5th Gen Camaro Oil Cooler Options

https://www.camaro5.com/forums/showthread.php?t=383352&page=9

Looking deeply into this topic finds no one liking the OE engine oil cooler setup. They all prefer to have a larger separate unit mounted in the front lower half area of the bumper to keep the oil temps in control while running at a constant RPM of greater than 2499 RPM. The other consideration is to keep all of the cooling tubes of the air-cooled designs going in the same direction. In this case of my car they will need to stay horizontal. This will help keep the air flow turbulence to minimum, physics.
Keeping physics in mind, the goal is now is to get as much surface area as possible with the minimum of air flow obstruction. Unfortunately, depending upon all the other cooling additions like heat exchangers and transmission coolers, this can cause the AC condenser to be less effective on hot days/nights in slow traffic.
If the car is still using the factory block equipped with the factory passenger car oil cooler, a conversion kit to block off the water passage from the radiator hose and the water return will need to be put out of service. Improved Racing does sell a solution. This can be found on their website.

https://www.batinc.net/laminova-cooling

Laminova is popular in the rally racing motorsport world. They also make cores that are popular for built in intake manifold water cooled intercooler use. They have multiple possibilities of engine oil cooling options because these are liquid cooled and take up less space than the traditional air cooled. I am looking into their level of efficiency and the appropriate size for the intended service. I am also researching the options if the use of the HVAC heater core lines will have enough flow for the cooling capacity.

In application of their products Laminova found that a:

90mm (small) core will perform similar to a typical 10 to 13 row air to air Mocal 235 matrix cooler (9 inches L x 3-4 inches H x 2.25 inches D)

180mm (medium) core performed similarly to a 16 to 19 row air to air Mocal 235 matrix cooler (9 inches L x ~5-5.75 inches H x 2.25 inches D)

330mm (large) core performed similarly to a 25 to 30 row air to air Mocal 235 matrix cooler (9 inches L x 7.83 inches H x 2.25 inches D)

Any of these Laminova / Mocal liquid cooled heat exchangers will fit just in front of the lower front of the front suspension K member and just behind the radiator.

Single core A43 Series shown. These are available in lengths from 6.60 inches L, and 10.25 to 16 inches L and 2 inches H x 2.75 inches D

I am expecting to find zero pressure drop with these and the larger 330 mm core (the 16 inches long design) to be the better choice.

A43 Series Coolers - 90mm, 180mm & 330mm core sizes.

The EC54 Series and the Dual core ECD54 Series shown. These are available in lengths from 7 inches L, and 10 to 16 inches L and 4 inches H x 4 inches D

Construction is similar to the popular C43 type coolers modular design which allows flexible configuration. Heat transfer of a E54 single core cooler is 25% greater than a similar length C43 cooler. The dual E54 cores are offer roughly 40% greater cooling over single core version and almost double the performance of similar length C43 cooler.

I have personal suspicions of the possibilities of pressure drop with the Dual Core design….

There is the Fluidyne brand.

https://www.fluidyne.com/collections/oil-coolers/products/db-30618-oil-cooler

The favorite overall by many for oil temp control and is a single pass design Summit FLD-DB-30618 measures 21 inches L x 6 inches H x 3.5 inches D

This will fit centered in the lower half using the bumper as a mounting surface.

*****As far as single passed air cooled heat exchanger and any of the selections listed here, this one is the real winner.*****

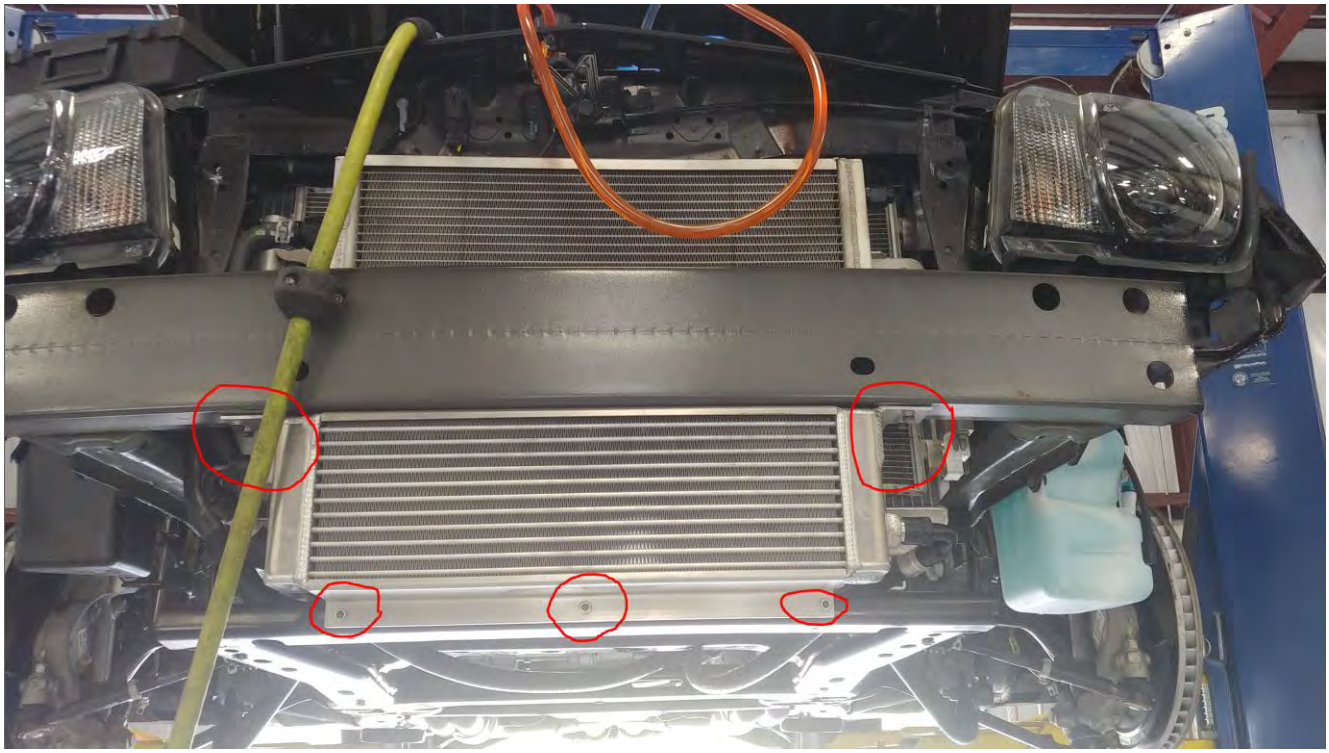
This unit also out performs the any of largest of the Laminova coolers based on their performance evaluation compare to the Mocal 235 25 row

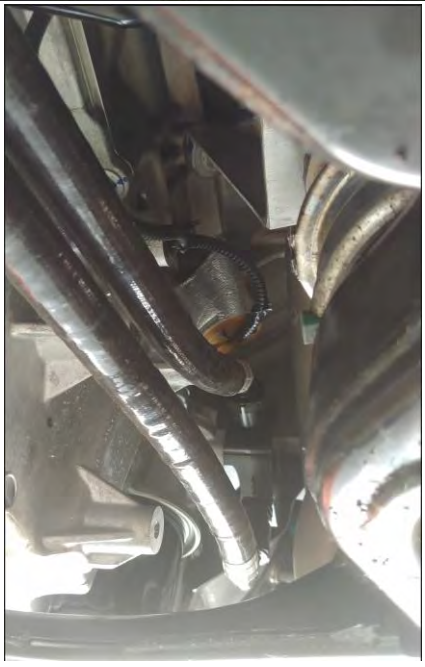
It will take a little bit of work but it has been approved as being able to meet expectations of its intended purpose.

It also has the most surface area.

The aftermarket LSR block was different from the factory LS block because it did not provide for the factory oil cooler found on the LS3, L99 and LSA equipped Camaros. After the LSR engine install, driving the car without an oil cooler during the summer made the oil temperatures go as high as 238* and still wanting to go higher. I was not going to tempt fate with my new install. I had to get an external aftermarket oil cooler installed.

The single pass Fluidyne FLD-DB-30618 purchased from Summit is the one I had installed and currently using. During 112* summer days in slow traffic engine oil temps remain 212*-220*. I had two aluminum 90* brackets welded to the top and then it was bolted on with sheet metal screws.
The oil cooler hoses are a high-grade fire-resistant exterior with a solvent resistant ID. This is important since they are so close to the exhaust. Be sure to check the adapter with fitting install before having the hoses assembled. The hoses were custom made instead of going with the AN hose end option because I have had them fail at inopportune times.
The only drawback of using an oil cooler mounted the way it is shown below is that sometime the car has to be moving to get the AC condenser to be effective. I also have a CR 3-inch-thick heat exchanger to support cooling the supercharger CR intercooler brick. It is possible that the heat exchanger I am using is also a factor of causing the AC condenser to be less effective.





I also found two narrower versions of the Fluidyne cooler but the tubes are fairly long on each design. These have less surface area than the single pass Fluidyne FLD-DB-30618. These are both way too wide and require heavey modification of the ZL1 brake cooling ducts and virtually eliminate the airflow provded by the ducts to the front brakes. This was not a sacrifice I was willing to make and why I went with the taller but narrower single pass Fluidyne FLD-DB-30618. Maybe on a car without the brake duct provision would be an option.

The first one is the Summit FLD-DB-30816-24 and measures 28 inches L x 3.5 inches x 3.5 inches
https://www.fluidyne.com/collections/oil-coolers/products/db-30816-24-oil-trans-cooler

The FLD- DB-30816-26 measures 31 inches L x 3.5 inches x 3.5 inches
https://www.fluidyne.com/collections/oil-coolers/products/db-30816-26-oil-trans-cooler

I did purchase the 31 inch wide Fluidyne FLD-DB-3018-26 to at least try a test the fit and this is where we found the need to cut the ZL1 brake ducts.

The X's inside the dash marked areas of the brake ducts show the sections that would have to be removed to clear the 31 inch wide narrow Fluidyne FLD-DB-3018-26.

Earls Performance

There is the Earls which is the Mocal / Setrab stacked turbulator design.

Summit EAR-26000ERL that measures 19 inches L x 8.25 inches H x 2.25 inches D

1. The cooling tubes are vertical and will cause air flow turbulence
2. It just won't fit anywhere in front; it is either too long to mount above the bumper and too tall to mount below the bumper.

Improved Racing – Heavily in the LS market

http://www.improvedracing.com/oil-cooler-adapters/lsx-and-ls-oil-cooler-adapter-with-thermostat-rear-sump-p-785.html

LSX and LS Oil Cooler Adapter with Thermostat, Rear Sump

[Part # EGM-114]

- In stock.
- Ships **same business day if ordered by 12:00PM EST.**
- 30-day money back guarantee.

WRITE A REVIEW

Like 0

$209.00 FREE Shipping *USA Only

Factory Cooler Delete Kit: None (+$0.00)

Fitting Size: -12AN (+$10.00)

Sensor Port Adapter: Plug Only (+$0.00)

Thermostat Temp: 200°F ($0.00)

Qty: 1 Add to Cart

Overview | Reviews | Instruction Manual

Improved Racing's thermostatic oil cooler adapters make it easy to add a performance oil cooler to your LS-family engine. The built-in thermostat automatically bypasses the cooler until safe operating temperatures are reached. No more worrying about over-cooling engine oil or long warm-up times!

This "bottom inlet" thermostatic oil cooler adapter is easy to install in the 5th generation Camaro as it does not require adjusting the knock sensor to clear the oil lines. Unlike many other oil cooler adapters, it will also clear the LSX and Dart LS Next engine blocks without modification.

The thermostat block features an additional port which may be used for a 1/8" NPT or M12 sensor or as an oil feed for an oil accumulator or a turbo. For the C5 Corvette, choose the M12 sensor port option to retain use of the factory oil temperature sensor. The factory sensor will plug right in; no need to extend the sensor harness.

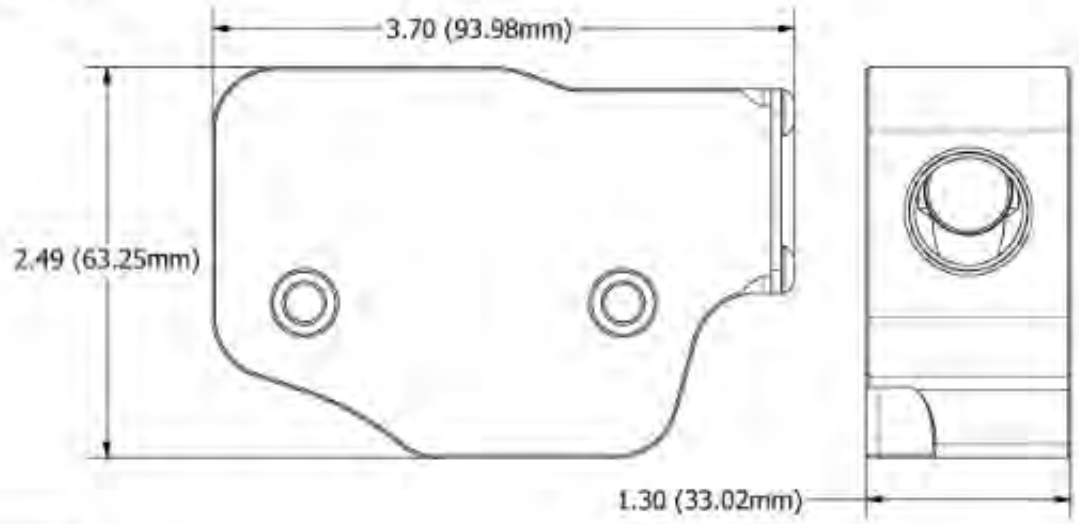
The adapter features standard female -08AN O-ring boss ports that accept optional male adapter fittings for -08AN, -10AN or -12AN lines.

Features and Benefits

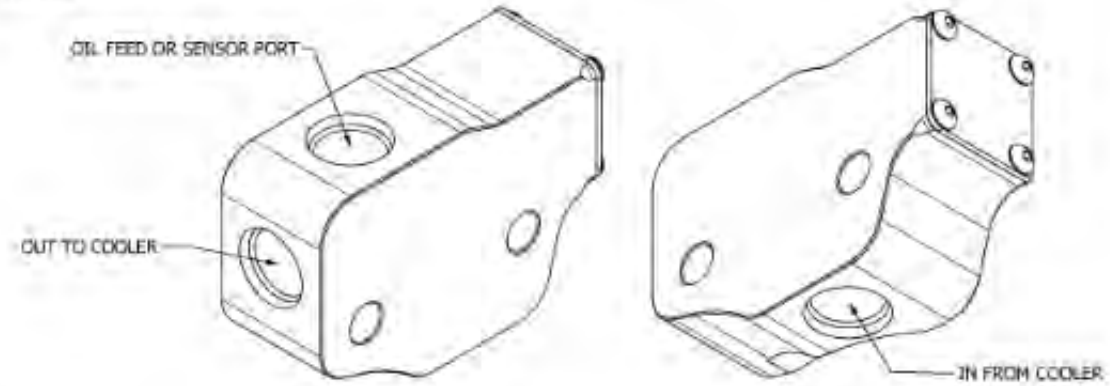
- Bolts to most rear-sump LS engine oil pans with factory style oil bypass cover
- Clears the LSX and Dart LS Next engine blocks without modification
- Ideal for 5th Generation Camaro, Pontiac G8, and LSX blocks
- "Bottom inlet" port may provide better clearance for some long-tube header setups
- 100% bolt-on in the factory oil cooler adapter location, just above the oil filter
- Built-in thermostat helps reduce engine wear and horsepower losses by preventing oil temperatures from dropping below optimal levels
- Maintains a minimum oil temperature of 180°F (82°C), 200°F (93°C) or 212°F (100°C) in most conditions (select preferred temperature from the drop down above)
- Rebuildable - just send it back to us and we will replace the thermal actuator, spring and seals
- Extra OUT port can be used for a sensor, turbo oil feed line, or oil accumulator
- Retains stock oil filter location
- Oil exiting the adapter is filtered oil
- 6061-T6 billet aluminum construction with black MIL-A-8625 Type II anodized finish
- High-temp Viton seals
- Lifetime Warranty
- Made in the USA

Available in -08AN, -10AN, or -12AN

Dimensions



Ports



Includes

- 1x Thermostatic oil cooler adapter block
- 1x Gasket
- 2x Zinc-plated steel mounting screws
- 1x -8AN plug
- Detailed installation instructions

Optional Add-Ons

- 2x Black anodized -08AN, -10AN, or -12AN adapter fittings with Viton O-rings
- 1x 1/8" NPT or M12x1.5 sensor port adapter fitting

Installation Notes

- If equipped with a factory oil cooler, the following vehicles will require the optional factory oil cooler delete kit:
  - 2010-2011 Chevrolet Camaro SS & ZL1: Part # 22962571-KIT
  - 2012-2015 Chevrolet Camaro SS & ZL1: Part # HPL-1004-KIT
- We recommend using a straight hose end fitting for the OUT port and a 90-degree hose end fitting for the IN port. For additional clearance, use our low profile hose end fitting on the IN port (part number **DO-090-08-08** (-8AN lines) or **DO-090-10-08** (-10AN lines). Note only one O-ring boss adapter fitting is needed when using this low-profile hose end.
- **Note:** This oil adapter is designed for O-ring boss fittings with a straight thread length of 0.500" or less. We recommend using our fittings in order to guarantee proper fitment and seal.

Applications

- Rear-sump LS engine oil pans with factory-style oil bypass cover
- 2010-2015 Camaro (V8 models)
- 2008-2009 Pontiac G8
- Does not fit 1997-2004 (C5) Corvette due to oil pan interference
- Does not fit 1997-2004 (C5) Corvette with XS Power long tube headers

http://www.improvedracing.com/oil-cooler-kits/2012-2015-5th-gen-camaro-performance-oil-cooler-kit-p-939.html

Uses their MHX245 motorsports heat exchanger.

This has a couple of problems:

1. The cooling tubes are vertical and will cause air flow turbulence
2. The triple pass set up will cause pressure drop
3. It just won't fit anywhere in front, it is either too long to mount above the bumper and too tall to mount below the bumper.

dimensions are: 22 inches L x 7 inches H x 2.25 inches D (shown in attached photo)

(please also note that they have a MHX514 and it is 12 inches L x 7 inches H x 2.25 D and is a dual pass and has pressure drop)

Researching this topic indicates that to do the job properly a cooler will have to be at least 21 x 8 or 22 x 7 or greater than 140 sq inches of surface area.

The kit for using the MHX524 is shown mounted above bumper but there is not enough room between the grill and the blower HX. There is however, room below and the bracket for the bumper can be used.

Setrab USA
http://www.setrabusa.com/products/oilcoolers/engine/index.html

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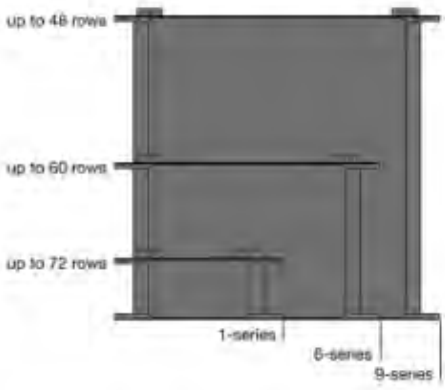
Setrab ProLine Oil Coolers

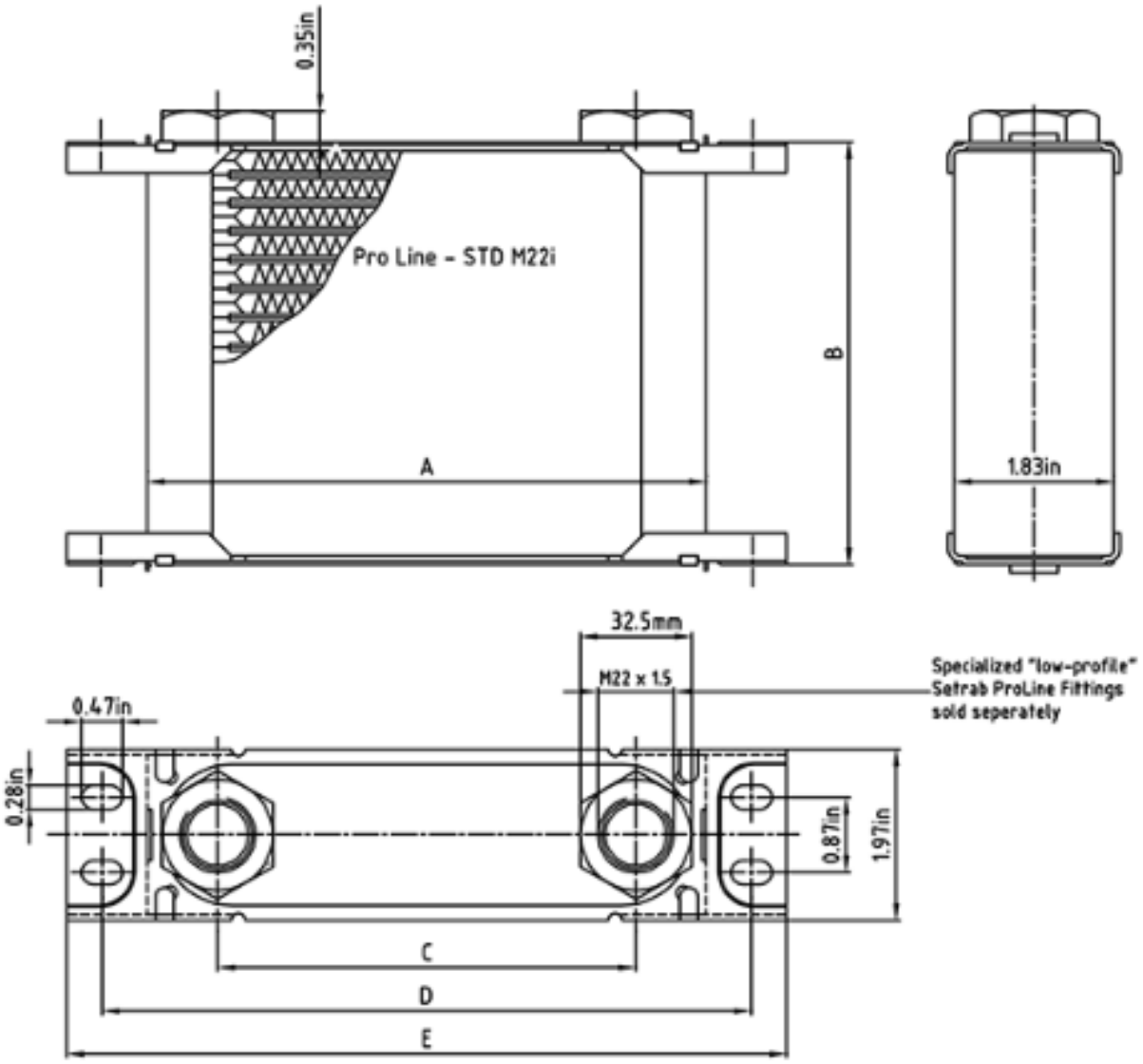
Engine Oil Coolers

ProLine STD Range

Setrab ProLine STD range oil coolers are the most flexible high-performance oil coolers on the market. The ProLine STD series integrates low-profile 22mm female ports for adaptability to any system using ProLine adapter fittings.

The stacked-plate style of Setrab's STD range offers the advantage of many height possibilities within the various series' widths. In addition, this technique coupled with state-of-the-art brazing technology makes for a durable, highly-efficient, and beautifully simplistic design that is often imitated but never replicated.




0.35in
Pro Line - STD M22i
B
A
1.83in
32.5mm
M22 x 1.5
Specialized "low-profile"
Setrab ProLine Fittings
sold seperately
0.47in
0.28in
0.87in
1.97in
C
D
E

1-series Setrab ProLine STD Oil Coolers

HP range	Part Number	A	B	C	D	E	Vol. (qt.)	Wt. (lb.)	ΔP (psi)	btu/hr range
100-150	50-119-7612	6.42	5.75	4.80	7.48	8.27	0.22	1.55	2.2/2.6	13,000-17,500
160-190	50-125-7612	6.42	7.60	4.80	7.48	8.27	0.28	1.00	2.1/2.4	17,000-22,000
170-230	50-134-7612	6.42	10.39	4.80	7.48	8.27	0.43	2.70	1.0/1.5	21,000-27,000
175-275	50-144-7612	6.42	13.53	4.80	7.48	8.27	0.59	3.30	1.0/1.3	26,000-35,000
300-400	50-150-7612	6.42	15.31	4.80	7.48	8.27	0.65	3.75	0.9/1.2	29,000-40,000
325-425	50-160-7612	6.42	18.31	4.80	7.48	8.27	0.80	4.42	0.6/1.1	33,000-45,000
	50-165-7612	6.42	19.89	4.80	7.48	8.27	0.85	4.60		
600+	50-172-7612	6.42	22.13	4.80	7.48	8.27	0.95	5.30	0.8/1.0	40,000-60,000

6-series Setrab ProLine STD Oil Coolers

HP range	Part Number	A	B	C	D	E	Vol. (qt.)	Wt. (lb.)	ΔP (psi)	btu/hr range
90-130	50-610-7612	11.14	2.99	9.53	12.20	12.99	0.20	1.55	4.8/na	15,000-20,000
170-200	50-613-7612	11.14	3.94	9.53	12.20	12.99	0.25	1.90	4.0/4.5	19,000-26,000
190-220	50-616-7612	11.14	4.80	9.53	12.20	12.99	0.30	2.30	3.6/3.8	23,000-32,000
220-310	50-619-7612	11.14	5.75	9.53	12.20	12.99	0.40	2.65	2.5/3.3	27,000-37,000
325-425	50-625-7612	11.14	7.60	9.53	12.20	12.99	0.55	3.40	2.0/2.5	33,100-46,000
400-475	50-634-7612	11.14	10.39	9.53	12.20	12.99	0.75	4.50	1.7/2.2	43,000-59,000
450-550	50-640-7612	11.14	12.20	9.53	12.20	12.99	0.90	5.30	1.6/2.1	45,000-67,000
600+	50-650-7612	11.14	15.31	9.53	12.20	12.99	1.10	6.50	1.1/1.8	56,000-78,000
600+	50-660-7612	11.14	18.31	9.53	12.20	12.99	1.30	7.75	1.0/1.7	63,000-90,000

9-series Setrab ProLine STD Oil Coolers

HP range	Part Number	A	B	C	D	E	Vol. (qt.)	Wt. (lb.)	ΔP (psi)	btu/hr range
170-200	50-910-7612	14.09	2.99	12.48	15.16	15.94	0.25	1.95	6.1/na	19,000-27,000
220-310	50-915-7612	14.09	4.53	12.48	15.16	15.94	0.40	2.75	4.5/5.2	27,000-39,000
300-400	50-920-7612	14.09	6.06	12.48	15.16	15.94	0.55	3.55	3.0/4.2	35,000-50,000
400-475	50-925-7612	14.09	7.60	12.48	15.16	15.94	0.75	4.35	2.6/3.5	42,000-60,000
450-550	50-934-7612	14.09	10.39	12.48	15.16	15.94	1.00	5.85	2.3/3.3	53,100-72,100
600+	50-948-7612	14.09	14.70	12.48	15.16	15.94	1.43	8.00	1.8/3.1	69,000-96,000

Setrab oil coolers feature M22 female ports, adaptable to virtually any size using SUSA ProLine Adapter Fittings.

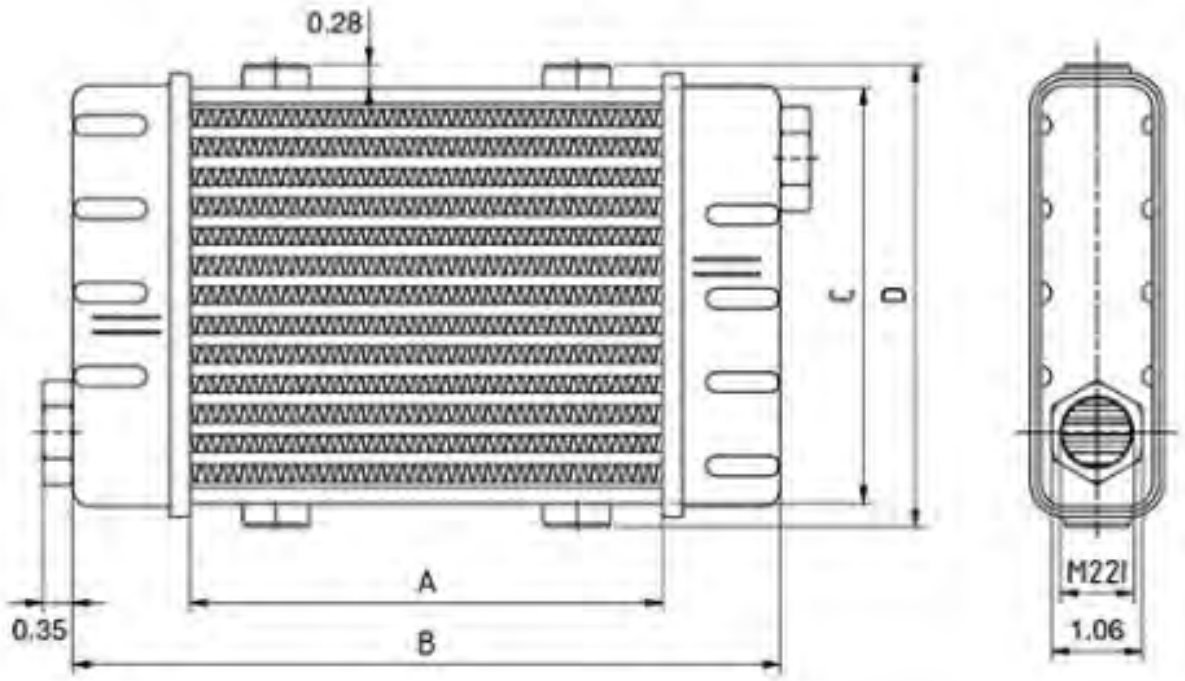
EOC hp and btu/hr range based on specific performance parameters that if varied may result in different performance results. Low EOC hp and btu/hr range based on typical wet sump high-performance application and typical variable parameters. High EOC hp and btu/hr range based on typical dry sump high-performance application and typical variable parameters. Wet Sump Parameters include: oil flow rate, 5gpm; 20/50 engine oil or similar; 130ºF ITD; 60mph airflow. Dry Sump Parameters include: oil flow rate, 8gpm; 20/50 engine oil or similar; 140ºF ITD; 80mph airflow.

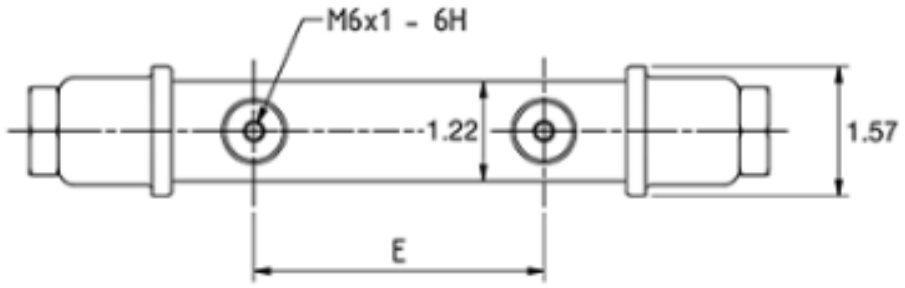
ProLine SLM *Range*

Setrab ProLine SLM range oil coolers were developed for demanding applications where space is also very limited. ProLine SLM coolers feature the adaptability of the 22mm ProLine system, end-tank ports, and threaded mounting bosses.

The slimmed-down package is over 20% thinner than the ProLine STD range.

The design of Setrab's SLM range allows for a multitude of widths that are not possible in other style coolers.





Setrab ProLine SLM range

Depth: 1.57 in

HP range	Part Number	A	B	C	D	E	Vol. (qt.)	Wt. (lb.)	ΔP (psi)	btu/hr range
90-130	53-10744-01, SLM 250-10	9.84	12.60	3.50	4.06	7.87	0.31	1.30	3.5-4.0	15,000-20,000
160-190	53-10745-01, SLM 250-14	9.84	12.60	4.88	5.43	7.87	0.50	1.70	2.0-3.0	17,000-22,000
90-130	53-10746-01, SLM 420-6	16.54	19.02	2.09	2.64	12.60	0.25	1.30	7.6-10.8	15,000-20,000
170-200	53-10747-01, SLM 420-10	16.54	19.29	3.50	4.06	12.60	0.38	1.90	4.1-6.1	19,000-27,000
250-350	53-10748-01, SLM 420-14	16.54	19.29	4.88	5.43	12.60	0.63	2.55	3.1-4.4	29,000-40,000
170-200	53-10749-01, SLM 592-6	23.31	25.79	2.09	2.64	19.37	0.31	1.70	4.0-4.5	19,000-26,000
325-425	53-10750-01, SLM 592-10	23.31	26.06	3.50	4.06	19.37	0.50	2.55	5.7-8.4	33,000-46,000
450+	53-10751-01, SLM 592-14	23.31	26.06	4.88	5.43	19.37	0.75	3.35	4.3-6.1	40,000-60,000

Setrab oil coolers feature M22 female ports, adaptable to virtually any size using SUSA ProLine Adapter Fittings.

EOC hp and btu/hr range based on specific performance parameters that if varied may result in different performance results. Low EOC hp and btu/hr range based on typical wet sump high-performance application and typical variable parameters. High EOC hp and btu/hr range based on typical dry sump high-performance application and typical variable parameters. Wet Sump Parameters include: oil flow rate, 5gpm; 20/50 engine oil or similar; 130ºF ITD; 60mph airflow. Dry Sump Parameters include: oil flow rate, 8gpm; 20/50 engine oil or similar; 140ºF ITD; 80mph airflow.

ProLine COM *Coolers*

Setrab ProLine COM range oil coolers offer unique & versatile plumbing opportunities in a heavy-duty high-performance build.

The design of the COM cooler allows for a wider cooler than standard, and the end tanks feature a heavier build.

Setrab ProLine COM range

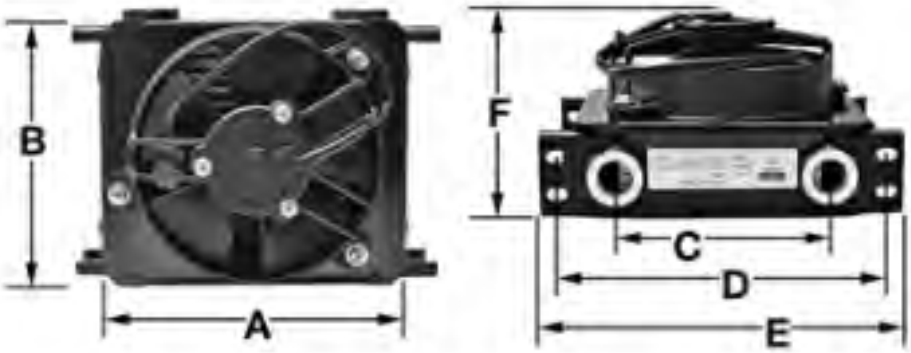
HP range	Part Number	Width (in)		Height (in)		Vol. (qt.)	Wt. (lb.)	ΔP (psi)	btu/hr range
		Core	Total	Core	Total				
600+	52-12864-01, 528COMF-15 Ports: M22x1.5	20.88	23.50	5.25	5.88	1.10	6.15	2.6/4.2	45,000-66,000
600+	52-12965-01, 528COMF-15-2P 2-pass Ports: M22x1.5	20.88	23.50	5.25	5.88	1.10	6.15		49,000-71,000
	52-12968-01 586COMV-5-2P 2-pass Ports: M22x1.5	23.07	26.22	3.03	3.15	0.88	4.90		
	52-13141-01 464COMF-12-2P 2-pass Ports: M22x1.5	18.27	20.94	4.22	4.77	0.99	5.50		

Setrab oil coolers feature M22 female ports, adaptable to virtually any size using SUSA ProLine Adapter Fittings.

EOC hp and btu/hr range based on specific performance parameters that if varied may result in different performance results. Low EOC hp and btu/hr range based on typical wet sump high-performance application and typical variable parameters. High EOC hp and btu/hr range based on typical dry sump high-performance application and typical variable parameters. Wet Sump Parameters include: oil flow rate, 5gpm; 20/50 engine oil or similar; 130ºF ITD; 60mph airflow. Dry Sump Parameters include: oil flow rate, 8gpm; 20/50 engine oil or similar; 140ºF ITD; 80mph airflow.

ProLine STD Fanpacks

Setrab ProLine STD Fanpacks combine the already high-performing and versatile heat exchange characteristics of the range of Setrab ProLine STD oil coolers with high-volume, low-profile fans and robust fan shrouds to create a cooling package that is unparalleled in performance and versatility.



Fanpacks

Part Number	A	B	C	D	E	F	Vol. (qt.)	Wt. (lb.)	ΔP (psi)	btu/hr range
FP119M22i	8.50	5.75	4.80	7.48	8.27	5.50	0.22	3.55	2.2/2.6	13,000-17,500
FP625M22i	11.38	7.60	9.53	12.20	12.99	4.38	0.55	5.85	2.0/2.5	33,100-46,000
FP634M22i	11.38	10.25	9.53	12.20	12.99	4.38	0.75	8.95	1.7/2.2	43,000-59,000
FP910M22IX2	14.50	6.00	12.48	15.16	15.94	5.50	0.25	7.55	6.1	19,000-27,000
FP920M22i	14.50	6.00	12.48	15.16	15.94	5.50	0.55	7.20	3.0/4.2	35,000-50,000
FP948M22i	14.50	15.13	12.48	15.16	15.94	4.75	1.43	15.15	1.8/3.1	69,000-96,000

Setrab oil coolers feature M22 female ports, adaptable to virtually any size using SUSA ProLine Adapter Fittings.

EOC hp and btu/hr range based on specific performance parameters that if varied may result in different performance results. Low EOC hp and btu/hr range based on typical wet sump high-performance application and typical variable parameters. High EOC hp and btu/hr range based on typical dry sump high-performance application and typical variable parameters. Wet Sump Parameters include: oil flow rate, 5gpm; 20/50 engine oil or similar; 130ºF ITD; 60mph airflow. Dry Sump Parameters include: oil flow rate, 8gpm; 20/50 engine oil or similar; 140ºF ITD; 80mph airflow.

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