Anstar®

AVTR balcony hinge

User manual

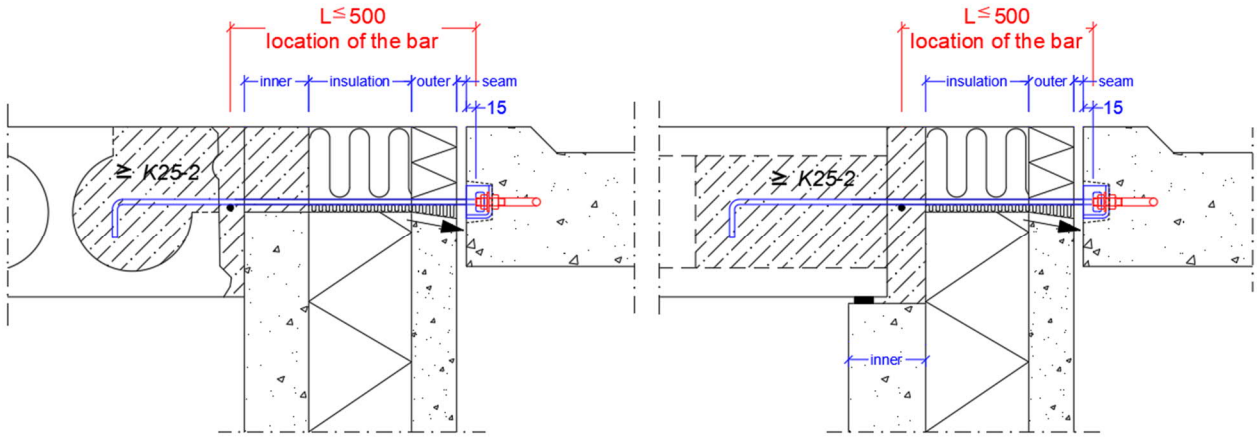
Version 11/2023

AVTR balcony hinge

Balcony hinges are used to transfer horizontal forces from the balcony to the building frame. The hinged connection enables vertical movement. The AVTR 52 slab part is fastened to the balcony slab at the prefabrication factory and the AVTR 51 frame part to the building's floor slab casting on the site.

OPERATING METHOD

Balcony hinges are used to transfer horizontal forces from the balcony to the building frame. The hinged connection enables vertical movement. The AVTR52 slab part is fastened to the balcony slab at the prefabrication factory and the AVTR 51 frame part to the building's floor slab casting on the site.



NON-LOAD-BEARING WALL *LOAD-BEARING WALL*

MANUFACTURING

The steel profiles are cut mechanically. The thread of the steel part AVTR 52 is rolled. Welding is done either with a robot or manually by MAG welding, welding class C SFS-EN- ISO 5817.

MATERIALS

Plate, square bar	1.4301	SFS-EN 10088
Stainless rebar	B600KX	SFS 1259
M12 nuts and washers	1.4301	SFS-EN 10088

LABELLING

The steel parts are labelled with Kiwa Inspecta sertifiointi Oy'a control mark, the manufacturer Anstar Oy, as well as the type identifier and the manufacturing week.

QUALITY CONTROL

Anstar Oy has a quality control agreement with INSPECTA SERTIFIOINTI OY, and the steel parts have a product declaration certified by the Concrete Association of Finland.

DIMENSIONING PRINCIPLES

The dimensioning calculations have been made in accordance with the National Building Code of Finland on static loads in the ultimate limit state for the reinforced concrete structure C25/30-2. The design load must be smaller than the calculated capacities shown in the figure.

If the connection is simultaneously stressed by the normal force and the shear force, it must be checked that the overall utilisation rate of the steel part is not exceeded.

$$\frac{N_d}{N_u} + \frac{V_d}{V_u} \leq 1$$

REINFORCING THE MOUNTING

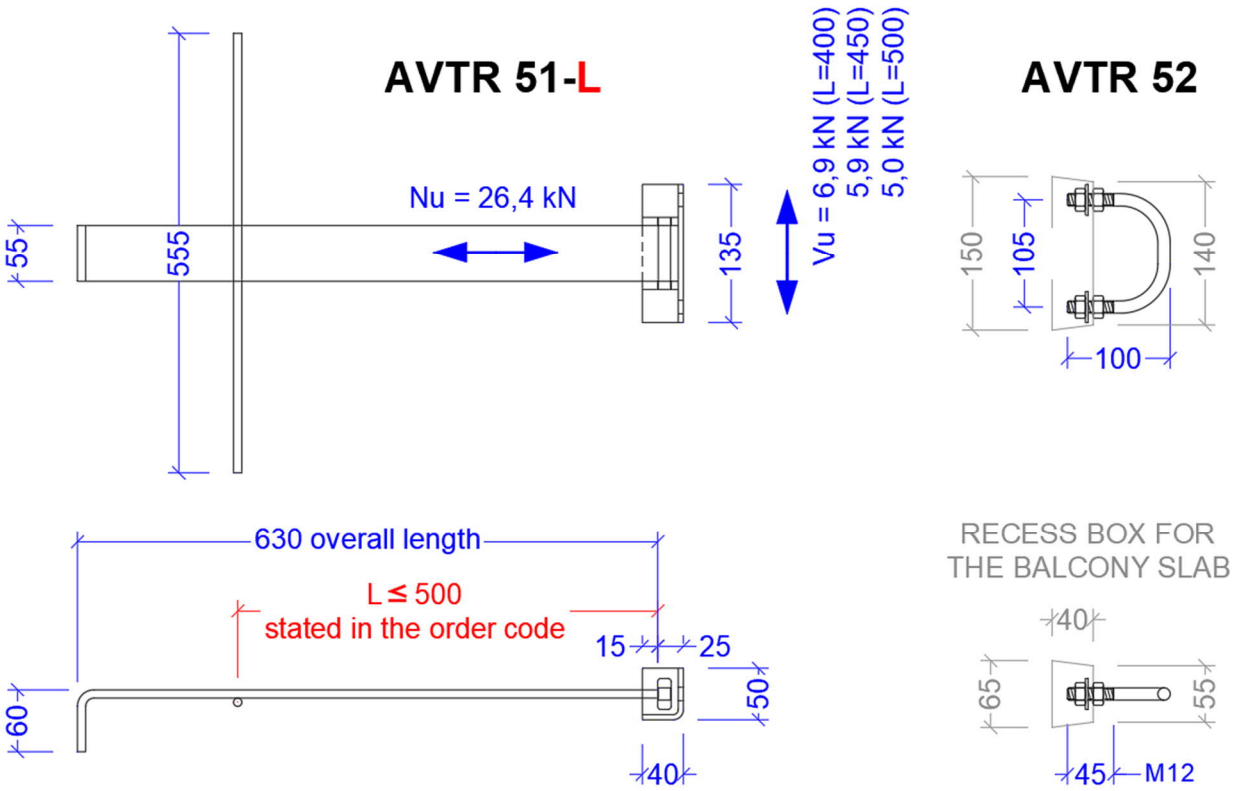
The mounting has been dimensioned as a reinforced concrete structure. The structure must be reinforced at least with the minimum reinforcement required by the standard. The balcony edge beam must be reinforced and it must consist of at least concrete C25/30-2.

INSTALLATION

The AVTR52 slab part is fastened to the mould with an installation casing by using the nuts and washers provided with the part. The installation casing must be ordered separately.

The AVTR51 frame part is placed in the provision in the wall panel, attached with nuts to the AVTR52 part and embedded in the reinforced concrete structure.

DIMENSIONS AND CAPACITIES OF THE BALCONY HINGE

The AVTR 52 slab part has standard dimensions. The order code of the AVTR 51 frame part always states the location of the rebar bond as shown in the figure.

The frame part can also be made to order with dimensions other than standard, in which case the overall length must also be stated in addition to the L measurement. When the L measurement is increased, the shear capacity of the part must be reduced correspondingly. An example of the order code of a part with special dimensions:
AVTR 51 L-300 overall length 450