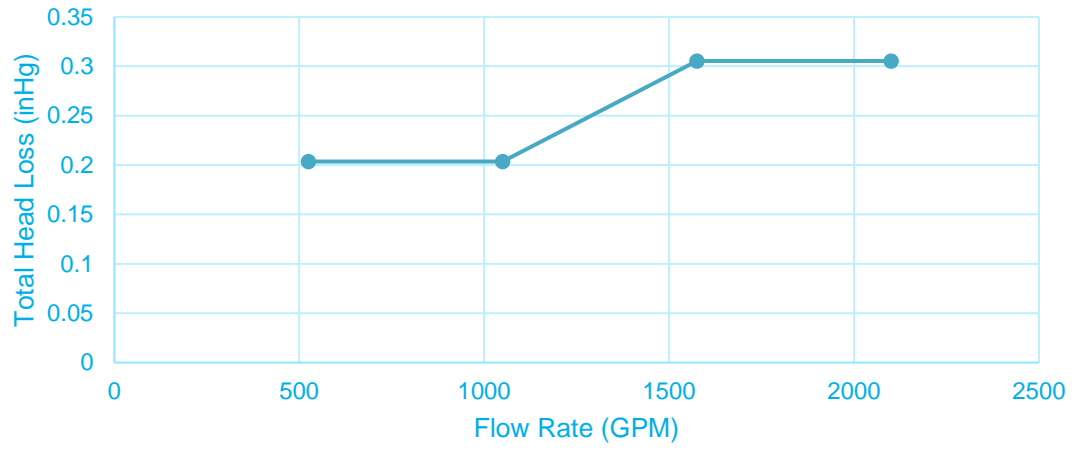




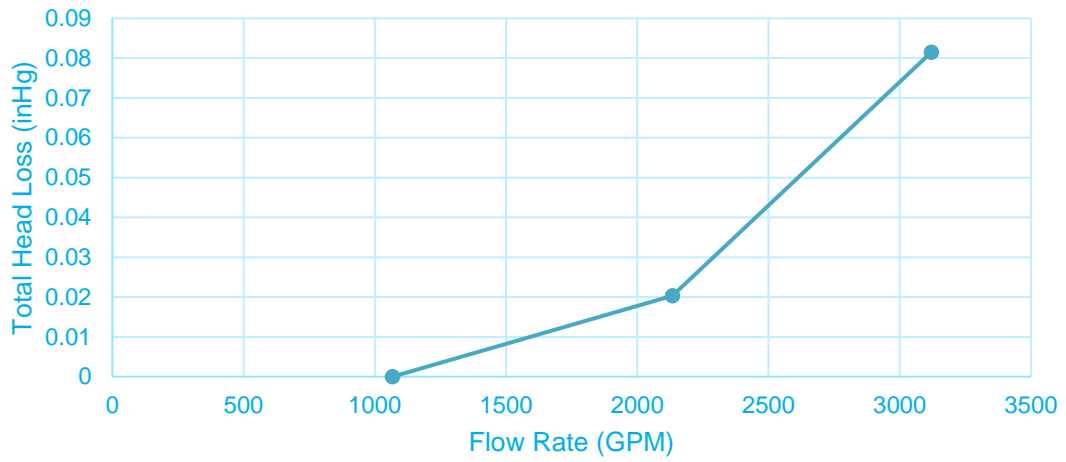
Assembly # 1001-9894 / 1000-8137 Head Loss Data



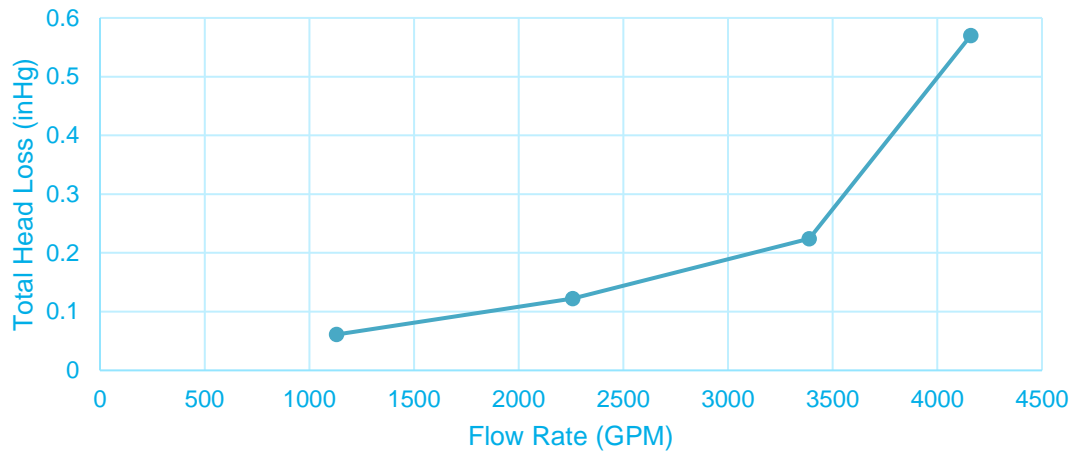
Assembly # 1001-8099 / 1001-8329 Head Loss Data



Assembly # 1001-8122 / 1000-8300 Head Loss Data



Assembly # 1001-8137 / 1000-8311 Head Loss Data



## **WARNING/ ATTENTION/ AVISO**

### **Read Carefully BEFORE Installation**

#### **MAXIMUM RATED FLOW RATES**

##### **BLOCKABLE SUCTION OUTLET ASSEMBLIES**

**MLD-SG1818 (18" X 18") – FLOOR: 816 GPM; WALL: 712 GPM**

**MLD-SG-1212 (12" X 12") - FLOOR: 365 GPM; WALL: 340 GPM**

**MLD-SG-0909 (9" X 9") - FLOOR: 261 GPM; WALL: 248 GPM**

##### **UNBLOCKABLE SUCTION OUTLET ASSEMBLIES**

**FI-SG-1836 (18" X 36") – FLOOR: 2,080 GPM; WALL: 1,496 GPM**

**FI-SG-1854 (18" X 54") - FLOOR: 3,120 GPM; WALL: 2,244 GPM**

**FI-SG-1872 (18" X 72") - FLOOR: 4,160 GPM; WALL: 2,992 GPM**

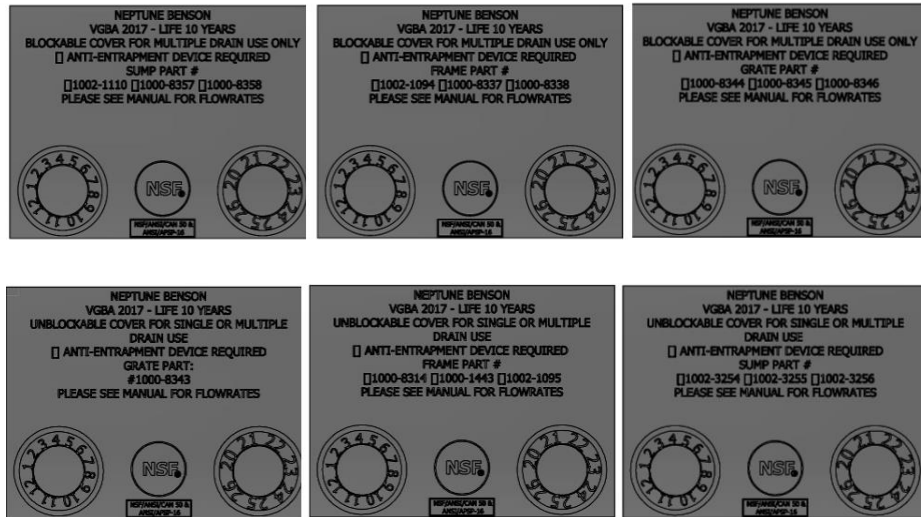
1. **IMPORTANT SAFETY INSTRUCTIONS** When installing and using this equipment, basic safety precautions shall always be followed.
2. Read all general, safety, and installation literature first and then keep them for future reference. If there are any questions or further information is needed, call **1-866-926-8420** for assistance.
3. Any modification that increases the flow rate of the circulation system shall require re-evaluation of the cover/grate and sump to ensure that the flow rating of the SOFA is not exceeded.
4. Any field modifications not authorized by the installation instructions shall void the SOFA certification.
5. No modifications shall be made to the SOFA structure or flow path unless the new configuration has been certified as a new SOFA.
6. Cover/grates and all other SOFA components shall be replaced at or before the end of their service life. The service life begins the month and year in which the SOFA component is installed with or without water. Covers/grates service life: 10 years. Sump bodies service life: 10 years. Fasteners and inserts service life: 10 years
7. For colder climates as the sump is tapered, it will allow the water to expand upwards and avoids damage by expansion. Typical pool winterization best practices are recommended as required.
8. Covers/grates are suitable for in-place replacement provided it is a like for like replacement. Drilling holes in existing sump bodies or covers/grates is prohibited.
9. If the cover/grate needs to be removed, a hex wrench is to be used. Once required maintenance is completed, ensure the SOFA components and fastener receptacles are clean and free of debris or obstructions, reinstall the grate and tighten the screws supplied to 10 in/lbs torque. **DO NOT USE POWER TOOLS TO INSTALL OR REMOVE FASTENERS.**
10. Hand check cover/grate for snugness to the sump/frame after reinstallation.
11. The cover/grate and fasteners shall be observed for damage or tampering each operational day.

12. Any missing, broken, or cracked covers/grates shall be replaced before bathers are allowed to use the pool.
13. Any loose covers/grates and associated components shall be reattached before bathers are allowed to use the pool.
14. Any signs of cracks, deformities, or other signs of the interior pool damage needs to be remedied before installation.
15. When a component is held in place by the interior surface of the pool, the surface shall be free of deterioration and voids.
16. Any SOFA component with observed color change, brittle components with pieces broken off, stripped screw holes or cracks need to be replaced immediately.
17. Damaged fastener receptacles require the sump body to be removed and replaced.
18. The pool shall not be operated if the suction outlet grate is missing, broken, or secured in such a way that it can be removed without the use of tools.
19. Many state codes differ. It is the responsibility of the installer to choose the proper suction fittings for the application.
20. For Assembly part numbers only: 1001-9895/1001-9893/1001-9898/1001-9896
  - a. **WARNING!** This is a **BLOCKABLE** VGBA Suction Outlet that must **ONLY** be installed in a suction system that also includes one or more of the following devices or systems designed to prevent suction entrapment: Saftey Vacuum Release System, Suction Limiting Vent System Gravity Drainage System Automatic ump Shut-off System, Drain Disablement, and/or any other System Determined by the CPSC to be equally effective or better than the previous mentioned systems
21. For Assembly part numbers only: 1001-9894/1000-8099/1000-8122/1000-8137/1001-9897/1000-8329/1000-8300/1000-8311
  - a. **WARNING!** This is a **UNBLOCKABLE** VGBA Suction Outlet that must **ONLY** be installed in a suction system that also includes one or more of the following devices or systems designed to prevent suction entrapment: Saftey Vacuum Release System, Suction Limiting Vent System Gravity Drainage System Automatic ump Shut-off System, Drain Disablement, and/or any other System Determined by the CPSC to be equally effective or better than the previous mentioned systems
22. **CAUTION:** Do not exceed maximum flow rate stated on suction fitting. When replacing pump, use pump with similar flow curve and horsepower.
23. **TESTING: MAXIMUM TEST PRESSURE OF 15 PSI.** When testing the piping to the sump, use water test only, not compressed air. The 1/2" NPT machined into the test plate inside the sump can be used to introduce the hydrostatic test, or to purge the air from the pipe for proper testing. If testing by other means use the 1/2" NPT plug (included) to plug the hole. After testing, remove the plug to relieve pressure and to drain off water. Use a Roto-zip or similar tool to cut away the test plate. Do not cut outside the circular groove. If additional testing is required after the test plate has been removed, us a blow-up test ball braced into the pipe to keep the ball from sliding.
24. **SAVE THESE INSTRUCTIONS.**

To obtain a certificate of conformity please call **1-866-926-8420** with the following information:

1. Grate, frame, or sump Part# (1XXX-XXXX)
2. Date of manufacture (mm/yyyy)
3. Date of installation with or without water (mm/yyyy)
4. A valid email address to send the General Certificate of Conformity in PDF form to.

The information above can be found on your grates, sumps or frame data plate as shown below.



334 Knight St Ste 3100 Warwick, RI 02886 USA

+1-866-926-8420 (toll-free) +1-401-821-2200 (toll)

[evoqua.com](http://evoqua.com)

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