

# GeoPro Fluid End

Improved durability for pressure pumpers



# Keep pumps up and running

TechnipFMC's new GeoPro fluid end provides consistent durability proven in harsh frac environments. The GeoPro will improve productivity and your bottom line by limiting down time and easing the frustrations related to keeping pumps up and running.

Our new fluid end is compatible with our current power end. Major consumables are unchanged, limiting disruption to your supply chain. Unchanged components include valves, plungers and packing, the suction manifold and discharge retainers.

The revised external shape and internal contours of the GeoPro fluid cylinder combine to lower stress and increase fatigue life. Our improved fluid cylinder forging and manufacturing processes lead to better material properties and surface conditions in fatigue critical areas. A new stuffing box, suction cover and retainer design also provide better overall durability.

Through design improvements on the GeoPro, the frustrations of keeping fluid ends up and running have been eased. The new suction cover is easier to install and its new bore seal will last longer. The retainer behind the suction cover has an improved thread profile that will not seize and is prevented from backing out with a unique magnetic locking key. The new stuffing box seal will also limit your down time by reducing the frequency of leaks requiring maintenance.

After severe real world testing and more than 50 million strokes accumulated in multiple regions, the GeoPro has demonstrated greater and more consistent durability than our legacy fluid ends. With improved consistency in fluid end life, operators can better manage their fleet readiness and operational expenses.

The GeoPro comes in three different sizes to meet all your pressure needs and is available in stainless steel and alloy steel.



# GeoPro Fluid End

## Feature overview

- ▶ Improved durability
- ▶ Design improvements limit down time
- ▶ Backwards compatibility
- ▶ Consistent, predictable performance
- ▶ Optimized shape improves fatigue life in multiple areas
- ▶ Improved surface conditions in fatigue critical areas
- ▶ Improved forging and manufacturing
- ▶ New suction cover retainer thread profile with reduced thread stress
- ▶ Unchanged components include valves, plungers and packaging, and suction manifold
- ▶ Easier access to tie rod, making maintenance easier
- ▶ Aligning and self-locking suction cover and retainer design with innovative magnetic keep
- ▶ Improved stuffing box seal, suction cover and bore seal

TechnipFMC's S200 (stainless steel)

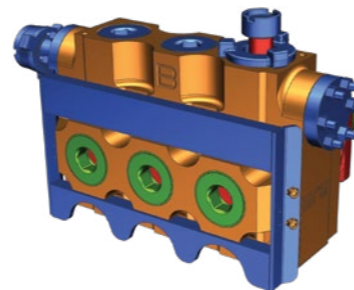


Available in stainless steel and alloy steel.

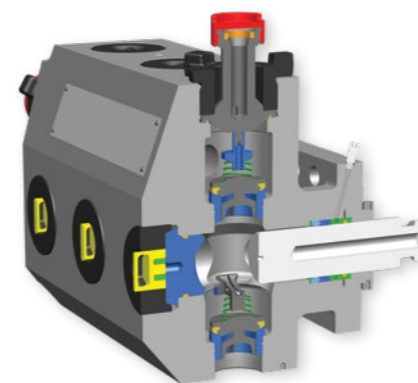
TechnipFMC's Gen IV Fluid End (legacy)



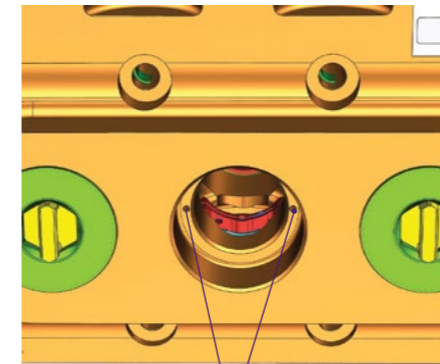
TechnipFMC's GeoPro Fluid End (new)



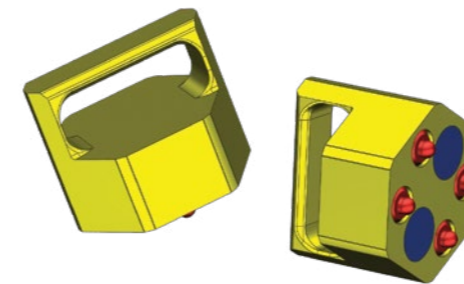
TechnipFMC's S200L



# Suction cover / Retainer assembly

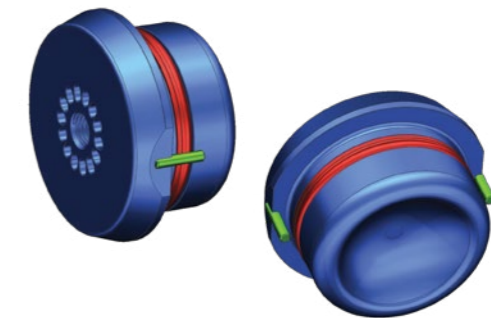
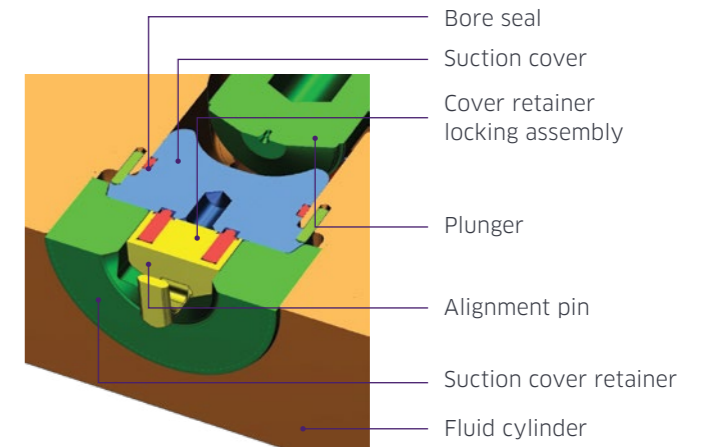


Alignment pin holes



## Cover retainer locking assembly

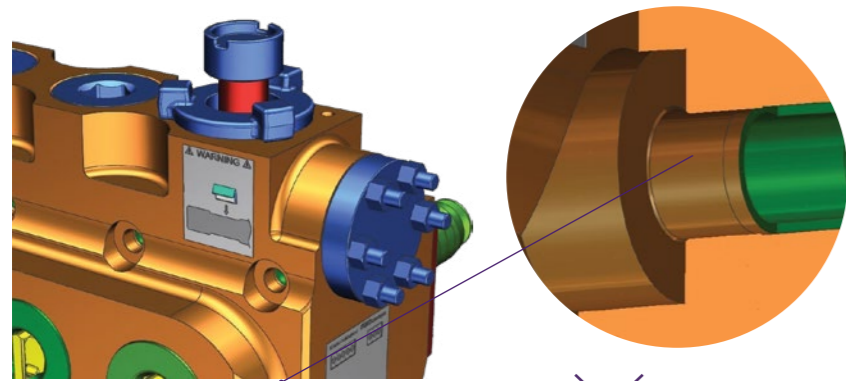
- ▶ Pull handle facilitates quick removal
- ▶ Two detents locked to suction cover no matter the angle of retainer
- ▶ Hex body keys to suction cover retainer
- ▶ Field tested magnets that hold device in place against suction cover



## GeoPro suction covers

- ▶ Threaded bore used for removal from the fluid cylinder
- ▶ New bore seal is easy and quick to install. The bore seal has a longer life and costs less.
- ▶ Concave nose with better flow properties
- ▶ The alignment pins lock suction cover to fluid cylinder
- ▶ Retainer detent holes lock retainer in place and prevent retainer back off

# GeoPro Features



## Bore shoulder within fluid cylinder

- ▶ Interferes with stud retainer ring
- ▶ With retainer ring installed, long stud cannot pass through front of fluid cylinder

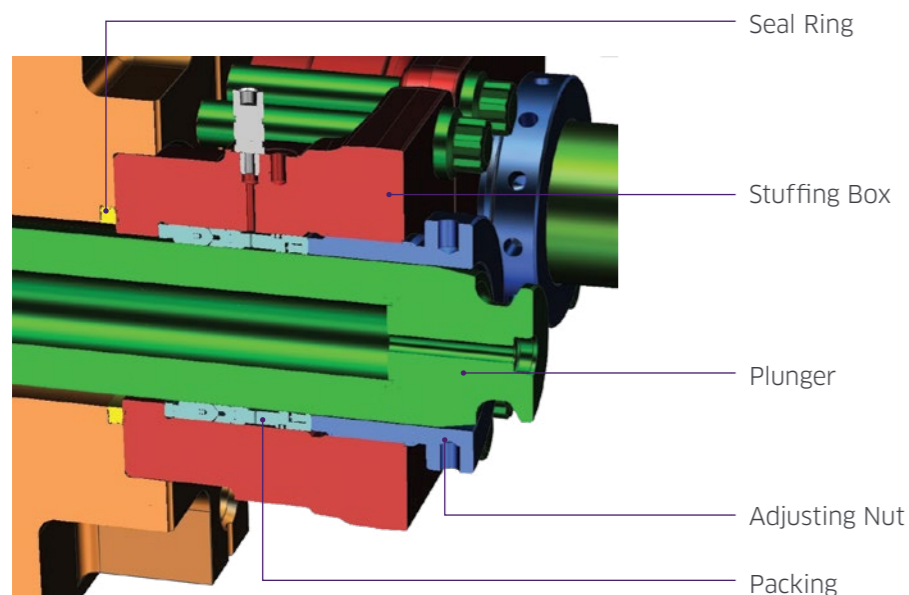
Integrated long stud retaining feature



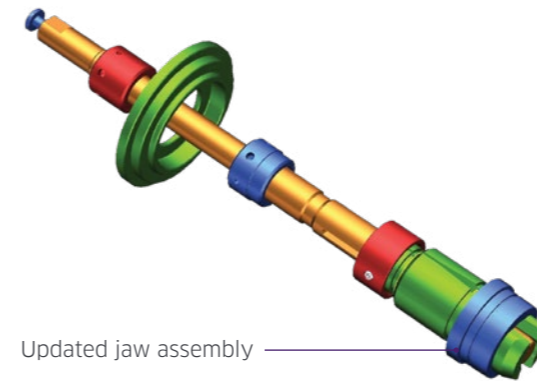
## Retainer Clip

- ▶ Clips into place on long stud (fluid end side)
- ▶ Prevents stud from leaving the fluid end

## Stuffing box



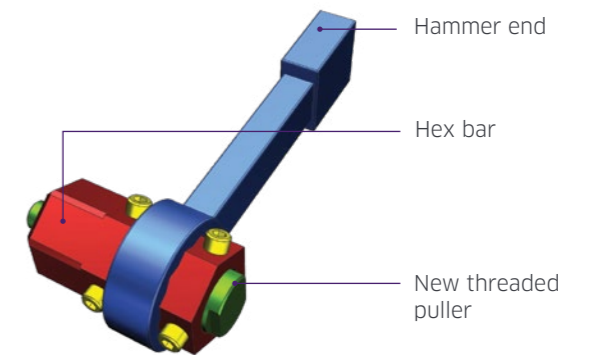
# GeoPro Tools



Updated jaw assembly

## Updated valve seat puller

- ▶ Larger, thicker jaws
- ▶ Higher load capacity
- ▶ Larger area of engagement
- ▶ Fasteners/pins prone to breaking have been replaced with snap ring



## Suction retainer wrench

- ▶ Spring loaded
- ▶ Free floating, turns independently of hex bar
- ▶ Pulls out suction cover while unscrewing suction retainer
- ▶ Eliminates need for slide hammer
- ▶ Works on Gen IV and GeoPro style covers
- ▶ Hex bar keys into suction retainer



Suction valve retainer tool

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