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REDA Hotline XTend

Extended-capability high-temperature ESP system

APPLICATIONS

- Oil thermal recovery
  - Steam-assisted gravity drainage (SAGD)
  - Steamflooding
  - Cyclic steam injection (huff and puff)
- High-temperature (HT) applications
  - HT gradient oil wells
  - Geothermal wells
- Hot-running applications
  - Low-production-rate wells
  - Viscous applications with poorly cooled motors

BENEFITS

- Extends ESP run life
- Reduces human error at wellsite
- Increases production and recovery
- Improves reservoir drainage and production in infill-drilled wells
- Enables production in wells with 7-in [17.8-cm] casing
- Improves well cost of ownership with
  - faster workovers and reduced rig costs
  - minimized maintenance costs

FEATURES

- Bottomhole temperature rating of 482 degF [250 degC]
- Internal motor temperature rating of 572 degF [300 degC]
- No onsite servicing required
- Single, prefilled, sealed motor with integrated
  - redundant shaft seals
  - thrust chamber
  - metal bellows for volume compensation
  - sand exclusion filters
  - motor internal temperature transducer
  - fluid pressure and temperature gauges
  - plug-in pothead design with dual elastomeric seal
- Thermally compensated compression pumps and gas-handling devices
- Bottom feeder intake
- Surface monitoring interface card

The REDA* Hotline XTend* extended-capability high-temperature ESP system is designed to enhance reliability in wellbores not exceeding 482 degF [250 degC]. The system is designed with an integrated motor reengineered based on the latest generation of REDA Hotline* high-temperature ESP systems, offering the best of combination horsepower and housing length.

The system's temperature rating enables higher temperature steam injection for optimum reservoir recovery while reducing downtime and intervention cost. The Hotline XTend system is available in either SLIM size, for 7-in heavyweight casing, or 562 Series. The availability of the SLIM size increases recovery ratio by enabling completion in infill wells, where smaller casing is used.

The Hotline XTend system can be deployed in gassy environments common to both thermal recovery and heavy oil applications, such as SAGD, steamflooding, and geothermal.

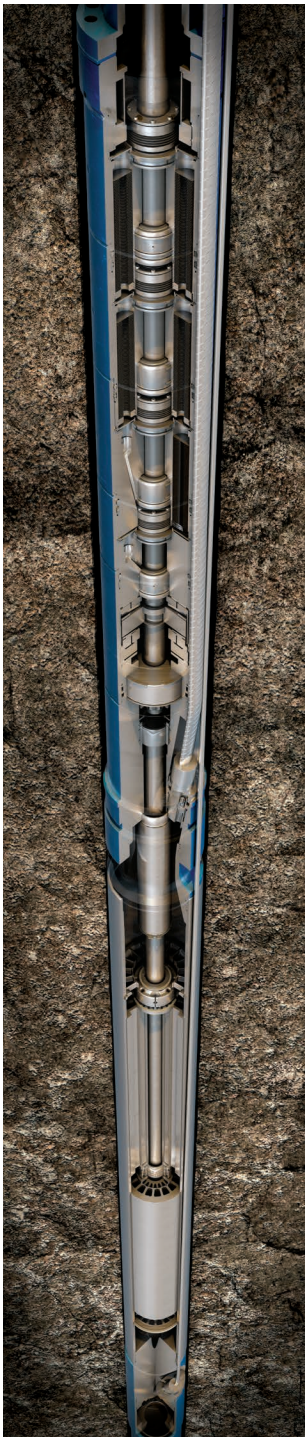
Integrated motor

The Hotline XTend system features a prefilled, integrated, and sealed motor. Reengineered from the previous generation of Hotline systems, the system features materials that resist aging and enhance reliability when subjected to temperature cycling. The all-weather-installed system also eliminates the need for oil well servicing, which substantially reduces risk, rig time, and cost. The integrated motor unit with a full protector function includes the motor, redundant seals selection, thrust chamber, sand exclusion filters, monitory gauges, and metal bellows for volume compensation at the bottom of the assembly. Both series of the Hotline XTend system use the same motor lead extension.

The system was enhanced for the best reliability when operating in challenging conditions such as sands production and steam flushing.

Integrated downhole monitoring

The Hotline XTend system integrates downhole fluid pressure and temperature gauges. Monitoring pressure and temperature at the wellbore close to the pump intake helps operators continue producing at the optimal temperature, reduce the steam/oil ratio, identify steam breakthrough, and improve overall pump efficiency. The ability to monitor the motor's internal temperature helps control the system's operating point and therefore extend the ESP system run life.



REDA Hotline XTend system integrated motor.

REDA Hotline XTend

REDA Hotline XTend ESP System Specifications		
	562 Series	**SLIM Series**
Max. bottomhole temperature, degF [degC]	482 [250]	482 [250]
Max. motor internal temperature, degF [degC]	572 [300]	572 [300]
Pump series A–L, in [mm]	3.38–7.25 [86–187]	3.38–5.38 [86–136.65]
Flow rate range at 50 Hz, bbl/d [m^3/d]	45,000 [7,156]	13,752 [2,186]
Max. flow rate capability at 60 Hz, bbl/d [m^3/d]	54,000 [8,598]	16,500 [2,623]
Motor OD, in [mm]	5.62 [142.7]	4.85 [123.2]
Max. power at 60 Hz, hp	257 (single section motor)	119
Thrust bearing	Enhanced keyway	Enhanced keyway
Volumetric compensator	Metal bellows	Metal bellows
Motor oil	Superior REDA* ESP systems #7	Superior REDA systems #7
Power cable material	Standard EPDM	Standard EPDM
Power cable rating, degF [degC]	500 [260]	500 [260]
Number of shaft seals	3 or 4	4
Integrated gauge	Resistance temperature detector (RTD) only or full gauge	RTD only or full gauge
Gas/steam solution	VGSA* Vortex* gas separator assembly, bottom feeder gas separator, bottom feeder charger, AGH* advanced gas-handling device, MGH* multiphase gas-handling system	VGSA Vortex gas separator assembly, bottom feeder gas separator, bottom feeder charger, AGH device, MGH multiphase gas-handling system
Metal composition	CS, Ni-Resist™, Redalloy* high-nickel alloy, 5530, INCONEL®, special alloy and coating options	CS, Ni-Resist, Redalloy alloy, 5530, INCONEL, special alloy and coating options

Pressure and Temperature Gauge Specifications			
Parameter	Rating	Accuracy	Resolution
Annulus pressure, psi [kPa]	5,000 [34,473]	±4 [±27.57]	0.2 [1.38]
Annulus temperature, degF [degC]	500 [260]	±5.4 [±3]	1.8 [1]
Motor temperature, degF [degC]	752 [400]	±5.4 [±3]	1.8 [1]

‡This calibration is valid for temperatures ranging from 98–482 degF [35–250 degC].

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