



BEAM ANALYSIS REPORT

For preliminary sizing; the final design must be checked and approved by a competent engineer to relevant standards.

Project	Sample Project	Subject	Vertical Profile Structural Design
Prepared by	Civil Engineer	Approved by	MSc Civil Engineer
Date	10/18/2026		

1) Inputs

L (mm)	6000	E (MPa)	70000
I (cm ⁴)	200.00	W (cm ³)	40.00
Material	aluminum	Note	Aluminum X.X
f _y (MPa)	160	σ _{allow,d} (ULS) MPa	145.5 (γ _M =1.1)

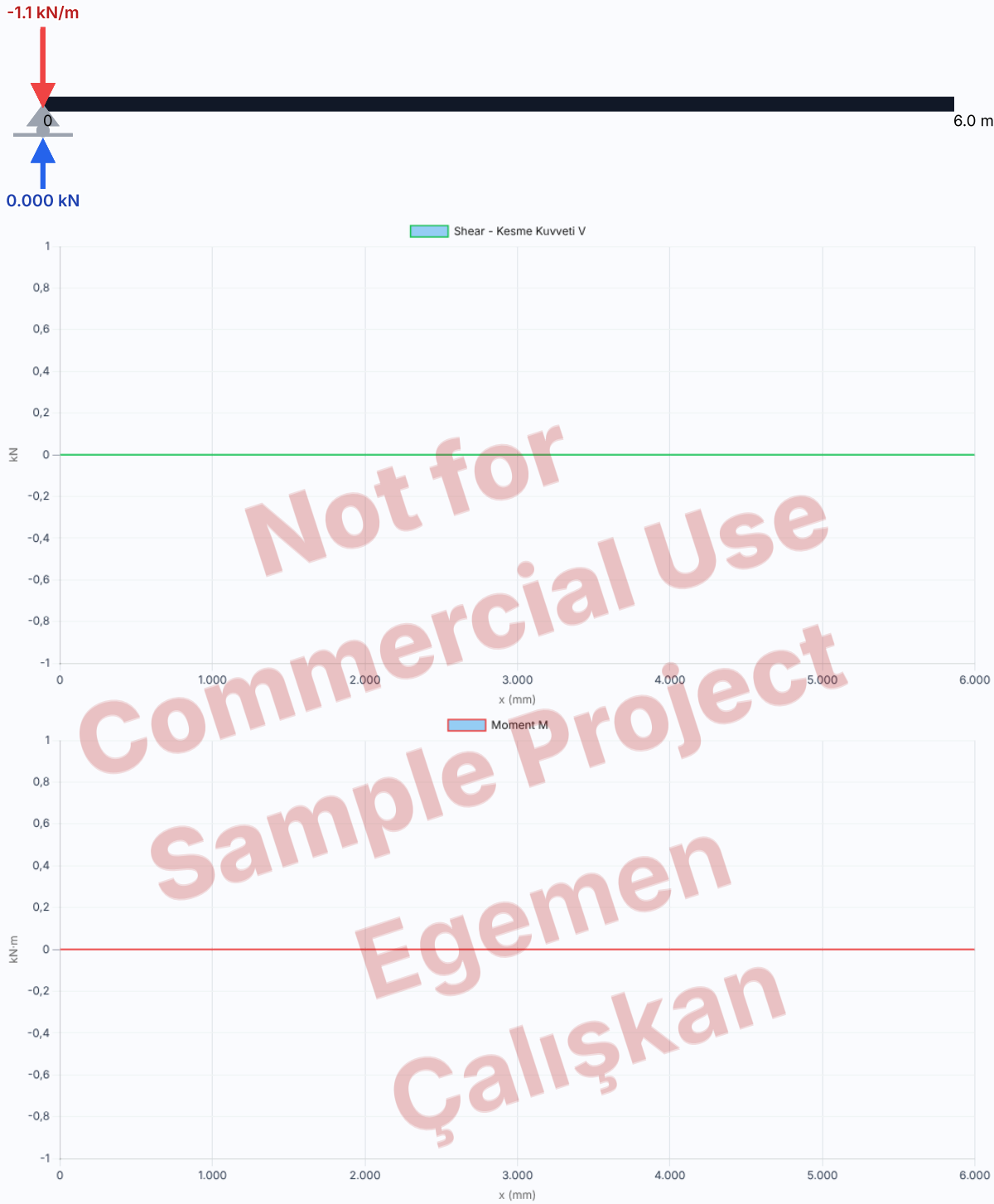
2) Loads

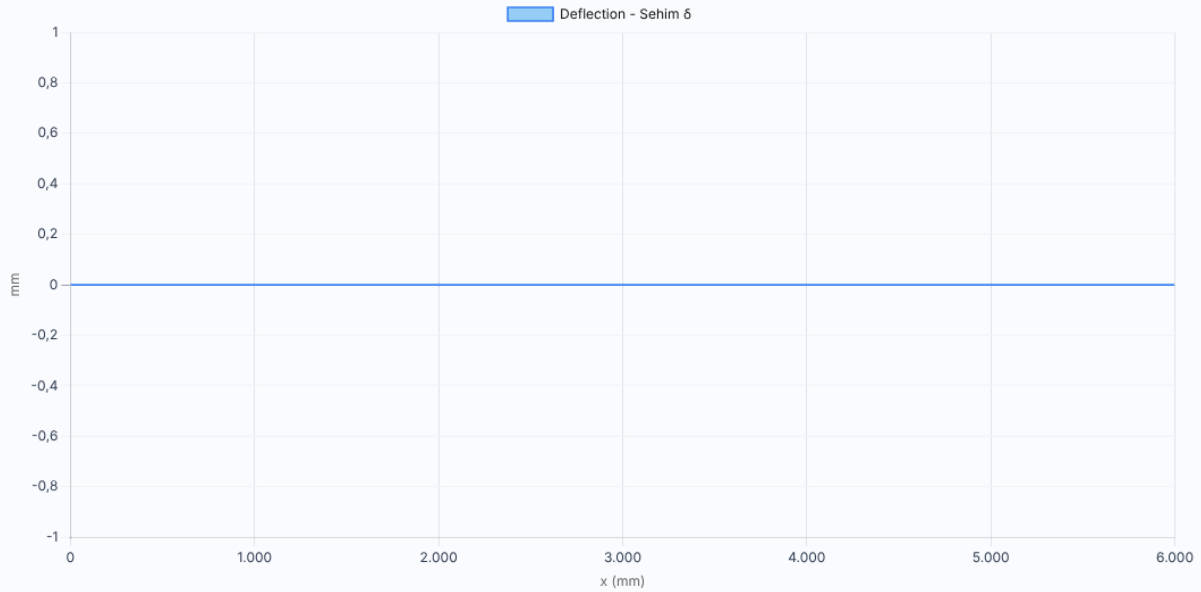
UDL (Uniformly Distributed Load)				Point Loads		
#	w (kN/m)	x ₁ (mm)	x ₂ (mm)	#	P (kN)	x (mm)
1	-1.10	–	–	No point load entered.		

3) Supports

#	Type	x (mm)	Constraints
1	pinned	–	u=0 v=0 θ free
2	roller	–	u free v=0 θ free
3	roller	–	u free v=0 θ free

4) Figures





5) Reactions

#	Type	x (mm)	Reaction V (kN)
1	pinned	0	0.000
2	roller	0	0.000
3	roller	0	0.000

6) Static Results

$ V _{\max}$	0.000 kN	$ M _{\max}$	0.000 kN·m
$ \delta _{\max}$	0.000	$\sigma_{\max}$	0.00 MPa

SLS — ☒ OK

$\Delta_{\max} = 0.00 \text{ mm}$ | sınır = 25.00 mm | kullanılan $L_{\text{eff}} = 6000 \text{ mm}$ | $I_{\text{req}} = 0.00 \text{ cm}^4$

ULS — ☒ OK

$\sigma_d = 0.00 \text{ MPa}$ | limit = 145.45 MPa ($\gamma=1.1$) | $M_d = 0.000 \text{ kN}\cdot\text{m}$

7) Notes

The model is solved using the **Finite Element Method** (matrix displacement).

The element's **self-weight** is not included; you can add it as a UDL if needed.

EN 13830 SLS limits: Mullion → $L \leq 3000$: $L/200$; 3000–7500: 5 mm + $L/300$; $L \geq 7500$: $L/250$.

Transom → $\min(L/500, 3 \text{ mm})$.

Not for
Commercial Use
Sample Project
Egemen
Çalışkan