OneFlow®
OF948-16, OF1054-20 EU

Innovative Scale Control

Installation manual

EN **Installation manual**

OF948-16 **OF1054-20**

Watts-Oneflow.com

WATTS®

Contents

1. Introduction 3
2. System specifications 3
2.1 Feed water chemistry requirements
3. Installation 4
3.1 Installation precautions
3.2 Tightening the tank head
3.3 Installation and start-up
4. Equipment specifications 7
5. Replacing the TAC granules 7
6. Alternative method for replacing media 8

WARNING!

It is recommended that all personnel responsible for operation and maintenance of this product read all installation instructions and product safety information thoroughly before beginning the installation of this product to ensure the best possible installation. Failure to read and follow all safety and use information can result in serious personal injury, property damage, or damage to the equipment. This manual contains important operation, maintenance and precautionary information. Keep this manual for future reference and for information on components, maintenance and troubleshooting. On completion of installation, hand this manual over to the equipment's user/operator/owner.

WARNING!

The OneFlow® system is manufactured from the best and most advanced materials available. Each device is quality inspected and pressure tested before shipment. With proper installation and routine maintenance, you will enjoy many years of trouble-free operation and a long service life will be guaranteed.

Please refer to this manual when performing routine granule changes. The instructions make periodic maintenance quick and easy and ensure your system gives maximum benefit.

Systems are certified by WQA to NSF/ANSI Standards 61 and 372 for Lead Free compliance.

1. Introduction

The Watts OneFlow® anti-scale system prevents the build-up of limescale inside plumbing systems. It can be installed at the point of entry to buildings or directly upstream of water heaters, boilers and similar devices that require protection against damage by hard water.

OneFlow® prevents scale build-up by converting calcium and magnesium minerals into microscopic harmless, inactive crystals that remain in suspension in the water and have significantly less capacity to form scale than dissolved ions.

OneFlow® is not a water softener or a chemical additive. It is a scale prevention device with proven third party laboratory test data and years of successful residential and commercial installations. OneFlow® provides effective scale protection and is an excellent salt-free alternative to conventional water softening (ion exchange) systems and chemical additives.

BENEFITS

- Chemical-free scale prevention and protection – converts hardness minerals to harmless, inactive microscopic crystals making OneFlow® an effective alternative technology to a water softener for the prevention of scale due to water hardness.
- Removes existing scale from the internal surfaces of pipes.
- Virtually maintenance free.
- Uses environmentally friendly technology that produces no wastewater, consumes no electricity and does require the constant addition of salts or other chemicals.
- Improves the efficiency of all water using appliances.
- Quick and easy sizing and installation – all you need to know is pipe size and peak flow rate.
- Safe for park and lawn irrigation.
- Compatible with all on-site and community wastewater treatment systems.
- OneFlow® preserves the minerals found naturally in water and does not add sodium to tap water.
- OneFlow® can be installed as pre-treatment to commercial reverse osmosis systems (contact your Watts Representative for further details).
- For high-flow applications, install multiple tanks in parallel.

2. System specifications

Inlet and outlet connections: threaded

OF948-16 connection size: 1” MPT

OF1054-20 connection size: 1” 1/4 MPT

Maximum pressure: 100 psi / 6.9 bar

Nominal flow rate: OF948-16: up to 60 l/min

Nominal flow rate: OF1054-20: up to 75l/min

Maximum temperature: 38°C

Minimum temperature: 5°C

Dry weight: OF948-16 = 16.49 kg | OF1054-20 = 20.05 kg

Service weight: OF948-16 = 61.85 kg | OF1054-20 = 80.38 kg

Capacity: OF948RM and OF1054RM cartridges do not have a grain removal capacity. The granules in OF948RM and OF1054RM anti-scale systems must be replaced at least every three years.

Exceeding maximum flow rate may reduce efficiency and void the warranty.

IMPORTANT

Replace the granules every 3 years.

The system functions in upflow mode. The system does not require additional water for backwashing, rinsing or regeneration, chemical additives or electrical power.

2.1 Feed water chemistry requirements

pH	6.5-8.5
Hardness (maximum)	28.8°dH, 51.3°F (513 mg/L CaCO3)*
Water pressure	1.03 to 6.9 bar
Temperature	5 to 38°C
Free chlorine	< 2 mg/l
Iron (maximum)	0.3 mg/l**
Manganese (maximum)	0.05 mg/l**
Copper (maximum)	1.3 mg/l***
Oil and H_2S	Remove before using OneFlow®
Total phosphates	< 3.0 mg/l
Silica (maximum)	20 mg/l†
TDS	< 1500 mg/l††

Note

Not for use in closed loop systems.

* Systems using OneFlow® technology are effective at controlling scale formation inside plumbing systems at influent hardness levels up to 513 mg per liter (28.8°dH, 51.3°F) of calcium carbonate. Due to variations in water chemistry, 513 mg/l is given as a recommended hardness maximum to avoid potential aesthetic issues related to soft scale residue formation outside of the plumbing system. Testing should be performed to determine proper application where hardness levels exceed 513 mg/l.

**As with conventional water softening media, OneFlow® granules need to be protected from excess levels of certain metals that can easily coat the active surface, reducing effectiveness over time. Public water supplies rarely, if ever, present a problem of this kind, but if the water supply is from a private well, make sure that the chemical characteristics of the water conform to the above requirements.

WARNING!

Installation with copper (Cu)

*** We do not recommend the installation of OneFlow® with new copper pipes or devices. Excessive copper levels can foul the OneFlow® granules. If NEW copper pipes or devices have been installed recently, they need to be passivated for a minimum of 4 weeks before the unit is placed into service.

Note

† OneFlow® systems do not reduce silica scaling. While silica tends to have a less significant effect on scale formation than other minerals, it can act as a binder that makes water spots and scale residue difficult to remove. This 20 mg/l limitation is for aesthetic purposes.

†† All other water contaminants must meet the requirements of the water control agency of the country where OneFlow® is sold and installed.

SOFT SCALE SPOTTING

Depending on the hardness of the water, soft scale spotting may occur on external plumbing surfaces. In most cases, these spots can be easily wiped off with a damp cloth and will not form hard scale deposits.

Water containing dirt and debris should be treated by a prefilter upstream from OneFlow®.

3. Installation

3.1 Installation precautions

Consult the local and national building and plumbing codes and regulations prior to installation. If this information is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.

Periodic inspection and yearly maintenance by a licensed contractor is required. Corrosive water conditions and/or unauthorized adjustments or repair could render OneFlow® ineffective for the service intended. Regular checking, cleaning of the valve's internal components and scheduled inspection help ensure maximum service life and proper functioning. Frequency of cleaning and inspection depends upon local water conditions.

- Install the OneFlow® anti-scale system on the main water service pipe directly downstream of the point of entry to the building and other building water safety devices (backflow preventers or pressure reducing valves), to effectively address water hardness concerns.
- The system may also be installed further downstream to protect specific equipment or areas within a plumbing system.
- The system must be plumbed in with a bypass valve or circuit to allow isolation of the tank and to allow the bypass of untreated water during servicing or media replacement. The installation area should be large enough for the tank to be serviced without encumbrance and for it to sit upright on a flat level surface.
- Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection upstream or downstream of the system.
- Not suitable for use with closed systems/still water. Avoid use in closed circuits (e.g. hydronic systems), low flow installations or with standing water.
- Connect system ONLY to COLD water supply. Water temperature must not exceed 38°C. Do NOT install the system on HOT water pipes. Failure to limit line temperature to 38°C may result in damage to the tank and granules.

- Do NOT allow the system to freeze. Turn off the water supply and drain the tank if temperature falls below 5°C.
- Install a shut-off valve upstream and downstream from the OneFlow® device so that it can be isolated for maintenance.
- Do NOT install the system in direct sunlight or where it is exposed to harsh chemicals or may be struck by moving equipment, carts, mops or any other item that may cause damage.
- Do NOT mount the OneFlow® system near any source of heat or above any device or area that would be adversely effected by water.
- Do NOT install the system if pressure exceeds 6.9 bar.
- Do NOT install the system backwards with the feed water line connected to the outlet. The direction of flow through the OneFlow® unit is always through the inlet first; keep this in mind when determining installation location.
- Place the system on a smooth, level surface. Because the system operates in an upflow, fluidized bed mode, having a level surface is more important than with a softener or media type filter.
- The system must be installed vertically, with the inlet and outlet connections horizontal.
- OneFlow® must be the last stage in the treatment chain. Do not install any filters downstream of OneFlow® or upstream of devices for which scale prevention is required. POU filters, e.g. carbon, RO or Ultraviolet (UV) are exempt from this requirement.
- We do not recommend the use of other antiscalants upstream or downstream of OneFlow®.
- The addition of soaps, chemicals, or cleaners, upstream or downstream of OneFlow® may reverse its anti-scale treatment effects and/or create water with a heavy residue or spotting potential. Adverse conditions caused by the addition of soaps, chemicals, or cleaners are the sole responsibility of the end user.
- OneFlow® is not a water softener or a water filter. The addition of soaps, chemicals, or cleaners, upstream or downstream of OneFlow® may compromise the functioning of the anti-scale treatment and/or create residues.
- Adverse conditions caused by the addition of soaps, chemicals, or cleaners are the sole responsibility of the end user.
- Do NOT use liquid pipe compounds for fitting connections. Use two to three wraps of PTFE tape.
- Do NOT perform welding on the head connection unions. High temperatures may damage or deform the product.
- Do NOT overtighten the (optional) ball valves on the OneFlow® head inlet and outlet connections.
- Always hold valves and fittings steady with a wrench when installing a fitting to avoid turning the valve.
- Position the OneFlow® unit in a suitable location.
- Do NOT install the unit behind equipment where it may be difficult to access to replace the granules.
- If water hammer is evident, install water hammer arrestors upstream of the OneFlow® unit.
-

WARNING!

Closed systems/still water

Avoid use in closed circuits (e.g. hydronic systems), low flow installations or with standing water (max. 72 to 120 hours, depending on the quality of the incoming water).

3.2 Tightening the tank head

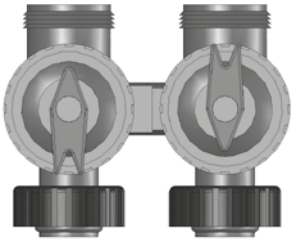
1. Check that the tank head has not become loose during transport. Turn the head by hand until tight.
2. If the OneFlow® system is installed above the ground floor of a building it is recommended that a vacuum relief valve also be installed to protect against tank collapse if the plumbing system is drained. The vacuum relief valve should be installed on the outlet of the system. If no vacuum relief valve is provided, install a bypass in order to isolate the OneFlow® device if the plumbing system is drained.
3. We recommend the installation of a dual-union ball-valve on the inlet and outlet to isolate the tank for servicing. Alternatively, install an optional bypass valve (sold separately).
4. A complete bypass valve or circuit should be installed so that the full service flow can be routed around the system as needed for maintenance.
5. Connect the inlet and outlet pipes according to applicable local regulations. Install test/drain connections to facilitate maintenance.

Bypass valve (optional accessory)

CK-V3006 (EDP# 2182946)

Using the bypass valve

Figure 1



The bypass valve is supplied with the arrows facing as shown in figure 1.

To use the bypass valve with OneFlow®, reverse the positions of the arrows as shown in figure 2.

Proceed as follows:

- Pull out the red knob.
- Turn through 180°.
- Push the red knob back in again.

Figure 2

Valve in operating position

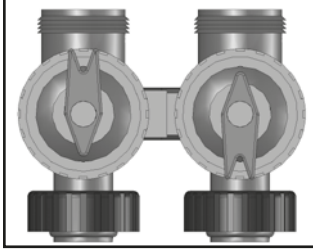
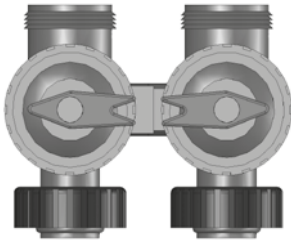
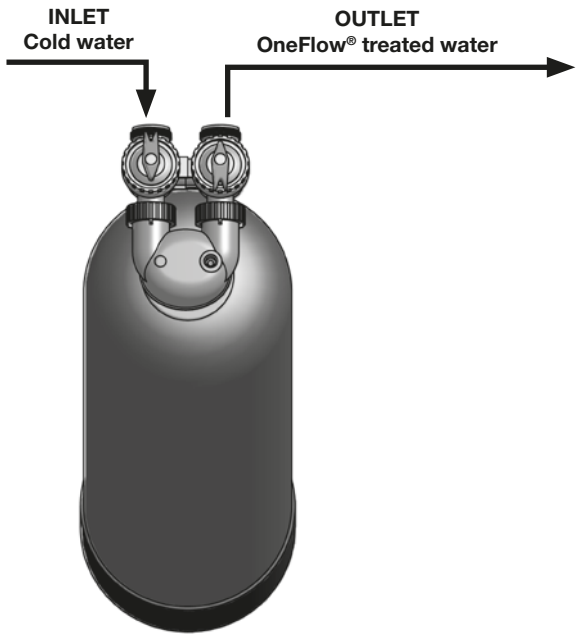


Figure 3

Valve position for maintenance operations that require the tank to be bypassed.





3.3 Installation and start-up

1. Turn off the main water supply to the OneFlow® system and open an indoor tap to relieve any pressure within the plumbing system. Close the indoor tap once pressure is released.
2. Place the system in the desired location. Make sure that the location is level and sturdy enough to support the weight of the wetted system.
3. Connect the cold water supply to the inlet of the OneFlow® system.

NOTE: The OneFlow® system operates in UPFLOW mode, which is the opposite to a conventional softener.

4. Place a bucket under the outlet port or run a line from the outlet port to a drain.
5. Turn the water supply to the OneFlow® system back on. Slowly open the shut-off valve (supplied by the user) to the OneFlow® system. Allow the tank to fill with water. Close the shut-off valve when a steady stream of water comes out of the outlet connection. Water falling into the bucket may splash on to nearby objects. If this threatens the safety, value, structure, or appearance of these objects, protect/remove them or use a hose to connect the outlet to a drain.
6. Connect the outlet of the OneFlow® system to the building cold water supply.
7. Connect the bypass valve or install and close the bypass system.
8. Open the shut-off valve to the OneFlow® system.
9. Open hot and cold taps downstream from the OneFlow® system to bleed any air from the plumbing system and water heaters. Then close the taps.
10. Check for leaks. Repair as necessary.

WARNING!

Record the installation date and TAC granules replacement date on the label on the front of the tank as reminder to replace the OneFlow® granules every 3 years.
The system is now ready for service.

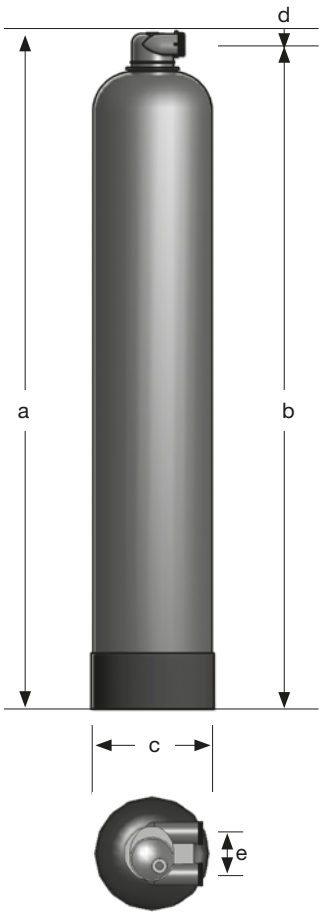
During the first 30-90 days

When OneFlow® is first installed, tap water may appear milky because of an increased scale content as scale is gradually removed from the pipes. Taps may therefore require more cleaning during the first few weeks of system operation.
It is good practice to drain the water heater tank. This should be done 30 to 60 days after the installation of OneFlow® and subsequently every year to improve efficiency. Follow the instructions provided by the manufacturer of the water heater.

www.watts-oneflow.com/register

4. Equipment specifications

OneFlow® systems are complete, self-contained, pre-filled and ready to use. A simple inlet and outlet connection is all that is required for installation. Please check operating pressures, temperatures and water chemistry limitations to ensure compatibility.



MODEL	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)
OF948-16	1334	1270	230	64	76
OF1054-20	1511	1448	255	64	76

Provision for vent valve: 1/4”

NOTE: The overall height and the height of the fitting varies according to the material and assembly tolerances. Please allow additional clearances above the tank for making connections.

Exceeding maximum flow rate may reduce efficiency and void the warranty.
Pressure drop at peak flow rate is less than 1 bar. Pressure drop reading taken with inlet and outlet gauges installed at a common elevation and with feed water at 26.7 °C (80 °F).

5. Replacing the TAC granules

Replace OneFlow® granules every 3 years. Dispose of spent granules in conformity to applicable regulations.

1. Shut off the main supply to the OneFlow® tank.
2. Open a tap downstream to release pressure in the tank and water pipes upstream and downstream of the system.
3. Shut the valves immediately upstream and downstream of the tank to isolate it.
4. If an optional bypass valve (EDP #2182946) is installed, set it to bypass position.
5. Disconnect the the inlet and outlet connections of the tank and remove them from the head.
6. Using a strap wrench, remove the threaded head assembly (turning counter-clockwise) and remove the complete upper assembly including the white-coloured PVC upper basket. Rinse these parts in a nearby sink or bucket of water. Do not drain the tank.
7. Remove the distributor tube with the bottom strainer. Rinse these parts in a nearby sink or bucket of water.
8. Take 2 metres of Schedule 40 3/4” PVC pipe and a length of 1” polyvinyl hose. The length of hose depends on the distance to the nearest floor drain.
9. Insert one end of the pipe into the hose and push the other end of the pipe into the top of the tank and down into the media. Put the other end of the hose inside a filter bag and place the filter bag on the floor drain.
10. Take a garden hose and fit it to the open end of the poly hose to fill the hose and pipe with water. Air will bubble out of the tank. Once all the air is out of the hose and pipe, start a siphon to remove the media. Place the garden hose in the top of the tank and turn the tap on to keep the tank full of water. Push the pipe up and down in the media to get them all out. The filter bag will catch the media, leaving the water to flow down the drain.
11. Do not apply excessive force when removing the media. Proceed gradually to avoid clogging the pipe or hose. Let the water flush out the pipe.
12. When the spent granules have all been removed, turn off the garden hose and continue to siphon until the tank is about half full of water.
13. Reinstall the distributor tube and bottom strainer removed in step 7. Make sure the assembly is properly centred in the bottom of the tank and flush with the top of the tank. **To prevent media from entering the distributor tube**, cap the open top end of the tube with plastic sheeting and tape. Check to make sure it will not come off during the media filling process. Carefully pour in a fresh bag of media that meet the specifications of the tank.
14. Inspect the threaded connection on the top of the tank to ensure no loose granules are stuck to the internal threads. If visible, wipe away the granules with a damp cloth.

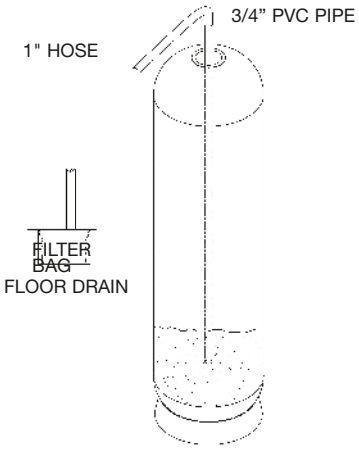
15. Re-attach the head assembly to the distributor tube and thread the head assembly back on to the tank. Hand tighten the head until the connection is tight.
16. Reconnect the inlet and outlet connections.
17. If an optional bypass valve is installed, set it to operating position.
18. Slowly open the feed water valve to fill the tank.
19. Purge the air at a downstream tap close to the system.
20. Once the tank is full, wait 4 hours for the granules to hydrate.
21. Put the tank in service.

6. Alternative method for replacing media

Follow steps 1 to 6 then:

- Remove the central distributor tube and bottom basket and siphon all the water from the tank.
- Lay the tank down on its side and then tip it upside down while using a hose to flush the granules out.
- When all the spent granules are removed, stand the tank upright again and return it to its original position. Fill the tank with water until it is about half full.

Continue with steps 12 to 19.



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Warranty

All WATTS products are extensively tested. The warranty covers only the replacement or repair – at the sole discretion of WATTS – of the components of the products supplied, free of charge, if, in the opinion of WATTS, they exhibit verifiable manufacturing defects. The period of limitation for claims based on defects or defects in title is two years from delivery/the passage of risk. This warranty shall not cover damage deriving from normal wear and tear or friction and any unauthorised modifications or repairs, for which Watts will not accept any request for compensation for direct or indirect damage (for full details see our website). All sales subject to the Watts terms to be found on www.wattswater.eu.

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