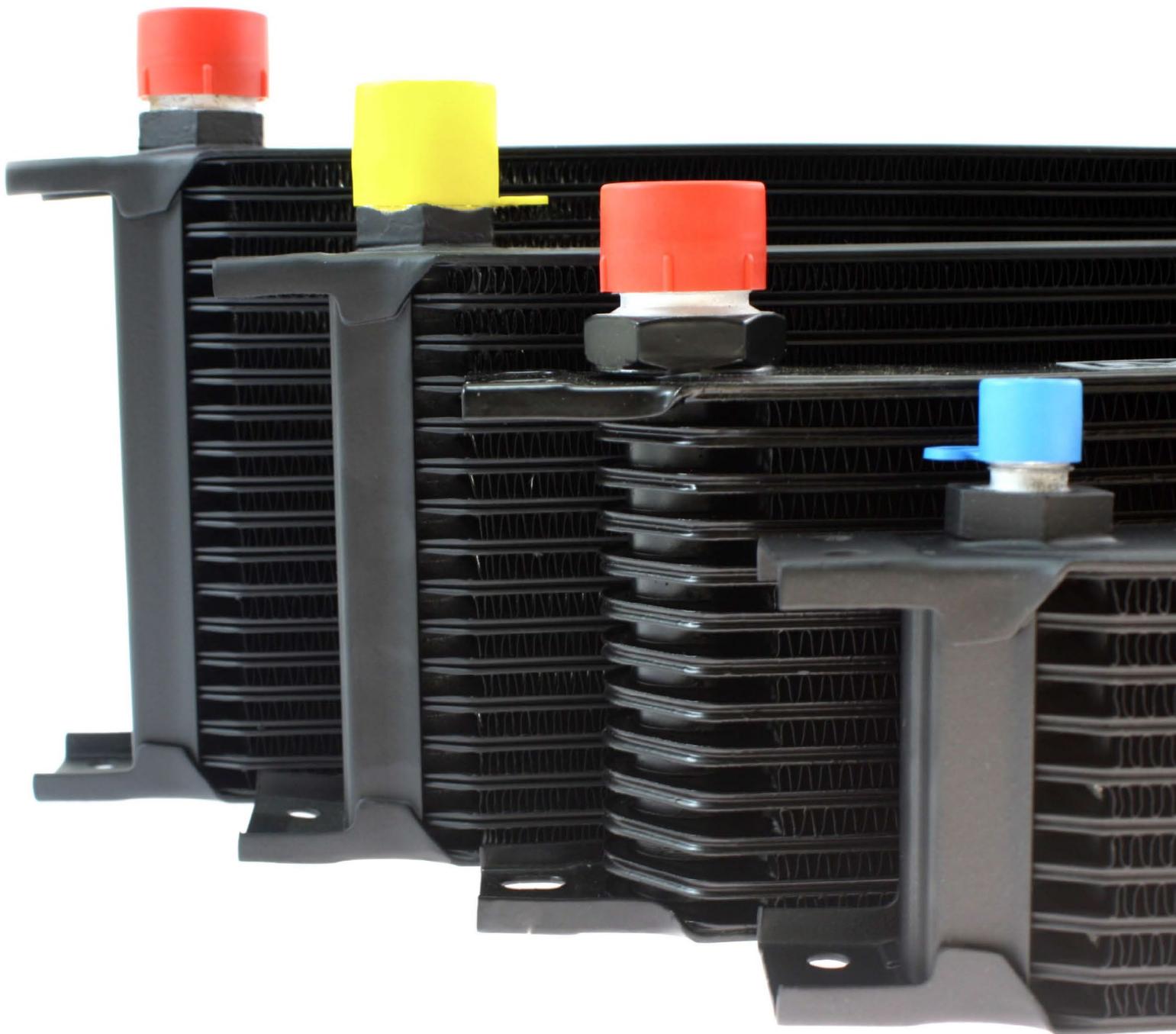


THINK ***Automotive***

Specialists in oil cooling systems and all aspects of vehicle plumbing.



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How to find us

From A4 London, turn left off the A4 at Gillette corner, then turn right going East onto A310 on Syon Lane. After bear right onto Spur Rd. Cross London Rd at traffic lights onto Twickenham Rd and follow upto the traffic lights. Go straight across the lights, then turn right onto Worton Rd, we are the first building on the right.

Coming from the East on the A316, turn left at first round-about after Toyota/Lexus dealer. When travelling West, turn right at the second roundabout after Twickenham Bridge onto A310, London Rd. This will become Twickenham Rd, continue across the traffic lights then turn left at the next traffic lights onto Worton Rd, we are first building on the right.

We are a half hour by road from Heathrow and an hour and a half from Gatwick.

When travelling by rail the nearest Tube is Hounslow East on the Piccadilly Line, or the Southern Line to Isleworth. The H37 bus will take you to the war memorial on Twickenham Rd. From there it is a short walk down Twickenham Rd to the traffic lights, turn right onto Worton Rd.

For help planning your journey visit <http://www.tfl.gov.uk/journeyplanner>

Contact

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TW7 6EL



About Us

Think Automotive was founded in 1967 to produce packaged oil cooler installations and has continued to expand into many aspects of high performance automobile plumbing. We manufacture the MOCAL range of oil to air coolers and associated products.

These products are available from leading motor sport outlets throughout the world. We also distribute Laminova and PWR oil coolers making us the world's leading oil cooler specialists. We distribute Aeroquip hoses and fittings and related products from the USA, UK & Germany and suitable products from their Aerospace division. The ranges of Quick Connect fittings, products from Icore ProGold, Speedflow, Krontec, together with our own MOCAL range of fittings and adapters allow us to offer the most comprehensive hose service anywhere. In addition to Mocal oil pumps we have Weldon and Jabsco plus EWP water pumps and Accusump pressure accumulators. We have built up a vast knowledge of problems connected with flow and pressure drops and are happy to advise on suitable equipment for complete fuel and oil installations. We are also the world's biggest outlets for filler caps.

Manufacturing of special items, warehousing and sales, takes place at our premises at Isleworth conveniently placed for access from London, the airports and the motorway systems. We are happy to send products to anywhere in the world. All mail orders are dealt with on a same day basis and we are pleased to see callers at our trade counter, we accept all major credit and debit cards. We have a web site and onlie shop at www.thinkauto.com.



Rob Potter

Matthew Potter

Richard Collins



Nick Fitzgerald

Christopher Simms

Richard Tomkins

Rob Potter, managing director, has more than 50 years of experience in automotive plumbing. He is available to advise on extra difficult technical problems.

Matthew Potter, son of the founder Rob, and Richard Collins, general manager deal with the day to day running of the business.

Sales are handled by Nick Fitzgerald, Richard Tomkins and Christopher Simms, with Nick having responsibility for our world wide exports.

Rob and Matthew are still involved with motor sport, Rob has, before the pressure of business grew too great, run very successful Chevrolet Camaros in the European and British touring car championships and now tinkers with his 1968 big block Corvette historic FIA racer.

Conditions of Sale

Prices are subject to alteration without prior notice. Add VAT at 20% for all UK and EU retail sales.

England - Next day carrier £8.95. Next day before midday £12.95.
Northern Ireland - £20.75. Scotland post codes IV, KW, PH, ZE,
PA41-49, PA60-78, PA80-88 £19.95.

First class letter post £3.95. Carriage in UK, not charged on orders over £500 NET. In the event of goods becoming lost or damaged in transit, the Seller will make every effort to obtain compensation from the carrier but does not accept further responsibility. We can arrange insurance if requested.

Terms.

Nett cash will be due in 30 days to approved customers. Title to goods supplied is retained until full payment is received.

Warranty

1. Every effort is made to ensure quality material and good workmanship. In the event of any defect being discovered in any parts of the Seller's manufacture within twelve months of the date of dispatch from the Seller's works, or before 12,000 miles/19,200 Kilometres of use in the case of automobile components. Such defect must be proved to the Seller's satisfaction to be due to defective material or workmanship, then subject to the conditions hereinafter specified, the Seller will repair the defective part or replace it with a new part free of charge.
2. This warranty shall not apply to any defect caused by wear and tear, neglect, misuse or improper storage, or failure to follow the Seller's instructions (if any), unauthorised reconditioning or repair.
3. Insofar as is permitted by Statute, the Seller's liability under this clause shall be in substitution for and exclude any conditions, warranty or statement as to the quality of the goods or their fitness for any purpose whether expressed or implied by Statute or otherwise and save as provided this clause, the Seller shall not be under any liability whether in contract or in tort in respect of defects in goods delivered or for any injury, damage or loss resulting from such defects or from any work done in connection therewith.
4. In the case of goods which are not of the Seller's manufacture, the Seller shall use their best endeavour to pass on to the Buyer the benefit of the manufacturers warranty(if any).

Suitability

1. Where suggestions as to suitability for a particular vehicle are made in this catalogue these are for an unmodified vehicle used for the purpose for which it was manufactured.

Oil cooling, an overview.

We supply oil coolers for use in many applications both industrial and automotive. This catalogue is aimed at automotive applications.

Why do we need an engine oil cooler?

The design of any car, with the exception of the many that are fitted with an oil cooler as standard, will ensure that just sufficient cooling by airflow across the sump takes place under normal conditions of use to keep the oil of a chosen viscosity at its design temperature, without for reasons we will discuss later, overcooling. It follows that changes to the specification or usage of the vehicle can cause the oil to exceed its design temperature. The changes most likely to cause an increase in oil temperature are:

- Increase in rpm, the oil cooling requirement of an engine will increase up to threefold for an increase of 1000rpm, making this the most common cause of engine oil overheating. German specification cars are always designed with extra oil cooling because of possible high speed running on unrestricted autobahns. On the track the almost constant use of high rpm makes an oil cooler mandatory, even in an unmodified engine.
- Obstruction of airflow to the sump, caused by fitting sump guards, spoilers etc.
- Oil circulation through a turbo charger not only lubricates but also removes a large amount of heat which will add to the overall cooling requirement.
- Increasing the power output of the engine will increase combustion temperatures but except in the cases where oil is used to cool the piston crowns, most of the excess heat will be taken away by the water coolant system.

Overheated Oil

Oil as it gets hotter becomes thinner (less viscous), losing its film strength, this film strength supported by oil pressure is what keeps bearing surfaces from touching, once bearing surfaces touch, metal is removed, clearances widen, oil pressure drops, the contact surfaces are further worn away and immediate engine failure takes place. It is also worth considering that, in the modern engine, oil is used as a coolant of pistons crowns, if the top of the piston becomes too hot detonation takes place causing loss of power or even piston/gasket failure. Some oils are advertised as being able to cope with higher temperatures, this is easily achieved by supplying a more viscous oil that will have greater film strength for a given temperature, the down side is that at lower temperatures there will be higher friction/pumping losses. The oils recommended for everyday motoring will have a viscosity sufficient to cope with the warmest extremes of expected motoring conditions, by fitting an oil cooler and oilstat a very low viscosity oil, giving increased power and decreased fuel consumption during relaxed motoring can be used. It will be appreciated from the foregoing that there is no optimum engine oil temperature, modern oils will not be damaged by high temperatures although some may leave varnish deposits which can block oil ways. Every engine will have a different oil temperature requirement but, as a general rule temperatures in excess of 110°C should be avoided.

The need for Oil coolers.

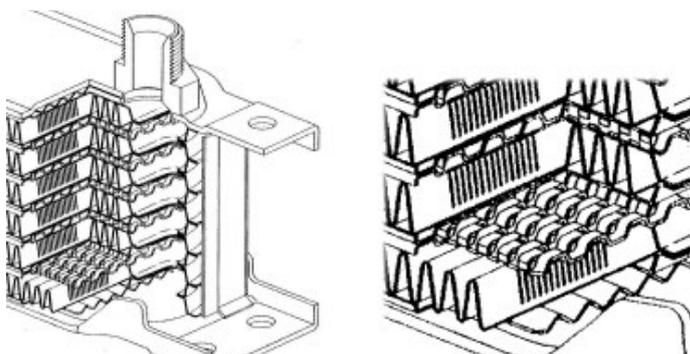
Oil coolers are used for cooling gearboxes, crown wheel and pinion units, differentials and power steering pumps where the primary problem is not so much concerned with avoiding metal to metal contact but in preventing loss of tolerances due to heat expansion of metals which in turn lead to greater friction resulting in a runaway spiral of heat build up. In road usage the only problems experienced are with automatic transmissions when vehicles are used for towing, many vehicles have some form of oil cooling but this is usually inadequate, extra cooling should always be provided because even if actual breakdown does not occur, higher temperatures shorten the life of seals which can be as expensive to replace as an entire gearbox.

Race track usage leads to higher temperatures due to higher power loads and increased activity in gear changing, wheelspin and steering wheel twirling.

Oil to air coolers

The most popular oil to air coolers are the pressed or stacked plate coolers which were first made in the late 50's, The cooler consists of a variable number of aluminium pressed plates forming oil ways and end tanks, the oil ways contain turbulators which not only break down boundary layer effect in the flow to obtain maximum heat dissipation without undue pressure drop but also because they are brazed to both surfaces of the plates hold them together under pressure. The oil ways are interspersed with aluminium strip louvered and formed into corrugations to provide airways. The design is beautifully simple and efficient and most suitable for mass production, but it is restricted to a 2 thickness and a limited amount of lengths.

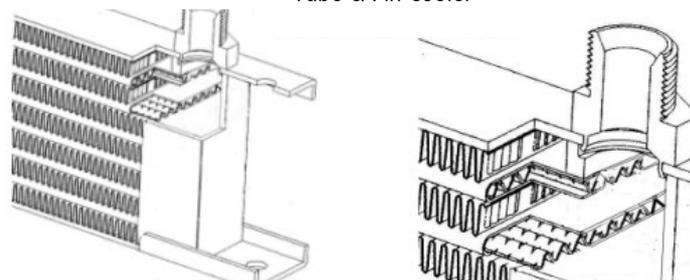
Pressed Plate Cooler



Making a comeback is the tube and fin cooler consisting of a number of preformed flattened tubes surrounding turbulators and separated by corrugated airways, this is a more flexible design allowing infinite lengths, depths can be in multiples of the tube width, however end tanks have to be made separately resulting in a more expensive and heavier assembly. The finned tube oil cooler is an anachronism only suitable where space is unlimited.

The current money is no object attitude prevailing in the top echelons of motor racing has resulted in a couple of aerospace heat exchanger manufacturers becoming interested in supplying their plate and bar coolers to the racing car industry they are fabricated from strip, and can be made to the exact size to suit the customers packaging requirements.

Tube & Fin Cooler

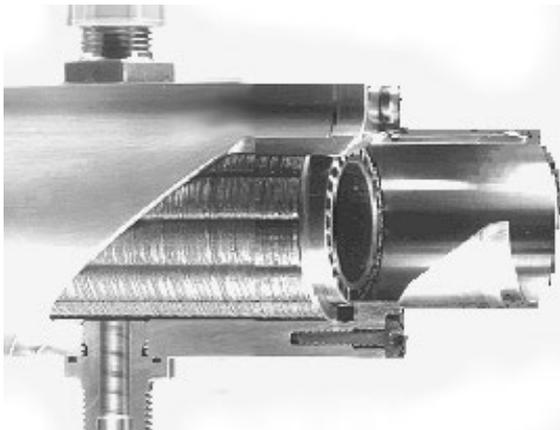


Oil to water coolers (Laminova)

Until the last 5 years the oil to water cooler or fluid to fluid cooler has been more of a rarity in automobile usage. The most common the tube and fin in a shell cooler, popular in marine usage is too heavy and cumbersome. Up to recently the ubiquitous pressed plate type of oil to air cooler but in a fabricated water jacket has been the answer, now the amazing Laminova laminar flow cooler has opened the automotive market to oil to water coolers. The main components are two aluminium extrusions, one forming the outer shell, the other the core which by some magical process has been machined to provide fins 0.2 mm (7 thou) thick and 3mm high and spaced 0.3mm (11 thou) apart through which the oil flows, such restrictive finning would normally cause a huge pressure drop, but by introducing channels in the finning, the oil flow is kept laminar as opposed to turbulent as in other cooler designs and the pressure drop remains low. The water flows through extruded channels in

the outer core, removable plugs/restrictors control water pressure drop. This construction is pretty versatile the shell and core being made in 4 different diameters with, in theory, infinitely variable lengths. For very compact installations, cores may be slotted into each other. The secret to obtaining the best performance is to tailor the removable plugs to obtain the best oil temperature drop without compromising the water temperature. The donut cooler has a variable number of pressed plates forming oil and water ways, the oil ways containing turbulators. A pressure relief valve is incorporated to allow oil to bypass the oil ways during cold starts, excessive oil flows or blockage. Pressure drops through this type of cooler are high. The previously mentioned aerospace outfits can also supply custom built fluid to fluid bar and plate coolers.

Laminova



The best oil coolers

All the coolers discussed here, except the finned tube and the Laminova are as efficient as each other in so far as greater heat rejection can only be obtained at the expense of oil pressure drop or air pressure drop. On the oil side the performance is controlled by the design of the turbulators, if you increase the amount of turbulence and make the oil follow a more tortuous path so as to bring it into greater contact with the cooling surface area to obtain greater heat dissipation you will increase the oil pressure drop, often the very problem you are fitting an oil cooler to avoid. On the air side if you increase the pitch of the corrugations or increase the depth (front to back measurement) you will increase the air pressure drop, thus requiring higher vehicle speed or sophisticated ducting to obtain better results.

The fluid to fluid cooler becomes viable when packaging constraints do not allow for mounting a cooler in the airstream and where there is enough thermal capacity in the water radiator to cope with the extra loads, because engine coolant warms more quickly than the oil, the oil warm up is quicker which can show benefits in engine wear and economy. The Laminova cooler is able to achieve a high degree of efficiency within a slim envelope because the unique finning provides an enormous cooling surface area in contact with the oil. Although not as cost effective as the pressed plate cooler, there are bonuses in that it is very strong and unlikely to be damaged in any but the biggest crash and it may be stripped for cleaning purposes, invaluable after an engine blow up. The donut cooler is designed for ease of installation, fitting between filter head and filter and using a bypass water flow (in a similar fashion to a car heater), as it cannot use the full water flow performance cannot match the Laminova, it is made of stainless steel thus incurring a weight penalty compared to all others.

The bar and plate coolers are not, in their construction, any more efficient than the pressed plate, tube type or Laminova coolers, their value lies in their being able to be made to exactly match the vehicle requirements where all relevant parameters, oil flow, air flow, temperatures, acceptable oil pressure drop, and air pressure at varying speeds are known. These hand made coolers are priced in thousands of pounds. We think that the design of the pressed plate cooler is the best compromise to cover all types of motoring and

motor sport, irrespective of price, the best of the competitors offer very similar performance because their design closely follows our product. However there are now a number of Chinese made copies on the market which due to lack of investment in proper tooling are heavier but worse are inadequately brazed resulting in early failure when subjected to pressure cycling tests. Unless a cooler has genuine Mocal®, Setrab or PWR labels we suggest you avoid. In the literature of one of the many sellers they claim "these coolers have been developed from years of practical experience in the motorsport field". We very much doubt that anyone in the Chinese factories has ever heard of a racing car much less have ever seen one.

In later pages we show graphs showing performance of various coolers, these are of limited use as all parameters are not usually known, however it is useful to make performance comparisons between cooler types. Heat dissipated is not necessarily the sole reason for choosing a cooler, A larger cooler may be chosen to avoid excessive oil pressure drop, be aware that the more rows/tubes and the shorter their length the smaller will be the pressure drop or in the case of the Laminova the longer the cooler the smaller the oil pressure drop although the water pressure drop is greater.

Installing an oil cooler

In the case of the air to oil cooler, The oil cooler will only achieve results where a volume of air is passing through the fins. The amount of heat dissipated by radiation is negligible. In practice the most convenient position for the oil cooler is in front of the water radiator where a flow of air is guaranteed. Even in cases where the water cooling is marginal, placing the cooler in this position will have hardly any effect on water temperature. The sheer volume of air passing through the cooler ensures that the air is only heated a few degrees; not enough to affect the water radiator performance, and as the oil cooler is a more efficient device for extracting heat from the engine, the overall effect is helpful. However, where water cooling is marginal it is essential that the oil cooler be placed against the water radiator face, otherwise warmer air leaving the oil cooler will become turbulent on meeting air at ambient temperatures and will not pass through the water radiator. If placing of cooler and water radiator in close proximity is not possible then a duct of thin aluminium should be made to exclude the ambient air. If space is not available in front of the water radiator due to an electrical fan for instance, the cooler may be mounted behind the radiator and will still work well for the reasons already given.

In the unlikely event of an insufficient space being available either behind or in front of the water radiator, the radiator grille may be moved forward by using longer screws and spacers. Alternatively oil cooler size holes may be cut in the forward bulkhead either side of the water radiator and air from the grille ducted to the cooler. An illustration is given of the ways in which the cooler may be mounted using our standard universal brackets. Mounting on bottom brackets alone will suffice up to 13 row coolers after that all 4 brackets should be used, a system of spacers and long bolts tying in all four brackets will spread the load. The cooler will expand with heat so allowing some flexibility in the mountings will prolong cooler life. The weakest part of the plate type cooler is the brackets, breakage of which often damage the whole cooler. If fitted to any vehicle that may be subject to vibration or twisting of the mounting platform, consideration should be given to abandoning the brackets and mounting in a cradle, locating with cable ties or an elastic strap should be sufficient as the hose will provide some restraint. Oil coolers may be mounted anyway up and are self bleeding, the resistance to oil flow through the matrix means that tanks will fill up evenly pushing out the air before the oil flows through. For packaging reasons it may be necessary to use two coolers, if possible connect in series although this will double the pressure drop, If parallel connections are made, unless the oil pressure drop through each is equal oil will take the line of least resistance and pass through only one, therefore pipe lengths and air flow at all times must be matched for the system to work. Two coolers in parallel will halve the pressure drop. If a Laminova oil to water cooler is used, the whole engine water flow should pass through the unit for maximum cooling effect but if this is not possible a partial

flow may be obtained by teeing off and running in parallel with water radiator/heater matrix. We can supply a plug or restrictor to divert more water flow through the annular water ducts of the core, this will restrict the overall flow of water and may cause problems with the main cooling system and is more likely to be beneficial in partial flow installations, we suggest experimenting with restrictors if more oil cooling is required. Please ask for rebuild instructions. The Donut oil cooler can only be fitted to engines with spin on type oil filters. The most convenient place to obtain a coolant flow is usually the heater pipes, we provide Tees in both 1/2" & 5/8" diameter to suit all applications.

Getting oil to the cooler

Fitting an engine oil cooler to a wet sump vehicle. The starting point is to identify a point from which the oil supply may be interrupted and diverted through an oil cooler, in most cases this will be a full flow oil filter, some cars, e.g. BMC A series, MG B have an external pipe leading to the oil filter, replacing this pipe with flexible hoses to and from the cooler is an easier alternative. If we decide on using the filter, we have further choices, either to place an oil cooler take off (sandwich plate) between filter head and cartridge/bowl, or if more convenient between filter head and block. In either of these cases if room is limited (a sandwich plate adds about 1 3/8" / 34mm) a smaller filter, changed more frequently, should be considered or fit a remote filter take off plate in place of filter and run hoses to a remote filter head in a convenient place. When working out such installations it is important to remember that oil flows through the filter from the outside to the centre, hence the outer hole on the take off plate will be the output from the pump. It is preferable to filter hot oil so install with a cooler fitted in the return from remote filter to engine. We sometimes use a new filter head assembly with built in cooler take offs, e.g. Jaguar models. For the Rover, Buick, Oldsmobile, V8 where space can be very limited we can supply a replacement oil pump cover with outlets for a remote filter plus oil cooler if required. The Triumph Dolomite and Stag have a cover plate on the block which may be removed and replaced with a special take off.

Fitting an engine oil cooler to a dry sump vehicle. It is standard practice to put an oil cooler in the return line from the sump to tank. The reasoning behind this would seem to be that as the tank is open to atmosphere, there is no pressure on the cooler and in the event of cooler damage the consequent leak would not be as great as on a pressure line. However there is never a pressure release valve on the suction part of a dry sump pump and in a cold start situation the oil backing up through the cooler can cause pressures high enough to blow up all types of cooler. Also oil on the return to the tank will be in an aerated condition which is thermally less efficient to cool. Serious consideration should be given to fitting the cooler in the pressure line, after the oil filter.

Fitting an automatic transmission cooler. Most modern automatic transmissions tap into the return from torque converter to sump, where very little pressure exists, to obtain a full flow of oil through an oil cooler tube in the water radiator, a secondary cooler may be connected in series by interrupting this flow cutting one of the oil pipes leading to the water radiator and securing hoses to the severed ends using hose menders. Where water overheating is a problem in arduous conditions or where the primary cooler has failed the water radiator may be bypassed by connecting directly to the Mocal® cooler by cutting both hoses, the hoses to the primary cooler may be taped up to avoid the ingress of dirt if the system is to be reinstated. Old Borg Warner gearboxes are provided with means of tapping the oil flow either by a loop pipe or two plugs on the right hand side of the gear box just above the sump. Renault gearboxes have two plugs adjacent to the left hand drive shaft. Only ZF boxes with an existing cooler can have additional cooling.

Cooling gearboxes and steering pumps. Some gearboxes and all power steering pumps have an oil pressure system that can be tapped for oil flow otherwise a remote pump is required, we offer three types, see page 78, We have also supplied the Holley fuel pump, see page 76, for this purpose with satisfactory results. When designing an installation these pumps require a switch either built

in or manual as pumping cold oil is not recommended. Add extra oil to fill cooler, pump and pipes which must be at or below the normal oil level otherwise the oil level in the gear housing will be too high when the pump is switched off. When returning oil onto the gears do so after the point of contact to avoid pumping losses caused by cool oil. If difficulty is experienced in supplying ram air to an oil to air cooler we can supply a fan and housing see page 14. Use -6 (3/8" bore) hose.

Oilstat needs

Prolonged use of a car engine in conditions where the oil cannot reach its correct working temperature will cause sludge formation and crankcase oil dilution, leading to excessive wear especially in the cylinder bores. Optimum engine power will only be delivered at correct temperatures. The elimination of drag in engines caused by cold oil is a most important consideration, especially with a racing engine, revving the engine without a load will not put much heat into the oil and devices for preheating the oil may not be available.

Control of the oil flow through the cooler can be controlled in two ways. Using a thermostatic device that we call an oilstat set to divert oil to the cooler at 80°C (although a wide range of settings is available for special applications). This is the minimum temperature required to evaporate and dispel contaminating substances. The Mocal® oilstats are built into the oil cooler take off or available as a separate unit to be fitted into the oil lines. Some economy can be gained by fitting a high temperature oilstat to an automatic transmission. Temperatures on racing boxes may be too high for an oilstat (140°C max).

Measuring oil temperature and warnings.

Oil temperature sensing is a necessary tool to use in decisions about oil cooling. We can assist in many ways. The first decision is to establish what temperature you need to know, is it a) The maximum oil temperature i.e. the oil in the sump or b) if a cooling device is fitted the temperature of the oil going to the bearings (the first bearing not the last in line) or gears. If you require a) fit the sensor in the sump, in the oil line going to the cooler, in a remote filter installed before the cooler or in an oil cooler take off between filter head and filter. If b) in the return from the cooler or oilstat if fitted. We make adapters to fit in the oil lines, [see page 23](#) or provision can be made for temperature gauge tapping in oil cooler take offs and remote filter heads. [See pages 18 & 21](#) and Classic gauges [page 84](#). We also provide temperature strips which may be stuck on any clean, dry, smooth surface they will record highest temperature reached but are irreversible, use on oil sumps, tanks, filters, coolers, [see page 25](#). We offer switches that can be fitted to our adapters to operate warning lights.

Measuring oil pressure and low pressure warnings

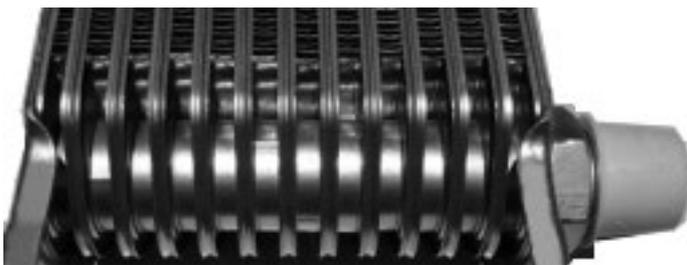
All engines have a tapping on an oil gallery to take a no oil pressure warning transmitter, we make a range of T pieces to screw into this tapping. Low oil pressure switches are offered as alternatives to the whoops its too late pressure warning transmitters fitted as original equipment, ours provide a warning when the oil pressure drops below the desired running pressure, they can irritate by actuating a warning when the engine is ticking over but are absolutely essential for spotting signs of trouble in a competition engine.

Mocal pressed plate coolers



Construction of this type of cooler is described on [page 5](#). This range of cooler is a direct descendant of the original coolers made by Morris radiators in the 1960's. Made in England from the, slightly updated, original tooling. The secret of the success of the Mocal® cooler is an insistence on the highest standards of build quality allied to a rigorous inspection system. In particular the attention paid to the accuracy of the pressing tools to ensure the closest contact of the plates during the "Nocoloc" brazing process ensures superiority over copies from the Far East.

Maximum working pressure on the standard range of coolers is 10 bar (150psi) although each cooler is tested to 11.5 bar (170psi) this is adequate for all but the most arduous motoring applications, however in cold start conditions if too high rpm is used the pressure by pass valve sometimes does not provide enough flow. This will lead to excessive oil pressure, note that dry sump systems do not even have pressure relief on the return to tank where a cooler is often fitted. To help cope with such problems we have introduced a heavy duty (HD) 12bar (180psi) working pressure, version of the cooler made in the EU which is dimensionally similar but has aluminium castings between the plates. On the standard cooler this is the weakest point where they are unsupported by fins or turbulators, There is also thicker material in some areas. These coolers are about 18% heavier.



Rows	115mm matrix				235mm matrix			
	Standard		Heavy duty		Standard		Heavy duty	
	Price	Cat	Price	Cat	Price	Cat	Price	Cat
7	£53.17	10	£58.57	10	£60.55	10	£66.60	10
10	£56.41	10	£64.43	10	£67.00	10	£76.83	10
13	£70.61	10	£75.53	10	£79.31	10	£92.27	10
16	£84.67	10	£93.09	10	£92.48	10	£130.32	10
19	£98.39	10	£94.39	10	£106.05	10	£126.12	10
25	£129.97	10	£108.61	10	£142.05	10	£165.56	10
34	£188.44	10	£188.44	10	£170.74	10	£248.23	10
40	n/a		n/a		£212.69	10	n/a	
44	£216.11	10	£207.91	10	£279.21	10	£237.39	10
50	£330.99	10	£198.15	10	£393.68	10	£285.47	10
60	£382.90	10	£219.82	10	£466.14	10	£312.00	10

MOCAL

Think Automotive Ltd, Iselworth, ENGLAND, TW7 6EL

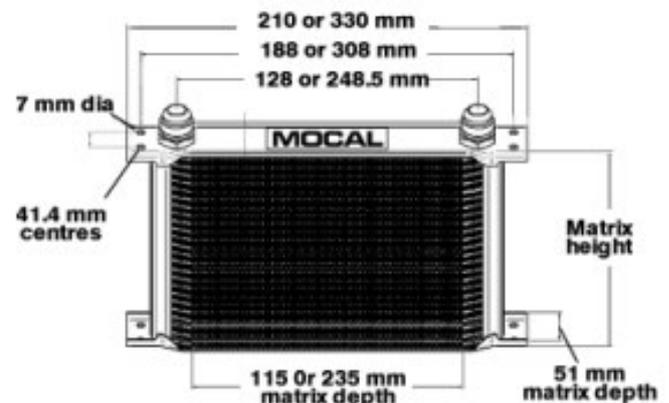
Part No. OC5133-8 manufactured 15/06

Description: 13ROW 235mm 1/2 BSP

Beware imitations - if it does not have a label it is probably a copy.

Measurements for MOCAL pressed plate coolers

The coolers are available in various heights and two widths, 115mm matrix or 235mm matrix but in common with all their clones only one, 51mm, front to back measurement. The height of a cooler is usually referred to in rows, these are the number of oilways including top and bottom plates which carry oil.



Part numbers for Mocal Pressed plate coolers

OC 5 13 3 - 8 HD

Prefix for oil cooler

Width
1 = 115mm matrix
5 = 235mm matrix

Number of oilways
(rows) including top
and bottom plate

Suffix for heavy duty

Thread type.
-6 = 3/8BSP, 9/16 x 18JIC, 3/8 push-on
-8 = 1/2BSP, 1/2NPT, 3/4 x 16JIC, 1/2 push on
-10 = 5/8BSP, 7/8 x 14 JIC
-12 = 3/4BSP, 1 & 1/16 x 12JIC
-16 = 1" BSP, 1 & 5/16 x 12JIC
-45 = M14 x 1.5 female
-85 = M18 x 1.5 female
-105 = M22 x 1.5 female

Thread type.
2 = Metric female
3 = BSP male
7 = JIC male
8 = NPT female
14 = Push on

Number of rows	Height in mm	111mm matrix			235mm matrix		
		Volume in litres	Weight in kgs		Volume in litres	Weight in kgs	
			Standard	HD		Standard	HD
7	53	0.08	0.31	0.38	0.14	0.53	0.62
10	77	0.12	0.39	0.50	0.20	0.71	0.75
13	100	0.16	0.48	0.63	0.26	0.88	1.06
16	124	0.19	0.60	0.74	0.32	1.06	1.28
19	147	0.23	0.67	0.85	0.38	1.24	1.49
25	194	0.30	0.84	1.07	0.50	1.60	1.94
34	365	0.41	1.15	1.40	0.68	2.14	2.58
40	310	n/a	n/a	n/a	0.80	2.40	n/a
44	344	0.53	1.46	1.91	0.88	2.73	3.27
50	390	0.60	1.63	2.05	1.00	3.09	3.72
60	460	0.70	n/a	2.25	1.30	3.69	4.45

Mocal standard coolers are available with low profile M22 female ports.

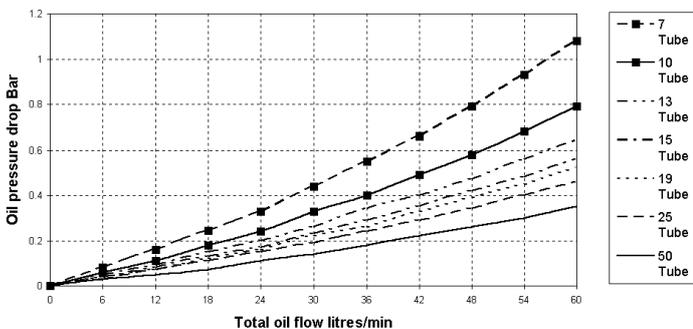
The M22x1.5 brazed female hexagon is only 10mm high from the top plate.

These low profile M22 female connectors are available throughout the Mocal standard range. To order use OC***2-105 suffix.

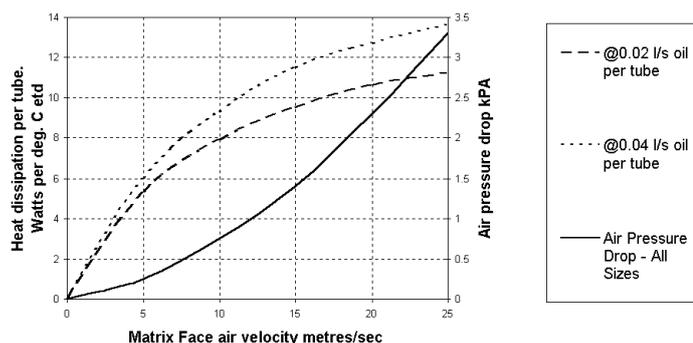


Mocal Graphs

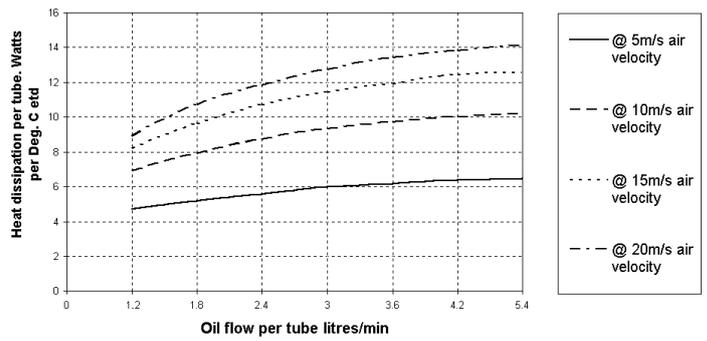
Mocal Oil Pressure Drop



Mocal Heat Transfer (I)



Mocal Heat Transfer (II)



Interpreting the graphs

We will take Mocal heat transfer (II) as an example.

1. Calculate oil flow per tube . Usually an unknown, the oil flow through the engine can only be measured using a flow meter. (Example 29 litres/min through 16 row cooler $29 \div 16 = 1.8$ litre/ min).
2. Calculate etd (extreme temperature difference) (Example oil in to cooler at 120°C - Ambient at 25°C \ $120 - 25 = 95$)
3. State matrix air velocity. Again an unknown depending on cooler position, whether ducted etc, typically, a fifth of the available air would go through the cooler. (Example road speed 112mph divide by 2.25 to get 50 metres/sec divide by 5 gives 10 m/s m.a.v.)
4. From the graph we find we are dissipating 8.8 watts per tube per $^{\circ}\text{C}$ etd.
5. Calculate total heat dissipated (Example 8.8×16 (tubes) $\times 95$ (etd) = 13376 watts @ 13.4 kilowatts.
6. Calculate oil out of cooler temperature which is arrived at by deducting the heat dissipated multiplied by a constant of 39 divided by the oil flow rate from oil temperature in to cooler (Example $120 - (13.4 \times 39 \div 29) = 102^{\circ}\text{C}$

From this we can conclude that in the example given we are reducing the temperature of the oil going to the bearings from 120°C to 102°C . If it seems too complicated please send us the parameters and we will work it out.

Setrab have no graphs available, but do have a comprehensive computer programme to work out individual cases, please give us the parameters and we will provide a print out.

Graphs for oil pressure drop are self explanatory, however please note that the oil in the Laminova graph is at 120°C , the oil in the Mocal is at 100°C and therefore thicker, so meaningful comparisons are difficult.

KPa to psi multiply by 0.145 Bar to psi multiply by 14.5



Mocal flat tube and fin oil coolers

A more versatile range of oil to air oil coolers than our pressed plate coolers but not as cost effective. The construction consists of a number of flattened tubes into which turbulators are slid, these tubes are pushed in to an extruded aluminium housing with finstock fitted between, the whole assembly brazed by the Nocok process. Available to special order in 2 tube widths 30mm and 47mm, any length and any height in increments of approximately 10mm per tube, modest tooling charges are involved. Prices on application.

Setrab Oil Coolers

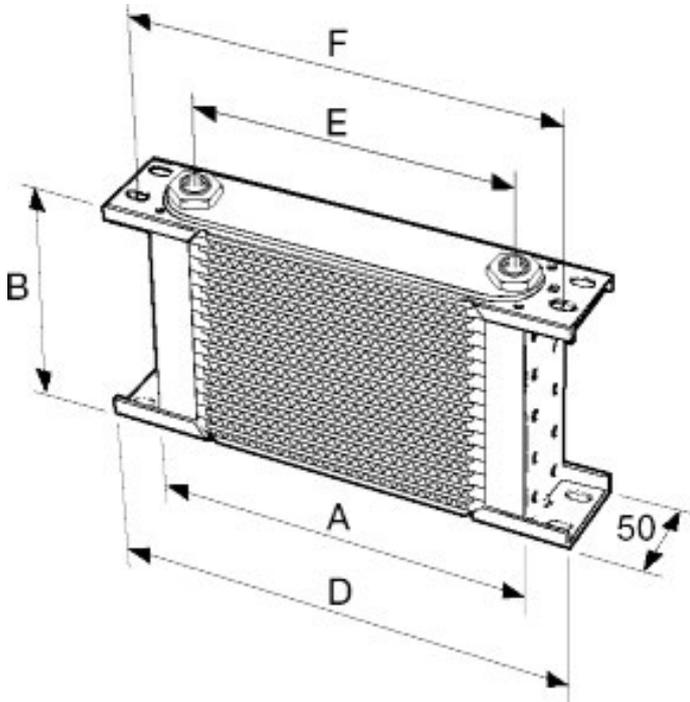
Setrab are very much orientated to the OEM market which imposes many disciplines in terms of delivery schedules, quality control and environmental issues, following on from their OEM contacts Setrab have enjoyed much success among professional racing teams. We stock and distribute a range of sizes with one M22 x 1.5 female connection size to suit the needs of the aftermarket. This range is called Proline.

Proline STD Cooler



Construction of this pressed plate type of cooler is described on page 5. They are "Nocoloc" brazed and have a black epoxy finish.

Dimensions in mm



Series	A	D	E	F
1	163	210	130	190
6	283	330	242	310
9	358	405	325	385

Part Numbers for STD Coolers

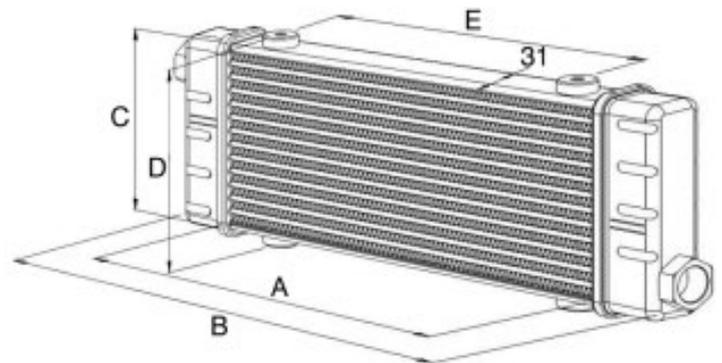
Number of rows B	Height	Part No. Series 1	Part No. Series 6	Part No. Series 9
7	52	50-107-7612	50-607-7612	
10	76	50-110-7612	50-610-7612	50-910-7612
13	99	50-113-7612	50-613-7612	50-913-7612
15	115			50-915-7612
16	122	50-116-7612	50-616-7612	
19	146	50-119-7612	50-619-7612	50-919-7612
25	193	50-125-7612	50-625-7612	50-925-7612
34	264		50-634-7612	50-934-7612
40	310		50-640-7612	
44	342		50-644-7612	
50	389	50-150-7612	50-650-7612	
72	562	50-172-7612		

Proline SLM Slimline Cooler



This has a smaller front of 40mm as opposed to the 50mm of the Mocal and STD coolers. Pressure drop will be higher, they are suited for most oil cooling applications but only the 14 row height should be considered for the higher flows found in engine cooling installations. These tube and fin coolers are "Nocoloc" brazed and have a black epoxy finish.

Dimensions



Part numbers for SLM Coolers

Part No	Rows	Matrix Width (A)	Cooler Width (B)	Cooler Height (C)	Overall Height (D)	Mount Centres (E)
SLM141-06	6	141	204	52	64	90
SLM141-10	10	141	211	88	100	90
SLM141-14	14	141	211	124	138	90
SLM250-6	6	250	313	52	64	200
SLM250-10	10	250	320	89	103	200
SLM250-14	14	250	320	124	138	200
SLM420-6	6	420	483	53	67	320
SLM420-10	10	420	490	89	103	320
SLM420-14	14	420	490	124	138	320
SLM592-6	6	592	655	53	67	492
SLM592-10	10	592	662	89	103	492
SLM592-14	14	592	662	124	138	492

Proline Coolers - Performance

We have not included performance graphs. We have a computer system that will predict results on any range, we require oil, coolant and air flows together with temperature differentials.

Setrab proline STD coolers

Part No		£	Cat
50-107-7612	SETRAB PROLINE SERIES 1 7 ROW	56.49	70
50-110-7612	SETRAB PROLINE SERIES 1 10 ROW	63.64	70
50-113-7612	SETRAB PROLINE SERIES 1 13 ROW	73.38	70
50-116-7612	SETRAB PROLINE SERIES 1 16 ROW	86.57	70
50-119-7612	SETRAB PROLINE SERIES 1 19 ROW	101.59	70
50-125-7612	SETRAB PROLINE SERIES 1 25 ROW	126.57	70
50-144-7612	SETRAB PROLINE SERIES 1 44 ROW	374	70
50-150-7612	SETRAB PROLINE SERIES 1 50 ROW	263.41	70
50-172-7612	SETRAB PROLINE SERIES 1 72 ROW	310.92	70
50-313-4058	SETRAB P/LINE SER 3 13row 5/8	132.39	70
50-607-7612	SETRAB PROLINE SERIES 6 7 ROW	69.26	70
50-610-7612	SETRAB PROLINE SERIES 6 10 ROW	79.8	70
50-613-7612	SETRAB PROLINE SERIES 6 13 ROW	90.79	70
50-616-7612	SETRAB PROLINE SERIES 6 16 ROW	105.36	70
50-619-7612	SETRAB PROLINE SERIES 6 19 ROW	121.35	70
50-625-7612	SETRAB PROLINE SERIES 6 25 ROW	146.09	70
50-634-7612	SETRAB PROLINE SERIES 6 34 ROW	213.58	70
50-640-7612	SETRAB PROLINE SERIES 6 40 ROW	315	70
50-644-7612	SETRAB PROLINE SERIES 6 44 ROW	271.33	70
50-650-7612	SETRAB PROLINE SERIES 6 50 ROW	303.28	70
50-907-7612	SETRAB PROLINE SERIES 9 7 ROW	133.62	70
50-910-7612	SETRAB PROLINE SERIES 9 10 ROW	89.26	70
50-913-7612	SETRAB PROLINE SERIES 9 13 ROW	102.51	70
50-915-7612	SETRAB PROLINE SERIES 9 15 ROW	118.62	70
50-919-7612	SETRAB PROLINE SERIES 9 19 ROW	138.98	70
50-919-7612D	DAMAGED PROLINE 19 ROW SERIES9	169.05	70
50-925-7612	SETRAB PROLINE SERIES 9 25 ROW	169.04	70
50-934-7612	SETRAB PROLINE SERIES 9 34 ROW	257.35	70

Setrab Proline SLM Coolers

SLM141-10	SETRAB SLM141mm x 10row COOLER	130.39	70
SLM141-14	SETRAB SLM141mm x 14row COOLER	143.06	70
SLM141-6	SETRAB SLM141mm x 6 row COOLER	120.38	70
SLM250-10	SETRAB SLM250mm x 10row COOLER	143.06	70
SLM250-14	SETRAB SLM250mm x 14row COOLER	158.09	70
SLM250-6	SETRAB SLM250mm x 6 row COOLER	130.39	70
SLM420-10	SETRAB SLM420mm x 10row COOLER	188.20	70
SLM420-14	SETRAB SLM420mm x 14row COOLER	175.51	70
SLM420-14-M18	SETRAB 420-14 M18 fml TOP FIT	210.31	70
SLM420-6	SETRAB SLM420mm x 6 row COOLER	143.06	70
SLM420-6-M18	SETRAB 420-06 M18 fml TOP FIT	171.42	70
SLM592-10	SETRAB SLM592mm x 10row COOLER	188.2	70
SLM592-14	SETRAB SLM592mm x 14row COOLER	213.24	70
SLM592-6	SETRAB SLM592mm x 6 row COOLER	163.12	70

Fittings and Adapters for Setrab Proline

Male to Male Adapters - Includes o-ring seal			
MMA2-10-105S	ALI M/M ST-10JIC X M22 SETRAB	7.34	40
MMA2-12-105S	ALI M/M ST-12JIC X M22 SETRAB	7.34	40
MMA2-16-105S	ALI M/M ST-16JIC X M22 SETRAB	7.34	40
MMA2-4-105S	ALI -4JIC X M22 1x5 M/M + SEAL	9.15	40
MMA2-6-105S	ALI M/M ST -6JIC X M22 SETRAB	7.34	40
MMA2-8-105S	ALI M/M ST -8JIC X M22 SETRAB	7.34	40
MMA5-6-105S	ALI M/M 3/8BSP X M22X1.5 SETRA	7.15	40
MMA5-8-105S	ALI M/M 1/2BSP X M22X1.5 SETRA	7.15	40
MMA5-10-105S	ALI M/M 5/8BSP X M22X1.5 SETRA	7.15	40
MMA5-12-105S	ALI M/M 3/4BSP X M22X1.5 SETRA	7.15	40

Male to Female Adapters - Includes o-ring seal			
MFA2-105-55	ALI M/FML M22 X M14 SETRAB	6.55	40
MFA2-105-65	ALI M/FML M22 X M16 SETRAB	6.67	40
MFA2-105-85	ALI M/FML M22 X M18 SETRAB	6.84	40

Male to low pressure hose tail adapters			
MMA14-6-105S	ALI ST 3/8" PUSH-ON M22 SETRAB	7.6	40

Fittings for push on hoses			
HEMAP2-105-6	ALI MALE PUSH FIT M22 FOR 3/8	4.87	40
HEMAP2-105-8	ALI MALE PUSH FIT M22 FOR 1/2"	4.78	40
HEMAP2-105-10	ALI MALE PUSH FIT M22 FOR 5/8"	5.53	40
HEMAP2-105-12	ALI MALE PUSH FIT M22 FOR 3/4	6.37	40
HEMAP42-105-6	ALLOY M22 45 FOR 3/8 PUSH-ON	13.40	40
HEMAP42-105-8	ALI M 45 PUSH FIT M22 FOR 1/2"	15.83	40
HEMAP42-105-10	ALI M 45 PUSH FIT M22 FOR 5/8	17.33	40
HEMAP42-105-12	ALI M 45 PUSH FIT M22 FOR 3/4	18.55	40
HEMAP92-105-6	ALLOY M22 90 FOR 3/8 PUSH-ON	13.40	40
HEMAP92-105-8	ALI M 90 PUSH FIT M22 FOR 1/2"	15.83	40
HEMAP92-105-10	ALI M 90 PUSH FIT M22 FOR 5/8	17.33	40
HEMAP92-105-12	ALI M 90 PUSH FIT M22 FOR 3/4	18.55	40

Fittings for Aerospace Style hose			
HEMA2-105-6	ALI ST M22 MALE FOR FBA0600	7.21	40
HEMA2-105-8	ALI ST M22 MALE FOR FBA0800	7.68	40
HEMA2-10-12	ALI ST M22 MALE FOR FBA1200	9.56	40
HEMA2-105-10	ALI ST M22 MALE FOR FBA1000	8.06	40
HEMA42-105-6	ALI 45 M22 MALE FOR FBA0600	14.80	40
HEMA42-105-8	ALI 45 M22 MALE FOR FBA0800	17.05	40
HEMA42-105-10	ALI 45 M22 MALE FOR FBA1000	18.55	40
HEMA42-105-12	ALI 45 M22 MALE FOR FBA1200	21.64	40
HEMA92-105-6	ALI 90 M22 MALE FOR FBA0600	14.80	40
HEMA92-105-8	ALI 90 M22 MALE FOR FBA0800	17.05	40
HEMA92-105-10	ALI 90 M22 MALE FOR FBA1000	18.55	40
HEMA92-105-12	ALI 90 M22 MALE FOR FBA1200	21.64	40

Jiffy-tite Quick Connect Fluid Fittings			
JT52122	J/T PLUG M22x1.5 MALE VALVED	36.44	40
JT52122D	J/T PLUG 45o M22 MALE VALVED	46.45	40
JT52122E	J/T PLUG 90o M22 MALE VALVED	46.45	40

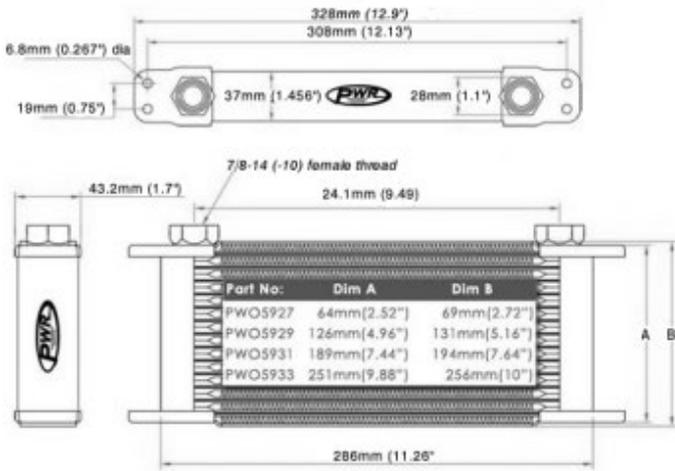
For the full range of Jiffy-tite [see page 62](#).

PWR 37mm engine, transmission & power steering coolers.



An aluminium pressed plate oil cooler constructed along similar lines to the Mocal and Setrab cooler but with only 37mm depth. The top and bottom plates are not fluid carrying. Despite its smaller depth, performance is very competitive with Mocal and Setrab coolers of comparable frontal area, although oil pressure drops are higher. Supplied with 7/8 x 14 (-10) UNF female threads. For adapters see page 51 onwards. Very nicely finished in glossy black.

Dimensions



Part No		£	Cat
PWO5927	PWR cooler 7 row 37mm	116.54	40
PWO5929	PWR cooler 14row 37mm	163.16	40
PWO5931	PWR cooler 21.row 37mm	186.45	40
PWO5933	PWR cooler 30 row 37mm	213.95	40

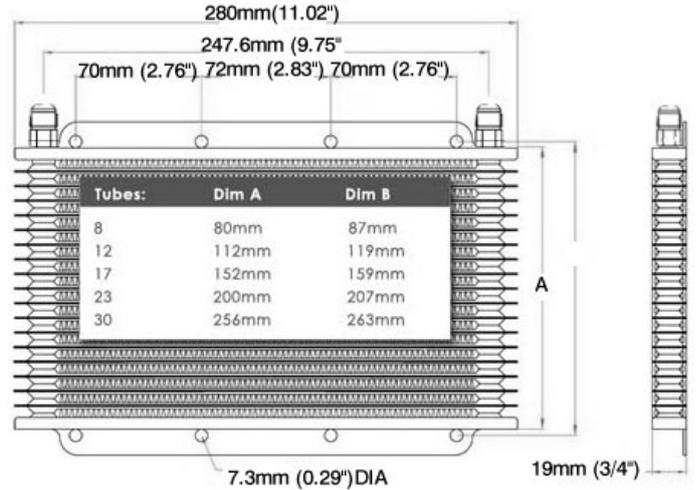
PWR 19mm transmission & power steering coolers.



The PWR range of 19mm deep coolers is of aluminium pressed plate construction, they are configured to suit cooling systems powered by electric remote pumps with their lower oil flows than engine driven pumps. Compared to our range of 50mm deep coolers their narrower oil passages offer higher oil flow resistance but this is of

little importance due to the low oil flows involved; bearing in mind that the main, higher viscosity transmission oils, often used in these installations, should not be pumped until at least 100°C is reached. Their 19mm depth offers less resistance to air flow, useful where the cooler is not sited in the most favourable position. The performance of these transmission coolers would equate to a 50mm cooler 20% smaller in height but offer less bulk to package, less weight and operate more efficiently at smaller air flows. Supplied with -6JIC male threads. They are unpainted with a natural silver finish

Dimensions



Part No		£	Cat
OCP8-6	PWR cooler 8 row 19mm	46.54	40
OCP127-6	PWR cooler 12 row 19mm	71.89	40
OCP177-6	PWR cooler 17 row 19mm	75.47	40
OCP237-6	PWR cooler 23 row 19mm	88.78	40
OCP307-6	PWR cooler 30 row 19mm	94.52	40

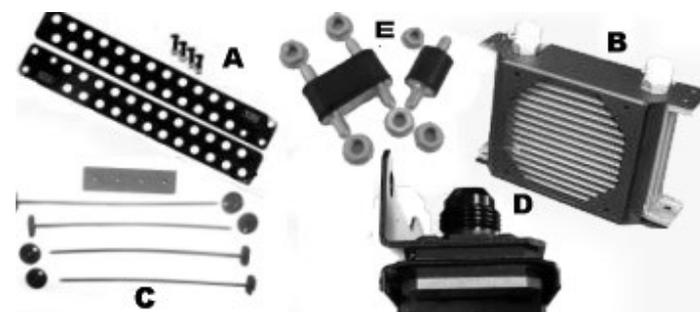
Original equipment oil coolers.



We stock some coolers fitted as original equipment.

Part No		£	Cat
OC5133-8	BMC mini-cooper	79.31	10
OC5103-6	BMC Princess 3ltr	67.00	10
OCSBEN1	Bentley	174.58	15
OC5161-12	Jaguar XJ6 series 3	92.48	10
OC5191-12	Jaguar XJS 3.6	106.05	10
OCSJAG1	Jaguar XJS V12	413.05	15
OC5133-10	Jensen Healey	79.31	10
OC1193-8	MG Metro	98.38	10
OC5133-8	MG A/B	79.31	10
OC5133-6	MG C Automatic- transmission cooler	79.31	10
OC5103-8	MG C Automatic- engine cooler	67.00	10
OC573-8	Austin/Rover Sherpa Diesel	60.55	10
OC1163-10	Lotus Esprit	84.67	10
OCSLOT2	Lotus Carlton	302.03	15
OCSLOT3	Lotus Elise w Toyota engine L/H	260.23	15
OCSLOT4	Lotus Elise w Toyota engine R/H	260.23	15
OC5103-6	Saab Turbo 99	67.00	10
OC1162-55	Saab Turbo 900	84.67	10

Oil cooler mounting brackets



A. Pairs of pre drilled universal brackets to facilitate the mounting of Mocal and Setrab coolers.

B. Bracket to allow the fitment of a 16 row, 115mm cooler with a standard 119mm square fan assembly.

C. Nylon ties that pass through the finning to mount cooler or fan directly to the face of a radiator. This is hardly recommended engineering practice but we have had no problems.

D. Pair of aluminium Setrab brackets for STD coolers will also fit Mocal with slight modification, allows fitting to a horizontal structure, includes bolts and tapped fittings with rubber pads.

E. Double or single rubber mount suits Mocal & Setrab, single for others.

Part No		£	Cat
BRKT1	Universal oil cooler brackets (pair) - A	4.10	30
BS1/2	Fan housing for 16 row -115mm - B	51.00	30
BRKT6	Double fan housing for 16 row 235mm - B	60.09	30
FAN11912	Fan-119mm square - 12v to fit BRKT1 & 3	28.21	90
DCQFK	Nylon ties for through radiator mounting - C	8.59	73
25-932	for series 1 (115mm) coolers - D	28.16	30
25-933	for series 6 (235mm) coolers - D	38.80	30
25-934	for series 9 (330mm) coolers - D	38.80	30
OCRM-1	Oil Cooler Single Rubber mount - E	3.77	70
OCRM-2	Oil Cooler Double Rubber mount - E	6.43	70

See page 81 for ducts.

Laminova oil coolers.

C43 Engine & transmission oil coolers



Construction.

Case and core of extruded and machined aluminium sealed with O-rings and gaskets. When fully assembled have a working pressure of 30bar.

Waterside connections for 16mm, 18mm, 24mm, 28mm, 32mm straight and 90°, 35mm, 38mm, 45mm bore hoses also -16, -20 and -24 SAE 37o (JIC) threaded unions.

Oilside male connections for -6, -8, -10, -12 and -16 SAE 37° (JIC), M16x1.5 female, others to special order.

Part No		£	Cat
LOICAT1	Installation for Caterham L with Apollo	32.24	20
LOILOT1S	Installation for Lotus Elise- stainless hoses	135.44	20
SH135-M32	Silicone Water Hose 135° angle 32mm i.d.	16.97	70
SH90-M32	Silicone Water Hose 90° angle 32mm i.d.	10.57	70

Application.

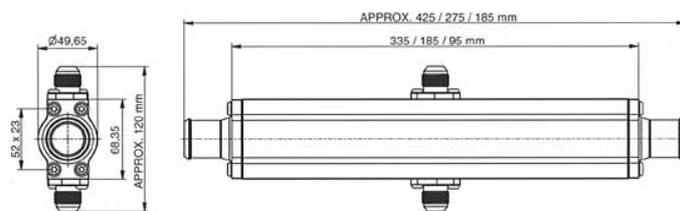
We have 2 installation kits to take part no C43-18078-M32 cooler, otherwise see page 6 "installing a cooler" & page 5 "Laminova". Kits do not include the cooler.

Recommended sizes:

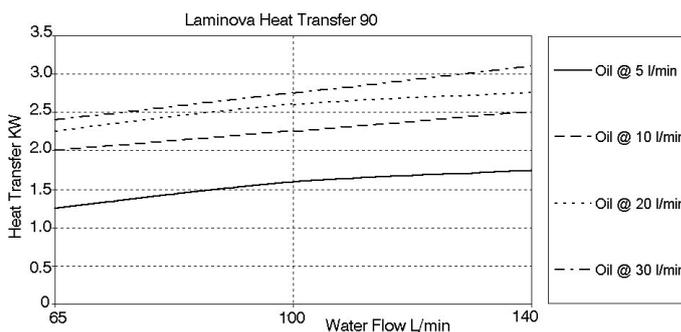
It is difficult to come up with meaningful performance figures as these are dependent upon oil and water flow, figures that are rarely known, A C43-90 would give a similar performance to a 10 row air to oil cooler, a C43-180 a 16 row and a C43-330 to a 25 row. Other sizes are available, please enquire.

Dimensions

(approximate, lengths will vary with fittings)

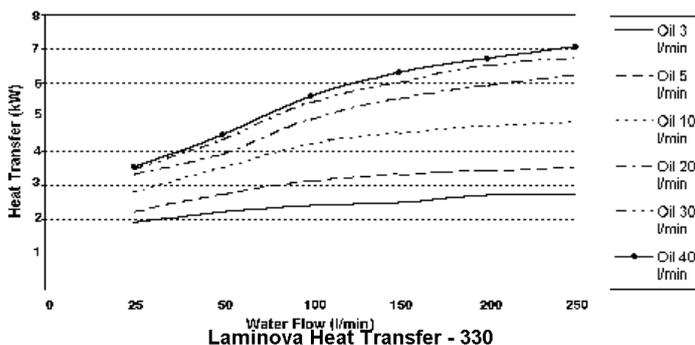


C43 Performance graphs

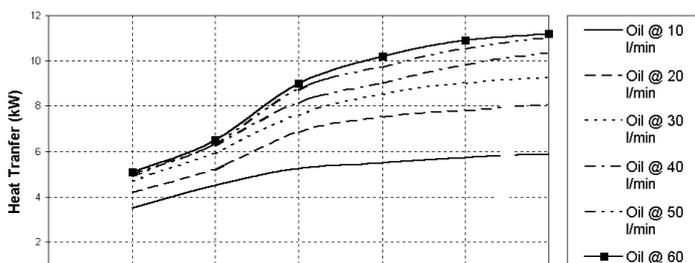


Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

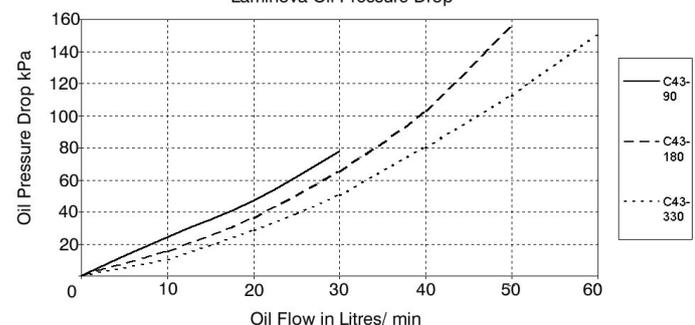
Laminova Heat Transfer - 180



Laminova Heat Transfer - 330



Laminova Oil Pressure Drop



Part No	Price for complete cooler including connections	£	Cat
C43-90	Laminova oil cooler 160mm overall	220.13	40
C43-180	Laminova oil cooler 245mm overall	243.29	40
C43-330	Laminova oil cooler 395mm overall	276.47	40

But add £28 for -16JIC oil connectors
Water restrictors can also be added;
LWP-43 Full water restrictor 5.58 40
LWT-43 Partial water restrictor 3.75 40

JIC water connectors are also available at an extra cost
Choose Oil and Water connectors to match your application.

The part number represents the Core diameter and length suffixed by the Oil then Water connector size.

Some common part numbers

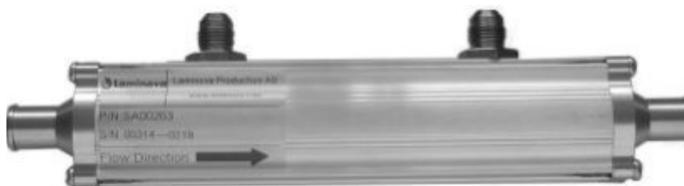
Part No	£	Cat
C43-9076-M18	220.13	40
C43-9078-M28	220.13	40
C43-90710-M32	220.13	40
C43-90716-M45	246.52	40
C43-18078-M32	243.29	40
C43-180710-M38	243.29	40
C43-180712-M45	243.29	40
C43-180716-M45	269.69	40
C43-330710-M32	276.47	40
C43-330710-M38	276.47	40
C43-330712-M38	276.47	40
C43-330716-M45	302.87	40

C43 connectors and service kits.

Any combination is possible using the standard Oil and Water connectors

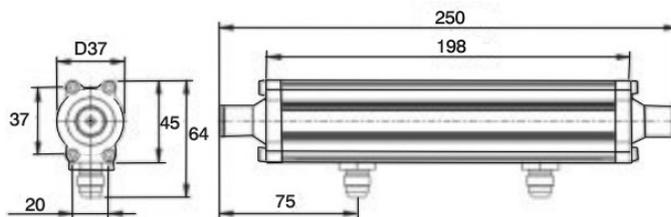
Part No		£	Cat
LOC7-6	C43 Oil connector -6JIC male	16.99	40
LOC7-8	C43 Oil connector -8JIC male	16.99	40
LOC7-10	C43 Oil connector -10JIC male	10.89	40
LOC7-12	C43 Oil connector -12JIC male	10.89	40
LOC7-16	C43 Oil connector -16JIC male	31.06	40
LWC-M16	C43 Water connector M16 o.d. tail	28.67	40
LWC-M18	C43 Water connector M18 o.d. tail	28.67	40
LWC-M24	C43 Water connector M24 o.d. tail	28.67	40
LWC-M28	C43 Water connector M28 o.d. tail	28.67	40
LWC-M32	C43 Water connector M32 o.d. tail	28.67	40
LWC-M35	C43 Water connector M35 o.d. tail	28.67	40
LWC-M38	C43 Water connector M38 o.d. tail	23.63	40
LWC-M45	C43 Water connector M45 o.d. tail	28.67	40
LWC7-16	C43 water connector -16JIC	43.02	40
LWC7-20	C43 water connector -20JIC	55.76	40
LWC7-24	C43 water connector -24JIC	55.76	40
Service kit is available with Gaskets, O-rings and Screws			
LSK1	C43 Service kit	17.04	40

S34 Small engine, transmission & power steering coolers

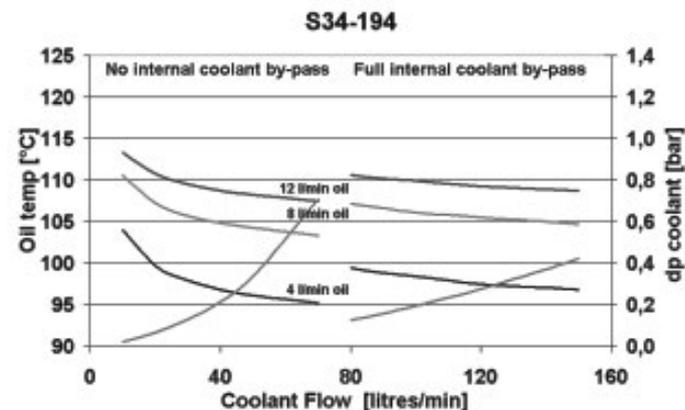


Waterside connections for 16, 24mm bore hose, oilside -6JIC or 1/2 push on.

Dimensions of S34-194 (approximate, will vary with fitting size)



Performance graphs for S34-194



Part No		£	Cat
S34-19476-M16	Laminova cooler 250mm overall	338.84	40
S34-19476-M24	Laminova cooler 250mm overall	324.23	40

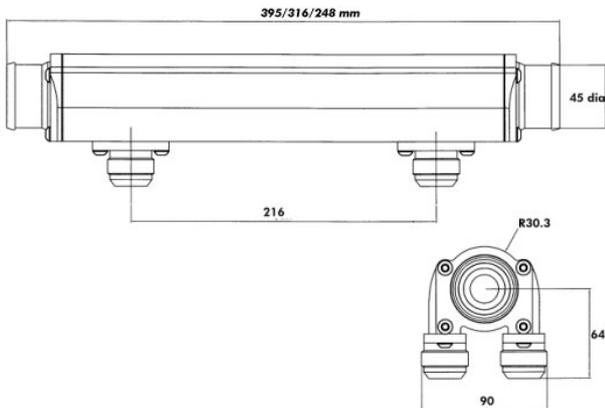
Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

ECD54 Engine Oil Coolers

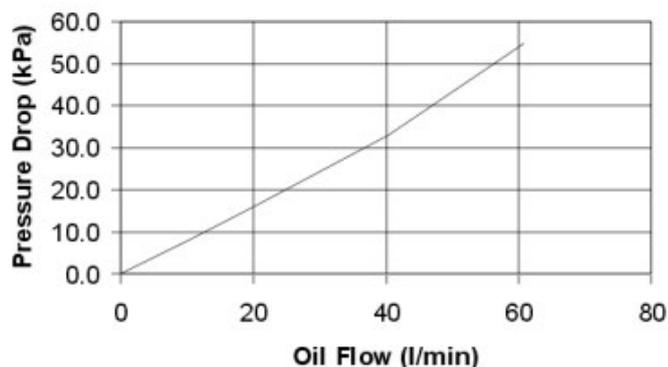
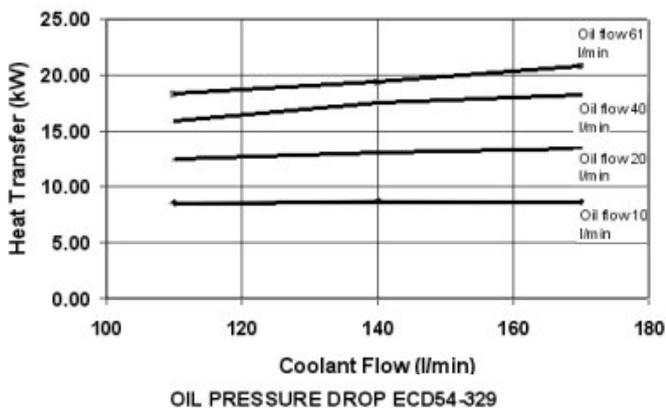


Provides engine oil cooling for more demanding applications. Construction is similar to C43 range except oil outlets are parallel not on opposite sides. Available with twin oil side cores, one fitted inside the other. Heat transfer for the twin core example is almost double the C43-330. Currently available with oil side connections in -8, -10, -12 & -16 SAE 37° (JIC) and waterside to take 28, 32, 35, 38 and 45mm bore hose.

Dimensions (approximate, may vary with fitting size)



ECD54 Twin core Performance graphs



Part No		£	Cat
ECD54-182	248mm overall double core	564.08	40
ECD54-250	316mm overall double core	582.40	40
ECD54-329	395mm overall double core	598.34	40
ECD54SK	Service kit for EC54/ECD54	44.02	40

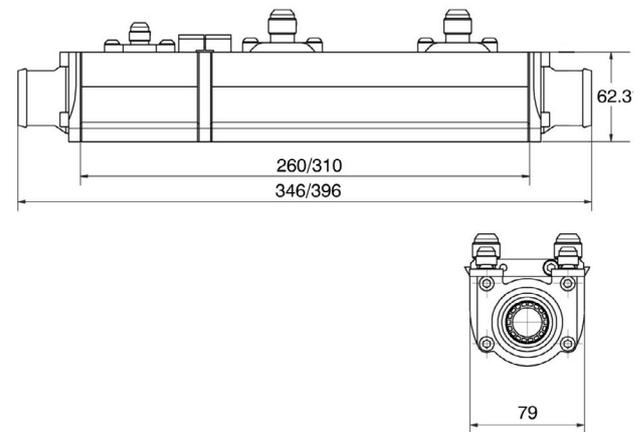
Please select your required oil and water connectors.

ECD54 Engine/transmission Oil Coolers



A combined unit for engine & gearbox or gearbox & differential cooling. Available with Male JIC 6, JIC 8, JIC 10, JIC 12, JIC 16 and female M26x1,5 oil connections. Male 28mm, 32mm, 35mm, 38mm, 45mm and 50mm water connections.

Dimensions



Laminova Coolers: Interpreting the graphs

We show separate heat transfer graphs for each size of cooler. For comparison purposes we have taken similar figures to those used in the pressed plate cooler examples. However we have a different sort of etd (extreme temperature difference), these graphs are based on an etd of 35°C e.g. oil in at 120°C, water in at 85°C.

1. Look up total heat dissipated. Looking at the 330mm cooler at an oil flow of 30 litres/min, assuming a water flow of 150 litres/min we have a heat dissipated of 10 Kw.

2 Calculate Oil temperature out of cooler. This is arrived at by multiplying the heat dissipated by a constant of 39, then divide by the oil flow rate and deduct this from temperature of the oil in to the cooler.

(Example $120 - (10 \times 39 \div 30) = 107^\circ\text{C}$)

Graphs for oil pressure drop are self explanatory, however please note that the oil in the Laminova graph is at 120°C, the oil in the Mocal is at 100°C and therefore thicker, so meaningful comparisons are difficult.

KPa to psi multiply by 0.145
Bar to psi multiply by 14.5

Part No		£	Cat
CETC78/6-M38	Combd cooler -8 & -6JIC Oil M38 Water 346mm	923.27	40
CETC712/8-M32	Combd cooler -12 & -8JIC Oil M32 Water 346mm	923.27	40
CET54378/6-M38	Combd cooler -8 & -6JIC Oil M38 Water 396mm	923.27	40
CET543710/6-M32	Combd cooler -10 & -6JIC Oil M32 Water 396mm	923.27	40

Other connector combinations available on request.

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Engine oil cooler installation kits



Application - In the following pages are various components that we manufacture to enable all types of oil coolers to be fitted to any vehicle. We are able to supply complete installation kits for fitting Mocal® coolers not included in kit to production cars, part numbers for the more popular kits are shown in the separate price list, no vehicle is impossible provided we can find an example to measure, please ask if a model is not listed.

Hose Type - In the kits we use a top quality textile braided elastomer (a type of black rubber) covered hose with factory swaged on BSP fittings, we also offer these hoses with a stainless steel braid covering where enhanced appearance and extra abrasion resistance is required. Hose bore is 1/2", where we feel that oil flow could be restricted we use 5/8".

Oilstats - If a spin off oil filter is used then the kit can incorporate a built in oil stat, if the car has a disposable element filter then the oilstat must be ordered separately and inserted into a suitable section of hose run after installation, where braided covering has been specified then to avoid frayed ends at the oilstat use suitable Proclamps, part no HF-10 for 1/2", HF-12 for 5/8".

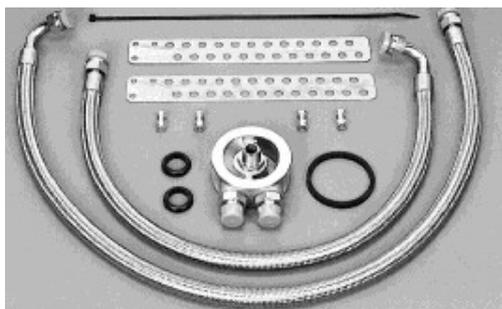
Cooler size - We recommend a 10 row cooler for most cars under 2 litres or a 13 row for larger capacity engines. Kits with * need coolers with 5/8 BSP connections. Kits with (T) may have built in oilstat at £21.63 extra. Price does not include cooler.

Part No		£	Cat
OCI40	Alfa 4 cyl rear drive pre 1972	104.33	20
OCI41	Alfa 4 cyl rear drive post 1972	70.22	20
OCI42	Alfa Alfetta (T)	74.22	20
OCI43	Alfa Alfasud (T)	70.97	20
OCIALF147	Alfa Romeo 147 (T)	69.45	20
OCIALF156	Alfa Romeo 156 (T)	78.93	20
OCI44	Audi 80 (T)	63.02	20
OCI45	BMC Mini/MiniCooper- carburetor	26.61	20
OCI/46	BMC Mini Clubman 1100/1300	33.78	20
OCI53	BMC Healey 100-6/3000	98.41	20
OCI52	BMC Sprite/Midget pre 1974	44.46	20
OCI51	BMC Midget 1500 (T)	89.68	20
OCI58	BMC Metro	32.86	20
OCI54	BMC MGA/B	35.78	20
OCI60	BMW 4cyl post 1963 *(T)	70.89	20
OCI1179	BMW 6cyl pre 2.3ltr *(T)	79.79	20
OCI300	BMW Mini Cooper S - early supercharged model	164.38	20
OCI964	Caterham Super 7 1981-83 (T)	61.12	20
OCI1287	Caterham Super 7 1983 (10x115 cooler)(T)	59.13	20
LOICAT1	Caterham K series see Laminova page 7	32.24	20
OCI151	Chevrolet Camaro V8 *(T)	124.24	20
OCI1000	Chevrolet Corvette *(T)	114.51	20
OCI1829	Colt Shogun *(T)	88.22	20
OCI887	Colt 1200/1300/1400 fwd hatchback (T)	65.47	20
OCI63	Colt 2000 rear wheel drive (T)	72.25	20
OCI2501	Citroen AX (T)	64.82	20
OCI2502	Citroen Saxo VTR/S (T)	72.41	20
OCI68	Datsun 140Z/260Z/240K/260C (T)	78.84	20
OCI71	Fiat 127 (T)	67.19	20
OCI69	Fiat 4cyl rwd (T)	61.81	20
OCI2423	Fiat Uno Turbo (T)	58.45	20
OCI73	Fiat Ritmo/Strada (T)	62.25	20
OCI72	Fiat x-19 (T)	120.36	20
OCI2500	Fiat Tipo (T)	59.79	20
OCI2423	Fiat Uno Turbo	58.45	20
OCI77	Ford Ang/Escl/Ctna pre 1971	60.39	20
OCI76	Ford Capri 2.8i *	94.27	20
OCI78	Ford Escl 1300/1600 ohv post 1971 (T)	63.85	20
OCI1204	Ford Escort Mk3 (T)	67.11	20
OCI74	Ford Fiesta (T)	71.05	20
OCI150	Ford Mustang V8 *(T)	79.26	20
OCI2392	Ford Mondeo- Zetec (T)	88.78	20

OCI75	Ford RS2000 *(T)	80.30	20
OCI76	Ford V4/V6 German eng. *(T)	94.27	20
OCI80	Ford V4/V6 UK eng not pas *(T)	70.86	20
OCI81	Ford V4/V6 UK eng with pas *(T)	79.42	20
OCI2391	Ford Sierra Cosworth *(T)	85.53	20
OCI1283	Ford XR3	70.94	20
OCI82	Honda Civic	80.92	20
OCI83	Honda Accord/Prelude (T)	68.44	20
OCI2421	Honda CRX (T)	79.85	20
OCI2425	Honda Civic V-Tec (T)	72.23	20
OCI2427	Honda Civic Type R 2 Ltr. (T)	64.42	20
OCI86	Lada all models (T)	59.46	20
OCI87	Lancia Beta/Spyder/HPE (T)	57.77	20
OCI89	Lotus Elan post 1971 (T)	64.44	20
OCI91	Lotus 7 post 1971	58.37	20
OCI1037	Lotus Esprit	57.49	20
OCI92	Lotus Europa Ford eng. (T)	69.60	20
OCI93	Lotus Europa Renault eng	97.02	20
LOILOT1S	Lotus Elise except below	135.44	20
OCI998	Mazda 323 (T)	65.47	20
OCI1251	Mazda MX5	73.72	20
OCI1879	Mercedes 190 *(T)	80.10	20
OCI98	MG late TC early TD	34.81	20
OCI99	MG late TD/TF	80.34	20
MGA1	MGA kit has OEM style steel tubes	126.04	20
OCI1205	MG Metro	75.22	20
OCI96	Morgan plus 8 preSD1 engine *(T)	88.96	20
OCI97	Morgan plus 8 with SD1 engine *(T)	66.74	20
OCI94	Morgan 4/4 (T)	66.75	20
OCI95	Morgan plus 4	90.20	20
OCI2436	Nissan Patrol (T)	90.28	20
OCITNIS1	Nissan Skyline in AQP-OT2-RFH use OC5167-10	558.41	20
NOR1R	Nissan Sunny GTiR Top mounted	54.90	20
NOR2R	Nissan Sunny GTiR Front mounted	67.87	20
OCI104	Opel Manta/Ascona before 1981 (T)	74.72	20
OCI1511	Opel Manta post 1981 (T)	73.04	20
OCI1824	Peugeot 106 1.6 Gti (T)	79.63	20
OCI1396	Peugeot 205 not Gti (T)	58.61	20
OCI1828	Peugeot 205 Gti (T)	66.13	20
OCI2594	Peugeot 306 (T)	68.98	20
OCI1540	Porsche 924 (T)	66.68	20
OCI109	Reliant Scimitar 3 ltr *(T)	73.86	20
OCI110	Reliant Scimitar 2.8 ltr *(T)	52.29	20
OCI111	Renault 5 (T)	81.96	20
OCI999	Renault 18 Turbo (T)	60.92	20
OCI2420	Renault Clio (T)	75.92	20
OCI2426	Renault Clio 2.Ltr. 16v	75.92	20
OCI45E	Rover Mini with injection pre 1992	29.99	20
OCI45I	Rover Mini with injection post 1992	43.80	20
OCI118	Rover Range Rover *(T)	87.35	20
OCI119	Rover 3500 SD1*(T)	81.20	20
OCI122	Saab 99 2 ltr (T)	61.88	20
OCI128	Skoda S110 (T)	61.92	20
OCI124	Subaru 1600 (T)	83.60	20
OCI2595	Subaru Impreza RFH kit*	158.82	20
OCI127	Sunbeam Lotus	64.38	20
OCI2435	Suzuki Swift (T)	61.12	20
OCI997	Toyota Corolla RWD(T)	68.19	20
OCI2422	Toyota Corolla FWD (T)	62.02	20
OCI129	Toyota Carina/Celica (T)	66.47	20
OCI1201	Toyota Starlet (T)	60.28	20
OCI130	Triumph Herald/Spitfire (T)	70.36	20
OCI131	Triumph Vitesse/GT6 rhd	90.05	20
OCI132	Triumph TR2/3/4a	89.77	20
OCI133	Triumph 2000/2.5 PI	101.24	20
OCI134	Triumph TR5/6	81.26	20
OCI135	Triumph GT6 lhd	115.33	20
OCI136	Triumph Dolomite	84.65	20
OCI137	Triumph TR7	90.84	20
OCI1230	Triumph TR5/6 spin off	115.55	20
OCI1382	Vauxhall Astra 1800 & GTE	73.93	20
OCI138	Vauxhall Chvt/Viva/Frza ohv	66.55	20
OCI141	Vauxhall Chvt/Vva/Frza.Mgm ohc (T)	62.38	20
OCI142	Vauxhall Cavalier pre 1981 (T)	64.09	20
OCI1511	Vauxhall Cavalier post 1981 (T)	73.04	20
OCI146	Volkswagen Beetle	63.74	20
OCI147	Volkswagen Beetle kit with remote filter	125.53	20
OCI148	Volkswagen Golf (T)	63.35	20
OCI149	Volkswagen Scirocco (T)	56.80	20
OCI1490	Volkswagen Corrado V6	96.88	20
OCIVWG40	Volkswagen Polo G40 (T)	68.61	20
OCI143	Volvo 4cyl not 66/343 (T)	69.70	20
OCI144	Volvo 6 cyl	83.01	20

Other kits are available or can be made to your specification.

Oil cooler installation kits with stainless braid hoses

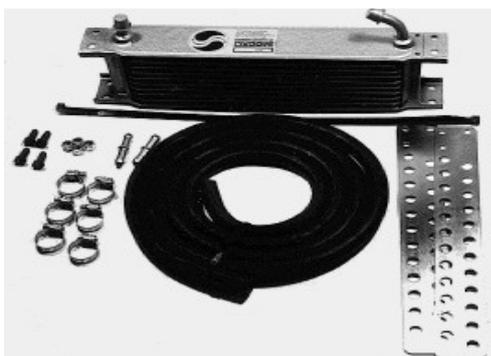


As before but with stainless steel braided hoses.

Part No		£	Cat
OCI1180	Audi 80 (T)	104.42	20
OCI265	BMC MGA/B	64.94	20
OCI263	BMC Mini/MiniCooper	32.67	20
OCI264	BMC Mini Clubman	42.49	20
OCI1355	BMC Sprite/Midget pre 74	77.57	20
OCI1356	BMC Midget 1500 (T)	113.69	20
OCI266	BMW 4cyl * (T)	89.73	20
OCI2423S	Fiat Uno turbo (T)	68.21	20
OCI271	Ford Ctna Esc post 71 (T)	92.26	20
OCI1204S	Ford Escort Mk3 (T)	96.01	20
OCI272	Ford Capri V6 * (T)	99.20	20
OCI269	Ford Fiesta (T)	108.10	20
OCI270	Ford RS2000 * (T)	98.46	20
OCI2391S	Ford Sierra Cosworth(T)	114.14	20
OCILOT1S	Lotus Elise (T)	77.12	20
OCI1250S	Mazda MX5 (T)	135.45	20
OCI273	Morgan Plus 8 * (T)	79.72	20
OCI2417s	Renault 5 GT turbo	99.20	20
OCI274	Rover Range Rover * (T)	107.13	20
OCI263E	Rover Mini with injection pre 1992	43.75	20
OCI263I	Rover Mini with injection post 1992	51.53	20
OCI1393	Triumph TR2/3/4a	104.59	20
OCI1394	Triumph TR5/6	102.02	20
OCI1395	Triumph Herald/Sprite (T)	84.46	20
OCI276	Triumph TR7 (T)	105.90	20
OCI277	Vauxhall Chevette (T)	79.81	20
OCI278	VolkswagenGolf (T)	73.96	20
OCI279	Volkswagen Scirocco (T)	77.41	20
OCI280	Volvo 4cyl (T)	103.03	20

Other kits are available or can be made to your specification.

Automatic transmission



Automatic transmission oil cooler kits are designed for fitting an oil cooler behind the front grille usually in front of the water radiator, brackets are provided to enable the use of the water radiator mounting bolts to secure the cooler. Kits come complete with a cooler, textile braided hose plus all the necessary clamps, nuts, bolts etc.

Part No		£	Cat
AT/2D	supplementary to existing cooler 5/16in hoses	124.53	20
AT/2	supplementary to existing cooler 3/8in hoses	106.40	20
AT/2C	supp. to existing cooler 1/2in hoses for BMW	118.73	20
AT/6	for FX 44 Taxi cab	130.80	20
AT/7	for Borg Warner 35/65 with loop pipe	144.22	20
AT/8	for Volvo 240	115.90	20
OT/1BHT	95°C oilstat- option on all kits	46.90	20

Oilstats.

Usage. [See page 7](#). The bodies of the remote mounted oilstats are machined die cast aluminium. Temperature is controlled by a wax filled element a mass produced unit, subject to the most stringent quality controls. Opening is 80°C specials are available

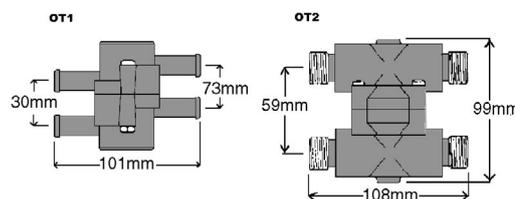
The remote oilstats are light enough for the hoses to support them without sagging, however a bracket is supplied with the slightly heavier OT/2 if further restraint is required. The OT/1 is supplied with push on fittings for 3/8" or 1/2 bore hose only. The OT/2 can be supplied with any form of push on or threaded connection, male or female.



The oilstats should only be used where oil cooling is adequate, the wax element will suffer permanent damage above 140°C, replacements are available.

Built in oilstats in oil cooler take off plates are available for any spin on filter engine, they add nothing to the thickness of the plate, for application lists [see page 19](#).

Dimensions



Part No		£	Cat
OT/1	Oilstat 1/2in push on	38.88	20
OT/1-92	Oilstat 1/2 push-on with 92-104 element	39.37	20
OT/1B	Oilstat 3/8in push on	45.94	20
OT/2	Oilstat 5/8in push on	94.64	20
OT/2A	Oilstat 1/2 BSP female	106.42	20
OT/2B	Oilstat 1/2 NPTF female	94.64	20
OT/2C	Oilstat 1/2 BSP male	96.01	20
OT/2D	Oilstat 5/8 BSP male	98.75	20
OT/2E	Oilstat 3/4 BSP male	96.76	20
OT/2F	Oilstat -8JIC male	98.75	20
OT/2G	Oilstat -10JIC male	96.40	20
OT/2H	Oilstat -12JIC male	99.14	20
OT/2J	Oilstat -16JIC male	99.40	20
OT/2M	Oilstat M22 female	106.19	20
OT/2K	Oilstat 3/4 push on	100.50	20
OT/2SK	OT2 Oilstat service kit with	11.76	20
OT/2SK92	OT2 Oilstat service kit with 92° element	13.76	20
OTGM7-8	Oilstat GM LS engines -8JIC (type H) see p.22	128.41	20
OTGM7-10	Oilstat GM LS engines -10JIC (type H)	128.41	20
OTGM7-12	Oilstat GM LS engines -12JIC (type H)	128.41	20

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Oil cooler take-offs

Any engine fitted with a full flow oil filter may use an attachment to take an oil cooler. This is achieved in various ways.

Type A A sandwich plate fitted between filter head and filter bowl. If there is insufficient room to accommodate the sandwich plate, there is a large range of shorter or narrower filter cartridges available, we can advise. Most vehicles use a spin on oil filter cartridge, our SP1 range fits these, accommodating the minor variations in sealing ring diameter and by use of differently threaded centre bolts (extension screws).

SP1 range (Type A)



OTSP1HF (Type A)



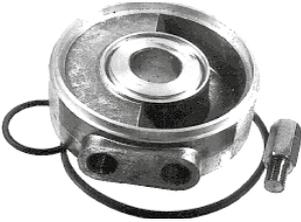
TGASP1



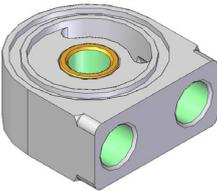
SPA1 (spacer for Toyota/Subaru engine)



SP6 (Type A)



SP100 (Type A)

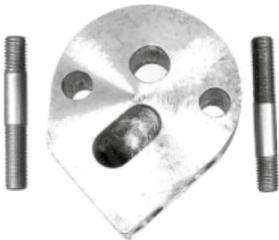


Variations of the SP1 are the OTSP1 with built in thermostatic control the TGASP1 with a tapping for temperature gauge, the SP100 made from billet which fits the Japanese micro filter and the OTSP1HF a thermostatic plate which although bulkier and more expensive offers minimum flow obstruction.

A spacer SPA1 plus longer extension screws is available, it is useful on certain applications. E.g. 1600cc Mk1 Mazda MX-5 or the new Toyota GT86.

Type B A sandwich plate between the filter assembly and cylinder block.

SP14 (Type B)



SP15 (Type B)



SP9 (Type B)



Type C In the case of BMC A and B series engines an external oil pipe may be removed and replaced with hoses running to and from the oil cooler. A series have 1/4 NPTF & 5/8 UNF use HEM8-4-8 & HEM1-7-8 hose ends or suitable adapters. B series have 1/2BSP threads, use suitable adapters. (not illustrated)

Type D For the 6 Cylinder Triumph engines where there is not enough room to fit a Type A plate we provide an adapter turning the filter through 90°C, For convenience this takes a spin on oil filter.

FH3 (Type D)



Type F For BMW Mini engines, plate replaces existing oil/water heat exchanger to allow remote mounting of larger oil cooler.

TOP3 (Type F)



TOP17 (Type F)



Type G The Volkswagen Beetle and Porsche derivatives have an oil cooler fitted to the engine as standard, this will be insufficient for modified engines and also blocks the air flow to number 4 cylinder. We provide an adapter to fit in place of the existing cooler with 3/8NPTF connections to cooler. Consideration may be given to fitting a remote oil filter in the cooler circuit, the original engine having no filter, we advise fitting a part number 500 valve in place of the original combined oil pressure relief and cooler bypass valve, this ensures oil flow through the filter at all times. An oilstat can be used to control flow to the cooler.

TOP27 (Type G)



Type H Some engines have a cover plate, which may be removed and replaced with a special take off.

TOP7 (Type H)

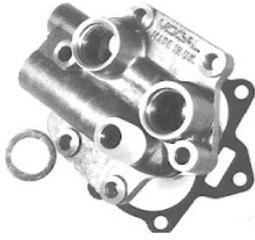


OTGM (Type H)



Type I For the Rover, Buick, Oldsmobile, V8 where space can be very limited we can supply a replacement oil pump cover with outlets for a remote filter plus oil cooler if required.

PC1 (Type I)



Type J On vehicles with spin on filters where there is insufficient room to fit a sandwich plate and cartridge, even with the shortest cartridge, use a take off plate with connections to a remote filter in place of existing filter. Top take off, will require a minimum of 4.5" clearance including hose fittings and adapters.

Top Take off TOP1 & B/C/D/F/G (Type J)



TOP8. (Type J) For BMC A series, made from billet spin on filter, made from billet. (not illustrated).

TOP16 & TOP16A (Type J) For Chevrolets, have top ports (not illustrated).

Type K On vehicles where there is insufficient room to fit a sandwich plate and cartridge even with the shortest cartridge and where Type J is not suitable, use a sandwich plate with a top cover Can be turned to face any direction.

TOP16E Chevrolet (Type K) Side Take off TOP01 & C/D/F (Type K)



TOP06 (Type K) For Triumphs TOP26 for BMWs, sideport (not illustrated)

Type L Plate that fits in place of existing filter assembly, use with a remote filter. For 4cyl. BMWs as in 318 with disposable filter. Also for the Rover K series and Nissan SR20.

TOP9 (Type L)

TOP2N (Type L)



TOP19 (Type L)



Type M Plate that converts existing filter to a spin off. Then use a SP1 for oil cooler connection.

OTSP1



Type N Converts existing connections to a more common thread allowing fitment of an alternative or large oil cooler.

OCT017-10

OCT017-12



Oil cooler take off kit for BMW

Designed to enable you to replace the standard oil cooler "hard lines" which can cause fitment issues for cars with superchargers, Accusumps or aftermarket oil coolers. Supplied in either -10JIC or -12JIC fittings with mounting bracket, O-rings, bolt and washer enabling use of -10 or -12 flexible piping.

Type P Replaces the top of the filter housing to enable pipes to be taken off.

OCTBMW2 (Type P)

OCTBMW1 (Type P)



Fitting chart

Make	Model	Sandwich type	A-E	Take off type	F-P
Alfa Romeo	All 4 cylinder models	SP14	B		
	All 4 cylinder models after 1972	SP1		TOP1/01	JK
Audi	All models	SP1	A	TOP1/01	JK
Austin Healey	Sprite	M/M	C		
	All 6 cylinder models	SP15	A		
BMC	All models with spin on filter	M/M	C		
BMW	All models with spin on filter	SP1	A	TOP1/01	JK
	New Mini Cooper S early supercharged			TOP3	F
	New Mini 2nd generation with R56 eng			TOP17	F
	318 models 2000-2004			TOP9	I
	M3, E46, 335i, E90/92/93			OCT017-10/12	
	M52 and M54			OCTBMW1	P
	M50,S50, S52 and S54			OCTBMW2	P
Buick	All models 1959 to 1977	SP1C	A	TOP1C/01C	JK
	All models 1978 on	SP1D	A	TOP1C/01D	JK
Cadillac	V6 all models 1960 on	SP1C	A	TOP1X/01C	JK
	With GM LS engine			OTGM	H
Chevrolet	All V8 models with spin on filter	SP16	A	TOP16C TOP16E	J K
	All models 1978 on except LS engines	SP1D	A	TOP1D/01D	JK
	Camaro, Corvette with LS engine			OTGM	H
Chrysler US	All models 1959 on	SP1	A	TOP1/01	JK
Chrysler GB	All models	SP1	A	TOP1/01	JK
Citroen	Saxo	SP1F	A	TOP1F/01F	JK
Datsun/Nissan	All models*	SP1*	A	TOP1/01	JK
Fiat	All models	SP1	A	TOP1/01	JK
Ford GB	Anglia 105E, Cortina & Escort 1970 on	SP1	A	TOP1/01	JK
	Above but pre October 1970	SP3	A		
	V4 and V6 models	SP1	A	TOP1/01	JK
Ford Germany	All models 1962 on	SP1	A	TOP1/01	JK
Ford USA	All models 1959 on	SP1	A	TOP1/01	JK
Holden	With GM LS engine			OTGM	H
Honda	Accord, CRX, Prelude	SP1F	A		
Jaguar	MK2, 240, 340, XK150	SP10	A		
	All 6 cylinder models with spin on			TOP10	J
Lotus	All models pre 1971	SP3	A		
	Eclat, Elan to 75, Esprit, Europa, Excel	SP1	A	TOP1/01	JK
	Elan 1989-1995	SP1F	A	TOP1F/01F	JK
	Exige, Elise	SP1C	A	TOP1C/01C	JK
	Europa s 2006 on	SP1D	A	TOP1D/01D	JK
MG	Late TD/TF	SP24	A		
	Midget 1500	SP1A	A	TOP1A/01A	JK
	MGA, MGB	M/M	C		
	MGF, TF 2002 on, R, S, Z, T with spin on	SP1C	A	TOP1C/01C	JK
	MG RV8	SP1	A	TOP1/01	JK
Mazda	All models	SP1F*	A	TOP1F/01F	JK
Mitsubishi	All models	SP1F*	A	TOP1F/01F	JK
Morgan	Plus 4 with Triumph engine	SP9	B		
	Plus 4 with Triumph engine	SP13	A		
	See explanation under Triumph				
	Plus 4 with Ford or Fiat engine	SP1	A	TOP1/01	JK
	Plus 4 with Rover 2 litre engine	SP1C	A	TOP1C/01C	JK
	4/4, Roadster, Plus 8 but not BMW	SP1	A	TOP1/01	JK

Nissan	Sylvia SR20			TOP19	L
Oldsmobile	All models 1960 on except V6 1978 on	SP1C	A	TOP1C/01C	JK
	V6 models 1978 on	SP1D	A	TOP1D/01D	JK
Opel	All models except 1.6/1.8 after 1981	SP1	A	TOP1/01	JK
	1.6 and 1.8 engines after 1981	SP1D	A	TOP1D/01D	JK
Peugeot	204/5 & 304/5 up to 1975 except Diesel	SP1D	A	TOP1D/01D	JK
	204/5 & 304/5 1975 on	SP1F	A	TOP1F/01F	JK
Pontiac	All models 1968 to 1978	SP1C	A	TOP1C/01C	JK
	All models 1978 on except LS engines	SP1D	A	TOP1D/01D	JK
	Firebirds with LS engines			OTGM	H
Reliant	V6 models	SP1	A	TOP1/01	JK
Renault	All models up to June 1984	SP1	A	TOP1/01	JK
	Most models after June 1984	SP1F	A	TOP1/01	JK
	GTE turbo with donut oil cooler	SP1J	A	TOP1J/01J	JK
Rover	2000, 3500 & all modes with SD1 engine	SP1	A	TOP1/01	JK
	3500 with pre SD1 engine	SP1C	A	TOP1C/01C	JK
	The PC1 is a replacement pump cover with oil outlets, can be fitted to all V8 Rover engines and used with a remote filter			PC1	I
	Land Rover 4 cylinder	SP11	B		
	214, 220, 414i, 420 K series, 820	SP1C	A	TOP1C	JK
	216 to 1990	SP1	A	TOP1/01	JK
	216 1990 on Honda engine, 218, 416, 418, 600	SP1F	A	TOP1F/01F	JK
	All K series engines	SP1CA		TOP2N	L
Saab	All models with spin on filter	SP1	A	TOP1/01	JK
Seat	Most models but ask if fitted with heat exchanger, might need extra extension bolt	SP1	A	TOP1/01	JK
Smart	All models but use FC8471 to convert to spin on filter	SP1	A	TOP1/01	JK
Studebaker	All Avanti 1962 on	SP1C	A	TOP1/01	JK
Subaru	Leone and 1800*	SP1*	A	TOP1/01	JK
	All other models, Impreza, Forester etc.*	SP1F	A	TOP1F/01F	JK
	Except for BRZ use SP with SPA1 spacer	SP1F-25			
Toyota	All models*	SP1	A	TOP1/01	JK
	Except for GT86 use SP with SPA1 spacer	SP1F-25			
Triumph	Spitfire, Herald	SP1A	A	TOP1/01	JK
	TR5, TR6, r.h.d. GT6 and Vitesse	SP6	A	TOP06	J
	TR2/3/4/4a	SP9	B		
	TR2/3/4/4a	SP13			
	With SP9 the oil cooler is upstream of the oil pressure valve, damage has occurred during high RPM cold starts. The SP13 avoids this problem but does not suit all applications.				
	2000, 2.5Pi, left hand drive GT6	FH3	D		
	TR7, Dolomite			TOP7	H
	Stag			TOP7B	H
Vauxhall	Early 4 cylinder engines pre spin on filter	SP4	D		
	Most engines with spin on filter pre 1981	SP1	A	TOP1/01	JK
	Most engines with spin on filter post 1981	SP1D	A	TOP1D/01D	JK
	Models with GM LS engine			OTGM	H
Volkswagen	Beetles without oil filter			TOP27	G
	Most models inc. Beetle with oil filter but might need special extension bolt if fitted with heat exchanger	SP1	A	TOP1/01	JK
Volvo	All models with spin on filter	SP1	A	TOP1/01	JK

* Japanese cars. Problems may occur when using original equipment filters with a raised lip either fit appropriate SP100 or use aftermarket filters.

Take off plates are sold with all screw(s),bolts and sealing ring(s) and gasket.

Take off plates

Part No		£	Cat
FH3	Tapped 1/2 BSP	79.69	30
PC1	Tapped 1/2 BSP	113.69	30
SP1	For spin-on 3/4UNF filter- tapped1/2 BSP	29.34	30
SP1M18	As above but tapped M18x1.5	32.02	30
SP1A	For spin-on 5/8UNF male filter- tapped 1/2BSP	37.33	30
SP1B	For spin-on M16 filter- tapped 1/2BSP	33.94	30
SP1BM18	As above but tapped M18x1.5	33.94	30
SP1C	For spin-on 13/16UNF filter- tapped 1/2BSP	32.37	30
SP1CM18	As above but tapped M18x1.5	32.37	30
SP1D	For spin-on M18 filter- tapped 1/2BSP	29.85	30
SP1DM18	As above but tapped M18x1.5	29.85	30
SP1E	For spin-on 5/8UNF filter- tapped 1/2BSP	39.13	30
SP1EM18	As SP1E but tapped M18x1.5	39.13	30
SP1F	For spin-on M20 filter- tapped 1/2BSP	30.52	30
SP1F-25	An SP1F with SPA1 25mm spacer	73.34	30
SP1FM18	As SP1F but tapped M18x1.5	30.52	30
SP1G	For spin-on M22 filter- tapped 1/2BSP	52.31	30
SP1GM18	As above but tapped M18x1.5	54.39	30
SP100	Smaller than SP1 Tapped 1/2BSP - from billet	77.60	30
SP100F	As SP100 for M20 Tapped 1/2BSP - from billet	77.60	30
SP100G	As SP100 for M22 Tapped 1/2BSP - from billet	77.60	30
SP3	For pre 1970 Ford - Tapped 3/8 BSP	26.80	30
SP4	Early 4cyl. Vauxhall pre spi-on Tapped 5/8 UNF	26.80	30
SP5	Honda 4cyl bike- tapped 3/8BSP	27.13	30
SP6	Triumph 6 cylinder engines Tapped 3/8BSP	39.70	30
SP7	late MG TD/TF - Tapped 3/8BSP	35.51	30
SP9	Triumph TR2/3/4/4a - Tapped 3/8BSP	52.59	30
SP10	Jaguar Mk2, 240, 340, XK150 - Tapped 3/8BSP	27.45	30
SP11	Land Rover 4cylinder - Tapped 3/8BSP	61.61	30
SP12	Tapped 5/8UNF	29.88	30
SP13	Triumph TR2/3/4/4a - Tapped 3/8BSP	32.01	30
SP14	Alfa Romeo 4cyl. Pre 1972 - Tapped 3/8BSP	75.90	30
SP15	Austin Healey 6 cylinder - Tapped 1/2BSP	63.62	30
SP16	Chevy V8 with spin on filter - Tapped 1/2BSP	72.96	30
SP24	MG late TD/TF - Tapped 3/8 BSP	35.51	30
SP31	Jaguar 6cyl. Billet pre filter head-Tapped 1/2BSP	122.00	30
TOP3	BMW Mini early supercharged - Tapped M20 x 1.5	100.69	30
TOP17	BMW Mini 2 nd gen. R56 engine - Tapped M20x1.5	92.07	30
TOP7	Triumph TR7/Dolomite Has 1/2BSP male adptrs	55.37	30
TOPO1	For 3/4UNF male spigot - tapped 1/2BSP	51.25	30
TOPO1C	For 13/16UNF male spigot - tapped 1/2BSP	51.25	30
TOPO1D	For M18x1.5 male spigot - tapped 1/2BSP	51.25	30
TOPO1F	For M20x1.5 male spigot - tapped 1/2BSP	51.25	30
TOP1	For 3/4UNF male spigot - tapped 1/2BSP	23.44	30
TOP1A	For 5/8UNF female filter port- tapped 1/2BSP	51.42	30
TOP1B	For M16 male spigot - tapped 1/2BSP	20.31	30
TOP1C	For 13/16UNF male spigot - tapped 1/2BSP	23.44	30
TOP1D	For 18mm male spigot - tapped 1/2BSP	22.43	30
TOP1F	For 20mm male spigot - tapped 1/2BSP	23.44	30
TOP1G	For 22mm male spigot - tapped 1/2BSP	42.83	30
TOPO6	For Triumph 6 cyl -tapped 1/2BSP	51.25	30
TOP8	For BMC A series tapped single 1/2BSP port	26.80	30
TOP9	for BMW 4CYL 318 - Tapped M22X1.5	85.96	30
TOP2N	For Rover K series- 1/2BSP ports	82.58	30
TOP10	spin on type for Jaguar 6 cyl- 1/2BSP top ports	75.54	30
TOP16A	spin on type for Chevrolet V8 -1/2BSP top ports	55.40	30
TOP16A	bolt on type for Chevrolet V8 -1/2NPTF top ports	55.40	30
TOP27	VW Beetle-replaces cooler- tapped 3/8NPTF	26.19	30
500	VW Beetle-valve	4.79	30
PC1	Rover V8 oil pump cover 1/2BSP top ports	113.69	30
TOP16E	Chevrolet	153.82	30
TOP19	For Nissan	67.50	30
Take off plates with built in Thermostat			
OTSP1	As SP1 but with built in oilstat	52.03	30
OTSP1M18	As above but tapped M18	54.63	30
OTSP1HF	As OTSP1 but high flow version tapped M22x1.5	75.70	30
OTSP1C	As SP1C but with built in oilstat	54.83	30
OTSP1CM18	As above but tapped M18	54.63	30
OTSP1CHF	As OTSP1C but high flow version tapped M22x1.5	78.63	30
OTSP1D	As SP1D with built in oilstat	53.41	30
OTSP1DHF	As OTSP1D but high flow version tapped M22x1.5	58.12	30
OTSP1F	As SP1F with built in oilstat	53.21	30
OTSP1F-25	OTSP1F with SPA1 25mm spacer	95.57	30
OTSP1FHF	As OTSP1F but high flow version tapped M22x1.5	76.89	30
OTSP1G	As SP1G with built in oilstat	63.30	30
OTSP1GHF	As OTSP1G but high flow version tapped M22x1.5	80.14	30
OTSP16HF	As OTSP1C but with spacer to fit Chevy V8	114.41	30
OCTBMW1	BMW Cooler Take off Eng M54	298.59	30
OCTBMW2	BMW Cooler Take Off E30/E46 M3	124.16	30
OCTO17-10	Oil Cooler Take Off kit for BMW in -10JIC	41.60	30
OCTO17-12	Oil Cooler Take Off kit for BMW in -12JIC	41.60	30

Take off plates with temperature gauge/oil pressure gauge tapping.



TGASP	As SP1 with 5/8UNF tapping for temp gauge	40.77	20
TGASP1	As SP1 with 3/8BSP tapping for temp gauge	40.77	20
TGASP1/8NPTF	As SP1 with 1/8NPTF tapping for temp gauge	40.77	20
TGASPM14	As SP1 with with M14 tapping for temp gauge	40.77	20
TGASPM16	As SP1 but with M16 tapping for temp gauge	40.77	20
TGASPM18	As SP1 but with M18 tapping for temp gauge	40.77	20

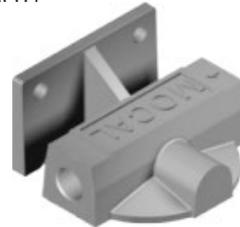
Remote Filter Heads

Function. To relocate the oil filter, when required due to lack of room, brought about by engine changes, installation in kit cars, fitting an oil cooler or in a dry sump system. They are usually used in conjunction with a take off plate which is screwed on in place of the original filter.

Construction. Die cast aluminium

Application. Flows listed are for filters as illustrated (note that oil always flows into the outside of the filter and exits up the middle). Filter heads can be mounted in any attitude, but we suggest when choosing an oil filter that is to be fitted in other than an upright, filter below, position, it should have an anti-drain valve. No provision is made in the head for filter relief valves, these are available in the filter and used if regular changing cannot be relied upon and/or if the engine is likely to be revved from cold.

RFH1



RFH2



RFH1 takes filter with 3/4UNF thread. A compact design which will require a spacer if a filter larger than 80mm diameter is mounted against a flat surface. Provision can be made to take a capillary type temperature gauge sender or pressure gauge tapping. Available in either flow direction. Has 1/2BSP female ports

RFH2 takes filter with 3/4UNF thread, has 1/2BSP ports. RFH2G takes 1"UNF and has 3/4BSP ports. Both 80 & 98mm diameter filters can be accommodated. Bosses are provided which may be tapped to provide for pressure gauge, oil feed take offs, etc. Left to right flow only

RFH3



RFH4



RFH3 takes filter with 3/4UNF thread. Left entry RFH3A has 1/2BSP ports, Right entry RFH3B has 1/2NPTF. 80 & 98mm diameter filters can be accommodated. RFH3A has bosses that may be tapped for pressure/temperature take offs.

RFH4 takes filter with 3/4 UNF thread, has top entry 1/2 NPTF ports

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

RFH5



RFH5 takes 2 filters in parallel with 3/4UNF thread, feed and return from either side, 1/2NPTF ports blanking plugs included.

RFH6



RFH6 takes filter with 3/4UNF thread, feed and return from either side, 1/2NPTF ports blanking plugs included.

RFH7



Takes unique Chevrolet filter, big and small block V8s to 1978. 13/16UNF thread and 4" diameter. Left hand in and either top or right hand out, tapped 1/2NPTF. Spare port can be temp or pressure take off

Part No		£	Cat
RFH1G	flows L to R with 3/8BSP temp take off	37.91	30
RFH1H	flows R to L with 3/8BSP temp take off	37.91	30
RFH1A	flows L to R with 5/8 UNF temp take off	37.91	30
RFH1B	flows R to L with 5/8 UNF temp take off	37.91	30
RFH1C	flows L to R with M14 temp take off	37.91	30
RFH1D	flows R to L with M14 temp take off	37.91	30
RFH1E	flows L to R with no temp take off	32.30	30
RFH1F	flows R to L with no temp take off	32.30	30
RFH2E	flows L to R no take off 3/4UNF with 1/2BSP ports	32.30	30
RFH2G	flows L to R no take off 1"UNF with 3/4BSP ports	37.91	30
RFH3A	flows left hand in/out no take off	32.76	30
RFH3B	flows right hand in/out no take off	36.11	30
RFH4	flows top in/out no temp take off	31.51	30
RFH5	double filter- flows either way	83.21	30
RFH6	flows either way	51.14	30
MFS9-3-7	Oil pressure take off for RFH1A/B	4.28	50

XRP in-line engine oil filters



A modular range of in-line oil filter assemblies consisting of a choice of: Filter body in two sizes, order with spring. Part No 704302.



Filter elements in 4 degrees of filtration, can also be supplied with pressure relief valve to ensure flow if filter blockage occurs.



Endcaps plus O rings with SAE 37°/JIC/AN or metric connections can also be supplied with extra 7/8UNF tapping and 5/8UNF adapter to take most temperature gauges.



Joiners plus O rings to connect filter bodies in series.



Mounting brackets to tube or sheet metal.



Complete remote oil filter kits

Function. These kits comprising take off or pump cover, remote filter head, adapters and hoses are available for the popular Land Rover/ V8 conversion.

Part No		£	Cat
RFK1	Land Rover with pre SDI V8 - Side take off	104.87	20
RFK2	Land Rover with SDI V8 -Side take off	115.56	20
RFK3	Land Rover with pre SDI V8 -Top take off	73.63	20
RFK4	Land Rover with SDI V8 -Top take off	88.72	20
RFK5	Land Rover with V8 PC1-Pump cover	210.21	20

In line filters made from billet aluminium with black anodising, the filter elements are made up of a plain Dutch weave filter cloth from 304 stainless steel.

The plain Dutch weave provides high flow rates with good filtration properties. As it is mainly surface filtration these filters may be cleaned by back flowing with a suitable solvent or using ultrasound methods, however it may not be possible to remove deeply embedded particles. Testing with flows up to 100litres/ min have shown no measurable pressure drops with filters in their uncontaminated state.

These filters are designed for racing applications where regular inspection between races will take place but for total security a pressure relief valve may be incorporated in the filter, alternatively end caps and joiners with ports for a pressure differential gauge and or warning light are available.

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Two bodies may be screwed together to extend the filter life between cleaning or replacement. A coarse filter initially then a finer filter will prove effective.

Part No		£	Cat
713000	71 Series Body 2.47 dia.	30.76	70
713000S	71 Series Short Body 2.47 dia.	28.41	70
704302	In-line Body Spring	1.56	70
713045	45 Micron element	53.32	70
713060	60 Micron element	53.32	70
713075	75 Micron element	53.32	70
713100	100 Micron element	53.32	70
713045S	Short 45 Micron element	53.32	70
713060S	Short 60 Micron element	53.32	70
713075S	Short 75 Micron element	53.32	70
713100S	Short 100 Micron element	53.32	70
713045RV	45 Micron element with Relief Valve	71.16	70
713060RV	60 Micron element with Relief Valve	71.16	70
713075RV	75 Micron element with Relief Valve	71.16	70
713100RV	100 Micron element with Relief Valve	71.16	70
713045SRV	Short 45 Micron element with Relief Valve	71.16	70
713060SRV	Short 60 Micron element with Relief Valve	71.16	70
713075SRV	Short 75 Micron element with Relief Valve	71.16	70
713100SRV	Short 100 Micron element with Relief Valve	71.16	70
713108AN	08 AN End Cap-In	33.16	70
713106AN	06 AN End Cap-In	33.16	70
713110AN	10 AN End Cap-In	33.16	70
713112AN	12 AN End Cap-In	33.16	70
713206AN	06 AN End Cap-Out	39.81	70
713208AN	08 AN End Cap-Out	35.87	70
713210AN	10 AN End Cap-Out	35.87	70
713212AN	12 AN End Cap-Out	35.87	70
713206ANPD	06 AN End Cap-Out with Diff Press take-offs	51.12	70
713208ANPD	08 AN End Cap-Out with Diff Press take-offs	51.12	70
713210ANPD	10 AN End Cap-Out with Diff Press take-offs	51.12	70
713212ANPD	12 AN End Cap-Out with Diff Press take-offs	51.12	70
713210ANAP	10 AN End Cap- In with Accessory Port	69.13	70
713212ANAP	12 AN End Cap- In with Accessory Port	69.13	70
981410TP	5/8 Temperature probe adapter	10.36	70
717002	Filter stacking adapter	47.79	70
717003	Filter stacking adapter with Press Diff t/o	49.21	70

Billet Aluminium Filter Housings



Billet aluminium bodies in two lengths 4.25" & 6.25" overall x 3" width with threads to fit all popular engines, see chart page 20, to take CM's synthetic fibre 8 micron filter(road) or stainless steel 40micron filter (race). Cleaning of steel filters as XRP.

Part No		£	Cat
BAF1	4.25 Filter body 3/4UNF	91.05	70
BAF2	6.25 Filter body 3/4UNF	91.05	70
BAF1C	4.25 Filter body 13/16UNF	91.05	70
BAF2C	6.25 Filter body 13/16UNF	91.05	70
BAF1D	4.25 Filter body M18x1.5	91.05	70
BAF2D	6.25 Filter body M18x1.5	91.05	70
BAF1F	4.25 Filter body M20x1.5	91.05	70
BAF2F	6.25 Filter body M20x1.5	91.05	70
BAF1H	4.25 Filter body 1UNF	95.44	70
BAF2H	6.25 Filter body 1UNF	95.44	70
BAFMF	2.6 Fibre filter Element for 4.25 body	13.16	70
BAFELF	4.6 Fibre filter Element for 6.25 body	13.16	70
BAFMS	2.6 steel filter Element for 4.25 body	13.16	70
BAFELS	4.6 steel filter Element for 6.25 body	13.16	70

Temperature gauge adapters. In hose line



A range of adapters to take all types of capillary gauge, they are designed to be fitted into oil or water hoses. Oil hose adapters are 2 part aluminium die castings with an O ring seal. Hose connections are male push on, JIC, BSP or female NPTF. Water hose adapters are machined from billet and blue anodised. Also see page 21 "Take off plates with temperature gauge tappings"

Prefix	Tapping	Makes of gauge	Price
TGA4	3/8 BSP	Mocal, Racetech, Smiths competition	See below
TGA2	5/8 UNF	Caberbont, other UK, USA, Japan	As TGA4
TGA3	M14 x 1.5	European	As TGA4
TGA5	1/4 BSPT	DC water pumps and fans	£25.03

Part No		£	Cat
TGA21	5/8 UNF x 3/8 push on	27.34	20
TGA2A	5/8 UNF x 1/2 push on	27.34	20
TGA2B	5/8 UNF x 5/8 push on	47.12	20
TGA2C	5/8 UNF x 1/2BSP male	46.83	20
TGA2D	5/8 UNF x 1/2BSP female	44.30	20
TGA2E	5/8 UNF x 1/2NPTF female	41.25	20
TGA2F	5/8 UNF x 5/8BSP male	47.98	20
TGA2G	5/8 UNF x 3/4BSP male	41.25	20
TGA2H	5/8 UNF x -8JIC male	44.02	20
TGA2I	5/8 UNF x -10JIC male	44.81	20
TGA2J	5/8 UNF x -12JIC male	45.38	20
TGA2K	5/8 UNF x -16JIC male	41.25	20
TGA2M	5/8 UNF x 32mm male (water)	27.55	20
TGA2N	5/8 UNF x 35mm male (water)	27.55	20
TGA2O	5/8 UNF x 38mm (water)	27.55	20
TGA31	M14x1.5 x 3/8 push on	27.34	20
TGA3A	M14x1.5 x 1/2 push on	27.34	20
TGA3B	M14x1.5 x 5/8 push on	49.82	20
TGA3C	M14x1.5 x 1/2BSP male	49.76	20
TGA3D	M14x1.5 x 1/2BSP female	46.83	20
TGA3E	M14x1.5 x 1/2NPTF female	41.25	20
TGA3F	M14x1.5 x 5/8BSP male	48.34	20
TGA3G	M14x1.5 x 3/4BSP male	41.25	20
TGA3H	M14x1.5 x -8JIC male	43.71	20
TGA3I	M14x1.5 x -10JIC male	44.81	20
TGA3J	M14x1.5 x -12JIC male	47.66	20
TGA3K	M14x1.5 x -16JIC male	41.25	20
TGA3M	M14x1.5 x 32mm male (water)	27.55	20
TGA3N	M14x1.5 x 35mm male (water)	27.55	20
TGA3O	M14x1.5 x 38mm (water)	27.55	20
TGA3-65	M16x1.5 x 3/8 push on	27.34	20
TGA41	3/8 BSP x 3/8 push on	27.34	20
TGA4A	3/8 BSP x 1/2 push on	27.34	20
TGA4B	3/8 BSP x 5/8 push on	46.80	20
TGA4C	3/8 BSP x 1/2BSP male	47.15	20
TGA4D	3/8 BSP x 1/2BSP female	41.25	20
TGA4E	3/8 BSP x 1/2NPTF female	41.25	20
TGA4F	3/8 BSP x 5/8BSP male	41.25	20
TGA4G	3/8 BSP x 3/4BSP male	41.25	20
TGA4H	3/8 BSP x -8JIC male	43.83	20
TGA4I	3/8 BSP x -10JIC male	44.81	20
TGA4J	3/8 BSP x -12JIC male	48.54	20
TGA4K	3/8 BSP x -16JIC male	48.54	20
TGA4M	3/8BSP x 32mm male (water)	28.13	20
TGA4N	3/8BSP x 35mm male (water)	27.55	20
TGA4O	3/8 BSP x 38mm (water)	27.55	20
TGA5	1/4BSPT x 30 to 42mm (water)	36.10	20

Early warning systems

Pressure switches

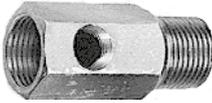


Low pressure switches make on the fall i.e. Activate a suitable warning when pressure falls below a chosen point. They are adjustable within a range of 15-120 (1-8bar) These have a 1/8NPTF thread so screw into a:

- Matching thread on T piece
- Hose end Tee
- Fuel/oil pressure adapter (page 58).
- Filter head, [page 21](#) may be tapped to take switches

Part No		£	Cat
EWS/1B	low pressure switch- adjustable .05 to 15psi	26.77	70
EWS/1C	low pressure switch adjustable set @ 20 psi	17.68	70
EWS/1D	low pressure switch adjustable set @ 35 psi	17.68	70
BLS8-3	1/8" NPTF brake light switch	12.96	70
BLS2-31	M10 x 1 brake light switch	12.96	70

T pieces & oil pressure gauge adapters



T pieces have one male thread to screw into the oil gallery, a female thread to take the original transmitter and a female 1/8 NPTF tapping which allows a pressure switch or a 1/8 BSP female pressure gauge line to be attached via a MMS10-3-3 adapter ([page 53](#)). The chart below covers most engines.

Make	Thread	Part. No	Make	Thread	Part. No
Alfa Romeo/ Alfasud	M14 x 1.5	TP7	Mitsubishi	1/8BSPT	TP8
Alfa Romeo remainder	M10 x 1.0	TP15	Nissan	1/8BSPT	TP8
Austin/ Morris	1/8NPTF	TP1	Opel up to 1973	M14 x 1.5	TP7
BMW up to 1969	M10 x 1.0	TP15	Opel from 1973 on	1/4NPTF	TP2
BMW from 1969 on	M12 x 1.5	TP6	Peugeot	M14 x 1.5	TP7
Chevrolet	1/8NPTF	TP1	Porsche	M10 x 1.0	TP15
Chrysler/ Talbot	1/8NPTF	TP1	Renault	M14 x 1.5	TP7
Citroen CX	M14 x 1.5	TP7	Rover K series - varies	M12 x 1.5	TP6
Citroen remainder	M12 x 1.5	TP6	Rover K series - check	1/8NPTF	TP1
Fiat	M12 x 1.5	TP6	Rover V8	1/2UNF	TP3
Ford up to 1971	1/8NPTF	TP1	Saab	1/8NPTF	TP1
Ford from 1971 on	1/4NPTF	TP2	Skoda	M10 x 1.0	TP15
Hillman	1/8NPTF	TP1	Subaru	1/8BSPT	TP8
Holden	1/4NPTF	TP2	Toyota	1/8BSPT	TP8
Honda	1/8BSPT	TP8	Triumph	1/8NPTF	TP1
Jaguar/ Daimler	1/8NPTF	TP1	Vauxhall up to 1979	1/4NPTF	TP2
Lada	M14 x 1.5	TP7	Vauxhall 1980	M14 x 1.5	TP7
Lancia	M14 x 1.5	TP7	Volkswagen	M10 x 1.0	TP15
Mazda	1/8BSPT	TP8	Volvo	1/8NPTF	TP1

Part No		£	Cat
TP1	T piece 1/8NPTF	11.25	20
TP2	T piece 1/4NPTF	8.49	20
TP9	T piece M10x1.5	9.24	20
TP15	T piece M10x1	11.25	20
TP6	T piece M12x1.5	11.25	20
TP7	T piece M14x1.5	14.07	20
TP12	T piece M16x1.5	12.4	20
TP8	T piece 1/8BSPT	8.49	20
TP3	T piece 1/2UNF	11.01	20
TP4	T piece 1/4BSP	9.82	20
TP5	T piece 3/8BSF	19.32	20

Pressure gauge adapters to suit TP's			
Part No		£	Cat
MMS10-3-3	Pressure gauge adapter 1/8BSP X 1/8NPTF	1.20	40
MMS10-3-4	Pressure gauge adapter 1/8BSP X 1/4NPTF	2.54	40
MMS5-3-31	Pressure gauge adapter 1/8BSP X M10X1	5.73	40
MMS5-3-41	Pressure gauge adapter 1/8BSP X M12X1.0	5.85	40
MMS5-3-45x	Pressure gauge adapter 1/8BSP X M12X1.5	7.47	40
MMS6-3-3	Pressure gauge adapter 1/8BSP X 1/8BSPT	1.19	40
MMS3-3-4	Pressure gauge adapter 1/8BSP X 1/4BSP	1.14	40
MMS3-3-6	Pressure gauge adapter 1/8BSP X 3/8BSP	1.37	40
MMS11-3	Pressure gauge adapter 1/8BSP X 3/8BSF	5.48	40
MMS9-3-5v	Pressure gauge adapter 1/8BSP X 1/2UNF	1.65	40

Sandwich plates between engine and filter



Where there is no suitable block tapping, we have a thin sandwich with 2 x 1/8 NPTF & 1 x 3/8BSP tappings. Made from billet aluminium, supplied with 3 Plugs and extension screw. This will fit cars with a spin on filter, see fitting chart on page 20, SP1 range.

Part No		£	Cat
TGASP200	With 3/4 UNExtension screw as SP1	32.42	70
TGASP200D	With M18 extension screw as SP1D	32.42	70
TGASP200F	With M20 extension screw as SP1F	32.42	70

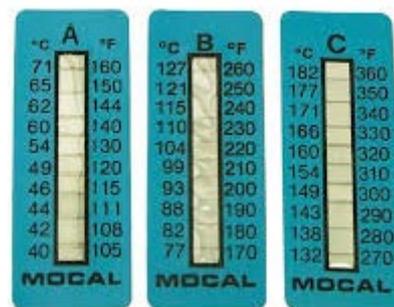
Warning lights



These are of little use if they are not immediately visible, ours are 29mm diameter with a choice of red, yellow, green, blue or clear lens, these have a removable diffuser under the lens which may be titled using dry print lettering. A T5.5 side contact bulb is accessed from the front and is sealed against ingress of dust, oil and water. Weight is 1.5 grams.

Part No		£	Cat
EWL-amber	Warning light 30mm Amber lens	9.99	70
EWL-blue	Warning light 30mm Blue lens	9.99	70
EWL-green	Warning light 30mm Green lens	9.99	70
EWL-red	Warning light 30mm Red lens	9.99	70
EWL-clear	Warning light 30mm Clear lens	9.99	70
EWL-bulb	Warning light bulb	1.58	70

Temperature strips



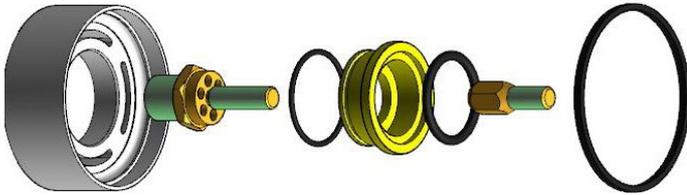
Available in three temperature ranges to cover all fluid measurement requirements. Self adhesive strips, sold individually.

Part No		£	Cat
TS1	Temperature strip 77°C to 127°C (B)	1.76	20
TS2	Temperature strip 40°C to 71°C (A)	2.16	20
TS3	Temperature strip 132°C to 182°C (C)	2.16	20

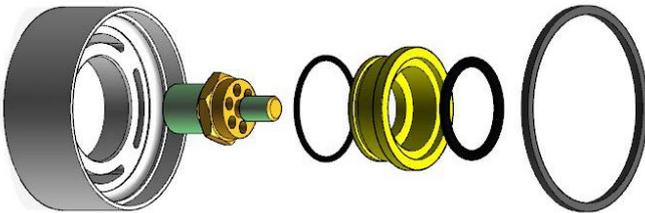
Conversions to spin off type filters.

Aluminium adapter plates and threaded centre screws to convert cars with removable element filters to spin off cartridge filters. In most cases, to compensate for the variations in Filter Head tolerances, the Filter Conversion consists of three parts; Spin On Inner, Spin On Outer and an O ring. The variations in tolerances are taken up by Spin On Outer sliding over the Spin On Inner. The integrity of the seal between the Inner and the Outer is maintained by the O ring.

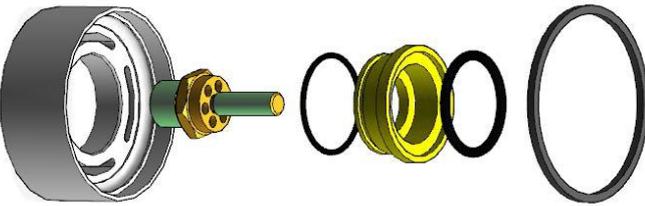
FC283 for BMC A series



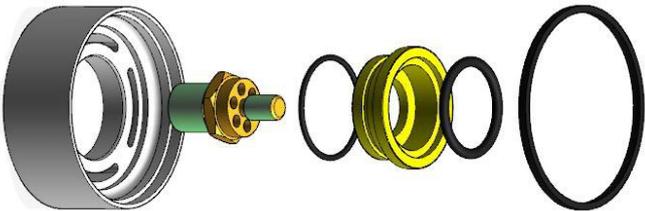
FC285 for Triumph TR2³/4 series



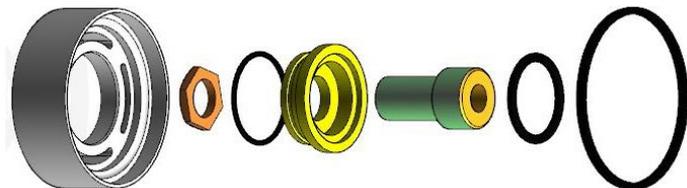
FC292 for Triumph TR7/Stag



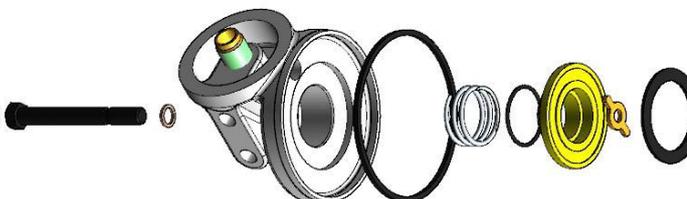
FC286 for Jaguar 3.8 E-type



FC288 for later Jaguar MII

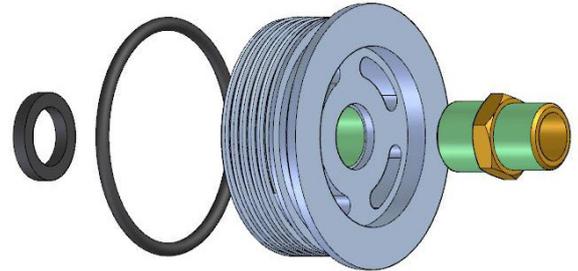


FC290 for Triumph 6 cylinder



Spin on adaptors from threaded billet

A current trend has seen manufacturers return to replacement element type filters. For some of these such as the Smart Car we have made a threaded billet adaptor with seals and extension bolt to convert to spin on element. FC8741 for Smart Car series



Part No		£	Cat
FCDB2	Aston Martin DB2	30.50	30
FC283	BMC A series-Austin Healey Sprite- MG Midget	68.14	30
FC1767	Austin Healey 6 cylinder models	56.15	30
FC289	MG A & B	61.80	30
FCMGC	MG C	44.55	30
FC284	Mercedes	34.29	30
FC285	Triumph TR2/3/4/4a with Puralator filter head	49.24	30
FC1766	Triumph TR2/3/4/4a with Tecalimet filter head	40.37	30
FC290	Triumph 6cylinder models	71.50	30
FC292	Triumph TR7	49.88	30
FC286	Jaguar E type 3.8	46.65	30
FC287	Jaguar Mark 1 & 2- 2.4 engine to BH7968-3.4 to KH7062- 3.8 to to LC4264	45.90	30
FC288	Jaguar Mark 2 remainder- E type 4.2 to 7R2297 &	49.58	30
FC291	Jaguar XJ6	51.53	30
FC3191	Chevrolet Corvair	30.36	30
FC1369	York diesel	46.70	30
FC8741	Mercedes Smart	52.06	30
FC295	Land Rover series 1	45.88	30

Hose and Fittings, an overview.

Different types of hose

A bewildering number of hoses is on offer for vehicle plumbing this choice can be dictated by price, performance, weight, appearance and sporting regulations. However all leading hose suppliers offer a range that is similar and in most cases interchangeable.

FIA regulations

These regulations apply to vehicles taking part in FIA controlled races. Their Appendix J Article 253, pertaining to lines and pumps has been curiously drafted and contains the following: "When flexible, these lines must have threaded, crimped or self sealing connectors and an outer braid resistant to abrasion and flame (will not sustain combustion)". All Aeroquip and Pro Gold hoses that we feature satisfy this requirement although the push on hoses would need an Oetiker hose clamp see page 48. The regulations then demand 1000 psi burst pressure at 235°C. for oil lines. We know of only one hose that will meet this requirement and this is a TFE hose which due to its rigidity (large bend radius) is quite unsuitable for general plumbing. We have alerted the FIA to the problem but in the meantime it is pretty certain that 99.99% of cars are racing illegally.

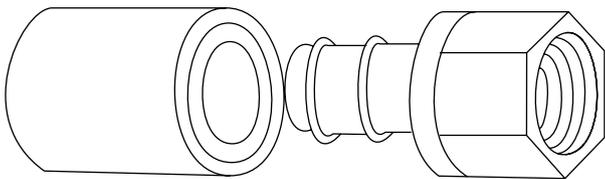
Fuel hoses

Until recently all hoses offered for oil were suitable for pump fuel, however two things have happened that have altered the situation. Firstly fuel injection has introduced the phenomenon of sour fuel in return lines where aeration introduces peroxides into the fuel, secondly the removal of lead from fuels has brought about the use of additives to improve the octane rating both these moves produce a more aggressive mixture that can cause swelling and permeation (fuel smells) in all synthetic rubber hoses. Only TFE or hoses to specification SAE 30/R9 are completely suitable for fuel injection returns and more exotic fuels.

The cheapest hoses

Textile hoses with synthetic rubber inner tube, one layer of textile braid reinforcement and a synthetic rubber outer layer are available in two types, the SAE 100 R6 Mocal® hose is suited to most applications with a maximum suggested temperature rating of 120°C and a working pressure of 400psi, use with factory swaged on fittings or worm drive / Oetiker clamps.

Push in hose and fitting

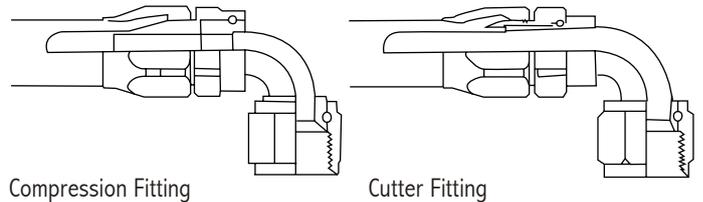


Another variation of this type of hose is the push on, as in Aeroquip Socketless®. Pushfit, push-lite or push-lok are similar, the fitting is simply pushed into the hose, this hose has the reinforcing braid woven in such a way that the grip on the fir tree type fitting increases as the force trying to push it out increases, this hose has had a resurgence of popularity recently, especially since aluminium fittings were introduced, This type of hose and fitting is interchangeable between makes but only genuine Aeroquip assemblies can be guaranteed. These hoses usually have a black rubber covering other colours are available, light blue being very popular. We can provide a stainless steel braid covering for these textile hoses this does not impart any greater strength only enhanced appearance and abrasion resistance, unless the hoses are factory swaged a finisher such as a Pro clamp® must be used to hide frayed ends.

The best hoses

For war zones like Vietnam the US military required a range of strong, light high temperature hose assemblies that could be serviced in the field for use in oil, fuel and hydraulic applications, mainly on helicopters. Aeroquip came up with the AE701 hose and Little Gem® fittings, these eventually found their way onto the war surplus market and were seized upon by the motor racing fraternity. These hoses have an elastomer inner tube, partial stainless steel wire inner braid and a full stainless steel outer braid. The fittings are mainly aluminium anodised blue and red.

The supply of these hoses and fittings gradually dried up, and a new industry came into being making compatible hose and fittings. Earls Permo-o-flex, Goodridge 200 and XRP Kb-plus . Aeroquip returned to the market with the hose renamed FC333 Racing hose. All these hoses and fittings are interchangeable but only assemblies from one manufacturer have any guarantee. We refer to all these as aerospace style hose and fittings. Despite the interchangeability there are differences in design of the method of fitting and the means of achieving a double swivel on angled fittings. In the beginning the Aeroquip Little Gem fittings had a cutter style attachment which was suited to coping with the high pressures in hydraulic systems and assembly by trained personnel, for the less demanding motor sport use they opted for the far more user friendly compression style fitting, unlike the competition which stayed with the old design. Aeroquip were late in producing a double swivel angled fitting but when they did they overcame problems, associated with existing designs, where to achieve a swivel the fitting had to turn in the hose thus breaking the primary seal and often, when sticking occurred, the secondary seal as well. The accompanying drawing illustrates the situation.



The lightest hose

With F1 manufacturers constantly looking for ways to save weight someone came across an extremely light hose assembly consisting of a convoluted wrapped PTFE (Teflon) liner with a Nomex covering used for conduits in aircraft wiring harnesses. These very expensive hose assemblies were soon adopted in the higher echelons of the sport Interpretations of this type of hose vary among motor sport suppliers, the best supply a wrapped TFE liner, others an extruded liner with convolutions moulded in, the latter type of hose suffers from high volumetric expansion, especially linearly, if used in long lengths the hose tends to writhe around like a demented snake when subjected to varying pressures. PTFE hoses are resistant to all types of fuel. They are also available with stainless steel braid outer covering. Where the utmost weight saving is sought factory swaged fittings are used but hoses with re-useable fittings still offer a significant weight saving. Recommended working pressures are around 200 psi/14 bar and max temperatures 150°C. We distribute the Icore Pro Gold range. There is no interchangeability of hoses and fittings between different manufacturers. Despite a deal of experience in manufacturing convoluted TFE, Aeroquip have entered the lightweight hose market with Startlite a patented AQP® (synthetic rubber) inner tube with Nomex covering and reinforcement, to achieve the greatest weight saving it is available with swaged on end fittings, it will also accept the red and blue reusable fittings normally used with the Aeroquip FC333 racing hose. The Nomex cover has a thicker weave than that used on ProGold and amazingly the hose feels cool to the touch with oil at 100°C flowing through.

Special purpose hoses

Silicon Coolant / Charge air hoses were originally manufactured for maximum longevity, as in trucks and specialist very high temperature applications. It is become popular for the less demanding high performance car market due to its attractive colours, shiny finish and feel good factor. Should last and keep its appearance for the life of the vehicle. Can be made to suit any application.

Oil / Fuel hose to B.S. AU 108/2-L4/C4/R a hose designed for under bonnet use with push in but secured with worm drive clamps or similar fittings in smaller sizes i.e. Carburettor hoses, automatic transmission cooling. We can supply with stainless steel overbraid.

Fuel hose to SAEJ30 R9 a hose suitable for use in fuel injection systems has a thin flexible layer of fluoro-elastomer in the bore providing exceptional resistance to sour petrol plus methanol and ethanol additives, use with clamped push in fittings.

Fuel hose for small boats SPH5 to B.S. 3212/1991 for Lpg use in pleasure boats licensed by NRA. SPH10 fire resistant hose for petrol & diesel. Use with push on fittings and stainless steel worm drive clip.

Vacuum servo hose specially formulated for this purpose. Use with clamped push in fittings.

Brake fluid hose specially formulated for use with all types of brake fluid, mainly used for gravity feed from reservoir to master cylinder.

Fire resistant hoses are the ultimate fuel hose, top pressure and temperature ratings, will withstand 2 ½ minutes exposure to flame. Use with brass reusable fittings. Designed for boat use.

Brake and clutch hoses.

Conventional brake hoses, manufactured in rubber with textile reinforcement, are permitted to have a significant amount of volumetric expansion, that is they swell under pressure, this leads to a soft feel to the brake pedal, acceptable in a road vehicle but not in competition usage.

This has led to the universal usage of smooth bore PTFE (Teflon ®) hose with normally a stainless steel or rarely a Kevlar ® braided outer cover. This hose has the added benefit of lightness, strength, high temperature resistance and protection from stone damage We call it Mocal® TFE , Aeroquip TFE racing hose or 2807, Aeroquip Aerospace 666 , other brand names are Speed-Flex , 600 , and 411 . They can be had with re-useable or swaged on fittings. With the exception of Aeroquip Aerospace, hose and fittings are interchangeable between brands.

Some countries, not the UK, insist on tests for brake hoses the TFE hose assembly passes all the tests except the whiplash test which ensures that the hose is suitable for withstanding large wheel movements on vehicles doing hundreds of thousands of miles, quite sensible, but not relevant to competition motoring.

Some hose specialists have recently come up with complicated assemblies allowing the hoses to pass the test, but generally speaking, they are not suitable for high mileage road usage.

Power steering hoses.

Power steering systems have a pressure hose and a return hose. The pressure hose assemblies are subjected to the highest pressures found in vehicle usage. Only the smooth bore PTFE with stainless steel outer cover and Aeroquip FC300 single wire reinforced hose are suitable the latter being the most cost effective, flexible and because it has greater volumetric expansion (more give), less likely to produce noises caused by hydraulic hammer.

Aeroquip offer a limited range of re-useable fittings mainly suited to American equipment for both hoses we offer the Mocal® TFE hose as a cheaper alternative to both, this uses Aeroquip TFE fittings. Original equipment hoses tend to have complex end fittings, we can sometimes re swage old fittings to new hose, please supply fittings removed from hose together with a sketch showing lengths and orientation. Hoses to SAE 100R6 are suitable for return lines, fittings are usually clamped push in and part of the pump/box.

Hard lines in aluminium tube

Over the last two years there has been big interest in using aluminium tubing to replace flexible oil and fuel hoses for plumbing in competition cars. The most popular form of tube has a flexible Polyamide coating to prevent corrosion.

It is approximately half the weight of AQP racing hose and tighter bend radiuses can be achieved. Disadvantages are that they are more difficult to install and must be vibration free to prevent work hardening and subsequent cracking, also it goes a bit flat if you step on it.

There are various ways of attaching fittings:

1. The compression fitting, where a female nut and olive are slipped over the tube and tightened onto a female JIC or metric fitting in a similar fashion to a flexible hose fitting, like PTFE brake hose but unlike AQP racing hose they may be screwed direct to a range of specially made adapters.
2. The Aeroquip Versaflare flareless fitting which is similar to the above but can be tightened onto an AN adapter, the racing car industry standard. The fitting, coming from an industrial background, is made of steel and should only be screwed onto a steel adapter.
3. The Aeroquip tube nut and sleeve fitting made to aircraft specification in aluminium needs the tube to be flared, usually with an inexpensive portable flaring tool.
4. The shape memory flareless fitting, very high-tec aerospace technology where the olive is packed frozen in liquid nitrogen and shrinks onto the tube when exposed to the atmosphere. Currently too expensive but we are working on it.

Hard lines in seamless copper/copper alloy or steel tube.

Mainly used for brake and clutch lines where, due to its small size, the weight penalty is not too harsh Also quite suitable for fuel and oil lines where weight is not a big issue. The most popular is the double wrapped and brazed copper alloy Kunifer tube. At present ends must be flared with a special tool for assembly, unless the Aeroquip Versaflare is used on bigger sizes but we are working on a flareless system for brake/clutch installations.

Understanding hose and fitting sizes

Aeroquip racing hose and fittings are derived from AN (Air force Navy) specifications which refer to them by dash sizes, arrived at by multiplying the nominal bore of the hose by 16, hence 1/2" hose is -8. Aeroquip being an American Company has extended this to cover British hose and fittings. Most threads including JIC (now called SAE 37°) & Metric are defined by the outer diameter of the male thread. However BSP and NPTF are defined by the bore of the hose they fit, hence a 1/2BSP fitting fits a 1/2" hose. The system does not allow for variations, except in the case of specials, thus you rarely have different sizes of fitting on one size of hose adapters must be used to sort out such problems.

Thread chart,

Measurements in inches, NPTF (taper threads) taken at mid point. tpi = threads per inch., OD = outside diameter of male thread, ID = the minor diameter or inside diameter of female thread. Metric threads e.g. M12 x 1.5 are defined by diameter of male thread in mm (M12) x pitch in mm (1.5) the pitch is always half the thread depth.

BSP and JIC fittings seal on a coned seating or if in a port with a washer or seal but NPTF (taper) fittings seal by slight deformation of the thread hence a satisfactory joint can be made between NPTF male and BSP ports. When using NPTF elbows tighten until pointing in the desired direction. PTFE tape may be used with NPTF threads.

Dash Size	BSP Thread	BSP OD	BSP ID	JIC Thread	JIC ID	NPTF Thread	NPTF Thread	NPTF ID
-3	1/8 x 28tpi	0.38	0.34	3/8 x 24tpi	0.34	1/8 x 27tpi	0.41	0.34
-4	1/4 19tpi	0.52	0.45	7/16 x 20tpi	0.40	1/4 x 18tpi	0.56	0.47
-6	3/8 x 19tpi	0.66	0.59	9/16 x 18tpi	0.52	3/8 x 18tpi	0.69	0.59
-8	1/2 x 14tpi	0.83	0.72	3/4 x 16tpi	0.70	1/2 x 14tpi	0.84	0.72
-10	5/8 x 14tpi	0.90	0.81	7/8 x 14 tpi	0.81	none	none	none
-12	3/4 x 14tpi	1.04	0.95	1 1/16 x 12tpi	0.99	3/4 x 14tpi	1.06	0.94
-16	1 x 11tpi	1.31	1.19	1 5/16 x 12 tpi	1.24	1 x 11.5tpi	1.31	1.19

A guide to sizes most commonly used. Please consult for special applications.

Application	bore	AQP dash no.	Type of hose.
Flexible brake lines	1/8"	-3	2807/Moquip TFE/666
Flexible clutch lines	3/16"	-4	2807/Moquip TFE/666
Solid brake lines	3/16"		Kunifer
Oil & fuel pressure gauges	3/16"	-3	2807/Moquip TFE/Nylon
Fuel more than 8 mpg	5/16"	-5	FC333/Moquip TFE/BS Au108
Fuel less than 8 mpg	3/8"	-6	FC333/FBN/FBV/Moquip TFE/BS Au108
Fuel less than 2 mpg	1/2"	-8	FC333/FBN/FBV/Moquip TFE/BS Au108
Vacuum servo, American designed equipment	11/32"		Servo
Vacuum servo, European spec	3/8"	-6	Servo hose
Automatic transmission	5/16"	-6	FC333/100R6/BS Au108
Power steering pressure side	3/8"	-6	2807/FC300
Power steering return	3/8"	-6	FBN/FBV/100R6
Oil cooler engines up to 2 litres	1/2"	-8	FC333/FBN/FBV/100R6
Oil cooler engines over 2 litres	5/8"	-10	FC333/FBN/FBV/100R6
Dry sump pressure side up to 2 litres	1/2"	-8	FC333/FBN/FBV/100R6
Dry sump pressure side over 2 litres	5/8"	-10	FC333/FBN/FBV/100R6
Dry sump scavenge side up to 2 litres	5/8"	-10	FC333/FBN/FBV/100R6
Dry sump scavenge side over 2 litres	3/4"	-12	FC333/FBN/FBV/100R6

For engine oil cooler and dry sump applications where hose run is over 3 metres, go up a size.

As an Aeroquip distributor we are able to supply a range of hoses, however for the purpose of this catalogue we listed only those most suitable for automobile applications.

In the following hose specifications, id = inside diameter, OD = outside diameter in inches. Intermittent use at temperatures up 20% higher than listed is safe but will lead to more rapid hardening of the neoprene cover.

Aeroquip “push on hose”

AQP Socketless hose.



The push on or socketless hose and fittings are often overlooked in favour of our more exotic offerings but unless extremes of pressure, temperature and harsh environments are likely to be encountered this is the easiest to use, most cost effective hose available. [See page 29-31](#). The specified high temperature and vacuum resistance far exceeds anything offered by others. Fitting is simple just push on the fitting to the hose, see [page 87](#). Construction: Aqp elastomer inner tube & outer covering, textile braid reinforcement with either black or a pretty blue outer. Application: Fuel, oil, air & water.

Hose specification

Size	I.D.	O.D.	Max Pressure	Bend Radius	Vacuum Service
	inches	inches	psi	inches	inch/HG
-4	0.25	0.49	250	3	28
-6	0.38	0.62	250	3	28
-8	0.50	0.75	250	5	28
-10	0.63	0.91	250	6	18
-12	0.75	1.03	250	7	18

Temperature range	Oil °C	Water °C	Air °C
	-40°C to + 150°C	+82 °C	+120 °C

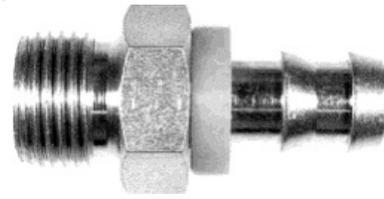
Part No	Price per metre	£	Cat
FBN0400	FBN0400 black hose 1/4id	13.95	40
FBN0600	FBN0600 black hose 3/8id	7.32	40
FBN0800	FBN0800 black hose 1/2id	9.52	40
FBN1000	FBN1000 black hose 5/8id	10.69	40
FBN1200	FBN1200 black hose 3/4id	11.40	40
FBV0400	FBV0400 blue hose 1/4id	13.95	40
FBV0600	FBV0600 blue hose 3/8id	7.51	40
FBV0800	FBV0800 blue hose 1/2id	9.29	40
FBV1000	FBV1000 blue hose 5/8id	10.69	40
FBV1200	FBV1200 blue hose 3/4id	11.40	40

Fittings for push on hoses

We offer 5 types of fitting.

1. The genuine Aeroquip product in plated steel, except their JIC straight fittings are brass, they have brass hose finishers for JIC, red plastic for BSP and black plastic for Metric.
2. The more cost effective but similar Mocal® steel fitting with red plastic finishers, available in JIC, BSP & Metric.
3. Aeroquip red and blue anodised, black anodised, or nickel plated aluminium fittings with matching finisher in JIC only.
4. The Mocal® JIC aluminium fittings are red and blue anodised but also available in black, please add BK to the end of the part number. The 45°C and 90°C versions are of compact design with tight radii for use where space is limited, use instead of forged fittings which have high pressure drops. The Mocal® BSP aluminium fittings are only available in Silver.
5. Jiffy-tite quick connect fittings, [see page 62](#).

Male fitting



Aeroquip Steel Part No	£	Cat
FBM1200	1/8NPTF for 1/4in hose, non swivel	2.56 50
FBM1201	1/4NPTF for 1/4in hose, non swivel	3.33 50
FBM1207	1/4NPTF for 3/8in hose, non swivel	3.33 50
FBM1202	3/8NPTF for 3/8in hose, non swivel	5.63 50
4738-6-6	3/8NPTF for 3/8in hose, non swivel	4.22 50
4738-6-8	3/8NPTF for 1/2in hose, non swivel	3.33 50
4738-8-8	1/2NPTF for 1/2in hose, non swivel	2.39 50
FBM1211	7/16 x 24tpi for 1/4in hose, non swivel	8.02 50
4742-5-4	1/2UNF for 1/4in hose, non swivel	20.00 50
Moquip steel Part number		
HEMP6-3-4	1/8BSPT for 1/4in hose	3.02 50
HEMP7-4	-4 JIC for 1/4in hose	4.15 50
HEMP3-6	3/8BSP for 3/8in hose	2.13 50
HEMP3-8	1/2BSP for 1/2in hose	2.55 50
HEMP3-10	5/8BSP for 5/8in hose	3.90 50
HEMP3-12	3/4BSP for 3/4in hose	4.91 50
HEMP7-8	-8JIC for 1/2in hose	4.04 50
Moquip Aluminium Part No		
HEMAP2-105-6	M22 male swivel straight for 3/8in hose	6.92 40
HEMAP2-105-8	M22 male swivel straight for 1/2in hose	6.92 40
HEMAP2-105-10	M22 male swivel straight for 5/8in hose	6.92 40
HEMAP2-105-10	M22 male swivel straight for 3/4in hose	6.92 40
HEMAP42-105-6	M22 male swivel 45° for 3/8in hose	11.49 40
HEMAP42-105-8	M22 male swivel 45° for 1/2in hose	17.26 40
HEMAP42-105-10	M22 male swivel 45° for 5/8in hose	19.39 40
HEMAP42-105-12	M22 male swivel 45° for 3/4in hose	20.75 40
HEMAP92-105-6	M22 male swivel 90° for 3/8in hose	11.49 40
HEMAP92-105-8	M22 male swivel 90° for 1/2in hose	17.26 40
HEMAP92-105-10	M22 male swivel 90° for 5/8in hose	19.39 40
HEMAP92-105-12	M22 male swivel 90° for 3/4in hose	20.75 40

Female straight fitting, swivel.



Aeroquip Aluminium Part No	£	Cat
FBM1512	-6JIC for 3/8in hose red/blue anodized	5.36 40
FBM1513	-8JIC for 1/2in hose red/blue anodized	5.69 40
FBM1514	-10JIC for 5/8in hose red/blue anodized	6.44 40
FBM1515	-12JIC for 3/4in hose red/blue anodized	8.95 40
FBL1512	-6JIC for 3/8in hose, black anodised	5.36 40
FBL1513	-8JIC for 1/2in hose, black anodised	5.69 40
FBL1514	-10JIC for 5/8in hose, black anodised	6.44 40
FBL1515	-12JIC for 3/4in hose, black anodised	8.95 40
FBE1512	-6JIC for 3/8in hose- nickel plated	5.99 40
FBE1513	-8JIC for 1/2in hose- nickel plated	8.99 40
FBE1514	-10JIC for 5/8in hose- nickel plated	12.78 40
FBE1515	-12JIC for 3/4in hose, nickel plated	14.18 40
Aeroquip steel Part number		
07006-4-4	M12x1.5 for 1/4in hose	5.63 50
07001-6-4	M14x1.5 for 1/4in hose	3.73 50
07006-8-6	M16x1.5 for 3/8in hose	5.63 50
07001-10-6	M18x1.5 for 3/8in hose	3.53 50
07001-13-8	M22x1.5 for 1/2in hose	4.68 50
07001-16-10	M26x1.5 for 5/8in hose	7.13 50
07114-20-12	M30x1.5 for 3/4in hose	18.85 50
Aeroquip brass Part number		
FBM1222	-6JIC for 3/8in hose	3.95 50
FBM1233	-8JIC for 1/2in hose	6.08 50
FBM1234	-10JIC for 5/8in hose	9.84 50
FBM1225	-12JIC for 3/4in hose	13.94 50

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

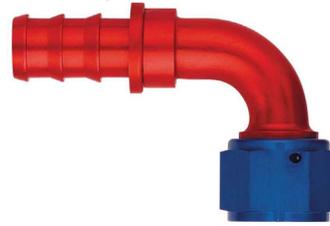
Moquip steel Part number		£	Cat
HEFP3-4	1/4BSP for 1/4in hose	1.48	50
HEFP3-4-6	1/4BSP for 3/8in hose	5.32	50
HEFP3-6	3/8BSP for 3/8in hose	2.01	50
HEFP3-8	1/2BSP for 1/2in hose	2.07	50
HEFP3-10	5/8BSP for 5/8in hose	2.77	50
HEFP3-12	3/4BSP for 3/4in hose	3.78	50
HEFP7-4	-4JIC for 1/4in hose	4.00	50
HEFP7-6	-6JIC for 3/8in hose	3.25	50
HEFP7-8	-8JIC for 1/2in hose	4.24	50
HEFP7-8-6	-10JIC for 3/8in hose	4.14	50
HEFP7-10	-10JIC for 5/8in hose	4.34	50
HEFP7-10-8	-10JIC for 1/2in hose	4.39	50
HEFP7-12	-12JIC for 3/4in hose	6.53	50
Moquip aluminium Part No			
HEFAP3-8	1/2BSP for -8 hose-	8.08	41
HEFAP3-10	5/8BSP for -10 hose	10.52	41
HEFAP7-4	-4JIC for 1/4 hose	6.33	40
HEFAP7-6	-6JIC for 3/8in hose	5.30	40
HEFAP7-8	-8JIC for 1/2in hose	6.33	40
HEFAP7-10	-10JIC for 5/8in hose	8.24	40
HEFAP7-12	-12JIC for 3/4in hose	13.24	40

Female 45° fitting.



Aeroquip Aluminium Part No		£	Cat
FBM1522	-6JIC for 3/8in hose- red/blue anodized	11.30	40
FBM1523	-8JIC for 1/2in hose- red/blue anodized	12.92	40
FBM1524	-10JIC for 5/8in hose- red/blue anodized	15.72	40
FBM1525	-12JIC for 3/4in hose- red/blue anodized	23.24	40
FBL1522	-6JIC for 3/8in hose, black anodised	11.30	40
FBL1523	-8JIC for 1/2in hose, black anodised	12.92	40
FBL1524	-10JIC for 5/8in hose, black anodised	15.72	40
FBL1525	-12JIC for 3/4in hose, black anodised	23.24	40
FBE1522	-6JIC for 3/8in hose- nickel plated	22.77	40
FBE1523	-8JIC for 1/2in hose- nickel plated	26.87	40
FBE1524	-10JIC for 5/8in hose- nickel plated	26.26	40
FBE1525	-12JIC for 3/4in hose- nickel plated	25.80	40
Aeroquip steel Part number			
07072-4-4	M12x1.5 for 1/4in hose	10.94	50
07072-8-6	M16x1.5 for 3/8in hose	11.42	50
07072-13-8	M22x1.5 for 1/2in hose	18.65	50
07072-16-10	M26x1.5 for 5/8in hose	18.46	50
FBM1438	-4JIC for 1/4in hose	13.13	50
FBM1439	-6JIC for 3/8in hose	12.51	50
FBM1440	-8JIC for 1/2in hose	13.83	50
Moquip steel Part number			
HEFP43-4	1/4BSP for 1/4in hose	5.83	50
HEFP43-6	3/8BSP for 3/8in hose	6.72	50
HEFP43-8	1/2BSP for 1/2in hose	8.12	50
HEFP43-10	5/8BSP for 5/8in hose	11.15	50
HEFP43-12	3/4BSP for 3/4in hose	12.23	50
HEFP47-4	-4JIC for 1/4 hose	5.62	50
HEFP47-6	-6JIC for 3/8 hose	6.63	50
HEFP47-8	-8JIC for 1/2 hose	8.12	50
HEFP47-10	-10JIC for 5/8 hose	13.60	50
HEFP47-12	-12JIC for 3/4 hose	13.60	50
Moquip aluminium Part No			
HEFAP47-6	-6JIC for -6 hose- compact red/blue anodized	16.92	41
HEFAP47-8	-8JIC for -8 hose- compact red/blue anodized	22.65	41
HEFAP47-10	-10JIC for -10 hose- compact red/blue anodized	25.75	41
HEFAP47-12	-12JIC for -12 hose- compact red/blue anodized	33.84	41
HEFAP47-6BK	-6JIC for -6 hose- compact black anodized	16.92	41
HEFAP47-8BK	-8JIC for -8 hose- compact black anodized	22.65	41
HEFAP47-10BK	-10JIC for -10 hose- compact black anodized	25.75	41
HEFAP47-12BK	-12JIC for -12 hose- compact black anodized	33.84	41
HEFAP43-8	1/2BSP for -8 hose-	28.88	41
HEFAP43-10	5/8BSP for -10 hose-	32.83	41

Female 90° fitting



Aeroquip steel fitting

Aeroquip aluminium Part number		£	Cat
FBM1532	-6JIC for 3/8in hose- red/blue anodized	11.11	40
FBM1533	-8JIC for 1/2in hose- red/blue anodized	12.21	40
FBM1534	-10JIC for 5/8in hose- red/blue anodized	15.15	40
FBM1535	-12JIC for 3/4in hose- red/blue anodized	18.81	40
FBL1532	-6JIC for 3/8in hose, black anodised	11.11	40
FBL1533	-8JIC for 1/2in hose, black anodised	12.21	40
FBL1534	-10JIC for 5/8in hose, black anodised	15.15	40
FBL1535	-12JIC for 3/4in hose, black anodised	18.81	40
FBE1532	-6JIC for 3/8in hose- nickel plated	20.06	40
FBE1533	-8JIC for 1/2in hose- nickel plated	26.72	40
FBE1534	-10JIC for 5/8in hose- nickel plated	22.79	40
FBE1535	-12JIC for 3/4in hose- nickel plated	25.80	40
Aeroquip steel Part number			
07074-4-4	M12x1.5 for 1/4in hose	10.83	50
07074-6-4	M14x1.5 for 1/4in hose	8.83	50
07074-8-6	M16x1.5 for 3/8in hose	9.39	50
07074-10-6	M18x1.5 for 3/8in hose	10.66	50
07074-13-8	M22x1.5 for 1/2in hose	12.11	50
07074-16-10	M26x1.5 for 5/8in hose	22.22	50
07075-20-12	M30x1.5 for 3/4in hose	65.73	50
FBM1441	-4JIC for 1/4in hose	11.54	50
FBM1442	-6JIC for 3/8in hose	10.85	50
FBM1443	-8JIC for 1/2in hose	11.38	50
Moquip steel Part No			
HEFP93-4	1/4BSP for 1/4in hose	5.83	50
HEFP93-6	3/8BSP for 3/8in hose	6.72	50
HEFP93-8	1/2BSP for 1/2in hose	7.89	50
HEFP93-10	5/8BSP for 5/8in hose	8.77	50
HEFP93-12	3/4BSP for 3/4in hose	12.23	50
HEFP97-4	-4JIC for 1/4in hose	5.83	50
HEFP97-6	-6JIC for 3/8in hose	5.20	50
HEFP97-8	-8JIC for 1/2in hose	7.89	50
HEFP97-10	-10JIC for 5/8in hose	9.84	50
HEFP97-12	-12JIC for 3/4in hose	13.22	50
Moquip aluminium Part No			
HEFAP97-4	-4JIC for 1/4in hose- compact red/blue anodized	22.65	41
HEFAP97-6	-6JIC for 3/8in hose- compact red/blue anodized	16.92	41
HEFAP97-8	-8JIC for 1/2in hose- compact red/blue anodized	22.65	41
HEFAP97-10	-10JIC for 5/8 hose- compact red/blue anodized	25.75	41
HEFAP97-12	-12JIC for 3/4in hose- compact red/blue anodized	33.84	41
HEFAP97-4BK	-4JIC for 1/4in hose- compact black anodized	22.65	41
HEFAP97-6BK	-6JIC for 3/8in hose- compact black anodized	16.92	41
HEFAP97-8BK	-8JIC for 1/2in hose- compact black anodized	22.65	41
HEFAP97-10BK	-10JIC for 5/8 hose- compact black anodized	25.75	41
HEFAP97-12BK	-12JIC for 3/4in hose- compact black anodized	33.84	41
HEFAP93-8	1/2BSP for -8 hose-	28.88	41
HEFAP93-10	5/8BSP for -10 hose-	32.83	41

Female 120° fitting

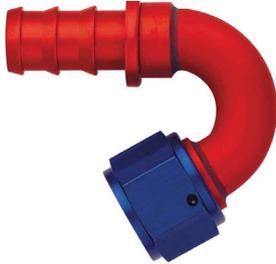


Aeroquip aluminium Part No		£	Cat
FBM1542	-6JIC for 3/8in hose- red/blue anodized	18.87	40
FBM1543	-8JIC for 1/2in hose- red/blue anodized	30.90	40
FBM1544	-10JIC for 5/8in hose- red/blue anodized	33.66	40
FBM1545	-12JIC for 3/4in hose- red/blue anodized	28.37	40
Aeroquip aluminium Part No			
FBL1542	-6JIC for 3/8in hose, black anodised	15.48	40
FBL1543	-8JIC for 1/2in hose, black anodised	30.90	40
FBL1544	-10JIC for 5/8in hose, black anodised	33.66	40
FBL1545	-12JIC for 3/4in hose, black anodised	28.37	40

Continued on next page

Moquip aluminium Part No		£	Cat
HEFAP27-6	-6JIC for 3/8in hose red/blue anodised	22.43	40
HEFAP27-8	-8JIC for 1/2in hose red/blue anodised	30.01	40
HEFAP27-10	-10JIC for 5/8in hose red/blue anodised	33.14	40
HEFAP27-12	-12JIC for 3/4in hose red/blue anodised	41.20	40
HEFAP27-6BK	-6JIC for 3/8in hose black anodised	22.43	40
HEFAP27-8BK	-8JIC for 1/2in hose black anodised	30.01	40
HEFAP27-10BK	-10JIC for 5/8in hose black anodised	33.14	40
HEFAP27-12BK	-12JIC for 3/4in hose black anodised	41.20	40

Female 150° fitting



Aeroquip aluminium Part No		£	Cat
FBM1552	-6JIC for 3/8in hose- red/blue anodised	17.48	40
FBM1553	-8JIC for 1/2in hose- red/blue anodised	34.39	40
FBM1554	-10JIC for 5/8in hose- red/blue anodised	24.86	40
FBM1555	-12JIC for 3/4in hose- red/blue anodised	37.43	40
FBL1552	-6JIC for 3/8in hose, black anodised	17.48	40
FBL1553	-8JIC for 1/2in hose, black anodised	34.39	40
FBL1554	-10JIC for 5/8in hose, black anodised	24.86	40
FBL1555	-12JIC for 3/4in hose, black anodised	37.43	40

Moquip aluminium Part No		£	Cat
HEFAP57-6	JIC for 3/8in hose	22.43	40
HEFAP57-8	JICfor 1/2in hose	30.01	40
HEFAP57-10	JIC for 5/8in hose	33.14	40
HEFAP57-12	JICfor 3/4in hose	41.20	40
HEFAP57-6BK	JIC for 3/8in hose black anodised	22.43	40
HEFAP57-8BK	JICfor 1/2in hose black anodised	30.01	40
HEFAP57-10BK	JIC for 5/8in hose black anodised	33.14	40
HEFAP57-12BK	JICfor 3/4in hose black anodised	41.20	40

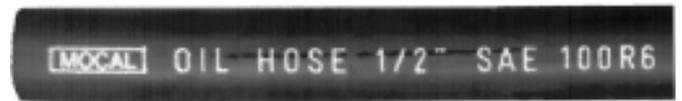
Female 180° fitting



Aeroquip aluminium Part No		£	Cat
FBM1562	-6JIC for 3/8in hose, red/blue anodised	17.48	40
FBM1563	-8JIC for 1/2in hose,red/blue anodised	23.16	40
FBM1564	-10JIC for 5/8in hose,red/blue anodised	34.28	40
FBM1565	-12JIC for 3/4in hose,red/blue anodised	28.84	40
FBL1562	-6JIC for 3/8in hose, black anodised	17.48	40
FBL1563	-8JIC for 1/2in hose, black anodised	22.43	40
FBL1564	-10JICfor 5/8in hose, black anodised	34.28	40
FBL1565	-12JIC for 3/4in hose, black anodised	28.84	40

Moquip aluminium Part No		£	Cat
HEFAP87-6	-6JIC for 3/8in hose hose, red/blue anodised	22.43	40
HEFAP87-8	-8JICfor 1/2in hose hose, red/blue anodised	30.01	40
HEFAP87-10	-10JIC for 5/8in hose hose, red/blue anodised	33.14	40
HEFAP87-12	-12JICfor 3/4in hose hose, red/blue anodised	41.20	40
HEFAP87-6BK	-6JIC for 3/8in hose black anodised	22.43	40
HEFAP87-8BK	-8JICfor 1/2in hose black anodised	30.01	40
HEFAP87-10BK	-10JIC for 5/8in hose black anodised	33.14	40
HEFAP87-12BK	-12JICfor 3/4in hose black anodised	41.20	40

Mocal® 100R6 hose.



Mocal® 100R6 hose and fittings offer a lower cost alternative to the Aeroquip push on, the fittings are lighter, the hose will accept tighter bend radiuses without kinking but unlike the Aeroquip product, separate means of assembly to the hose is required.

Construction. Elastomer inner tube, one textile braid reinforcement and elastomer outer cover in accordance with SAE 100R6 specification.

Performance. Temperature range -40°C to +120°C. 400 psi (27.5bar) working, 1600psi(110bar) burst pressure.

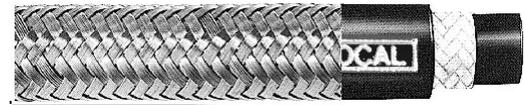
Application. For oil and coolant, ordinary fuel resistant.

Dimensions and bend radius.

Bore Size	Outside Dimension	Bend Radius
1/2"	0.77" - 19.8mm	3.9" - 101mm
5/8"	0.92" - 23.0mm	5.0" - 127mm
3/4"	1.03" - 26.0mm	7.1" - 180mm

Part No	Price per metre	£	Cat
100R6-8	1/2 id	5.96	50
100R6-10	5/8 id	7.68	50
100R6-12	3/4 id	11.25	50

Stainless steel braided Mocal® 100R6 hoses.

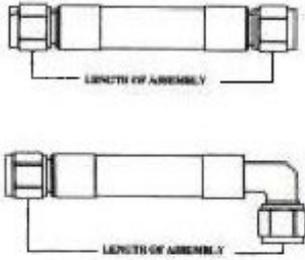


We can supply Mocal® 100R6 with a stainless steel braided cover.

Bore Size	Outside Diameter	Bend Radius
1/2"	0.83" - 21.0mm	3.9" - 101mm
5/8"	0.95" - 24.0mm	5.0" - 127mm
3/4"	1.15" -29.0mm	7.1" - 180mm

Part No	Price per metre	£	Cat
S100R6-8	1/2 id	12.65	50
S100R6-10	5/8 id	17.28	50
S100R6-12	3/4 id	22.55	50

Fittings for 100R6 hose.



Construction. Mild steel with serrated shaft.

Application. Fittings are usually swaged to the hose at our factory. When ordering, measurements should be taken from mating face to mating face. If the assembly does not include a straight fitting, orientation of fittings may be specified, although the swaged ferrule may be clamped in a vice and the fitting rotated to the desired position. When required for on-site assembly use with a worm drive clamp tightened to 10 inch/pounds (1.2Nm), an O-clamp which is secured with pincers is a neat alternative, use a Proclamp if hose is wire braided. All these can be found on [page 47 - 48](#) We can also supply Jiffy-tite quick-connect fittings [see page 62](#).

Male one piece straight.



For factory made swaged assemblies add £0.70 per fitting.

Steel part number	£	Cat
HEM1-7-8	5/8UNF for 1/2in hose	7.39 50
HEM1-11-8	11/16 x 20 tpi for 1/2in hose	7.95 50
HEM3-4-8	1/4BSP for 1/2in hose	6.01 50
HEM3-6-8	3/8BSP for 1/2 hose (aluminium)	4.08 50
HEM3-8	1/2BSP for 1/2 hose	2.86 50
HEM3-8-10	1/2BSP for 5/8in hose	2.83 50
HEM6-6-10	3/8BSPT for 5/8in hose	7.29 50
HEM7-10-8	-10 JIC for 1/2in hose	2.86 50
HEM7-12	-12 JIC for 3/4in hose	19.41 50
HEM8-4-8	1/4NPTF for 1/2 hose	4.55 50
HEM8-6-8	3/8NPTF for 1/2 hose	6.03 50
HEM8-6-8B	3/8NPTF for 1/2 hose (mini automatic)	3.82 50
Steel part number		
HEM2-55-10	M14x1.5 for 5/8in hose	4.43 50
HEM2-55-8	M14x1.5 for 1/2in hose	4.63 50
HEM2-65-8	M16x1.5 for 1/2in hose	6.21 50
HEM2-65-10	M16x1.5 for 5/8in hose	4.43 50
HEM2-85-8	M18x1.5 for 1/2in hose	2.64 50
Aluminium part number		
HEMA2-85-8	Alloy M18x1.5 male for 1/2"	8.14 50

Female Swivel Straight



Steel part number	£	Cat
HEF3-8	1/2BSP for 1/2in hose	3.85 50
HEF3-10	5/8BSP for 5/8in hose	5.19 50
HEF3-12	3/4BSP for 3/4in hose	2.76 50
HEF7-6	-6JIC for 3/8in hose	1.49 50
HEF7-8	-8JIC for 1/2in hose	1.64 50
HEF7-10-8	-10JIC for 1/2in hose	1.67 50
HEF7-10	-10JIC for 5/8in hose	2.63 50
HEF7-12	-12JIC for 3/4in hose	3.08 50
HEF2-85	M18x1.5 24° seat for 1/2in hose	3.85 50
HEF2-125	M26x1.5 for 3/4in hose	9.74 50
HEF2-165	M30x1.5 for 3/4in hose	6.37 50

Female Swivel 45°.



Steel part number	£	Cat
HEF43-8	1/2BSP for 1/2in hose	4.36 50
HEF43-10	5/8BSP for 5/8in hose	4.37 50
HEF43-12	3/4BSP for 3/4in hose	7.60 50
HEF47-8	-8JIC for 1/2in hose	6.96 50
HEF47-10-8	-10JIC for 1/2in hose	6.07 50
HEF47-10	-10JIC for 5/8in hose	7.42 50
HEF47-12	-12JIC for 3/4in hose	7.28 50
HEF42-85	M18x1.5 24° seat for 1/2in hose	5.14 50
HEF42-125	M26x1.5 for 3/4 hose	8.54 50
HEF42-165	M30x1.5 for 3/4 hose	19.71 50

Female swivel 90°



Steel part number	£	Cat
HEF93-8	1/2BSP for 1/2in hose	4.36 50
HEF93L-8	1/2BSP long leg for 1/2in hose	10.79 50
HEF93-10-8	5/8BSP for 1/2in hose	8.80 50
HEF93-10	5/8BSP for 5/8in hose	4.72 50
HEF93-12	3/4BSP for 3/4in hose	6.42 50
HEF97-6	-6JIC for 3/8in hose	2.58 50
HEF97-8	-8JIC for 1/2in hose	4.08 50
HEF97-10-8	-10JIC for 1/2in hose	3.49 50
HEF97-10	-10JIC for 5/8in hose	6.42 50
HEF97-12	-12JIC for 3/4in hose	7.03 50
HEF92-85	M18x1.5 24° seat for 1/2in hose	4.63 50
HEF92-125	M26x1.5 for 3/4in hose	9.70 50
HEF92-165	M30x1.5 for 3/4in hose	17.71 50

Female swivel 180°



Steel part number	£	Cat
HEF83-8	1/2BSP for 1/2in hose	6.45 50
HEF83-10	5/8BSP for 5/8in hose	8.05 50
HEF82-85	M18x1.5 24° seat for 1/2in hose	6.08 50

We can assemble hoses to order for one off applications or repeat orders where we would be happy to apply a part number for individual assemblies or kits.

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Aeroquip FC333hose.



AQP elastomer tube, partial stainless steel inner braid and a full stainless steel outer braid reinforcement.

Hose to fitting assembly is achieved by a simple threading together operation. Fittings are reusable and ideal for on-site assembly. [See page 86](#) for assembly instructions.

Suitable for all fluids in automotive applications except brake pressure lines (use TFE/2807). Also see Oil and fuel hoses [page 27](#)

Complies with FIA regulations. Used by professional teams who will only consider the best for fuel, oil and air jack systems.

Temperature range -49°C to +150°C. Pressure capabilities vary with dimensions see chart below. Vacuum rating 28 in/Hg.

Part No.	Hose I.D.	Hose O.D.	Working Pressure	Burst Pressure	Bend Radius
FBA0400	0.22"	0.44"	1000psi	6000psi	2.0"
FBA0600	0.34"	0.55"	1000psi	6000psi	2.5"
FBA0800	0.44"	0.65"	1000psi	5000psi	3.5"
FBA1000	0.56"	0.80"	1000psi	5000psi	4.0"
FBA1200	0.69"	0.94"	1000psi	4000psi	4.5"
FBA1600	0.88"	1.15"	750psi	3000psi	5.5"
FBA2000	1.13"	1.41"	500psi	2000psi	8.0"
FBA2400	1.34"	1.70"	50psi	200psi	9.0"
FBA3200	1.75"	2.09"	50psi	200psi	12.5"

Part No	Price per metre	£	Cat
FBA0400	FC333-4	14.27	40
FBA0600	FC333-6	16.65	40
FBA0800	FC333-8	18.67	40
FBA1000	FC333-10	24.83	40
FBA1200	FC333-12	34.97	40
FBA1600	FC333-16	47.43	40
FBA2000	FC333-20	72.78	40
FBA2400	FC333-24	88.89	40
FBA3200	FC333-32	107.16	40

Aeroquip Startlite hose



Special AQP neoprene inner tube, reinforced with fire retardant woven x and Kevlar cover. Colour is black without tracer. Use where light weight is a primary concern, over 11% lighter than any other hose. Very little heat dissipation through hose which can be handled whilst containing oil at 100°C. Unlike convoluted TFE hoses, hose bore is smooth. The cover is highly abrasion resistant. 300% more than any comparable hose. To achieve greatest weight saving specify the special swaged silver and red fittings, [see page 36](#). For on-site assembly use the familiar red and blue fittings originally designed for FC333 racing hose. The fittings are now also available finished in all black anodise or all nickel plate. All sizes of this hosing have a vacuum service rating of 20 inches per HG.

Performance & dimensions.

Part No.	Hose I.D.	Hose O.D.	Working Pressure	Bend Radius	Weight
FBU0400	0.22"	0.43"	500psi	2.0"	0.07kg/m
FBU0600	0.34"	0.55"	500psi	2.5"	0.12kg/m
FBU0800	0.44"	0.64"	500psi	3.5"	0.16kg/m
FBU1000	0.56"	0.80"	500psi	4.0"	0.20kg/m
FBU1200	0.69"	0.93"	300psi	4.5"	0.24kg/m
FBU1600	0.88"	1.15"	300psi	5.5"	0.37kg/m
FBU2000	1.13"	1.41"	300psi	5.5"	0.40kg/m

Part No	Price per metre	£	Cat
FBU0400	Hose -4	23.58	40
FBU0600	Hose -6	24.68	40
FBU0800	Hose -8	28.45	40
FBU1000	Hose -10	32.39	40
FBU1200	Hose -12	37.98	40
FBU1600	Hose -16	46.72	40

G210 Mocal® Racing Hose



A high performance racing hose compatible with Aeroquip and similar reusable fittings. CPE neoprene tube, Stainless steel inner tube and black braided nylon outer. Resistant to oils, fuels, coolant and alcohols. Temperature range -49°C to + 149°C.

Part No.	Hose I.D.	Hose O.D.	Working Pressure	Burst Pressure	Weight
G210-6	0.34"	0.56"	500psi	2000psi	0.16kg/m
G210-8	0.44"	0.67"	500psi	2000psi	0.18kg/m
G210-10	0.56"	0.82"	500psi	2000psi	0.24kg/m
G210-12	0.69"	0.96"	350psi	1400psi	0.32kg/m
G210-16	0.88"	1.15"	350psi	1400psi	0.41kg/m

Part No	Price per metre	£	Cat
G210-4	Mocal -4 Racing Hose Black	16.64	40
G210-6	Mocal -6 Racing Hose Black	18.32	40
G210-8	Mocal -8 Racing Hose Black	20.52	40
G210-10	Mocal -10 Racing Hose Black	23.54	40
G210-12	Mocal -12 Racing Hose Black	31.12	40
G210-16	Mocal -16 Racing Hose Black	35.83	40

Re-useable fittings for FC333, Startlite & G210 hose.

Construction. Aluminium, red and blue or black anodised or nickel plated for JIC, black and gold for metric. Aeroquip have compression fitting. Others have double cutter fitting [see page 27](#). A vice and adjustable spanner are all that is needed to assemble to hose. All fittings are double swivel but Aeroquip fittings are available single swivel for those who prefer lightness and simplicity. Steel fittings are available for use with methanol or nitro methane fuels which can corrode aluminium. We can also supply Jiffy-tite quick-connect fittings [see page 62](#).

Female straight swivel fittings.



Part No		£	Cat
HEFA7-6	-6JIC Moquip double cutter red & blue	8.10	41
HEFA7-8	-8JIC Moquip double cutter red & blue	9.56	41
HEFA7-10	-10JIC Moquip double cutter red & blue	13.24	41
HEFA7-12	-12JIC Moquip double cutter red & blue	18.39	41

FBM4412	-6JIC Aeroquip Black	5.18	40
FBM4413	-8JIC Aeroquip Black	6.72	40
FBM4414	-10JIC Aeroquip Black	9.05	40
FBM4415	-12JIC Aeroquip Black	12.78	40
FBM4416	-16JIC Aeroquip Black	19.50	40

FBE1012	-6JIC Aeroquip Nickel	7.07	40
FBE1013	-8JIC Aeroquip Nickel	11.96	40
FBE1014	-10JIC Aeroquip Nickel	13.92	40
FBE1015	-12JIC Aeroquip Nickel	18.91	40

FBM1011	-4JIC Aeroquip red nut with steel body	10.18	40
FBM1012	-6JIC Aeroquip red & blue	5.18	40
FBM1013	-8JIC Aeroquip red & blue	6.72	40
FBM1014	-10JIC Aeroquip red & blue	9.05	40
FBM1015	-12JIC Aeroquip red & blue	12.78	40
FBM1016	-16JIC Aeroquip red & blue	19.02	40
FBM1017	-20JIC Aeroquip red & blue	46.06	40

HEFA2-45-6	M12x1.5 for -6 hose	14.40	40
HEFA2-55-6	M14x1.5 for -6 hose	16.46	40
HEFA2-65-6	M16x1.5 for -6 hose	16.46	40
HEFA2-85-8	M18x1.5 for -8 hose	15.55	40
HEFA2-115-10	M22x1.5 for -10 hose	18.40	40
HEFA2-125-12	M26x1.5 for -12 hose	26.53	40
HEFAF2-165-12	M30x1.5 for -12 hose	37.52	40
HEFAF2-165-16	M30x1.5 for -16 hose	35.33	40

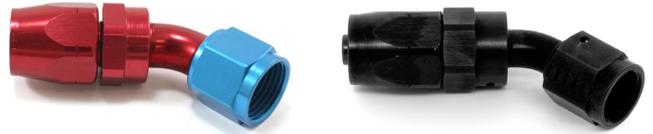
Female 30° swept tube fittings.



Part No		£	Cat
FBM4072	-6JIC Doubleswivel- Aeroquip red & blue	18.88	40
FBM4073	-8JIC Doubleswivel- Aeroquip red & blue	21.13	40
FBM4074	-10JIC Doubleswivel- Aeroquip red & blue	24.82	40
FBM4075	-12JIC Doubleswivel- Aeroquip red & blue	29.97	40
FBM4076	-16JIC Doubleswivel- Aeroquip red & blue	41.72	40
FBM1147	-20JIC Singleswivel- Aeroquip red & blue	72.53	40

FBM4472	-6JIC 30° Double swivel Aeroquip Black	18.88	40
FBM4473	-8JIC 30° Double swivel Aeroquip Black	20.77	40
FBM4474	-10JIC 30° Double swivel Aeroquip Black	24.82	40
FBM4475	-12JIC 30° Double swivel Aeroquip Black	29.97	40
FBM4476	-16JIC 30° Double swivel Aeroquip Black	41.72	40

Female 45° swept tube fittings.



Part No		£	Cat
FBM1021	-4JIC Single swivel- Aqp. red nut with steel body	18.91	40
FBM4022	-6JIC Doubleswivel- Aeroquip red & blue	14.12	40
FBM4023	-8JIC Doubleswivel- Aeroquip red & blue	17.16	40
FBM4024	-10JIC Doubleswivel- Aeroquip red & blue	19.58	40
FBM4025	-12JIC Doubleswivel- Aeroquip red & blue	21.54	40
FBM4026	-16JIC Doubleswivel- Aeroquip red & blue	38.51	40
FBM1027	-20JIC Singleswivel- Aeroquip red & blue	74.12	40

FBM4422	-6JIC 45° Double swivel Aeroquip Black	14.12	40
FBM4423	-8JIC 45° Double swivel Aeroquip Black	17.16	40
FBM4424	-10JIC 45° Double swivel Aeroquip Black	19.58	40
FBM4425	-12JIC 45° Double swivel Aeroquip Black	21.54	40
FBM4426	-16JIC 45° Double swivel Aeroquip Black	38.51	40

FBE4022	-6JIC 45° Aeroquip Nickel	20.73	40
FBE4023	-8JIC 45° Aeroquip Nickel	23.41	40
FBE4024	-10JIC 45° Aeroquip Nickel	25.93	40
FBE4025	-12JIC 45° Aeroquip Nickel	43.29	40

Female 60° swept tube fittings.



Part No		£	Cat
FBM4082	-6JIC Doubleswivel- Aeroquip red & blue	18.88	40
FBM4083	-8JIC Doubleswivel- Aeroquip red & blue	20.77	40
FBM4084	-10JIC Doubleswivel- Aeroquip red & blue	24.82	40
FBM4085	-12JIC Doubleswivel- Aeroquip red & blue	29.97	40
FBM4086	-16JIC Doubleswivel- Aeroquip red & blue	41.72	40
FBM1148	-20JIC Singleswivel- Aeroquip red & blue	72.53	40

FBM4482	-6JIC 60° Double swivel Aeroquip Black	18.88	40
FBM4483	-8JIC 60° Double swivel Aeroquip Black	20.77	40
FBM4484	-10JIC 60° Double swivel Aeroquip Black	24.82	40
FBM4485	-12JIC 60° Double swivel Aeroquip Black	29.97	40
FBM4486	-16JIC 60° Double swivel Aeroquip Black	41.72	40

Female 90° swept tube fittings.



Part No		£	Cat
FBM1031	-4JIC Singleswivel- Aqp. red nut with steel body	16.96	40
FBM4032	-6JIC Doubleswivel- Aeroquip red & blue	14.11	40
FBM4033	-8JIC Doubleswivel- Aeroquip red & blue	16.69	40
FBM4034	-10JIC Doubleswivel- Aeroquip red & blue	19.85	40
FBM4035	-12JIC Doubleswivel- Aeroquip red & blue	21.99	40
FBM4036	-16JIC Doubleswivel- Aeroquip red & blue	31.61	40
FBM1037	-20JIC Single swivel- Aeroquip red & blue	74.64	40

FBM4432	-6JIC 90° Double swivel Aeroquip Black	14.11	40
FBM4433	-8JIC 90° Double swivel Aeroquip Black	16.69	40
FBM4434	-10JIC 90° Double swivel Aeroquip Black	19.85	40
FBM4435	-12JIC 90° Double swivel Aeroquip Black	21.99	40
FBM4436	-16JIC 90° Double swivel Aeroquip Black	30.57	40

FBE4032	-6JIC 90° Aeroquip Nickel	19.16	40
FBE4033	-8JIC 90° Aeroquip Nickel	23.64	40
FBE4034	-10JIC 90° Aeroquip Nickel	27.69	40
FBE4035	-12JIC 90° Aeroquip Nickel	29.51	40

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Female 120° swept tube fittings.



Part No		£	Cat
FBM4042	-6JIC Doubleswivel- Aeroquip red & blue	25.96	40
FBM4043	-8JIC Doubleswivel- Aeroquip red & blue	27.24	40
FBM4044	-10JIC Doubleswivel- Aeroquip red & blue	27.86	40
FBM4045	-12JIC Doubleswivel- Aeroquip red & blue	28.40	40
FBM4046	-16JIC Double swivel Aeroquip red & blue	43.97	40
FBM4442	-6JIC 120° Double swivel Aeroquip Black	25.96	40
FBM4443	-8JIC 120° Double swivel Aeroquip Black	27.24	40
FBM4444	-10JIC 120° Double swivel Aeroquip Black	25.27	40
FBM4445	-12JIC 120° Double swivel Aeroquip Black	28.40	40
FBM4446	-16JIC 120° Double swivel Aeroquip Black	45.82	40

Female 150° swept tube fittings.



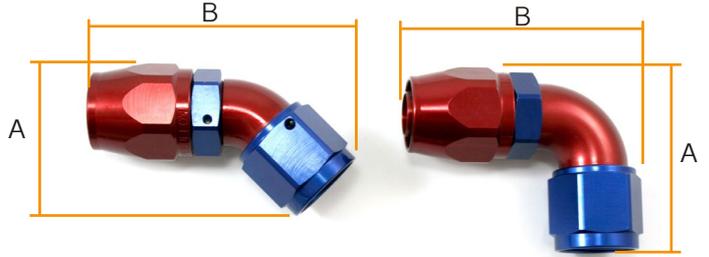
Part No		£	Cat
FBM4052	-6JIC Doubleswivel- Aeroquip red & blue	25.96	40
FBM4053	-8JIC Doubleswivel- Aeroquip red & blue	30.74	40
FBM4054	-10JIC Double swivel- Aeroquip red & blue	31.10	40
FBM4055	-12JIC Double swivel- Aeroquip red & blue	35.81	40
FBM4056	-16JIC Double swivel Aeroquip red & blue	41.31	40
FBM4452	-6JIC 150° Double swivel Aeroquip Black	25.96	40
FBM4453	-8JIC 150° Double swivel Aeroquip Black	30.74	40
FBM4454	-10JIC 150° Double swivel Aeroquip Black	31.10	40
FBM4455	-12JIC 150° Double swivel Aeroquip Black	35.81	40
FBM4456	-16JIC 150° Double swivel Aeroquip Black	40.61	40

Female 180° swept tube fittings.



Part No		£	Cat
FBM4062	-6JIC Double swivel- Aeroquip red & blue	25.96	40
FBM4063	-8JIC Double swivel- Aeroquip red & blue	30.74	40
FBM4064	-10JIC Double swivel- Aeroquip red & blue	31.10	40
FBM4065	-12JIC Double swivel- Aeroquip red & blue	35.81	40
FBM4066	-16JIC Double swivel- Aeroquip red & blue	46.39	40
FBM4462	-6JIC 180° Double swivel Aeroquip Black	25.96	40
FBM4463	-8JIC 180° Double swivel Aeroquip Black	30.74	40
FBM4464	-10JIC 180° Double swivel Aeroquip Black	31.10	40
FBM4465	-14JIC 180° Double swivel Aeroquip Black	35.81	40
FBM4466	-16JIC 180° Double swivel Aeroquip Black	46.39	40

Mocal® compact swept bend fittings.



A new concept made possible by advanced manufacturing techniques, the compact fitting has not only the small envelope of the forged fitting but also the strength due to the consistent wall thickness and one piece construction. All aluminium, double swivel, anodised red and blue or black (add BK to the part number).

Dimensions	90 Degree Fitting		45 Degree Fitting	
	Dim A in inches	Dim B in inches	Dim A in inches	Dim B in inches
-6JIC	1.4	1.9	2.4	1.5
-8JIC	1.8	2.4	2.6	1.7
-10JIC	2.2	2.7	3.0	2.2
-12JIC	2.4	3.1	3.2	2.3

Part No		£	Cat
HEFA4C7-6DS	-6JIC 45° compact	20.23	40
HEFA4C7-8DS	-8JIC 45° compact	23.54	40
HEFA4C7-10DS	-10JIC 45° compact	29.42	40
HEFA4C7-12DS	-12JIC 45° compact	36.78	40
HEFA9C7-6DS	-6JIC 90° compact	20.23	40
HEFA9C7-8DS	-8JIC 90° compact	30.01	40
HEFA9C7-10DS	-10JIC 90° compact	37.53	40
HEFA9C7-12DS	-12JIC 90° compact	46.90	40

Male fittings.



Fit to NPTF and M22 female ports

Part No		£	Cat
FBM1343	3/8NPTF 90° for -6 hose Dbl swivel- Aeroquip	32.93	40
FBM1344	1/2NPTF 90° for -8 hose Dbl swivel- Aeroquip	26.13	40
FBM1345	3/4 NPTF 90° for -12 hose Dbl swivel- Aeroquip	41.52	40
HEMA2-105-6	M22 male swivel straight for -6 hose	6.31	40
HEMA2-105-8	M22 male swivel straight for -8 hose	6.72	40
HEMA2-105-10	M22 male swivel straight for -10 hose	7.05	40
HEMA2-105-12	M22 male swivel straight for -12 hose	8.36	40
HEMA42-105-6	M22 male swivel 45° for -6 hose	12.96	40
HEMA42-105-8	M22 male swivel 45° for -8 hose	14.92	40
HEMA42-105-10	M22 male swivel 45° for -10 hose	16.24	40
HEMA42-105-12	M22 male swivel 45° for -12 hose	18.94	40
HEMA92-105-6	M22 male swivel 90° for -6 hose	12.96	40
HEMA92-105-8	M22 male swivel 90° for -8 hose	14.92	40
HEMA92-105-10	M22 male swivel 90° for -10 hose	16.24	40
HEMA92-105-12	M22 male swivel 90° for -12 hose	18.94	40

Metric Forged or block fittings.

Forged fittings will cause considerable pressure drop by comparison with swept tube fittings. For JIC fittings we recommend compact swept fittings. All forged fittings are double swivel and double cutter.

Female 45° forged fittings.



Part No		£	Cat
HEFA4F2-55-6	M14x1.5 for -6 hose	25.23	40
HEFA4F2-65-6	M16x1.5 for -6 hose	34.90	40
HEFA4F2-85-8	M18x1.5 for -8 hose	44.99	40
HEFA4F2-115-10	M22x1.5 for -10 hose	38.50	40
HEFA4F2-125-12	M26x1.5 for -12 hose	47.62	40
HEFA4F2-165-12	M30x1.5 for -12hose	55.23	40
HEFA4F2-165-16	M30x1.5 for -16hose	40	40

Female 90° forged fittings.



Part No		£	Cat
HEFA9F2-45-6	M12x1.5 for -6 hose	25.85	40
HEFA9F2-55-6	M14x1.5 for -6 hose	34.05	40
HEFA9F2-65-6	M16x1.5 for -6 hose	34.90	40
HEFA9F2-85-8	M18x1.5 for -8 hose	44.99	40
HEFA9F2-115-10	M22x1.5 for -10 hose	53.20	40
HEFA9F2-125-12	M26x1.5 for -12 hose	50.72	40
HEFA9F2-165-12	M30x1.5 for -12hose	55.47	40
HEFA9F2-165-16	M30x1.5 for -16hose	64.04	40

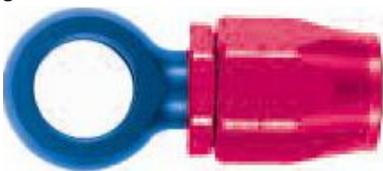
Carburettor Banjo fittings



We recommend that banjo fittings are only used for non viscous fluids or, if in oil installations, where flow restrictions are not important. Very neat Weber installations can be made combining the above with banjo adapters on [page 56](#). The fittings listed come complete with bolts and washers. The Mocal® fittings listed below are sold without bolts & washers. [See page 57](#) and [67](#) for bolts, and washers.

Part No		£	Cat
FBM1067	Weber M12x1.5 for -6 hose	22.25	40
FBM1068	double as above	34.98	40
FBM1066	Holley 9/16-24for -6 hose	21.18	40
FBM1069	double as above	52.46	40
FBM1070	Solex/Dellorto M12x1.25for -6 hose	23.86	40
BAR2-7	To convert above for Dellorto downdraft with M7	2.09	40

Banjo fittings



Part No		£	Cat
HEBANA-M12-6	M12 for -6 hose	23.33	40
HEBANA-M14-6	M14 for -6 hose	23.85	40
HEBANA1-M14-6	M14 for -6 hose- extended	23.85	40
HEBANA-M16-6	M16 for -6 hose	22.67	40
HEBANA1-M16-6	M16 for -6 hose- extended	22.67	40

HEBANA-M18-6	M18 for -6 hose	21.61	40
HEBANA-M22-6	M22 for -6 hose	24.43	40
HEBANA-M14-8	M14 for -8 hose	23.01	40
HEBANA-M16-8	M16 for -8 hose	21.59	40
HEBANA-M18-8	M18 for -8 hose	20.93	40
HEBANA3-8-8	1/2 BSP/M22 for -8 hose	21.59	40
HEBANA-M16-10	M16 for -10 hose	20.93	40
HEBANA1-M16-10	M16 for -10 hose- extended	22.60	40
HEBANA-M18-10	M18 for -10 hose	21.71	40
HEBANA-M24-10	M24 for -10 hose	23.84	40

Dual feed assemblies for Holley double pumper carburetors.



Assembly features a capped -4JIC male to facilitate fitting of a fuel gauge, if smaller bore required use an adapter -3JIC male/female Part No MFA1-3-6.

Part No		£	Cat
FCP0101	-6 for Holley 800/850 9.25 bowl centres	95.71	40
FCP0134	-8 or Holley 800/850 9.25 bowl centres	117.29	40
FCP0102	-6 forHolley 600/650 8.62 bowl centres	95.71	40
FCP0129	-6 for Holley 4010/4011 8.25 bowl centres	81.24	40

Swaged fittings for FC333, Startlite.



For ultimate weight saving swaged on fittings must be used. These fittings are aluminium, anodised red and silver with plain aluminium ferrules. Swaging can be carried out at our factory.

Part No		£	Cat
FBM4212	-6JIC Female straight	7.98	40
FBM4222	-6JIC Female double swivel 45°	20.63	40
FBM4232	-6JIC Female double swivel 90°	20.57	40
FBM4242	-6JIC Female double swivel 120°	26.12	40
FBM4252	-6JIC Female double swivel 150°	25.00	40
FBM4213	-8JIC Female straight	9.47	40
FBM4223	-8JIC Female double swivel 45°	22.15	40
FBM4233	-8JIC Female double swivel 90°	19.64	40
FBM4243	-8JIC Female double swivel 120°	25.80	40
FBM4253	-8JIC Female double swivel 150°	28.42	40
FBM4263	-8JIC Female double swivel 180°	32.79	40
FBM4214	-10JIC Female straight	14.40	40
FBM4224	-10JIC Female double swivel 45°	25.27	40
FBM4234	-10JIC Female double swivel 90°	25.27	40
FBM4244	-10JIC Female double swivel 120°	53.23	40
FBM4254	-10JIC Female double swivel 150°	49.93	40
FBM4264	-10JIC Female double swivel 180°	46.65	40
FBM4215	-12JIC Female straight	14.40	40
FBM4225	-12JIC Female double swivel 45°	45.87	40
FBM4235	-12JIC Female double swivel 90°	30.25	40
FBM4245	-12JIC Female double swivel 120°	55.97	40
FBM4255	-12JIC Female double swivel 150°	63.22	40
FBM4265	-12JIC Female double swivel 180°	57.98	40
FBM4216	-16JIC Female straight	21.45	40
FBM4226	-16JIC Female double swivel 45°	68.92	40
FBM4236	-16JIC Female double swivel 90°	44.43	40
FBM4246	-16JIC Female double swivel 120°	49.48	40
FBM4256	-16JIC Female double swivel 150°	51.48	40
FBM4217	-20JIC Female straight	64.11	40
FBM4127	-20JIC Female double swivel 45°	116.61	40
FBM4137	-20JIC Female double swivel 90°	122.94	40

Pro Gold hose

A light weight hose suitable for racing applications. This is a convoluted hose with a composite construction inner core of PTFE reinforced with impregnated glass fibre wrapped on a mandrel. The outer covering can be either stainless steel braiding or, for lightness, High temperature polymer braid or the cost effective polyester braid.



Performance & dimensions

Stainless steel braided. Temperature range -54°C to +204°C. Max working pressure 500psi.

Part No.	Hose I.D.	Hose O.D.	Vacuum	Weight	Bend Radius
AR - 06 - S	0.36"	0.54"	28in/Hg	0.16kg/m	1.00"
AR - 08 - S	0.43"	0.62"	28in/Hg	0.19kg/m	1.50"
AR - 10 - S	0.54"	0.75"	28in/Hg	0.27kg/m	2.00"
AR - 12 - S	0.66"	0.88"	28in/Hg	0.32kg/m	2.50"
AR - 16 - S	0.87"	1.08"	28in/Hg	0.39kg/m	3.50"

High temperature polymer braided. Temperature range -54°C to 200°C. Max working pressure 250psi

Part No.	Hose I.D.	Hose O.D.	Vacuum	Weight	Bend Radius
AR - 06 - HTP	0.36"	0.54"	28in/Hg	0.09kg/m	1.00"
AR - 08 - HTP	0.43"	0.62"	28in/Hg	0.10kg/m	1.50"
AR - 10 - HTP	0.54"	0.75"	28in/Hg	0.15kg/m	2.00"
AR - 12 - HTP	0.66"	0.88"	20in/Hg	0.17kg/m	2.50"
AR - 16 - HTP	0.87"	1.08"	10in/Hg	0.23kg/m	3.50"

Polyester braided. Temperature range -54°C to 125°C. Max working pressure 250psi except -16 = 150psi. All dimensions as HTP braided.

Part No		£	Cat
AR-06-S	Stainless braided Hose -6	21.66	42
AR-08-S	Stainless braided Hose -8	27.17	42
AR-10-S	Stainless braided Hose-10	31.69	42
AR-12-S	Stainless braided Hose-12	42.02	42
AR-16-S	Stainless braided Hose-16	54.80	42
AR-06-HTP	High temperature polymer braided Hose -6	34.28	42
AR-08-HTP	High temperature polymer braided Hose -8	34.21	42
AR-10-HTP	High temperature polymer braided Hose-10	35.63	42
AR-12-HTP	High temperature polymer braided Hose-12	39.40	42
AR-16-HTP	High temperature polymer braided Hose-16	57.06	42
AR-06-P	polyester braided Hose -6	24.18	42
AR-08-P	polyester braided Hose -8	30.34	42
AR-10-P	polyester braided Hose-10	34.72	42
AR-12-P	polyester braided Hose-12	37.64	42
AR-16-P	polyester braided Hose-16	49.07	42

Fittings for Pro Gold hose

Fittings are aluminium with anodised blue fittings and gold nuts/ferrules. Elbows have one piece bends (not brazed) and the double swivel rotates in the housing not hose. ProGold AR fittings are reusable, always use a new olive, see instructions on [page 88](#). ProGold AC fittings are swaged at our factory, the assembly being lighter.

Part No		£	Cat
AR-06-F3	-6JIC Female straight	10.35	42
AR-08-F3	-8JIC Female straight	11.67	42
AR-10-F3	-10JIC Female straight	13.63	42
AR-12-F3	-12JIC Female straight	15.41	42
AR-16-F3	-16JIC Female straight	22.43	42
AR-06-ST-M12	M12x1.5 Female straight for -6 hose	12.75	42
AR-06-ST-M14	M14x1.5 Female straight for -6 hose	12.75	42
AR-06-ST-M16	M16x1.5 Female straight for -6 hose	14.29	42

AR-08-ST-M18	M18x1.5 Female straight for -8 hose	15.73	42
AR-10-ST-M22	M22x1.5 Female straight for -10 hose	18.78	42
AR-12-ST-M26	M26x1.5 Female straight for -12 hose	35.21	42
AR-16-ST-M30	M30x1.5 Female straight for -16 hose	34.89	42

AR-06-G3	-6JIC female 45°	16.11	42
AR-06-G3-DS	-6JIC Female double swivel 45°	17.66	42
AR-08-G3	-8JIC female 45°	18.22	42
AR-08-G3-DS	-8JIC female double swivel 45°	20.90	42
AR-10-G3	-10JIC female 45°	20.66	42
AR-10-G3-DS	-10JIC female double swivel 45°	24.42	42
AR-12-G3	-12JIC female 45°	26.81	42
AR-12-G3-DS	-12JIC Female double swivel 45°	34.73	42
AR-16-G3	-16JIC female 45°	34.83	42
AR-16-G3-DS	-16JIC Female double swivel 45°	43.47	42

AR-06-45-M12	M12x1.5 Female 45 for -6 hose	23.08	42
AR-06-45-M14	M14x1.5 Female 45 for -6 hose	21.04	42
AR-06-45-M16	M16x1.5 Female 45 for -6 hose	24.54	42
AR-08-45-M18	M18x1.5 Female 45 for -8 hose	26.10	42
AR-10-45-M22	M22x1.5 Female 45 for -10 hose	29.05	42
AR-12-45-M26	M26x1.5 Female 45 for -12 hose	40.54	42
AR-16-45-M30	M30x1.5 Female 45 for -16 hose	48.91	42

AR-06-H3	-6JIC female 90°	16.11	42
AR-06-H3-DS	-6JIC Female double swivel 90°	18.76	42
AR-08-H3	-8JIC female 90°	18.22	42
AR-08-H3-DS	-8JIC Female double swivel 90°	21.58	42
AR-10-H3	-10JIC female 90°	21.97	42
AR-10-H3-DS	-10JIC Female double swivel 90°	25.93	42
AR-12-H3	-12JIC female 90°	27.20	42
AR-12-H3-DS	-12JIC Female double swivel 90°	34.73	42
AR-16-H3	-16JIC female 90°	34.83	42
AR-16-H3-DS	-16JIC Female double swivel 90°	43.47	42

AR-06-90-M12	M12x1.5 Female 90 for -6 hose	24.47	42
AR-06-90-M14	M14x1.5 Female 90 for -6 hose	24.85	42
AR-06-90-M16	M16x1.5 Female 90 for -6 hose	25.91	42
AR-08-90-M18	M18x1.5 Female 90 for -8 hose	26.70	42
AR-10-90-M22	M22x1.5 Female 90 for -10 hose	29.90	42
AR-12-90-M26	M26x1.5 Female 90 for -12 hose	42.57	42
AR-16-90-M30	M30x1.5 Female 90 for -16 hose	43.79	42

AR-06-P3-DS	-6JIC Female double swivel 120°	24.18	42
AR-08-P3-DS	-8JIC Female double swivel 120°	25.13	42
AR-10-P3-DS	-10JIC Female double swivel 120°	32.41	42
AR-12-P3-DS	-12JIC Female double swivel 120°	34.55	42
AR-16-P3-DS	-16JIC Female double swivel 120°	61.72	42

AR-06-R3-DS	-6JIC Female double swivel 150°	24.18	42
AR-08-R3-DS	-8JIC Female double swivel 150°	25.13	42
AR-10-R3-DS	-10JIC Female double swivel 150°	30.51	42
AR-12-R3-DS	-12JIC Female double swivel 150°	34.55	42
AR-16-R3-DS	-16JIC Female double swivel 150°	61.72	42

AR-06-S3-DS	-6JIC Female double swivel 180°	24.18	42
AR-08-S3-DS	-8JIC Female double swivel 180°	25.64	42
AR-10-S3-DS	-10JIC Female double swivel 180°	30.51	42
AR-12-S3-DS	-12JIC Female double swivel 180°	34.55	42
AR-16-S3-DS	-16JIC Female double swivel 180°	61.72	42

Banjo fittings

AR-06-BJ-01	9/16 UNF for -6 hose	16.56	42
AR-06-BJ-02	M12x1.25 for -6 hose	16.56	42
AR-06-BJ-D02	M12x1.25 Double for -6 hose	33.80	42
AR-06-BJ-03	M12x1.50 for -6 hose	16.56	42
AR-06-BJ-04	M14x1.50 for -6 hose	18.05	42

Replacement olives & sockets for ProGold AR fittings.

AR-O-06	-6 olive	2.78	42
AR-O-08	-8 olive	2.97	42
AR-O-10	-10 olive	3.42	42
AR-O-12	-12 olive	4.08	42
AR-O-16	-16 olive	4.27	42
AR-S-06	-6 socket	3.62	42
AR-S-08	-8 socket	3.92	70
AR-S-10	-10 socket	4.21	70
AR-S-12	-12 socket	4.97	70
AR-S-16	-16 socket	5.71	70

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Stainless braided TFE hose

Aeroquip TFE Racing Hose/ 2807



Extruded Teflon tube with stainless steel single wire braid cover. Available in -2 to -16 sizes. A high pressure hose with excellent fluid compatibility and a stainless steel cover that is resistant to corrosion and abrasion. Especially on sizes greater than 3/8" bore does not have the same flexibility as FC333 racing hose. Due to its very low ratio of expansion to pressure, this hose has proved to be ideal for use on flexible lines in competition vehicle braking and clutch systems providing a desirable hard pedal with reduced travel. It does not conform to existing standards laid down for normal road vehicles, if subjected to continuous flexing the stainless steel strands will eventually fracture and could penetrate the Teflon liner, however this eventuality does not occur within the normal life of a competition vehicle, this hose is common with all other components used on such vehicles should be regularly inspected for signs of wear. The hose is also suitable for oil pressure gauge lines, fuel injection pipes, power steering hoses and, because of its high temperature capabilities, on turbo charger oil feed and return lines. Temperature range -73°C to +232°C.

Part No.	Hose I.D.	Hose O.D.	Working Pressure	Burst Pressure	Bend Radius
FBC0300	0.13"	0.25"	3000psi	12000psi	1.50"
FBC0400	0.19"	0.30"	3000psi	12000psi	2.00"
FBC0600	0.32"	0.42"	2500psi	10000psi	4.00"
FBC0800	0.42"	0.54"	2000psi	8000psi	5.25"

Sizes - Available from -3 to -16 but only -3,-4,-6 and -8 are relevant to vehicle applications. -3 is used for brake hose applications, -4 for clutch due to greater fluid transfer requirements and for turbo charger feeds, -6 & -8 for power steering and turbo charger drains.

Part No	£/metre	Cat
2807-3 FBC0300 -3 hose	13.85	80
2807-4 FBC0400 -4 hose	14.85	80
2807-6 FBC0600 -6 hose	44.93	80
2807-8 FBC0800 -8 hose	22.20	80

Aeroquip 666 Aerospace hose

Similar to above but made to closer tolerances and tested to Military standards. The Teflon liner is electrically conductive to prevent electrostatic failures, non conductive may be ordered. Available in -3 to -24 sizes. Only -3 is the same size as 2807/TFE and its imitators. Use standard fittings in -3, -4 requires different sleeve, so assembly has different part no, -6 and up have different fittings. Fittings are also available with aluminium nipple (main body) and stainless socket and sleeve in -4 and above.

Part No	£/metre	Cat
AE240-3 -3 hose	31.61	40
666-4 -4 hose	28.24	40
666-6 -6 hose	47.83	40

Mocal® TFE hose

TFE hose with stainless steel outer braid has many industrial uses and is manufactured as such in the UK and is compatible with Aeroquip and Mocal® fittings, we offer such a hose because of its extremely competitive price and suitability for competition vehicle use. Available in all sizes -2 to -8 from stock. We can offer a PVC skin for this hose for added protection and easy wipe cleaning, available clear coloured, Skin must be cut back to take fitting.

Part No	Price per metre	£	Cat
TFE2	-2 hose	9.56	80
TFE3	-3 hose	6.71	80
TFEPVC3	-3 hose with PVC outer- clear	7.92	80
TFEPVC4	-4 hose with PVC outer	11.38	80
TFE3B	-3 hose with PVC cover-black	7.92	80
TFE3R	-3 hose with PVC cover-red	7.92	80
TFEPVC3TRED	-3 hose with PVC cover-translucent red	7.92	80
TFEPVC3BLU	-3 hose with PVC cover-blue	7.92	80
TFEPVC3BLUE	-3hose with PVC cover-translucent blue	7.92	80
TFEPVC3G	-3hose with PVC cover-green	7.92	80
TFE4C	-4 hose conductive	7.83	80
TFE6C	-6 hose conductive	10.57	80
TFE8	-8 hose conductive	12.86	80

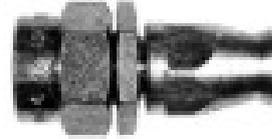
Fittings for 2807/ TFE racing hose, 666 and Mocal® TFE hoses

Function. The fittings are available in swaged or reusable form. Reusable fittings can be assembled using a vice and suitable spanner. Use up to 3 times before replacing sleeve. [See page 87](#) for fitting instructions.

Construction. Three piece fittings consisting of a nipple (the main part), sleeve (olive) and socket (nut). Aeroquip manufacture a large range of Super Gem female fittings in mild steel, stainless steel and aluminium with stainless socket, the latter for 666 hose, but can be used on other -4 hoses by changing the sleeve.

There is a demand for specialised fittings not covered by this range, which are manufactured by us on our state of the art CNC machinery and supplied complete with the relevant Aeroquip sleeve and socket, we call these Mocal® fittings. Fittings are usually mild steel, cadmium plated, but can be chrome plated. Stainless steel fittings can be supplied and the more popular are listed.

Female straight fitting, swivel.



Part No for plated steel Aeroquip	£	Cat
E321-3 1/8BSP for -3 hose	5.28	80
E321-4 1/4BSP for -4 hose	8.06	80
E321-6 3/8BSP for -6 hose	13.91	80
E321-8 1/2BSP for -8 hose	13.19	80

FBM1100 -3IIC for -3 hose	6.58	81
FBM1101 -4IIC for -4 hose	6.38	81
FBM1103 -6IIC for -6 hose	7.49	81
FBM1104 -8IIC for -8 hose	11.11	81

FBM1134 -6SAE for -6 hose	7.72	81
FBM1135 -8SAE for -8 hose	12.70	81

Part No for plated steel Moquip	£	Cat
HETF2-31 M10x1 for -3 hose	8.21	50
HETF7-3 -3IIC for -3 hose	5.46	50
E321-3G 1/8BSP with flat seat for pressure gauge -3 hose	6.19	80

Part No for stainless steel Aeroquip	£	Cat
FBM1130 -3IIC for -3 hose	74.29	81
FBM1102 -4IIC for -4 hose except 666-4	28.48	81
F66000-4 -4IIC for 666-4 hose only	33.27	81

Part No for stainless steel Moquip	£	Cat
HETSSF7-3 -3IIC for -3 hose	12.56	80

Part No for aluminium with stainless socket Aeroquip	£	Cat
F66826-4 -4IIC alum for 666-4 hose only	38.01	40
F66826-6 -6IIC alum for 666-6 hose only	42.47	40

Part No for all aluminium Moquip	£	Cat
HETFA7-3 -3IIC for -3 hose	9.79	40
HETFA7-4 -4IIC for -4 hose	9.56	40
HETFA7-6 -6IIC for -6 hose	9.56	40
HETFA7-8 -8IIC for -8 hose	13.24	40

HETAF2-31X M10x1.0 for -3 hose	17.85	50
HETAF2-45-4M12x1.5 for -4 hose	14.30	81
HETAF2-55-6M14x1.5 for -6 hose	16.68	80

Female 45° swept fitting



Part No for plated steel Aeroquip		£	Cat
E331-4	1/4BSP for -4 hose single swivel	13.10	80
E331-6	3/8BSP for -6 hose single swivel	19.69	80
E331-8	1/2BSP for -8 hose single swivel	17.55	80
FBM1110	-3JIC for -3 hose single swivel	13.12	81
FBM1111	-4JIC for -4 hose single swivel	11.73	81
FBM1112	-6JIC for -6 hose single swivel	17.16	81
FBM1113	-8JIC for -8 hose single swivel	13.54	81
FBM1114	-6SAE for -6 hose single swivel	11.07	81
Part No for plated steel Mocal			
E331-3	1/8BSP for -3 hose single swivel	7.60	80
HETF42-31	M10x1 for -3 hose single swivel	8.36	50
HETF47-3	-3JIC for -3 hose single swivel	8.15	50
Part No for all aluminium Moquip			
HETFA47-6	-6JIC for -6 hose double swivel	23.91	80
HETFA47-8	-8JIC for -8 hose double swivel	27.06	80

Female 45° forged or block fitting



Part No for stainless steel Aeroquip.		£	Cat
FBM1140	-3JIC for -3 hose all stainless-double swivel	99.75	81
FBM1146	-4JIC for -4 hose all stainless-double swivel	59.53	81
F6633-4	-4JIC for 666-4 hose only all stainless-dbl swivel	52.50	81
Part No for stainless steel Moquip.			
HETSSF47-3	-3JIC for -3 hose all stainless	22.63	80
Part No for aluminium with stainless socket Aeroquip.			
F66555-4	-4JIC for 666-4 hose only- double swivel	61.18	40
F66555-6	-6JIC for 666-6 hose only- double swivel	59.92	40
Part No for all aluminium Moquip.			
HETAF47-3	-3JIC for -3 hose	22.07	80
HETFA47-4	-4JIC for -4 hose	23.91	80

Female 90° swept fitting



Part No for plated steel Aeroquip		£	Cat
E332-4	1/4BSP for -4 hose single swivel	9.85	80
E332-6	3/8BSP for -6 hose single swivel	31.14	80
E332-8	1/2BSP for -8 hose single swivel	27.47	80
FBM1120	-3JIC for -3 hose single swivel	13.00	81
FBM1121	-4JIC for -4 hose single swivel	12.27	81
FBM1122	-6JIC for -6 hose single swivel	18.57	81
FBM1123	-8JIC for -8 hose single swivel	16.80	81
FBM1136	-6SAE for -6 hose single swivel	11.28	81
Part No for plated steel Mocal			
E332-3G	1/8BSP with flat seat for pressure gauge -3 hose	8.79	80
E332-3	1/8BSP for -3 hose single swivel	7.01	80
HETF92-31	M10x1 for -3 hose single swivel	9.66	50
HETF97-3	-3JIC for -3 hose single swivel	7.57	50
Part No for all aluminium Moquip.			
HETFA97-6	-6JIC for -6 hose single swivel	23.91	80
HETFA97-8	-8JIC for -8 hose single swivel	27.06	80

Female 90° forged or block fitting.



Part No for stainless steel Aeroquip.		£	Cat
FBM1150	-3JIC for -3 hose all stainless- double swivel	89.55	81
FBM1151	-4JIC for -4 hose all stainless- double swivel.	79.68	81
F6605-4	-4JIC for 666-4 hose only all stainless- dbl swivel	58.02	81
Part No for aluminium with stainless socket Aeroquip			
F6699-4	-4JIC for 666-4 hose only- double swivel	69.07	81
F6699-6	-6JIC for 666-6 hose only- double swivel	73.26	81
Part No for stainless steel Moquip			
HETSSF97-3	-3JIC for -3 hose not double swivel	25.25	81
Part No for all aluminium Moquip.			
HETAF97-3	-3JIC for -3 hose-double swivel	22.07	81
HETFA97-4	-4JIC for -4 hose double swivel	23.91	81

Female 120° swept fitting



Part No for all aluminium Moquip.		£	Cat
HETAF27-6	-6JIC for -6 hose double swivel	25.75	81
HETAF27-8	-8JIC for -8 hose double swivel	30.90	81

Female 150° swept fitting, swivel



Part No for all aluminium Moquip.		£	Cat
HETFA57-6	-6JIC for -6 hose double swivel	25.75	81
HETFA57-8	-8JIC for -8 hose double swivel	30.90	81

Female 180° swept fitting



Part No for all aluminium Moquip.		£	Cat
HETAF87-6	-6JIC for -6 hose double swivel	25.75	81
HETAF87-8	-8JIC for -8 hose double swivel	30.90	81

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Mocal® male fittings



Non swivel, direct fitting into calipers, master and wheel cylinders. Convex & concave seal on bottom of port. Flat use washers under hexagon.

Part No for plated steel Moquip.	£	Cat
HET1-3 3/8UNF flat - .37 under hex for -3 hose	5.52	50
HETX1-3 3/8UNF convex seat- .50 under hex for -3 hose	6.27	50
HETC1-3 3/8UNF concave seat- .37 under hex for -3 hose	5.52	50
HET2-31 M10x1.0 flat- .37 under hex for -3 hose	5.41	50
HETC2-31 M10x1.0 concave seat- .37 under hex for -3 hose	6.15	50
HETX2-31 M10x1.0 convex seat- .57 under hex for -3 hose	5.92	50
HET2-32 M10x1.25 flat- .37 under hex for -3 hose	11.88	50
HET1-4 7/16UNF flat for -4 hose	11.12	50
HET2-41 M12x1.0 flat for -4 hose	10.65	50
HET8-3 1/8NPTF for -3 hose	7.40	50
Part No for Moquip stainless steel	£	Cat
HETSS1-3 3/8UNF flat/convex seat for -3 hose	9.49	80
HETSS2-31 M10 x 1 concave seat for -3 hose	9.85	80

Mocal® male bulkhead fittings.

Circlip

Threaded



See page 59 & 67 for locknuts & lock washers

Part No for plated steel Part No	£	Cat
HETB1-3 3/8UNF for -3 hose threaded	6.27	50
HETB2-31 M10x1 for -3 hose threaded	5.99	50
HETBC2-31 M10x1.0 for -3 hose circlip	9.15	50
HETB-4-3 7/16UNF for -3 hose threaded	8.07	50
HETB1-4 7/16UNF for -4 hose threaded	11.17	50
HETB2-41 M12x1 for -4 hose threaded	12.80	50
Part No for Moquip stainless steel	£	Cat
HETSSB1-3 3/8UNF for -3 hose	9.54	80
HETSSB2-31 M10 x 1 for -3 hose	9.61	80

Mocal® bulkhead fittings with bleed screw.



Part No for plated steel Moquip.	£	Cat
HETBB1-3 3/8UNF for -3 hose with locknut	13.92	50

Moca® female bulkhead fittings

Porsche type (P) Circlip

Thread type (CT)

Circlip type (C)



Non swivel, takes 5/8Whitx26 nut or original snap clip, direct fitting onto metal brake pipes with male nuts. See page 59 & 67 for locknuts & lock washers.

Part No for plated steel Moquip.	£	Cat
HETBF1-3 3/8UNF concave seat for -3 hose (CT)	7.86	50
HETBFX1-3 3/8UNF convex seat for -3 hose (CT)	8.87	50
HETBF2-31 M10x1 concave seat for -3 hose (CT)	7.55	50
HETBFX1-31 M10x1 convex seat for -3 hose (CT)	9.12	50
HETBFC2-31V M10x1 concave seat for -3 hose (C)	7.46	50
HETBFC2-31X M10x1 convex seat for -3 hose (C)	12.60	50
HETBFP2-31 M10x1 concave seat Porsche type for -3 hose.(P)	8.75	50
HETBF2-32 M10x1.25 concave seat for -3 hose (CT)	10.65	50
HETBFX2-32 M10x1.25 convex seat for -3 hose (CT)	12.38	50
HETBFC2-32 M10x1.25 concave seat for -3 hose (C)	9.27	50
HETBFC2-32X M10x1.25 convex seat for -3 hose (C)	9.27	50
HETBFL2-32 M10x1.25 LANCIA type for -3 hose	7.80	50
HETBF1-4-3 7/16UNF concave seat for -3 hose (CT)	9.69	50
HETBF1-4 7/16UNF concave seat for -4 hose (CT)	15.25	50
HETBFX1-4 7/16UNF convex seat for -4 hose (CT)	15.17	50
HETBF2-41-3 M12x1 concave seat for -3 hose (CT)	15.15	50
HETBF2-41-3X M12x1 convex seat for -3 hose (CT)	12.23	50
HETBF2-41 M12x1 concave seat for -4 hose (CT)	22.02	50
HETBF2-41X M12x1 convex seat for -4 hose (CT)	18.25	50
HETBF2-42-3 M12x1.25 concave seat for -3 hose (CT)	8.15	50
BNS5/8W 5/8Whitx26tpi bulkhead nut	0.68	50
Part No for all aluminium Moquip.	£	Cat
HETBFA2-31 M10x1 concave seat for -3 hose (CT)	12.01	50
HETBFAC2-31V M10x1 concave seat for -3 hose (C)	17.68	50

Mocal® standard banjo fitting



Direct fitting into calipers, wheel & brake cylinders. Takes long banjo bolts see page 58 & 67 for bolts and washers.

Part No for plated steel Moquip.	£	Cat
HETBAN-3 Takes 3/8/M10/1/8BSP bolt-for -3 hose	5.92	50
HETBAN-4-3 Takes 7/16in bolt for -3 hose	10.06	50
HETBAN-41-3 Takes M12 bolt for -3 hose	9.56	50
HETBAN-3-4 Takes 3/8in-M10 or 1/8in bolt for -4 hose	15.77	50
HETBAN-4 Takes 7/16in or for -4 hose	10.99	50
HETBAN-M12-4 Takes M12 bolt for -4 hose	12.44	50
Part No for all aluminium Moquip	£	Cat
HETBANA-3 Takes 3/8in/M10/1/8BSP bolt-for -3 hose	31.44	50
HETBANA-3-4 Takes 3/8in/M10/1/8BSP bolt- for -4 hose	24.37	50
HETBANA-4 Takes 7/16 or M12 bolt- for -4 hose	23.64	50
Part No for stainless steel Moquip	£	Cat
HETBANSS-3 Takes 3/8/M10/1/8BSP bolt-for -3 hose	10.96	50
HETBANSS-3-4 Takes 3/8/M10/1/8BSP bolt-for -4 hose	19.59	50
HETBANSS-4-3 Takes 7/16 bolt- for -3 hose	16.61	50
HETBANSS-4-4 Takes 7/16 bolt- for -4 hose	23.81	50

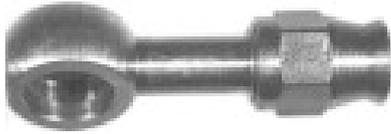
Mocal® twin take off standard banjo fittings



Direct fitting into calipers, wheel & brake cylinders. Takes long banjo bolts see page 58 & 67 for bolts and washers.

Part No for plated steel Moquip	£	Cat
HETBAN3-3 Takes 3/8/M10/1/8BSP bolt-for -3 hoses	22.57	50
Part No for all aluminium Moquip	£	Cat
HETBANA3-3 As above but EXTENDED	21.34	50

Mocal® extended neck banjo fitting



Has slimmer profile than standard banjo. Direct fitting into calipers, wheel & brake cylinders. Takes short banjo bolts [see page 57](#) & [67](#) for bolts and washers.

Part No for plated steel Moquip.	£	Cat
HETBAN1-3 Straight takes 3/8/M10/1/8BSP bolt-for -3 hose	5.15	50
HETBAN1-4-3 Straight takes 7/16in bolt-for -3 hose	15.77	50
HETBAN1-4 Straight takes 7/16in bolt-for -4 hose	11.50	50
HETBAN1-3-4 Straight takes 3/8/M10/1/8BSP bolt for -4 hose	15.77	50
Part No for all aluminium Part No		
HETBANA1-3 Straight takes 3/8/M10/1/8BSP bolt-for -3 hose	10.94	50
Part No for stainless steel Moquip		
HETBANSS1-3 Straight takes 3/8/M10/1/8BSP bolt-for -3 hose	10.23	80

Mocal® extended neck banjo with bend



Has slimmer profile than standard banjo. Direct fitting into calipers, wheel & brake cylinders. Takes short banjo bolts [see page 57](#) & [67](#) for bolts and washers.

Part No for plated steel Moquip.	£	Cat
HETBAN2-3 20° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	5.92	50
HETBAN4-3 45° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	7.79	50
HETBAN7-3 70° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	10.68	50
HETBAN9-3 90° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	12.29	50
HETBAN20-3 20° side bend as above	4.28	50
Part No for all aluminium Part No		
HETBANA2-3 20° takes 3/8/M10/1/8BSP bolt- for -3 hose	9.61	50
HETBANA2-4-3 20° takes 7/16in bolt- for -3 hose	27.19	50
HETBANA2-3-4 20° takes 3/8/M10/1/8BSP bolt- for -4 hose	17.19	50
HETBANA2-4 20° takes 7/16in bolt- for -4 hose	40.25	50
HETBANA4-3 45° takes 3/8/M10/1/8BSP bolt- for -3 hose	10.42	50
HETBANA7-3 70° takes 3/8/M10/1/8BSP bolt- for -3 hose	13.69	50
HETBANA9-3 90° takes 3/8/M10/1/8BSP bolt- for -3 hose	14.15	50
HETBANA20-3 20° side bend as above	9.58	50
Part No for stainless steel Moquip		
HETBANSS2-3 20° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	10.23	80
HETBANSS5-3 45° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	12.00	50
HETBANSS7-3 70° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	14.83	50
HETBANSS9-3 90° bend takes 3/8/M10/1/8BSP bolt- for -3 hose	16.87	50
HETBANSS4-3 20° side bend 3/8/M10/1/8BSP bolt- for -3 hose	9.45	50

Mocal® extended neck twin take off banjo fitting



Has slimmer profile than standard banjo. Direct fitting into calipers, wheel & brake cylinders. Takes short banjo bolts [see page 57](#) & [67](#) for bolts and washers.

Part No for plated steel Moquip.	£	Cat
HETBAN6-3 Takes 3/8/M10/1/8BSP bolt-for -3 hose	19.45	50
Part No for all aluminium Moquip.		
HETBANA13-3 Takes 3/8in/M10/1/8BSP bolt-for -3 hose	21.34	50
Part No for stainless steel Moquip.		
HETBANSS6-3 Takes 3/8in/M10/1/8BSP bolt-for -3 hose	23.63	50

Mocal® hose end banjo bolt



Part No for plated steel Moquip.	£	Cat
HETBBS2-31 M10x1 short	6.84	50
HETBBSL2-31 M10x1 long	4.23	50

Moca® hose end male Tee



Part No for stainless steel Moquip.	£	Cat
HETT-3 Takes -3 hose- stainless- 5mm fixing hole	43.47	50

Mocal® hose end male/female Tee



Harley Davidson brake light adapters for -3TFE, tapped 1/8NPTF also useful for plumbing oil pressure warning light switch into pressure gauge lines.

Part No for stainless steel Moquip	£	Cat
HAR3 Takes -3 hose- tapped 1/8NPTF	19.98	90
HAR4 With bracket- takes -3 hose- tapped 1/8NPTF	45.95	90

Power steering fittings for TFE hose.



Male fittings, swivel, 45° concave seat.

Part No	£	Cat
FBM1137 1/2UNF straight for -6 hose	24.86	81
FBM1138 5/8UNF straight for -6 hose	11.14	81
FBM1155 1/2UNF 45° for -6 hose	44.12	81
FBM1141 5/8UNF 45° for -6 hose	12.88	81
FBM1143 1/2UNF 90° for -6 hose	21.15	81
FBM1144 5/8UNF 90° for -6 hose	15.72	81

Aeroquip sleeves for TFE



Supplied with all hose end fittings but available separately. Mocal® parts which are cheaper also available, please enquire.

Part No for Aeroquip		£	Cat
FBM3720	brass for -3 fittings	0.83	80
FBM3721	brass for -4 fittings	1.07	80
900568-6	(FBM3823)brass for -6 fittings	1.47	80
900568-8	(FBM3824)brass for -8 fittings	1.47	80
<hr/>			
FBM3821	stainless for -3 fittings	8.19	40
FBM3822	stainless for -4 fittings	5.25	40
900767-4C	stainless for -4 fitting in 666-4 hose	6.65	40

Aeroquip sockets for TFE.



Supplied with all hose end fittings but available separately. Mocal® parts which are cheaper also available, please enquire.

Part No		£	Cat
1206-3	gold finish for 1/8BSP fittings	0.95	80
1206-4	gold finish for 1/4BSP fittings	2.19	80
FBM3820	stainless for -3JIC fittings	10.74	80
F506-4C	stainless for -4JIC fittings	5.23	80

Swaged fittings for Mocal® TFE hoses



We have introduced a range of stainless steel fittings suitable for factory swaging. These are a neater and lighter alternative to the reusable fittings, We use them when supplying complete kits and are also available as single hose assemblies where exact lengths can be specified. Assembly charge is £1.78 for -3, £4.12 for -4 per hose including ferrule. Do your own swaging? ask Matthew.

Swaged female straight swivel fittings.



Part No		£	Cat
FERS-03	Stainless steel ferrule for swaging	0.96	50
1 ferrule is required for each fitting.			
<hr/>			
H650-03C-CCV	Straight Concave 3/8in x 24 JIC, for -3 hose	4.33	50
H650-31C-CCV	Straight Concave M10 x 1.00 , for -3 hose	4.33	50
H650-32C-CCV	Straight Concave M10 x 1.25 , for -3 hose	4.33	50
H650-03C-CVX	Straight Convex 3/8in x 24 JIC, for -3 hose	4.33	50
H650-31C-CVX	Straight Convex M10 x 1.00 , for -3 hose	4.33	50
H650-32C-CVX	Straight Convex M10 x 1.25 , for -3 hose	4.33	50
H650-18C-CVX	Straight Convex 1/8in BSP, for -3 hose	4.33	50
H650-04	Straight Concave for 7/16in x 20 JIC for -4 Hose	6.83	50

Swaged female 45° swept tube swivel fittings.



Part No		£	Cat
H653-03C-CCV	45° Concave 3/8in x 24 JIC, for -3 hose	4.33	50
H653-31C-CCV	45° Concave M10 x 1.00 , for -3 hose	4.33	50
H653-32C-CCV	45° Concave M10 x 1.25 , for -3 hose	4.33	50
H653-04C-CCV	45° Concave 7/16in x 20 JIC for -4 Hose	8.84	50
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H653-03C-CVX	45° Convex 3/8in x 24 JIC, for -3 hose	4.61	50
H653-31C-CVX	45° Convex M10 x 1.00 , for -3 hose	4.61	50
H653-32C-CVX	45° Convex M10 x 1.25 , for -3 hose	4.61	50

Swaged female 90° swept tube swivel fittings.



Part No		£	Cat
H654-03C-CCV	90° Concave 3/8in x 24 JIC, for -3 hose	4.39	50
H654-31C-CCV	90° Concave M10 x 1.00 , for -3 hose	4.33	50
H654-32C-CCV	90° Concave M10 x 1.25 , for -3 hose	4.33	50
<hr/>			
H654-03C-CVX	90° Convex 3/8in x 24 JIC, for -3 hose	4.61	50
H654-31C-CVX	90° Convex M10 x 1.00 , for -3 hose	4.61	50
H654-32C-CVX	90° Convex M10 x 1.25 , for -3 hose	4.61	50
<hr/>			
H654-04C-CCV	90° Concave 7/16in x 20 JIC for -4 Hose	8.84	50

Swaged male swivel fittings



Direct fitting into calipers, master and wheel cylinders. Convex & concave seal on bottom of port.

Part No		£	Cat
H652-18C-CVX	Straight Convex 1/8in x 18 BSP, for -3 hose	4.33	50
H652-03C-CVX	Straight Convex 3/8in x 24 JIC, for -3 hose	5.24	50
H652-31C-CVX	Straight Convex 10 x 1.00 , for -3 hose	5.24	50
H652-32C-CVX	Straight Convex M10 x 1.25 , for -3 hose	5.24	50
<hr/>			
H652-18C-CCV	Straight Concave 1/8in x 18 BSP, for -3 hose	4.96	50
H652-03C-CCV	Straight Concave 3/8in x 24 JIC, for -3 hose	4.96	50
H652-31C-CCV	Straight Concave M10 x 1.00 , for -3 hose	4.96	50
H652-32C-CCV	Straight Concave M10 x 1.25 , for -3 hose	4.96	50

Swaged male fixed fittings



Non swivel, direct fitting into calipers, master and wheel cylinders. Convex & concave seal on bottom of port.

Part No		£	Cat
H657-03C	Convex 3/8in x 24 JIC, for -3 hose	3.74	50
H657-31C	Convex M10 x 1.00 , for -3 hose	3.92	50
H657-32C	Convex M10 x 1.25 , for -3 hose	3.91	50
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H658-03C	Concave 3/8in x 24 JIC, for -3 hose	3.74	50
H658-31C	Concave M10 x 1.00 , for -3 hose	4.08	50
H658-32C	Concave M10 x 1.25 , for -3 hose	3.36	50

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Swaged male 45° male swivel fittings



Part No		£	Cat
H673-18C-CCV	45°Concave 1/8in x 18 BSP, for -3 hose	5.24	50
H673-03C-CCV	45°Concave 3/8in x 24 JIC, for -3 hose	5.24	50
H673-31C-CCV	45°Concave M10 x 1.00 , for -3 hose	5.24	50
H673-32C-CCV	45°Concave M10 x 1.25 , for -3 hose	5.24	50
H683-18C-CVX	45°Convex 1/8in x 18 BSP, for -3 hose	4.96	50
H683-03C-CVX	45°Convex 3/8in x 24 JIC, for -3 hose	4.96	50
H683-31C-CVX	45°Convex M10 x 1.00 , for -3 hose	4.96	50
H683-32C-CVX	45°Convex M10 x 1.25, for -3 hose	4.96	50

Swaged male 90° swivel fittings



Part No		£	Cat
H674-18C-CCV	90°Concave 1/8in x 18 BSP, for -3 hose	5.24	50
H674-03C-CCV	90°Concave 3/8in x 24 JIC, for -3 hose	8.42	50
H674-31C-CCV	90°Concave M10 x 1.00 , for -3 hose	5.24	50
H674-32C-CCV	90°Concave M10 x 1.25, for -3 hose	5.24	50
H684-18C-CVX	90°Convex 1/8in x 18 BS, for -3 hose	4.96	50
H684-03C-CVX	90°Convex 3/8in x 24 JIC, for -3 hose	4.96	50
H684-31C-CVX	90°Convex M10 x 1.00 , for -3 hose	4.96	50
H684-32C-CVX	90°Convex M10 x 1.25, for -3 hose	4.96	50

Swaged male bulkhead fixed fittings



Non swivel, direct fitting into calipers, master and wheel cylinders. Convex & concave seal on bottom of port.

Part No		£	Cat
H659-03C	Bulkhead male 3/8in x 24 JIC, for -3 hose	4.36	50
H669-31C	Bulkhead male M10 x 1.00 , for -3 hose	4.87	50
H669-32C	Bulkhead male M10 x 1.25, for -3 hose	3.77	50

Swaged female bulkhead fittings



Non swivel, Threaded takes M16x2.0 nut. Circlip uses original snap clip. Direct fitting onto metal brake pipes with male nuts.

Part No		£	Cat
H660-31C	Fixed, M10 x 1.00, for -3 hose	4.73	50
H663-03C	Circlip, Concave 3/8in x 24 JIC, for -3 hose	6.21	50
H663-31C	Circlip, Concave M10 x 1.00 , for -3 hose	5.18	50
H663-32C	Circlip, Concave M10 x 1.25, for -3 hose	5.93	50
H664-03C	Circlip, Convex 3/8in x 24 JIC, for -3 hose	6.21	50
H664-31C	Circlip, Convex M10 x 1.00 , for -3 hose	5.18	50
H664-32C	Circlip, Convex M10 x 1.25, for -3 hose	5.93	50
H665-03C	Extnl Thread, Concave 3/8in x 24 JIC, for -3 hose	6.92	50
H665-31C	Extnl Thread, Concave M10 x 1.00 , for -3 hose	6.92	50
H665-32C	Extnl Thread, Concave M10 x 1.25, for -3 hose	6.92	50
H666-03C	Extnl Thread, Convex 3/8in x 24 JIC, for -3 hose	6.92	50
H666-31C	Extnl Thread, Convex M10 x 1.00 , for -3 hose	6.92	50
H666-32C	Extnl Thread, Convex M10 x 1.25, for -3 hose	6.92	50

Swaged standard banjo fitting



Direct fitting into calipers, wheel & brake cylinders. Takes short banjo bolts [see page 57](#) & [67](#) for bolts and washers.

Part No		£	Cat
H692-03C	Straight Banjo 10mm Hole , for -3 hose	3.77	50
H692-03-08C	Straight Banjo, 8mm Hole, for -3 hose	13.04	50
H692-03-11C	Straight Banjo, 11mm Hole, for -3 hose	14.43	50
H692-03-12C	Straight Banjo, 12mm Hole, for -3 hose	8.45	50
H692-04C	Straight Banjo 10mm hole, for - 4 Hose	13.97	50

Swaged banjo fitting with bend,



Direct fitting into calipers, wheel & brake cylinders. Takes short banjo bolts [see page 57](#) & [67](#) for bolts and washers.

Part No		£	Cat
H693-03C	20° Banjo 10mm Hole, for -3 hose	4.84	50
H694-03C	45° Banjo 10mm Hole, for -3 hose	3.77	50
H695-03C	20° Side Bend Banjo 10mm Hole, for -3 hose	4.14	50
H697-03C	70° Banjo 10mm Hole, for -3 hose	3.77	50
H699-03C	90° Banjo 10mm Hole, for -3 hose	10.13	50

Swaged twin take off banjo fittings



Direct fitting into calipers, wheel & brake cylinders. Takes short banjo bolts [see page 57](#) & [67](#) for bolts and washers.

Part No		£	Cat
H698-03C	Double Exit Banjo 10mm Hole, for -3 hose	15.05	50

Swaged hose end Tee



Part No		£	Cat
MTSS-03	Tee piece for -3 hose, for -3 hose	39.37	40

Swaged hose end male/female Tee & elbow



Brake light adapters for -3TFE, tapped M10x1.0 also useful for plumbing oil pressure warning light switch into pressure gauge lines.

Part No		£	Cat
HSP-202	90° elbow with M10x1.0 tapping for -3 hose	28.20	40
HSP-303	T piece with M10x1.0 tapping, for -3 hose	28.20	40

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Quick release clutch hose end



Part No		£	Cat
HCF-1	BMW Mini clutch fitting - 3 SS SWG	9.17	50
HCF-2	MK1 Focus RS clutching fitting -3 SS	9.33	50

Special purpose Hoses

100R6 multi purpose hose

Made to the same specification as Mocal® oil hose, [see page 31](#). Use on automatic transmission oil cooling, fuel, water and air.

Part No	Price per metre	£	Cat
100R6-4	1/4 in id	3.85	50
100R6-5	5/16 in id	4.34	50
100R6-6	3/8 in id	4.95	50

BS Au108 fuel hose

An inexpensive hose with single textile braid reinforcement and smooth black neoprene cover complies with British standard BS Au108/2-L4/C4/R for fuel hose.

Part No.	I.D.	O.C.	Pressure
SPH1 - 4	1/4"	0.50"	150psi
SPH1 - 5	5/16"	0.58"	150psi
SPH1 - 6	3/8"	0.64"	150psi

Part No	Price per metre	£	Cat
SPH1-4	1/4in id	4.17	41
SPH1-5	5/16 in id	4.26	41
SPH1-6	3/8in id	4.53	41
As above but with stainless steel cover			
SPH2-4	1/4in id with stainless cover	12.73	50
SPH2-5	5/16in id with stainless cover 0.70in od	9.11	50
SPH2-6	3/8in id with stainless steel cover 0.86in od	10.80	50

Stainless steel braided fuel hose

Stainless steel braided nitrile rubber hose, less bulky than the BSAu 108 compliant hose above.

Part No.	I.D.	O.D.	Pressure
SPH3 - 4	1/4"	0.45"	100psi
SPH3 - 5	5/16"	0.49"	100psi
SPH3 - 6	3/8"	0.56"	100psi

Part No	Price per metre	£	Cat
SPH3-4	1/4in bore	8.11	50
SPH3-5	5/16in bore	8.30	50
SPH3-6	3/8in bore	9.04	50

Fuel injection hose, SAEJ30c Type 30R9

This Epichlorohydrin (black rubber) covered textile reinforced hose has a very thin but tough tube of fluoro-elastomer varnished onto the existing liner to protect against sour (oxidised) fuel as well as methanol and ethanol additives. 100psi working pressure and 150°C temperature resistance.

Part No		£	Cat
FIH-4	1/4in id	9.29	50
FIH-5	5/16in id	9.29	50

Small boat LPG hose

BS 3212/1991 for LPG. This hose is specified for pleasure craft use by National Rivers Authority. Double textile braid reinforcement with galvanised braided steel cover.

Part No	i.d	o.d.	pressure
SPH5-4	1/4"	0.55"	265psi (burst)
SPH5-5	5/16"	0.68"	265psi (burst)

Part No	Price per metre	£	Cat
SPH5-4	1/4in id	9.19	50
SPH5-5	5/16inid	11.11	50

Brake fluid hose

Use for gravity feed to master cylinder from remote reservoir. Special rubber liner with black outer cover.

Part No	i.d	o.d.	pressure
SPH8-4	7mm	0.53"	nil
SPH8-5	8mm	0.56"	nil
SPH8-6	3/8"	0.63"	nil

Part No	Price per metre	£	Cat
SPH8-4	7mm id brake fluid hose	8.32	50
SPH8-5	8mm id brake fluid hose	5.96	50
SPH8-6	3/8in id brake hose	5.96	50

Vacuum servo hose.

Black nitrile outer and inner, reinforced textile hose for brake servos.

Part No	Price per metre	£	Cat
VH-3	3/16in id-7/16in od	2.42	20
VH-6	3/8in id-11/16in od	4.04	20

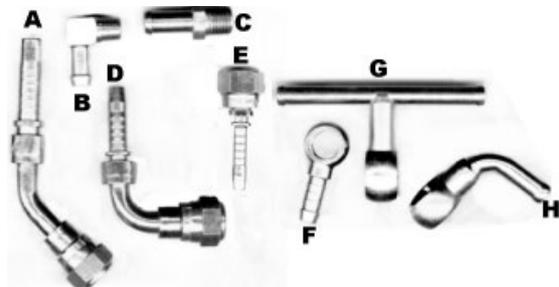
Silicone vacuum hose

Thick walled non reinforced silicone hose use in all applications except brakes. Add suffix R for red or B for black.

Part No	Price per metre	£	Cat
VH-M3	3 mm id blue	1.73	50
VH-M4	4mm id blue	1.89	50
VH-M5	5mm id blue	2.55	50
VH-M6	6mm id blue	2.82	50
VH-M8	8mm id blue	3.30	50
VH-M10	10mm id blue	4.38	50

Fittings for Special purpose hose.

Assemble with swage ferrule, O clamp or worm drive clamp. We do not make any fittings for 1 1/32" bore hoses. Suitable for low pressure (up to 15psi) carburettor installations, automatic transmission coolers and power steering return pipes.



Part No		£	Cat
HEF3-4	1/4BSP female swivel straight for 1/4in hose (E)	0.97	50
HEF7-6-5	-6JIC female swivel straight for 5/16in hoses (E)	1.98	50
HEF97-6-5	-6JIC female swivel 90° for 5/16in hoses (E)	4.23	50
HEF7-6	-6JIC female straight for 3/8in hose (E)	1.49	50
HEF47-6	-6JIC female 45° for 3/8in hose (A)	4.24	50
HEF97-6-4	-6JIC female 90° for 1/4in hose (D)	3.03	50
HEF97-6	-6JIC female 90° for 3/8in hose (D)	2.58	50
HEM8-3-5	1/8NPTF male straight for 5/16in hose (C)	2.75	50
HEM98-3-5	1/8NPTF Male 90° for 5/16in hose- brass (B)	5.96	50
HEM8-4-4	1/4NPTF male straight for 1/4in hose (C)	5.15	50
HEM8-4-5	1/4NPTF male straight for 5/16in hose (C)	5.18	50
HEM98-4-5	1/4NPTF male 90° for 5/16in hose-brass (B)	7.09	50
HEM8-4-6	1/4NPTF male straight for 3/8in hose (C)	5.78	50
HEM98-4-6	1/4NPTF male 90° for 3/8in hose-brass (B)	7.43	50
HEM8-3-3	3/8NPTF male straight for 3/8in hose (C)	4.46	50
HEM3-4-5	1/4BSP male for 5/16in hose (C)	2.20	50
HEF93-6-5	3/8BSP female swivel 90° for 5/16in hoses (D)	4.00	50
HEF3-6-5	3/8BSP female swivel straight for 5/16in hose (E)	1.88	50
HEF3-6	3/8BSP male straight for 3/8in hose (E)	1.11	50
HEF43-6	3/8BSP female 45° for 3/8in hose (A)	4.41	50
HEF93-6	3/8BSP female 90° for 3/8in hose (D)	2.69	50
HEM3-6-5	3/8BSP male for 5/16in hose (C)	8.42	50
HEF93-8-5	1/2BSP female swivel 90° for 5/16in hoses (D)	11.12	50
HEF2-55-5C	M14 female swivel straight for 5/16inid hose (E)	2.80	50
HEM1-5-5	1/2UNF male for 5/16in hose (C)	3.06	50
HEBAN-3-4	3/8in banjo for 1/4in hose (F)	4.64	40
HEBAN-M8-3	M8 banjo for 3/16 hose (F)	4.03	50
HEBAN-M8-4	M8 banjo for 1/4in.hose (F)	1.35	50
HEBAN-M10-4	M10 banjo for 1/4in.hose (F)	1.59	50
HEBAN-M10-5	M10 banjo for 5/16in hose (F)	1.65	50
HEBAN-M12-4	M12 banjo for 1/4in.hose (F)	1.98	50
HEBAN-M12-5	M12 banjo for 5/16in hose (F)	1.69	50
HEBAN-M12-6	M12 banjo for 3/8in hose (F)	2.42	50
HEBAN-M14-4	M14 banjo for 1/4in.hose (F)	2.93	50
HEBAN-M14-5	M14 banjo for 5/16in hose (F)	1.98	50
HEBAN-M14-6	M14 banjo for 3/8in hose (F)	2.01	50
HEBAN-M16-6	M16 banjo for 3/8in hose (F)	4.24	50
HEBAN-M16-8	M16 banjo for 1/2in hose (F)	4.13	50
HEBAN-M18-6	M18 banjo for 3/8in hose (F)	7.32	50
HEBAN-M18-8	M18 banjo for 1/2in hose (F)	6.03	50
HEBAN-M18-10	M18 banjo for 5/8in hose (F)	6.59	50
HEBAN-M22-12	M22 banjo for 3/4in hose (F)	10.03	50
HEBAN2-41-5	banjo for Webber bolt with 90° for 5/16 hose (H)	16.76	40
HEBAN2-41-5-5	banjo for Webber bolt with T for 5/16 hose (G)	19.95	40
HEBAN9-M12-z	M12 banjo 90° for 5/16in hose	5.15	50
HEBAN9-M14-6	M14 banjo 90° for 3/8in hose	4.88	50

T pieces.



Assemble with swage ferrule, O clamp or worm drive clamp. Suitable for low pressure systems e.g. carburettor feeds, breathers.

Part No		£	Cat
MTB14-3	3/16in push on- brass	8.66	50
MTB14-4	1/4in push on- brass	15.98	50
MTB14-5	5/16in push on- brass	8.66	50
MTB14-6	3/8in push on- brass	9.67	50
MTB14-8	1/2in push on- brass	7.92	50
MTS14-3	3/16in push on- steel	4.15	40
MTS14-4	1/4in push on- steel	3.98	40
MTS14-5	5/16in push on- steel	4.15	40
MTS14-6	3/8in push on- steel	4.83	40
MTS14-8	1/2in push on- steel	8.71	40
MTS14-5-3-5	Unequal 2x 5/16in & 1x 3/16in	6.14	40
MTS14-6-5-6	Unequal 2x 3/8in & 1x 5/16in	5.09	40

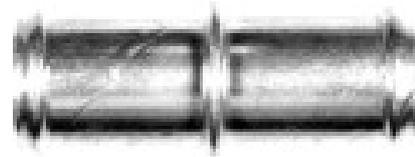
Y pieces



Assemble with swage ferrule, O clamp or worm drive clamp. Suitable for low pressure systems e.g. carburettor feeds, breathers, water.

Part No		£	Cat
MYB14-4	1/4in push on- brass	9.56	50
MYB14-5	5/16in push on- brass	9.56	50
MYB14-6	3/8in push on- brass	12.60	50
MYB14-8	1/2in push on- brass	11.19	50

Hose joiners



Assemble with swage ferrule, O clamp or worm drive clamp. Suitable for low pressure systems e.g. carburettor feeds, breathers, water. Larger aluminium joiners use with silicon hose (next page)

Steel part number		£	Cat
HM-4	for 1/4in id hose	1.49	50
HM-5	for 5/16in id hose	1.60	50
HM-6	for 3/8in id hose	1.82	50
HM-8	for 1/2 id hose	3.56	50
HM-10	for 5/8in id hose	1.92	50
HM-12	for 3/4in id hose	2.55	50
HM-4-5	Step up 1/4in to 5/16in id hose	2.39	50
HM-5-6	Step up 5/16in to 3/8in id hose	1.90	50
HM-5-8	Step up 5/16in to 1/2 id hose	4.90	50
HM-6-8	Step up 3/8in to 1/2 id hose	3.21	50
HM-8-10	Step up 1/2 to 5/8 id hose	7.16	50

Aluminium part No		£	Cat
HM-28	28mm tube 3in long- beaded ends	11.99	50
HM-32	32mm tube 3in long- beaded ends	12.38	50
HM-35	35mm tube 3in long- beaded ends	19.28	50
HM-38	38mm tube 3in long- beaded ends	15.19	50
HM-51	51mm tube 3in long- beaded ends	21.83	50

Bleed nipples



Part No for plated steel		£	Cat
NIP1-1/4	Bleed Nipple 1/4-28 UNF for 3/8in tube	1.48	50
NIP1-3	Bleed Nipple 3/8-24 UNF for 3/8in tube	0.96	50
NIP5-11	Bleed nipple M7x1 for 1/4 tube	0.86	50
NIP5-22	Bleed nipple M8x1.25for 1/4 tube	0.93	50
NIP5-31	Bleed Nipple M10x1 for 3/8in tube	0.97	50
Part No for stainless steel			
NIP1-3SS	Bleed Nipple 3/8-24 UNF for 3/8in tube	4.54	50
NIP1-3SS	Bleed Nipple 3/8-24 UNF for 3/8in tube long	4.54	50
NIP5-22SS	Bleed Nipple M8x1.25 for 1/4 tube	6.74	50
NIP5-11SS	Bleed Nipple M7x1 for 1/4 tube	4.52	50
NIP5-31SS	Bleed Nipple M10x1 for 3/8in tube	6.64	50
NIP2-32SS	Bleed Nipple M10x1.25	5.19	50

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Metal Brake Tube. & fittings

Construction; Kunifer seamless copper alloy tube, guaranteed against corrosion for life of vehicle.

Application. All brake lines where flexibility is not required. The tube may be bent by hand or using a tool where tighter radiuses are required. A flaring tool is required to form a seating.



Part No		£	Cat
KP1-3	3/16OD Kunifer brake pipe 25 foot roll	24.28	50
TN1-3	Male tube nut 3/8-24 UNF for 3/16 od	0.58	50
TN1S-4	Male tube nut 7/16-20UNF for 3/16 od	0.58	50
TN1-31	Male tube nut M10x1 for 3/16 od	0.38	50
TN2-3	Female tube nut 3/8-24UNF for 3/16 od	0.70	50
TN2-31	Female tube nut M10x1 for 3/16 od	0.70	50
KP-4	1/4OD Kunifer brake pipe 25 foot roll	48.57	50
TN1-4	Male tube nut 7/16-20 for 1/4 od	0.54	50
TN4-4	Male tube nut 7/16-24 for 3/16 od	0.93	50
TN2-4	Female tube nut 7/16-20UNF for 1/4 od	1.14	50

More fittings available please enquire.

Stainless braided TFE brake hoses.



Brake hoses are made from TFE stainless steel wire braided hose with stainless steel fittings. Titanium fittings are also available, please enquire Application. Intended for use on competition vehicles to provide a hard feel and reduced travel to the brake pedal, this is achieved due to the lower volume of expansion under pressure achievable in this construction. They are also lighter than conventional hoses and more resistant to stone damage. They are not built to conform to existing standards laid down for brake hoses in normal use due to their inability to resist the continuous flexing that might occur in a vehicle with large wheel travel covering hundreds of thousands of miles between hose changes. Care must be taken in fitting to ensure that the hoses do not contact any moving part under conditions of extreme suspension travel and/or full steering lock. We do not offer any guarantee of their suitability for any purpose outside usage on off road vehicles under conditions of regular inspection. No responsibility can be taken for any damage, injury or loss resulting from their use. We can make up competition brake hose assemblies for any car or motorbike. Hoses are made with our Stainless Steel fittings swaged to clear PVC covered s/s braided TFE hose.

Part No		£	Cat
BHK196SW	BMW325 E30 6 line kit	111.75	60
BHK53SW	Honda Integra DC2	96.24	60
BHK146SW	Nissan Sunny GTiR	96.40	60
BHK80SW	Peugeot 205 GTi 1.9	114.36	60
BHKREN172SW	Renault Clio 172/182	76.48	60
BHK144BSW	Smart car (700cc)	66.64	60

Replacement original equipment hoses.



Hoses made to the same length and configuration as original equipment.

Part No		£	Cat
MGA1	MGA all- OEM style steel tubes with short flexibles	126.04	20
AHH8192	MGB 1962-67 (2 per car)	14.92	35
AHH8536	MGB 1967-75 (short hose)	13.03	35
AHH8537	MGB 1967-75 (long hose)	15.99	35
BHH1610	MGB 1975 on (2 per car)	15.60	35
AHC323	MGC (long hose)	19.04	35
AHC324	MGC (short hose)	14.53	35
AHC335	MGC auto trans cooler (2 per car)	23.32	35
BHH1104	MGB V8 all models (pump to filter)	10.69	35
BHH1341	MGB V8 1973-75 (filter to cooler)	21.18	35
BHH1103	MGB V8 1973-75 (pump to cooler)	11.36	35
BHH1612	MGB V8 1975 on (filter to cooler)	20.75	35
BHH1613	MGB V8 1975 on (pump to cooler)	11.39	35
AHA8777	MG Midget- A-Healey Sprite- 1275cc (Long)	16.35	35
AHA8778	MG Midget- A-Healey Sprite- 1275cc (Short)	14.66	35

As before- but with stainless steel braided hoses

AHH8192S	MGB 1962-67 (2 per car)	24.13	35
AHH8536S	MGB 1967-75 (short hose)	18.79	35
AHH8537S	MGB 1967-75 (long hose)	27.30	35
BHH1610S	MGB 1975 on (2 per car)	26.45	35
AHC323S	MGC (long hose)	22.85	35
AHC324S	MGC (short hose)	21.48	35

Silicone rubber coolant hoses



Blue, red or black silicone rubber with smooth wipe down finish. Temperature range -50°C to 250°C. Specials available to order include longer legs, reducing straights and elbows, wire reinforcing, Use for engine coolant hoses, turbo Charger and supercharger hoses, heating and ventilating ducts where increased hose life and resistance to high under bonnet temperatures are required. Compatible with hose joiners on previous page. Please ask for colour and size you want.

Part Numbers are for blue hose, add R for red or B for black.

Straight 1 metre lengths			
Part No		£	Cat
SH-M6.5	1 metre length- Straight hose- bore 6.5mm	16.49	70
SH-M8	1 metre length- Straight hose- bore 8mm	17.33	70
SH-M9.5	1 metre length- Straight hose- bore 9.5mm	17.93	70
SH-M11	1 metre length- Straight hose- bore 11mm	18.26	70
SH-M13	1 metre length- Straight hose- bore 13mm	18.47	70
SH-M16	1 metre length- Straight hose- bore 16mm	18.67	70
SH-M19	1 metre length- Straight hose- bore 19mm	20.03	70
SH-M22	1 metre length- Straight hose- bore 22mm	21.37	70
SH-M25	1 metre length- Straight hose- bore 25mm	22.73	70
SH-M28	1 metre length- Straight hose- bore 28mm	24.08	70
SH-M32	1 metre length- Straight hose- bore 32mm	25.88	70
SH-M35	1 metre length- Straight hose- bore 35mm	27.22	70
SH-M38	1 metre length- Straight hose- bore 38mm	28.59	70
SH-M41	1 metre length- Straight hose- bore 41mm	29.93	70
SH-M45	1 metre length- Straight hose- bore 45mm	31.73	70
SH-M48	1 metre length- Straight hose- bore 48mm	34.44	70
SH-M51	1 metre length- Straight hose- bore 51mm	34.44	70

SH-M54	1 metre length- Straight hose- bore 54mm	37.08	70
SH-M57	1 metre length- Straight hose- bore 57mm	37.15	70
SH-M60	1 metre length- Straight hose- bore 60mm	38.50	70
SH-M63	1 metre length- Straight hose- bore 63mm	39.85	70
SH-M70	1 metre length- Straight hose- bore 70mm	43.00	70
SH-M76	1 metre length- Straight hose- bore 76mm	58.63	70
SH-M80	1 metre length- Straight hose- bore 80mm	61.03	70
SH-M83	1 metre length- Straight hose- bore 83mm	62.83	70
SH-M89	1 metre length- Straight hose- bore 89mm	66.44	70
SH-M102	1 metre length- Straight hose- bore 102mm	74.25	70

45° With 102mm legs unless otherwise stated

SH45-M6.5	45° hose- bore 6.5mm	9.37	70
SH45-M8	45° hose- bore 8.0mm	9.42	70
SH45-M9.5	45° hose- bore 9.5mm	9.46	70
SH45-M11	45° hose- bore 11mm	9.52	70
SH45-M13	45° hose- bore 13mm	9.56	70
SH45-M16	45° hose- bore 16mm	8.65	70
SH45-M19	45° hose- bore 19mm	9.01	70
SH45-M22	45° hose- bore 22mm	9.38	70
SH45-M25	45° hose- bore 25mm	9.74	70
SH45-M28	45° hose- bore 28mm	10.10	70
SH45-M32	45° hose- bore 32mm	10.57	70
SH45-M35	45° hose- bore 35mm	10.93	70
SH45-M38	45° hose- bore 38mm	11.29	70
SH45-M41	45° hose- bore 41mm	14.05	70
SH45-M45	45° hose- bore 45mm	12.13	70
SH45-M48	45° hose- bore 48mm	12.48	70
SH45-M51	45° hose- bore 51mm	12.84	70
SH45-M54	45° hose- bore 54mm	13.45	70
SH45-M57	45° hose- bore 57mm	16.87	70
SH45-M60	45° hose- bore 60mm 125mm legs	13.92	70
SH45-M63	45° hose- bore 63mm 125mm legs	14.29	70
SH45-M70	45° hose- bore 70mm 125mm legs	17.78	70
SH45-M76	45° hose- bore 76mm 152mm legs	35.68	70
SH45-M80	45° hose- bore 80mm 152mm legs	23.41	70
SH45-M83	45° hose- bore 83mm 152mm legs	23.97	70
SH45-M89	45° hose- bore 89mm 152mm legs	24.95	70
SH45-M102	45° hose- bore 102mm 152mm legs	74.25	70

90° With 102mm legs unless otherwise stated

SH90-M6.5	90° hose- bore 6.5mm	8.17	70
SH90-M8	90° hose- bore 8mm	8.22	70
SH90-M9.5	90° hose- bore 9.5mm	8.27	70
SH90-M11	90° hose- bore 11mm	8.32	70
SH90-M13	90° hose- bore 13mm	8.36	70
SH90-M16	90° hose- bore 16mm	8.65	70
SH90-M19	90° hose- bore 19mm	9.28	70
SH90-M22	90° hose- bore 22mm	9.38	70
SH90-M25	90° hose- bore 25mm	9.74	70
SH90-M28	90° hose- bore 28mm	10.10	70
SH90-M32	90° hose- bore 32mm	10.57	70
SH90-M35	90° hose- bore 35mm	10.95	70
SH90-M38	90° hose- bore 38mm	11.83	70
SH90-M41	90° hose- bore 41mm	11.64	70
SH90-M45	90° hose- bore 45mm	12.13	70
SH90-M48	90° hose- bore 48mm	14.73	70
SH90-M51	90° hose- bore 51mm	12.84	70
SH90-M54	90° hose- bore 54mm	13.20	70
SH90-M57	90° hose- bore 57mm	13.56	70
SH90-M60	90° hose- bore 60mm 125mm legs	13.92	70
SH90-M63	90° hose- bore 63mm 125mm legs	14.28	70
SH90-M70	90° hose- bore 70mm 125mm legs	17.78	70
SH90-M76	90° hose- bore 76mm 152mm legs	34.50	70
SH90-M80	90° hose- bore 80mm 152mm legs	23.41	70
SH90-M102	90° hose- bore 102mm 152mm legs	27.54	70

Straight reducers with 102mm length

SHR-M19-M16	Straight reducer M19 -M16 hose bore	8.02	70
SHR-M22-M16	Straight reducer M22 -M16 hose bore	9.08	70
SHR-M25-M19	Straight reducer M25 -M19 hose bore	9.12	70
SHR-M32-M25	Straight reducer M32 -M25 hose bore	11.66	70
SHR-M38-M32	Straight reducer M38 -M32 hose bore	12.84	70
SHR-M45-M38	Straight reducer M45 -M38 hose bore	13.72	70
SHR-M54-M51	Straight reducer M54 -M51 hose bore	14.15	70
SHR-M57-M51	Straight reducer M57 -M51 hose bore	10.48	70
SHR-M70-M50	Straight reducer M70 -M50 hose bore	11.25	70
SHR-M76-M51	Straight reducer M76 -M51 hose bore	17.41	70
SHR-M102-M76	Straight reducer M102 -M76 hose bore	26.39	70

90° Reducers with 102mm - 125mm legs

Part No			
SH90R-M16-M13	90° reducer M16 - M13	8.70	70
SH90R-M25-M19	90° reducer M25 - M19	11.95	70

Pro-clamps. Aeroquip



Function. Hose finishers that are used on hose assemblies with push on fittings to hide unsightly ends especially where stainless braid is used.

Construction. Top grade stainless steel worm drive clamps with red anodised surrounds machined from solid aluminium.

Part Nos		£	Cat
FBM1001	up to .44in od hose	6.37	40
FBM1002	up to .55in od hose	4.86	40
FBM1003	up to .65in od hose	6.69	40
FBM1004	up to .80in od hose	8.72	40
FBM1005	up to .94in od hose	8.85	40

Mo-clamps, Blue & red Mo-clamps



Similar to Pro-clamps not of Aeroquip manufacture. Sizes up to -12 are Hexagonal large sizes have round bodies.

Part Numbers for red clamps add suffix R,B for blue,BLK for black

Part No		£	Cat
HF-4	Mo-clamps up to 0.5in od hose	5.30	40
HF-6	Mo-clamps up to 0.60in od hose	8.73	40
HF-8	Mo-clamps up to 0.69in od hose	5.35	40
HF-10	Mo-clamps up to 0.85in od hose	6.02	40
HF-12	Mo-clamps up to 0.98in od hose	6.69	40
HF-16	Mo-clamps up to 1.20in od hose	11.77	40
HF-20	Mo-clamps up to 1.50in od hose	14.71	40
HF-21	Mo-clamps up to 1.81in od hose	poa	40
HF-22	Mo-clamps up to 1.94in od hose	poa	40
HF-24	Mo-clamps up to 2.03in od hose	25.36	40
HF-26	Mo-clamps up to 2.09in od hose	24.85	40
HF-28	Mo-clamps up to 2.31in od hose	27.32	40
HF-30	Mo-clamps up to 2.38in od hose	poa	40
HF-32	Mo-clamps up to 2.18in od hose	30.22	70
HF-34	Mo-clamps up to 2.31in od hose	29.49	70
HF-36	Mo-clamps up to 2.38in od hose	31.78	70

Part Nos for Chrome clamps- add suffix C

HF-4C	Mo-clamps up to 0.50in od hose	8.08	40
HF-6C	Mo-clamps up to 0.60in od hose	8.73	40
HF-8C	Mo-clamps up to 0.69in od hose	9.35	40
HF-10C	Mo-clamps up to 0.85in od hose	11.57	40
HF-12C	Mo-clamps up to 0.98in od hose	22.93	40
HF-16C	Mo-clamps up to 1.20in od hose	16.85	40
HF-20C	Mo-clamps up to 1.50in od hose	24.39	40
HF-21C	Mo-clamps up to 1.81in od hose	poa	40
HF-22C	Mo-clamps up to 1.94in od hose	poa	40
HF-24C	Mo-clamps up to 2.03in od hose	29.07	40
HF-26C	Mo-clamps up to 2.09in od hose	28.40	40
HF-28C	Mo-clamps up to 2.31in od hose	29.60	40
HF-32C	Mo-clamps up to 2.18in od hose	30.22	40
HF-34C	Mo-clamps up to 2.31in od hose	poa	40
HF-36C	Mo-clamps up to 2.38in od hose	35.18	40

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Worm drive hose clamps.



Construction. Top quality clamps with worm gear and through slots, hexagon/slotted drive, ¼ on 8mm width, 5/16 on 13mm. We stock all stainless also stainless band with plated screw & housing. We can supply shielded clamps that have an inner stainless band to stop soft rubber, as in silicone hoses, being extruded through the slots. Application. Use with serrated or beaded tube fittings, if using with fir tree fittings take care not to clamp on sharp edges or hose may be cut through, Tightening torque 10 in/lbs, retorquing when hot.

Part Nos.		£	Cat
HC1-1	8mm stainless band 6-16mm	0.27	40
HC1-2	8mm stainless band 8-22mm	0.30	40
HC1-3	8mm stainless band 10-27mm	0.35	40
HC2-2	8mm all stainless 6-16mm	0.41	40
HC2-3	8mm all stainless 8-22mm	0.41	40
HC2-1	8mm all stainless 10-25mm	0.44	40
HC2-4	8mm all stainless 10-27mm	0.51	40
HC2-5	8mm all stainless 13-32mm	0.58	40
HC2-6	8mm all stainless 19-44mm	0.73	40
HC2-7	8mm all stainless 26-51mm	0.76	40
HC2-8	8mm all stainless 32-57mm	0.76	40
HC2-9	8mm all stainless 38-63mm	0.76	40
HC3-1	13mm all stainless 27-51mm	0.93	40
HC3-2	13mm all stainless 33-57mm	0.93	40
HC3-2.5	13mm all stainless 40-63mm	0.93	40
HC3-4	13mm all stainless 46-70mm	1.05	40
HC3-5	13mm all stainless 63-114mm	1.20	40
HC3-7	13mm all stainless 78-101mm	1.17	40
HC3-3	13mm all stainless 115-165mm	2.58	40

Worm drive embossed band clamps



A high-quality, rolled-edge stainless clamp with an embossed band, ideal for use with silicone hose as they will not cut into the hose.

Part Nos.		£	Cat
HC5-1	WORMDRIVE S/S CLIP 8-12MM	0.33	40
HC5-10	WORMDRIVE S/S CLIP 60-80MM	0.53	40
HC5-11	WORMDRIVE S/S CLIP 70-90MM	0.55	40
HC5-12	WORMDRIVE S/S CLIP 80-100MM	0.58	40
HC5-13	WORMDRIVE S/S CLIP 90-110MM	0.61	40
HC5-14	WORMDRIVE S/S CLIP 100-120MM	0.63	40
HC5-15	WORMDRIVE S/S CLIP 110-130MM	0.65	40
HC5-16	WORMDRIVE S/S CLIP 120-140MM	0.68	40
HC5-17	WORMDRIVE S/S CLIP 130-150MM	0.70	40
HC5-18	WORMDRIVE S/S CLIP 140-160MM	0.73	40
HC5-2	WORMDRIVE S/S CLIP 10-16MM	0.34	40
HC5-3	WORMDRIVE S/S CLIP 12-20MM	0.35	40
HC5-4	WORMDRIVE S/S CLIP 16-27MM	0.40	40
HC5-5	WORMDRIVE S/S CLIP 23-35MM	0.42	40
HC5-6	WORMDRIVE S/S CLIP 30-45MM	0.45	40
HC5-7	WORMDRIVE S/S CLIP 32-50MM	0.46	40
HC5-8	WORMDRIVE S/S CLIP 40-60MM	0.48	40
HC5-9	WORMDRIVE S/S CLIP 50-70MM	0.51	40

Mikalor clamps



The Supra W4 (pro) clamp from Mikalor is made of 304 marine grade stainless steel throughout. These wide band T-Bolt clamps are excellent for use with silicon hose, especially high-pressure applications.

Part Nos.		£	Cat
MIK-63-68	MIKALOR STEEL BOLT CLAMP 63-68	2.15	40
MIK-68-73	MIKALOR STEEL BOLT CLAMP 68-73	2.89	40
MIK104-112	MIKALOR CLAMP 104-112MM M8 BOLT	3.46	40
MIK17-19	MIKALOR CLAMP 17-19MM M6 BOLT	1.12	40
MIK19-21	MIKALOR CLAMP 19-21MM M6 BOLT	1.16	40
MIK21-23	MIKALOR CLAMP 21-23MM M6 BOLT	1.14	40
MIK23-25	MIKALOR CLAMP 23-25MM M6 BOLT	1.15	40
MIK25-27	MIKALOR CLAMP 25-27MM M6 BOLT	1.17	40
MIK27-29	MIKALOR CLAMP 27-29MM M6 BOLT	1.28	40
MIK29-31	MIKALOR CLAMP 29-31MM M7 BOLT	1.38	40
MIK31-34	MIKALOR CLAMP 31-34MM M7 BOLT	1.42	40
MIK34-37	MIKALOR CLAMP 34-37MM M7 BOLT	1.49	40
MIK37-40	MIKALOR CLAMP 37-40MM M7 BOLT	1.50	40
MIK40-43	MIKALOR CLAMP 40-43MM M7 BOLT	1.51	40
MIK43-47	MIKALOR CLAMP 43-47MM M7 BOLT	1.93	40
MIK47-51	MIKALOR CLAMP 47-51MM M7 BOLT	2.00	40
MIK51-55	MIKALOR CLAMP 51-55MM M7 BOLT	2.04	40
MIK55-59	MIKALOR CLAMP 55-59MM M7 BOLT	2.09	40
MIK59-63	MIKALOR CLAMP 59-63MM M7 BOLT	2.10	40
MIK63-68	MIKALOR CLAMP 63-68MM M7 BOLT	2.15	40
MIK68-73	MIKALOR CLAMP 68-73MM M8 BOLT	2.90	40
MIK73-79	MIKALOR CLAMP 73-79MM M8 BOLT	2.96	40
MIK79-85	MIKALOR CLAMP 79-85MM M8 BOLT	3.04	40
MIK85-91	MIKALOR CLAMP 85-91MM M8 BOLT	3.11	40
MIK91-97	MIKALOR CLAMP 91-97MM M8 BOLT	3.18	40
MIK97-104	MIKALOR CLAMP 97-104MM M8 BOLT	3.24	40

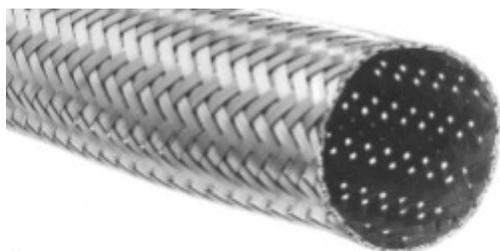
Oetiker hose clamps



Zinc plated mild steel but also available in stainless steel. Strong, safe and neat hose clamp, tighten by squeezing ears with, preferably, Oetiker, pincers.

Part Nos.		£	Cat
HC4-00	O-clamp 5-7mm	0.29	40
HC4-0	O-clamp 7-9mm	0.29	40
HC4-1	O-clamp 10.8-13mm for 1/4in hose	0.32	40
HC4-2	O-clamp 12.5-15mm for 5/16in & 3/8in hose	0.35	40
HC4-3	O-clamp 14-17mm	0.35	40
HC4-4	O-clamp 16.2-20mm	0.38	40
HC4-5	O-clamp 18-22mm for 1/2in hose	0.51	40
HC4-6	O-clamp 21-25mm for 5/8in hose	0.58	40
HC4-7	O-clamp 22.5-27mm	0.58	40
HC4-8	O-clamp 26.3-31mm for 3/4in hose	0.67	40
HCP-1	Pincers for O-clips	46.58	40

Stainless steel overbraid



Function. Designed to slip over existing hoses it will bunch up to 10% and pull down to 50% of its diameter. It is extremely flexible and will form round curved moulded hoses, it can be cut with snips or sharp scissors. We suggest it is used with a Pro- clamp or Mo-clamp to avoid unsightly raw edges.

Part Nos.	Price per metre.	£	Cat
OB-5	Stainless steel overbraid 0.5in id	12.06	50
OB-75	Stainless steel overbraid 0.75inid	12.99	50
OB-1.25	Stainless steel overbraid 1.25in id	16.20	50
OB-1.75	Stainless steel overbraid 1.75inid	21.25	50
OB-2.25	Stainless steel overbraid 2.25in id	21.54	50

Aluminium tube and fittings



Application Used mainly for in cockpit/cabin for fuel, oil & fire extinguisher lines, where weight saving is the prime consideration. Construction. A compression fitting system used in conjunction with specially supplied aluminium tube coated in plastic (Polyimid 12) for corrosion resistance. All female JIC fittings are red / blue anodised, metric are black / gold. We currently stock 10mm tube & fittings, also available in 4.75mm and 8mm, larger sizes are in the pipeline.

Part No	per metre	£	Cat
AT-10	10mm od aluminium tube (per metre)	4.80	40
TEB	Through bulkhead straight tube joiner.	21.78	40
TEB45	Through bulkhead 45° tube joiner.	30.93	40
TEB90	Through bulkhead 90° tube joiner.	32.29	40
TEBAN-M12	Tube end banjo for M12x1.5 bolt	42.63	40
TEBAND-M12	Tube end double banjo for M12x1.5 bolt	41.85	40
TEF2-55	Tube.end straight female M14x1.5	24.48	40
TEF7-6	Tube.end straight female -6JIC	24.48	40
TEF92-55	Tube.end 90° female M14x1.5	29.66	40
TEF97-6	Tube.end 90° female -6JIC	40.98	40
TEM2-55	Tube.end straight male M14x1.5	21.71	40
TEM3-4	Tube.end straight male 1/4BSP	21.70	40
TEM7-6	Tube.end straight male -6JIC	29.97	40
TEMB47-6	Tube.end 45° male bulkhead.6JIC	30.30	40
TEMB7-6	Tube.end straight male bulkhead-6JIC	21.10	40
TEMB92-55	Tube.end 90° male bulkhead-M14x1.5	30.30	40
TEMB97-6	Tube end 90° male bulkhead -6JIC	41.85	40
TET	Tube end T tube/tube/tube	43.68	40
TETF7-6	Tube end T tube/-6JIC/tube	39.00	40

Tube nut and sleeve (AN818/9).

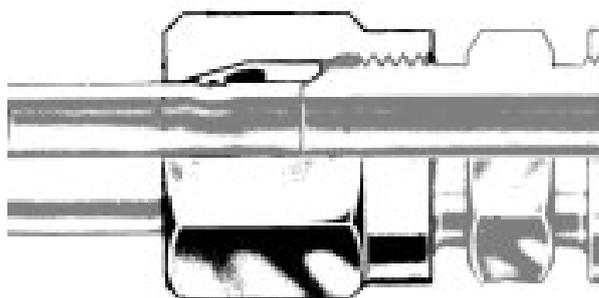


Aeroquip two part blue anodised aluminium female JIC fitting for attachment to Bundy, Kunifer, steel or aluminium tube, requires the use of a flaring tool.

Aluminium Part No	£	Cat
FBM3554	-3JIC tube nut	0.77 40
FBM3555	-4JIC tube nut	0.84 40
FBM3675	-6JIC tube nut	1.11 40
FBM3676	-8JIC tube nut	1.26 40
FBM3677	-10JIC tube nut	2.84 40
FBM3678	-12JIC tube nut	3.97 40

Aluminium Part No	£	Cat
FBM3669	-3JIC tube sleeve	0.64 40
FBM3670	-4JIC tube sleeve	0.72 40
FBM3671	-6JIC tube sleeve	0.81 40
FBM3672	-8JIC tube sleeve	0.89 40
FBM3673	-10JIC tube sleeve	1.77 40
FBM3674	-12JIC tube sleeve	2.57 40

Flareless tube fitting



Aeroquip Versaflare two part plated mild steel, as above but no flaring tool required. Use with steel male unions.

Steel Part No	£	Cat
VFS-4	-4JIC for 1/4in tube	4.14 40
VFS-5	-5JIC for 5/16in tube	7.76 40
VFS-6	-6JIC for 3/8in tube	4.99 40
VFS-8	-8JIC for 1/2in tube	6.24 40
VFS-10	-10JIC for 5/8in tube	14.83 40
VFS-12	-12JIC for 3/4in tube	22.67 40

Hose assembly tools

Aluminium Vice Jaw Inserts



Construction. Aluminium die casting with angled pockets to hold any size hexagon and horizontal pocket to hold all sizes of hose. Cast in magnets hold jaws firmly to vice. **Application.** Holds anodised fittings during assembly minimising marking the finish and allows hose to be held firmly during cutting operation.

Part No		£	Cat
FCM3661	Alloy vice jaws	27.41	40
AVJ1	As above but made from Billet aluminium	33.78	70

Aluminium Spanners



These billet aluminium spanners fit the actual swivel hexagon, ideal for tightening assembled connections. We also have a set with removable handles that can be fitted at different angles. For assembly of the fitting we also have a kit with blue spanners fitting the "B" nut and red the socket.

Part No		£	Cat
FCM3410	Aeroquip spanner set- -6 to -20	211.74	40
AS7-3	-3 spanner	10.01	70
AS7-4	-4 spanner	12.22	70
AS7-6	-6 spanner	13.12	70
AS7-8	-8 spanner	13.69	70
AS7-10	-10 spanner	14.64	70
AS7-12	-12 spanner	15.58	70
AS7-16	-16 spanner	20.67	70
ASS7-4-16	-4 to -16 fitting assembly set	222.56	70

Braided TFE tube seating tool



Hand held tool to facilitate seating TFE tube against sleeve.

Part No		£	Cat
FBM3646	-3 to -12 assembly tool	41.24	40

Braided TFE braid separating tool



Hand held tool that uses twisting action to flares stainless braid away from -3 & -4 hose

Part No		£	Cat
TAT-3-4	-3 & -4 braid flaring tool	42.00	70

Thread Identification kit



Kit consisting of special caliper, thread gauge, dimension booklet & magnifying glass

Part No		£	Cat
FCM3644	thread identification kit	47.73	90

Aeroquip socketless hose assembly tool



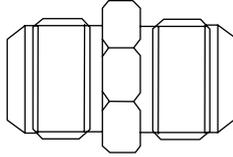
The FT1268 / FBM3632 hand held assembly tool designed for assembly of -4,-6 & -8 straight fittings into push on hose, tool for angled fittings available soon. The hose is held in position by manually operated clamp, and the fitting is positioned on the mandrel assembly lever. The fitting is pushed into the hose by compressing the mandrel assembly lever.

Part No		£	Cat
FBM3632	-4,-6,-8 push on hose tool	44.44	70

Adapters

We stock a vast range of adapters in a variety of materials and add to the range regularly. If you cannot see what you are looking for, please ask as we may have added it already. The items listed in our price list are usually available from stock. Most aluminium adapters are blue but most FBM numbers are also available in black

Male to male, straight

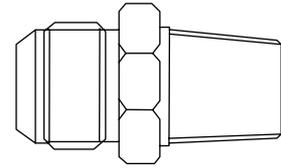


JIC to JIC equal (AN815) and reducing (AN919).

Aluminium Part No	£	Cat
FBM2050	-3JIC x -3JIC AQP ali blue	1.98 40
FBM2048	-4JIC x -3JIC AQP ali blue	2.90 40
FBM2051	-4JIC x -4JIC AQP ali blue	2.21 40
AN919-6-3	-6JIC x -3JIC AQP ali blue	8.47 40
FBM2156	-6JIC x -4JIC AQP ali blue	3.09 40
FBM2052	-6JIC x -6JIC AQP ali blue	2.15 40
FBM2049	-8JIC x -4JIC AQP ali blue	7.79 40
FBM2160	-8JIC x -6JIC AQP ali blue	4.07 40
FBM2053	-8JIC x -8JIC AQP ali blue	3.37 40
FBM2188	-10JIC x -4JIC AQP ali blue	6.63 40
FBM2162	-10JIC x -6JIC AQP ali blue	5.78 40
FBM2163	-10JIC x -8JIC AQP ali blue	5.50 40
FBM2054	-10JIC x -10JIC AQP ali blue	3.80 40
FBM2189	-12JIC x -4JIC AQP ali blue	15.99 40
FBM2165	-12JIC x -6JIC AQP ali blue	8.08 40
FBM2166	-12JIC x -8JIC AQP ali blue	8.08 40
FBM2167	-12JIC x -10JIC AQP ali blue	8.56 40
FBM2055	-12JIC x -12JIC AQP ali blue	7.43 40
FBM2169	-16JIC x -10JIC AQP ali blue	19.11 40
FBM2170	-16JIC x -12JIC AQP ali blue	10.14 40
FBM2056	-16JIC x -16JIC AQP ali blue	12.72 40
AN919-20-16	-20JIC x -16JIC blue	27.98 40

FBM5050	-3JIC x -3JIC m/m AQP ali Black	1.98 40
FBM5051	-4JIC x -4JIC m/m AQP ali Black	2.21 40
FBM5052	-6JIC x -6JIC m/m AQP ali Black	2.15 40
FBM5053	-8JIC x -8JIC m/m AQP ali Black	3.37 40
FBM5054	-10JIC x -10JIC m/m AQP ali Black	3.80 40
FBM5055	-12JIC x -12JIC m/m AQP ali Black	7.43 40
FBM5056	-16JIC x -16JIC m/m AQP ali Black	12.72 40
FBM5048	-4JIC x -3JIC m/m AQP ali Black	2.90 40
FBM5156	-6JIC x -4JIC m/m AQP ali Black	3.09 40
FBM5049	-8JIC x -4JIC m/m AQP ali Black	7.79 40
FBM5160	-8JIC x -6JIC m/m AQP ali Black	4.07 40
FBM5162	-10JIC x -6JIC m/m AQP ali Black	5.78 40
FBM5163	-10JIC x -8JIC m/m AQP ali Black	5.50 40
FBM5166	-12JIC x -8JIC m/m AQP ali Black	7.87 40
FBM5167	-12JIC x -10JIC m/m AQP ali Black	8.56 40
FBM5170	-16JIC x -12JIC m/m AQP ali Black	9.89 40

Steel Part No	£	Cat
MMSS7-3	-3JIC x -3JIC- stainless	4.78 40
MMSS7-3-4	-3JIC x -4JIC- stainless	9.15 40
FBM2750	-3JIC x -3JIC	6.94 40
MMS7-3-4	-3JIC x -4JIC	4.54 40
FBM2751	-4JIC x -4JIC	2.60 40
MMS7-4-5	-4JIC x -5JIC(1/2-20)	2.00 40
FBM2754	-4JIC x -6JIC	3.95 40
MMS7-5	-5JIC x -5JIC	1.53 40
FBM2756	-6JIC x -6JIC	2.44 40
MMS7-6-8	-6JIC x -8JIC	2.52 40
MMS7-6-10	-6JIC x -10JIC	3.01 40
MMS7-6-12	-6JIC x -12JIC	4.58 40
MMS7-8-8	-8JIC x -8JIC	1.62 40
MMS7-8-10	-8JIC x -10JIC	2.52 40
MMS7-8-12	-8JIC x -12JIC	3.36 40
MMS7-10-10	-10JIC x -10JIC	2.15 40
MMS7-10-12	-10JIC x -12JIC	3.32 40
MMS7-10-16	10JIC x -16JIC	5.23 40
MMS7-12-12	-12JIC x -12JIC	3.14 40
MMS7-12-16	-12JIC x -16JIC	4.92 40
MMS7-16-16	-16JIC x -16JIC	4.50 40
MMS7-20-20	-20JICx-20JIC	9.38 40



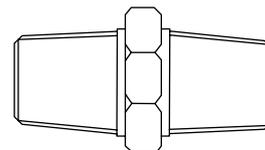
JIC to NPTF (AN816).

Aluminium Part No	£	Cat
FBM2000	-3JIC x 1/8 NPTF	1.39 40
FBM2001	-4JIC x 1/8 NPTF	1.59 40
FBM2002	-4JIC x 1/4 NPTF	2.08 40
FBM2003	-6JIC x 1/8 NPTF	2.30 40
FBM2004	-6JIC x 1/4 NPTF	1.97 40
FBM2005	-6JIC x 3/8 NPTF	2.23 40
AN816-6-8	-6JIC x 1/2 NPTF	6.22 40
FBM2006	-8JIC x 1/4 NPTF	2.83 40
FBM2007	-8JIC x 3/8 NPTF	2.23 40
FBM2008	-8JIC x 1/2 NPTF	3.03 40
AN816-10-4	-10JIC x 1/4 NPTF	7.04 40
FBM2185	-10JIC x 3/8NPTF	3.81 40
FBM2009	-10JIC x 1/2 NPTF	3.63 40
FBM2010	-12JIC x 1/2 NPTF	6.26 40
FBM2011	-12JIC x 3/4 NPTF	5.46 40
AN816-16-12	-16JIC x 3/4 NPTF	28.19 40
FBM2012	-16JIC x 1in NPTF	10.77 40

FBM5000	-3JIC x 1/8NPT m/m AQP ali Black	1.39 40
FBM5001	-4JIC x 1/8NPT m/m AQP ali Black	1.59 40
FBM5002	-4JIC x 1/4NPT m/m AQP ali Black	2.08 40
FBM5003	-6JIC x 1/8NPT m/m AQP ali Black	2.30 40
FBM5004	-6JIC x 1/4NPT m/m AQP ali Black	1.97 40
FBM5005	-6JIC x 3/8NPT m/m AQP ali Black	2.23 40
FBM5013	-6JIC x 1/2NPT m/m AQP ali Black	3.39 40
FBM5006	-8JIC x 1/4NPT m/m AQP ali Black	2.83 40
FBM5007	-8JIC x 3/8NPT m/m AQP ali Black	2.23 40
FBM5008	-8JIC x 1/2NPT m/m AQP ali Black	3.03 40
FBM5185	-10JIC x 3/8NPT m/m AQP ali Black	3.81 40
FBM5009	-10JIC x 1/2NPT m/m AQP ali Black	3.63 40
FBM5010	-12JIC x 1/2NPT m/m AQP ali Black	6.26 40
FBM5011	-12JIC x 3/4NPT m/m AQP ali Black	5.46 40
FBM5015	-16JIC x 3/4NPT m/m AQP ali Black	11.89 40

Steel Part No

FBM2511	-3JIC x 1/8NPTF	2.10 40
FBM2512	-4JIC x 1/8NPTF	1.93 50
FBM2515	-4JIC x 1/4NPTF	3.70 50
FBM2519	-4JIC x 3/8NPTF	4.21 50
FBM2524	-4JIC x 1/2NPTF	4.92 50
MMS8-5-3	-5JIC x 1/8NPTF	1.46 40
MMS8-6-3	-6JIC x 1/8NPTF	2.41 40
FBM2517	-6JIC x 1/4NPTF	3.70 50
FBM2521	-6JIC x 3/8NPTF	2.65 40
MMS8-6-8	-6JIC x 1/2NPTF	2.16 40
FBM2518	-8JIC x 1/4NPTF	7.84 50
FBM2522	-8JIC x 3/8NPTF	2.87 40
FBM2526	-8JIC x 1/2NPTF	3.87 50
MMS8-10-4	-10JIC x 1/4NPTF	3.31 40
MMS8-10-6	-10JIC x 3/8NPTF	2.16 40
FBM2527	-10JIC x 1/2NPTF	3.76 50
FBM2531	-10JIC x 3/4NPTF	5.67 50
FBM2528	-12JIC x 1/2NPTF	6.38 50
FBM2532	-12JIC x 3/4NPTF	4.94 50
MMS8-16-12	-16JIC x 3/4NPTF	4.78 40

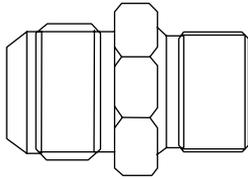


NPTF to NPTF (AN911).

Aluminium Part No	£	Cat
FBM2132	1/8NPTF	2.13 40
FBM2133	1/4NPTF	2.71 40
FBM2134	3/8NPTF	5.33 40
FBM2135	1/2NPTF	5.58 40

Steel Part No	£	Cat
MMS8-4-4	1/4NPTF	2.41 40

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

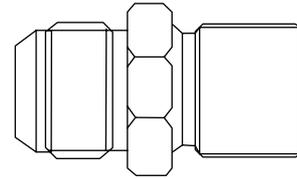


JIC to BSP.

Aluminium Part No		£	Cat
MMA-3	-3JIC x 1/8BSP	7.75	40
MMA-3-4	-3JIC x 1/4BSP	7.75	40
MMA-4-3	-4JIC x 1/8BSP	7.75	40
MMA-4-4	-4JIC x 1/4BSP	7.75	40
MMA-4-6	-4JIC x 3/8BSP	6.69	40
MMA-6-3	-6JIC x 1/8BSP	6.89	40
MMA-6-6	-6JIC x 3/8BSP	9.46	40
MMA-6-4	-6JIC x 1/4BSP	9.70	40
MMA-6-8	-6JIC x 1/2BSP	6.62	40
MMA-8-4	-8JIC x 1/4BSP	10.69	40
MMA-8-6	-8JIC x 3/8BSP	10.69	40
MMA-8	-8JIC x 1/2BSP	6.62	40
MMA-10-6	-10JIC x 3/8BSP	11.20	40
MMA-10-8	-10JIC x 1/2BSP	8.83	40
MMA-10	-10JIC x 5/8BSP	12.26	40
MMA-10-12	-10JIC x 3/4BSP	14.52	40
MMA-12-8	-12JIC x 1/2BSP	12.57	40
MMA-12-10	-12JIC x 5/8BSP	11.04	40
MMA-12	-12JIC x 3/4BSP	11.04	40
MMA-16-10	-16JIC x 5/8BSP	17.08	40
MMSO-3-4	1/8BSP x -4JIC	1.68	40
MMSO-3-5	1/8BSP x -5JIC (1/2-20)	1.65	50
MMSO-3-6	1/8BSP x -6JIC	1.90	40
MMSO-4-4	1/4BSP x -4JIC	1.17	40
MMSO-4-5	1/4BSP x -5JIC (1/2-20)	1.37	40
MMSO-4-6	1/4BSP x -6JIC	1.18	40
MMSO-4-8	1/4BSP x -8JIC	1.93	40
MMSO-4-10	1/4BSP x -10JIC	3.11	40
MMSO-6-4	3/8BSP x -4JIC	1.27	40
MMSO-6-5	3/8BSP x -5JIC	1.37	40
MMSO-6-6	3/8BSP x -6JIC	1.36	40
MMSO-6-8	3/8BSP x -8JIC	1.65	40
MMSO-6-10	3/8BSP x -10JIC	1.93	40
MMSO-6-12	3/8BSP x -12JIC	3.04	40
MMSO-8-4	1/2BSP x -4JIC	2.02	40
MMSO-8-6	1/2BSP x -6JIC	1.74	40
MMSO-8-8	1/2BSP x -8JIC	1.65	40
MMSO-8-10	1/2BSP x -10JIC	2.01	40
MMSO-8-12	1/2BSP x -12JIC	2.58	40
MMSO-8-16	1/2BSP x -16JIC	4.85	50
MMSO-10-6	5/8BSP x -6JIC	3.14	40
MMSO-10-8	5/8BSP x -8JIC	3.14	40
MMSO-10-10	5/8BSP x -10JIC	3.11	40
MMSO-10-12	5/8BSP x -12JIC	3.11	40
MMSO-12-4	3/4BSP x -4JIC	3.23	40
MMSO-12-6	3/4BSP x -6JIC	3.23	40
MMSO-12-8	3/4BSP x -8JIC	2.76	40
MMSO-12-10	3/4BSP x -10JIC	2.76	40
MMSO-12-12	3/4BSP x -12JIC	2.55	40
MMSO-12-16	3/4BSP x -16JIC	4.42	40
MMSO-12-20	3/4BSP x -20JIC	12.78	40

JIC to UNF with flat seat or inverted flare (for American fuel pumps).

Aluminium Part No		£	Cat
FBM2108	-6JIC x 5/8-18 inverted flare fuel pump	5.97	40
FBM2111	-6JIC x 1/2-20 inverted flare fuel pump	5.33	40
FBM2112	-6JIC x 5/8-20 Carter carb	5.30	40
MMA1-6-4	-6JIC x 7/16-244	7.36	40
FBM2107	-6JIC x 1-20 Rochester Quadrajct	9.34	40
FBM2113	-6JIC x 9/16-24 Single feed Holley	5.60	40
FBM2114	-6JIC x 7/8-20 Dual feed Holley	5.13	40
FBM2110	-8JIC x 7/8-20 Dual feed Holley	7.89	40
MMA1-10-7	-10JIC x 5/8UNF	10.07	40
FBM2953	-10JIC x 7/8UNF with O-Ring	6.58	40
MMA1-10-2	-10JIC x 1 1/16 -16 Jaguar flat end	7.57	40
MMA1-12-8	-12JIC x 3/4UNF	14.22	40
MMA1-12-10	-12JIC x 7/8UNF	14.71	40
FBM2954	-12JIC x 7/8UNF with O-Ring	12.56	40
FBM2955	-12JIC x 1 1/16 -12UNF with O-Ring	5.43	40
MMA1-J-1	-12JIC x 1 1/16 14tpi Jaguar concave seat	6.56	40
MMA1-J-2X	-12JIC x 1 1/16 14tpi Jaguar convex seat	6.56	40
Steel Part No.			
FBM2963	JIC x 1/2-20 inverted flare	10.32	40
FBM2964	JIC x 5/8-18 inverted flare	10.39	40
FBM2965	JIC x 11/16-18 inverted flare	7.05	40

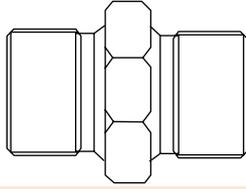


JIC to UNF

Aluminium Part No		£	Cat
MMA1-J-2	-12JIC x 1 1/16 16tpi Jaguar concave seat	7.08	40
Steel Part No			
MMSS1-3	-3JIC x 3/8UNF flat seat- stainless	4.65	40
MMS1-3	-3JIC x 3/8UNF	3.20	40
MMS7-3-4	-4JIC x 3/8UNF	4.54	40
MMS1-4	-4JIC x 7/16UNF	1.46	40
MMS1-4-4F	-4JIC x 7/16-24	7.33	40
MMS1-4-5	-4JIC x 1/2UNF	1.68	40
MMS1-6-5	-6JIC x 1/2UNF	1.68	40
MMS1-8	-8JIC x 7/8UNF	2.31	40
FBM2961	-8JIC x 7/8-20 Holley on nitro	7.05	40
MMS1-10-8	-10JIC x 7/8UNF	2.21	40
MMS1-10-16	-10JIC x 1 UNF	7.70	40
MMS1-12	-12JIC x 3/4UNF	3.57	40
MMS1-12-8	-12JIC x 7/8UNF	3.74	40
See page 85 for JIC to UNF adapters including screen filter			

JIC to Metric.

Aluminium Part No		£	Cat
MMA2-3-31	-3JIC x M10x1 convex	7.08	40
MMA2-3-32	-3JIC x M10x1.25 convex	6.68	40
MMA2-3-41	-3JIC x M12x1.0 convex	5.88	40
MMA2-3-42	-3JIC x M12x1.25 convex	5.72	40
MMA2-4-31	-4JIC x M10x1 convex	7.08	40
MMA2-4-41	-4JIC x M12x1.0 convex	7.08	40
MMA2-4-42	-4JIC x M12x1.25 convex	6.92	40
MMA2-4-55	-4JIC x M14x1.5	7.08	40
MMA2-4-65	-4JIC x M16x1.5	7.52	40
MMA2-4-85	-4JIC x M18x1.5	10.13	40
MMA2-6-31	-6JIC x M10x1.0 flat	7.08	40
MMA2-6-35	-6JIC x M10x1.5 flat	11.50	40
MMA2-6-41	-6JIC x M12x1.0	5.58	40
MMA2-6-42	-6JIC x M12x1.25	4.46	40
FBM2116	-6JIC x M12x1.5-Weber-flat	5.07	40
MMA2-6-55	-6JIC x M14x1.5	6.92	40
MMA2-6-65	-6JIC x M16x1.5	5.26	40
MMA2-6-85	-6JIC x M18x1.5	9.99	40
MMA2-8-55	-8JIC x M14x1.5	9.56	40
MMA2-8-65	-8JIC x M16x1.5	9.88	40
MMA2-8-85	-8JIC x M18x1.5	6.62	40
MMA2-10-65	-10JIC x M16x1.5	9.88	40
MMA2-10-85	-10JIC x M18x1.5	12.39	40
MMA2-10-95	-10JIC x M20x1.5	12.70	40
MMA2-12-65	-12JIC x M16x1.5 flat	14.27	40
MMA2-12-85	-12JIC x M18x1.5	12.39	40
MMA2-12-95	-12JIC x M20x1.5	12.39	40
MMA2-12-105	-12JIC x M22x1.5	9.10	40
MMA2-12-115	-12JIC x M24x1.5	10.44	40
MMA2-12-125	-12JIC x M26x1.5	16.44	40
MMA2-12-145	-12JIC x M28x1.5	11.80	40
MMA2-12-165	-12JIC x M30x1.5	16.31	40
MMA2-16-125	-16JIC x M26x1.5	13.17	40
MMA2-16-165	-16JIC x M30x1.5	16.31	40
Steel Part No			
MMSS2-3-31	-3JIC x M10x1.0- stainless- convex	5.40	40
MMS2-3-31X	-3JIC x M10x1.0- convex	4.32	40
MMS2-31	-3JIC x M10x1.0- flat seat	4.13	40
FBM2942	-3JIC x M10x1.25-convex seat	10.75	40
MMS2-4-31	-4JIC x M10x1- convex seat	5.43	40
MMS2-4-41	-4JIC x M12x1- convex seat	5.09	40
MMS2-6-31	-6JIC x M10x1.0	5.52	40
MMS2-6-45	-6JIC x M12x1.5	3.11	40
MMS2-6-55	-6JIC x M14x1.5	3.17	40
MMS2-6-65	-6JIC x M16x1.5	2.69	40
FBM2608	-6JIC x M16x1.5- Saginaw p/s- GM fuel injection	11.40	50
FBM2609	-6JIC x M18x1.5- Saginaw p/s- GM fuel injection	16.82	50
MMS2-6-85	-6JIC x M18x1.5	3.14	40
MMS2-6-95	-6JIC x M20x1.5	3.14	40
MMS2-8-55	-8JIC x M14x1.5	3.28	40
MMS2-8-65	-8JIC x M16x1.5	2.76	40
MMS2-8-85	-8JIC x M18x1.5	3.11	40
MMS2-10-65	-10JIC x M16x1.5	3.28	40
MMS2-10-85	-10JIC x M18x1.5	3.28	40
MMS2-16-125	-16JIC x M25x1.5	10.10	40

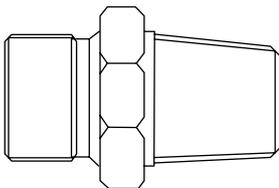


BSP to BSP.

Aluminium Part No		£	Cat
MMA3-3-6	1/8BSP x 3/8BSP	6.19	40
MMA3-6-8	3/8BSP x 1/2BSP	6.48	40
MMA3-8	1/2BSP x 1/2BSP	9.17	40
MMA3-8-10	1/2BSP x 5/8BSP	9.56	40
MMA3-10	5/8BSP x 5/8BSP	5.27	40
Steel Part No			
MMS3-3-3	1/8BSP x 1/8BSP	0.86	40
MMS3-3-4	1/8BSP x 1/4BSP	1.14	40
MMS3-3-6	1/8BSP x 3/8BSP	1.37	40
MMS3-3-8	1/8BSP x 1/2BSP	1.88	40
MMS3-4-4	1/4BSP x 1/4BSP	1.04	40
MMS3-4-6	1/4BSP x 3/8BSP	1.20	40
MMS3-4-8	1/4BSP x 1/2BSP	1.48	40
MMS3-6-6	3/8BSP x 3/8BSP	1.26	40
MMS3-6-8	3/8BSP x 1/2BSP	1.48	40
MMS3-6-10	3/8BSP x 5/8BSP	2.08	40
MMS3-8-8	1/2BSP x 1/2BSP	1.48	40
MMS3-8-10	1/2BSP x 5/8BSP	1.95	40
MMS3-8-12	1/2BSP x 3/4BSP	2.58	40
MMS3-10-10	5/8BSP x 5/8BSP	1.74	40
MMS3-10-12	5/8BSP x 3/4BSP	2.58	40
MMS3-12-12	3/4BSP x 3/4BSP	2.52	40

BSP to BSPT.

Steel Part No		£	Cat
MMS6-3-3	1/8BSP x 1/8BSPT	1.19	40
MMS6-3-4	1/8BSP x 1/4BSPT	1.31	40
MMS6-3-6	1/8BSP x 3/8BSPT	1.78	40
MMS6-4-3	1/4BSP x 1/8BSPT	1.31	40
MMS6-4-4	1/4BSP x 1/4BSPT	1.17	40
MMS6-4-6	1/4BSP x 3/8BSPT	1.48	40
MMS6-6-3	3/8BSP x 1/8BSPT	2.02	40
MMS6-6-4	3/8BSP x 1/4BSPT	1.65	40
MMS6-6-6	3/8BSP x 3/8BSPT	1.48	40
MMS6-6-8	3/8BSP x 1/2BSPT	2.02	40
MMS6-8-4	1/2BSP x 1/4BSPT	2.02	40
MMS6-8-6	1/2BSP x 3/8BSPT	2.02	40
MMS6-8-8	1/2BSP x 1/2BSPT	1.65	40
MMS6-10-10	5/8BSP x 5/8BSPT	2.21	40
MMS6-12-8	3/4BSP x 1/2BSPT	2.76	40

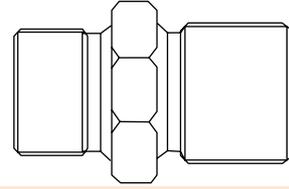


BSP to NPTF.

Steel Part No		£	Cat
MMS10-3-3	1/8BSP x 1/8NPTF	1.20	40
MMS10-3-4	1/8BSP x 1/4NPTF	2.54	40
MMS10-4-3	1/4BSP x 1/8NPTF	1.48	40
MMS10-4-4	1/4BSP x 1/4NPTF	1.28	40
MMS10-4-6	1/4BSP x 3/8NPTF	1.68	40
MMS10-4-8	1/4BSP x 1/2NPTF	2.02	40
MMS10-6-3	3/8BSP x 1/8NPTF	1.88	40
MMS10-6-4	3/8BSP x 1/4NPTF	1.78	40
MMS10-6-6	3/8BSP x 3/8NPTF	1.37	40
MMS10-6-8	3/8BSP x 1/2NPTF	2.02	40
MMS10-8-4	1/2BSP x 1/4NPTF	2.57	40
MMS10-8-6	1/2BSP x 3/8NPTF	2.02	40
MMS10-8-8	1/2BSP x 1/2NPTF	1.57	40
MMS10-10-6	5/8BSP x 3/8NPTF	3.33	40
MMS10-10-8	5/8BSP x 1/2NPTF	3.33	40
MMS10-12-4	3/4BSP x 1/4NPTF	3.74	40
MMS10-12-6	3/4BSP x 3/8NPTF	3.40	40
MMS10-12-8	3/4BSP x 1/2NPTF	3.33	40

BSP to BSF.

Steel Part No		£	Cat
MMS11-3	1/8BSP x 3/8BSF	5.48	40



BSP to UNF.

Aluminium Part No		£	Cat
MMA4-8	1/2BSP x 3/4UNF extended	7.79	40
MMA4-10-J	5/8BSP x 1-16 Jaguar	8.84	40
Steel Part No			
MMS9-3	1/8BSP x 3/8UNF	4.26	40
MMS9-3X	1/8BSP x 3/8UNF convex seat	4.34	40
MMS9-3V	1/8BSP x 3/8UNF concave seat	4.50	40
MMS9-3-4	1/8BSP x 7/16UNF	4.83	40
MMS9-3-4V	1/8BSP x 7/16UNF convex seat	5.33	50
MMS9-3-4V	1/8BSP x 7/16UNF concave seat	5.33	50
MMS9-3-4F	1/8BSP x 7/16x24tpi	3.97	50
MMS9-3-4FX	1/8BSP x 7/16x24tpi convex seat	4.16	40
MMS9-3-4FV	1/8BSP x 7/16x24tpi concave seat	3.57	50
MMS9-3-5V	1/8BSP x 1/2UNF concave seat	1.65	40
MMS9-3-6V	1/8BSP x 9/16UNF concave seat	4.03	40
MMS9-3-7	1/8BSP x 5/8UNF	5.18	40
MMS9-4-3	1/4BSP x 3/8UNF	4.26	40
MMS9-4-4	1/4BSP x 7/16UNF	1.41	40
MMS9-4-4X	1/4BSP x 7/16UNF convex seat	7.00	50
MMS9-4-6	1/4BSP x 9/16 x 18 tpi	2.02	50
MMS9-4-6FX	1/4BSP x 9/16 x 24 tpi convex seat	5.09	40
MMS9-6-5	3/8BSP x 1/2UNF	1.81	40
MMS9-6-7	3/8BSP x 5/8UNF for Smiths temp gauge	6.00	40
MMS9-8-7	1/2BSP x 5/8UNF	2.87	40
MMS9-8-8	1/2BSP x 3/4UNF	2.50	40
MMS9-8-10	1/2BSP x 7/8UNF	3.01	40
MMS9-10-8	5/8BSP x 3/4UNF	3.01	40
MMS9-10-10	5/8BSP x 7/8UNF	3.53	40
MMS9-12-8	3/4BSP x 3/4UNF	3.57	40
MMS9-12-10	3/4BSP x 7/8UNF	4.00	40

BSP to Metric.

Aluminium Part No		£	Cat
MMA5-10-18	5/8BSP x M18x1.5	9.03	40
Steel Part No			
MMS5-3-31	1/8BSP x M10x1.0 flat	5.73	40
MMS5-3-31X	1/8BSP x M10x1.0 convex seat	3.98	40
MMS5-3-31V	1/8BSP x M10x1.0 concave seat	4.08	40
MMS5-3-32	1/8BSP x M10x1.25 flat	3.01	50
MMS5-3-32X	1/8BSP x M10x1.25 convex seat	3.84	50
MMS5-3-32V	1/8BSP x M10x1.25 concave seat	4.03	40
MMS5-3-35	1/8BSP x M10x1.5	7.08	40
MMS5-3-41	1/8BSP x M12x1 flat	5.85	40
MMS5-3-41V	1/8BSP x M12x1 concave seat	8.59	50
MMS5-3-42	1/8BSP x M12x1.25	6.67	40
MMS5-3-45	1/8BSP x M12x1.5 flat	1.93	40
MMS5-3-45X	1/8BSP x M14x1.5 convex	7.47	40
MMS5-4-31	1/4BSP x M10x1.0 flat	1.95	40
MMS5-4-35	1/4BSP x M10x1.5	1.93	40
MMS5-4-41	1/4BSP x M12x1.0 flat	1.93	40
MMS5-4-42	1/4BSP x M12x1.25 flat seat	5.79	40
MMS5-4-42V	1/4BSP x M12x1.25 concave seat	5.74	40
MMS5-4-45	1/4BSP x M12x1.5	1.95	40
MMS5-4-55	1/4BSP x M14x1.5	1.95	40
MMS5-4-65	1/4BSP x M16x1.5	1.99	40
MMS5-6-31	3/8BSP x M10x1.0	2.39	40
MMS5-6-45	3/8BSP x M12x1.5	2.02	40
MMS5-6-55	3/8BSP x M14x1.5	2.07	50
MMS5-6-65	3/8BSP x M16x1.5	2.04	40
MMS5-6-85	3/8BSP x M18x1.5	2.33	40
MMS5-6-95	3/8BSP x M20x1.5	2.52	40
MMS5-8-65	1/2BSP x M16x1.5	2.33	40
MMS5-8-85	1/2BSP x M18x1.5	2.32	40
MMS5-8-95	1/2BSP x M20x1.5	2.52	40
MMS5-8-105	1/2BSP x M22x1.5	2.55	40
MMS5-8-115	1/2BSP x M24x1.5	2.79	40
MMS5-8-125	1/2BSP x M26x1.5	2.79	40
MMS5-10-85	5/8BSP x M18x1.5	2.55	40
MMS5-10-105	5/8BSP x M22x1.5	2.61	40
MMS5-10-125	5/8BSP x M26x1.5	3.27	40
MMS5-12-85	3/4BSP x M18x1.5	2.79	40
MMS5-12-95	3/4BSP x M20x1.5	2.79	50
MMS5-12-105	3/4BSP x M22x1.5	2.87	40
MMS5-12-115	3/4BSP x M24x1.5	3.27	40
MMS5-12-125	3/4BSP x M26x1.5	2.79	40

Male to female, straight.



Non swivel

Swivel

JIC to JIC.

Aluminium Part No for non swivel	£	Cat
MFA7-3-4	-3JIC x-4JIC - non swivel	5.88 40
MFA7-3-6	-3JIC x -6JIC - non swivel	6.62 40
MFA7-4-6	-4JIC x-6JIC - non swivel	6.62 40
MFA7-6-8	-6JICx-8JIC- non swivel	7.36 40
MFA7-6-10	-6JIC x -10JIC - non swivel	14.71 40
MFA7-8-10	-8JIC x -10JIC - non swivel	10.29 40
MFA7-8-12	-8JIC x -12JIC - non swivel	14.71 40
MFA7-10-12	-10JIC x -12JIC - non swivel	13.24 40
MFA7-12-16	-12JIC x -16JIC - non swivel	18.39 41
MFA7-4-3	-4JIC x-3 JIC - non swivel	4.04 40
MFA7-6-4	-6JIC x -4JIC - non swivel	5.88 40
MFA7-8-6	-8JIC x -6JIC - non swivel	7.36 41
MFA7-10-8	-10JIC x -8JIC - non swivel	10.29 40
MFA7-12-10	-12JIC x -10JIC - non swivel	13.24 41
MFA7-16-12	-16JIC x -12JIC - non swivel	18.39 40

Steel part No swivel

MFS7-4-6	-4JIC X -6JIC	3.58 40
MFS7-5-4	-5JIC X -4JIC	10.16 40
MFS7-5-5	-5JIC X -5JIC	3.77 40
MFS7-5-6	-5JIC X -6JIC	3.77 40
MFS7-6-4	-6JIC X -4JIC	4.73 40
MFS7-6-5	-6JIC X -5JIC	3.77 40
MFS7-6-6	-6JIC X -6JIC	3.62 40
MFS7-6-8	-6JIC X -8JIC	3.58 40
MFS7-8-6	-8JIC X -6JIC	3.88 40
MFS7-8-8	-8JIC X -8JIC	3.58 40
MFS7-10-12	-10JIC X -12JIC	6.61 40
MFS7-12	-12JIC X -12JIC	6.61 40

Stainless steel part No swivel

MFSS7-3-4	-3JIC X -4JIC S/S	14.28 40
MFSS7-3-6	-3JIC X -6JIC S/S	26.23 40
MFSS7-4-6	-4JIC X -6JIC S/S	26.13 40
MFSS7-6-4	-6JIC X -4JIC S/S	34.84 40
MFSS7-6-8	-6JIC X -8JIC S/S	38.17 40
MFSS7-8-10	-8JIC X -10JIC S/S	55.80 40

Aluminium Part No

MFA2-6-45X	"-6JIC X M12X1.5 convex, swivel"	9.56 40
MFA2-6-55X	"-6JIC X M14X1.5 convex, swivel"	9.56 40
MFA2-12-165	-12JIC x M30x1.5 concave (Porsche)- swivel	17.93 40
MFA2-16-165	-16JIC x M30x1.5 concave (Porsche)-swivel	28.53 40
MFA2-12-125	-12JIC x M26x1.5 concave Porsche)- swivel	28.22 40
MFA2-3-31	-3JIC x M10x1 concave- non swivel	7.41 40
MFA2-6-45	-6JIC x M12x1.5 concave- non swivel	7.19 40
MFA2-6-55	-6JIC x M14x1.5 concave- non swivel	6.97 40

NPTF to NPTF (AN912).

Aluminium Part No	£	Cat
FBM2136	1/4NPTF x 1/8NPTF- non swivel	3.01 40
FBM2137	3/8NPTF x 1/4NPTF- non swivel	3.52 40
FBM2138	3/8NPTF x 1/8NPTF- non swivel	4.02 40
FBM2139	1/2NPTF x 3/8NPTF- non swivel	6.30 40
FBM2140	1/2NPTF x 1/4NPTF- non swivel	4.23 40
FBM2141	1/2NPTF x 1/8NPTF- non swivel	4.73 40
FBM2144	3/4NPTF x 1/4NPTF- non swivel	12.90 40
FBM2143	3/4NPTF x 3/8NPTF- non swivel	8.54 40
FBM2142	3/4NPTF x 1/2NPTF- non swivel	10.18 40

Steel Swivel Part No

MFS8-3-3	1/8NPTF X 1/8NPTF	2.60 40
MFS8-4-2	1/4NPTF X 1/8NPTF	2.85 40

JIC to BSP

Steel Swivel Part No	£	Cat
MFS0-6-4	-6JIC X 1/4BSP - swivel	3.62 40
MFS0-6-6	-6JIC X 3/8BSP-swivel	3.62 40
MFS0-8-8	-8JIC X 1/2BSP-swivel	3.67 40
MFS0-10-8	-10JIC X 1/2BSP -swivel	3.67 40
MFS0-10-10	-10JIC X 5/8BSP -swivel	5.77 40
MFS0-12-8	-12JIC X 1/2BSP -swivel	8.28 40

Most Aeroquip adapters are also available in Black anodised finish. Change FBM2*** part number to FBM5***

BSP to BSP

Steel Swivel Part No	£	Cat
MFS3-8-6	1/2BSP X 3/8BSP - nonswivel	4.82 40
MFS3-8-10	5/8BSP x 1/2BSP Cooler connector converter	3.31 40
MFS3-8-6S	1/2BSP x 3/8BSP TGASP port to temp gauge	8.91 40
MFS3-8-3	1/2BSP X 1/8BSP	2.08 40
MFS3-8-6	1/2BSP X 3/8BSP	4.82 40
MFS3-8-8	1/2BSP X 1/2BSP	2.39 40
MFS6-4-4	1/4BSP X 1/4BSP	8.69 40

BSP to NPTF

Steel Part No	£	Cat
MFS6-3-3	1/8BSP X 1/8NPTF - swivel	7.43 40
MFS10-8-3	1/2BSP X 1/8NPTF - nonswivel	3.11 40
MFS10-8-4	1/2BSP X 1/4NPTF - nonswivel	3.11 40
MFS10-8-6	1/2BSP X 3/8NPTF - nonswivel	9.02 40
MFS10-3-3	1/8BSP x 1/8NPTF USA made gauges	7.35 40
MFS10-6-4	3/8NPTF x 1/4BSP Holley reg pressure t/o	7.80 40

BSP to Metric

Steel swivel Part No	£	Cat
MFS5-4-45	1/4BSP X M12 X 1.5	4.98 40
MFS5-4-55	1/4BSP X M14 X 1.5	4.98 40
MFS5-4-85	1/4BSP X M18 X 1.5	4.98 40
MFS5-55-4	M14X1.5 X 1/4BSP	3.32 40
MFS5-6-105K	male/female 3/8BSPXM22 karcher	24.55 40
MFS5-6-115	3/8BSP X M22X1.5	4.27 40
MFS5-6-31	3/8BSP X M10X1	3.51 40
MFS5-8-105	1/2BSP X M22X1.5	5.07 40
MFS5-8-125	1/2BSP X M26X1.5	9.54 40
MFS5-8-85	1/2BSP X M18X1.5	4.98 40
MFS5-85-8	M18X1.5 X 1/2BSP	4.27 40

Various

Aluminium Part No

MFA8-3	-3JICx1/8NPTF-non swivel	4.83 40
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Steel Part No

FBM2719	-3JICx1/8NPTF non swivel	10.50 40
MFS9-3-7	5/8UNF x 1/8BSP Remote filter pressure t/o	4.28 40
MFS13-3X-31	M10x1 x 3/8UNF concave- caliper converter	4.78 40
MFS9-6-7	3/8BSP X 5/8UNF gauge	6.23 40
MFS9-7-3	5/8UNF X 1/8NPTF	8.41 40

Male to female 45° and 90° adapter.



JIC to JIC

Aluminium Part No	£	Cat
FBM3148	-6JIC swivel 45° AQP blue	15.10 40
FBM3149	-8JIC swivel 45° AQP blue	12.02 40
FBM3150	-10JIC swivel 45° AQP blue	21.86 40
FBM3151	-12JIC swivel 45° AQP blue	23.28 40
FBM3155	-6JIC swivel 90° AQP blue	15.45 40
FBM3156	-8JIC swivel 90° AQP blue	13.15 40
FBM3157	-10JIC swivel 90° AQP blue	21.58 40
FBM3158	-12JIC swivel 90° AQP blue	23.34 40

Steel Part No

MFS97-10	10JIC swivel 90°	11.11 40
MFS97-6	-6JIC swivel 90°	6.81 40
MFS97-8	-8JIC swivel 90°	8.52 40

NPTF to NPTF.

Aluminium Part No

FBM2147	1/8NPTF-Non swivel 90°	7.05 40
FBM2148	1/4NPTF-Non swivel 90°	8.95 40
FBM2149	3/8NPTF-Non swivel 90°	15.18 40

JIC to NPTF

Steel Part No	£	Cat
MFS98-3-3	-3JIC X 1/8NPTF swivel 90°	14.06 40

BSP to BSP

Steel Part No	£	Cat
MFS43-8	1/2BSP swivel 45°	7.92 40
MFS43-10	5/8 BSP swivel 45°	9.07 40
MFS93-3	1/8BSP swivel 90°	4.50 40
MFS93-4	1/4BSP swivel 90°	4.64 40
MFS93-6	3/8BSP swivel 90°	6.68 40
MFS93-8	1/2 BSP swivel 90°	7.09 40
MFS93-10	5/8 BSP swivel 90°	9.32 40

Male to male 45° adapter.



JIC to NPTF (AN823).

Aluminium Part No	£	Cat
FBM2020	-3JIC x 1/8NPTF	6.29 40
FBM2021	-4JIC x 1/8NPTF	5.23 40
FBM2022	-6JIC x 1/4NPTF	5.50 40
FBM2023	-8JIC x 3/8NPTF	6.29 40
FBM2024	-10JIC x 1/2NPTF	10.65 40
FBM2025	-12JIC x 3/4NPTF	15.26 40
FBM2026	-16JIC x 1NPTF	22.74 40
FBM5020	-3JIC x 1/8NPT m/m 45° AQP ali Black	6.29 40
FBM5021	-4JIC x 1/8NPT m/m 45° AQP ali Black	5.35 40
FBM5022	-6JIC x 1/4NPT m/m 45° AQP ali Black	5.50 40
FBM5023	-8JIC x 3/8NPT m/m 45° AQP ali Black	6.29 40
FBM5024	-10JIC x 1/2NPT m/m 45° AQP ali Black	10.65 40
FBM5025	-12JIC x 3/4NPT m/m 45° AQP ali Black	14.89 40
Steel Part No		
AN823-3C	-3JIC x 1/8NPTF- stainless steel	21.79 40
FBM2586	-6JIC x 1/4NPTF	7.62 50
FBM2589	-6JIC x 3/8NPTF	7.72 50
FBM2593	-8JIC x 1/2NPTF	7.67 40
FBM2594	-10JIC x 1/2NPTF	10.64 50
FBM2595	-12JIC x 1/2NPTF	15.61 50

JIC to UNF

Steel Part No	£	Cat
2061-10-10S	-10JIC x 7/8SAE O ring(UNF)	18.73 50

Male to male 90° adapter.



JIC to NPTF (AN822).

Aluminium Forged Part No	£	Cat
FBM2030	-3JIC x 1/8NPTF	4.73 40
FBM2031	-4JIC x 1/8NPTF	4.55 40
FBM2032	-4JIC x 1/4NPTF	5.54 40
FBM2033	-6JIC x 1/8NPTF	6.58 40
FBM2034	-6JIC x 1/4NPTF	5.05 40
FBM2035	-6JIC x 3/8NPTF	6.40 40
FBM2036	-8JIC x 1/4NPTF	8.61 40
FBM2037	-8JIC x 3/8NPTF	5.93 40
FBM2038	-8JIC x 1/2NPTF	8.83 40
FBM2039	-10JIC x 1/2NPTF	10.10 40
FBM2040	-12JIC x 3/4NPTF	14.09 40
FBM2041	-16JIC x 1inNPTF	27.61 40
FBM5030	-3JIC x 1/8NPT m/m 90° AQP ali Black	4.73 40
FBM5031	-4JIC x 1/8NPT m/m 90° AQP ali Black	4.55 40
FBM5032	-4JIC x 1/4NPT m/m 90° AQP ali Black	5.54 40
FBM5033	-6JIC x 1/8NPT m/m 90° AQP ali Black	6.58 40
FBM5034	-6JIC x 1/4NPT m/m 90° AQP ali Black	5.05 40
FBM5035	-6JIC x 3/8NPT m/m 90° AQP ali Black	6.40 40
FBM5036	-8JIC x 1/4NPT m/m 90° AQP ali Black	8.61 40
FBM5037	-8JIC x 3/8NPT m/m 90° AQP ali Black	5.93 40
FBM5038	-8JIC x 1/2NPT m/m 90° AQP ali Black	8.83 40
FBM5016	-10JIC x 3/8NPT m/m 90° AQP ali Black	12.19 40
FBM5039	-10JIC x 1/2NPT m/m 90° AQP ali Black	10.10 40
FBM5017	-12JIC x 1/2NPT m/m 90° AQP ali Black	15.13 40
Aluminium Swept compact Part No		
MMA98-6	-6JIC x 3/8NPTF	10.80 40
MMA9808-4	-8JIC x 1/4NPTF	19.59 40
MMA98-8-6	-8JIC x 3/8NPTF	11.03 40
MMA98-8	-8JIC x 1/2NPTF	19.59 40
MMA98-10-6	-10JIC x 3/8NPTF	18.39 40
MMA98-10-8	-10JIC x 1/2NPTF	18.39 40
MMA98-10-12	-10JIC x 3/4NPTF	25.75 40
MMA98-12-8	-12JIC x 1/2NPTF	38.48 40
MMA98-16	-16JIC x 1 NPTF	43.06 40
Steel Part No		
FBM2610	-3JIC x 1/8NPTF	6.90 40
FBM2611	-4JIC x 1/8NPTF	4.35 40
FBM2616	-6JIC x 1/4NPTF	4.77 40
FBM2620	-6JIC x 3/8NPTF	5.56 40

FBM2617	-8JIC x 1/4NPTF	9.43 40
FBM2626	-8JIC x 1/2NPTF	8.32 40
FBM2627	-10JIC x 1/2NPTF	7.80 40
FBM2628	-12JIC x 1/2NPTF	11.46 40
FBM2631	-12JIC x 3/4NPTF	10.72 40

JIC to UNF

Steel Part No	£	Cat
2062-10-10S	- 10JIC x 7/8SAE O ring(UNF)	35.37 50
2062-10-12S	-12JIC x 7/8SAE O ring(UNF)	33.86 50

JIC to JIC (AN821).

Aluminium Forged Part No	£	Cat
FBM2186	-3JIC	6.46 40
FBM2119	-4JIC	4.91 40
FBM2120	-6JIC	6.74 40
FBM2190	-8JIC	9.26 40
AN821-10	-10JIC	12.68 40
FBM2191	-12JIC	18.76 40
Aluminium Swept compact Part No		

Male to male to male T adapter.



JIC to JIC to JIC (AN824)

Aluminium Part No	£	Cat
FBM2060	-3JIC	6.37 40
FBM2061	-4JIC	6.01 40
FBM2062	-6JIC	5.52 40
FBM2063	-8JIC	9.44 40
FBM2064	-10JIC	13.30 40
FBM2065	-12JIC	19.64 40
FBM2066	-16JIC	25.08 40

Steel/Brass Part number

MTSS7-3	-3JIC male- stainless with 5mm fixing hole	40.54 50
MTS7-3	-3JIC male steel	5.03 50
MTS7-4	-4JIC male steel	6.41 40
MTS7-6	-6JIC male steel	6.87 40
MTS7-8	-8JIC male steel	6.87 40
MTS7-10	-10JIC male steel	11.93 40
MTS3-3	1/8BSP male-steel	5.85 50
MTB3-3	1/8BSP male- brass	3.21 50
MTS3-4	1/4BSP male- steel	4.37 50
MTS3-6	3/8BSP male- steel	6.22 50
MTS3-8	1/2BSP male- steel	7.42 50
MTS3-10	5/8BSP male- steel	8.63 50

Branch T (AN825) adapter



JIC to JIC to NPTF

Aluminium Part No	£	Cat
FBM2187	-3JIC x -3JIC x 1/8NPTF	6.92 40
FBM2121	-4JIC x -4JIC x 1/8NPTF	6.15 40
FBM2122	-6JIC x -6JIC x 1/4NPTF	7.43 40
FBM2123	-8JIC x -8JIC x 3/8NPTF	10.87 40

Running T (AN826) adapter



JIC to NPTF to JIC.

Aluminium Part No	£	Cat
FBM2714	-3JIC x 1/8NPTF x -3JIC	8.32 40
FBM2124	-4JIC x 1/4NPTF x -4JIC	6.43 40
FBM2125	-6JIC x 1/4NPTF x -6JIC	6.97 40
FBM2126	-8JIC x 3/8NPTF x -8JIC	13.43 40

Male to female to male branch T adapter



JIC to JIC to JIC.

Aluminium Part No		£	Cat
925103	-3JIC	28.38	40
925104	-4JIC	24.76	40
925106	-6JIC	14.71	40
925108	-8JIC	20.60	40
925110	-10JIC	26.48	40
925112	-12JIC	36.78	40
925116	-16JIC	41.17	40

Female to male to male running T adapter



JIC to JIC to JIC.

Aluminium Part No		£	Cat
926103	-3JIC	35.02	40
926104	-4JIC	25.44	40
926106	-6JIC	14.71	40
926108	-8JIC	20.60	40
926110	-10JIC	26.48	40
926116	-12JIC	53.97	40

Male to female to male branch Y adapter



JIC to JIC to JIC.

Aluminium Part No		£	Cat
MMFY-6-6-8	-6JIC males x -8JIC female	26.75	40
MMFY-6	-6JIC males/ -6 JIC female	16.09	40
MMFY-8	-8JIC males/ -8JIC female	21.77	40
MMFY-10	-10JIC males/ -10JIC female	30.91	40
MMFY-12	-12JIC males/ -12JIC female	36.91	40

Female to female adapter.



JIC to JIC- swivel.

Aluminium Part No		£	Cat
FBM2914	-4JIC straight	9.47	40
FBM2915	-6JIC straight	4.86	40
FBM2916	-8JIC straight	6.32	40
FBM2917	-10JIC straight	9.34	40
FBM2918	-12JIC straight	11.46	40
FBM2971	-6 45°	13.56	40
FBM2972	-8 45°	14.17	40
FBM2973	-10 45°	13.56	40
FBM2974	-12 45°	20.28	40
FBM2978	-6JIC 90°	13.56	40
FBM2979	-8JIC 90°	13.70	40
FBM2980	-10JIC 90°	17.44	40
FBM2981	-12JIC 90°	20.28	40
FBM2982	-16JIC 90°	20.28	40
Steel Part No			
FFS7-4	-4JIC straight	3.33	40
FFS7-6	-6JIC straight	3.37	40

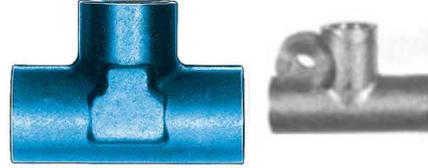
NPTF to NPTF- non swivel (AN910).

Aluminium Part No		£	Cat
FBM2129	1/8NPTF straight	2.79	40
FBM2130	1/4NPTF straight	4.41	40
FBM2131	3/8NPTF straight	6.49	40

BSP to BSP- swivel straight

Steel Part No		£	Cat
FFS3-3	1/8BSPx1/8BSP straight	2.15	40
FFS3-3-4	1/8BSPx1/4BSP straight	2.32	40
FFS3-4	1/4BSPx1/4BSP straight	1.88	40
FFS3-4-6	1/4BSPx3/8BSP straight	1.99	40
FFS3-6	3/8BSPx3/8BSP straight	1.99	40
FFS3-8	1/2BSPx1/2BSP straight	2.73	40
FFS3-10	5/8BSPx5/8BSP straight	3.37	40

Female to female to female T adapter.



Brass T on right Intended for use on rigid brake lines, but can be used with flexible hose using suitable adapters. Ports have 45° concave sealing face to take flared pipe and male tube nut.

JIC to JIC to JIC.

Aluminium Part No		£	Cat
FBM2173	-4JIC	10.16	40
FBM2174	-6JIC	10.33	40
FBM2175	-8JIC	12.59	40
FBM2176	-10JIC	34.01	40
FBM2177	-12JIC	31.04	40

NPTF to NPTF to NPTF (AN917).

Aluminium Part No		£	Cat
FBM2150	1/8NPTF	9.43	40
FBM2151	1/4NPTF	14.69	40
FBM2152	3/8NPTF	13.35	40
AN917-8	1/2NPTF	26.53	40

UNF/Metric port with 45° seat

Brass Steel Part No		£	Cat
FT1-3	3/8UNF female- brass with 5/16fixing hole(B)	9.47	50
FT2-31	M10x1 female- brass with 5/16infixing hole(B)	6.52	50

Female to female to female to female X adapters.



As above (Female to female to female T adapter.)

NPTF.

Aluminium Part No		£	Cat
AN918-4	1/4NPTF	22.43	40

UNF/metric port with 45° seat

Brass Part number		£	Cat
FCB1-3	3/8UNF female- brass with 5/16infixing hole	13.41	50
FCB2-31	M10x1 female- brass with 5/16in fixing hole	13.41	50

Banjo adaptors -6 upwards (fuel & oil)

Banjo to Metric female at 90° to bore.



Use of this part makes for a neater installation when using banjo fittings, [page 36](#) in multiple Weber, Dellorto & Solex sidedraft installations. Designed to take original banjo bolt.

Aluminium Part No		£	Cat
BA2-45	M12 bore to M12x1.5- Weber	14.64	40
BA2-42	M12 bore to M12x1.25- Dellorto	18.76	40
BAR2-7	Adapter ring Dellorto down draft with M7 bolt	2.09	40

Banjo to JIC male at 90° bore, (AN776).



Aluminium Part No		£	Cat
BA7-M12-6	12mm bore x -6JIC	19.59	40
BA7-M12-6L	12mm bore x -6JIC extended neck	20.33	40
BA7-M14-6	14mm bore x -6JIC	19.59	40
BA7-M14-6L	14mm bore x -6JIC extended neck	20.35	40
BA7-M16-6	16mm bore x -6JIC	14.18	40
BA7-M18-6	18mm bore x -6JIC	20.33	40
BA7-M12-8	12mm bore x -8JIC	20.76	40
BA7-M14-8	14mm bore x -8JIC	20.76	40
BA7-M16-8	16mm bore x -8JIC	15.41	40
BA7-M16-6	16mm bore x -6JIC	14.18	40
BA7-M18-10	18mm bore x -10JIC	20.41	40
BA7-M20-10	20mm bore x -10JIC	23.34	40
BA7-M22-8	22mm bore x -8JIC	62.84	40
BA7-M22-10	22mm bore x -10JIC	25.09	40

Banjo to double JIC male at 90° to bore, (AN778).



Aluminium Part No		£	Cat
BAD7-6	9/16 bore x -6JIC	20.94	40
BAD7-8	3/4 bore x -8JIC	19.31	40
BAD7-10	7/8 bore x -10JIC	15.67	40
BAD7-M12-6	12mm bore x -6JIC	31.69	40
BAD7-M14-6	14mm bore x -6JIC	31.69	40

Bolts (AN775) for oil & fuel banjos



Steel Part No		£	Cat
BBS2-21A	M8x1	1.74	50
BBS2-31A	M10x1.0	1.74	50
BBS2-35	M10x1.5	1.82	50
BBS2-45	M12x1.5	1.28	50
BBS2-55	M14x1.5	1.96	40
BBS2-65	M16x1.5	1.46	40
BBS2-85	M18x1.5	1.90	40
Aluminium Part No			
BBA3-4	1/4BSP	8.80	40
BBA3-6	3/8BSP	7.20	40
BBA3-8	1/2BSP	7.00	40
BBA1-6	9/16UNF	25.84	40
BBA1-8	3/4UNF	12.80	40
BBA1-10	7/8UNF	60.54	40
BBA2-45	M12x1.5 replaces Weber steel bolt	7.26	40
BBA2-65	M16x1.5	8.23	40
BBA2-85	M18x1.5	8.58	40
BBA2-95	M20x1.5	9.47	40
BBA2-105	M22x1.5	10.83	40

Banjo adapters -3 & -4 (brake & clutch)

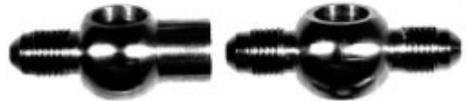
Single male.



Takes long banjo bolts [see page 67](#) for washers.

Steel Part No		£	Cat
BMS3-3	1/8BSP male takes 3/8/M10/1/8BSP bolt	4.13	50
BMS7-3	-3JIC male takes 3/8/M10/1/8BSP bolt- s/s	5.22	50
BMSA7-3	-3JIC male at 15° takes 3/8-etc- s/s	4.85	50
BMS7-4-3	-4JIC male takes 3/8/M10/1/8BSP bolt	8.60	50
BMS7-4	-4JIC male takes 7/16 or M12 bolt-s/s	13.35	50
Aluminium Part No			
BA7-M10-3	-3JIC male takes 3/8/M10/1/8BSP bolt-	15.06	40
BA7-M12-3	-3JIC male takes M12 bolt	16.43	40
BA7-M10-4	-4JIC male takes 3/8/M10/1/8BSP bolt-	17.62	40
BA7-M12-4	-4JIC male takes M12 bolt	17.61	40
BA7-4	-4JIC male takes 7/16UNF bolt	11.55	40

Double male.



Takes long banjo bolts [see page 67](#) washers.

Steel Part No		£	Cat
BMSD3-3	1/8BSP males takes 3/8/M10/1/8BSP bolt	8.15	50
BMSD7-3	-3JIC male takes 3/8/M10/1/8BSP bolt	12.52	50
BMSD7-3	-3JIC male takes as above- stainless	23.34	50
Aluminium Part No			
BAD7-M10-3	-3JIC male takes 3/8/M10/1/8BSP bolt	19.86	40
BAD7-M10-4	-4JIC male takes 3/8/M10/1/8BSP bolt	20.39	40
BAD7-M12-4	-4JIC male takes M12 bolt	22.26	40
BAD7-4	-4JIC takes 7/16 bolt	19.90	40
BAD7M14-4	-4JIC takes M14 bolt	22.26	40

Bolts for brake & clutch banjos

Short bolts, 20mm under Hex.



Steel Part No		£	Cat
BBS1-2	5/16UNF	6.01	50
BBS1-3	3/8UNF	1.75	50
BBSS1-3	3/8UNF stainless	3.42	50
BBS1A-2	5/16UNC	6.18	50
BBS14-3	3/8UNC	6.18	50
BBS3-3	1/8BSP	1.86	50
BBS2-21	M8x1.0	9.29	50
BBS2-22	M8x1.25	4.32	50
BBS2-31	M10x1	1.74	50
BBSS2-31	M10x1 stainless	3.42	50
BBS2-32	M10x1.25	1.74	50
BBSS2-32	M10x1.25 stainless	3.39	50
BBS2-35	M10x1.5	1.82	50
BBS2-41	M12x1.0	5.73	50
Aluminium Part No			
BBA1-3	3/8UNF	3.57	50
BBA2-31	M10x1	6.68	50
BBA2-32	M10x1.25	5.69	50
BBA2-41	M12x1	7.26	40

Double short bolts, 30mm under Hex.



Steel Part No		£	Cat
BBSD1-3	3/8UNF	2.05	50
BBSD2-31	M10x1.0	1.82	50
BBSD2-32	M10x1.25	1.86	50
BBSD2-45	M12x1.5	4.27	50
Aluminium Part No			
BBAD1-3	3/8UNF	6.03	50
BBAD2-31	M10x1	6.03	50
BBAD2-32	M10x1.25	7.03	50

Long bolts, 25mm under Hex.



Steel Part No		£	Cat
BBSL1-3	3/8UNF	1.74	50
BBSL3-3	3/8UNF stainless	3.39	50
BBSL1-4	7/16UNF	4.28	50
BBSL12-4	7/16x24tpi	6.49	50
BBSL2-31	M10x1	1.74	50
BBSL2-32	M10x1.25	1.74	50
BBSL2-41	M12x1.0	4.32	50
Aluminium Part No			
BBAL1-3	3/8UNF	7.03	50
BBAL2-31	M10x1	7.03	50
BBAL2-32	M10x1.25	7.53	50
Brake Light switch banjo bolt Part No			
BLSBBS1-3	Brake light switch Banjo Bolt 3/8UNF s/s	14.49	70
BLSBBS2-31	Brake light switch Banjo Bolt M10x1.0 s/s	14.49	70
BLSBBS2-32	Brake light switch Banjo Bolt M10x1.25 s/s	17.09	70

Double long bolts, 39mm under Hex.



Steel Part No		£	Cat
BBSLD1-3	3/8UNF	4.54	50
BBSLD1-3	3/8UNF- stainless	4.43	50
BBSLD2-31	M10x1.0	4.43	50
BBSLD2-32	M10x1.25	5.17	50
BBSLD3-3	1/8BSP	6.45	50

Washers for banjo bolts

Steel Part No		£	Cat
WC-3/8	"Folded copper 3/8" & 1/8BSP"	0.27	20
WC-M10	Folded copper 10mm	0.27	20
WC7/16	Folded copper 7/16	0.29	20
WC-M12	Folded copper 12mm	0.32	20

Aluminium fuel blocks



With 1/8NPTF tapping for fuel pressure gauge /switch.

Aluminium Part No		£	Cat
FBM2178	1/4NPTF out-3/8NPTF in	27.51	40
FBM2179	3/8NPTF out-1/2NPTF in	29.59	40

Fuel /oil pressure adapters

Male to male



With 1/8NPTF tapping for fuel or oil pressure gauge/switch.

Aluminium Part No		£	Cat
FBM2183	-6JIC straight	6.62	40
FBM2184	-8JIC straight	7.07	40
FBM2272	-6JIC 90°	9.44	40
FBM2273	-8JIC 90°	17.44	40
FBM2274	-10JIC 90°	20.28	40
Stainless steel Part No			
HAR5	-3JIC	19.50	90

Male to female straight

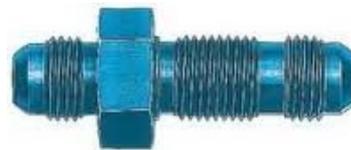


with 1/8NPTF tapping for fuel or oil pressure gauge/switch.

Aluminium Part No		£	Cat
MFFS8-4-4-3	"-4JIC male, 1/8NPT female, -4JIC female"	9.56	41
MFFA8-6-6-3	"-6JIC male, 1/8NPT female, -6JIC female"	9.56	41
MFFA8-6-6-3BK	"-6JIC male, 1/8NPT female, -6JIC female BLACK"	9.56	41
MFFA8-8-8-3	"-8JIC male, 1/8NPT female, -8JIC female"	11.17	41
MFFA8-10-10-3	"-10JIC male, 1/8NPT female, -10JIC female"	14.71	41
MFFA8-12-12-3	"-12JIC male, 1/8NPT female, -12JIC female"	22.07	41
Steel Part No			
MFFS3-8-8-3	1/2BSP male/1/2BSP/1/8BSP females	4.80	70

Bulkhead adapters.

Male to male straight (AN832).



Aluminium Part No		£	Cat
FBM2769	-3JIC	3.14	40
FBM2071	-4JIC	2.79	40
FBM2072	-6JIC	3.18	40
FBM2073	-8JIC	6.56	40
FBM2074	-10JIC	6.92	40
FBM2075	-12JIC	11.22	40
FBM2076	-16JIC	16.10	40
AN832-20	-20JIC	39.31	40

Steel Part No		£	Cat
MMSB3-3	1/8BSP	4.21	40
MMSB3-4	1/4BSP	3.39	40
MMSB3-6	3/8BSP	3.70	40
MMSB3-8	1/2BSP inc nuts	4.03	40
MMSB3-10	5/8BSP inc nuts	5.02	40
MMSB2-31-31	M10x1	6.77	40
MMSB7-3	-3JIC	3.91	40
MMSSB2-3	-3JIC- stainless	9.81	40
MMSB7-4	-4JIC	5.81	40
FBM2772	-4JICx-6JIC	15.51	40
FBM2774	-6JIC	6.54	40
FBM2775	-8JIC	8.32	40

Male to male bulkhead, Unequal



BSP or JIC female to metal brake pipe having female tube nuts

Steel Part No		£	Cat
MMSB9-3	1/8BSP x 3/8UNF	6.14	40
MMSB5-3-31	1/8BSP x M10x1.0	3.66	40
MMSB5-3-32	1/8BSP x M10x1.25	6.48	50
MMSB9-4	1/4BSP x 7/16UNF	9.51	40
MMSSB1-3	-3JIC x 3/8UNF-stainless	8.69	50

Male to male 45° (AN837)



Aluminium Part No		£	Cat
FBM2893	-3JIC	8.15	40
FBM2127	-4JIC	6.15	40
FBM2128	-6JIC	6.07	40

Steel Part No		£	Cat
MMSSB4-3	-3JIC- stainless	35.14	50

Male to male 90° (AN833).



Part No		£	Cat
FBM2799	-3JIC	10.18	40
FBM2081	-4JIC	6.08	40
FBM2082	-6JIC	5.97	40
FBM2083	-8JIC	8.75	40
FBM2084	-10JIC	13.30	40
FBM2085	-12JIC	16.96	40
FBM2086	-16JIC	27.98	40

Steel Part No		£	Cat
FBM2790	-3JIC- with nut	31.74	40
MMSSB9-3	-3JIC- stainless	29.42	40
FBM2793	-6JIC- with nut	9.28	40

Male to male to male branch T (AN834).



Aluminium Part No		£	Cat
FBM2808	-3JIC	12.34	40
FBM2091	-4JIC	9.16	40
FBM2092	-6JIC	10.94	40
FBM2093	-8JIC	12.98	40
AN834-10	-10JIC	22.78	40
AN834-12	-12JIC	22.11	40
AN834-16	-16JIC	20.08	40

Male to male to male running T (AN804).



Steel Part No		£	Cat
MBTS7-3	-3JIC	5.68	50
MBTSS7-3	-3JIC- stainless	30.37	50

Aluminium Part No		£	Cat
FBM2815	-3JIC	9.13	40
FBM2117	-4JIC	10.80	40
FBM2118	-6JIC	12.78	40
FBM2180	-8JIC	17.03	40

Steel Part No		£	Cat
FBM2809	-3JIC- with nut	32.62	40
MBRSS7-3	-3JIC- stainless	62.87	50

Bulkhead locknuts (AN6289).



Aluminium Part No		£	Cat
BNA3-3	1/8BSP	0.96	40
FBM3556	-3JIC & 3/8UNF	0.34	40
FBM2099	-4JIC & 7/16UNF	0.69	40
FBM2100	-6JIC & 9/16UNF	0.83	40
FBM2103	-8JIC & 3/4UNF	1.62	40
FBM2104	-10JIC & 7/8UNF	1.70	40
FBM2105	-12JIC	1.98	40
FBM2106	-16JIC	3.53	40
AN924-20	-20JIC	9.80	40

Steel Part No		£	Cat
BNS3-3	1/8BSP	0.74	50
BNS3-4	1/4BSP	0.80	50
BNS1-3	-3JIC & 3/8UNF	0.10	40
BNS1-6	-6JIC & 9/16UNF	1.20	50
BNS1-8	-8JIC & 3/4UNF	1.40	50
BNS2-31	M10x1.0	0.25	50
BNS2-41	M12x1	0.65	50
BNS1-4	7/16UNF	0.89	50
BNS5/8W	5/8Whitx26tpi	0.68	50
BNS57-3	JIC & 3/8UNF stainless	0.36	50
WSP-3/8	Washer- shake proof for -3JIC & 3/8UNF	0.21	20
WSP-MK10	Washer- shake proof for M10	0.15	20
WSP-5/8	Washer- shake proof for 5/8Whit	0.99	20

Blanking plugs.

JIC (AN806)



Aluminium Part No		£	Cat
AN806-1	1/4UNF	3.66	40
AN806-2	-2JIC	3.54	40
AN806-3	5/16UNF	3.46	40
FBM3712	-3JIC	2.17	40
FBM3713	-4JIC	2.71	40
FBM3714	-6JIC	2.71	40
FBM3715	-8JIC	3.01	40
FBM3716	-10JIC	3.85	40
FBM3717	-12JIC	5.31	40
FBM3718	-16JIC	7.79	40
AN806-20	-20JIC	19.11	40
AN806-24D	-24JIC	27.45	40

Steel Part No		£	Cat
FBM3701	-3JIC	4.98	50
BPS7-4	-4JIC	1.38	50
BPS7-6	-6JIC	1.73	50
BPS7-8	-8JIC	1.80	50
BPS7-10	-10JIC	1.91	50
BPS7-12	-12JIC	2.79	50
BPS7-16	-16JIC	5.76	50
BPS7-20	-20JIC	9.37	50

UNF with O ring seal (AN814).



Aluminium Part No		£	Cat
BPA1-4	1/4UNF- O ring not supplied	2.81	40
BPA1-5/16	5/16UNF-O ring not supplied	2.81	40
BPA1-3	3/8UNF- O ring not supplied	2.81	40
FBM3722	3/8UNF	5.83	40
BPA1-5	1/2UNF- O ring not supplied	5.86	40
FBM3723	7/16UNF	6.19	40
FBM3724	9/16UNF	3.74	40
BPA1-7	5/8UNF	5.05	40
FBM3725	3/4UNF	4.78	40
FBM3726	7/8UNF	9.07	40
FBM3727	1 1/6UNF	9.19	40

BSP



Aluminium Part No		£	Cat
BPA3-3	1/8BSP	3.01	40
BPA3-4	1/4BSP	4.74	40
BPA3-6	3/8BSP	6.29	40
BPA3-8	1/2BSP	5.42	40
BPA3-12	3/4BSP	5.99	40

Steel Part No			
BPS3-3	1/8BSP	0.87	50
BPS3-4	1/4BSP	0.94	50
BPS3-6	3/8BSP	1.20	50
BPS3-8	1/2BSP	1.35	50
BPS3-10	5/8BSP	2.56	50
BPS3-12	3/4BSP	2.08	50

Metric



Aluminium Part No		£	Cat
BPA2-31	M10X1	4.95	40
BPA2-41	M12X1	8.51	40
BPA2-45	M12X1.5	4.34	40
BPA2-55	M14X1.5	4.34	40
BPA2-65	M16X1.5	6.22	40
BPA2-85	M18X1.5	6.22	40
BPA2-95	M20X1.5	8.90	40
BPA2-105	M22X1.5	8.10	40
BPA2-115	M24X1.5	7.33	40
BPA2-125	M26X1.5	7.55	40
BPA2-165	M30X1.5	11.01	40

Socket Head			
BPA2-41SH	Alloy plug M12x 1 socket head	5.67	40
BPA2-45SH	Alloy plug M12x 1.5 socket head	4.42	40
BPA2-55SH	Alloy plug M14x 1.5 socket head	4.42	40
BPA2-65SH	Alloy plug M16x 1.5 socket head	5.17	40
BPA2-95SH	Alloy plug M20 x 1.5 socket head	7.98	40
BPA105SH	Alloy Plug M22 x 1.5 socket head	7.89	40

NPTF socket head (AN932).



Aluminium Part No		£	Cat
FBM3684	1/16NPTF	1.83	40
FBM3685	1/8NPTF	1.09	40
FBM3686	1/4NPTF	1.18	40
FBM3687	3/8NPTF	1.11	40
FBM3749	1/2NPTF	2.12	40
FBM3750	3/4NPTF	6.75	40

Steel Part No			
BPSHS8-2	1/16NPTF	0.53	50
BPSHS8-3	1/8NPTF	0.71	50
BPSHS8-4	1/4NPTF	0.96	50

NPTF. Hexagon head



Steel Part No		£	Cat
BPS8-3	1/8NPTF	1.05	50
BPS8-4	1/4NPTF	1.05	50
BPS8-6	3/8NPTF	1.17	50
BPS8-8	1/2NPTF	1.52	50

Blanking Caps (AN929)

JIC, swivel.



Aluminium Part No		£	Cat
BCA7-2	-2JIC	4.45	40
FBM3751	-3JIC	2.89	40
FBM3752	-4JIC	1.24	40
FBM3740	-6JIC	2.84	40
FBM3741	-8JIC	3.25	40
FBM3742	-10JIC	5.67	40
FBM3743	-12JIC	7.60	40
FBM3744	-16JIC	13.31	40

Steel Part No			
BCS7-20	-20JIC	8.58	50
BCS7-24	-24JIC	15.58	40

JIC/BSP, non swivel



Steel Part No		£	Cat
BCS3-3	1/8BSP	1.88	50
BCS3-4	1/4BSP	1.68	50
BCS3-6	3/8BSP	1.88	50
BCS3-8	1/2BSP	2.08	50
BCS3-10	5/8BSP	2.61	50
BCS3-12	3/4BSP	3.23	50

SteelPart number			
FBM3479	-3JIC	2.04	40
FBM3480	-4JIC	1.18	40
FBM3602	-6JIC	1.87	40
FBM3603	-8JIC	2.21	40
FBM3604	-10JIC	3.76	40
FBM3605	-12JIC	5.18	40
FBM3566	-16JIC	5.11	40

Metric



Aluminium Part No		£	Cat
BCA2-45	M12X1.5 swivel	3.91	40
BCA2-45B	M12X1.5 fixed for Bosch pump	9.27	40
BCA2-55	M14X1.5 swivel	4.78	40
BCA2-65	M16X1.5 swivel	6.63	40
BCA2-85	M18X1.5 swivel	5.32	40
BCA2-105	M22X1.5 swivel	4.64	40
BCA2-125	M26X1.5 swivel	9.27	40
BCA2-165	M30X1.5 swivel	10.67	40

Weld on connections



Push on

Aluminium Part No		£	Cat
WO15-6	3/8" push on	4.16	40
WO14-8	1/2" push on	2.58	40
WO15-12	3/4" push on	3.20	40



Metric

Aluminium Part No		£	Cat
WO2-M14	M14 x 1.5 male	5.17	20
WO2-M16	M16 x 1.5 male	5.17	20
WO2-M18	M16 x 1.5 male	4.85	20
WO2-M22	M22 x 1.5 male	7.38	20
WO2-M26	M26 x 1.5 male	6.00	20
WO2-M30	M30 x 1.5 male	9.92	20
WOF2-21	M8 x 1 female	5.09	20
WOF2-31	M10 x 1 female	5.09	20
WOF2-M12	M12 x 1.5 female	5.09	20
WOF2-M14	M14 x 1.5 female	5.09	20
WOF2-M16	M16 x 1.5 female	5.09	20
WOF2-M18	M18 x 1.5 female	5.09	20
WOF2-M22	M22 x 1.5 female	7.55	20
WOFSS2-85	Steel M18 x 1.5	6.09	20
WOFSS2-85	Stainless Steel M18 x 1.5	2.01	20
NPTF.			
Aluminium Part No			
WO8-8	1/2NPTF female	3.47	20
WOF8-3	1/8 NPTF female	8.37	20



BSP.

Aluminium Part No		£	Cat
WO3-3	1/8 BSP male	5.62	40
WO3-4	1/4 BSP male	4.69	40
WO3-6	3/8 BSP male	5.19	40
WO3-8	1/2 BSP male	6.73	40
WO3-10	5/8 BSP male	6.73	40
WO3-12	3/4 BSP male	4.25	40
WO3-16	1 BSP male	8.26	40



JIC.

Aluminium Part No		£	Cat
WO7-3	-3JIC male	3.23	40
WO7-4	-4JIC male	5.62	40
WO7-6	-6JIC male	3.57	40
WO7-8	-8JIC male	3.68	40
WO7-10	-10JIC male	4.42	40
WO7-12	-12JIC male	4.25	40
WO7-16	-16JIC male	8.26	40
WOF7-6	-6JIC female (Moquip)	3.92	40
FBM2403	-6JIC female	18.16	40
FBM2404	-8JIC female	18.16	40
FBM2405	-10JIC female	23.28	40
FBM2406	-12JIC female	27.76	40
FBM2407	-16JIC female	30.98	40
Steel part No.			
WOS7-3	-3JIC male	4.16	40
WOS7-4	-4JIC male	3.44	40
WOS7-6	-6JIC male	4.31	40
WOS7-8	-8JIC male	4.31	40
WOS7-10	-10JIC male	7.95	40
WOS7-12	-12JIC male	8.17	40
WOS7-16	-16JIC male	9.39	40

Weld on boss for EFI fuel injectors



Bosses to take common Bosch or similar injectors that use a 9/16" or 14mm O.D. O-ring.

For EFI fuel injectors

Part No		£	Cat
WIB1	Weld on boss to suit EFI fuel injectors	5.68	20

EFI Adapters



A range of EFI fittings to convert standard OEM fuel rails, tanks or fuel lines to a JIC thread.

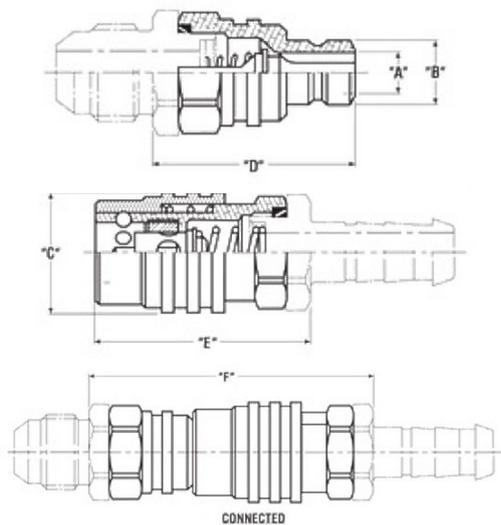
Part No		£	Cat
PEM7-6-5GM	-6JIC male for 5/16 o.d. EFI tube	16.40	40
PEM7-6-6GM	-6JIC male for 3/8 o.d. EFI tube	16.40	40
PEM7-6-8GM	-6JIC male for 1/2 o.d. EFI tube	16.40	40
PEM7-8-6GM	-8JIC male for 3/8 o.d. EFI tube	16.40	40
PEM7-8-8GM	-8JIC male for 1/2 o.d. EFI tube	16.40	40

Jiffy-tite™ quick connect fluid fittings

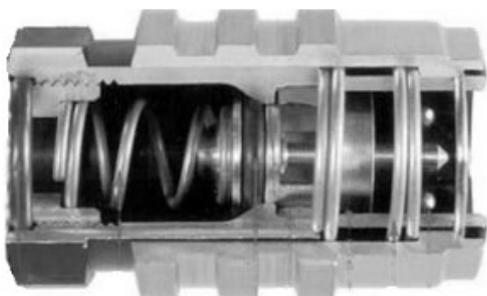
Three series of assemblies to suit flow conditions, each size available in a number of threads types and sizes. Available with or without dry-break/self-sealing valves. Fittings of the same series can be connected to different thread / hose sizes to provide step up or down. Made in the USA. Constructed with 6061-T6 aluminium bodies, anodized gold and black, stainless steel ball bearings, the valves are brass. They are lightweight, compact and very easily connected and disconnected by hand. Seals are fluorocarbon, Buna N (nitrile) to special order. Suitable for all oil, water and fuel (Use nitrile seals for alcohol & methanol) at pressures up to 200 psi / 13.6bar but not brake lines. Suitability, we make the following general recommendations, if flow rates are known we can advise more accurately. More pressure drop will be experienced when valves are fitted.

JT2 series	Fuel lines up to 5 litre road cars, pressure gagues, transmission oil coolers
JT3 series	Fuel lines for over 5 litre competition cars. Engine oil cooler, dry sump pressure pipes for engines up to 2 litres
JT4 series	Engine oil cooler pipes, dry sump to tank pipes, dry sump pressure pipes for engines over 2 litres. Coolant pipes.

First 3 characters of part No identifies Series



Series	A inches	B inches	C inches	D inches	E inches	F inches
JT2	0.24	0.37	0.75	1.68 max	1.86 max	3.13 max
JT3	0.37	0.53	1.03	2.01 max	2.34 max	3.74 max
JT4	0.59	0.78	1.37	2.69 max	2.69 max	5.25 max



We stock the components shown below, however a wider range is available and we can supply Sockets to NPTF female, Sockets to JIC male, Plugs to FC333 hose end. We will be making a number of plug adapters to suit markets outside of the USA e.g. Metric, BSP etc, please enquire.

Lanyard fittings- Disconnects automatically when exposed to the stresses of impact preventing dangerous leaks in a crash situation. Fittings are available in all series. Available to special order.

Socket to FC333 type hose



Fits Aerospace type hose e.g Aeroquip FC333 racing hose or copies e.g. Earls Performo-o-flex, Goodridge, 200, XPA Kb-plus etc. Also Aeroquip Startlite

Part No		£	Cat
JT21604	Socket -4 Fc333 hose end- Valved	35.11	40
JT21604A	Socket -4 Fc333 hose end- Non- Valved	29.84	40
JT21606	Socket -6 Fc333 hose end- Valved	36.88	40
JT21606A	Socket -6 Fc333 hose end- Non- Valved	31.32	40
JT31606	Socket -6 Fc333 hose end- Valved	42.42	40
JT31606A	Socket -6 Fc333 hose end- Non- Valved	36.05	40
JT31608	Socket -8 Fc333 hose end- Valved	44.55	40
JT31608A	Socket -8 Fc333 hose end- Non- Valved	37.81	40
JT51610	Socket -10 Fc333 hose end- Valved	67.54	40
JT51610A	Socket -10 Fc333 hose end- Non- Valved	57.33	40
JT51612	Socket -12 Fc333 hose end- Valved	72.86	40
JT51612A	Socket -12 Fc333 hose end- Non- Valved	60.43	40
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JT21606D	Socket 45° -6 Fc333 hose end- Valved	42.29	40
JT21606DA	Socket 45° -6 Fc333 hose end- Non- Valved	35.76	40
JT31608D	Socket 45° -8 Fc333 hose end- Valved	50.49	40
JT31608DA	Socket 45° -8 Fc333 hose end- Non- Valved	42.71	40
JT51610D	Socket 45° -10 Fc333 hose end- Valved	74.40	40
JT51610DA	Socket 45° -10 Fc333 hose end- Non- Valved	67.62	40
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JT21606E	Socket 90° -6 Fc333 hose end- Valved	42.29	40
JT21606EA	Socket 90° -6 Fc333 hose end- Non- Valved	35.76	40
JT31608E	Socket 90° -8 Fc333 hose end- Valved	50.49	40
JT31608EA	Socket 90° -8 Fc333 hose end- Non- Valved	42.71	40
JT51610E	Socket 90° -10 Fc333 hose end- Valved	74.40	40
JT51610EA	Socket 90° -10 Fc333 hose end- Non- Valved	62.96	40

Plug to FC333 type hose



Part No		£	Cat
JT22604	Plug -4 Fc333 hose end- Valved	23.21	40
JT22604A	Plug -4 Fc333 hose end- Non- Valved	19.73	40
JT22606	Plug -6 Fc333 hose end- Valved	24.41	40
JT22606A	Plug -6 Fc333 hose end- Non- Valved	20.73	40
JT32606	Plug -6 Fc333 hose end- Valved	31.47	40
JT32606A	Plug -6 Fc333 hose end- Non- Valved	26.70	40
JT32608	Plug -8 Fc333 hose end- Valved	32.95	40
JT32608A	Plug -8 Fc333 hose end- Non- Valved	27.98	40
JT52610	Plug -10 Fc333 hose end- Valved	56.35	40
JT52610A	Plug -10 Fc333 hose end- Non- Valved	47.85	40
JT52612	Plug -12 Fc333 hose end- Valved	59.33	40
JT52612A	Plug -12 Fc333 hose end- Non- Valved	50.37	40
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JT22606D	Plug-45° -6 Fc333 hose end- Valved	29.82	40
JT32608D	Plug-45° -8 Fc333 hose end- Valved	38.92	40
JT52610D	Plug-45° -10 Fc333 hose end- Valved	63.23	40
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JT22606E	Plug 90° -6 Fc333 hose end- Valved	29.82	40
JT32608E	Plug 90° -8 Fc333 hose end- Valved	38.92	40
JT52610E	Plug 90° -10 Fc333 hose end- Valved	63.23	40

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Socket to barb for FC333 type hose



For Aerospace type hoses as FC333 offers a cheaper alternative for very low pressure applications. All hoses must be secured by factory swageing, worm drive, O clamps Pro-clamps or Moclamps [see page 47&48](#). Sizes larger than -6 tend to be higher pressure so only available to special order. Plugs to special order.

Part No		£	Cat
JT21503	Socket straight for -3 hose- Valved	29.84	40
JT21503A	Socket straight for -3 hose- Non- Valved	33.30	40
JT21504	Socket straight for -4 hose- Valved	28.65	40
JT21504A	Socket straight for -4 hose- Non- Valved	24.34	40
JT21506	Socket straight for -6 hose- Valved	31.41	40
JT21506A	Socket straight for -6 hose- Non- Valved	26.71	40
JT31506	Socket straight for -6 hose- Valved	37.89	40
JT31506A	Socket straight for -6 hose- Non- Valved	32.12	40
JT21506D	Socket 45° for -6 hose- Valved	36.83	40
JT31508D	Socket 45° for -8 hose- Valved	45.63	40
JT51510D	Socket 45° for -10 hose- Valved	95.31	40
JT21506E	Socket 90° for -6 hose- Valved	37.74	40
JT31508E	Socket 90° for -8 hose- Valved	45.63	40
JT51510E	Socket 90° for -10 hose- Valved	92.99	40

Socket to JIC female



Part No		£	Cat
JT21303	Socket- -3JIC Female Adapter- Valved	31.12	40
JT21303A	Socket- -3JIC Female Adapter- Non- Valved	26.47	40
JT21304	Socket- -4JIC Female Adapter- Valved	33.58	40
JT21304A	Socket- -4JIC Female Adapter- Non- Valved	30.60	40
JT21306	Socket- -6JIC Female Adapter- Valved	34.55	40
JT21306A	Socket- -6JIC Female Adapter- Non- Valved	24.26	40
JT31306	Socket- -6JIC Female Adapter- Valved	40.61	40
JT31306A	Socket- -6JIC Female Adapter- Non- Valved	33.92	40
JT31308	Socket- -8JIC Female Adapter- Valved	41.79	40
JT31308A	Socket- -8JIC Female Adapter- Non- Valved	36.00	40

Plug to JIC female



Part No		£	Cat
JT22303	Plug- -3JIC Female Adapter- Valved	19.19	40
JT22303A	Plug- -3JIC Female Adapter- Non- Valved	16.29	40
JT22304	Plug- -4JIC Female Adapter- Valved	21.44	40
JT22304A	Plug- -4JIC Female Adapter- Non- Valved	17.78	40
JT22306	Plug- -6JIC Female Adapter- Valved	22.04	40
JT22306A	Plug- -6JIC Female Adapter- Non- Valved	18.70	40
JT32306	Plug- -6JIC Female Adapter- Valved	25.33	40
JT32306A	Plug- -6JIC Female Adapter- Non- Valved	22.05	40
JT32308	Plug- -8JIC Female Adapter- Valved	26.59	40
JT32308A	Plug- -8JIC Female Adapter- Non- Valved	22.57	40
JT52308	Plug- -8JIC Female Adapter- Valved	45.35	40
JT52308A	Plug- -8JIC Female Adapter- Non- Valved	38.50	40
JT52310	Plug- -10JIC Female Adapter- Valved	48.78	40
JT52310A	Plug- -10JIC Female Adapter- Non- Valved	41.41	40
JT52312	Plug- -12JIC Female Adapter- Valved	54.75	40
JT52312A	Plug- -12JIC Female Adapter- Non- Valved	46.48	40
JT22306D	Plug 45° -6JIC Female Adapter- Valved	28.14	40
JT32308D	Plug 45° -8JIC Female Adapter- Valved	32.58	40
JT52310D	Plug 45° -10JIC Female Adapter- Valved	55.64	40
JT22306E	Plug 90° -6JIC Female Adapter- Valved	27.45	40
JT32308E	Plug 90° -8JIC Female Adapter- Valved	29.90	40
JT52310E	Plug 90° -10JIC Female Adapter- Valved	55.64	40

Plug to JIC male and M22 male



Part No		£	Cat
JT22403	Plug- -3JIC Male Adapter- Valved	17.29	40
JT22403A	Plug- -3JIC Male Adapter- Non- Valved	14.68	40
JT22404	Plug- -4JIC Male Adapter- Valved	18.21	40
JT22404A	Plug- -4JIC Male Adapter- Non- Valved	15.46	40
JT32406	Plug- -6JIC Male Adapter- Valved	22.01	40
JT32406A	Plug- -6JIC Male Adapter- Non- Valved	18.72	40
JT32408	Plug- -8JIC Male Adapter- Valved	22.97	40
JT52410	Plug- -10JIC Male Adapter- Valved	45.56	40
JT52412	Plug- -12JIC Male Adapter- Valved	48.32	40
JT52122	Plug- M22x1.5 Male Adapter- Valved	36.44	40
JT32406D	Plug 45° -6JIC Male Adapter- Valved	27.99	40
JT32408D	Plug 45° -8JIC Male Adapter- Valved	28.96	40
JT52410D	Plug 45° -10JIC Male Adapter- Valved	52.48	40
JT52122D	Plug 45° M22x1.5 Male Adapter- Valved	46.45	40
JT32406E	Plug 90° -6JIC Male Adapter- Valved	27.99	40
JT32408E	Plug 90° -8JIC Male Adapter- Valved	28.96	40
JT52410E	Plug 90° -10JIC Male Adapter- Valved	52.55	40
JT52122E	Plug 90° M22x1.5 Male Adapter- Valved	46.45	40

Socket to JIC male



Part No		£	Cat
JT21403	Socket- -3JIC Male Adapter- Valved	27.10	40
JT21403A	Socket- -3JIC Male Adapter- Non- Valved	24.26	40
JT21404	Socket- -4JIC Male Adapter- Valved	28.52	40
JT21404A	Socket- -4JIC Male Adapter- Non- Valved	24.24	40
JT31406	Socket- -6JIC Male Adapter- Valved	34.50	40
JT31406A	Socket- -6JIC Male Adapter- Non- Valved	29.30	40
JT31408	Socket- -8JIC Male Adapter- Valved	36.31	40
JT31408A	Socket- -8JIC Male Adapter- Non- Valved	30.61	40
JT51410	Socket- -10JIC Male Adapter- Valved	61.52	40
JT51410A	Socket- -10JIC Male Adapter- Non- Valved	52.62	40
JT51412	Socket- -12JIC Male Adapter- Valved	64.62	40
JT51412A	Socket- -12JIC Male Adapter- Non- Valved	52.62	40
JT31406D	Socket 45° -6JIC Male Adapter- Valved	40.46	40
JT31408D	Socket 45° -8JIC Male Adapter- Valved	42.28	40
JT51410D	Socket 45° -10JIC Male Adapter- Valved	68.40	40
JT31406E	Socket 90° -6JIC Male Adapter- Valved	40.46	40
JT31408E	Socket 90° -8JIC Male Adapter- Valved	42.28	40
JT51410E	Socket 90° -10JIC Male Adapter- Valved	68.40	40

Plug to NPTF male



Sockets to NPTF male are available to special order

Part No		£	Cat
JT22802	Plug- 1/8 NPT Male Adapter- Valved	19.87	40
JT22802A	Plug- 1/8 NPT Male Adapter- Non- Valved	16.89	40
JT22804	Plug- 1/4 NPT Male Adapter- Valved	21.41	40
JT22804A	Plug- 1/4 NPT Male Adapter- Non- Valved	17.75	40
JT32804	Plug- 1/4 NPT Male Adapter- Valved	24.41	40
JT32804A	Plug- 1/4 NPT Male Adapter- Non- Valved	20.79	40
JT32806	Plug- 3/8 NPT Male Adapter- Valved	27.10	40
JT32806A	Plug- 3/8 NPT Male Adapter- Non- Valved	22.99	40
JT52806	Plug- 3/8 NPT Male Adapter- Valved	44.02	40
JT52806A	Plug- 3/8 NPT Male Adapter- Non- Valved	37.41	40
JT52808	Plug- 1/2 NPT Male Adapter- Valved	47.41	40
JT52808A	Plug- 1/2 NPT Male Adapter- Non- Valved	40.22	40
JT52812	Plug- 3/4 NPT Male Adapter- Valved	52.10	40
JT52812A	Plug- 3/4 NPT Male Adapter- Non- Valved	44.29	40

Socket to push lock hose



Use with push on or special push to lock hose as in Aeroquip socketless., FBN or FBV series.

Part No		£	Cat
JT21504P	Socket straight for 1/4in ID hose- Valved	21.99	40
JT21504AP	Socket straight for 1/4in ID hose- Non- Valved	22.31	40
JT31506P	Socket straight for 3/8in ID hose- Valved	28.43	40
JT31506AP	Socket straight for 3/8in ID hose- Non- Valved	29.52	40
JT31508P	Socket straight for 1/2in ID hose- Valved	29.76	40
JT31508AP	Socket straight for 1/2in ID hose- Non- Valved	30.90	40
JT51510P	Socket straight for 5/8in ID hose- Valved	71.51	40
JT51510AP	Socket straight for 5/8in ID hose- Non- Valved	67.12	40
JT51512P	Socket straight for 3/4in ID hose- Valved	66.68	40
JT51512AP	Socket straight for 3/4in ID hose- Non- Valved	67.12	40

Socket to push lock hose 45°



Part No		£	Cat
JT21504PD	Socket 45°- for 1/4in ID hose- Valved	33.77	40
JT21504APD	Socket 45°- for 1/4in ID hose- Non-Valved	29.15	40
JT21506PD	Socket 45°- for 3/8in ID hose- Valved	36.53	40
JT21506APD	Socket 45°- for 3/8in ID hose-Non- Valved	31.90	40
JT31508PD	Socket 45°- for 1/2in ID hose- Valved	45.26	40
JT31508APD	Socket 45°- for 1/2in ID hose- Non-Valved	39.61	40
JT51510PD	Socket 45°- for 5/8in ID hose- Valved	69.75	40
JT51510APD	Socket 45°- for 5/8in ID hose- Non-Valved	64.66	40
JT51512PD	Socket 45°- for 3/4in ID hose- Valved	71.89	40
JT51512APD	Socket 45°- for 3/4in ID hose- Non-Valved	66.74	40

Socket to push lock hose 90°



Part No		£	Cat
JT21504PD	Socket 90°- for 1/4in ID hose- Valved	33.77	40
JT21504APD	Socket 90°- for 1/4in ID hose- Non-Valved	29.15	40
JT21506PE	Socket 90°- for 3/8in ID hose- Valved	36.53	40
JT21506APE	Socket 90°- for 3/8in ID hose- Non-Valved	31.90	40
JT31508PE	Socket 90°- for 1/2in ID hose- Valved	45.26	40
JT31508APE	Socket 90°- for 1/2in ID hose- Non-Valved	39.61	40
JT51510PE	Socket 90°- for 5/8in ID hose- Valved	63.97	40
JT51510APE	Socket 90°- for 5/8in ID hose- Non-Valved	85.49	40
JT51512PE	Socket 90°- for 3/4in ID hose- Valved	71.89	40
JT51512APE	Socket 90°- for 3/4in ID hose- Non-Valved	88.26	40

Plug to push on hose



Part No		£	Cat
JT22504P	Plug straight for 1/4in ID hose- Valved	14.11	40
JT22504AP	Plug straight for 1/4in ID hose- Non- Valved	20.51	40
JT32506P	Plug straight for 3/8in ID hose- Valved	21.58	40
JT32506AP	Plug straight for 3/8in ID hose- Non- Valved	20.88	40
JT32508P	Plug straight for 1/2in ID hose- Valved	20.66	40
JT32508AP	Plug straight for 1/2in ID hose- Non- Valved	21.92	40
JT52510P	Plug straight for 5/8in ID hose- Valved	43.24	40
JT52510AP	Plug straight for 5/8in ID hose- Non- Valved	36.75	40
JT52512P	Plug straight for 3/4in ID hose- Valved	57.72	40
JT52512AP	Plug straight for 3/4in ID hose- Non- Valved	40.37	40
JT22504PD	Plug 45°- for 1/4in ID hose- Valved	22.25	40
JT22504APD	Plug 45°- for 1/4in ID hose- Non-Valved	17.63	40
JT22506PD	Plug 45°- for 3/8in ID hose- Valved	24.07	40
JT32506PD	Plug 45°- for 3/8in ID hose- Valved	40.67	40
JT32506APD	Plug 45°- for 3/8in ID hose- Non-Valved	33.10	40
JT32508PD	Plug 45°- for 1/2in ID hose- Valved	31.72	40
JT52510PD	Plug 45°- for 5/8in ID hose- Valved	64.05	40
JT52510APD	Plug 45°- for 5/8in ID hose- Non-Valved	57.31	40
JT52512PD	Plug 45°- for 3/4in ID hose- Valved	85.57	40
JT52512APD	Plug 45°- for 3/4in ID hose- Non-Valved	85.57	40
JT22504PE	Plug 90°- for 1/4in ID hose- Valved	76.72	40
JT22504APE	Plug 90°- for 1/4in ID hose- Non-Valved	17.63	40
JT22506PE	Plug 90°- for 3/8in ID hose- Valved	19.17	40
JT32506PE	Plug 90°- for 3/8in ID hose- Valved	30.51	40
JT32506APE	Plug 90°- for 3/8in ID hose- Non-Valved	24.84	40
JT32508PE	Plug 90°- for 1/2in ID hose- Valved	31.72	40
JT52508PE	Plug 90°- for 1/2in ID hose- Valved	62.51	40
JT52508APE	Plug 90°- for 1/2in ID hose- Non-Valved	54.99	40
JT52510PE	Plug 90°- for 5/8in ID hose- Valved	64.05	40
JT52510APE	Plug 90°- for 5/8in ID hose- Non-Valved	57.31	40
JT52512PE	Plug 90°- for 3/4in ID hose- Valved	85.57	40
JT52512EPA	Plug 90°- for 3/4in ID hose- Non-Valved	57.26	40

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

One way check valves.

Flap & Disc Valves



Construction. anodised aluminium housing with either a disc valve or a flap valve. Application. Disc valve has slight flow resistance but suitable for fuel systems. Flap valve has no detectable resistance to flow, more suited to high flow oil systems, the latter are prohibitively expensive but sometimes available on the surplus market at reasonable cost, therefore supplies tend to be erratic and prices may vary.

Part No		£	Cat
CVD14-5	5/16in push-on tails disc	28.08	40
CVD7-6	-6JIC disc	37.53	40
CVD7-8	-8JIC disc	42.22	40
CVF7-6B	-6JIC flap	84.77	40
CVF7-8B	-8JIC flap	97.49	40
CVF7-10	-10JIC flap	95.91	40
CVF7-12	-12JIC flap	125.84	40
CVF7-16	-16JIC flap	224.62	40
CVF2-105	M22 female	52.79	40

Tank breather valves



A range of fuel tank valves that allows air in to replace fuel used, air out due to heat expansion and a positive shut off to prevent fuel escape, due to splashing or even roll over. This is achieved by a two ball system, one hollow plastic, one solid steel.

TBV45. A very small valve mainly used with our range of fuel caps when fitted direct to tanks it fits a 5/16 (8mm) hole, replacing a fixing screw, we can provide a specially machined cap flange. Takes 1/8bore hose

TRV45. For fitting to tank through a 7/16 (11mm) hole. Access from inside the tank is required. Vertical vent pipe takes 1/4 bore hose.

THV45. As above but with a horizontal vent pipe

TRV67. As above, but requires 9/16(14mm)hole. The body has a 9/16UNF thread, which can be bolted from underneath, or threaded into a weld on nut. Takes 1/4 hose.

TRV86. The large valve for serious gas guzzlers. The body has a 3/4UNF thread, which can be bolted from underneath, or threaded into a weld on nut. Vent takes -6 JIC female fitting

TRL7. For in line fitting into 1/4 bore hose, must be mounted vertically.

Part No		£	Cat
TBV45	Small vent valve	22.07	70
TRV45	Medium vent valve	28.40	70
THV45	Medium vent valve- horizontal outlet	28.01	70
TRV67	Large vent valve	25.25	70
TRV86	Maximum flow vent valve	37.24	70
TRL7	1/4in push on x 1/4in push on in line valve	37.29	70
TRL6	-6JIC x -6JIC in line valve	37.29	70
TRL8	-6JIC x 1/4in push on in line valve	37.29	70
TRL68	-8JIC x -6JIC in line valve	37.29	70

Quick release drybreak couplings.

Aeroquip have a large industrial range of such couplings, we have selected only those ranges and sizes suited to light vehicle usage. We can supply items from the aerospace range, but the high price and long delivery time make them a barely viable proposition. All couplings will withstand pressures in excess of 3000 psi.

FD 56 Series.



Construction. Aeroquip steel couplings with push pull action, have a small amount of air inclusion (0.5cc for FBM 3011)
Application. Used on brake/clutch systems (EPR seals). Ideal for fuel/oil lines and air starters.

Part No		£	Cat
5642-2-4S	Complete assembly EPR seals 1/8NPTF female	103.84	40
5642-4-4S	Complete assembly EPR seals 1/4NPTF female	poa	40
FBM3011	Complete assembly Buna seals.1/4NPTF female	25.37	40
FBM3012	Complete assembly Buna seals.3/8NPTF female	35.70	40
FBM3013	Complete assembly Buna seals.1/2NPTF female	33.39	40
FBM1153	Aluminium male half Buna seals.1/2NPTF female	29.90	40
FBM3114	Aluminium female half Buna seals.1/2NPTF fml	53.77	50
5601-8-10S	Steel female half Buna seals 1/2NPTF female	18.85	50
B5600-4-4	Complete assembly Buna seals.1/4BSP female	20.47	50
B5600-6-6	Complete assembly Buna seals.3/8BSP female	21.24	50
B5600-8-10	Complete assembly Buna seals.1/2BSP female	28.64	50

FD 90 (FCM3080) Series.



FIA approved coupling for fuel sampling.

Construction. Aeroquip steel coupling with push pull action.

Application. Designed for use with pressure gauges in diagnostic applications, seals not suitable for long term brake/clutch use. Minimal air inclusion (0.02cc).

Part No		£	Cat
FBM3081	Female half (Socket) tapped 1/8NPTF	42.95	40
FBM3085	Male half (Plug) tapped 1/8NPTF	14.29	40
FBM3083	Male half (Plug) with 1/8NPTF male	13.74	40
FBM3082	Female half (Socket) tapped 1/4NPTF	42.95	40
FBM3086	Male half (Plug) tapped 1/4NPTF	15.21	40
FBM3084	Male half(Plug) with 1/4NPTF male	10.14	40
FBM3087	Dust cap for male halves	3.37	40

FD 54 (FBM 3079) Series



Construction. An Aeroquip threaded steel coupling with provision for bulkhead mounting. Compact and lightweight with very little air inclusion (0.1cc). Overall length 3.52" connected. Application. The finest low cost connection for brake & clutch use. Has EPR seals.

Part No		£	Cat
FBM3079	Complete assembly with -4JIC male unions	98.53	40
Alternative end fittings			
FD547-3	-3JIC male union	6.57	40
FD543-3	1/8BSP male union	6.38	40
FD543-3F	1/8 BSP female union	6.38	40
FD54HE-3	To take -3 TFE hose	6.57	40

Push-pull quick connect brake & clutch coupling



Aeroquip plated mild steel with EPR seals, length connected is 4.10 inches and weight 0.34 lbs. Max operating pressure 3000psi, max temperature 120°C. Allows rapid connection & disconnection of brake & clutch lines with little fluid loss, 0.10cc max, minute air inclusion 0.02 cc max, obviating the need for bleeding. A safety clip-on lanyard is attached to the coupling to prevent accidental disconnection.

Part No		£	Cat
FBM1073	Complete assy steel -3JIC male- bulkhead one end	190.72	40
FBM1074	Complete assy steel -4JIC male- bulkhead one end	196.52	40

Lightweight push & turn quick connect coupling



Construction. Aeroquip anodised aluminium with cres springs. Bayonet style catch. Manufactured for aerospace applications. Length connected is 3 (bulkhead version) and weight 0.037lbs. Max operating 1500psi, max temperature 190°C. Application. The finest small coupling money can buy. Use on brake & clutch lines where pressures allow, instruments, etc.. Both halves self sealing, unless otherwise specified. Viton seals, specify EPR for brake/clutch use. Supplied with -4JIC connectors, can be converted see price list.

Part No		£	Cat
1011-4	Female half	165.88	90
1014-4	Male half	113.89	90
1012-4	Male half with bulkhead	113.89	90
MMA1-3-4	Convertor to -3JIC- 2 reqd per assy	9.15	40

Fuel sampling kits



As of 2015 the MSA states in its Blue Book (page 85 [D(34)]) that cars competing in British or MSA titled championships must have a system built in to enable taking a fuel sample. Furthermore, if a dry-break coupling is used, it must be FIA approved. We have a number of kits available using the FIA approved Aeroquip FD90 coupling with various methods of interrupting the fuel flow. We recommend that you have both halves of the system so that you can maintain the integrity of your sample.

Part No		£	Cat
FSK1	Fuel sampling kit -6JIC male/female	81.84	40
FSK2	Fuel sampling kit -6JIC male/male	94.36	40
FSK3	Fuel sampling kit 8mm Push-On	84.05	40
FSK1PO	FSK1 Plug Only -6JIC male/female	29.27	40
FSK2PO	FSK2 Plug Only -6JIC male/male	41.81	40
FSK3PO	FSK3 Plug Only 8mm Push-On	31.49	40

Brake and clutch cylinders



Girling manufactured. Master cylinders have 1.4" stroke with 7/16UNF inlet with concave seating and 3/8UNF outlet with convex seating. The reservoirs either screw directly to master cylinder or may be mounted remotely and fed through a 7mm hose.

Part No		£	Cat
MAS1	0.625in bore Girling master cylinder	71.74	70
MAS2	0.70in bore Girling master cylinder	71.74	70
MAS3	0.75in bore Girling master cylinder	71.74	70
RES1	reservoir for direct mount on cylinder	27.58	70
RES2	reservoir for remote mount	27.44	70
RES3	reservoir in Tin, tall	65.17	70
RES4	reservoir in Tin, short	59.99	70
SLA1	Clutch slave cylinder	72.88	70

Residual pressure valves



These in-line pressure valves retain a minimum brake line pressure to help eliminate excessive pedal travel. Use 2psi for discs and 10psi for drums. Made from billet aluminium. Size 40mm x 16mm

Part No		£	Cat
RPV1	2psi- 1/8NPTF tappings	28.34	70
RPV2	10psi- 1/8NPTF tappings	28.34	70

Taps.



Use for fuel shut off and air jack control. Stainless steel ball valve in teflon seating. Steel body has Nylon handle, Aluminium body has Aluminium handle.

Part No for chromed steel body		£	Cat
TAP3-4	Tap with 1/4BSP female ports	5.96	70
TAP3-6	Tap with 3/8BSP female ports	5.96	70
TAP3-8	Tap with 1/2BSP female ports	3.58	70
TAP3-6-5	Tap with male for 5/16in ID (pictured)	15.42	70
TAP3-6-6	Tap with male for 3/8in ID hose	12.74	70
TAP3-4-4	Tap with male for 1/4in ID hose	8.47	70

or use TAP3-4 with		£	Cat
MMAB-6-4	1/4BSPx-6JIC male bulkhead adaptor-alloy	7.49	40
MMA-6-4	1/4BSPx-6JIC male adaptor-alloy	9.70	40
BS1/2	1/4BSP bonded seal	0.18	40
BS21/32	3/8BSP bonded seal	0.18	40

Part No for Aluminium body		£	Cat
TAP7-6	-6JIC male ali handle with lanyard hole	66.08	70
TAP7-8	-8JIC male ali handle with lanyard hole	41.81	70

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Seals, washers and gaskets



We stock an extensive range of sealing rings, popular items are listed but others are available. Bonded seals are Nitrile.

Part No		£	Cat
BS1/4	Bonded seal 1/4	0.30	30
BS5/16	Bonded seal 5/16	0.30	30
BS3/8	Bonded seal 3/8 for 1/8BSP	0.07	30
BS7/16	Bonded seal 7/16	0.30	30
BS1/2	Bonded seal 1/2 for 1/4BSP	0.18	30
BS9/16	Bonded seal 9/16 & M16	0.25	30
BS5/8	Bonded seal 5/8	0.25	30
BS11/32	Bonded seal 11/32	0.19	30
BS21/32	Bonded seal 21/32 for 3/8BSP	0.18	30
BS3/4	Bonded seal 3/4	0.36	30
BS13/16	Bonded seal 13/16 for 1/2BSP	0.22	30
BS7/8	Bonded seal 7/8 for 5/8BSP	0.30	30
BS15/16	Bonded seal 15/16	0.41	30
BS1	Bonded seal 1 for 3/4BSP	0.16	30
BSSC-M12	Bonded seal M12 self centre	0.25	30
BSSC-M14	Bonded seal M14 self centre	0.22	30
BSSC-M18	Bonded seal M18 ID self centre	0.22	30
BS-M20	Bonded seal M20 ID	0.25	30
BS-M22	Bonded seal M22 ID	0.25	30
BS-M28	Bonded seal M28 ID	0.62	30
BS-M4	Bonded seal M4 self centre	0.22	30
BS-M5	Bonded seal M5 ID	0.22	30
BS-M8	Bonded seal M8	0.18	30
WCS-M10	Washer solid copper M10	0.13	20
WCS3/8	Washer solid copper 3/8&1/8BSP	0.45	20
WCS7/16	Washer solid copper 7/16 I.d.	0.30	20
WCM18	Washer folded copper for M8	0.25	20
WC-3/8	Washer folded copper 3/8in for 1/8BSP	0.27	20
WC-M10	Washer folded copper M10	0.27	20
WC7/16	Washer folded copper 7/16	0.29	20
WC-M12	Washer folded copper M12	0.32	20
WC-1/4	Washer folded copper 1/2 for 1/4BSP	0.33	20
WC9/16	Washer folded copper M14 or 9/16	0.13	20
WC5/8	Washer folded copper 5/8 BSP	0.77	20
WC3/8	Washer folded copper M16 for 3/8BSP	0.25	20
WC3/4	Washer folded copper 3/4	0.56	20
FBM3642	aluminium 3/8in for -3JIC & M10	1.11	40
FBM3513	aluminium 7/16 for -4JIC	1.41	40
FBM3514	aluminium 9/16 for -6JIC	1.00	40
FBM3515	aluminium 3/4 for -8JIC	1.64	40
FBM3516	aluminium 7/8 for -10JIC	1.64	40
FBM3517	aluminium 1&1/16 for -12JIC	1.60	40

Aluminium caps & plugs



Made by Aeroquip. Reusable solid protection for threads provide airtight, moisture and dust proof seal.

Part No.		£	Cat
FBM3654	-3JIC - 3/8UNF plug	0.57	40
FBM3655	-4JIC - 7/16UNF plug	0.36	40
FBM3656	-6JIC - 9/16UNF plug	0.27	40
FBM3657	-8JIC - 3/4UNF plug	0.33	40
FBM3658	-10JIC - 7/8UNF plug	0.40	40
FBM3659	-12JIC - 1 1/16UNF plug	0.64	40
FBM3660	-16JIC - 1 5/16UNF plug	0.84	40
FBM3647	-3JIC - 3/8UNF cap	0.30	40
FBM3648	-4JIC - 7/16UNF cap	0.23	40
FBM3649	-6JIC - 9/16UNF cap	0.27	40
FBM3650	-8JIC - 3/4UNF cap	0.37	40
FBM3651	-10JIC - 7/8UNF cap	0.41	40
FBM3652	-12JIC - 1/16UNF cap	0.51	40
FBM3653	-16JIC - 1 5/16UNF cap	0.41	40

Red caps and plugs



Plastic protectors for temporary sealing of ports, popular items are listed, others available.

Part No.		£	Cat
RP3-3	1/8BSP plug	0.06	70
RP3-4	1/4BSP plug	0.08	70
RP3-6	3/8BSP plug	0.08	70
RP3-8	1/2BSP plug	0.11	70
RP3-10	5/8BSP plug	0.13	70
RP3-12	3/4BSP plug	0.19	70
RP7-3	-3JIC/3/8UNF plug	0.08	70
RP7-4	-4JIC/7/16UNF plug	0.25	70
RP7-6	-6JIC/9/16UNF plug	0.21	70
RP7-8	-8JIC/3/4UNF plug	0.21	70
RP7-10	-10JIC/7/8UNF plug	0.21	70
RP7-12	-12JIC/11/16 UNF plug	0.25	70
RP7-16	-16JIC/15/16 UNF plug	0.35	70
RC3-3	1/8BSP cap	0.04	70
RC3-4	1/4BSP cap	0.07	70
RC3-6	3/8BSP cap	0.06	70
RC3-8	1/2BSP cap	0.08	70
RC3-10	5/8BSP cap	0.10	70
RC3-12	3/4BSP cap	0.13	70
RC3-16	1inBSP cap	0.39	70
RC7-3	-3JIC cap	0.05	70
RC7-4	-4JIC cap	0.08	70
RC7-6	-6JIC cap	0.13	70
RC7-8	-8JIC cap	0.16	70
RC7-10	-10JIC cap	0.13	70
RC7-12	-12JIC cap	0.19	70
RC7-16	-16JIC cap	0.23	70
Tapered unthreaded bungs			
RB-M8	6.9-8.2 cap 8.4-10 plug	0.18	70
RB-M10	8.5-10 cap 10-11.3 plug	0.69	70
RB-M18	16.4-18.3 cap 17.8-20.0 plug	0.37	70
RB-M18	17.6-21.0 cap 19.0-21.5 plug	0.37	70
RB-M27	24.7-27.9 cap 26.9-28.7 plug	0.75	70
RB-M31	28.4-31.1 cap 30.5-33.3 plug	0.86	70
RB-M39	37.1-39 cap 38.6-40.6 plug	0.86	70
RB-M41	37.7-41.8 cap 40.8-44.7 plug	1.12	70
RB-M43	42.0-47.0 cap 43.4-48.5 plug	0.97	70
RB-M46	44.3-48.0 cap 46.0-50.0 plug	1.74	70
RB-M51	49.6-52.0 cap 51.8-54.1 plug	1.24	70
RB-M60	57.5-65.4 cap 59.7-67.3 plug	1.49	70
RB-M74	70.0-73.4 cap 74.0-76.8 plug	1.49	70
RB-M77	74.8-78.2 cap 77.1-80.7 plug	1.49	70
RB-M80	77.5-82.0 cap 80.0-86.1 plug	1.49	70
RB-M84	80.0-88.3 cap 84.0-90.8 plug	1.49	70

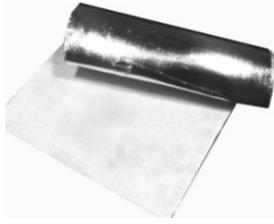
Aeroquip Firesleeve.



Single layer of braided fibreglass tubing impregnated with flame resistant rubber. Slips over any kind of hose before assembly to protect from direct flame. Temperature range -65°F to +450°F. (-54°C to +232°C)

Part No	Price per m	£	Cat
FBS0500	0.31id	27.63	40
FBS0700	0.44id	22.90	40
FBS0800	0.50id	24.83	40
FBS0900	0.56id	25.11	40
FBS1000	0.62id	27.79	40
FBS1100	0.69id	30.65	40
FBS1200	0.75id	27.20	40
FBS1300	0.81id	34.26	40
FBS1400	0.88id	37.53	40
FBS1600	1.00id	42.54	40
FBS1800	1.12id	48.00	40
FBS2000	1.25id	51.10	40
FBS2200	1.38id	51.57	40
FBS2400	1.50id	55.70	40

Aluminised heat resisting cloth.



These cloths are used to protect against heat. Stick to bulkheads for cooler interior, cover air cleaners for cooler charge, protect hoses and cables. The aluminium foil is highly heat reflective and water & oil resistant, the cloth will withstand 550°C but the foil may loosen at lower temperatures.

Construction. Woven glass fabric aluminised on one side with foil. We offer three thicknesses/weights, 0.4mm/520g/m², 0.7mm/900g/m², 1.4mm/1000g/m².

High temperature contact adhesive suitable for above, also leather cloth, carpets rubber, grp, steel, aluminium etc. Brushable (has a far higher temperature than aerosol spray)

Mocal Part No	Price per metre.	£	Cat
AGC1	0.4mm thick-1 metre wide clothin	8.55	70
AGC2	0.7mm thick- 1 metre wide clothin	14.02	70
AGC3	1.6mm thick- 1 metre wide clothin	19.24	70
HTA1	1 litre can hi-temp adhesive	16.47	70
Thermotec Part no			
TTEC13575	12in (300mm) x 24 (600mm) adhesive backed	24.79	20
TTEC14002	Thermoshield tape 1.5in wide x 15 foot (4.6m)	30.35	20

Aluminised heat resisting sleeves



Thermotec seamless sleeving protects from radiant heat.

Part No	Price per metre.	£	Cat
TS-M10	10mm inside diameter	11.12	20
TS-M14	14mm inside diameter	12.24	20
TS-M20	20mm inside diameter	14.64	20
TS-M30	30mm inside diameter	25.26	20
TS-M35	35mm inside diameter	25.26	20

Exhaust pipe wrap webbing



Application. It is widely claimed that insulating the exhaust manifold pipes will produce more horsepower, it will certainly reduce under bonnet temperatures with consequent benefits. Daily use may lead to more rapid corrosion of thin section manifolds. Secure with stainless steel cable/hose ties.

Mocal Part No	Price per metre	£	Cat
EPW1	1.5mm thick- 50mm wide, biege 550°C	1.67	70
EPW1B	1.5mm thick- 50mm wide, black 550°C	1.67	70
EPW1M	1.5mm thick- 50mm wide, Magma 1000°C	2.18	70

Thermotec Part No.	Price per box	£	Cat
TTEC11001	1in (25mm) wide x 50feet long (15m)- light brown	24.85	20
TTEC11031	As above copper	31.43	20
TTEC11002	2in (50mm) wide x 50feet long (15m)- light brown	49.56	20
TTEC11032	As above copper	52.35	20
EPWT-2	Pack of 6 stainless steel self fixing ties, 4 @20cm, 2 @ 30cm enough for 2 cylinders	7.87	20

Heat resistant sleeve



This heat resistant sleeve is lighter and less bulky than Aeroquip firesleeve is made from woven fiberglass with a silver silicon rubber coating Temp range -40°C to 220°C

Part No	Price per metre	£	Cat
FG-08	8mm id flameguard silver	15.14	70
FG-12	12mm id flameguard silver	16.13	70
FG-15	15mm id flameguard silver	17.13	70
FG-22	22mm id flameguard silver	26.30	70

Heat resisting tape



Silicone tape with tear off backing. This specially formulated self-amalgamating tape bonds to itself without any adhesive. Wrap the tape tightly around the substrate, and it will cure to itself without leaving any sticky residue. Slightly triangular in shape, it has a centre line to enable regular overlapping of the tape. Temp range -40°C to 220°C

Part No	Price per metre	£	Cat
ST1	flame guard silicone tape blue 3metre roll	10.24	70
ST1RED	flame guard silicone tape red 3metre roll	10.55	70

Heat shrink sleeving.



Black high grade PVC, minimum shrink temperature 130°C, shrink ratio is 2:1.

Part No	Price per metre.	£	Cat
HS-3-4	0.38inid for -3 & -4 TFE hose	1.50	70
HS-4-6	0.63inid for -4 & -6 Racing hose	2.45	70
HS-6-8	0.75inid for -6 & -8 Racing hose	3.83	70
HS-8-12	1.00inid for -8—10 & -12 Racing hose	3.52	70
HS-10-20	1.5inid for -12—16 & -20 Racing hose	7.46	70

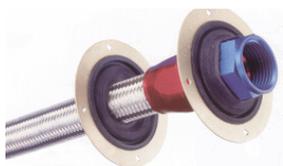
Brake balance adjuster



Place in any hydraulic circuit to reduce pressure, maximum reduction 57%. Normally positioned in line to rear brakes, but can be positioned anywhere to produce weird and wonderful effects e.g. on inside front wheel on oval tracks. Aluminium and steel construction. Available with handle giving 7 positive click settings or knob to allow even finer adjustment. Weight 8 oz.

Part No.	Price per metre	£	Cat
BV5	Tilton 7 position- tapped 3/8UNF	141.37	70
BV6	Tilton-7 position- tapped M10x1 concave	145.40	70
BV2	Wilwood 6 position prop valve- tapped 1/8NPTF	92.89	70
BV3	Wilwood fine tune knob valve- tapped 1/8NPTF	50.65	70

Grommet Seals



Grommet seals serve to keep unwanted smoke and fumes from entering the driver's area while protecting lines from chafing and abrading on rough surfaces. They provide the finishing touch to all through panel installations. Suitable for fuel and oil lines, air and liquid hoses, wiring etc. Manufactured from flame retardant nitrile bonded to anodised aluminium backing plate.

We recommend a rubber ID 1/16"/1.5mm to 1/8"/3.2mm smaller than item passing through and a rubber OD 3/8"/9.5mm bigger than largest part of item e.g fixing nut. Use a lubricant, e.g. petroleum or silicon jelly. Also available blank (no hole) suitable for punching, we will build up a collection of punches for in house custom applications. Aluminium backing plates are drilled 1/8"/3.2mm for fixing. Suitable stainless self-tapping screws can be supplied in packs of ten

One hole



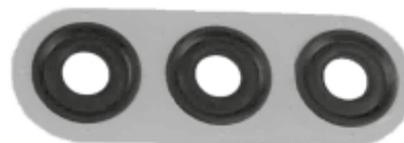
Part No.		£	Cat
GS2003-5	Blank 1in Rubber od.1.5in overall od.	12.62	70
GS50238-BL	Blank 1.55in rubber id. 2in overall od.	12.62	70
GS1003-BL	Blank 2.25in rubber id 3in overall od.	15.78	70
GS1003-4	1/4in Rubber id 2.25in rubber id. 3in overall od.	15.78	70
GS1003-6	3/8in Rubber id. 2.25in rubber id. 3in overall od.	15.78	70
GS1003-8	.5in Rubber id. 2.25in rubber id. 3in overall od.	15.78	70
GS1003-10	5/8in Rubber id. 2.25in rubber id. 3in overall od.	15.78	70
GS1003-12	3/4in Rubber id. 2.25in rubber id. 3in overall od.	15.78	70
GS1003-16	1in Rubber id. 2.25 rubber id. 3in overall od.	15.78	70
GS1003-20	1.2in Rubber id.2.38in rubber id. 3in overall od.	15.78	70
GS404-BL	Blank 3in rubber id. 4in overall od.	26.17	70
GS404-16	1in Rubber id.3in rubber id. 4in overall od.	26.17	70
GS404-30	1.75in Rubber id. 3in rubber id. 4in overall od.	26.17	70
GS5001-1	1.5in Rubber id. 3.4in rubber id. 4.5in overall od.	44.63	70
GS5001-2	2in Rubber id.3.4in rubber id. 4.5in overall od.	49.25	70
GS1003-6INBL	Blank 5in rubber id. 6in overall od.	39.50	70

Two hole



Part No.		£	Cat
GS101-NHBL	Blank 5.25in overall width 0.19in thick	42.47	70
GS101-2H-16S	1.5 id HOLES 5.25in overall width	42.47	70
GS101-2H-BL	Blank 5.25in overall width 0.16in thick	42.47	70
GS101-2H-4	1/4in id HOLES 5.25in overall width	42.47	70
GS101-2H-6	3/8in id HOLES 5.25in overall width	42.47	70
GS101-2H-8	1/2in id HOLES 5.25in overall width	42.47	70
GS101-2H-10	5/8in id HOLES 5.25in overall width	42.47	70
GS101-2H-12	3/4in id HOLES 5.25in overall width	42.47	70
GS101-2H-16	1in id HOLES 5.25in overall width	42.47	70
GS1003-2H-BL	Blank 5.75in overall width	43.54	70
GS1003-2H-4	1/4in id HOLES 5.75in overall width	43.54	70
GS1003-2H-6	3/8in id HOLES 5.75in overall width	43.54	70
GS1003-2H-8	1/2in id HOLES 5.75in overall width	43.54	70
GS1003-2H-10	5/8in id HOLES 5.75in overall width	43.54	70
GS1003-2H-12	3/4in id HOLES 5.75in overall width	43.54	70
GS1003-2H-16	1in id HOLES 5.75in overall width	43.54	70
GS202218-12	.7in id HOLES 7.625in overall width	47.43	70

Three hole



Part No.		£	Cat
GS1003-3H-BL	Blank 8.5in overall width	47.97	70
GS1003-3H-4	1/4in id HOLES 8.5in overall width	47.97	70
GS1003-3H-6	3/8in id HOLES 8.5in overall width	47.97	70
GS1003-3H-8	1/2in id HOLES 8.5in overall width	47.97	70
GS1003-3H-10	5/8in id HOLES 8.5in overall width	47.97	70
GS1003-3H-12	3/4in id HOLES 8.5in overall width	47.97	70
GS1003-3H-16	1in id HOLES 8.5in overall width	47.97	70

Bellows



Part No.		£	Cat
GS50238	0.416in Rubber id.2in overall od.	18.52	70
GS2003-5 WPT	NO HOLE 1.5in overall od. POINTED	12.62	70
GS4001-WPT	NO HOLE 2in overall od. POINTED	12.62	70

Recessed



Part No.		£	Cat
GS-SB1	0.416in Rubber id. 3in overall od.	28.40	70

Split



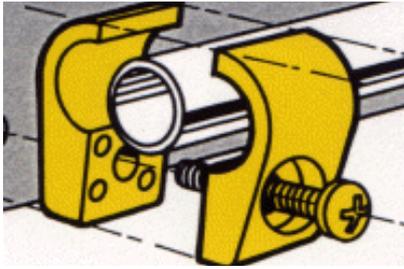
Part Nos.		£	Cat
SGS-250	1/4in Rubber id.	24.70	70
SGS-375	3/8in Rubber id.	24.70	70
SGS-500	1/2in Rubber id.	24.70	70
SGS-625	5/8in Rubber id.	24.70	70
SGS-750	3/4in Rubber id.	24.70	70
SGS-875	7/8in Rubber id.	24.70	70
SGS-1000	1in Rubber id.	24.70	70
SGS3-5-BL		24.70	70

Hose support T Clips



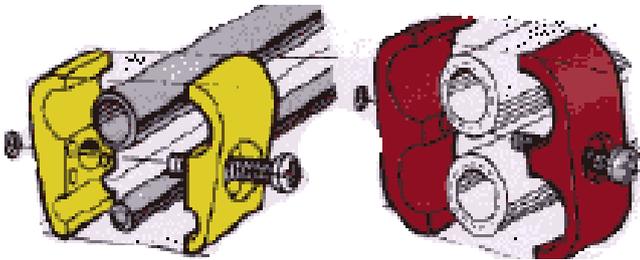
Hold tubing, hoses and wire away from application, eliminating vibration and paint chafing, Made from Zytel nylon, will not melt, fade, stain, corrode or discolour. They will not crack from heat and cold and are non-conductive. Supplied with a stainless steel bolts long enough to fix to sheet metal etc, Size is 10-32 UNF except doubles 13/16" and over which are 1/4-20 UNF. We stock black but also blue, red, yellow, grey & purple available, please state what colour you require.

Single Place T Clips



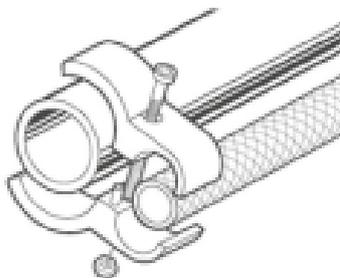
Part No.		£	Cat
NHSC10-188	3/16in ID - 4mm fixing hole 6 pack	16.40	40
NHSC10-250	1/4in ID - 4mm fixing hole 6 pack	16.40	40
NHSC10-313	5/16in ID - 4mm fixing hole 6 pack	16.40	40
NHSC10-375	3/8in ID - 4mm fixing hole 6 pack	16.40	40
NHSC10-437	7/16in ID - 4mm fixing hole 6 pack	16.40	40
NHSC10-500	1/2in ID - 4mm fixing hole 4 pack	16.40	40
NHSC10-562	9/16in ID - 4mm fixing hole 4 pack	16.40	40
NHSC10-625	5/8in ID - 4mm fixing hole 4 pack	16.40	40
NHSC10-650	11/16in ID - 4mm fixing hole 3 pack	16.40	40
NHSC10-820	13/16in ID - 4mm fixing hole 3 pack	16.40	40

Double Place T Clips



Part No.		£	Cat
NHSC20-252	1/4in & 1/4in ID - 4mm fixing hole 4 pack	18.04	40
NHSC20-258	1/4in & 3/16in ID - 4mm fixing hole 4	18.04	40
NHSC20-288	3/16in & 3/16in ID - 4mm fixing hole 4 pack	18.04	40
NHSC20-323	5/16in & 5/16in ID - 4mm fixing hole 4 pack	18.04	40
NHSC20-327	5/16in & 3/8in ID - 4mm fixing hole 4 pack	18.04	40
NHSC20-357	3/8in & 3/16in ID - 4mm fixing hole 4 pack	18.04	40
NHSC20-377	3/8in & 3/8in ID - 4mm fixing hole 4 pack	18.04	40
NHSC20-432	7/16in & 7/16in ID - 4mm fixing hole 3 pack	18.04	40
NHSC20-502	1/2in & 1/2in ID - 4mm fixing hole 3 pack	18.04	40
NHSC20-522	9/16in & 9/16in ID - 4mm fixing hole 2 pack	18.04	40
NHSC20-622	5/8in & 5/8in ID - 4mm fixing hole 3 pack	18.04	40
NHSC20-652	11/16in & 11/16in ID - 4mm fixing hole 3 pack	18.04	40
NHSC20-822	13/16in & 13/16in ID - 6.4mm fixing hole 2 pack	18.04	40
NHSC20-823	13/16in & 15/16in ID - 6.4mm fixing hole 2 pack	18.04	40
NHSC20-835	15/16in & 15/16in ID - 6.4mm fixing hole 2 pack	18.04	40
NHSC20-836	15/16in & 1 1/16in ID - 6.4mm fixing hole 2 pack	18.04	40

Mount to Tube T Clips



Designed to fit to 1 5/8" chassis tube and then hold required hose size.

Part No.		£	Cat
NHSC41-43751	7/16in ID 2 pack	22.66	40
NHSC41-50051	1/2in ID 2 pack	22.66	40
NHSC41-56251	9/16in ID 2 pack	22.66	40
NHSC41-62551	5/8in ID 2 pack	22.66	40
NHSC41-65051	11/16in ID 2 pack	22.66	40
NHSC41-82051	13/16in ID 2 pack	22.66	40
NHSC41-83551	15/16in ID 2 pack	22.66	40

Hose support P clips



Application. Use to secure cables, hoses to chassis, bodywork, etc.

Construction. Aeroquip clips (prefix FBM in price list) are vinyl coated plated mild steel with a wide band and large fixing hole of 0.4 or 0.5 inch.

Clips with prefix HSC are rubber sleeved aluminium and are often preferred due to their smaller fixing hole and narrow band.

Clips with PHSC prefix are a simple low cost plastic clip.

Aeroquip mild steel Part No.		£	Cat
FBM3481	.25inid 0.4in fixing hole	1.46	40
FBM3482	.44inid 0.4in fixing hole	1.33	40
FBM3483	.5inid 0.4in fixing hole	0.73	40
FBM3484	.56inid 0.4in fixing hole	0.70	40
FBM3485	.63inid 0.4in fixing hole	0.60	40
FBM3486	.75inid 0.4in fixing hole	0.68	40
FBM3487	.81inid 0.4in fixing hole	0.90	40
FBM3488	.94inid 0.4in fixing hole	0.83	40
FBM3534	1.00in id 0.4in fixing hole	1.15	40
FBM3535	1.06inid 0.4in fixing hole	1.65	40
FBM3536	1.13inid 0.5in fixing hole	1.81	40
FBM3537	1.25inid 0.5in fixing hole	2.03	40
FBM3538	1.5inid 0.5in fixing hole	2.06	40
Aluminium part no			
HSC4	.19inid 0.16in fixing hole	0.82	50
HSC1	.25inid 0.16in fixing hole	1.14	50
HSC2	.31inid 0.16in fixing hole	0.74	50
HSC3	.37inid 0.16in fixing hole	0.78	50
HSC13	.50inid 0.16in fixing hole	1.24	50
HSC14	.56inid 0.16in fixing hole	0.97	50
HSC5	.63inid 0.16in fixing hole	0.95	50
HSC9	.69inid 0.16in fixing hole	1.31	50
HSC10	.75inid 0.16in fixing hole	1.41	50
HSC6	.81inid 0.16in fixing hole	1.14	50
HSC11	.87inid 0.16in fixing hole	1.49	50
HSC7	.94inid 0.16in fixing hole	1.17	50
HSC12	1.0inid 0.16in fixing hole	1.60	50
HSC8	1.25inid 0.16in fixing hole	2.91	50
Plastic part no. Pprice per 10			
PHSC-M3	3.2id- 4.6mm fixing hole	0.11	50
PHSC-M5	4.8id- 4.6mm fixing hole	0.11	50
PHSC-M6	6.3id- 4.6mm fixing hole	0.11	50
PHSC-M8	7.9id- 4.6mm fixing hole	0.11	50
PHSC-M10	9.5id- 4.6mm fixing hole	0.11	50
PHSC-M13	12.7id- 4.6mm fixing hole	0.13	50
PHSC-M16	15.8id- 4.6mm fixing hole	0.13	50
PHSC-M19	19.4id- 4.6mm fixing hole	0.19	50
PHSC-M25	25.4id- 4.6mm fixing hole	0.22	50
PHSC-M27	27.5id- 4.6mm fixing hole	0.22	50
PHSC-M32	31.8id- 4.6mm fixing hole	0.22	50
PHSC-M37	36.17id- 4.6mm fixing hole	0.24	50

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Aston and Monza filler caps.



Originally made by Enots, nobody can find the original date of manufacture of this famous range of filler caps, we have seen advertisements in magazines dating back to 1937 so they must rate as the oldest automotive components in current use. They will always be associated with famous competition cars of the sixties, twin caps on the rallying Mini Coopers, big central caps on the tails of Cobras however as in all great designs they do not look out of place on modern machinery.

Original Enots products are becoming harder to come by as some of the tooling is unserviceable. Furthermore, costs and retail prices have risen considerably. We have had new pressure die casting moulds made exclusively for us in India where casting, polishing and partial assembly takes place. Thread machining is done in the UK.

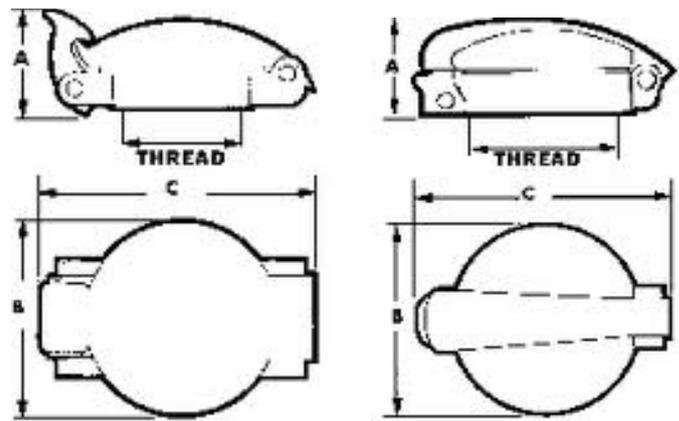
Construction. They are available in polished or chrome plated aluminium, please enquire for brass, except for the 3.5" Aston in aluminium only with either black epoxy finish or polished, We supply the caps in their vented form, but for cars used in competition which have separate breathers we can supply a conversion to non-vented (a blob of solder covering the drilled breather hole works equally well).

Function. The Aston has a quick release action and was used as a fuel filler cap on most sports racing cars before dry break systems became compulsory for international racing. The catch has been simplified, but we can supply a 3.5" cap with a roller catch, (see insert), to satisfy the purists A new addition is a lower budget Aston with roller catch, built in locking cap and 2" neck. Also a 2" Aston with a 2" neck and a mounting flange. The Monza has a snap action and was used where a neater appearance was more important than split second refuelling. Both caps are also used on oil tanks, rocker covers etc.

Fitting. These caps have a threaded base and are supplied with a quantity of gaskets to adjust the orientation when screwing onto the various collars and flanges that we supply as shown on the next page. Also see lockable caps and rocker cover caps. Can be fitted to most modern small cars by utilising kits available for Aero caps.



Dimensions.



	2	2 1/2	2 3/4	3 1/2	Dimension
Aston	NA	38mm	46mm	70mm	A
	NA	76mm	87mm	122mm	B
	NA	105mm	121mm	162mm	C
	NA	2 1/2 x 16tpi	2 3/4 x 16tpi	3.93 x 11tpi	Thread*
Monza	28.6mm	31.8mm	36.5mm	NA	A
	60.3mm	76.2mm	86mm	NA	B
	82.5mm	100mm	114mm	NA	C
	2 x 18tpi	2 1/2 x 16tpi	2 3/4 x 16tpi	NA	Thread*

*Whitworth (BSP) form

Part No		£	Cat
MON2X	2in Monza style Polished aluminium	57.76	70
MON25X	2 1/2in Monza style Polished aluminium.	61.72	70
MON275	2 3/4in Monza style Polished aluminium 6	6.66	70
CLA200	2in Aston style polished all with flange & 2in neck	40.75	70
AST25	2 1/2in Aston style Polished aluminium.	66.84	70
AST275	2 3/4in Aston style Polished aluminium.	71.56	70
AST35	3 1/2in Aston Polished aluminium.	206.61	70
AST35K	3 1/2in Aston style Polished all Lockable, 2in tale	211.15	70
ASTR35	3 1/2in Aston style Polished Aluminium- Roller catch	190.56	70
AST35P	3 1/2in Aston Painted Black Aluminium.	412.80	70
MONC2	2in Monza Chrome .	126.70	70
MONC25	2 1/2in Monza Chrome .	61.72	70
MONC275	2 3/4in Monza style Chromed aluminium	66.60	70
ASTC25	2 1/2in Aston style Chrome .	66.84	70
ASTC275	2 3/4in Aston style Chrome .	71.56	70

New Classic



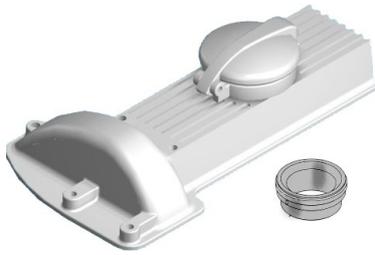
CLAC275

CLA300

A cap with the quick release function of the Aston with the smoother lines of the Monza. The CLAC275 fits 275 collars and flanges. The CLA300 has a bolt for fixing and is supplied with a removable locking insert and a neck to take 2" hose. O.D. is 100mm, length 131mm.

Part No		£	Cat
CLA25	2.5 Classic flat cap Polished aluminium	74.64	70
CLAC25	2.5 Classic flat cap Chrome plated	74.64	70
CLAC275	2.75 Classic flat cap Chrome plated	74.64	70
CLA300	3in Classic cap- locking insert. for 2in hose	110.95	70

Rocker cover caps



2" Monza caps bored out to be an interference fit on the popular Minifin rocker covers. We also have threaded collars to facilitate the fitting of caps to original equipment valve covers.

Part No		£	Cat
MONS2	Monza style 2in alloy for minifin	72.76	70
MONCS2	Monza 2in chrome for minifin	139.89	70
COLAR2	Adapter collar to fit 2in Monza to Rover V8	17.87	70
COLAJ25	Adapter collar to fit 2.5in Monza to Jaguar XJ6	19.56	70

Threaded collars.



A threaded brass collar which has a recess into which a tube can be soldered or Araldited, B) A threaded aluminium tube which can be welded or take a hose of the same bore as the thread.

Part No		£	Cat
COL1	For screw cap CAP1- CAP4- brass	52.79	70
COL2	For 2in takes 1.75in od tube- brass	9.50	70
COL25	For 2 1/2in takes 2.25in od tube- brass	12.81	70
COL275	For 2 3/4in takes 2.5in od tube- brass	13.86	70
COLA2	For 2in for welding or 2inid hose- aluminium	8.35	70
COLA25	For 2 1/2in for welding or 2.5in hose aluminium	6.31	70
COLA275	For 2 3/4in for welding or 2.75in hose- aluminium	6.70	70

Threaded flanges.



Designed for direct fitting to tank. Part # FLAA include nuts & bolts. Chromed are aluminium, polished & anodised are aluminium.

Part No		£	Cat
FLAC2	For 2in caps-chromed - 6 holes x 2.5inpcd	15.71	70
FLAC25	For 2 1/2in caps-chromed - 6 holes x 3.0inpcd	23.23	70
FLAC275	For 2 3/4in caps-chromed - 6 holes x 3.0inpcd	26.63	70
FLAA2	For 2in caps-anodised ali - 6 holes x 2.5inpcd	19.40	70
FLAA25	For 2 1/2in caps-anodised ali - 6 holes x 3.0inpcd	20.99	70
FLAA275	For 2 3/4in caps-anodised ali - 6 holes x 3.0inpcd	27.22	70
FLAA35	For 3 1/2in caps-anodised ali -6 holes x 4.5inpcd	34.66	70

Aluminium Screw Cap



3 1/2 flat vented cap with chain linked. The mirror polished cap allows the mounting flange to mount to the top of the body, whilst keeping it below 50mm protrusion.

Part No		£	Cat
CAP3.5	3 1/2 flat vented cap with chain linked, no neck	135.97	70

Threaded flanges and funnels



One piece threaded flange and funnel combined, designed to allow for fitment to exterior bodywork and connecting via a hose to a remote tank. They are machined from billet aluminium, polished and then anodised silver or chrome plated. Will take 2.25 (57mm) and 2 (51mm) hoses. Secondary locking filler caps (LIK1) and lead free flaps (LFF1).can be fitted.

Part No		£	Cat
FLAP2	For 2in caps -takes 2in hose -6 holes x 2.5inpcd	35.08	70
FLAF25	For 2 1/2in caps - 6 holes x 3inpcd	46.03	70
FLAF275	For 2 3/4in caps- 6 holes x 3inpcd	46.02	70
FLAF35	For 3 1/2in caps - 6 holes x 4.5inpcd	64.20	70

Secondary locking filler caps and lead free flaps.



May be fitted to above (threaded flanges & funnels) except FLAP2.

Part No		£	Cat
LIK1	Locking insert kit for all flange/funnel except 2in	26.32	70
LIK2	As above but non-vented	26.32	70
LFF300	Lead free flap kit for all flange/funnel except 2in	17.11	70

Fuel Filler neck hose



Made from fuel resistant rubber

Part No.	Price in £ per centimetre	£	Cat
NH38F	1.5in/ 38mm Flexi hose with steel spring	0.44	70
NH51F	2in/ 51mm id Flexi hose with steel spring	0.32	70
NH57F	2.25in/57mm Flexi hose with steel spring	0.67	70
NH32	1.25in/32mm id wrapped hose	0.57	70
NH38	1.5in/38mm id wrapped hose	0.44	70
NH45	1 3/4in/ 45mm id wrapped hose	0.34	70
NH51	2in/ 51mm id wrapped hose	0.29	70
NH57	2.25in/ 57mm id wrapped hose	0.32	70
NH63	2.5in/ 63mm id wrapped hose	0.58	70

Part No		£	Cat
NH451	2in/51mm 45° bend	22.17	70
NH457	2.25in/ 57mm 45° bend	22.17	70
NH951	2in/51mm 90° bend	22.17	70
NH957	2.25in/ 57mm 90° bend	22.17	70

Aluminium screw cap.



Screw cap machined from billet with scalloped grip supplied with weld on screwed neck.

Part No		£	Cat
CAP5M	51mm dia c/w 44mm id neck, polished ali'	19.82	70
CAP5	As above without MOCAL logo	19.82	70
CAP11	44mm dia c/w 25mm id neck, polished ali'	22.07	70
CAP15	57mm dia cap c/w 46mm id neck, polished ali'	28.09	70
CAP20	69mm dia cap c/w 51mm id neck, polished ali'	32.77	70

Radiator Caps and necks.



We can supply a full range of high pressure caps for racing use, complete cooling system should be pressure tested to maximum pressure of cap, do not use on road vehicles where cooling component failure could lead to bodily injury.

Aluminium radiator necks for brazing to aluminium radiators and expansion tanks. RN1 and RN2 have 1/4" over flow, RN3 has 3/8"

Part No		£	Cat
RN1	Aluminium radiator neck- standard cap size	20.48	70
RN3	As above- but 3/8in overflow outlet	23.28	70
RN2	Ali radiator neck- Japanese small cap size	21.94	70
XR1	Racing rad cap 19-20psi	11.53	70
XR1L	As above with pressure release lever	11.53	70
XR1H	Racing rad cap 19-20psi Hexagonal	11.53	70
XR2	Racing rad cap 22-24psi	11.53	70
XR2L	As above with pressure release lever	11.53	70
XR2H	Racing rad cap 22-24psi Hexagonal	11.53	70
XR3	Racing rad cap 29-31psi	11.53	70
XR3H	Racing rad cap 29-31psi Hexagonal	11.53	70
XR1S	Small racing rad cap 19-21 psi	15.95	70
XR2S	Small racing rad cap 22-24psi	15.95	70
XR3S	Small racing rad cap 29-31psi	15.95	70

Aero flush fitting caps



This flush fitting cap draws its inspiration from a fuel cap used on American world war two fighter aircraft and soon appeared on Ducati motorcycles. Ferrari snapped them up for the F40 and they now grace the flanks of the worlds' leading supercars including the McLaren F1 and Jaguar XJ220. Designers of concept cars love it; Ford Indigo, Renault Sport Spider and Fiftie all make a statement with the Aero cap blending beautifully with their diverse designs. The design and finish of the cap are such that it is not only the appearance that attracts but the mechanism with it's pleasing feel with a precise action.

The forged aluminium cap sits in a pressed aluminium flange sealed with fuel resistant O ring. Cap and flange are polished and anodised silver, other colours are available. Supplied with nuts, bolts and fibre gasket. locking version has two keys. The cap was intended for in tank fitting but it is more usually mounted on the body work and connected to a fuel tank through flexible hoses. To achieve this we can supply with add on funnels in the Aero 400 series or with flanges with built in funnels in the other sizes. We have a thick rubber gasket for applications where there is slight curvature of the mounting panel, the neck of this gasket provides a secondary seal around the cap. In situations where back access is limited, we have a ring with captive nuts, the ring is slotted to allow it to be fed into holes. Where the 3" cap has to be situated within the bodywork, we can supply a rubber spill tray to which a 1/4" hose can be attached to redirect overspill. These caps are not vented, either use small vent valve or see selection of in-line or tank mounted valves on [page 65](#).

Vent valve



Part No		£	Cat
TBV45	Small vent valve	22.07	40

Dimensions

Aero Series	200	300	400		500	600
Cap Diameter	1.75"	2.25"	3"		4"	5"
Flange Diameter	80mm	95mm	120mm	140mm	140mm	126mm
Fixing Holes PCD	6	6	8	9	8	8
	2.5"	3"	4"	4"	4.75"	4.25"
Rubber Gasket	RUB4	RUB3	RUB1	No	No	
Spill Tray	No	No	RUB2	No	No	No
Fixing Ring	RIN3	RIN2	RIN1	No	No	RIN4 RIN6
Hose I.D.	2"	2"/2.25"	2"	2.25"		3.5" 2"/2.25"
Flange & Funnel	CAP2TF	CAP2TF	No	No	No	CAP35 OOF A68NS50 A68NS57
Separate Funnel	No	No	FUN1	FUN2	No	No

Aero 200 series 1.75" cap



Part No		£	Cat
CAP2T	1.75in cap with 6 hole x 2.5inpcd flange	59.79	70
CAP2TF	As above with flange & integral funnel for 2in hose	76.12	70
CAP2TWO	1.75in cap with 2 dia weld stub or hose.	61.36	70
RUB4	Rubber gasket for 6 hole x 2.5inpcd	3.43	70
RIN3	Ring with captive nuts for 6 hole x 2.5inpcd flange	12.42	70

Aero 300 series 2.25" cap



Part No		£	Cat
CAP2S	2.25in cap with 6 hole x 3inpcd flange	76.12	70
CAP3S	As above but locking	92.56	70
CAP2SF	2.25in cap with flanged funnel for 2in & 2.25in hose	96.16	70
CAP3SF	As above but locking	113.39	70
CAP2SWO	2.25in cap with 2india stub for welding or hose	76.12	70
CAP3SWO	As above but locking	92.56	70
RUB3	Rubber gasket for 6 hole x 3inpcd	3.88	70
RIN2	Ring with captive nuts for 6 hole x 3inpcd	13.99	70

Aero 400 series 3" cap



Part No		£	Cat
CAP2	3in cap with 8 hole x 4inpcd flange	76.12	70
CAP3	As above but locking	92.56	70
FUN1	Funnel & gasket with 8 hole x 4inpcd for 2in hose	27.04	70
FUN2	Funnel & gasket with 8 hole x 4inpcd for 2 1/4 hose	27.04	70
RUB1	Rubber gasket for 8 hole x 4inpcd	8.69	70
RUB2V	Rubber gasket for 8 hole x 4inpcd + vent valve	11.75	70
RUB2	Rubber spill tray- 8/9 hole x 4inpcd	26.69	70
RIN1	Ring with captive nuts for with 8 hole x 4inpcd	15.06	70
CAP2H	3in cap with 12 hole x 4.75inpcd flange	84.18	70
CAP3H	As above but locking	100.64	70
RIN4	Ring with captive nuts for 12 hole x 4.75 flange	24.20	70

Aero 500 series 4" cap



Part No		£	Cat
CAP2500	4in cap with 12 hole x 4.75inpcd flange	106.18	70
CAP2500F	As above with flange & funnel for 3.5in hose	127.93	70
CAP3500	4in locking cap with 12 hole x 4.75inpcd flange	122.68	70
CAP3500F	As above with flange & funnel for 3.5in hose	144.41	70

Aero 600 series 3.6" cap



Part No		£	Cat
A68S	3.8in cap with 8hole x 4.25inpcd flange	93.97	70
A68L	As above but locking	108.56	70
A68NS50	As above not locking with funnel for 50mm hose	127.81	70
AB68NL50	As above but locking	142.04	70
AB68NL57	As above but with funnel for 58mm hose	127.81	70
AB68NS57	As above but not locking	142.04	70
RING6	Ring with captive nuts for 6 hole x 4.25in pcd	22.52	70

Caps for Caterhams



Part No		£	Cat
CAP3SCAT	2in Cap direct replacement on Caterham- silver	95.33	70
CAP3SCATB	2in Cap direct replacement on Caterham- black	98.90	70

Caps with angled necks



Part No		£	Cat
A36ANL44	A300 Locking with angled neck	179.04	70
A36ANL44K	as A36ANL44 with retention cable	186.14	70
A36ANL44LF	as A36ANL44 with Lead Free Flap	238.72	70
A36ANL44LFF	as A36ANL44 with LFF & Retention cable	255.56	70

Also available in Black finish.

Aerolook replacement filler caps.

The Aerolook is available for enthusiasts who wish to achieve a similar appearance to the Aero cap without the bother of installation. This is achieved with either a one piece locking caps that replace the existing cap or a decor plate that fits over the existing cap They are crafted from high grade aluminium with the same polished and anodised finish as the Aero. The standard finish is silver but other colours may be specified at extra cost, e.g. Black anodising is £2.00 extra.



Part No		£	Cat
CAPVW1	Silver cap for Volkswagen Golf Mk 1- 1977 on	76.12	70
CAPVW1V	Silver cap for Volkswagen Golf Mk 1- 1974-76	61.74	70
CAPNOVA1	Silver cap for Vauxhall Nova & Astra Mk1/2	57.39	70
CAPPEU205	Silver cap for Peugeot 205	57.39	70
CAPCLIO	Silver cap for Renault Cleo phase 1 up to 94	91.95	70
CAPFORD1	Silver decor plate for MK3 Escort	48.18	70
CAPPEU206	Silver decor plate for Peugeot 206	47.31	70

Smarty flush cap



An economically priced two piece cap with flange and funnel, Construction. 50mm diameter polished aluminium flange and funnel to take 2" bore hose with mainly plastic locking cap insert.

Part No		£	Cat
CAP3ZF	Locking cap- flange & funnel	72.50	70
CAP3ZV	As above but vented	72.50	70

Fuel tank caps for Superbikes



Direct replacement for original equipment. They have a locking facility but may be used as a quick release cap for race refuelling rigs including the Acerbis system. They are manufactured from billet aluminium, polished and anodised silver. As with other caps in this range they are a delight to feel and operate and have the stunning looks achieved when form and function harmoniously combine. Eminently suitable for race and road.

Part No		£	Cat
SB3LHO	Honda to 2003	129.43	70
SB3LKA	Kawasaki to 2000	129.43	70
SB3LSU	Suzuki to 2003	129.43	70
SB3LSU2	Suzuki from 2003	129.43	70
SB3LTR	Triumph	129.43	70
SB3LYADU	Yamaha/Ducati	129.43	70

Presto locking cap



Chrome plated die cast "Mazac" cap with lock. Fits to a 2" flexible hose. As fitted to post war sports cars including Triumph and ACs.

Part No		£	Cat
PRE1	Presto cap	63.44	70

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Quick Fill refuelling equipment

A new range of refuelling equipment with push pull connections in accordance with FIA appendix J drawing 252-5. There are fully floating spindles on the female fitting to give a smooth action and avoid sticking. The transition mechanism on the male fitting rides on balls rather than a spring ensuring a smooth, positive action.

The vehicle will require 2 female connections, one to fill and one to vent. Conversely the refuelling rig will require two male connections one feeding from a main supply tank and one for venting to a bottle or tank. We can also supply twin females in a side by side configuration with 100mm centres, also handles to take males at the same spacing.. For non FIA situations the bottle can be used as a fuel churn with one male fill connection in which case the vehicle should have a one way quick release valve(-16) venting to top of the bottle.

We are constantly adding to and revising this range so talk to Matthew before ordering.

Female Quick Fills



Part No		£	Cat
QF250	Remote Female valve with flange 57mm hose tail	239.42	70
QFR252	As above but twin side by side installation	483.28	70
QFF250C	As QF250 with M50x1.5 tail fits ATL Caterham cell	175.10	70
QFT251	Tank mounting Female valve	157.39	70
QFT252	Double Tank mounting Female valve	327.28	70

Male Quick Fills Bottles and Systems



Part No		£	Cat
RE-AG-003	Male ATL valve with 2.25in hose tail	399.56	70
CAR1	Fuel bottle 25L use as vent catch tank or filler	65.38	70
STA1	Stand for CAR1 Fuel bottle	100.72	70
QFM250TF	Filler flange with cap for CAR1 has 1in return	96.37	70
QF250TNA	2.25in hose tail screw attachment for CAR1	51.92	70
QFB1	Bottle assembly using all three above	218.22	70
QM251	Male valve with 2.25in hose tail	248.70	70
QMH252	Handle for 2 QFM2 for twin side by side- horizontal	124.62	70
QMV252	As above but vertical	126.41	70
QFMAN	Dual feed manifold	200.59	70
QFMAN45	As above but angled at 45°	218.81	70
QFMAN80	As above but angled at 80°	218.81	70
QFBC1	Thermally insulated cover	176.23	70

Single Male QF assembly



Part No		£	Cat
QFSYS1	Complete bottle assembly with single male valve	632.93	70

Dual Male QF assembly



Part No		£	Cat
QFSYS2	Complete bottle assembly with twin male valves	1333.45	70

Air jack system

Air jacks

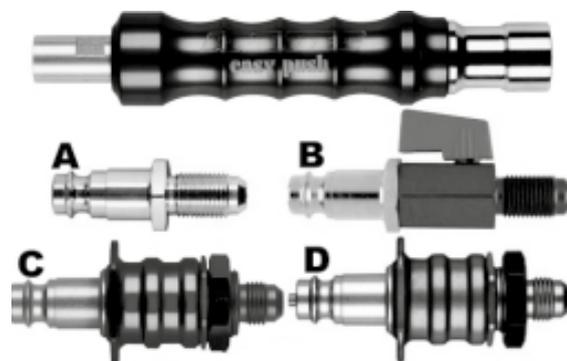


We offer the Krontec range of quick lift, built in air jacks, All aluminium, latest springless technology. Most usually mounted on the rollcage, operated by compressed air from a bottle two sizes with a standard 230mm stroke, specials are available. Supplied with mounting nut and-6JIC air fitting.

Par No.	Mounting Thread DIA	Weight in Grams	Lift Capacity at Various Pressures		
			40 bar	30 bar	20 bar
LL - 22	M60 x 1.5	962	750kg	562kg	375kg
LL - 32	M50 x 1.5	808	488kg	366kg	244kg

Part No		£	Cat
LL-22	60mm dia air jack	395.00	90
LL-32	50mm dia air jack	395.00	90

Air connections



The 4 or 3 jacks are usually plumbed with rigid aluminium tube [see page 49](#) to an easily accessible body mounted connection valve. A "lance" or "wand" attached to a flexible hose supplied with compressed air will, with the lightest of pushes, fasten on to the connection valve and up goes the car. Your choice of valve will dictate how it comes down

- A. LL-12 Air stays in the system until lance is disconnected.
- B. LL-13 Tap can be closed after connection, air stays in system until lance is disconnected and tap is opened
- C. LL16 Air stays in system until lance is disconnected and sleeve is slid to open
- D. LL16plus as above but air can be slowly released by operating, red button as when lowering onto axle stands.

Part No		£	Cat
LL-03	Easy -push air lance	214.92	90
LL-12	On car connector -6 JIC	41.50	90
LL-13	On car connector with tap -6 JIC	67.62	90
LL-16	On car connector sleeve release-6 JIC	119.69	90
LL-16PLUS	As above with slow release. button	154.32	90

Safety props and car lifter



No work under the car should take place without safety props in place, in case of accidental release. The car lifter may be used in place of safety prop and used to provide extra height under the car. To use: Raise car, insert lifter, lower car, insert bar in lifter, raise car.

Part No		£	Cat
LL-90	Safety prop for 60mm jack	99.50	90
LL-91	Safety prop for 50mm jack	99.50	90
LL-20CL	Car lifter for 60mm jack	378.28	90
LL-30CL	Car lifter for 50mm jack	378.28	90

Electric fuel pumps, regulators & filters

The pumps are used as cost effective replacements for existing pumps, both mechanical and electrical, for back up systems and in new installations.

Pumps should be mounted as low and as near to the fuel tank as possible, all pumps are more efficient when they are pushing, not pulling, the solid state should not be mounted more than 12" above fuel level. Pumps should be rubber mounted if quietness of operation is desirable. Regulators should be mounted as near to carburetors as possible.

Connecting pumps in series, i.e. the outlet of the first pump feeding the inlet of the second pump doubles the pressure. Connecting in parallel both inlets drawing from a common source and outlets feeding one pipe will double the flow.

Construction. Facet pumps have plunger operation, Holley & Weldon pumps have rotary sliding vanes. The solid state pump is sealed for life and has no built in filter, the others have replaceable parts including filters that may be removed for cleaning.

Performance. See chart below

PUMP	Flow in litres/UK gals per hour	Pressure	Ports
Holley 12 - 802	420/92 freeflow. 265/58 at 9psi	14psi	3/8 NPTF
Holley 12 - 801	370/81 freeflow. 255/56 at 5psi	7psi	3/8 NPTF
Holley 12 - 815	530/116 freeflow. 415/92 at 9psi	14psi	3/8 NPTF
Facet Solid State	115/25 freeflow	3.5psi	1/8 NPTF
Facet Silver Top	135/30 freeflow	5psi	1/8 NPTF
Facet Red/Blue	170/37 freeflow	7.5psi	1/4 NPTF
Weldon WFP1	320/60 at 70psi	70psi	-8JIC
Weldon WFP2	415/90 at 10psi. 410/70 at 160psi	160psi	-8JIC
Weldon WFP3	680/150 at 5psi 530/116 at 80psi	80psi	-8JIC
Bosch B0979	165/37 freeflow	75psi	M18/M12
Bosh B0044	200/45 freeflow	75psi	M14/M12

Facet (Bendix) pumps.



Silver/Blue/Red top



Solid State

The red top has a more restrictive (finer) filter than the blue top otherwise they have the same specification.

Part No		£	Cat
FSS1	Solid state Facet No 40105	38.30	70
FST1	Silver top Facet No 476086	76.16	70
FBT1	Blue top Facet No 480534	90.56	70
FRT1	Red top Facet No 480532	82.06	70
FMK1	Rubber mount kit	11.14	40
See page 44/45 for fittings for oil & fuel hoses.			
Part No for filters for Facet pumps.		£	Cat
FF8-3-5	For solid state to 5/16in id hose	12.90	70
FF74	74 micron forsilver/red tops	6.36	70
FF400	400 micron for blue top	9.67	70

Weldon Pumps and regulator



The finest fuel pumps for super high performance with 13 different pumps for engines making 600 to 2400 horse power, we stock 3. Billet aluminium bodies with steel/bronze internals, breakaway motor to pump coupling prevents damage from fuel contamination. No internal filters fitted. Use with regulator except WFP1 which has internal valve and cast body. The regulator has 2 x 1/8NPTF ports for gauge and boost sensor.

Part No		£	Cat
WFP1	Fuel pump with built in pressure relief valve	576.44	90
WFP2	Fuel pump D2015-A	559.55	90
WFP3	Fuel pump D2025-A	565.88	90
WFR2	Return to tank regulator -10JIC ports, 4 to 200psi	271.45	90

Holley pumps



All have a cast aluminium body with 3/8NPTF ports.

Part No		£	Cat
H802	12-802 - Blue- supplied with regulator.	164.70	90
H812	As above without regulator	148.95	90
H801	12-801 - Red - supplied without regulator	133.61	90
H8151	12-815 - Black- no regulator	260.57	90

Holley regulator



It has a painted aluminium body with three 3/8 NPTF female ports, one inlet and two outlets one of which may be blanked if not required or used as a tapping for a fuel pressure gauge / indicator.

Part No		£	Cat
H803	12-803- 4.5 to 9psi- Holley regulator	33.78	90
H804	12-804- 1 to 4psi- Holley regulator	33.86	90
H803BP	Holly Regulator 4.5 - 9psi BYPAS	69.95	90

Prices are subject to alteration without prior notice.
Add VAT at 20% for all UK and EU retail sales.

Pro-fuel regulator



Chromed alloy body with 1/8NPTF female threads, supplied with push on fittings and hose clamps. Can be set from 1-5psi on calibrated dial.

Part No		£	Cat
PRO53	With male unions push on for 1/4in hose	29.90	70
PRO54	With male unions push on for 5/16in hose	29.90	70
PRO55	With male unions push on for 3/8in hose	30.77	70

Petrol King pressure regulator



Although much touted as fuel saving gadget, it is a proper fuel pressure regulator for carburettors, set at 2psi but adjustable it should be set up with a pressure gauge in accordance with carburettor manufacturers' recommendation. Incoming pressure not above 10psi. The body is pressure die cast aluminium with neoprene membrane suitable for most fuels except methanol, adjustment 1.5-5psi. Inlet & outlet ports are tapped. 1/8 NPTF, supplied with 5/16" straight connectors

Part No		£	Cat
FR-5	Tapped 1/8NPTF- with 5/16in connectors	48.59	70

Filterking combined fuel pressure adjuster & filter



As pressure regulator but with filter, Highflow has aluminium bowl and washable metal filter and 1/8NPTF tapping for pressure gauge take off. The others have glass bowls

Part No		£	Cat
FK2	Highflow 140mm high with -6JIC male connections	77.53	70
FK5	Highflow 140mm high with 5/16in hose tails	72.20	70
FK1	140mm high- with 5/16in hose tails	62.47	70
FKS1	120mm high- 1/4 & 5/16in hose tails	55.05	70

Mocal® filter



The two part threaded anodised aluminium housing in standard blue, black, red or silver. Removable stainless steel filter, which can be cleaned. Choice of 15, 40 or 120 micron mesh. Essential on fuel systems to protect carburettor and fuel injection pumps. Can be supplied in 2 different halves, e.g. to join -6 to -8 hose. Negligible pressure drop when clean but must be inspected regularly.

Add suffix 15, 40 or 120 for mesh size then add suffix B for black, R for red, C for silver e.g. SLF7-6-120C has 120 filter and silver body. 15 micron filter extra £20

Part No		£	Cat
HESLF-6	Direct fitting into -6 Racing Hose	60.55	70
HESLF-8	Direct fitting into -8 Racing Hose	60.55	70
SLF7-4	-4JIC in line filter	46.14	70
SLF7-6	-6JIC male unions	39.98	70
SLF7-8	-8JIC male unions	40.77	70
SLF14-5	To fit 5/16in id hoses	39.98	70
SLF14-6	To fit 3/8in id hoses	39.98	70

Pro-filter



Construction. Chrome plated steel end caps, glass housing with 40 micron plastic filter which may be removed for cleaning. Application. Use on carburettor systems, not above 10psi.

Part No		£	Cat
PRO804	Push on for 1/4 id hose	8.32	70
PRO805	Push on for 5/16in id hose	8.32	70
PRO806	Push on for 3/8 id hose	8.32	70

Filters for electric pumps



Low restriction oil filter, 240 micron, designed to protect electric pumps used in transmission, differential or turbo charger installations from damage to gears or soft diaphragms. Body is black anodised aluminium and the element is cleanable wire mesh. Dimensions are 160mm long x 45mm diameter.

Part No		£	Cat
ILF7-6-10	-6JIC in line filter 10 µ	73.64	70
ILF7-6-100	-6JIC in line filter 100 µ	96.35	70
ILF7-6-240	-6JIC In line filter 240 µ	73.64	70
ILF7-8-10	-8JIC in line filter 10 µ	73.64	70
ILF7-8-100	-8JIC in line filter 100 µ	100.13	70
ILF7-8-240	-8JIC in line filter 240 µ	73.64	70

Electric fuel pumps for fuel injection



Bosch pumps have steel bodies 168 x 60mm x with M14 x 1.5 or M18x1.5 intake, M12 x 1.5 outlet, pressure 5Bar. Max current 10amps, weight 1kg approx. We can supply a blanking cap to allow a banjo fitting to be fitted to outlet.

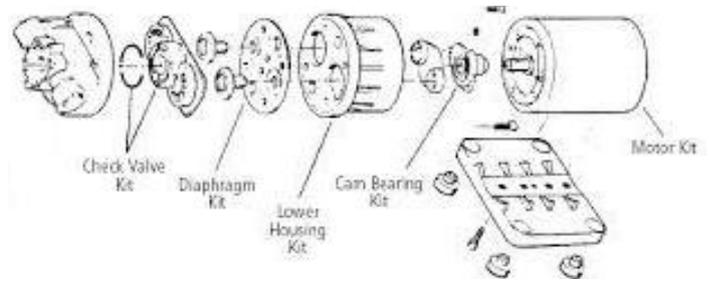
Part No		£	Cat
B0979	165 litres/hour M14 inlet	167.03	90
B0044	200 litres/hour M18 inlet	175.33	90
CPH1	Carbon fibre holding bracket for above	67.33	70
FPH3	Fuel pump holder by Sytec billet alloy	46.78	70
FPH4	Fuel pump holder Mocal for Bosch billet alloy	23.99	70
BCA2-45B	M12 x1.5 blankingcap/banjo retainer	9.27	40
BOF5021	Bosch Fuel Filter M14 x M12 fml/fml	39.75	90
BOF5907	Bosch Fuel Filter M16 male/female	16.82	90

Electric oil pumps

Used in oil cooler installations for manual gearboxes and differentials. In turbo charger installations for pre-oiling and to provide a flow of oil after shutdown or to scavenge oil from the turbo charger. Electric pumps can be used when the vehicle is stationary when extra cooling/lubrication is often most needed.

Installation. Cooler installations are usually plumbed in -6 or -8 hose. For transmissions operate only when oil has reached at least 70°C, will not pump cold oil. Pump and cooler must be mounted below gearbox/differential oil level to avoid over filling when switched off. Cold oil return should be after point of gear engagement to reduce pumping losses,

Turbo charges feed installations normally draw oil from sump and supply is teed into existing feed pipe with a check valve. In addition to the pumps below, the Holley fuel pump has been used successfully where weight is the most important factor. In transmission cooling applications we advise use of a low restriction filter to avoid pump damage.



Part No		£	Cat
OPP2	TCP Fan Shroud kit	7.34	40
OPP6	TCP Diaphragm kit (Viton)	41.92	40
OPP6B	TCP Diaphragm kit (Buna)	27.97	40
OPP7	TCP Check Valve kit	36.53	40
OPP10	TCP Base Plate	14.53	40
OPP16	TCP Pump Head Housing	27.23	40

Jabsco oil cooling pump



Construction. 12 or 24 volt electric motor with brass pump housing and neoprene impeller, although rated for modest temperatures has proved satisfactory for elevated temperatures encountered. We recommend that an extra impellor housing gasket be fitted for temperatures above 90°C. Weight 3kg. Ports are ½ BSP. These pumps were widely used in the early '60s so good for historic.

Part No		£	Cat
JP-1	Jabsco pump 12v 450 gph (1950 lph)	154.93	90
JP-2	Jabsco pump 24V 12v 450 gph (1950 lph)	260.91	90
JP-5	Jabsco pump 12v 105gph (420 lph)	217.50	90
JPI-1	Spare impellor JP-1&2	20.60	90
JPG-1	Impellor housing gasket JP-1&2	4.33	90

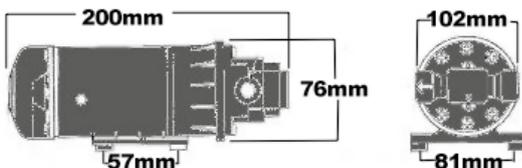
Mocal® oil cooling diaphragm pump



A diaphragm pump, has integral cooling fan, 12 volt motor. Weight 1.5kg. Ports are 3/8NPTF and may be rotated in 90° increments to simplify plumbing. The pump body is made of lightweight nylon, care must be taken when tightening tapered adapters not to over tighten and crack housing.

Performance. Flow 1.6 gals/7.5 litres per min. Pressure 50psi/3.5 bar. Temperature, for constant use up to 130°C, intermittent up to 150°C. Max current draw 5 amps.

Dimensions



Part No		£	Cat
TCP1	Mocal pump 12 volt	145.28	40
TCP3	Mocal pump 24 volt	224.78	40
TCP240VOLTS	Mocal pump 240 volt	366.41	40

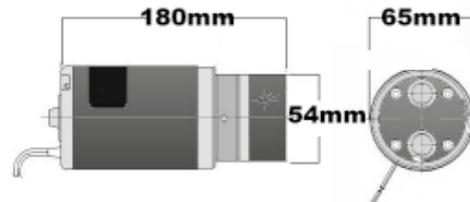
We can also supply various spare parts for the TCP range of pumps including a Diaphragm kit which is perhaps the most vulnerable element in the pump.

Weldon oil cooling pump



A sliding vane pump built to close tolerance aerospace standards. 14 volt motor. Weight 1.4kg/3lbs. Ports are -6JIC (9/16x 18) female. The pump body is machined from billet aluminium, rotating parts are heat treated high speed steel in precision bearings. Adjustable cam ring for varying pressure/flow. Built in pressure relief valve. Performance. Flow 24gph(UK)/109litres ph of oil at 150°C. Pressure 0-60psi/0-4bar. Temperature for constant use up to 150°C. Max current draw 5.5 amps.

Dimensions



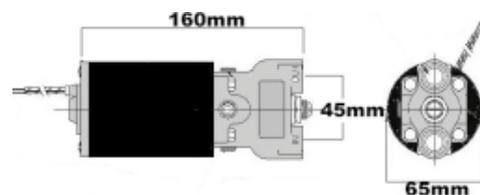
Part No		£	Cat
WCP1	Weldon 9200A oil pump	482.50	70
WCP1B	Quick release bracket	36.68	70
WCP1C	Weldon Electrical connector	19.73	70

Weldon oil lubricating pump



Construction is similar to above but more suited to lubricating under pressure. Adjustable pressure relief valve. Flow 17 gals/75 litres per hour @ 25psi

Dimensions



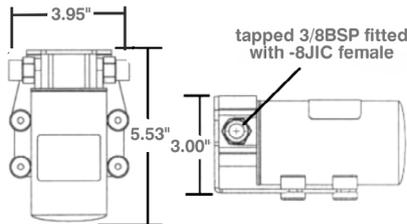
Part No		£	Cat
WLP1	Lubricating pump (use WCP1B bracket)	498.00	90

Mocal® oil cooling gear pump



Hardened bronze gear pump. Brass body 12 volt motor. Weight 3lbs. Flows up to 150 gph (UK) 680 litres ph of oil pressure up to 50psi. Max temp 175°C. Current draw 6 to 8 amps. Rubber mounted.

Dimensions



Part No		£	Cat
EOP1	Electric Oil pump - Gear pump 12 volt	285.05	70
EOP1-24	Electric Oil pump - Gear pump 24 volt	296.32	70
EOP2	Electric Oil pump	116.00	70
EOP2	Electric Oil pump - 24 volt	116.00	70

VDO oil pump



Very small 130mm x 36mm overall weighing 0.5lbs with 15mm inlet and 8mm outlet push on fittings. Flow 40 gph (UK), pressure up to 10psi. Max temperature 170°C. 8 amp rating. Filter on inlet.

Part No		£	Cat
VOP1	Oil pump Electric 12 volt.	267.25	90

Turbo Drain Pumps



TDP1



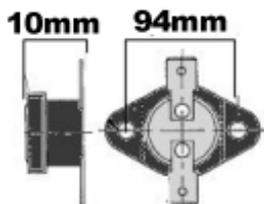
TDP2

Heavy duty pump to cope with high temperature and continuous use. Both have 3/8NPT ports, will work to 175°C and have 10 000 hour rated bearings and motor bushes. TDP1 can flow 3.6 - 11 LPM to 3.4bar max pressure. TDP2 can flow 3.6 - 7.3 LPM to 2bar max pressure. Full spec and dimensions available on request.

Part No		£	Cat
TDP1	Turbo Drain Scavenge pump Large	448.48	70
TDP2	Turbo Drain Scavenge pump Small	413.45	70

Thermal switches

Control pump action. EWS/1G is a two pole surface mounted switch with two screw holes, connect into earth line, makes on the rise at 100°C and breaks on the fall at 82°C.



Part No		£	Cat
EWS/1G	Surface mounted switch makes at 100 °C	11.37	70

Electric water coolant circulation pumps

EWP®



This exciting concept offers more available engine power, better mpg, improved cooling with quicker warm up and longer engine life. It is supplied in kit form to replace existing belt driven water pumps. Owners of older cars with troublesome original pumps have also achieved new found cooling reliability.

The existing belt driven pump is inefficient in that to allow sufficient circulation at low speed, the flow generated at medium to high speeds is not required and is wasteful of engine power as is the energy required to speed up a mass of water through a restrictive radiator during hard acceleration. Water circulation ceases on turn off and engines are often cooked by switching off after a high speed run.

The water pump should be connected into the bottom hose, use the adapters to suit various hose diameters. Disconnect the existing pump pulley and use a shorter belt, the idling pump will offer no resistance to flow. Or the old impeller may be removed from the shaft. However it can be beneficial to run both pumps. Set a thermal switch to slightly less than desired running temperature so that the pump will boost when required.

An adjustable electronic controller supplies exact voltage to govern water pump speed to achieve desired cooling requirements, a pulsing flow for the first 10°C then increasing steady flow over the next 10°C has digital temperature setting, 2 min run on after switch off, diagnostics to identify cooling problems, monitoring to indicate operating mode. 12amp capability.

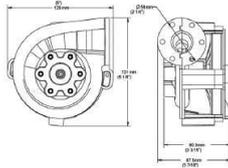


Mount under the dashboard where adjustment dial can be reached, all wiring and connectors are supplied. The temperature sensor is a thin flexible rod which can be inserted into the existing thermostat housing, thermostat itself is removed or fitted into a TGA5 see next page Wiring on battery side of ignition switch will allow pump to run on. Comprehensive instructions & wiring diagrams are supplied. For short duration racing where no alternator is used and current used is of no significance an adjustable thermal or on/off switch may be used.

For serious competitors the ability to tailor flow will enable redesign of the entire cooling system resulting in smaller radiators with obvious advantages. For all competitors taping up radiators to achieve correct temperatures will be a thing of the past.

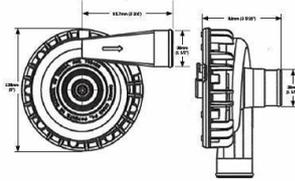
Three sizes are offered EWP1 (EWP80) will pump up to 80 LPM and suit naturally aspirated and turbo charged engines up to 3 litres. The EWP115 will pump up to 115 LPM and suit large 6 cylinder and V8 engines, heavy duty 4WD and most engines over 400hp. The EWP150 will pump to 150 LPM to cope with even more demanding applications.

EWP1 (EWP80)



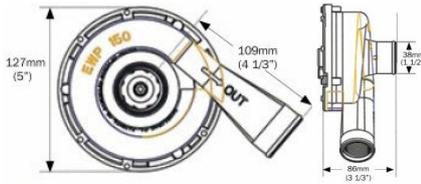
Part No		£	Cat
EWP1	Electric water pump 12v 80 Lpm nylon body	141.05	72
EWPC2	Electric Water Pump Controller	140.27	72

EWP115



Part No		£	Cat
EWP115	Electric water pump 12v 115 Lpm nylon body	163.99	72
EWP115ALLOY	As above but aluminium body	180.25	72
EWPC2	Controller for both pumps	140.27	72
EWP115C	Combined pack EWP115 & EWPC2	247.69	72
EWP115CALLOY	As above but alloy pump	272.14	72
EWP11524V	Electric water pump 24v 115 Lpm nylon body	163.99	72
EWP11524VALLOY	EWP 24v 115 Lpm aluminium body	180.25	72

EWP150



Part No		£	Cat
EWP150A	EWP 12v 150 Lpm Aluminium body	216.65	72
EWP150A24V	EWP 24v 150 Lpm Aluminium body	216.65	72
EWPC2	Electric Water Pump Controller	140.27	72
EWP150AC	Combined pack EWP150A & EWPC2	336.32	72

The pumps come with a range of sleeves to adjust the o.d. of the hose connector. The aluminium versions of the EWP115 & EWP150 are also tapped internally -16 to take a male/male adaptor. We can supply adaptors on request.

	EWP1 (EWP80)	EWP115	EWP115 Alloy	EWP150
Flow	80 Lpm	115 Lpm	115 Lpm	150 Lpm
Max Pressure	50 psi	72.5 psi	72.5 psi	72.5 psi
Temperature Range	-20 to +130°C	-40 to +130°C	-40 to +130°C	-40 to +130°C
Max Current	7.5 amps	10 amps	10 amps	10 amps
Weight	900 grams	980 grams	1151 grams	1170 grams
Hose Size	32 - 51mm	38 - 51mm	38 - 51mm also tapped AN16	38 - 51mm also tapped AN16

Small coolant circulation pump



Construction. 12 or 24 volt brushless motor connected to impellor in nylon housing via magnetic coupling. Overall length 97mm, Overall diameter 69mm, weight 0.25kg., has 3/4" push on connections. Performance. 13.3 litres/min at 0.12 Bar (1.7psi), current draw 0.7amp (12v). Temperature range -40 to 135°C. For users of the EWP/1 & 115 this pump can operate on the heater circuit for constant heater supply or in LPG installations requiring a heated manifold.

Also used for water circulation on water to charge intercoolers. Water cooling on small capacity engines. Water cooling for brakes.

Part No		£	Cat
EWP004	12v circulation pump	79.47	72

Electric Fans



The concept of the electric fan as a replacement for the mechanical fan is well established. Because it is not running all the time it saves power also it is more controllable, for instance, it can be run after engine switch off, especially in conjunction with an electric pump to avoid damaging heat build-up. Davies Craig fans have been at the forefront of electric fan cooling from the inception and are fully developed with a quiet and highly efficient blade design which together with the high quality Panasonic motor provides an excellent package. To suit different installations the blade and motor polarity are reversible to change from pulling air through the radiator to pushing.

The short fan assembly consists of blade, motor and shroud. The kit assembly consists of blade, motor and shroud together with wiring, relay, mounting hardware and instructions. Fans may be attached directly to the radiator using nylon ties.

There are three switching options.

- The fans may be automatically activated by the DCFS switch, adjustable from 80 to 115°C and driven by a mechanical sensor, connected via a capillary tube, inserted between the radiator hose and radiator outlet pipe or into the new in hose adapter TGA5. This adapter will also accept any other 1/4" or 6mm sensor or 1/4 BSPT male thread and fit 30-42mm hoses, please ask if you require bigger. TGA5
- The DCFSE switch adjustable from 85 to 100°C driven by a sensor placed in the radiator finning, connected electrically, this unit has a built in relay allowing for an air conditioning override.
- The DCFSNE switch as above but piggy-backed on to an existing temperature gauge sensor, the temperature at which the fan cuts in is still adjustable



We stock 12 volt fans, 24 volt are available as are a full range of spares, prices on request. Fans are warranted for 2 years or 1500 hours, whichever is the lesser, against faulty workmanship and materials.

Fan Dimensions & performance

Part No.	DCF 08	DCF 09	DCF 10	DCF 10X	DCF 12	DCF 14	DCF 16
Height in mm	213	242	270	275	293	350	400
Width in mm	213	249	290	278	293	348	424
Depth in mm	52	55	64	50	51	76	100
Weight in Kg	0.88	0.93	1.13	1.13	1.45	1.5	3
Max air flow in Litres per second	200	280	350	325	400	500	1000
Max current in amps	5	6.5	7	7	9	11	19
Suggested max engine size in Litres	1	1.5	2.5	2.5	3	3.5	5

Prices are subject to alteration without prior notice. Add VAT at 20% for all UK and EU retail sales.

Part No		£	Cat
DCF08	8in fan Short assembly 12v	50.36	73
DCF09	9in fan Short assembly 12V	55.95	73
DCF10	10in fan Short assembly 12v	61.55	73
DCF10X	10in fan Short assembly 12v Slim	66.03	73
DCF12	12in fan Short assembly 12v	72.74	73
DCF14	14in fan Short assembly	78.34	73
DCF16	16in fan Short assembly 12v	118.62	73
DCFK08	8in fan Kit assembly 12v	55.95	73
DCFK09	9in fan Kit assembly 12v	61.55	73
DCFK10	10in fan Kit assembly 12v	67.15	73
DCFK10X	10in fan Kit assembly 12v. Slim	71.63	73
DCFK12	12in fan Kit assembly 12v	80.58	73
DCFK14	14in fan Kit assembly	83.94	73
DCFK16	16in fan Kit assembly 12v	125.34	73
FAN96B	12volt electric fan 96mm dia blow	43.39	70
FAN96S	12volt electric fan 96mm dia suck	56.03	70
FAN115B	12volt electric fan 115mm dia blow	57.32	70
FAN115S	12volt electric fan 115mm dia suck	57.32	70
DCFS	Mechanical switch	25.74	73
DCFSE	Electronic switch from fin sensor	86.17	73
DCFSNE	Electronic switch from temp gauge	70.90	73
TGA5	In line adapter 1/4BSPT x 30 -42 mm hose	36.10	20
DCFMK	Plastic mounting feet for DC range pack of 4	3.58	73
DCQFK	Nylon ties for through radiator mounting	8.59	73

In Line Blowing Fan



In line blower fan. Lightweight, high output fan ideal for driver and cockpit cooling, brake cooling or for use with cooler ducts for remote cooler mounting. 76mm inlet/outlet

Part No		£	Cat
ILBF-M76	In line blowing fan 76mm	27.21	90

Oil Cooler Ducts



High quality oil cooling air ducts have been specifically designed to mount quickly and easily to 13, 16 or 19 row Mocal or Setrab type oil coolers. Supplied with laser cut aluminium mounting brackets and all fittings. The main body is formed from HDPE. Stepped inlet to accommodate two sizes of ducting 63/76mm on 13 & 16 row. 19 row duct designed with double inlet 76/63mm. Oil cooler not included.

Part No		£	Cat
OCD13	Duct for 13 row oil cooler C/W Bracket and fixing	42.18	70
OCD16	Duct for 16 row oil cooler C/W Bracket and fixing	42.18	70
OCD19	Duct for 19 row oil cooler C/W Bracket and fixing	42.18	70

Micro Heater 12V



A small and light hot water based heater designed for race and rally cars. These work with one or two universal defrost vents which feed the windscreen. A complete solution for the heater with hose and, fluids, weighs under 2kg. The heater matrix can be mounted with the hose fittings facing towards or away from the 2.5" outlet.

Part No		£	Cat
HEAMH1	2.2kw Micro Heater 12v	72.92	90

Lightweight Heater 12V



Suited to vehicles where lightweight and compactness are of the utmost importance without sacrificing heat output. Using a space saving axial fan and an efficient copper heater matrix it offers heater performance normally delivered by units twice its size.

Part No		£	Cat
HEALH1	3.5KW Lightweight Heater 12V	91.67	90

Round Air Vents



A directional air vent. These are extremely durable making them suitable for numerous applications. The vents can be rotated to direct air where needed, or closed off completely to increase air flow to the rest of the system.

Part No		£	Cat
HEAV-M51	Round Air Vent 2"	9.58	90
HEAV-M63	Round Air Vent 2.5"	9.58	90

2.5" - 2" Adapter



Part No		£	Cat
HEA J-M51-M63	2.5" - 2" Adapter	2.71	90

Prices are subject to alteration without prior notice. Add VAT at 20% for all UK and EU retail sales.

Defrost Vent 2.5"



A universal defrost vent made from high strength ABS plastic. Internal directional flutes provide a wide distribution of air flow. These can be installed into vehicles without a dash panel by using the mounting holes on the side of the vents. A vent top is included for the interior appearance. No screws are supplied.

Part No		£	Cat
HEADV-M51	Defrost Vent 2"	9.58	90
HEADV-M63	Defrost Vent 2.5"	9.58	90

True Y



A push on adapter for 63.5mm heater ducting.

Part No		£	Cat
HEAY-M63	M63 Push on True Y	7.29	90

Bulkhead Hose Adapter



These adapters offer a neat solution to pass fluids through a bulkhead or panel. CNC machined from billet aluminium.

Part No		£	Cat
HEAB14-M13	1/2"-1/2" Bulkhead Hose Adapter - Narrow spacing	13.75	90
HEAB14-M13W	1/2"-1/2" Bulkhead Hose Adapter - Wide spacing	13.75	90
HEAB14-M13-M16	1/2"-5/8" Bulkhead Hose Adapter- Narrow spacing	13.75	90
HEAB14-M13-M16W	1/2"-5/8" Bulkhead Hose Adapter -Wide spacing	13.75	90
HEAB7-10-M13	1/2"-AN10 Bulkhead Adapter -Narrow spacing	16.67	90
HEAB7-10-M13W	1/2"-AN10 Bulkhead Adapter - Wide spacing	16.67	90

Oil pressure accumulators , Accusump

This device consists of a piston in a cylinder with air in the chamber behind the piston pre-pressurised to 6psi, engine oil pressure further compresses the air providing the means to store oil at normal engine operating pressure. A choice of sizes is available, the maximum oil flow through an engine varies from 2 gallons (9 litres or 16 pints) per minute to 12 gallons (54.5 litres or 96 pints) per minute, therefore a 6 pint accumulator could give from 22 to 4 seconds protection, usually much longer at lower rpm. A 2 pint accumulator would be adequate at cranking speeds. Capacity could be increased by mounting an extra air reservoir in tandem.



Application.

1. To provide oil to the engine when the oil pump is unable to pick up oil from the sump due to conditions of surge during acceleration, braking or cornering.
2. To provide pre-lubrication to the engine when starting before oil pump has built up pressure. Cold starts account for 80% of engine wear.
3. To iron out shock waves in the oil pressure system, caused by rapid rpm increase on a cold engine, sticky oil pressure relief valves, etc. Shock waves can damage oil filters, coolers, oil lines and oil pump drives.
4. To provide more engine power by lowering the level of oil in the sump thereby reducing crankshaft windage, the correct levels can only be achieved by experimentation and is best left to experts.

Construction.

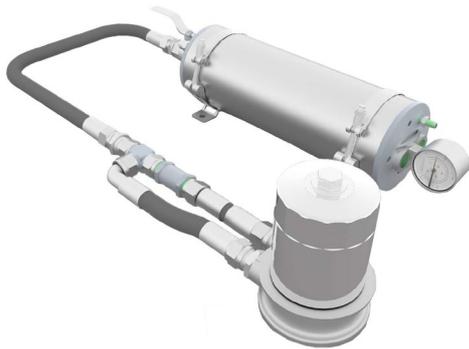
The main body is built from 4.1/4"x 1/8" wall aluminium tubing, roller burnished and hard Teflon coated with aluminium O-ringed end caps and piston. Has 0-160 psi gauge, a Schraeder valve for air pre-charge.

Installation.

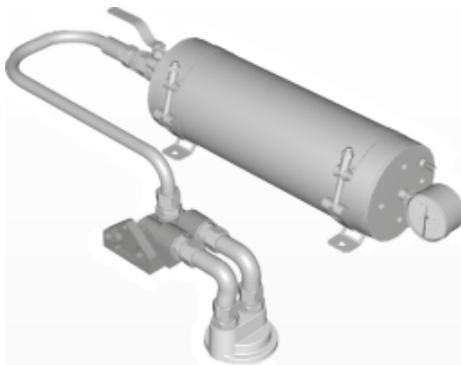
1. The accumulator may be mounted in any position, various methods of plumbing in may be used. Straight into oil gallery provides the simplest method but usually the only available tapping is the oil pressure switch/sender which is too small to allow full pressure to be restored, ideally tap the block when the engine is stripped. When pre-lubricating, an oil filter with an anti-drain valve (most filters have one) will prevent oil flowing back to the sump through oil pump. For engines with spin on filters use a Mocal® take off plate between filter head and engine, modified with a non-return valve and one port blanked off SPV1 etc, See page 19 for fitment chart, discard the V suffix when reading chart.



3. For engines with a disposable element filter use a standard take off plate Tee off a loop and fit a one way valve, [see page 58](#) or Accusump check valve ACCUV2, to prevent oil returning through the pump.



4. Tee off downstream of a remote filter installation. This gives full flow and protection from flowback through the pump if a filter with anti drain valve is fitted.



Choice of valves.

The accumulator will operate automatically when installed filling and discharging as pressure varies. However to take advantage of the pre-lubing a valve must close off the accumulator at full pressure when the engine is switched off and turned on prior to starting this may be done manually if the accumulator is mounted within reach of the driver if the manual control valve is inaccessible we can provide a well engineered cable operation.

An electric valve may be switched or actuated by the ignition circuit. A new development is the E.P.C switch a combination of the electric valve and an electronic switch which only allows oil to flow into the accumulator when a chosen engine oil pressure is reached, however it allows flow to the engine when oil pressure drops below the chosen setting. This is of benefit in that the restored oil pressure will only go to the accumulator when the engine is being fully lubricated e.g after a long corner the accumulator may be empty, when the track straightens out all the flow will go to the bearings instead of being shared with the accumulator.



Accusumps complete with manual or electric valve.			
Part No		£	Cat
ACCU5	12in long- 3 1/4 dia 2 pint- manual control	189.58	70
ACCU5E	12in long- 3 1/4 dia 2 pint- electric control	328.27	70
ACCU1	12in long- 4 1/4 dia 4 pint- manual control	203.94	70
ACCU1E	12in long- 4 1/4 dia 4 pint- electric control	342.63	70
ACCU2	16in long- 4 1/4 dia 6 pint-manual control	218.30	70
ACCU2E	16in long- 4 1/4 dia 6 pint-electric control	356.99	70
To use the EPC valve, choose an Accusump without valve			
ACCU5A	12in long- 3 1/4 dia 2 pint - no valve	177.14	70
ACCU1A	12in long- 4 1/4 dia 4 pint - no valve	191.50	70
ACCU2A	16in long- 4 1/4 dia 6 pint - no valve	205.86	70
Then add your choice of EPC valve			
ACCU1VE25	EPC valve 20-25psi activation	202.99	70
ACCU1VE40	EPC valve 35-40psi activation	202.99	70
ACCU1VE60	EPC valve 55-60psi activation	202.99	70
ACCUC	Stainless steel mounting clamps for ACCU1&2	16.28	70
ACCUC2	Stainless steel mounting clamps for ACCU5&5E	16.76	70
ACCUCCK	Cable operation	78.52	70
ACCUV2	Check valve	22.03	70
for modified take off plates with non return valve & blanked port			
SPV1	Sandwich plate 1/2BSP port for 3/4UNF filter	42.61	30
SPV1A	Sandwich plate 1/2BSP port for 5/8UNF male filter	45.51	30
SPV1B	Sandwich plate 1/2BSP port for M16 filter	45.51	30
SPV1C	Sandwich plate 1/2BSP port for 13/16UNF filter	45.51	30
SPV1D	Sandwich plate 1/2BSP port for M18 filter	45.51	30
SPV1E	Sandwich plate 1/2BSP port for 5/8UNF filter	45.51	30
SPV1F	Sandwich plate 1/2BSP port for M20 filter	46.66	30
SPV1G	Sandwich plate 1/2BSP port for M22 filter	45.51	30

Classic Dashboard instruments.



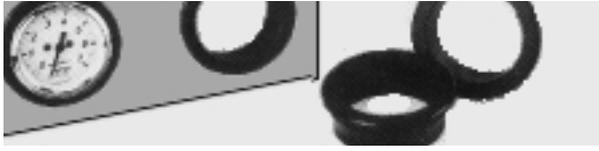
A superb range of high quality 52mm diameter mechanical instruments with precision machined brass movements. Available with white or black face, black, 12 volt back lighting is standard. Temperature gauges have 7 foot (2 metre) capillary tubes with 3/8BSP male connections. Pressure and boost gauges have standard 1/8BSP coned male connections, lines may be either stainless steel braided TFE, [see page 38](#), or nylon as below. For T pieces and adapters to facilitate gauge fitting [see page 23](#).

Part numbers below are for black faced gauges & black bezel. Add suffix W for white faced gauge, chrome bezels can be ordered as a separate part			
Part No		£	Cat
FPG15	Fuel pressure gauge- 0-15psi	35.20	70
OPG100	Oil pressure gauge- 0-100psi	30.24	70
OPG160	Oil pressure gauge- 0-160psi	30.24	70
WTG110	Water temp gauge- 30-110°C	49.94	20
OTG140	Oil temp gauge- 40-140°C	49.94	70
OPWTG	Temp/pressure gauge 30-110°C/0-100psi	73.81	70
OPOTG	Temp/pressure gauge 40-140°C/0-100psi	73.81	70
OPOTG1612	Temp/pressure gauge 30-120°C/0-160psi	75.19	70
TBG30	Boost gauge- -15-+30psi	31.60	70
TBG2	Boost gauge- -1 to +2 bar	31.60	70
GL5	5' nylon pressure gauge lines	5.24	70
GL6	6' nylon pressure gauge lines	5.24	70
GL7	7' nylon pressure gauge lines	7.54	70
GL10	10' nylon pressure gauge lines	6.94	70
GL15	15' nylon pressure gauge lines	8.06	70

Pressure gauge lines for other makes of gauge.

Most other makes of gauge have 1/8BSP male fittings but with a flat seating and a pip to locate a washer. We can supply lines with these fittings at one end, part numbers as above but with suffix S, prices are the same. Also fittings for metric Ford gauges, please enquire.

Instrument (gauge) isolators



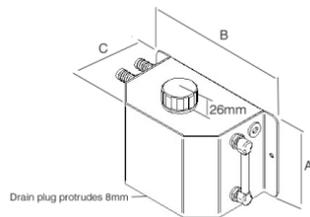
Dampen vibration ensuring better vision and longer instrument life on racing cars, bikes and off road vehicles. Fit in hole 13 mm larger than gauge, useful for hiding cutting errors.

Part No		£	Cat
DB206-225	Grommet for 2 1/2mm gauge	22.30	40
DB260-275	Grommet for 2 5/8 /67 mm gauge	23.50	40

Catch Tanks



Size	A	B	C
1 Litre	115mm	132mm	88mm
2 Litres	220mm	132mm	88mm
3 Litres	235mm	154mm	104mm



The problem of engine crankcase breathing must be considered when preparing a wet sump car for competition. To avoid oil being deposited on the track the rules state that the oil bearing vapour must be either returned to the engine or to a suitable tank where the oil may be trapped. The normal system of sending the oil to the inlet manifold is undesirable in a high performance engine.

We offer a suitable tank in 1, 2 or 3 litre sizes. Made of aluminium with a special cap incorporating a breather, there are two 1/4 BSP female ports with adapters to 1/2 hose on one side and a sight tube on the other. These are interchangeable so can be handed. The tanks are polished and may be anodized red, blue or gold.

Part No		£	Cat
CT3	1 litre brushed aluminium	96.24	70
CT3C	1 litre chromed aluminium	135.41	70
CT3RED	1 litre anodised red aluminium	96.24	70
CT3BLUE	1 litre anodised blue aluminium	96.24	70
CT3GOLD	1 litre anodised gold aluminium	96.24	70
CT3BLACK	1 litre powder coated black aluminium	96.24	70
CT2	2 litre brushed aluminium	107.43	70
CT2C	2 litre chromed aluminium	154.44	70
CT2RED	2 litre anodised red aluminium	107.43	70
CT2BLUE	2 litre anodised blue aluminium	107.43	70
CT2GOLD	2 litre anodised gold aluminium	107.43	70
CT2BLACK	2 litre powder coated black aluminium	107.43	70
CT8	3 litre brushed aluminium	123.10	70
CT8RED	3 litre anodised red aluminium	123.10	70
CT8BLUE	3 litre anodised blue aluminium	123.10	70
CT8BLACK	3 litre powder coated black aluminium	123.10	70

Dry sump Tanks

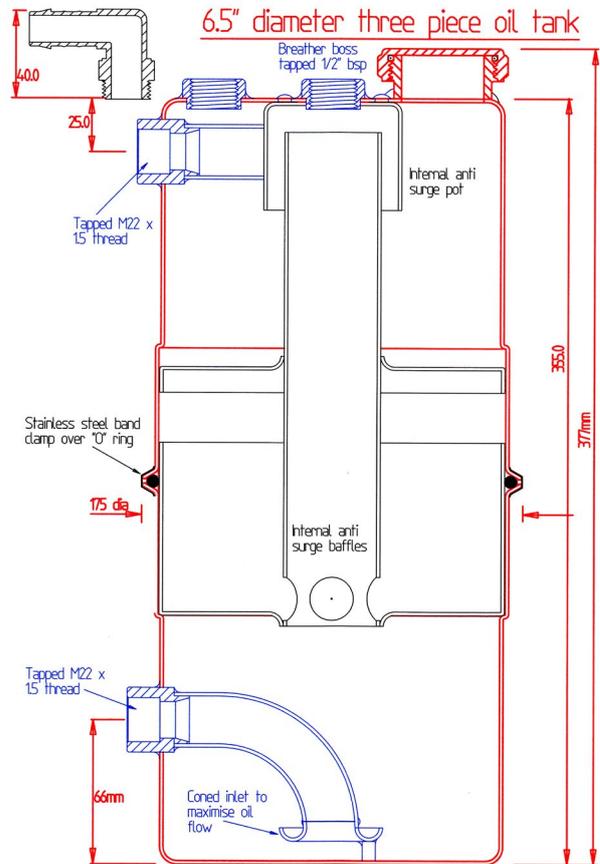


A range of 3 piece easy clean tanks that can be disassembled for cleaning. They are designed to de-aerate the incoming oil and contain anti surge baffles. These are finished in natural aluminium as standard. Volumes shown below are full capacities, tanks work best half full. Tank size is dictated by the most oil you are likely to use plus a third tank capacity. Inlet and outlet ports are tapped M22x1.5. On 5 & 6in tanks breathers are 1/2BSP with adapters to 1/2in push on hose, 8.25 & 9.5in tanks -16JIC with adapters to 3/4in hose.

Part No		£	Cat
DST6	5in dia x 15in high - 4.8 litre total	302.16	70
DST4	6.5in dia x 14in high - 7.6 litre total	288.00	70
DST4BLUE	As above but anodised Blue	302.16	70
DST4BLACK	As above but anodised Black	302.16	70
DST1B	7in dia x 14 in high - Single piece with base	138.54	10
DST5	9.5in dia x 16in high - 18.6 litre total	316.57	70
DST7	8.25in dia x 16.5in high - 14.4 litre total	313.34	70

DST4 dimensions.

Drawings for other size tanks are available on request.



Filtered Adapters



A range of adapters with a coarse mesh screen filter for protecting dry sump pumps etc.

Part No		£	Cat
MMA1-10-12-FS	-10JIC x1 1/16 UNF c/w filter	20.05	40
MMA1-12-12-FS	-12JIC x1 1/16 UNF c/w filter	20.05	40
MMA1-16-12-FS	-16JIC x1 1/16 UNF c/w filter	22.25	40

Fuel Swirl Pots



Mainly used with fuel injected engines, these pots act as a surge free fuel reservoir, de-aerator and if mounted in a suitable place, a cooler. Fuel from the tank is fed to the swirl pot by a low pressure pump then by high pressure pump from the pot to the injectors, unused fuel is returned to the pot then to the tank. The three upper connections are -6JIC and the lower connection (to high pressure pump) is -10JIC. Height is 160mm, diameter is 102mm.

Part No		£	Cat
FSP1	Fuel Swirl Pot with mounting base plate	115.08	70
FSP2	Fuel Swirl Pot with body mounting brackets	115.08	70

Quick release steering

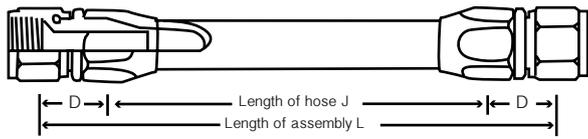


Lightweight quick release steering wheel boss, easy to connect due to ingenious mechanism for one handed operation. In our opinion this is the most user friendly mechanism available. Seperate parts are available please enquire.

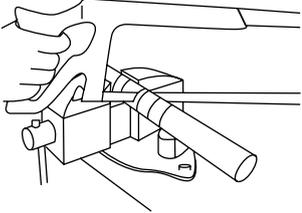
Part No		£	Cat
QR-03-22P	Quick release steering boss, incl. 22 Pin connector	342.98	90
QR-03	Quick release steering boss	263.20	90

Hose Assembly Instructions

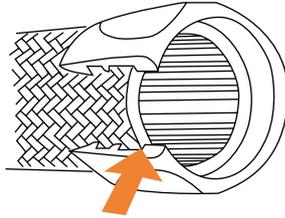
Aeroquip FC333 racing hose, G210 hose, GRH hose and StartLite hose



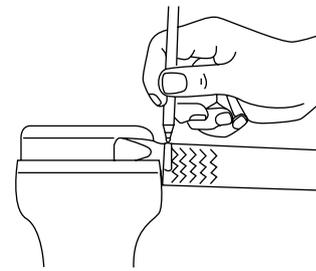
STEP 1. Determine assembly length



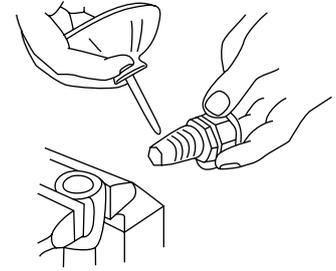
STEP 2. Cut hose squarley to length using a fine tooth hacksaw. To minimise wire braid flare out, wrap hose with masking take and cut through tape.



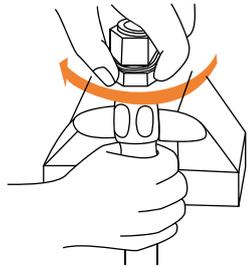
STEP 3. Remove tape. Insert hose in socket with twisting pushing motion until hose is in line with back of socket threads.



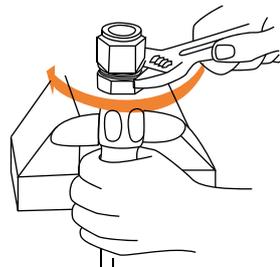
STEP 4. **IMPORTANT** - Mark position around hose at rear of socket with a grease pencil, paint or tape



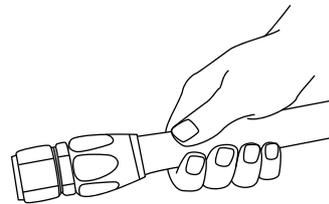
STEP 5. Lubricate inside of hose and nipple threads liberally using S.A.E. 30 lubricating oil.



STEP 6. Carefully insert nipple and engage nipple and socket threads while holding hose in position with other hand. Make sure hose does not push out of socket by observing mark made in step 3.



STEP 7. Complete assembly using spanner while continuing to hold hose in position. Maximum allowable gap is 0.031 inches.

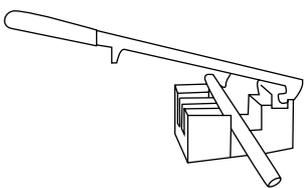


STEP 8. **IMPORTANT** - Check hose for push out by observing hose position mark. None should be evident.

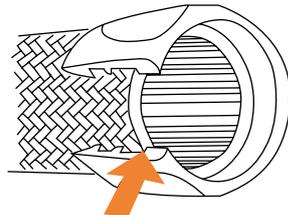


Aeroquip Performance Products FBM3553 Hose Assembly Lube is a specially compounded lubricant superior to any other lubricant used in hose assembly work. Available in pint containers. Use for either hand or machine assembly.

StartLite Racing Hose (with reusable fittings)



STEP 1. Cut hose square to length with Aeroquip Performance Products Cut Off Tool (FT1258) or similar cutting device.



STEP 2. Insert hose in socket with twisting, pushing motion until hose is in line with back of socket threads.

Then continue as steps 4-8 above.

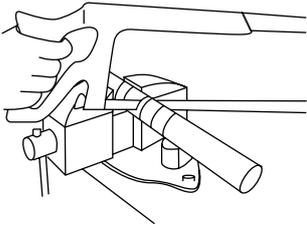
StartLite® Hose Routing Procedure

In most vibration applications, it may be necessary to restrain, protect, or guide the hose to protect it from damage caused by unnecessary flexing or contact with other mechanical components. Care must be taken to ensure such restraints do not introduce additional stress or wear points. StartLite® hose, when used with reusable fittings in a high vibration applications, should be supported approximately every 12 to 14 inches.

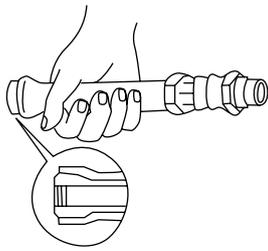
Notes

- Greater resistance can be expected as compared to Aeroquip Performance Products AQP® Racing Hose.
- To disassemble, reverse steps
- It is recommended that all hose assemblies be proof pressure checked at twice the operating pressure using a proof test stand such as the Aeroquip Performance Products FT1058 stand.

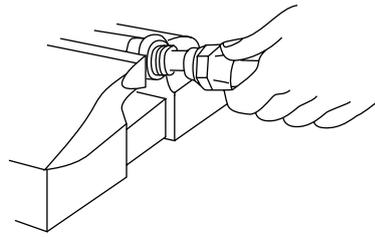
Aeroquip 2807 and TFE hose



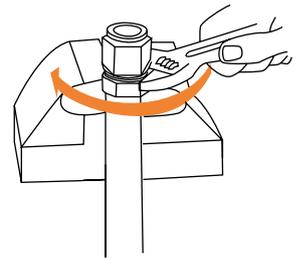
STEP 1. Wrap hose with masking tape at cut-off point and cut squarely through tape to length using a fine tooth hacksaw. Remove tape and trim loose wire flush with tube. Burrs on bore of tube should be removed with a knife. Clean the hose bore. One end of the hose will flare out, slide the sockets (nuts) back to back over the other end, then this end can be more easily be flared using a braid separating tool.



STEP 2. Push the sleeve over the end of the tube and under the wire braid by hand. Complete positioning of the sleeve by pushing the hose end against a flat surface. Inspect to see that the tube butts against the inside shoulder of the sleeve.

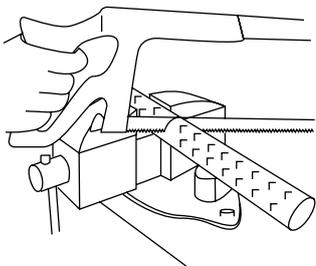


STEP 3. Lubricate nipple and socket threads. Use a molydisulphide based lubricant for stainless steel fittings (e.g. Molykote Type G.); lubricants containing chloride are not recommended. Other material combinations use standard petroleum lubricants. Hold the nipple with hex in the vice. Push hose over nipple with twisting motion until seated against nipple chamfer. Push socket forward and start threading of socket to nipple.

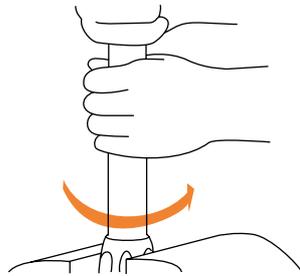


STEP 4. Spanner tighten hex until clearance with socket hex is 1/32" or less. Tighten further to align corners of nipple and socket hexes. To disassemble: Unscrew and remove nipple; slide socket back on hose by tapping against a flat surface, remove sleeve with pliers.

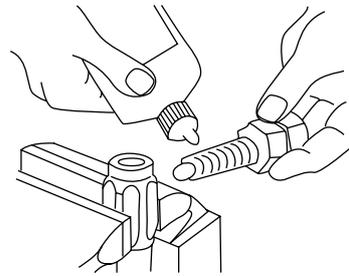
AQP FC300 7 FC234 Hose



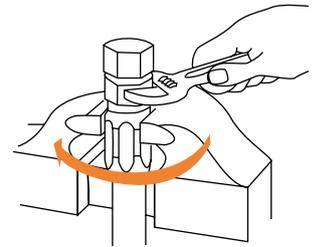
STEP 1. Cut hose square with a fine tooth hacksaw.



STEP 2. Put socket in vice, screw hose anti clockwise until it bottoms, back off 1/4 turn.



STEP 3. Lubricate with light oil. Brass fittings only push assembly mandrel through nipple to guide into hose without cutting.

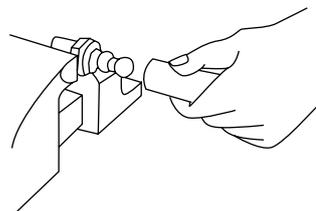


STEP 4. Screw nipple clockwise into hose and socket, leave 1/32" (0.8mm) clearance between nipple hex and socket.

AQP FBN & FBV Push-lock hose. Socketless Hose

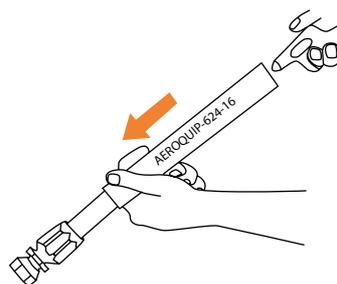


STEP 1. Cut hose to required length with a sharp knife. Oil inside of hose and outside of nipple liberally.



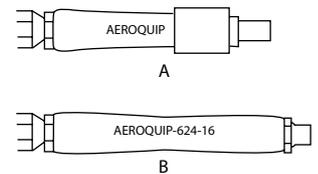
STEP 2. Push hose on fitting until hose end bottoms underneath protective cap as shown. Clean, proof test to twice operating pressure and inspect all assemblies. This is easier if the hose is warmed in hot, max 86°C, not boiling, water.

Firesleeve



STEP 1. Follow the appropriate hose assembly instructions through the assembly of one end fitting. Cut firesleeve to same length as hose. Start firesleeve over cut end of hose.

Note: If applying sleeve over Teflon* or stripped cover assemblies, wrap exposed wire with tape. Grasp Sleeve and slip over the hose assembly as illustrated.



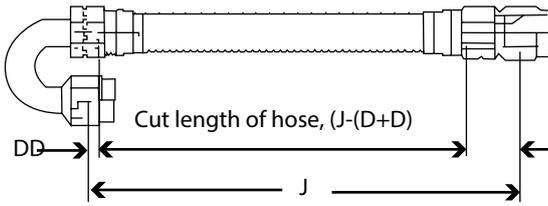
STEP 2. Skin sleeve back from cut end of hose enough to allow assembly of second end fitting.

Then centre sleeve so that it completely covers both sockets.

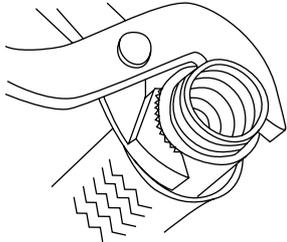
STEP 3. Position nylon wire tie or band clamp over sleeve on each end of the hose assembly and draw tight.

ProGold AR hose

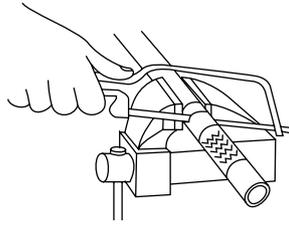
Step 1. Determine assembly length



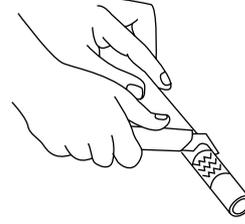
Type of connection	Dimension "D" in mm				
	Size of Connection				
Straight	22.3	24.9	26.9	29.9	33.0
45°	38.1	49.0	49.2	54.8	61.4
90°	30.4	35.5	43.9	47.7	52.8
120°	32.7	40.1	48.0	60.7	64.7
150°	24.9	23.3	30.2	46.7	45.4
180°	13.7	17.2	16.7	30.4	25.9



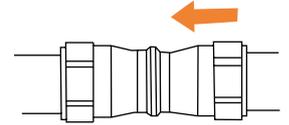
STEP 2. Metallic braid
To minimise braid flare, wrap the area in masking tape. Cut the hose with a suitable fine toothed hacksaw blade. Remove the tape before the next step.



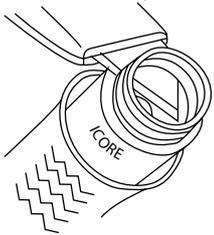
STEP 2. Non-Metallic braid
Wrap PTFE (teflon) thread tape on area to be cut. DO NOT use adhesive tape of any kind. Cut the hose with a suitable sharp knife then carefully remove PTFE.



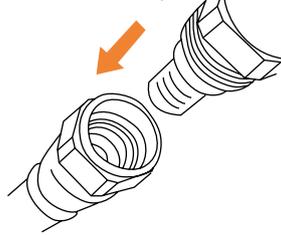
STEP 3. Braid tends to flare more at one end than the other. Assemble both sockets back to back from the less flared end.



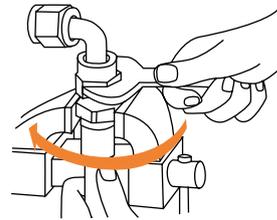
STEP 4. Screw the olive onto the hose until the hose protrudes through the olive. Make sure the braid goes over the olive.



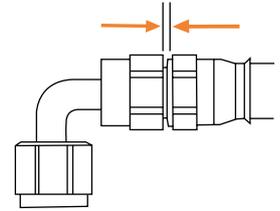
STEP 5. Trim the hose back to be flush or a maximum of 1mm proud of the olive. Ensure the hose is cut cleanly and square.



STEP 6. Pull the sockets up over the olives. Lubricate the fitting thread with a light oil. Insert the tail into the hose. Engage the fitting and socket threads.

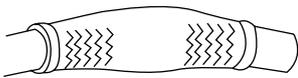


STEP 7. Screw together by hand, then lightly grip socket in a vice. Use a spanner to fully tighten the fitting.

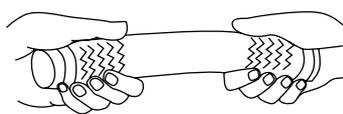


Metallic braid: Socket should be no more than 1mm away from the fitting face.
Non Metallic braid: Socket should be touching the fitting face.

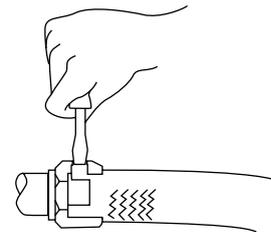
Overbraid: hose finisher



STEP 1. Disconnect the radiator hose, slide overbraid over the radiator hose.

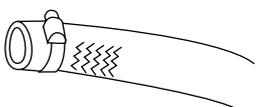


STEP 2. Stretch until snug, mark length and cut with tin snips.

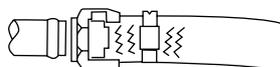


STEP 3. Reconnect radiator hose and secure hose and overbraid with clamp or Pro-Clamp clamp.

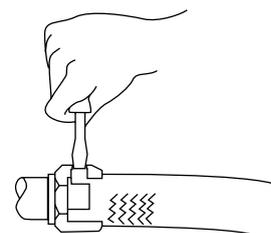
Pro-clamps: hose finisher



STEP 1. Slide clamp onto hose.



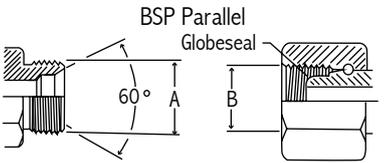
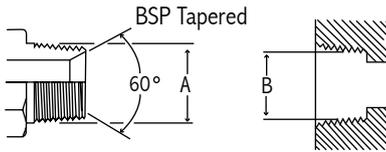
STEP 2. Push cap (socket) onto hose until it bottoms. Then slide clamp under cap.



STEP 3. Push assembly onto beaded tube. Position clamp for appearance. Tighten with a screwdriver.

Bristich Standard Pipe (BSP)

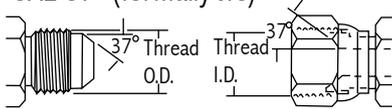
Male Port



Nominal BSP Thread Size	Male Parallel Thread O.D. (A) (inches)	Female Parallel Thread I.D. (B) (inches)
1/8 - 28	3/8	11/32
1/4 - 19	17/32	7/16
3/8 - 19	21/32	19/32
1/2 - 14	13/16	23/32
5/8 - 14	29/32	13/16
3/4 - 14	1 1/32	15/16

Very common British thread. The female will often have a 60° convex seat instead of the globeseal.

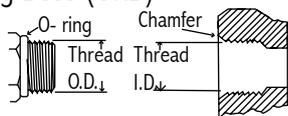
SAE 37° (formally JIC)



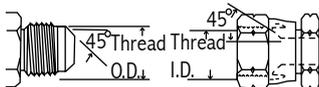
Dash Size	Thread Size	Male Thread O.D. (inches)	Female Thread I.D. (inches)
2	5/16 - 24	5/16	9/32
3	3/8 - 24	3/8	11/32
4	7/16 - 20	7/16	5/16
5	1/2 - 20	1/2	7/16
6	9/16 - 18	9/16	1/2
8	3/4 - 16	3/4	11/16
10	7/8 - 14	7/8	13/16
12	1 1/16 - 12	1 1/16	13/16
16	1 5/16 - 12	1 5/16	1 7/32

SAE Straight Thread

O-Ring Boss (ORB)



SAE 45°



SAE 37° formally known as JIC and sometimes called AN (Air Force/Navy) is an American Thread and almost universal for performance vehicle applications. SAE straight is often called UNF, this and SAE 45°, used in air conditioning applications, share the same thread dimensions as SAE 37°, except -12 SAE 45° which is 14 tpi.

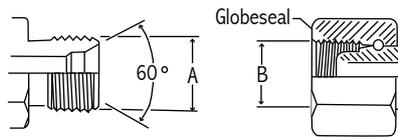
Metric Female as used in oil cooler applications.



Metric Thread Size	Male Thread O.D. (A) (mm)	Female Thread I.D. (B) (mm)
M18 x 1.5	18	16.5
M22 x 1.5	22	20.5

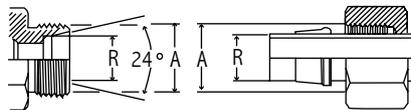
Sealing is achieved with an O-ring supplied with a fitting or adapter. When a fitting or adapter is used on a Mocal or Setrab cooler, thread length must not exceed. The M18 female is usually used with a banjo fitting supplied with the assembly.

DIN 7631 / 7647 Series



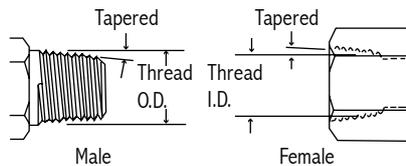
Metric Thread Size	Male Thread O.D. (A) (mm)	Female Thread I.D. (B) (mm)
M10 x 1	10	8.5
M12 x 1.5	12	10.5
M14 x 1.5	14	12.5
M16 x 1.5	16	14.5
M18 x 1.5	18	16.5
M22 x 1.5	22	20.5
M26 x 1.5	26	24.5
M30 x 1.5	30	28.5

DIN 3901 / 3902 Series

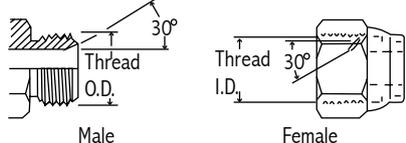


These German series share the same thread configuration except DIN3901/2 has M30 x 2mm pitch. This size apart Globeseal females are interchangeable.

NPTF (National Pipe Tapered Fuel)



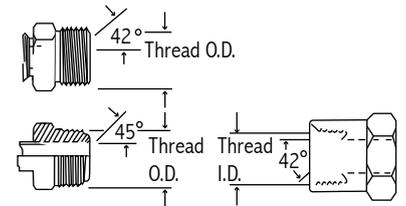
NPSM (National Pipe Straight Mechanical)



Dash Size	Thread Size	Male Thread O.D. (inches)	Female Thread I.D. (inches)
2	1/8 - 27	13/32	11/32
4	1/4 - 18	9/16	15/31
6	3/8 - 18	11/16	19/32
8	1/2 - 14	27/32	23/32
12	3/4 - 14	1 1/6	15/16
16	1 - 11 1/2	1 5/16	1 3/16

NPTF is a popular American thread often called just "pipe thread". NPSM is rarely used.

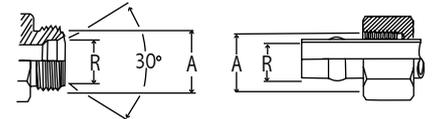
SAE Inverted



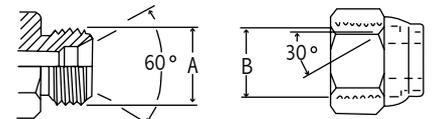
Dash Size	Thread Size	Male Thread O.D. (A) (inches)	Female Thread I.D. (B) (inches)
2	5/16 - 28	5/16	9/32
3	3/8 - 24	3/8	11/32
4	7/16 - 24	7/16	13/32
5	1/2 - 20	1/2	7/16
6	5/8 - 18	5/8	9/16
7	11/16 - 18	11/16	5/8
8	3/4 - 18	3/4	11/16
10	7/8 - 18	7/8	13/16
12	1 1/16 - 16	1 1/16	1

The male is found as a tube nut on a flared tube, used on American power steering and pump to carburettor lines.

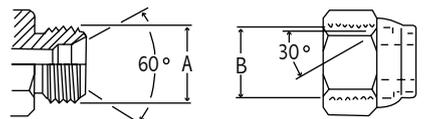
JIS Tube Fitting (Metric Threads)



JIS Parallel (Metric)



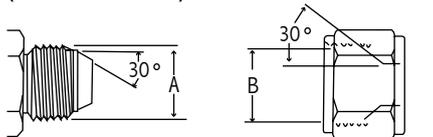
JIS Parallel PF



JIS Tapered PT



JIS 30° Flare (BSP Threads)



These Japanese connectors above have threads identical to BSP, the top two are interchangeable with BSP. On the left metric parallel connectors have threads like DIN7631/7647, the tube fittings like DIN 3901/2

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50-613-7612	90.79	11	717002	47.79	23	AR-06-H3	16.11	37	AT/2	106.40	71	BBSD2-45	4.27	57
50-616-7612	105.36	11	717003	49.21	23	AR-06-H3-DS	18.76	37	AT/6	130.80	71	BBSD2-45	5.17	57
50-619-7612	121.35	11	900568-6	1.47	42	AR-06-HTP	34.28	37	AT/7	144.22	71	BBSL1-3	1.74	58
50-625-7612	146.09	11	900568-8	1.47	42	AR-06-P3-DS	24.18	37	AT/8	115.90	71	BBSL1-4	4.28	58
50-634-7612	213.58	11	900767-4C	6.65	42	AR-06-P	24.18	37	AT-10	4.80	49	BBSL2-31	1.74	58
50-640-7612	315.00	11	925103	28.38	56	AR-06-R3-DS	24.18	37	AVJ1	33.78	50	BBSL2-32	1.74	58
50-644-7612	271.33	11	925104	24.76	56	AR-06-S3-DS	24.18	37	B5600-4-4	20.47	65	BBSL2-41	4.32	58
50-650-7612	303.28	11	925106	14.71	56	AR-06-S	21.66	37	B5600-6-6	21.24	65	BBSL12-4	6.49	58
50-907-7612	133.62	11	925108	20.60	56	AR-06-ST-M12	12.75	37	B5600-8-10	28.64	65	BBSLD1-3	4.54	58
50-910-7612	89.26	11	925110	26.48	56	AR-06-ST-M14	12.75	37	BA2-42	18.76	56	BBSLD2-31	4.43	58
50-913-7612	102.51	11	925112	36.78	56	AR-06-ST-M16	14.29	37	BA2-45	14.64	56	BBSLD3-3	6.45	58
50-915-7612	118.62	11	925116	41.17	56	AR-08-45-M18	26.10	37	BA7-4	11.55	57	BBSS1-3	3.42	58
50-919-7612D	169.05	11	926103	35.02	56	AR-08-90-M18	26.70	37	BA7-M10-3	15.06	57	BBSS2-31	3.42	58
50-919-7612	138.98	11	926104	25.44	56	AR-08-F3	11.67	37	BA7-M10-4	17.62	57	BBSS2-32	3.39	58
50-925-7612	169.04	11	926106	14.71	56	AR-08-G3	18.22	37	BA7-M12-3	16.43	57	BBSSL-3	3.39	58
50-934-7612	257.35	11	926108	20.60	56	AR-08-G3-DS	20.90	37	BA7-M12-4	17.61	57	BBSSLD1-3	4.43	58
100R6-4	3.85	44	926110	26.48	56	AR-08-H3	18.22	37	BA7-M12-6	19.59	57	BCA2-45B	9.27	60
100R6-5	4.34	44	926116	53.97	56	AR-08-H3-DS	21.58	37	BA7-M12-6L	20.33	57	BCA2-45	3.91	60
100R6-6	4.95	44	981410TP	10.36	23	AR-08-HTP	34.21	37	BA7-M12-8	20.76	57	BCA2-55	4.78	60
100R6-8	5.96	31	A36ANL44	179.04	74	AR-08-P3-DS	25.13	37	BA7-M14-6	19.59	57	BCA2-65	6.63	60
100R6-10	7.68	31	A36ANL44K	186.14	74	AR-08-P	30.34	37	BA7-M14-6L	20.35	57	BCA2-85	5.32	60
100R6-12	11.25	31	A36ANL44LF	238.72	74	AR-08-R3-DS	25.13	37	BA7-M14-8	20.76	57	BCA2-105	4.64	60
500	4.79	20	A36ANL44LFK	255.56	74	AR-08-S3-DS	25.64	37	BA7-M16-6	14.18	57	BCA2-125	9.27	60
666-4	28.24	38	A68L	108.56	74	AR-08-S	27.17	37	BA7-M16-6	14.18	57	BCA2-165	10.67	60
666-6	47.83	38	A68NS50	127.81	74	AR-08-ST-M18	15.73	37	BA7-M16-8	15.41	57	BCA7-2	4.45	60
1011-4	165.88	66	A68S	93.97	74	AR-10-45-M22	29.05	37	BA7-M18-6	20.33	57	BCCS3-3	1.88	60
1012-4	113.89	66	AB68NL50	142.04	74	AR-10-90-M22	29.90	37	BA7-M18-10	20.41	57	BCCS3-4	1.68	60
1014-4	113.89	66	AB68NL57	127.81	74	AR-10-F3	13.63	37	BA7-M20-10	23.34	57	BCCS3-6	1.88	60
1206-3	0.95	42	AB68NS57	142.04	74	AR-10-G3	20.66	37	BA7-M22-8	62.84	57	BCCS3-8	2.08	60
1206-4	2.19	42	ACCU1	203.94	84	AR-10-G3-DS	24.42	37	BA7-M22-10	25.09	57	BCCS3-10	2.61	60
2061-10-10S	18.73	55	ACCU1A	191.50	84	AR-10-H3	21.97	37	BAD7-4	19.90	57	BCCS3-12	3.23	60
2062-10-10S	35.37	55	ACCU1E	342.63	84	AR-10-H3-DS	25.93	37	BAD7-8	19.31	57	BCCS7-20	8.58	60
2062-10-12S	33.86	55	ACCU1VE25	202.99	84	AR-10-HTP	35.63	37	BAD7-10	15.67	57	BCCS7-24	15.58	60
2807-3	13.85	38	ACCU1VE40	202.99	84	AR-10-P3-DS	32.41	37	BAD7-M10-3	19.86	57	BHH1103	11.36	46
2807-4	14.85	38	ACCU1VE60	202.99	84	AR-10-P	34.72	37	BAD7-M10-4	20.39	57	BHH1104	10.69	46
2807-6	44.93	38	ACCU2	218.30	84	AR-10-R3-DS	30.51	37	BAD7-M12-4	22.26	57	BHH1341	21.18	46
2807-8	22.20	38	ACCU2A	205.86	84	AR-10-S3-DS	30.51	37	BAD7-M12-6	31.69	57	BHH1610	15.60	46
06/06/38	4.22	29	ACCU2E	356.99	84	AR-10-S	31.69	37	BAD7M14-4	26.30	57	BHH1610S	26.45	46
06/08/38	3.33	29	ACCU5	189.58	84	AR-10-ST-M22	18.78	37	BAD7-M14-6	31.69	57	BHH1612	20.75	46
08/08/38	2.39	29	ACCU5A	177.14	84	AR-12-45-M26	40.54	37	BAF1	119.94	23	BHH1613	11.39	46
04/05/42	20.00	29	ACCU5E	328.27	84	AR-12-90-M26	42.57	37	BAF1C	93.78	23	BHK53SW	96.24	46
5601-8-10S	18.85	65	ACCU2	16.76	84	AR-12-F3	15.41	37	BAF1D	93.78	23	BHK80SW	114.36	46
5642-2-4S	103.84	65	ACCUCK	78.52	84	AR-12-G3	26.81	37	BAF1F	93.78	23	BHK144BSW	66.64	46
5642-4-4S	poa	65	ACCUCC	16.28	84	AR-12-G3-DS	34.73	37	BAF1H	95.44	23	BHK146SW	96.40	46
07001-6-4	3.73	29	ACCUV2	22.03	84	AR-12-H3	27.20	37	BAF2	91.05	23	BHK196SW	111.75	46
07001-10-6	3.53	29	AE240-3	31.61	38	AR-12-H3-DS	34.73	37	BAF2C	91.05	23	BHKREN172SW	76.48	46
07001-13-8	4.68	29	AGC1	8.55	46	AR-12-HTP	39.40	37	BAF2D	91.05	23	BLS2-31	12.96	24
07001-16-10	7.13	29	AGC2	14.02	46	AR-12-P3-DS	34.55	37	BAF2F	91.05	23	BLS8-3	12.96	24
07006-4-4	5.63	29	AGC3	19.24	46	AR-12-P	37.64	37	BAF2H	95.44	23	BLSBBS2-31	14.49	58
07006-8-6	5.63	29	AHA8777	16.35	46	AR-12-R3-DS	34.55	37	BAFMF	13.16	23	BLSBBS2-32	17.09	58
07072-4-4	10.94	30	AHA8778	14.66	46	AR-12-S3-DS	34.55	37	BAFMS	13.16	23	BLSBBS1-3	14.49	58
07072-8-6	11.42	30	AHC323	19.04	46	AR-12-S	42.02	37	BAFELF	13.16	23	BMS3-3	4.13	59
07072-13-8	18.65	30	AHC323S	22.85	46	AR-12-ST-M26	35.21	37	BAFELS	13.16	23	BMS7-3	5.22	59
07072-16-10	18.46	30	AHC324	14.53	46	AR-16-45-M30	48.91	37	BAR2-7	2.09	57	BMS7-4-3	8.60	59
07074-4-4	10.83	30	AHC324S	21.48	46	AR-16-90-M30	43.79	37	BBA1-3	3.57	57	BMS7-4	13.35	59
07074-6-4	8.83	30	AHC335	23.32	46	AR-16-F3	22.43	37	BBA1-6	7.35	57	BMSA7-3	4.85	59
07074-8-6	9.39	30	AHH8192	14.92	46	AR-16-G3	34.83	37	BBA1-8	12.80	57	BMSD3-3	8.15	59
07074-10-6	10.66	30	AHH8192S	24.13	46	AR-16-G3-DS	43.47	37	BBA1-10	60.54	57	BMSD7-3	12.52	59
07074-13-8	12.11	30	AHH8536	13.03	46	AR-16-H3	34.83	37	BBA2-31	6.68	57	BMSD7-3	23.34	59
07074-16-10	22.22	30	AHH8536S	18.79	46	AR-16-H3-DS	43.47	37	BBA2-32	5.69	57	BNA3-3	0.96	59
07075-20-12	65.73	30	AHH8537	15.99	46	AR-16-HTP	57.06	37	BBA2-41	7.26	57	BNS1-3	0.10	59
07114-20-12	18.85	29	AHH8537S	27.30	46	AR-16-P3-DS	61.72	37	BBA2-45	7.26	57	BNS1-4	0.89	59
704302	1.56	23	AN806-1	3.66	59	AR-16-P	49.07	37	BBA2-65	8.23	57	BNS1-6	1.20	59
713000	30.76	23	AN806-2	3.54	59	AR-16-R3-DS	61.72	37	BBA2-85	8.58	57	BNS1-8	1.40	59
713000S	28.41	23	AN806-3	3.46	59	AR-16-S3-DS	61.72	37	BBA2-95	9.47	57	BNS2-31	0.25	59
713045	53.32	23	AN806-20	19.11	59	AR-16-S	54.80	37	BBA2-105	10.83	57	BNS2-41	0.65	59
713045RV	71.16	23	AN806-24D	27.45	59	AR-16-ST-M30	34.89	37	BBA3-4	8.80	57	BNS3-3	0.74	59
713045SRV	71.16	23	AN816-6-8	6.22	51	AR-0-06	2.78	37	BBA3-6					

BPA2-31	4.95	60	CAP3H	100.64	73	E321-3	5.28	38	FBL1514	6.44	29	FBM1522	11.30	30
BPA2-41	8.51	60	CAP3S	92.56	74	E321-3G	6.19	38	FBL1515	8.95	29	FBM1523	12.92	30
BPA2-41SH	5.67	60	CAP3SCAT	95.33	74	E321-4	8.06	38	FBL1522	11.30	30	FBM1524	15.72	30
BPA2-45	4.34	60	CAP3SCATB	98.90	74	E321-6	13.91	38	FBL1523	12.92	30	FBM1525	23.24	30
BPA2-45SH	4.42	60	CAP3SF	113.39	73	E321-8	13.19	38	FBL1524	15.72	30	FBM1532	11.11	30
BPA2-55	4.34	60	CAP3SWO	92.56	73	E331-3	7.60	39	FBL1525	23.24	30	FBM1533	12.21	30
BPA2-55SH	4.42	60	CAP3ZF	72.50	74	E331-4	13.10	39	FBL1532	11.11	30	FBM1534	15.15	30
BPA2-65	6.22	60	CAP3ZV	72.50	74	E331-6	19.69	39	FBL1533	12.21	30	FBM1535	18.81	30
BPA2-65SH	5.17	60	CAP5	19.82	72	E331-8	17.55	39	FBL1534	15.15	30	FBM1542	18.87	30
BPA2-85	6.22	60	CAP5M	19.82	72	E332-3	7.01	39	FBL1535	18.81	30	FBM1543	30.90	30
BPA2-95	8.90	60	CAP11	22.07	72	E332-3G	8.79	39	FBL1542	15.48	30	FBM1544	33.66	30
BPA2-95SH	7.98	60	CAP15	28.09	72	E332-4	9.85	39	FBL1543	30.90	30	FBM1545	28.37	30
BPA2-105	8.10	60	CAP20	32.77	72	E332-6	31.14	39	FBL1544	33.66	30	FBM1552	17.48	31
BPA2-115	7.33	60	CAP2500	106.18	74	E332-8	27.47	39	FBL1545	28.37	30	FBM1553	34.39	31
BPA2-125	7.55	60	CAP2500F	127.93	74	ECD54-182	564.08	15	FBL1553	34.39	31	FBM1554	24.86	31
BPA2-165	11.01	60	CAP3500	122.68	74	ECD54-250	582.40	15	FBL1554	24.86	31	FBM1555	37.43	31
BPA3-3	3.01	60	CAP3500F	144.41	74	ECD54-329	598.34	15	FBL1555	37.43	31	FBM1562	17.48	31
BPA3-4	4.74	60	CAPCLIO	91.95	74	ECD54SK	44.02	15	FBL1562	17.48	31	FBM1563	23.16	31
BPA3-6	6.29	60	CAPFORD1	49.18	74	EOP1-24	296.32	79	FBL1563	22.43	31	FBM1564	34.28	31
BPA3-8	5.42	60	CAPNOVA1	57.39	74	EOP1	285.05	79	FBL1564	34.28	31	FBM1565	28.84	31
BPA3-12	5.99	60	CAPPEU205	57.39	74	EOP2	116.00	79	FBL1565	28.84	31	FBM2000	1.39	51
BPA105SH	7.89	60	CAPPEU206	47.31	74	EPW1	1.67	68	FBM1001	6.37	47	FBM2001	1.59	51
BPS3-3	0.87	60	CAPVW1	76.12	74	EPW1B	1.67	68	FBM1002	4.86	47	FBM2002	2.08	51
BPS3-4	0.94	60	CAPVW1V	61.74	74	EPW1M	2.18	68	FBM1003	6.69	47	FBM2003	2.30	51
BPS3-6	1.20	60	CAR1	65.38	75	EPWT-2	7.87	68	FBM1004	8.72	47	FBM2004	1.97	51
BPS3-8	1.35	60	CET54378/6-M38	923.27	15	EWL-amber	9.99	24	FBM1005	8.85	47	FBM2005	2.23	51
BPS3-10	1.98	60	CET543710/6-M32	923.27	15	EWL-blue	9.99	24	FBM1011	10.18	34	FBM2006	2.83	51
BPS3-12	2.08	60	CETC78/6-M38	923.27	15	EWL-bulb	1.58	24	FBM1012	5.18	34	FBM2007	2.23	51
BPS7-4	1.38	59	CETC712/8-M32	923.27	15	EWL-clear	9.99	24	FBM1013	6.72	34	FBM2008	3.03	51
BPS7-6	1.73	59	CLA25	74.64	71	EWL-green	9.99	24	FBM1014	9.05	34	FBM2009	3.63	51
BPS7-8	1.80	59	CLA200	40.75	71	EWL-red	9.99	24	FBM1015	12.78	34	FBM2010	6.26	51
BPS7-10	1.91	59	CLA300	110.95	71	EWL1	141.05	80	FBM1016	19.02	34	FBM2011	5.46	51
BPS7-12	2.79	59	CLAC25	74.64	71	EWL004	79.47	80	FBM1017	46.06	34	FBM2012	10.77	51
BPS7-16	5.76	59	CLAC275	74.64	71	EWL115ALLOY	180.25	80	FBM1021	18.91	34	FBM2020	6.29	55
BPS7-20	9.37	59	COL1	52.79	72	EWL15CALLOY	272.14	80	FBM1027	74.12	34	FBM2021	5.23	55
BPS8-3	1.05	60	COL2	9.50	72	EWL115C	247.69	80	FBM1031	16.96	34	FBM2022	5.50	55
BPS8-4	1.05	60	COL25	12.81	72	EWL115	163.99	80	FBM1037	74.64	34	FBM2023	6.29	55
BPS8-6	1.17	60	COL275	13.86	72	EWL150A24V	216.65	80	FBM1066	21.18	36	FBM2024	10.65	55
BPS8-8	1.52	60	COLA2	8.35	72	EWL150AC	336.32	80	FBM1067	22.25	36	FBM2025	15.26	55
BPSH8-2	0.53	60	COLA25	6.31	72	EWL150A	216.65	80	FBM1068	34.98	36	FBM2026	22.74	55
BPSH8-3	0.71	60	COLA275	6.70	72	EWL1524VALLOY	180.25	80	FBM1069	52.46	36	FBM2030	4.73	55
BPSH8-4	0.96	60	COLA125	19.56	72	EWL11524V	163.99	80	FBM1070	23.86	36	FBM2031	4.55	55
BRKT1	4.10	13	COLAR2	17.87	72	EWPC2	140.27	80	FBM1073	190.72	66	FBM2032	5.54	55
BRKT3	51.00	13	CPH1	67.33	77	EWS/1B	26.77	24	FBM1074	196.52	66	FBM2033	6.58	55
BRKT6	60.09	13	CT2	107.43	84	EWS/1C	17.68	24	FBM1100	6.58	38	FBM2034	5.05	55
BS1/2	0.18	13	CT2BLACK	107.43	84	EWS/1D	17.68	24	FBM1101	6.38	38	FBM2035	6.40	55
BS1/4	0.30	67	CT2BLUE	107.43	84	EWS/1G	11.37	24	FBM1102	28.48	38	FBM2036	8.61	55
BS1	0.16	67	CT2C	154.44	84	F506-4C	5.23	42	FBM1103	7.49	38	FBM2037	5.93	55
BS3/4	0.36	67	CT2GOLD	107.43	84	F6605-4	58.02	39	FBM1104	11.11	38	FBM2038	8.83	55
BS3/8	0.07	67	CT2RED	107.43	84	F6633-4	52.50	39	FBM1110	13.12	39	FBM2039	10.10	55
BS5/8	0.25	67	CT3	96.24	84	F6699-4	69.07	39	FBM1111	11.73	39	FBM2040	14.09	55
BS5/16	0.30	67	CT3BLACK	96.24	84	F6699-6	73.26	39	FBM1112	17.16	39	FBM2041	27.61	55
BS7/8	0.30	67	CT3BLUE	96.24	84	F66000-4	33.27	39	FBM1113	13.54	39	FBM2048	2.90	51
BS7/16	0.30	67	CT3C	135.41	84	F66555-4	61.18	39	FBM1114	11.07	39	FBM2049	7.79	51
BS9/16	0.25	67	CT3GOLD	96.24	84	F66555-6	59.92	39	FBM1120	13.00	39	FBM2050	1.98	51
BS11/32	0.19	67	CT3RED	96.24	84	F66826-4	38.01	39	FBM1121	12.27	39	FBM2051	2.21	51
BS13/16	0.22	67	CT8	123.10	84	F66826-6	42.47	39	FBM1122	18.57	39	FBM2052	2.15	51
BS15/16	0.41	67	CT8BLACK	123.10	84	FAN96B	43.39	81	FBM1123	16.80	39	FBM2053	3.37	51
BS21/32	0.18	67	CT8BLUE	123.10	84	FAN96S	56.03	81	FBM1130	74.29	38	FBM2054	3.80	51
BS-M4	0.22	67	CT8RED	123.10	84	FAN115B	57.32	81	FBM1134	7.72	39	FBM2055	7.43	51
BS-M5	0.22	67	CVD7-6	29.42	65	FAN115S	57.32	81	FBM1135	12.70	39	FBM2056	12.72	51
BS-M8	0.18	67	CVD7-8	33.10	65	FAN11912	28.21	13	FBM1136	11.28	39	FBM2060	6.37	55
BS-M20	0.25	67	CVD14-5	28.08	65	FBA0400	14.27	33	FBM1137	24.86	41	FBM2061	6.01	55
BS-M22	0.25	67	CVF2-105	52.79	65	FBA0600	16.65	33	FBM1138	11.14	41	FBM2062	5.52	55
BS-M28	0.62	67	CVF7-6B	84.77	65	FBA0800	18.67	33	FBM1140	99.75	39	FBM2063	9.44	55
BSSC-M12	0.25	67	CVF7-8B	97.49	65	FBA1000	24.83	33	FBM1141	12.88	41	FBM2064	13.30	55
BSSC-M14	0.22	67	CVF7-10	95.91	65	FBA1200	34.97	33	FBM1143	21.15	41	FBM2065	19.64	55
BSSC-M18	0.22	67	CVF7-12	125.84	65	FBA1600	47.43	33	FBM1144	15.72	41	FBM2066	25.08	55
BV2	92.89	68	CVF7-16	224.62	65	FBA2000	72.78	33	FBM1146	59.53	39	FBM2071	2.79	58
BV3	50.65	68	DB206-225	22.30	84	FBA2400	88.98	33	FBM1147	72.53	34	FBM2072	3.18	58
BV5	141.37	68	DB260-275	23.50	84	FBA3200	107.16	33	FBM1148	72.53	34	FBM2073	6.56	58
BV6	145.40	68	DCF08	50.36	81	FBE1010	7.07	34	FBM1150	89.55	39	FBM2074	6.92	58
C43-90	220.13	14	DCF09	55.95	81	FBE1013	11.96	34	FBM1151	79.68	39	FBM2075	11.22	58
C43-180	243.29	14	DCF10	61.55	81	FBE1014	13.92	34	FBM1153	29.90	65	FBM2076	16.10	58
C43-330	276.47	14	DCF10X	66.03	81	FBE1015	18.91	34	FBM1155	44.12	41	FBM2081	6.08	59
C43-9076-M18	220.13	14	DCF12	72.74	81	FBE1512	5.99	29	FBM1200	2.56	29	FBM2082	5.97	59
C43-9078-M28	220.13	14	DCF14	78.34	81	FBE1513	8.99	29	FBM1201	3.33	29	FBM2083	8.75	59
C43-18078-M32	243.29	14	DCF16	118.62	81	FBE1514	12.78	29	FBM1202	5.63	29	FBM2084	13.30	59
C43-90710-M32	220.13	14	DCFK08	55.95	81	FBE1515	14.18	29	FBM1207	3.33	29	FBM2085	16.96	59
C43-90716-M45	246.52	14	DCFK09	61.55	81	FBE1522	22.77	30	FBM1211	8.02	29	FBM2086	27.98	59
C43-180710-M38	243.29	14	DCFK10	67.15	81	FBE1523	26.87	30	FBM1222	3.95	29	FBM2091	9.16	59
C43-180712-M45	243.29	14	DCFK10X	71.63	81	FBE1524	26.26	30	FBM1225	13.94	29	FBM2092	10.94	59
C43-180716-M45	269.69	14	DCFK12	80.58	81	FBE1525	25.80	30	FBM1233	6.08	29	FBM2093	12.98	59
C43-330710-M32	276.47	14	DCFK14	83.94	81	FBE1526	20.06	30	FBM1234	9.84	29	FBM2099	0.69	59
C43-330710-M38	276.47	14	DCFK16	125.34	81	FBE1533	26.72	30	FBM1343	32.93	35	FBM2100	0.83	59
C43-330712-M38	276.47	14	DCFMK	3.58	81	FBE1534	22.79	30	FBM1344	26.13	35	FBM2103	1.62	59
C43-330716-M45	302.87	14	DCFSE	86.17	81	FBE1535	25.80	30	FBM1345	41.52	35	FBM2104	1.70	59
CAP2	76.12	73	DCFS	25.74	81	FBE4022	20.73	34	FBM1438	13.13	30	FBM2105	1.98	59

FBM2117	10.80	59	FBM2631	10.72	55	FBM3653	0.41	67	FBM4226	68.92	36	FBM5054	3.80	51
FBM2118	12.78	59	FBM2714	8.32	55	FBM3654	0.57	67	FBM4232	20.57	36	FBM5055	7.43	51
FBM2119	4.91	55	FBM2719	10.50	54	FBM3655	0.36	67	FBM4233	19.64	36	FBM5056	12.72	51
FBM2120	6.74	55	FBM2750	6.94	51	FBM3656	0.27	67	FBM4234	25.27	36	FBM5156	3.09	51
FBM2121	6.15	55	FBM2751	2.60	51	FBM3657	0.33	67	FBM4235	30.25	36	FBM5160	4.07	51
FBM2122	7.43	55	FBM2754	3.95	51	FBM3658	0.40	67	FBM4236	44.43	36	FBM5162	5.78	51
FBM2123	10.87	55	FBM2756	2.44	51	FBM3659	0.64	67	FBM4242	26.12	36	FBM5163	5.50	51
FBM2124	6.43	55	FBM2769	3.14	58	FBM3660	0.84	67	FBM4243	25.80	36	FBM5166	7.87	51
FBM2125	6.97	55	FBM2772	15.51	58	FBM3669	0.64	49	FBM4244	53.23	36	FBM5167	8.56	51
FBM2126	13.43	55	FBM2774	6.54	58	FBM3670	0.72	49	FBM4245	55.97	36	FBM5170	9.89	51
FBM2127	6.15	59	FBM2775	8.32	58	FBM3671	0.81	49	FBM4246	49.48	36	FBM5185	3.81	51
FBM2128	6.07	59	FBM2790	31.74	59	FBM3672	0.89	49	FBM4252	25.00	36	FBM0400	13.95	29
FBM2129	2.79	56	FBM2793	9.28	59	FBM3673	1.77	49	FBM4253	28.42	36	FBM0600	7.32	29
FBM2130	4.41	56	FBM2799	10.18	59	FBM3674	2.57	49	FBM4254	49.93	36	FBM0800	9.52	29
FBM2131	6.49	56	FBM2808	12.34	59	FBM3675	1.11	49	FBM4255	63.22	36	FBM1000	10.69	29
FBM2132	2.13	51	FBM2809	32.62	59	FBM3676	1.26	49	FBM4256	51.48	36	FBM1200	11.40	29
FBM2133	2.71	51	FBM2815	9.13	59	FBM3677	2.84	49	FBM4263	32.79	36	FBS0500	27.63	67
FBM2134	5.33	51	FBM2892	20.28	56	FBM3678	3.97	49	FBM4264	46.65	36	FBS0700	22.90	67
FBM2135	5.58	51	FBM2893	8.15	59	FBM3684	1.83	60	FBM4265	57.98	36	FBS0800	24.83	67
FBM2136	3.01	54	FBM2914	9.47	56	FBM3685	1.09	60	FBM4412	5.18	34	FBS0900	25.11	67
FBM2137	3.52	54	FBM2915	4.86	56	FBM3686	1.18	60	FBM4413	6.72	34	FBS1000	27.79	67
FBM2138	4.02	54	FBM2916	6.32	56	FBM3687	1.11	60	FBM4414	9.05	34	FBS1100	30.65	67
FBM2139	6.30	54	FBM2917	9.34	56	FBM3701	4.98	59	FBM4415	12.78	34	FBS1200	27.20	67
FBM2140	4.23	54	FBM2918	11.46	56	FBM3712	2.17	59	FBM4416	19.50	34	FBS1300	34.26	67
FBM2141	4.73	54	FBM2942	10.75	52	FBM3713	2.71	59	FBM4422	14.12	34	FBS1400	37.53	67
FBM2142	10.18	54	FBM2953	6.58	52	FBM3714	2.71	59	FBM4423	17.16	34	FBS1600	42.54	67
FBM2143	8.54	54	FBM2954	12.56	52	FBM3715	3.01	59	FBM4424	19.58	34	FBS1800	48.00	67
FBM2144	12.90	54	FBM2955	5.43	52	FBM3716	3.85	59	FBM4425	21.54	34	FBS2000	51.10	67
FBM2147	7.05	54	FBM2961	7.05	52	FBM3717	5.31	59	FBM4426	38.51	34	FBS2200	51.57	67
FBM2148	8.95	54	FBM2963	10.32	52	FBM3718	7.79	59	FBM4432	14.11	34	FBS2400	55.70	67
FBM2149	15.18	54	FBM2964	10.39	52	FBM3720	0.83	42	FBM4433	16.69	34	FBT1	90.56	76
FBM2150	9.43	54	FBM2965	11.23	52	FBM3721	1.07	42	FBM4434	19.85	34	FBU0400	23.58	33
FBM2151	14.69	56	FBM2971	13.56	56	FBM3722	5.83	59	FBM4435	21.99	34	FBU0600	24.68	33
FBM2152	13.35	56	FBM2972	14.17	56	FBM3723	6.19	59	FBM4436	30.57	34	FBU0800	28.45	33
FBM2156	3.09	51	FBM2973	13.56	56	FBM3724	3.74	59	FBM4442	25.96	35	FBU1000	32.39	33
FBM2160	4.07	51	FBM2974	20.28	56	FBM3725	4.78	59	FBM4443	27.24	35	FBU1200	37.98	33
FBM2162	5.78	51	FBM2978	17.40	56	FBM3726	9.07	59	FBM4444	25.27	35	FBU1600	46.72	33
FBM2163	5.50	51	FBM2979	13.70	56	FBM3727	9.19	59	FBM4445	28.40	35	FBV0400	13.95	29
FBM2165	8.08	51	FBM2980	17.44	56	FBM3740	2.84	60	FBM4446	45.82	35	FBV0600	7.51	29
FBM2166	8.08	51	FBM2981	28.28	56	FBM3741	3.25	60	FBM4452	25.96	35	FBV0800	9.29	29
FBM2167	8.56	51	FBM3011	25.37	65	FBM3742	5.67	60	FBM4453	30.74	35	FBV1000	10.69	29
FBM2169	19.11	51	FBM3012	35.70	65	FBM3743	7.60	60	FBM4454	31.10	35	FBV1200	11.40	29
FBM2170	10.14	51	FBM3013	33.39	65	FBM3744	13.31	60	FBM4455	35.81	35	FC283	68.14	25
FBM2173	10.16	56	FBM3079	98.53	65	FBM3749	2.12	60	FBM4456	40.61	35	FC284	34.29	25
FBM2174	10.33	56	FBM3081	42.95	65	FBM3750	6.75	60	FBM4462	25.96	35	FC285	49.24	25
FBM2175	12.59	56	FBM3082	42.95	65	FBM3751	2.89	60	FBM4463	30.74	35	FC286	46.65	25
FBM2176	34.01	56	FBM3083	13.74	65	FBM3752	1.24	60	FBM4464	31.10	35	FC287	45.90	25
FBM2177	31.04	56	FBM3084	10.14	65	FBM3820	10.74	42	FBM4465	35.81	35	FC288	49.58	25
FBM2178	27.51	58	FBM3085	14.29	65	FBM3821	8.19	42	FBM4466	46.39	35	FC289	61.80	25
FBM2179	29.59	58	FBM3086	15.21	65	FBM3822	5.25	42	FBM4472	18.88	34	FC290	71.50	25
FBM2180	17.03	59	FBM3087	3.37	65	FBM4022	14.12	34	FBM4473	20.77	34	FC291	51.53	25
FBM2183	6.62	58	FBM3114	53.77	65	FBM4023	17.16	34	FBM4474	24.82	34	FC292	49.88	25
FBM2184	7.07	58	FBM3148	15.10	54	FBM4024	19.58	34	FBM4475	29.97	34	FC295	45.88	25
FBM2185	3.81	51	FBM3149	12.02	54	FBM4025	21.54	34	FBM4476	41.72	34	FC1369	46.70	25
FBM2186	6.46	55	FBM3150	21.86	54	FBM4026	38.51	34	FBM4482	18.88	34	FC1766	40.37	25
FBM2187	6.92	55	FBM3151	23.28	54	FBM4032	14.11	34	FBM4483	20.77	34	FC1767	56.15	25
FBM2188	6.63	51	FBM3155	15.45	54	FBM4033	16.69	34	FBM4484	24.82	34	FC3191	30.36	25
FBM2189	15.99	51	FBM3156	13.15	54	FBM4034	19.85	34	FBM4485	29.97	34	FC8741	52.06	25
FBM2190	9.26	55	FBM3157	21.58	54	FBM4035	21.99	34	FBM4486	41.72	34	FCB1-3	13.41	56
FBM2191	18.76	55	FBM3158	23.34	54	FBM4036	31.61	34	FBM5000	1.39	51	FCB2-31	13.41	56
FBM2272	9.44	58	FBM3479	2.04	60	FBM4042	25.96	35	FBM5001	1.59	51	FCDB2	30.50	25
FBM2273	18.76	58	FBM3480	1.18	60	FBM4043	27.24	35	FBM5002	2.08	51	FCM3410	211.74	50
FBM2274	17.48	58	FBM3481	1.46	70	FBM4044	27.86	35	FBM5003	2.30	51	FCM3644	47.73	50
FBM2403	18.16	61	FBM3482	1.33	70	FBM4045	28.40	35	FBM5004	1.97	51	FCM3661	27.41	50
FBM2404	18.16	61	FBM3483	0.73	70	FBM4046	43.97	35	FBM5005	2.23	51	FCMGC	44.55	25
FBM2405	23.28	61	FBM3484	0.70	70	FBM4052	25.96	35	FBM5006	2.83	51	FCP0101	95.71	36
FBM2406	27.76	61	FBM3485	0.60	70	FBM4053	30.74	35	FBM5007	2.23	51	FCP0102	95.71	36
FBM2407	30.98	61	FBM3486	0.68	70	FBM4054	31.10	35	FBM5008	3.03	51	FCP0129	81.24	36
FBM2511	2.10	51	FBM3487	0.90	70	FBM4055	35.81	35	FBM5009	3.63	51	FCP0134	117.29	36
FBM2512	1.93	51	FBM3488	0.83	70	FBM4056	41.31	35	FBM5010	6.26	51	FD54HE-3	6.57	65
FBM2515	3.70	51	FBM3513	1.41	67	FBM4062	25.96	35	FBM5011	5.46	51	FD543-3	6.38	65
FBM2517	3.70	51	FBM3514	1.00	67	FBM4063	30.74	35	FBM5013	3.39	51	FD543-3F	6.38	65
FBM2518	7.84	51	FBM3515	1.64	67	FBM4064	31.10	35	FBM5015	11.89	51	FD547-3	6.57	65
FBM2519	4.21	51	FBM3516	1.64	67	FBM4065	35.81	35	FBM5016	12.19	55	FERSS-03	0.96	42
FBM2521	2.65	51	FBM3517	1.60	67	FBM4066	46.39	35	FBM5017	15.13	55	FF8-3-5	12.90	76
FBM2522	2.87	50	FBM3534	1.15	70	FBM4072	18.88	34	FBM5020	6.29	55	FF74	6.36	76
FBM2524	4.92	51	FBM3535	1.65	70	FBM4073	21.13	34	FBM5021	5.35	55	FF400	9.67	76
FBM2526	3.87	51	FBM3536	1.81	70	FBM4074	24.82	34	FBM5022	5.50	55	FFS3-3	2.15	56
FBM2527	3.76	51	FBM3537	2.03	70	FBM4075	29.97	34	FBM5023	6.29	55	FFS3-3-4	2.32	56
FBM2528	6.38	51	FBM3538	2.06	70	FBM4076	41.72	34	FBM5024	10.65	55	FFS3-4	1.88	56
FBM2531	5.67	51	FBM3554	0.77	49	FBM4082	18.88	34	FBM5025	14.89	55	FFS3-4-6	1.99	56
FBM2532	4.94	51	FBM3555	0.84	49	FBM4083	20.77	34	FBM5030	4.73	55	FFS3-6	1.99	56
FBM2586	7.62	55	FBM3556	0.34	59	FBM4084	24.82	34	FBM5031	4.55	55	FFS3-8	2.73	56
FBM2589	7.72	55	FBM3566	5.11	60	FBM4085	29.97	34	FBM5032	5.54	55	FFS3-10	3.37	56
FBM2593	7.67	55	FBM3602	1.87	60	FBM4086	41.72	34	FBM5033	6.58	55	FFS7-4	3.33	56
FBM2594	10.64	55	FBM3603	2.21	60	FBM4127	116.61	36	FBM5034	5.05	55	FFS7-6	3.37	56
FBM2595	15.61	55	FBM3604	3.76	60	FBM4137	122.94	36	FBM5035	6.40	55	FG-08	15.14	68

FLAA2	19.40	72	H652-18C-CVX	4.33	42	HC4-00	0.29	48	HEF42-85	5.14	32	HEFAP57-10BK	33.14	31
FLAA25	20.99	72	H652-31C-CCV	4.96	42	HC4-0	0.29	48	HEF42-125	8.54	32	HEFAP57-10	33.14	31
FLAA35	34.66	72	H652-31C-CVX	5.24	42	HC4-1	0.32	48	HEF42-165	19.71	32	HEFAP57-12BK	41.20	31
FLAA275	27.22	72	H652-32C-CCV	4.96	42	HC4-2	0.35	48	HEF43-6	4.41	45	HEFAP57-12	41.20	31
FLAC2	15.71	72	H652-32C-CVX	5.24	42	HC4-3	0.35	48	HEF43-8	4.36	32	HEFAP87-6	22.43	31
FLAC25	23.23	72	H653-03C-CCV	4.33	42	HC4-4	0.38	48	HEF43-10	4.37	32	HEFAP87-6BK	22.43	31
FLAC275	26.63	72	H653-03C-CVX	4.61	42	HC4-5	0.51	48	HEF43-12	7.60	32	HEFAP87-8	30.01	31
FLAF25	46.03	72	H653-04C-CCV	8.84	42	HC4-6	0.58	48	HEF47-6	4.24	45	HEFAP87-8BK	30.01	31
FLAF35	64.20	72	H653-31C-CCV	4.33	42	HC4-7	0.58	48	HEF47-8	6.96	32	HEFAP87-10	33.14	31
FLAF275	46.02	72	H653-31C-CVX	4.61	42	HC4-8	0.67	48	HEF47-10-8	6.07	32	HEFAP87-10BK	33.14	31
FLAP2	35.08	72	H653-32C-CCV	4.33	42	HC5-1	0.33	48	HEF47-10	7.42	32	HEFAP87-12	41.20	31
FMK1	11.14	76	H653-32C-CVX	4.61	42	HC5-2	0.34	48	HEF47-12	7.28	32	HEFAP87-12BK	41.20	31
PPG15	35.20	83	H654-03C-CCV	4.39	42	HC5-3	0.35	48	HEF82-85	6.08	32	HEFAP93-8	28.88	31
FPH3	46.78	77	H654-03C-CVX	4.61	42	HC5-4	0.40	48	HEF83-8	6.45	32	HEFAP93-10	32.83	30
FPH4	23.40	77	H654-04C-CCV	8.84	42	HC5-5	0.42	48	HEF83-10	8.05	32	HEFAP97-4	22.65	30
FR-5	48.59	77	H654-31C-CCV	4.33	42	HC5-6	0.45	48	HEF92-85	4.63	32	HEFAP97-4BK	22.65	30
FRT1	82.06	76	H654-31C-CVX	4.61	42	HC5-7	0.46	48	HEF92-125	9.70	32	HEFAP97-6	16.92	30
FSK1	81.84	66	H654-32C-CCV	4.33	42	HC5-8	0.48	48	HEF92-165	17.71	32	HEFAP97-6BK	16.92	30
FSK1PO	29.27	66	H654-32C-CVX	4.61	42	HC5-9	0.51	48	HEF93-6	2.69	45	HEFAP97-8	22.65	30
FSK2	94.36	66	H657-03C	3.74	42	HC5-10	0.53	48	HEF93-6-5	4.00	45	HEFAP97-8BK	22.65	30
FSK2PO	41.81	66	H657-31C	3.92	42	HC5-11	0.55	48	HEF93-8	4.36	32	HEFAP97-10	25.75	30
FSK3	84.05	66	H657-32C	3.91	42	HC5-12	0.58	48	HEF93-8-5	11.12	45	HEFAP97-10BK	25.75	30
FSK3PO	31.49	66	H658-03C	3.74	42	HC5-13	0.61	48	HEF93-10	4.72	32	HEFAP97-12	33.84	30
FSP1	115.08	85	H658-31C	4.08	42	HC5-14	0.63	48	HEF93-10-8	8.80	32	HEFAP97-12BK	33.84	30
FSP2	115.08	85	H658-32C	3.36	42	HC5-15	0.65	48	HEF93-12	6.42	32	HEFP3-4	1.48	30
FSS1	38.30	76	H659-03C	4.36	43	HC5-16	0.68	48	HEF93L-8	10.79	32	HEFP3-4-6	5.32	30
FST1	76.16	76	H660-31C	4.73	43	HC5-17	0.70	48	HEF97-6-4	3.03	45	HEFP3-6	2.01	30
FT1-3	9.47	56	H663-03C	6.21	43	HC5-18	0.73	48	HEF97-6-5	4.23	45	HEFP3-8	2.07	30
FT2-31	6.52	56	H663-31C	5.18	43	HCF-1	9.17	44	HEF97-6	2.58	45	HEFP3-10	2.77	30
FUN1	27.04	73	H663-32C	5.93	43	HCF-2	9.33	44	HEF97-8	4.08	32	HEFP3-12	3.78	30
FUN2	27.04	73	H664-03C	6.21	43	HCP-1	46.58	48	HEF97-10-8	3.49	32	HEFP7-4	4.00	30
G210-4	16.64	33	H664-31C	5.18	43	HEAB7-10-M13	16.67	82	HEF97-10	6.42	32	HEFP7-6	3.25	30
G210-6	18.32	33	H664-32C	5.93	43	HEAB7-10-M13W	16.67	82	HEF97-12	7.03	32	HEFP7-8-6	4.14	30
G210-8	20.52	33	H665-03C	6.92	43	HEAB14-M13	13.75	82	HEFA2-45-6	14.40	34	HEFP7-8	4.24	30
G210-10	23.54	33	H665-31C	6.92	43	HEAB14-M13-M16	13.75	82	HEFA2-55-6	16.46	34	HEFP7-10-8	4.39	30
G210-12	31.12	33	H665-32C	6.92	43	HEAB14-M13-M16W	13.75	82	HEFA2-65-6	16.46	34	HEFP7-10	4.34	30
G210-16	35.83	33	H666-03C	6.92	43	HEAB14-M13W	13.75	82	HEFA2-85-8	15.55	34	HEFP7-12	6.53	30
GL5	5.24	83	H666-31C	6.92	43	HEADV-M51	9.58	82	HEFA2-115-10	18.40	34	HEFP43-4	5.83	30
GL6	5.24	83	H666-32C	6.92	43	HEADV-M63	9.58	82	HEFA2-125-12	26.53	34	HEFP43-6	6.72	30
GL7	7.54	83	H669-31C	4.87	43	HEAJ-M51-M63	2.71	81	HEFA4C7-6DS	20.23	35	HEFP43-8	8.12	30
GL10	6.94	83	H669-32C	3.77	43	HEALH1	91.67	89	HEFA4C7-8DS	23.54	35	HEFP43-10	11.15	30
GL15	8.06	83	H673-03C-CCV	5.24	43	HEAMH1	72.92	81	HEFA4C7-10DS	29.42	35	HEFP43-12	12.23	30
GS101-2H-4	42.47	69	H673-18C-CCV	5.24	43	HEAV-M51	9.58	81	HEFA4C7-12DS	36.78	35	HEFP47-4	5.62	30
GS101-2H-6	42.47	69	H673-31C-CCV	5.24	43	HEAV-M63	9.58	81	HEFA4F2-45-6	25.23	36	HEFP47-6	6.63	30
GS101-2H-8	42.47	69	H673-32C-CCV	5.24	43	HEAY-M63	7.29	82	HEFA4F2-55-6	25.23	36	HEFP47-8	8.12	30
GS101-2H-10	42.47	69	H674-03C-CCV	8.42	43	HEBAN2-41-5-5	19.95	45	HEFA4F2-65-6	34.90	36	HEFP47-10	13.60	30
GS101-2H-12	42.47	69	H674-18C-CCV	5.24	43	HEBAN2-41-5	16.76	45	HEFA4F2-85-8	44.99	36	HEFP47-12	13.60	30
GS101-2H-16	42.47	69	H674-31C-CCV	5.24	43	HEBAN-3-4	4.64	45	HEFA4F2-115-10	38.50	36	HEFP93-4	5.83	30
GS101-2H-16S	42.47	69	H674-32C-CCV	5.24	43	HEBAN9-M12-z	5.15	45	HEFA4F2-125-12	47.62	36	HEFP93-6	6.72	30
GS101-2H-BL	42.47	69	H683-03C-CVX	4.96	43	HEBAN9-M14-6	4.88	45	HEFA4F2-165-12	55.23	36	HEFP93-8	7.89	30
GS101-NHBL	42.47	69	H683-18C-CVX	4.96	43	HEBANA1-M14-6	23.85	36	HEFA7-6	8.10	34	HEFP93-10	8.77	30
GS404-16	26.17	69	H683-31C-CVX	4.96	43	HEBANA1-M16-6	22.67	36	HEFA7-8	9.56	34	HEFP93-12	12.23	30
GS404-30	26.17	69	H683-32C-CVX	4.96	43	HEBANA1-M16-10	22.60	36	HEFA7-10	13.24	34	HEFP97-4	5.83	30
GS404-BL	26.17	69	H684-03C-CVX	4.96	43	HEBANA3-8-8	21.59	36	HEFA7-12	18.39	34	HEFP97-6	5.20	30
GS1003-2H-4	43.54	69	H684-18C-CVX	4.96	43	HEBANA-M12-6	23.33	36	HEFA9C7-6DS	20.23	35	HEFP97-8	7.89	30
GS1003-2H-6	43.54	69	H684-31C-CVX	4.96	43	HEBANA-M14-6	23.85	36	HEFA9C7-8DS	23.54	35	HEFP97-10	9.84	30
GS1003-2H-8	43.54	69	H684-32C-CVX	4.96	43	HEBANA-M14-8	23.01	36	HEFA9C7-10DS	29.42	35	HEFP97-12	13.22	30
GS1003-2H-10	43.54	69	H692-03-08C	13.04	43	HEBANA-M16-6	22.67	36	HEFA9C7-12DS	36.78	35	HFM1-5-5	3.06	45
GS1003-2H-12	43.54	69	H692-03-11C	14.43	43	HEBANA-M16-8	21.59	36	HEFA9F2-45-6	25.85	36	HFM1-7-8	7.39	32
GS1003-2H-16	43.54	69	H692-03-12C	8.45	43	HEBANA-M16-10	20.93	36	HEFA9F2-55-6	34.05	36	HFM1-11-8	7.95	32
GS1003-2H-BL	43.54	69	H692-03C	3.77	43	HEBANA-M18-6	21.61	36	HEFA9F2-65-6	34.90	36	HFM2-55-8	4.63	32
GS1003-3H-4	47.97	69	H692-04C	13.97	43	HEBANA-M18-8	20.93	36	HEFA9F2-85-8	44.99	36	HFM2-55-10	4.43	32
GS1003-3H-6	47.97	69	H693-03C	4.84	43	HEBANA-M18-10	21.71	36	HEFA9F2-115-10	53.20	36	HFM2-65-8	6.21	32
GS1003-3H-8	47.97	69	H694-03C	3.77	43	HEBANA-M22-6	24.43	36	HEFA9F2-125-12	50.72	36	HFM2-65-10	4.43	32
GS1003-3H-10	47.97	69	H695-03C	4.14	43	HEBANA-M24-10	23.84	36	HEFA9F2-165-12	55.47	36	HFM2-85-8	2.64	32
GS1003-3H-12	47.97	69	H697-03C	3.77	43	HEBAN-M8-3	4.03	45	HEFA9F2-165-16	64.04	36	HFM3-4-5	2.20	45
GS1003-3H-16	47.97	69	H698-03C	15.05	43	HEBAN-M8-4	1.35	45	HEFAF2-165-12	37.52	34	HFM3-4-8	6.01	32
GS1003-3H-BL	47.97	69	H699-03C	10.13	43	HEBAN-M10-4	1.59	45	HEFAF2-165-16	35.33	34	HFM3-6-5	8.42	45
GS1003-4	15.78	69	H801	133.61	76	HEBAN-M10-5	1.65	45	HEFAP3-8	8.08	30	HFM3-6-8	4.08	32
GS1003-6	15.78	69	H802	164.70	76	HEBAN-M12-4	1.98	45	HEFAP3-10	10.52	30	HFM3-8	2.86	32
GS1003-6INBL	39.50	69	H803	33.78	76	HEBAN-M12-5	1.69	45	HEFAP7-4	6.33	30	HFM3-8-10	2.83	32
GS1003-8	15.78	69	H803BP	69.95	76	HEBAN-M12-6	2.42	45	HEFAP7-6	5.30	30	HFM6-6-10	7.29	32
GS1003-10	15.78	69	H804	33.86	76	HEBAN-M14-4	2.93	45	HEFAP7-8	6.33	30	HFM7-10-8	2.86	32
GS1003-12	15.78	69	H812	148.95	76	HEBAN-M14-5	1.98	45	HEFAP7-10	8.24	30	HFM7-12	19.41	32
GS1003-16	15.78	69	H8151	260.57	76	HEBAN-M14-6	2.01	45	HEFAP7-12	13.24	30	HFM8-3-3	4.46	45
GS1003-20	15.78	69	HAR3	19.98	41	HEBAN-M16-6	4.24	45	HEFAP27-6	22.43	31	HFM8-3-5	2.75	45
GS1003-BL	15.78	69	HAR4	45.95	41	HEBAN-M16-8	4.13	45	HEFAP27-6BK	22.43	31	HFM8-4-4	5.15	45
GS2003-5	12.62	69	HAR5	19.50	58	HEBAN-M18-6	7.32	45	HEFAP27-8	30.01	31	HFM8-4-5	5.18	45
GS2003-5 WPT	12.62	69	HC1-1	0.27	48	HEBAN-M18-8	6.03	45	HEFAP27-8BK	30.01	31	HFM8-4-6	5.78	45
GS4001-WPT	12.62	69	HC1-2	0.30	48	HEBAN-M18-10	6.59	45	HEFAP27-10	33.14	31	HFM8-4-8	4.55	32
GS5001-1	44.63	69	HC1-3	0.35	48	HEBAN-M22-12	10.03	45	HEFAP27-10BK	33.14	31	HFM8-6-8	6.03	32
GS5001-2	49.25	69	HC2-1	0.44	48	HEF2-55-5C	2.80	45	HEFAP27-12	41.20	31	HFM8-6-8B	3.82	32
GS50238	18.52	69	HC2-2	0.41	48	HEF2-85	3.85	32	HEFAP27-12BK	41.20	31	HFM98-3-5	5.96	45
GS50238-BL	12.62	69	HC2-3	0.41	48	HEF2-125	9.74	32	HEFAP43-8	28.88				

HEMA92-105-10	18.55	35	HETBF2-42-3	8.15	40	HSC3	0.78	70	JT31406D	40.46	63	JT52312A	46.48	63
HEMA92-105-12	21.64	35	HETBFA2-31	12.01	40	HSC4	0.82	70	JT31406E	40.46	63	JT52312	54.75	63
HEMAP2-105-6	4.87	11	HETBFAC2-31V	17.68	40	HSC5	0.95	70	JT31406	34.50	63	JT52410D	52.48	63
HEMAP2-105-8	4.78	11	HETBFAC2-31V	7.46	40	HSC6	1.14	70	JT31408A	30.61	63	JT52410E	52.55	63
HEMAP2-105-10	5.53	11	HETBFAC2-31X	12.60	40	HSC7	1.17	70	JT31408D	42.28	63	JT52410	45.56	63
HEMAP42-105-6	13.40	11	HETBFAC2-32	9.27	40	HSC8	2.91	70	JT31408E	42.28	63	JT52412	48.32	63
HEMAP42-105-8	15.83	11	HETBFAC2-32X	9.27	40	HSC9	1.31	70	JT31408	36.31	63	JT52508APE	54.99	64
HEMAP42-105-10	17.33	11	HETBFL2-32	7.80	40	HSC10	1.41	70	JT31506AP	29.52	64	JT52508PE	62.51	64
HEMAP42-105-12	18.55	11	HETBFP2-31	8.75	40	HSC11	1.49	70	JT31506A	32.12	64	JT52510APD	57.31	64
HEMAP92-105-6	13.40	11	HETBFX1-3	8.87	40	HSC12	1.60	70	JT31506P	28.43	64	JT52510APE	57.31	64
HEMAP92-105-8	15.83	11	HETBFX1-4	15.17	40	HSC13	1.24	70	JT31506	37.89	63	JT52510AP	36.75	64
HEMAP92-105-10	17.33	11	HETBFX1-31	9.12	40	HSC14	0.97	70	JT31508APD	39.61	64	JT52510PD	64.05	64
HEMAP92-105-12	18.55	11	HETBFX2-32	12.38	40	HSP-202	28.20	43	JT31508APE	39.61	64	JT52510PE	64.05	64
HEMP3-6	2.13	29	HETC1-3	5.52	40	HSP-303	28.20	43	JT31508AP	30.90	64	JT52510P	43.24	64
HEMP3-8	2.55	29	HETC2-31	6.15	40	HTA1	16.47	68	JT31508D	45.63	63	JT52512AP	40.37	64
HEMP3-10	3.90	29	HETF2-31	8.21	38	ILBF-M76	27.21	81	JT31508E	45.63	63	JT52512EPA	57.26	64
HEMP3-12	4.91	29	HETF7-3	5.46	38	ILF7-6-10	73.64	77	JT31508PD	45.26	64	JT52512EP	85.57	64
HEMP6-3-4	3.02	29	HETF42-31	8.36	39	ILF7-6-100	96.35	77	JT31508PE	45.26	64	JT52512PD	85.57	64
HEMP7-4	4.15	29	HETF47-3	8.15	39	ILF7-6-240	73.64	77	JT31508P	29.76	64	JT52512P	57.72	64
HEMP7-8	4.04	29	HETF92-31	9.66	39	ILF7-8-10	73.64	77	JT31606A	36.05	62	JT52610A	47.85	62
HESLF-6	60.55	77	HETF97-3	7.57	39	ILF7-8-100	100.13	77	JT31606	42.42	62	JT52610D	63.23	62
HESLF-8	60.55	77	HETF97-3	9.79	38	ILF7-8-240	73.64	77	JT31608A	37.81	62	JT52610E	63.23	62
HET1-3	5.52	40	HETF97-3	9.79	38	JP-1	154.93	78	JT31608DA	42.71	62	JT52610	56.35	62
HET1-4	11.12	40	HETF97-3	9.79	38	JP-2	260.91	78	JT31608D	50.49	62	JT52612A	50.37	62
HET2-31	5.41	40	HETF97-3	9.79	38	JP-5	217.50	78	JT31608EA	42.71	62	JT52612	59.33	62
HET2-32	11.88	40	HETF97-3	9.79	38	JPG-1	4.33	78	JT31608E	50.49	62	JT52806A	37.41	63
HET2-41	10.65	40	HETF97-3	9.79	38	JPI-1	20.60	78	JT31608	44.55	62	JT52806	44.02	63
HET3-3	7.40	40	HETF97-3	9.79	38	JT5251APD	85.57	64	JT32306A	22.05	63	JT52808A	40.22	63
HETAF2-31X	17.85	38	HETF97-3	9.79	38	JT21303A	26.47	63	JT32306	25.33	63	JT52808	47.41	63
HETAF2-45-4	14.30	38	HETF97-3	9.79	38	JT21303	31.12	63	JT32308A	22.57	63	JT52812A	44.29	63
HETAF2-55-6	16.68	38	HETF97-3	9.79	38	JT21304A	30.60	63	JT32308D	32.58	63	JT52812	52.10	63
HETAF27-6	25.75	81	HETF97-3	9.79	38	JT21304	33.58	63	JT32308E	29.90	63	KP1-3	24.28	46
HETAF27-8	30.90	81	HETF97-3	9.79	38	JT21306A	24.26	63	JT32308	26.59	63	KP-4	48.57	46
HETAF47-3	22.07	39	HETF97-3	9.79	38	JT21306	34.55	63	JT32406A	18.72	63	LFF300	17.11	72
HETAF87-6	25.75	39	HETF97-3	9.79	38	JT21403A	24.26	63	JT32406D	27.99	63	LK1	26.32	72
HETAF87-8	30.90	39	HETF97-3	9.79	38	JT21403	27.10	63	JT32406E	27.99	63	LK2	26.32	72
HETAF97-3	22.07	39	HETF97-3	9.79	38	JT21404A	24.24	63	JT32406	22.01	63	LL-03	214.92	75
HETB1-3	6.27	40	HETF97-3	9.79	38	JT21404	28.52	63	JT32408D	28.96	63	LL-12	44.58	75
HETB1-4	11.17	40	HETF97-3	9.79	38	JT21503A	33.30	63	JT32408E	28.96	63	LL-13	67.62	75
HETB2-31	5.99	40	HETF97-3	9.79	38	JT21503	29.84	63	JT32408	22.97	63	LL-16	119.69	75
HETB2-41	12.80	40	HETF97-3	9.79	38	JT21504APD	29.15	64	JT32506APD	33.10	64	LL-16PLUS	154.32	75
HETB-4-3	8.07	40	HETF97-3	9.79	38	JT21504AP	22.31	64	JT32506APE	24.84	64	LL-20CL	378.28	76
HETBAN1-3-4	15.77	41	HETF97-3	9.79	38	JT21504A	24.34	64	JT32506AP	20.88	64	LL-22	400.40	75
HETBAN1-3	5.15	41	HETF97-3	9.79	38	JT21504PD	33.77	64	JT32506PD	40.67	64	LL-30CL	378.28	76
HETBAN1-4-3	15.77	41	HETF97-3	9.79	38	JT21504P	21.99	64	JT32506PE	30.51	64	LL-32	400.40	75
HETBAN1-4	11.50	41	HETF97-3	9.79	38	JT21504	28.65	63	JT32506P	21.58	64	LL-90	95.50	76
HETBAN2-3	5.92	41	HETF97-3	9.79	38	JT21506APD	31.90	64	JT32508AP	21.92	64	LL-91	95.50	76
HETBAN3-3	22.57	40	HETF97-3	9.79	38	JT21506APE	31.90	64	JT32508PD	31.72	64	LOC7-6	16.99	14
HETBAN3-4	15.77	40	HETF97-3	9.79	38	JT21506A	26.71	63	JT32508PE	31.72	64	LOC7-8	16.99	14
HETBAN-3	5.92	40	HETF97-3	9.79	38	JT21506D	36.83	63	JT32508P	20.66	64	LOC7-10	10.89	14
HETBAN4-3	7.79	41	HETF97-3	9.79	38	JT21506E	37.74	63	JT32606A	26.70	62	LOC7-12	10.89	14
HETBAN4-3	10.06	40	HETF97-3	9.79	38	JT21506PD	36.53	64	JT32606	31.47	62	LOC7-16	31.06	14
HETBAN-4	10.99	40	HETF97-3	9.79	38	JT21506PE	36.53	64	JT32608A	27.98	62	LOICAT1	32.24	16
HETBAN6-3	19.45	41	HETF97-3	9.79	38	JT21506	31.41	63	JT32608D	38.92	62	LOILOT1S	135.44	16
HETBAN7-3	10.68	41	HETF97-3	9.79	38	JT21604A	29.84	62	JT32608E	38.92	62	LSK1	17.04	14
HETBAN9-3	12.29	41	HETF97-3	9.79	38	JT21604	35.11	62	JT32608	32.95	63	LWC7-16	43.02	14
HETBAN20-3	4.28	41	HETF97-3	9.79	38	JT21606A	31.32	62	JT32804A	20.79	63	LWC7-20	55.76	14
HETBAN41-3	9.56	40	HETF97-3	9.79	38	JT21606DA	35.76	62	JT32804	24.41	63	LWC7-24	55.76	14
HETBANA1-3	10.94	41	HETF97-3	9.79	38	JT21606D	42.29	62	JT32806A	22.99	63	LWC-M16	28.67	14
HETBANA2-3-4	17.19	41	HETF97-3	9.79	38	JT21606EA	35.76	62	JT32806	27.10	63	LWC-M18	28.67	14
HETBANA2-3	9.61	41	HETF97-3	9.79	38	JT21606E	42.29	62	JT51410A	52.62	63	LWC-M24	28.67	14
HETBANA2-4-3	27.19	41	HETF97-3	9.79	38	JT21606	36.88	62	JT51410D	68.40	63	LWC-M28	28.67	14
HETBANA2-4	40.25	41	HETF97-3	9.79	38	JT22303A	16.29	63	JT51410E	68.40	63	LWC-M32	28.67	14
HETBANA3-3	21.34	40	HETF97-3	9.79	38	JT22303	19.19	63	JT51410	61.52	63	LWC-M35	28.67	14
HETBANA3-4	24.37	40	HETF97-3	9.79	38	JT22304A	17.78	63	JT51412A	52.62	63	LWC-M38	23.63	14
HETBANA-3	31.44	40	HETF97-3	9.79	38	JT22304	21.44	63	JT51412	64.62	63	LWC-M45	28.67	14
HETBANA4-3	10.42	41	HETF97-3	9.79	38	JT22306A	18.70	63	JT51510APD	64.66	64	LWP-43	5.58	14
HETBANA-4	23.64	40	HETF97-3	9.79	38	JT22306D	28.14	63	JT51510APE	85.49	64	LWT-43	3.75	14
HETBANA7-3	13.69	41	HETF97-3	9.79	38	JT22306E	27.45	63	JT51510AP	67.12	64	MAS1	71.74	66
HETBANA9-3	14.15	41	HETF97-3	9.79	38	JT22306	22.04	63	JT51510D	95.31	63	MAS2	71.74	66
HETBANA13-3	21.34	41	HETF97-3	9.79	38	JT22403A	14.68	63	JT51510E	92.99	63	MAS3	71.74	66
HETBANA20-3	9.58	41	HETF97-3	9.79	38	JT22403	17.29	63	JT51510PD	69.75	64	MBRSS7-3	62.87	59
HETBAN-M12-4	12.44	40	HETF97-3	9.79	38	JT22404A	15.46	63	JT51510PE	63.97	64	MBT57-3	5.68	59
HETBANSS1-3	10.23	41	HETF97-3	9.79	38	JT22404	18.21	64	JT51510P	71.51	64	MBTSS7-3	30.37	59
HETBANSS2-3	10.23	41	HETF97-3	9.79	38	JT22504APD	17.63	64	JT51512APD	66.74	64	MFA2-3-31	7.41	54
HETBANSS3-4	19.59	40	HETF97-3	9.79	38	JT22504APE	17.63	64	JT51512APE	88.26	64	MFA2-6-45	7.19	54
HETBANSS-3	10.96	40	HETF97-3	9.79	38	JT22504AP	20.51	64	JT51512AP	67.12	64	MFA2-6-45X	9.56	54
HETBANSS4-3	9.45	41	HETF97-3	9.79	38	JT22504PD	22.25	64	JT51512PD	71.89	64	MFA2-6-55	6.97	54
HETBANSS-4-3	16.61	40	HETF97-3	9.79	38	JT22504PE	76.72	64	JT51512PE	71.89	64	MFA2-6-55X	9.56	54
HETBANSS-4-4	23.81	40	HETF97-3	9.79	38	JT22504P	14.11	64	JT51512P	66.68	64	MFA2-12-125	28.22	54
HETBANSS5-3	12.00	41	HETF97-3	9.79	38	JT22506PD	24.07	64	JT51610A	57.33	62	MFA2-12-165	17.93	54
HETBANSS6-3	23.63	41	HETF97-3	9.79	38	JT22506PE	19.17	64	JT51610DA	67.62	62	MFA2-16-165	28.53	54
HETBANSS7-3	14.83	41	HETF97-3	9.79	38	JT22604A	19.73	64	JT51610D	74.40	62	MFA2-105-55	6.55	11
HETBANSS9-3	16.87	41	HETF97-3	9.79	38	JT22604	23.21	64	JT51610EA	62.96	62	MFA2-105-65	6.67	11
HETBB1-3	13.92	40	HETF97-3	9.79	38	JT22606A	20.73	62	JT51610E	74.40	62	MFA2-105-85	6.84	11
HETBBS2-31	6.84	41	HETF97-3	9.79	38	JT22606D	29.82	62	JT51610	67.54	62	MFA7-3-4	5	

MFA7-12-10	13.24	54	MIK79-85	3.04	48	MMA9808-4	19.59	55	MMS5-4-45	1.95	53	MMS10-8-6	2.02	53
MFA7-12-16	18.39	54	MIK85-91	3.11	48	MMAB-6-4	7.49	66	MMS5-4-55	1.95	53	MMS10-8-8	1.57	53
MFA7-16-12	18.39	54	MIK91-97	3.18	48	MMFY-6-6-8	26.75	56	MMS5-4-65	1.99	53	MMS10-10-6	3.33	53
MFA8-3	4.83	54	MIK97-104	3.24	48	MMFY-6	16.09	56	MMS5-6-31	2.39	53	MMS10-10-8	3.33	53
MFFA8-6-6-3	9.56	58	MIK104-112	3.46	48	MMFY-8	21.77	56	MMS5-6-45	2.02	53	MMS10-12-4	3.74	53
MFFA8-6-6-3BK	9.56	58	MMA1-3-4	9.15	66	MMFY-10	30.91	56	MMS5-6-55	2.07	53	MMS10-12-6	3.40	53
MFFA8-8-8-3	11.17	58	MMA1-6-4	7.36	52	MMFY-12	36.91	56	MMS5-6-65	2.04	35	MMS10-12-8	3.33	53
MFFA8-10-10-3	14.71	58	MMA1-10-2	7.57	52	MMSO-3-4	1.68	52	MMS5-6-85	2.33	53	MMS11-3	5.48	53
MFFA8-12-12-3	22.07	58	MMA1-10-7	10.07	52	MMSO-3-5	1.65	52	MMS5-6-95	2.52	53	MMSB2-31-31	6.77	58
MFFS3-8-8-3	4.80	58	MMA1-10-12-FS	20.05	85	MMSO-3-6	1.90	52	MMS5-8-65	2.33	53	MMSB3-3	4.21	58
MFFS8-4-4-3	9.56	58	MMA1-12-12-FS	20.05	85	MMSO-4-4	1.17	52	MMS5-8-85	2.32	53	MMSB3-4	3.39	58
MFSO-6-4	3.62	54	MMA1-16-12-FS	22.25	85	MMSO-4-5	1.37	52	MMS5-8-95	2.52	53	MMSB3-6	3.70	58
MFSO-6-6	3.62	54	MMA1-12-8	14.22	52	MMSO-4-6	1.18	52	MMS5-8-105	2.55	35	MMSB3-8	4.03	58
MFSO-8-8	3.67	54	MMA1-12-10	14.71	52	MMSO-4-8	1.93	52	MMS5-8-115	2.79	53	MMSB3-10	5.02	58
MFSO-10-8	3.67	54	MMA1-J-1	6.56	52	MMSO-4-10	3.11	52	MMS5-8-125	2.79	35	MMSB5-3-31	3.66	58
MFSO-10-10	5.77	54	MMA1-J-2	7.08	52	MMSO-6-4	1.27	52	MMS5-10-85	2.55	53	MMSB5-3-32	6.48	58
MFS3-8-3	2.08	54	MMA1-J-2X	6.56	52	MMSO-6-5	1.37	52	MMS5-10-105	2.61	53	MMSB7-3	3.91	58
MFS3-8-6	4.82	54	MMA2-3-31	7.08	52	MMSO-6-6	1.36	52	MMS5-10-125	3.27	53	MMSB7-4	5.81	58
MFS3-8-6S	8.91	54	MMA2-3-32	6.68	52	MMSO-6-8	1.65	52	MMS5-12-85	2.79	53	MMSB9-3	6.14	59
MFS3-8-8	2.59	54	MMA2-3-41	5.88	52	MMSO-6-10	1.93	52	MMS5-12-95	2.79	53	MMSB9-4	9.51	59
MFS3-8-10	3.31	54	MMA2-3-42	5.72	52	MMSO-6-12	3.04	52	MMS5-12-105	2.87	53	MMSS1-3	4.65	52
MFS5-4-45	2.39	54	MMA2-4-31	7.08	52	MMSO-8-4	2.02	52	MMS5-12-115	3.27	35	MMSS2-3-31	5.40	52
MFS5-4-55	54.00	54	MMA2-4-41	7.08	52	MMSO-8-6	1.74	52	MMS5-12-125	2.79	53	MMSS7-3	4.78	51
MFS5-4-85	4.98	54	MMA2-4-42	6.92	52	MMSO-8-8	1.65	52	MMS6-3-3	1.19	53	MMSS7-3-4	9.15	51
MFS5-6-31	4.98	54	MMA2-4-55	7.08	52	MMSO-8-10	2.01	52	MMS6-3-4	1.31	53	MMSSB1-3	8.69	59
MFS5-6-105K	24.55	54	MMA2-4-65	7.52	52	MMSO-8-12	2.58	52	MMS6-3-6	1.78	53	MMSSB2-3	9.81	59
MFS5-6-115	4.27	54	MMA2-4-85	10.13	52	MMSO-8-16	4.85	52	MMS6-4-3	1.31	53	MMSSB4-3	35.14	59
MFS5-8-85	4.98	54	MMA2-4-105S	9.15	52	MMSO-10-6	3.14	52	MMS6-4-4	1.17	53	MMSSB9-3	29.42	59
MFS5-8-105	5.07	54	MMA2-6-31	7.08	52	MMSO-10-8	3.14	52	MMS6-4-6	1.48	53	MON2X	57.76	71
MFS5-8-125	9.54	54	MMA2-6-35	11.50	52	MMSO-10-10	3.11	52	MMS6-6-3	2.02	53	MON25X	61.72	71
MFS5-55-4	3.32	54	MMA2-6-41	5.58	52	MMSO-10-12	3.11	52	MMS6-6-4	1.65	53	MON275	6.66	71
MFS5-85-8	4.27	54	MMA2-6-42	4.46	52	MMSO-12-4	3.23	52	MMS6-6-6	1.48	53	MONC2	126.70	71
MFS6-3-3	7.43	54	MMA2-6-55	6.92	52	MMSO-12-6	3.23	52	MMS6-6-8	2.02	53	MONC25	61.72	71
MFS6-4-4	8.69	54	MMA2-6-65	5.26	52	MMSO-12-8	2.76	52	MMS6-8-4	2.02	53	MONC275	66.60	71
MFS7-4-6	3.58	54	MMA2-6-85	9.99	52	MMSO-12-10	2.76	52	MMS6-8-6	2.02	53	MONCS2	139.89	72
MFS7-5-4	10.16	54	MMA2-6-105S	7.34	52	MMSO-12-12	2.55	52	MMS6-8-8	1.65	53	MONS2	72.76	72
MFS7-5-5	3.77	54	MMA2-8-55	9.56	52	MMSO-12-16	4.42	52	MMS6-10-10	2.21	53	MTB3-3	3.21	55
MFS7-5-6	3.77	54	MMA2-8-65	9.88	52	MMSO-12-20	12.78	52	MMS6-12-8	2.76	53	MTB14-3	8.66	55
MFS7-6-4	4.73	54	MMA2-8-85	6.62	52	MMS1-3	3.20	52	MMS7-3-4	4.54	51	MTB14-4	15.98	45
MFS7-6-5	3.77	54	MMA2-8-105S	7.34	52	MMS1-4-4F	7.33	52	MMS7-4-5	2.00	51	MTB14-5	8.66	45
MFS7-6-6	3.62	54	MMA2-10-65	9.88	52	MMS1-4	1.46	52	MMS7-5	1.53	51	MTB14-6	9.67	45
MFS7-6-8	3.58	54	MMA2-10-85	12.39	52	MMS1-4-5	1.68	52	MMS7-6-8	2.52	51	MTB14-8	7.92	45
MFS7-8-6	3.88	54	MMA2-10-95	12.70	52	MMS1-6-5	1.68	52	MMS7-6-10	3.01	51	MTS3-3	5.85	55
MFS7-8-8	3.58	54	MMA2-10-105S	7.34	52	MMS1-8	2.31	52	MMS7-6-12	4.58	51	MTS3-4	4.37	55
MFS7-10-12	6.61	54	MMA2-12-65	14.27	52	MMS1-10-8	2.21	52	MMS7-8-8	1.62	51	MTS3-6	6.22	55
MFS7-12	6.61	54	MMA2-12-85	12.39	52	MMS1-10-16	7.70	52	MMS7-8-10	2.52	51	MTS3-8	7.42	55
MFS8-3-3	2.60	54	MMA2-12-95	12.39	52	MMS1-12-8	3.74	52	MMS7-8-12	3.36	51	MTS3-10	8.63	55
MFS8-4-2	2.85	54	MMA2-12-105	9.10	52	MMS1-12	3.57	52	MMS7-10-10	2.15	51	MTS7-3	5.03	55
MFS9-3-7	4.28	54	MMA2-12-105S	7.34	52	MMS2-3-31X	4.32	52	MMS7-10-12	3.32	51	MTS7-4	6.41	55
MFS9-6-7	6.23	54	MMA2-12-115	10.44	52	MMS2-4-31	5.43	52	MMS7-10-16	5.23	51	MTS7-6	6.87	55
MFS9-7-3	8.41	54	MMA2-12-125	16.44	52	MMS2-4-41	5.09	52	MMS7-12-12	3.14	51	MTS7-8	6.87	55
MFS10-3-3	7.35	54	MMA2-12-145	11.80	52	MMS2-6-31	5.52	52	MMS7-12-16	4.92	51	MTS7-10	11.93	55
MFS10-6-4	7.80	54	MMA2-12-165	16.31	52	MMS2-6-45	3.11	52	MMS7-16-16	4.50	51	MTS14-3	4.15	45
MFS10-8-3	3.11	54	MMA2-16-105S	7.34	11	MMS2-6-55	3.17	52	MMS7-20-20	9.38	51	MTS14-4	3.98	45
MFS10-8-4	3.11	54	MMA2-16-125	13.17	52	MMS2-6-65	2.69	52	MMS8-4-4	2.41	51	MTS14-5-3-5	6.14	45
MFS10-8-6	9.02	54	MMA2-16-165	16.31	52	MMS2-6-85	3.14	52	MMS8-5-3	1.46	51	MTS14-5	4.15	45
MFS13-3X-31	4.78	54	MMA3-3-6	6.19	53	MMS2-6-95	3.14	52	MMS8-6-3	2.41	51	MTS14-6	4.83	45
MFS43-8	7.92	54	MMA-3	7.75	52	MMS2-8-55	3.28	52	MMS8-6-8	2.16	51	MTS14-6-5-6	5.09	45
MFS43-10	9.07	54	MMA-3-4	7.75	53	MMS2-8-65	2.76	52	MMS8-10-4	3.31	51	MTS14-8	8.71	45
MFS93-3	4.50	54	MMA3-6-8	6.48	53	MMS2-8-85	3.11	52	MMS8-10-6	2.16	51	MTSS-03	39.37	43
MFS93-4	4.64	54	MMA3-8	9.17	53	MMS2-10-65	3.28	52	MMS8-16-12	4.78	51	MTSS7-3	40.54	55
MFS93-6	6.68	54	MMA3-8-10	9.56	53	MMS2-10-85	3.28	52	MMS9-3	4.26	53	MYB14-4	9.56	45
MFS93-8	7.09	54	MMA3-10	5.27	53	MMS2-16-125	10.10	52	MMS9-3-4	4.83	53	MYB14-5	9.56	45
MFS93-10	9.32	54	MMA-4-3	7.75	53	MMS2-31	4.13	52	MMS9-3-4F	3.97	53	MYB14-6	12.60	45
MFS97-6	6.81	54	MMA-4-4	7.75	53	MMS3-3-3	0.86	53	MMS9-3-4FX	3.57	53	MYB14-8	11.19	45
MFS97-8	8.52	54	MMA-4-6	6.69	53	MMS3-3-4	1.14	53	MMS9-3-4FX	4.16	53	NH32	0.57	72
MFS97-10	11.11	54	MMA4-8	7.79	53	MMS3-3-6	1.37	53	MMS9-3-4V	5.33	53	NH38	0.44	72
MFS98-3-3	14.06	54	MMA4-10J	8.84	53	MMS3-3-8	1.88	53	MMS9-3-5V	1.65	53	NH38F	0.44	72
MFSO-12-8	7.14	54	MMA5-6-105S	7.15	11	MMS3-4-4	1.04	53	MMS9-3-6V	4.03	53	NH45	0.34	72
MFS57-3-4	14.28	54	MMA5-8-105S	7.15	11	MMS3-4-6	1.20	53	MMS9-3-7	5.18	53	NH51	0.29	72
MFS57-3-6	26.23	54	MMA5-10-18	9.03	53	MMS3-4-8	1.48	53	MMS9-3V	4.50	53	NH51F	0.32	72
MFS57-4-6	26.13	54	MMA5-10-105S	7.15	11	MMS3-6-6	1.26	53	MMS9-3X	4.34	35	NH57	0.32	72
MFS57-6-4	34.84	54	MMA5-12-105S	7.15	11	MMS3-6-8	1.48	53	MMS9-4-3	4.26	53	NH57F	0.67	72
MFS57-6-8	38.17	54	MMA-6-3	6.89	52	MMS3-6-10	2.08	53	MMS9-4-4	1.41	53	NH63	0.58	72
MFS57-8-10	55.80	54	MMA-6-4	9.70	52	MMS3-8-8	1.48	53	MMS9-4-4X	7.00	53	NH451	22.17	72
MGA1	126.04	16	MMA-6-6	9.46	52	MMS3-8-10	1.95	53	MMS9-4-6	2.02	53	NH457	22.17	72
MIK17-19	1.12	48	MMA-6-8	12.63	52	MMS3-8-12	2.58	53	MMS9-4-6FX	5.09	53	NH951	22.17	72
MIK19-21	1.16	48	MMA-8-4	10.69	52	MMS3-10-10	1.74	53	MMS9-6-5	1.81	53	NH957	22.17	72
MIK21-23	1.14	48	MMA-8-6	10.69	52	MMS3-10-12	2.58	53	MMS9-6-7	6.00	53	NHSC10-188	16.40	70
MIK23-25	1.15	48	MMA-8	6.62	52	MMS3-12-12	2.52	53	MMS9-8-7	2.87	35	NHSC10-250	16.40	70
MIK25-27	1.17	48	MMA-10-6	11.20	52	MMS5-3-31	5.73	53	MMS9-8-8	2.50	53	NHSC10-313	16.40	70
MIK27-29	1.28	48	MMA-10-8	8.83	52	MMS5-3-31V	4.08	53	MMS9-8-10	3.01	53	NHSC10-375	16.40	70
MIK29-31	1.38	48	MMA-10	12.26	52	MMS5-3-31X	3.98	53	MMS9-10-8	3.01	53	NHSC10-437	16.40	70
MIK31-34	1.42	48	MMA-10-12	14.52	52	MMS5-3-32	3.01	53	MMS9-10-10	3.53	35	NHSC10-500	16.40	70
MIK34-37	1.49	48	MMA-12-8	12.57	52	MMS5-3-32V	4.03	53	MMS9-12-8	3.57	53	NHSC10-562	16.40	70
MIK37-40	1.50	48	MMA-12-10	11.04	52	MMS5-3-32X	3.84	35	MMS9-12-10	4.00				

NHSC20-522	18.04	70	OCI128	61.92	16	QCP177-6	75.47	12	QFMAN	200.59	75	S100R6-12	22.55	31
NHSC20-622	18.04	70	OCI129	66.47	16	QCP237-6	88.78	12	QFR252	483.28	75	SB3LHO	129.43	74
NHSC20-652	18.04	70	OCI130	70.36	16	QCP307-6	94.52	12	QFSYS1	632.93	75	SB3LKA	129.43	74
NHSC20-822	18.04	70	OCI131	90.05	16	OCRM-1	90.05	13	QFSYS2	1,333.45	75	SB3LSU2	129.43	74
NHSC20-823	18.04	70	OCI132	89.77	16	OCRM-2	6.43	13	QFT251	157.39	75	SB3LSU	129.43	74
NHSC20-835	18.04	70	OCI133	101.24	16	OCSBEN1	174.58	13	QFT252	327.28	75	SB3LTR	129.43	74
NHSC20-836	18.04	70	OCI134	81.26	16	OCSJAG1	413.05	13	QM251	248.70	75	SB3LYADU	129.43	74
NHSC41-43751	22.66	70	OCI135	115.33	16	OCSLOT3	260.23	13	QMH252	124.62	75	SGS3-5-BL	24.70	69
NHSC41-50051	22.66	70	OCI136	84.65	16	OCSLOT4	260.23	13	QMV252	126.41	75	SGS-250	24.70	69
NHSC41-56251	22.66	70	OCI137	90.84	16	OCTBMW1	124.16	21	QR-03-22P	342.98	85	SGS-375	24.70	69
NHSC41-62551	22.66	70	OCI138	66.55	16	OCTBMW2	298.59	21	QR-03	263.20	85	SGS-500	24.70	69
NHSC41-65051	22.66	70	OCI141	62.38	16	OCTO17-10	41.60	21	RB-M8	0.18	67	SGS-625	24.70	69
NHSC41-82051	22.66	70	OCI142	64.09	16	OCTO17-12	41.60	21	RB-M10	0.69	67	SGS-750	24.70	69
NHSC41-83551	22.66	70	OCI143	69.70	16	OPG100	30.24	83	RB-M18	0.37	67	SGS-875	24.70	69
NIP1-1/4	1.48	45	OCI144	83.01	16	OPG160	30.24	83	RB-M27	0.75	67	SGS-1000	24.70	69
NIP1-3	0.96	45	OCI146	63.74	16	OPOTG1612	75.19	83	RB-M31	0.86	67	SH45-M6.5	9.37	47
NIP1-3SS	4.54	45	OCI147	125.53	16	OPOTG	73.81	83	RB-M39	0.86	67	SH45-M8	9.42	47
NIP2-32SS	5.19	45	OCI148	63.35	16	OPP2	7.34	78	RB-M41	1.12	67	SH45-M9.5	9.46	47
NIP5-11	0.86	45	OCI149	56.80	16	OPP6B	27.97	78	RB-M43	0.97	67	SH45-M11	9.52	47
NIP5-11SS	4.52	45	OCI150	79.26	16	OPP6	41.92	78	RB-M46	1.74	67	SH45-M13	9.56	47
NIP5-22	0.93	45	OCI151	124.24	16	OPP7	36.53	78	RB-M51	1.24	67	SH45-M16	8.65	47
NIP5-22SS	6.74	45	OCI263	22.67	17	OPP10	14.53	78	RB-M60	1.49	67	SH45-M19	9.01	47
NIP5-31	0.97	45	OCI263E	43.75	17	OPP16	27.23	78	RB-M74	1.49	67	SH45-M22	9.38	47
NIP5-31SS	6.64	45	OCI263I	51.53	17	OPWGT	73.81	83	RB-M77	1.49	67	SH45-M25	9.74	47
NIP1L1-3SS	4.54	45	OCI264	42.49	17	OT/1-92	39.37	17	RB-M80	1.49	67	SH45-M28	10.10	47
NOR1R	54.90	16	OCI265	64.94	17	OT/1BHT	46.90	17	RB-M84	1.49	67	SH45-M32	10.57	47
NOR2R	67.87	16	OCI266	89.73	17	OT/1B	45.94	17	RC3-3	0.04	67	SH45-M35	10.93	47
OB-1.25	16.20	49	OCI269	108.10	17	OT/1	38.88	17	RC3-4	0.07	67	SH45-M38	11.29	47
OB-1.75	21.25	49	OCI270	98.46	17	OT/2A	106.42	17	RC3-6	0.06	67	SH45-M41	14.05	47
OB-2.25	21.54	49	OCI271	92.26	17	OT/2B	94.64	17	RC3-8	0.08	67	SH45-M45	12.13	47
OB-5	12.06	49	OCI272	99.20	17	OT/2C	96.01	17	RC3-10	0.10	67	SH45-M48	12.48	47
OB-75	12.99	49	OCI273	79.72	17	OT/2D	98.75	17	RC3-12	0.13	67	SH45-M51	12.84	47
OC573-8	60.55	13	OCI274	107.13	17	OT/2E	96.76	17	RC3-16	0.39	67	SH45-M54	13.45	47
OC1162-55	84.67	13	OCI276	105.90	17	OT/2F	98.75	17	RC7-3	0.05	67	SH45-M57	16.87	47
OC1163-10	84.67	13	OCI277	79.81	17	OT/2G	96.40	17	RC7-4	0.08	67	SH45-M60	13.92	47
OC1193-8	98.38	13	OCI278	73.96	17	OT/2H	99.14	17	RC7-6	0.13	67	SH45-M63	14.29	47
OC5103-6	67.00	13	OCI279	77.41	17	OT/2J	99.40	17	RC7-8	0.16	67	SH45-M70	17.78	47
OC5103-8	67.00	13	OCI280	103.03	17	OT/2K	100.50	17	RC7-10	0.13	67	SH45-M76	35.68	47
OC5133-6	79.31	13	OCI300	164.38	16	OT/2M	106.19	17	RC7-12	0.19	67	SH45-M80	23.41	47
OC5133-8	79.31	13	OCI887	65.47	16	OT/2	94.64	17	RC7-16	0.23	67	SH45-M83	23.97	47
OC5133-10	79.31	13	OCI964	61.12	16	OT/2SK92	13.76	17	RE-AG-003	399.56	75	SH45-M89	24.95	47
OC5161-12	92.48	13	OCI997	68.19	16	OT/2SK	11.76	17	RES1	27.58	66	SH45-M102	74.25	47
OC5191-12	106.05	13	OCI998	65.47	16	OTG140	49.94	83	RES2	27.44	66	SH90-M6.5	8.17	47
OC13	42.18	81	OCI999	60.92	16	OTGM7-8	128.41	17	RES3	65.17	66	SH90-M8	8.22	47
OC16	42.18	81	OCI1000	114.51	16	OTGM7-10	128.41	17	RES4	59.99	66	SH90-M9.5	8.27	47
OC19	42.18	81	OCI1037	57.49	16	OTGM7-12	128.41	17	RFH1A	37.91	22	SH90-M11	8.32	47
OC140	104.33	16	OCI1179	79.79	16	OTSP1	52.03	21	RFH1B	37.91	22	SH90-M13	8.36	47
OC141	70.22	16	OCI1180	104.42	17	OTSP1C	52.03	21	RFH1C	37.91	22	SH90-M16	8.65	47
OC142	74.22	16	OCI1201	60.28	16	OTSP1CHF	78.63	21	RFH1D	37.91	22	SH90-M19	9.28	47
OC143	70.97	16	OCI1204	67.11	16	OTSP1CM18	54.63	21	RFH1E	32.30	22	SH90-M22	9.38	47
OC144	63.02	16	OCI1204S	96.01	17	OTSP1D	53.41	21	RFH1F	32.30	22	SH90-M25	9.74	47
OC145	26.61	16	OCI1205	75.22	16	OTSP1DHF	58.12	21	RFH1G	37.91	22	SH90-M28	10.10	47
OC145E	29.99	16	OCI1230	115.55	16	OTSP1F-25	95.57	21	RFH1H	37.91	22	SH90-M32	10.57	47
OC145I	43.80	16	OCI1250S	135.45	17	OTSP1F	53.21	21	RFH2E	32.30	22	SH90-M35	10.95	47
OC1/46	33.78	16	OCI1251	73.72	16	OTSP1FHF	76.89	21	RFH2G	37.91	22	SH90-M38	11.84	47
OC151	89.68	16	OCI1283	70.94	16	OTSP1G	63.30	21	RFH3A	32.76	22	SH90-M41	11.84	47
OC152	44.46	16	OCI1287	59.13	16	OTSP1GHF	80.14	21	RFH3B	36.11	22	SH90-M45	12.13	47
OC153	98.41	16	OCI1355	77.57	17	OTSP1HF	75.70	21	RFH4	31.51	22	SH90-M48	14.73	47
OC154	35.78	16	OCI1356	113.69	17	OTSP1M18	54.63	21	RFH5	83.21	22	SH90-M51	12.84	47
OC158	32.86	16	OCI1382	73.93	16	OTSP16HF	114.41	21	RFH6	51.14	22	SH90-M54	13.20	47
OC160	70.89	16	OCI1393	104.59	17	PC1	113.69	21	RFK1	104.87	22	SH90-M57	13.56	47
OC163	72.25	16	OCI1394	102.02	17	PEM7-6-5GM	16.40	61	RFK2	115.56	22	SH90-M60	13.92	47
OC168	78.84	16	OCI1395	84.46	17	PEM7-6-6GM	16.40	61	RFK3	73.63	22	SH90-M63	14.28	47
OC169	61.81	16	OCI1396	58.61	16	PEM7-6-8GM	16.40	61	RFK4	88.72	22	SH90-M70	17.78	47
OC171	67.19	16	OCI1490	96.88	16	PEM7-8-6GM	16.40	61	RFK5	210.21	22	SH90-M76	34.50	47
OC172	120.36	16	OCI1511	73.04	16	PEM7-8-8GM	16.40	61	RIN1	15.06	73	SH90-M80	23.41	47
OC173	62.25	16	OCI1540	66.68	16	PHSC-M3	0.11	70	RIN2	13.99	73	SH90-M102	27.54	47
OC174	71.05	16	OCI1824	79.63	16	PHSC-M5	0.11	70	RIN3	12.42	73	SH90R-M16-M13	8.70	47
OC175	80.30	16	OCI1828	66.13	16	PHSC-M6	0.11	70	RIN4	24.20	73	SH90R-M25-M19	11.95	47
OC176	94.27	16	OCI1829	88.22	16	PHSC-M8	0.11	70	RIN6	22.52	74	SH135-M32	16.97	13
OC177	60.39	16	OCI1879	80.10	16	PHSC-M10	0.11	70	RN1	20.48	73	SH-M6.5	16.49	46
OC178	63.85	16	OCI2391	85.53	16	PHSC-M13	0.13	70	RN2	21.94	73	SH-M8	17.33	46
OC180	70.86	16	OCI2391S	114.14	17	PHSC-M16	0.13	70	RN3	23.28	73	SH-M9.5	17.93	46
OC181	79.42	16	OCI2392	88.78	16	PHSC-M19	0.19	70	RP3-3	0.06	67	SH-M11	18.26	46
OC182	8.92	16	OCI2417s	99.20	17	PHSC-M25	0.22	70	RP3-4	0.08	67	SH-M13	18.47	46
OC183	68.44	16	OCI2420	75.92	16	PHSC-M27	0.22	70	RP3-6	0.08	67	SH-M16	18.67	46
OC186	59.46	16	OCI2421	79.85	16	PHSC-M32	0.22	70	RP3-8	0.11	67	SH-M19	20.03	46
OC187	57.77	16	OCI2422	62.02	16	PHSC-M37	0.24	70	RP3-10	0.13	67	SH-M22	21.37	46
OC189	64.44	16	OCI2423	58.45	16	PRE1	63.44	74	RP3-12	0.19	67	SH-M25	22.73	46
OC191	58.37	16	OCI2423S	68.21	17	PRO53	29.90	77	RP7-3	0.08	67	SH-M28	24.08	46
OC192	69.60	16	OCI2425	72.23	16	PRO54	29.90	77	RP7-4	0.25	67	SH-M32	25.88	46
OC193	97.02	16	OCI2426	75.92	16	PRO55	30.77	77	RP7-6	0.21	67	SH-M35	27.22	46
OC194	66.75	16	OCI2427	64.42	16	PRO804	8.32	77	RP7-8	0.21	67	SH-M38	28.59	46
OC195	90.20	16	OCI2435	61.12	16	PRO805	8.32	77	RP7-10	0.21	67	SH-M41	29.93	46
OC196	88.96	16	OCI2436	90.28	16	PRO806	8.32	77	RP7-12	0.25	67	SH-M45	31.73	46
OC197	66.74	16	OCI2500	59.79	16	PW05927	116.54	12	RP7-16	0.35	67	SH-M48	34.44	46
OC198	34.81	16	OCI2501	64.82	16	PW05929	163.16	12	RPV1	28.34	66	SH-M51	34.44	46
OC199	80.34	16	OCI2502	72.41	16	PW05931	186.45	12	RPV2	28.34	66	SH-M54	37.08	47
OC1104	74.72	16	OCI2594	68.98	16	PW05933	213.95	12	RUB1	8.69	73	SH-M57	37.15	47

SHR-M19-M16	8.02	47	TAP7-8	74.53	66	THV45	28.01	65	WFP3	565.88	76
SHR-M22-M16	9.08	47	TAT-3-4	42.00	50	TN1-3	0.58	46	WFR2	271.45	76
SHR-M25-M19	9.12	47	TBG2	31.60	83	TN1-4	0.54	46	WIB1	5.68	61
SHR-M32-M25	11.66	47	TBG30	31.60	83	TN1-31	0.38	46	WLP1	498.00	78
SHR-M38-M32	12.84	47	TBV45	22.07	65	TN1S-4	0.58	46	WO2-M14	5.17	61
SHR-M45-M38	13.72	47	TCP1	145.28	78	TN2-3	0.70	46	WO2-M16	5.17	61
SHR-M54-M51	14.15	47	TCP3	224.78	78	TN2-4	1.14	46	WO2-M18	4.85	61
SHR-M57-M51	10.48	47	TCP240VOLTS	366.41	78	TN2-31	0.70	46	WO2-M22	7.38	61
SHR-M70-M50	11.25	47	TDP1	448.48	79	TN4-4	0.93	46	WO2-M26	6.00	61
SHR-M76-M51	17.41	47	TDP2	413.45	79	TOP1A	51.42	21	WO2-M30	9.92	61
SHR-M102-M76	26.39	47	TEB45	30.93	49	TOP1B	20.31	21	WO3-3	5.62	61
SLA1	72.88	66	TEB90	32.29	49	TOP1C	23.44	21	WO3-4	4.69	61
SLF7-4	46.14	77	TEBAND-M12	41.85	49	TOP1D	22.43	21	WO3-6	5.19	61
SLF7-6	39.98	77	TEBAN-M12	42.63	49	TOP1F	23.44	21	WO3-8	6.73	61
SLF7-8	40.77	77	TEB	21.78	49	TOP1	23.44	21	WO3-10	6.73	61
SLF14-5	39.98	77	TEF2-55	24.48	49	TOP1G	42.83	21	WO3-12	4.25	61
SLF14-6	39.98	77	TEF7-6	24.48	49	TOP10	75.54	21	WO3-16	8.26	61
SLM141-6	120.38	11	TEF92-55	29.66	49	TOP2N	82.58	21	WO7-3	3.23	61
SLM141-10	130.39	11	TEF97-6	40.98	49	TOP3	100.69	21	WO7-4	5.62	61
SLM141-14	143.06	11	TEM2-55	21.71	49	TOP7	55.37	21	WO7-6	3.67	61
SLM250-6	130.39	11	TEM3-4	21.70	49	TOP8	26.80	21	WO7-8	3.68	61
SLM250-10	143.06	11	TEM7-6	29.97	49	TOP9	85.96	21	WO7-10	4.42	61
SLM250-14	158.09	11	TEMB7-6	21.10	49	TOP16A	55.40	21	WO7-12	4.25	61
SLM420-6-M18	171.42	11	TEMB47-6	30.30	49	TOP17	92.07	21	WO7-16	8.26	61
SLM420-6	143.06	11	TEMB92-55	30.30	49	TOP19	67.50	21	WO8-8	3.47	61
SLM420-10	188.20	11	TEMB97-6	41.85	49	TOP27	26.19	21	WO14-8	2.58	61
SLM420-14-M18	210.31	11	TETF7-6	39.00	49	TOP01C	51.25	21	WO15-6	4.16	61
SLM420-14	175.51	11	TET	43.68	49	TOP01D	51.25	21	WO15-12	4.16	61
SLM592-6	163.12	11	TFE2	9.56	38	TOP01F	51.25	21	WOF2-M12	5.09	61
SLM592-10	188.20	11	TFE3	6.71	38	TOP01	51.25	21	WOF2-M14	5.09	61
SLM592-14	213.24	11	TFE3B	7.92	38	TOP06	51.25	21	WOF2-M16	5.09	61
SP1A	37.33	21	TFE3R	7.92	38	TOP16E	153.82	21	WOF2-M18	5.09	61
SP1B	33.94	21	TFE4C	7.83	38	TP1	11.25	24	WOF2-M22	7.55	61
SP1BM18	33.94	21	TFE6C	10.57	38	TP2	8.49	24	WOF2-85	4.78	61
SP1C	32.37	21	TFE8	12.86	38	TP3	11.01	24	WOFSS2-85	2.01	61
SP1CM18	32.37	21	TFEPVC3	7.92	38	TP4	9.82	24	WOF7-6	3.92	61
SP1D	29.85	21	TFEPVC3BLU	7.92	38	TP5	19.32	24	WOF8-3	8.37	61
SP1DM18	29.85	21	TFEPVC3G	7.92	38	TP6	11.25	24	WOS7-3	4.16	61
SP1E	39.13	21	TFEPVC3TBUE	7.92	38	TP7	14.07	24	WOS7-4	3.44	61
SP1EM18	39.13	21	TFEPVC3TRED	7.92	38	TP8	8.49	24	WOS7-6	4.31	61
SP1F-25	76.51	21	TFEPVC4	11.38	38	TP9	9.24	24	WOS7-8	4.95	61
SP1F	30.52	21	TGA2A	27.34	23	TP12	12.40	24	WOS7-10	7.95	61
SP1FM18	30.52	21	TGA2B	47.12	23	TPW	11.25	24	WOS7-12	8.17	61
SP1	29.34	21	TGA2C	46.83	23	TRL	37.29	65	WOS7-16	9.39	61
SP1G	52.31	21	TGA2D	44.30	23	TRL7	37.29	65	WSP-3/8	0.21	61
SP1GM18	54.39	21	TGA2E	41.25	23	TRL8	37.29	65	WSP-5/8	0.99	59
SP1M18	32.02	21	TGA2F	47.98	23	TRL68	37.29	65	WSP-MK10	49.94	59
SP3	26.80	21	TGA2G	41.25	23	TRV45	28.40	65	WTG110	49.94	83
SP4	26.80	21	TGA2H	44.02	23	TRV67	25.25	65	XR1H	11.53	73
SP5	27.13	21	TGA2I	44.81	23	TRV86	37.24	65	XR1L	11.53	73
SP6	39.70	21	TGA2J	45.38	23	TS1	1.76	24	XR1	11.53	73
SP7	35.51	21	TGA2K	41.25	23	TS2	2.16	24	XR1S	15.95	73
SP9	52.59	21	TGA2M	27.55	23	TS3	2.16	24	XR2H	11.53	73
SP10	27.45	21	TGA2N	27.55	23	TS-M10	11.12	68	XR2L	11.53	73
SP11	61.60	21	TGA2O	27.55	23	TS-M14	12.24	68	XR2	11.53	73
SP12	39.88	21	TGA3-65	27.34	23	TS-M20	14.64	68	XR2S	15.95	73
SP13	32.01	21	TGA3A	27.34	23	TS-M30	25.26	68	XR3H	11.53	73
SP14	75.90	21	TGA3B	49.82	23	TS-M35	25.26	68	XR3	11.53	73
SP15	63.02	21	TGA3C	49.76	23	TTEC11001	24.85	68	XR3S	15.95	73
SP16	72.96	21	TGA3D	46.83	23	TTEC11002	49.56	68			
SP24	35.51	21	TGA3E	41.25	23	TTEC11031	31.43	68			
SP31	122.00	21	TGA3F	48.34	23	TTEC11032	52.35	68			
SP100F	77.60	21	TGA3G	41.25	23	TTEC13575	24.79	68			
SP100G	77.60	21	TGA3H	43.71	23	TTEC14002	30.35	68			
SP100	77.60	21	TGA3I	44.81	23	VFS-4	4.14	49			
SPH1-4	4.17	44	TGA3J	47.66	23	VFS-5	7.76	49			
SPH1-5	4.26	44	TGA3K	41.25	23	VFS-6	4.99	49			
SPH1-6	4.53	44	TGA3M	27.55	23	VFS-8	6.24	49			
SPH2-4	12.73	44	TGA3N	27.55	23	VFS-10	14.83	49			
SPH2-5	9.11	44	TGA3O	27.55	23	VFS-12	22.67	49			
SPH2-6	10.80	44	TGA4A	27.34	23	VH-3	2.42	44			
SPH3-4	8.11	44	TGA4B	46.80	23	VH-6	4.04	44			
SPH3-5	8.30	44	TGA4C	47.15	23	VH-M3	1.73	44			
SPH3-6	9.04	44	TGA4D	41.25	23	VH-M4	1.89	44			
SPH5-4	9.19	44	TGA4E	41.25	23	VH-M5	2.55	44			
SPH5-5	11.11	44	TGA4F	41.25	23	VH-M6	2.82	44			
SPH8-4	8.32	44	TGA4G	41.25	23	VH-M8	3.30	44			
SPH8-5	5.96	44	TGA4H	43.83	23	VH-M10	4.38	44			
SPH8-6	5.96	44	TGA4I	44.81	23	VOP1	267.25	79			
SPV1A	45.51	83	TGA4J	48.54	23	WC-1/4	0.33	67			
SPV1B	45.51	83	TGA4K	48.54	23	WC3/4	0.56	67			
SPV1C	45.51	83	TGA4M	28.13	23	WC-3/8	0.27	67			
SPV1D	45.51	83	TGA4N	27.55	23	WC3/8	0.25	67			
SPV1E	45.51	83	TGA4O	27.55	23	WC5/8	0.77	67			
SPV1F	46.66	83	TGA5	36.10	23	WC7/16	0.29	67			
SPV1G	45.51	83	TGA21	27.34	23	WC9/16	0.25	67			
SPV1	42.61	83	TGA31	27.34	23	WC-M10	0.13	67			
ST1	10.24	68	TGA41	27.34	23	WC-M12	0.36	67			
ST1RED	10.55	68	TGASP1/8NPTF	40.77	21	WCM18	0.25	67			
STA1	100.72	75	TGASP1	40.77	21	WCP1B	36.68	78			
TAP3-4-4	8.47	66	TGASP200D	32.42	24	WCP1C	19.73	78			
TAP3-4	5.96	66	TGASP200F	32.42	24	WCP1	48.25	78			
TAP3-6-5	16.28	66	TGASP200	32.42	24	WCS3/8	0.45	67			
TAP3-6-6	12.74	66	TGASP	40.77	21	WCS7/16	0.30	67			
TAP3-6	5.96	66	TGASPM14	40.77	21	WCS-M10	0.13	67			
TAP3-8	8.42	66	TGASPM16	40.77	21	WFP1	576.44	76			
TAP7-6	74.53	66	TGASPM18	40.77	21	WFP2	559.55	76			

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