

DATA SHEET

XP PERFORMANCE SERIES PUMPS

Centrilift XP™

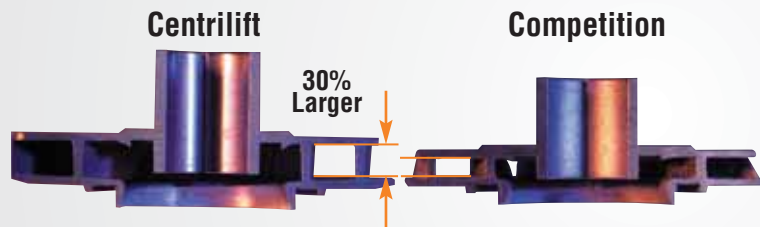
Xtreme Performance

The Centrilift Performance Series pump line offers industry leading technology for a wide variety of pumping applications, providing operators the greatest performance for their investment by extending electrical submersible pumping (ESP) system run life and increasing the ESP operating envelope. The Centrilift Performance Series was developed to solve some of the industry's toughest problems associated with pumps:

- Eliminating lost production due to shortened pump run life in harsh environments
- Reducing operating expenses associated with higher power costs of less efficient pumps
- Wider operating range to provide the ability to adapt to changing in-flow characteristics, minimizing system change-outs

The Centrilift Performance Series pump designs maximize vane openings, optimize flow paths and include patented particle swirl suppression technology as the first line of defense against abrasive down-hole environments. The extra wide vane openings boost performance in the presence of gas, sand, viscosity and scale. The patented particle swirl suppression ribs in the diffusers reduce sand cutting damage in the stages and reduce the potential for housing perforations and loss of the ESP system down hole.

The Centrilift XP Performance Series pumps are designed specifically for applications with severe to extreme abrasive conditions. Measure and compare and you will see that the Centrilift Performance Series of pumps delivers unmatched performance and reliability when it is needed most.



FEATURES & BENEFITS

FEATURE	BENEFIT
Patented downthrust protection	>> Field proven to improve run life in harsh environments by 2X when compared to compression designs.
Wider vane openings	>> Reliable operation when gas, abrasives, scale, paraffins, or debris are present
Patented proven hardened bearing design	>> Best-in-class abrasives handling extends pump run life, increases production; improves operating range for changing in-flow characteristics
Patented swirl suppression technology	>> Enhances run life by minimizing erosional effect associated with sand and debris
Extended operating range	>> Enhanced run life in changing well conditions, minimizing system change-outs
Higher pressure design	>> Expands deep set capabilities, which extends ESP application range

XP PERFORMANCE SERIES PUMPS



The Centrilift Severe Duty (**SD**) and Centrilift eXtreme Duty (**XD**) are designed specifically for applications with severe to extreme abrasive conditions are expected.

The radial flow **SD** and **XD** designs use patented Carbide downthrust modules with Carbide radial bearings that are highly resistant to abrasive wear. These modules are spaced throughout the pump and optimized for operational performance.

The mixed flow **SD** and **XD** designs include a patented Carbide flanged sleeve and pedestal configuration. Spacing for the **SD** is based either on an engineered L/D ratio or thrust capacity while the **XD** design includes the Carbide insert on every stage. This patented design handles downthrust and radial shaft support, decreasing radial and thrust wear.

There are several advantages of the fixed thrust module Centrilift XP designs vs. compression designs:

- Reduced load on the pump shaft and the seal bearing, extending ESP system run life
- Extending run life due to simplified pump construction
- Increased thrust due to wear in the pump being carried in each stage vs. the seal bearing
- Increased safety factor in **XD** model, expanding the application operating range
- The highest level of downthrust protection, extending the operating range of the pump in extreme environments and enhancing ESP system run life in changing well conditions
- Prevents pump thrust and radial bearing wear due to abrasives in the fluid
- Resists scale accumulation on bearing surfaces

ESP PRODUCTION SYSTEMS

Centrilift SP™ Superior Performance

The Centrilift SP ESP production system is operating in thousands of wells worldwide, providing superior performance for operators focused on maximizing production. The Centrilift SP leverages Centrilift's years of ESP technology development and expertise to offer the industry's most robust, reliable ESP system for a wide range of applications.

Centrilift XP™ Xtreme Performance

Centrilift XP provides operators the highest level of performance in the harshest down-hole conditions. The unparalleled technology innovations of the Centrilift XP systems assures operators the longest possible run life in critical wells where intervention costs and minimizing lost production are the economic drivers.

MIXED FLOW SD

For wells with severe abrasive conditions and high flow rates, requiring downthrust protection

Carbide discharge bearing

Patented Carbide flanged sleeve and pedestal decrease rotational wear

Carbide intake bearing

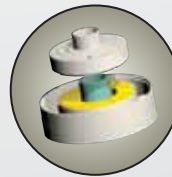
MIXED FLOW XD

For wells with extreme abrasive conditions and high flow rates

Carbide discharge bearing

Patented Carbide flanged sleeve and pedestal in every stage decreases rotational wear

Carbide intake bearing



Radial Flow Thrust Protection - Patented Carbide downthrust modules with Carbide radial bearings are highly resistant to abrasive wear. Modules are spaced based on L/D ratio.

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