

# Oil Coolers

## Marine Transmission Oil Coolers -- The Facts!!

Need to replace your Marine Transmission Oil cooler? Understand that they are NOT necessarily proprietary, meaning that if you have a Yanmar engine, the cooler need not be supplied by YANMAR. – they only have to meet the flow/heat rejection specs required for the transmission, keep the gear oil at the proper (not to exceed) or required temperatures in worst case scenarios, AND fit the engine's raw water circuit (remember, I am not talking about "coolant cooled" transmissions or oil coolers – different application)



Here is a general specification of what to look for that meets or exceeds the requirements of what you need, AND both Twin Disc & ZF specifications—In other words, a GOOD marine transmission cooler will have these qualities (at a minimum) :

- Constructed from a quality CU-NI (copper-nickel) alloy on the salt water side, all furnace brazed using silver based alloy solders
- Designed for "High-Pressure," usually called "Class II" with operating pressures of 300-500 PSI even if the transmission has lower operating pressures. This means that the cooler is "stronger" in all respects and will hold up to more abuse.
- Cast bronze end caps and oil lugs or "saddle" fittings. No wrought copper or sheet metal, please.
- Provisions for as large a zinc(s) as practical. ¼", 3/8" and ½" zincs are typical standard sizes.
- The unit is sized internally and externally for the application– in other words it "fits" where it is supposed to fit.

If you are reading this, it could very well be because you have damaged a marine transmission because of a cheesy gear cooler failure. IMO, many transmission oil coolers that come on new engines from today's name brand engine companies have no place on a marine engine. One, the engine OEM's typically use the cheapest one that barely meets the specifications needed, and two, most companies supply a transmission that is marginally rated for the application and size the cooler for that smaller marine gear.

### PROBLEMS and understanding them:

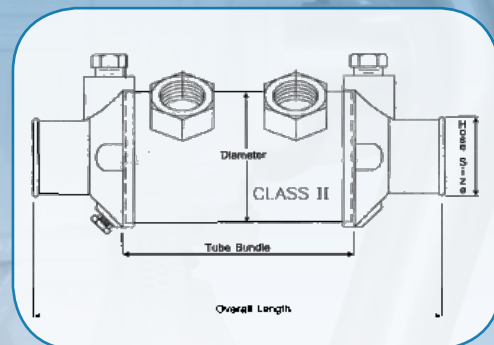
**SYMPTOM ONE** of a serious issue: If you have gray or cream colored oil in your gear, your transmission cooler has failed internally. This is a very simple diagnosis. You need to flush out the gear—Just take the oil lines off the cooler and attach them together by-passing the cooler and do a couple of oil changes—Use SAE 10 or 20 wt to flush at the dock.. Be sure you bump it in gear, both FWD & Rev for flushing out all of the old oil from the clutch packs.

**SYMPTOM TWO** of a possible serious issue: If you see oil dots or a rainbow all of a sudden behind your vessel at the wet exhaust outlet, STOP and check your transmission oil. This is usually the first symptom of a failing gear oil cooler, but sometimes you are not so lucky to see this.

**SYMPTOM THREE** can sometimes be caught while driving the vessel. This may show by the engine(s) revving up but the vessel is slowing down (clutch slippage) or in a twin engine boat, the boat suddenly starts turning opposite the slipping transmission. Both of these require the operator to take immediate action, keeping more damage at a minimum.

A typical, very high quality transmission oil cooler is pictured at the top right of this flyer, By the way, you have a 99% chance that your current gear cooler WAS NOT supplied by Twin Disc or ZF and was furnished as a "less than best quality" OEM cooler, so this cooler may or may not have a transmission manufacturer part number for it.

We can supply most any sized transmission oil cooler and stock over 100 different types of coolers at any given time. If you are unsure of the size of your cooler, click the image to the right to see an expanded diagram of "How to Measure" your transmission oil cooler properly, or feel free to email us with a photo of what you want to replace. We'll sort it out for you.



*Below are some of our most popular Transmission Oil Coolers, (all made by SENDURE to our specifications).*

*These are "Plug & Play" and are superior quality compared the ones supplied by Cummins or CMD made by "CHAMP".*

Engine Model	Basic Dimensions (Dia x Tube Bundle x Overall Length x Hose size)	Cummins Part #	SBMAR Part #	Cummins Price (as of Jan 2011)	SBMAR Price
4BT 150 & 6BT 210/220 Diamonds	2" X 12" X 15" OAL X 1 1/4" hose	3920784	1GC-21215125	\$385.00	<b>\$325.00</b>
6BTA - 250's (JWAC)	2" X 12" X 15" OAL X 1 1/2" hose	3915159	1GC-21215150	\$346.00	<b>\$335.00</b>
6BTA - Early 300's (SWAC)	3" X 5" X 9" OAL X 1 1/2" hose	3917117	1GC-359125	\$346.00	<b>\$400.00</b>
6BTA 5.9 - 315/330 & 370 Diamonds (SWAC)	3" X 5" X 9" OAL X 1 3/4" hose	3963663	1GC-359175	\$705.00	<b>\$500.00</b>
6CTA 8.3 400/420/430 & 450's Diamonds (SWAC) & 480 CE's	3" X 10" X 14" OAL X 1 3/4" hose	3912146	1GC31014175	\$1,004.00	<b>\$700.00</b>

*All prices include shipping to the lower 48 States*

