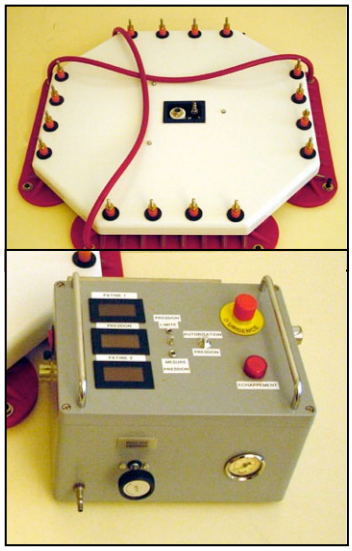
TECHNICAL DATA SHEET

GMIOL010

OLGA system for pressurisation of composite repair patch

► DESCRIPTION



The system OLGA has been designed for pressurization during the composite repair. The equipment OLGA is delivered in its operational version for local pressure application on composite structures. The structure is of course a structure robust enough to sustain local forces corresponding to 2 bars/30 psi.

There are two main parts of the OLGA system: the platen and the control and safety unit.

In the field of composite repair, maximum pressure applied to a repair patch is a must wherever it is possible.
OLGA is a pneumatic system that allows to pressurize the repair patch up to 23 psi -1.5 bar. Optimally this limit can be raised to 2 bars.

Generally, the vacuum bag used alone leads to a theoretical maximum depression force of approximately 30 in of Hg. (1 bar). Thus, combination of the vacuum forces from a traditional bag and the pressure from the OLGA system leads to optimum compression forces of around 30 to 40 Psi (2 to 2.5 bars). Applications are direct for composite repair as well as for metal bonding.

►OPERATING PRINCIPLE

The following sketch describes clearly the principle applied. The pressure forces developed against the patch are counter-balanced by the opposite forces generated by vacuum in pads. The pressure is generated inside a bladder. This inflated bladder is maintained very flat by a platen. This platen is maintained nearly parallel to the part by 4 vacuum pads.

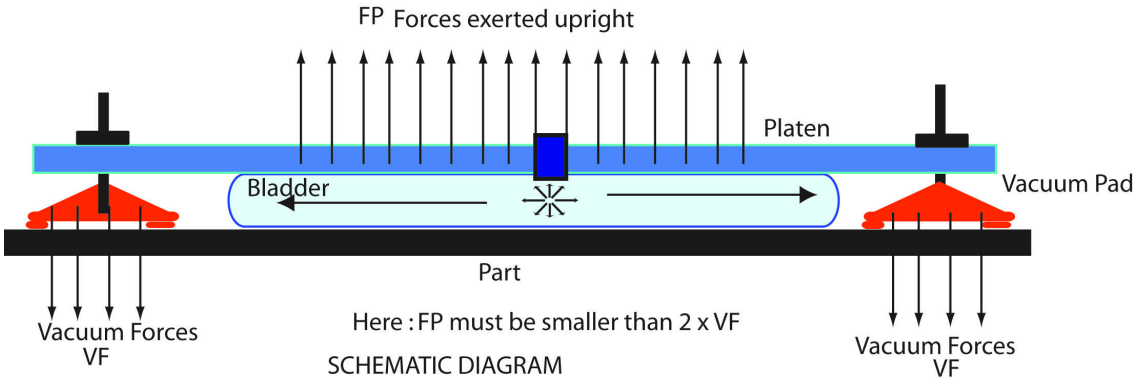


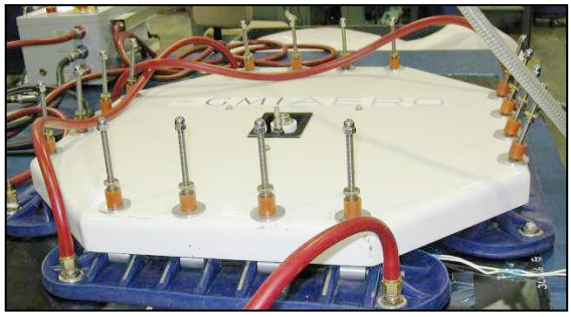
Figure 1: Image of operating principle of OLGA

The pressure sustainable depends of the balance of forces generated by the vacuum in the set of 4 pads.

- Each pad surface: 50 x 10 cm; 4 pads; vacuum max = 0.8 bar => Forces = 1600 kg
- Consider the diameter of the bladder: 30 cm => Surface:706 cm2 =>
- Max pressure in bladder = 1600/706 = 2,26 bar and with a security coefficient of 0,7
  1,5 < P.max< 2 bars or 22 < P.max <30 psi

This principle allows to face various uncomfortable field situations:

- The part may be flat or curved. If the part is curved, it is important to understand that the pads being flexible and maintained to the platen by articulated screw rods, they can adapt to the profile of the part.
- If the patch is in the middle of a part, the system can be installed because it does necessitate to attach it to edges.
- The system standard is designed in dimensions and resistance to forces to
  sustain a maximum of 1, 5 bar exerted on an area of 40 cm diameter maximum. For larger dimensions at a lower pressure some additional features may be necessary and the user will report to us with description of this problem.



► POSSIBLE APPLICATIONS

1. Bonding of a composite patch pre-cured or co-cured.
2. Metal to metal bonding.
3. Fabrication of a cured patch under pressure for later bonding phase.

There is the composition list of the equipment supplied in the following table:

Item	Description	Reference in catalogue	Quantity
01	Controller (220Volts)	GMIOLE102	1

Item	Description	Reference in catalogue	Quantity
02	Platen alone with its bladder, without its pads	GMIOLP100	1
03	Vacuum Pads; model with 2 sniffer ports complete with bars and screws	GMIOLP012	2
04	Vacuum Pads; model with 1 sniffer port complete with bars and screws	GMIOPL011	2
05	Vacuum hose to link two pads opposite	GMIOLP090	2
06	Vacuum hose to link the controller to the pads; with its male connector mounted	GMIOLP080	2
07	Power cable for the controller (European plug mounted)	GMIOLE050	1
08	Pressure hose to inflate the bladder - with connectors on both sides mounted	GMIOLP022	1
09	Mylar	GMIOLP030	1
10	Vacuum sniffers	GMIOTP060-02	2
11	Female connector for compressed air hose to mate the male connector of the controller	GMIOTP020-01	1
12	Connector with short hose to screw on the output of the venturi pump - as a silencer model	GMIOLPV020	2
13	User's manual	GMIOLD011	1

Warranty period: 12 months
Storage conditions: it is recommended to store at temperature from +10°C until +30°C in the original packing.