

## TP.8

### Maximum of load combinations

#### 18mm KF TG 2059

Service class: 1,  $V_{M,ult.} = 1.30$ ,  $V_{M,acc./seis.} = 1.00$ ,  $k_{sys} = 1.00$

$t$	$=$	18 mm	$f_{m,0,k}$	$=$	22.20 N/mm <sup>2</sup>
$E_{0,mean}$	$=$	8889.00 N/mm <sup>2</sup>	$f_{m,90,k}$	$=$	11.70 N/mm <sup>2</sup>
$E_{90,mean}$	$=$	3111.00 N/mm <sup>2</sup>	$f_{t,0,k}$	$=$	12.00 N/mm <sup>2</sup>
$E_{0,t}$	$=$	8000.00 N/mm <sup>2</sup>	$f_{t,90,k}$	$=$	6.00 N/mm <sup>2</sup>
$E_{90,t}$	$=$	4000.00 N/mm <sup>2</sup>	$f_{c,0,k}$	$=$	20.00 N/mm <sup>2</sup>
$E_{0,c}$	$=$	8000.00 N/mm <sup>2</sup>	$f_{c,90,k}$	$=$	10.00 N/mm <sup>2</sup>
$E_{90,c}$	$=$	4000.00 N/mm <sup>2</sup>	$f_{v,k}$	$=$	3.50 N/mm <sup>2</sup>
$G_0$	$=$	350.00 N/mm <sup>2</sup>	$f_{r,0,k}$	$=$	1.73 N/mm <sup>2</sup>
$G_{90}$	$=$	71.10 N/mm <sup>2</sup>	$f_{r,90,k}$	$=$	0.62 N/mm <sup>2</sup>

#### Tension and bending, y - 6.2.3

Panel: 'TP.8.1', LC: 'LC6ULS',  $k_{mod} = 0.90$ , Coordinates [m]:{ 13.73; 3.46; 2.00}

$$\frac{|\sigma_{t,90,d}|}{f_{td,y}} + \frac{|\sigma_{m,y}|}{f_{md,y}} = \frac{|0.24|}{4.15} + \frac{|-0.01|}{8.10} = 0.06 \leq 1.00 \quad (6.17) - OK$$

#### Compression and bending, x - 6.1.4, 6.2.4

Panel: 'TP.8.1', LC: 'LC8ULS',  $k_{mod} = 0.90$ , Coordinates [m]:{ 13.73; 3.95; 3.00}

$$\frac{\sigma_{c,0,d}}{f_{cd,x}} = \frac{13.43}{13.85} = 0.97 \leq 1.00 \quad (6.2) - OK$$

$$\left( \frac{\sigma_{c,0,d}}{f_{cd,x}} \right)^2 + \frac{\sigma_{m,x}}{f_{md,x}} = \left( \frac{13.43}{13.85} \right)^2 + \frac{0.28}{15.37} = 0.96 \leq 1.00 \quad (6.19) - OK$$

#### Compression and bending, y - 6.1.4, 6.2.4

Panel: 'TP.8.1', LC: 'LC8ULS',  $k_{mod} = 0.90$ , Coordinates [m]:{ 13.73; 0.00; 3.00}

$$\frac{\sigma_{c,90,d}}{f_{cd,y}} = \frac{0.39}{6.92} = 0.06 \leq 1.00 \quad (6.2) - OK$$

$$\left( \frac{\sigma_{c,90,d}}{f_{cd,y}} \right)^2 + \frac{\sigma_{m,y}}{f_{md,y}} = \left( \frac{0.39}{6.92} \right)^2 + \frac{0.01}{8.10} = 0.00 \leq 1.00 \quad (6.19) - OK$$

#### Shear, xy - 6.1.7

Panel: 'TP.8.1', LC: 'LC8ULS',  $k_{mod} = 0.90$ , Coordinates [m]:{ 13.73; 0.60; 3.00}

$$\frac{T_{xy}}{1000 \text{ mm} \cdot t \cdot f_{v,d}} = \frac{7852.32}{1000 \text{ mm} \cdot 18 \cdot 2.42} = 0.18 \leq 1.00 \quad (6.13) - OK$$

#### Shear, xz - 6.1.7

Panel: 'TP.8.1', LC: 'LC22ULS',  $k_{mod} = 0.90$ , Coordinates [m]:{ 13.73; 0.00; 3.00}

$$\frac{1.50 \cdot T_{xz}}{1000 \text{ mm} \cdot t \cdot f_{r,d,x}} = \frac{1.50 \cdot 23.02}{1000 \text{ mm} \cdot 18 \cdot 1.20} = 0.00 \leq 1.00 \quad (6.13) - OK$$

Shear, yz - 6.1.7

Panel: 'TP.8.1', LC: 'LC22ULS',  $k_{mod} = 0.90$ , Coordinates [m]:{ 13.73; 0.00; 2.75}

$$\frac{1.50 \cdot T_{yz}}{1000 \text{ mm} \cdot t \cdot f_{r,d,y}} = \frac{1.50 \cdot 18.62}{1000 \text{ mm} \cdot 18 \cdot 0.43} = 0.00 \leq 1.00 \quad (6.13) - \text{OK}$$

Summary

