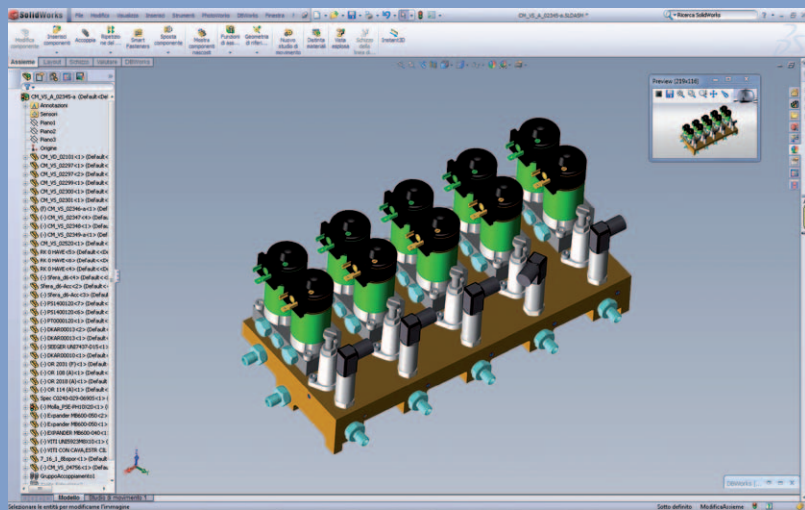


HYDRAULIC SYSTEM



We design, build, install and test the whole hydraulic system of a sailing yacht: power-packs, piping, manifolds, electric controls, with basic or special hydraulic devices.

Our guide lines are:

- Reliability
- Lightness
- Innovative & Technological approach

Reliability

It is important for us to have a strong relationship with our suppliers: we create our system with the collaboration of technical offices in order to have always the best solution. Hydraulic components, electric engines and electronics controls are all tested in our firm. We supply our standard systems with stainless steel fittings to avoid problems of rust.

Lightness

Gear pumps for medium and high pressures (up to 700 bar) are made of lightweight aluminum alloy and fit electric engines with aluminum flanges and 17-4 PH joints.

Innovative & Technological approach

For medium size systems, we supply de-located manifold arrangements which reduce the length and the weight of hoses and increase reliability.

Cariboni special basic powerpack configuration includes a single electric motor combined with three autoshift pumps: at low pressure all the three pumps work to get the maximum oil flow; at medium pressure one pump is excluded, at high pressure only one works. The current consumption is quite constant in all the ranges of pressure. This allow the use of the electric motor for longer time without overheating and overloading it.

Cariboni PLC system, oil tank and powerpack for a 53' sailing yacht hydraulic system

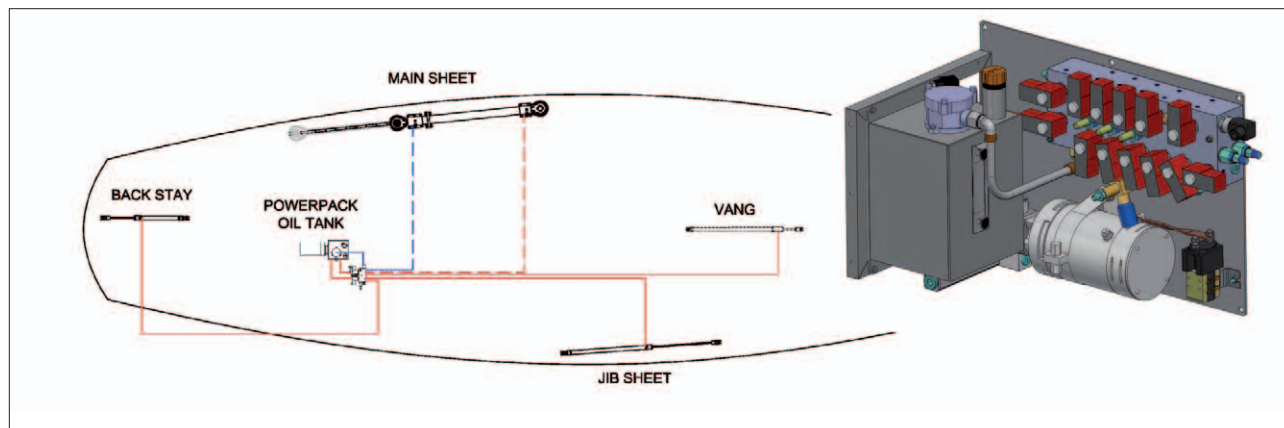


COMPACT ARRANGEMENTS

For small boats, we create a compact system with oil tank, powerpak and manifold, all made of aluminium alloy. With this hydraulic system the installation on board gets easier and faster: the shipyard has only to fix the panel with few screws and plug the hoses to the cylinders.

Here below an example of easy sailing hydraulic system of a yacht:

- Magic Trim for main sheet
- Two single acting cylinders for jib sheet and backstay
- Vang cylinder
- Compact hydraulic powerpack with integrated oil tank and valves block



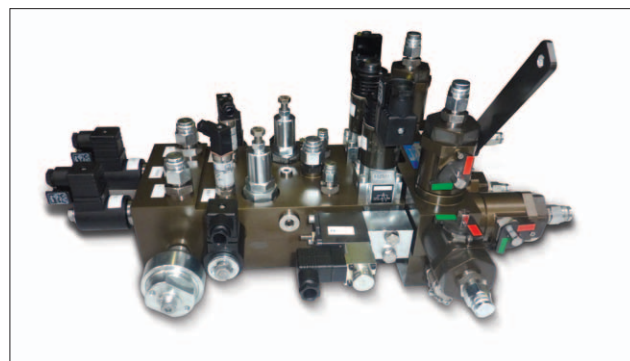
Custom compact hydraulic system for a 33' sailing yacht

CUSTOM ARRANGEMENTS

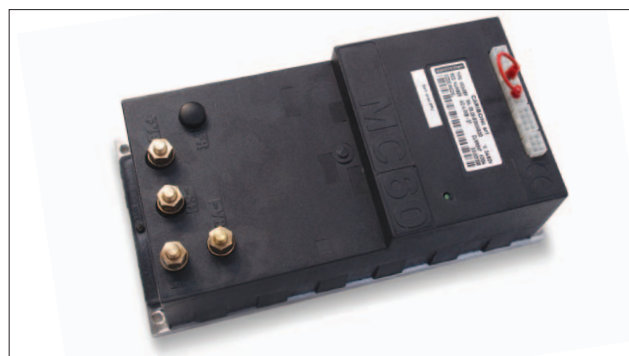
The hydraulic system of Cariboni has been improved year by year with ultimate high-tech solutions.

Proportional valve is getting a benchmark for sailing environment and is a standard for our professional system. The proportional controls of flow and pressure on hydraulic systems reduce un-wanted peaks of pressures and increase the control of hydraulic devices and their reliability. We verify this technology in several yachts, on their canting keel systems, for example.

A proportional board, with full marine coating and wide trim settings, is used in our PLC control to avoid any rust problem.



Canting keel manifold VOR 65 with proportional valves



Softstart device for a 6000 Watt electric engine

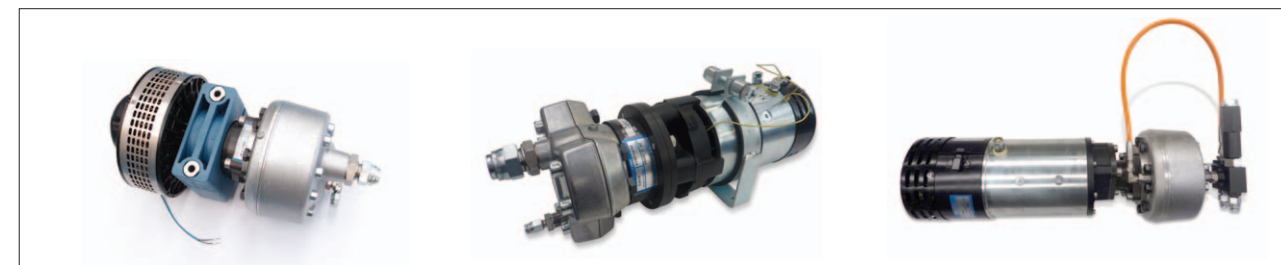
In order to increase electric efficiency and the lifetime of electrical engine, we supply the softstart device together with our powerpack. This system controls the current consumptions of DC electric engine, getting a soft and smooth start and stop. Softstars are a must for bigger electric engines (over 4500 watts) in order to increase the available hydraulic power without increase too much the batteries size.

ELECTRIC PUMPS AND PTO

We supply high performance powerpack for fast cruiser or race yachts. This kind of powerpack has a special high-pressure pump, made of light aluminium alloy, able to reach up to 700 bar (10.000PSI).

If high pressure and high flow rates are required, special dual stage pistons pump are available with custom flange to fit high performance DC electric engine.

We design and assemble single and multi-electric pumps to satisfy all the customer needs. Our pumps can be used to drive Magic Trim cylinders, single or double acting cylinders, furlers, winches, anchor stowing systems and whatever needs hydraulic power!



An example of three 700 bar electric powerpack with 4500 and 3000 Watt electric engines

MODEL	Power	Voltage	Max flow @ 250 bar	Max flow @ 350 bar	Dimensions ¹		Weight ¹	
	W	V	l/min	l/min	Mm	in	kg	lb
1x2000	2000	24	3,8	2,7	Ø 128 x 314	Ø 5,0 x 12,4	10	22
1x2500	2500	12 or 24	4,8	3,4	Ø 130 x 342	Ø 5,1 x 13,5	13	28,6
1x3000	3000	24	5,8	4,1	Ø 130 x 342	Ø 5,1 x 13,5	13	28,6
1x4500	4500	24	8,6	6,2	Ø 161 x 472	Ø 6,3 x 18,6	27,5	60,6
1x5000*	5000	24	9,6	6,9	Ø 205 x 385	Ø 8,1 x 15,2	21,6	47,6
1x6000	6000	24	11,5	8,2	Ø 191 x 675	Ø 7,5 x 26,6	69	152

⁽¹⁾ indicative values depending on the type of pump installed

We produce special oil pumps arrangements and complete service units for race boats and fast cruiser boats. A basic hydraulic system, made by a single cylinder, can be managed with a mini powerpack which can pump, however, at high pressure.

For bigger hydraulic systems of fast cruising boats, Cariboni designs, builds and tests custom solutions to plug hydraulic pumps on marine generator with clutch.



Rexroth pump assembled with custom clutch on 27kW Mastervolt generator PTO.
Flow rate = 67.5 lit/min
Max pressure = 250 bar



Complete service units on Volvo diesel engine for Volvo Ocean Race.