

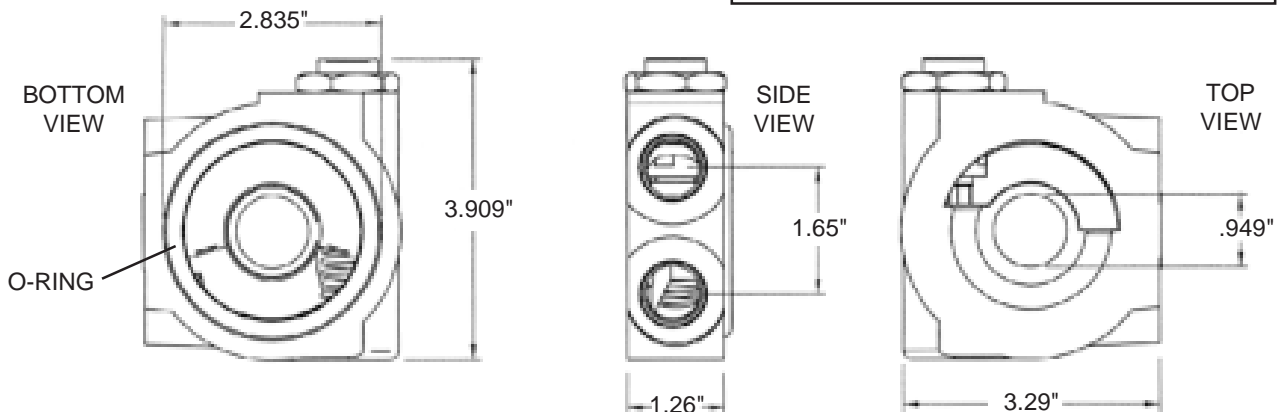
MOCAL manufactures the industries widest range of **Sandwich Plate Adaptors**. These devices are designed to be installed between the engine block and oil filter and easily allow engine oil to be circulated for remote oil cooler installations. We can supply sandwich adaptors in all popular oil filter thread configurations (3/4", 5/8", 13/16") SAE and (18mm, 20mm, 22mm) metric sizes for fitment to virtually all engine applications. Mocal Sandwich adaptors are optionally available with built in thermostat (180 degree) which accurately controls oil flow to the cooling device allowing for quick engine warm up plus oil system protection in cold climates. We have even designed special sandwich plate adaptors for unique engine applications like Chevrolet V8, Volkswagen VR6, and tight clearance installations (w/ rotating -10AN banjo oil in/out). Units are made from cast aluminum and are supplied with sealing o-rings and extension screw to match desired filter thread. Oil inlet/outlet ports are 1/2" female thread to designed to receive male/male unions which are available separately.

Standard Models

Part	Filter Thread Size	Price
SP1	3/4"-16	37.50
SP1A	5/8"-18	42.50
SP1E	5/8" UNF	42.50
SP1C	13/16"-16	42.50
SP1D	18mm	42.50
SP1F	20mm	42.50
SP1G	22mm	42.50

Thermostatic Models

Part	Filter Thread Size	Price
SP1T	3/4"-16	82.50
SP1AT	5/8"-18	85.50
SP1DT	18mm	85.50
SP1FT	20mm	85.50
SP1GT	22mm	85.50
TOP1LPT	VW VR6	119.00
SP1CT	Chevy V8	99.95
SP1TM18	Optional	168.50



To assist in selecting the proper sandwich plate or take-off adaptor- use the following list to help determine your vehicles oil filter thread size. We have compiled the following information and believe it be accurate. If you do not see your application listed, or need to advise a correction, please contact us. Other than knowing the actual filter thread on your engine, it is somewhat important to know your oil filters o-ring diameter. Mocal sandwich plates and adaptors are designed to fit with oil filters o-rings in the 2 1/4" to 3" o.d. range. Our components are compatible with better than 90% of applications from 1980 to present. For old style, "large can", filters (o-rings greater than 3" o.d.) we can usually recommend an alternative filter that will be compatible with our product. *More information on alternate filters can be found on the next page.*



Acura

Integra	86-87	22mm
Integra	88-01	20mm
Legend,		
3.2TL, 3.5RL	88 >	22mm
Vigor, 2.5TL	All	20mm
NSX*	91 >	22mm
* may require alternate filter		
2.2 CL, 3.0 CL, SLX	All	20mm

Alfa Romeo

4 Cylinder	72 >	3/4"-16
V6 GTV6, Milano, 164	81-95	3/4"-16

American Motors

All Models	60-86	13/16"-16
All Models	87 >	20mm

Audi

All models w/spin-on		3/4"-16
----------------------	--	---------

BMW

All models w/spin-on		3/4"-16
----------------------	--	---------

Buick

L6, V8	50-74	13/16"-16
V8 305, 350	All	13/16"-16
V6 231, 252	All	18mm
V6 2.8L, 3.1L, 3.3L, 3.8L	All	18mm

Cadillac

V8 4.1L, 4.5L, 4.6L, 4.9L	All	13/16"-16
V6 All	85 >	18mm

Chevrolet (see alternate filters)

V8 350 LS1, Corvette, Camaro	97>	13/16"-16
V8 350 ZR1	All	20mm
V8 350, All	95-96	18mm
V8 SB & BB	68-01	13/16"-16
V6 All	78 >	18mm

Chevrolet/GMC Truck (see alternate filters)

V6 4.3L	85 >	18mm
V8 2wd Pickup, Blazer, Suburban	88-98	13/16"-16
V8 4wd Pickup, Blazer, Suburban	88-98	18mm
V6 & V8 Sierra, Silverado (gas)	99 >	13/16"-16
V8 Vans All	70 >	13/16"-16
V8 Diesel All	82 >	13/16"-16

Chrysler

V8 All	59 >	3/4"-16
V6, I6	All	3/4"-16
L4	All	3/4"-16

Dodge

V10 Viper	All	3/4"-16
V8 All	60 >	3/4"-16
V6 All (except Stealth)	93 >	3/4"-16
Stealth	All	20mm
Avenger, Caravan, Neon, Stratus	96 >	3/4"-16

Dodge Truck

V8, V6 All	74 >	3/4"-16
V10	94 >	3/4"-16

Eagle

Summit, Talon	95 >	20mm
Talon (non-turbo)	89 >	3/4"-16
Vision	93 >	3/4"-16

Ferrari

All models w/spin-on	66 >	3/4"-16
----------------------	------	---------

Fiat

All models over 900cc		3/4"-16
-----------------------	--	---------

Ford Germany

All models with spin-on		3/4"-16
-------------------------	--	---------

Ford USA

V8 All	58 >	3/4"-16
V8 4.6L, 5.4L	92 >	22mm
V8 3.4L Taurus	96-99	22mm
L6 All	58-87	3/4"-16
V6 2.5L, 3.0L (24v)	95 >	22mm
V6 3.0L, 3.8L, SHO All	87 >	3/4"-16
I4 & V6 Probe	93 >	20mm
I4 1.8L Escort/Tracer	90-96	20mm
I4 2.0L Contour, Focus	95 >	3/4"-16
I4 1.6, 1.9, 2.0, 2.3	71>	3/4"-16

Ford Truck

V6 3.8L Windstar	96 >	3/4"-16
V6 4.0L All	90 >	3/4"-16
V8 4.6L, 5.4L Modular	97 >	22mm
V8 (with metric thread)	94 >	22mm
V8 (with standard thread)	71 >	3/4"-16
V10 All	97 >	22mm

Honda

I4 & V6 All*	88-03	20mm
*Civic / CRX	84-87	22mm

Hummer

Gas & Diesel	All	13/16"-16
--------------	-----	-----------

Infinity

G20	91-96	3/4"-16
G20, I35, G35	99 >	20mm
J30, M30, Q45	90-96	3/4"-16
I30	96-99	20mm
Q45, QX4	97 >	20mm

Isuzu

Amigo, Rodeo, Hombre (4 cyl)	All	18mm
V6 Amigo, Rodeo, Oasis, Trooper	94 >	20mm
Vehicross	99 >	20mm

Jaguar		
2.5L, 3.0L 24v	98 >	22mm
Jeep		
V8 All	70-86	3/4"-16
V8 Grand Cherokee	93 >	3/4"-16
I6 All	70-90	3/4"-16
4.0L	91 >	20mm
Land Rover		
V8	All	3/4"-16
Lexus		
LX450	96-97	3/4"-16
V6, I6	90 >	3/4"-16
LX470, RX300	98 >	3/4"-16
Lincoln		
V8 5.0L, 5.8L All	77 >	3/4"-16
V8 4.6L, 5.4L All	91 >	22mm
V6 All	88 >	3/4"-16
V6 (24v)	All	22mm
Lotus		
All models	71 >	3/4"-16
Maserati		
V8 3.2L (Bi-turbo)		3/4"-16
V6 2.8L (Bi-turbo)		3/4"-16
Mazda		
Rotary All	71 >	20mm
Miata 1.6L, 1.8L	90 >	20mm
B3000/4000 Navajo	94 >	3/4"-16
MPV All	89 >	20mm
Mercedes		
190 Series (except 16v)	All	3/4"-16
300 Series (except CE)	All	3/4"-16
Mercury		
V8 All	58 >	3/4"-16
V8 4.6L, 5.4L	91 >	22mm
I6 All	58-87	3/4"-16
V6 2.5, 3.0 (24v)	All	22mm
V6 (12v)	All	3/4"-16
V6 Villager	All	20mm
I4 Capri	91-94	20mm
Mitsubishi		
All Models*	83 >	20mm
*Eclipse 4 cyl (non-turbo)	95 >	3/4"-16
V6 Eclipse, Galant	99 >	20mm
Montero, Pickup, Van	86 >	20mm
Nissan/Datsun		
All Models (except below)	74 >	3/4"-16
Altima 4 cylinder	98 >	20mm
Maxima, Sentra, 200SX	95 >	20mm
3.3L, 3.5L, Pathfinder	96 >	20mm
Oldsmobile (see alternate filters)		
V8 All	60 >	13/16"-16
V8 Aurora	95 >	13/16"-16
V6 All	95 >	18mm
Quad 4	88-95	18mm

Plymouth		
V8 All	60 >	3/4"-16
Acclaim, Breeze, Neon All	90 >	3/4"-16
Colt, Lazer All	89 >	20mm
Prowler	All	3/4"-16
Voyager	All	3/4"-16
Pontiac (see alternate filters)		
V8 305/350 (Chevy)	77 >	13/16"-16
V8	71 >	13/16"-16
V8 LS1	98 >	13/16"-16
V6 All	76 >	18mm
Porsche		
911	65-71	3/4"-16
911	72-95	1"-12
914	70-77	3/4"-16
924	77-83	3/4"-16
928	78 >	20mm
944, 944T, 944S, 968	82 >	20mm
Saab		
4 cyl 99, 900, 9000	71 >	3/4"-16
V6 900, 9000	94 >	18mm
9.3, 9.5	99 >	3/4"-16
Saturn		
All Models	91 > 01	3/4"-16
Subaru		
All Models*	72-89	3/4"-16
*Justy	89	20mm
All Models*	90 >	20mm
*Loyale, XT	90	3/4"-16
Suzuki		
All 3 & 4 Cylinder	86 >	3/4"-16
Toyota		
All Models	70 >	3/4"-16
Volkswagen		
All Models w/spin-on	75 >	3/4"-16
Volvo		
All Models	90-99	3/4"-16



Additional Information

Plumbing Connections

Mocal sandwich plates and take-off adaptors are tapped 1/2" parallel thread female (BSP) and designed to receive a male/male union, sealing on a bonded washer. By tightening the union down, all-the-way to the hex, it takes up minimal space. We can supply 1/2" BSP unions in a variety of sizes, (-6, -8, -10, -12AN) in either cadmium plated steel and anodized aluminum. Taper type (NPT) unions share the same thread pitch as BSP and could be used, however NPT fittings will increase the space required to make fluid connections. Also, care should be taken not to overtighten taper unions as it is possible to crack the casting. BAT is one of the nations largest distributors of -AN/JIC plumbing and should be able to supply your plumbing needs at the best price.

Installation Notes

For the most part, installing a sandwich plate between the engine block and filter is a very simple operation: remove the filter, thread on the plate, rotate the inlet/outlet fittings to a position where oil hose connections are accessible, tighten the plate into position, refit the oil filter. Clearance issues- either due to the additional height gained by adding a plate between the block and filter, or a o-ring seal diameter issue- can usually be resolved by using an alternate oil filter. We have compiled additional information (below) on alternative filters for some popular applications. In cases where the sandwich plate will not adapt to the engine filter boss location- either due to o-ring diameter, or the filter being recessed (many GM engines)- we can supply a spacer ring. Spacers are available in optional thicknesses, and are designed to raise the sandwich plate enough to allow inlet/outlet port connection.



Filters- 3/4"-16 Thread

These are by far the most popular filters, and almost always compatible with our products for o-ring diameter. In some "tight-fit" installations like; engine swaps, race cars w/headers, rods & customs, etc., there might be a better filter (size) choice. Check the stock spec on your application in an oil filter catalog. Select a filter with similar specifications in the alternate dimension you need. We have listed a some suitable Ford V8 filters below. As you can see, the simplest thing to do if your FL1A (Fram PH8A) is clearance limited- exchange it for a PH16 which saves almost 1.5" off the height. *We refer to Fram part numbers, as they are easy to cross reference to your favorite brand.*

Optional Ford V8 Filters 3/4"-16 Thread

Fram Part#	Filter Height	Filter		O-ring		Relief Setting	Compatible Size
		O.D.	O.D.	I.D.			
PH8A	5.140"	3.812"	2.796"	2.421"	8-10	YES	
PH16	3.687"	3.656"	2.75"	2.375"	8-10	YES	
PH43	4.00"	3.812"	2.796"	2.421"	8-10	YES	
PH2951	3.359"	3.00"	2.421"	2.125"	9-12	YES	
PH3512	2.890"	3.781"	2.812"	2.421"	9-12	YES	
PH3614	3.359"	3.00"	2.781"	2.484"	9-12	YES	

Filters- 13/16"-16 Thread, GM V8's

Many GM V8 engines use bulky, large can filters, and are not always compatible with our sandwich plate adaptors 2.25" - 2.95" o-ring boss. Generally we replace (Fram* PH13 & PH30) with either (Fram* PH25 or PH3506) which utilize an o-ring diameter that is compatible with our products. Filter performance is similar on these compact modern filters (see specifications below). Additionally, they are better suited to "tight-fit" installations like; engine swaps, race cars w/headers, rods & customs, etc. Our popular SP1CT is a two piece thermostatic sandwich plate, which includes a diameter/spacer, for use on engines where the filter is recessed at the rear of the block. Later GM engines do not have the filters recessed and can use a standard sandwich plate without diameter/spacer, and still others are metric 18mm thread. It is a shame that some of the most numerically produced, and popular, engines are the most confusing to outfit with oil cooling components. * *We refer to Fram part numbers, as they are easy to cross reference to your favorite brand.*

Optional 13/16"-16 Filters

Fram Part#	Filter Height	Filter		O-ring		Relief Setting	Compatible Size
		O.D.	O.D.	I.D.			
PH13	5.396"	3.812"	3.562"	3.125"	8-10	NO	
PH30	4.00"	3.812"	3.562"	3.125"	8-10	NO	
PH25	4.00"	3.796"	2.796"	2.421"	8-10	YES	
PH3506	3.359"	3.00"	2.781"	2.453"	8-10	YES	

Metric Filters- 18mm, 20mm, 22mm

Metric thread oil filters are very common on late model, 90's and newer, Asian & American 4 & 6 cylinder engines. These filters are usually compact in size and incorporate sealing o-rings that are compatible with our products. In cases where the o-ring size is not suitable, an alternate filter should be substituted.

New Product Information - MOCAL TOP1LPT (VW VR6 Thermo Take-off)



optional male 3/4-16 nipple

The TOP1LPT thermostatic oil take-off plate allows additional oil cooling devices to be added to the VW VR6 engine. VW equips most of its engines with a small water to oil heat exchanger located between the engine block and oil filter. Since the VR6 engine uses with a canister type oil filter it's factory water/oil heat exchanger is instead located on the front transmission side of the engine block retained by a "blanking plate" that mounts the device to the engine. The Mocal TOP1LPT is designed to fit in this location and thermostatically control (at 180 degrees) oil flow to the remotely mounted oil cooling device of your choice. The TOP1LPT can be installed in conjunction with the factory water heat exchanger or with the exchanger removed (see option below). Below is an overview of installation.

Remove the stock "blanking plate" by putting a wrench on the hex nut incorporated on the end and turning it off. The heat exchanger is now free from the block and the entire area should be wiped clean of excess oil. Refit the exchanger to the engine block with the required threaded male extension and nut (VW # 028 115-721 -used on both 8 & 16 valve engines to retain heat exchanger) making sure that the o-ring on the rear of the exchanger is properly in place. The extension screw takes the place of the blocking plate and will allow the female thread cap portion of the TOP1LPT to turn on, which is the next step. Make sure that both o-rings are secure in their grooves and the TOP1LPT -the whole installation should resemble the drawing below. Align the inlet/outlet ports for easiest hose routing while tightening the hex nut on the rear cap. Male unions will be needed for connecting hose ends to the 1/2" female ports on the TOP1PLT. We can supply them in all popular AN (-8, -10) sizes. (Option) we can supply a short 3/4"-16 male thread nipple (PN# TN3/4-16) that threads into the engine block allowing the female cap end of the TOP1LPT to be threaded on if the water heat exchanger is being omitted.

