

Työn nro	Rakennelaskelmat
Tekijä HH	Pos.
Päiväys 27.12.16	Sivu
Rakennuskohde	Sisältö

Lähde SFS-EN 1992-1-1 + FIN NA, FIB Model Code 2010, by 210 2008, SAS 670 ETA-13/0840

Laatija Henri Huoso

LEIKKAUSTAPPIEN KESTÄVYYS, SAS 670 teräs

$F_{yk} = 600 \text{ MPa}$ (rajoitettu EC2 mukaisesti).

Pienennetyt osavarmuuskertoimet [kN]

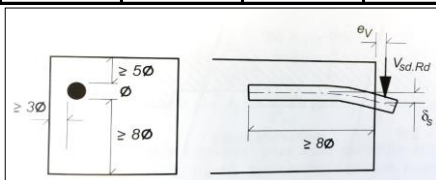
	18 TR	22 TR	25 TR	28 TR	30 TR	35 TR	43 TR	50 TR	57 TR	63 TR
C12/15	24.5	36.6	47.3	59.4	68.2	92.8	140.1	189.5	250.6	305.7
C16/20	28.3	42.3	54.6	68.6	78.7	107.2	161.8	218.8	289.4	353.0
C20/25	31.6	47.3	61.1	76.6	88.0	119.8	180.9	244.6	323.5	394.6
C25/30	35.3	52.8	68.3	85.7	98.3	133.9	202.2	273.4	361.6	441.1
C30/37	38.7	57.9	74.8	93.8	107.7	146.6	221.4	299.5	396.1	483.2
C35/45	41.8	62.5	80.7	101.3	116.3	158.4	239.1	323.4	427.8	521.8
C40/50	44.7	66.8	86.3	108.3	124.3	169.3	255.6	345.7	457.3	557.8
C45/55	47.4	70.8	91.5	114.8	131.8	179.5	271.1	366.6	485.0	591.6
C50/60	49.9	74.6	96.4	121.0	138.9	189.2	285.7	386.4	511.2	623.5
C55/67	52.3	78.3	101.1	126.9	145.7	198.4	299.6	405.3	536.1	653.9
C60/75	54.7	81.7	105.6	132.5	152.2	207.2	312.9	423.2	559.9	683.0
C70/85	59.0	88.2	114.0	143.1	164.3	223.8	337.9	457.1	604.7	737.6
C80/95	63.1	94.3	121.9	152.9	175.6	239.2	361.2	488.6	646.3	788.4
C90/105	66.9	100.0	129.2	162.2	186.2	253.6	383.1	518.1	685.5	836.1

Normaalit osavarmuuskertoimet [kN]

	18 TR	22 TR	25 TR	28 TR	30 TR	35 TR	43 TR	50 TR	57 TR	63 TR
C12/15	21.8	32.5	42.0	52.7	60.5	82.4	124.4	168.2	222.4	271.3
C16/20	25.1	37.5	48.5	60.8	69.9	95.1	143.6	194.2	256.8	313.3
C20/25	28.1	42.0	54.2	68.0	78.1	106.3	160.5	217.1	287.1	350.2
C25/30	31.4	46.9	60.6	76.0	87.3	118.8	179.4	242.7	321.0	391.5
C30/37	34.4	51.4	66.4	83.3	95.6	130.2	196.5	265.8	351.6	428.8
C35/45	37.1	55.5	71.7	89.9	103.2	140.6	212.2	287.0	379.7	463.1
C40/50	39.7	59.3	76.6	96.1	110.3	150.2	226.9	306.8	405.9	495.1
C45/55	42.0	62.9	81.2	101.9	117.0	159.3	240.6	325.4	430.5	525.0
C50/60	44.3	66.2	85.6	107.4	123.3	167.9	253.6	343.0	453.7	553.4
C55/67	46.5	69.5	89.8	112.6	129.3	176.1	265.9	359.7	475.8	580.4
C60/75	48.5	72.5	93.7	117.6	135.1	183.9	277.7	375.7	496.9	606.1
C70/85	52.4	78.3	101.2	127.0	145.8	198.6	299.9	405.7	536.7	654.6
C80/95	56.0	83.7	108.2	135.7	155.9	212.3	320.6	433.6	573.7	699.7
C90/105	59.3	88.8	114.7	143.9	165.3	225.1	340.0	459.9	608.4	742.1

Onnettomuustilanteen osavarmuuskertoimet [kN]

	18 TR	22 TR	25 TR	28 TR	30 TR	35 TR	43 TR	50 TR	57 TR	63 TR
C12/15	32.9	49.1	63.4	79.6	91.4	124.4	187.8	254.0	335.9	409.7
C16/20	37.9	56.7	73.2	91.9	105.5	143.6	216.8	293.2	387.9	473.0
C20/25	42.4	63.4	81.8	102.7	117.9	160.5	242.4	327.8	433.6	528.8
C25/30	47.4	70.8	91.5	114.8	131.8	179.4	271.0	366.4	484.7	591.1
C30/37	51.9	77.5	100.2	125.7	144.3	196.5	296.8	401.4	530.9	647.5
C35/45	56.0	83.7	108.2	135.7	155.9	212.2	320.5	433.5	573.4	699.3
C40/50	59.8	89.5	115.6	145.1	166.6	226.9	342.6	463.3	612.9	747.5
C45/55	63.5	94.9	122.6	153.9	176.7	240.6	363.3	491.4	650.0	792.8
C50/60	66.9	100.0	129.2	162.2	186.2	253.5	382.9	517.9	685.1	835.6
C55/67	70.1	104.9	135.5	170.0	195.2	265.9	401.6	543.1	718.5	876.3
C60/75	73.2	109.5	141.5	177.6	203.9	277.7	419.4	567.2	750.4	915.2
C70/85	79.0	118.2	152.8	191.7	220.2	299.8	452.9	612.6	810.4	988.3
C80/95	84.5	126.3	163.3	204.9	235.3	320.5	484.0	654.7	866.2	1056.4
C90/105	88.2	131.7	170.0	213.3	244.9	333.3	503.1	680.2	899.5	1097.1



$$V_{sd,Rd} = \frac{1,3}{\gamma_v} \varnothing^2 \left(\sqrt{1 + (1,3\varepsilon)^2} - 1,3\varepsilon \right) \sqrt{f_{cd} f_{sd} (1 - \zeta^2)} < \frac{A_s f_{sd}}{\sqrt{3}}$$

$$\varepsilon = 3 \frac{e_v}{\varnothing} \sqrt{\frac{f_{cd}}{f_{sd}}}, \quad \zeta = \frac{\sigma_s}{f_{sd}}$$