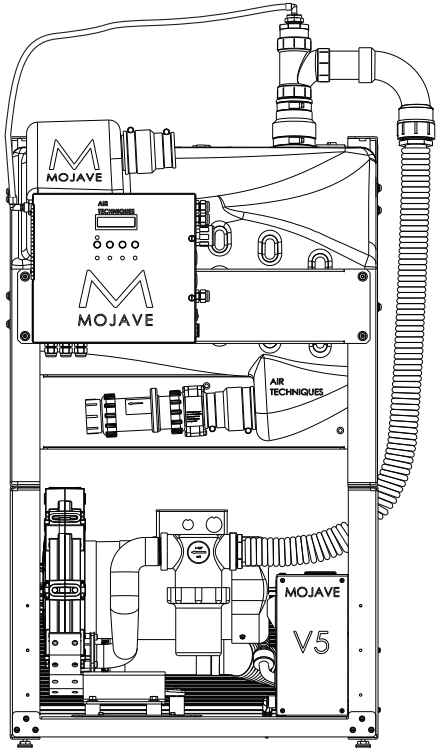
MOJAVE

Dry Vacuum System

Part Numbers V3, V5, 2V3, 2V3CT, 2V5, 2V5CT, 3V5 and 4V5

PRE-INSTALLATION GUIDE

All pumps comply with NFPA 99C level 3 requirements.
All installations must conform to local codes.



System being installed: (AS CHECKED)

- ❑ V3
- ❑ V5
- ❑ 4V5
- ❑ 2V3
- ❑ 2V5
- ❑ 2V5CT
- ❑ 2V3CT
- ❑ 3V5

Doctor: _____

Address: _____

Phone#: _____

Dealer: _____

Dealer Address: _____

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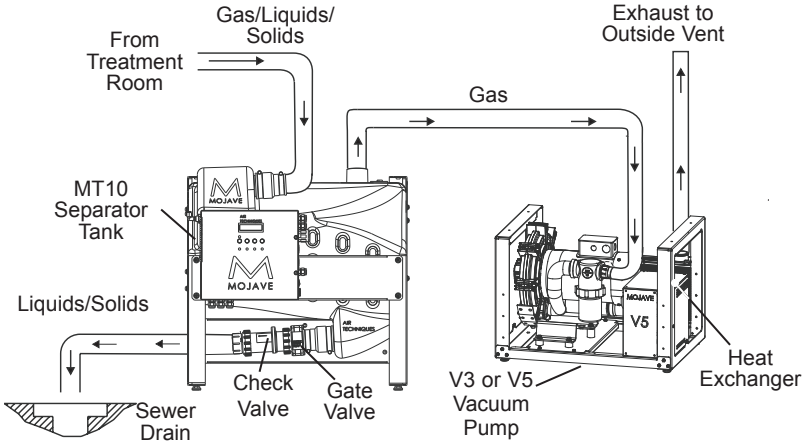
ISO 9001
ISO 13485
FDA-GMP COMPLIANT

MOJAVE SYSTEM CONFIGURATIONS

System Components	V3	V5	2V3	2V3CT	2V5	2V5CT	3V5	4V5
V3 Pump Assembly	1	0	2	2	0	0	0	0
V5 Pump Assembly	0	1	0	0	2	2	3	4
MT10 Tank Assembly	1	1	1	0	1	0	0	0
CT20 Tank Assembly	0	0	0	1	0	1	1	1
Master Controller Assembly	1	1	1	1	1	1	1	1
Maximum Users	3	5	6	6	10	10	15	20



Typical MOJAVE System Installation

Recommended Number of Simultaneous HVE/SE Users

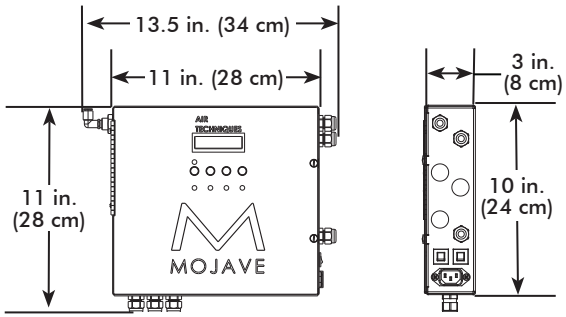
V3	V5	2V3 or 2V3CT	2V5 or 2V5CT	3V5	4V5
HVE + SE	HVE + SE	HVE + SE	HVE + SE	HVE + SE	HVE + SE
3 + 0	5 + 0	6 + 0	10 + 0	15 + 0	20 + 0
2 + 2	4 + 2	5 + 2	9 + 2	14 + 2	18 + 4
0 + 6	2 + 6	3 + 6	7 + 6	12 + 6	13 + 14
	0 + 10	1 + 10	5 + 10	9 + 12	10 + 20
		0 + 12	3 + 14	6 + 18	8 + 24
Note: 1 HVE = 2 SE's			1 + 18	2 + 26	5 + 30
1 HVE = 2 Nitrous Scavengers			0 + 20	0 + 30	0 + 40

Physical Characteristics

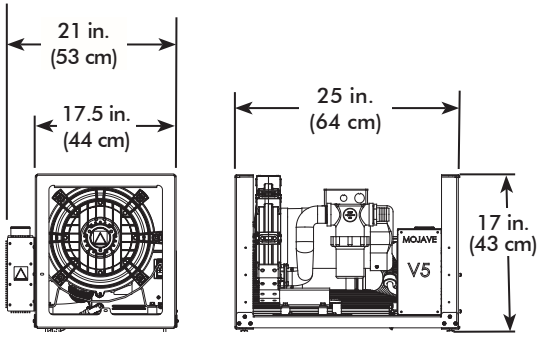
	Master Controller Assembly	Tanks		Typical V3 or V5 System	Pump Configurations		
		MT10 10 Gallon	CT20 Continuum	MT10 Tank Stacked onto One V3 or V5 Pump	One V3 or V5 Pump	Two V3 or V5 Pumps Stacked	Three V5 Pumps Stacked
Width	13.5 in. (34 cm)	29 in. (74 cm)	25 in. (64 cm)	29 in. (74 cm)	25 in. (64 cm)	25 in. (64 cm)	25 in. (64 cm)
Depth	3 in. (8 cm)	22 in. (56 cm)	23 in. (58 cm)	23 in. (58 cm)	21 in. (53 cm)	21 in. (53 cm)	21 in. (53 cm)
Height	11 in. (28 cm)	33 in. (84 cm)	50 in. (127 cm)	50 in. (127 cm)	17 in. (43 cm)	34 in. (86 cm)	51 in. (130 cm)
Weight	13 Lbs. (6 kg)	75 Lbs. (34 kg)	150 Lbs. (68 kg)	220 Lbs. (100 kg)	145 Lbs. (66 kg)	290 Lbs. (132 kg)	435 Lbs. (197 kg)

ASSEMBLY DIMENSIONS

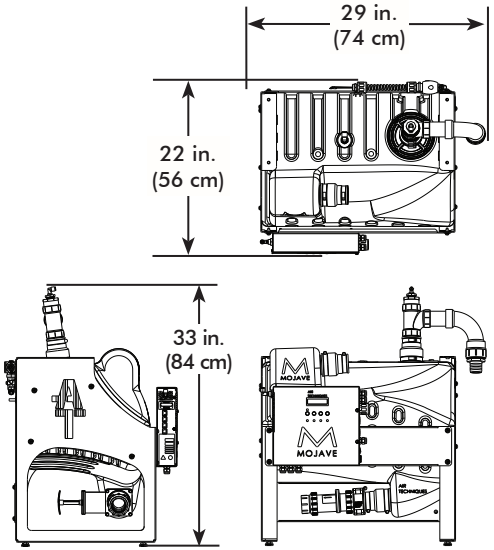
Important:
The Master Controller is mounted on the front of the MT10 or CT20 tank chassis.
Never stack a CT20 Tank on top of any Pump. Never stack a Pump on top of any Tank.
Recommend pumps only be stacked a maximum of two high.
All units shipped with all leveling feet set to lowest position.



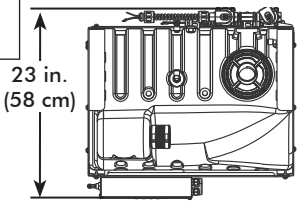
Master Controller Assembly Dimensions

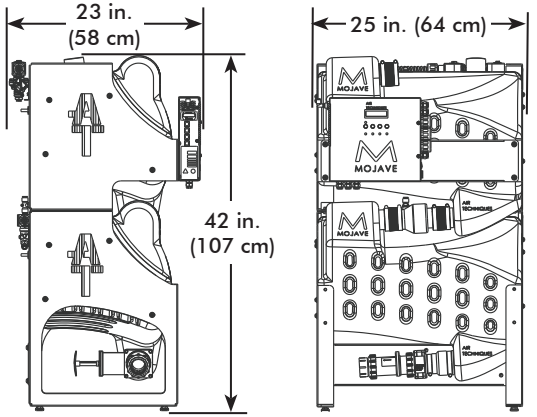


V3 and V5 Vacuum Pump Dimensions

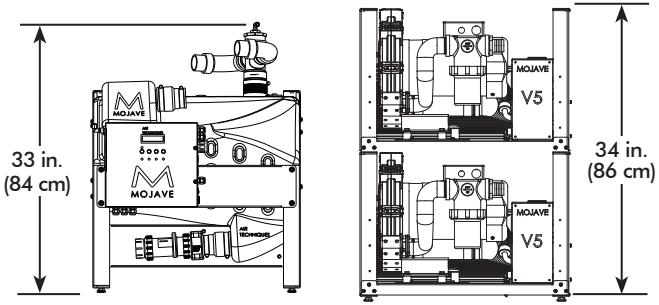


MT10 10 Gallon Tank Dimensions

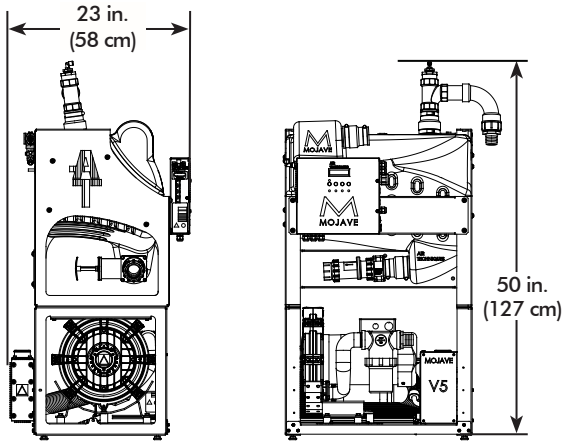




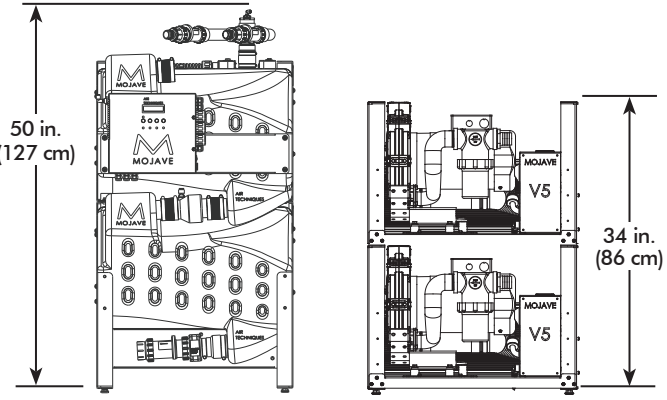
CT20 Continuum Tank Dimensions



2V3 or 2V5 System Installation
Recommended Stacked Pumps with Tank on Side



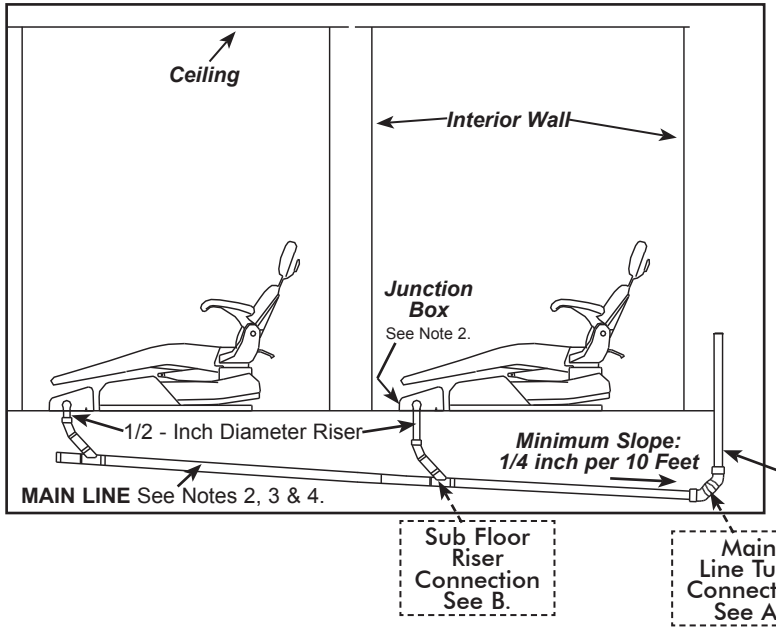
V3 & V5 System Dimensions



2V3CT or 2V5CT System Installation
Recommended Stacked Pumps with CT20 Tank on Side

TREATMENT ROOM PLUMBING INSTALLATIONS

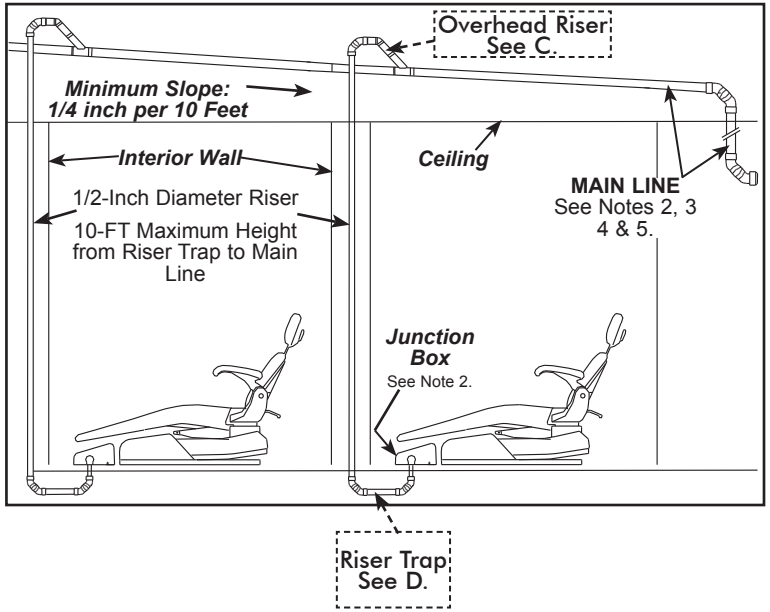
SUB FLOOR INSTALLATION -
Recommended system installation layout should be used whenever possible.



Notes:

1. 10-foot Maximum Height from Main Line to Tank.
2. Consult Dental Unit Manufacturer's Guidelines for correct reduced size and height of termination of vacuum line inside junction box.
3. Limit branches. Orient main line under junction box or cabinet.
4. When piping line is above 3/4" I.D. or larger, use 45° Y's & elbows only.
5. Recommend installing separate line connection for scavenger when using Nitrous scavengers in overhead piping installations.

OVERHEAD INSTALLATION -
Alternate system installation layout should be used only when unable to use the sub-floor plumbing layout.

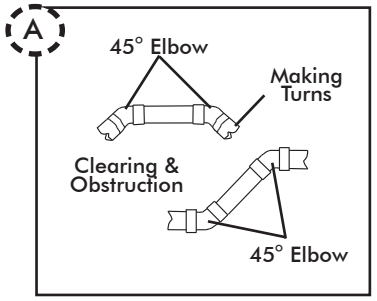


CONNECTOR DETAILS - ALL INSTALLATIONS

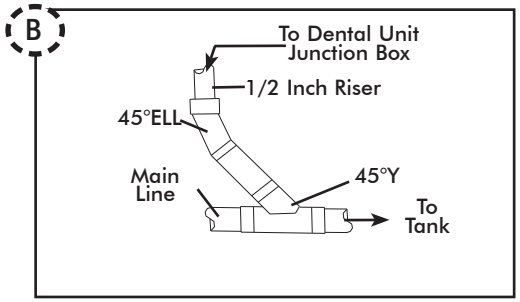
- ❑ Use only 45° elbows to make turns in main line.
- ❑ Make sure to use the proper pipe type for associated system.
- ❑ If piping is diverted to clear an obstruction, DO NOT MAKE A TRAP. See detail A, Main Line Turn Connections.
- ❑ DO NOT use standard 90° elbows.

Important:

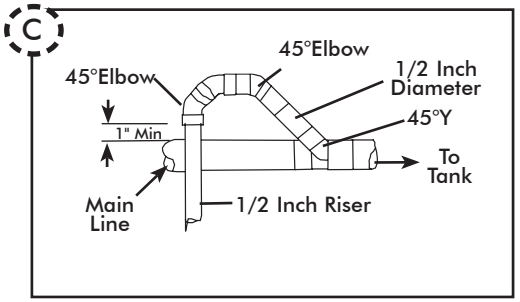
All installation pipes and fittings provided by plumber.
All installations must conform to local codes.



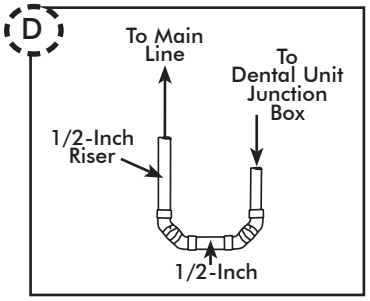
Main Line Turn Connections



Sub Floor Riser to Main Line Detail

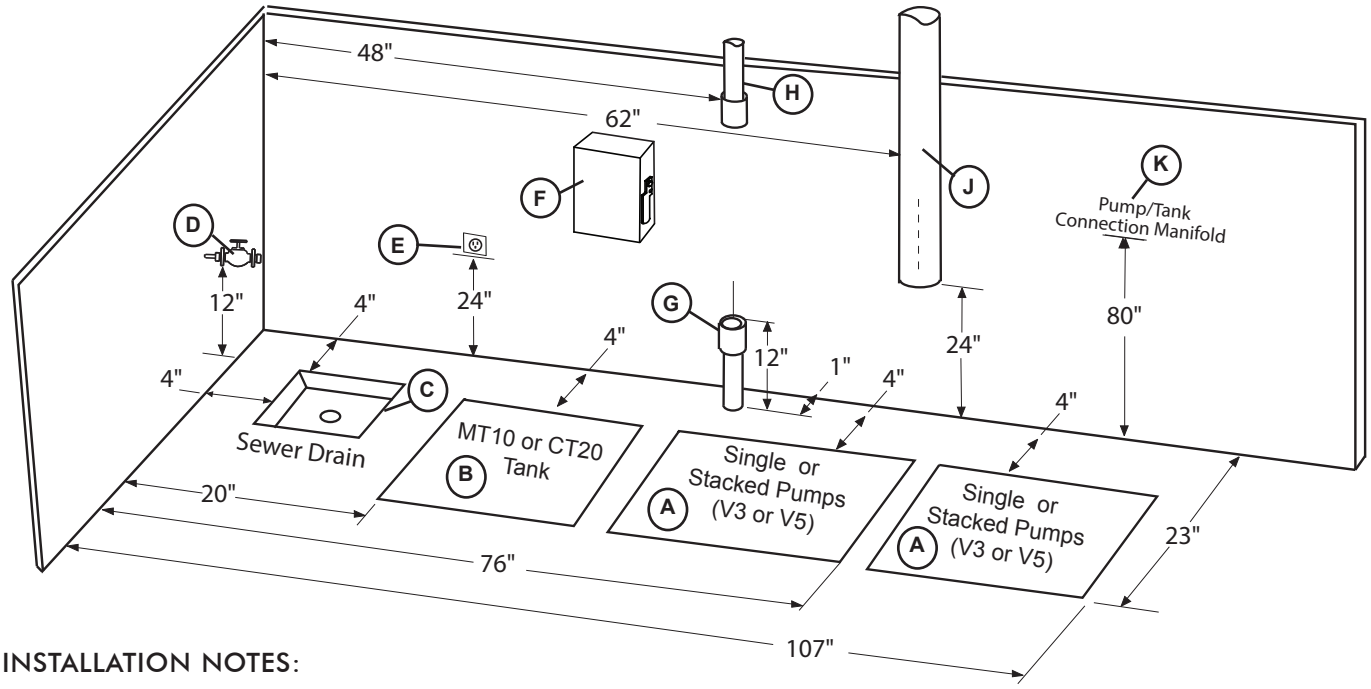


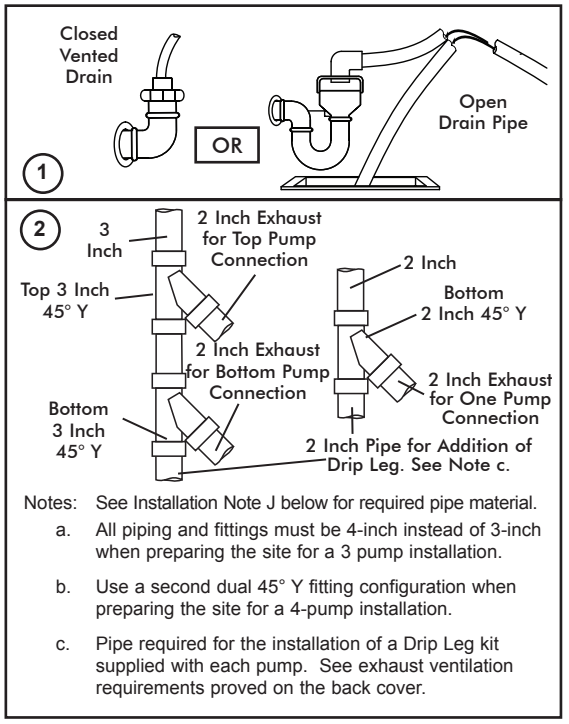
Overhead Riser to Main Line Detail
(Prevents liquids from draining down the 1/2" riser.)



Riser Trap Detail (45° Elbows)

TYPICAL EQUIPMENT ROOM FLOOR PLAN LAYOUT





Notes: See Installation Note J below for required pipe material.

a. All piping and fittings must be 4-inch instead of 3-inch when preparing the site for a 3 pump installation.

b. Use a second dual 45° Y fitting configuration when preparing the site for a 4-pump installation.

c. Pipe required for the installation of a Drip Leg kit supplied with each pump. See exhaust ventilation requirements proved on the back cover.

INSTALLATION NOTES:

A. PUMP INSTALLATION SPACE - Area for stacked or side by side pump installation. Keep 4 inch space from walls. Only stack up to 2 pumps in one area.

B. TANK INSTALLATION SPACE - Area for typical side by side tank installation. Keep 4 inch space from walls. Never install the CT20 tank on top of a pump.

C. SEWER DRAIN - Provide a drain for the removal of waste liquids from the MOJAVE tank. Use an open drain pipe (1 ½" inch P-Trap with 1 inch air gap or floor sink) or a closed vented drain. See detail 1.

D. TANK WASHOUT - Provide a water source terminated with a ½" inch FNPT shut-off valve providing water pressure between 20 and 100 psi for daily tank washout. Valve location must be no more than 10 feet from the tank installation to allow connection of supplied 10-foot 3/8-inch Poly tubing to the tank washout port. Provisions for backflow prevention may be required. Check local code requirements.

E. MASTER CONTROLLER ELECTRIC OUTLET - Master Controller requires a dedicated standalone 120V, 5 AMP grounded receptacle.

F. PUMP ELECTRIC SERVICE - Each Mojave pump is wired directly with a dedicated 220V, 20 AMP, single phase 60 Hz circuit. If Main Circuit panel is not located in equipment room, a disconnect box with approved ground is needed for each pump. Disconnect boxes should be mounted no more than 3 feet of each other and 3 feet of installation center line.

G. SUB FLOOR INSTALLATION VACUUM LINE - See Plumbing Requirements for connection to tank input via supplied hose.

H. OVERHEAD INSTALLATION VACUUM LINE - See Plumbing Requirements for connection to tank input via supplied hose.

J. HEAT EXHAUST - See Plumbing Requirements for the exhaust vent line required for specific Mojave configurations. Use metal pipe on systems whenever the Heat Exchanger is removed. Schedule 40 pipe can normally be used on typical Mojave configuration installations with a Heat Exchanger. When installing two pumps, a reducing Y adapter (shown by detail 2 above) is needed to connect both vent tubes to a common 3-inch exhaust vent line.

K. PUMP/TANK MANIFOLD - User fabricated to connect 3 or 4 pumps to a tank. Used with 3V5 and 4V5 systems. See Pump/Tank Connection Manifold.

SITE REQUIREMENTS

Electrical	V3	V5	2V3 & 2V3CT	2V5 & 2V5CT	3V5	4V5	Master Controller
Voltage Rating	All pumps 220 Volts Single Phase AC, 60 Hz						120
Voltage Minimum/Maximum	205/240 Volts AC All pumps						108/132 Volts AC
Wire Size AWG Minimum Gauge	#12 AWG (Qty 1)	#12 AWG (Qty 1)	#12 AWG (Qty 2)	#12 AWG (Qty 2)	#12 AWG (Qty 3)	#12 AWG (Qty 4)	#14 AWG
Minimum Circuit Breaker Rating	20A	20A	20A (Qty 2)	20A (Qty 2)	20A (Qty 3)	20A (Qty 4)	15A
Incoming Power	Hard wire Connection (Each pump is supplied with a 6 foot BX cable)						NEMA 5-15R (Supplied 6 ft. line cord)
Remote (Low Voltage Wiring)	#18 AWG (Qty 4) Wire Connection between the MMC and the Remote Switch Panel .						

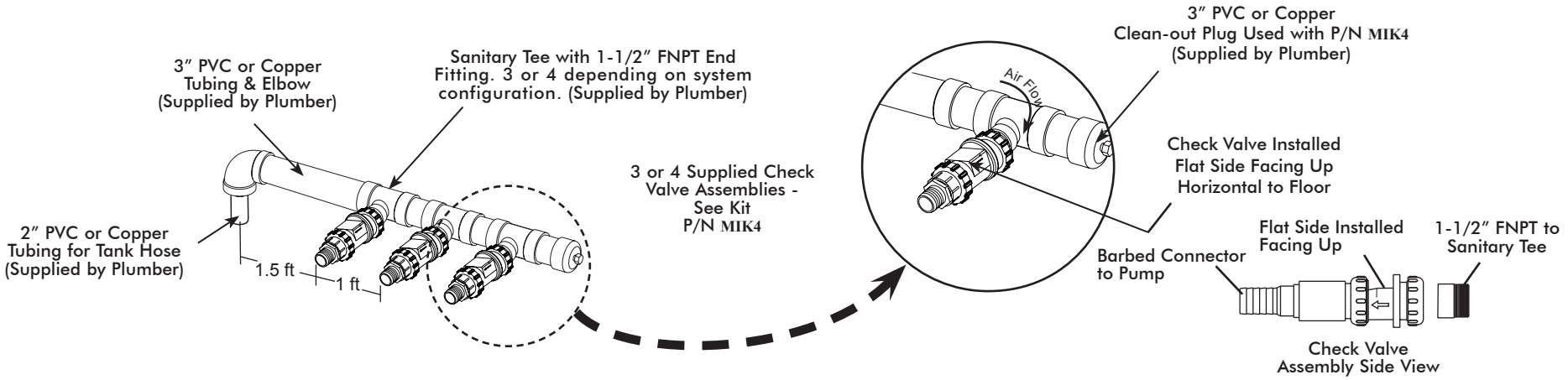
Plumbing	V3	V5	2V3 OR 2V3CT	2V5 OR 2V5CT	3V5	4V5
Exhaust Vent Pipe Using Heat Exchanger	2” PVC Sch. 40	2” PVC Sch. 40	One 3” or two 2” PVC Sch. 40	One 3” or two 2” PVC Sch. 40	One 4” or three 2” PVC Sch. 40	Two 3” or four 2” PVC Sch. 40
Exhaust Vent Pipe Not Using Heat Exchanger (See note 1)	2” Metal Pipe	2” Metal Pipe	One 3” or two 2” Metal Pipe	One 3” or two 2” Metal Pipe	One 4” or three 2” Metal Pipe	Two 3” or four 2” Metal Pipe
Minimum Suction Line Pipe	1” PVC Sch. 40	1 ½” PVC Sch. 40	1 ½” PVC Sch. 40	2” PVC Sch. 40	3” PVC Sch. 40	3” PVC Sch. 40
Maximum Suction Line Pipe (See note 2)	1 ½” PVC Sch. 40	2” PVC Sch. 40	2” PVC Sch. 40	2 ½” PVC Sch. 40	4” PVC Sch. 40	4” PVC Sch. 40
Riser Pipe	½” PVC Sch. 40	½” PVC Sch. 40	½” PVC Sch. 40	½” PVC Sch. 40	½” PVC Sch. 40	½” PVC Sch. 40
Vacuum Line Termination	1 ½” FNPT	1 ½” FNPT	2” FNPT	2” FNPT	2” FNPT	2” FNPT
Branch Line Pipe	Size requirement of Branch piping differs by the number of operatories being serviced. Up to two operatories use 1” PVC Schedule 40 Three to six operatories use 1 ½” PVC Schedule 40 More that six operatories use 2” PVC Schedule 40					
Drain Line Pipe	1 ½” PVC Sch. 40					
Wash-Out Water Line	½” FNPT Shut-off Valve					

NOTES

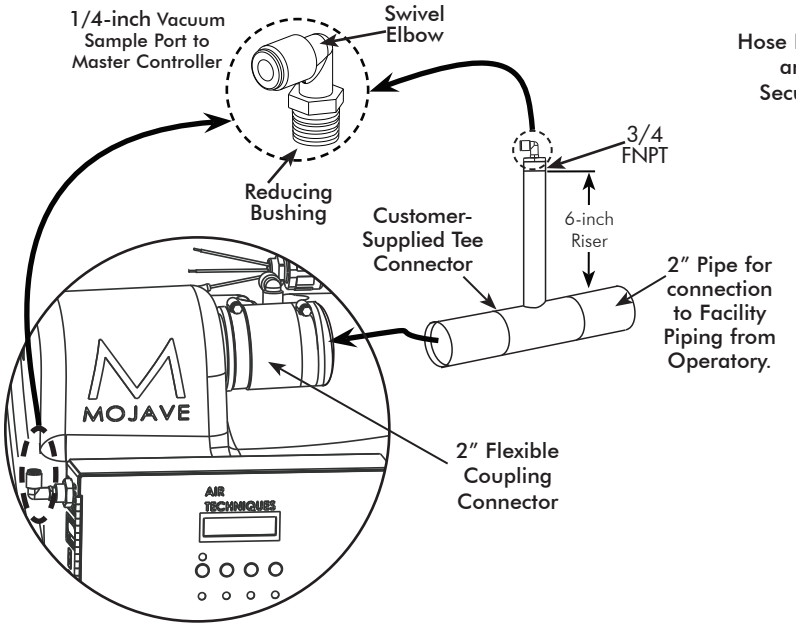
1. Recommended for all new installations.

2. Use maximum internal diameter for the main line when preparing any new installation.

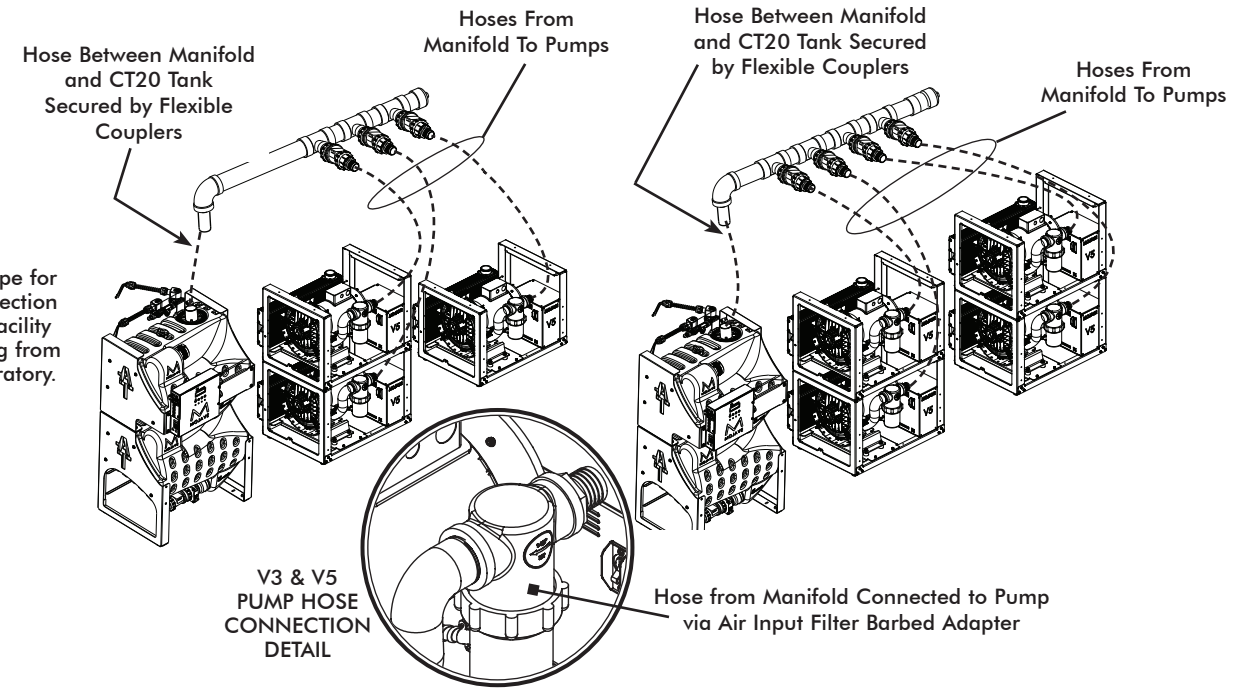
Pump/Tank Connection Manifold Using Accessory Kit



CT20 TANK INLET CONNECTION DETAIL



Note: Hang using at least 3 pipe supports supplied by Plumber.



HEAT EXHAUST CONNECTION NOTES

1. **VENT LINE -** The exhaust vent line required for MOJAVE systems using the Heat Exchanger and systems with the Heat Exchanger removed have different requirements.

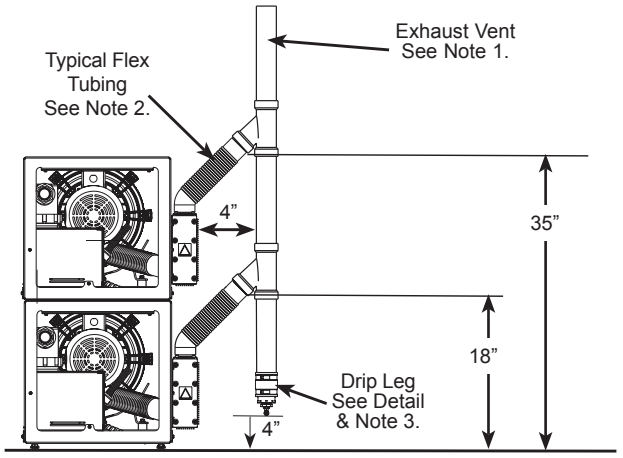
   Use metal pipe on systems without a Heat Exchanger while PVC Schedule 40 pipe can be used on systems with a Heat Exchanger.

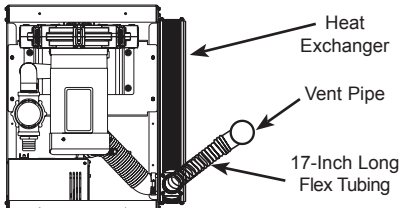
   Do not make a trap in the exhaust vent piping.

   Also see Exhaust Vent Protection and Ventilation Requirements below.

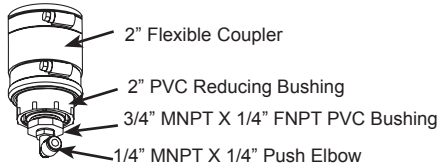
2. **V3 & V5 PUMP EXHAUST VENT CONNECTION -** Connection between the pump and exhaust vent piping is typically made via the supplied 2-inch Black Flex tubing.

3. **DRIP LEG -** The supplied drip leg must be installed at the lower end of the vent pipe to collect condensation produced during pump operation. The bottom of drip leg should be located a minimum of 4 inches from floor. Attach the drain tube to the drip leg quick-connect fitting to allow drainage into floor drain/sink.





V3 or V5 Pump Top View

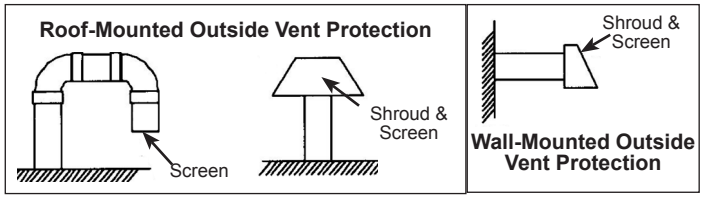


Drip Leg Detail View

V3 & V5 Pump Heat Exchanger Connection

Exhaust Vent Protection.

If the exhaust piping is venting to the outside of the building, precautions must be taken to protect the equipment room from weather elements and animal intrusion. This can be accomplished by using one of the three methods shown on the right.



Exhaust Vent Requirements.

The MOJAVE equipment must be used in a controlled-temperature environment. Maintain equipment room temperature between 40 and 105 degrees Fahrenheit. An exhaust fan is necessary if room temperature is not maintained by other methods.

Adequate forced ventilation must be provided across the unit by placing an appropriate exhaust fan opposite an equivalent air intake vent . The fan should be placed higher than the associated intake vent. Recommended minimum exhaust fan requirements for each MOJAVE unit are listed to the right.

MOJAVE Unit	Watts (Idle)	Watts (Max)	BTU (Idle)	BTU (Max)
V3	886	1,601	3,021	5,462
V5	886	2,245	3,021	7,660
2V3 & 2V3CT	1,772	3,202	6,042	10,924
2V5 & 2V5CT	1,772	4,490	6,042	15,320
3V5	2,658	6,735	9,063	22,980
4V5	3,544	8,980	12,084	30,640