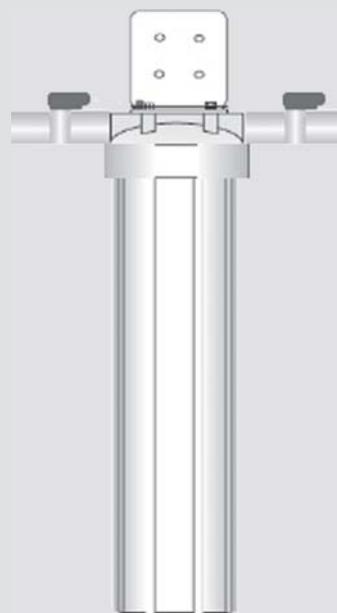


OPERATION AND INSTALLATION

Hard Water Mineral Scale Prevention for Tankless Water Heaters

» Scale TAC-ler



STIEBEL ELTRON

SPECIAL INFORMATION

OPERATION

1. **General information** _____ 2
2. **Package contents & parts list** _____ 2
2.1 Key components parts list _____ 3
3. **Operating conditions** _____ 3

INSTALLATION

4. **General information** _____ 4
5. **Required supplies** _____ 4
6. **Installation** _____ 4
6.1 Select an installation location. _____ 4
6.2 Shut off main water supply and drain pipes. _____ 4
6.3 Cut into existing main water line _____ 4
6.4 Mount on wall _____ 4
6.5 Connect to existing plumbing _____ 4
6.6 Open filter cartridge _____ 5
6.7 Turn on the water _____ 5
7. **After installation** _____ 5
7.1 Water heaters _____ 5
7.2 Dishwashers _____ 6
7.3 Glass shower doors _____ 6
8. **Maintenance** _____ 6
8.1 Obtaining replacement filter cartridges _____ 6
8.2 Filter cartridge replacement procedure _____ 6
9. **Data table** _____ 6
10. **Warranty** _____ 7

SPECIAL INFORMATION

Important Notes:

- Please read this manual carefully before attempting installation. Failure to follow these instructions may void your warranty, cause injury, or result in property damage.
- The housing sump should be replaced every 10 years or if you notice any cracks or damage.
- This filter system should not be used with water that is microbiologically unsafe or of unknown quality without adequate disinfection before and/or after the system.
- Water filter systems should never be exposed to freezing temperatures - severe damage to the filter and housings could result. Such damage is not covered under any warranty.
- After prolonged periods of non-use (such as a vacation), it is recommended that the system be flushed thoroughly for at least 5-10 minutes before using the water.

OPERATION

1. General information

Thank you for your purchase of your Scale TAC-ler Series Salt-Free Hard Water Conditioner. You have purchased one of the finest hard water treatment systems on the market today. Scale TAC-ler uses the latest in salt-free hard water conditioning media technology to reduce or eliminate hard water mineral scale in tankless water heaters. Scale TAC-ler is an environmentally-friendly alternative to conventional water softeners to prevent the formation of hard water scale in your plumbing system, water treatment equipment, water heater, dishwasher, and more.

This manual is designed to provide owners, installers, and service technicians with detailed information about the installation, start-up, and operation of your new water treatment system.

The heart of your Scale TAC-ler system is its highly-specialized Template Assisted Crystalization (TAC) media. To ensure optimal performance and life of your TAC media, it is important that these instructions be followed and that the system is operated within the technical specifications provided. Your warranty may be voided if you fail to follow these instructions and/or fail to operate your treatment device within the guidelines noted.

Your Scale TAC-ler water treatment system is designed to offer low maintenance operation. The Scale TAC-ler filter cartridge will need to be replaced roughly every 2 years. As the TAC media is the most critical component to the success of your Scale TAC-ler system, we strongly recommend that only authentic Stiebel Eltron Scale TAC-ler Series filter cartridges be used to replace your cartridges.



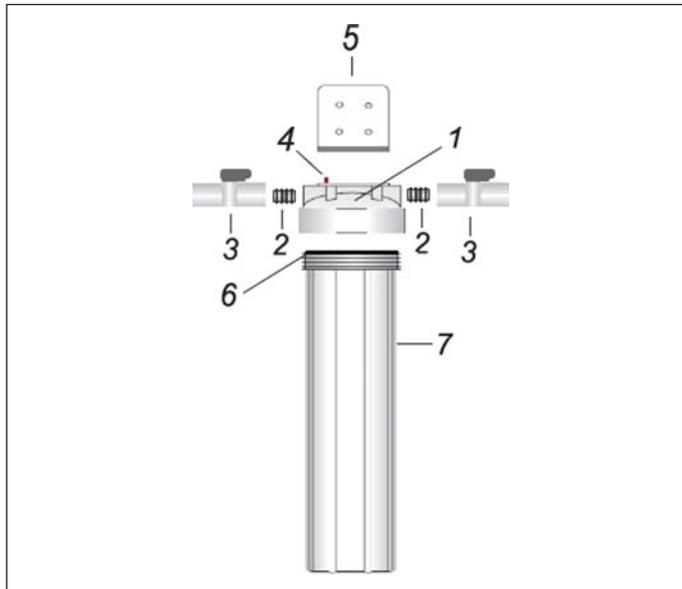
NOTE:
Read these instructions carefully before using the appliance and keep them for future reference.
Pass on the instructions to a new user if required.

2. Package contents & parts list

The Scale TAC-ler arrives with the following parts included:

- ▶ one heavy-duty filter housing with 3/4" NPT fittings, inlet and outlet shut-offs and pressure relief button
- ▶ one mounting bracket and related lag bolts (4), pan-head screws (4) and washers (8)
- ▶ one Scale TAC-ler filter cartridge (shipped inside housing - remove protective wrap before using)
- ▶ one spanner wrench

2.1 Key components parts list



- 1 Housing cap
- 2 3/4" nipple (cannot be seen unless disassembled) (2)
- 3 3/4" shut-off valve (2)
- 4 Pressure relief button (1)
- 5 Mounting bracket (1)
- 6 O-ring (1)
- 7 Housing sump (1)
- 8 Small parts bag (not shown), containing:
 - Mounting bracket lag bolts (4)
 - Pan-head screws (4)
 - Washers (8)



MATERIAL LOSSES:

Confirm that your water conditions meet the operating conditions above before commencing the installation process. If in doubt, call your dealer for advice.

3. Operating conditions

The following list provides guidance on the conditions required for successful operation of your Scale TAC-ler system. Use of this equipment outside of these operating conditions may adversely affect the performance of your system, damage the TAC media, result in system damage including water leaks and resulting property damage, and may void your warranty.

It is very important to note that the presence of elevated levels of chlorine, iron, manganese, hydrogen sulfide, copper, and certain other contaminants can damage the TAC media, reducing its effectiveness and shortening its life. Water exceeding any of the following levels should be pre-treated to reduce contaminant levels below the stated level:

	Scale TAC-ler
Optimal hardness level for treatment	0.4-1.8 gpg (7-30 mg/l)
Max. treatable hardness level	75 gpg (1,283 mg/l)
pH range	6.5 to 8.5
Chlorine max.	3 ppm (3 mg/l)
Hydrogen peroxide max.	0.5 ppm (0.5 mg/l)
Iron max.	0.3 ppm (0.3 mg/l)
Manganese max.	0.05 ppm (0.05 mg/l)
Copper max.	1.3 ppm (1.3 mg/l)
Max. water temperature	110°F (43°C)
Recommended pressure range	15 to 80 psi (1 to 5.3 bar)

Hydrogen sulfide (H₂S), polyphosphates, and oils must be removed.
Do not allow TAC media or the water in your Scale TAC-ler system to freeze.

INSTALLATION

4. General information

While we strongly recommend that a licensed plumber perform all installation work, a mechanically-inclined homeowner can install a Scale TAC-ler system. In all cases, it is critical that the installation be done in accordance with these instructions and all applicable plumbing codes. Be sure to obtain all required permits. If these instructions and the applicable codes are in conflict, the relevant plumbing/electrical code shall be followed. Equipment failure, personal injury, or property damage can result if this equipment is not installed properly.

5. Required supplies

You will need the following plumbing supplies:

- The fittings on the Scale TAC-ler system are designed to accept 3/4" NPT (male) fittings.
- PVC or PEX pipe is recommended for all installations involving Scale TAC-ler series systems. While copper may be used, it is not recommended.
- Teflon tape for thread sealing. Do not use pipe dope.

Your plumber will have these items, or they can be purchased at your local hardware or plumbing supply store at minimal cost (take these instructions to the store with you so the store clerk can make sure you get everything you need). Only use galvanized fittings for installation on galvanized pipe.

6. Installation

6.1 Select an installation location.

This product is intended for indoor installation only. This filter may be used to treat all of the water for an entire building if the flow rate is less than 6 gallons per minute, however, it is more commonly used to treat only the water going to a tankless water heater. How you plan to use this product will determine the location of installation. In any event, select an installation location with convenient access for regular filter replacements and maintenance. The Scale TAC-ler conditioner is design to be installed after treatment equipment designed to remove iron, manganese, hydrogen sulfide, sediment, and chlorine (if applicable). Polyphosphate feeders should never be placed before or after the Scale TAC-ler conditioner.

If you plan on using this product to treat all of the water entering the building, this filter should be installed on the main cold water line after the pressure tank or water meter, and after most any other water treatment equipment except a UV sterilizer or chlorinator. The recommended sequence of water system/treatment equipment if you are using this product to treat all of the water for the building is as follows:

- Pressure Tank or Water Meter If Applicable
- Branch Line to Outdoor Irrigation
- Backwashing Iron Filter (if equipped)
- Cartridge Filters for sediment, chlorine, taste & odor treatment.

- Scale TAC-ler Salt-Free Hard Water Conditioner
- UV Sterilizer or Chlorinator for Disinfection of Bacteria, Viruses, etc. (if equipped)

If you are using this product to treat just the water going to a specific application in the building (tankless water heater or dishwasher for instance), it should be located on the branch water line prior to the appliance or equipment that you are seeking to protect from hard water scale, but after most other water treatment equipment. If this filter is used after a chlorinator and it is possible that the free chlorine level could exceed 3 ppm (mg/l), it is recommended that you install a activated carbon filter ahead of the Scale TAC-ler system to remove the chlorine prior to the filter. Excess chlorine can harm the media.

6.2 Shut off main water supply and drain pipes.

Opening the highest and lowest fixtures in the house will help drain the pipes.



MATERIAL LOSSES:

If you have an electric water heater (tankless or conventional), TURN OFF all power to the water heater before proceeding. If you fail to do this, you may cause severe permanent damage to its heating elements.

6.3 Cut into existing main water line

Using a pipe cutter, cut out a section of your main water line at the point where you want to install your filter system. There will probably be some water remaining in the system, so be sure to have a bucket and some rags handy to clean up any small spills. Make sure that the section of water line you remove is appropriately sized such that all of the components of the system including the shut-off-valves, adapters, and the black filter cap will fit snugly when assembled. If in doubt, cut a smaller section at first – you can always remove a slightly larger section upon final assembly if necessary.

6.4 Mount on wall

Attach the mounting bracket to the housing cap using the 4 lag bolts and 4 of the washers provided, then securely mount the housing to the wall using the 4 pan-head wood screws and the remaining 4 washers. If you are securing the system to drywall or plaster, be sure that the wood screws reach a wood stud, or alternatively, install appropriate anchors for secure support. If mounting to concrete or other surface, you may need to purchase alternative fasteners from a hardware store. Be sure to allow enough space below the housing cap to accommodate the white housing sump plus a minimum of an additional 3 inches of clearance.

6.5 Connect to existing plumbing

Make the appropriate plumbing connections between the inlet and outlet shut-off valves and your plumbing lines using appropriate union fittings where necessary.

Your Scale TAC-ler unit is supplied with 3/4" NPT threaded (female) fittings on the inlet and outlet.

**IMPORTANT WARNINGS REGARDING PLUMBING CONNECTIONS TO THE SYSTEM:**

Teflon tape should be used on all threaded fittings. Plumber's cement should NOT be used.

If possible, we recommend that PEX or PVC pipe be used for all new plumbing pipe used in connection with the installation. This is because new copper water lines may release some copper ions into the water for several weeks after installation and these ions can have a negative impact on the Scale TAC-ler system's TAC media. To further minimize any problems with copper, avoid applying excess flux on the inner surfaces of the pipe and use a low-corrosivity water soluble flux listed under the ASTM B813 standard. For homes with significant newly installed copper pipes prior to the Scale TAC-ler unit, it is recommended that installation of the Scale TAC-ler cartridge be postponed for 3-4 weeks to allow a protective coating to form on the new copper pipes.

If you wish to use copper piping and will be soldering the joints, DO NOT apply heat near your Scale TAC-ler unit or connection fittings, or serious internal damage to these parts could occur. Always solder joints with these components detached.

**NOTE:**

If your water pipes are metal (galvanized or copper), they may be used to ground electrical systems, appliances, or your phone line. If this is the case, be sure to install regulation ground clamps to the metal pipe on each side of the Scale TAC-ler unit and connect a jumper wire between the 2 clamps (#4 gauge solid copper wire recommended). Consult a certified electrician or plumber if you are unsure.

If you suspect that your water pressure will at any time exceed the maximum rating of 90 psi (6.2 Bar), a pressure regulator must be installed before the system. It is recommended that the pressure regulator be set at 75 psi (5.2 Bar) or less.

6.6 Open filter cartridge

Remove the protective plastic wrap from the filter cartridge and place it in the white housing sump. The wider part of the Scale TAC-ler cartridge is the top. At the bottom of the sump, there is a raised portion in the middle (standpipe) that will help center the filter in the housing. The standpipe will fit inside the hole in the bottom of filter cartridge. Store any spare filters in a cool dry place for future use (do not unwrap the protective plastic wrap on your spare filters until you are ready to use them). Check to make sure that the O-ring is seated properly at the top of the housing sump. Screw the housing sump onto the housing cap. Hand tighten only. It is not necessary to over-tighten to create a good seal. You can use the spanner wrench for convenient grip, but do not use excessive force.

**NOTE:**

It is normal that the filter cartridge is not full. The filter cartridge contains 0.4 gal (1.5 l) of media. The remaining space, called freeboard, is important to allow the media to fluidize during normal flow conditions. This enhances system performance.

6.7 Turn on the water

Turn on the water and inspect all plumbing connections very carefully for leaks. Also inspect the seal between the housing cap and the housing sump to ensure that the O-ring has formed a good seal. Tighten this connection again using the spanner wrench (do not use excessive force) if necessary. If this connection still leaks, turn off the water supply and check to make sure that the filter is aligned properly in the housing, and the o-ring is properly seated in the groove at the top of the sump and repeat your test for leaks. When you are confident that all connections are sound, run cold water for 5 minutes at any faucet to purge air out of your system and to prime the filters. It is safe to turn on the power to your electric water heater again once all air is purged.

7. After installation

During the first few weeks after the installation of the Scale TAC-ler conditioner, a de-scaling effect whereby existing hard water scale previously built-up in the plumbing system is released, will often occur. Over time, this will enhance performance of water heating equipment and restore flow performance of plumbing fixtures. However, it may be necessary to clean out your faucet aerators and showerhead periodically during this time to remove pieces of scale that have dislodged from your pipes. This effect will stop once the pipes have been de-scaled.

After installation of Scale TAC-ler, low or phosphate-free cleaning products (for clothes and dishwashing) are recommended to achieve optimum results. Modern surfactant or detergent based, liquid soaps are preferred over old-fashioned caustic solid soaps.

7.1 Water heaters

Existing mineral accumulations in your water heater may also de-scale after the installation of your Scale TAC-ler System. If you have a traditional water heater, we recommend that you clean out this material by opening the bottom drain valve on the hot water heater 30 to 60 days after installation of Scale TAC-ler. Be sure to turn off the electricity or gas to your water heater before draining your tank. Follow the manufacturer's instructions for draining and flushing the tank. The good news is that a clean water heater uses much less electricity or gas to keep the water hot!

INSTALLATION

Maintenance

7.2 Dishwashers

To accelerate de-scaling in your dishwasher, you may wish to put a cup of white vinegar in the upper basket during the washing cycle for the first few weeks. You can also use citric acid or a commercial product like CLR or Lime Away instead of the white vinegar. This will help dissolve the existing scale in the washer arms and inside surface of the dishwasher. You may need to do this until all of the scale in the plumbing is dissolved. If you are using harsh dishwashing detergents that have low pH, high chlorine, and phosphates, some of the nano-crystals formed by the Scale TAC-ler system may break down and cause spotting on the dishes. We recommend that you reduce your soap usage as much as 50%, and that you use eco-friendly phosphate-free dishwashing detergents. Using an anti-spotting agent such as Jet-Dry® or Finish® may also be useful.

7.3 Glass shower doors

Over a few weeks you may see the existing scale slowly dissolve in your shower heads thereby increasing water flow. You may need to clean the inlet screen of your shower head during the first few weeks as mentioned previously to remove some of the scale that is being removed from your pipes. We recommend that you first clean the shower with a cleaning product that dissolves old scale that has built up before installation of the Scale TAC-ler conditioner system. CLR or Lime Away are good cleaner choices for this purpose. We then recommend that you coat the walls in the shower, and your glass shower doors with Rainx, a commercial product used for automobile windshields. The Rainx allows the majority of the nano particles to be easily washed to drain. The few nano particles that are left can be easily wiped down because they can no longer adhere to the sides of the shower.

8. Maintenance

The filter cartridge in your system will need to be replaced every 2 years or sooner if hard water scale is noticed. Use only genuine Stiebel Eltron Scale TAC-ler Cartridges for replacement. Use of an alternative media may adversely affect the performance of the system.

8.1 Obtaining replacement filter cartridges

Replacement filters can be obtained from your dealer. Replace the Scale TAC-ler cartridge every 24 months or if hard water scale returns

- Replacement cartridge part number: 692443

8.2 Filter cartridge replacement procedure

- ▶ Turn off the water supply to the system using the red shut-off valve on the inlet of the filter housing. Open a hot water faucet downstream of the housing to release pressure. Close the shut-off valve on the outlet of the filter. Depress the pressure release button on the top of the filter housing cap to allow any remaining pressure inside the housing to escape.
- ▶ Unscrew the housing sump from the cap using the spanner wrench (included with original purchase of your system).
- ▶ Take out the old filter cartridge and discard it.

- ▶ Scrub the bottom of the housing and cap with dish soap and warm water using a sponge or soft cloth. Fill 1/3 with water and add about 2 tablespoons of household bleach (unscented). Scrub to disinfect (we recommend that you use rubber gloves). Rinse all parts thoroughly!
- ▶ Inspect the O-ring. The housing O-ring should be replaced if it is kinked, cracked, stretched, etc., or if any leakage between the housing cap and the housing sump is detected and does not seal after proper tightening. Lubricate the O-ring only with food-grade silicon lubricant if needed. DO NOT use petroleum jelly.
- ▶ Remove the protective plastic wrapping from the new filter cartridge and insert the cartridge into the housing sump, making sure that it slips over the standpipe in the bottom of the housing. The wider part of the cartridge is the top.
- ▶ Check to make sure that the O-ring is seated properly at the top of the housing sump. Screw the housing sump onto the housing cap. Hand tighten only. It is not necessary to over-tighten to create a good seal. You can use the spanner wrench for convenient grip, but do not use excessive force.
- ▶ Turn on the water supply slowly to allow the system to fill with water. Depress the pressure release button on top of the unit again to release any trapped air. Inspect carefully for leaks. If a leak is found, first inspect the O-ring to ensure that it is seated properly before tightening the sump more. Tighten using the spanner wrench as necessary to achieve a good seal and stop leaks (do not use excessive force).
- ▶ Flush the system by running water from a nearby faucet for 5 minutes prior to using the water.

9. Data table

	Scale TAC-ler
Part number	692442
Specifications	
Housing material	Polypropylene
Pressure drop	1 psi at 6 gpm (0.1 bar at 22.7 l/min)
Max. treatment service flow rate	6 gpm (22.7 l/min)
Max. flow rate through device	10 gpm (37.85 l/min)
Max. pressure	90 psi (6.2 bar)
Estimated cartridge life	2 years
Water treatment certification	NSF/ANSI 61

10. Warranty

LIMITED WARRANTY

Subject to the terms and conditions set forth in this limited warranty, Stiebel Eltron, Inc. hereby warrants to the original purchaser (the "Owner") that each Scale TAC-ler water conditioning system (the "housing sump") shall not (i) leak due to defects in the Manufacturer's materials or workmanship for a period of one (1) year from the date of purchase or (ii) fail due to defects in the Manufacturer's materials or workmanship for a period of one (1) year from the date of purchase. As Owner's sole and exclusive remedy for breach of the above warranty, Stiebel Eltron, Inc. shall, at their own discretion, send replacement parts for local repair, or replace the defective sump shell with a replacement unit with comparable operating features. The maximum liability of Stiebel Eltron, Inc. under all circumstances shall be limited to the Owner's purchase price for the Scale TAC-ler. (iii) Scale TAC-ler water conditioning system media is also warranted for a period of one (1) year from date of purchase assuming the product has been installed according to installation requirements as indicated in this installation manual. (iv) The Scale TAC-ler media cartridge is warranted for one (1) year from date of purchase to be free of workmanship and material defects. This cartridge warranty does not cover replacements for a cartridge installed in an environment outside of designated water conditions and demand.

This limited warranty shall be the exclusive warranty made by the Stiebel Eltron, Inc. and is made in lieu of all other warranties, express or implied, whether written or oral, including, but not limited to warranties of merchantability and fitness for a particular purpose. Stiebel Eltron, Inc. shall not be liable for incidental, consequential or contingent damages or expenses arising directly or indirectly from any defect in the Scale TAC-ler or the use of the Scale TAC-ler. Stiebel Eltron, Inc. shall not be liable for any water damage or other damage to property of Owner arising, directly or indirectly, from any defect in the Scale TAC-ler or the use of the Scale TAC-ler. Stiebel Eltron, Inc. alone is authorized to make all warranties on behalf of Stiebel Eltron, Inc. and no statement, warranty or guarantee made by any other party shall be binding on Stiebel Eltron, Inc.

Stiebel Eltron, Inc. shall not be liable for any damage whatsoever relating to or caused by:

1. Any misuse or neglect of the Scale TAC-ler, any alteration of the Scale TAC-ler, or any other unintended use;
2. Acts of God and circumstances over which Stiebel Eltron, Inc. has no control;

3. Installation of the Scale TAC-ler other than as directed by Stiebel Eltron, Inc. and other than in accordance with applicable building codes;
4. Failure to maintain the Scale TAC-ler or to operate the Heater in accordance with the Stiebel Eltron, Inc.'s specifications;
5. Operation of the Scale TAC-ler under fluctuating water pressure or in the event the Scale TAC-ler is supplied with non-potable water, for any duration;
6. Improper installation and/or improper materials used by any installer and not relating to defects in parts or workmanship of Stiebel Eltron, Inc.;
7. Moving the Scale TAC-ler from its original place of installation;
8. Exposure to freezing conditions;

Should owner wish to return the Scale TAC-ler to Stiebel Eltron, Inc. for replacement under this warranty, Owner must first secure written authorization from Stiebel Eltron, Inc. Owner shall demonstrate proof of purchase, including a purchase date, and shall be responsible for all removal and transportation costs. If Owner cannot demonstrate a purchase date this warranty shall be limited to the period beginning from the date of manufacture stamped on the Scale TAC-ler. Stiebel Eltron, Inc. reserves the right to deny warranty coverage upon examination of the Scale TAC-ler. This warranty is restricted to the Owner and cannot be assigned.

Some States and Provinces do not allow the exclusion or limitation of certain warranties. In such cases, the limitations set forth herein may not apply to the Owner. In such cases this warranty shall be limited to the shortest period and lowest damage amounts allowed by law. This warranty gives you specific legal rights and you may also have other rights which vary from State to State or Province to Province.

Owner shall be responsible for all labor and other charges incurred in the removal or repair of the Scale TAC-ler in the field. Please also note that the Scale TAC-ler must be installed in such a manner that if any leak does occur, the flow of water from any leak will not damage the area in which it is installed.

Proper operating conditions:

- Media canister installed in proper orientation to prevent clogging
- Must pre-treat to remove chlorine >3 ppm, iron, manganese, copper, H₂S
- Max. treatment service flow rate 6 GPM (22.7l/min)
- Max. flow rate through device 10 GPM (37.85 l/min)
- Max. pressure 90 PSI (6.2 bar)



The company does not accept liability for failure of any goods supplied which have not been installed and operated in accordance with the manufacturer's instructions.

Environment and recycling

Please help us to protect the environment by disposing of the packaging in accordance with the national regulations for waste processing.

STIEBEL ELTRON, Inc.
17 West Street | 01088 West Hatfield MA
Tel. 0413 247-3380 | Fax 0413 247-3369
info@stiebel-eltron-usa.com
www.stiebel-eltron-usa.com



Subject to errors and technical changes!

Stand 8643

STIEBEL ELTRON

TAC-ler Install 2017.1