

WHAT IS CLAIMED IS:

1. A valve positioning system comprising:
 - an interval control valve (ICV) coupled to at least one hydraulic-open line and at least one hydraulic-close line;
 - a position sensor coupled to the ICV, wherein the position sensor is configured to measure a position of the ICV; and
 - a surface controller coupled to the hydraulic-open line and the hydraulic-close line, and wherein the surface controller comprises one or more processors configured to perform operations for:
 - applying a first series of differential pressure values to the hydraulic-open line;
 - receiving a valve position for each of the first series of differential pressure values, from the position sensor; and
 - calculating one or more first valve parameters for each of the first series of differential pressure values.
2. The system of claim 1, wherein the surface controller is further configured to perform operations for:
 - generating an ICV positioning model based at least in part on the one or more first valve parameters.
3. The system of claim 1, wherein the surface controller is further configured to perform operations for:
 - applying a second series of differential pressure values to the hydraulic-close line;
 - receiving valve position for each of the second series of differential pressure values, from the position sensor; and
 - calculating one or more second valve parameters for each of the second series of differential pressure values.
4. The system of claim 1, wherein the one or more first valve parameters comprises at least one of: a lag time, a move speed, or a response delay that is based on the first series of differential pressure values.

5. The system of claim 1, wherein calculating the one or more first valve parameters is based on a temperature of the ICV.
6. The system of claim 1, wherein calculating the one or more first valve parameters is based on a position of one or more other ICVs.
7. The system of claim 1, wherein the position sensor comprises a battery, and is configured to communicate with the surface controller via a wireless channel.
8. The system of claim 1, wherein the position sensor is coupled to the surface controller via a wired communication channel.
9. A method for modeling an interval control valve (ICV) position, comprising:
 - applying, by a surface controller, a first series of differential pressure values to a hydraulic-open line;
 - receiving, from a position sensor, a corresponding valve position for each of the first series of differential pressure values;
 - calculating one or more first valve parameters for each of the first series of differential pressure values; and
 - generating an ICV positioning model based at least in part on the first valve parameters calculated for each of the first series of differential pressure values.
10. The method of claim 9, further comprising:
 - applying a second series of differential pressure values to a hydraulic-close line;
 - receiving, from the position sensor, a corresponding valve position for each of the second series of differential pressure values; and
 - calculating one or more second valve parameters for each of the second series of differential pressure values.
11. The method of claim 9, wherein the one or more first valve parameters comprises at least one of: a lag time, a move speed, and a response delay for each of the first series of differential pressure values.

12. The method of claim 9, wherein at least one of the first valve parameters is based on a temperature of the ICV.
13. The method of claim 9, wherein calculating the first valve parameters is further based on a position of one or more other ICVs.
14. The method of claim 9, wherein the position sensor comprises a battery, and is configured to communicate with the surface controller via a wireless channel.
15. A tangible, non-transitory, computer-readable media having instructions encoded thereon, the instructions, when executed by a processor, are operable to perform operations for:
- applying, by a surface controller, a first series of differential pressure values to a hydraulic-open line;
 - receiving, from a position sensor, a corresponding valve position for each of the first series of differential pressure values;
 - calculating one or more first valve parameters for each of the first series of differential pressure values; and
 - generating an ICV positioning model based at least in part on the first valve parameters calculated for each of the first series of differential pressure values.
16. The tangible, non-transitory, computer-readable media of claim 15, wherein the processors are further configured to perform operations comprising:
- applying a second series of differential pressure values to a hydraulic-close line;
 - receiving, from the position sensor, a corresponding valve position for each of the second series of differential pressure values; and
 - calculating one or more second valve parameters for each of the second series of differential pressure values.
17. The tangible, non-transitory, computer-readable media of claim 15, wherein the ICV positioning model is based on at least one of: a lag time, a move speed, and a response delay for each of the first series of differential pressure values.

18. The tangible, non-transitory, computer-readable media of claim 15, wherein at least one of the first valve parameters is based on a temperature of the ICV.

19. The tangible, non-transitory, computer-readable media of claim 15, wherein calculating the first valve parameters is further based on a position of one or more other ICVs.

20. The tangible, non-transitory, computer-readable media of claim 15, wherein the position sensor comprises a battery, and is configured to communicate with the surface controller via a wireless channel.