

Labyrinth Seals



Design

GMN Labyrinth Seals are complete units of two rings with built in labyrinth. The inner ring is made of steel the outer ring is made of aluminium. They are ready for mounting but inseparable. The profile shows at least three labyrinth peaks. Standard models are supplied with widths of 10, 15 and 20 mm depending on seal diameter. For a wide range of applications GMN offers two different designs:

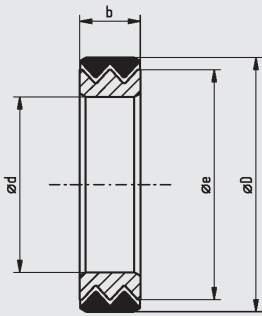


Figure 1

The basic "L" Type against coarse and fine granular contamination and light splashing liquids.

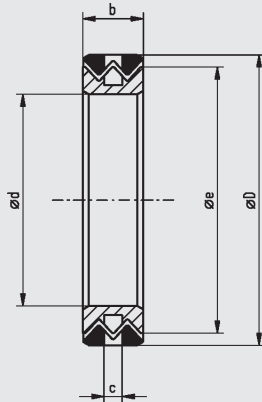


Figure 2

The "M"-Type against coarse and fine granular contamination and heavy splashing liquids.

The "M" Type seal is designed with peripheral grooves which allow liquids splashed into the first labyrinth gap to be centrifuged into a circular groove of customers mating part. The liquid may flow back via a drain hole to the reservoir or to the outside. The correct dimensioning of the circular groove and the drain hole is a necessary requirement for high sealing efficiency.

The maximum efficiency of non-contact seals is achieved during rotation. When heavy splashing liquids are expected while machine parts are stationary care should be taken that splashing directly onto the seal does not occur. This could be achieved easily by a disc or a shield which should be mounted on the shaft. Please see also pages 14 to 17 for more details and examples.

Labyrinth Gap

The precision of the rings and accuracy of the gap are essential for the efficiency of the seal which could be guaranteed for every single GMN Labyrinth Seal with a special production process.

The catalog information on axial end play "Sa" in the tables refers to the total axial movement of the seal's inner and outer ring in relation to each other; from one end position to the other. Normally the seal should be installed in flush position - thus the axial allowance would be half the value in either direction. Axial and radial clearance are almost of the same size, and do interfere each other.

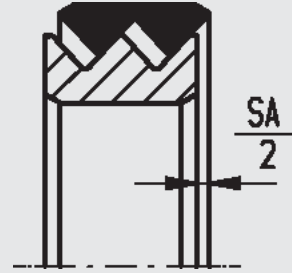


Figure 3

Axial end play

Special Designs

An additional solution for high requirements of axial clearance can be offered by special produced seals with increased end play by factor 1.5. If aggressive or corrosive mediums have to be sealed GMN labyrinth seals could be made from different materials. Please contact our technical staff at the earliest stage of your design to discuss solutions.

Speed Limit

GMN Labyrinth seals are pressed onto the shaft with a certain press fit. Due to centrifugal forces the inner ring could lift off of the shaft. The diagram below shows the speed limit depending on the size.

