

## COMPOSITE REPAIR

AplTec<sup>TM</sup> composite patch launches this use guidelines with the objective to help his costumers in the reparation of composite parts. This quick guide will help to select the right process reparation in function of the expertise and the needs of the user. For any question please contact us at [info@compositepatch.com](mailto:info@compositepatch.com).

You will find practical examples in our website [www.compositepatch.com](http://www.compositepatch.com) or in the AplTec<sup>TM</sup> composite patch YouTube official canal.

### 1. IDENTIFY YOUR COMPOSITE DAMAGE

Damage to composite components is not always visible. From a general point of view we can find 3 types of typical damage in the structures made of composite. AplTec<sup>TM</sup> composite patch will help you in the repair or any of them.

- **Impact Delamination** You can easily identify it by visual inspection.



- **Laminate Splitting.** It is not possible to identify it by visual inspection. You will need Non Destructive Test (NDT) methods. Alternatively the damaged areas can be located by simply tapping the composite surface and listening to the sound. The damaged areas give a dull response to the tapping, and the boundary between the good and damaged composite can easily be mapped to identify the area for repair.



- **Separation of surface plies.** You will appreciate visually and tapping sound will be also different in the damage area.



### 2. SELECT YOUR APLTEC<sup>TM</sup> COMPOSITE PATCH

Please check your needs and select the right composite patch.

For general purpose Glass AplTec<sup>TM</sup> composite patch are ideal.

If you would like low weight reparation and high performance, look for a carbon AplTec<sup>TM</sup> composite patch .

The higher weight the higher mechanical resistance.



Unidirectional, Biaxial or Quadriaxial types will focused the mechanical resistance in the same direction that the reinforcement.

Choose your AplTec™ composite patch:

|  |  |                             |
|--|--|-----------------------------|
|  <b>G10</b>     | <b>E - Glass fibre</b>                                 | <b>Complex shapes</b>       |
|  | Type: Biaxial +/-45°                                   | Weight: 600g/m <sup>2</sup> |
|  | Width: 21 cm   | Length: 50cm                |
|  <b>G20</b>     | <b>E - Glass fibre</b>                                 | <b>Flat shapes</b>          |
|  | Type: Quadriaxial                                      | Weight: 800g/m <sup>2</sup> |
|  | Width: 21 cm   | Length: 50cm                |
|  <b>C5</b>      | <b>Carbon fibre 3k</b>                                 | <b>Complex shapes</b>       |
|  | Type: Twill 2x2  | Weight: 200g/m <sup>2</sup> |
|  | Width: 21 cm   | Length: 50cm                |
|  <b>C10</b>     | <b>Carbon fibre 12k</b>                                | <b>Complex shapes</b>       |
|  | Type: Biaxial +/-45°                                   | Weight: 400g/m <sup>2</sup> |
|  | Width: 21 cm   | Length: 50cm                |
|  <b>C20</b>     | <b>Carbon fibre 12K</b>                                | <b>Straight shapes</b>      |
|  | Type: Unidirectional                                   | Weight: 450g/m <sup>2</sup> |
|  | Width: 21 cm   | Length: 50cm                |
|  <b>C30</b>    | <b>Carbon fibre 12k</b>                                | <b>Flat shapes</b>          |
|  | Type: Quadriaxial                                      | Weight: 800g/m <sup>2</sup> |
|  | Width: 21 cm   | Length: 50cm                |
|  <b>B.ADH</b> | <b>STRUCTURAL EPOXY ADHESIVE</b>                       |                             |
|  | Adhesion promoter for secondary laminations            |                             |
|  | Density: 1,00 g/cm <sup>3</sup> Viscosity: 3.700 Mpa·s |                             |

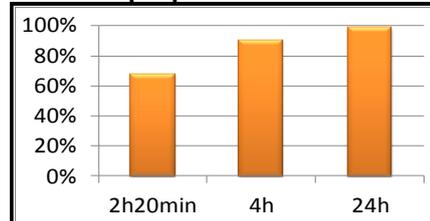


All AplTec™ composite patch references are also available in XL size (95 cm) long.

Please notice the evolution of the mechanical properties versus the time. Temperature will affect the final cure time.

AplTec™ composite patch will cure even in the lowest temperature or under water or snow, but cure time would be affected by the application temperature.

#### Mechanical properties evolution vs Time



90% of the properties are obtained after 4h at 25° C



You can download all the technical data sheet, and find all our video application at:  
[www.compositepatch.com](http://www.compositepatch.com)

### 3. SELECT YOUR REPAIR PROCESS

Main objective of a structural repair is to fully support applied loads and transmit applied stresses across the repaired area. To achieve this objective plies must be overlapped and be perfectly bonded. AplTec<sup>TM</sup> recommend 2 different processes to repair your composite part by using AplTec<sup>TM</sup> composite patch:

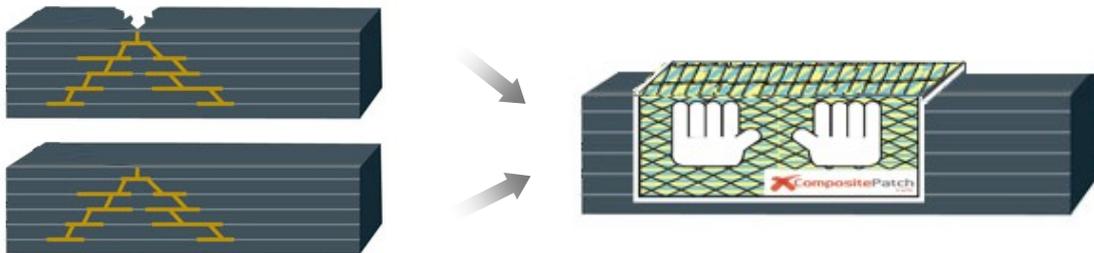
- **Direct Patch Repair.** It is the easiest way to use AplTec<sup>TM</sup> composite patch. Just sand, clean the surface and apply AplTec<sup>TM</sup> composite patch. Your reparation can be finished in a few minutes and you don't need special tools. It is ideal for emergency repairs.

#### ADVANTAGES

Simple and easy  
 Fast  
 No specific skills needed

#### DISADVANTAGES

Final result is thicker than the original part



- **Two steps Patch Repair.** This is a 2 steps way to repair. It is perfect for a long life repair.

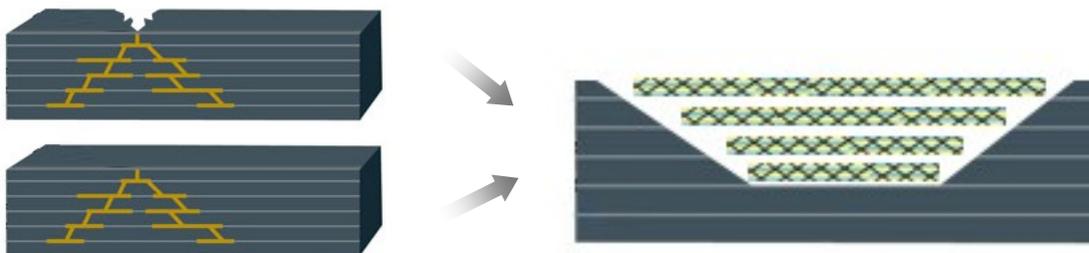
- 1st step: Sand the damage area in order to expose a section of each ply of original lamination
- 2nd step: Applied the aplTec<sup>TM</sup> composite patch in the area.

#### ADVANTAGES

Final result is almost same thickness than the original part  
 Good bonds are achieve on the freshly exposed surface

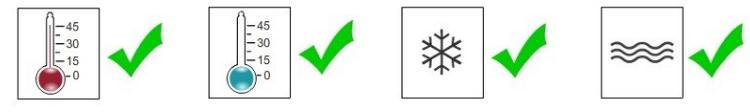
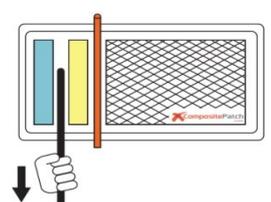
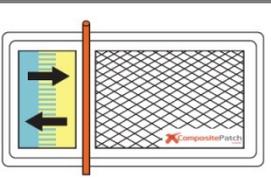
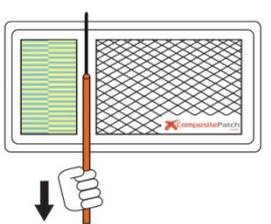
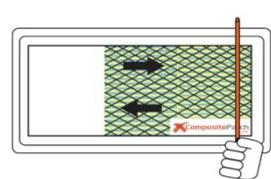
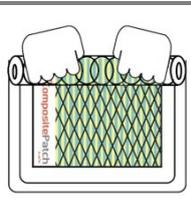
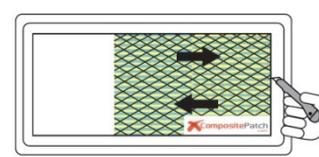
#### DISADVANTAGES

Specific skills needed  
 Long process time

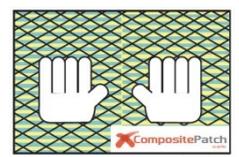


Please be sure that all the damage areas are exposed after sand the part. Optionally an adhesive can be use before apply the AplTec<sup>TM</sup> composite patch in order to improve even more the adhesion.

## 4. HOW TO USE YOUR APLTEC™ COMPOSITE PATCH?

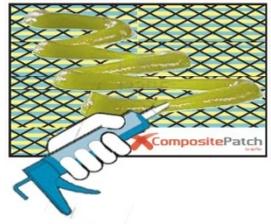
|  |  |
|--|--|
|    |  |
| <p>1</p>  <p>REMOVE CLIP n° 1</p>   | <p><b>Tip:</b> if you need to cut the patch into different pieces for your repair, measure the sizes you will need and draw them with a permanent marker onto the plastic pouch before mixing the resin.</p> |
| <p>2</p>  <p>MIX UNTIL COLOR IS HOMOGENEOUS</p>   |  |
| <p>3</p>  <p>REMOVE CLIP n° 2</p>   | <p>4</p>  <p>USE CLIP TO SPREAD THE RESIN ALL OVER THE FIBRE</p>   |
|  <p><b>Tip:</b> it is very effective to roll the patch on itself and apply pressure with the hands once spread the resin onto the fibre in order to facilitate the fiber impregnation evenly.</p> | <p>5</p>  <p>CUT &amp; OPEN THE PLASTIC</p>  |

**6.1 ABOVE WATER**

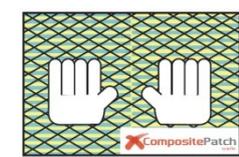


APPLY

**6.2 UNDER WATER**



SPREAD BONDING ADHESIVE



APPLY  
\*adhesive side on substrate

For more information please visit our website:

[www.compositepatch.com](http://www.compositepatch.com)