

# **EOT Cranes**

## **Introduction**

### **Electric overhead traveling crane**

Electric overhead travelling crane or EOT crane is one of the most common types of overhead crane, or called bridge cranes, which consist of parallel runways with a travelling bridge spanning the gap. As obvious from the name, EOT crane is operated by electric, generally there is an operator cabin or a control pendant along with the EOT crane.

### **Application of EOT cranes**

EOT crane is extensively used in the Railway workshops, Manufacturing units, warehouses, unloading or relocating heavy load. Generally speaking, the EOT crane is equipped with the mechanical means to travel in both directions and can also raise or lower the heavy load easily.

There are broadly two types of EOT cranes, mentioned as below-

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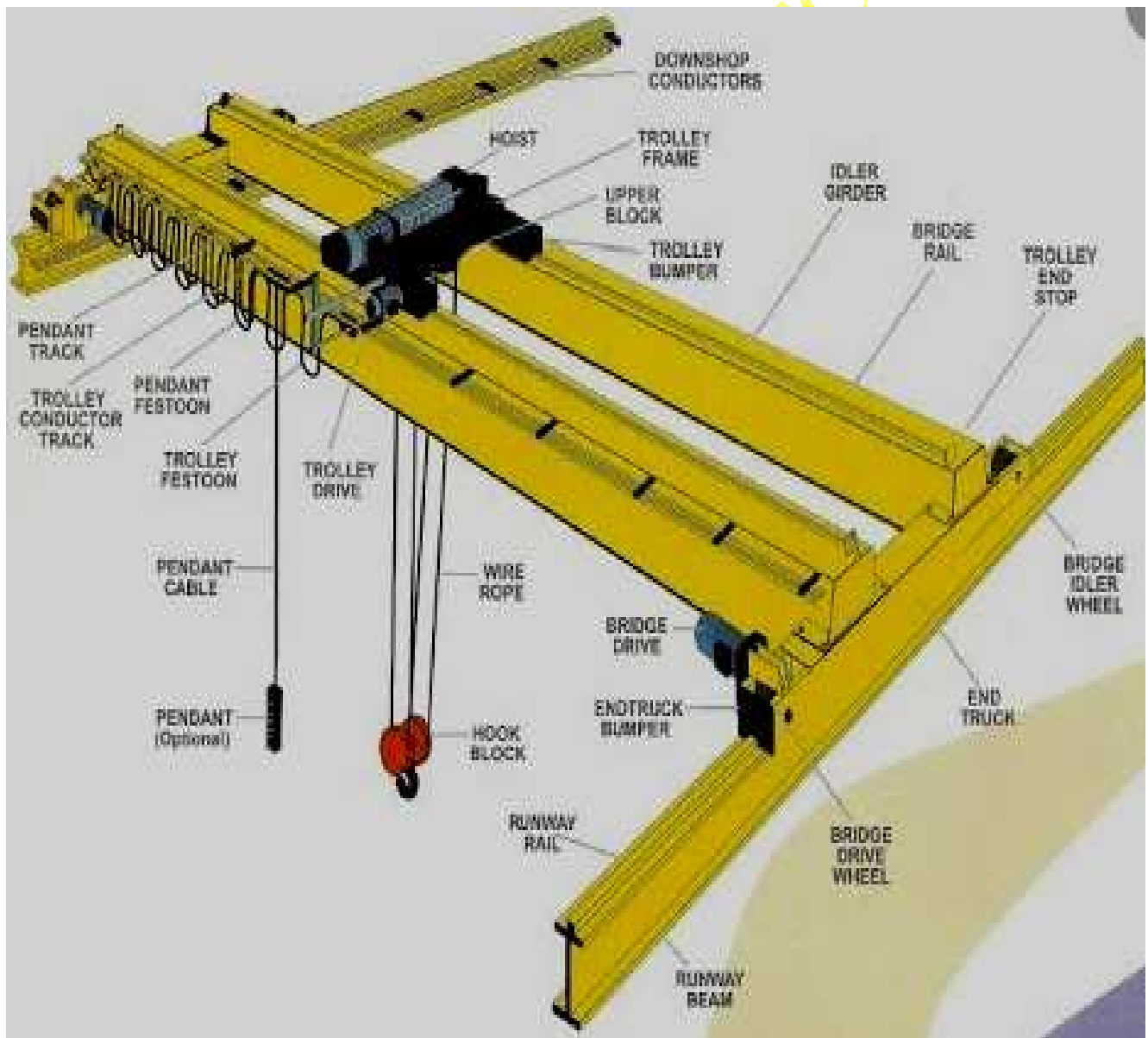
## **Single girder EOT crane**

As the name suggest, single girder EOT crane has one main girder, which is easy to install and requires less maintenance. The most common single girder EOT cranes are as follows:

- LD type single girder EOT crane
- LDP type single girder EOT crane and
- HD type single girder EOT crane

## **Double girder EOT crane**

- QD type hook double bridge crane
  - LH electric hoist double girder bridge crane
  - NLH type double girder EOT crane
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# Main components of EOT cranes are-

## Spur, Helical and Worm Gearboxes and Internals



Helical Gear Boxes



Helical And Worm Gears



Planetary Gears



Sheave (Pulley) and Sheave Assembly



100 MT Hook Block



Crane Spares Sheaves



Rope Drum



Brake Drums



Wheel Assembly



Bail Arm for Ladle



Coupling



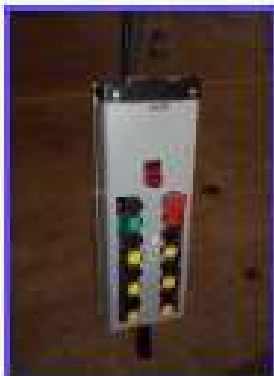
Brakes



Electrical Panel With VVVF Drive



Bus Bars



Pendent



Light Weight Enclosed Festoon Cable System & Components

Sheave made from Cast Steel with grooves machined accurately for wire rope support.

Hook Block Assembly comprising of Hook, Sheave Assembly, Side plates and rope guard. This is supported on thrust bearing and can swivel easily. Hook Block are supplied with Load locking finger and mechanism to stop hook rotation.

Steel Wire Ropes with IWRC (Steel Core) as well as Fibre Core.

Rope Drums are made from seamless pipe or MS rolled plates. Rope drums are with or without flanges. Butt welded joints in rope drum shell made from MS plates are tested radiographically. Rope drums are thermally stress relieved when made from MS plates. Left hand and right hand grooves are machined on rope drum for proper support to wire rope. Connection between hoist gearbox and rope drum are made through splined joint, flexible in built geared joint or Barrel coupling/ Malmedie coupling. Rope drums are supported at non drive end in drum pedestal that houses antifriction ball/ spherical roller bearing.

Rope Band & Guide are made from Cast Iron.

Hoist Gearboxes – Two, Three and Four Stage gearboxes are used for Crane Hoisting application. The gearbox casing is made from MS fabricated plates. The casing is thermally stress relieved after welding. The casing is accurately machined on horizontal boring machine. The helical gears and pinions are made from rolled/ forged steel of En9/ En19/ Cast Steel material as per design requirement. Gears and pinions are oil quenched and tempered to achieve toughness as well as surface hardness. Gear train are machined hob cut.

Case hardened gear teeth are generally used. Shafts are supported on antifriction ball and roller bearings. Oil seal seat on shaft are have ground finish. Gears and pinions are Splash lubricated.

CT Gearbox – Two and Three Stage Gearboxes are used for Crane CT and LT motion. The construction of CT gearbox is similar to hoist gearbox except that these are provided with inverted T split in housing. The Output shaft can project on both side if so required. For Three stage vertical gearbox forced lubrication arrangement is



provided through pump and hoses. Other gearboxes are splash lubricated.

**Brake Drums and couplings with brake drums** – Brake drums are made from rolled bar or cast steel. The brake drums are fully machined to eliminate vibration. Brake drums are dynamically balanced after machining. The drum surface is treated to achieve high hardness for longer life.

**Wheels and Wheel Assembly** – Wheels are supported in L type bearing blocks. Wheels are made from forged steel/ cast steel and machined accurately. Wheels are suitably heat treated to achieve hardness of 250 – 300 BHN with volume hardening or 450 – 500 BHN with Induction hardening. Tram wheels with either non ferrous bush bearing or antifriction bearing and open gear attached are also used oftenly.

**Compact Enclosed Festoon Cable System** – made from enclosed GI track the compact festoon cable system is lightweight and no need to be supported against girder diaphragms. The system is ideally suited for flatform cables are single core cables. The compact nature of cable

trolley means better hook approach and the system can be placed at crane girder level. The system is of modular design and can be assembled very easily.

Shrouded Bus Bar – Insulated bus bars are from 60 Amperes to 1250 Amps rating. These are modular in construction and compact in size. Spring loaded current collectors are supplied that ensure positive contact with current transmitting surface. Conductors are available in GI, Aluminium, Copper and Stainless steel material. Bus bars with expansion joint, hospital bay and suitable for curved track are used.

Other spare parts - Electro Hydraulic Thrustor Brakes, Brake Shoe and Lining, AC and DC Brakes, Brake Hub & Rotor, Brake Coil, Brake Armature, Pin Bush Couplings, Geared Couplings, Slip Ring Motors, Sq Cage Motors, Induction motors, dual speed motors, foot and flange mounted motors, Pendent Push button station.