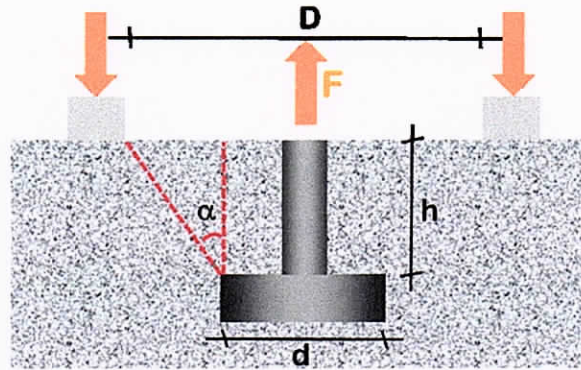


Influence on pullout strength in relation to change in depth for the LOK-TEST and the CAPO TEST

How much is the pull-out force F changed if “ h ” is less than the required 25 mm?

To evaluate this question, the analytical approach presented by Jensen and Brästrup (1976) is used.

Fig. 1



From Fig. 1 we have:

$$\tan \alpha = \frac{(D - d)/2}{h}$$

and the pull-out force F is then given by (f'_c = uniaxial compressive strength) – see Jensen and Brästrup, Eq. (10):

$$\frac{F}{f'_c} = \frac{\pi h (d \cos \alpha + h \sin \alpha)(1 - \sin \alpha)}{2 \cos^2 \alpha}$$

We always have $D = 55$ mm and $d = 25$ mm.

Using the equations above, evaluation for a lower value of “ h ” than 25 mm on a diminished pull-out force “ F ” can be made as follows:

| | | | | |
|-------------------------------|------------|-------|--------|--------|
| h (mm) | 25 | 24 | 23 | 22 |
| F/f'c (mm²) | 889 | 836 | 783 | 731 |
| % loss in F | | -6.0% | -12.0% | -17.9% |

Therefore, it is imperative the depth “ h ” is 25 mm in the LOK-TEST as well as the CAPO-TEST.

Ref. Jensen, B. C. and Brästrup, M. W. (1976), “Lok-test determine the compressive strength of concrete”, Nordisk betong, Vol. 2, 9-11, 1976