# Meteor® Filter System Owner's Manual

## IMPORTANT SAFETY INSTRUCTIONS
## *READ AND FOLLOW ALL INSTRUCTIONS*
## SAVE THESE INSTRUCTIONS

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**⚠WARNING**

Before installing this product, read and follow all warning notices and instructions accompanying this system. Failure to follow safety warnings and instructions can result in severe injury, death, or property damage.
Call (800) 831-7133 for additional free copies of these instructions.

**Important Notice**

Attention Installer.

This manual contains important information about the installation, operation and safe use of this product. This information should be given to the owner/operator of this equipment.


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*Because **reliability** matters most*

## Section 1. Pump Safety Instructions

When installing and using this electrical equipment, basic safety precautions should always be followed, including the following:

1. READ AND FOLLOW ALL INSTRUCTIONS.
2. WARNING - To reduce the risk of injury, do not permit children to use this product unless they are closely supervised at all times.
3. WARNING - Risk of Electric Shock. Connect only to a grounding type receptacle protected by a ground-fault circuit-interrupter (GFCI). Contact a qualified electrician if you cannot verify that the receptacle is protected by a GFCI.
4. Do not bury cord. Locate cord to minimize abuse from lawn mowers, hedge trimmers, and other equipment.
5. WARNING - To reduce the risk of electric shock, replace damaged cord immediately.
6. WARNING - To reduce the risk of electric shock, do not use extension cord to connect unit to electric supply; provide a properly located outlet.
7. CAUTION - For continued protection against possible electric shock, this unit is to be mounted to the base in accordance with the installation instructions.
8. CAUTION - If this pump is equipped with a 25 ft. cord, it is for use with storable pools only. Do not use with permanently installed pools. A storable pool is constructed so that it may be readily disassembled for storage and reassembled to its original integrity. A permanently installed pool is constructed in or on the ground or in a building such that it cannot be readily disassembled for storage.
9. SAVE THESE INSTRUCTIONS.

**⚠WARNING**

This filter operates under pressure. With the valve clamped properly and operated without air in the system, this filter will operate in a safe manner. Air entering the filter and the valve not clamped correctly can cause the valve to be blown off, which could result in severe personal injury and/or property damage.

**⚠WARNING**

To reduce the risk of electric shock, do not use an extension cord. Only connect to a GFCI protected receptacle. Failure to do so could result in an electrical shock to pool users, installers, or others which can result in serious personal injury or death.

## Section II. How Your Filter Works

Your high rate sand filter is designed to produce clear, sparkling water and operate for years with a minimum of maintenance when installed, operated and maintained in accordance with these instructions.

Your filter uses special filter sand to remove dirt particles from the water. Dirt is collected in the filter by the sand bed as water flows through the filter. Water enters the filter through the valve on top of the filter and is distributed evenly downward across the sand bed. The dirt is removed by the sand and the clean water flows through the piping (laterals) at the bottom of the filter, up through the center pipe, back to the valve on top of the filter, where the clean water is returned to the pool through the piping or hoses.

After a period of time, dirt will accumulate in the filter causing a resistance to the flow of water through the filter. This resistance results in a diminished flow of water and a rise in the pressure of the filter. Eventually the filter sand will have removed so much dirt and the filter pressure risen to such a point that it will be necessary to clean (backwash) your filter.

By setting the valve on top of the filter to the backwash position, the flow of water is automatically reversed through the filter so that the flow of water is directed to the bottom of the filter, up through the sand bed flushing, the dirt and debris out through the waste line. Once the backwash procedure is complete, the valve is manually returned to its filter position to resume normal filtration.

The filter's function is to remove suspended matter from the water and does not sanitize the water. For sparkling clear water the water must be sanitized as well as balanced. Pool chemistry is a specialized area, and you should consult your local pool service specialist for specific details. In general, proper pool sanitation requires a free chlorine level of 1 to 2 PPM and a PH range of 7.2 to 7.6.

**⚠WARNING**

Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool. Poor water clarity may obscure objects in the water which while swimming and diving could cause severe personal injury or death. Never swim in a pool with poor water clarity.

## Section III. Installation

To install this filter system, you will need the following simple tools: Screwdriver, pliers and ½ in. wrench.

1. Carefully remove the equipment from the carton and check for any evidence of damage due to rough handling or shipping. If any of the equipment is damaged, immediately notify the organization from where the equipment was purchased.
2. Provide space and lighting for routine maintenance access. Locate the system in close proximity to the pool as listed in the National Electrical Code or local electrical codes and any caution or warning labels on pump.
3. One needs to be able to stand clear of the filter when starting the pump.
4. This filter system should be mounted on a level concrete slab, preferably concrete poured in a form or on a platform constructed of block or brick.
5. Position the base in relationship to the return fitting and skimmer on your pool. Position the filter tank on the base. Place the pump in the mounting position and align with the set of molded in nuts. Secure pump with 2 bolts.
6. Media - Your sand filter uses a #20 grade silica filter sand for its media (.45 - .55mm). It should be free of all limestone or clay. Most pool supply and building material stores carry silica sand. See Table 1 for the appropriate amounts of silica sand for your filter.
7. Install the sand guide in the top of the filter tank and fill the tank about half full of water. Pour the silica sand into the top of the filter tank slowly, so that the weight does not damage the laterals in the bottom of the tank.
8. After filling the filter tank with the appropriate amount of silica sand, remove the sand guide and wash away any loose sand from the opening of the filter tank.
9. Be sure that all sealing surfaces are clean on the filter tank and the valve. Apply a light coating of silicone based lubricant to the gasket of the valve and place the valve over the opening in the top of the filter tank so that the center pipe slips into the bore of the valve.
10. Position the valve, (item #1 on page 7), so that the inlet port is facing the same direction as the inlet port of the pump. Valve ports are labeled to insure proper connections.
11. Install the valve clamp halves, (item #3 on page 7), over the flanges of the filter tank and the valve. Ensure that the valve clamp halves are securely installed over **BOTH** flanges before attaching and tightening the bolts. Tighten both bolts until both clamp halves touch.

Table 1.

| Model | Max. Filtration Area | Amount of Sand |
|---|---|---|
| 18" Meteor | 1.63 sq. ft. | 65-100 lbs. |
| 20" Meteor | 2.0 sq. ft. | 100-150 lbs. |
| 22" Meteor | 2.5 sq. ft. | 150-200 lbs. |

12. Attach hose assembly, (item #17 on page 7), to pump using the quick connect nut, (item #16 on page 7), on the bottom end of assembly. Screw threaded elbow adapter, (item #15 on page 7), into inlet port of valve, using Teflon tape on threads, tighten a max. of one turn past hand tight. Connect hose assembly to the adapter and secure with a hose clamp. Tighten the clamp with a screwdriver.
13. Screw hose adapter, (item #19 on page 7), {included in hose kit}, into inlet port of pump, using Teflon tape on the threads and tightening no more than one turn past hand tight. Connect flex hose to the adapter and secure with hose clamp. Attach other end of flex hose to the skimmer on the pool wall. Use the adapter and hose clamp provided in the hose kit.
14. Screw hose adapter, (item in hose kit), into the outlet port of the valve, attach the second flex hose and secure with a hose clamp. Connect the other end to an adapter screwed into the return fitting on the pool wall. Secure with a hose clamp.
15. Install the pressure gauge into the valve using Teflon tape.
16. Install clear sight glass fitting, called the backwash fitting into the control valve port marked backwash. An O-ring is provided for sealing, requiring only hand tightening. This sight glass is supplied with 1.5 in. NPT male thread on the outside end for easy connection to a drain pipe.
17. To use 1½ in. flex hose for drain, connect the grey hose adapter to the end of the sight glass and secure the flex hose to the barbed end of the adapter with a hose clamp.

**DO NOT OPERATE THIS SYSTEM ABOVE MAXIMUM OPERATING PRESSURE OF THE VALVE OR FILTER.**

## ⚠WARNING

This filter operates under pressure. With the valve clamped properly and operated without air in the system, this filter will operate in a safe manner. Air entering the filter and the valve not clamped correctly can cause the valve to be blown off, which could cause severe personal injury and/or property damage.

## Section IV. Initial Start Up

1. Be sure the correct amount of Silica filter sand is in the tank and that all connections have been made and are secure.

2. Check that the backwash is open so that water is free to flow from the pool and out the backwash line. Set the control valve to Backwash position.

**⚠WARNING**

This filter operates under pressure. With the valve clamped properly and operated without air in the system, this filter will operate in a safe manner. Air entering the filter and the valve not clamped correctly can cause the valve to be blown off, which could cause severe personal injury and/or property damage.

**⚠CAUTION**

Always turn pump off before changing valve positions. Changing valve positions while the pump is running can damage the control valve, which may cause personal injury or property damage.

3. **Stand clear of the filter.** Prime and start pump according to the pump instructions allowing the filter tank to fill with water. Once the water flow is steady out of the waste line, run the pump for at least two minutes. This initial backwashing of the filter is recommended to remove any impurities of fine sand particles in the Silica sand media.

4. Turn the pump off and set valve to rinse position. Ensure that all pool suction and return lines are open so that water is free to flow from the pool to waste. **Stand clear of filter** and start the pump.

5. Run the pump for at least two minutes.

6. Turn the pump off and set valve to filter position. Ensure that all pool suction and return lines are open so that water is free to flow from and to the pool. Stand clear of filter and start the pump.

7. Your filter has now started its filtering cycle. You should check that water is returning to the pool and take note of the operating pressure. My original starting pressure is _____ PSI with the filter clean.

**⚠CAUTION**

To prevent damage to the pump and filter and for proper operation of the system, clean pump strainer and skimmer baskets regularly.

8. Check the system for water leaks. If a leak is found, shut pump off before correcting the leak.

9. As the filter removes dirt and impurities from the pool water, the accumulation will cause the filter pressure to rise and flow to diminish. When the pressure gauge reading is 5 to 7 PSI higher than the clean filter reading noted above, it is time to backwash the filter.

## Section V. Cleaning Frequency

1. Cleaning frequency will vary from pool to pool and with other factors such as weather condition, heavy rains, dust, pollen, bather load, and water chemistry. Check the pressure gauge reading on a regular basis and when the pressure gauge reading increases 5 to 7 PSI over the initial clean filter reading, it is time to backwash your filter.

2. It is important NOT to backwash the filter solely on a timed basis such as every two days. It is also important to note that backwashing too frequently actually causes poor filtration.

## Section VI. Filter and Control Valve Functions

FILTER - From pump, through valve, downward through filter sand bed, up through center pipe to valve return port, and back to the pool for normal filter action and vacuuming pool through filter.

BACKWASH - From pump, through valve down through center pipe, up through filter sand to valve, and out waste port. This position is used for cleaning filter by reversing flow.

RINSE - From pump through valve downward through filter sand, up through center pipe to valve and out waste port. This position is used for start up cleaning and resettling filter bed after backwashing.

WASTE - From pump, through valve (bypasses filter) and goes to waste port. This position is for vacuuming directly to waste, lowering pool level, or draining pool.

CLOSED - NO FLOW IN THIS POSITION - DO NOT USE THIS SETTING WITH PUMP OPERATING.

RECIRCULATE - From pump, through valve, bypasses filter and goes to return port and back to pool. This position is for circulating water without going through filter.

WINTERIZING - Valve position for a winterized filter, see page 10.

## Section VII. Filter Backwash Procedures

### ⚠WARNING

Failure to operate your filter system or inadequate filtration can cause poor water clarity obstructing visibility in your pool. Poor water clarity may obscure objects in the water which while swimming and diving could cause severe personal injury or death. Never swim in a pool with poor water clarity.

1. Turn off pump.
2. Ensure that suction and backwash lines are open so that water is free to come from the pool and flow out the backwash line. Set the control valve to backwash position.
3. **Stand clear of the filter** and start pump.
4. Backwash filter for approximately 3-5 minutes or until backwash water is clean.
5. Turn off pump. Set control valve back to rinse position.
6. **Stand clear of the filter** and start pump.
7. Rinse filter for approximately 3-5 minutes.
8. Turn off pump. Set control valve back to filter position.
9. **Stand clear of the filter** and start pump.
10. The filter has now started its filtering cycle. Check that water is returning to the pool and take note of the filter pressure.
11. The filter pressure in step 10 above should not exceed the pressure originally observed on the filter when it was initially started. If after backwashing the pressure is 4-6 PSI above the start condition, it may be necessary to change the sand in the filter.

## Section VIII. Winterizing the Filter

1. In areas that have freezing winter temperatures, the pool equipment must be winterized to protect it from damage.
2. Backwash the filter. Shut off the pump and set the control valve to the winterize position.
3. Remove the drain port cap at the bottom of the filter.

### IMPORTANT NOTE

Remove drain port cap only for draining water from filter. Removing the entire fitting will allow sand to drain also. Do not remove the entire fitting on the 18" filter. This will damage the filter. *The filter will drain slowly. Leave the drain port cap off and store it during the time the system is shut down.*

### ⚠CAUTION

The control valve should be left in the winterize position during the shutdown season so that the rubber seal of the valve diverter has no pressure on it. Failure to do so can damage the valve diverter seal which can cause property damage from leaking water.

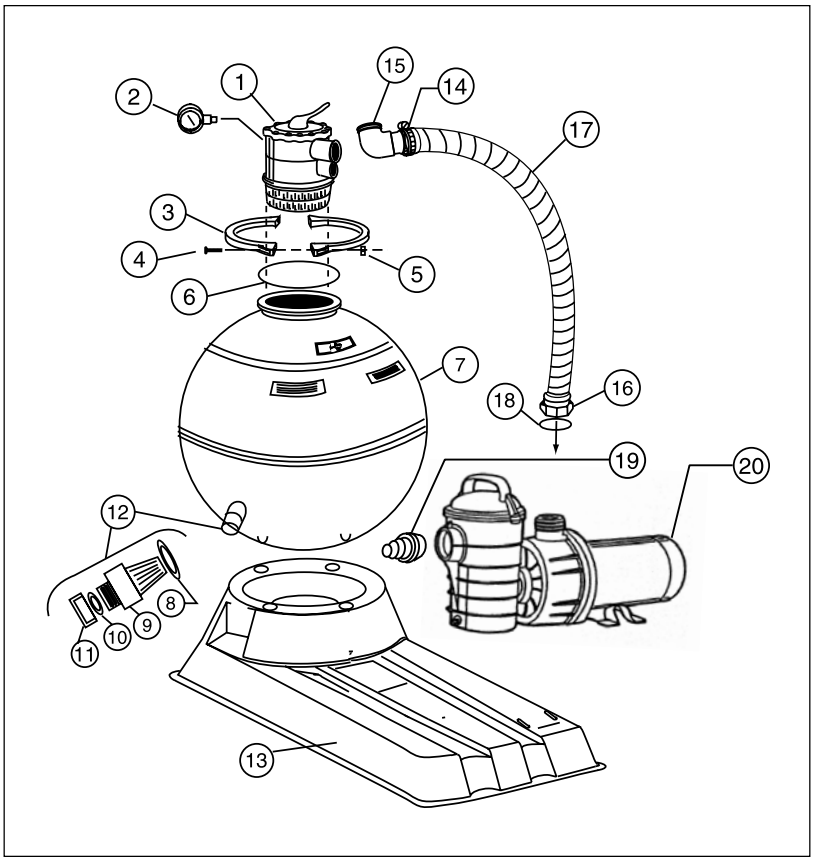
4. Drain all appropriate system piping.
5. It is recommended that the pump and filter be covered with a tarpaulin or plastic sheet to inhibit deterioration from the weather. DO NOT wrap pump motor with plastic.

## Section IX. Troubleshooting

| Problem | Cause | Remedy |
|---|---|---|
| Pool water not sufficiently clean. | 1. Pool chemistry not adequate to inhibit algae growth. | Maintain pool chemistry or consult pool service technician. |
| | 2. Too frequent a backwash cycle. | Allow pressure to build to 5 to 7 PSI above clean filter condition before backwashing. |
| | 3. Improper amount or wrong sand size. | Check sand bed depth and sand size or consult pool service technician. |
| | 4. Inadequate turnover rate. | Run system for longer time or consult dealer or pool service technician. |
| Higher filter pressure. | 1. Insufficient backwashing | Backwash until effluent runs clear. |
| | 2. Sand bed plugged with mineral deposits. | Chemically clean filter. |
| | 3. Partially closed valve or restriction. | Open valve or remove obstruction in return line. |
| Short filter cycles. | 1. Improper backwash. | Backwash until effluent runs clear. |
| | 2. Pool chemistry not adequate to inhibit algae growth. | Maintain pool chemistry or consult pool service technician. |
| | 3. Plugged sand bed. | Manually remove top 1" surface of sand bed and chemically clean as required. |
| | 4. Flow rate too high. | Restrict flow to capacity of filter. |
| Return flow to pool diminished, low filter pressure. | 1. Obstruction in the pump hair and lint pot. | Clean basket in strainer. |
| | 2. Obstruction in pump. | Disassemble and clean pump. |
| | 3. Obstruction in suction line to pump. | Clean skimmer basket. Remove obstruction in lines. Open valves in suction line. |
| Sand returning to pool | 1. Broken underdrain lateral. | Replace broken or damaged laterals. |
| | 2. Backwash rate too high. | Reduce backwash flow rate. |

## Section X. Technical Data

### *Replacement Parts*




| Item No. | Part No. | Description |
|---|---|---|
| 1 | 50115100 | MPV, 5 pos., 18" and 20" filter |
| 1 | 50118100 | MPV, 8 pos., 18" and 20" filter |
| 1 | 50118200 | MPV, 8 pos., 22" filter |
| 2 | 155050 | Gauge, Pressure |
| 3 | 51020900 | Clamp, multiport valve |
| 4 | 98209000 | Screw, clamp |
| 5 | 98211400 | Nut, clamp |
| 6 | 51021700 | MPV gasket, 18", 20", 22" |
| 7 | 58812120 | Tank assy., 18" filter |
| 7 | 58812130 | Tank assy., 20" filter |
| 7 | 58812140 | Tank assy., 22" filter |
| 8 | 51005000 | O-ring, drain/insp. fittings |
| 9 | 86300300 | Fitting, drain sand/water |
| 10 | 86300500 | Gasket, drain cap |
| 11 | 86300400 | Cap, drain |
| 12 | 55007800 | Drain assy., complete |
| 13 | 55216000 | Skid base, 18" filter |
| 13 | 55215000 | Skid base, 20, & 22" filter |
| 14 | 711004 | Clamp, hose |
| 15 | 86201900 | Adapter, hose, elbow |
| 16 | 352256 | Nut, quick connect |
| 17 | 86013000 | Hose, assy. for 18" filter |
| 17 | 86013090 | Hose, assy. for 20" filter |
| 17 | 86013100 | Hose, assy. for 22" filter |
| 17 | 79302100 | Hose, assy. braided for 18" filter ❶ |
| 17 | 79302200 | Hose, assy. braided for 20" filter ❶ |
| 17 | 79302300 | Hose, assy. braided for 22" filter ❶ |
| 18 | 354571 | O-ring |
| 19 | 711006 | Adapter, hose 1½" |
| 20 | | *Dynamo Pump, see note* |

**ITEMS NOT SHOWN**

| | |
|---|---|
| 55025700 | Lateral, 18", 20", 22" |
| 55027500 | Standpipe assy, 18" filter |
| 55027600 | Standpipe assy, 20" filter |
| 55027700 | Standpipe assy, 22" filter |
| 85019300 | Adapter, backwash |
| 354265 | Bolt, 5/16-18 x 3/4" |
| 155005 | Kit, 12 ft. hose, 2 per kit |
| 155153 | Kit, 6 ft. hose, 2 per kit |
| 543110 | Light ready fitting |

**NOTE:** See your dealer for correct motor and cord replacement.

❶ Used with Maxim pumps.

## Section XI. Pump Instructions

**⚠WARNING**

To reduce the risk of electric shock, do not use an extension cord. Only connect to a GFCI protected receptacle. Failure to do so could result in an electrical shock to pool users, installers, or others which can result in serious personal injury or death.

1. To prime pump - (pump must be off).
   Unscrew lid from pot and fill pot with water to level of suction line. Inspect O-ring, lubricate with silicone lubricant. Screw lid into pot, hand tighten, lid shoulder will come to rest on pot surface. Turn pump on, depending upon elevation above water level and horizontal distance of suction line, priming time will vary. If filter is installed, open air relief valve, before turning pump on, until a steady stream of water comes out, then close air relief valve. Pump is now primed. If pump is installed below water level, close return line prior to filling hair/lint pot with water. Line must be reopened before turning pump on.

2. To clean basket - (pump must be off).
   Follow procedure above to prime pump. After removing lid, remove basket and empty debris. Replace basket and proceed to fill pot with water. It is important to visually inspect the basket, through the see through lid, at least once a week. A dirty basket will reduce the efficiency of your system, and can put an abnormal load on the pump which could result in costly repair bills.

**⚠CAUTION**

DO NOT RUN PUMP DRY. If pump is run dry, the mechanical seal will be damaged and external leakage will occur. When a seal is damaged, the seal must be replaced.

**⚠CAUTION**

ALWAYS MAINTAIN PROPER WATER LEVEL IN THE POOL. Water level must be half way up the skimmer opening. A low water level can cause the pump motor to run dry which will damage the mechanical seal and cause external leakage.

3. Shaft Seal - (Rotary Seal). The shaft seal consists of two parts:

   a. Stationary ceramic seal, press fitted into seal plate.

   b. A rotating spring loaded seal, press fitted onto impeller shaft.

**⚠CAUTION**

The highly polished and lapped faces of the seal are easily damaged. Handle with care. This centrifugal pump requires little or no service, however, the shaft seal will wear with normal use over the years, and will require periodic replacement.

4. The electric motor.

   a. The electric motor should be protected from foreign matter, water splashing, hosing and the weather. Enclosures should be well ventilated to prevent overheating. If a motor becomes wet, permit it to dry before running it. If a motor has been damaged by water or dirt, the warranty is void.

   b. The motors used on these pumps are 48 frame through bolt motors. The through bolts are used to secure the seal plate to the motor. When replacing motor, mark the end bells and the motor shell to indicate alignment. Remove the four nuts from the through bolts at shaft end. Place shaft through back of seal plate and locate through bolts in line with brass inserts located in four legs at rear of seal plate, be sure end bell and shell marking line up. Securely fasten motor to seal plate.

   c. Protect motor from heat. Provide ample ventilation.

   d. Protect motor from dirt and chemicals. Keep motor, motor vents and surrounding area clean. Avoid sweeping or stirring up dust near the motor while it is running. Avoid stirring (or spilling) water or chemicals near the motor.

   e. Protect motor from moisture. Provide protection from rain, snow, lawn sprinklers, etc. Locate motor on a slight elevation so that water will not run or puddle nearby. Do not splash water on or near the motor.

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