

# IntelliCPCP®

## Intelligent All-Metal Conical Progressive Cavity Pump

### APPLICATIONS

- Oil thermal recovery
  - Steam-assisted gravity drainage (SAGD)
  - Steam-Nitrogen Cyclic Stimulation (CSS)
- Conventional Oil Wells
  - Ultra-Heavy Oil Wells
  - High-Sand Content Wells
  - Corrosion-Prone Wells
  - Low-Yield Wells
  - Large-Angle Horizontal Wells
- Unconventional Oil&Gas Wells
  - Shale Oil
  - Coalbed Methane

### ADVANTAGES

- Adaptive Pump Efficiency Compensation
  - pump inspection interval: **≥26,000 hours**
- Real-time sand jamming clearance & scale removal to prevent pump lockup
- Robust wellhead integrity with advanced safety protocols
- Minimized rod-tubing eccentric wear in deviated/horizontal wells
- Extended injection-production cycles
- Increased oil-gas ratio & produced water recovery rate
- Modular architecture with streamlined drivetrain components

### FEATURES

- Innovative Tapered Geometric Configuration
- Full-Metal Construction, downhole temperature resistance up to **380°C (716°F)**
- Adaptive Clearance Adjustment Mechanism
- Supports lifting medium viscosity up to **11,000 mPa·s** (non-temperature-controlled conditions)
- Self-Sealing Wellhead Design Enables integrated injection-production operations
- Eccentric Wear Balancing Technology
- Compact Transmission System
- Soft-start technology reduces initial torque to **51%** of rated value

IntelliCPCP is a complete rod-driven artificial lift system centered around an all-metal tapered progressive cavity pump (PCP), specifically engineered for oil and gas production operations.

This system is suitable for wellhead casing of **≥ 5.5 inches**, and can pump clean water, water-cut crude oil, gas-liquid mixtures, and high-viscosity media. The production capacity ranges **from 30m<sup>3</sup> to 150m<sup>3</sup> per day**, and the well depth is up to **2000m**.

This pumping system can reliably produce in wells with a bottom hole temperature of up to **380 °C** and operate normally in the range of **-40 °C to 60 °C** in the surface environment temperature.

### Application Performance

IntelliCPCP has undergone rigorous market validation, achieving a maximum pump inspection interval exceeding **3 years and 3 months**, establishing it as the preferred artificial lift solution for ultra-heavy oil, gas-bearing wells, and extreme high-temperature environments.

### Performance Metrics (vs. Integrated Injection-Production Tubing Pump):

- GOR (Gas-Oil Ratio)
  - Average increase per well: **0.10 (41.77% improvement)**
- Annual Water Recovery Rate
  - Average increase per well: **0.35 (54.76% improvement)**

*Mechanism: Optimized reservoir pressure distribution enhances thermal diffusion efficiency and steam quality utilization, thereby improving subsequent steam injection recovery.*
- Steam Injection Cycle
  - Average extension per well: **24 days**
  - Annual steam reduction: **1,857.56 metric tons**

*Cost Benefit: USD 63,275 annual steam cost savings per well*  
*Annual reduction in steam-related downtime: 18 days*  
*Equipment start-stop frequency reduction: 2 cycles/year*
- Energy Efficiency
  - Power consumption reduction per well: **51.35%**
  - Annual electricity savings per well: **9,608.00 kWh**



IntelliCPCP All-Metal Conical PCP.