

CLAIMS:

1. A biological processing system comprising:
 - a chamber having an interior for receiving and processing fluids;
 - a sensor assembly having a sensor probe for measuring conditions in the chamber;
 - at least one port disposed on the chamber for receiving the sensor probe and permitting the sensor probe to access the chamber interior, wherein the port comprises a stem projecting outwardly from the chamber, and the stem comprises a flange and an interior wall forming a stem passageway disposed between interior and outer openings and in fluid communication with the chamber interior;
 - a probe seal for forming a seal between the port and the sensor probe and preventing fluid in the chamber from leaking past the probe seal, wherein the probe seal comprises spaced-apart inner and outer skirts, the inner skirt having a wall forming a seal passageway for receiving the sensor probe and permitting the sensor probe to enter the chamber interior when the probe seal is attached to the stem;
 - wherein the inner skirt has a seal member located near an interior end of the inner skirt, the inner skirt being inserted into the stem passageway, and the seal member tapering inwardly towards the sensor probe and away from the wall forming the stem passageway for sealably compressing against the sensor probe and the stem passageway to form a leak-tight seal; and
 - wherein the inner and outer skirt form a skirt channel adapted to receive the flange of the stem when the inner skirt is inserted into the stem passageway.
2. The system set forth in claim 1 wherein the flange of the stem has a tapered configuration and the stem further comprises an annular flange disposed between the chamber and the tapered flange, and wherein a stem channel is defined between the annular and tapered flanges;
 - a cable tie for releasably attaching the probe seal and stem together; and
 - wherein the probe seal is comprised of a flexible polymeric material adapted to permit the outer skirt to flexibly engage the tapered flange when the inner skirt is inserted into the stem passageway, and the outer skirt is disposed to be attached to the stem channel with the cable tie.
3. The system set forth in claim 1 wherein the inner skirt comprises a neck disposed between the seal member and the inner skirt, and the neck is thinner than the wall of the inner skirt so that the neck permits the seal member to flex outwardly into sealing engagement with stem passageway in response to insertion of the probe seal into the seal passageway.
4. The system set forth in claim 1 wherein the seal member is disposed outboard of the outer skirt to facilitate insertion of the inner skirt into the stem passageway.

5. The system set forth in claim 1 wherein the seal member is thicker than the inner skirt wall so that when the sensor probe is inserted through the probe seal passageway, the seal member may sealably engage the sensor probe without interference from wall of the inner skirt.

6. A sealing system for preventing leakage of a fluid from a fluid-containing chamber when a sensor probe for measuring fluid conditions within the chamber is inserted into the chamber, the sealing system comprising:

at least one port in fluid communication with the fluid-containing chamber, wherein the port comprises a stem projecting outwardly from the chamber, and the stem comprises a flange and an interior wall forming a stem passageway disposed between interior and outer openings and in fluid communication with the chamber interior;

a probe seal for forming a seal between the port and the sensor probe and preventing fluid in the processing chamber from leaking past the probe seal, wherein the probe seal comprises spaced-apart inner and outer skirts,

and wherein the inner skirt comprises a wall forming a seal passageway wherein the seal passageway is in fluid communication with the chamber, and wherein the inner skirt comprises an interior end disposed to enter the stem passageway when the probe seal is attached to the stem; and

wherein the inner skirt has a seal member disposed near the interior end of the inner skirt, the inner skirt being inserted into the stem passageway, and the seal member tapering inwardly towards the sensor probe and away from the wall forming the stem passageway for sealably compressing against the sensor probe and the stem passageway to form a leak-tight seal in response to insertion of the sensor probe into the seal passageway; and

wherein the inner and outer skirt form a skirt channel adapted to receive the flange of the stem when the inner skirt is inserted into the stem passageway.

7. The system set forth in claim 6 wherein the flange of the stem has a tapered configuration and the stem further comprises an annular flange disposed between the chamber and the tapered flange so that the a stem channel defined between the annular and tapered flanges;

a cable tie for releasably attaching the probe seal and stem together; and

wherein the probe seal is comprised of a flexible polymeric material adapted to permit the outer skirt to flexibly engage the tapered flange when the tapered flange is inserted into the skirt channel, and the outer skirt is disposed to be attached to the stem channel with the cable tie.

8. The system set forth in claim 6 wherein the inner skirt comprises a neck disposed between the seal member and the inner skirt, and the neck is thinner than the seal member so that the neck permits the seal member to flex outwardly into sealing engagement with stem passageway in response to insertion of the probe seal into the seal passageway.

9. The system set forth in claim 6 wherein the seal member is disposed outboard of the outer skirt to assist insertion of the inner skirt into the stem passageway.

10. The system set forth in claim 6 wherein the seal member is thicker than the inner skirt wall so that when the sensor probe is inserted through the probe seal passageway, the seal member may sealably engage the sensor probe without interference from wall of the inner skirt.