INSTALLATION GUIDE

ST-1600-KIT AND ST-1600-KIT-B

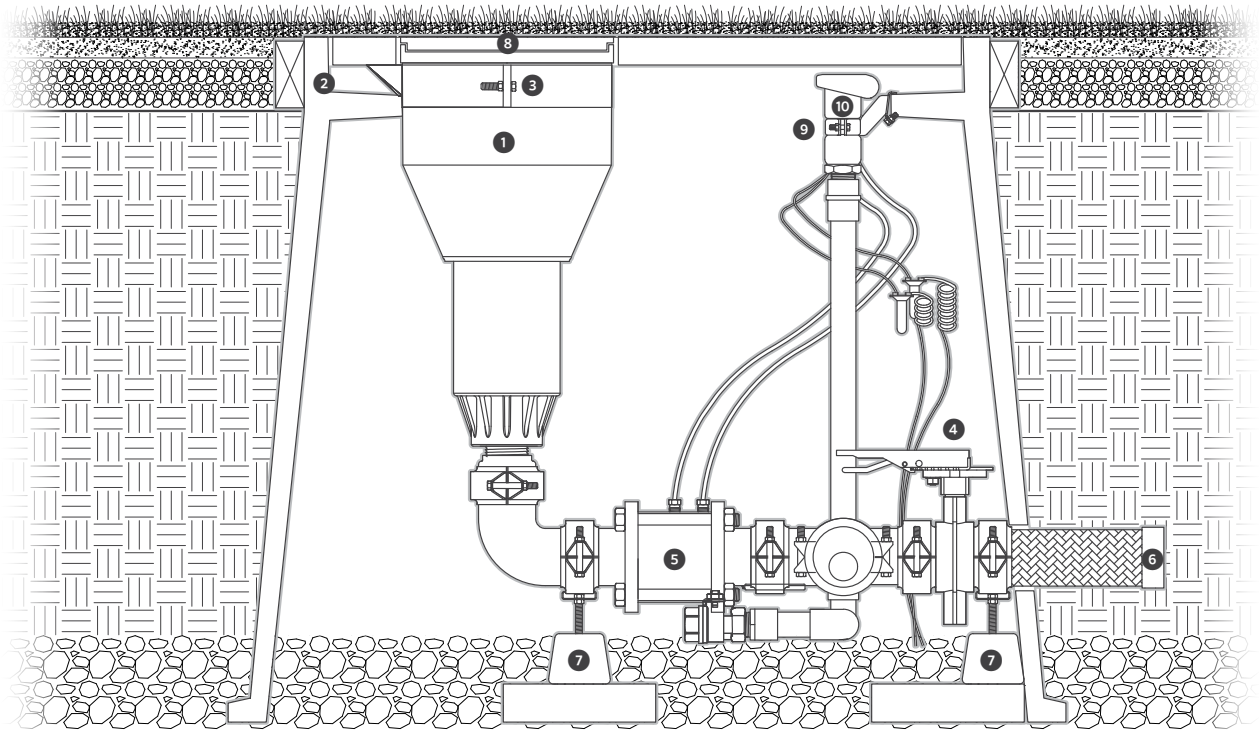


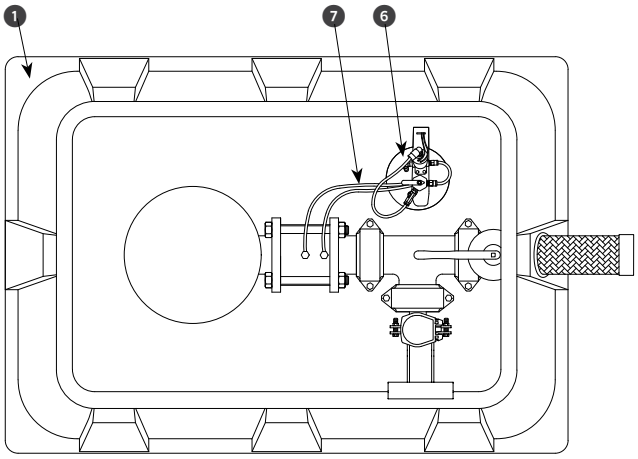
FIGURE	COMPONENT	QTY	DESCRIPTION
1	**ST-1600-HS-B**	1	High-speed pop-up, adjustable arc (40° to 360°), 2" (50 mm) BSP inlet
2	**ST-243636-B**	1	Composite vault, precast hole for rotor, and two quick-access ports for quick coupler and remote on-off-auto selector switch
3	**ST-BKT-1600**	1	Rotor vault hanger and grade adjustment bracket for ST-1600-HS-B Rotor
4	**ST-BVF30-K**	1	Manifold butterfly valve and Victaulic™ coupling fitting kit
5	**ST-V30-KV**	1	3" (80 mm) metal control valve, 3" (80 mm) grooved Victaulic inlet/outlet fittings, solenoid, and on-off-auto selector manifold
6	**ST-H30-K**	1	Ultra-flexible 3" x 26" (80 mm x 660 mm) stainless steel corrugated manifold inlet hose with stainless steel braided outer support layer with 3" (80 mm) female NPT inlet
7	**ST-SPT-K**	2	Adjustable manifold support stand; **two required per vault**
8	**ST-IBS-1600**	1	Infill Barrier System Rubber Cover Kit for ST-1600-HS-B Rotor
9	**ST-BKT-QCV**	1	Hanger bracket for HQ-5-RC Quick Coupler
10	**HQ-5-RC***	1	Quick coupler, 1" (25 mm) NPT inlet, 1¼" (32 mm) outlet for key

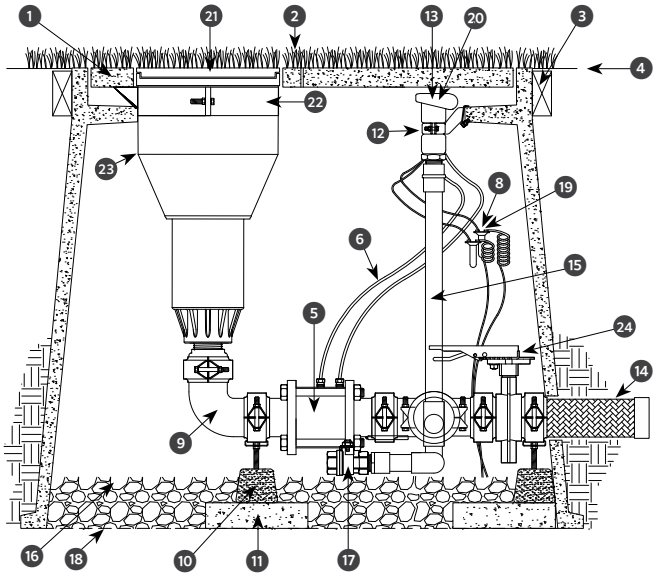
* For ST-1600-KIT-B configurations, order the HQ-5-RC-BSP Quick Coupler.

Table of Contents

Throughout this manual, we'll discuss the kit components and the steps required to assemble and install them.

Installation Detail: Top and Side Views





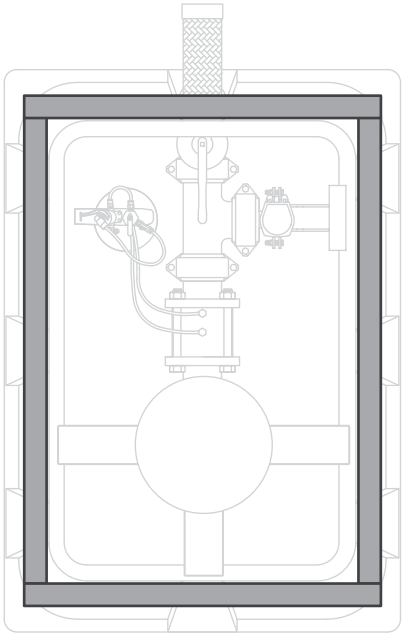
ITEM	DESCRIPTION
1	Hunter **ST-243636-B** composite vault and four-piece polymer-concrete cover set with cast-in openings to support rotor lateral thrust, plus cast-in opening with circular covers for quick coupler and on-off-auto access
2	Synthetic turf or running track material attached to vault rim and cover set (optional)
3	2" x 4" (50 mm x 100 mm) tack glue board or as per specification of all sides
4	Finished grade set to field perimeter tack glue board or as per specification
5	Hunter **ST-V30-KV** ultra-low-loss 3" (80 mm) 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 **ST-V30-KV** valve to selector switch mounted on the vault side wall
8	Lead wires from solenoid to waterproof splice connectors
9	Hunter **ST-BVF30-K** isolation valve and fitting kit with grooved connections and 500 PSI (35 bar; 3,500 kPa) rated couplings sufficient to connect rotor and control valve to manifold inlet
10	Hunter **ST-SPT-K** adjustable manifold support stand adjusted to support manifold weight (2)
11	16" x 16" x 2" (400 mm x 400 mm x 50 mm) support blocks as per specification (2)
12	Mount bracket to the inner lip of the vault and tighten bolts until the bracket is secure
13	Hunter **HQ-5-RC** quick coupling valve set directly below circular quick-access port
14	Hunter **ST-H30-K** stainless steel flexible inlet pipe
15	1" (25 mm) minimum Schedule 80 quick coupler supply piping and fittings or as per specification
16	Compacted base field materials per specification
17	Brass manual ball valve included with #9 **ST-VBF30-K**
18	Provide drainage via access to the field drainage system
19	Waterproof connections per specifications between control wire and solenoid lead wires
20	Top of quick coupler set less than ½" below the underside of main vault cover to allow key activation from above
21	Hunter **ST-IBS-1600** Infill Barrier System Rubber Cover Kit with trim reference rings to allow heights from standard 1¼" (32 mm) to flat (non-infill or track material) applications
22	Hunter **ST-BKT-1600** rotor hanger and elevation adjustment bracket
23	Hunter **ST-1600-HS-B** rotor
24	Isolation butterfly valve with grooved connections included with #9 **ST-VBF30-K**

Installing the Vault

The first piece to prepare and install for the kit is the vault. The ST-243636-B Vault is made from construction-grade fiberglass material and houses all the kit components. It's 24" (61 cm) deep, 36" (91 cm) long, and 36" (91 cm) tall. The body of the vault weighs 170 lb (77 kg), and the complete vault with the covers weighs a total of 320 lb (145 kg). The vault has two ports for easy access to the quick coupler and the on-off-auto selector switch.

The elevation to the grade of the vault must be precise. It's determined by the field and irrigation specifications. In many installations, the vault's elevation is specified such that the upper rim of the vault is level with the upper rim of the tack glue board surrounding the field. The type of material, if any, that attaches to the vault's upper surface may also affect the vault's elevation. This can include the field's synthetic material or the adjacent running track material.

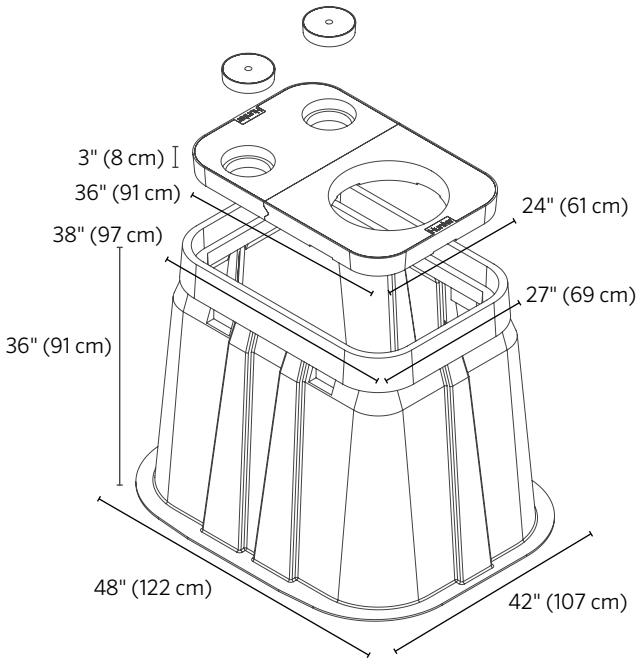
Tack glue board around the vault:



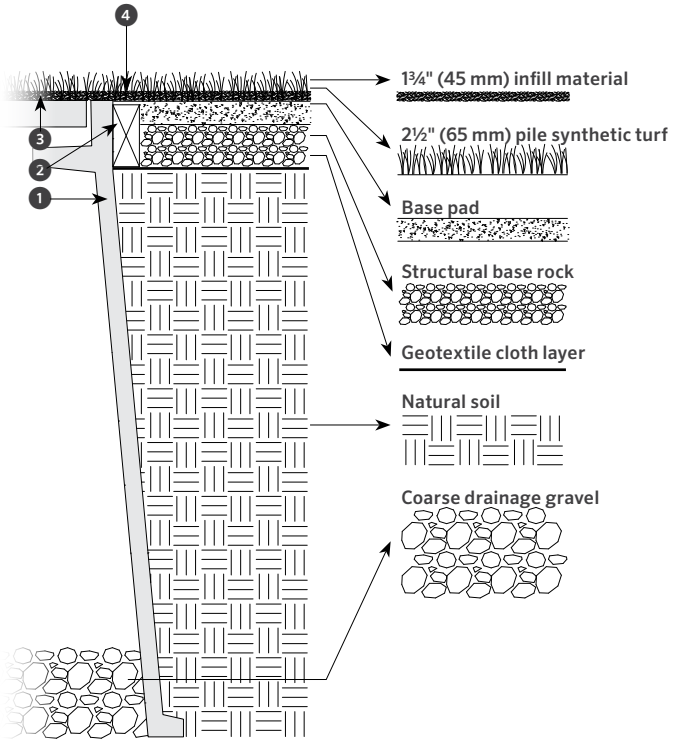
To begin installation, configure the vault according to the specifications provided by the irrigation consultant. It must rest upon a compacted base material per the field specifications. For the vault to drain properly, it needs access to the drainage system. The drainage system must be lower in elevation than the vault's 36" (91 cm) depth to keep water from pooling inside the vault. If the vault is set directly on gravel within the drainage system, the gravel should be compacted, and the vault should be set upon six or more bricks for stabilization.

After leveling the vault, you may want to pour a concrete curb around the outside of the base and the inside corners for stabilization.

Vault dimensions:
Upper rim: 27" x 38" (69 cm x 97 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)

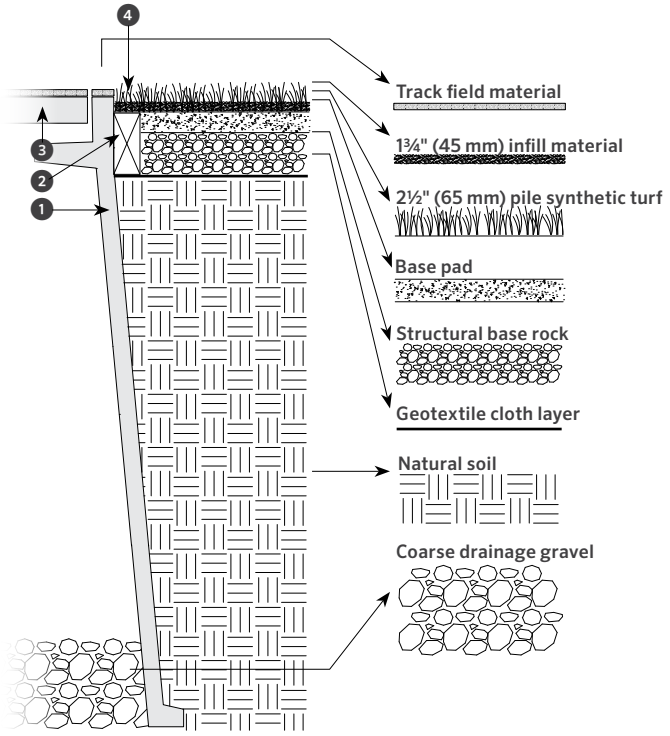


Installation Detail: Synthetic Turf Over Vault



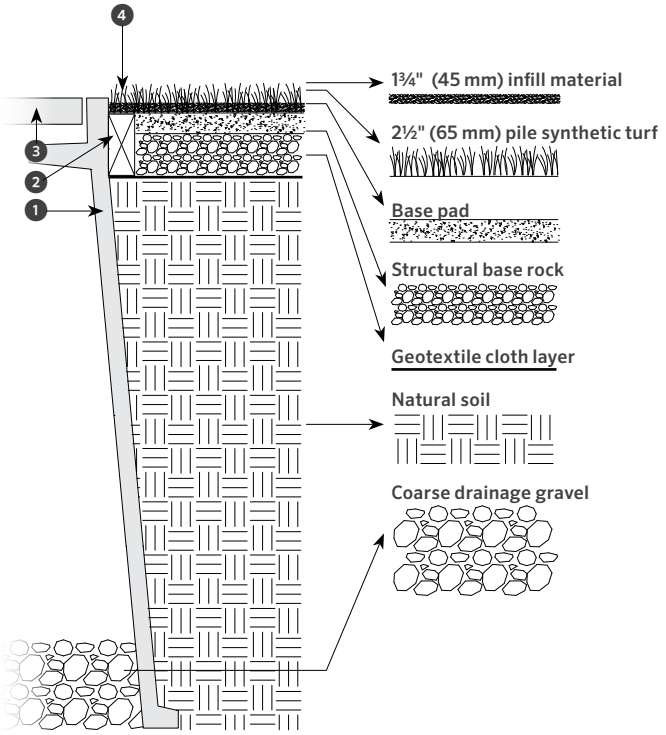
ITEM	DESCRIPTION
1	Vault sidewall and rim
2	2" x 4" (50 mm x 100 mm) tack glue board at field elevation
3	Vault cover
4	Attached synthetic turf to cover, rim, and frame

Installation Detail: Track Over Vault



ITEM	DESCRIPTION
1	Vault sidewall and rim
2	2" x 4" (50 mm x 100 mm) tack glue board at field elevation
3	Vault cover
4	Attached synthetic turf to frame

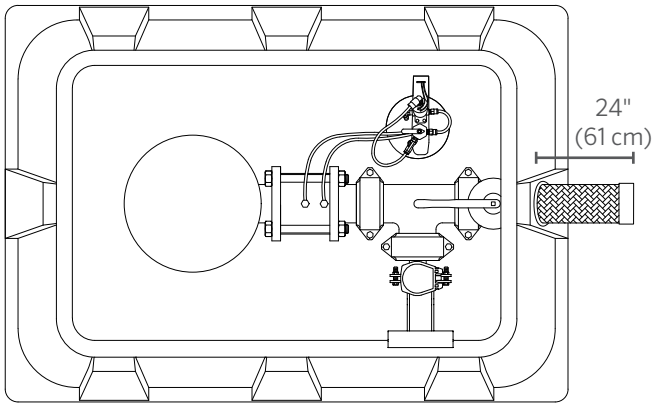
Installation Detail: No Synthetic Turf Over Vault

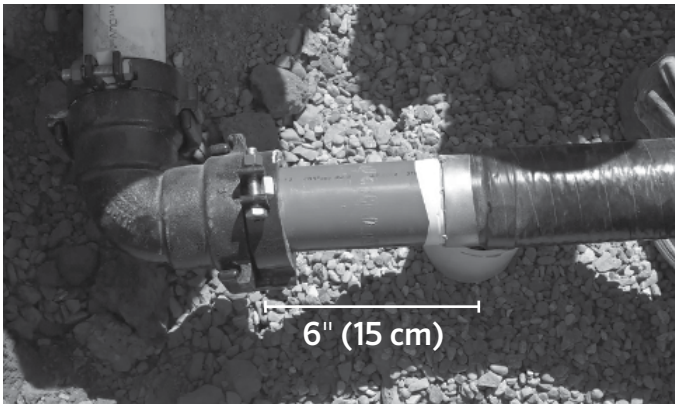


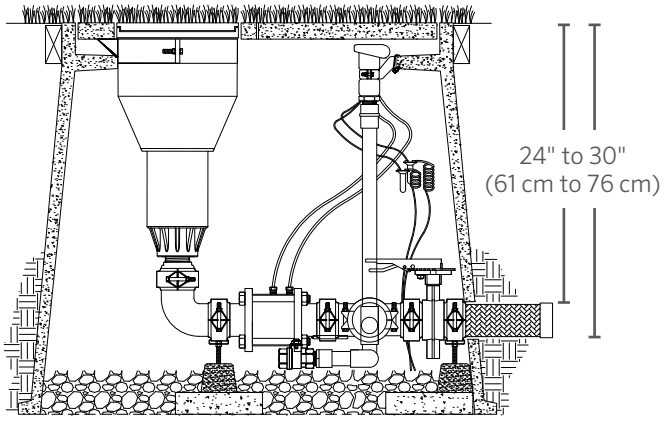
ITEM	DESCRIPTION
1	Vault sidewall and rim
2	2" x 4" (50 mm x 100 mm) tack glue board at field elevation
3	Vault cover
4	Attached synthetic turf to frame

When installing the kit, it's crucial to prepare the incoming plumbing location properly. If done correctly, you should be able to easily level the rotor using the predetermined amount of fittings.

The first step is to prepare the depth and location of the rigid piping connected to the inlet of the manifold. The manifold's inlet is centered along the side wall of the vault, approximately 24" to 30" (61 cm to 76 cm) from the top of the vault. While this is the standard angle for the manifold, it can be pivoted within the vault. This makes it possible to adjust for minor angular variances in the rigid sub-mainline piping that will be attached to the manifold. The main line should also be set at this approximate depth unless specified otherwise. Once the incoming water supply line and flexible hose location are known relative to the manifold, use a 6" (15 cm) hole saw to create an access port in the vault's sidewall.







Lastly, it's important to note that the flexible stainless steel hose will extend out 24" (61 cm) from the vault to the mainline. The pipe between the stainless steel hose from the mainline should be at least 6" (15 cm) long to allow for easy positioning.

Organize and Assemble the Manifold Components

The ST System's manifold is made up of the ST-V30-KV Control Valve and the ST-BVF30-K Isolation Valve Kit. The manifold controls and supports the long-range rotor and provides a point of connection for a quick coupler and drain valve.

The manifold assembly components are made with 3" (80 mm) grooved Victaulic™ type fittings. These fittings join pipes of various materials across multiple fire protection, industrial, and commercial applications. Made of cast ductile iron and pressure-responsive synthetic rubber for the gasket, these fittings are extremely rigid and have operating pressures of up to 500 PSI (35 bar; 3,500 kPa). They have great joint integrity and can withstand thermal changes, seismic events, and differential settlements. Victaulic fittings add to the robustness of the kit. The isolation valve kit includes:

QTY	DESCRIPTION
1	Galvanized grooved x male BSP rotor adapter fitting
1	Galvanized grooved 90° elbow fitting
1	Galvanized grooved tee fitting
1	Epoxy-coated grooved butterfly valve
6	Galvanized grooved coupling
1	Galvanized grooved x 1" (25 mm) female NPT drain plate
1	Galvanized male NPT plug
1	Brass 1" (25 mm) female NPT ball valve (drain valve)

ST-BVF30-K

Assemble the Grooved Victaulic™ Type Fittings

When assembling grooved Victaulic type fittings to create the ST Manifold, approved pipe gasket lubricant can be used to aid the assembly process, but it is not required.

1. 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.
2. 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.
3. Slide the gasket over and center it between the grooves of the two fittings to be connected.
4. Press each coupling half onto the gasket and squeeze them together.
5. Fasten the bolts and nuts to the coupling. Tighten evenly, alternating sides until securely tightened.

Coupling halves must come together and make complete contact. Be sure the nuts are facing upwards for ease of future service, and as an option, apply grease to subdue rust.

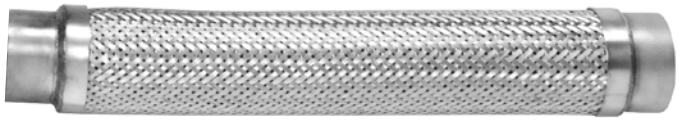
ST-BVF30-K and ST-V30-KV

Flexible Hose Access Through the Vault

The ST Kit's ST-H30-K Flexible Stainless Steel Hose connects the incoming water supply to the manifold. The flexible hose adjusts for minor elevation and alignment differences between the manifold and incoming water supply line.

Install the flexible stainless steel hose to the manifold with the provided coupling and gasket. Secure it to the inlet side of the butterfly valve using the same steps for assembling the manifold with Victaulic fittings. Next, wrap the hose with 0.25 mm thick plastic pipe-wrapping tape to protect it from corrosive soil conditions. Please note that this step cannot be performed when the rotor and manifold assembly are in the vault. If you've already lowered it, simply bring it out to install the tape.

When the rotor, manifold, and stainless steel assemblies are installed in the vault and connected to the water supply line, the stainless steel hose should appear smooth and untwisted between the incoming water supply line and the manifold. If necessary, loosen the coupling between the flexible hose and the butterfly valve. Then remove any twist in the flexible hose, and retighten when complete.



ST-H30-K

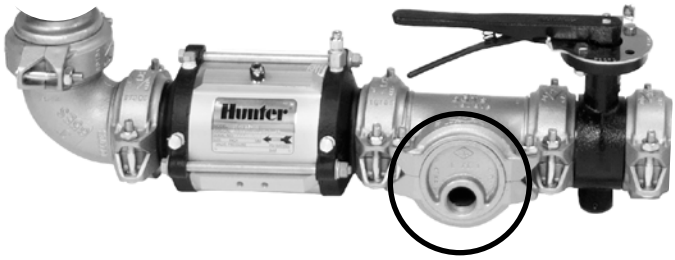
Attaching the Rotor and the Quick Coupler Supply Line

After attaching the flexible hose, install the rotor to the manifold assembly.

1. Apply Teflon™ tape or paste to the adapter's threads.
2. Thread the rotor to the adapter to provide a watertight seal.
3. Connect the adapter to the manifold with a coupler and gasket for the Victaulic fittings.

After the rotor is attached, the quick coupler supply line can be installed to the manifold.

1. Apply Teflon tape to the supply line threads.
2. Install the supply line fitting to the manifold.

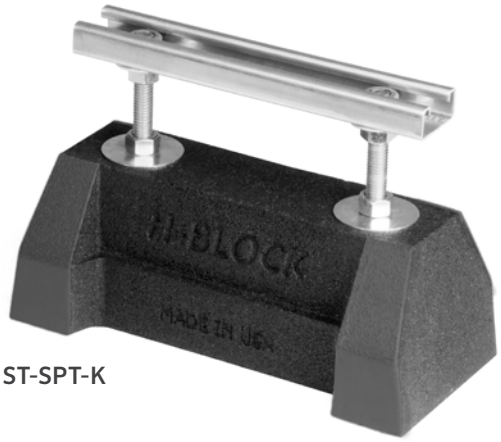


Configure and Position the Adjustable Support Stands

Once the rotor, manifold, and stainless steel hose are assembled, you'll need to install the ST-SPT-K Support Stands. Two adjustable stands are required to support the weight of the manifold. Place one support stand under one of the couplings attached to the isolation valve. Position the other support stand under the coupling between the elbow and control valve. Place both adjustable support stands on a concrete support pad like a 16" x 16" x 2" (400 mm x 400 mm x 50 mm) support block for stabilization.

1. Prep the soil where the support block will be placed on opposite ends inside the vault by compacting the soil.
2. Lower the support block inside the vault.
3. After the vault area, support blocks, and support stands are prepped, place the support stands on the support blocks.

The top of the support stands should be approximately 29" (74 cm) from the top of the vault. If needed, raise or lower the support stands to attain the correct measurement. To adjust the support stands, loosen the nuts on the top of the black rubber support stand base. Raise the nuts as far as possible, then press downward on the support stand's metal rail until it stops.



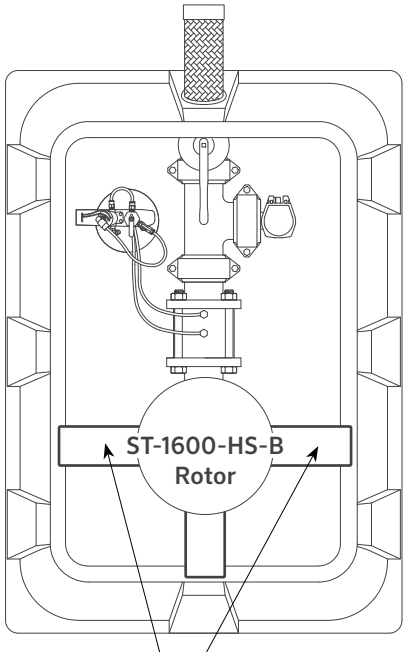
ST-SPT-K

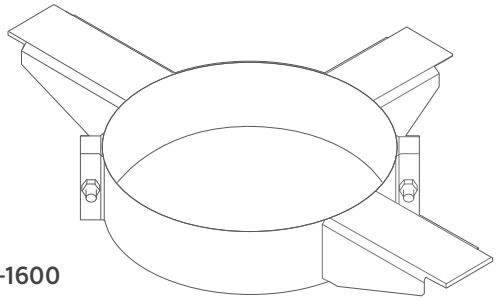
Installing and Adjusting the Rotor, Manifold Assembly, and Rotor Hanger Bracket

After placing the adjustable support stands in the vault, it's time to install the rotor and manifold assembly. Use two people to lower the rotor and manifold assembly onto the support stands. If a slight adjustment is needed, you can raise or lower the support stands with these assemblies on them.

With the rotor inside the vault, install the ST-BKT-1600 Rotor Hanger Bracket onto the vault to secure the rotor. There are two halves of the bracket with the supplied bolts and nyloc nuts needed to assemble it.

1. Set one half with the protruding hanger arms facing upward under the flange of the rotor. Engage the arms on the rim of the vault.
2. Install the second half, once again confirming that the arms are engaged on the rim of the vault and are under the flange of the rotor.
3. Once the brackets are loosely fitted to the vault and rotor, slide the bolts through the bracket's predrilled holes to connect the two bracket pieces, and tighten the bolts and nyloc nuts to loosely grip the rotor. Keep the bracket loose until after the Infill Barrier System is installed and the rotor's elevation is set.





ST-BKT-1600

Installing the Infill Barrier System to the Rotor

All in-vault installations require the ST-IBS-1600 Infill Barrier System to blend the ST System with the surrounding field. The Infill Barrier System also creates a snug fit between the rotor and the vault cover, allowing for smoother operation.

For infill-type synthetic sports fields, the Infill Barrier System retains much of the infill material on the rotor's logo cap area as well as the area surrounding the rotor. The infill barrier walls should be below the level of the infill material to promote a safe transition between the rotor's pop-up and the surrounding area.

Important:
Do not apply adhesive or glue to the Infill Barrier System when installing the rotor. All parts must remain removable to allow for rotor servicing.

1. Install the ring on the flange of the rotor. Use your fingers to pull and place each retaining segment of the ring over and then under the rotor's black flange.
2. After all retaining segments have been positioned, check to make sure all segments are completely under the rotor's flange.
3. Install the cup over the rotor's green logo cap by lifting the logo cap and placing a piece of wood beneath it.
4. Place the cup over the edge of the logo cap.
5. Use your fingers to pull and place each retaining segment of the cup under the logo cap's outer edge.
6. After all retaining segments have been positioned, recheck to make sure they are completely under the logo cap.
7. Carefully lower the logo cap and cup assembly. Take care not to disengage the cup from the logo cap, and check to make sure the Infill Barrier System cup and ring are aligned.

INFILL TURF

SYNTHETIC TRACK

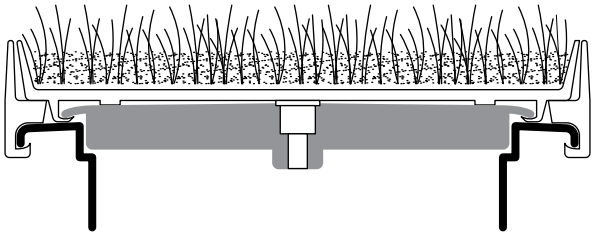
NON-INFILL HOCKEY TURF

BARE COVER
ST-FRP-1600

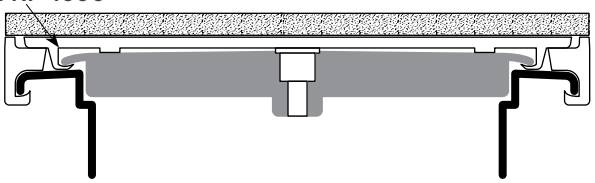
Adjusting the Rotor Elevation and Installing the Cover Material to the Infill Barrier System

Before attaching synthetic, track, or concrete material to the vault, cover, and Infill Barrier System, trim the walls of the Infill Barrier System to create a flat upper surface if using non-infill-type material. If an infill-type material is being used, trimming is not required. Adjust the upper flat surface elevation to the same elevation as the vault's upper surface by maneuvering the rotor into place. This step allows for seamless integration of the ST System into the field and keeps it from becoming a tripping hazard. Once the elevation is set, tighten the rotor hanger bracket to lock the rotor into position.

If a pad or synthetic turf material must be attached to the Infill Barrier System, it needs to be 14⅜" (36.5 cm) in diameter. After a piece of cover material is cut, use the Hunter-approved ST-ADH-K Adhesive to attach the material to the Infill Barrier System cup.



ST-FRP-1600



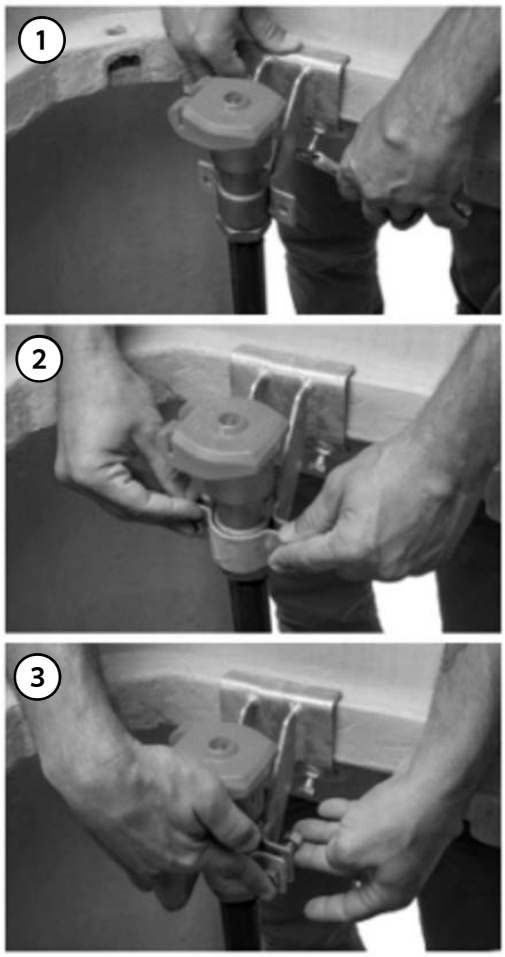
Installing the Quick Coupler Piping, Quick Coupler, and Quick Coupler Bracket

Quick couplers allow fast access to water while maintaining in-ground durability and vandal resistance. A quick coupler valve is a great tool to use when the rotor does not need to be turned on to irrigate a large area, and it's only needed for spot watering in small areas. The quick coupler inlet piping must be plumbed to align with the quick coupler's 7" (18 cm) diameter Quick Access Port in the vault's cover. If the quick coupler is too low, it will be impossible to attach the key.

Important:
For all threaded parts, apply Teflon tape to the threads.

1. Thread the quick coupler to a 1" x 18" (25 mm x 460 mm) Schedule 80 PVC nipple or metal nipple.
2. Install the nipple with the quick coupler attached to it on the supply line.
3. Mount the quick coupler to the vault with the ST-BKT-QCV Quick Coupler Bracket. Mount the bracket to the vault directly below the quick coupler access port with the supplied bolts. When installing the quick coupler to the bracket, it's important to set the top of the quick coupler less than a ½" below the underside of the main vault cover to allow for key activation from above. Mount the bracket to the inner lip of the vault and tighten the included bolts until the quick coupler is secured. Route and install the drain valve piping.

Attach the brass drain valve. Make sure the drain valve is the lowest piping within the vault.



Installing the Remote On-Off-Auto Selector Switch and Solenoid Assembly

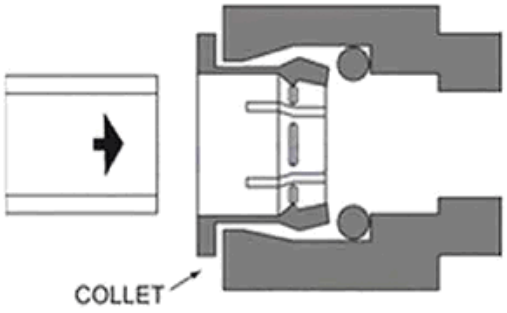
The on-off-auto selector switch allows the user to control the kit to automatically actuate from an irrigation controller or manually from the switch. To install the switch, make sure it's positioned directly below an access port in the vault's cover set.

1. Drill two pilot holes with a 5⁄16" masonry drill bit in the sidewall of the vault. The pilot holes should be 1" (25 mm) apart.
2. Mount the switch with the supplied hardware and bolts.
3. Lastly, connect the solenoid using the recommended 3M DBRY high-quality wire connectors.

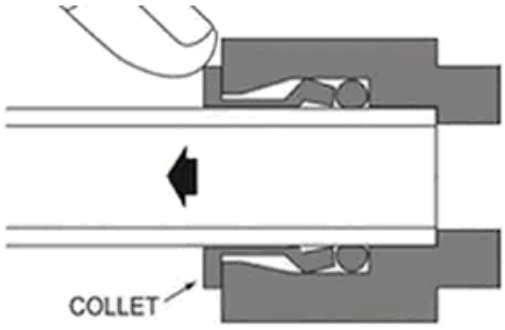
Connecting the Control Tubing to the Control Valve

After installing the on-off-auto selector switch, insert the supply tubing from the switch into the control valve. This allows you to turn the valve on and off, either manually from the switch or automatically from the controller. On the control valve, you'll find two fittings. 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 upward and out of the fitting.

To connect the tubing to the fitting, simply press the tube into the fitting until it stops. Pull gently outward to confirm the tube is locked into the fitting. Perform these two steps while making sure to match the blue color-coded tube to the blue color-coded fitting, and the red color-coded tube to the red color-coded fitting.



SIMPLY PUSH IN TUBE TO ATTACH

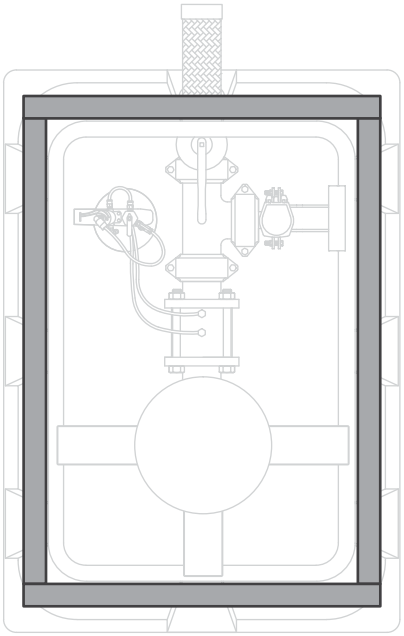


PUSH IN COLLET TO RELEASE TUBE

Installing the Tack Glue Board

The last thing to install is the tack glue board. After backfilling around the vault, install a tack glue board around the vault's perimeter. This allows you to securely attach the synthetic material in this area. The synthetic material rests on compacted field base soil and, depending on the specification, may be attached with tack nails, glue, or both.

The most common tack glue board construction material is Trex™ 2" x 4" (50 mm x 100 mm) lumber. A close-fitting frame design is ideal. Install the tack glue board around the vault's exposed upper rim with adhesive between the frame and vault. It should be equal in elevation to the vault's perimeter rim.



Setting the Rotor's Arc Orientation and Adjusting the Arc

Now that the internal and external components are installed, turn on the system to verify functionality with the on-off-auto selector switch. Next, set the rotor arc.

The ST-1600-HS-B Rotor has an arc range of 40° to 360°. It also has a ratcheting feature so the rotor can be rotated toward the playing field. While operating, push the rotor forcefully toward the intended irrigation area. The rotor 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 rotor to the intended irrigation area.

To adjust the arc, activate the rotor and slide the arc adjustment clips. This allows you to set the arc to the intended irrigation area. Move the trip arm on the back of the gear drive manually to speed up the process.

ARC ADJUSTMENT RINGS

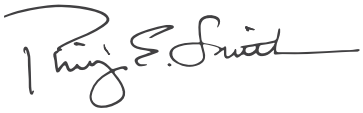
Final Kit Adjustments

Before completing the installation of the ST-1600 Kit, do one last check of the vault, manifold, rotor assembly, fittings, and brackets. Verify that the bolts are tight and the components are positioned properly in the vault. After making any final adjustments, enjoy the benefits of an automatic synthetic turf irrigation system.

SCAN for help

hunter.help/**ST1600KIT**

Helping our customers succeed is what drives us. While our passion for innovation and engineering is built into everything we do, it is our commitment to exceptional support that we hope will keep you in the Hunter family of customers for years to come.



Gene Smith, President, Landscape Irrigation and Outdoor Lighting

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