



# TECHNICAL MANUAL

## THREADED SOCKET SYSTEMS



# Threaded Socket Systems

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## General Guidance On Choice Of Lifting Sockets

The capacity of lifting sockets is determined by the final load value on the socket. This value is derived from a combination of loads and factors influencing the sockets during the lifting process.

These are as follows:

The static weight of the actual concrete unit; this is load **W**.

The number and positioning of sockets and the sling arrangements. Effective lifting points **N**.

Removing a unit from formwork (demoulding); this is load **Fa**.

The speed at which the unit is hoisted and ground conditions the unit is being transported over; this is factor **V**.

The sling angles, any inclination of the slings from vertical axis will increase the load on the socket; this is factor **A**.

In order to accurately determine the correct size of socket to be used, all these loads and factors have to be combined.

### Static Weight

This is the actual mass of the concrete, and for general purposes is determined from a figure of 2500kg per cubic metre of concrete. Thus the volume in cubic metres multiplied by a density of 2500kg/m<sup>3</sup> will give us the unit's static weight in kilograms.

### Number and Positioning of Sockets and Slings

The weight carried by each socket is directly affected by the number of sockets being used to carry the unit, and their orientation about the centre of gravity of the unit. It is important that the anchors are placed equidistant about the centre of gravity in any one axis. At this stage it is also worth noting that the number of slings and type of system will also affect the operation of the sockets. For this reason, unless there is some means of balancing the slings we can only assume that if four slings are connected to four sockets in an unbalanced system only two sockets effectively take the weight of the unit. Therefore, half the weight of the unit is carried by each socket. The static load per socket is the static load of the unit divided by the number of effective sockets (see figure 1 on page 2).

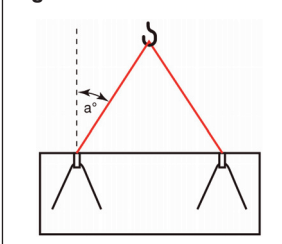
### Sling Angles

Any inclination of sling angle from vertical will have a direct result on the load induced on the socket via the lifting slings. (see table 1 and figure 2 for factors).

**table 1**  
Single Angle Load Factors

Angle from Vertical. <b>a</b>	Factor <b>A</b>
0	1.00
15	1.04
30	1.16
45	1.41
60	2.00

**figure 2**



### Removing Unit From The Formwork

It is worth noting that considerable loads can be induced on the sockets whilst attempting to remove a concrete unit from the formwork (demoulding). This load is influenced greatly by the type of formwork material utilised and surface area directly in contact with the concrete. The load values per square metre are given in table 2 for various formwork materials, the resultant figure should be added to the weight of the unit giving the weight of the unit at demoulding stage. The additional load at demould (**Fa**) is equal to the square metreage of formwork in contact with the concrete, multiplied by the load per square metre value for the relevant material. It is important to note that this factor only influences demoulding and plays no part in any general lifting operation and can therefore be ignored for general lifting purposes.

**table 2**  
Demoulding Factors

Formwork Materials	Load per m <sup>2</sup> (Kg)
Flat Steel Shutters	100
Flat Plywood Shutters	200
Flat Sawn Boards	300

**Fa** = Load per m<sup>2</sup> x square metreage of formwork.

### Speed of Hoist

The speed at which a unit is hoisted and the ground conditions it is transported over will affect the load on the socket. The factors for various rope speeds and ground conditions are given in table 3.

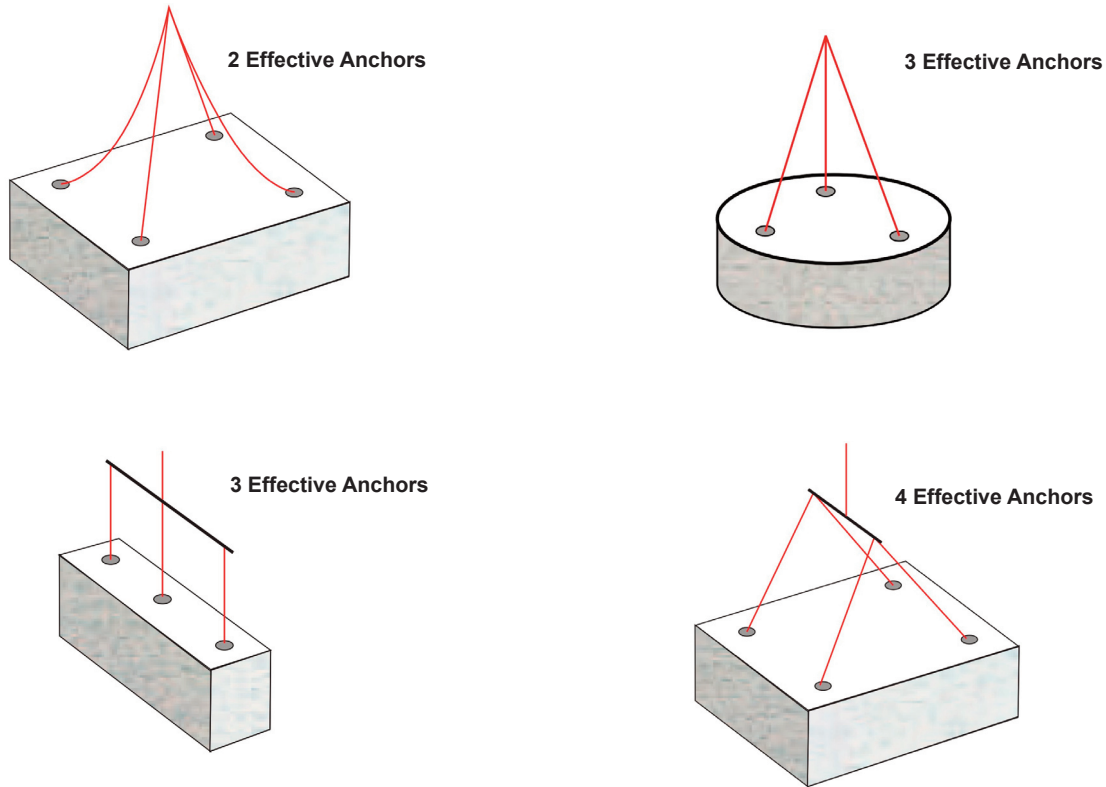
**table 3**  
Rope Speed and Transport Factors

Lifting Conditions	Factor <b>V</b>
Static Crane with Rope speed below 90 metres/min	1.00
Static Crane with Rope speed above 90 metres/min	1.30
Lift and transport with mobile crane on smooth ground	1.75
Lift and transport with mobile crane on uneven ground	2.00
Lift and transport over rough ground	3.00

Note at demould stage the unit is static hence the lifting factor is effectively 1.



figure 1



### Calculating the Load per Socket

For **demoulding** the load per socket is calculated as follows:

$$\text{Load per socket} = (W + Fa) / N \times A$$

For **general lifting** the load per socket is calculated as follows:

$$\text{Load per socket} = (W / N) \times A \times V$$

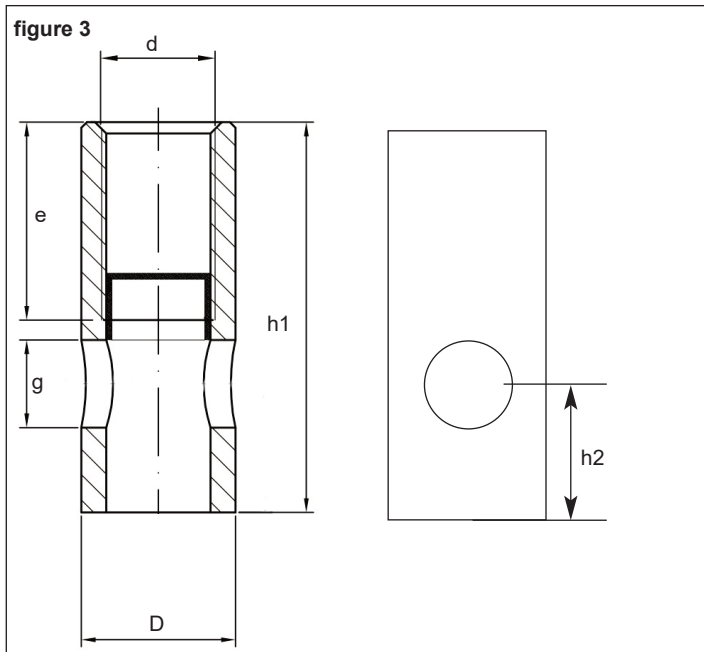
where:

- W** is the static weight of the concrete unit in Kg.
- Fa** is the additional load at demould stage in Kg.
- N** is the number of effective sockets.
- A** is the increased load factor due to sling angles.
- V** is the increased load factor due to rope speed and transport conditions.

Once the capacity of lifting socket has been determined the specific type of lifting socket can be chosen. This can be influenced by the type and size of concrete unit, the concrete cover to the socket and the lifting procedure to be carried out. The sizes and capabilities of Euro Accessories lifting sockets are detailed throughout the following pages.



## Tubular Lifting Sockets



Manufactured from either high grade precision steel tube in zinc plated finish or stainless steel tube. The sockets are supplied with an (Rd) round thread as standard.

Euro Accessories tubular lifting sockets are designed to offer high load bearing capabilities in both axial and shear loading instances. Please refer to figure 3 and table 4 for exact dimensions and load bearing capabilities.

When using tubular lifting sockets, additional reinforcement through the crosshole must always be utilised. Please refer to 'Installation Instructions for use with tubular and flat end lifting sockets'.

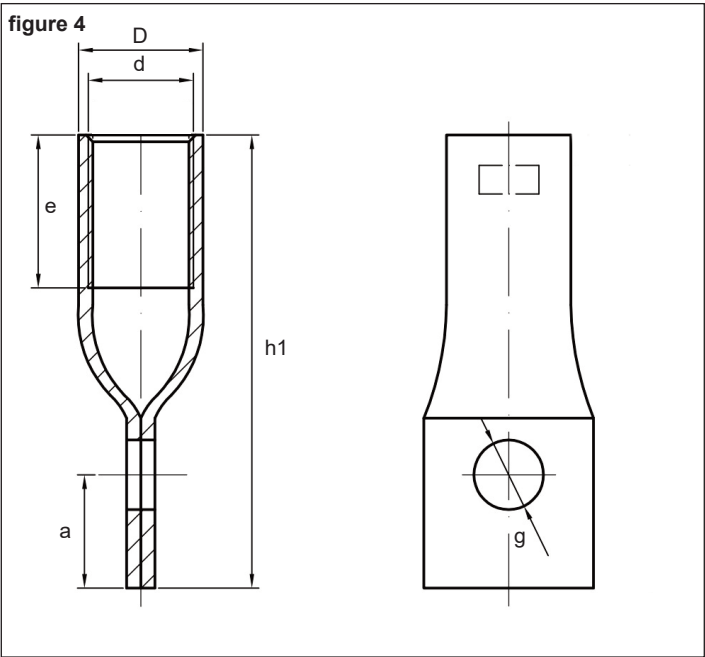
**Ensure lifting devices are fully threaded into the socket before lifting commences.**

**Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.**

**table 4**  
Tubular Lifting Sockets

Product Code	Thread Dia. d (Rd)	h1 (mm)	h2 (mm)	D (mm)	g (mm)	e (mm)	SWL (kg)
SLT1240	12	40	14.0	15.0	10.0	22.0	500
SLT1654	16	54	17.0	21.0	13.0	27.0	1200
SLT2069	20	69	22.5	27.0	15.5	35.0	2000
SLT2478	24	78	23.0	31.0	18.0	43.0	2500
SLT30103	30	103	32.0	39.5	23.0	56.0	4000
SLT36125	36	125	38.5	47.0	27.5	68.0	6300
SLT42145	42	145	44.0	54.0	32.0	80.0	8000
SLT52195	52	195	60.0	67.0	40.0	105.0	12500

# Flat End Lifting Sockets



Manufactured from either high grade precision steel in zinc plated finish or stainless steel. The sockets are supplied with a metric (M) thread as standard.

Euro Accessories Flat End Lifting Sockets provide a cost effective alternative to Tubular Lifting Sockets. They are used in the same manner and utilise identical cross hole reinforcement and lateral reinforcement as the Tubular Lifting Sockets. Please refer to figure 4 and table 5 for specific dimensions of each socket.

**Ensure lifting devices are fully threaded into the socket before lifting commences.**

**Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.**

**table 5**  
Flat End Lifting Sockets

Product Code	Thread Dia. d (M)	h1 (mm)	a (mm)	D (mm)	g (mm)	e (mm)	SWL (kg)
SLF1260	12	60	13.0	15.0	10.2	22.0	500
SLF1680	16	80	15.0	21.0	13.2	30.0	1200
SLF2095	20	95	20.0	27.0	16.0	35.0	2000
SLF24100	24	100	22.5	31.0	18.0	43.0	2500
SLF30135	30	135	35.0	39.5	22.0	56.0	4000



## Installation Instructions for use with Tubular and Flat End Lifting Sockets

### Assembly Instructions

All Euro Accessories Tubular and Flat End Lifting Sockets require additional reinforcement through the crosshole.

This facilitates the transference of loads into the surrounding concrete, see table 6 and figure 6.

It is imperative that the reinforcement bar makes full contact with the lower edge of the crosshole (see figure 5).

If the above is not observed and a gap remains, the socket could move once loaded, risking damaging both the reinforcement bar and the surrounding concrete.

**table 6**

Crosshole Reinforcement Dimensions

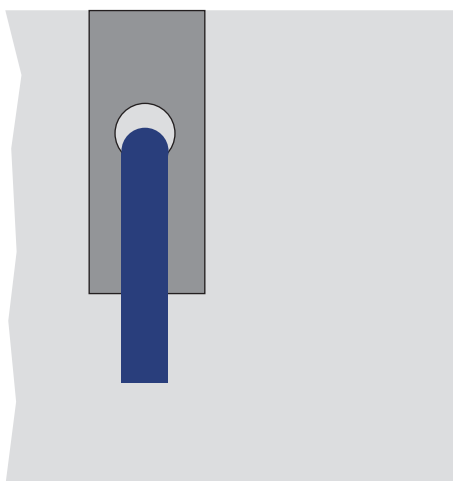
Socket Size	Ar (mm)	Rb (mm)	Cl (mm)	Unbent Length (mm)
Rd/M12	26	6	240	500
Rd/M16	40	10	330	700
Rd/M20	48	12	440	925
Rd/M24	48	12	480	1000
Rd/M30	64	16	650	1350
Rd36	140	20	820	1700
Rd42	175	25	860	1825
Rd52	196	25	1200	2500

**Key:**

**Cl** Length of each leg of reinforcement bar.  
**Rb** Diameter of grade 500B high yield reinforcement bar  
**Ar** Bending former diameter

**figure 5**

Correct Location of Reinforcement



### Lateral Reinforcement for Lifting at an Angle

If the sockets are required to take inclined loads caused by lifting at an angle the resultant shear forces have to be absorbed by the surrounding concrete. In these cases additional lateral reinforcement is required. In addition these extra bars should be utilised where lifting is commencing at low concrete strengths. These additional bars are fixed around the top edge of the socket opposing the inclined load and should lap into the existing structural reinforcing bars incorporated in the panel. The additional bars can be either spread (see figure 6) or parallel sided (see figure 7), whichever is appropriate. Whatever the case, it is necessary that the length and diameter of the reinforcement bar should conform to the requirements of table 7.

If the sockets are loaded at an angle to their longitudinal axis (see figure 8) and the angle is greater than 12.5 degrees, then this additional lateral reinforcement must be used.

**table 7**

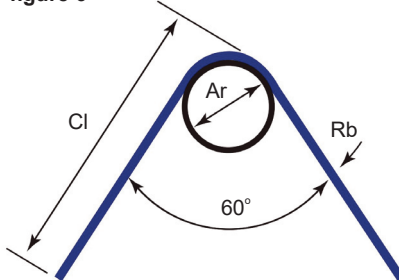
Additional Reinforcement for Angled Lifts in Excess of 12.5 Degrees

Socket Size	SWL (kg)	Rb (mm)	Cl (mm)	Ar (min) (mm)
Rd/M12	500	6	200	24
Rd/M16	1200	8	300	32
Rd/M20	2000	10	400	32
Rd/M24	2500	12	500	40
Rd/M30	4000	12	600	48
Rd36	6300	16	750	56
Rd42	8000	16	900	64
Rd52	12500	16	900	140

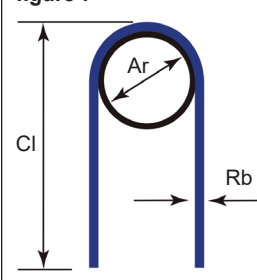
**Key:**

**Cl** Length of each leg of reinforcement bar  
**Rb** Diameter of grade 500B high yield reinforcement bar  
**Ar** Bending former diameter  
**SWL** Safe Working Load

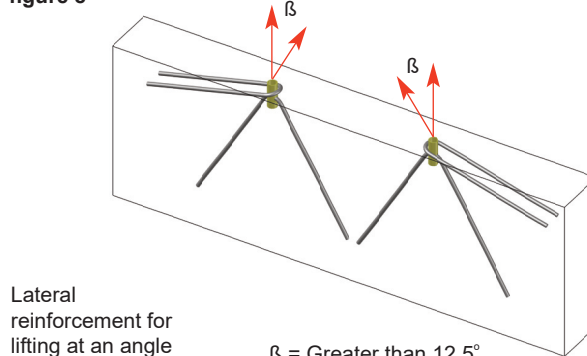
**figure 6**



**figure 7**



**figure 8**



**Edge Distances, Minimum Panel Dimensions and Surface Reinforcement**

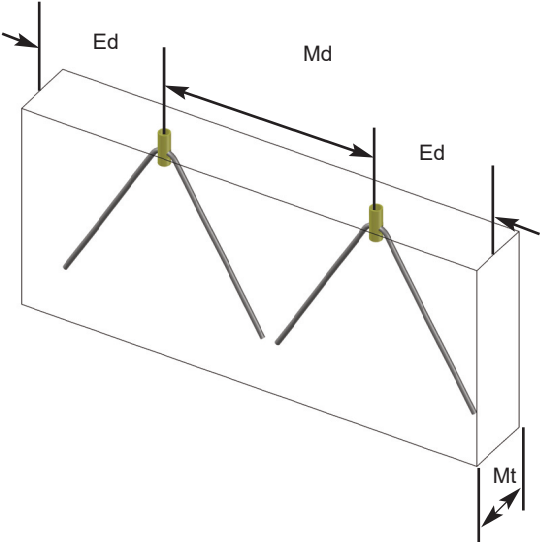
Tubular Lifting Sockets and Flat End Lifting Sockets can be used to carry out lifting procedures with sling angles up to and including 12.5 degrees from the vertical without the need for additional lateral reinforcement.

The minimum anchorage reinforcement in table 6 must always be used. It is imperative that the minimum edge distance and centre to centre distances, along with minimum surface mesh reinforcement in table 8 and figure 9, are always observed. The minimum concrete strength at which lifting can commence is 20.0 N/mm<sup>2</sup>.

table 8

Socket Size	Edge Distance (Ed)	Socket Spacing (Md)	Minimum Panel Thickness (Mt)	Surface Reinforcement Vertically mm <sup>2</sup> /m	Surface Reinforcement Horizontally mm <sup>2</sup> /m
Rd/M12	150	300	60	131	131
Rd/M16	200	400	80	131	131
Rd/M20	275	550	110	188	188
Rd/M24	300	600	125	188	188
Rd/M30	350	650	140	188	188
Rd36	400	800	200	188	188
Rd42	500	1000	240	188	188
Rd52	600	1200	280	188	188

figure 9





**Additional Reinforcement for Tilting Panels from the Horizontal To Vertical**

If the sockets are loaded at an angle perpendicular to their longitudinal axis whilst manoeuvring panels from a horizontal to vertical plane, then further lateral reinforcement is required to distribute loads accordingly.

These requirements are detailed and dimensioned in figure 10 and table 9.

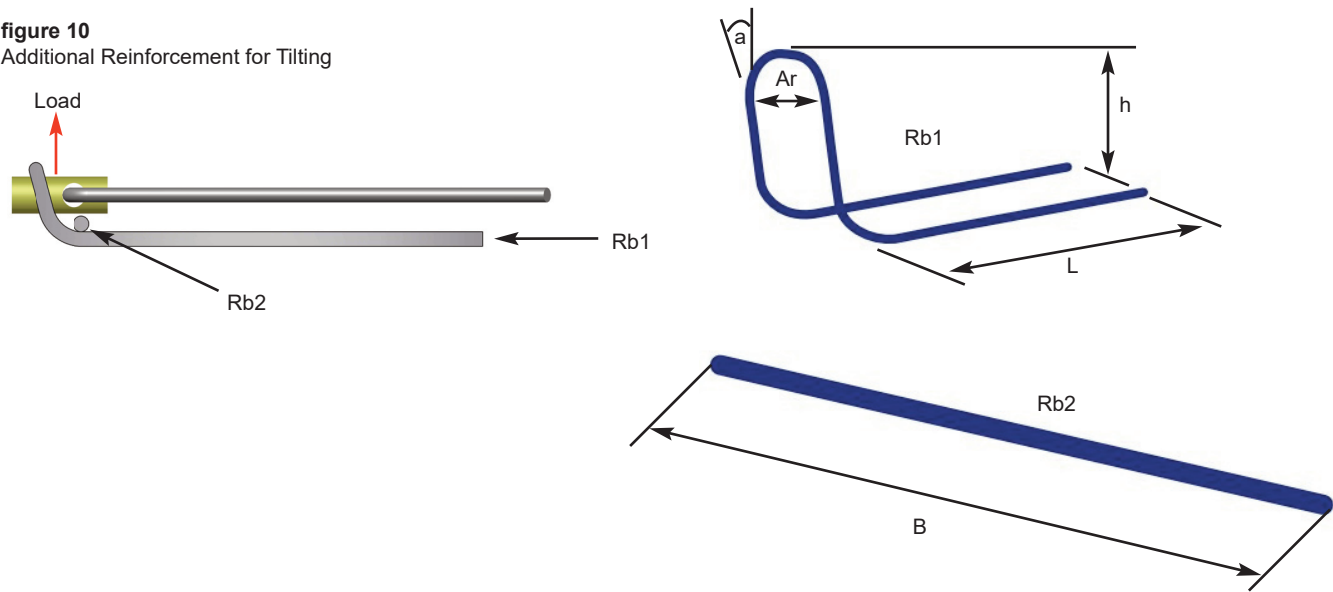
It should be noted Euro Accessories recommend the use of our Swivel Lifting Eye or Combination Threaded Lifting Loop whilst carrying out this process, as standard wire rope lifting loops are not designed for use with angles in excess of 30 degrees.

**table 9**  
Additional Lateral Reinforcement for Tilting Procedures

Socket Size	SWL (kg)	Maximum Load in kN		Rb1 Grade 500 B	Ar (mm)	Angle (a)	h (mm)	L (mm)	Rb2 Grade 500 B	B (mm)
		Axial	Perpendicular to Axis							
Rd/M12	500	5	2.5	6	24	15	35	270	8	280
Rd/M16	1200	12	6.0	8	32	15	49	420	12	400
Rd/M20	2000	20	10.0	10	40	15	64	490	14	490
Rd/M24	2500	25	12.5	12	48	15	75	520	14	550
Rd/M30	4000	40	20.0	12	48	15	92	570	16	580
Rd36	6300	63	31.5	14	56	15	118	690	16	700
Rd42	8000	80	40.0	16	64	15	143	830	20	850
Rd52	12500	125	62.3	20	140	15	174	930	20	1000

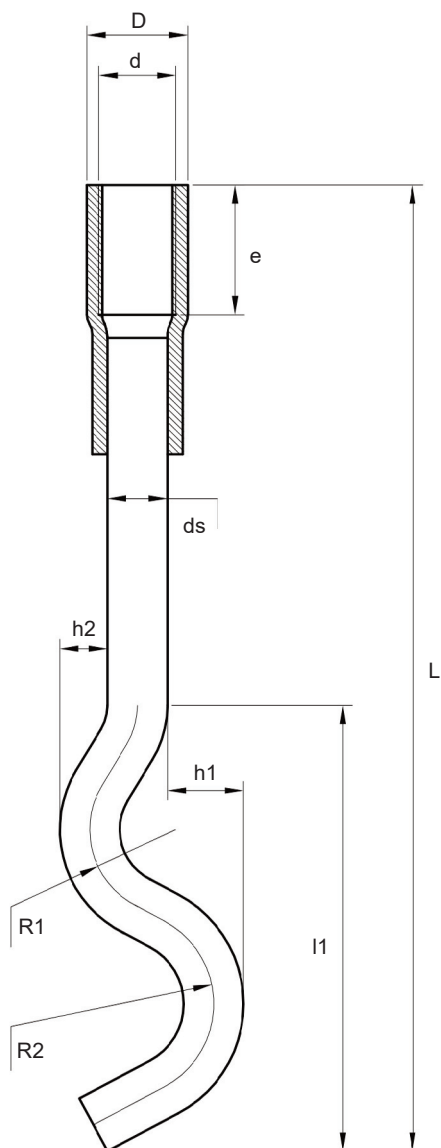
**Key:**  
**SWL** Safe Working Load  
**Rb** Reinforcement Bar Diameter  
**Ar** Diameter of Bending Former

**figure 10**  
Additional Reinforcement for Tilting



# Short Wavy Tailed Lifting Sockets

figure 11



Manufactured from either high grade precision steel in zinc plated finish or stainless steel, and are supplied with an (Rd) round thread as standard. These sockets have an integral reinforcement bar attached. Please refer to figure 11 and table 10 for specific lifting socket dimensions.

**Ensure lifting devices are fully threaded into the socket before lifting commences.**

**Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.**

table 10

Dimensions and Load Capacities of Short Wavy Tailed Lifting Sockets

Product Code	Thread Dia. d (Rd)	L (mm)	l1 (mm)	h1 (mm)	h2 (mm)	D (mm)	ds (mm)	e (mm)	R1 (mm)	R2 (mm)	SWL (kg)
SLWS12108	12	108	51	8.5	5.3	15.0	8.0	22.0	10.0	11.0	500
SLWS16167	16	167	86	14.4	9.0	21.0	12.0	27.0	16.0	16.0	1200
SLWS20187	20	187	120	19.8	12.7	27.0	16.0	35.0	23.0	25.0	2000
SLWS24240	24	240	154	27.2	17.0	31.0	16.0	43.0	30.0	33.0	2500
SLWS30300	30	300	158	27.3	17.0	39.5	20.0	56.0	31.0	34.0	4000
SLWS36380	36	380	217	37.8	23.6	47.0	25.0	68.0	42.5	46.8	6300
SLWS42450	42	450	258	44.4	27.7	54.0	28.0	80.0	49.9	44.4	8000



### Installation Instructions for Short Wavy Tailed Sockets Reinforcement

Euro Accessories Short Wavy Tailed Sockets can be used without additional reinforcement with sling angles up to and including 12.5 degrees. See figure 12.

### Edge Distances and Minimum Panel Thickness

Euro Accessories Short Wavy Tailed Sockets work by transferring lifting forces into the surrounding concrete. In order to maximise the socket's potential it is essential that minimum edge distances and socket to socket distances are maintained. See table 11 and figure 13.

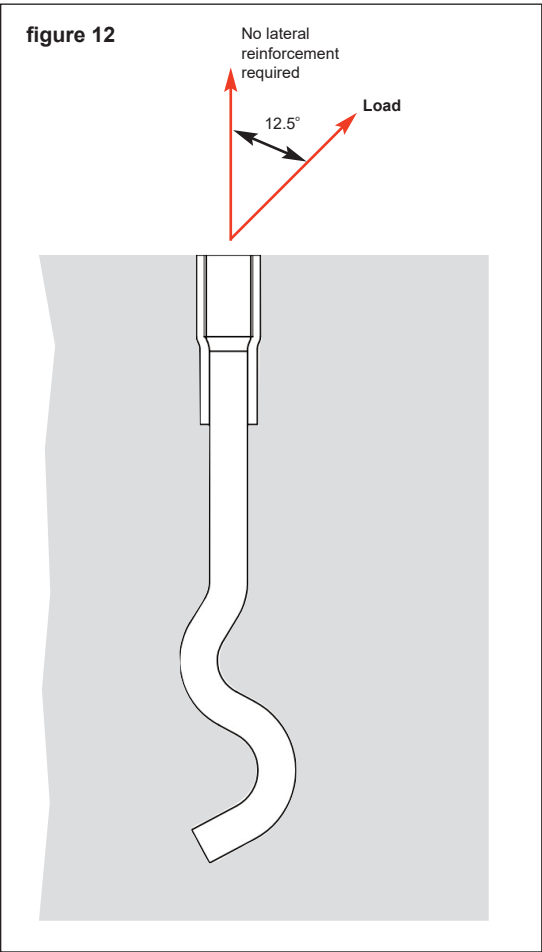
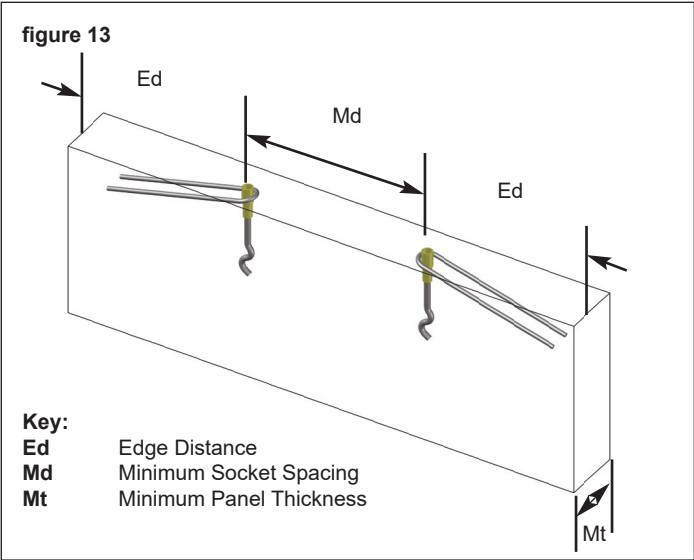
Socket Size	SWL (kg)	Ed (mm)	Md (mm)	Mt (mm)
Rd12	500	150	300	100
Rd16	1200	200	400	160
Rd20	2000	275	550	200
Rd24	2500	300	600	240
Rd30	4000	325	650	260
Rd36	6300	400	800	320
Rd42	8000	500	1000	340

**Key:**

**Ed** Edge Distance

**Md** Minimum Socket Spacing

**Mt** Minimum Panel Thickness





**Lateral Reinforcement**

If the Wavy Tailed Sockets are used for angled lifts in excess of 12.5 degrees then additional lateral reinforcement must be utilised to transfer shear forces into the surrounding concrete. See figure 14 and table 12.

**table 12**  
Additional Reinforcement for Angled Lifts in Excess of 12.5°

Socket Size	SWL (kg)	Rb (mm)	Cl (mm)	Ar (mm)
Rd12	500	8	200	24
Rd16	1200	8	300	32
Rd20	2000	10	400	32
Rd24	2500	12	500	40
Rd30	4000	12	600	48
Rd36	6300	16	750	56
Rd42	8000	16	900	64

Key:

SWL

Rb

Ar

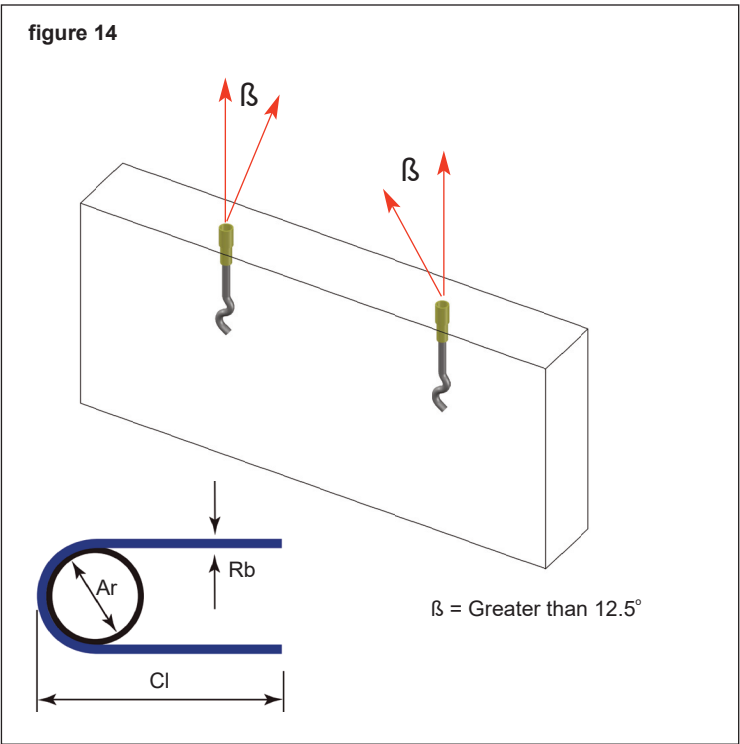
Cl

Safe Working Load

Reinforcement bar diameter

Diameter of bending former

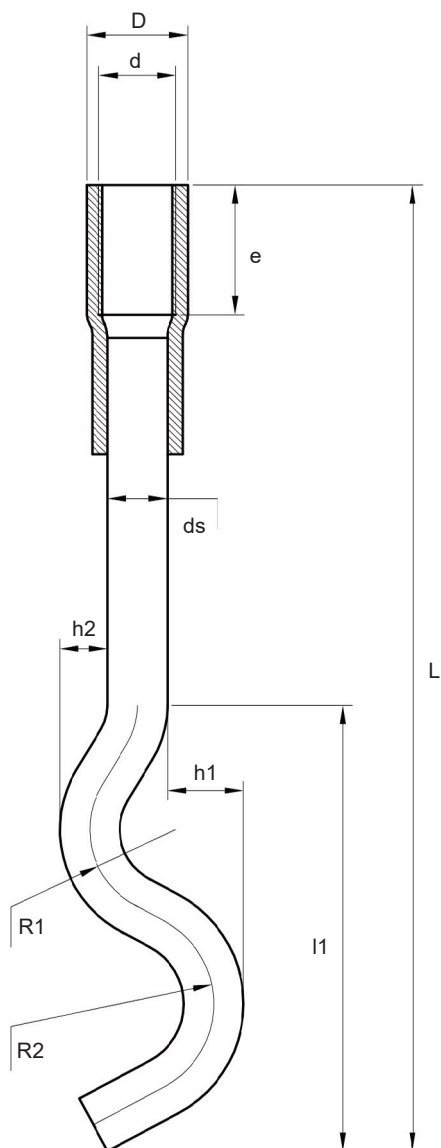
Leg length





## Long Wavy Tailed Lifting Sockets

figure 15



Manufactured from either high grade precision steel in zinc plated finish or stainless steel, and are supplied with an (Rd) round thread as standard. These sockets have an integral reinforcement tail attached. The long reinforcement tail makes them ideal for fixing into the sides of thin panels. The precise design of reinforcement tail maximises their efficiency when tilting panels from the horizontal plane to the vertical. See figure 15 and table 13 for specific dimensions.

**Ensure lifting devices are fully threaded into the socket before lifting commences.**

**Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.**

table 13

Dimensions and Load Capacities of Long Wavy Tailed Lifting Sockets

Product Code	Thread Dia. d (Rd)	L (mm)	l1 (mm)	h1 (mm)	h2 (mm)	D (mm)	ds (mm)	e (mm)	R1 (mm)	R2 (mm)	SWL (kg)
SLWL12137	12	137	51	8.5	5.3	15.0	8.0	22.0	10.0	11.0	500
SLWL16216	16	216	86	14.4	9.0	21.0	12.0	27.0	16.0	16.0	1200
SLWL20257	20	257	120	19.8	12.7	27.0	16.0	35.0	23.0	25.0	2000
SLWL24360	24	360	154	27.2	17.0	31.0	16.0	43.0	30.0	33.0	2500
SLWL30450	30	450	158	27.3	17.0	39.5	20.0	56.0	31.0	34.0	4000
SLWL36570	36	570	217	37.8	23.6	47.0	25.0	68.0	42.5	46.8	6300
SLWL42620	42	620	258	44.4	27.7	54.0	28.0	80.0	49.9	44.4	8000
SLWL52880	52	880	258	40.4	23.7	67.0	32.0	100.0	45.9	40.4	12500

## Installation Instructions for Long Wavy Tailed Sockets Reinforcement

Euro Accessories Long Wavy Tailed Lifting Sockets can be used without additional reinforcement in concrete up to a maximum lifting angle of 12.5 degrees. See figure 16a.

### Lateral Reinforcement

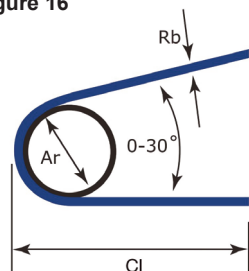
If Long Wavy Tailed Lifting Sockets are required for angle lifts in excess of 12.5 degrees, the resultant shear forces must be absorbed by the surrounding concrete by means of additional lateral reinforcement. This additional reinforcement can be attached to the socket utilising a Data Clip and ideally should be tied in to the structural reinforcement of the panel. See figure 16 and table 14.

**table 14**  
Additional Reinforcement for Angled Lifts in Excess of 12.5°

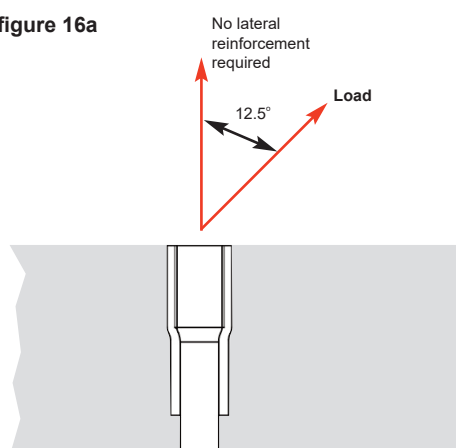
Socket Size	SWL (kg)	Rb (mm)	Cl (mm)	Ar (mm)
Rd12	500	8	200	24
Rd16	1200	8	300	32
Rd20	2000	10	400	32
Rd24	2500	12	500	40
Rd30	4000	12	600	48
Rd36	6300	16	750	56
Rd42	8000	16	900	64
Rd52	12500	16	900	140

**Key:**  
**SWL** Safe Working Load  
**Rb** Reinforcement bar diameter  
**Ar** Diameter of bending former  
**Cl** Leg length

**figure 16**



**figure 16a**



## Edge Distances, Minimum Panel Thickness.

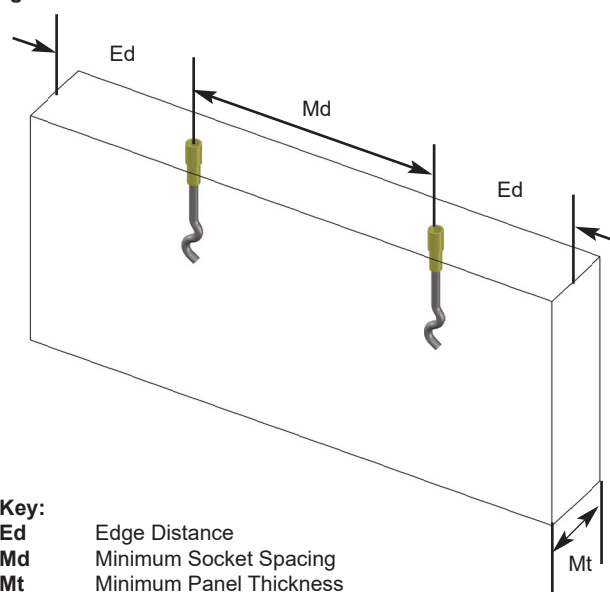
Euro Accessories Long Wavy Tailed Lifting Sockets work by transferring lifting forces into the surrounding concrete. In order to maximise the socket's potential it is essential that minimum edge distances and socket to socket distances are maintained. See table 15 and figure 17.

**table 15**  
Edge Distances, Minimum Panel Depth and Reinforcement Requirements

Socket Size	Ed (mm)	Md (mm)	Mt (mm)	AAF (kN)	ATF (kN)
Rd12	150	300	60	5	2.5
Rd16	200	400	80	12	6.0
Rd20	275	550	110	20	10.0
Rd24	300	600	125	25	12.5
Rd30	350	650	140	40	20.0
Rd36	400	800	200	63	31.5
Rd42	500	1000	240	80	40.0
Rd52	600	1200	280	125	62.3

**Key:**  
**Ed** Edge Distance  
**Md** Minimum Socket Spacing  
**Mt** Minimum Panel Thickness  
**AAF** Allowable Axial force  
**ATF** Allowable transverse load

**figure 17**



**Key:**  
**Ed** Edge Distance  
**Md** Minimum Socket Spacing  
**Mt** Minimum Panel Thickness



**Additional Reinforcement for Tilting Procedures**

If the Long Wavy Tailed Lifting Sockets are to be loaded perpendicular to their axis then additional reinforcement is required to transfer the shear loads into the surrounding concrete. The additional reinforcement should be tied into

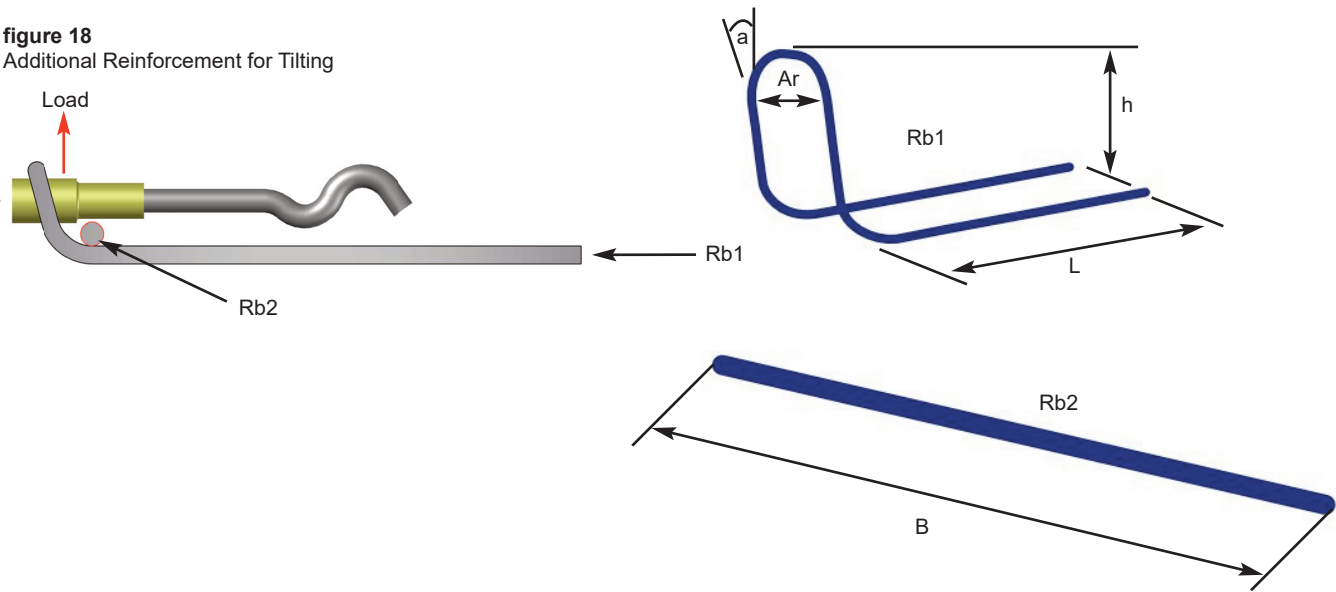
the structural reinforcement of the panel. This is particularly relevant when tilting panels from the horizontal plane to vertical. See figure 18 and table 16. It is recommended that the Swivel Lifting Eye or Combination Threaded Lifting Loop is utilised for this process.

**table 16**  
Additional Lateral Reinforcement for Tilting Procedures

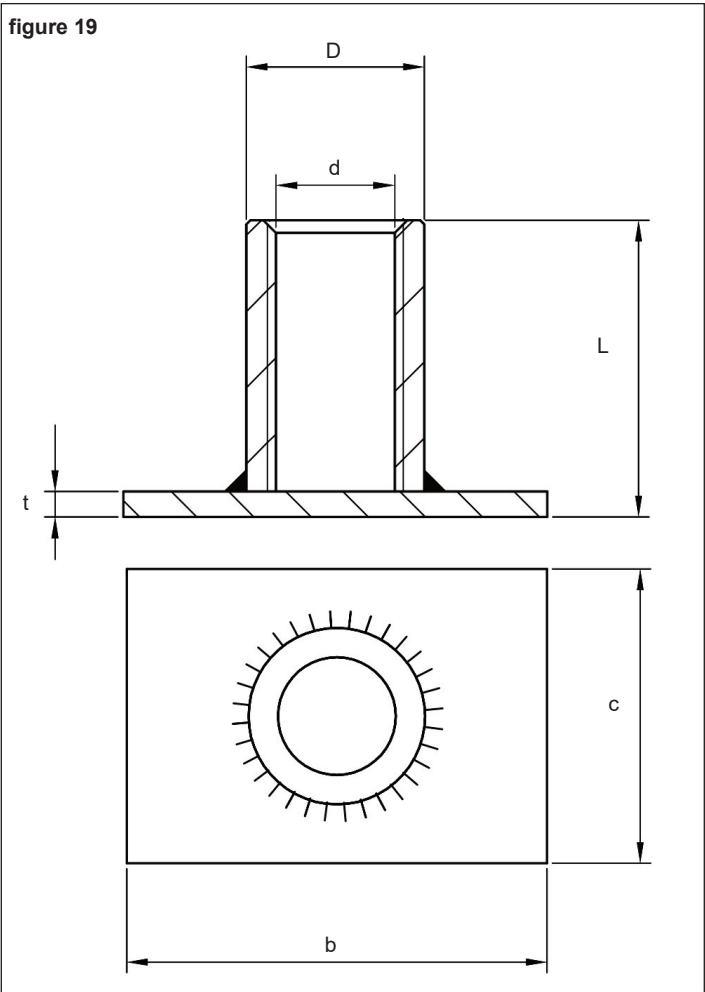
Socket Size	SWL (kg)	Maximum Load in kN		Rb1 Grade 500 B	Ar (mm)	Angle (a)	h (mm)	L (mm)	Rb2 Grade 500 B	B (mm)
		Axial	Perpendicular to Axis							
Rd12	500	5	2.5	6	24	15	35	270	8	280
Rd16	1200	12	6.0	8	32	15	49	420	8	400
Rd20	2000	20	10.0	10	40	15	64	490	12	490
Rd24	2500	25	12.5	12	48	15	75	520	12	550
Rd30	4000	40	20.0	12	48	15	92	570	16	580
Rd36	6300	63	31.5	14	56	15	118	690	16	700
Rd42	8000	80	40.0	16	64	15	143	840	16	850
Rd52	12500	125	62.3	20	140	15	174	930	20	1000

**Key:**  
**SWL** Safe Working Load  
**Rb** Reinforcement Bar Diameter  
**Ar** Diameter of Bending Former

**figure 18**  
Additional Reinforcement for Tilting



# Flat Plate Lifting Sockets



Flat Plate Lifting Sockets are ideal for shallow precast concrete units. The height of these sockets allows them to be placed in the shallow dimension of slab and terrace units. These sockets must be used with additional reinforcement to transfer loads into the surrounding concrete. Use figure 19 and table 17 to identify specific socket dimensions.

- Ensure lifting devices are fully threaded into the socket before lifting commences.
- Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.

<div> <b>table 17</b>  Dimensions and Load Capacities of Flat Plate Lifting Sockets </div>							
Product Code	Thread Dia. d (Rd)	D (mm)	L (mm)	t (mm)	c (mm)	b (mm)	SWL (kg)
SLFPRD12	12	15.0	30	4	25	35	500
SLFPRD16	16	21.0	35	4	35	50	1200
SLFPRD20	20	27.0	47	5	60	60	2000
SLFPRD24	24	31.0	54	5	60	80	2500
SLFPRD30	30	39.5	72	6	80	100	4000
SLFPRD36	36	47.0	84	8	100	130	6300
SLFPRD42	42	54.0	98	8	130	130	8000
SLFPRD52	52	67.0	117	10	130	150	12500



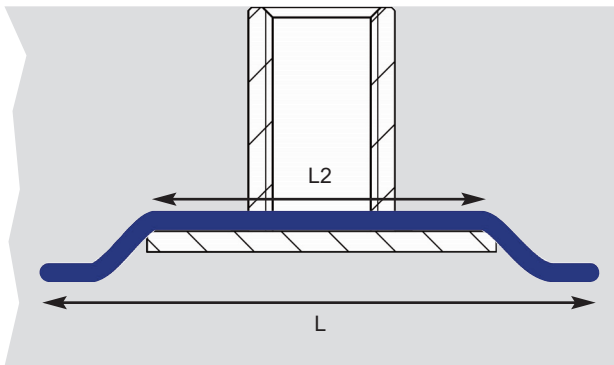
## Installation Instructions for Flat Plate Lifting Sockets Reinforcement

Euro Accessories Flat Plate Lifting Sockets always require additional reinforcement. See figure 20 and table 18. This reinforcement is positioned above the flat steel plate, guaranteeing the transmission of forces into the surrounding concrete. This reinforcement should be either tied or welded to the flat steel plate to ensure no slippage occurs. No further reinforcement is required for lifting angles up to and including 12.5 degrees.

**table 18**  
Flat Plate Lifting Sockets Reinforcement

Socket Size	No. of bars	Bar Dia. (mm)	L (mm)	L2 (mm)
Rd12	2	6	250	60
Rd16	2	8	420	70
Rd20	2	8	640	80
Rd24	2	10	640	100
Rd30	2	12	830	110
Rd36	2	16	1140	140
Rd42	2	16	1250	150
Rd52	2	20	1530	150

**figure 20**



## Minimum Edge Distances and Socket Spacings

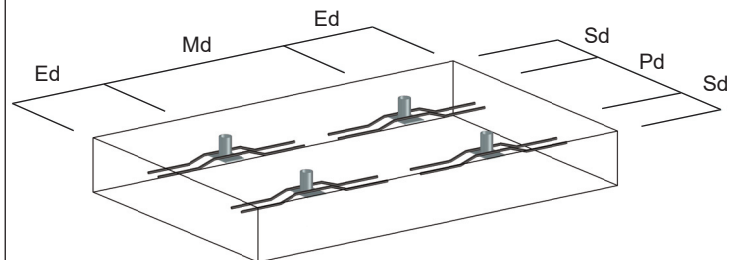
Observe minimum edge distances and socket centres in figure 21 and table 19.

**table 19**  
Flat Plate Lifting Sockets Minimum Edge Distances and Socket Centres

Socket Size	Ed (mm)	Md (mm)	Sd (mm)	Pd (mm)
Rd12	180	360	65	115
Rd16	250	500	75	140
Rd20	300	600	80	180
Rd24	400	800	95	215
Rd30	500	1000	120	275
Rd36	650	1300	145	330
Rd42	650	1300	165	375
Rd52	750	1500	190	435

**Key:**  
**Ed** Edge Distance  
**Md** Minimum Socket Spacing  
**Sd** Side Spacing to Socket  
**Pd** Spacing between rows of Socket  
 All distances are to centres of Sockets.

**figure 21**



**Key:**  
**Ed** Edge Distance  
**Md** Minimum Socket Spacing  
**Sd** Side Spacing to Socket  
**Pd** Spacing between rows of Socket  
 All distances are to centres of Sockets.

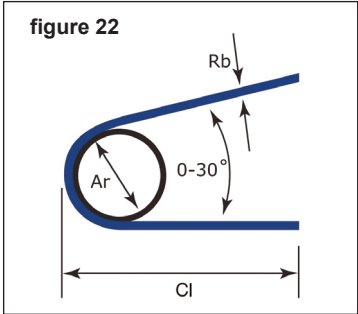
**Additional Reinforcement for Angled Lifting Loads**

For lifting angles above 12.5 degrees further lateral reinforcement steel is required. See table 20 and figure 22. This can be attached to the socket utilising the Data Clip.

**table 20**  
Additional Reinforcement for Angled Lifts in Excess of 12.5°

Socket Size	SWL (kg)	Rb (mm)	Cl (mm)	Ar (mm)
Rd12	500	8	175	24
Rd16	1200	8	280	32
Rd20	2000	10	400	40
Rd24	2500	12	410	48
Rd30	4000	12	550	48
Rd36	6300	16	750	56
Rd42	8000	16	800	64
Rd52	12500	20	1000	140

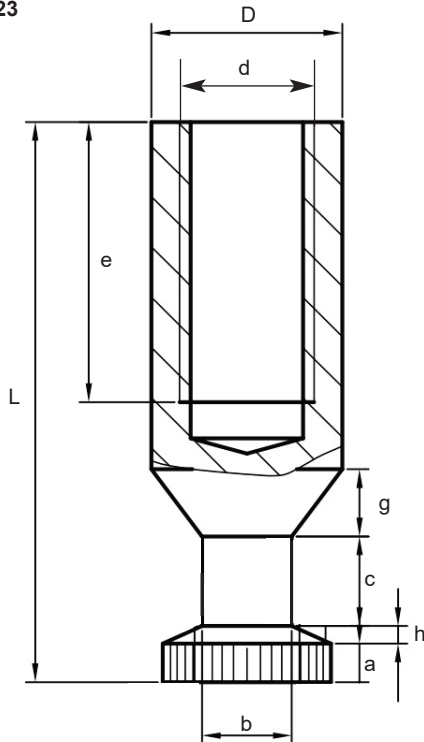
**Key:**  
**SWL** Safe Working Load  
**Rb** Reinforcement bar diameter  
**Ar** Diameter of bending former  
**Cl** Leg length





## Short End Lifting Sockets

figure 23



Euro Accessories Short End Lifting Sockets are machined from solid rod. The turning process used provides the threaded socket section and foot anchorage point in one solid unit. This integral foot provides anchorage and transmits loads into the surrounding concrete, meaning for lifts up to and including 12.5 degrees no further reinforcement is required. They are ideally suited for manufacturing and lifting shallow slab units. Please refer to figure 23 and table 21 for specific dimensions.

**Ensure lifting devices are fully threaded into the socket before lifting commences.**

**Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.**

**table 21**

Dimensions and Load Capacities of Short End Lifting Sockets

Product Code	Thread Dia. d (Rd)	D (mm)	L (mm)	e (mm)	g (mm)	c (mm)	a (mm)	h (mm)	b (mm)	SWL (kg)
SLS1260	12	17	60	24	7	18	3.0	2	9.0	500
SLS1680	16	21	80	32	7	25	4.0	2	12.5	1200
SLS20100	20	27	100	40	9	32	5.5	3	16.0	2000
SLS24115	24	31	115	48	10	38	5.5	3	18.5	2500
SLS30150	30	40	150	60	12	57	6.0	3	23.0	4000

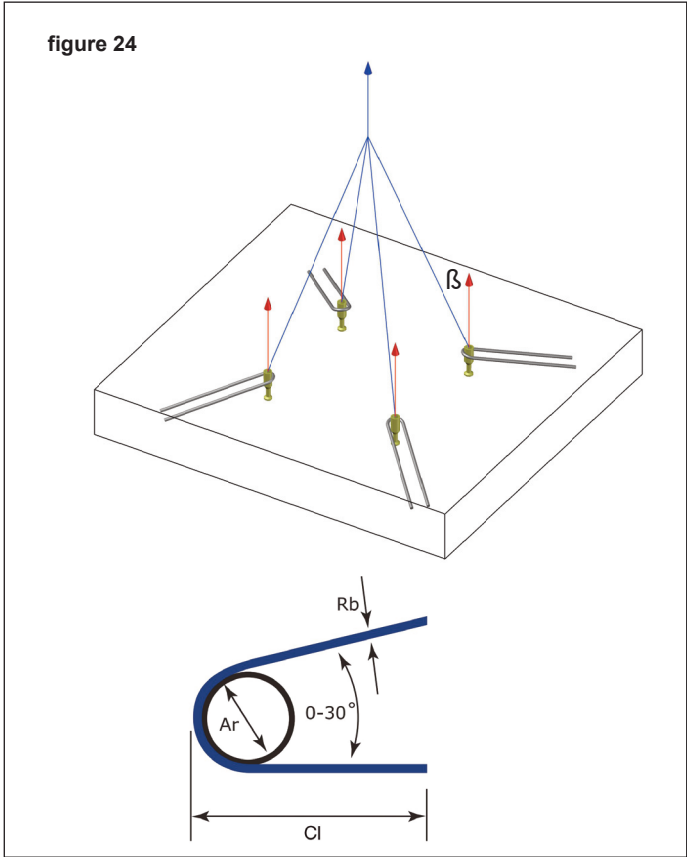


**Installation Instructions for Short End Lifting Sockets**  
**Lateral Reinforcement for Lifting at an Angle**

If Short End Lifting Sockets are required to take angled lifting loads over and above 12.5 degrees the additional lateral reinforcement is required. See figure 24 and table 22. This reinforcement is fixed to the socket by means of the Data Clip and is ideally tied into the panel's existing structural reinforcement.

**Edge Distances, Minimum Panel Thickness and Reinforcement Requirements.**

Euro Accessories Short End Lifting Sockets work by transferring lifting forces into the surrounding concrete. In order to maximise the socket's potential it is essential that minimum edge distances and socket to socket distances are maintained. See figure 25 and table 23.



**table 22**  
Additional Reinforcement for Angled Lifts in Excess of 12.5°

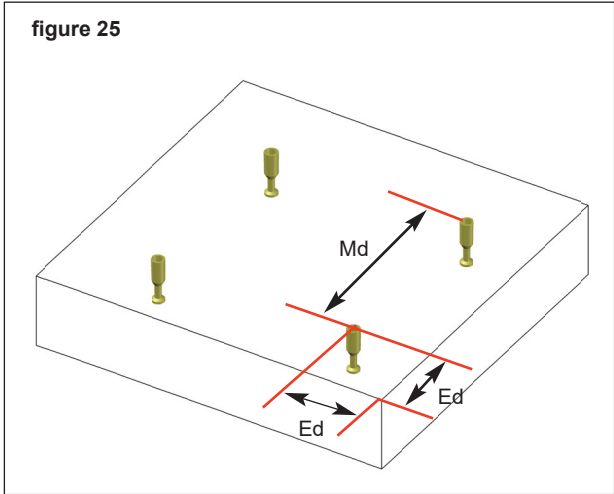
Socket Size	SWL (kg)	Rb (mm)	CI (mm)	Ar (mm)
Rd12	500	8	200	32
Rd16	1200	8	200	32
Rd20	2000	8	300	32
Rd24	2500	10	325	40
Rd30	4000	12	550	48

**Key:**  
**SWL** Safe Working Load  
**Rb** Reinforcement bar diameter  
**Ar** Diameter of bending former  
**CI** Leg length

**table 23**  
Short End Lifting Sockets Minimum Edge Distances and Socket Centres

Socket Size	Ed (mm)	Md (mm)
Rd12	90	180
Rd16	120	240
Rd20	150	300
Rd24	170	340
Rd30	225	450

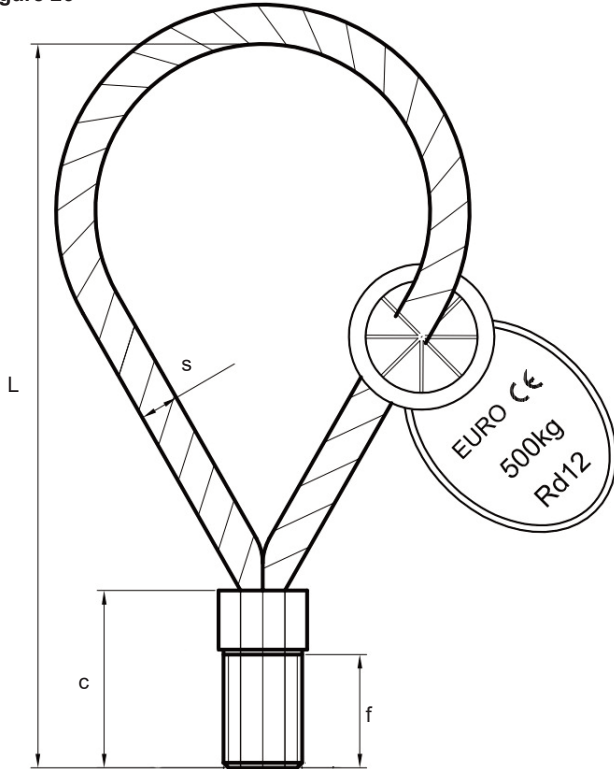
**Key:**  
**Ed** Edge Distance  
**Md** Minimum Socket Spacing





## Threaded Lifting Loops

figure 26



Euro Accessories Threaded Lifting Loops are suitable to be used with all sizes of threaded lifting sockets. They are economical and can be used in most applications. Threaded Lifting Loops are not suitable for turning or pitching. They can be reused, but only after inspection. Threaded Lifting Loops should only be attached to the concrete unit and used after the concrete strength has reached 20.0 N/mm<sup>2</sup>.

Threaded Lifting Loops are ideally suited to axial lifting procedures, but can be used up to and including angled lifts of 30 degrees.

Lifting Loops are manufactured from zinc plated steel wire rope with a precision bright steel threaded portion. See figure 26 and table 24 for Lifting Loop dimensions.

Please note Threaded Lifting Loops will be supplied with either a metal or a plastic tag.

**table 24**  
Threaded Lifting Socket

Product Code	Thread Dia. (M/Rd)	L (mm)	s (mm)	f (mm)	c (mm)	SWL (kg)
SLL12	M/Rd12	155	6	20	29	500
SLL16	M/Rd16	155	8	27	37	1200
SLL20	M/Rd20	215	10	36	46	2000
SLL24	M/Rd24	255	12	38	52	2500
SLL30	M/Rd30	300	16	49	65	4000
SLL36	Rd36	340	18	59	76	6300
SLL42	Rd42	425	20	69	90	8000
SLL52	Rd52	550	26	84	110	12500

Note: Euro Accessories recommend the use of Rd threaded lifting accessories with Rd threaded lifting sockets.

### **General Examination of Threaded Lifting Loops**

All of our Threaded Lifting Loops are supplied with lifting test certification, however, it is imperative that lifting loops are visually inspected before each and every lifting procedure commences.

Threaded Lifting Loops should be tested once every twelve months by a professional body or organisation. The Threaded Lifting Loop should be cleaned utilising a paint brush and penetrating oil. Ensure that all debris is removed from the thread and pay particular attention to the swaged portion of the unit where the wire loop enters the threaded section.

### **The Threaded Lifting Loop MUST be discarded and rendered unusable if any of the following arise:**

- Any breakages of wire strand.
- Crushing of the wire strand.
- Deformation of either the swaged area or threaded section.
- Damage due to corrosion.
- Any stripped or damaged threads.
- Bends and kinks in the wire loop.
- Any indication of extreme wear and tear.
- If there is no batch number attached to the loop.

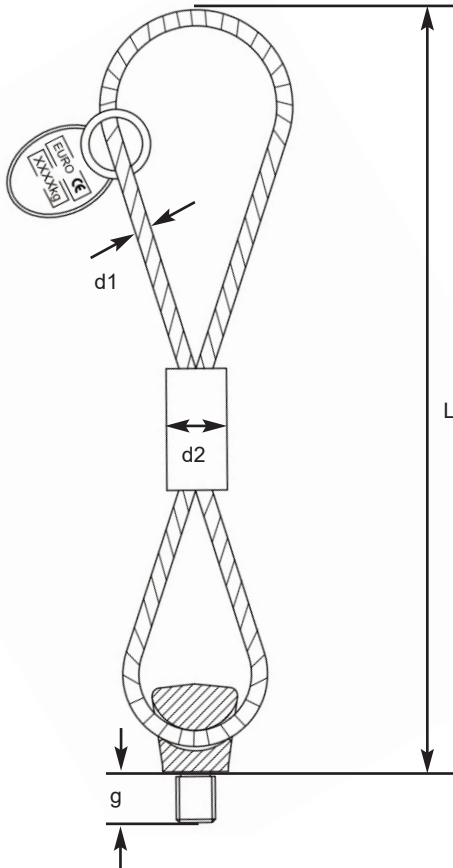
Under all circumstances avoid lifting loops coming into contact with any acidic or caustic solutions which could also cause damage.

**REMEMBER - If there is any doubt, discard the Threaded Lifting Loop immediately.**



## Threaded Combination Lifting Loops

figure 27



Euro Accessories Threaded Combination Lifting Loop was specifically designed for inclined lifting forces up to 90 degrees. This makes it ideal to use when sockets are fixed into the sides of units to facilitate tilt up lifting when turning a panel from horizontal to the vertical plane.

Due to the use of high tensile steel components in the manufacturing process of the Combination Threaded Lifting Loops, it is imperative that welding of the lifting device and excessive heat sources are avoided. See figure 27 and table 25 for specific dimensions.

### Use and Operation

After visual inspection the Threaded Combination Lifting Loop should be threaded fully into the lifting socket. The loop should be threaded in until the base of the loop makes full contact with the concrete around its full perimeter. Check that the base of the lifting loop and the contact surface of the concrete are parallel with each other. If this criteria is not met, then damage to both the concrete and the lifting socket could occur.

table 25

Threaded Combination Lifting Loops

Product Code	Thread Dia. (M/Rd)	L (mm)	d1 (mm)	d2 (mm)	g (mm)	SWL (kg)
SCLL12	M/Rd12	310	8	21.1	15.5	500
SCLL16	M/Rd16	345	9	25.0	20.0	1200
SCLL20	M/Rd20	410	12	34.8	25.0	2000
SCLL24	M/Rd24	435	14	38.5	30.0	2500
SCLL30	M/Rd30	490	16	43.0	37.0	4000
SCLL36	Rd36	570	18	50.3	44.0	6300
SCLL42	Rd42	650	20	50.3	51.0	8000
SCLL52	Rd52	760	26	69.8	62.0	12000

Note: Euro Accessories recommend the use of Rd threaded lifting accessories with Rd threaded lifting sockets.

### **General Examination of Threaded Combination Lifting Loops.**

All of our Threaded Lifting Loops are supplied with lifting test certification. However, it is imperative that lifting loops are visually inspected before each and every lifting procedure commences.

Combination Threaded Lifting Loops should be tested once every twelve months by a professional body or organisation. The Threaded Lifting Loop should be cleaned utilising a paint brush and penetrating oil. Ensure that all debris is removed from the thread and pay particular attention to the swaged portion of the unit where the wire loop enters the threaded section.

**The Threaded Combination Lifting Loop MUST be discarded and rendered unusable if any of the following arise:**

#### **Cast Steel Section**

Lifting eye or threaded bolt are bent or deformed.

The threaded bolt is damaged or the thread has sheared off the pressure plate.

Any signs of cracking.

Excessive pitting caused by corrosion.

#### **Wire Loop Section.**

Any broken strands.

Crushing of the loop.

Damage of the ferrule.

Damage due to corrosion.

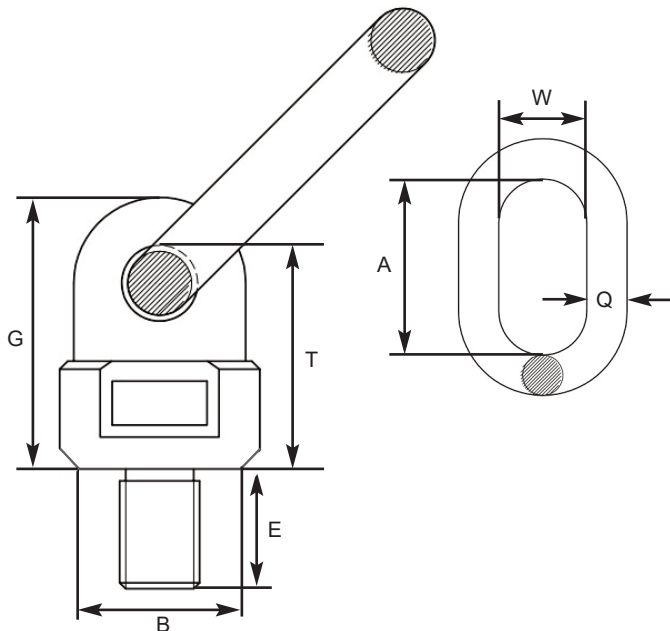
Any indication of extreme wear and tear.

**REMEMBER - If there is any doubt, discard the Threaded Lifting Loop immediately.**



## Swivel Lifting Eye

figure 28



With the Swivel Lifting Eye, precast concrete units can be safely lifted utilising lifting points in their sides. Units can also be safely tilted from the horizontal to the vertical plane and vice versa. The pressure plate with its large cross sectional area generates an even distribution of pressure over a large surface area of concrete. The Swivel Lifting Eye's special swivelling component automatically adapts to the direction of the inclined lifting forces. The safe working load of the Swivel Lifting Eye is valid for lifts along the axis of the thread through to lifts perpendicular to its axis.

The Swivel Lifting Eye is specifically designed for inclined lifting operations of angles up to 90 degrees, for instance when tilting up units or lifting from the sides. Unlike more conventional lifting loops the swivelling component safely allows for any correction in the sling angle without tightening or loosening of thread inside the socket. In more conventional lifting loops this correction in the sling angle can lead to loops not being threaded into the socket correctly as they unwind to correct the angle.

See figure 28 and table 26 for specific dimensions.

**table 26**  
Swivel Lifting Eye

Product Code	Thread Dia. (M/Rd)	E (mm)	G (mm)	T (mm)	B (mm)	A (mm)	W (mm)	Q (mm)	SWL (kg)
SLE12	12	17	51	41.0	30	58	36	10	500
SLE16	16	23	57	45.2	35	60	40	12	1200
SLE20	20	28.5	69	55.0	44	64	46	14	2000
SLE24	24	33.5	74	58.0	44	73	52	16	2500
SLE30	30	45	88	70.0	59	81	60	18	4000
SLE36	36	54	100	78.0	59	83	64	22	6300
SLE42	42	58	110	86.0	75	91	72	24	8000
SLE52	52	68	132	102.0	84	112	76	30	12500

Note: Euro Accessories recommend the use of Rd threaded lifting accessories with Rd threaded lifting sockets.

## Use and Operation

The Swivel Lifting Eye is screwed into the lifting socket. The threaded portion should be turned in until the large base plate makes full and tight contact with the concrete surface. This ensures that no bending of the threaded section occurs during the lifting process. It is imperative that the two mating surfaces are parallel to each other.

Once engaged fully the Swivel Lifting Eye can turn in any direction against the base plate, thus ensuring the correct direction of inclined lifting force.

**Please note that Swivel Lifting Eye should not be utilised to rotate units about the socket axis.**

## Maintenance

The Swivel Lifting Eyes are filled with grease during the manufacturing process. This grease lubricates the internal bearing surfaces. The compact design prevents penetration of dirt into workings. However, should dirt have collected in the interior of the lifting eye impairing an easy turning operation, the turning mechanism can be released simply by removing the grub screw in the side of assembly. After cleaning, the unit should be filled with suitable grease before reassembly.

The threaded rod bolt and oval ring are made from high tensile material and therefore welding is not permitted as this could compromise the performance of the lifting device possibly leading to failure.

## Routine Inspection and Retirement

Swivel Lifting Eyes should be tested once every twelve months by a professional body or organisation. The lifting eyes must be cleaned of dirt and oil by hand. The inspection should involve a visual check for obvious defects, deformation of the oval ring or lifter body, cracks and obvious excessive wear. If any thread is damaged or the threaded rod is bent then the lifting eye should be discarded.

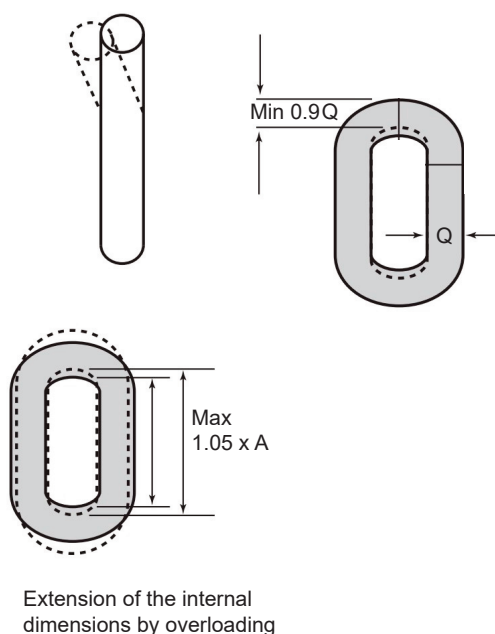
The Swivel Lifting Eye should also be discarded if the oval lifting ring is bent, there is reduction in excess of 10% in the cross section of the ring, or the ring has extended in length by more than 5%.

See figures 29 and table 27.

table 27

Thread Size	A (mm)	Q (mm)
Rd/M12	55	13
Rd/M16	55	13
Rd/M20	70	16
Rd/M24	85	18
Rd/M30	85	20
Rd/M36	115	22
Rd/M42	115	22

figure 29





# General Guidance On Choice Of Fixing Sockets

## Admissible Loads for Fixing Sockets

Many factors influence the acceptable load values of the inserts, but primarily concrete strength, concrete quality and insert placement will influence overall performance.

The admissible static loads for fixing inserts that are embedded fully in the concrete are valid for axial loading and shear loading, or a combination of both. See figure 30.

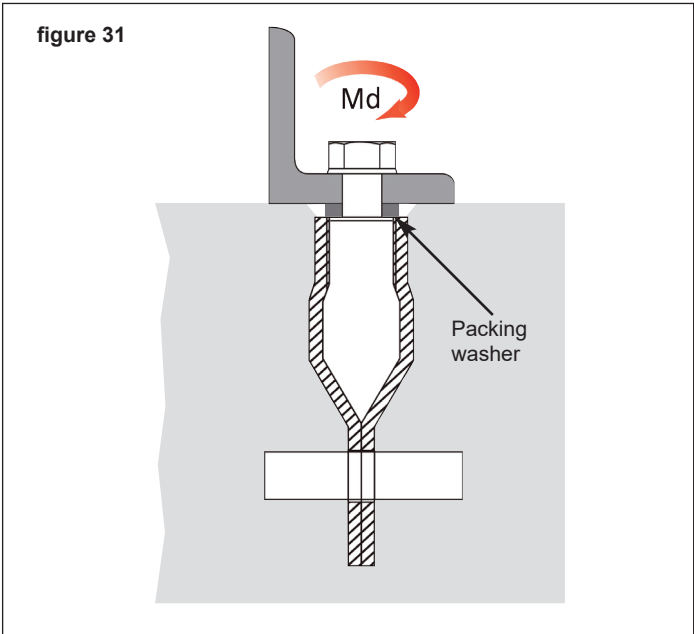
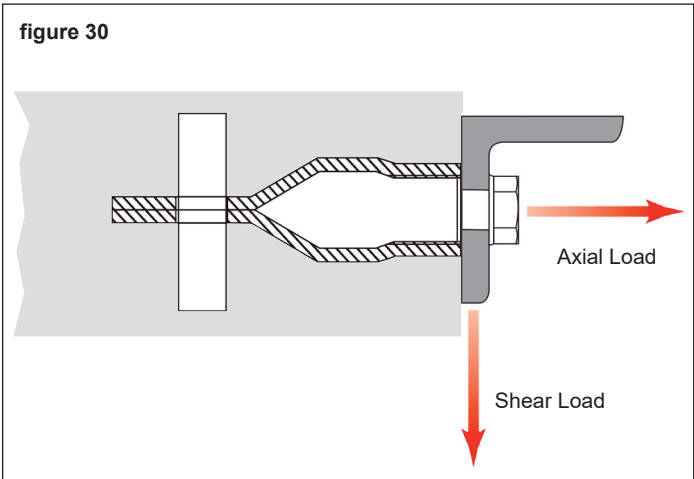
When fixing sockets are used in a recessed position, a packing washer equal in thickness to that of the recess depth must be used, this will alleviate the possibility of the socket being drawn out of the concrete under load. See table 28 and figure 31 for resultant loads.

We recommend the use of a calibrated torque wrench to ensure maximum torque settings are not exceeded.

table 28

Maximum torque settings and resultant loads for sockets used in recessed position.

Socket Size	Torque Md (Nm)	Force F (kN)
M12	8	3.3
M16	17	5.3
M20	35	8.7
M24	53	11.0
M30	96	16.0





### Minimum Edge Distance and Distances between Sockets

The admissible load (Safe Working Load) is valid for both axial and shear loads.

The full admissible working load can only be used if the following criteria are met. See figure 32.

#### For Axial Loading

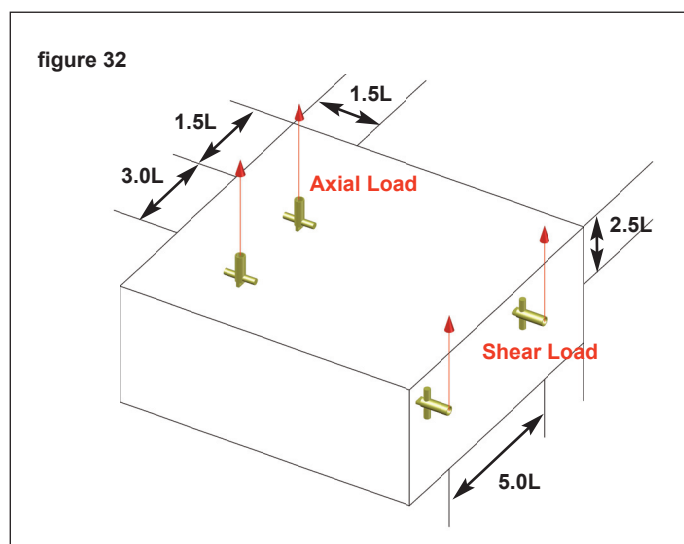
Minimum distance from edge of the concrete to the centre of the socket (edge distance) is at least 1.5 times the length of the socket.

The minimum distance centre to centre of sockets is 3.0 times the length of the socket.

#### For Shear Loads

Minimum distance from edge of the concrete to centre of the socket (edge distance) is at least 2.5 times the length of the socket.

The minimum distance centre to centre of the sockets is 5.0 times the length of the socket.



### Admissible Working Loads with Reduced Edge Distances

Where sockets are placed in units and the minimum edge distances and socket centres are not met, the restrictions apply as per table 29. These factors should be applied to the safe working load figures for individual types and sizes of fixing sockets.

Extra reinforcement can be incorporated into the structure around the sockets to compensate for the reduced axial and shear loading capacities of the sockets.

Where additional reinforcement is incorporated in the form of straight or U shaped bars to counteract the effect of shear loads, then the factors in the two right hand columns respectively can be utilised.

If the shear loading is towards the edge of the unit then this reinforcement should be located in the upper area of the socket. Conversely, if the load is towards the centre of the unit the reinforcement should be located around the lower area of the socket.

table 29

Reductions in Admissible Loads for Reduced Edge Distances.

Edge Distance in Anchor Lengths	Admissible Load Factor for Axial Loads	Admissible Load Factor for Shear Loads	Admissible Load Factor using Straight Reinforcement to counteract Shear Loads	Admissible Load Factor using U bar Reinforcement to counteract Shear Loads
2.50	1.00	1.00	1.00	1.00
2.00	1.00	0.85	1.00	1.00
1.50	1.00	0.65	0.78	0.91
1.00	0.75	0.40	0.48	0.56
0.50	0.50	0.15	0.18	0.21

When assessing loads between centres of sockets divide actual distance by 2 and use above figures.

These factors are applied for shear loads only when straight reinforcement is utilised.

These factors are applied for shear loads only when hairpin reinforcement is utilised.

### Admissible Working Loads in Relation to Concrete Strength

The admissible working loads are based on a minimum concrete compressive strength of 25 N/mm<sup>2</sup>. With respect to pull out values where higher concrete strengths are concerned the following factors in table 30 can be applied. Please note the minimum design strength is 25N/mm<sup>2</sup>.

table 30

Increased Pull Out Capacities in Relation to Concrete Strength.

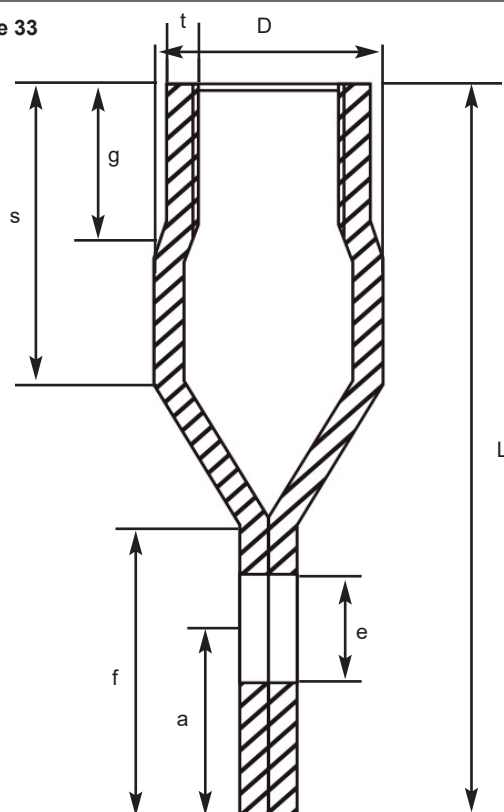
Concrete Strength N/mm <sup>2</sup>	25	35	45	55	65
Factor	1.00	1.18	1.34	1.48	1.61

**Note:** The Maximum Safe Working Load of the socket cannot be exceeded.



## Flat End Fixing Sockets

figure 33



Flat End Fixing Sockets are designed for quick and easy connection of precast units with generous placement tolerances. These sockets should only be used where on site fixing tolerances are sufficiently flexible.

The socket is manufactured from either high grade precision steel tube with a zinc plated finish, or a stainless steel grade A2 tube (Grade 304). The socket is supplied with a flat end with a punched hole to accommodate additional reinforcement. Please note that additional anchorage reinforcement does not increase the maximum safe working load of the socket.

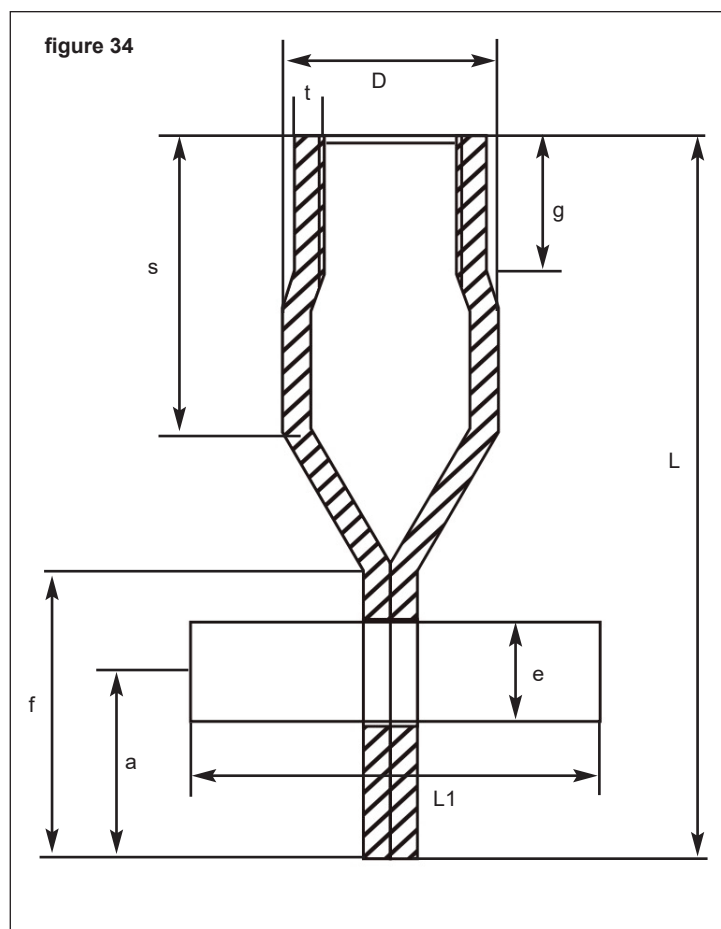
See figure 33 and table 31.

**Please note these sockets are not suitable for lifting operations.**

**table 31**  
Flat End Fixing Sockets

Product Code	Thread Dia. (M)	L (mm)	D (mm)	g (mm)	a (mm)	s (mm)	e (mm)	f (mm)	t (mm)	Load (kN)
SFF0850	8	50	11.0	10	8.3	15	8.3	14	1.3	2.0
SFF1050	10	50	13.5	11	12.0	25	8.3	19	1.5	3.5
SFF1260	12	60	17.0	13	15.0	25	10.2	23	2.0	5.0
SFF1270	12	70	17.0	13	15.0	35	10.2	23	2.0	5.0
SFF1680	16	80	22.5	19	20.0	30	13.2	29	2.3	7.0
SFF16100	16	100	22.5	19	20.0	32	13.2	29	2.3	8.0
SFF16120	16	120	22.5	19	20.0	45	13.2	29	2.3	12.0
SFF20100	20	100	27.0	20	27.0	40	14.3	37	3.0	12.5
SFF20120	20	120	27.0	20	27.0	50	14.3	37	3.0	14.0
SFF24120	24	120	32.0	24	30.0	50	14.3	40	3.0	18.0

## Fixing Socket with Cross Pin



Fixing Sockets with Cross Pin are designed for quick and easy connection of precast units with generous placement tolerances. These sockets should only be used where on site fixing tolerances are sufficiently flexible.

The socket is manufactured from either high grade precision steel tube with a zinc plated finish, or a stainless steel grade A2 tube (Grade 304). It incorporates a cross pin which alleviates the requirement of additional reinforcement, making it ideal for use in shallow elements. See figure 34 and table 32.

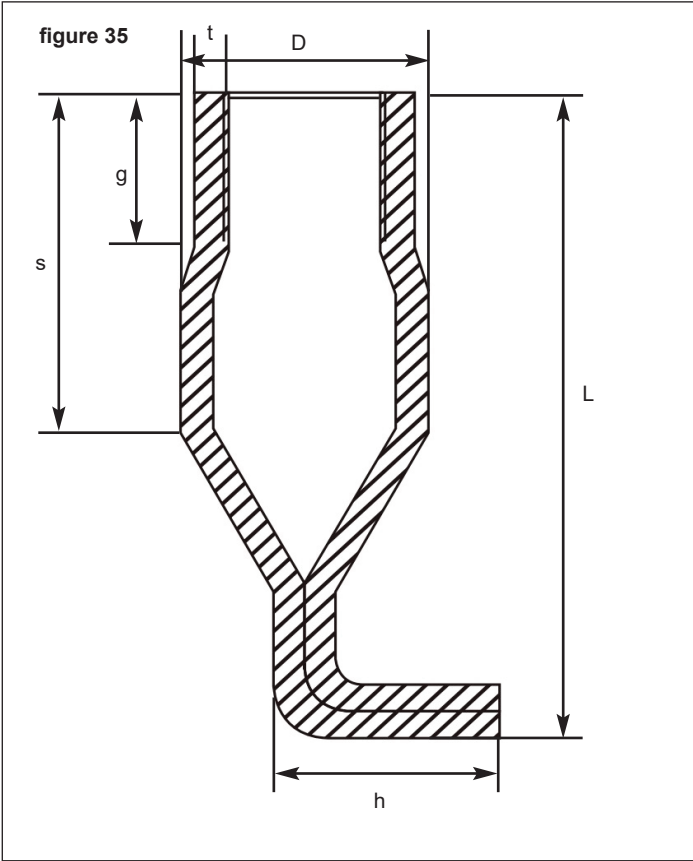
**Please note these sockets are not suitable for lifting operations.**

**table 32**  
Flat End Fixing Sockets with Cross Pin

Product Code	Thread Dia. (M)	L (mm)	L1 (mm)	D (mm)	g (mm)	a (mm)	s (mm)	e (mm)	f (mm)	t (mm)	Load (kN)
SFCP850	8	50	50	11.0	10	8.3	20	8	14	1.3	2.0
SFCP1050	10	50	50	13.5	11	12.0	20	8	19	1.5	3.5
SFCP1260	12	60	50	17.0	13	15.0	25	10	23	2.0	5.0
SFCP1680	16	80	50	22.5	19	20.0	30	12	29	2.3	7.0
SFCP16100	16	100	50	22.5	19	20.0	40	12	29	2.3	8.0
SFCP20100	20	100	100	27.0	20	27.0	40	14	37	3.0	12.5
SFCP20120	20	120	100	27.0	20	27.0	40	14	37	3.0	12.5
SFCP24120	24	120	100	32.0	24	30.0	50	14	40	3.0	18.0



# Angled Fixing Sockets



Angled Fixing Sockets are designed for quick and easy connection of precast units with generous placement tolerances. These sockets should only be used where on site fixing tolerances are sufficiently flexible.

The socket is manufactured from either high grade precision steel tube with a zinc plated finish, or a stainless steel grade A2 tube (Grade 304). The socket is supplied with the flat end bent perpendicular to its axis. This provides a means of anchoring the socket into the concrete and negates the need for additional reinforcement.

See figure 35 and table 33.

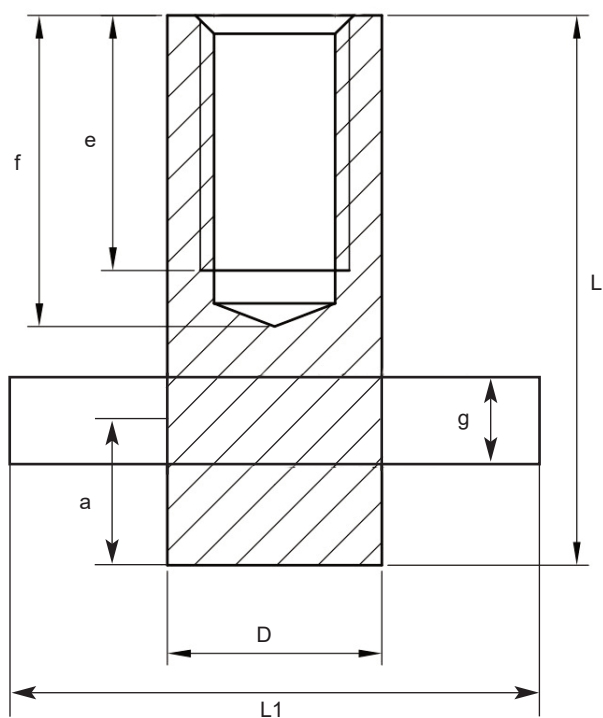
**Please note these sockets are not suitable for lifting operations.**

**table 33**  
Angled Fixing Sockets

Product Code	Thread Dia. (M)	L (mm)	D (mm)	g (mm)	h (mm)	s (mm)	t (mm)	Load (kN)
SFA1245	12	45	17.0	13	25	25	2.0	4.0
SFA1260	12	60	17.0	13	25	30	2.0	5.0
SFA1270	12	70	17.0	13	30	40	2.0	8.0
SFA1660	16	60	22.5	19	30	30	2.3	9.5
SFA16100	16	100	22.5	19	35	60	2.3	13.0
SFA2070	20	70	27.0	20	30	40	3.0	12.0
SFA20100	20	100	27.0	20	35	60	3.0	16.0
SFA2480	24	80	32.0	24	40	45	3.0	16.0

## Solid Rod Fixing Sockets with Crossbar

figure 36



Machined from solid rod and offering a heavy wall construction, in either a zinc plated finish or stainless steel grade 304. This socket offers higher fixing capacities than its equivalent thread diameter standard fixing socket. Whilst the crossbar does not increase the fixing capacity of the Solid Rod Fixing Socket it offers improved anchorage in cracked or honeycombed concrete. The minimum design strength for surrounding concrete should be 30 N/mm<sup>2</sup>. See figure 36 and table 34 for specific dimensions.

**Please note these sockets are not suitable for lifting operations.**

**table 34**  
Solid Rod Fixing Socket with Crossbar

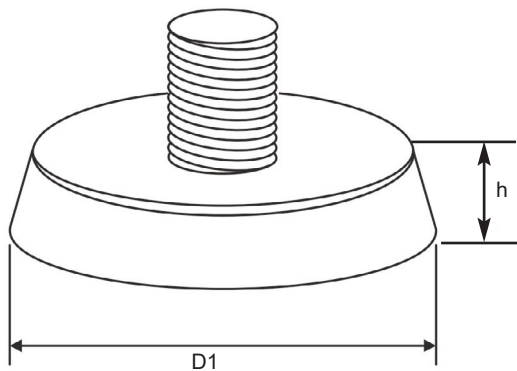
Product Code	Thread Dia. (M)	L (mm)	D (mm)	g (mm)	L1 (mm)	a (mm)	e (mm)	f (mm)	Tension Load (kN)	Shear Load (kN)
SSRCP1060	10	60	16	6	50	10.0	35	40	6.0	4.0
SSRCP1250	12	50	20	10	75	12.0	22	28	9.0	5.6
SSRCP1275	12	75	20	10	75	12.0	40	46	9.0	5.6
SSRCP1675	16	75	22	10	75	14.5	40	45	17.0	11.0
SSRCP16100	16	100	22	10	75	14.5	65	70	17.0	11.0
SSRCP2075	20	75	28	12	90	18.5	35	40	23.0	17.0
SSRCP20100	20	100	28	12	90	18.5	60	65	23.0	17.0
SSRCP24100	24	100	35	16	100	20.0	55	60	30.0	24.0



# Accessories

## Nailing Plates

figure 37



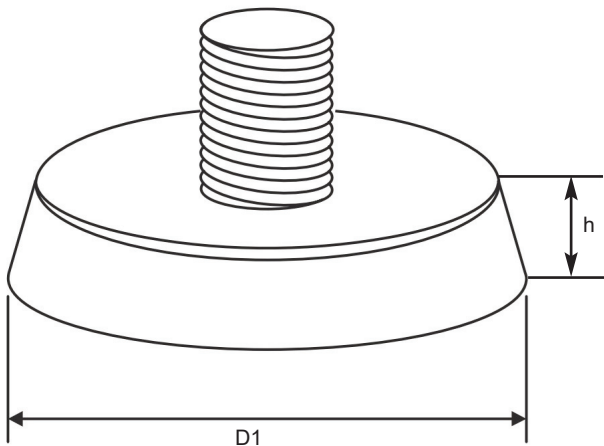
Designed to hold Threaded Sockets against the formwork whilst leaving a recess for the Threaded Lifting Loop.

table 35  
Nailing Plates

Product Code	Thread Dia. (M)	D1 (mm)	h (mm)
SNP10	10	55	10
SNP12	12	55	10
SNP16	16	55	10
SNP20	20	55	10
SNP24	24	55	10
SNP30	30	70	10
SNP36	36	70	12

## Large Nailing Plates

figure 38



Designed to hold Threaded Sockets against the formwork whilst leaving a recess large enough to use Swivel Lifting Eyes.

table 36  
Large Nailing Plate

Product Code	Thread Dia. (M)	D1 (mm)	h (mm)
SNPL08	8	60	10
SNPL10	10	60	10
SNPL12	12	60	10
SNPL16	16	60	10
SNPL20	20	60	10
SNPL24	24	80	10
SNPL30	30	80	10
SNPL36	36	110	10
SNPL42	42	110	10
SNPL52	52	110	10

# Magnetic Holding Plate

figure 39

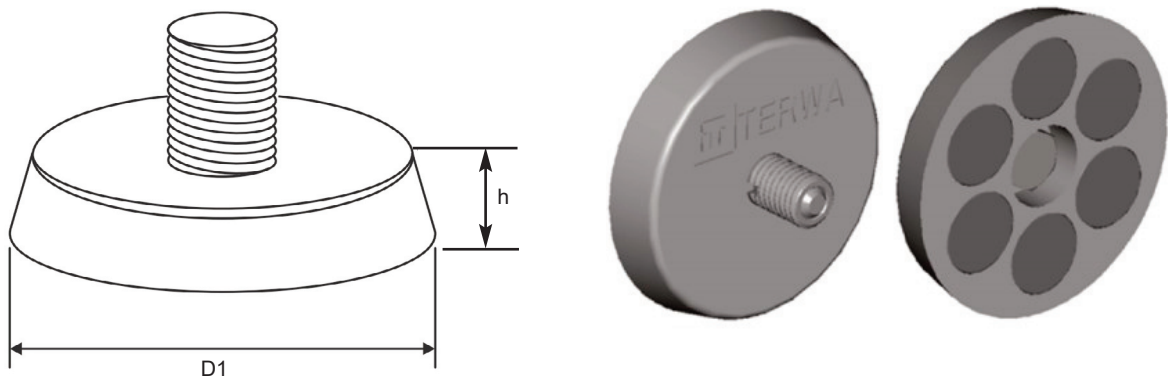


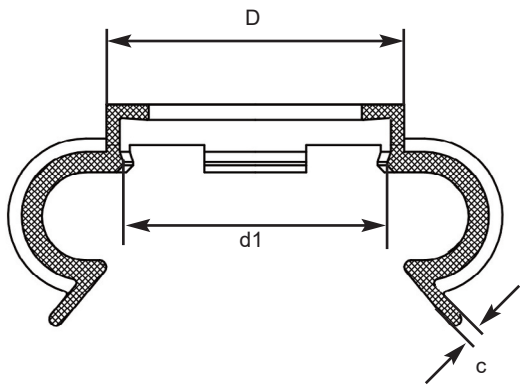
table 37  
Magnetic Holding Plates

Product Code	Thread Dia. (M)	D1 (mm)	h (mm)
SMH12	12	60	10
SMH16	16	60	10
SMH20	20	60	10
SMH24	24	80	10
SMH30	30	80	10
SMH36	36	110	10
SMH42	42	110	10
SMH52	52	110	10

Designed to hold Threaded Sockets to steel formwork whilst leaving a recess large enough to use Swivel Lifting Eyes.

# Data Clips

figure 40



Used to ensure lateral reinforcement is fixed correctly to the socket. Also provides a clear indication of the socket thread diameter and safe working load.

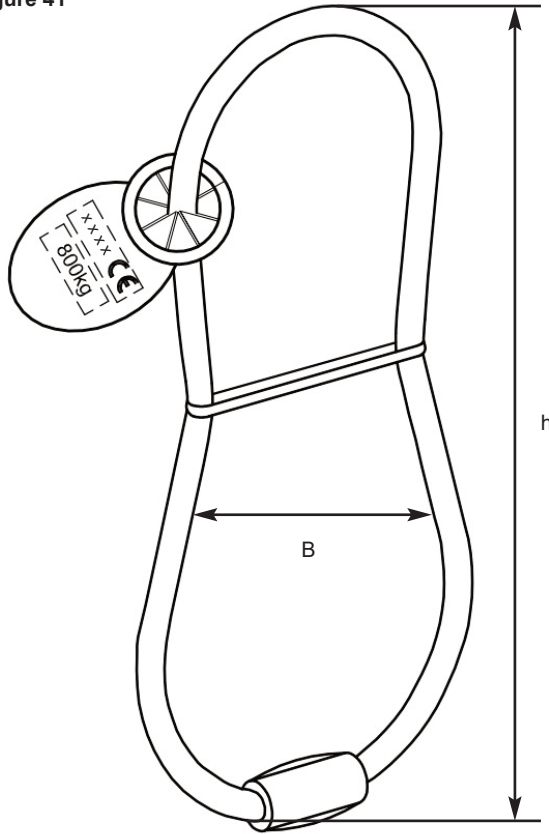
table 38  
Data Clips

Product Code	Thread Dia. (M)	D (mm)	d1 (mm)	c (mm)
SLDC12	12	18.5	15.5	1.5
SLDC16	16	25.5	21.5	1.5
SLDC20	20	31.5	27.5	1.5
SLDC24	24	33.5	31.5	2.0
SLDC30	30	44.5	40.5	2.0
SLDC36	36	52.5	47.5	2.0
SLDC42	42	59.5	54.5	2.0
SLDC52	52	73.0	67.5	2.0



## Cast in Lifting Loops

figure 41



Cast in Lifting Loops are one of the most economic lifting systems available to the precast concrete manufacturer. They are designed for lifting precast concrete units where the lifting points side will be hidden from view once it is installed in its final position. Lifting equipment, such as crane hooks can be attached directly onto these loops without the need for any other lifting devices.

Cast in Loops are manufactured from galvanised mild steel rope. They have a swaged connecting ferrule and a colour coded tag that clearly identifies the safe working load along with the manufactures logo. The tag is designed not to slide down the loop during casting and should remain visible at all times.

Cast in Loops are not designed for multi-use applications and should only be used for a single cycle from production to final installation.

When storing concrete units, care should be taken to avoid bending, so that the cable does not kink. These loops should be examined for cuts, nicks or excessive corrosion prior to lifting.

**Minimum concrete strength should be 20.0N/mm<sup>2</sup> unless otherwise stated.**

**table 39**  
Cast in Lifting Loop Dimensions

Product Code	SWL (Kg)	Tag Colour	Rope dia. (mm)	h (mm)	B (mm)	Embedment depth d (mm)	Minimum Edge Distance			Basic Reinforcement Each Layers As Follows (Double Cage, each layer as follows)
							az (mm)	ar1 (mm)	ar2 (mm)	
SCL00800	800	White	6	200	82	140	270	140	80	126 mm <sup>2</sup> /m
SCL01200	1200	Red	7	220	91	160	290	150	100	126 mm <sup>2</sup> /m
SCL01600	1600	Purple	8	235	98	170	310	170	120	126 mm <sup>2</sup> /m
SCL02000	2000	Light Green	9	255	107	180	340	180	140	126 mm <sup>2</sup> /m
SCL02500	2500	Charcoal	10	280	118	200	370	190	160	126 mm <sup>2</sup> /m
SCL04000	4000	Dark Green	12	330	139	240	540	230	200	189 mm <sup>2</sup> /m
SCL05200	5200	Orange	14	385	171	280	540	300	240	189 mm <sup>2</sup> /m
SCL06300	6300	Blue	16	385	177	280	575	320	280	189 mm <sup>2</sup> /m
SCL08000	8000	Light Grey	18	430	197	310	645	410	300	257 mm <sup>2</sup> /m
SCL10000	10000	Pink	20	470	216	340	740	440	320	257 mm <sup>2</sup> /m
SCL12500	12500	Yellow	22	510	235	370	810	570	370	257 mm <sup>2</sup> /m
SCL16000	16000	Lilac	26	560	264	410	1200	630	490	257 mm <sup>2</sup> /m
SCL20000	20000	Ochre	28	610	285	450	1100	680	460	393 mm <sup>2</sup> /m
SCL25000	25000	Brown	32	670	309	490	1200	760	520	393 mm <sup>2</sup> /m



**table 40**

Over 25 tonne Cast in Lifting Loop Dimensions

Product Code	SWL (Kg)	Tag Colour	Rope dia. (mm)	h (mm)	B (mm)	Embedment depth d (mm)
SCL28000	28000	Dark Orange	36	680	313	510
SCL32000	32000	Dark Orange	36	770	336	570
SCL37000	37000	Dark Orange	40	950	414	690
SCL42000	42000	Dark Orange	44	1000	434	730
SCL47000	47000	Dark Orange	44	1100	482	800
SCL52000	52000	Dark Orange	48	1200	524	870
SCL57000	57000	Dark Orange	48	1350	595	970

\* Minimum Edge distance = 3 x Embedment depth (d)

Minimum Loop spacing = 6 x Embedment depth (d)

### Installation

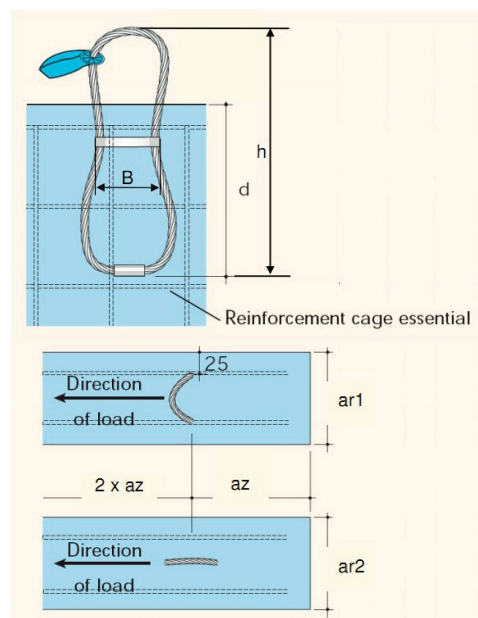
Prior to casting, the loop should be inspected to make sure it is in good condition. Discard loops if the wires are broken, crushed, unravelled or showing signs of excessive corrosion.

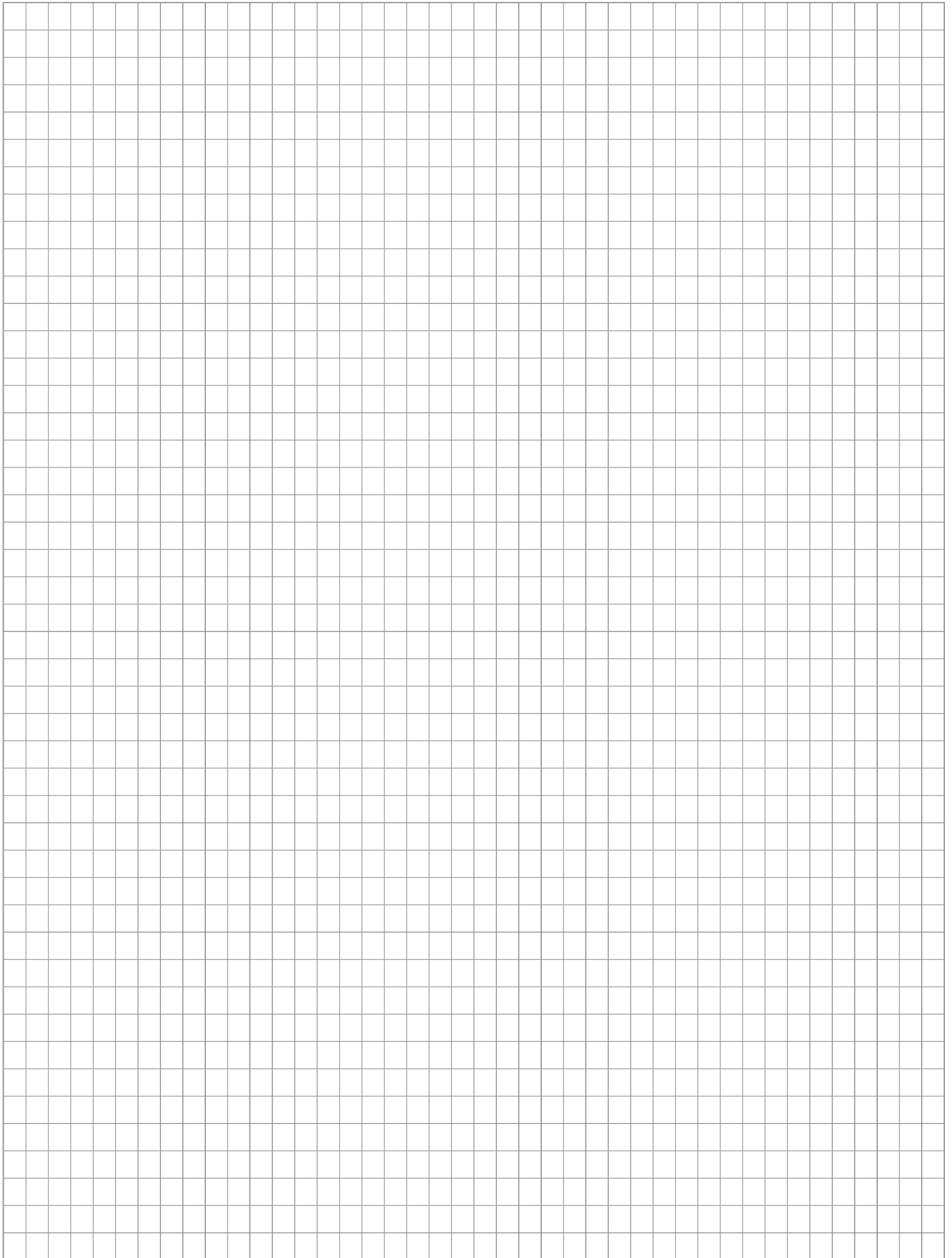
Carefully fasten the loop to the cage to avoid movement during concreting. Loops should be installed in the direction of the expected load, about two-thirds into the concrete, see table 39 and 40. The ferrule is situated in the concrete.

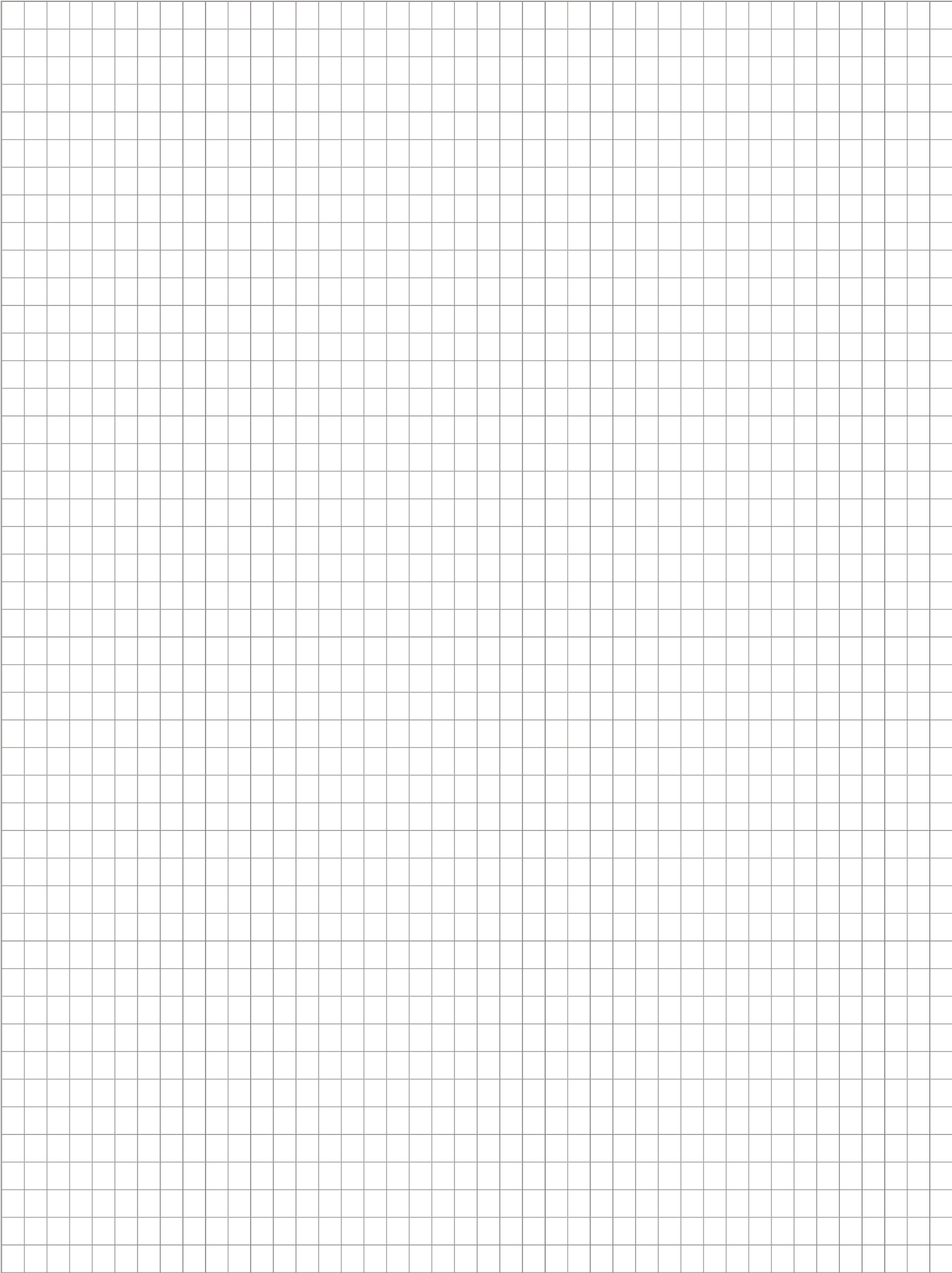
Provided that the loops are installed to the minimum dimensions and reinforcement in the table, no anchorage reinforcement may be required.

Exposed loops can be attached to standard crane hooks, provided that the curvature radius of the crane hook is at least equal to the diameter of the loop.

Once finally in position, protruding loops can be cut off if required, but consideration must still be given to the provision of corrosion protection to the cut ends to avoid rust staining.

**figure 42**





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