

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 the appropriate BSP male.

1. Fill the tank ½ 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 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, and 28psi for the CF210 Titan.

Test 2 - Flow rate test

What you need: Empty clean 5 litre container (eg a blue Power flush 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 5 litre container.
You should get a reading of between 9 - 11 seconds for the CF40 Evolution and 7 - 8 seconds for the CF90 Quantum.
4. When testing the CF210 Titan use a 25 ltr container, which should take approx 25 seconds.

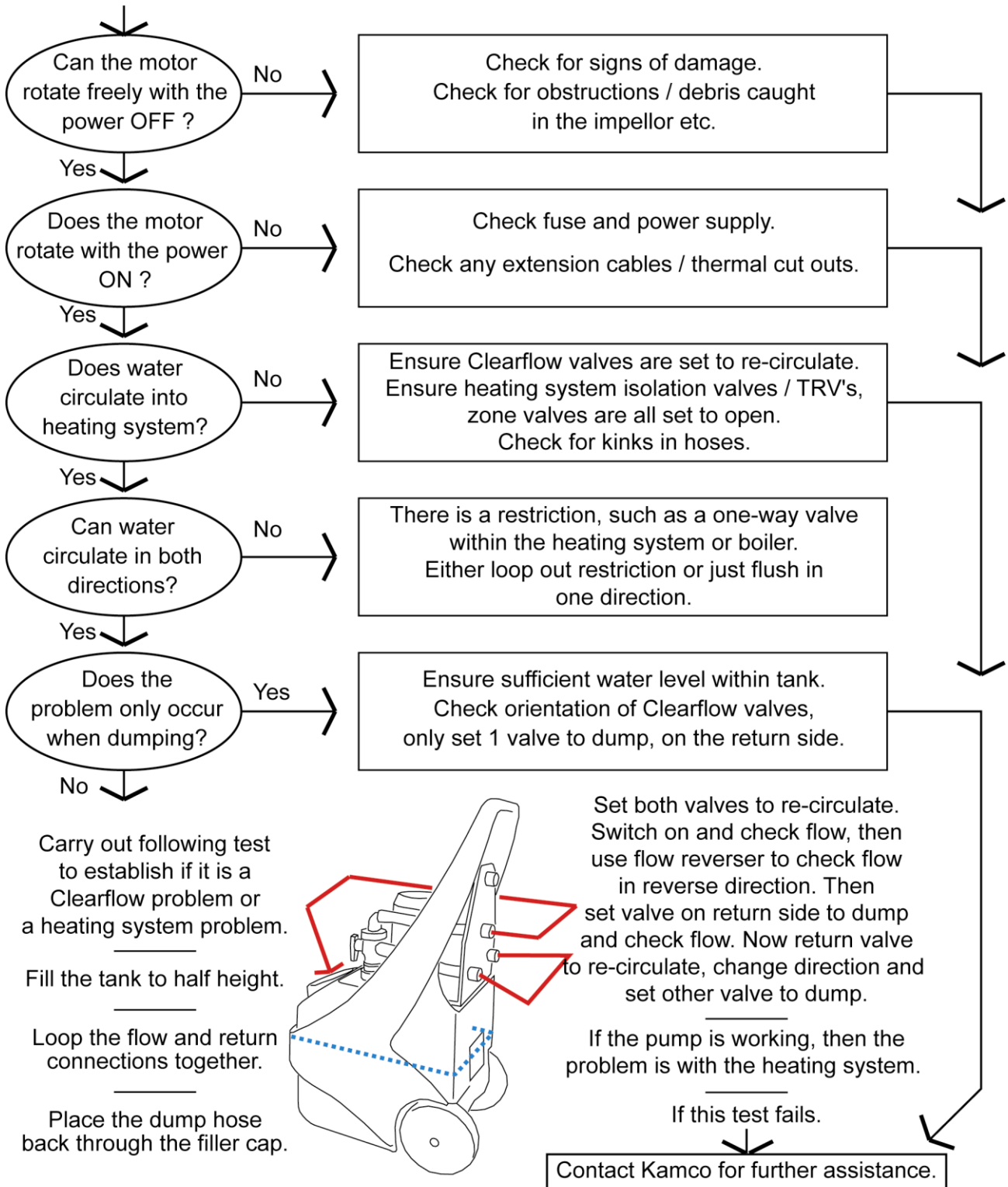
Inspection

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.



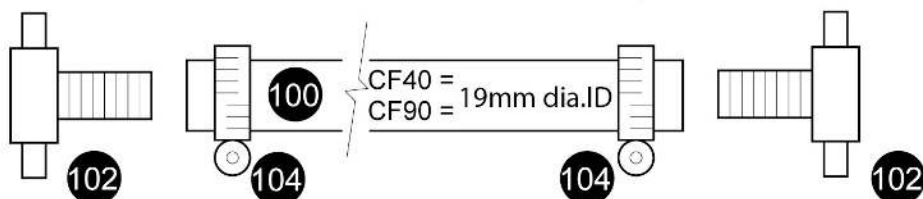
This exploded view diagram illustrates the assembly of a pump system. The components are numbered as follows:

- Motor and Drive Shaft:** 20 (Motor housing), 21 (Motor), 22 (Drive shaft), 23 (Shaft seal), 24 (Motor base), 25 (Drive shaft seal), 26 (Drive shaft nut), 27 (Drive shaft washer), 28 (Drive shaft coupling), 29 (Drive shaft coupling nut), 30 (Drive shaft coupling washer), 31 (Drive shaft coupling seal), 32 (Drive shaft coupling nut).
- Base and Mounting:** 33 (Base plate), 34 (Base plate nut), 35 (Base plate washer), 36 (Base plate seal), 37 (Base plate coupling), 38 (Base plate coupling nut).
- Valve and Fittings:** 40 (Valve), 41 (Valve nut), 42 (Valve washer), 43 (Valve seal), 44 (Valve coupling), 45 (Valve coupling nut), 46 (Valve coupling washer), 47 (Valve coupling seal), 48 (Valve coupling nut).
- Mounting Brackets:** 70 (Bracket), 71 (Bracket nut), 72 (Bracket washer), 73 (Bracket seal), 74 (Bracket coupling), 75 (Bracket coupling nut), 76 (Bracket coupling washer), 77 (Bracket coupling seal), 78 (Bracket coupling nut).
- Other Components:** 50 (Coupling), 51 (Coupling nut), 52 (Coupling washer), 53 (Coupling seal), 54 (Coupling coupling), 55 (Coupling coupling nut), 56 (Coupling coupling washer), 57 (Coupling coupling seal), 58 (Coupling coupling nut), 59 (Coupling coupling washer), 60 (Coupling coupling seal), 61 (Coupling coupling nut), 62 (Coupling coupling washer), 63 (Coupling coupling seal).
- Final Assembly:** 1 (Pump housing), 2 (Pump housing nut), 3 (Pump housing washer), 4 (Pump housing seal), 5 (Pump housing coupling), 6 (Pump housing coupling nut), 7 (Pump housing coupling washer), 8 (Pump housing coupling seal), 9 (Pump housing coupling nut).

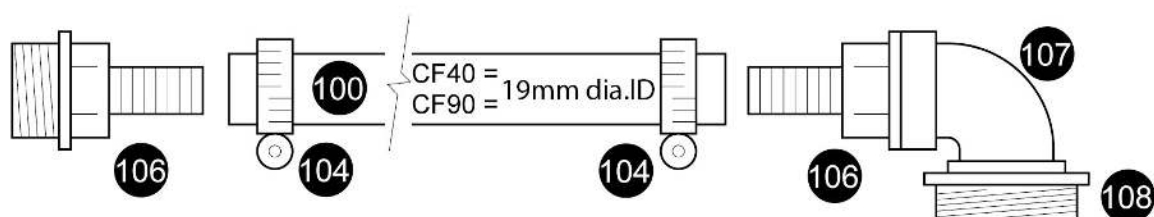
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CF40 & CF90 EXPLODED VIEW OF HOSE ASSEMBLIES

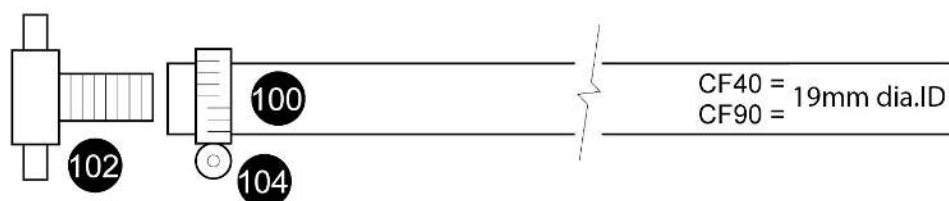
2 x Flow and Return Hoses, each 5 mtrs long.



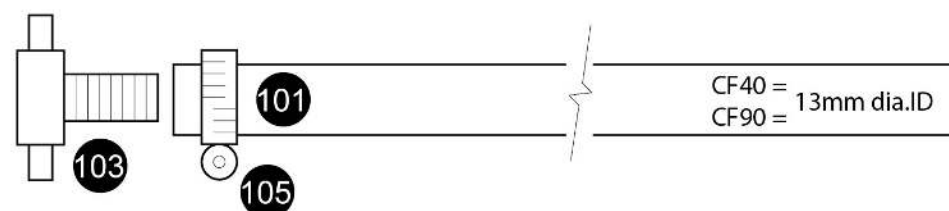
2 x Circulation Pump Hoses, each 0.5 mtrs long.



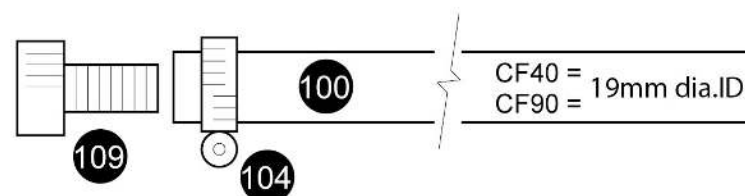
1 x Dump Hose, 8 mtrs long.



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.

CF40 & CF90 SPARES LIST

No. on Diagram	Pump Type	Product Code	Description	Unit Price
1	90	H09006K	CF90 moulded tank	
2	90	H04005	CF90 tank cap	
3	90	H09008K	CF90 wheel (each)	
4	90	H09007K	CF90 axle	
5	90	H09009K	CF90 axle circlip, inner 22.2mm	
6	90	H09010K	CF90 axle circlip, outer 20.0mm	
7	40	H04020K	CF40 moulded tank	
8	40	H04021K	CF40 tank cap	
9	40	H04022K	CF40 wheel (each)	
9	40	H04022KA	CF40 wheel axle (each)	
20	40	H04002L22K	CF40 motor 230v	
20	40	H04002L11K	CF40 motor 110v	
20	90	H09002L22K	CF90 motor 230v	
20	90	H09002L11K	CF90 motor 110v	
21	40 & 90	H04012KA	Fan cover	
22	40 & 90	H04012KB	Motor fan	
23	40 & 90	H03002B	Motor bearings	
24	40 & 90	H03002F	Motor switch box	
25	40	H04007	CF40 capacitor 230v	
25	40	H04008	CF40 capacitor 110v	
25	90	H09001	CF90 capacitor 230v	
25	90	H04008	CF90 capacitor 110v	
26	40 & 90	H01502C	On/off switch for motor	
27	40 & 90	H030HJ08	M8 x 35mm brass bolt	
27	40 & 90	H030HJ07	M8 brass nut	
27	40 & 90	H030HJ09	M8 brass washer	
28	40 & 90	H03002A	Motor shaft circlip	
29	40 & 90	H03006	White 'Arnite' bush	
30	40 & 90	H03007	Drive shaft 'O' ring	
31	40	H04014K	CF40 drive shaft sleeve	
31	90	H09005K	CF90 drive shaft sleeve	
32	40 & 90	H01507K	M12 PP bolt	
33	40	H04013K	CF40 flange and body	
33	90	H09001K	CF90 flange and body	
34	40 & 90	H0150211A	Impeller 'O' ring	
35	40	H04015K	CF40 impeller	
35	90	H09004K	CF90 impeller	
36	40 & 90	H04017K	Rotor cover	
37	40 & 90	H04016K	Rotor cover 'O' ring	
38	40 & 90	H03012K	M10 PP bolt	

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CF40 & CF90 SPARES LIST (continued)

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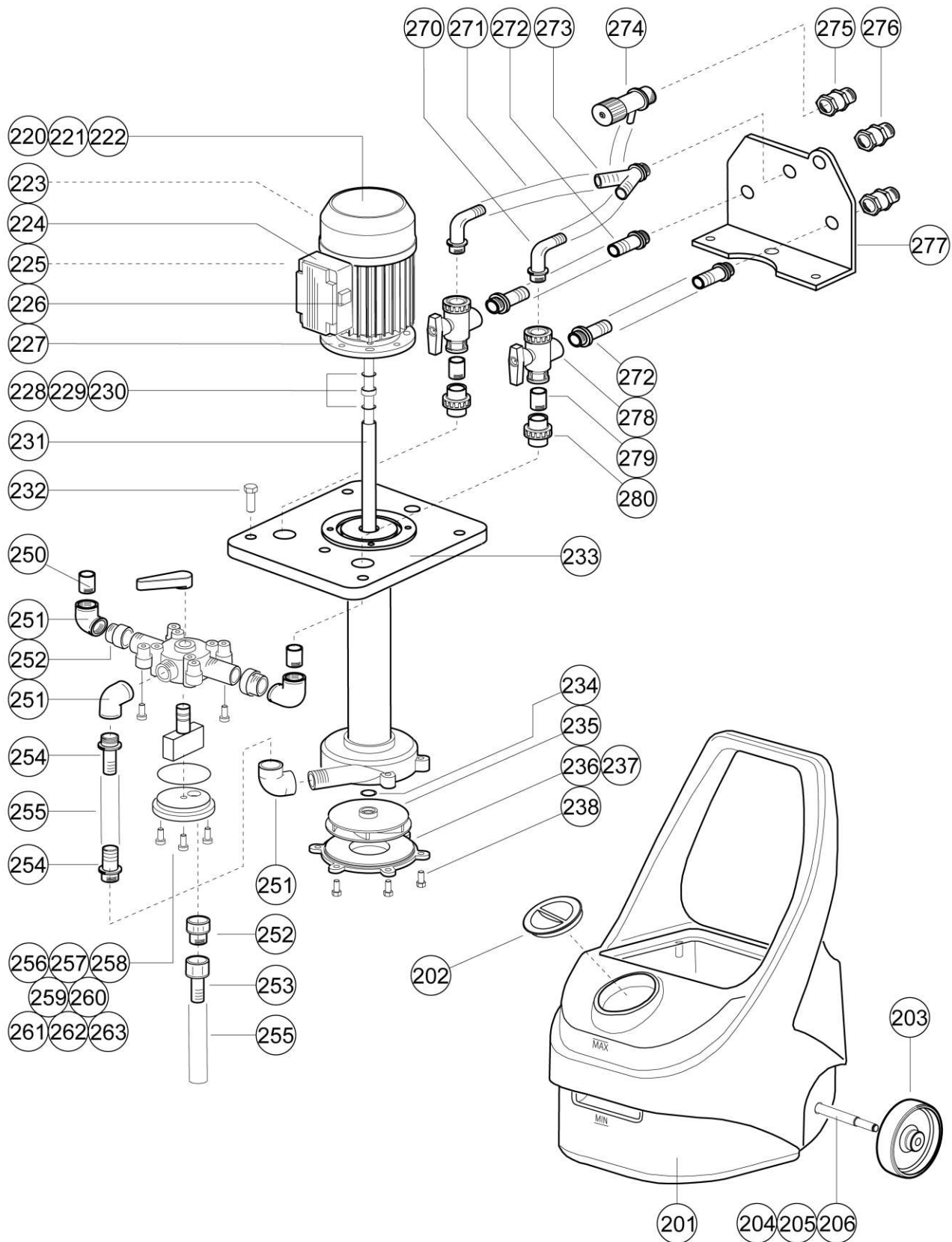
CF40 & CF90 HOSE COMPONENTS

No. on Diagram	Pump Type	Product Code	Description	Unit Price
100	40 & 90	HH019X30	Clear hose 19mm ID per metre (state length)	
101	40 & 90	HH013X30	Yellow hose 13mm ID per metre (state length)	
102	40 & 90	H090F07	3/4" BSP female x 19mm brass hose adapter	
103	40 & 90	H090F10	3/4" BSP female x 13mm brass hose adapter	
104	40 & 90	H030F13A#	Worm drive clip, 16-25mm	
105	40 & 90	H030F13	Worm drive clip, 12-22mm	
106	40 & 90	H090F04	3/4" BSP male x 20mm PP hose adapter	
107	40 & 90	H030F11	3/4" BSP male/female elbow	
108	40 & 90	H030F19	1 1/2" BSP male x 3/4" BSP female brass bush (each)	
109	40 & 90	H030F69	3/4" BSP female x 19mm PP hose adapter	
	40 & 90	H030F06A	CF40/CF90 complete hose washer kit	
	40 & 90	H030F06	Pack 10 x 3/4" seals	
	40 & 90	H030F38	1 1/2" washer (each)	
	40 & 90	H030F23	Hose container (52 lt black/red plastic crate)	

CF40 & CF90 HOSE ASSEMBLIES

No. on Diagram	Pump Type	Product Code	Description	Unit Price
	40 & 90	HHCF9SET	Full hose set for CF40/CF90 (7 hoses including fittings)	
	40 & 90	HHCF9DH	8m dump hose	
	40 & 90	HHCF9FR	5m supply and return hoses (pair)	
	40 & 90	HHCF9OH	3m overflow hose	
	40 & 90	HHCF9WI	8m water inlet hose	
	40 & 90	HHCF9CP	0.5m 1½" BSP circulation pump adapter hoses (pair)	

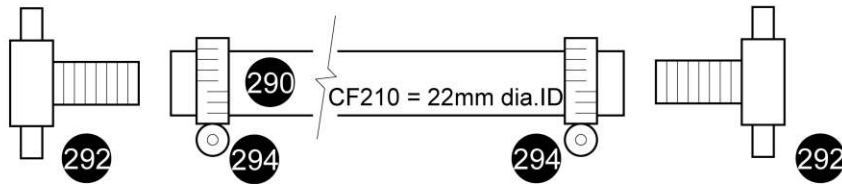
CF210 EXPLODED VIEW AND SPARES DIAGRAM



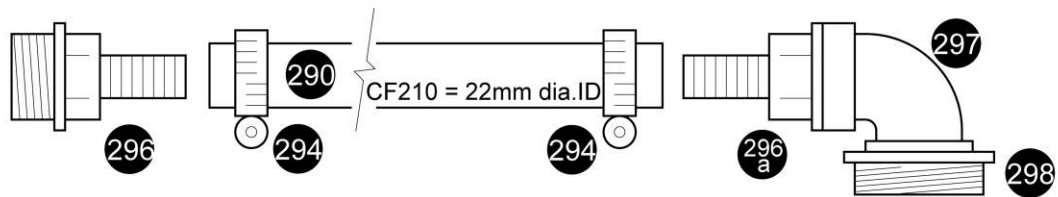
Refer to the following pages for component descriptions and part codes.

CF210 EXPLODED VIEW OF HOSE ASSEMBLIES

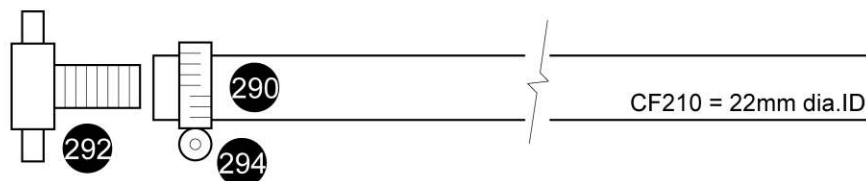
2 x Flow and Return Hoses, each 5 mtrs long.



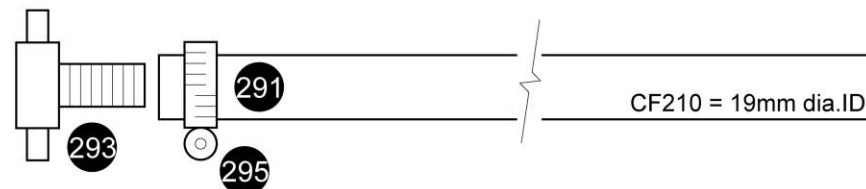
2 x Circulation Pump Hoses, each 0.5 mtrs long.



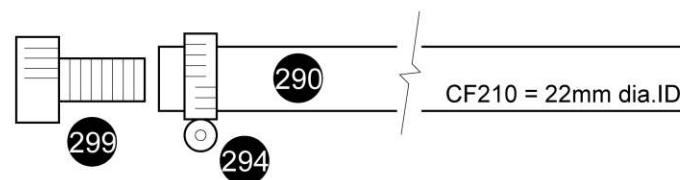
1 x Dump Hose, 8 mtrs long.



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.

CF210 SPARES LIST

No. on Diagram	Pump Type	Product Code	Description	Unit Price
201	210	H21004K	CF210 moulded tank	
202	210	H04005	CF210 tank cap	
203	210	H09008K	CF210 wheel (each)	
204	210	H21005K	CF210 axle	
205	210	H09009K	CF210 axle circlip, inner 22.2mm	
206	210	H09010K	CF210 axle circlip, outer 20.0mm	
220	210	H21001S22	CF210 motor 230v (exc. fan cover)	
220	210	H21001S11	CF210 motor 110v (exc. fan cover)	
221	210	H04012KA	Fan cover	
222	210	H04012KB	Motor fan	
223	210	H03002B	Motor bearings	
224	210	H03002F	Motor switch box	
225	210	H09001	CF210 capacitor 230v	
225	210	H04008	CF210 capacitor 110v	
226	210	H01502C	On/off switch for motor	
227	210	H030HJ08	M8 x 40mm brass bolt	
227	210	H030HJ07	M8 brass nut	
227	210	H030HJ09	M8 brass washer	
228	210	H03002A	Motor shaft circlip	
229	210	H03006	White 'Arnite' bush	
230	210	H03007	Drive shaft 'O' ring	
231	210	H21003K	CF210 drive shaft sleeve	
232	210	H01507K	M12 PP bolt	
233	210	H21001KCOMP	CF210 flange and body	
234	210	H0150211A	Impeller 'O' ring	
235	210	H09004K	CF210 impeller	
236	210	H04017K	Rotor cover	
237	210	H04016K	Rotor cover 'O' ring	
238	210	H03012K	M10 PP bolt	

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CF210 SPARES LIST (continued)

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CF210 HOSE COMPONENTS

No. on Diagram	Pump Type	Product Code	Description	Unit Price
290	210	HH022X30	Clear hose 22mm ID per metre (state length)	
291	210	HH019X30	Clear hose 19mm ID per metre (state length)	
292	210	H190F03	1" BSP female x 25mm brass hose adapter	
293	210	H090F07	3/4" BSP female x 19mm brass hose adapter	
294	210	H030F13B	Worm drive clip, 20-32mm	
295	210	H030F13A#	Worm drive clip, 16-27mm	
296	210	H190F05	1" BSP male x 25mm PP hose adapter	
296a	210	H190F04	3/4" BSP male x 22mm PP hose adapter	
297	210	H030F11	3/4" BSP male/female elbow	
298	210	H030F19	1 1/2" BSP male x 3/4" female brass bush (each)	
299	210	H190F20	1" BSP female x 25mm PP hose adapter	
	210	H190F06A	CF210 complete hose washer kit	
	210	H190F06	Pack 10 x 1" seals	
	210	H030F38	1 1/2" washer (each)	
	210	H030F23A	Hose container (80 lt black/red plastic crate)	

CF210 HOSE ASSEMBLIES

No. on Diagram	Pump Type	Product Code	Description	Unit Price
	210	HHCF210SET	Full hose set for CF210 (7 hoses including fittings)	
	210	HHCF210DH	8m dump hose	
	210	HHCF210FR	5m supply and return hoses (pair)	
	210	HHCF190OH	3m overflow hose	
	210	HHCF210WI	8m water inlet hose	
	210	HHCF190CP	0.5m 1 1/2" BSP circulation pump adapter hoses (pair)	