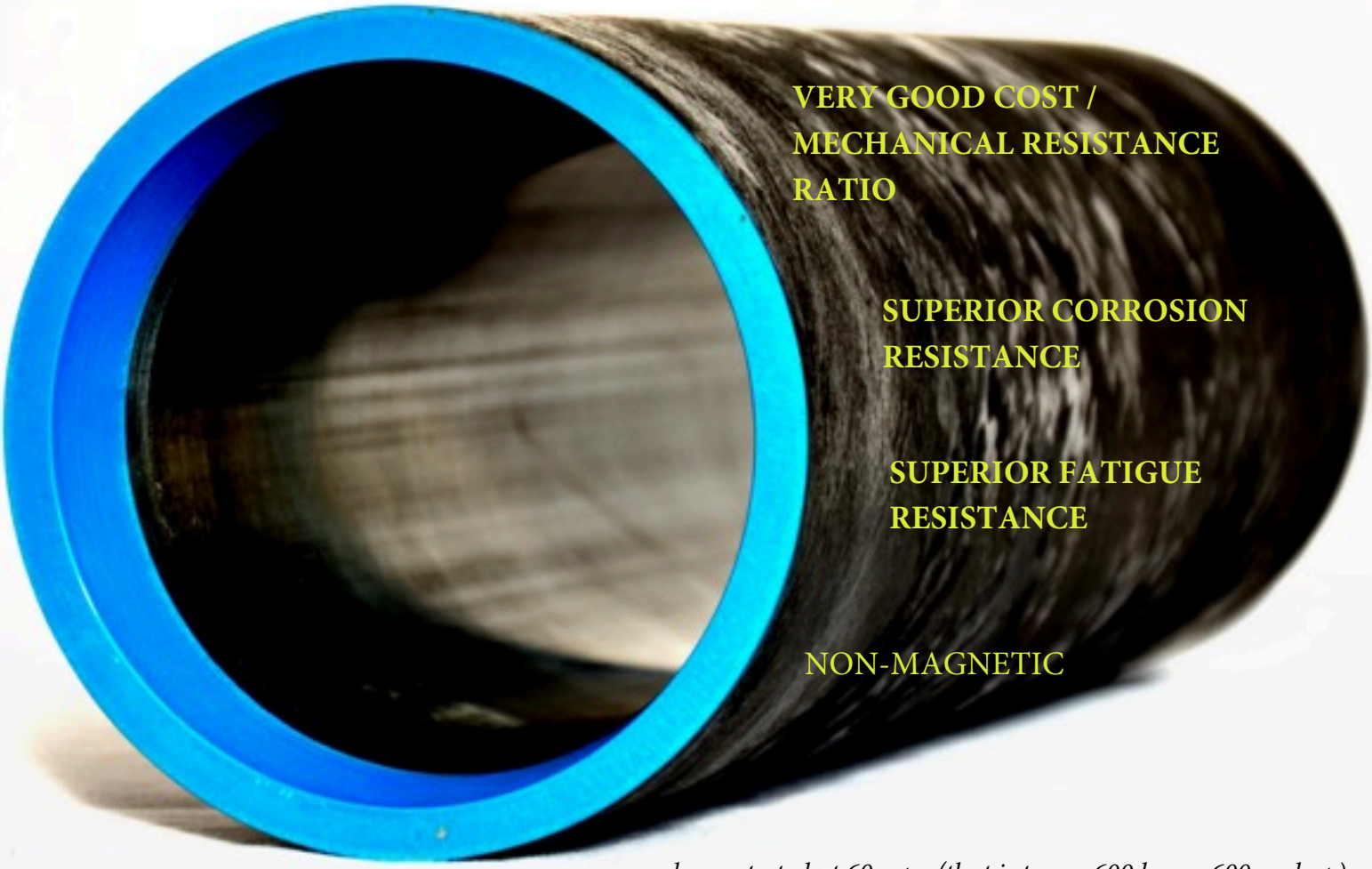
Plasticon Composites

Solutions for telecommunication equipment

Composite pressure housings for submersible applications



enclosure tested at 60 mpa (that is to say 600 bars - 600 m deep)

www.epoxyresolutions.com

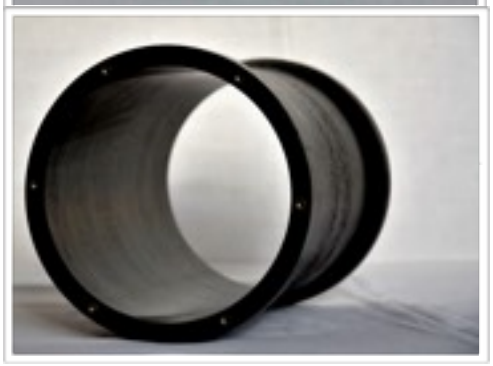
EXPLORATION SUBMERSIBLE

TRANSPONDER

COMMUNICATION BEACON

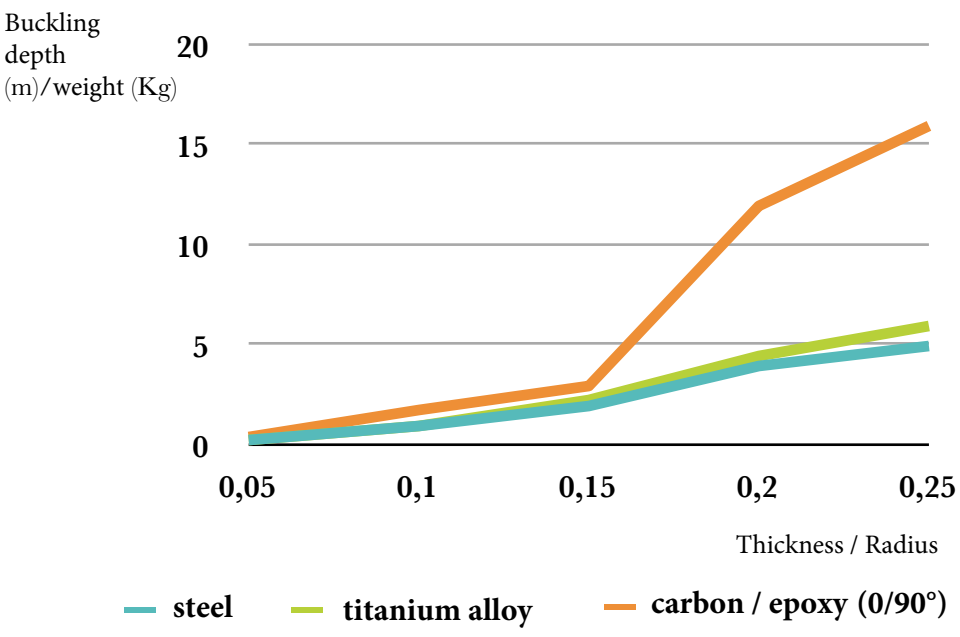
TEST PASSED SUCCESSFULLY!

The deep water exploration (up to 6000 m deep) is a perfect zone for the use of composite materials. The operating conditions (great mechanical stress, long-term immersion) make these materials very attractive. Following several qualification studies, the use of glass/epoxy enclosures for the oceanographic instrumentation protection, up to 6000 m deep underwater, is now widespread. These containers are designed to resist external pressures of more than 60 Mpa. In order to extend the scope of applications of these materials and to meet the demands for specific structures fabrication, several studies have been carried out to assess the possible uses of composite materials for the making of bigger structures such as Autonomous Underwater Vehicles (AUV), used in the seabed study. The opposite figure represents one of the tests carried out by IFREMER on an AUV prototype, ½ scale. The rupture of the cylinder, made thanks to the filament winding process, was buckling-generated under a 600-bar-pressure (6000 m deep).



CHARACTERISTICS	VALUES	UNIT
Internal diameter (H11)	110	mm
External diameter - smooth surface (+/- 0,8mm)	142,4	mm
Possible external length	from 275 to 1675	mm
Plug sealing system	provided	POM
Housing tested for a maximum depth of : (safety factor = 1,5)	6000	m
Colour	black	
Materials (tube)	E-Glass fiber + epoxy resin	
Materials (locking ring)	POM	
Density	1,9	
Max. number of connectors	10	
Use Temperature	-50°C / + 120 °C	

Submersible hull materials behaviour.



PLASTICON COMPOSITE FRANCE
Technical Parts Department

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SPECIAL COMPOSITE PARTS FABRICATION UNIT

LIST OF OUR TOOLS

FOR EPOXY RESIN MANUFACTURING (Glass or carbon fiber)

Wide range of mandrels for a low economical launch price.

Minimun thickness

0,8 mm (standard) 0,3 mm (machined - on demand).

Thickness up to 150 mm with an external diameter limit <=270mm (size of our sterilizers)

Tools length = 3 operating meters					
Ø int (mm)	Ø int (mm)	Ø int (mm)	Ø int (mm)	Ø int (mm)	Ø int (mm)
21,50	43,30	58,00	82,55	114,50	178,30
22,00	44,00	60,00	85,00	117,50	185,00
23,00	45,00	62,00	88,90	120,00	190,00
24,00	46,00	63,00	90,50	125,00	200,00
25,00	47,00	65,00	92,40	130,00	202,00
26,00	48,00	70,00	95,00	134,00	250,00
28,00	49,00	72,00	97,20	135,00	254,40
32,00	50,00	74,00	100,00	140,00	
34,00	50,90	75,00	101,60	142,00	
35,00	51,00	76,00	104,00	150,00	
36,00	54,00	76,20	105,00	150,70	
37,00	55,00	80,00	107,00	155,00	
40,00	57,00	81,00	110,00	160,00	

Tools length = 9 operating meters					
Ø int (mm)					
202 - 8"	Specific tools (non-standard diameter) on demand.				
325					
450					

SPECIAL COMPOSITE PARTS FABRICATION UNIT

Dimensional tolerances, finishing and surface finishes

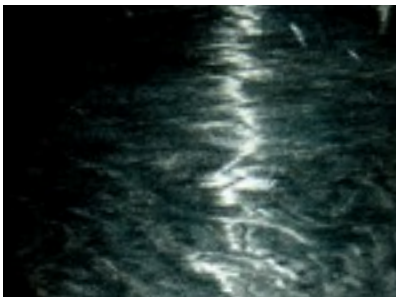
on external diameter...

Type-A finishing :
Natural surface with removed tear strip (rough surface)
Max. dimensional tolerance on external diameter :
+/0,8 mm.

★

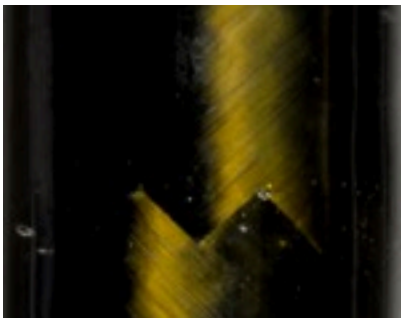
Type-B finishing :
Natural surface with external skin (smooth aspect).
Max. dimensional tolerance on external diameter :
+/0,8 mm.
Colour : tinted black in the mass (= standard).
On demand : White, Green, Yellow, Red, etc.

★



Type-C finishing :
Surface after partial machining or sanding.
Max. dimensional tolerance on external diameter :
+/- 0,2 mm to +/- 0,5mm (*)

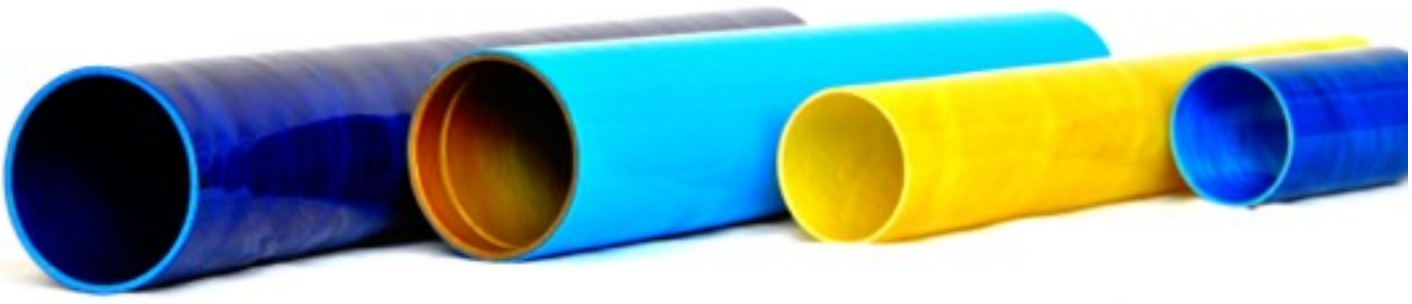
★★



Type-D finishing :
Varnished surface (matt or shiny) after partial sanding.
Max. dimensional tolerance on external diameter :
+/- 0,2 mm to +/- 0,5mm (*)

★★★

(*) according to the selected diameters and the thickness of the part.



★ impact on the part's final price.

SPECIAL COMPOSITE PARTS FABRICATION UNIT

Dimensional tolerances, finishing and surface finishes

on internal diameter...

Internal diameter tolerance

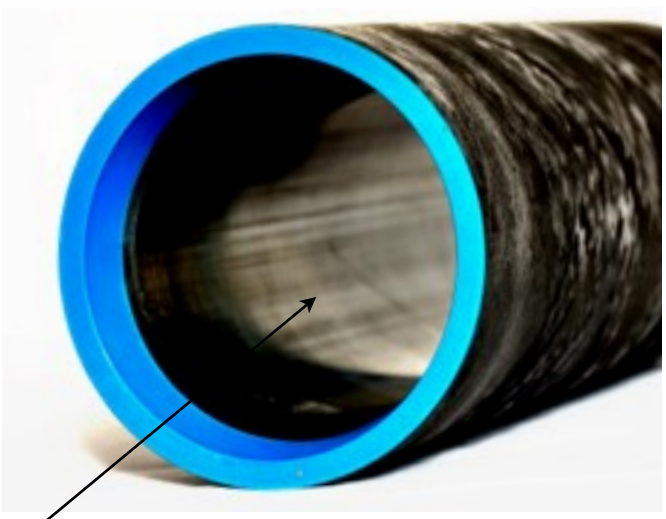
up to **H11**

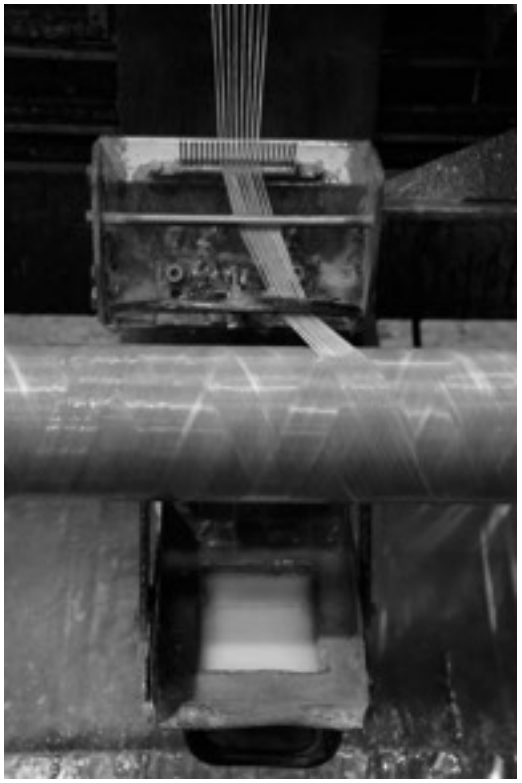
Rectitude : 0,1mm/m

Ovalization : 0,05mm maxi.

Internal roughness : AR between 0,5 and 1,5 µm

Explanation : the fiber is wound-up around a mandrel whose surface finish is extremely smooth (some of our mandrels are chromed-adjusted), depending on the selected mandrel, the internal roughness of the tube makes it possible to seal directly on this surface.





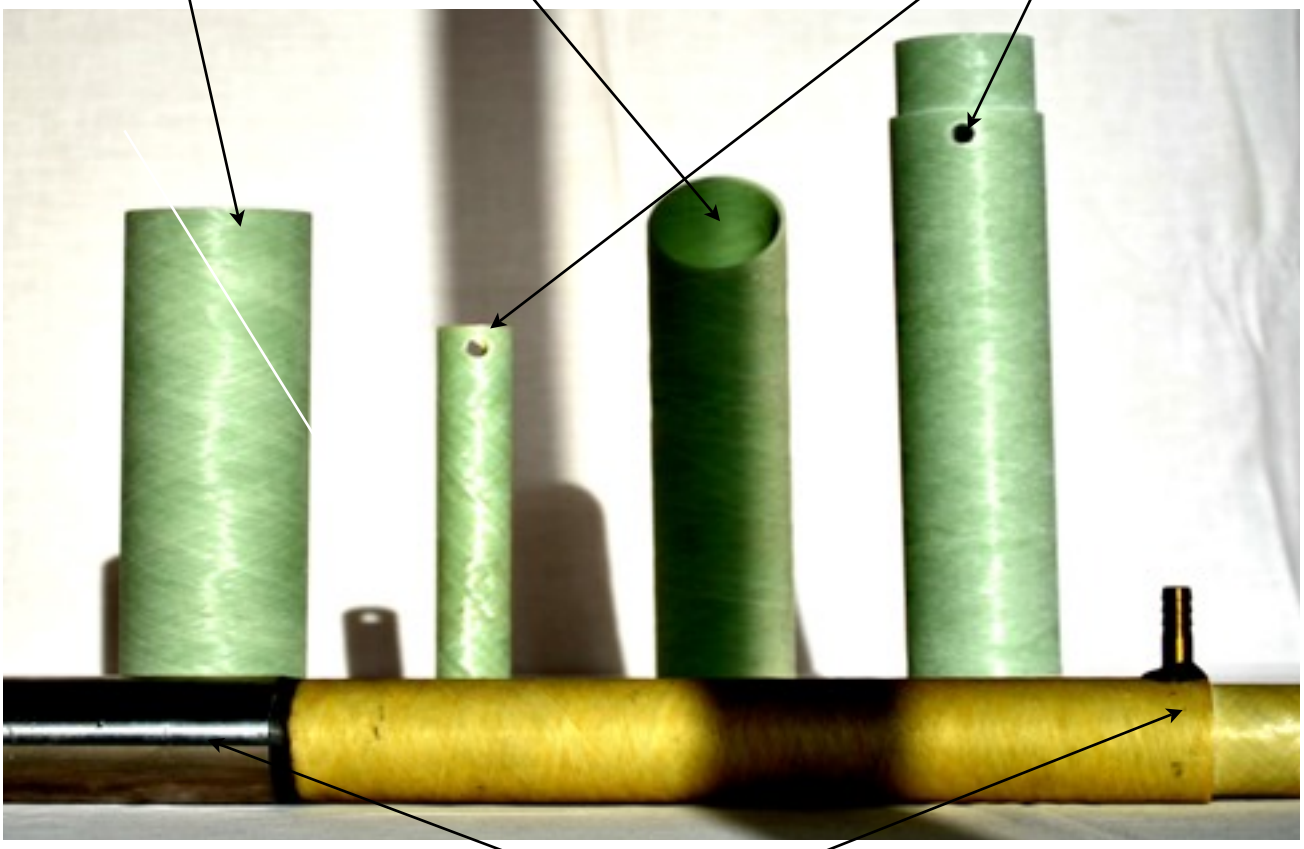
SPECIAL COMPOSITE PARTS FABRICATION UNIT

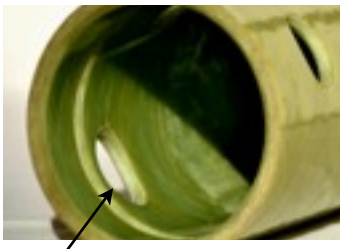
POSSIBLE COMPLETION OPERATIONS ON A COMPOSITE PART

Machining rework of the sides

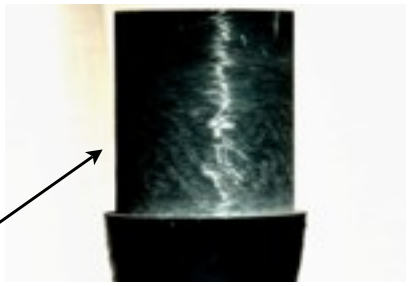
Special cutting

Drilling



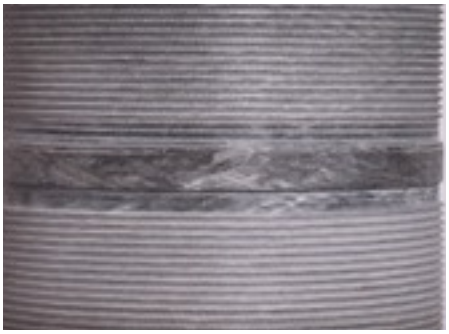


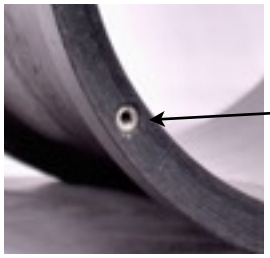
Bonding of an insert or other additional parts



Machining of an internal groove and laying of a stainless-steel ring

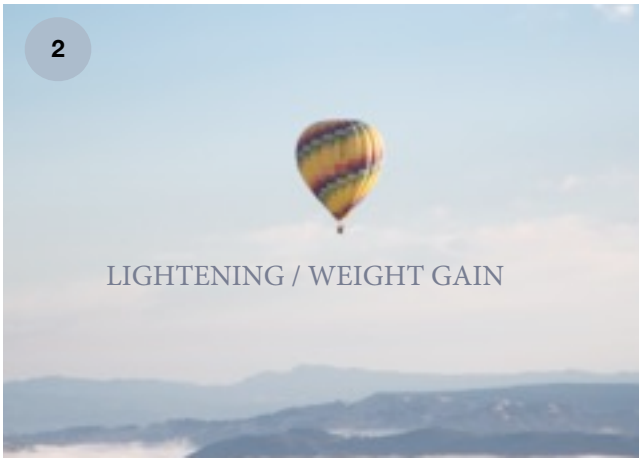
Specific machining

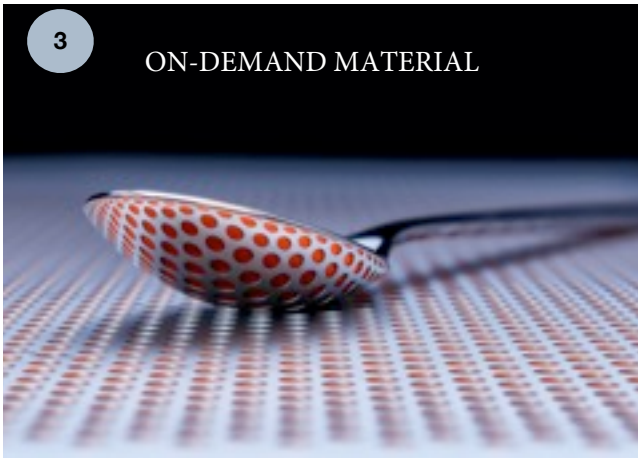


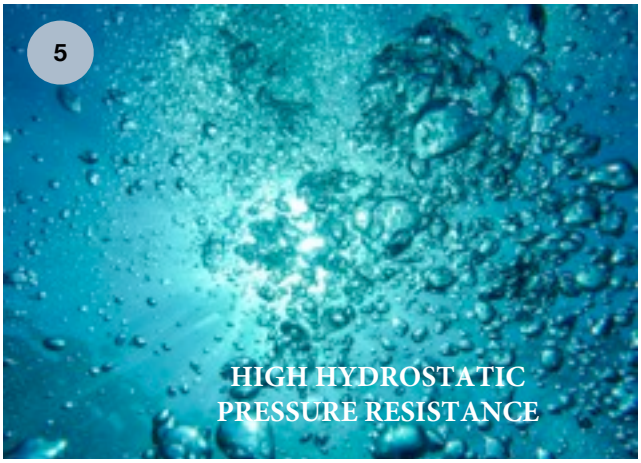


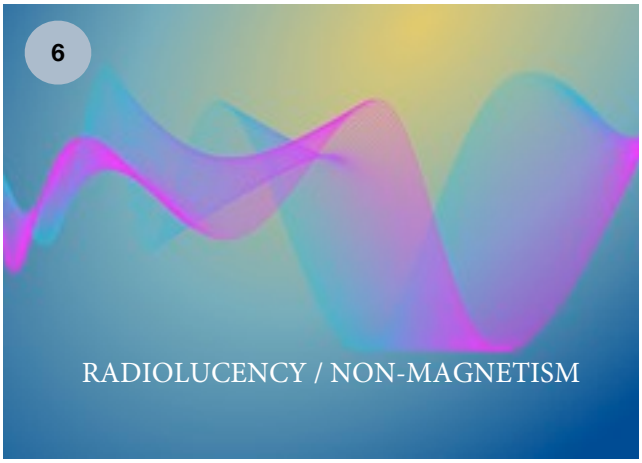
Laying of a helicoid

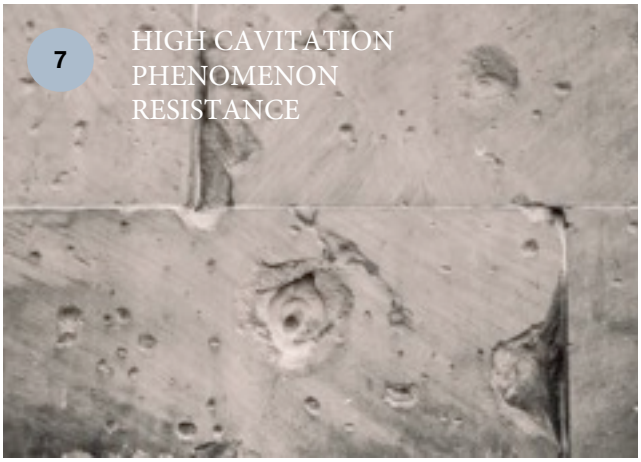
COMPARED BENEFITS OF OUR PARTS

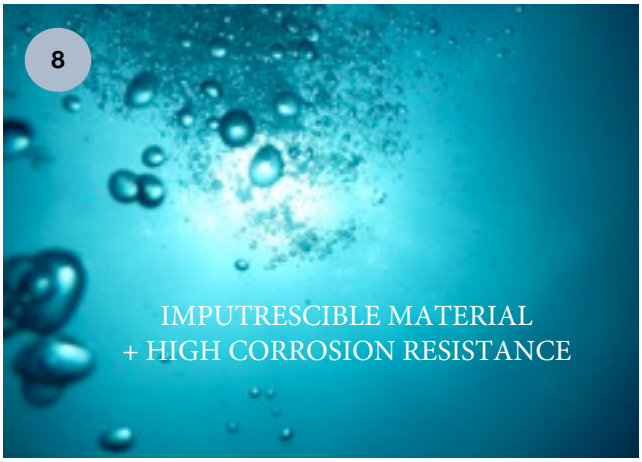












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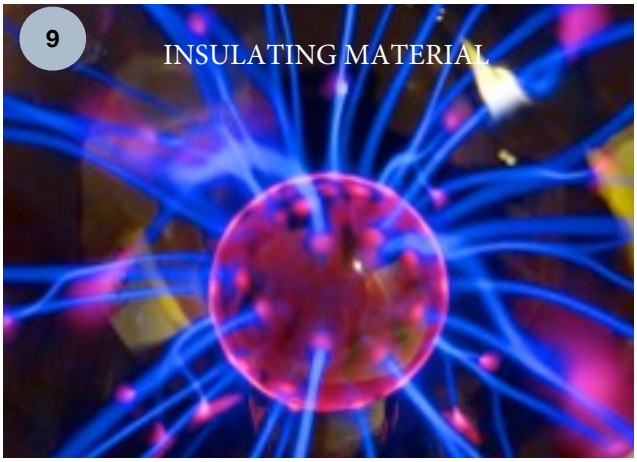

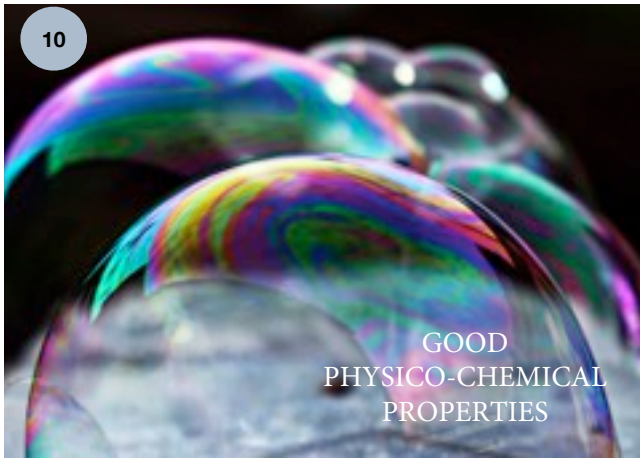

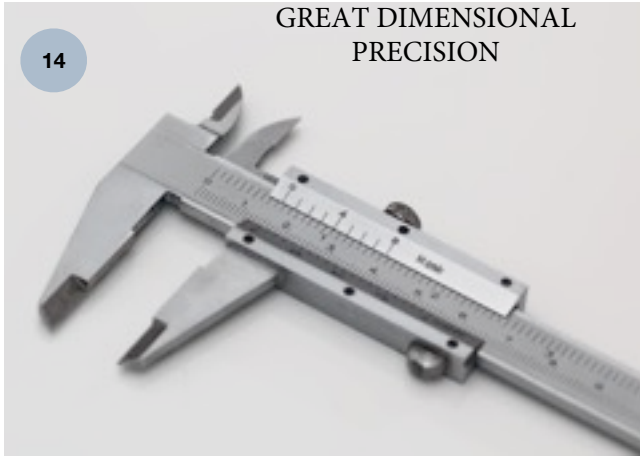

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