

TIGER SHARK® PUMPS

Tiger Shark® IV 400 Series Pumps

Designed for a flexible extended operating range and longer run life in dynamic well conditions

Overview

Summit ESP® — A Halliburton Service introduces the Tiger Shark IV (TS4) 400 series pump. Building upon the legacy of the Tiger Shark III pump, the TS4 is engineered for better performance and reliability.

The TS4's innovation is characterized by its enhanced bolt design, providing an increase in allowable discharge pressure up to 6,200 psi without welding or collaring. This also allows for a 33% increase in pull rating and improves assembly efficiency. The ongoing evolution of the TS4 pump includes enhanced threaded connections that eliminate welding and collaring, setting a new industry standard ahead of major competitors. Whether deployed in conventional oilfields, challenging unconventional environments, or deep wells with high discharge pressures, the TS4 pump is designed to deliver unparalleled operational range and extended run life. Its global applicability ensures that no matter where in the world your operations are, the TS4 pump is configured for superior performance.

Enduring Performance

The TS4 pumps exemplify robustness and durability, earning a reputation for unparalleled efficiency and extended service life, which translates into significant savings on operating expenses and reduced need for workover interventions. One operator noted, *"Summit ESPs Tiger Shark pumps are a testament to robust engineering—our go-to choice for reliability and longevity in the field. They consistently outperform and outlast, making them an industry favorite in ESP technology."*

Feature Highlights

The TS4 400 series pumps have innovative features designed to address the unique challenges of conventional and unconventional wells, particularly those with substantial abrasive materials and fluids surpassing typical pressure thresholds.

- Enhanced bolt design: This feature provides an increase in allowable discharge pressure up to 6,200 psi without welding or collaring the pump
- Enhanced bolt design: The improved design contributes to the pump's robustness, allowing for a 33% increase in pull rating, and streamlines the assembly process, reflecting a significant advancement in performance and efficiency
- Abrasion-Resistant Overlap (ARO) bearing system: Extends run life in highly abrasive environments and allows for secondary torque transfer even if the key is eroded*. It also widens the operating range, allowing for operations in flow rates as much as 15% lower than a standard XR bearing system pump
- XRange® Xtreme (XRX) bearing system: The advanced XRX bearing system is designed to offer upthrust protection, thereby expanding the pump's operational range and enhancing its adaptability to various conditions*

* Application-specific option



Tiger Shark® IV 400 series pump features and benefits

FEATURES AND BENEFITS

Enhanced bolt design provides increase in allowable discharge pressure without welding or collaring, with the pump capable of up to 6,200 psi

Enhanced bolt design allows for a 33% increase in pull rating reflecting an advancement in performance and efficiency

Dual sealing system with back-up rings designed for deep high-pressure wells

Abrasion-Resistant Overlap (ARO) bearing system extends run life in highly abrasive environments and allows for secondary torque transfer even if the key is eroded*. It also widens the operating range, allowing for operations in flow rates as much as 15% lower than a standard XR bearing system pump

Abrasion-resistant XRange® Xtreme (XRX) bearing system allows for the widest operating range, and this additional upthrust protection allows for more range to the right side of the curve*

Top snap trap sleeve interlocks shaft and snap ring to provide secondary retention in the running position

Exclusive Erosion Buster® technology provides abrasion resistance to the diffusers and pumps housing

Enhanced and highly reliable abrasion-resistant flange sleeve module design improves run life and increases uptime performance

Abrasion-resistant RingLock high thermal expansion material (HTEM) bearing system is standard on all 400 series pumps, and this exclusive HTEM ring provides secondary bushing retention

Coating options for stage metallurgy offer reduced corrosion and erosion while providing chemical protection

Wide flow range stage designs allow for extended operation in dynamic wells (see pump curves for capacities)

High-efficiency stages reduce total cost of ownership and operation (see pump curves for efficiency rates)

* Application-specific option

Typical construction for Tiger Shark® IV 400 series mixed flow pumps

COMPONENT	STANDARD MATERIALS	OPTIONAL MATERIALS
Head/base	Carbon steel AISI 1045	Stainless steel 416
Housing	Carbon steel 1026CS	Stainless steel 9Cr1Mo
Impellers/diffusers (mixed flow type)	Ni-Resist type 1 ASTM A436	-
AR stage flanged sleeves and bushings	Tungsten Carbide (in-house exclusive blend)	-
Shaft	K500 Monel® UNS N05500	Inconel® 718/UNS N007718
Keystock/shaft retaining ring	Inconel® 718/UNS N007718	Inconel® 718/UNS N007718
Compression bearing	Ni-Resist type 1 ASTM A436	-
Compression tube	Ni-Resist type 1 ASTM A436	-
Thrust washers	Cotton phenolic	Teflon®
Head/diffuser/base O-rings	JB19 (in-house exclusive blend)	Aflas®
Fasteners	Enhanced bolt design and metallurgy	-
Coupling	304SS	Monel®

Monel® and Inconel® are registered trademarks of Special Metals Corporation
 Aflas® is a registered trademark of AGC Chemicals
 In all cases material selection is based on your unique application needs

For more information, contact your local Halliburton representative or visit us on the web at www.halliburton.com

Sales of Halliburton products and services will be in accord solely with the terms and conditions contained in the contract between Halliburton and the customer that is applicable to the sale.

H014686 06/24 © 2024 Halliburton. All Rights Reserved.