Specialised
ENERGY SOLUTIONS

UltiWhip™ Whipstock System

UltiWhip™ Whipstock System

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Background

The UltiWhip™ System was developed in order to come with a unique design which;

- Is a compact, single run system
- Is simple to operate
- Maximises flow at the mill head
- Only Casing and Whip face is in contact with the mill (no additional foreign objects)

The UltiWhip™ System development, resulted in two sizes being sold (7” & 9-5/8”) and run, as well as granted European and US Patents.

Background

A trial was conducted in 2019 on a full UltiWhip™ System where each of the system components were successfully tested to replicate an actual operation.

Background

To date we have sold 7” and 9-5/8” UltiWhip™ Systems complete with Permanent and Retrievable Packers, as well as High Flow By-pass Valves and Retrieval Die Collars.

We have a design for a 13-3/8”Version which requires detailing

Two 9-5/8”UltiWhip systems have been deployed and successfully completed operations.

Overview

As part of the UltiWhip™ development process SES have designed and developed complimentary tools and equipment in order to offer a complete whipstock system, these tools include;

- Bi-mill Assembly with integral running tool - Patented
- Whipface and hinge connector
- Packers – Retrievable and Permanent
- High Flow By Pass Valves
- Retrieval tools – Hook and Die Collar

What is Patented?

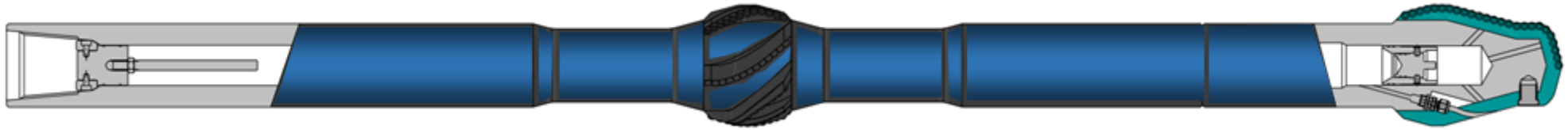
The Mill portion of the UltiWhip™ System is the patented technology.

The noticeable, unique, difference between our Mill design and that of the competition is the inclusion of the running tool within the mill itself. This contains the clean hydraulic fluid required to pressure up and set the Packer used with the Whipstock assembly.

There are no external components which the mill can encounter when milling the window e.g. Knock-off Plugs, elbow unions, hydraulic hoses etc.

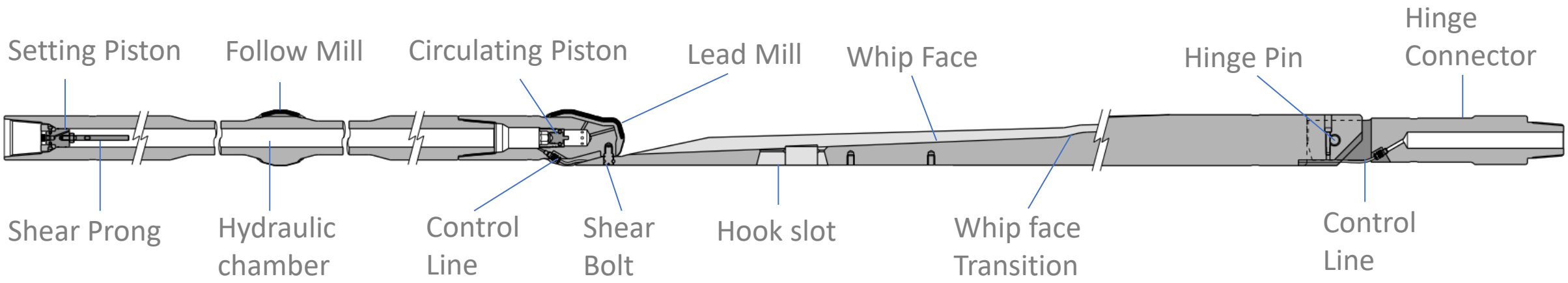
There are flow ports at every blade on the Lead Mill improving milling efficiency.

The ‘necked’ areas either side of the Follow Mill provide a degree of flexibility reducing stress concentrations at the threaded connections.



Technical Features

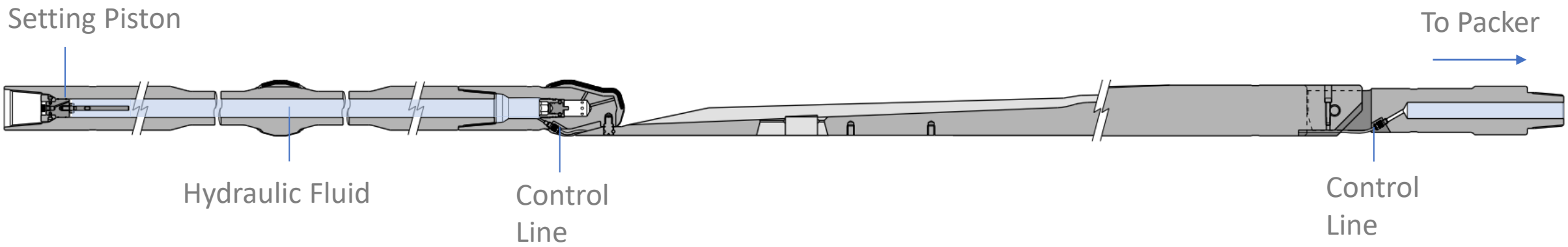
For the purposes of this presentation, we will concentrate on the unique features of the Mill and Whip assembly. The main components being;



Technical Features

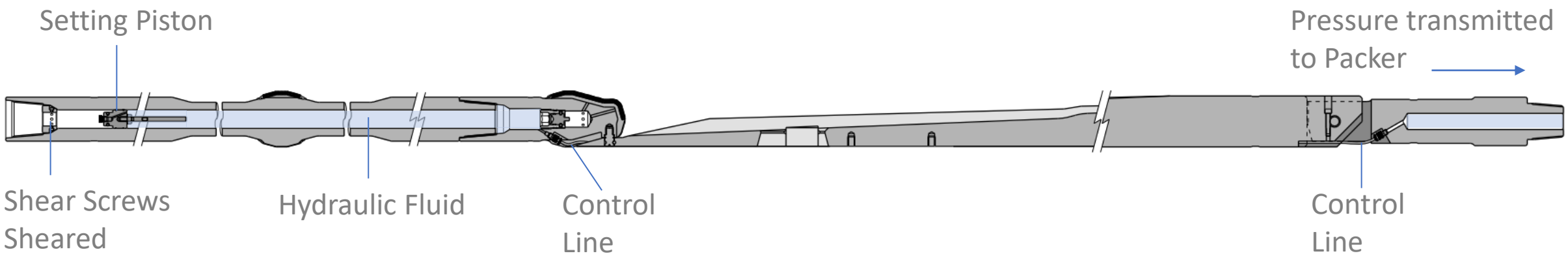
The UltiWhip™ System is ran in hole and once at the required depth…..

…..Pressure is applied to the drill string….



Technical Features

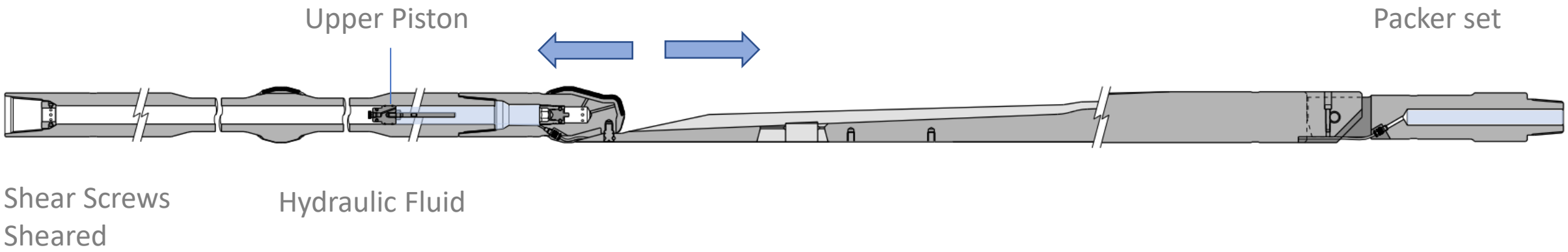
…..The Shear Screws are sheared and Setting Piston moves down….



Technical Features

…..When the Packer is set, the setting Piston will stop moving and pressure is maintained….

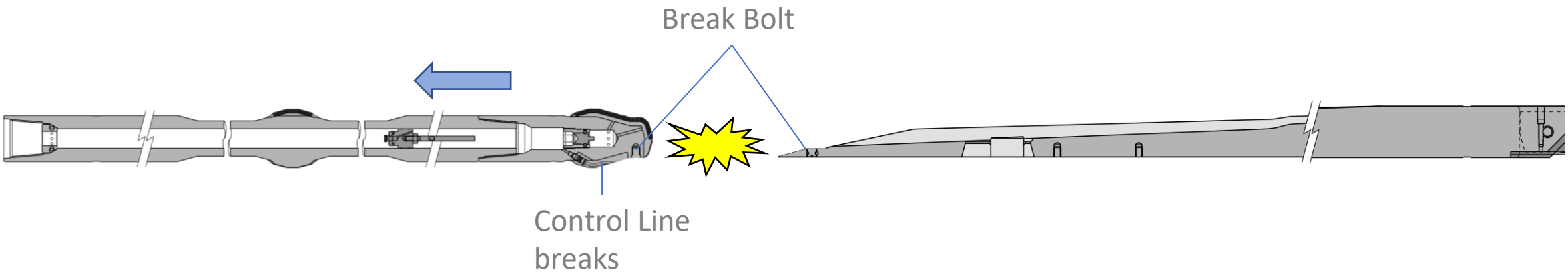
.....After 15 minutes, the drill string is moved up and down to confirm the packer is set…..



Technical Features

…..Pick up the drill string and shear Break Bolt and control line….

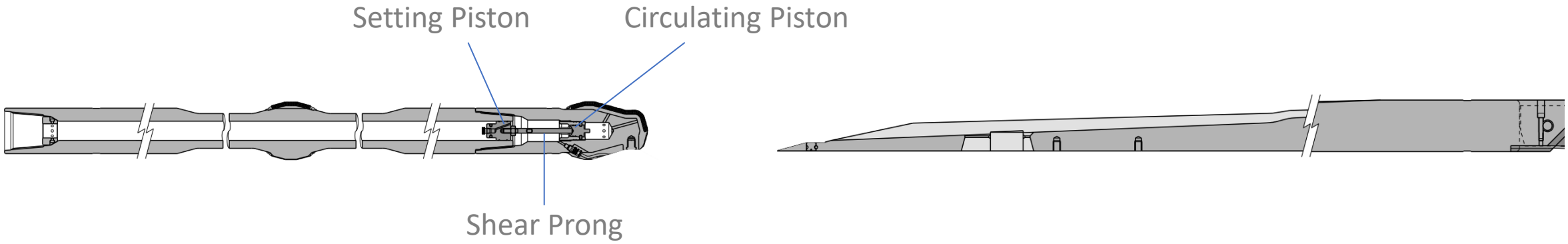
…..any pressure in the work string will drop to zero….



Technical Features

…..apply pressure to the drill string in order to pump the Setting Piston down until the Shear Prong contacts the Circulating Piston….

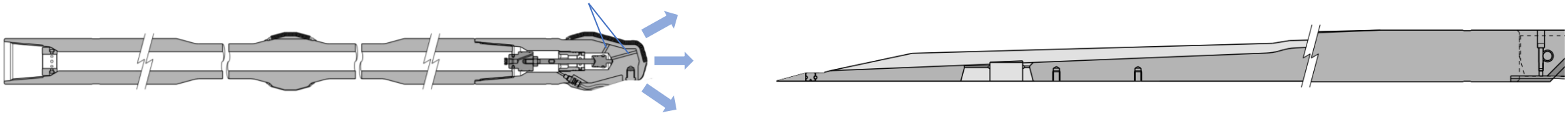
…..Continue applying pressure until the Circulating Piston shears and….



Technical Features

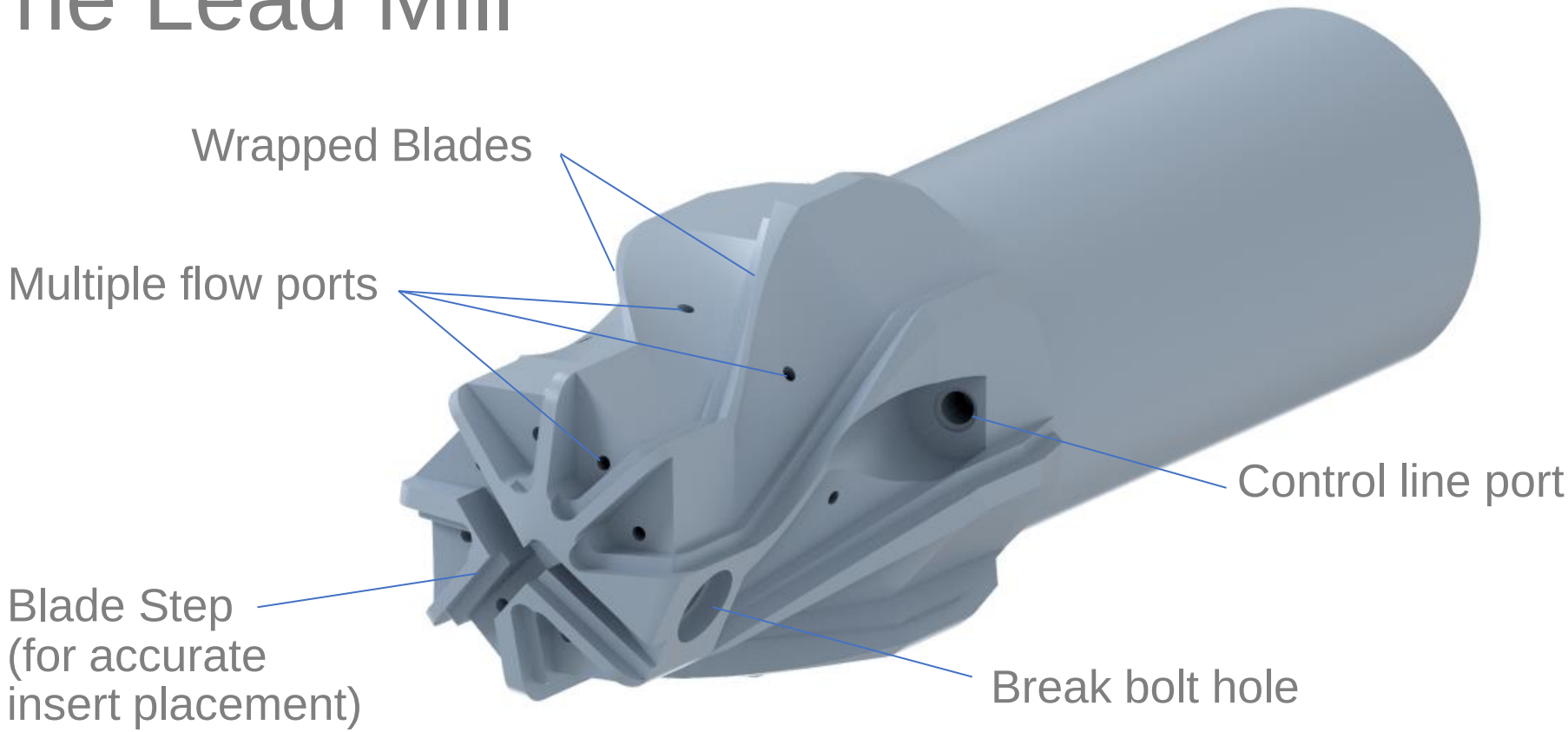
…..the Circulation Piston drops into the Mill Head and all Circulating Ports are open….

…..Fluid can now freely exit the Lead Mill and the window can now be milled.



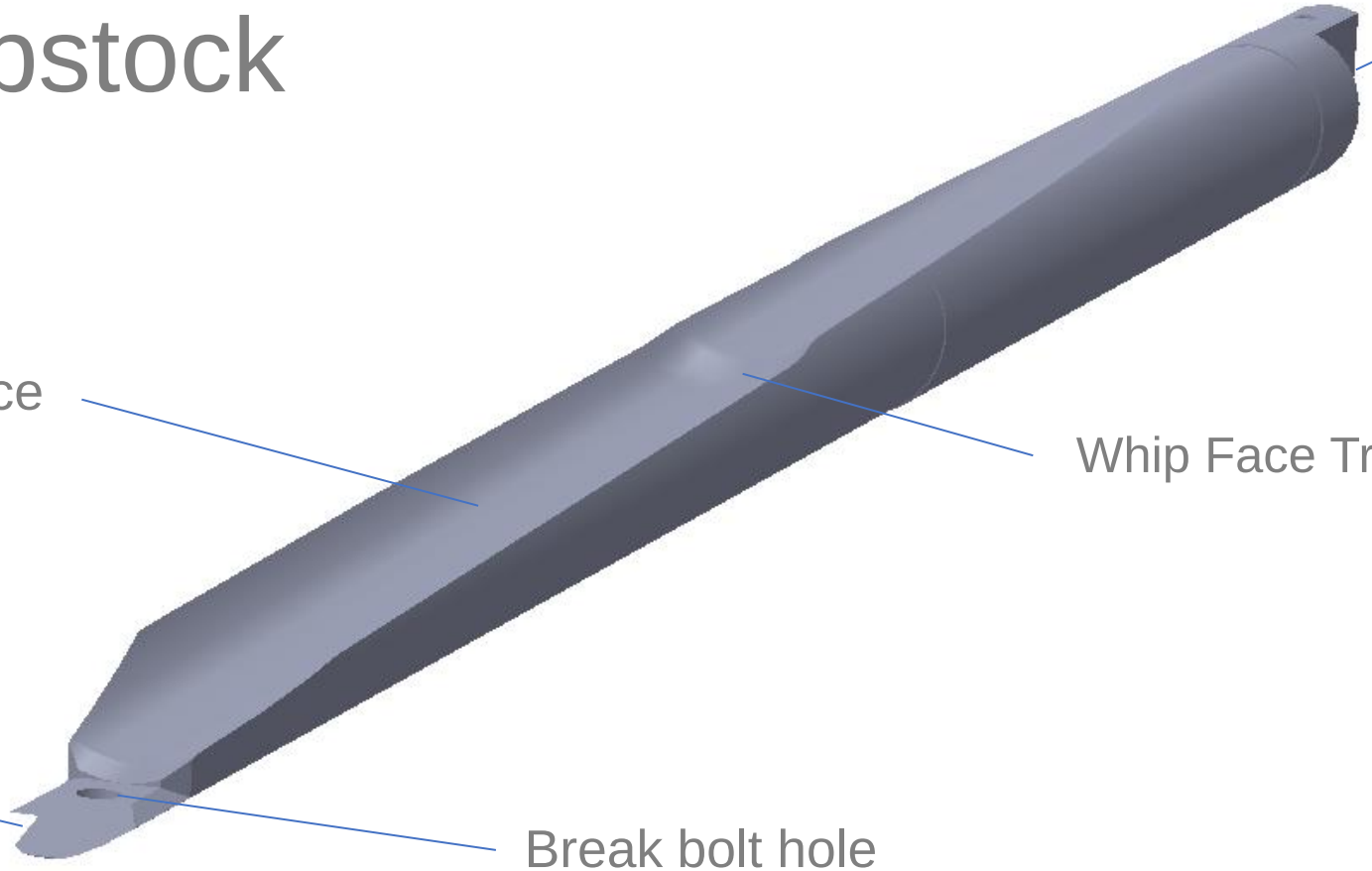
Technical Features

The Lead Mill



Technical Features

The Whipstock



Current Status

7”	9-5/8"	13-3/8”
Designed and sold	Designed and sold	Under Development

US and European Patents Granted

2 successful field runs with 9-5/8”System