

**AIRWELL
GROUP**

pumping solutions for all applications



***Pumping Solutions
for Gas Well Deliquifying
& Enhanced Oil Recovery
from Shallow Wells***



AIRWELL GROUP

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Pumping Solutions for Gas Well Deliquifying and Enhanced Oil Recovery from Shallow Wells

The Airwell Group is a specialist pumping company that has been providing solutions to the mining, environmental, industrial and agricultural sectors for over 25 years. More recently Airwell have developed a range of Oil & Gas pumping equipment for gas well deliquifying and enhanced oil recovery from shallow wells.

The Oil & Gas division can provide the following specialised services:

- ✓ CSG well deliquifying
- ✓ Shallow gas well deliquifying
- ✓ Shale gas well deliquifying
- ✓ Gas gathering line liquid extraction
- ✓ Enhanced Oil Recovery
- ✓ Environmental ground water monitoring
- ✓ Remote telemetry services

Airwell "Slug Lift" Pump

Airwell have developed a new method to deliquify deep vertical or deviated gas wells that have lost their bottom hole pressure and become liquid loaded.

The method is effective in deep wells and is currently being used to deliquify 2,400m deep wells in the Barnett Shale in Texas, USA.

Why Choose an Airwell System

Full Remote Telemetry

The Airwell pumping system comes complete with remote telemetry equipment. Our services can include 24 hour remote monitoring for gas well performance and pumping equipment diagnostics together with monitoring of associated equipment on site.

"Down Well" Reliability

An Airwell pump has minimal moving parts and only quality materials have been used in their manufacture. This makes the patented Airwell Oil & Gas pumps very reliable, reducing the pumping down time from equipment breakdown. Much of the maintenance process is completed at surface level. This means that maintenance can be done efficiently and with less interference to the well's productivity.

Centralised Power Supply Requirements for Multiple Pump Sites

With an Airwell pumping system it is only necessary to have one centrally located power source for your pumping power needs. From this point the energy (compressed gas) is directed to the various wells using a small high pressure line giving each pump a 24/7 power supply. A well could be located up to 10kms from the power source.

On many gas leases no additional gas compression is required to run the pumps other than the existing sales gas compression.

Once the compressed gas has been used it is then vented back into the gas gathering lines and no gas is lost in the Airwell pumping process.

Silt, Grit and other Suspended Particulates

One of the main features exhibited by the entire range of Airwell pumps for the last 28 years has been their ability to pump silts and other fine particulates suspended in the fluid, without any effect on the performance and reliability of the pumping unit.

No Gas Locking

Due to the nature of the Airwell pump it is impossible for the unit to gas lock when the intake is set below the lowest perforation.

Low Environmental Impact

The use of multiple Airwell pumps from one centrally located compressor eliminates the need to supply electrical power or run separate stationary engines to each well. The absence of any surface polish rod, gearbox, engine etc. also greatly reduces the risk of contaminating the wellhead area.

Production Tubing

The standard pump unit can be run in on Airwell 3/4" API production pipe or on Airwell coiled tubing umbilical. Both options provide speed and convenience of installation and with the coiled tubing umbilical option allows the pumping unit to be installed and retrieved on a live well.

Deliquify Low Flow Wells

An Airwell pumping system will optimise the well production by automatically adjusting its flow to match the production well, down to a zero flow rate. There is no risk of Airwell equipment damage in low flow pumping situations or costly pump down time.

The Components

The Pump

An Airwell pump uses the direct gas displacement method of pumping fluids, which is not to be confused with the air lifting method.

The Airwell system operates using a similar principle to that of a fire extinguisher, where compressed gas acts on the surface of a liquid to expel it from a sealed container.

With the combination of limited moving parts and 316 stainless steel construction, the Airwell system greatly reduces the need for down well pump maintenance.

The Gas Supply

Compressed gas is supplied to the pumping system from a compressor through a small size high pressure gas distribution line. The compressor can then be located kilometers away from the pump site.

Where possible running the Airwell gas distribution line at the same time as the gas gathering lines are installed, is the most cost effective method. Gas sales compressors (future or existing) are the ideal means of powering all of the pumps on site



Remote Systems Monitoring

The Airwell Group is in a unique position to offer you a fully staffed 24 hour remote monitoring service of your pumping equipment and gas well performance.

We are able to remotely monitor your wells and provide timely reporting on:

- Gas Production
- Fluid Production
- Casing Pressure
- Standing Fluid Level

An experienced operator can also perform pump diagnostics using the Airwell remote telemetry service in the event of a pump malfunction. Additional gas production equipment can also be added to the system and monitored.

The Controller

The Airwell pump on its own will not operate without a controller. The pump controller provides the automatic operation of the Airwell system. Unlike many alternative pumping methods, the Airwell system adapts to varying bore recharge rates without the need for additional hardware.

If there is no fluid to pump for prolonged periods, the system simply waits for more fluid before restarting, optimising recovery in low flow situations.

Controller Types

The **Stripper Oil Well controller** is a simplified control system to meet the needs of the oil stripper well market. This unit will maximise the production of the well while giving telemetry of:

- *fluids produced,*
- *remote start / stop function.*

The **Standard Gas Well controller** gives additional information via remote telemetry including:

- *fluid produced,*
- *gas produced,*
- *meters of fluid above the pump,*
- *casing pressure,*
- *remote start / stop function,*
- *pump intake agitation function.*

The **CSG Control skid** allows the operator to remotely acquire data on the well and pump like the standard gas well controller. Additional features of this unit are:

- *remote adjustable control over targeted pumping rates*
- *remote adjustable control over SWL in well or SWL above the pump,*
- *target casing pressure via a modulating choke valve,*
- *emergency shut off valve,*
- *emergency pressure relief valve,*
- *All control and valving pre-assembled and commissioned on a mobile galvanised skid unit.*



History of Airwell

Airwell Oil & Gas Pty Ltd is a subsidiary of the **Airwell Group** (formally Airwell Pumps Pty Ltd).

The **Airwell Group** is an Australian based company that has been operating for over 25 years specialising in providing pumping solutions for:

- Recovery of Hydrocarbons & Petrochemicals
- Leachate recovery for both the mining and refuse market
- Open cut pit wall and building foundation dewatering
- Potable Water supplies
- Groundwater Sampling
- Agricultural Water Supplies
- Bore / Pump Flow Testing

Airwell are able to claim many of Australia's leading mining and industrial companies as their clients, often being required to provide pumping solutions in extreme, isolated and hazardous environments.

These 25 years of experience providing pumping solutions to these companies has given **Airwell Oil & Gas** the knowledge to develop their line of patented products for the Oil & Gas Industry.



A sample of our clients

Oil & Gas

- Westside Corporation
- Husky Energy
- Devon Energy
- Titan Energy

Mining

- Newmont Ghana Gold Ltd
- Oz Minerals Pty Ltd
- Rio Tinto
- BHP
- St Barbara Ltd
- KCGM

Industrial

- Alcoa (Australia & Spain)
- BP Australia
- Shell Company of Australia Ltd
- Orica
- Global Ground Water
- Simto Australia

Consultants

- Lycopodium
- Clough Engineering
- Parsons Brinckerhoff
- URS
- Worley Parsons Ltd
- Golder Associates

More Information

For more information on our products and services please phone our sales staff today on

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