

Turbox Gaslift System

Meeting standards



Advantages

- Maximum drawdown during gas-lift operation
- No risk of electrical components failure
- Tolerance to harsh conditions and unstable inflow
- Field-proven

Applications

- Failure to achieve the potential of well productivity by gas-lift operation
- Limitation on gas-lift injection pressure
- Limited energy supply
- Harsh climates, offshore fields
- Geothermal wells (ambient temperatures up to 550°F (288 °C))
- High sand content up to 2,000 ppm (2,000 mg/l)
- Corrosive environments (SS class materials)
- Highly deviated wells

To solve the production problems in wells with the lack of reservoir energy after the gaslift operation, we have developed the Turbox gas lift pumps. The system creates deep drawdown and avoids electricity use in the well by replacing the electric motor with a gas turbine in combination with the innovative Lex Ultra-High-Speed centrifugal pump operating at speeds up to 15,000 rpm.

Over time, while intensive field development, the operating conditions become harsh expectedly: wells get water-flooded, reservoir and bottom-hole pressures may decrease if there is no reservoir pressure maintenance system, or it is ineffective. These complications cause the gas-lift wells' production slowdown.

To address these issues wells, Blue Earth Energy Inc. (a Lex company) engineers developed the Turbox gaslift pump. The system uses the existing gas-lift infrastructure: a compressor injecting oil or natural hydrocarbon gas.

Turbox Gaslift System is an upgraded gaslift technology, a combination of Ultra-High-Speed centrifugal pump and gas turbine instead of a motor. Gas is injected into annulus, entering the gas turbine's stages, creating torque on its shaft and driving a centrifugal pump. Gaslift valve on top of the completion is optional but required on case-by-case equipment selection. Rigless deployment is available either with slick line or coil tubing.

Turbox avoids electric power in the well and gains production due to Lex **UHS Pump** with an operating speed up to 15,000 rpm. The technology also holds the required drawdown against the minimum gas injection pressure.

Figure 1. Performance curves of UHS Pump stages

