

4. Engine and Transmission Oil Coolers

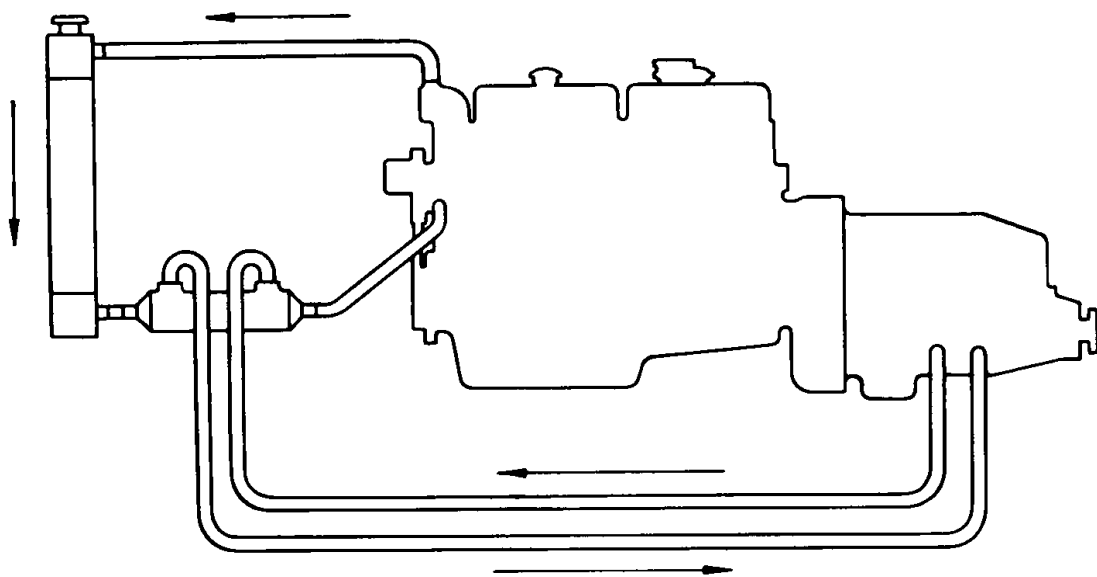
Introduction

These oil coolers are equally suitable for cooling torque converter, automatic transmission and engine oils. Being water cooled they have the advantage of freedom from accidental damage and also encourage quicker warming up of the oil, a feature which is particularly valuable in cold climates. The tube stack is fully floating so that thermal stresses are minimised and it can easily be removed should cleaning be necessary.

The cooler should be fitted into the engine water circuit between the bottom tank of the radiator and the water inlet connection on the engine as illustrated on page 2, the radii of the water pipe bends should be as large as possible to reduce the pressure drop. Also indicated on page 2 are the approximate capabilities of the various coolers for torque converter applications. This information is only intended as a general guide as the factors affecting the choice of oil cooler are complex. In the case of engine oil applications we are not able to give any general recommendations, but proposals can be submitted on receipt of details of the particular engine.

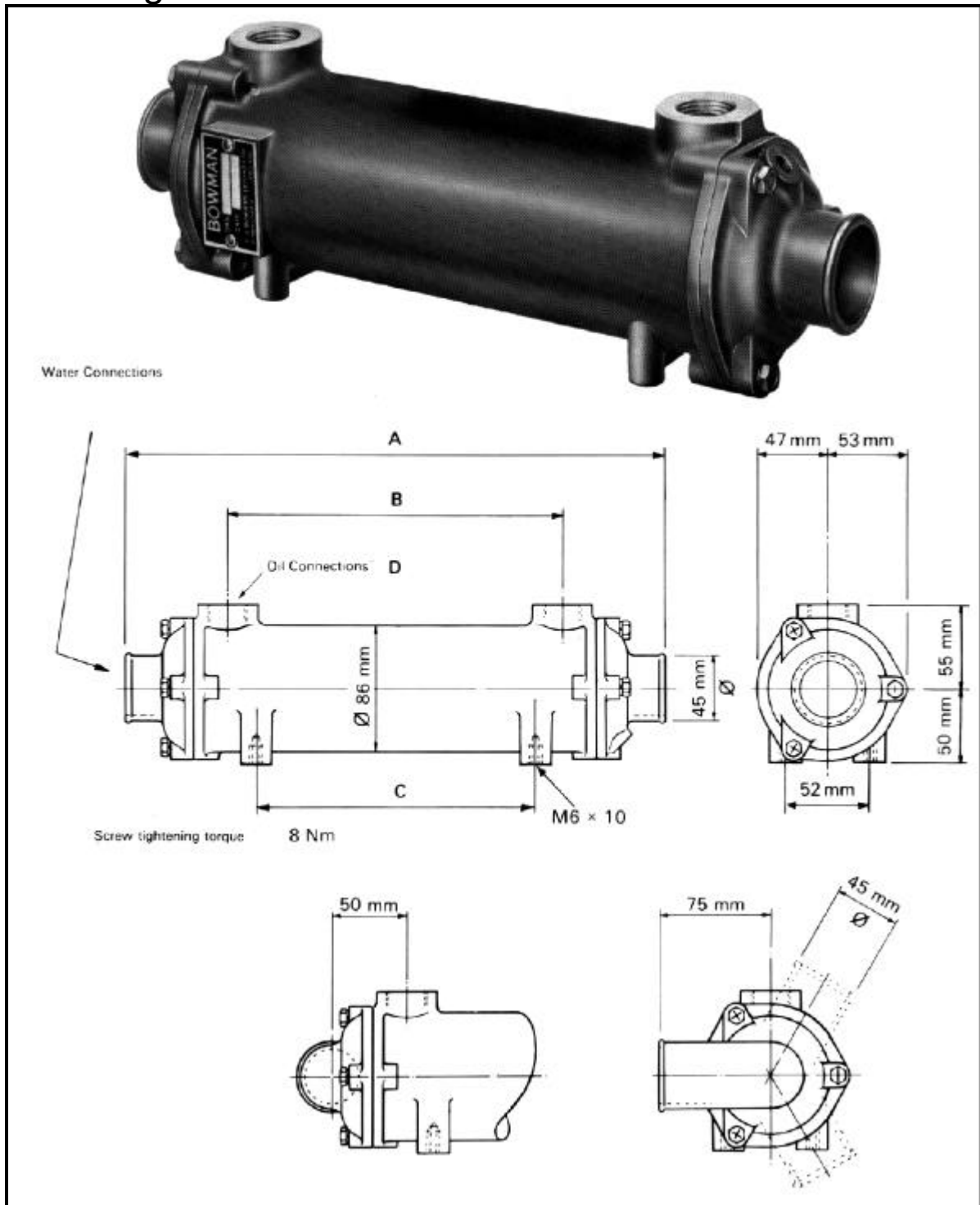
Typical examples of oil coolers fitted to torque converter transmissions with an oil inlet temperature of 110°C and a water inlet temperature of 80°C.

Cooler type	Maximum oil flow	Maximum water flow	Suitable for torque converter transmitting:	Internal oil volume	Internal water volume
	litre/min	litre/min	kW	litre	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
GL180-3508-3	220	700	180	4.80	3.80
GL240-3508-4	220	700	240	6.30	4.60
GL320-3508-5	220	700	300	8.00	5.50
GL400-3508-6	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



Installation of an oil cooler in an engine water circuit

EC Range

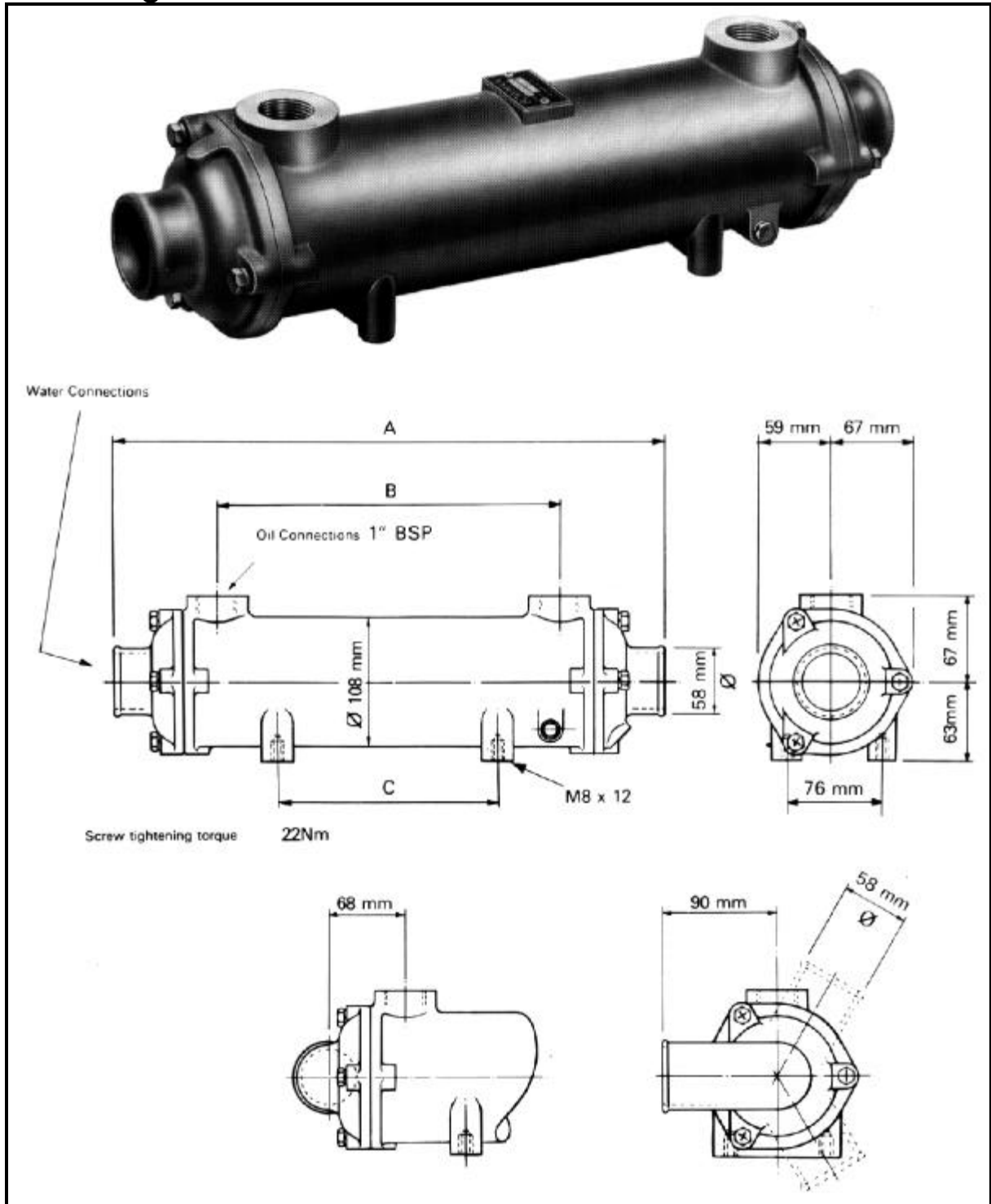


For alternative size of water connections see Appendix 1 page 10

		A	B	C	D
	kg	mm	mm	mm	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
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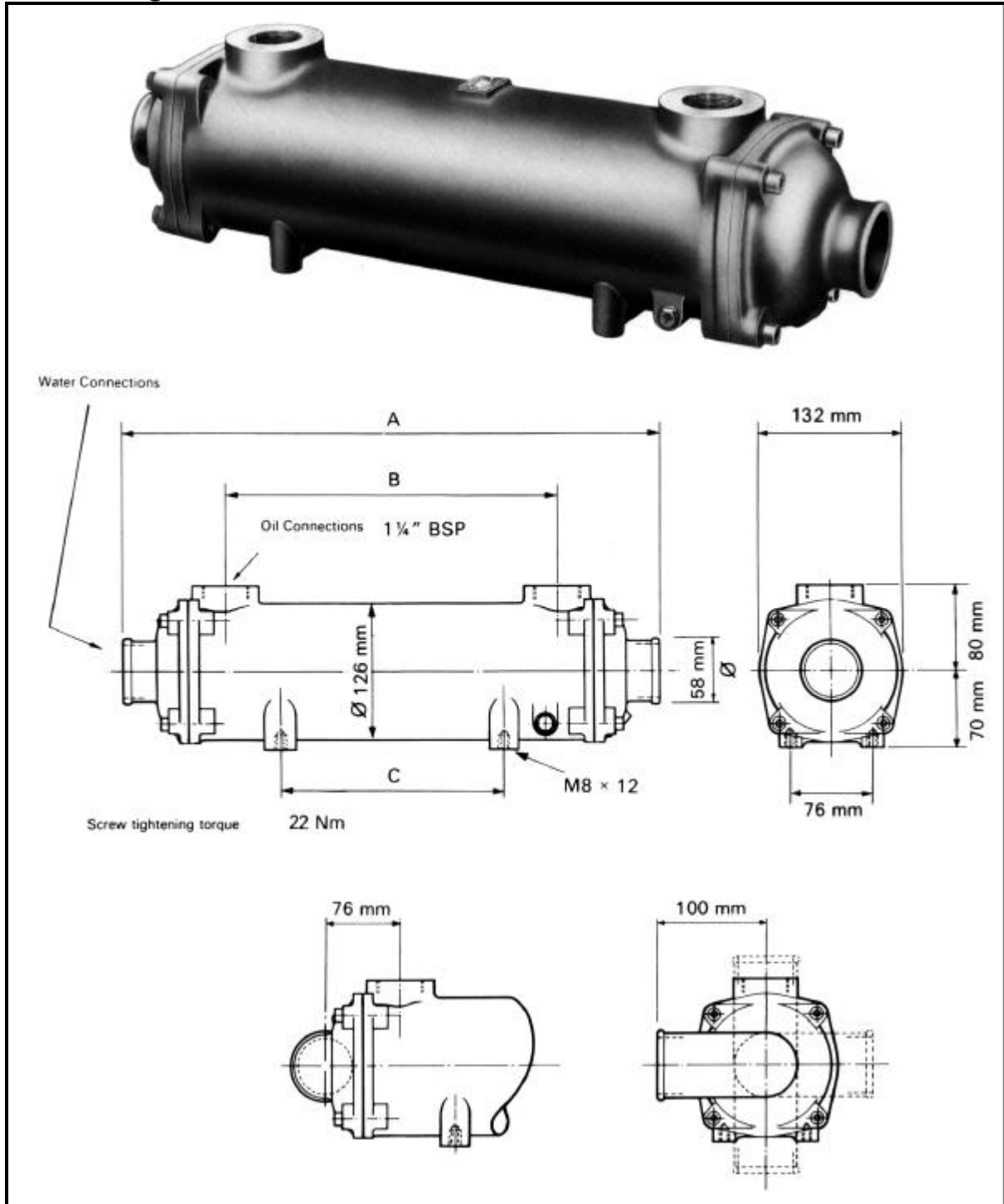
FC Range



For alternative size of water connections see Appendix 1 page 10

		A	B	C
	kg	mm	mm	mm
FC100-1044-2	4.8	384	202	190
FC120-1044-3	6.6	482	300	288
FC140-1044-4	8.8	610	428	288
FC160-1044-5	9.5	756	574	434

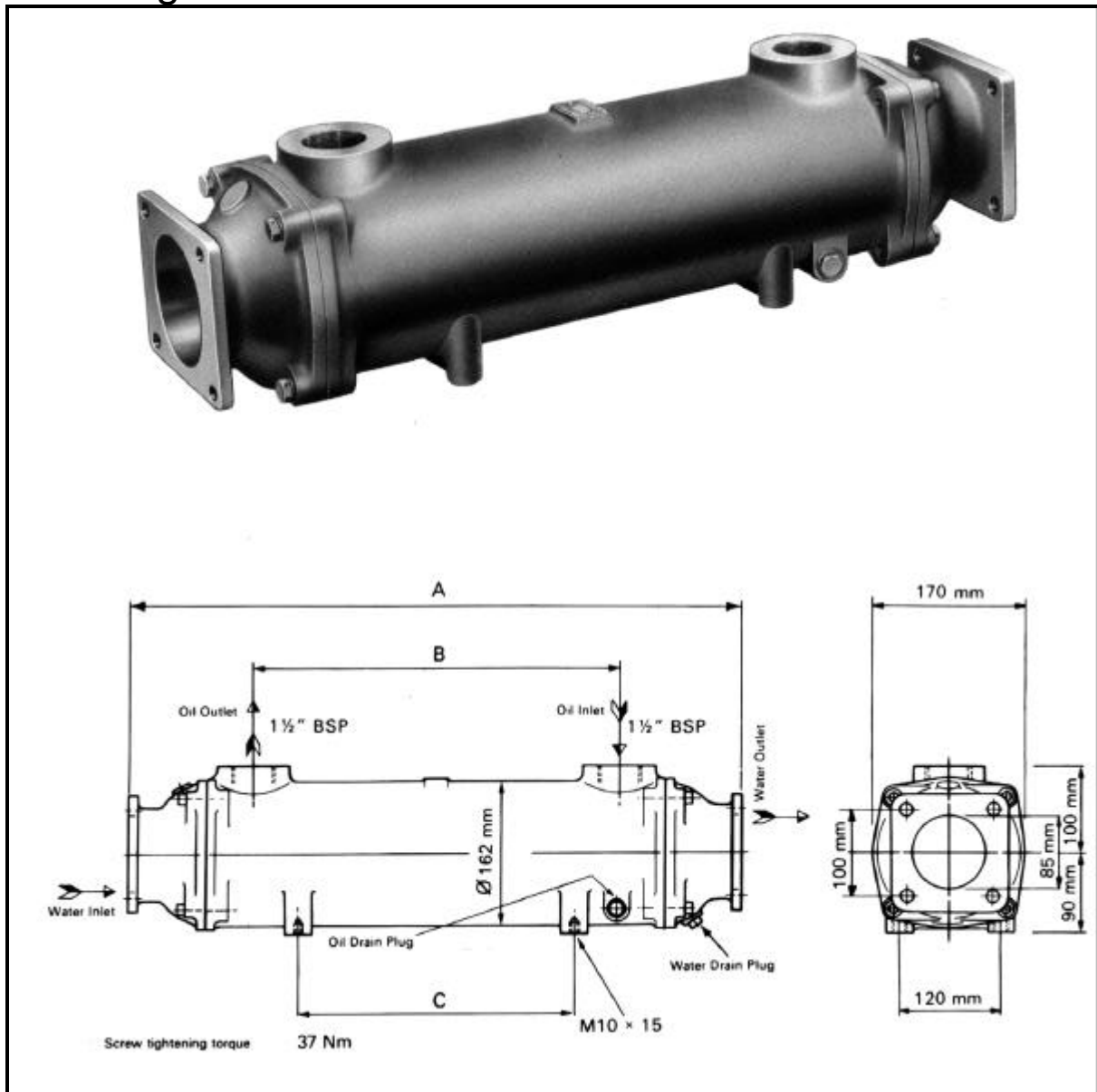
FG Range



For alternative size of water connections see Appendix 1 page 10

		A	B	C
	kg	mm	mm	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

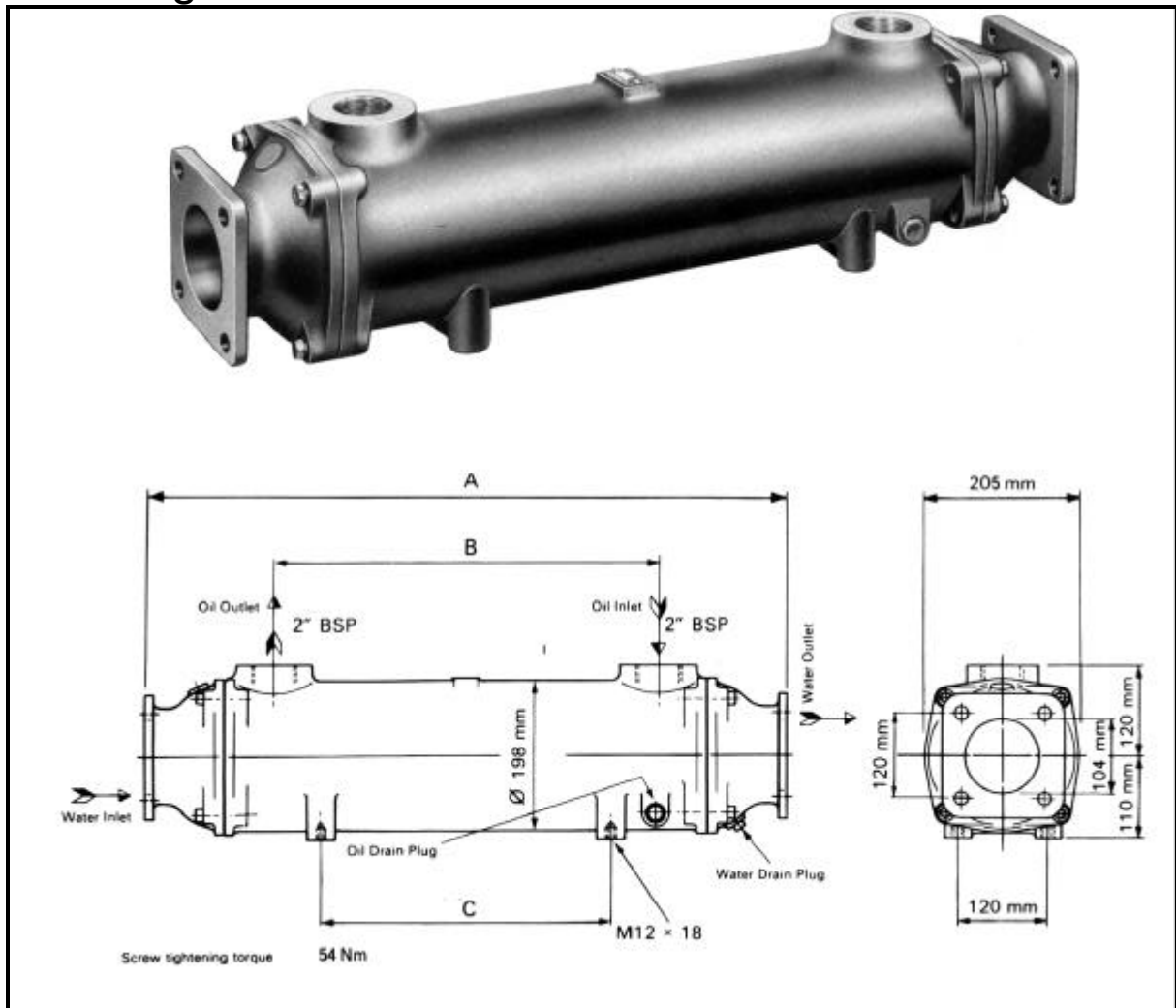
GL Range



For alternative size of water connections see Appendix 1 page 10

		A	B	C
	kg	mm	mm	mm
GL180-3508-3	19	670	400	236
GL240-3508-4	25	816	546	382
GL320-3508-5	30	994	724	560
GL400-3508-6	34	1196	926	762

GK Range

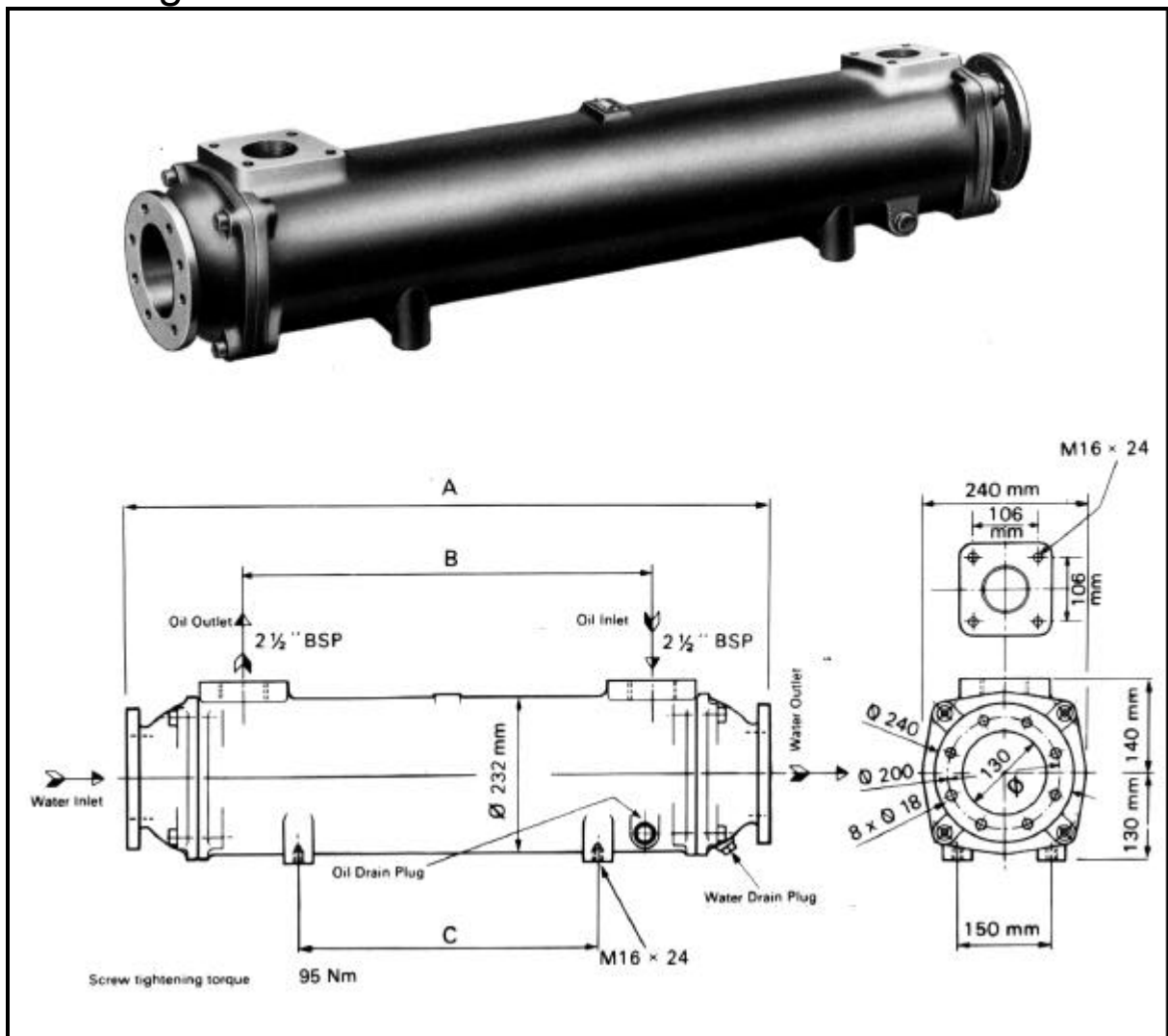


For alternative size of water connections see Appendix 1 page 10

		A	B	C
	kg	mm	mm	mm
GK250-3509-4	37	820	516	382
GK320-3509-5	44	998	694	560
GK400-3509-6	51	1200	896	762
GK480-3509-7	57	1404	1100	966

Maximum working oil pressure 25 bar
 Maximum working water pressure 3 bar
 Maximum working temperature 125°C

JK Range

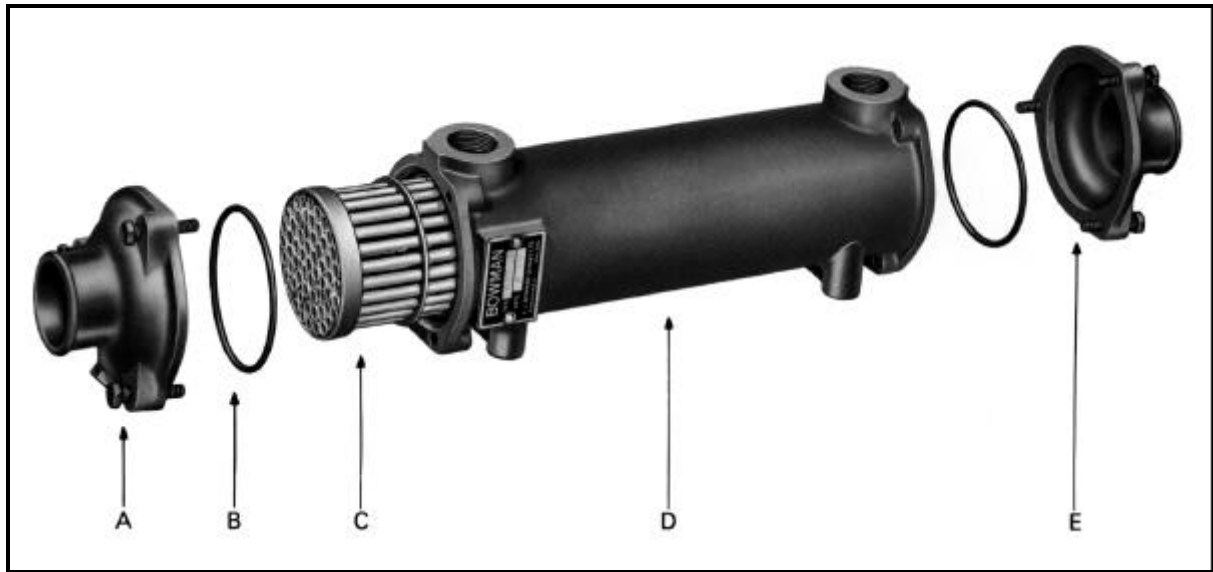


For alternative size of water connections see Appendix 1 table 10

		A	B	C
	kg	mm	mm	mm
JK250-3511-4	55	850	486	382
JK320-3511-5	64	1028	664	560
JK400-3511-6	77	1230	866	762
JK480-3511-7	90	1434	1070	966

Maximum working oil pressure 25 bar
 Maximum working water pressure 3 bar
 Maximum working temperature 125°C

OIL COOLER PARTS



Type	A End Covers	B 'O' Seals	C Tube Stack	D Body	E Screws
EC 80-1635-1	EC2-786CI	AN12VT	785-1TC2A	EC21-978AL	HS06X30
EC100-1635-2	"	"	785-2TC2A	EC10-783-2AL	"
EC120-1635-3	"	"	785-3TC2A	EC12-783-3AL	"
EC140-1635-4	"	"	785-4TC2A	EC14-783-4AL	"
EC160-1635-5	"	"	785-5TC2A	EC16-783-5AL	"
FC100-1044-2	FC2-1108AL	OS46VT	1530-2TC2A	FC10-1200-2AL	HS08X35
FC120-1044-3	"	"	1530-3TC2A	FC12-1200-3AL	"
FC140-1044-4	"	"	1530-4TC2A	FC14-1200-4AL	"
FC160-1044-5	"	"	1530-5TC2A	FC16-1200-5AL	"
FG100-1604-2	FG5-1957CI	OS52VT	1959-2TC2A	FG10-1650-2AL	HS08X35
FG120-1604-3	"	"	1959-3TC2A	FG12-1650-3AL	"
FG140-1604-4	"	"	1959-4TC2A	FG14-1650-4AL	"
FG160-1604-5	"	"	1959-5TC2A	FG16-1650-5AL	"
GL180-3508-3	GL37-3140CI	OS63VT	1798-3TC2A	GL19-3136-3AL	HS10X40
GL240-3508-4	"	"	1798-4TC2A	GL25-3136-4AL	"
GL320-3508-5	"	"	1798-5TC2A	GL33-3136-5AL	"
GL400-3508-6	"	"	1798-6TC2A	GL41-3136-6AL	"
GK250-3509-4	GK63-3255CI	OS69VT	2315-4TC2A	GK25-2865-4AL	HS12X50
GK320-3509-5	"	"	2315-5TC2A	GK32-2865-5AL	"
GK400-3509-6	"	"	2315-6TC2A	GK40-2865-6AL	"
GK480-3509-7	"	"	2315-7TC2A	GK48-2865-7AL	"
JK250-3511-4	JK4-3331CI	OS74VT	3334-4TC2A	JK25-3332-4AL	HS16X70
JK320-3511-5	"	"	3334-5TC2A	JK32-3332-5AL	"
JK400-3511-6	"	"	3334-6TC2A	JK40-3332-6AL	"
JK480-3511-7	"	"	3334-7TC2A	JK48-3332-7AL	"

Removal of the screws around the periphery each end will allow the end covers and the seals to be removed. Following this operation the tubestack can be withdrawn from either end of the body.

When assembling the oil cooler, new 'O' seals should be fitted and the end screws must be tightened to the torque settings given on the drawings.

ALTERNATIVE WATER CONNECTIONS

Appendix 1

Type	In line (axially)	Right angled
EC	38mm (EC11-3666AL) 52mm (EC 9-2421CI)	38mm (EC30-1585CI) 45mm (EC13-1865AL) 52mm (EC15-3558AL)
FC	45mm (FC 5-1312AL) 52mm (FC9-3291AL) 2" BSP (FC33-1176CI)	45mm (FC34-3225AL) 52mm (FC35-3173AL) 58mm (FC36-3212AL)
FG	45mm (FG4-1944CI) 2½ BSP (FG7-2802CI)	50mm (FG37-2781AL) 58mm (FG36-2740AL)
GL	1½ BSP (GL3-3141CI)	
GK	2" BSP (GK1-2864CI)	
JK	2½ BSP (JK1-3333CI)	