# FRAGE SOLL KennaFlow<sup>™</sup>





# KennaFlow<sup>™</sup> Technology

Kennametal has been serving customers in the upstream oil and gas sector for over 40 years with solutions for downhole tools, flow control, and other surface products. Our wear engineers understand exactly how impactful downtime can be to companies operating in this sector.

Kennametal wear experts understand destructive industrial forces, and come on-site to assess and evaluate applications and wear conditions to provide the most accurate wear analysis.

New technology, processes, and materials are continuously developed in our state-of-the-art laboratories to ensure our solutions produce optimal wear reduction. As an industry leader, Kennametal strives to constantly enhance technologies to offer the best combination of wear-resistant characteristics.

KennaFlow products and supporting technologies are designed to deliver maximum uptime to pressure pumping companies by extending the life of critical components and equipment. KennaFlow technology gives you the ability to increase uptime, providing ultimate control to manage your operation.

#### **INCREASES:**

- Component wear life and operating times between expendable change-outs.
- Efficiency: complete more stages in less time.
- Longevity: less wear and tear on pump equipment.

#### **DECREASES:**

- Downtime for change-outs.
- Downtime for maintenance.
- · Operating costs.
- Maintenance costs.
- Risk of injury by minimizing change outs.

## **KennaFlow Seats**

#### Superior Performing Frac Solutions

- Full open seat design.
- Redesigned interference fit and optimized dimensions to address industry needs.
- KennaFlow carbide seats provide significantly higher abrasion resistance compared to steel seats.
- . Manufactured in the U.S.A.
- Continuous seat technology innovation to deliver maximum operating life.
- Offered in P4 and P5 sizes that can be customized for your specific needs.









# **Maximizing Uptime**

Complete More Stages per Day and Service More Wells per Year with the Longest Operating Seats in the Industry



#### TIME

Time between stages is continuously decreasing thanks to new procedures and technologies. As this time continues to decrease, the potential for Non Productive Time to accrue due to required maintenance is ever increasing.



#### **EOUIPMENT**

Failures impact productivity and the bottom line. KennaFlow™ seats help mitigate Non-Productive Time by reducing the amount of maintenance touches to critical sections of your fluid ends.



#### **MORE STAGES**

Complete more stages in less time and increase your profitability due to our increased seat life.



#### **INCREASE THE LIFE OF YOUR FLEET**

Extended seat life enables change-outs to be performed in the service center, reducing field maintenance.



### **10x THE LIFE**

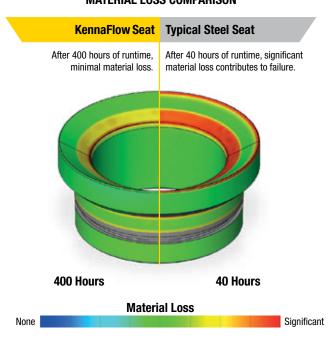
KennaFlow seats achieve operating life of 1000 hours and beyond, compared to steel seat operating life of 80–100 hours.

#### High-Performance Solution for Multiple Applications

KENNA FLOW	APPLICATION
<b>*</b>	Full Range of Operating Pressures
<b>*</b>	High Proppant Concentration
<b>*</b>	Brand New Fluid Ends
<b>*</b>	Replacing Steel Seats for In-Service Pumps
<b>*</b>	Rebuilt/Used Fluid Ends
<b>*</b>	Great for produced water applications

# CONTINUOUS VS. INTERRUPTED RUNTIME KennaFlow Seat Typical Steel Seat BLANK SPACES REPRESENT SEAT CHANGE-OUT DOWNTIME. Runtime Oh 250h 500h 750h 1000hr

#### MATERIAL LOSS COMPARISON



4



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