



# POWER - MASTER

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*Smooth • Simple • Safe*



...Providing Material Handling Solutions  
Since 1966.



POWER - MASTER

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of **POWER-MASTER** brand Cranes, Hoists, Chain Pulley Blocks & Trolleys

## N. K. ENGINEERS



POWER - MASTER

# Chain Pulley Block

Designed & Manufactured in accordance to IS:3832



**Power-Master Hand Operated Chain Pulley Blocks** are designed & manufactured in accordance to IS-3832 and equivalent International Standards.

## Specification :

Capacity in Tonnes	Tested Load In Tonnes	Standard Lift in Mtr.	Dia of Load Chain in MM	Number of Load Chain Falls	Effort of full Load Kgs.	Chain ratio Hand Chain to Load Chain (MM)	Net Wt. with 3 Mtr.Lift Kgs.	Extra Wt.per additional Mtr.Lift
1.0	1.5	3.0	8	1	26	52	22	3
2.0	3.0	3.0	8	2	28	104	35	4.4
3.0	4.5	3.0	8/9	2	30	144	58	4.8
5.0	7.5	3.0	9/10	2	49	144	75	5.6
7.5	11.25	3.0	10/12	3	53	216	120	10.6
10.0	15.0	3.0	10/12	4	57	288	160	13.6

Due to continuous upgradation specifications are subject to change

## Features :

- Minimum effort to lift the load
- Self-braking system for holding the load in any position
- Even loading of bearings
- Ease of Installation & Maintenance
- Compact design

## FRAME :

The frame is built from steel plates as per IS-2062 and is of weld less rigid construction.

## LOAD CHAIN :

Alloy steel chain Gr-80 as per IS-6216 uniformly electrically resistance welded duly heat treated for ductility, toughness and wear resistance. Chains are accurately calibrated for smooth running in chain sprocket.

## HOOKS :

Forged hooks as per IS-8610 and fitted in upper-arm and bottom block made out of heavy duty malleable / S.G. Iron casting.

## BALL-BEARINGS :

Chain-Pulley Block will have two ball-bearings for smoother running on load.

## LOAD CHAIN WHEELS :

Load Chain Wheels are Malleable/S.G. Iron casting with accurate chain sprockets for smooth running of chain.

## GEARS :

Gear blanks are made out of nickle-crome alloy steel. Accurately machined and teeth generated on hobbing machines for involute corrected for high bending stress and low wear. All gears are hardened and tempered for minimum wear.

## HAND CHAIN WHEEL :

Accurately sprocket chain wheel made out of graded casting as per IS-210 shall be provided.

## BRAKE :

Self actuating type load pressure brake of screw & friction washer type ensures safety at all the position.

## TROLLEY :

The trolley is geared type with 4 wheels driven by hand chain and has provision for mounting the Chain Pulley Block.

Trolley is designed to suit the standard I-Beam size.

**Power-Master Electric Wire Rope Hoists** designed & manufactured as per IS 3938 are compact and modular with easy in operation & maintenance.

## FRAME :

The frame is fabricated from steel plates and is of welded/ bolted type. The gear box is rigidly aligned with the end load plates by substantially holding the transfer members which also form the motor platform for foot mounted motors.

## ROPE DRUM & BOTTOM BLOCK :

The rope drum is made of sturdy seamless pipe or fabricated from steel plates and is grooved to take the full lift without over winding.  $6 \times 36$  construction special plough hemp core flexible steel wire rope with appropriate factor of safety as per the application class selected. Cast iron fully encircling rope guide ensures correct rope lay. Bottom Block Assembly consisting of drop forged steel hook mounted on thrust Ball-Bearings, with large diameter sheave and hook plates made out of steel.

## MOTOR & BRAKE :

Flange / Foot mounted, crane duty, squirrel cage induction motor as per IS - 325 are totally enclosed, half hour rated and with high starting torque. The motors are suitable for

## Optional Features :

- Hoist with higher capacity & lift
- Flame proof hoist
- Hoist with flexible trolley for curved path
- Hoist with VFD for infinitely variable speeds
- Hoist with Remote Control Operation
- Electric Chain Hoist

## Specification :

CAPACITY		0.5T	1T	1.5T	2T	3T	5T	7.5T	10T
STD.LIFT(M)		6	6	6	6	6	6	6	6
HOISTING	SPEED MPM	4.5	4.5	4.5	3.5/4	3.5	3.5	3.5	3
	MOTOR HP	0.75	1.5	2	3	5	6	7.5	10
CROSS TRAVEL	SPEED MPM	18/22	18/22	18/22	15/18	15	15	15	15
	MOTOR HP	0.25	0.25	0.5	0.5	0.75	0.75	1.0	1.5
NO.OF FALL		2	2	2	2	2	4	4	4
HEAD ROOM (HD)		635	720	750	750	1000	1050	1450	1600

Due to continuous upgradation specifications are subject to change

frequent start, stop as well as braking and are provided with appropriate class insulation & protection as per duty & class application. A fail safe Disc / Shoe type electromagnetic brake is provided to hold the load at any position.

## GEARS :

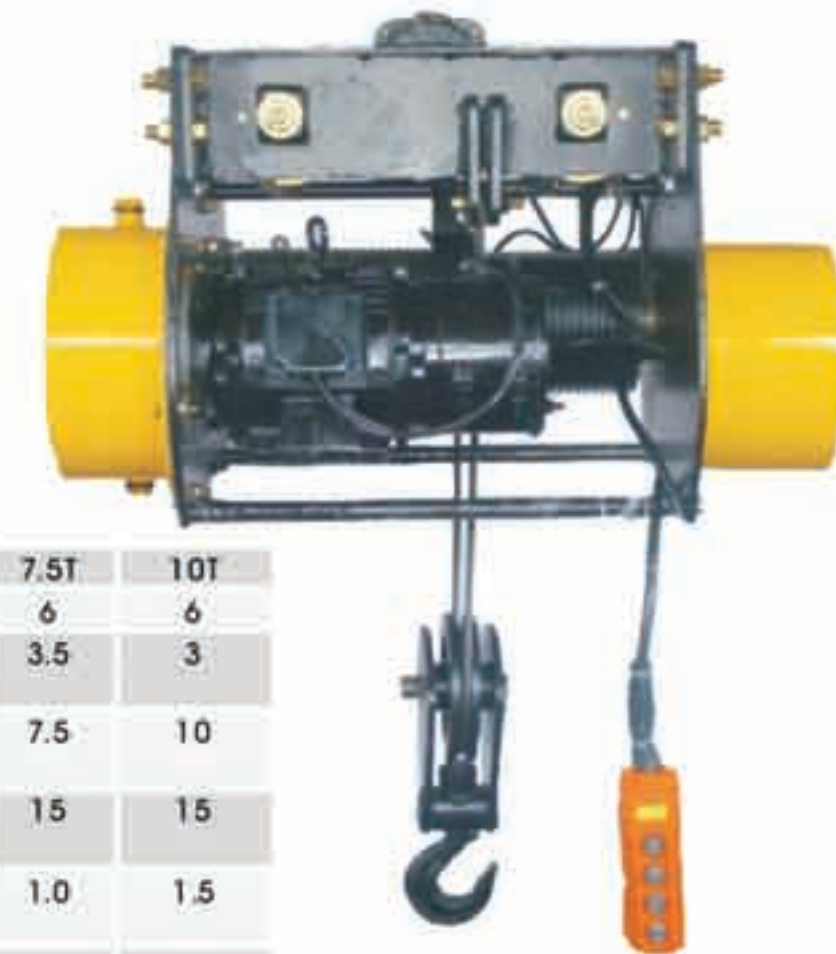
Alloy steel hobbled teeth helical-spur gears with solid pinions running on ball/roller bearing with oil bath lubrication.

## CONTROLS & PANEL :

The pendant push button station is provided at adequate height duly suspended by steel chain or wire rope, operating at 24/110 volts to avoid accident. To avoid over winding or over lowering of wire rope, limit switches are provided in each hoist, which ensures the highest and lowest position of load hook. Sheet metal fabricated dust proof cabinet houses reputed make heavy duty, directed-on line reversing type air brake contactors, MCB, transformers, fuses etc. Controls are mechanically and electrically interlocked to prevent inadvertent operation of opposite motions.

## TROLLEY :

Cross Travel Trolley are designed to suit either standard rolled steel or box girder. The trolley frame is rigidly bolted with hoist frame through series of holes. This also ensures proper adjustment of flange width. C.T. Wheels are provided with ball bearing and mounted on EN 8 steel axles.



Designed & Manufactured in accordance to IS:3938

- Motorized Chain Pulley Block & Trolley offered against specific inquiries.

# Electric Wire Rope Hoist

Power-Master Overhead Travelling Cranes designed & manufactured in accordance to IS-3177 & IS-807 are available in medium duty and heavy duty classification with below configuration.

- Electrically operated Overhead Travelling (E.O.T.) Crane
- Hand operated Overhead Travelling (H.O.T.) Crane

- Single Girder Crane
- Double Girder Crane

- ◆ Top Running Crane
- ◆ Underslung Crane

**BRIDGE GIRDERS:**

Depending on capacity & span fabricated from standard I-Beam or plate welded Box type with diaphragms, designed to sustain all stresses arising due to vertical and lateral forces with impact. Steel plates used for bridge girders and diaphragms are as per IS-2062.

**END CARRIAGES:**

Fabricated from rolled steel sections or plates and welded together to form a box with suitable stiffening wherever required. End Carriage consist two nos. double flanged solid forged wheels for long travel motion. These wheels are mounted on fixed axle with anti-friction spherical roller bearings.

**HOISTING MECHANISM :**

Hoisting is through **Power-Master** make Wire Rope Electric Hoist for single girder crane or Crab for double girder crane. The crab frame is made of steel plates and rolled sections in welded construction.

**LONG TRAVEL MOTION :**

The wheels of each end carriage are driven by independent synchronized drive system mounted near each end carriage. The drive system comprises of crane duty electric motor, gearbox and brake.

**PLATFORM :**

In case of double girder crane a full length chequered plate platform is provided with safety hand railing on one side of the crane and two short platforms at each end carriage for the maintenance purpose.

**CONTROL PANEL :**

Sheet metal fabricated dust proof cabinet houses reputed make heavy duty, directed-on line reversing type air brake contactors, MCB, transformers, fuses etc. Controls are mechanically and electrically interlocked to prevent inadvertent operation of opposite motions.

**Optional Features against requirement :**

- Cabin operated cranes
- Crane operation through wireless remote control
- Flameproof cranes
- Crabs with auxiliary hoist
- Cranes with Variable Frequency Drive (VFD)
- Soft Starters for jerk free operation

**UNDER SLUNG CRANE:**

Under Slung cranes are distinguished by the fact that they are supported from the roof structure and run on the bottom flange of runway girders. Under Slung cranes offer excellent side approaches, close headroom and can be supported on runways hung from existing building members if adequate.

**DOWN SHOP LEAD :**

Generally Shrouded Bus Bar conductors with current collector arms are provided as DSL system. However, against specific requirement flexible cable with trolleys, Iron Angle / Strip type can be provided.

**CONTROL & SAFETY :**

Limit Switches are provided to prevent over hoisting and over traveling. Rubber buffers provided at the four ends of end carriages and crab (for double girder crane) with end stoppers prevents the over traveling of crane in L.T. & C.T. motion.

**OPERATION CONTROL :**

Floor operated through suspended pendant push button station for all motions. The pendant push button station is provided at adequate height duly suspended by steel chain or wire rope and is operating at 24/110 volts.



# Jib Crane

Designed & Manufactured in accordance to IS:3177 & IS:807



- Electrically operated Goliath/Gantry Crane
- Hand operated Goliath/Gantry Crane
- Single Girder Goliath/Gantry Crane
- Double Girder Goliath/Gantry Crane

**Power-Master Goliath/Gantry Cranes** designed in accordance to IS-807 & IS-3177 are essentially the same as the regular overhead cranes 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. These "legs" eliminate the supporting runway and column system and connect to end trucks which run on a rail either embedded in or laid on top of the floor.

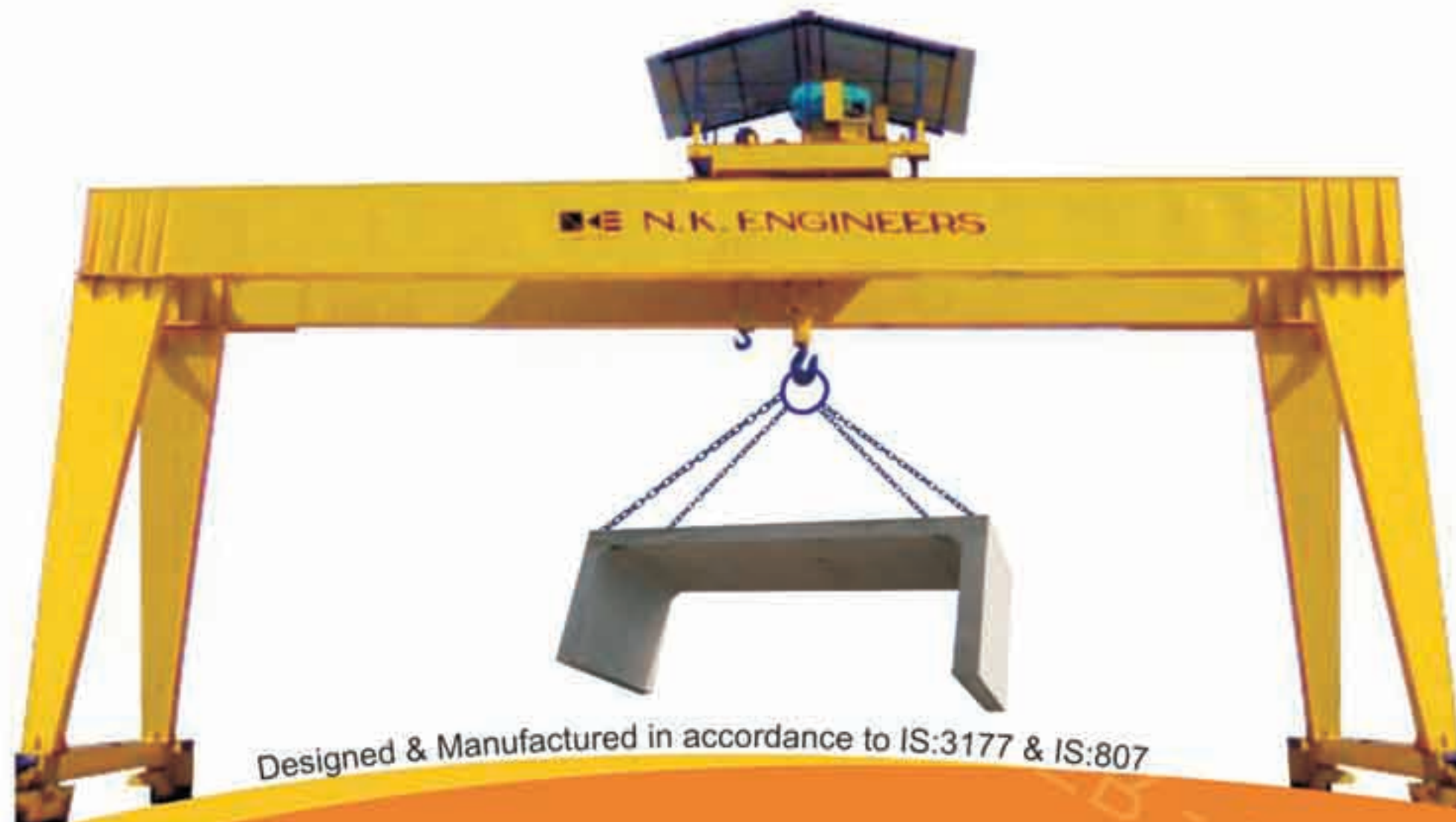
A gantry crane has a hoist with trolley which runs horizontally along gantry rails, usually fitted underneath a beam spanning between uprights which themselves have wheels so that the whole crane can move at right angles to the direction of the gantry rails.



**Power-Master Jib Cranes** designed & manufactured in accordance to IS-807 & IS-3177 are Wall mounted or Pillar type and fully floating on bearings with swivel facility upto 360 degrees. Self aligned type double roller thrust bearings take care of horizontal, vertical and radial thrust loads.

Jib cranes are available in lifting capacities ranging from 250 Kgs to 7500 Kgs and arm radius as desire for the required application.

Jib arm is fabricated from heavy section I-Beam or of triangular truss construction to keep the deflection in acceptable limits. Jib arm is suitable to accommodate trolley with chain pulley block for manual travel and lifting operations or electric wire rope hoist for electric operations.



Designed & Manufactured in accordance to IS:3177 & IS:807

# Goliath Crane

**Power-Master Goods Lifts / Cage Hoists** are designed to suit client's specific requirement using superior quality raw material and bought out items.

Manufactured in capacities ranging from 0.5 tons to 7.5 tons, normally with cage size of 1.5mtrs. x 2 mtrs. x 2 mtrs. as per required lift and upto ground + 10 floor.

Cage is fabricated from rolled steel section and M.S. plates and is provided with collapsible doors & landing platforms.

Goods Lift / Cage Hoist is guided in steel guide members (T-section) with hoisting and lowering operations performed by our electric wire rope hoist.

Electro mechanical door interlocks with limit switches are provided on collapsible gates. Lever type limit switches are provided on each floor. In addition to above limit switches a very sensitive counter limit switch is provided (in power circuit) for over hoisting & over lowering. Spring buffers are provided on the ground floor as a safety feature.



# Cage Hoist