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RELATION BETWEEN RELATIVE DENSITY AND EARTH PRESSURE
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Abstract of Original Paper in German

The paper contains a report on model tests with anchor plates 5 x 5 cm, carried out in 1931-1932, on clean diluvial quartz sand of 2-0.1 mm grain size, with slight cohesion due to 3% water content.

Fig. 1 shows the influence of relative density, D , on the relation between the pull Z (vertical axis) and the horizontal displacement (horizontal axis). The difference between maximum and final resistance increases rapidly with the relative density. Fig. 2 shows the influence of the relative density on the displacement required for producing maximum resistance (upper curve) and final resistance (lower curve).

Fig. 3 shows the relation between displacement (horizontal) and pull (vertical) for a sand with a relative density about equal to 1. Fig. 4 represents the relation between the pressure σ on the sand (horizontal) and the ratio $B_e = \sigma / s_e$ (kg/cm^3), wherein s_e represents the displacement for a sand with a relative density of about equal to 1. Fig. 5 shows the relation between the depth H of the lower edge below the surface of the sand (horizontal) and the ratio B_e (vertical) for equal values of σ .



