Claims

1. A system comprising:

a support configured to receive a flow cell assembly, the support comprising an X-direction locator element;

a common-side securement assembly having a first arm;

a post-side securement assembly having a second arm, the first and second arms actuatable to draw the flow cell assembly into engagement towards the support in a Z-direction to a plane of the flow cell assembly, the common-side securement assembly positioned on a first side of the support and the post-side securement assembly positioned on a second side of the support, the second side opposite the first side;

a first driving element actuatable to urge the flow cell assembly into a first reference position in an X-direction perpendicular to the Z-direction against the X-direction locator element;

a second driving element actuatable to urge the flow cell assembly into a second reference position in a Y-direction perpendicular to the Z-direction and to the X-direction against a Y-direction locator element; and

an actuating system operatively connected to the arms, the first driving element and the second driving element and configured to, in a single securement operation, actuate the arms to draw the flow cell assembly towards the support in the Z-direction, actuate the first driving element to urge the flow cell assembly into the first reference position against the X-direction locator element in the X-direction, and actuate the second driving element to urge the flow cell assembly into the second reference position against the Y-direction locator element in the Y-direction.

2. The system of claim 1, further comprising fluid connections configured to form a sealed fluid flow path with the flow cell assembly when the flow cell assembly is positioned in the first and second reference positions.

3. The system of claim 2, wherein the fluid connections comprise manifolds that are moveable by the actuating system to complete sealed fluid

connections with an inlet side of the flow cell assembly and an outlet side of the flow cell assembly.

4. The system of claim 3, wherein the manifolds comprise a first manifold configured to fluidically couple with a first elastomeric element of the flow cell assembly for sealing more than one flow path.

5. The system of claim 2, wherein the fluid connections comprise manifolds configured to be positioned relative to inlet and outlet sides of the flow cell assembly.

6. The system of claim 5, comprising springs; wherein the manifolds are spring-biased upwardly via the springs against a force exerted by the arms.

7. The system of claim 1, wherein the first arm is configured to contact an upper side of the flow cell assembly on an inlet side of the flow cell assembly, and the second arm is configured to contact the upper side of the flow cell assembly on an outlet side of the flow cell assembly.

8. The system of claim 1, wherein the actuating system includes a pair of electric motors for moving the flow cell assembly towards the first reference position, and a third motor for moving the flow cell towards the second reference position.

9. The system of claim 1, wherein the arms and the first and second driving elements are each configured to contact at least one of a frame structure of the flow cell assembly or a flow cell of the flow cell assembly when actuated by the actuating system when the flow cell assembly is received by the support.

10. The system of claim 1, wherein the first driving element comprises a helical surface configured to urge the flow cell assembly towards the first reference position.

11. The system of claim 1, comprising biasing springs, wherein the arms are biased in a clamped position by the biasing springs.