



AXE Cutting System

Single pass, environmentally friendly tool for wellhead and casing severance

The AXE severance system is a high pressure water jet cutting system designed for the environmentally friendly removal of subsea wellheads, piles and platform conductors. The AXE can cut multi-string casings, including 30 inches, in a single pass using environmentally friendly inert consumables; removing the need for explosives or rig-based mechanical cutting tools.

The system is independently powered by a 450 bhp diesel power pack and can be deployed from a rig on drill pipe, or a vessel of opportunity on wire. A key benefit of the AXE is its ability to cut below the mud line and when deployed with a wellhead connector, the cut and recovery can be completed in a single run. The AXE has an extensive track record of successful cuts in the Asia Pacific region.

Primarily designed for severance of multi-casing wellheads, the AXE can also cut subsea flowlines, umbilicals, jacket piles, caissons and all associated subsea infrastructure.

The AXE uses entrained grit water, at 10,000 - 14,000 psi system pressure, as a cutting medium. The standard cutting tool is capable of entering and cutting wellheads with 7 inch, or larger, casing and severing through multiple casings of 7, 9%, 13%, 20 and 30 inches in a single pass cut. The optional four inch cutting tool is able to provide a solution for smaller bore applications.

The complete AXE system is made up of several skids, which can be shipped for deployment anywhere in the world. The modular design allows flexible deck configuration, if deck space is limited.



APPLICATION

Multi-casing wellhead removal

Platform conductor cutting

Jacket pile cutting

FEATURES

Single pass cut of multi-layer casing

Environmentally inert consumables

Eliminates use of explosives

Single trip tool

Cut and wellhead pull in single run

Proven technology

Skid based system

Integrated power pack

Suitable for non-centric or loose casing

CERTIFICATION

Pressure vessel : ASME VIII DIV 3

Equipment skids : DNV 2.7-1 or DNV 2.7-3

SPECIFICATIONS

Engine : Cummins NTA855 450 bhp

Fuel consumption : 95 l/hr (25 USG/hr)

Nominal flow rate : 12,000 l/hr (3,175 USG/hr)

Maximum working pressure : 14,500 psi (1,000 bar)

Grit consumption : 1.7 t/hr

AXE housing lift capacity : 120 t

AXE SYSTEM COMPONENTS

AXE cutting tool skid

Control skid

Pumping skid

Umbilical and umbilical reeler skid

Workshop container

Slurry pump skid

Bulk grit handling system

Tooling container



AXE OPERATIONAL ASSEMBLY

Cutting Tool Skid

Tool outside diameters	: 4", 7", 9 $\frac{5}{8}$ "
Dimensions	: L9.68m x W0.70m x H0.39m
Weight	: 1,500 kg

Control Reeler

Dimensions	: L2.00m x W2.00m x H2.15m
Weight	: 7,000 kg
Umbilical	: various 150 m sections

Control Skid

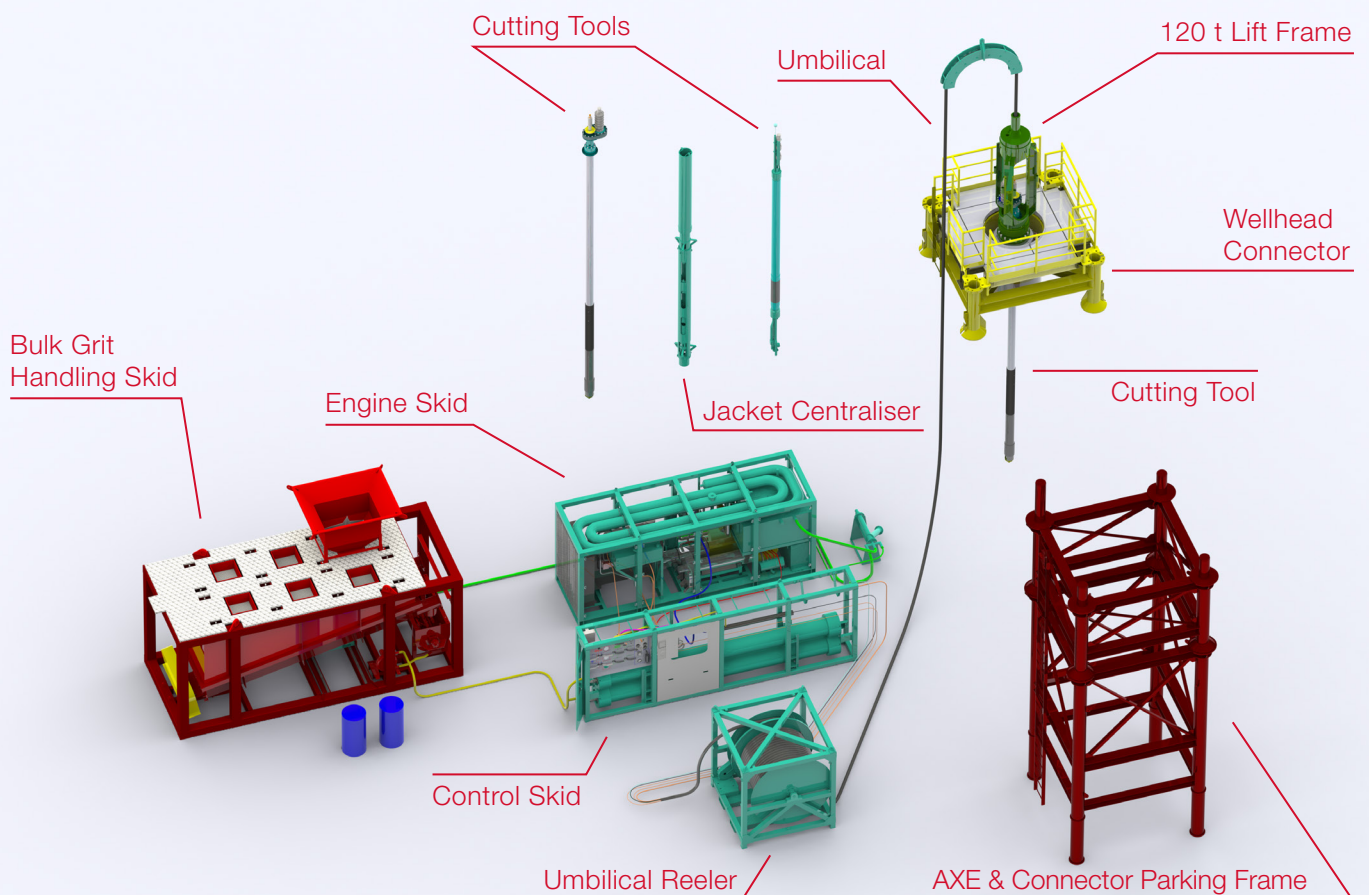
Dimensions	: L5.90m x W0.65m x H2.20m
Weight	: 8,000 kg

Engine Skid

Dimensions	: L5.10m x W1.60m x H2.10m
Weight	: 9,000 kg
Engine	: Cummins NTA 855 450 bhp
Pumps	: Hammelmann & Duraqual

Bulk Grit Handling Skid

Dimensions	: L6.35m x W2.45m x H3.95m
Weight	: 16,400kg





EQUIPMENT HISTORY

2011 PTTEP Timor Sea SG1 Wellheads

Removal of 17 subsea wellheads in 100 m water depth cutting through 9 $\frac{5}{8}$ " x 13 $\frac{3}{8}$ " x 20" x 30" casings

2008 ConocoPhillips Timor Sea Wellheads

Removal of five (5) subsea wellheads in 105 m water depth cutting through 9 $\frac{5}{8}$ " x 13 $\frac{3}{8}$ " x 20" x 30" casings

2008 Woodside NWS Wellheads

Removal of six (6) subsea wellheads in 395 m water depth cutting through 9 $\frac{5}{8}$ " x 13 $\frac{3}{8}$ " x 20" x 30" casings

2006 Total Vietnam Wellheads

Removal of five (5) subsea wellheads in 50 m water depth; three (3) through 7" x 13 $\frac{3}{8}$ " x 20" x 30" casings and two (2) through 9 $\frac{5}{8}$ " x 13 $\frac{3}{8}$ " x 20" x 30" casings

2005 Nexen Timor Sea Platform Wellhead

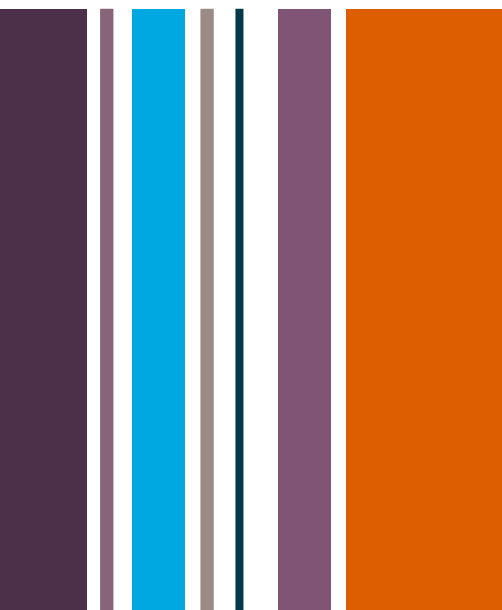
Removal of three (3) subsea platform piles in 30 m water depth and five (5) well conductors in 55 m water depth cutting through 13 $\frac{5}{8}$ " x 20" casings

2004 ONGC Mumbai High Piles

Nine (9) subsea platform pile cuts in 30 m, 60 m and 90 m water depths cutting through 48" x 52" piles

2003 Woodside SG1 Wellheads

Removal of three (3) subsea wellheads in 70 m water depth cutting through 9 $\frac{5}{8}$ " x 13 $\frac{3}{8}$ " x 20" x 30" casings



SapuraKencana Well Services

is operated by subsidiaries of SapuraKencana Petroleum



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