

getyra Kerkyra
Eigenvalues Easy

Eigenvalues

No.	LC	λ [rad2/sec2]	error [-]	ω [rad/sec]	f [Hz]	T [sec]	ξ [%]	Meff	X[%]	Y[%]	Z[%]	participation	X[%]	Y[%]	Z[%]
1	2001	6.5835E+02	0.0E+00	25.658	4.084	0.245	0.000	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
2	2002	6.6418E+02	0.0E+00	25.772	4.102	0.244	0.000	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0

Χρησιμοποιήθηκε το προσομοίωμα που δημιουργήθηκε για την εύρεση των οπλισμών λόγω του ότι προσομοιώνει επακριβώς το σύνολο της δυσκαμψίας του φορέα, συμπεριλαμβανομένου του φορέα του πεζοδρομίου.

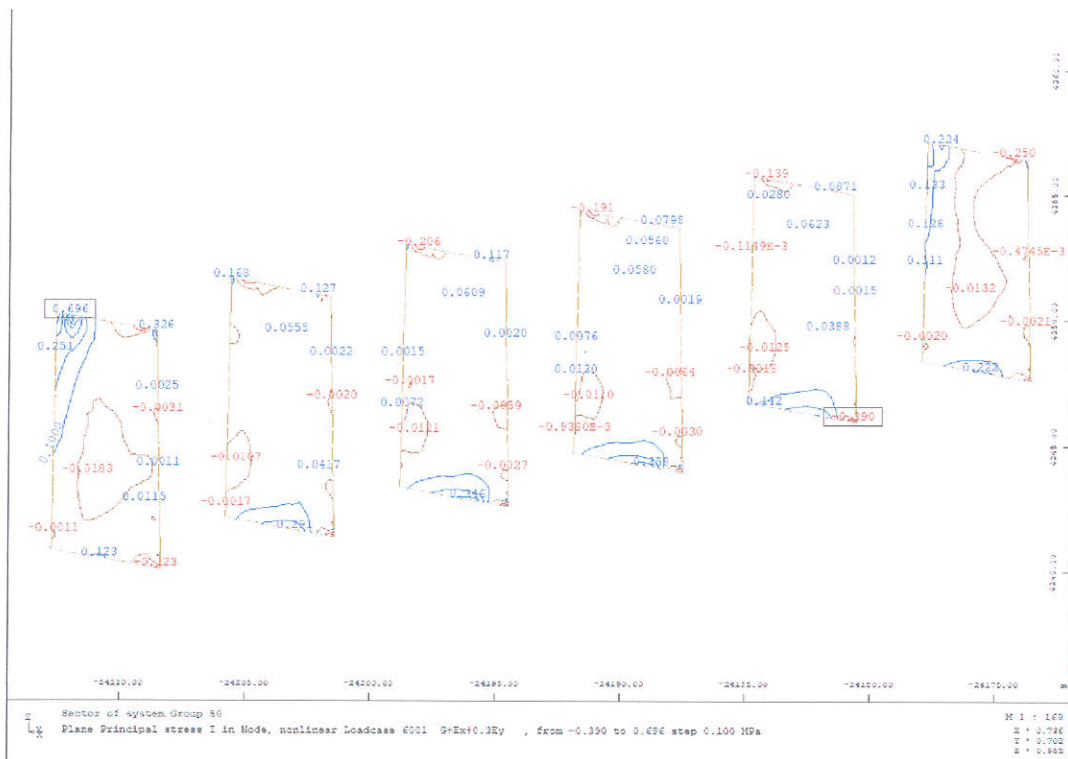
Οι δεσπόζουσες ιδιοπερίοδοι για κατεύθυνση Χ και Υ έχουν ίδια τιμή συνεπώς λαμβάνεται ο ίδιος σεισμικός συντελεστής και στις δύο κατευθύνσεις.

Έτσι προκύπτει φασματική επιτάχυνση ίση με $\Phi_d=0.55$

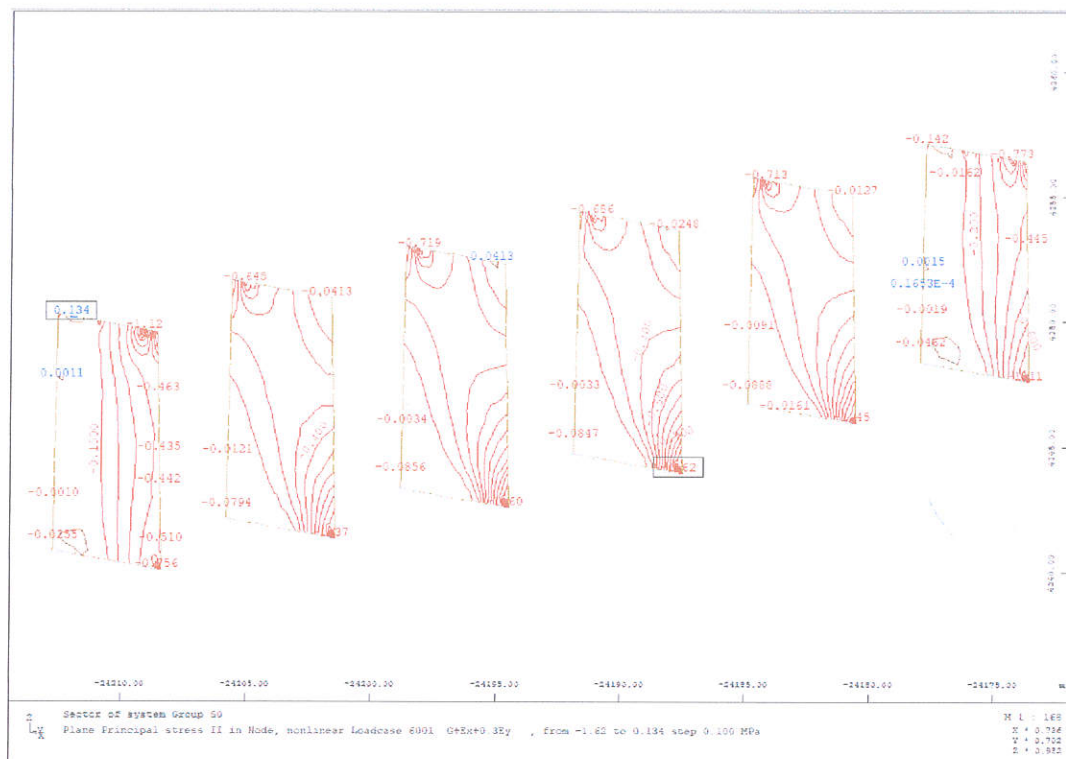
Συνεπώς κατά την εφαρμογή της ισοδύναμης στατικής μεθόδου τα ίδια βάρη της κατασκευής πολ/νται με 0.55 για την προσομοίωση των σεισμικών δυνάμεων.

2.2 Αποτελέσματα

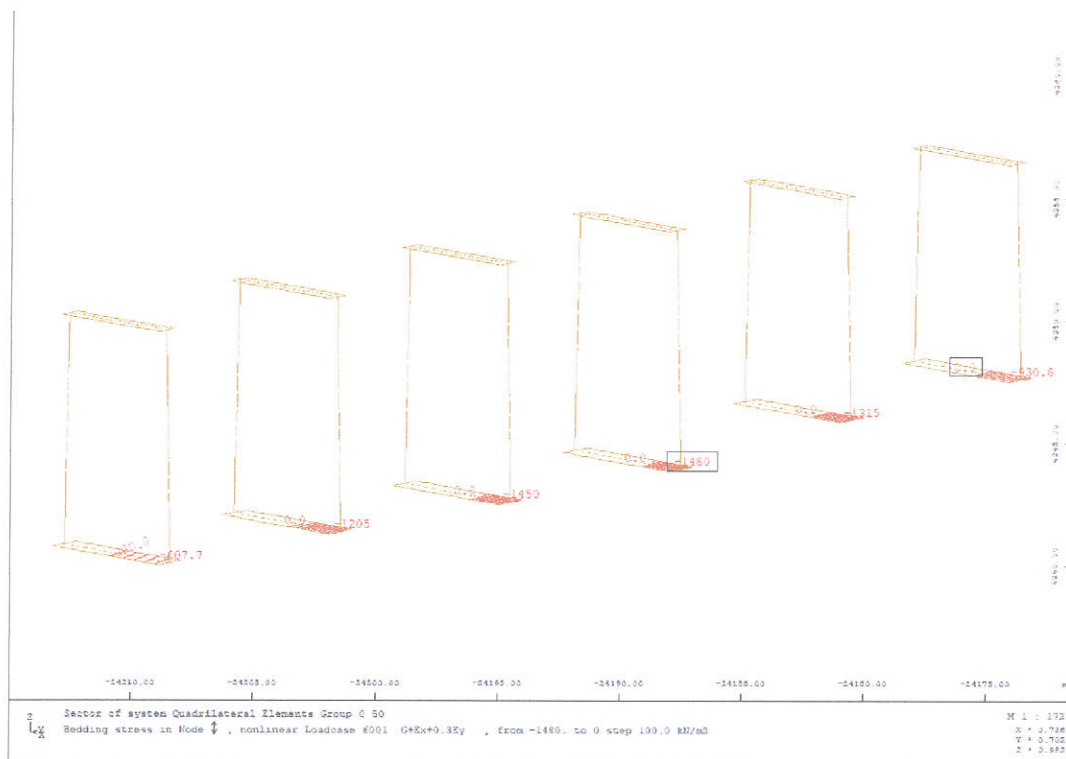
Παρουσιάζονται τα αποτελέσματα της μελέτης για τα τους σεισμικούς συνδυασμούς για τους οποίους προέκυψαν και τα δυσμενέστερα μεγέθη για τα μεσοβάθρα.



Κύριες εφελκυστικές τάσεις σε θεμελίωσης σε MPa



Κύριες θλιπτικές τάσεις σ_{II} θεμελίωσης σε MPa



Τάσεις εδράσεως θεμελίωσης σε kPa

Παρατηρείται ότι οι εφελκυστικές τάσεις της θεμελίωσης υπερβαίνουν σε ένα μόνο σημείο την εφελκυστική αντοχή της τοιχοποιίας (0.14MPa). Έτσι δεν προκύπτει πρόβλημα με την επάρκεια της διατομής.

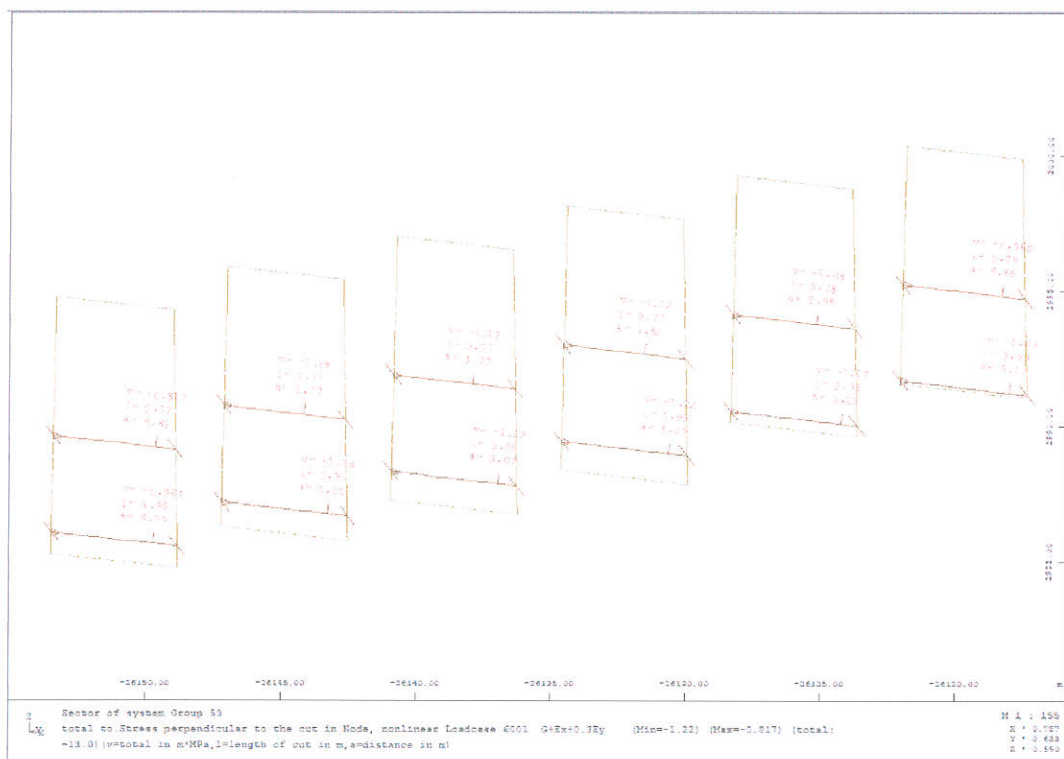
Οι θλιπτικές τάσεις της θεμελίωσης υπερβαίνουν σε ένα μόνο σημείο την εφελκυστική αντοχή της τοιχοποιίας (1.36 MPa). Έτσι δεν προκύπτει πρόβλημα με την επάρκεια της διατομής.

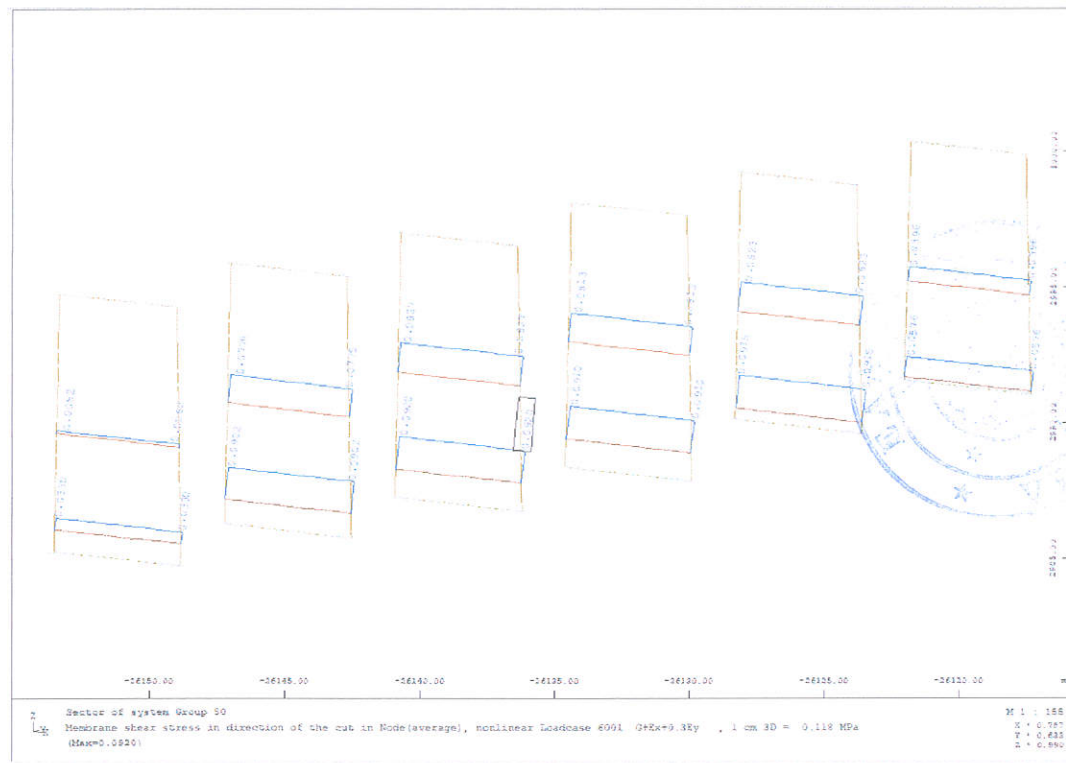
Οι τάσεις εδράσεως παρουσιάζουν ιδιαίτερα υψηλές τιμές και φτάνουν σε σημεία τα 1480Kpa.

2.2 Έλεγχοι κατά ΚΑΔΕΤ 2022

Εκτελούνται οι έλεγχοι σε εντός επιπέδου καταπόνηση των μεσοβάθρων.

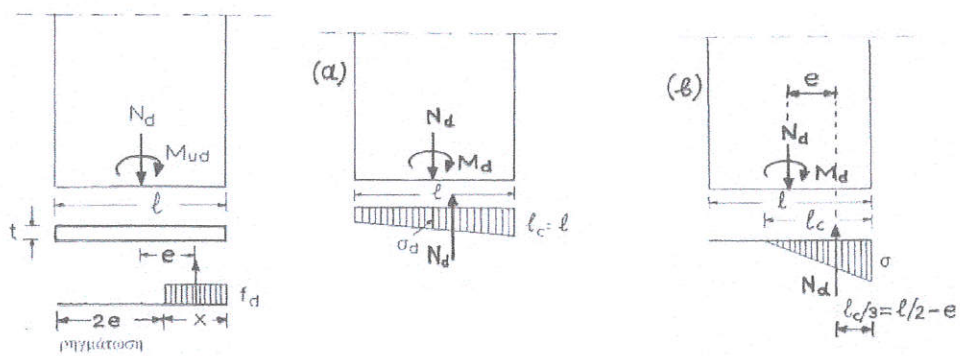
Οι έλεγχοι εκτελούνται για σεισμό κατά την εγκάρσια διεύθυνση της γέφυρας, η οποία είναι και η δυσμενής για τους συγκεκριμένους ελέγχους.





Διατμητικές τάσεις στην βάση των μεσοβάθρων

Με βάση τις παραπάνω τιμές υπολογίζονται οι δυνάμεις σχεδιασμού των διατομών και συγκρίνονται με τις αντίστοιχες αντοχές. Εκτελούνται οι έλεγχοι σε διάτμηση και κάμψη.



Διατομή	LC	Πάχος t_w (m)	f_{wc} (MPa)	f_{vko} (MPa)	ΑΝΗΓΜΕΝΑ ΕΝΤΑΤΙΚΑ, ΜΕΤΕΩΝ			
					v - αξονική δύναμη/πλάτος (MPa*m)	L - μήκος πεσσού (m)	εφαρμογή δύναμης από άκρο	v - διαμήτρη δύναμη (MPa)
11	6001	1.35	1.36	0.88	-0.817	5.770	4.83	0.033
12	6001	1.35	1.36	0.88	-1.080	5.770	3.77	0.090
21	6001	1.35	1.36	0.88	-1.120	5.770	3.770	0.092
22	6001	1.35	1.36	0.88	-1.120	5.770	3.820	0.091
31	6001	1.35	1.36	0.88	-1.080	5.780	3.960	0.092
32	6001	1.35	1.36	0.88	-0.960	5.790	4.680	0.058

ΑΝΑΛΥΣΗ ΔΙΑΤΟΜΗΣ						ΚΑΜΨΗ	
e (m)	N (KN)	M _s (KNm)	x = N/(t _w *f _{wc})	e' = (L-x)/2	M _R = N*e' (kNm/m)	SF =M _s /M _R	check
1.945	-1102.95	-2145.24	-0.601	3.185	-3513.30	0.611	✓
0.885	-1458.00	-1290.33	-0.794	3.282	-4785.24	0.270	✓
0.885	-1512.00	-1338.12	-0.824	3.297	-4984.71	0.268	✓
0.935	-1512.00	-1413.72	-0.824	3.297	-4984.71	0.284	✓
1.070	-1458.00	-1560.06	-0.794	3.287	-4792.53	0.326	✓
1.785	-1296.00	-2313.36	-0.706	3.248	-4209.33	0.550	✓

					ΔΙΑΤΜΗΣΗ	
V _s (KN)	l _c (m)	σ _d (Kpa)	f _{vk} =f _{vko} +0.4*σ _d (Kpa)	V _R (KN)	SF =V _s /V _R	check
44.55	2.82	289.72	768.11	2924.21	0.015	✓
121.77	5.77	187.18	809.13	6302.72	0.019	✓
124.2	5.77	194.11	806.36	6281.12	0.020	✓
122.85	5.77	194.11	806.36	6281.12	0.020	✓
123.53	5.46	197.80	804.88	5932.76	0.021	✓
77.76	3.33	288.29	768.68	3455.62	0.023	✓

Ο λόγος MS/MR και VS/VR (επάρκεια/αντοχή) είναι σε όλες τις περιπτώσεις μικρότερος του 1 συνεπώς οι έλεγχοι επαρκούν.

Για τον ανάδοχο

Για την ΚΑΛΛΙΕΡΓΟΣ Ο.Τ.Μ. Α.Ε.,



Παναγιώτης Πλαΐνης
Πρόεδρος & Δ/νων Σύμβουλος

Για τον συνεργάτη

Σύμβουλοι Πολιτικοί Μηχανικοί ΑΡΗΣ Χ.
Ιδιωτική Κεφαλαιουχική Εταιρεία
ΚΩΝ. ΣΑΘΑ 18, ΡΕΘΥΜΝΟ Τ.Κ. 74132
ΤΗΛ. 6973995888
ΑΦΜ: 800515600 ΔΟΥ ΡΕΘΥΜΝΟΥ
e-mail: chatzidakisaris@gmail.com

ΘΕΩΡΗΘΗΚΕ
Σύμφωνα με τους όρους της
αποφάσεως του ΥΠΟΥΡΓΕΙΟΥ ΠΟΛΙΤΙΣΜΟΥ
από 359098/2025

Ο ΠΡΟΫΠΟΛΟΓΙΣΜΟΣ ΤΗΣ ΔΑΒΜΜ

ΘΕΜΙΣΤΟΚΛΗΣ ΒΛΑΧΟΥΛΗΣ
Αρχιτέκτων Μηχανικός με Α' βαθμό

ΕΛΕΓΘΗΚΕ

Αθήνα

Ο Ελέγξας

ΘΕΟΔΩΡΟΣ ΠΑΛΑΝΤΖΑΣ
ΠΟΛΙΤΙΚΟΣ ΜΗΧΑΝΙΚΟΣ MSc

ΤΕΥΧΟΣ ΣΤΑΤΙΚΩΝ ΥΠΟΛΟΓΙΣΜΩΝ

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ

ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ



ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ

Materials

Design Code

EuroNorm Bridges: EN 1992-2:2005 Design of concrete structures (Europe) V 2024

EuroNorm Bridges: EN 1993-2:2006 Design of steel structures

EuroNorm Bridges: EN 1994-2:2005 Design of composite steel and concrete structures

Structure: B (Road bridges)

Snow load zone : 1

National Defined Parameters

Reference of parameter in design code	Value
long term reduction concrete compressive strength α -cc EN 1992-2 3.1.6	0.850 ¹
long term reduction concrete tensile strength α -ct EN 1992-1-1 3.1.6 (2)	1.000 ¹
safety coefficient γ -c for concrete EN 1992-1-1 2.4.2.4	1.500 ¹
safety coefficient γ -CE for concrete elasticity EN 1992-1-1 5.8.6 (3)	1.200 ¹
safety coefficient γ -s for reinforcing steel EN 1992-1-1 2.4.2.4	1.150 ¹
safety coefficient γ -M0 for structural steel EN 1993-1-1 6.1	1.000 ¹
safety coefficient γ -M1 for structural steel EN 1993-2 6.1	1.100 ¹
safety coefficient γ -M2 for structural steel EN 1993-1-1 6.1	1.250 ¹

¹ national defined parameter taken from the INI-files

Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 C (EN 1992)
3	S 235 (EN 1993)
4	C 30/37 (EN 1992) g=0

Mat 1 C 30/37 (EN 1992)

Young's modulus	E	32837	[N/mm ²]	Safetyfactor	1.50	[-]
Poisson's ratio	μ	0.20	[-]	Strength ¹	fc	25.50 [MPa]
Shear modulus	G	13682	[N/mm ²]	Nominal strength	fck	30.00 [MPa]
Compression modulus	K	18243	[N/mm ²]	Tensile strength	fctm	2.90 [MPa]
Nominal Weight	γ	25.0	[kN/m ³]	Tensile strength	fctk,05	2.03 [MPa]
Mean density	ρ	2400.0	[kg/m ³]	Tensile strength	fctk,95	3.77 [MPa]
Elongation coefficient	α	1.00E-05	[1/K]	Bond strength	fbd	3.04 [MPa]
				Service strength	fcm	38.00 [MPa]
				Fatigue strength	fcd,fat	14.96 [MPa]
				Tensile strength	fctd	1.35 [MPa]
				Tensile failure energy	Gf	0.14 [N/mm]

¹ $f_c = f_{ck} \cdot \alpha$ -cc

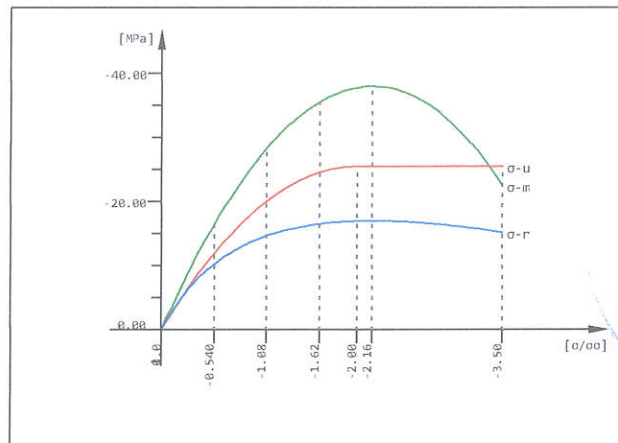
Stress-Strain for serviceability	ϵ [o/oo]	σ -m[MPa]	E-t[N/mm ²]
Is only valid within the defined stress range	0.000	0.00	34478
	-0.540	-16.42	26234
	-1.081	-28.31	17746
	-1.621	-35.55	9005
	-2.162	-38.00	0
	-3.500	-22.47	-23499
Safetyfactor			1.50

Stress-Strain for ultimate load	ϵ [o/oo]	σ -u[MPa]	E-t[N/mm ²]
Is only valid within the defined stress range	0.000	0.00	25500
	-2.000	-25.50	0
	-3.500	-25.50	0
Safetyfactor			1.50

Stress-Strain of calc. mean values	ϵ [o/oo]	σ -r[MPa]	E-t[N/mm ²]
Is only valid within the defined stress range	0.000	0.00	28732
	-0.540	-10.23	12007
	-1.081	-14.67	5278
	-1.621	-16.53	1917
	-2.162	-17.00	0

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Materials

Stress-Strain of calc. mean values	ε [o/oo]	σ -r[MPa]	E-t[N/mm2]
	-3.500	-15.23	-2279
	Safetyfactor		(1.50)



C 30/37 (EN 1992)

Mat 2 B 500 C (EN 1992)

Young's modulus	E	200000	[N/mm2]	Safetyfactor	1.15	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	f_y	500.00 [MPa]
Shear modulus	G	76923	[N/mm2]	Compressive yield	f_{yc}	500.00 [MPa]
Compression modulus	K	166667	[N/mm2]	Tensile strength	f_t	575.00 [MPa]
Nominal Weight	γ	78.5	[kN/m3]	Compressive strength	f_c	575.00 [MPa]
Mean density	ρ	7850.0	[kg/m3]	Ultimate strain		75.00 [o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		1.00 [-]
max. thickness	t-max	32.00	[mm]	EN 1992 bond coeff.	k_1	0.80 [-]
				Hardening modulus	E_h	0.00 [MPa]
				Proportional limit	f_p	500.00 [MPa]
				Dynamic allowance	σ -dyn	152.17 [MPa]

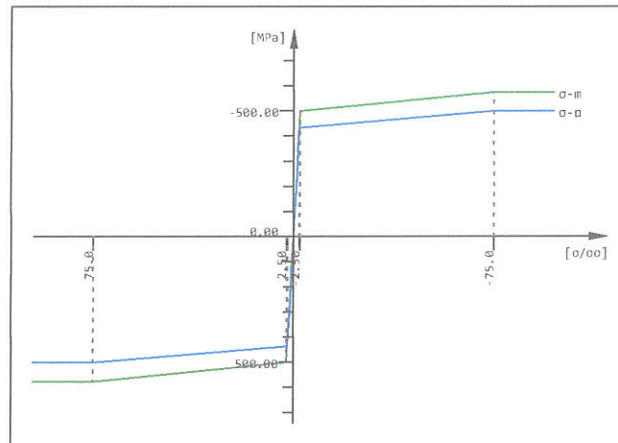
Stress-Strain for serviceability	ε [o/oo]	σ -m[MPa]	E-t[N/mm2]
Is also extended beyond the defined stress range	1000.000	575.00	0
	75.000	575.00	0
	2.500	500.00	1034
	0.000	0.00	200000
	-2.500	-500.00	1034
	-75.000	-575.00	0
	-1000.000	-575.00	0
	Safetyfactor		1.15

Stress-Strain for ultimate load	ε [o/oo]	σ -u[MPa]	E-t[N/mm2]
Is also extended beyond the defined stress range	1000.000	500.00	0
	75.000	500.00	0
	2.174	434.78	896
	0.000	0.00	200000
	-2.174	-434.78	896
	-75.000	-500.00	0
	-1000.000	-500.00	0
	Safetyfactor		(1.15)

Stress-Strain of calc. mean values	ε [o/oo]	σ -r[MPa]	E-t[N/mm2]
Is also extended beyond the defined stress range	1000.000	500.00	0
	75.000	500.00	0
	2.174	434.78	896
	0.000	0.00	200000
	-2.174	-434.78	896
	-75.000	-500.00	0

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Materials

Stress-Strain of calc. mean values	ε [o/oo]	σ -r[MPa]	E-t[N/mm2]
	-1000.000	-500.00	0
Safetyfactor			(1.15)



B 500 C (EN 1992)

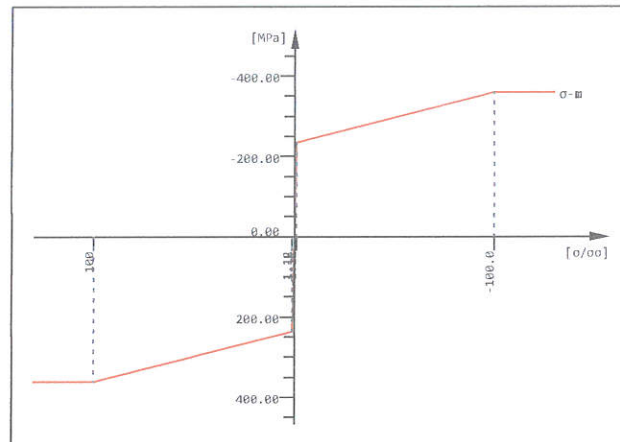
Mat 3 S 235 (EN 1993)

Young's modulus	E	210000	[N/mm2]	Safetyfactor	1.10	[-]
Poisson's ratio	μ	0.30	[-]	Yield stress	f_y	235.00 [MPa]
Shear modulus	G	80769	[N/mm2]	Compressive yield	f_{yc}	235.00 [MPa]
Compression modulus	K	175000	[N/mm2]	Tensile strength	f_t	360.00 [MPa]
Nominal Weight	γ	78.5	[kN/m3]	Compressive strength	f_c	360.00 [MPa]
Mean density	ρ	7850.0	[kg/m3]	Ultimate strain		100.00 [o/oo]
Elongation coefficient	α	1.20E-05	[1/K]	relative bond coeff.		0.00 [-]
max. thickness	t-max	40.00	[mm]	EN 1992 bond coeff.	k_1	0.00 [-]
Safety sectional design	γ -M0	1.00	[-]	Hardening modulus	E_h	0.00 [MPa]
Safety stability design	γ -M1	1.10	[-]	Proportional limit	f_p	235.00 [MPa]
Safety rupture	γ -M2	1.25	[-]	Dynamic allowance	σ -dyn	0.00 [MPa]

Stress-Strain for serviceability	ε [o/oo]	σ -m[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	360.00	0
defined stress range	100.000	360.00	0
	1.119	235.00	1264
	0.000	0.00	210000
	-1.119	-235.00	1264
	-100.000	-360.00	0
	-1000.000	-360.00	0
Safetyfactor			1.00

Stress-Strain for ultimate load	ε [o/oo]	σ -u[MPa]	E-t[N/mm2]
Is also extended beyond the	1000.000	360.00	0
defined stress range	100.000	360.00	0
	1.119	235.00	1264
	0.000	0.00	210000
	-1.119	-235.00	1264
	-100.000	-360.00	0
	-1000.000	-360.00	0
Safetyfactor			1.10

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Materials



S 235 (EN 1993)

Mat 4 C 30/37 (EN 1992) g=0

Young's modulus	E	32837	[N/mm ²]	Safetyfactor		1.50	[-]
Poisson's ratio	μ	0.20	[-]	Strength ¹	f _c	25.50	[MPa]
Shear modulus	G	13682	[N/mm ²]	Nominal strength	f _{ck}	30.00	[MPa]
Compression modulus	K	18243	[N/mm ²]	Tensile strength	f _{ctm}	2.90	[MPa]
Nominal Weight	γ	0.0	[kN/m ³]	Tensile strength	f _{ctk,05}	2.03	[MPa]
Mean density	ρ	0.0	[kg/m ³]	Tensile strength	f _{ctk,95}	3.77	[MPa]
Elongation coefficient	α	1.00E-05	[1/K]	Bond strength	f _{bd}	3.04	[MPa]
				Service strength	f _{cm}	38.00	[MPa]
				Fatigue strength	f _{cd,fat}	14.96	[MPa]
				Tensile strength	f _{ctd}	1.35	[MPa]
				Tensile failure energy	G _f	0.14	[N/mm]

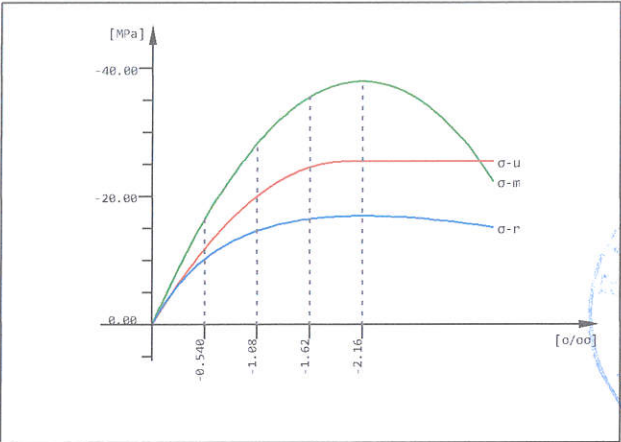
¹ f_c = f_{ck} * α-cc

Stress-Strain for serviceability	ε[‰]	σ-m[MPa]	E-t[N/mm ²]
Is only valid within the defined stress range	0.000	0.00	34478
	-0.540	-16.42	26234
	-1.081	-28.31	17746
	-1.621	-35.55	9005
	-2.162	-38.00	0
	-3.500	-22.47	-23499
Safetyfactor			1.50

Stress-Strain for ultimate load	ε[‰]	σ-u[MPa]	E-t[N/mm ²]
Is only valid within the defined stress range	0.000	0.00	25500
	-2.000	-25.50	0
	-3.500	-25.50	0
Safetyfactor			1.50

Stress-Strain of calc. mean values	ε[‰]	σ-r[MPa]	E-t[N/mm ²]
Is only valid within the defined stress range	0.000	0.00	28732
	-0.540	-10.23	12007
	-1.081	-14.67	5278
	-1.621	-16.53	1917
	-2.162	-17.00	0
	-3.500	-15.23	-2279
Safetyfactor			(1.50)

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Materials



C 30/37 (EN 1992) g=0

Thermal material constants

Mat	T [°C]	S [kJ/K/m3]	Kxx [W/K/m]	Kyy [W/K/m]	Kzz [W/K/m]	
1	AUTO	2.16E+03	1.951E+00			C 30/37 (EN 1992)
2	AUTO	3.45E+03	5.333E+01			B 500 C (EN 1992)
3	AUTO	3.45E+03	5.333E+01			S 235 (EN 1993)
4	AUTO	2.16E+03	1.951E+00			C 30/37 (EN 1992) g=0
Mat	material number	S [kJ/K/m3]	Heat capacity			
T [°C]	Temperature	Kxx [W/K/m], Kyy [W/K/m], Kzz [W/K/m]	Heat conductivity			

ΘΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΘΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Sections

Design Code

EuroNorm Bridges: EN 1992-2:2005 Design of concrete structures (Europe) V 2024

EuroNorm Bridges: EN 1993-2:2006 Design of steel structures

EuroNorm Bridges: EN 1994-2:2005 Design of composite steel and concrete structures

Structure: B (Road bridges)

Snow load zone : 1

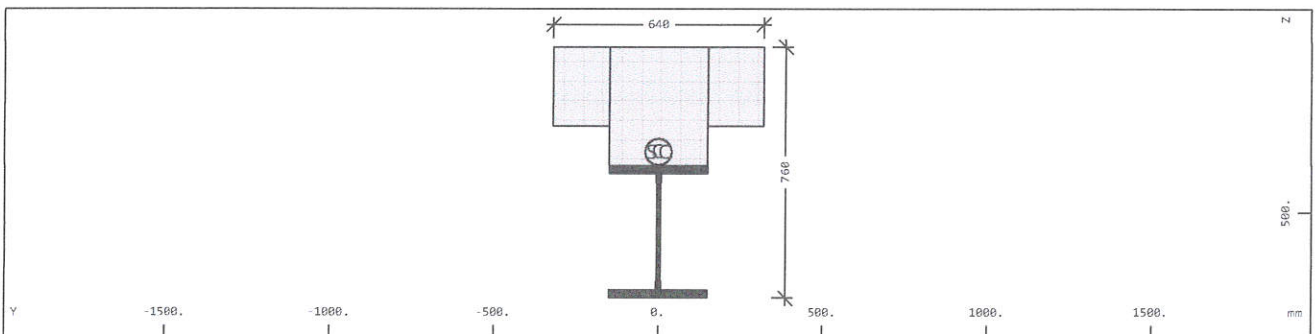
Materials

Mat	Classification
1	C 30/37 (EN 1992)
2	B 500 C (EN 1992)
3	S 235 (EN 1993)
4	C 30/37 (EN 1992) g=0

Cross-sections static properties

SNo	Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
	MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
			Ayz[m2]	Iyz[m4]					α[°]
1	3	4.9425E-02	1.124E-01	2.557E-03	0.0	0.0	210000	155.3	2.557E-03
	2 ¹	1.059E-03	3.401E-02	9.700E-04	316.6	319.6	80769	(BEAM)	9.700E-04
-1.252E-11									
= HEB AKPI									
= Composit with materials: 3 4									
2	4	1.2000E-01	1.000E-01	5.760E-04	0.0	0.0	32837	0.0	2.500E-03
	2 ²	1.609E-03	1.000E-01	2.500E-03	-120.0	-120.0	13682	(BEAM)	5.760E-04
= H = 200 mm									
= H = 200 mm									
3	3	1.9779E-02	1.289E-02	5.768E-04	0.0	0.0	210000	155.3	
		3.623E-06	5.255E-03	1.082E-04	0.0	0.0	80769	(BEAM)	
= HE 400 B (EN 10365)									
¹ No valid reinforcements are defined									
² Reinforcements are not considered in the sectional values									
SNo	section number			yc[mm],zc[mm]		ordinate of elastic centroid			
Mat	material number			ysc[mm],zsc[mm]		ordinate of shear centre			
A[m2]	sectional area			E[N/mm2]		Young's modulus			
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area			g[kg/m]		mass per length			
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia								
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes								
MRf	reinforcement material number								
It[m4]	torsional moment of inertia								
G[N/mm2]	Shear modulus								

Cross section No. 1 - HEB AKPI



Cross section No. 1 - HEB AKPI

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
3	4.9425E-02	1.124E-01	2.557E-03	0.0	0.0	210000	155.3	2.557E-03
2 ¹	1.059E-03	3.401E-02	9.700E-04	316.6	319.6	80769	(BEAM)	9.700E-04
			-1.252E-11					0.00

¹ No valid reinforcements are defined

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Sections

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm] ymax[mm]	zmin[mm] zmax[mm]	hymin[mm] hzmin[mm]	AK[m2] AB[m2]	MRS	1/WT[1/m3] 1/WT2[1/m3]	1/WVy[1/m2] 1/WVz[1/m2]
1.2E-05	-320.0 320.0	-316.6 443.4	363.0 531.2	1.089E-01 1.896E-01	2	5.759E+01 3.503E+02	1.160E+01 1.166E+02
α-T[1/K]	Elongation coefficient						
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid						
hymin[mm],hzmin[mm]	minimum value for internal lever						
AK[m2]	torsional equivalent area (Bredt)						
MRS	transverse reinforcements material number						
1/WT[1/m3],1/WT2[1/m3]	torsional resistance						
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance						
AB[m2]	gross concrete area						

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0643	0.0643	1.376E-05	0.002	1.110E-13	-1.862E-13	0.0	162.6
Wmin[m2],Wmax[m2]	unit warping		ASwyy[m6],ASwzz[m6]		warping sectional value		
CM[m6]	warping resistance		ry[mm],rz[mm]		sectional distance		
CMS[m4]	warping shear resistance						

Partial cross sections

Mat MRf	A[m2] It[m4]	Ay[m2] Az[m2] Ayz[m2]	Iy[m4] Iz[m4] Iyz[m4]	yc[mm] zc[mm]	E[N/mm2] G[N/mm2]	g[kg/m]	I-1[m4] I-2[m4] α[°]
3	1.9778E-02 3.145E-06	1.305E-02 3.401E-02	5.774E-04 1.080E-04 1.952E-20	0.0 560.0	210000 80769	155.3	5.774E-04 1.080E-04 0.00
4	1.8960E-01 6.232E-03	5.865E-01	1.673E-04 5.513E-03 -8.005E-11	0.0 154.2	32837 13682	0.0	5.513E-03 1.673E-04 90.00
Mat	material number						
A[m2]	sectional area						
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area						
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia						
yc[mm],zc[mm]	ordinate of elastic centroid						
E[N/mm2]	Young's modulus						
g[kg/m]	mass per length						
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes						
MRf	reinforcement material number						
It[m4]	torsional moment of inertia						
G[N/mm2]	Shear modulus						

Design values of cross section

Mat MRf	A[m2] It[m4]	Ay[m2] Az[m2] Ayz[m2]	Iy[m4] Iz[m4] Iyz[m4]	yc[mm] zc[mm]	E[N/mm2] G[N/mm2]	g[kg/m]	I-1[m4] I-2[m4] α[°]
3 ¹ 2 ²	3.7745E-02 7.067E-04	7.809E-02 3.092E-02	2.093E-03 6.729E-04 -8.345E-12	0.0 347.5	190909 73426	155.3	2.093E-03 6.729E-04 0.00

¹ Material safety γ-M, Structural steel = 1.10, Concrete = 1.50

² No valid reinforcements are defined

Mat	material number
A[m2]	sectional area
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia
yc[mm],zc[mm]	ordinate of elastic centroid
E[N/mm2]	Young's modulus
g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes
MRf	reinforcement material number
It[m4]	torsional moment of inertia
G[N/mm2]	Shear modulus

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Sections

Design forces and moments

	N[kN]	Vy[kN]	Vz[kN]	Mt[kNm]	Mt2[kNm]	Mb[kNm2]	My[kNm]	Mz[kNm]	y[mm]	z[mm]	BUCK
p ¹²³	4647.8	4039.35	1033.56	353.32	781.87	80.84	1585.77	483.54	12.1	370.1	-, c, c
p ¹²³	1646.1						1659.64	0.00	0.0	316.6	COMB ⁴
p ¹²³	-1611.6						0.00	490.22	0.0	0.0	COMB ⁴
p ¹²³	-7871.0	4039.35	1033.56	353.32	781.87	80.84	-760.27	-483.54	-12.1	560.0	
p ¹²³	-4869.3						-1136.22	0.00	0.0	316.6	COMB ⁴
p ¹²³	-1611.6						0.00	-490.22	0.0	0.0	COMB ⁴
E ⁵²	4647.8						1033.25	387.72	0.0	316.6	
E ⁵²	-6321.7						-1355.30	-387.72	0.0	316.6	

- ¹ P = plastic design values (ultimate bearing capacity)
² Material safety γ_{M0} for structural steel = 1.00, Concrete = 1.50
³ Composite section, concrete with $0.85 \cdot f_{ck} / \gamma_M$ in the compressive zone for Np1 and Mpl
⁴ Maximum moment (defining point D in interaction diagram)
⁵ E = elastic design values (stress limit reached)

N[kN]	normal force	Mb[kNm2]	warping moment
Vy[kN], Vz[kN]	shear force	My[kNm], Mz[kNm]	bending moment
Mt[kNm]	primary torsional moment	y[mm], z[mm]	ordinate of plastic centre
Mt2[kNm]	secondary torsional moment	BUCK	buckling curve (LTB, y-y, z-z)

Additional design data

Mat	periphery-0/-I [m2/m]	deff [mm]	t-min [mm]	t-max [mm]	thet-p [kgm2/m]	thet-y [kgm2/m]	thet-z [kgm2/m]	thet-yz [kgm2/m]	yg [mm]	zg [mm]
	3.232		13.5	360.0	5.380	4.532	0.848	0.000	0.0	560.0
3	1.952	20.3	13.5	24.0	5.380	4.532	0.848	0.000	0.0	560.0
4	1.280	296.3	240.0	360.0	0.000				0.0	154.2

Mat	material number	t-min, t-max	thickness
periphery-0/-I	peripheral area per length	thet-p, thet-y, thet-z, thet-yz	rotational mass
deff	effective depth	yg, zg	ordinate of the mass centre

Reinforcement global values

Layer	Mref	Mat	As [cm2]	As-min [cm2]	As-max [cm2]	D [mm]	yr [mm]	zr [mm]	L-tors [mm]	N-p [kN]	My-p [kNm]	Mz-p [kNm]
M1	0	2	0.00	0.00			0.0	0.0				
M2	0	2	0.00	0.00			0.0	0.0				
M3	0	2	0.00	0.00			0.0	0.0				
M4	0	2	0.00	0.00			0.0	0.0				

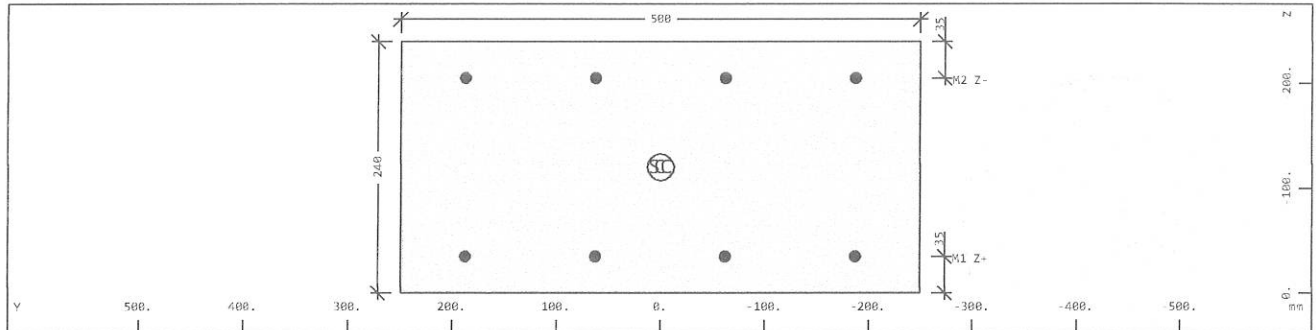
Layer	layer of reinforcement	D	bar diameter
Mref	embedding reference material	yr, zr	ordinate of elastic centroid
Mat	material number	L-tors	torsional effective length
As	reinforcement area	N-p	prestress normal force
As-min	minimum reinforcement area	My-p, Mz-p	prestress bending moment
As-max	maximum reinforcement area		

Rolled steel

Rolled steel	D[mm]	B[mm]	s[mm]	t[mm]	r[mm]	yr[mm]	zr[mm]	[grd]
HEB 400	400.0	300.0	13.5	24.0	27.0	-1.7	0.0	
D[mm]	height	t[mm]	flange thickness					
B[mm]	width	r[mm]	fillet radius					
s[mm]	web thickness	yr[mm], zr[mm]	sectional coordinate					

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Sections

Cross section No. 2 - H = 200 mm



Cross section No. 2 - H = 200 mm

Static properties of cross section

Mat	A[m2]	Ay[m2]	Iy[m4]	yc[mm]	ysc[mm]	E[N/mm2]	g[kg/m]	I-1[m4]
MRf	It[m4]	Az[m2]	Iz[m4]	zc[mm]	zsc[mm]	G[N/mm2]		I-2[m4]
		Ayz[m2]	Iyz[m4]					α[°]
4	1.2000E-01	1.000E-01	5.760E-04	0.0	0.0	32837	0.0	2.500E-03
2 ¹	1.609E-03	1.000E-01	2.500E-03	-120.0	-120.0	13682	(BEAM)	5.760E-04

¹ Reinforcements are not considered in the sectional values

Mat	material number	yc[mm],zc[mm]	ordinate of elastic centroid
A[m2]	sectional area	ysc[mm],zsc[mm]	ordinate of shear centre
Ay[m2],Az[m2],Ayz[m2]	transverse shear deformation area	E[N/mm2]	Young's modulus
Iy[m4],Iz[m4],Iyz[m4]	bending moment of inertia	g[kg/m]	mass per length
I-1[m4],I-2[m4],α[°]	principal moments of inertia and angle of the principal axes		
MRf	reinforcement material number		
It[m4]	torsional moment of inertia		
G[N/mm2]	Shear modulus		

Additional static properties of cross section

α-T[1/K]	ymin[mm]	zmin[mm]	hymn[mm]	AK[m2]	MRs	1/WT[1/m3]	1/WVy[1/m2]
	ymax[mm]	zmax[mm]	hzmin[mm]	AB[m2]		1/WT2[1/m3]	1/WVz[1/m2]
1.0E-05	-250.0	-120.0	333.3	6.657E-02	2	9.263E+01	1.250E+01
	250.0	120.0	160.0	1.200E-01			1.250E+01

α-T[1/K]	Elongation coefficient
ymin[mm],zmin[mm],ymax[mm],zmax[mm]	extreme coordinates relative to centroid
hymn[mm],hzmin[mm]	minimum value for internal lever
AK[m2]	torsional equivalent area (Bredt)
MRs	transverse reinforcements material number
1/WT[1/m3],1/WT2[1/m3]	torsional resistance
1/WVy[1/m2],1/WVz[1/m2]	shear force resistance
AB[m2]	gross concrete area

Section values for warping

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0144	0.0144	4.750E-06	0.000	0.000E+00	0.000E+00	0.0	0.0
Wmin[m2],Wmax[m2]	unit warping	ASwyy[m6],ASwzz[m6]	warping sectional value				
CM[m6]	warping resistance	ry[mm],rz[mm]	sectional distance				
CMS[m4]	warping shear resistance						

Rectangular cross-section/T-beam

H[mm]	Ho[mm]	Aso[cm2]	Do[mm]	So[mm]	a[mm]	B-eff[mm]
B[mm]	Bo[mm]	Asu[cm2]	Du[mm]	Su[mm]	a-min[mm]	incl[°]
		As-type	Ds[mm]	Ss[mm]	a-max[mm]	Ass[cm2/m]
240.0		3.16	10	35.0	150.0	81.1
500.0		3.16	10	35.0	30.0	90.0
		ASYM:F	6		300.0	
H[mm]	height		B[mm]	width		
Ho[mm]	upper height of section		Bo[mm]	upper width of section		
Aso[cm2],Asu[cm2]	reinforcement area		a-min[mm]	minimum distance of bars		
Do[mm],Du[mm],Ds[mm]	bar diameter		incl[°]	inclination of transverse reinforcements		
So[mm],Su[mm],Ss[mm]	static distance		a-max[mm]	maximum distance of bars		
a[mm]	distance of bars		Ass[cm2/m]	area of transverse reinforcements		
B-eff[mm]	effective width					

Wmin[m2]	Wmax[m2]	CM[m6]	CMS[m4]	ASwyy[m6]	ASwzz[m6]	ry[mm]	rz[mm]
-0.0297	0.0297	3.751E-06	0.000	1.709E-15	5.108E-15	0.0	0.0
Wmin[m2], Wmax[m2]	unit warping	ASwyy[m6], ASwzz[m6]		warping sectional value			
CM[m6]	warping resistance	ry[mm], rz[mm]		sectional distance			

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Sections

CMS[m4] warping shear resistance

Design forces and moments

	N[kN]	Vy[kN]	Vz[kN]	Mt[kNm]	Mt2[kNm]	Mb[kNm2]	My[kNm]	Mz[kNm]	y[mm]	z[mm]	BUCK
P ¹²	4648.0	1953.75	949.44	30.55	367.31	47.71	759.48	259.45	0.0	0.0	a, b
E ³²	4648.0	1150.94	653.83	13.76	214.68	29.73	677.77	169.50	0.0	0.0	

¹ P = plastic design values (ultimate bearing capacity)
² Material safety γ-M0 for structural steel = 1.00
³ E = elastic design values (stress limit reached)

N[kN]	normal force	Mb[kNm2]	warping moment
Vy[kN], Vz[kN]	shear force	My[kNm], Mz[kNm]	bending moment
Mt[kNm]	primary torsional moment	y[mm], z[mm]	ordinate of plastic centre
Mt2[kNm]	secondary torsional moment	BUCK	buckling curve (LTB, y-y, z-z)

Additional design data

Mat	periphery-O/-I [m2/m]	deff [mm]	t-min [mm]	t-max [mm]	thet-p [kgm2/m]	thet-y [kgm2/m]	thet-z [kgm2/m]	thet-yz [kgm2/m]	yg [mm]	zg [mm]
	1.927	20.5	13.5	24.0	5.377	4.528	0.849	0.000	0.0	0.0

Mat material number
periphery-O/-I peripheral area per length
deff effective depth
t-min, t-max thickness
thet-p, thet-y, thet-z, thet-yz rotational mass
yg, zg ordinate of the mass centre

Rolled steel

Rolled steel	D[mm]	B[mm]	s[mm]	t[mm]	r[mm]	yr[mm]	zr[mm]	[grd]
HEB 400	400.0	300.0	13.5	24.0	27.0			

D[mm] height
B[mm] width
s[mm] web thickness
t[mm] flange thickness
r[mm] fillet radius
yr[mm], zr[mm] sectional coordinate

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Actions

type	part	sup	Designation	γ -u	γ -f	γ -a	ψ_0	ψ_1	ψ_2	ψ_{1inf}
G	G	perm	DEAD LOADS	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_1	G	perm	DEAD LOADS G_1	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_2	G	perm	dead load g2	1.35	1.00	1.00	1.00	1.00	1.00	1.00
C	P	perm	creep + shrinkage	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P	P	perm	prestressing	1.00	1.00	1.00	1.00	1.00	1.00	1.00
L_T	Q	cond	LT	1.35	0.00	1.00	0.75	0.75	0.00	0.80
L_U	Q	excl	Traffic load UDL of EC/DIN-FB	1.35	0.00	1.00	0.40	0.40	0.00	0.80
Q	Q	cond	Q Buildings	1.50	0.00	1.00	0.70	0.70	0.30	0.70
QX	Q	cond	EARTH PR. Q	1.50	0.00	1.00	0.70	0.70	0.30	0.70
T	Q	excl	TEMPERATURE	1.50	0.00	1.00	0.60	0.60	0.50	0.80
W	Q	cond	WATER PRESSURE	1.35	0.00	1.00	1.00	1.00	1.00	1.00
X	Q	cond	EARTH PRESSURE	1.35	0.00	1.00	1.00	1.00	1.00	1.00
			Reliability factor	Kfi	1.000					
			Reduction factor	xsi	0.850					
type	action		γ -u, γ -f, γ -a	partial safety factors for unfavourable/favourable/accidental						
part	partition of the action		$\psi_0,\psi_1,\psi_2,\psi_{1inf}$	combination coefficients						
sup	superposition type									

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΠΕΡΙΓΡΑΦΗ ΒΑΣΙΚΩΝ ΦΟΡΤΙΣΕΩΝ

Actions

type	part	sup	Designation	$\gamma-u$	$\gamma-f$	$\gamma-a$	ψ_0	ψ_1	ψ_2	ψ_{1inf}
G	G	perm	DEAD LOADS	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_1	G	perm	DEAD LOADS G_1	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_2	G	perm	dead load g2	1.35	1.00	1.00	1.00	1.00	1.00	1.00
C	P	perm	creep + shrinkage	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P	P	perm	prestressing	1.00	1.00	1.00	1.00	1.00	1.00	1.00
L_T	Q	cond	LT	1.35	0.00	1.00	0.75	0.75	0.00	0.80
L_U	Q	excl	Traffic load UDL of EC/DIN-FB	1.35	0.00	1.00	0.40	0.40	0.00	0.80
Q	Q	cond	Q Buildings	1.50	0.00	1.00	0.70	0.70	0.30	0.70
QX	Q	cond	EARTH PR. Q	1.50	0.00	1.00	0.70	0.70	0.30	0.70
T	Q	excl	TEMPERATURE	1.50	0.00	1.00	0.60	0.60	0.50	0.80
W	Q	cond	WATER PRESSURE	1.35	0.00	1.00	1.00	1.00	1.00	1.00
X	Q	cond	EARTH PRESSURE	1.35	0.00	1.00	1.00	1.00	1.00	1.00
			Reliability factor	Kfi	1.000					
			Reduction factor	xsi	0.850					
type	action		$\gamma-u, \gamma-f, \gamma-a$	partial safety factors for unfavourable/favourable/accidental						
part	partition of the action		$\psi_0, \psi_1, \psi_2, \psi_{1inf}$	combination coefficients						
sup	superposition type									

Load Case 1 (G) I.B. (G)

Factor forces and moments		1.000
Factor dead weight	DL-ZZ	-1.100
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	ψ_{1inf}	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Load Case 2 (G) MONIMA (G1)

Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	ψ_{1inf}	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

Loads

Kind	Reference to	Projection Designation	W[m]	Coordinates			Type	Load value
				X[m]	Y[m]	Z[m]		
Area	LAR 11						PG	6.95 [kN/m2]
							activated	100.00 percent
Area	LAR 1						PG	6.35 [kN/m2]
							activated	100.00 percent
Area	LAR 2						PG	6.35 [kN/m2]
							activated	100.00 percent

Load Case 3 (G_1) ΠΡΟΣΘΕΤΑ MONIMA (G2)

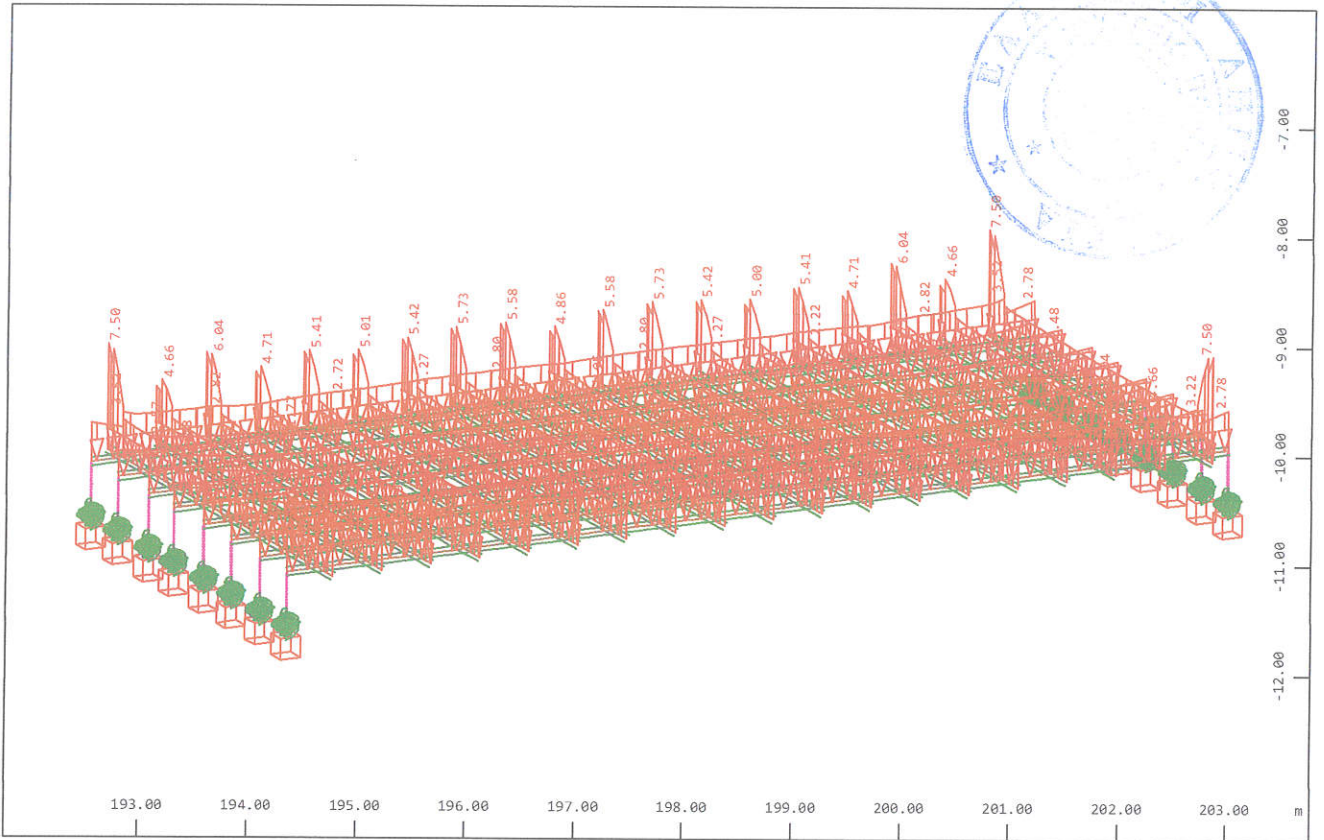
Factor forces and moments		1.000
unfavourable partial safety factor		1.350
favourable partial safety factor		1.000
Combination coefficient	ψ_0	1.000 (rare)
Combination coefficient	ψ_{1inf}	1.000 (infrequent)
Combination coefficient	ψ_1	1.000 (frequent)
Combination coefficient	ψ_2	1.000 (permanent)

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΠΕΡΙΓΡΑΦΗ ΒΑΣΙΚΩΝ ΦΟΡΤΙΣΕΩΝ

Loads

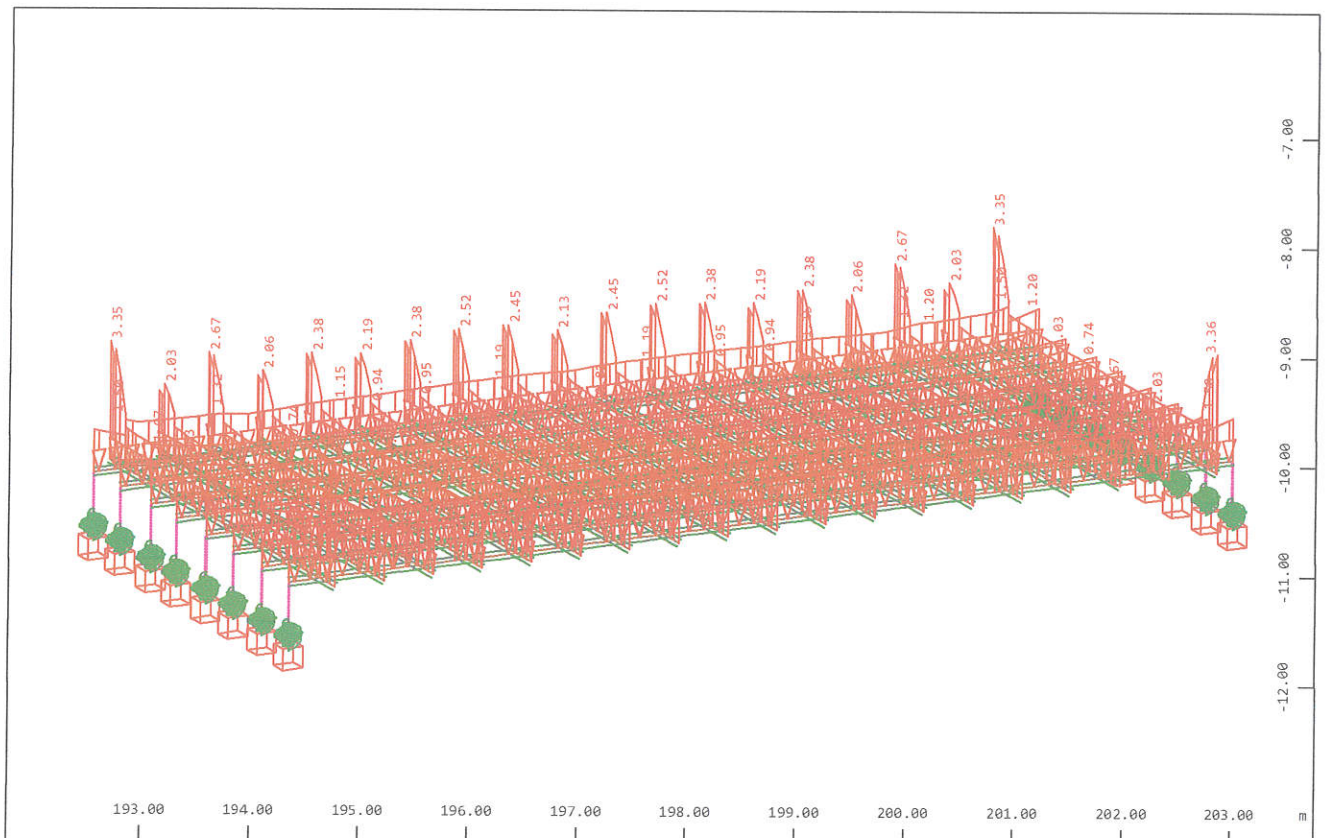
Kind	Reference to	Projection Designation	W[m]	Coordinates			Type	Load value
				X[m]	Y[m]	Z[m]		
Area	LAR 11						PG	2.90 [kN/m2]
						activated		100.00 percent
Area	LAR 1						PG	2.90 [kN/m2]
						activated		100.00 percent
Area	LAR 2						PG	2.90 [kN/m2]
						activated		100.00 percent

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ



All loads (in components), Loadcase 2 MONIMA (G1), (1 cm 3D = unit) Beam line
load (force) in global Z (Unit=5.00 kN/m) (Min=-7.50) (Max=-1.42)

M 1 : 67
X * 0.502
Y * 0.906
Z * 0.962



All loads (in components), Loadcase 3 ΠΡΟΣΘΕΤΑ ΜΟΝΙΜΑ (G2), (1 cm 3D = unit) Beam line
load (force) in global Z (Unit=2.00 kN/m) (Min=-3.36) (Max=-0.59)

M 1 : 67
X * 0.502
Y * 0.906
Z * 0.962

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΣΥΝΔΥΑΣΜΟΙ ΦΟΡΤΙΣΕΩΝ

Actions

type	part	sup	Designation	$\gamma-u$	$\gamma-f$	$\gamma-a$	ψ_0	ψ_1	ψ_2	ψ_{1inf}
G	G	perm	DEAD LOADS	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_1	G	perm	DEAD LOADS G_1	1.35	1.00	1.00	1.00	1.00	1.00	1.00
G_2	G	perm	dead load g2	1.35	1.00	1.00	1.00	1.00	1.00	1.00
C	P	perm	creep + shrinkage	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P	P	perm	prestressing	1.00	1.00	1.00	1.00	1.00	1.00	1.00
L_T	Q	cond	LT	1.35	0.00	1.00	0.75	0.75	0.00	0.80
L_U	Q	excl	Traffic load UDL of EC/DIN-FB	1.35	0.00	1.00	0.40	0.40	0.00	0.80
Q	Q	cond	Q Buildings	1.50	0.00	1.00	0.70	0.70	0.30	0.70
QX	Q	cond	EARTH PR. Q	1.50	0.00	1.00	0.70	0.70	0.30	0.70
T	Q	excl	TEMPERATURE	1.50	0.00	1.00	0.60	0.60	0.50	0.80
W	Q	cond	WATER PRESSURE	1.35	0.00	1.00	1.00	1.00	1.00	1.00
X	Q	cond	EARTH PRESSURE	1.35	0.00	1.00	1.00	1.00	1.00	1.00
			Reliability factor	Kfi	1.000					
			Reduction factor	xsi	0.850					
type	action			$\gamma-u, \gamma-f, \gamma-a$	partial safety factors for unfavourable/favourable/accidental					
part	partition of the action			$\psi_0, \psi_1, \psi_2, \psi_{1inf}$	combination coefficients					
sup	superposition type									

Load Case 1501 ((D)) 1.35G

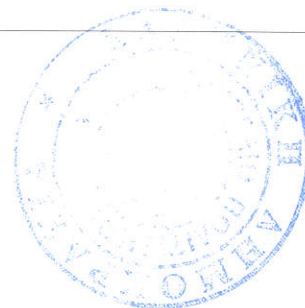
Factor forces and moments 1.000
 Factor dead weight DL-ZZ -1.350
 Selected loads copied from load case 2 with factor 1.350

Load Case 1502 ((D)) 0.35G+1.35G2

Factor forces and moments 1.000
 Factor dead weight DL-ZZ -0.350
 Selected loads copied from load case 2 with factor 0.350
 Selected loads copied from load case 3 with factor 1.350

Load Case 2501 ((P)) 0.6G2

Factor forces and moments 1.000
 Selected loads copied from load case 2 with factor 0.000
 Selected loads copied from load case 3 with factor 1.000



ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΕΠΙΛΥΣΗ ΣΥΝΔΥΑΣΜΩΝ ΦΟΡΤΙΣΕΩΝ

Elementgroups

No.	Fac-S	Fac-B	Fac-L	LC-P
0	1.000	1.000	1.000	0
1	1.000	1.000	1.000	0
2	1.000	1.000	1.000	0
No. group number Fac-S factor stiffness Fac-B factor stiffness quad bedding Fac-L factor loads from primary stress state LC-P primary loadcase				

Additional group data GRP2

No.	QUEA	QUEX	QUEY	QEMX	QEMY
0	1.000	1.000	1.000	1.000	1.000
1	0.010	1.000	1.000	0.001	1.000
2	1.000	1.000	1.000	1.000	1.000
No. group number QUEA normal force stiffness component of QUAD elements QUEX reduction of the QUAD axial force stiffness only in local x QUEY reduction of the QUAD axial force stiffness only in local y QEMX,QEMY reduction of E-modulus of QUAD elements in local x+y direction					

Load Case 1 (G) I.B. (G)

Factor forces and moments	1.000
Factor dead weight DL-ZZ	-1.100
unfavourable partial safety factor	1.350
favourable partial safety factor	1.000
Combination coefficient ψ_0	1.000 (rare)
Combination coefficient ψ_{1inf}	1.000 (infrequent)
Combination coefficient ψ_1	1.000 (frequent)
Combination coefficient ψ_2	1.000 (permanent)

Load Case 2 (G) MONIMA (G1)

Factor forces and moments	1.000
unfavourable partial safety factor	1.350
favourable partial safety factor	1.000
Combination coefficient ψ_0	1.000 (rare)
Combination coefficient ψ_{1inf}	1.000 (infrequent)
Combination coefficient ψ_1	1.000 (frequent)
Combination coefficient ψ_2	1.000 (permanent)

Load Case 3 (G_1) ΠΡΟΣΘΕΤΑ MONIMA (G

Factor forces and moments	1.000
unfavourable partial safety factor	1.350
favourable partial safety factor	1.000
Combination coefficient ψ_0	1.000 (rare)
Combination coefficient ψ_{1inf}	1.000 (infrequent)
Combination coefficient ψ_1	1.000 (frequent)
Combination coefficient ψ_2	1.000 (permanent)

Load Case 1501 ((D)) 1.35G

Factor forces and moments	1.000
Factor dead weight DL-ZZ	-1.350
Selected loads copied from load case 2 with factor	1.350

Load Case 1502 ((D)) 0.35G+1.35G2

Factor forces and moments	1.000
Factor dead weight DL-ZZ	-0.350
Selected loads copied from load case 2 with factor	0.350
Selected loads copied from load case 3 with factor	1.350

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΕΠΙΛΥΣΗ ΣΥΝΔΥΑΣΜΩΝ ΦΟΡΤΙΣΕΩΝ

Load Case 2501 ((P)) 0.6G2

Factor forces and moments 1.000
Selected loads copied from load case 2 with factor 0.000
Selected loads copied from load case 3 with factor 1.000

Load Case 2502 0.6G2

Factor forces and moments 1.000

Sum of Loadings

Loadcase	Σ(Loads)			Designation
	X[kN]	Y[kN]	Z[kN]	
1	0.0	0.0	-131.6	I.B. (G)
2	0.0	0.0	-356.2	MONIMA (G1)
3	0.0	0.0	-150.2	ΠΡΟΣΘΕΤΑ MONIMA (G
1501	0.0	0.0	-642.3	1.35G
1502	0.0	0.0	-369.3	0.35G+1.35G2
2501	0.0	0.0	-150.2	0.6G2
2502	0.0	0.0	0.0	0.6G2

Nodal Reactions Loadcase 1 I.B. (G)

Node No	P-X [kN]	P-Y [kN]	P-Z [kN]	M-X [kNm]	M-Y [kNm]	M-Z [kNm]
1	0.0	0.2	8.2	-0.02		
2	0.0	0.2	8.2	-0.02		
3	0.0	0.2	8.2	-0.02		
4	0.0	0.2	8.2	-0.02		
5	0.0	0.2	8.2	-0.02		
6	0.0	0.2	8.2	-0.02		
7	0.0	0.2	8.2	-0.02		
8	0.0	0.2	8.2	-0.02		
9	0.0	-0.2	8.2	0.02		
10	0.0	-0.2	8.2	0.02		
11	0.0	-0.2	8.2	0.02		
12	0.0	-0.2	8.2	0.02		
13	0.0	-0.2	8.2	0.02		
14	0.0	-0.2	8.2	0.02		
15	0.0	-0.2	8.2	0.02		
16	0.0	-0.2	8.2	0.02		

Nodal Reactions Loadcase 2 MONIMA (G1)

Node No	P-X [kN]	P-Y [kN]	P-Z [kN]	M-X [kNm]	M-Y [kNm]	M-Z [kNm]
1	-0.2	0.6	28.5	-0.06	-0.02	0.00
2	-0.1	0.6	22.0	-0.06	-0.01	0.00
3	-0.0	0.6	19.7	-0.06	-0.00	0.00
4	-0.0	0.5	19.0	-0.05	-0.00	0.00
5	0.0	0.5	19.0	-0.05	0.00	0.00
6	0.0	0.6	19.7	-0.06	0.00	0.00
7	0.1	0.6	21.9	-0.06	0.01	0.00
8	0.2	0.6	28.4	-0.06	0.02	0.00
9	0.2	-0.6	28.4	0.06	0.02	0.00
10	0.1	-0.6	21.9	0.06	0.01	0.00
11	0.0	-0.6	19.7	0.06	0.00	0.00
12	0.0	-0.5	19.0	0.05	0.00	0.00
13	-0.0	-0.5	19.0	0.05	-0.00	0.00
14	-0.0	-0.6	19.7	0.06	-0.00	0.00
15	-0.1	-0.6	22.0	0.06	-0.01	0.00
16	-0.2	-0.6	28.5	0.06	-0.02	0.00

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΕΠΙΛΥΣΗ ΣΥΝΔΥΑΣΜΩΝ ΦΟΡΤΙΣΕΩΝ

Nodal Reactions Loadcase 3 ΠΡΟΣΘΕΤΑ ΜΟΝ

Node No	P-X [kN]	P-Y [kN]	P-Z [kN]	M-X [kNm]	M-Y [kNm]	M-Z [kNm]
1	-0.1	0.3	12.2	-0.03	-0.01	0.00
2	-0.0	0.2	9.3	-0.02	-0.00	0.00
3	-0.0	0.2	8.2	-0.02	-0.00	0.00
4	0.0	0.2	7.9	-0.02	0.00	0.00
5	0.0	0.2	7.9	-0.02	0.00	0.00
6	0.0	0.2	8.2	-0.02	0.00	0.00
7	0.0	0.2	9.2	-0.02	0.00	0.00
8	0.1	0.3	12.1	-0.03	0.01	0.00
9	0.1	-0.3	12.1	0.03	0.01	0.00
10	0.0	-0.2	9.2	0.02	0.00	0.00
11	0.0	-0.2	8.2	0.02	0.00	0.00
12	0.0	-0.2	7.9	0.02	0.00	0.00
13	0.0	-0.2	7.9	0.02	0.00	0.00
14	-0.0	-0.2	8.2	0.02	-0.00	0.00
15	-0.0	-0.2	9.3	0.02	-0.00	0.00
16	-0.1	-0.3	12.2	0.03	-0.01	0.00

Nodal Reactions Loadcase 1501 1.35G

Node No	P-X [kN]	P-Y [kN]	P-Z [kN]	M-X [kNm]	M-Y [kNm]	M-Z [kNm]
1	-0.2	1.1	48.6	-0.11	-0.02	0.00
2	-0.1	1.1	39.8	-0.10	-0.01	0.00
3	-0.1	1.0	36.7	-0.10	-0.01	0.00
4	-0.0	1.0	35.7	-0.10	-0.00	0.00
5	0.0	1.0	35.7	-0.10	0.00	0.00
6	0.1	1.0	36.6	-0.10	0.01	0.00
7	0.1	1.1	39.7	-0.10	0.01	0.00
8	0.2	1.1	48.4	-0.11	0.02	0.00
9	0.2	-1.1	48.4	0.11	0.02	0.00
10	0.1	-1.1	39.7	0.10	0.01	0.00
11	0.1	-1.0	36.6	0.10	0.01	0.00
12	0.0	-1.0	35.7	0.10	0.00	0.00
13	-0.0	-1.0	35.7	0.10	-0.00	0.00
14	-0.1	-1.0	36.7	0.10	-0.01	0.00
15	-0.1	-1.1	39.8	0.10	-0.01	0.00
16	-0.2	-1.1	48.6	0.11	-0.02	0.00

Nodal Reactions Loadcase 1502 0.35G+1.35G2

Node No	P-X [kN]	P-Y [kN]	P-Z [kN]	M-X [kNm]	M-Y [kNm]	M-Z [kNm]
1	-0.2	0.6	29.0	-0.06	-0.02	0.00
2	-0.1	0.6	22.8	-0.06	-0.01	0.00
3	-0.0	0.6	20.6	-0.06	-0.00	0.00
4	-0.0	0.6	20.0	-0.06	-0.00	0.00
5	0.0	0.6	20.0	-0.06	0.00	0.00
6	0.0	0.6	20.6	-0.06	0.00	0.00
7	0.1	0.6	22.8	-0.06	0.01	0.00
8	0.2	0.6	28.9	-0.06	0.02	0.00
9	0.2	-0.6	28.9	0.06	0.02	0.00
10	0.1	-0.6	22.8	0.06	0.01	0.00
11	0.0	-0.6	20.6	0.06	0.00	0.00
12	0.0	-0.6	20.0	0.06	0.00	0.00
13	-0.0	-0.6	20.0	0.06	-0.00	0.00
14	-0.0	-0.6	20.6	0.06	-0.00	0.00
15	-0.1	-0.6	22.8	0.06	-0.01	0.00
16	-0.2	-0.6	29.0	0.06	-0.02	0.00

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΕΠΙΛΥΣΗ ΣΥΝΔΥΑΣΜΩΝ ΦΟΡΤΙΣΕΩΝ

Nodal Reactions Loadcase 2501 0.6G2

Node No	P-X [kN]	P-Y [kN]	P-Z [kN]	M-X [kNm]	M-Y [kNm]	M-Z [kNm]
1	-0.1	0.3	12.2	-0.03	-0.01	0.00
2	-0.0	0.2	9.3	-0.02	-0.00	0.00
3	-0.0	0.2	8.2	-0.02	-0.00	0.00
4	0.0	0.2	7.9	-0.02	0.00	0.00
5	0.0	0.2	7.9	-0.02	0.00	0.00
6	0.0	0.2	8.2	-0.02	0.00	0.00
7	0.0	0.2	9.2	-0.02	0.00	0.00
8	0.1	0.3	12.1	-0.03	0.01	0.00
9	0.1	-0.3	12.1	0.03	0.01	0.00
10	0.0	-0.2	9.2	0.02	0.00	0.00
11	0.0	-0.2	8.2	0.02	0.00	0.00
12	0.0	-0.2	7.9	0.02	0.00	0.00
13	0.0	-0.2	7.9	0.02	0.00	0.00
14	-0.0	-0.2	8.2	0.02	-0.00	0.00
15	-0.0	-0.2	9.3	0.02	-0.00	0.00
16	-0.1	-0.3	12.2	0.03	-0.01	0.00



Sum of Reactions and Loadings

Loadcase	Σ(Reactions)			Designation
	X[kN]	Y[kN]	Z[kN]	
	Σ(Loads)			
1	0.0	0.0	131.6	I.B. (G)
	0.0	0.0	-131.6	
2	0.0	0.0	356.2	MONIMA (G1)
	0.0	0.0	-356.2	
3	0.0	0.0	150.2	ΠΡΟΣΘΕΤΑ MONIMA (G
	0.0	0.0	-150.2	
1501	0.0	0.0	642.3	1.35G
	0.0	0.0	-642.3	
1502	0.0	0.0	369.3	0.35G+1.35G2
	0.0	0.0	-369.3	
2501	0.0	0.0	150.2	0.6G2
	0.0	0.0	-150.2	

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
ΠΕΡΙΒΑΛΛΟΥΣΕΣ ΕΝΤΑΤΙΚΩΝ ΜΕΓΕΘΩΝ

Design Code

EuroNorm Bridges: EN 1990:2002 Basis of structural design (Europe) V 2024

Combination rule Number 35

ΔΙΑΤΜΗΣΗ

Resulting Load Cases type ULS fundamental combination

Load Case selection

Number	Fact	Type	Designation
1502	1.00	AG1	0.35G+1.35G2
Fact factor for load case			
Type type of the load case			
AG exclusive load permanent			

Combination rule Number 36

ΔΙΑΤΜΗΣΗ

Resulting Load Cases type SLS quasi-permanent combination

Load Case selection

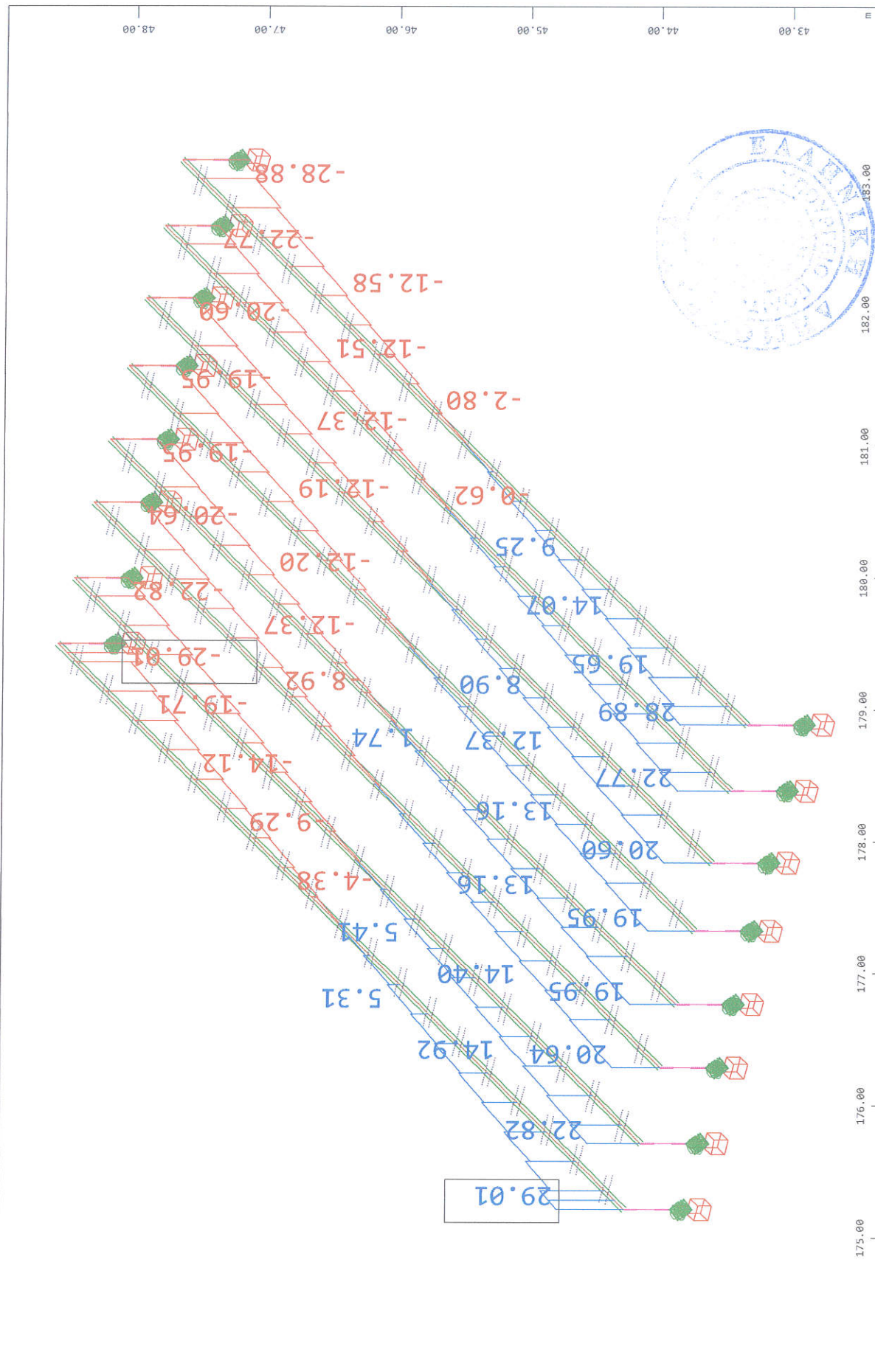
Number	Fact	Type	Designation
2501	1.00	AG1	0.6G2
Fact factor for load case			
Type type of the load case			
AG exclusive load permanent			

Generated Load Cases

Number	Combination	Designation
701	35	MAX-N BEAM
702	35	MIN-N BEAM
703	35	MAX-VY BEAM
704	35	MIN-VY BEAM
705	35	MAX-VZ BEAM
706	35	MIN-VZ BEAM
707	35	MAX-MT BEAM
708	35	MIN-MT BEAM
709	35	MAX-MY BEAM
710	35	MIN-MY BEAM
711	35	MAX-MZ BEAM
712	35	MIN-MZ BEAM
713	35	MAX-MB BEAM
714	35	MIN-MB BEAM
801	36	MAXP-N BEAM
802	36	MINP-N BEAM
803	36	MAXP-VY BEAM
804	36	MINP-VY BEAM
805	36	MAXP-VZ BEAM
806	36	MINP-VZ BEAM
807	36	MAXP-MT BEAM
808	36	MINP-MT BEAM
809	36	MAXP-MY BEAM
810	36	MINP-MY BEAM
811	36	MAXP-MZ BEAM
812	36	MINP-MZ BEAM
813	36	MAXP-MB BEAM
814	36	MINP-MB BEAM

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Interactive Graphics

SOFiSTIK AG - www.sofistik.de



Sector of system Group 1
Beam Elements, Shear force V_z , Loadcase 1502 0.35G+1.35G2, 1 cm 3D = 20.000 kN (Min=-29.01) (Max=29.01)

M 1 : 41
X * 0.923
Y * 0.632
Z * 0.865

ΦΟΡΕΑΣ ΚΑΤΑΣΤΡΩΜΑΤΟΣ ΦΑΣΗ ΚΑΤΑΣΚΕΥΗΣ
Interactive Graphics

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