K-BOS®

KINETIC BLOWOUT STOPPER

Shear Anything | Seal Instantly | Ultimate Reliability

Emergency Shut-in Device E-SID™

- K-BOS® Shear Anything™ capability in a compact BOP independent configuration
- Meets DNVGL-OS-E101 and configured to integrate with normal drilling operations
- Offers a Step Change in Process Safety
- Reduces probability of a blow-out by eliminating un-shearable situations
- Superior alternative to conventional cap and contain emergency response planning
- No scheduled maintenance (K-BOS)

www.shearanything.com

KINETIC PRESSURE CONTROL

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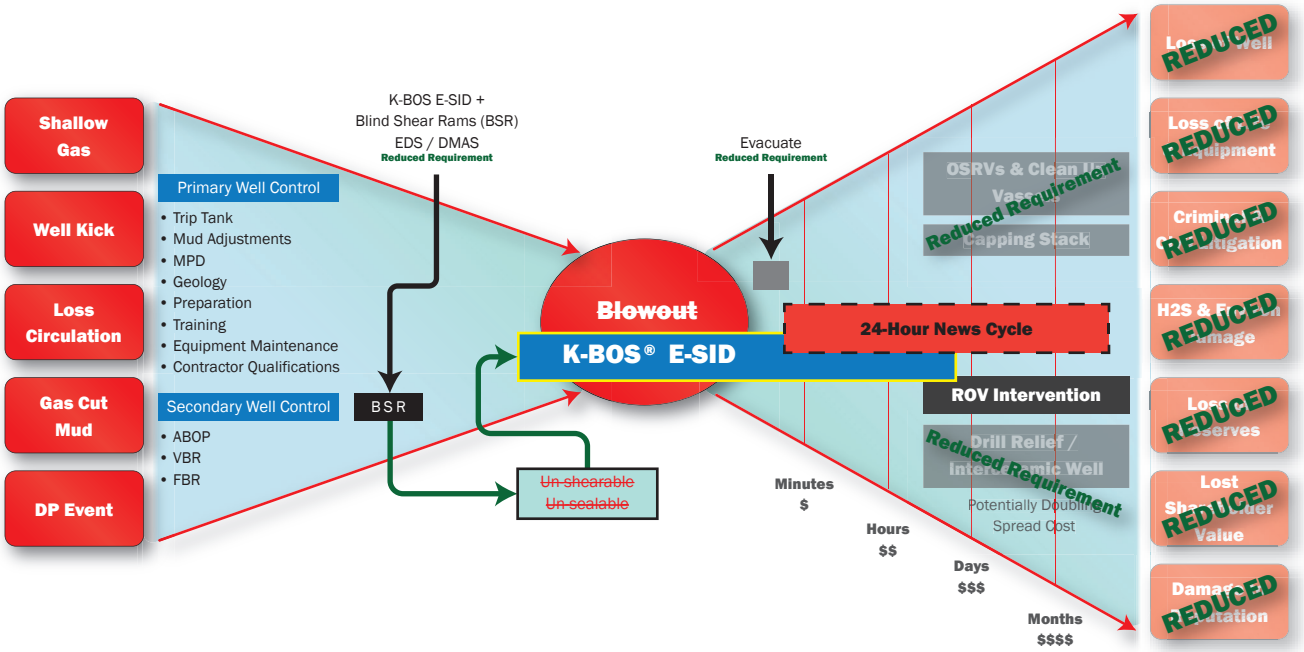
MITIGATE ENTERPRISE RISK: ~~LOSS OF WELL CONTROL.~~

The E-SID is an additional safe barrier to complement the existing BOP equipment. It removes all unshearable situations and can be activated before or during a blowout to secure the well: a step change in safety.



K-BOS® VS CONVENTIONAL EMERGENCY RESPONSE / SOURCE CONTROL

Item	Local Dedicated Capping	Regional Subscription Capping	Non-vertical Access Capping	Intercept Well	K-BOS®
Response time	4 to 7 days	10 to 30 days	>60 days May not be possible	90+ days	Immediate
Estimated discharge volume	Significant Volume	High Volume	Extreme Volume	Extreme Volume	Minimal
Reduced Blowout Probability	No	No	No	No	Yes. Significant reduction in Blowout Probability
Deployable in shallow water and on multi-well platforms	No	No	>60 days May not be possible	90+ days	Yes
Preserves BOP	No	No	No	No	Yes, Enables use of existing rig to drill intercept well
Cost	Equipment + Shore Base Storage + Dedicated CSV	Access to Equipment + Access to CSV	Access to Equipment + Access to CSV	Access to rig	Equipment rental. Pre-installed on each well

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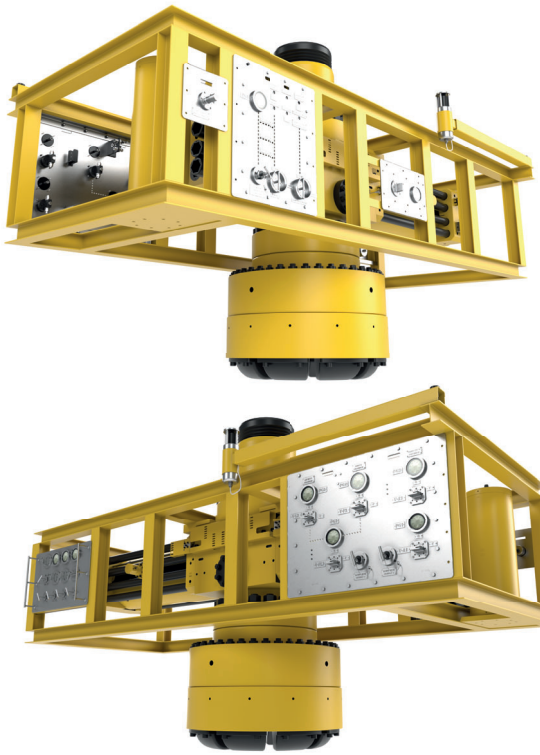
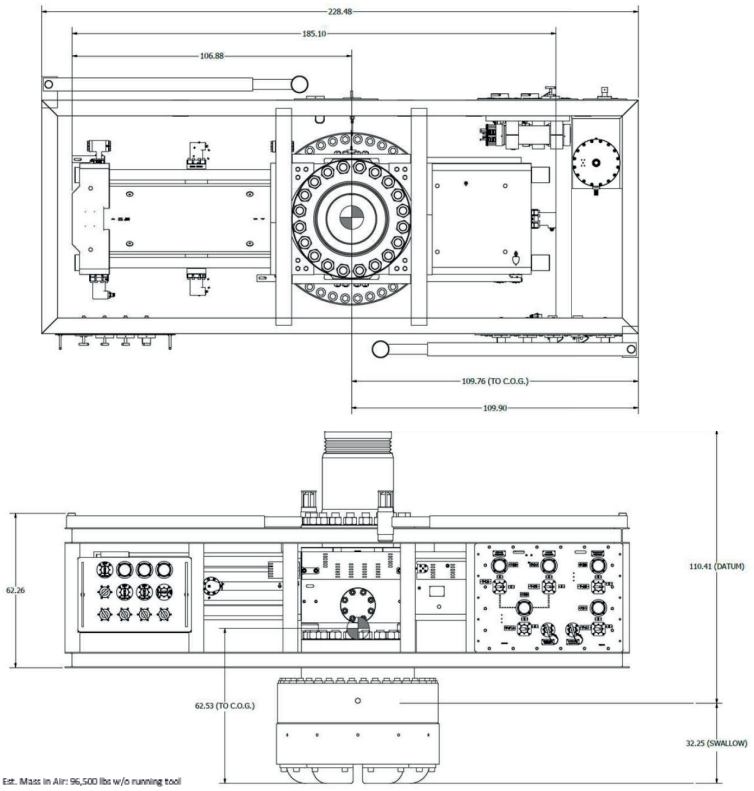
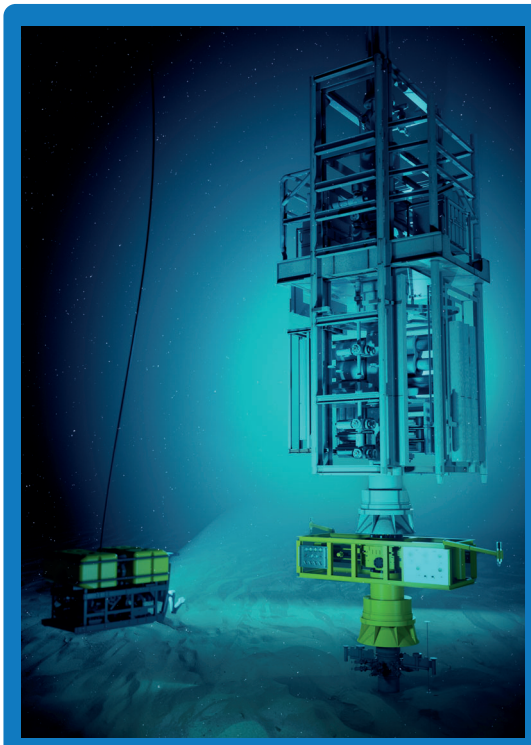
TECHNICAL DATA







Shown Above: The 18-15M K-BOS E-SID is latched up on the wellhead with the BOP latched up above the E-SID. It may be run on drill pipe or crane wire. It is similar in size to a tubing spool and is handled like a SSXT.

18-15M K-BOS® E-SID™ Specification Summary

Reference Standard	DNVGL-OS-E101
API 16A Bore Size	18-3/4"
Pressure / Temperature	15,000psi RWP, 30-250F
Sour Service	Yes, per NACE
Water Depth	12,000 ft below sea level
Side Outlets	Blanked 1 x 3-15M Wellbore pressure gauge, analogue, Kinetic "fail safe" design.
Wellhead Connector	27" H4, specific configuration case by case
Mandrel	27" H4
K-BOS Shear & Seal Capability	Tubulars incl Drill Pipe and Joints, BHAs & Casing: i. Up to 18" Outer Diameter ii. Up to 0-220 ppf Weight Grade iii. Up to MYS 165ksi Material Grade Regardless of established flow up to 15ksi & tubulars moving at up to 10m/s
Function Time	K-BOS: << 1 second
E-SID Controls	K-BOS: • Electronic Signal from Surface status and activation • Acoustic Signal (optional) for activation • Hydraulic Signal from BOP/LMRP or ROV • ROV status on demand • Surface HMI – IEC Ex Zone2 • Surface Server Cabinet – Safe Area Rated • Back-up Battery Performance ▪ Normally trickle charged from surface ▪ 2 hours full functionality >40 days following disconnect WH Connector – Hydraulic via ROV, with glycol injection circuit for hydrate mitigation. Running Tool - Hydraulic via ROV

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SHEAR ANYTHING

8.5" OD Tool Joint Landing String, V150

16" OD HP Casing, Q125 6-5/8" OD Inner String, V150 Combined 186ppf

6.9" OD Slip Proof Landing String, V150 Side Load & Compression

18" OD Casing, P110 6-5/8" OD Inner String, V150 Combined 167ppf

0.3125" Braided E-Line / 0.125" Slick Line

9.5" OD Drill Collar 214ppf, MYS 120

SHEARING CAPABILITY ANALYSIS (D&C)

Requirement: "Any..."	% Time Across BOP	K-BOS	Regulatory Context
Drill / Work String	40-60%	100%	BSEE Regulations
Landing String (Incl. Slip Proof Area)		100%	
E-Line/ Wireline/ Slick Line	20-30%	100%	
Tubing (Incl. Control Lines)		100%	
Test Tree Shear Sub		100%	
Upper Completions & Subsea Test Tree		100%	Process Safety / Well Integrity
Casing incl Joints	10-20%	100%	
Casing w/ Inner String or Drill-in Liner		100%	
Tool Joints	4-7%	100%	
BHAs and Tools (Excluding drill bits and >16" OD stabilizers)	2-5%	100%	
"Moving Pipe" Situations	<1%	100%	Well Control Situations
Under Compression		100%	
Under Side Load / Any Position in Wellbore		100%	
Full Flowing Conditions		100%	
DMAS / EDS		<<0.1s / ~10s	

Color Legend: Shear and Seal