

The following information provides guidance for the proper use of outrigger pads to set up cranes or other devices with outriggers or stabilizers. For more information refer to OSHA's standard on cranes and derricks in construction ([1926 Subpart CC](#)).

General Calculations to Determine the Correct Outrigger Pad (Blocking) Size:

- Rule of 5: Take the maximum lifting capacity in tons of the unit such as 50 tons, divide that by 5 = 10 sq. ft. of cribbing or blocking
- Rule of 3: Take the square footage of the cranes floats and multiply by 3. Such as a 2x2 float = 4 sq. ft. Take 4 sq. ft. x 3 = 12 sq. ft. of cribbing or blocking

Examples of Soil Types and Load Bearing Capacities:

SOIL TYPE	LOAD BEARING CAPACITY
Virgin Ground	22 psi
Asphalt	29 psi
Compressed Crushed Stone	36 psi
Clay/Silt Soil, Firm	43 psi
Mixed Granular Soil	51 psi
Firm Compacted Gravel	58 psi
Firm Compacted Gravel (more compacted)	72 psi
Firm Compacted Gravel (more compacted)	109 psi
Brittle Weathered Rock	145 psi
Concrete	1000 psi

**check the load chart or consult the unit manufacturer for the maximum outrigger down pressure for a single outrigger.*

Outrigger Pad/Float Size in Square Inches:

ROUND	
24-inch diameter	452 square inches
36-inch diameter	1017 square inches
48-inch diameter	1808 square inches
SQUARE	
24 X 24	576 square inches
36 X 36	1296 square inches
48 X 48	2304 square inches

Specific Calculations to Determine the Correct Outrigger Pad Size:

Maximum outrigger down pressure* ÷ outrigger pad/fl oat square inches = amount of pressure per square inch on the blocking material.

Example:

$$62,800^* \div 1296 \text{ (sq. outrigger pad } 36 \times 36) = 48.5 \text{ lbs psi}$$

Now consult the soil type chart above. With 48.5 lbs psi, the unit can be safely set up on "Mixed granular soil" or any soil with a higher load bearing pressure than 48.5 lbs psi.

This information was originally developed by [Altec](#) through the OSHA and Altec Alliance Program.