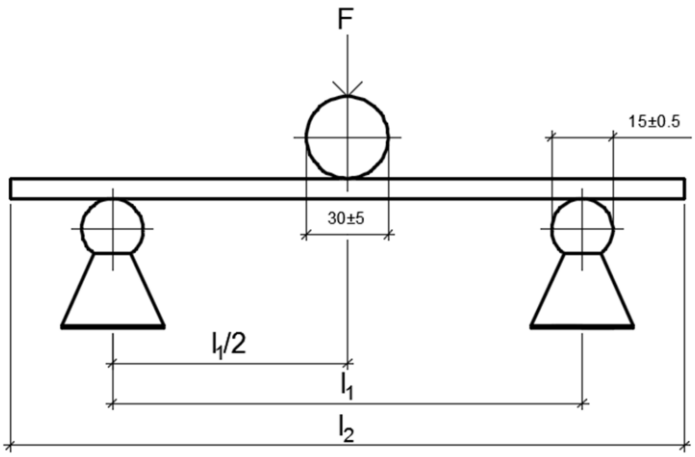
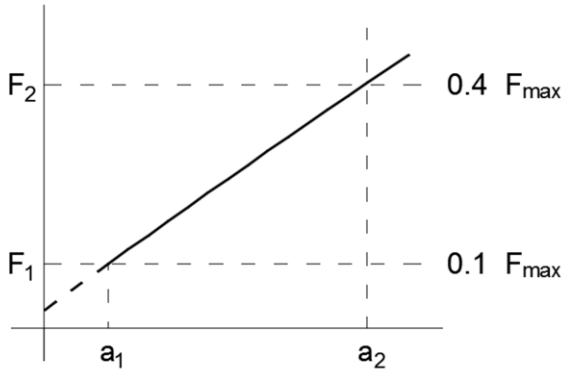
1) Razlikaizmeđu EN standarda 310 i 789.

EN 310 STANDARD – ispitivanjenestrukturnihploča

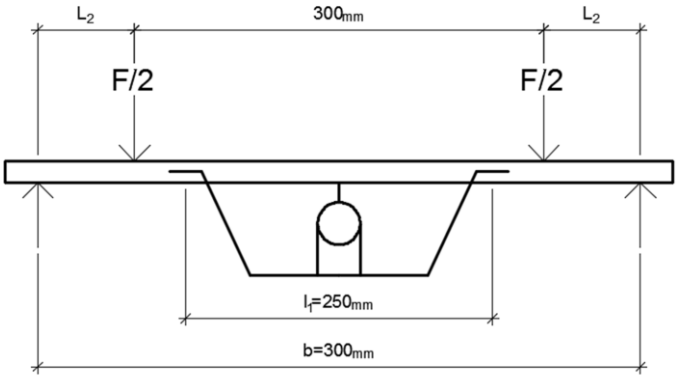



1-epruveta zaispitivanje B=50mm
F-sila pritiska $l_2$min=150mm
t-debljina epruvete $l_2$max=1050mm
$l_1$=20t (mm)
$l_2$= $l_1$+50 (mm)

$$f_s = \frac{3Fmax * l_1}{2 * b * t^2}(MPa) E_m = \frac{M^3 * (F_2 - F_1)}{4 * b * t^3 * (a_1 - a_2)}(Mpa)$$



EN 789 STANDARD – ispitivanjestrukturalnihploča




$L_2$=16t
min 240, max 400
$L_1$=250
b=300mm

$$f_s = \frac{Fmax * l_2}{2 * \frac{b * t^2}{6}} \text{ (Mpa)} \quad E_m = \frac{l_1^2 * l_2 * (F_2 - F_1)}{16 * \frac{b * t^3}{12} * (a_2 - a_1)} \text{ (MPa)}$$

REDNI BROJ SA SPISKA 1

| d (mm) | Fmax | $F_2$ | $F_1$ | $a_1$ | $a_2$ |
|---|---|---|---|---|---|
| 21 | 2450 | 40% | 10% | 28 | 18 |

<u>B – PRORAČUN</u>

1) Izračunati dimenzije uzorakazaispitivanjesavojnečvrstoćepo EN 310 i EN 789 standarda, ako se ispitujupločesledećihdebljina: 4mm, 20mm i 60mm

2) Zaizabranevrednostidebljineploče, silelomaiugibauzoraka, izračunatisavojnučvrstoćuI modulelastičnostiprisavijanju. Proračunuraditiiza EN 310 i EN 789, a kod EN 789 uzeti da jesilaloma (Fmax) 10 puta veća od zadate u tabeli.

**EN 310**

1) t = 4mm
   $l_1$ = 20*t = 20 * 4 = 80mm
   $l_2$ = $l_1$ + 50 = 80 +50 = 130mm=>150mm

2)
   t = 20mm
   $l_1$ = 20*t = 20 * 20 = 400mm
   $l_2$ = $l_1$ + 50 = 400 + 50 = 450mm

3) t = 60mm
   $l_1$ = 20*t = 20 * 60 = 1200mm
   $l_2$ = $l_1$ + 50 = 1200 + 50 = 1250mm =>1050mm

**EN 789**

1) t = 4mm
   $l_1$ =250mm
   $l_2$ = 16*t = 16 * 4 = 64mm => 240mm
   Luk=2 $l_2$+300+50 =830mm

2) t = 20mm
   $l_1$ =250mm
   $l_2$ = 16*t = 16 * 20 = 320mm
   Luk=2 $l_2$+300+50 =990mm

3) t = 60mm
   $l_1$ =250mm

l2= 16*t = 16 * 60 = 960mm => 400mm
Luk=2 $l_2$ + 300 + 50 =1150mm0

**EN 310**

1) t= 21mm
Fmax = 2450N
$l_1$ = 20*t = 20 * 21 = 420mm

$$f_s = \frac{3Fmax * l_1}{2 * b * t^2} = \frac{3 * 2450 * 460}{2 * 50 * 21^2} = 76{,}66\ Mpa$$

$$F_2 = 0{,}4 * Fmax = 980N$$

$$F_1 = 0{,}1 * Fmax = 245\ N$$

$$E_m = \frac{{l_1}^3 * (F_2 - F_1)}{4 * b * t^3 * (a_1 - a_2)} = \frac{410^3 * (980 - 245)}{4 * 50 * 21^3 * (28 - 18)} = 2734\ N/mm^2$$

**EN 789**

2) t = 21 mm
Fmax = 24500N
$l_1$ = 250mm
$l_2$ = 16*t = 16 * 21 = 336mm
b = 300mm

$$f_s = \frac{Fmax * l_2}{2 * b * t^2} = \frac{24500 * 336}{2 * \frac{300 * 21^2}{6}} = 186{,}66 Mpa$$

$$F_2 = 0{,}4 * Fmax = 9800N$$
$$F_1 = 0{,}1 * Fmax = 2450\ N$$

$$E_m = \frac{l_1^2 * l_2 * (F_2 - F_1)}{16 * \frac{b * t^3}{12} * (a_2 - a_1)} = \frac{250^2 * 336 * (9800 - 2450)}{16 * \frac{300 * 21^3}{12} * (28 - 18)} = 4166\ N/mm^2$$