

PRODUCTION PROGRAM OF HENNLICH VULCANIZED O-RINGS

The HENNLICH SEALS extends their offer by production of own vulcanized O-rings. We use this technology to approach our customers and their needs for individual solutions of non-standard requirements.

All HENNLICH attributes remain unaltered. Expect technical expertise, high quality, fast delivery and the possibility to produce the products in quantities starting from one piece.

A vulcanized O-ring made from a round cross-section rubber cord can be used in the case of non-standard inner diameter dimensions. Therefore, these O-rings are supplied with exact dimensions required by the customer.

The production itself is performed by cutting a rubber cord to a required size. Then, the medium is applied to the cord section ends. Later, a vulcanized joint is made using pressure and high temperature. Depending on the cord cut, the joint can be made under an angle of 90° or 45°. Finally, the joint is ground and polished.

Manufactured O-rings can be applied no sooner than 24 hours after production.

Production options



Production parameters

- O-ring inner diameter from 100 mm
- Cord diameter from 3 mm
- O-ring material: NBR, FPM (Viton), EPDM, Si (Silicone)



Equipment for vulcanization of individual cord diameters



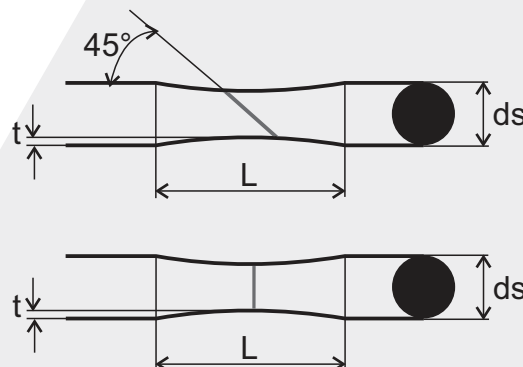
Vulcanization control panel

PRODUCTION TOLERANCES

- The inner diameter with the same tolerance as an O-ring is made in a mold - ISO 3601, prec. cl. B
- The cord diameter is defined according to ISO 3302-1 E1, high precision
- The vulcanized joint tolerance is defined by the HENNLICH 05-2023 company standard

HENNLICH STANDARD 05-2023

| Rope cross-section ds (mm) | | Tolerance (mm) | |
|-------------------------------|-------|----------------|------------|
| od | do | t | L |
| 3,00 | 3,54 | max 0,10 | max. 14,2 |
| 3,55 | 5,29 | max 0,13 | max. 21,2 |
| 5,30 | 6,99 | max 0,15 | max. 28,0 |
| 7,00 | 7,99 | max 0,18 | max. 32,0 |
| 8,00 | 9,99 | max 0,21 | max. 40,0 |
| 10,00 | 11,99 | max 0,25 | max. 48,0 |
| 12,00 | 14,99 | max 0,30 | max. 60,0 |
| 15,00 | 19,99 | max 0,40 | max. 80,0 |
| 20,00 | 29,99 | max 0,50 | max. 100,0 |
| 30,00 | 39,99 | max 0,60 | max. 120,0 |



Advantages:

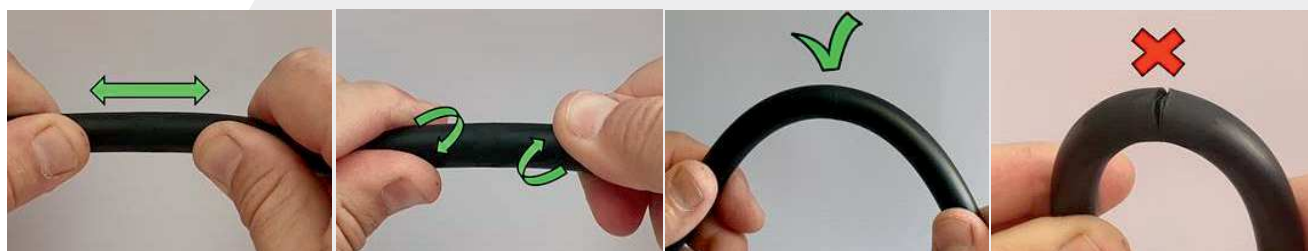
- Production speed of non-standard dimensions
- Zero costs of mold procurement
- Higher quality compared to a glued joint

Limitations:

- Unsuitable for use in dynamic applications
- Use in vacuum requires technological modifications - we can provide

Joint quality testing:

The vulcanized joint of an O-ring is tested for tension and torsion. Fingers are placed on both sides of the joint and rotate both sides by approximately a fourth of a turn in the mutually opposite directions. Then a test by tension is performed. If the force is too high, the joint can be breached. When installed in an application, the O-ring can be extended by 6 % at max. For this reason, excessive tension during the testing is not desirable. If too high tensile force is applied during the test, the vulcanized joint can crack.



The process of detection includes slight bending of the O-ring in order to detect cracks and other non-conformities. As illustrated in the figure, the ring should not be bent excessively. Bending the ring creates a bracket effect, which increase the tension force on the outside of the ring. It can result in damage to the joint.

If no visible cracks appear on the O-ring, the O-ring is ready for installation. No vulcanized O-ring can leave the factory unless it is tested according to the procedure outlined above.