

# REDA Thermal power-efficient geothermal electric submersible pump

Reliable, high-flow-rate pumps for high-enthalpy geothermal systems



**Max. bottomhole temperature:**  
440 degF [225 degC]



**Casing size:**  
9%-in and larger



**Flow rates:**  
up to 640 m<sup>3</sup>/h [2,800 galUS/min]

## Applications

- Deep setting depths
- Deviated wells
- High-enthalpy reservoirs with depleted pressures
- Enhanced geothermal systems (EGS)

## How it improves geothermal wells

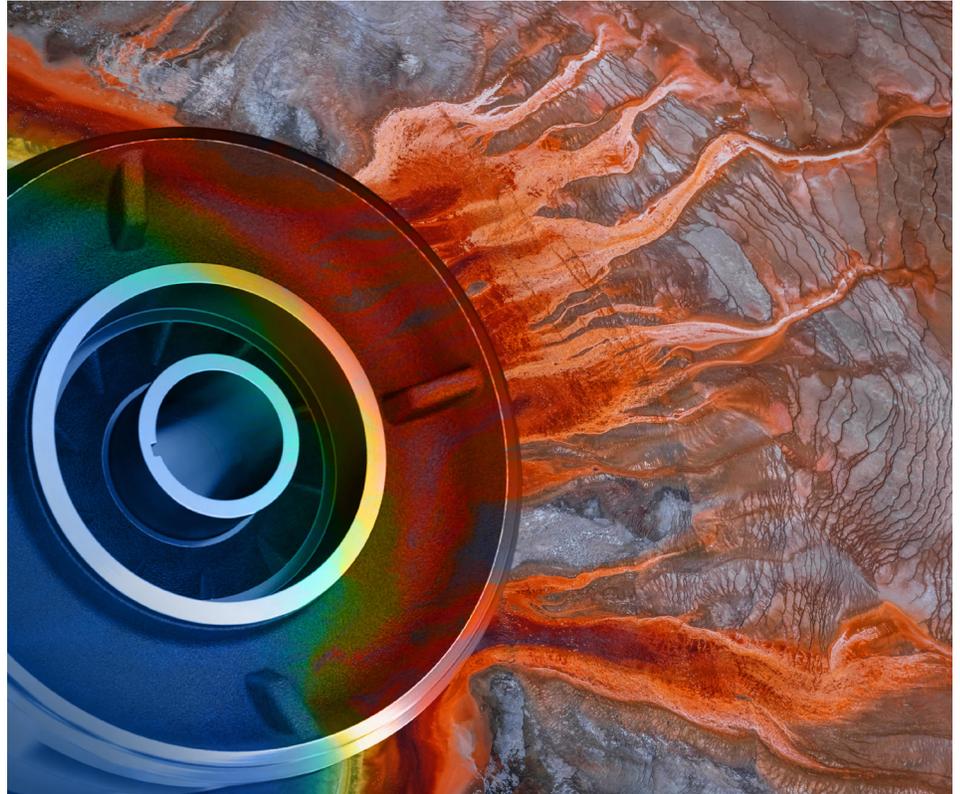
REDA Thermal\* power-efficient geothermal electric submersible pumps reliably lift fluids in high-enthalpy geothermal wells, delivering high flow rates with maximum electrical efficiency, minimal maintenance, and long run life.

The combination of reliability and efficiency enables profitable production from geothermal wells that were previously uneconomical to produce—with minimal parasitic power load.

## How it works

Using energy-efficient permanent magnet motor (PMM) technology and motor sections with high power density, REDA Thermal pump performs reliably in geothermal wells at setting depths up to 5,000 ft [1,500 m]. The modular assembly accelerates installation, reducing rig time from several days (for a typical line shaft pump installation) to a few hours.

Optional downhole monitoring sensors enable monitoring of pump and reservoir operating parameters and control of some pump functions to extend run life.



*High-efficiency REDA Thermal pumps deliver maximum performance and run life with minimal parasitic power load in high-enthalpy geothermal wells.*

## What it replaces

Line-shaft pumps are limited by depth and well profile, require maintenance, and are time consuming to install. Traditional ESP technology alleviates some of these challenges, but run life is unacceptably short at common geothermal well temperatures >400 degF [>200 degC].

## Additional information

REDA Thermal pumps are the product of more than 100 years of ESP development and deployment, including decades in steam-assisted gravity drainage (SAGD) projects, where lower-flow-rate ESP systems operate with run life exceeding 6 years in harsh oil environments up to 480 degF [250 degC]. The most recent advances include novel materials and elastomers to survive geothermal fluid composition and temperatures.

# REDA Thermal

## REDA Thermal Pump Specifications

<b>Series</b>	562
Max. bottomhole temperature, degF [degC]	440 [225]
Max. motor internal temperature, degF [degC]	572 [300]
Pump OD, in	6.75–11.25
Max. flow rate at 60 Hz, m <sup>3</sup> /h [galUS/min]	640 [2,800]
Max. power at 60 Hz, hp [MW]	850 [0.63]
Volumetric compensator	Metal bellows
Motor oil	Superior REDA* ESP systems No. 8
Power cable material	High-temperature ethylene propylene diene terpolymer (EPDM)
Power cable rating, degF [degC]	500 [260]
Metal composition	Carbon steel, Ni-Resist®, INCONEL®, or special alloy and coating options
Downhole gauge	Optional

All specifications are subject to change without notice.

## Pressure and Temperature Gauge Specifications

	Rating	Accuracy	Resolution
Annulus pressure, psi [kPa]	5,000 [34,400]	±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]

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\* Valid at temperatures from 98 to 482 degF [37 to 250 degC].



*REDA Thermal pump.*

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**Schlumberger**