

Method of Support and Slew Bearing Arrangement

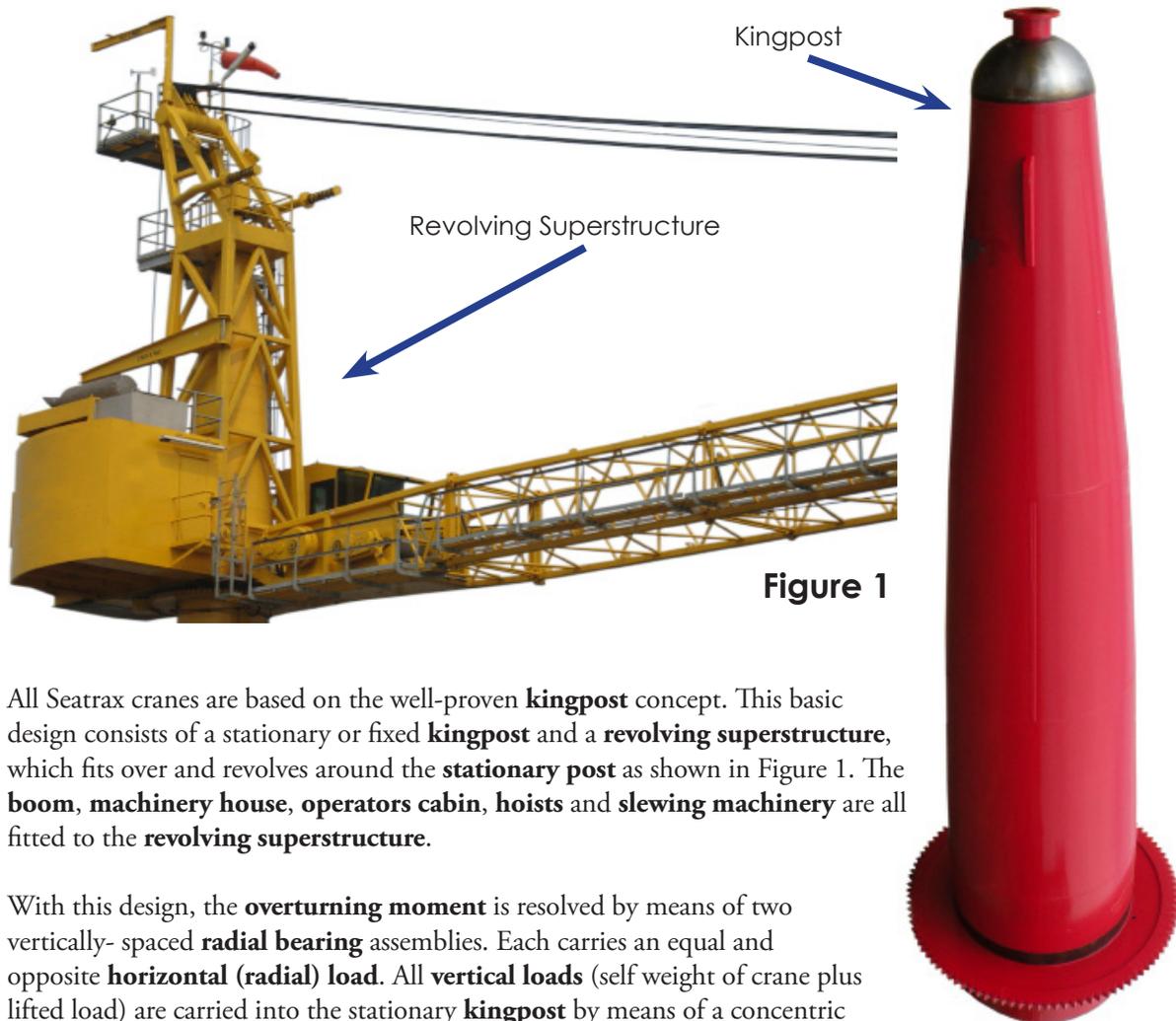


Figure 1

All Seatrax cranes are based on the well-proven **kingpost** concept. This basic design consists of a stationary or fixed **kingpost** and a **revolving superstructure**, which fits over and revolves around the **stationary post** as shown in Figure 1. The **boom, machinery house, operators cabin, hoists and slewing machinery** are all fitted to the **revolving superstructure**.

With this design, the **overturning moment** is resolved by means of two vertically- spaced **radial bearing** assemblies. Each carries an equal and opposite **horizontal (radial) load**. All **vertical loads** (self weight of crane plus lifted load) are carried into the stationary **kingpost** by means of a concentric **thrust bearing**.

One way to visualize this concept is to consider a simple ballpoint pen with a cap as shown in Figure 2. Imagine that the pen is the **kingpost** and that the cap is the **revolving superstructure**.

The cap cannot detach itself from the pen because of the application of an **overturning moment** and a **vertical load**. The **bearings** only provide a means of support for rotating the cap about the body of the pen. This analogy translates into the patented Seatrax mounting concept. With this design, the **structural**

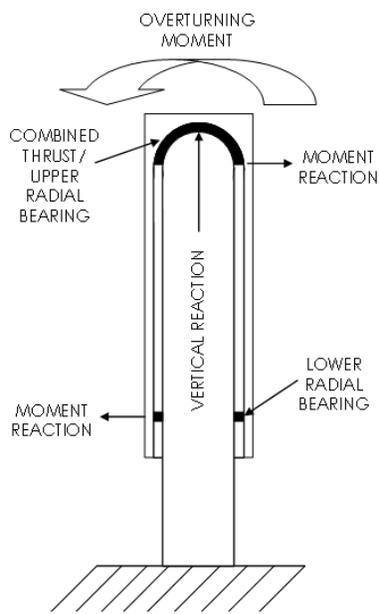


Figure 2

and **bearing** functions are distinctly separate. A **bearing** failure cannot result in separation of the **revolving superstructure** from the stationary **kingpost**. The **kingpost** mounts to the **platform pedestal** by welding. It does not require a bolted joint.

More than 1,000 **kingpost** cranes have been installed on offshore drilling rigs and production platforms since 1955. In more than 50 years of offshore service, no incident of a **kingpost** crane detaching from its mount because of an overload has occurred. This cannot be said for any other offshore crane design.

The Seatrax implementation of the **kingpost** design has been in continuous production since 1977 with more than 500 installed worldwide. An exclusive feature of Seatrax design is the patented non-metallic **upper and lower bearing assemblies**. These **bearings** will last several thousand hours with minimum maintenance before replacement is necessary. When replacement is required, all Seatrax **slew bearings** can be easily changed in place using common hand tools and without the assist of another crane. It is never necessary to dismount a Seatrax crane for bearing inspection or replacement.

Seatrax cranes are also offered in a slightly different configuration for use on **liftboats** or **self-elevating barges**. In this patented configuration, as shown in Figure 3, the **barge jacking tower** becomes the stationary **kingpost**, and the crane revolves around the **jacking tower** at an elevation above the **jack house**.

This allows the leg to pass through the center of the crane without interference. This configuration offers several advantages, including an increase in valuable deck space. The crane can also easily slew 360 degrees without fouling a leg. Other advantages of the Seatrax **slew bearing arrangement** include:



Figure 3

- The proven **kingpost** design ensures the crane cannot separate from its **mount** because of **slew bearing** failure.
- All bolted connections between the crane and the platform (or rig) are eliminated.
- Operators have no possibility of crane separation because of a bolt failure.
- The use of non-metallic **bearings** ensures the bearings cannot wear or degrade the structural integrity of the **kingpost** or other structures they contact.
- **Slew bearings** can be changed easily in place using common hand tools.
- This design is exempt from all certifying authority requirements for periodic removal and inspection of **slew bearings**.