

# High-Temperature PC Pumps

Our recent technology advancements extend the application range of downhole progressing cavity (PC) pumps. The high-temperature line of downhole pumps provides unique solutions to high-temperature applications that previously prevented operators from using downhole PC pumps.

The High-Temperature Lock (HTL) and metal-to-metal (MTM) pumps can operate in temperatures up to 150°C (300°F) and 350°F (660°F) respectively. Resulting from our extensive research and development, as well as thorough in-field application testing, these proprietary high-temperature downhole pump solutions have taken multiple approaches to achieving the advanced capability of handling increasing downhole temperature levels.

## **Our innovative high-temperature PC pumps solutions:**

- Proprietary elastomers that can not only withstand high temperatures, but also effectively operate in wells with aromatic fluids.
- Mechanically secured stator elastomers that do not rely on the bonding agent between the elastomer and the stator tube for greater temperature and chemical resistance.
- Metal-to-metal pumps do not use elastomers, eliminating all limitations resulting from an elastomeric stator element and raising the maximum downhole temperature limit to an unprecedented level.

## **PC pumps with OH elastomer:**

- Capable of handling downhole temperatures up to 135°C (275°F)
- Uses our proprietary OH Hydrogenated Nitrile elastomer (previously Moyno™ UF175)
- Ideal for oils, aromatics, and water environments
- Provides high resistance to gas permeation
- OH elastomer is currently available in all pump models

## High-Temperature Lock (HTL) PC Pumps

- Capable of handling downhole temperatures up to 150°C (300°F)
- The stator elastomer is mechanically secured to the stator tube
- The patented design does not rely on the bonding agent between the elastomer and the stator tube
- Compatible with steam injection



### HTL models available

Metric (m <sup>3</sup> /day per 100 rpm - Lift in m)	Imperial (bpd per 100 rpm - Lift in ft)
16-1200 HTL, 16-1800 HTL, 16-2400 HTL, 16-3000 HTL, 16-3600 HTL	094-4000 HTL, 094-6000 HTL, 094-8000 HTL, 094-10000 HTL, 094-12500 HTL
32-900 HTL, 32-1800 HTL	200-3000 HTL, 200-6000 HTL
45-800 HTL, 45-1200 HTL, 45-1600 HTL	280-2650 HTL, 280-4000 HTL, 280-5400 HTL
54-600 HTL, 54-1200 HTL, 54-1800 HTL	340-2000 HTL, 340-4000 HTL, 340-6000 HTL
74-800 HTL, 74-1000 HTL, 74-1200 HTL	495-2650 HTL, 495-3300 HTL, 495-4000 HTL
96-520 HTL, 96-1040 HTL, 96-1560 HTL	600-1750 HTL, 600-3500 HTL, 600-5250 HTL
120-400 HTL, 120-800 HTL, 120-1200 HTL	755-1350 HTL, 755-2650 HTL, 755-4000 HTL
155-450 HTL, 155-600 HTL, 155-750 HTL, 155-900 HTL	975-1500 HTL, 975-2000 HTL, 975-2500 HTL, 975-3000 HTL

## Metal-To-Metal (MTM) PC Pumps

- Capable of handling downhole temperatures up to 350°C (660°F)
- Features metal-to-metal rotor/stator technology
- Stator does not include elastomer
- Closely controlled tolerances between the metal-to-metal rotor/stator clearance for superior performance and allows for rotor changeouts in the field which significantly reduces workover time and costs
- Produces low levels of vibration that are comparable to conventional downhole PC pumps
- Ideally suited to handle hot oil encountered during thermal recovery methods such as steam-assisted gravity drainage (SAGD) and cyclic steam stimulation (CSS)



### MTM models available

Metric (m <sup>3</sup> /day per 100 rpm - Lift in m)	Imperial (bpd per 100 rpm - Lift in ft)
82-600 MTM, 82-1200 MTM	520-2000 MTM, 520-4000 MTM
218-700 MTM	1370-2200 MTM
300-510 MTM	1900-1600 MTM