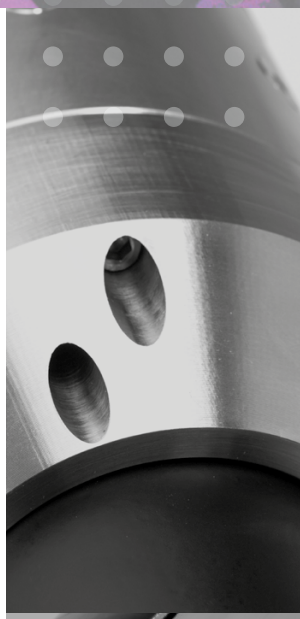
Concentric DIAL Units

DIAL Units are the primary control and monitoring component of Silverwell's Digital Intelligent Artificial Lift (DIAL) production optimization system. They **increase production** and reduce cost by providing **interventionless optimization** and **more gas pressure deeper** to maximize drawdown.

Each tubing deployed Concentric DIAL Unit has up to **six independently controlled gas injection valves** with custom orifice configurations designed to meet the gas injection needs over the well's entire life. Multiple DIAL Units can be installed with a single Tubing Encased Conductor (TEC) providing real time control and continuous downhole temperature / pressure monitoring along the length of the upper completion. Integral Check Valves qualified to API 19G2 protect well integrity and are immune to multi-pointing and chatter that plague conventional gas lift systems.

DIAL's surface controlled optimization dramatically reduces risk to both personnel and the environment by eliminating the need to re-enter the well or even travel to the wellsite.



Applications:

- High Production Wells
- Auto Gas Lift (in-situ)
- High Deviation Wells
- Extended Reach Wells

Features / Benefits

- **Interventionless:**
  - Reduced risk of Safety and Environmental incidents
  - Production is always optimized
- **Surface Controlled Variable Orifice Size:** production optimization without intervention
- Integrated Back-Pressure Valves
- **Pressure and temperature Sensors:**
  - Real-time well performance
  - Visualizing the actual tubing flowing gradient
  - In-well Lift gas injection rate calculation
  - Data-driven decision making
- **No Gas-Charged Bellows:** eliminates chatter and multi-pointing
- **More Gas Pressure Deeper:** does not reduce casing pressure like IPOs
- **Testable Cableheads and E-Beam welded Construction:** hermetically sealed electronics

For more information:
info@silverwellenergy.com
www.silverwellenergy.com

Technical specification:

Size (in) Type	2 7/8" Slimline		3 1/2" Slimline		3 1/2" Concentric		4 1/2" Concentric		5 1/2" Concentric	
	in	mm	in	mm	in	mm	in	mm	in	mm
OD	4.45	113	5.15	130.8	5.79	147	6.79	172.4	7.79	197.8
ID min.	2.44	62	2.96	75.26	2.96	75.26	3.94	99.97	4.88	123.9
Tubing Weight (ppf)	6.4		9.2		9.2		12.6		17	
API Drift	2.35	59.6	2.87	72.82	2.87	72.82	3.83	97.36	4.77	121.1
Eccentricity	0.59	15	0.62	15.8	0	0	0	0	0	0
Thread Type(s)	JFE BEAR or EUE		JFE BEAR or EUE		JFE BEAR		JFE BEAR		JFE BEAR	
Max # Orifices	3		3		3 or 6		3 or 6		4 or 8	
Orifice Size (inch)	4/64 - 16/64									
Max External Pressure	6,000 psi | 414 Bar									
Max Internal Pressure	10,000 psi | 689 Bar									
Max Temperature	257 Deg F | 125 Deg C									
Materials Used	UNS N07718 Inc 718, UNS S20910, XM-19 Nitronic 50HS, AISI 420 MOD SS									
Critical Seals	All Electronics Electron Beam Welded; Dynamic Seals Metal to Metal; Static Differential Seals FKM or Metal to Metal									
Communication to Surface	1/4" Tubing Encapsulated Conductor (TEC), 3 Conductor									
Sample Rate	1 to 60 sample per minute; configurable to use case and well design									
Cablehead Termination	Metal-to-Metal Seal; Field Testable									
Max # Units	Up to 16 units - depth dependent									
Max Deployable Depth	Up to 30,000 ft measured depth – unit count dependent									
Pressure Accuracy	+/- 0.15% FS (10ksi)									

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ARTIFICIAL LIFT INTELLIGENCE

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Slimline DIAL Units

DIAL Units are the primary control and monitoring component of Silverwell's Digital Intelligent Artificial Lift (DIAL) production optimization system. They **increase production** and reduce cost by providing **interventionless optimization** and **more gas pressure deeper** to maximize drawdown.

Each tubing deployed Slimline DIAL Unit has up to **three independently controlled gas injection valves** with custom orifice configurations designed to meet the gas injection needs over the well's entire life. Multiple DIAL Units can be installed with a single Tubing Encased Conductor (TEC) providing real time control and continuous downhole temperature / pressure monitoring along the length of the upper completion. Integral Check Valves qualified to API 19G2 protect well integrity and are immune to multi-pointing and chatter that plague conventional gas lift systems.

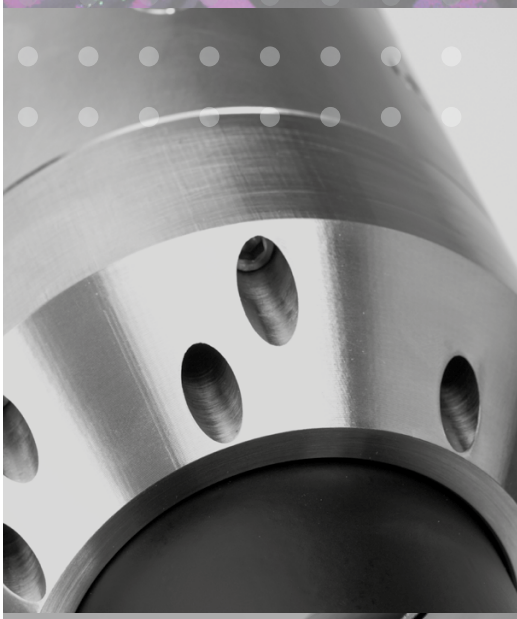
DIAL's surface controlled optimization dramatically reduces risk to both personnel and the environment by eliminating the need to re-enter the well or even travel to the wellsite.

Applications:

- Slimline DIAL units were designed with a reduced diameter for compatibility with:
  - Dual String Wells - Small Diameter Casing
  As well as: - High Deviation Wells - Extended Reach Wells

Features / Benefits

- **Independent Control of Each DIAL Individually:** complete control over dual string wells
- **Interventionless:**
  - Reduced risk of Safety and Environmental incidents
  - Production is always optimized
- **Surface Controlled Variable Orifice Size:** production optimization without intervention
- **Small Diameter:** can be installed in smaller casing sizes or for retrofit applications
- **Integrated Back-Pressure Valves**
- **Pressure and temperature Sensors:**
  - Real-time well performance
  - Visualizing the actual tubing flowing gradient
  - In-well Lift gas injection rate calculation
  - Data-driven decision making
- **No Gas-Charged Bellows:** eliminates chatter and multi-pointing
- **More Gas Pressure Deeper:** does not reduce casing pressure like IPOs
- **Testable Cableheads and E-Beam welded Construction:** hermetically sealed electronics



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