

Installation & Maintenance Instructions For Trapzilla® Solids Separators

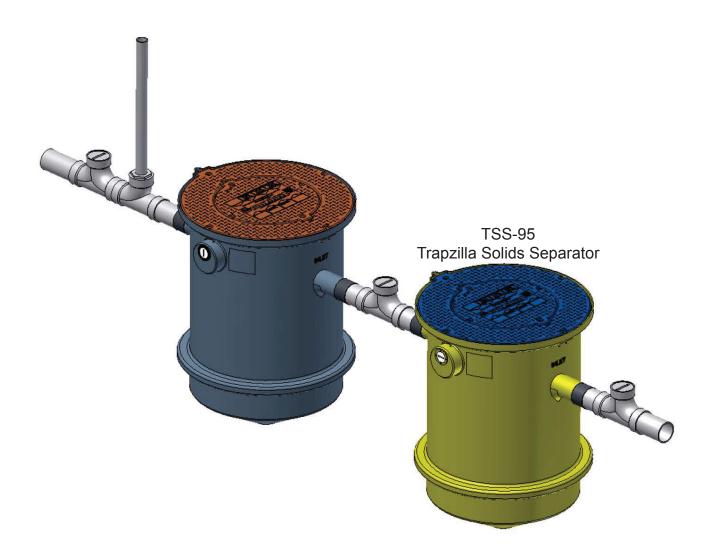




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Section I: Trapzilla® Grease Interceptors

System Overview

Thermaco, Inc. also offers the **TSS Trapzilla Solids Separator** that traps incidental kitchen solids upstream of the Trapzilla Grease Interceptor.

The proper installation of a Trapzilla® Supercapacity Solids Separators can reduce or eliminate solids problems and costly sewer surcharges and fines through efficient separation and retention of incidental solids.

The unique compact design of the Trapzilla allows for installation into most facilities. Options are available that enable a Trapzilla unit to be installed on the floor, suspended from the ceiling or in-ground outside the facility.



Trapzilla Solids Interceptor units are designed to treat high flows of kitchen drainwater with large solids storage capacity within a small footprint unit. These units are easy to manueuver into position and just as easy to plumb.

Grease interceptors, grease traps, automatic recovery units, grease removal devices, solids separators and other similar plumbing devices receiving kitchen flows from sinks, floor drains, woks and other food bearing sources may generate odors. There are many factors influencing odor evolution and dissemination. These include room ventilation, kitchen menu, ambient temperatures, ware washing practices, grease/oil input, daily input fluid volume, sanitizers, installation plumbing design and product maintenance/upkeep. Odors are usually prevented by good area ventilation, frequent fluid inputs, good product maintenance practices and proper product installation. Additional steps, including aeration, chlorination, improved area ventilation and additional maintenance control, may be needed at some sites.

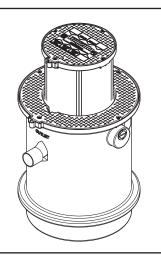


In-Ground Models

TSS-95-ECA

95 gallons of solids retention capacity, capable of handling flow rates of up to 150 gpm. Equipped with 4" inlet/outlet, 2" vessel vent connection, and 4" Low-Head Flow Control Accessory to limit flow to 75 gpm.

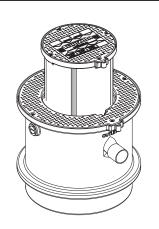
Comes with: 18" tall Extension Collar Adapter Lid Assembly with 22" diameter lid.



TSS-70-ECA

70 gallons of solids retention capacity, capable of handling flow rates of up to 75 gpm. Equipped with 4" inlet/outlet, 2" vessel vent connection, and 4" Low-Head Flow Control Accessory to limit flow to 75 gpm.

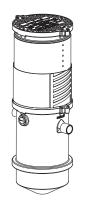
Comes with: 18" tall Extension Collar Adapter Lid Assembly with 22" diameter lid.



TSS-27-ECA

27 gallons of solids retention capacity, capable of handling flow rates of up to 35 gpm. Equipped with 3" inlet/outlet, 2" vessel vent connection, and 3" Low-Head Flow Control Accessory to limit flow to 35 gpm.

Comes with: 22" diameter lid and 29" Telescoping Extension Collar.



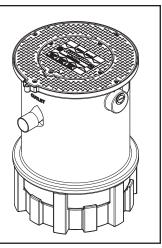


Above-Ground Models

TSS-95-SSA

95 gallons of solids retention capacity, capable of handling flow rates of up to 150 gpm. Equipped with 4" inlet/outlet, 2" vessel vent connection, and 4" Low-Head Flow Control Accessory to limit flow to 75 gpm.

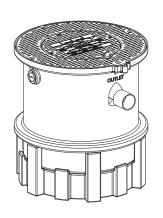
Comes with: Standard Adapter Top Cover with 22" diameter lid, and SSOP-70/95 for above-ground installation.



TSS-70-SSA

70 gallons of solids retention capacity, capable of handling flow rates of up to 75 gpm. Equipped with 4" inlet/outlet, 2" vessel vent connection, and 4" Low-Head Flow Control Accessory to limit flow to 75 gpm.

Comes with: Standard Adapter Top Cover with 22" diameter lid, and SSOP-70/95 for above ground installation.



TSS-27-SSA

27 gallons of solids retention capacity, capable of handling flow rates of up to 35 gpm. Equipped with 3" inlet/outlet, 2" vessel vent connection, and 3" Low-Head Flow Control Accessory to limit flow to 35 gpm.

Comes with: 22" diameter lid and Support Stand SSA-160.



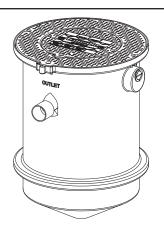


Basic Models

TSS-95

95 gallons of solids retention capacity, capable of handling flow rates of up to 150 gpm. Equipped with 4" inlet/outlet, 2" vessel vent connection, and 4" Low-Head Flow Control Accessory to limit flow to 75 gpm.

Comes with: Standard Adapter Top Cover with 22" diameter lid.



TSS-70

70 gallons of solids retention capacity, capable of handling flow rates of up to 75 gpm. Equipped with 4" inlet/outlet, 2" vessel vent connection, and 4" Low-Head Flow Control Accessory to limit flow to 75 gpm.

Comes with: Standard Adapter Top Cover with 22" diameter lid.



TSS-27

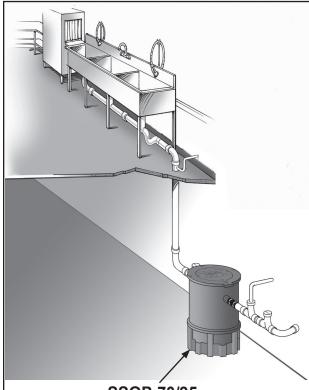
27 gallons of solids retention capacity, capable of handling flow rates of up to 35 gpm. Equipped with 3" inlet/outlet, 2" vessel vent connection, and 3" Low-Head Flow Control Accessory to limit flow to 35 gpm.

Comes with: 22" diameter lid.

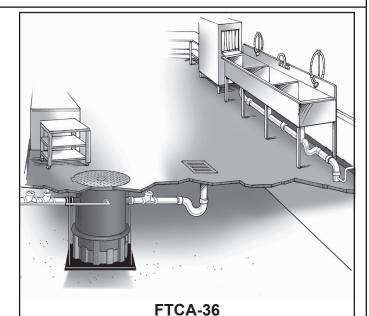




Options



SSOP-70/95
Support Stand for TSS-70 and TSS-95 models
Allows unit to be installed directly on the floor in a basement or mechanical room.
*Included with -SSA Models



Fabricated Top Cover Assembly with 36" diameter for additional traction in high foot-traffic areas and 4" Brass cleanout port.

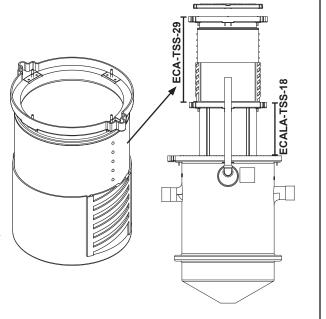
FTCA-22 (not shown)

22" diameter cover available for In-Ground installations.

ECA-TSS-29 (in yellow) for Trapzilla Solids Separators.

These field-modifiable extension collars available to provide additional depth for existing kitchen drainage piping.

-ECA Models ship with built-in 0-18" extension collar. ECA-TSS-29 adds 0-29" depth to -ECA Models or 5-29" to Base Models.



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MNL-TSS 7



Plumbing Installation

Locating the Unit

The system should be visible and easily accessible for maintenance and inspection. Options are available to install Trapzilla Solids Separators in a basement, suspended from a ceiling or in-ground in an exterior location. Make sure adequate room is provided around the unit to allow easy access for a pump truck operator. Make sure the height above the Trapzilla access cover is enough to properly service the system.

Inlet/Outlet Piping

The inlet and outlet piping connections require flexible sleeve pipe couplings. Keep outlet piping as straight as possible. Thermaco, Inc. recommends installation of 4" (100 mm) Two-Way Cleanouts on both the Inlet and Outlet of Trapzilla Interceptors and Solids Separators in accordance with all applicable laws, regulations and codes. Use only "sweep" connections. Do not reduce the pipe sizing on the outlet piping. Do not install "P" trap on outlet connection of system. (Note: The system already has a internal gas trap)

Flow Controls

Trapzilla systems are supplied with a Low-Head Flow Control module (LHFC-4). This should be connected to the inlet of the Trapzilla unit in situations where flow rate needs to be restriced to 75 GPM or when vented flow control is required by local code.

Venting the Outlet

An outlet vent or approved air admittance valve of at least 1/2 the diameter of the system's outlet connection must be present as close as possible to the Trapzilla outlet to prevent possible siphonage problems. The Vent on the Outlet piping is to be installed in accordance with all applicable laws, regulations and codes. Failure to provide a vent for the system voids Thermaco's Limited Warranty for the system.

For High Head Height Applications Over Six (6) Feet (1.95 m)

For installations where there is head height of greater than 6 feet (1.95 meters), Thermaco, Inc. recommends installation of a code-approved Vented Flow Control Assembly.

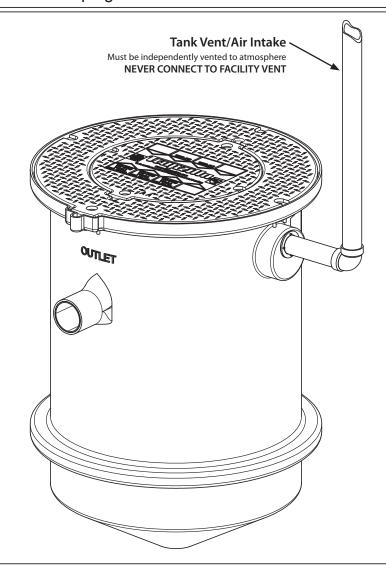
Note: Drawings for reference only.
Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.



Plumbing Installation

Venting of the Trapzilla tank is recommended by the manufacturer and required for in-door installations.

- •Vent the tank through the provided 2" NPT threaded connector on the side of the tank (This vent may be located above the outlet or on the side of the tank depending on model).
- •Remove and discard the 2" plug and connect 2" vent lines as indicated below.



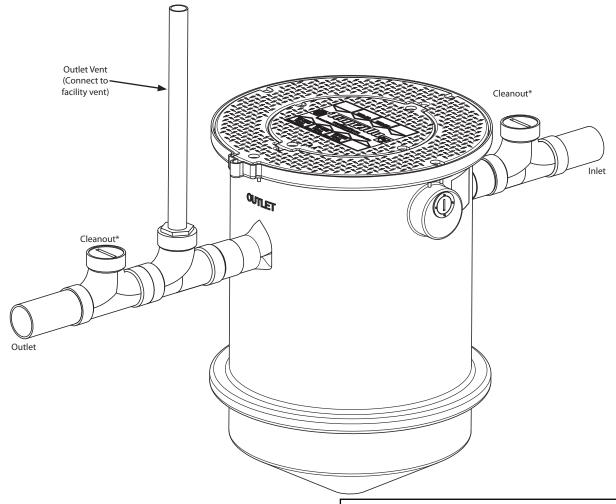
Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.



Plumbing Installation

Plumbing Installation (for one Solids Separator)

Each Trapzilla Solids Separator is shipped with a Low Head Flow Control module (see LHFC box for additional instructions). This needs to be installed to the inlet of the Trapzilla and connected to a code-approved air intake. Thermaco, Inc. recommends installation of 4" (100 mm) Two-Way Cleanouts on both the Inlet and Outlet of Trapzilla® Models TSS-70 and TSS-95 in accordance with all applicable laws, regulations and codes. A Vent on the Outlet piping is also to be installed in accordance with all applicable laws, regulations and codes.



*Use a 4" (100 mm) Two-Way Cleanout for TSS-70, TSS-95, TZ-400 and TZ-600 Unit Installations

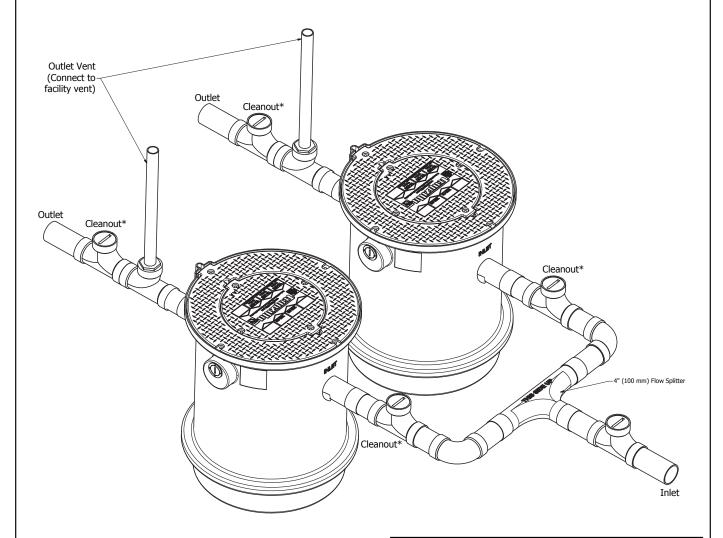
Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.



Configurations

Two Solids Separators

Two Trapzilla Solids Separators should be installed in parallel with a Flow Splitter diverting the flow. Place Two-Way Cleanouts before, between and after the units as shown below, including before and after the flow splitter. Make sure to connect an outlet vent after each Trapzilla Grease Interceptor. A Low Head Flow Control (LHFC) is shipped with each unit, and if needed should only be installed after the first Cleanout and before the 4" Flow Splitter.



*Use a 4" (100 mm) Two-Way Cleanout for TSS-70, TSS-95, TZ-400 and TZ-600 Unit Installations

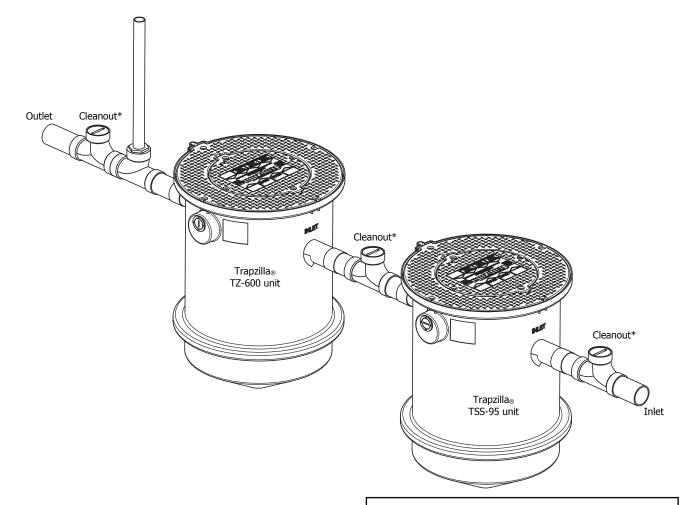
Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.



Configurations

One Solids Separator and One Trapzilla

A single Trapzilla Solids Separator and Trapzilla Grease Interceptor should be installed in series. Place Two-Way Cleanouts before, between and after the units as shown below. Make sure to connect an outlet vent after the Trapzilla Grease Interceptor. A Low Head Flow Control (LHFC) is shipped with each unit, and if needed should only be installed after the first Cleanout and before the Trapzilla Solids Separator.



*Use a 4" (100 mm) Two-Way Cleanout for TSS-70, TSS-95, TZ-400 and TZ-600 Unit Installations

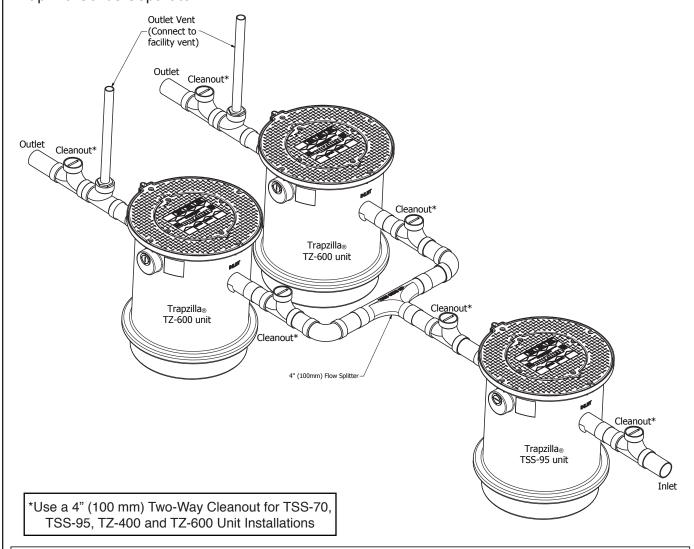
Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.



Configurations

One Solids Separator and Two Trapzilla Units

A single Trapzilla Solids Separator and two Trapzilla Grease Interceptors should be installed by placing the Solids Separator in line and then using a Flow Splitter to divert the water flow to two separate Trapzilla units in parallel. Place Two-Way Cleanouts before, between and after the units as shown below, including before and after the flow splitter. Make sure to connect an outlet vent after the Trapzilla Grease Interceptor. A Low Head Flow Control (LHFC) is shipped with each unit, and if needed should only be installed after the first Cleanout and before the Trapzilla Solids Separator.



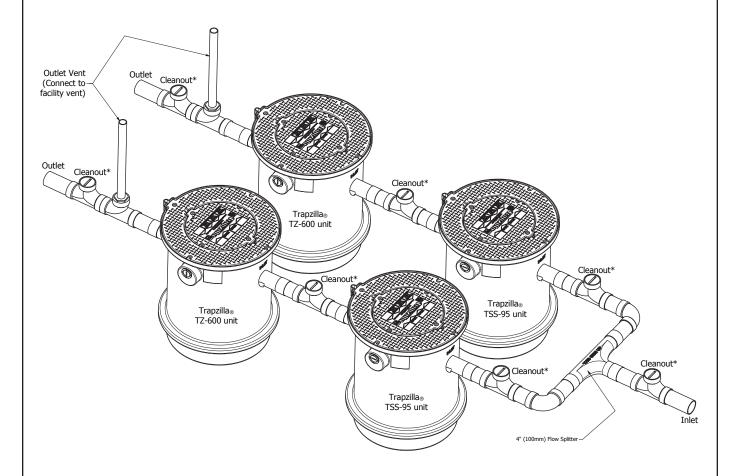
Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.



Configurations

Two Solids Separators and Two Trapzilla Units

Two Trapzilla Solids Separator and two Trapzilla Grease Interceptors should be installed by placing a Flow Splitter to divert the water flow to two separate Solids Separators and Trapzilla units in parallel. Place Two-Way Cleanouts before, between and after the units as shown below, including before and after the flow splitter. Make sure to connect an outlet vent after the Trapzilla Grease Interceptor. A Low Head Flow Control (LHFC) is shipped with each unit, and if needed should only be installed after the first Cleanout and before the 4" Flow Splitter.



*Use a 4" (100 mm) Two-Way Cleanout for TSS-70, TSS-95, TZ-400 and TZ-600 Unit Installations

Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing codes. Installation should be performed by a qualified plumber.

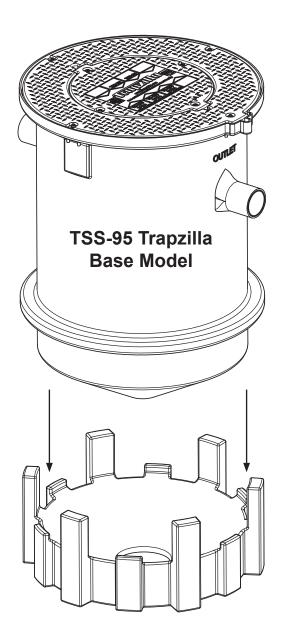


Above-Ground Installation

Using a Support Stand, a Trapzilla Solids Separator may be installed directly on top of the floor in a location such as a basement or mechanical room.

The SSOP-70/95 should be used with Models TSS-70 and TSS-95.

*This item ships with all -SSA models.



SSOP-70/95 Support Stand

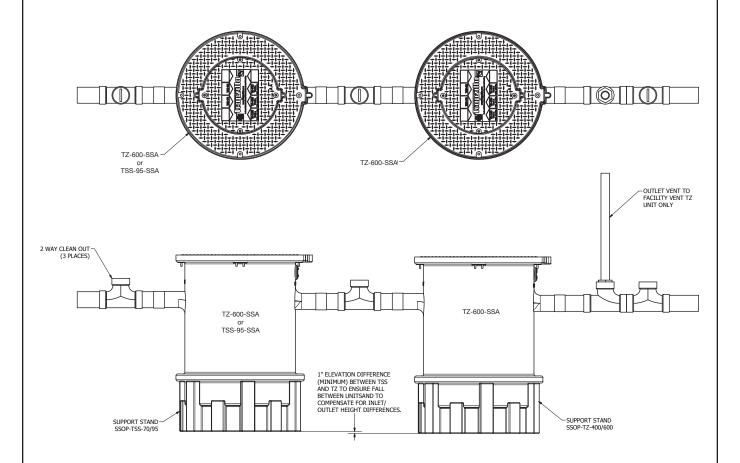
The SSOP Support Stand is a one-piece assembly with a conical center that sits on the floor. It does not add appreciable height to the assembly.



Above-Ground Installation

When installing multiple Trapzilla units in series, the change in elevation from the inlet to the outlet of a unit requires that each preceding unit be installed 1" higher than the unit after it. For above-ground units, pressure treated plywood may be placed fully beneath the support stand to create the height difference.

All installations inside of a building must have a vessel vent installed and piped to atmosphere.

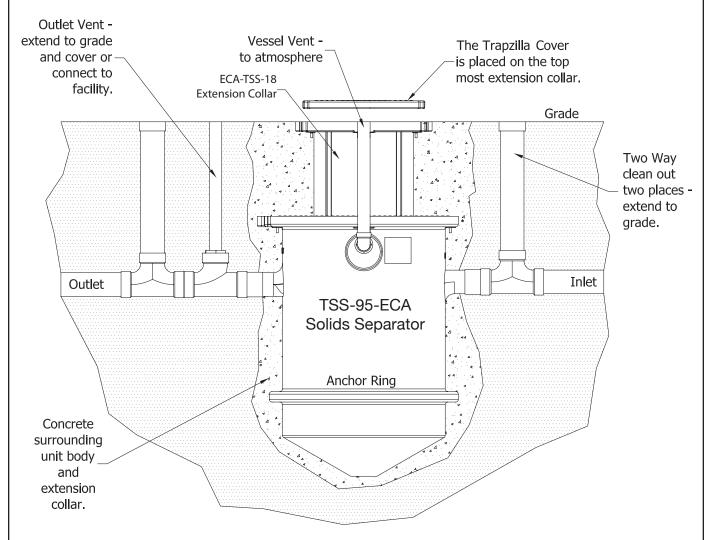




In-Ground Installation

Trapzilla units may also be installed in the ground outside of the facility. For instances where the facility drainage piping requires an extension collar that is no more than 18", use the instructions for the full TSS-95-ECA unit. If the unit is to be deeper in the ground, the ECA-TSS-29 Extension Collar Assembly may be installed to align the Trapzilla inlet with the drainage piping. The ECA-TSS-29 may be trimmed in the field to fit. Trim both the inner and outer portions of the extension collar to make shorter than collapsed height. Thermaco, Inc. also recommends embedding the in-ground Trapzilla with concrete to provide additional structural strength and to off set buoyancy effects. For Buoyancy Calculations & suggested concrete fill quantities please see the following page. Use the full TSS-95-ECA for 0-18" of collar needed or purchase separately the TSS-95 and ECA-TSS-29 for 5-29" of collar needed.

<u>In-Ground Installations inside of a building must have a vessel vent installed and piped to atmosphere.</u>



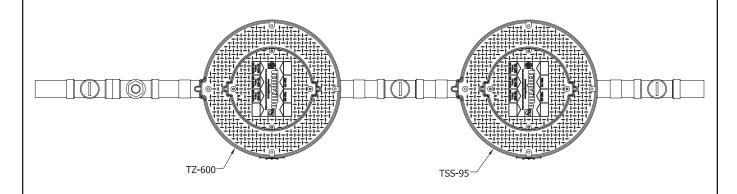
* Units using additional extension collars must use adapter lid and/or extension collars included with unit.

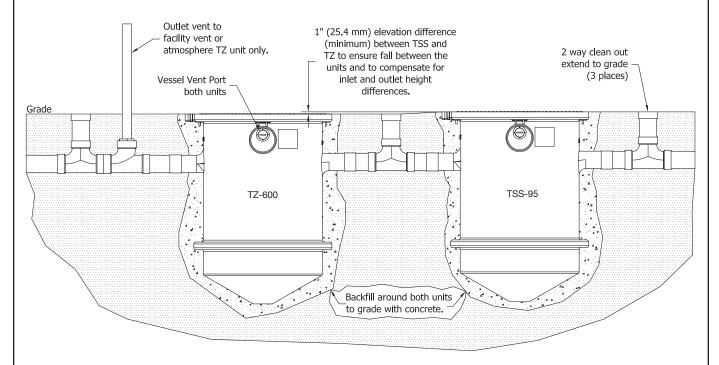


In-Ground Installation

When installing multiple Trapzilla units in series, the change in elevation from the inlet to the outlet of a unit requires each preceding unit to be installed 1" higher than the unit after it.

<u>In-Ground Installations inside of a building must have a vessel vent installed and piped to atmosphere.</u>





* Units using additional extension collars must use adapter lid and/or extension collars included with unit.

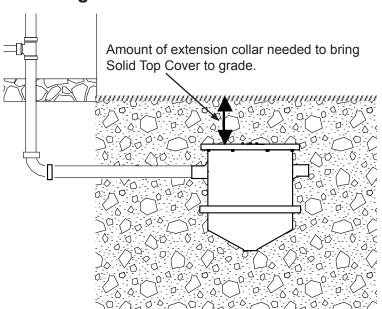


In-Ground Installation

Trimming and Setting the ECA-TSS-18 Single-Piece Extension Collar

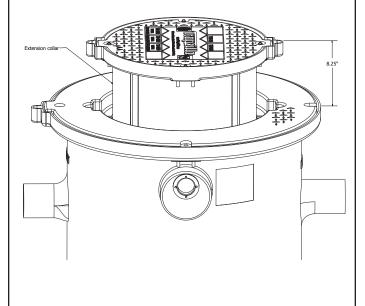
In-Ground Trapzilla Models ship with a built-in, single-piece, 18" extension collar that must be trimmed and then set to the correct height to bring the Solid Top Cover to grade.

Follow the steps below to set the extension collar prior to backfilling the hole with concrete.

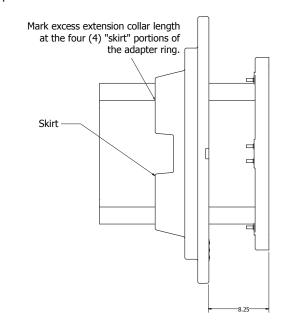


Step 1: With the Trapzilla unit installed in its permanent location, raise the telescoping extension collar to finished grade or floor level. Measure the height from the top of the unit to this finished extension collar height and record this dimension.

Note: If the floor will have a tile covering alow for the tile thickness when determining the extension collar height.



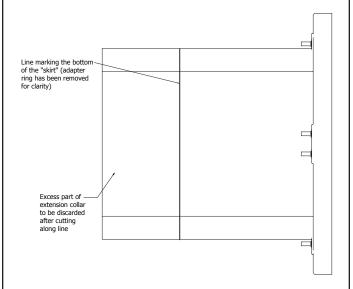
Step 2: Remove the extension collar adapter ring from the unit with the extension collar still in place. On the underside of the cover, mark the excess extension collar length at the bottom of the four (4) "skirt" portions of the adapter ring. Check the extension collar height dimension frequently during this marking to ensure that the collar has not moved. Extend this mark between the gaps in the "skirt" so that the collar is marked all around.



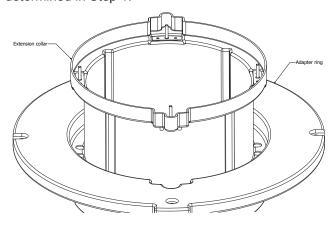


In-Ground Installation

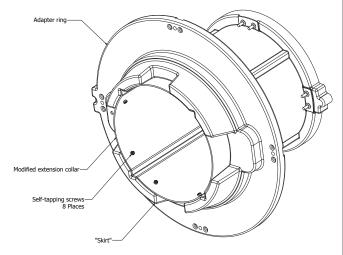
Step 3: Remove the extension collar from the adapter ring and, with an appropriate saw, cut along the line created in Step 2 to remove the excessive extension collar.



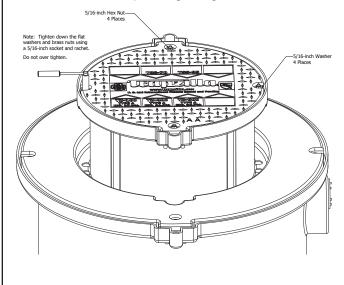
Step 4: Reinsert the extension collar into the adapter ring ensuring that the cover alignment key on the extension collar is aligned with its recess in the adapter ring. Reset the extension collar height to the dimension determined in Step 1.



Step 5: Working from the bottom of the assembly, install eight (8) self-drilling, self-tapping screws (provided) through the extension collar wall and into the adapter ring. Two of these screws should be installed in each of the four (4) skirt areas of the adapter ring. Check the extension collar height dimension frequently during this operation to ensure that the collar has not moved. Note: Use caution when tightening these screws to ensure that they do not strip.



Step 6: Place the adapter ring/extension collar assembly onto the Trapzilla unit. Position the small cover onto the extension collar. Secure the adapter ring and the small cover with the brass nuts and flat washers provided. Seal the gap between the 18" extension collar and extension collar adapter ring using a silicone sealant.





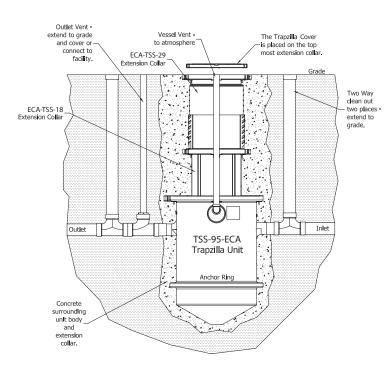
In-Ground Installation

In order to offset the effects of buoyancy caused by groundwater (high water tables), Thermaco, Inc. recommends concrete be poured around the anchor ring and the Trapzilla® units installed in-ground. The amount of concrete to be used is specified in the table below. The concrete is to be poured continuously and completely surrounding the Trapzilla® Solids Separator (and Extension Collars if applicable) to ensure proper strength and security.

Buoyancy Calculations TSS Models/Components

	Amount of Concrete	
TSS Model	Weight (lbs.)	Volume (Cu. Yards)
TSS-95-ECA	1975	0.50
TSS-70-ECA	1525	0.40
TSS-27-ECA	550	0.15
ECA-TSS-29*	600	0.20

^{*} AMOUNT OF CONCRETE TO BE ADDED FOR EACH EXTENSION COLLAR



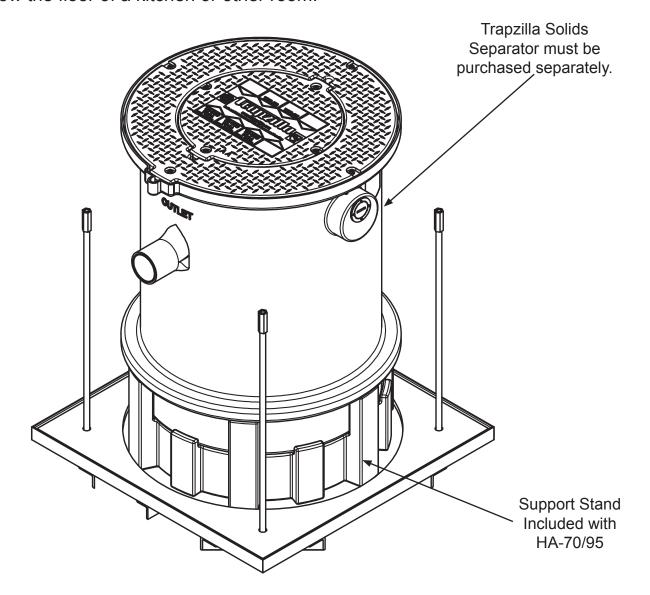
Pictured Left:

Installation of TSS-95-ECA unit with Built-In 18" Extension Collar fully extended and 29" Two-Piece Extension Collar fully extended for a total of 47" of additional depth for unit. Concrete should fully encircle the unit up to the surface. A small amount of space (up to 4") may be left unfilled to cover with dirt and grass if installed outside.



Hanging Installation

Using the HA-70/95 model, a Trapzilla unit may be suspended from a ceiling below the floor of a kitchen or other room.



Thermaco, Inc. supplies the frame and SSOP-70/95 with the HA-70/95. This kit needs to be installed by a licensed contractor. The contractor is responsible for determining weight loads, preparation of the floor for installation and any construction necessary for installation of the suspension kit.

Note: Drawing for reference only. Equipment must be installed in compliance with all applicable laws, regulations and codes, including plumbing & building codes. Installation should be performed by a qualified plumber and contractor.



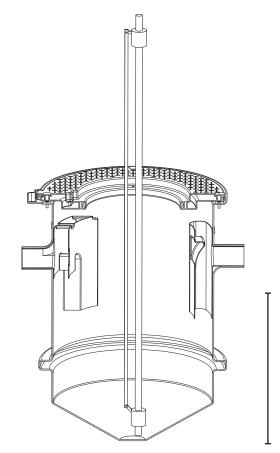
Section IV: System Maintenance

Measuring Solids Levels

Trapzilla Solids Separators are capable of retaining high quantities of solids in a compact footprint. To determine the current levels of solids in your Trapzilla Solids Separator, follow the instructions below.

- 1. Remove four nuts/washers securing the Solid Top Cover. Note the size of the unit which is marked on the cover by a metal plate.
- 2. Place a grease/sludge dipstick into the center of the unit, making sure that it goes all the way to the bottom.
- 3. Once the dipstick has found its natural resting place at the lowest point in the conical shaped bottom, take the measurement.
- 4. Remove dipstick and compare sludge levels to the corresponding unit in the charts below.

	Solids		
	Total Capacity:	Ready to pump at:	
TSS-95	32"	27"	
TSS-70	24"	21"	
TSS-27	22"	18"	



Take measurement from bottom of unit upward and compare to chart above.

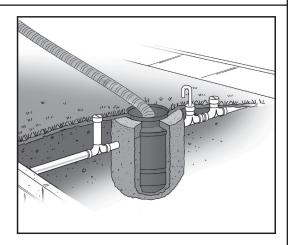


Section IV: System Maintenance

Pumping TSS

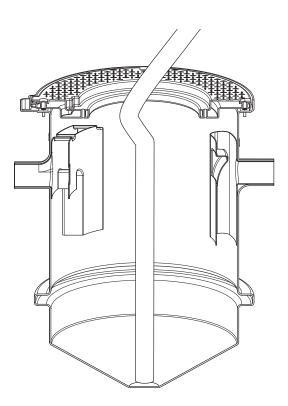
Periodically, the Trapzilla® Solids Separator will need to be serviced which involves pumping out the accumulated grease & solids. Each lid has four brass nuts securing the lid. Fully remove the 22" lid to access the solids. Begin by taking the solids from the top of the tank. Be sure to lower the hose all the way to the bottom of the Trapzilla unit so that solids may be entirely removed.

The Grease or Solids building up inside the Trapzilla unit may be gauged using a Sludge Judge or similar device.



Note:

- 1) Do NOT use mechanical crust breaking devices to break down any mat that has formed inside the Trapzilla Solids Separator.
- 2) Remove the four brass nuts from the bolts and fully remove the lid to pump out.
- 3) It is not necessary to remove adapter lid (ring) to pump out the Trapzilla Solids Separator.



Drop hose into Solids Separator, pumping out all liquids and solids in the unit. It may be necessary to use water hose to rinse out chamber.



Limited Warranty & Remedy

Thermaco, Inc. warrants to the original user that the products manufactured by it delivered with this warranty shall be free from material defects in workmanship and materials for a period of 12 months from the date of invoice to the distributor (if sold by an authorized Thermaco distributor) or the date of invoice to the purchaser (if sold directly by Thermaco, Inc.), but in no event longer than 15 months from date of shipment from Thermaco's production facility.

Any claim must be made in writing to Thermaco at 646 Greensboro Street, Asheboro, NC 27203 promptly after discovery of the defect and within the applicable warranty period. The product must be delivered, prepaid, to Thermaco, together with proof of purchase and a return authorization number issued by Thermaco. If Thermaco determines upon examination that the component is defective and that the warranty conditions are met, Thermaco's sole obligation under this warranty, and the purchaser's sole and exclusive remedy, is the repair or replacement, at Thermaco's option, of the defective component, including parts and labor. The replacement will be furnished F.O.B. point of shipment. If Thermaco determines that the component is not defective or that the other conditions of this warranty are not met, then any return of such part to the purchaser shall be at purchaser's cost.

This warranty shall not cover any defect in otherwise covered products resulting directly or indirectly from: (i) failure to properly install, operate or maintain the product in accordance with Thermaco's instructions and procedures, including, without limitation, use in excess of rated flow, use to remove emulsified fats and oils or use that fails to comply with applicable laws, regulations or codes; (ii) damage in transit, handling or installation; (iii) modifications, adjustments, repairs, or alterations made by unauthorized persons; or (iv) other causes not arising out of defects in workmanship or materials. Thermaco shall not be responsible for damage to products resulting from vault flooding, sewer line back-up, pumping or lift station failure, ambient water flow or other sources of water damage. This warranty does not cover equipment or parts not manufactured by Thermaco. Purchaser's costs relating to any service, adjustment, removal, repair, packing, or otherwise incurred with respect to the defect prior to submission for warranty are the responsibility of purchaser.

No distributor, sales person or other person is authorized to make any warranty statements on behalf of Thermaco regarding Thermaco products other than as set forth in this warranty. This statement of warranty supersedes any quote, brochure, or other statement or document with respect to warranty of Thermaco products.

EXCEPT AS EXPRESSLY SET FORTH ABOVE, THERMACO, INC. MAKES NO REPRESENTATIONS, WARRANTIES OR GUARANTEES, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, AS TO **MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE**, WHETHER OR NOT THERMACO HAD KNOWLEDGE OF PURCHASER'S PARTICULAR REQUIREMENTS OR NEEDS, OR WITH RESPECT TO ODOR GENERATION OR OTHER INCIDENTALS RELATING TO USE OF THE PRODUCT.

The sole and exclusive remedy with respect to this warranty any other claim relating to defects or any other condition or use of Thermaco products, however caused, and whether such claim is based upon warranty, contract, tort, strict liability or any other theory, is LIMITED to the repair or replacement of the product, excluding labor or any other cost to remove or install said the product or, at Thermaco's option, repayment of the purchase price. IN NO EVENT SHALL THERMACO, INC. BE LIABLE, WHETHER IN CONTRACT, WARRANTY, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, INDEMNITY OR ANY OTHER LEGAL THEORY, FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, OR FOR ANY OTHER LOSS OR COST OF A SIMILAR TYPE. UNDER NO CIRCUMSTANCES WILL THE AGGREGATE LIABILITY OF THERMACO FOR ANY CAUSE OF ACTION RELATED TO THE PRODUCTS COVERED HEREBY EXCEED THE NET PURCHASE PRICE RECEIVED BY THERMACO FOR THE PRODUCTS. Any action or suit by purchaser against Thermaco relating to Thermaco products must be brought within one (1) year of the date of the invoices referenced above. The exclusions and limitations set forth herein are separate and independent from any remedies which purchaser may have hereunder and shall be given full force and effect whether or not any or all such remedies shall be deemed to have failed of their essential purpose.