Foundations for self-service terminals

Outdoor and indoor terminals can either be bolted to an existing foundation or installed on a newly constructed foundation. The work is always carried out and supervised by the client in accordance with the technical and structural specifications of the supplier commissioned by PC CADDIE.

(New) foundations with a floor mounting plate

When creating a new foundation (usually for outdoor terminals), the supplier commissioned by PC CADDIE sends a „floor mounting plate“, which must be installed by the client in accordance with the following installation instructions.

Delivery of the base plate in a packaging box

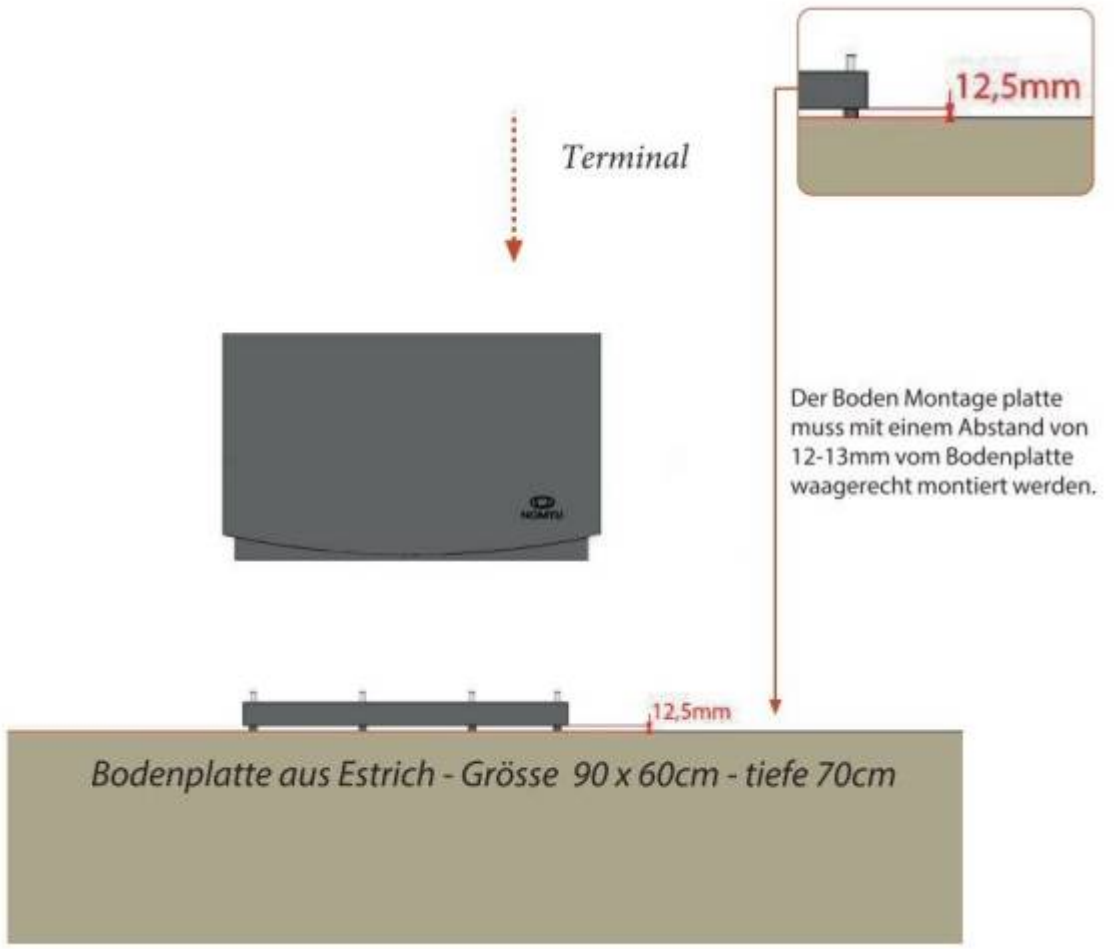


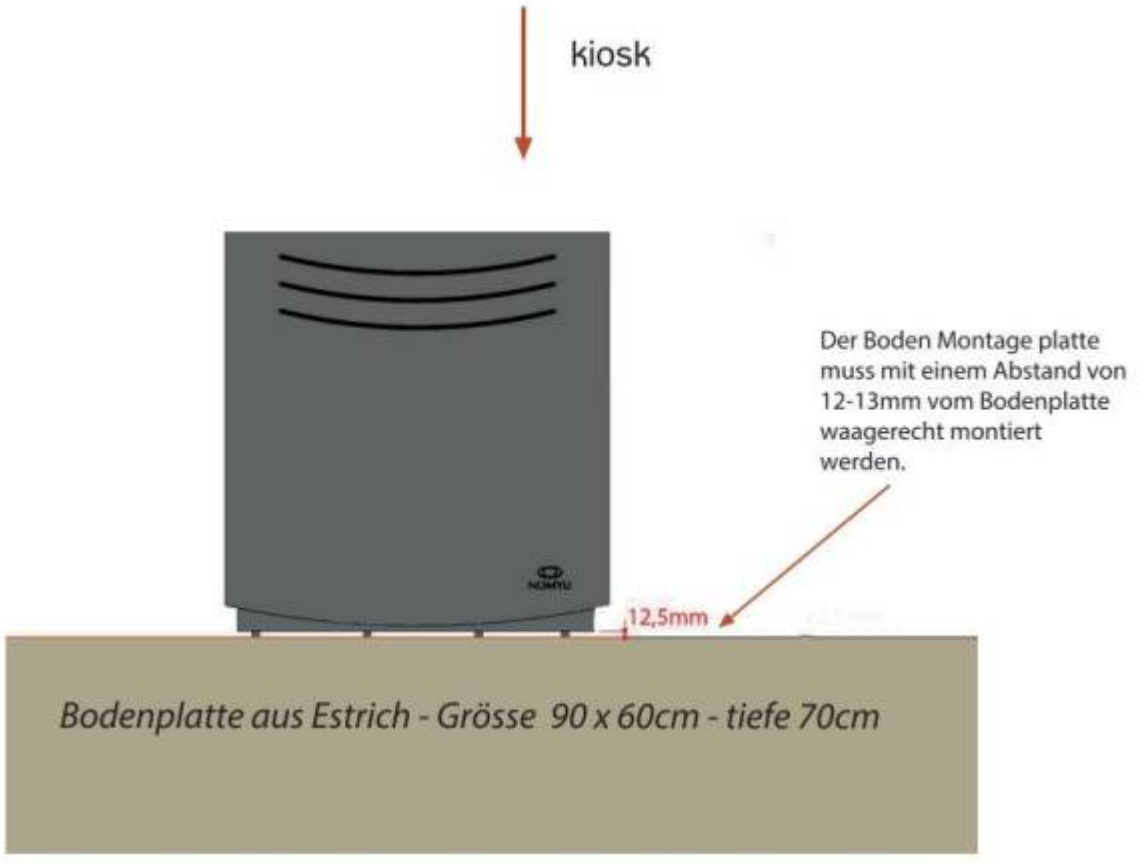


Floor mounting plate before casting in foundation

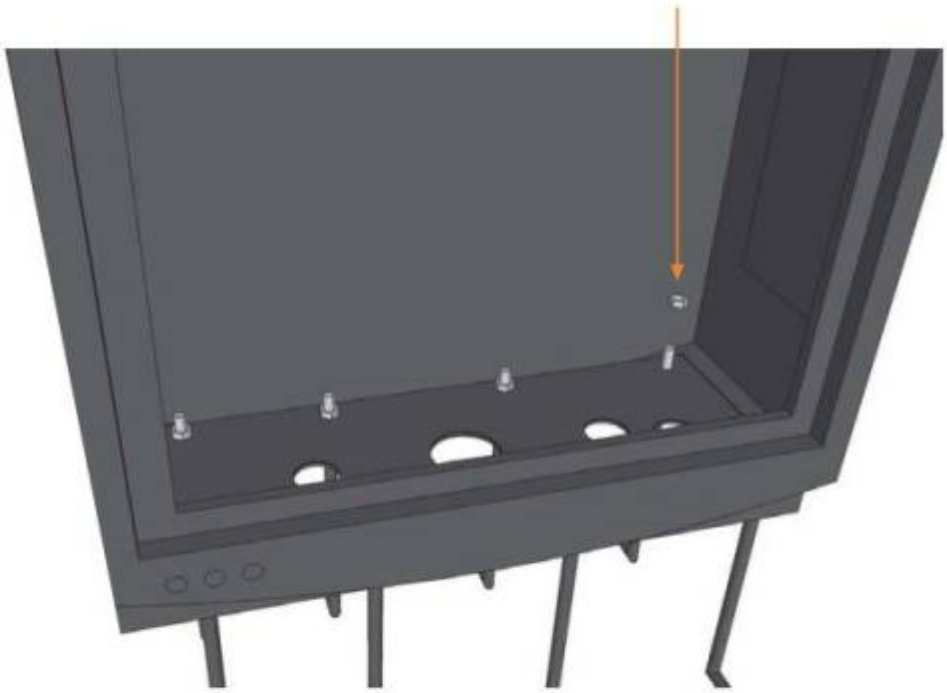


Sketches for screwing the tinal to the floor mounting plate


12,5mm
Terminal
Der Boden Montage platte muss mit einem Abstand von 12-13mm vom Bodenplatte waagerecht montiert werden.
12,5mm
Bodenplatte aus Estrich - Grösse 90 x 60cm - tiefe 70cm

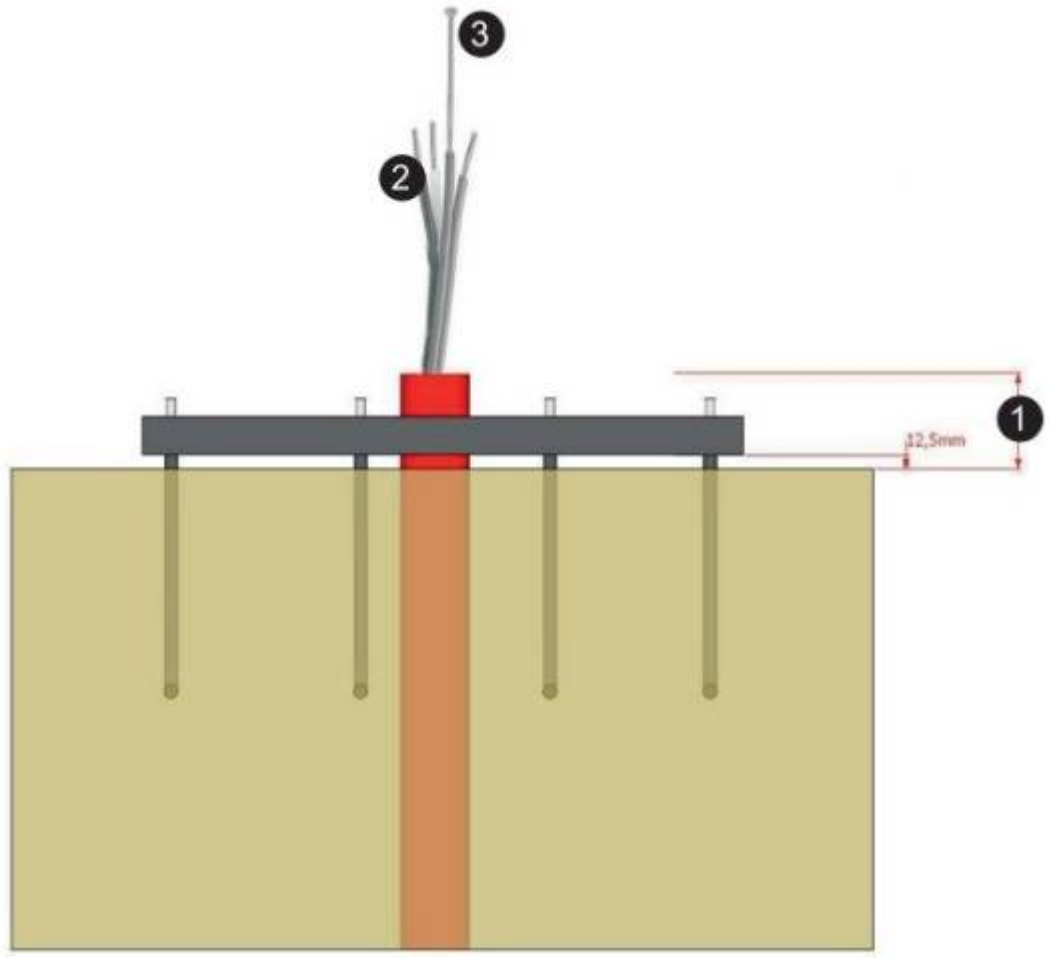

kiosk
Der Boden Montage platte muss mit einem Abstand von 12-13mm vom Bodenplatte waagerecht montiert werden.
12,5mm
Bodenplatte aus Estrich - Grösse 90 x 60cm - tiefe 70cm

Innere des terminal



Wenn der terminal auf der Boden montageplatte gestellt worden ist, muss es mit die mitgelieferten scheiben und muttern, befestigt werden.

Preparation of the cabling



Bolting to existing foundation / structural requirements

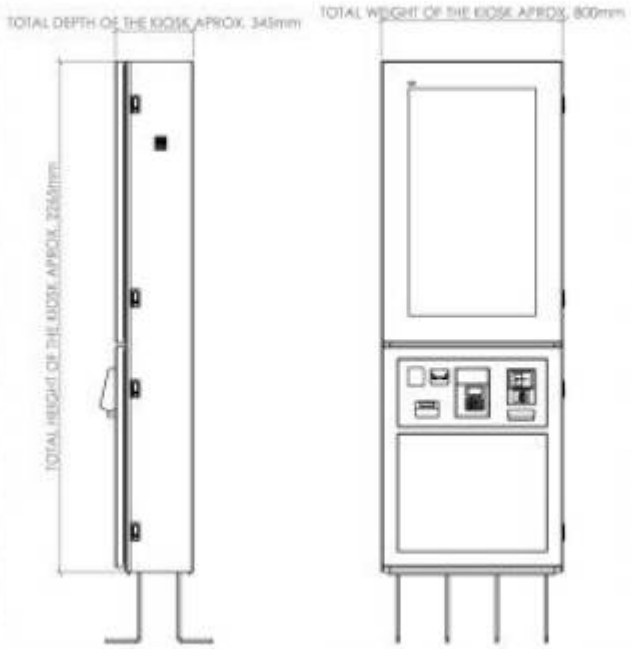
If the terminal is bolted to an existing foundation, the static requirements of the existing foundation must be guaranteed by the client in order to absorb wind forces and external force effects.

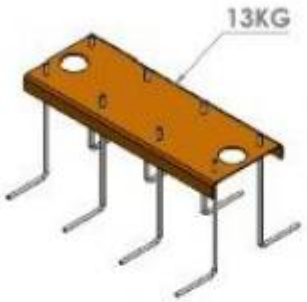
Reaction forces in bolt connection

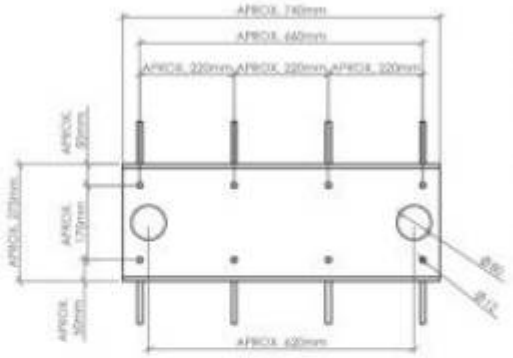
Rev.	Date	Changes	Prepared by	Reviewed by
1.	16-10.2019	Original	STH	TRI

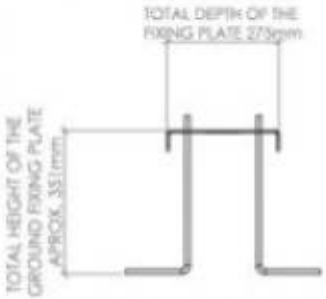
Introduction: This calculation estimates the probable bolt forces the vending machine shown below.

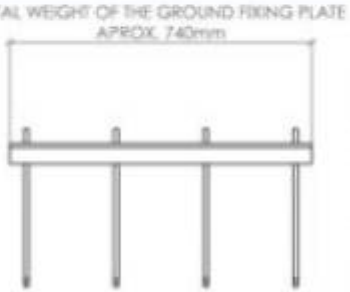












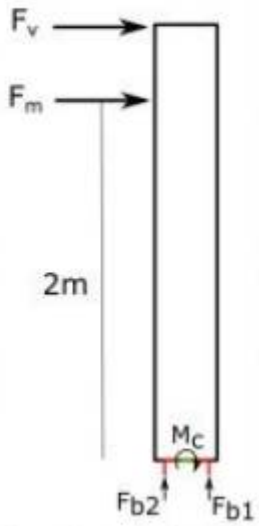
Load assumptions: It is assumed that the vending maching is load by a windgusts of 35 m/s. Conservatively the wind force will be applied at the very top of the structure. Additionally a force equivalent to 100kg will be applied at 2m above ground level. See sketch below.

Partial Load factors:

Load factor for loads	$\gamma := 2$

Structural definitions:

Number of bolts	$n_{bolts} := 8$
Height of the structure	$h := 2265\ mm$
Width of the structure	$b := 800\ mm$
Surface area	$A := h \cdot b = 1.81\ m^2$
Mass of the structure	$m_{cog} := 280\ kg$
Distance between bolts	$d_{bolts} := 225\ mm$



Load for structure:

Wind speed: $v := 35 \frac{m}{s}$

Wind density $\rho := 1.25 \frac{kg}{m^3}$

Wind load $F_v := \gamma \cdot \frac{1}{2} \cdot \rho \cdot v^2 \cdot A = 2.77\ kN$

Load at 2m: $F_m := \gamma \cdot 100\ kg \cdot g = 1.96\ kN$

Moment at the bottom center $M_c := F_v \cdot h + F_m \cdot 2000\ mm = 10207.19\ N \cdot m$

Normal forces for one bolt $F_{bolt} := \frac{M_c}{d_{bolts} \cdot \frac{n_{bolts}}{2}} - \frac{m_{cog} \cdot g}{n_{bolts}} = 11\ kN$

Shear forces for one bolt $V_{bolt} := \frac{F_v + F_m}{n_{bolts}} = 591.99\ N$

Provided the circumstances described in the Load Assumptions section, one bolt at bottom of the structure experiences normals forces of 11 kN and shear forces 0.6kN.

-- End of calculation --

Description in PDF format:

montage_platte_fuer_bodenmontage.pdf