

INSTALLATION AND ASSEMBLY INSTRUCTIONS

STK-5V / STK-6V

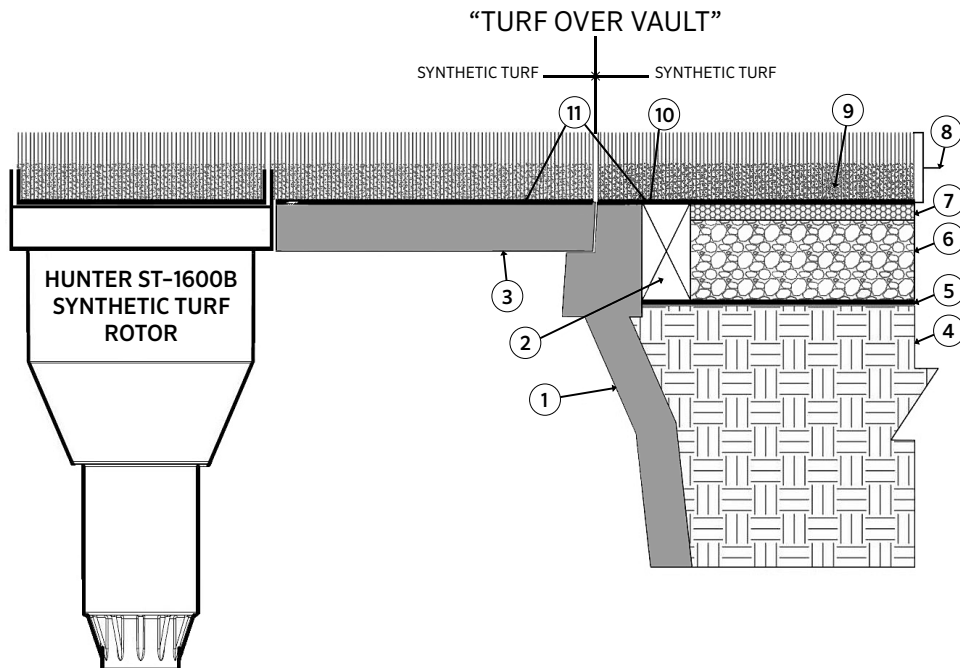
ST System for Cooling and Cleaning Synthetic Turf

Setting the ST243636B Vault

The Vault needs to be set per the installation specifications provided by the irrigation consultant. It must rest upon a compacted base material per the field specifications. If the Vault is to be set directly upon the gravel of the drainage system, the gravel should be compacted and the Vault set upon six (6) or more bricks for stabilization.

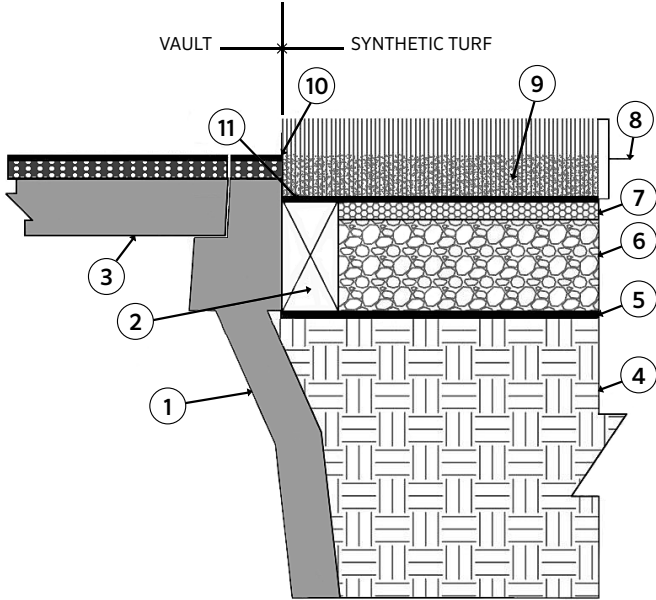
The elevation to grade of the Vault must be precise and is determined by the field and irrigation specification.

In many installations, the elevation for the Vault is specified such that the upper rim of the Vault is level with the upper rim of the tack/glue board that surrounds the field. The Vault's elevation can also be affected by the type of material, if any, that will be attached to the Vault's upper surface. This will sometimes be the field's synthetic "carpet" or sometimes the adjacent running track material. Some customers prefer no attachments to the covers.



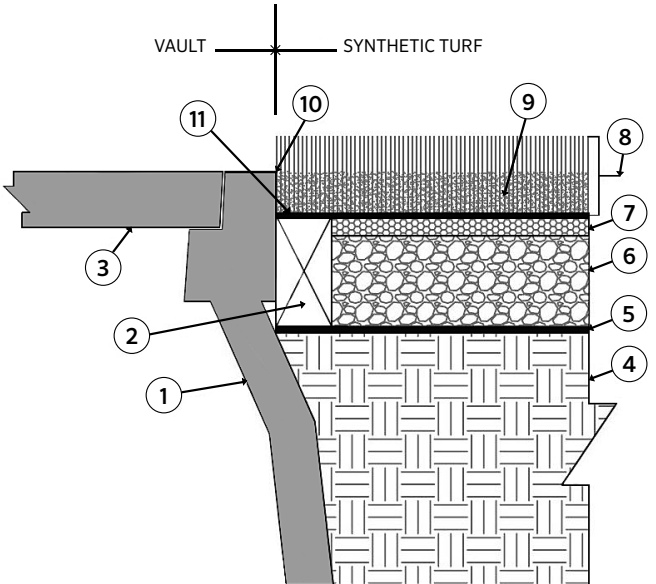
- | | |
|---|---|
| ① Hunter vault sidewall and rim | ⑦ Base pad as per specification |
| ② 2" X 4" (5 cm x 10 cm) tack/glue board as per specification all sides | ⑧ 2½" (6 cm) Pile synthetic turf or as per specification |
| ③ Hunter vault cover set | ⑨ 1¾" (4 cm) Deep infill material or as per specification |
| ④ Natural soil (see turf base construction) | ⑩ Tack/glue board and top of vault elevation to be at field elevation for location |
| ⑤ Geotextile cloth layer or as per specification | ⑪ Attach synthetic turf to cover set, vault rim and tack/glue board as per specifications |
| ⑥ Structural base rock (see turf base construction) | |

“TRACK OVER VAULT”



- ① Hunter vault sidewall and rim
- ② 2" X 4" (5 cm x 10 cm) tack/glue board as per specification all sides
- ③ Hunter vault cover set with track material
- ④ Natural soil (see turf base construction)
- ⑤ Geotextile cloth layer or as per specification
- ⑥ Structural base rock (see turf base construction)
- ⑦ Base pad as per specification
- ⑧ 2½" (6 cm) Pile synthetic turf or as per specification
- ⑨ 1¾" (4 cm) Deep infill material or as per specification
- ⑩ Top of vault elevation to be at field elevation for location
- ⑪ Attach synthetic turf to tack/glue board as per specifications

“NO TURF OVER VAULT”



- ① Hunter vault sidewall and rim
- ② 2" X 4" (5 cm x 10 cm) tack/glue board as per specification all sides
- ③ Hunter vault cover set
- ④ Natural soil (see turf base construction)
- ⑤ Geotextile cloth layer or as per specification
- ⑥ Structural base rock (see turf base construction)
- ⑦ Base pad as per specification
- ⑧ 2½" (6 cm) Pile synthetic turf or as per specification
- ⑨ 1¾" (4 cm) Deep infill material or as per specification
- ⑩ Top of vault elevation to be at field elevation for location
- ⑪ Attach synthetic turf to tack/glue board as per specifications

With STK-5V and STK-6V, there is a direct and required relationship between the location of the Vault, the location of the incoming plumbing, and the location and depth of the drainage system. In order for the irrigation sprinkler (Rotor) to be properly positioned within the hole in the Vault’s cover set, the inlet piping must be placed at the specified location and depth. In order for the quick coupler valve to be accessible and functional once installed, the quick coupler’s supply pipe must be installed in the correct location and the valve must be at the correct height within the Vault. In order for the Vault to drain properly, it must have

access to the drainage system, and the drainage system must be lower in elevation than the Vault’s base (36", 91 cm), otherwise the Vault can partially fill with water. Isolating the Vault from the drainage could lead to the Vault filling with water in heavy rain conditions.

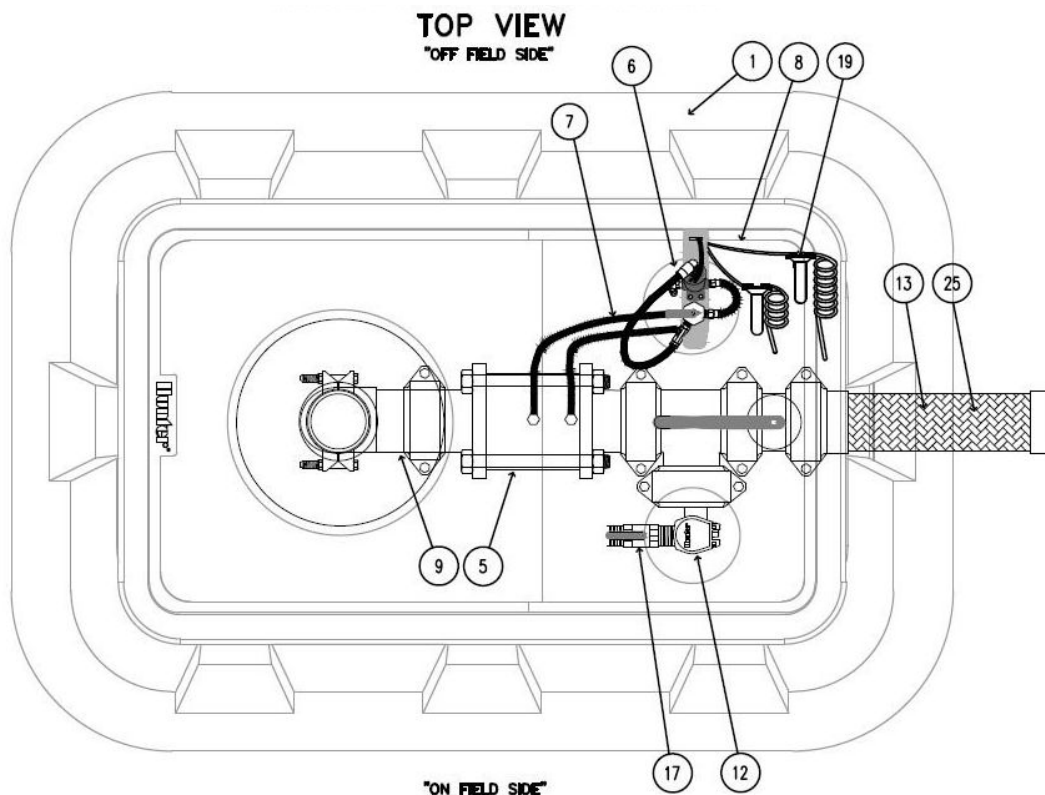
Vault Dimensions:

- Upper Rim: 27" x 39" (69 cm x 99 cm)
- Cover Set: 24" x 36" (61 cm x 91 cm)
- Cover Thickness: 3" (8 cm)
- Depth: 36" (91 cm)
- Base: 42" x 48" (107 cm x 122 cm)

Incoming Plumbing Location

Use the **Top View** of the following installation detail as a reference. The bottom of the Top View drawing represents the on-field side of the Vault and the top of the drawing represents the off-field side. Next, note that the valve Manifold inlet is centered along the right side wall of the Vault's upper rim. While this is the standard angle for the Manifold, the Manifold can be pivoted within the Vault to adjust for minor angular variances in the rigid sub-mainline piping that will be attached to the Manifold.

The quick coupler inlet piping must be plumbed to align with the quick coupler's Quick Access Port in the Vault's cover. Use the Top View illustration as a reference below. The rim of the Vault is the exposed upper surface that surrounds the Vault's cover set once they are installed. The quick coupler inlet piping needs to extend vertically to a position directly below the Quick Access Port (#12) in the Vault's cover set. If the quick coupler is too low it will be impossible to attach the key to the quick coupler.



The depth and location of the rigid piping connected to the inlet of the Manifold is critical. Use the **Side View** of the installation detail on the following page as a reference. Note that the Manifold's inlet is approximately 24" (61 cm) to 30" (76 cm) from the top of the Vault. The mainline should also be at this approximate depth unless specified otherwise.

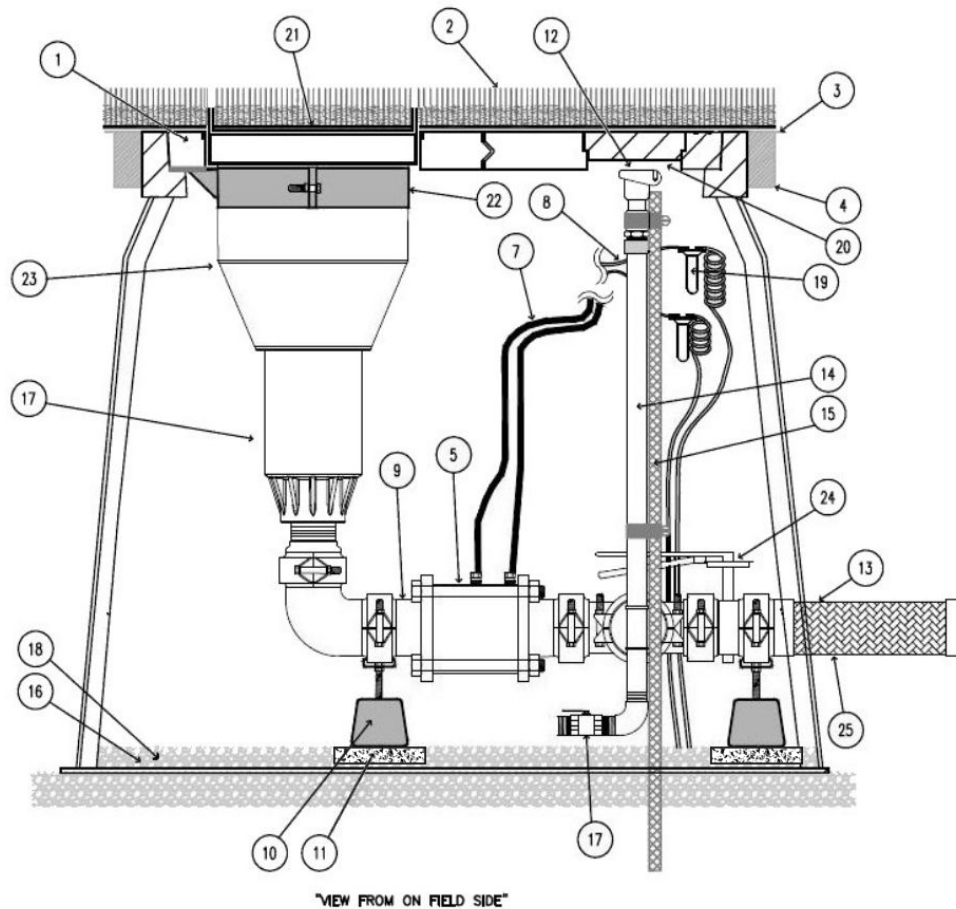
The quick coupler valve must be installed as close to the underside of the main cover as possible. Use the Side View illustration shown below as a reference. The quick coupler must be installed so that the final elevation is approximately ½" (1.5 cm) below the underside of the Vault's main cover (#20).

The quick coupler's inlet piping (#14) must align with the quick coupler access hole in the Vault's cover set (#20). Also, in order for the quick coupler key to operate properly with its handle attached, the quick

NOTE

The pipe size to the Manifold must be 3" (80 mm) minimum from mainline through to the Manifold assembly.

Incoming Plumbing Location *(continued)*



Specification Callouts for both Side View and Top View Installation Detail Drawings:

- ① Hunter ST243636B composite vault & 4-piece polymer-concrete cover set with cast-in openings to support rotor lateral thrust plus cast in opening with circular covers for quick coupler and on-off-auto access
- ② Optional – synthetic turf or running track material attached to vault rim and cover set
- ③ Finished grade set to field perimeter track/glue board or as per specification
- ④ 2" X 4" (5 cm x 10 cm) tack/glue board as per specification all sides
- ⑤ Hunter STV30KV ultra low loss 3" (80mm) valve kit with grooved fitting connections
- ⑥ Remote on-off-auto selector and solenoid manifold assembly mounted on vault sidewall
- ⑦ Color-coded control tubing from STV30KV valve to selector switch mounted on vault side wall
- ⑧ Lead wires from solenoid to waterproof splice connectors
- ⑨ Hunter STBVF30K isolation valve and fitting kit with grooved connections and 500 PSI (35 bar; 3500 kPa) rated couplings sufficient to connect rotor and control valve to manifold inlet
- ⑩ Hunter STSPTK adjustable manifold support block adjusted to support manifold weight (2)
- ⑪ Support pad as 16" x 16" x 2" (40 cm x 40 cm x 5 cm) concrete stepping stone are as per specification (2)
- ⑫ Hunter HQ5RC quick coupling valve set directly below circular quick-access port
- ⑬ Hunter STH30K 3" (80 mm) stainless steel flexible inlet pipe
- ⑭ 1" (25 mm) Minimum Sch. 80 quick coupler supply piping and fittings or as per specification
- ⑮ 5/8" X 48" (15 mm x 122 cm) rebar stake with stainless steel strapping
- ⑯ Compacted base field materials per specifications
- ⑰ Brass manual ball valve included/provided with #9 STBVF30K
- ⑱ Provide drainage via access to field drainage system
- ⑲ Waterproof connections per specifications between control wire and solenoid lead wires
- ⑳ Top of quick coupler set less than 1/2" (12 mm) below underside of main vault cover to allow key activation from above
- ㉑ Hunter STIBS1600 rubber cover and infill barrier kit with trim reference rings to allow heights from standard 1 1/4" (32 mm infill application) to flat (non-infill or track material) applications
- ㉒ Hunter STBKT1600 rotor hanger and elevation adjustment bracket
- ㉓ Hunter ST1600B rotor
- ㉔ Isolation butterfly valve with grooved connections included/ provided with #9 STBVF30K
- ㉕ Wrap flexible inlet piping with heavy-duty plastic pipe wrap tape prior to back-fill and compaction

Flexible Hose and Access Through Vault

The Vault sidewalls are a construction-grade fiberglass material. The Manifold and sub-main piping are coupled using the Flexible Stainless Steel Hose. The Flexible Hose is designed to adjust for **minor** elevation and alignment differences between the Manifold and sub-main piping. The Flexible Inlet Hose replaces the 3" (80 mm) Female Inlet Adapter in the assembly. The mainline service tee location needs to take into account that **the ST-H30K will extend outside the Vault by approximately 24" (61 cm)**. Once incoming sub-main piping and Flexible Hose location is known relative to the Manifold, use a 6" (16 cm) or appropriate sized hole saw to create an access port in the Vault's sidewall.

For ease of reference, the ST-H30K Flexible Hose has a blue "lay line" indicator line on the exterior of the hose. This lay line indicator should never appear to be twisted. The lay line should always visually appear as a smooth untwisted line between the sub-main and the Manifold. If necessary, adjust the Vault position such to allow a smooth, kink-free, non-twisted Flexible Hose connection from the sub-main piping to the Manifold. If necessary, loosen the grooved coupling between the Flexible Hose and the Butterfly Valve then remove any twist in the Flexible Hose. Retighten when complete.

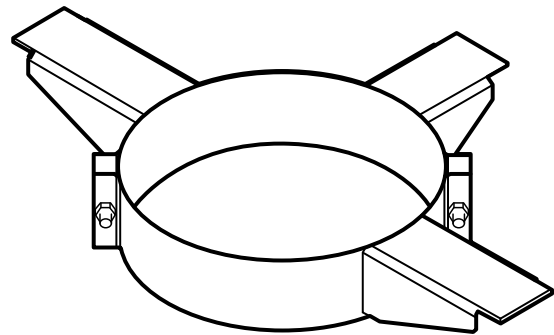


Rotor, Rotor Hanger Bracket and Manifold Assembly

The Rotor, Rotor Hanger Bracket, and Manifold Assembly need to be assembled prior to lowering these components into the Vault. Before lowering this assembly, the concrete support pads and Adjustable Manifold Support Stands need to be positioned.

The Rotor Hanger Bracket is designed to support the weight of the Rotor within the Vault and provide elevation adjustments for the Rotor. The weight of the Manifold must be supported by the two Adjustable Support Stands positioned and raised under the Manifold assembly.

There are two halves to the Adjustable Rotor Support Bracket. The two halves are connected with the supplied bolts and nylock-type nuts. Set the two halves side-by-side with the protruding hanger arms (top side of the brackets) facing upwards. Insert the bolts through the bracket holes and attach the nuts. Slide the assembly under the Rotor and up under the Rotor's flange. Tighten the bolt and nut assemblies to loosely grip the Rotor. Set aside while completing the Manifold assembly.



Manifold Components

The Manifold assembly components are made with 3" (80 mm) ductile iron grooved (Victaulic™ type) fittings. Grooved fittings are simple to assemble and disassemble if servicing is required in the future. Each fitting is connected with a grooved coupling.

The ST-BVF30K kit includes the following items:

- 1 each - Galvanized Grooved x Male BSP Rotor Adapter Fitting
- 1 each - Galvanized Grooved 90° Elbow Fitting
- 1 each - Galvanized Grooved Tee Fitting
- 1 each - Epoxy Coated Grooved Butterfly Valve
- 1 each - Galvanized Grooved x Female NPT Inlet Adapter Fitting (alternative connection)
- 6 each - Galvanized Grooved Coupling
- 1 each - Galvanized Grooved x 1" Female NPT Drain Plate
- 1 each - Galvanized Male NPT Plug
- 1 each - Brass 1" Female NPT Ball Valve (drain valve)



When assembled in conjunction with a ST-V30KV Control Valve, the ST-BVF30K Fitting Kit creates the Manifold for the STK-6V configuration. Without the control valve, the ST-BVF30K Fitting Kit creates the Manifold for the STK-5V configuration. The Fitting Kit also provides a point of connection for the quick coupler (not included) and/or drain valve (included).

How to Assemble Grooved Victaulic™ Type Fittings

The fastest way to learn how to assemble grooved fittings is to search YouTube for Grooved Fittings or Victaulic Fittings. Here is a good example:

<http://youtu.be/OitAzqLJMA>

- ① Lightly lubricate the gasket with approved pipe gasket lubricant. The gasket and fittings can also be lubricated for assembly with a mild solution of dish soap and water.
- ② Slide the gasket over the end of the first fitting to be connected. The gasket must not protrude or extend beyond the edge of the fitting.
- ③ Place the second fitting to be connected in position against the first fitting. The fittings must be held together in this position for the next step.

- ④ Slide the gasket over and center it between the grooves of the two fittings to be connected.
- ⑤ Press each coupling half onto the gasket and squeeze together.
- ⑥ Install bolts and nuts. Tighten evenly alternating sides until securely tightened. Coupling halves must come together and make complete contact.
- ⑦ Nuts should be facing upwards for ease of future service. Optionally apply grease to subdue rust.



Installing the Infill Barrier System (IBS) to the Rotor

The IBS kit is required for all in-vault installations. This is due to the fact that the IBS outer ring is needed to create a snug fit between Rotor and the Vault cover. Without this outer ring the Rotor will fit too loosely within the Vault and potentially lead to retraction issues.

For infill-type synthetic sports fields, the IBS is designed to retain the majority (not all) of the infill material on the Rotor's logo cap area as well as the area surrounding the Rotor. The top of the IBS vertical barrier walls should never be exposed. These barrier walls must always be below the level of the infill material. They need to remain sub-surface

to promote a safe transition between the Rotor's pop-up and surrounding area. Attach the two-piece IBS kit to the Rotor as outlined in the instruction sheet supplied with the ST-IBS1600 kit. **Do not** use adhesives to attach the IBS to the Rotor as this will inhibit or prevent future Rotor servicing.

For non-infill-types synthetic sports fields the IBS vertical walls must be trimmed to create a flat exposed upper surface area. Examples are: short pile carpet over the Vault and Rotor as used for field hockey, running track material over the Vault and Rotor, or when no material is placed over the Vault.

Attaching Rotor/Rotor Hanger Bracket to the Manifold Assembly

Apply Teflon™ Tape to the Manifold's outlet threads. Thread the Rotor to the Manifold outlet threads to provide water-tight seal.

An alternative method is to attach the threaded adapter to the Rotor and then connect the adapter to the Manifold.

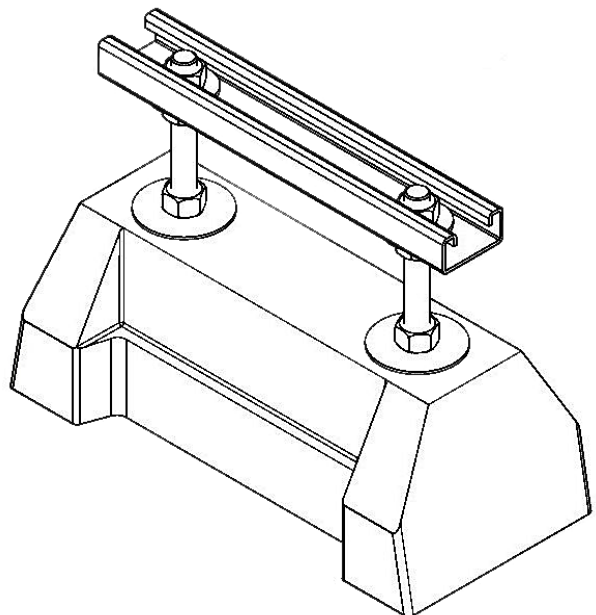
Setup and Positioning of the Adjustable Support Stands

Two Adjustable Support Stands (ST-SPTK) are required to support the weight of the Manifold. The Adjustable Support Stands each need to be placed upon a concrete support pad such as a 16" x 16" x 2" (40 cm x 40 cm x 5cm) stepping stone.

The concrete support pads need to be placed upon compacted soil. The upper surface of the concrete support pad needs to be approximately 39" (100 cm) from the top rim of the Vault. If needed, the concrete support pads can be raised or lowered to ensure the Adjustable Support Stands can be adjusted to **fully** support the weight of the Manifold. One Support Stand needs to be placed under one of the couplings attached to the Butterfly Valve and the other Support Stand needs to be placed under the coupling between the Elbow and Control Valve.

Loosen the nuts on the top of the black rubber Support Stand base. Raise the nuts as far as possible. Press downward on the Support Stand's metal rail until it stops. Using two pliers, spread (bend) the upper opening of the metal rail outward in the area between the two threaded shafts. This action will

create a "nest" for the Manifold's coupling fitting to rest upon. Place the two Support Stands on the concrete pads. These will be adjusted after the Manifold and Rotor assembly have been installed in the Vault.



Installing and Adjusting the Rotor and Manifold Assembly

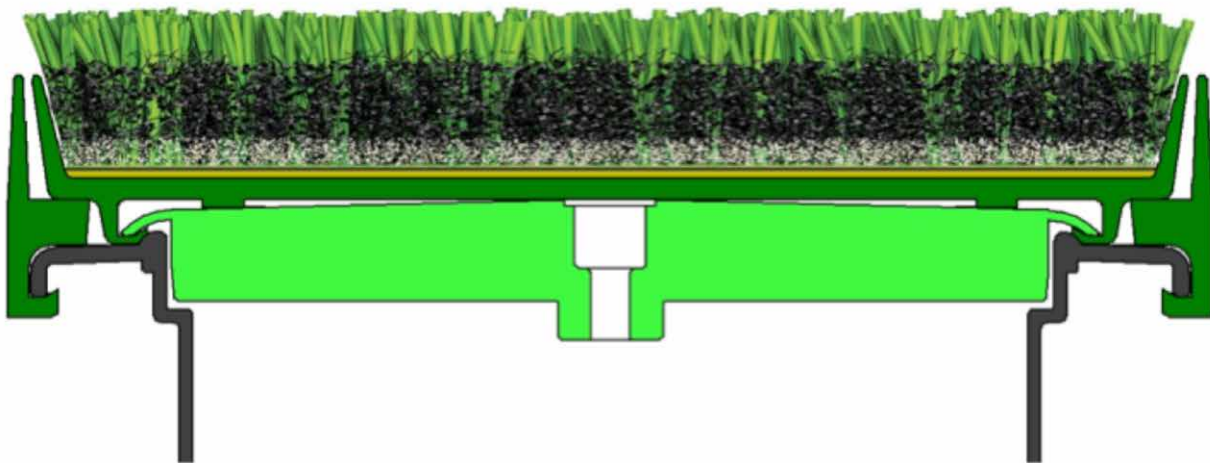
Lower the Rotor and Manifold assembly into the vault. The three arms on the ST-BKT1600 Rotor Bracket need to engage the rim of the Vault.

Position the Adjustable Support Stands under the Manifold assembly and align them directly under the selected Manifold couplings. Raise or lower the Rotor within the Rotor Hanger Bracket as necessary to achieve the correct Rotor elevation relative to the adjacent Vault cover. Raise or lower the Adjustable Support Stand's metal rail to fully support the Manifold.



The Rotor's elevation needs to be adjustable as follows:

- When infill-type synthetic turf is to be attached to the upper surface of the Vault cover set and to the top of the Rotor, the upper surface (floor) of the installed IBS center cup needs to be the same elevation as the upper surface of the Vault's cover set. Using Hunter approved adhesive, attach the turf material to the IBS central cup.



- When pad-type running track material or short-pile non-infill carpet is to be attached to the upper surface of the Vault cover set and to the top of the Rotor, the vertical walls of the IBS kit need to be trimmed to create a flat upper surface. Once trimmed and installed on the Rotor, adjust the upper flat surface elevation to be the same elevation as the Vault's upper surface. The disc of pad or carpet material to be attached to the IBS needs to be approximately 14-3/8" (36.3 cm) in diameter. It is easier to attach this material to the IBS with the IBS central cover

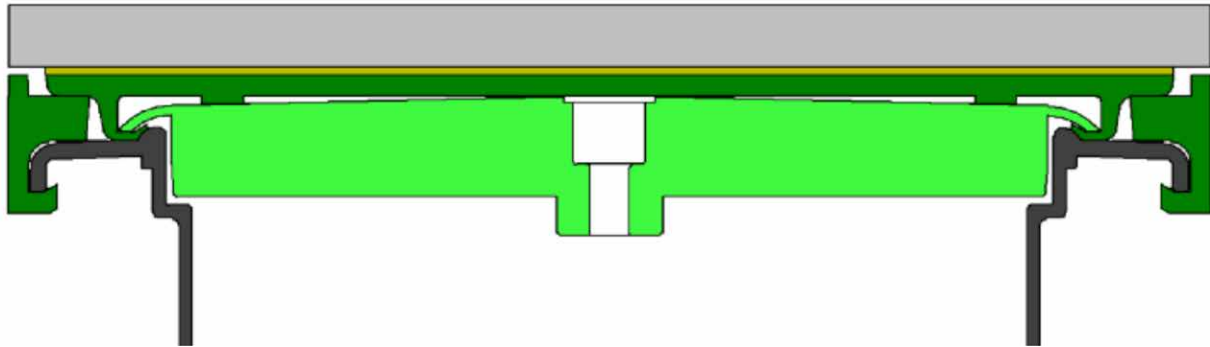
removed from the Rotor. Using Hunter-approved adhesive, attach the pad or carpet material to the IBS central cover. Care needs to be taken to center the IBS central cover under the pad or carpet material. The attachment of the pad or carpet material to the IBS is often the responsibility of the installing turf contractor. It is important to pass this information along to the installer.

Installing and Adjusting the Rotor and Manifold Assembly *(continued)*

- When no material is to be attached to the upper surface of the Vault or the Vault is to be covered with the pour-in-place type of synthetic running track material, the vertical walls of the IBS kit need to be trimmed to create a flat upper surface. Once trimmed, attach the ST-FRP-1600 simulated concrete disc to the top of the flattened IBS using Hunter-approved adhesive. It is easier to attach this disc to the IBS with the IBS central cover removed from the Rotor. Once the adhesive has dried, install the trimmed IBS central cover and disc assembly to the Rotor. To set the Rotor elevation, adjust the upper flat surface of the ST-FRP-1600 simulated concrete disc to be the same elevation as the Vault's upper surface. If the Vault and Rotor are to be covered with the pour-in-place synthetic running track material, it is the responsibility of the installing turf contractor to do this work. It is important to pass this information along to the installer.

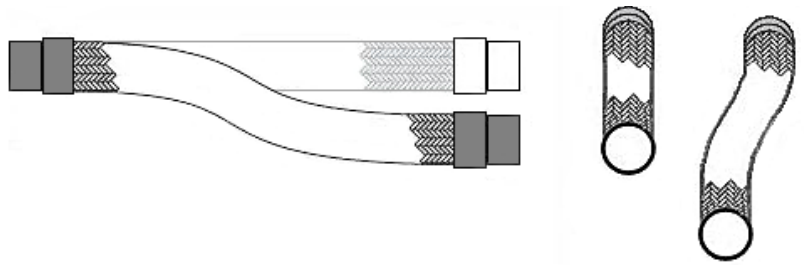
The Manifold assembly needs to be adjusted with the Support Stands to be approximately horizontally level. Make sure the weight of the Manifold is supported by the two Adjustable Support Stands. The Rotor's inlet is not designed to support the Manifold's weight.

Tighten the Rotor Hanger Bracket to lock the Rotor into position.



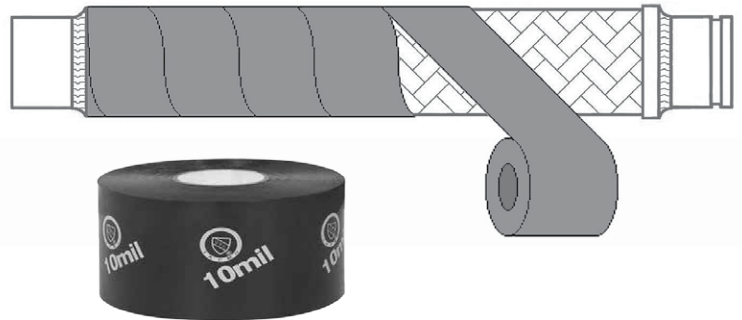
Final Vault Adjustments and Flexible Hose Taping

Once the Vault, Rotor, Rotor Hanger Bracket, Manifold, Support Stands and Flexible Inlet Hose have been installed, make any final positioning adjustments. Make sure the Flexible Inlet Hose is not twisted or kinked. If needed, move the Vault and reset the Manifold in order to ensure proper Flexible Inlet Hose position and orientation. If required, loosen the grooved clamp between the Flexible Inlet Hose and the Butterfly Valve to relieve any twisting or kinking of the Hose. Re-tighten clamp when complete.



Create smooth, kink-free and un-twisted flexible transitions as shown above.

Prior to final back-filling and compacting of the soil around the Vault, wrap the Flexible Inlet Hose with plastic pipe-wrapping tape. The tape must be minimum 10 mil thickness. Some caustic soil conditions may require additional precautionary measures in order to protect the stainless steel Flexible Inlet Hose. Consult the project specification documents for more information.



Installing the Quick Coupler Piping

Run Quick Coupler supply line to the appropriate location outlined earlier in this document. Connect 1" (25 mm) Sch. 80 PVC piping or metal piping per specification vertically to the Quick Coupler location. Next, route and install the drain valve piping and attach the brass drain valve. Make sure the drain valve is the lowest piping within the Vault.

Remote On-Off-Auto Selector and Solenoid Assembly

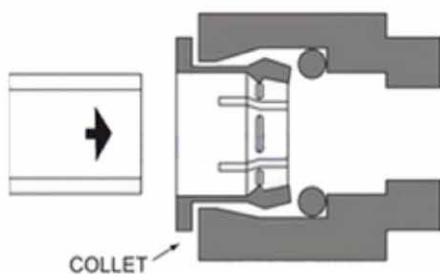
Install the remote on-off-auto selector assembly to the sidewall of the Vault using the supplied hardware. Make sure the on-off-auto selector is positioned directly below the access port in the Vault's cover set. Connect the solenoid using specified splice connectors.



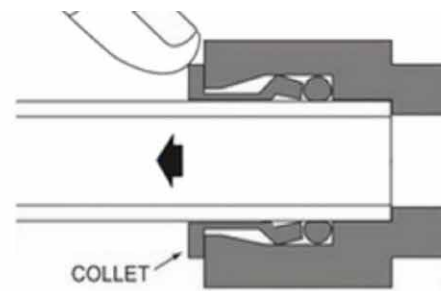
Connecting Control Tubing to the Control Valve

There are two fittings on the Control Valve. One fitting is on the inlet side of the Valve and the other is in the center of the Valve. Each fitting comes from the factory with a black protective dirt plug. To remove the plug, press downward on the collet ring at the top of the fitting while pulling the plug upwards and out of the fitting.

Connect the blue color-coded tubing to the Control Valve's center blue color-coded fitting. Simply press the tube into the fitting until it stops. Pull outwards to confirm tube is locked into the fitting. To remove the tube from the fitting, press downward on the collet ring at the top of the fitting while pulling the tube upwards and out of the fitting. Next, connect the red color-coded tube to the red color-coded fitting on the Valve.



SIMPLY PUSH IN TUBE TO ATTACH

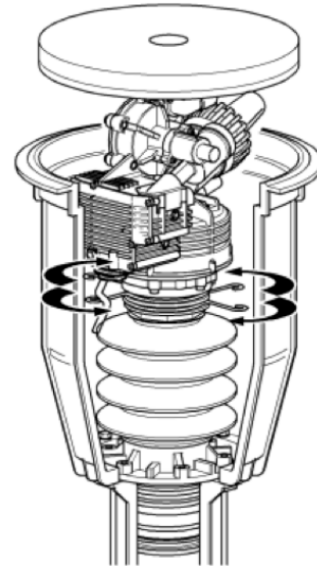
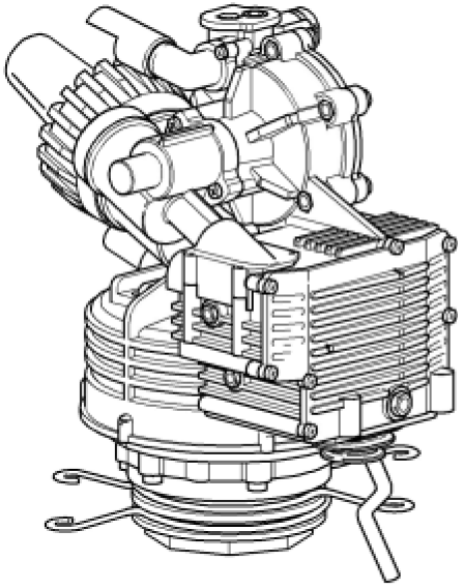


PUSH IN COLLET TO RELEASE TUBE

Setting Rotor's Arc Orientation and Adjusting the Arc

The rotating nozzle turret on the Rotor has a ratcheting feature that allows the nozzle to be rotated to the field of play. Pull up the logo cap or activate the Rotor to expose the nozzle turret and forcefully push the nozzle as needed. The nozzle turret will ratchet unless the arc adjustment clips interfere with the reversing trip arm on the back of the gear drive. Slide the arc adjusting clips if needed

to move the turret. The arc adjustment clips are used to adjust the arc in a similar fashion to impact type sprinklers. To adjust the arc, activate the Rotor and slide/adjust the arc adjustment clips as needed to set the arc to the intended area to be irrigated. The trip arm on the back of the gear drive can be moved manually to speed the process.



Tack/Glue Board for Vault

In most instances, a tack/glue board is specified to be constructed around the perimeter of the ST243636B Vault. Building the tack/glue board may or may not be the responsibility of the irrigation contractor. The purpose of the tack/glue board is to provide a means to securely attach the synthetic “carpet” around the perimeter of the enclosure. Depending on the specification, the carpet will be attached with tack nails or glued, or both.

The most common tack/glue board construction material is Trex™ type 2"x 4" (5 cm x 10 cm) lumber. Depending on the field design and the location of the Vault, the tack board will be an independent perimeter board or, attached to the field perimeter tack/glue board as shown below (ST173026B Vault shown). The tack/glue board rests upon the compacted field base material. The design can be

a very close-fitting frame about the Vault’s exposed upper rim with adhesive between the frame and the Vault or, a looser framework with concrete between the frame and Vault as shown below.

The tack/glue board elevation is often equal to the field perimeter tack/glue board. Or, it may be equal to the elevation of the Vault’s perimeter rim. Or, it may vary depending on the material (if any) that will be glued to the top of the enclosure’s cover (field turf, track surface, etc.). Refer to the field and irrigation specifications to determine appropriate elevation.



Notes:



Notes:





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