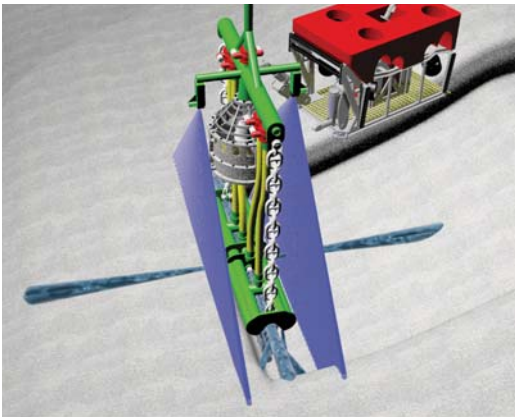


## Breaking new ground in subsea excavation and trenching.



### ClayCutter X

ClayCutter X is a complete, very high horsepower excavation system for pipeline route preparation, silo cutting and mass excavation of clay and cemented soils on flat or sloping terrain.



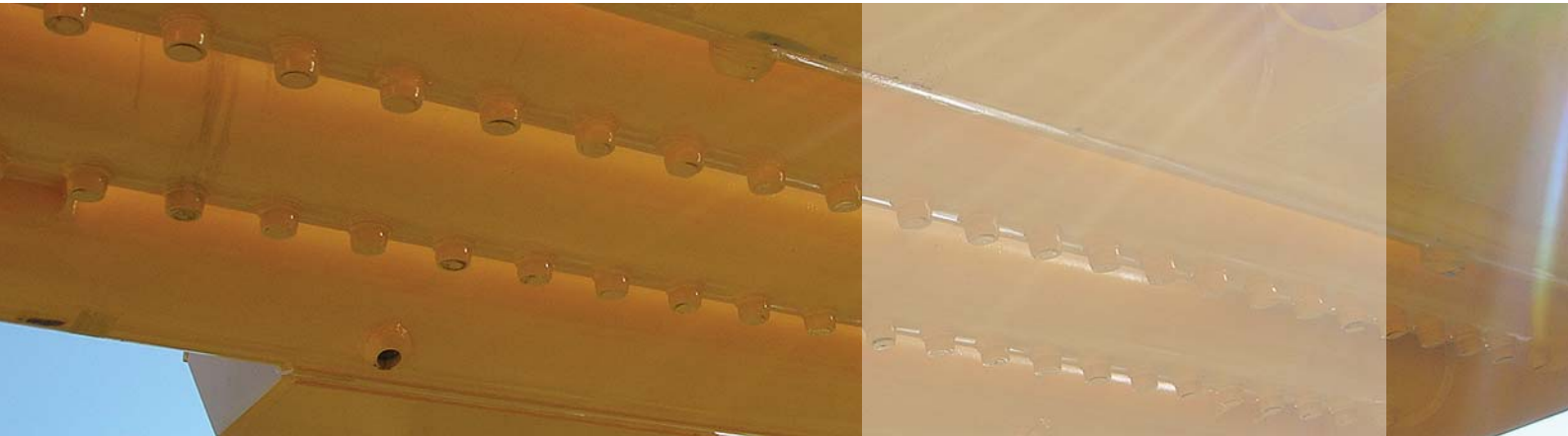
The system consists of a heavy horizontal jetting beam suspended from a drill string manifold on heavy duty chains. High-pressure water is pumped from the surface through the drill string to the manifold and to the jetting beam via flexible hoses. This device effectively decouples the jetting system from the drill string, manifold and support vessel so that the jetting beam may be landed on the seabed without shock-loading the drill string.

The jetting beam has 3 sets of jets each controlled by remote valves so that different excavation activities can be performed. A seawater-powered SeaVator mass flow excavator can be installed above the jetting beam to wash away cut spoil if required. Sonar devices are mounted on the base of the manifold to observe and control excavation.

Rated at 9,000 horsepower the system can be operated in up to 3000m from a suitable dynamically positioned support vessel. The system can also be deployed from a drilling rig.

The ClayCutter-X system is suitable for cutting clay and cemented soils up to 500 kPa shear strength at rates up to 500 cubic metres per hour. The tool is designed as a multi-pass system and can be operated at up to 200 bar nozzle pressure. Cut depth per pass depends on soil strength but varies from about 150mm for 400 kPa clay to about 1000mm for weakly cemented sands. Maximum trench depth varies according to the soil characteristics and angle of repose assumed by the soil. Trenches up to 5m deep can be cut in a flat seabed and up to about 10m where steep slopes are present to assist soil runoff.

## Competitive Advantages



### Applications include:

Pipeline Route Preparation  
Silo Construction - Mud Line Cellars  
and Glory Holes  
Trench Construction in Clay, Sand  
and Boulders  
Rock Dump and Boulder Clearance

The ClayCutter X enables pipelines to be installed in areas where seabed irregularities and excessive slope breaks previously rendered installation impossible. AGR's ClayCutter is ushering in a new era of seabed intervention where direct routes can be planned to save miles of line pipe and millions of tonnes of rock dump. One operator has estimated that each cubic metre of seabed excavated saves 25 cubic metres of rock dump.

The ability to change ClayCutter's configuration while the tool is deployed subsea means that rapid progress can be made through changing seabed types with minimal time required to change from hard clay jetting to gravel blasting and boulder clearance using the side cannons.

Depending on application, ClayCutter can easily be modified to be deployed by A-frame or drill pipe, with or without a SeaVator and with or without submersible pumps for spoil clearance in deep excavations.

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