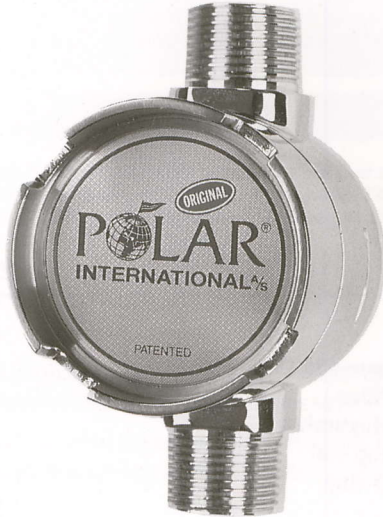




POLAR[®]

World leader in physical
de-scaling technology

- * New technology -
greater efficiency
- * Adjustable according
to water flow
- * Easy maintenance
- * Up to 100°C



PD 15 & PD 15M

*Maintenance and
installation instructions, technical
information and utilization precautions*

GB 501

Your Polar water conditioner is not a water softener. It does not cause any chemical process in the water. It does not change the taste or any other properties of the water which are of importance for human consumption.

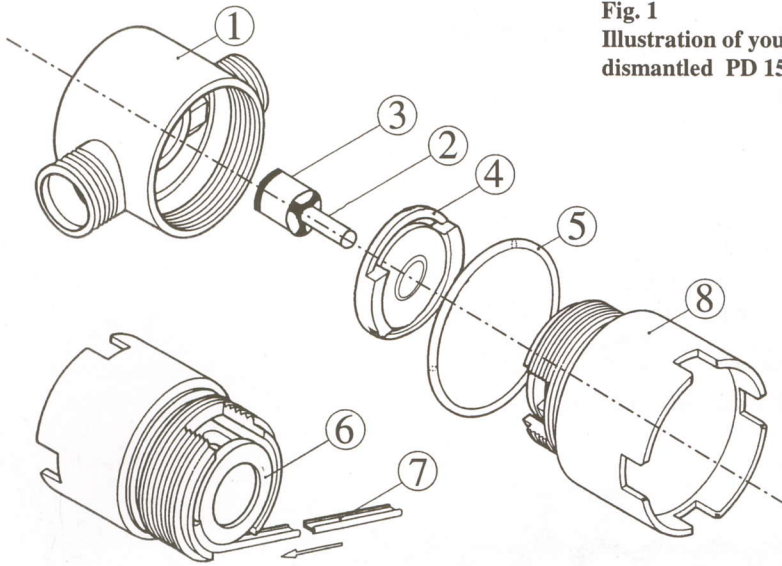
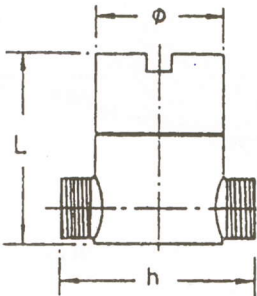


Fig. 1
Illustration of your
dismantled PD 15/PD 15M

- 1. Base-cup, 3/4" male threads
- 2. Pillar
- 3. Magnesium anode
- 4. Top seal
- 5. O-ring
- 6. Pole shoe ring
- 7. Two gapping strips
- 8. The magnetic treatment unit

Fig. 2
Dimensions (mm)



H = 110
Ø = 63
L = 88

Liquid temperature:
PD 15 = 60° C max.
PD 15M = 100° C max.

WHAT YOU NEED TO KNOW

The water is treated when it passes through a powerful magnetic field. This favours a precipitation of the mineral salts found in the water which will now remain suspended in the shape of microscopic particles. For about 24 hours they are unable to regroup into scale.

Your POLAR unit is designed to meet the water consumption of small houses and family homes, as well as industrial applications with small water consumption. The range of POLAR units covers every utilization up to 500,000 litres per hour.

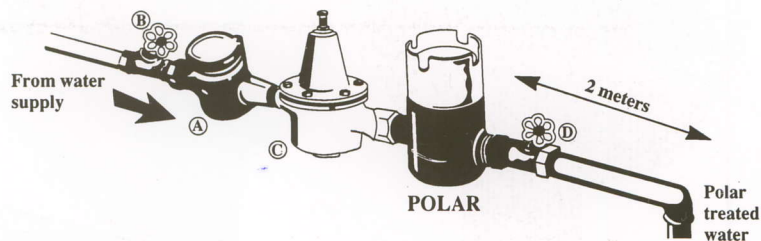
Your POLAR unit is autonomous, it functions by itself, without energy consumption or any other aids. The treated water retains all its natural properties necessary for human, animal and plant consumption. The water treated by POLAR de-scales your water-piping, and progressively removes and carries away all the deposits of corrosion and scale (this operation normally takes from 3 to 6 months approximately).

A clean installation contributes to the better performance and output of machines or appliances and contributes to saving energy.

INSTALLATION

Install your POLAR after the water-meter (A), the main stop-cock (B) and the pressure-reducer (C). An additional stop-cock (D) after POLAR may be useful in order to facilitate easy maintenance.

Fig. 3



ATTENTION!

- * Please note the direction of water flow indicated on the POLAR base cup.
- * Install POLAR at least 2 metres from the first tap point to be protected.
- * Make sure that the installation, W.C., taps, etc., do not leak.
- * Respect the order of installation indicated in the above fig. 3.
- * Do not install your POLAR between two piping sections of different materials.
- * Make sure that all parts of the piping are connected to electric earth.
- * In the case of pressure pumps in use - always place your POLAR after the pump.
- * POLAR can be installed in all positions.
- * Preferably use teflon thread tape rather than yarn on the base cup.

HOW TO OBTAIN THE BEST RESULT

Normal flow rate: 1.7 - 14 litres/minute.

The de-scaling process works when the water passes through the magnetic treatment unit (8) at a speed of 1 to 6 m/sec., i.e., a flow rate of 0.8 to 42 l/m.

Below 1 m/sec, there is insufficient treatment and above 6 m/sec. the efficiency may decrease.

CONCLUSION:

- avoid drop-by-drop flow.
- repair small leaks in water flushing apparatus.

The effect of the magnetic treatment starts after 2 sec., therefore it is preferable to install the POLAR unit at least 2 metres from the first point to be protected.

The effect of the magnetic treatment is at its maximum during the first 6 hours, gradually diminishing over the next 30 hours. If water is stored for more than 36 hours after treatment, the effect has disappeared. However, after a weekend or prolonged absence, the amount of deposits is negligible because while water is not being consumed, there is no intake of scale-forming water. If water is continually stored for over 36 hours (cold water) or for over 6 hours (hot water is re-heated after 6 hours), it is necessary to plan for re-cycling the water through the POLAR unit.

Temperature range: from 0°C to 100°C.

The formation of scale is proportional to the increase of the water temperature. Over-heating water causes excessive incrustation, which reduces the output of your system and compels you to raise the temperature - a vicious circle. Therefore avoid heating your water to more than 65°C.

—Flowrate table—

The two active gaps have a total through-flowing area of 1.12 cm². The pressure drop under normal use is negligible. The Polar water conditioner is delivered from the factory with plastic strips of 20 mm length, suitable for capacities as shown in table (normal flow rate corresponds to a velocity of 2 m/s through the gap).

For other water capacities, the area of the magnetic gap should be adjusted by means of one of the plastic strips. With a sharp knife, cut off two pieces of the strip, each with the exact length shown in the table for the required water capacity. Push one piece into each gap and leave them in the middle of the two gaps.

Domestic Applications	Water flow litres per hour			Water flow litres per minute			Length of Plastic Strip
	Min.	Normal	Max.	Min.	Normal	Max.	
Experience has shown that the most suitable size strip for the average household is 20 mm in each of the two gaps.	400	900	1800	7	14	28	10 mm
	300	600	1200	8	10	20	
	200	400	800	3.5	7	14	20 mm
	150	300	600	2.5	5	10	25 mm
	100	200	400	1.7	3.5	7	30 mm
	50	100	200	0.8	1.7	3.5	35 mm

Table 1

HOW TO TEST YOUR DOMESTIC POLAR AND SEE HOW IT WORKS

1. Turn your water tap on full and leave running for 30 seconds.
2. Hold a stainless steel saucepan under the tap to obtain water, then turn the tap off.
3. Heat the water until it boils rapidly, then remove the saucepan from the heat source.

Test 1: If the water is very hard, you will see a film of very fine mineral salt crystals floating on the surface of the water, or suspended in the water.

Explanation 1: With Polar treatment, 95% of the mineral salts are suspended in the water, instead of forming scale on hot metal side walls.

4. After examining the water, boil it again until it evaporates completely, then allow the saucepan to cool.

Test 2: As the last drops of water evaporate, you will see crystals forming around the evaporating water.

Explanation 2: In this zone, the temperature is higher than 100° C. Small crystals of mineral salts form at a very high rate.

Test 3: Once the saucepan is cool, run your fingertips over the bottom and you will find that they become white.

Explanation 3: All the water has evaporated, leaving behind the mineral salts. What your fingertips have picked up is these salts, which have been suspended in the water instead of clinging to the saucepan wall.

Test 4: A quick rinse and wiping with a sponge will make your saucepan clean again.

Explanation 4: Only a few particles of scale are still clinging, making cleaning much easier.

CONCLUSION: The same thing happens in your pipes. Scale no longer forms and clogs up your taps, safety valves, ect. However, the water continues to leave a deposit behind when it evaporates. The Polar process is natural, making it possible to retain the mineral salts which are the basis for good quality drinking water.

MAINTENANCE

Your Polar water conditioner should be cleaned periodically to ensure that it works effectively. How often it will need cleaning depends on the level of impurities in your water supply.

We recommend a first cleaning after your POLAR has been in use for four weeks. Depending on the level of deposit found after the initial period, it should be possible to estimate how often the unit will need to be cleaned.

1. Close the main stop-cock (B) and the optional one (D). If necessary turn off all the water taps, and if possible diminish any pressure from the circuit.
2. Place a bucket under the POLAR unit.
3. Un-screw the magnetic treatment unit (8) by inserting a tool into its notches and turn anti-clockwise. Inspect the inside of the base cup (1). Remove any sludge or dirt.
4. Remove the top seal (4). Extract the pillar (2) and the anode (3) using hand-force or a pair of pliers.
5. Check, and if necessary clean water passages and magnetic surfaces without using any metal tool. Preferably use one of the plastic strips (7) to clean the gap. Scale deposits can easily be softened by submerging the parts into a vinegar bath for 3-4 hours.
6. After maintenance, place the pillar (2) with the anode (3) into the magnetic treatment unit (8). Carefully check the sealing-surface of (8), open the main stop-cock (B), and then the optional one (D).

If you do not want to interrupt the water supply during service, you can fit the optional red cover supplied while the POLAR unit is being cleaned.

Note: In corrosive water, the magnesium anode (3) will protect the unit against corrosion, whilst gradually being sacrificed. For spare anode please consult your local POLAR supplier.