



SYMOIL

October 2025

**PRODUCTS
CATALOGUE**

sales@symoil.com



symoil.com

01

COMPLETION

LINER HANGER

- 008 OSPREY Cemented Liner Hanger
- 012 SAPSAN Non Cemented Liner Hanger
- 016 Repair Packer
- 020 Stinger
- 022 OSPREY Running Tool
- 026 SAPSAN Running Tool

MULTI STAGE SLEEVES

- 030 NOVA Frac Sleeve
- 032 PREDATOR Sliding Sleeve
- 034 STREAMFRAC Sleeve
- 036 Ball Drop Sleeve
- 038 DRAGON Frac Sleeve
- 040 Hydraulic Toe Sleeve

CASING ACCESSORIES

- 042 Open Hole Packer
- 046 SPIDER Packer
- 048 Floating Equipment
- 050 Centraliser
- 052 Stage Cementing Collar

UPPER COMPLETION

- 056 Sub Surface Safety Valve
- 060 Sliding Sleeve
- 062 Landing Nipple
- 066 Lock Mandrel
- 070 Expansion Joint
- 072 Storm Choke
- 074 Flow Coupling
- 076 Hydraulic Tubing Anchor

MISCELLANEOUS

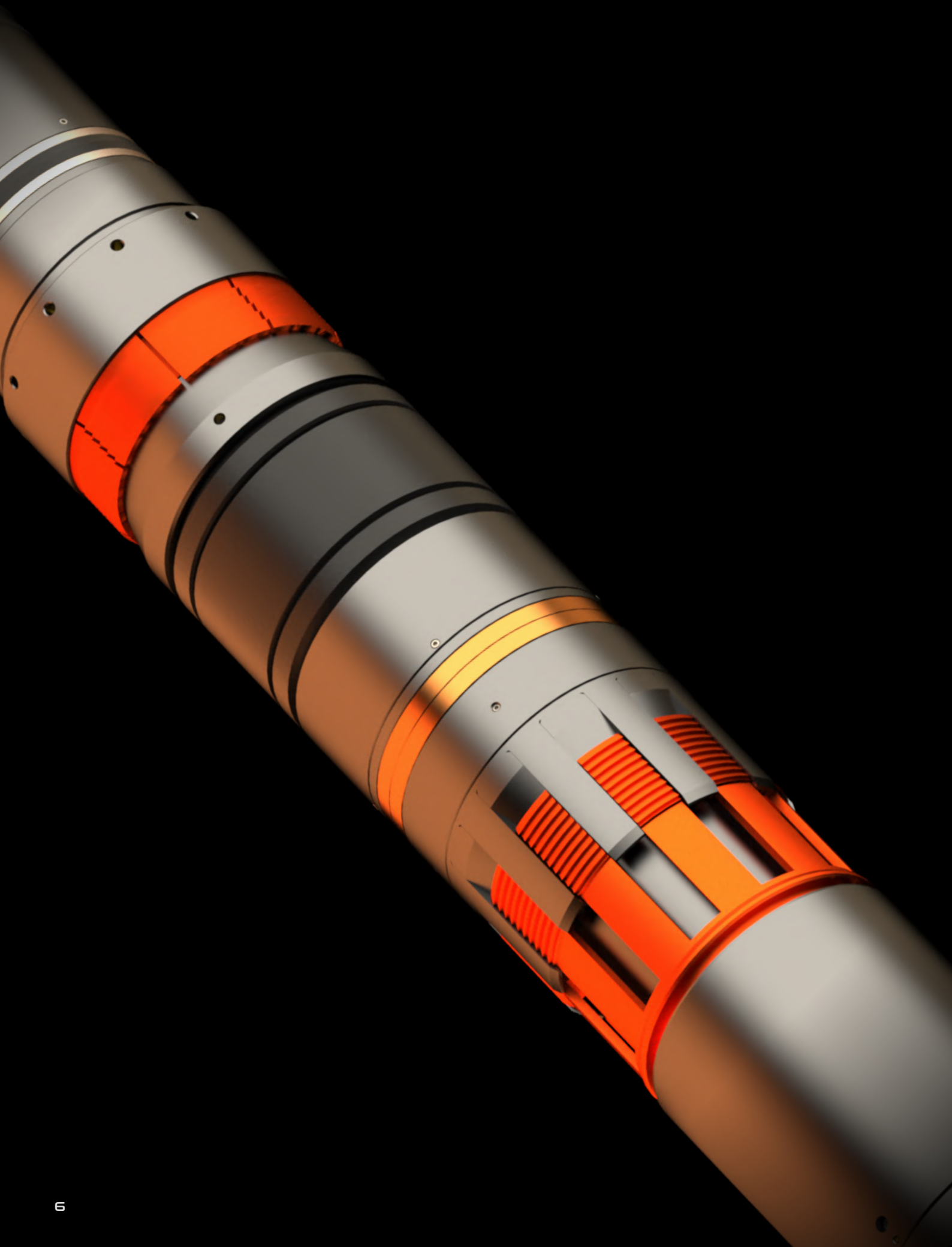
- 078 Whipstock

02

PACKERS

- 082 ASI-X Production Packer
- 086 HD Retrievable Packer
- 090 RHINO Hydraulic Retrievable Packer
- 092 DLH Packer

03	PLUGS PERMANENT 096 CIBP Cast Iron Bridge Plug 100 ERCI Extra Reach Cast Iron Bridge Plug RETRIEVABLE 104 WRBP Wireline Retrievable Bridge Plug 108 ANACONDA Medium Expansion Plug 110 RIBP Retrievable Inflatable Bridge Plug PLUG N PERF 114 RAVEN HP Dissolvable Frac Plug 116 RAVEN HP XL Dissolvable Frac Plug 118 EAGLE Composite Frac Plug 120 KITE 2 Composite Frac Plug 122 KITE HPXL Composite Frac Plug	
04	PATCHES 126 SPIDER ULTRA Tubing Patch 128 Expandable Patch	
05	THRU TUBING STRADDLE PACKER SYSTEM 132 RAPTOR Straddle Packer System 134 HYDRA RAPTOR Straddle Packer System 136 Inflatable Straddle Packer	
06	MISCELLANEOUS 140 Memory Gauges 142 Gauge Carrier 144 High Expansion Gauge Hanger 146 PHOENIX Electronic Setting Tool 148 Ceramic Burst Disks	



COMPLETION

LINER HANGER

- 008 OSPREY Cemented Liner Hanger
- 012 SAPSAN Non Cemented Liner Hanger
- 016 Repair Packer
- 020 Stinger
- 022 OSPREY Running Tool
- 026 SAPSAN Running Tool

MULTI STAGE SLEEVES

- 030 NOVA Frac Sleeve
- 032 PREDATOR Sliding Sleeve
- 034 STREAMFRAC Sleeve
- 036 Ball Drop Sleeve
- 038 DRAGON Frac Sleeve
- 040 Hydraulic Toe Sleeve

CASING ACCESSORIES

- 042 Open Hole Packer
- 046 SPIDER Packer
- 048 Floating Equipment
- 050 Centraliser
- 052 Stage Cementing Collar

UPPER COMPLETION

- 056 Sub Surface Safety Valve
- 060 Sliding Sleeve
- 062 Landing Nipple
- 066 Lock Mandrel
- 070 Expansion Joint
- 072 Storm Choke
- 074 Flow Coupling
- 076 Hydraulic Tubing Anchor

MISCELLANEOUS

- 078 Whipstock

OSPREY

CEMENTED LINER HANGER

DESCRIPTION

The OSPREY Liner Hanger System is a hydraulic-set, hydraulic-release rotational liner hanger designed to suspend liners securely within intermediate or production casing strings. The system integrates a hanger body with slips, a polish bore receptacle (PBR), and a liner-top packer, providing a robust and versatile solution for both oil & gas and geothermal applications.

The hydraulic running tool includes a secondary mechanical release mechanism to ensure reliable disengagement in the event of hydraulic release failure. Once the liner is in position, the liner-top packer is mechanically activated by applying slack-off weight, effectively isolating the annulus between the casing and liner.

The OSPREY system enables full liner rotation during running and cementing operations, enhancing cement placement and overall well integrity. Designed to mount directly on the liner mandrel, it is compatible with all liner thread types, weights, and grades, ensuring flexibility across a wide range of well conditions.

FEATURES

- High torque capacity for rotational liner applications
- Optional thrust bearing system for extended rotation during running and cementing
- Anti-preset slip design for enhanced operational safety
- High-pressure rated to perform in demanding downhole environments
- Customizable PBR lengths, available from 3 ft to 20 ft



 SYMOIL			OSPREY CEMENTED LINER HANGER		
COMPLETION					
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Liner Size in – [mm]	Hanger OD in – [mm]	Hanger ID in – [mm]
5 - [127]	15 - 18	7.52 - 9.19	3.5 - [88.9]	4 - [101.6]	2.75 - [69.9]
5.5 - [139.7]	14 - 17	6.2 - 7.72	4 - [101.6]	4.625 - [117.5]	3.45 - [87.6]
	17 - 23	7.72 - 10.54		4.5 - [114.3]	3.35 - [85.1]
	23 - 26	10.54 - 12.1		4.375 - [111.1]	3.25 - [82.6]
5.75 - [146.1]	19.7 - 21.8	8.51 - 9.53	4 - [101.6]	4.625 - [117.5]	3.45 - [87.6]
6.625 - [168.3]	20 - 24	7.32 - 8.94	4.5 - [114.3]	5.625 - [142.9]	3.95 - [100.3]
	24 - 28	8.94 - 10.59		5.5 - [139.7]	3.85 - [97.8]
	28 - 32	10.59 - 12.06		5.375 - [136.5]	3.826 - [97.2]
7 - [177.8]	17 - 26	5.87 - 9.19	5 - [127]	5.95 - [151.1]	4.25 - [108]
	26 - 29	9.19 - 10.36		5.875 - [149.2]	4.25 - [108]
	29 - 35	10.36 - 12.65		5.75 - [146.1]	4.125 - [104.8]
7.625 - [193.7]	33.7 - 39	10.92 - 12.7	5.5 - [139.7]	6.35 - [161.3]	4.625 - [117.5]
9.625 - [244.5]	32,3 - 43,5	7,92 - 11,05	7 - [177.8]	8,5 - [215,9]	6.25 - [158.8]
	43.5 - 53.5	11.05 - 13.84		8.25 - [209.6]	6.25 - [158.8]
9,625 - [244,5]	43,5 - 53,5	11,05 - 13,84	7,625 - [193,7]	8,25 - [209,6]	6.625 - [168.3]
13,375 - [339,7]	54,5 - 72	9,65 - 13,06	9,625 - [244,5]	12 - [304,8]	8.525 - [216.5]

SAPSAN

NON CEMENTED LINER HANGER

DESCRIPTION

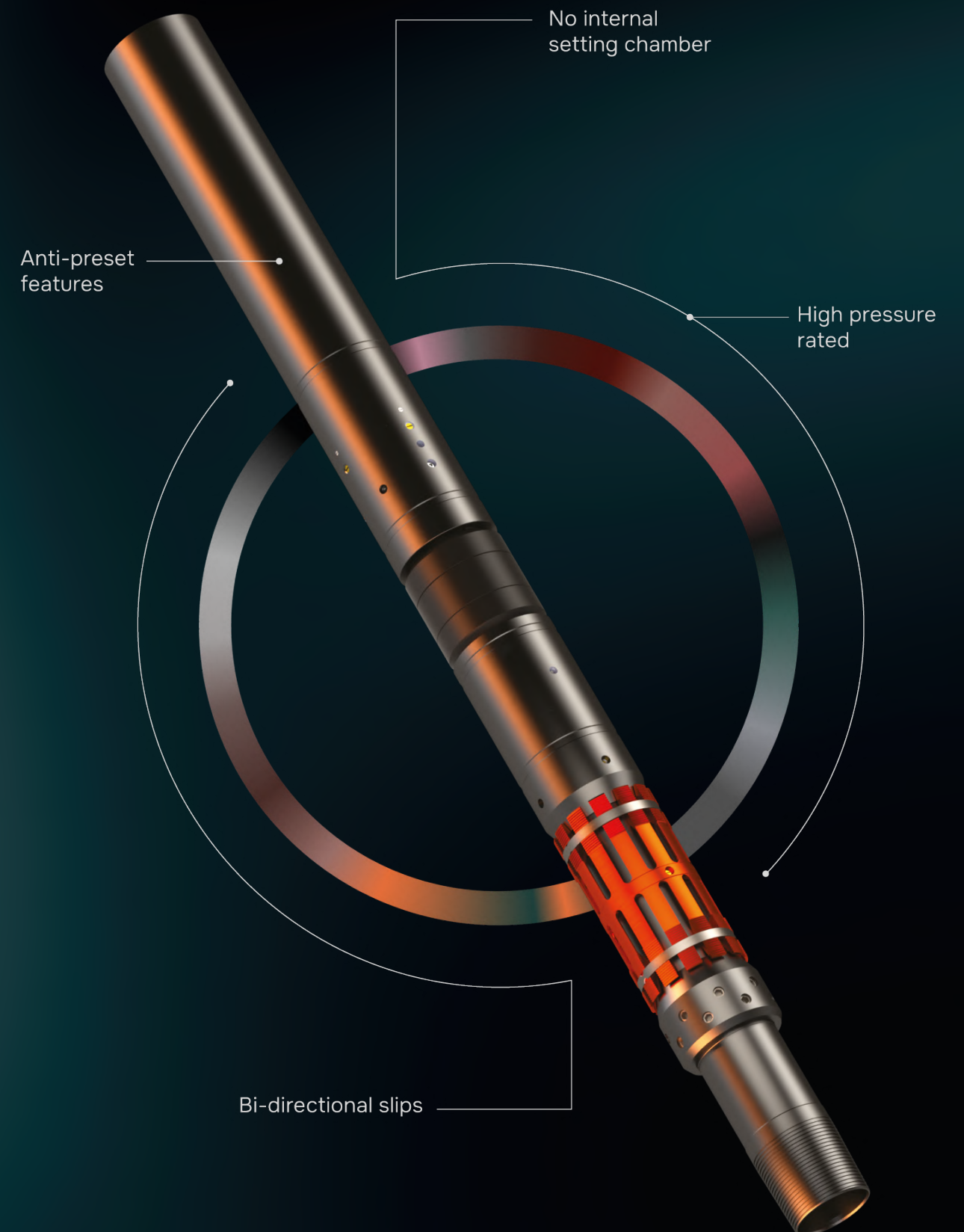
The SAPSAN Hydraulic Liner Hanger by Symoil is a versatile, non-cemented hydraulic liner hanger designed for reliability and performance in demanding downhole environments. It is deployed using the proprietary Symoil Power Running Tool Assembly, ensuring seamless operation and superior hanging capability.

The SAPSAN system features a unique barrel-slip design that delivers bi-directional pressure and load support, while its one-piece inner mandrel provides upper and inner bore sealing – eliminating the need for an internal setting chamber. This results in a simplified design with enhanced burst and collapse ratings.

Engineered for flexibility, the hanger is independent of liner thread types, weights, and grades, as it mounts directly on the outer surface of the liner pipe. The integrated packer-hanger assembly reduces the number of threaded connections, improving system integrity and reducing overall cost. No rotation is required for packer setting, making the SAPSAN suitable for both deviated and horizontal wells.

FEATURES

- Bi-directional slip design for secure hanging and pressure containment
- Anti-preset mechanism for enhanced operational safety
- High-pressure rated for challenging well conditions
- No internal setting chamber, increasing burst and collapse strength
- Customizable PBR lengths from 1.5 ft to 20 ft



SYMOIL	COMPLETION	
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]
5 - [127]	15 - 18	7.52 - 9.19
5.5 - [139.7]	14 - 17	6.2 - 7.72
	17 - 23	7.72 - 10.54
	23 - 26	10.54 - 12.1
5.75 - [146.1]	19.7 - 21.8	8.51 - 9.53
6.625 - [168.3]	20 - 24	7.32 - 8.94
	24 - 28	8.94 - 10.59
	28 - 32	10.59 - 12.06
7 - [177.8]	17 - 26	5.87 - 9.19
	26 - 29	9.19 - 10.36
	29 - 35	10.36 - 12.65
7 - [177.8]	17 - 26	5.87 - 9.19
	26 - 29	9.19 - 10.36
	29 - 35	10.36 - 12.65
7.625 - [193.7]	33.7 - 39	10.92 - 12.7
8.625 - [219.1]	44 - 49	12.7 - 14.15
9.625 - [244.5]	32,3 - 43,5	7,92 - 11,05
	43.5 - 53.5	11.05 - 13.84
9,625 - [244,5]	43,5 - 53,5	11,05 - 13,84
13,375 - [339,7]	54,5 - 72	9,65 - 13,06

SAPSAN NON CEMENTED LINER HANGER		
Liner Size in – [mm]	Hanger OD in – [mm]	Hanger ID in – [mm]
3.5 - [88.9]	4 - [101.6]	2,75 - [69,9]
4 - [101.6]	4.625 - [117.5]	3,35 - [85,1]
	4.5 - [114.3]	3,25 - [82,6]
	4.375 - [111.1]	3.25 - [82.6]
4 - [101.6]	4.625 - [117.5]	3,35 - [85,1]
4.5 - [114.3]	5.625 - [142.9]	3.95 - [100.3]
	5.5 - [139.7]	3.85 - [97.8]
	5.375 - [136.5]	3.826 - [97.2]
4.5 - [114.3]	5.95 - [151.1]	4 - [101,6]
	5.875 - [149.2]	
	5.75 - [146.1]	
5 - [127]	5.95 - [151.1]	4.25 - [108]
	5.875 - [149.2]	4.25 - [108]
	5.75 - [146.1]	4.125 - [104.8]
5.5 - [139.7]	6.35 - [161.3]	4.625 - [117.5]
5.5 - [139.7]	7.35 - [186.7]	4,625 - [117,5]
7 - [177.8]	8,5 - [215,9]	6.25 - [158.8]
	8.25 - [209.6]	6.25 - [158.8]
7,625 - [193,7]	8,25 - [209,6]	6.625 - [168.3]
9,625 - [244,5]	12 - [304,8]	8.525 - [216.5]

REPAIR PACKER

DESCRIPTION

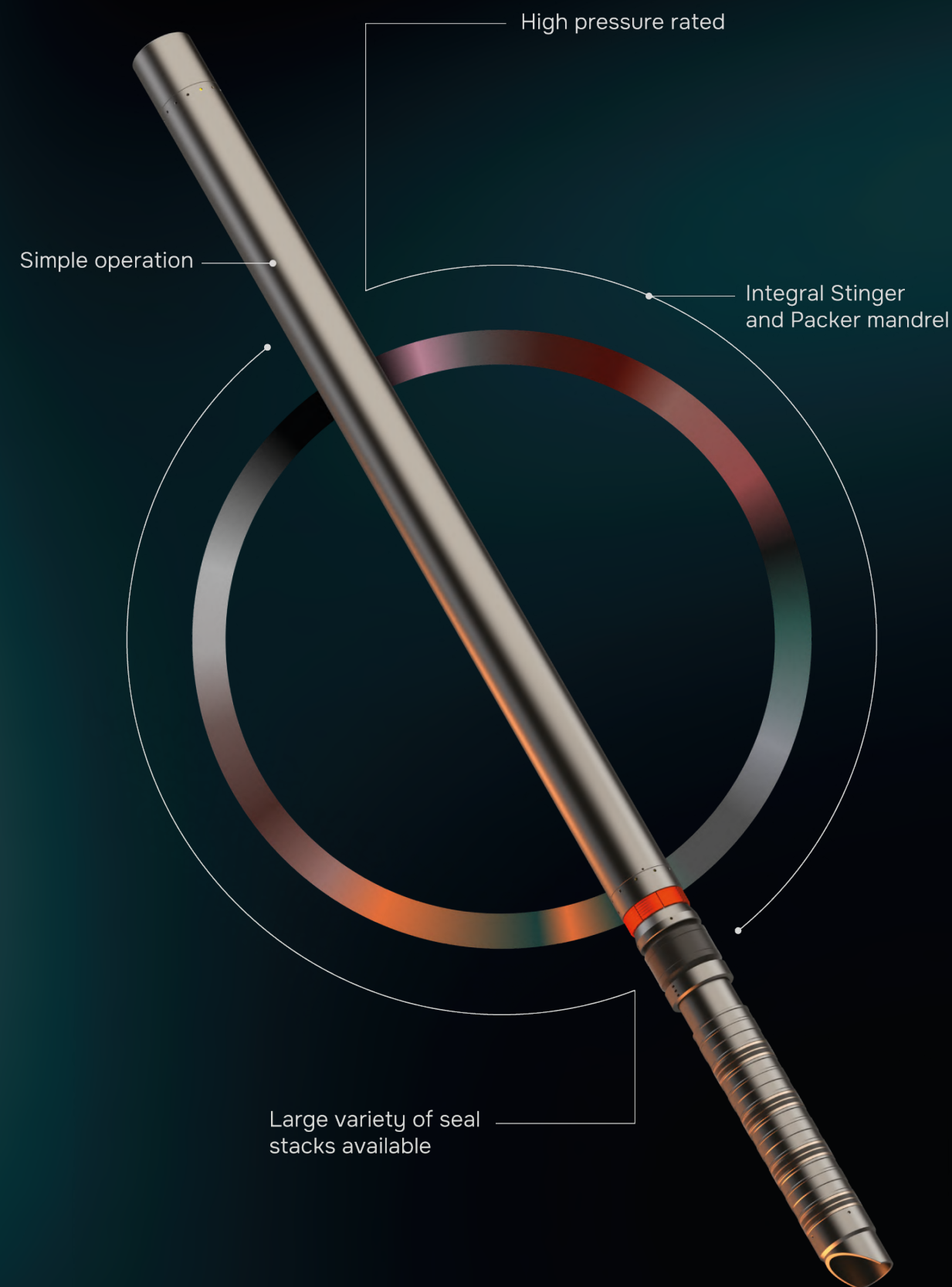
The Repair Packer is designed for remedial operations where leakage or a loss of integrity has occurred at the liner-top packer of systems such as SAPSAN or OSPREY. It provides a dependable, high-strength sealing and anchoring solution that restores liner-to-casing isolation without the need to recover or replace the entire liner assembly.

Built with robust double-grip slips, the Repair Packer ensures secure anchoring even under high differential pressures. Its one-piece inner mandrel provides upper and inner bore sealing, removing the need for an internal setting chamber and minimizing leak paths.

The tool can be deployed with either short or extended PBR configurations, adapting to a range of well geometries and repair depths. With no rotation required during setting, it offers simple, reliable operation in both vertical and highly deviated wells, making it ideal for intervention and re-entry applications.

FEATURES

- Integral stinger and packer mandrel for compact design
- Configurable seal stacks for specific pressure and temperature conditions
- Multiple seal stacks can be installed per mandrel
- Simple, hydraulic-set operation with anti-preset safety
- High-pressure rated for demanding downhole environments
- Compatible with short or extended PBRs (3 ft to 20 ft)
- Variable lengths PBR: as short as 3ft to lengths of 20ft



			COMPLETION		
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]			
5 - [127]	15 - 18	7.52 - 9.19			
5.5 - [139.7]	14 - 17	6.2 - 7.72			
	17 - 23	7.72 - 10.54			
	23 - 26	10.54 - 12.1			
5.75 - [146.1]	19.7 - 21.8	8.51 - 9.53			
6.625 - [168.3]	20 - 24	7.32 - 8.94			
	24 - 28	8.94 - 10.59			
	28 - 32	10.59 - 12.06			
7 - [177.8]	17 - 26	5.87 - 9.19			
	26 - 29	9.19 - 10.36			
	29 - 35	10.36 - 12.65			
7 - [177.8]	17 - 26	5.87 - 9.19			
	26 - 29	9.19 - 10.36			
	29 - 35	10.36 - 12.65			
7.625 - [193.7]	33.7 - 39	10.92 - 12.7			
8.625 - [219.1]	44 - 49	12.7 - 14.15			
9.625 - [244.5]	32,3 - 43,5	7,92 - 11,05			
	43.5 - 53.5	11.05 - 13.84			
9,625 - [244,5]	43,5 - 53,5	11,05 - 13,84			
13,375 - [339,7]	54,5 - 72	9,65 - 13,06			

REPAIR PACKER		
Liner Size in – [mm]	Hanger OD in – [mm]	Hanger ID in – [mm]
3.5 - [88.9]	4 - [101.6]	2,75 - [69,9]
4 - [101.6]	4.625 - [117.5]	3,35 - [85,1]
	4.5 - [114.3]	3,25 - [82,6]
	4.375 - [111.1]	3.25 - [82.6]
4 - [101.6]	4.625 - [117.5]	3,35 - [85,1]
4.5 - [114.3]	5.625 - [142.9]	3.95 - [100.3]
	5.5 - [139.7]	3.85 - [97.8]
	5.375 - [136.5]	3.826 - [97.2]
4.5 - [114.3]	5.95 - [151.1]	4 - [101,6]
	5.875 - [149.2]	
	5.75 - [146.1]	
5 - [127]	5.95 - [151.1]	4.25 - [108]
	5.875 - [149.2]	4.25 - [108]
	5.75 - [146.1]	4.125 - [104.8]
5.5 - [139.7]	6.35 - [161.3]	4.625 - [117.5]
5.5 - [139.7]	7.35 - [186.7]	4,625 - [117,5]
7 - [177.8]	8,5 - [215,9]	6.25 - [158.8]
	8.25 - [209.6]	6.25 - [158.8]
7,625 - [193,7]	8,25 - [209,6]	6.625 - [168.3]
9,625 - [244,5]	12 - [304,8]	8.525 - [216.5]

STINGER

DESCRIPTION

The Tieback Seal Assembly is designed for applications where it is necessary to extend an intermediate string to surface. It is typically deployed when running tieback casing to surface or when installing a frac string to protect the host casing during high-pressure stimulation operations.

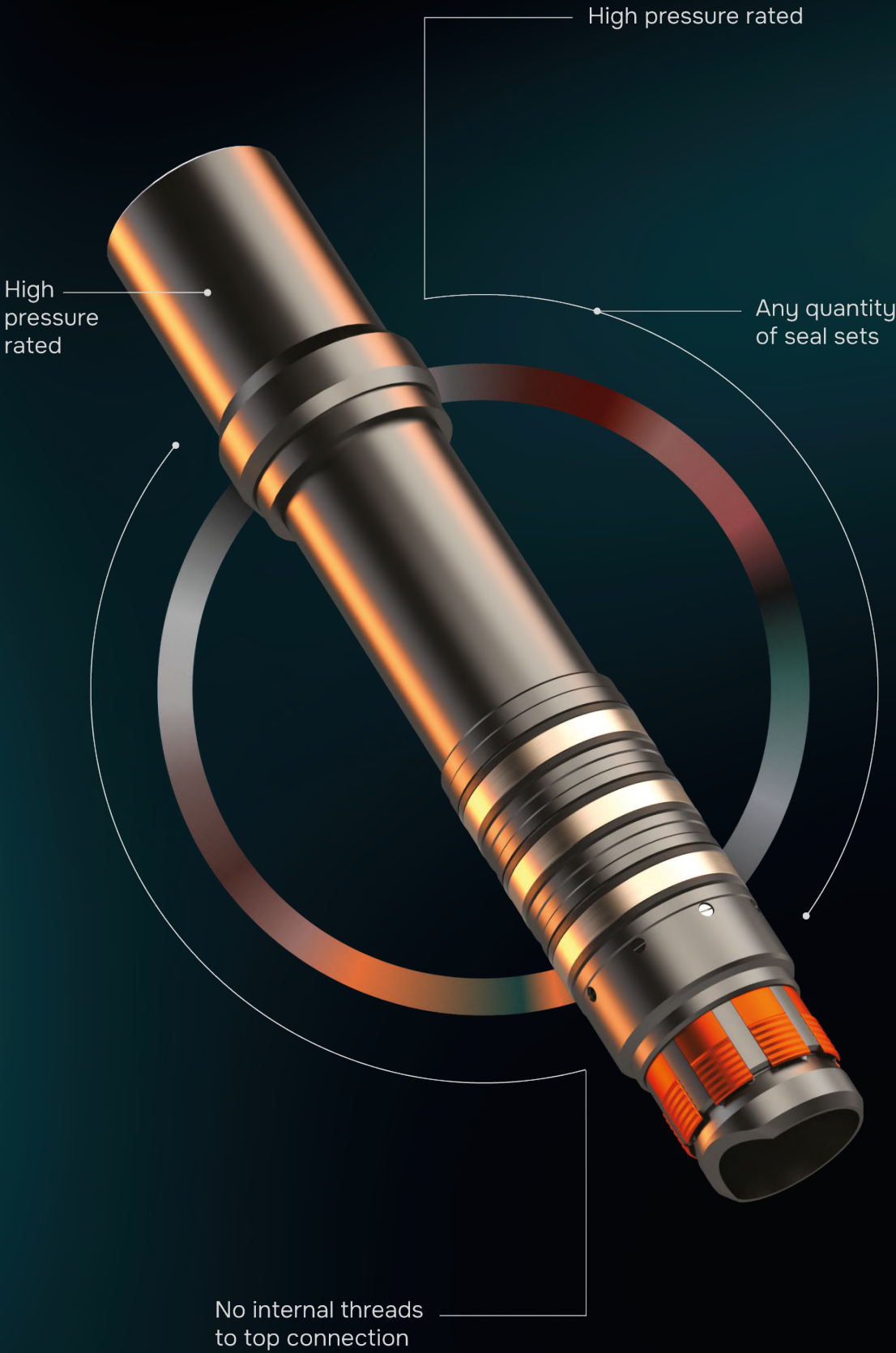
The assembly features a precision-engineered stinger equipped with multiple seal stacks, which can be configured and spaced according to customer requirements. A wide selection of seal materials and profiles is available to ensure compatibility with specific wellbore pressures, temperatures, and fluid conditions.

The Tieback Seal Assembly provides a reliable, pressure-tight connection between the liner and the upper casing, ensuring long-term integrity during production, stimulation, or well workover operations.

FEATURES

- Customizable number of seal stacks for tailored performance
- Wide variety of sealing materials for various well conditions
- High-pressure rated design for critical applications
- No internal threads at top connection, simplifying installation
- Variable stinger lengths available, from 3 ft to 20 ft

Casing size in – [mm]	Tubing size in – [mm]	Sealbore diameter STINGER in – [mm]	STINGER ID in – [mm]
4.5 - [114.3]	2.875 - [73]	3.25 - [82.6]	2.5 - [63.5]
5 - [127]	3.5 - [88.9]	3.5 - [88.9]	2.875 - [73]
5.5 - [139.7]	4 - [101.6]	4 - [101.6]	3.35 - [85.1]
5.75 - [146.1]	4 - [101.6]	4.125 - [104.8]	3.45 - [87.6]
6.625 - [168.3]	4.5 - [114.3]	4.875 - [123.8]	4 - [101.6]
7 - [177.8]	5 - [127]	5.25 - [133.4]	4.25 - [108]
7,625 - [193,7]	5.5 - [139.7]	5.75 - [146.1]	4.625 - [117.5]
9.625 - [244.5]	7 - [177.8]	7.5 - [190.5]	6.25 - [158.8]
13.375 - [339.7]	9.625 - [244.5]	10.5 - [266.7]	8.625 - [219.1]



OSPREY

RUNNING TOOL

DESCRIPTION

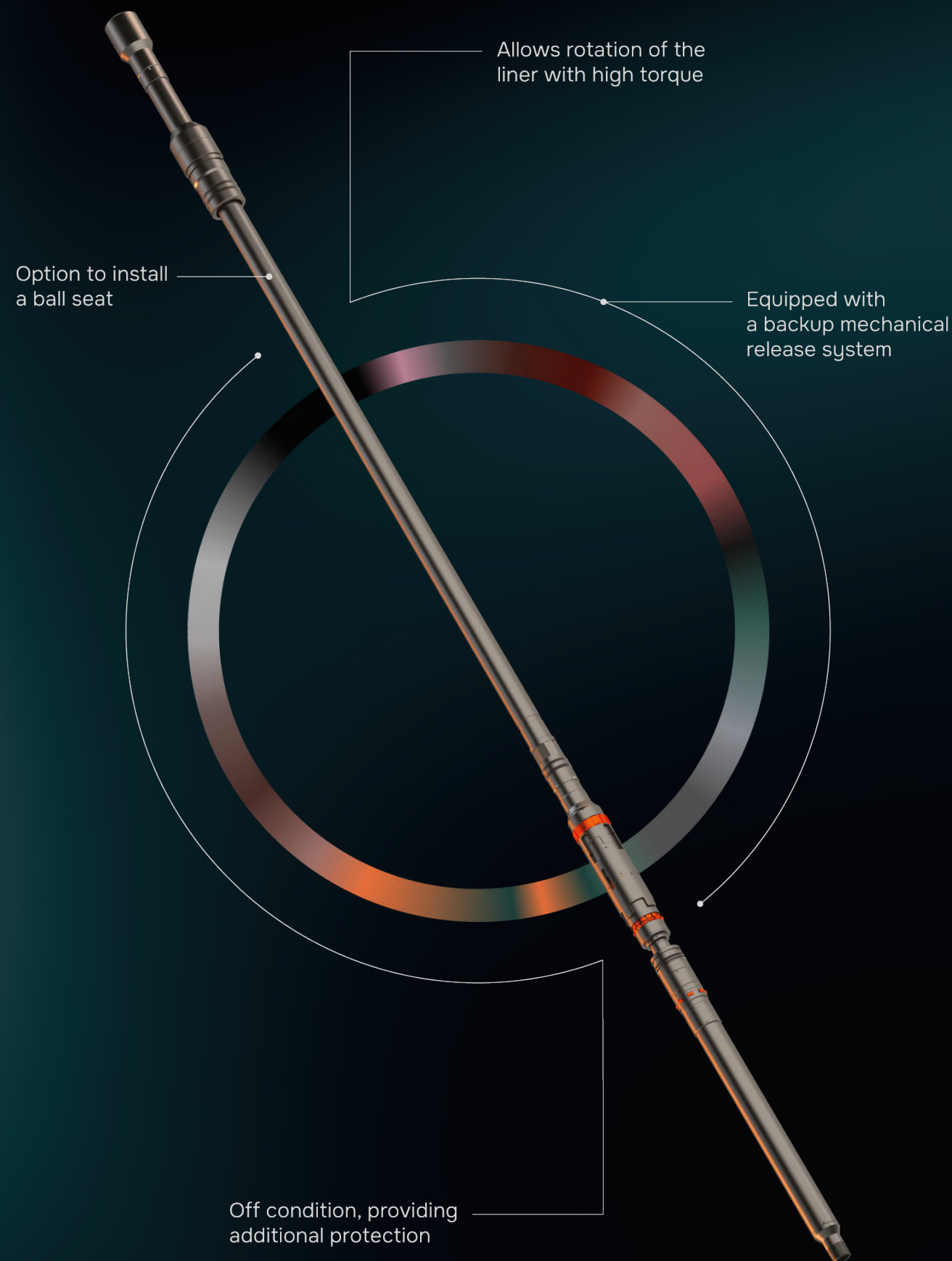
The Hydraulic Running Tool is designed for deployment and setting of the OSPREY liner hanger assembly, providing both precision control and operational reliability. Engineered to perform under demanding conditions, the tool enables efficient liner installation while maintaining full circulation and rotation capabilities throughout the running and cementing operations.

Equipped with a hydraulic release mechanism and a secondary mechanical backup system, the tool ensures reliable disengagement even in the event of a hydraulic failure. A protective design minimizes the ingress of debris and mechanical contamination, ensuring smooth operation in harsh downhole environments.

The release function is designed to activate only under slack-off weight, providing added safety and protection against unintentional release during pressure fluctuations.

FEATURES

- Allows high-torque rotation of the liner during running-in and cementing
- Adjustable hydraulic release pressure and mechanical release torque prior to deployment
- Release possible only in slack-off condition for increased operational safety
- Stationary hanging cementing plug during tool release operations
- Optional ball seat installation to reduce pressure impact on the formation



 SYMOIL			OSPREY RUNNING TOOL			
COMPLETION						
LH Size in – [mm]	Casing Size in – [mm]	Upper Thread Connection	Lower Thread Connection	Max RT OD in – [mm]	Max Packer Activator OD in – [mm]	Min ID in – [mm]
3,5 - [88,9]	5 - [127]	2-7/8" API IF	1.9" EUE	3,5 - [88,9]	3.8 - [101,6]	1 - [25.4]
4 - [101,6]	5,5/5,75 - [139,7/146,1]	2-7/8" API IF	1.9" EUE	3.9 - [98,43]	4,5 - [114,3]	1.5 - [38.1]
4,5/5 - [114,3/127]	7 - [177,8]	3-1/2" API IF	2-3/8" EUE	4,921 - [125]	5,875 - [149,23]	2 - [50.8]
5,5 - [139,7]	7,625 - [193,7]	3-1/2" API IF	2-3/8" EUE	5,95 - [151,13]	6,225 - [158,12]	2 - [50.8]
7 - [177,8]	9,625 - [244,5]	4-1/2" API IF	3-1/2" EUE	7,35 - [187]	8,22 - [208,79]	3 - [76,2]
7,625 - [193,7]	9,625 - [244,5]	4-1/2" API IF	3-1/2" EUE	7,925 - [201,3]	8,65 - [219,71]	3 - [76,2]
9,625 - [244,5]	13,375 - [339,7]	6-5/8" FH	4-1/2" EUE	10 - [254]	11,875 - [301,63]	4 - [101.6]
24	SYMOIL PRODUCTS CATALOGUE		25			

SAPSAN

RUNNING TOOL

DESCRIPTION

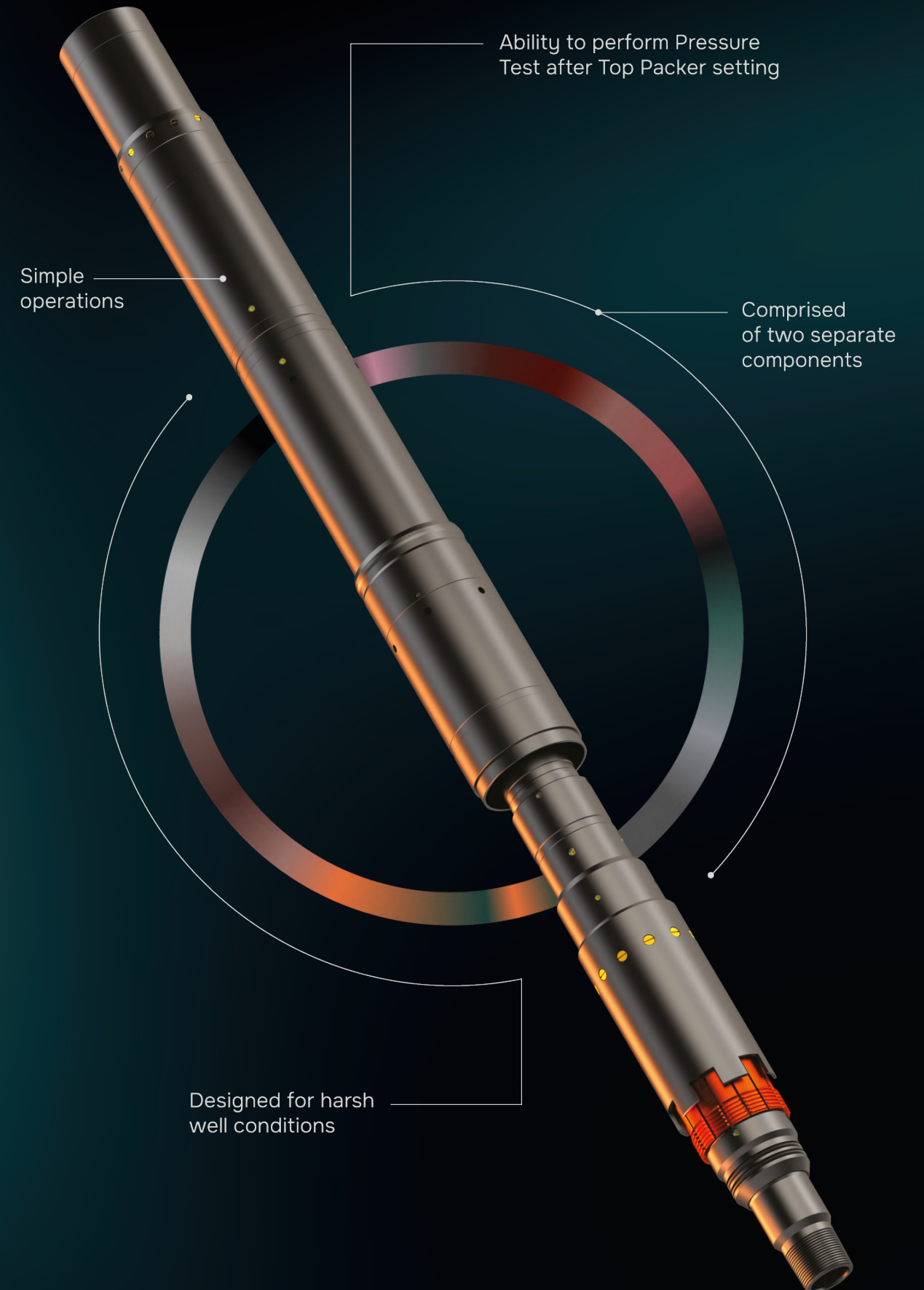
The Power Running Tool is a hydraulically actuated running and setting tool engineered for demanding liner installations requiring vigorous push, pull, drill-down, and drill-in operations. It is specifically designed to handle tension or compression loads when working liners to bottom in challenging well conditions.

The system is composed of two integrated components: the Power Section and the Running Tool. The Power Section relocates the hydraulic pistons—traditionally housed within the liner-top packer—into the running tool BHA, thereby eliminating potential leak paths and minimizing O-ring exposure within the liner hanger assembly. When pressure is applied, the differential acts on the internal piston, transferring the setting force directly into the liner-top packer to complete the setting operation.

The Running Tool is a robust collet-style design that includes both a primary hydraulic release and a secondary mechanical torque release, ensuring secure and reliable disengagement in all operational scenarios.

FEATURES

- Designed for harsh well conditions to push, pull, and drill-down liners to bottom
- Adjustable hydraulic release pressure and mechanical release torque prior to deployment
- Power Section piston design eliminates the need for a hydraulic chamber in the liner hanger
- Simplified operation for efficient running and setting
- Capability to perform a pressure test after liner-top packer setting



 COMPLETION			SAPSAN RUNNING TOOL		
LH Size in – [mm]	Casing Size in – [mm]	Upper Thread Connection	Lower Thread Connection	Max RT OD in – [mm]	Min ID in – [mm]
3,5 - [88,9]	5 - [127]	2-7/8" API IF	1.9" EUE	3,5 - [88,9]	0.5 - [12.7]
4 - [101,6]	5,5/5,75 - [139,7/146,1]	2-7/8" API IF	1.9" EUE	3.9 - [98,43]	0.75 - [19.05]
4,5/5 - [114,3/127]	7 - [177,8]	3-1/2" API IF	2-3/8" EUE	5,24 - [133,1]	1,125 - [28.58]
5,5 - [139,7]	7,625 - [193,7]	3-1/2" API IF	2-3/8" EUE	5,95 - [151,13]	1,25 - [31.75]
7 - [177,8]	9,625 - [244,5]	4-1/2" API IF	3-1/2" EUE	7,45 - [189,23]	1 - [25,4]
7,625 - [193,7]	9,625 - [244,5]	4-1/2" API IF	3-1/2" EUE	7,65 - [194,31]	1 - [25,4]
9,625 - [244,5]	13,375 - [339,7]	6-5/8" FH	4-1/2" EUE	10 - [254]	2.88 - [73.03]
28	SYMOIL PRODUCTS CATALOGUE			29	

NOVA

FRAC SLEEVE

DESCRIPTION

The NOVA Frac Sleeve is an innovative ball-activated fracturing system designed to enable a large number of frac stages using dissolvable balls of identical size. This unique approach simplifies operations and improves efficiency by eliminating the need for multiple ball sizes while ensuring consistent stimulation performance across the entire lateral.

By utilizing maximum-size dissolvable balls, the Nova Frac Sleeve minimizes flow restrictions after stimulation. Once the balls have dissolved, the wellbore is left virtually unrestricted for production. The sleeves can then be selectively closed or reopened using the Flex Shifting Tool on coiled tubing – allowing operators to isolate gas or water zones, shut off intervals, or perform full well recompletions when required. Sleeves can also be locked in the open position for continuous production.

This system provides a reliable, intervention-ready solution for multi-stage fracturing, offering flexibility, cost efficiency, and reduced completion times compared to traditional plug-and-perf methods.

FEATURES

- Cost-effective alternative to conventional plug-and-perf completions
- Compatible with both cemented and open-hole applications
- Ball-drop activation for precise stage control
- Multi-open and close functionality using the Flex Shifting Tool
- Enables continuous pumping and extended laterals
- Provides optimal frac distribution across all stages
- Eliminates the need for milling operations
- Reduces total well completion time

Casing / Liner size in - [mm]	OD Sleeve in - [mm]	ID in - [mm]	Ball Seat Before Milling - in - [mm]	Ball Size in - [mm]
4,5 - [114,3]	5,625 - [142,9]	3,88 - [98,55]	3,54 - [89,9]	3,7 - [94]
5,5 - [139,7]	7,25 - [184,2]	4,75 - [120,7]	4,25 - [108]	4,5 - [114,3]



PREDATOR

SLIDING SLEEVE

DESCRIPTION

The PREDATOR Frac Sleeve is a coiled-tubing-operated sliding sleeve designed for selective opening and closing of individual frac stages. Each sleeve incorporates a standardized internal profile compatible with a hydraulic shifting tool, allowing precise control of zone activation and re-entry operations.

Predator Frac Sleeves are suitable for both cemented and open-hole completions, offering flexibility across diverse wellbore environments. Each sleeve can be configured with a custom number and size of orifices to regulate inflow or injection rates, optimizing production and stimulation performance.

Engineered for full-drift capability, the system permits conventional cementing operations and ensures the wellbore remains production-ready immediately after stimulation.

FEATURES

- Full-drift design enables conventional cementing and post-stimulation production
- Designed to match host casing string specifications
- Flexible installation order – sleeves can be placed in any sequence
- No pup joints required, simplifying completion design
- Prevents proppant backflow while formation pressure stabilizes
- Enables selective shutoff of water or gas production and thief zones
- Allows re-stimulation of underperforming intervals while maintaining wellbore integrity

Casing / Liner size in - [mm]	OD Sleeve in - [mm]	ID in - [mm]
4 - [101.6]	4.45 - [113]	3.35 - [85.1]
4.5 - [114.3]	5,5 - [139,7]	3.85 - [97.8]
5 - [127]	5,75 - [146,1]	4.13 - [104.78]
5.5 - [139.7]	6.5 - [165.1]	4,63 - [117,48]
5.75 - [146.1]	6.75 - [171.5]	4.875 - [123.8]
6.625 - [168.3]	7.63 - [193.68]	5.75 - [146.1]
7 - [177.8]	8.125 - [206.4]	6 - [152.4]



STREAMFRAC

SLEEVE

DESCRIPTION

The StreamFrac Sleeve is an unlimited-stage, interventionless, full-drift fracturing system designed for maximum efficiency and operational simplicity. Activation is achieved using a fully dissolvable frac-port dart, allowing for continuous pumping operations without the need for wireline or coiled tubing intervention.

Once the activation dart dissolves, the wellbore returns to a completely unrestricted flow path, ensuring full production access and eliminating the need for milling or cleanout operations. This design significantly reduces completion time while maintaining a clear bore for future operations such as logging, recompletions, or zone shutoff.

After dissolution of the activation plug, the sleeve can be selectively opened, closed, or locked in the open position using a modified “Otis B” profile shifting tool deployed on coiled tubing. This capability enables operators to isolate gas-bearing or water-bearing zones, or to reconfigure the well for future production optimization.

FEATURES

- Full-bore body design ensures unrestricted production flow
- Compatible with both cemented and open-hole completions
- Fully dissolvable activation dart eliminates post-frac intervention
- True interventionless operation – no wireline or coiled tubing required during fracturing
- Multi-open and close functionality for later well management
- Enables continuous pumping and longer laterals
- Provides optimal frac distribution across all stages
- No milling required – clean wellbore after stimulation
- Reduces overall completion time and operational complexity

Casing / Liner size in - [mm]	OD Sleeve in - [mm]	ID in - [mm]
4 - [101.6]	4.45 - [113]	3.35 - [85.1]
4.5 - [114.3]	5.35 - [135.89]	3.64 - [92.5]
5 - [127]	5.625 - [142.9]	4.125 - [104.8]
5.5 - [139.7]	6.5 - [165.1]	4.75 - [120.7]
5.75 - [146.1]	6.75 - [171.5]	4.875 - [123.8]



BALL DROP SLEEVE

DESCRIPTION

The Ball-Activated Frac Sleeve is a proven, field-tested solution for multi-stage hydraulic fracturing operations. Installed as part of the liner completion assembly, each sleeve is positioned at predetermined depths to enable precise stage isolation and controlled stimulation.

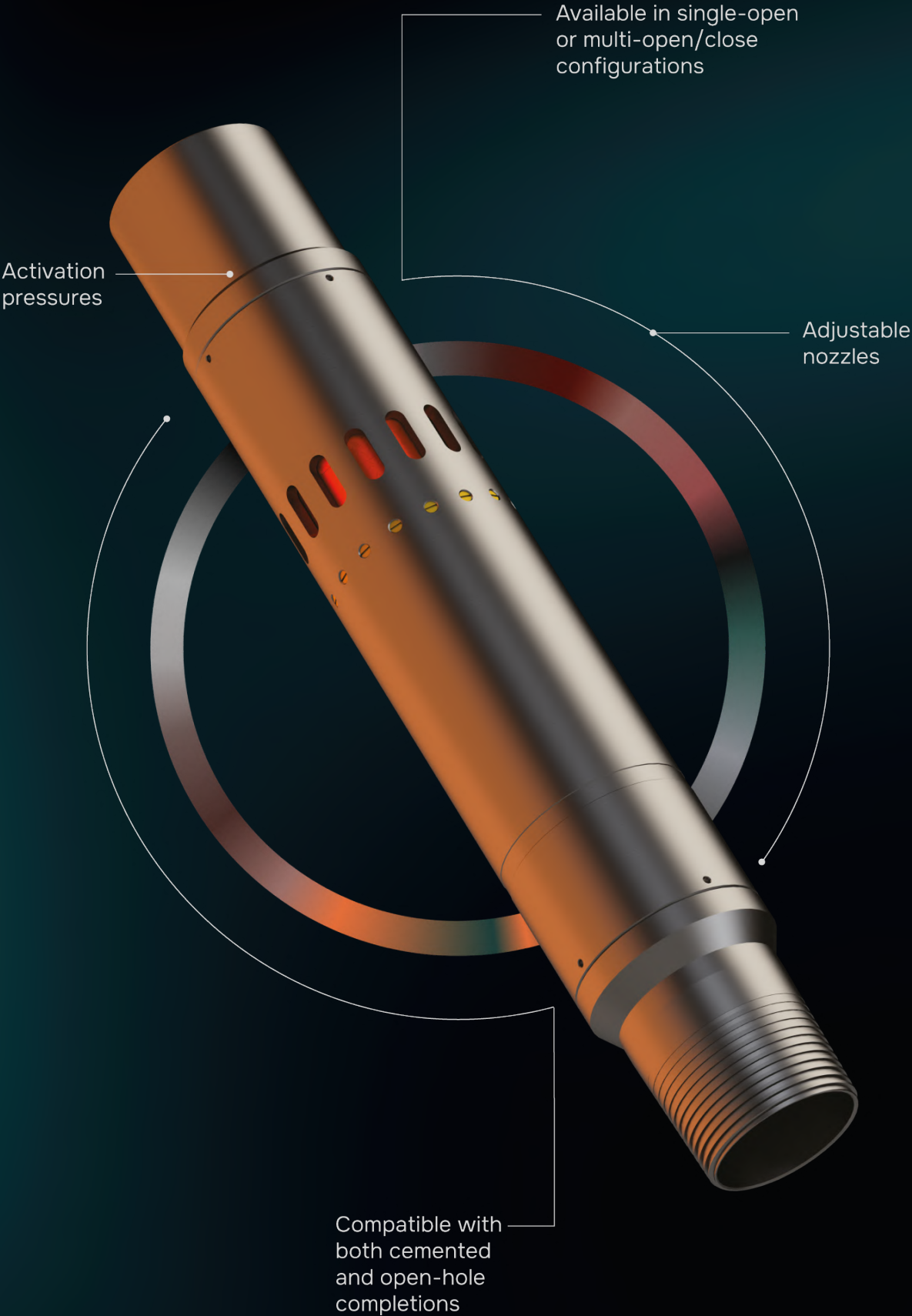
Activation is achieved through the sequential dropping of balls, which shift the sleeve into the open position. Once activated, a ratchet-lock mechanism securely holds the sleeve in place during pumping. The system is compatible with both cemented and open-hole completions, offering flexibility across a wide range of well designs.

After stimulation, the ball seats are milled out to restore the full-drift inner diameter, ensuring an unrestricted wellbore for production or future interventions. Sleeves can be configured for either single-open operation or multi-open/close functionality, with reclosable designs operated by a coiled-tubing-deployed shifting tool.

FEATURES

- Compatible with both cemented and open-hole completions
- Available in single-open or multi-open/close configurations
- Adjustable nozzles and activation pressures for tailored frac design
- Continuous pumping capability and support for extended laterals
- Optimized frac distribution and stimulation efficiency
- Reduced overall completion time and simplified operations

Casing / Liner size in - [mm]	OD Sleeve in - [mm]	ID in - [mm]
2,875 - [73]	3,75 - [95,3]	2,375 - [60,3]
3,5 - [88,9]	4 - [101,6]	2,875 - [73]
4 - [101,6]	4,5 - [114,3]	3,48 - [88,29]
4,5 - [114,3]	5,25 - [133,4]	3,85 - [97,8]
5 - [127]	5,75 - [146,1]	4,13 - [105,41]
5,5 - [139,7]	5,91 - [150,18]	4,88 - [123,83]
5,75 - [146,1]	6,75 - [171,5]	4,875 - [123,8]



DRAGON

FRAC SLEEVE

DESCRIPTION

The DRAGON Burst Sleeve is a revolutionary, field-proven stimulation sleeve designed for precision zone activation with minimal mechanical complexity. Engineered with no shear pins and very few moving parts, it delivers exceptional reliability and eliminates common failure modes associated with traditional burst sleeves.

Activation is achieved through the RAPTOR Straddle Packer System, which enables selective pressurization of the desired interval. Upon applying pressure, the sleeve’s ports open to allow stimulation fluids to be pumped directly into the targeted zone. Each sleeve is designed to open 100% of its ports, 100% of the time, ensuring maximum flow efficiency and complete zone coverage.

The system supports the installation of an unlimited number of sleeves within the production casing or liner string, making it ideal for multi-stage stimulation or refracturing operations. Its full-bore internal diameter ensures unrestricted production flow after stimulation and allows future well interventions without additional milling or cleanout.

FEATURES

- Opens 100% of the ports, 100% of the time
- Full-bore internal diameter for unrestricted flow
- Unlimited number of stages for extended laterals
- Suitable for refracturing and re-entry operations
- Adjustable activation pressure range to meet specific well conditions
- Unique sleeve design enables simultaneous activation of all membranes
- Available in all common casing sizes and specifications

Casing / Liner size in - [mm]	OD Sleeve in - [mm]	ID in - [mm]
4 - [101.6]	4.45 - [113]	3.35 - [85.1]
4.5 - [114.3]	5.25 - [133.4]	3.85 - [97.8]
5.5 - [139.7]	7 - [177.8]	4.75 - [120.7]
5.75 - [146.1]	7 - [177.8]	5 - [127]



HYDRAULIC TOE SLEEVE

DESCRIPTION

The Hydraulic Frac Sleeve is an integral component of the liner assembly for multi-stage hydraulic fracturing (MSHF), specifically designed to perform the first-stage frac operation. Installed above the ball seat, the sleeve is activated hydraulically by applying pressure after the ball is dropped and seated. Once the activation pressure is reached, the sleeve shifts, opening the frac ports and establishing direct communication with the formation.

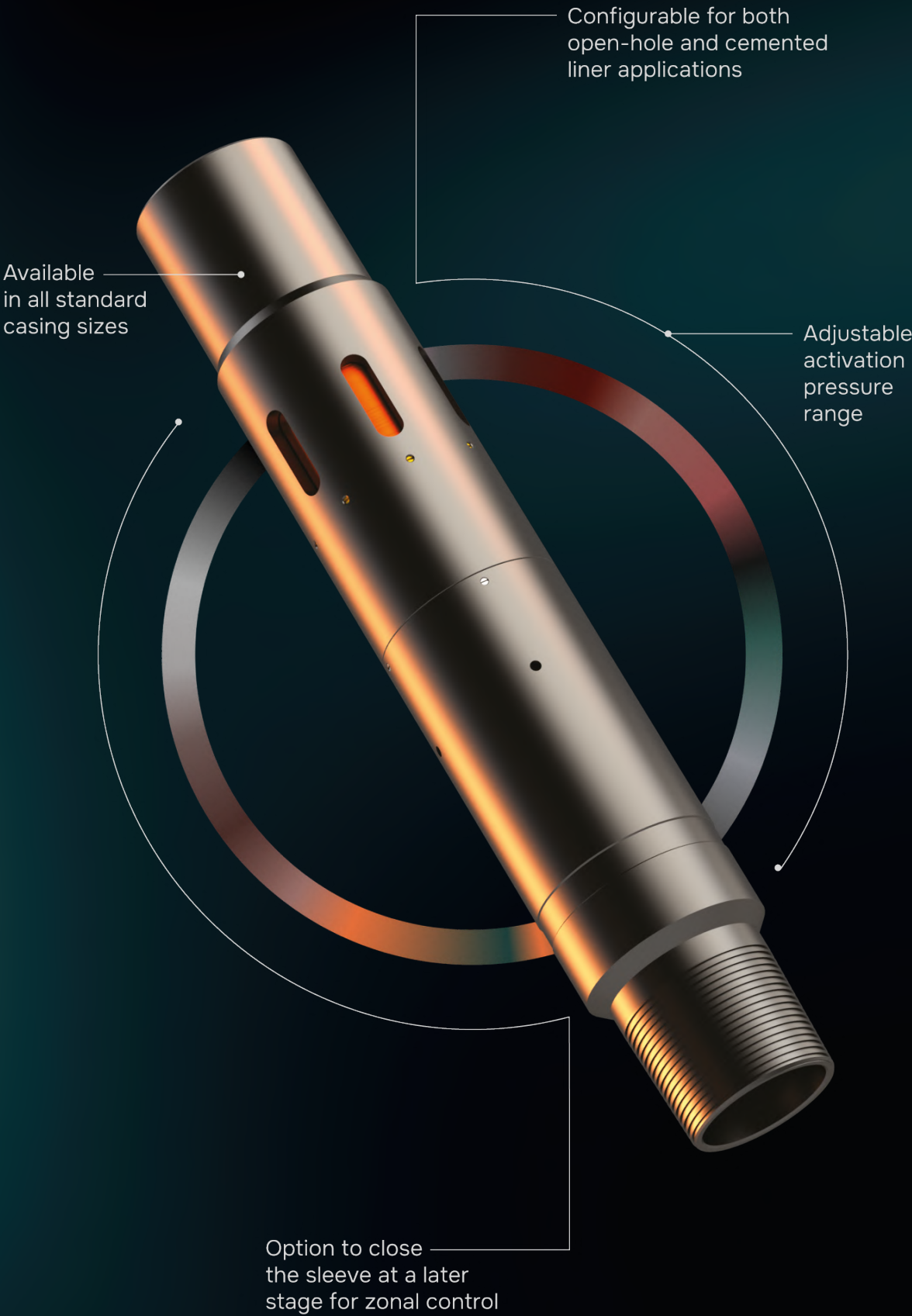
A reclosable configuration is available, allowing the sleeve to be closed after fracturing when zonal isolation or flow control is required. The design can also be modified for cemented liner applications, providing flexibility across various well conditions and completion types.

Engineered for reliability and precision, the Hydraulic Frac Sleeve provides a simple and efficient method for initiating stimulation, ensuring consistent first-stage performance in both open-hole and cemented completions.

FEATURES

- Option to close the sleeve at a later stage for zonal control
- Adjustable activation pressure range to meet specific well requirements
- Available in all standard casing sizes and specifications
- Configurable for both open-hole and cemented liner applications

Casing / Liner size in - [mm]	OD Sleeve in - [mm]	ID in - [mm]
2,875 - [73]	3.62 - [92]	2.28 - [58]
4 - [101.6]	4.75 - [120.65]	3.48 - [88.29]
4.5 - [114.3]	5.25 - [133.4]	3.85 - [97.8]
5 - [127]	5.56 - [141.3]	4.41 - [111.96]
5.5 - [139.7]	6.5 - [165.1]	4.75 - [120.7]
5.75 - [146.1]	6.75 - [171.5]	4.875 - [123.8]



OPEN HOLE PACKER

DESCRIPTION

The Hydromechanical Open Hole Packer is designed to provide reliable zonal isolation in horizontal open-hole completions where multi-stage hydraulic fracturing is planned. Installed as part of the liner assembly, these packers isolate productive zones and ensure controlled stimulation of each interval. The total number of packers in the liner string depends on the number of target zones specified in the completion design.

In addition to open-hole applications, the packers can be installed in cased-hole sections as casing packers, creating additional barriers to prevent gas migration and protect annular integrity. They are also suitable for use in combination with casing cementing operations, offering enhanced reliability and flexibility across a wide range of completion environments.

FEATURES

- Reliable backup elements for extended hole sizes
- High-pressure rated for demanding well conditions
- Available with a wide selection of elastomer types to suit various temperature and fluid environments



 SYMOIL			COMPLETION		OPEN HOLE PACKER	
Casing Size in - [mm]	Nominal Hole ID in - [mm]	Max Hole ID in - [mm]			Packer OD in - [mm]	Packer ID in - [mm]
4 - [101,6]	5 - [127]	5,25 - [133,4]			4,65 - [118,1]	3,45 - [87,6]
4,5 - [114,3]	4,75 - [120,7]	6 - [152,4]			5,35 - [135,9]	3,85 - [97,8]
4,5 - [114,3]	6 - [152,4]	6,5 - [165,1]			5,625 - [142,9]	3,95 - [100,3]
4,5 - [114,3]	6,125 - [155,6]	6,72 - [170,7]			5,75 - [146,1]	3,95 - [100,3]
5 - [127]	6,125 - [155,6]	6,33 - [160,8]			5,75 - [146,1]	4,25 - [108]
5,5 - [139,7]	7,5 - [190,5]	8,65 - [219,7]			7,35 - [186,7]	4,673 - [118,7]
5,5 - [139,7]	8,35 - [212,1]	9,75 - [247,7]			8 - [203,2]	4,673 - [118,7]
5,5 - [139,7]	8,5 - [215,9]	10,18 - [258,6]			8,25 - [209,6]	4,673 - [118,7]
6,625 - [168,3]	8,35 - [212,1]	9,125 - [231,8]			8,125 - [206,4]	5,675 - [144,1]
6,625 - [168,3]	8,5 - [215,9]	9,39 - [238,5]			8,25 - [209,6]	5,675 - [144,1]
7 - [177,8]	8,35 - [212,1]	8,91 - [226,3]			8,125 - [206,4]	6,25 - [158,8]
7 - [177,8]	8,5 - [215,9]	9,125 - [231,8]			8,25 - [209,6]	6,25 - [158,8]
9,625 - [244,5]	11,5 - [292,1]	12,15 - [308,6]			11,35 - [288,3]	8,6 - [218,4]
9,625 - [244,5]	12,5 - [317,5]	13,125 - [333,4]			12 - [304,8]	8,6 - [218,4]
44	SYMOIL PRODUCTS CATALOGUE					45

SPIDER

PACKER

DESCRIPTION

The Annular SPIDER Packer is designed to provide effective annular isolation within intermediate casing strings. Utilizing patented SPIDER technology, it combines a plastically deformable steel ring with an elastomer sealing element to create a robust and permanent barrier in the annular space. This dual-seal concept ensures long-term integrity, even under challenging well conditions.

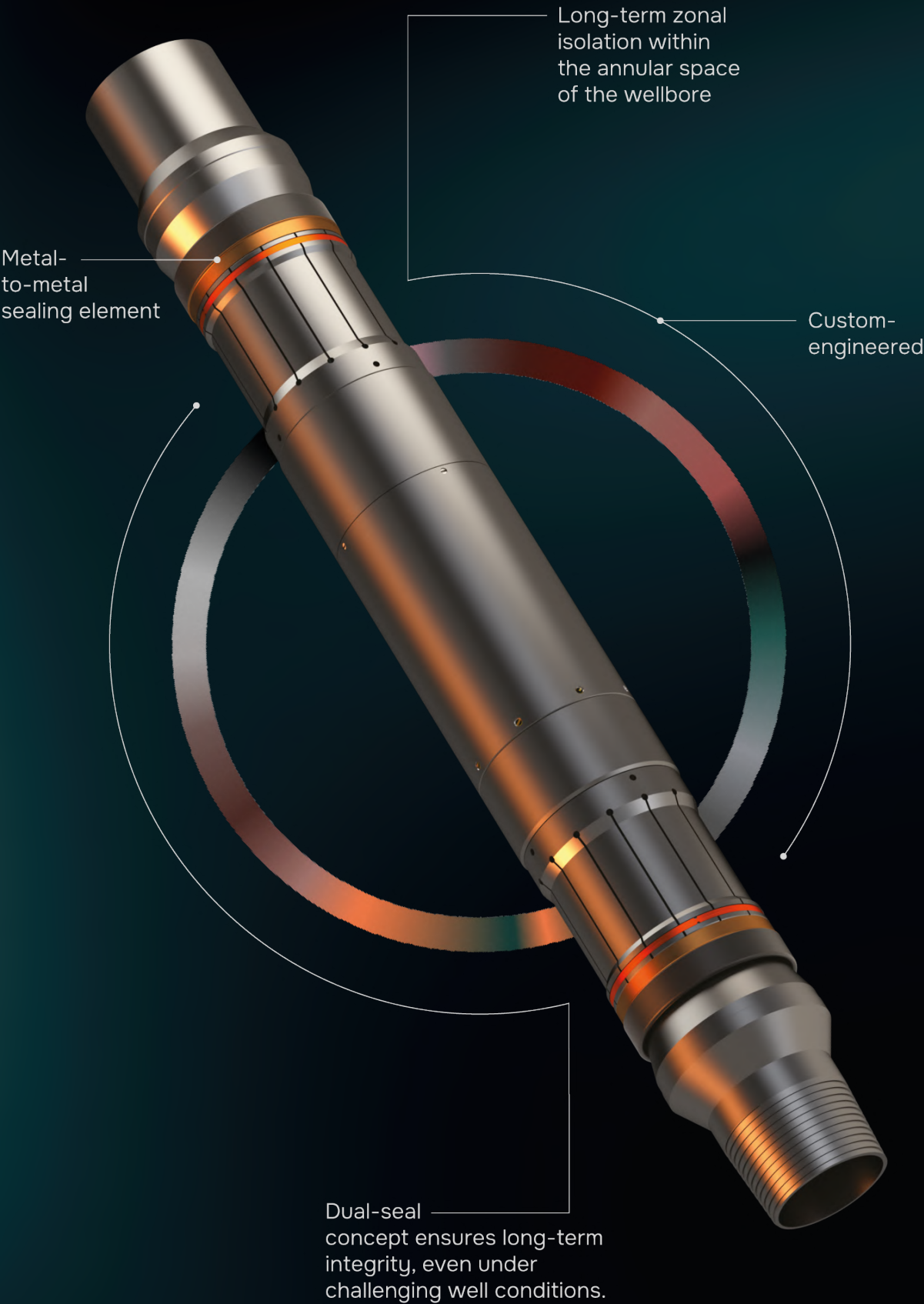
- The SPIDER Packer can be deployed in a variety of completion designs:
- As a primary barrier in non-cemented applications
 - To enhance cementing operations, improving annular integrity
 - As a secondary barrier to meet regulatory requirements for multiple annular seals
 - For long-term zonal isolation within the annular space of the wellbore

This flexible system provides durable metal-to-metal sealing performance while maintaining adaptability across a wide range of casing specifications and operational environments.

FEATURES

- Custom-engineered to meet specific well and casing requirements
- Metal-to-metal sealing element for permanent annular integrity

Casing Size in - [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Main Casing size in - [mm]	Packer OD/ID in - [mm]
6.625 - [168.3]	24 - 28	8.94 - 10.59	4.5 - [114.3]	5.5 - [139.7]/ 3.9 - [99.1]
7 - [177.8]	26 - 29	9.19 - 10.36	4.5 - [114.3]	5.875 - [149.2]/ 3.9 - [99.1]
9.625 - [244.5]	47 - 53.5	11.05 - 13.84	7 - [177.8]	8.25 - [209.6]/ 6.25 - [158.8]
13.375 - [339.7]	54.5 - 72	9.65 - 13.06	9.625 - [244.5]	12 - [304.8]/ 8.525 - [216.5]



FLOATING EQUIPMENT

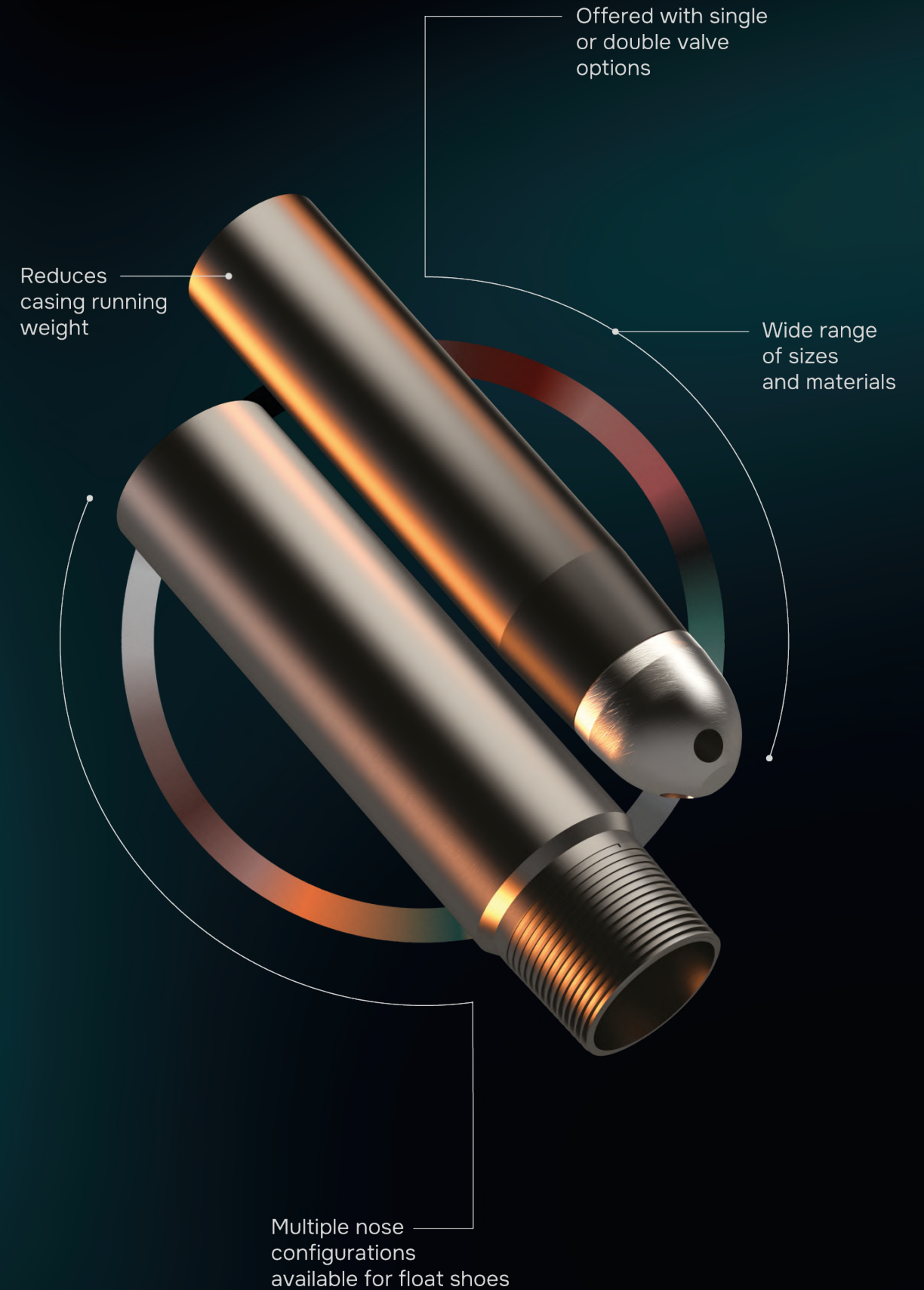
DESCRIPTION

Floating Equipment is an essential part of the casing string assembly, designed to enhance cementing efficiency and ensure reliable placement of cement in the annulus. A typical floating system consists of a Float Shoe and a Float Collar, each fitted with a one-way check valve that allows cement to flow downward through the casing while preventing backflow once pumping stops. This ensures that the cement remains in place, maintaining zonal isolation and improving well integrity.

By reducing hydrostatic pressure during casing deployment, Floating Equipment effectively lowers the running weight, helping the casing reach total depth more easily and reducing the risk of differential sticking. The system is available in a wide range of sizes, materials, and pressure ratings, making it compatible with various casing designs and well conditions.

FEATURES

- Ensures reliable cement placement by preventing backflow
- Reduces casing running weight for easier deployment with the floating method
- Improves cementing quality in challenging wellbore environments
- Available in a wide range of sizes, materials, and configurations
- Offered with single or double valve options
- Multiple nose configurations available for float shoes



CENTRALISER

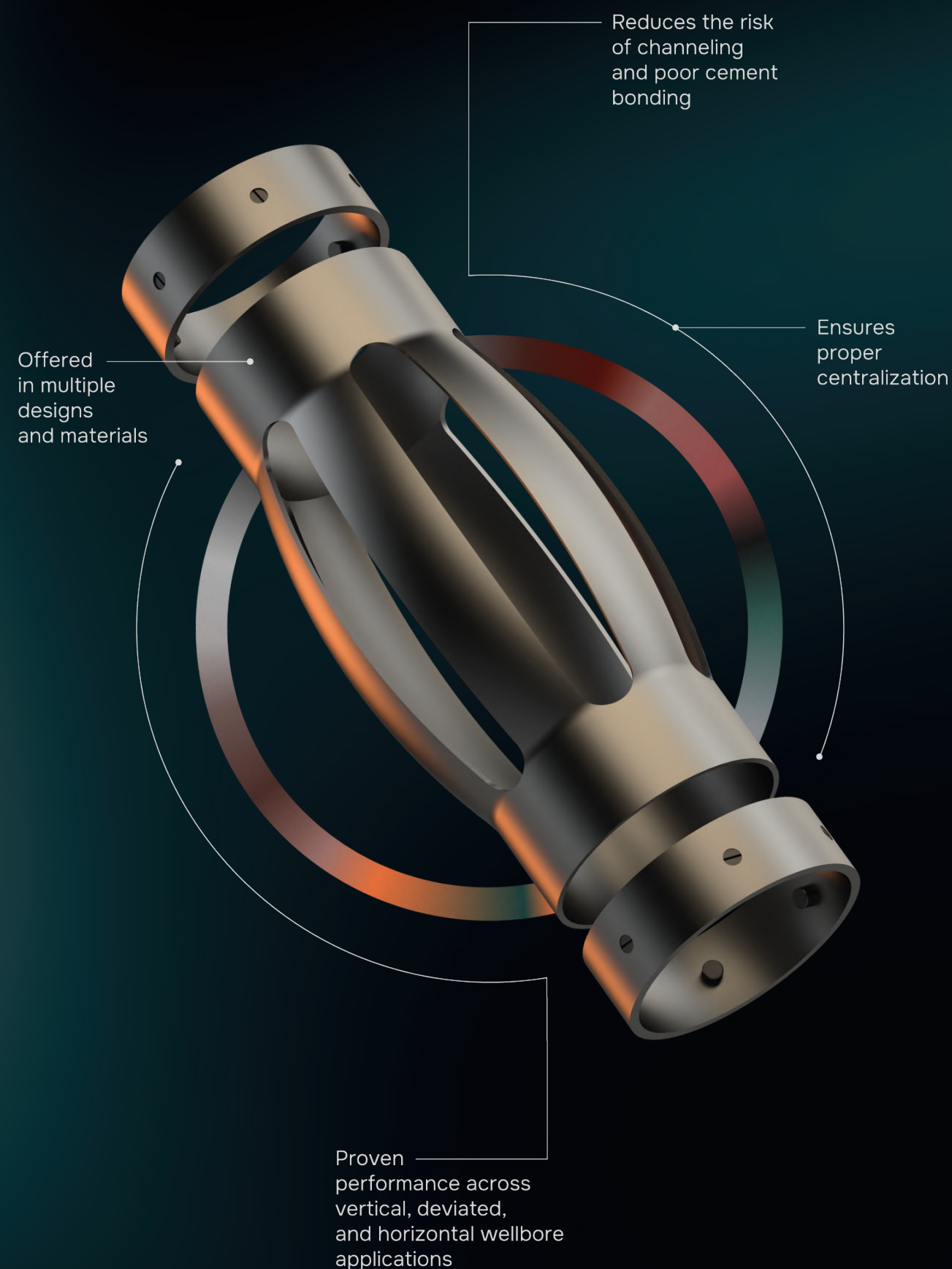
DESCRIPTION

Centralizers are critical components in casing and liner installations, designed to maintain the casing in a central position within the wellbore during running and cementing operations. Proper centralization ensures a uniform cement sheath around the casing, which enhances zonal isolation, well integrity, and long-term cement bonding.

Centralizers are available in a variety of designs and materials, including bow-spring, rigid, and hinged models, each optimized for specific wellbore conditions and casing specifications. Their durable construction and high restoring force deliver reliable performance in vertical, deviated, and horizontal wells, ensuring consistent cement placement even in challenging formations.

FEATURES

- Ensures proper centralization for improved cement placement and zonal isolation
- Reduces the risk of channeling and poor cement bonding
- Offered in multiple designs and materials to suit well conditions and casing sizes
- Proven performance across vertical, deviated, and horizontal wellbore applications



STAGE CEMENTING COLLAR

DESCRIPTION

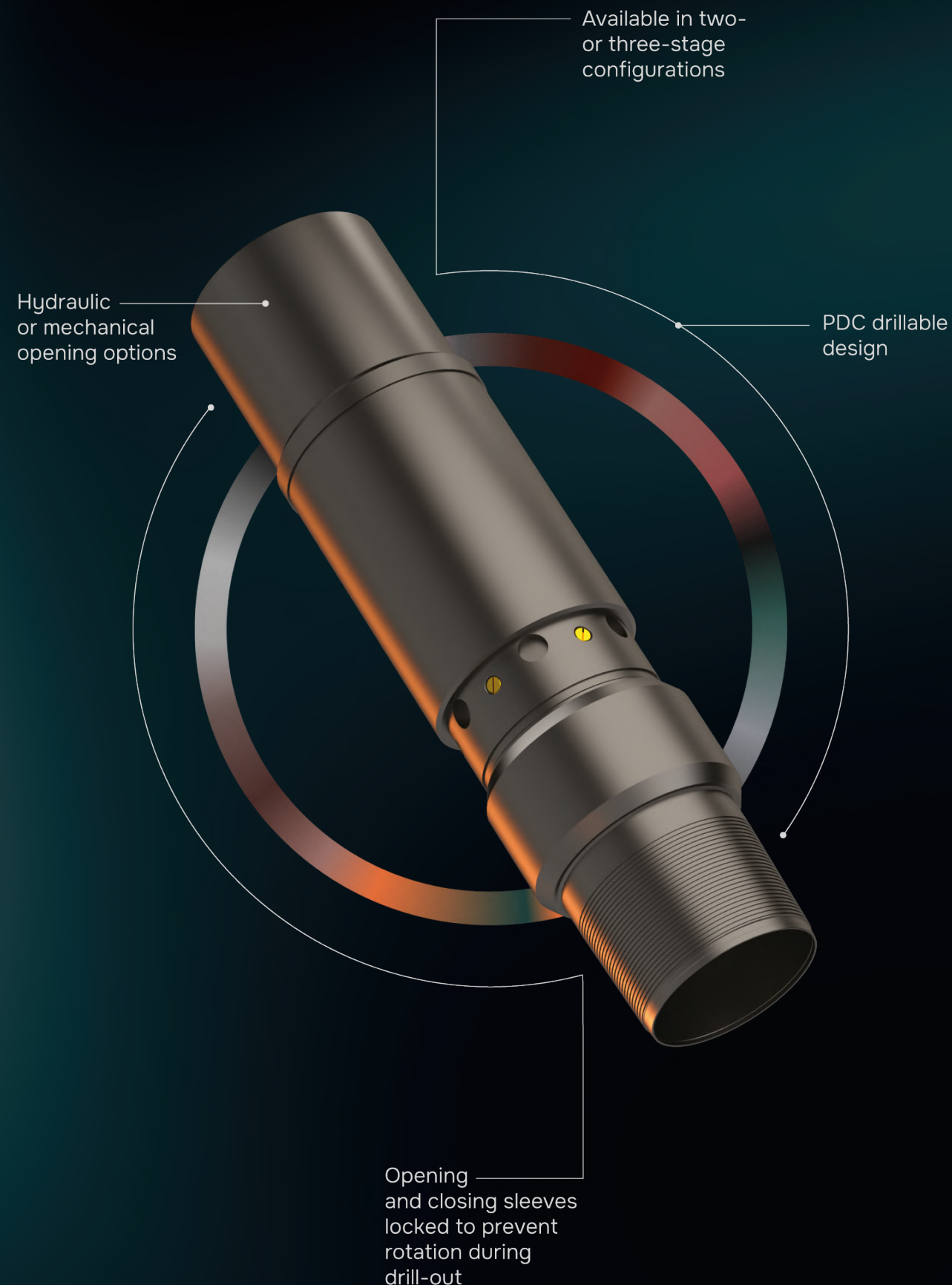
The Stage Cementing Collar is a specialized downhole tool designed to enable multi-stage cementing operations, ensuring precise zonal isolation and improved cement placement in challenging well conditions. Installed as part of the casing string, it allows operators to pump cement in controlled stages, targeting specific intervals of the wellbore for enhanced coverage and bonding.

With a robust and field-proven design, the Stage Cementing Collar delivers reliable performance under high-pressure conditions while maintaining operational simplicity. The hydraulic or mechanical activation system minimizes risk during cementing and ensures dependable opening and closing functionality. By allowing accurate placement of cement only where needed, the collar reduces cement volumes, shortens pumping time, and improves overall cement integrity.

Ideal for both primary and remedial cementing, the Stage Cementing Collar is available in multiple configurations, sizes, and pressure ratings to suit a wide range of casing programs and well designs.

FEATURES

- Field-adjustable shear values for controlled operation
- Available in two- or three-stage configurations
- PDC drillable design for faster and easier drill-out
- Hydraulic or mechanical opening options
- Opening and closing sleeves locked to prevent rotation during drill-out
- Latch ring mechanism securely locks both sleeves in the closed position



 COMPLETION			STAGE CEMENTING COLLAR			
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Stage Body OD in - [mm]	Max Drill Out ID in - [mm]	Opening Seat ID in - [mm]	Closing Seat ID in - [mm]
4 - [101.6]	9.5 - 11.6	5.74 - 6.9	5.25 - [133.4]	2.78 - [70.6]	2 - [50.8]	2.5 - [63.5]
4.5 - [114.3]	11.6 - 15.1	6.35 - 8.56	5.75 - [146.1]	3.805 - [96.6]	2.625 - [66.7]	3 - [76.2]
5 - [127]	15 - 18	7.52 - 9.19	6.25 - [158.8]	4.293 - [109]	2.875 - [73]	3.25 - [82.6]
5.5 - [139.7]	17 - 20	7.72 - 9.17	6.625 - [168.3]	4.835 - [122.8]	3.625 - [92.1]	4 - [101.6]
5.75 - [146.1]	19.5 - 21.8	8.51 - 9.53	7 - [177.8]	5.09 - [129.3]	3.625 - [92.1]	4 - [101.6]
6.625 - [168.3]	20 - 24	7.32 - 8.94	8 - [203.2]	5.934 - [150.7]	4.375 - [111.1]	5 - [127]
7 - [177.8]	17 - 26	5.87 - 9.19	8.25 - [20955]	6.351 - [161.3]	4.625 - [117.5]	5.25 - [133.4]
7.625 - [193.7]	33.7 - 39	10.92 - 12.7	9 - [228.6]	6.76 - [171.7]	4.625 - [117.5]	5.25 - [133.4]
9.625 - [244.5]	43.5 - 53.5	11.05 - 13.84	11.125 - [282.6]	8.689 - [220.7]	6.75 - [171.5]	7.76 - [197.1]
10.75 - [273.1]	45.5 - 55.5	10.16 - 12.57	12.25 - [311.2]	9.875 - [250.8]	8 - [203.2]	8.76 - [222.5]
11.75 - [298.5]	54 - 65	11.05 - 13.56	13.63 - [346.2]	10.75 - [273.1]	9 - [228.6]	9.75 - [247.7]
13.375 - [339.7]	61 - 72	10.92 - 13.06	15 - [381]	12.375 - [314.3]	10.5 - [266.7]	11.25 - [285.8]
54	SYMOIL PRODUCTS CATALOGUE		55			

SUB SURFACE SAFETY VALVE

DESCRIPTION

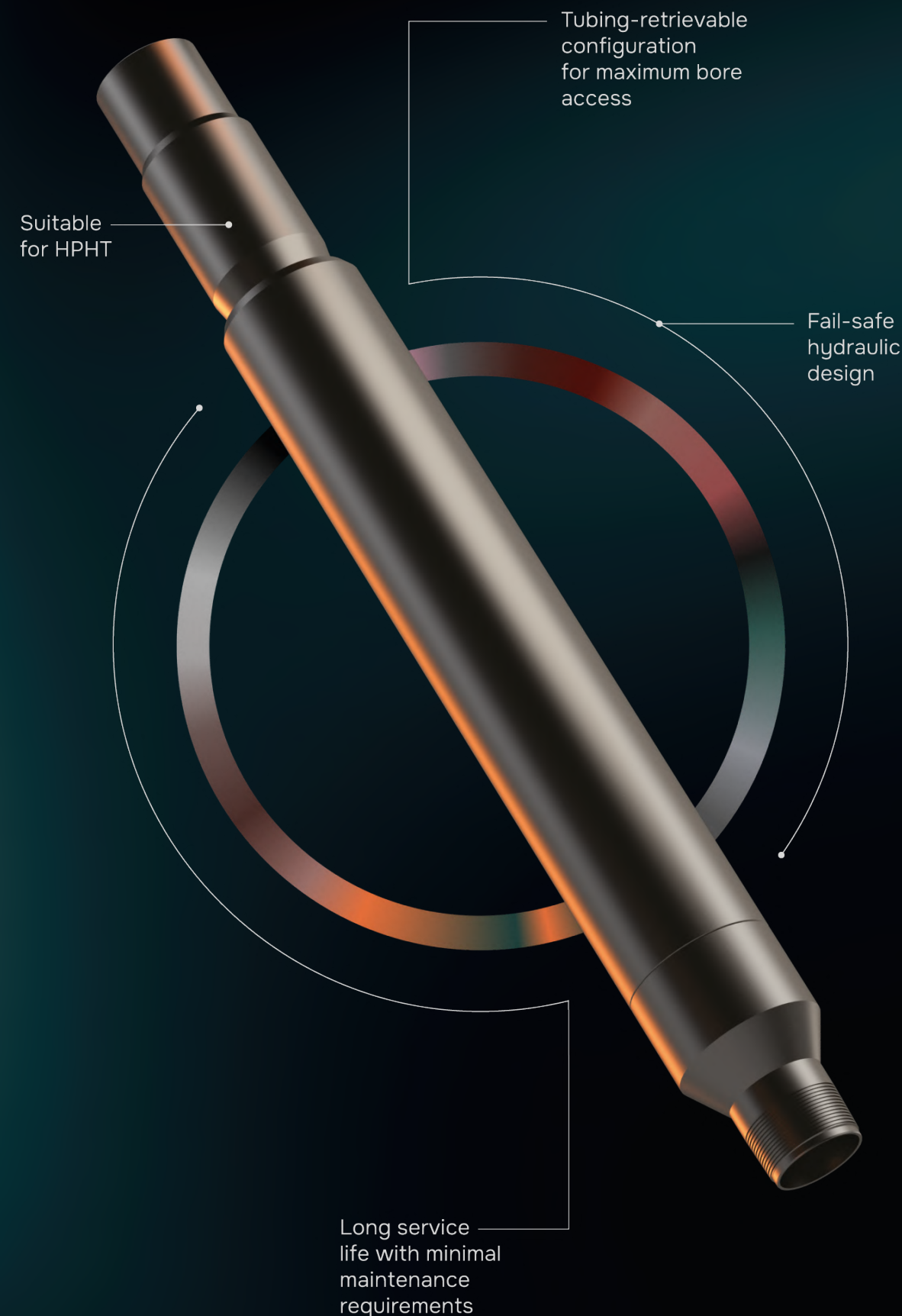
The Tubing Retrievable Subsurface Safety Valve (TRSSSV) is a critical downhole safety device designed to provide an automatic, fail-safe well shut-in mechanism. Installed as part of the production tubing string, it serves as the primary barrier against uncontrolled flow from the well in the event of an emergency.

The valve is hydraulically operated from the surface, closing automatically upon loss of hydraulic control line pressure or other failure conditions. This ensures reliable protection of personnel, equipment, and the environment.

Engineered for high-pressure, high-temperature (HPHT) and sour service applications, the TRSSSV offers maximum bore access and long-term performance reliability. Its tubing-retrievable design allows the valve to be re-armed and returned to service using dedicated intervention tools and accessories, without the need to pull the tubing – minimizing downtime and operational costs.

FEATURES

- Fail-safe hydraulic design for enhanced well control and safety
- Tubing-retrievable configuration for maximum bore access
- Reliable hydraulic surface control operation
- Suitable for HPHT and sour service environments
- Long service life with minimal maintenance requirements



 SYMOIL			COMPLETION		SUB SURFACE SAVETY VALVE	
Tubing Size in - [mm]	Valve OD in - [mm]	Interal Packing Bore ID in - [mm]			Material Strength Group Ksi - [MPa]	Pressure Rating Psi - [Bar]
2,375 - [60,3]	3,7 - [94]	1,875 - [47,6]			80 - [552] 110 - [758]	5000 - [345] 10000 - [689]
2,875 - [73]	4,65 - [118,11]	2,312 - [58,7]			80 - [552] 110 - [758]	5000 - [345] 10000 - [689]
3,5 - [88,9]	5,2 - [132,1]	2,812 - [71,4] 2,562 - [65,1]			80 - [552]	5000 - [345]
		2,812 - [71,4] 2,562 - [65,1]			110 - [758]	10000 - [689]
4,5 - [114,3]	7,35 - [186,7]	3,812 - [96,8] 3,688 - [93,7]			80 - [552]	5000 - [345]
		3,812 - [96,8] 3,688 - [93,7]			110 - [758]	10000 - [689]
5,5 - [139,7]	7,7 - [195,6]	4,562 - [115,9]			80 - [552] 110 - [758]	5000 - [345]
7 - [177,8]	9,4 - [238,76]	5,963 - [151,5]			80 - [552] 110 - [758]	5000 - [345]
9,625 - [244,5]	12,02 - [305,3]	8,437 - [214,3]			80 - [552] 110 - [758]	3000 - [207]
58	SYMOIL PRODUCTS CATALOGUE					59

SLIDING SLEEVE

DESCRIPTION

The Sliding Side Door (SSD) is a mechanically operated downhole flow control device installed in the tubing string to provide selective communication between the tubing and annulus. It is shifted open or closed using a standard shifting tool on slickline, wireline, or coiled tubing, allowing precise control of flow paths without removing the tubing string.

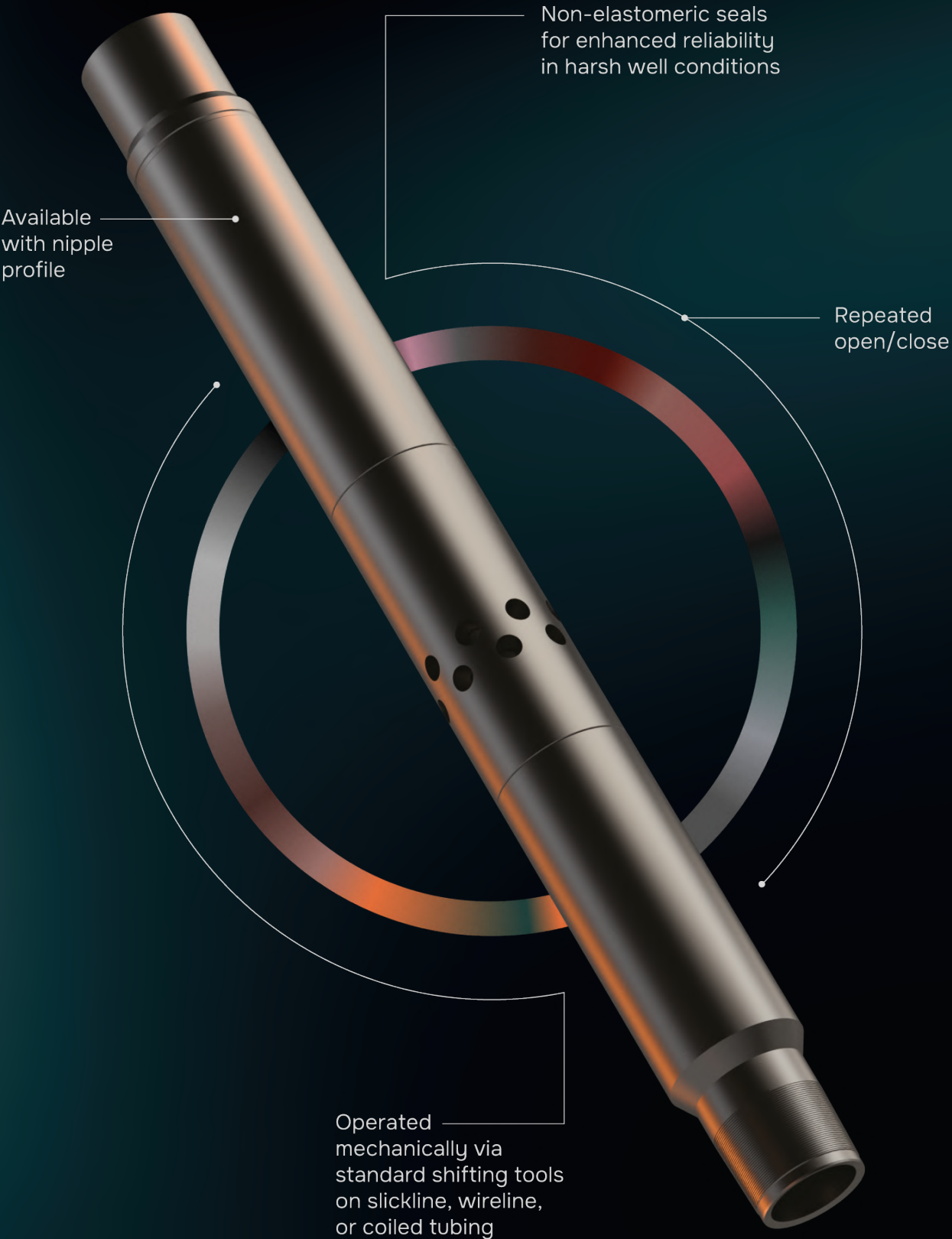
The SSD is available in two configurations—shift-up-to-open and shift-down-to-open—to suit various completion designs and operational preferences. It is commonly used for controlled fluid injection, production testing, or zonal isolation, offering operational flexibility throughout the life of the well.

The non-elastomeric sealing system provides smooth, repeatable sleeve shifting and exceptional long-term reliability in high-pressure, high-temperature (HPHT) and corrosive environments. In addition, the SSD can be supplied with an integrated nipple profile for landing flow control devices and accessories.

FEATURES

- Provides controlled communication between tubing and annulus
- Operated mechanically via standard shifting tools on slickline, wireline, or coiled tubing
- Repeated open/close functionality for maximum operational flexibility
- Ideal for injection, production control, or zonal isolation
- Non-elastomeric seals for enhanced reliability in harsh well conditions
- Available with nipple profile for flow control equipment landing

Tubing Size in - [mm]	Tubing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Tubing ID in - [mm]	Seal Bore in - [mm]
2,375 - [60,3]	4,6 - 4,7	4,8	1,995 - [50,7]	1,875 - [47,6]
2,875 - [73]	6,4 - 6,6	5,5	2,441 - [62]	2,312 - [58,7]
3,5 - [88,9]	9.2 - 10.3	6.5 - 7.3	2,992 - [76]	2,56 - [65,02] 2,812 - [71,4] 2,75 - [69,9]
4 - [101,6]	10,9 - 11	6,7	3,476 - [88,3]	3,312 - [84,1]
4,5 - [114,3]	12,6 - 15,2	6.9 - 8.55	3,958 - [100,5] 3,826 - [97,2]	3,437 - [87,3] 3,688 - [93,68] 3,812 - [96,8]



LANDING NIPPLE

DESCRIPTION

The Landing Nipple is a critical completion component installed in the tubing string to provide a precise internal profile for setting, locking, and sealing a wide range of downhole flow-control devices, such as plugs, valves, and gauges. The precision-machined profile ensures accurate positioning and a reliable seal, enabling effective control of production, testing, or zonal isolation without pulling the tubing.

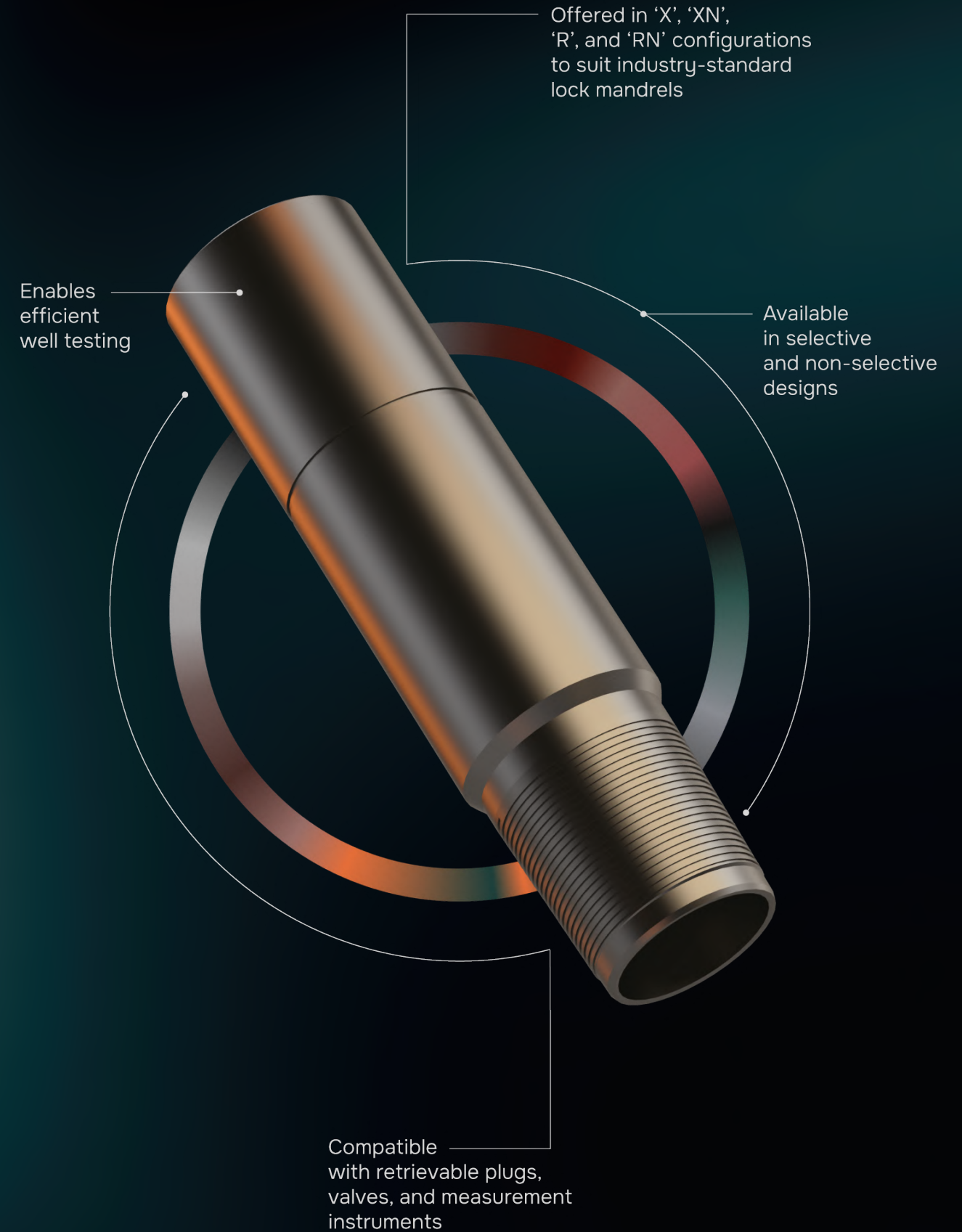
Landing nipples are strategically placed along the tubing string at intervals where intervention or flow control may be required, giving operators maximum flexibility throughout the life of the well. Symoil offers multiple configurations, including:

- 'X' Landing Nipples, featuring a universal internal profile compatible with standard 'X' Lock Mandrels. Multiple selective nipples of the same ID can be installed in sequence, allowing unlimited setting positions for subsurface flow controls
- 'XN' No-Go Landing Nipples, which provide a fixed positive landing point for precise tool placement
- 'R' and 'RN' Landing Nipples, compatible with standard 'R'-type locking equipment

Each design supports a variety of flow-control and measurement devices that can be deployed and retrieved using slickline or wireline tools.

FEATURES

- Provides a precise, secure setting profile for downhole tools
- Compatible with retrievable plugs, valves, and measurement instruments
- Enables efficient well testing, zonal isolation, and production control
- Available in selective and non-selective designs for operational flexibility
- Offered in 'X', 'XN', 'R', and 'RN' configurations to suit industry-standard lock mandrels



 COMPLETION			LANDING NIPPLE		
Tubing Size in - [mm]	Tubing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Tubing ID in - [mm]	X Profile Packing Bore in - [mm]	XN Profile No-Go ID in - [mm]
1,66 - [42,2]	2,3 - 2,4	3,6	1,38 - [35,1]	1,25 - [31,8]	1,135 - [28,8]
1,9 - [48,3]	2,4	3,2	1,66 - [42,2]	1,5 - [38,1]	1,448 - [36,8]
1,9 - [48,3]	2,76 - 2,9	3,7	1,61 - [40,9]	1,5 - [38,1]	1,448 - [36,8]
2,063 - [52,4]	3,25	4	1,751 - [44,5]	1,625 - [41,3]	1,536 - [39]
2,375 - [60,3]	4,6 - 4,7	4,8	1,995 - [50,7]	1,875 - [47,6]	1,791 - [45,5]
2,875 - [73]	6,4 - 6,5	5,5	2,441 - [62]	1,875 - [47,6]	1,791 - [45,5]
3,5 - [88,9]	9.3 - 10.2	6.5 - 7.3	2,992 - [76]	2,56 - [65,02] 2,812 - [71,4] 2,75 - [69,9]	2,666 - [67,7] 2,635 - [66,9]
4 - [101,6]	11	6,7	3,476 - [88,3]	3,313 - [84,2]	3,135 - [79,6]
4,5 - [114,3]	12,6 - 15.2	6.9 - 8.55	3,958 - [100,5] 3,826 - [97,2]	3,437 - [87,3] 3,688 - [93,68] 3,812 - [96,8]	3,725 - [94,6]
5 - [127]	13	6,4	4,494 - [114,1]	4,313 - [109,6]	3,987 - [101,3]
5,5 - [139,7]	17 - 23	7.7 - 10.54	4,892 - [124,3]	4,125 - [104,78] 4,313 - [109,6] 4,562 - [115,9]	4,455 - [113,2]

LOCK MANDREL

DESCRIPTION

The Lock Mandrel is a downhole anchoring and sealing device designed to be installed inside a Landing Nipple to secure and seal various subsurface flow-control tools, such as plugs, safety valves, and other flow-control devices. It provides a mechanical lock and pressure-tight seal, ensuring precise positioning and dependable operation of the attached equipment.

Lock mandrels are retrievable tools that can be installed or removed using wireline or coiled tubing, allowing for fast and efficient well intervention without the need to pull the tubing. Their robust design and high-pressure capability make them ideal for use in HPHT wells and critical flow-control applications, supporting a wide range of production, testing, and zonal isolation operations.

FEATURES

- Provides a secure locking and sealing mechanism within the landing nipple
- Enables installation of retrievable plugs, safety valves, and flow-control devices
- Suitable for high-pressure, high-temperature, and sour service applications
- Simple installation and retrieval via wireline or coiled tubing
- Enhances operational flexibility for well testing, production control, and zonal isolation



 SYMOIL			LOCK MANDREL	
COMPLETION				
Tubing Size in - [mm]	Tubing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Tubing ID in - [mm]	Lock Mandrel ID in - [mm]
1,66 - [42,2]	2,3 - 2,4	3,6	1,38 - [35,1]	0,62 - [15,7]
1,9 - [48,3]	2,4	3,2	1,66 - [42,2]	0,75 - [19,1]
1,9 - [48,3]	2,76 - 2,9	3,7	1,61 - [40,9]	0,75 - [19,1]
2,063 - [52,4]	3,25	4	1,751 - [44,5]	0,75 - [19,1]
2,375 - [60,3]	4,6 - 4,7	4,8	1,995 - [50,7]	1 - [25,4]
2,875 - [73]	6,4 - 6,5	5,5	2,441 - [62]	1,38 - [35,1]
3,5 - [88,9]	9.3 - 10.2	6.5 - 7.3	2,992 - [76]	1,75 - [44,5]
4 - [101,6]	11	6,7	3,476 - [88,3]	2,12 - [53,8]
4,5 - [114,3]	12,6 - 15.2	6.9 - 8.55	3,958 - [100,5] 3,826 - [97,2]	2,62 - [66,5]
5 - [127]	13	6,4	4,494 - [114,1]	2,62 - [66,5]
5,5 - [139,7]	17 - 23	7.7 - 10.54	4,892 - [124,3]	3,12 - [79,2]
68	SYMOIL PRODUCTS CATALOGUE			69

EXPANSION JOINT

DESCRIPTION

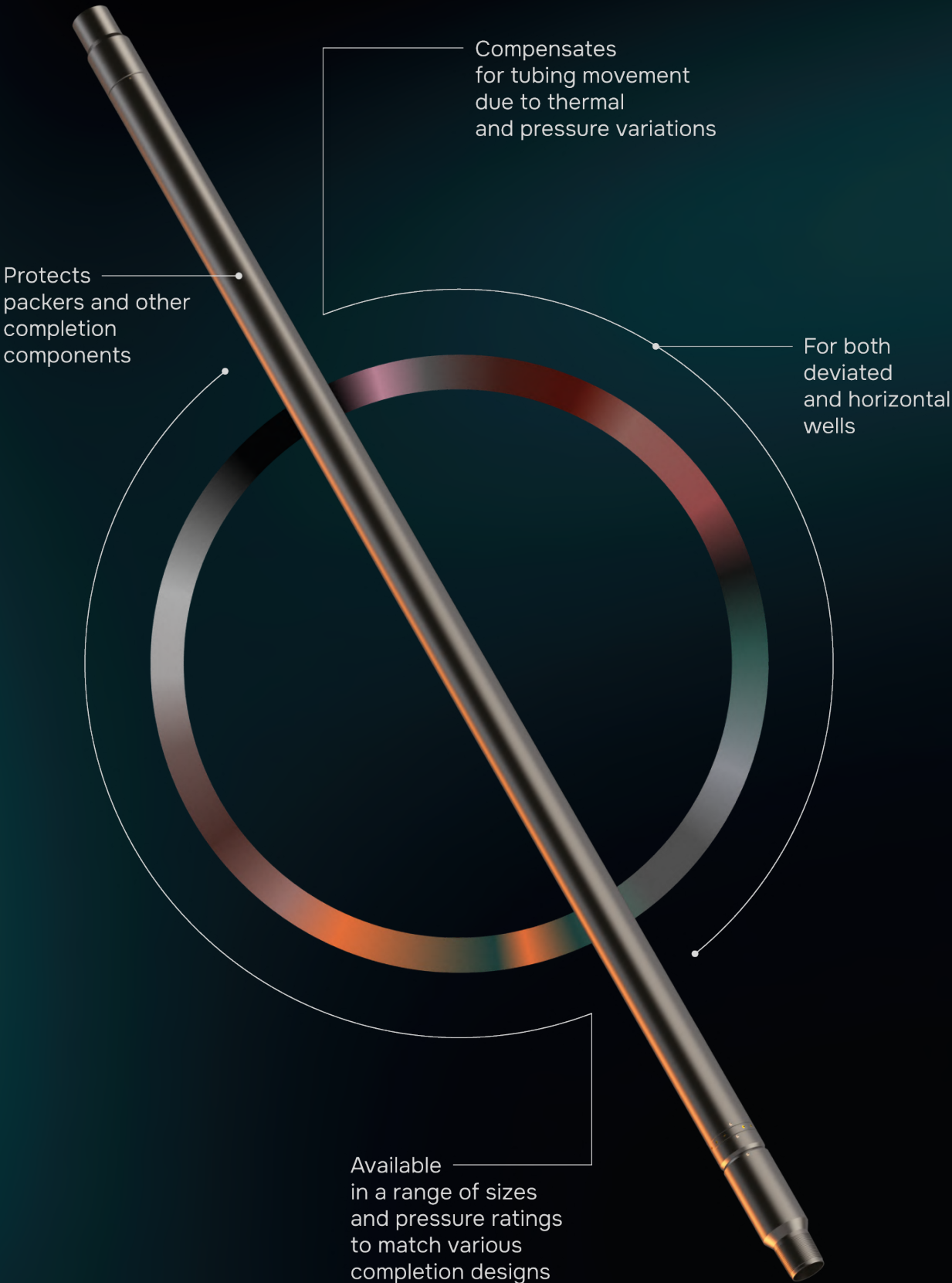
The Expansion Joint is a downhole completion component installed in the tubing string to absorb axial movement caused by thermal expansion, contraction, or pressure fluctuations within the wellbore. By compensating for these dimensional changes, it prevents the transfer of excessive stress to the tubing and packer system, protecting against mechanical damage and fatigue.

Expansion joints are particularly beneficial in high-temperature, high-pressure (HPHT) wells or long-string completions, where significant tubing movement is expected during production, injection, or well shut-in cycles. Their robust design ensures reliable operation and long-term integrity under dynamic downhole conditions.

FEATURES

- Compensates for tubing movement due to thermal and pressure variations
- Protects packers and other completion components from excessive axial loads
- Increases reliability and service life of the tubing string
- Suitable for both deviated and horizontal wells
- Available in a range of sizes and pressure ratings to match various completion designs

Tubing Size in - [mm]	Max OD in - [mm]	Min ID in - [mm]	Pressure Rating Psi - [Bar]
2,375 - [60,3]	3 - [76,2]	1,995 - [50,67]	10000 - [689]
2,875 - [73]	3,5 - [88,9]	2,441 - [62]	10000 - [689]
3,5 - [88,9]	4,25 - [108]	2,992 - [76]	10000 - [689]
4,5 - [114,3]	5,25 - [133]	3,92 - [99,6]	10000 - [689]
5 - [127]	5,75 - [146]	4,276 - [108,6]	10000 - [689]
5,5 - [139,7]	6,25 - [159]	4,892 - [124,3]	5000 - [345]
7 - [177,8]	7,75 - [197]	6,276 - [159,4]	5000 - [345]



STORM CHOKE

DESCRIPTION

The Storm Choke is a subsurface safety valve designed to automatically shut off well production in the event of uncontrolled flow or surface equipment failure. Installed in the tubing string, it operates as a velocity-sensitive valve that closes when the flow rate exceeds a preset limit, preventing uncontrolled production and protecting surface facilities from potential damage.

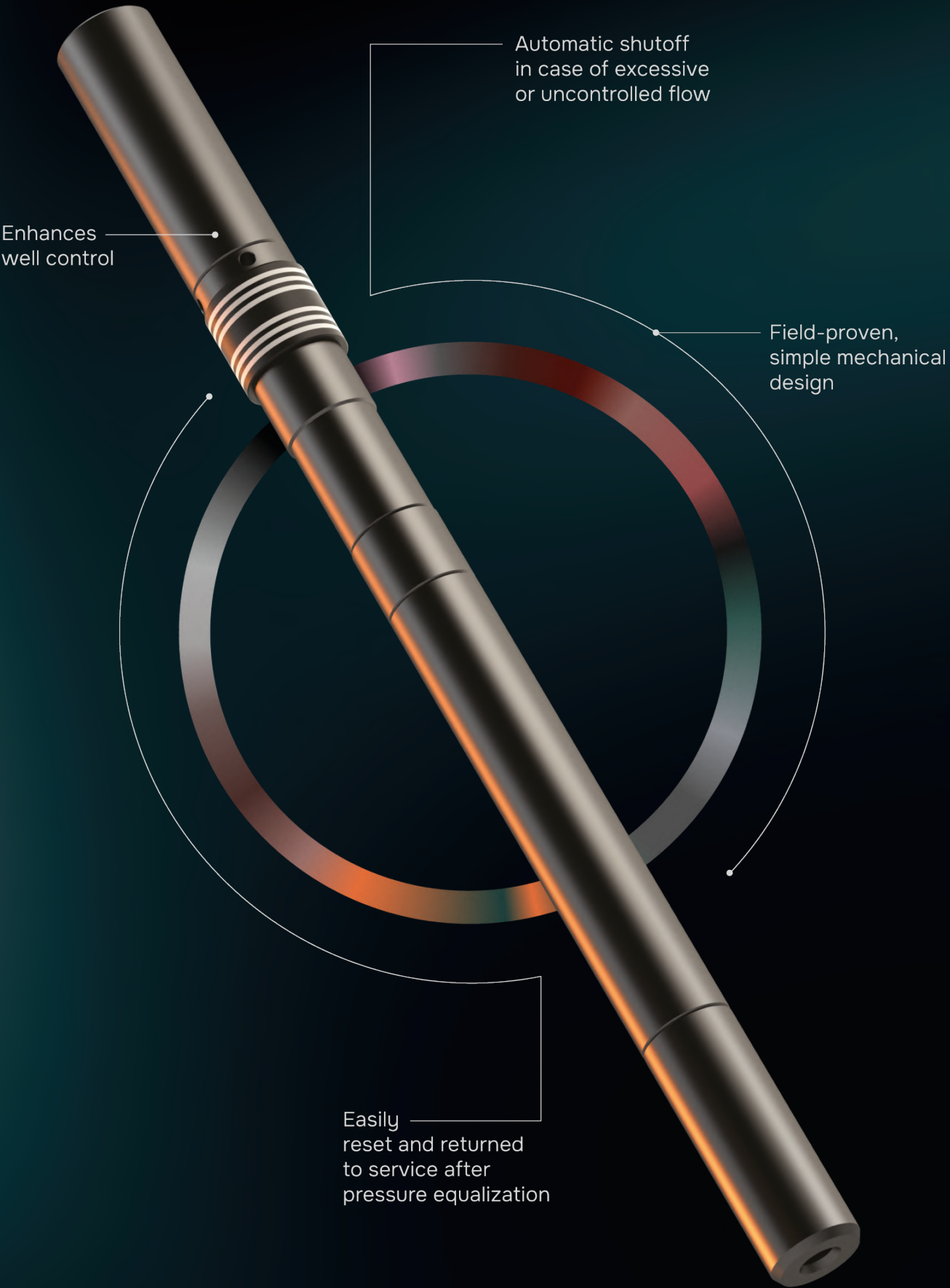
During normal operation, a calibrated spring mechanism holds the valve open until the flow rate – and thus the pressure differential across the choke – exceeds the predetermined threshold. If this limit is reached, the valve automatically closes, shutting in the well and ensuring immediate flow control.

Once well conditions are stabilized, the valve can be reset and reopened. Equalization can be achieved either by applying pressure from the surface or by running a prong tool to equalize from below. Upon equalization, the spring mechanism reopens the valve, restoring normal production flow.

FEATURES

- Automatic shutoff in case of excessive or uncontrolled flow
- Enhances well control and protects surface facilities from overpressure events
- Field-proven, simple mechanical design for reliable operation
- Compatible with ball-type or poppet-type valve configurations
- Easily reset and returned to service after pressure equalization

Nominal Size in - [mm]	Compatible Lock Mandrel	Max OD in - [mm]	Min ID in - [mm]	Top Thread
1 1/2 - [38,1]	1,500 X	1,463 - [37,16]	0,78 - [19,71]	1 1/8 - 16 UN
2 - [50,8]	1.875 X	1.750 - [44.45]	0.970 - [24.64]	1 3/8-14 UN
2 1/2 - [63,5]	2.313 X	2.160 - [54.86]	1.380 - [32.51]	1 3/4-12 UN
3 1/2 - [88.9]	2.750 X	2,5 - [63,5]	1.620 - [41.15]	2 1/4-12 SLB
4 1/2 - [114.3]	3.813 X	3,5 - [88.9]	2.41 - [61.21]	3 1/4-12.5 SLB
5 - [127]	4.125 X	3.880 - [98.55]	2.41 - [61.21]	3 1/4-12.5 SLB
5,5 - [139,7]	4.562 X	4.440 - [112.78]	2.880 - [73.15]	4-12 SLB
7 - [177,8]	5.750 X	5.400 - [137.16]	3.50 - [88.9]	4 15/16-8 SLB



FLOW COUPLING

DESCRIPTION

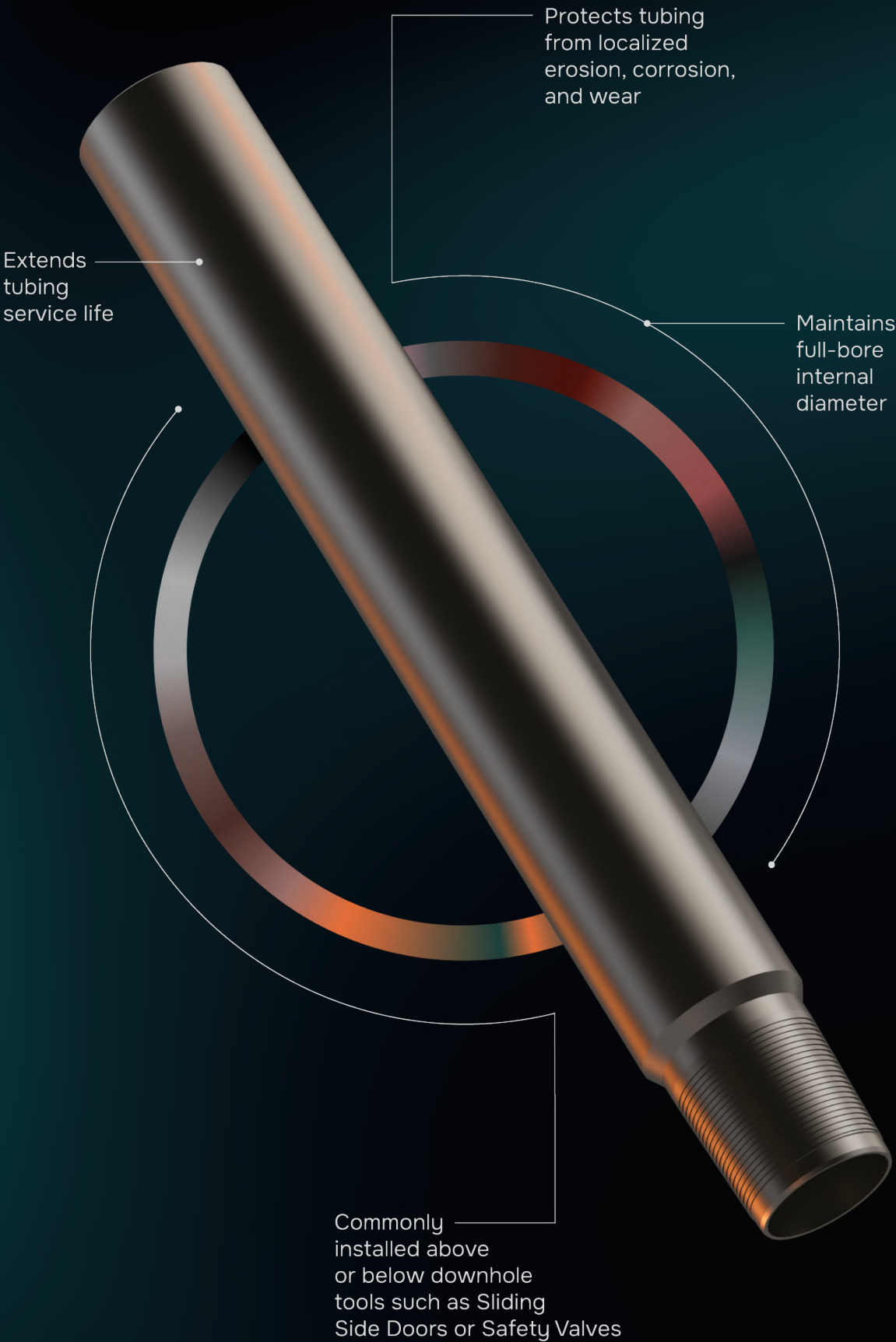
The Flow Coupling is a short, heavy-walled section of tubing designed to protect critical areas of the production string from erosion, corrosion, and mechanical wear caused by high-velocity flow, sand production, or gas cutting. By reinforcing specific zones of the completion, it safeguards the tubing and prolongs service life in harsh production environments.

Flow Couplings are typically installed above or below high-turbulence components such as sliding sleeves, safety valves, or other flow-control devices, where fluid velocity and turbulence are elevated. Constructed with thicker walls than standard tubing, the coupling provides localized protection without reducing the internal bore, ensuring unrestricted production flow.

FEATURES

- Protects tubing from localized erosion, corrosion, and wear
- Commonly installed above or below downhole tools such as Sliding Side Doors or Safety Valves
- Maintains full-bore internal diameter for unrestricted flow
- Extends tubing service life and reduces workover frequency

Tubing Size in - [mm]	Max OD in - [mm]	Min ID in - [mm]	Length Range in - [mm]	Pressure Rating Psi - [Bar]
2,375 - [60,3]	3,1 - [78,74]	1,995 - [50,67]	2 - 8 - [0,6 - 2,4]	10000 - [689]
2,875 - [73]	3,55 - [90,17]	2,441 - [62]	2 - 8 - [0,6 - 2,4]	10000 - [689]
3,5 - [88,9]	3,99 - [101,35]	2,992 - [76]	2 - 8 - [0,6 - 2,4]	10000 - [689]
4,5 - [114,3]	5,2 - [132]	3,92 - [99,6]	2 - 8 - [0,6 - 2,4]	10000 - [689]
5 - [127]	5,95 - [151,13]	4,276 - [108,6]	2 - 8 - [0,6 - 2,4]	10000 - [689]
5,5 - [139,7]	6,34 - [161]	4,892 - [124,3]	2 - 8 - [0,6 - 2,4]	10000 - [689]
7 - [177,8]	7,87 - [199,9]	6,276 - [159,4]	2 - 8 - [0,6 - 2,4]	10000 - [689]



HYDRAULIC TUBING ANCHOR

DESCRIPTION

The Hydraulic Tubing Anchor is a downhole anchoring device designed to secure the production tubing within the casing using hydraulically actuated slips. Its main function is to eliminate tubing movement caused by thermal expansion, pressure fluctuations, or piston effects, which could otherwise compromise packer integrity and overall wellbore isolation.

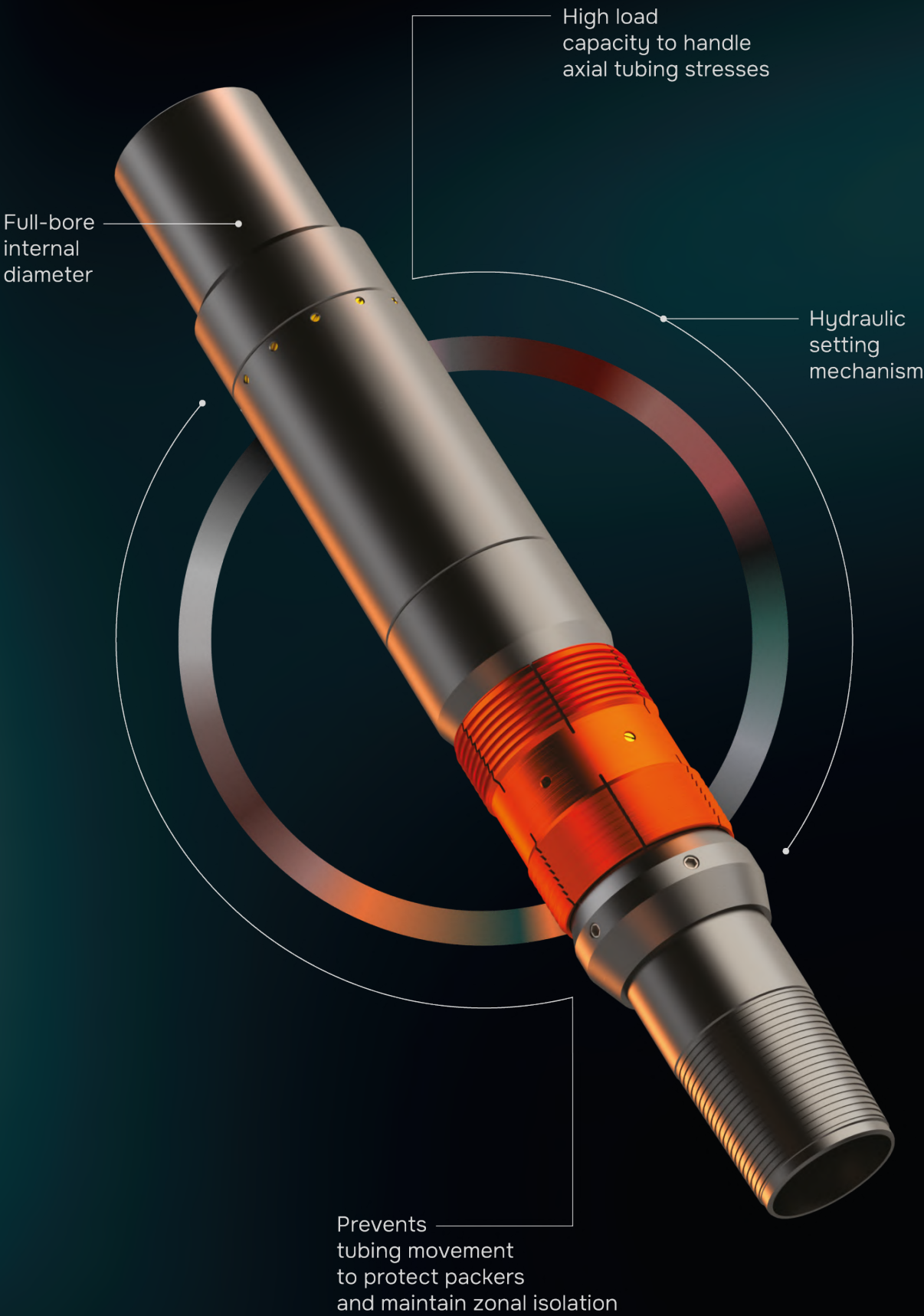
When tubing pressure is applied, hydraulic force drives the slips outward against the casing wall, firmly anchoring the tubing in place. This prevents unwanted axial movement, reduces tubing buckling or elongation, and helps maintain the sealing performance of packers and other completion equipment.

The tool’s full-bore design ensures that flow and intervention access are not restricted, while its high load capacity allows it to withstand significant axial forces. The Hydraulic Tubing Anchor is particularly suited for wells with frequent pressure or temperature cycles, gas-lift systems, or any completion requiring enhanced tubing stability.

FEATURES

- Hydraulic setting mechanism – no surface mechanical manipulation required
- Prevents tubing movement to protect packers and maintain zonal isolation
- High load capacity to handle axial tubing stresses
- Full-bore internal diameter for unrestricted flow and intervention access
- Ideal for wells with pressure/temperature cycling, gas-lift systems, or critical stability requirements

Tubing Size in - [mm]	Casing Size for installation in - [mm]	Max OD in - [mm]	Min ID in - [mm]	Pressure Rating Psi - [Bar]
2,375 - [60,3]	4,5 - [114,3]	3,5 - [88,9]	1,995 - [50,67]	10000 - [689]
2,875 - [73]	5 - [127]	4,02 - [102]	2,441 - [62]	10000 - [689]
3,5 - [88,9]	5,5 - [139,7]	4,5 - [114,3]	2,992 - [76]	10000 - [689]
4,5 - [114,3]	7 - [177,8]	5,75 - [146,1]	3,92 - [99,6]	10000 - [689]
5,5 - [139,7]	9,625 - [244,5]	7,2 - [182,88]	4,892 - [124,3]	10000 - [689]



WHIPSTOCK

DESCRIPTION

The Whipstock is a downhole directional tool designed to create a controlled casing exit window for sidetracking, re-entry, or multilateral well operations. Run as part of a bottomhole assembly (BHA), it provides a precise deflection guide that allows milling tools to cut through casing and initiate a new wellbore with accuracy and minimal risk of deviation.

WHIPSTOCKS are available in both mechanical and hydraulic anchor configurations to suit specific operational requirements:

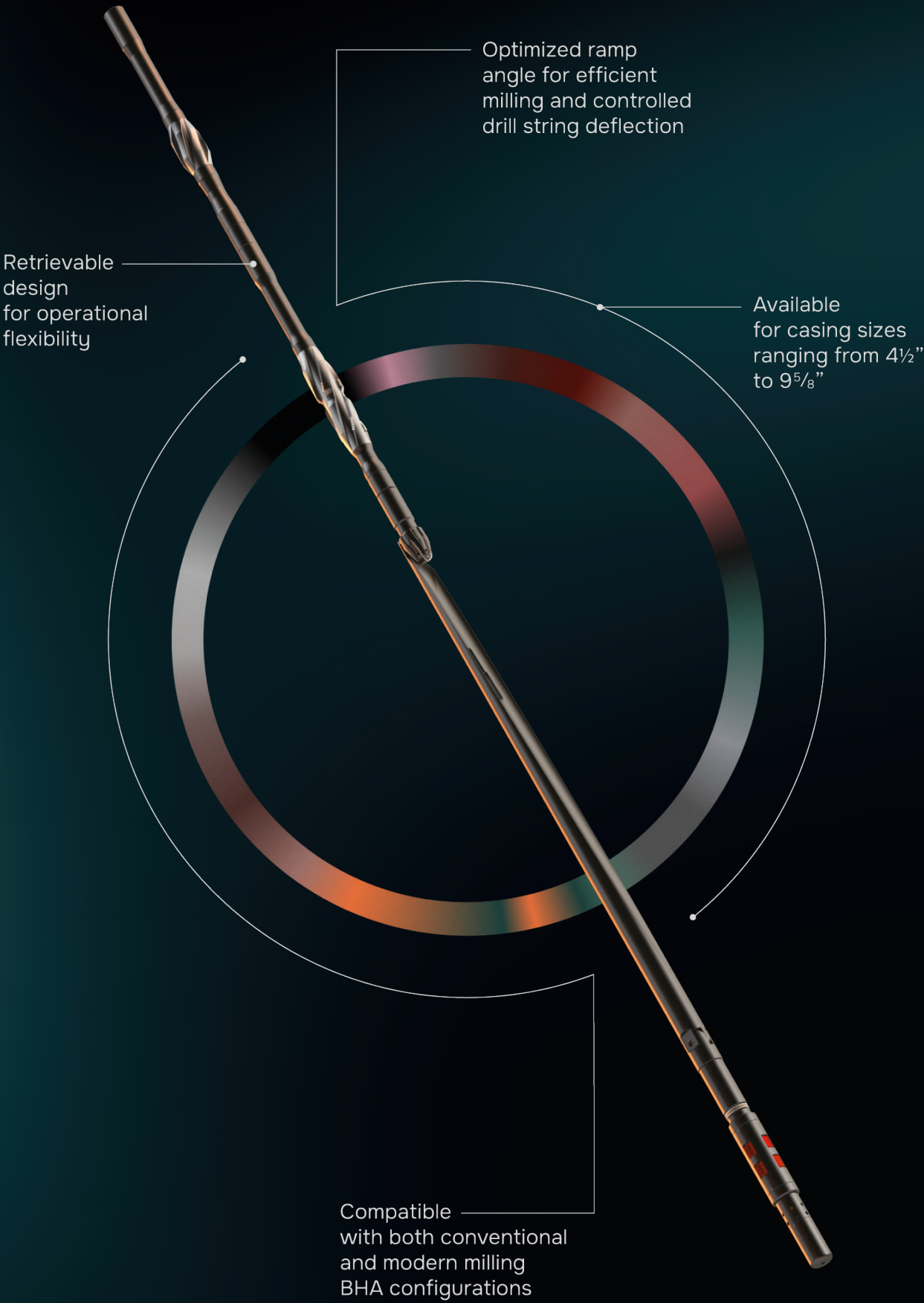
- Mechanical WHIPSTOCK — Anchored in the casing using a mechanical packer or anchor, set by applying weight and torque through the drill string. This configuration is ideal for workover operations, especially when a bridge plug or cement bridge is installed below the casing exit to activate the anchor.
- Hydraulic WHIPSTOCK — Anchored using a hydraulically actuated anchor, set by applying pressure through a hydraulic line from the window mill. This version provides controlled setting in high-angle or horizontal wells, eliminating the need for a bridge plug or cement bridge.

The milling system typically includes a Window Mill, Lower Watermelon Mill, and Upper Watermelon Mill, ensuring a smooth and efficient window cut and transition into the new borehole. Both whipstock types can be retrieved via a Retrieving Lug, allowing re-entry or reuse as required.

FEATURES

- Enables accurate casing exits with a smooth borehole transition
- Available for casing sizes ranging from 4,5 ” to 9,625 ”
- Constructed from high-strength steel for maximum durability
- Optimized ramp angle for efficient milling and controlled drill string deflection
- Compatible with both conventional and modern milling BHA configurations
- Retrievable design for operational flexibility

Casing size in – [mm]	Whipstock OD in – [mm]	Window Mill OD in – [mm]	Lower Watermelon Mill OD in – [mm]	Upper Watermelon Mill OD in – [mm]	Whipstock Length in – [mm]
4,5 - [114,3]	3.74 - [95]	3.35 - [85]	3.54 - [90]	3.42 - [87]	111 - [2837]
5,5 - [139,7]	4.53 - [115]	4.21 - [107]	4.65 - [118]	4.8 - [122]	108 - [2744]
7 - [177,8]	5.31 - [135]	5.43 - [138]	5.67 - [144]	6.14 - [156]	131 - [3350]
9.625 - [244,5]	7.28 - [185]	7.32 - [186]	7.87 - [200]	8.5 - [216]	155.6 - [3953]





PACKERS

- 082 ASI-X Production Packer
- 086 HD Retrievable Packer
- 090 RHINO Hydraulic Retrievable Packer
- 092 DLH Packer

ASI-X

PRODUCTION PACKER

DESCRIPTION

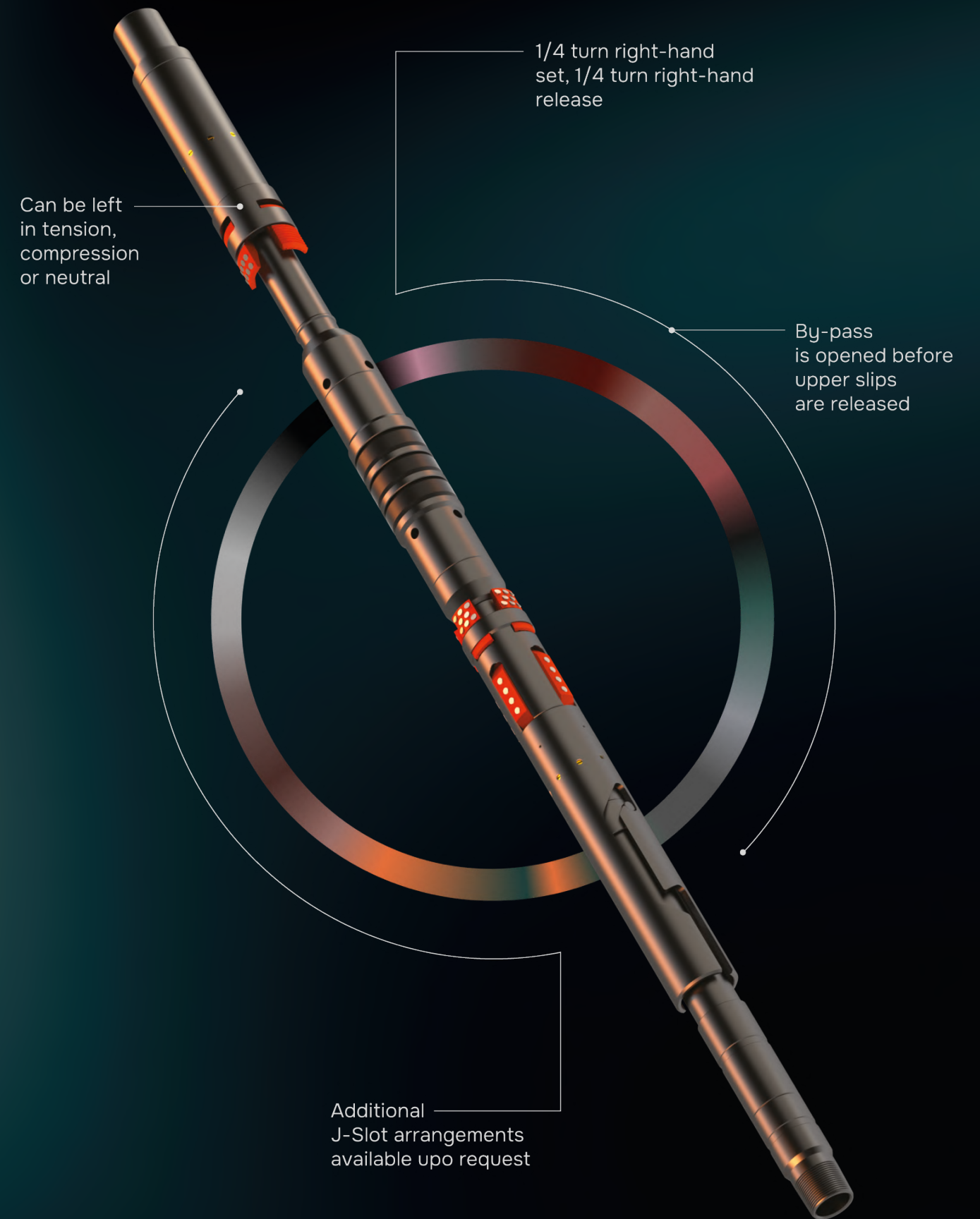
ASI-X Packer is the most versatile of the mechanically set retrievable packers and may be used in any production application. This packer is suited for treating, testing, or injection applications, in pumping or flowing wells, either deep or shallow.

This packer can be left in tension or compression depending on well conditions and the required application.

A large internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and opens prior to releasing the upper slips when retrieving to allow pressure equalization. The J-slot design allows easy setting and releasing; 1/4 turn right-hand set, 1/4 turn right-hand release.

FEATURES

- By-pass below upper slips to wash debris when valve is opened
- By-pass is opened before upper slips are released
- Can be set with tension for shallow well applications
- Can be left in tension, compression or neutral
- 1/4 turn right-hand set, 1/4 turn right-hand release
- Additional J-Slot arrangements available upo request



 SYMOIL			ASI-X PRODUCTION PACKER		
PACKERS					
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Tubing Size in – [mm]	Packer OD in – [mm]	Packer ID in – [mm]
4 - [101,6]	9,5 - 11	5,74 - 6,65	1,9 - [48,3]	3,25 - [82,6]	1,5 - [38,1]
4,5 - [114,3]	9,5 - 13,5	5,21 - 7,37	2,375 - [60,3]	3,75 - [95,3]	1,94 - [49,3]
	13,5 - 15,1	7,37 - 8,56		3,65 - [92,7]	1,94 - [49,3]
5 - [127]	11,5 - 15	5,59 - 7,52	2,375 - [60,3]	4,125 - [104,8]	1,94 - [49,3]
	18 - 21,4	9,19 - 7,72		4 - [101,6]	1,94 - [49,3]
5,5 - [139,7]	14 - 20	6,2 - 9,17	2,875 - [73]	4,625 - [117,5]	2,38 - [60,5]
	20 - 23	9,17 - 10,54		4,5 - [114,3]	2,38 - [60,5]
5,75 - [146,1]	18,1 - 19,7	7,72 - 8,51	2,875 - [73]	4,875 - [123,8]	2,38 - [60,5]
	21,8 - 24,2	9,53 - 10,67		4,625 - [117,5]	2,38 - [60,5]
6,625 - [168,3]	20 - 24	7,32 - 8,94	3,5 - [88,9]	5,75 - [146,1]	3 - [76,2]
	24 - 28	8,94 - 10,59		5,5 - [139,7]	3 - [76,2]
7 - [177,8]	20 - 26	6,91 - 9,19	3,5 - [88,9]	6 - [152,4]	3 - [76,2]
	26 - 32	9,19 - 11,51		5,875 - [149,2]	3 - [76,2]
84	SYMOIL PRODUCTS CATALOGUE			85	

HD

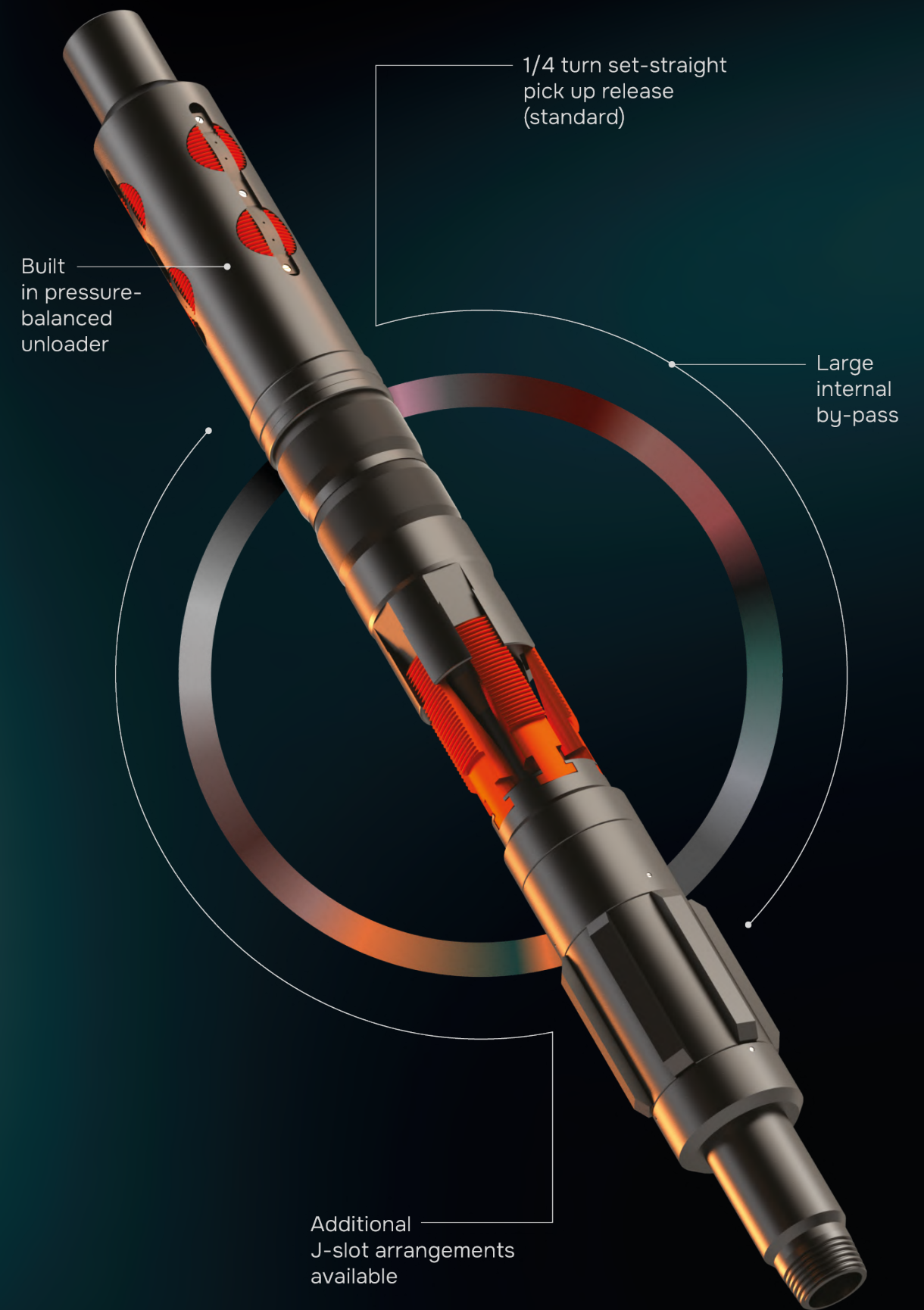
RETRIEVABLE PACKER

DESCRIPTION

HD Retrievable Packer is a heavy-duty service packer suited for all types of formation fracturing, high pressure acidizing and etc. It is a large opening compression set packer with hydraulic button-type hold down. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. This packer has a built-in unloader which circulates across the hold down buttons to improve retrievability and run-in performance.

FEATURES

- Large internal by-pass
- Built in pressure-balanced unloader
- 1/4 turn set-straight pick up release (standard)
- Equalizing ports directly above elements
- Additional J-slot arrangements available



 PACKERS		
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]
4 - [101,6]	9.5 - 11	5,74 - 6,65
4,5 - [114,3]	9,5 - 13,5	5,21 - 7,37
	13,5 - 15,1	7,37 - 8,56
5 - [127]	11,5 - 15	5,59 - 7,52
	18 - 21,4	9,19 - 7,72
5,5 - [139,7]	14 - 20	6,2 - 9,17
	20 - 23	9,17 - 10,54
5,75 - [146,1]	18,1 - 19,7	7,72 - 8,51
	21,8 - 24,2	9,53 - 10,67
6,625 - [168,3]	20 - 24	7,32 - 8,94
	24 - 28	8,94 - 10,59
7 - [177,8]	20 - 26	6,91 - 9,19
	26 - 32	9,19 - 11,51
7.625 - [193.7]	24 – 29.7	7.62 – 9.52
	33.7 - 39	10.92 – 12.7
8.625 - [219.1]	20 – 28	5.52 - 7.73
	24 - 40	6.71 - 11.43
9.625 - [244.5]	32.3 – 43.5	7.92 – 11.05
	43.5 – 53.5	11.05 – 13.84
10.75 - [273.05]	32.75 – 45.5	7.09 - 10.16 1
	51 – 65.7	1.43 - 15.11
	65.7 – 91.2	15.11 – 20.24
13.375 - [168.3]	54.5 - 77	9.65 - 13.95

HD RETRIEVABLE PACKER		
Tubing Size in – [mm]	Packer OD in – [mm]	Packer ID in – [mm]
1,9 - [48,3]	3,25 - [82,6]	1,5 - [38,1]
2,375 - [60,3]	3,75 - [95,3]	1,94 - [49,3]
2,375 - [60,3]	3,65 - [92,7]	1,94 - [49,3]
2,375 - [60,3]	4,125 - [104,8]	1,94 - [49,3]
2,375 - [60,3]	4 - [101,6]	1,94 - [49,3]
2,875 - [73]	4,625 - [117,5]	2,38 - [60,5]
2,875 - [73]	4,5 - [114,3]	2,38 - [60,5]
2,875 - [73]	4,875 - [123,8]	2,38 - [60,5]
2,875 - [73]	4,625 - [117,5]	2,38 - [60,5]
3,5 - [88,9]	5,75 - [146,1]	3 - [76,2]
3,5 - [88,9]	5,5 - [139,7]	3 - [76,2]
3,5 - [88,9]	6 - [152,4]	3 - [76,2]
3,5 - [88,9]	5,875 - [149,2]	3 - [76,2]
3.5 - [88.9]	6.672 - [169.5]	3 - [76.2]
3.5 - [88.9]	6.453 - [163.9]	3 - [76.2]
4.5 - [114.3]	7.75 - [196.85]	4 - [101.6]
4.5 - [114.3]	7.5 - [190.5]	4 - [101.6]
4.5 - [114.3]	8.5 - [215.9]	4 - [101.6]
4.5 - [114.3]	8.25 - [209.55]	4 - [101.6]
4.5 - [114.3]	9.625 - [244.5]	4 - [101.6]
4.5 - [114.3]	9.312 - [236.52]	4 - [101.6]
4.5 - [114.3]	8.813 – [223.85]	4 - [101.6]
4.5 - [114.3]	12 - [304.8]	4 - [101.6]

RHINO

HYDRAULIC RETRIEVABLE PACKER

DESCRIPTION

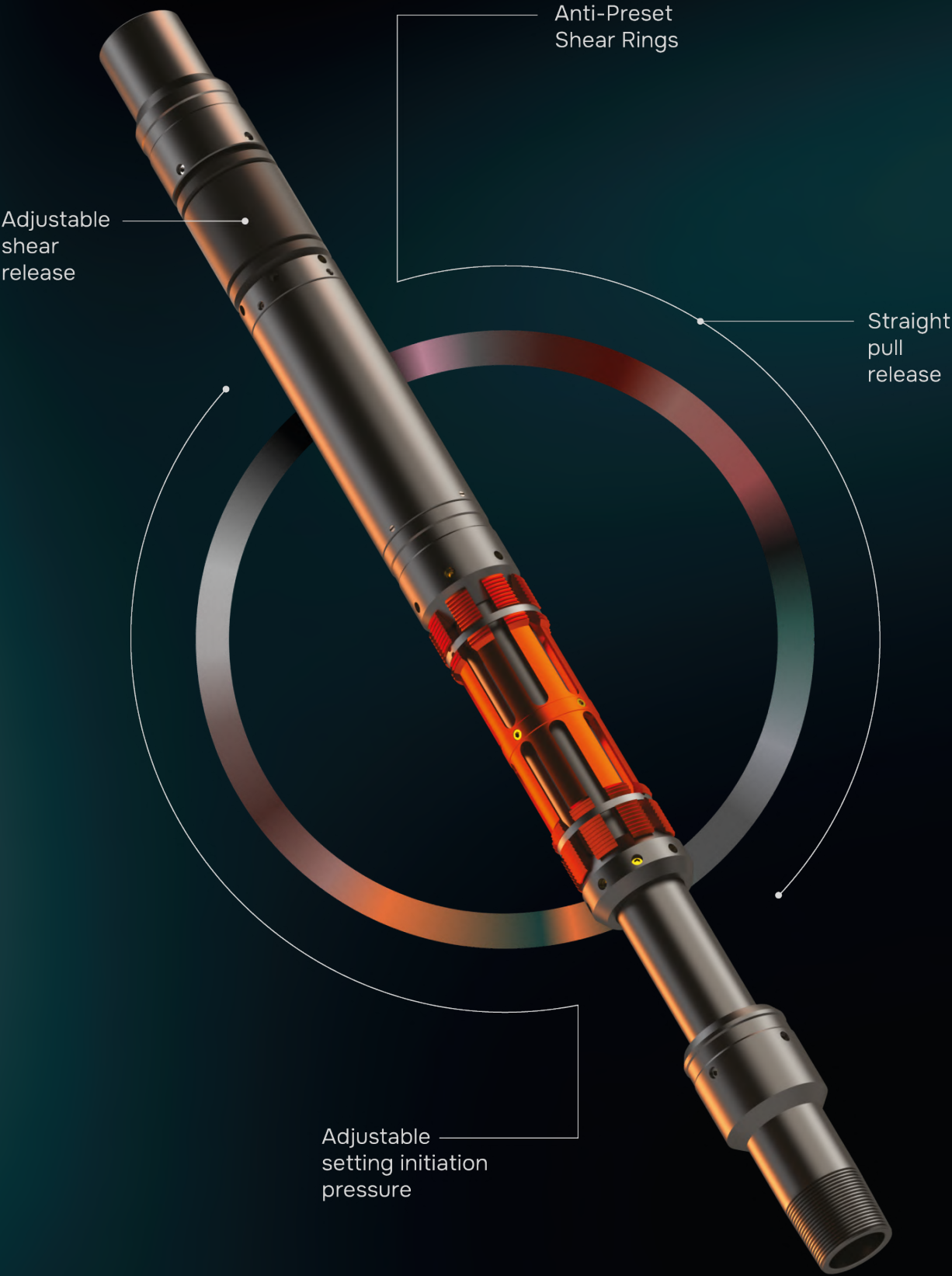
The RHINO Packer is a hydraulic set single-string retrievable packer and may be used in virtually any production application. Tubing pump pressure is used to set the packer and the setting force is locked into the packer by a body lock ring.

Reliable 360 deg slips ensure proper holding in the casing. Shear screws are used to control the packer release.

FEATURES

- Adjustable setting initiation pressure
- Anti-Preset Shear Rings
- Adjustable shear release
- Straight pull release

Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Tubing Size in – [mm]	Packer OD in – [mm]	Packer ID in – [mm]
4,5 - [114,3]	13,5 - 15,1	7,37 - 8,56	2,375 - [60,3]	3,65 - [92,7]	1,92 - [48,8]
5 - [127]	15 - 18	5,59 - 9,19	2,875 - [73]	3,95 - [100,3]	2,4 - [61]
5,5 - [139,7]	14 - 20	6,2 - 9,17	3,5 - [88,9]	4,625 - [117,5]	2,9 - [73,7]
	20 - 23	9,17 - 10,54		4,4 - [111,8]	2,9 - [73,7]
5,75 - [146,1]	18,1 - 19,7	7,72 - 8,51	3,5 - [88,9]	4,75 - [120,7]	2,9 - [73,7]
	21,8 - 24,2	9,53 - 10,67		4,625 - [117,5]	2,9 - [73,7]
6,625 - [168,3]	20 - 24	7,32 - 8,94	4 - [101,6]	5,625 - [142,9]	3,5 - [88,9]
	24 - 28	8,94 - 10,59		5,5 - [139,7]	3,5 - [88,9]
7 - [177,8]	17 - 26	5,87 - 9,19	4,5 - [114,3]	6 - [152,4]	4 - [101,6]
	23 - 32	8,05 - 11,51		5,875 - [149,2]	4 - [101,6]
	32 - 35	11,51 - 12,65		5,75 - [146,1]	3,85 - [97,8]



DLH

PACKER

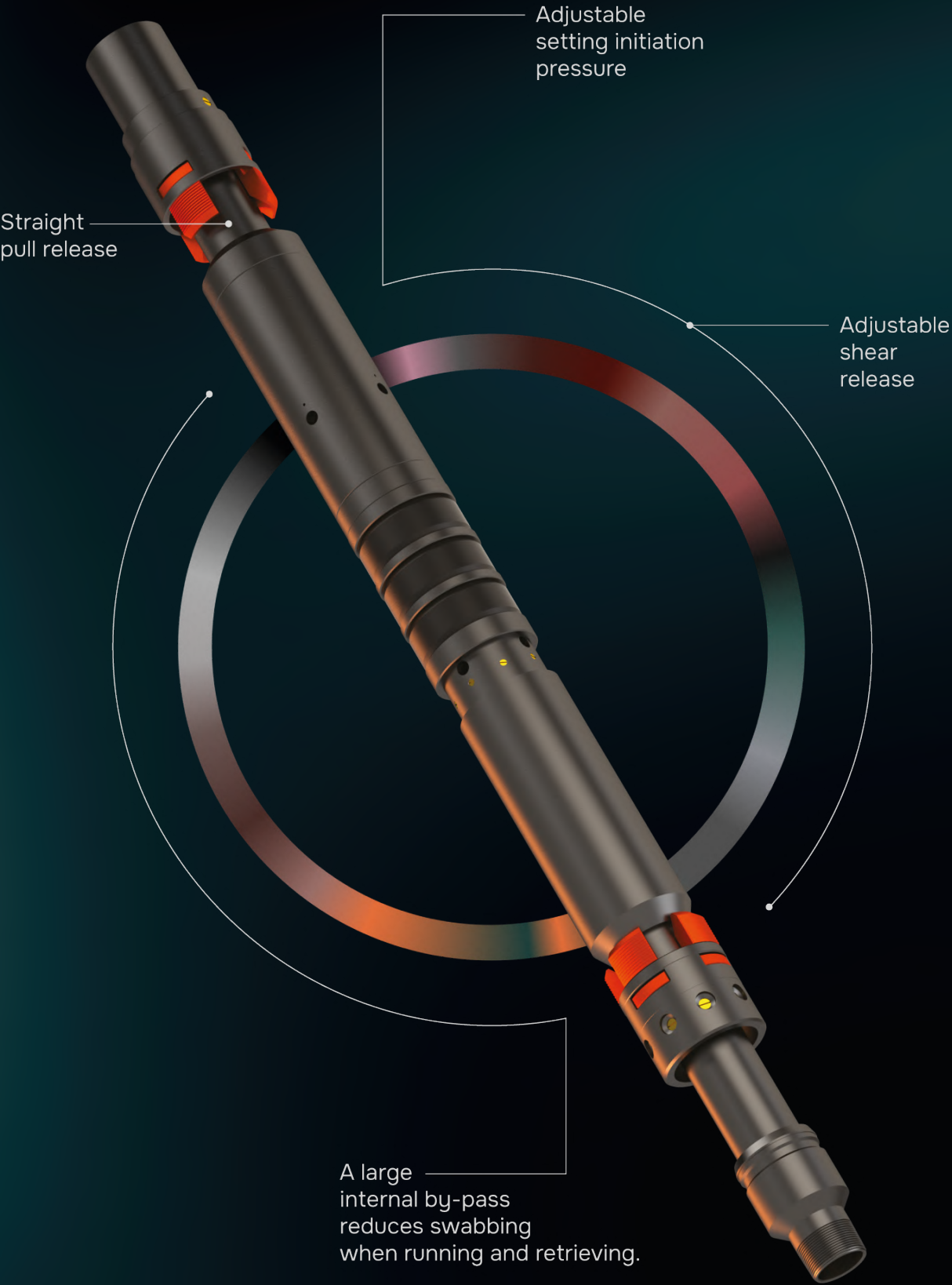
DESCRIPTION

The DLH Packer is a hydraulic set single-string retrievable packer and may be used in virtually any production application. Tubing pump pressure is used to set the packer and the setting force is locked into the packer by a body lock ring. A large internal by-pass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and opens during the releasing process to allow pressure equalization. Shear screws are used to control the packer release.

FEATURES

- Adjustable setting initiation pressure
- Adjustable shear release
- Straight pull release

Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Tubing Size in – [mm]	Packer OD in – [mm]	Packer ID in – [mm]
4,5 - [114,3]	13,5 - 15,1	7,37 - 8,56	2,375 - [60,3]	3,65 - [92,7]	1,92 - [48,8]
5 - [127]	15 - 18	5,59 - 9,19	2,875 - [73]	3,95 - [100,3]	2,4 - [61]
5,5 - [139,7]	14 - 20	6,2 - 9,17	3,5 - [88,9]	4,625 - [117,5]	2,9 - [73,7]
	20 - 23	9,17 - 10,54		4,4 - [111,8]	2,9 - [73,7]
5,75 - [146,1]	18,1 - 19,7	7,72 - 8,51	3,5 - [88,9]	4,75 - [120,7]	2,9 - [73,7]
	21,8 - 24,2	9,53 - 10,67		4,625 - [117,5]	2,9 - [73,7]
6,625 - [168,3]	20 - 24	7,32 - 8,94	4 - [101,6]	5,625 - [142,9]	3,5 - [88,9]
	24 - 28	8,94 - 10,59		5,5 - [139,7]	3,5 - [88,9]
7 - [177,8]	17 - 26	5,87 - 9,19	4,5 - [114,3]	6 - [152,4]	4 - [101,6]
	23 - 32	8,05 - 11,51		5,875 - [149,2]	4 - [101,6]
	32 - 35	11,51 - 12,65		5,75 - [146,1]	3,85 - [97,8]
8.625 - [219.1]	24 - 40	6.71 - 11.43	4.5 - [114.3]	7.5 - [190.5]	4 - [101.6]
9.625 - [244.5]	32.3 - 43.5	7.92 - 11.05	4.5 - [114.3]	8.5 - [215.9]	4 - [101.6]
	43.5 - 53.5	11.05 - 13.84	4.5 - [114.3]	8.25 - [209.55]	4 - [101.6]
10.75 - [273.05]	51 - 65.7	11.43 - 15.11	4.5 - [114.3]	9.312 - [236.52]	4 - [101.6]
13.375 - [168.3]	54.5 - 77	9.65 - 13.95	5.5 - [139.7]	12 - [304.8]	5 - [127]





PLUGS

PERMANENT

- 096 CIBP Cast Iron Bridge Plug
- 100 ERCI Extra Reach Cast Iron Bridge Plug

RETRIEVABLE

- 104 WRBP Wireline Retrievable Bridge Plug
- 108 ANACONDA Medium Expansion Plug
- 110 RIBP Retrievable Inflatable Bridge Plug

PLUG N PERF

- 114 RAVEN HP Dissolvable Frac Plug
- 116 RAVEN HP XL Dissolvable Frac Plug
- 118 EAGLE Composite Frac Plug
- 120 KITE 2 Composite Frac Plug
- 122 KITE HPXL Composite Frac Plug

CIBP

CAST IRON BRIDGE PLUG

DESCRIPTION

The Cast Iron Bridge Plug (CIBP) is a reliable, cost-effective tool designed to provide temporary or permanent zonal isolation in oil and gas wells. It is typically run on wireline, slickline, or tubing and is set mechanically or hydraulically, depending on the application.

CIBPs are commonly used for:

- Well abandonment and suspension operations.
- Temporary isolation during well interventions.
- Zonal isolation for selective stimulation or production.
- A base for cement plugs.

The tool is constructed of high-strength cast iron and drillable components, which allow for easy and efficient removal by conventional drilling or milling methods. This makes it an industry-standard solution when a bridge plug is required for dependable sealing and later drill-out.

FEATURES

- Can withstand up to 10,000 psi differential pressure from both above and below
- Full metal (cast-iron) body – robust and drillable
- Suitable for both temporary and permanent applications
- Can be set on wireline, slickline, or tubing
- Provides a reliable seal against differential pressures
- Easily drilled out with conventional bits



SYMOIL		PLUGS		CIBP CAST IRON BRIDGE PLUG			
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Plug OD in – [mm]	Min Setting Range in – [mm]	Max Setting Range in – [mm]	Pressure Rating Psi - [Bar]	Setting Force klbf - [t]	Setting Tool
2.375 [60.3]	4.6 - 6.6	1.71 [43.4]	1.785 [45.34]	1.867 [47.4]	10000 [689]	12 [5.4]	1-11/16 MSST / #5
2.875 [73]	6.4 - 7.8	2.1 [53.3]	2.323 [59]	2.441 [62]	10000 [689]	12 [5.4]	1-11/16 MSST / #5
3.5 [88.9]	7.7 - 10.2	2.75 [69.9]	2.922 [74.21]	3.068 [77.92]	10000 [689]	12 [5.4]	1-11/16 MSST / #5
3.5 [88.9]	12,5	2.5 [63.5]	2.75 [69.9]	2.75 [69.9]	10000 [689]	12 [5.4]	1-11/16 MSST / #5
4 [101.6]	9.5 - 10.2	3.12 [79.2]	3.62 [91.95]	3.648 [92.66]	10000 [689]	25 [11.3]	2-1/8 MSST / #10
4.5 [114.3]	9.5 - 15.1	3.562 [90.47]	3.826 [97.2]	4.09 [103.9]	10000 [689]	30 [13.6]	2-1/8 MSST / #10
5 [127]	11.5 - 21.4	3.71 [94.2]	4.126 [104.8]	4.56 [115.8]	10000 [689]	30 [13.6]	2-1/8 MSST / #10
5.5 [139.7]	14 - 23	4.24 [107.7]	4.67 [118.6]	5.012 [127.7]	10000 [689]	30 [13.6]	20
5.75 [146.1]	21.9 - 24.4	4.24 [107.7]	4.908 [124.65]	5.002 [127.05]	10000 [689]	30 [13.6]	20
6.625 [168.3]	17 - 32	5.34 [135.6]	5.675 [144.2]	6.135 [155.83]	10000 [689]	50 [22.7]	20
7 [177.8]	23 - 40	5.34 [135.6]	5.595 [142.1]	6.366 [161.7]	10000 [689]	50 [22.7]	20
7 [177.8]	17 - 35	5.61 [142.5]	6.004 [152.5]	6.538 [166.1]	10000 [689]	50 [22.7]	20
7.625 [193.7]	20 - 39	6.09 [154.7]	6.625 [168.3]	7.125 [180.98]	10000 [689]	50 [22.7]	20
8.625 [219.1]	24 - 49	6.96 [176.8]	7.31 [185.67]	8.097 [205.66]	8000 [552]	50 [22.7]	20
9.625 [244.5]	29.3 - 53.5	7.71 [195.8]	8.535 [216.8]	9.063 [230.2]	8000 [552]	50 [22.7]	20
10.75 [273.1]	32.7 - 60.7	9.44 [239.78]	9.525 [241.94]	10.325 [262.26]	5000 [345]	50 [22.7]	20
11.75 [298.5]	38 - 60	9.5 [241.3]	10.641 [270.28]	11.284 [286.61]	5000 [345]	50 [22.7]	20
13.375 [339.7]	48 - 72	12 [304.8]	12.347 [313.6]	12.715 [323]	3000 [207]	50 [22.7]	20
16 [406.4]	65 - 109	14.25 [362]	14.688 [373.1]	15.25 [387.4]	2000 [138]	50 [22.7]	20
20 [508]	94 - 133	18.375 [466.73]	17.655 [448.4]	19.124 [485.75]	2000 [138]	50 [22.7]	20
98	SYMOIL PRODUCTS CATALOGUE			99			

ERCI

EXTRA REACH CAST IRON BRIDGE PLUG

DESCRIPTION

The Extra Reach Cast Iron Bridge Plug (ERCI) is a plug with a high expansion ratio for isolating the pipe space in cases where the descent of the bridge plug is complicated by a decrease in the passage diameter of the string. It is typically run on wireline, slickline, or tubing and is set mechanically or hydraulically, depending on the application.

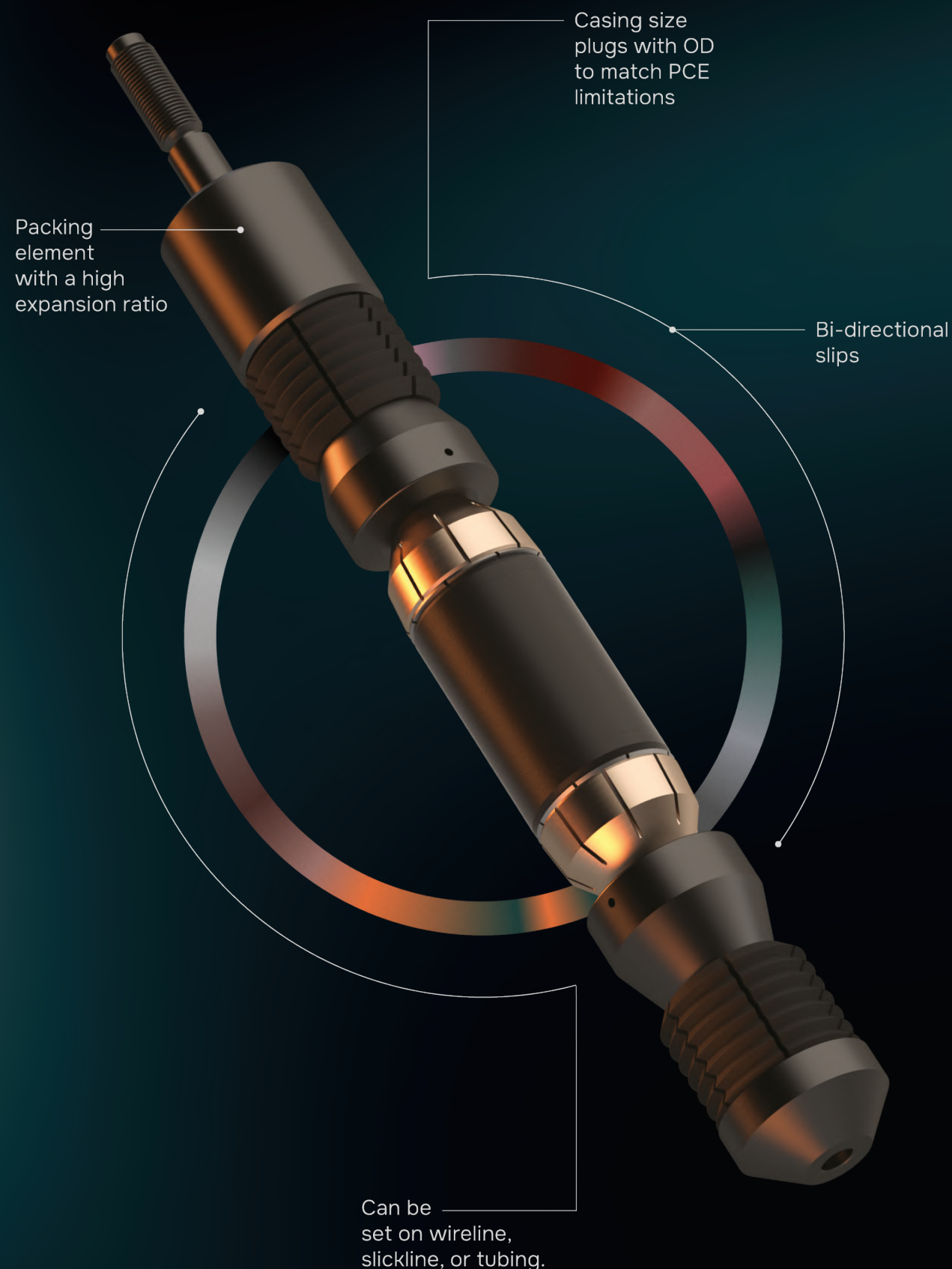
Extra range bridge plug is a special plug for running through restrictions and then safely installing in a larger diameter.

The tool is constructed of high-strength cast iron and drillable components, which allow for easy and efficient removal by conventional drilling or milling methods.

Symoil offer a large range of plugs for most common tubing and casing sizes.

FEATURES

- Packing element with a high expansion ratio
- Can be set on wireline, slickline, or tubing
- Bi-directional slips
- Simplicity of design ensures its reliability
- Ideal of abandonment applications
- Casing size plugs with OD to match PCE limitations



Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]
2.375 - [60.3]	4.6 - 5.8	4.83 - 6.45
2.375 - [60.3]	4.6 - 5.8	4.83 - 6.45
2.875 - [73]	6.4 - 7.8	5.51 - 7.01
2.875 - [73]	6.4 - 7.8	5.51 - 7.01
3.5 - [88.9]	9.2 - 12.7	5.49 - 9.53
3.5 - [88.9]	9.2 - 12.7	5.49 - 9.53
4 - [101.6]	9.6 - 13.2	5.74 - 8.55
4.5 - [114.3]	11.6 - 21.6	6.35 - 12.7
5 - [127]	15 - 24.2	5.51 - 12.7
5.5 - [139.7]	17 - 26	7.72 - 12.09
6.625 - [168.3]	20 - 32	7.32 - 12.07
7 - [177.8]	26 - 38	9.2 - 13.72
9.625 - [244.5]	43.5 - 58.4	11.05 - 13.84

Plug OD in – [mm]	Pressure Rating Psi - [Bar]	Setting Force klbf - [t]	Setting Tool
1.406 - [35.7]	7500 - [517]	12 - [5.4]	1-1/2 Shorty
1.75 - [44.5]	10000 - [689]	12 - [5.4]	1-11/16 MSST / #5
1.75 - [44.5]	7500 - [517]	12 - [5.4]	1-11/16 MSST / #5
1.906 - [48.4]	10000 - [689]	12 - [5.4]	1-11/16 MSST / #5
2.187 - [55.5]	7500 - [517]	12 - [5.4]	1-11/16 MSST / #5
2.281 - [57.9]	10000 - [689]	12 - [5.4]	1-11/16 MSST / #5
2.5 - [63.5]	7500 - [517]	25 - [11.3]	2-1/8 MSST / #10
2.75 - [69.9]	7500 - [517]	25 - [11.3]	2-1/8 MSST / #10
3.25 - [82.6]	7500 - [517]	25 - [11.3]	2-1/8 MSST / #10
3.95 - [100.3]	7500 - [517]	35 - [15.9]	#20
4.94 - [125.5]	7500 - [517]	50 - [22.7]	#20
4.94 - [125.5]	5000 - [345]	50 - [22.7]	#20
5.5 - [139.7]	5000 - [345]	50 - [22.7]	#20

WRBP

WIRELINE RETRIEVABLE BRIDGE PLUG

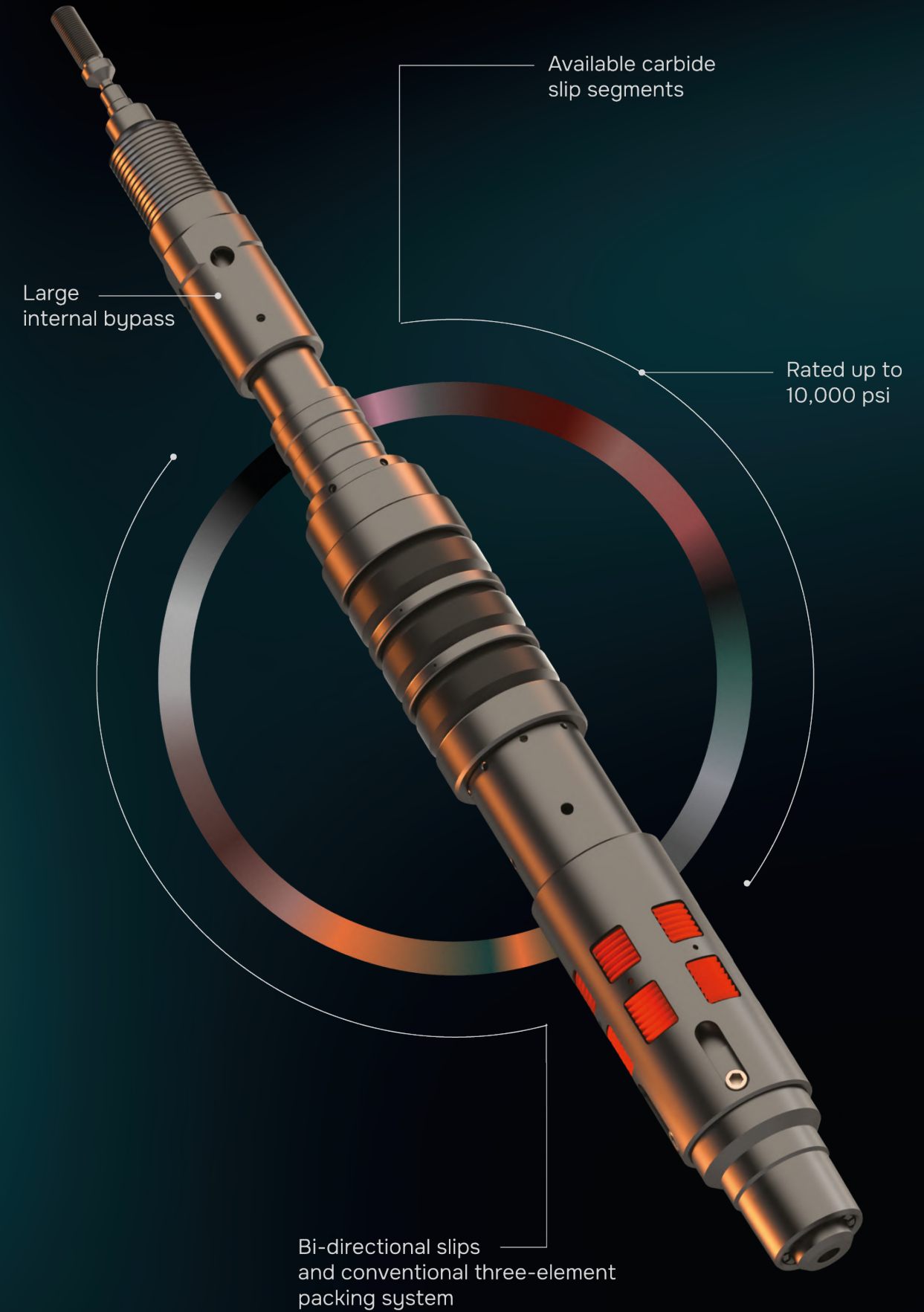
DESCRIPTION

Wireline Retrieable Bridge Plug (WRBP) is a reliable tool for isolating tubing during multi-stage hydraulic fracturing, acid treatment, cementing, well testing, and wellhead repairs.

It utilizes electronic Setting Tool Phoenix or standard wireline or hydraulic setting tools, providing operators with a versatile and efficient solution for a variety of wellbore operations.

FEATURES

- Bi-directional slips and conventional three-element packing system ensure a positive seal
- Large internal bypass reduces swabbing during running and retrieving
- Available carbide slip segments for casing harder than 125 yield and elastomer options for harsh environments
- Rated up to 10,000 psi



SYMOIL	PLUGS		WRBP WIRELINE RETRIEVABLE BRIDGE PLUG		
Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Packer OD in – [mm]	Pressure Rating Psi - [Bar]	Setting Tool
2.375 - [60.3]	4.6 - 4.6	4.83 - 4.83	1.9 - [48.3]	10000 - [689]	#05
2.875 - [73]	6.4 - 7.8	5.51 - 7.01	2.3 - [58.4]	10000 - [689]	#05
3.5 - [88.9]	9.2 - 10.2	5.49 - 7.34	2.85 - [72.4]	10000 - [689]	#05
3.5 - [88.9]	12.7 - 12.7	9.53 - 9.53	2.6 - [66]	10000 - [689]	#05
4.5 - [114.3]	11.6 - 13.5	6.35 - 7.37	3.75 - [95.3]	10000 - [689]	#10
4.5 - [114.3]	15.1 - 15.5	8.56 - 8.56	3.65 - [92.7]	10000 - [689]	#10
5 - [127]	15 - 18	7.52 - 9.19	4.125 - [104.8]	10000 - [689]	#10
5.5 - [139.7]	15.5 - 20	6.99 - 9.17	4.625 - [117.5]	10000 - [689]	#20
5.5 - [139.7]	20 - 23	9.17 - 10.54	4.5 - [114.3]	10000 - [689]	#20
6.625 - [168.3]	28 - 32	10.59 - 12.07	5.57 - [141.5]	8500 - [586]	#20
7 - [177.8]	20 - 26	6.91 - 9.19	6.023 - [153]	8500 - [586]	#20
7 - [177.8]	26 - 29	9.19 - 10.36	5.875 - [149.2]	8500 - [586]	#20
7 - [177.8]	32 - 35	11.51 - 12.65	5.812 - [147.6]	8500 - [586]	#20
9.625 - [244.5]	32.3 - 43.5	7.92 - 11.05	8.5 - [215.9]	7500 - [517]	#20
9.625 - [244.5]	47 - 53.5	11.99 - 13.84	8.25 - [209.6]	7500 - [517]	#20
106	SYMOIL PRODUCTS CATALOGUE		107		

ANACONDA

MEDIUM EXPANSION PLUG

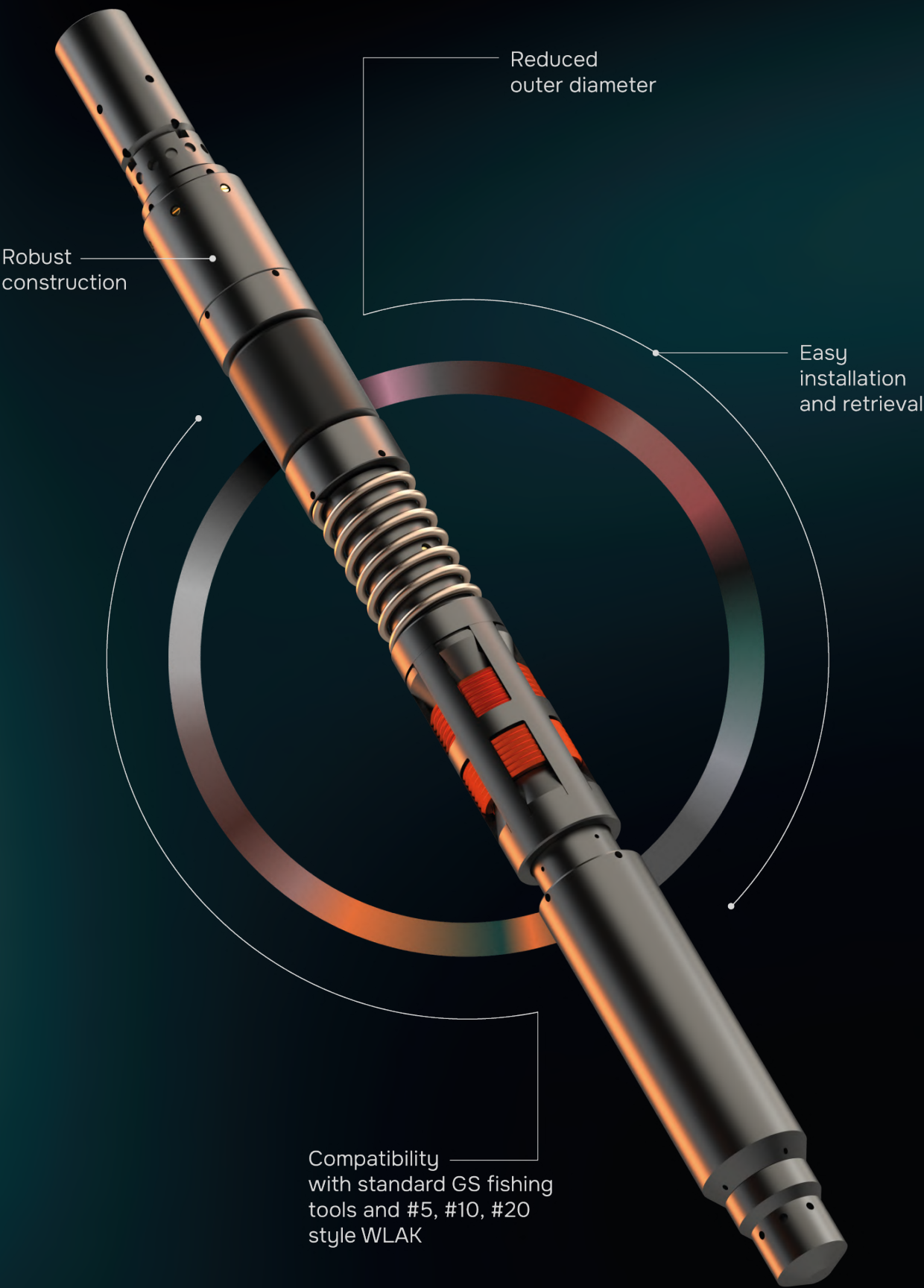
DESCRIPTION

ANACONDA is the latest addition to the Symoil family of wireline retrievable bridge plugs. With its large expansion capabilities and reduced outer diameter, Anaconda provides a reliable and cost-effective solution for a wide range of wellbore isolation applications.

FEATURES

- Reduced outer diameter: Anaconda's slim design allows it to pass through all restrictions typically found in the production string, including TRSV, nipples, and SSD
- Easy installation and retrieval: Anaconda's wire line retrievable design ensures easy installation and retrieval, saving time and reducing costs
- Compatibility with standard GS fishing tools and #5, #10, #20 style WLAK
- Robust construction: Anaconda is made of high-strength materials that can withstand harsh downhole conditions and extreme temperatures

Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Packer OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
2.375 - [60]	4.6 - 5.8	4.83 - 6.45	1.75 - [44.5]	0 - [0]	10000 - [689]
2.875 - [73]	6.4 - 7.8	5.51 - 7.01	2.17 - [55.1]	0 - [0]	10000 - [689]
3.5 - [88.9]	9.2 - 12.7	5.49 - 9.53	2.52 - [64]	0 - [0]	10000 - [689]
4.5 - [114.3]	11.6 - 21.6	6.35 - 12.7	3.25 - [82.6]	0.5 - [12.7]	15000 - [1034]
5 - [127]	18 - 24.2	9.2 - 12.7	3.5 - [88.9]	0.5 - [12.7]	10000 - [689]
5.5 - [139.7]	17 - 26	7.72 - 12.09	4.2 - [106.7]	1 - [25.4]	10000 - [689]
7 - [177.8]	26 - 38	9.2 - 13.72	5.5 - [139.7]	2.5 - [63.5]	5000 - [345]
9.625 - [244.5]	43.5 - 58.4	11.05 - 13.84	8 - [203.2]	4 - [101.6]	5000 - [345]



RIBP

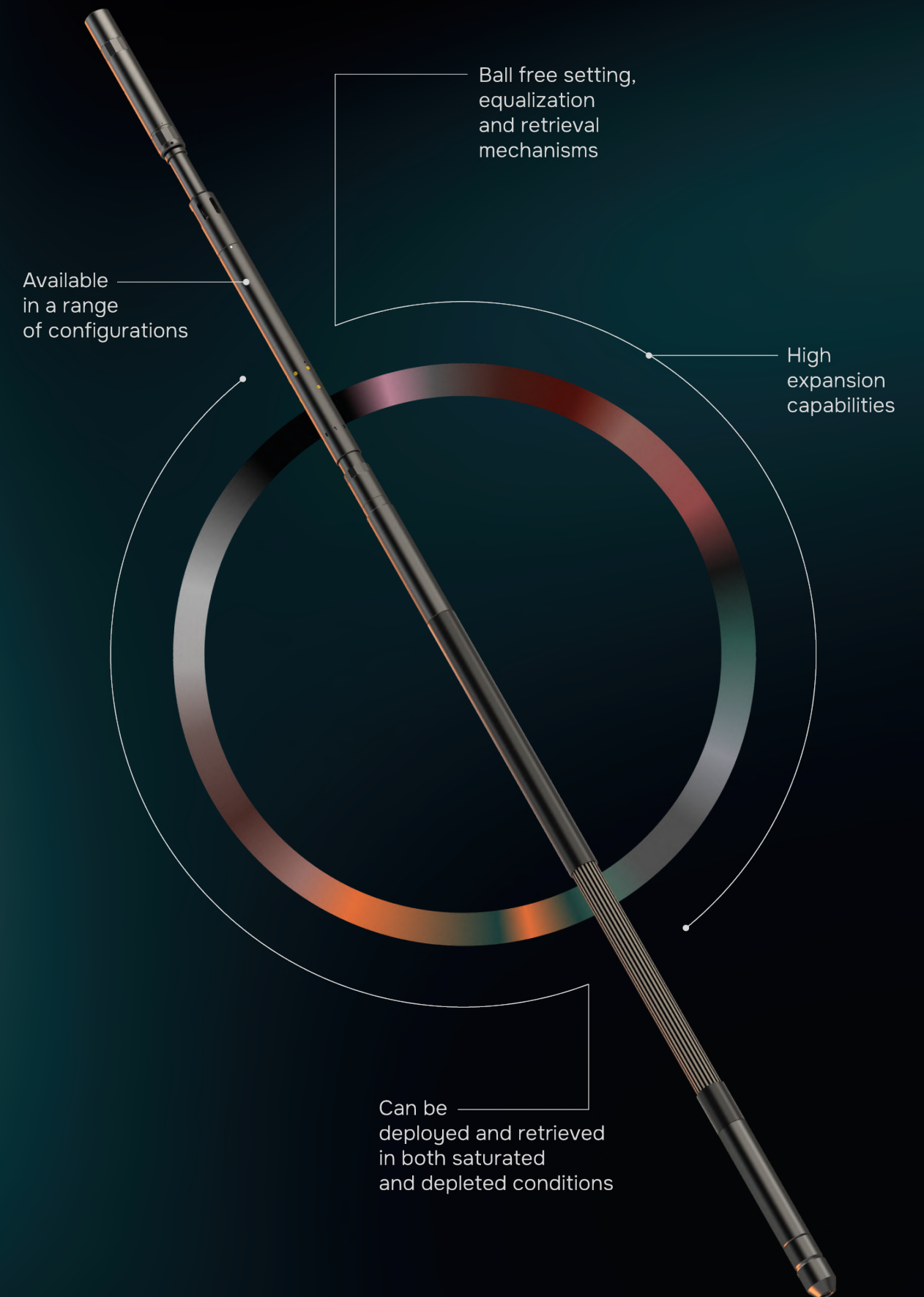
RETRIEVABLE INFLATABLE BRIDGE PLUG

DESCRIPTION

Retrieval Inflation Bridge Plug RIBP incorporates a valving system in conjunction with a packer element, which provides bi-directional sealing and anchoring. The RIBP has an innovative design with an equalization mechanism allowing the operator to equalize pressure across the packer, before activating the de-ation mechanism. There are several methods of deployment such as drill pipe, coiled tubing and capillary tube.

FEATURES

- Available in a range of configurations allowing it to be conveyed, set and retrieved on drill pipe, coiled tubing and capillary tube
- Equalization feature allowing any potential pressure across the packer to be equalized, prior to deflation
- Can be deployed and retrieved in both saturated and depleted conditions
- Ball free setting, equalization and retrieval mechanisms
- Adaptable to a wide variety of inflation element sizes
- Inflation element construction features an external steel wire reinforcement layer designed to maximize bi-directional anchoring whilst maintaining bi-directional sealing for optimal differential pressure capability
- Suitable for cased and open hole
- High expansion capabilities



		PLUGS		RIBP RETRIEVABLE INFLATABLE BRIDGE PLUG			
Tool Size in - [mm]		Hole Size Min [mm]		Hole Size Max [mm]		Max Pressure Rating Psi - [Bar]	
2.28 - [58]		2.875 - [73]		4.5 - [114.3]		5000 - [345]	
2.52 - [64]		3.5 - [89]		5 - [127]		5000 - [345]	
2.9- [74]		4 - [102]		5.7 - [144.78]		5000 - [345]	
3.5 - [88.9]		4.5 - [114.3]		6.2 - [157.48]		5000 - [345]	
3.88 - [98.55]		4.7 - [119.38]		6.7 - [170.18]		5000 - [345]	
4.25- [107.95]		5 - [127]		7.3 - [185.42]		5000 - [345]	
4.63 - [117.6]		5.6 - [142.24]		7.55 - [191.77]		5000 - [345]	
5 - [127]		6.45 - [163.83]		8.65 - [219.71]		5000 - [345]	
5.5- [139.7]		7.1 - [180.34]		9.75 - [247.65]		5000 - [345]	
6.25 - [158.75]		8.55 - [217.3]		11.25 - [285.75]		5000 - [345]	
6.75 - [171.45]		9.5 - [241.3]		12.55 - [318.77]		5000 - [345]	
7.5- [190.5]		10.5 - [266.7]		14 - [355.6]		5000 - [345]	
9.25 - [234.95]		11.25 - [287.75]		14.95 - [379.73]		5000 - [345]	
10.5 - [266.7]		12.5 - [317.5]		16 - [406.4]		5000 - [345]	
13.25 - [336.55]		13.7 - [347.98]		18.5 - [469.9]		5000 - [345]	
15 - [381]		16 - [406.4]		21 - [533.4]		5000 - [345]	
112		SYMOIL PRODUCTS CATALOGUE				113	

RAVEN HP

DISSOLVABLE FRAC PLUG

DESCRIPTION

The Dissolvable RAVEN HP is a high-pressure rated Frac Plug with predictable dissolve rates in as little as 1% brine fluid allows isolate lower zone and perform fracturing. Having a metal-to-metal seal, with a rubber seal as backup, makes possible using for high-temperature wells.

The Plug comes in 2 versions: Ball-In-Place, or Ball Drop.

The Ball-In-Place, has the ball locked inside the WLAK, which allows the plug to be directly pressure tested

The Ball-drop, requires the ball to be pumped down

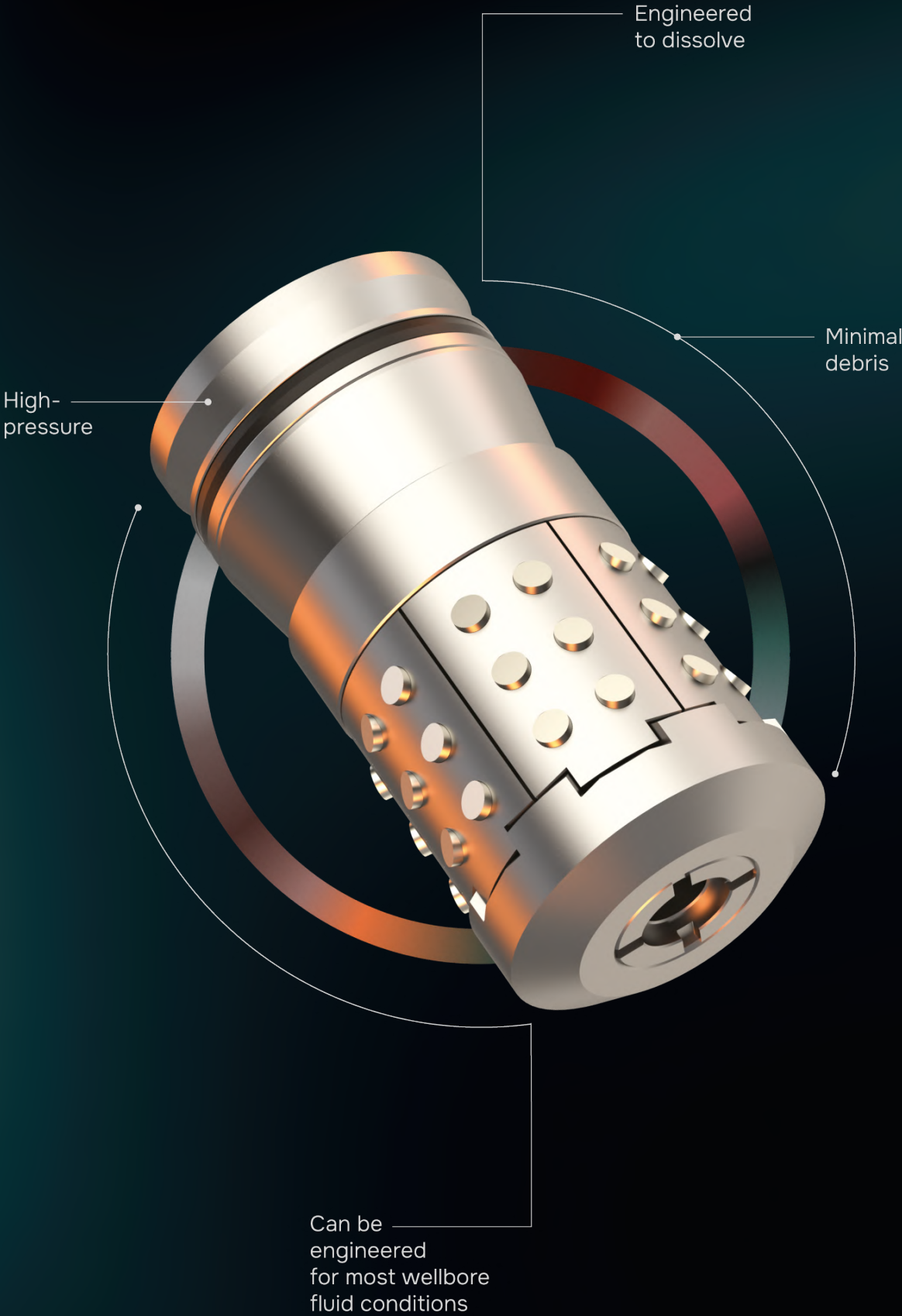
The plug is set for conventional Setting equipmentThe Raven is designed to be our shortest dissolvable frac Plug. By having only one set of slips and a unique expandable element.

The Raven is made to fit the right casing size.

FEATURES

- Can be engineered for most wellbore fluid conditions
- Minimal debris
- Engineered to dissolve
- High-pressure

Casing size in – [mm]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
4.5 - [114.3]	0.29 - [7.37]	3.66 - [93]	1 - [25.4]	12500 - [862]
	0.337 - [8.56]	3.58 - [90.9]	1 - [25.4]	15000 - [1034]
	0.38 - [9.65]	3.5 - [88.9]	1 - [25.4]	15000 - [1034]
5 - [127]	0.362 - [9.19]	3.95 - [100.3]	1.25 - [31.8]	12500 - [862]
5.5 - [139.7]	0.361 - [9.17]	4.5 - [114.3]	1.5 - [38.1]	12500 - [862]
	0.415 - [10.54]	4.4 - [111.8]	1.5 - [38.1]	15000 - [1034]



RAVEN HP XL

DISSOLVABLE FRAC PLUG

DESCRIPTION

The Dissolvable RAVEN HP XL is a High-Pressure Frac Plug with predictable dissolve rates in as little as 1% brine fluid that isolate lower zone and to perform fracturing. By having a “Metal to Metal” seal, with a “Rubber Seal” as backup, makes it possible for operations in high-temperature wells.

The Plug in the “Ball-Drop” version come with the LARGEST Ball-drop ID on the market! Thats gives the tool its name “XL”

This large ID allows for unrestricted production directly after Stimulation has finished.

The Plug is set for conventional Setting Equipment.

The Raven is designed to be our shortest Dissolvable Frac Plug. By having only one set of slips and a unique expandable element.

The RAVEN HP XL is manufactured to fit the desired casing size.

FEATURES

- Can be engineered for most wellbore fluid conditions
- Minimal debris
- Engineered to dissolve
- High-pressure
- Largest ID on the Market

Casing size in – [mm]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
4.5 - [114.3]	0.29 - [7.37]	3.66 - [93]	2.5 - [63.5]	12500 - [862]
	0.337 - [8.56]	3.58 - [90.9]	2.5 - [63.5]	15000 - [1034]
	0.38 - [9.65]	3.5 - [88.9]	2.25 - [57.2]	15000 - [1034]
5 - [127]	0.362 - [9.19]	3.95 - [100.3]	2.77 - [70.4]	12500 - [862]
5.5 - [139.7]	0.361 - [9.17]	4.5 - [114.3]	3.35 - [85.1]	12500 - [862]
	0.415 - [10.54]	4.4 - [111.8]	3.35 - [85.1]	15000 - [1034]



EAGLE

COMPOSITE FRAC PLUG

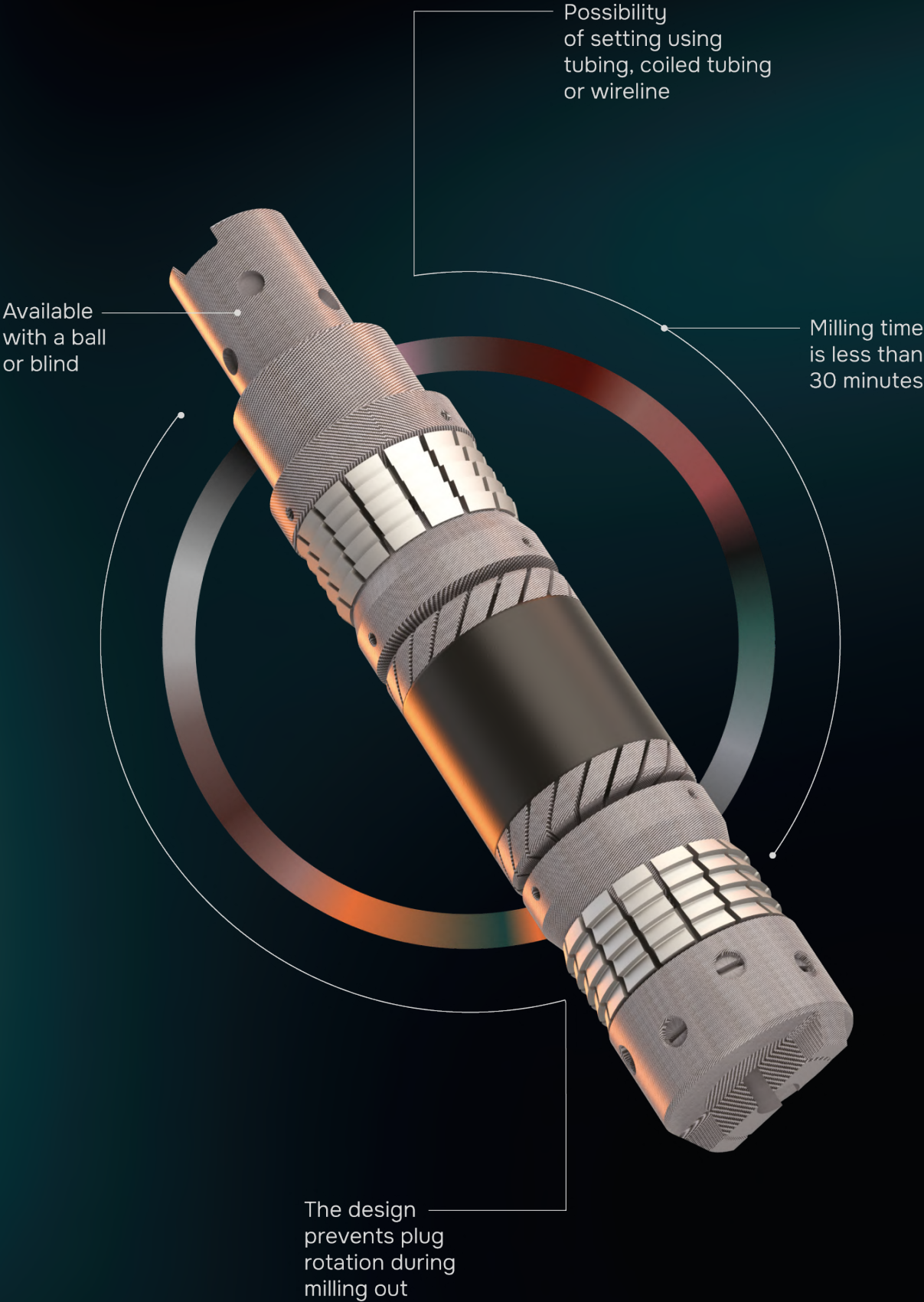
DESCRIPTION

Composite Plug EAGLE is designed for isolation and multi-stage hydraulic fracturing. Installed with hydraulic, electronic or cumulative setting tool. Various types of elastomers are available for various wellbore conditions. Withstands pressure from both above and below.

FEATURES

- Milling time is less than 30 minutes
- Possibility of setting using tubing, coiled tubing or wireline
- Available with a ball or blind
- Drillable cast iron slips or full composite slips
- The design prevents plug rotation during milling out

Casing size in – [mm]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi – [Bar]
4 – [101,6]	6,65	3,25 – [82,6]	0,84 – [21,3]	13000 – [896]
4,5 – [114,3]	6,35 – 8,56	3,5 – [88,9]	0,84 – [21,3]	13000 – [896]
5 – [127]	7,52 – 9,19	3,9 – [99,1]	1 – [25,4]	13000 – [896]
5,5 – [139,7]	6,99 – 10,54	4,35 – [110,5]	1 – [25,4]	13000 – [896]



KITE 2

COMPOSITE FRAC PLUG

DESCRIPTION

The KITE is designed to be our shortest composite Frac Plug, by having only one set of slips and a unique expandable element.

The Symoil KITE composite Frac Plug, is a fast drill-out composite Frac Plug. It’s our shortest composite Plug. The short one-slip plug reduces the amount and size of material circulated out of the hole, reducing both risk and time to completion. The plug is available in a topball configuration.

The plug is set with conventional Setting Equipment.

Multiple elastomers are available for various wellbore conditions.

FEATURES

- One-slip design with two optimized options that reduce particle size and material to circulate out of hole
- Compression-set design prevents critical components from being put in tension during setting sequence and keeps the plug in the locked position during and after fracturing
- Bottom-set anti-preset configuration mitigates impacts during pump-down operations
- Recessed ball seat keeps ball from spinning during drill-out
- Short configuration that shortens in the set position, reduces amount of material to drill and circulate out of the well

Casing size in – [mm]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
4,5 – [114,3]	6,89 – 8,56	3,6 – [91,4]	1,125 – [28,6]	10000 – [689]
5 – [127]	9,19 – 11,1	3,9 – [99,1]	2 – [50,8]	10000 – [689]
5,5 – [139,7]	9,17 – 10,54	4,34 – [110,2]	1,5 – [38,1]	10000 – [689]



KITE HPXL

COMPOSITE FRAC PLUG

DESCRIPTION

Composite Frac Plug KITE HP XL – one of the shortest Frac Plugs, by having only one set of slips and a unique expandable element.

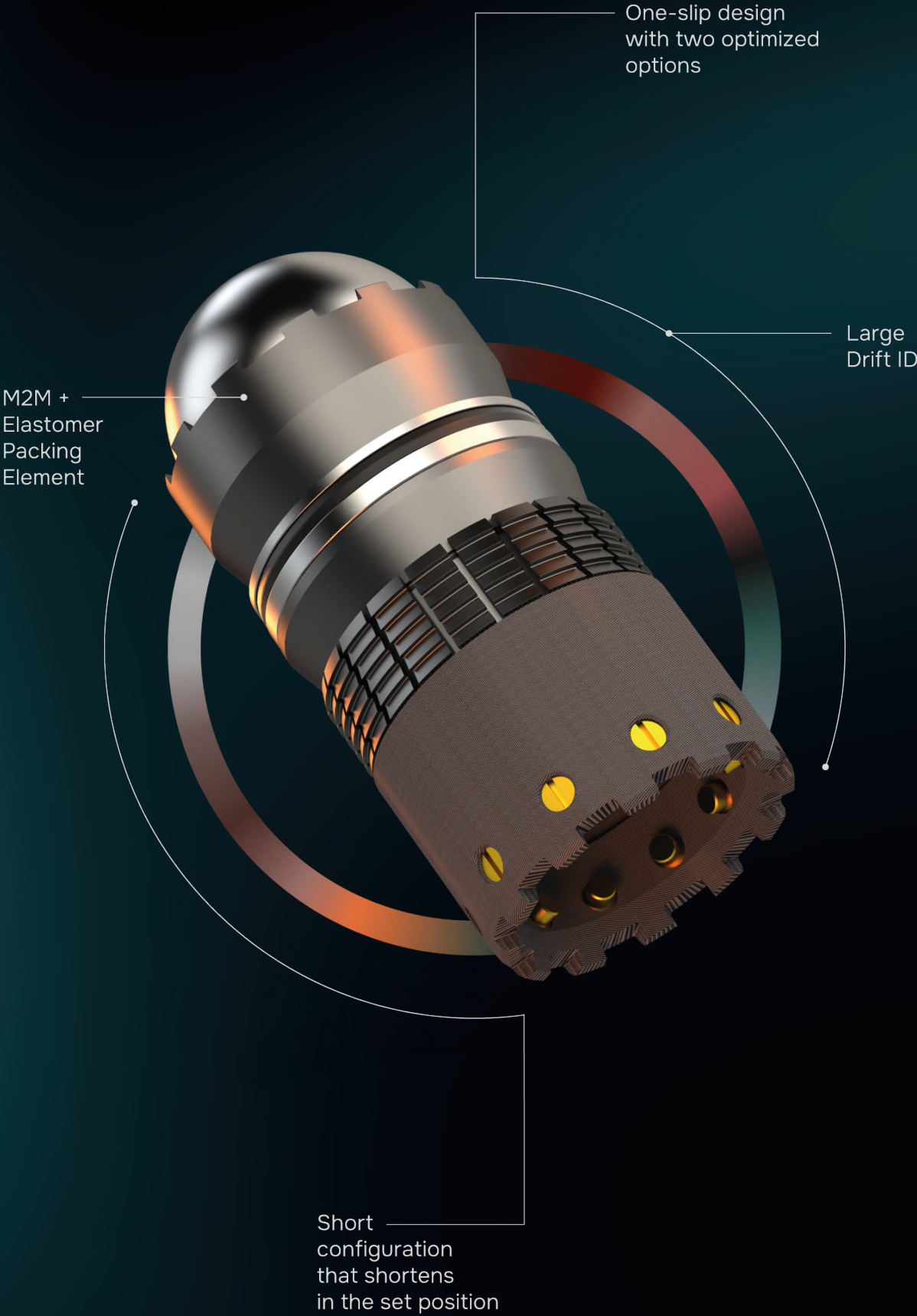
Ball-drop or Blank designs are available.

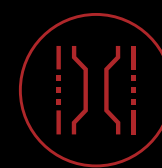
The plug is set for conventional Setting Equipment.

FEATURES

- Large Drift ID
- One-slip design with two optimized options that reduce particle size and material to circulate out of hole
- M2M + Elastomer Packing Element
- Short configuration that shortens in the set position, reduces amount of material to drill and circulate out of the well

Casing size in – [mm]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
4,5 - [114,3]	6,89 - 8,56	3.58 - [91]	2.76 - [70,5]	12500 - [862]
5 - [127]	9,19 - 11,1	3.98 - [101]	3.26 - [77,5]	10000 - [680]
5,5 - [139,7]	9,17 - 10,54	4.173 - [106]	3.26 - [77,5]	10000 - [680]





PATCHES

- 126 SPIDER ULTRA Tubing Patch
- 128 Expandable Patch



SPIDER ULTRA

TUBING PATCH

DESCRIPTION

The Symoil SPIDER Ultra Tubing Patch is designed for and tested for extreme conditions.

Symoil can build custom made Patches for majority of the wellbore conditions.

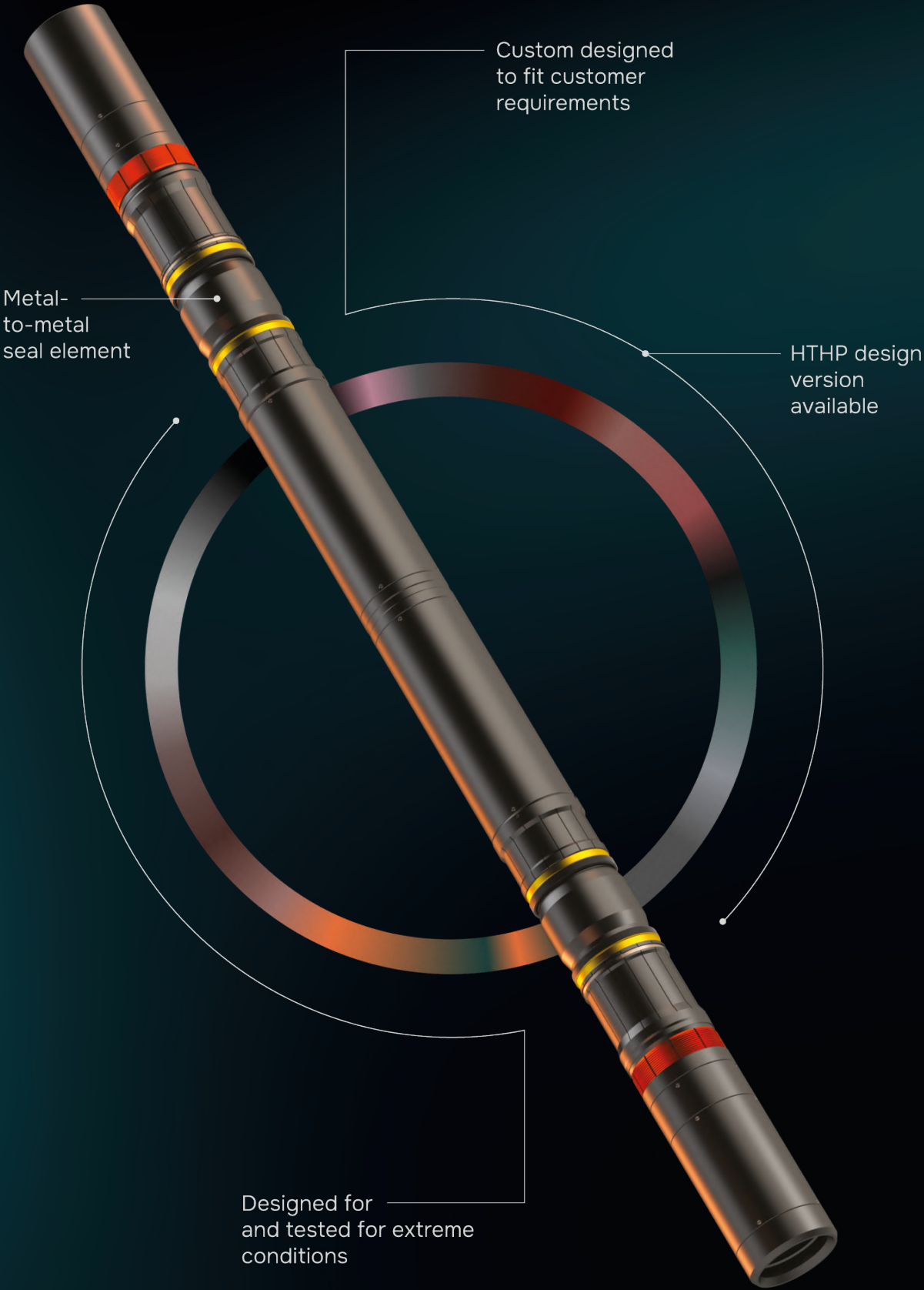
The Sealing elements are tested to HPHT conditions.

The patch can be custom designed with a ported nipple, seating nipple, sliding sleeve or gas lift mandrel for certain customer requirements.

FEATURES

- Custom designed to fit customer requirements
- Metal-to-metal seal element
- HTHP design version available

Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]
4.5 - [114.3]	13.5 - 15.1	7.37 - 8.56	3.65 - [92.7]	2.85 - [72.39]
6.625 - [168.3]	28 - 32	10.59 - 12.07	5.5 - [139.7]	4.25 - [107.95]
7 - [177.8]	26 - 32	9.19 - 11.51	5.875 - [149.2]	4.625 - [117.48]
9.625 - [244.5]	43.5 - 53.5	11.05 - 13.84	8.25 - [209.6]	6.625 - [168.28]
13.375 - [339.7]	54.5 - 77	9.65 - 13.97	12 - [304.8]	10.682 - [271.32]



EXPANDABLE PATCH

DESCRIPTION

The Symoil Expandable Tubing Patch design for covering leaking intervals inside casing or tubing.

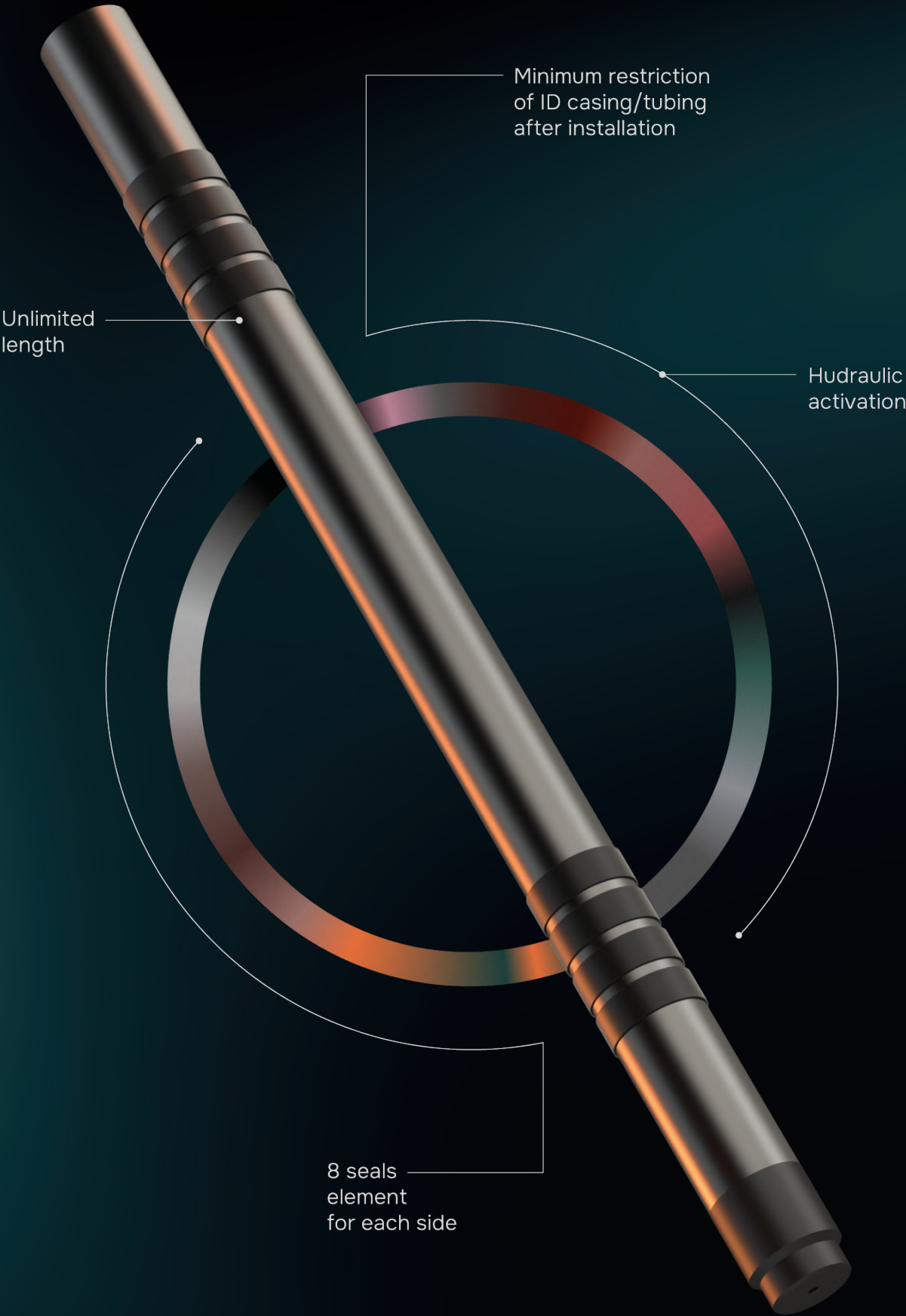
Stab process executed directly before RIH in a well, so there is no limitation on patch length.

Hudraulic activation allowed contol activation process on surface.

FEATURES

- Hudraulic activation
- 8 seals element for each side
- Unlimited length
- Minimum restriction of ID casing/tubing after installation

Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Plug OD in – [mm]	Packer ID in – [mm]
4.5 - [114.3]	13.5	7.37	3.504 - [89]	3.228 - [81.2]
4.5 - [114.3]	15.1	8.56	3.504 - [89]	3.15 - [80]
5.5 - [139.7]	17	7.72	4.25 - [108]	4.17 [105.9]
5.5 - [139.7]	20	9.17	4.25 - [108]	4.09 - [103.89]
6.625 - [168.3]	24	8.94	5.236 - [133]	5.118- [130]
7 - [177.8]	26	9.2	5.512 - [140]	5.512 - [140]
7 - [177.8]	29	10.4	5.512 - [140]	5.394 - [137]
9.625 - [244.5]	47	12	7.638 - [194]	7.35 - [186.7]
13.375 - [339.7]	72	13.06	11.772 - [299]	11.22 - [285.0]





THRU TUBING

STRADDLE PACKER SYSTEM

- 132 RAPTOR Straddle Packer System
- 134 HYDRA RAPTOR Straddle Packer System
- 136 Inflatable Straddle Packer

RAPTOR

STRADDLE PACKER SYSTEM

DESCRIPTION

Raptor Straddle System, the mechanical set packer assembly designed exclusively for cased hole applications. This innovative system offers a fast and cost-effective solution for remediating older wells and enhancing the performance of underperforming zones.

The Raptor Straddle System is engineered to simplify the process of refracturing and remediating wells. By incorporating multiple types of packer elements, this system provides a comprehensive solution for zone isolation and stimulation.

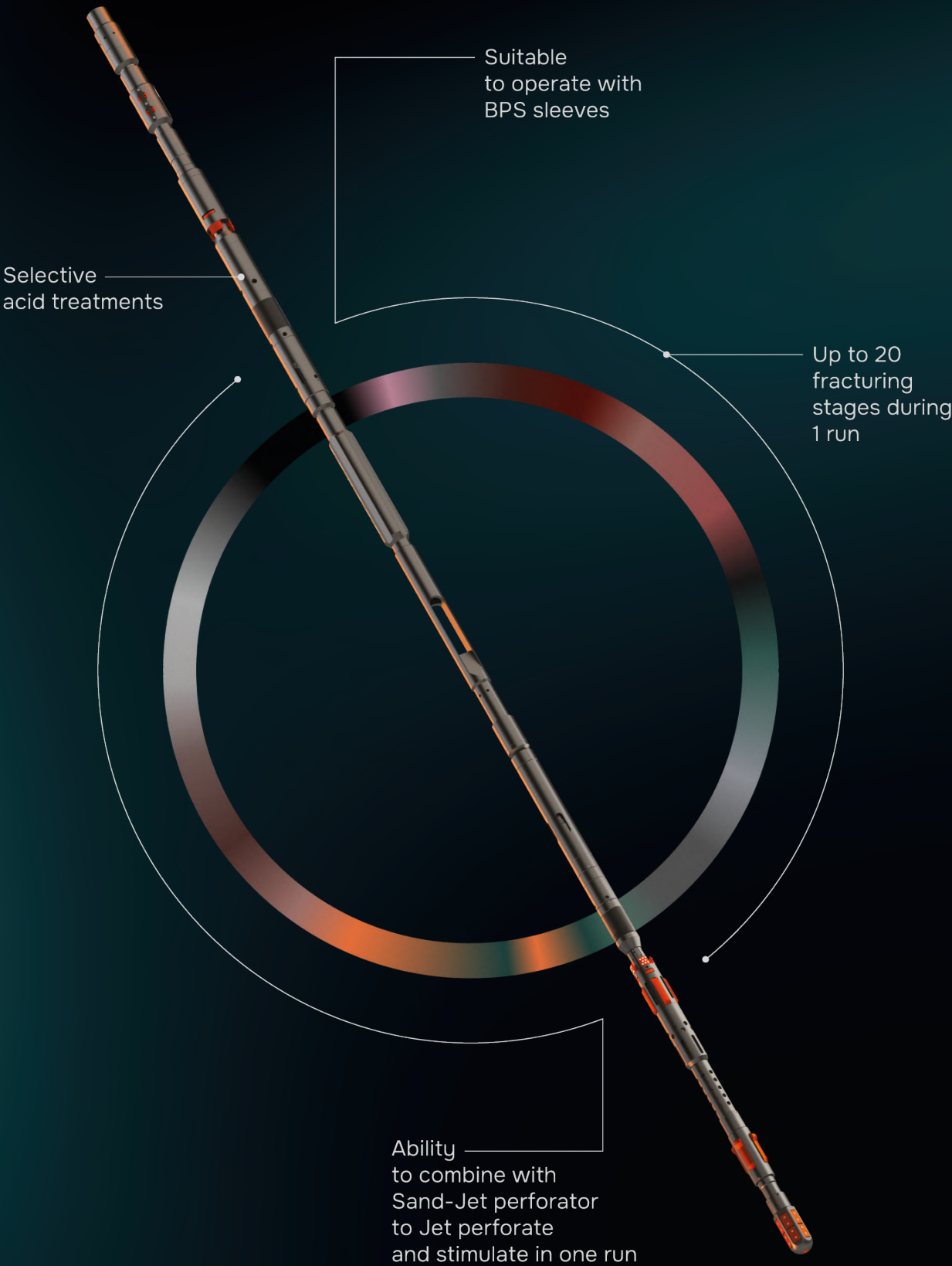
Raptor Straddle System enables to operate with ease through simple reciprocating motion. Packers are set by applying set-down weight, ensuring a secure and reliable seal. Unsetting the packers is achieved with a straight pull, cycling the J-lock to the running position.

The Raptor System can be configured with multiple perforating systems, including a sand-jet perforator or a hydraulic puncher. This versatility allows for selective zone stimulation, enabling you to precisely target specific areas for optimal results. With the ability to perform 20+ fracturing stages during a single run by coiled tubing (CT) or workover tubing, the Raptor Straddle System maximizes efficiency and minimizes operational costs.

FEATURES

- Mechanical reusable packers
- Reducing the risk of damage of the packer while running and passing through drilled ball sleeves
- Suitable to operate with BPS sleeves
- Designed to refrac jobs
- Water and gas zones isolation
- Different sizes available
- Selective acid treatments
- Ability to combine with Sand-Jet perforator to Jet perforate and stimulate in one run
- Ability to combine with puncher to punch perforate the casing and stimulate in one run
- No balls to drop or circulate out

Min Working Diametr in – [mm]	Max Working Diametr in – [mm]	Packer OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
3.48 - [88.4]	3.55 - [90.12]	3.25 - [82.55]	1.94 - [49.28]	10000 - [689]
3.826 - [97.18]	4 - [101.6]	3.65 - [92.71]	1.94 - [49.28]	10000 - [689]
5.625 [142.8]	6.25 [158.8]	5.5 [139,7]	2.68 - [68]	10000 - [689]



HYDRA RAPTOR

STRADDLE PACKER

DESCRIPTION

Hydra Raptor is a flow-activated hydraulic straddle packer system for efficient well stimulation. It activates and deactivates automatically based on fluid flow rate, delivering reliable sealing and operational efficiency.

Activation Mechanism:

The system uses differential pressure: increasing flow rate activates the packers for a secure seal; decreasing flow deactivates them without manual intervention.

Customizable Control

Install calibrated nozzles in the circulation port to set precise differential pressure, maintaining packer activation at targeted flow rates for optimal flexibility.

Rapid activation/deactivation for seamless acid fracturing fluid pumping.

Handles up to 10,000 psi on packers.

Suitable for open-hole and cased-hole environments with broad operating parameters.

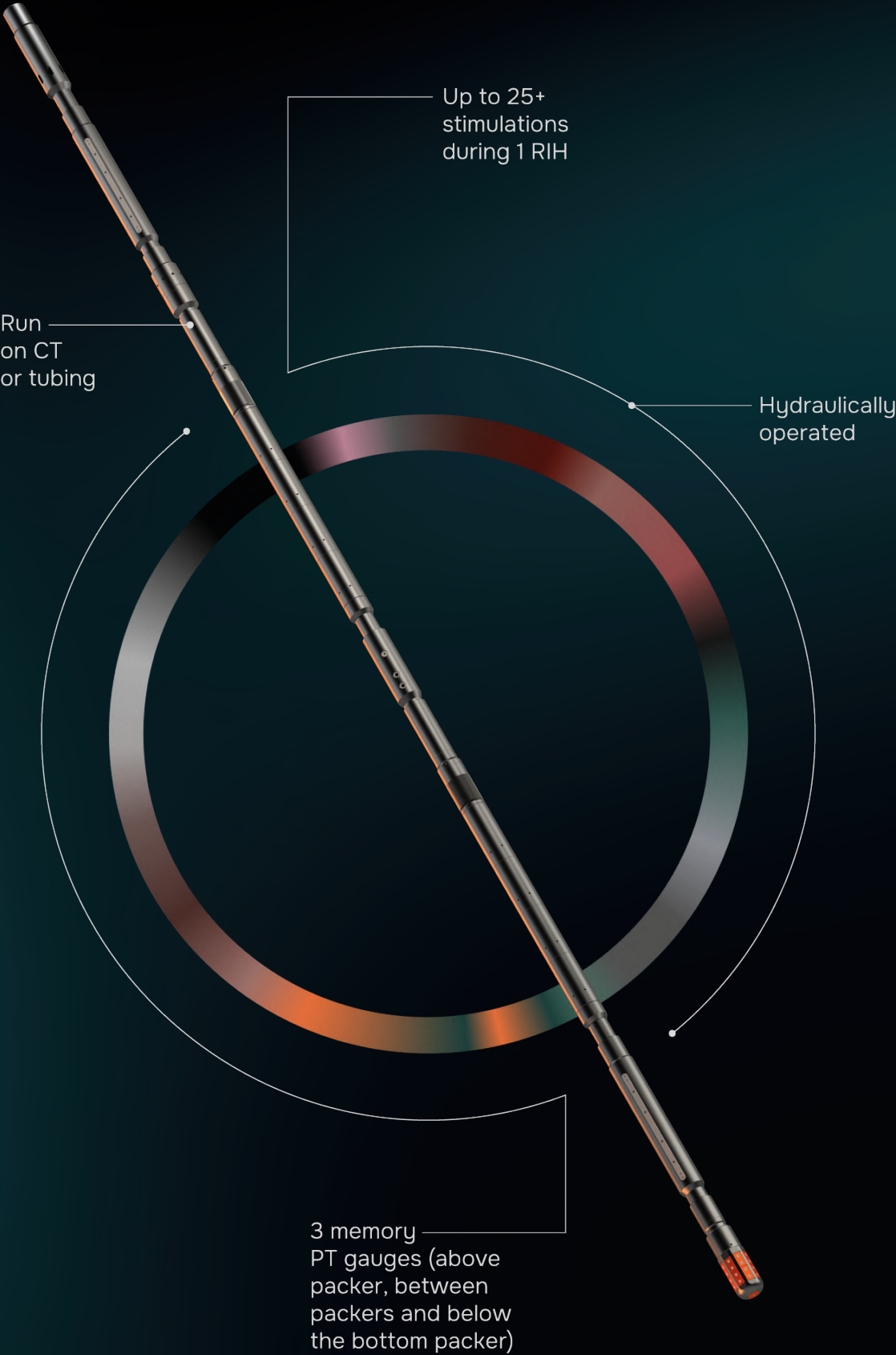
System Components: upper packer, lower packer, circulation frac sub

These elements ensure efficient fluid circulation and effective stimulation across diverse wellbore conditions.

FEATURES

- Designed to refrac jobs in cased wells, or Stimulation in Open-Hole applications
- Run on CT or tubing
- Optimized to Acid stimulation
- No need to apply axial force
- Multi-cycle hydraulic
- Small OD, reduces risk of damage to the packer when running and passing through drilled fracturing ball sleeves
- Up to 25+ stimulations during 1 RIH
- 3 memory PT gauges (above packer, between packers and below the bottom packer)
- Circulation during RIH and Annulus circulation when stuck

Min Working Diametr in – [mm]	Max Working Diametr in – [mm]	Packer OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
3.6 - [91.5]	4.1 - [104.1]	3.4 - [86.4]	1 - [25.4]	10000 - [689]
5.625 [142.8]	6.25 [158.8]	5.5 - [139.7]	2.125 - [54]	6000 - [414]
5.875 [149.3]	6.25 [158.8]	5.75 - [146.1]	2.125 - [54]	10000 - [689]



INFLATABLE

STRADDLE PACKER

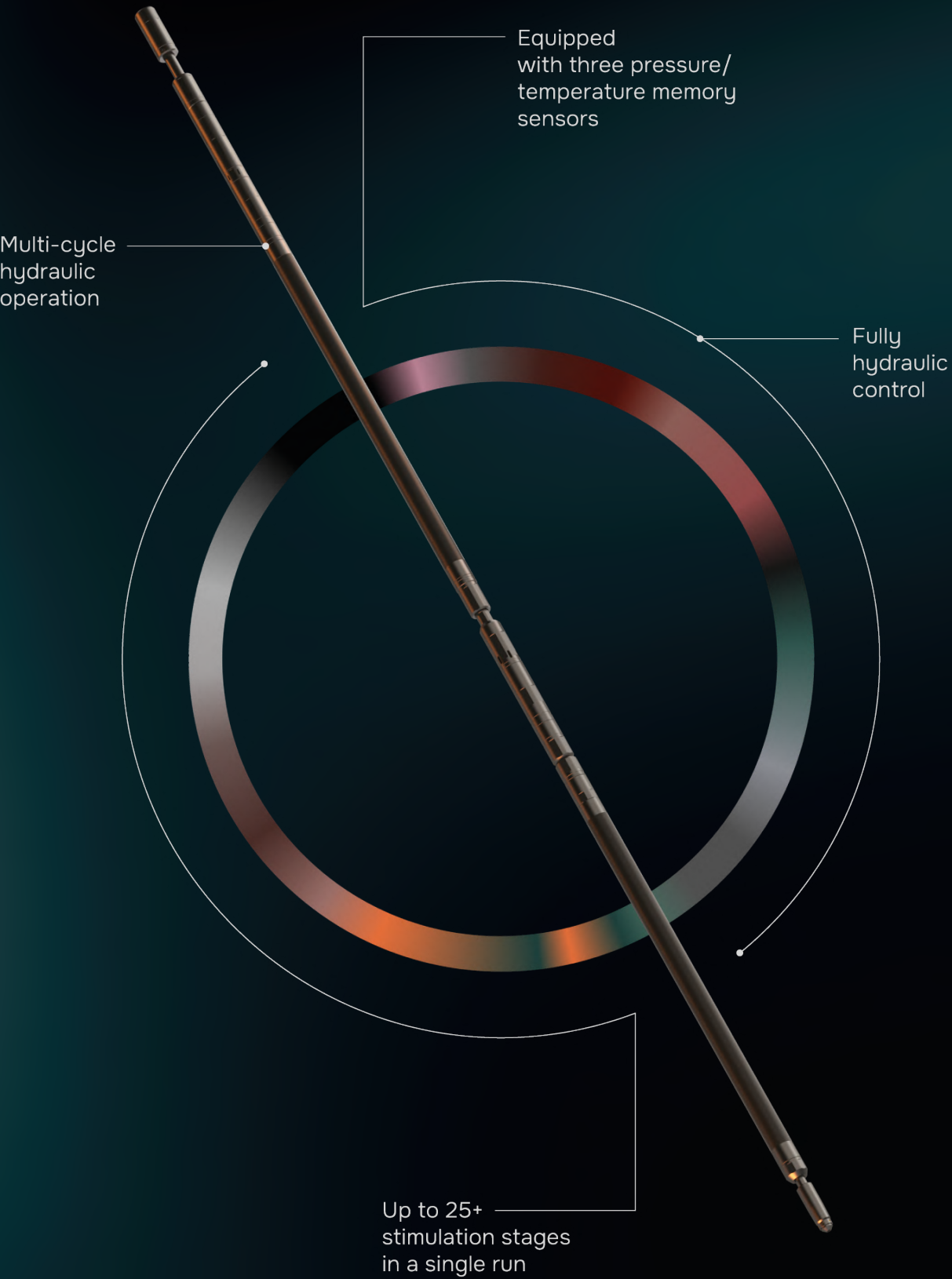
DESCRIPTION

The Inflatable Straddle System is a multi-cycle inflatable packer assembly which features a three-stage operational mechanism that enables packer inflation, complete shut-in isolation and deflation. The System can be configured as a single packer or a dual packer straddle assembly; its multi-cycle functionality allows for multiple stimulation cycles to be performed on different zones within a single trip.

FEATURES

- The system is designed for selective treatment in cased holes or openhole
- Running on coiled tubing or tubing
- Can be used in both liner and openhole
- Fully hydraulic control
- Multi-cycle hydraulic operation
- Small outside diameter reduces the risk of packer damage when passing through drilled-out ball-seat collars
- Possibility of working on tubing to isolate formation intervals
- Up to 25+ stimulation stages in a single run
- Equipped with three pressure/temperature memory sensors (above the packer, between the packers, and below the lower packer)
- Possibility of circulation during running in the well
- Possibility of circulation through the annulus in case of tool sticking

Min Working Diametr in – [mm]	Max Working Diametr in – [mm]	Plug OD in – [mm]	Packer ID in – [mm]	Pressure Rating Psi - [Bar]
3.6 - [91.5]	4.1 - [104.1]	3.4 - [86.4]	1 - [25.4]	10000 - [689]
5.625 [142.8]	6.25 [158.8]	5.5 - [139.7]	2.125 - [54]	6000 - [414]
5.875 [149.3]	6.25 [158.8]	5.75 - [146.1]	2.125 - [54]	10000 - [689]





MISCELLANEOUS

- 140 Memory Gauges
- 142 Gauge Carrier
- 144 High Expansion Gauge Hanger
- 146 PHOENIX Electronic Setting Tool
- 148 Ceramic Burst Disks

MEMORY GAUGES

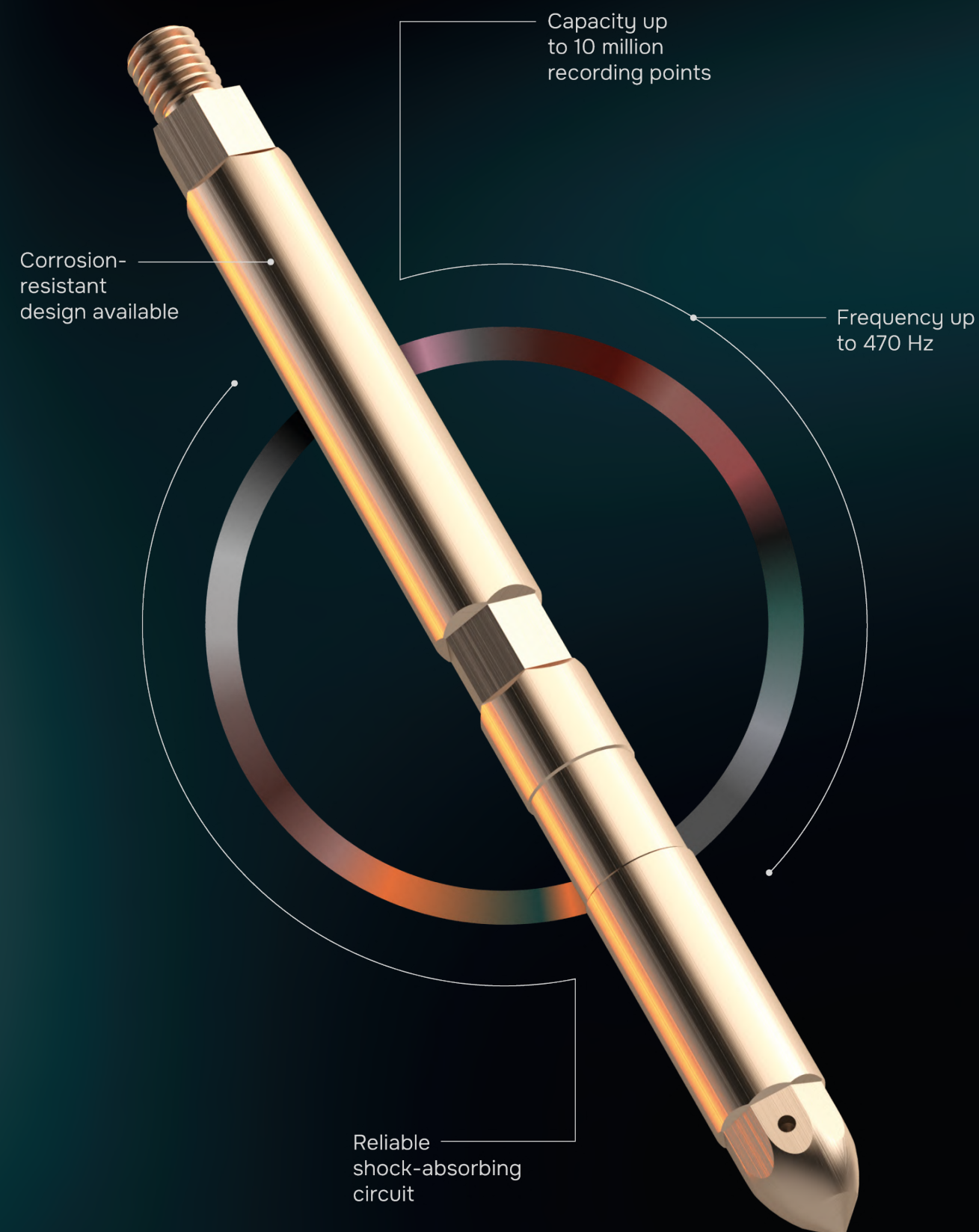
DESCRIPTION

The 0.75" downhole gauge size is the most cost-effective. This small diameter tool features a sapphire or piezo-resistant sensor with a memory of up to 10 million points.

The 0.75" Piezo Pressure Gauge operates using an isolated sensor and boasts a very simple and reliable design. This tool maintains its functionality even after shock loads from jarring, equipment installation, and perforation.

FEATURES

- Capacity up to 10 million recording points
- Frequency up to 470 Hz
- Corrosion-resistant design available
- Reliable shock-absorbing circuit



GAUGE CARRIER

DESCRIPTION

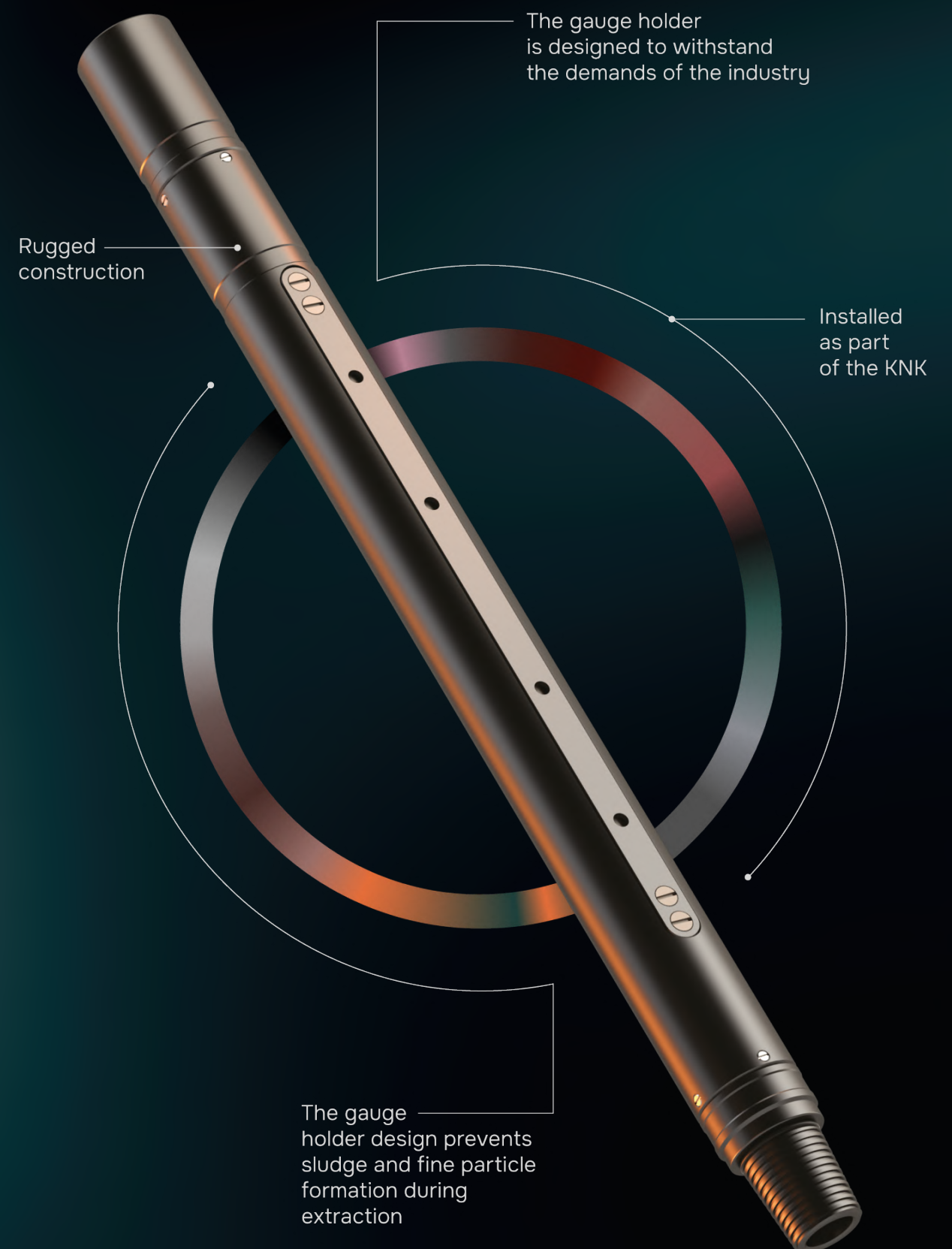
The gauge holder is the ideal solution for lowering measuring equipment into a well.

The gauge holder is installed as part of the KNK and is used for a variety of operations.

Made from a variety of materials and with a wide range of threaded connections, the gauge holder embodies reliability and adaptability. Choose precision and efficiency – choose the gauge holder for your well operations.

FEATURES

- Installing gauges has never been easier – optimize the installation process for increased efficiency
- The gauge holder design prevents sludge and fine particle formation during extraction, even after extended periods of operation
- Rugged Construction, Minimal Refurbishment: The gauge holder is designed to withstand the demands of the industry, ensuring long-lasting performance and reliability



HIGH EXPANSION GAUGE HANGER

DESCRIPTION

The Large Expansion Gauge Holder is the ideal solution for securing downhole equipment. It is specifically designed for installation inside tubing without nipple profiles, providing a secure platform for the gauges and minimally reducing wellbore flow. This unique design improves measurement accuracy during production and injection.

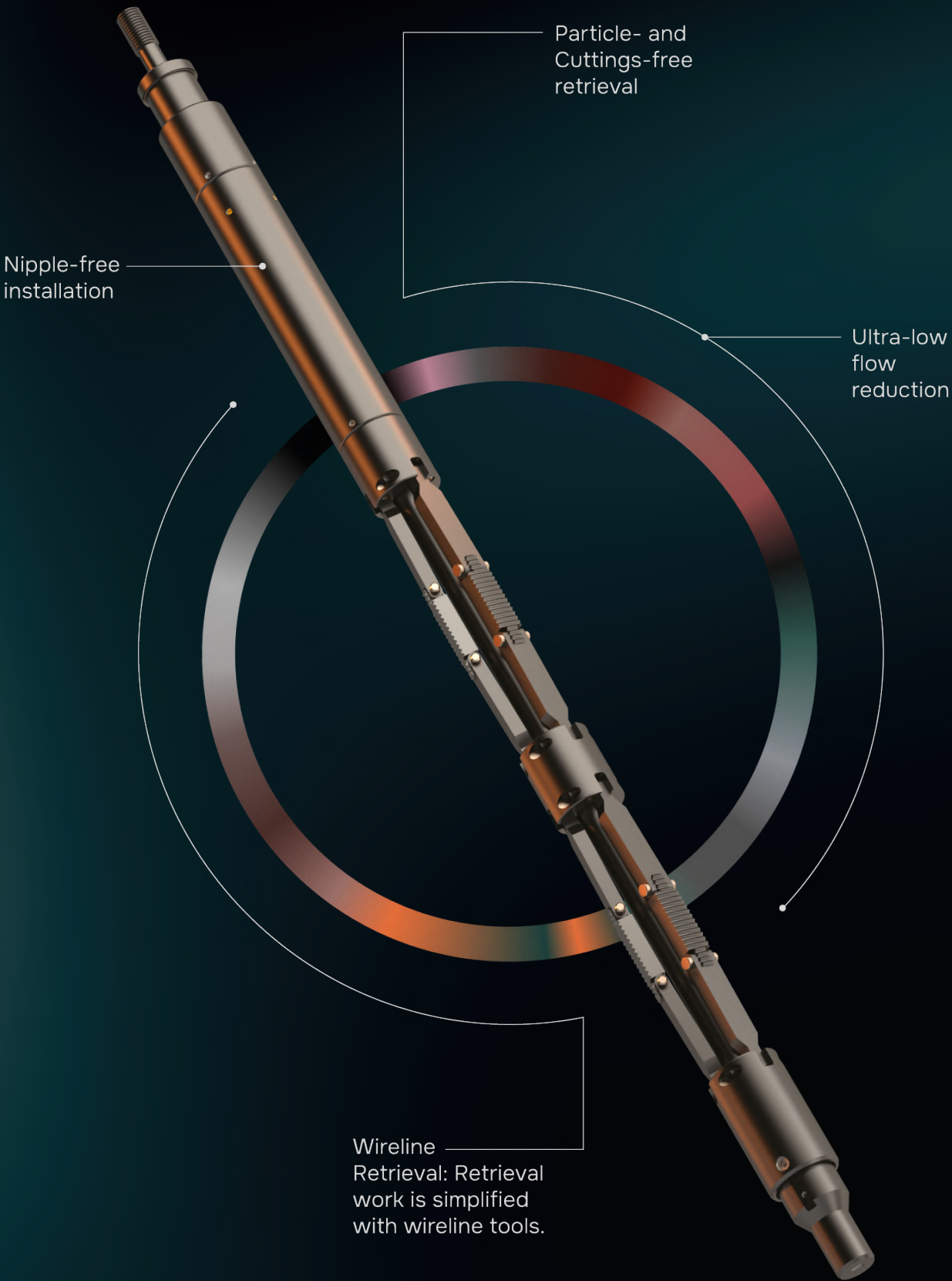
The gauge holder is installed using an electric or explosive setting tool, seamlessly passing through small internal diameters for installation in larger diameters. This versatility also extends to anchoring, effectively preventing unwanted equipment movement in producing wells.

Crafted from a variety of materials and available with a wide range of threaded connections, the Large Expansion Gauge Holder embodies reliability and adaptability. Choose precision and efficiency – choose the Large Expansion Gauge Holder for your well completion needs.

FEATURES

- Ultra-Low Flow Reduction: Enjoy optimal well performance with our sensor holder, as it provides exceptionally low flow reduction and ensures trouble-free sensor operation
- Nipple-Free Installation: Sensor installation has never been easier – our holder is designed without the need for nipple profiles, streamlining the installation process for increased efficiency
- Particle- and Cuttings-Free Retrieval: Say goodbye to the hassle of cuttings. The sensor holder's design prevents the buildup of cuttings and small particles during retrieval, even after extended periods of operation
- Rugged Construction, Minimal Retooling: The sensor holder is designed to withstand the demands of the industry, ensuring long-term operation and reliability
- Wireline Retrieval: Retrieval work is simplified with wireline tools. Streamline your operations and reduce time with this convenient feature

OD in – [mm]	Casing size in – [mm]	Casing Weight Min-Max [lbs/ft]	Wall thickness Min-Max [mm]	Hanging weight klbf - [t]
2 - [50.8]	7 - [177.8]	23 - 38	8.05 - 13.72	35 - [15.9]
2.75 - [69.9]	9.625 - [244.5]	43.5 - 58.4	11.05 - 13.84	55 - [24.9]



PHOENIX

ELECTRONIC SETTING TOOL

DESCRIPTION

Phoenix Electronic Setting Tool is a unique electro-mechanical downhole setting tool, capable of delivering up to high loads of linear force which can be used to set, or un-set, plugs and packers in a wide range of tubing and casing sizes. Setting tool is suitable for use on any conveyance method including slickline, digital slickline, electric line, coiled tubing or below perforation guns.

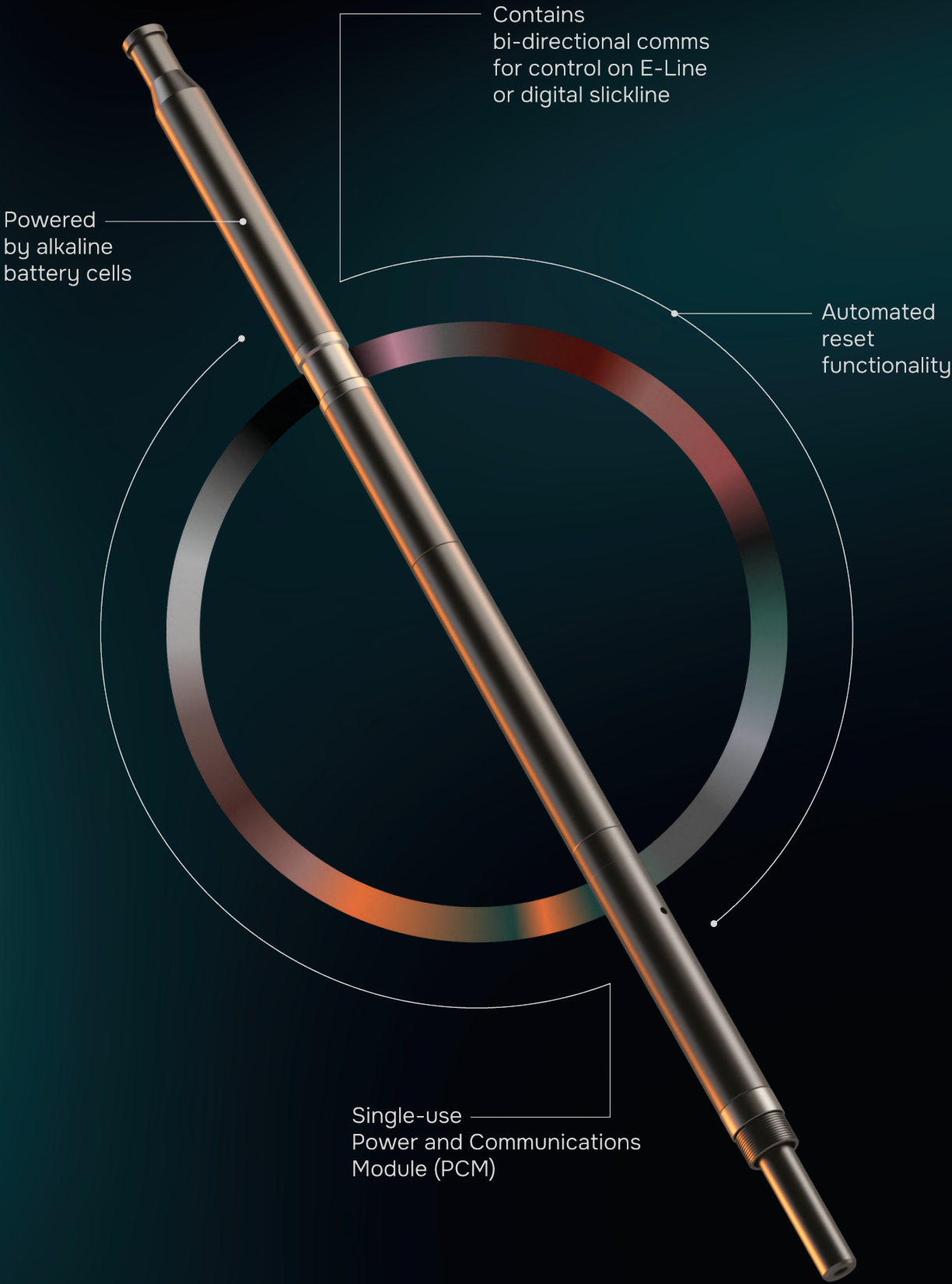
It is used to set packers and plugs that are normally set with a Model “E-4” Wireline Pressure Setting Assembly (or similar wireline setting equipment).

The same adapter kit that is used on wireline can be used with the HST.

FEATURES

- Single-use Power and Communications Module (PCM)
- Powered by alkaline battery cells
- Contains 3-axis motion sensor for control on slickline
- Contains bi-directional comms for control on E-Line or digital slickline
- Automated reset functionality
- Easy to redress with no internal hydraulics
- Jar through capability in the event of tool failure (no hydraulic damping)
- Records current, voltage and diagnostics to memory or transmits to surface for real time feedback and control
- Non-explosive, no dangerous goods, can be freely transported without restriction
- Fully modular tool, can be configured to adjust stroke length, setting force and setting speed

Size in - [mm]	OD in - [mm]	Max Pull lbs - [kg]
OWEN 2.125" MSST	2.215 - [56.261]	40000 - [18144]
#10	2.75 - [69.85]	60000 - [27216]
#20	3.6 - [91.44]	90000 - [40823]



CERAMIC BURST DISKS

DESCRIPTION

The Interventionless Burst Disc Sub is an economical pressure barrier that isolates the tubing ID from high wellbore pressure when running tubing and completion BHAs.

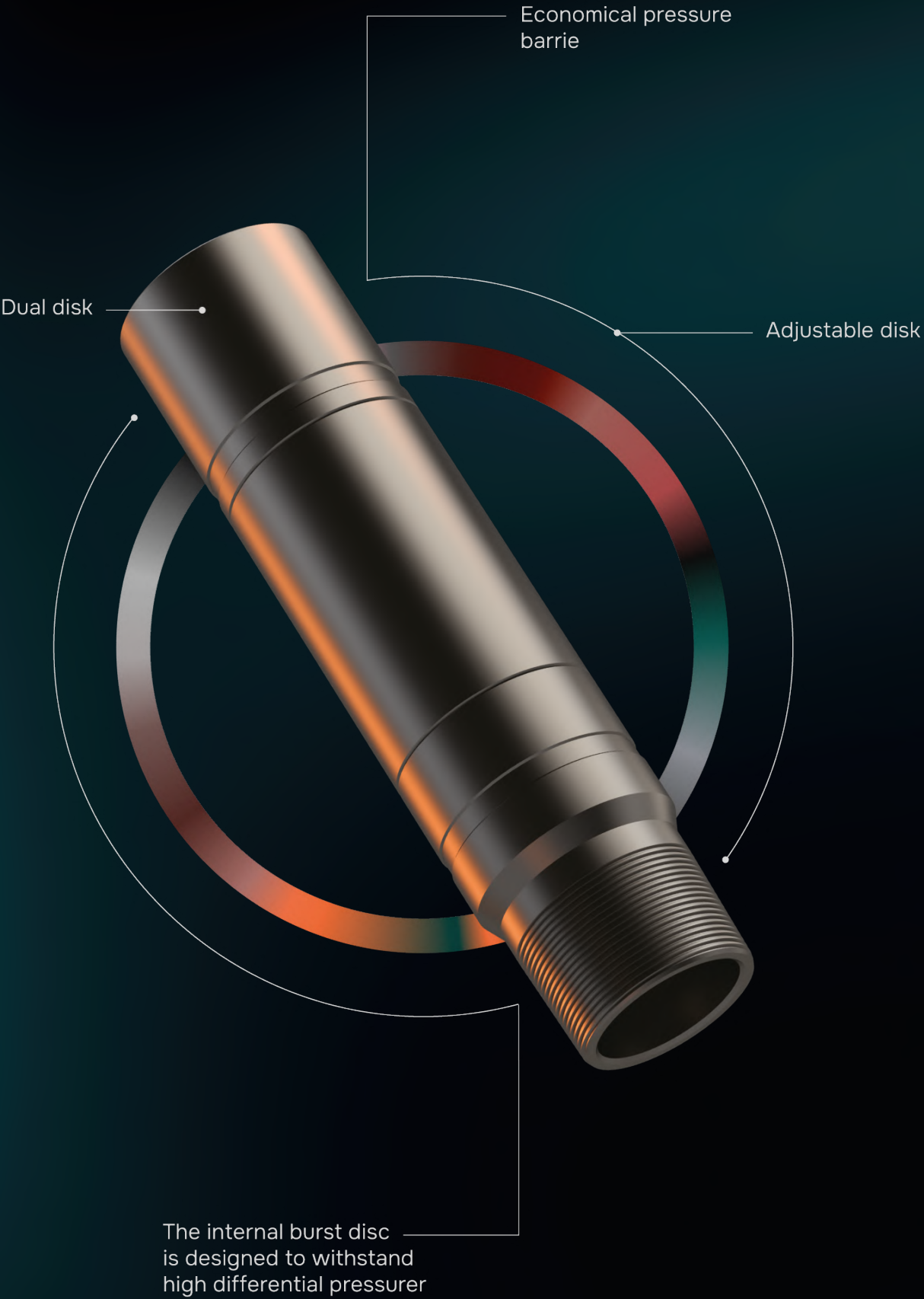
The internal burst disc is designed to withstand high differential pressure from below and be easily and reliably removed with low differential pressure from above.

Once at depth, tubing pressure is increased until the differential pressure across the burst disc is high enough to remove it, allowing the operator to continue well operations.

FEATURES

- Dual disk and Adjustable disk option available

Size in - [mm]	Packer OD in - [mm]	Packer ID in - [mm]	Pressure Rating Above Psi - [Bar]	Pressure Rating Below Psi - [Bar]
2.375 - [60]	3.062 - [77.8]	1.995 - [49.7]	1000 - [69]	10000 - [689]
2.875 - [73]	3.688 - [93.7]	2.44 - [62.0]	1000 - [69]	10000 - [689]
3.5 - [88.9]	4.5 - [114.3]	2.992 - [76.0]	1000 - [69]	10000 - [689]



Completion

Packers

Plugs

Patches

Thru tubing

Miscellaneous