



**132 Series  
Sand Filter**

**Operation & Maintenance Guide**

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# **MERMADE® Filter**

## INSTALLATION INSTRUCTIONS

The filter shall be installed, plumb and level. Run water in tank for leveling each layer of filter media except top layer of fine sand. This layer of fine sand can be leveled sufficiently with a long handled rake. Fine sand comes slightly above manhole opening. Leave sufficient amount of sand near opening to fill the top layer out level after manhole cover has been installed. The first time the filter is backwashed, the top of the sand will become level.

Close manway cover by tightening the manhole knobs down on the manway yokes. The manway gasket is aided in sealing tightly by the pressure in the tank. During start-up the gasket may leak slightly but it should come to a tight seal once operating pressure is reached. After reaching operating pressure tighten the manway knobs again to insure a seal through subsequent shut-downs. If the manway gasket leaks at operating pressure, gradually close the valve on the filter effluent flange (or any valve in the line after the filter) to increase the pressure in the filter tank. This excess pressure in the filter tank will aid in final sealing of the manway gasket. Again, hand tighten the knobs of the manway yokes after reaching the highest pressure obtainable.

## OPERATING INSTRUCTIONS

Install all face piping including valves, pressure gauges, sight glass, and circulating pump as shown on drawings, single and dual tank systems (see pages 5 and 6). To allow venting of air from the tanks during start-up and operation, the air relief connections on the front, top of the tank should be piped to a low pressure point in the filter system or to a waste line. Piping this to a surge tank or gutter line will save this water which is chemically treated and filtered. We suggest this line be rigid PVC or flexible tubing. A manual shut-off valve should be mounted on each tank. This valve should be open during operation, closed on shut-down. Automatic air relief valves are also available for air venting.

**FILTERS SHOULD BE BACKWASHED WHEN THE FILTER PRESSURE DIFFERENTIAL EXCEEDS 15 PSI.**

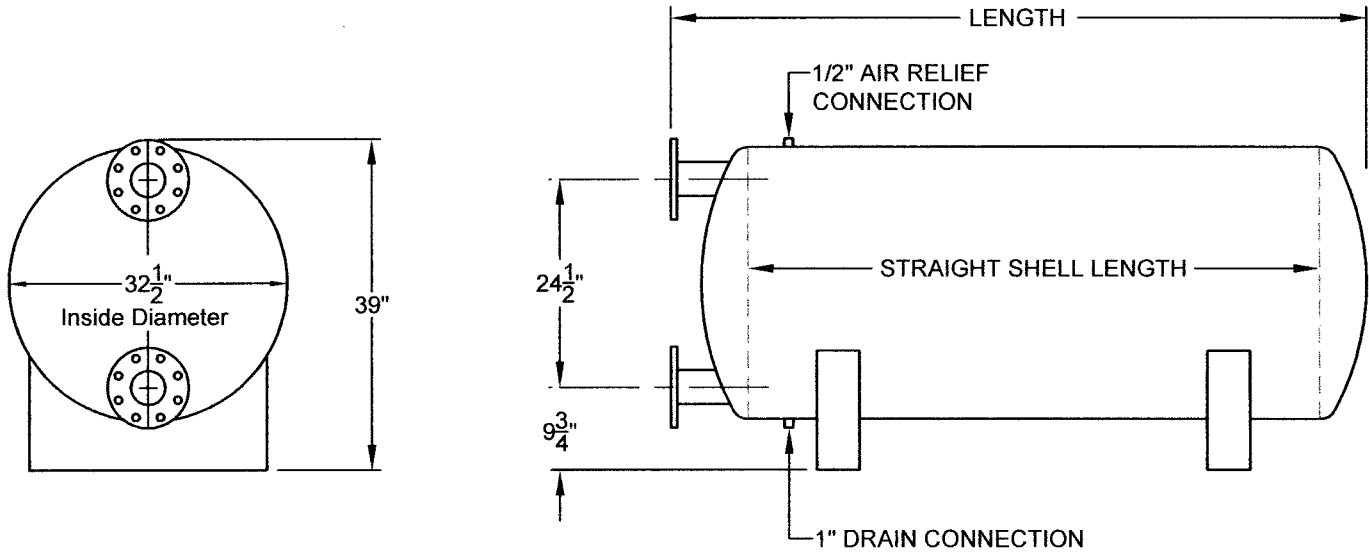
**FILTER CYCLE: OPEN VALVES V1 AND V3 AND CLOSE VALVES V2 AND V4. START PUMP.**

**BACKWASH CYCLE: SHUT OFF PUMP, CLOSE VALVES V1 AND V3 AND OPEN VALVE V2. START PUMP AND OPEN VALVE V4 SLOWLY. THE TIME FROM START TO FULL OPEN SHOULD BE AT LEAST 30 SECONDS. DO NOT EXCEED BACKWASH FLOW RATE SHOWN ON TANK DATA PLATE. CONTINUE BACKWASHING UNTIL SIGHT FLOW INDICATOR SHOWS CLEAR. THIS SHOULD BE APPROXIMATELY FIVE (5) MINUTES. AT COMPLETION OF BACKWASH, SHUT OFF PUMP AND ALLOW FILTER BEDS TO SETTLE THREE (3) MINUTES BEFORE STARTING PUMP ON FILTER CYCLE.**

## THREE OR MORE TANK SYSTEMS

Generally, some form of backwash flow rate control is required on multiple tank systems to limit backwash flow to that required for one tank. Tanks are backwashed one at a time, in sequence, according to the above procedure. Attempts to backwash all tanks simultaneously will result in excessive water flowing through the first tank, resulting in disruption of the sand bed and filter failure. It is not possible to write instructions for the numerous multiple tank configurations that can be designed. We suggest a piping layout be sent to our office for comments prior to installation.

**Mer-Made Filter**  
**High Rate Sand Filter**  
**Overall Dimensional Data**  
**Models 132-52, 132-64, 132-74, 132-94, 132-114**



SAND FILTER MODEL	LENGTH OF TANK	FACE PIPING DIAMETER	# OF INLET LATERAL ASSEMBLIES	TANK STRAIGHT SHELL LENGTH	FILTER AREA IN SQ. FT.
132-52	58"	4"	4	38"	10
132-64	69"	4"	4	50"	12.6
132-74	82"	4"	4	65"	15.9
132-94	99"	4"	6	80"	19.3
132-114	119"	4"	10	94"	23.7

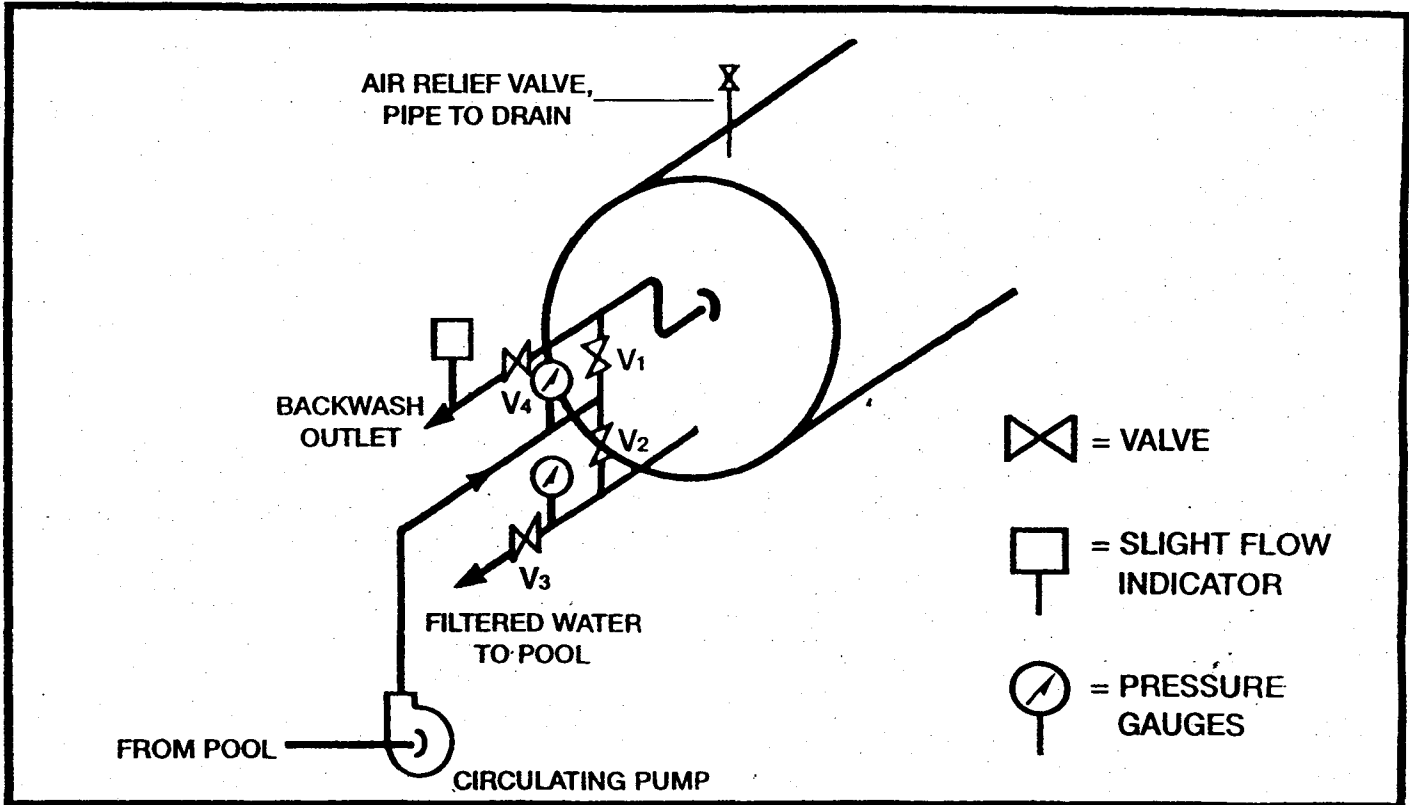
**MER-MADE FILTER**

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# MERMADE®

# SINGLE TANK

## HIGH RATE SAND FILTER



### FILTER OPERATION:

### HYDRAULIC DATA:

STEPS	FLOW	VALVE POSITION				TIME
		V <sub>1</sub>	V <sub>2</sub>	V <sub>3</sub>	V <sub>4</sub>	
FILTER	* 5-14 GPM/FT <sup>2</sup>	O	C	O	C	—
BACKWASH	* 15 GPM/FT <sup>2</sup>	C	O	C	O	APPROX. 3 MIN.

FILTER MODEL	FILTER AREA SQ. FT.	BACKWASH RATE GPM
132- 52	10	150
132- 64	12.6	189
132- 74	15.9	239
132- 94	19.3	290
132-114	23.7	356

\* MULTIPLY BY FILTER RATED AREA FOR FLOW IN GPM

O = VALVE OPEN

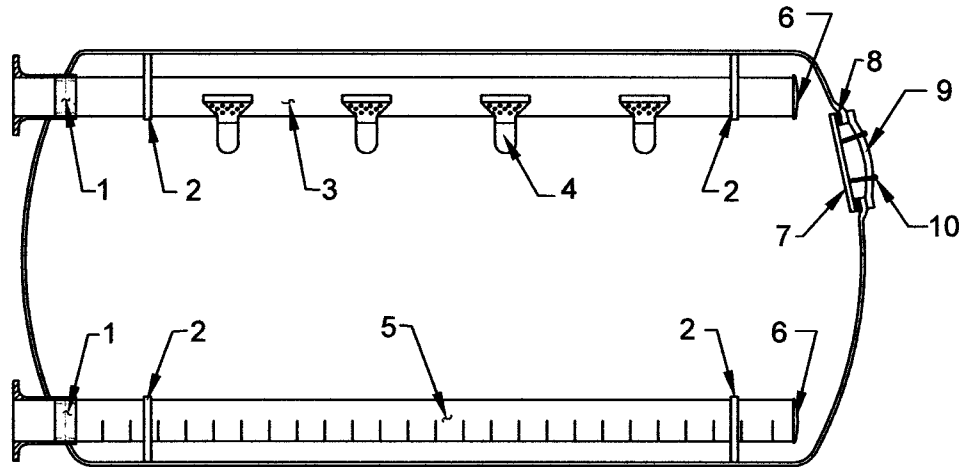
C = VALVE CLOSED

# Mer-Made Filter

## High Rate Sand Filter

### Internal Assembly Drawing & Parts List

#### Models 132-52, 132-64, 132-74, 132-94, 132-114



### PARTS LIST

- |                                |                            |
|--------------------------------|----------------------------|
| 1. 4" PVC COUPLING, SCH. 40    | 6. 4" PVC END CAP          |
| 2. STAINLESS STEEL CLAMP       | 7. 14" X 18" MANHOLE COVER |
| 3. 4" PVC INLET PIPE, SCH. 40  | 8. MANHOLE COVER GASKET    |
| 4. PVC INLET LATERAL ASSEMBLY  | 9. MANHOLE YOKE            |
| 5. 4" PVC UNDERDRAIN COLLECTOR | 10. SS STUD AND NUT        |

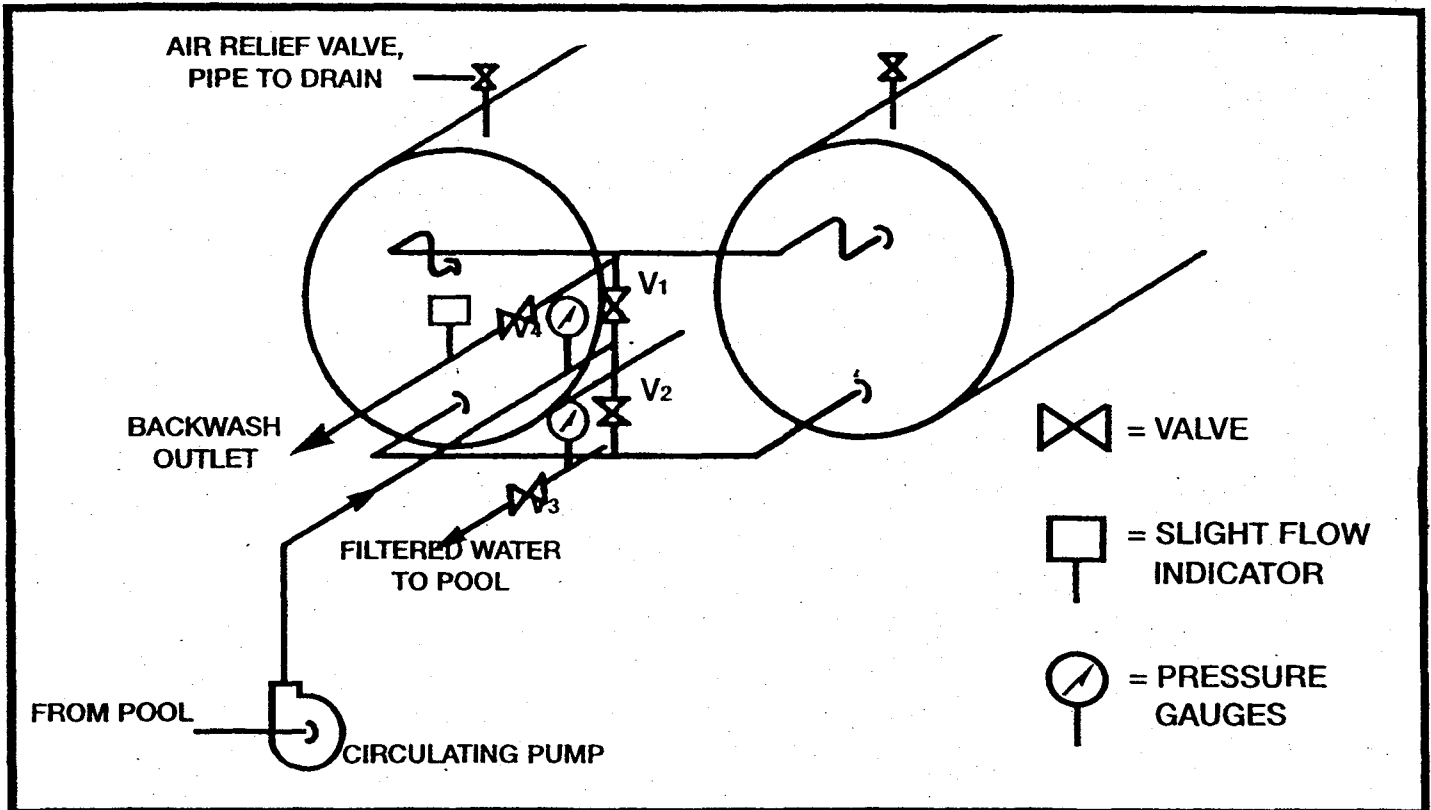
#### **BAGS OF 100 LB. FILTER MEDIA REQUIRED**

FILTER MEDIA	MODEL 132-52	MODEL 132-64	MODEL 132-74	MODEL 132-94	MODEL 132-114
BOTTOM LAYER 1/4" X 1/2" STONE	1.5	1.75	2	2.5	3.5
SECOND LAYER 1/8" X 1/4" STONE	1.75	2	3	3.5	4
THIRD LAYER 1.0 - 1.2 MM SAND	2.25	3	3.5	4.5	5.25
TOP LAYER 0.45 - 0.55 MM SAND	7.5	9.5	12	14	17.5
<b>TOTAL BAGS</b>	<b>13</b>	<b>16.25</b>	<b>20.5</b>	<b>24.5</b>	<b>30.5</b>

# MERMADE®

# DUAL TANK

## HIGH RATE SAND FILTER



### FILTER OPERATION:

STEPS	FLOW	VALVE POSITION				TIME
		V1	V2	V3	V4	
FILTER	* 5-14 GPM/FT <sup>2</sup>	O	C	O	C	—
BACKWASH	* 15 GPM/FT <sup>2</sup>	C	O	C	O	APPROX. 3 MIN.

\* MULTIPLY BY TOTAL FILTER RATED AREA FOR FLOW IN GPM  
(TOTAL FILTER AREA = 2 X TANK AREA)

O = VALVE OPEN

C = VALVE CLOSED

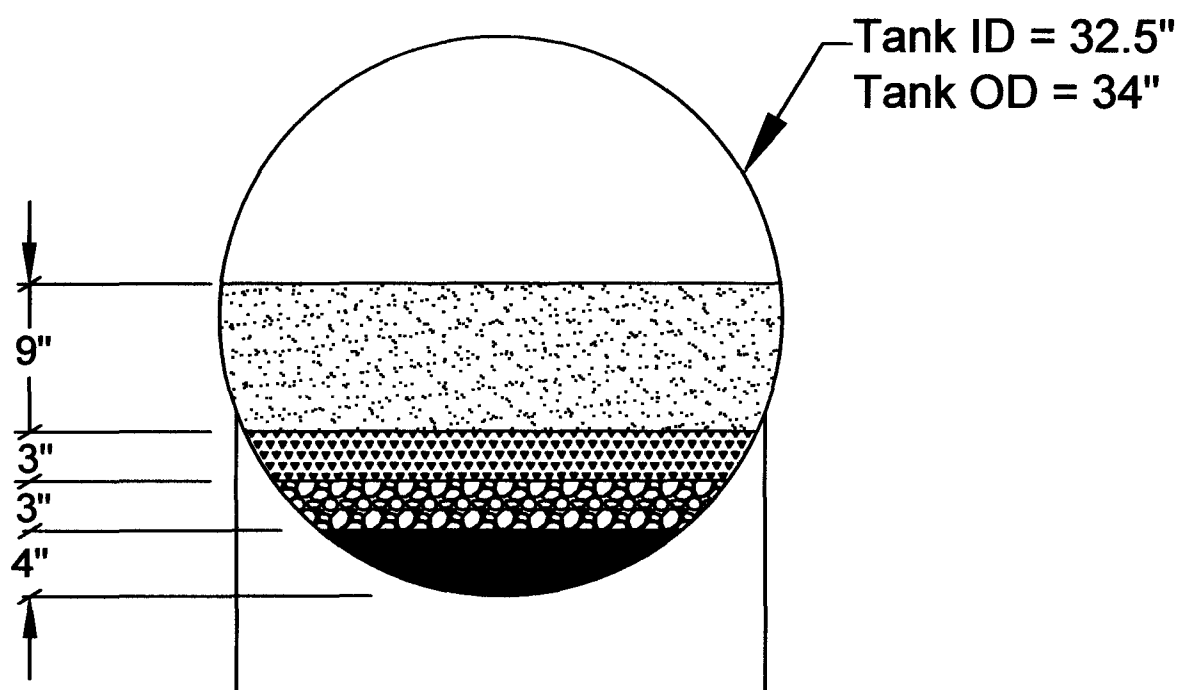
### HYDRAULIC DATA:

FILTER MODEL	FILTER AREA SQ. FT.	BACKWASH RATE GPM
132- 52	20	300
132- 64	25.2	378
132- 74	31.8	477
132- 94	38.6	580
132-114	47.4	712

# Mer-Made Filter

## High Rate Sand Filter

### Sand Loading



### FILTER MEDIA LOADING

LOCATION	DESCRIPTION	MEDIA SIZE
TOP LAYER	FILTER SAND	0.40 - 0.55 MM
THIRD LAYER	FILTER SAND	1.0 - 1.2 MM
SECOND LAYER	GRAVEL	1/8" X 1/4" STONE
BOTTOM LAYER	GRAVEL	1/4" X 1/2" STONE

TOP LAYER SAND IS TO BE SILURIAN POOL FILTER SAND BY US SILICA CORPORATION.

# HEAD LOSS

# MER-MADE FILTER

# 132 SERIES SAND FILTER

MODEL 132-52  
MODEL 132-64  
MODEL 132-74

MODEL 132-94  
MODEL 132-114

