CLAIMS

1. A pump assembly for pumping boiling water to a dispenser in a drinking water dispensing system, the pump assembly comprising:

a pump housing having an inlet for the boiling water and an outlet arranged in fluid communication with the inlet;

an impeller disposed in the pump housing for rotation about a central axis for driving the water from the inlet to the outlet, wherein the inlet is arranged on the central axis; and

an inducer arranged in the inlet to the pump housing and operatively connected to the impeller for rotation therewith about the central axis to induce the water at the inlet towards the impeller and raise the inlet pressure.
characterized in that the inlet is a conduit having a substantially straight length of at least five times its internal diameter.

2. ~~A~~ The pump assembly according to claim 1, wherein the impeller and the inducer are mounted on a common shaft comprised of a ceramic.

3. The~~A~~ pump assembly according to claim 1 or 2, wherein the inducer comprises a generally elongate stem which extends along the central axis away from the impeller into the inlet, and at least one blade or flight that extends in a helical or screw formation on an outer periphery of the stem.

4. The~~A~~ pump assembly according to ~~any one of the preceding claims~~claim 3, wherein an upstream end of the inducer stem terminates in a tapered or rounded cap or nose to promote laminar flow through the inlet.

5. The~~A~~ pump assembly according to any one of the preceding claims, wherein the ~~inlet is a~~ length of the conduit is ~~having a substantially straight length of at least five times its internal diameter, and preferably~~ at least six times its internal diameter~~; and wherein the internal diameter of the inlet conduit is preferably in the range of about 5 mm to 15 mm, more preferably about 10 mm.~~

6. The pump assembly according to claim 5, wherein the internal diameter of the inlet conduit is in the range of about 5 mm to 15 mm.

7. The pump assembly according to claim 6, wherein the internal diameter of the inlet conduit is about 10 mm.

~~6.~~8. The~~A~~ pump assembly according to any one of the preceding claims, wherein the impeller has a central hub for mounting on the shaft and a plurality of radially extending vanes for driving the water centrifugally from the inlet to the outlet, wherein a radially innermost edge of each of the vanes is spaced radially outwards of or away from the central hub of the impeller.

~~7.~~ 9. The~~A~~ pump assembly according to claim 8~~6~~, wherein each of the vanes has a height or depth in the axial direction that reduces or tapers in the radial direction from the radially innermost edge to a radially outermost edge thereof.

~~8.~~ 10. The~~A~~ pump assembly according to any one of the preceding claims, wherein the impeller is comprised of heat resistant polymer and has a diameter in the range of about 20 mm to 40 mm, preferably about 30 mm.

11. The~~A~~ pump assembly according to claim 10, wherein the impeller has a diameter of about 30 mm.

~~9.~~ 12. The~~A~~ pump assembly according to any one of the preceding claims, further comprising an electric motor attached to the pump housing for driving rotation of the inducer and the impeller, especially a brushless induction motor.

~~10.~~ 13. The~~A~~ pump assembly according to claim 12~~9~~, wherein the shaft is rigidly fixed to the rotor of the electric motor for rotation therewith.

~~11.~~ 14. The~~A~~ pump assembly according to claim 12~~9~~ or claim 13~~10~~, further comprising a bearing device for supporting the shaft on the central axis.

~~12.~~ 15. ~~A~~ The pump assembly according to any one of the preceding claims, wherein the impeller is designed to rotate at a no-load speed in the range of about 6000 to 8000 revolutions per minute (rpm)~~, preferably in the range of about 7000 to 7500 rpm~~.

16. The~~A~~ pump assembly according to claim 15, wherein the no-load speed is in the range of about 7000 to 7500 rpm.

~~13.~~ 17. ~~A~~ The pump assembly according to any of the preceding claims, wherein the pump assembly is configured for pumping water at a temperature of about 98°C.

~~14. A pump assembly for pumping water at a temperature above 96°C to a dispenser in a vented drinking water dispensing system, the pump assembly comprising:~~

~~a pump housing having a water inlet and an outlet in fluid communication with the inlet;~~

~~an impeller disposed in the pump housing for rotation about a central axis at a no-load speed in the range of about 6000 to 8000 revolutions per minute (rpm) for driving the water from the inlet to the outlet, wherein the inlet is arranged on the central axis;~~

~~an inducer arranged in the inlet to the pump housing and operatively connected to the impeller for rotation therewith about the central axis to induce the water at the inlet towards the impeller and raise the inlet pressure, wherein the inducer comprises an elongate stem that~~

~~extends axially away from the impeller into the inlet and a pair of blades or flights that extend in~~

~~a helical or screw formation on an outer periphery of the stem;~~

~~wherein the impeller and the inducer are mounted on a common ceramic shaft.~~

~~15.~~18. The~~A~~ dispensing system for dispensing boiling drinking water, the system comprising a pump assembly according to any one of the preceding claims.