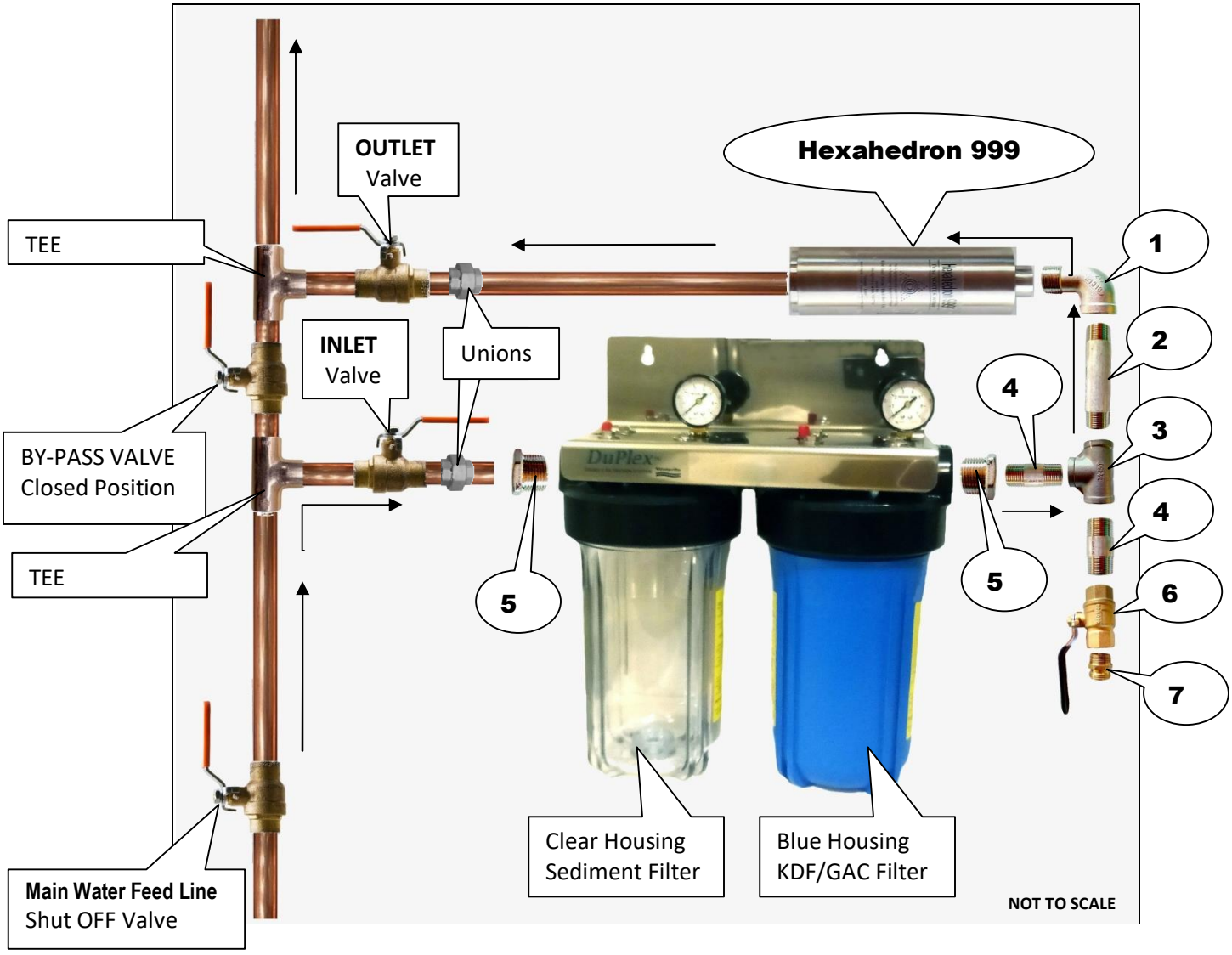
HEXAHEDRON 999®

Whole House Unit – Installation Duplex/Triplex



By-Pass Installation Shown Above

What You Will Need To Buy

According to your piping type (copper, pex, or steel) you will need to have the following for installation as shown above :

- 2 TEES
- 3 By-Pass Valves
- 2 Adaptors from your pipe type to 3/4" NPT Male (not shown)
- 2 Unions 3/4" (optional when using pex) (shown above)

Minimum Space Required

Duplex – Unit Dimensions L-H-D **16 x 22* x 8** (inches)
Triplex – Unit Dimensions L-H-D **23 x 22* x 8** (inches)
Bypass Valves (Left) – Allow approximately 8 inches
Installation Kit (Right) – Allow Approximately 6 inches
Clearance (Top and Bottom) – Allow approx. 6 inches for both

- **H** – 22" Height includes space required for installation kit

What's Included In Your Package

- Filter Housing Kit (Duplex OR Triplex) with Key
- Hexahedron 999 Whole House Unit
- Filter Cartridges **Duplex** – two (2) Sediment, one (1) KDF/GAC
- Filter Cartridges **Triplex** – two (2) Sediment, two (2) KDF/GAC

Installation Kit – Numbered Above

1- One stainless steel elbow
2- One 4 inch stainless steel straight nipple
3- One stainless steel TEE
4- Two 2 inch stainless steel short nipples
5- Two stainless steel 1" x 3/4" reducer bushings
6- One brass ball valve (flush valve)
7- One brass garden hose adapter (flush valve)

- All components are 3/4" NPT pipe thread
- Mounting Screws and Teflon tape are included

How to Install the Hexahedron 999® Whole House Unit

PROFESSIONAL INSTALLATION BY A PLUMBER OR WATER TECHNICIAN IS RECOMMENDED

This unit is designed for 3/4" piping. It can be adapted to 1/2" piping using the proper reducers. If your piping is 1" consult the manufacturer, we have units that are more appropriate for this size and/or we can guide you in adapting a 3/4" unit to your 1" plumping if necessary.

BEFORE YOU BEGIN:

- **Make sure to have all of the necessary fittings on hand before engaging into this project**
  - 2 TEES
  - 3 BALL VALVES … these should correspond to the existing type of piping in your house (copper, PEX, steel, etc.)
  - 2 ADAPTORS … to connect the piping to the filter housing's INLET and the Hexahedron 999's OUTLET. The connection size is 3/4" NPT male to whatever your pipe size and type are. For example, if your piping is 3/4" PEX … you need 3/4" PEX valves, tees and the adapters will be 3/4" NPT male to 3/4" PEX.
  - 2 UNIONS … optional when using PEX but recommended when using hard piping. Unions would be installed between the Inlet Valve and the Filter Housings AND between the Hexahedron 999 and the Outlet Valve piping (see drawing).
- Have a pail ready to retain the water from the cut pipes
- Have a short garden hose on hand (to be attached to the Flush Valve) – and a second pail if you are not near a drain

INSTALLATION KIT ASSEMBLY:

- Apply Teflon Tape (provided) to the male part of all threaded fitting from the Installation Kit
- Install the Reducer Bushings (#5) onto the Duplex Filter Housing … one on the Inlet and one on the Outlet
- Assemble the Tee fittings - one short nipple (#4) and the Tee (#3) – inserted in the Reducer Bushing (#5) on the Outlet of the Housing Kit … as per drawing
- Anchor the Housing Kit in its allocated position on the wall (screws are provided)
- Assemble the rest of the Installation Kit Fittings … as per drawing
- Install the Hexahedron 999 Unit last… Note: direction of flow is indicated on the unit
- NOTE: This assembly will be full of water when in service – so it will be very heavy. Before you anchor the Filter Housing Kit to the wall … you may need to provide a solid backing on the wall so that the screws are secured … accordingly, install a 2 x 6 or 3/4 inch plywood which should be anchored to the wall joists … and mount the Filter Housing Kit onto the backing.

BY-PASS VALVE INSTALLATION:

- This installation requires that a <u>3 Valve By-Pass</u> be plumbed in to feed the water in and out of the system (see drawing).
- Depending on the type of piping in your house you must provide Male 3/4" NPT threaded Adaptors at the Inlet of the Filter Housings and at the Outlet of the Hexahedron 999 Unit. If you have hard piping in your home … you will need to install Unions after the valves as shown in the drawing (optional for pex piping)
- **Note**: If your piping is copper and you need to use solder and heat, it is important to keep the soldering away from the plastic housing otherwise this will cause irreparable damage.
- Our drawing shows the Main Shut Off Valve and Feed Line on the LEFT of the unit. It is critical that the water is fed into the unit from the left side, otherwise the filtration flow will not work. You can position your 3 Valve By-Pass anywhere on the wall … however you will still need to run the plumbing into the left of the unit.
- In order to line up the connection for the 3 Valves and Tees, it is suggested that you dry mount the fittings backwards from the housings to the Feed Line. For example:
  1. From the clear housing install temporarily the adapter … then a short piece of pipe … then the Inlet Valve … then another piece of pipe … then the Tee. Now make sure that the length of the pieces of pipe allow for the Tee to be in the proper position relative to the Feed Line.
  2. Same process from the Hexahedron 999 Unit, install temporarily the adapter on the Hexahedron 999 … then a short piece of pipe … then the Outlet Valve… then another piece of pipe … then the Tee. Now make sure that the length of the pieces of pipe allow for the Tee to be in the proper position relative to the Feed Line.
  3. Now that the 2 Tees are lined up you can measure 2 pieces of pipe to connect the By-Pass Valve between the 2 Tees.

4. **NOW, SHUT OFF THE MAIN WATER LINE … OPEN ALL THE FAUCETS IN THE HOUSE … AND LET THE WATER PRESSURE GO DOWN.**
5. With a bucket close by to catch any water … you can now cut your Main Water Line at the proper place to fit in the 3 By-Pass Valves and Tees.
6. Now you can finalize your connections … crimp your PEX, or solder your copper **(WARNING IF SOLDERING: THE FIRST 2 WELDS FROM THE HOUSING SHOULD BE DONE OFF-LINE IN ORDER NOT TO MELT THE HOUSING MATERIAL.)**

CHECK FOR LEAKS:

Once the 3 Valve By-Pass has been installed … Test For Leaks.

- Make sure all of your household faucets are still open
- To direct the water through the Hexahedron 999 Unit – the Main By-Pass Valve should be CLOSED - the Inlet Valve and the Outlet Valve should be OPEN – the Flush Valve (#6) should be CLOSED … check all of these before the next step is done
- Now, OPEN the Main Water Feed Line Valve
- Let the water and air out through the household faucets
- Verify every connection for leaks
- If you have leaks … CLOSE Main Water Feed Line Valve and OPEN the Flush Valve to drain the water in the system (into a bucket or nearby drain) … Make the necessary repairs … TEST AGAIN and repeat if necessary.
- Once you have verified that all of the connections are secure (no leaks) … proceed to START UP

START-UP:

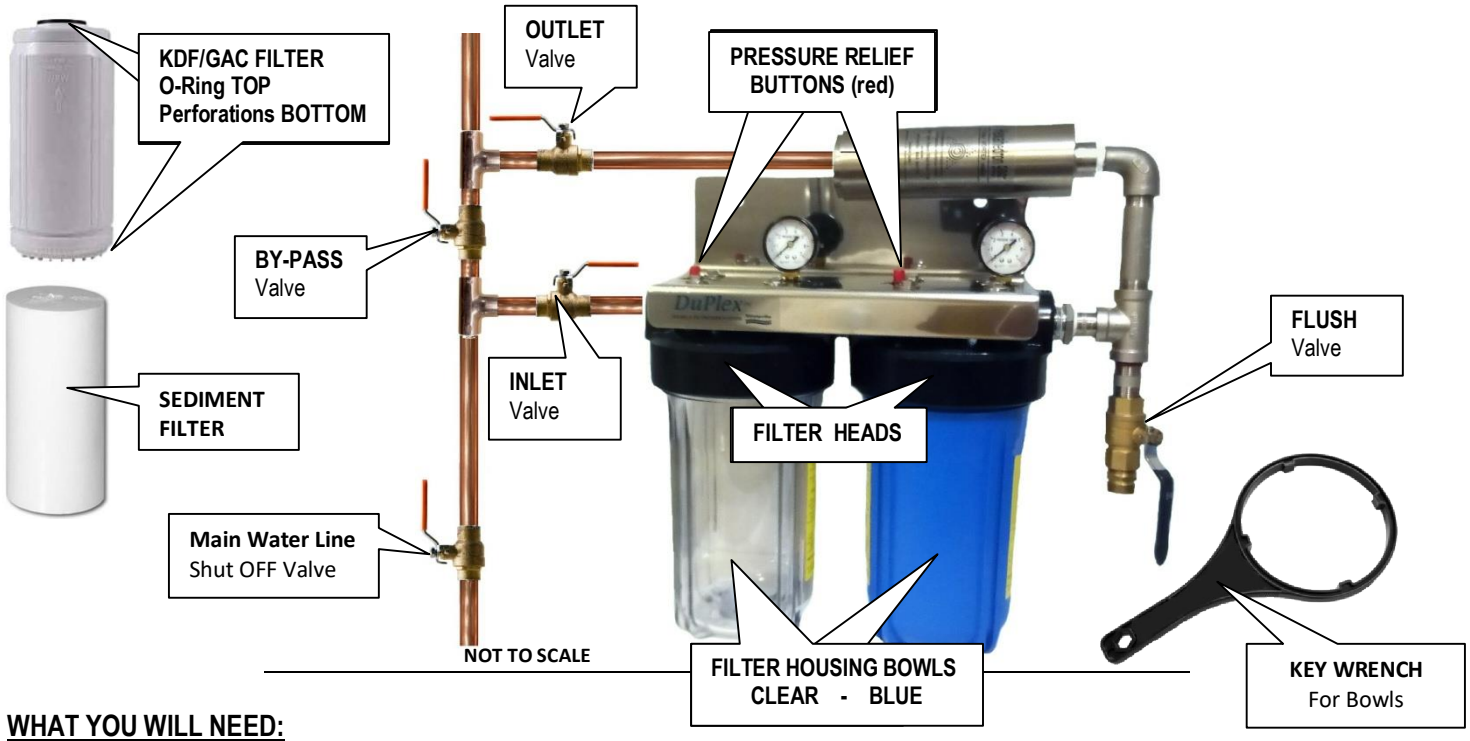
- Make sure that the INLET and OUTLET Valves on the 3 Valve By-Pass are CLOSED
- Attach one end of the Garden Hose to the end of the Flush Valve and take the other end to a nearby drain (or into a bucket) … OPEN the FLUSH VALVE (this is Part #6 of the Installation Kit)
- With a bucket under the Filter Housing to catch the water … twist each one open (using the Key provided) … remove the bowl and empty any water that is inside
- Insert a Sediment Filter into the Clear Housing Bowl … and the KDF/GAC Filter into the Blue Housing Bowl
- Twist each Filter Housing Bowl back into place. Remember the Clear Housing is at the INLET (first in line). The threads can and should be lubricated. Petroleum jelly (Vaseline) can be used on the threads … **but not on the O-rings**. The better solution is to use silicone plumber's grease or vacuum grease.
- The Filter Housing Bowls should be HAND TIGHT, if you need to use the provided Key use it very lightly when tightening (do not over-tighten) … it is provided for opening these housings only.
- Slowly open the INLET VALVE … as the water fills the Filter Housing (Clear), press on the small red button on the top of the Housing. THIS WILL EMPTY THE AIR. Do the same for the second Housing (Blue). Note: you will have water pouring out of the button when the air is all out (release the button when this happens).
- Check the water coming out of the Flush Valve … you will notice that the water is black, this is carbon fines being rinsed out.
- When the water from the Flush Valve becomes CLEAR … Shut Off the Flush Valve (# 6)
- Now – OPEN the By-Pass OUTLET VALVE – to allow the water to flow into all of your faucets.
- Let the water run for 5 minutes and then … CLOSE all of your household faucets that were previously opened

FINAL CONFIGURATION:

• **Hexahedron 999 Unit In Operation** • Flush Valve - CLOSED • Main Water Line Valve – OPEN • By-Pass Valve – CLOSED • Inlet Valve – OPEN • Outlet Valve – OPEN	• **Hexahedron 999 Unit – Off-Line or to Remove Unit** • Main Water Line Valve – OPEN • By-Pass Valve – OPEN • Inlet Valve – CLOSED • Outlet Valve – CLOSED • Flush Valve – OPEN (to drain water if moving system or closed when simply off-line)

Enjoy the new water quality coming into your life

How to Change the Filters
Hexahedron 999® Whole House Unit



WHAT YOU WILL NEED:

- Filter Cartridges: two types
  - Sediment Filter, they look like a white felt or sponge … Install in the CLEAR BOWL
  - KDF/GAC Filter , they look like a thin plastic jar with a flat o-ring on the top and a perforated bottom … Install in the BLUE BOWL
- One bucket to place under the Filter Housing Bowls to catch the water
- A garden hose to attach to the end of the Flush Valve and a second bucket to place the garden hose into (Note: alternatively, you can run the garden hose to a nearby drain)

WHAT YOU DO:

1. Shut Off the Inlet and Outlet Valves
2. Open the Flush Valve … this will release the pressure in the system (make sure there is a bucket underneath before opening)
3. Place a bucket under the Filter Housing Bowl that you wish to change
4. Use the KEY Wrench to unscrew the bowl containing the cartridge to be changed - BEWARE the bowls are full of water and are very heavy
5. Empty the water from the Bowl and remove the old filter
6. Place a new filter inside the bowl. There is no up or down side for the sediment filter … but for the KDF/GAC the perforations go on the bottom of the bowl and the flat O-ring goes on top …Verify that the bowl's O-ring is in place and that the threads are lubricated (Vaseline or plumber's grease)
7. Screw the bowl back into the Filter Head - hand tighten securely, if you need use the bowl's Key Wrench make sure it is only a light tug**. Do not over-tighten** …This wrench is intended for loosening the bowl.
8. Repeat Step 3 to 7 for the second bowl (if changing both filters)
9. Open the Inlet Valve HALF WAY - use the pressure relief button on the top of the Filter Head to release the air in both housings, you will have a constant stream of water coming out around the button when the air is out.
10. Now check the water coming out of the Flush Valve. It will initially be black as the carbon fines are washed out. When the water is clear and flows constantly … CLOSE the Flush Valve
11. CHECK FOR LEAKS around the bowl head. If water is trickling … shut off the Inlet Valve … open Flush Valve again to release pressure … now use the Key Wrench and give a little tug to tighten the bowl (do not over tighten bowl) …. Close the Flush Valve and Open the Inlet Valve …. And check again for leaks (repeat if necessary)
12. When all is well … FULLY OPEN the Inlet Valve and OPEN the Outlet Valve … and enjoy the water

NOTE : <u>KDF/GAC Filter</u> should be changed every 30,000 gallons or when you have chlorine breakthrough or after one (1) year … whichever comes first. <u>Sediment Filters</u> should be changed every six months or when the media is saturated … whichever comes first.