

CTS-SH

The **CTS-SH** Seal is a compression profile in combination with a hydrophilic insertion cord. In case of leakage through the compressed seals caused by ring building tolerances exceeding the maximum allowed joint gap sizes the hydrophilic cord will start expanding over time. An additional restoring force will be developed leading to an additional sealing function resulting in a self-healing effect over time.

The advantages

- Highly efficient self-healing performance due to hydrophilic round cords that are completely embedded within the compression carrier profile and in-between both compressed carrier profiles. No loss of restoring force due to missing counter force when the hydrophilic material moves out towards the profile side flanks as often observed on customary co-extruded composite seals with thin hydrophilic coating on the profile's top-surface.
- No premature swelling of the hydrophilic material during outdoor storage of the segments and therefore no protection measures against rain and moisture required. The hydrophilic cord can be installed shortly before bringing the segments from the open yard into the tunnel.

All **CTS-SH** seals are supplied as ready corner-vulcanized and project specifically tailor-made gasket frames. The profile geometry and also the procedures used for the project-related water-proofing performance and load-deflection behavior testing follow the recommendations of recognized institutions such as, e.g. STUVA (GER), AFTES (F), and BTS (UK).

The gasket installation

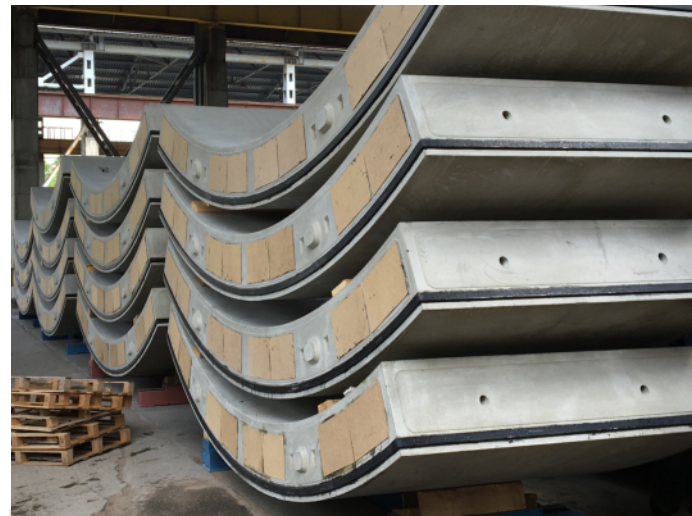
The **CTS-SH** seals are optionally installed either by "brush-on" or "spray-on" gluing method. The **CTS-Teco-Bond-Gluing-System** is recommended. The installation of the hydrophilic cord **Teco-Swell** is carried out shortly before bringing the segments into the tunnel by using a special tool provided by CTS.

The tunnel segment installation

To obtain a proper seal, care must be taken to insure the gaskets are not damaged during installation. For the insertion of the key stone segment CTS recommends using the **CTS-Teco-Lube** on the gasket frames.

The material

The **CTS-SH** Seal is made of a high quality EPDM compound and its physical properties are in line with the specified values found in the STUVA recommendations. In case of special requirements concerning chemical resistance when used in extremely contaminated ground CTS offers alternative materials (e.g. CR/SBR elastomer for better resistance against Hydrocarbons found in ground-water).



This alternative material can be offered as a reasonable compromise, but always under consideration of lowering the typical and physical properties of an EPDM-Compound with regard to aging performance and longevity.

The hydrophilic round cord **Teco-Swell** is made of a swellable TPE material with good permanently elastic properties.

CTS-SH (Geometry and dimensions)

Groove design:

Profile:

26 x 10 mm



33 x 10 mm



36 x 11 mm



44 x 12 mm

