

US Mat Systems

Leavenworth, Washington

TPM Member Since August 2013



While working on a new-build drilling rig project in 2008 and 2009, Mike Wold, took notice that almost all of the rig mats for the drilling industry were manufactured using various species of softwood pine. Having been in the rig moving business for most of his life, his revelation surprised him. Of the ten western species of softwoods, pine is near, or at the bottom of, the strength table. Douglas fir is at the top of that table. He decided to build a better, stronger rig mat. A rig mat made using kiln dried Douglas Fir, native to the northwestern United States and more suitable to the bigger, heavier modern drilling rigs — drilling rigs designed to drill out the long laterals in today's new era of exploration and production.



US Mat Systems is a small company specializing in the manufacture of quality rig mats for the Energy and Logistics Industries.



US Mat Systems is located near rail to be able to ship the mats to the required destinations.

Starting business in McMinnville, Oregon in the spring of 2010, the company quickly outgrew its first two facilities. In June of 2013 it began moving manufacturing equipment from McMinnville to Leavenworth, Washington. The new 85 acre facility includes 90,000 sq. ft. of indoor manufacturing, 25 acres of outdoor storage on asphalt and has three large rail spurs on a BNSF Railroad East-West mainline.

US Mat Systems is now purposefully located in the heart of the Northwest Douglas Fir forests and strategically located close to the Ports of Tacoma and Seattle.



Configuration is no problem. Mats can be used to create roads and even bridges.

Preferred for their light-weight strength and portability, the interlocking rig mats are used extensively in the Alaskan Prudhoe Bay oilfields for transporting the mega million pound drilling modules from pad to pad, where the toughest of rig mats are the only survivors in the harsh environment of soft summer roads. US Mat Systems' interlocking rig mats were there when the Great Bear Petroleum discovery well was completed on a drill site set up on the bare summer tundra. US Mat Systems' interlocking rig mats were the platform of choice to construct the long awaited CD-5 Bridge across the Colville River near the Artic Circle.



Working mat system, stronger and more reliable than other mat systems.

The super strong rig mat is constructed with outer frames of steel channel, incorporating smooth radiuses on all edges, and unique crane lifting eyes built into the corners of the frame. The heart of its system is the full length Douglas Fir tongue and grooved laminated glulam beams. Glulam beams are first glued and pressed vertically into billets. The billets are then each tongue and grooved and pressed horizontally into the finished glulam beam. The combination of longitudinal steel rails and the full length glulam beams gives the rig mat more than twice the bridge strength of a traditional rig mat marketed today.

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US Mat Systems has taken the traditional rig mat and brought it into the 21st century. Stronger, longer lasting, and more durable, a rig mat to handle the new generation of ultra-heavy modules often encountered in the energy industry. US Mats are built stronger and smarter to be constructed quickly, to get the job done, lift the largest loads, keep workers safe, and help protect the environment.

The second generation interlocking linking system is unique in that the load is transferred from the rig mat to its surrounding and connected rig mats. Technically, the links transfer the movement from rig mat to rig mat, which creates a very strong, stable and smooth working platform for oilfield and heavy industrial equipment. No other mat system on the market has the capability to transfer the load from mat to mat, or the inherent strength of its rig mat system.

The main quad link which is centered in the intersection of four adjoining mats has four large threaded bolts positioned vertically to accept a tapered nut, configured similarly to the standard wheel lug nut, only much bigger. The mats are anchored to the base link plate through the lower 1/2" gussets located in each corner of the rig mat. The resulting connection is very secure. The square link plates have a vertical X that forms the pockets to align the corner of the mats together. As the load travels between rig mats, the bottom pin connections go into tension through the gussets, the resulting close proximity of the vertical plates act as wedges which force the upper faces of the channels into compression.

This new innovative linked rig mat system can safely support and make possible the operation of the new generation of walking rigs without the need to employ the traditional gravel location. This clearly is an innovative advancement available to the oil and gas industry and will help to reduce the cost of exploration and production in the future.

A simulation study has been done to recommend the level of mats required to safely operate under specific ground conditions and weight requirements. With the rapidly changing style of drilling to walking rigs, and their much heavier foot prints while moving, US Mat Systems has developed stronger rig mats specifically designed for the walking rig market.

US Mat Systems re-classified the rig mat designs according to its bridge strength, rather than how many longitudinal rails they have in the mat (which really doesn't tell you how strong the rig mat is). Although the number of longitudinal rails is related to the bridge strength, US Mats classifies its mats by the total weight of the longitudinal beams in a rig mat per foot. Therefore, rig mats are classified as Level 1 up through a Level 5 rig mat. No other manufacturer builds a rig mat stronger than the Level 2, which is the typical 4-rail rig mat. The 4-rail rig mat worked just fine most of the time, until the onset of the heavier walking rigs we have today.

The Level 5 unit is an even more radical 6-rail rig mat with two 1/2" outer channels and four 1/2" inner wide flange beams. Linear weight per foot is about 145 lbs/ft. (Level 2 is only 60 lbs/ft.) The Level 5 mat has been used to build small mats in this configuration as outrigger pads for the larger mobile cranes. The mat has also been manufactured as an engineered mat to be used in the well servicing industry. US Mat Systems is developing the Level 5 further as portable bridges and linked platforms suited for solving unstable ground difficulties in aid of heavy industrial construction projects.



Glulam beams of Douglas Fir or Red Oak are tongue-and-grooved together with environmentally friendly glues and materials.



Crane lifting eyes are built into the corners along with a second generation interlocking linking system that produces linkable platforms.



The links transfer the movement from rig mat to rig mat, which creates a very strong, stable and smooth working platform.



The laminated beams are reinforced with a steel channel frame and I-beam supports longitudinally.

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