

# B.E.S.T. Integrated Choke Manifold Building

Beyond has designed a fully integrated Choke Manifold Building which includes all components necessary to manage the surface backpressure in MPD and UBD operations in the most optimal way possible.

The integrated manifold is a compact 20' (6.1m) that contains the following components:

- Dual choke manifold
- 2 x Drilling Choke
- Pressure Relief Valve
- Automated Backpressure Control System
- Coriolis Flow Meter with Flow Bypass
- Nitrogen Backpressure Control Panel



## Advantages and Features

- Docks directly onto the BIG-B skid
- Winterized unit, containing all systems required to manage pressure at surface and measures MPD/UBD parameters.
- Rated for 5,000 psi (34.5 MPa) – can be built as a 10,000psi (150 MPa) package if necessary
- Equipped with Pressure Relief Valves that avoid over-pressurizing the wellbore and, if coupled with Beyond's Nitrogen Backpressure unit, provides an integral solution for all MPD scenarios
- Automated Backpressure Control System with fast-acting, full-bore drilling chokes that can be controlled locally or via a remote panel installed anywhere at the drilling site.
- Minimal footprint: The manifold building and the BIG-B separator fit into a 40' x 10' skid

## Applications

- Managed Pressure Drilling
- Underbalanced Drilling
- Pressurized Mud Cap Drilling

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## Choke Valves

Maximum Working Pressure	5,000psi (35.4 MPa)
Choke Diameter (Trim Size)	3.000" (76.2mm)
Actuator Type	Hydraulic
Flange Specifications	API 4 1/16" 5M
Trim Material	Tungsten Carbide

## Pressure Relief Valve – Automatic Hydraulic Model

Maximum Working Pressure	5,000psi (35.4 MPa)
Actuator Type	Hydraulic
Automatic Resetting	Yes, setpoint
Field Set Point Programming Mode	Electronic

## Pressure Relief Valve – Nitro PRV

Maximum Working Pressure	2,500psi (17.24 MPa)*
Actuator Type	Pneumatic
Automatic Resetting	Yes, to 75% of pop-off pressure
Field Set Point Programming Mode	Mechanic

\* higher pressure options available upon request

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## Backpressure Control System

Maximum Working Pressure	Can be programmed to any working pressure
Number of Consoles	2 (local and remote)
Remote Control via Tablet	Yes
Control Mode in Case of Failure	Last pressure value is maintained
Backpressure Control Type	Automated (programmable as a function of flow rate)
Multiple Independent Choke Control	Yes
Power Source	Electric Pneumatic (backup) UPS (backup)
Communication Protocol	WITS, Modbus (other protocols available)
Remote Control	Yes, via internet connection

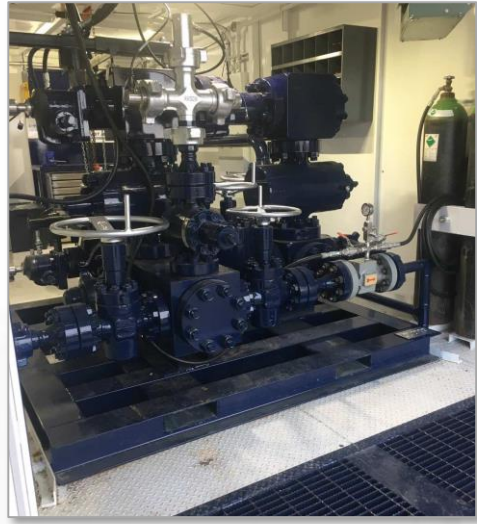


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## Coriolis Flow Meter

Maximum Working Pressure	2,175psi (15.0 MPa)
Measured Variables	Mass, Density, Pressure
Measured Accuracy – Liquid	±0.1% of actual measured flow rate + zero stability
Measured Accuracy – Gas	±0.35% of actual measured flow rate + zero stability
Maximum Flow Rate	Up to 181,147 bbl/day (20 m <sup>3</sup> /min)
Density Measurement Range	3.3 – 25 lbm/US gal (400 – 3000 kg/m <sup>3</sup> )



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