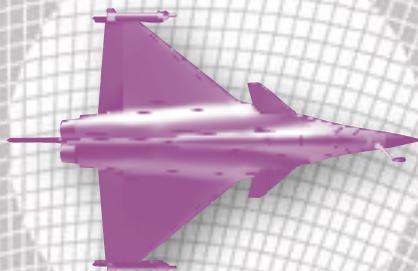


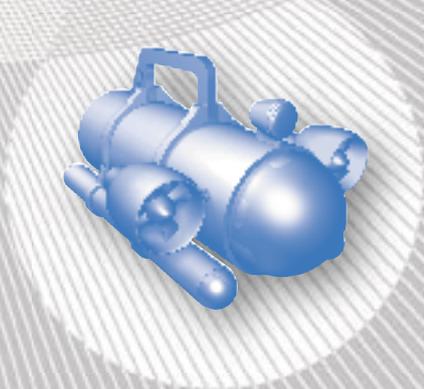
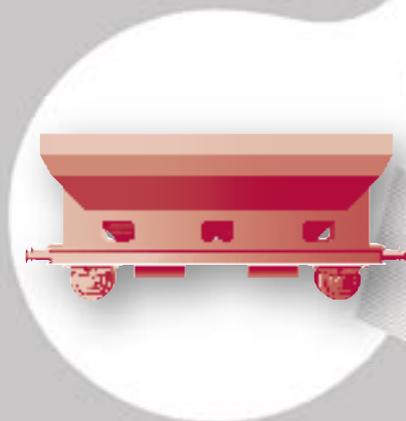
In the air, on land,
and under the sea.



We are **passionate**
about our **hydraulics.**



 **HYDRO
LEDUC**





Let us surprise you!

During its fifty years of experience in the field of hydraulics, **HYDRO LEDUC** has often pioneered solutions for demanding applications all over the world. These innovations have resulted in over 100 patents. This technical know-how is now available to you.

Our strength lies in our technical curiosity and perseverance combined with the company's resources. We have in-house capability to design, prototype, test and produce standard and specialized product. Our Sales and Customer Service professionals work closely to guarantee excellent customer support.

This brochure describes several custom products that **HYDRO LEDUC** was asked to develop. You will discover some innovations that helped our customers with complex and demanding applications. This brochure is also intended to trigger your own ideas that may help solve current challenges.

It is our sincere hope that together we can develop ideas which will give rise to new products for tomorrow's markets.

Thank you for your time.
We are proud to have your attention.

Special cylinders

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Complex hydraulic functions

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Special design studies and developments

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Safety cylinders



The challenge

Lift, and maintain a load in any position.

The solution

A hydraulic cylinder protected by a 100% leak-free hydro-mechanical locking device, with double safety mechanism.

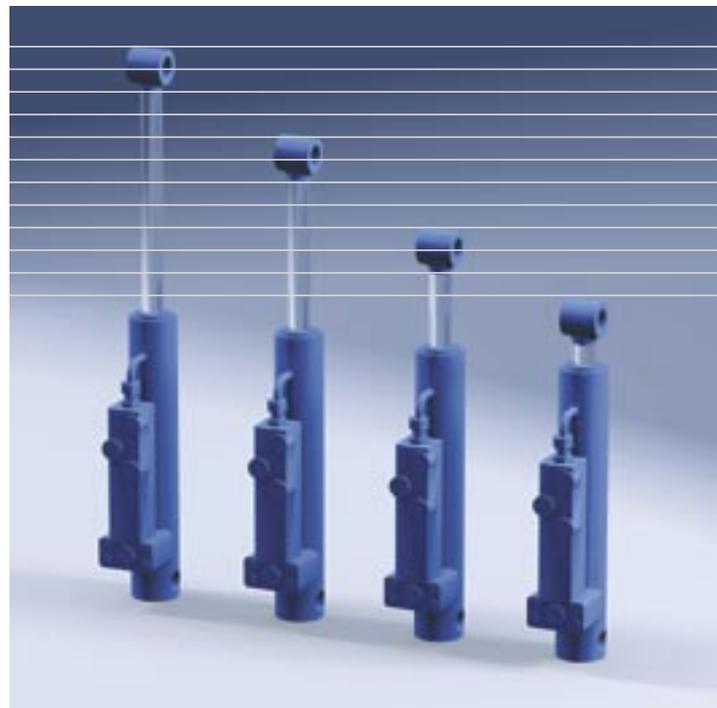
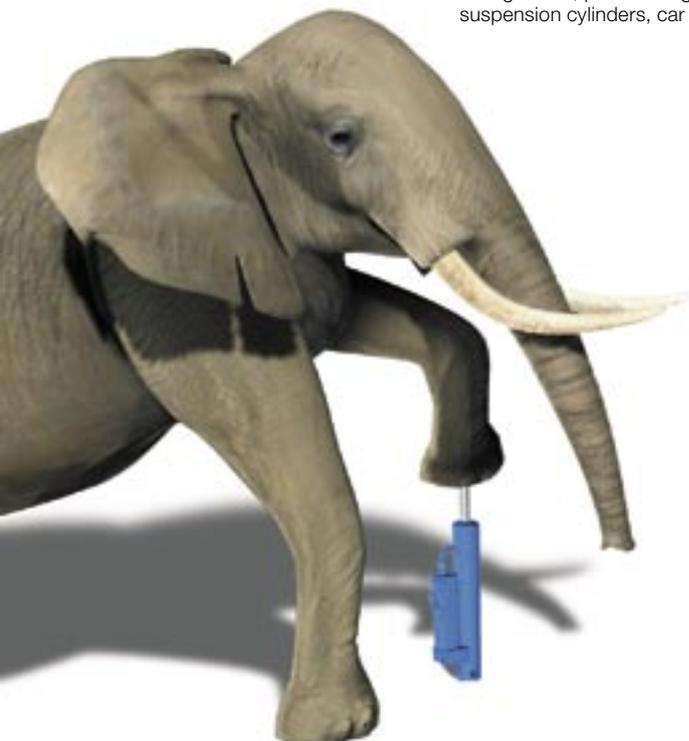
The result

Platforms which are much easier to manipulate: enhanced user comfort and optimized loading are the key to the success of this product.

The applications

Lifting tables, positioning of radar masts, suspension cylinders, car transporters...

special cylinders





Safety cylinders with mechanical locking



The challenge

Extend and block in position a landing gear actuator.
Retract and block in position the same actuator.

The solution

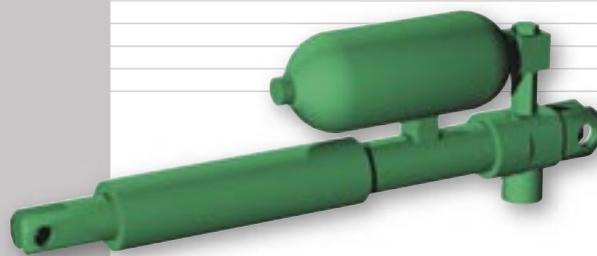
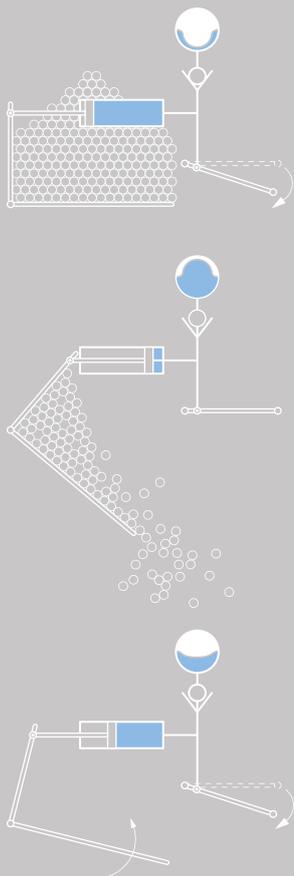
A hydraulic cylinder designed, calculated and produced to aeronautical standards, and incorporating a mechanical ball locking device.

The result

A landing gear with no triangle to block in position, capable of higher loads than classic cylinders.

The applications

Landing gear actuators, safety locking devices, cylinders which need to be able to withstand higher mechanical loads than the hydraulic rating of the cylinder.



Hydraulic springs



The challenge

Closing railcar hopper doors without the necessary energy source available.

The solution

Using the energy from the mass of the product being unloaded, close the hopper doors using the stored hydraulic energy.

The result

A railcar which does not require outside energy source, and capable of significantly higher productivity.

The applications

Compensation of loads, balancing of mass during movement, restitution of forces...



Locking optronic system for Rafale fighter aircraft

The challenge

Ensure components which are not shock resistant are locked into place on a fighter aircraft, when pilot gives appropriate signal.

The solution

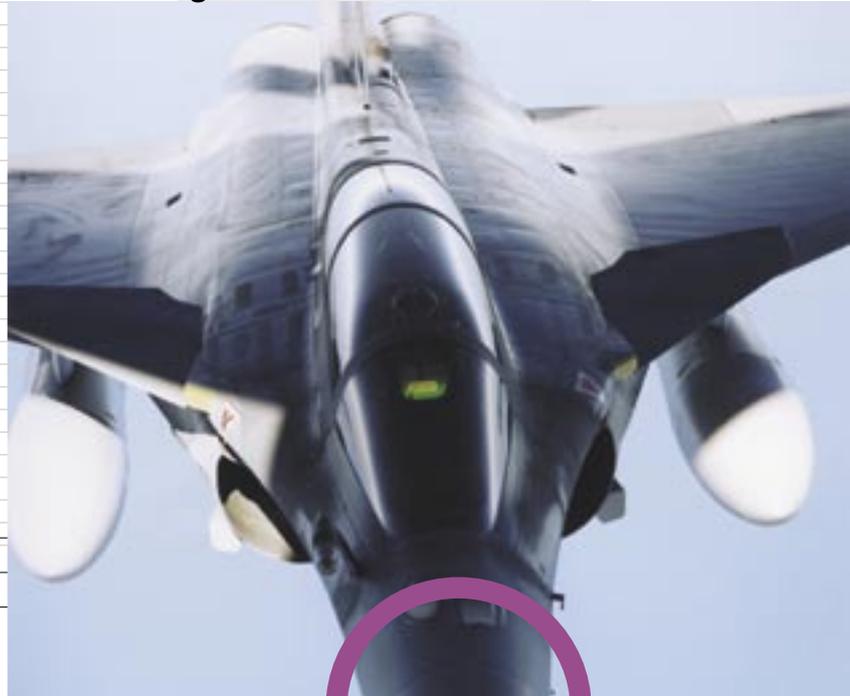
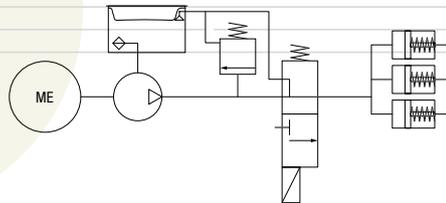
A miniature hydraulic power pack designed to fit in the reduced space available, which activates three locking cylinders.

The result

Reliability of the aircraft control components, particularly challenging during landing phase on aircraft carriers.

The applications

Wherever extreme miniaturisation of electro-hydraulic components is necessary.



© Dassault Aviation / F. Robineau

complex hydraulic functions



Oil research

The challenge

Supply a power source capable of:

- activating cylinders,
 - supplying hydraulic motors,
 - controlling valves,
 - cutting tubes etc.
- in oiltools for oil exploration or production requirements.

The solution

A catalog of micro-hydraulic pumps and components capable of operating in harsh environments:

- very small spaces available,
- high temperatures: up to 200°C,
- high ambient pressures: > 1800 bar.

The result

Customized solutions developed to satisfy the specific requirements of oil tool manufacturers.

The applications

The reduced size and high performance of these micro-hydraulic components make them an attractive solution wherever it is necessary to generate a force within a very limited space:

- medical instrumentation,
- automotive,
- aeronautics.





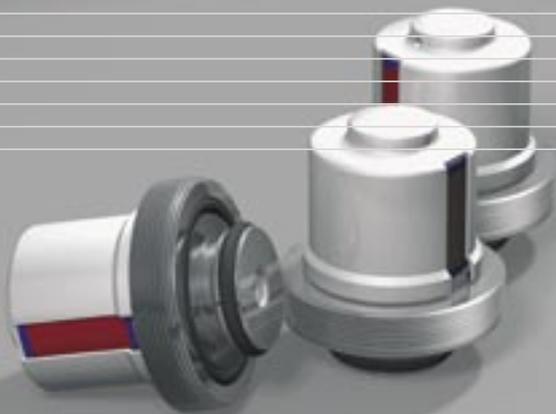
Oceanographic research instrumentation



Oceanographic research buoys are an excellent application for HYDRO LEDUC know-how in the field of electro-hydraulic micro-components.

This instrument includes a complete micro-hydraulic power pack comprising electric motor, piston pump, pressure relief valve, solenoid valves and accumulators.

Designed to ensure the autonomous control of the research buoy. The function includes descending to a predescribed depth and returning again to the surface. Absolute reliability is critical to this application.



Miniature solenoid valves

The challenge

The aeronautical / optronics locking device, oiltools and oceanographic measuring instruments all require miniature solenoid valves.

These are necessarily:

- of very small size,
- able to withstand difficult environments: high pressure, high temperature, etc.,
- of very high performance: in terms of leakage, electrical consumption etc.

The solution

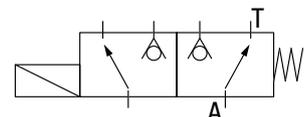
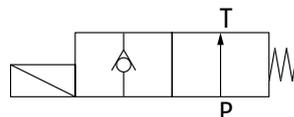
Miniature solenoid valves capable of:

- 2-2 normally open or normally closed,
- 3-2 normally open or normally closed.

The result

Products which can be lodged in very reduced spaces, and guarantee high performance.

Examples of operation





High speed and high pressure **rotating seal**

The challenge

Ensure a leak-free connection between a fixed member and rotating member at high speeds and high pressures.

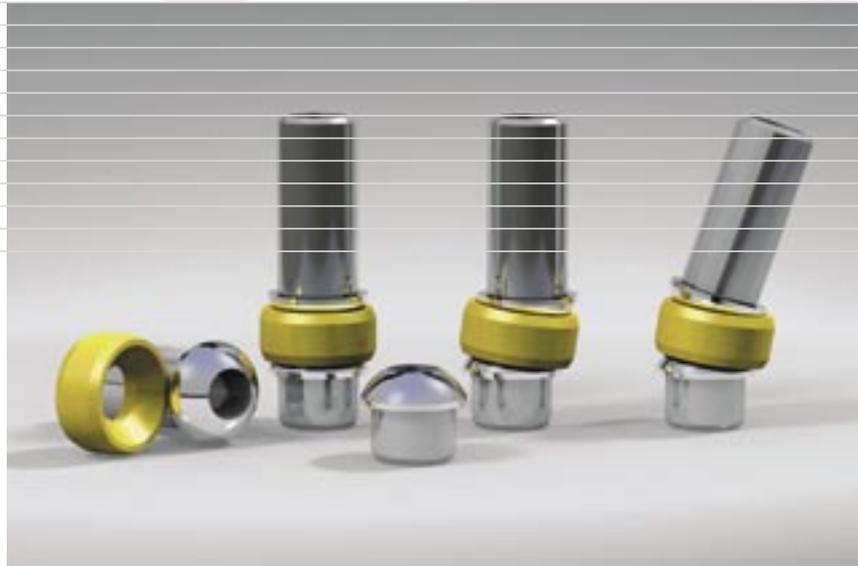
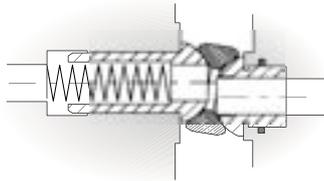
The solution

An innovative rotating seal design patented and manufactured by HYDRO LEDUC.

The result

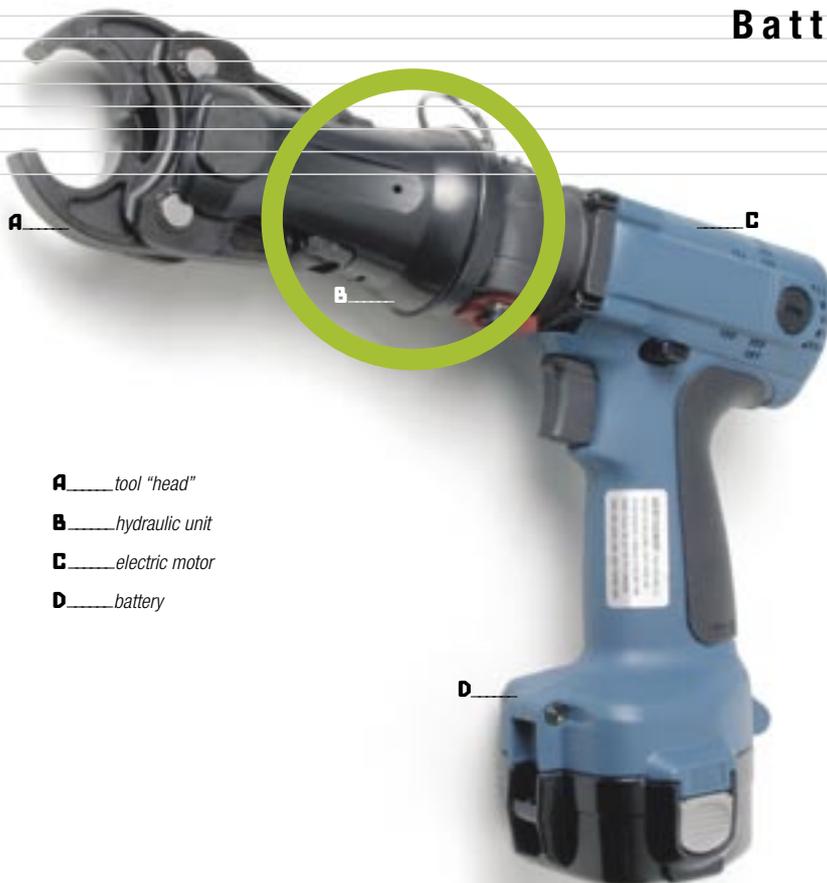
A reliable, high performance, industrially proven solution to the difficult problem of high speed, high pressure rotating seals.

Operating principle



special design studies and developments

Battery handtool to develop force up to 12 tons



- A** _____ tool "head"
- B** _____ hydraulic unit
- C** _____ electric motor
- D** _____ battery

HYDRO LEDUC designs, develops and builds hydro-mechanical units for a variety of handtools for:

- crimping tubes,
- electrical connectors,
- punching steel,
- cutting cables etc.

These tools incorporate a mini hydraulic unit specifically designed for the precise function of the tool.

HYDRO LEDUC also develops solutions for other high-tech fields with requirements for integrating small size hydraulic components of guaranteed high performance, such as:

- units for aeronautical applications,
- units for the automotive industry,
- special components to withstand use with aggressive fluids, or fluids of very low viscosity.



A passion for hydraulics.

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