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.

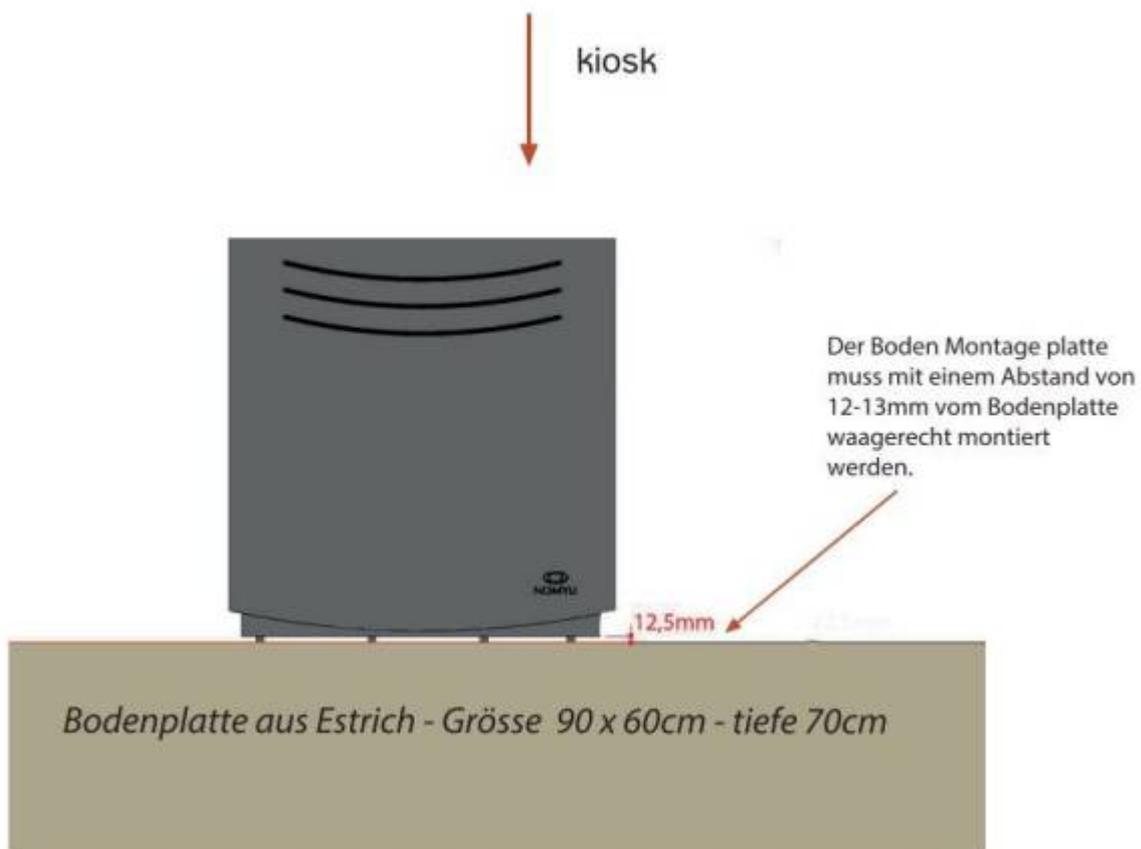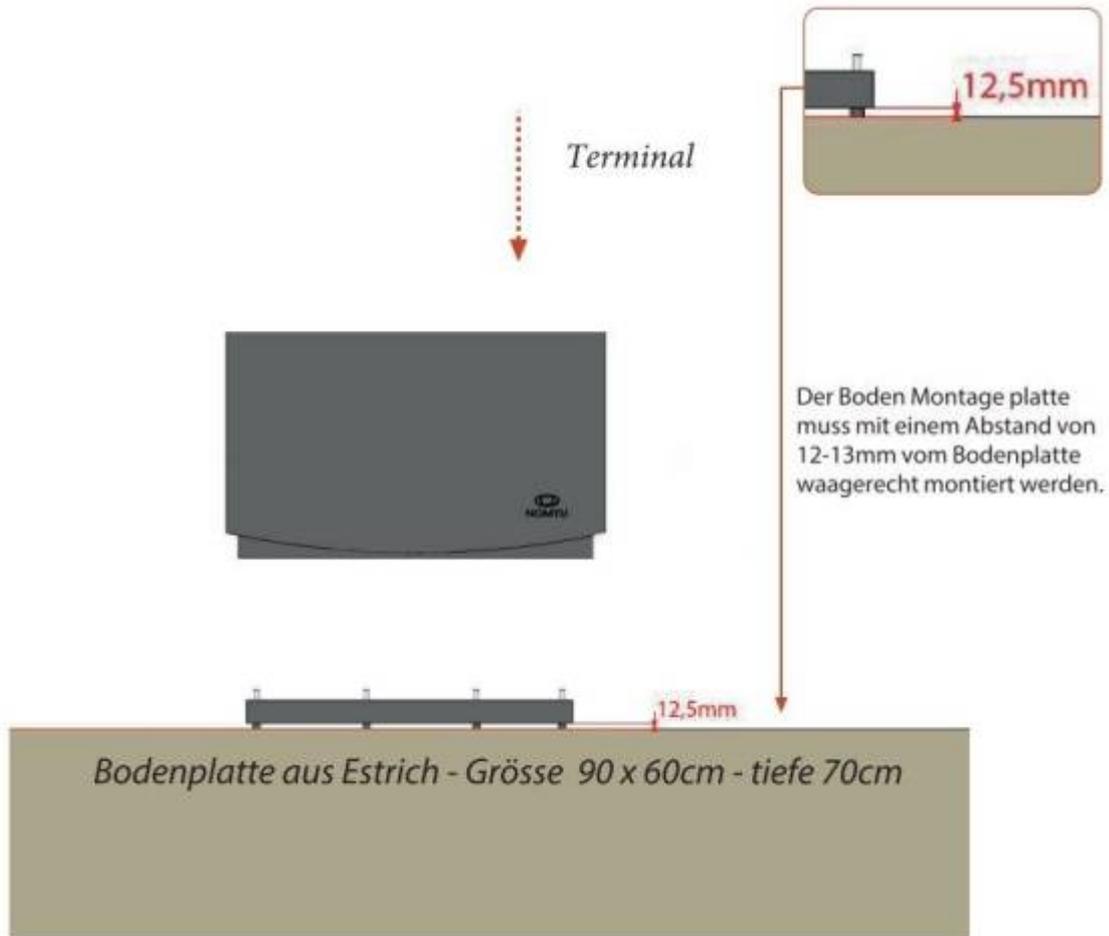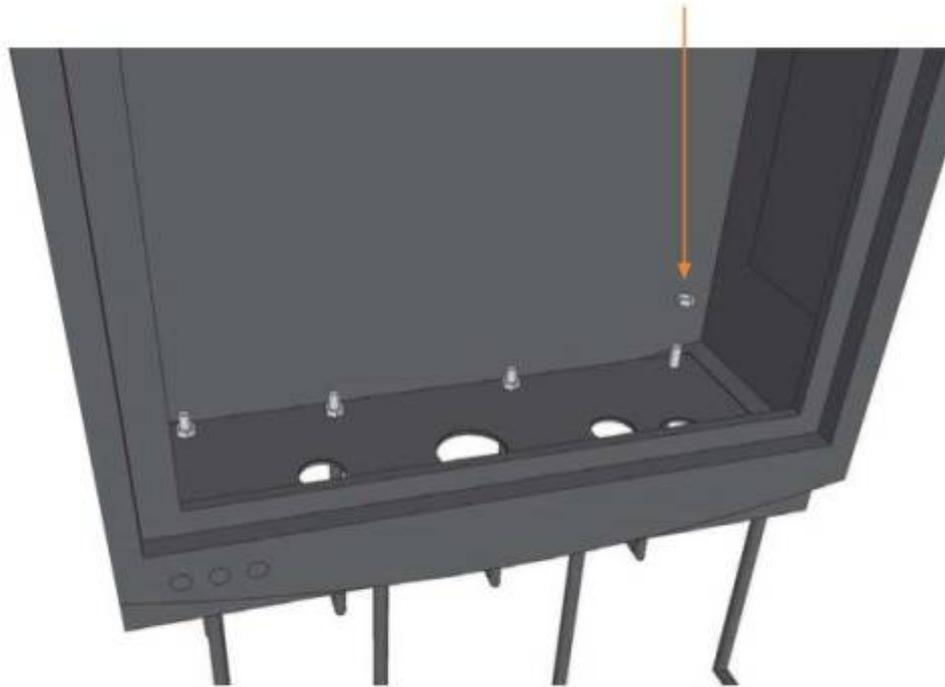**Delivery of the base plate in a packaging box**

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

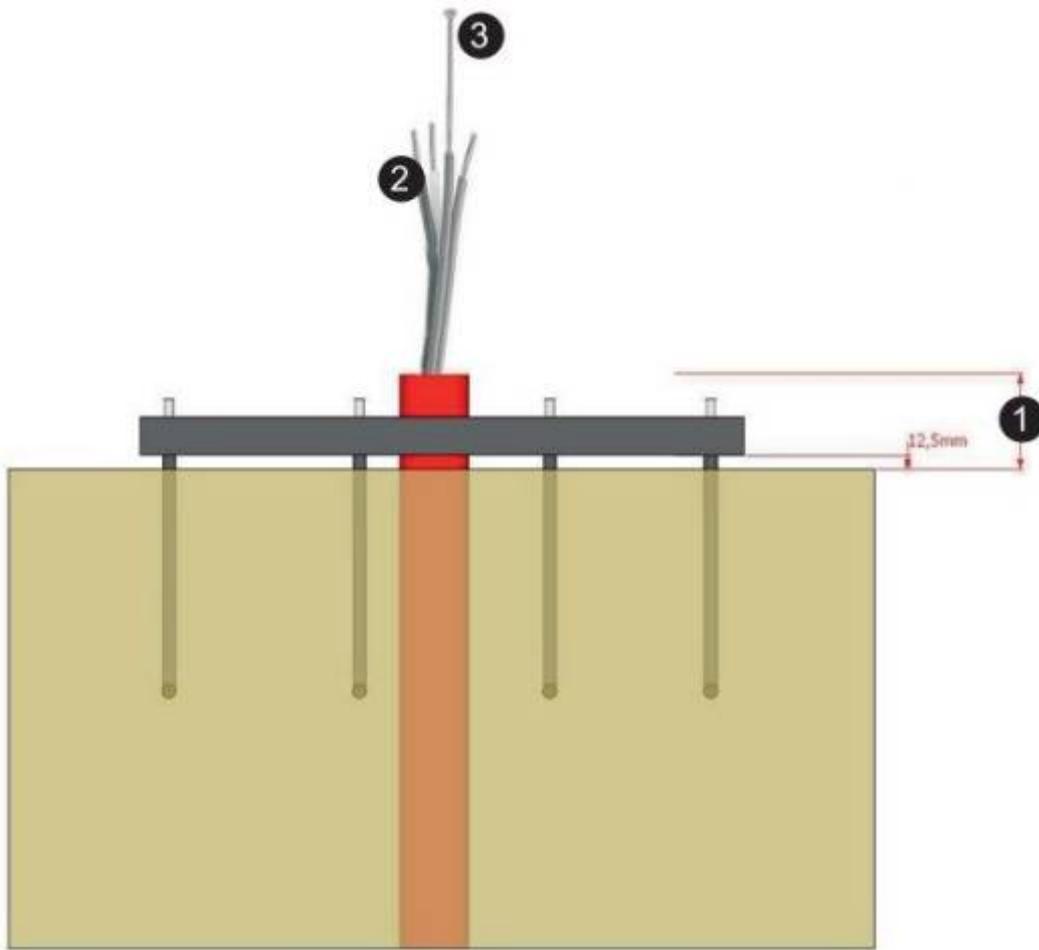*Bodenplatte aus Estrich - Grösse 90 x 60cm - tiefe 70cm*

Innere des terminal

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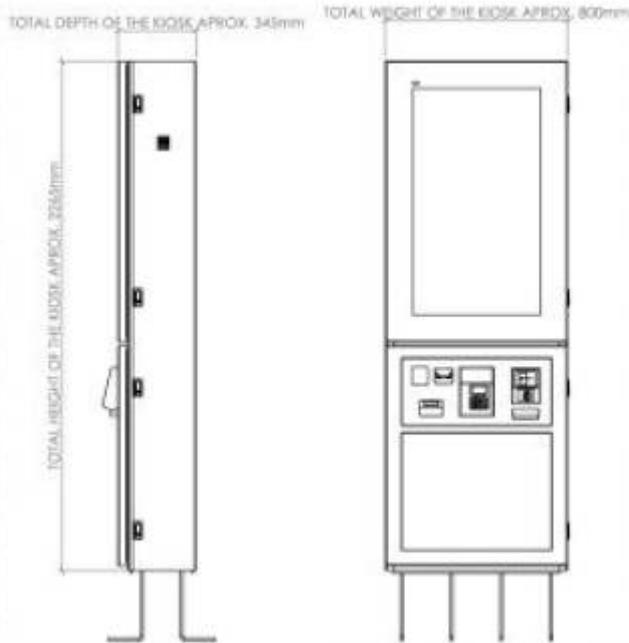
Preparation of the cabling

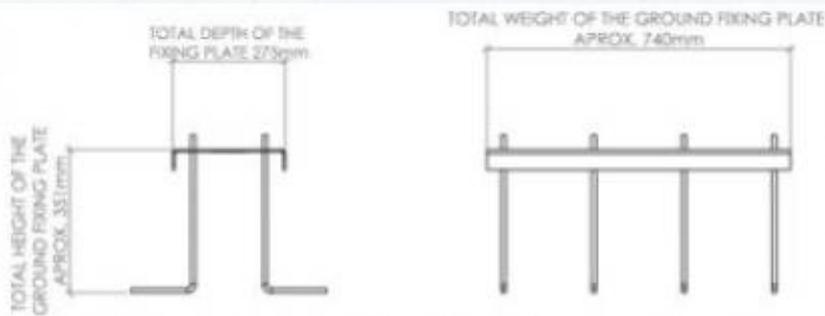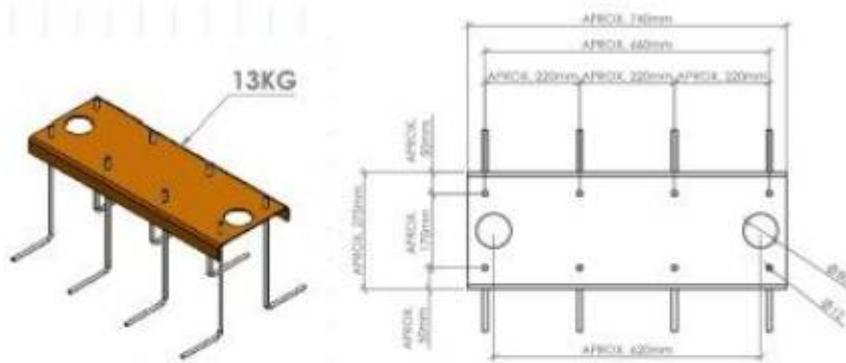## Bolting to existing foundation / structural requirements

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.

13KG

TOTAL DEPTH OF THE FIXING PLATE 273mm

TOTAL WEIGHT OF THE GROUND FIXING PLATE APROX. 740mm

TOTAL HEIGHT OF THE GROUND FIXING PLATE APROX. 351mm

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

$\gamma := 2$

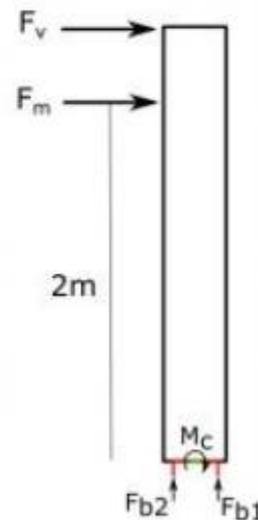**Structural definitions:**

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

$m_{coq} := 280 \; kg$

Distance between bolts

$d_{bolts} := 225 \; mm$

F_v

F_m

2m

M_C

Fb2   Fb1

Load for structure:

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

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

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

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

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

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

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

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