CLAIMS

1. A valve block comprising:

a housing (114) having a first side (116) and a second side (126) opposite the first side (116), wherein the first side (116) comprises a cylindrical depression (118) for receiving a valve control mechanism, wherein the cylindrical depression (118) comprises a surface (120) and a first opening (122) and a second opening (124) in the surface (120), each of which are terminal ends of conduits, wherein the first opening is in fluid communication with a T-connection (146) in fluid communication with a second conduit (148) having a first portion (150) and a second portion (152), wherein the second opening (124) is in fluid communication with a vent opening (178) located on the second side (126) of the housing (114);

a third side (128) adjacent to the first side (116) and a fourth side (138) opposite the third side (128), wherein the third side (128) comprises a cylindrical depression (130) for receiving a valve control mechanism, wherein the cylindrical depression (130) comprises a surface (132) and a first opening (134) and a second opening (136) in the surface, each of which are terminal ends of conduits, wherein the first opening (134) is in fluid communication with the first portion (150) of the second conduit (148) and the second opening (136) is in fluid communication with an opening (204) located on the fourth side (138) of the housing (114);

a fifth side (140) and a sixth side (142) opposite the fifth side (140), wherein the second portion (152) of the second conduit (148) is in fluid communication with an opening (166) located on the fifth side (140) of the housing (114) through a conduit via a bend portion (162); and

an angled seventh side (158) adjacent to the first side (116) and the fourth side (138), wherein the angled seventh side (158) comprises a cylindrical depression (154) for receiving a valve control mechanism, wherein the cylindrical depression (154) comprises a surface (184) and a first opening (174) and a second opening (176) in the surface (184), each of which are

terminal ends of conduits, wherein the first opening (174) is in fluid communication with an opening (208) through conduit portion (194) via bend (196) located on the fifth side (140) of the housing (114), the second opening (176) is in fluid communication with an opening (206) located on the second side (126) of the housing (114) through conduit (186) via bend (190) and conduit portion (188).

2. The valve block of claim 1 wherein the opening (204) in the fourth side (138) of the housing (114) is in fluid communication with a fluid flow outlet (202) via a connection (200).

3. The valve block of claim 2 wherein the opening (166) on the fifth side (140) is in fluid communication with a face seal fitting (187) via a reducing conduit (189) and is in fluid communication with the coaxial conduit (185), which is in fluid communication with the opening (208) located on the fifth side (140) of the housing (114).

4. The valve block of claim 3 wherein the opening (208) located on the fifth side (140) of the housing (114) is in fluid communication with a container (170) via a connection (168).

5. The valve block of claim 1 wherein the opening (206) located on the second side (126) of the housing (114) is in fluid communication with a purge gas source (159).

6. The valve block of claim 1 wherein the T-connection comprises a 90° angle.

7. The valve block of claim 1 wherein the T-connection comprises an angle from 30° to 135°.

8. A system comprising:

a valve block comprising:

a housing (114) having a first side (116) and a second side (126) opposite the first side (116), wherein the first side (116) comprises a cylindrical depression (118) for receiving a valve control mechanism, wherein the cylindrical depression (118) comprises a surface (120) and a first opening (122) and a second opening (124) in the surface (120), each of which are

terminal ends of conduits, wherein the first opening is in fluid communication with a T-connection (146) in fluid communication with a second conduit (148) having a first portion (150) and a second portion (152), wherein the second opening (124) is in fluid communication with a vent opening (178) located on the second side (126) of the housing (114);

a first valve control mechanism located the cylindrical depression (118) of the first side (116);

a third side (128) adjacent to the first side (116) and a fourth side (138) opposite the third side (128), wherein the third side (128) comprises a cylindrical depression (130) for receiving a valve control mechanism, wherein the cylindrical depression (130) comprises a surface (132) and a first opening (134) and a second opening (136) in the surface, each of which are terminal ends of conduits, wherein the first opening (134) is in fluid communication with the first portion (150) of the second conduit (148) and the second opening (136) is in fluid communication with an opening (204) located on the fourth side (138) of the housing (114);

a second valve control mechanism located the cylindrical depression (130) of the third side (128);

a fifth side (140) and a sixth side (142) opposite the fifth side (140), wherein the first portion (150) of the second conduit (148) is in fluid communication with an opening (166) located on the fifth side (140) of the housing (114) via a bend portion (162);

an angled seventh side (158) adjacent to the first side (116) and the fourth side (138), wherein the angled seventh side (158) comprises a cylindrical depression (154) for receiving a valve control mechanism, wherein the cylindrical depression (154) comprises a surface (184) and a first opening (174) and a second opening (176) in the surface (184), each of which are terminal ends of conduits, wherein the first opening (174) is in fluid communication with an opening (208) through conduit portion (194) via bend (196) located on the fifth side (140) of the housing (114), the second opening (176) is in fluid communication with an opening (206) located on

the second side (126) of the housing (114) through conduit (186) via bend (190) and conduit portion (188); and

a third valve control mechanism located the cylindrical depression (154) of the angled seventh side (158).

9. The system of claim 8 wherein the opening (204) in the fourth side (138) of the housing (114) is in fluid communication with a fluid flow outlet (202) via a connection (200).

10. The system of claim 9 wherein the opening (166) on the fifth side (140) is in fluid communication with a face seal fitting (187) via a reducing conduit (189) and is in fluid communication with the coaxial conduit (185), which is in fluid communication with the opening (208) located on the fifth side (140) of the housing (114).

11. The system of claim 10 wherein the opening (208) located on the fifth side (140) of the housing (114) is in fluid communication with a container (170) via a connection (168).

12. The system of claim 8 wherein the opening (206) located on the second side (126) of the housing (114) is in fluid communication with a purge gas source (159).

13. The system of claim 8 wherein the T-connection comprises a 90° angle.

14. The system of claim 8 wherein the T-connection comprises an angle from 30° to 135°.

15. A method of performing a purge step in a valve block after the valve block has undergone a fluid flow step, wherein the valve block is in fluid communication with a container, the valve block comprising:

a housing (114) having a first side (116) and a second side (126) opposite the first side (116), wherein the first side (116) comprises a cylindrical depression (118) for receiving a valve control mechanism, wherein the cylindrical depression (118) comprises a surface (120) and a first opening (122) and a second opening (124) in the surface (120), each of which are terminal ends of conduits, wherein the first opening is in fluid

communication with a T-connection (146) in fluid communication with a second conduit (148) having a first portion (150) and a second portion (152), wherein the second opening (124) is in fluid communication with a vent opening (178) located on the second side (126) of the housing (114);

a first valve control mechanism located the cylindrical depression (118) of the first side (116);

a third side (128) adjacent to the first side (116) and a fourth side (138) opposite the third side (128), wherein the third side (128) comprises a cylindrical depression (130) for receiving a valve control mechanism, wherein the cylindrical depression (130) comprises a surface (132) and a first opening (134) and a second opening (136) in the surface, each of which are terminal ends of conduits, wherein the first opening (134) is in fluid communication with the first portion (150) of the second conduit (148) and the second opening (136) is in fluid communication with an opening (204) located on the fourth side (138) of the housing (114);

a second valve control mechanism located the cylindrical depression (130) of the third side (128);

a fifth side (140) and a sixth side (142) opposite the fifth side (140), wherein the first portion (150) of the second conduit (148) is in fluid communication with an opening (166) located on the fifth side (140) of the housing (114) via a bend portion (162);

an angled seventh side (158) adjacent to the first side (116) and the fourth side (138), wherein the angled seventh side (158) comprises a cylindrical depression (154) for receiving a valve control mechanism, wherein the cylindrical depression (154) comprises a surface (184) and a first opening (174) and a second opening (176) in the surface (184), each of which are terminal ends of conduits, wherein the first opening (174) is in fluid communication with an opening (208) through conduit portion (194) via bend (196) located on the fifth side (140) of the housing (114), the second opening (176) is in fluid communication with an opening (206) located on the second side (126) of the housing (114) through conduit (186) via bend

(190) and conduit portion (188), wherein the opening (206) located on the second side (126) of the housing (114) is in fluid communication with a purge gas source (159); and

a third valve control mechanism located the cylindrical depression (154) of the angled seventh side (158);

the method comprising the steps of:

changing the container;

engaging the second valve control mechanism to close the first opening (134) in the surface (132) of the cylindrical depression (130) in the third side (128) and to isolate the second opening (136) in the surface (132) of the cylindrical depression (130) in the third side (128);

disengaging the first valve control mechanism to open the first opening (122) in the surface (120) of the cylindrical depression (118) in the first side (116) and to open the second opening (124) in the surface (120) of the cylindrical depression (118) in the first side (116);

disengaging the third valve control mechanism to open the first opening (174) in the surface (184) of the cylindrical depression (154) in the angled seventh side (158) and to open the second opening (176) in the surface (184) of the cylindrical depression (154) in the angled seventh side (158); and

flowing high pressure purge gas through the opening (206) located on the second side (126) of the housing (114) such that the purge gas flows through the second opening (176) in the surface (184) of the cylindrical depression (154) in the angled seventh side (158) then through the first opening (174) in the surface (184) of the cylindrical depression (154) in the angled seventh side (158) to exit the inner coaxial portion (183) of the coaxial conduit and back up the outer coaxial portion (185) of the coaxial conduit through the first opening (122) in the surface (120) of the cylindrical depression (118) in the first side (116) and into the second opening (124) in the surface (120) of the cylindrical depression (118) in the first side (116) to the vent opening (178) located on the second side (126) of the housing (114).

16. The method of claim 15 wherein the opening (204) in the fourth side (138) of the housing (114) is in fluid communication with a fluid flow outlet (202) via a connection (200).

17. The method of claim 16 wherein the opening (166) on the fifth side (140) is in fluid communication with a face seal fitting (187) via a reducing conduit (189) and is in fluid communication with the coaxial conduit (185), which is in fluid communication with the opening (208) located on the fifth side (140) of the housing (114).

18. The method of claim 17 wherein the opening (208) located on the fifth side (140) of the housing (114) is in fluid communication with a container (170) via a connection (168).

19. The method of claim 15 wherein the T-connection comprises a 90° angle.

20. The method of claim 15 wherein the T-connection comprises an angle from 30° to 135°.