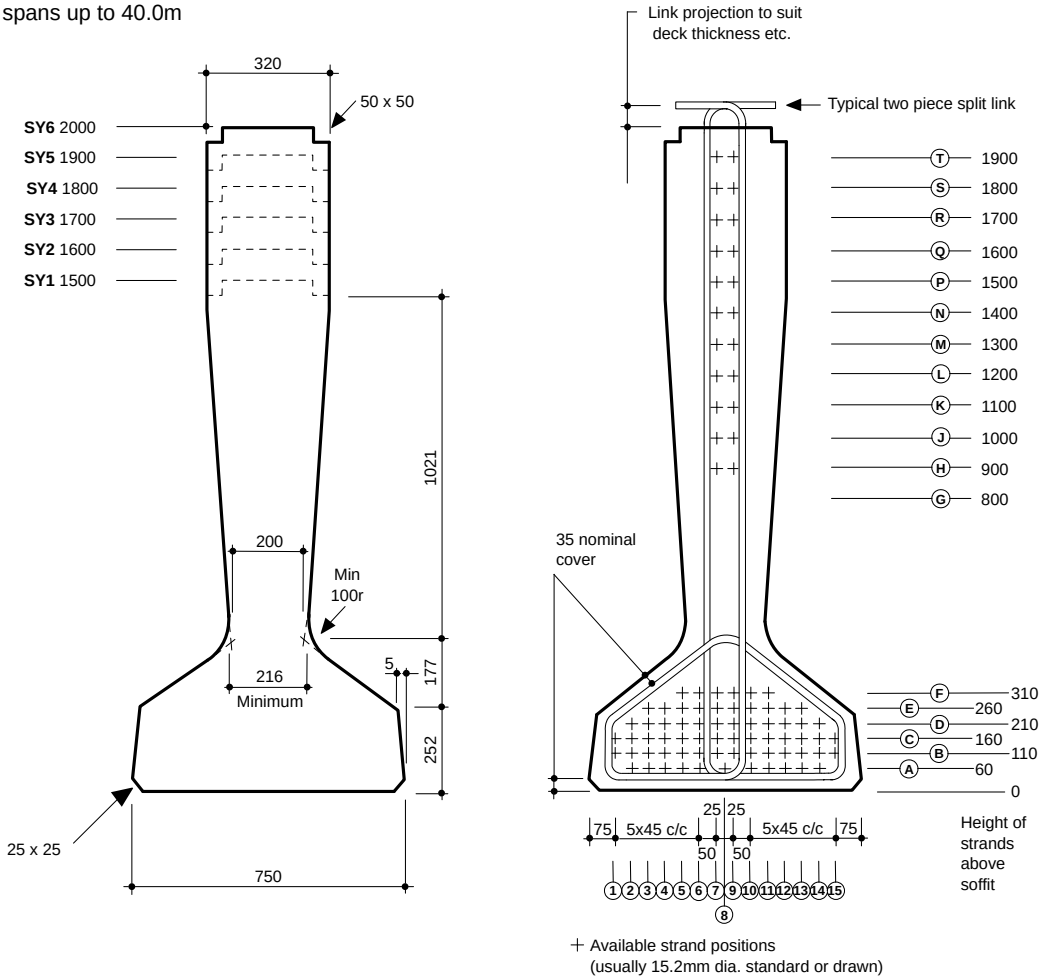
Standard Pre-stressed Concrete Bridge Beams

Standard 'SY' Beam range

Simply supported spans up to 40.0m



Section properties

Section	Depth mm	Area mm^2	Height of centroid above bottom fibre Yb mm	Section moduli $mm^3 \times 10^6$		Approximate self weight kN/m
				Top fibre Zt	Bottom fibre Zb	
SY1	1500	549158	598.35	132.59	199.81	13.73
SY2	1600	581158	650.06	153.97	225.00	14.53
SY3	1700	613158	701.59	176.16	250.69	15.33
SY4	1800	645158	752.98	199.16	276.98	16.13
SY5	1900	677158	804.23	223.09	303.97	16.93
SY6	2000	709158	865.36	247.89	331.72	17.73

Span loading 45 Units HB loading (inc. 2.4 kN/m^2 for finishes)

Span (m)	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
SY1															
SY2										Beams at 1.400cts					
SY3															
SY4															
SY5															
SY6															

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Typical Specification

Concrete

Transfer cube strength 40 N/mm^2.
28 day cube strength 50 N/mm^2.
(Higher strengths can be accommodated where necessary).

Cement

Cement usually complies with B.S.12 - Portland.
The following may also be used:-
B.S.3892 - p.f.a.

Admixtures

Comply with B.S.5075 - Concrete admixtures.

Aggregates

Comply with B.S.882 - Concrete aggregates from Natural Sources.

Prestressing Strands

Comply with B.S.5896 with Class 2 relaxation.

12.5mm dia.standard at 123 kN max. initial force in inverted 'T' and 'TY' beams
(alternatively 12.7mm dia. drawn strand at 146.3 kN max. initial force can be used).

15.2mm dia.standard at 174 kN max. initial force in 'Y','YE', 'M','SY','U' and 'UM' beams
(alternatively 15.2mm dia. drawn strand at 210 kN max. initial force can be used).

Secondary Reinforcement

Complies with B.S.4449 or B.S.4482

Length shown on drawings

The length of beams shown on customers drawings is assumed to be the casting length of the beams and that the engineer has taken into consideration the effects of shrinkage and creep.

Tolerances

Unless specifically agreed otherwise beams will be made to the full tolerances shown in DTp specification. Clause 1710.8 (or B.S.8110 Part 1, Clause 6.11.3 and 6.11.4).

Surface Finish

Top. Rough as cast - DTp Class 2, Clause 1710.8.
Sides & Soffit. F5 - DTp Clause 1708.4 (or B.S.8110 Clause 6.1.3 Type A).

Camber

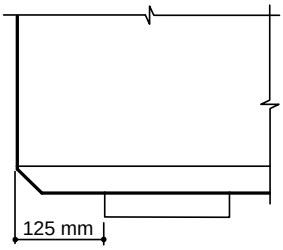
All prestressed beams will have an upward camber due to prestress.

Fixing, inserts, cast in sockets

In side, soffit and ends - should be avoided wherever possible.

Bearings

Bearings for bridge beams should be considered on the merits of each particular application. As a general rule, however, the edge of the bearing closest to the abutment should be detailed at least 125mm in from the end of the beam. (See sketch). Cast in items cannot project below the soffit line of prestressed units.



Weight

The customer should assume a concrete density of 2.5 t/m^3.

Quality Assurance

We are a B.S.I. Registered Firm to BS.EN.ISO.9001

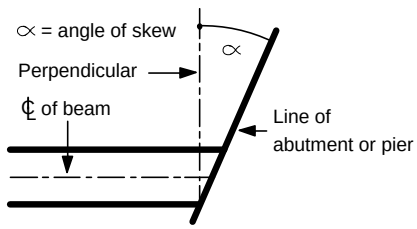
Quality Control

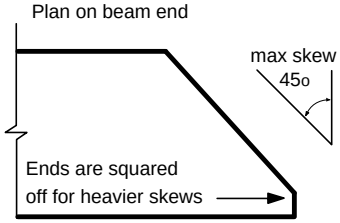
We carry out strict quality control procedures at all stages of manufacture. Copies of all necessary certificates on cement, aggregates, strand, stressing records, cube tests and beam tests are retained within our quality system.

Skews

Skewed ends to beams are expensive and should be avoided wherever possible. However, we are able to produce these details to any angle required, up to a maximum of 45^o, beyond which there is a risk that, during manufacture, damage to beam ends may result. Reinforcement. Only reinforcement in the end zone of the beam should be skewed. All other reinforcement in the body of the beam should be detailed square to the section.

Note: A square deck has a zero skew





Stacking

Positions of stacking timbers should be approx. 500mm from the ends of a beam and projecting links should be positioned accordingly.

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