

IZRAZI OPTEREĆENJA

Absolutni članovi za rešavanje kontinuiranih i okvirnih nosača
 $\alpha_1^0 \alpha_2^0$ — uglovi zaokreta na osloncima — izrazi opterećenja (reakcije fiktivnog opterećenja $\mathfrak{M}_1 \mathfrak{M}_2$)
 $\mathfrak{M}_a \mathfrak{M}_b$ — momenti ukleštanja potpuno ukleštenog nosača

br.	vrsta opterećenja M_0 -povrsine	$\mathfrak{M}_1 \mathfrak{M}_2$	$\alpha_1^0 \alpha_2^0$
1		$\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{q l^2}{12}$	$\alpha_1^0 = \alpha_2^0 = \frac{q l^3}{24}$
2		$\bullet \mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{q s}{24 l} (3 l^2 - s^2)$ za $s = \frac{l}{2}$: $\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{11 q l^2}{192}$ za $s = \frac{l}{3}$: $\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{13 q l^2}{324}$ za $s = \frac{l}{4}$: $\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{47 q l^2}{1536}$	$\alpha_1^0 = \alpha_2^0 = \frac{q s}{48} (3 l^2 - s^2)$ za $s = \frac{l}{2}$: $\alpha_1^0 = \alpha_2^0 = \frac{11 q l^3}{384}$ za $s = \frac{l}{3}$: $\alpha_1^0 = \alpha_2^0 = \frac{13 q l^3}{648}$ za $s = \frac{l}{4}$: $\alpha_1^0 = \alpha_2^0 = \frac{47 q l^3}{3072}$
3		$\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{q s^2}{6 l} (2 l + a)$ za $a = s = \frac{l}{3}$: $\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{7 q l^2}{162}$	$\alpha_1^0 = \alpha_2^0 = \frac{q s^3}{12} (2 l + a)$ za $a = s = \frac{l}{3}$: $\alpha_1^0 = \alpha_2^0 = \frac{7 q l^3}{324}$
4		$\mathfrak{M}_1 = -\mathfrak{M}_2 =$ $= -\frac{q s}{12 l} [3 l^2 - 3 (b + s)^2 - s^2]$ za $a = s = b = \frac{l}{5}$: $\mathfrak{M}_1 = -\mathfrak{M}_2 = -\frac{31 q l^2}{750}$	$\alpha_1^0 = \alpha_2^0 =$ $= \frac{q s}{24} [3 l^2 - 3 (b + s)^2 - s^2]$ za $a = s = b = \frac{l}{5}$: $\alpha_1^0 = \alpha_2^0 = \frac{31 q l^3}{1500}$
5		$\mathfrak{M}_1 = -\frac{q s^2}{12 l^2} [2 l (3 l - 4 s) + 3 s^2]$ $\mathfrak{M}_2 = +\frac{q s^3}{12 l^2} (4 l - 3 s)$ za $s = b = \frac{l}{2}$: $\mathfrak{M}_1 = -\frac{11 q l^2}{192}$ $\mathfrak{M}_2 = +\frac{5 q l^2}{192}$	$\alpha_1^0 = \frac{q s^2}{24 l} (2 l - s)^2$ $\alpha_2^0 = \frac{q s^2}{24 l} (2 l^2 - s^2)$ za $s = b = \frac{l}{2}$: $\alpha_1^0 = \frac{9 q l^3}{384}$ $\alpha_2^0 = \frac{7 q l^3}{384}$
6		$\mathfrak{M}_1 = -\frac{q s}{12 l^2} [12 a b^2 + s^2 (l - 3 b)]$ $\mathfrak{M}_2 = +\frac{q s}{12 l^2} [12 a^2 b + s^2 (l - 3 a)]$	$\alpha_1^0 = \frac{q b s}{24 l} [4 a (b + l) - s^2]$ $\alpha_2^0 = \frac{q a s}{24 l} [4 b (a + l) - s^2]$

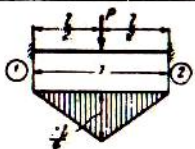
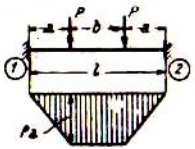
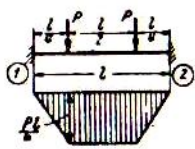
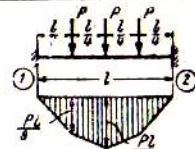
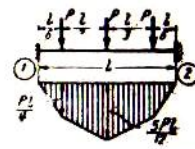
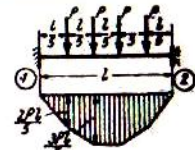
Otsečki ukrasnica: $t_a = \frac{6\alpha_2^0}{l}$
 $t_b = \frac{6\alpha_1^0}{l}$

br.	vrsta opterećenja M_0 -povrsine	M_1 M_2	α_1^0 α_2^0
7		$M_1 = -M_2 = -\frac{5ql^2}{96}$	$\alpha_1^0 = \alpha_2^0 = \frac{5ql^2}{192}$
8		$M_1 = -M_2 = -\frac{q^2}{24l} (3l^2 - 2s^2)$ za $a = s = \frac{l}{4}$: $M_1 = -M_2 = -\frac{23ql^2}{768}$	$\alpha_1^0 = \alpha_2^0 = \frac{q^2}{48} (3l^2 - 2s^2)$ za $a = s = \frac{l}{4}$: $\alpha_1^0 = \alpha_2^0 = \frac{23ql^2}{1536}$
9		$M_1 = -M_2 = -\frac{ql^2}{32}$	$\alpha_1^0 = \alpha_2^0 = \frac{ql^2}{64}$
10		$M_1 = -M_2 = -\frac{q^2}{8l} (l^2 - 2s^2)$ za $a = s = \frac{l}{4}$: $M_1 = -M_2 = -\frac{7ql^2}{256}$	$\alpha_1^0 = \alpha_2^0 = \frac{q^2}{16} (l^2 - 2s^2)$ za $a = s = \frac{l}{4}$: $\alpha_1^0 = \alpha_2^0 = \frac{7ql^2}{512}$
11		$M_1 = -M_2 = -\frac{qs^2}{12l} (2l - s)$ za $s = b = \frac{l}{3}$: $M_1 = -M_2 = -\frac{5ql^2}{324}$	$\alpha_1^0 = \alpha_2^0 = \frac{qs^2}{24} (2l - s)$ za $s = b = \frac{l}{3}$: $\alpha_1^0 = \alpha_2^0 = \frac{ql^2}{648}$
12		$M_1 = -\frac{q^2}{12l} [6a(l-a) + s(2b+3s)]$ za $a = b = s = \frac{l}{3}$: $M_1 = -M_2 = -\frac{29ql^2}{1500}$	$\alpha_1^0 = \alpha_2^0 = \frac{q^2}{24} [6a(l-a) + s(2b+3s)]$ za $a = b = s = \frac{l}{3}$: $\alpha_1^0 = \alpha_2^0 = \frac{29ql^2}{3000}$

Tabl. III. (nastavak)

br.	vrsta opterećenja M_0 -površine	M_1 M_2	α_1^0 α_2^0
13		$M_1 = -M_2 = -\frac{q s^2}{12 l} (4 l - 3 s)$ za $s = b = \frac{l}{3}$: $M_1 = -M_2 = -\frac{q l^2}{36}$	$\alpha_1^0 = \alpha_2^0 = \frac{q s^2}{24} (4 l - 3 s)$ za $s = b = \frac{l}{3}$: $\alpha_1^0 = \alpha_2^0 = \frac{q l^2}{72}$
14		$M_1 = -M_2 = -\frac{q s^2}{12 l} [6 a (l - a) + s (4 l - 3 s)]$ za $a = s = b = \frac{l}{5}$: $M_1 = -M_2 = -\frac{41 q l^2}{1500}$	$\alpha_1^0 = \alpha_2^0 = -\frac{q s^2}{24} [6 a (l - a) + s (4 l - 3 s)]$ za $a = s = b = \frac{l}{5}$: $\alpha_1^0 = \alpha_2^0 = \frac{41 q l^2}{3000}$
15		$M_1 = -M_2 = -\frac{17 q l^2}{384}$	$\alpha_1^0 = \alpha_2^0 = \frac{17 q l^2}{768}$
16		$M_1 = -M_2 = -\frac{5 q l^2}{128}$	$\alpha_1^0 = \alpha_2^0 = \frac{5 q l^2}{256}$
17		$M_1 = -M_2 = -\frac{q}{12 l} [l^3 - a^3 (2 l - a)]$ za $a = b = \frac{l}{3}$: $M_1 = -M_2 = -\frac{11 q l^2}{162}$	$\alpha_1^0 = \alpha_2^0 = \frac{q}{24} [l^3 - a^3 (2 l - a)]$ za $a = b = \frac{l}{3}$: $\alpha_1^0 = \alpha_2^0 = \frac{11 q l^2}{324}$
18		$M_1 = -\frac{q l^2}{20}$ $M_2 = +\frac{q l^2}{30}$	$\alpha_1^0 = \frac{q l^2}{45}$ $\alpha_2^0 = \frac{7 q l^2}{860}$
19		$M_1 = -\frac{q s^2}{30 l^2} [10 a^2 + s (5 a + s)]$ $M_2 = +\frac{q s^2}{20 l^2} (5 a + s)$ za $s = a = \frac{l}{2}$: $M_1 = -\frac{q l^2}{30}$ $M_2 = +\frac{3 q l^2}{160}$	$\alpha_1^0 = \frac{q s^2}{360 l} [40 a^2 + 7 s (5 a + s)]$ $\alpha_2^0 = \frac{q s^2}{180 l} [10 a^2 + 4 s (5 a + s)]$ za $s = a = \frac{l}{2}$: $\alpha_1^0 = \frac{41 q l^2}{2880}$ $\alpha_2^0 = \frac{17 q l^2}{1440}$

br	vrsta opterećenja M_0 -površine	M_1, M_2	α_1^0, α_2^0
20		$M_1 = -\frac{q s^2}{60 l^2} (10 b l + 3 s^2)$ $M_2 = +\frac{q s^3}{60 l^2} (5 b + 2 s)$ $\text{za } s = b : M_1 = -\frac{23 q l^2}{960}$ $M_2 = +\frac{7 q l^2}{96}$	$\alpha_1^0 = -\frac{q s}{360 l} [5 b (4 l + s) + 8 s^2]$ $\alpha_2^0 = \frac{q s^2}{360 l} [10 b (l + s) + 7 s^2]$ $\text{za } s = b : \alpha_1^0 = -\frac{53 q l}{5760}$ $\alpha_2^0 = \frac{37 q l^2}{5760}$
21		$M_1 = -\frac{q s}{60 l^2} [10 b^2 (3 a + s) + s^2 (15 a + 10 b + 3 s) + 40 a b s]$ $M_2 = +\frac{q s}{60 l^2} [10 a^2 (3 b + 2 s) + s^2 (10 a + 5 b + 2 s) + 20 a b s]$ $\text{za } a = s = b : M_1 = -\frac{q l^2}{45}$ $M_2 = +\frac{29 q l^2}{1620}$	$\alpha_1^0 = -\frac{q s}{360 l} [10 a^2 (3 b + 2 s) + 20 b^2 (3 a + s) + s^2 (40 a + 25 b + 8 s) + 100 a b s]$ $\alpha_2^0 = \frac{q s}{360 l} [20 a^2 (3 b + 2 s) + 10 s^2 (3 a + s) + s^2 (35 a + 20 b + 7 s) + 80 a b s]$ $\text{za } a = s = b : \alpha_1^0 = -\frac{101 q l^2}{8720}$ $\alpha_2^0 = \frac{47 q l^2}{4860}$
22		$M_1 = -\frac{q s}{6 l^2} [6 a b^2 - s^2 (a - 2 b)]$ $M_2 = +\frac{q s}{6 l^2} [6 a^2 b + s^2 (b - 2 a)]$	$\alpha_1^0 = \frac{q b s}{12 l} [2 a (b + l) - s^2]$ $\alpha_2^0 = \frac{q a s}{12 l} [2 b (a + l) - s^2]$
23		$M_1 = +M \frac{b}{l} \left(2 - \frac{3b}{l} \right)$ $M_2 = +M \frac{a}{l} \left(2 - \frac{3a}{l} \right)$ $\text{za } a = 0 : M_1 = -M ; M_2 = 0$ $\text{za } a = \frac{l}{2} : M_1 = M_2 = +\frac{M}{4}$ $\text{za } a = l : M_1 = 0 ; M_2 = -M$	$\alpha_1^0 = M \frac{l}{6} \left(\frac{3b^2}{l^2} - 1 \right)$ $\alpha_2^0 = M \frac{l}{6} \left(1 - \frac{3a^2}{l^2} \right)$ $\text{za } a = 0 : \alpha_1^0 = M \frac{l}{3} ; \alpha_2^0 = M \frac{l}{6}$ $\text{za } a = \frac{l}{2} : \alpha_1^0 = -\alpha_2^0 = -\frac{M l}{24}$ $\text{za } a = l : \alpha_1^0 = -M \frac{l}{6}$ $\alpha_2^0 = -M \frac{l}{3}$
24		$M_1 = -\frac{E J \omega \cdot \Delta t}{h}$ $M_2 = +\frac{E J \omega \cdot \Delta t}{h}$	$\alpha_1^0 = \alpha_2^0 = +\frac{l E J \omega \cdot \Delta t}{2 h}$

br.	vrsta opterećenja M_0 -površine	M_1, M_2	α_1^0, α_2^0
25		$M_1 = -M_2 = -\frac{Pl}{8}$	$\alpha_1^0 = \alpha_2^0 = \frac{Pl^3}{16}$
26		$M_1 = -M_2 = -\frac{Pa(l-a)}{l}$ za $a=b=\frac{l}{3}$: $M_1 = -M_2 = -\frac{2Pl}{9}$	$\alpha_1^0 = \alpha_2^0 = \frac{Pa(l-a)}{2}$ $\alpha_1^0 = \alpha_2^0 = \frac{Pl^3}{9}$
27		$M_1 = -M_2 = -\frac{3Pl}{16}$	$\alpha_1^0 = \alpha_2^0 = \frac{3Pl^3}{82}$
28		$M_1 = -M_2 = -\frac{5Pl}{16}$	$\alpha_1^0 = \alpha_2^0 = \frac{5Pl^3}{82}$
29		$M_1 = -M_2 = -\frac{19Pl}{72}$	$\alpha_1^0 = \alpha_2^0 = \frac{19Pl^3}{144}$
30		$M_1 = -M_2 = -\frac{2Pl}{5}$	$\alpha_1^0 = \alpha_2^0 = \frac{Pl^3}{5}$

br.	vrsta opterećenja M_0 -površine	M_1, M_2	α_1^0, α_2^0
81		$M_1 = -M_2 = -\frac{11Pl}{32}$	$\alpha_1^0 = \alpha_2^0 = \frac{11Pl^3}{64}$
82		$M_1 = -M_2 = -\frac{Pl}{12} \frac{n^2 - 1}{n}$	$\alpha_1^0 = \alpha_2^0 = \frac{Pl^3}{24} \frac{n^2 - 1}{n}$
83		$M_1 = -M_2 = -\frac{Pl}{24} \frac{2n^2 + 1}{n}$	$\alpha_1^0 = \alpha_2^0 = \frac{Pl^3}{48} \frac{2n^2 + 1}{n}$
84		$M_1 = -\frac{Pab^2}{l^2}$ $M_2 = +\frac{Pa^2b}{l^2}$	$\alpha_1^0 = \frac{Pab}{6l} (b+l)$ $\alpha_2^0 = \frac{Pab}{6l} (a+l)$

 Uticajne linije za M_1, M_2

 Uticajne linije za α_1^0, α_2^0
