What is a Load Pin?

Load pins are load cells used in overhead weighing applications.

By replacing clevis, sheave pins or other small components, load pins can be directly integrated into cranes to track weights.

Load Pin Basics

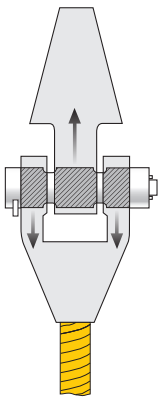
A load pin is a type of load cell used as a direct replacement for clevis, sheave, pivot, normal shaft, or equalize pins. In a hook block on a bridge crane, load pins are reliable, easy-to-install overhead weighing solutions, many of which have capacities over 500,000 pounds. Load pins are designed to be permanently installed in a sheave, pulley or crane system to consistently monitor vertical or horizontal tension.

How Do Load Pins Work?

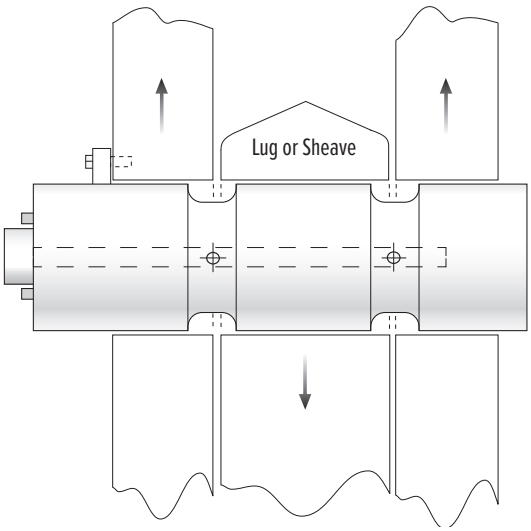
Load pins have a bored center containing internal, force-measuring strain gauges. Like other load sensors, these strain gauges measure the change in electrical signal caused by applied force in a specific direction. The change is then converted to a weight measurement.

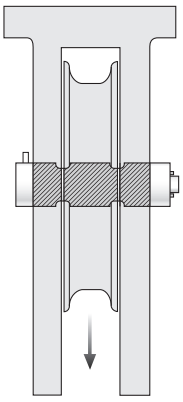
The exterior circumference of a load pin has two grooves to define the area of the pin between the measured forces. The lug or sheave applies force in one direction on the middle section of the pin, while the fixed support applies pressure in the opposite direction. This is the force, or tension, measured by load pin strain gauges.

Integrated overhead weighing solutions like load pins provide load monitoring and overload protection without impacting the headroom of an application. Load monitoring with an integrated load pin promotes safety and prevents costly overload damage.



Standard Load Sensing Clevis Pin for Wire Rope Sockets Dead-Ends





Sheave/Pully Load Pins Equalizer/Idler

Why Choose an MSI Load Pin?

Rice Lake Weighing Systems offers industrial grade, custom-designed MSI load pin sensors with a 5:1 ultimate safety factor. Each MSI load pin is precisely manufactured from 17-4 stainless steel, ensuring safety, strength and corrosion resistance in every application.

Backed by years of experience, Rice Lake engineers use Finite Element Analysis (FEA) to calculate and place strain gauges in concentrated stress areas specific to an application. This process ensures customers receive the most efficient and accurate performance from MSI load pins. MSI load pin sensors utilize internally mounted strain gauges for most applications, providing complete protection from external elements.

Rice Lake MSI load pin sensors have many different cable connection options available. To meet individual installation requirements, cable exits can be oriented differently to support connectivity while providing recessed protection for the cable. There are integral cables and a wide variety of standard, industrial and marine connectors available to meet your overhead weighing needs.

Rice Lake specializes in working with customers to design custom solutions, including sensors, indicators, remote displays and signal conditioners for applications of any size. Rice Lake's overhead weighing experts can design a load pin with a specialized output for your specific analog needs, such as 4-20mA, 0-5VDC or 0-10VDC.

Find the Right Load Pin Today

Rice Lake's overhead weighing experts are available for consultations and to discuss custom load pin requirements at 800-472-6703, or find more information online at ricelake.com/products/msi-load-pin-sensors/. When paired with a remote indicator or controller, Rice Lake can provide a complete, personalized weighing solution.

Where are load pins used?

A wide range of industries benefit from integrated overhead weighing solutions, including agriculture, chemical processing, energy production, marine cargo and port shipping operations. Integrated load pins can be used with almost any application with a repeatable load path, including:

- Cranes (mobile, bridge, jib, gantry and straddle)
- Winches
- Elevators
- Hoisting gear
- Sheaves
- Shackles
- Bearing blocks
- Pivots

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