

Shield Pressure Control®

Testing and Training Flow Loop

Train personnel with pressure control equipment under real life pressure and flow conditions.

The hydraulic test and training flow loop in Shield Pressure Control’s manufacturing facility is designed to simulate real-life operations; allowing operators to not only walk away with an understanding of the theory, but also an appreciation and feel for equipment operation.

Equipped with two 350 horsepower pumps, the facility can flow over 1,000gpm with 1,000psi back pressure: recreating some of the most demanding MPD and well control applications. The flow loop is built with over 500ft of pipe and accumulators, specifically designed to mimic a real-life well’s compressibility response.

The control room has full access to all the facility equipment including pumps, chokes, orbit valves, and monitoring flow and pressure parameters. Additionally, the clients can choose to remotely monitor all flow loop parameters and control the Power Choke that is integrated into the loop and see a live camera feed from remote locations.

The facility also includes a full classroom accommodating 12 students. The classroom can be utilized to monitor flow loop pressure control parameters while reviewing its MPD implications downhole. This is made possible by integrating a downhole well hydraulic model that takes feedback from the flow loop choke pressure response. This feature will enable participants to understand the downhole implications of surface pressure management while drilling through MPD equipment.



| Offering | Notes |
|---------------------|---------------------------------|
| MPD 101-Engineering | MPD well design and procedures |
| MPD 101-Operations | MPD rig up and field procedures |
| Choke Operation I | Modes of pressure control |
| Choke Operation II | Downhole hydraulics integrated |
| Well Control | Well control basics |

Customers who are interested in testing and benchmarking pressure regulation devices can take advantage of the facility's modular design and install their product in a loop testing the equipment under realistic flow conditions. The instrumentations embedded in various locations of the loop enable producing accurate and reliable Cv curves and more.



CUSTOMER BENEFITS

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| Hands-on training | Various pressure control products are integrated. Assembly and maintenance modules are available |
| Realistic well conditions | Accumulators and 500' of pipe to simulate real well compressibility |
| Theory and calculations | Training with Subject Matter Experts |
| Remote participation | Remote monitoring and control allows participants to attend remotely |
| Training Available | Classes can be customized to the equipment being used. Required levels of competency desired. Or even the parameters and operations expected on an upcoming well. |

TECHNICAL SPECIFICATIONS

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| Two centrifugal pumps | 350 HP each, PID feedback control to maintain flow rate acting as rig triplex pumps |
| 6" high-pressure pipe between pumps and chokes | >500 ft, 5" ID |
| Fluid tank | 120 bbl capacity |
| Flowmeter | Coriolis and fan stles |
| Accumulator | 2 units: 4,785 psi, 3,465 cu-in each |
| An extra outlet for custom pressure control devices | ASME/ANSI flange B16.5 class 600, can be adapted as desired |
| ABP HPU Control Panel | Capable of controlling 2 hydraulic chokes |
| ABP HMI Control Panel | Control chokes with automated pressure set-point and ramp schedules |
| Control Orbit Vales Control Panels | Basic and Shield Ultra Light |
| Pressure Relief Valve (PRV) | Setpoint & reset Setpoint, Integrated to MPD controls for dynamic setpoints. |
| Classroom | 12 desks and 2 large screen TV's |
| Remote monitoring and control | Remote connection for PowerChoke HMI |

For further questions or quotation requests contact PowerChokes-Sales@adsmpd.com or visit www.powerchokes.co to see further chokes, controls, and PRV solutions. Also, consider visiting adsmpd.com for RCD's and MPD solutions.

