


# US GLOBAL RESOURCES



## Under Bench Fin Tube



Our **TF aluminum under bench heating system heats the greenhouse using water temperatures up to 230°F.**

 This system works by heating the air around the fin tube and distributing heat through natural convection and radiation through the plants.

The versatility of the materials allows the grower to place the heat where it is needed, at the plant level. By placing high grade aluminum under or around the crop to be heated, the tubing, warm from the water running through it, radiates heat to the soil, roots and foliage of the crop.

Because of the superior transfer capabilities of the Hummel Hydronics TF, even temperatures are maintained throughout the system and the growing media. The end result is an envelope of warmth around the entire crop, which you control.

Two sizes allow for various design considerations:

- TF-1 Two fin aluminum material with 3/8" fins is ideal for climates that have low heat requirements or need closer temperature control like plug production.
- TF-2 Two fin aluminum material with 1" fins has the added surface area for more heat transfer for higher heat requirements.

The external coupling design allows unrestricted water flow through the system allowing for longer runs and more even heat distribution. There are no low flow, high pressure conditions inherent of an internal couplers.



## SF Under Bench Fin Tube Advantages:

- Lightweight aluminum construction allows for hanging material from benches without special support.
- Rugged construction can be supported on 6-foot OC hangers.
- External twist-lock coupling technology for easy installation.
- Requires NO special tools for installation.
- Does not restrict flows like internal couplers.
- Does NOT require Tek screws to hold material together.
- All aluminum return loops make installation ridged. No rubber hose required for loops.
- Special barb connection to mainlines using a minimal hose connection.
- Low water volume allows for quick response time.
- Hummel Hydronics can provide a performance engineered heating system that can meet the needs of any grower. Performance packages include: Heating system components (heat source, controls, radiation), performance engineered drawings (pipe layouts and electrical diagrams), installation supervision and installation (as required).



**Contact Us**

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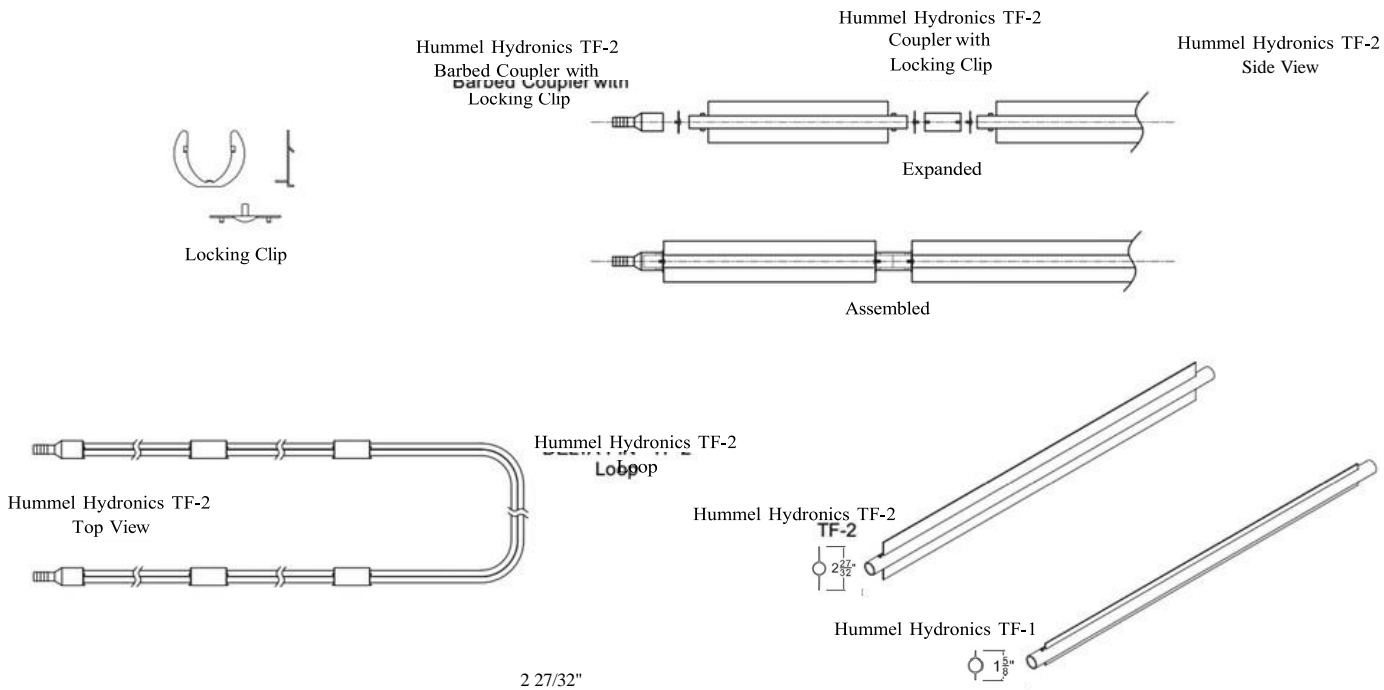


## Under Bench Fin Tube

### Specifications:

The radiating material shall be the following components:

- TF-1 (3/8" fin) and TF-2 (1" fin) are 7/8" OD aluminum tube with two integral fins that run parallel to the tube. Each fin tube length has each end prepared to accept the Hummel Hydronics coupler provided.
- Each return loop is TF-1 or TF-2 formed to size based on required spacing. • The connection to the main lines is a Barbed coupler.
- Coupling is an external slip on compression style with two high temperature "O" rings rated for -60°F to 230°F. (Maximum pressure rating -100PSI at 230°F) - coupler patent pending.
- Material is supported from a bench frame using stainless steel jack chain.



Tube Size and Material	TF BTU/Hr/Ft Output									
	Average Water Temperature									
	130°F	140°F	150°F	160°F	170°F	180°F	190°F	200°F	210°F	220°F
TF-1	50	60	75	85	95	105	115	125	140	155
TF-2	75	85	105	120	135	150	165	180	200	220

Rated outputs at 65°F interior air temperature.

Maximum water velocity 4.0 ft/sec. Maximum water pressure - 100 PSI at 230°F.

System water shall be maintained between pH 7.0 and pH 9.0.

All material is shipped in up to 20-foot sections with the ends of section ready for coupling.

