



Rotoliptic

TECHNOLOGY AND PUMP ATTRIBUTES

PRODUCT BROCHURE

ANY VISCOSITY

ANY TEMPERATURE

ANY PHASE



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THE TECHNOLOGY

The **Rotoliptic** pump is a patented all-metal positive displacement pump with a unique profile geometry. Instead of the conventional Moineau-style progressing cavity pump (PCP) design, which uses a two-lobe stator and a single-lobe rotor, our design features a two-lobe rotor paired with a single-lobe stator. This configuration results in a 30% larger flow area in a comparably sized pump. The increased flow area also enables a shorter pitch and more stages.

The innovative **Rotoliptic** design allows for a tighter rotor fit within the stator to maximize efficiency while minimizing friction and torque. When compared to a Moineau-style PCP, the **Rotoliptic** seal areas are significantly broader and are pressure-activated. The **Rotoliptic** pump's rotor has a unique elliptical design, which greatly reduces axial and radial loads while maintaining tight seal line contact.

FEATURES AND BENEFITS

- **Positive Displacement** - High discharge pressure while maintaining efficient flow
- **Simplicity** - One moving part
- **Compact** - Increased flow & pressure per given dimensional envelope
- **Steady Constant Flow** - Reduces opportunity for precipitates and emulsions to form
- **High Volumetric & Mechanical Efficiency** - Reduced GHG emissions and improved total cost of ownership
- **Multiphase Flow** - No degradation of pump performance from gas or vapor at inlet
- **Temperature Rating** - Performance unaffected by temperature, rated up to 350°C (660°F)
- **Wide Viscosity Range** - Good volumetric efficiency with low viscosity fluid, improves with viscosity



REPLACING INCUMBENT ARTIFICIAL LIFT METHODS

- Efficient operation across a broad operational range (watercut and multiphase fluids) with a single pump
- Capability to inject steam through the stator during cyclic steam stimulation (CSS), without a costly workover rig
- Simple swap with existing progressive cavity pump (PCP) drive equipment

COMMON APPLICATIONS

- Heavy Crude
- Cyclic Steam Stimulation
- Steam Assisted Gravity Drainage
- Steamflood

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ASSEMBLY

TOP-DRIVE PUMP CONFIGURATION

A Rotoliptic pumping system can be deployed similarly to a typical Progressing Cavity Pump surface drive system, making it easily deployed with standard oilfield equipment.

POLISHED ROD DRIVE CLAMP

Transmits rotational power from the drive head and suspends the drive string

POLISHED ROD SUPPORT CLAMP

Locks the polished rod in place, preventing movement during maintenance operations

POLISHED ROD

The top component of the drive string, providing a smooth, polished surface for the wellhead exit rotating seal

DRIVE STRING

Transmits torsional power to the rotor through continuous coiled or a jointed sucker rod

Rotoliptic ROTOR

The rotor is a helical shaped shaft, the only moving part of the pump

TAG-BAR SUB

Provides a reference point for setting or landing the rotor in the proper position, fully engaged in the stator

DRIVE HEAD

Typically mounted with an electric motor, provides the mechanical power to the pumping system, supporting the weight of the drive string and sealing mechanism for the polished rod

TUBING STRING

Must be sized to accommodate the rotor installation

TUBING CHANGE-OVER

Connects the stator to the tubing string, allowing for a secure transition between different thread types if required

ORBIT TUBE

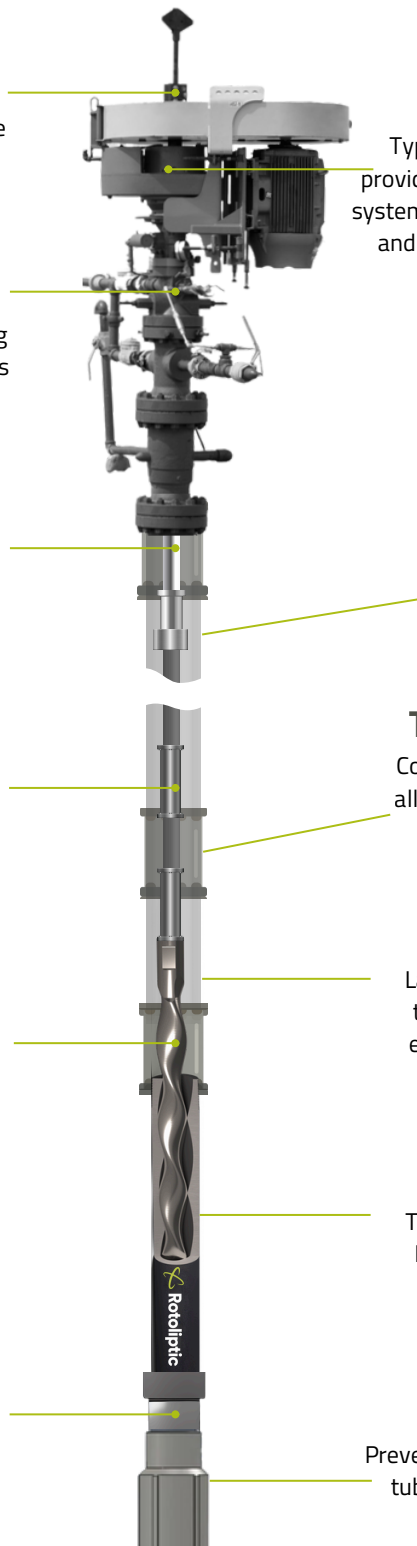
Larger internal bore sub directly above the stator to accommodate the rotor eccentric movement during operation

Rotoliptic STATOR

The stator is the stationary part of the Rotoliptic downhole pump assembly

TORQUE ANCHOR/ NO-TURN TOOL

Prevents the counter clockwise rotation of the tubing string while the pump is operating





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ASSEMBLY

TOP-DRIVE PRODUCT OFFERINGS

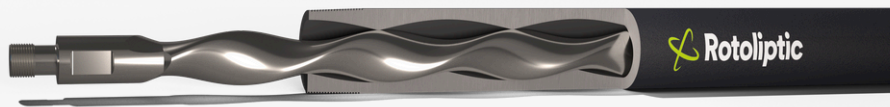


R65



R200

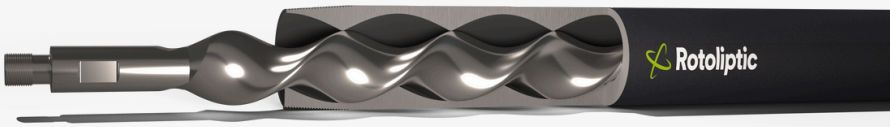
R65-1200



MINIMUM CASING
MINIMUM TUBING
PRODUCTION RANGE
LIFT RANGE

4.5"
2.875"
up to 260 m³/d
up to 1200m (3937ft)

R200-1100



MINIMUM CASING
MINIMUM TUBING
PRODUCTION RANGE
LIFT RANGE

6.625"
4.5"
up to 800 m³/d
up to 11000m (3610ft)

NO THERMAL DEGRADATION

Rated up to 350°C, our patented all-metal pump design can withstand the highest operational temperatures with no loss in performance. The unique design allows for a tight seal line with low friction torque, ensuring reliability and efficiency in extreme conditions and fluctuations.



VISCOSITY ADAPTATION

Rotoliptic pump models efficiently manage fluctuations in temperature and viscosity during a cyclic steam cycle. The pumps perform efficiently with lower viscosities due to the tight clearance at the seal lines, and handle higher viscosities without issues such as rod fall.

HARSH FLUID HANDLING

Rotoliptic pumps' sealing properties enable wear resistance; the pumps experience no performance loss in low-lubricity fluids like water, and the materials used to craft the pumps are carefully selected to withstand a wide range of corrosive and challenging fluid compositions.



SUPERIOR ENERGY EFFICIENCY

Rotoliptic pumps offer 'while maintaining equivalent production rates. The novel sealing geometry results in lower torque and axial load, reducing power consumption, operating costs, and operational emissions.

MULTIPHASE FLOW STABILITY

Rotoliptic pumps' unique positive displacement technology can manage and transport multiphase fluids in any application where free gas or vapour is present at the pump inlet, ensuring consistent performance by minimizing the adverse effects of gas interference or gas locking.



STEAM THROUGH CAPABILITIES

The all-metal construction allows for steaming through the stator and tubing string. Simply pull the rotor above the stator and steam through with both components in situ, reducing workovers that would otherwise require removing all downhole components.



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SPEC SHEET

MODEL R65-1200

PUMP DESIGN

Nominal Flow Rate at 100 RPM	65	m3/d
Eccentricity	5.8	mm
Cross-sectional Flow Area	1443	mm2
Enclosed Cavities	31	

STATOR SPECIFICATIONS

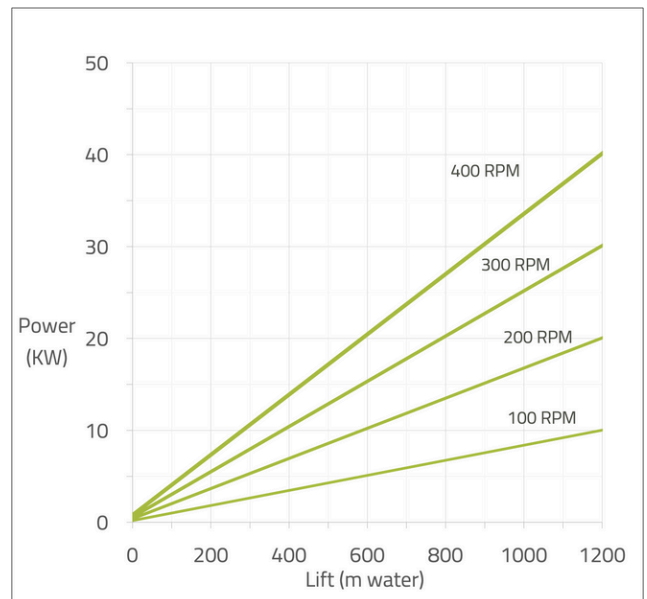
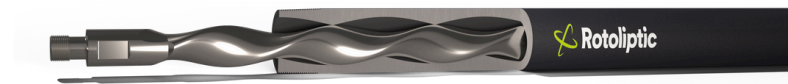
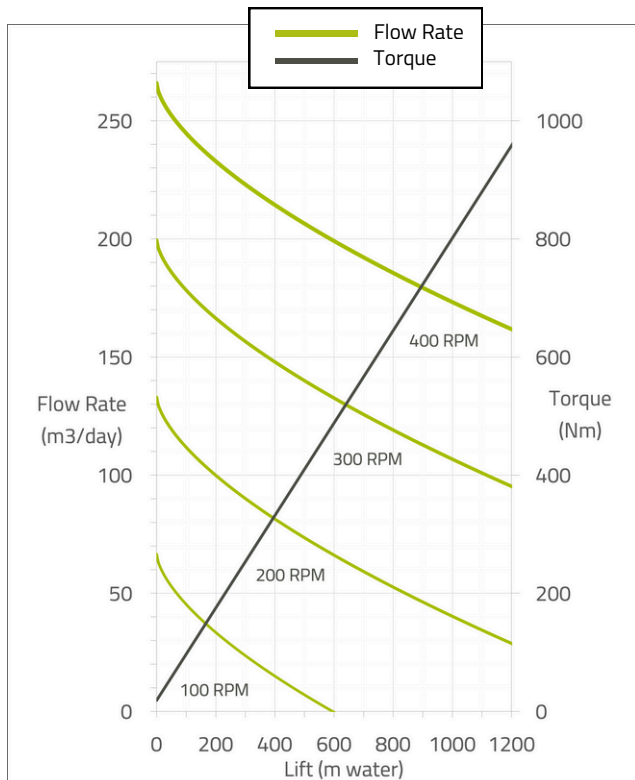
Stator Connections	3-1/2" EUE Pin	
Stator OD	95.76	mm
Stator Coupling OD - Regular (Special Clearance)	114.3 (106.2)	mm
Stator ID / Through-bore	47.8	mm
Stator Length	5309	mm
Stator Weight	172	kg

OPERATION RECOMMENDATIONS

Speed Range	100-400	RPM
Rated Lift Consult Rotoliptic for application guidance and increased lift capacity	1200	m

ROTOR SPECIFICATIONS

Rotor Connection	1" API Pin	
Rotor OD	59.43	mm
Rotor Orbit Diameter (Regular and Slim Hole Coupling)	71	mm
Rotor Length	5944	mm
Rotor Weight	77	kg



Performance based on 1cP water at 20°C; behaviour will vary according to specific fluid conditions. Performance specifications provided for general guidance purposes only and actual performance obtained with use of products may vary. Rotoliptic reserves the right to modify the specifications, without notice. Consult a Rotoliptic representative for specific performance guidance, completion recommendations, and other operating guidance.



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SPEC SHEET

MODEL R200-1100

PUMP DESIGN

Nominal Flow Rate at 100 RPM	200	m3/d
Eccentricity	11.4	mm
Cross-sectional Flow Area	4630	mm ²
Enclosed Cavities	32	

STATOR SPECIFICATIONS

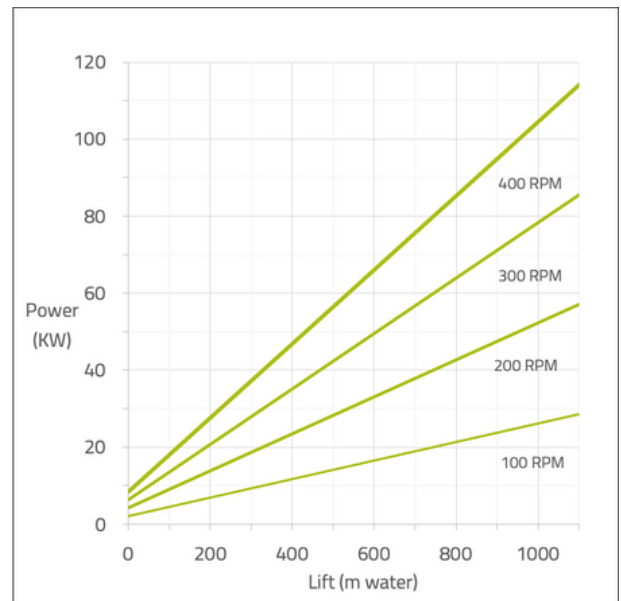
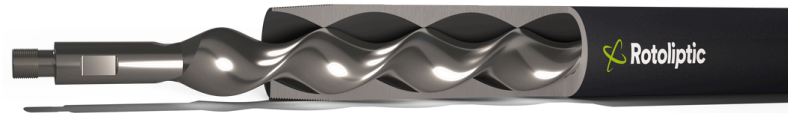
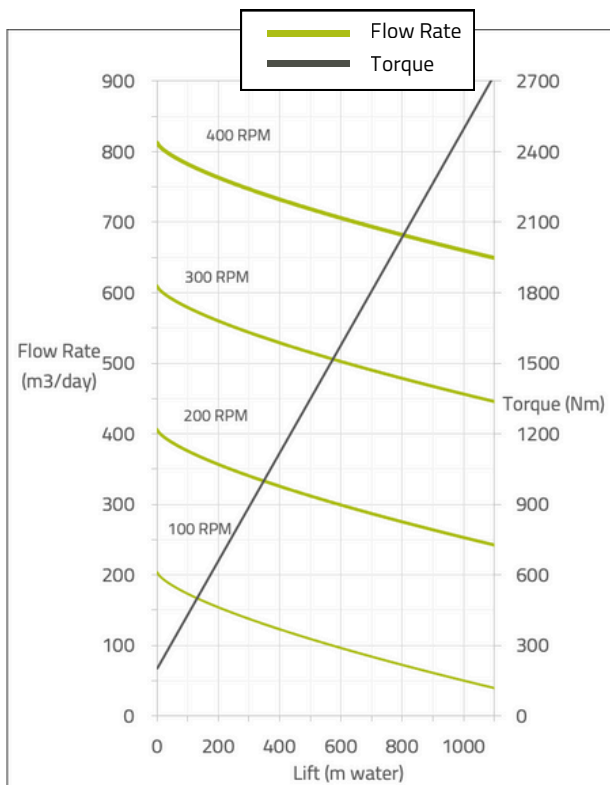
Stator Connections	5-1/2" LTC Pin	
Stator OD	140	mm
Stator Coupling OD	160	mm
Stator ID / Through-bore	73.7	mm
Stator Length	5309	mm
Stator Weight	313	kg

OPERATION RECOMMENDATIONS

Speed Range	100-400	RPM
Rated Lift Consult Rotoliptic for application guidance and increased lift capacity	1100	m

ROTOR SPECIFICATIONS

Rotor Connection	1-1/8" API MOD Pin	
Rotor OD	97	mm
Rotor Orbit Diameter (Regular and Slim Hole Coupling)	119	mm
Rotor Length	5944	mm
Rotor Weight	178	kg



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