YUANTAI CRANE

Double Girder Gantry Crane with Hook specification

- Strong lifting capacity, large span, good stability, varieties.
- Novel structure, attractive appearance, good usability.
- Standardization, universalization and serialization of parts.
- Flexible operation, safe and stable.

Henan Yuantai Crane Machinery Import&Export Co.,Ltd.

Part 1 Product Overview

In General

(1) Strong lifting capacity, large span, good stability, varieties
(2) Novel structure, attractive appearance, good usability
(3) Standardization, universalization and serialization of parts
(4) Flexible operation, safe and stable

Supply scope

Lifting capacity: 5t~500t, span: 18m~35m, lifting height: 1m~40m, medium working duty (A5); Non-standard products could also be designed and manufactured as your demands.

Main Application

(1) Applied to open storage or railway for loading & unloading, handling goods;
(2) Equipped with special lifting appliances for special use;
(3) Prohibited for lifting high temperature solution, flammable, explosive, corrosion, overloading, dust and other dangerous operations.

Working atmosphere and condition

This crane is used in ambient temperature of -25℃～+40℃, humidity≤85%, elevation under 1000m, power supply is 3-ph, 380V,50HZ(can change as user demand).

Product Specifications

Mark: for example 5t lifting capacity, 18m span double girder gantry crane with hook shows as MG5t-18m.

Main Structure and Feature

Main composed of gantry mounting, trolley & crane traveling mechanisms and electric parts.

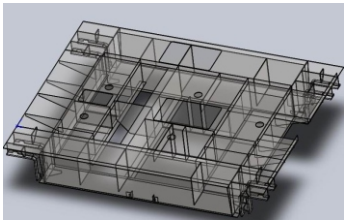
Gantry Mounting

1. "A" type structure, using tack bolts and connecting bolts to settle main parts;
2. Provided max. room between legs to ensure the objects could be lifted between legs at the cantilever end;
3. All partial rail box beam structure main girder, the camber meet national standard (0.9~1.4)/1000S, flange and bolts connect main girders and legs;
4. Box structure legs, both sides connect separately with main girders and lower separators.
5. Q235B or Q345B materials (similar as Fe37 or Fe52).

Trolley

Consists of trolley frame, lifting mechanism and trolley traveling mechanism, etc.

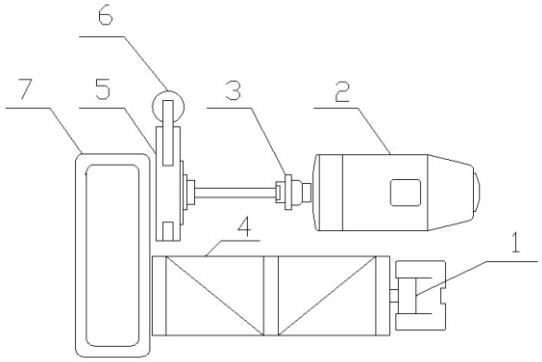
Trolley Frame



1.Welded of steel plate with high intensity and strong rigidity.
2.Equipped with lifting mechanism and trolley traveling mechanism.

Lifting Mechanism

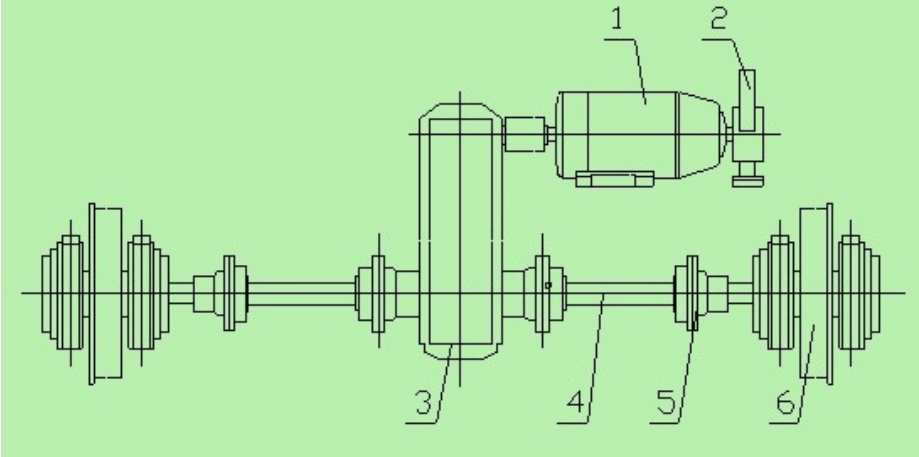
1. One set of independent driving device for single hook and two separate driving device for double hook (main and auxiliary).
2. Lifting mechanism working principle, through high speed rotating of YZR type crane special motor, and gear coupling drive involute gear reducer. Then the low speed shaft of reducer turn the wire rope drum. As long as the control of motors and its positive and negative rotation, can achieve the lifting function of the hook.
3. In order to ensure the security and reliable of lifting mechanism, the brake is installed on the high speed shaft of reducer. And the load limiter is installed on the bearing pedestal which supports the drum to avoid overload. The mechanical drawing as follows:



1. Main overload limitation;
2. Main lifting motor;
3. Main lifting gear coupling;
4. Main lifting drum;
5. Main lifting brake wheel coupling;
6. Main lifting brake;
7. Main lifting reducer

Trolley Traveling Mechanism

1.Trolley traveling mechanism working principle, the involute vertical gear reducer driven by motor. The low speed shaft of reducer connects to active wheel of trolley frame in the way of centralized driving. The motor adopt double-output gear and there is a brake on one end of it.
2.There are four wheels installed under the trolley. Two of them are active wheels and the others are driven wheels. Driving devices include 1. Motor; 2. Brake; 3. Reducer; 4. Compensating shaft; 5. Coupling; 6. Wheels, etc. are shown in the mechanical drawing as follows:



Crane Traveling Mechanism

1. Separately drive
2. Vertical trinity drive, compact and safe;
3. Interference fit key link the wheels and axles, angle bearing box for wheel group;
4. Two sets outage terminal limiter and backstop device with buffer, for accurate positioning of crane;
5. Equipped rail clamp and anchorage for wind and storm proof.

Trolley

(1).Module speed control, could achieve slow speed and double speed;
(2).Rational layout control cabin, easy to maintain;
(3).All external cable with mark;
(4).HxPnR high conductive, small pressure.

Distribution & Security Protection

Distribution system is composed of master breaker, master power contactor and main circuits of mechanisms, so that the subcircuit out of work could be maintained isolated. There are starting & emergency switches, power indicator, safe and limit switches for master power, and short circuit, over current, overload & voltage protections in distribution control circuit, which switch off when power interrupts. Zero protection for mechanisms. If the handles are not back in zero position when fault recovery, they cannot auto start.

1、overload & short circuit protection

Master air switch in master circuit, small air switch or fuse protection as overload and short circuit protection in control circuit. Over current & overload protect functions are set in all control cabinets.

2、zero position protection

Every controller should be back to zero position, then restart master contactor when the crane start or restart to work.

3、limit protection

(1) limit switch in lifting mechanism break the control circuit when hook get the limitation for ensure security.

(2) limit switches in both trolley and crane travel mechanisms break control circuit when traveling to the limit position. It can only travel to the other side.

(3) limit switches are also set in the door of cabin and balustrades. The master power can be started when these doors are totally closed.

(4) emergency protection

Emergency switch could quickly break the power in emergency.

(5) overload protection

Overload limiter is set in lifting mechanism, it could break power, alarm with sound and light and show the number when overloaded.

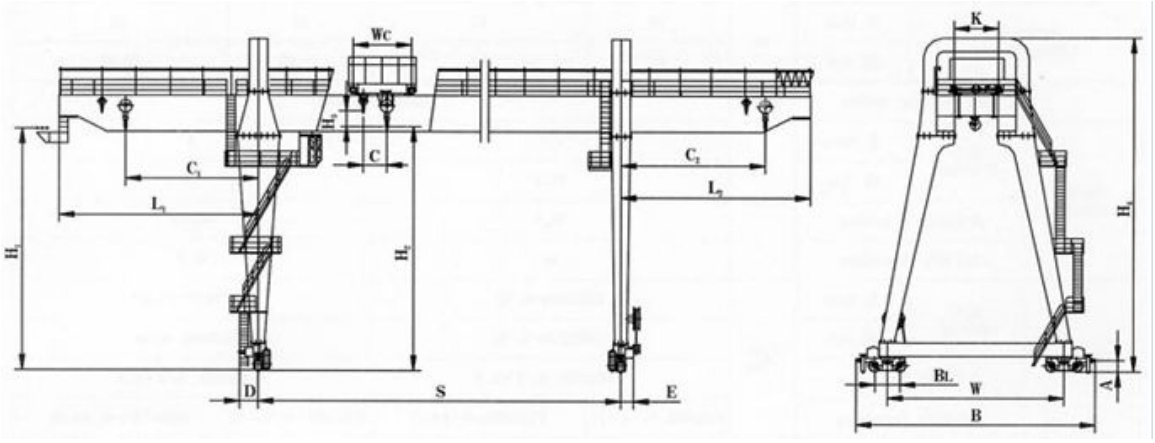
Control Mode

(1) Cabin control, fully enclosed, steel plate bending production with enough strength and stiffness, broad vision;

(2) Linkage control design could ensure driver to operate safely and comfortably. Safe and convenient passageway, comfortable seat. The cabin is equipped with fire extinguisher, display screen of overload limiter.

Part 2 Drawing

The Structure Sketch



Part 3 Tech. Parameter

MG Type Main Double Girder Gantry Crane with Hook 5t						
Span	S（m）	18	22	26	30	35
Lifting height	m	10	10	12	12	12
Lifting speed	m/min	12.5	12.5	12.5	12.5	12.5
Trolley speed	m/min	37.2	37.2	37.2	37.2	37.2
Crane speed	m/min	37.7	37.7	37.7	40.1	40.1
Lifting motor	kw	13	13	13	13	13
Trolley motor	kw	1.8	1.8	1.8	1.8	1.8
Total weight	kg	48500	52600	57700	65900	74000
Max Wheel Load	KN	217	230	243	266	289
Track		P43	P43	P43	P43	P43
Main dimension	mm	18	22	26	30	35
Rail top to main top	H	13374	14474	13524	15606	15698
Wheel base	W	7000	7000	8500	8500	8500
Crane width	B	8554	8554	13050	13050	13050
Hook left limitation	S1	5000	5000	5000	7500	7500
Hook right limitation	S2	5000	5000	5000	7500	7500
Left cantilever	L1	6500	6500	6500	9000	9000
Right cantilever	L2	6500	6500	6500	9000	9000

Note: Control mode for cab operation

MG Type Main Double Girder Gantry Crane with Hook 10t						
Span	S（m）	18	22	26	30	35
Lifting height	m	10	10	12	12	12
Lifting speed	m/min	8.5	8.5	8.5	8.5	8.5
Trolley speed	m/min	43.8	43.8	43.8	43.8	43.8
Crane speed	m/min	37.7	37.7	40.1	40.1	40.1
Lifting motor	kw	17	17	17	17	17
Trolley motor	kw	2.5	2.5	2.5	2.5	2.5
Total weight	kg	52600	60700	70800	78800	89000
Max Wheel Load	KN	225	228	245	290	310
Track		P43	P43	P43	P43	P43
Main dimension	mm	18	22	26	30	35
Rail top to main top	H	14580	14580	14580	16590	16590
Wheel base	W	8000	8000	8500	9500	9500
Crane width	B	9554	9554	10350	11350	11350
Hook left limitation	S1	5000	5000	6000	7500	7500
Hook right limitation	S2	5000	5000	6000	7500	7500
Left cantilever	L1	6500	6500	7500	9000	9000
Right cantilever	L2	6500	6500	7500	9000	9000

Note: Control mode for cab operation

Part 4 Manufacturing Process

Surface Treatment

All panels and profiles are after spot blasting to Sa2.5 level in GB8923-88, then after erosion by machine or hand to make the steel surface get St3 level, paint priming with thickness among 15~20μm. 3 layers finishes with thickness ⩾120um. Paint film adhesion accord with level one quality requirement of GB9286.

Montage

The steel plate after processed should be montaged according length; butt welds of cover plate and sternum of main girder should be detected by ultrasonic or X light to meet the requirements of 1 level in JB1152 or 11 level in GB3323.

Gas Cutting

Cover plate and sternum of main girder use CNC automatic cutting, common members use Semi-automatic cutting, small size parts use copy cutting.

Welding

Butt welds of cover plate and sternum of main girder use union melt welding, four main angles welding line use C02 gas protect automatic welding wire welding, common welding line use Manual C02 gas protect welding.

Main workpieces

Wheel use power frequency quenching, tread hardness reach HB300~380, at 20mm in depth of hardening layer, the hardness should not be less than 260HB. Brake wheel use Intermediate hardening, at 2-3mm in depth of hardening layer, the hardness should not be less than 245-55HRC. Gear ring of coupling use gear shaping or hobbing processing, then high frequency hardening, its hardness reach 33-38HRC.

Assembly

Wheel axles are assembled with wheels by oil press; axles and bearings are assembled after heated by AUELY. All mechanisms must be operated unloaded after assembled.

Part 5 Quality Control in Producing

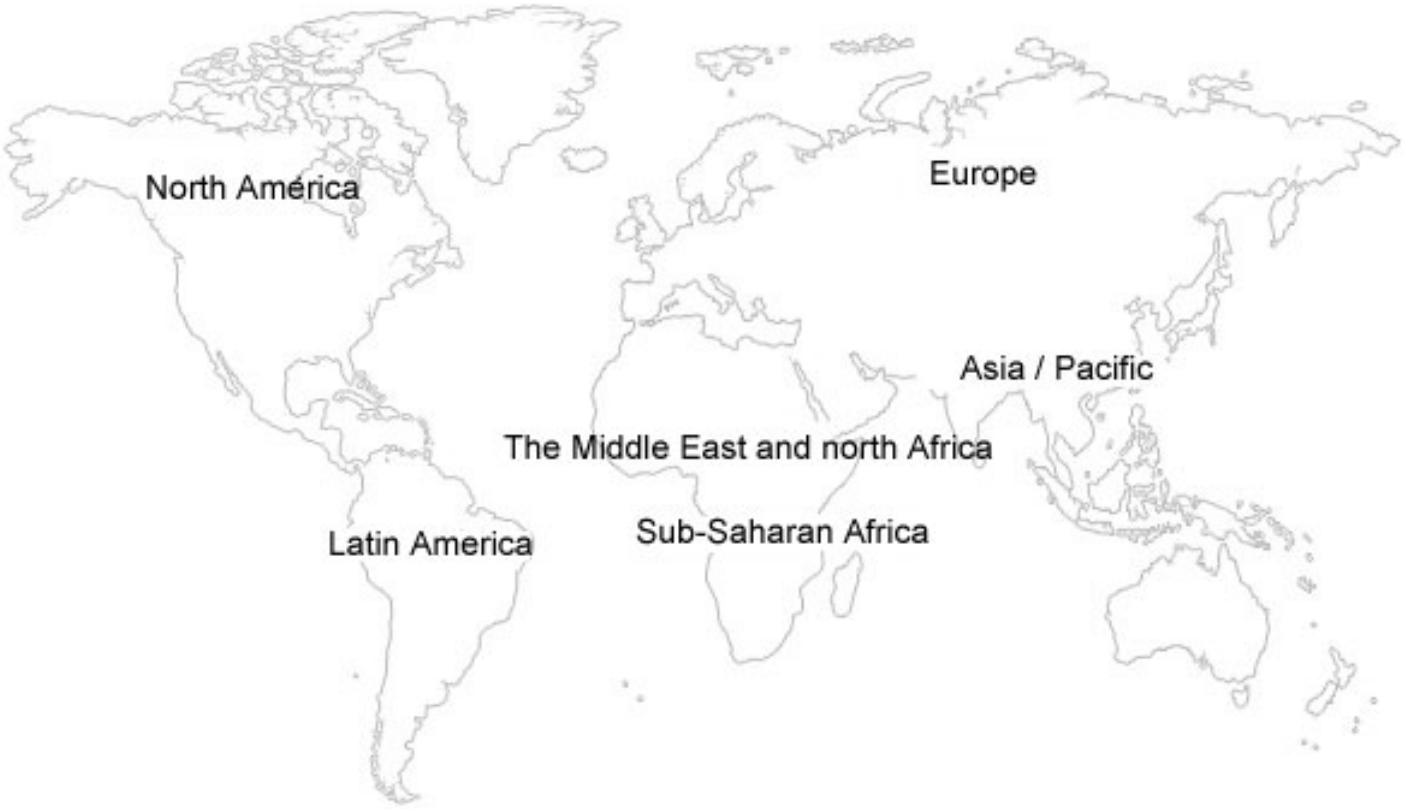
- Mental construction of crane use steel pretreatment process, butt welds of cover plate and sternum of main girder should be detected by ultrasonic or X light.

- The wheels of crane and trolley and brake wheel use middle, high frequency heat treatment controlled by Leeb Hardness Tester.

- Lateral deviation of the wheels controlled by later deviation tester.
- Machine motion noise is measured by precision sound level meter.
- Insulation is tested by megger, current is tested by clamp ammeter.
- Various parts are tested by measure gauges, plug guages, and general measures.
- The camber degree and Static Rigidity are tested by theodolite and balance level.
- Special coating thickness gauges test and control the depth of paint films.

Part 6 Main Machine & Electric Suppliers

Reducer	Jiangsu Tailong, Jiangsu Taixing
Motor	Jiamusi, Wuxi New Great Power
Break	Jiaozuo Break, Jiangxi Huawu
Wire Rope	Jiangsu Nantong Taili Wire Rope Factory
Overload limiter	Changzhou Changxin, Henan Hengda
Steel	Anyang Steel, jinan iron and steel
electrical elements	Schneider



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You can use the phone dimensional code recognition software to scan the right side of the two-dimensional code, to quickly and easily access our web site for more information.