FABRICATION DES CIRCUITS IMPRIMES

V Gammes de fabrication

PRINTED CIRCUIT BOARD FABRICATION

V Operation Flow

Gammes de Fabrication
Operation Flows

1 Circuit simple face ***Single-sided board***

2 Circuit double face ***Double-sided board***

3 Circuit multicouches ***Multilayer board***

4 Circuit souple ***Flexible board***

5 Circuit Flexo-rigide ***Flex-rigid circuit***

Circuits Simple Face

Principe de base

Single-Sided Board

Overview

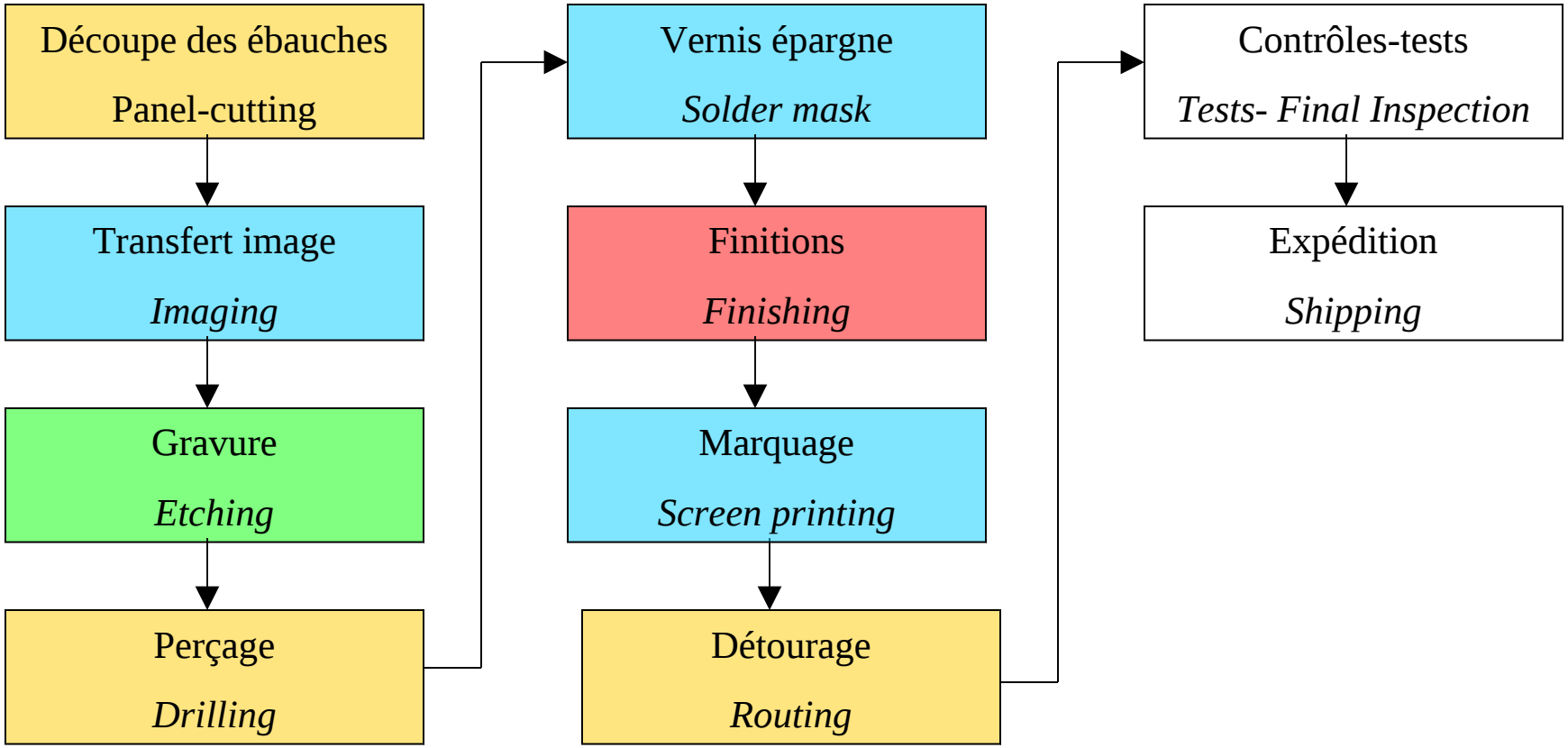
Sommaire *Outlook*

- Diagramme	*Flow-chart*
- Vue côté soudure	*Solder-side view*
- Matière de base	*Base material*
- Transfert image	*Imaging*
- Gravure	*Etching*
- Élimination de la résine photosensible	*Stripping*
- Perçage	*Drilling*

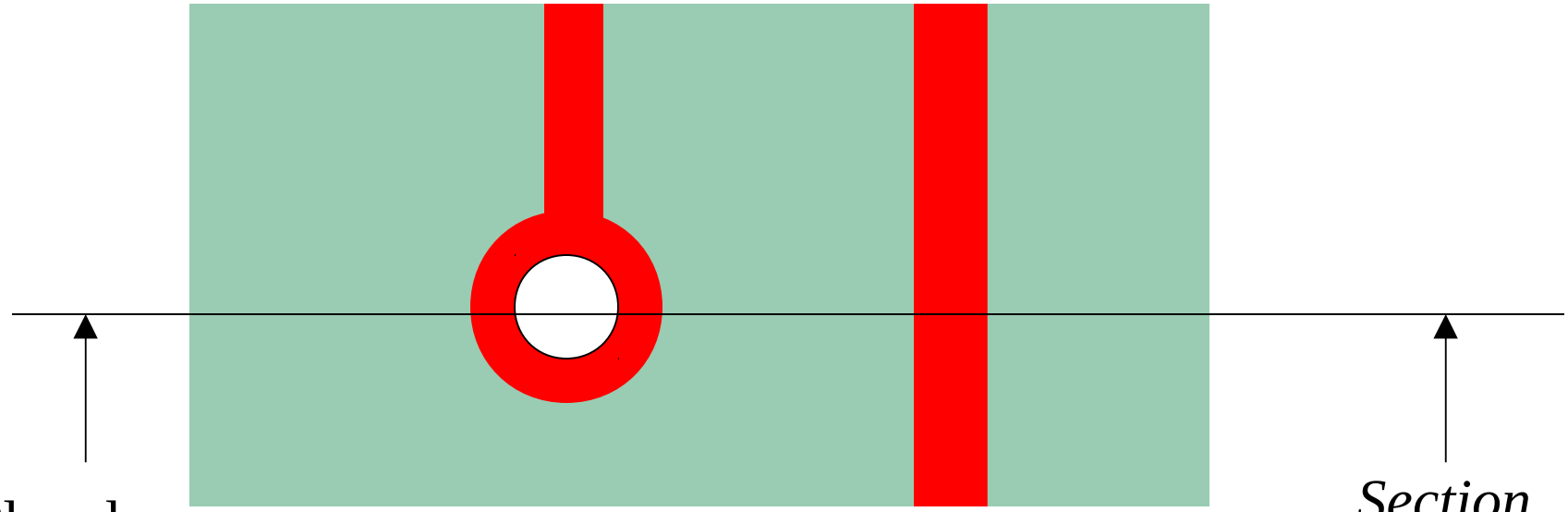
Sommaire *Outline*

- Vernis épargne-soudure	*Solder mask*
- Traitement du cuivre	*Copper-finishing*
- Marquage	*Screen-printing*
- Détourage	*Routing*
- Test électrique	*Electrical test*
- Contrôle	*Inspection*
- Expédition	*Shipping*

Diagramme *Flow chart*

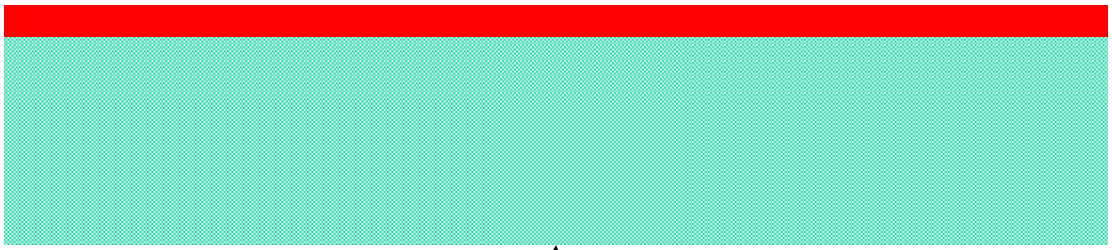


Vue côté soudure *Solder side view*



Matière de base *Base Material*

Cuivre 9 à 105 µm
9 to 105 µm copper

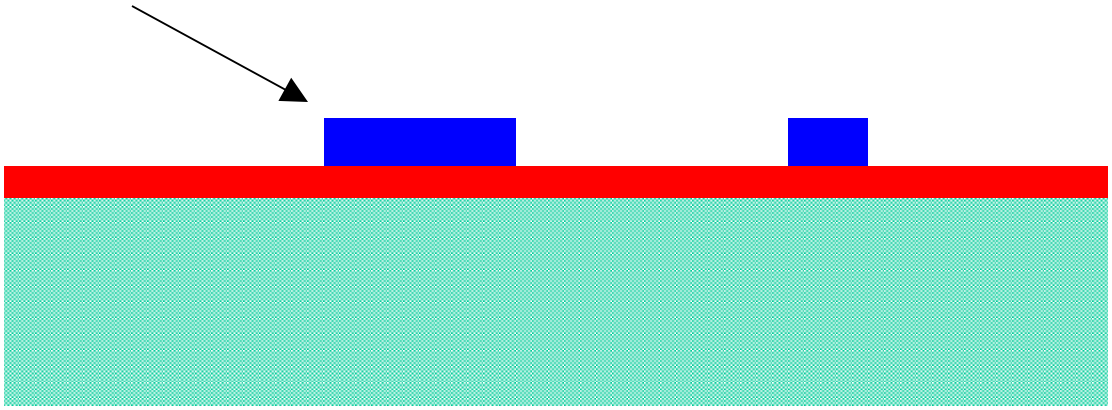


Stratifié 1 à 3,2 mm (FR2, FR3, FR4, CEM)
1 to 3.2 mm laminate (FR2, FR3, FR4, CEM)

Transfert image *Imaging*

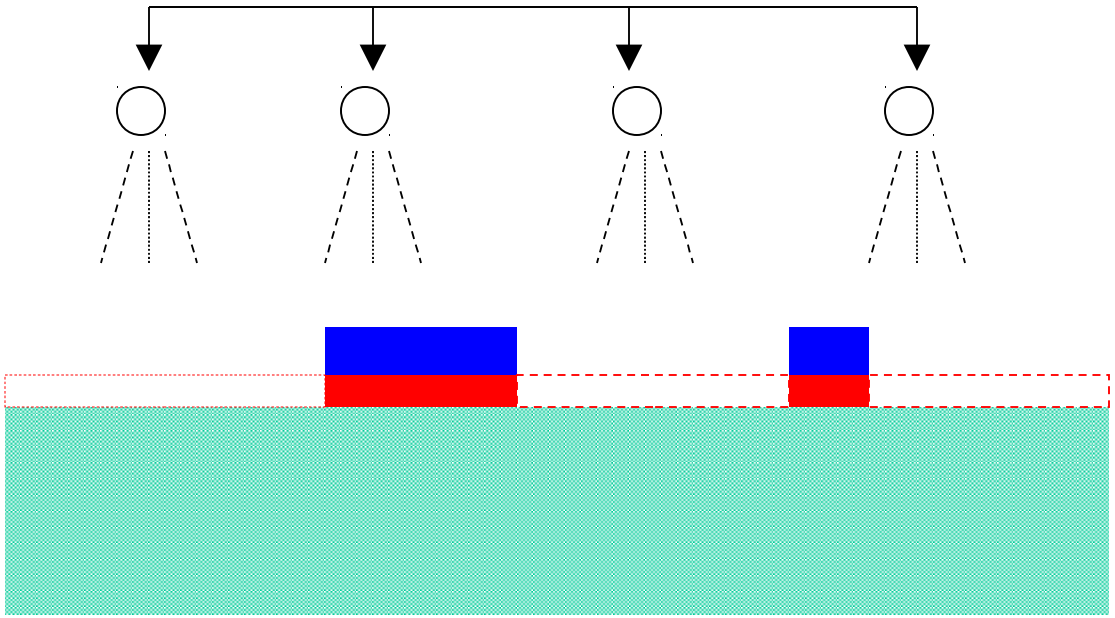
Réserve de gravure : encre ou résine photosensible

Etch mask : ink or photoresist



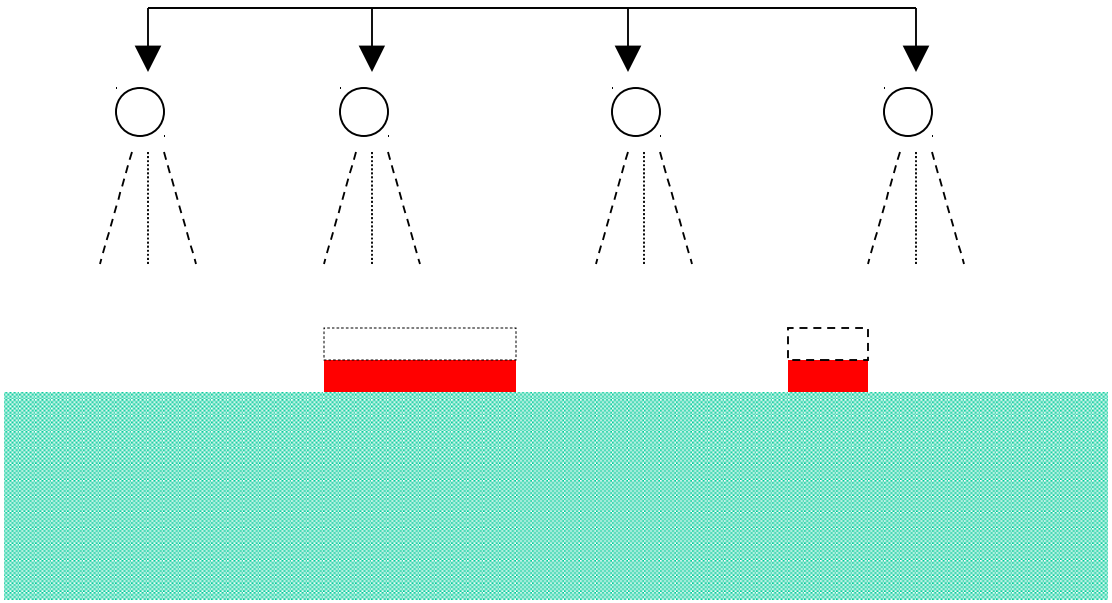
Gravure *Etching*

Pulvérisation de l ’agent de gravure
etchant spray

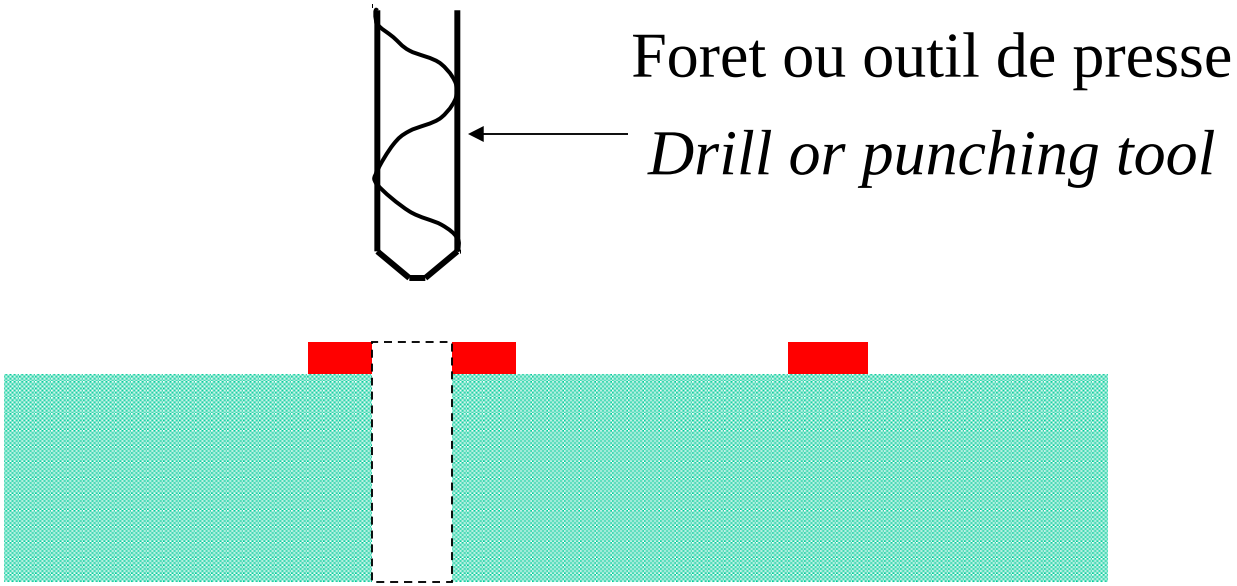


Élimination de la réserve de gravure *Stripping*

Pulvérisation de solvant
stripper spray

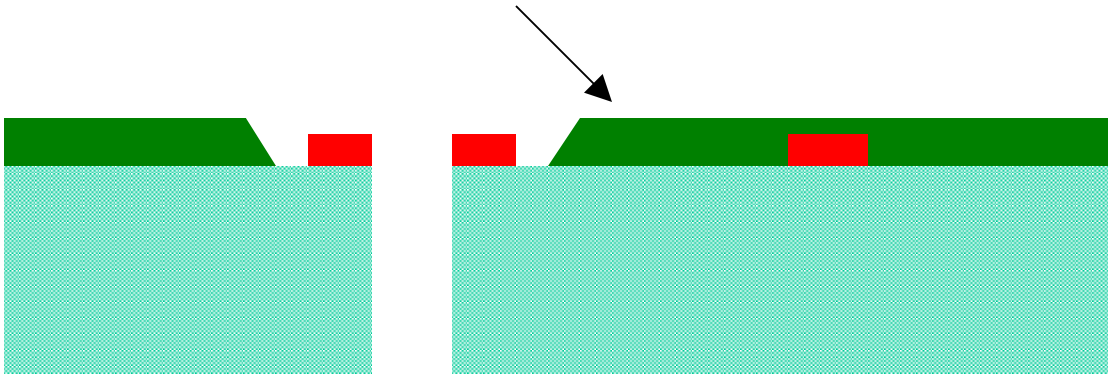


Perçage / Poinçonnage
Drilling / Punching



Vernis épargne-soudure
Solder mask

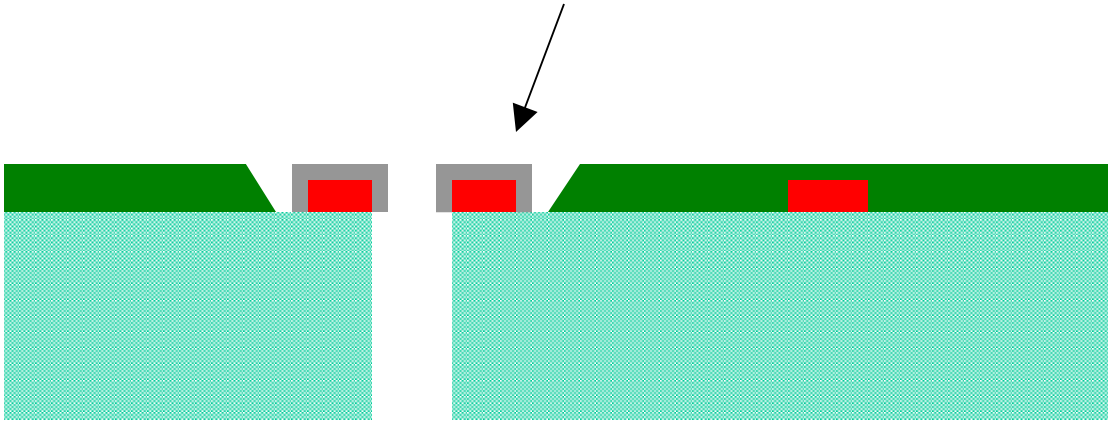
Dépôt de vernis par sérigraphie
Screen-deposited solder resist



Traitement du cuivre
Copper finishing

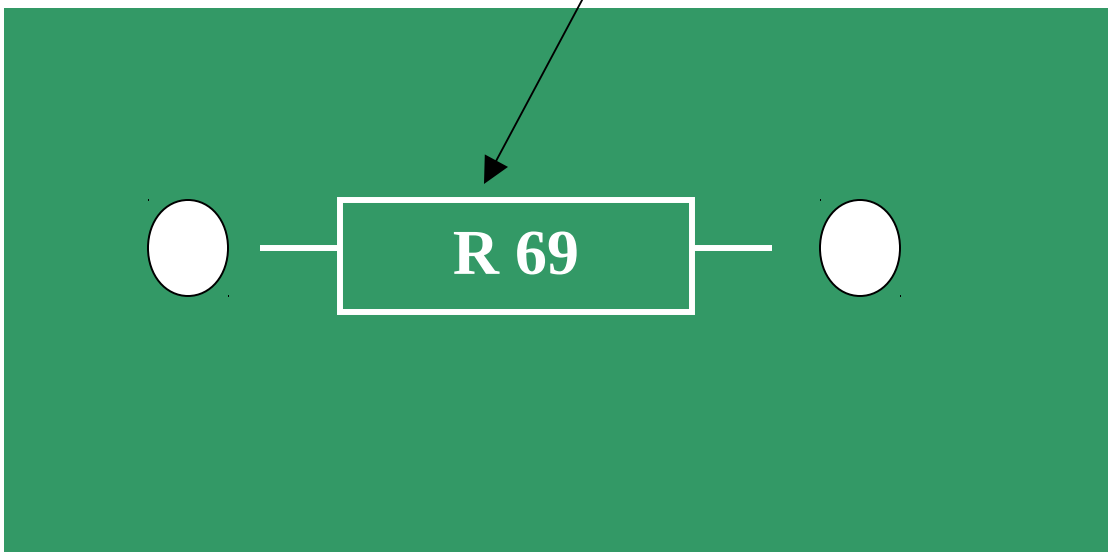
étamage / passivation

tinning / passivation



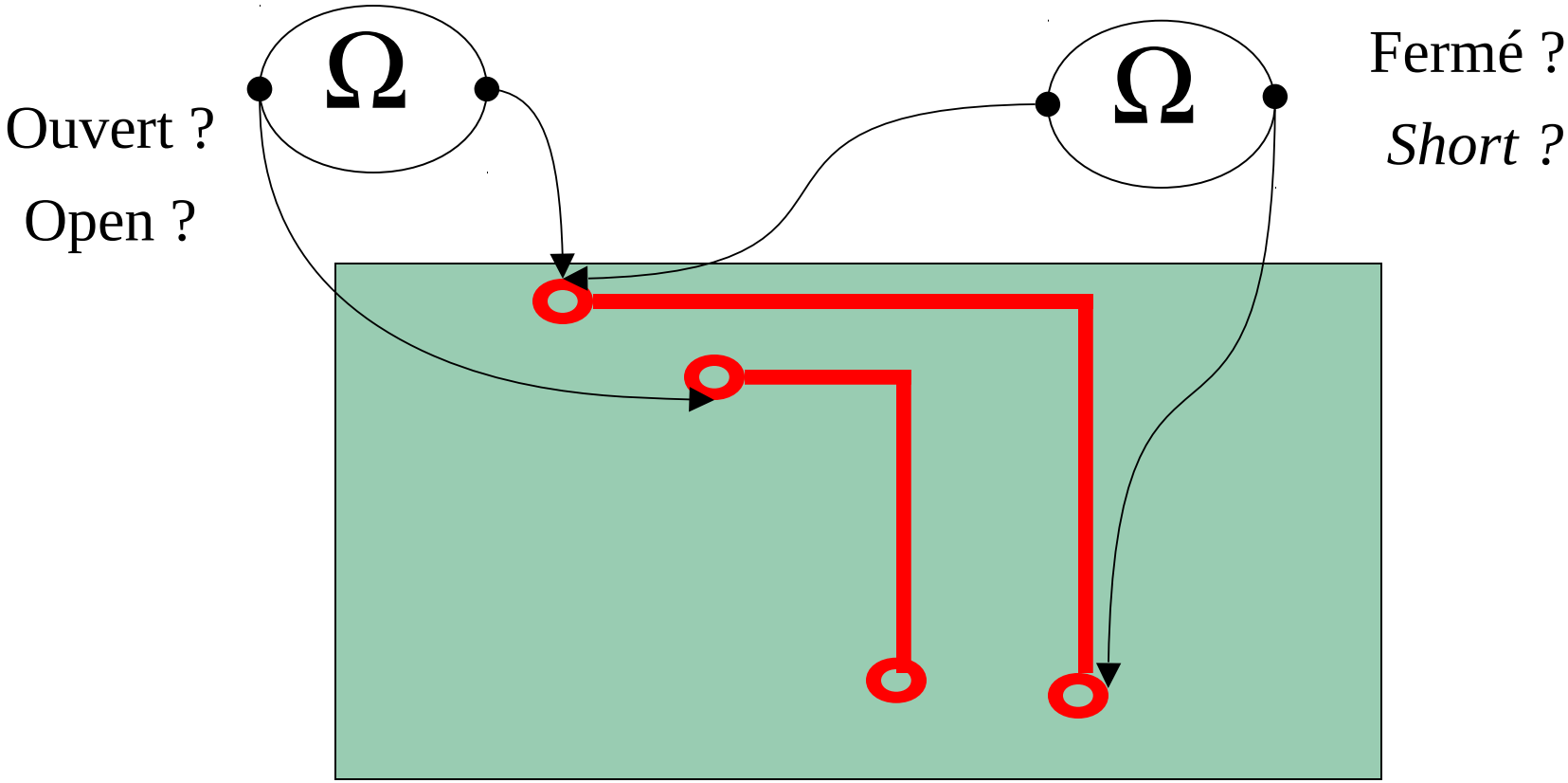
Marquage
Screen printing

Sérigraphie du motif
screen-printing

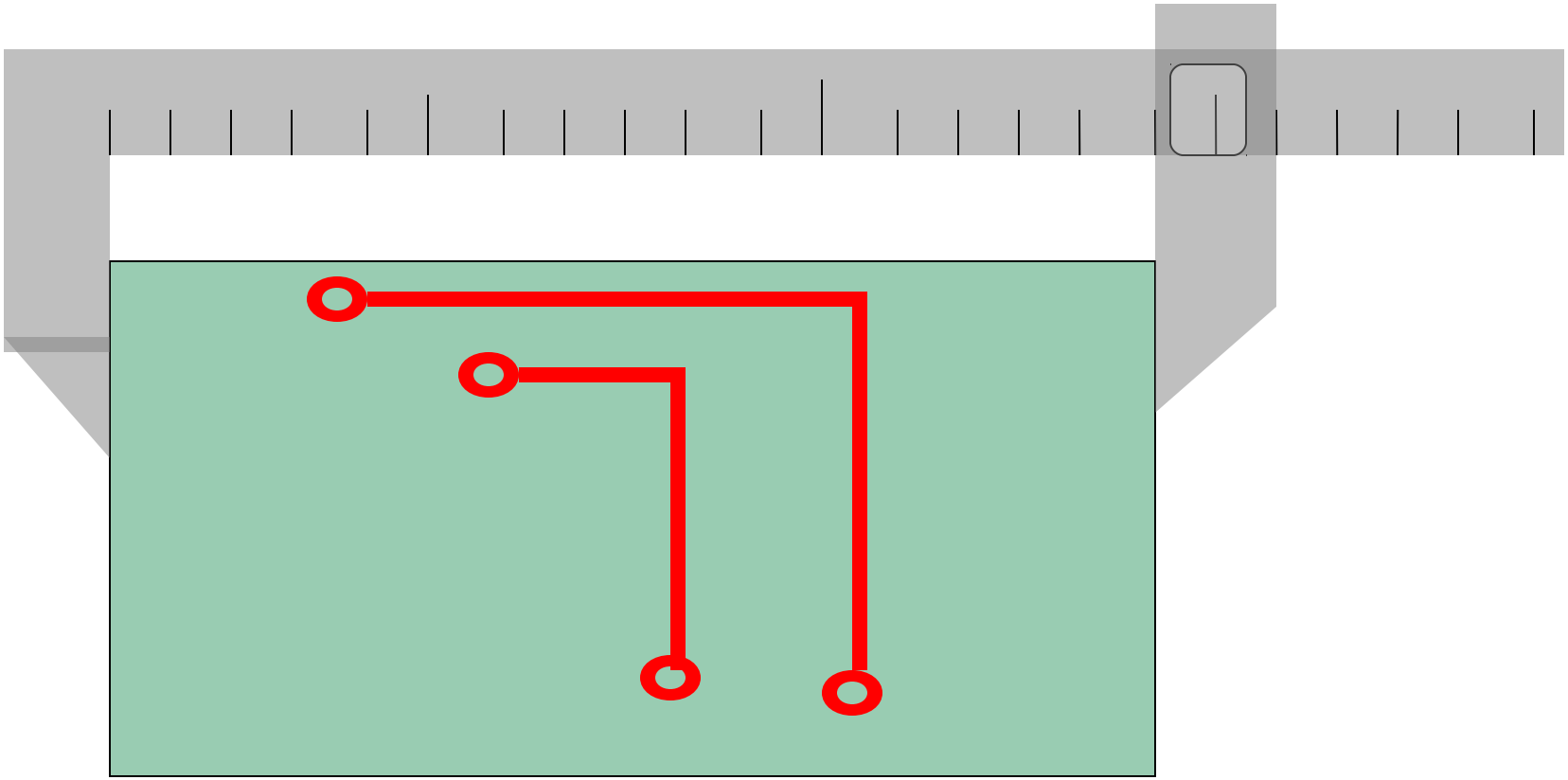


Côté composants
component layer

Test électrique
Electrical test



Contrôle *Final Inspection*



Expédition *Shipping*

2

Circuits Double Faces Trous Métallisés

Principe de base

Double-Sided Plated-Through Hole Boards

Overview

Sommaire *Outlook*

- diagramme	*Flow-chart*
- Vue côté composant	*Component side view*
- Matière de base	*Base material*
- Perçage	*Drilling*
- 1ère métallisation	*1st plating*
- Transfert image	*Imaging*
- 2ème métallisation	*2nd plating*
- Élimination de la résine	*Photoresist stripping*

Sommaire *Outline*

-Gravure	*Etching*
-élimination SnPB	*SnPb stripping*
-Vernis épargne-soudure	*Solder mask*
-Étamage H.A.L.	*H.A.L. tinning*
-Marquage	*Screen printing*
-Détourage	*Routing*
-Test électrique	*Electrical test*
-Contrôle	*Inspection*
-Expédition	*Shipping*

Diagramme *Flow-chart*

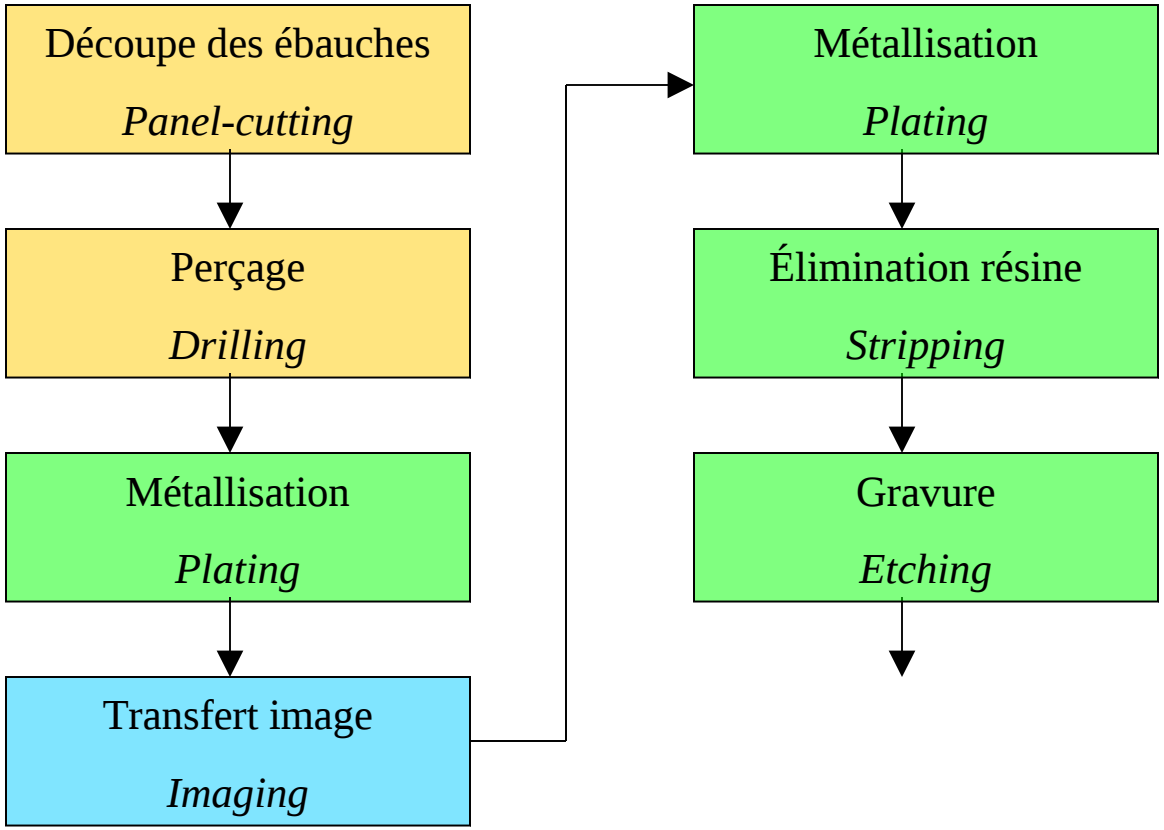
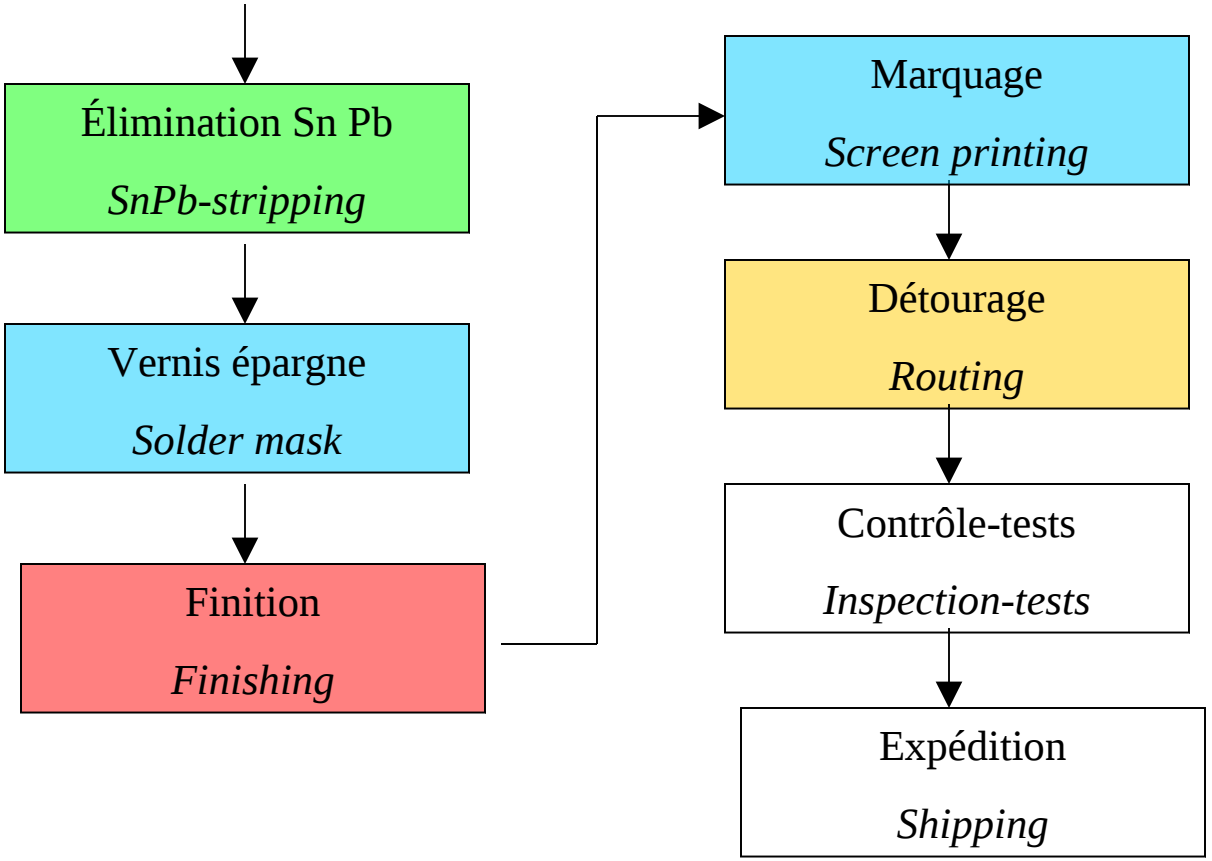
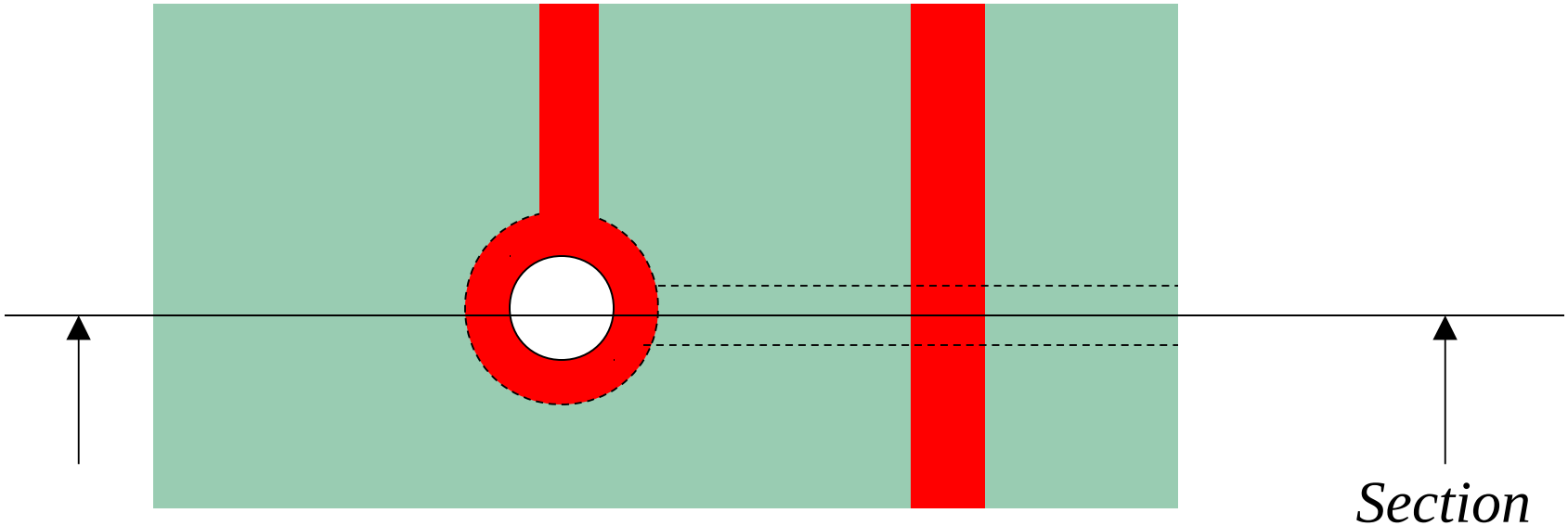


Diagramme *Flow-chart*



Vue côté composants
Component-side View

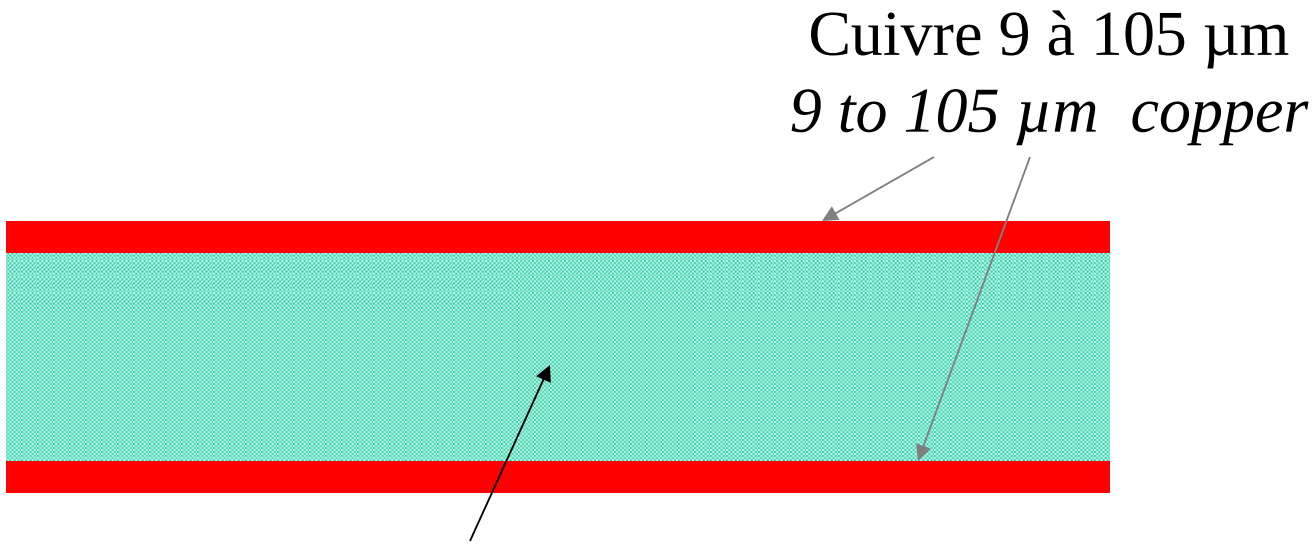


Plan de coupe

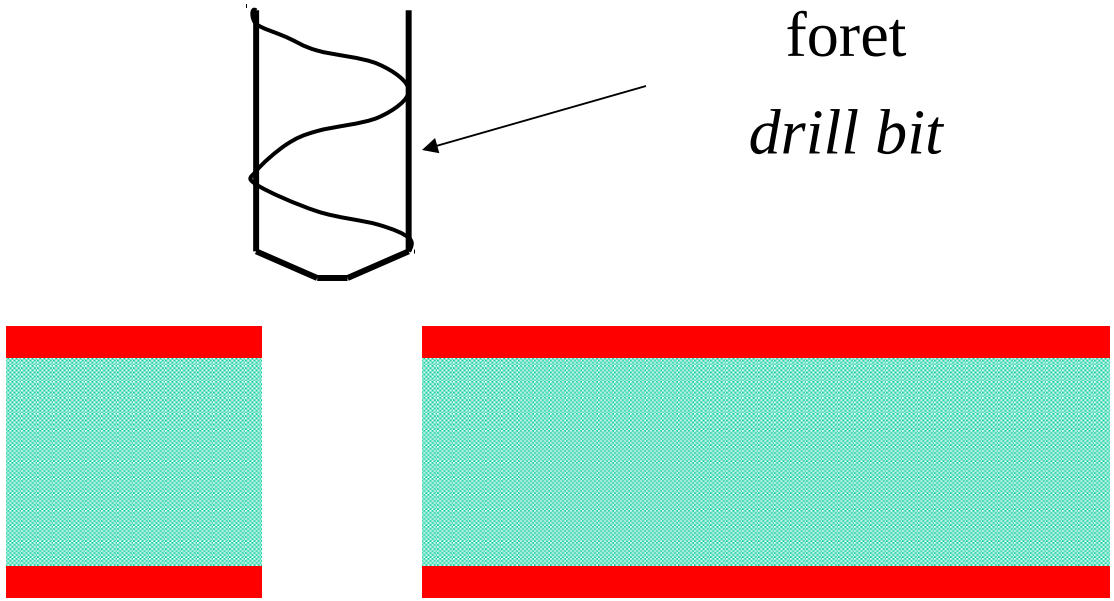
(circuit nu)
(bare board)

Section view

Matière de base
Base material



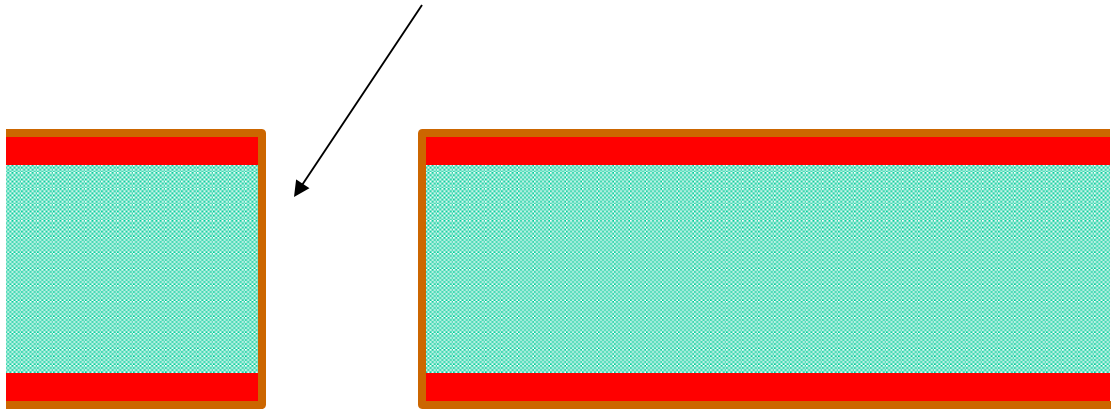
Perçage *Drilling*



Première métallisation
First plating

Cuivre chimique + renfort électrolytique

electroless copper + electrolytic copper plating

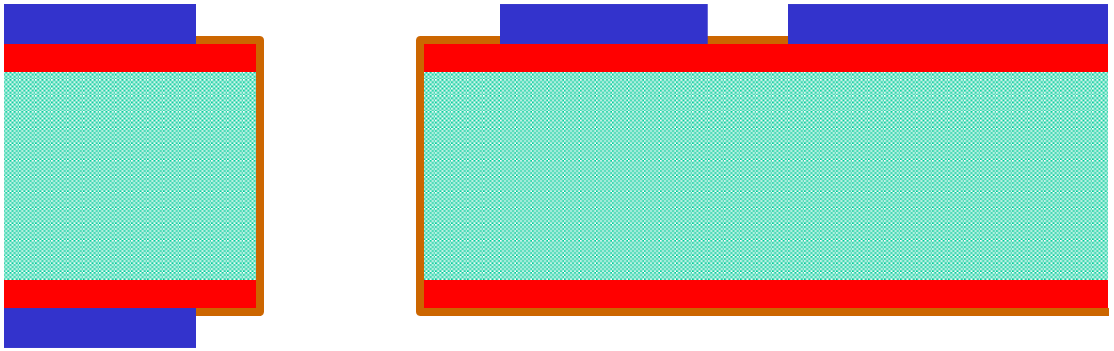


Transfert image
Imaging

Réserve de métallisation
(résine photosensible)

Plating mask

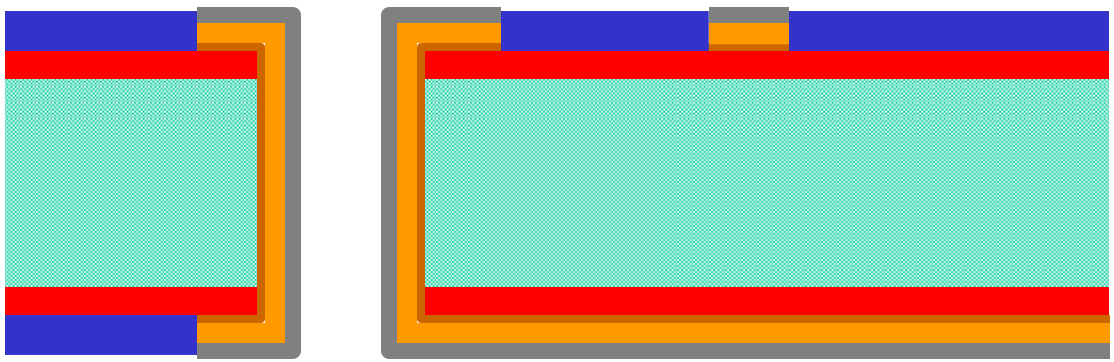
(photoresist)



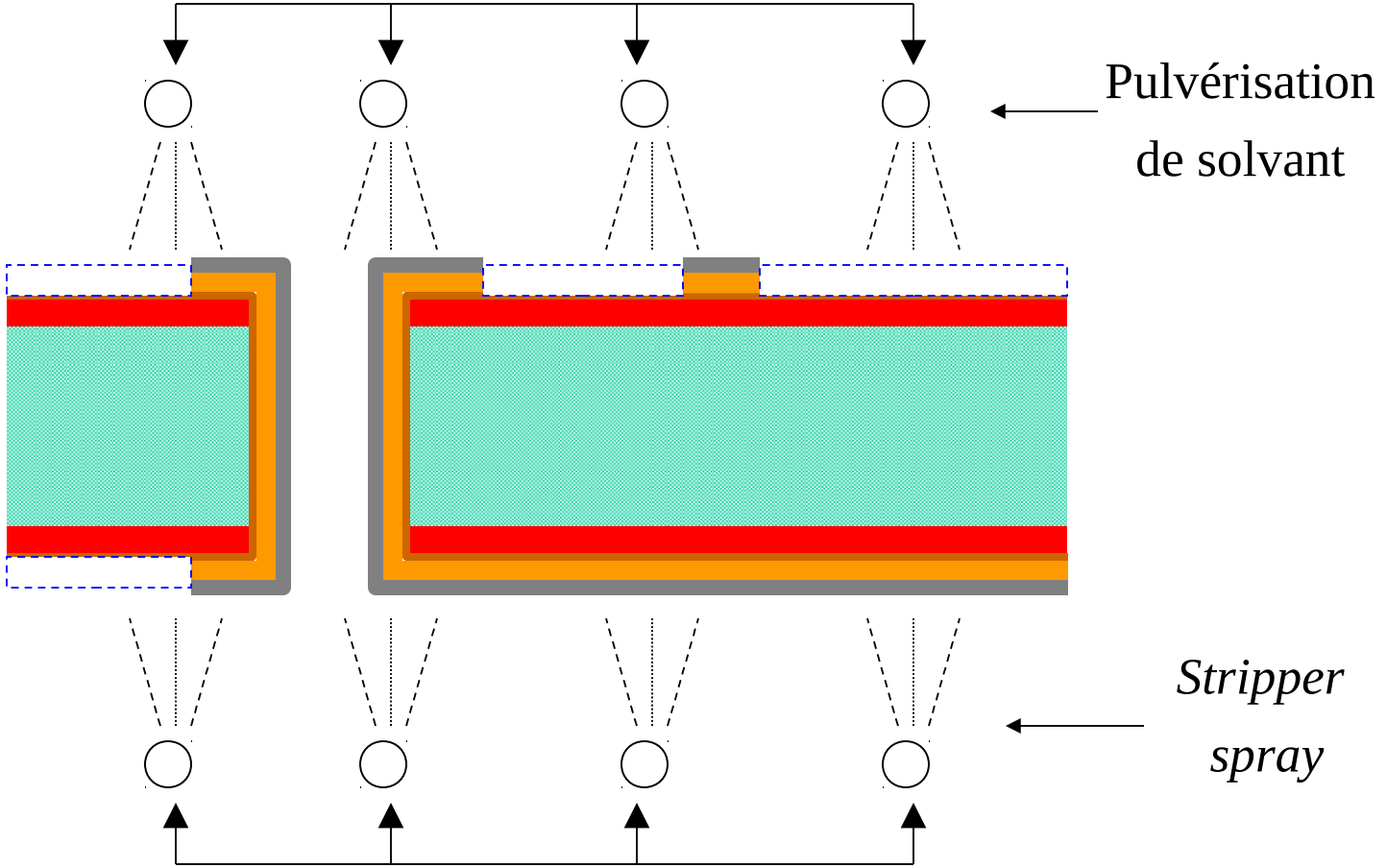
Seconde métallisation
Second plating

Dépôt électrolytique de cuivre (25µm) et alliage (5µm)

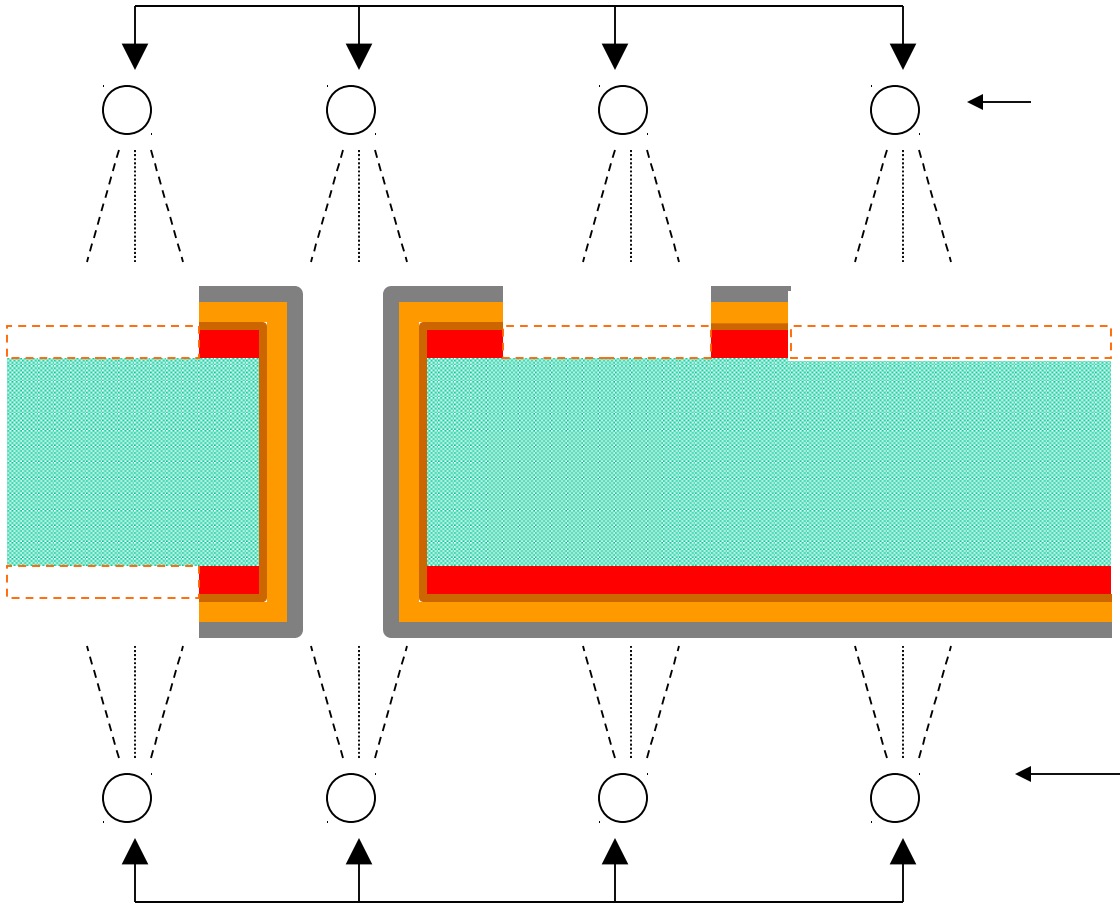
Copper plating (25µm) + alloy plating (5µm)



Elimination de la réserve
Stripping



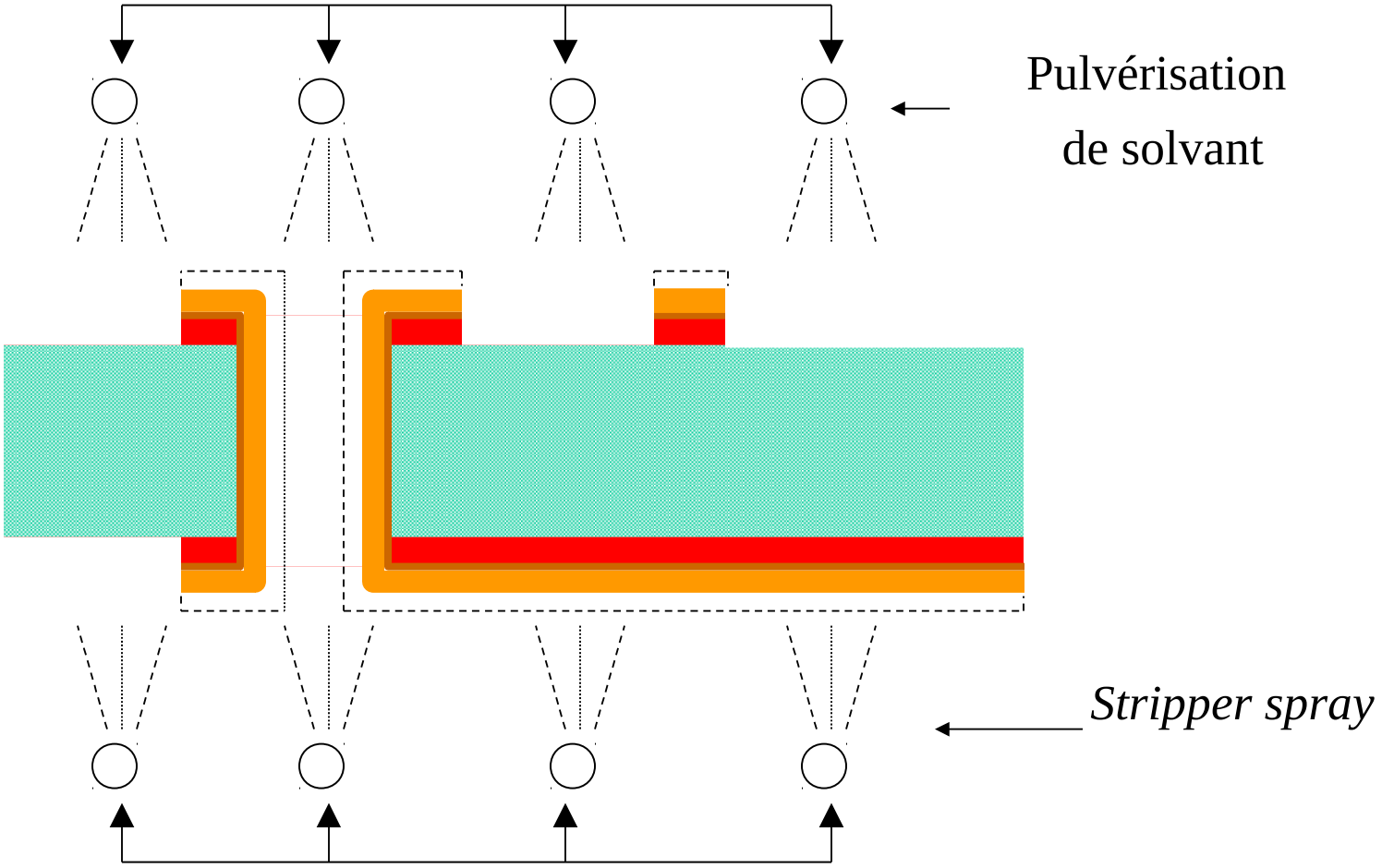
Gravure
Etching



Pulvérisation de
l ’agent de gravure

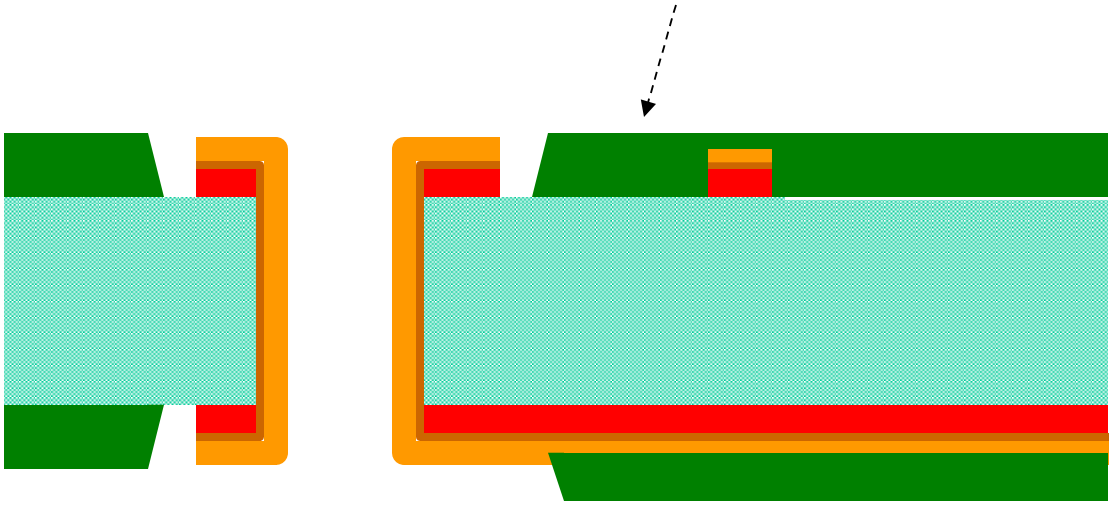
Etchant spray

Elimination du dépôt SnPb
Stipping



Vernis épargne-soudure
Solder mask

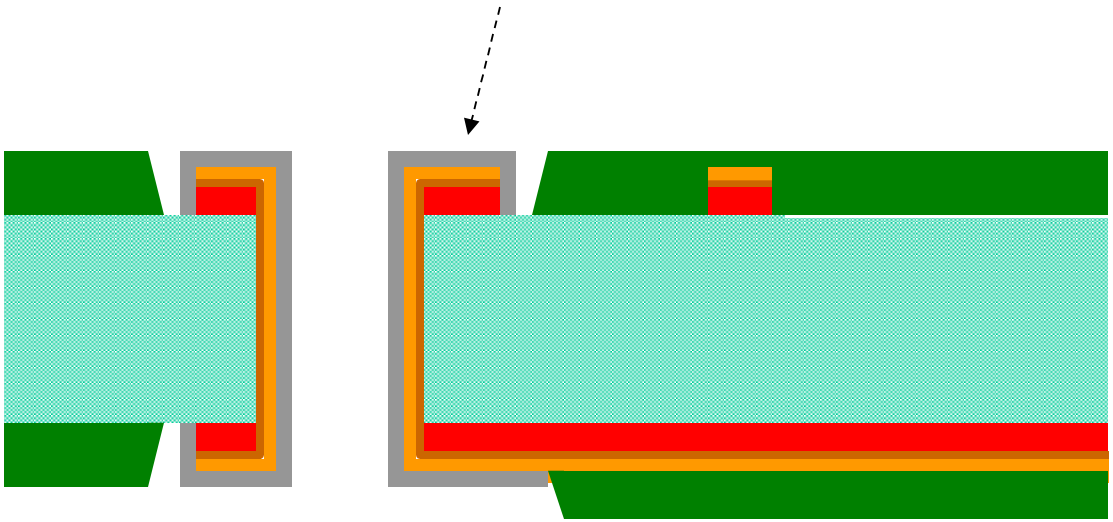
Dépôt de vernis par sérigraphie
Screen-deposited solder resist



Etamage H.A.L.
H.A.L. tinning

Dépôt SnPb par bain et nivelage à l ’air chaud

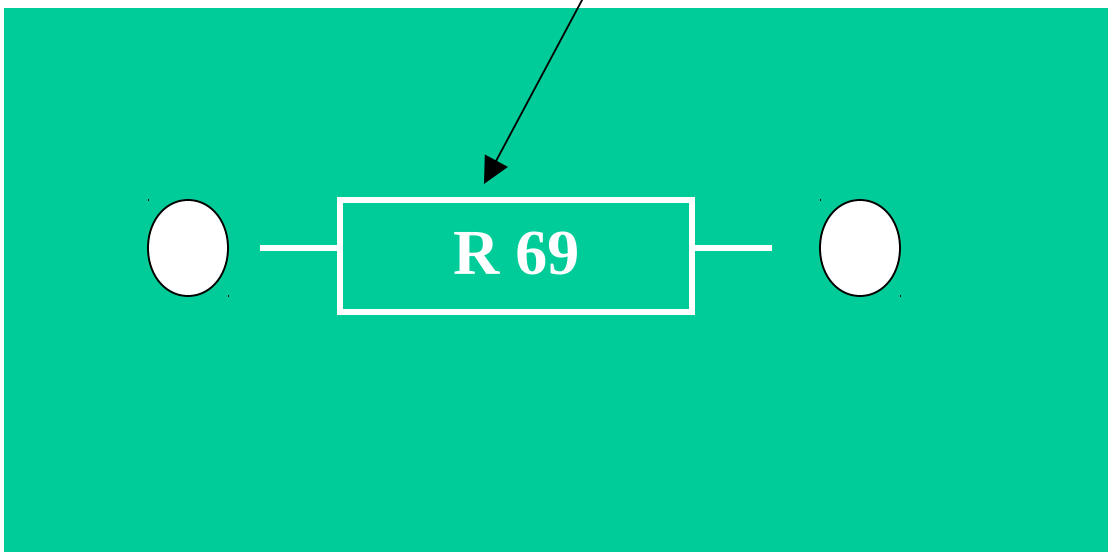
Tin bath deposit and hot air levelling



Marquage
Screen printing

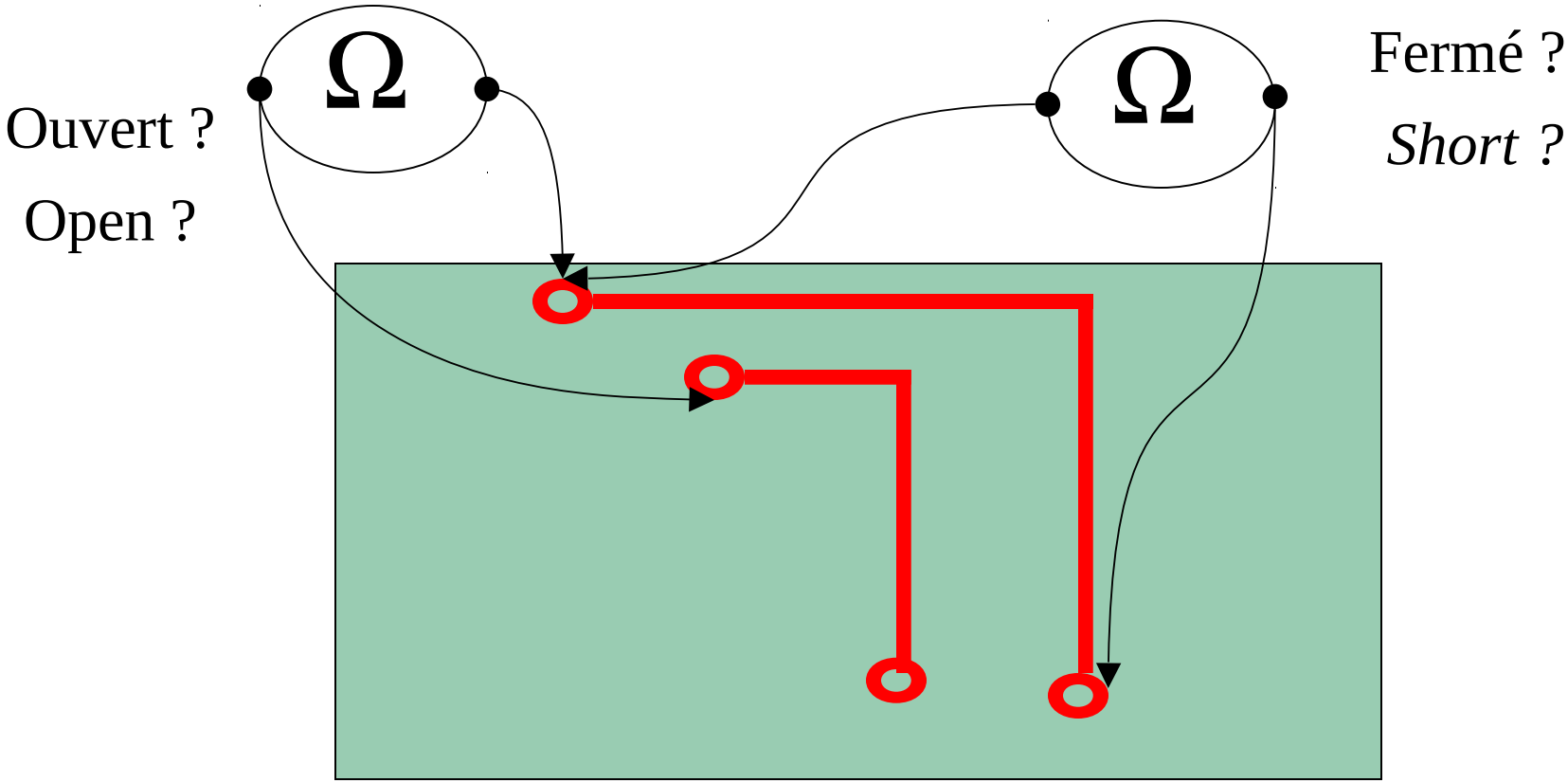
Sérigraphie du motif

screen printing

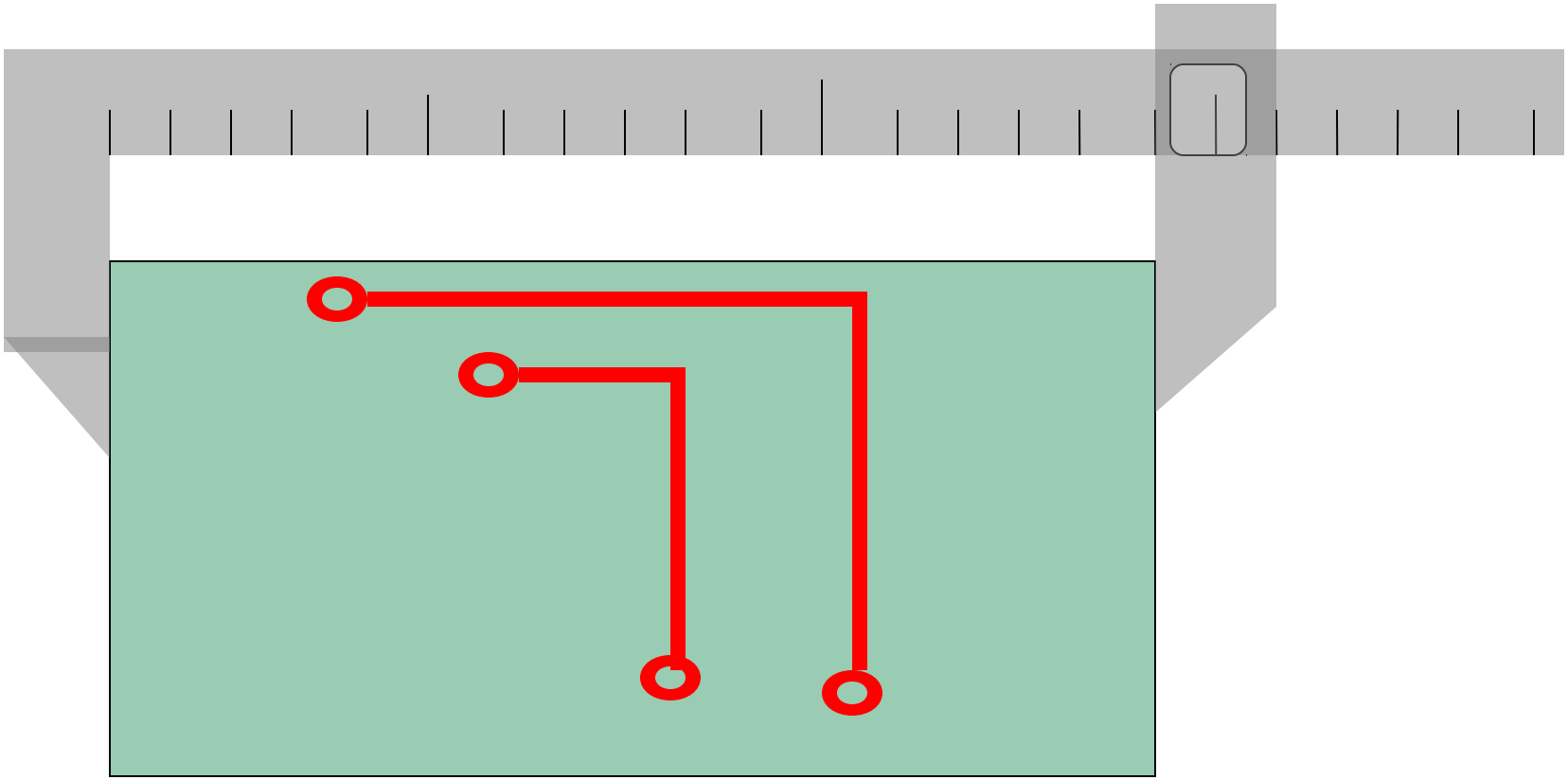


Côté composants
component layer

Test électrique
Electrical test



Contrôle *Final Inspection*



Expédition *Shipping*

3

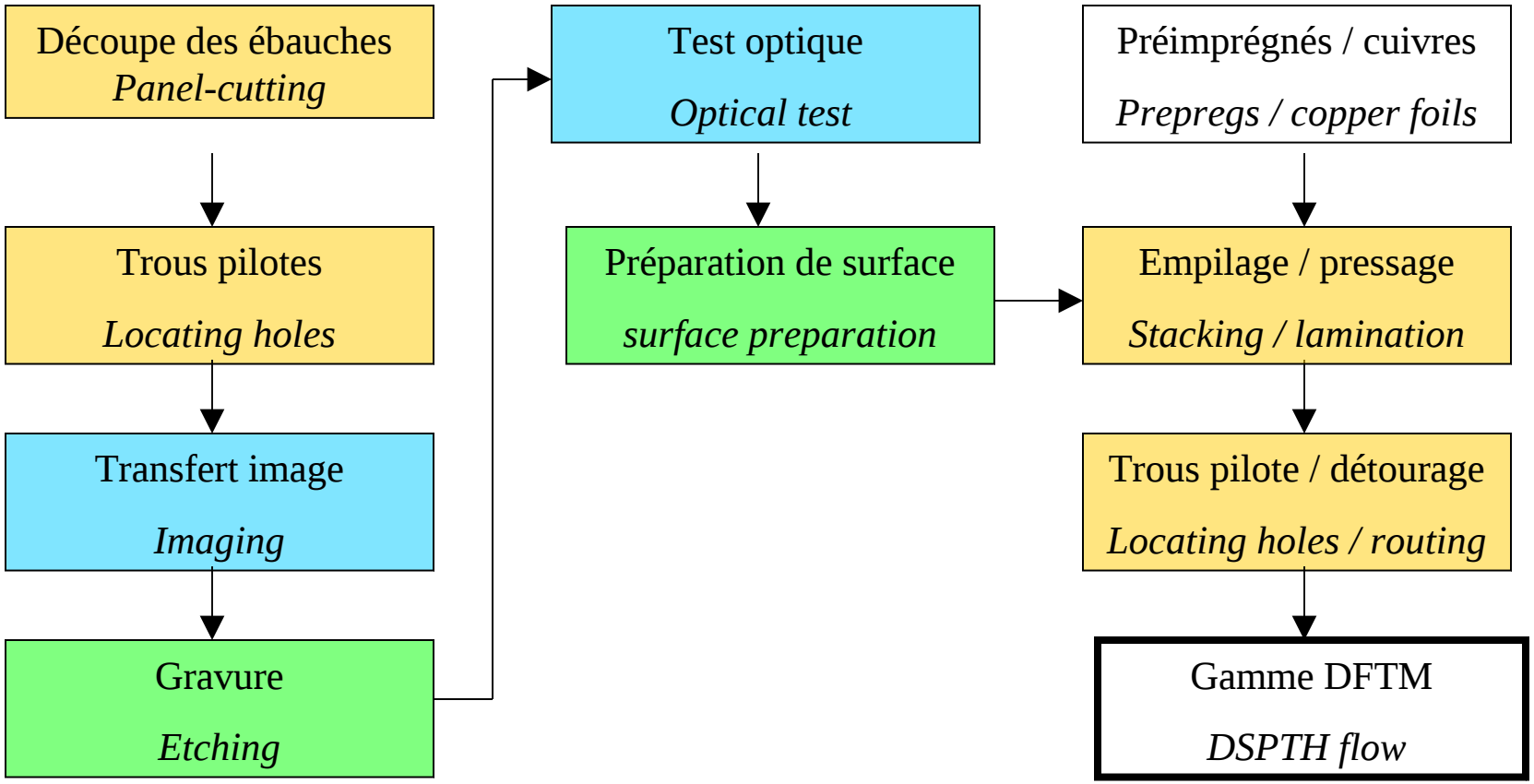
Circuits Multicouches
Principe de base

Multilayer PCBs
Overview

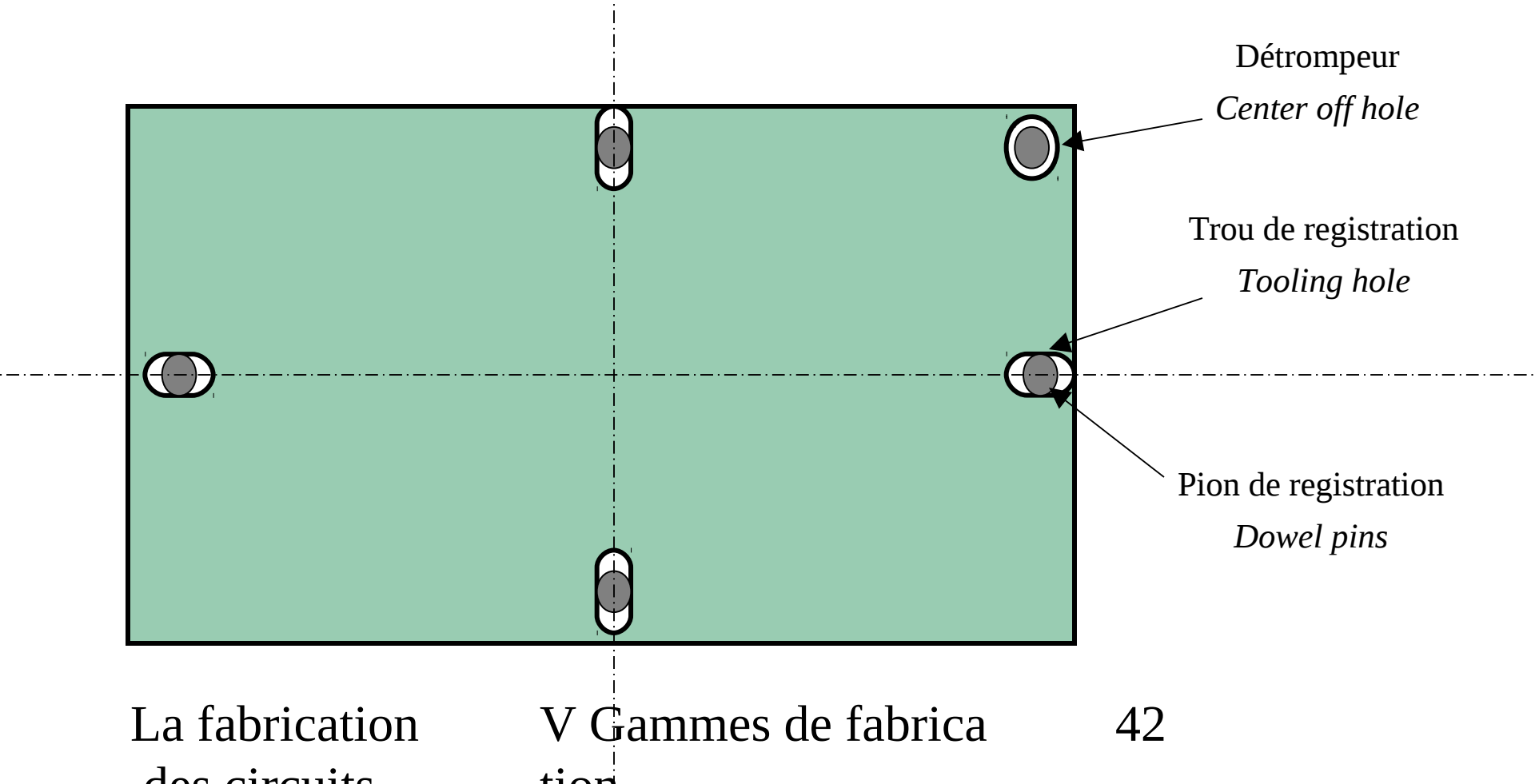
Sommaire *Outline*

- Diagramme *Flow chart*
- Poinçonnage *Punching*
- Empilage *Stacking*
- Pressage *Lamination*
- Paramètres *Parameters*

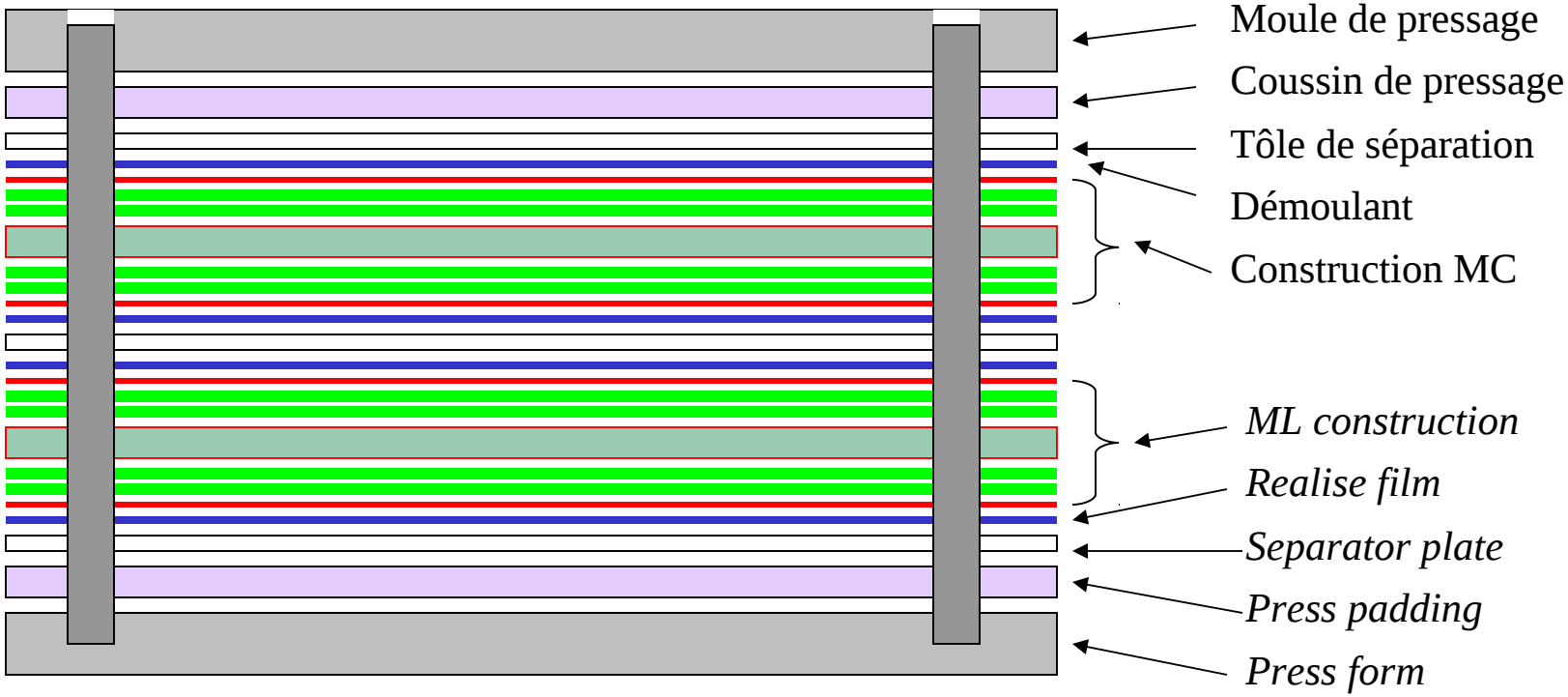
Diagramme *Flow-chart*



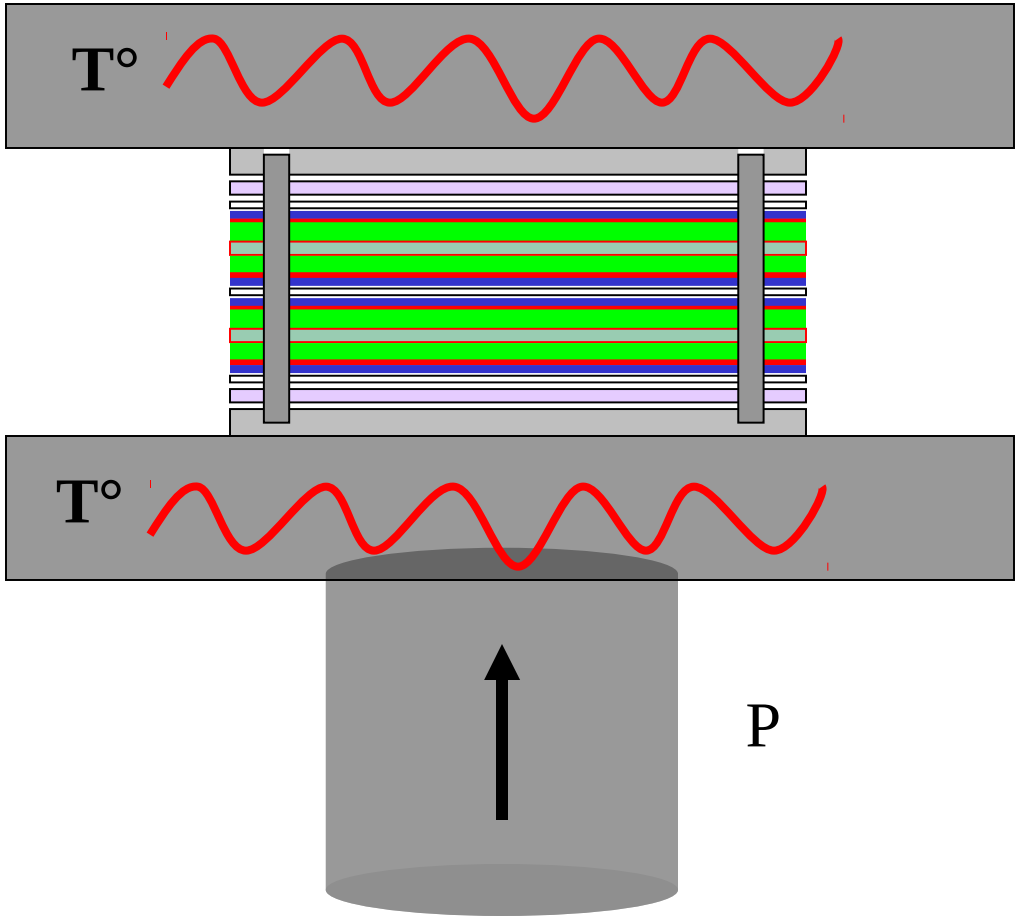
Poinçonnage des trous de registration
Punching of tooling holes



Empilage *Stacking*



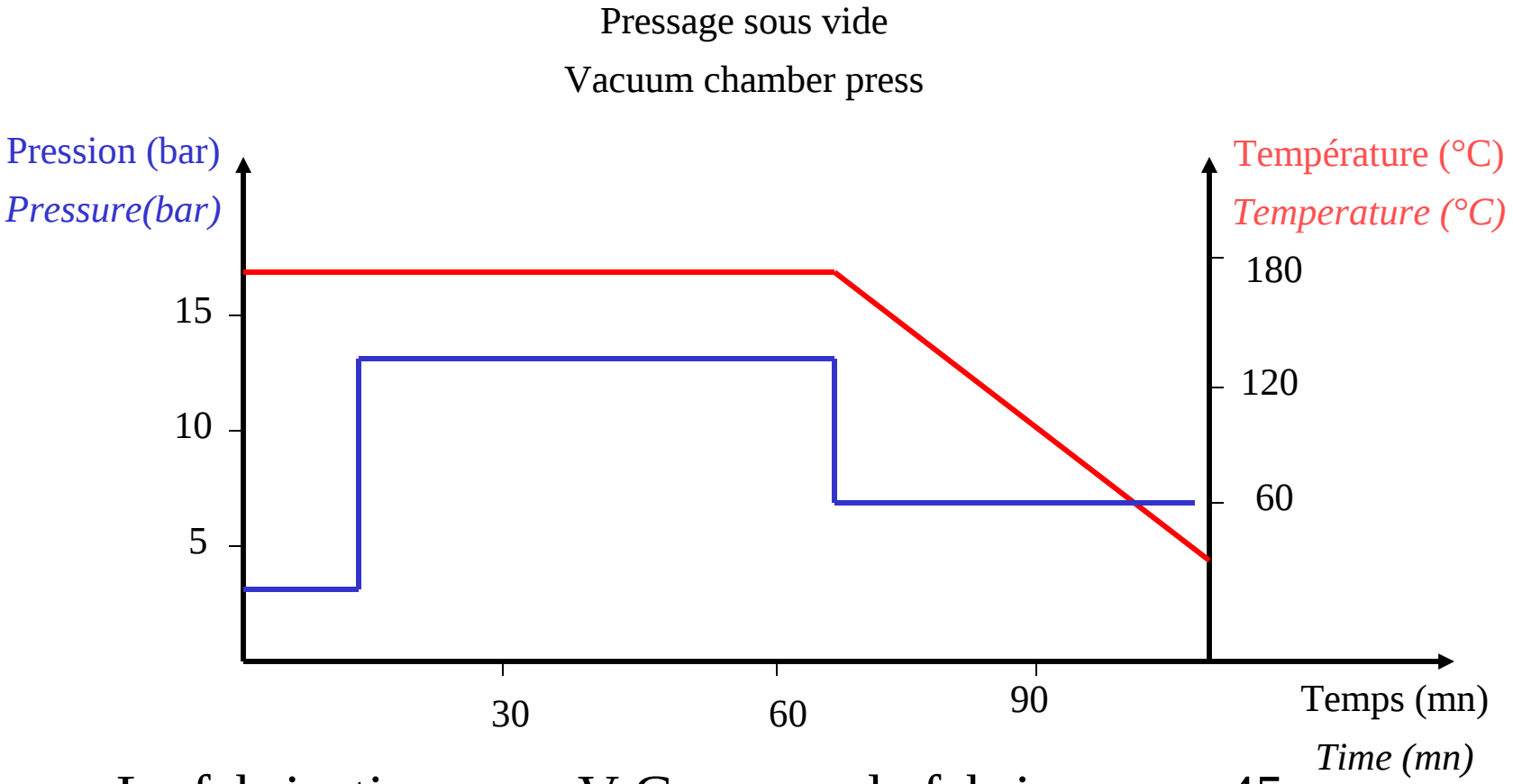
Pressage *Lamination*



Presse hydraulique ou autoclave

Hydraulic or autoclave press

Paramètres de pressage
Pressing parameters

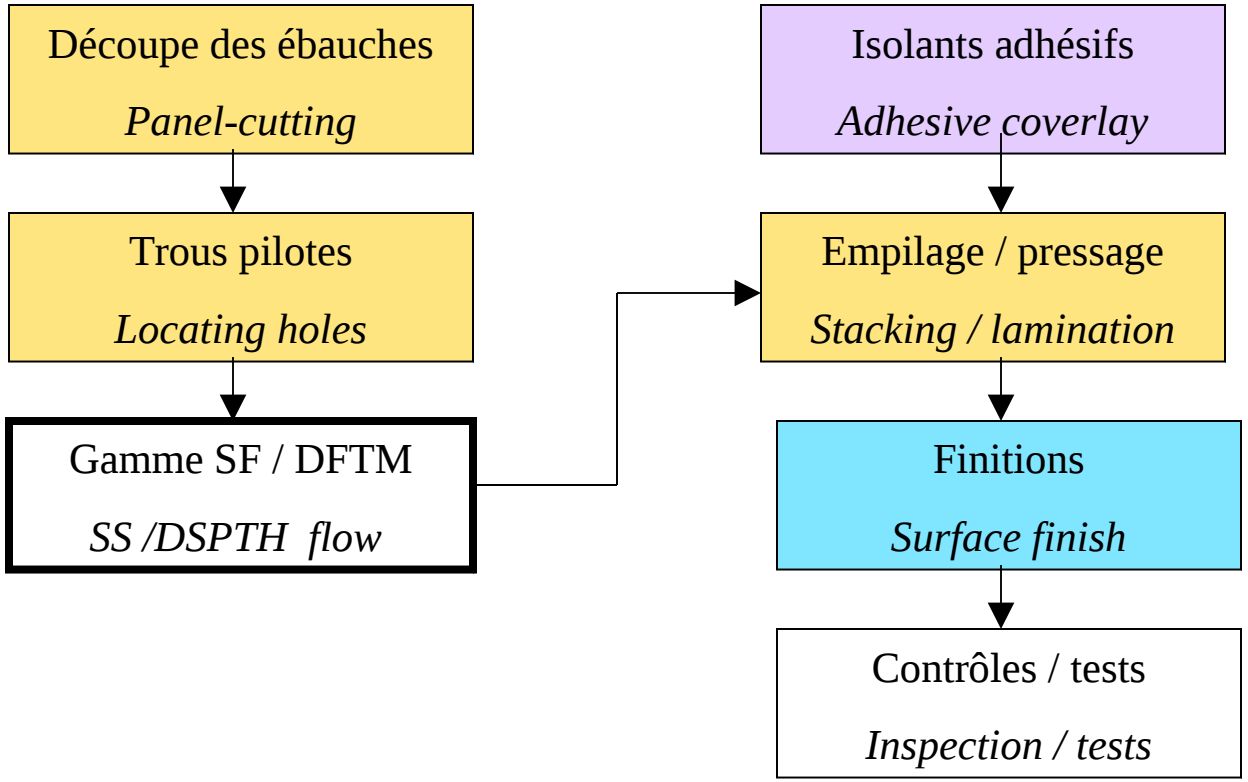


4

Circuits Souples
Principe de base

Flexible PCBs
Overview

Diagramme *Flow-chart*



5

Circuits Flexo-rigides
Principe de base

Flex-rigid PCBs
Overview

Diagramme *Flow-chart*