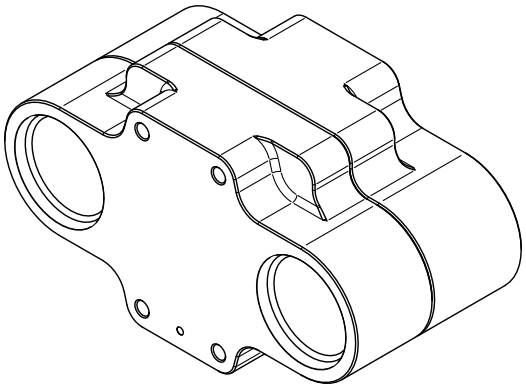
-16 ORB UNIVERSAL THERMOSTAT FOR ENGINES & TRANSMISSIONS

PART NO. FSX-1XX

MADE IN USA



Important: Read these instructions in their entirety prior to installation.

For contact information, visit www.improvedracing.com

Rev 210318

PARTS LIST & HARDWARE

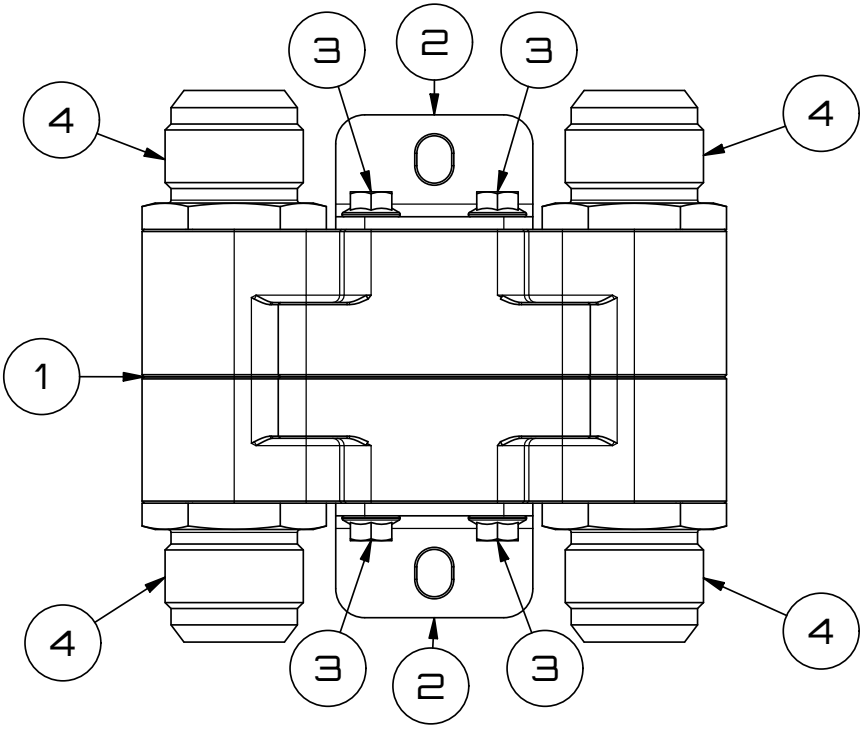


Figure 1 - FSX-1XX Parts List

Item	Qty	Part Number	Description
1	1	FSX-1XX	Thermostat (Choose Temperature)
2	2	HBK-1000	Mounting Bracket
3	4	HSC-1040	Mounting Bracket Screw
4	4	OM-16-XX -OR- OB-16-YY	SAE -16 ORB to SAE 37° Male Flare (Optional) -OR- SAE -16 ORB to Hose Barb (Optional)

- 37° male flare OM adapter fittings are available in SAE -12 and -16 sizes.
- Hose barb OB adapter fittings are available in 1.50” and 1.75” hose sizes.

TECHNICAL SPECIFICATIONS

Max. Operating Temp.	302°F (150°C)
Min. Operating Temp.	-22°F (-30°C)
Max. Operating Pressure	300 psi (20.68 bar)
Max. Flow Rate	SAE 30W Oil @ 212°F (100°C): 33 GPM (125 LPM) Water: 50 GPM (189 LPM)
Dimensions (W x H x D)	3.2" x 1.4" x 4.6" (81.3 mm x 35.6 mm x 117 mm)
Weight	18.1 oz (514 g)
Ports	-16 SAE Straight Thread O-ring Ports 1-5/16"-12 UN - 2A
Housing Material	CNC-Milled 6061-T6 Billet Aluminum
Housing Finish	MIL-A-8625, Type II Anodizing
Valve Material	CNC-Milled 6061-T6 Billet Aluminum
Thermal Actuator	Brass Body, Steel Ram, Paraffin Wax
Valve Spring	304 Stainless Steel, Passivated per ASTM A967
Seals	Viton (FKM) Elastomer
Estimated Service Life	> 10,000 Heat Cycles

TEMPERATURE SPECIFICATIONS

Part Number	Activation Temperature	Stabilization Temperature
FSX-185	180°F +/- 2°F (82°C +/- 1°C)	185°F +/- 2°F (85°C +/- 1°C)
FSX-205	200°F +/- 2°F (93°C +/- 1°C)	205°F +/- 2°F (96°C +/- 1°C)

PRODUCT INFORMATION & APPLICATIONS

- The Flow Series Extreme (FSX) fluid thermostat is a large, lightweight thermostat designed to regulate fluid system temperatures where high-flow capacity and large fluid connections are needed.
- The integrated thermostat accelerates warm-up and prevents over-cooling of the fluid by the heat exchanger.
- When installed according to the methods in this product manual, the thermostat can never fail such that flow is blocked in the system.

- Fluid will always circulate should failure of an internal component occur.

- FSX is re-buildable. Should the unit fail, purchase the rebuild kit or ship it back to Improved Racing for a rebuild.

The Rebuild Kits can also be used to change thermostat temperature.

- The fluid temperature exiting FSX will register at the Stabilization Temperature shown in the Temperature Specification Table only when the heat removal rate of the heat exchanger meets (or exceeds) the heat load of the system.
  - The Stabilization Temperature is higher when the heat exchanger is undersized for the heat load of the system.
  - The Stabilization Temperature is lower when the heat exchanger is oversized, and might oscillate when the heat exchanger is too large for the heat load of the system.

Not recommended for use with highly corrosive fluids.

OPERATION & FLOW DIAGRAM

The bullets below summarize the operation and flow paths for FSX during warm up and full flow modes. Flow paths are also shown in Figure 2.

- FSX bypasses the heat exchanger until the fluid reaches the Activation Temperature stated on the Temperature Specification Table on Page 3.
  - Bypass mode is shown as Cool Fluid in Figure 2.
  - The heat exchanger restriction is greater than bypass restriction, this is why over 90 percent of the fluid bypasses.
  - The slow flow into the heat exchanger also slowly warms the fluid, reducing thermal shock after activation.
- After activation, the internal valve slowly closes and increases hot fluid flow into the heat exchanger.
  - The slow movement of the valve reduces fluid hammer effects between bypass and full flow modes to protect sensitive systems.
- In full flow mode, the valve completely closes the internal bypass.
  - Full flow mode is shown as Hot Fluid in Figure 2.
  - All fluid is being sent through the heat exchanger.
  - This mode stays active while FSX and the heat exchanger balance the system to the Stabilization Temperature shown on Page 3.

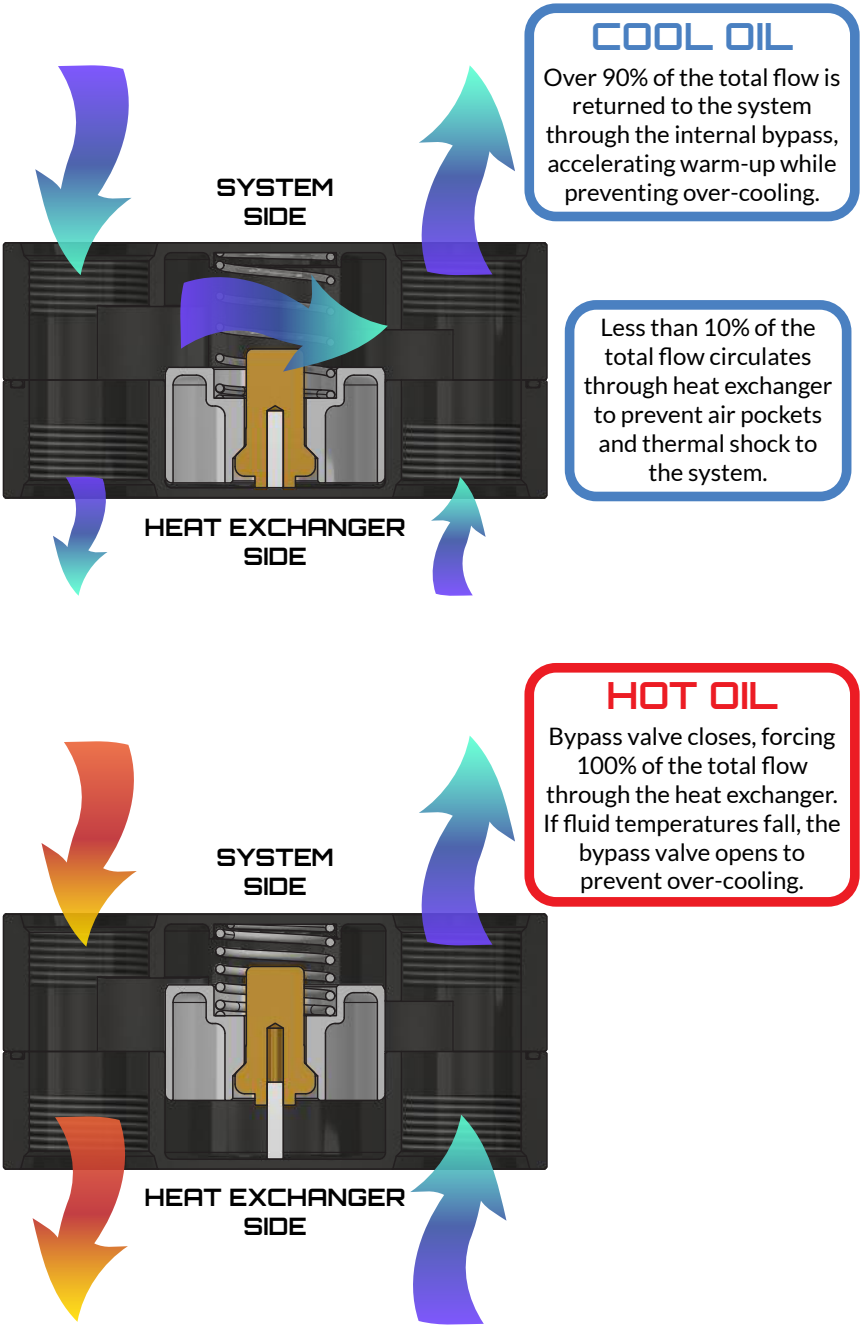


Figure 2 - FSX Flow Diagram

BEFORE YOU BEGIN

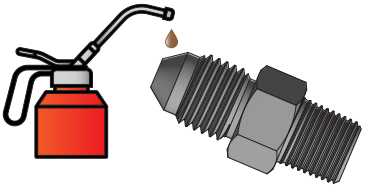
WARNING: NEVER PLUG THE FLUID PORTS.

WARNING: Running the engine with plugs in the ports will block fluid flow and result in catastrophic damage.

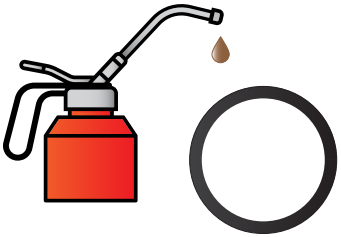
WARNING: This product should only be installed by a qualified mechanic. Improper installation could result in severe engine damage.

WARNING: Never secure hoses to moving components.

- Use zip-ties and P-clamps to ensure no hoses pinch / rub on the exhaust, engine, suspension components and chassis.
- Ensure heat exchangers are isolated from vibration.
- Pre-fill heat exchangers to prevent a dry startup.
- Lubricate all 37° flares on the adapter fittings before final tightening.



- Lubricate O-rings on adapter fittings prior to installation to prevent damage and ensure a leak-free seal.



- Use aluminum tools to avoid damaging fittings.

INSTALLATION INSTRUCTIONS

1. Install the adapter fittings to the thermostat.
2. Configure and assemble the hydraulic system lines.
3. Secure the heat exchanger and pre-fill prior to connecting the lines.

4. Connect the system lines to the correct adapter fittings in your system.
5. Properly torque all fittings OR hose clamps. DO NOT overtighten.
6. Inspect and top-off the system fluid when necessary.
7. Perform necessary priming procedures to build fluid pressure for your system.
8. Start the system and inspect for leaks.
9. Turn-off the system and inspect the fluid level. Add fluid if necessary.
10. Re-inspect the system lines and fittings for leaks after 50 miles or 5 hours of use.

Installation is now complete. Thank you for purchasing an Improved Racing product!