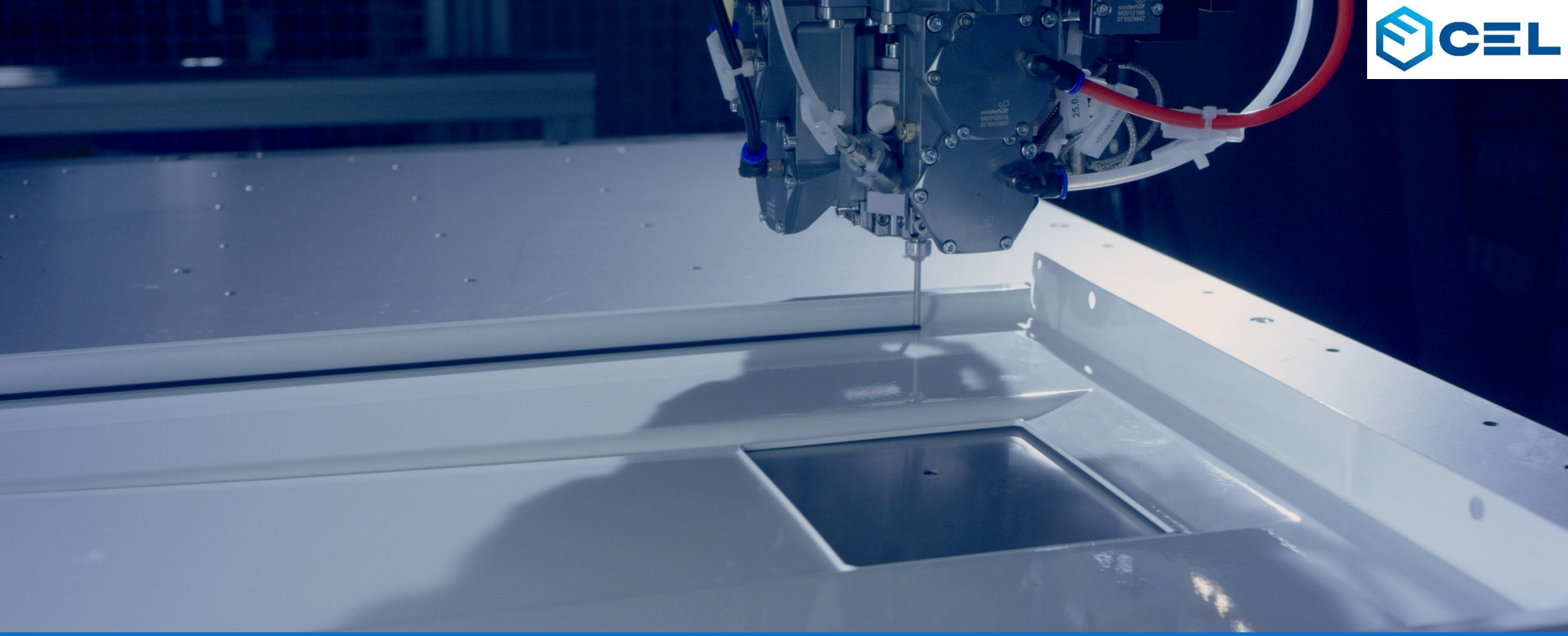


Guidelines for designing your gasket seats F.I.P.F.G. (Form In Place Foam Gasket)

Advantages of an adequate FIPFG project

- Excellent sealing result
- Efficient / economical production

- Constant product quality
- Reduced waste
- High process security
- Higher production speed
- Correct gasket dimensions, less material consumption

Seal compression

Polyurethane 20-60%, Silicone 10-30%.

The recommended compression level depends on the size and hardness.

The seal must be compressed at the point of maximum height.

An excessive compression could mechanically damage the gasket and / or increase the compression set.

A too low compression may not guarantee a perfect seal generating losses and possible moisture absorption.

Excessive tolerances of the pieces make it difficult to guarantee the recommended compression range.

The dimensions of the gasket must be such as to fill the "gap" between the two components to be sealed.

Compression force

Less gasket surface, less compression force required

The coupling of the two pieces to be sealed must be sufficiently strong in order to avoid possible deformations between the fixing points, which could cause losses due to inadequate compression

Gasket protection through constructive measures

Protection from direct UV radiation (Polyurethane)

Avoid water stagnation

The gasket should be protected from direct jets of water

The pressing in contact with the gasket must be as small as possible

Avoid sharp pressure edges as they can damage the gasket

Outdoor applications

Some FERMAPOR K31 may swell excessively in the presence of "special" conditions (mixing ratios with a low content of component B, in an outdoor application with the presence of water stagnation and low compression) and are not recommended for outdoor applications.

"For these applications compounds with hydrophobic characteristics have been developed. C.E.L. is at your disposal to advise you on the most suitable material for your application."

How to design the sealing groove

Minimum dimension (height x width) 2.5 x 2.5 mm; no maximum dimension

Perimeter devoid of holes, interruptions, etc.

Width of the groove constant along the entire perimeter.

Liquid material used for 2D applications, the junction point is not visible

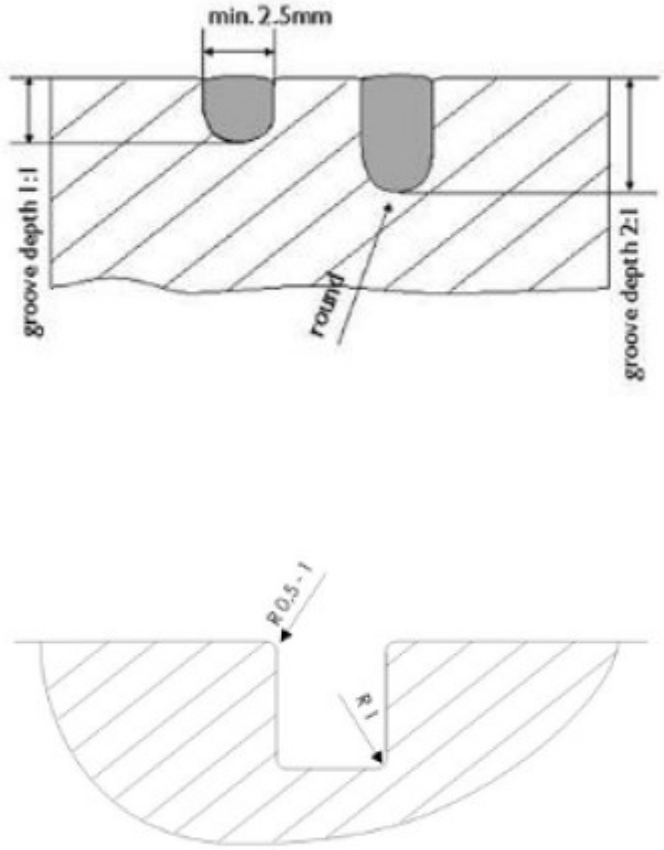
Avoid undercuts and sharp edges

Avoid short and steep surfaces

The rounded corners allow the robot to maintain a constant speed in directional changes

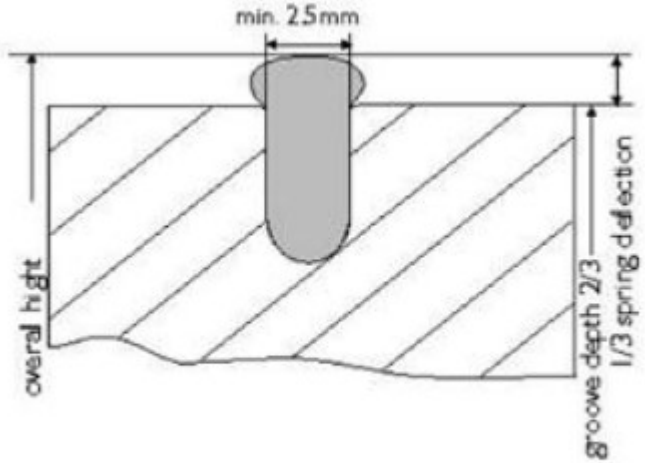
Apply radiuses on the internal and on the upper edge of the groove (Minimum radius value see drawing). The radius on the base prevents air entrapment. The radius on the upper edge of the quarry facilitates a regular height and prevents holes in this area.

Depth and width of the slots for dispensed gaskets. Depth to width ratio: from 1: 1 to 2: 1A greater ratio (eg 3: 1) could generate air entrapment, irregular height and difficulty in achieving adequate compression. A lower ratio (eg 0, 5: 1) may cause insufficient gasket height. The height in the center may be lower than that of the edges.



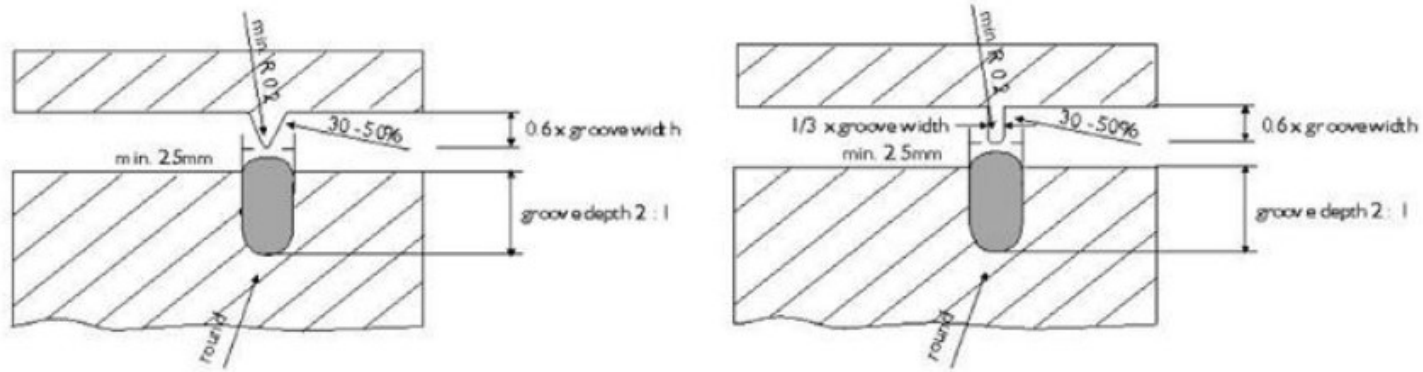
Depth and width of the grooves, if the gaskets exceed the edge of the slot.

Not more than 1/3 of the total height of the gasket should exceed the edge. Depending on the viscosity of the material, it will flow over the edge. If the gasket is compressed, the excess part could be crushed and destroyed. In addition, the gasket could stretch and break during expansion by forming holes in this area which leads to an increase in water absorption.



Drawing of groove and of pressing rib

The tip of the pressing rib must be rounded as it could cause the seal to break if it is pointed. If the pressure exceeds the width of the gasket by 1/3 (see image 2), this could be removed from the quarry walls. A triangular pressure plate provides a greater contact surface with the gasket and minimizes the contact surface with the surrounding environment The optimal solution to prevent air entrapment is the quarry with a circular base. If this cannot be achieved, the radius should be as large as possible.



Guidelines for applying seals on flat surfaces

Minimum dimensions (height x width): 2x3mm.

The material must be thixotropic

The angle of incidence of the application surface can be between 70 ° and (preferably) 90 °

The height-to-width ratio can be changed by varying the thixotropy of the materials

The use of a specific thixotropia is responsible for limiting the maximum height and width of the gasket

Avoid short surfaces with a high angle of incidence

The rounded corners allow the applicator robot to maintain a constant speed in directional changes

A: B = 1: 1 (unfavorable), extremely thixotropic.

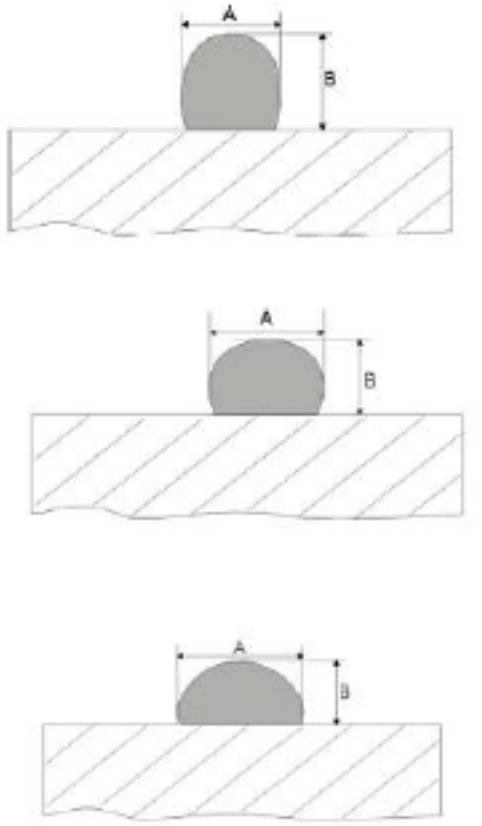
Difficult to make, only possible with a specific application method. Viscosity: >> 200,000 mPasA

mPasA: B = 1.5: 1, very thixotropic.

For 3D applications and for inclined surfaces up to 70 ° Viscosity: >> approx. 100,000-200,000 mPas

mPasA: B = 2: 1 (ideal), standard thixotropic.

Most used report for 2D applications. Viscosity: ca.35,000-55,000 mPas.



A: B> 2: 1 <3: 1, semi-thixotropic.

For 2D applications, for example if the pressing is not always in the center due to the tolerances of the parts. Viscosity: approx. 10,000-35,000 mPas

mPasA: B> = 4: 1, liquid (unfavorable).For 2D components with a smooth and regular surface. But even then only possible approximately.