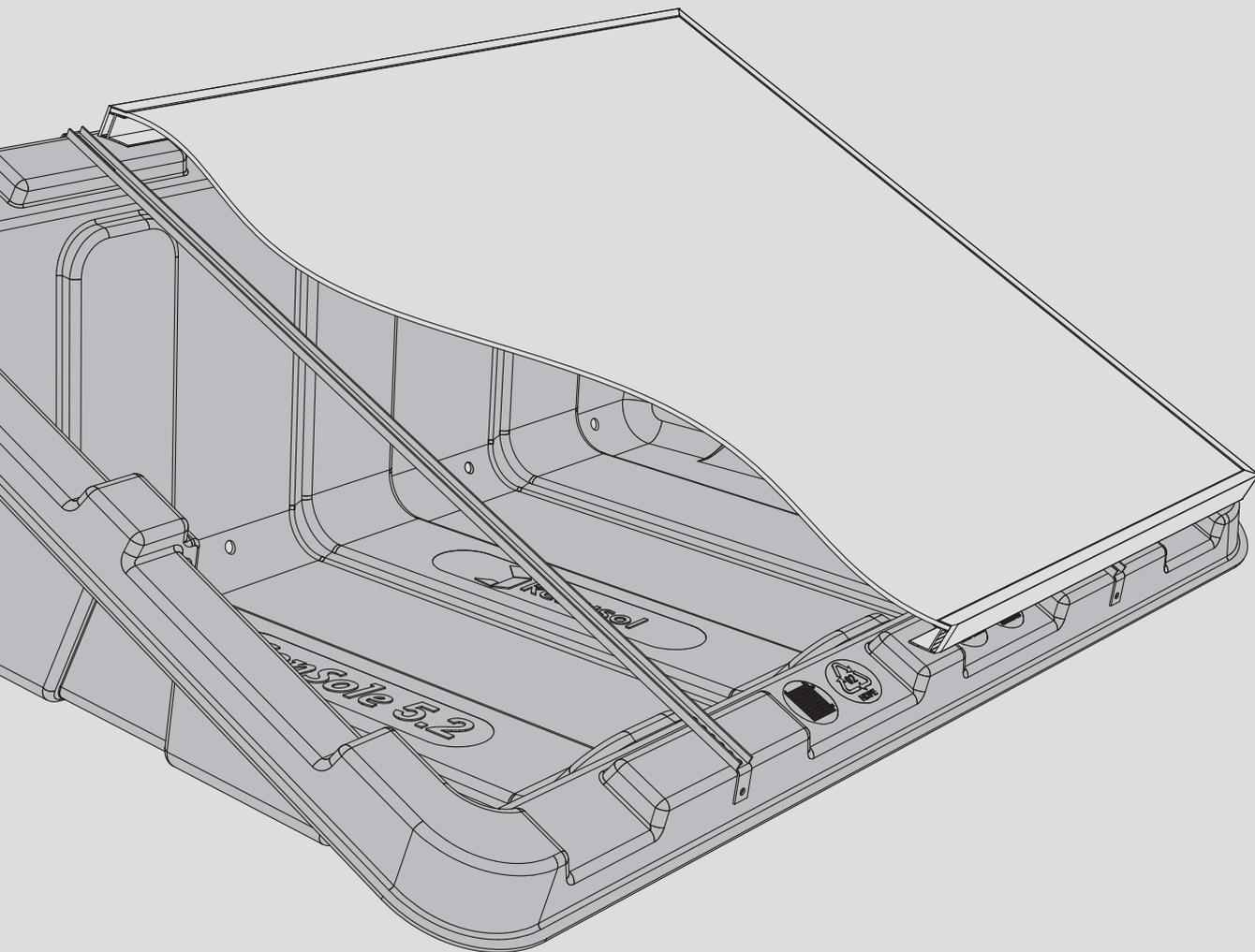


# ConSole, ConSole+

General Guidelines



Issued: October 2011

In the technical project overview, RenuSol Europe presents a proposal for the ballasting, on the basis of information given to RenuSol Europe by the customer. The ballast values calculated by RenuSol Europe are based on the following assumptions:

### Calculation of wind loads and dead loads as well as the pressure and suction coefficients

The wind loads and dead loads are calculated in the RenuSol project configurator according to the relevant applicable standards for the respective country, for example Eurocode 1 or for Germany DIN 1055. The respective pressure and suction coefficients are calculated on the basis of wind tunnel tests conducted by the engineering firm Ruscheweyh Consult, report RC1351/0611 (ConSole+), or based on the calculation method of the Dutch TNO, report 2006-D-R0374 (ConSole)

### Friction coefficient

The friction coefficient is part of the calculation of ballast and depends on the local conditions. The customer must determine this coefficient on-site using a spring scale and record it prior to the installation.

### Transferring loads within the building

The additional loads (dead weight, wind and snow loads), from a solar installation, have to be safely conducted into the underground. Proof is furnished according to the current technical, and where applicable, country-specific, building regulations. In Germany the „Hinweise und Beispiele zum Vorgehen beim Nachweis der Standsicherheit beim Bauen im Bestand (Stand 07.04.08), Fachkommission Bautechnik der Bauministerkonferenz“ (Directions and examples for the procedure for proving stability in construction, version 7 April 2008, structural engineering committee of the conference of German ministers of building; can be viewed online at any time) are to be observed. The customer must consult

an external structural engineer for this purpose.

### Ballasting of the ConSoles

The technical project overview contains a proposal for the ballasting of each individual ConSole/ConSole+. The ballast is to be positioned into the ConSole/ConSole+ in addition to the dead weight of the ConSole/ConSole+ and the module. The customer must observe the specified ballast values and record them.

The ballast values are calculated based on the assumptions of a low risk for life and property, according to the relevant applicable standards for the respective country. In case of other risks, the proposal for the ballasting is to be reviewed separately; this also applies if the customer cannot exactly observe the ballast values for technical or other reasons.

### Ballasting of external roof covering

If specified in the country-specific standards, the ConSole/ConSole+ is regarded as load-distributing base for the installation of solar modules, for example in Germany according to the „Solar technology“ bulletin (available from the Central Association of German Roofers). The maximum compression force that can be transferred to the thermal insulation results from the insulation material used by the customer or already installed on the building roof and must be taken into account by the customer.

We recommend a protective layer for the waterproofing of roofs, for example a building protection mat.

### Validity

The useful life period runs up to 25 years. The customer has to review ballasting and statics in good time before then.

### Local regulations

The applicable regulations for the respective country (e.g. Federal Building Regulations in Germany or rules and regulations for the building trade and roofs regarding erection) may include special regulations and requirements for installing solar systems on flat roofs. When planning and installing a solar system, the customer must check and take into account the resulting special requirements. Specifically for public building projects, it is mandatory to check, if any special building protective measures are required.

### General

In the technical project overview, RenuSol Europe presents a proposal for the ballasting. The customer must commission an expert to calculate the final statics of the overall project. In this process, the project-specific conditions and requirements as well as the country-specific regulations and standards are to be taken into account.

If the customer does not install the ConSole/ConSole+ himself, he must ensure that the general instructions are made available to the builder or the third party, commissioned by the builder.

The terms of use specified under <https://web.renusal.com/global/terms/> apply to and supplement the RenuSol project configurator.

RenuSol Europe is happy to answer any technical question at any time.

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