towards the second face and directs the fluid inwardly towards an inlet port positioned along the nebulizer receiving channel.

22. The end cap assembly of claim 20, further comprising:

a plurality of sealing members surrounding respective fluid passageways and forming seals between the end cap assembly and the mixing chamber assembly when the end cap assembly is coupled to the mixing chamber assembly.

23. The end cap assembly of claim 20, further comprising:

a cover that couples to a back plate of the manifold to cover conduits of the manifold, the conduits defines fluid passageways.

24. The end cap assembly of claim 20, wherein the manifold includes a tubular member defining the nebulizer receiving channel and extending through an opening in the cover.

25. An atomic absorption instrument, comprising:

a mixing chamber assembly including a main body and an internal chamber for delivering a mixture to a burner;

an end cap assembly coupleable to the main body, the end cap assembly configured to hold a nebulizer that delivers a sample into the internal chamber; and

at least one latch mechanism movable between an unlatch configuration and a latched configuration to couple the end cap assembly to the main body.

26. The atomic absorption instrument of claim 25, wherein the at least one latch mechanism has a lever arm rotatable from a first position to a second position and a hook member rotatably coupled to the lever arm, the hook member is configured to pull the end cap assembly against the main body

27. The atomic absorption instrument of claim 25, wherein the at least one latch mechanism includes a base, a pulling member, and a lever, the base is coupled to the main body of the mixing chamber assembly, the lever is rotatably coupled to the base and rotatably coupled to the pulling member, the pulling member is configured to pull the end cap assembly as the lever is rotated.

28. The atomic absorption instrument of claim 25, further comprising:

a sensor that detects whether a nebulizer is installed in the end cap assembly.

29. The atomic absorption instrument of claim 25, wherein the end cap assembly and the mixing chamber assembly form an airtight seal as the latch mechanism moves from the unlatched configuration to the latched configuration.

30. The atomic absorption instrument of claim 25, further comprising:

a positioning element operable to move the latch mechanism with respect to the mixing chamber assembly.

31. A method of assembling an atomic absorption instrument, comprising:

moving an end cap assembly towards an end of a mixing chamber assembly, the end cap assembly being configured to hold a nebulizer that delivers an atomized sample to a mixing chamber; and

moving at least one latch mechanism from an unlatched configuration to a latched configuration to pull the end cap assembly towards the mixing chamber assembly so as to sealingly couple the end cap assembly to the mixing chamber assembly.

32. The method of claim 31, further comprising;

rotating a lever arm of the latch mechanism to pull the end cap assembly against the mixing chamber assembly.

33. The method of claim 32, further including:

moving a pulling member of the latch mechanism into engagement with a retention feature of the end cap assembly prior to rotating a lever arm of the latch mechanism.

34. The method of claim 31, further comprising;

rotating a lever arm of the latch mechanism to cause a pulling element of the latch mechanism to pull on the end cap assembly.

35. The method of claim 34, wherein the pulling member comprises a hook.

36. The method of claim 31, further comprising:

adjusting a position of the at least one latch mechanism with respect to the mixing chamber assembly to increase or decrease the force applied to the end cap assembly by the latch mechanism.