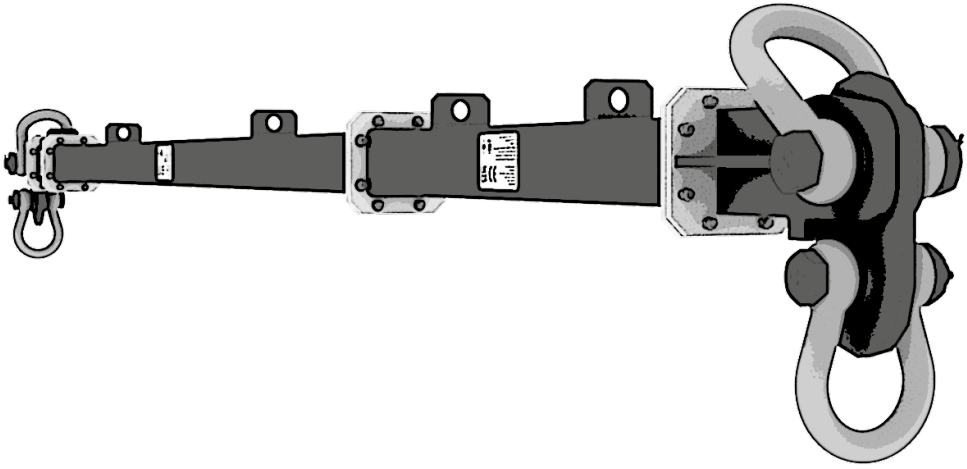
S80 SPREADER BEAM USER GUIDE

CREATING SAFE WORKING ENVIRONMENTS



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CREATING SAFE WORKING ENVIRONMENTS

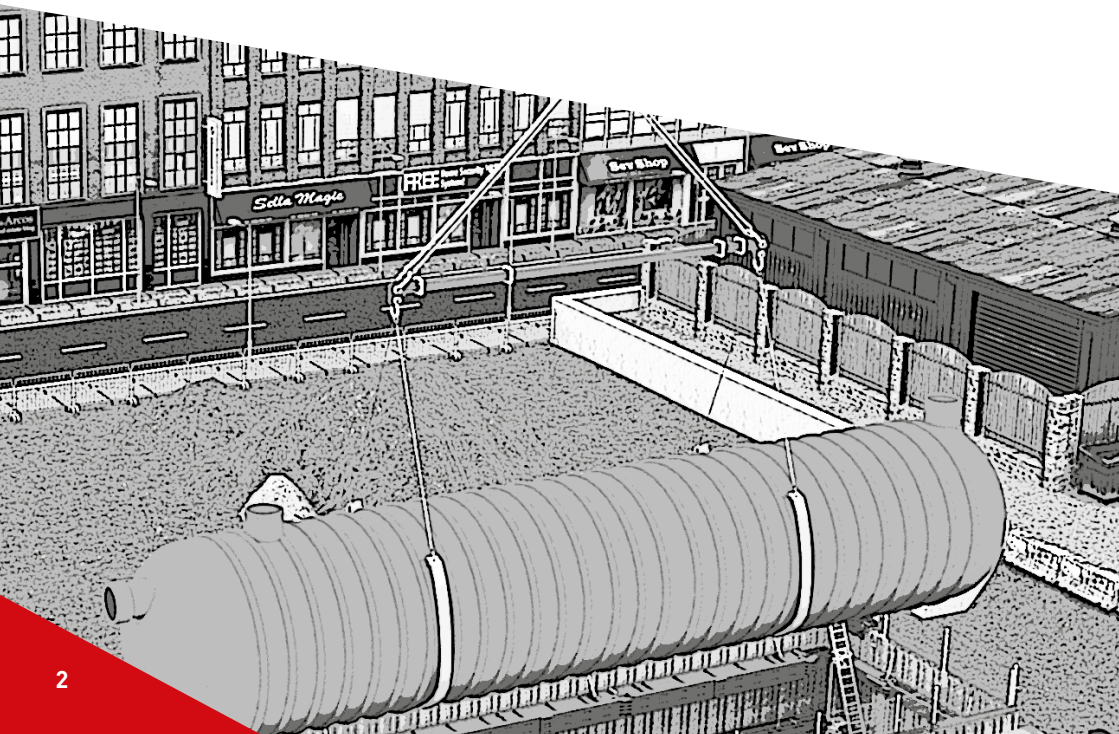
With over 40 years of experience, MGF is a privately-owned company whose focus is the provision of fully engineered excavation and structural support solutions and complimentary lifting and safety equipment to the construction industry. We combine technical expertise and operational performance to ensure the highest levels of customer service. With a focus on developing and promoting industry best practice in excavation safety we aim to assist our customers in creating safe working environments for their employees.

CUSTOMER SERVICE AND SUPPORT

The hire and sale of our products is fully supported by our team of qualified engineers, experienced Technical Sales Representatives, hire desk and operational staff. Our hire centres provide the focal point for service delivery where our hire desk team will be pleased to receive your enquiry.

DELIVERY CAPABILITIES

Our dedicated fleet of vehicles offer a flexible solution to quickly meet our customers delivery needs throughout the UK. We partner with several global shipping companies to ensure we can quickly deliver our products on a global scale.



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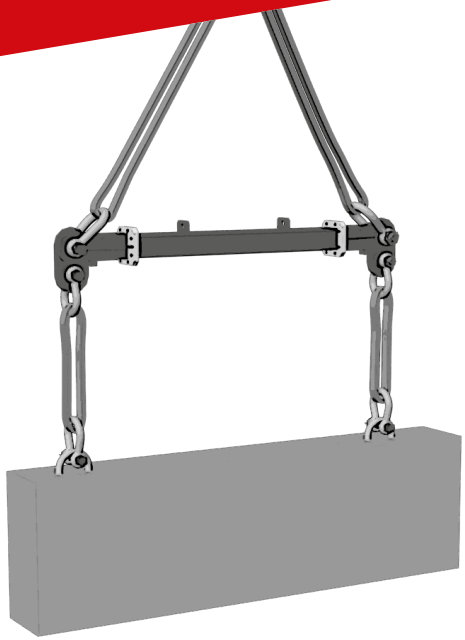

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ISSUE 1

SPREADER BEAM OVERVIEW

The MGF S80 Spreader Beam is a modular system which can lift up to 80t and is available in lengths from 1-14m with increments as small as 0.25m. The capacities for various lengths are stated below. For smaller increments in lengths please consult an MGF representative.

The system includes two End Attachments (D) which are bolted onto the end of one or more strut extensions (E) to customise the length of the beam. The system comes with Drop Links (B) on each end, which connect the Upper (A) and Lower Shackles (C) to the End Attachment (D). Endless round slings available for all lengths.

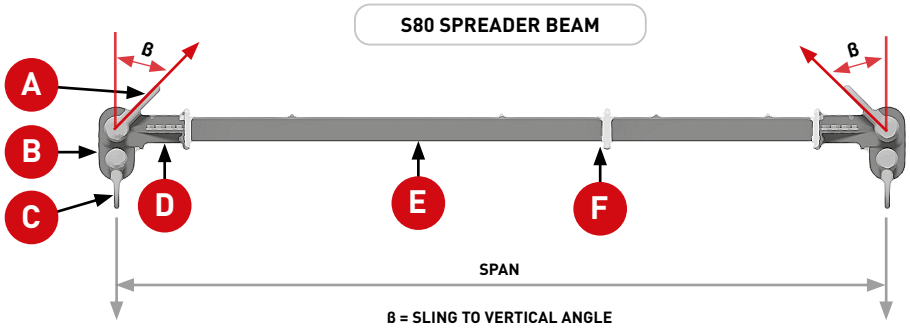

Figure 1 - Typical Beam Setup

KEY PRODUCT FEATURES

- Rated at 80 tonnes WLL up to 8.0 metre span (30° STV β). See load table for alternate spans and angles
- Sling to Vertical (STV) angle, β, 45° or less
- End Attachments and Drop Links are rated at 40 tonnes WLL each (80t combined)
- 240Nm min. torque required for M20 bolts (30mm socket/spanner)

1.1 SPAN/CAPACITY CHART

SPAN (M)	SLING TO VERTICAL ANGLE (STV) B				RECOMMENDED CONFIGURATION EA-0.5M END ATTACHMENT						WEIGHT (KG)
	30°		45°								
	WLL (t)	MIN. TOP SLING LENGTH (M)	WLL (t)	MIN. TOP SLING LENGTH (M)							
1.0	80	0.5	80	0.8	EA	EA					444
1.5	80	0.8	80	1.3	EA	0.5	EA				499
2.0	80	1.2	80	1.8	EA	1	EA				523
2.5	80	1.5	80	2.3	EA	0.5	1	EA			578
3.0	80	1.9	80	2.8	EA	2	EA				571
3.5	80	2.2	80	3.3	EA	0.5	2	EA			626
4.0	80	2.6	80	3.8	EA	3	EA				618
4.5	80	2.9	80	4.3	EA	0.5	3	EA			673
5.0	80	3.3	80	4.8	EA	1	3	EA			697
5.5	80	3.6	78	5.3	EA	1.5	3	EA			722
6.0	80	4	70	5.8	EA	5	EA				711
6.5	80	4.4	70	6.3	EA	0.5	5	EA			766
7.0	80	4.7	60	6.8	EA	1	5	EA			790
7.5	80	5.1	55	7.3	EA	1.5	5	EA			815
8.0	80	5.4	50	7.8	EA	2	5	EA			838
8.5	78	5.8	45	8.3	EA	0.5	2	5	EA		893
9.0	71	6.1	40	8.8	EA	3	5	EA			885
9.5	64	6.5	37	9.3	EA	0.5	3	5	EA		940
10.0	58	6.8	33	9.8	EA	1	3	5	EA		964
10.5	52	7.2	30	10.3	EA	1.5	3	5	EA		989
11.0	48	7.5	27	10.8	EA	5	5	EA			978
11.5	42	7.9	24	11.3	EA	0.5	5	5	EA		1033
12.0	39	8.2	22	11.8	EA	1	5	5	EA		1057
12.5	35	8.6	20	12.3	EA	1.5	5	5	EA		1082
13.0	32	9	18	12.8	EA	2	5	5	EA		1105
13.5	28	9.3	17	13.3	EA	0.5	2	5	5	EA	1160
14.0	26	9.7	15	13.8	EA	3	5	5	EA		1152

N.B. For intermediate spans round up to the nearest half metre

Table 1 - Span/Capacity Chart

COMPONENTS

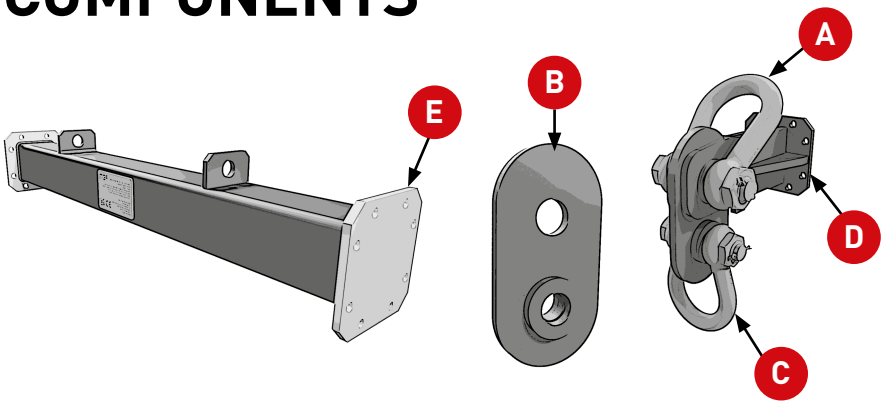

Figure 2 - Components

2.1 TABLE OF COMPONENTS

PART REF	DESCRIPTION	PRODUCT ID	WEIGHT/ITEM (KG)
A	85t SHACKLE		62
B	DROP LINK	2.9203	38
C	55t SHACKLE		40
D	END ATTACHMENT	2.9201	82
E	0.25M SPREADER EXTENSION	2.9202	44
	0.5M SPREADER EXTENSION	2.9205	55
	1.0M SPREADER EXTENSION	2.9210	79
	1.5M SPREADER EXTENSION	2.9215	104
	2.0M SPREADER EXTENSION	2.9220	127
	3.0M SPREADER EXTENSION	2.9230	174
	5.0M SPREADER EXTENSION	2.9250	267
F	8NO. M20 X 80, GRADE 8.8 HT BOLTS, NUTS & WASHERS		

Table 2 - Components List

ASSEMBLY PROCEDURE

- Check the ID details on each component to ensure the correct lengths are used.
- Arrange the Extensions and End Attachments in the recommended configuration (see Table 1), ensuring that the longest extensions are central.
- Check for debris between the flanges before connection to ensure the endplates sit perfectly flush with one another.
- Bolt the components together using bolts, nuts & washers provided, 8no M20 x 80 bolts per connection. Tighten all bolts to a minimum torque of 240Nm, 2 threads minimum must be visible. Bolts should be re-tightened before every lifting operation.
- Place the Drop Link inside the jaw of an End Attachment, ensuring that it is orientated so the larger hole is at the top.
- Place a top sling onto the body of the upper shackle and put jaw of top shackle over the end attachment jaw.
- Put top shackle pin through shackle, end attachment jaw and drop link, and repeat for other spreader beam end.
- Attach free ends of top slings to crane hook.
- Attach lower slings and shackles to lower holes of drop links and attach them to the load to be lifted.
- The assembled spreader beam and lifting rig must be thoroughly checked by a competent person prior to lifting.
- Recommended equipment for assembly: Torque wrench, podger spanner, ring spanner.

3.1 CRITICAL ASSEMBLY RULES

- A maximum of 4 extensions can be used in any configuration (plus one additional 0.25m).
- STV (sling to vertical ß) angle must be less than 45°.
- The lower slings cannot be rigged at more than a 6° angle.
- Position the longest strut in the centre of the beam.
- Sling angle is critical for safe use of spreader beams.
- The rigger must ensure there is clearance between sling end and End Attachment (see Figure 5).
- For sling to vertical angles between 30° to 45°, either use the 45° capacity or consult an MGF representative for an accurate load capacity.

3.2 SAFE USE WARNINGS

BEFORE OPERATIVES USE THE EQUIPMENT, THEY SHOULD READ AND UNDERSTAND THESE WARNINGS.

- ✓ WHEN MOVING OR POSITIONING LONG EXTENSIONS OR ASSEMBLIES USE TAG LINES TO CONTROL MOVEMENT
- ✓ LOAD MUST BE LIFTED THROUGH THE DROP LINKS, NEVER HANG LOADS FROM SPREADER BEAMS, HANDLING POINTS OR FLANGES AS THE SPREADER BEAMS ARE DESIGNED FOR AXIAL COMPRESSION ONLY
- ✓ THE EQUIPMENT MUST BE USED IN ACCORDANCE WITH THE PROCEDURES FROM 'LIFTING OPERATIONS AND LIFTING EQUIPMENT REGULATIONS 1998' (LOLER)
- ✓ OPERATIVES USING THIS SYSTEM SHOULD BE SUITABLY TRAINED, COMPETENT AND HAVE A CLEAR UNDERSTANDING OF SAFE SLINGING PROCEDURES
- ✓ IT IS CRITICAL THAT THE LENGTH AND CAPACITY OF THE SLINGS AND END FITTINGS (PARTICULARLY TOP SLING) ARE SUITABLE FOR THE WLL BASED ON THE ANGLE SHOWN IN TABLE 1

- ✗ DO NOT EXCEED STATED WLL FOR EACH PARTICULAR SPAN AND SLING ANGLE SHOWN IN TABLE 1
- ✗ DO NOT RIG THE LOWER SLINGS MORE THAN 6 DEGREES FROM VERTICAL
- ✗ INDIVIDUAL COMPONENTS CAN BE HEAVY AND EXTREME CARE MUST BE TAKEN IF MANUAL HANDLING
- ✗ INDIVIDUAL SPREADER BEAM EXTENSIONS INCLUDE LIFTING POINTS FOR SAFE HANDLING (SEE IMAGE BELOW), IT IS CRITICAL THAT THESE ARE NOT USED TO SUSPEND ANY LOAD OTHER THAN THE SELF-WEIGHT OF THE BEAMS. THEY ARE INDIVIDUALLY RATED TO 1000KG. THE HANDLING POINT ON THE END ATTACHMENT (FIGURE 4) SHOULD BE USED FOR HANDLING THAT COMPONENT ONLY, THEY ARE RATED AT 200KG.

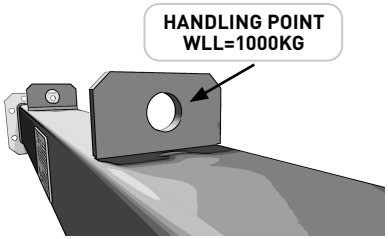

Figure 3 - Spreader Extension Handling Point

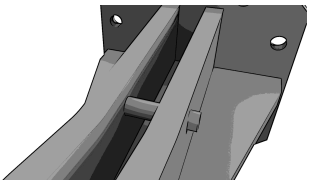

Figure 4 - End Attachment Handling Point

PRE-LIFT CHECKS

Before lifting there are several checks which should be done:

- Must ensure that there is suitable clearance between the equipment used to connect to the shackles and the end attachment.
- Must ensure that the drop link is free to rotate before use.
- Must ensure that the slings are not twisted or tangled.
- Keep the loaded spreader beam clear of obstacles – any contact could cause unsafe release of load or beam failure.
- Ensure the smaller shackles are attached to the bottom of the drop link.
- Ensure that the top sling lengths are suitable, and the beam does not tilt.
- Ensure that the centre of gravity of the object being lifted is positioned underneath the master link.
- Each component needs to be checked prior to each lift.
- Carry out a visual alignment check for each assembly to ensure straightness without kinks or bows along the length.
- Prior to first use of a new assembly, carry out a trial lift just above ground level to ensure that straightness is maintained under its own self-weight.

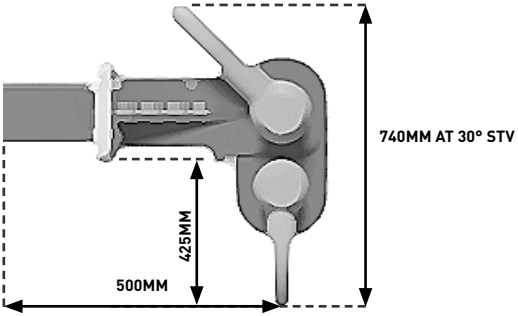

Figure 5 - Drop Link Clearance

4.1 RECOMMENDED TOP SLING TYPE

Textile slings, wire rope slings with soft eyes and chain slings with small end fittings. If thimble eyes are used with wire rope then sling angle must be less than 30 degrees. Ensure that attachment allows adequate clearance as shown in Figure 5, a longer sling will give greater clearance.

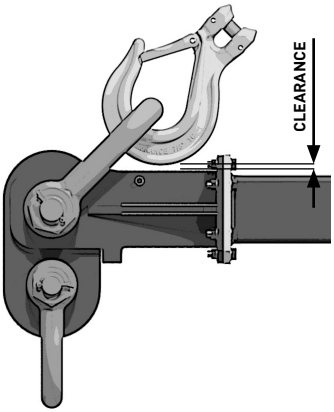

Figure 6 - Top Sling Clearance

IT IS THE HIRER'S RESPONSIBILITY TO INSPECT THE BEAMS AND ALL FITTINGS PRIOR TO ANY LIFTING OPERATIONS BEING UNDERTAKEN. CONSULT AN MGF REPRESENTATIVE BEFORE LIFTING IF THERE IS ANY DOUBT OVER THE QUALITY OF THE EQUIPMENT OR IF YOU ARE UNSURE ABOUT ANY ASPECT OF THESE RULES.

EQUIPMENT TO BE USED IN ACCORDANCE WITH MGF'S TERMS AND CONDITIONS OF HIRE.

ALL OPERATIONS MUST BE CARRIED OUT TO APPROVED METHOD STATEMENTS AND RISK ASSESSMENTS.

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