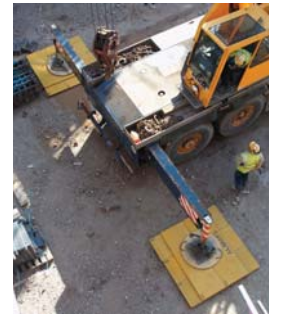




ALIMATS



Crane Outrigger Support Mats

- Strong - Interlocking multi-mat system, 150 tonnes compressive strength design
- Ease Of Site Set Up - 38kg per mat, means they are easily hand lifted into position
- Site Storage - The size and manoeuvrability of the mats makes them easy to move and keep secure
- Short Term Hire - Hire mats as and when you require them to suit your construction program
- Long Term Hire - To cover all of your ongoing site lifting / off-loading requirements
- Anti - Slip Finish - Ensures adequate purchase at mat interface and between the ALIMATS™ layers

Contact Mike Allanson 07973 556099 or Chris Massey 07940 712037



ALIMATS



Accommodating mobile crane outrigger loadings is a serious site problem

Following a number of high profile incidents, the Health & Safety Executive are extremely concerned with the apparent lack of adequate planning and management of site lifting operations.

Of particular concern is the lack of consideration given to crane hardstanding areas.

The HSE are actively seeking evidence of adequate lift planning in accordance with.....

The Lifting Operations And Lifting Equipment Regulations 1998 (LOLER)
and BS 7121 The Code Of Practice For The Safe Use Of Cranes, to help prevent further incidents.

The ever changing nature of construction sites, combined with variable weather conditions, can hinder attempts to provide adequate hardstanding areas for cranes and other plant incorporating outrigger requirements (crane mounted lorries (HIAB), telescopic forklifts etc). Despite these factors, the Principle Contractor has a responsibility in accordance with LOLER and BS7121, to nominate a competent Appointed Person (AP) to plan lifting operations. The Appointed Person "should ensure that the loads imposed by the crane can be sustained by the ground or any means of support, by assessment of a competent person" [BS 7121 9.2.1.]

The vast majority of sub-contractors who provide Appointed Person / Contract Lift support for their trades, will expect the Principle Contractor to provide justification of the ground upon which the crane is expected to rig. In acknowledgement of this responsibility, it is becoming increasingly common practice for sub contractors to insist that Site Managers (or another competent person) sign to confirm adequacy of the ground bearing capacity of the hardstanding area provided, prior to crane lifting operations commencing. In the past, some Site Managers have relied upon cranes arriving on site with timber sleepers to alleviate the problem. Timbers beneath outriggers are being widely rejected within the industry, due to the difficulty in substantiating their load-bearing characteristics. The only justifiable alternate has been conventional steel box section crane mats. These have proved cumbersome due to their weight, time consuming during the set up process and require other site plant to lift them into position.

A Solution Is Literally To Hand With - ALIMATS™

- **Strong** - Interlocking multi-mat system, 150 tonnes compressive strength design
- **Ease Of Site Set Up** - 38kg per mat, means they are easily hand lifted into position
- **Quick To Set Up** - Saving crane rigging time and ensuring works are started with minimum delay
- **Site Storage** - The size and manoeuvrability of the mats makes them easy to move and keep secure
- **Cost Effective** - Could avoid the need for extensive temporary civil engineering groundworks
- **Short Term Hire** - Hire mats as and when you require them to suit your construction program
- **Long Term Hire** - To cover all of your ongoing site lifting / off-loading requirements
- **Anti - Slip Finish** - Ensures adequate purchase at mat interface and between the ALIMATS™ layers
- **Individual ID Plate / Hidden Extrusion Mark** - To ensure traceability of each mat
- **Unique Design** - Exclusive purpose designed system (patent applied for)

The standard ALIMATS™ set consists of twenty mats (five to be placed beneath each crane outrigger) configured in two layers. The individual mats measure 580mm x 1740mm in area and the total depth is 120mm. The bottom layer has three interlocking mats and the upper layer has two interlocking mats, turned through 90° to the layer beneath.

The result is a unified mat area of 3.00 m²

Crane Outrigger Loading Guidance & The Benefits Of Using ALIMATS™

The following tables provide example data, which should be used for guidance only. The outrigger loads noted are based on the combined gross weight of the crane, plus the weight of the product being lifted. The tables indicate the whole of this load acting in the worst case scenario, over a single crane outrigger support pad. We advise 100% of the gross crane weight be used in your calculations. Some sources of crane planning training, advocate 75% of the gross crane weight to be used in outrigger loading calculations. In acknowledgement of this, we have included a 75% loading column to indicate the effect on minimum groundbearing pressures, for the benefit of our clients who choose this option. In all cases engineering advice should be sought regarding the bearing capacity of the hardstanding area.

The Appointed Person should request the gross weight of the specific crane being used from the crane hire company and take care to ensure any additional counterweights / ancillary equipment being used for the lift is added to the "as travels" gross crane weights used in the tables below.

Example Crane Outrigger Loadings / Minimum Ground Bearing Pressure Required Lifting a Component Weighing Up To 4.00 tonnes - Using Standard Mats						
Crane Capacity	Typical Gross Weight Of Crane	Gross Weight Of Crane + 4.0 Tonne Lift = Maximum Potential Outrigger Load / Pad	Typical Standard Outrigger Pad Size	Typical Outrigger Pad Area	Minimum Ground Bearing Pressure Required Applying 100% of Gross Crane Weight	Minimum Ground Bearing Pressure Required Applying 75% of Gross Crane Weight
25 Tonne	26.5 Tonnes	30.5 Tonnes	760mm diameter	0.45 M ²	67.8 Tonnes / M ²	53.1 Tonnes / M ²
30 Tonne	27.7 Tonnes	31.7 Tonnes	760mm diameter	0.45 M ²	70.4 Tonnes / M ²	55.1 Tonnes / M ²
35 Tonne	35.7 Tonnes	39.7 Tonnes	600 x 600mm	0.36 M ²	110.3 Tonnes / M ²	85.6 Tonnes / M ²
40 Tonne	39.5 Tonnes	43.5 Tonnes	760mm diameter	0.45 M ²	96.7 Tonnes / M ²	74.7 Tonnes / M ²
50 Tonne	45.4 Tonnes	49.4 Tonnes	760 x 760mm	0.58 M ²	85.2 Tonnes / M ²	65.7 Tonnes / M ²
55 Tonne	43.0 Tonnes	47.0 Tonnes	900mm diameter	0.64 M ²	73.4 Tonnes / M ²	56.7 Tonnes / M ²
60 Tonne	52.5 Tonnes	56.5 Tonnes	975mm diameter	0.75 M ²	75.3 Tonnes / M ²	57.9 Tonnes / M ²
70 Tonne	55.8 Tonnes	59.8 Tonnes	900mm diameter	0.64 M ²	93.4 Tonnes / M ²	71.7 Tonnes / M ²
80 Tonne	59.7 Tonnes	63.7 Tonnes	900mm diameter	0.64 M ²	99.5 Tonnes / M ²	76.3 Tonnes / M ²
90 Tonne	61.0 Tonnes	65.0 Tonnes	900mm diameter	0.64 M ²	101.6 Tonnes / M ²	77.8 Tonnes / M ²
95 Tonne	70.0 Tonnes	74.0 Tonnes	1100mm diameter	0.95 M ²	77.9 Tonnes / M ²	59.5 Tonnes / M ²
100 Tonne	75.9 Tonnes	79.9 Tonnes	1000mm diameter	0.79 M ²	101.1 Tonnes / M ²	77.1 Tonnes / M ²
120 Tonne	77.6 Tonnes	81.6 Tonnes	1000mm diameter	0.79 M ²	103.3 Tonnes / M ²	78.7 Tonnes / M ²

Example Crane Outrigger Loadings / Minimum Ground Bearing Pressure Required Lifting a Component Weighing Up To 4.00 tonnes - Using ALIMATS™						
Crane Capacity	Typical Gross Weight Of Crane	Gross Weight Of Crane + 4.0 Tonne Lift = Maximum Potential Outrigger Load / Pad	Revised ALIMAT™ Outrigger Pad Size	Revised Outrigger Pad Area	Minimum Ground Bearing Pressure Required Applying 100% of Gross Crane Weight	Minimum Ground Bearing Pressure Required Applying 75% of Gross Crane Weight
25 Tonne	26.5 Tonnes	30.5 Tonnes	1740 x 1740mm	3.00 M ²	10.2 Tonnes / M ²	7.6 Tonnes / M ²
30 Tonne	27.7 Tonnes	31.7 Tonnes	1740 x 1740mm	3.00 M ²	10.6 Tonnes / M ²	7.9 Tonnes / M ²
35 Tonne	35.7 Tonnes	39.7 Tonnes	1740 x 1740mm	3.00 M ²	13.2 Tonnes / M ²	9.9 Tonnes / M ²
40 Tonne	39.5 Tonnes	43.5 Tonnes	1740 x 1740mm	3.00 M ²	14.5 Tonnes / M ²	10.9 Tonnes / M ²
50 Tonne	45.4 Tonnes	49.4 Tonnes	1740 x 1740mm	3.00 M ²	16.5 Tonnes / M ²	12.4 Tonnes / M ²
55 Tonne	43.0 Tonnes	47.0 Tonnes	1740 x 1740mm	3.00 M ²	15.7 Tonnes / M ²	11.8 Tonnes / M ²
60 Tonne	52.5 Tonnes	56.5 Tonnes	1740 x 1740mm	3.00 M ²	18.8 Tonnes / M ²	14.1 Tonnes / M ²
70 Tonne	55.8 Tonnes	59.8 Tonnes	1740 x 1740mm	3.00 M ²	19.9 Tonnes / M ²	15.0 Tonnes / M ²
80 Tonne	59.7 Tonnes	63.7 Tonnes	1740 x 1740mm	3.00 M ²	21.2 Tonnes / M ²	15.9 Tonnes / M ²
90 Tonne	61.0 Tonnes	65.0 Tonnes	1740 x 1740mm	3.00 M ²	21.7 Tonnes / M ²	16.3 Tonnes / M ²
95 Tonne	70.0 Tonnes	74.0 Tonnes	1740 x 1740mm	3.00 M ²	24.7 Tonnes / M ²	18.5 Tonnes / M ²
100 Tonne	75.9 Tonnes	79.9 Tonnes	1740 x 1740mm	3.00 M ²	26.6 Tonnes / M ²	20.0 Tonnes / M ²
120 Tonne	77.6 Tonnes	81.6 Tonnes	1740 x 1740mm	3.00 M ²	27.2 Tonnes / M ²	20.4 Tonnes / M ²

Note: Ground loadbearing test results for a given area can vary from day to day, as ground moisture content is a major factor in determining loadbearing characteristics. It is prudent to apply a factor of safety to all mat requirement calculations where there is any possibility of ground deterioration after tests have been undertaken.

Example Calculation: [Based on a 50 tonne crane, lifting 4.00 Tonnes]

Maximum crane hardstanding bearing capacity confirmed following ground investigation: 21.5 Tonnes / M²

Maximum potential outrigger load / pad (from table over): 49.4 Tonnes

Minimum crane mat size required: $49.4 \div 21.5 = 2.30 \text{ M}^2$

Standard crane mats supplied with a 50 tonne crane: $0.76 \times 0.76 \text{ M} = 0.58 \text{ M}^2$... therefore inadequate.

- Larger crane mats required to ensure crane stability;

Using ALIMATS™ : Crane Mat Area = 3.00 M^2 ... therefore adequate.

Resulting Outrigger Loading: $(49.4 \div 3.00) = 16.5 \text{ Tonnes / M}^2$

Site Placement Guidelines:

- Ensure the prepared hardstanding area is level
- The crane should drive into the correct position as marked on the Lift Plan and extend outriggers
- If the ground is not completely level a sand bed is advised, to provide a more even load distribution
- ALIMATS™ should be lifted into position by two people
- Each section should be slotted into the adjacent mat as it is laid and pushed into position



- Three interlocked sections should be placed on the lower layer and two above at 90° to those beneath
- The top layer joint should be positioned half of the width of the completed lower layer (central)
- The standard crane mat should be placed centrally on the completed ALIMATS™ configuration
- Repeat to all four outrigger positions
- Ensure that all completed ALIMATS™ sets are positioned central to the outrigger pad
- Apply full outrigger loading and observe mats for any sign of undue stress / settlement



- If there is any concern regarding the stability of the outrigger pads – Seek advice from the Appointed Person / Site Engineer
- To function as intended ALIMATS™ must be placed / used as specified above – not as shown below!

