Stretto di Messina

Concessionaria per la progettazione, realizzazione e gestione del collegamento stabile tra la Sicilia e il Continente Organismo di Diritto Pubblico
(Legge n°1158 del 17 dicembre 1971, modificata dal D.Lgs. n°114 del 24 aprile 2003)

EurolinK

PONTE SULLO STRETTO DI MESSINA

PROGETTO DEFINITIVO

EUROLINK S.C.p.A.

IMPREGILO S.p.A. (MANDATARIA)
SOCIETÀ ITALIANA PER CONDOTTE D'ACQUA S.p.A. (MANDANTE)
COOPERATIVA MURATORI E CEMENTISTI - C.M.C. DI RAVENNA SOC. COOP. A.R.L. (MANDANTE)
SACYR S.A.U. (MANDANTE)
ISHIKAWAJIMA - HARIMA HEAVY INDUSTRIES CO. LTD (MANDANTE)
A.C.I. S.C.P.A. - CONSORZIO STABILE (MANDANTE)

IL PROGETTISTA	IL CONTRAENTE GENERALE	STRETTO DI MESSINA	STRETTO DI MESSINA
Ing E.M.Veje COWI EurolinK Dott. Ing. E. Pagani Ordine Ingegneri Milano n°15408	Project Manager (Ing. P.P. Marcheselli)	Direttore Generale e RUP Validazione (Ing. G. Fiammenghi)	Amministratore Delegato (Dott. P. Ciucci)

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INDICE

1 Introduction

1.1 Scope of Works

In general the Progetto Definitivo of the suspended deck is based on the Tender Design. The Progetto Definitivo specifies the most important design aspects and other technical topics considered of importance and/or special solutions to the design demands.

The general design principles for verification of the suspended deck can be found in the document "General Design Principles for the Suspended Deck".

This report describes the overall design verification of the different structural elements of the suspended deck using primarily the calculation spreadsheet ADVERS:

- Roadway girders; comprising verification of the longitudinal skin plates stiffened by longitudinal trough and flat stiffeners. Verification of transverse diaphragms stiffened by flat stiffeners. The most critical panels are selected for the verification.
- Railway girders; comprising verification of the longitudinal skin plates stiffened by longitudinal trough, T-stiffeners and flat stiffeners. Verification of transverse diaphragms stiffened by flat stiffeners. The most critical panels are selected for the verification.
- Cross girders; comprising verification of the longitudinal skin plates stiffened by longitudinal T- and flat stiffeners. Verification of transverse diaphragms described in "Design Report - Local FE-models of Suspended Deck".

The following checks are performed, refer also "General Design Principles for the Suspended Deck" section 7 for a detailed description:

- Utilisation ratios denoted "Stresses" are von Mises stresses in relation to the design yielding stresses. Only longitudinal and shear stresses are included while transverse and local effect are verified in "Design Report - Local FE-models of Suspended Deck".
- Utilisation ratios denoted "Local Buckling - Stiffened panel" which is a local verification of each single compression element (sub-panel and stiffened members) of the cross section. The column type buckling behaviour is calculated according to EN 1993-1-1:2005 section 6.3 using the effective properties (A_{eff}, I_{eff}, W_{eff}) as prescribed in section 4.2 and 4.3 of EN 1993-1-5:2006

and plate reduction factors ρ according to EN 1993-1-5:2006 section 4.4. Local effects from wheel loads are included.

- Utilisation ratios denoted "Plate buckling" are the interaction between plate and column buckling according to EN 1993-1-5 sec. 4.5.
- Utilisation ratios denoted "Overall Verifications" is an addition to local/global buckling stability check and stress calculation. The following ULS verification of the cross section as a member is performed in the spreadsheet ADVERS, and explained in the document "General Design Principles for the Suspended Deck" in the following sections:
  - Global vertical bending, lateral bending and axial force
  - Global vertical bending, lateral bending, axial force (buckling resistance of member)
  - Shear and torsion
  - Combined shear, bending and axial force

In addition to the above stated also web breathing of plates and panels have been investigated, however this have been found never to be an issue, and hence are not shown in the following verification figures.

2 General for Verification of Longitudinal Steel

The sectional forces presented in this report are imported from the global IBDAS model. The curves showing the section forces consists of 963 points between the s-coordinates s_{min} = -1819.5m and s_{max} = 1819.5m. For the general 30m span in the main span the points are distributed as shown in Figure 2-1 where the blue triangles illustrate the gauss points and the red circles the positions used for the section force curves. The general longitudinal beam elements are 15 m long.

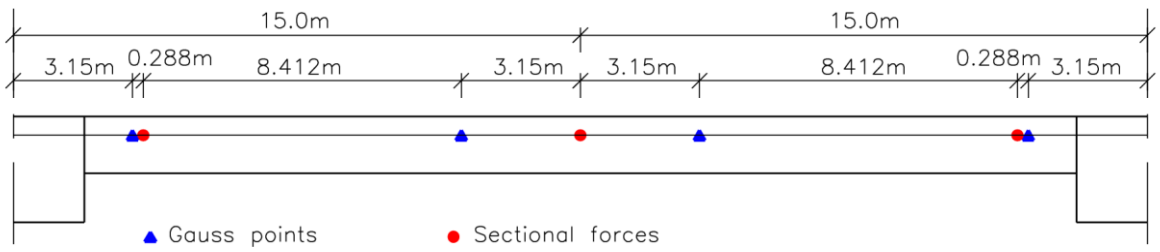


Figure 2-1 Distribution of stress points used for the section force curves

The ULS load combinations used for verification of the longitudinal steel are shown in Table 2-1.

Table 2-1 Relevant load combinations for verification of longitudinal steel

Load Combination	**Description**
Static load	Comprising dead load, local traffic load, differential distributed temperature, uniform temperature, static wind (mean wind multiplied by a gust factor), for a model where the longitudinal buffers at the towers are in the fixed position. The uniform temperature load case is multiplied with a correction factor which accounts for the buffer characteristic.
Dynamic wind	Comprising dead load, local traffic load, differential and uniform distributed temperature, dynamic wind where the eight wind directions are combined and applied as envelope values, for a model where the longitudinal buffers at the towers are in the fixed position.
Seismic (time history)	Dead load, local traffic load, differential and uniform distributed temperature, static wind, for a model where the longitudinal buffers at the towers are in the free position. These loads are combined with seismic loadings based on time history analysis, where the buffer characteristics are considered working over time.

In the following the sectional forces from IBDAS are taken out according to the global coordinate system in IBDAS with positive sign convention as shown in Figure 2-2. The coordinate system is a left hand system.

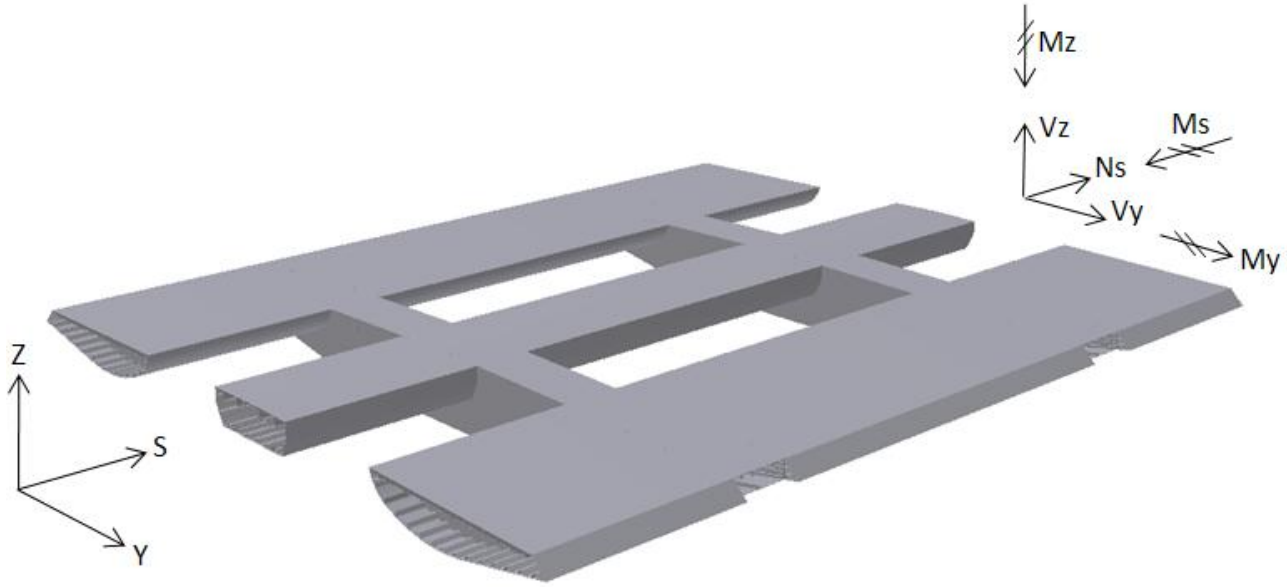


Figure 2-2 IBDAS global left hand coordinate system showing the positive sign convention for the sectional forces

3 Roadway Girder - Verification

3.1 Introduction

In the following the overall design verification of the roadway girder is presented.

3.2 Global Force Distribution

In Table 3-1 the most relevant loads and load combinations used in the verification of the longitudinal steel in the roadway girder are listed. In order to show the magnitude of these loads the force curves are supplied in the following. Plus symbols in the table indicate that the particular sectional force is taken out as the maximum positive value and minus indicates the maximum negative value. The mentioned section force plots are shown in Figure 3-1 to Figure 3-30.

Table 3-1 Relevant load cases and combinations important for the design of the longitudinal steel

IBDAS Load case		**Ns+**	**My+**	**Mz+**	**Vy+**	**Vz+**	**Mt+**
Dead load and superimposed dead load	1	X	X	X	X	X	X
QL traffic load	503		X			X	
Static wind from east	1122			X	X		
ULS-combination dynamic wind	6570	X	X	X	X	X	X
QL vertical rail load	553		X			X	X
QL braking rail load	567	X		X			
IBDAS Load case		**Ns-**	**My-**	**Mz-**	**Vy-**	**Vz-**	**Mt-**
ULS-combination dynamic wind	6570	X	X	X	X	X	X
QL vertical rail load	553		X			X	X

ULS Combination with dynamic wind is governing for the ULS design. The load cases are defined in the IBDAS report "Global IBDAS Model Description".

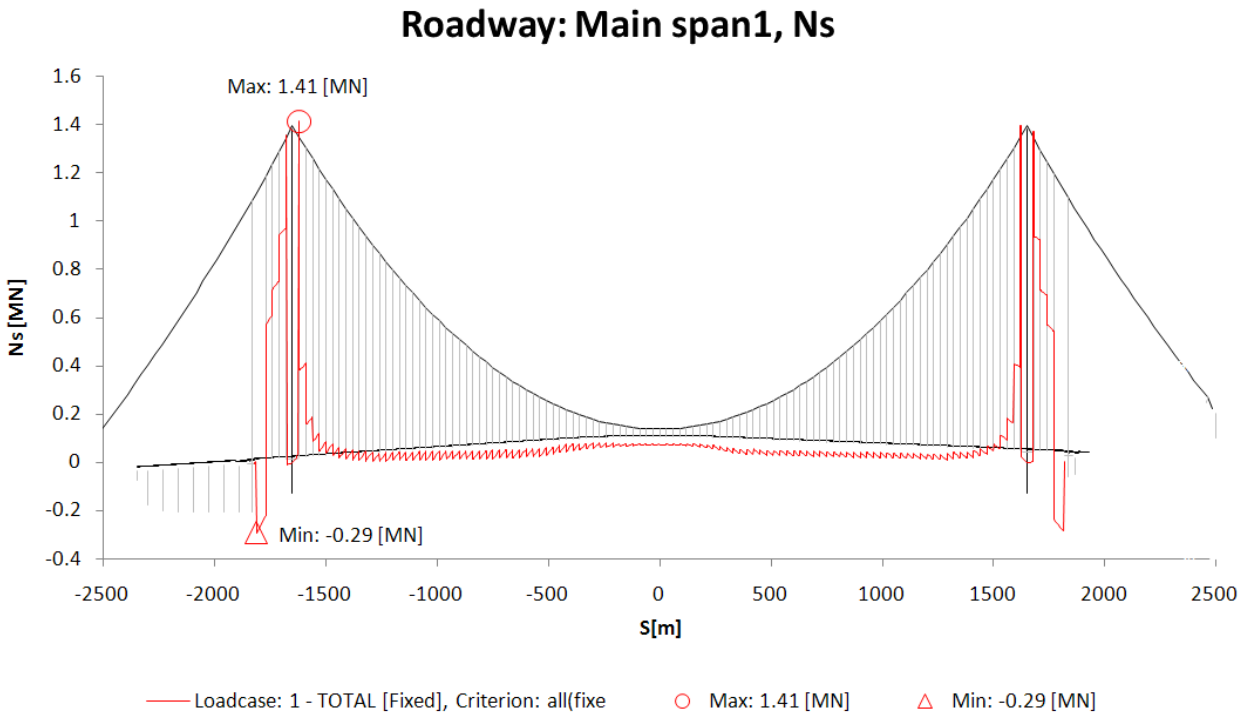


Figure 3-1 Axial force Ns in roadway girders, dead load and superimposed dead load

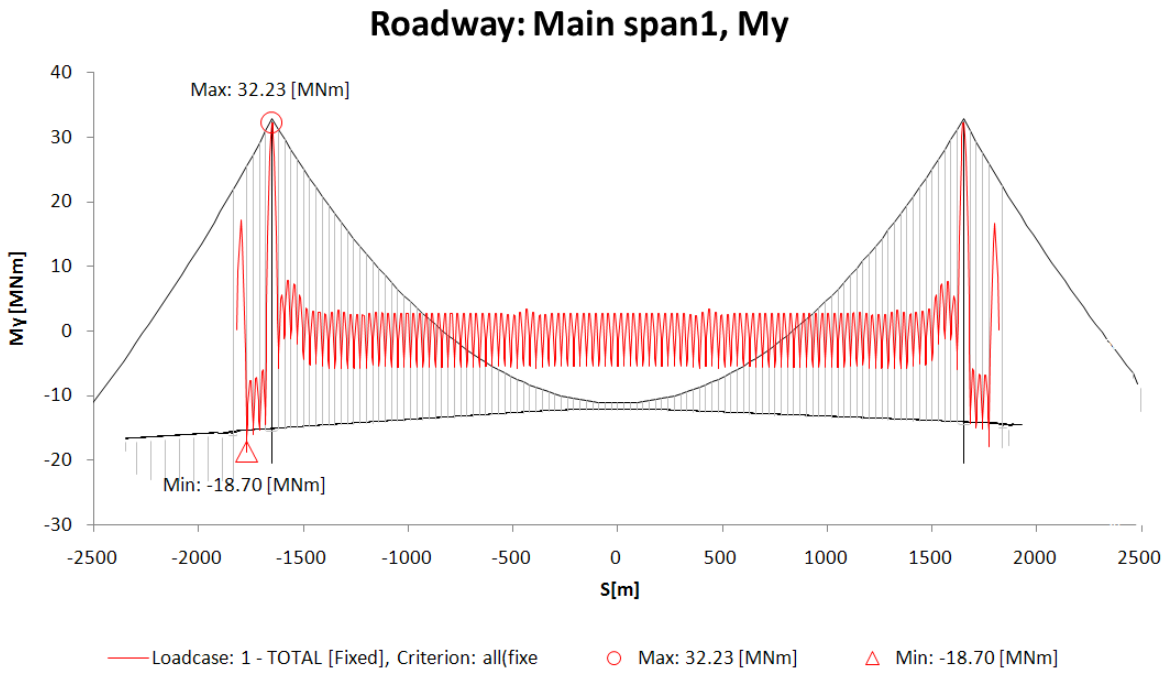


Figure 3-2 Bending moment My in roadway girders, dead load and superimposed dead load

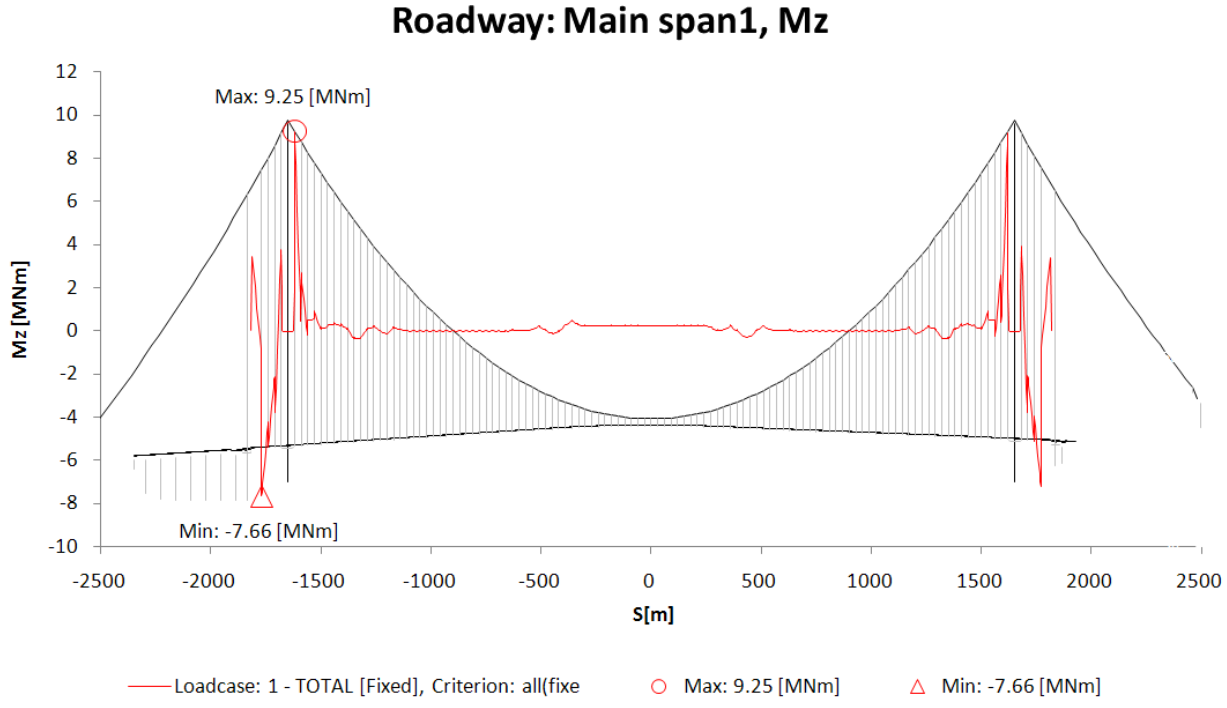


Figure 3-3 Bending moment Mz in roadway girders, dead load and superimposed dead load

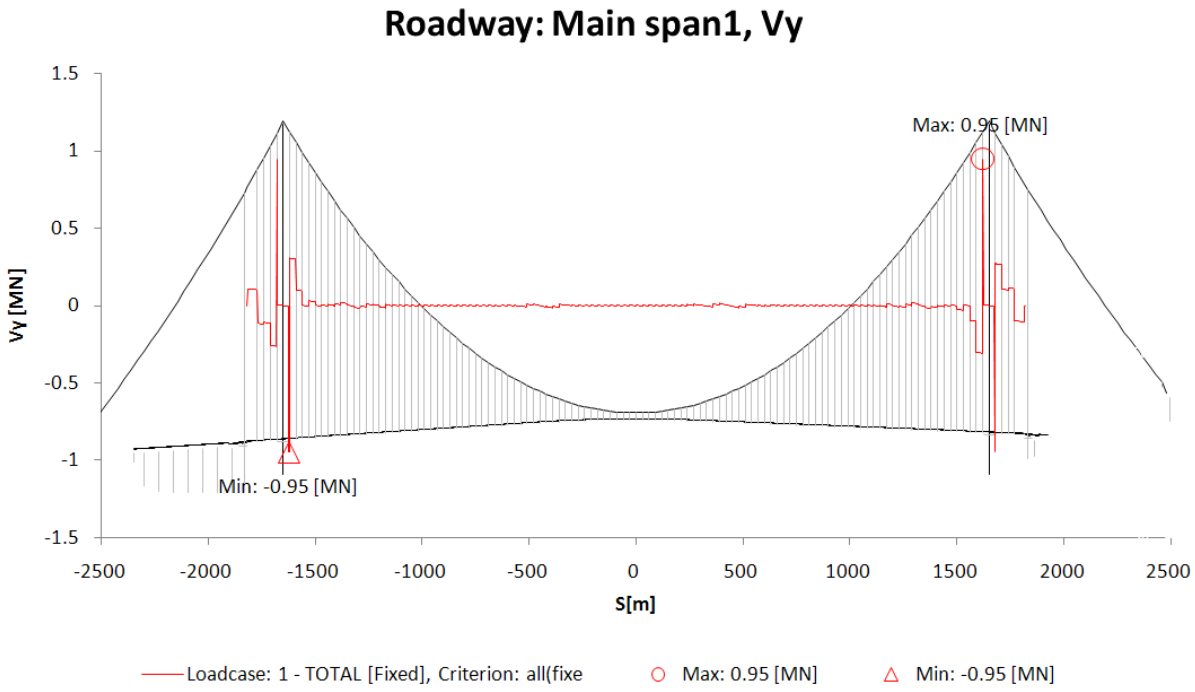


Figure 3-4 Shear force Vy in roadway girders, dead load and superimposed dead load

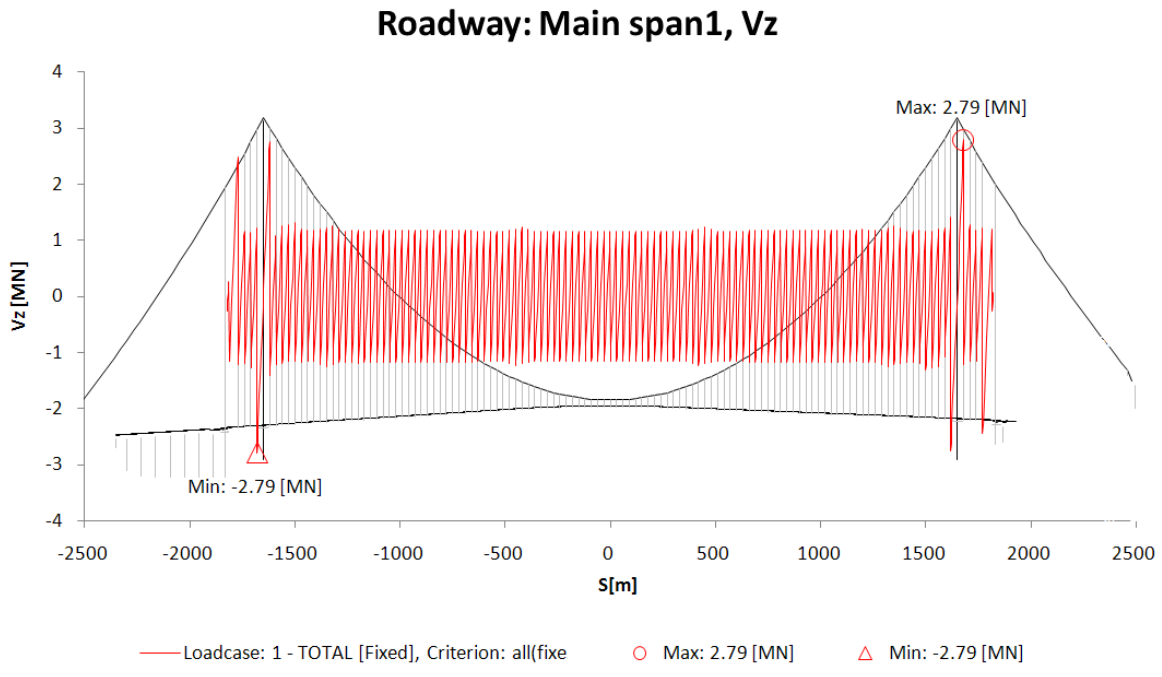


Figure 3-5 Shear force Vz in roadway girders, dead load and superimposed dead load

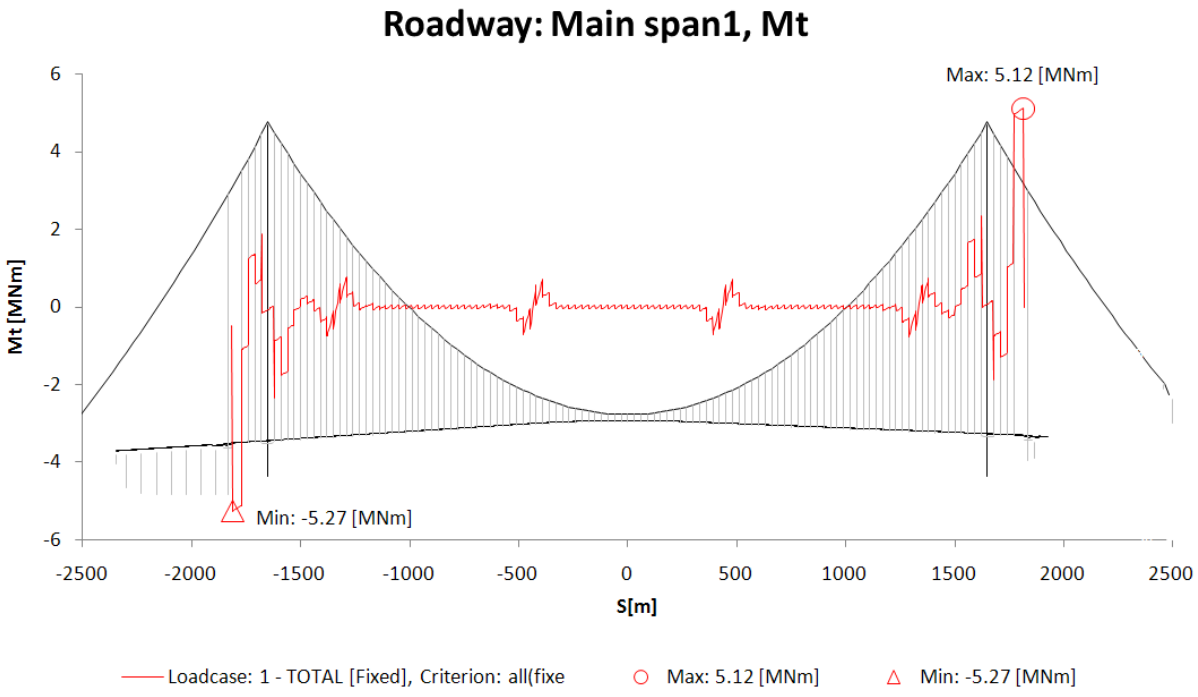


Figure 3-6 Torsional moment Mt in roadway girders, dead load and superimposed dead load

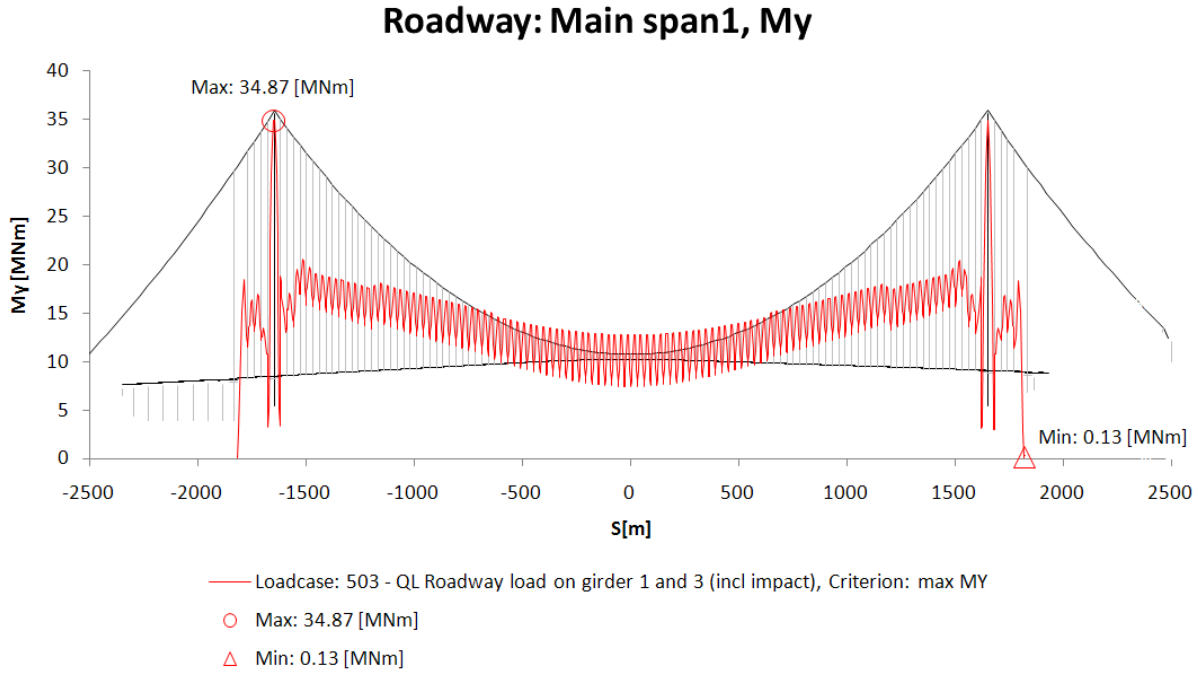


Figure 3-7 Max bending moment My in roadway girders, QL traffic load

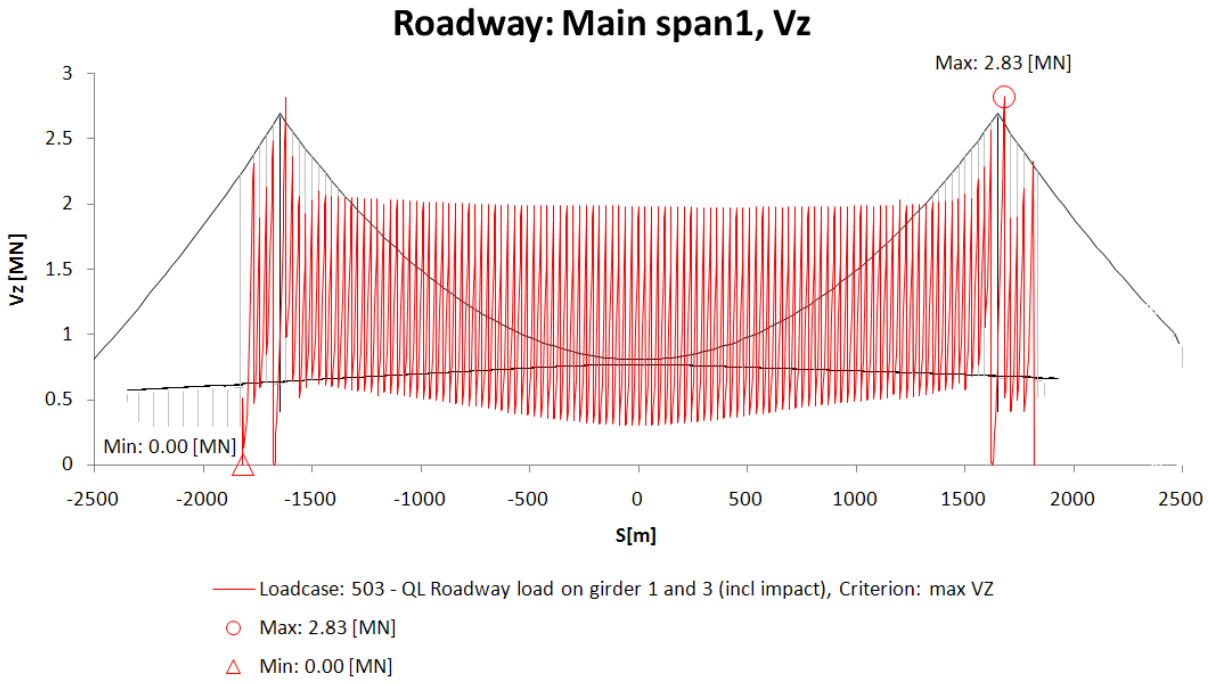


Figure 3-8 Max shear force Vz in roadway girders, QL traffic load

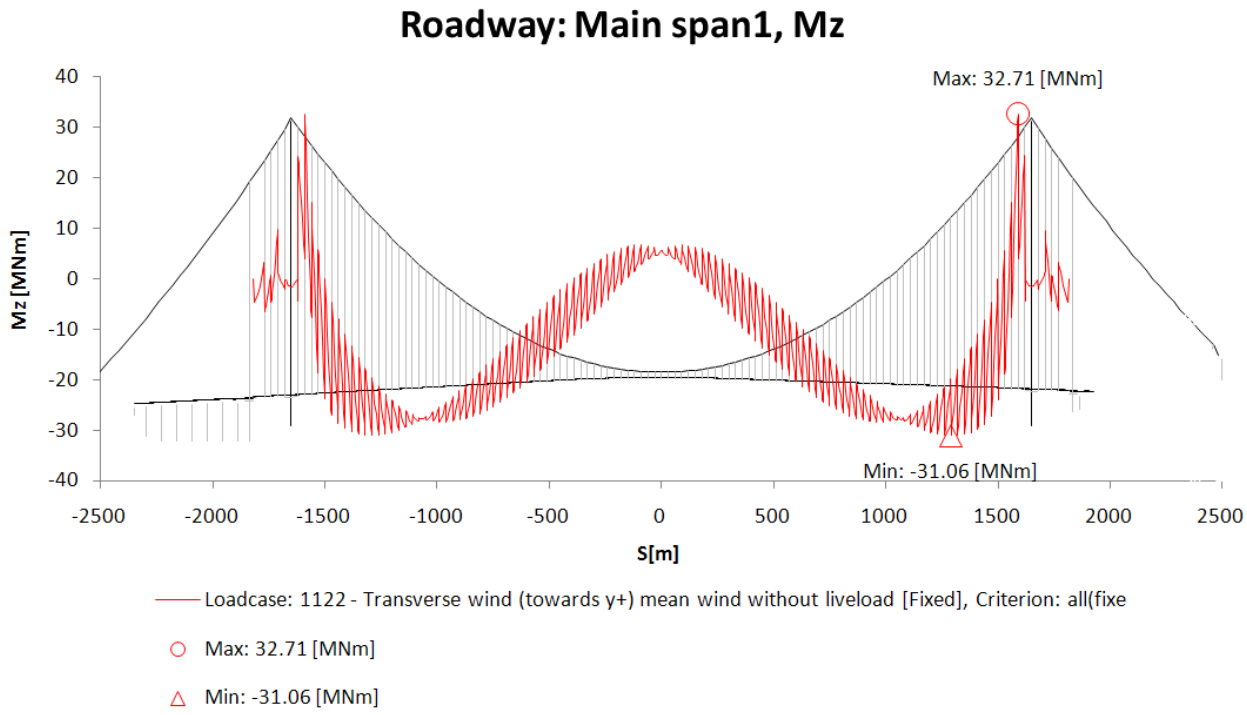


Figure 3-9 Bending moment Mz in roadway girders, transverse static wind from east

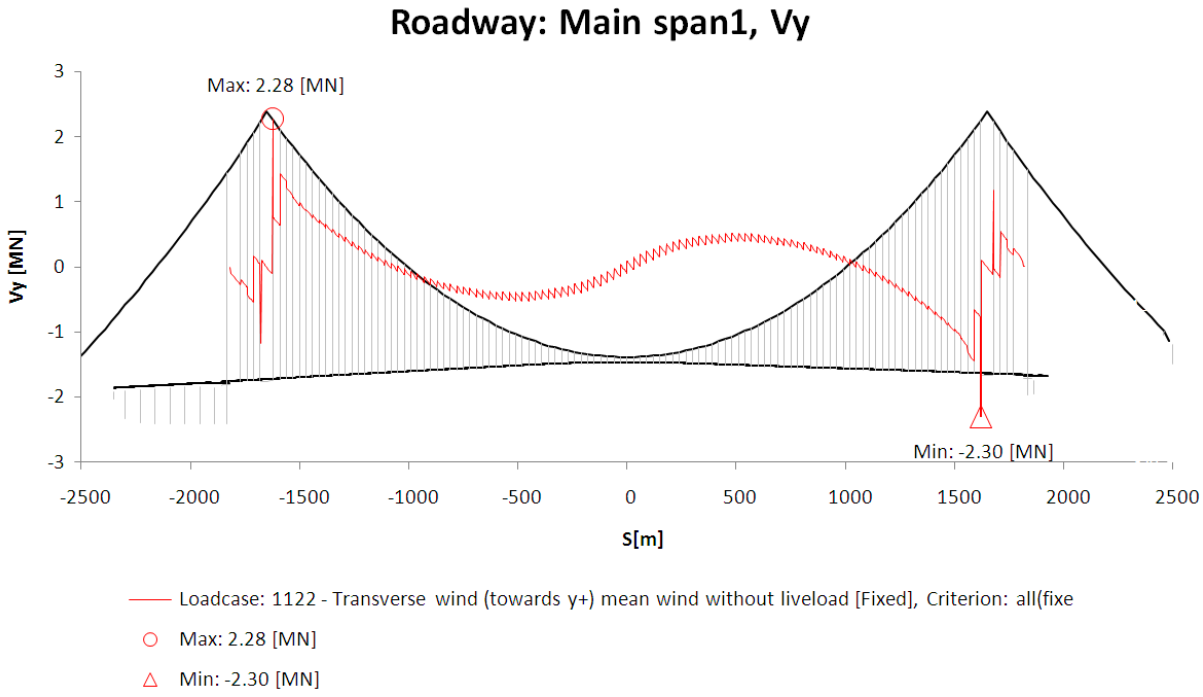


Figure 3-10 Shear force Vy in roadway girders, transverse static wind from east

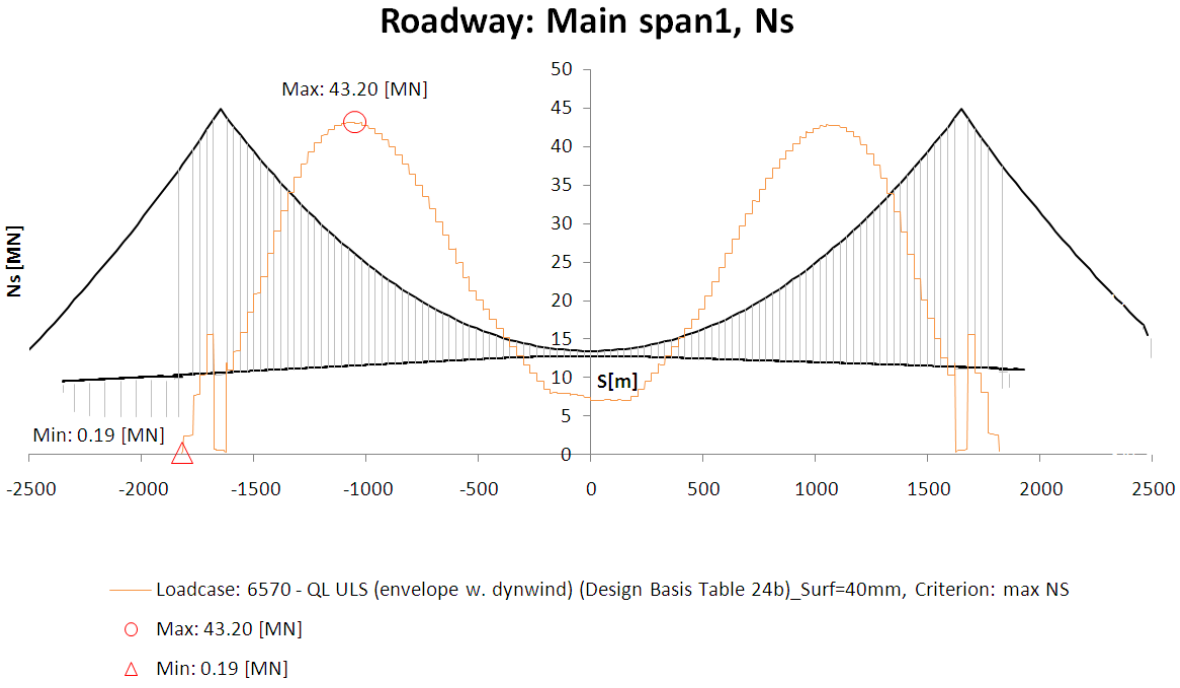


Figure 3-11 Max axial force Ns in roadway girders, ULS dynamic wind load combination

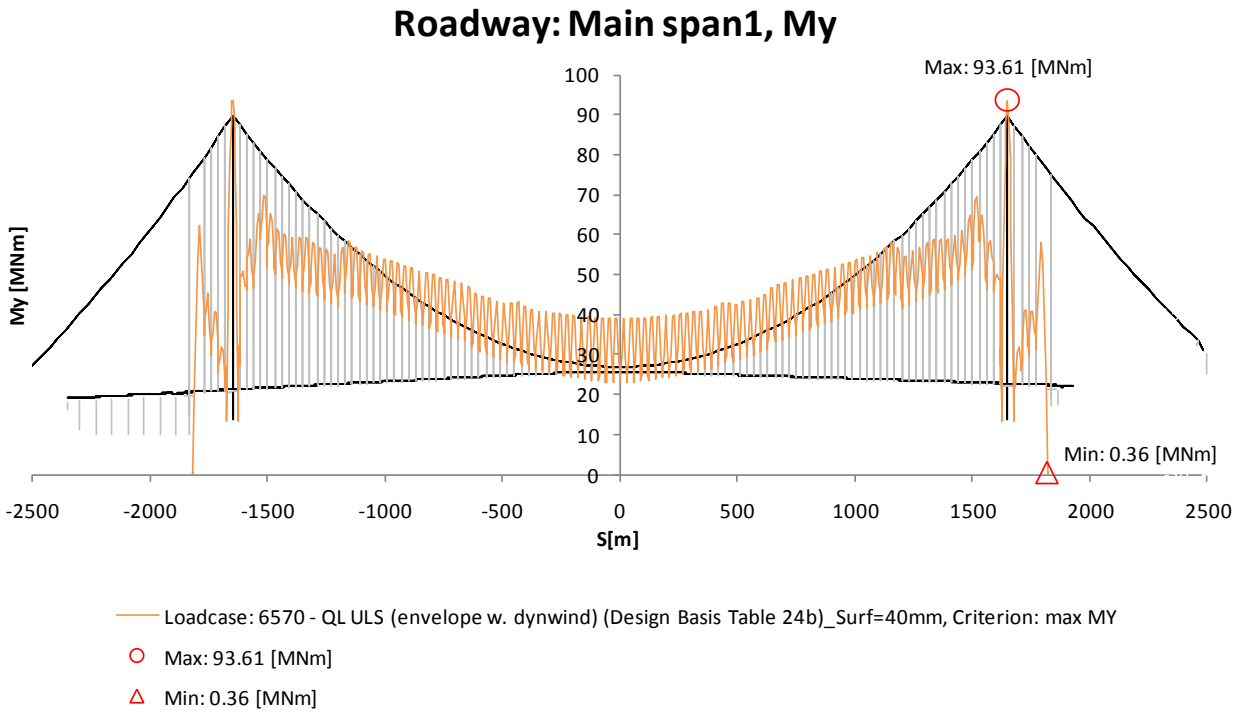


Figure 3-12 Max bending moment My in roadway girders, ULS dynamic wind load combination

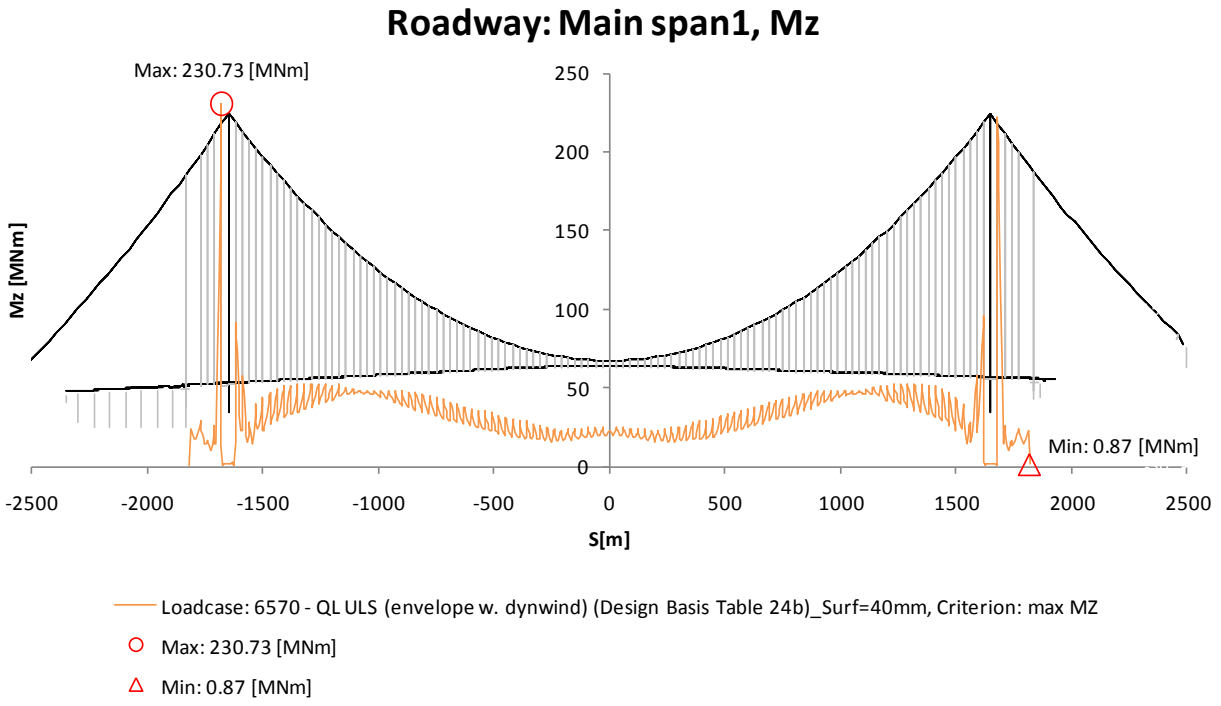


Figure 3-13 Max bending moment Mz in roadway girders, ULS dynamic wind load combination

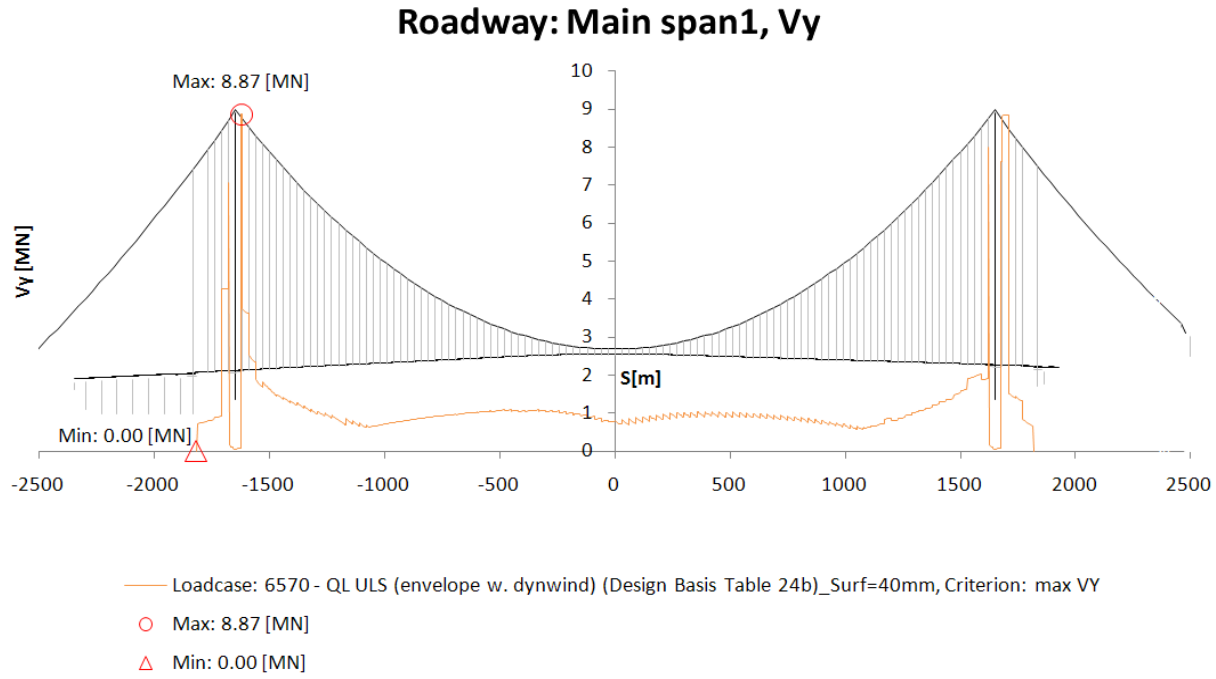


Figure 3-14 Max shear force Vy in roadway girders, ULS dynamic wind load combination

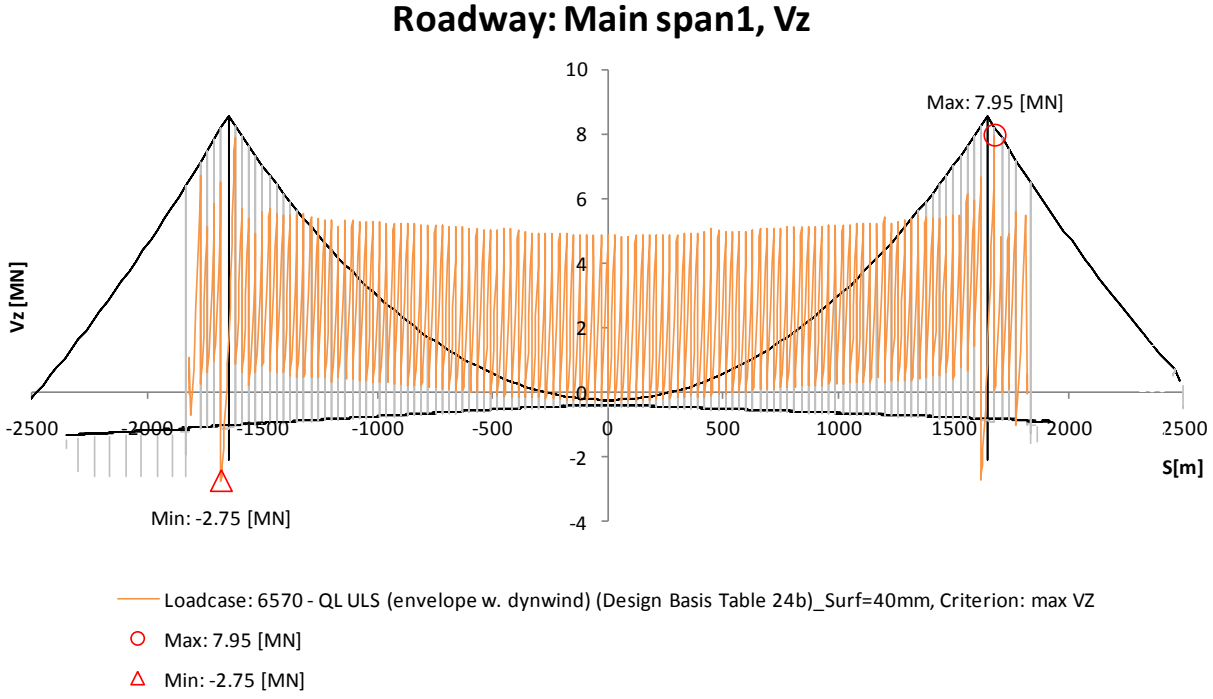


Figure 3-15 Max shear force Vz in roadway girders, ULS dynamic wind load combination

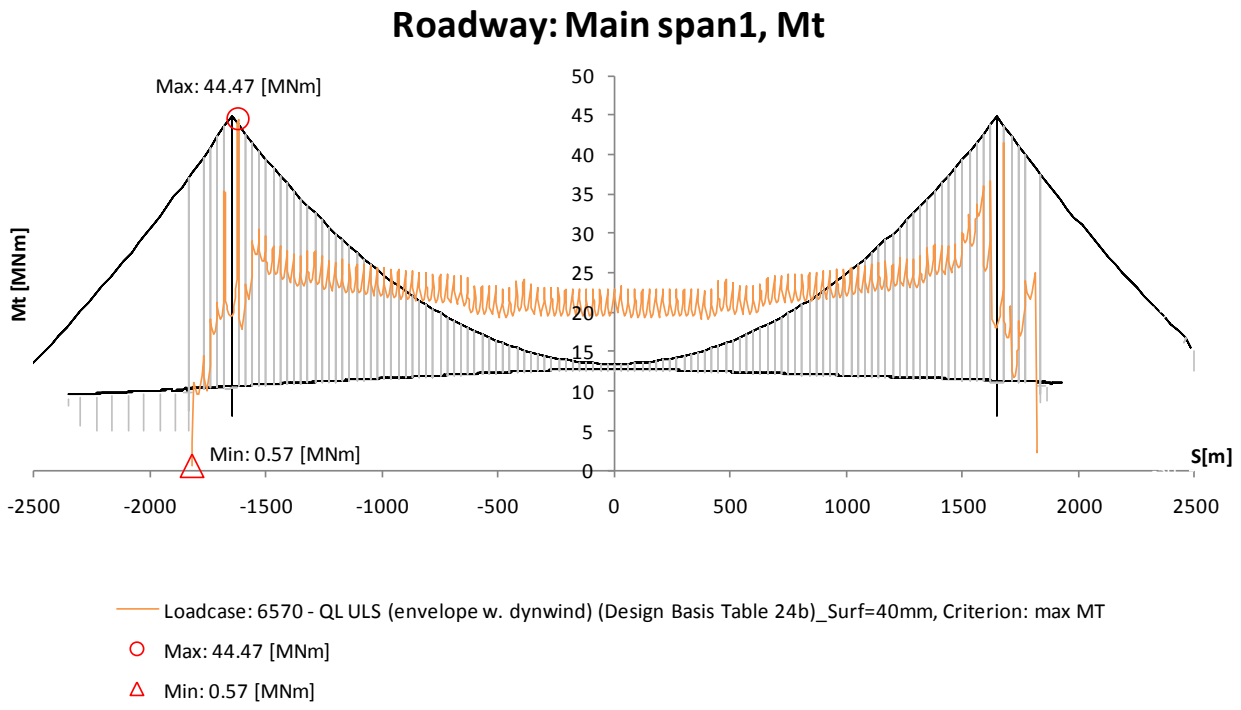


Figure 3-16 Max torsional moment Mt in roadway girders, ULS dynamic wind load combination

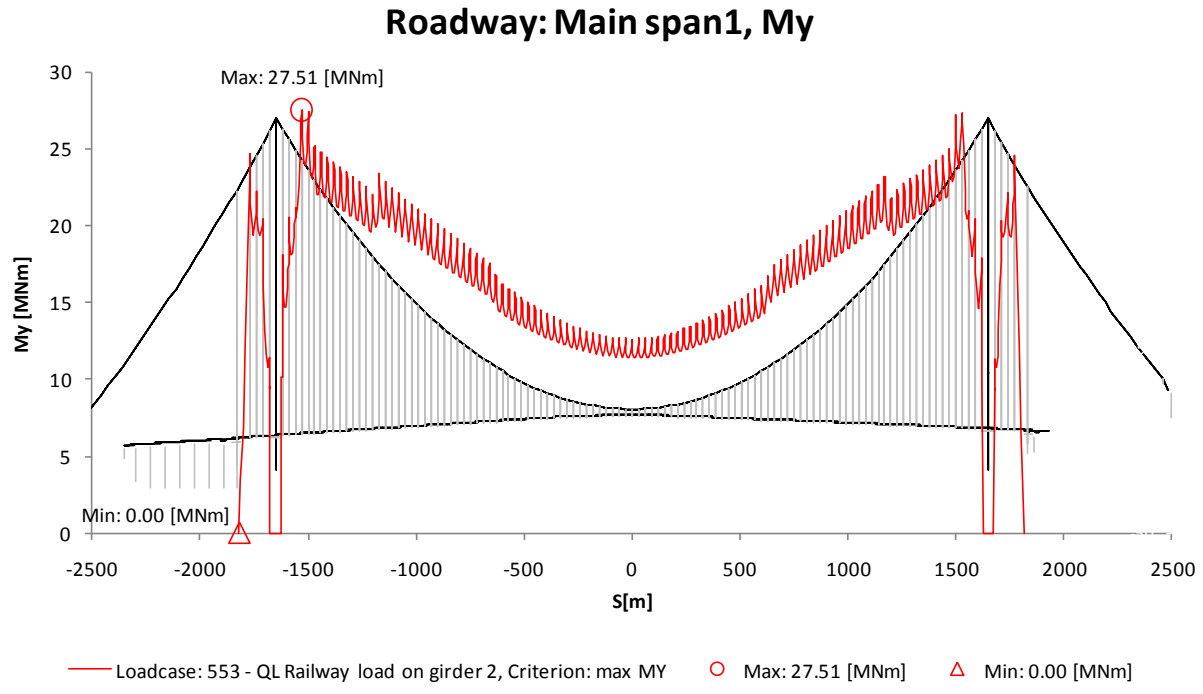


Figure 3-17 Max bending moment My in roadway girders, QL load on railway girder

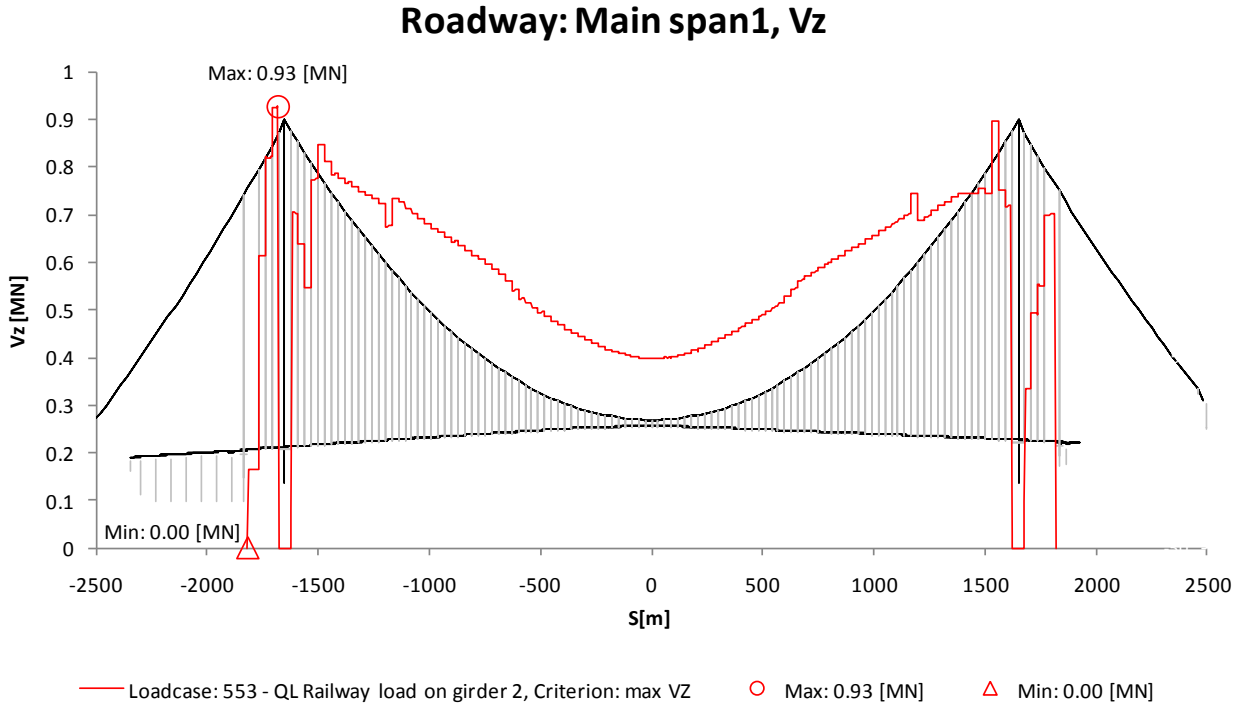


Figure 3-18 Max shear force Vz in roadway girders, QL load on railway girder

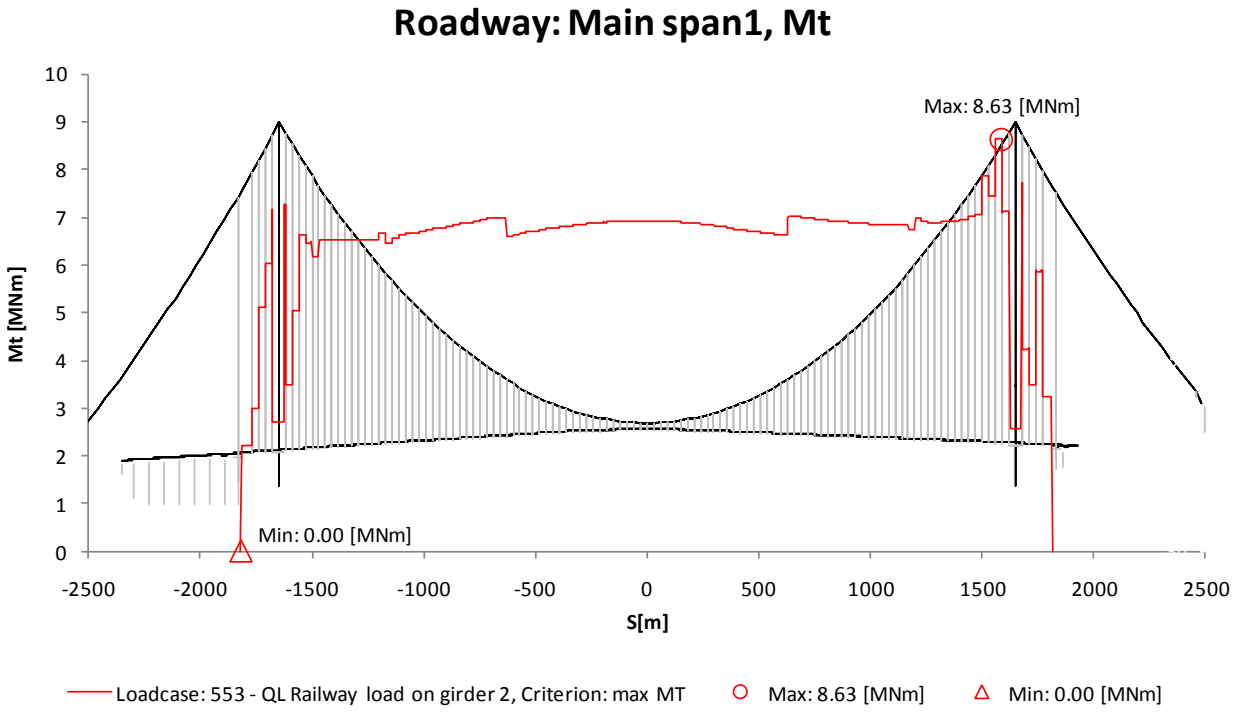


Figure 3-19 Max torsional moment Mt in roadway girders, QL load on railway girder

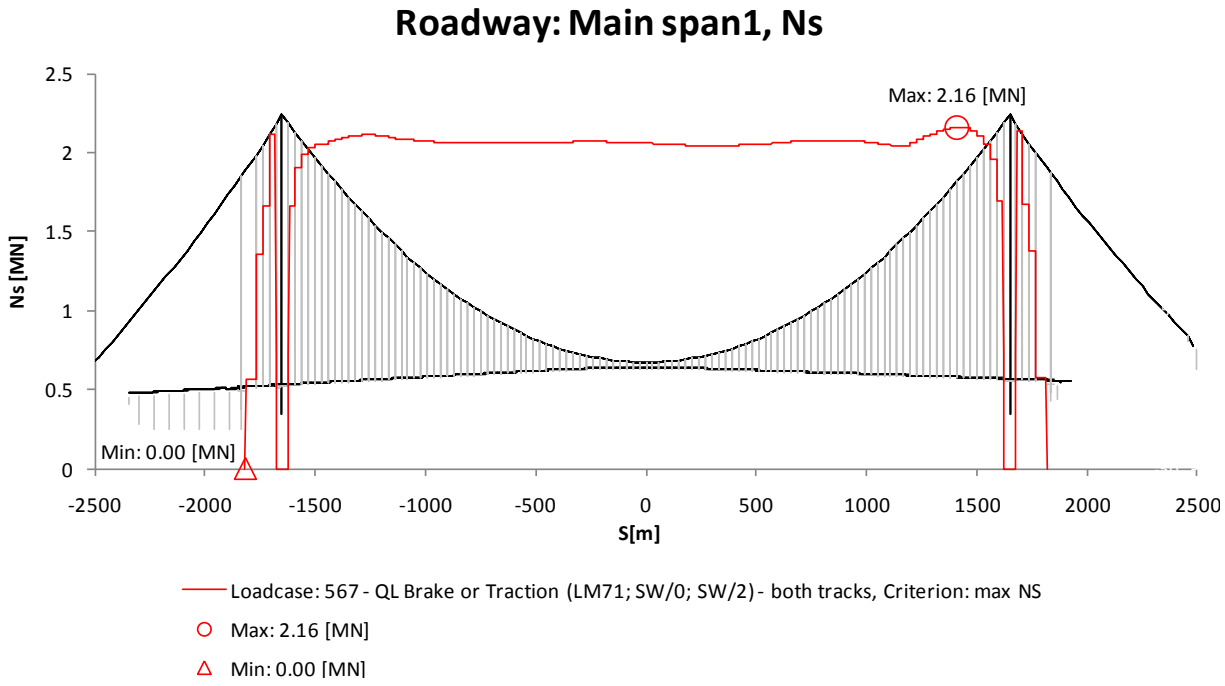


Figure 3-20 Max axial forces Ns in roadway girders, QL brake load on railway girder

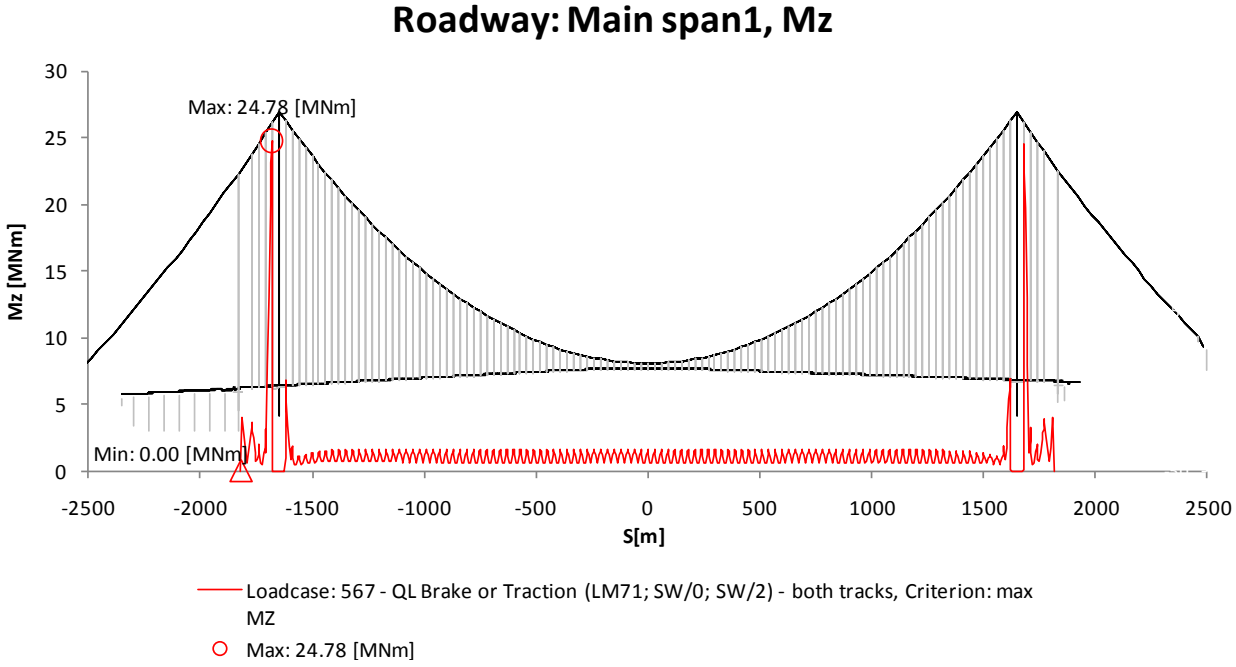


Figure 3-21 Max bending moment Mz in roadway girders, QL brake load on railway girder

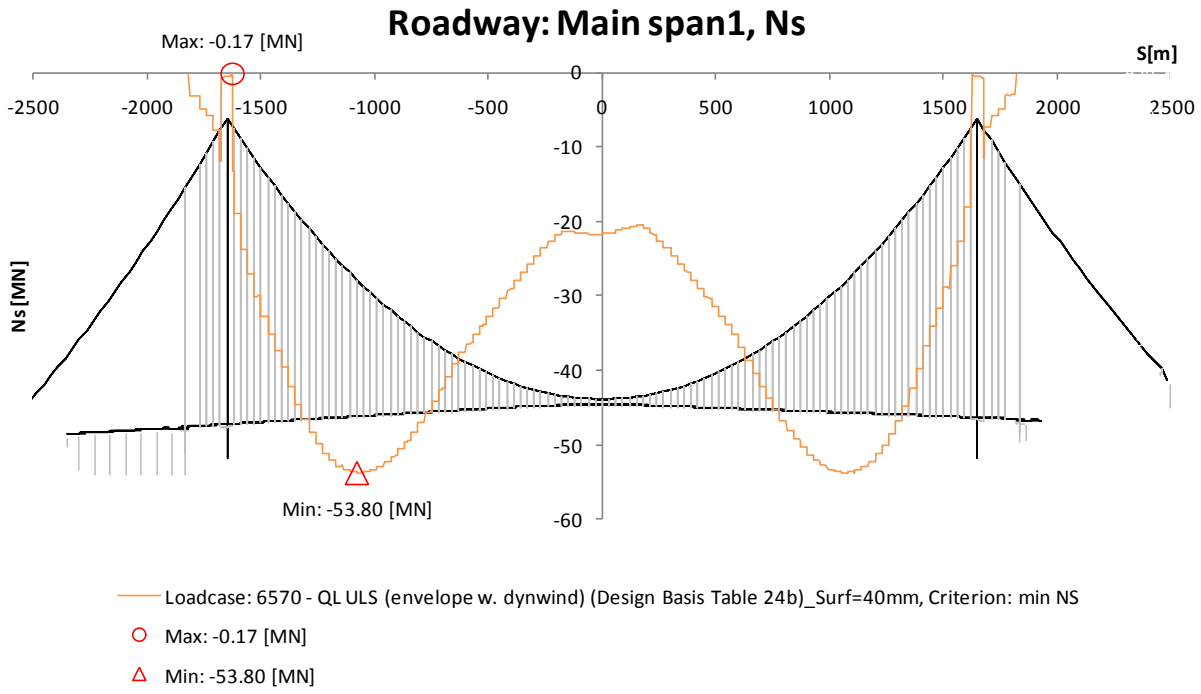


Figure 3-22 Min axial force Ns in roadway girders, ULS dynamic wind load combination

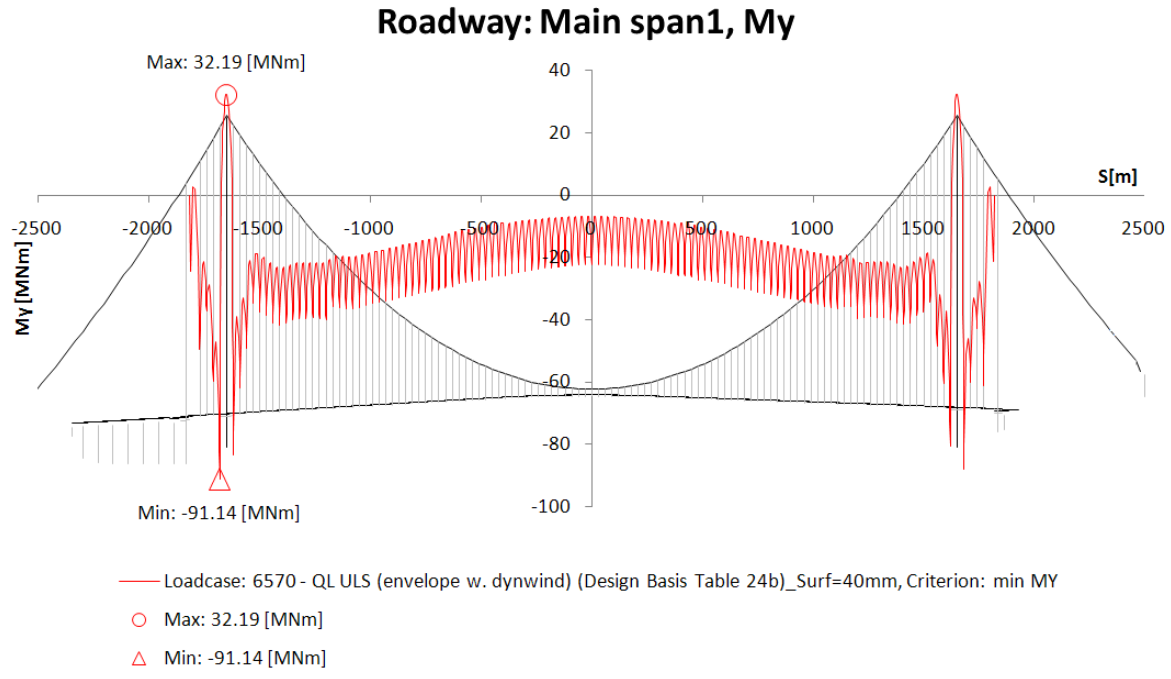


Figure 3-23 Min bending moment My in roadway girders, ULS dynamic wind load combination

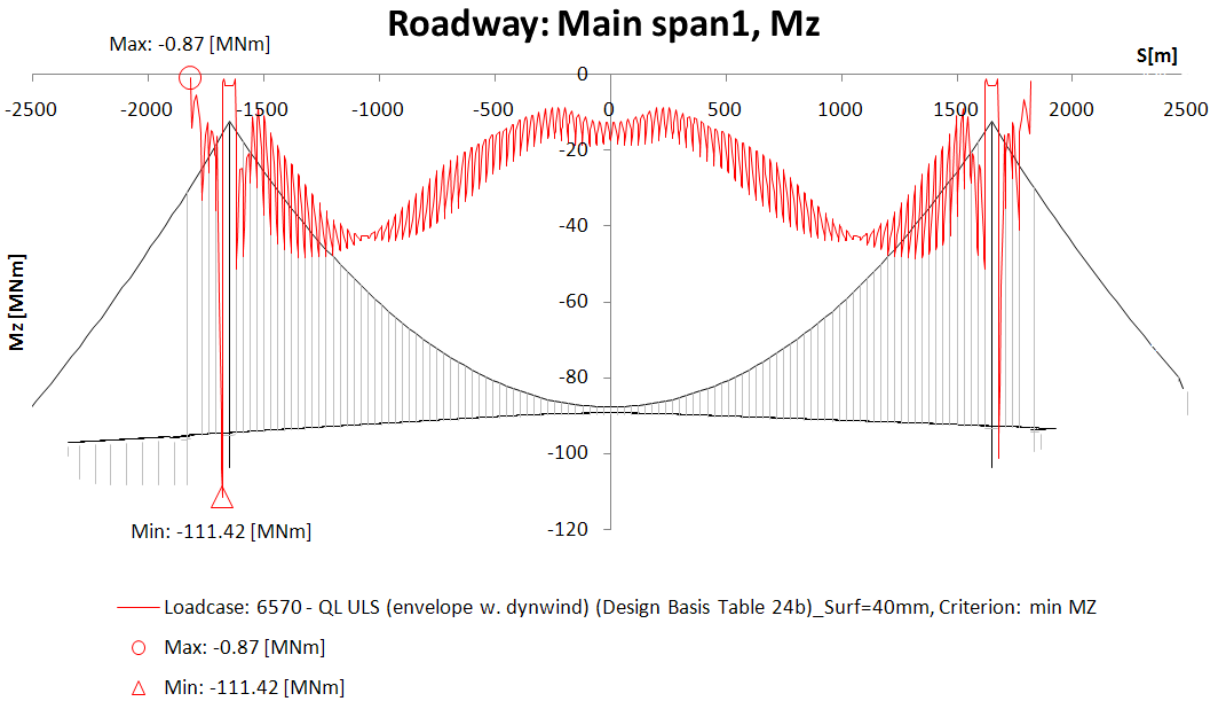


Figure 3-24 Min bending moment Mz in roadway girders, ULS dynamic wind load combination

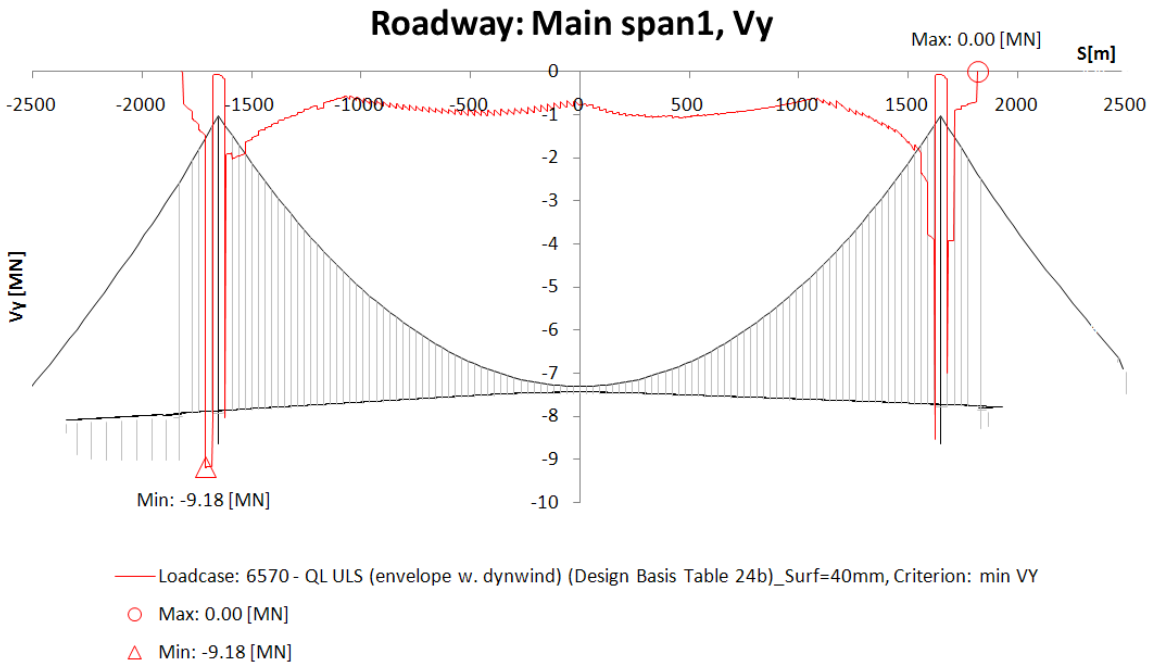


Figure 3-25 Min shear force Vy in roadway girders, ULS dynamic wind load combination

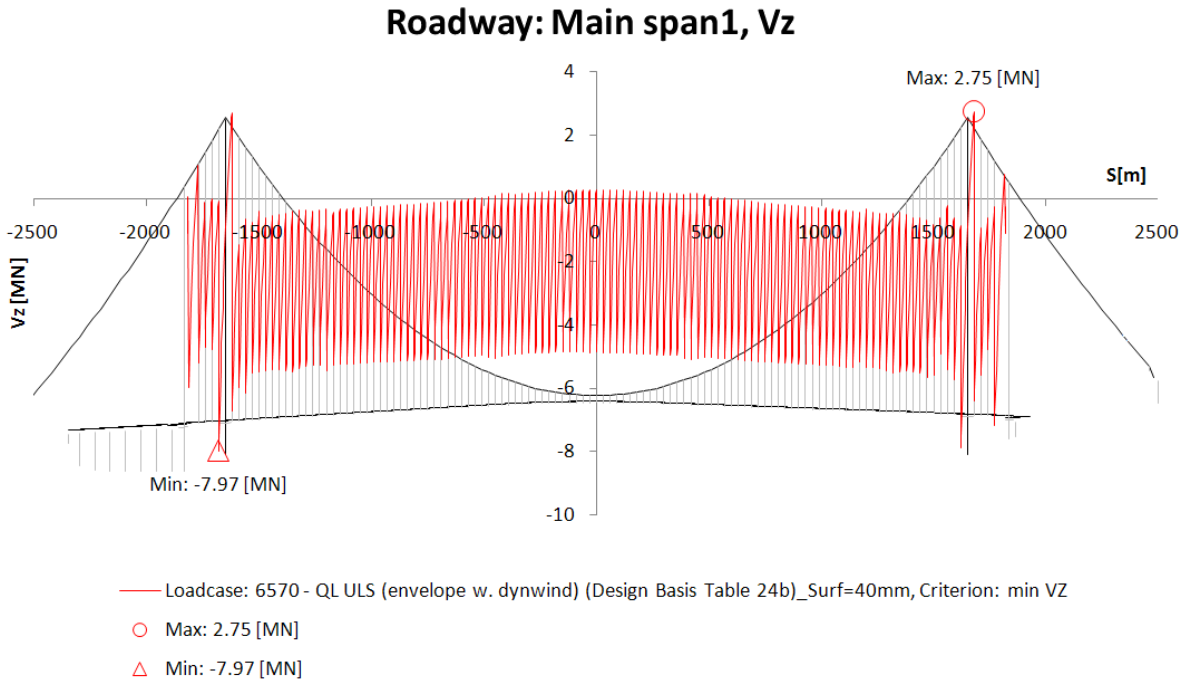


Figure 3-26 Min shear force Vz in roadway girders, ULS dynamic wind load combination

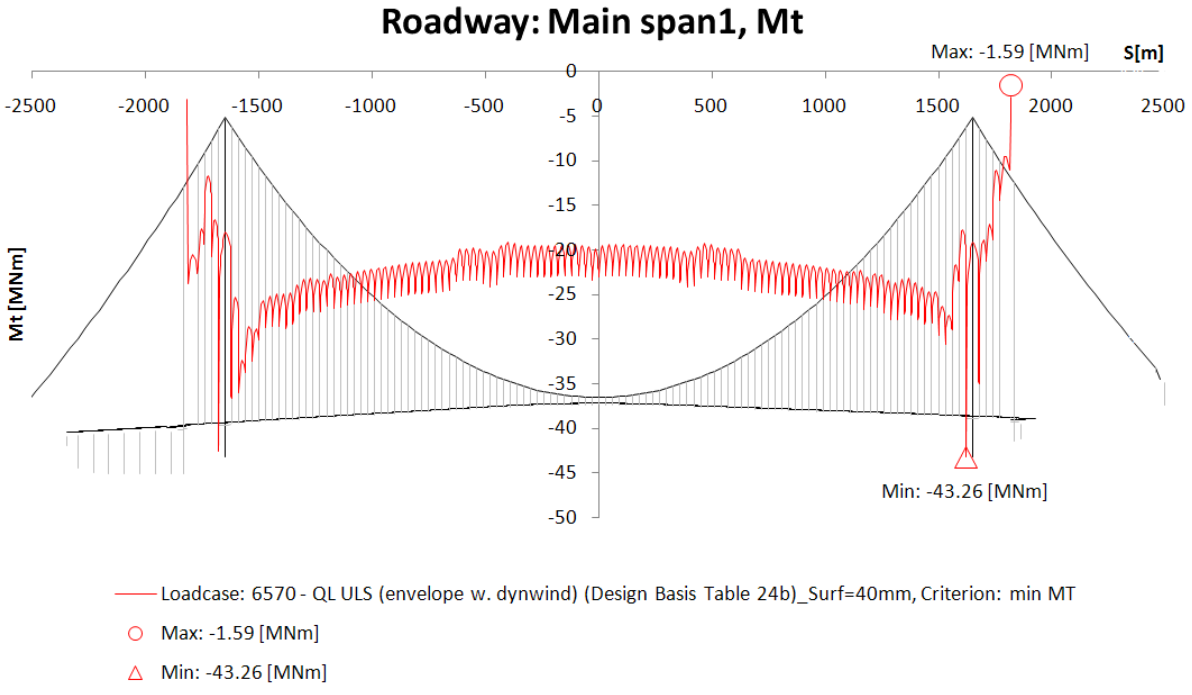


Figure 3-27 Min torsional moment Mt in roadway girders, ULS dynamic wind load combination

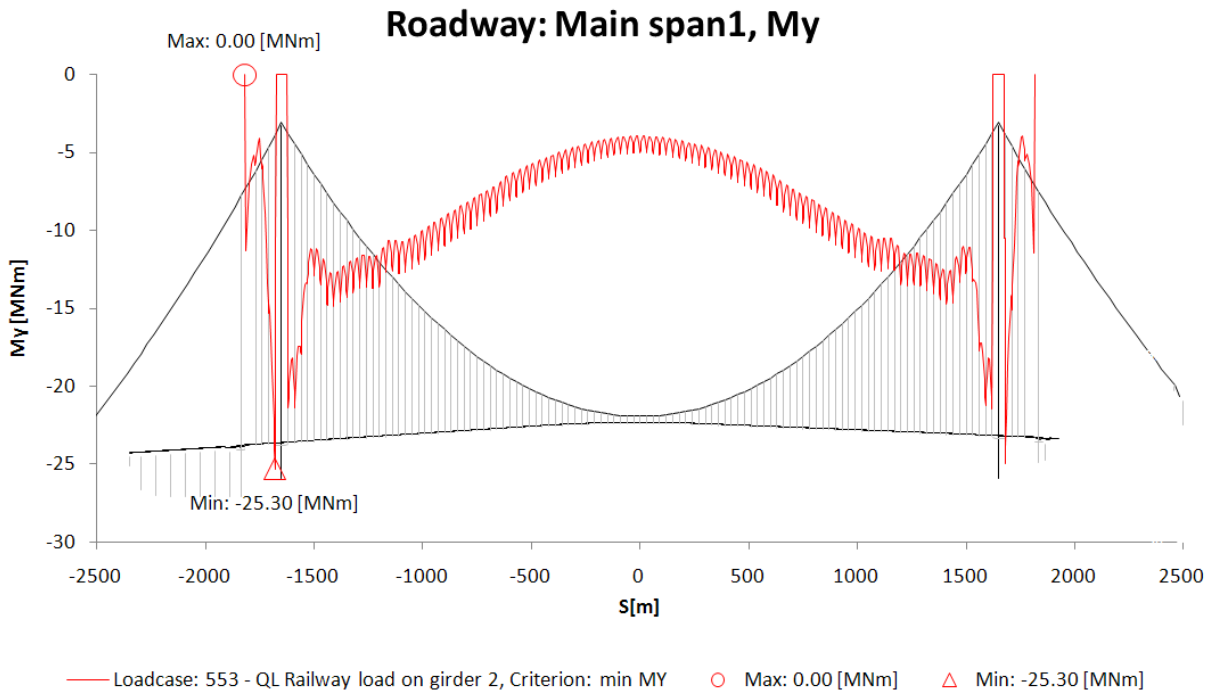


Figure 3-28 Min bending moment My in roadway girders, QL load on railway girder

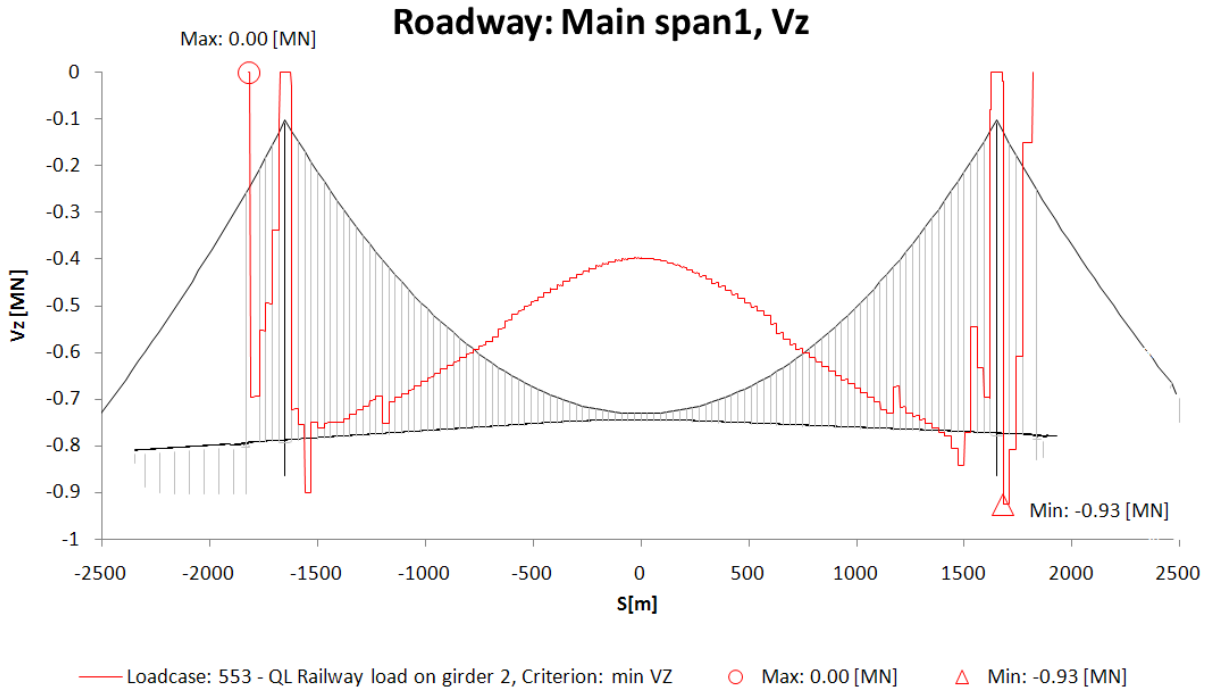


Figure 3-29 Min shear force Vz in roadway girders, QL load on railway girder

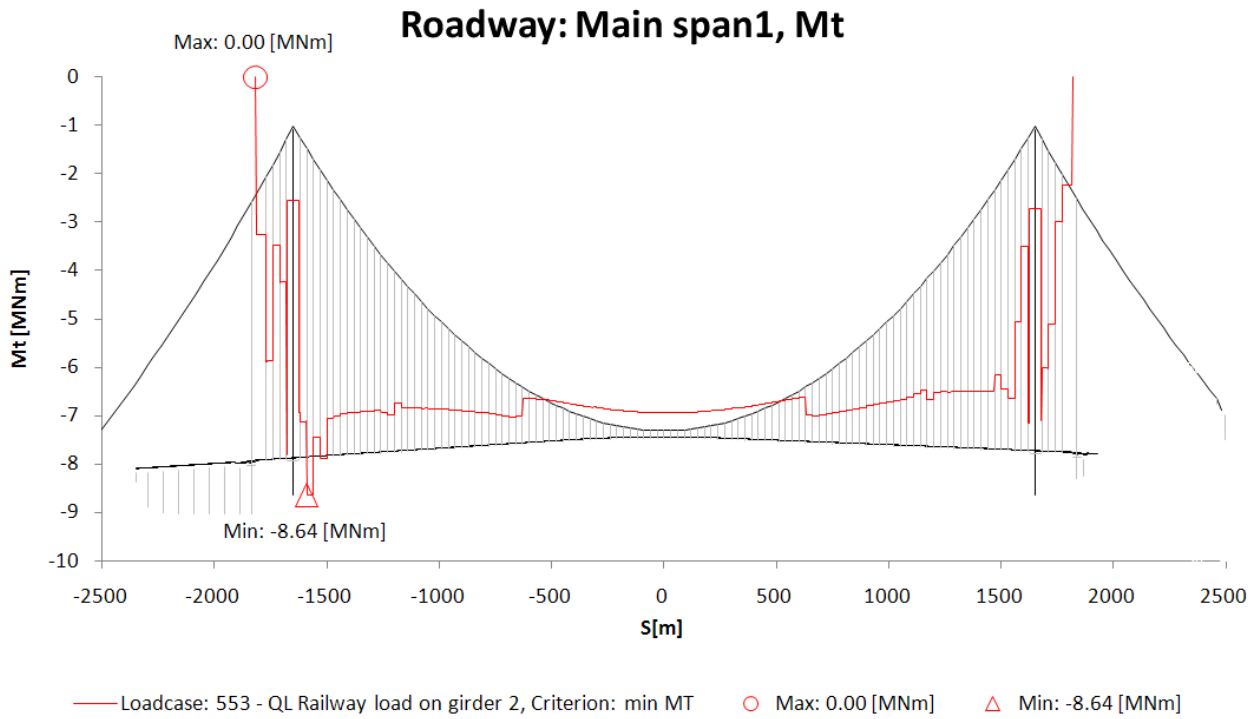


Figure 3-30 Min torsional moment Mt in roadway girders, QL load on railway girder

3.3 Girder Types

The suspended deck comprises eight different roadway girders (CS1-CS8). The change in girder type is dependent on the steel grade and plate thickness, but the overall geometry remains unchanged over the entire bridge length. The location of different cross sections is illustrated in Figure 3-31 for half the bridge.

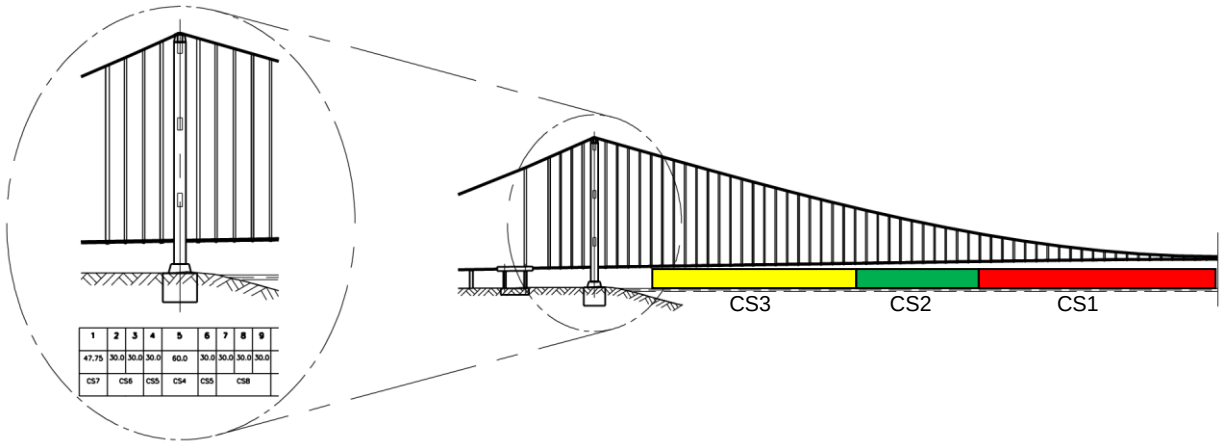


Figure 3-31 Distribution of the cross sections for the road way girder throughout the bridge

3.4 Cross Section Geometry

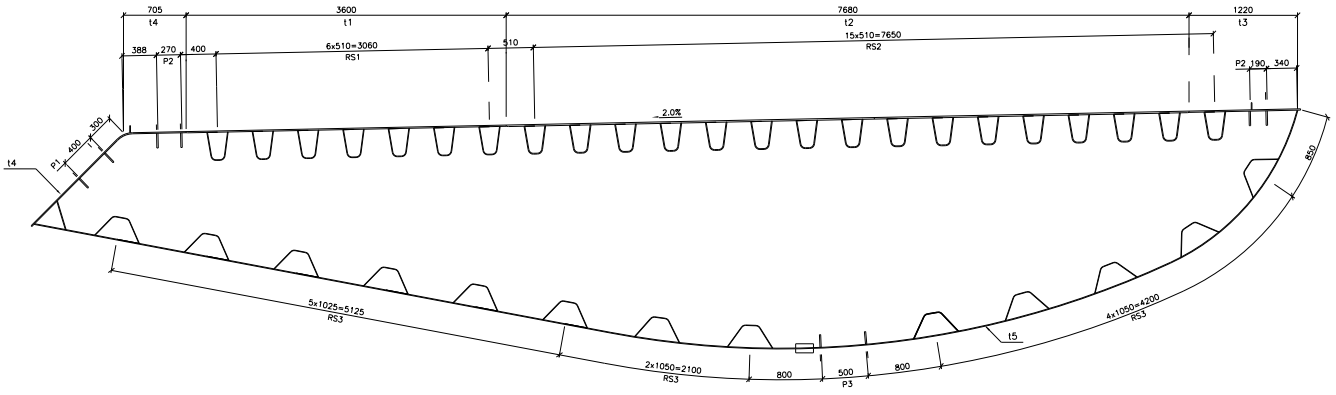


Figure 3-32 General cross section of roadway girder

A summary of the plate thicknesses and stiffeners for all roadway girders is shown in Table 3-2.

Table 3-2 Thicknesses for the longitudinal steel

Roadway girder type	**CS1**	**CS2**	**CS3**	**CS4**	**CS5**	**CS6**	**CS7**	**CS8**
Emergency lane	14	14	14	14	14	14	14	14
Inner and outer lane	17	17	17	17	17	17	17	17
Inner deck plate	14	14	14	14	14	14	14	14
Edge plate and outer deck plate	12	12	12	12	12	12	12	12
Bottom plate	8	9	9	12	14	10	13	12
Trough type RS1	7	7	7	7	7	7	7	7
Trough type RS2	9	9	9	9	9	9	9	9
Trough type RS3	5	5	5	6	7	6	6	6
Flat type P1	140x14	140x14	140x14	140x14	140x14	140x14	140x14	140x14
Flat type P2	160x16	160x16	160x16	160x16	160x16	160x16	160x16	160x16
Flat type P3	140x14	170x17	170x17	170x17	170x17	170x17	170x17	170x17
Steel grade	S355	S420	S460	S460	S460	S460	S460	S460

3.5 Section properties

The sectional properties of the roadway girder for all roadway girder types are shown in Table 3-3.

Table 3-3 Cross sectional properties for gross sections

Roadway Girder Type	Cross Sectional Properties						
	C.G. y-direction [mm]	C.G. z-direction [mm]	A [m^2]	Iy [m^4]	Iz [m^4]	Ay [m^2]	Az [m^2]
CS1	7501	1848	0.564	0.417	9.192	0.333	0.051
CS2	7507	1812	0.582	0.448	9.480	0.347	0.055
CS3	7507	1812	0.582	0.448	9.480	0.347	0.055
CS4	7501	1717	0.637	0.527	10.485	0.390	0.067
CS5	7495	1658	0.677	0.577	11.206	0.419	0.075
CS6	7500	1769	0.606	0.483	9.918	0.362	0.059
CS7	7501	1693	0.652	0.548	10.768	0.404	0.071
CS8	7501	1717	0.637	0.527	10.485	0.390	0.067

As shown in Table 3-3 the properties are almost constant over the bridge length, however with increasing steel quality and quantity towards the tower and side span area.

The geometrical input for the definition of the cross section of the roadway girder in ADVERS is shown in Table 3-4.

Table 3-4 Section definition in ADVERS

WP	Coordinate	
	y	z
WP1	2014	3371
WP2	2719	3385
WP3	6319	3457
WP4	13999	3611
WP5	15219	3635
WP6	14629	2363
WP7	12689	1463
WP8	10559	1000
WP9	8434	1000
WP10	1000	2373
WP1	2014	3371
WP10.1	1267	2636
WP10.2	1369	2305

Stress point (SP)		
Name/Coordinate	y	z
SP1	2014	3365
SP2	15219	3628
SP3	14625	2365
SP4	15215	3637
SP5	1001	2377
SP6	8435	1004
SP7	10559	1004
SP8	12688	1467
SP9	1004	2369
SP10	2018	3367

Stress point (U-stiffeners)		
Name/Coor.	y	z
LS1	3072	3392
LS7	6131	3453
LS23	14290	3617
LS26	14131	2132
LS29	9048	1000
LS30	1919	2203

Stress point (T-stiffeners)		
Name/Coor.	y	z
LS38	2672	3384
LS40	14882	3628
LS41	1515	2880
LS42	1800	3161
LS43	9834	1000
LS44	10334	1000

Centroid gross		Centroid effective (N<0)	
y	z	y	z
0	2848	0	2977
15719	2848	15719	2977

The cross section used in ADVERS is illustrated in Figure 3-33.

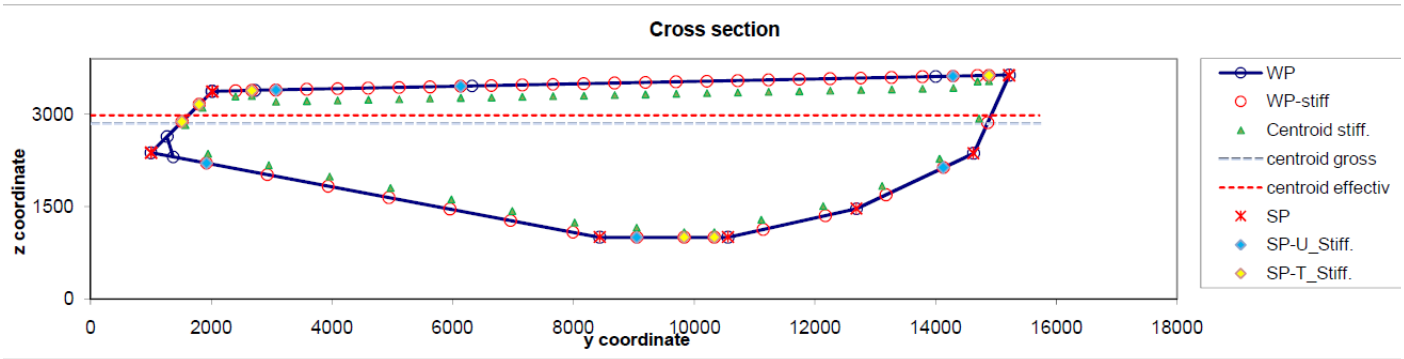


Figure 3-33 Cross section layout in ADVERS

3.6 Verification - Longitudinal Steel

The results from ADVERS for the ULS load combination dynamic wind and the ULS load combination seismic (time history) are shown in Figure 3-34 to Figure 3-37. A summary of the results for the critical sections are shown in Table 3-5.

Table 3-5 Overview of maximum utilisation ratios for dynamic wind and seismic

Load case		Max UR			
		Stresses	Local Buckling Stiffened panel	Plate Buckling	Overall Verifications
Dynamic wind	S-coordinate [mm]	-1588	-1018	-1588	-1005
	UR	0.75	1.00	0.84	0.91
Seismic (time history)	S-coordinate [mm]	-1774	-1766	-1774	-1766
	UR	0.51	0.67	0.58	0.57

It is seen that both stress checks and stability checks gives utilisation ratios of maximum 1.00 and dynamic wind is found to be governing for all checks. Section forces for the verified sections are found in Appendix A

3.6.1 CS4 - Roadway girder at buffer

Additional to the load combinations mentioned above the roadway girder CS4 is checked for a load case where the buffer is loaded by the full buffer force of 2x40MN. The buffer arrangement can be seen on Figure 5-19. The sectional forces and utility ratios for CS4 are given in *Table 3-8* and Table 3-9.

Table 3-6 Sectional forces in roadway girder CS4 for load case with full buffer force of 2x40MN

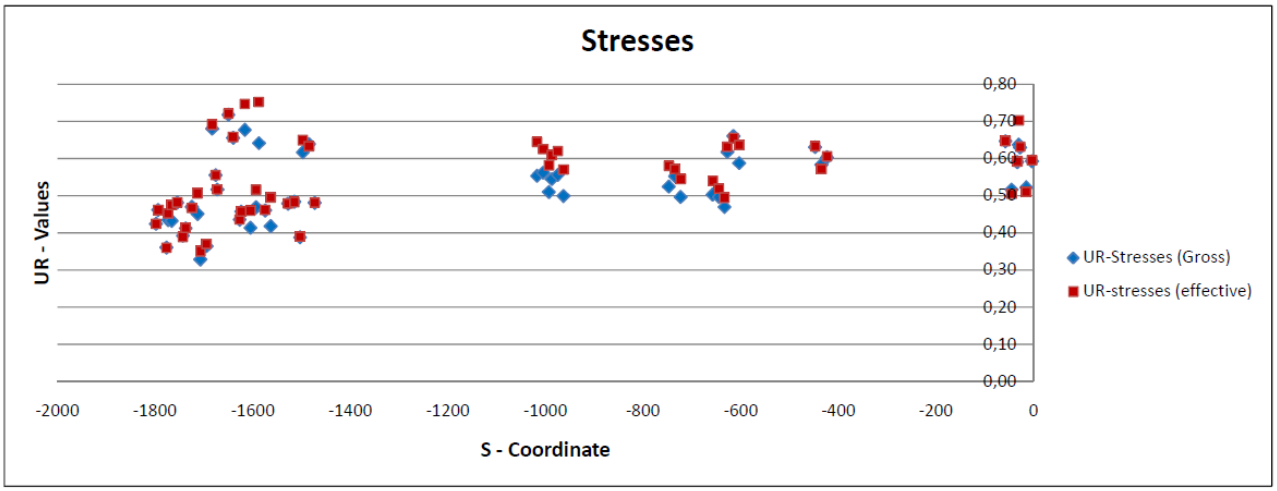
Case	Criteria	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
6625	min NS	**-20.107**	**11.755**	**-461.291**	**19.232**	**0.644**	**4.44**
6625	max NS	**21.789**	**-12.897**	**472.639**	**-19.719**	**1.344**	**-7.024**
6625	min MY	**6.378**	**-57.76**	**278.144**	**-12.852**	**2.212**	**-9.045**
6625	max MY	**-6.972**	**27.372**	**-345.827**	**15.476**	**0.252**	**4.585**
6625	min MZ	**-16.517**	**14.139**	**-489.834**	**20.827**	**0.456**	**4.875**
6625	max MZ	**18.148**	**-24.028**	**502.201**	**-21.495**	**1.553**	**-7.545**
6625	min VY	**17.72**	**-29.286**	**500.206**	**-21.551**	**1.581**	**-7.525**
6625	max VY	**-16.095**	**23.377**	**-487.685**	**20.962**	**0.451**	**5.23**
6625	min VZ	**-9.219**	**15.442**	**-306.974**	**13.116**	**-0.022**	**3.704**
6625	max VZ	**7.262**	**-40.468**	**215.786**	**-9.335**	**2.825**	**-4.331**
6625	min MT	**14.714**	**-47.614**	**379.44**	**-16.526**	**1.868**	**-11.942**
6625	max MT	**-8.367**	**4.717**	**-232.199**	**10.143**	**1.47**	**8.332**

Table 3-7 Max UR for ULS combinations and for load case with full buffer force of 2x40MN

Load case		**Max UR**			
		Stresses	**Local Buckling Stiffened panel**	**Plate Buckling**	**Overall Verifications**
LC 6625, 2x 40MN	**UR**	0.90	0.99	0.98	0.94

As seen from Table 5-5 the highest UR found is 0.99.

3.6.2 Verification of CS1 to CS8



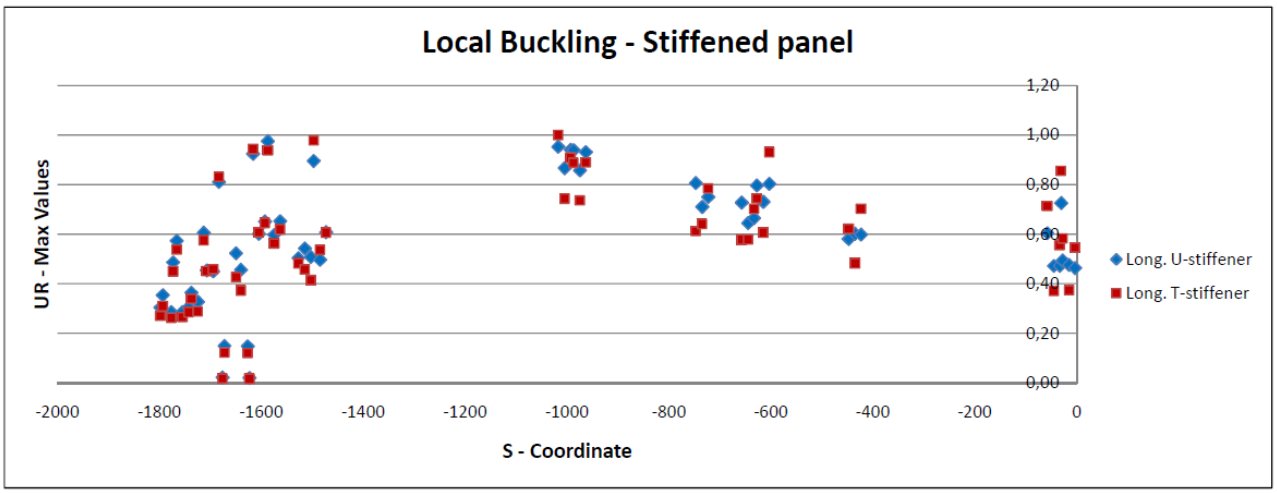
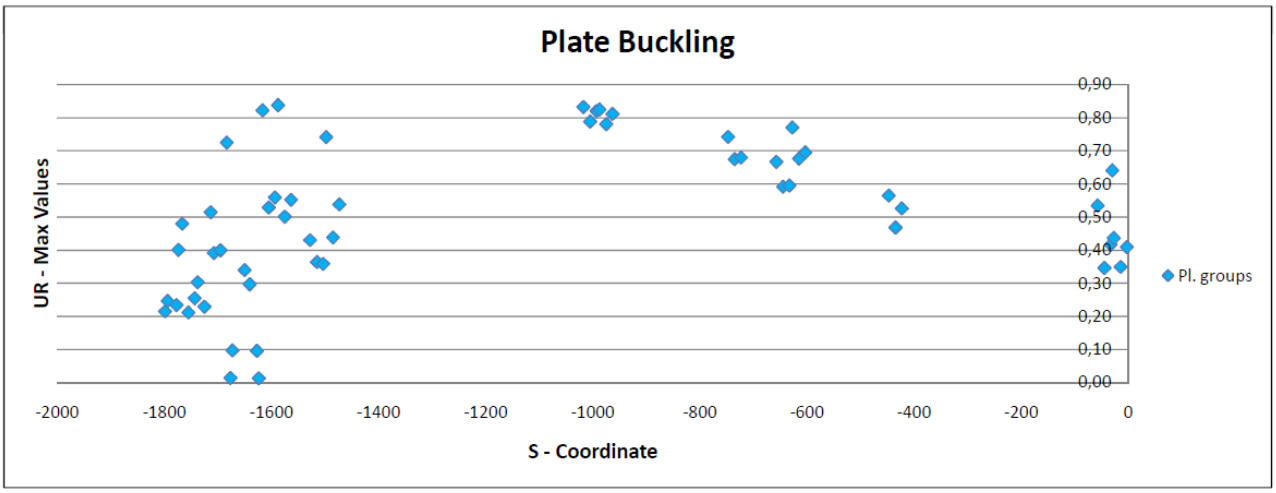


Figure 3-34 Utilisation ratios for ULS load combination dynamic wind, stresses and local buckling of stiffened panel



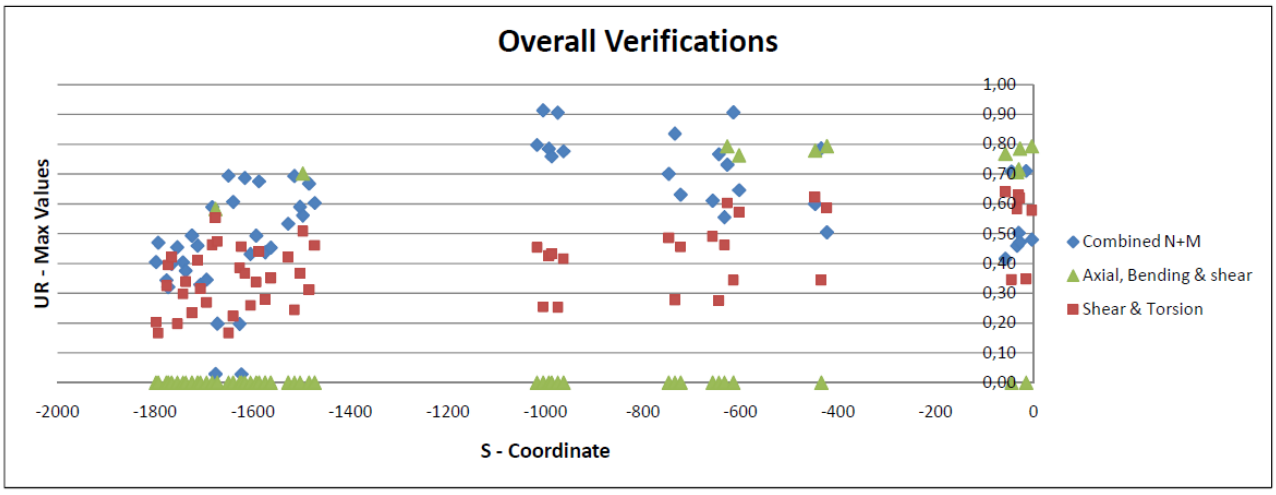
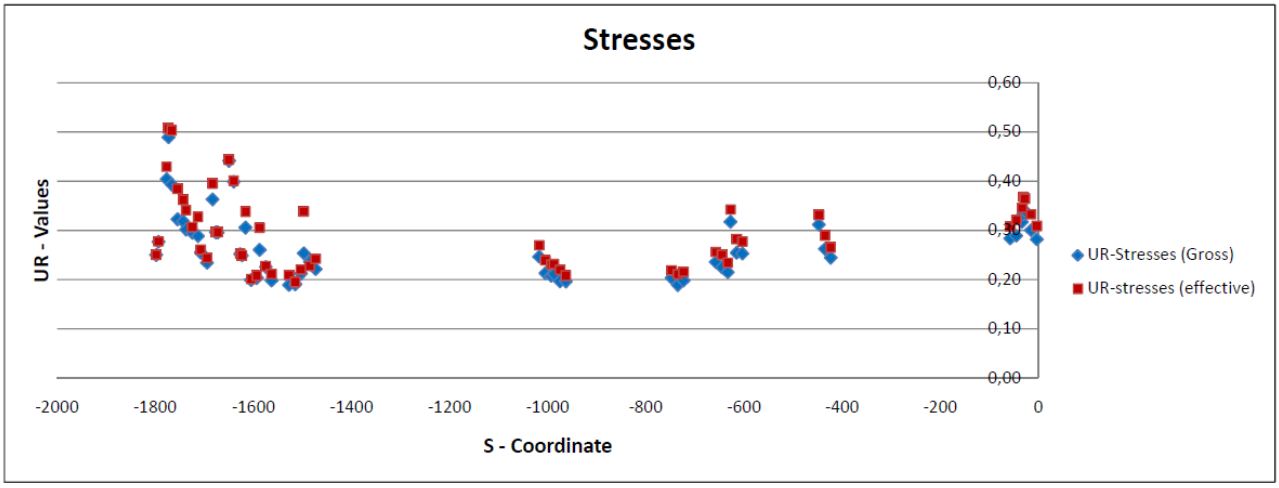


Figure 3-35 Utilisation ratios for ULS load combination dynamic wind - plate buckling and overall verifications



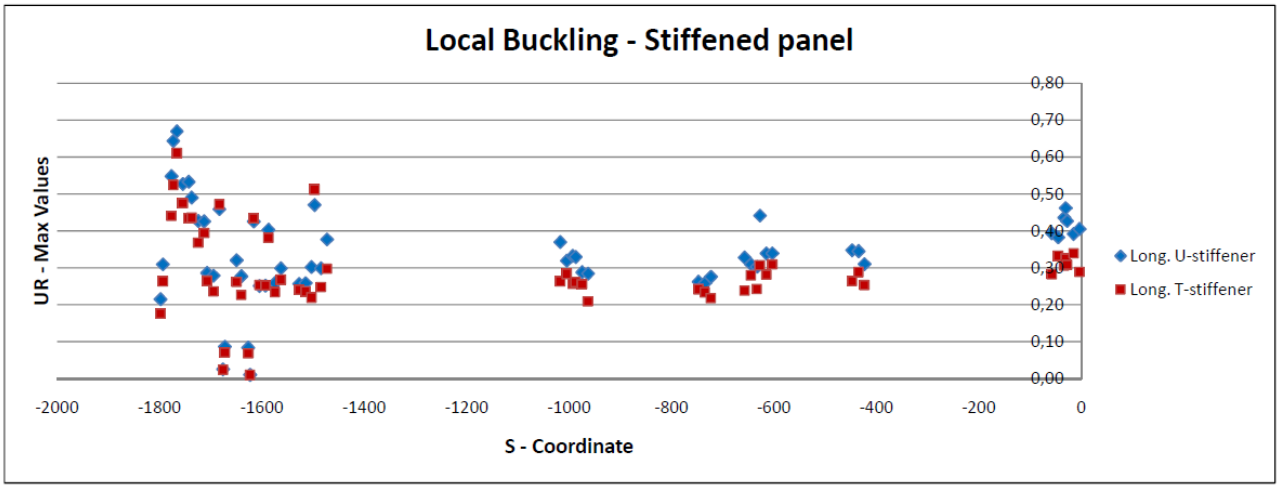
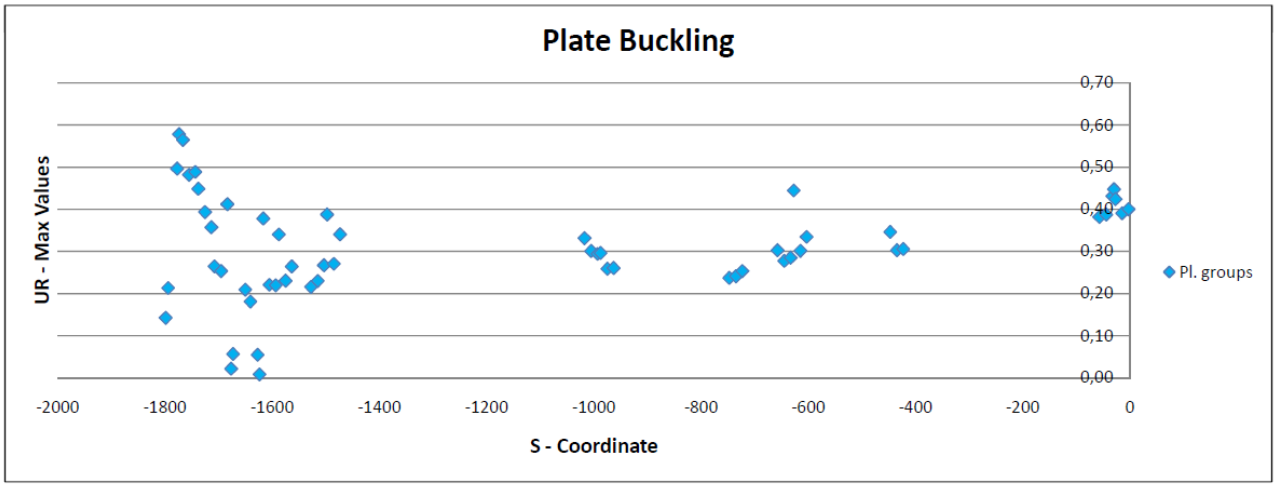


Figure 3-36 Utilisation ratios for ULS load combination seismic (time history), stresses and local buckling of stiffened panel



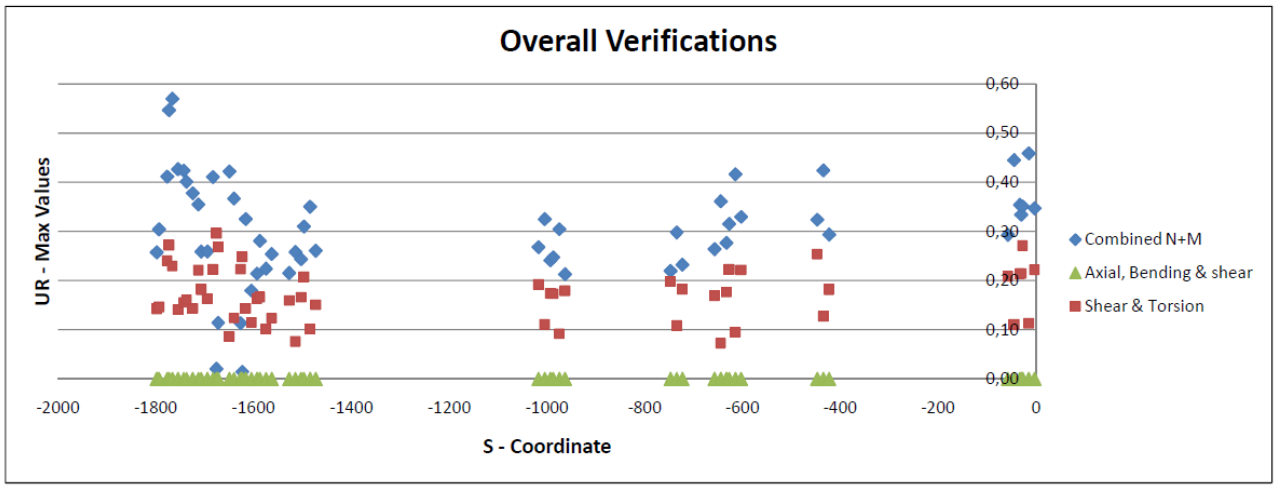


Figure 3-37 Utilisation ratios for ULS load combination seismic (time history), plate buckling and overall verifications

The utilisation ratios for axial, bending & shear are for the majority of points equal to zero in Figure 3-35 and Figure 3-37, due to the effect of the shear force being less than 50% of the shear capacity, hence this verification can be neglected according to section 6.2.10(3) in EN1993-1-1:2007, and instead verifying for combined N+M only.

3.7 Stress comparison between local FE-model and ADVERS

Longitudinal stresses in the longitudinal steel from ADVERS are compared with the local ROBOT FE-model of the roadway girder, described in "Design Report - Local FE-models of Suspended

Deck", for My+ load case 6561 (Maximum bending in centre of the span). The definition of the load case can be found in "General Design Principles for the Suspended Deck".

Longitudinal stresses in the skin plates from ADVERS for My+ (load case 6561) are presented in Table 3-8.

Table 3-8 Longitudinal stresses for CS3 from ADVERS for My+ load case 6561 at s=-975m

ID	Yielding of plates						
	Criteria (gov.)	σ_1 (MPa)	σ_2 (MPa)	τ (MPa)	σ_{VM} (MPa)	σ_{yf}/γ_m (MPa)	UR
SP1	min NS	-18.9		11.5	27.4	438.1	0.06
SP2	min NS	-75.9		11.3	78.4	438.1	0.18
SP3	min NS	83.1		11.9	85.6	438.1	0.20
SP4	min NS	-77.0		11.9	79.7	438.1	0.18
SP5	min NS	106.4		11.9	108.4	438.1	0.25
SP6	min NS	264.5		11.9	265.3	438.1	0.61
SP7	min NS	260.6		11.9	261.4	438.1	0.60
SP8	min NS	198.9		11.9	199.9	438.1	0.46
SP9	min NS	107.5		11.5	109.3	438.1	0.25
SP10	min NS	-19.1		11.5	27.6	438.1	0.06
Max							**0.61**

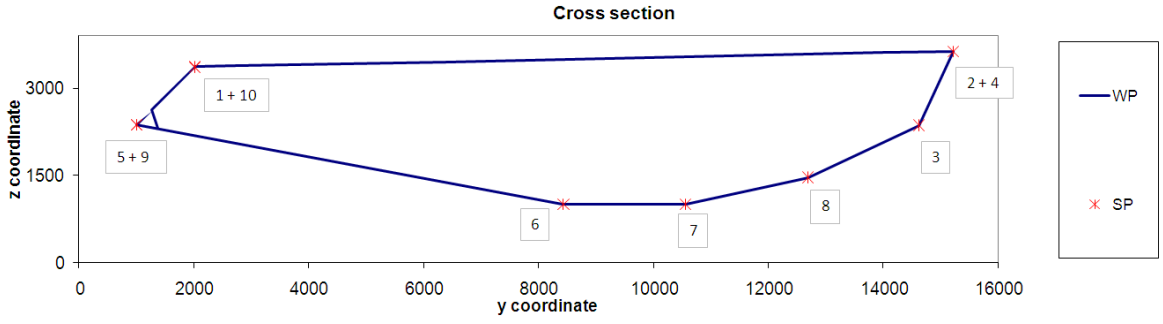


Figure 3-38 Position of stress points in roadway girder

The traffic load has been fixated in the global IBDAS model for maximising the My sectional forces in the centre of the span and the load acting within the FE-Local model has been applied according to the influence line plots from the global IBDAS model. The implemented load case is specified in Table 3-9 with load factors.

*Table 3-9 Loads and load factors applied to the local FE-model for maximum My in centre of span (*load factors are included in IBDAS results)*

Load Cases	**Load Type**	**Description**	**Load factors**
PP	Automatically calculated by ROBOT	Self-weight	1.35
PN UDL on deck plate	Uniformly distributed line load	Parapets, lighting masts, traffic gantries, windscreens applied as a line load on the edge of the deck plate in respectively positions.	1.50
PN Interior	Point loads	Cables, internal deck, access walkways, interior and drainage system applied on diaphragms in respectively positions.	1.50
PN Service lane	Point loads	Point load applied on cantilevered beams for service lane.	1.50
Boundary conditions	Section forces received from global IBDAS model for max. My in centre span (LC6561).	Sectional forces applied on the centre of gravity at the end of the bridge deck cross-section.	1.0*
High way Axle load	Uniformly distributed loads. Size and position comply with global IBDAS model.	Live load according to load model 1.	1.35
High way UDL	Uniformly distributed loads. Size and position comply with global IBDAS model.	Live load according to load model 1.	1.35

An example of the applied traffic load is given in Figure 3-39 for maximum sagging moment in the centre of the span with the loads applied according to IBDAS model.

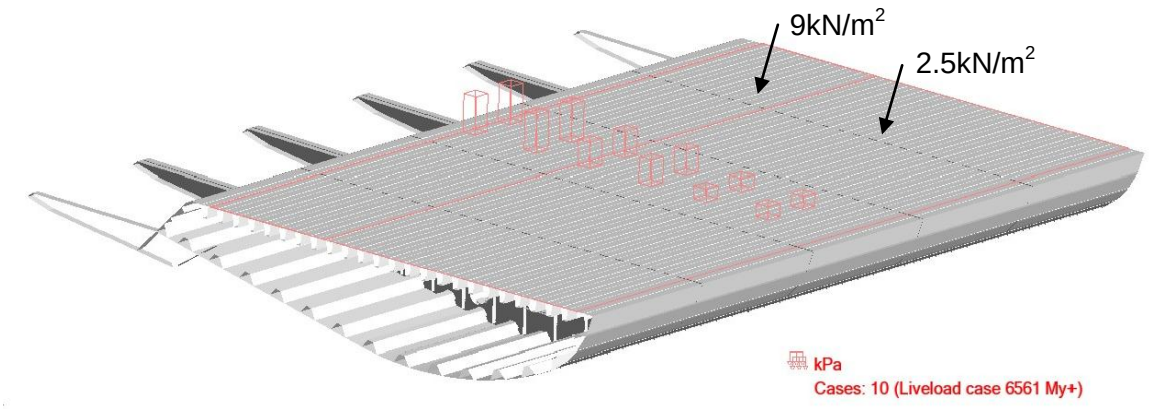


Figure 3-39 Plot of model with applied load for load case with maximum sagging moment at centre span

The patch loads shown in Figure 3-39 are equivalent to an axel load of relatively 300 kN, 200 kN and 100 kN which are distributed over 400x400 mm.

Figure 3-40 shows plots of the longitudinal stresses calculated in the local FE-model for the bottom plate. The results are compared with stress calculation from ADVERS in Table 3-10.

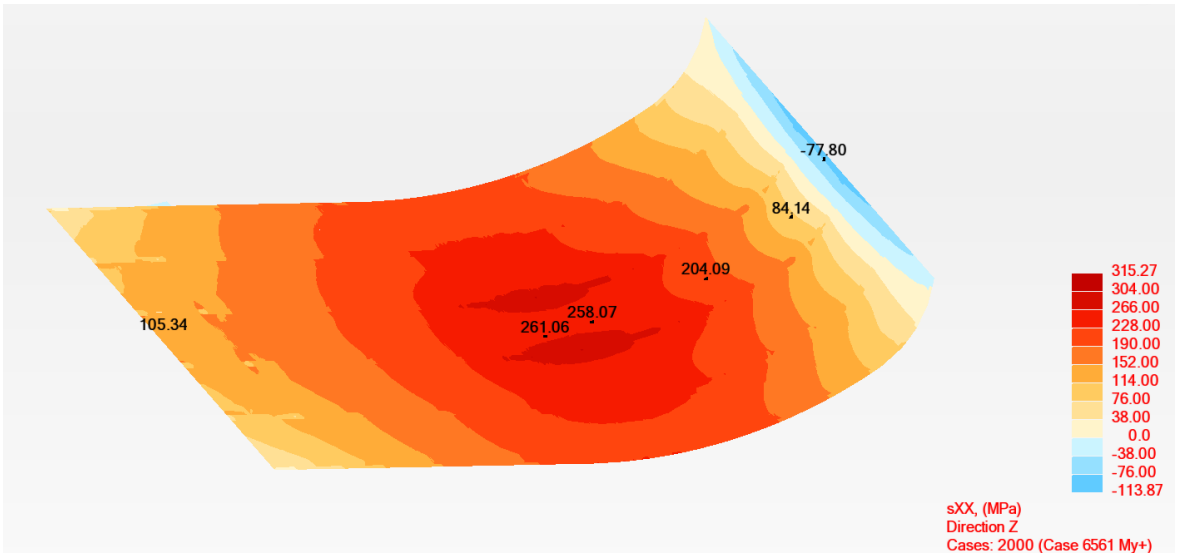


Figure 3-40 Stress plot of the longitudinal axial stresses for My+ in bottom plate at s = -975m

Table 3-10 Comparison of maximum bending moment My+, load case 6561 in the local FE-model

Stress point	ADVERS [MPa]	Local FE-model [MPa]	Deviation %
SP 1 + 10	-18.9	-	-
SP 2 + 4	-76.5	-77.8	1.7
SP 3	83.1	84.1	1.2
SP 5 + 9	107.0	105.3	-1.6
SP 6	264.5	261.1	-1.3
SP 7	260.6	258.1	-1.0
SP 8	198.9	204.1	2.6

From Table 3-10 it can be seen that there is correspondence between the stresses in ADVERS and the local FE-model.

3.8 Verification - Transverse Steel

The geometry of the general diaphragm is illustrated in Figure 3-41.

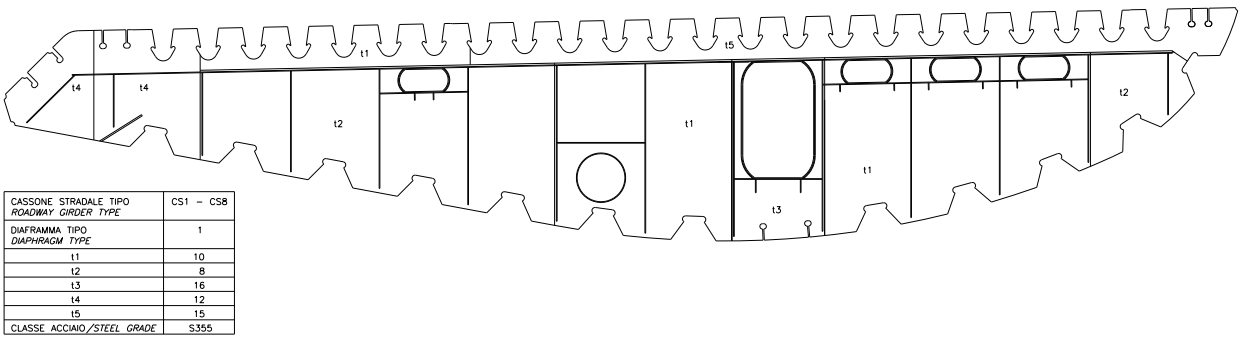


Figure 3-41 Diaphragm type 1 for roadway girder

For the stability verification of the diaphragm panels, the actual stress condition in the diaphragm has been calculated using the local FE-model of the roadway girder. These stresses have then been applied to the panel, and the stability has been verified using an elastic buckling program and the reduced stress method of EN 1993-1-5:2006, section 10. From the applied stress condition a critical stress ration ϕ_{cr} have been calculated indicating with which ratio the stresses can be

increased before elastic buckling instability of the panel occurs. This critical factor have been calculated using an elastic buckling program, and is similar to the value α_{cr} used in the reduced stress method. Stability considering both plate-buckling and column-buckling behaviour have been verified.

The stresses determined in the following stress plots are presented for the load cases My+, Ms+ and Vz+, as described in "General Design Principles for Suspended Deck". Stress plots for the three panels shown in Figure 3-42 are presented in Figure 3-43 to Figure 3-45.

Please note that the areas without a colour are stresses above the scale. Only average stresses in the panel are used for the verification. These areas are not used for the panel verification.

The stress plots shown in the figures are the vertical and transverse axial stresses and shear stresses. Further information regarding the local FE-model and load cases is described in the report "General Design Principles".

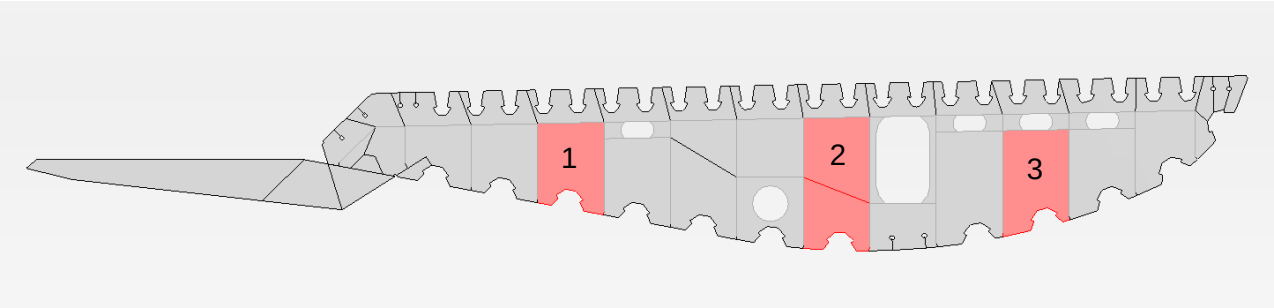


Figure 3-42 Critical panels in roadway diaphragm type 1

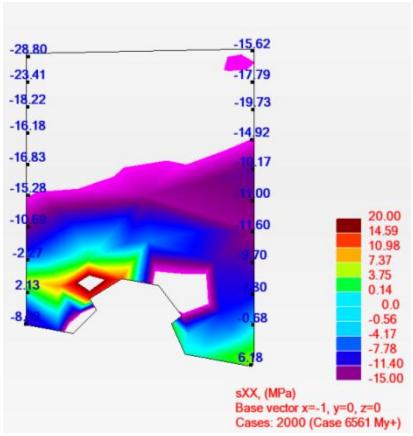
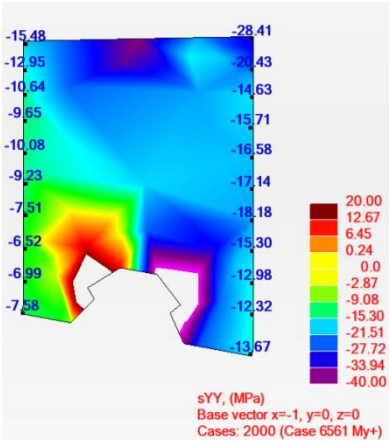
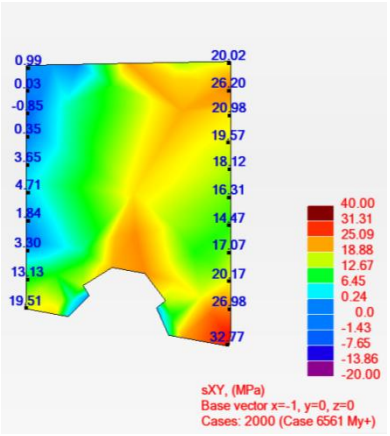
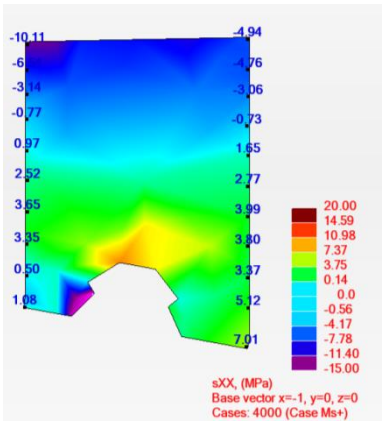
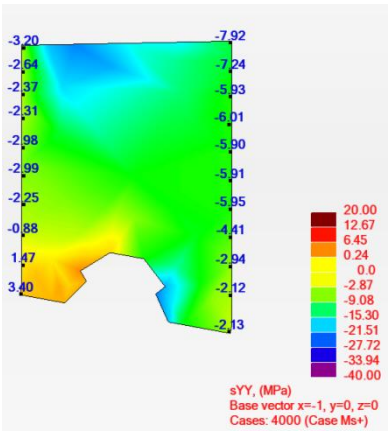
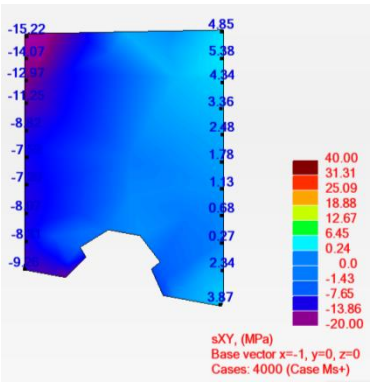
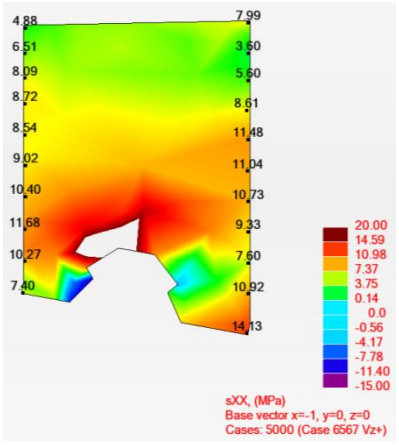
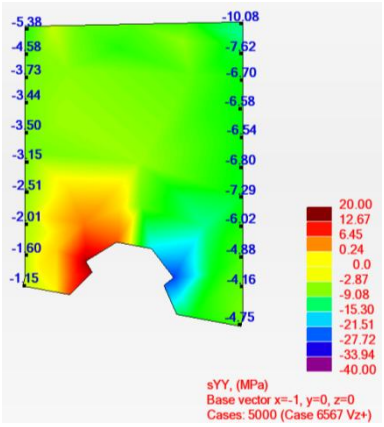
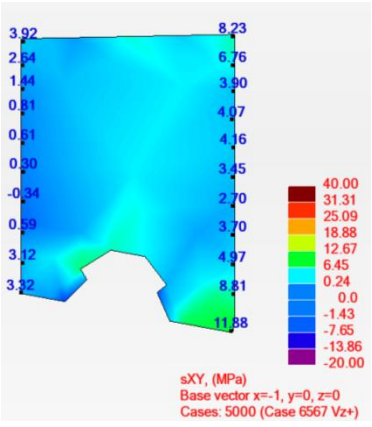
Load case	Horizontal stresses	Vertical stresses	Shear stresses
My+			
Ms+			
Vz+			

Figure 3-43 Stresses at panel edge for various load cases, Panel 1 roadway girder

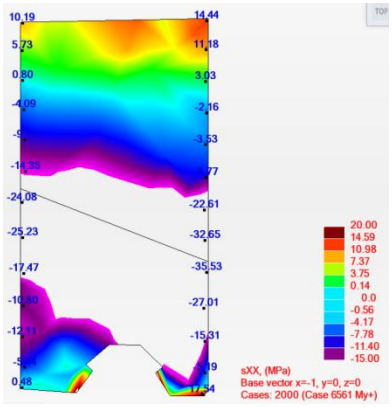
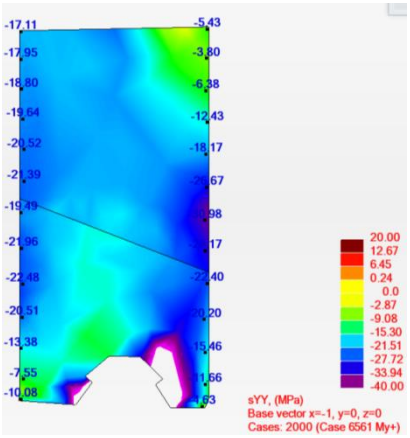
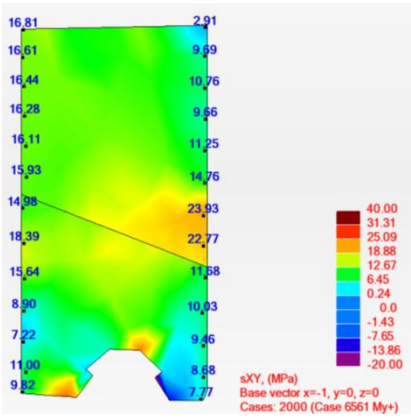
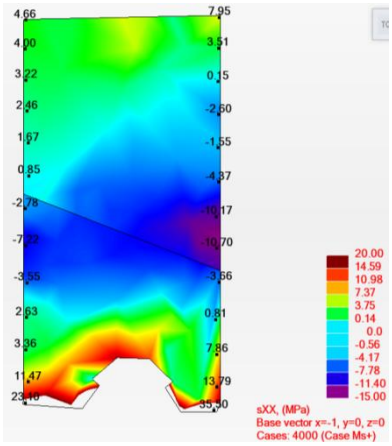
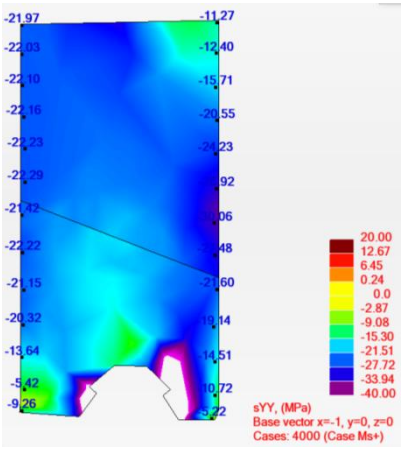
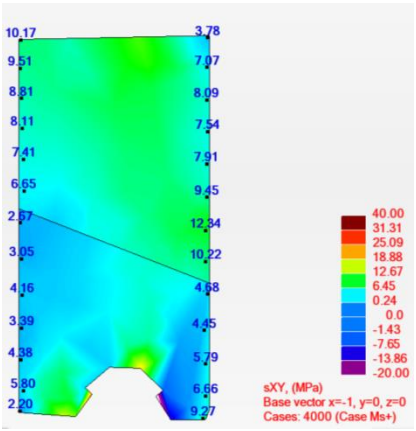
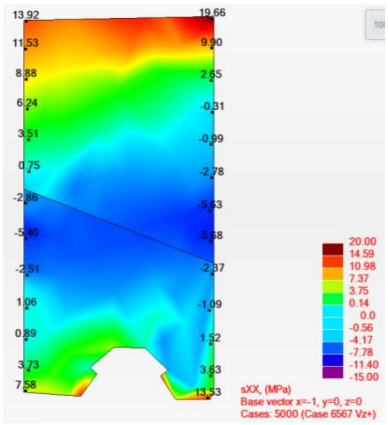
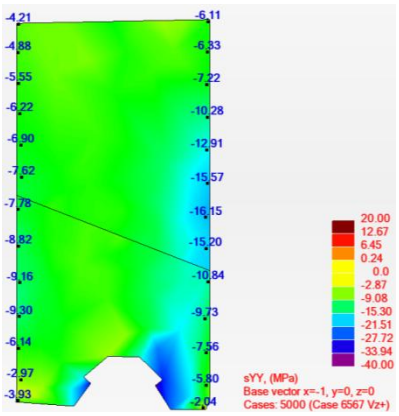
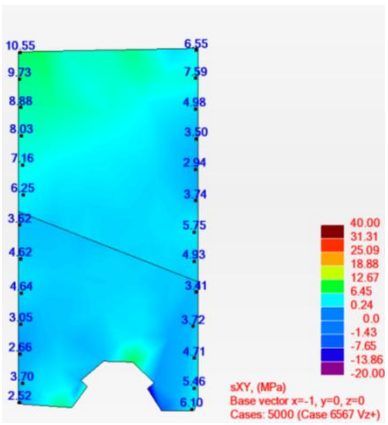
Load case	Horizontal stresses	Vertical stresses	Shear stresses
My+			
Ms+			
Vz+			

Figure 3-44 Stresses at panel edge for various load cases, Panel 2 roadway girder

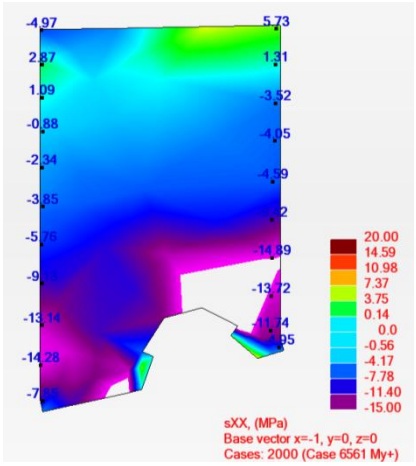
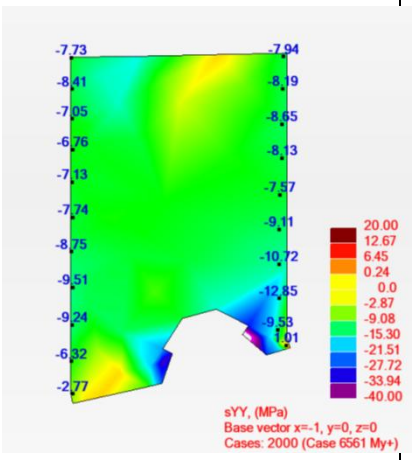
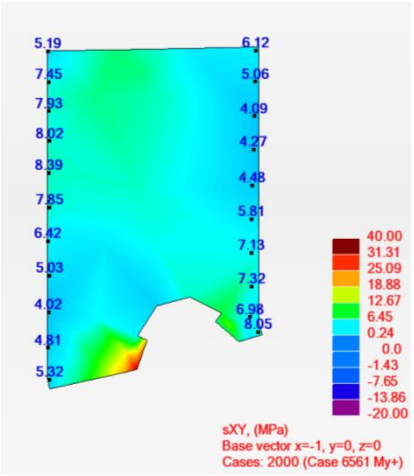
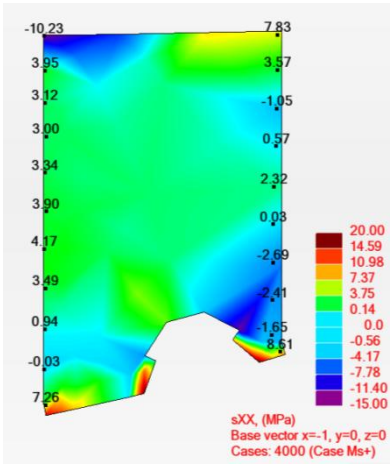
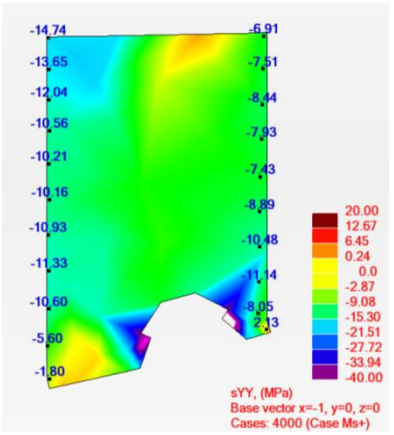
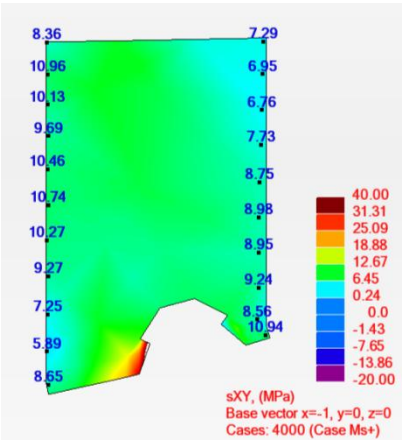
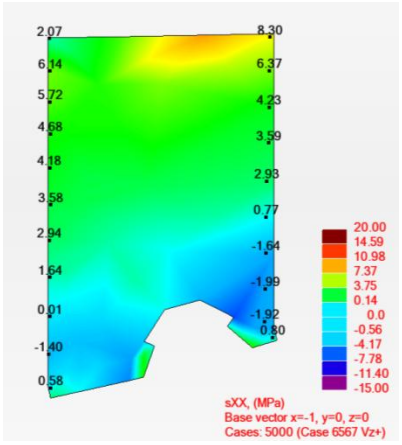
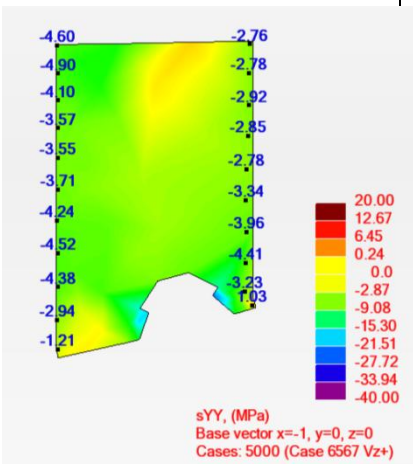
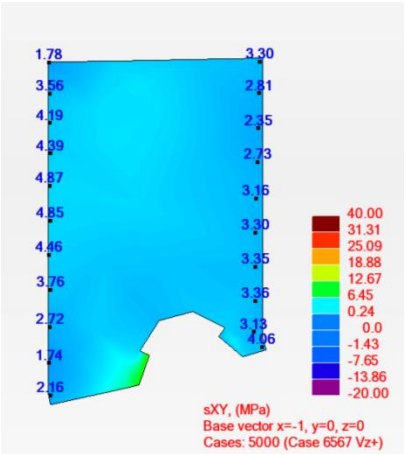
Load case	Horizontal stresses	Vertical stresses	Shear stresses
My+			
Ms+			
Vz+			

Figure 3-45 Stresses at panel edge for various load cases, Panel 3 roadway girder

3.8.1 Panel 1, 2 and 3, Roadway Girder

The most adverse stress condition for the panels is according to load case My+. It can be seen in Figure 3-43 to Figure 3-45 that the stress distribution varies over the panel height and from compression to tension. Knowing that the tension stress may act as stabilising, and because it is recommended in EN1993-1-5, section 10 only to use the reduced stress method for compressive parts, a uniform compression stress distribution has been considered in the calculations.

The actual stress distribution can be seen in Table 3-11. The stresses applied to the panels can be seen in Table 3-12 along with the calculated critical stress ratio factor. The applied stress condition and the critical buckling mode can be seen in Figure 3-46 to Figure 3-48.

Table 3-11 Actual stresses on the panels (Comp. negative)

Panel	Dimension hxb [mm]	sXX_top[MPa]	sXX_bot [MPa]	sYY [MPa]	sXY [MPa]
1	1200x1000	-20	-8	-20	16
2	1830x1000	10	-25	-18	15
3	1300x1000	-5	-14	-10	6

Table 3-12 Applied stresses, calculated critical factor and UR. (Comp. negative)

Panel	sXX[MPa]	sYY [MPa]	sXY [MPa]	ϕ_{cr}	UR
1	-20	-20	16	1.01	0.14
2	-25	-20	15	1.03	0.19
3	-10	-10	6	3.00	0.02

From the table it can be seen that UR<1.0, thus indicating that all panels has sufficient capacity and will not become instable under the applied stress conditions.

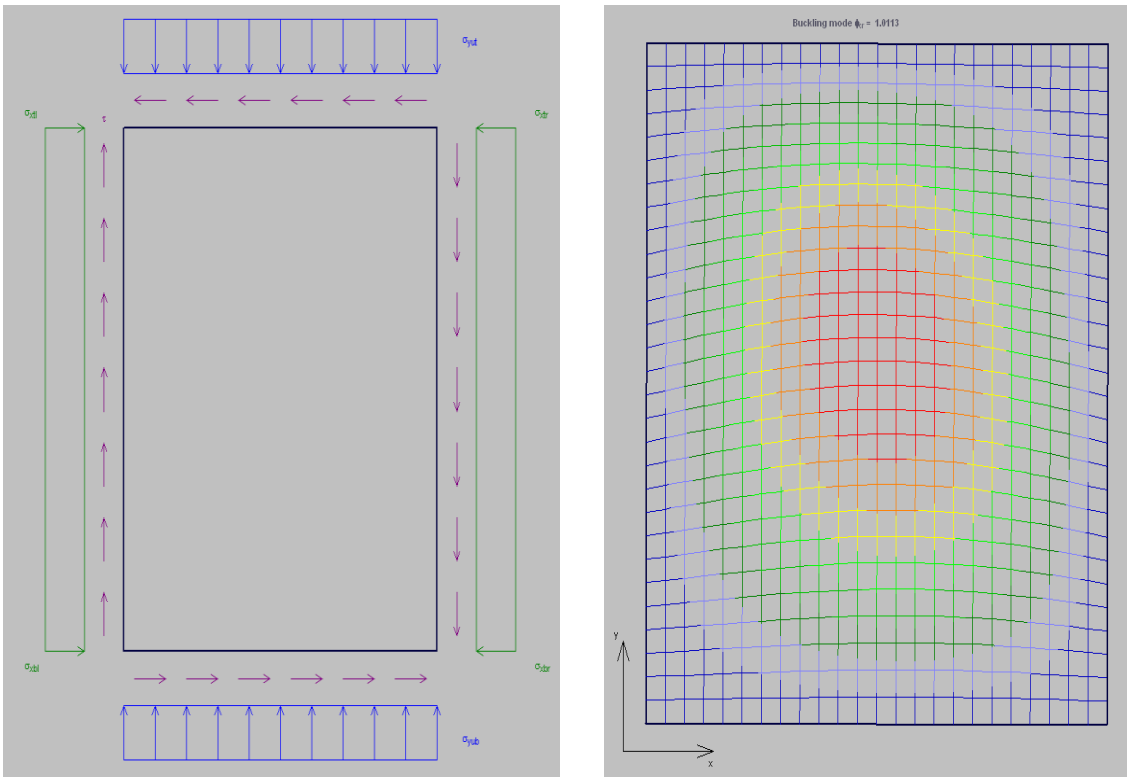
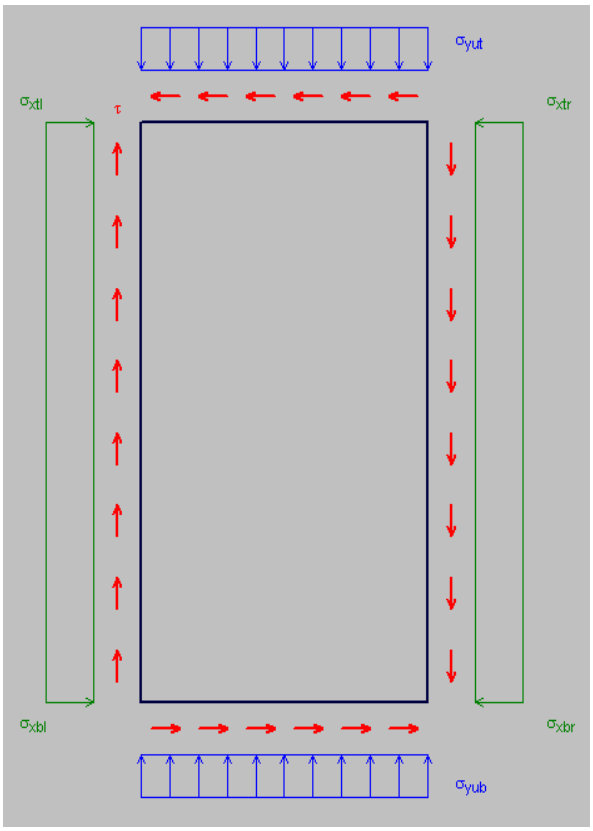


Figure 3-46 Critical buckling mode of panel for applied stress condition, Roadway Panel 1



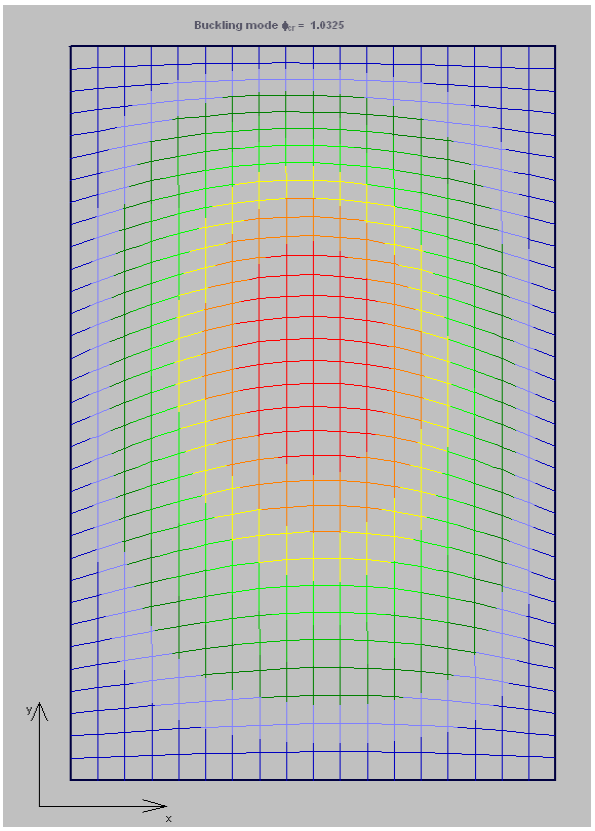


Figure 3-47 Critical buckling mode of panel for applied stress condition, Roadway Panel 2

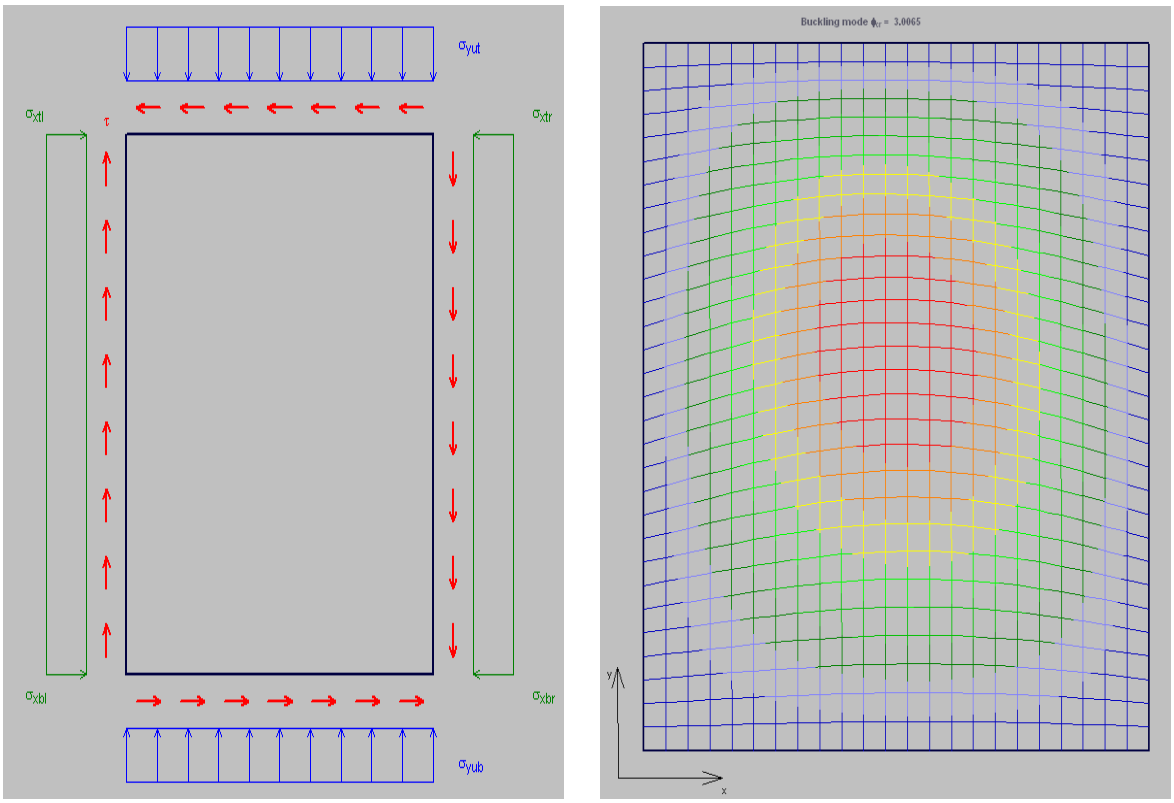


Figure 3-48 Critical buckling mode of panel for applied stress condition, Roadway Panel 3

4 Railway Girder - Verification

4.1 Introduction

In the following the overall design of the railway girder is described. Furthermore the method for verifying the railway girder design with regards to ULS combinations and seismic based on time history analysis is explained.

4.2 Global Force Distribution

The distribution of sectional forces, Ns, My, Mz, Vy, Vz and Mt, imported from IBDAS are presented in Figure 4-1 to Figure 4-24. The forces are presented for the dead load and superimposed dead load combination and the ULS load combination dynamic wind. The railway girder is continuous from one terminal structure to the other and is therefore subjected to constraining forces in tower span; the towers are located at ±1650 m and centreline of main span is located at 0 m.

In Table 4-1 the most relevant loads and load combinations are listed used in the verification of the longitudinal steel in the railway girder. In order to show the magnitude of these loads the force curves are supplied in the following. Plus symbols in the table indicate that the particular sectional force is taken out as the maximum positive value and minus indicates the maximum negative value.

Table 4-1 Relevant load cases and combinations important for the design of the longitudinal steel

IBDAS Load case		**Ns+**	**My+**	**Mz+**	**Vy+**	**Vz+**	**Mt+**
Dead load and superimposed dead load	1	X	X	X	X	X	X
ULS-combination dynamic wind	6570	X	X	X	X	X	X
QL vertical rail load	553		X			X	X
IBDAS Load case		**Ns-**	**My-**	**Mz-**	**Vy-**	**Vz-**	**Mt-**
ULS-combination dynamic wind	6570	X	X	X	X	X	X
QL vertical rail load	553		X			X	X

ULS Combination with dynamic wind is governing for the ULS design. The load cases are defined in the IBDAS report "Global IBDAS Model Description".

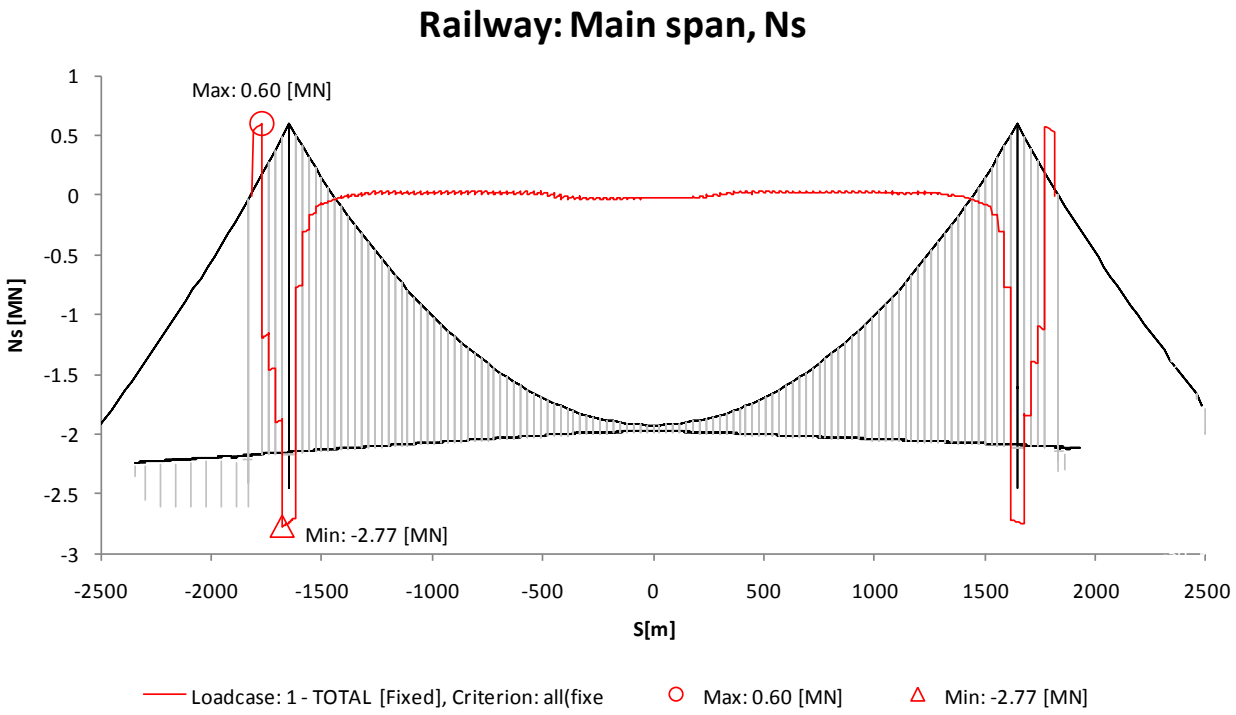


Figure 4-1 Axial force, Ns, in railway girder from dead load and superimposed dead load

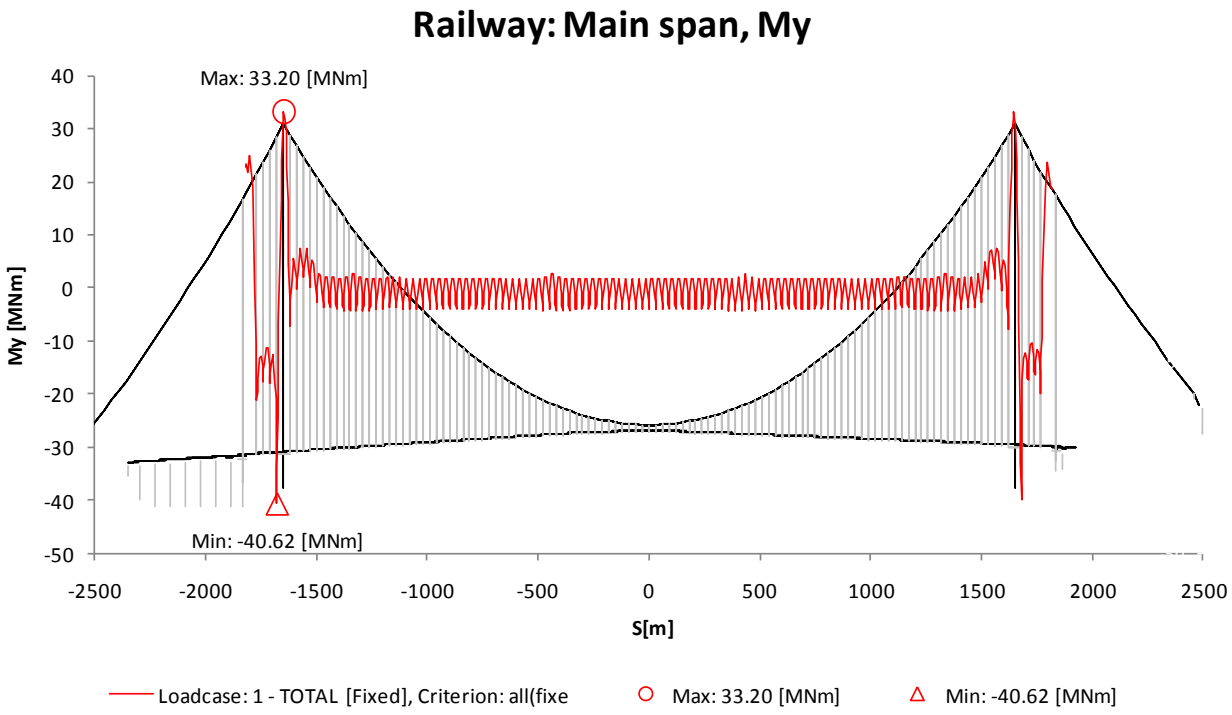


Figure 4-2 Bending moment, My, in railway girder from dead load and superimposed dead load

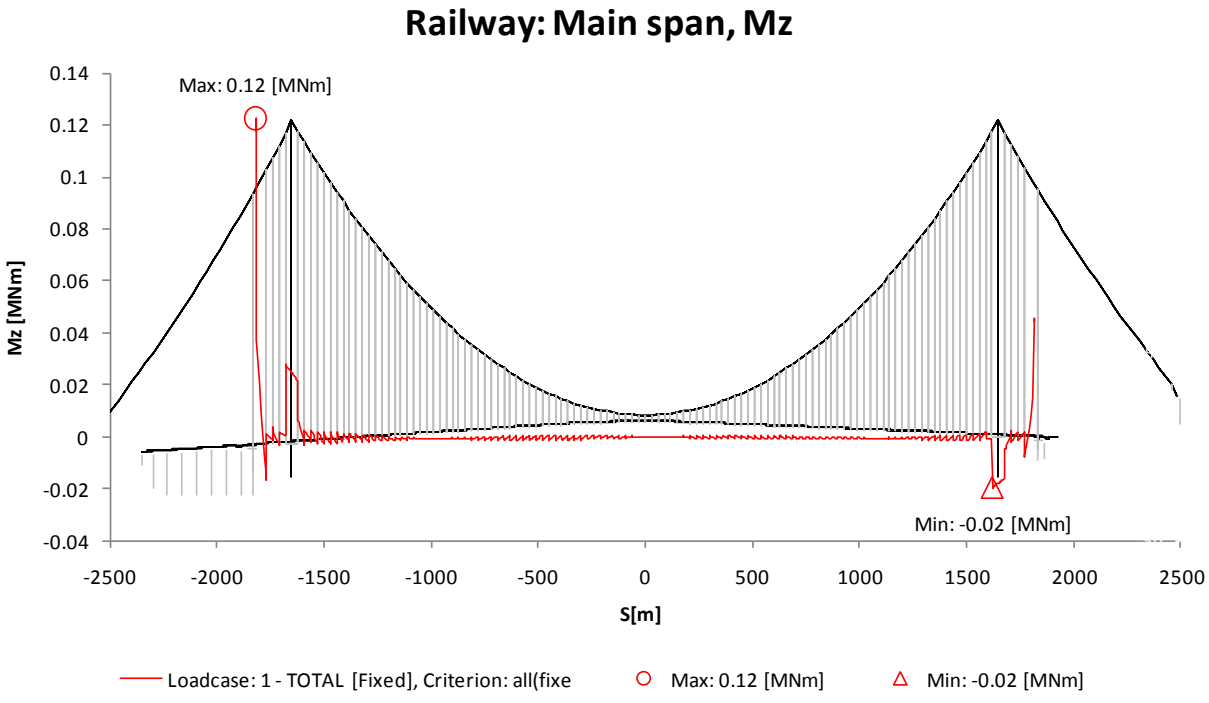


Figure 4-3 Bending moment, Mz, in railway girder from dead load and superimposed dead load

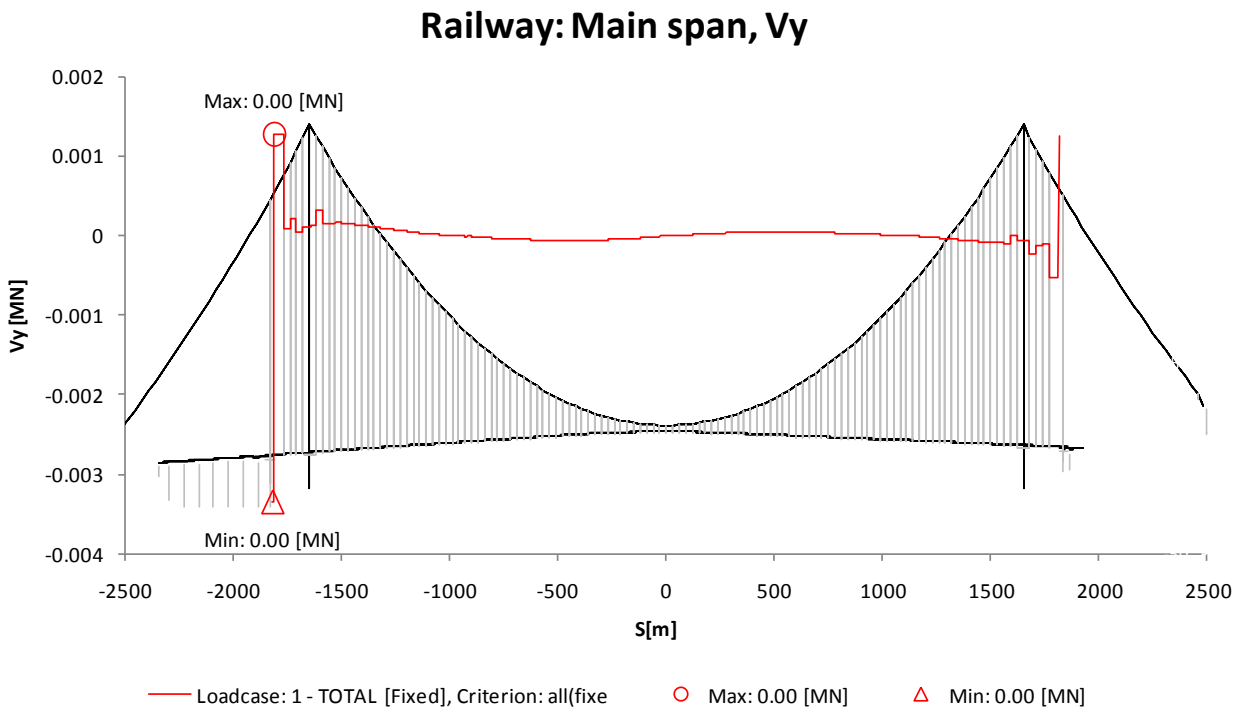


Figure 4-4 Shear force, Vy, in railway girder from dead load and superimposed dead load

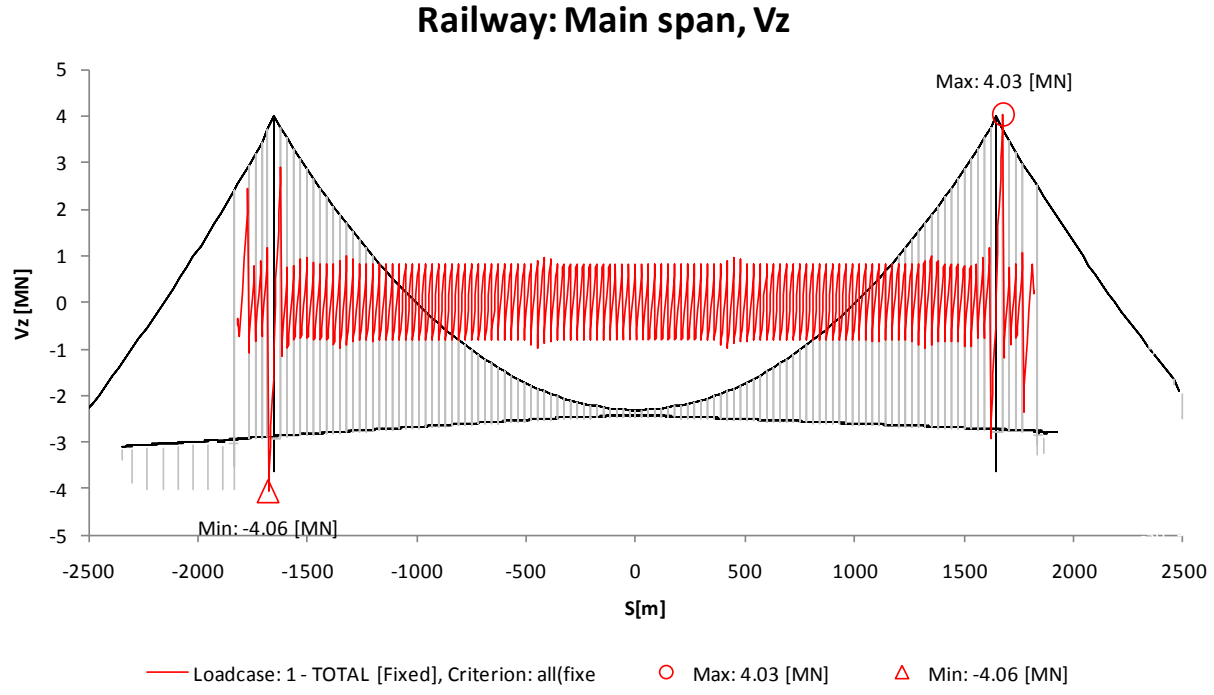


Figure 4-5 Shear force, Vz, in railway girder from dead load and superimposed dead load

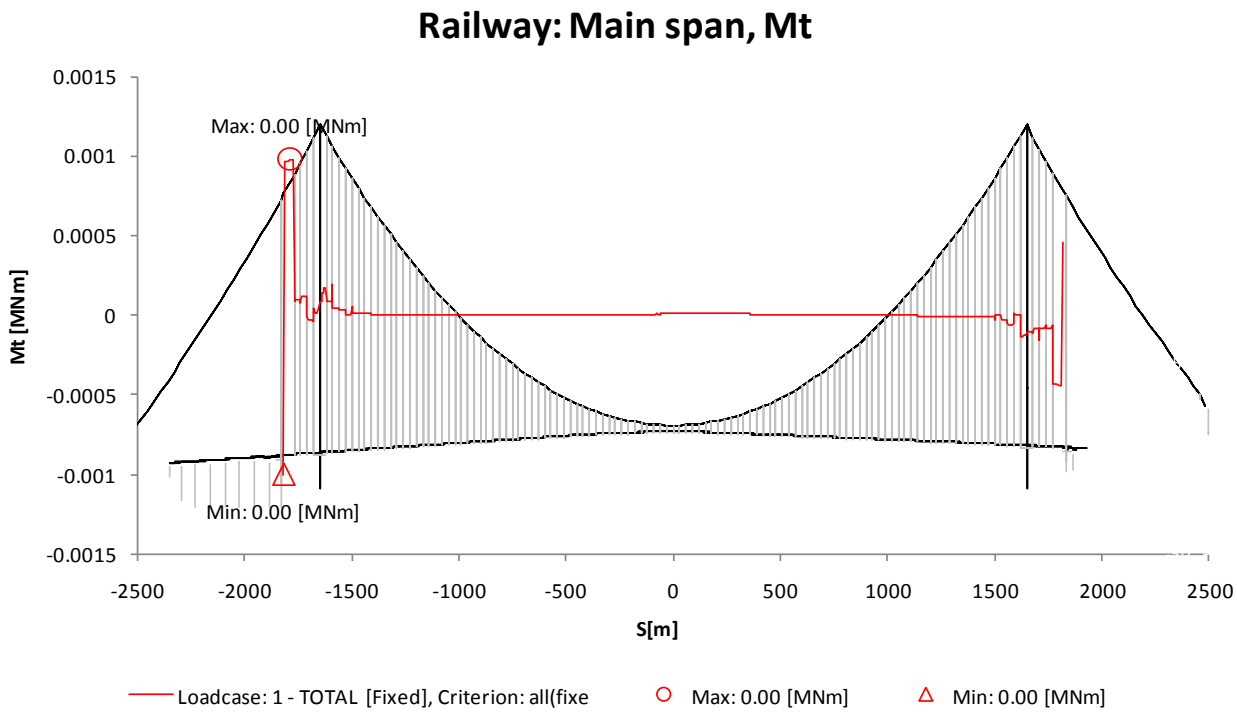


Figure 4-6 Torsional moment, Mt, in railway girder from dead load and superimposed dead load

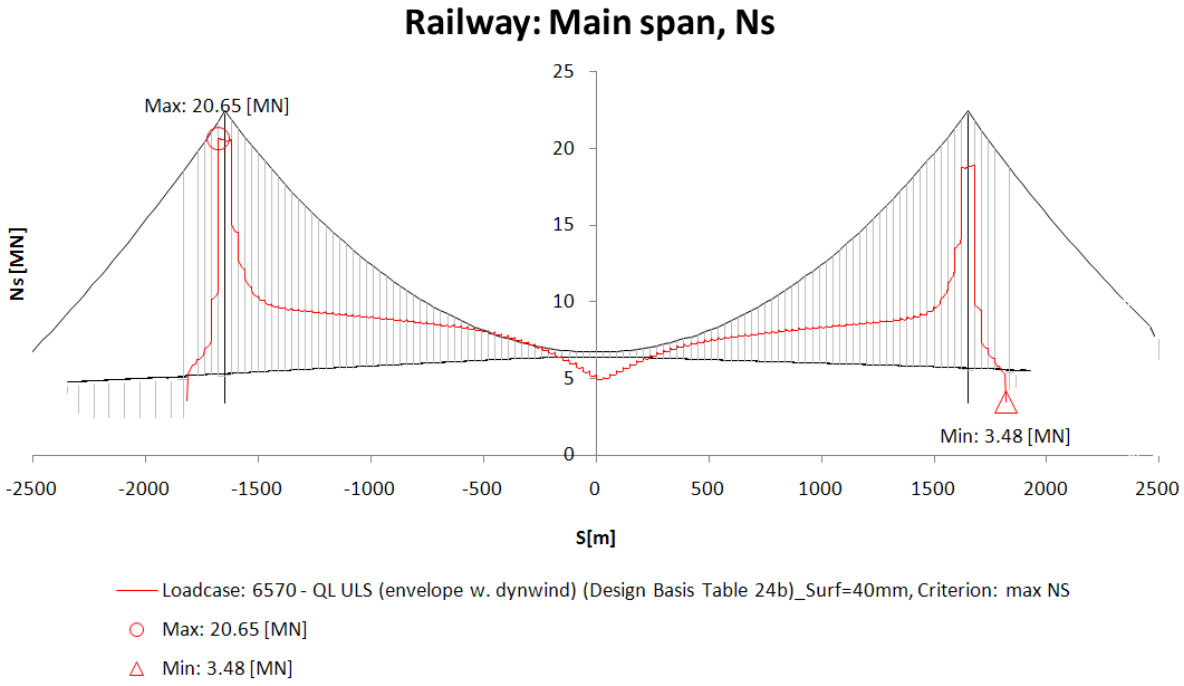


Figure 4-7 Max axial force Ns in railway girder from ULS dynamic wind load combination

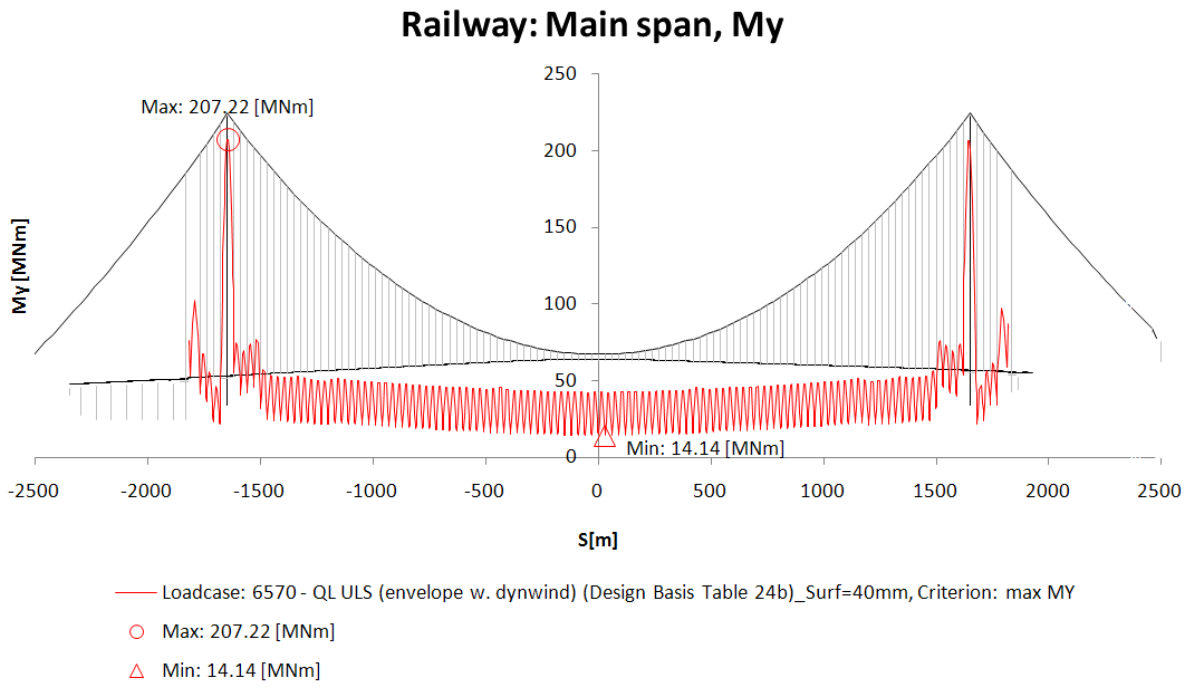


Figure 4-8 Max bending moment My in railway girder from ULS dynamic wind load combination

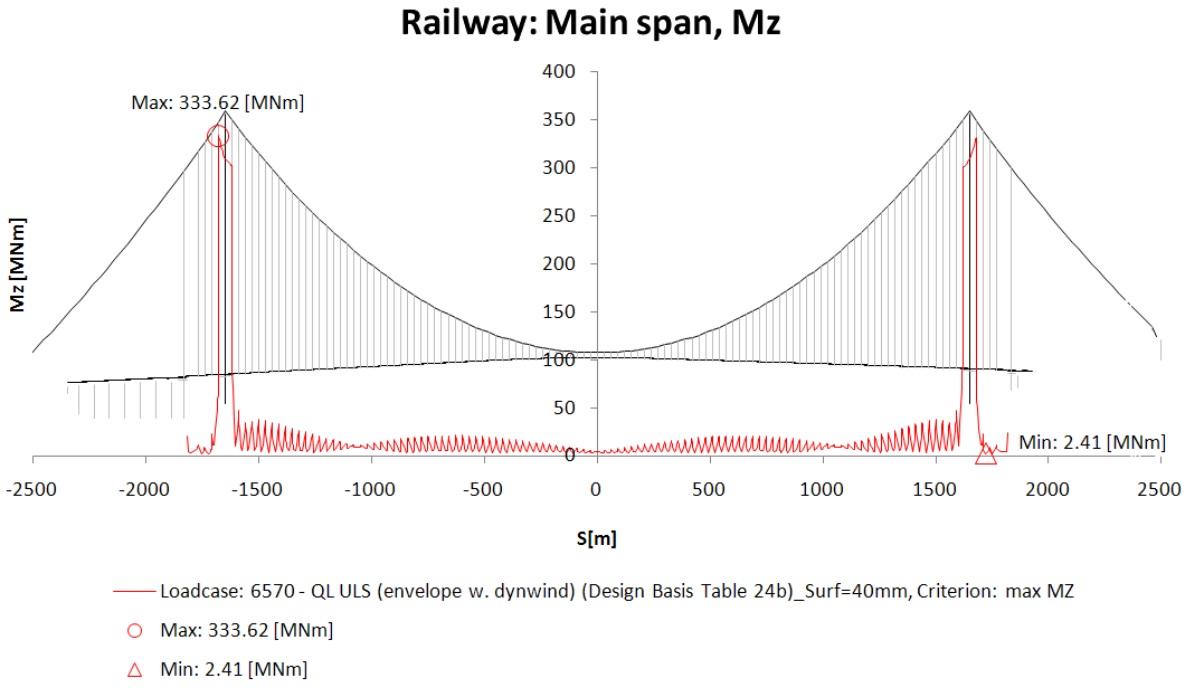


Figure 4-9 Max bending moment Mz in railway girder from ULS dynamic wind load combination

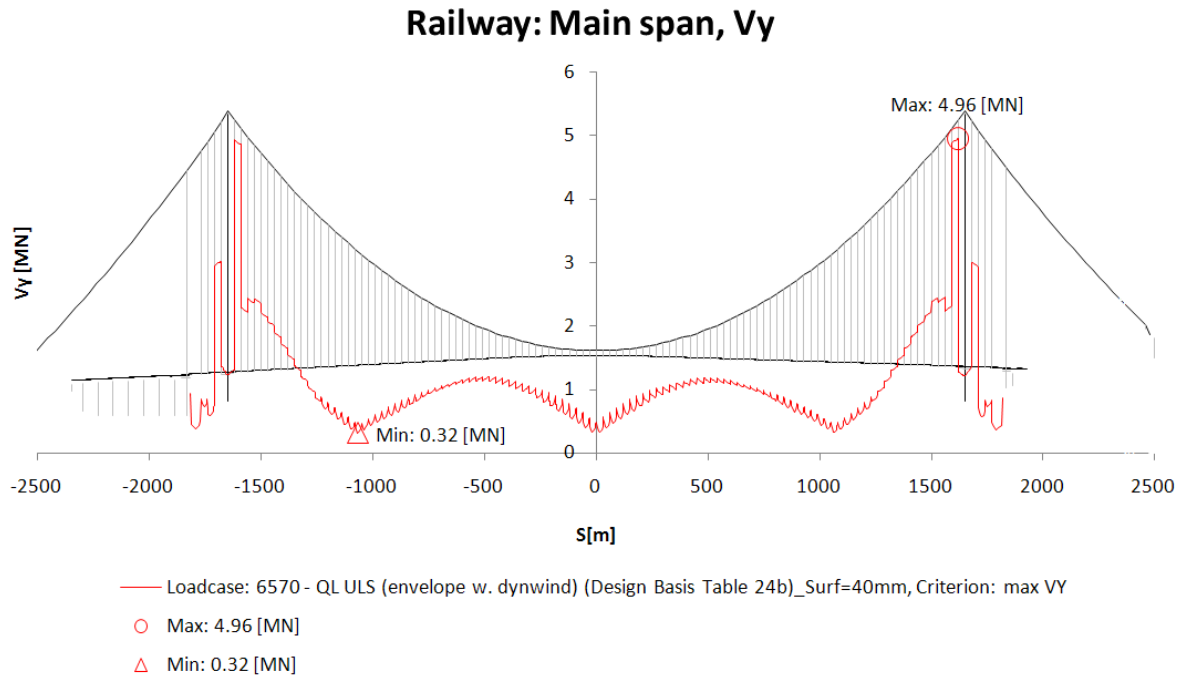


Figure 4-10 Max shear force, Vy, in railway girder from ULS dynamic wind load combination

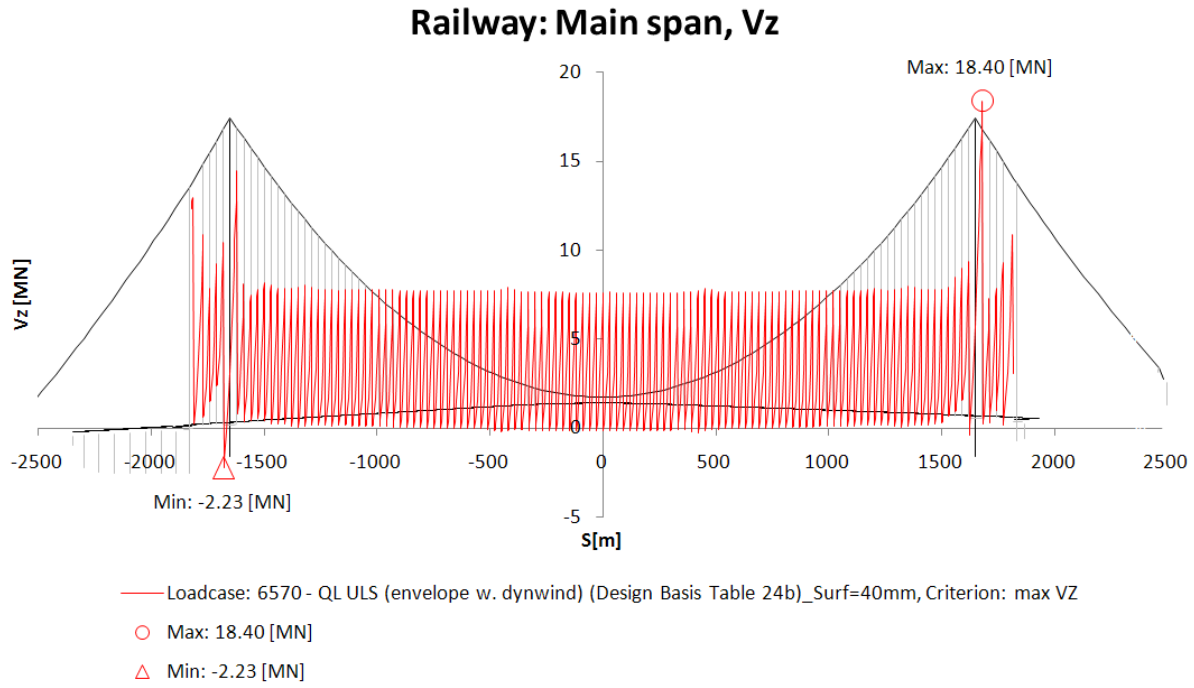


Figure 4-11 Max shear force, Vz, in railway girder from ULS dynamic wind load combination

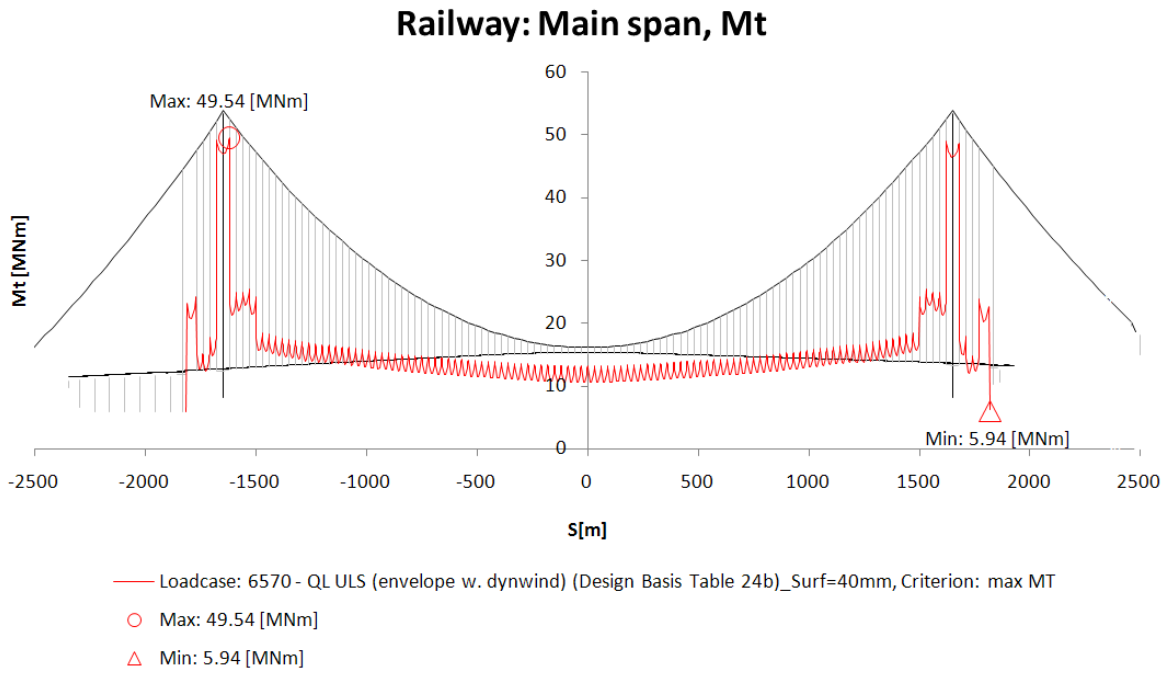


Figure 4-12 Max torsional moment Mt in railway girder from ULS dynamic wind load combination

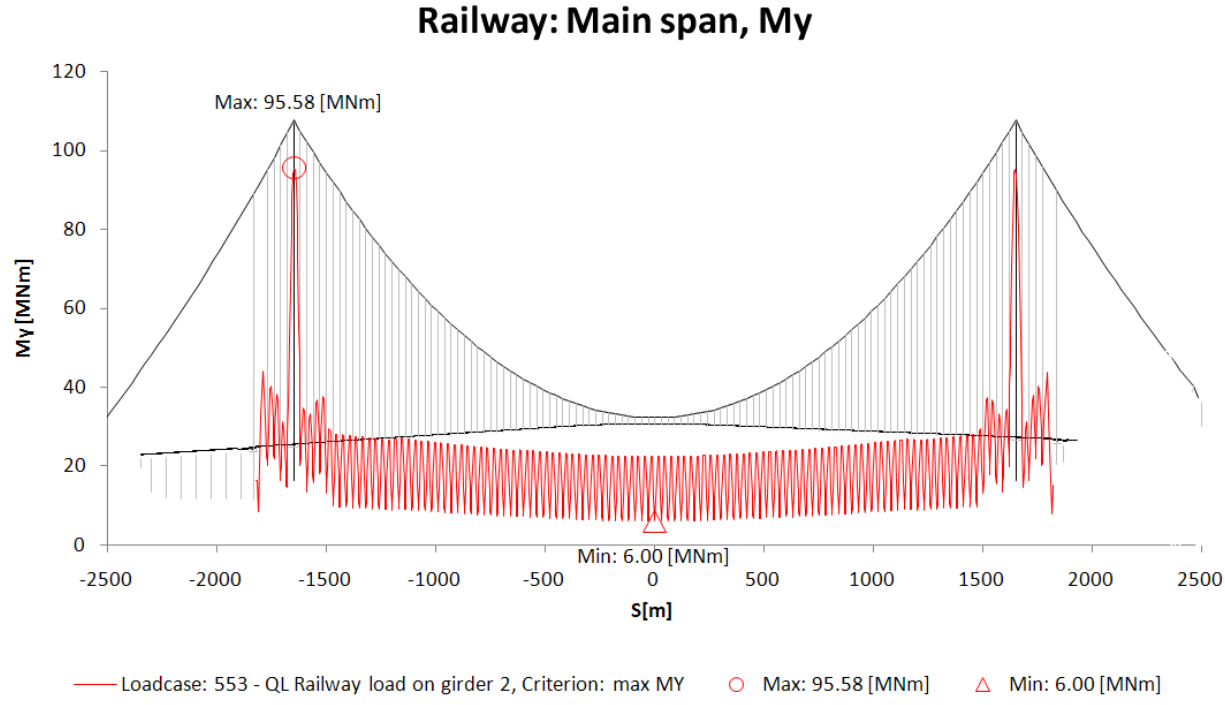


Figure 4-13 Max bending moment My in railway girder, QL vertical rail load

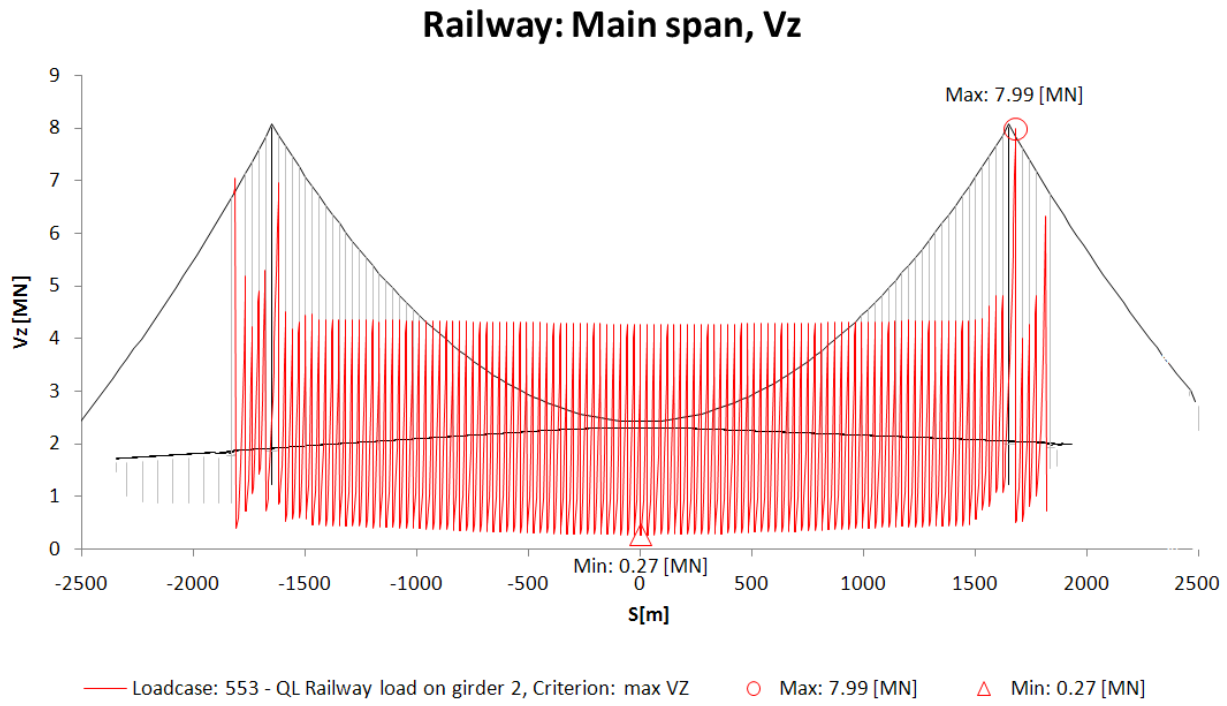


Figure 4-14 Max shear force Vz in railway girder, QL vertical rail load

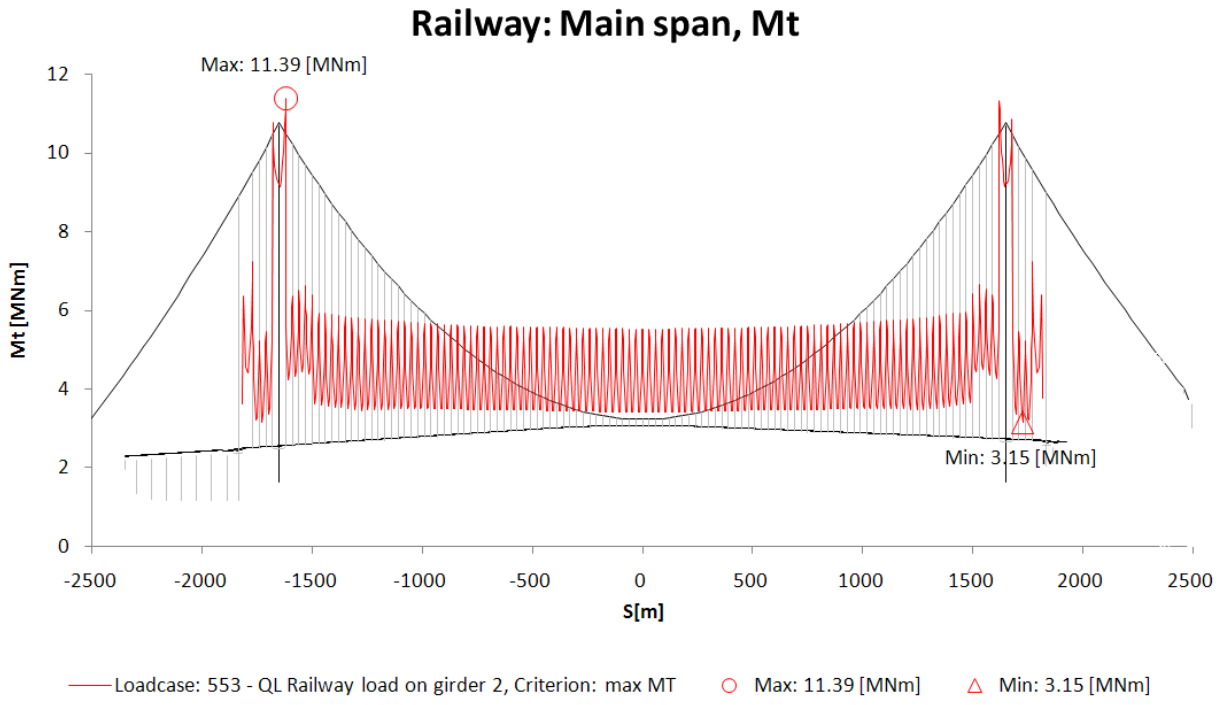


Figure 4-15 Max torsional moment Mt in railway girder, QL vertical rail load

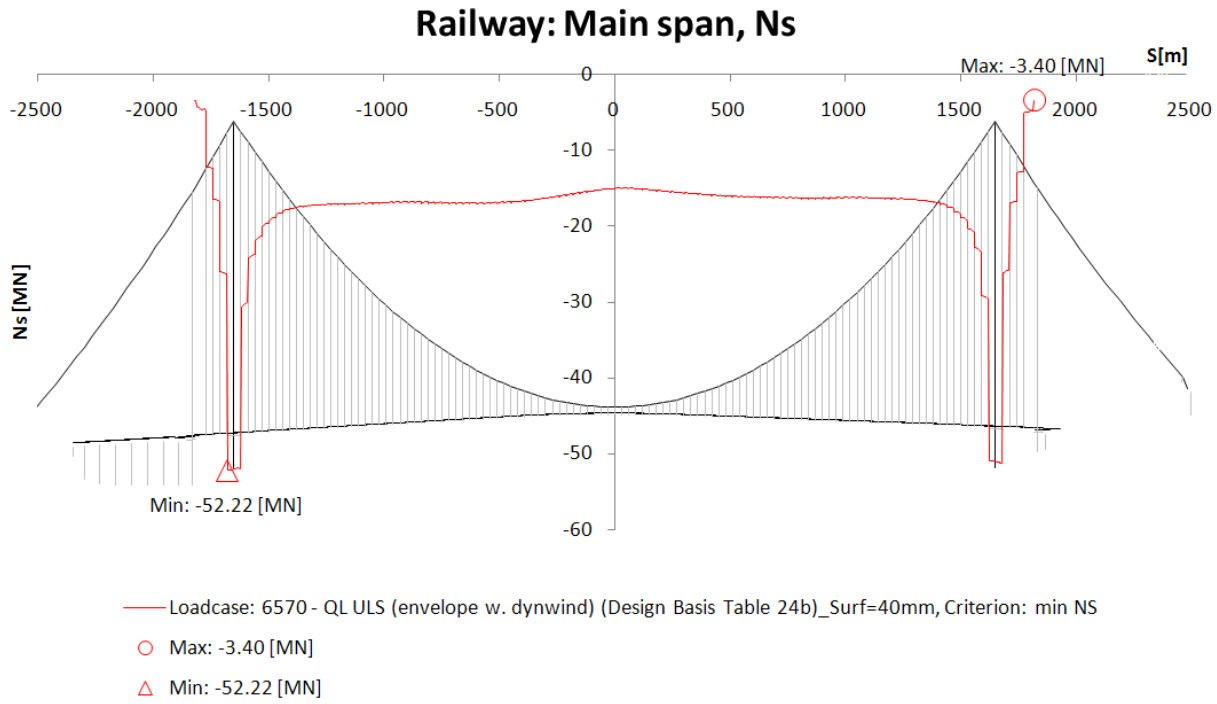


Figure 4-16 Min axial force Ns in railway girder from ULS dynamic wind load combination

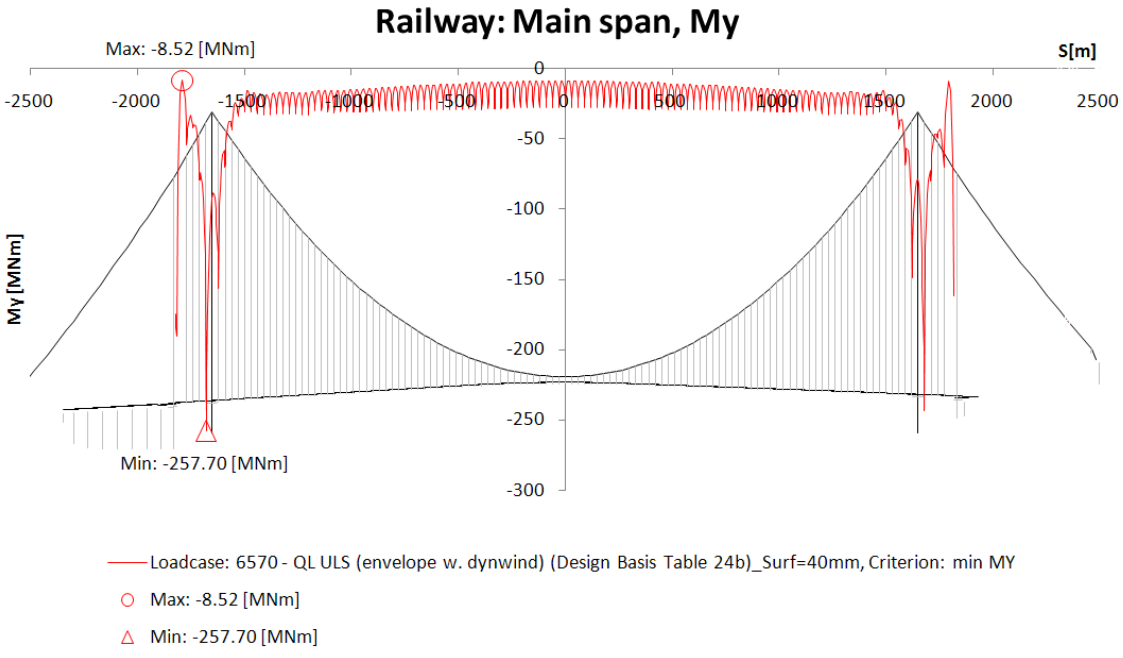


Figure 4-17 Min bending moment My in railway girder from ULS dynamic wind load combination

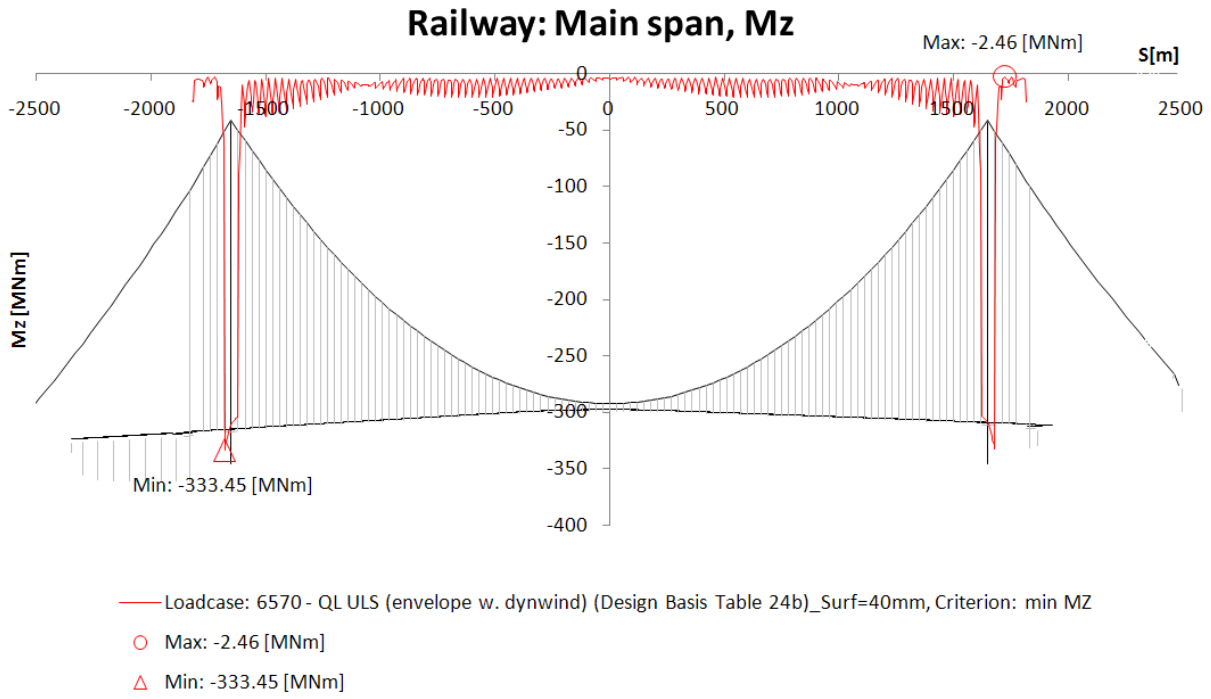


Figure 4-18 Min bending moment Mz in railway girder from ULS dynamic wind load combination

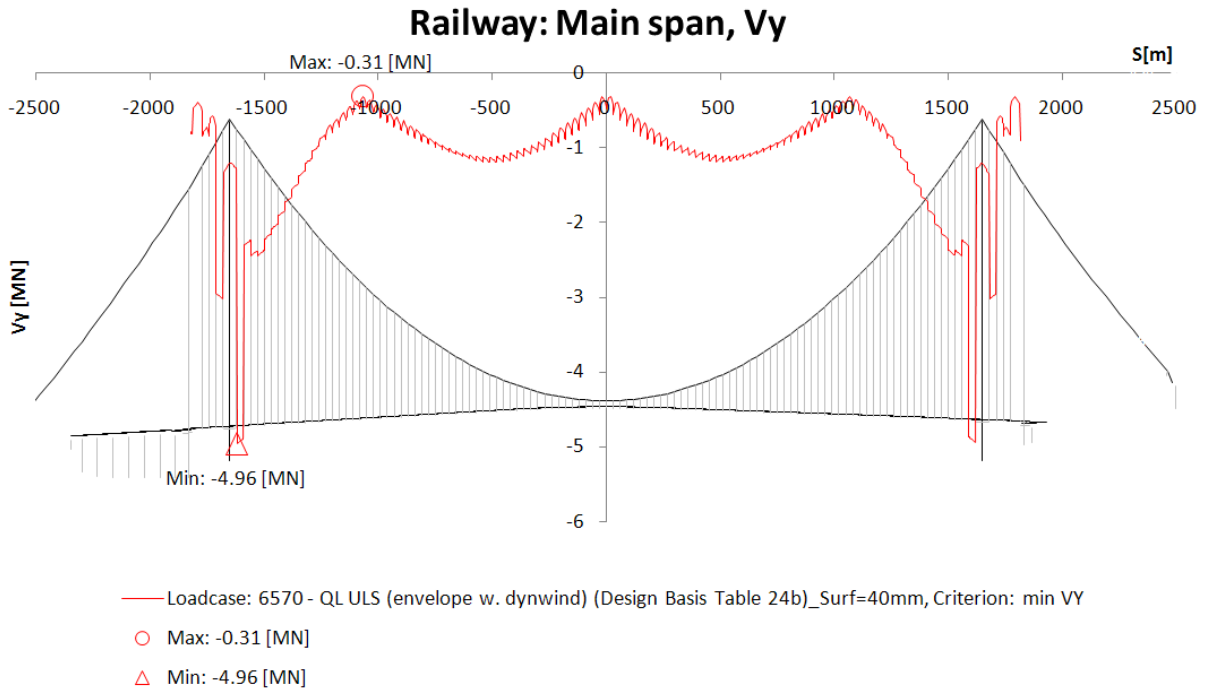


Figure 4-19 Min shear force, Vy, in railway girder from ULS dynamic wind load combination

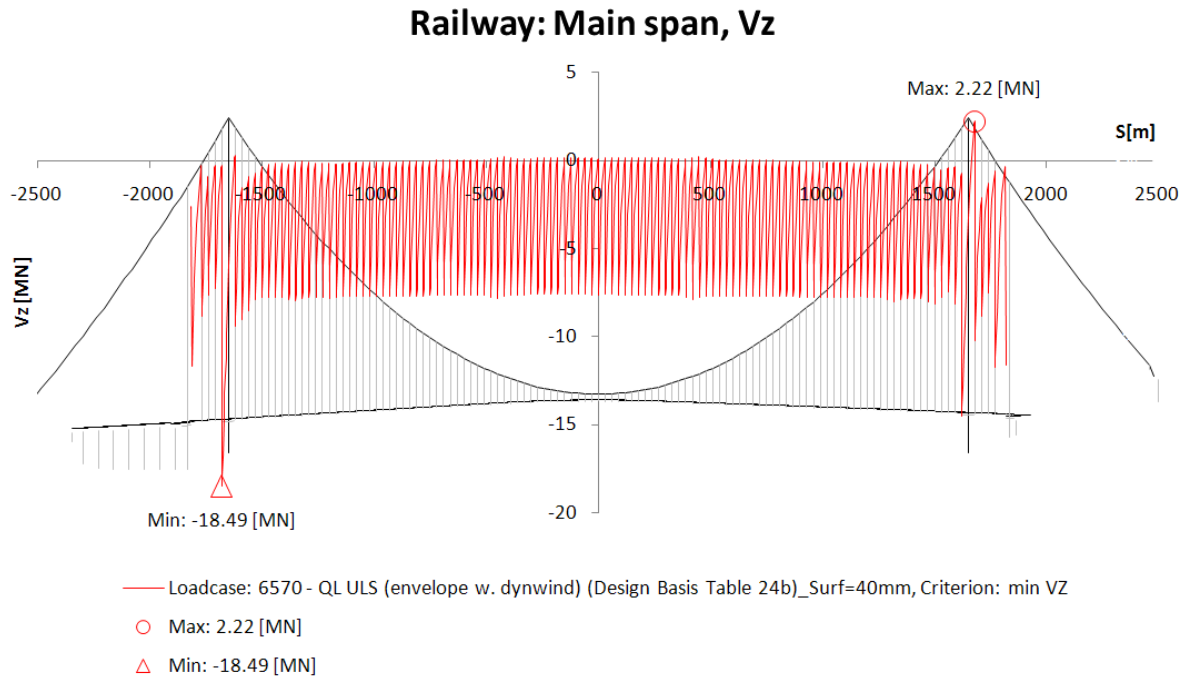


Figure 4-20 Min shear force, Vz, in railway girder from ULS dynamic wind load combination

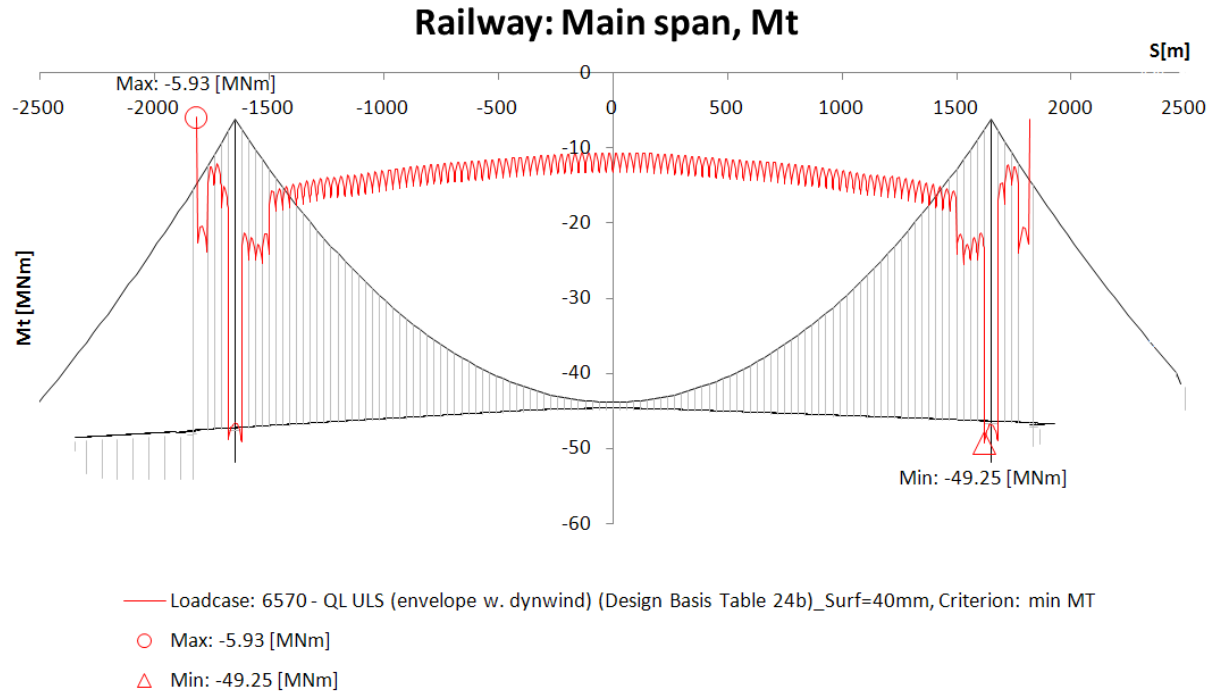


Figure 4-21 Min torsional moment Mt in railway girder from ULS dynamic wind load combination

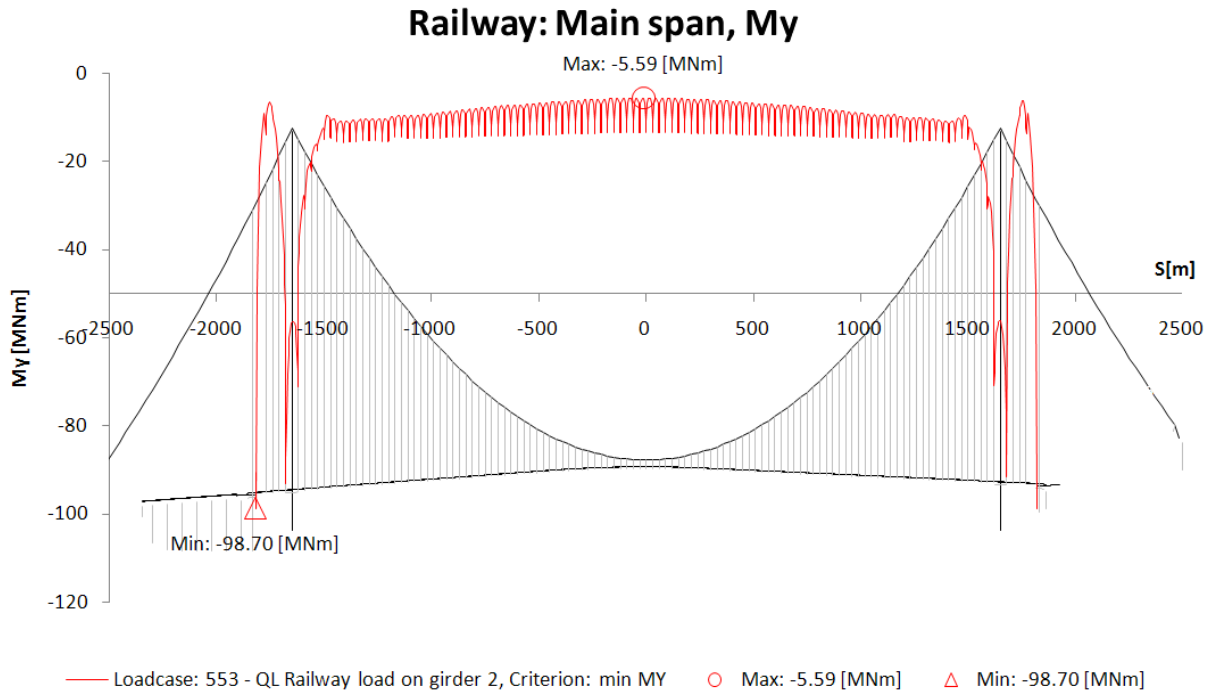


Figure 4-22 Min bending moment My in railway girder, QL vertical rail load

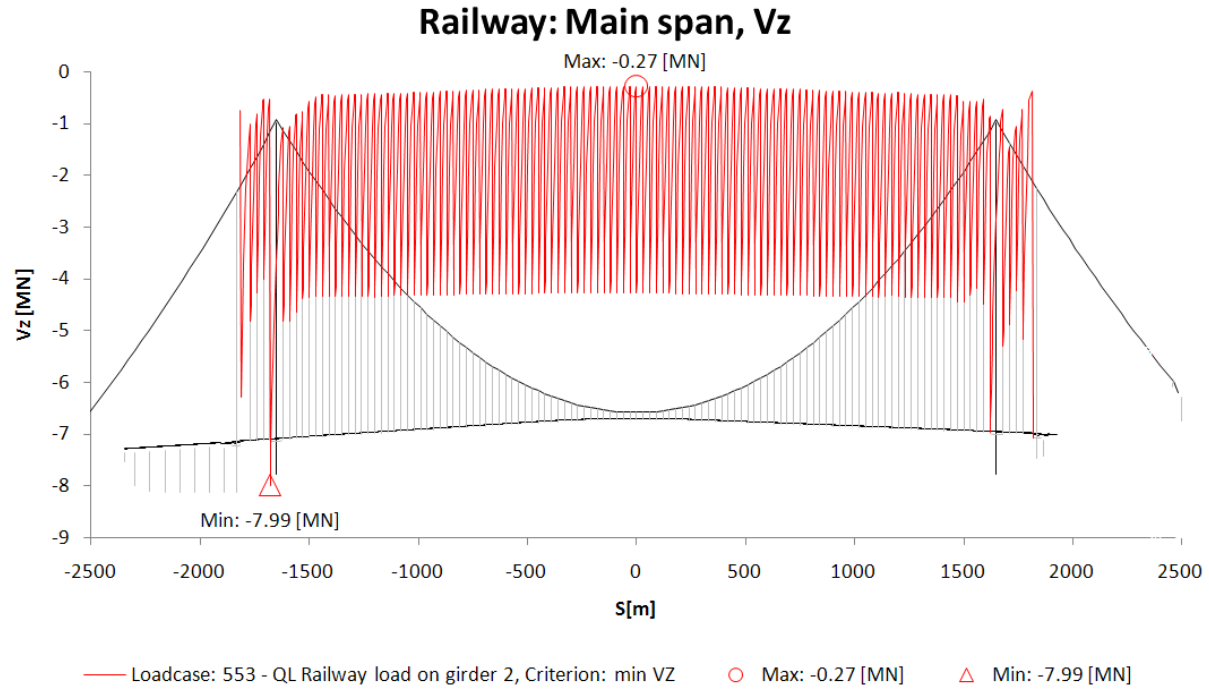


Figure 4-23 Min shear force Vz in railway girder, QL vertical rail load

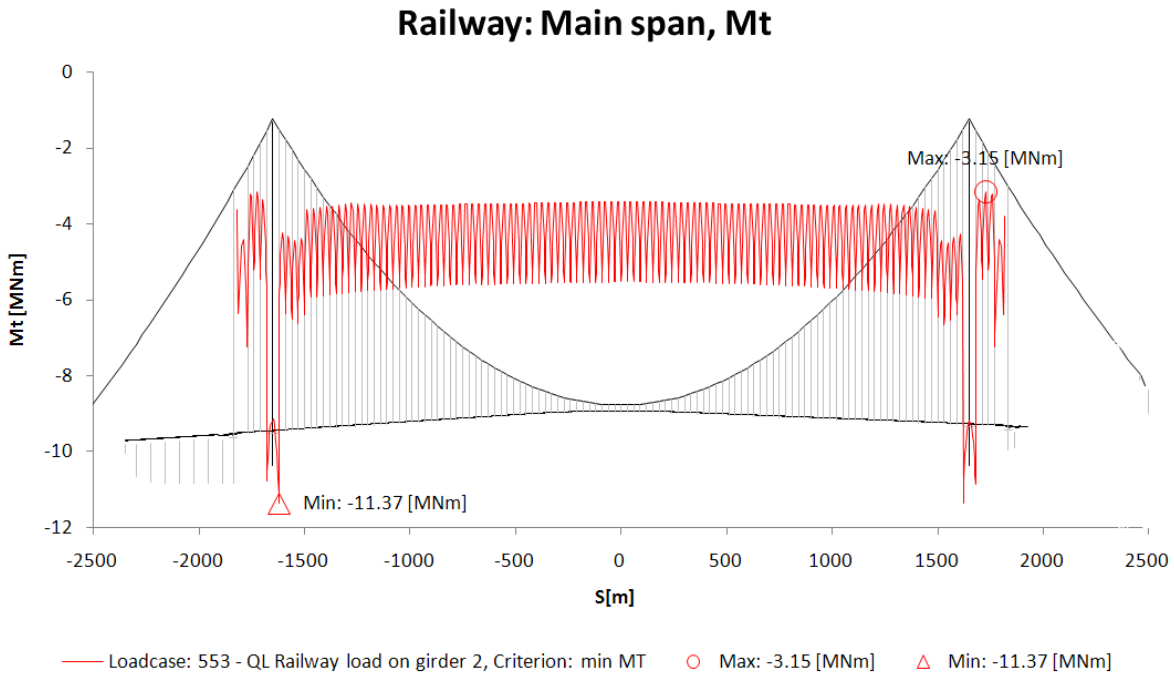


Figure 4-24 Min torsional moment Mt in railway girder, QL vertical rail load

4.3 Girder types

The suspended deck comprises 10 different railway girders (CF1-CF9b). The change in girder type is dependent on the steel grade, plate thickness and girder height. The location of different cross sections is illustrated in Figure 4-25 for half the bridge length.

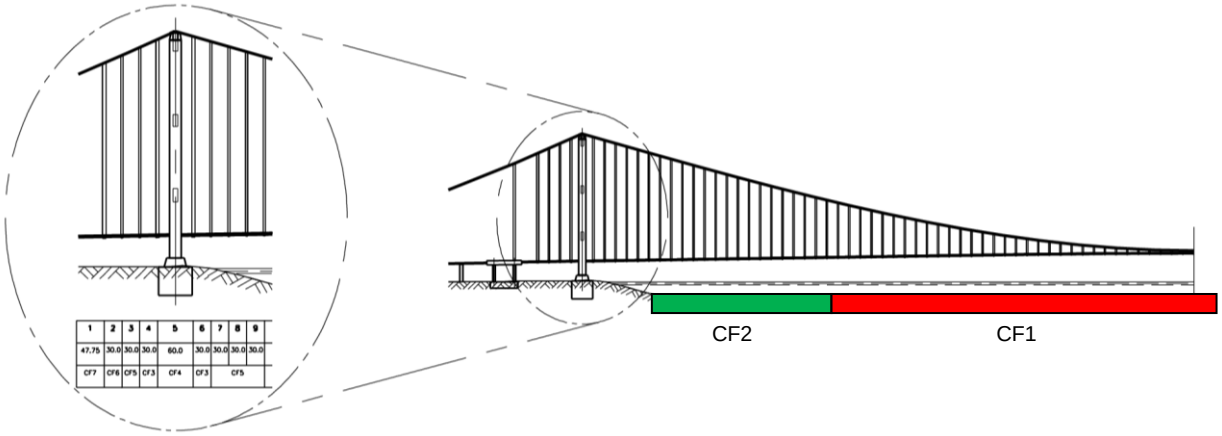


Figure 4-25 Distribution of the cross sections for the railway girder throughout the bridge

4.4 Cross Section Geometry

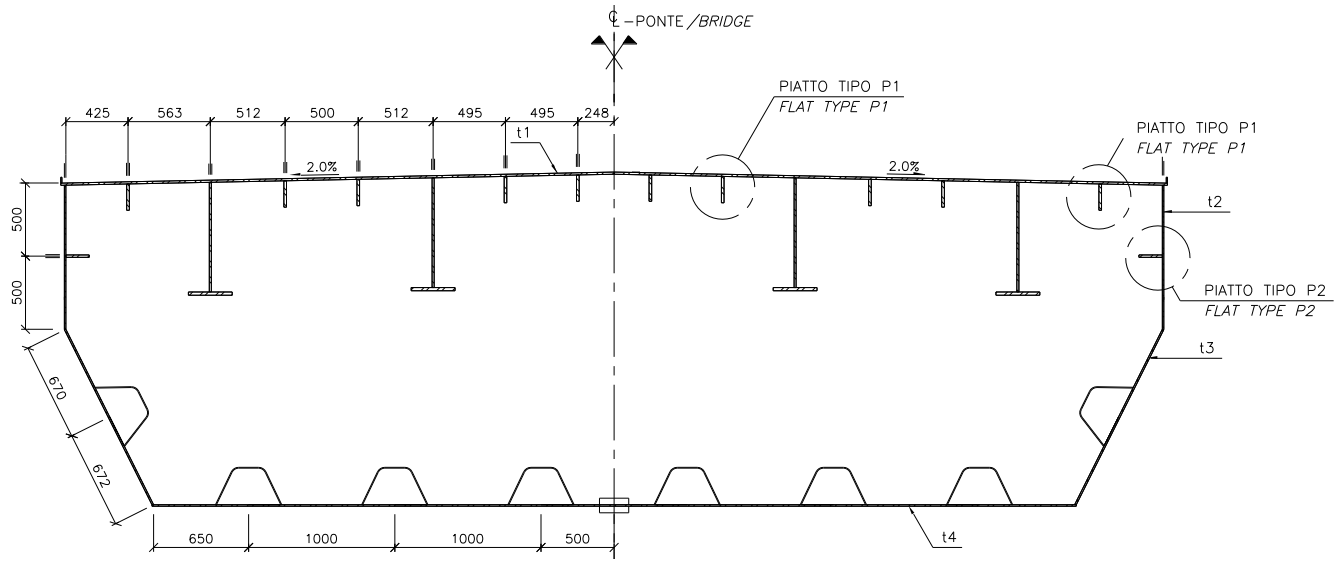


Figure 4-26 General cross section of railway girder

A summary of plate thicknesses for the 10 different railway cross sections are shown in Table 4-2, the table also includes the different types of T- and Flat stiffeners.

Table 4-2 Thicknesses for the longitudinal steel

Railway girder type	CF1	CF2	CF3	CF4	CF5	CF6	CF7	CF8	CF9a	CF9b
Deck plate	15	15	15	48	15	15	18	15	16	16
Web plate	10	10	10	50	10	10	20	20	-	-
Incl. web plate	10	10	10	50	10	10	20	12	20	16
Bottom plate	10	10	30	50	14	20	35	25	20	80
Trough RF1	6	6	6	8	6	6	6	6	6	6
T stiffener	750x14 300x22	750x14 300x22	750x14 300x22	750x14 300x22	750x14 300x22	750x14 300x22	750x14 300x22	750x14 300x22	450x14 350x18	-
Flat P1	180x18	180x18	180x18	-	180x18	180x18	180x18	180x18	-	-
Flat P2	160x16	160x16	160x16	-	160x16	160x16	160x16	160x16	160x16	-
Flat P3	-	-	-	200x20	-	-	-	-	-	-
Flat P4	-	-	-	200x20	-	-	-	-	-	-
Flat P5	-	-	-	240x24	-	-	-	-	-	-
Steel grade	S355	S420	S460	S460	S460	S460	S460	S460	S460	S460

4.5 Section properties

The sectional properties for railway girder cross sections are shown in Table 4-3.

Table 4-3 Cross sectional properties for gross sections

Roadway Girder Type	Cross Sectional Properties						
	C.G. y-direction [mm]	C.G. z-direction [mm]	A [m^2]	Iy [m^4]	Iz [m^4]	Ay [m^2]	Az [m^2]
CF1	0	1.395	0.365	0.302	2.033	0.188	0.046
CF2	0	1.395	0.365	0.302	2.033	0.188	0.046
CF3	0	1.302	0.506	0.754	2.625	0.314	0.057
CF4	0	1.620	1.166	1.920	7.672	0.745	0.305
CF5	0	1.619	0.405	0.549	2.289	0.213	0.057
CF6	0	1.483	0.443	0.637	2.415	0.251	0.057
CF7	0	1.294	0.617	0.886	3.551	0.380	0.112
CF8	0	1.412	0.502	0.719	2.888	0.285	0.084
CF9a	0	0.963	0.397	0.296	1.895	0.232	0.080
CF9b	0	0.585	0.646	0.393	3.014	0.453	0.132

4.6 Input to ADVERS

The capacity of the longitudinal steel has been verified using ADVERS. The geometrical input for the definition of the railway girder in ADVERS is shown in Figure 4-27.

WP	Coordinate	
	y	z
WP2	0	2285
WP3	3759	2210
WP4	3759	1210
WP5	3159	0
WP1	0	0

Stress point (SP)		
Name/Coordinate	y	z
SP1	-0.1	2277.5
SP2	3758.9	2202.5
SP3	3754.0	2210.0
SP4	3754.0	1210.0
SP5	3154.5	2.2
SP6	3754.5	1212.2
SP7	0.0	5.0

Stress point (U-stiffeners)		
Name/Coor.	y	z
LS1	3458.9	604.7
LS2	500.0	0.0
LS3	1500.0	0.0
LS4	2500.0	0.0

Stress point (T-stiffeners)		
Name/Coor.	y	z
LS5	248.0	2280.1
LS7	1237.8	2260.3
LS8	1749.7	2250.1
LS10	2761.5	2229.9
LS11	3324.3	2218.7
LS12	3759.0	1710.0

Centroid gross		Centroid effective (N<0)	
y	z	y	z
0	1394.963	0	1457.066361
4259	1394.963	4259	1457.066361

Figure 4-27 Definition of cross section in ADVERS

The cross section used in ADVERS is illustrated in Figure 4-28.

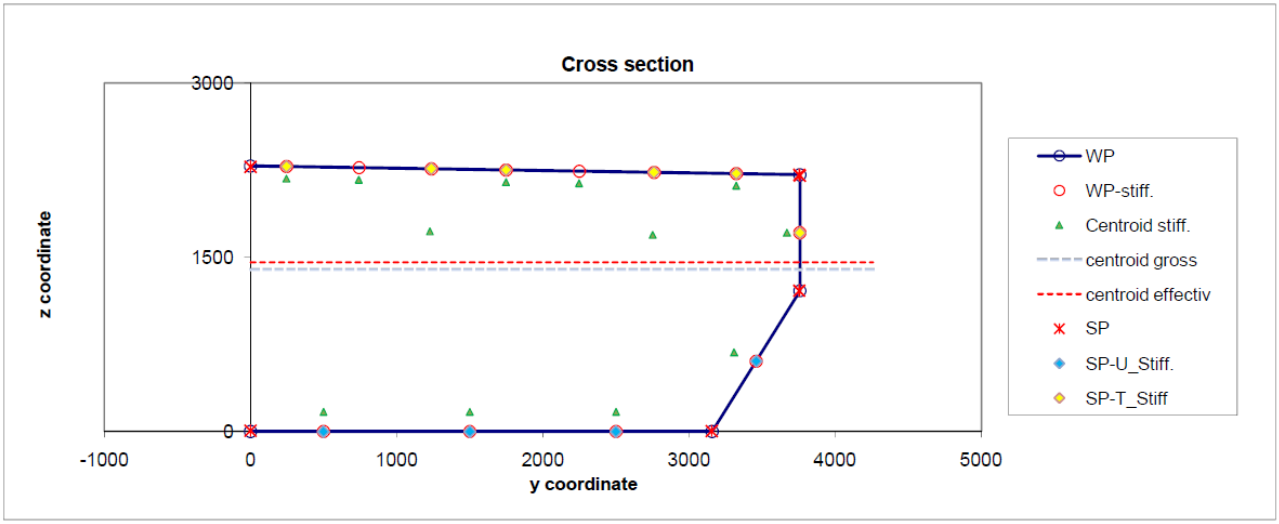


Figure 4-28 Cross section layout in ADVERS for the railway girder type CF1 and CF2

4.7 Verification - Longitudinal Steel

An overview of the results from ADVERS for the ULS load combination dynamic wind and the ULS load combination seismic (time history) is shown in Table 4-4 where the maximum utilisation ratios are given for each type of cross section.

It is seen that both stress checks and stability checks gives utilisation ratios of maximum 1.00 and dynamic wind is found to be governing for all checks in the main span.

The utilisation ratios for all verified sections are shown on figure 4.30 to 4.76.

Table 4-4 Overview of maximum utilisation ratios

Girder type	Load Case	Max UR			
		Stresses	Local Buckling Stiffened Panel	Plate Buckling	Overall Verifications
CF1, CF2	S-coordinate [mm]	-658	-975	-975	-975
	Dynamic wind	0.82	0.96	0.69	1.00
	S-coordinate [mm]	-448	-488	-448	-748
	Seismic (time history)	0.48	0.51	0.38	0.31
CF3, CF5, CF6	S-coordinate [mm]	-1588	-1588	-1588	-1588
	Dynamic wind	0.69	1.00	0.77	0.96
	S-coordinate [mm]	-1738	-1766	-1738	-1738
	Seismic (time history)	0.41	0.57	0.45	0.37
CF4	S-coordinate [mm]	-1677	-1650	-1677	-1677
	Dynamic wind	0.78	0.90	0.77	0.50
	S-coordinate [mm]	-1677	-1650	-1677	-1677
	Seismic (time history)	0.26	0.35	0.32	0.23
CF7, CF8	S-coordinate [mm]	-1830	-1830	-1830	-1830
	Dynamic wind	0.63	0.77	0.57	0.46
	S-coordinate [mm]	-1830	-1830	-1830	-1830
	Seismic (time history)	0.72	0.86	0.61	0.31
CF9a	S-coordinate [mm]	-1854	-1848	-1848	-1854
	Dynamic wind	0.17	0.26	0.10	0.17
	S-coordinate [mm]	-1848	-1848	-1848	-1854
	Seismic (time history)	0.26	0.32	0.23	0.18
CF9b	S-coordinate [mm]	-1854	-1848	-1848	-1854
	Dynamic wind	0.07	0.08	0.05	0.07
	S-coordinate [mm]	-1848	-1848	-1848	-1854
	Seismic (time history)	0.16	0.30	0.15	0.12

Section forces for the verified sections are found in Appendix B.

4.7.1 Verification of CF1 and CF2

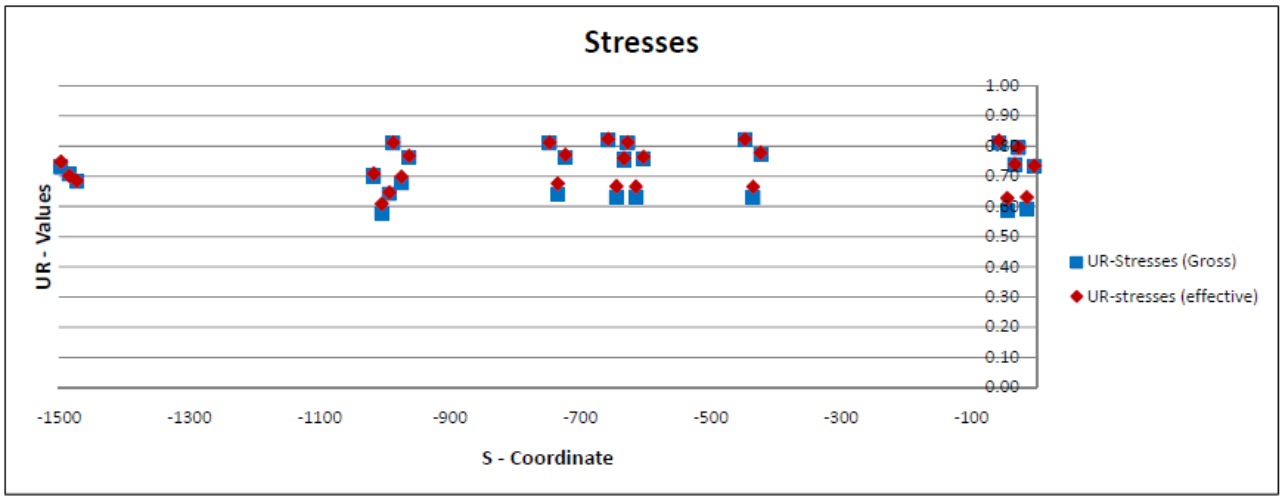


Figure 4-29 Utilisation ratios for stresses in type CF1 & CF2 for ULS load combination dynamic wind

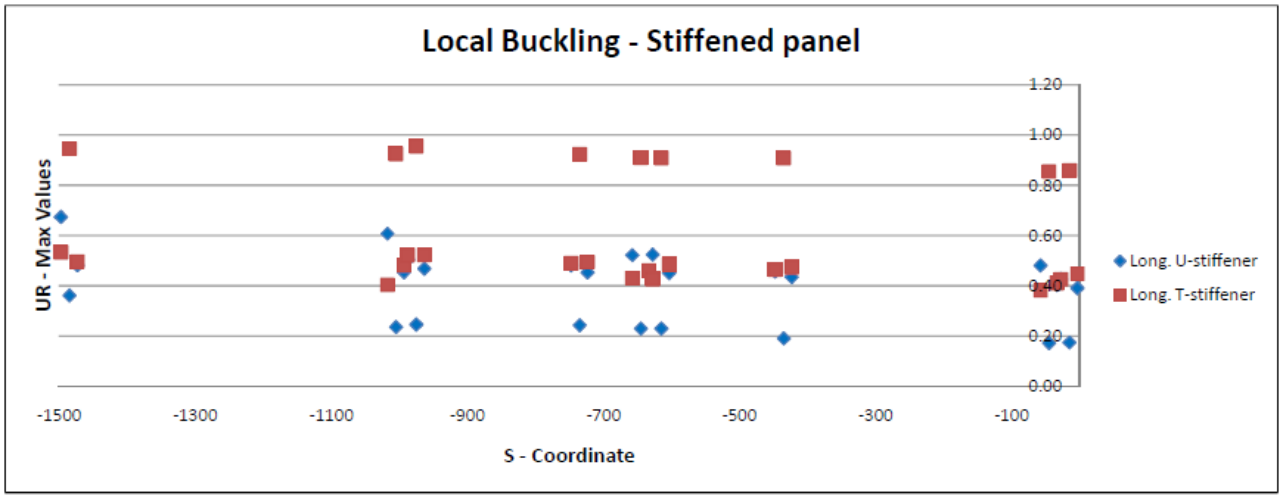


Figure 4-30 Utilisation ratios for local buckling of stiffened panels in type CF1 & CF2 for ULS load combination dynamic wind

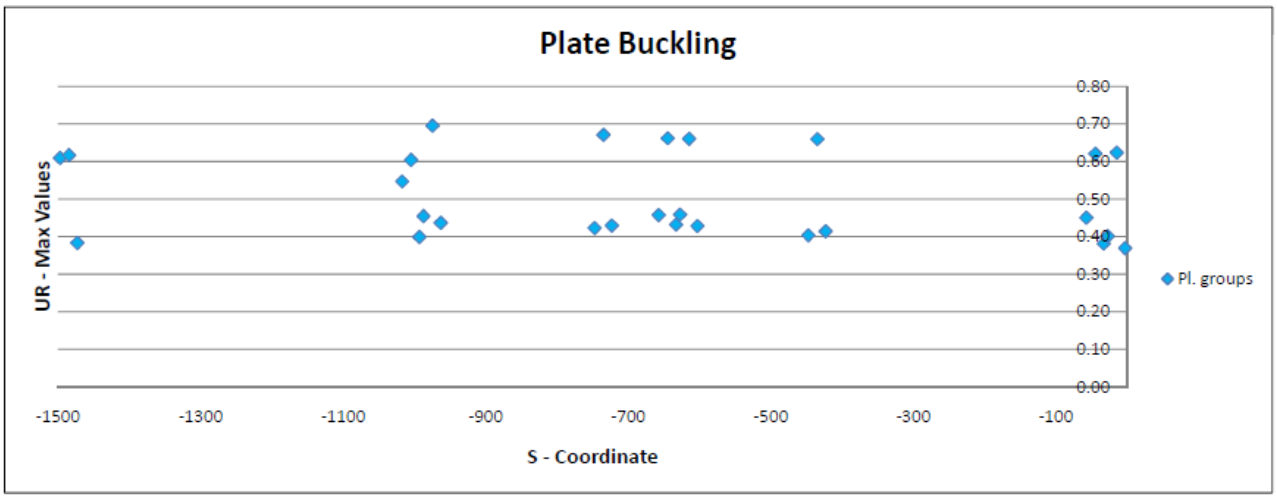


Figure 4-31 Utilisation ratios for plate buckling in type CF1 & CF2 for ULS load combination dynamic wind

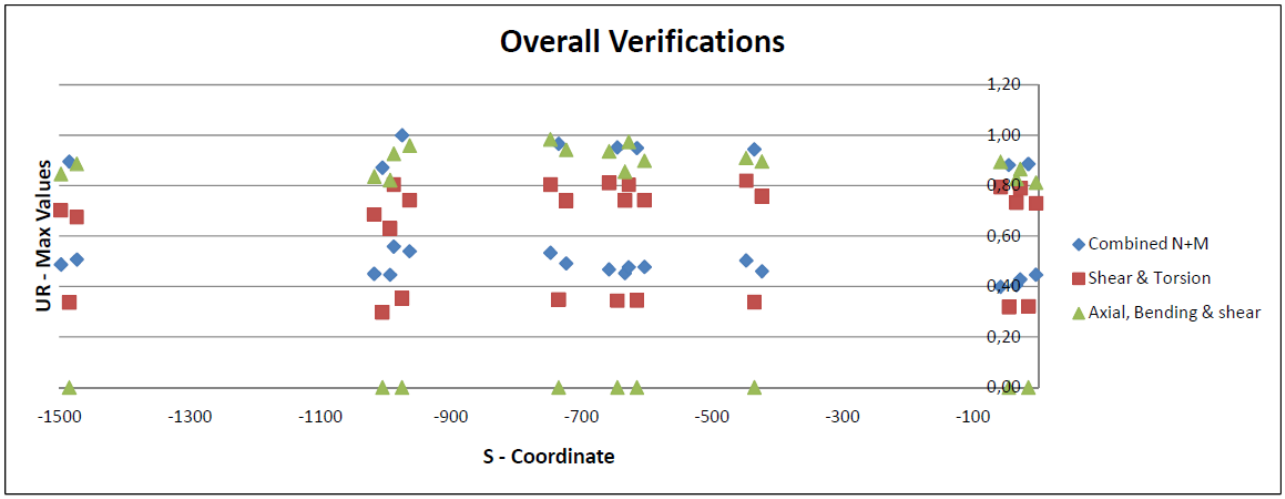


Figure 4-32 Utilisation ratios for overall verification of type CF1 & CF2 for ULS load combination dynamic wind

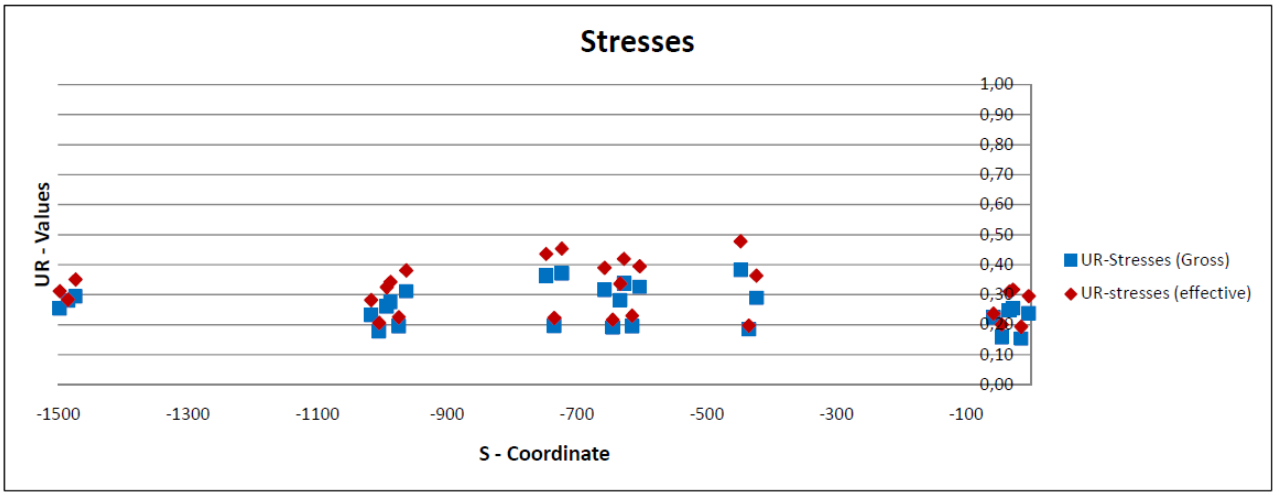


Figure 4-33 Utilisation ratios for stresses in type CF1 & CF2 for ULS load combination seismic (time history)

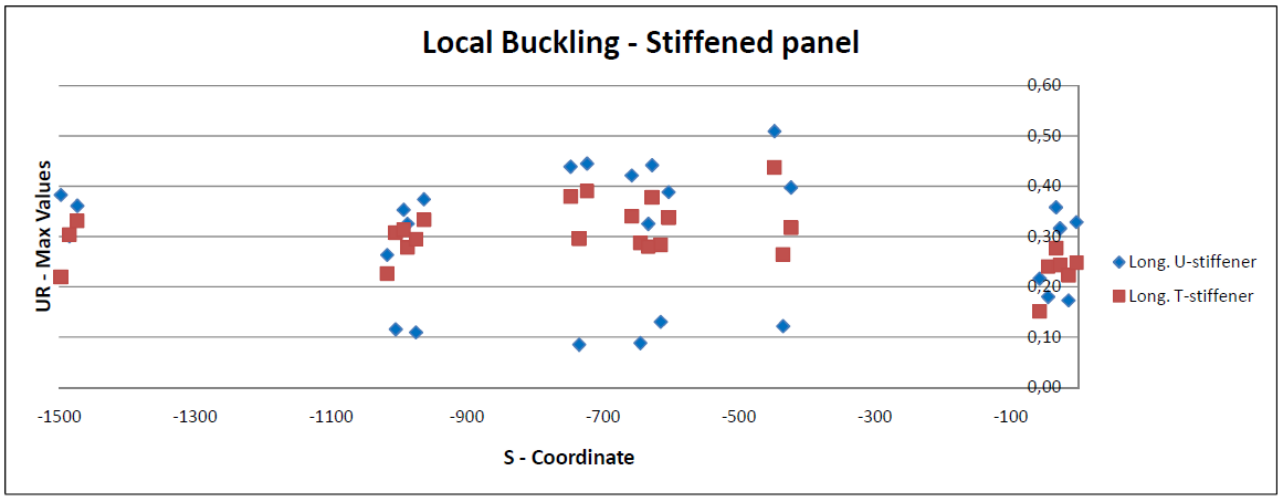


Figure 4-34 Utilisation ratios for local buckling of stiffened panels in type CF1 & CF2 for ULS load combination seismic (time history)

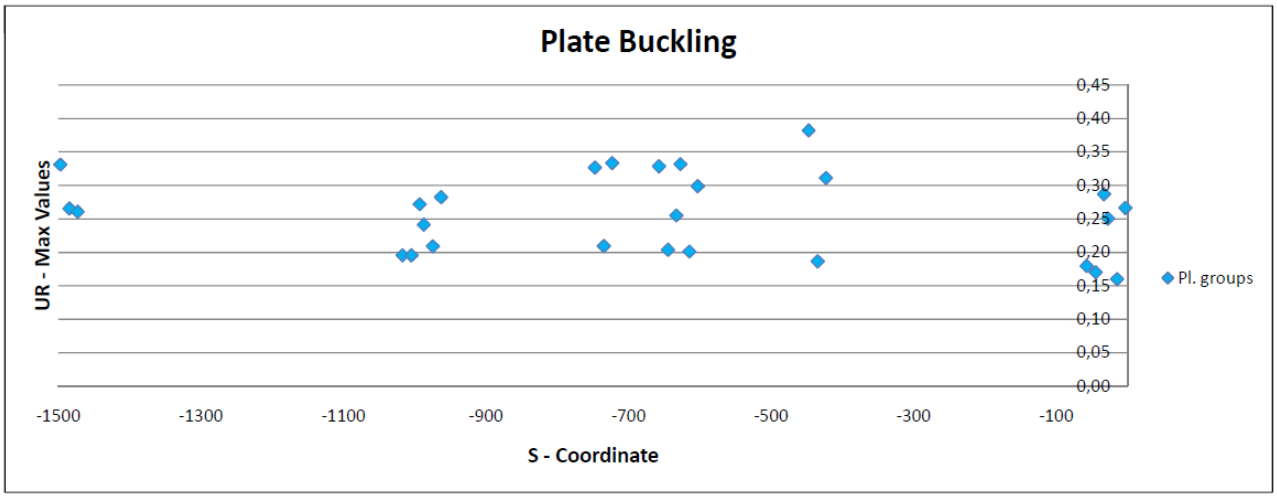


Figure 4-35 Utilisation ratios for plate buckling in type CF1 & CF2 for ULS load combination seismic (time history)

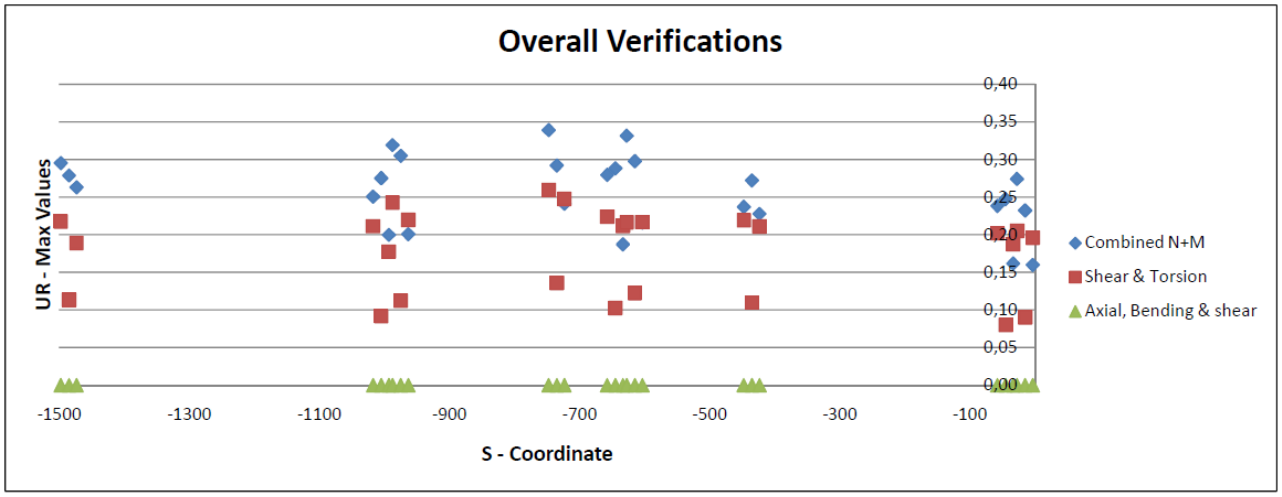


Figure 4-36 Utilisation ratios for overall verification of type CF1 & CF2 for ULS load combination seismic (time history)

The utilisation ratios for axial, bending & shear are for the majority of points all equal to zero for CF1 and CF2, due to the effect of shear force is less than 50% of the shear capacity, hence this verification can be neglected according to section 6.2.10(3) in EN1993-1-1:2006.

4.7.2 Verification of CF3, CF5 and CF6

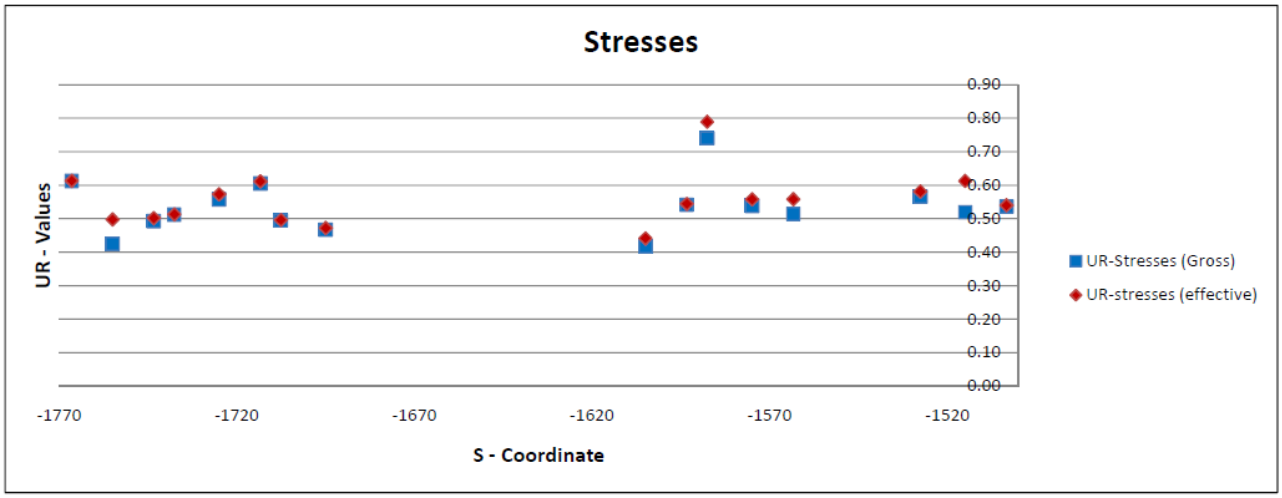


Figure 4-37 Utilisation ratios for stresses in type CF3, CF5 & CF6 for ULS load combination dynamic wind

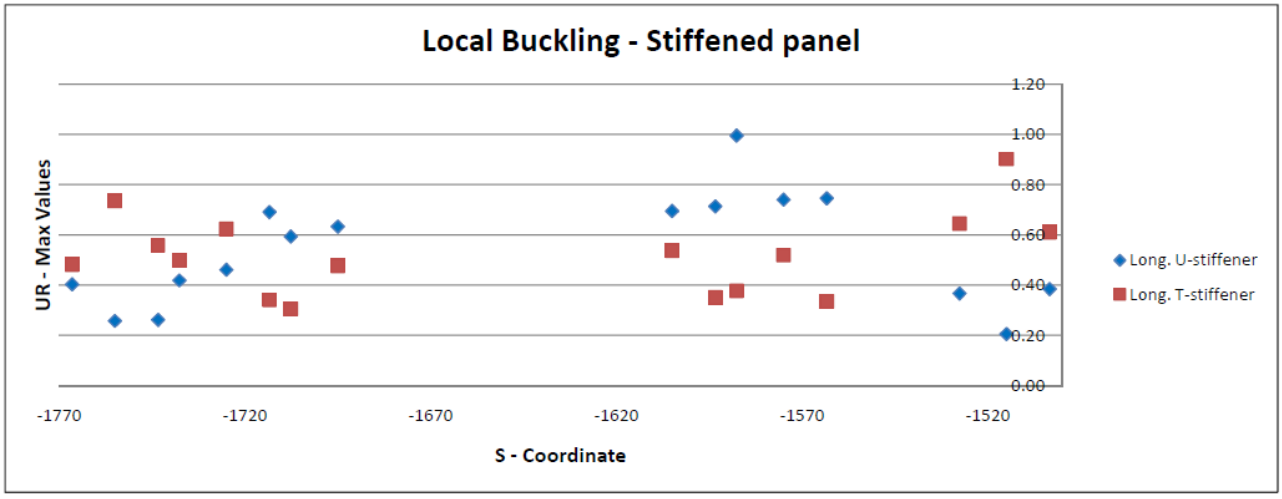


Figure 4-38 Utilisation ratios for local buckling of stiffened panel in type CF3, CF5 & CF6 for ULS load combination dynamic wind

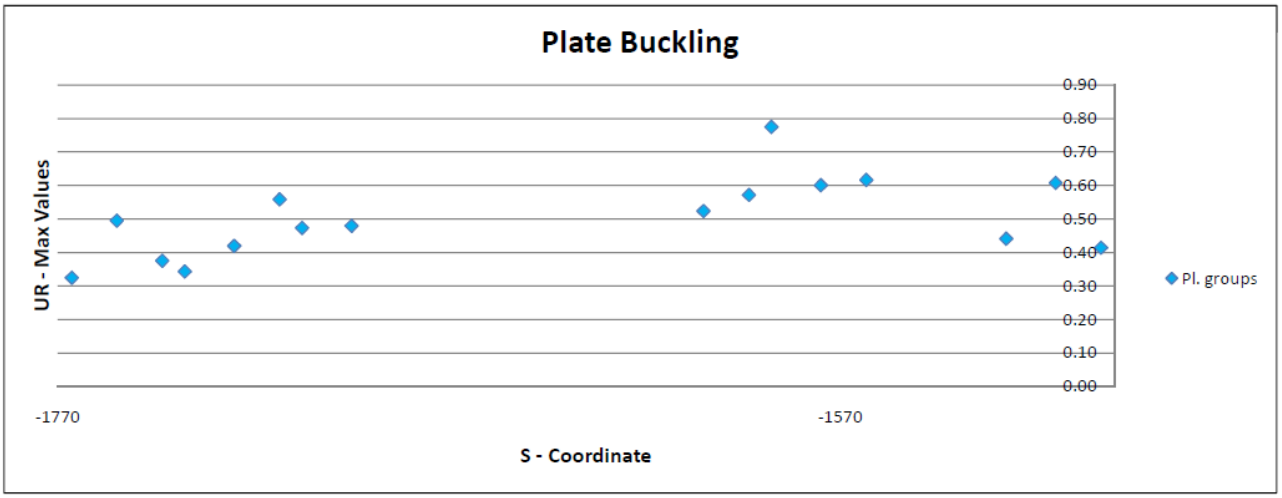


Figure 4-39 Utilisation ratios for plate buckling in type CF3, CF5 & CF6 for ULS load combination dynamic wind

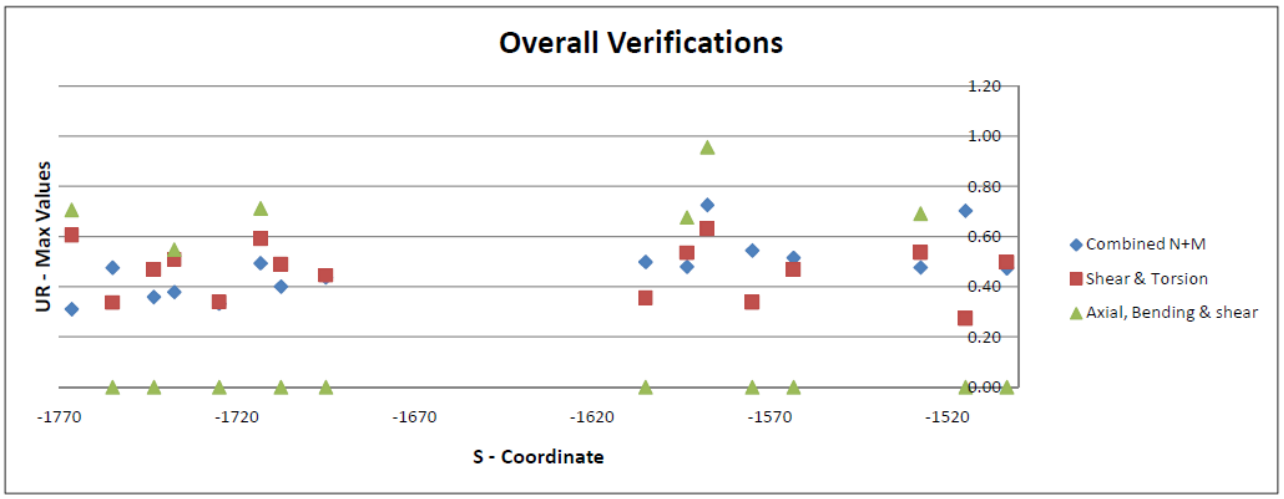


Figure 4-40 Utilisation ratios for overall verifications of type CF3, CF5 & CF6 for ULS load combination dynamic wind

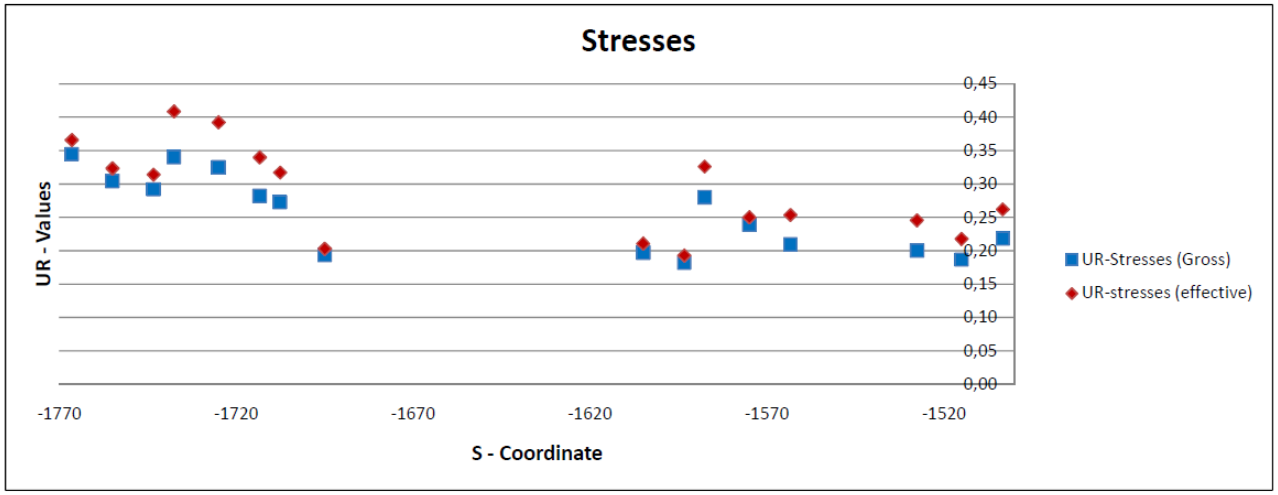


Figure 4-41 Utilisation ratios for stresses in type CF3, CF5 & CF6 for ULS load combination seismic (time history)

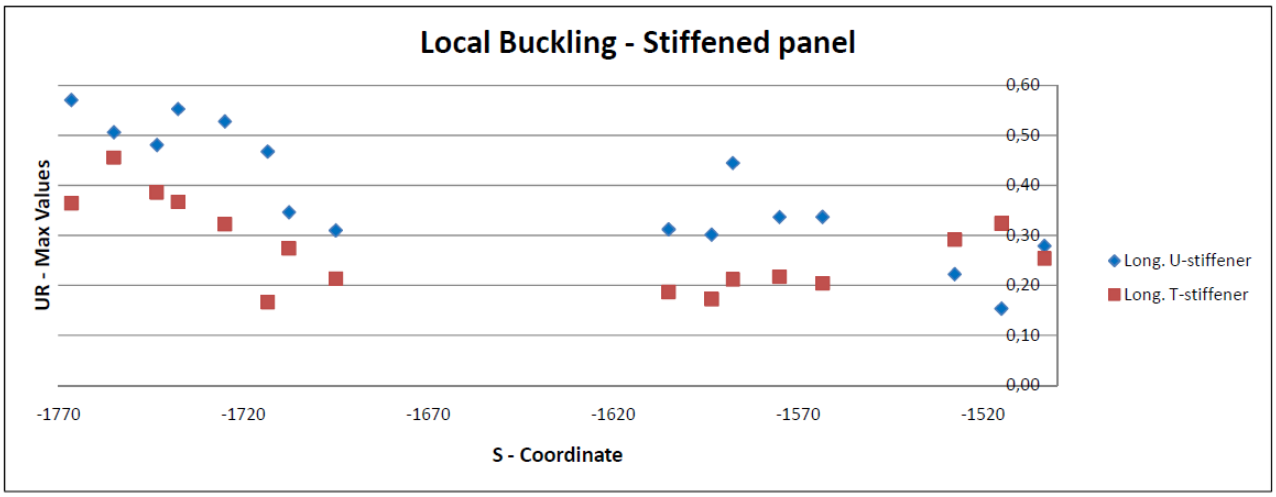


Figure 4-42 Utilisation ratios for local buckling of stiffened panels in type CF3, CF5 & CF6 for ULS load combination seismic (time history)

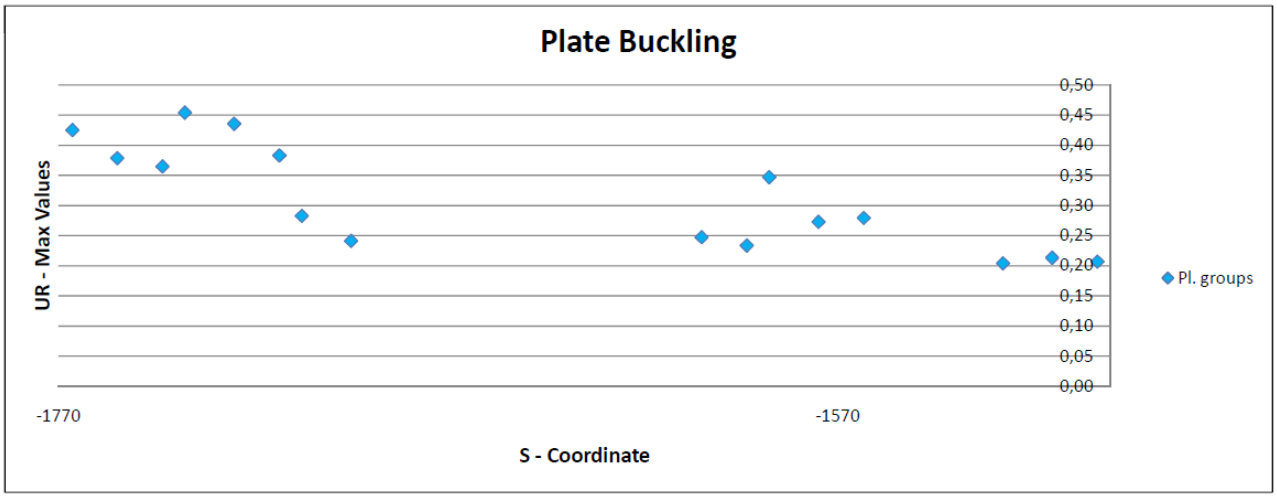


Figure 4-43 Utilisation ratios for plate buckling in type CF3, CF5 & CF6 for ULS load combination seismic (time history)

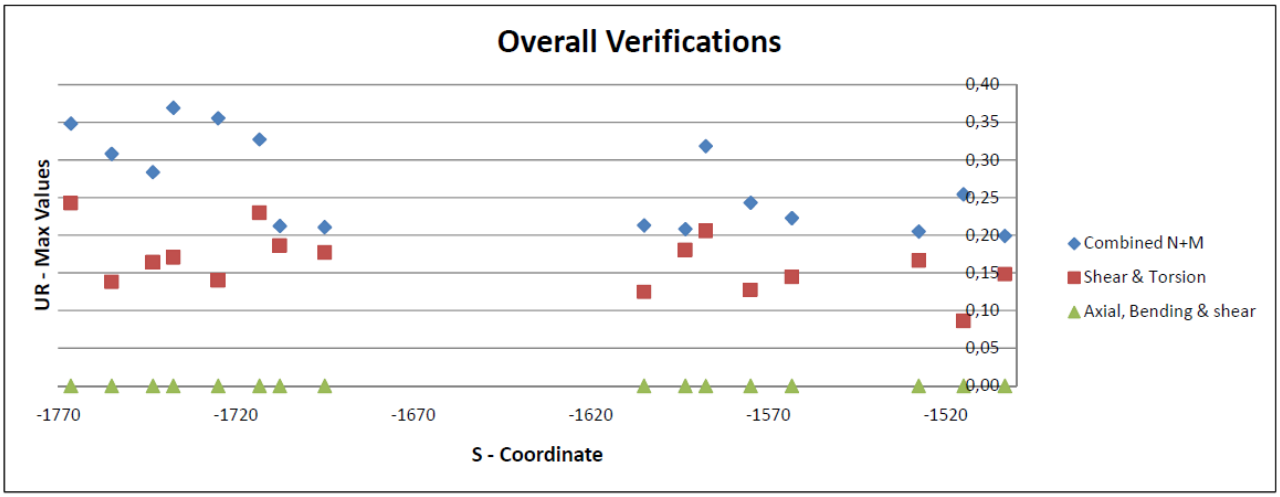


Figure 4-44 Utilisation ratios for overall verifications of type CF3, CF5 & CF6 for ULS load combination seismic (time history)

4.7.3 Verification of CF4

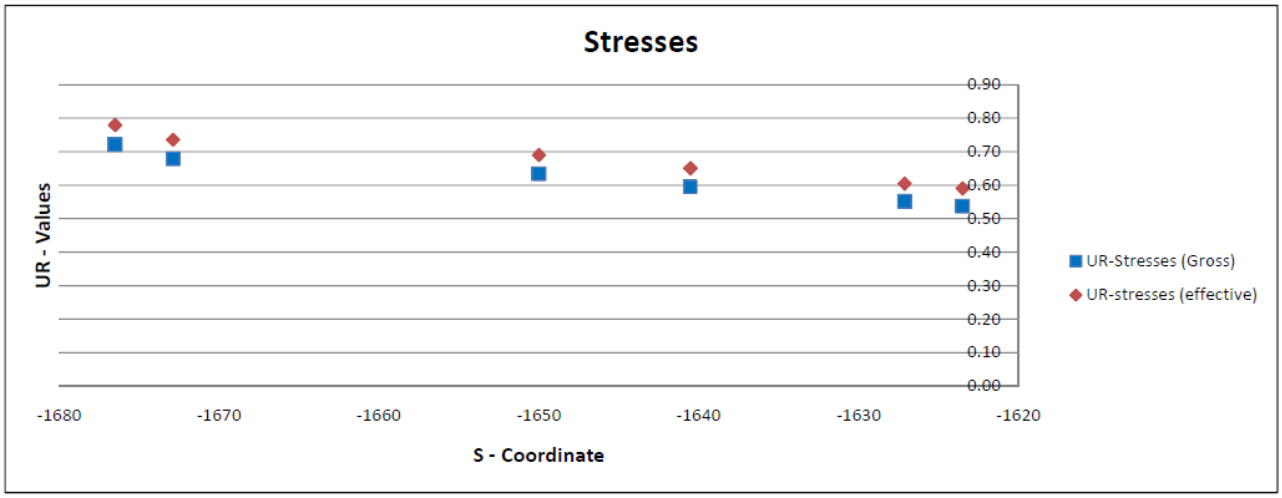


Figure 4-45 Utilisation ratios for stresses in type CF4 for ULS load combination dynamic wind

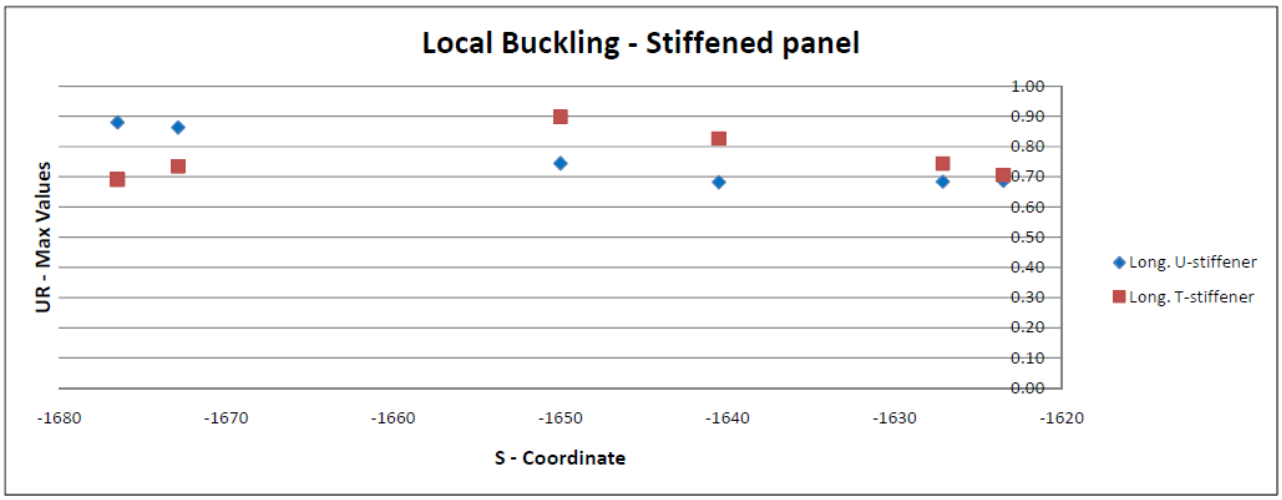


Figure 4-46 Utilisation ratios for local buckling of stiffened panels in type CF4 for ULS load combination dynamic wind

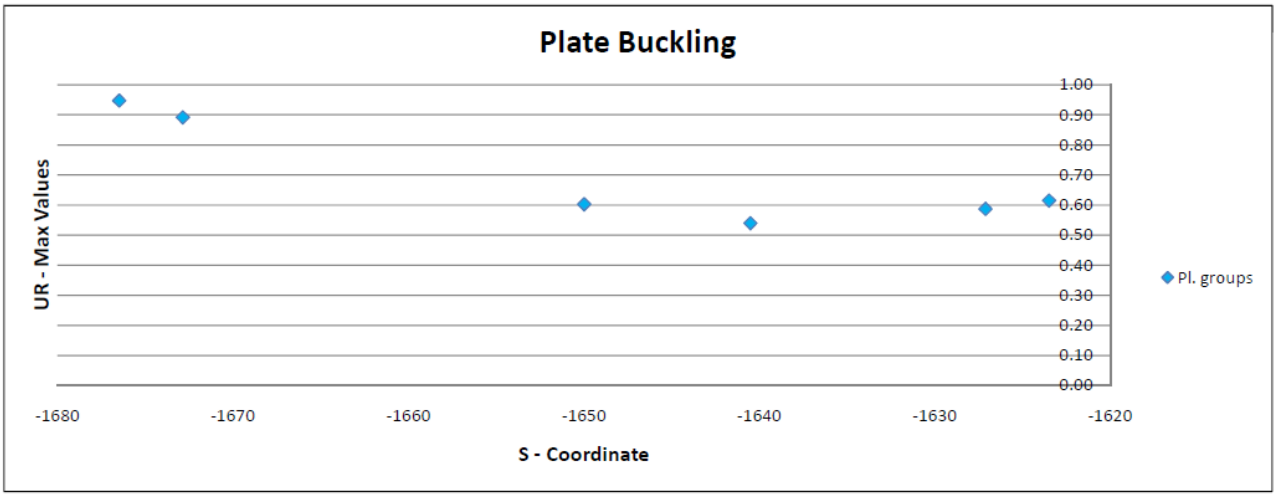


Figure 4-47 Utilisation ratios for plate buckling in type CF4 for ULS load combination dynamic wind

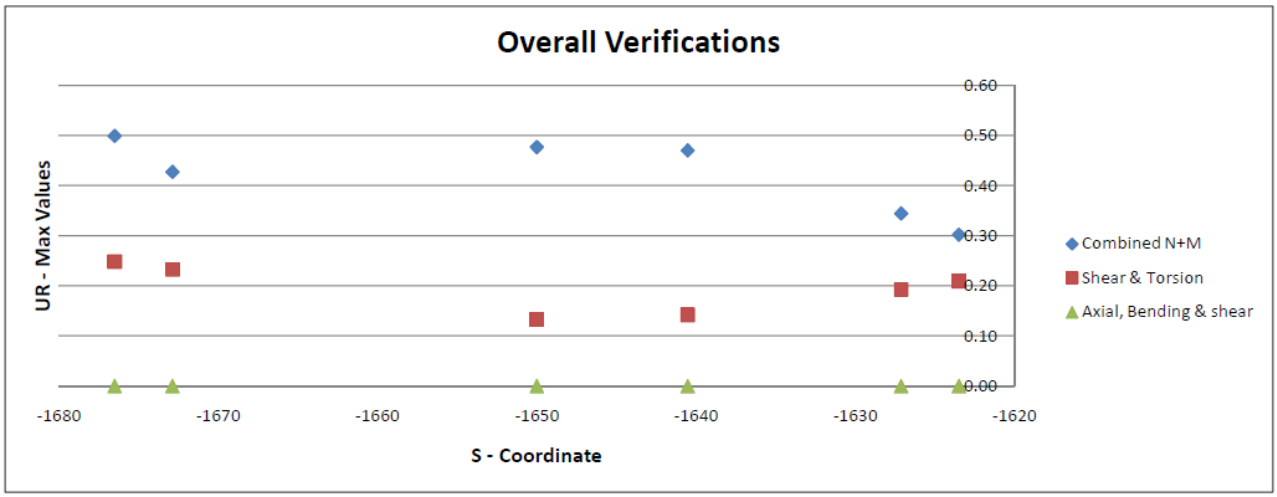


Figure 4-48 Utilisation ratios for overall verifications of type CF4 for ULS load combination dynamic wind

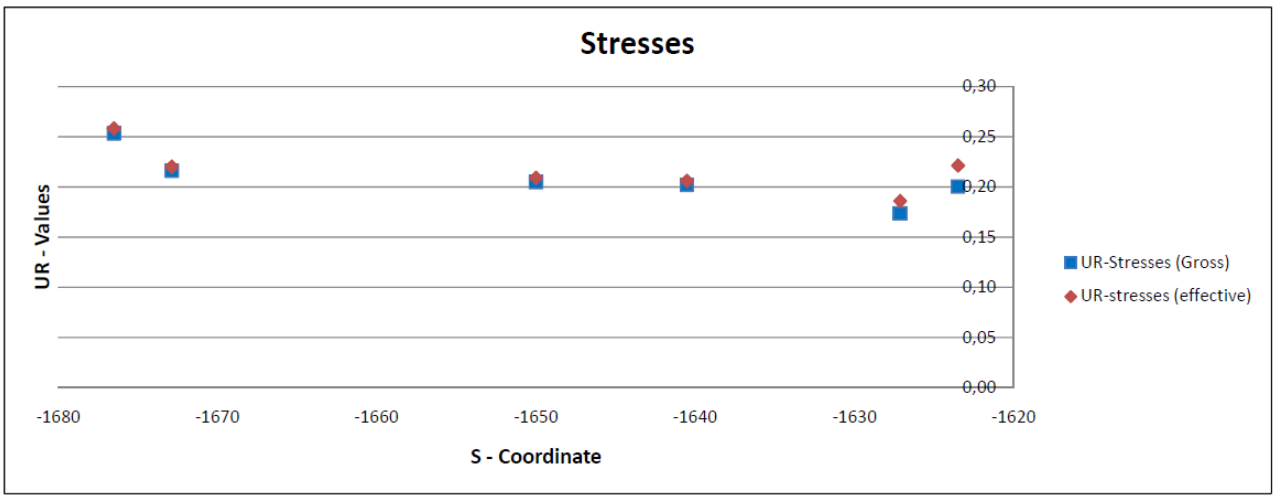


Figure 4-49 Utilisation ratios for stresses in type CF4 for ULS load combination seismic (time history)

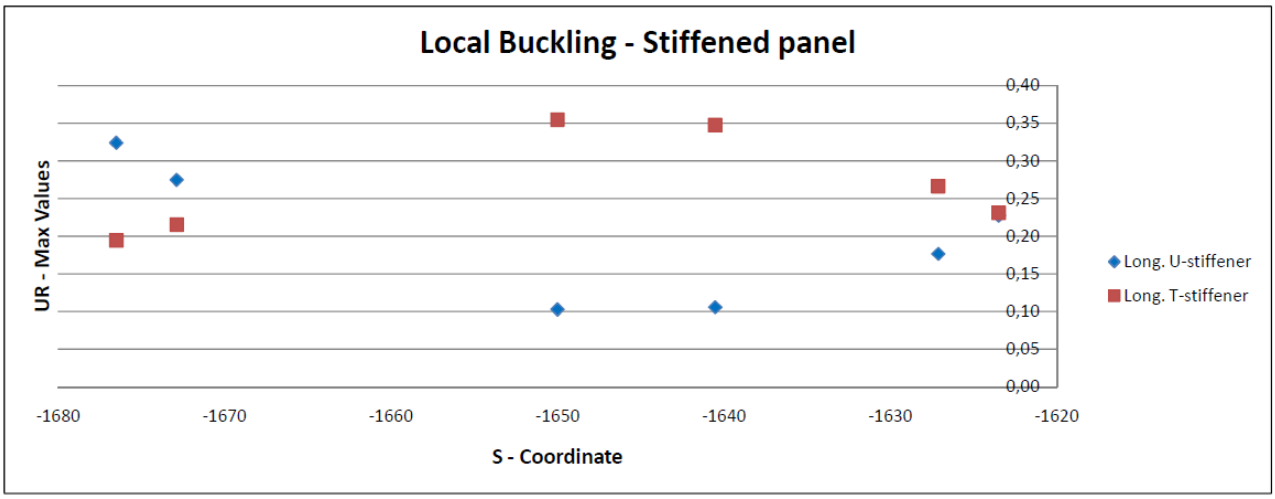


Figure 4-50 Utilisation ratios for local buckling of stiffened panels in type CF4 for ULS load combination seismic (time history)

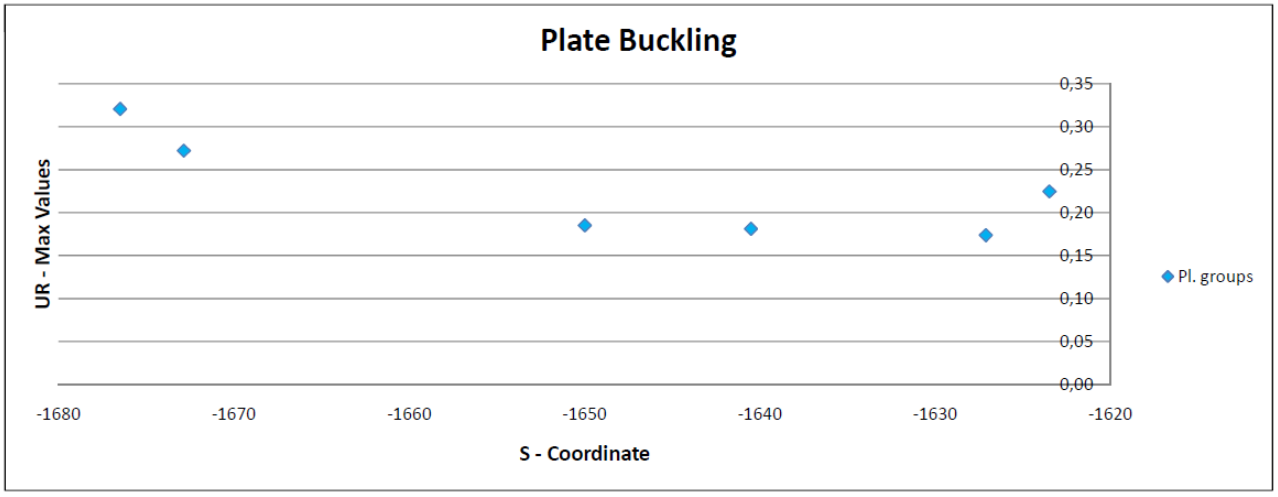


Figure 4-51 Utilisation ratios for plate buckling in type CF4 for ULS load combination seismic (time history)

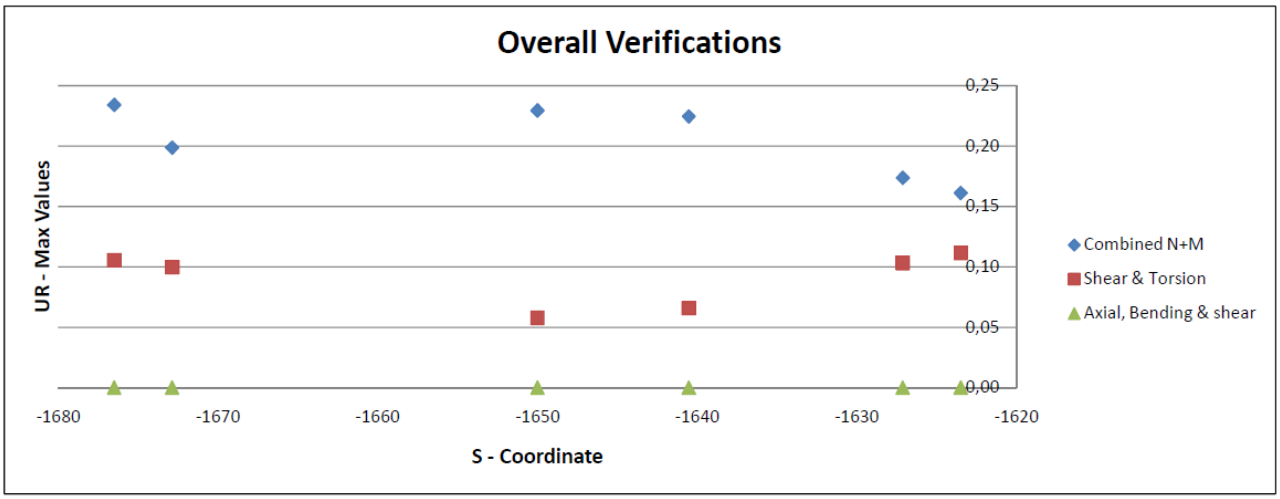


Figure 4-52 Utilisation ratios for overall verification of type CF4 for ULS load combination seismic (time history)

4.7.4 Verification of CF7 and CF8

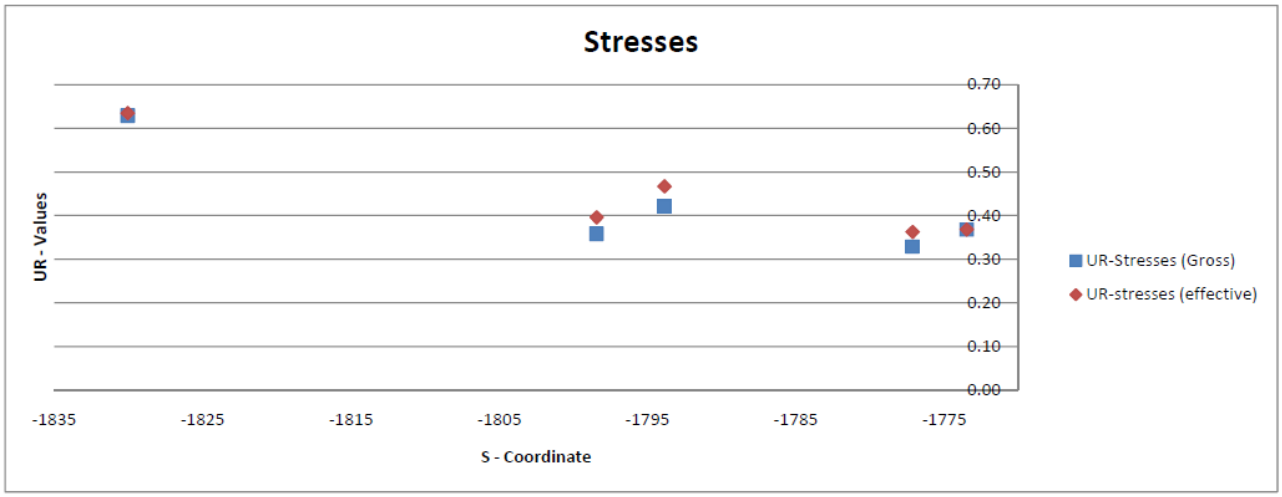


Figure 4-53 Utilisation ratios for stresses in type CF7 & CF8 for ULS load combination dynamic wind

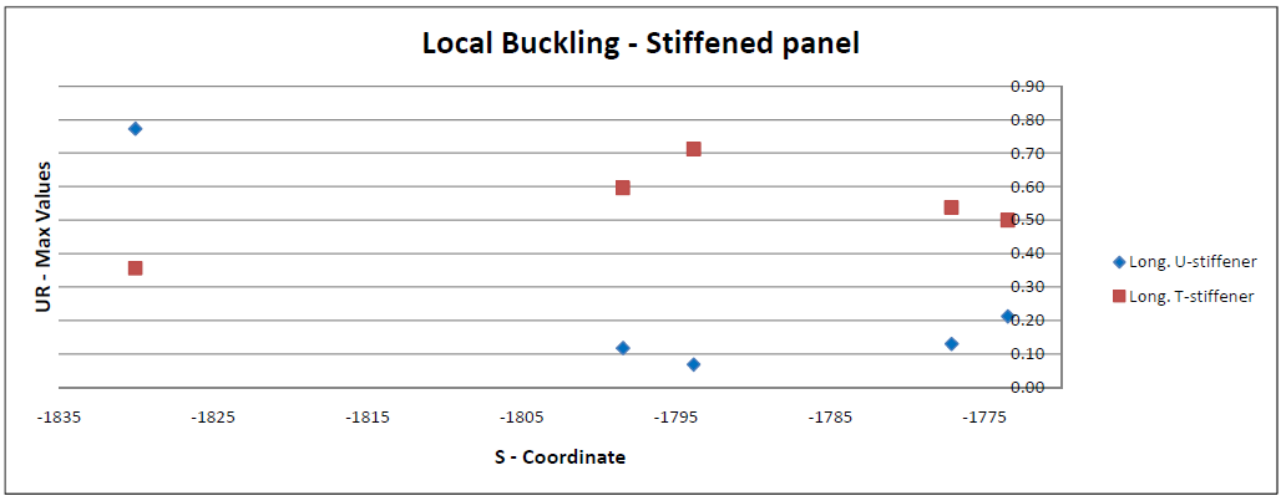


Figure 4-54 Utilisation ratios for local buckling of stiffened panels in type CF7 & CF8 for ULS load combination dynamic wind

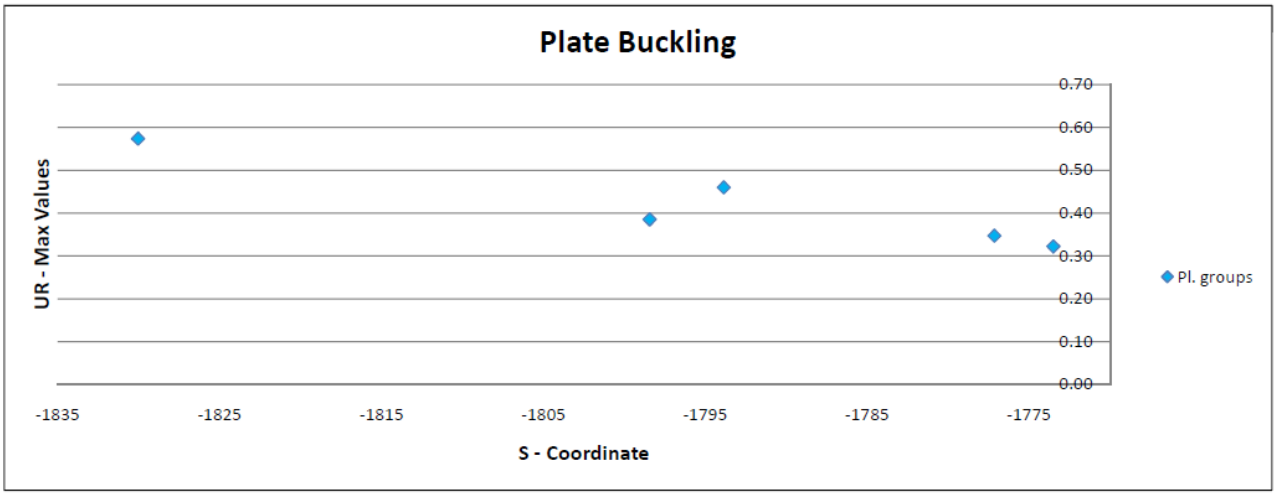


Figure 4-55 Utilisation ratios for plate buckling in type CF7 & CF8 for ULS load combination dynamic wind

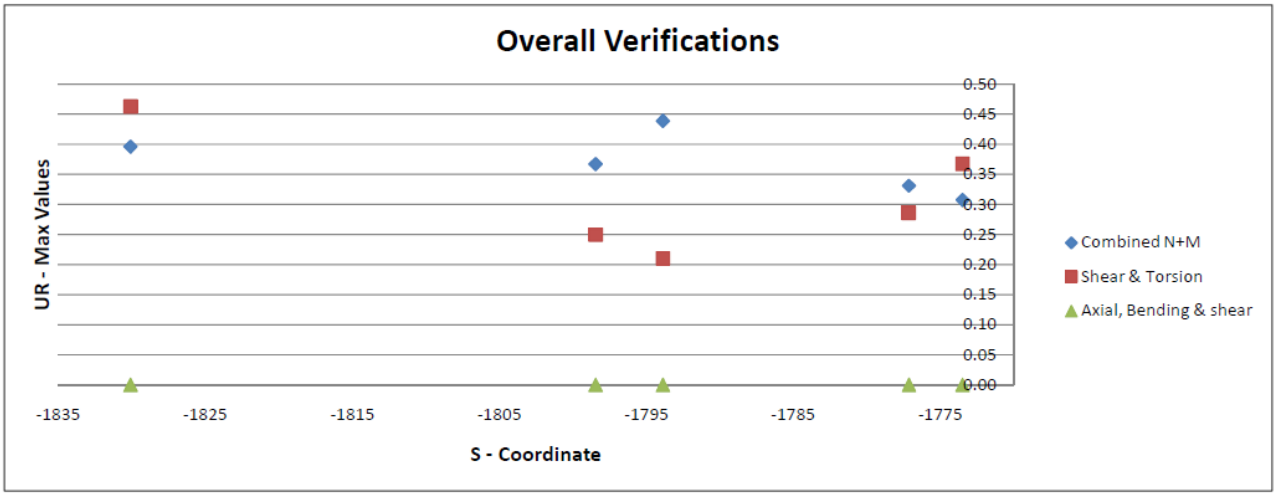


Figure 4-56 Utilisation ratios for overall verification of type CF7 & CF8 for ULS load combination dynamic wind

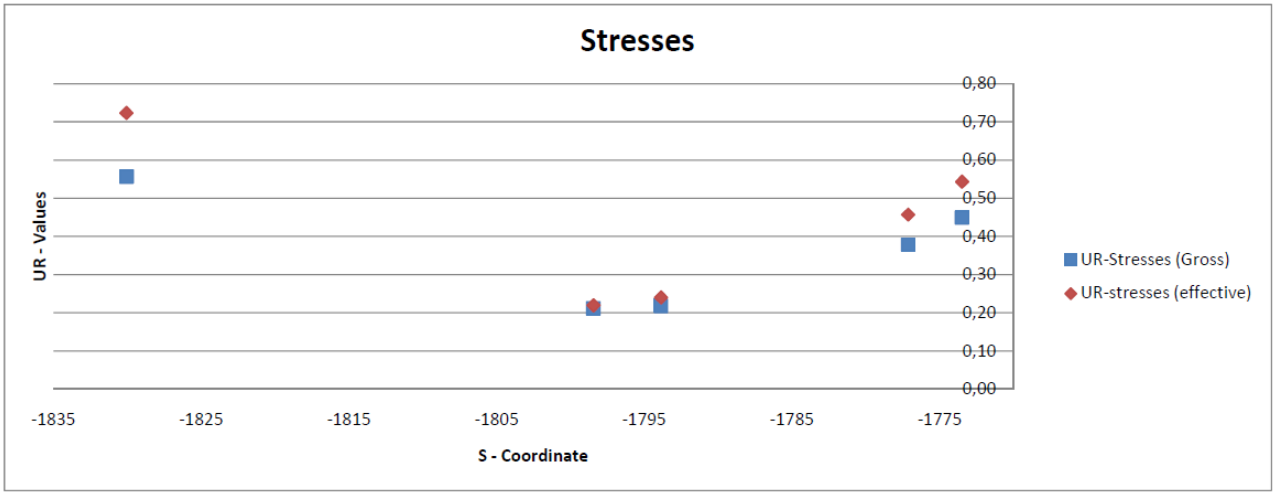


Figure 4-57 Utilisation ratios for stresses in type CF7 & CF8 for ULS load combination seismic (time history)

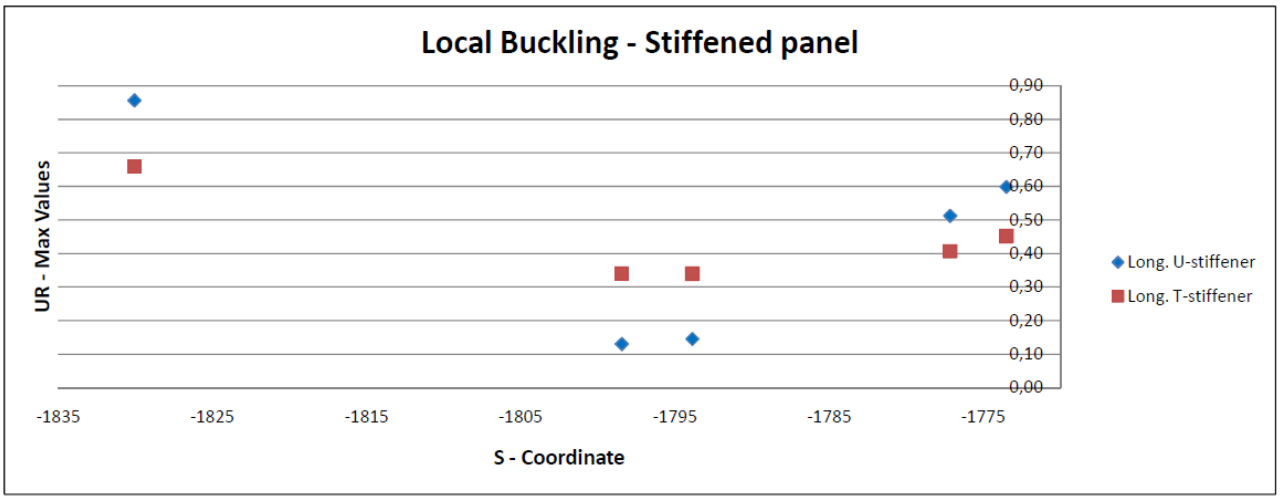


Figure 4-58 Utilisation ratios for local buckling of stiffened panels in type CF7 & CF8 for ULS load combination seismic (time history)

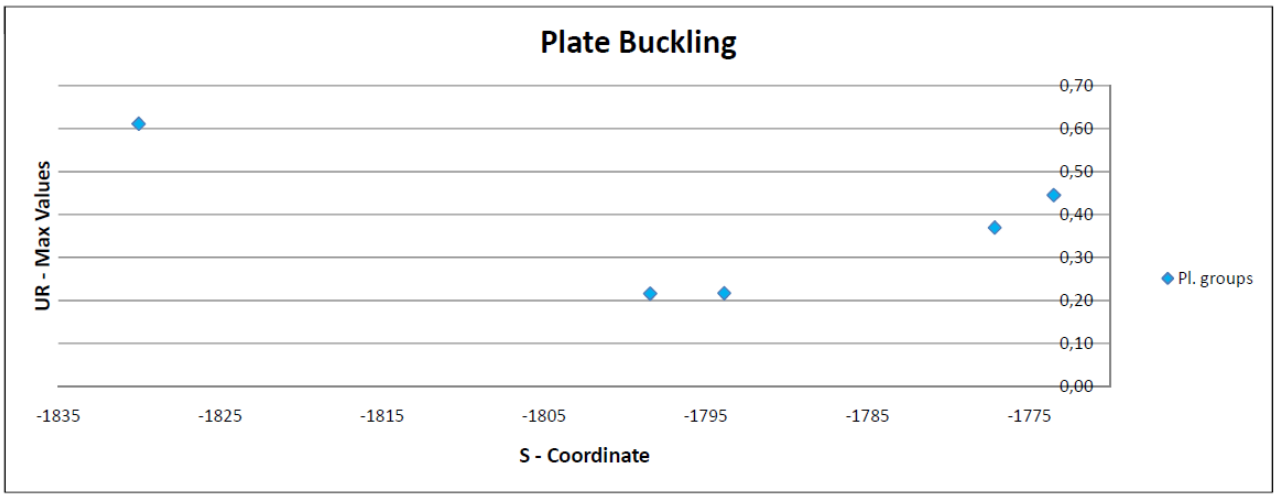


Figure 4-59 Utilisation ratios for plate buckling in type CF7 & CF8 for ULS load combination seismic (time history)

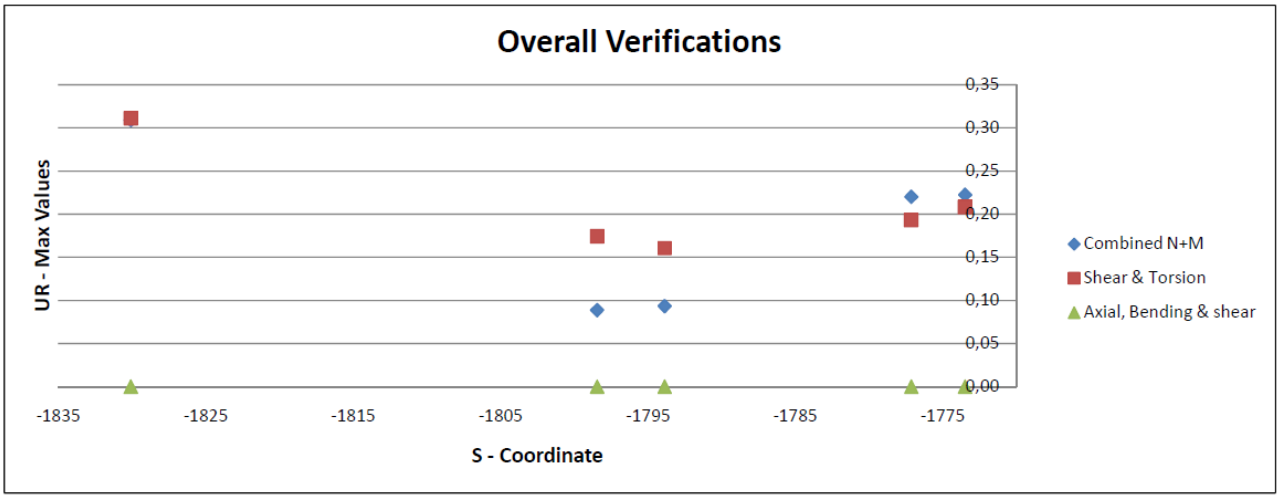


Figure 4-60 Utilisation ratios for stresses in type CF7 & CF8 for ULS load combination seismic (time history)

4.7.5 Verification of CF9a

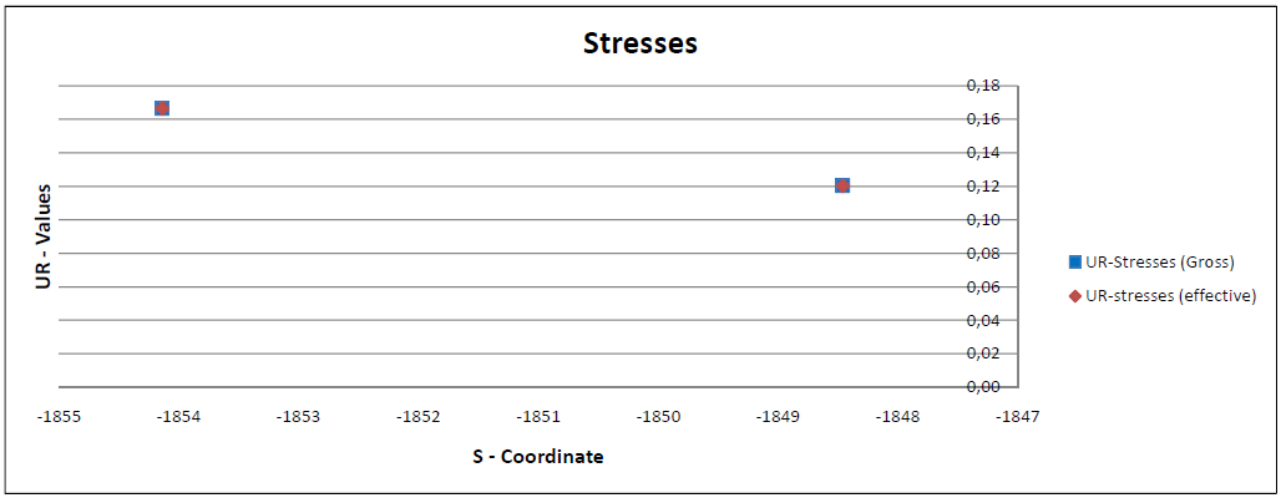


Figure 4-61 Utilisation ratios for stresses in type CF9a for ULS load combination dynamic wind

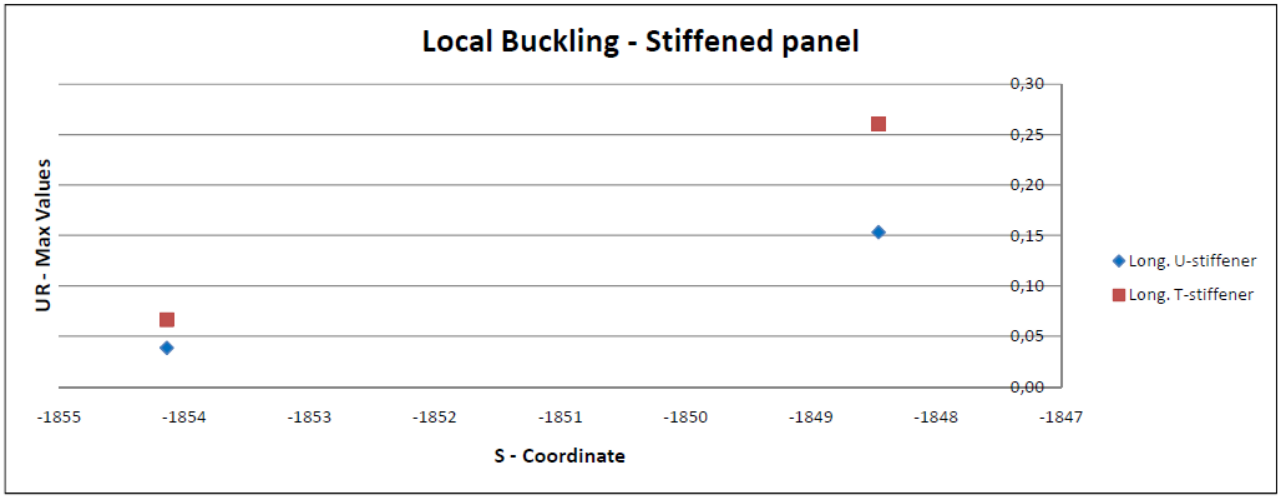


Figure 4-62 Utilisation ratios for local buckling of stiffened panels in type CF9a for ULS load combination dynamic wind

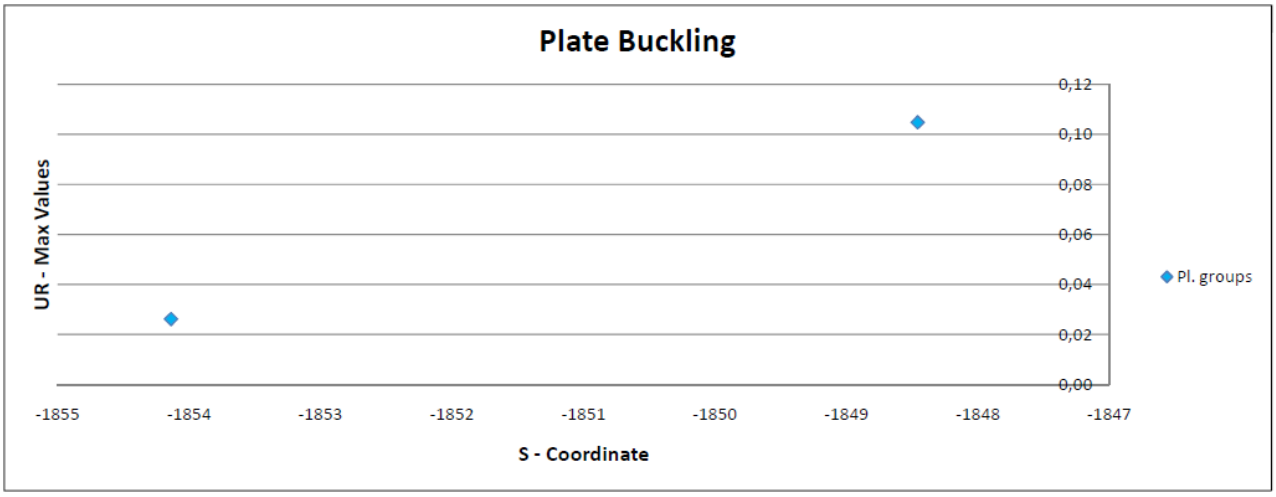


Figure 4-63 Utilisation ratios for plate buckling in type CF9a for ULS load combination dynamic wind

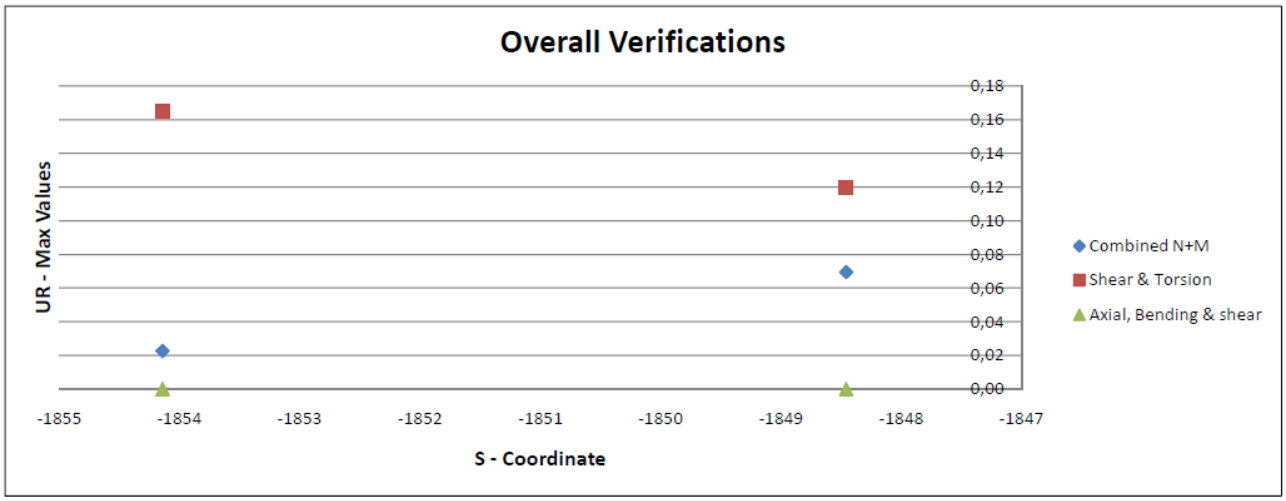


Figure 4-64 Utilisation ratios for overall verifications of type CF9a for ULS load combination dynamic wind

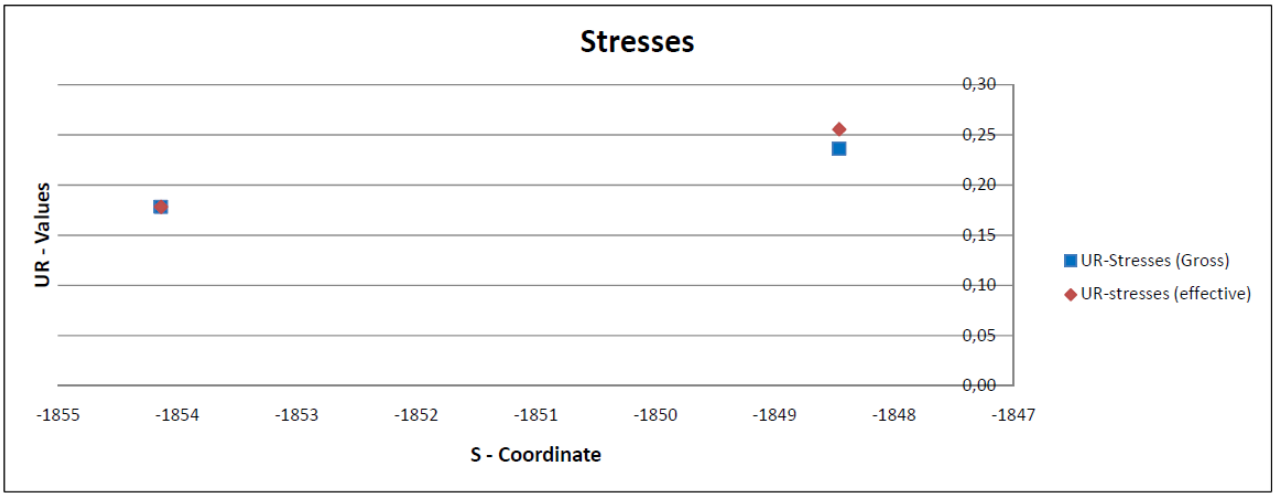


Figure 4-65 Utilisation ratios for stresses in type CF9a for ULS load combination seismic (time history)

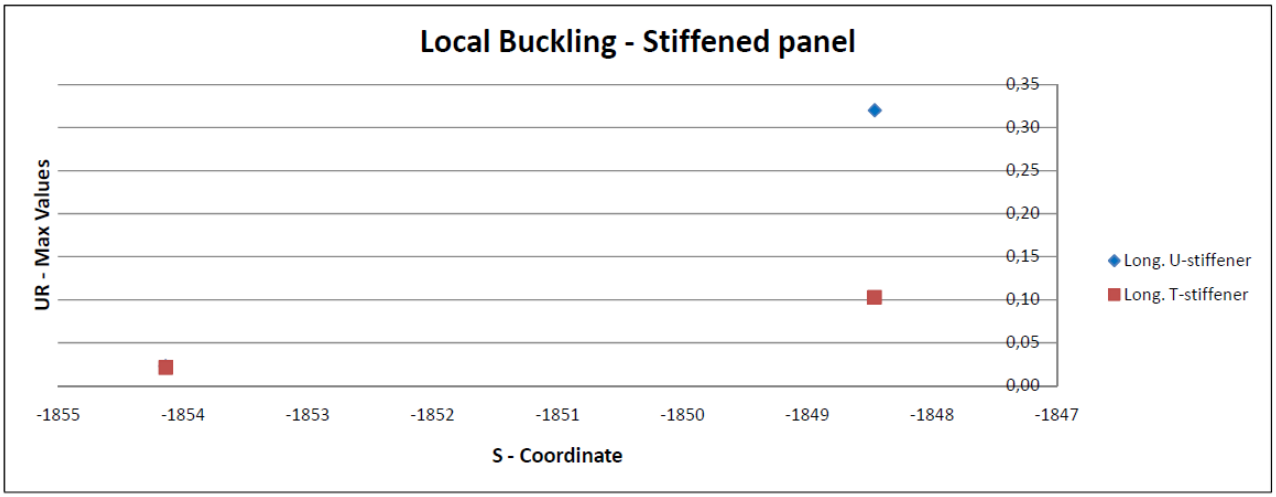


Figure 4-66 Utilisation ratios for local buckling of stiffened panels in type CF9a for ULS load combination seismic (time history)

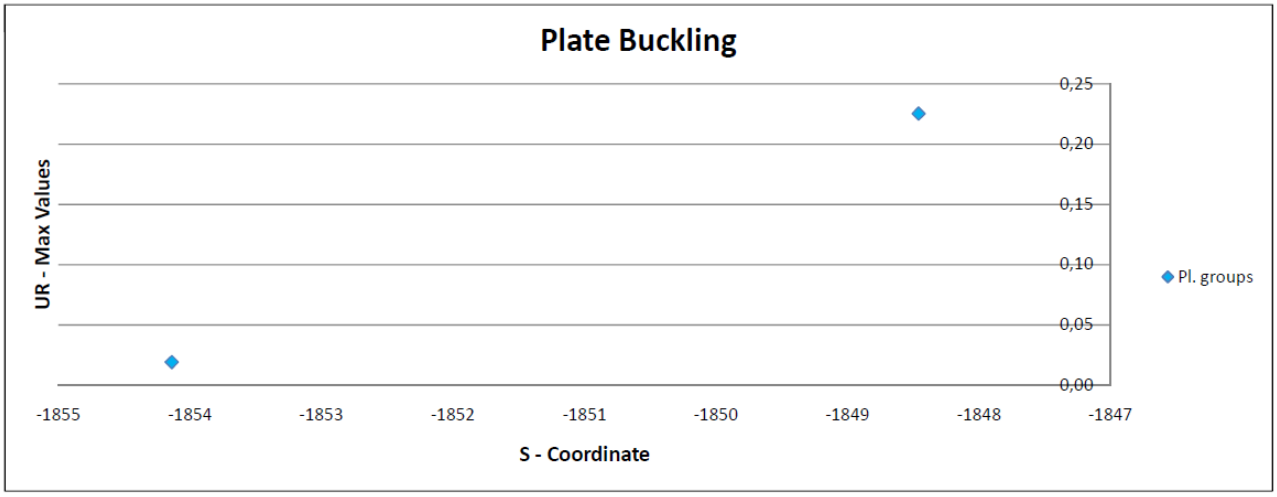


Figure 4-67 Utilisation ratios for plate buckling in type CF9a for ULS load combination seismic (time history)

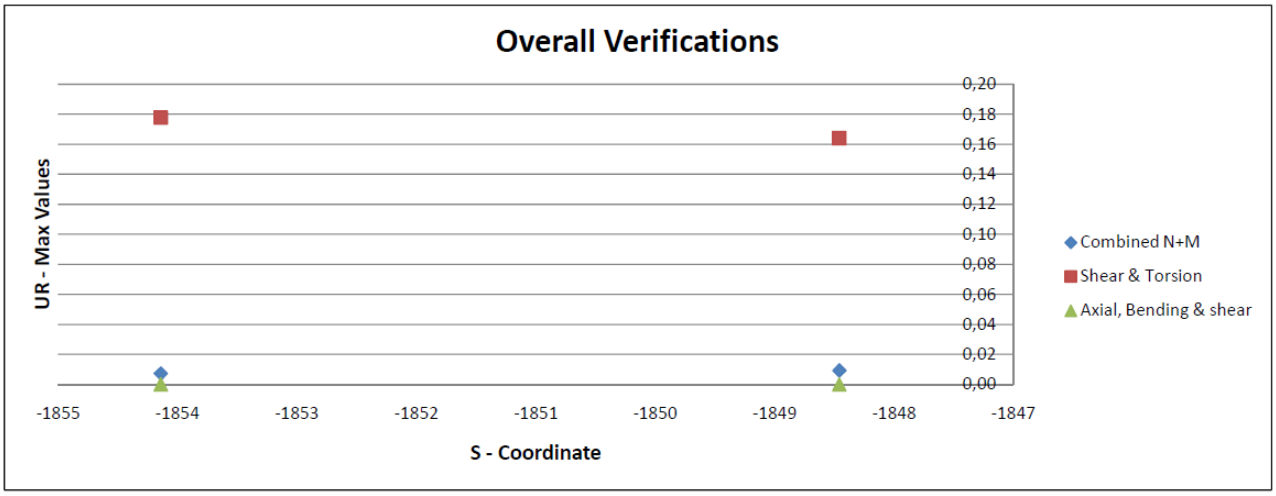


Figure 4-68 Utilisation ratios for overall verifications of type CF9a for ULS load combination seismic (time history)

4.7.6 Verification of CF9b

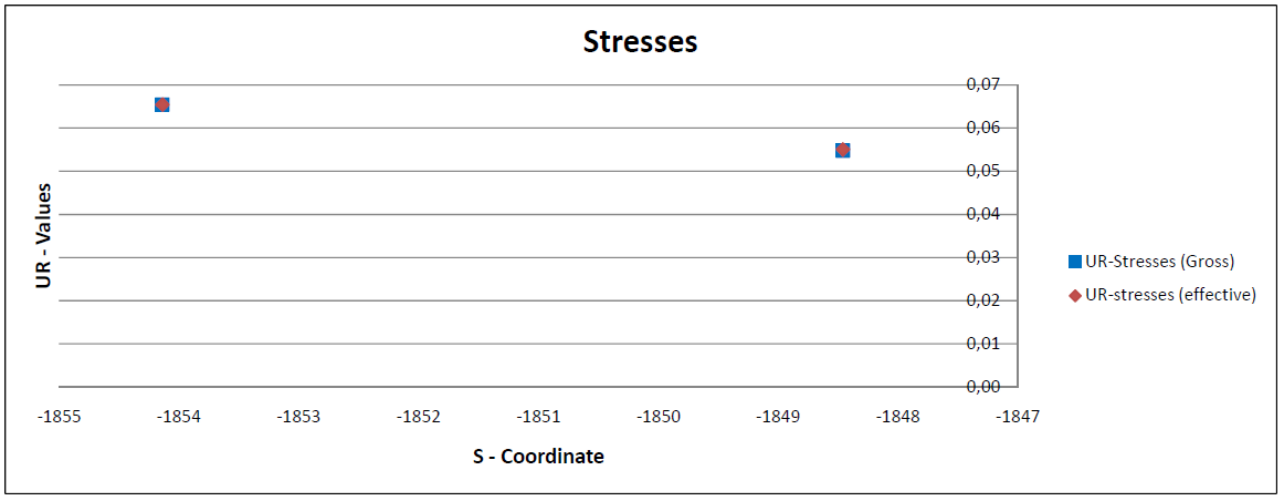


Figure 4-69 Utilisation ratios for stresses in type CF9b for ULS load combination dynamic wind

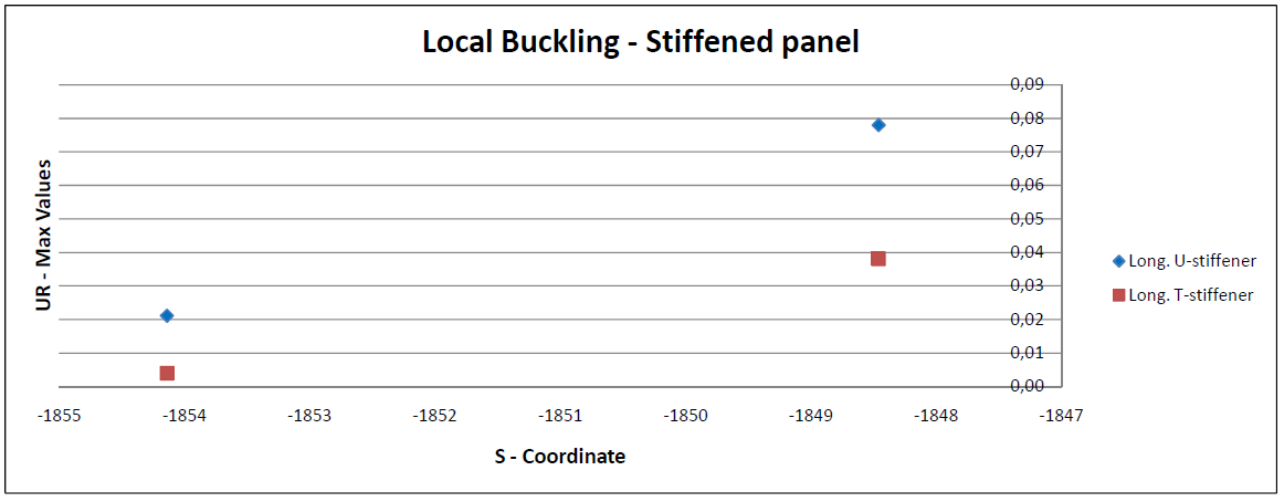


Figure 4-70 Utilisation ratios for local buckling of stiffened panels in type CF9b for ULS load combination dynamic wind

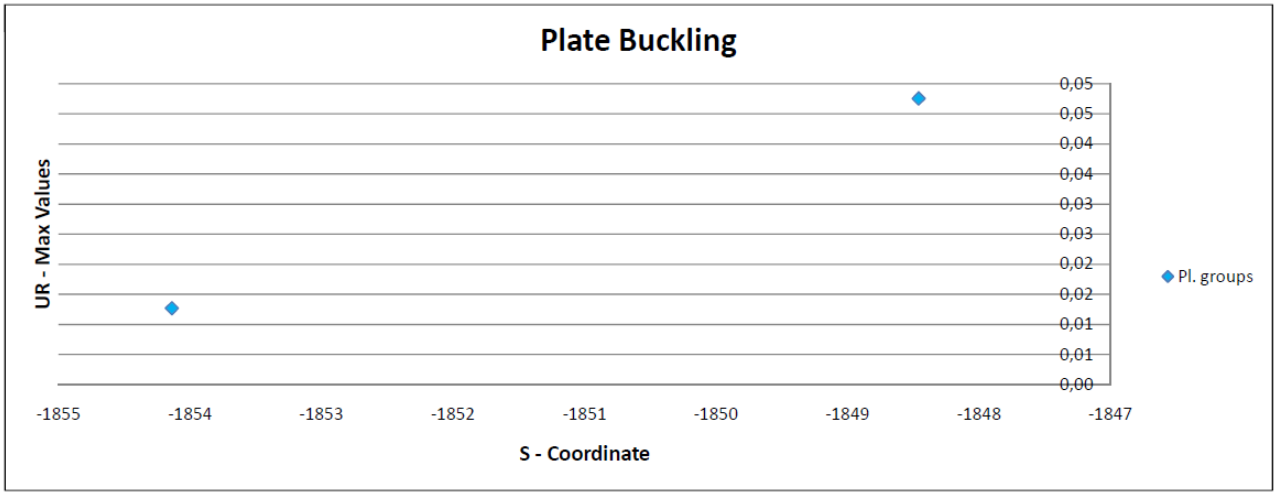


Figure 4-71 Utilisation ratios for plate buckling in type CF9b for ULS load combination dynamic wind

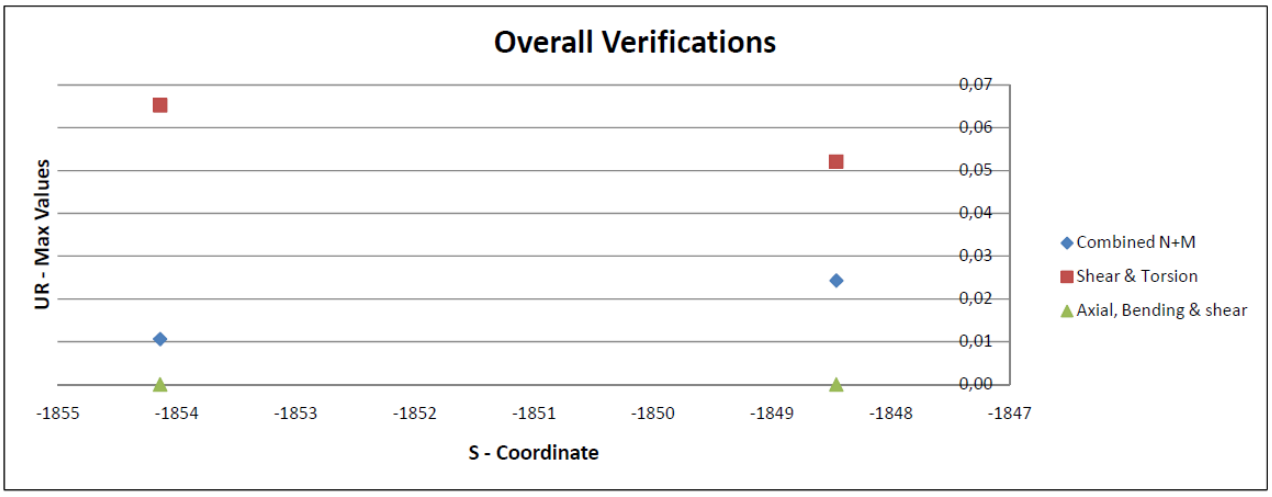


Figure 4-72 Utilisation ratios for overall verifications of type CF9b for ULS load combination dynamic wind

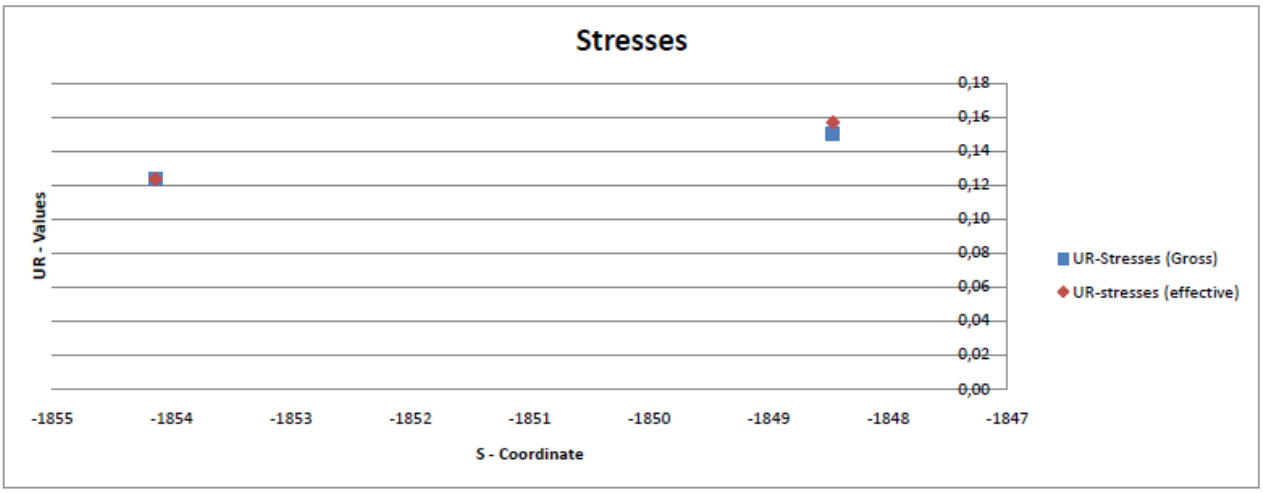


Figure 4-73 Utilisation ratios for stresses in type CF9b for ULS load combination seismic (time history)

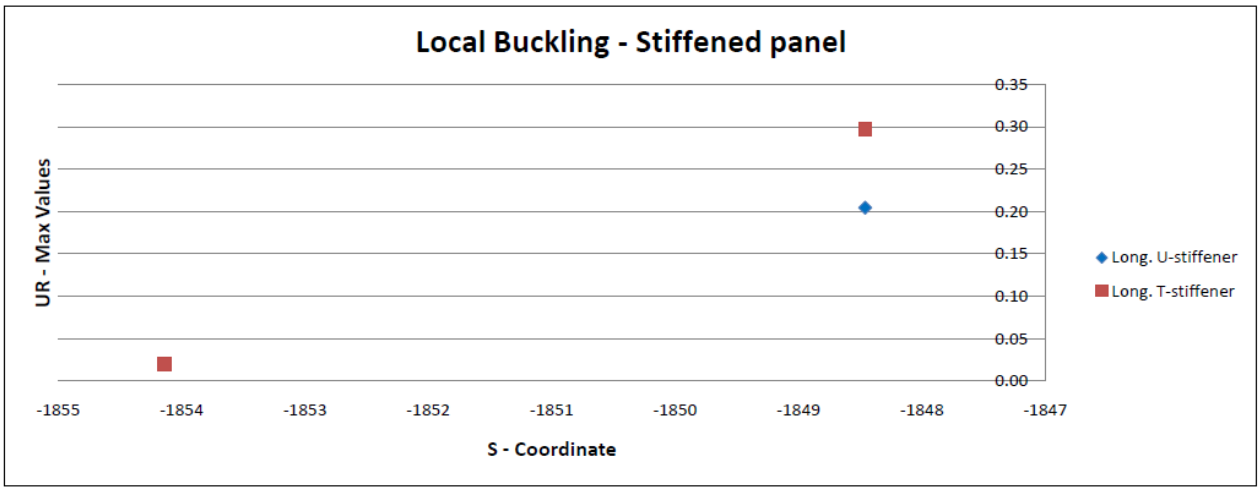


Figure 4-74 Utilisation ratios for local buckling of stiffened panels in type CF9b for ULS load combination seismic (time history)

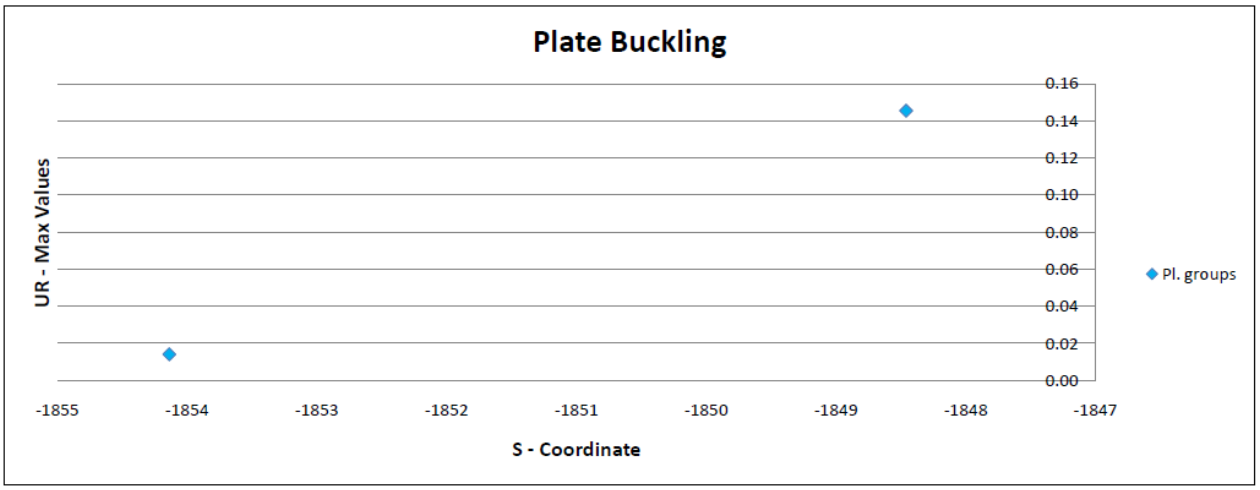


Figure 4-75 Utilisation ratios for plate buckling in type CF9b for ULS load combination seismic (time history)

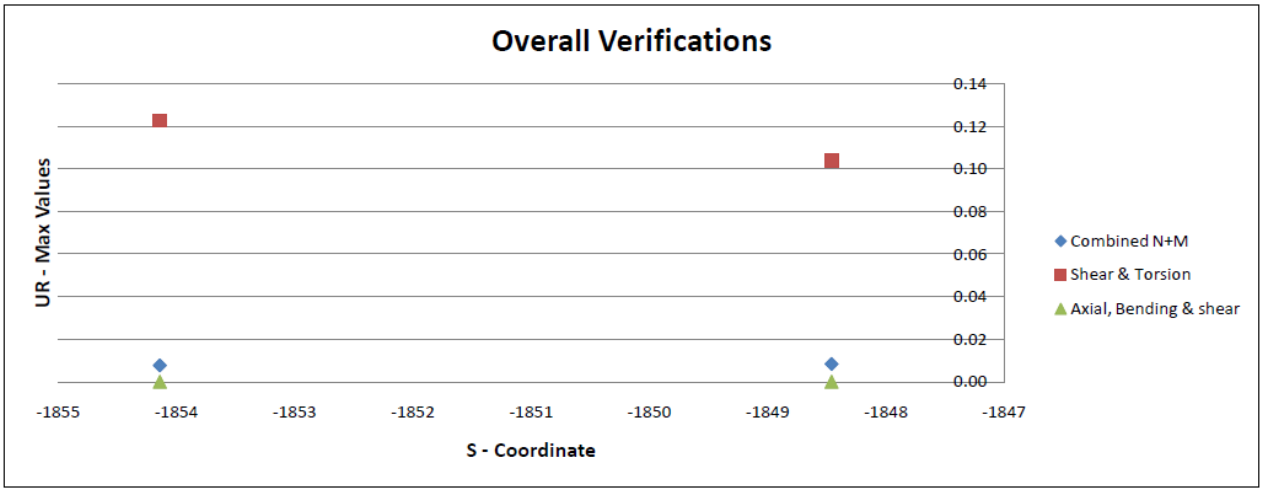


Figure 4-76 Utilisation ratios for overall verifications of type CF9b for ULS load combination seismic (time history)

4.8 Stress comparison between local FE-model and ADVERS

Longitudinal stresses in the longitudinal steel from ADVERS are compared with the local ROBOT FE-model of the railway girder, described in "Design Report - Local FE-models of Suspended

Deck", for maximum My in load case 6571. The definition of the load case can be found in "General Design Principles for the Suspended Deck".

The longitudinal stresses in the deck plate, web plate and bottom plate calculated in ADVERS are presented in Table 4-5 and the location of the stress points are shown in Figure 4-77.

Table 4-5 Longitudinal stresses for CF1 from ADVERS for My+ load case 6571 at s=-975m

ID	**Yielding of plates**						
	Criteria (gov.)	σ_1 (MPa)	σ_2 (MPa)	τ (MPa)	σ_{VM} (MPa)	σ_{yf}/γ_m (MPa)	UR
SP1	min NS	-216.12		2.9	216.2	338.1	0.64
SP2	min NS	-185.87		2.9	185.9	338.1	0.55
SP3	min NS	-187.37		3.2	187.5	338.1	0.55
SP4	min NS	9.54		3.2	11.1	338.1	0.03
SP5	min NS	244.90		3.2	245.0	338.1	0.72
SP6	min NS	9.10		3.2	10.7	338.1	0.03
SP7	min NS	231.36		3.2	231.4	338.1	0.68
	min NS						
	min NS						
	min NS						
Max							**0.72**

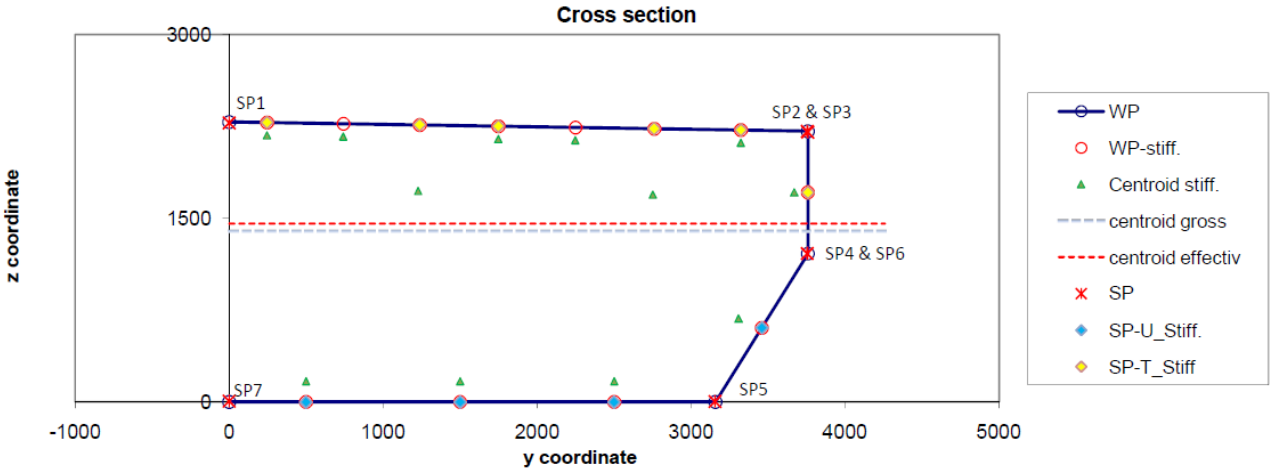


Figure 4-77 Position of stress points in geometrical output from ADVERS for railway girder

In the local FE-model the rail load has been fixated for maximising the sectional forces from maximum bending moment, My, in the centre of the span. The load has been applied to the model according to IBDAS influence line plots of the governing load case of rail load. The implemented load case is specified in Table 4-6 where loads and load factors are according to Design Basis and a description of application is given.

*Table 4-6 Loads and load factors applied to the local FE-model for maximum bending moment My in centre of span (*load factors are included in IBDAS results)*

Load Cases	Load Type	Description	Load factors
PP	Automatically calculated by ROBOT	Self-weight	1.35
PN	Line load	Superimposed dead load Applied as line load at centre of deck plate in whole length of the model	1.50
Boundary conditions	Section forces received from global IBDAS model for max. My in centre span (case 6571).	Six sectional forces applied at one end of the beam element.	1.0*
Rail load SW/2	Uniformly distributed load. Size and position comply with global IBDAS model.	Live load according to load model SW/2 applied at location of each rail in track 1.	1.45
Rail load LM71	Uniformly distributed loads. Size and position comply with global IBDAS model.	Live load according to load model LM71 applied at location of each rail in track 2.	1.45
Braking forces	Uniformly distributed loads. Size and position comply with global IBDAS model.	Live load according to load model SW/2 applied on track 1 and load model LM71 applied on track 2.	1.45
Nosing forces	Uniformly distributed loads. Size and position comply with global IBDAS model.	Live load according to load model SW/2 applied on track 1 and load model LM71 applied on track 2. Applied to railway system over an area of 150x200 mm.	0.73

Figure 4-78 and Figure 4-79 shows maximum My+ load combination with train type SW2 applied in track 1 (y- according to coordinates in the global IBDAS model) and LM71 applied in track 2 (y+ according to coordinates in the global IBDAS model). Figure 4-78 shows the vertical loads and Figure 4-79 shows the horizontal loads in the load combination My+.

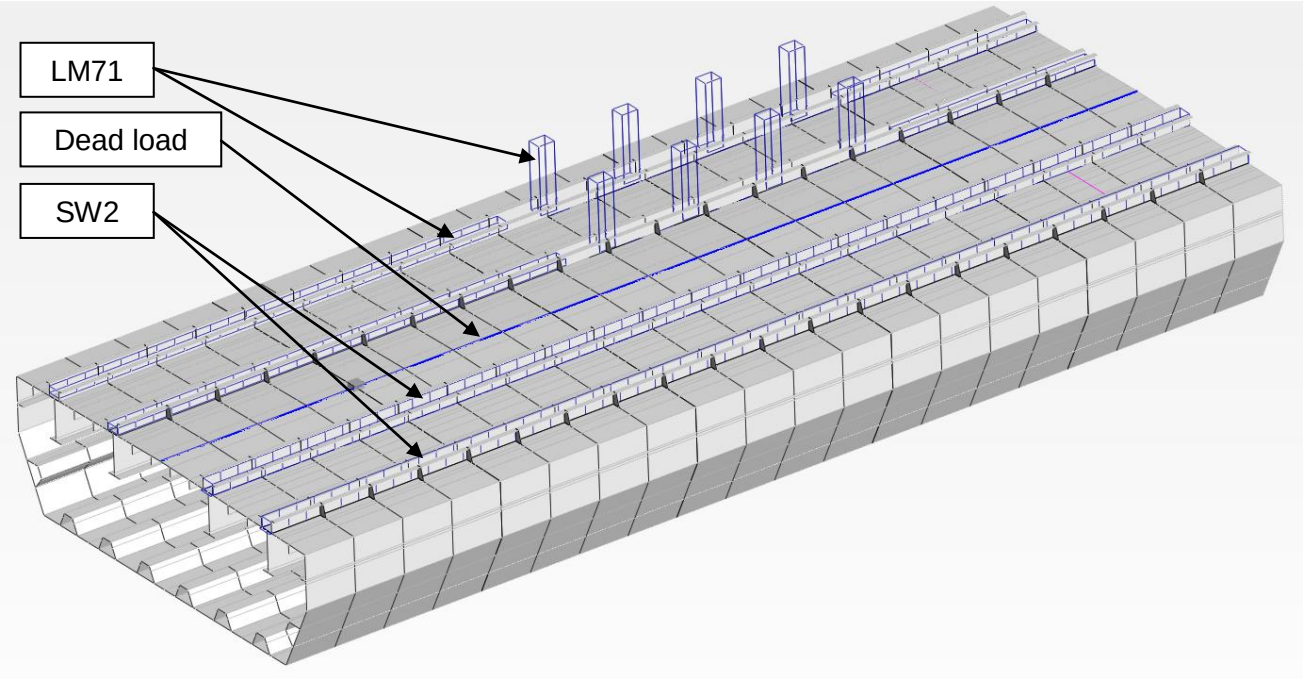


Figure 4-78 Plot of model with applied vertical loads for load case with maximum bending moment, My+, at centre span

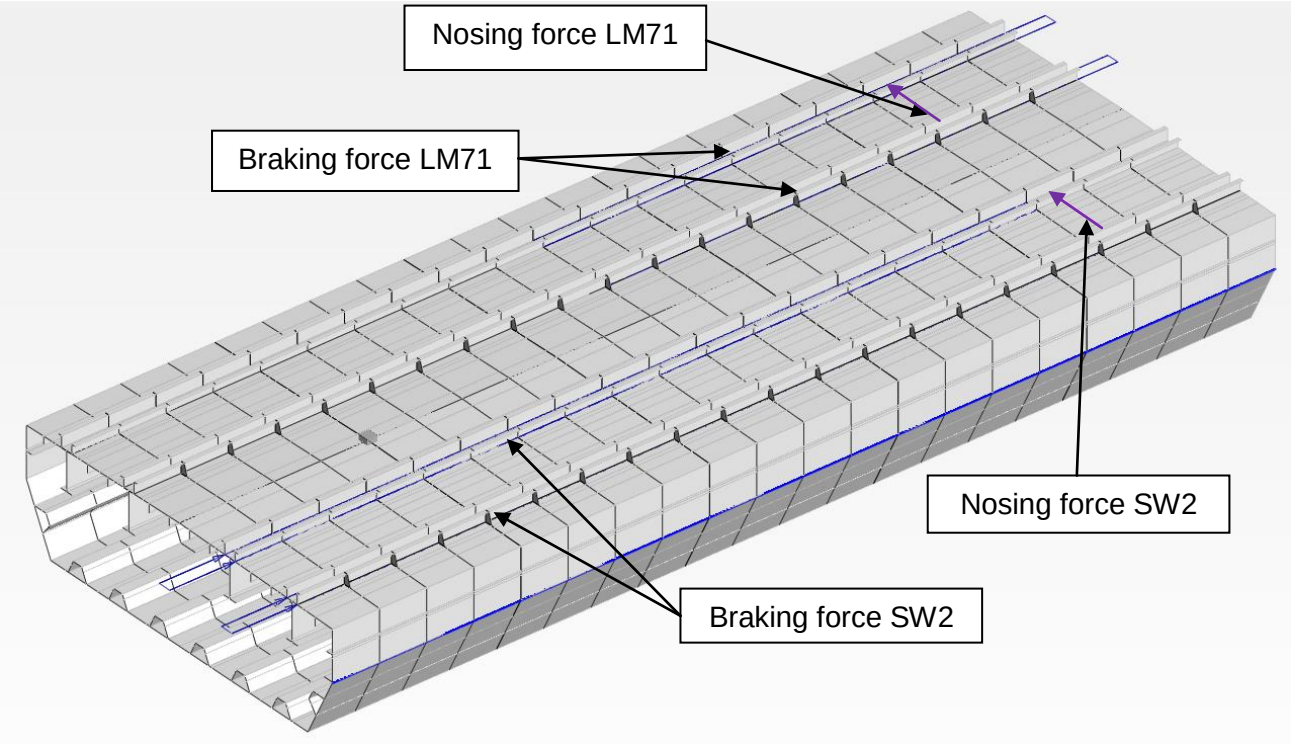


Figure 4-79 Plot of model with applied horizontal loads for load case with maximum bending moment, My+, at centre span

Figure 4-80 and Figure 4-81 shows plots of the longitudinal stresses calculated in the local FE-model for the deck plate and bottom plate, respectively. The results are compared with stress calculation from ADVERS in Table 4-7.

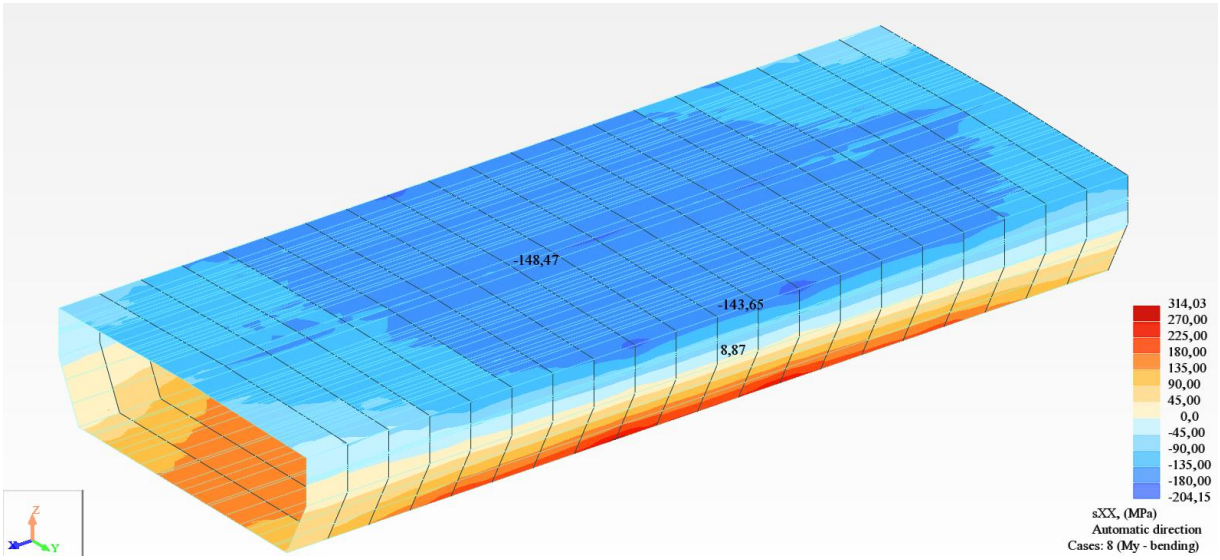


Figure 4-80 Stress plot of the longitudinal stresses, sXX (local system), for My+ in deck plate and web plate at s = -975m

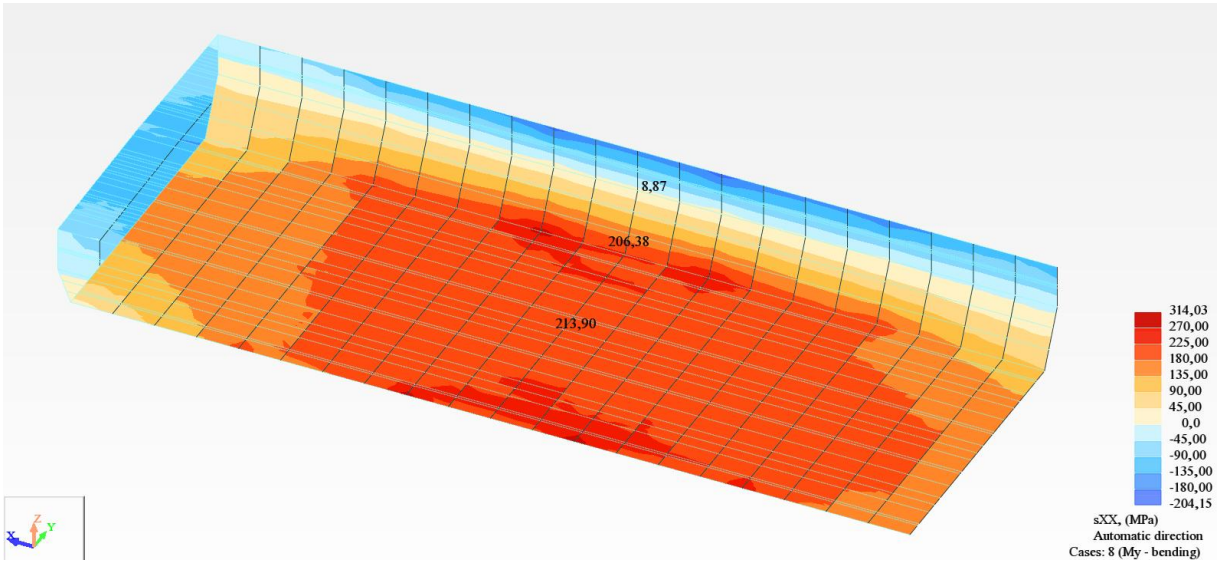


Figure 4-81 Stress plot of the longitudinal stresses, sXX (local system), for My+ in bottom plate at s = -975m

Table 4-7 Comparison of longitudinal stresses from ADVERS with local FE-model for the My+ load case 6571

Stress point	ADVERS [MPa]	Local FE-model [MPa]	Deviation from ADVERS
SP1	-216.1	-148.2	- 31%
SP2, SP3	-186.6	-147.9	- 21%
SP4, SP6	9.3	8.9	-4%
SP5	244.9	211.2	-14%
SP7	231.4	214.2	-7%

From the comparison in Table 4-7 it can be seen that ADVERS in general gives values that are higher than those obtained from the local FE-model. Stresses in ADVERS are calculated based on the results of a beam model, thus the positive effect of stress distribution in the plate elements are not accounted for. Hence it is concluded the ADVERS results are conservative but comparable with those obtained from the local FE-model.

4.9 Verification - Transverse Steel

4.9.1 Diaphragm with Holes for Utilities

The primary transverse steel in the railway girder is the diaphragms. Holes are provided in the diaphragm for the drainage pipes and utilities and a drawing of the diaphragm is shown in Figure 4-82. All utility holes have been reinforced with ring stiffeners.

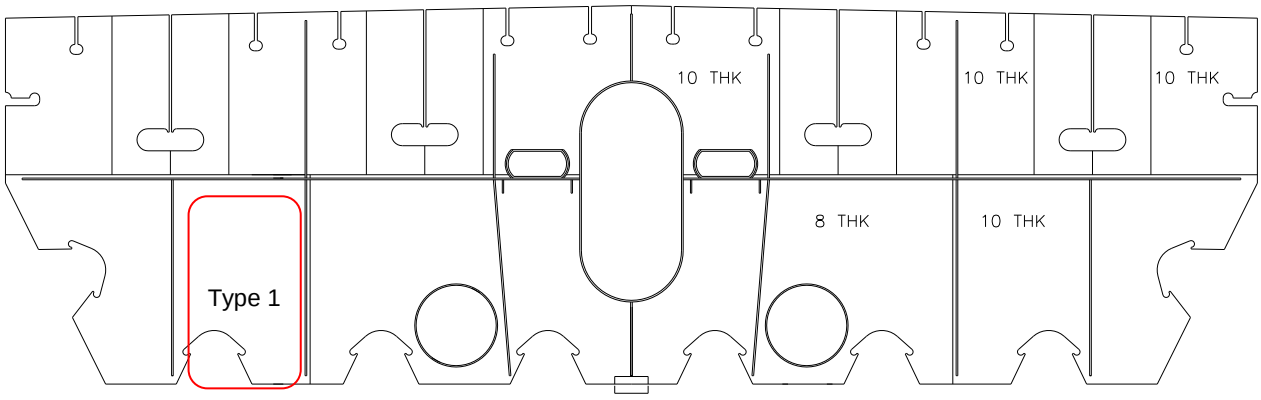


Figure 4-82 Diaphragm type1, critical panel for stability shown

For the stability verification of the diaphragm panel the actual stress condition in the diaphragm panels are calculated using the local FE-model of the railway girder. These stresses have then been applied to the panel, and the stability has been verified using an elastic buckling program and the reduced stress method of EN 1993-1-5:2006, section 10. From the applied stress condition a critical stress ration ϕ_{cr} have been calculated indicating the ratio the stresses can be increased before elastic buckling instability of the panel occurs. This critical factor have been calculated using an elastic buckling program, and is similar to the value α_{cr} used in the reduced stress method. Stability considering both plate-buckling and column-buckling behaviour have been verified.

The stresses determined in the following stress plots are presented for the load cases My+ and Mt+, as described in "General Design Principles for Suspended Deck". Stress plots are presented for one panel shown in Figure 4-83. The stress plots shown in the figure are the vertical and transverse axial stresses and shear stresses.

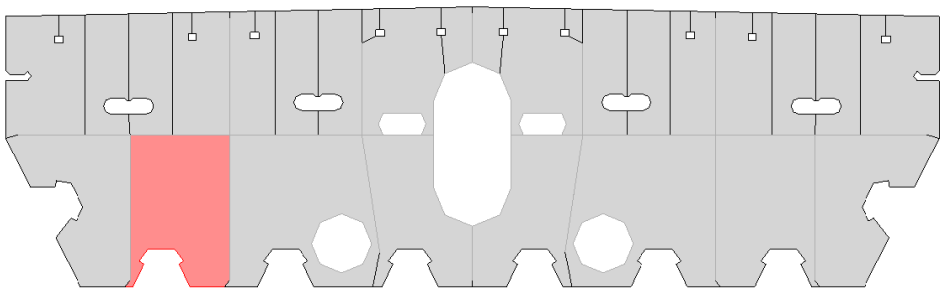


Figure 4-83 Diaphragm type 1 for roadway girder. Selected panel indicated

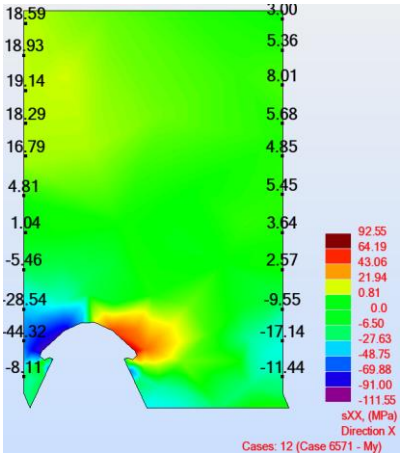
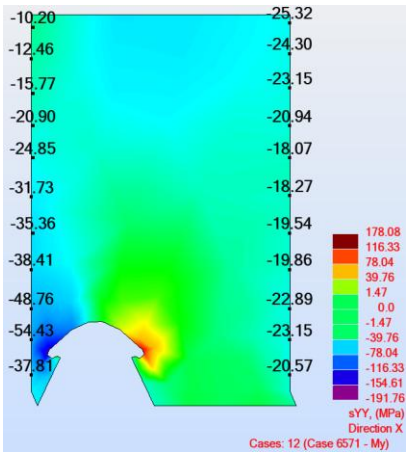
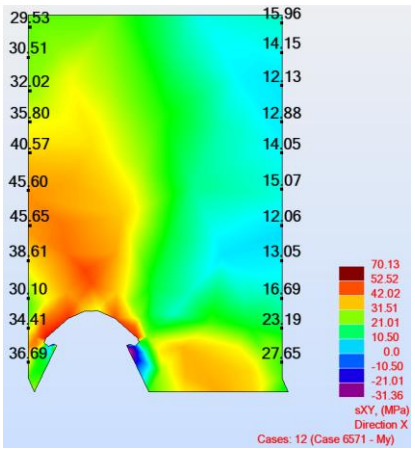
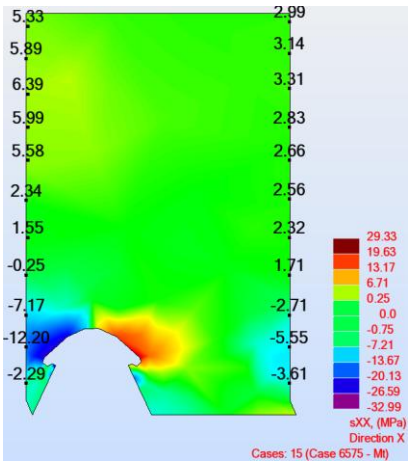
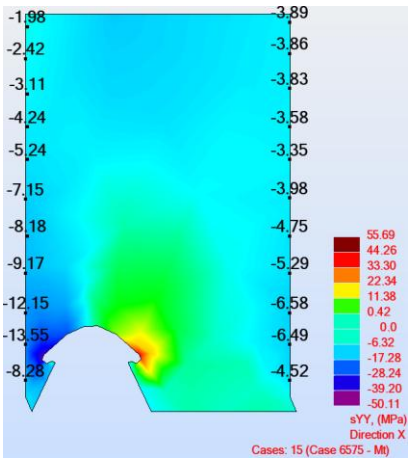
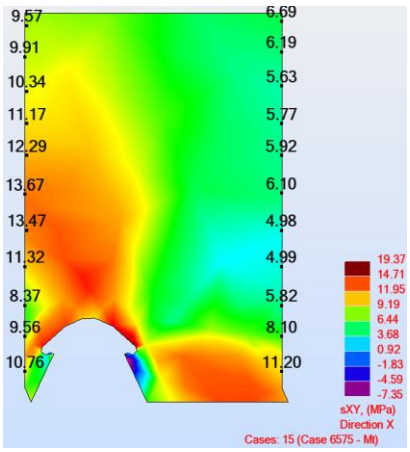
Load case	Vertical stresses	Horizontal stresses	Shear stresses
My+			
Mt+			

Figure 4-84 Stresses at panel edge for various load cases, Panel 1 railway girder

4.9.2 Panel 1, Railway

The most adverse stress condition for the panel is according to load case 6571 (My+). It can be seen from Figure 4-84 that the stress distribution varies over the panel height and from compression to tension. Knowing that the tension stress may act as stabilising, and it is recommended in EN1993-1-5, section 10 only to use the reduced stress method for compressive parts, a uniform compression stress distribution has been considered in the calculations.

The actual stress distribution can be seen in Table 4-8. The stresses applied in the elastic buckling program can be seen in Table 4-9 along with the calculated critical stress ratio factor and utilisation factor. The applied stress condition and the critical buckling mode can be seen in Figure 4-85.

Table 4-8 Actual stresses on the panel. (Comp. negative)

Panel	Dimension hxb [mm]	sXX_top[MPa]	sXX_bot [MPa]	sYY [MPa]	sXY [MPa]
1	1400x1000	18	-18	-25	25

Table 4-9 Applied stresses and calculated critical factor. (Comp. negative)

Panel	Dimension hxb [mm]	sXX[MPa]	sYY [MPa]	sXY [MPa]	ϕ_{cr}	UR
1	1400x1000	-18	-25	25	1.35	0.17

From the table it can be seen that UR<1.0, thus indicating that the panel has sufficient capacity and will not become instable under the applied stress conditions.

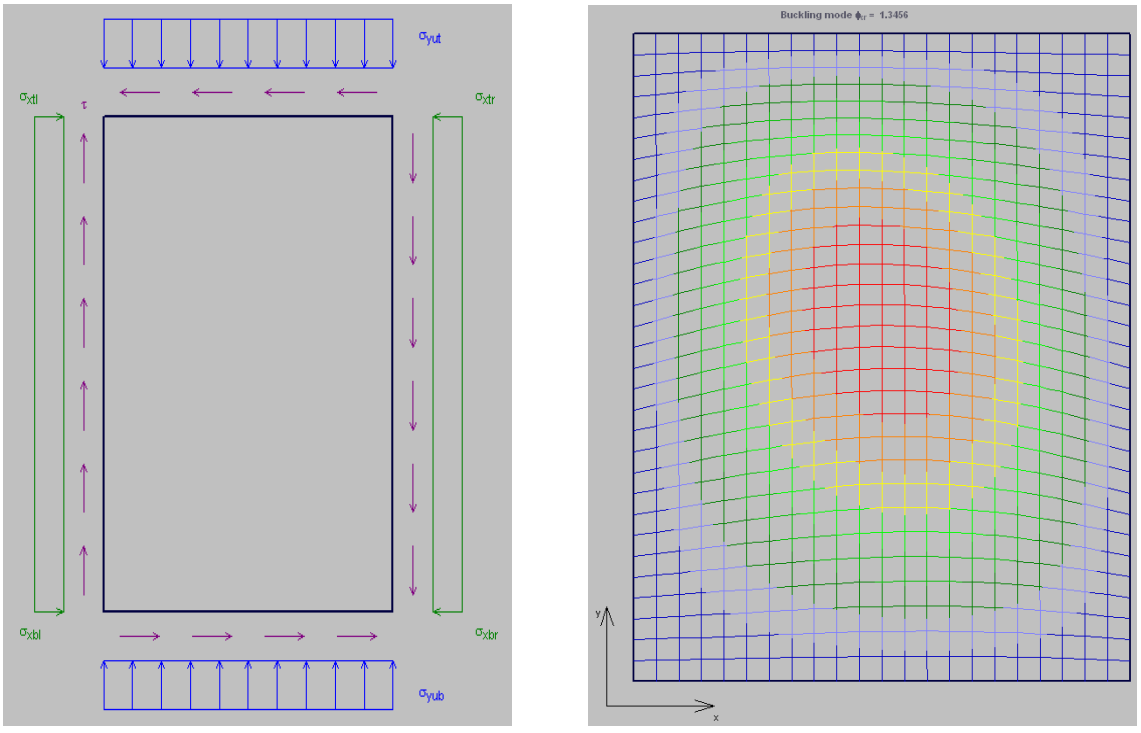


Figure 4-85 Critical buckling mode of panel for applied stress condition, railway panel 1

5 Cross Girder - Verification

5.1 Introduction

In the following the overall design of the cross girder is described. Furthermore the method for verifying the cross girder design with regards to ULS combinations (dynamic wind and seismic) are specified.

The cross girders are designed as closed box girders. They act as simple supported beams supported by hanger anchorages.

The cross girder is primary loaded in vertical direction by permanent load and traffic loads acting on the roadway and the railway girders. Steel grade S460 is adopted for all cross girders in order to achieve an optimal design with minimised quantities.

The cross girder type T4a has additional to the ULS combinations also been verified for a load case where the full buffer force of 2x40 MN is applied (40 MN in each side, see section 5.6.2.1).

5.2 Girder Types

The layout of the cross girders consist of six different types T1, T3, T4a,T4b, T6 and T7, where T1 and T3 are used in the main span and differ only for the plate thicknesses.

The first cross girder in the side span near the tower, type T4a, includes two symmetrical cantilevering parts supporting the longitudinal buffers. The distance between two cross girders on each side of the towers (T4a and T4b) is 60 m to ease up stresses from the forced movements of the railway girder.

The main span of the bridge is mainly composed by cross girder type T1 besides the type T3 cross girder next to the tower location. The high differentiation takes place at the tower section as well as in the side spans and at the terminal structure due to the high variation of forces occurring in the bridge ends. The above mentioned differentiation can be seen in Figure 5-1 where in the red square all six cross girder types in the different parts of the bridge are highlighted.

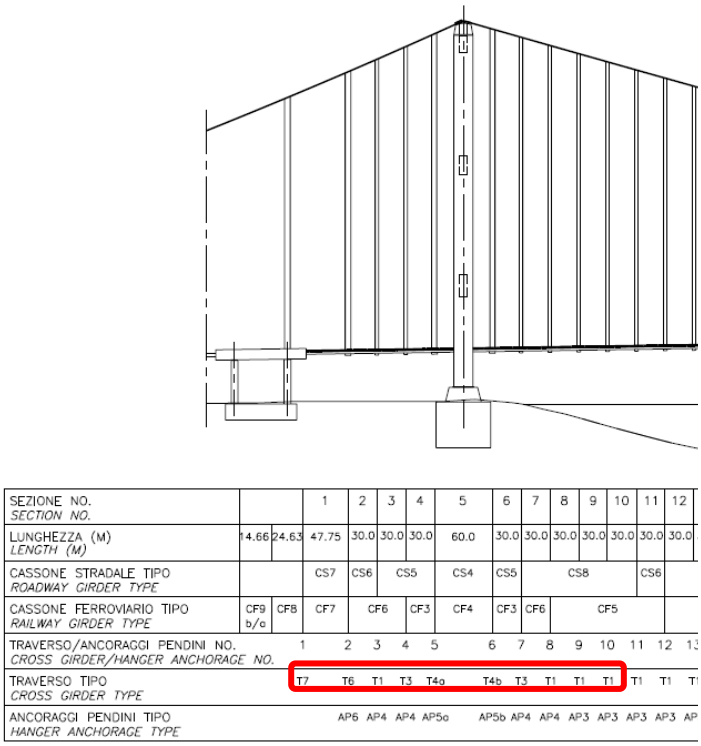


Figure 5-1 Location of the different types of cross girder

5.3 Cross section geometry

The plate thicknesses in the top and bottom flanges ranges between 20 and 54 mm, while the webs transferring shear ranges between 12 and 40 mm in thickness. A summary of the plate thicknesses for all cross girders can be found in Table 5-1.

Table 5-1 Cross girders - Plate thicknesses

Roadway Girder Type		Cross section element		
		Top Flanges	Webs	Bottom flanges
T1	**2**	28	12	25
	3	23	16	23
	4	20	16	23
T3	**2**	32	20	30
	3	25	22	28
	4	20	22	28
T4a	**2**	48	40	52
	3	45	40	50
	4	30	40	35
T4b	**2**	40	28	44
	3	36	28	36
	4	26	28	30
T6	**2**	32	15	30
	3	25	20	25
	4	22	20	25
T7	**2**	54	30	50
	3	50	30	40
	4	25	30	40

The arrangements of stiffeners in the cross girder is such that all the stiffeners of roadway and railway decks continue throughout the interior of the cross girder whereas in the remaining part of the cross girder, longitudinal T-stiffeners are applied to the deck plate. This is done to give more favorable interconnection to the road and railway girder sections and to eliminate fatigue problems due to interruption of stiffeners. In addition this arrangement ensures a high driving comfort when passing the cross girder due to the uniform deck stiffness.

5.4 Section properties

Each cross girder has been verified in three characteristic sections between the longitudinal girders which can be seen in Figure 5-2.

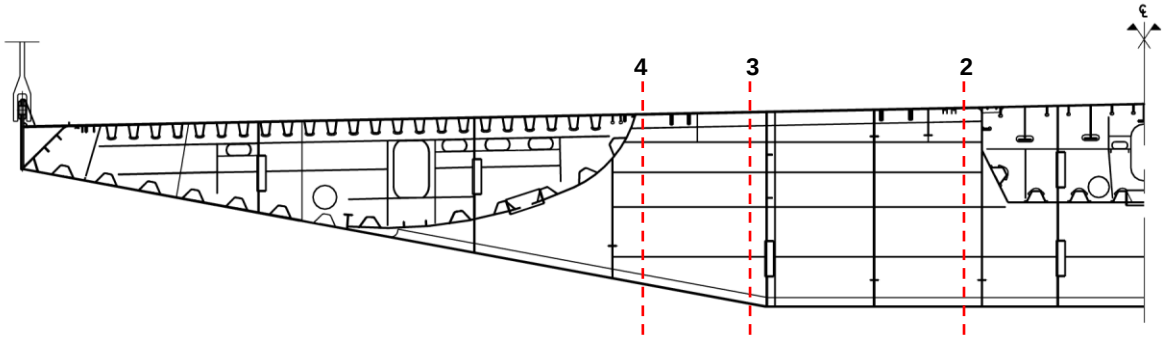


Figure 5-2 Cross girder – verification sections

A summary of the section properties of the three section analysed can be seen in Table 5-2.

Table 5-2 cross sectional properties for gross sections

Cross Girder Type		Cross Sectional Properties						
		C.G. y-direction [mm]	C.G. z-direction [mm]	A [m^2]	Iy [m^4]	Iz [m^4]	Ay [m^2]	Az [m^2]
T1	2	1.887	2.478	0.353	1.360	0.708	0.200	0.011
	3	1.887	2.371	0.362	1.255	0.798	0.174	0.146
	4	1.887	1.991	0.332	0.884	0.718	0.162	0.127
T3	2	1.887	2.42	0.461	1.673	1.007	0.234	0.185
	3	1.887	2.296	0.443	1.486	1.020	0.200	0.200
	4	1.887	1.896	0.398	1.016	0.906	0.181	0.174
T4a	2	3.021	2.345	1.085	4.137	5.707	0.616	0.371
	3	3.021	2.26	1.034	3.749	5.500	0.574	0.363
	4	3.021	2.233	0.849	2.778	4.910	0.393	0.359
T4b	2	3.021	2.32	0.865	3.380	4.389	0.507	0.259
	3	3.021	2.342	0.786	2.870	4.110	0.435	0.254
	4	3.021	2.25	0.687	2.332	3.789	0.338	0.251
T6	2	3.021	2.456	0.612	2.464	2.906	0.374	0.139
	3	3.021	2.369	0.581	2.080	3.657	0.302	0.182
	4	3.021	2.275	0.561	1.945	2.982	0.284	0.179
T7	2	1.373	1.405	0.474	0.636	0.505	0.286	0.165
	3	1.373	1.326	0.456	0.571	0.488	0.275	0.159
	4	1.372	1.155	0.357	0.387	0.421	0.179	0.156

5.5 Global Force Distribution

ULS Combination with dynamic wind is governing for the ULS design. The load cases are defined in the IBDAS report "Global IBDAS Model Description". Sectional forces for load combination LC6570 used in the verification of the cross girders are shown in Figure 5-3 to Figure 5-6 for section at y=4.15m.

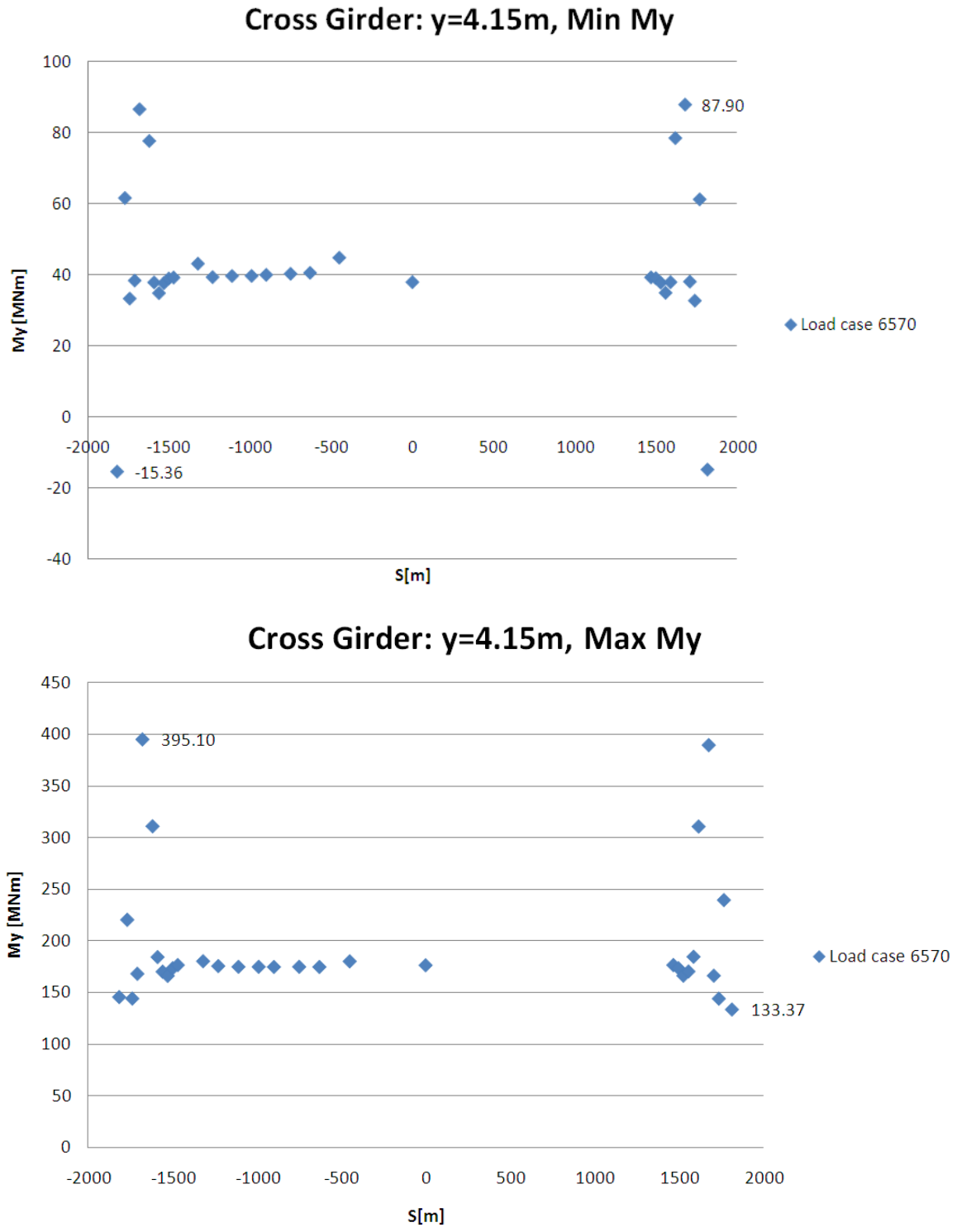


Figure 5-3 Bending moment My in cross girders for ULS dynamic wind

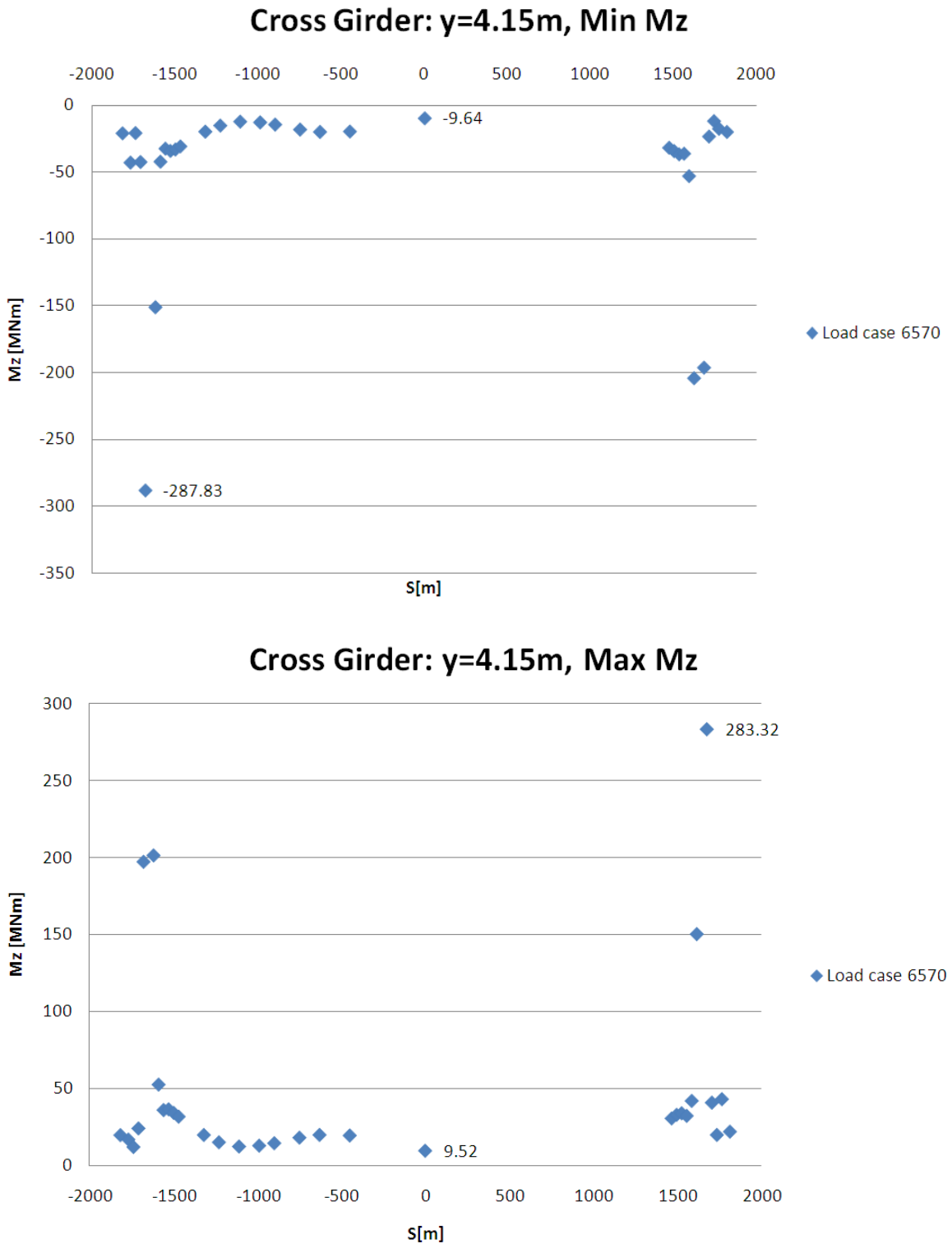


Figure 5-4 Bending moment Mz in cross girders for ULS dynamic wind

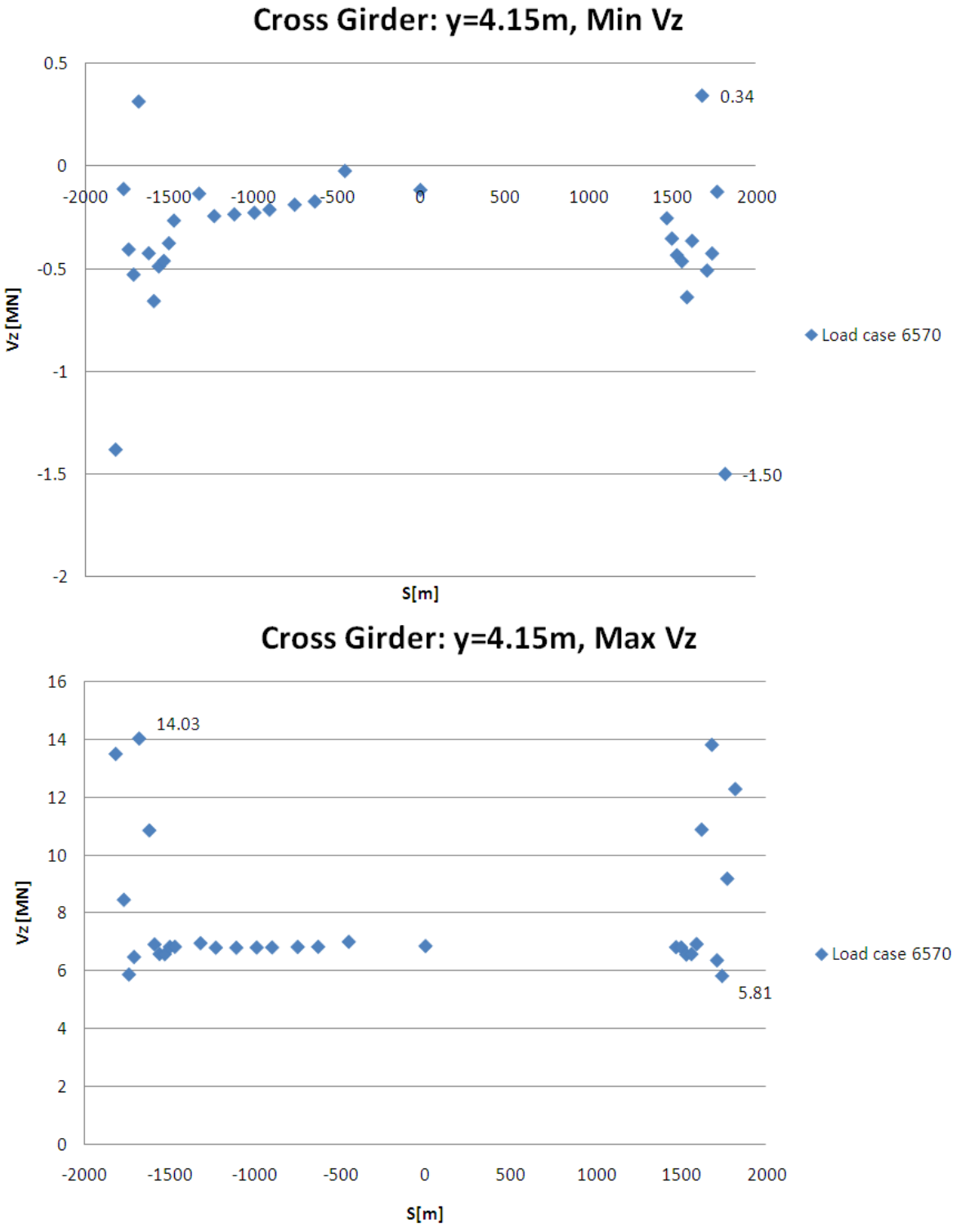


Figure 5-5 Shear force Vz in cross girders for ULS dynamic wind

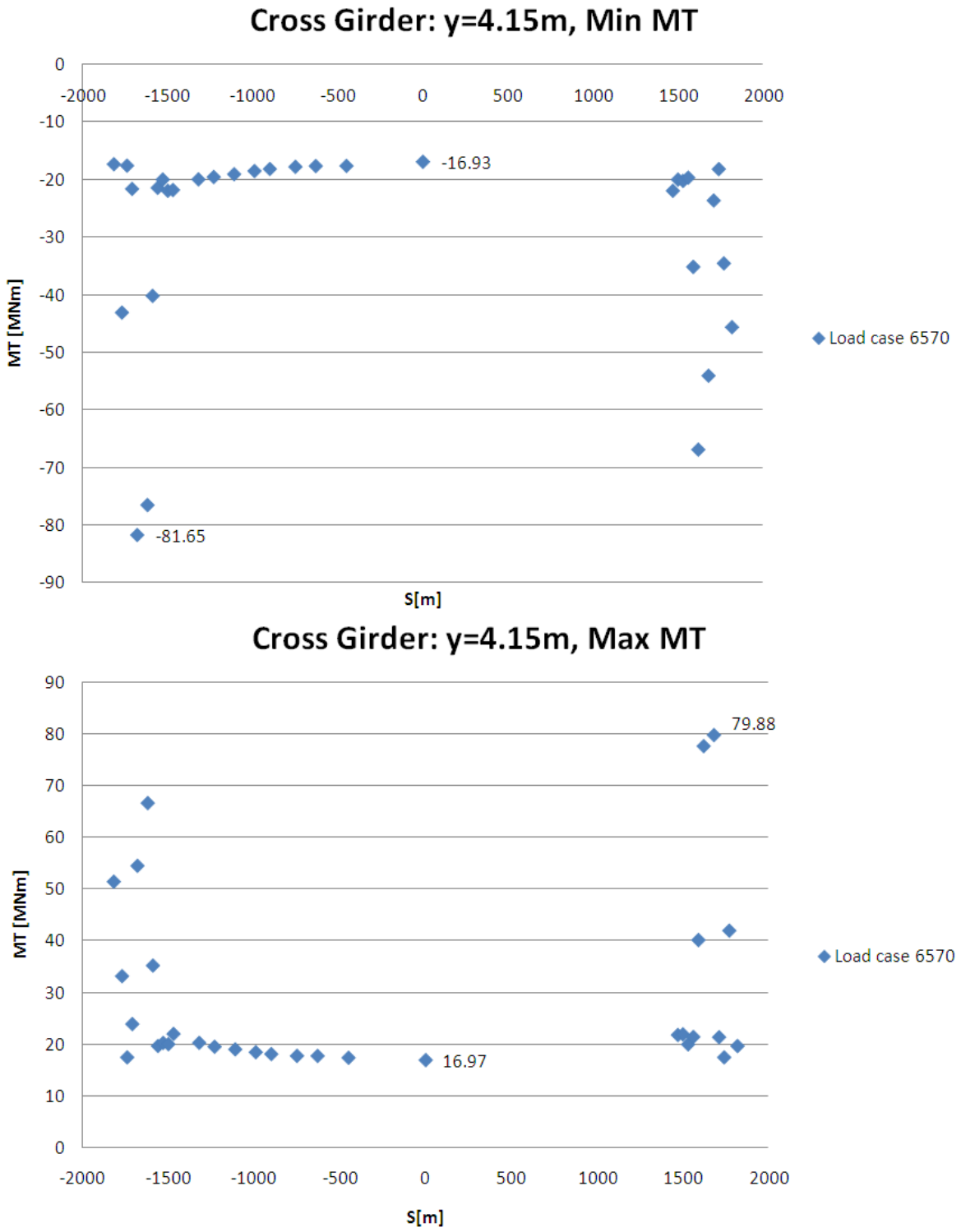


Figure 5-6 Torsional moment Mt in cross girders for ULS dynamic wind

5.6 Verification - Longitudinal Steel

The results from ADVERS for the ULS load combination dynamic wind and the ULS load combination seismic (time history) are shown in Figure 5-7 to Figure 5-22. A summary of the maximum utilisation ration for each group of cross girder type is shown in Table 5-3 It is seen that both stress checks and stability checks gives utilisation ratios less than 1.00 and dynamic wind is found to be governing for all checks.

The utilisation ratios are presented for the relevant cross girders with a more dense distribution around the tower locations where the highest utilisation ratios were expected. All cross girder types have been included and a total of 31 cross girders have been verified along the whole bridge length including both ends in order to consider possible variation of the most critical stresses.

The utilisation ratios for axial, bending & shear are equal to zero in all the ADVERS verifications, this is due to the effect of the shear force being less than 50% of the shear capacity, hence this verification can be neglected according to section 6.2.10(3) in EN1993-1-1:2007, and instead verifying for combined N+M only.

Table 5-3 Overview of maximum utilisation ratios

			Max UR			
Cross girder group		**Load case**	**Von Mises Stresses**	**Local Buckling - Stiffened panel**	**Plate Buckling**	**Overall Verifications**
T1&T3	**2**	**S-coordinate [mm]**	-1500	-1500	-1500	-1500
		Dynamic wind	0.91	0.88	0.64	0.86
		S-coordinate [mm]	-900	-900	-900	-900
		Seismic (time history)	0.46	0.47	0.30	0.39
	3	**S-coordinate [mm]**	-450	-1320	-1320	-450
		Dynamic wind	0.70	0.88	0.61	0.69
		S-coordinate [mm]	-1740	-1740	-1740	-1740
		Seismic (time history)	0.33	0.42	0.29	0.33
	4	**S-coordinate [mm]**	-450	-450	-450	-450
		Dynamic wind	0.85	0.99	0.83	0.79
		S-coordinate [mm]	-1710	-1710	-1710	-1710
		Seismic (time history)	0.41	0.50	0.42	0.38
T4a - T4b - T6	**2**	**S-coordinate [mm]**	-1680	-1680	-1680	-1680
		Dynamic wind	0.81	0.90	0.72	0.81
		S-coordinate [mm]	-1770	-1680	-1680	-1770
		Seismic (time history)	0.60	0.46	0.36	0.49
	3	**S-coordinate [mm]**	-1680	-1680	-1680	-1680
		Dynamic wind	0.74	0.79	0.61	0.69
		S-coordinate [mm]	-1770	-1770	-1770	1770
		Seismic (time history)	0.42	0.41	0.34	0.36
	4	**S-coordinate [mm]**	-1680	-1680	-1680	-1680
		Dynamic wind	0.84	0.85	0.76	0.76
		S-coordinate [mm]	-1770	-1770	-1770	-1770
		Seismic (time history)	0.58	0.49	0.47	0.48
7 (section S= -1818 mm)	**2**	**Dynamic wind**	0.98	0.94	0.41	0.77
	3		0.74	0.61	0.27	0.68
	4		0.86	0.43	0.22	0.85
	2	**Seismic (time history)**	0.52	0.72	0.22	0.51
	3		0.40	0.36	0.14	0.33
	4		0.54	0.88	0.28	0.48

Section forces for the verified sections are found in Appendix C.

5.6.1 T1 - T3

The governing ULS load combination has been found to be the dynamic wind and the utilisation ratios can be seen in Figure 5-7 to Figure 5-9; results of a seismic time history analysis can be found in Figure 5-10 to Figure 5-12.

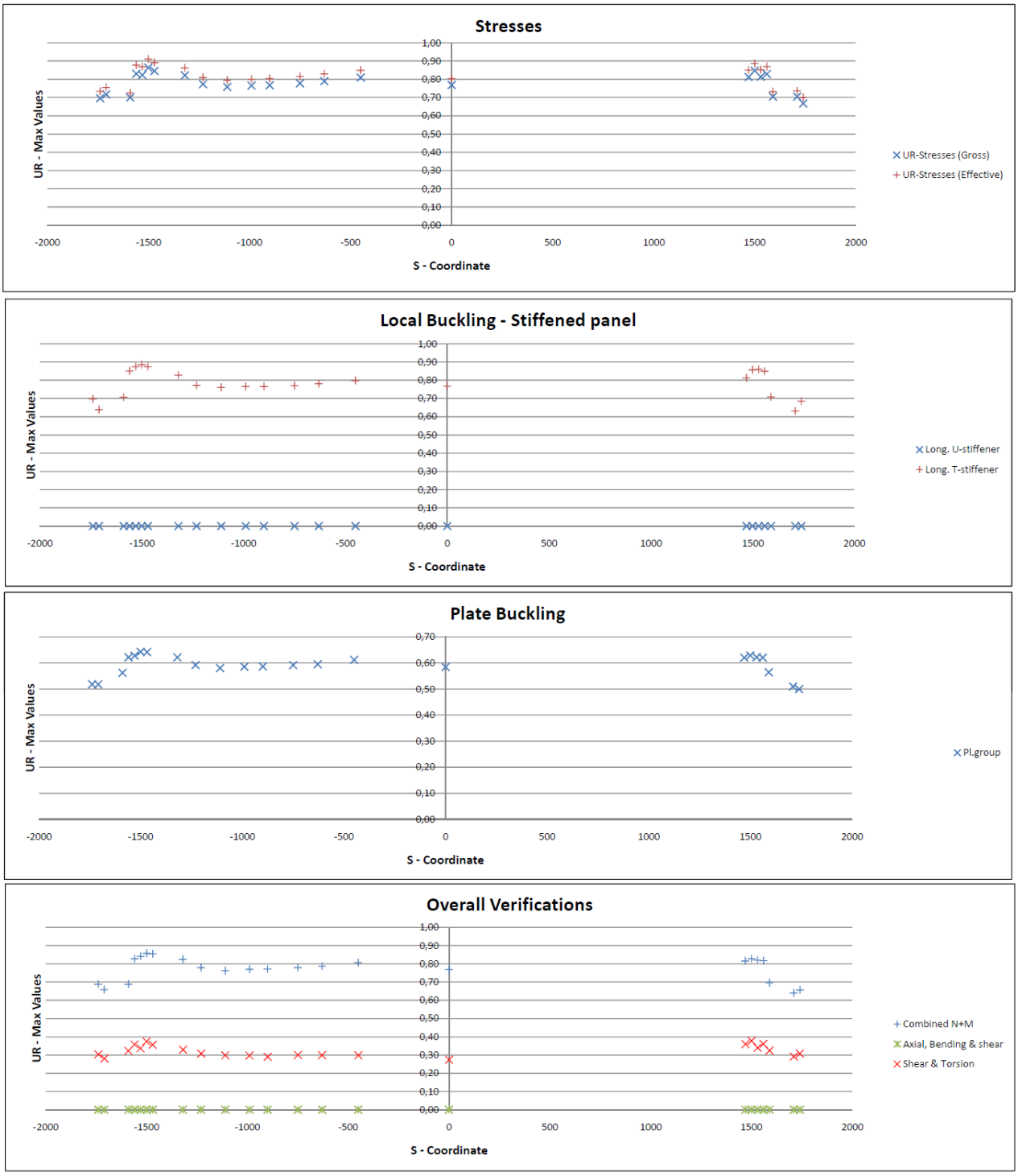


Figure 5-7 Utilisation ratios for cross girders T1 and T3, section 2. ULS dynamic wind load combination

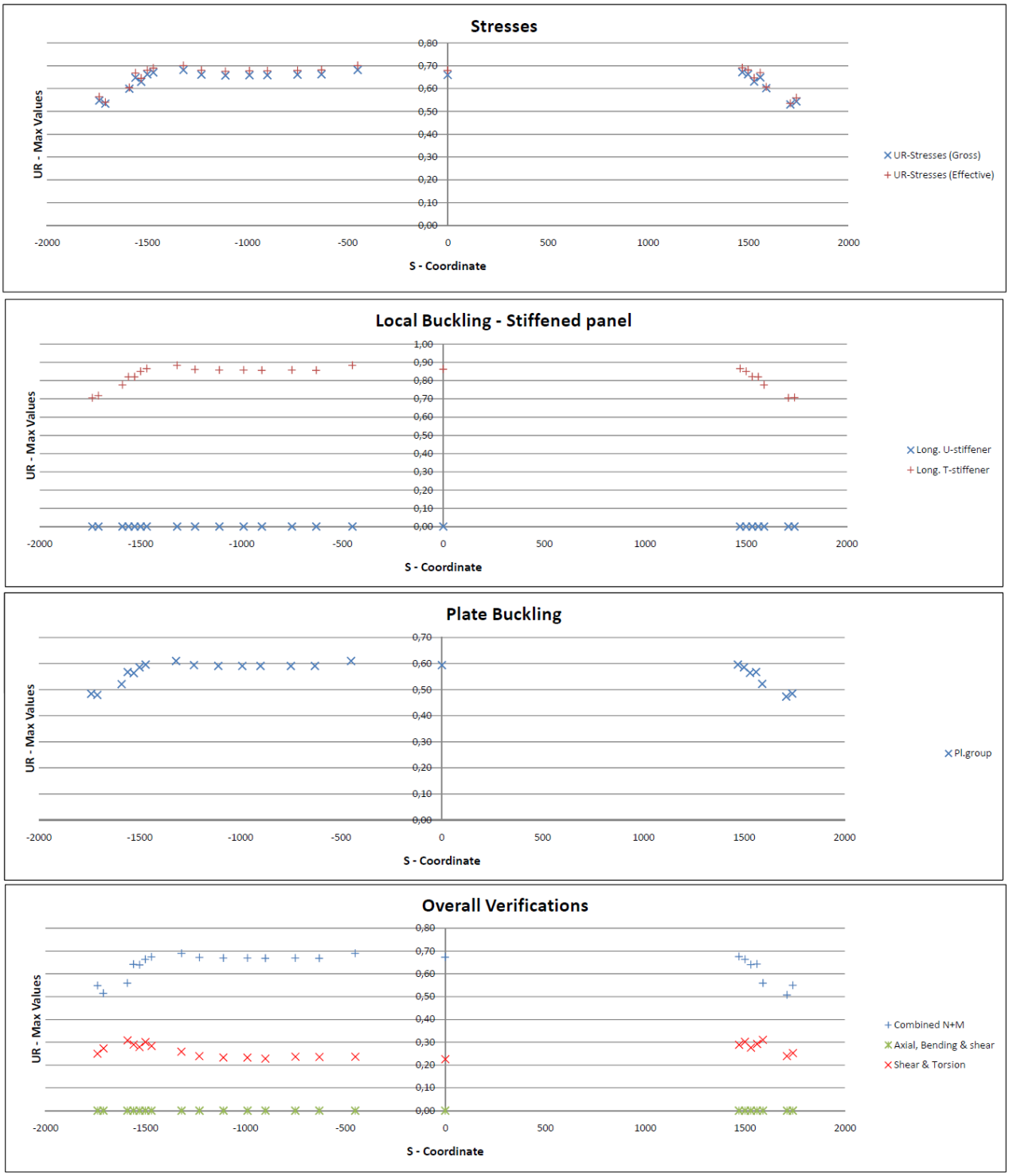


Figure 5-8 Utilisation ratios for cross girders T1 and T3, section 3 – ULS dynamic wind load combination

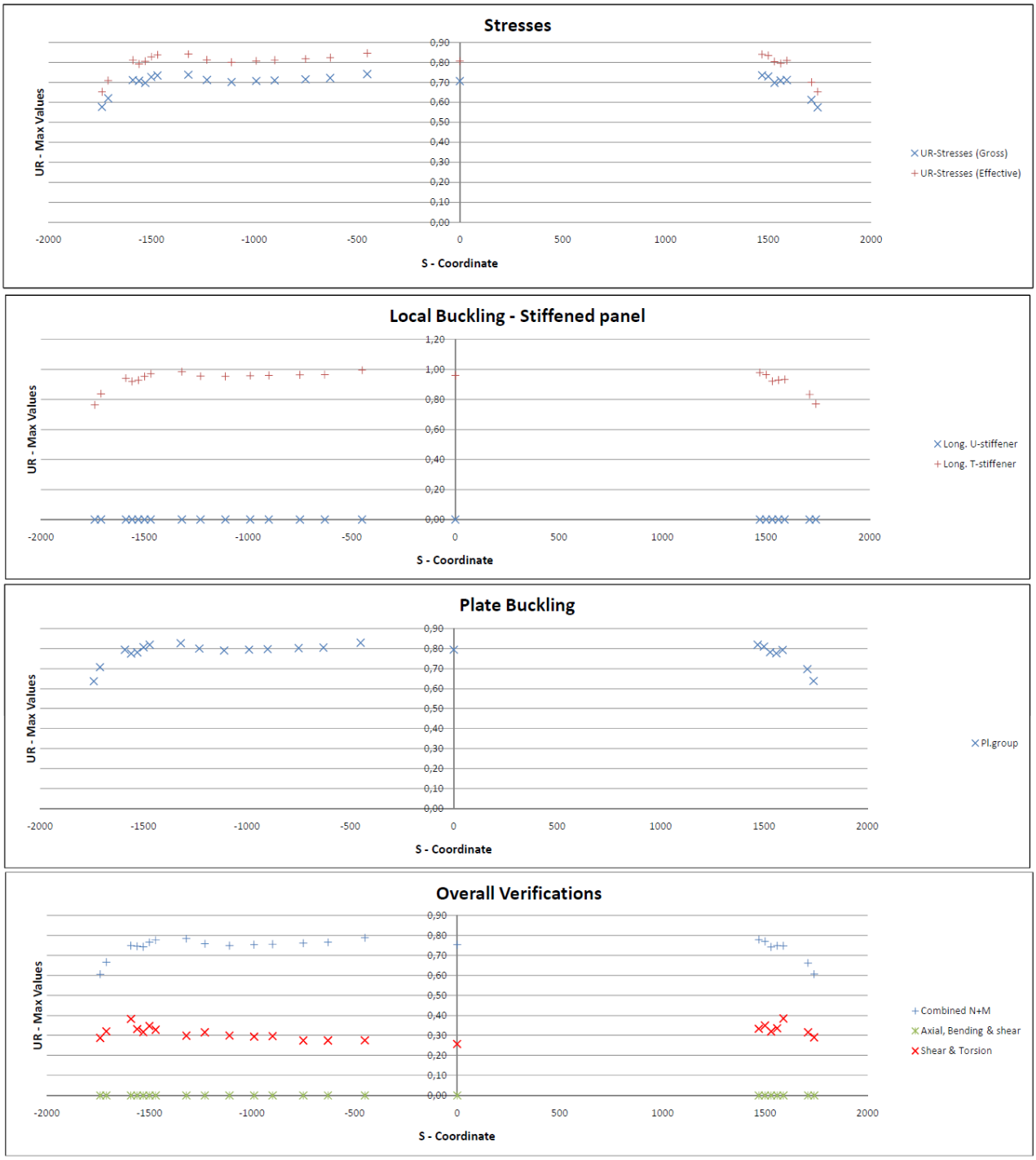


Figure 5-9 Utilisation ratios for cross girders T1 and T3, section 4 – ULS dynamic wind load combination

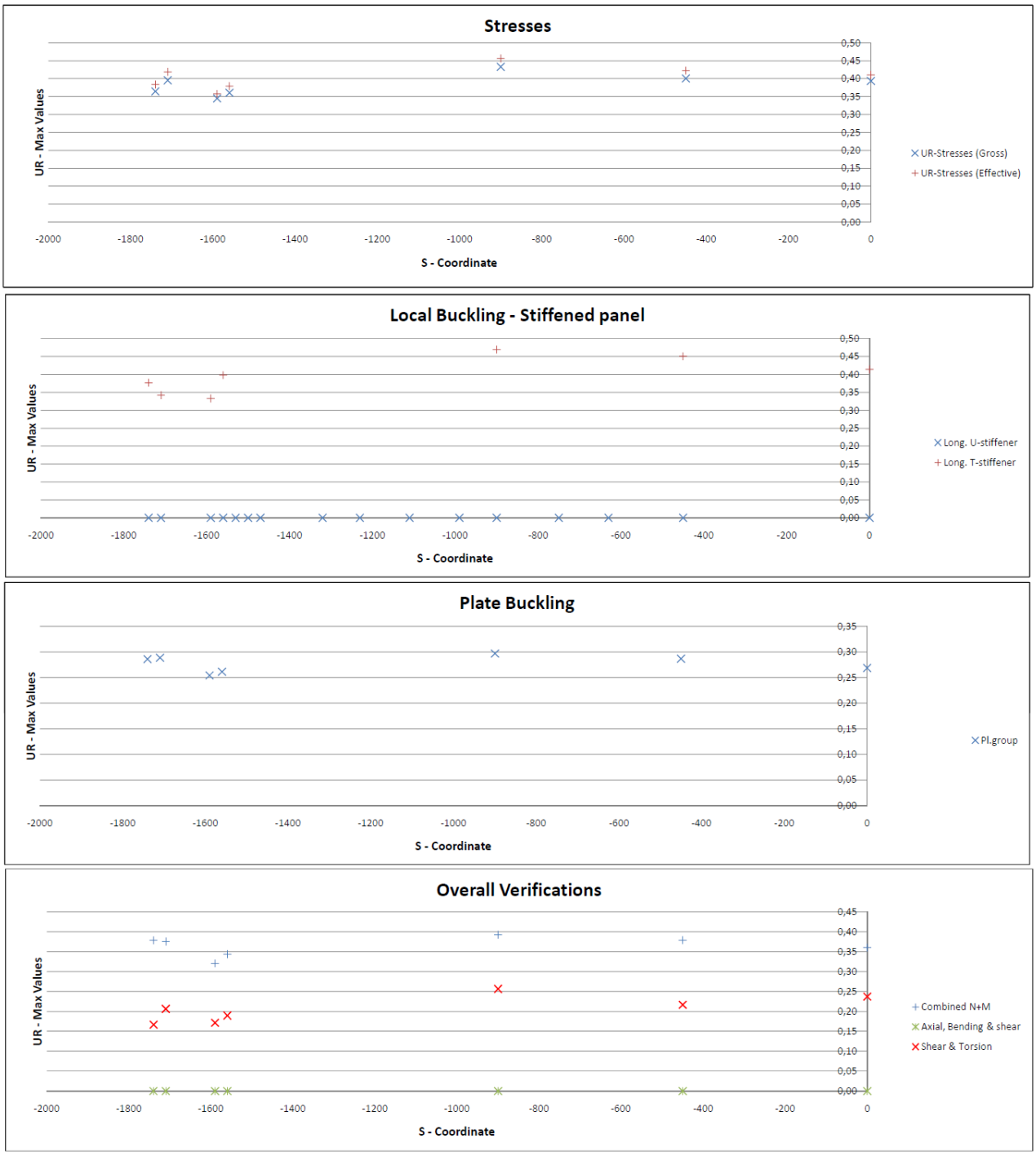


Figure 5-10 Utilisation ratios for cross girders T1 and T3, section 2 – ULS seismic (time history) load combination

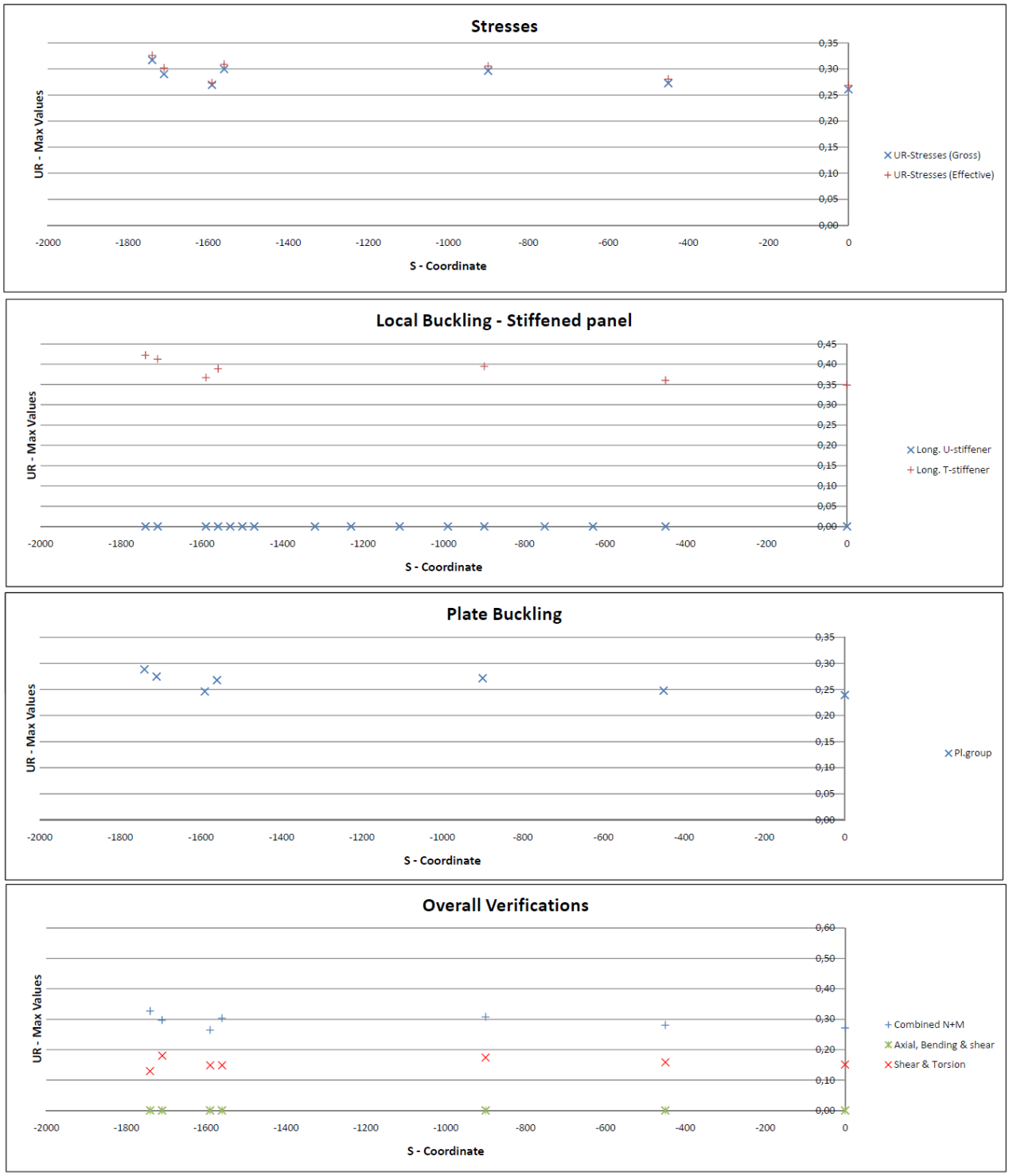


Figure 5-11 Utilisation ratios for cross girders T1 and T3, section 3 – ULS seismic (time history) load combination

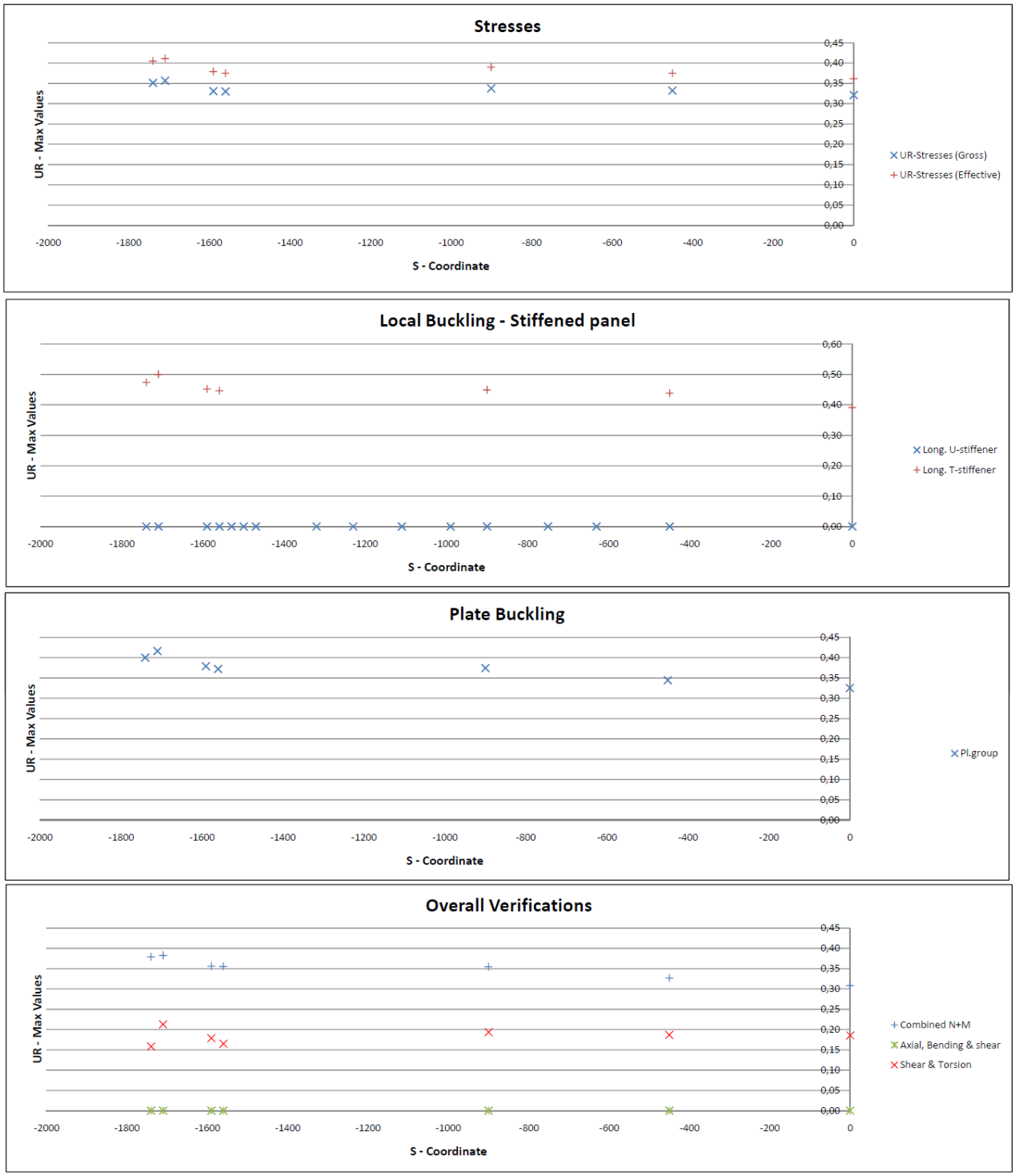


Figure 5-12 Utilisation ratios for cross girders T1 and T3, section 4 – ULS seismic (time history) load combination

5.6.2 T4a - T4b - T6

The governing ULS load combination has been found to be the dynamic wind and the utilisation ratios can be seen in Figure 5-13 to Figure 5-15; results of a seismic time history analysis can be found in Figure 5-16 to Figure 5-18.

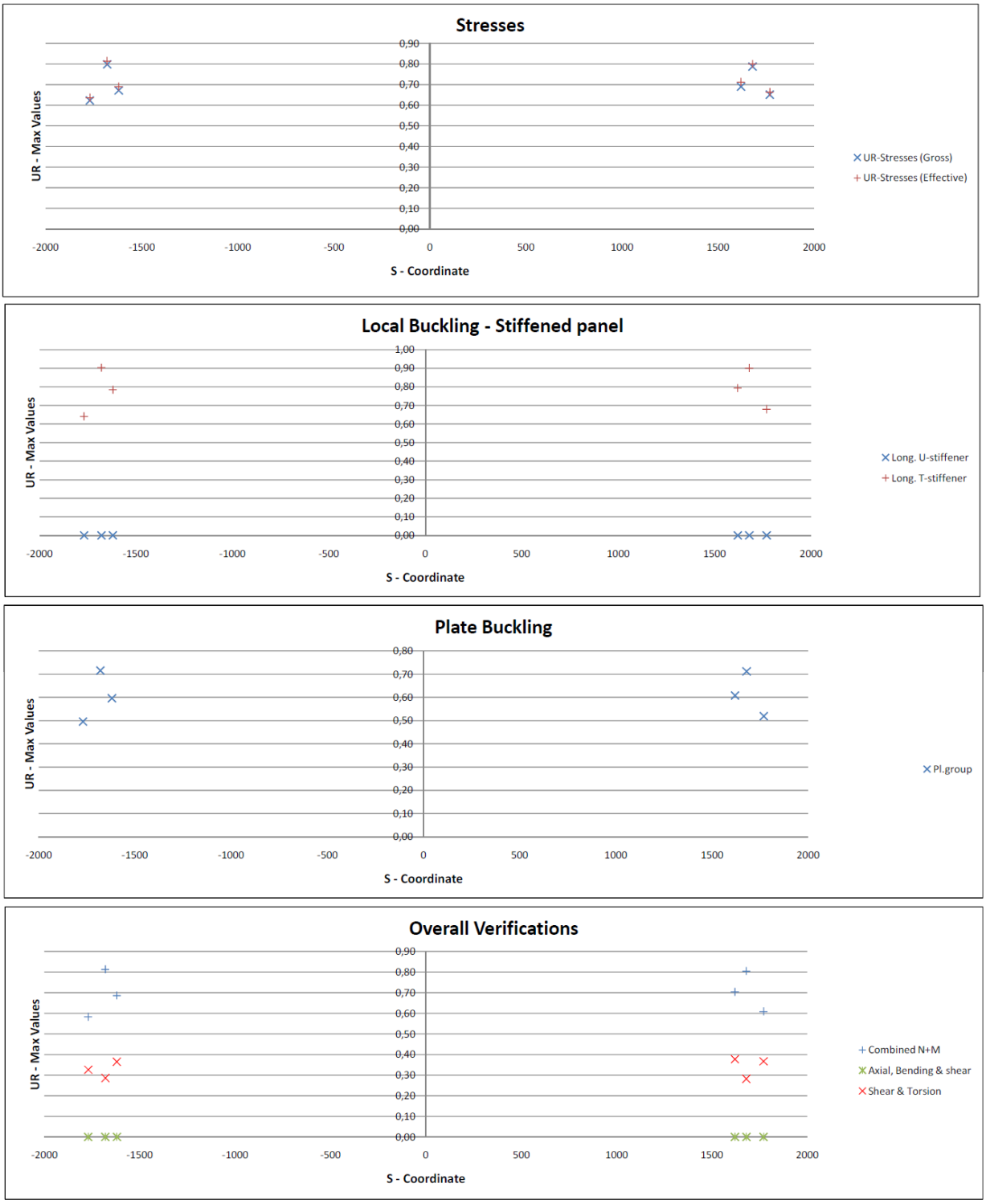


Figure 5-13 Utilisation ratios for cross girders T4a-T4b and T6, section 2 – ULS dynamic wind load combination

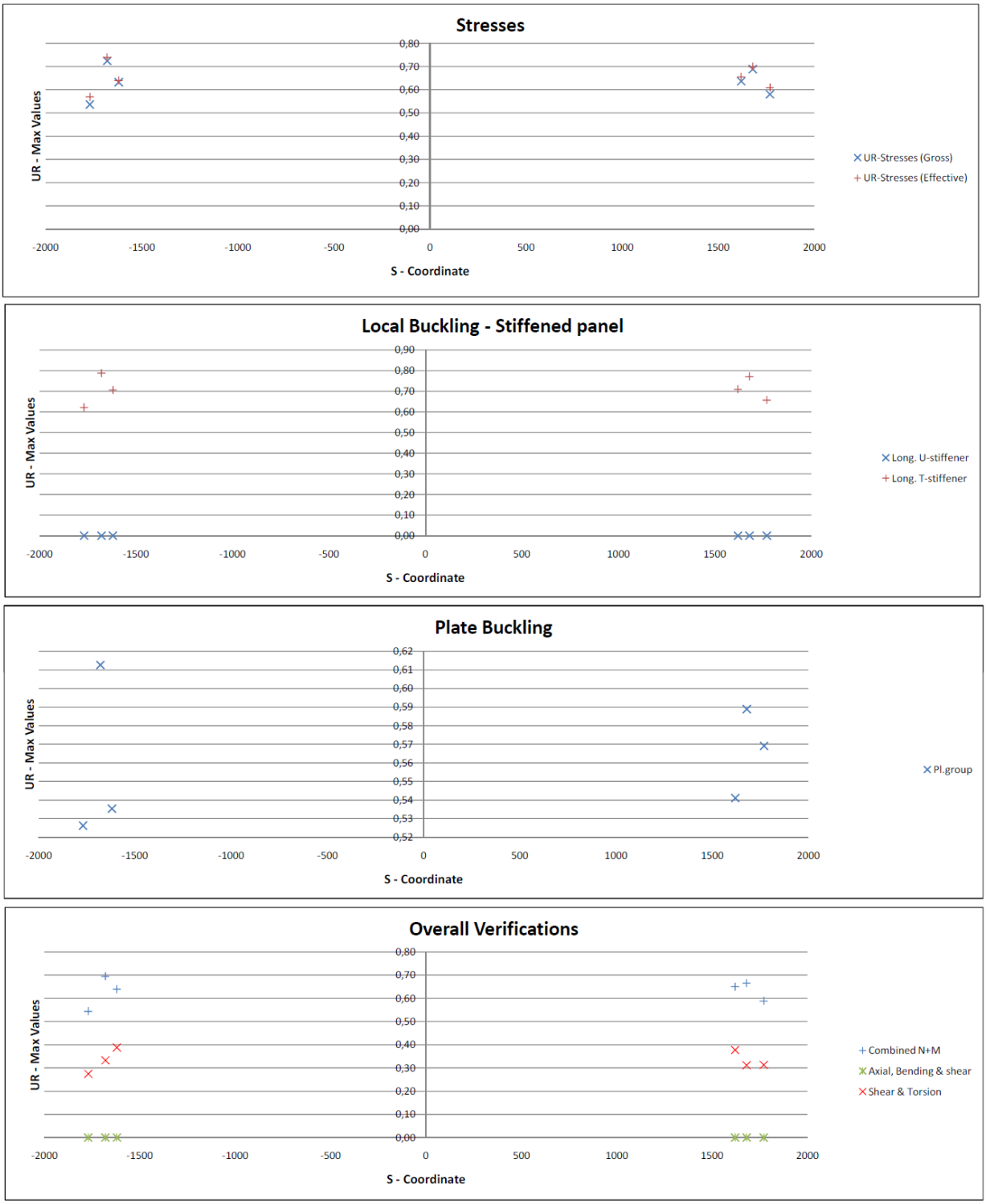


Figure 5-14 Utilisation ratios for cross girders T4a-T4b and T6, section 3 – ULS dynamic wind load combination

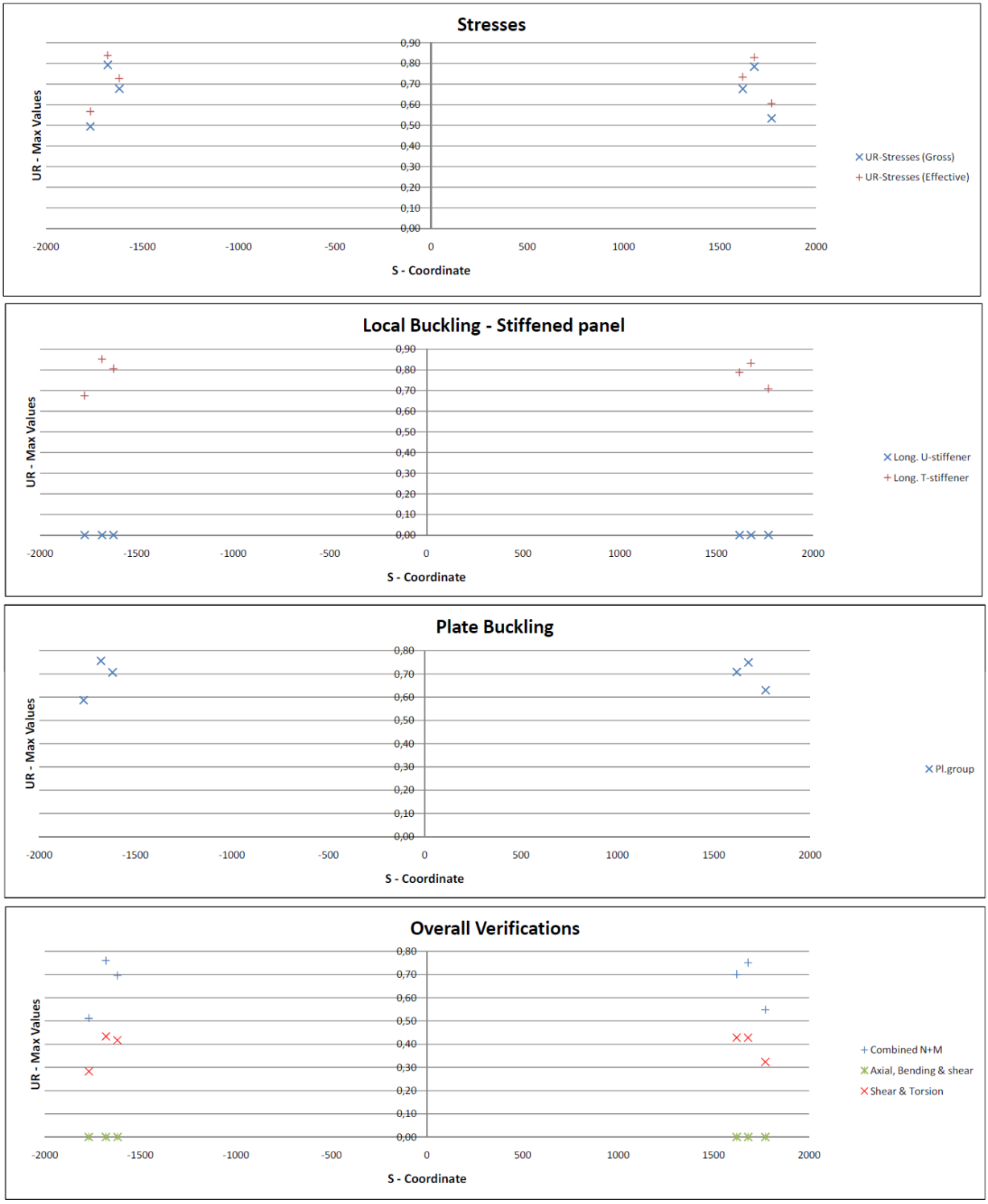


Figure 5-15 Utilisation ratios for cross girders T4a-T4b and T6, section 4 – ULS dynamic wind load combination

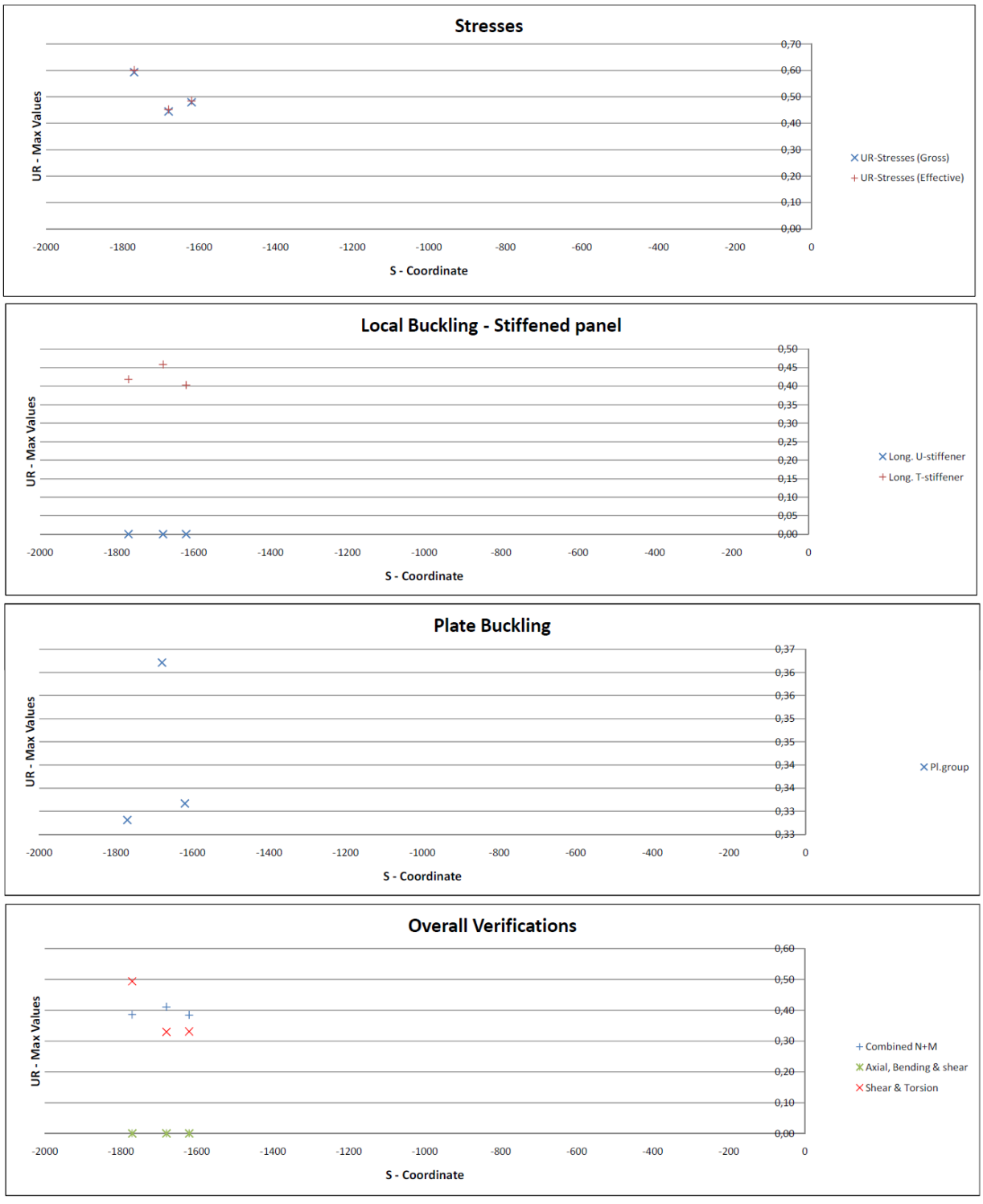


Figure 5-16 Utilisation ratios for cross girders T4a, T4b and T6, section 2 – ULS seismic (time history) load combination

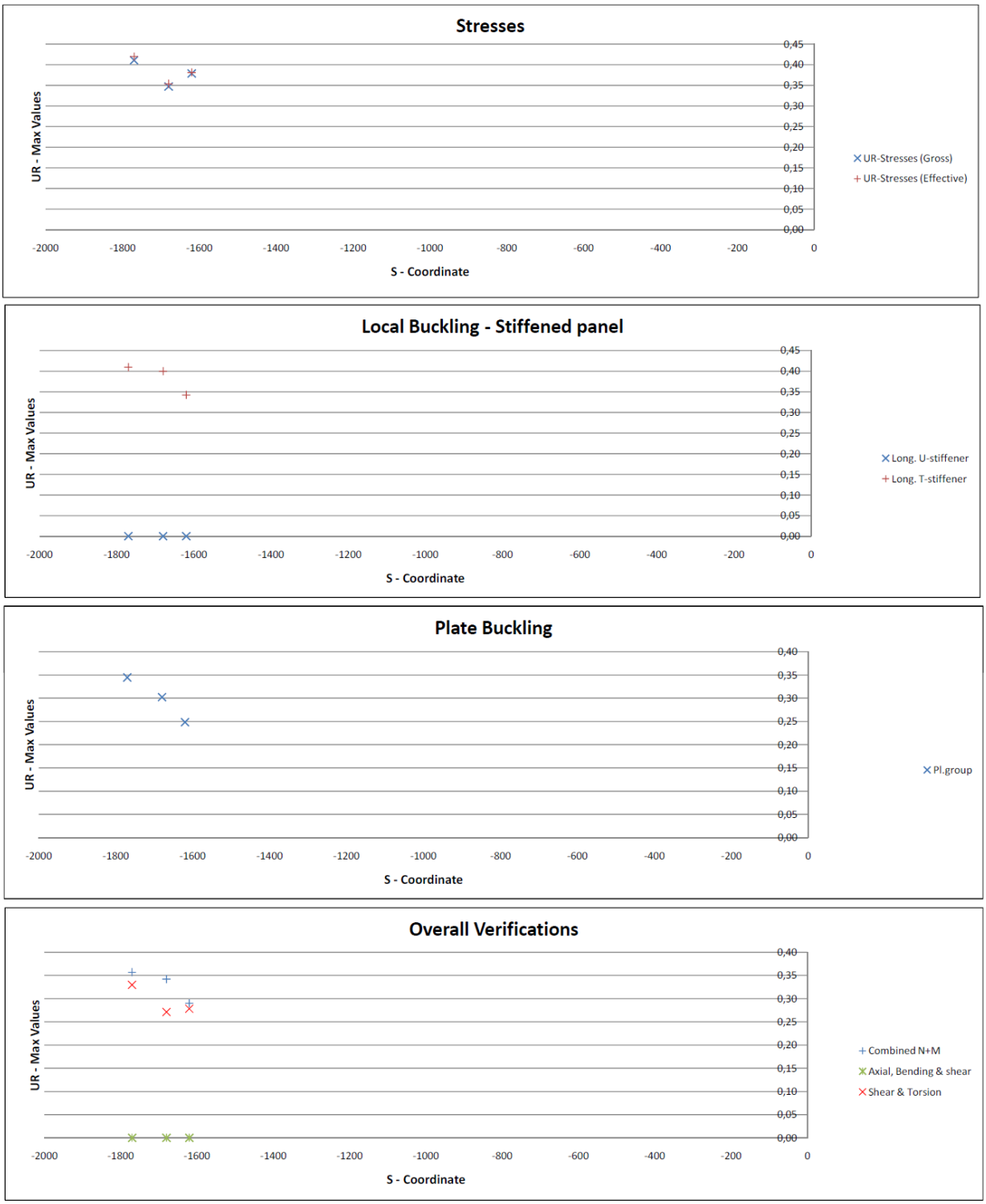


Figure 5-17 Utilisation ratios for cross girders T4a, T4b and T6, section 3 – ULS seismic (time history) load combination

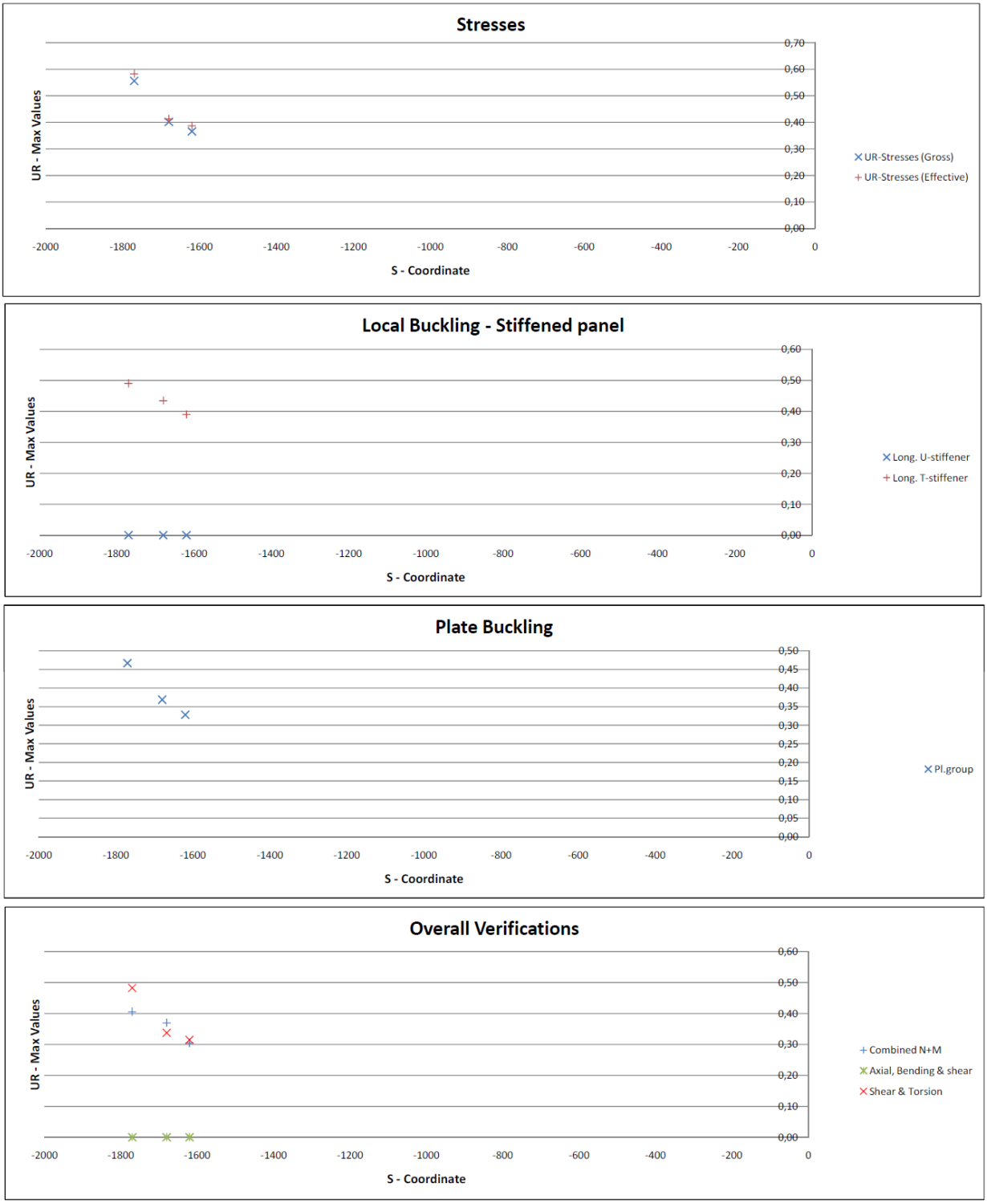


Figure 5-18 Utilisation ratios for cross girders T4a, T4b and T6, section 4 – ULS seismic (time history) load combination

5.6.2.1 T4a - Cross girder at buffer

The cross girder in correspondence of the buffer is loaded by the full buffer force of 2x40MN. The cross girder T4a has been verified in three characteristic sections between the longitudinal girders which can be seen in Figure 5-2. A summary of the section properties of the three section analysed can be seen in Table 5-2. The buffer arrangement can be seen on Figure 5-19.

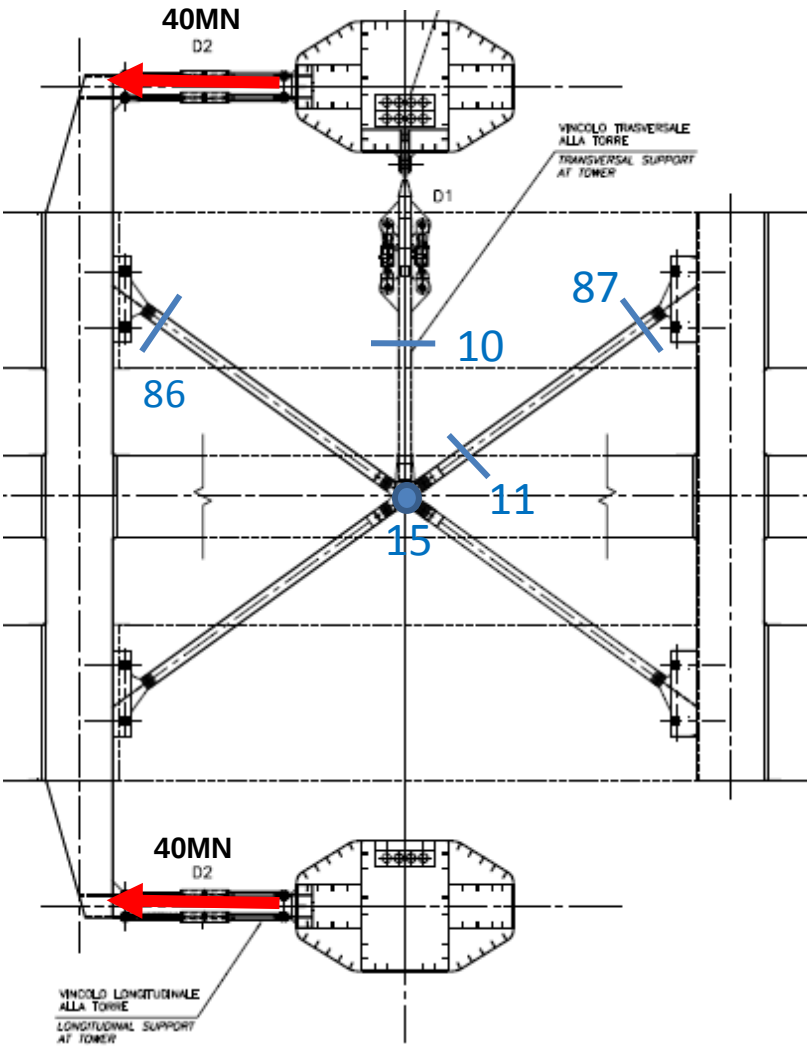


Figure 5-19 Buffer arrangement at cross girder T4a.

The sectional forces and utility ratios are given in Table 5-4

Table 5-4 Sectional forces for load case with full buffer force of 2x40MN

			Sectional forces			
Cross girder		**Load Case**	**Criteria**	**Ns [MN]**	**My [MNm]**	**Mz [MNm]**
T4a (s=-1680)	**2**	**LC : 2x 40 MN**	**Min NS**	**-15.9**	143.6	-229.2
			Max Ns	**12.6**	86.1	215.3
			Min My	9.4	**70.4**	196.1
			Max My	-8.3	**272.7**	-151.0
			Min Mz	-15.2	148.8	**-241.2**
			Max Mz	12.1	82.8	**225.5**
	3	**LC : 2x 40 MN**	**Min NS**	-15.8	127.3	-190.6
			Max Ns	12.7	71.9	186.4
			Min My	9.8	**57.6**	171.1
			Max My	-8.3	**231.8**	-128.7
			Min Mz	-14.8	135.1	**-199.1**
			Max Mz	11.9	66.6	**192.5**
	4	**LC : 2x 40 MN**	**Min NS**	**-15.5**	113.7	-167.9
			Max Ns	**12.9**	65.3	169.5
			Min My	9.9	**51.2**	153.3
			Max My	-7.6	**205.4**	-111.9
			Min Mz	-14.0	123.6	**-177.0**
			Max Mz	11.8	59.1	**175.5**

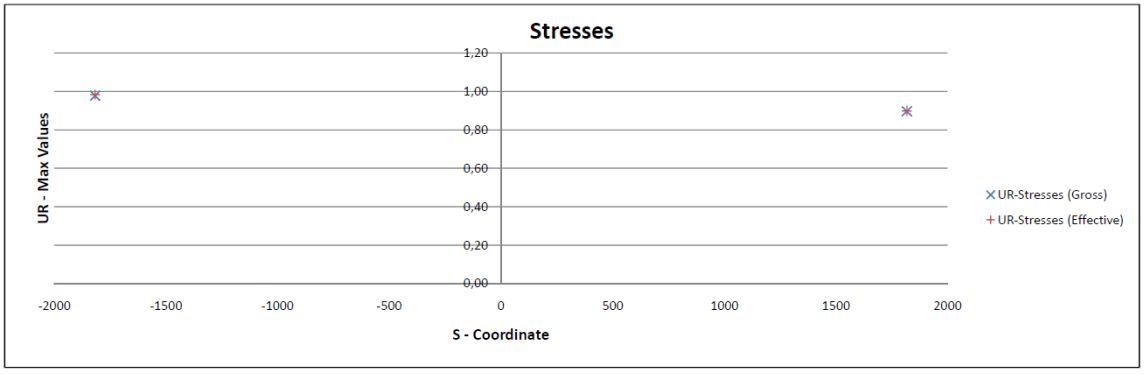
Table 5-5 Max UR for ULS combinations and for load case with full buffer force of 2x40MN

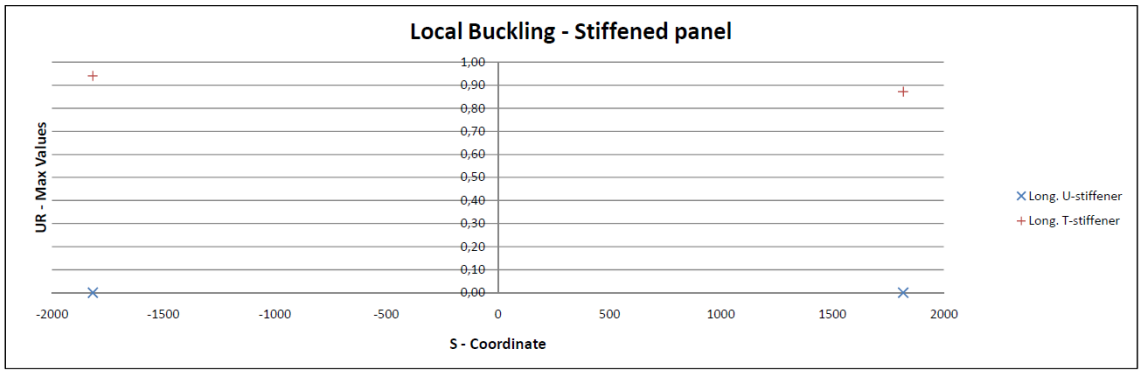
			Max UR			
Cross girder		**Load case**	**Von Mises Stresses**	**Local Buckling - Stiffened panel**	**Plate Buckling**	**Overall Verifications**
T4a (s=-1680)	**2**	**Dynamic wind**	0.81	0.90	0.72	0.81
		Seismic (time history)	0.45	0.46	0.36	0.41
		LC : 2x 40 MN	**0.61**	**0.68**	**0.55**	**0.59**
	3	**Dynamic wind**	0.74	0.79	0.61	0.69
		Seismic (time history)	0.35	0.30	0.40	0.34
		LC : 2x 40 MN	**0.58**	**0.53**	**0.66**	**0.59**
	4	**Dynamic wind**	0.84	0.85	0.76	0.76
		Seismic (time history)	0.40	0.37	0.43	0.37
		LC : 2x 40 MN	**0.66**	**0.69**	**0.75**	**0.70**

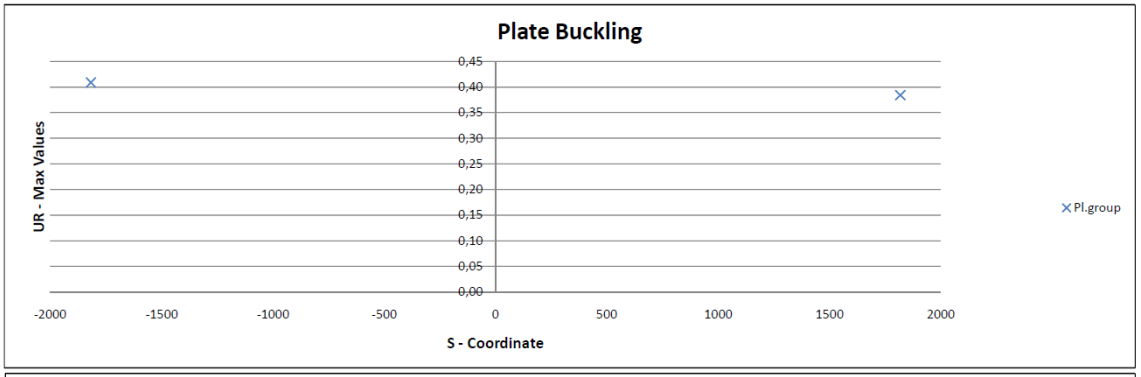
As seen from Table 5-5 the highest UR found is 0.75.

5.6.3 T7

The governing ULS load combination has been found to be the dynamic wind and the utilisation ratios can be seen in Figure 5-20 to Figure 5-22 ; results of a seismic time history analysis can be found in Figure 5-23 to Figure 5-25.







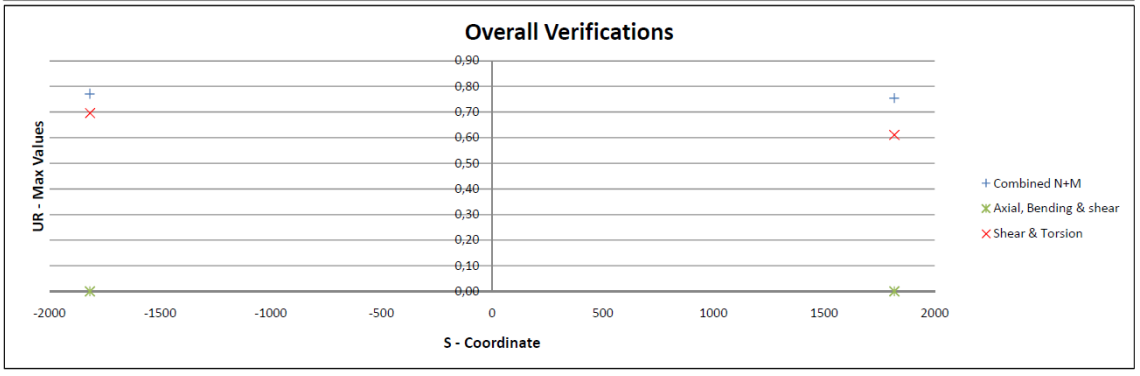


Figure 5-20 Utilisation ratios for cross girders T7, section 2 – ULS dynamic wind load combination

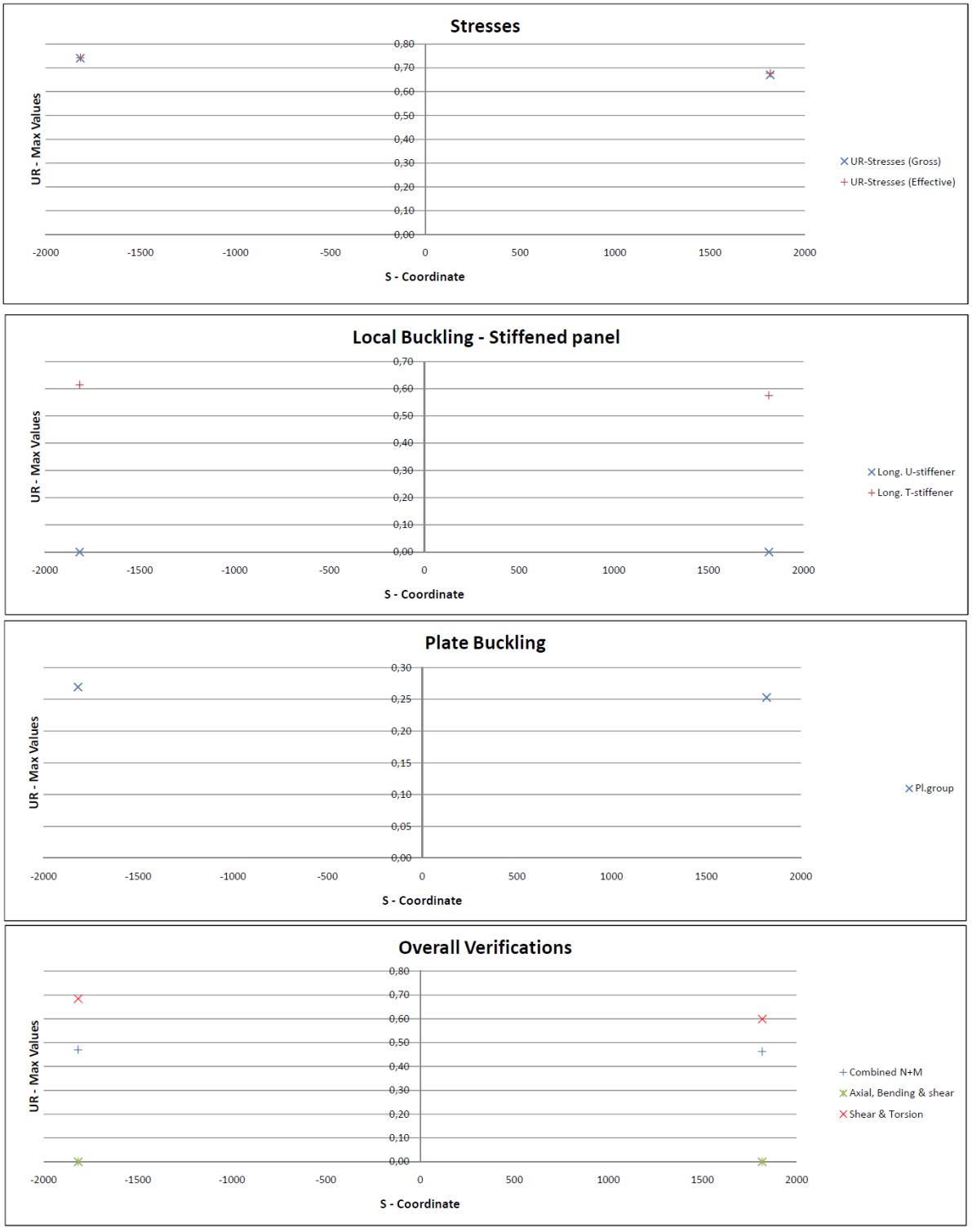


Figure 5-21 Utilisation ratios for cross girders T7, section 3 – ULS dynamic wind load combination

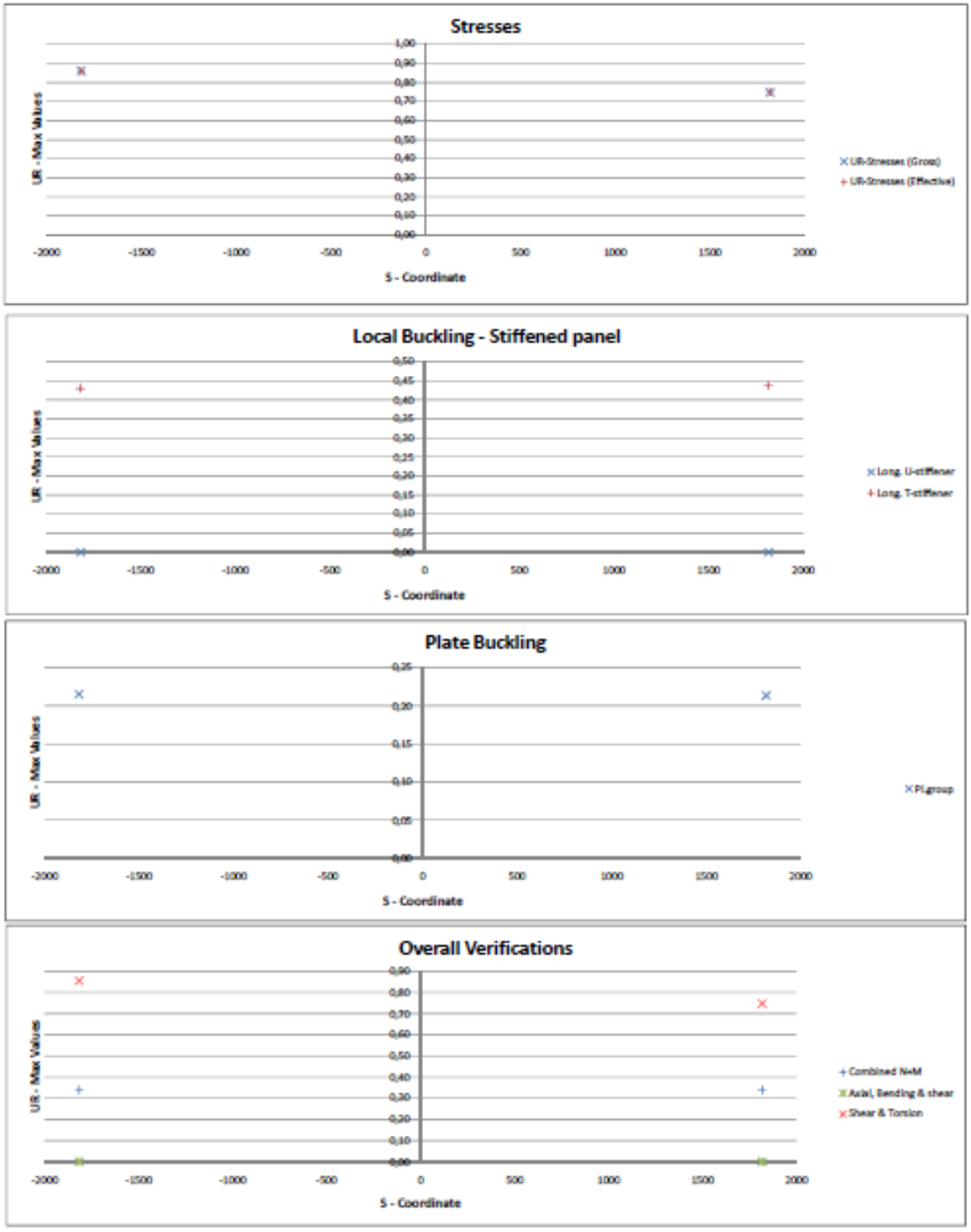


Figure 5-22 Utilisation ratios for cross girders T7, section 4 – ULS dynamic wind load combination

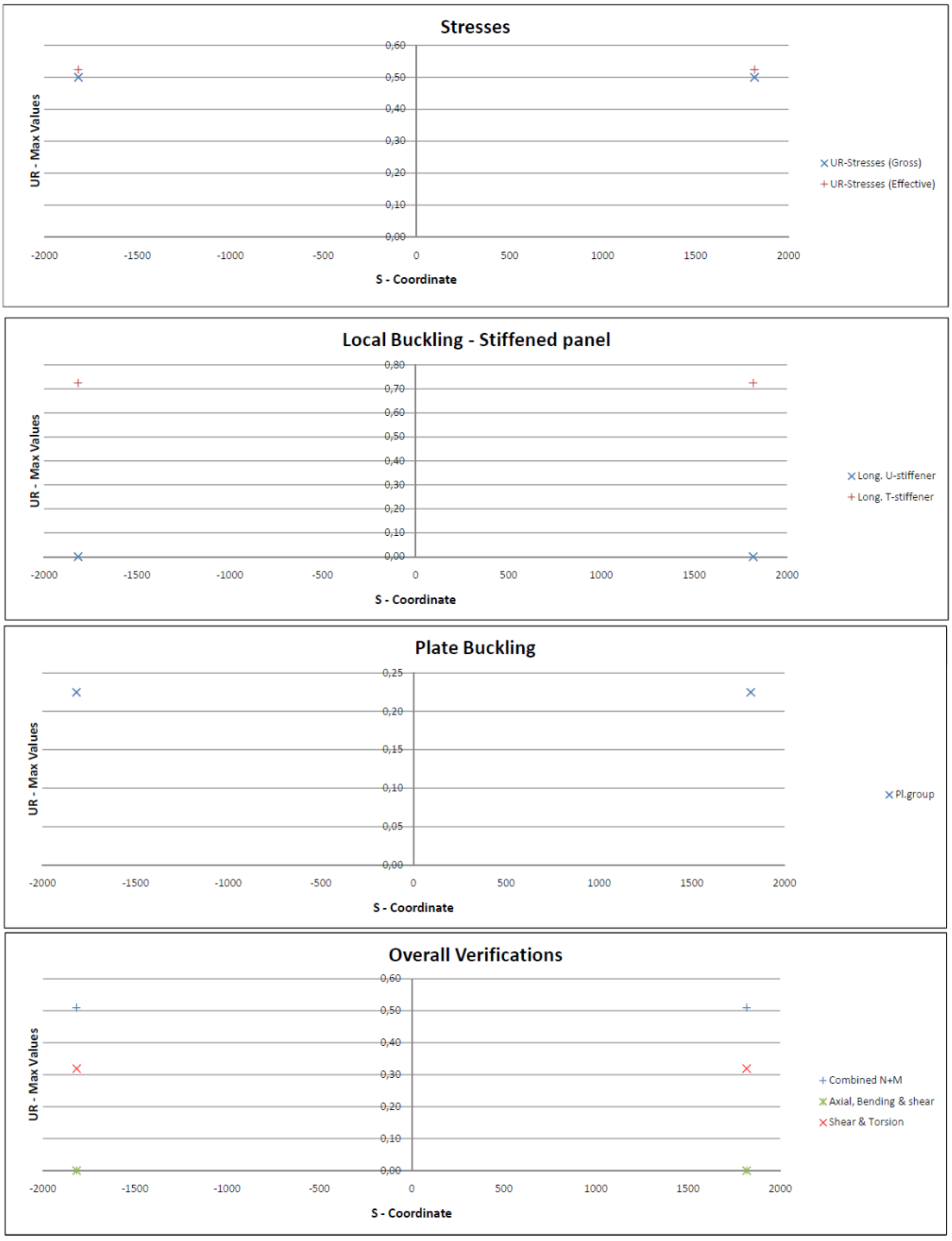


Figure 5-23 Utilisation ratios for cross girders T7, section 2 – ULS seismic (time history) load combination

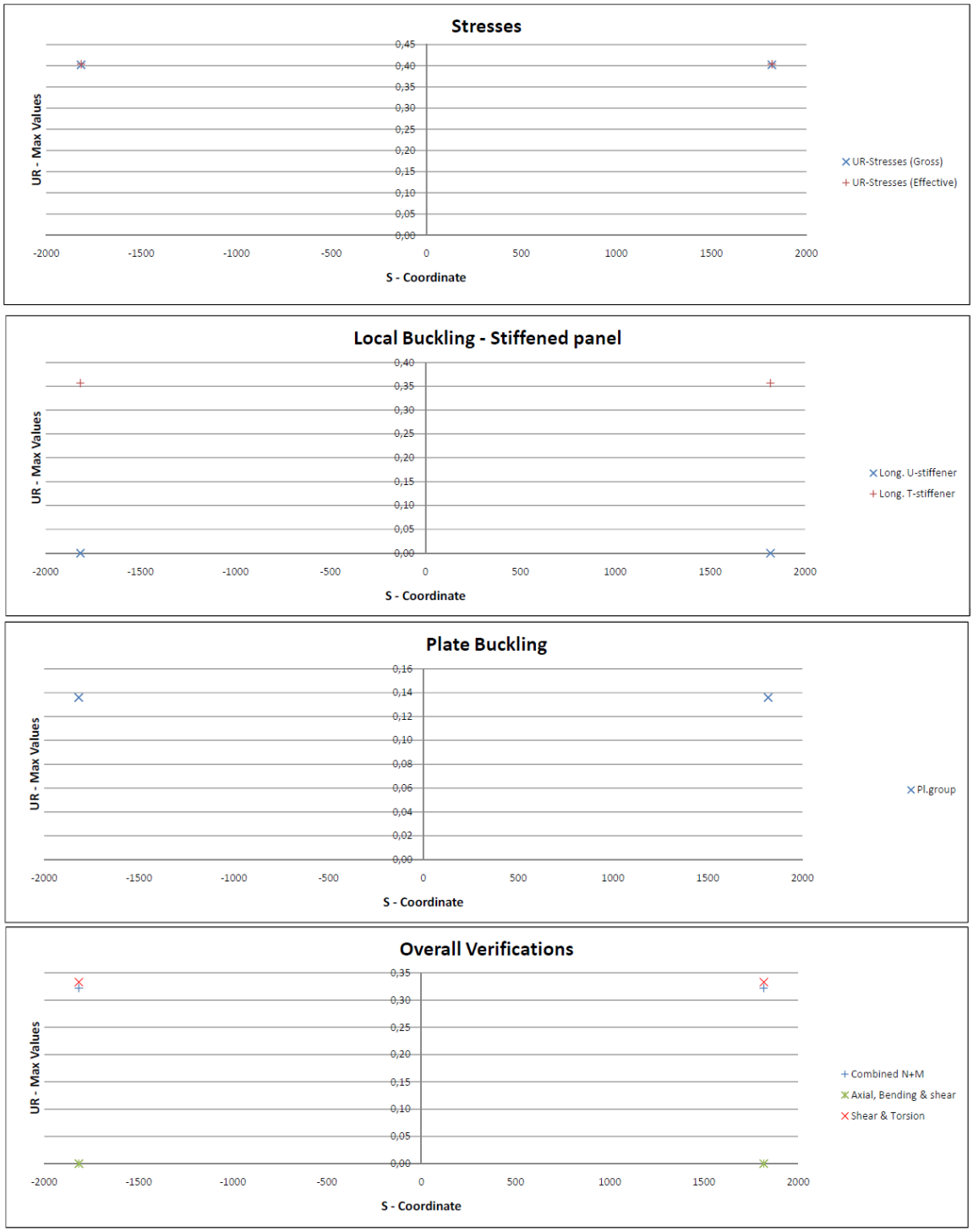


Figure 5-24 Utilisation ratios for cross girders T7, section 3 – ULS seismic (time history) load combination

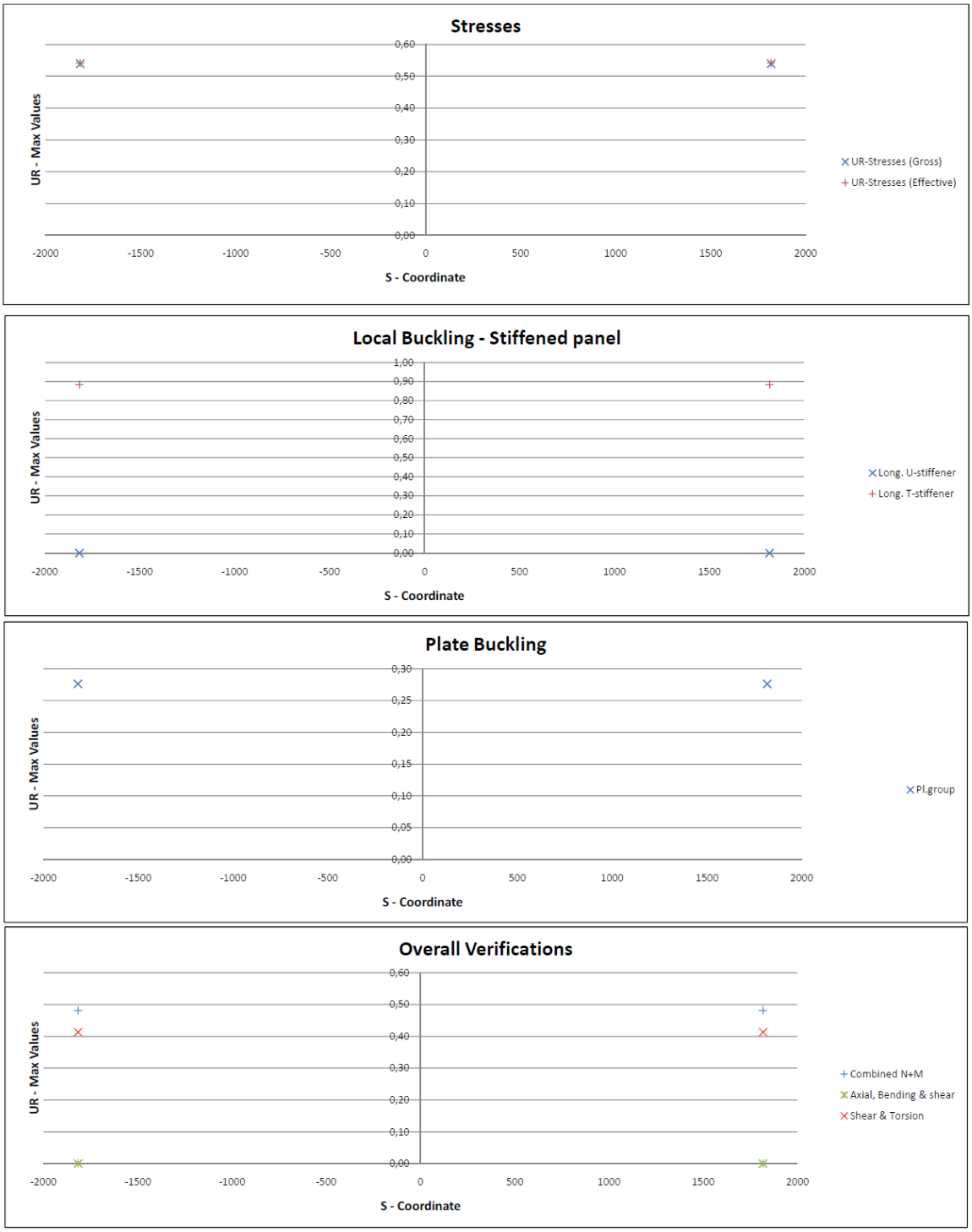


Figure 5-25 Utilisation ratios for cross girders T7, section 4 – ULS seismic (time history) load combination

5.7 Stress comparison between local FE-model and ADVERS

In the present chapter a comparison between the stresses obtained in the cross section verification by ADVERS and those obtained by the bridge deck local ROBOT FE-model is carried out. The local FE-model is described in "Design Report - Local FE-models of Suspended Deck". The comparison is done for maximum bending moment, My, of the roadway girder at intersection with the cross girder.

The comparison of stresses is carried out for cross girder type T1 for section 2 see Figure 5-2 for location. The von Mises stresses calculated in ADVERS are shown in Table 5-6 and the location of stress points, SP, are shown in Figure 5-26.

Table 5-6 Von Mises stress values at stress points in section 2

Section	criteria	von Mises stress [MPa] – Cross section verification					
		SP1	SP2	SP4	SP6	avg. top	avg. bottom
2	max MY	321.6	303.3	348.5	365.3	**312.5**	**356.9**

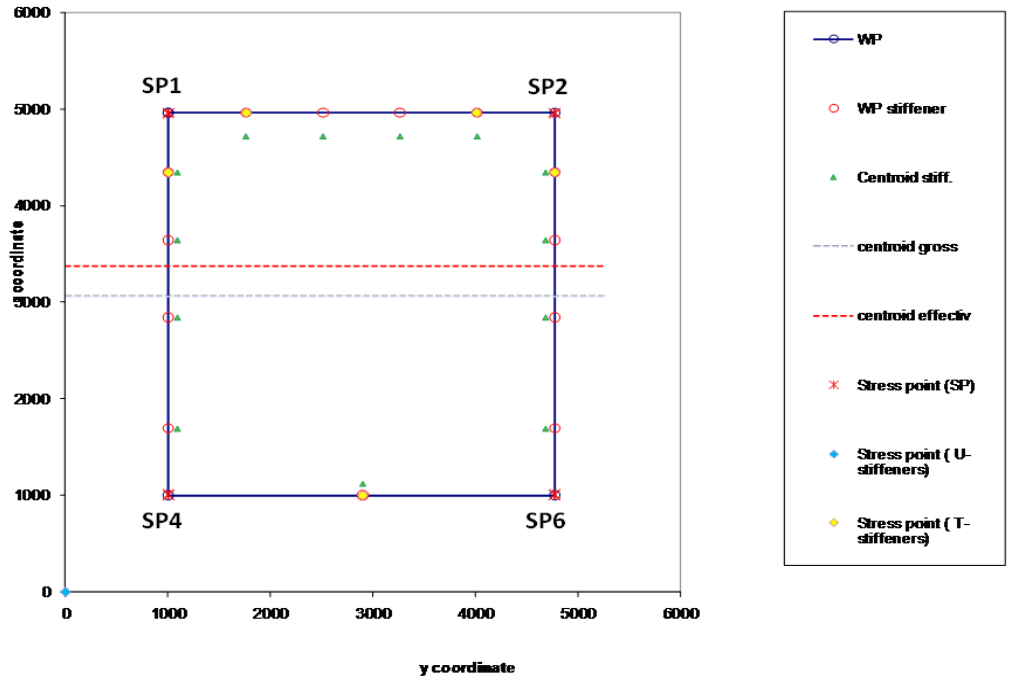


Figure 5-26 Cross section verification – stress point location

The traffic load has been fixated in the global IBDAS model for maximising the bending moment, My, of the roadway girder at intersection with the cross girder and the load acting within the FE-Local model has been applied according to the influence line plots from the global IBDAS model. The implemented load case is specified in Table 5-7 with load factors.

Table 5-7 Load combination 6532 – Loads implemented and partial factors

Load Case	Load Type	Description	Load factor
PP	Automatically calculated by ROBOT	Self-weight	1.35
PN	Linear load on panel edges and - Uniformly distributed load	Superimposed dead load	1.5
Boundary conditions	Section forces from global IBDAS model	Sectional forces applied at the end of each beam element	1.0
QL: Road load LM1	Patch loads - Uniformly distributed load	Load according to load model LM1. Position complies with global IBDAS model	1.01 (TS) 0.54 (UDL)
QL: Rail load SW/2	Patch loads	Load according to load model SW/2. Position complies with global IBDAS model	1.45
QL: Rail load LM71	Patch loads	Load according to load model LM71. Position complies with global IBDAS model	1.45
QL: Braking Rail force	Patch loads	Braking Load. Position complies with global IBDAS model	1.45
QL: Nosing Rail force	Patch loads	Nosing force. Position complies with global IBDAS model	0.73
VV: Wind	Linear load on panel edges	Load from rails according to load model SW/2 applied on the whole length of track 2	0.6
Calibration load	Automatically calculated by ROBOT	Additional weight applied to all the structure with a fraction of the density – calculated from Reference condition case	1.45

Figure 5-27 shows a plot of the von Mises stresses calculated in the local FE-model. The results are compared with stress calculation from ADVERS in Table 5-8.

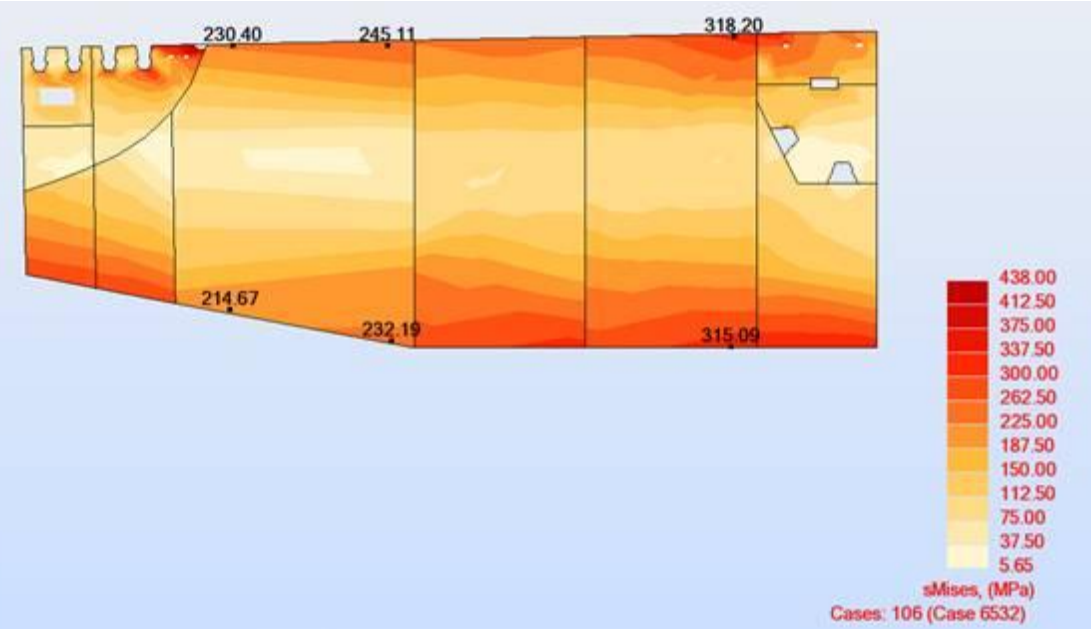


Figure 5-27 Stress plot of von Mises stresses for My+ in cross girder type T1

A summary of the stress results and the percentage variation is given in Table 5-8.

Table 5-8 Stress comparison between ADVERS and the local FE-model

Section	criteria	ADVERS		ROBOT V.M [Mpa]		Δ [%]	
		avg. top	avg. bottom	top	bottom	top	bottom
2	max MY	312.5	356.9	318.2	315.1	-1.8	13.26

ADVERS gives critical stresses in all stress points considered, the local FE-model gives the critical stress in section 2 in the top plate and the corresponding stresses in the remaining stress points.

From Table 5-8 it is seen that there is good correspondence between the von Mises stresses from ADVERS and the local FE-model for the point in the top plate in section 2.

5.8 Verification at Road- and Railway Intersections

5.8.1 Introduction

At the intersection between the cross girder and the roadway- and railway girders the top plate is subjected to compression stresses in two directions. At these intersections the stability of the different plate panels been verified using an elastic buckling program and the "reduced stress method" according to EN1993-1-5:2006 section 10.

For the roadway girder the top plate is divided into three plate panels separated by the cross girder diaphragms. The plate towards the railway girder is denoted "Plate 1", see Figure 5-28. For the railway girder only one plate is considered.

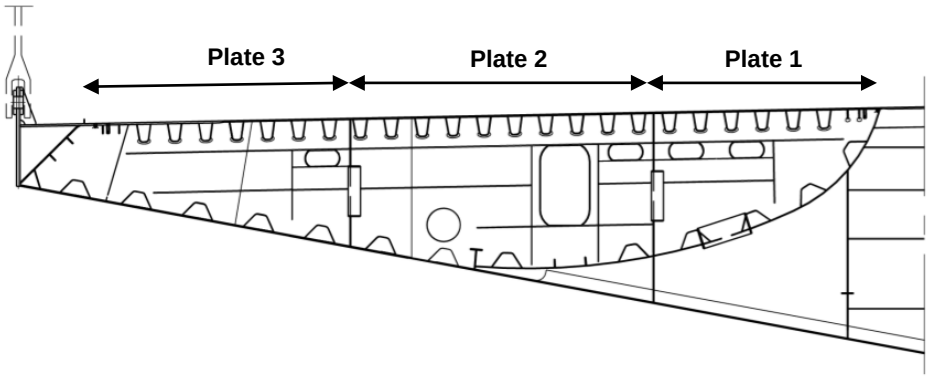


Figure 5-28 Plate fields in roadway girder

The Bridge local FE-model, described in the document “Design Report - Semi-Local FE-model for Suspended Deck“, has been used to determine the stresses in the contour of the plate intersections. The stresses determined using the Bridge deck local FE-model has been compared with those calculated using the simi-local IBDAS model and ADVERS.

The stresses (sXX, sYY and sXY) have been taken at 3 location along the width of the longitudinal girder and in one point within the cross girder located at the middle of the intersection, see Figure 5-29. The critical load combination is the My+ load case 6532 (definition of the load case see the document "General Design Principles for the Suspended Deck") see Figure 5-29 to Figure 5-31. For completeness the remaining load combinations are shown in Figure 5-32 to Figure 5-37. The average value of stresses have been compared with those of the semi-local IBDAS model, and the longitudinal stresses calculated in ADVERS for the cross girder – roadway girder intersection, see

Table 5-9. For the verification of the panels the stresses found in the Bridge deck local FE-model has been used.

Table 5-9 Comparison of stresses, roadway girder. Deviation according to ROBOT

Model/Stress	ROBOT [MPa]	IBDAS [MPa]	ADVERS [MPa]	IBDAS [%]	ADVERS [%]
sXX	-85	-94	-91	9.6	6.6
sYY	-140	-120	-156	14.2	10.2
sXY	50	60	50	16.7	0.0

For the verification of the stability of the different plate panels the stresses at the location of the considered plate have been used, and not the average given in the table above.

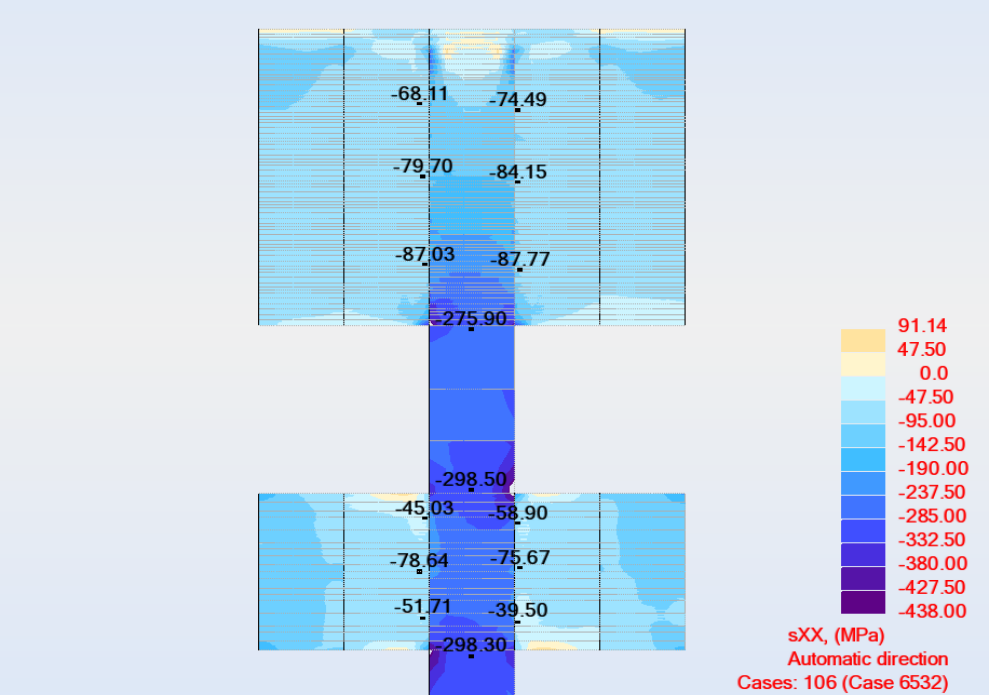


Figure 5-29 Stresses sXX in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6532

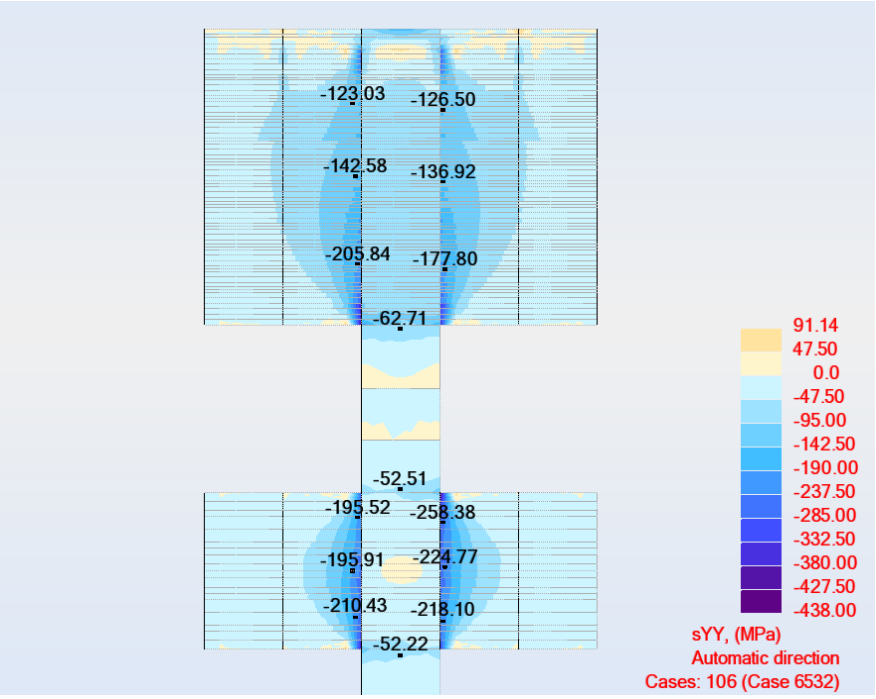


Figure 5-30 Stresses sYY in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6532

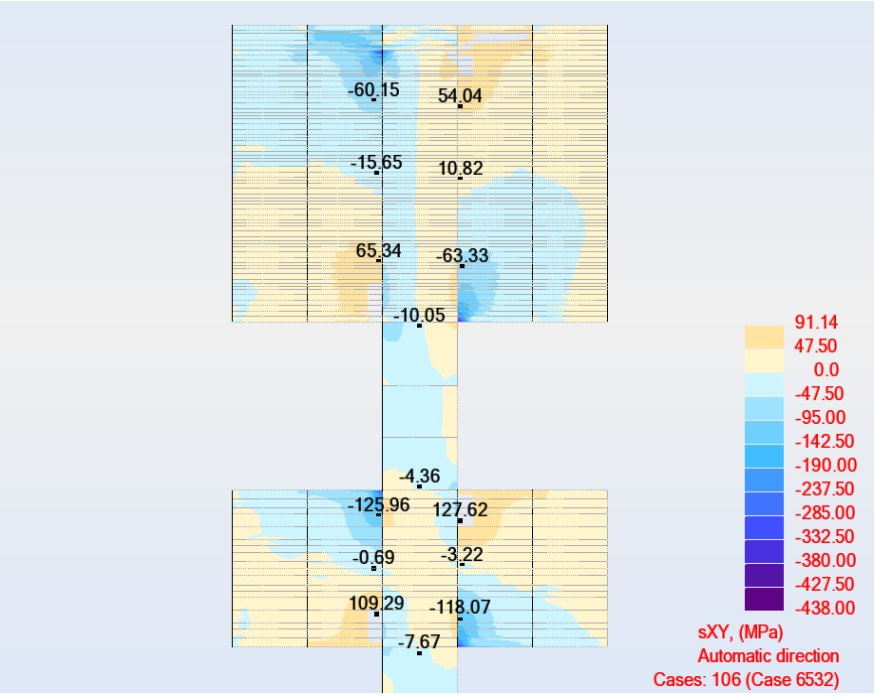


Figure 5-31 Stresses sXY in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6532

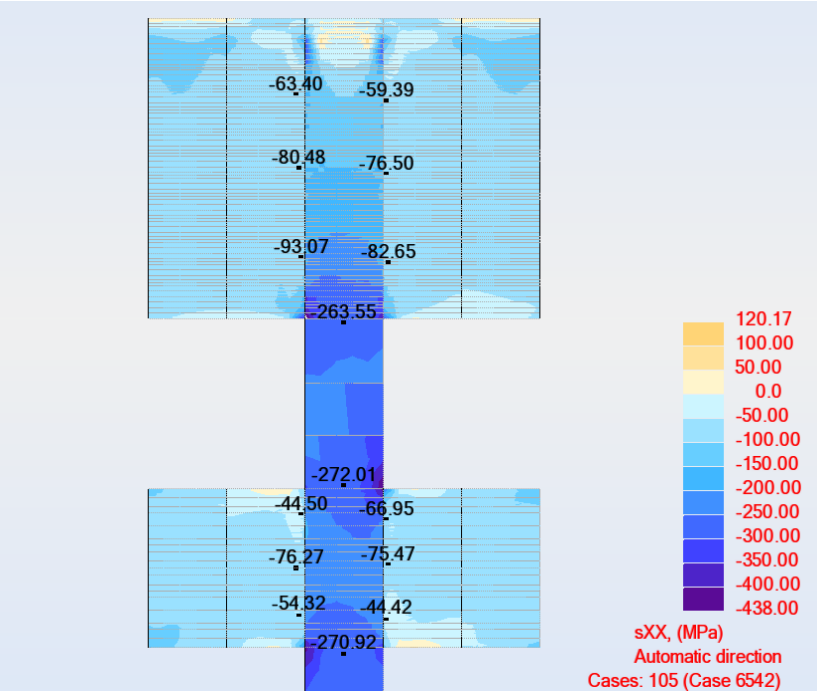


Figure 5-32 Stresses sXX in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6542

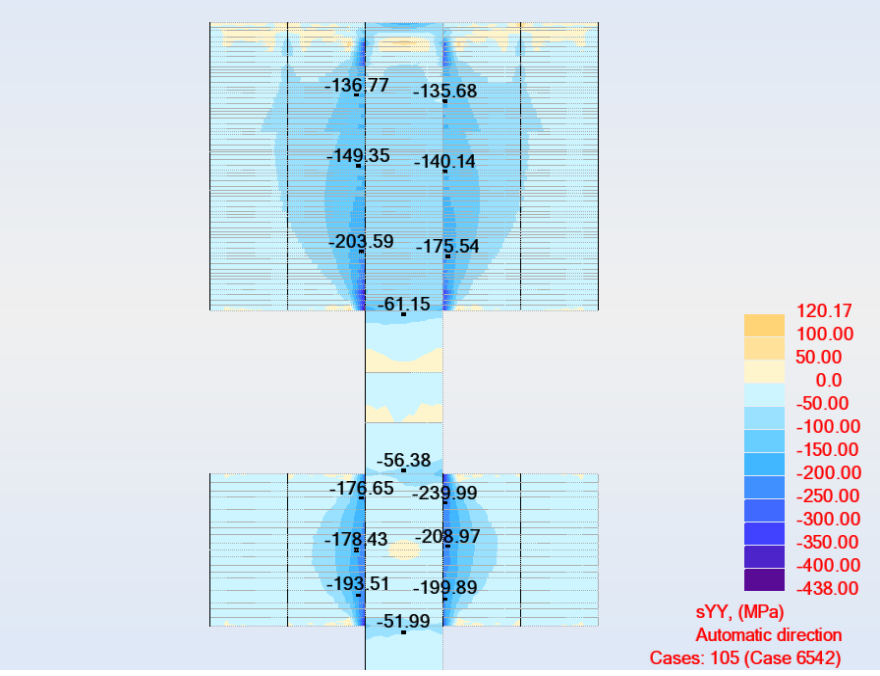


Figure 5-33 Stresses sYY in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6542

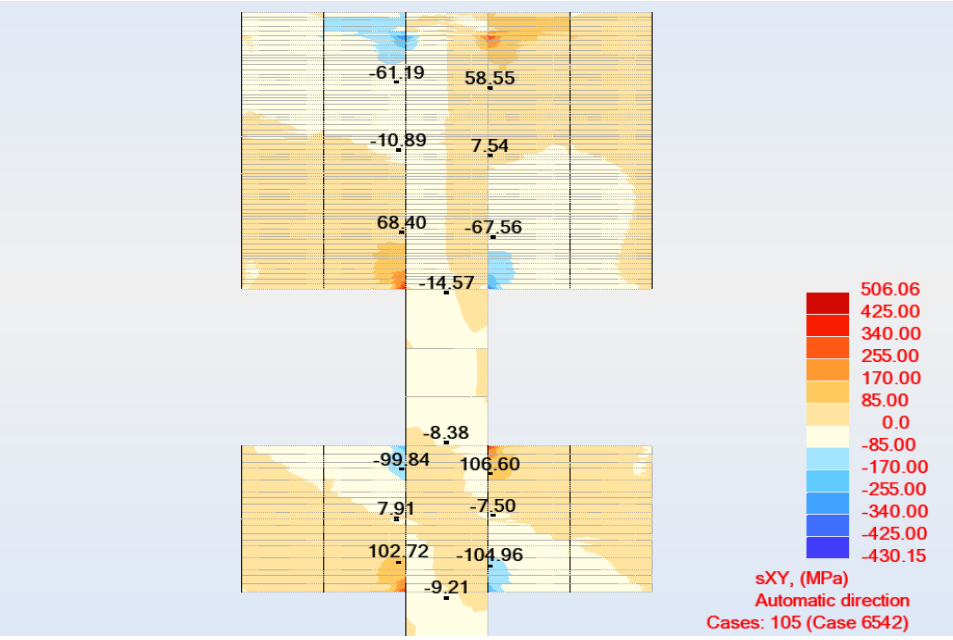


Figure 5-34 Stresses sXY in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6542

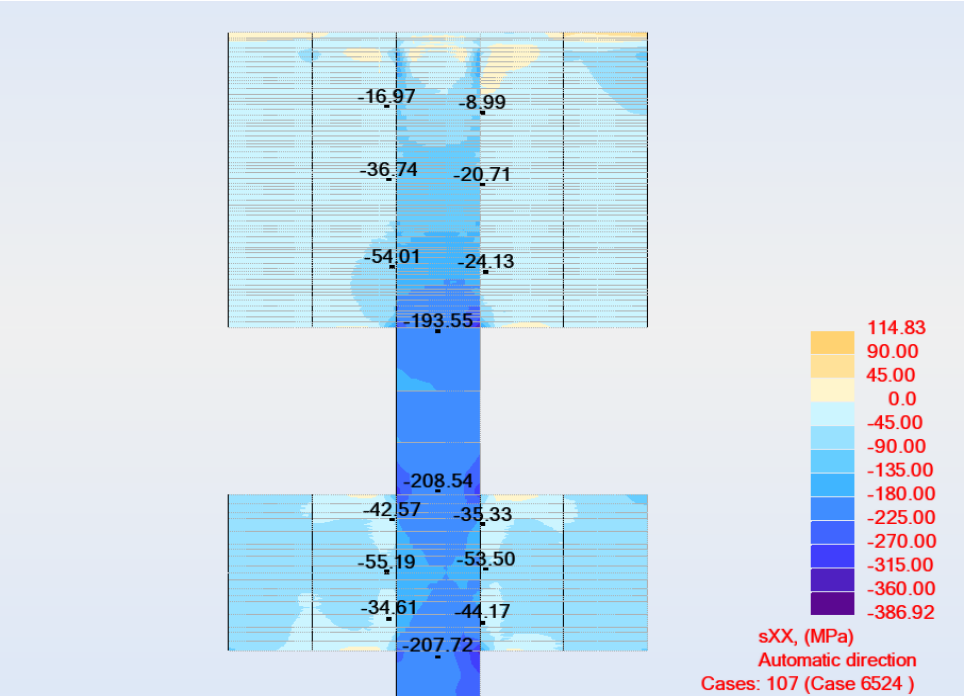


Figure 5-35 Stresses sXX in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6524

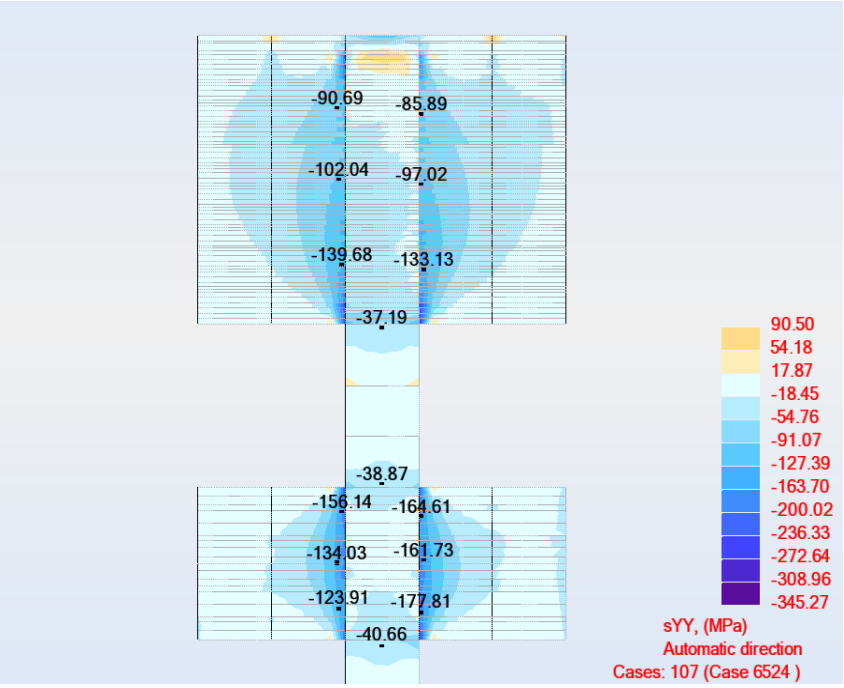


Figure 5-36 Stresses sYY in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6524

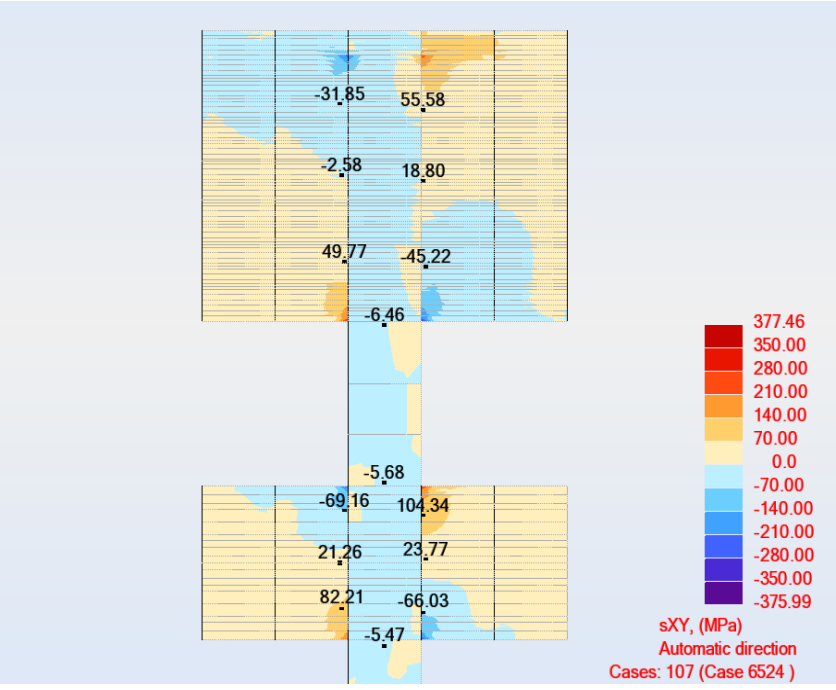


Figure 5-37 Stresses sXY in the top plates of the longitudinal girder at a section next to the cross girder top plate, Case 6524

5.8.2 Plate panel 1, Roadway Girder

The stresses used for the verification of the panel in the elastic buckling programme are given in Table 5-10.

Table 5-10 Stresses used for verification

Stresses	sXX [MPa]	sYY [MPa]	sXY [MPa]
Plate panel 1	-276	-190	64

In Figure 5-38 to Figure 5-40 the modelled panel can bee seen with its location of stiffeners, the applied stress condition and the critical buckling mode of the panel.

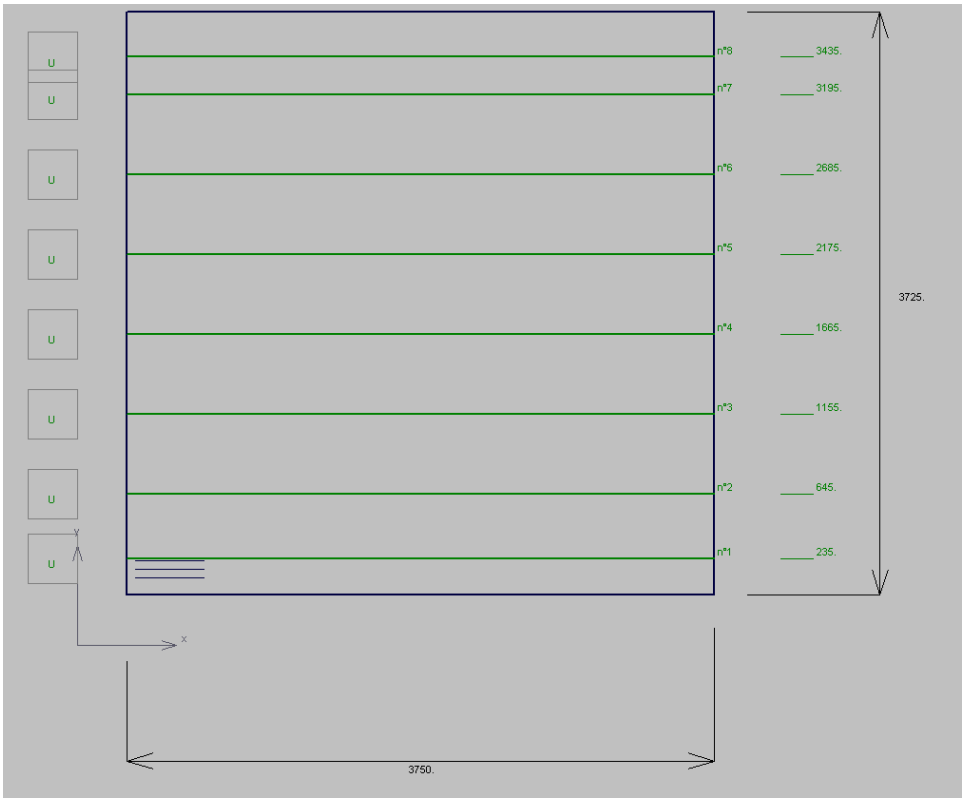


Figure 5-38 Illustration of a plate panel 1 of the roadway girder including dimensions

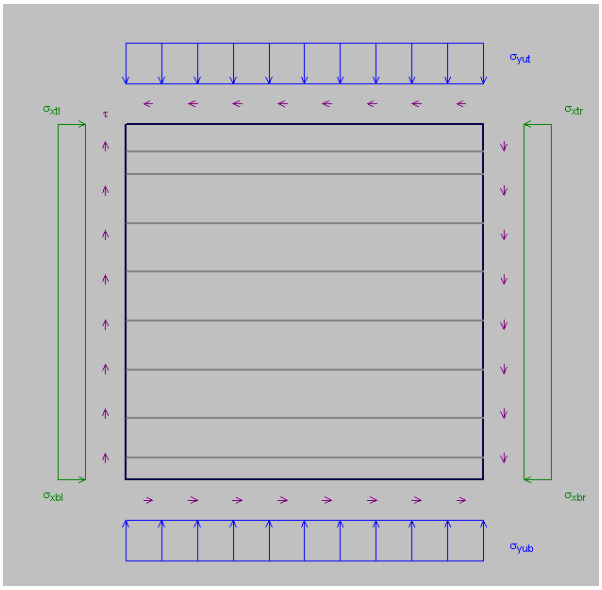


Figure 5-39 Illustration of stress distribution on plate panel

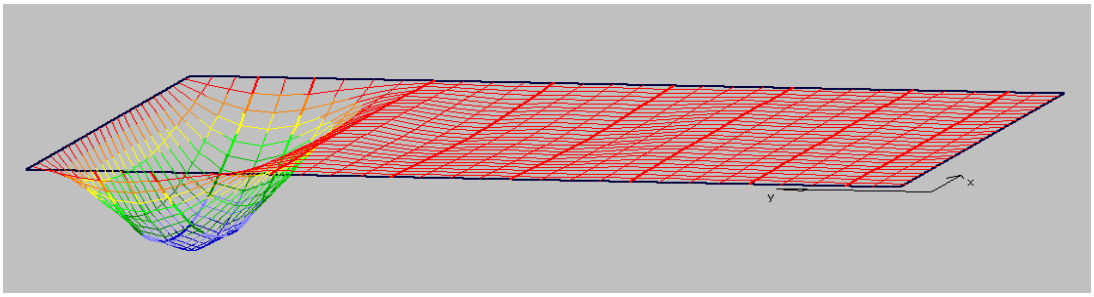


Figure 5-40 Illustration of critical buckling mode for the applied stress condition

From the applied stress condition a critical stress ration ϕ_{cr} is calculated indicating the ration the stresses can be increased before instability of the panel occurs.

From the elastic buckling program critical stresses have also been calculated considering the plate as an orthotropic plate. The critical stresses that have been calculated are corresponding to the stress limits used in the "reduced stress method" of EN 1993-1-5:2006 section 10. This method has been used to determine the utilisation ratios UR of the considered plates. The results of the investigation are given in Table 5-11.

Table 5-11 Results for plate panel 1

	ϕ_{cr}	UR	UR*
Result	0.67	1.89	0.43

It can be seen from the results that neither of these indicate sufficient capacity of the plate panel. This is due to the arrangement with two flat stiffeners at the edge of this plate panel, thus making it less rigid to transverse stresses when considering buckling, also clearly indicated in Figure 5-40. However these flat stiffeners are supported per 1250mm by transverse plates used for support of the crash barriers, see Figure 5-41, providing a large rigidity of this sub-panel. In the used elastic buckling program it is not possible to model these local intermediate supports, but substituting the flat stiffeners with a normal trough-stiffener a utilisation ratio UR<1.0 have been obtained indicated by (*). Thus it is concluded that no global plate buckling problems due to transverse stresses exists at this location.

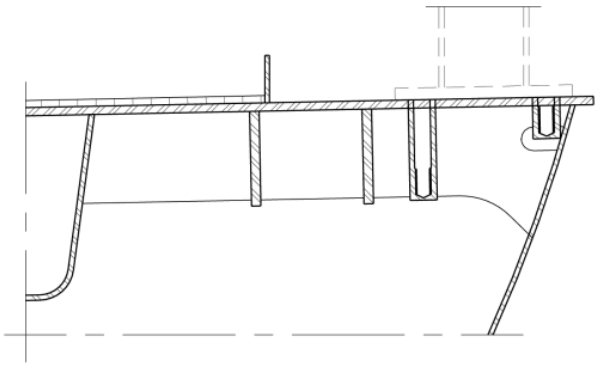


Figure 5-41 Supports for crash barriers

5.8.3 Plate panel 2, Roadway Girder

The stresses used for the verification of the plate in the elastic buckling program are given in Table 5-10.

Table 5-12 Stresses used for verification

Stresses	sXX [MPa]	sYY [MPa]	sXY [MPa]
Plate panel 2	-200	-142	12

In Figure 5-42 and Figure 5-43 the modelled plate can bee seen with its location of stiffeners and the critical buckling mode of the panel.

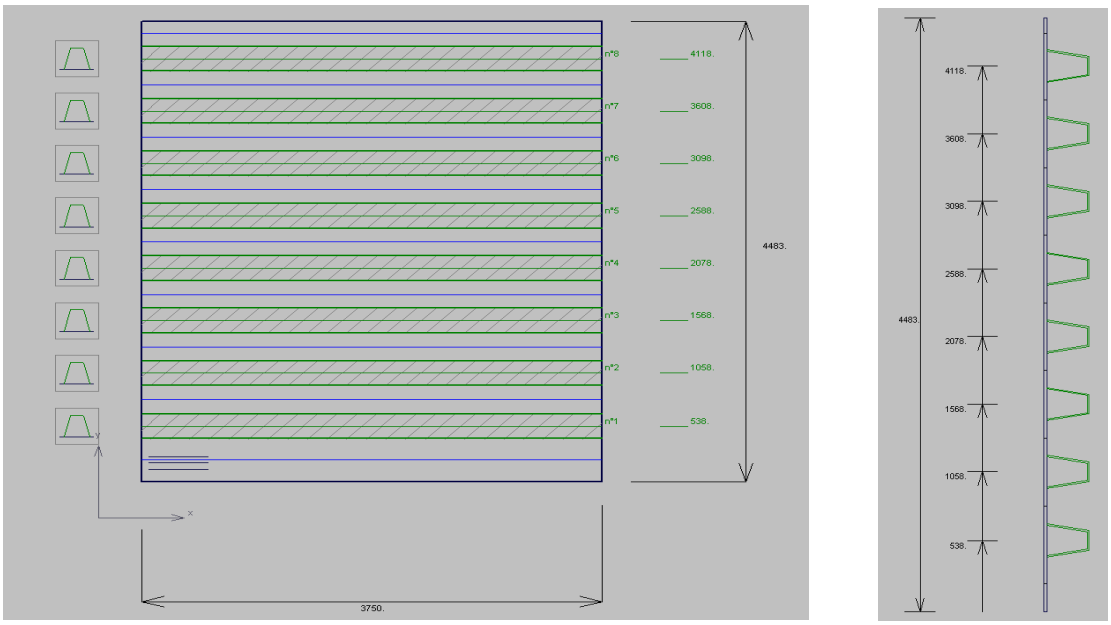


Figure 5-42 Illustration of a plate panel 2 of the roadway girder including dimensions

The critical buckling modes have also been calculated, and the governing for the illustrated plate is given in Figure 5-43.

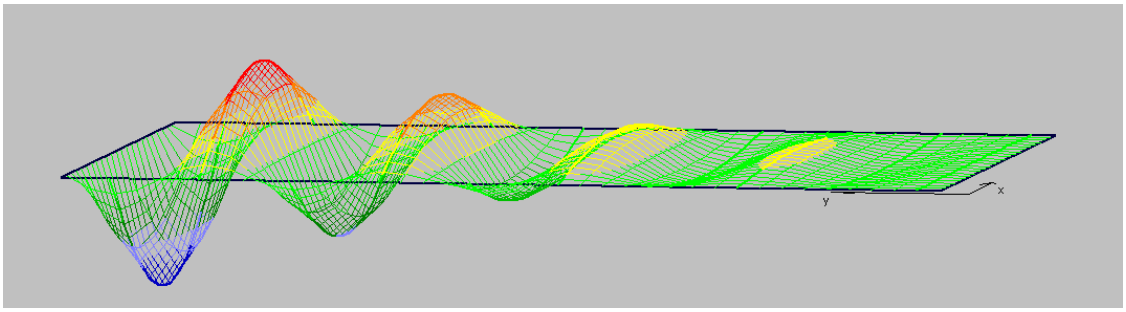


Figure 5-43 Illustration of critical buckling mode for the applied stress condition

The results of the elastic buckling calculation and the reduced stress method are given in Table 5-13, and it can be seen that the plate is stable considering both methods.

Table 5-13 Results for plate panel 2

	ϕ_{cr}	UR
Result	2.04	0.72

5.8.4 Plate panel 3, Roadway Girder

The stresses used for the verification of the plate in the elastic buckling program are given in Table 5-14.

Table 5-14 Stresses used for verification

Stresses	sXX [MPa]	sYY [MPa]	sXY [MPa]
Plate panel 3	-140	-130	60

In Figure 5-44 and Figure 5-45 the modelled plate can be seen with its location of stiffeners and the critical buckling mode of the panel.

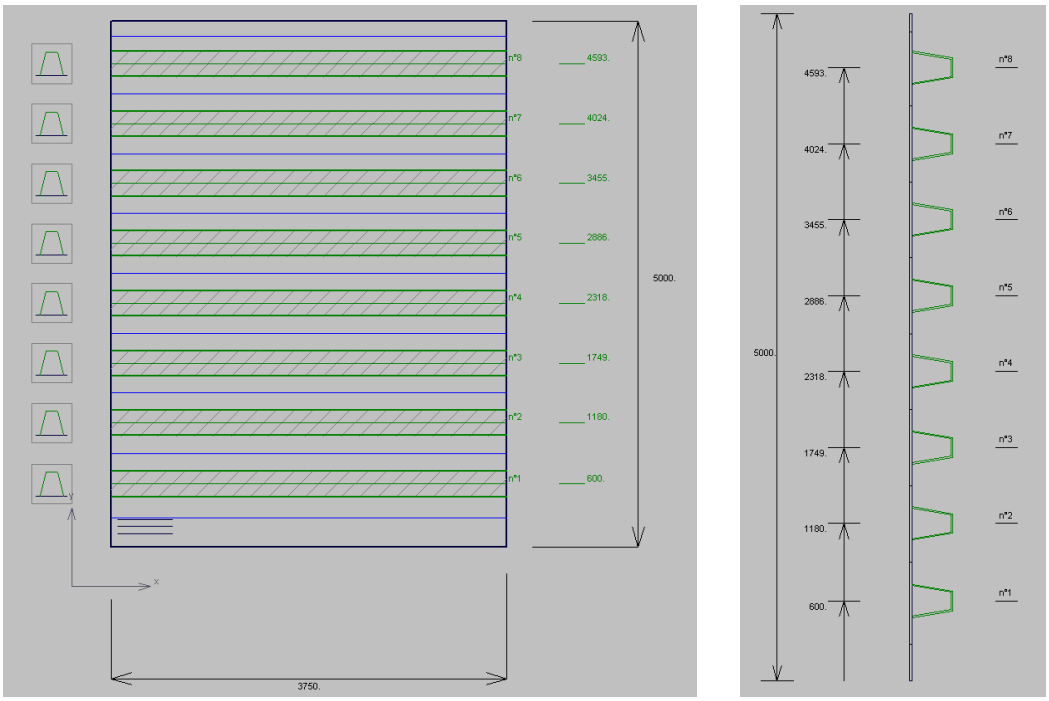


Figure 5-44 Illustration of a plate panel 3 of the roadway girder including dimensions

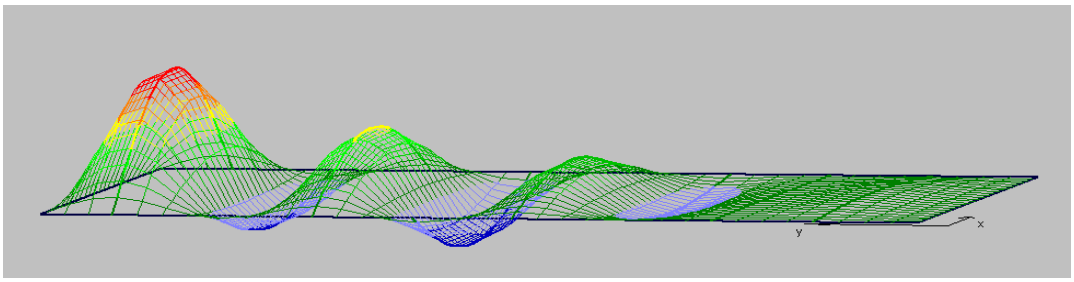


Figure 5-45 Illustration of critical buckling mode for the applied stress condition

The results of the elastic buckling calculation and the reduced stress method are given in Table 5-15, and it can be seen that the plate is stable considering both methods.

Table 5-15 Results for plate panel 3

	ϕ_{cr}	UR
Result	2.61	0.92

5.8.5 Plate panel 1, Railway Girder

The stresses used for the verification of the plate in the elastic buckling program are given in Table 5-16.

Table 5-16 Stresses used for verification

Stresses	sXX [MPa]	sYY [MPa]	sXY [MPa]
Plate panel 1	-298	-200	110

In Figure 5-46 and Figure 5-47 the modelled plate can be seen with its location of stiffeners and the critical buckling mode of the panel.

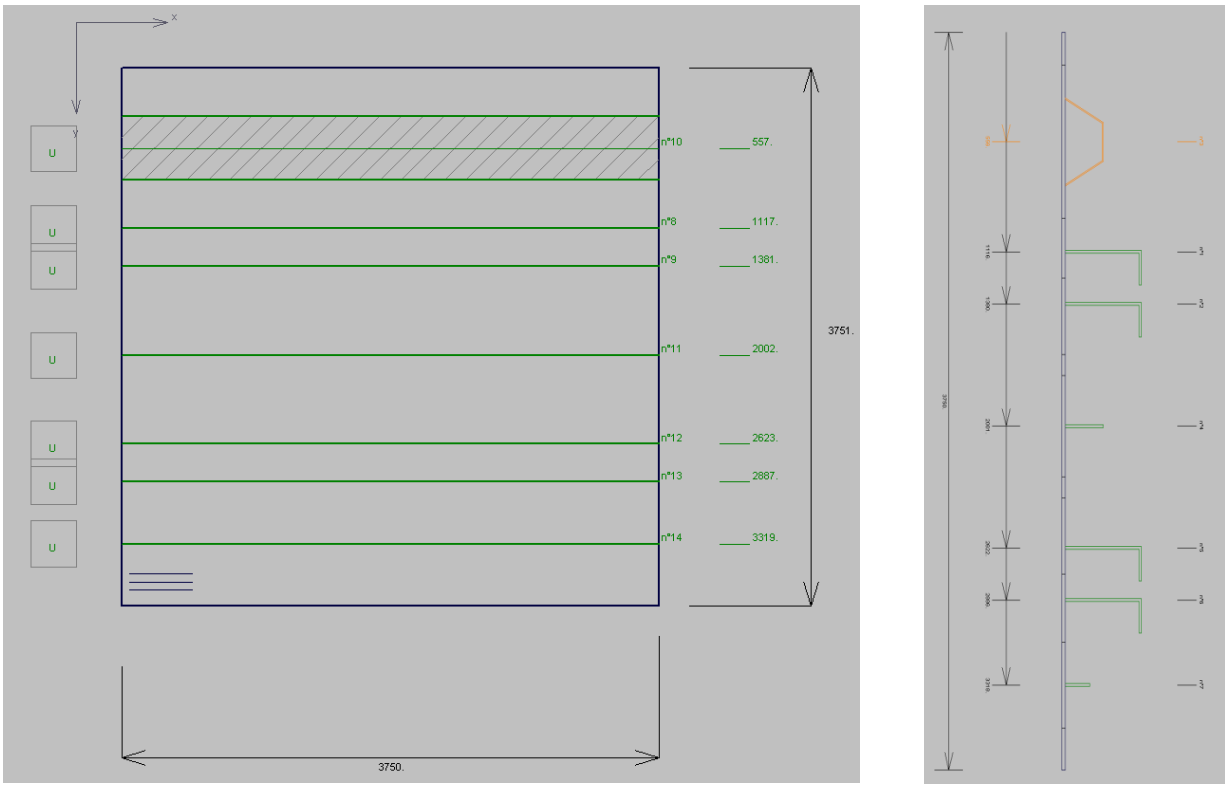


Figure 5-46 Illustration of a plate panel 1 of the railway girder including dimensions

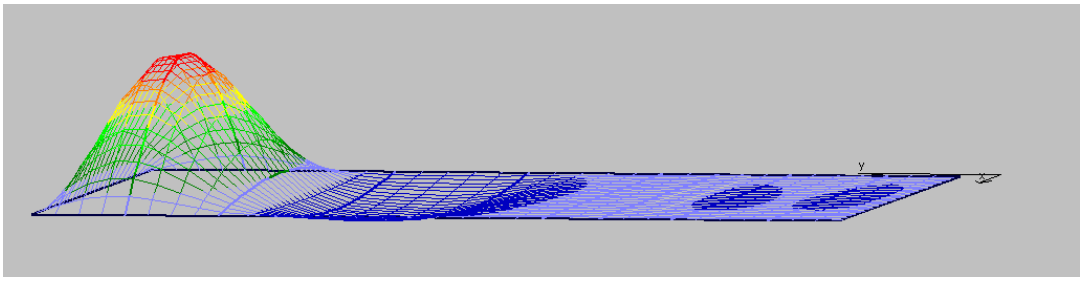


Figure 5-47 Illustration of critical buckling mode for the applied stress condition

From the above figure it can be seen that it is at the location of the outermost flat-stiffener buckling will occur first as expected. The results of the elastic buckling calculation and the reduced stress method are given in Table 5-17, and it can be seen that the plate is stable considering both methods.

Table 5-17 Results for plate panel 1

	ϕ_{cr}	UR
Result	1.07	0.99

Appendix A

Section forces for the verified sections of the roadway girder. Load case 6570 - ULS-combination dynamic wind.

Roadway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-1766.50	-18.55	54.84	-7.38	10.69	19.40	0.67	-2.99	-0.20
min MY	-1766.50	-18.55	54.84	-1.95	-35.72	-8.76	-0.36	-2.74	6.23
max MY	-1766.50	-18.55	54.84	4.08	43.08	3.05	-0.43	-0.83	-2.80
min MZ	-1766.50	-18.55	54.84	9.32	-19.23	-32.14	-1.41	-1.67	2.17
max MZ	-1766.50	-18.55	54.84	-6.37	19.54	25.84	0.78	-3.20	-4.78
min VY	-1766.50	-18.55	54.84	9.38	-20.85	-30.21	-1.48	-2.01	3.71
max VY	-1766.50	-18.55	54.84	-6.40	5.85	21.97	0.91	-2.04	-8.37
min VZ	-1766.50	-18.55	54.84	-2.75	-9.06	10.44	0.12	-5.41	-7.58
max VZ	-1766.50	-18.55	54.84	3.85	24.13	-7.25	-0.47	0.29	-1.92
min MT	-1766.50	-18.55	54.84	-0.98	7.05	7.42	0.13	-3.63	-19.55
max MT	-1766.50	-18.55	54.84	1.99	5.84	-3.50	-0.54	-3.30	16.22
min NS	-1755.00	-18.55	55.01	-7.35	32.34	11.70	0.67	-1.28	-2.95
min MY	-1755.00	-18.55	55.01	1.13	-16.31	-10.86	-0.43	-0.70	1.92
max MY	-1755.00	-18.55	55.01	1.82	55.03	11.96	-0.33	-0.77	-2.58
min MZ	-1755.00	-18.55	55.01	6.31	-12.99	-16.89	-1.09	-0.50	1.32
max MZ	-1755.00	-18.55	55.01	-4.21	48.04	18.62	0.37	-1.19	-3.87
min VY	-1755.00	-18.55	55.01	9.41	-4.43	-12.89	-1.53	-0.65	1.65
max VY	-1755.00	-18.55	55.01	-6.38	22.81	11.50	0.92	-0.77	-10.38
min VZ	-1755.00	-18.55	55.01	-3.80	21.76	8.14	0.20	-2.86	-0.40
max VZ	-1755.00	-18.55	55.01	4.91	29.18	0.22	-0.64	2.12	-5.58
min MT	-1755.00	-18.55	55.01	-0.95	29.54	6.32	0.10	-0.74	-17.32
max MT	-1755.00	-18.55	55.01	2.03	24.54	2.82	-0.56	-0.18	11.95
min NS	-1743.38	-18.55	55.19	-7.31	25.45	4.48	0.68	1.04	-7.39
max NS	-1798.45	-18.57	54.28	3.30	17.47	-3.72	-0.98	-0.30	-4.26
min MY	-1743.38	-18.55	55.19	3.48	-21.06	-6.01	-0.48	1.22	-5.33
max MY	-1743.38	-18.55	55.19	-2.19	45.98	15.52	-0.03	0.93	-4.50
min MZ	-1743.38	-18.55	55.19	-1.88	-13.84	-10.84	-0.04	0.66	-1.79
max MZ	-1743.38	-18.55	55.19	2.71	38.30	21.35	-0.59	2.10	-5.18
min VY	-1743.38	-18.55	55.19	9.43	-6.65	5.31	-1.58	0.87	-1.00
max VY	-1743.38	-18.55	55.19	-6.36	24.28	1.25	0.94	0.25	-11.39
min VZ	-1743.38	-18.55	55.19	-4.12	28.96	5.97	0.28	-0.93	-3.50
max VZ	-1743.38	-18.55	55.19	5.34	3.93	8.45	-0.84	4.20	0.86
min MT	-1743.38	-18.55	55.19	0.28	19.37	6.70	-0.15	2.18	-19.62
max MT	-1743.38	-18.55	55.19	1.73	13.29	9.09	-0.47	2.55	12.58
min NS	-1737.63	-18.55	55.28	-8.95	25.05	14.17	0.97	-2.10	9.97
max NS	-1793.88	-18.57	54.34	3.36	19.28	1.10	-0.99	0.26	-5.09
min MY	-1737.63	-18.55	55.28	1.77	-24.16	-9.17	0.06	-1.30	4.82
max MY	-1737.63	-18.55	55.28	2.87	46.26	8.54	-0.37	-0.62	3.42
min MZ	-1737.63	-18.55	55.28	11.20	-12.95	-22.26	-1.55	-1.19	3.77
max MZ	-1737.63	-18.55	55.28	-7.10	34.12	22.21	1.05	-1.82	3.61
min VY	-1737.63	-18.55	55.28	10.95	-2.36	-18.67	-1.74	-1.37	6.65
max VY	-1737.63	-18.55	55.28	-6.89	17.19	18.79	1.33	-1.25	0.22
min VZ	-1737.63	-18.55	55.28	-2.23	4.95	10.56	0.38	-4.71	-2.49
max VZ	-1737.63	-18.55	55.28	4.97	23.89	-6.79	-0.66	1.01	2.31
min MT	-1737.63	-18.55	55.28	-1.72	10.18	8.64	0.00	-3.03	-14.88
max MT	-1737.63	-18.55	55.28	4.15	17.04	-3.51	-0.44	-2.52	21.44
min NS	-1725.00	-18.55	55.46	-8.92	36.09	1.91	0.96	-0.19	6.86
max NS	-1777.15	-18.57	54.60	3.42	-5.73	18.69	-1.06	2.33	-8.09
min MY	-1725.00	-18.55	55.46	7.45	-19.37	-8.00	-0.82	0.81	1.45
max MY	-1725.00	-18.55	55.46	-3.84	56.31	11.96	0.44	-0.39	4.33
min MZ	-1725.00	-18.55	55.46	3.02	-17.88	-14.04	0.31	0.78	1.98

Roadway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MZ	-1725.00	-18.55	55.46	1.23	50.48	18.31	-0.61	0.32	2.90
min VY	-1725.00	-18.55	55.46	10.98	7.38	3.74	-1.79	0.12	4.43
max VY	-1725.00	-18.55	55.46	-6.87	23.34	1.97	1.35	0.64	-2.67
min VZ	-1725.00	-18.55	55.46	-2.17	35.76	5.19	0.35	-2.12	0.04
max VZ	-1725.00	-18.55	55.46	4.94	14.23	3.06	-0.71	3.21	-1.45
min MT	-1725.00	-18.55	55.46	-1.68	27.56	7.65	-0.01	0.54	-13.37
max MT	-1725.00	-18.55	55.46	4.20	25.89	1.82	-0.47	1.42	17.67
min NS	-1713.38	-18.55	55.64	-8.89	15.41	-9.32	0.98	2.09	2.45
max NS	-1773.50	-18.57	54.65	3.48	-15.09	22.79	-1.07	2.79	-8.74
min MY	-1713.38	-18.55	55.64	6.41	-41.05	2.89	-0.62	2.83	-5.77
max MY	-1713.38	-18.55	55.64	-2.82	43.46	7.95	0.23	0.99	2.54
min MZ	-1713.38	-18.55	55.64	-6.40	-6.82	-25.00	1.28	0.92	0.63
max MZ	-1713.38	-18.55	55.64	8.01	21.34	33.50	-1.52	3.60	-0.10
min VY	-1713.38	-18.55	55.64	10.99	-4.83	24.86	-1.84	1.78	2.07
max VY	-1713.38	-18.55	55.64	-6.83	6.21	-14.01	1.36	1.64	-4.17
min VZ	-1713.38	-18.55	55.64	-2.66	33.51	1.35	0.38	-0.39	1.32
max VZ	-1713.38	-18.55	55.64	5.98	-22.60	16.71	-1.08	5.34	5.43
min MT	-1713.38	-18.55	55.64	-1.17	12.17	9.20	-0.16	2.62	-15.79
max MT	-1713.38	-18.55	55.64	3.78	-0.97	6.59	-0.44	3.77	18.44
min NS	-1587.63	-18.55	57.42	-33.82	-20.17	48.71	2.73	-3.04	3.36
max NS	-1766.50	-18.55	54.84	9.78	-14.35	-27.01	-1.34	-1.67	2.41
min MY	-1587.63	-18.55	57.42	-22.11	-63.77	13.23	1.24	-3.41	9.80
max MY	-1587.63	-18.55	57.42	10.45	51.02	-10.33	-0.80	-0.48	-11.81
min MZ	-1587.63	-18.55	57.42	7.37	-19.24	-80.70	-3.40	-1.58	0.74
max MZ	-1587.63	-18.55	57.42	-18.20	7.97	84.77	3.88	-1.90	-2.92
min VY	-1587.63	-18.55	57.42	18.10	-5.21	-77.54	-3.66	-1.30	0.34
max VY	-1587.63	-18.55	57.42	-28.81	-10.33	81.75	4.09	-2.08	1.23
min VZ	-1587.63	-18.55	57.42	-24.38	-33.23	45.09	2.37	-5.89	2.26
max VZ	-1587.63	-18.55	57.42	10.81	32.88	-21.30	-1.07	0.86	-12.25
min MT	-1587.63	-18.55	57.42	-16.51	-8.30	21.94	1.08	-3.72	-34.01
max MT	-1587.63	-18.55	57.42	6.18	3.95	-16.34	-0.73	-3.03	27.57
min NS	-1575.00	-18.55	57.61	-33.80	2.44	14.70	2.65	-1.10	0.31
max NS	-1755.00	-18.55	55.01	9.80	-1.81	-11.29	-1.39	-0.31	0.34
min MY	-1575.00	-18.55	57.61	-15.79	-39.18	-20.77	-0.52	-0.56	2.81
max MY	-1575.00	-18.55	57.61	4.34	57.83	17.57	0.93	-0.43	-9.78
min MZ	-1575.00	-18.55	57.61	6.48	-9.41	-38.53	-3.24	-0.08	0.69
max MZ	-1575.00	-18.55	57.61	-17.35	22.26	37.09	3.64	-0.50	-4.09
min VY	-1575.00	-18.55	57.61	18.10	5.09	-31.61	-3.61	-0.20	-1.20
max VY	-1575.00	-18.55	57.61	-28.77	5.17	30.82	3.99	-0.17	-1.58
min VZ	-1575.00	-18.55	57.61	-22.96	10.75	7.74	1.51	-3.26	8.40
max VZ	-1575.00	-18.55	57.61	10.98	25.17	-7.12	-1.12	2.86	-16.07
min MT	-1575.00	-18.55	57.61	-17.83	12.65	7.86	1.09	-0.34	-33.29
max MT	-1575.00	-18.55	57.61	7.65	17.26	-7.49	-0.81	0.16	24.33
min NS	-1563.38	-18.55	57.79	-33.77	-8.81	-15.69	2.59	1.54	-4.76
max NS	-1743.38	-18.55	55.19	9.82	-7.61	5.21	-1.44	1.10	-1.82
min MY	-1563.38	-18.55	57.79	-8.97	-46.21	-10.40	-1.69	1.73	-8.11
max MY	-1563.38	-18.55	57.79	-6.24	47.52	1.73	2.02	0.79	-0.98
min MZ	-1563.38	-18.55	57.79	-23.80	-26.92	-28.21	2.42	0.80	3.97
max MZ	-1563.38	-18.55	57.79	12.37	22.98	20.72	-2.11	2.40	-15.11
min VY	-1563.38	-18.55	57.79	18.09	-1.07	10.13	-3.57	1.14	-3.02
max VY	-1563.38	-18.55	57.79	-28.72	-4.17	-14.89	3.89	1.31	-3.38

Roadway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VZ	-1563.38	-18.55	57.79	-14.49	22.50	-6.61	1.30	-1.28	6.74
max VZ	-1563.38	-18.55	57.79	-1.28	-8.36	3.15	-1.05	4.69	-10.22
min MT	-1563.38	-18.55	57.79	-17.80	3.96	-3.67	1.01	1.99	-35.28
max MT	-1563.38	-18.55	57.79	7.66	6.97	1.80	-0.79	2.57	24.43
min NS	-1527.63	-18.55	58.32	-44.94	-1.33	12.89	2.93	-2.94	4.66
max NS	-1737.63	-18.55	55.28	13.20	-7.62	-16.92	-1.58	-1.22	3.67
min MY	-1527.63	-18.55	58.32	-12.44	-32.73	1.38	1.31	-2.07	5.98
max MY	-1527.63	-18.55	58.32	0.86	61.01	12.98	-1.18	-1.20	-4.77
min MZ	-1527.63	-18.55	58.32	15.07	-17.97	-17.48	-1.66	-1.03	-0.41
max MZ	-1527.63	-18.55	58.32	-29.11	44.65	31.15	1.83	-2.35	-3.49
min VY	-1527.63	-18.55	58.32	31.59	-2.73	-10.81	-2.92	-1.25	3.82
max VY	-1527.63	-18.55	58.32	-43.58	8.88	18.55	3.08	-1.82	1.15
min VZ	-1527.63	-18.55	58.32	-32.55	-1.53	15.17	1.68	-5.36	2.38
max VZ	-1527.63	-18.55	58.32	18.31	45.50	4.73	-1.44	0.90	-5.74
min MT	-1527.63	-18.55	58.32	-23.87	15.61	13.19	0.74	-3.65	-31.99
max MT	-1527.63	-18.55	58.32	8.67	23.29	5.21	-0.60	-2.48	32.01
min NS	-1515.00	-18.55	58.51	-44.91	18.43	-23.41	2.79	-0.94	1.57
max NS	-1725.00	-18.55	55.46	13.22	0.31	3.47	-1.63	0.26	1.40
min MY	-1515.00	-18.55	58.51	13.00	-20.67	-0.23	-0.64	0.03	4.02
max MY	-1515.00	-18.55	58.51	-26.16	73.29	11.71	0.72	-0.51	-3.07
min MZ	-1515.00	-18.55	58.51	-25.71	0.97	-28.46	2.53	-0.29	1.85
max MZ	-1515.00	-18.55	58.51	4.20	62.81	35.26	-1.47	-0.02	-7.49
min VY	-1515.00	-18.55	58.51	31.55	6.55	25.67	-2.86	-0.15	2.30
max VY	-1515.00	-18.55	58.51	-43.50	20.29	-19.61	2.97	0.10	-1.66
min VZ	-1515.00	-18.55	58.51	-33.13	35.10	-6.78	1.63	-2.74	7.26
max VZ	-1515.00	-18.55	58.51	18.90	38.42	24.28	-1.49	2.93	-9.17
min MT	-1515.00	-18.55	58.51	-25.30	36.34	4.11	0.72	-0.24	-31.43
max MT	-1515.00	-18.55	58.51	10.27	28.13	11.15	-0.67	0.67	28.80
min NS	-1503.38	-18.55	58.69	-44.88	4.45	-55.90	2.68	1.39	-3.44
max NS	-1713.38	-18.55	55.64	13.24	-12.55	22.58	-1.67	1.62	-0.82
min MY	-1503.38	-18.55	58.69	15.92	-29.54	15.01	-0.83	1.49	-2.51
max MY	-1503.38	-18.55	58.69	-29.23	59.81	-3.17	0.78	1.39	0.90
min MZ	-1503.38	-18.55	58.69	-34.69	0.63	-58.78	2.68	0.77	0.01
max MZ	-1503.38	-18.55	58.69	22.63	11.26	63.28	-2.64	1.91	-3.23
min VY	-1503.38	-18.55	58.69	31.51	0.90	58.34	-2.80	1.10	0.55
max VY	-1503.38	-18.55	58.69	-43.42	8.35	-53.09	2.86	1.63	-3.87
min VZ	-1503.38	-18.55	58.69	-23.45	32.74	-25.49	1.38	-0.92	5.13
max VZ	-1503.38	-18.55	58.69	9.24	12.98	42.24	-1.44	4.91	-2.64
min MT	-1503.38	-18.55	58.69	-25.29	27.88	-3.01	0.64	1.99	-33.35
max MT	-1503.38	-18.55	58.69	10.31	12.06	18.65	-0.66	3.08	28.88
min NS	-1497.63	-18.55	58.87	-51.92	-8.05	-3.79	2.69	-2.38	5.10
max NS	-1707.63	-18.57	55.62	20.15	-11.40	-8.86	-10.05	-1.38	-3.37
min MY	-1497.63	-18.55	58.87	-29.66	-34.75	-5.45	1.31	-2.34	6.77
max MY	-1497.63	-18.55	58.87	15.33	58.90	17.43	-1.23	-0.50	-4.53
min MZ	-1497.63	-18.55	58.87	-16.23	-14.54	-16.16	0.72	-1.09	-0.66
max MZ	-1497.63	-18.55	58.87	5.05	34.74	28.45	-0.59	-2.75	2.81
min VY	-1497.63	-18.55	58.87	38.17	-1.11	3.88	-2.74	-1.11	1.69
max VY	-1497.63	-18.55	58.87	-50.62	3.53	3.04	2.85	-1.76	3.97
min VZ	-1497.63	-18.55	58.87	-36.85	-8.34	7.32	1.65	-5.55	0.73
max VZ	-1497.63	-18.55	58.87	22.44	46.63	10.73	-1.43	1.10	-5.30
min MT	-1497.63	-18.55	58.87	-22.14	13.35	9.82	0.68	-3.57	-29.54

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MT	-1497.63	-18.55	58.87	10.17	20.06	7.49	-0.55	-2.64	30.70
min NS	-1485.00	-18.55	59.06	-51.90	5.66	-37.71	2.55	-0.33	0.29
max NS	-1695.00	-18.57	55.81	20.18	-3.39	118.46	-10.10	0.25	-5.63
min MY	-1485.00	-18.55	59.06	-15.10	-20.27	-14.26	0.56	-0.11	2.87
max MY	-1485.00	-18.55	59.06	-2.30	69.54	24.58	-0.48	-0.31	0.33
min MZ	-1485.00	-18.55	59.06	-32.65	-0.15	-40.31	2.39	-0.33	1.97
max MZ	-1485.00	-18.55	59.06	22.34	28.38	45.38	-2.33	0.18	-1.83
min VY	-1485.00	-18.55	59.06	38.10	7.48	37.63	-2.67	-0.06	0.17
max VY	-1485.00	-18.55	59.06	-50.50	16.24	-32.16	2.73	0.08	1.06
min VZ	-1485.00	-18.55	59.06	-28.11	28.39	-14.89	1.52	-2.79	7.54
max VZ	-1485.00	-18.55	59.06	13.71	41.14	31.19	-1.41	3.09	-8.89
min MT	-1485.00	-18.55	59.06	-23.61	33.53	1.38	0.65	-0.04	-28.00
max MT	-1485.00	-18.55	59.06	11.76	31.02	13.51	-0.58	0.91	26.79
min NS	-1473.38	-18.55	59.24	-51.88	-0.73	-66.43	2.43	1.08	-1.83
max NS	-1683.50	-18.57	55.98	20.20	-15.74	234.96	-10.15	1.69	-7.69
min MY	-1473.38	-18.55	59.24	4.66	-29.83	13.83	-0.56	1.87	-6.47
max MY	-1473.38	-18.55	59.24	-16.57	54.57	-3.31	0.60	0.96	3.76
min MZ	-1473.38	-18.55	59.24	-39.34	-1.57	-68.43	2.45	0.71	0.67
max MZ	-1473.38	-18.55	59.24	27.01	10.30	73.37	-2.45	2.41	-4.48
min VY	-1473.38	-18.55	59.24	38.00	1.30	68.14	-2.61	1.12	-1.38
max VY	-1473.38	-18.55	59.24	-50.38	4.04	-62.75	2.62	1.53	-0.74
min VZ	-1473.38	-18.55	59.24	-25.28	31.50	-31.86	1.33	-1.06	5.03
max VZ	-1473.38	-18.55	59.24	10.93	7.70	47.51	-1.40	5.15	-1.81
min MT	-1473.38	-18.55	59.24	-23.10	21.90	-5.01	0.56	2.10	-30.35
max MT	-1473.38	-18.55	59.24	11.34	10.35	19.90	-0.60	3.16	27.46
min NS	-1017.63	-18.55	66.07	-94.05	-0.08	-73.12	-0.05	-2.61	6.05
max NS	-1676.50	-18.57	56.09	0.67	1.89	-0.45	0.10	-2.35	7.68
min MY	-1017.63	-18.55	66.07	-48.89	-29.56	-33.71	0.19	-2.26	5.40
max MY	-1017.63	-18.55	66.07	32.62	43.17	43.18	-0.10	-0.89	-0.85
min MZ	-1017.63	-18.55	66.07	-73.51	-6.92	-80.57	-0.32	-1.08	1.01
max MZ	-1017.63	-18.55	66.07	62.37	8.44	84.85	0.40	-2.10	2.64
min VY	-1017.63	-18.55	66.07	-29.14	0.66	-36.06	-1.00	-1.24	2.05
max VY	-1017.63	-18.55	66.07	12.40	9.07	45.57	1.10	-2.15	4.95
min VZ	-1017.63	-18.55	66.07	2.24	-0.41	27.18	0.38	-5.16	-2.37
max VZ	-1017.63	-18.55	66.07	-18.49	27.20	-14.47	-0.26	0.61	-3.12
min MT	-1017.63	-18.55	66.07	-15.98	4.50	-5.91	0.14	-3.34	-25.69
max MT	-1017.63	-18.55	66.07	0.13	8.52	16.86	-0.01	-3.08	27.72
min NS	-1005.00	-18.55	66.26	-94.02	17.30	-71.61	-0.22	-0.61	2.70
max NS	-1672.87	-18.57	56.14	0.65	9.77	-0.83	0.09	-2.02	7.25
min MY	-1005.00	-18.55	66.26	-22.41	-16.81	-22.05	-0.05	0.07	0.93
max MY	-1005.00	-18.55	66.26	6.29	58.10	30.01	0.08	-0.52	1.19
min MZ	-1005.00	-18.55	66.26	-74.42	0.10	-77.26	-0.22	-0.02	1.11
max MZ	-1005.00	-18.55	66.26	63.15	24.85	80.95	0.24	-0.03	-2.91
min VY	-1005.00	-18.55	66.26	-30.78	10.98	-24.92	-1.06	-0.20	0.58
max VY	-1005.00	-18.55	66.26	14.09	24.38	33.46	1.12	0.15	1.40
min VZ	-1005.00	-18.55	66.26	1.75	34.16	20.92	0.40	-2.34	0.29
max VZ	-1005.00	-18.55	66.26	-17.45	24.94	-8.87	-0.34	2.58	-7.03
min MT	-1005.00	-18.55	66.26	-15.93	25.67	-6.91	0.13	0.18	-24.10
max MT	-1005.00	-18.55	66.26	0.17	24.84	16.56	-0.05	0.79	23.83
min NS	-993.38	-18.55	66.44	-93.98	-0.41	-68.82	-0.35	1.61	-1.78
max NS	-1650.00	-18.57	56.49	0.61	67.84	-2.18	0.04	0.81	7.12

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MY	-993.38	-18.55	66.44	-44.03	-27.10	-32.57	-0.35	1.89	-4.12
max MY	-993.38	-18.55	66.44	9.76	43.38	27.03	0.21	0.97	0.16
min MZ	-993.38	-18.55	66.44	-73.35	-5.91	-75.20	-0.11	1.00	0.82
max MZ	-993.38	-18.55	66.44	62.19	10.18	79.28	0.07	2.24	-5.48
min VY	-993.38	-18.55	66.44	-34.39	3.26	-13.73	-1.11	1.69	-2.37
max VY	-993.38	-18.55	66.44	17.74	10.42	21.99	1.13	1.41	-0.22
min VZ	-993.38	-18.55	66.44	20.52	30.05	16.92	0.34	-0.62	1.62
max VZ	-993.38	-18.55	66.44	-49.17	-1.14	-14.90	-0.58	4.71	0.58
min MT	-993.38	-18.55	66.44	-17.06	13.56	-7.13	0.03	2.39	-26.60
max MT	-993.38	-18.55	66.44	1.38	5.22	16.78	-0.06	3.11	24.48
min NS	-987.63	-18.55	66.52	-93.26	1.91	-73.62	-0.16	-2.48	5.78
max NS	-1640.52	-18.57	56.63	0.59	60.48	-2.31	0.02	2.36	5.61
min MY	-987.63	-18.55	66.52	-40.13	-27.78	-32.62	0.14	-2.20	5.64
max MY	-987.63	-18.55	66.52	7.63	44.46	27.48	-0.01	-1.00	-1.17
min MZ	-987.63	-18.55	66.52	-72.78	-5.75	-80.94	-0.42	-1.08	1.10
max MZ	-987.63	-18.55	66.52	61.61	10.05	85.16	0.49	-2.02	2.66
min VY	-987.63	-18.55	66.52	-30.10	1.84	-37.32	-1.04	-1.23	1.94
max VY	-987.63	-18.55	66.52	13.03	10.98	46.79	1.14	-2.18	5.29
min VZ	-987.63	-18.55	66.52	1.86	2.88	27.08	0.40	-4.91	-1.50
max VZ	-987.63	-18.55	66.52	-18.08	27.87	-14.64	-0.29	0.59	-3.07
min MT	-987.63	-18.55	66.52	-15.93	6.50	-6.14	0.12	-3.16	-24.75
max MT	-987.63	-18.55	66.52	-6.85	10.95	16.85	0.00	-2.90	26.96
min NS	-975.00	-18.55	66.71	-93.24	17.27	-70.63	-0.32	-0.60	2.72
max NS	-1627.13	-18.57	56.83	0.39	20.26	-1.43	-0.05	4.75	3.05
min MY	-975.00	-18.55	66.71	-22.46	-16.34	-21.21	-0.09	0.01	0.35
max MY	-975.00	-18.55	66.71	6.09	57.53	29.53	0.11	-0.53	1.25
min MZ	-975.00	-18.55	66.71	-73.63	0.24	-76.24	-0.32	-0.01	1.14
max MZ	-975.00	-18.55	66.71	62.35	24.68	79.91	0.34	-0.04	-2.95
min VY	-975.00	-18.55	66.71	-31.71	10.97	-25.66	-1.09	-0.18	0.44
max VY	-975.00	-18.55	66.71	14.68	24.66	34.19	1.15	0.11	1.75
min VZ	-975.00	-18.55	66.71	2.06	33.98	21.16	0.43	-2.33	0.39
max VZ	-975.00	-18.55	66.71	-18.24	24.90	-9.38	-0.39	2.57	-6.99
min MT	-975.00	-18.55	66.71	-17.52	26.02	-6.84	0.11	0.17	-23.99
max MT	-975.00	-18.55	66.71	1.50	24.03	16.28	-0.03	0.79	23.76
min NS	-963.38	-18.55	66.89	-93.20	-0.41	-67.56	-0.46	1.40	-0.65
max NS	-1623.50	-18.57	56.88	0.33	2.81	-0.12	-0.06	5.61	1.85
min MY	-963.38	-18.55	66.89	-44.20	-26.11	-31.74	-0.40	1.89	-4.13
max MY	-963.38	-18.55	66.89	11.97	43.91	26.76	0.24	1.12	-0.35
min MZ	-963.38	-18.55	66.89	-72.49	-5.47	-73.09	-0.21	1.01	0.75
max MZ	-963.38	-18.55	66.89	61.31	11.30	77.11	0.16	2.11	-5.18
min VY	-963.38	-18.55	66.89	-35.28	4.04	-13.93	-1.15	1.74	-2.13
max VY	-963.38	-18.55	66.89	18.29	11.75	22.18	1.17	1.39	-0.06
min VZ	-963.38	-18.55	66.89	20.95	30.40	16.85	0.38	-0.61	1.76
max VZ	-963.38	-18.55	66.89	-50.60	0.67	-15.67	-0.64	4.60	-0.18
min MT	-963.38	-18.55	66.89	-17.01	12.58	-7.57	0.02	1.94	-26.22
max MT	-963.38	-18.55	66.89	0.04	10.20	18.22	-0.03	3.03	24.00
min NS	-747.63	-18.55	70.12	-78.34	2.75	-65.08	-0.73	-2.42	5.85
max NS	-1616.50	-18.57	56.99	17.25	12.99	-39.97	-1.90	-0.64	1.19
min MY	-747.63	-18.55	70.12	7.64	-23.89	14.72	0.38	-2.18	6.54
max MY	-747.63	-18.55	70.12	-26.94	39.54	-5.66	-0.31	-1.05	-0.71
min MZ	-747.63	-18.55	70.12	-58.08	-4.11	-72.06	-1.00	-1.01	1.64

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MZ	-747.63	-18.55	70.12	46.77	7.66	76.14	1.09	-2.15	1.85
min VY	-747.63	-18.55	70.12	-48.68	-4.40	-57.02	-1.37	-1.22	1.74
max VY	-747.63	-18.55	70.12	35.02	5.10	61.37	1.45	-1.66	2.98
min VZ	-747.63	-18.55	70.12	-6.93	0.40	28.74	0.68	-4.83	0.32
max VZ	-747.63	-18.55	70.12	-16.99	24.67	-16.99	-0.52	0.44	-2.13
min MT	-747.63	-18.55	70.12	-28.15	4.78	-4.64	0.06	-3.38	-24.22
max MT	-747.63	-18.55	70.12	9.28	11.71	14.46	0.06	-2.67	26.56
min NS	-735.00	-18.55	70.31	-78.31	17.34	-54.85	-0.89	-0.53	2.74
max NS	-1605.00	-18.57	57.16	17.27	14.67	-18.18	-1.88	0.44	-0.44
min MY	-735.00	-18.55	70.31	-18.99	-12.77	-14.23	-0.24	-0.02	0.05
max MY	-735.00	-18.55	70.31	1.78	53.34	22.21	0.27	-0.50	2.02
min MZ	-735.00	-18.55	70.31	-58.89	1.20	-60.10	-0.88	0.05	1.34
max MZ	-735.00	-18.55	70.31	47.49	23.58	63.55	0.90	-0.10	-2.90
min VY	-735.00	-18.55	70.31	-50.26	4.45	-40.85	-1.48	-0.14	0.23
max VY	-735.00	-18.55	70.31	36.64	15.23	44.59	1.50	0.14	0.21
min VZ	-735.00	-18.55	70.31	0.49	30.74	19.88	0.72	-2.24	2.13
max VZ	-735.00	-18.55	70.31	-17.74	23.25	-9.55	-0.62	2.43	-6.13
min MT	-735.00	-18.55	70.31	-29.72	25.88	-4.59	0.05	0.08	-23.47
max MT	-735.00	-18.55	70.31	10.96	23.06	13.15	0.03	0.84	23.35
min NS	-723.38	-18.55	70.49	-78.27	0.43	-43.56	-1.02	2.04	-2.28
max NS	-1593.38	-18.57	57.34	17.28	2.74	3.61	-1.86	1.47	-1.83
min MY	-723.38	-18.55	70.49	-37.99	-22.66	-19.02	-0.76	1.87	-4.57
max MY	-723.38	-18.55	70.49	20.10	39.52	27.19	0.79	1.15	-1.25
min MZ	-723.38	-18.55	70.49	-56.73	-5.11	-51.04	-0.66	1.05	0.72
max MZ	-723.38	-18.55	70.49	45.47	10.48	54.73	0.62	2.17	-5.35
min VY	-723.38	-18.55	70.49	-51.61	-1.63	-24.50	-1.58	1.14	-1.47
max VY	-723.38	-18.55	70.49	38.04	3.70	28.41	1.55	1.53	-1.96
min VZ	-723.38	-18.55	70.49	28.57	26.38	19.10	0.96	-0.49	2.01
max VZ	-723.38	-18.55	70.49	-48.23	-0.08	-9.28	-0.99	4.51	0.48
min MT	-723.38	-18.55	70.49	-21.85	12.52	-4.15	-0.04	2.38	-25.84
max MT	-723.38	-18.55	70.49	-2.35	10.35	14.52	0.04	3.08	23.51
min NS	-657.63	-18.55	71.47	-70.26	1.08	-57.70	-0.80	-2.57	6.12
max NS	-1587.63	-18.55	57.42	21.77	5.22	-42.81	-2.15	-0.82	0.44
min MY	-657.63	-18.55	71.47	-5.82	-23.85	15.43	0.45	-2.42	6.64
max MY	-657.63	-18.55	71.47	-18.16	35.95	-6.36	-0.38	-0.89	-0.67
min MZ	-657.63	-18.55	71.47	-50.08	-4.64	-64.69	-1.09	-1.03	2.12
max MZ	-657.63	-18.55	71.47	38.75	4.89	68.73	1.18	-2.28	2.07
min VY	-657.63	-18.55	71.47	-42.30	-4.70	-51.27	-1.47	-1.19	1.49
max VY	-657.63	-18.55	71.47	28.65	2.86	55.59	1.55	-1.70	3.13
min VZ	-657.63	-18.55	71.47	-10.08	-7.98	23.94	0.76	-5.02	-0.24
max VZ	-657.63	-18.55	71.47	-13.96	27.77	-12.44	-0.58	0.37	-1.96
min MT	-657.63	-18.55	71.47	-19.64	2.14	-3.61	0.05	-3.35	-24.89
max MT	-657.63	-18.55	71.47	-3.05	12.13	15.05	0.09	-3.10	27.20
min NS	-645.00	-18.55	71.66	-70.23	17.94	-46.73	-0.97	-0.56	2.70
max NS	-1575.00	-18.55	57.61	21.79	8.60	-15.84	-2.12	0.30	-1.10
min MY	-645.00	-18.55	71.66	-16.03	-11.23	-9.84	-0.25	-0.04	0.45
max MY	-645.00	-18.55	71.66	-7.87	51.70	17.80	0.30	-0.47	1.36
min MZ	-645.00	-18.55	71.66	-50.93	2.00	-51.89	-0.94	0.02	1.39
max MZ	-645.00	-18.55	71.66	39.52	22.97	55.27	0.96	-0.08	-2.74
min VY	-645.00	-18.55	71.66	-43.62	4.90	-33.75	-1.57	-0.12	-0.01
max VY	-645.00	-18.55	71.66	30.02	15.02	37.41	1.60	0.10	0.34

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VZ	-645.00	-18.55	71.66	-9.97	25.33	13.69	0.78	-2.19	2.24
max VZ	-645.00	-18.55	71.66	-14.12	28.01	-3.67	-0.67	2.36	-5.95
min MT	-645.00	-18.55	71.66	-19.61	23.52	-3.57	0.04	0.03	-23.30
max MT	-645.00	-18.55	71.66	-2.98	28.61	13.49	0.06	0.82	23.26
min NS	-633.38	-18.55	71.84	-70.20	0.37	-34.54	-1.10	1.87	-1.94
max NS	-1563.38	-18.55	57.79	21.80	-1.57	8.64	-2.09	1.29	-2.50
min MY	-633.38	-18.55	71.84	-31.13	-21.12	-10.51	-0.86	1.82	-4.81
max MY	-633.38	-18.55	71.84	2.39	36.09	12.03	0.60	1.08	0.53
min MZ	-633.38	-18.55	71.84	-48.25	-4.29	-42.46	-0.65	1.01	0.99
max MZ	-633.38	-18.55	71.84	37.00	8.30	46.09	0.62	2.35	-5.69
min VY	-633.38	-18.55	71.84	-44.77	-2.00	-16.07	-1.68	1.16	-1.85
max VY	-633.38	-18.55	71.84	31.20	2.96	19.90	1.64	1.50	-1.70
min VZ	-633.38	-18.55	71.84	15.70	19.75	9.41	1.05	-0.41	2.13
max VZ	-633.38	-18.55	71.84	-33.15	3.54	-0.21	-1.07	4.55	1.35
min MT	-633.38	-18.55	71.84	-21.73	9.79	-3.38	-0.05	2.46	-26.01
max MT	-633.38	-18.55	71.84	-1.80	8.88	12.37	0.07	3.13	23.73
min NS	-627.63	-18.55	71.95	-67.46	1.99	-55.19	-0.81	-2.40	5.75
max NS	-1527.63	-18.55	58.32	32.97	5.47	-6.77	-2.74	-0.78	1.06
min MY	-627.63	-18.55	71.95	-7.56	-21.83	12.27	0.40	-2.14	6.68
max MY	-627.63	-18.55	71.95	-15.97	36.18	-3.47	-0.36	-1.09	-0.70
min MZ	-627.63	-18.55	71.95	-53.94	-3.94	-62.13	-1.10	-1.01	2.31
max MZ	-627.63	-18.55	71.95	40.41	6.88	66.11	1.19	-2.19	1.59
min VY	-627.63	-18.55	71.95	-39.78	-3.85	-48.97	-1.48	-1.16	1.78
max VY	-627.63	-18.55	71.95	26.11	4.26	53.22	1.56	-1.71	2.87
min VZ	-627.63	-18.55	71.95	-10.93	-5.00	23.33	0.77	-4.75	0.50
max VZ	-627.63	-18.55	71.95	-13.11	27.57	-11.79	-0.60	0.36	-1.92
min MT	-627.63	-18.55	71.95	-11.46	7.77	-0.81	0.09	-3.11	-23.06
max MT	-627.63	-18.55	71.95	-11.00	10.81	12.60	0.05	-2.94	25.49
min NS	-615.00	-18.55	72.14	-67.43	16.72	-43.99	-0.97	-0.54	2.65
max NS	-1515.00	-18.55	58.51	32.99	8.70	27.52	-2.67	0.32	-0.47
min MY	-615.00	-18.55	72.14	-23.66	-10.57	-10.72	-0.27	-0.03	0.51
max MY	-615.00	-18.55	72.14	-0.30	49.82	18.73	0.33	-0.47	1.19
min MZ	-615.00	-18.55	72.14	-48.21	1.44	-49.11	-0.93	0.03	1.28
max MZ	-615.00	-18.55	72.14	36.79	22.77	52.48	0.96	-0.09	-2.65
min VY	-615.00	-18.55	72.14	-41.03	4.36	-31.10	-1.59	-0.09	0.29
max VY	-615.00	-18.55	72.14	27.41	14.98	34.72	1.61	0.08	0.09
min VZ	-615.00	-18.55	72.14	-10.43	24.68	13.15	0.80	-2.16	2.21
max VZ	-615.00	-18.55	72.14	-13.59	26.94	-3.08	-0.69	2.33	-5.90
min MT	-615.00	-18.55	72.14	-11.44	26.18	-1.20	0.08	0.06	-22.27
max MT	-615.00	-18.55	72.14	-10.92	25.13	11.47	0.02	0.77	22.22
min NS	-603.38	-18.55	72.32	-67.40	0.12	-31.87	-1.10	2.01	-2.35
max NS	-1503.38	-18.55	58.69	33.01	-1.73	58.15	-2.61	1.31	-1.85
min MY	-603.38	-18.55	72.32	-32.00	-20.29	-10.33	-0.86	1.99	-5.17
max MY	-603.38	-18.55	72.32	14.18	35.70	17.68	0.95	1.06	-0.64
min MZ	-603.38	-18.55	72.32	-45.39	-4.22	-39.89	-0.64	1.01	0.78
max MZ	-603.38	-18.55	72.32	34.13	9.13	43.43	0.61	2.27	-5.43
min VY	-603.38	-18.55	72.32	-42.12	-2.08	-13.27	-1.69	1.15	-1.58
max VY	-603.38	-18.55	72.32	28.54	3.92	16.99	1.66	1.50	-1.83
min VZ	-603.38	-18.55	72.32	14.95	19.78	8.24	1.08	-0.39	2.13
max VZ	-603.38	-18.55	72.32	-32.52	4.11	1.06	-1.10	4.42	0.27
min MT	-603.38	-18.55	72.32	-12.54	9.65	-3.27	-0.01	2.42	-24.74

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MT	-603.38	-18.55	72.32	-10.79	10.77	12.61	0.03	3.01	22.37
min NS	-447.63	-18.55	74.65	-51.65	3.47	-37.48	-0.66	-2.83	6.14
max NS	-1497.63	-18.55	58.87	39.68	6.30	8.19	-2.57	-0.75	1.08
min MY	-447.63	-18.55	74.65	-3.82	-19.15	11.56	0.52	-2.15	6.16
max MY	-447.63	-18.55	74.65	-20.04	33.28	-3.16	-0.47	-1.27	-1.03
min MZ	-447.63	-18.55	74.65	-31.68	-2.64	-44.89	-0.98	-1.05	2.20
max MZ	-447.63	-18.55	74.65	20.44	5.57	48.35	1.07	-2.43	1.73
min VY	-447.63	-18.55	74.65	-23.44	-2.06	-31.20	-1.43	-1.13	1.00
max VY	-447.63	-18.55	74.65	-5.08	0.15	32.24	1.52	-2.46	-2.73
min VZ	-447.63	-18.55	74.65	-5.65	0.75	22.05	0.82	-4.75	-0.12
max VZ	-447.63	-18.55	74.65	-18.79	18.94	-11.13	-0.68	0.16	-3.50
min MT	-447.63	-18.55	74.65	-15.74	3.46	-0.28	0.09	-3.37	-23.44
max MT	-447.63	-18.55	74.65	-7.93	13.23	10.52	0.04	-2.83	25.05
min NS	-435.00	-18.55	74.84	-51.61	21.12	-28.21	-0.81	-0.55	3.15
max NS	-1485.00	-18.55	59.06	39.70	10.15	40.01	-2.50	0.31	-0.45
min MY	-435.00	-18.55	74.84	-12.19	-7.79	-4.04	-0.23	-0.03	0.84
max MY	-435.00	-18.55	74.84	-12.13	48.19	11.48	0.28	-0.48	0.93
min MZ	-435.00	-18.55	74.84	-32.69	4.06	-33.88	-0.75	0.02	2.08
max MZ	-435.00	-18.55	74.84	21.26	22.63	36.63	0.78	-0.11	-1.72
min VY	-435.00	-18.55	74.84	-18.03	5.69	-13.96	-1.53	0.04	0.17
max VY	-435.00	-18.55	74.84	6.81	15.04	17.11	1.55	0.00	-0.61
min VZ	-435.00	-18.55	74.84	-14.60	30.09	10.78	0.86	-2.05	2.17
max VZ	-435.00	-18.55	74.84	-8.72	22.25	-1.56	-0.76	2.20	-5.92
min MT	-435.00	-18.55	74.84	-8.08	21.42	-1.05	0.07	-0.01	-22.04
max MT	-435.00	-18.55	74.84	-15.48	29.04	9.82	0.02	0.76	22.22
min NS	-423.38	-18.55	75.01	-51.57	2.24	-17.83	-0.95	2.37	-1.72
max NS	-1473.38	-18.55	59.24	39.71	0.07	68.54	-2.43	1.25	-1.82
min MY	-423.38	-18.55	75.01	-16.71	-17.58	1.60	-0.49	1.96	-6.06
max MY	-423.38	-18.55	75.01	-7.54	33.06	5.17	0.61	1.31	0.85
min MZ	-423.38	-18.55	75.01	-29.77	-3.00	-26.62	-0.48	1.05	1.13
max MZ	-423.38	-18.55	75.01	4.19	4.35	31.43	0.01	3.43	-7.52
min VY	-423.38	-18.55	75.01	-19.12	-1.77	3.30	-1.63	1.26	-1.26
max VY	-423.38	-18.55	75.01	7.93	3.97	0.06	1.60	1.56	-1.74
min VZ	-423.38	-18.55	75.01	5.75	22.96	0.16	1.14	-0.21	2.30
max VZ	-423.38	-18.55	75.01	-23.68	-1.67	9.13	-1.16	4.41	-0.32
min MT	-423.38	-18.55	75.01	-9.65	8.89	-0.73	0.00	2.53	-24.20
max MT	-423.38	-18.55	75.01	-13.85	10.20	9.04	0.03	3.09	22.85
min NS	-57.63	-18.55	77.94	-37.60	0.76	-7.01	0.06	-2.80	9.25
max NS	-1017.63	-18.55	66.07	81.20	-3.12	76.79	0.14	-1.04	0.82
min MY	-57.63	-18.55	77.94	-15.90	-18.02	5.36	0.33	-2.46	7.65
max MY	-57.63	-18.55	77.94	1.44	26.72	4.03	-0.30	-1.22	-4.09
min MZ	-57.63	-18.55	77.94	-13.12	11.50	-25.62	-0.47	-0.67	7.20
max MZ	-57.63	-18.55	77.94	-2.39	-2.31	32.42	0.46	-3.93	5.50
min VY	-57.63	-18.55	77.94	-9.90	11.78	-4.67	-0.99	-0.81	6.82
max VY	-57.63	-18.55	77.94	-13.93	-5.02	12.50	1.08	-2.02	-3.12
min VZ	-57.63	-18.55	77.94	-11.38	-6.90	9.99	0.59	-4.78	0.08
max VZ	-57.63	-18.55	77.94	-9.48	19.38	1.58	-0.50	0.04	-2.90
min MT	-57.63	-18.55	77.94	-2.69	4.72	7.66	0.30	-3.29	-23.79
max MT	-57.63	-18.55	77.94	-11.11	4.68	3.53	-0.23	-3.18	26.34
min NS	-45.00	-18.55	77.96	-37.59	25.37	-7.76	0.05	-0.51	5.68
max NS	-1005.00	-18.55	66.26	81.22	4.49	74.60	0.23	0.01	-0.70

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MY	-45.00	-18.55	77.96	-6.81	-5.81	0.10	0.03	-0.05	1.11
max MY	-45.00	-18.55	77.96	-15.09	44.03	7.22	-0.05	-0.47	-1.79
min MZ	-45.00	-18.55	77.96	-18.52	3.27	-24.76	0.11	0.03	-1.85
max MZ	-45.00	-18.55	77.96	-8.27	25.32	28.91	-0.05	-0.73	2.39
min VY	-45.00	-18.55	77.96	-10.65	15.41	7.37	-1.05	0.54	5.03
max VY	-45.00	-18.55	77.96	-13.17	12.57	-0.53	1.10	-0.52	-5.40
min VZ	-45.00	-18.55	77.96	-20.42	23.83	1.70	0.62	-1.91	2.38
max VZ	-45.00	-18.55	77.96	-0.53	23.29	9.33	-0.56	2.03	-7.09
min MT	-45.00	-18.55	77.96	-4.21	26.22	4.30	0.33	-0.16	-22.21
max MT	-45.00	-18.55	77.96	-9.57	21.72	6.21	-0.30	0.73	22.30
min NS	-33.38	-18.55	77.97	-37.59	-1.77	-8.22	0.04	2.90	-0.78
max NS	-993.38	-18.55	66.44	81.23	-1.98	71.44	0.31	0.94	-2.07
min MY	-33.38	-18.55	77.97	-9.72	-15.25	1.94	-0.17	1.75	-6.13
max MY	-33.38	-18.55	77.97	-11.75	27.41	4.56	0.31	1.17	1.90
min MZ	-33.38	-18.55	77.97	-17.34	-3.95	-27.20	0.32	0.96	-3.00
max MZ	-33.38	-18.55	77.97	-8.64	0.97	33.12	-0.53	3.56	-5.42
min VY	-33.38	-18.55	77.97	-11.31	0.68	19.27	-1.10	1.80	2.46
max VY	-33.38	-18.55	77.97	-12.48	8.71	-12.90	1.12	0.75	-6.10
min VZ	-33.38	-18.55	77.97	-8.93	14.72	0.02	0.47	-0.10	3.10
max VZ	-33.38	-18.55	77.97	-11.98	1.80	10.49	-0.47	4.29	-1.52
min MT	-33.38	-18.55	77.97	-3.76	11.31	1.01	0.31	2.59	-25.27
max MT	-33.38	-18.55	77.97	-10.01	3.62	9.46	-0.32	3.05	22.59
min NS	-30.40	-18.55	77.98	-37.59	-11.25	-8.32	0.03	3.64	-2.12
max NS	-987.63	-18.55	66.52	80.42	-2.42	77.16	0.24	-1.04	0.84
min MY	-30.40	-18.55	77.98	-16.28	-22.80	4.66	-0.20	3.30	-9.10
max MY	-30.40	-18.55	77.98	1.18	23.42	3.43	0.28	1.48	0.24
min MZ	-30.40	-18.55	77.98	-12.77	9.76	-28.89	0.66	0.84	-8.67
max MZ	-30.40	-18.55	77.98	-8.92	-9.82	34.80	-0.60	4.22	-6.70
min VY	-30.40	-18.55	77.98	-11.48	-5.30	22.44	-1.12	2.73	-0.25
max VY	-30.40	-18.55	77.98	-12.32	5.95	-16.08	1.13	1.09	-6.26
min VZ	-30.40	-18.55	77.98	-2.20	12.41	-1.61	0.45	0.22	2.34
max VZ	-30.40	-18.55	77.98	-12.04	-6.91	11.44	-0.45	4.80	-1.50
min MT	-30.40	-18.55	77.98	-3.76	6.03	0.29	0.29	3.02	-26.21
max MT	-30.40	-18.55	77.98	-9.99	-2.83	9.96	-0.31	3.50	22.64
max NS	-975.00	-18.55	66.71	80.43	4.45	73.59	0.33	0.00	-0.68
min NS	-27.63	-18.55	77.98	-37.57	3.91	-7.78	0.05	-3.00	9.35
max NS	-963.38	-18.55	66.89	80.45	-1.43	69.26	0.41	0.92	-2.03
min MY	-27.63	-18.55	77.98	-9.31	-16.19	3.73	0.24	-2.37	7.95
max MY	-27.63	-18.55	77.98	-11.57	28.55	4.05	-0.27	-1.30	-2.72
min MZ	-27.63	-18.55	77.98	-13.11	12.39	-26.39	-0.53	-0.66	7.37
max MZ	-27.63	-18.55	77.98	-2.15	0.99	32.92	0.53	-3.80	4.48
min VY	-27.63	-18.55	77.98	-14.74	8.24	-14.56	-0.99	-0.81	7.07
max VY	-27.63	-18.55	77.98	-8.96	1.08	22.03	1.08	-2.05	-3.90
min VZ	-27.63	-18.55	77.98	-11.73	1.16	11.84	0.59	-4.56	0.23
max VZ	-27.63	-18.55	77.98	-9.04	15.57	-0.48	-0.49	0.03	-2.55
min MT	-27.63	-18.55	77.98	-11.27	7.46	7.69	0.32	-3.32	-23.36
max MT	-27.63	-18.55	77.98	-2.47	6.99	3.32	-0.24	-2.79	25.76
min NS	-15.00	-18.55	77.99	-37.57	25.72	-8.33	0.04	-0.51	5.29
max NS	-747.63	-18.55	70.12	65.48	-3.74	68.42	0.82	-1.12	1.16
min MY	-15.00	-18.55	77.99	-6.81	-5.89	0.22	-0.02	-0.01	0.08
max MY	-15.00	-18.55	77.99	-15.00	44.32	6.75	0.01	-0.50	-2.13

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MZ	-15.00	-18.55	77.99	-18.70	3.16	-24.78	0.03	0.05	-1.67
max MZ	-15.00	-18.55	77.99	-8.09	25.61	28.52	0.02	-0.77	2.04
min VY	-15.00	-18.55	77.99	-12.14	10.99	5.25	-1.02	0.53	5.37
max VY	-15.00	-18.55	77.99	-11.52	16.76	1.16	1.08	-0.58	-5.98
min VZ	-15.00	-18.55	77.99	-21.02	28.66	3.44	0.62	-1.92	1.79
max VZ	-15.00	-18.55	77.99	4.59	18.60	7.23	-0.55	2.02	-6.74
min MT	-15.00	-18.55	77.99	-12.80	28.11	4.14	0.34	-0.18	-22.57
max MT	-15.00	-18.55	77.99	-0.93	20.02	6.01	-0.30	0.73	22.42
min NS	-3.38	-18.55	77.99	-37.57	0.40	-8.66	0.02	3.10	-1.66
max NS	-735.00	-18.55	70.31	65.50	4.09	57.53	0.91	-0.08	-0.35
min MY	-3.38	-18.55	77.99	-9.48	-14.94	2.71	-0.22	1.76	-6.02
max MY	-3.38	-18.55	77.99	-11.88	29.09	3.41	0.37	1.39	2.19
min MZ	-3.38	-18.55	77.99	-17.60	-3.68	-26.19	0.23	0.97	-2.86
max MZ	-3.38	-18.55	77.99	-8.43	3.25	31.85	-0.45	3.41	-5.32
min VY	-3.38	-18.55	77.99	-13.24	-2.59	17.08	-1.07	1.92	2.83
max VY	-3.38	-18.55	77.99	-10.85	14.05	-10.81	1.09	0.74	-6.76
min VZ	-3.38	-18.55	77.99	-9.32	20.15	1.40	0.52	-0.12	2.49
max VZ	-3.38	-18.55	77.99	-11.50	-1.19	8.67	-0.51	4.18	-2.01
min MT	-3.38	-18.55	77.99	-12.37	13.44	0.71	0.32	2.67	-25.31
max MT	-3.38	-18.55	77.99	-1.34	4.32	9.32	-0.32	2.79	22.35
min NS	-1707.63	-18.57	55.62	-12.22	4.50	2.11	4.23	-2.10	3.64
max NS	-723.38	-18.55	70.49	65.51	-1.01	46.47	0.99	0.85	-1.72
min MY	-1707.63	-18.57	55.62	1.64	-45.29	-15.59	-2.63	-1.27	3.60
max MY	-1707.63	-18.57	55.62	6.71	38.74	11.13	-3.66	-0.38	4.26
min MZ	-1707.63	-18.57	55.62	6.96	-38.70	-24.99	-8.28	-0.83	-6.14
max MZ	-1707.63	-18.57	55.62	1.65	31.63	18.96	3.57	-0.56	9.22
min VY	-1707.63	-18.57	55.62	13.84	-17.18	-17.86	-12.20	-1.52	-3.43
max VY	-1707.63	-18.57	55.62	-5.94	5.80	12.22	6.56	-0.60	6.17
min VZ	-1707.63	-18.57	55.62	6.42	-7.81	-4.29	-5.60	-4.51	-2.78
max VZ	-1707.63	-18.57	55.62	1.95	5.52	-1.03	-0.68	1.57	-1.43
min MT	-1707.63	-18.57	55.62	13.40	-18.42	-14.24	-8.21	-2.14	-20.27
max MT	-1707.63	-18.57	55.62	-7.29	12.16	10.20	3.56	-2.40	23.71
min NS	-1695.00	-18.57	55.81	-12.18	10.28	-52.26	4.29	0.81	6.46
max NS	-657.63	-18.55	71.47	57.43	-4.98	61.01	0.90	-1.12	1.41
min MY	-1695.00	-18.57	55.81	4.64	-45.30	12.71	-2.11	1.50	-6.53
max MY	-1695.00	-18.57	55.81	4.21	43.27	58.99	-4.32	0.93	5.12
min MZ	-1695.00	-18.57	55.81	-6.19	-1.45	-75.17	6.20	0.15	3.62
max MZ	-1695.00	-18.57	55.81	14.28	5.43	139.00	-11.89	0.70	-7.15
min VY	-1695.00	-18.57	55.81	13.86	-7.38	136.17	-12.18	0.11	-5.70
max VY	-1695.00	-18.57	55.81	-5.93	7.28	-70.50	6.54	0.53	4.66
min VZ	-1695.00	-18.57	55.81	5.53	18.96	57.05	-4.90	-2.01	5.89
max VZ	-1695.00	-18.57	55.81	2.93	-12.71	17.14	-1.50	3.79	-4.44
min MT	-1695.00	-18.57	55.81	14.22	-17.89	95.91	-8.77	1.39	-18.36
max MT	-1695.00	-18.57	55.81	-7.99	20.78	-41.17	4.04	0.57	20.26
min NS	-1683.50	-18.57	55.98	-12.17	-6.36	-101.60	4.30	1.74	4.89
max NS	-645.00	-18.55	71.66	57.45	3.65	49.28	0.98	-0.07	-0.11
min MY	-1683.50	-18.57	55.98	3.58	-78.70	34.24	-1.69	4.15	-7.35
max MY	-1683.50	-18.57	55.98	4.91	31.23	110.29	-4.58	0.85	3.43
min MZ	-1683.50	-18.57	55.98	-5.94	-7.74	-148.47	6.37	1.14	2.18
max MZ	-1683.50	-18.57	55.98	13.96	-10.07	276.85	-12.03	2.72	-10.30
min VY	-1683.50	-18.57	55.98	13.89	-18.03	276.17	-12.17	1.54	-7.76

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max VY	-1683.50	-18.57	55.98	-5.92	-6.06	-145.47	6.51	1.53	3.28
min VZ	-1683.50	-18.57	55.98	5.65	18.83	112.00	-4.88	-0.25	2.69
max VZ	-1683.50	-18.57	55.98	3.02	-61.28	36.00	-1.62	6.54	3.21
min MT	-1683.50	-18.57	55.98	14.30	-49.89	197.10	-8.83	4.55	-22.54
max MT	-1683.50	-18.57	55.98	-7.92	-3.15	-87.64	4.03	3.64	22.50
min NS	-1616.50	-18.57	56.99	-26.57	-31.05	89.16	4.31	-2.67	-0.14
max NS	-633.38	-18.55	71.84	57.46	-2.09	37.37	1.06	0.87	-1.48
min MY	-1616.50	-18.57	56.99	-19.57	-77.93	34.51	2.08	-3.86	10.38
max MY	-1616.50	-18.57	56.99	9.36	51.33	6.36	0.18	0.44	-9.88
min MZ	-1616.50	-18.57	56.99	8.25	-42.13	-75.80	-2.72	-1.72	3.76
max MZ	-1616.50	-18.57	56.99	-17.85	3.53	110.53	4.84	-2.98	-4.44
min VY	-1616.50	-18.57	56.99	9.06	-28.15	-71.27	-3.04	-1.92	-4.39
max VY	-1616.50	-18.57	56.99	-17.05	-7.38	107.77	5.05	-1.17	4.03
min VZ	-1616.50	-18.57	56.99	-19.85	-52.24	56.58	2.57	-6.36	-1.13
max VZ	-1616.50	-18.57	56.99	9.69	36.00	2.32	0.25	1.48	-9.84
min MT	-1616.50	-18.57	56.99	3.98	11.58	12.13	0.06	-2.80	-27.85
max MT	-1616.50	-18.57	56.99	-13.94	-36.84	39.23	2.60	-3.78	23.13
min NS	-1605.00	-18.57	57.16	-26.55	-6.16	39.82	4.28	-1.35	-1.95
max NS	-627.63	-18.55	71.95	54.65	-3.50	58.39	0.90	-1.10	1.40
min MY	-1605.00	-18.57	57.16	-18.09	-48.64	7.98	2.35	-1.15	6.08
max MY	-1605.00	-18.57	57.16	8.41	50.90	6.35	-0.47	0.10	-8.75
min MZ	-1605.00	-18.57	57.16	8.02	-28.52	-46.04	-2.47	-0.67	6.48
max MZ	-1605.00	-18.57	57.16	-17.81	23.77	56.19	4.36	-0.84	-3.82
min VY	-1605.00	-18.57	57.16	9.08	-10.57	-36.37	-3.02	-0.94	-5.67
max VY	-1605.00	-18.57	57.16	-17.03	-2.79	50.00	5.00	0.69	2.64
min VZ	-1605.00	-18.57	57.16	-18.37	-6.36	17.60	1.95	-3.67	7.38
max VZ	-1605.00	-18.57	57.16	8.03	21.52	1.39	0.44	3.27	-13.33
min MT	-1605.00	-18.57	57.16	-0.54	23.30	12.58	0.18	0.57	-25.77
max MT	-1605.00	-18.57	57.16	-12.66	-12.31	8.43	2.46	-0.70	19.23
min NS	-1593.38	-18.57	57.34	-26.51	-9.44	-9.66	4.25	1.21	-3.75
max NS	-615.00	-18.55	72.14	54.66	4.17	46.54	0.98	-0.07	-0.11
min MY	-1593.38	-18.57	57.34	-13.89	-56.89	-24.61	2.02	2.64	-9.34
max MY	-1593.38	-18.57	57.34	4.87	41.78	16.22	0.39	0.25	-1.94
min MZ	-1593.38	-18.57	57.34	-11.12	-45.96	-35.09	1.62	1.43	6.75
max MZ	-1593.38	-18.57	57.34	-1.53	29.55	26.45	0.58	1.35	-15.12
min VY	-1593.38	-18.57	57.34	9.10	-8.39	-2.96	-3.00	0.48	-7.70
max VY	-1593.38	-18.57	57.34	-17.01	-19.60	-7.66	4.94	2.12	0.58
min VZ	-1593.38	-18.57	57.34	-12.53	16.99	2.19	1.23	-1.80	5.13
max VZ	-1593.38	-18.57	57.34	-1.13	-23.31	-7.77	1.02	5.41	-6.76
min MT	-1593.38	-18.57	57.34	-0.52	5.04	13.45	0.07	3.07	-28.26
max MT	-1593.38	-18.57	57.34	-12.71	-15.43	-19.73	2.43	2.11	20.39
min NS	-1676.50	-18.57	56.09	-0.74	2.19	0.31	0.01	-5.57	3.89
max NS	-603.38	-18.55	72.32	54.68	-0.95	34.63	1.06	0.85	-1.48
min MY	-1676.50	-18.57	56.09	-0.72	0.40	0.05	0.09	-3.00	5.40
max MY	-1676.50	-18.57	56.09	-0.06	3.85	-0.24	0.11	-7.01	22.43
min MZ	-1676.50	-18.57	56.09	0.49	2.79	-1.40	0.12	-4.45	19.52
max MZ	-1676.50	-18.57	56.09	-0.57	1.72	1.22	-0.04	-4.38	-1.20
min VY	-1676.50	-18.57	56.09	0.66	1.88	-0.42	-0.10	-2.37	10.68
max VY	-1676.50	-18.57	56.09	-0.05	2.93	-0.12	0.18	-5.64	3.84
min VZ	-1676.50	-18.57	56.09	-0.06	3.74	-0.14	0.11	-7.17	11.08
max VZ	-1676.50	-18.57	56.09	0.66	1.87	-0.44	0.10	-2.33	7.66

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MT	-1676.50	-18.57	56.09	-0.05	2.89	0.03	0.11	-5.56	-8.80
max MT	-1676.50	-18.57	56.09	-0.05	2.80	-0.21	-0.03	-5.46	26.77
min NS	-1672.87	-18.57	56.14	-0.71	19.62	0.31	0.00	-4.70	4.15
max NS	-447.63	-18.55	74.65	38.88	-3.95	40.77	0.74	-1.20	1.07
min MY	-1672.87	-18.57	56.14	-0.28	8.47	-1.15	0.02	-2.05	4.95
max MY	-1672.87	-18.57	56.14	-0.05	26.42	-0.60	0.09	-5.85	20.60
min MZ	-1672.87	-18.57	56.14	0.23	19.89	-1.87	0.07	-4.39	18.00
max MZ	-1672.87	-18.57	56.14	-0.29	14.20	1.43	-0.01	-3.48	-0.62
min VY	-1672.87	-18.57	56.14	0.61	9.92	-0.25	-0.09	-2.04	10.25
max VY	-1672.87	-18.57	56.14	-0.04	20.55	-0.76	0.16	-4.76	4.10
min VZ	-1672.87	-18.57	56.14	-0.05	26.05	-0.50	0.09	-6.05	8.37
max VZ	-1672.87	-18.57	56.14	0.62	9.76	-0.60	0.09	-2.00	7.23
min MT	-1672.87	-18.57	56.14	-0.04	19.99	-0.38	0.10	-4.66	-7.58
max MT	-1672.87	-18.57	56.14	-0.04	20.35	-0.09	-0.03	-4.65	24.92
min NS	-1650.00	-18.57	56.49	-0.61	50.03	0.84	-0.04	-1.27	-1.61
max NS	-435.00	-18.55	74.84	38.89	4.42	30.90	0.83	-0.08	0.00
min MY	-1650.00	-18.57	56.49	0.00	31.76	-1.85	-0.04	-0.02	4.50
max MY	-1650.00	-18.57	56.49	0.01	92.83	-1.35	0.00	0.41	2.94
min MZ	-1650.00	-18.57	56.49	0.56	54.91	-3.48	0.03	-0.62	13.41
max MZ	-1650.00	-18.57	56.49	-0.57	57.35	2.54	-0.03	-0.73	-2.49
min VY	-1650.00	-18.57	56.49	0.32	51.12	-1.54	-0.06	-1.23	10.24
max VY	-1650.00	-18.57	56.49	-0.33	68.44	-1.37	0.06	0.78	6.82
min VZ	-1650.00	-18.57	56.49	-0.03	62.63	-0.54	0.00	-1.92	-4.83
max VZ	-1650.00	-18.57	56.49	0.02	79.64	-0.74	0.00	1.31	7.38
min MT	-1650.00	-18.57	56.49	-0.02	57.08	-1.30	0.00	-1.47	-7.38
max MT	-1650.00	-18.57	56.49	-0.01	86.13	0.30	0.00	-0.87	18.72
min NS	-1640.52	-18.57	56.63	-0.54	41.96	1.15	-0.06	0.05	-1.63
max NS	-423.38	-18.55	75.01	38.91	-1.12	20.82	0.90	0.92	-0.96
min MY	-1640.52	-18.57	56.63	0.15	27.92	-1.79	-0.05	0.83	5.66
max MY	-1640.52	-18.57	56.63	0.05	81.13	-1.20	-0.03	2.86	3.75
min MZ	-1640.52	-18.57	56.63	0.54	46.61	-3.33	-0.01	0.80	10.73
max MZ	-1640.52	-18.57	56.63	-0.51	49.72	2.52	-0.01	0.74	-2.26
min VY	-1640.52	-18.57	56.63	0.23	42.72	-1.36	-0.09	0.11	-1.73
max VY	-1640.52	-18.57	56.63	-0.18	60.66	0.63	0.07	2.33	5.69
min VZ	-1640.52	-18.57	56.63	0.00	48.11	-0.48	-0.02	-0.32	-3.93
max VZ	-1640.52	-18.57	56.63	0.06	76.08	-1.24	-0.03	3.18	5.73
min MT	-1640.52	-18.57	56.63	0.00	46.44	-1.13	-0.04	0.02	-6.04
max MT	-1640.52	-18.57	56.63	0.03	75.04	0.27	0.02	1.35	15.11
min NS	-1627.13	-18.57	56.83	-0.25	9.39	0.78	-0.08	2.03	1.40
max NS	-57.63	-18.55	77.94	24.31	-2.75	21.69	-0.04	-1.06	1.23
min MY	-1627.13	-18.57	56.83	0.33	8.88	-1.46	-0.02	2.03	4.73
max MY	-1627.13	-18.57	56.83	0.12	26.41	-0.41	-0.08	5.93	2.34
min MZ	-1627.13	-18.57	56.83	0.37	16.90	-1.73	-0.07	3.72	6.73
max MZ	-1627.13	-18.57	56.83	-0.25	10.88	1.41	0.02	2.21	-1.53
min VY	-1627.13	-18.57	56.83	0.04	9.63	-0.69	-0.16	2.14	-0.54
max VY	-1627.13	-18.57	56.83	0.04	20.22	0.16	0.10	4.67	3.26
min VZ	-1627.13	-18.57	56.83	-0.01	9.05	-0.19	-0.09	2.00	1.63
max VZ	-1627.13	-18.57	56.83	0.12	26.14	-0.45	-0.08	6.06	4.28
min MT	-1627.13	-18.57	56.83	0.05	11.81	-0.34	-0.09	2.40	-3.14
max MT	-1627.13	-18.57	56.83	0.09	21.42	-0.01	0.04	4.65	9.13
min NS	-1623.50	-18.57	56.88	-0.18	1.37	0.00	-0.09	2.35	0.96

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max NS	-45.00	-18.55	77.96	24.31	4.97	22.49	-0.09	0.02	-0.30
min MY	-1623.50	-18.57	56.88	0.28	0.87	-1.04	-0.06	2.95	2.34
max MY	-1623.50	-18.57	56.88	0.14	3.84	-0.07	-0.09	7.01	1.52
min MZ	-1623.50	-18.57	56.88	0.31	2.18	-1.14	-0.12	4.54	5.80
max MZ	-1623.50	-18.57	56.88	-0.17	1.68	1.03	0.06	2.83	-1.49
min VY	-1623.50	-18.57	56.88	0.05	1.25	-0.07	-0.18	2.48	-0.97
max VY	-1623.50	-18.57	56.88	0.10	2.95	-0.01	0.11	5.53	1.99
min VZ	-1623.50	-18.57	56.88	0.04	1.18	-0.04	-0.10	2.32	1.20
max VZ	-1623.50	-18.57	56.88	0.14	3.83	-0.15	-0.09	7.17	5.06
min MT	-1623.50	-18.57	56.88	0.06	1.66	0.00	-0.10	3.17	-2.89
max MT	-1623.50	-18.57	56.88	0.11	3.00	-0.13	0.05	5.71	8.09
max NS	-33.38	-18.55	77.97	24.31	-2.18	23.88	-0.14	1.01	-1.69
min NS	-1798.45	-18.57	54.28	-3.87	34.17	11.70	0.89	-1.60	-5.26
max NS	-30.40	-18.55	77.98	24.31	-5.55	24.30	-0.15	1.26	-2.05
min MY	-1798.45	-18.57	54.28	0.88	1.51	-4.51	-0.17	-0.47	-1.85
max MY	-1798.45	-18.57	54.28	-2.10	55.77	13.86	0.31	-2.05	-7.95
min MZ	-1798.45	-18.57	54.28	1.82	8.65	-8.78	-0.68	0.01	-3.58
max MZ	-1798.45	-18.57	54.28	-3.05	47.46	17.35	0.52	-2.37	-2.28
min VY	-1798.45	-18.57	54.28	2.82	19.18	-2.58	-1.18	-0.98	-1.41
max VY	-1798.45	-18.57	54.28	-3.02	18.22	6.46	1.13	-0.04	-7.05
min VZ	-1798.45	-18.57	54.28	-1.33	38.55	11.95	-0.28	-3.19	3.19
max VZ	-1798.45	-18.57	54.28	0.56	29.21	-1.69	0.13	1.12	-8.98
min MT	-1798.45	-18.57	54.28	-1.17	31.57	7.36	0.28	-1.34	-20.27
max MT	-1798.45	-18.57	54.28	-0.09	31.33	3.88	-0.40	-1.57	10.96
min NS	-1793.88	-18.57	54.34	-3.91	40.58	7.84	0.89	-0.90	-8.51
min MY	-1793.88	-18.57	54.34	0.82	3.04	-4.56	-0.09	0.28	-4.97
max MY	-1793.88	-18.57	54.34	-1.97	65.07	14.19	0.20	-0.48	-0.23
min MZ	-1793.88	-18.57	54.34	0.87	9.08	-7.71	-0.18	0.53	-4.60
max MZ	-1793.88	-18.57	54.34	-2.07	60.91	16.82	0.09	-1.31	-4.07
min VY	-1793.88	-18.57	54.34	2.83	24.52	2.79	-1.20	-0.28	-2.48
max VY	-1793.88	-18.57	54.34	-3.01	18.71	1.86	1.14	0.40	-7.60
min VZ	-1793.88	-18.57	54.34	-0.60	46.47	10.81	-0.45	-2.43	2.62
max VZ	-1793.88	-18.57	54.34	-0.43	32.79	1.12	0.29	2.10	-7.61
min MT	-1793.88	-18.57	54.34	-1.17	36.90	6.87	0.27	-0.45	-20.80
max MT	-1793.88	-18.57	54.34	-0.74	39.04	7.44	-0.24	-0.77	11.00
min NS	-1777.15	-18.57	54.60	-3.88	21.00	-8.09	0.91	1.94	-9.26
max NS	-27.63	-18.55	77.98	24.49	-1.93	22.63	0.01	-1.05	1.44
min MY	-1777.15	-18.57	54.60	0.16	-23.49	-7.17	0.30	2.99	-13.76
max MY	-1777.15	-18.57	54.60	-1.68	46.28	17.09	0.05	1.36	-3.99
min MZ	-1777.15	-18.57	54.60	-2.50	-14.44	-20.25	1.13	2.40	-8.77
max MZ	-1777.15	-18.57	54.60	1.43	37.72	30.08	-1.11	3.10	-10.01
min VY	-1777.15	-18.57	54.60	2.88	5.21	23.53	-1.26	2.18	-6.11
max VY	-1777.15	-18.57	54.60	-2.98	-3.43	-17.95	1.16	1.96	-9.57
min VZ	-1777.15	-18.57	54.60	-0.70	34.64	8.60	-0.11	0.23	-2.05
max VZ	-1777.15	-18.57	54.60	0.06	-8.11	4.13	-0.02	5.01	-7.27
min MT	-1777.15	-18.57	54.60	-1.09	9.52	4.82	0.28	3.11	-24.20
max MT	-1777.15	-18.57	54.60	-0.67	15.16	10.71	-0.21	2.98	10.68
min NS	-1773.50	-18.57	54.65	-3.93	11.45	-11.63	0.92	2.01	-8.42
max NS	-15.00	-18.55	77.99	24.49	4.87	22.84	-0.04	0.02	-0.08
min MY	-1773.50	-18.57	54.65	-0.29	-39.43	-6.03	0.30	3.40	-12.92
max MY	-1773.50	-18.57	54.65	-0.92	41.47	18.55	-0.37	1.46	-2.84

Roadway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MZ	-1773.50	-18.57	54.65	-2.50	-23.73	-24.35	1.13	2.77	-9.27
max MZ	-1773.50	-18.57	54.65	1.49	26.11	34.22	-1.14	4.37	-12.03
min VY	-1773.50	-18.57	54.65	2.89	-3.94	28.22	-1.28	2.88	-6.90
max VY	-1773.50	-18.57	54.65	-2.98	-11.21	-22.18	1.17	2.29	-10.00
min VZ	-1773.50	-18.57	54.65	-0.70	33.23	8.97	-0.11	0.55	-2.47
max VZ	-1773.50	-18.57	54.65	0.10	-26.95	4.10	-0.02	6.34	-5.64
min MT	-1773.50	-18.57	54.65	-1.06	-1.81	4.08	0.28	4.03	-27.06
max MT	-1773.50	-18.57	54.65	0.39	4.17	13.73	-0.44	3.97	13.06
max NS	-3.38	-18.55	77.99	24.49	-1.78	23.63	-0.09	1.00	-1.47

Appendix B

Section forces for the verified sections of the railway girder. Load case 6570 - ULS-combination dynamic wind.

Railway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-1766.50	0.00	54.57	-14.58	-18.48	-2.62	-0.12	-1.57	0.10
max NS	-1854.14	0.00	53.54	0.14	-0.13	0.26	-0.48	0.47	0.14
min MY	-1766.50	0.00	54.57	-1.52	-43.04	2.69	0.28	-2.19	-1.12
max MY	-1766.50	0.00	54.57	-4.07	54.47	-3.10	-0.15	-3.08	-0.09
min MZ	-1766.50	0.00	54.57	-0.19	-12.13	-16.17	-1.14	-1.25	-2.68
max MZ	-1766.50	0.00	54.57	-6.57	-10.93	16.22	1.14	-1.55	2.95
min VY	-1766.50	0.00	54.57	2.07	-10.43	-9.69	-1.16	-1.92	-1.72
max VY	-1766.50	0.00	54.57	-5.93	-9.14	9.88	1.17	-2.22	1.98
min VZ	-1766.50	0.00	54.57	-4.39	-13.70	-3.05	-0.20	-8.44	-1.62
max VZ	-1766.50	0.00	54.57	-0.75	30.18	-3.14	-0.22	0.69	-1.28
min MT	-1766.50	0.00	54.57	4.36	1.46	-5.84	-0.20	-3.63	-14.43
max MT	-1766.50	0.00	54.57	-5.60	12.71	5.92	0.23	-3.92	14.69
min NS	-1755.00	0.00	54.74	-14.58	-5.73	0.69	0.30	-0.52	0.37
max NS	-1848.46	0.00	53.63	0.66	0.55	0.71	-0.12	2.13	0.09
min MY	-1755.00	0.00	54.74	-1.90	-27.07	0.57	0.30	-0.80	0.07
max MY	-1755.00	0.00	54.74	-5.00	84.24	-0.57	-0.13	-0.54	0.34
min MZ	-1755.00	0.00	54.74	2.46	27.55	-4.28	-0.48	-0.39	3.22
max MZ	-1755.00	0.00	54.74	-5.55	30.73	4.26	0.49	-0.39	-2.97
min VY	-1755.00	0.00	54.74	-0.22	-2.29	-2.72	-1.18	-0.51	-2.98
max VY	-1755.00	0.00	54.74	-6.59	1.02	2.75	1.18	-0.51	3.24
min VZ	-1755.00	0.00	54.74	1.22	27.34	-0.66	-0.22	-4.59	-1.51
max VZ	-1755.00	0.00	54.74	-2.78	48.01	-0.58	-0.21	3.08	-1.17
min MT	-1755.00	0.00	54.74	4.16	29.94	-1.08	-0.36	-1.02	-13.01
max MT	-1755.00	0.00	54.74	-5.65	42.91	1.09	0.38	-1.02	13.28
min NS	-1743.38	0.00	54.92	-14.64	-6.96	-2.14	0.31	0.56	0.37
max NS	-1830.07	0.00	53.56	2.72	-85.79	1.68	-0.05	9.26	-0.21
min MY	-1743.38	0.00	54.92	-1.82	-28.08	-1.91	0.22	0.62	-0.16
max MY	-1743.38	0.00	54.92	-3.85	63.84	1.80	-0.21	2.81	-0.71
min MZ	-1743.38	0.00	54.92	-6.59	-0.82	-11.24	1.20	0.55	3.79
max MZ	-1743.38	0.00	54.92	-0.21	-1.97	11.25	-1.20	0.26	-3.53
min VY	-1743.38	0.00	54.92	-0.20	-1.48	11.14	-1.21	0.25	-2.96
max VY	-1743.38	0.00	54.92	-6.58	-0.32	-11.14	1.21	0.55	3.23
min VZ	-1743.38	0.00	54.92	2.92	23.69	1.90	-0.22	-1.69	-1.24
max VZ	-1743.38	0.00	54.92	-4.15	27.26	1.92	-0.22	6.47	-1.60
min MT	-1743.38	0.00	54.92	3.36	17.76	5.16	-0.30	2.06	-13.93
max MT	-1743.38	0.00	54.92	-6.29	28.59	-5.20	0.33	2.36	14.20
min NS	-1737.63	0.00	55.14	-19.97	-9.38	-1.71	-0.03	-0.81	0.22
max NS	-1798.45	0.00	53.92	6.30	66.40	1.14	-0.02	-3.68	2.41
min MY	-1737.63	0.00	55.14	-8.48	-29.58	2.01	0.20	-0.53	0.59
max MY	-1737.63	0.00	55.14	-1.97	56.43	-2.26	-0.11	-2.16	-0.63
min MZ	-1737.63	0.00	55.14	-0.35	3.21	-10.35	-0.71	-0.81	-1.37
max MZ	-1737.63	0.00	55.14	-9.66	-4.11	10.50	0.72	-0.74	1.67
min VY	-1737.63	0.00	55.14	-0.09	11.65	-5.98	-0.88	-2.10	-5.40
max VY	-1737.63	0.00	55.14	-8.20	15.29	6.32	0.90	-2.41	6.16
min VZ	-1737.63	0.00	55.14	2.67	4.41	-1.90	-0.16	-7.23	0.43
max VZ	-1737.63	0.00	55.14	-8.86	30.68	-1.83	-0.15	1.76	-1.57
min MT	-1737.63	0.00	55.14	5.43	18.45	-3.77	-0.04	-2.43	-14.11
max MT	-1737.63	0.00	55.14	-8.96	25.16	3.93	0.07	-2.36	14.40
min NS	-1725.00	0.00	55.33	-20.02	-4.88	-0.47	-0.04	0.29	0.22
max NS	-1793.88	0.00	53.99	6.47	84.79	0.82	-0.04	-1.30	0.66
min MY	-1725.00	0.00	55.33	-12.91	-30.30	0.28	0.18	1.09	0.65

Railway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MY	-1725.00	0.00	55.33	4.79	78.63	-0.36	-0.16	0.36	-0.16
min MZ	-1725.00	0.00	55.33	-8.69	30.49	-3.55	-0.24	1.60	1.79
max MZ	-1725.00	0.00	55.33	3.05	26.67	3.53	0.25	1.21	-1.50
min VY	-1725.00	0.00	55.33	2.47	20.52	-1.26	-0.75	1.05	-2.40
max VY	-1725.00	0.00	55.33	-8.19	22.68	1.33	0.77	1.55	2.19
min VZ	-1725.00	0.00	55.33	3.60	41.35	-0.41	-0.17	-3.36	0.00
max VZ	-1725.00	0.00	55.33	-8.71	30.56	-0.30	-0.16	4.62	-1.53
min MT	-1725.00	0.00	55.33	4.87	34.52	0.23	-0.15	0.38	-12.90
max MT	-1725.00	0.00	55.33	-10.02	29.42	-0.23	0.19	1.46	13.19
min NS	-1713.38	0.00	55.50	-20.13	-15.58	0.82	-0.05	1.31	0.21
max NS	-1777.15	0.00	54.24	6.56	50.10	1.94	-0.04	4.65	1.65
min MY	-1713.38	0.00	55.50	-13.12	-50.88	-1.66	0.21	2.75	0.93
max MY	-1713.38	0.00	55.50	5.73	46.44	1.69	-0.14	2.85	0.26
min MZ	-1713.38	0.00	55.50	-9.63	-14.05	-7.98	0.78	1.56	2.42
max MZ	-1713.38	0.00	55.50	-0.28	-3.07	7.85	-0.77	0.90	-2.12
min VY	-1713.38	0.00	55.50	-0.01	-6.97	4.34	-0.86	3.21	2.22
max VY	-1713.38	0.00	55.50	-8.11	-13.29	-4.52	0.88	3.56	-1.64
min VZ	-1713.38	0.00	55.50	5.13	23.63	1.09	-0.17	-0.73	-0.42
max VZ	-1713.38	0.00	55.50	-10.33	-9.60	1.06	-0.16	8.20	-1.86
min MT	-1713.38	0.00	55.50	3.91	-0.60	3.17	-0.08	3.51	-13.90
max MT	-1713.38	0.00	55.50	-10.15	-3.27	-3.31	0.11	4.17	14.20
min NS	-1587.63	0.00	57.39	-32.07	-21.17	10.68	0.74	-1.68	0.08
max NS	-1773.50	0.00	54.30	6.95	29.78	1.78	-0.05	6.39	0.64
min MY	-1587.63	0.00	57.39	-23.80	-69.79	-10.71	-0.76	-3.93	0.88
max MY	-1587.63	0.00	57.39	9.96	42.94	10.24	0.76	-2.84	-0.21
min MZ	-1587.63	0.00	57.39	-0.09	2.89	-56.26	-4.05	-1.00	-1.36
max MZ	-1587.63	0.00	57.39	-16.57	-20.48	56.07	4.04	-1.67	1.39
min VY	-1587.63	0.00	57.39	-0.11	-0.09	-55.99	-4.06	-1.01	-3.84
max VY	-1587.63	0.00	57.39	-16.60	-22.27	55.79	4.05	-1.68	3.86
min VZ	-1587.63	0.00	57.39	-22.44	-33.22	10.98	0.75	-8.58	2.10
max VZ	-1587.63	0.00	57.39	9.80	27.33	10.75	0.75	0.63	0.52
min MT	-1587.63	0.00	57.39	4.22	-9.17	-11.39	-0.74	-3.20	-24.40
max MT	-1587.63	0.00	57.39	-14.55	-22.85	11.23	0.73	-3.80	24.43
min NS	-1575.00	0.00	57.58	-31.73	-7.17	1.06	0.74	-0.59	0.08
max NS	-1766.50	0.00	54.57	9.26	8.98	-3.35	-0.17	-5.15	0.31
min MY	-1575.00	0.00	57.58	-23.16	-46.87	-1.23	-0.77	-0.81	0.64
max MY	-1575.00	0.00	57.58	9.68	72.01	0.50	0.74	-0.27	0.27
min MZ	-1575.00	0.00	57.58	-0.55	22.99	-6.54	-2.15	0.04	11.89
max MZ	-1575.00	0.00	57.58	-17.04	7.79	6.48	2.13	-0.36	-11.86
min VY	-1575.00	0.00	57.58	-0.10	8.70	-4.93	-4.02	-0.23	-3.85
max VY	-1575.00	0.00	57.58	-16.58	-7.64	4.92	4.01	-0.59	3.87
min VZ	-1575.00	0.00	57.58	-21.62	15.28	0.97	0.75	-4.40	1.80
max VZ	-1575.00	0.00	57.58	10.14	38.39	0.90	0.74	3.31	0.61
min MT	-1575.00	0.00	57.58	4.43	19.77	0.96	-0.88	-0.27	-23.66
max MT	-1575.00	0.00	57.58	-14.38	12.18	-1.00	0.87	-0.56	23.69
min NS	-1563.38	0.00	57.75	-31.44	-7.73	-7.87	0.75	0.48	0.09
max NS	-1755.00	0.00	54.74	9.34	49.29	-0.63	-0.18	-1.31	0.31
min MY	-1563.38	0.00	57.75	-21.40	-45.82	7.88	-0.72	0.78	1.00
max MY	-1563.38	0.00	57.75	8.00	48.82	-7.92	0.79	2.83	-0.52
min MZ	-1563.38	0.00	57.75	-15.68	-5.09	-41.69	3.95	0.48	7.89
max MZ	-1563.38	0.00	57.75	-0.97	1.86	41.85	-3.97	0.48	-7.87

Railway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VY	-1563.38	0.00	57.75	-0.09	6.33	41.52	-3.98	0.52	-3.87
max VY	-1563.38	0.00	57.75	-16.57	-7.30	-41.36	3.96	0.45	3.89
min VZ	-1563.38	0.00	57.75	-18.88	9.40	-8.32	0.76	-1.45	2.41
max VZ	-1563.38	0.00	57.75	8.12	20.52	-8.12	0.73	6.35	1.38
min MT	-1563.38	0.00	57.75	4.55	11.28	11.85	-0.84	2.19	-24.55
max MT	-1563.38	0.00	57.75	-14.25	5.04	-11.82	0.83	2.20	24.58
min NS	-1527.63	0.00	58.29	-26.52	2.76	9.16	0.77	-1.31	-0.23
max NS	-1743.38	0.00	54.92	9.50	37.71	2.21	-0.18	4.12	0.31
min MY	-1527.63	0.00	58.29	3.99	-33.65	-9.43	-0.85	-1.43	-1.68
max MY	-1527.63	0.00	58.29	-15.05	56.12	9.12	0.80	-3.30	-0.85
min MZ	-1527.63	0.00	58.29	-5.70	1.69	-49.04	-4.34	-0.86	-3.01
max MZ	-1527.63	0.00	58.29	-8.03	2.66	48.87	4.32	-1.20	3.03
min VY	-1527.63	0.00	58.29	-0.68	1.60	-48.67	-4.35	-0.76	-5.19
max VY	-1527.63	0.00	58.29	-8.03	3.00	48.50	4.34	-1.12	5.21
min VZ	-1527.63	0.00	58.29	-19.52	7.38	9.53	0.80	-7.44	-0.38
max VZ	-1527.63	0.00	58.29	7.87	32.86	9.00	0.76	0.80	-2.56
min MT	-1527.63	0.00	58.29	-0.28	16.68	7.80	0.87	-2.47	-24.28
max MT	-1527.63	0.00	58.29	-12.66	18.51	-7.81	-0.88	-2.84	24.30
min NS	-1515.00	0.00	58.48	-26.19	12.15	-0.93	0.78	-0.22	-0.23
max NS	-1737.63	0.00	55.14	11.00	33.31	-2.40	-0.11	-3.19	-0.33
min MY	-1515.00	0.00	58.48	7.37	-24.01	1.40	-0.77	-0.24	-0.45
max MY	-1515.00	0.00	58.48	-18.45	84.55	-0.73	0.87	0.33	-0.23
min MZ	-1515.00	0.00	58.48	-8.99	35.18	-7.27	2.65	0.60	8.53
max MZ	-1515.00	0.00	58.48	-7.11	31.40	7.27	-2.61	0.57	-8.49
min VY	-1515.00	0.00	58.48	-0.67	6.52	5.98	-4.30	0.01	-5.20
max VY	-1515.00	0.00	58.48	-8.02	10.52	-5.95	4.29	-0.03	5.22
min VZ	-1515.00	0.00	58.48	-18.72	44.35	-1.10	0.80	-3.37	1.52
max VZ	-1515.00	0.00	58.48	8.45	45.88	-1.05	0.77	3.58	-0.56
min MT	-1515.00	0.00	58.48	-0.34	31.56	-0.10	0.74	0.32	-23.55
max MT	-1515.00	0.00	58.48	-12.72	36.17	0.15	-0.74	0.26	23.57
min NS	-1503.38	0.00	58.65	-26.06	7.08	-10.04	0.83	0.87	-0.22
max NS	-1725.00	0.00	55.33	11.13	52.07	-0.17	-0.12	0.98	-0.33
min MY	-1503.38	0.00	58.65	6.77	-26.93	10.77	-0.82	0.68	-0.82
max MY	-1503.38	0.00	58.65	-18.27	51.17	-10.21	0.80	4.02	1.49
min MZ	-1503.38	0.00	58.65	-7.97	4.90	-55.62	4.22	1.06	4.82
max MZ	-1503.38	0.00	58.65	-5.66	3.05	55.82	-4.24	0.81	-4.80
min VY	-1503.38	0.00	58.65	-0.66	1.67	55.61	-4.25	0.73	-5.22
max VY	-1503.38	0.00	58.65	-8.00	4.29	-55.41	4.23	0.97	5.24
min VZ	-1503.38	0.00	58.65	-10.31	14.95	-10.81	0.80	-0.75	1.29
max VZ	-1503.38	0.00	58.65	-3.55	27.43	-10.38	0.76	6.94	0.19
min MT	-1503.38	0.00	58.65	-0.44	16.01	-7.31	0.76	2.75	-24.28
max MT	-1503.38	0.00	58.65	-12.81	19.39	7.43	-0.77	2.99	24.30
min NS	-1497.63	0.00	59.03	-25.30	-0.21	7.93	0.71	-3.19	0.80
max NS	-1713.38	0.00	55.50	11.31	13.96	2.04	-0.13	4.80	-0.33
min MY	-1497.63	0.00	59.03	-10.47	-27.52	7.79	0.73	-2.76	0.51
max MY	-1497.63	0.00	59.03	-4.48	36.84	7.58	0.73	-2.62	-1.74
min MZ	-1497.63	0.00	59.03	-5.50	0.69	-42.43	-3.98	-0.77	-0.49
max MZ	-1497.63	0.00	59.03	-7.75	1.20	42.28	3.97	-1.05	0.50
min VY	-1497.63	0.00	59.03	-0.75	2.00	-41.92	-4.01	-0.63	-0.60
max VY	-1497.63	0.00	59.03	-7.75	2.37	41.78	4.00	-0.91	0.61
min VZ	-1497.63	0.00	59.03	-13.75	-6.63	7.84	0.74	-7.31	-0.24

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max VZ	-1497.63	0.00	59.03	4.10	25.39	7.74	0.74	0.70	-1.52
min MT	-1497.63	0.00	59.03	-0.90	8.34	7.82	0.94	-2.52	-18.32
max MT	-1497.63	0.00	59.03	-12.67	8.58	-7.83	-0.94	-2.80	18.33
min NS	-1485.00	0.00	59.22	-25.03	27.32	-1.51	0.78	-1.44	0.81
max NS	-1707.63	0.00	55.27	16.34	14.15	-5.57	-0.89	-0.07	-0.04
min MY	-1485.00	0.00	59.22	-5.07	-16.28	-1.62	0.72	-0.15	0.32
max MY	-1485.00	0.00	59.22	-9.31	66.24	-1.40	0.72	0.38	-0.01
min MZ	-1485.00	0.00	59.22	-13.22	12.41	-9.18	3.76	0.05	1.64
max MZ	-1485.00	0.00	59.22	3.26	5.47	9.21	-3.77	0.02	-1.62
min VY	-1485.00	0.00	59.22	-0.74	6.20	8.40	-3.95	0.10	-0.62
max VY	-1485.00	0.00	59.22	-7.74	8.56	-8.37	3.94	0.12	0.63
min VZ	-1485.00	0.00	59.22	-8.17	32.21	-1.51	0.71	-3.15	1.11
max VZ	-1485.00	0.00	59.22	-6.25	39.53	-1.54	0.71	3.39	-0.30
min MT	-1485.00	0.00	59.22	-0.97	25.32	-0.54	0.76	0.32	-17.39
max MT	-1485.00	0.00	59.22	-12.74	27.58	0.59	-0.77	0.33	17.40
min NS	-1473.38	0.00	59.40	-24.93	3.85	-9.76	0.77	2.26	0.81
max NS	-1695.00	0.00	55.46	16.50	11.74	6.70	-0.90	0.92	-0.04
min MY	-1473.38	0.00	59.40	-6.84	-22.08	-9.74	0.73	2.11	0.51
max MY	-1473.38	0.00	59.40	-7.64	32.56	-9.71	0.75	2.68	1.58
min MZ	-1473.38	0.00	59.40	-7.62	1.23	-54.05	3.87	1.02	1.21
max MZ	-1473.38	0.00	59.40	-5.38	0.97	54.25	-3.88	0.73	-1.20
min VY	-1473.38	0.00	59.40	-0.73	0.27	53.96	-3.90	0.78	-0.63
max VY	-1473.38	0.00	59.40	-7.73	0.48	-53.76	3.89	1.07	0.64
min VZ	-1473.38	0.00	59.40	0.97	12.60	-10.07	0.73	-0.60	0.80
max VZ	-1473.38	0.00	59.40	-11.15	6.96	-10.19	0.72	6.93	0.92
min MT	-1473.38	0.00	59.40	-1.07	8.02	-8.32	0.81	2.75	-18.37
max MT	-1473.38	0.00	59.40	-12.84	8.17	8.43	-0.82	3.03	18.38
min NS	-1017.63	0.00	66.23	-22.15	0.20	-4.05	-0.03	-3.84	-0.07
max NS	-1676.50	0.00	55.81	32.73	-6.59	110.96	0.23	-3.10	-2.43
min MY	-1017.63	0.00	66.23	-8.83	-25.82	4.60	0.11	-2.74	0.30
max MY	-1017.63	0.00	66.23	-7.22	25.39	-4.35	-0.11	-2.97	0.35
min MZ	-1017.63	0.00	66.23	-11.94	1.97	-29.01	-1.24	-1.06	-0.14
max MZ	-1017.63	0.00	66.23	2.91	-1.94	29.08	1.24	-0.77	0.15
min VY	-1017.63	0.00	66.23	-2.02	-2.40	-26.83	-1.37	-0.95	-1.07
max VY	-1017.63	0.00	66.23	-5.59	-2.03	26.90	1.37	-0.94	1.08
min VZ	-1017.63	0.00	66.23	-14.38	-5.02	-3.03	-0.08	-7.18	1.10
max VZ	-1017.63	0.00	66.23	-0.54	15.67	-4.24	-0.13	0.34	-0.11
min MT	-1017.63	0.00	66.23	-2.16	-0.40	-4.42	0.10	-3.04	-15.57
max MT	-1017.63	0.00	66.23	-12.77	-0.84	4.59	-0.10	-3.34	15.58
min NS	-1005.00	0.00	66.42	-22.11	25.95	-2.85	-0.04	-1.35	-0.07
max NS	-1672.87	0.00	55.86	32.73	4.64	110.25	0.22	-2.69	-2.45
min MY	-1005.00	0.00	66.42	3.14	-14.51	-2.11	0.08	-0.01	-0.29
max MY	-1005.00	0.00	66.42	-16.05	58.34	-3.62	-0.12	0.05	-0.02
min MZ	-1005.00	0.00	66.42	-6.97	6.96	-16.80	-0.37	0.00	0.61
max MZ	-1005.00	0.00	66.42	-0.63	5.19	16.86	0.37	0.00	-0.60
min VY	-1005.00	0.00	66.42	-2.01	5.02	-9.58	-1.41	-0.06	-1.04
max VY	-1005.00	0.00	66.42	-5.58	5.31	9.65	1.41	-0.06	1.05
min VZ	-1005.00	0.00	66.42	-12.95	32.26	-2.16	-0.01	-2.99	0.57
max VZ	-1005.00	0.00	66.42	-0.87	28.91	-3.58	-0.22	3.06	-0.61
min MT	-1005.00	0.00	66.42	-3.09	17.45	-2.03	-0.01	-0.02	-14.37
max MT	-1005.00	0.00	66.42	-13.69	19.25	2.10	0.01	-0.02	14.38

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-993.38	0.00	66.60	-22.02	1.71	-1.66	-0.04	2.29	-0.07
max NS	-1650.00	0.00	56.21	32.69	37.04	105.18	0.22	0.34	-2.24
min MY	-993.38	0.00	66.60	-3.91	-21.89	-1.21	0.06	2.19	-0.50
max MY	-993.38	0.00	66.60	-11.82	27.21	-1.78	-0.19	2.58	0.84
min MZ	-993.38	0.00	66.60	-6.92	0.10	-21.09	0.76	0.97	0.57
max MZ	-993.38	0.00	66.60	-4.86	0.27	21.15	-0.76	0.70	-0.57
min VY	-993.38	0.00	66.60	-2.00	-0.01	6.76	-1.44	0.75	-1.02
max VY	-993.38	0.00	66.60	-5.56	0.34	-6.70	1.44	0.74	1.03
min VZ	-993.38	0.00	66.60	-0.03	10.24	-1.95	-0.11	-0.39	0.80
max VZ	-993.38	0.00	66.60	-14.33	5.20	-1.92	-0.12	6.63	0.66
min MT	-993.38	0.00	66.60	-2.52	4.12	-1.09	0.06	2.68	-15.30
max MT	-993.38	0.00	66.60	-13.12	3.98	1.06	-0.05	2.95	15.31
min NS	-987.63	0.00	66.68	-22.11	2.26	-4.44	-0.06	-3.49	-0.09
max NS	-1640.52	0.00	56.35	32.58	29.46	103.14	0.22	1.39	-2.19
min MY	-987.63	0.00	66.68	-3.63	-23.32	-3.85	-0.07	-2.84	0.12
max MY	-987.63	0.00	66.68	-12.20	28.63	-4.81	-0.13	-2.90	-0.36
min MZ	-987.63	0.00	66.68	-11.94	2.88	-30.65	-1.35	-1.06	-0.07
max MZ	-987.63	0.00	66.68	2.90	-1.30	30.73	1.36	-0.77	0.08
min VY	-987.63	0.00	66.68	-6.98	-1.53	-28.57	-1.48	-1.09	-0.94
max VY	-987.63	0.00	66.68	-0.64	-1.36	28.65	1.49	-0.80	0.95
min VZ	-987.63	0.00	66.68	-14.42	0.31	-4.12	-0.14	-7.06	1.34
max VZ	-987.63	0.00	66.68	-0.54	16.09	-4.08	-0.14	0.34	-0.21
min MT	-987.63	0.00	66.68	-2.25	2.07	-5.08	0.03	-3.04	-15.45
max MT	-987.63	0.00	66.68	-12.86	1.92	5.26	-0.02	-3.34	15.46
min NS	-975.00	0.00	66.87	-22.07	25.85	-2.81	-0.07	-1.35	-0.09
max NS	-1627.13	0.00	56.55	32.61	2.18	100.29	0.27	2.83	-2.08
min MY	-975.00	0.00	66.87	3.04	-14.23	-2.06	0.04	-0.01	-0.31
max MY	-975.00	0.00	66.87	-16.03	58.01	-3.59	-0.15	-0.03	0.11
min MZ	-975.00	0.00	66.87	-6.97	6.93	-16.60	-0.54	0.00	0.70
max MZ	-975.00	0.00	66.87	-0.64	5.15	16.66	0.54	0.00	-0.70
min VY	-975.00	0.00	66.87	-6.96	6.00	-9.88	-1.52	-0.06	-0.91
max VY	-975.00	0.00	66.87	-0.63	4.23	9.95	1.52	-0.06	0.92
min VZ	-975.00	0.00	66.87	-12.96	31.98	-2.12	-0.04	-2.98	0.58
max VZ	-975.00	0.00	66.87	-0.88	28.78	-3.53	-0.25	3.05	-0.60
min MT	-975.00	0.00	66.87	-3.18	17.38	-2.00	-0.04	-0.02	-14.27
max MT	-975.00	0.00	66.87	-13.78	19.18	2.07	0.05	-0.02	14.28
min NS	-963.38	0.00	67.05	-21.97	3.13	-1.22	-0.08	2.60	-0.09
max NS	-1623.50	0.00	56.60	32.67	-11.24	99.51	0.27	3.25	-2.09
min MY	-963.38	0.00	67.05	-3.96	-21.11	-0.73	0.01	2.30	-0.49
max MY	-963.38	0.00	67.05	-11.88	28.81	-1.26	-0.23	2.65	-0.19
min MZ	-963.38	0.00	67.05	-6.92	0.54	-19.50	0.67	0.97	0.47
max MZ	-963.38	0.00	67.05	-4.87	0.57	19.55	-0.66	0.70	-0.46
min VY	-963.38	0.00	67.05	-6.95	0.51	7.78	-1.56	0.88	-0.89
max VY	-963.38	0.00	67.05	-0.62	0.53	-7.73	1.56	0.61	0.90
min VZ	-963.38	0.00	67.05	-0.07	10.40	-1.51	-0.15	-0.38	0.80
max VZ	-963.38	0.00	67.05	-14.34	7.99	-1.48	-0.15	6.58	0.74
min MT	-963.38	0.00	67.05	-2.59	5.36	-0.58	0.01	2.68	-15.17
max MT	-963.38	0.00	67.05	-13.18	5.36	0.54	-0.01	2.95	15.18
min NS	-747.63	0.00	70.28	-22.11	6.55	-6.46	-0.28	-5.62	-1.10
max NS	-1605.00	0.00	56.81	21.12	20.39	8.57	1.63	-0.69	0.24
min MY	-747.63	0.00	70.28	-4.37	-21.80	-5.66	-0.27	-2.83	0.05

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MY	-747.63	0.00	70.28	-12.09	26.33	-6.64	-0.33	-2.96	-0.42
min MZ	-747.63	0.00	70.28	-11.89	3.08	-38.92	-2.19	-1.06	0.04
max MZ	-747.63	0.00	70.28	2.89	-1.14	39.04	2.20	-0.76	-0.04
min VY	-747.63	0.00	70.28	-7.65	-2.55	-37.74	-2.26	-1.08	-0.53
max VY	-747.63	0.00	70.28	-0.01	1.64	37.86	2.27	-0.79	0.54
min VZ	-747.63	0.00	70.28	-14.52	-0.80	-5.96	-0.34	-7.01	1.32
max VZ	-747.63	0.00	70.28	-0.51	14.79	-5.88	-0.34	0.24	-0.29
min MT	-747.63	0.00	70.28	-2.77	3.07	-6.85	-0.17	-2.89	-14.87
max MT	-747.63	0.00	70.28	-9.04	2.94	7.07	0.18	-3.18	14.88
min NS	-735.00	0.00	70.47	-22.02	43.60	-2.13	-0.28	-0.62	-1.10
max NS	-1593.38	0.00	56.98	20.93	18.37	-10.70	1.64	3.18	0.25
min MY	-735.00	0.00	70.47	-0.47	-11.99	-2.20	-0.25	0.00	-0.24
max MY	-735.00	0.00	70.47	-15.78	55.68	-2.06	-0.26	-0.02	-0.04
min MZ	-735.00	0.00	70.47	-6.96	6.85	-13.25	-1.47	0.01	0.84
max MZ	-735.00	0.00	70.47	-0.69	5.04	13.30	1.48	0.01	-0.84
min VY	-735.00	0.00	70.47	-7.63	4.87	-9.03	-2.31	-0.05	-0.52
max VY	-735.00	0.00	70.47	0.00	7.12	9.09	2.32	-0.05	0.52
min VZ	-735.00	0.00	70.47	-13.02	30.64	-2.17	-0.35	-2.92	0.66
max VZ	-735.00	0.00	70.47	-0.92	27.65	-2.10	-0.35	2.98	-0.65
min MT	-735.00	0.00	70.47	-3.81	16.95	-1.32	-0.23	0.13	-13.65
max MT	-735.00	0.00	70.47	-10.08	18.76	1.38	0.24	0.13	13.65
min NS	-723.38	0.00	70.65	-21.90	8.08	1.95	-0.29	4.94	-1.11
max NS	-1587.63	0.00	57.39	17.76	10.72	10.83	0.75	-0.30	0.20
min MY	-723.38	0.00	70.65	-4.47	-19.43	2.24	-0.19	2.28	-0.54
max MY	-723.38	0.00	70.65	-11.83	26.51	1.76	-0.42	2.69	-0.15
min MZ	-723.38	0.00	70.65	-0.64	0.44	-19.46	2.23	0.69	-0.30
max MZ	-723.38	0.00	70.65	-11.19	0.47	19.45	-2.23	0.97	0.30
min VY	-723.38	0.00	70.65	-7.62	-0.74	17.98	-2.36	0.89	-0.50
max VY	-723.38	0.00	70.65	0.01	3.31	-17.99	2.36	0.62	0.51
min VZ	-723.38	0.00	70.65	3.20	9.13	1.69	-0.32	-0.29	0.70
max VZ	-723.38	0.00	70.65	-15.16	7.03	1.63	-0.32	6.53	0.68
min MT	-723.38	0.00	70.65	-3.02	2.74	2.32	-0.18	2.82	-14.48
max MT	-723.38	0.00	70.65	-9.29	2.75	-2.42	0.19	3.09	14.48
min NS	-657.63	0.00	71.63	-22.12	3.05	-6.42	-0.30	-5.71	-0.12
max NS	-1575.00	0.00	57.58	17.44	10.17	0.99	0.76	0.48	0.20
min MY	-657.63	0.00	71.63	-4.74	-23.66	-6.37	-0.35	-2.55	0.02
max MY	-657.63	0.00	71.63	-11.79	22.04	-6.18	-0.36	-2.94	0.71
min MZ	-657.63	0.00	71.63	-11.23	-0.96	-39.24	-2.36	-1.05	0.14
max MZ	-657.63	0.00	71.63	-0.67	-0.65	39.37	2.37	-0.76	-0.14
min VY	-657.63	0.00	71.63	-6.97	-2.39	-38.27	-2.42	-1.08	-0.37
max VY	-657.63	0.00	71.63	-0.70	-2.05	38.40	2.43	-0.78	0.38
min VZ	-657.63	0.00	71.63	-14.43	-2.30	-5.56	-0.32	-7.11	1.09
max VZ	-657.63	0.00	71.63	-0.70	9.73	-6.62	-0.37	0.22	-0.31
min MT	-657.63	0.00	71.63	-2.88	0.20	-6.68	-0.16	-2.89	-14.80
max MT	-657.63	0.00	71.63	-9.15	-0.15	6.90	0.17	-3.18	14.80
min NS	-645.00	0.00	71.82	-22.03	43.40	-1.79	-0.31	-0.51	-0.12
max NS	-1563.38	0.00	57.75	17.17	0.79	-8.14	0.77	1.16	0.21
min MY	-645.00	0.00	71.82	-0.66	-11.21	-1.84	-0.29	0.01	-0.27
max MY	-645.00	0.00	71.82	-15.56	54.93	-1.70	-0.30	-0.03	-0.12
min MZ	-645.00	0.00	71.82	-6.96	6.87	-11.54	-1.57	0.01	0.73
max MZ	-645.00	0.00	71.82	-0.71	5.02	11.59	1.58	0.01	-0.72

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VY	-645.00	0.00	71.82	-6.95	5.89	-7.60	-2.47	-0.05	-0.36
max VY	-645.00	0.00	71.82	-0.69	4.05	7.64	2.48	-0.05	0.36
min VZ	-645.00	0.00	71.82	-7.85	33.48	-1.87	-0.35	-2.90	0.66
max VZ	-645.00	0.00	71.82	-6.05	24.54	-1.81	-0.35	2.95	-0.59
min MT	-645.00	0.00	71.82	-3.97	16.91	-1.12	-0.27	0.13	-13.53
max MT	-645.00	0.00	71.82	-10.23	18.76	1.17	0.28	0.13	13.53
min NS	-633.38	0.00	72.00	-21.92	3.94	2.57	-0.31	4.89	-0.12
max NS	-1527.63	0.00	58.29	15.19	-5.19	9.36	0.79	-0.66	0.07
min MY	-633.38	0.00	72.00	-4.45	-19.42	2.66	-0.35	2.16	-0.42
max MY	-633.38	0.00	72.00	-11.75	23.95	2.78	-0.35	2.64	1.04
min MZ	-633.38	0.00	72.00	-0.65	0.22	-22.53	2.42	0.69	-0.50
max MZ	-633.38	0.00	72.00	-11.21	0.17	22.50	-2.41	0.96	0.50
min VY	-633.38	0.00	72.00	-6.94	-0.21	21.29	-2.51	0.90	-0.34
max VY	-633.38	0.00	72.00	-0.68	-0.13	-21.31	2.52	0.62	0.34
min VZ	-633.38	0.00	72.00	3.26	13.03	2.48	-0.36	-0.26	0.82
max VZ	-633.38	0.00	72.00	-15.15	-0.42	2.43	-0.36	6.54	0.60
min MT	-633.38	0.00	72.00	-3.13	1.24	2.81	-0.20	2.81	-14.35
max MT	-633.38	0.00	72.00	-9.38	1.15	-2.92	0.21	3.08	14.36
min NS	-627.63	0.00	72.08	-22.09	7.44	-6.48	-0.31	-5.53	-0.11
max NS	-1515.00	0.00	58.48	14.88	-0.94	-0.97	0.80	0.10	0.08
min MY	-627.63	0.00	72.08	-8.86	-21.33	-6.52	-0.35	-2.83	-0.01
max MY	-627.63	0.00	72.08	-7.59	25.73	-6.31	-0.36	-2.96	-0.34
min MZ	-627.63	0.00	72.08	-11.25	-0.17	-39.43	-2.40	-1.06	0.06
max MZ	-627.63	0.00	72.08	-0.66	0.00	39.56	2.41	-0.76	-0.05
min VY	-627.63	0.00	72.08	-6.98	-1.60	-38.46	-2.46	-1.08	-0.61
max VY	-627.63	0.00	72.08	-0.71	-1.45	38.59	2.47	-0.78	0.61
min VZ	-627.63	0.00	72.08	-14.76	-1.17	-6.31	-0.36	-7.01	1.27
max VZ	-627.63	0.00	72.08	-0.33	14.75	-6.12	-0.35	0.23	-0.15
min MT	-627.63	0.00	72.08	-2.89	2.99	-7.27	-0.23	-2.89	-14.75
max MT	-627.63	0.00	72.08	-9.17	2.83	7.49	0.24	-3.18	14.75
min NS	-615.00	0.00	72.27	-22.01	43.15	-1.70	-0.32	-0.52	-0.11
max NS	-1503.38	0.00	58.65	14.77	-5.66	-10.30	0.85	0.72	0.09
min MY	-615.00	0.00	72.27	-0.80	-11.13	-1.76	-0.30	0.01	-0.30
max MY	-615.00	0.00	72.27	-15.45	54.90	-1.61	-0.31	-0.02	-0.11
min MZ	-615.00	0.00	72.27	-6.96	6.82	-11.27	-1.58	0.01	0.75
max MZ	-615.00	0.00	72.27	-0.70	5.03	11.31	1.58	0.01	-0.74
min VY	-615.00	0.00	72.27	-6.97	5.75	-7.24	-2.51	-0.05	-0.59
max VY	-615.00	0.00	72.27	-0.70	3.96	7.29	2.52	-0.05	0.59
min VZ	-615.00	0.00	72.27	-13.00	30.31	-1.79	-0.36	-2.91	0.60
max VZ	-615.00	0.00	72.27	-0.83	27.63	-1.73	-0.36	2.97	-0.52
min MT	-615.00	0.00	72.27	-4.01	16.94	-1.02	-0.30	0.13	-13.52
max MT	-615.00	0.00	72.27	-10.28	18.73	1.07	0.31	0.13	13.52
min NS	-603.38	0.00	72.45	-21.89	6.29	2.79	-0.32	5.04	-0.11
max NS	-1497.63	0.00	59.03	14.46	-3.68	8.00	0.72	-0.65	0.07
min MY	-603.38	0.00	72.45	-4.76	-18.97	2.87	-0.37	2.79	-0.42
max MY	-603.38	0.00	72.45	-11.63	25.90	3.08	-0.37	2.68	-0.18
min MZ	-603.38	0.00	72.45	-0.65	0.39	-23.32	2.46	0.69	-0.17
max MZ	-603.38	0.00	72.45	-11.24	0.40	23.29	-2.45	0.97	0.17
min VY	-603.38	0.00	72.45	-6.95	0.08	22.08	-2.55	0.90	-0.57
max VY	-603.38	0.00	72.45	-0.69	0.08	-22.11	2.56	0.63	0.58
min VZ	-603.38	0.00	72.45	0.34	9.22	2.57	-0.32	-0.27	0.77

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max VZ	-603.38	0.00	72.45	-10.76	6.60	2.75	-0.43	6.52	0.75
min MT	-603.38	0.00	72.45	-3.13	2.60	3.39	-0.25	2.81	-14.32
max MT	-603.38	0.00	72.45	-9.39	2.60	-3.51	0.26	3.08	14.32
min NS	-447.63	0.00	74.78	-21.86	1.25	-5.75	-0.33	-5.79	-0.40
max NS	-1485.00	0.00	59.22	14.22	1.52	-1.56	0.79	0.01	0.08
min MY	-447.63	0.00	74.78	-4.78	-20.32	-5.08	-0.32	-2.95	-0.03
max MY	-447.63	0.00	74.78	-11.83	24.55	-6.02	-0.39	-3.18	-0.25
min MZ	-447.63	0.00	74.78	-6.90	0.21	-34.49	-2.31	-1.22	0.38
max MZ	-447.63	0.00	74.78	-0.70	0.23	34.61	2.32	-0.88	-0.38
min VY	-447.63	0.00	74.78	-6.95	-1.32	-33.56	-2.37	-1.25	-0.25
max VY	-447.63	0.00	74.78	-0.75	-1.29	33.68	2.38	-0.91	0.25
min VZ	-447.63	0.00	74.78	-8.24	-1.40	-5.37	-0.36	-7.16	1.26
max VZ	-447.63	0.00	74.78	-6.83	14.36	-5.20	-0.36	0.04	-1.03
min MT	-447.63	0.00	74.78	-3.14	2.58	-6.33	-0.23	-3.03	-14.36
max MT	-447.63	0.00	74.78	-9.34	2.56	6.55	0.24	-3.37	14.37
min NS	-435.00	0.00	74.97	-21.78	39.32	-0.82	-0.33	-0.61	-0.40
max NS	-1473.38	0.00	59.40	14.18	-3.07	-9.92	0.78	0.65	0.08
min MY	-435.00	0.00	74.97	-1.18	-8.89	-0.90	-0.30	-0.01	-0.33
max MY	-435.00	0.00	74.97	-15.28	54.97	-0.73	-0.31	-0.01	-0.03
min MZ	-435.00	0.00	74.97	-9.49	19.54	-7.98	-0.61	0.49	3.49
max MZ	-435.00	0.00	74.97	-3.30	17.34	7.99	0.68	0.49	-3.48
min VY	-435.00	0.00	74.97	-6.93	7.12	-3.46	-2.42	-0.04	-0.22
max VY	-435.00	0.00	74.97	-0.74	4.92	3.49	2.43	-0.04	0.22
min VZ	-435.00	0.00	74.97	-8.28	30.04	-0.91	-0.37	-2.86	0.53
max VZ	-435.00	0.00	74.97	-5.49	29.78	-0.87	-0.36	2.91	-0.45
min MT	-435.00	0.00	74.97	-4.21	17.76	-0.26	-0.29	0.12	-13.13
max MT	-435.00	0.00	74.97	-10.40	19.96	0.29	0.30	0.12	13.13
min NS	-423.38	0.00	75.13	-21.66	2.56	3.81	-0.34	5.13	-0.40
max NS	-1017.63	0.00	66.23	12.69	-4.46	-4.18	-0.03	-0.70	-0.03
min MY	-423.38	0.00	75.13	-4.82	-17.87	3.78	-0.37	2.75	-0.47
max MY	-423.38	0.00	75.13	-11.58	24.77	3.97	-0.38	2.83	0.28
min MZ	-423.38	0.00	75.13	-0.70	1.07	-25.88	2.39	0.78	-0.44
max MZ	-423.38	0.00	75.13	-11.24	1.18	25.83	-2.38	1.09	0.44
min VY	-423.38	0.00	75.13	-6.92	0.26	24.82	-2.46	1.08	-0.21
max VY	-423.38	0.00	75.13	-0.73	0.14	-24.87	2.47	0.76	0.21
min VZ	-423.38	0.00	75.13	-4.62	8.99	3.42	-0.33	-0.10	0.73
max VZ	-423.38	0.00	75.13	-10.12	6.25	3.50	-0.43	6.65	0.71
min MT	-423.38	0.00	75.13	-3.26	2.42	4.12	-0.24	2.93	-13.92
max MT	-423.38	0.00	75.13	-9.45	2.53	-4.27	0.25	3.24	13.92
min NS	-57.63	0.00	78.07	-19.88	-8.73	-0.35	0.00	-5.14	0.28
max NS	-1005.00	0.00	66.42	12.68	0.73	2.92	0.14	0.01	0.16
min MY	-57.63	0.00	78.07	-4.19	-21.60	-0.39	-0.06	-2.51	0.01
max MY	-57.63	0.00	78.07	-10.99	18.80	-0.11	-0.05	-3.00	1.03
min MZ	-57.63	0.00	78.07	-6.52	-0.46	-12.80	-0.94	-1.00	-1.48
max MZ	-57.63	0.00	78.07	-0.63	-0.12	12.83	0.94	-0.70	1.48
min VY	-57.63	0.00	78.07	-8.61	-4.07	-6.51	-1.05	-2.75	-1.27
max VY	-57.63	0.00	78.07	-2.72	-3.73	6.73	1.05	-2.46	1.27
min VZ	-57.63	0.00	78.07	-7.72	-7.33	-0.13	-0.06	-7.05	0.96
max VZ	-57.63	0.00	78.07	-5.78	11.45	0.09	-0.05	0.10	-0.59
min MT	-57.63	0.00	78.07	-2.93	-0.92	-0.31	0.16	-2.90	-13.83
max MT	-57.63	0.00	78.07	-8.82	-1.26	-0.16	-0.27	-3.19	13.84

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-45.00	0.00	78.09	-19.87	34.38	0.50	-0.01	-0.48	0.28
max NS	-993.38	0.00	66.60	12.66	-3.72	2.04	0.14	0.64	0.16
min MY	-45.00	0.00	78.09	-0.64	-8.13	0.45	0.01	0.00	-0.32
max MY	-45.00	0.00	78.09	-14.38	51.70	0.58	0.01	0.01	0.10
min MZ	-45.00	0.00	78.09	-8.58	17.56	-6.37	0.26	0.44	-2.11
max MZ	-45.00	0.00	78.09	-2.69	15.72	6.36	-0.20	0.44	2.11
min VY	-45.00	0.00	78.09	-6.58	5.53	1.10	-1.04	-0.03	-0.52
max VY	-45.00	0.00	78.09	-0.68	3.69	-1.10	1.04	-0.03	0.52
min VZ	-45.00	0.00	78.09	-12.42	29.87	0.44	-0.06	-2.81	0.44
max VZ	-45.00	0.00	78.09	-0.45	27.19	0.39	-0.06	2.85	-0.21
min MT	-45.00	0.00	78.09	-3.59	16.56	1.13	0.04	0.11	-12.57
max MT	-45.00	0.00	78.09	-9.48	18.40	-0.21	-0.16	0.11	12.57
min NS	-33.38	0.00	78.10	-19.83	-4.19	1.37	-0.01	4.91	0.28
max NS	-987.63	0.00	66.68	12.63	-3.83	-4.58	-0.07	-0.70	-0.04
min MY	-33.38	0.00	78.10	-4.03	-17.39	1.45	-0.05	2.72	-0.05
max MY	-33.38	0.00	78.10	-11.20	20.76	1.67	-0.06	2.96	0.18
min MZ	-33.38	0.00	78.10	-0.64	0.43	-14.37	1.00	0.65	-0.77
max MZ	-33.38	0.00	78.10	-10.89	0.37	14.34	-1.00	0.91	0.77
min VY	-33.38	0.00	78.10	-6.57	-0.80	13.31	-1.07	0.92	-0.50
max VY	-33.38	0.00	78.10	-0.68	-0.74	-13.34	1.08	0.65	0.50
min VZ	-33.38	0.00	78.10	-5.79	7.18	1.24	-0.07	-0.16	0.54
max VZ	-33.38	0.00	78.10	-7.73	2.76	1.03	-0.06	6.46	-1.13
min MT	-33.38	0.00	78.10	-2.73	0.60	-0.99	0.24	2.77	-13.40
max MT	-33.38	0.00	78.10	-8.62	0.53	0.88	-0.24	3.04	13.39
min NS	-27.63	0.00	78.11	-19.79	-3.51	0.22	0.04	-5.39	0.28
max NS	-975.00	0.00	66.87	12.63	0.71	2.87	0.17	0.01	0.15
min MY	-27.63	0.00	78.11	-3.84	-19.02	0.08	0.00	-2.79	0.01
max MY	-27.63	0.00	78.11	-11.19	22.02	0.36	0.00	-3.09	-0.09
min MZ	-27.63	0.00	78.11	-10.87	0.45	-12.12	-0.74	-1.00	-1.49
max MZ	-27.63	0.00	78.11	-0.62	0.53	12.15	0.75	-0.70	1.48
min VY	-27.63	0.00	78.11	-8.48	-0.75	-5.49	-0.92	-2.70	-1.40
max VY	-27.63	0.00	78.11	-2.59	-0.67	5.70	0.93	-2.41	1.41
min VZ	-27.63	0.00	78.11	-7.72	1.89	0.42	-0.01	-6.98	1.23
max VZ	-27.63	0.00	78.11	-5.76	8.08	0.65	-0.01	0.11	-0.59
min MT	-27.63	0.00	78.11	-2.91	1.79	-0.53	0.19	-2.90	-13.80
max MT	-27.63	0.00	78.11	-8.85	1.74	0.66	-0.19	-3.19	13.79
min NS	-15.00	0.00	78.12	-19.78	34.32	0.51	0.04	-0.43	0.28
max NS	-963.38	0.00	67.05	12.61	-3.41	-1.27	-0.08	0.64	-0.04
min MY	-15.00	0.00	78.12	-0.61	-8.24	0.48	0.05	0.02	-0.26
max MY	-15.00	0.00	78.12	-14.35	52.06	0.59	0.05	-0.03	0.10
min MZ	-15.00	0.00	78.12	-8.54	17.49	-6.39	0.20	0.43	-2.11
max MZ	-15.00	0.00	78.12	-2.65	15.66	6.38	-0.13	0.43	2.11
min VY	-15.00	0.00	78.12	-6.55	5.58	0.98	-0.91	0.03	-0.28
max VY	-15.00	0.00	78.12	-0.66	3.74	-0.98	0.91	0.03	0.28
min VZ	-15.00	0.00	78.12	-12.49	34.19	0.46	-0.02	-2.85	0.41
max VZ	-15.00	0.00	78.12	-0.36	23.09	0.41	-0.01	2.86	-0.21
min MT	-15.00	0.00	78.12	-3.55	16.56	0.20	0.12	0.11	-12.57
max MT	-15.00	0.00	78.12	-9.44	18.40	-0.19	-0.12	0.11	12.57
min NS	-3.38	0.00	78.12	-19.75	-1.82	0.87	0.03	5.09	0.28
max NS	-747.63	0.00	70.28	12.16	-3.86	-6.41	-0.27	-0.70	-0.07
min MY	-3.38	0.00	78.12	-3.89	-17.00	0.96	-0.01	2.63	-0.05

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MY	-3.38	0.00	78.12	-11.24	23.57	1.15	-0.02	3.23	0.03
min MZ	-3.38	0.00	78.12	-1.99	0.63	-12.88	0.87	0.79	-0.68
max MZ	-3.38	0.00	78.12	-9.53	0.98	12.86	-0.87	0.77	0.67
min VY	-3.38	0.00	78.12	-6.55	-0.97	11.61	-0.94	0.97	-0.26
max VY	-3.38	0.00	78.12	-0.66	-1.04	-11.63	0.94	0.71	0.26
min VZ	-3.38	0.00	78.12	-5.78	12.32	0.74	-0.02	-0.20	0.42
max VZ	-3.38	0.00	78.12	-7.70	1.50	0.57	-0.02	6.43	-1.21
min MT	-3.38	0.00	78.12	-2.71	1.97	1.14	0.13	2.77	-13.37
max MT	-3.38	0.00	78.12	-8.60	2.03	0.26	-0.17	3.04	13.37
min NS	-1707.63	0.00	55.27	-32.61	-18.98	-4.97	-0.93	-0.61	-1.57
max NS	-735.00	0.00	70.47	12.15	0.66	-2.20	-0.27	0.00	-0.07
min MY	-1707.63	0.00	55.27	-20.38	-63.95	6.15	1.00	0.55	0.14
max MY	-1707.63	0.00	55.27	6.70	45.74	-5.94	-1.01	-2.22	-1.72
min MZ	-1707.63	0.00	55.27	-0.55	-2.62	-25.21	-4.55	-0.41	-5.40
max MZ	-1707.63	0.00	55.27	-16.90	-11.14	25.60	4.55	-0.11	5.06
min VY	-1707.63	0.00	55.27	-0.56	-2.03	-25.07	-4.55	-0.39	-5.38
max VY	-1707.63	0.00	55.27	-16.82	-17.09	25.46	4.56	0.01	5.03
min VZ	-1707.63	0.00	55.27	-11.87	5.93	-4.80	-0.97	-6.77	0.77
max VZ	-1707.63	0.00	55.27	-5.10	-17.53	-5.71	-1.05	2.94	-2.68
min MT	-1707.63	0.00	55.27	-18.26	-1.81	-10.22	-1.46	-1.63	-17.19
max MT	-1707.63	0.00	55.27	6.44	5.70	10.70	1.47	-1.82	16.79
min NS	-1695.00	0.00	55.46	-32.74	-18.30	7.76	-0.93	0.67	-1.57
max NS	-723.38	0.00	70.65	12.13	-3.44	1.77	-0.28	0.64	-0.08
min MY	-1695.00	0.00	55.46	-13.43	-82.04	-6.43	0.97	2.42	-0.56
max MY	-1695.00	0.00	55.46	5.02	64.19	7.07	-0.98	0.76	0.46
min MZ	-1695.00	0.00	55.46	-0.63	-1.90	-33.34	4.52	0.36	2.10
max MZ	-1695.00	0.00	55.46	-16.96	-14.22	33.69	-4.52	0.99	-2.55
min VY	-1695.00	0.00	55.46	-0.55	-1.92	32.76	-4.59	0.51	-5.37
max VY	-1695.00	0.00	55.46	-16.80	-23.48	-32.48	4.59	1.22	5.02
min VZ	-1695.00	0.00	55.46	-9.80	34.40	7.18	-0.98	-3.00	0.31
max VZ	-1695.00	0.00	55.46	-6.69	-23.14	7.34	-1.04	5.86	-2.49
min MT	-1695.00	0.00	55.46	-18.77	-13.71	11.33	-1.62	2.44	-16.04
max MT	-1695.00	0.00	55.46	5.54	-1.67	-10.99	1.62	1.90	15.59
min NS	-1605.00	0.00	56.81	-40.09	-15.25	8.41	1.59	-0.26	0.30
max NS	-657.63	0.00	71.63	11.98	-4.50	-6.53	-0.31	-0.70	-0.10
min MY	-1605.00	0.00	56.81	-27.66	-75.49	-8.35	-1.56	-1.33	1.08
max MY	-1605.00	0.00	56.81	10.14	76.86	7.66	1.56	0.43	0.81
min MZ	-1605.00	0.00	56.81	-20.95	-8.96	-40.11	-7.74	-0.34	-0.57
max MZ	-1605.00	0.00	56.81	-0.22	2.41	40.00	7.72	-0.13	0.61
min VY	-1605.00	0.00	56.81	-21.12	-13.03	-39.01	-7.97	-0.62	-8.02
max VY	-1605.00	0.00	56.81	-0.38	-2.94	38.90	7.95	-0.40	8.07
min VZ	-1605.00	0.00	56.81	-22.04	-14.48	8.45	1.64	-4.58	1.70
max VZ	-1605.00	0.00	56.81	6.12	46.56	-8.48	-1.67	3.82	0.83
min MT	-1605.00	0.00	56.81	6.02	10.28	-8.92	-2.21	-0.20	-22.18
max MT	-1605.00	0.00	56.81	-24.09	-2.25	8.85	2.20	-0.44	22.23
min NS	-1593.38	0.00	56.98	-39.84	-20.44	-10.40	1.60	0.89	0.31
max NS	-645.00	0.00	71.82	11.98	0.67	-1.83	-0.31	0.00	-0.10
min MY	-1593.38	0.00	56.98	-28.49	-70.73	10.28	-1.64	0.66	0.22
max MY	-1593.38	0.00	56.98	11.20	47.46	-10.71	1.59	3.24	0.12
min MZ	-1593.38	0.00	56.98	-0.40	-3.62	-53.69	7.86	0.56	8.44
max MZ	-1593.38	0.00	56.98	-21.13	-13.25	53.87	-7.88	0.65	-8.39

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VY	-1593.38	0.00	56.98	-21.10	-13.20	53.39	-7.93	0.51	-8.03
max VY	-1593.38	0.00	56.98	-0.37	-3.58	-53.21	7.91	0.41	8.08
min VZ	-1593.38	0.00	56.98	-21.01	-27.82	-11.30	1.66	-1.82	2.58
max VZ	-1593.38	0.00	56.98	5.74	15.67	10.47	-1.67	7.22	1.29
min MT	-1593.38	0.00	56.98	6.42	-1.46	17.33	-2.14	2.33	-23.33
max MT	-1593.38	0.00	56.98	-23.68	-12.05	-17.24	2.13	2.41	23.38
min NS	-1676.50	0.00	55.81	-68.45	-56.16	-111.58	-0.18	-7.80	2.46
max NS	-633.38	0.00	72.00	11.96	-3.75	2.59	-0.32	0.64	-0.10
min MY	-1676.50	0.00	55.81	-39.79	-226.72	-109.18	-0.12	-11.58	-2.79
max MY	-1676.50	0.00	55.81	-0.51	75.76	110.46	0.22	-5.65	-1.49
min MZ	-1676.50	0.00	55.81	-1.92	-5.89	-526.34	-1.34	-3.64	18.03
max MZ	-1676.50	0.00	55.81	-35.90	-81.16	526.26	1.36	-5.73	-17.54
min VY	-1676.50	0.00	55.81	-1.44	-66.15	-300.10	-1.93	-6.24	43.87
max VY	-1676.50	0.00	55.81	-35.01	-111.29	299.94	1.97	-7.82	-44.46
min VZ	-1676.50	0.00	55.81	-54.93	-113.27	-114.40	-0.24	-17.61	6.11
max VZ	-1676.50	0.00	55.81	11.10	1.06	113.96	0.28	-1.42	-3.00
min MT	-1676.50	0.00	55.81	11.53	-63.45	140.23	1.51	-7.59	-60.15
max MT	-1676.50	0.00	55.81	-41.37	-106.09	-140.61	-1.46	-9.90	60.65
min NS	-1672.87	0.00	55.86	-68.43	-29.11	-110.79	-0.19	-7.24	2.47
max NS	-627.63	0.00	72.08	11.93	-3.79	-6.58	-0.32	-0.70	-0.11
min MY	-1672.87	0.00	55.86	-36.74	-191.32	115.42	0.45	-9.14	-9.44
max MY	-1672.87	0.00	55.86	-2.32	98.15	-112.39	-0.27	-6.96	0.01
min MZ	-1672.87	0.00	55.86	-1.92	7.04	-521.50	-1.33	-3.22	18.05
max MZ	-1672.87	0.00	55.86	-35.89	-61.41	521.35	1.35	-5.16	-17.56
min VY	-1672.87	0.00	55.86	-1.42	-44.97	-294.09	-1.88	-5.44	44.63
max VY	-1672.87	0.00	55.86	-35.00	-84.64	294.13	1.92	-6.87	-45.22
min VZ	-1672.87	0.00	55.86	-54.98	-60.15	-113.37	-0.24	-15.74	6.11
max VZ	-1672.87	0.00	55.86	11.04	5.60	113.24	0.28	-1.01	-3.01
min MT	-1672.87	0.00	55.86	11.50	-40.33	135.88	1.46	-6.66	-59.24
max MT	-1672.87	0.00	55.86	-41.44	-74.79	-136.16	-1.42	-8.83	59.74
min NS	-1650.00	0.00	56.21	-68.31	90.80	104.08	0.26	-3.32	0.90
max NS	-615.00	0.00	72.27	11.93	0.70	-1.75	-0.32	0.01	-0.11
min MY	-1650.00	0.00	56.21	-1.53	-96.27	105.91	0.43	-0.47	-7.00
max MY	-1650.00	0.00	56.21	-39.84	215.08	-107.20	-0.20	-0.65	3.84
min MZ	-1650.00	0.00	56.21	-18.28	40.57	-492.89	-0.94	0.37	1.62
max MZ	-1650.00	0.00	56.21	-22.37	25.52	492.29	0.96	-0.18	-0.97
min VY	-1650.00	0.00	56.21	-1.35	21.25	-259.02	-1.84	0.16	49.15
max VY	-1650.00	0.00	56.21	-34.92	7.17	258.64	1.88	-0.89	-47.79
min VZ	-1650.00	0.00	56.21	-45.41	68.04	108.55	0.24	-7.10	4.21
max VZ	-1650.00	0.00	56.21	10.24	117.23	-108.35	-0.20	4.88	-2.56
min MT	-1650.00	0.00	56.21	9.52	64.66	103.90	1.44	-0.48	-59.15
max MT	-1650.00	0.00	56.21	-43.10	67.67	-104.44	-1.39	-1.16	59.65
min NS	-1640.52	0.00	56.35	-68.11	84.46	101.75	0.26	2.42	0.95
max NS	-603.38	0.00	72.45	11.91	-3.40	2.79	-0.33	0.64	-0.11
min MY	-1640.52	0.00	56.35	-1.86	-101.07	101.74	0.42	1.29	-9.66
max MY	-1640.52	0.00	56.35	-39.78	211.27	-104.51	-0.24	2.40	2.63
min MZ	-1640.52	0.00	56.35	-36.13	34.63	-487.30	-0.55	0.78	-17.12
max MZ	-1640.52	0.00	56.35	-2.00	28.83	486.56	0.57	0.93	17.61
min VY	-1640.52	0.00	56.35	-1.34	14.92	-246.39	-1.77	1.29	48.83
max VY	-1640.52	0.00	56.35	-34.90	8.57	245.78	1.81	0.72	-47.47
min VZ	-1640.52	0.00	56.35	-42.48	68.37	106.61	0.23	-3.82	4.37

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max VZ	-1640.52	0.00	56.35	-1.43	106.16	-107.02	-0.29	7.56	3.69
min MT	-1640.52	0.00	56.35	8.99	63.52	91.98	1.35	1.98	-59.03
max MT	-1640.52	0.00	56.35	-43.53	71.03	-92.74	-1.31	1.74	59.53
min NS	-1627.13	0.00	56.55	-68.08	37.40	-102.93	-0.13	4.62	2.15
max NS	-447.63	0.00	74.78	11.35	0.45	-5.76	-0.32	-0.83	-0.16
min MY	-1627.13	0.00	56.55	-1.72	-136.78	97.63	0.36	4.29	-6.17
max MY	-1627.13	0.00	56.55	-37.47	146.39	-100.65	-0.25	5.90	4.06
min MZ	-1627.13	0.00	56.55	-36.00	8.70	-480.41	-0.51	2.97	-17.55
max MZ	-1627.13	0.00	56.55	-1.89	4.50	479.43	0.52	2.54	18.05
min VY	-1627.13	0.00	56.55	-1.31	-15.02	-228.01	-1.81	3.25	47.82
max VY	-1627.13	0.00	56.55	-34.86	-19.06	227.30	1.85	3.26	-46.46
min VZ	-1627.13	0.00	56.55	-21.74	30.00	107.28	0.18	-0.18	5.74
max VZ	-1627.13	0.00	56.55	-20.46	31.28	-106.06	-0.27	12.08	3.94
min MT	-1627.13	0.00	56.55	-0.06	14.54	77.74	1.42	5.45	-59.01
max MT	-1627.13	0.00	56.55	-43.60	21.46	-78.71	-1.37	5.79	59.51
min NS	-1623.50	0.00	56.60	-68.12	19.84	-102.36	-0.13	5.19	2.16
max NS	-435.00	0.00	74.97	11.36	5.87	-0.88	-0.33	0.00	-0.16
min MY	-1623.50	0.00	56.60	-2.55	-155.03	96.39	0.35	5.41	-6.10
max MY	-1623.50	0.00	56.60	-36.39	124.88	-99.79	-0.25	6.54	4.08
min MZ	-1623.50	0.00	56.60	-36.08	-6.71	-478.66	-0.49	3.58	-17.91
max MZ	-1623.50	0.00	56.60	-1.97	-7.39	477.62	0.50	3.00	18.41
min VY	-1623.50	0.00	56.60	-1.29	-28.32	-222.30	-1.86	4.15	46.92
max VY	-1623.50	0.00	56.60	-34.85	-32.67	221.81	1.89	4.31	-45.56
min VZ	-1623.50	0.00	56.60	-8.49	25.74	107.53	0.17	0.28	5.58
max VZ	-1623.50	0.00	56.60	-20.36	-10.96	-105.52	-0.27	13.99	4.01
min MT	-1623.50	0.00	56.60	-0.07	-5.06	73.52	1.45	6.41	-60.15
max MT	-1623.50	0.00	56.60	-43.66	-1.34	-74.43	-1.40	6.91	60.65
min NS	-1798.45	0.00	53.92	-5.41	7.34	0.59	-0.02	-0.85	0.81
max NS	-423.38	0.00	75.13	11.33	1.01	3.69	-0.33	0.76	-0.16
min MY	-1798.45	0.00	53.92	1.15	-22.67	-1.13	-0.02	-2.62	-1.67
max MY	-1798.45	0.00	53.92	-0.38	89.62	0.70	-0.02	-2.14	1.51
min MZ	-1798.45	0.00	53.92	0.06	34.84	-4.88	0.01	-1.52	0.92
max MZ	-1798.45	0.00	53.92	1.71	30.77	4.20	0.03	-1.69	0.72
min VY	-1798.45	0.00	53.92	-0.78	34.15	0.75	-0.61	-2.56	-6.22
max VY	-1798.45	0.00	53.92	1.55	31.61	-1.84	0.60	-2.12	8.15
min VZ	-1798.45	0.00	53.92	1.41	24.50	-0.14	-0.06	-6.95	-0.57
max VZ	-1798.45	0.00	53.92	0.72	60.90	0.58	-0.01	2.05	0.04
min MT	-1798.45	0.00	53.92	2.09	37.10	-1.79	0.08	-2.57	-21.23
max MT	-1798.45	0.00	53.92	0.69	34.48	1.27	-0.08	-3.32	21.69
min NS	-1793.88	0.00	53.99	-5.54	12.03	0.24	-0.05	-0.32	0.80
max NS	-57.63	0.00	78.07	8.70	-0.54	0.24	0.12	-0.70	-0.24
min MY	-1793.88	0.00	53.99	1.66	-14.36	-0.88	0.00	-0.95	-1.48
max MY	-1793.88	0.00	53.99	-0.92	106.58	0.93	-0.02	-1.87	-0.41
min MZ	-1793.88	0.00	53.99	0.21	56.40	-5.66	0.15	-1.04	9.24
max MZ	-1793.88	0.00	53.99	1.79	44.13	5.36	-0.11	-0.63	-8.78
min VY	-1793.88	0.00	53.99	0.01	47.51	2.28	-0.60	-1.54	-5.17
max VY	-1793.88	0.00	53.99	1.57	42.73	-2.87	0.59	-0.93	6.47
min VZ	-1793.88	0.00	53.99	1.65	47.91	0.26	-0.06	-5.81	-0.74
max VZ	-1793.88	0.00	53.99	0.62	68.62	0.74	-0.01	3.38	0.29
min MT	-1793.88	0.00	53.99	1.75	46.92	-0.56	0.06	-0.93	-21.47
max MT	-1793.88	0.00	53.99	0.37	47.75	0.19	-0.06	-1.54	21.94

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-1777.15	0.00	54.24	-5.50	-0.69	1.56	-0.05	1.51	0.80
max NS	-45.00	0.00	78.09	8.70	4.63	0.44	-0.01	0.00	-0.23
min MY	-1777.15	0.00	54.24	2.87	-26.05	1.33	0.00	1.71	-0.62
max MY	-1777.15	0.00	54.24	-1.21	79.92	1.69	-0.07	2.54	-1.61
min MZ	-1777.15	0.00	54.24	0.68	6.43	-11.64	0.53	1.31	5.99
max MZ	-1777.15	0.00	54.24	-0.12	11.82	11.84	-0.57	1.37	-5.52
min VY	-1777.15	0.00	54.24	0.12	33.51	6.18	-0.64	3.13	0.91
max VY	-1777.15	0.00	54.24	1.64	16.23	-5.93	0.63	3.31	0.49
min VZ	-1777.15	0.00	54.24	2.24	43.47	1.93	-0.08	-1.69	-3.71
max VZ	-1777.15	0.00	54.24	-0.76	23.12	1.39	-0.02	7.98	0.60
min MT	-1777.15	0.00	54.24	1.55	27.66	1.20	0.10	2.68	-22.25
max MT	-1777.15	0.00	54.24	0.29	33.42	-0.96	-0.10	2.58	22.71
min NS	-1773.50	0.00	54.30	-5.85	-5.74	1.42	-0.06	1.89	0.80
max NS	-33.38	0.00	78.10	8.67	0.34	1.28	-0.01	0.62	-0.23
min MY	-1773.50	0.00	54.30	3.63	-41.75	1.38	-0.04	3.10	-0.53
max MY	-1773.50	0.00	54.30	-1.63	73.67	1.94	-0.09	3.03	-1.90
min MZ	-1773.50	0.00	54.30	1.20	1.01	-13.60	0.54	1.61	5.80
max MZ	-1773.50	0.00	54.30	-0.88	6.57	13.92	-0.58	1.75	-5.32
min VY	-1773.50	0.00	54.30	0.14	20.51	8.23	-0.78	4.27	2.63
max VY	-1773.50	0.00	54.30	1.65	2.40	-7.84	0.77	4.23	-1.01
min VZ	-1773.50	0.00	54.30	2.50	48.63	2.30	-0.08	-1.34	-3.44
max VZ	-1773.50	0.00	54.30	-1.05	-6.84	1.54	-0.02	10.22	1.09
min MT	-1773.50	0.00	54.30	1.51	17.77	0.78	0.21	3.82	-24.12
max MT	-1773.50	0.00	54.30	0.28	23.69	-0.39	-0.21	3.83	24.59
min NS	-1854.14	0.00	53.54	-0.18	2.72	-0.12	0.10	-3.16	-0.17
max NS	-27.63	0.00	78.11	8.44	-0.09	0.19	0.04	-0.74	-0.23
min MY	-1854.14	0.00	53.54	0.14	-0.13	0.08	-0.21	0.48	-0.01
max MY	-1854.14	0.00	53.54	-0.18	2.77	0.02	-0.07	-3.16	-0.01
min MZ	-1854.14	0.00	53.54	-0.02	1.40	-0.71	0.95	-1.51	2.44
max MZ	-1854.14	0.00	53.54	-0.02	1.22	0.66	-0.86	-1.26	-2.44
min VY	-1854.14	0.00	53.54	-0.01	0.77	0.50	-0.95	-0.76	-1.25
max VY	-1854.14	0.00	53.54	-0.01	0.42	-0.52	1.05	-0.39	-0.28
min VZ	-1854.14	0.00	53.54	-0.01	2.60	0.03	-0.09	-3.30	-0.01
max VZ	-1854.14	0.00	53.54	-0.03	-0.01	0.09	-0.22	0.61	-0.01
min MT	-1854.14	0.00	53.54	-0.02	1.24	-0.06	-0.23	-1.30	-3.11
max MT	-1854.14	0.00	53.54	-0.02	1.45	0.02	0.33	-1.64	3.11
min NS	-1848.46	0.00	53.63	-0.64	8.42	-1.42	0.23	-0.85	-0.08
max NS	-15.00	0.00	78.12	8.44	5.00	0.46	0.04	-0.05	-0.23
min MY	-1848.46	0.00	53.63	0.02	-4.62	1.33	-0.22	1.10	-0.01
max MY	-1848.46	0.00	53.63	0.00	11.39	0.52	-0.09	0.19	-0.01
min MZ	-1848.46	0.00	53.63	0.01	4.73	-5.76	0.84	0.67	2.04
max MZ	-1848.46	0.00	53.63	0.00	1.75	5.17	-0.75	0.06	-0.98
min VY	-1848.46	0.00	53.63	0.01	1.59	4.49	-0.85	0.57	0.14
max VY	-1848.46	0.00	53.63	0.01	0.63	-5.13	0.95	0.38	-0.14
min VZ	-1848.46	0.00	53.63	0.61	8.40	0.52	-0.09	-1.06	-0.01
max VZ	-1848.46	0.00	53.63	-0.59	0.59	1.30	-0.22	2.33	-0.01
min MT	-1848.46	0.00	53.63	0.01	3.90	3.21	-0.41	0.67	-2.48
max MT	-1848.46	0.00	53.63	0.01	5.21	-3.85	0.52	0.60	2.48
min NS	-1830.07	0.00	53.56	-2.63	35.60	5.52	-0.26	-3.19	0.11
max NS	-3.38	0.00	78.12	8.41	1.54	0.81	0.03	0.58	-0.23
min MY	-1830.07	0.00	53.56	0.51	-104.83	-7.36	0.36	8.90	0.01

Railway Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MY	-1830.07	0.00	53.56	-0.50	45.16	5.12	-0.15	-1.47	-0.06
min MZ	-1830.07	0.00	53.56	0.02	-11.66	-22.64	0.95	1.25	0.24
max MZ	-1830.07	0.00	53.56	0.01	-4.38	20.36	-0.86	0.43	-0.19
min VY	-1830.07	0.00	53.56	0.01	-4.37	20.36	-0.86	0.43	-0.19
max VY	-1830.07	0.00	53.56	0.05	-30.09	-13.62	0.96	3.29	-1.07
min VZ	-1830.07	0.00	53.56	1.78	35.82	4.91	-0.21	-3.54	-0.01
max VZ	-1830.07	0.00	53.56	-1.33	-88.02	-7.34	0.30	9.72	0.01
min MT	-1830.07	0.00	53.56	0.04	-25.58	3.63	-0.21	3.00	-3.48
max MT	-1830.07	0.00	53.56	0.05	-32.95	-6.20	0.31	3.83	3.53

Appendix C

Section forces for the verified section of the cross girder. Load case 6570 - ULS-combination dynamic wind.

Cross Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-1817.75	4.15	53.66	-1.06	19.02	14.53	2.95	1.38	-5.70
max NS	-1817.75	4.15	53.66	1.17	59.80	-17.73	-2.98	5.90	20.24
min MY	-1817.75	4.15	53.66	0.08	-15.36	-7.06	-0.69	-0.57	-9.35
max MY	-1817.75	4.15	53.66	0.30	145.41	5.21	0.90	13.21	31.76
min MZ	-1817.75	4.15	53.66	1.05	14.83	-20.83	-3.20	1.25	-3.39
max MZ	-1817.75	4.15	53.66	-0.90	101.89	19.70	3.61	9.53	15.68
min VY	-1817.75	4.15	53.66	1.11	43.34	-19.88	-3.25	4.01	9.93
max VY	-1817.75	4.15	53.66	-0.94	95.91	19.35	3.66	8.87	15.15
min VZ	-1817.75	4.15	53.66	-0.22	-9.48	-4.43	-0.24	-1.38	-13.86
max VZ	-1817.75	4.15	53.66	0.52	141.71	1.85	0.32	13.50	34.01
min MT	-1817.75	4.15	53.66	-0.44	16.59	4.94	1.32	0.80	-17.35
max MT	-1817.75	4.15	53.66	0.65	91.69	-2.64	-0.51	9.92	51.51
min NS	-1817.75	8.85	53.66	-1.06	12.37	1.04	2.95	1.22	-5.68
max NS	-1817.75	8.85	53.66	1.17	32.63	-4.11	-2.98	5.18	20.26
min MY	-1817.75	8.85	53.66	0.07	-14.89	-3.50	-0.46	-0.12	-2.45
max MY	-1817.75	8.85	53.66	0.27	86.23	0.77	0.88	11.07	25.96
min MZ	-1817.75	8.85	53.66	0.56	5.04	-6.61	-1.96	1.46	4.66
max MZ	-1817.75	8.85	53.66	-0.43	60.63	4.11	2.42	9.08	26.08
min VY	-1817.75	8.85	53.66	1.11	24.65	-5.04	-3.25	3.56	9.93
max VY	-1817.75	8.85	53.66	-0.94	55.51	2.56	3.66	7.69	15.16
min VZ	-1817.75	8.85	53.66	-0.22	-3.92	-3.33	-0.23	-1.24	-13.60
max VZ	-1817.75	8.85	53.66	0.52	80.55	0.46	0.29	11.83	33.30
min MT	-1817.75	8.85	53.66	-0.44	12.60	-1.11	1.32	0.71	-17.35
max MT	-1817.75	8.85	53.66	0.65	46.48	-0.36	-0.51	8.46	51.51
min NS	-1817.75	11.55	53.66	-1.06	5.48	-7.87	2.94	3.10	-5.67
max NS	-1817.75	11.55	53.66	1.17	10.32	4.95	-2.99	9.15	20.26
min MY	-1817.75	11.55	53.66	0.13	-20.11	-1.89	-0.51	3.86	8.26
max MY	-1817.75	11.55	53.66	-0.01	43.07	-2.48	1.00	16.71	21.34
min MZ	-1817.75	11.55	53.66	-0.86	15.38	-9.62	3.22	10.76	16.58
max MZ	-1817.75	11.55	53.66	1.04	8.85	5.95	-2.60	9.93	24.29
min VY	-1817.75	11.55	53.66	1.11	8.47	4.81	-3.25	6.77	9.93
max VY	-1817.75	11.55	53.66	-0.94	24.35	-8.51	3.66	12.47	15.15
min VZ	-1817.75	11.55	53.66	-0.21	-2.42	-3.34	-0.27	-0.29	-13.91
max VZ	-1817.75	11.55	53.66	0.31	32.41	-1.84	0.94	18.55	34.77
min MT	-1817.75	11.55	53.66	-0.44	7.59	-5.08	1.32	2.38	-17.35
max MT	-1817.75	11.55	53.66	0.65	10.78	1.25	-0.52	14.56	51.51
min NS	-1770.00	4.15	53.58	-1.04	119.82	-23.59	-4.02	2.20	-18.11
max NS	-1770.00	4.15	53.58	1.05	122.26	-6.57	-0.45	3.65	6.59
min MY	-1770.00	4.15	53.58	-0.17	61.62	-13.16	-2.20	0.81	-4.88
max MY	-1770.00	4.15	53.58	0.22	220.26	-7.46	-0.42	7.54	-2.58
min MZ	-1770.00	4.15	53.58	0.20	110.96	-42.70	-7.08	2.98	2.37
max MZ	-1770.00	4.15	53.58	0.11	143.07	16.80	3.69	4.28	-10.00
min VY	-1770.00	4.15	53.58	0.12	110.83	-41.82	-7.38	2.43	-4.33
max VY	-1770.00	4.15	53.58	-0.03	135.51	15.70	3.92	3.80	-10.73
min VZ	-1770.00	4.15	53.58	0.14	74.85	-5.87	-0.58	-0.11	-5.67
max VZ	-1770.00	4.15	53.58	0.06	216.52	-23.30	-3.62	8.45	-3.49
min MT	-1770.00	4.15	53.58	-0.03	141.07	-0.89	1.16	3.36	-43.07
max MT	-1770.00	4.15	53.58	0.15	137.91	-25.33	-4.24	4.37	33.23
min NS	-1770.00	8.85	53.56	-0.97	97.75	-4.22	-4.11	1.72	-15.11
max NS	-1770.00	8.85	53.56	1.25	139.50	-3.62	0.89	6.65	7.82
min MY	-1770.00	8.85	53.56	-0.07	56.63	-2.93	-2.28	1.51	-4.10

Cross Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MY	-1770.00	8.85	53.56	0.45	185.24	-5.35	-0.39	7.51	-3.27
min MZ	-1770.00	8.85	53.56	0.25	147.24	-13.64	-2.93	5.58	9.07
max MZ	-1770.00	8.85	53.56	0.12	85.91	5.73	-0.85	1.55	-19.99
min VY	-1770.00	8.85	53.56	0.22	98.76	-7.23	-7.38	2.74	-4.66
max VY	-1770.00	8.85	53.56	0.18	117.23	-2.90	3.91	4.03	-10.75
min VZ	-1770.00	8.85	53.56	0.08	74.63	-2.96	-0.57	0.13	-5.37
max VZ	-1770.00	8.85	53.56	0.36	176.30	-6.30	-3.64	8.76	-3.70
min MT	-1770.00	8.85	53.56	0.17	124.48	-2.31	1.14	3.67	-43.13
max MT	-1770.00	8.85	53.56	0.31	116.94	-6.66	-4.26	4.60	32.95
min NS	-1770.00	11.55	53.73	-0.85	92.68	7.81	-4.11	1.86	-14.27
max NS	-1770.00	11.55	53.73	1.70	132.20	-5.61	0.84	7.80	5.32
min MY	-1770.00	11.55	53.73	0.12	51.77	3.28	-2.31	1.98	-2.88
max MY	-1770.00	11.55	53.73	0.88	164.70	-4.95	-0.28	7.53	-3.78
min MZ	-1770.00	11.55	53.73	0.65	123.69	-14.02	3.37	5.27	11.08
max MZ	-1770.00	11.55	53.73	0.09	87.36	15.52	-5.81	2.48	-11.65
min VY	-1770.00	11.55	53.73	0.40	91.05	13.17	-7.38	2.91	-4.51
max VY	-1770.00	11.55	53.73	0.44	106.06	-12.24	3.91	4.15	-11.17
min VZ	-1770.00	11.55	53.73	0.10	74.11	-1.16	-0.55	0.26	-5.52
max VZ	-1770.00	11.55	53.73	0.90	152.11	3.92	-3.66	8.91	-3.79
min MT	-1770.00	11.55	53.73	0.40	115.49	-2.50	1.24	3.87	-43.26
max MT	-1770.00	11.55	53.73	0.60	104.24	3.13	-4.23	4.72	32.83
min NS	-1740.00	4.15	54.03	-0.98	66.19	3.45	0.75	1.14	0.23
max NS	-1740.00	4.15	54.03	1.13	106.31	-13.33	-2.43	4.24	-0.07
min MY	-1740.00	4.15	54.03	-0.33	33.32	-3.73	-0.70	0.28	0.22
max MY	-1740.00	4.15	54.03	0.29	143.98	-5.01	-0.78	5.35	-0.71
min MZ	-1740.00	4.15	54.03	0.27	78.63	-20.60	-3.75	2.21	-0.67
max MZ	-1740.00	4.15	54.03	-0.23	51.31	11.98	2.26	1.05	2.03
min VY	-1740.00	4.15	54.03	0.35	104.20	-20.49	-3.77	3.61	-0.32
max VY	-1740.00	4.15	54.03	-0.25	51.62	11.88	2.26	1.05	1.99
min VZ	-1740.00	4.15	54.03	-0.27	42.31	-1.41	-0.19	-0.41	0.10
max VZ	-1740.00	4.15	54.03	0.51	139.15	-10.50	-1.86	5.86	-1.78
min MT	-1740.00	4.15	54.03	0.11	83.50	-0.04	0.36	2.62	-17.59
max MT	-1740.00	4.15	54.03	0.18	93.09	-11.78	-2.01	2.77	17.50
min NS	-1740.00	8.85	54.01	-0.95	54.64	-0.40	0.68	0.91	0.66
max NS	-1740.00	8.85	54.01	1.29	89.15	-2.01	-2.40	4.60	-0.36
min MY	-1740.00	8.85	54.01	-0.27	31.32	-0.44	-0.71	0.60	-0.04
max MY	-1740.00	8.85	54.01	0.41	119.45	-1.05	-0.48	5.23	-0.83
min MZ	-1740.00	8.85	54.01	0.29	71.96	-3.71	-2.84	1.82	10.23
max MZ	-1740.00	8.85	54.01	-0.09	54.37	1.90	1.44	1.11	-9.82
min VY	-1740.00	8.85	54.01	0.49	86.92	-2.90	-3.77	3.77	-0.46
max VY	-1740.00	8.85	54.01	-0.21	46.44	1.25	2.26	1.18	2.06
min VZ	-1740.00	8.85	54.01	-0.26	43.93	-1.04	-0.76	-0.27	0.38
max VZ	-1740.00	8.85	54.01	0.61	111.55	-1.25	-1.29	6.02	-2.03
min MT	-1740.00	8.85	54.01	0.21	70.95	0.90	0.36	2.75	-17.56
max MT	-1740.00	8.85	54.01	0.28	79.76	-2.98	-2.01	2.94	17.37
min NS	-1740.00	11.55	54.19	-0.89	43.10	-2.11	0.78	0.70	-0.34
max NS	-1740.00	11.55	54.19	1.57	78.50	4.61	-2.42	4.76	-0.45
min MY	-1740.00	11.55	54.19	-0.17	29.24	1.95	-1.01	0.88	0.66
max MY	-1740.00	11.55	54.19	0.69	105.26	0.37	-0.50	5.20	-1.11
min MZ	-1740.00	11.55	54.19	-0.20	46.17	-5.83	2.14	1.08	9.53
max MZ	-1740.00	11.55	54.19	0.57	71.39	8.21	-3.58	2.85	-11.25

Cross Girder - Load case 6570

criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VY	-1740.00	11.55	54.19	0.72	76.51	7.39	-3.77	3.84	-0.35
max VY	-1740.00	11.55	54.19	-0.13	43.09	-5.04	2.26	1.27	1.96
min VZ	-1740.00	11.55	54.19	-0.25	44.56	1.15	-0.83	-0.19	0.53
max VZ	-1740.00	11.55	54.19	0.81	95.01	0.24	-0.51	6.08	-2.25
min MT	-1740.00	11.55	54.19	0.37	63.36	1.50	0.38	2.81	-17.51
max MT	-1740.00	11.55	54.19	0.47	71.61	1.55	-2.04	3.02	17.32
min NS	-1710.00	4.15	54.39	-6.65	62.18	14.23	2.55	1.10	0.89
max NS	-1710.00	4.15	54.39	11.57	65.91	-33.11	-5.95	1.72	1.06
min MY	-1710.00	4.15	54.39	2.46	38.40	-5.00	-0.93	0.32	-1.77
max MY	-1710.00	4.15	54.39	0.60	168.00	-10.12	-1.82	5.80	2.76
min MZ	-1710.00	4.15	54.39	9.90	66.62	-42.28	-7.49	1.63	-0.55
max MZ	-1710.00	4.15	54.39	-4.84	71.50	24.07	4.23	1.91	3.95
min VY	-1710.00	4.15	54.39	9.87	66.17	-42.26	-7.49	1.59	-0.64
max VY	-1710.00	4.15	54.39	-4.82	73.06	24.02	4.23	1.87	3.52
min VZ	-1710.00	4.15	54.39	-2.61	51.35	10.30	1.81	-0.53	-1.95
max VZ	-1710.00	4.15	54.39	6.80	158.30	-27.15	-4.89	6.47	5.19
min MT	-1710.00	4.15	54.39	-3.34	92.57	4.94	0.92	2.53	-21.62
max MT	-1710.00	4.15	54.39	7.46	114.24	-22.49	-4.09	3.52	23.95
min NS	-1710.00	8.85	54.38	-6.60	56.82	2.24	2.56	1.45	0.87
max NS	-1710.00	8.85	54.38	11.63	57.47	-5.32	-5.96	1.54	0.76
min MY	-1710.00	8.85	54.38	2.67	36.05	-0.56	-0.92	0.57	-1.05
max MY	-1710.00	8.85	54.38	0.64	141.43	-1.71	-1.77	5.74	2.45
min MZ	-1710.00	8.85	54.38	8.49	61.07	-7.65	-7.26	1.64	5.22
max MZ	-1710.00	8.85	54.38	-3.26	62.57	4.63	3.76	1.59	-5.99
min VY	-1710.00	8.85	54.38	9.93	58.33	-7.23	-7.50	1.47	-0.97
max VY	-1710.00	8.85	54.38	-4.75	64.29	4.11	4.24	2.17	3.71
min VZ	-1710.00	8.85	54.38	3.65	50.91	0.07	-1.52	-0.31	-1.38
max VZ	-1710.00	8.85	54.38	2.13	130.50	-2.20	-2.34	6.49	4.37
min MT	-1710.00	8.85	54.38	-3.24	80.65	1.41	0.90	2.78	-21.57
max MT	-1710.00	8.85	54.38	7.56	97.27	-4.17	-4.04	3.49	23.75
min NS	-1710.00	11.55	54.56	-6.50	52.95	-4.74	2.55	1.88	0.53
max NS	-1710.00	11.55	54.56	11.74	61.35	10.67	-5.76	2.15	1.12
min MY	-1710.00	11.55	54.56	2.74	34.31	1.92	-0.89	0.65	-0.43
max MY	-1710.00	11.55	54.56	1.00	125.67	3.01	-1.83	5.80	2.62
min MZ	-1710.00	11.55	54.56	-4.02	63.15	-8.63	3.88	2.09	15.79
max MZ	-1710.00	11.55	54.56	8.92	61.65	14.26	-7.06	1.05	-13.38
min VY	-1710.00	11.55	54.56	10.02	54.77	13.31	-7.51	1.13	-0.84
max VY	-1710.00	11.55	54.56	-4.60	57.85	-7.69	4.25	2.55	3.63
min VZ	-1710.00	11.55	54.56	5.36	51.15	4.95	-2.55	-0.52	-0.85
max VZ	-1710.00	11.55	54.56	0.42	113.07	1.66	-1.06	6.68	3.91
min MT	-1710.00	11.55	54.56	-3.05	73.10	1.77	0.90	3.08	-21.52
max MT	-1710.00	11.55	54.56	7.80	88.09	5.45	-4.05	3.29	23.77
min NS	-1680.00	4.15	54.83	-10.35	314.95	-241.60	-19.57	11.07	-12.89
max NS	-1680.00	4.15	54.83	6.35	158.19	150.07	12.30	3.50	-47.87
min MY	-1680.00	4.15	54.83	0.36	86.60	110.13	8.40	1.65	-14.14
max MY	-1680.00	4.15	54.83	-5.12	395.10	-197.86	-16.08	13.23	-20.69
min MZ	-1680.00	4.15	54.83	-7.56	214.70	-287.83	-23.09	6.04	19.29
max MZ	-1680.00	4.15	54.83	2.03	107.33	197.21	14.35	2.37	-18.47
min VY	-1680.00	4.15	54.83	-7.61	212.87	-287.62	-23.12	6.00	20.20
max VY	-1680.00	4.15	54.83	2.61	109.87	195.46	14.41	2.30	-21.21
min VZ	-1680.00	4.15	54.83	1.03	109.50	90.51	7.03	0.32	-10.45

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max VZ	-1680.00	4.15	54.83	-6.06	389.63	-198.63	-16.32	14.03	-17.82
min MT	-1680.00	4.15	54.83	1.97	210.86	120.79	9.93	6.28	-81.65
max MT	-1680.00	4.15	54.83	-6.15	222.72	-233.23	-19.33	5.28	54.58
min NS	-1680.00	8.85	54.81	-9.93	262.16	-149.94	-19.56	11.79	-17.09
max NS	-1680.00	8.85	54.81	6.49	140.72	94.21	12.31	3.69	-44.02
min MY	-1680.00	8.85	54.81	-0.04	76.89	70.81	8.19	2.47	-12.04
max MY	-1680.00	8.85	54.81	-4.39	333.33	-120.64	-15.84	13.47	-22.24
min MZ	-1680.00	8.85	54.81	-5.65	167.41	-182.31	-21.41	6.05	-2.87
max MZ	-1680.00	8.85	54.81	1.96	97.25	131.10	14.17	2.57	-19.74
min VY	-1680.00	8.85	54.81	-7.37	183.88	-180.25	-23.12	6.77	13.31
max VY	-1680.00	8.85	54.81	2.70	98.24	128.81	14.42	2.59	-16.32
min VZ	-1680.00	8.85	54.81	1.44	106.47	64.59	7.92	0.64	-9.73
max VZ	-1680.00	8.85	54.81	-6.47	321.13	-147.62	-19.07	14.76	-22.55
min MT	-1680.00	8.85	54.81	0.95	181.46	26.55	4.66	6.88	-78.90
max MT	-1680.00	8.85	54.81	-4.65	196.25	-93.90	-14.02	5.73	49.26
min NS	-1680.00	11.55	54.99	-9.18	230.76	-95.73	-19.50	11.94	-19.39
max NS	-1680.00	11.55	54.99	6.74	138.63	63.41	12.24	4.11	-36.86
min MY	-1680.00	11.55	54.99	-1.10	69.42	14.50	3.21	3.20	-13.09
max MY	-1680.00	11.55	54.99	-2.21	296.16	-41.82	-10.79	13.49	-23.31
min MZ	-1680.00	11.55	54.99	-5.24	153.19	-124.14	-21.38	6.09	-6.00
max MZ	-1680.00	11.55	54.99	2.28	93.56	93.42	14.17	2.62	-14.97
min VY	-1680.00	11.55	54.99	-6.91	164.37	-117.63	-23.12	7.51	-3.55
max VY	-1680.00	11.55	54.99	2.87	91.04	90.24	14.42	2.67	-9.37
min VZ	-1680.00	11.55	54.99	2.40	108.51	44.39	8.59	0.72	-10.60
max VZ	-1680.00	11.55	54.99	-5.87	278.49	-95.84	-19.53	15.44	-27.60
min MT	-1680.00	11.55	54.99	0.91	210.41	-19.96	-2.85	8.92	-79.16
max MT	-1680.00	11.55	54.99	-3.29	145.16	-24.54	-7.67	5.41	46.45
min NS	-1620.00	4.15	55.89	-10.15	202.38	116.02	6.80	7.81	5.90
max NS	-1620.00	4.15	55.89	9.47	188.63	-68.26	-0.41	3.64	18.80
min MY	-1620.00	4.15	55.89	-4.49	77.69	18.47	-0.86	0.98	-3.58
max MY	-1620.00	4.15	55.89	2.59	310.91	40.74	9.27	10.03	-15.37
min MZ	-1620.00	4.15	55.89	2.41	105.19	-150.87	-6.66	1.83	-5.66
max MZ	-1620.00	4.15	55.89	-2.61	145.08	201.35	13.55	3.71	5.60
min VY	-1620.00	4.15	55.89	4.17	129.72	-121.07	-9.67	2.90	25.23
max VY	-1620.00	4.15	55.89	-1.32	163.87	175.18	17.28	4.13	-16.35
min VZ	-1620.00	4.15	55.89	1.99	108.98	-52.86	3.68	-0.42	-26.60
max VZ	-1620.00	4.15	55.89	-3.18	296.79	102.23	6.27	10.85	12.45
min MT	-1620.00	4.15	55.89	0.84	221.60	45.00	10.85	5.74	-76.45
max MT	-1620.00	4.15	55.89	-1.06	159.31	16.15	-4.06	4.16	66.72
min NS	-1620.00	8.85	55.87	-9.89	161.86	84.19	6.72	7.92	8.30
max NS	-1620.00	8.85	55.87	9.60	170.66	-66.93	-0.41	3.77	16.46
min MY	-1620.00	8.85	55.87	-5.17	70.78	25.89	-1.25	2.20	1.50
max MY	-1620.00	8.85	55.87	3.07	265.72	-13.70	9.53	9.58	-16.27
min MZ	-1620.00	8.85	55.87	2.47	97.20	-121.24	-5.82	1.74	-10.50
max MZ	-1620.00	8.85	55.87	-2.71	127.67	139.44	12.87	4.40	11.64
min VY	-1620.00	8.85	55.87	4.28	115.55	-76.71	-9.67	3.08	22.48
max VY	-1620.00	8.85	55.87	-1.16	143.89	94.96	17.28	4.59	-12.87
min VZ	-1620.00	8.85	55.87	2.23	110.87	-57.88	3.54	-0.19	-27.49
max VZ	-1620.00	8.85	55.87	-3.40	244.14	75.83	6.88	11.39	12.37
min MT	-1620.00	8.85	55.87	1.29	195.77	-14.58	10.57	6.13	-76.50
max MT	-1620.00	8.85	55.87	-1.08	136.51	27.49	-3.83	4.44	67.40

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min NS	-1620.00	11.55	56.04	-9.39	139.39	65.28	6.66	8.21	12.11
max NS	-1620.00	11.55	56.04	9.82	160.98	-66.64	-0.42	3.48	12.32
min MY	-1620.00	11.55	56.04	-5.21	63.36	32.23	-1.16	3.30	8.24
max MY	-1620.00	11.55	56.04	3.73	240.03	-33.66	9.52	9.45	-18.52
min MZ	-1620.00	11.55	56.04	5.16	131.98	-105.71	0.53	2.52	-22.02
max MZ	-1620.00	11.55	56.04	-5.24	84.87	105.35	8.22	3.73	14.95
min VY	-1620.00	11.55	56.04	4.47	107.39	-51.52	-9.67	3.03	18.59
max VY	-1620.00	11.55	56.04	-0.86	131.22	48.39	17.28	4.90	-8.48
min VZ	-1620.00	11.55	56.04	3.78	115.19	-60.49	-0.90	-0.21	-24.91
max VZ	-1620.00	11.55	56.04	-3.87	209.08	58.52	6.83	11.87	15.78
min MT	-1620.00	11.55	56.04	2.28	180.08	-56.69	8.52	6.09	-78.96
max MT	-1620.00	11.55	56.04	-1.47	123.91	54.22	0.18	4.93	70.14
min NS	-1590.00	4.15	56.19	-3.17	88.93	17.86	3.94	1.96	0.17
max NS	-1590.00	4.15	56.19	4.44	124.86	-7.03	-1.84	4.12	1.66
min MY	-1590.00	4.15	56.19	0.34	37.88	-2.85	-0.67	0.39	5.35
max MY	-1590.00	4.15	56.19	0.67	184.17	13.04	2.66	6.30	-6.50
min MZ	-1590.00	4.15	56.19	1.77	52.48	-42.05	-8.44	0.99	-7.59
max MZ	-1590.00	4.15	56.19	-0.83	71.42	52.51	10.37	1.34	2.44
min VY	-1590.00	4.15	56.19	1.84	53.58	-41.98	-8.46	0.88	-5.92
max VY	-1590.00	4.15	56.19	-0.93	71.98	52.44	10.39	1.28	3.10
min VZ	-1590.00	4.15	56.19	-0.63	50.98	18.55	3.66	-0.66	-17.04
max VZ	-1590.00	4.15	56.19	2.27	172.82	-18.49	-3.67	6.90	0.21
min MT	-1590.00	4.15	56.19	-1.13	111.79	6.82	1.63	3.19	-40.17
max MT	-1590.00	4.15	56.19	2.16	104.76	-0.39	-0.23	3.25	35.27
min NS	-1590.00	8.85	56.18	-3.13	69.62	-0.94	3.99	1.31	-0.85
max NS	-1590.00	8.85	56.18	4.63	117.59	2.22	-1.95	5.30	-1.28
min MY	-1590.00	8.85	56.18	0.46	35.00	0.01	-0.84	0.85	9.39
max MY	-1590.00	8.85	56.18	0.79	155.09	0.88	2.80	6.21	-9.09
min MZ	-1590.00	8.85	56.18	0.25	103.84	-4.51	-4.95	4.21	18.99
max MZ	-1590.00	8.85	56.18	1.70	81.58	5.66	7.23	1.73	-22.72
min VY	-1590.00	8.85	56.18	1.87	49.03	-2.26	-8.46	1.00	-6.15
max VY	-1590.00	8.85	56.18	-0.87	65.48	3.79	10.39	1.55	3.41
min VZ	-1590.00	8.85	56.18	-0.53	53.49	2.07	3.40	-0.49	-17.08
max VZ	-1590.00	8.85	56.18	1.78	140.42	-1.13	-1.75	7.09	2.09
min MT	-1590.00	8.85	56.18	-1.04	96.51	0.64	1.58	3.41	-40.18
max MT	-1590.00	8.85	56.18	2.30	89.01	-0.58	-0.20	3.42	35.31
min NS	-1590.00	11.55	56.36	-3.04	66.53	-11.22	4.00	1.47	-1.52
max NS	-1590.00	11.55	56.36	4.96	105.37	6.79	-2.00	5.49	-0.66
min MY	-1590.00	11.55	56.36	0.57	32.20	1.38	-0.86	1.10	13.77
max MY	-1590.00	11.55	56.36	1.05	138.26	-6.06	2.88	4.94	-13.22
min MZ	-1590.00	11.55	56.36	-0.85	62.35	-25.29	10.33	1.74	7.95
max MZ	-1590.00	11.55	56.36	1.97	45.26	21.53	-8.42	1.04	-9.28
min VY	-1590.00	11.55	56.36	1.94	46.29	21.21	-8.46	1.00	-5.60
max VY	-1590.00	11.55	56.36	-0.76	61.00	-24.80	10.40	1.73	2.81
min VZ	-1590.00	11.55	56.36	1.27	54.21	3.46	-0.76	-0.43	-15.32
max VZ	-1590.00	11.55	56.36	0.93	121.52	-5.77	2.18	7.17	0.33
min MT	-1590.00	11.55	56.36	-0.81	86.99	-1.42	1.66	3.56	-40.19
max MT	-1590.00	11.55	56.36	2.53	79.62	-3.35	-0.24	3.44	35.22
min NS	-1560.00	4.15	56.62	-0.68	69.64	-18.85	-3.87	1.41	-3.80
max NS	-1560.00	4.15	56.62	1.56	123.20	17.64	3.57	4.19	1.32
min MY	-1560.00	4.15	56.62	-0.15	34.85	7.70	1.63	0.36	1.00

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MY	-1560.00	4.15	56.62	0.86	170.03	-5.31	-1.09	5.98	-0.10
min MZ	-1560.00	4.15	56.62	-0.09	50.45	-32.27	-6.73	1.05	-4.17
max MZ	-1560.00	4.15	56.62	0.59	65.12	35.97	7.44	1.07	2.86
min VY	-1560.00	4.15	56.62	-0.09	50.21	-32.21	-6.74	0.98	-5.30
max VY	-1560.00	4.15	56.62	0.58	65.34	35.91	7.46	1.10	4.00
min VZ	-1560.00	4.15	56.62	0.10	46.88	19.64	4.02	-0.49	-5.89
max VZ	-1560.00	4.15	56.62	0.66	161.03	-16.06	-3.33	6.57	-0.76
min MT	-1560.00	4.15	56.62	0.71	108.49	10.51	1.98	3.24	-21.44
max MT	-1560.00	4.15	56.62	0.35	90.12	-7.76	-1.40	2.81	19.71
min NS	-1560.00	8.85	56.61	-0.64	52.52	-0.55	-3.78	0.82	-3.27
max NS	-1560.00	8.85	56.61	1.74	116.37	0.97	3.52	5.18	0.20
min MY	-1560.00	8.85	56.61	-0.08	32.36	0.05	1.52	0.77	1.74
max MY	-1560.00	8.85	56.61	1.03	142.47	0.00	-0.98	5.84	-0.63
min MZ	-1560.00	8.85	56.61	0.38	88.74	-2.49	-3.81	3.57	13.22
max MZ	-1560.00	8.85	56.61	0.75	78.21	2.70	4.67	2.12	-13.76
min VY	-1560.00	8.85	56.61	-0.06	45.34	-0.53	-6.74	1.10	-5.42
max VY	-1560.00	8.85	56.61	0.62	59.84	0.95	7.46	1.24	4.14
min VZ	-1560.00	8.85	56.61	0.09	48.81	1.06	4.00	-0.37	-5.79
max VZ	-1560.00	8.85	56.61	0.85	129.99	-0.61	-3.42	6.71	-0.50
min MT	-1560.00	8.85	56.61	0.83	92.94	2.03	1.95	3.37	-21.35
max MT	-1560.00	8.85	56.61	0.46	76.69	-1.97	-1.37	2.92	19.63
min NS	-1560.00	11.55	56.79	-0.58	46.38	10.17	-3.78	0.73	-3.72
max NS	-1560.00	11.55	56.79	2.07	102.45	-8.50	3.45	5.24	0.05
min MY	-1560.00	11.55	56.79	0.02	29.94	-4.10	1.44	0.99	2.47
max MY	-1560.00	11.55	56.79	1.38	126.58	2.46	-0.90	5.80	-1.34
min MZ	-1560.00	11.55	56.79	0.67	55.85	-19.80	7.44	1.28	4.62
max MZ	-1560.00	11.55	56.79	0.11	41.84	18.26	-6.73	1.23	-5.33
min VY	-1560.00	11.55	56.79	0.06	42.23	18.22	-6.75	1.17	-4.91
max VY	-1560.00	11.55	56.79	0.71	56.38	-19.67	7.46	1.29	3.60
min VZ	-1560.00	11.55	56.79	0.08	49.66	-9.54	4.02	-0.31	-6.00
max VZ	-1560.00	11.55	56.79	1.27	111.53	8.79	-3.44	6.74	-0.21
min MT	-1560.00	11.55	56.79	1.06	83.75	-2.16	2.02	3.41	-21.34
max MT	-1560.00	11.55	56.79	0.64	68.66	0.74	-1.44	2.96	19.58
min NS	-1530.00	4.15	57.07	-1.35	97.28	-17.86	-3.82	1.90	2.08
max NS	-1530.00	4.15	57.07	0.66	97.79	14.22	3.00	3.73	-1.05
min MY	-1530.00	4.15	57.07	-0.41	37.69	8.49	1.78	0.35	2.17
max MY	-1530.00	4.15	57.07	-0.44	165.97	-6.95	-1.45	5.88	1.21
min MZ	-1530.00	4.15	57.07	-0.26	50.93	-33.98	-7.14	1.04	-2.29
max MZ	-1530.00	4.15	57.07	-0.15	64.31	36.49	7.61	0.99	2.76
min VY	-1530.00	4.15	57.07	-0.28	50.81	-33.91	-7.15	1.03	-3.77
max VY	-1530.00	4.15	57.07	-0.16	64.16	36.43	7.62	0.98	3.47
min VZ	-1530.00	4.15	57.07	-0.30	51.54	20.16	4.22	-0.46	0.28
max VZ	-1530.00	4.15	57.07	-0.53	156.60	-18.60	-3.91	6.56	0.51
min MT	-1530.00	4.15	57.07	-0.12	98.41	9.76	1.88	3.11	-20.01
max MT	-1530.00	4.15	57.07	-0.39	100.76	-7.76	-1.47	2.94	20.30
max NS	-1530.00	8.85	57.06	0.80	80.31	0.28	3.02	3.84	-0.91
max NS	-1530.00	11.55	57.24	1.04	69.76	-8.03	3.05	3.89	-0.94
max NS	-1500.00	4.15	57.52	0.94	124.27	-10.46	-2.28	4.38	-5.40
min MY	-1500.00	4.15	57.52	-0.35	38.99	6.52	1.44	0.42	5.33
max MY	-1500.00	4.15	57.52	0.07	173.35	-7.24	-1.53	5.91	-2.46
min MZ	-1500.00	4.15	57.52	0.03	52.36	-32.92	-6.98	1.07	-0.64

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MZ	-1500.00	4.15	57.52	-0.12	66.02	34.15	7.22	1.06	1.25
min VY	-1500.00	4.15	57.52	0.04	52.13	-32.79	-6.99	1.06	-2.28
max VY	-1500.00	4.15	57.52	-0.14	66.33	34.04	7.22	1.06	2.30
min VZ	-1500.00	4.15	57.52	-0.26	51.96	17.84	3.80	-0.37	6.23
max VZ	-1500.00	4.15	57.52	-0.02	164.11	-17.27	-3.66	6.82	-4.52
min MT	-1500.00	4.15	57.52	-0.02	114.80	7.75	1.51	3.86	-21.95
max MT	-1500.00	4.15	57.52	-0.03	95.60	-8.47	-1.59	2.68	20.06
min NS	-1500.00	8.85	57.51	-0.98	70.95	-0.56	3.61	1.52	4.88
max NS	-1500.00	8.85	57.51	1.10	103.64	0.43	-2.29	4.55	-4.76
min MY	-1500.00	8.85	57.51	-0.27	36.06	-0.17	1.34	0.94	2.37
max MY	-1500.00	8.85	57.51	0.24	145.57	-0.13	-1.40	5.92	-1.50
min MZ	-1500.00	8.85	57.51	-0.22	77.12	-2.52	-2.44	2.16	11.36
max MZ	-1500.00	8.85	57.51	0.15	92.84	2.44	2.55	2.53	-12.30
min VY	-1500.00	8.85	57.51	0.08	46.91	0.01	-6.99	1.18	-2.39
max VY	-1500.00	8.85	57.51	-0.09	60.99	0.23	7.22	1.23	2.42
min VZ	-1500.00	8.85	57.51	-0.26	53.36	-0.26	3.73	-0.25	6.28
max VZ	-1500.00	8.85	57.51	0.23	131.94	0.24	-3.44	6.98	-4.63
min MT	-1500.00	8.85	57.51	0.13	96.43	1.47	1.49	4.02	-21.89
max MT	-1500.00	8.85	57.51	0.10	82.78	-1.74	-1.54	2.80	19.99
min NS	-1500.00	11.55	57.69	-0.88	61.42	-10.63	3.63	1.20	3.37
max NS	-1500.00	11.55	57.69	1.40	96.95	6.79	-2.27	5.04	-3.82
min MY	-1500.00	11.55	57.69	-0.07	33.17	-3.61	1.40	1.21	-0.79
max MY	-1500.00	11.55	57.69	0.61	129.33	3.60	-1.33	5.96	-1.22
min MZ	-1500.00	11.55	57.69	-0.02	57.42	-19.87	7.21	1.31	3.56
max MZ	-1500.00	11.55	57.69	0.17	43.68	19.39	-6.98	1.24	-3.68
min VY	-1500.00	11.55	57.69	0.16	43.61	19.16	-6.99	1.24	-1.83
max VY	-1500.00	11.55	57.69	0.00	57.50	-19.65	7.23	1.32	1.85
min VZ	-1500.00	11.55	57.69	-0.26	54.07	-10.58	3.69	-0.16	5.87
max VZ	-1500.00	11.55	57.69	0.67	112.68	9.70	-3.40	7.04	-4.23
min MT	-1500.00	11.55	57.69	0.39	85.39	-1.52	1.60	4.09	-21.88
max MT	-1500.00	11.55	57.69	0.28	75.05	1.48	-1.64	2.86	19.97
min NS	-1470.00	4.15	57.97	-1.03	79.02	9.74	2.10	1.57	-1.87
max NS	-1470.00	4.15	57.97	0.94	125.63	-5.75	-1.21	4.41	2.23
min MY	-1470.00	4.15	57.97	-0.34	39.25	6.53	1.39	0.52	-0.07
max MY	-1470.00	4.15	57.97	0.07	176.46	-6.02	-1.28	6.03	1.18
min MZ	-1470.00	4.15	57.97	-0.06	50.63	-30.62	-6.57	0.93	-0.94
max MZ	-1470.00	4.15	57.97	-0.03	67.38	31.67	6.75	1.36	-0.18
min VY	-1470.00	4.15	57.97	-0.07	50.61	-30.53	-6.59	0.95	-2.50
max VY	-1470.00	4.15	57.97	-0.10	67.19	31.57	6.79	1.16	3.21
min VZ	-1470.00	4.15	57.97	-0.18	51.56	9.24	1.92	-0.26	-1.50
max VZ	-1470.00	4.15	57.97	-0.08	167.79	-14.87	-3.15	6.82	0.55
min MT	-1470.00	4.15	57.97	0.05	111.72	7.60	1.43	3.43	-21.82
max MT	-1470.00	4.15	57.97	-0.04	100.64	-6.65	-1.20	3.06	22.04
min NS	-1470.00	8.85	57.96	-0.96	71.94	-0.06	1.88	1.71	-1.78
max NS	-1470.00	8.85	57.96	1.10	104.64	-0.14	-1.07	4.54	2.14
min MY	-1470.00	8.85	57.96	-0.27	35.75	0.08	1.36	0.99	-0.21
max MY	-1470.00	8.85	57.96	0.26	148.36	0.01	-1.25	6.01	0.42
min MZ	-1470.00	8.85	57.96	-0.04	77.23	-2.71	-1.59	2.28	11.87
max MZ	-1470.00	8.85	57.96	-0.05	97.57	2.72	1.79	2.78	-11.00
min VY	-1470.00	8.85	57.96	-0.04	45.92	0.40	-6.59	1.07	-2.59
max VY	-1470.00	8.85	57.96	-0.05	61.42	-0.34	6.79	1.32	3.30

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VZ	-1470.00	8.85	57.96	-0.17	52.59	0.35	1.88	-0.14	-1.43
max VZ	-1470.00	8.85	57.96	0.18	135.53	-0.17	-3.09	6.98	0.56
min MT	-1470.00	8.85	57.96	0.18	95.32	1.70	1.32	3.59	-21.75
max MT	-1470.00	8.85	57.96	0.11	84.22	-1.79	-1.17	3.15	21.96
min NS	-1470.00	11.55	58.14	-0.85	67.81	-4.93	1.83	1.71	-1.59
max NS	-1470.00	11.55	58.14	1.40	92.62	2.56	-1.05	4.62	2.32
min MY	-1470.00	11.55	58.14	-0.10	32.77	-3.29	1.23	1.20	-0.58
max MY	-1470.00	11.55	58.14	0.58	131.89	3.14	-1.15	6.05	0.59
min MZ	-1470.00	11.55	58.14	0.07	57.70	-19.29	6.78	1.43	4.65
max MZ	-1470.00	11.55	58.14	0.05	43.05	18.82	-6.58	1.11	-4.23
min VY	-1470.00	11.55	58.14	0.04	42.91	18.51	-6.60	1.14	-2.04
max VY	-1470.00	11.55	58.14	0.06	57.67	-19.01	6.79	1.41	2.74
min VZ	-1470.00	11.55	58.14	-0.15	54.39	-4.42	1.74	-0.07	-1.69
max VZ	-1470.00	11.55	58.14	0.61	114.90	8.16	-3.07	7.05	0.92
min MT	-1470.00	11.55	58.14	0.41	85.43	-0.83	1.42	3.66	-21.72
max MT	-1470.00	11.55	58.14	0.32	75.52	0.31	-1.27	3.21	21.91
min NS	-1320.00	4.15	60.22	-1.02	82.83	6.60	1.43	1.65	-0.27
max NS	-1320.00	4.15	60.22	0.94	130.34	-3.39	-0.74	4.55	0.02
min MY	-1320.00	4.15	60.22	-0.33	43.15	3.74	0.79	0.66	-0.49
max MY	-1320.00	4.15	60.22	0.11	180.15	-2.93	-0.64	6.11	0.86
min MZ	-1320.00	4.15	60.22	-0.04	53.19	-19.56	-4.20	1.00	-0.62
max MZ	-1320.00	4.15	60.22	-0.05	72.64	19.79	4.24	1.52	1.12
min VY	-1320.00	4.15	60.22	-0.03	53.42	-19.42	-4.22	1.01	-2.77
max VY	-1320.00	4.15	60.22	-0.13	72.41	19.67	4.26	1.33	3.21
min VZ	-1320.00	4.15	60.22	-0.22	57.95	9.58	2.01	-0.13	-0.77
max VZ	-1320.00	4.15	60.22	-0.05	171.24	-9.44	-2.00	6.95	0.29
min MT	-1320.00	4.15	60.22	-0.07	98.37	3.51	0.58	3.01	-19.97
max MT	-1320.00	4.15	60.22	0.01	121.24	-3.42	-0.56	3.52	20.32
min NS	-1320.00	8.85	60.21	-0.96	75.38	-0.10	1.39	1.79	-0.34
max NS	-1320.00	8.85	60.21	1.10	108.53	0.10	-0.74	4.68	-0.01
min MY	-1320.00	8.85	60.21	-0.26	39.01	0.06	0.76	1.11	-0.15
max MY	-1320.00	8.85	60.21	0.31	151.65	0.07	-0.62	6.10	0.25
min MZ	-1320.00	8.85	60.21	-0.05	82.33	-2.58	-1.14	2.40	10.07
max MZ	-1320.00	8.85	60.21	0.02	102.18	2.55	1.20	2.87	-9.36
min VY	-1320.00	8.85	60.21	0.01	48.41	0.39	-4.22	1.13	-2.83
max VY	-1320.00	8.85	60.21	-0.08	65.83	-0.38	4.27	1.49	3.26
min VZ	-1320.00	8.85	60.21	-0.17	57.39	0.26	1.16	-0.01	-0.74
max VZ	-1320.00	8.85	60.21	0.20	138.40	-0.12	-1.95	7.11	0.23
min MT	-1320.00	8.85	60.21	0.04	83.68	1.41	0.58	3.08	-19.93
max MT	-1320.00	8.85	60.21	0.14	104.44	-1.47	-0.54	3.68	20.27
min NS	-1320.00	11.55	60.39	-0.84	70.92	-3.93	1.42	1.81	-0.52
max NS	-1320.00	11.55	60.39	1.40	95.74	2.14	-0.76	4.76	0.14
min MY	-1320.00	11.55	60.39	-0.09	35.70	-1.89	0.69	1.31	-0.03
max MY	-1320.00	11.55	60.39	0.61	134.94	1.69	-0.60	6.12	0.31
min MZ	-1320.00	11.55	60.39	0.03	61.62	-12.51	4.26	1.59	4.85
max MZ	-1320.00	11.55	60.39	0.10	45.31	12.37	-4.22	1.21	-4.41
min VY	-1320.00	11.55	60.39	0.08	45.21	12.08	-4.22	1.20	-2.46
max VY	-1320.00	11.55	60.39	0.03	61.62	-12.21	4.27	1.59	2.89
min VZ	-1320.00	11.55	60.39	-0.11	57.66	0.85	-0.22	0.06	-0.31
max VZ	-1320.00	11.55	60.39	0.65	118.82	5.11	-1.93	7.17	0.52
min MT	-1320.00	11.55	60.39	0.23	75.57	0.83	0.65	3.14	-19.85

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MT	-1320.00	11.55	60.39	0.38	94.28	-1.09	-0.60	3.76	20.18
min NS	-1230.00	4.15	61.57	-1.02	97.50	2.70	0.59	1.95	-0.30
max NS	-1230.00	4.15	61.57	0.90	107.09	-0.78	-0.18	4.00	-0.35
min MY	-1230.00	4.15	61.57	-0.33	39.36	2.28	0.49	0.56	-0.47
max MY	-1230.00	4.15	61.57	0.07	175.45	-1.75	-0.38	5.97	0.22
min MZ	-1230.00	4.15	61.57	-0.07	57.16	-15.04	-3.23	1.06	-1.02
max MZ	-1230.00	4.15	61.57	-0.15	59.28	15.05	3.25	0.99	1.91
min VY	-1230.00	4.15	61.57	-0.06	50.91	-14.91	-3.25	0.88	-2.89
max VY	-1230.00	4.15	61.57	-0.13	66.02	14.94	3.26	1.19	2.91
min VZ	-1230.00	4.15	61.57	-0.15	51.90	0.55	0.06	-0.24	-0.36
max VZ	-1230.00	4.15	61.57	-0.09	168.47	-0.60	-0.09	6.79	-0.28
min MT	-1230.00	4.15	61.57	-0.08	113.56	2.06	0.30	3.29	-19.56
max MT	-1230.00	4.15	61.57	-0.02	98.37	-2.20	-0.30	2.97	19.55
min NS	-1230.00	8.85	61.56	-0.96	73.86	-0.06	0.56	1.70	-0.36
max NS	-1230.00	8.85	61.56	1.06	102.73	-0.01	-0.15	4.51	-0.42
min MY	-1230.00	8.85	61.56	-0.25	35.72	0.02	0.46	1.00	-0.24
max MY	-1230.00	8.85	61.56	0.27	147.68	0.03	-0.35	5.94	-0.02
min MZ	-1230.00	8.85	61.56	-0.07	87.40	-2.55	-0.88	2.46	9.17
max MZ	-1230.00	8.85	61.56	0.00	91.07	2.47	0.90	2.54	-8.95
min VY	-1230.00	8.85	61.56	-0.03	46.52	0.37	-3.25	1.00	-2.93
max VY	-1230.00	8.85	61.56	-0.08	60.11	-0.40	3.26	1.35	2.95
min VZ	-1230.00	8.85	61.56	-0.15	52.74	0.26	0.05	-0.12	-0.38
max VZ	-1230.00	8.85	61.56	0.16	136.42	-0.18	-0.06	6.96	-0.20
min MT	-1230.00	8.85	61.56	0.03	97.30	1.31	0.29	3.40	-19.53
max MT	-1230.00	8.85	61.56	0.09	84.21	-1.44	-0.28	3.09	19.51
min NS	-1230.00	11.55	61.74	-0.84	69.61	-1.62	0.59	1.71	-0.48
max NS	-1230.00	11.55	61.74	1.34	90.51	0.52	-0.17	4.60	-0.32
min MY	-1230.00	11.55	61.74	-0.11	32.73	-1.10	0.40	1.17	-0.13
max MY	-1230.00	11.55	61.74	0.56	131.39	0.97	-0.34	5.97	0.02
min MZ	-1230.00	11.55	61.74	0.27	87.14	-9.82	2.83	3.57	16.37
max MZ	-1230.00	11.55	61.74	0.05	42.41	9.72	-3.24	1.08	-4.67
min VY	-1230.00	11.55	61.74	0.04	42.29	9.41	-3.25	1.07	-2.64
max VY	-1230.00	11.55	61.74	0.01	57.68	-9.49	3.26	1.45	2.66
min VZ	-1230.00	11.55	61.74	-0.13	53.25	0.17	0.05	-0.05	-0.40
max VZ	-1230.00	11.55	61.74	0.60	117.27	-0.05	-0.05	7.03	-0.03
min MT	-1230.00	11.55	61.74	0.26	88.48	1.49	0.35	3.49	-19.43
max MT	-1230.00	11.55	61.74	0.29	75.66	-1.73	-0.34	3.15	19.41
min NS	-1110.00	4.15	63.37	-1.00	79.40	0.07	0.03	1.57	-0.12
max NS	-1110.00	4.15	63.37	0.90	124.79	0.45	0.10	4.37	-0.56
min MY	-1110.00	4.15	63.37	-0.31	39.69	0.76	0.16	0.58	-0.30
max MY	-1110.00	4.15	63.37	0.08	174.76	-0.16	-0.05	5.95	0.12
min MZ	-1110.00	4.15	63.37	-0.12	104.05	-12.11	-2.31	3.46	-7.72
max MZ	-1110.00	4.15	63.37	-0.10	121.89	12.32	2.37	3.79	8.20
min VY	-1110.00	4.15	63.37	-0.07	49.38	-10.58	-2.34	0.88	-4.27
max VY	-1110.00	4.15	63.37	-0.08	123.34	12.00	2.38	3.89	9.50
min VZ	-1110.00	4.15	63.37	-0.15	52.14	2.20	0.44	-0.23	-0.21
max VZ	-1110.00	4.15	63.37	-0.07	168.01	-2.27	-0.45	6.79	-0.09
min MT	-1110.00	4.15	63.37	-0.07	113.29	0.77	0.02	3.32	-19.07
max MT	-1110.00	4.15	63.37	-0.03	98.35	-0.82	-0.02	2.97	19.06
min NS	-1110.00	8.85	63.36	-0.93	72.39	-0.07	0.03	1.71	-0.18
max NS	-1110.00	8.85	63.36	1.06	103.87	0.01	0.08	4.50	-0.55

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MY	-1110.00	8.85	63.36	-0.24	35.97	0.02	0.12	1.02	-0.15
max MY	-1110.00	8.85	63.36	0.28	147.08	0.05	-0.01	5.93	-0.09
min MZ	-1110.00	8.85	63.36	-0.02	79.90	-2.50	-0.58	2.24	8.68
max MZ	-1110.00	8.85	63.36	-0.04	98.02	2.43	0.61	2.74	-8.55
min VY	-1110.00	8.85	63.36	-0.04	45.00	0.49	-2.34	1.00	-4.29
max VY	-1110.00	8.85	63.36	0.07	104.82	0.53	2.38	4.05	9.56
min VZ	-1110.00	8.85	63.36	-0.14	52.99	0.25	0.42	-0.11	-0.18
max VZ	-1110.00	8.85	63.36	0.17	135.94	-0.19	-0.42	6.95	-0.04
min MT	-1110.00	8.85	63.36	0.06	97.43	1.29	0.01	3.48	-19.03
max MT	-1110.00	8.85	63.36	0.08	84.21	-1.38	0.01	3.08	19.02
min NS	-1110.00	11.55	63.54	-0.82	68.09	-0.36	0.12	1.72	-0.19
max NS	-1110.00	11.55	63.54	1.35	94.65	-0.02	0.00	5.08	-0.22
min MY	-1110.00	11.55	63.54	-0.10	32.95	-0.16	0.05	1.18	-0.08
max MY	-1110.00	11.55	63.54	0.57	130.83	0.06	-0.02	5.95	-0.02
min MZ	-1110.00	11.55	63.54	0.29	86.89	-8.26	2.28	3.55	16.04
max MZ	-1110.00	11.55	63.54	0.26	73.95	8.05	-2.20	3.00	-15.62
min VY	-1110.00	11.55	63.54	0.03	42.17	7.14	-2.34	1.07	-4.06
max VY	-1110.00	11.55	63.54	0.33	93.64	-6.57	2.38	4.13	9.39
min VZ	-1110.00	11.55	63.54	-0.13	53.43	-0.87	0.39	-0.04	-0.27
max VZ	-1110.00	11.55	63.54	0.61	116.85	0.91	-0.41	7.02	0.11
min MT	-1110.00	11.55	63.54	0.30	88.39	2.18	0.08	3.56	-18.92
max MT	-1110.00	11.55	63.54	0.27	75.71	-2.40	-0.06	3.14	18.90
min NS	-990.00	4.15	65.17	-0.97	81.33	-1.35	-0.26	1.59	-0.28
max NS	-990.00	4.15	65.17	0.87	122.54	0.60	0.09	4.34	-1.03
min MY	-990.00	4.15	65.17	-0.27	39.70	-0.53	-0.11	0.62	-0.14
max MY	-990.00	4.15	65.17	0.06	174.72	1.11	0.22	5.94	0.21
min MZ	-990.00	4.15	65.17	-0.14	104.21	-12.63	-2.43	3.45	-7.69
max MZ	-990.00	4.15	65.17	-0.09	121.86	12.87	2.48	3.80	7.43
min VY	-990.00	4.15	65.17	-0.11	49.45	-11.49	-2.53	0.85	-3.62
max VY	-990.00	4.15	65.17	-0.08	67.19	11.60	2.53	1.21	1.74
min VZ	-990.00	4.15	65.17	-0.14	53.41	3.32	0.68	-0.23	-0.16
max VZ	-990.00	4.15	65.17	-0.05	167.14	-3.41	-0.70	6.80	0.10
min MT	-990.00	4.15	65.17	-0.06	96.08	-0.31	-0.20	2.95	-18.52
max MT	-990.00	4.15	65.17	-0.04	116.25	0.29	0.21	3.34	18.49
min NS	-990.00	8.85	65.16	-0.91	74.19	-0.12	-0.18	1.73	-0.37
max NS	-990.00	8.85	65.16	1.03	101.87	0.13	0.02	4.48	-0.96
min MY	-990.00	8.85	65.16	-0.20	35.94	0.02	-0.15	1.03	-0.22
max MY	-990.00	8.85	65.16	0.27	147.07	0.06	0.27	5.92	-0.09
min MZ	-990.00	8.85	65.16	-0.02	80.38	-2.43	-0.34	2.22	8.09
max MZ	-990.00	8.85	65.16	0.03	101.63	2.39	0.40	3.15	-8.20
min VY	-990.00	8.85	65.16	-0.08	45.21	0.43	-2.53	0.97	-3.64
max VY	-990.00	8.85	65.16	-0.04	61.17	-0.29	2.53	1.37	1.77
min VZ	-990.00	8.85	65.16	-0.14	54.16	0.25	0.65	-0.11	-0.15
max VZ	-990.00	8.85	65.16	0.20	135.06	-0.19	-0.66	6.96	0.13
min MT	-990.00	8.85	65.16	0.05	82.02	1.22	-0.21	3.07	-18.49
max MT	-990.00	8.85	65.16	0.09	100.28	-1.32	0.23	3.50	18.46
min NS	-990.00	11.55	65.34	-0.79	69.85	0.05	-0.05	1.72	-0.31
max NS	-990.00	11.55	65.34	1.33	92.87	0.24	-0.04	5.07	-0.16
min MY	-990.00	11.55	65.34	-0.08	32.94	0.61	-0.23	1.17	-0.18
max MY	-990.00	11.55	65.34	0.55	130.84	-0.68	0.26	5.95	-0.11
min MZ	-990.00	11.55	65.34	0.32	86.92	-8.40	2.39	3.57	15.06

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MZ	-990.00	11.55	65.34	0.23	73.85	8.23	-2.31	2.99	-14.73
min VY	-990.00	11.55	65.34	-0.01	42.45	7.55	-2.53	1.04	-3.41
max VY	-990.00	11.55	65.34	0.06	57.29	-7.31	2.53	1.47	1.55
min VZ	-990.00	11.55	65.34	-0.12	54.60	-1.51	0.62	-0.03	-0.18
max VZ	-990.00	11.55	65.34	0.64	115.95	1.55	-0.64	7.03	0.24
min MT	-990.00	11.55	65.34	0.24	74.51	2.67	-0.15	3.14	-18.37
max MT	-990.00	11.55	65.34	0.31	90.61	-2.92	0.17	3.58	18.32
min NS	-900.00	4.15	66.52	-0.94	81.77	-2.24	-0.45	1.61	-0.36
max NS	-900.00	4.15	66.52	0.85	122.05	1.09	0.22	4.32	-1.21
min MY	-900.00	4.15	66.52	-0.23	40.00	1.87	0.40	0.61	0.02
max MY	-900.00	4.15	66.52	0.04	174.59	-1.27	-0.29	5.96	-0.05
min MZ	-900.00	4.15	66.52	-0.11	49.40	-14.30	-3.07	0.84	-0.77
max MZ	-900.00	4.15	66.52	-0.09	121.93	14.44	2.81	3.80	7.03
min VY	-900.00	4.15	66.52	-0.10	49.49	-14.11	-3.09	0.86	-3.47
max VY	-900.00	4.15	66.52	-0.09	67.22	14.22	3.09	1.21	1.33
min VZ	-900.00	4.15	66.52	-0.13	53.73	4.17	0.84	-0.21	-0.14
max VZ	-900.00	4.15	66.52	-0.03	167.33	-4.18	-0.85	6.80	0.48
min MT	-900.00	4.15	66.52	-0.07	97.31	-1.02	-0.34	2.98	-18.17
max MT	-900.00	4.15	66.52	-0.02	112.89	0.80	0.33	3.16	18.14
min NS	-900.00	8.85	66.51	-0.88	74.48	-0.11	-0.31	1.74	-0.44
max NS	-900.00	8.85	66.51	1.01	101.52	0.13	0.11	4.47	-1.00
min MY	-900.00	8.85	66.51	-0.18	36.20	0.02	-0.31	1.04	-0.12
max MY	-900.00	8.85	66.51	0.25	146.94	0.03	0.45	5.94	0.18
min MZ	-900.00	8.85	66.51	-0.03	80.48	-2.40	-0.19	2.20	7.70
max MZ	-900.00	8.85	66.51	0.03	101.73	2.37	0.25	3.15	-7.84
min VY	-900.00	8.85	66.51	-0.06	45.21	0.42	-3.09	0.98	-3.50
max VY	-900.00	8.85	66.51	-0.04	61.21	-0.25	3.09	1.37	1.37
min VZ	-900.00	8.85	66.51	-0.12	54.40	0.25	0.82	-0.09	-0.10
max VZ	-900.00	8.85	66.51	0.22	135.23	-0.23	-0.82	6.96	0.48
min MT	-900.00	8.85	66.51	0.04	83.14	1.15	-0.35	3.09	-18.15
max MT	-900.00	8.85	66.51	0.10	97.66	-1.33	0.35	3.32	18.11
min NS	-900.00	11.55	66.69	-0.77	70.20	0.37	-0.16	1.73	-0.38
max NS	-900.00	11.55	66.69	1.32	92.58	0.02	0.01	5.06	-0.22
min MY	-900.00	11.55	66.69	-0.06	33.19	1.06	-0.39	1.17	-0.11
max MY	-900.00	11.55	66.69	0.55	130.71	-1.14	0.43	5.94	-0.09
min MZ	-900.00	11.55	66.69	0.30	86.73	-9.23	2.73	3.52	14.52
max MZ	-900.00	11.55	66.69	0.02	42.55	9.10	-3.08	1.07	-3.49
min VY	-900.00	11.55	66.69	0.01	42.44	9.06	-3.08	1.05	-3.22
max VY	-900.00	11.55	66.69	0.05	57.33	-8.76	3.09	1.46	1.11
min VZ	-900.00	11.55	66.69	-0.10	54.92	-1.95	0.81	-0.02	-0.21
max VZ	-900.00	11.55	66.69	0.65	115.94	1.96	-0.80	7.03	0.53
min MT	-900.00	11.55	66.69	0.24	74.57	3.00	-0.29	3.15	-18.02
max MT	-900.00	11.55	66.69	0.32	90.42	-3.11	0.32	3.63	17.97
min NS	-750.00	4.15	68.77	-0.92	84.92	6.18	1.34	1.67	-1.42
max NS	-750.00	4.15	68.77	0.83	119.16	1.38	0.26	4.25	-0.64
min MY	-750.00	4.15	68.77	-0.20	40.31	2.82	0.61	0.64	-0.11
max MY	-750.00	4.15	68.77	0.05	174.74	-2.19	-0.49	5.96	0.03
min MZ	-750.00	4.15	68.77	-0.09	49.53	-18.01	-3.87	0.86	-0.61
max MZ	-750.00	4.15	68.77	-0.12	66.97	18.04	3.87	1.18	0.06
min VY	-750.00	4.15	68.77	-0.07	49.57	-17.91	-3.88	0.87	-3.25
max VY	-750.00	4.15	68.77	-0.11	67.29	18.00	3.88	1.20	0.94

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VZ	-750.00	4.15	68.77	-0.09	54.36	5.29	1.07	-0.19	-0.17
max VZ	-750.00	4.15	68.77	-0.01	167.68	-5.28	-1.09	6.82	0.74
min MT	-750.00	4.15	68.77	-0.06	97.43	3.17	0.56	2.94	-17.80
max MT	-750.00	4.15	68.77	-0.04	116.58	-2.96	-0.53	3.43	17.79
min NS	-750.00	8.85	68.76	-0.86	77.10	-0.05	1.53	1.76	-1.28
max NS	-750.00	8.85	68.76	0.99	103.14	0.13	0.13	4.96	0.15
min MY	-750.00	8.85	68.76	-0.13	36.41	0.02	-0.51	1.02	-0.11
max MY	-750.00	8.85	68.76	0.25	147.07	0.04	0.64	5.95	0.18
min MZ	-750.00	8.85	68.76	-0.04	80.50	-2.34	-1.05	2.23	7.18
max MZ	-750.00	8.85	68.76	0.04	101.76	2.34	1.14	3.11	-7.34
min VY	-750.00	8.85	68.76	-0.03	45.24	0.33	-3.88	0.99	-3.30
max VY	-750.00	8.85	68.76	-0.07	61.32	-0.14	3.88	1.36	1.00
min VZ	-750.00	8.85	68.76	-0.08	54.87	0.19	1.04	-0.07	-0.15
max VZ	-750.00	8.85	68.76	0.24	135.52	-0.25	-1.05	6.98	0.72
min MT	-750.00	8.85	68.76	0.05	83.43	1.05	0.54	3.06	-17.76
max MT	-750.00	8.85	68.76	0.09	100.20	-1.08	-0.51	3.59	17.75
min NS	-750.00	11.55	68.94	-0.74	72.82	-4.46	1.65	1.76	-1.46
max NS	-750.00	11.55	68.94	1.32	90.69	-0.19	0.08	5.43	0.89
min MY	-750.00	11.55	68.94	-0.01	33.45	1.59	-0.59	1.14	0.04
max MY	-750.00	11.55	68.94	0.54	130.81	-1.68	0.63	5.96	-0.18
min MZ	-750.00	11.55	68.94	0.03	57.38	-11.25	3.87	1.45	3.14
max MZ	-750.00	11.55	68.94	0.05	42.65	11.23	-3.88	1.07	-3.15
min VY	-750.00	11.55	68.94	0.04	42.44	11.13	-3.88	1.06	-2.96
max VY	-750.00	11.55	68.94	0.03	57.47	-10.79	3.88	1.46	0.68
min VZ	-750.00	11.55	68.94	-0.07	55.13	-2.55	1.04	0.00	-0.22
max VZ	-750.00	11.55	68.94	0.68	116.43	2.54	-1.03	7.04	0.69
min MT	-750.00	11.55	68.94	0.25	74.98	0.47	0.62	3.12	-17.71
max MT	-750.00	11.55	68.94	0.32	90.29	-0.60	-0.58	3.67	17.70
min NS	-630.00	4.15	70.57	-0.93	86.45	8.26	1.77	1.73	-2.99
max NS	-630.00	4.15	70.57	0.84	124.38	-5.03	-1.09	4.79	1.18
min MY	-630.00	4.15	70.57	-0.17	40.58	3.33	0.70	0.67	-1.16
max MY	-630.00	4.15	70.57	0.05	174.58	-2.60	-0.57	5.95	0.49
min MZ	-630.00	4.15	70.57	-0.06	67.31	-19.80	-4.25	1.26	-0.59
max MZ	-630.00	4.15	70.57	-0.14	49.18	19.81	4.24	0.81	0.08
min VY	-630.00	4.15	70.57	-0.05	67.33	-19.66	-4.27	1.28	-3.39
max VY	-630.00	4.15	70.57	-0.13	49.43	19.66	4.25	0.81	1.89
min VZ	-630.00	4.15	70.57	-0.05	53.31	5.91	1.24	-0.17	1.67
max VZ	-630.00	4.15	70.57	0.03	169.58	-5.83	-1.24	6.82	-0.97
min MT	-630.00	4.15	70.57	-0.09	114.53	3.66	0.67	3.33	-17.66
max MT	-630.00	4.15	70.57	0.02	99.15	-3.32	-0.62	2.99	17.78
min NS	-630.00	8.85	70.56	-0.87	78.18	0.08	1.92	1.81	-2.62
max NS	-630.00	8.85	70.56	1.02	101.66	0.01	-1.19	4.97	1.17
min MY	-630.00	8.85	70.56	-0.09	36.57	0.13	-0.62	1.02	-1.37
max MY	-630.00	8.85	70.56	0.25	146.96	0.00	0.77	5.95	0.91
min MZ	-630.00	8.85	70.56	-0.08	87.33	-2.31	-1.16	2.37	7.11
max MZ	-630.00	8.85	70.56	0.06	94.44	2.33	1.28	2.96	-7.05
min VY	-630.00	8.85	70.56	0.00	60.99	0.39	-4.27	1.44	-3.44
max VY	-630.00	8.85	70.56	-0.10	45.37	-0.29	4.26	0.94	1.94
min VZ	-630.00	8.85	70.56	-0.05	53.80	-0.05	1.20	-0.05	1.69
max VZ	-630.00	8.85	70.56	0.28	137.39	-0.02	-1.19	6.98	-1.02
min MT	-630.00	8.85	70.56	0.03	98.99	1.06	0.64	3.49	-17.62

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MT	-630.00	8.85	70.56	0.13	84.90	-1.10	-0.59	3.11	17.74
min NS	-630.00	11.55	70.74	-0.75	73.15	-5.26	2.00	1.81	-2.73
max NS	-630.00	11.55	70.74	1.36	92.00	3.31	-1.22	5.45	1.81
min MY	-630.00	11.55	70.74	0.02	33.62	2.09	-0.69	1.14	-1.27
max MY	-630.00	11.55	70.74	0.62	130.72	-2.29	0.81	5.96	0.94
min MZ	-630.00	11.55	70.74	-0.03	42.58	-12.27	4.25	0.99	3.20
max MZ	-630.00	11.55	70.74	0.12	57.79	12.27	-4.26	1.52	-3.18
min VY	-630.00	11.55	70.74	0.10	56.93	12.25	-4.27	1.53	-3.07
max VY	-630.00	11.55	70.74	-0.03	42.71	-12.02	4.26	1.01	1.58
min VZ	-630.00	11.55	70.74	-0.04	53.92	-3.32	1.18	0.02	1.68
max VZ	-630.00	11.55	70.74	0.72	118.24	3.22	-1.16	7.04	-0.96
min MT	-630.00	11.55	70.74	0.26	89.34	0.20	0.72	3.57	-17.58
max MT	-630.00	11.55	70.74	0.33	76.33	-0.40	-0.66	3.16	17.69
min NS	-450.00	4.15	73.27	-0.96	96.52	9.51	2.06	2.35	-1.05
max NS	-450.00	4.15	73.27	0.93	129.97	-6.17	-1.34	4.90	0.00
min MY	-450.00	4.15	73.27	-0.09	44.83	3.23	0.70	0.80	-0.21
max MY	-450.00	4.15	73.27	0.09	180.05	-2.71	-0.59	6.12	0.12
min MZ	-450.00	4.15	73.27	0.00	53.60	-19.49	-4.17	1.02	-0.39
max MZ	-450.00	4.15	73.27	-0.15	72.23	19.45	4.17	1.33	-0.53
min VY	-450.00	4.15	73.27	0.01	53.31	-19.38	-4.19	1.00	-3.20
max VY	-450.00	4.15	73.27	-0.15	72.68	19.24	4.18	1.37	2.50
min VZ	-450.00	4.15	73.27	0.01	58.95	5.42	1.12	-0.02	-0.21
max VZ	-450.00	4.15	73.27	0.11	174.68	-5.50	-1.14	6.99	0.83
min MT	-450.00	4.15	73.27	-0.03	113.90	3.73	0.70	3.33	-17.64
max MT	-450.00	4.15	73.27	0.02	111.30	-3.49	-0.66	3.36	17.42
min NS	-450.00	8.85	73.26	-0.88	83.15	-0.04	2.09	1.97	-1.30
max NS	-450.00	8.85	73.26	1.13	109.34	0.04	-1.31	5.50	0.84
min MY	-450.00	8.85	73.26	-0.01	40.16	-0.02	-0.64	1.12	-0.01
max MY	-450.00	8.85	73.26	0.27	151.67	0.01	0.77	6.12	0.14
min MZ	-450.00	8.85	73.26	-0.04	83.67	-2.31	-1.17	2.32	6.62
max MZ	-450.00	8.85	73.26	-0.06	102.76	2.29	1.30	2.91	-6.88
min VY	-450.00	8.85	73.26	0.05	48.36	0.31	-4.19	1.12	-3.25
max VY	-450.00	8.85	73.26	-0.10	65.94	-0.36	4.18	1.53	2.55
min VZ	-450.00	8.85	73.26	0.02	58.70	0.11	1.08	0.09	-0.22
max VZ	-450.00	8.85	73.26	0.37	141.67	-0.23	-1.10	7.15	0.80
min MT	-450.00	8.85	73.26	0.10	97.97	0.99	0.68	3.49	-17.61
max MT	-450.00	8.85	73.26	0.14	95.31	-0.99	-0.64	3.48	17.39
min NS	-450.00	11.55	73.44	-0.75	78.02	-5.69	2.11	2.02	-1.61
max NS	-450.00	11.55	73.44	1.48	95.22	3.63	-1.33	5.61	1.06
min MY	-450.00	11.55	73.44	0.05	36.96	1.84	-0.67	1.22	-0.19
max MY	-450.00	11.55	73.44	0.65	134.97	-2.09	0.79	6.13	-0.25
min MZ	-450.00	11.55	73.44	0.01	61.40	-12.02	4.18	1.63	2.74
max MZ	-450.00	11.55	73.44	0.15	48.07	11.99	-4.19	1.12	-2.89
min VY	-450.00	11.55	73.44	0.13	45.22	11.96	-4.19	1.18	-2.89
max VY	-450.00	11.55	73.44	0.01	61.61	-11.93	4.18	1.63	2.19
min VZ	-450.00	11.55	73.44	0.04	58.38	-2.66	1.04	0.16	-0.25
max VZ	-450.00	11.55	73.44	0.82	122.08	2.56	-1.06	7.21	0.81
min MT	-450.00	11.55	73.44	0.32	88.40	-0.02	0.78	3.57	-17.57
max MT	-450.00	11.55	73.44	0.37	85.74	-0.15	-0.70	3.53	17.35
min NS	0.00	4.15	76.65	-1.11	93.64	-0.15	0.00	2.28	0.20
max NS	0.00	4.15	76.65	1.13	123.07	-0.17	-0.05	4.66	-0.59

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MY	0.00	4.15	76.65	0.20	37.96	0.11	0.03	0.77	0.03
max MY	0.00	4.15	76.65	0.12	176.25	0.11	0.04	6.23	0.49
min MZ	0.00	4.15	76.65	0.07	108.70	-9.64	-1.76	3.47	-6.34
max MZ	0.00	4.15	76.65	-0.16	116.04	9.52	1.76	3.71	8.89
min VY	0.00	4.15	76.65	0.21	109.09	-9.13	-1.79	3.66	-8.53
max VY	0.00	4.15	76.65	0.06	111.55	9.26	1.80	3.75	10.88
min VZ	0.00	4.15	76.65	0.18	54.36	0.23	0.03	-0.12	-0.04
max VZ	0.00	4.15	76.65	0.12	170.42	0.29	0.05	6.85	0.59
min MT	0.00	4.15	76.65	-0.07	110.27	0.11	-0.05	3.21	-16.93
max MT	0.00	4.15	76.65	0.11	105.61	-0.08	0.04	3.19	16.97
min NS	0.00	8.85	76.63	-1.02	83.00	-0.15	0.00	2.41	0.24
max NS	0.00	8.85	76.63	1.32	104.12	0.07	-0.07	5.34	-1.08
min MY	0.00	8.85	76.63	0.23	34.02	0.05	0.05	0.91	0.05
max MY	0.00	8.85	76.63	0.22	147.78	-0.05	0.03	6.00	0.36
min MZ	0.00	8.85	76.63	0.05	84.90	-2.28	-0.55	2.32	5.98
max MZ	0.00	8.85	76.63	-0.16	90.61	2.25	0.52	2.50	-5.92
min VY	0.00	8.85	76.63	0.34	91.73	-0.45	-1.79	3.77	-8.58
max VY	0.00	8.85	76.63	0.20	93.66	0.47	1.80	3.91	10.94
min VZ	0.00	8.85	76.63	0.20	54.94	0.07	0.04	-0.01	0.00
max VZ	0.00	8.85	76.63	0.37	138.11	0.03	0.06	7.00	0.61
min MT	0.00	8.85	76.63	0.04	94.34	0.90	-0.06	3.31	-16.91
max MT	0.00	8.85	76.63	0.23	90.44	-0.91	0.06	3.30	16.95
min NS	0.00	11.55	76.81	-0.87	76.62	-0.17	0.00	2.49	0.23
max NS	0.00	11.55	76.81	1.67	89.12	0.18	-0.05	5.38	-0.53
min MY	0.00	11.55	76.81	0.31	31.39	-0.14	0.04	1.00	0.15
max MY	0.00	11.55	76.81	0.58	131.45	-0.18	0.05	6.01	0.28
min MZ	0.00	11.55	76.81	0.25	87.72	-6.15	1.67	3.18	12.54
max MZ	0.00	11.55	76.81	0.33	83.10	6.10	-1.65	3.03	-12.62
min VY	0.00	11.55	76.81	0.58	81.37	4.98	-1.79	3.81	-8.45
max VY	0.00	11.55	76.81	0.46	82.89	-5.12	1.80	3.98	10.80
min VZ	0.00	11.55	76.81	0.22	54.86	-0.05	0.02	0.05	0.01
max VZ	0.00	11.55	76.81	0.69	118.70	-0.24	0.06	7.06	0.75
min MT	0.00	11.55	76.81	0.25	85.16	1.97	0.00	3.40	-16.82
max MT	0.00	11.55	76.81	0.44	81.37	-2.03	0.03	3.35	16.86
min NS	1470.00	4.15	64.35	-1.03	79.07	-10.20	-2.18	1.58	1.76
max NS	1470.00	4.15	64.35	0.94	125.58	5.21	1.11	4.40	-2.19
min MY	1470.00	4.15	64.35	-0.32	39.28	-6.09	-1.31	0.54	0.10
max MY	1470.00	4.15	64.35	0.10	176.43	6.23	1.32	6.03	-1.26
min MZ	1470.00	4.15	64.35	-0.04	67.68	-31.61	-6.73	1.34	0.37
max MZ	1470.00	4.15	64.35	-0.06	50.47	30.55	6.56	0.89	0.69
min VY	1470.00	4.15	64.35	-0.10	67.38	-31.53	-6.77	1.20	-2.91
max VY	1470.00	4.15	64.35	-0.07	50.45	30.49	6.58	0.91	2.21
min VZ	1470.00	4.15	64.35	-0.14	51.63	4.56	0.97	-0.25	0.58
max VZ	1470.00	4.15	64.35	-0.09	168.34	-4.89	-1.02	6.81	0.45
min MT	1470.00	4.15	64.35	-0.04	100.70	6.77	1.24	3.06	-21.96
max MT	1470.00	4.15	64.35	0.05	112.45	-7.94	-1.49	3.49	21.83
min NS	1470.00	8.85	64.34	-0.96	71.95	-0.07	-1.91	1.72	1.63
max NS	1470.00	8.85	64.34	1.10	104.63	0.06	0.93	4.53	-2.08
min MY	1470.00	8.85	64.34	-0.26	35.75	-0.02	-1.27	1.00	0.02
max MY	1470.00	8.85	64.34	0.28	148.35	0.08	1.32	6.00	-0.50
min MZ	1470.00	8.85	64.34	-0.04	97.92	-2.74	-1.84	2.84	10.93

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MZ	1470.00	8.85	64.34	-0.05	76.80	2.66	1.65	2.25	-11.80
min VY	1470.00	8.85	64.34	-0.05	61.43	0.28	-6.77	1.36	-3.01
max VY	1470.00	8.85	64.34	-0.04	45.94	-0.37	6.58	1.03	2.31
min VZ	1470.00	8.85	64.34	-0.13	52.62	-0.09	0.99	-0.13	0.54
max VZ	1470.00	8.85	64.34	0.17	136.16	-0.12	-1.04	6.97	0.38
min MT	1470.00	8.85	64.34	0.10	84.27	1.66	1.13	3.15	-21.89
max MT	1470.00	8.85	64.34	0.18	95.80	-1.81	-1.45	3.64	21.76
min NS	1470.00	11.55	64.52	-0.85	67.80	4.72	-1.78	1.72	1.42
max NS	1470.00	11.55	64.52	1.39	92.66	-2.06	0.84	4.61	-2.28
min MY	1470.00	11.55	64.52	-0.10	32.75	3.34	-1.22	1.20	0.36
max MY	1470.00	11.55	64.52	0.59	131.91	-3.22	1.18	6.04	-0.65
min MZ	1470.00	11.55	64.52	0.04	43.18	-18.72	6.56	1.07	3.95
max MZ	1470.00	11.55	64.52	0.08	57.61	19.16	-6.76	1.47	-4.36
min VY	1470.00	11.55	64.52	0.06	57.58	18.88	-6.78	1.45	-2.45
max VY	1470.00	11.55	64.52	0.04	43.03	-18.41	6.58	1.10	1.75
min VZ	1470.00	11.55	64.52	-0.11	54.43	-2.77	1.00	-0.06	0.57
max VZ	1470.00	11.55	64.52	0.61	115.59	2.72	-1.05	7.05	0.30
min MT	1470.00	11.55	64.52	0.31	75.58	-0.36	1.23	3.21	-21.84
max MT	1470.00	11.55	64.52	0.42	85.77	1.09	-1.55	3.71	21.72
min NS	1500.00	4.15	64.08	-1.04	77.49	-15.92	-3.47	1.49	-4.36
max NS	1500.00	4.15	64.08	0.94	124.23	10.51	2.29	4.36	5.48
min MY	1500.00	4.15	64.08	-0.34	39.06	-6.38	-1.41	0.43	-5.18
max MY	1500.00	4.15	64.08	0.09	173.41	6.96	1.47	5.91	2.40
min MZ	1500.00	4.15	64.08	-0.13	66.20	-34.12	-7.20	1.09	-0.99
max MZ	1500.00	4.15	64.08	0.04	52.25	32.85	6.97	1.03	0.38
min VY	1500.00	4.15	64.08	-0.14	66.59	-34.04	-7.21	1.11	-2.01
max VY	1500.00	4.15	64.08	0.04	51.95	32.74	6.97	1.01	2.16
min VZ	1500.00	4.15	64.08	-0.21	51.01	-8.40	-1.84	-0.35	-7.29
max VZ	1500.00	4.15	64.08	-0.03	164.27	14.68	3.15	6.80	4.70
min MT	1500.00	4.15	64.08	0.00	95.71	8.20	1.55	2.69	-20.01
max MT	1500.00	4.15	64.08	0.01	114.41	-8.51	-1.66	3.84	21.95
min NS	1500.00	8.85	64.06	-0.98	70.92	0.57	-3.51	1.54	-4.70
max NS	1500.00	8.85	64.06	1.10	103.70	-0.44	2.28	4.53	4.73
min MY	1500.00	8.85	64.06	-0.25	36.05	0.08	-1.37	0.95	-1.40
max MY	1500.00	8.85	64.06	0.27	145.63	0.09	1.40	5.92	1.55
min MZ	1500.00	8.85	64.06	0.14	92.27	-2.47	-2.58	2.47	12.31
max MZ	1500.00	8.85	64.06	-0.21	78.41	2.48	2.49	2.29	-11.28
min VY	1500.00	8.85	64.06	-0.09	61.06	-0.29	-7.21	1.27	-2.13
max VY	1500.00	8.85	64.06	0.08	46.93	0.09	6.98	1.13	2.28
min VZ	1500.00	8.85	64.06	-0.21	52.52	0.55	-1.80	-0.23	-7.02
max VZ	1500.00	8.85	64.06	0.23	132.12	-0.26	3.08	6.96	4.63
min MT	1500.00	8.85	64.06	0.12	82.89	1.69	1.53	2.80	-19.94
max MT	1500.00	8.85	64.06	0.15	96.15	-1.57	-1.60	4.00	21.89
min NS	1500.00	11.55	64.24	-0.88	61.31	10.31	-3.51	1.22	-3.27
max NS	1500.00	11.55	64.24	1.40	97.06	-6.69	2.23	5.02	3.77
min MY	1500.00	11.55	64.24	-0.11	33.14	3.48	-1.31	1.21	0.73
max MY	1500.00	11.55	64.24	0.55	129.43	-3.97	1.51	5.94	1.09
min MZ	1500.00	11.55	64.24	0.16	43.83	-19.31	6.97	1.19	3.41
max MZ	1500.00	11.55	64.24	-0.02	57.37	19.76	-7.20	1.35	-3.29
min VY	1500.00	11.55	64.24	0.00	57.45	19.54	-7.21	1.37	-1.57
max VY	1500.00	11.55	64.24	0.15	43.75	-19.09	6.98	1.19	1.72

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VZ	1500.00	11.55	64.24	-0.21	52.99	5.71	-1.77	-0.15	-6.85
max VZ	1500.00	11.55	64.24	0.66	112.98	-8.73	3.03	7.02	4.33
min MT	1500.00	11.55	64.24	0.30	75.14	-1.51	1.63	2.86	-19.92
max MT	1500.00	11.55	64.24	0.41	85.15	1.70	-1.70	4.07	21.89
min NS	1530.00	4.15	63.80	-1.35	97.29	17.63	3.77	1.88	-2.40
max NS	1530.00	4.15	63.80	0.65	97.81	-14.16	-2.98	3.74	1.30
min MY	1530.00	4.15	63.80	-0.41	37.79	-7.93	-1.67	0.37	-2.27
max MY	1530.00	4.15	63.80	-0.43	166.15	7.24	1.51	5.87	-1.20
min MZ	1530.00	4.15	63.80	-0.16	64.65	-36.49	-7.60	1.03	-2.51
max MZ	1530.00	4.15	63.80	-0.26	50.82	33.91	7.12	1.02	1.60
min VY	1530.00	4.15	63.80	-0.17	64.55	-36.46	-7.61	1.03	-3.14
max VY	1530.00	4.15	63.80	-0.28	50.65	33.87	7.14	1.00	3.50
min VZ	1530.00	4.15	63.80	-0.30	51.59	-19.17	-4.01	-0.43	-0.24
max VZ	1530.00	4.15	63.80	-0.53	156.95	17.16	3.64	6.55	-0.44
min MT	1530.00	4.15	63.80	-0.40	102.26	8.03	1.54	2.97	-20.24
max MT	1530.00	4.15	63.80	-0.12	99.33	-10.00	-1.93	3.17	20.01
min NS	1530.00	8.85	63.78	-1.27	88.00	-0.03	3.81	2.04	-2.24
max NS	1530.00	8.85	63.78	0.79	80.30	-0.29	-3.01	3.86	0.99
min MY	1530.00	8.85	63.78	-0.30	35.01	-0.03	-1.46	0.92	-1.52
max MY	1530.00	8.85	63.78	-0.29	139.34	0.15	1.18	5.71	-1.55
min MZ	1530.00	8.85	63.78	-0.33	89.94	-2.51	-4.63	2.85	12.49
max MZ	1530.00	8.85	63.78	-0.29	70.33	2.28	4.17	1.94	-12.86
min VY	1530.00	8.85	63.78	-0.12	59.38	-0.80	-7.61	1.20	-3.29
max VY	1530.00	8.85	63.78	-0.24	45.73	0.41	7.14	1.13	3.62
min VZ	1530.00	8.85	63.78	-0.30	53.29	-0.43	-3.98	-0.30	-0.28
max VZ	1530.00	8.85	63.78	-0.29	126.04	0.18	3.60	6.73	-0.38
min MT	1530.00	8.85	63.78	-0.29	88.15	1.59	1.51	3.10	-20.17
max MT	1530.00	8.85	63.78	0.00	84.23	-1.72	-1.90	3.33	19.93
min NS	1530.00	11.55	63.96	-1.14	82.75	-10.22	3.82	2.12	-2.29
max NS	1530.00	11.55	63.96	1.04	69.76	7.99	-3.04	3.90	0.95
min MY	1530.00	11.55	63.96	-0.20	32.17	-3.16	1.30	1.17	-2.02
max MY	1530.00	11.55	63.96	0.08	123.71	4.29	-1.66	5.72	-0.37
min MZ	1530.00	11.55	63.96	-0.16	44.00	-19.37	7.13	1.13	3.71
max MZ	1530.00	11.55	63.96	-0.04	55.92	20.37	-7.60	1.29	-4.31
min VY	1530.00	11.55	63.96	-0.04	55.99	20.19	-7.61	1.29	-2.72
max VY	1530.00	11.55	63.96	-0.16	42.54	-19.31	7.14	1.21	3.07
min VZ	1530.00	11.55	63.96	-0.31	53.94	10.42	-3.97	-0.22	0.17
max VZ	1530.00	11.55	63.96	0.14	107.47	-9.63	3.60	6.83	-0.64
min MT	1530.00	11.55	63.96	-0.09	79.56	-1.51	1.60	3.18	-20.16
max MT	1530.00	11.55	63.96	0.23	75.09	2.47	-1.99	3.41	19.94
min NS	1560.00	4.15	63.52	-0.68	69.58	18.93	3.88	1.38	3.60
max NS	1560.00	4.15	63.52	1.58	123.20	-17.82	-3.60	4.21	-1.23
min MY	1560.00	4.15	63.52	-0.13	34.95	-7.64	-1.62	0.38	-1.12
max MY	1560.00	4.15	63.52	0.90	170.23	5.00	1.03	5.98	0.14
min MZ	1560.00	4.15	63.52	0.60	65.60	-36.04	-7.45	1.11	-2.53
max MZ	1560.00	4.15	63.52	-0.08	50.36	32.21	6.72	1.02	3.88
min VY	1560.00	4.15	63.52	0.58	65.83	-36.00	-7.46	1.13	-3.70
max VY	1560.00	4.15	63.52	-0.09	50.07	32.18	6.73	0.95	5.01
min VZ	1560.00	4.15	63.52	0.10	46.95	-18.55	-3.80	-0.46	6.01
max VZ	1560.00	4.15	63.52	0.68	161.40	15.71	3.25	6.57	0.58
min MT	1560.00	4.15	63.52	0.37	88.34	8.00	1.45	2.78	-19.67

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MT	1560.00	4.15	63.52	0.74	109.60	-10.75	-2.03	3.31	21.46
min NS	1560.00	8.85	63.51	-0.64	53.12	0.64	3.86	0.82	2.97
max NS	1560.00	8.85	63.51	1.75	116.28	-1.03	-3.56	5.19	-0.11
min MY	1560.00	8.85	63.51	-0.06	32.40	-0.02	-1.52	0.79	-1.85
max MY	1560.00	8.85	63.51	1.07	142.67	-0.02	0.94	5.83	0.66
min MZ	1560.00	8.85	63.51	0.74	78.56	-2.73	-4.63	2.16	13.97
max MZ	1560.00	8.85	63.51	0.36	88.89	2.48	3.86	3.56	-13.19
min VY	1560.00	8.85	63.51	0.63	60.15	-1.02	-7.46	1.27	-3.85
max VY	1560.00	8.85	63.51	-0.06	45.35	0.56	6.73	1.07	5.14
min VZ	1560.00	8.85	63.51	0.12	48.75	-1.06	-3.87	-0.35	5.95
max VZ	1560.00	8.85	63.51	0.91	130.29	0.54	3.22	6.70	0.35
min MT	1560.00	8.85	63.51	0.46	75.04	1.97	1.41	2.88	-19.59
max MT	1560.00	8.85	63.51	0.86	93.77	-2.05	-2.00	3.44	21.37
min NS	1560.00	11.55	63.69	-0.59	46.43	-10.17	3.79	0.71	3.47
max NS	1560.00	11.55	63.69	2.09	102.30	8.60	-3.50	5.26	-0.03
min MY	1560.00	11.55	63.69	0.04	29.97	4.16	-1.44	1.00	-2.54
max MY	1560.00	11.55	63.69	1.41	126.79	-2.46	0.92	5.80	1.33
min MZ	1560.00	11.55	63.69	0.10	41.90	-18.18	6.72	1.19	5.05
max MZ	1560.00	11.55	63.69	0.70	56.09	19.73	-7.45	1.33	-4.34
min VY	1560.00	11.55	63.69	0.72	56.59	19.60	-7.47	1.33	-3.31
max VY	1560.00	11.55	63.69	0.06	42.32	-18.14	6.74	1.14	4.62
min VZ	1560.00	11.55	63.69	0.11	49.54	9.23	-3.91	-0.29	6.15
max VZ	1560.00	11.55	63.69	1.33	111.88	-8.34	3.25	6.73	0.09
min MT	1560.00	11.55	63.69	0.65	67.10	-0.84	1.48	2.92	-19.55
max MT	1560.00	11.55	63.69	1.10	84.83	2.31	-2.08	3.48	21.36
min NS	1590.00	4.15	63.26	-3.18	82.55	-17.94	-3.94	1.57	-1.31
max NS	1590.00	4.15	63.26	4.54	132.93	7.50	1.91	4.62	-0.23
min MY	1590.00	4.15	63.26	0.36	37.96	3.60	0.81	0.39	-5.40
max MY	1590.00	4.15	63.26	0.80	184.52	-13.56	-2.75	6.34	6.60
min MZ	1590.00	4.15	63.26	-0.72	72.18	-52.82	-10.42	1.41	-1.81
max MZ	1590.00	4.15	63.26	1.75	52.27	41.95	8.43	0.96	7.05
min VY	1590.00	4.15	63.26	-0.83	72.70	-52.79	-10.44	1.35	-2.47
max VY	1590.00	4.15	63.26	1.83	53.32	41.92	8.45	0.85	5.39
min VZ	1590.00	4.15	63.26	-0.93	51.51	-10.31	-2.18	-0.64	17.43
max VZ	1590.00	4.15	63.26	2.60	172.88	3.51	0.76	6.91	-2.31
min MT	1590.00	4.15	63.26	2.32	107.04	0.04	0.19	3.35	-35.15
max MT	1590.00	4.15	63.26	-1.10	111.30	-7.53	-1.74	3.17	40.22
min NS	1590.00	8.85	63.25	-3.13	69.18	1.03	-3.98	1.37	-2.27
max NS	1590.00	8.85	63.25	4.73	117.79	-2.20	1.96	5.30	0.97
min MY	1590.00	8.85	63.25	0.48	35.08	0.07	0.92	0.85	-9.71
max MY	1590.00	8.85	63.25	0.93	155.29	-0.98	-2.85	6.24	9.20
min MZ	1590.00	8.85	63.25	1.84	86.57	-5.68	-7.21	1.93	22.19
max MZ	1590.00	8.85	63.25	0.25	103.66	4.51	5.00	4.17	-19.12
min VY	1590.00	8.85	63.25	-0.77	65.91	-3.92	-10.45	1.61	-2.79
max VY	1590.00	8.85	63.25	1.86	48.89	2.28	8.45	0.97	5.62
min VZ	1590.00	8.85	63.25	-0.49	53.58	-2.03	-3.18	-0.46	17.08
max VZ	1590.00	8.85	63.25	1.84	140.77	1.00	1.48	7.10	-2.06
min MT	1590.00	8.85	63.25	2.47	90.47	0.39	0.14	3.49	-35.20
max MT	1590.00	8.85	63.25	-0.99	96.13	-0.85	-1.71	3.38	40.21
min NS	1590.00	11.55	63.43	-3.04	66.37	11.14	-3.96	1.48	1.50
max NS	1590.00	11.55	63.43	5.06	105.58	-6.79	2.02	5.48	0.43

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min MY	1590.00	11.55	63.43	0.57	32.28	-1.46	0.91	1.10	-13.95
max MY	1590.00	11.55	63.43	1.18	138.40	6.02	-2.90	4.97	13.37
min MZ	1590.00	11.55	63.43	1.95	45.37	-21.45	8.41	0.99	8.72
max MZ	1590.00	11.55	63.43	-0.73	62.61	25.29	-10.39	1.81	-7.32
min VY	1590.00	11.55	63.43	-0.66	61.27	24.78	-10.45	1.78	-2.19
max VY	1590.00	11.55	63.43	1.92	46.22	-21.13	8.45	0.98	5.08
min VZ	1590.00	11.55	63.43	1.25	54.27	-4.16	1.07	-0.44	15.15
max VZ	1590.00	11.55	63.43	0.94	121.72	6.25	-2.38	7.19	-0.23
min MT	1590.00	11.55	63.43	2.69	80.91	3.29	0.21	3.50	-35.11
max MT	1590.00	11.55	63.43	-0.79	86.70	1.53	-1.76	3.54	40.22
min NS	1620.00	4.15	63.14	-10.09	203.52	-114.82	-6.62	7.85	-6.91
max NS	1620.00	4.15	63.14	8.95	189.52	64.88	-2.90	3.69	-17.06
min MY	1620.00	4.15	63.14	-4.34	78.48	-19.53	0.64	0.98	3.98
max MY	1620.00	4.15	63.14	1.96	310.68	-46.94	-9.99	10.09	17.32
min MZ	1620.00	4.15	63.14	-3.21	146.77	-203.89	-13.88	3.90	-4.07
max MZ	1620.00	4.15	63.14	2.41	105.02	150.23	6.60	1.81	5.89
min VY	1620.00	4.15	63.14	-2.07	162.75	-175.28	-17.26	4.21	17.36
max VY	1620.00	4.15	63.14	4.18	129.80	120.41	9.61	2.87	-25.57
min VZ	1620.00	4.15	63.14	1.90	109.06	55.12	-3.38	-0.36	26.30
max VZ	1620.00	4.15	63.14	-3.64	296.74	-108.95	-7.05	10.88	-11.01
min MT	1620.00	4.15	63.14	-1.66	156.91	-11.76	4.68	4.11	-66.83
max MT	1620.00	4.15	63.14	1.09	224.57	-52.69	-11.87	5.85	77.75
min NS	1620.00	8.85	63.12	-9.82	162.85	-83.78	-6.53	7.93	-8.99
max NS	1620.00	8.85	63.12	9.09	171.26	65.52	-2.89	3.83	-14.76
min MY	1620.00	8.85	63.12	-4.95	71.66	-26.07	0.95	2.18	-0.89
max MY	1620.00	8.85	63.12	2.47	265.10	10.99	-10.15	9.67	18.03
min MZ	1620.00	8.85	63.12	-3.47	129.80	-140.34	-13.16	4.49	-8.91
max MZ	1620.00	8.85	63.12	2.47	97.10	120.76	5.81	1.72	10.77
min VY	1620.00	8.85	63.12	-1.91	142.36	-95.18	-17.26	4.69	13.87
max VY	1620.00	8.85	63.12	4.28	115.67	76.35	9.61	3.06	-22.84
min VZ	1620.00	8.85	63.12	2.53	111.03	62.48	0.96	-0.13	23.75
max VZ	1620.00	8.85	63.12	-3.81	244.03	-78.58	-7.54	11.43	-10.97
min MT	1620.00	8.85	63.12	-1.04	139.63	-27.34	3.75	4.52	-67.46
max MT	1620.00	8.85	63.12	1.32	193.05	40.20	-9.33	5.94	77.73
min NS	1620.00	11.55	63.28	-9.33	140.43	-65.26	-6.49	8.23	-13.25
max NS	1620.00	11.55	63.28	9.32	161.32	66.31	-2.89	3.58	-10.68
min MY	1620.00	11.55	63.28	-5.00	64.29	-31.67	0.76	3.27	-7.47
max MY	1620.00	11.55	63.28	3.31	239.16	32.70	-10.02	9.52	19.66
min MZ	1620.00	11.55	63.28	-3.98	110.17	-105.09	-10.95	4.37	-12.34
max MZ	1620.00	11.55	63.28	3.47	105.99	105.11	3.65	1.93	20.72
min VY	1620.00	11.55	63.28	-1.60	129.30	-48.73	-17.26	5.04	9.47
max VY	1620.00	11.55	63.28	4.47	107.54	51.37	9.61	3.00	-18.97
min VZ	1620.00	11.55	63.28	3.84	115.52	60.72	1.00	-0.15	24.27
max VZ	1620.00	11.55	63.28	-4.36	208.46	-58.89	-7.48	11.92	-14.12
min MT	1620.00	11.55	63.28	-1.52	124.31	-53.94	-0.23	4.94	-70.46
max MT	1620.00	11.55	63.28	1.87	179.44	56.17	-9.01	6.19	80.35
min NS	1680.00	4.15	62.42	-10.73	309.00	244.73	19.87	10.84	11.20
max NS	1680.00	4.15	62.42	6.36	145.08	-147.21	-12.28	3.13	45.80
min MY	1680.00	4.15	62.42	0.22	87.90	-101.28	-7.64	1.70	11.55
max MY	1680.00	4.15	62.42	-5.63	389.57	200.10	16.34	13.03	18.89
min MZ	1680.00	4.15	62.42	2.24	108.27	-196.01	-14.30	2.33	18.89

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MZ	1680.00	4.15	62.42	-7.98	207.95	283.32	22.80	5.81	-18.50
min VY	1680.00	4.15	62.42	2.62	110.81	-194.96	-14.36	2.35	20.58
max VY	1680.00	4.15	62.42	-8.04	206.03	283.16	22.83	5.77	-19.35
min VZ	1680.00	4.15	62.42	0.80	109.90	-84.62	-6.46	0.34	8.64
max VZ	1680.00	4.15	62.42	-6.52	384.27	200.48	16.56	13.82	16.02
min MT	1680.00	4.15	62.42	-6.23	237.83	218.02	18.15	6.10	-54.02
max MT	1680.00	4.15	62.42	2.00	211.05	-119.82	-9.85	6.31	79.88
min NS	1680.00	8.85	62.40	-10.32	258.00	151.70	19.87	11.60	15.54
max NS	1680.00	8.85	62.40	6.48	129.35	-91.36	-12.29	3.33	42.06
min MY	1680.00	8.85	62.40	-0.17	78.09	-65.29	-7.42	2.51	9.54
max MY	1680.00	8.85	62.40	-4.86	328.88	122.03	16.07	13.27	20.76
min MZ	1680.00	8.85	62.40	2.23	99.94	-130.16	-14.09	2.53	16.72
max MZ	1680.00	8.85	62.40	-6.18	162.94	182.51	21.58	5.87	5.62
min VY	1680.00	8.85	62.40	2.72	98.91	-128.53	-14.37	2.65	15.71
max VY	1680.00	8.85	62.40	-7.81	178.15	177.14	22.83	6.55	-12.58
min VZ	1680.00	8.85	62.40	1.36	106.99	-61.68	-7.51	0.67	8.46
max VZ	1680.00	8.85	62.40	-6.43	319.36	130.03	17.51	14.56	18.26
min MT	1680.00	8.85	62.40	-4.73	207.73	84.46	12.89	6.57	-49.11
max MT	1680.00	8.85	62.40	0.97	181.34	-26.00	-4.59	6.88	77.21
min NS	1680.00	11.55	62.58	-9.58	227.16	96.82	19.83	11.78	17.83
max NS	1680.00	11.55	62.58	6.76	138.84	-62.95	-12.21	4.16	36.08
min MY	1680.00	11.55	62.58	-1.22	70.33	-11.26	-2.47	3.22	10.70
max MY	1680.00	11.55	62.58	-2.68	292.37	43.00	11.05	13.35	21.88
min MZ	1680.00	11.55	62.58	2.31	93.30	-92.80	-14.06	2.69	14.43
max MZ	1680.00	11.55	62.58	-5.70	149.08	123.97	21.53	5.91	4.56
min VY	1680.00	11.55	62.58	2.90	91.55	-90.06	-14.37	2.73	8.77
max VY	1680.00	11.55	62.58	-7.36	159.20	115.28	22.83	7.32	3.60
min VZ	1680.00	11.55	62.58	2.36	108.87	-42.89	-8.26	0.76	9.51
max VZ	1680.00	11.55	62.58	-6.42	274.12	96.73	19.40	15.26	26.50
min MT	1680.00	11.55	62.58	-3.88	177.57	41.19	10.96	6.65	-45.19
max MT	1680.00	11.55	62.58	1.02	173.79	3.47	-2.70	7.54	76.24
min NS	1710.00	4.15	62.15	-6.30	62.55	-13.23	-2.36	1.08	-0.22
max NS	1710.00	4.15	62.15	11.22	63.75	31.69	5.69	1.58	-0.94
min MY	1710.00	4.15	62.15	2.34	38.09	4.95	0.91	0.30	1.67
max MY	1710.00	4.15	62.15	0.86	166.15	9.88	1.79	5.74	-2.73
min MZ	1710.00	4.15	62.15	-4.44	72.29	-23.24	-4.07	1.93	-5.61
max MZ	1710.00	4.15	62.15	9.49	65.21	40.80	7.22	1.50	2.61
min VY	1710.00	4.15	62.15	-4.41	73.86	-23.22	-4.08	1.87	-5.19
max VY	1710.00	4.15	62.15	9.47	64.73	40.75	7.23	1.45	2.65
min VZ	1710.00	4.15	62.15	-2.49	50.94	-10.07	-1.77	-0.51	2.03
max VZ	1710.00	4.15	62.15	6.77	156.15	26.44	4.76	6.35	-5.15
min MT	1710.00	4.15	62.15	6.68	112.70	27.50	4.95	3.45	-23.64
max MT	1710.00	4.15	62.15	-3.29	92.59	-5.09	-0.93	2.53	21.40
min NS	1710.00	8.85	62.14	-6.26	57.20	-2.16	-2.37	1.42	-0.15
max NS	1710.00	8.85	62.14	11.27	55.88	5.12	5.70	1.43	-0.65
min MY	1710.00	8.85	62.14	2.51	35.82	0.64	0.91	0.56	0.78
max MY	1710.00	8.85	62.14	0.93	139.85	1.70	1.80	5.68	-2.49
min MZ	1710.00	8.85	62.14	-2.98	62.79	-4.55	-3.64	1.64	6.06
max MZ	1710.00	8.85	62.14	7.41	67.37	7.45	6.66	1.69	-6.27
min VY	1710.00	8.85	62.14	-4.33	64.99	-3.95	-4.09	2.17	-5.37
max VY	1710.00	8.85	62.14	9.53	57.48	6.89	7.23	1.36	2.96

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
min VZ	1710.00	8.85	62.14	4.55	49.74	1.76	2.18	-0.33	1.11
max VZ	1710.00	8.85	62.14	1.06	129.67	1.37	1.49	6.43	-4.12
min MT	1710.00	8.85	62.14	5.38	89.42	2.78	2.63	3.30	-23.44
max MT	1710.00	8.85	62.14	0.55	87.38	0.63	1.31	2.92	21.36
min NS	1710.00	11.55	62.32	-6.15	53.39	4.27	-2.36	1.82	0.30
max NS	1710.00	11.55	62.32	11.38	60.00	-10.23	5.51	2.07	-0.61
min MY	1710.00	11.55	62.32	2.62	34.11	-1.79	0.87	0.66	0.21
max MY	1710.00	11.55	62.32	1.30	124.29	-3.09	1.84	5.72	-2.61
min MZ	1710.00	11.55	62.32	8.68	60.17	-13.91	6.88	0.95	13.50
max MZ	1710.00	11.55	62.32	-3.76	63.21	8.32	-3.76	2.12	-16.01
min VY	1710.00	11.55	62.32	-4.19	58.57	7.54	-4.09	2.53	-5.29
max VY	1710.00	11.55	62.32	9.61	54.18	-13.04	7.24	1.04	2.83
min VZ	1710.00	11.55	62.32	5.40	51.45	-5.02	2.64	-0.55	0.98
max VZ	1710.00	11.55	62.32	0.57	111.69	-1.65	1.01	6.61	-3.88
min MT	1710.00	11.55	62.32	7.84	86.60	-5.43	3.99	3.22	-23.46
max MT	1710.00	11.55	62.32	-2.99	73.08	-1.80	-0.91	3.08	21.30
min NS	1740.00	4.15	61.97	-1.09	73.26	0.84	0.02	1.25	-1.18
max NS	1740.00	4.15	61.97	1.06	99.11	8.62	1.60	4.09	0.29
min MY	1740.00	4.15	61.97	-0.36	32.73	5.58	1.02	0.27	-0.69
max MY	1740.00	4.15	61.97	0.14	143.89	2.43	0.34	5.29	-0.10
min MZ	1740.00	4.15	61.97	-0.22	51.97	-11.71	-2.21	1.02	-2.47
max MZ	1740.00	4.15	61.97	0.16	96.41	19.84	3.64	3.04	1.03
min VY	1740.00	4.15	61.97	-0.23	52.13	-11.67	-2.22	1.01	-2.57
max VY	1740.00	4.15	61.97	0.24	110.96	19.73	3.65	3.93	-0.66
min VZ	1740.00	4.15	61.97	-0.26	41.76	4.50	0.74	-0.42	-0.48
max VZ	1740.00	4.15	61.97	0.22	139.30	6.84	1.23	5.81	1.15
min MT	1740.00	4.15	61.97	-0.10	92.95	11.18	1.93	2.73	-18.19
max MT	1740.00	4.15	61.97	0.11	84.21	-2.22	-0.39	2.69	17.50
min NS	1740.00	8.85	61.95	-1.05	61.13	0.80	0.08	1.07	-1.60
max NS	1740.00	8.85	61.95	1.21	82.67	1.13	1.58	4.40	0.54
min MY	1740.00	8.85	61.95	-0.29	30.81	0.81	1.03	0.58	-0.52
max MY	1740.00	8.85	61.95	0.25	119.61	0.93	0.41	5.18	-0.06
min MZ	1740.00	8.85	61.95	-0.08	53.89	-1.87	-1.40	1.12	9.97
max MZ	1740.00	8.85	61.95	0.18	82.67	3.52	2.71	2.47	-12.09
min VY	1740.00	8.85	61.95	-0.19	47.13	-1.20	-2.22	1.15	-2.63
max VY	1740.00	8.85	61.95	0.39	92.18	2.71	3.65	4.10	-0.50
min VZ	1740.00	8.85	61.95	-0.26	43.47	1.07	0.79	-0.29	-0.48
max VZ	1740.00	8.85	61.95	0.43	111.74	1.08	1.20	5.98	1.22
min MT	1740.00	8.85	61.95	0.11	79.81	2.80	1.93	2.90	-18.07
max MT	1740.00	8.85	61.95	0.21	71.36	-0.99	-0.39	2.81	17.47
min NS	1740.00	11.55	62.13	-0.99	49.11	1.46	-0.38	0.89	-0.85
max NS	1740.00	11.55	62.13	1.48	72.58	-3.25	1.59	4.54	0.63
min MY	1740.00	11.55	62.13	-0.19	28.78	-1.81	0.97	0.86	-1.03
max MY	1740.00	11.55	62.13	0.54	105.49	-0.29	0.44	5.18	0.54
min MZ	1740.00	11.55	62.13	0.37	71.35	-8.06	3.49	2.79	10.42
max MZ	1740.00	11.55	62.13	-0.08	53.64	5.76	-2.04	1.82	-9.83
min VY	1740.00	11.55	62.13	-0.11	43.88	5.02	-2.22	1.23	-2.53
max VY	1740.00	11.55	62.13	0.64	80.86	-7.23	3.65	4.18	-0.63
min VZ	1740.00	11.55	62.13	-0.25	44.15	-1.16	0.84	-0.21	-0.62
max VZ	1740.00	11.55	62.13	0.62	95.17	-0.16	0.44	6.05	1.40
min MT	1740.00	11.55	62.13	0.29	71.74	-1.46	1.95	3.00	-18.02

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criteria	s[m]	y[m]	z[m]	Ns[MN]	My[MNm]	Mz[MNm]	Vy[MN]	Vz[MN]	Mt[MNm]
max MT	1740.00	11.55	62.13	0.38	63.60	-1.49	-0.41	2.87	17.42
min NS	1770.00	4.15	61.69	-0.98	112.06	17.38	3.12	2.13	16.79
max NS	1770.00	4.15	61.69	1.31	168.66	11.92	1.29	5.58	-10.18
min MY	1770.00	4.15	61.69	-0.19	61.25	14.29	2.39	0.77	4.44
max MY	1770.00	4.15	61.69	0.53	239.42	9.13	0.79	8.28	-0.05
min MZ	1770.00	4.15	61.69	0.11	141.51	-17.42	-3.78	4.22	10.03
max MZ	1770.00	4.15	61.69	0.55	129.94	43.07	7.19	3.68	-4.12
min VY	1770.00	4.15	61.69	-0.04	133.75	-16.28	-3.98	3.70	10.48
max VY	1770.00	4.15	61.69	0.41	129.11	42.15	7.49	3.01	3.72
min VZ	1770.00	4.15	61.69	0.07	74.42	10.62	1.37	-0.12	4.83
max VZ	1770.00	4.15	61.69	0.38	235.90	17.37	2.67	9.18	1.68
min MT	1770.00	4.15	61.69	0.42	165.75	32.36	5.38	5.18	-34.54
max MT	1770.00	4.15	61.69	0.10	132.06	-9.00	-2.14	3.28	42.03
min NS	1770.00	8.85	61.67	-0.92	90.45	2.27	3.21	1.56	13.65
max NS	1770.00	8.85	61.67	1.55	162.93	5.71	0.89	7.53	-8.71
min MY	1770.00	8.85	61.67	-0.09	56.41	3.16	2.43	1.48	3.77
max MY	1770.00	8.85	61.67	0.76	200.94	5.75	0.93	8.23	1.06
min MZ	1770.00	8.85	61.67	-0.07	90.08	-5.69	0.80	1.89	20.99
max MZ	1770.00	8.85	61.67	0.71	162.89	13.85	3.26	6.28	-10.43
min VY	1770.00	8.85	61.67	0.17	115.92	2.67	-3.98	3.94	10.49
max VY	1770.00	8.85	61.67	0.53	114.31	7.05	7.49	3.31	4.04
min VZ	1770.00	8.85	61.67	0.08	74.45	3.02	0.52	0.11	4.95
max VZ	1770.00	8.85	61.67	0.68	192.25	6.61	3.86	9.48	1.65
min MT	1770.00	8.85	61.67	0.61	140.79	8.40	5.40	5.49	-34.18
max MT	1770.00	8.85	61.67	0.23	116.03	0.33	-2.12	3.51	42.01
min NS	1770.00	11.55	61.84	-0.81	85.77	-7.22	3.21	1.65	12.59
max NS	1770.00	11.55	61.84	2.06	152.96	4.47	0.90	8.70	-6.25
min MY	1770.00	11.55	61.84	0.11	51.63	-3.50	2.56	1.95	2.55
max MY	1770.00	11.55	61.84	1.25	178.45	3.98	0.89	8.24	1.45
min MZ	1770.00	11.55	61.84	0.51	102.33	-15.95	6.15	3.23	8.97
max MZ	1770.00	11.55	61.84	0.62	121.94	14.02	-3.46	5.21	-10.97
min VY	1770.00	11.55	61.84	0.42	105.00	12.19	-3.98	4.06	10.90
max VY	1770.00	11.55	61.84	0.74	105.06	-13.62	7.49	3.46	3.88
min VZ	1770.00	11.55	61.84	0.11	74.01	1.43	0.49	0.24	4.90
max VZ	1770.00	11.55	61.84	1.25	166.09	-4.15	3.90	9.61	1.87
min MT	1770.00	11.55	61.84	0.96	125.59	-4.48	5.44	5.63	-34.04
max MT	1770.00	11.55	61.84	0.46	107.54	5.49	-2.43	3.66	42.10
min NS	1817.65	4.15	62.05	-1.04	22.11	-15.17	-2.98	1.64	4.33
max NS	1817.65	4.15	62.05	1.05	44.39	19.71	3.16	4.22	-10.39
min MY	1817.65	4.15	62.05	0.13	-14.80	10.06	1.10	-0.69	12.10
max MY	1817.65	4.15	62.05	-0.09	133.37	-7.15	-1.26	11.99	-26.25
min MZ	1817.65	4.15	62.05	-0.91	103.59	-19.83	-3.62	9.66	-17.16
max MZ	1817.65	4.15	62.05	0.93	10.78	21.94	3.30	0.54	7.25
min VY	1817.65	4.15	62.05	-0.95	94.15	-19.44	-3.67	8.69	-16.53
max VY	1817.65	4.15	62.05	0.99	32.57	21.40	3.38	2.79	-1.04
min VZ	1817.65	4.15	62.05	0.13	-9.71	10.74	1.19	-1.50	16.25
max VZ	1817.65	4.15	62.05	-0.08	129.63	-7.51	-1.31	12.28	-28.39
min MT	1817.65	4.15	62.05	0.45	79.33	-1.34	-0.25	8.70	-45.59
max MT	1817.65	4.15	62.05	-0.41	17.23	-2.01	-0.92	0.70	19.70
max NS	1817.65	8.85	62.05	1.05	24.80	5.27	3.16	3.72	-10.40
max NS	1817.65	11.55	62.05	1.05	7.93	-4.32	3.16	7.06	-10.41