

**DESIGN AND CHECK CERTIFICATE
TRAFFIC SIGN/SIGNAL SUPPORTS**

Date:
2008-01-10

Jerol Fibre Reinforced Polymer Composite Traffic Sign/Signal Post

We certify that the traffic sign/signal posts accurately shown on drawing numbers:
114-10, 140-10, 168-10, 219-10, 273-10 have been designed to have the following properties:

Post without door opening

Post diameter (mm)	114	140	168	219	273
Maximum bending moment M_u (kNm)	7,3	12,6	20,3	38,3	60,2
Stiffness for bending EI (kNm ²)	69,7	146,7	284,1	704,3	1367,8
Maximum moment for torsion T_u (kNm)	7,9	13,5	21,7	40,3	62,8
Stiffness for torsion GI_t (kNm ²)	15,6	32,7	63,4	157,2	305,4
Shear capacity (kN)	49,5	67,5	89,1	116,6	151,2

Post with door opening


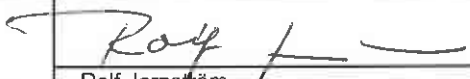
Post diameter (mm)	114	140	168	219	273
Maximum bending moment M_u (kNm)	3,0	6,4	11,9	26,0	44,4
Stiffness for bending EI (kNm ²)	26,2	75,7	173,3	505,2	1064,3
Maximum moment for torsion T_u (kNm)	0,7	2,2	5,0	13,8	26,5
Stiffness for torsion GI_t (kNm ²)	1,4	5,3	14,6	53,6	128,6
Shear capacity (kN)	49,5	67,5	89,1	116,6	151,2

The moment properties include a material safety factor $\gamma_m = 1.5$.

To obtain the above properties for fiber reinforced polymer composite sign posts, testing for material properties and calculation has been carried out in accordance with the method in EN 40-7:2002.

The door opening for with door posts is 400 mm high x 80 mm wide and 1000 mm above ground

The traffic sign/signal posts comply with The Specification for Highways Works (dated November 2003) except for agreed departures in respect of material and protective coating.

Signed (Designer/checker)	Kascal Oy
	
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