Civil Engineering Calculator — Beam Analysis Report

1. Project Specification

Total Beam Length: 10.0 m
Force Unit: kN | Length Unit: m

2. Boundary Conditions (Supports)

Support #1: Pin Support at 0.00 m
Support #2: Roller Support at 10.00 m

3. Applied Structural Loads

Load #1: Point Load: 15.00 kN at position 5.00 m
Load #2: UDL: 25.00 kN/m from 0.00 m to 5.00 m
Load #3: VDL: w1=10.00, w2=20.00 kN/m from 5.00 to 10.00 m

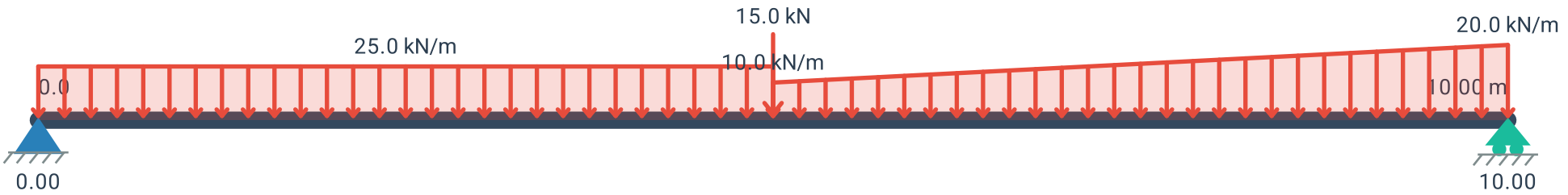
4. Calculated Support Reactions

Position 0.00 m: Force = 117.918 kN
Position 10.00 m: Force = 97.083 kN

5. Diagram Summary Extremes

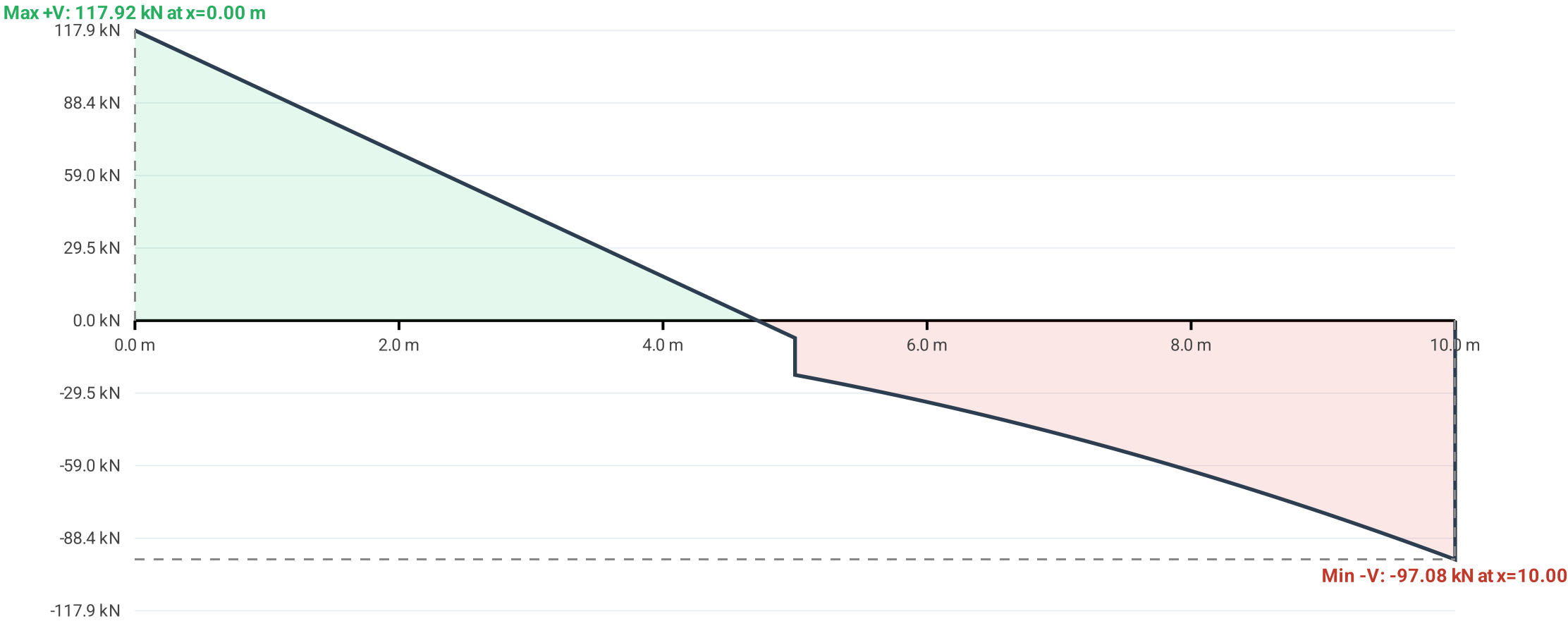
Max Shear Force (V_max): 117.918 kN at 0.00 m
Min Shear Force (V_min): -97.082 kN at 10.00 m
Max Sagging Moment (M_max): 278.091 kN·m at 4.72 m
Max Hogging Moment (M_min): 0.000 kN·m at 0.00 m

Beam Geometry & Applied Loads Layout



Beam Support Reactions Diagram

Shear Force Diagram (SFD)



Bending Moment Diagram (BMD)