ELECTRIC SUBMERSIBLE PROGRESSING CAVITY PUMPS

Maximize Efficiency On Any Rod Less Lift System With Lifting Solutions' Progressing Cavity Pumps For ESPCP Systems

LIFTING SOLUTIONS

PRODUCT OVERVIEW

Lifting Solutions progressing cavity pumps (PCP) are designed, engineered and manufactured to optimize rod less electrical submersible progressing cavity pumping (ESPCP) systems.

CHALLENGE

When a conventional surface driven PCP system is not an option, or its associated rod string presents difficult challenges in terms of frequent wear or fatigue failures generating unacceptable levels of tubing wear, then a downhole driven ESPCP system is a viable option for consideration. The ESPCP system removes the surface equipment and the rod string and drives the PC pump through a downhole motor. Recent improvements in downhole motor technology, including permanent magnet motors, combined with Lifting Solutions fit-for-purpose designed and precision manufactured PC pumps are yielding favorable results in ESPCP applications.

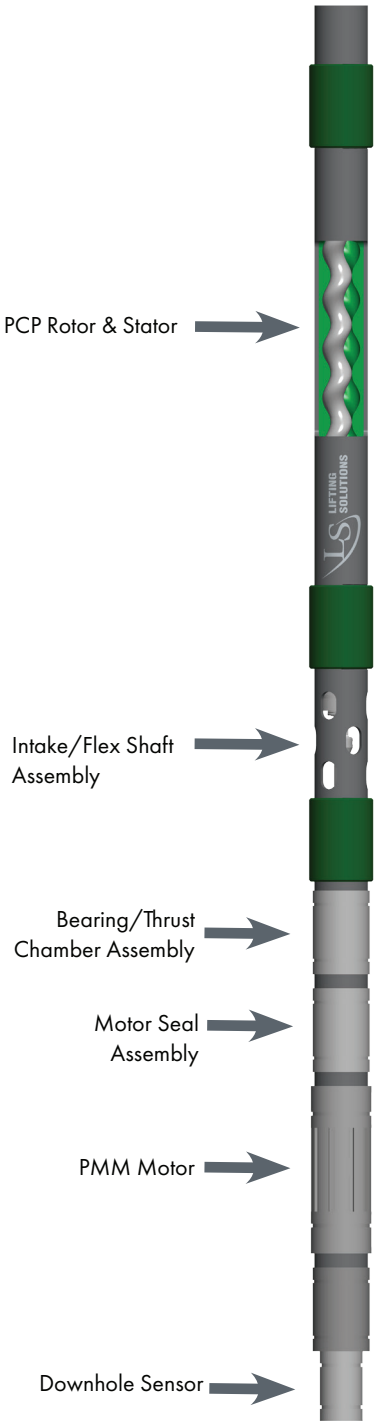
PROGRESSING CAVITY PUMPS THAT OUTPERFORM

Lifting Solutions has a strategic model offering containing fit-for-purpose geometries optimized for various wellbore environments. Our specialized PC Pump product line is designed to target ESPCP challenges head-on.

Our applications team dives into the challenges of each wellbore environment to find the right PC Pump that will elevate the ESPCP performance to maximize operation of your well. We are a dedicated team of PCP experts from engineering and design to manufacturing and application.

PCP PRODUCT FEATURES AND BENEFITS

- Fit-for-purpose geometries optimized for a range of wellbore and application environments including heavy oil, medium and light oil and coal seam gas.
- Engineered elastomer designed for a wide range of applications.
- Eight series of PC Pumps with over 40 models including conventional, slim hole, CHOPS and insertable configurations.
- Pump capacity range from 2 to 280 m3/day/100rpm (12 to 1760 bbl/day/100rpm).
- Pumps are designed and manufactured to tight centralization tolerances, reducing fatigue and vibration.
- Optimized for low operating and breakaway torque decreasing motor torque requirements and power consumption.
- Proprietary elastomers engineered for a wide range of applications.
- Modern internal PC Pump manufacturing facility that is ISO 9001:2015 certified with full ISO 15136-1 compliance capabilities.
- Application engineering dedicated to supporting our clients during the design, troubleshooting, post run inspection/failure analysis phases of applications support.



Experience Performance. Artificial lift products and services that consistently outperform the market and reduce OPEX.

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MKT-BR-GBL-PCP-001v2

PRODUCT LINE OVERVIEW

Series Stator Tube OD	Model Range m3/day/100rpm	Model Range bbls/day/100rpm	Standard Stator Connection		Rotor Connection	Max Lift
			Size in (mm)	OD in (mm)	Size in (mm)	Meters (feet)
2-3/8"	2 to 23	13 B to 145 B	2-3/8 (60.3) NUE Pin	2.88 (73.0)	3/4 (19.1) API Pin	1000m to 3600m (3300ft to 11800ft)"
2.75"	7 to 62	44 B to 390 B	2-3/8 (60.3) NUE Box	2.75 (69.9)	3/4 (19.1) API Pin	1000m to 3000m (3300ft to 9800ft)
3-1/8"	4 to 7	25 B to 44 B	2-7/8 (73.0) EUE Pin	3.46 (87.9)*	7/8 (22.2) API Pin	3600m (11800ft)
3-1/2"	10 to 70	63 B to 440 B	2-7/8 (73.0) EUE Box	3.50 (88.9)	7/8 (22.2) API Pin	1200m to 3600m (3900ft to 11800ft)
3-3/4"	8 to 155	50 B to 975 B	3-1/2 (88.9) EUE Pin	4.18 (106.2)*	1 (25.4) API Pin	900m to 3600m (3950ft to 11800ft)
4-1/8"	23 to 190	145 B to 1195 B	3-1/2 (88.9) EUE Box	4.13 (104.8)	1 (25.4) API Pin 1	800m to 3600m (2600ft to 11800ft)
4-3/4"	35 to 280	220 B to 1761 B	4-1/2 (114.3) EUE Pin	5.56 (141.2)	1-1/8 (28.6) API Pin	800m to 3600m (2600ft to 11800ft)
5"	56 to 215	352 B to 1352 B	5 (127.0) LTC Pin	5.56 (141.2)	1-1/8 (28.6) API Pin	1000m to 2400m (3300ft to 7900ft)

*API special clearance coupling ODV

ELASTOMER

Elastomer Code	Typical Applications	Nitrile Level (% ACN)	Hardness (Shore A)	Maximum Downhole Temperature	Resistance Guide					
					Oil	Water	Abrasive	Gas [1]	H_2S	CO_2
SN	Heavy oil (CHOPS), high abrasives	32 to 36	55 to 60	60°C (140°F)	Up to 15 API	Very Good	Excellent	Fair	Fair	Fair
MN	Heavy to moderate oil, moderate abrasives, dewatering (CSG/CBM)	32 to 36	65 to 70	80°C (176°F)	Up to 20 API (Max 25 API)[2]	Very Good	Very Good	Good	Good	Good
HN	Medium to light oil, high CO2/free gas, chemical injection, deeper/hotter wells	45 to 50	70 to 75	100°C (212°F)	Up to 35 API (Max 40 API)[2]	Very Good	Good	Very Good	Good	Very Good Excellent [3]

[1] Gas & explosive-decompression resistance is a concern primarily with CO2 since methane (CH4) permeability is significantly lower in elastomers
[2] Suitability of upper API gravity depends on specific application conditions including oil chemistry, water cut, and temperature
[3] HN-ED Explosive Decompression elastomer formulation is available for high CO2 applications. This elastomer is custom order.

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