

## Offshore application

### Offshore challenges

Offshore oil and gas rigs are some of the harshest working environments for both humans and equipment. In extreme conditions where salt water, howling winds and the risks of severe icing are just all in a day's work, reliable and effective tools are essential and a vital part of the safety - not only for the oil rig workers, but also for the environment. That is why miniBOOSTERs hydraulic intensifiers have become very popular in the challenging offshore business.



*Offshore work being heavy, dirty and dangerous puts enormous strains on the equipment.*

### Boost the power

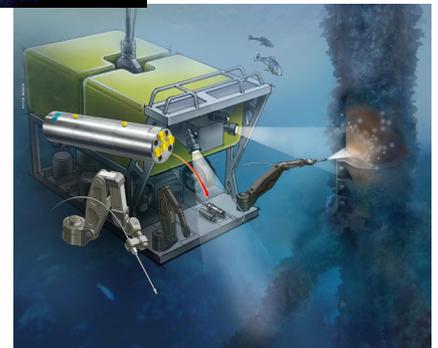
A standard hydraulic pump provides pressures of around 120-160 bar, which is not suitable for use in smaller hydraulic tools. The miniBOOSTER increases the hydraulic pressure of up to 800 bar delivering plenty of power for state-of-the-art tools and equipment, like casing tongs and wellhead control panels. The use of casing tongs is one of the major tasks for pipe handling on the drill floor of the oil rig. Reliability is a key issue, but also compact size and low weight matter. miniBOOSTER powered casing tongs gives you just the right tool. The miniBOOSTERs patented system of valves and cylinders are packed in a sturdy stainless steel design with zinc chromate finish. Tough and reliable, it provides the high hydraulic pressure necessary for firm gripping and massive torque for safe and fast handling of heavy oil pipes.

### Unmanned submarines

As a large part of an offshore oil or gas rig is submerged, construction, repair and maintenance work under water is necessary. These tasks are normally carried out by unmanned remotely operated vehicles - so called ROVs.

ROVs come in a variety of shapes and sizes, some of which look like small submarines. The ROVs are equipped with different tools depending on their task, tools like hydraulic cut-

ters, crimpers and bolt tensioners are common. Thanks to its compact size, the miniBOOSTER is an ideal solution for powering underwater remotely controlled equipment. It can be integrated into most underwater applications, and the stainless steel design makes it highly resistant to corrosion in the metal-hostile environment.



*ROV's deployed at low temperatures in salty water under gigantic pressure needs to be made with utmost care regarding quality of materials and seals.*

### Safety first

Put Simply, extracting oil or gas from the underground requires a hole to be drilled down in the seabed through sand, clay and rock to where the oil or gas is located, and then pumping it out through the hole. It sounds simple, but it's not. It takes know-how, time and the right equipment. First of all, the oil or gas is under high pressure, and will splash uncontrollably out of the drilled hole - called the wellbore - in extreme quantities, if not controlled. In order to prevent this, a blowout preventer valve is installed at the wellhead, and a downhole safety valve is installed in the wellbore. Both valve types can be controlled hydraulically from the surface through a hydraulic connection linked directly to a well control panel. When hydraulic pressure is applied, the downhole safety valve opens. When the hydraulic pressure is released a large spring makes the valve close again. In this way, the valve is failsafe and will seal off the wellbore if hydraulic pressure is lost, or in the event of a loss of both the blowout preventer and the wellhead. One or more miniBOOSTERs can easily be integrated as a part of the safety valve system for fast, powerful and reliable functioning providing a major benefit for the environmental safety.