

### **SECTION E – TROUBLE SHOOTING, SERVICE + REPAIR**

Kamco have a full “Service and Repair” facility at our premises in St Albans, and can either undertake full repairs or just supply replacement parts as required.

When your new Clearflow pump was first supplied it was flow and pressure tested after assembly to ensure that it would perform to a high standard. However, over time and use parts may have been physically damaged, worn out, or partially blocked by non-soluble matter.

If you are concerned that your pump may not be producing the same performance as when it left our factory there are a number of steps that you can take to test, and repair, your unit. These are listed below, they are not time consuming, do not require a high level of expertise and will not invalidate the warranty.

#### **Trouble shooting / problem solving.**

A flow chart is included on the following page to assist in diagnosing common problems that can be experienced on site. The chart and illustrated test are a useful guide in determining if a problem is related to the Clearflow pump or if it is a problem related to the heating system.

#### **How to check your Clearflow's performance.**

We suggest these checks be conducted outside and not within a clients premises.

#### **Test 1 - Pressure test**

**What you need:** Pressure gauge 0-30 psi adapted to 3/4 BSP male.

1. Fill the tank 1/2 full of water.
2. Point the flow reverser lever to the left.
3. Position the left hand valve to “Circulate”.
4. Position the right hand valve to “Dump”.
5. Attach one supply/return hose to the 3/4” BSP nipples. (short circuiting the flow).
6. Attach the dump hose as normal.
7. Holding the end of the dump hose away from you to a suitable discharge point, switch on the motor for five seconds. You should see a strong jet of water.
8. Attach the pressure gauge into the hose end and turn the motor on for 30 seconds. While the motor is running you should get a reading of 23-25psi for the CF40 Evolution and 26-28psi for the CF90 Quantum.

#### **Test 2 - Flow rate test**

**What you need:** Empty clean 5 litre container (eg a blue Powerflush FX2 container)

1. Repeat steps 1-7 of test above.
2. Hold the dump hose so that it will discharge water into the empty container.
3. When ready, use an assistant to time how long it takes to fill the container. You should get a reading of between 9 - 11 seconds for the CF40 Evolution and 7 - 8 seconds for the CF90 Quantum.

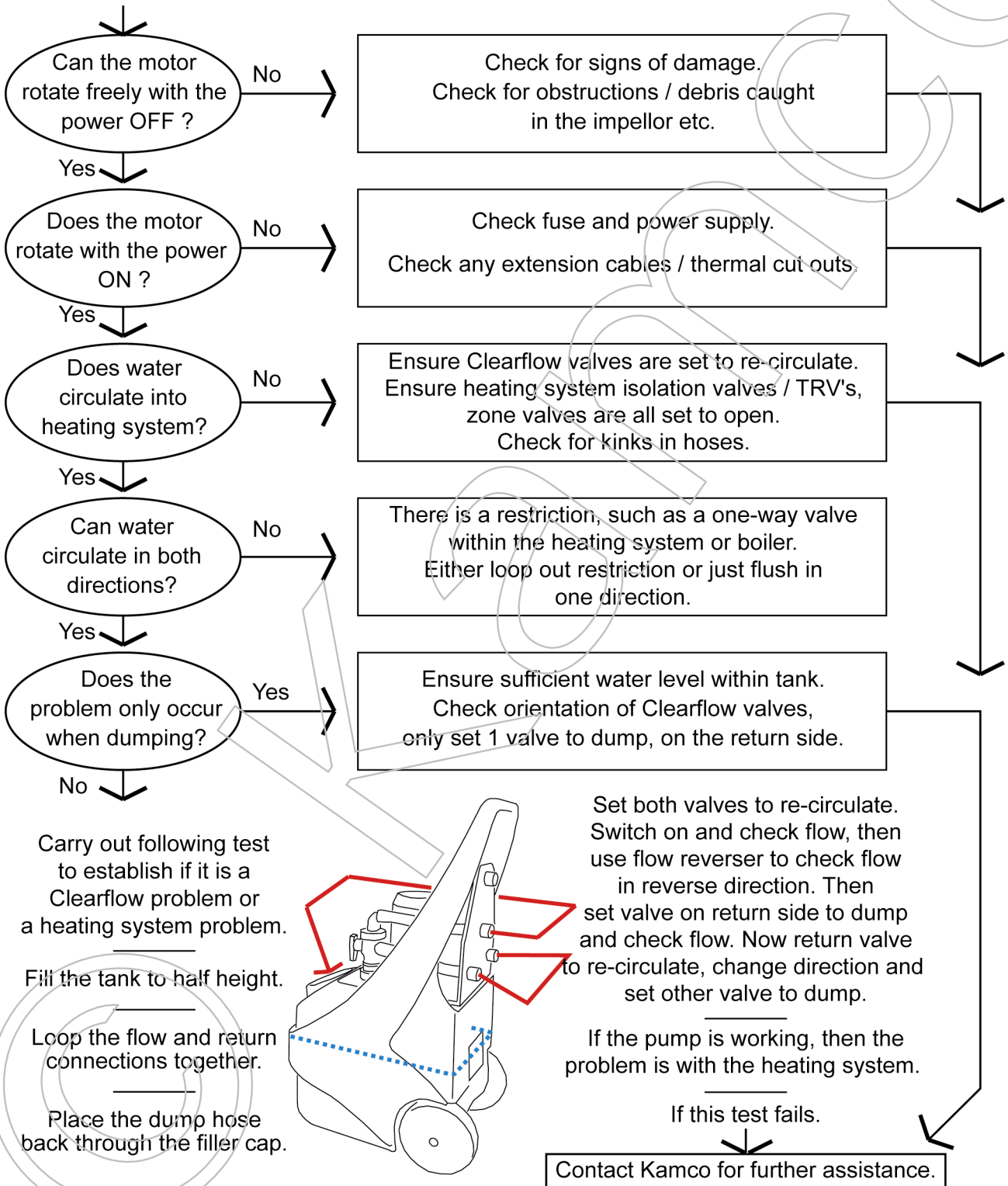
#### **Inspection**

1. Remove the 4 bolts that connect the flange to the tank.
2. Lift and withdraw the pump assembly from the tank.
3. Inspect the rotor cover at the bottom of the unit to ensure:
  - It is flat.
  - There are no bolts damaged or missing
  - The O-ring is still in place and has not been pushed out.
4. Inspect the inside of the impeller to make sure that there is no debris inside.
5. Check all hose connection to ensure they are secure.

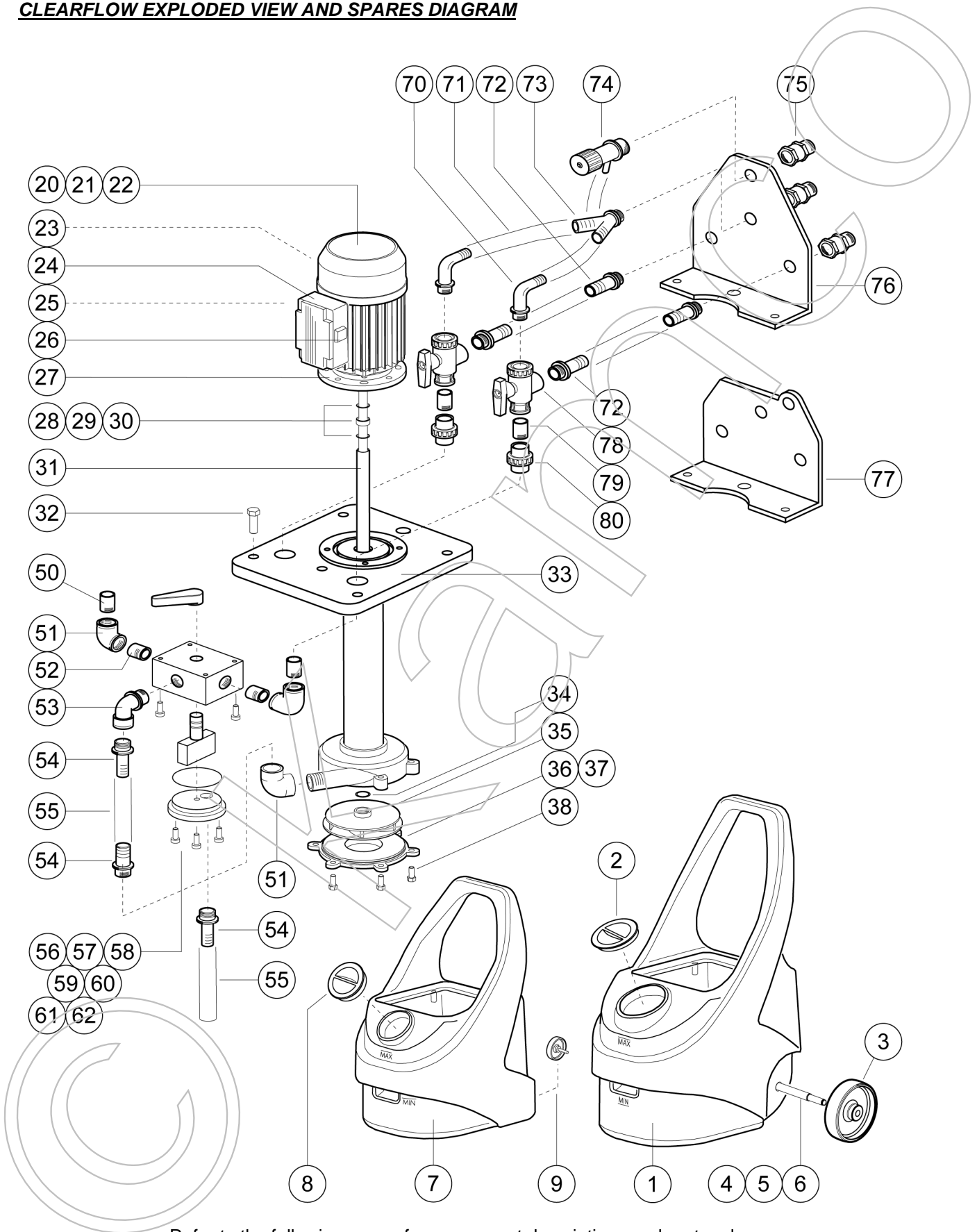
***If none of the above faults are apparent please call the Kamco Technical Help line on 01727 875020***

### TROUBLE SHOOTING / PROBLEM SOLVING

Use the flow chart to determine any likely problem and then if necessary undertake the simple flow test to establish if the Clearflow pump is functioning. If the pump is circulating and dumping with a good flow rate then any problem must be related to the heating system.



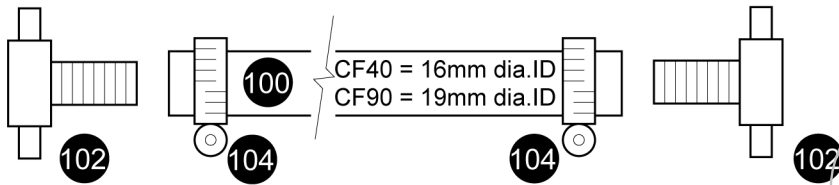
### CLEARFLOW EXPLODED VIEW AND SPARES DIAGRAM



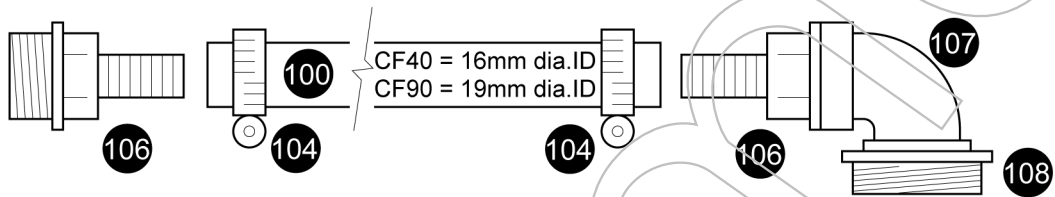
Refer to the following pages for component descriptions and part codes.

### EXPLODED VIEW OF HOSE ASSEMBLIES

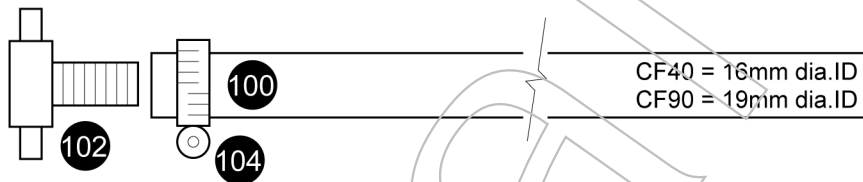
2 x Flow and Return Hoses, each 5 mtrs long.



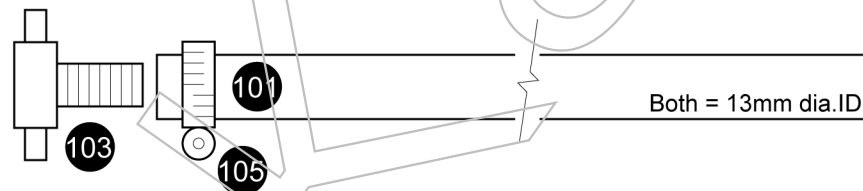
2 x Circulation Pump Hoses, each 0.5 mtrs long.



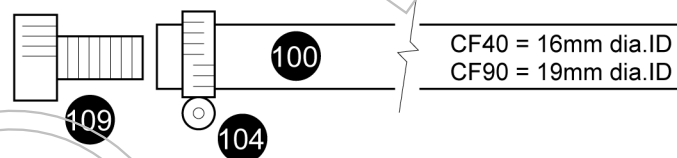
1 x Dump Hose, 8 mtrs long.



1 x Water Inlet Hose, 8 mtrs long.



1 x Overflow Hose, 3 mtrs long.



Refer to the following pages for component descriptions and part codes.

### SPARES LIST

No. on Diagram	Pump Type	Product Code	Description	Unit Price
1	CF90	H09006K	CF90 Moulded Tank	
2	CF90	H04005	CF90 Tank Cap	
3	CF90	H09008K	CF90 Wheel (each)	
4	CF90	H09007K	CF90 Axle	
5	CF90	H09009K	CF90 Axle Circlip Inner 22.2mm	
6	CF90	H09010K	CF90 Axle Circlip Outer 20.0mm	
7	CF40	H04020K	CF40 Moulded Tank	
8	CF40	H04021K	CF40 Tank Cap	
9	CF40	H04022K	Pair of CF40 wheels with axles	
20	CF40	H04002L22K	CF40 Motor 220v (exc. fan cover)	
20	CF40	H04002L11K	CF40 Motor 110v (exc. fan cover)	
20	CF90	H09002L22K	CF90 Motor 220v (exc. fan cover)	
20	CF90	H09002L11K	CF90 Motor 110v (exc. fan cover)	
21	Both	H04012KA	Fan cover	
22	Both	H04012KB	Motor Fan	
23	Both	H03002B	Motor Bearings	
24	Both	H03002F	Motor Switch Box	
25	CF40	H03002D22	CF40 Capacitor 220v	
25	CF40	H03002D11	CF40 Capacitor 110v	
25	CF90	H19002D22	CF90 Capacitor 220v	
25	CF90	H19002D11	CF90 Capacitor 110v	
26	Both	H01502C	On/off switch for motor	
27	Both	H030HJ08	M8 x 40mm Brass Bolt	
27	Both	H030HJ07	M8 Brass Nut	
27	Both	H030HJC9	M8 Brass Washer	
28	Both	H03002A	Motor Shaft Circlip	
29	Both	H03006	White Arnite Bush	
30	Both	H03007	Drive Shaft 'O' Ring	
31	CF40	H04014K	CF40 Drive Shaft Sleeve	
31	CF90	H09005K	CF90 Drive Shaft Sleeve	
32	Both	H01507K	M12 PP Bolt	
33	CF40	H04013K	CF40 Flange and Body	
33	CF90	H09001K	CF90 Flange and Body	
34	Both	H0150211A	Impellor 'O' Ring	
35	CF40	H04015K	CF40 Impellor	
35	CF90	H09004K	CF90 Impellor	
36	Both	H04017K	Rotor Cover	
37	Both	H04016K	Rotor Cover 'O' Ring	
38	Both	H03012K	M10 PP Bolt	

continued on next page.

### SPARES LIST (continued)

No. on Diagram	Pump Type	Product Code	Description	Unit Price
50	Both	H04018KG	3/4" bsp Threaded Nipple - 40mm long	
51	Both	H03023	3/4" bsp f/f elbow	
52	Both	H04018KF	3/4" bsp Threaded Nipple - 45mm long	
53	Both	H030F11	3/4" bsp m/f elbow	
54	CF40	H090F04	3/4" m x 19mm PP Hose adaptor	
54	CF90	H190F15	3/4" m x 25mm PP Hose adaptor	
55	CF40	HH019X30	Clear Hose 19mm ID (per mtr)	
55	CF90	HH2229	Clear Hose 22mm ID (per mtr)	
56	Both	H04018KA	Flow Reverser Handle	
57	Both	H04018KB	Flow Reverser Paddle	
58	Both	H04018KC	Flow Reverser Body	
59	Both	H04018KD	Flow Reverser Top Plate	
60	Both	H04018KE	'O' Ring for Reverser Top Plate	
61	Both	H03007	'O' Ring for Flow Reverser Paddle	
62	Both	MI022	M6 x 30mm Socket Cap Head Screw	
70	Both	H090F03	3/4" m x 20mm 90° Hose Adaptor	
71	Both	HH019X30	Clear Hose 19mm ID (per mtr)	
72	Both	H090F04	3/4" m x 19mm PP Hose Adaptor	
73	Both	H030HJ06	3/4" m x 20mm 'Y' piece Hose Adaptor	
74	Both	H190F16	3/4" x 19mm Water Inlet Tap	
75	Both	H090F06	3/4" f x 3/4" m Brass Adaptor	
76	CF90	H09011K	CF90 Hose Support Bracket	
77	CF40	H04024K	CF40 Hose Support Bracket	
78	Both	H090F01	3/4" Single Union L Port Valve	
79	Both	H04023K	3/4" bsp Threaded Nipple - 35mm long	
80	Both	H04019K	3/4" bsp Union	

### HOSE COMPONENTS

No. on Diagram	Pump Type	Product Code	Description	Unit Price
100	CF40	HH016X30	Clear hose 16mm ID per metre (state length)	
100	CF90	HH019X30	Clear hose 19mm ID per metre (state length)	
101	Both	HH013X30	Yellow hose 13mm ID per metre (state length)	
102	CF40	H030F03	3/4" f x 16mm brass hose adaptor	
102	CF90	H090F07	3/4" f x 19mm brass hose adaptor	
103	Both	H090F10	3/4" f x 13mm brass hose adaptor	
104	Both	H030F13A#	Worm drive clip, 16-25mm	
105	Both	H030F13	Worm drive clip, 12-22mm	
106	CF40	H030F04	3/4" m x 16mm PP hose adaptor	
106	CF90	H090F04	3/4" m x 20mm PP hose adaptor	
107	Both	H030F11	3/4" m/f elbow	
108	Both	H030F19	1 1/2" m x 3/4" brass bush (each)	
109	CF40	H030F47	3/4" f x 16mm PP hose adaptor	
109	CF90	H030F69	3/4" f x 19mm PP hose adaptor	
	CF40		CF40 complete hose washer kit	
	CF90	H090F14	CF90 complete hose washer kit	
	Both	H030F06	Pack 10 x 3/4" washers	
	Both	H030F38	1 1/2" washer (each)	
	Both	H030F21	Transit container	

### HOSE ASSEMBLIES (for Clearflow CF40 Evolution)

No. on Diagram	Pump Type	Product Code	Description	Unit Price
	CF40		Full hose set for CF40 (7No hoses)	
	CF40		8mtr dump hose	
	CF40		5mtr supply and return hoses (pair)	
	CF40		3mtr overflow hose	
	CF40		8mtr water inlet hose	
	CF40		0.5mtr 1 1/2" circulation pump adaptor hoses (pair)	

### HOSE ASSEMBLIES (for Clearflow CF90 Quantum)

No. on Diagram	Pump Type	Product Code	Description	Unit Price
	CF90	HHCF9SET	Full hose set for CF90 (7No hoses)	
	CF90	HHCF9DH	8mtr dump hose	
	CF90	HHCF9FR	5mtr supply and return hoses (pair)	
	CF90	HHCF9OH	3mtr overflow hose	
	CF90	HHCF9WI	8mtr water inlet hose	
	CF90	HHCF9CP	0.5mtr 1 1/2" circulation pump adaptor hoses (pair)	