

CRANE Terminology

ADJUSTABLE FREQUENCY DRIVE – A motor controller designed to convert fixed frequency AC power to available frequency power for AC motor speed control. The system is used in conjunction with a squirrel cage motor to control speed over a relatively wide, constant torque range, by maintaining a constant voltage / frequency ratio. This type of control “leashes” the in-rush current to deliver startup power to the motor as efficiently as possible providing a soft-start feature thereby minimizing load swing.

ANTI-COLLISION – An Electrical means of keeping two (2) or more crane’s from contacting each other.

ANTI-SKEWING – Capability of the crane design to maintain squareness in relation to the runway structure.

AUXILIARY HOIST – A supplemental hoisting unit, usually designed to handle lighter loads at a higher speed than the main host.

BOGIE – A type of short end truck, used to allow greater distribution of crane wheel loads, by placing multiple wheels at each corner of the crane.

BOX SECTION – The rectangular cross section of girders, trucks or other members, comprised of two (2) rolled steel side plates, a top plate, and a bottom plate.

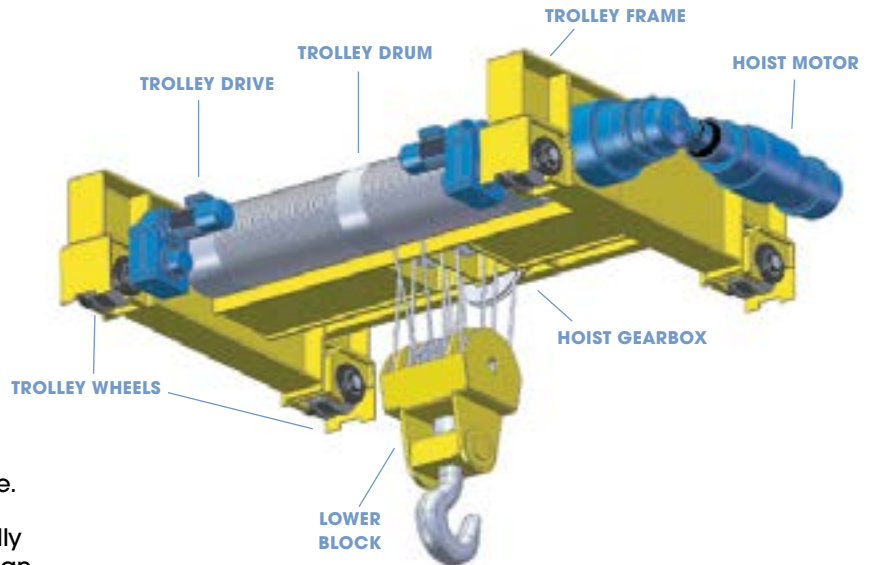
BRIDGE – That part of an overhead crane consisting of girders, trucks, end ties, walkway and drive mechanism which carries the trolley and travels in a direction parallel to the runway.

BRIDGE GIRDER – The main horizontal structural member(s) of the crane bridge supported by the end trucks.

CAMBER – The slight upward vertical curve given to girders to compensate partially for deflection due to hook load and weight of the Crane.

CAPACITY – The maximum rated load for which a crane is designed to handle. Measured in tons.

CASK HANDLING CRANE – A crane specifically designed to handle a cask loaded with spent nuclear fuel. A crane of this type is typically provided with single failure proof features.



CLEARANCE – Minimum distance from the extremity of a crane to the nearest obstruction.

C.M.A.A. – Crane Manufacturers Association of America, Inc. (formerly EOCI—Electric Overhead Crane Institute).

COLLECTORS – Contacting devices for collecting current from the runway or bridge conductors. The main line collectors are mounted on the bridge to transmit current from the runway conductors, and the trolley collectors are mounted on the trolley to transmit current from the bridge conductors.

COVER PLATE – The top or bottom plate of a box girder.

CRITICAL LOAD – Any lifted load whose uncontrolled movement or release could adversely affect any safety-related system when such a system is required for unit safety. A crane used for lifting a critical load shall be designed with single failure proof features so that any credible failure of a single component will not result in the loss of capability to stop or hold the load.

DOUBLE GIRDER CRANE – A crane which runs on two (2) bridge girders mounted between and supported by end trucks at each runway.

DRIVE GIRDER – The girder on which the bridge drive machinery is mounted.

END APPROACH – The minimum horizontal distance, parallel to the runway, between the outermost extremities of the crane and the centerline of the hook.

END TIE – A structural member other than the end truck which connects the ends of the girders to maintain the squareness of the bridge.

END TRUCK – The unit consisting of truck frame, wheels, bearings, axles, etc., which supports the bridge girders.

EXPLOSION PROOF CRANE – A crane designed using specially constructed electrical components to prevent the ignition of hazardous materials in the surrounding atmosphere, by containing any explosions that may occur within the components.

FESTOONING – A method for providing power to a hoist traveling along a beam.

FLUX VECTOR DRIVE – A special type of adjustable frequency motor control, utilizing an incremental encoder to constantly monitor the speed and direction of the motor shaft. This “closed-loop” system allows the control to know what the motor is doing at all times. Flux vector control provides a wide range of speed and reliability in hoisting applications where no mechanical load brake is utilized.

GAGE – Horizontal distance between the centerlines of the rails that support the trolley on a double girder bridge.

GANTRY CRANE – A crane similar to an overhead crane except that the bridge for carrying the trolley or trolleys is rigidly supported on two or more legs running on fixed rails or other runway.

GEAR REDUCER – Device to convert high speed motor shaft rotation to usable output shaft speed for hoist, trolley or bridge motion.

GRAPPLE – A “job specific” load handling device, designed to pick up bulk material, containers, barrels or drums. Actuation can be mechanical, electrical or hydraulic.

HOIST – A mechanism used for lifting and lowering a load.

HOLDING BRAKE – A brake that automatically prevents motion when power is off.

HOOK APPROACH – The minimum horizontal distance between the center of the runway rail and the hook.

JIB CRANE – A crane design whereby the bridge girder (*commonly called the boom*) is fixed at one end, allowing the opposite end to cantilever. The fixed end generally is hinged to allow rotation.

LIFT – Maximum safe vertical distance through which the hook, magnet, or bucket can move.

LOAD BLOCK – The assembly of hook, swivel, bearing, sheaves, pins and frame suspended by the hoisting ropes.

LOAD CYCLE – One (1) lift cycle with load plus one lift cycle

without load.

OVERHEAD CRANE – A crane with a moveable bridge carrying a moveable or fixed hoisting mechanism and traveling on an overhead fixed runway structure.

RATED LOAD – The maximum load which the crane is designed to handle safely

REEVING – Terminology used to describe the path of the hoist wire rope as it pays off the hoist drum and wraps around the various upper and lower sheaves.

REGENERATIVE BRAKING – A method of controlling speed in which electrical energy generated by the motor is feedback into the power system.

RUNWAY – The rails, beams, brackets and framework on which the crane operates.

SHEAVE – A grooved wheel or pulley used with a rope or chain to change direction and point of application of a pulling force.

SINGLE GIRDER CRANE – A crane which runs on a single bridge girder.

SINGLE FAILURE PROOF – Those features that are included in the crane design such that any credible failure of a single component will not result in the loss of capability to stop and hold the critical load within facility acceptable excursion limits.

SPAN – The horizontal distance center-to-center of runway rails.

TOP RUNNING CRANE – An overhead traveling crane having the end trucks supported on rails attached to the top of the runway support beams.

TROLLEY – The unit carrying the hoisting mechanism which travels on the bridge rails.

TROLLEY FRAME – The basic structure of the trolley on which are mounted the hoisting and traversing mechanisms.

TWO BLOCKING – Condition under which the load block or load suspended from the hook becomes jammed against the crane structure preventing further winding up of the hoist drum.

UNDER RUNNING CRANE – A crane that has a movable bridge running on the lower flanges of a fixed overhead runway structure which has a movable or fixed hoisting system.

WEB PLATE – The vertical plate connecting the upper and lower flanges or cover plates of a girder.

WHEEL LOAD – The load without vertical inertia force on any wheel with the trolley and lifted load (*rated capacity*) positioned on the bridge to give maximum loading.

WHEELBASE – Distance from center-to-center of wheels, as measured in the direction running parallel with the support rail.