EURO ACCESSORIES

TECHNICAL MANUAL
SPREAD ANCHOR SYSTEM

V2

Spread Anchor Systems

Contents

Introduction

The Spread Anchor System has been used successfully worldwide by companies to handle precast concrete units of various weights and dimensions for over 30 years. This manual has been produced to allow the user to calculate specific Spread Anchor requirements.

Advantages

The Spread Anchor System has a “no fuss” engage and release mechanism on the Spread Anchor Ring Clutch, allowing precast concrete units to be handled quickly and economically, especially when repeated operations are required. The unique lever operated locking mechanism of the system prevents any possibility of accidental release of the concrete unit, whilst also giving a clear visual indication of correct engagement. The Spread Anchor system avoids the need to utilise threaded socket systems with wire ropes and the relative precautions associated with them. The lack of easily wearing parts and the simplicity of the Spread Anchor Ring Clutch means that they will see many years use, with only basic care. All lifting components within the Spread Anchor system undergo specific testing procedures. In addition, all sizes of anchors are routinely batch tested. Every Spread Anchor Ring Clutch is individually tested and comes uniquely stamped with a corresponding lifting certificate.

There are six simple steps to utilise the Spread Anchor System:

1. Select the correct capacity and length of Spread Anchor.
2. Insert the Spread Anchor into corresponding Rubber Former, these are re-usable and with adequate cleaning and care should see many repeat uses. This should be fixed to the formwork with a Holding Plate or Holding Screw or suspended within the formwork.
3. Once the Spread Anchor is firmly in place, the concrete can be poured.
4. After sufficient concrete strength has been achieved, the Rubber Former can be removed from the concrete, revealing the head of the Spread Anchor with its safe working load indicated. The Rubber Former leaves the anchor below the concrete surface in a pocket of a size specific to the corresponding Spread Anchor Ring Clutch.
5. Engage the Spread Anchor Ring Clutch with the Spread Anchor and rotate the lever approximately 90 degrees until it lies flat on the concrete surface to indicate correct engagement.
6. Attach lifting chains and commence lifting, the universal joint of the Spread Anchor Ring Clutch will allow lifting at any angle. Simply reverse section 5 to disengage the Spread Anchor Ring Clutch.

Overview of the Spread Anchor System

The Spread Anchor system is supplied in a wide range of lifting capacities ranging from 0.7 tonnes to 22.0 tonnes. The method of use is the same throughout the size range. There are three basic components to the range:

1. **Spread Anchor**
   The Spread Anchor is permanently cast into the concrete unit. It is manufactured from specially ductile steel making it safe to use at low temperatures. The safe working load of the anchors is based on a factor of 3 for safety.

2. **Rubber Former**
   The Rubber Former is manufactured from flexible material and is semi-circular in shape. It is designed to open to allow the Spread Anchor to be inserted, once closed it provides an adequate seal to prevent concrete ingress. After the concrete has been poured and cured the Rubber Former is removed to reveal the Spread Anchor in its pocket. The Rubber Formers should be oiled after each use and can be used many times over.

3. **Spread Anchor Ring Clutch**
   The Spread Anchor Ring Clutch is an all cast item specially designed not only to fit the Spread Anchor of its related safe working load but also to match the pocket created by the corresponding capacity Rubber Former. In this way, one can be assured that no two lifting capacities canbe utilised together, thus guaranteeing the safe working load is matched for all items utilised in the lifting process. The Spread Anchor Ring Clutches are individually tested and come uniquely stamped with a corresponding lifting test certificate. The safe working load of the Spread Anchor Ring Clutch is based on a factor of 3 for safety.

Selecting the Correct Spread Anchor

Selection of the correct Spread Anchor is based upon two main factors. Firstly the safe working load of the Spread Anchor itself and its ability to carry the unit in question, under all relevant loading conditions at the time of lifting. These include, weight of the unit, demoulding forces, dynamic loading, the number of effective lifting points and increased tension in angled lifting slings. Secondly, the strength of the surrounding concrete and its ability to resist pull out forces induced upon it by the lifting system. This can be influenced by several factors, such as, the compressive strength of the concrete, the Spread Anchor length, edge distances, the distance between adjacent Spread Anchors and the ability of thin panels to resist compressive loads damaging the faces.

This manual will guide you through the necessary steps to determine both of these criteria. Firstly, the following should be noted. The normal minimum factor of safety for pull out is 2.5 and tables in this manual are based upon this.

No lifting should take place below 15 N/mm² though certain other restrictions apply which will be covered later.

Spread Anchor Load Rating

Firstly we must determine the Spread Anchor load rating. The capacity required is determined by the final load value on the anchor. This value is derived from a combination of loads and factors influencing the anchor during the lifting process.

These are as follows:

The static or dead weight of the actual concrete unit, this is load **W**.

The quantity and positioning of anchors with their sling arrangements. The numbers of effective anchors is divisible into the dead weight of the unit giving the static weight per anchor **z**.
The angle of lift (angle of sling or chains connecting to the anchor from the vertical), this is factor **Sa**.

Removing a unit from formwork increases the load on the anchor and is related to the surface area of formwork in contact with the concrete. This is the mould adhesion factor **Ma**.

The speed at which the unit is hoisted and ground conditions the unit is being transported over. This is the dynamic load factor **V**.

In order to accurately determine the correct size of anchor to be used all these loads and factors have to be combined. The following sections elaborate these factors further.

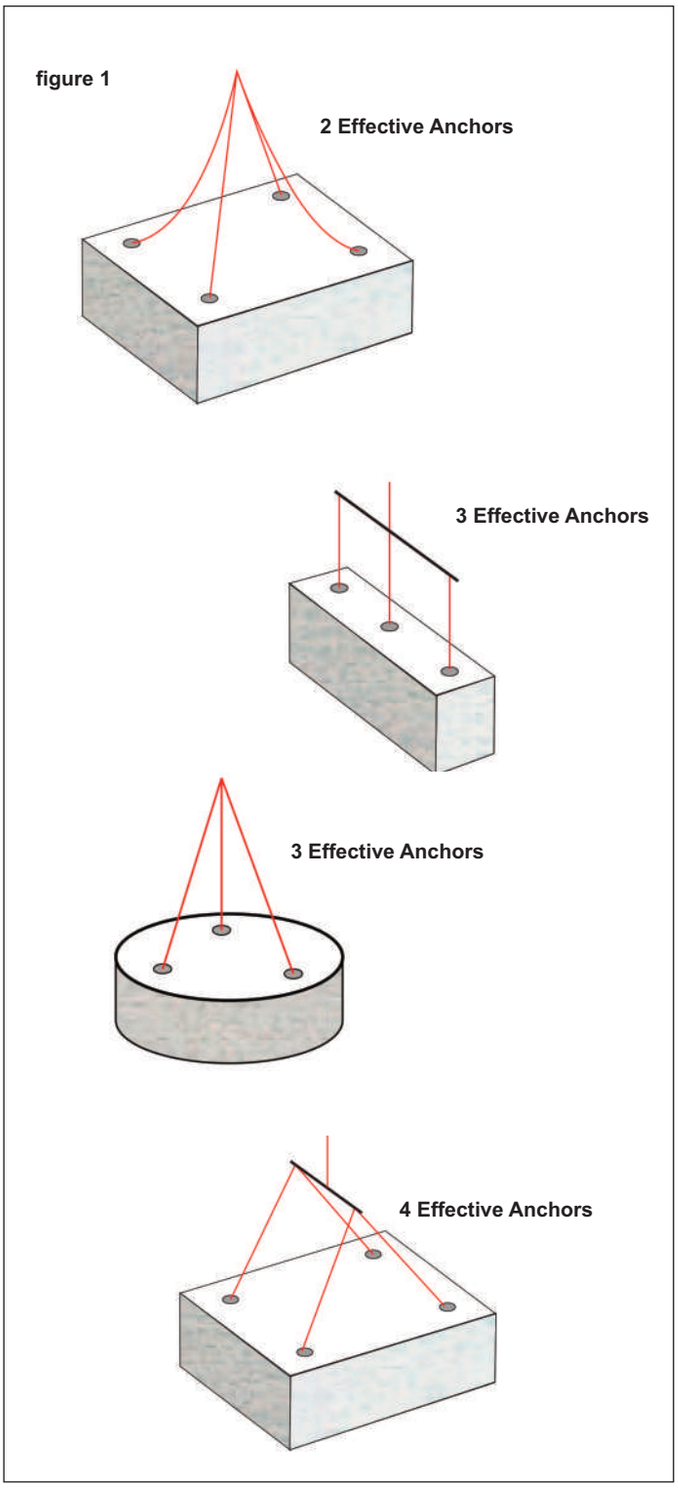
Static Weight

This is the actual mass of the concrete unit and for general purposes is determined from a density figure for reinforced concrete of 2.5 tonnes per cubic metre. The volume in cubic metres of the unit to be lifted, multiplied by the density figure of 2.5 tonnes/m³ will give us the static weight **W** in tonnes.

Number and Positioning of Anchors and Slings

The weight carried by each anchor is directly affected by the number of anchors 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 sling system will also affect the load on the anchors. For this reason, unless there is some means of balancing the slings, we can only assume that if four slings are connected to four anchors in an un-balanced system, only two anchors effectively take the weight of the unit, therefore, half the weight of the unit is carried by each anchor. The actual static load per anchor **z** is the static weight of the unit divided by the number of effective anchors. Please see figure 1 giving the number of effective anchors for specific sling arrangements.

figure 1

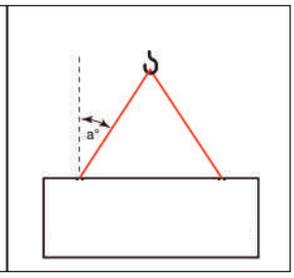


Angle of Lift

Any inclination of the sling angle from the vertical will have a direct result on the load induced on the Spread Anchor via the lifting slings. The following values in table 1 apply for this facto **Sa**.

table 1
Single Angle Load Factors

Angle from Vertical aº	Factor Sa
0	1.00
15	1.04
30	1.16
45	1.41
60	2.00



Removing the Unit from the Formwork

Considerable loads can be induced on the anchors whilst attempting to remove a concrete unit from the formwork (demoulding). This load is influenced greatly by the type of formwork material utilised and the surface area directly in contact with the concrete. The load values per square metre are given in table 2 for various formwork materials. This figure will give us the mould adhesion factor **Ma** and is calculated as follows:

Ma = (W+ (S x Al))/W

Where **W** is the static weight of the unit;
Where **S** is the surface area of formwork in contact with the unit in m^2;
Where **Al** is the load per m^2 for various formwork materials obtained from table 2.

table 2
Demoulding Factors

Formwork Materials	Load per m^2 Al (Kg)
Flat steel shutters	100
Flat plywood shutters	200
Flat sawn boards	300

For special shaped elements the following factors for **Ma** apply:

Double T Beams **Ma**=2.00
Coffered Slabs **Ma**=3.00

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.

Speed of Hoist and Transport

Dynamic forces caused by the speed at which a unit is hoisted and the terrain it is transported over also affect the load induced on an anchor. The factor **V** for various rope speeds and terrain are given in table 3.

table 3
Rope Speed and Transport Factors

Lifting Conditions	Factor V
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.

It must be noted that the means of lifting and transportation of units utilising the anchors can have a dramatic effect on the final load generated. With this in mind it must be stressed that great consideration must be taken whilst determining this factor. It is important not only to consider factory conditions but also the conditions the unit will be handled under, outside the production facility.

Calculating the Load per Anchor

With all these conditions and factors in mind the load rating of the anchor can be calculated as follows:

Demoulding:

For demoulding we consider the dead weight per anchor **z**, the mould adhesion factor **Ma** and the increased load caused by the angle of lift **Sa**. The unit is effectively static at demould stage so dynamic loads need not be considered. The calculation is as follows:

Load per Anchor at Demould Stage (Fd)
Fd (tonnes) = z x Ma x Sa

General Lifting:

For general lifting we consider the dead weight per anchor **z**, the increase in load caused by the angle of lift **Sa** and the dynamic load factor **V**. The calculation is as follows:

Load per Anchor for General Lifting (Fl)
Fl (tonnes) = z x Sa x V

Where:

z is the dead weight of the concrete per anchor in tonnes.

Ma demould factor determined from:

Ma = (W + (S x Al))/W

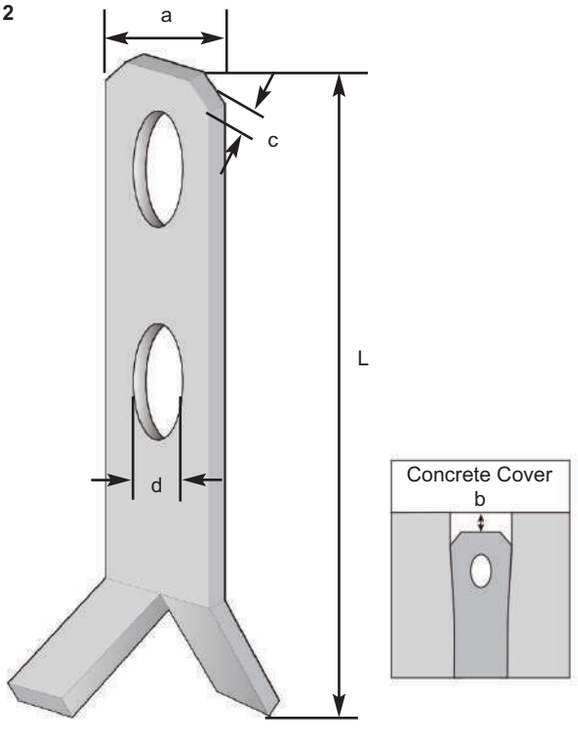
Sa is the increased load factor due to sling angles.

V is the increased load factor due to rope speed and transport conditions.

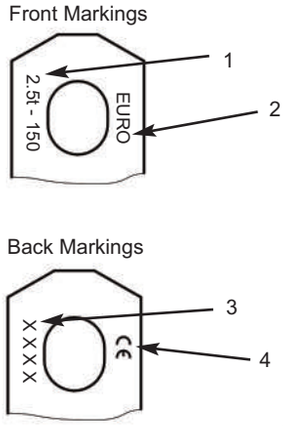
With these loads calculated and if the same anchor is to be used for both demoulding and lifting the higher load value should be considered. This value if not an exact match to an available anchor range, should be rounded up to the next available. Where concrete dimensions allow, the longest corresponding Spread Anchor should be utilised.

Spread Anchors

figure 2



The Spread Anchor is suitable for lifting both narrow wall type units and slab units. In certain applications it can be utilised without the need for further reinforcement. The following pages outline all criteria.



1. Load Class (tonnes)
2. Manufacturer (EA or Euro)
3. Batch Number
4. CE-Mark

table 4
Spread Anchor Dimensions

Product Code	Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Anchor Length L (mm)	a (mm)	c (mm)	d (mm)	Concrete Cover b (mm)
LAS007110	0.7	2.5	110	30	5	14	10
LAS014110	1.4	2.5	110	30	6	14	10
LAS014160	1.4	2.5	160	30	6	14	10
LAS020130	2.0	2.5	130	30	8	14	10
LAS020160	2.0	2.5	160	30	8	14	10
LAS025150	2.5	2.5	150	30	10	14	10
LAS025200	2.5	2.5	200	30	10	14	10
LAS025250	2.5	2.5	250	30	10	14	10
LAS050180	5.0	5.0	180	40	15	18	10
LAS050240	5.0	5.0	240	40	15	18	10
LAS050400	5.0	5.0	400	40	15	18	10
LAS075260	7.5	10.0	260	60	16	26	15
LAS075300	7.5	10.0	300	60	16	26	15
LAS075420	7.5	10.0	420	60	16	26	15
LAS100300	10.0	10.0	300	60	20	26	15
LAS100370	10.0	10.0	370	60	20	26	15
LAS100520	10.0	10.0	520	60	20	26	15
LAS140370	14.0	26.0	370	80	20	35	15
LAS140460	14.0	26.0	460	80	20	35	15
LAS220500	22.0	26.0	500	80	26	35	15

Evaluating the Surrounding Concrete and Assessing Additional Reinforcement Requirements

Lifting Slabs and Shallow Units with the Spread Anchor

In general, providing the minimum anchor centres and the edge distances are within the parameters set out in table 5, lifting at angles up to and including 60 degrees from the vertical can commence with no additional reinforcement, providing the minimum specified concrete strengths have been achieved, though a range of 0 to 30 degrees is preferable. Under no circumstances should angled lifts exceed 60 degrees from the vertical in any application irrespective of concrete strength.

Additional lateral reinforcement should be incorporated around the anchor where loads are orientated towards the edge of the concrete unit. Details of this reinforcement are supplied in table 6, it should be placed as close as possible to the Rubber Former and oppose the angled load.

In shallow units where the anchors are placed in larger surfaces such as slabs, the anchors can be placed in an orientation to suit the lifting procedure, see figure 3.

Attention should be paid to minimum concrete cover to the foot of the anchor and dimension **b**, the depth of the anchor below the surface.

figure 3

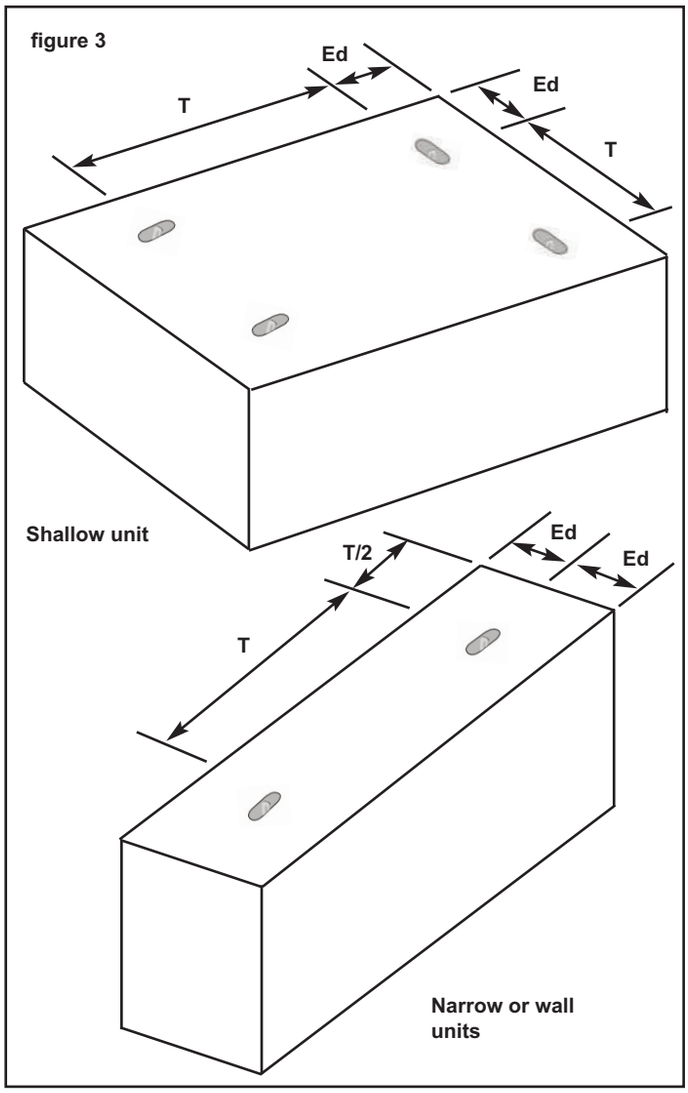


table 5
Spread Anchor Ideal Placements for Shallow Units

Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Anchor Length L (mm)	Minimum Edge Distances Ed in relation to Concrete Strength B			Minimum Anchor Centres T (mm)
			15 N/mm²	25 N/mm²	35 N/mm²	
0.7	2.5	110	35	35	35	280
1.4	2.5	110	70	50	40	380
2.0	2.5	130	90	60	50	455
2.0	2.5	160	70	50	40	665
2.5	2.5	150	100	75	60	525
2.5	2.5	200	75	55	45	700
5.0	5.0	180	190	140	110	630
5.0	5.0	240	150	100	80	840
7.5	10.0	260	220	170	125	910
7.5	10.0	300	190	140	110	1050
10.0	10.0	300	275	200	175	1050
10.0	10.0	370	220	160	125	1295
14.0	26.0	370	400	280	225	1295
14.0	26.0	460	300	220	175	1610
22.0	26.0	500	450	340	300	1750
22.0	26.0	620	400	280	225	2170

Lifting Narrow Precast Panels with the Spread Anchor

When lifting very narrow units minimum concrete strengths, edge distances and anchor spacings must be observed. In general the need for lateral reinforcement is alleviated if the sling angle is less than or equal to 30 degrees. The load capacities and values given in table 6 should be observed. No sling angles above 30 degrees are permissible without additional lateral reinforcement. With the utilisation of lateral reinforcement, sling angles over and above 30 degrees are permitted, however, a 20% reduction in the safe working load of the anchor must be applied. No lift should commence with sling angles of 60 degrees or more due to excessive tension in the slings imposing large loads on the anchor. If utilising lateral reinforcement in accordance with table 6, it should always be placed as close to the Rubber Former as possible in such a way as to oppose angled lifting forces.

Additionally, irrespective of the need to apply lateral reinforcement, further reinforcement in the form of hairpins as detailed in table 7 should always be utilised when lifting narrow panels. The quantity of these varies according to the angle of lift. They should be placed in a zone approximately three times that of the anchor length with the anchor central to it. They should be placed as close to the anchor as possible and be equally spaced throughout the zone, see figure 4 to clarify placements. When lifting units with widths disproportionally narrower than the length, such as wall units, the wide section of the anchor should be placed perpendicular to the long axis of the unit, see figure 3.
Lateral reinforcement, as per table 6, should be incorporated for loads towards the narrow edge of the unit.

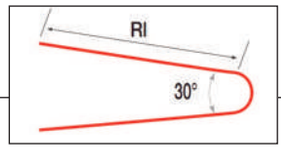


table 6
Spread Anchor Ideal Placements for Narrow Units

Safe Working Load (tonnes)	Safe Working Load With 20% Reduction For Angled Lifts (tonnes)	Ring Clutch Load Range (tonnes)	Anchor Length L (mm)	Minimum Spacing T (mm)	Minimum End Spacing T/2 (mm)	Minimum Panel Thickness In Relation to Concrete Strength B			Lateral Reinforcement Dia. x Rl (mm)
						15 N/mm^2	25 N/mm^2	35 N/mm^2	
0.7	0.6	2.5	110	330	165	70	60	50	6 x 225
1.4	1.1	2.5	110	330	165	90	70	70	6 x 450
1.4	1.1	2.5	160	480	240	80	60	60	6 x 450
2.0	1.6	2.5	130	390	195	110	90	90	8 x 475
2.0	1.6	2.5	160	480	240	100	80	80	8 x 475
2.0	1.6	2.5	210	630	315	90	70	70	8 x 475
2.5	2.0	2.5	150	450	225	120	80	80	8 x 600
2.5	2.0	2.5	200	600	300	110	80	70	8 x 600
2.5	2.0	2.5	250	750	375	100	80	70	8 x 600
3.0	2.4	5.0	160	480	240	120	100	100	10 x 575
3.0	2.4	5.0	200	600	300	110	90	90	10 x 575
3.0	2.4	5.0	280	840	420	100	80	80	10 x 575
4.0	3.2	5.0	180	540	270	140	120	100	10 x 750
4.0	3.2	5.0	240	720	360	130	110	100	10 x 750
4.0	3.2	5.0	320	960	480	120	100	100	10 x 750
5.0	4.0	5.0	180	540	270	180	140	140	12 x 775
5.0	4.0	5.0	240	720	360	160	120	120	12 x 775
5.0	4.0	5.0	400	1200	600	140	100	100	12 x 775
7.5	6.0	10.0	260	780	390	240	160	120	12 x 1000
7.5	6.0	10.0	300	900	450	200	160	120	12 x 1000
7.5	6.0	10.0	420	1260	630	160	120	120	12 x 1000
10.0	8.0	10.0	300	900	450	280	200	160	16 x 1150
10.0	8.0	10.0	370	1110	555	240	160	160	16 x 1150
10.0	8.0	10.0	520	1560	780	200	140	120	16 x 1150
14.0	11.2	26.0	370	1110	555	300	250	200	20 x 1300
14.0	11.2	26.0	460	1380	690	240	200	160	20 x 1300
22.0	17.6	26.0	500	1500	750	400	300	250	25 x 1725
22.0	17.6	26.0	620	1860	930	300	250	250	25 x 1725

The following exceptions apply for narrow panels:

Without Additional Lateral Reinforcement

Lifting angles between 30 degrees and 60 degrees with a 20% reduction in safe working load can commence providing one of the following criteria are met:

- The minimum concrete strength is 15 N/mm² and the panel thickness is 3 times that set out in table 6.
- The minimum concrete strength is 25 N/mm² and panel thickness is 2.5 times that set out in table 6.
- The minimum concrete strength is 35 N/mm² and panel thickness is 2 times that set out In table 6.

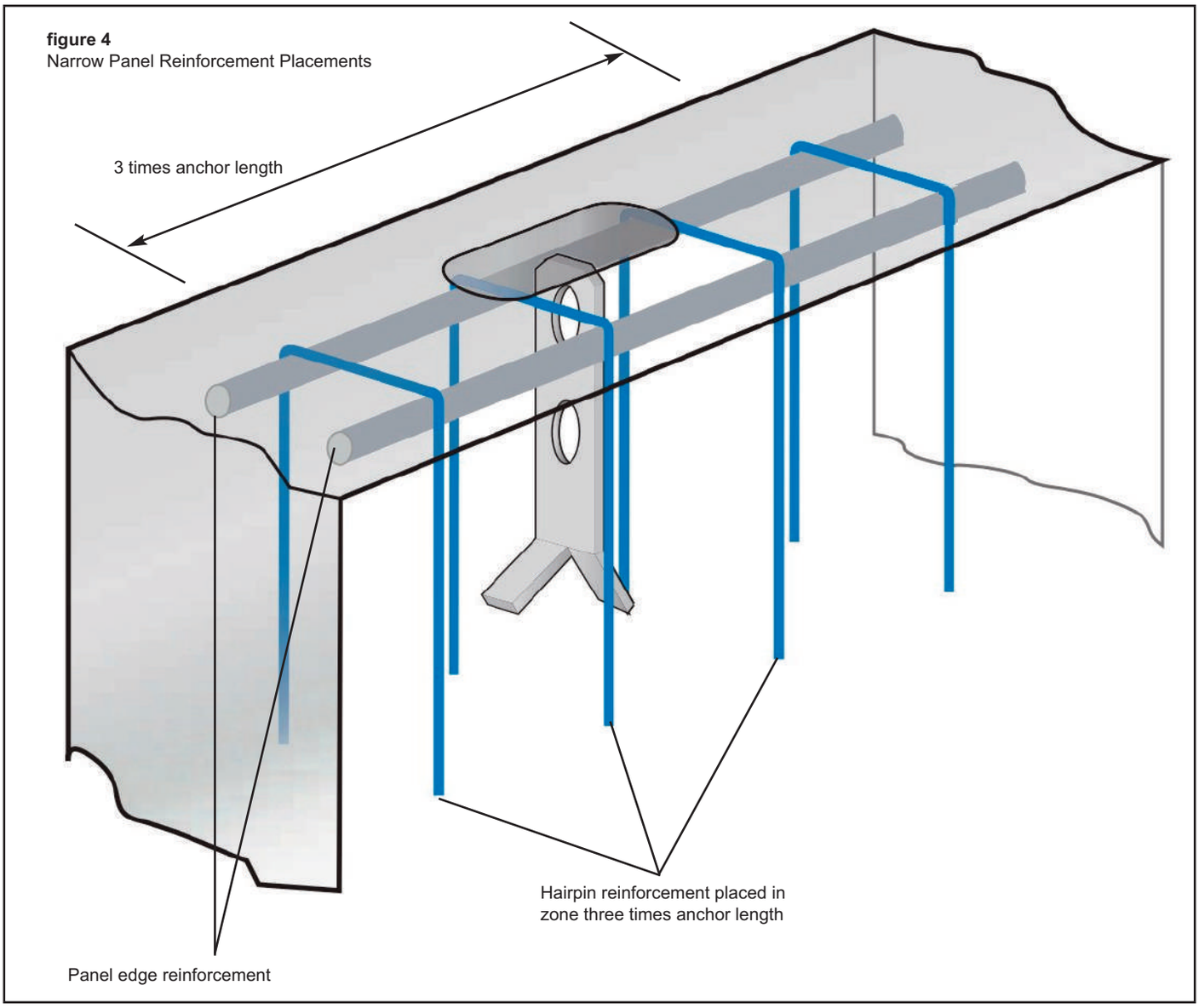
With Additional Lateral Reinforcement

Where concrete strengths are in excess of 25 N/mm² then there is no reduction in safe working loads for lifts with a sling angle between 30 and 60 degrees.

table 7
Obligatory Reinforcement for Narrow Panels in Spread Anchor Zone

Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	For Sling Angle up to 30 degrees			For Sling Angle between 30 and 60 degrees		
		Minimum Mesh Reinforcement to Both Sides of Panel	Hairpin Reinforcement Dia. x Leg Length (mm)	Panel Edge Reinforcement Dia. Along Both Sides of Unit (mm)	Minimum Mesh Reinforcement to Both Sides of Panel	Hairpin Reinforcement Dia. x Leg Length (mm)	Panel Edge Reinforcement Dia. Along both Sides of Unit (mm)
0.7	2.5	A142	6 x 400 2no	6	A142	6 x 400 4no	8
1.4	2.5	A142	6 x 400 2no	6	A142	6 x 400 4no	8
2.0	2.5	A142	6 x 500 2no	6	A142	6 x 500 4no	8
2.5	2.5	A142	8 x 600 2no	8	A142	8 x 600 4no	10
5.0	5.0	A142	10 x 800 2no	10	A142	10 x 800 4no	12
7.5	10.0	A193	10 x 800 4no	10	A193	10 x 800 4no	12
10.0	10.0	A193	10 x 1000 6no	12	A193	10 x 1000 6no	12
14.0	26.0	A252	10 x 1000 6no	12	A252	10 x 1000 8no	12
22.0	26.0	A252	10 x 1200 8no	12	A252	10 x 1200 8no	16

figure 4
Narrow Panel Reinforcement Placements



Tilting Elements from One Plane to Another

With the addition of tilting reinforcement, concrete elements can be safely manoeuvred from one plane to another. Table 8 gives the dimensions and load restrictions for different types of lifting procedure. Careful attention should be paid to edge distances and anchor spacings.

Additional tilting reinforcement can be incorporated into one or both faces depending on the precast production process or requirements on site. The reinforcement should be placed around the anchor to oppose turning forces and be bent in such a way as to ensure that the horizontal legs are in the minimum cover zone. Refer to figure 5 for placements.

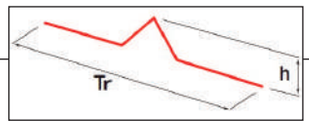
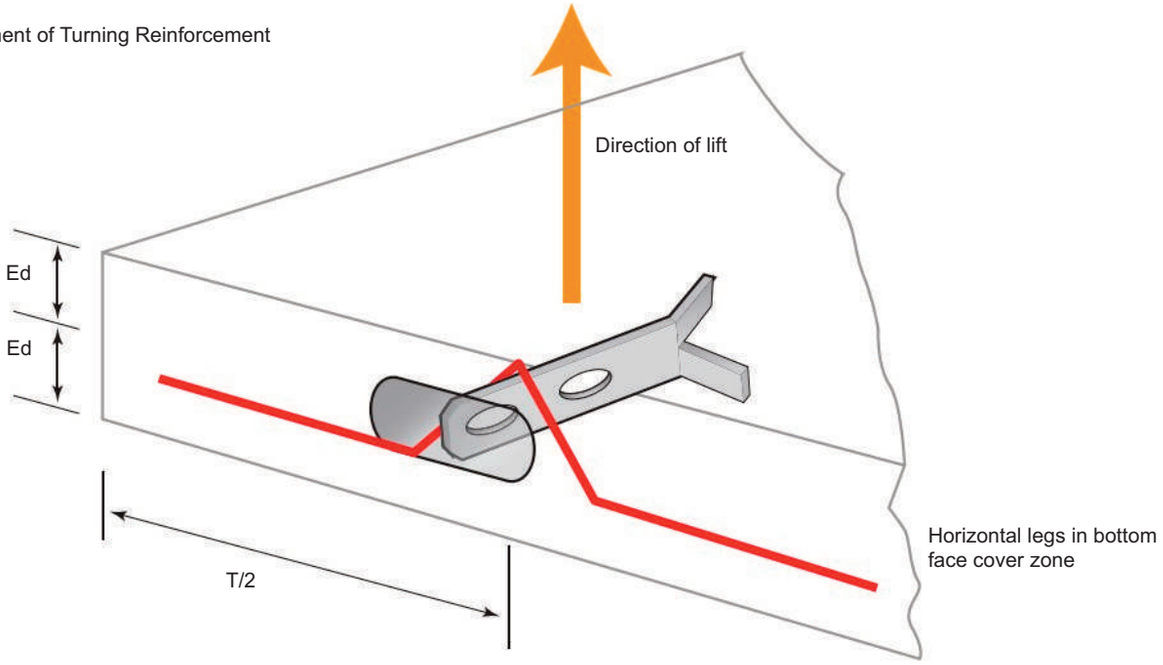


table 8
Load Restrictions and Anchor Placements for Tilting Units

Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Minimum Anchor Spacing T (mm)	Minimum End Spacing T/2 (mm)	Minimum Edge Distance Ed (mm)	Safe Working Loads (tonnes)			Tilting Reinforcement Dia. x Length Tr (mm)
					Axial Lifting to 30°	Angled Lifts 30° to 60°	Tilting and Turning	
0.7	2.5	700	350	100	0.7	0.6	0.4	8 x 600
1.4	2.5	700	350	100	1.4	1.1	0.7	10 x 700
2.0	2.5	800	400	100	2.0	1.6	1.0	10 x 750
2.5	2.5	875	440	100	2.5	2.0	1.3	12 x 800
5.0	5.0	1435	720	150	5.0	4.0	2.5	16 x 1000
7.5	10.0	1470	735	250	7.5	6.0	3.8	20 x 1200
10.0	10.0	1820	910	300	10.0	8.0	5.0	20 x 1500
14.0	26.0	1800	900	525	14.0	11.2	7.0	25 x 1800
22.0	26.0	2200	1100	710	22.0	17.6	11.0	25 x 1800

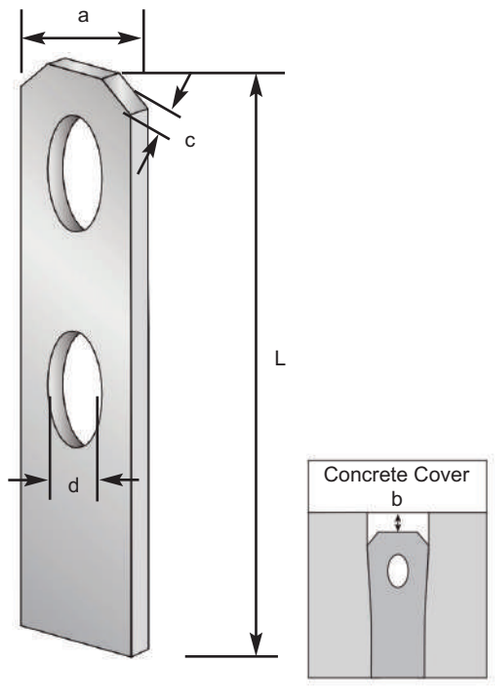
Dimension h varies according to the concrete cover.

figure 5
Correct Placement of Turning Reinforcement

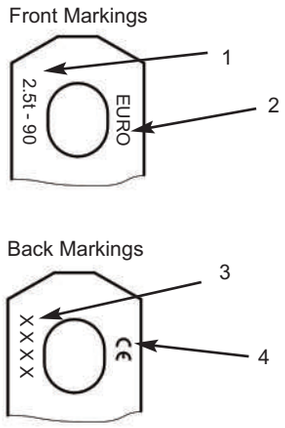


Transport Anchors

figure 6



Designed specifically for transportation only of narrow precast concrete units where the ability to turn units is not required. Refer to table 9 and figure 6 for specific details. This type of anchor relies on additional reinforcement to transfer loads into the concrete as follows:



1. Load Class (tonnes)
2. Manufacturer (EA or Euro)
3. Batch Number
4. CE-Mark

table 9
Transport Anchor Dimensions

Product Code	Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Anchor Length L (mm)	a (mm)	c (mm)	d (mm)	Concrete Cover b (mm)
LAST014090	1.4	2.5	90	30	6	14	10
LAST020090	2.0	2.5	90	30	8	14	10
LAST025090	2.5	2.5	90	30	10	14	10
LAST030120	3.0	5.0	120	40	10	18	10
LAST040120	4.0	5.0	120	40	12	18	10
LAST050120	5.0	5.0	120	40	15	18	10
LAST075160	7.5	10.0	160	60	16	26	15
LAST100170	10.0	10.0	170	60	20	30	15
LAST140240	14.0	26.0	240	80	20	35	15
LAST220300	22.0	26.0	300	80	28	35	15

Anchorage Reinforcement
This must always be incorporated into the design and is passed through the lower hole in the anchor. This provides anchorage into the concrete, it should be bent into a V shape with an enclosed angle of 30 degrees. Full details available in table 10.

Edge Reinforcement
Always required in the form of straight bars and placed as close as possible to the anchor on both sides of the unit, see details in table 11 and figure 7.

Hairpin Reinforcement
This must always be incorporated. The quantity of links will vary depending on the angle of lift, and is in the form of links placed in a zone three times the length of the anchor with the anchor central to it. Full details of this reinforcement are available in table 11 and figure 4 for lifting angles up to 30 degrees and for angles above this.

Lateral Reinforcement
This must be utilised for any lifting angles over 30 degrees or for any loads which are orientated towards the edge of a unit. It should always be placed to oppose the angled lifting forces. See table 6.
When lifting very narrow units, minimum concrete strengths, edge distances and anchor spacings must be observed. In general, the need for lateral reinforcement is

alleviated if the sling angle is less than equal to 30 degrees. The load capacities and values given in table 10 should be observed. No sling angles above 30 degrees are permissible without additional lateral reinforcement. With the utilisation of lateral reinforcement, sling angles over and above 30 degrees are permitted, however a 20% reduction in safe working load of the anchor must be applied. No lift should commence with sling angles of 60 degrees or more, due to excessive tension in the slings imposing large loads on the anchor.
The following exceptions apply:

Without Additional Lateral Reinforcement.
Lifting angles between 30 degrees and 60 degrees with a 20% reduction in safe working load can commence providing the following criteria are met:
The minimum concrete strength is 15 N/mm^2 and the panel thickness is 3 times that set out in table 10.

Or

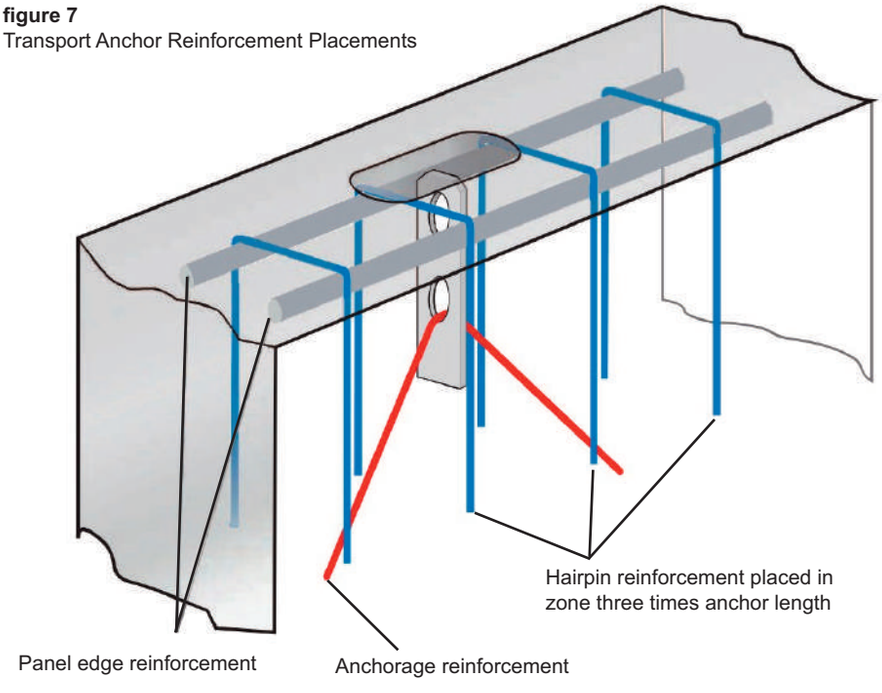
The minimum concrete strength is 25 N/mm^2 and the panel thickness is 2.5 times that set out in table 10.

Or

The minimum concrete strength is 35 N/mm^2 and the panel thickness is 2 times that set out in table 10.

With Additional Lateral Reinforcement
Where concrete strengths are in excess of 25 N/mm^2 there is no reduction in safe working loads for lifts with sling angles between 30 and 60 degrees.

figure 7
Transport Anchor Reinforcement Placements



PLEASE NOTE THAT UNITS CANNOT BE TILTED FROM HORIZONTAL TO VERTICAL WITH THE TRANSPORT ANCHOR

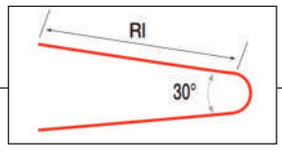


table 10
Transport Anchor Placements, Anchorage and Lateral Reinforcement.

Safe Working Load (tonnes)	Safe Working With 20% Reductions For Angled Lifts (tonnes)	Ring Clutch Load Range (tonnes)	Anchor Spacing (mm)	End Spacing T/2 (mm)	Minimum Panel Thickness (mm)	Minimum Edge Distance (mm)	Anchorage Reinforcement Dia. x Length (mm)			Lateral Reinforcement Dia. x RI (mm)
							15 N/mm2	25 N/mm2	35 N/mm2	
1.4	1.1	2.5	500	250	80	40	10 x 325	10 x 260	10 x 215	6 x 450
2.0	1.6	2.5	600	300	90	45	12 x 400	12 x 320	12 x 260	8 x 475
2.5	2.0	2.5	600	300	100	50	12 x 500	12 x 400	12 x 325	8 x 600
3.0	2.4	5.0	650	325	100	50	14 x 500	14 x 400	14 x 325	10 x 575
4.0	3.2	5.0	700	350	110	55	16 x 600	16 x 480	16 x 390	10 x 750
5.0	4.0	5.0	750	375	120	60	16 x 750	16 x 600	16 x 500	12 x 775
7.5	6.0	10.0	1200	600	130	65	20 x 875	20 x 620	20 x 525	12 x 1000
10.0	8.0	10.0	1200	600	140	70	25 x 925	25 x 740	25 x 625	16 x 1150
14.0	11.2	26.0	1500	750	160	80	25 x 1175	25 x 940	25 x 775	20 x 1300
22.0	17.6	26.0	1500	750	180	90	25 x 1500	25 x 1200	25 x 975	25 x 1500

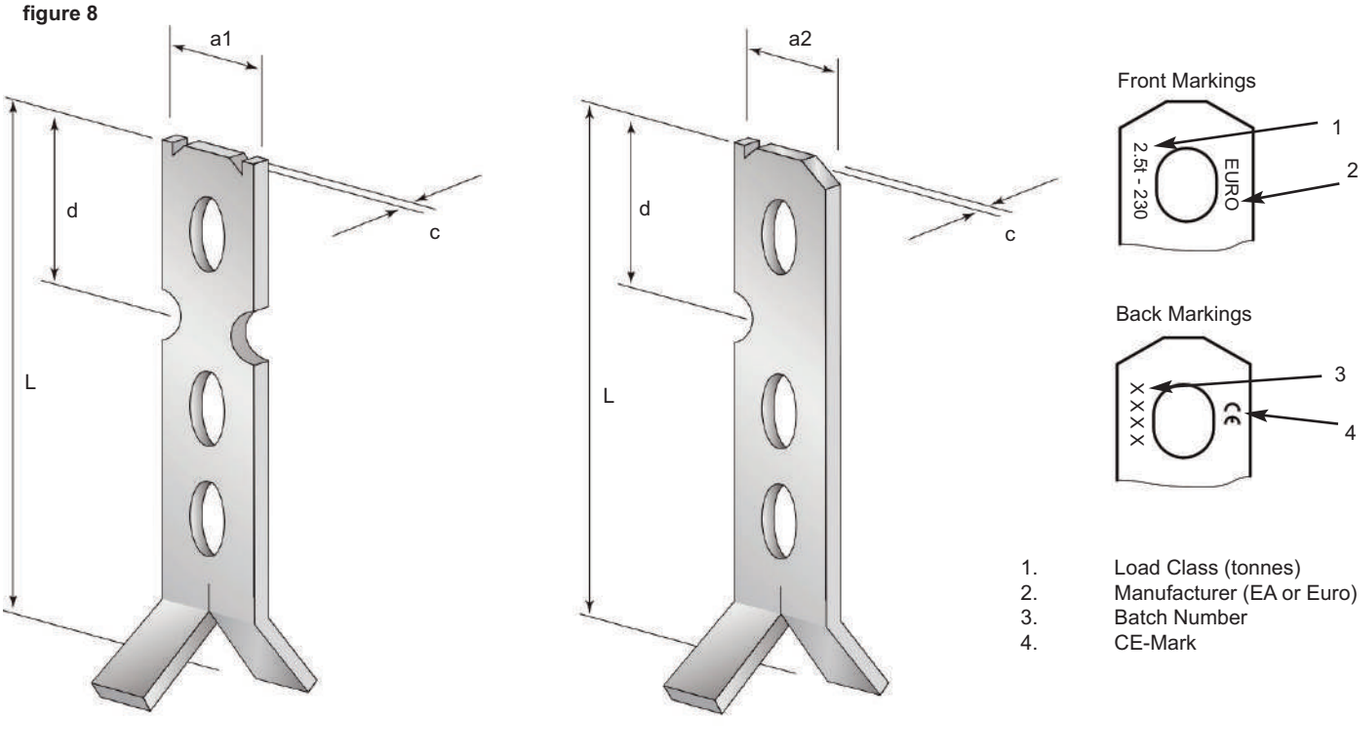
table 11
Transport Anchor Edge and Hairpin Reinforcement.

Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Mesh Surface Reinforcement	For Lifting Angles up to 30 degrees		For Lifting Angles over 30 degrees	
			Hairpin Reinforcement Dia. x Leg Length (mm)	Edge Reinforcement Dia. (mm)	Hairpin Reinforcement Dia. x Leg Length (mm)	Edge Reinforcement Dia. (mm)
1.4	2.5	A142	6 x 400 2no	6	6 x 400 4no	8
2.0	2.5	A142	6 x 500 2no	6	6 x 500 4no	8
2.5	2.5	A142	8 x 600 2no	6	8 x 600 4no	10
3.0	5.0	A142	8 x 700 2no	8	8 x 700 4no	10
4.0	5.0	A142	8 x 700 2no	8	8 x 800 4no	12
5.0	5.0	A142	8 x 800 2no	8	10 x 800 4no	12
7.5	10.0	A142	10 x 800 2no	10	10 x 800 4no	12
10.0	10.0	A142	10 x 800 4no	12	10 x 1000 6no	12
12.5	26.0	A142	10 x 1000 4no	12	10 x 1000 8no	12
17.0	26.0	A142	12 x 1200 4no	12	12 x 1200 8no	16
22.0	26.0	A142	12 x 1200 6no	12	12 x 1200 8no	16

Erection and One Side Erection Anchors

The use of Erection Anchors is advised to alleviate the chance of cosmetic damage to narrow panels whilst turning units from one plane to another. The additional shoulders on the head of the anchor engage directly with the Spread Anchor Ring Clutch, absorbing the shear loads that would normally be absorbed by the narrow edge of the formed pocket around the anchor. Additional tilting reinforcement must be utilised when turning units from the horizontal to the vertical plane. This additional reinforcement is detailed in table 14 and figure 9. It must be noted that the One Sided Erection Anchor only allows turning in one direction, the anchor and the reinforcement should be placed in such a position, that they oppose the transverse loads applied during turning. Whenever the Erection Anchors and the One Sided Erection Anchors are utilised in narrow units, the additional reinforcement as per table 7 should be incorporated. However, if tilting reinforcement is incorporated on both sides of the Erection Anchor no further lateral reinforcement for inclined loads over 30 degrees is required.

figure 8



Erection Anchor

One Side Erection Anchor

table 12
Erection and One Side Erection Anchor Dimensions

Product Code								
Erection Anchor	**One Side Erection Anchor**	**Safe Working Load (tonnes)**	**Ring Clutch Load Range (tonnes)**	**a1 (mm)**	**a2 (mm)**	**c (mm)**	**d (mm)**	**L (mm)**
LASE014200	LASSE014200	1.4	2.5	55	40	6	45	200
LASE025230	LASSE025230	2.5	2.5	55	40	10	45	230
LASE040270	LASSE040270	4.0	5.0	70	55	12	70	270
LASE050290	LASSE050290	5.0	5.0	70	55	15	70	290
LASE075320	LASSE075320	7.5	10.0	95	80	16	90	320
LASE100390	LASSE100390	10.0	10.0	95	80	20	90	390

table 13
Maximum Load Values for Various Lifting Operations

Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Minimum Spacing (mm)	Minimum Unit Thickness (mm)		Maximum Load (tonnes)		
			Erection Anchor	One Side Erection Anchor	Axial Load	Sling Angles 30°	Tilting and Turning
1.4	2.5	700	100	90	1.4	1.1	0.7
2.5	2.5	800	120	120	2.5	2.0	1.3
4.0	5.0	950	150	140	4.0	3.2	2.0
5.0	5.0	1000	160	140	5.0	4.0	2.5
7.5	10.0	1200	175	160	7.5	6.0	3.8
10.0	10.0	1500	200	200	10.0	8.0	5.0

* 100% of safe working load for concrete strengths of 25 N/mm^2 and above

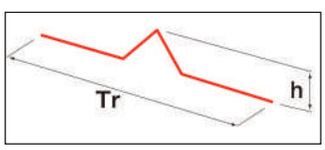


table 14
Additional Tilting Reinforcement

Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Tilting Reinforcement Dia. x Length Tr (mm)
1.4	2.5	10 x 700
2.5	2.5	12 x 800
4.0	5.0	12 x 950
5.0	5.0	16 x 1000
7.5	10.0	20 x 1200
10.0	10.0	20 x 1500

Dimension h varies according to the concrete cover.

figure 9

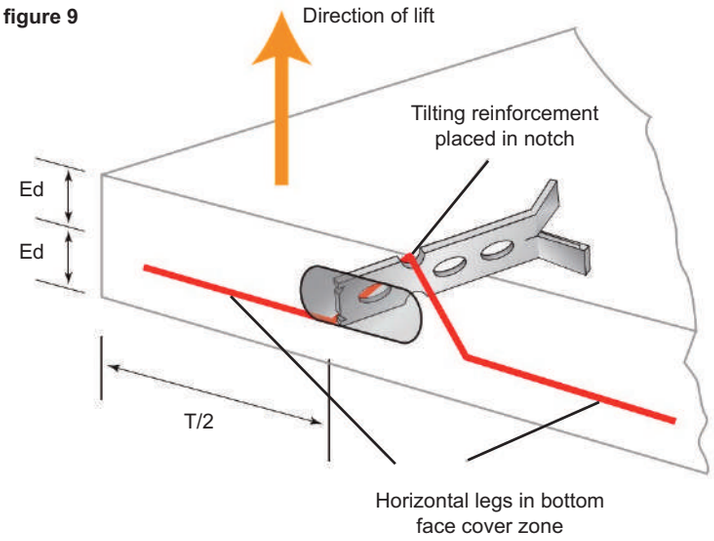
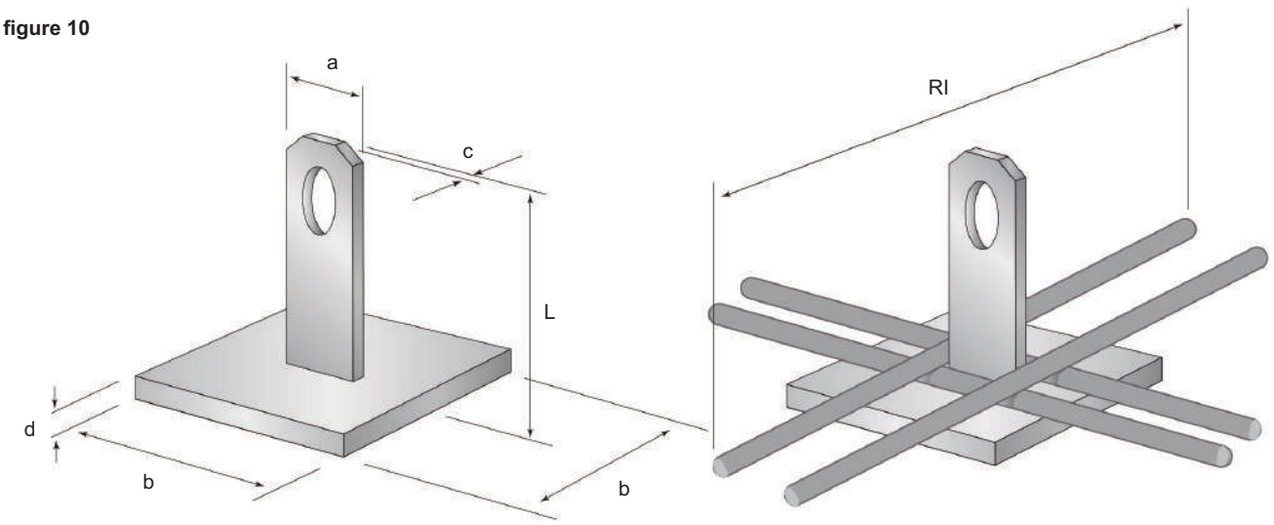
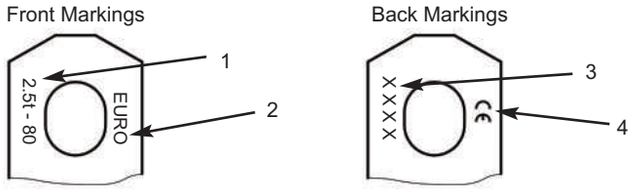


Plate Spread Anchors

Designed for lifting and turning very shallow units, this Spread Anchor relies on reinforcement bars placed horizontally across the square base plate. This means of load transferral allows full capacity of the anchor for both lifting and turning. See table 15 and figure 10 for dimensions. Minimum edge distances and reinforcement requirements must be observed and are available in table 16 and figure 10. The minimum concrete strength that lifting can commence with this type of Spread Anchor is 25 N/mm². Lateral reinforcement should be utilised for lifts over 30 degrees, see table 6.

figure 10





1. Load Class (tonnes)
2. Manufacturer (EA or Euro)
3. Batch Number
4. CE-Mark

table 15
Plate Spread Anchor Dimensions

Product Code	Safe Working Load (tonnes)	Ring Clutch Range (tonnes)	Length L (mm)	a (mm)	b (mm)	c (mm)	d (mm)	Safe Working Load (tonnes)		
								Axial Lifting to 30°	Angled Lifts 30° to 60°	Turning
LASPA014055	1.4	2.5	55	30	80	6	8	1.4	1.4	1.4
LASPA025080	2.5	2.5	80	30	80	10	8	2.5	2.5	2.5
LASPA050120	5.0	5.0	120	40	100	15	10	5.0	5.0	5.0
LASPA100160	10.0	10.0	160	60	140	20	12	10.0	10.0	10.0

table 16
Additional Reinforcement and Anchor Spacings

Safe Working Load (tonnes)	Ring Clutch Range (tonnes)	Anchor Spacings (mm)	Minimum Edge Distance (mm)	Reinforcement Dia. x Rl (mm)
1.4	2.5	230	115	8 x 200 4no
2.5	2.5	330	165	10 x 300 4no
5.0	5.0	480	240	12 x 450 4no
10.0	10.0	660	330	16 x 600 4no

Flat Foot Spread Anchors

Similar in principle to the Plate Spread Anchor the Flat Foot Anchor relies on reinforcement bars for anchorage and load transferral see table 18. Providing adequate concrete strengths have been achieved the anchor can be utilised for axial lifts, angled lifts and for turning procedures. Minimum anchor spacings and edge distances should be observed. See tables 18 and figure 11.

figure 11

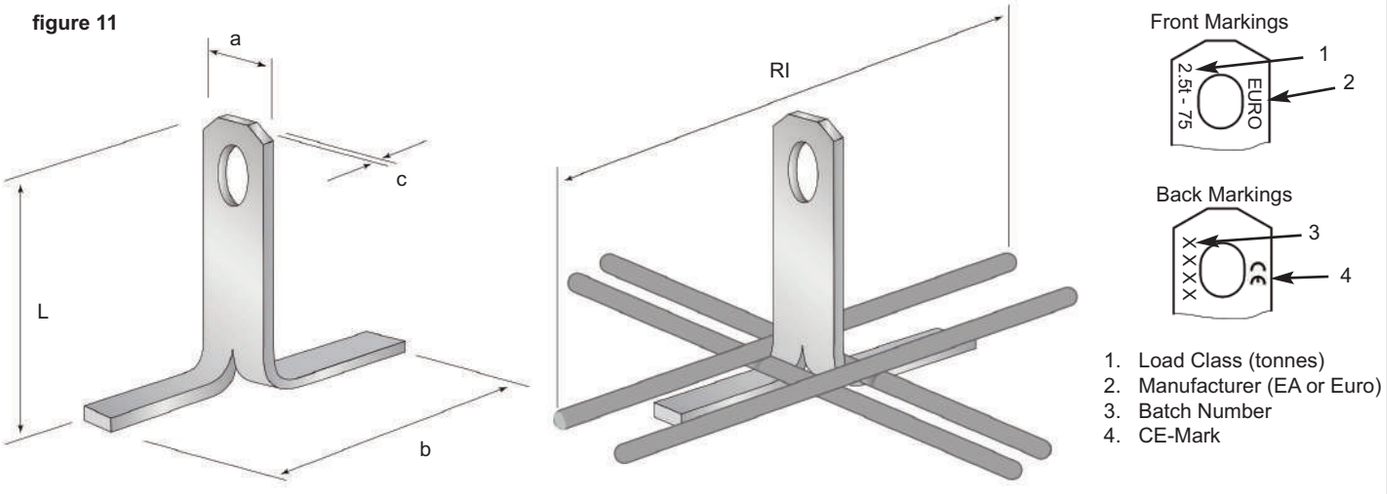


table 17
Flat Foot Spread Anchor Dimensions and Permissable Loads

Product Code	Safe Working Load (tonnes)	Ring Clutch Range (tonnes)	Length L (mm)	a (mm)	b (mm)	c (mm)	Safe Working Load Axial, Angled and Turning (tonnes) Concrete Strength 15 N/mm²	Concrete Strength 25 N/mm²	Concrete Strength 30 N/mm²
LASF007065	0.7	2.5	65	30	70	5	0.7	0.7	0.7
LASF014065	1.4	2.5	65	30	70	6	1.4	1.4	1.4
LASF020070	2.0	2.5	70	30	80	8	1.8	2.0	2.0
LASF025075	2.5	2.5	75	30	94	10	2.0	2.5	2.5
LASF030090	3.0	5.0	90	40	100	10	2.8	3.0	3.0
LASF040110	4.0	5.0	110	40	100	12	3.7	4.0	4.0
LASF050125	5.0	5.0	125	40	105	15	4.4	5.0	5.0
LASF075170	7.5	10.0	170	60	120	16	5.5	7.0	7.5
LASF100200	10.0	10.0	200	60	120	20	7.6	10.0	10.0
LASF125220	12.5	26.0	220	80	200	16	8.9	12.5	12.5
LASF170270	17.0	26.0	270	80	200	20	12.0	17.0	17.0
LASF220310	22.0	26.0	310	80	200	28	14.8	22.0	22.0

table 18
Additional Reinforcement and Anchor Spacings

Safe Working Load (tonnes)	Ring Clutch Range (tonnes)	Minimum Anchor Spacing (mm)	Minimum Edge Spacing (mm)	Reinforcement Dia. x RI (mm)
0.7	2.5	280	140	8 x 200 4no
1.4	2.5	280	140	8 x 250 4no
2.0	2.5	300	150	8 x 300 4no
2.5	2.5	320	160	8 x 300 4no
3.0	5.0	380	190	10 x 400 4no
4.0	5.0	460	230	12 x 450 4no
5.0	5.0	520	260	12 x 500 4no
7.5	10.0	680	340	16 x 600 4no
10.0	10.0	800	400	16 x 600 4no
12.5	26.0	880	440	16 x 750 4no
17.0	26.0	1080	540	16 x 900 4no
22.0	26.0	1240	620	20 x 1100 4no

Universal Spread Anchors

This Spread Anchor is designed specifically for lifting and turning very small units such as architectural stone units. For specific dimensions and placement criteria see table 19, 20 and figure 12 which give specific details. It can also be used in very narrow units with the addition of rebar anchorage, figure 13. If turning of units is necessary utilising the Universal Spread Anchor then turning reinforcement in accordance with figure 14 should be used and placed in the notch in the side of the anchor. The minimum concrete strength before lifting commences should be 25 N/mm².

figure 12

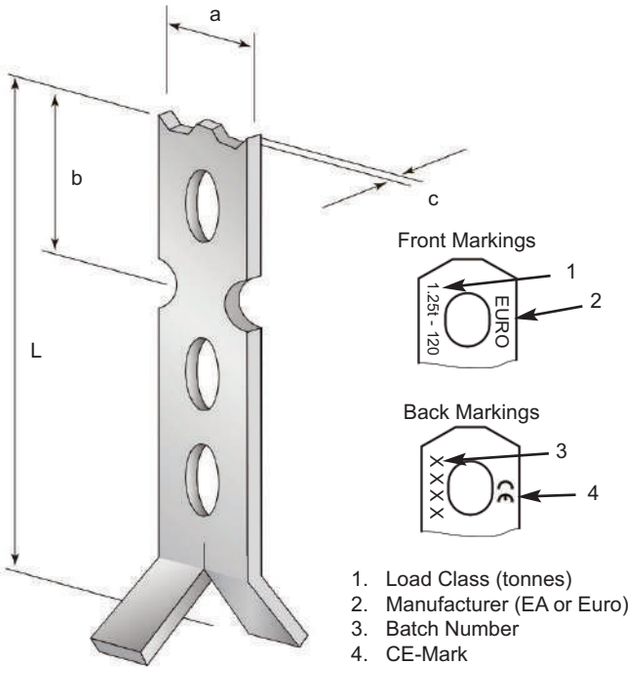
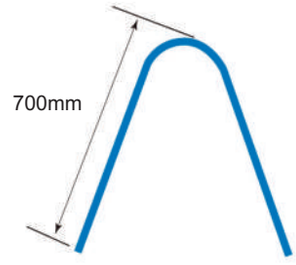
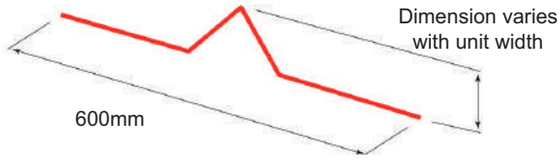


figure 13



8mm diameter anchorage reinforcement for narrow panels

figure 14



8mm diameter turning reinforcement

table 19
Universal Spread Anchor Dimensions

Product Code	Ring Clutch Range (tonnes)	Length L (mm)	a (mm)	b (mm)	c (mm)
LASU0125120	1.25	120	30	25	6

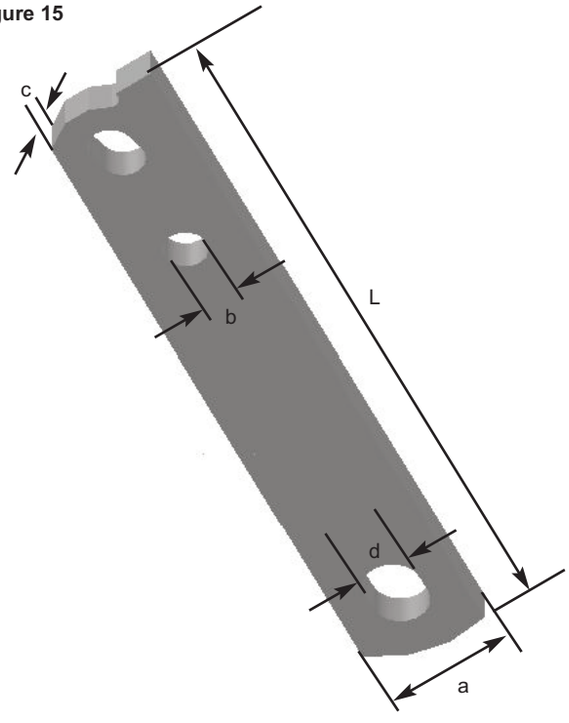
table 20
Universal Spread Anchor Placement Criteria

Safe Working Load (tonnes)	Ring Clutch Range (tonnes)	Minimum End Spacing (mm)	Minimum Anchor Spacing (mm)	Minimum Unit Thickness (mm)	Safe Working Load (tonnes)		
					Axial Lifting to 30°	Angled Lifts 30° to 60°	Turning
1.25	1.25	120	240	60	1.25	1.00	0.65

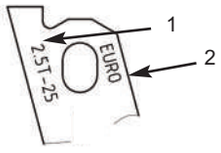
Sandwich Panel Anchor

The Sandwich Panel Anchor is designed for lifting insulated precast elements, the inclined lifting head ensures that the anchor sits at an angle of 15° from vertical in the precast panel, ensuring the anchorage is within the main structural element with the lifting point positioned close to the gravity line of the panel. The panels can be tilted upright and lifted into position utilising the Sandwich Panel Anchor. The anchor relies on additional anchorage reinforcement and turning reinforcement to distribute loads into the precast panel. Please see the information provided in table 22, 23 and figure 17 for minimum anchor placements and additional reinforcement requirements. The additional turning reinforcement is not required when lifting panels vertically. Additional lateral reinforcement detailed in table 6 page 9 must be used to compensate for inclined slings with an angle greater than 30° from vertical, use of this should follow the procedures set out for Spread Anchors.
Due to the shallow embedment of the reinforcement we recommend that lifting does not commence at concrete strengths below 25N/mm² with this particular anchor.

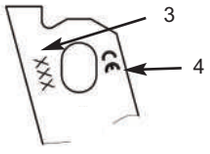
figure 15



Front Markings



Back Markings



1. Load Class (tonnes)
2. Manufacturer (EA or Euro)
3. Batch Number
4. CE-Mark

table 21
Sandwich Panel Anchor Dimensions

Product Code	Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	L (mm)	a (mm)	c (mm)	b (mm)	d (mm)	Safe Working Load (tonnes) Axial to 60°	Safe Working Load (tonnes) Tilting
LASSP025250	2.5	2.5	250	40	10	14	18	2.5	0.8
LASSP050300	5.0	5.0	300	60	16	18	26	5.0	1.8
LASSP075350	7.5	10.0	350	80	16	25	35	7.5	2.6
LASSP100350	10.0	10.0	350	80	20	25	35	10.0	3.5

figure 16

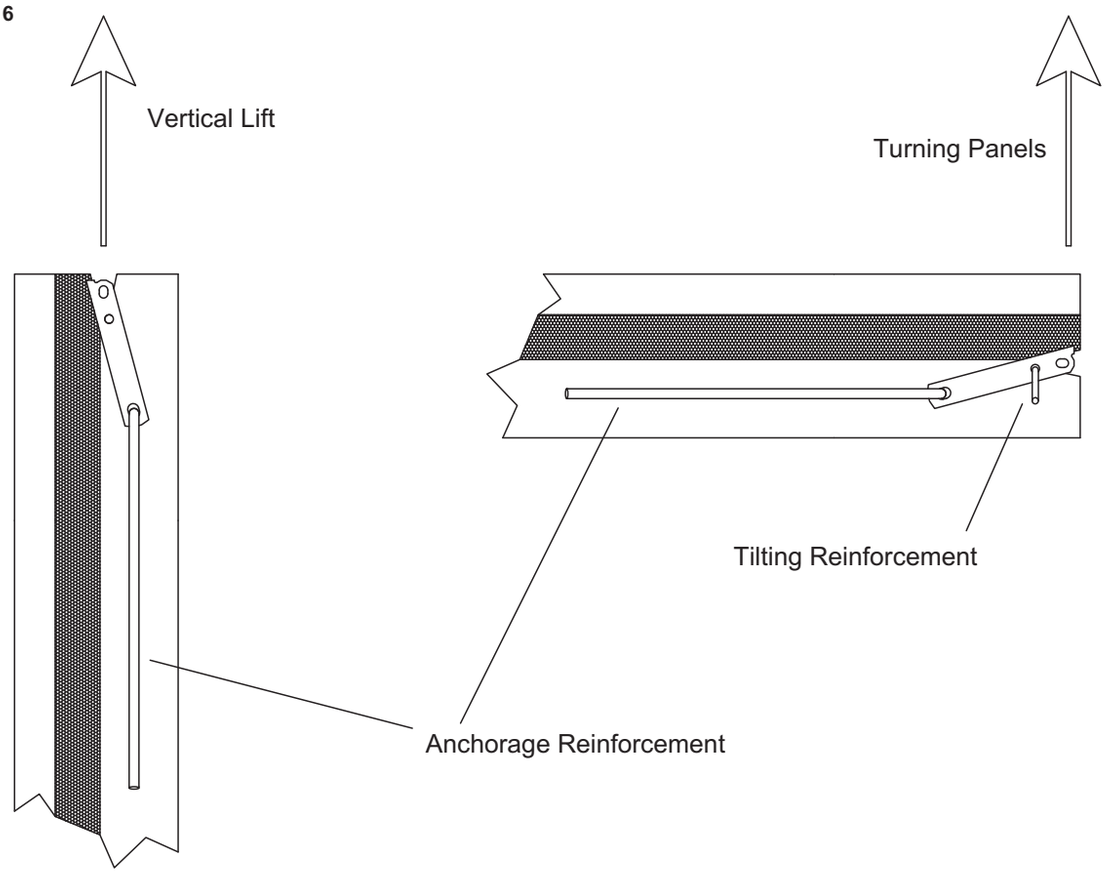
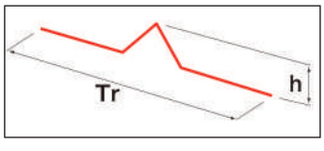


table 22
Additional Tilting Reinforcement



Safe Working Load (tonnes)	Ring Clutch Load Range (tonnes)	Tilting Reinforcement Dia. x Length Tr (mm)	h (mm)
2.5	2.5	10 x 600	≥ 60
5.0	5.0	16 x 700	≥ 80
7.5	10.0	16 x 800	≥ 100
10.0	10.0	20 x 900	≥ 120

figure 17
Anchorage Reinforcement

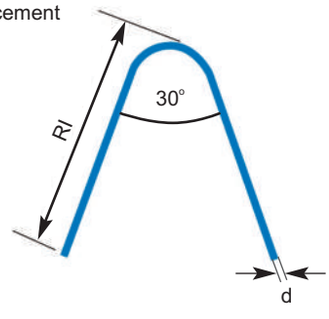
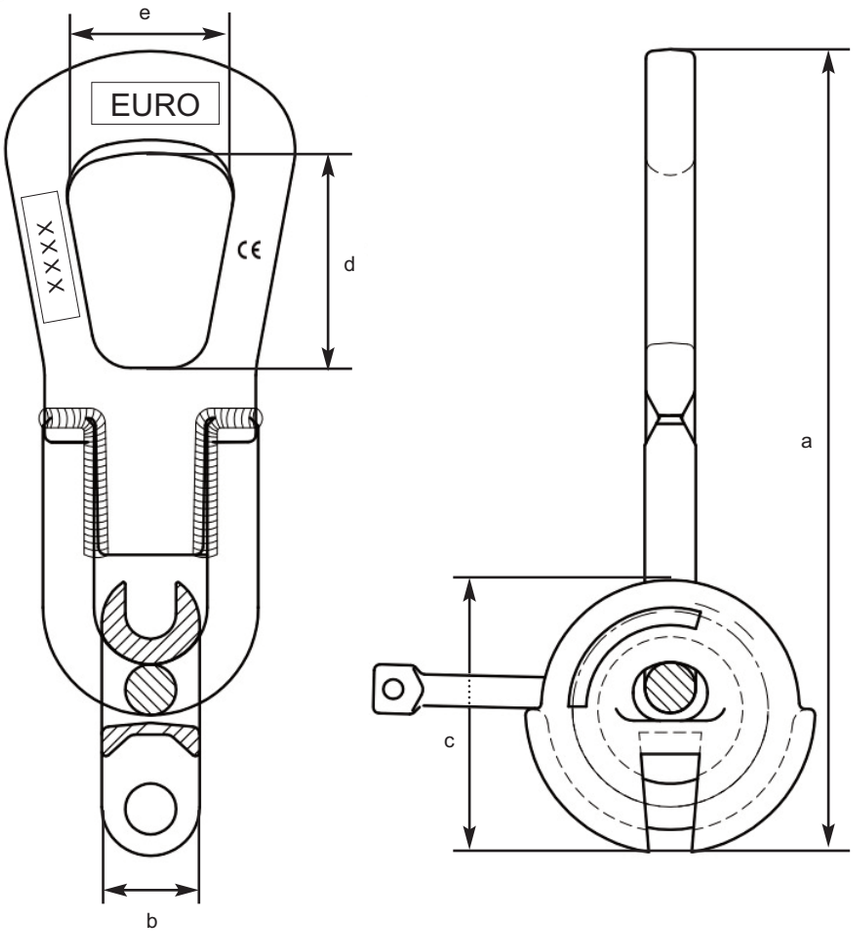


table 23
Additional Reinforcement and Anchorage Spacings

					Anchorage Reinforcement	
Safe Working Load (tonnes)	Ring Clutch Range (tonnes)	Anchor Spacings (mm)	Edge Distance (mm)	Minimum Panel Thickness (mm)	d (mm)	Rl (mm)
2.5	2.5	600	300	100	16	400
5.0	5.0	750	375	120	16	600
7.5	10.0	1200	600	130	25	700
10.0	10.0	1500	750	140	25	800

Spread Anchor Ring Clutches

figure 18



The Ring Clutch is an all cast item specially designed not only to fit the Spread Anchor of its related safe working load but also to match the pocket created by the corresponding capacity Rubber Former. In this way, one can be assured that no two lifting capacities can be utilised in the lifting process. The Ring Clutches are individually tested and come uniquely stamped with a corresponding lifting test certificate.

table 24
Spread Anchor Ring Clutch Dimensions

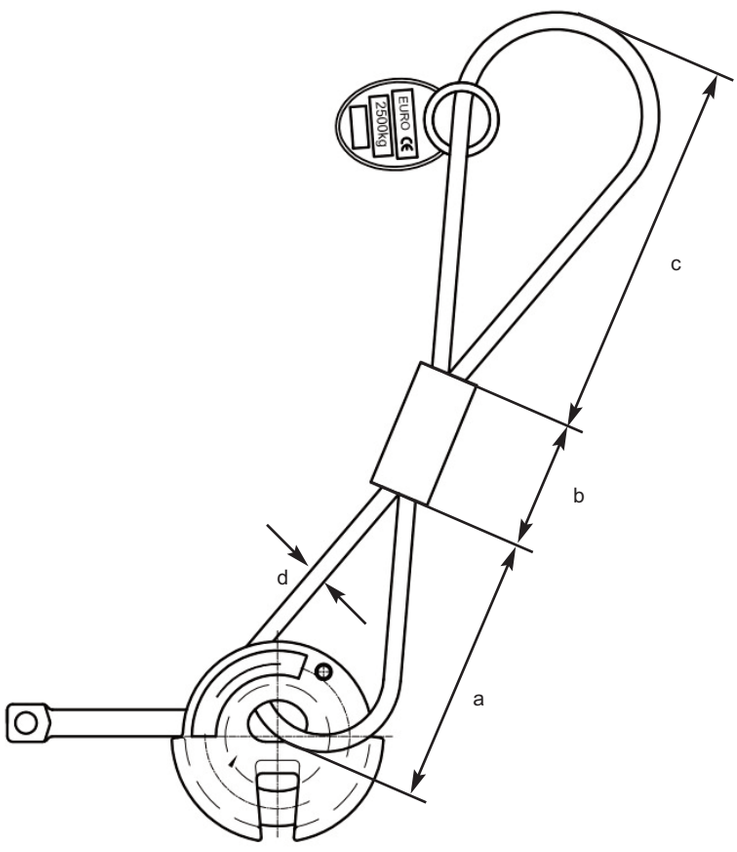
Product Code	Load Group Range (tonnes)	a (mm)	b (mm)	c (mm)	d (mm)	e (mm)
LASRC025	0.7 - 2.5	259	27	78.5	70	50
LASRC050	3.0 - 5.0	325	36	105.0	86	58
LASRC100	7.5 - 10.0	431	50	146.7	107	75
LASRC260	12.5 - 26.0	620	72	216.0	154	110

Routine Inspection and Retirement

Spread Anchor Ring Clutches should be inspected before each use by a competent person. The inspection should involve a visual check for obvious defects, deformation of the lifter body, cracks and obvious excessive wear. If any of these defects are found the lifting device should be discarded. Use of the Spread Anchor Ring Clutch must not commence if any of the identification markings are worn away and no longer visible.
In addition Spread Anchor Ring Clutches should be inspected and tested by a recognised organisation at least every twelve months.

Spread Anchor Combination Ring Clutches

figure 19



The Spread Anchor Combination Ring Clutch is similar in specification to the standard Spread Anchor Ring Clutch, but supplied with a wire rope lifting chain attachment. The wire rope offers greater flexibility when lifting elements with edges that may come into contact with the clutches chain attachment link. Minimising the potential cosmetic damage of the concrete.

table 25
Spread Anchor Combination Ring Clutch Dimensions

Product Code	Load Group Range (tonnes)	a (mm)	b (mm)	c (mm)	d (mm)
LASCRC013	0.7 - 1.25	100	54	176	9
LASCRC025	1.4 - 2.5	120	90	195	14
LASCRC050	3.0 - 5.0	200	100	295	18
LASCRC100	7.5 - 10.0	240	140	325	22

Routine Inspection and Retirement

Spread Anchor Combination Ring Clutches should be inspected before each use by a competent person. The inspection should involve a visual check for obvious defects, deformation of the wire loop or lifter body, cracks and obvious excessive wear. If any of these defects are found the lifting device should be discarded. If the loop has any broken strands it should be discarded. Use of the Spread Anchor Ring Clutch must not commence if any of the identification markings are worn away and no longer visible.
In addition Spread Anchor Combination Ring Clutch should be inspected and tested by a recognised organisation at least every twelve months.

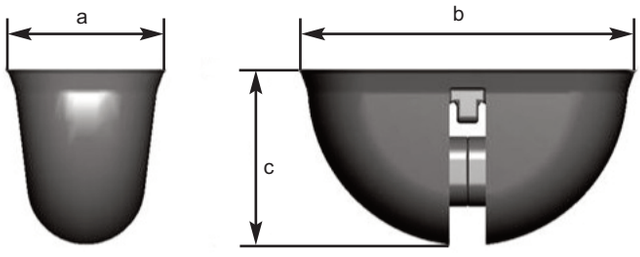
Spread Anchor Accessories

Spread Anchor Rubber Former

table 26
Spread Anchor Rubber Former Dimensions

Product Code	Load Group Range (tonnes)	a (mm)	b (mm)	c (mm)
LASRF013	0.7 - 1.3	29	62	35
LASRF025	1.4 - 2.5	43	105	45
LASRF050	3.0 - 5.0	49	126	59
LASRF100	7.5 - 10.0	67	188	85
LASRF260	12.5 - 26.0	112	233	121

The Rubber Former is designed to hold the Spread Anchor in position and leave a recess for the Ring Clutch.

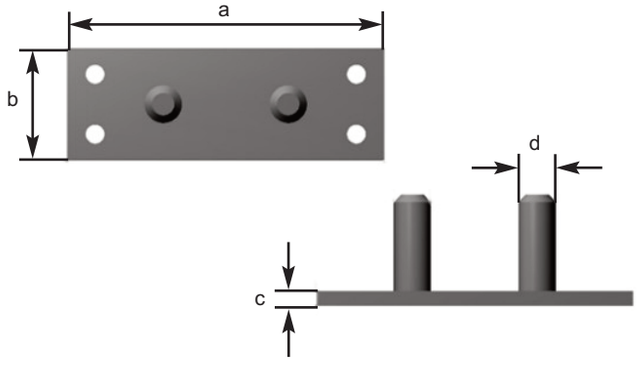


Spread Anchor Holding Plate

table 27
Spread Anchor Holding Plate Dimensions

Product Code	Load Group Range (tonnes)	a (mm)	b (mm)	c (mm)	d (mm)
LASHP013	0.7 - 1.3	45	15	3	6
LASHP025	1.4 - 2.5	73	15	4	10
LASHP050	3.0 - 5.0	85	30	4	10
LASHP100	7.5 - 10.0	128	40	6	12
LASHP260	12.5 - 26.0	178	65	8	16

The Holding Plate is used to hold the Rubber Former in position on the mould.

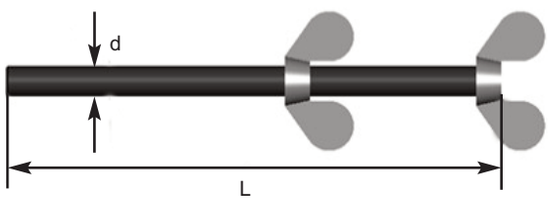


Spread Anchor Holding Screw

table 28
Spread Anchor Holding Screw Dimensions

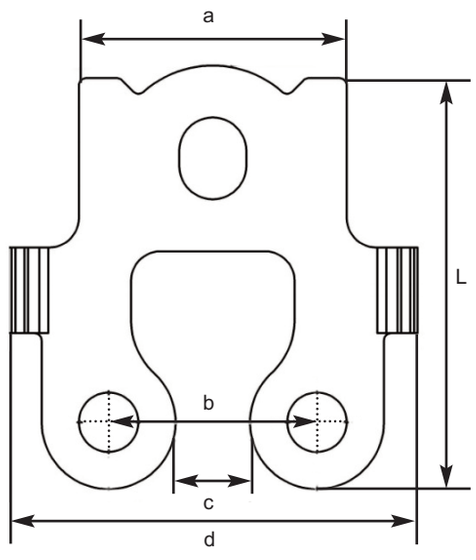
Product Code	Load Group Range (tonnes)	L (mm)	Thread d (M)
LASHS025	0.7 - 2.5	160	8
LASHS050	3.0 - 5.0	160	8
LASHS100	7.5 - 10.0	160	12
LASHS260	12.5 - 26.0	180	16

The Screw is used to screw the Rubber former to the moulds.



Edge Lift Anchor

figure 20



The Edge Lift Anchor is a hot dip galvanized forged steel component for casting into the narrow edge of precast units. The system is specifically designed to carry shear loads whilst tilting units that have been cast horizontally, into an upright position. The reinforcement anchorage combined with specially designed feet on the edge of the anchor provide superior anchorage to resist shear loads. The requirement of additional reinforcement to carry shear loads is completely eliminated, simplifying the casting process and reducing costs. The unique manner in which the Edge Lift Anchor engages with the lifting clutch, eliminates the chance of damage to the concrete surface whilst turning panels from one plane to another. In addition the hot dip galvanized finish of the Edge Lift Anchor improves the long term characteristics of the product in aggressive environments. Euro Accessories recommend a specific design is carried out for each new application and offer a free of charge service for this.

table 29
Edge Lift Anchor Dimensions

Product Code	Safe Working Load (tonnes)	a (mm)	b (mm)	c (mm)	d (mm)	L (mm)
LAE025095	2.5	54	57	30	90	98
LAE070114	7.0	72	56	20	110	114
LAE100161	10.0	78	72	22	140	161

Installation

The Edge Lift Anchor face must be placed perpendicular to the face of the concrete panel, see figure 21. It must be cast with either two anchorage reinforcement bars as per table 30 or with two pre-stressing strands, passing through the pair of eyes at the base of the anchor. If reinforcing bars are utilised they must be bent down into the concrete with a former diameter equal to 5 times the bar diameter, see figure 21 and table 30, they can also be bent in a hairpin configuration where anchors are placed close to the edge of a unit.

figure 21

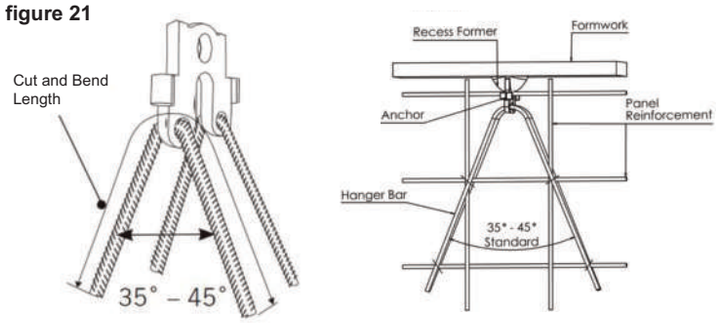


table 30
Edge Lift Anchorage Reinforcement details

Safe Working Load (tonnes)	2 x Anchorage Reinforcement Bars Dia. x Length (mm) in Relation to Concrete Strength B				
	15 N/mm²	20 N/mm²	25 N/mm²	30 N/mm²	35 N/mm²
2.5	12 x 690	12 x 610	12 x 550	12 x 510	12 x 480
7.0	12 x 1770	12 x 1530	12 x 1370	12 x 1260	12 x 1170
10.0	16 x 1920	16 x 1660	16 x 1500	16 x 1370	16 x 1280

Shear Lifting with Edge Lift Anchor

Where loads are towards the face of the concrete unit when tilting panels from the horizontal to the vertical plane maximum load values as per tables 31, 32 and 33 should be observed. Please pay special attention to the minimum reinforcement requirements in the face of the panels. We do not recommend the use of the anchors in shear for lifting and transporting units off ground level due to excessive dynamic loads that can be incurred.

table 31
Shear Lift Capacity and Axial Loading for 2.5 tonne Edge Lift Anchor

Panel Thickness (mm)	Panel Reinforcement	Minimum Edge Distance (mm)	Distance Between Anchors (mm)	Maximum Shear Capacity at Concrete Strength B (tonnes)				Axial Load (tonnes) at
				15 N/mm²	20 N/mm²	25 N/mm²	30 N/mm²	Concrete Strength Min 15 N/mm2
100	A142	200	400	2.0	2.4	2.5	2.5	2.5
120	A142	225	450	2.3	2.5	2.5	2.5	2.5
150	A142	260	520	2.5	2.5	2.5	2.5	2.5

table 32
Shear Lift Capacity and Axial Loading for 7.0 tonne Edge Lift Anchor

Panel Thickness (mm)	Panel Reinforcement	Minimum Edge Distance (mm)	Distance Between Anchors (mm)	Maximum Shear Capacity at Concrete Strength B (tonnes)				Axial Load (tonnes) at
				15 N/mm²	20 N/mm²	25 N/mm²	30 N/mm²	Concrete Strength Min 15 N/mm2
120	A193	250	500	1.8	2.2	2.6	3.0	7.0
150	A193	285	570	2.2	2.7	3.1	3.6	7.0
175	A193	310	620	2.5	3.1	3.6	4.1	7.0
200	A193	340	680	2.9	3.5	4.1	4.7	7.0

table 33
Shear Lift Capacity and Axial Loading for 10.0 tonne Edge Lift Anchor

Panel Thickness (mm)	Panel Reinforcement	Minimum Edge Distance (mm)	Distance Between Anchors (mm)	Maximum Shear Capacity at Concrete Strength B (tonnes)				Axial Load (tonnes) at
				15 N/mm²	20 N/mm²	25 N/mm²	30 N/mm²	Concrete Strength Min 15 N/mm2
150	A193	315	630	3.3	4.0	4.6	5.3	10.0
175	A193	345	690	3.7	4.5	5.3	6.0	10.0
200	A193	370	740	4.2	5.1	5.9	6.7	10.0
250	A193	425	850	5.1	6.3	7.3	8.3	10.0

Axial Lifts

Axial lifting can be carried out with the Edge Lift Anchor providing the minimum reinforcement details, edge distances and distances between adjacent anchors are observed as per tables 34, 35 and 36. The minimum concrete strength for Axial loading is 15n/mm^2.

table 34

Additional Reinforcement Requirements for Axial Loads in Panels up to 150mm Thick for 2.5 tonne Edge Lift Anchor

Anchor Spacing (mm)	Edge Distance (mm)			
	200	600	900	1200
400	10 x 1150 4no	10 x 1150 4no	10 x 1150 4no	10 x 1150 4no
1200	10 x 1150 4no	10 x 1150 4no	-	-
1800	10 x 1150 4no	-	-	-
2400	10 x 1150 4no	-	-	-

table 35

Additional Reinforcement Requirements for Axial Loads in Panels up to 200mm Thick for 7.0 tonne Edge Lift Anchor

Anchor Spacing (mm)	Edge Distance (mm)							
	200	400	800	1200	1600	2000	2400	2800
500	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no
800	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no	12 x 1900 4no
2400	12 x 1900 4no	12 x 1900 4no	-	-	-	-	-	-
3200	12 x 1900 4no	12 x 1900 4no	-	-	-	-	-	-
4000	12 x 1900 4no	12 x 1900 4no	-	-	-	-	-	-
4800	12 x 1900 4no	12 x 1900 4no	-	-	-	-	-	-
5600	12 x 1900 4no	12 x 1900 4no	-	-	-	-	-	-

table 36

Additional Reinforcement Requirements for Axial Loads in Panels up to 250mm Thick for 10.0 tonne Edge Lift Anchor

Anchor Spacing (mm)	Edge Distance (mm)							
	300	500	1000	1500	2000	2500	3000	3200
600	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no
1000	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no
2000	16 x 2175 4no	16 x 2175 4no	16 x 2175 4no	-	-	-	-	-
3000	16 x 2175 4no	16 x 2175 4no	-	-	-	-	-	-
4000	16 x 2175 4no	16 x 2175 4no	-	-	-	-	-	-
5000	16 x 2175 4no	16 x 2175 4no	-	-	-	-	-	-
6000	16 x 2175 4no	16 x 2175 4no	-	-	-	-	-	-
7000	16 x 2175 4no	16 x 2175 4no	-	-	-	-	-	-

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