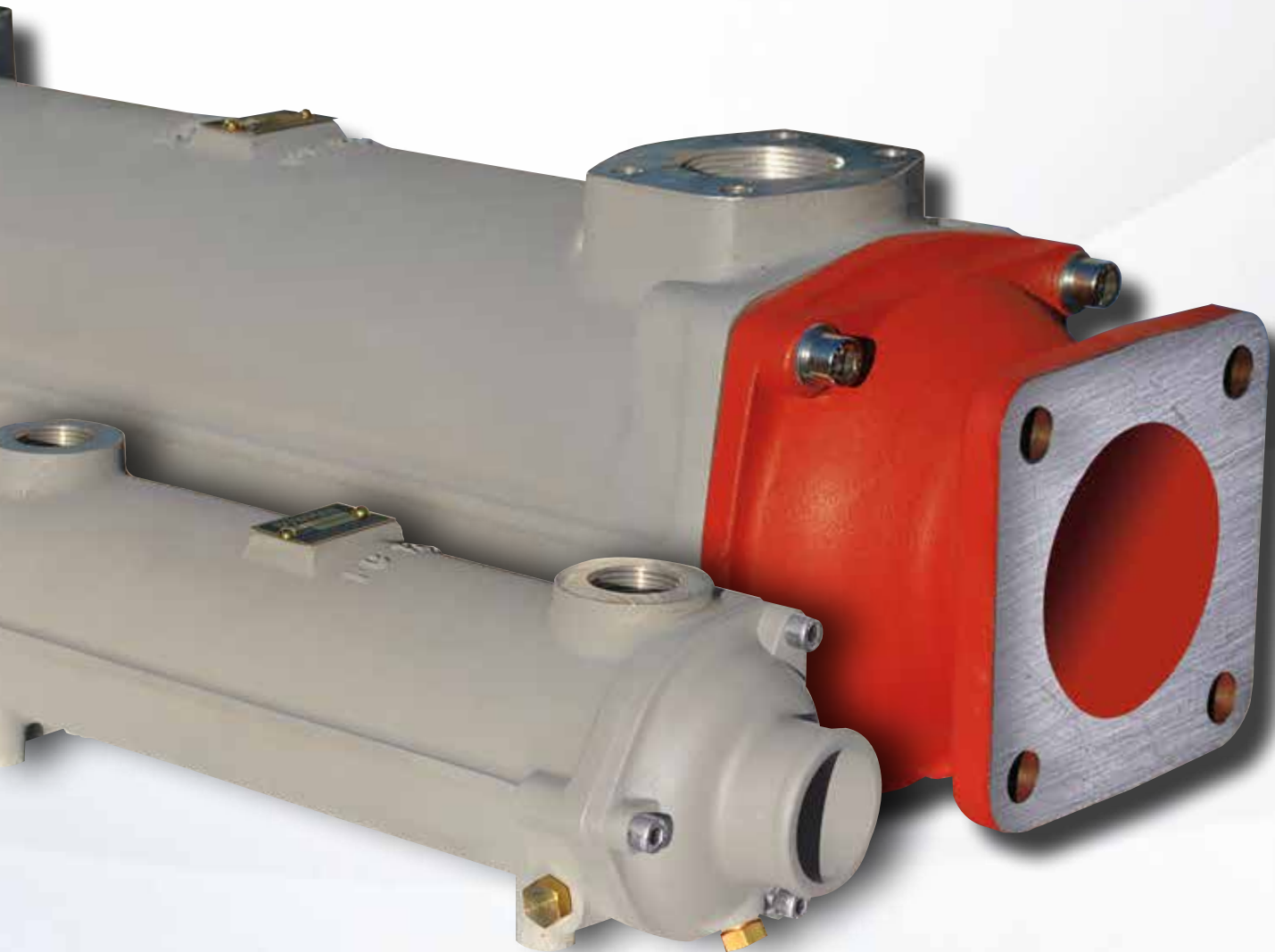


Engine and Transmission Oil Coolers

Heat Transfer Technology from Bowman



BOWMAN[®]

100 YEARS OF HEAT TRANSFER TECHNOLOGY

Bowman engine and transmission oil coolers.

Efficient oil cooling for off-and on-highway vehicles, construction plant and equipment.

Maintaining the correct oil temperature extends the service life of engine and transmission components, reducing service downtime and costs.

Bowman offer a wide range of water cooled shell and tube oil coolers designed to provide efficient cooling for a range of demanding applications, including torque convertors, automatic transmission and engine oils.

Bowman has been manufacturing heat exchangers and oil coolers for over 100 years. Our oil coolers are renowned for their performance, quality and reliability, whilst their compact design makes them easy to integrate in to the vehicles cooling system.



Easy Installation

Many oil coolers feature end covers with hose connections, for easy installation into the engine's coolant circuit.

Quick warm up

Being water based, Bowman oil coolers encourage quicker warm up of the oil, reducing wear – particularly useful in cold climates.

Robust construction

Compared to air/oil coolers, Bowman units are more robust, resisting accidental damage.

Fully floating tube stack

The 'fully floating' design allows for expansion and contraction of the tube stack within the cast aluminium body of the oil cooler, minimising thermal stresses.

Simple to maintain

Removable end covers with O-ring seals enable the tubestack to be easily withdrawn for cleaning and routine maintenance.

Easy product selection

At Bowman, we have developed a computer programme to select the correct oil cooler for your application. Simply by supplying us with the following information, we can advise the correct unit for your requirements;

- 1: Oil type or viscosity at a specific temperature cSt at °C
- 2: Oil flow l/min
- 3: Required oil outlet temperature °C
- 4: Heat to be dissipated kW
- 5: Cooling water temperature °C

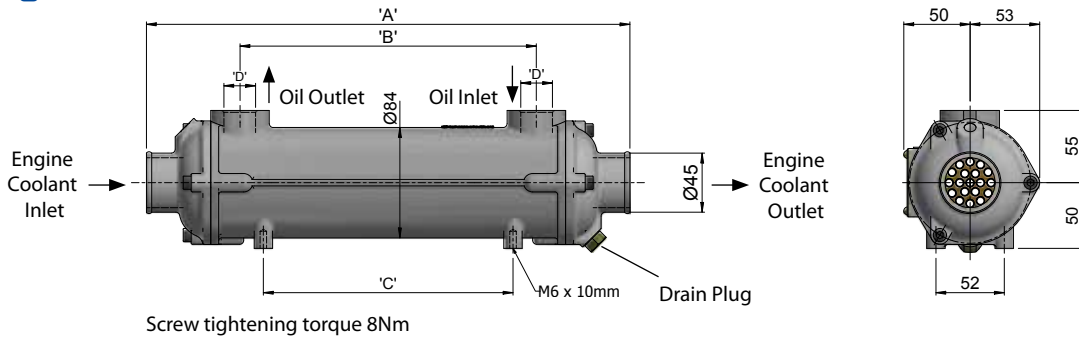
Engine & Transmission Oil Coolers

This table is intended to provide a general guide to the typical performance of Bowman oil coolers fitted to torque converter transmissions, with an inlet oil temperature of 110°C and a coolant inlet temperature of 80°C.

Cooler Type	Maximum oil flow	Maximum water flow	Suitable for torque converter transmitting	Internal oil volume	Internal water volume
	l/min	l/min	kW	l (litre)	l (litre)
EC 80-1635-1	30	200	45	0.26	0.31
EC100-1635-2	60	200	60	0.49	0.44
EC120-1635-3	60	200	75	0.74	0.57
EC140-1635-4	60	200	90	0.97	0.71
EC160-1635-5	60	200	105	1.30	0.91
FC100-1044-2	100	300	90	1.10	0.84
FC120-1044-3	100	300	105	1.50	1.06
FC140-1044-4	100	300	120	2.00	1.35
FC160-1044-5	100	300	135	2.60	1.68
FG100-1604-2	150	400	120	2.40	1.56
FG120-1604-3	150	400	140	3.00	1.96
FG140-1604-4	150	400	170	3.90	2.42
FG160-1604-5	150	400	200	5.00	2.97
GL180-4288-3	220	700	180	4.80	3.80
GL240-4288-4	220	700	240	6.30	4.60
GL320-4288-5	220	700	300	8.00	5.50
GL400-4288-6	220	700	360	10.00	6.60
GK250-3509-4	350	1000	360	9.00	7.50
GK320-3509-5	350	1000	450	11.60	9.00
GK400-3509-6	350	1000	540	14.60	10.60
GK480-3509-7	350	1000	630	17.40	12.30
JK250-3511-4	550	1600	520	12.50	10.40
JK320-3511-5	550	1600	640	16.10	12.50
JK400-3511-6	550	1600	780	20.30	14.70
JK480-3511-7	550	1600	900	24.20	17.10

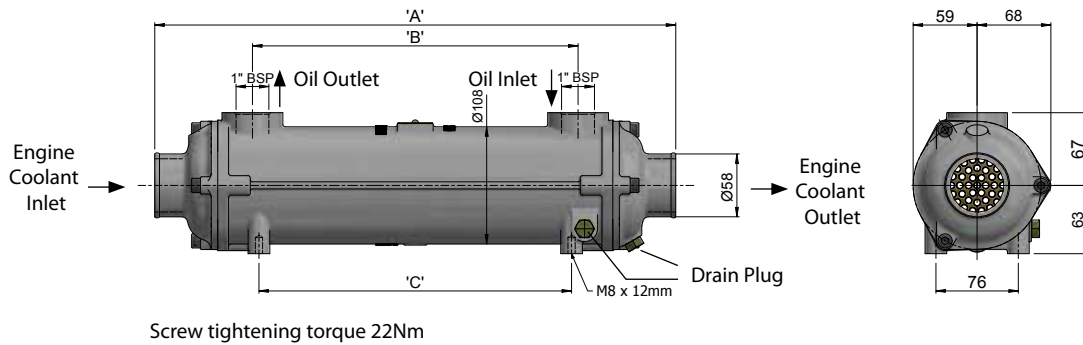


EC Range



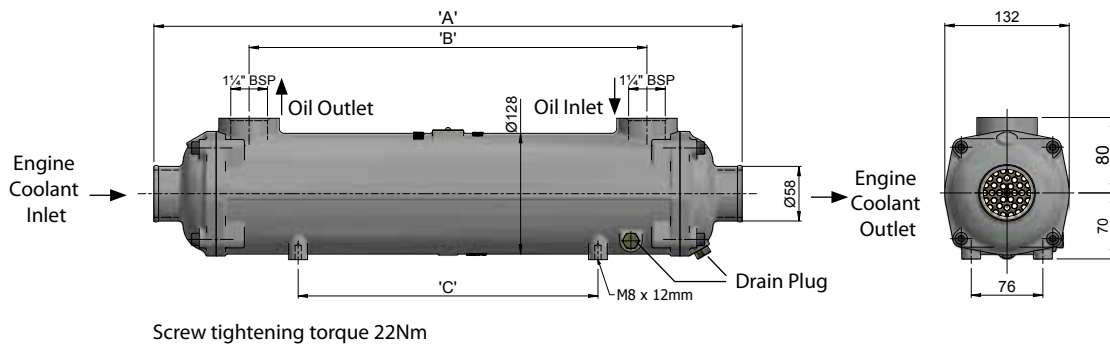
Type	Weight kg	A mm	B mm	C mm	D BSP
EC 80-1635-1	2.0	196	60	60	1/2"
EC100-1635-2	2.5	282	140	104	3/4"
EC120-1635-3	3.3	368	226	190	3/4"
EC140-1635-4	4.0	466	324	288	3/4"
EC160-1635-5	5.0	594	452	416	3/4"

FC Range



Type	Weight kg	A mm	B mm	C mm
FC100-1044-2	4.8	382	202	190
FC120-1044-3	6.6	480	300	288
FC140-1044-4	8.8	608	428	288
FC160-1044-5	9.5	754	574	434

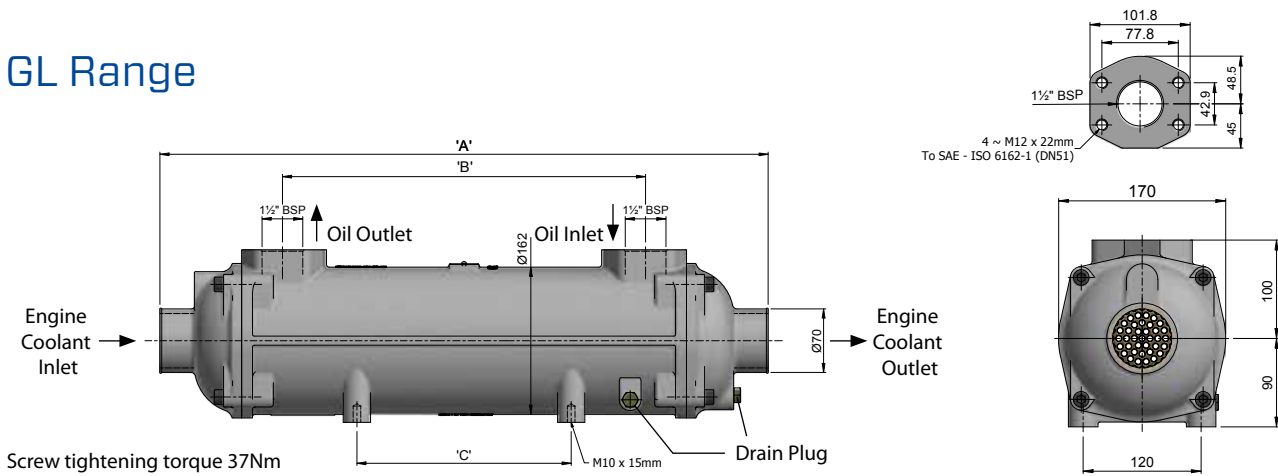
FG Range



Type	Weight kg	A mm	B mm	C mm
FG100-1604-2	10.0	496	294	190
FG120-1604-3	12.7	624	422	318
FG140-1604-4	15.0	770	568	464
FG160-1604-5	17.0	948	746	642

For alternative engine coolant connections see page 7.
All dimensions are in mm, (except threaded connectors).

GL Range

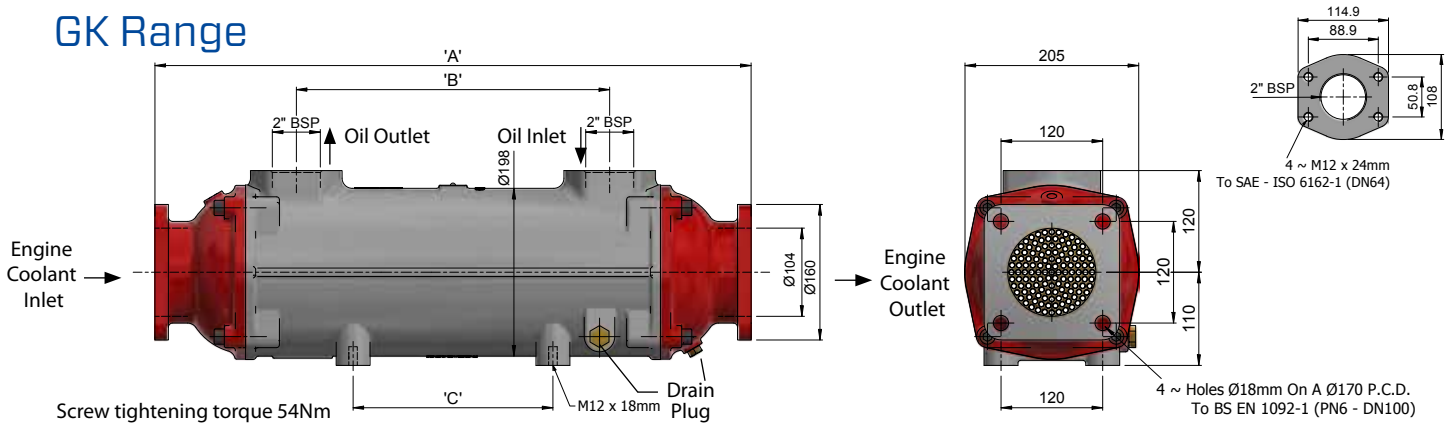


Screw tightening torque 37Nm

Type	Weight kg	A mm	B mm	C mm
GL180-4288-3	19	670	400	236
GL240-4288-4	25	816	546	382
GL320-4288-5	30	994	724	560
GL400-4288-6	34	1196	926	762

For alternative engine coolant connections see page 7

GK Range

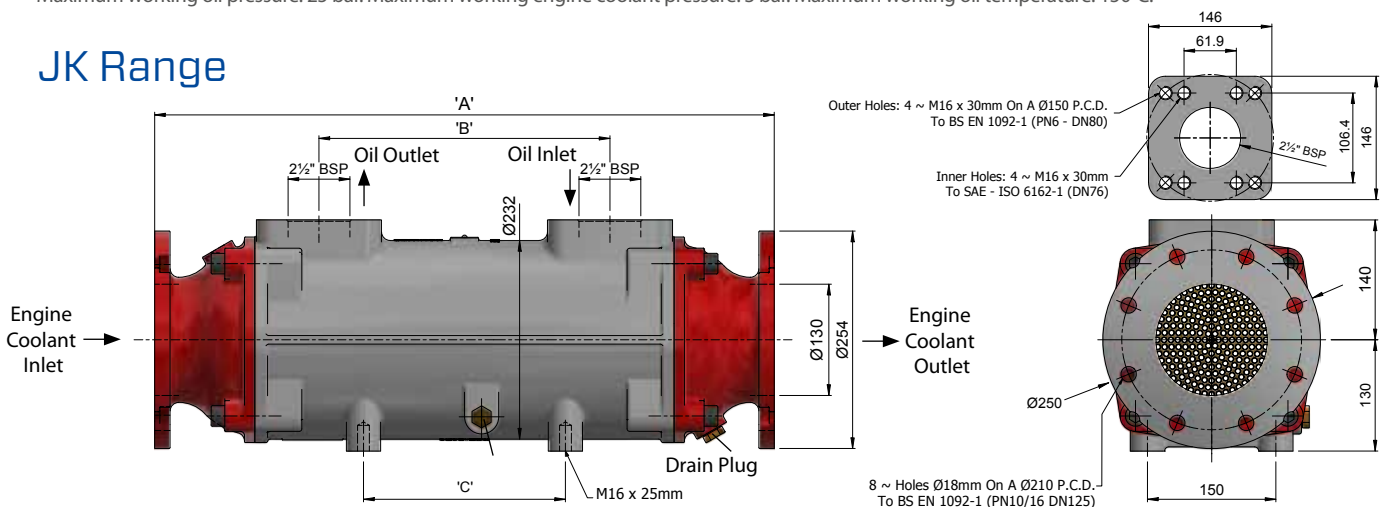


Screw tightening torque 54Nm

Type	Weight kg	A mm	B mm	C mm
GK250-3509-4	37	850	516	382
GK320-3509-5	44	1028	694	560
GK400-3509-6	51	1230	896	762
GK480-3509-7	57	1434	1100	966

Maximum working oil pressure: 25 bar. Maximum working engine coolant pressure: 3 bar. Maximum working oil temperature: 150°C.

JK Range



Screw tightening torque 95Nm

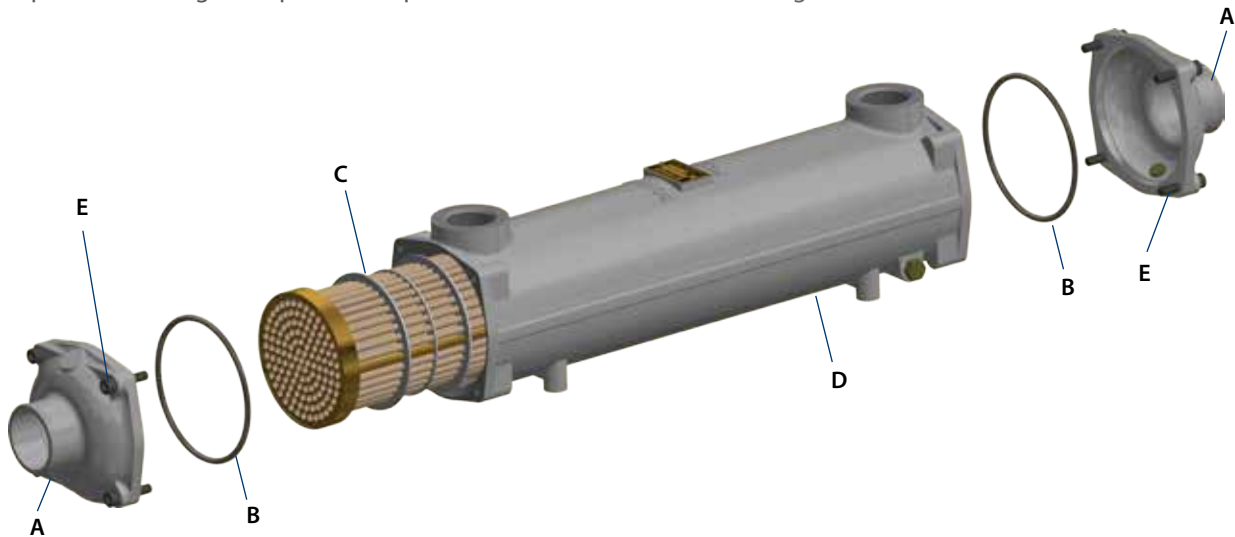
Type	Weight kg	A mm	B mm	C mm
JK250-3511-4	55	870	486	382
JK320-3511-5	64	1048	664	560
JK400-3511-6	77	1250	866	762
JK480-3511-7	90	1454	1070	966

Maximum working oil pressure: 25 bar. Maximum working engine coolant pressure: 3 bar. Maximum working oil temperature: 150°C.

All dimensions are in mm, (except threaded connectors).

Replacement Parts

A comprehensive range of replacement parts is available for all Bowman engine and transmission oil coolers.

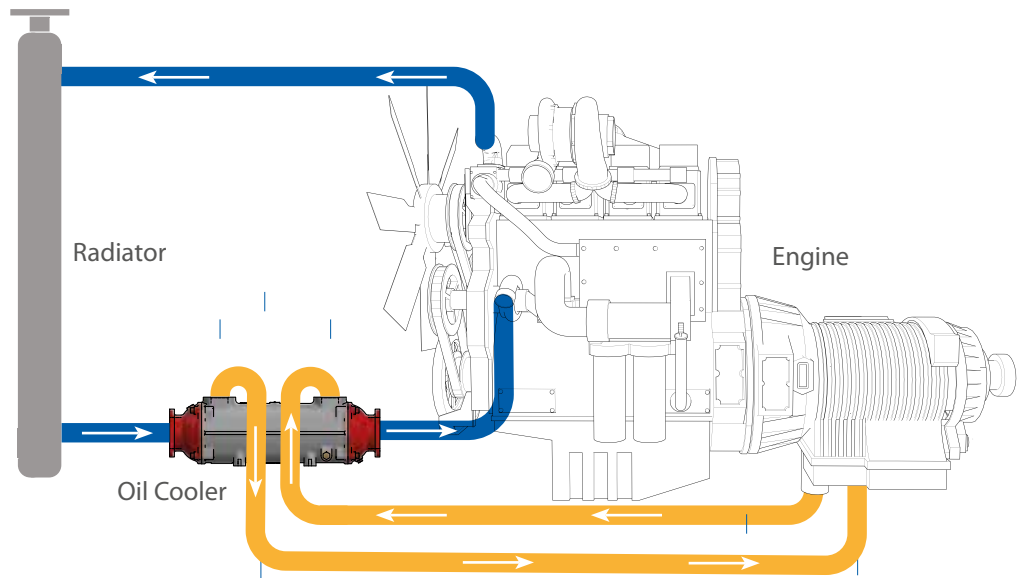


Cooler Type	A End Covers	B "O" Seals	C Tube Stack	D Body	E Screws
EC 80-1635-1	EC2-786AL	AN12VT	785-1TC1A	EC21-978AL	HS06X30
EC100-1635-2	EC2-786AL	AN12VT	785-2TC1A	EC10-783-2AL	HS06X30
EC120-1635-3	EC2-786AL	AN12VT	785-3TC1A	EC12-783-3AL	HS06X30
EC140-1635-4	EC2-786AL	AN12VT	785-4TC1A	EC14-783-4AL	HS06X30
EC160-1635-5	EC2-786AL	AN12VT	785-5TC1A	EC16-783-5AL	HS06X30
FC100-1044-2	FC2-1108AL	OS46VT	1530-2TC1A	FC10-1200-2AL	HS08X35
FC120-1044-3	FC2-1108AL	OS46VT	1530-3TC1A	FC12-1200-3AL	HS08X35
FC140-1044-4	FC2-1108AL	OS46VT	1530-4TC1A	FC14-1200-4AL	HS08X35
FC160-1044-5	FC2-1108AL	OS46VT	1530-5TC1A	FC16-1200-5AL	HS08X35
FG100-1604-2	FG5-1957AL	OS52VT	1959-2TC1A	FG10-1650-2AL	HS08X35
FG120-1604-3	FG5-1957AL	OS52VT	1959-3TC1A	FG12-1650-3AL	HS08X35
FG140-1604-4	FG5-1957AL	OS52VT	1959-4TC1A	FG14-1650-4AL	HS08X35
FG160-1604-5	FG5-1957AL	OS52VT	1959-5TC1A	FG16-1650-5AL	HS08X35
GL180-4288-3	GL4-1860AL	OS63VT	1798-3TC1A	GL19-3136-3AL	HS10X40
GL240-4288-4	GL4-1860AL	OS63VT	1798-4TC1A	GL25-3136-4AL	HS10X40
GL320-4288-5	GL4-1860AL	OS63VT	1798-5TC1A	GL33-3136-5AL	HS10X40
GL400-4288-6	GL4-1860AL	OS63VT	1798-6TC1A	GL41-3136-6AL	HS10X40
GK250-3509-4	GK63-3255CI	OS69VT	2315-4TC1A	GK25-2865-4AL	HS12X50
GK320-3509-5	GK63-3255CI	OS69VT	2315-5TC1A	GK32-2865-5AL	HS12X50
GK400-3509-6	GK63-3255CI	OS69VT	2315-6TC1A	GK40-2865-6AL	HS12X50
GK480-3509-7	GK63-3255CI	OS69VT	2315-7TC1A	GK48-2865-7AL	HS12X50
JK250-3511-4	JK4-3331CI	OS74VT	3334-4TC1A	JK25-3332-4AL	HS16X70
JK320-3511-5	JK4-3331CI	OS74VT	3334-5TC1A	JK32-3332-5AL	HS16X70
JK400-3511-6	JK4-3331CI	OS74VT	3334-6TC1A	JK40-3332-6AL	HS16X70
JK480-3511-7	JK4-3331CI	OS74VT	3334-7TC1A	JK48-3332-7AL	HS16X70



Installing the Oil Cooler

The oil cooler should be fitted into the coolant circuit between the bottom tank of the radiator and the coolant inlet connection on the engine. See illustration opposite. The radii of the coolant pipe bends should be as large as possible to reduce the pressure drop. Note: to maximise heat transfer, the oil pipe connections must be installed for 'counter flow'.



Alternative Coolant Connections

EC to GL oil cooler ranges are available with either In-line (axially) or right angled end covers. In addition to the standard water connections listed on pages 4 and 5, alternative diameter connections are available, as listed in the table below.

Type	In line-axially (Part Number)	Right angled (Part Number)
EC	38 mm (EC11-366AL) 52 mm (EC9-2421 CI)	38 mm (EC30 - 1585AL) 45 mm (EC13 - 1865AL) 52 mm (EC15 - 3558AL)
FC	45 mm (FC5 - 1312AL) 52 mm (FC9-3291AL) 2" BSP (FC33 - 1176CI)	45 mm (FC34 -3225AL) 52 mm (FC35 - 3173AL) 58 mm (FC36 -3212AL)
FG	45 mm (FG4 - 1944AL) 2 1/2" BSP (FG7 -2802CI)	50 mm (FG37 - 2781AL) 58 mm (FG36 -2740GFN)
GL	3" BSP (GL37-3140CI)	70mm (GL14-4055CI)

Servicing the Unit

Simply by removing the end cover retaining screws, the tube stack can be withdrawn from the outer shell for cleaning or routine maintenance. On reassembly, it is recommended that new 'O' seals are fitted and the end screws tightened to the torque settings given on the drawings on page 4 and 5.

Total Engine Cooling Solutions

Bowman can provide a complete solution for cooling both marine and land based stationary engines, including:

Charge Air Coolers (Intercoolers)

Suitable for engines rated from 50kW to 1200kW



Header Tank Heat Exchangers

Jacket water cooling with integral header tank, for engines rated from 40kW to 1800kW.



Tubular Heat Exchangers

Jacket water cooling for use with a remote header tank, for engines rated from 20kW to 2500kW



Fuel Coolers

Suitable for engines rated up to 180kW



A world of applications

Bowman oil coolers have been selected for some of the most demanding applications, including construction plant, emergency service vehicles, materials handling, on and off road vehicles and deep underground mining. In addition, Bowman also manufacture oil coolers that are extensively proven for marine engine and transmission oil cooling; one of the most hostile environments in the world.



All Bowman oil coolers are produced to the highest quality in our UK based manufacturing facility, to ISO 9001:2015 standards. With over 100 years of heat transfer experience, you can have complete confidence when you specify Bowman engine and transmission oil coolers.

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100 YEARS OF HEAT TRANSFER TECHNOLOGY

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