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Name That Crane

How we developed naming conventions

We often get inquiries along the lines of, "We need a **100-ton** crane." So, what exactly is a **"100-ton"** crane? This can mean many different things to many different people, which is why we need a common term of reference. To define this term, we need to look at a little background.

The offshore oil and gas industry was established in 1954 with the first fixed platform installed near Morgan City, Louisiana in the Gulf of Mexico. The only cranes available for use on these early platforms were existing land-based construction machines, such as **crawler cranes**. The designation system the offshore industry used was the same one as used to identify construction equipment in the United States. That designation system was developed by the **American Power Crane and Shovel Association** prior to WWII and has been used to classify or "name" mobile construction cranes since that time. This system uses a naming convention based on tonnage.

During that time period, various construction equipment manufacturers such as American Hoist, Link-Belt, Koering, Lorain, Bucyrus Erie, Manitowoc and Unit Crane and Shovel began manufacturing **multi-use** machine systems. These systems consisted of a rotating superstructure mounted on **crawlers** or tracks to which a variety of **front-end attachments** could be fitted to use the same basic machine for a variety of construction tasks. Some examples of these attachments are Lift Crane Boom and Tackle, Dragline Boom & Bucket, Clamshell Boom and Grabs and Shovel Arms and Bucket.

These **multi-use** machines were sold to large construction contractors and to equipment dealers who would rent equipment to smaller contractors that could not afford to own large fleets of machines. Project Managers, Job Superintendents, and other professionals involved in the planning and financing of construction projects needed a way to specify and compare equipment on a "like-for-like" basis. In other words, there was a growing need for an industry-wide **naming standard**, so the APCSA **tonnage** standard was created to fill this need. Here is how this system works:

> *A 100-ton machine is defined as a Basic Machine equipped with the shortest Lift Crane Boom that can be fitted/positioned at maximum elevation (minimum radius). The "tonnage" of the machine is then defined as the maximum theoretical weight that could be suspended from the boom tip without exceeding the maximum allowable stresses in any structural component, or without exceeding a specified percentage of the suspended weight that would tip over the machine.*

This is only a **naming convention** or a **shorthand** method of referring to similar sizes of equipment. No one in that business ever thought anyone could actually lift a load that weighed 100 tons with a 100-ton crane. However, we can conclude that a 100-ton crane is approximately twice as capable as a 50-ton crane and is approximately four times more so than a 25-ton crane. Therefore, the 100 tons are better thought of as **"Planning or Contracting" tons**. They are certainly not **"Lifting" tons**.

The first **offshore cranes** were transplanted **construction cranes**. Therefore, this naming convention was, by default, also transplanted to the **offshore petroleum industry**. We know that this old **naming convention** does not have much relevance to our industry. The factors relating to the proper selection of a crane for use on an

offshore facility are far more complex than can be condensed into the one word **"name."** However, we still need a uniform shorthand way to refer to various size cranes. This is especially true for "Procurement" or "Contracting" purposes.

At Seatrax, we have decided to coin a new term labeled **"Contract Tons"** for us to use in describing our product line in a condensed **shorthand** manner. This **"Contract Ton"** rating is similar to the old APCSA method and is presented in the table below.

Seatrax Contract Tons

Current Crane Model	API Contract Tons			API Onboard SWL			API Offboard SWL		
	Rated Tons	Boom Length	Matching Radius	Max Lift Tons	Boom Length	Matching Radius	Max Lift Tons	Boom Length	Matching Radius
SK800	35	50	10	20	70	20	10	70	30
SK1000	45	50	10	25	70	20	15	70	30
SK1400	80	50	10	45	80	20	20	80	30
SK1700	90	50	10	45	80	25	25	80	30
3620SB	70	50	10	15	70	45	10	70	35
4224SB	110	50	10	20	70	50	20	70	35
70P	70	50	10	30	70	20	10	70	35
S4816	70	60	15	45	80	20	15	80	30
S4820	85	60	15	45	80	25	20	80	30
S4822	95	60	15	45	80	30	25	80	30
S5620	120	60	15	60	100	25	30	100	30
S5624	140	60	15	60	100	30	35	100	30
S7216	155	60	15	100	120	20	30	120	35
S7220	200	60	15	100	120	25	45	120	35
S230P	230	60	15	100	120	25	50	100	30
S7226	235	60	15	100	120	35	60	120	35
S9022	250	80	20	130	140	35	70	140	40
S9028	320	80	20	130	140	45	90	140	40
S9036	330	80	20	130	140	60	110	140	45
S10828	375	80	25	145	160	60	115	160	50
S10836	435	80	25	145	160	80	130	160	60
S12648	550	100	30	260	180	80	180	180	80

Definitions:

All tons are short tons of 2,000 lbs. All boom lengths are in feet. All radii are in feet.

Red column=the theoretical weight that can be suspended from the boom tip with the boom lengths and radii shown without exceeding the API 2C allowable stresses for onboard lifts from a bottom-supported structure.

Blue column=the maximum weight that can be lifted with the hoists and wire ropes normally supplied for the boom lengths and radii shown in full compliance with API Specification 2C for onboard lifts from a bottom-supported structure.

Green column=the maximum weight that can be lifted in full compliance with API Specification 2C, for the boom lengths and radii shown, for offboard supply boat lifts, with a significant wave height of 7 feet and a 30-knot wind, from a bottom-supported structure. The boom foot pin elevation is assumed to be 110 feet above the water.