IM-P103-07
CH Issue 3

Small Water Temperature Control
Installation and Maintenance Instructions

"Water Baby" for heating and cooling Sizes ½", ¾" and 1"

The Spirax Sarco Water Baby consists of a JD 61 diaphragm balanced control valve and a Type 300 control system.

JD 61 Control Valve
The JD 61 direct acting valve is designed to close with a rise in temperature.
THe JD 61 RA reverse acting valve is designed to open with a rise in temperature.

Limiting conditions
Maximum body pressure 10 bar
Maximum temperature 120°C
Maximum differential pressure 7 bar

Pipe Connections
Screwed BSP. API available subject to special quotation.

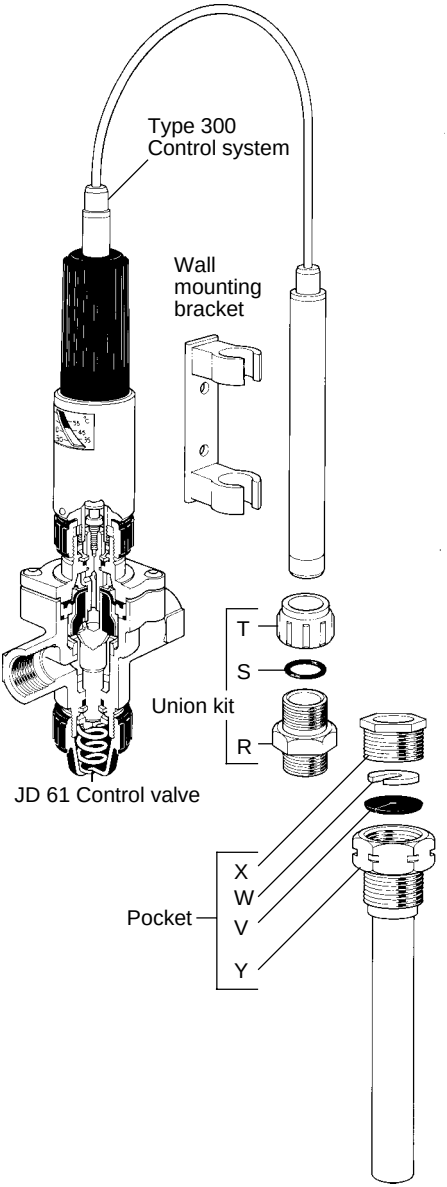
Type 300 Control System
Temperature ranges.

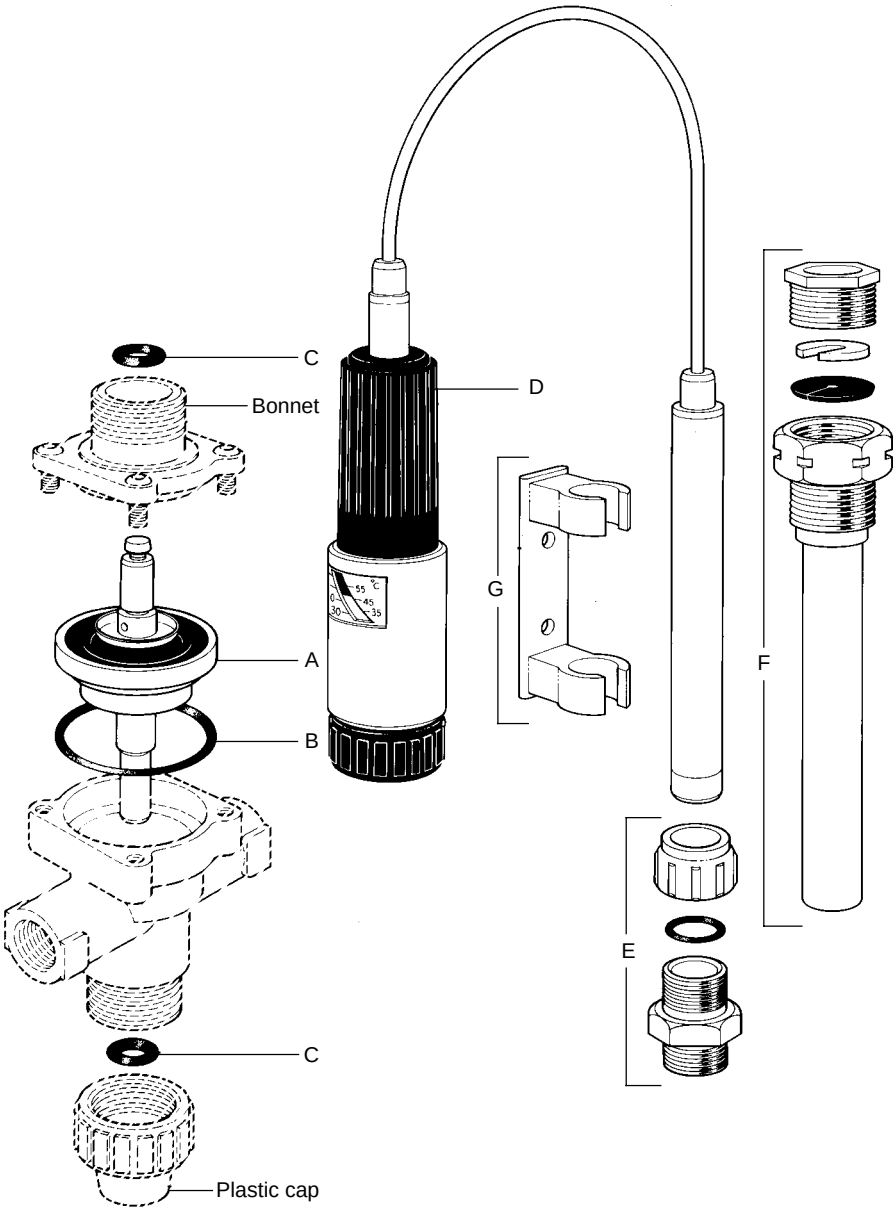
Range 30	0 to 30°C
Range 50	20 to 50°C
Range 70	40 to 70°C
Range 90	60 to 90°C

Capillary Tube
Standard length 2 m. 8 m is available for range 30 only.

Mounting
Immersion
Union kit comprises union nipple (R), compression ring (S) and Gland Nut (T). It can be screwed API to special quotation.
A wall mounting bracket is available.

Pocket
Available in copper, brass or stainless steel.
Union nipple (Y) forms the top of the pocket and carries a rubber washer (V), 'C' washer (W) and Gland Nut (X).




C
Bonnet
D
G
A
B
F
E
C
Plastic cap

Available Spares

The spare parts available are shown in heavy outline. Parts drawn in broken line are not supplied as spares.

AVAILABLE SPARE	
Internal Assembly	A
Set of 'O' Rings	B,C
Type 300 control system	D
Union Kit	E
Pocket (State material)	F
Wall Mounting Bracket	G

To Renew Thermostatic System 'D'

1. Remove Sensor from pocket.
2. Unscrew thermostatic system from valve.
3. Replace with new thermostatic system.
4. Adjust thermostat to required setting.

NB Ensure that gap between sensor and pocket is filled with heat conducting medium such as oil.

To Renew Internal Assembly 'A'

1. Close isolating valves.
2. Unscrew thermostatic system from valve, and place to one side taking care not to damage capillary.
3. Remove Bonnet (4 allen cap screws 3 mm A/F).
4. Pull out internal assembly.
5. Remove protective plastic sleeves from new internal assembly lubricate spindles with Silicone lubricant and insert into valve. See Note*.
6. Replace valve bonnet and tighten securing screws.
7. Replace thermostatic system and adjust temperature setting-if necessary.
8. Re-open isolating valves.

NB The internal assembly is pre-set, no adjustment is necessary.

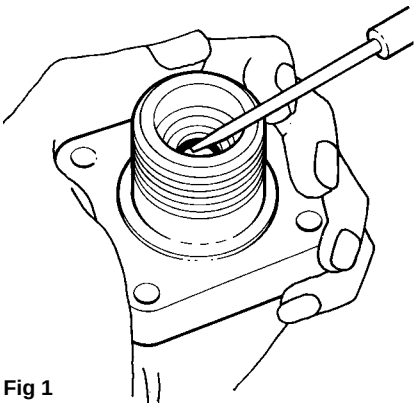


Fig 1

To Renew 'O' Ring Seals

Internal 'O' Ring

1. Close isolating valves.
2. Remove thermostatic system and bonnet as described under "Renewing Interal Assembly".
3. Remove internal 'O' ring and replace with new item.
4. Reassemble as under "Renewing Internal Assembly".
5. Re-open isolating valves.

Bonnet 'O' Ring 'C'

1. Close isolating valves.
2. Remove thermostatic system and bonnet as described under "Renewing Internal Assembly".
3. Prise 'O' ring from grove with penknife blade or small screwdriver (Fig. 1).
4. Replace with new 'O' ring by squeezing into 'O' ring groove.
5. Lubricate 'O' ring with Silocone lubricant — See note*.
6. Reassembly as under "Renewing Internal Assembly".
7. Re-open isolating vlaves.

Body 'O' Ring 'C'

Note the body 'O' ring seal can only be replaced when the internal assembly is removed.

1. Close isolating valves.
2. Remove internal assembly see "Renewing Internal Assembly".
3. Remove lower plastic cap (use suitable protection to avoid damage to cap).
4. Remove spring and spring plate.
5. Prise 'O' ring from groove with penknife blade or small screwdriver (Fig. 1).
6. Replace with new 'O' ring by squeezing into 'O' ring groove.
7. Lubricate 'O' ring with Silicone lubricant — See note*.
8. Replace internal assembly see "Renewing Internal Assembly".
9. Replace spring, spring plate and plastic cap.
10. Re-open isolating valves.

***Note**

Do not use mineral based oils or grease on 'O' rings or valve spindle. This type of lubricant will damage the Ethylene Propylene Rubber of the 'O' rings and valve internals, **use only Silicone lubricants.** Such as:— Dow Corning Silicon MS4.

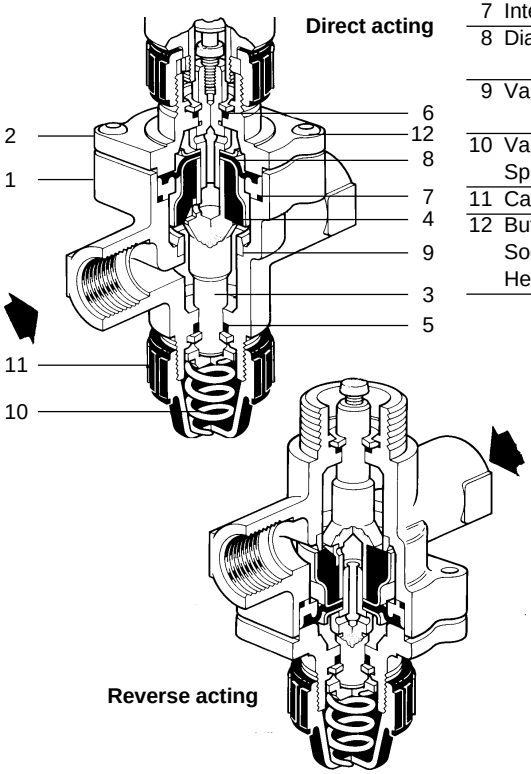
Installation

The valve can be installed in any attitude, providing that there is sufficient room to connect the adjustment/actuator assembly. It is important that line stresses such as can be caused by inadequate supporting of the pipe line, are not imposed on the valve body. It is advisable to protect the valve by fitting a strainer on the upstream side.

The sensor can be held in a boss by means of a union kit. Screw the nipple into the boss provided on the plant, thread the union nut and compression ring over the sensor. Insert the sensor fully into the nipple and tighten up the nut and compression ring. Do not over-tighten.

Where the sensor is used in conjunction with a pocket to allow easy withdrawal the gland nut (X) must be pushed along the length of the sensor. The 'C' washer (W) and rubber washer (V) are pushed on to the capillary below the gland nut. The sensor is then inserted into the pocket and the gland nut tightened up.

The capillary tube between the sensor and the valve must be run and supported in such a way that it will not become damaged. Avoid all sharp bends. It is essential to have a straight length of capillary at least 50 mm (2") from the top of the actuator/adjustment assembly.



Temperature Adjustment

Make sure that the locking pin at the base of the outer sleeve on the adjustment asembly is in place. The temperature setting can then be changed by rotating the knurled adjustment knob. A green band on the outside of the adjustment knob shows through a slot in the outer sleeve and lines up with a scale to indicate the set temperature. Turning the knob anticlockwise will increase the set temperature.

Tamper-proof Device

To render the control setting tamper-proof simply remove the locking pin once the temperature has been set.

The locking pin must be pushed back into place before the temperature setting can be altered.

Materials

No	Part	Material	
1	Body	DZR Brass	
2	Bonnet	DZR Brass	
3	Push Rod	DZR Brass	
4	Valve	Rubber	Ethylene
5	Body 'O' Ring	Rubber	Propylene
6	Bonnet 'O' Ring	Rubber	
7	Internal 'O' Ring	Rubber	
8	Diaphragm	Fabric & Rubber	Dacron EP
9	Valve Seat	Stainless Steel	BS 970 431 S29
10	Valve Return Spring	Stainless Steel	EN 58A
11	Cap	Nylon	
12	Button Socket Head Screw	Steel Zinc Plated M5 x 12	BS 4168 GR 8.8