

CHARACTERISTICS AND ADVANTAGES OF GH EQUIPMENT

OUR COMMITMENT WITH THE QUALITY AND COMPETITIVNESS HAVE LED US TO OFFER THE STANDARD EOT CRANE WITH THE MOST FEATURES/CHARACTERISTICS AND THE MOST SAVING IN MAINTAINING COSTS FROM THE MARKET

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1. SINGLE GIRDER EDT CRANE

1.1. FEATURES AND ADVANTAGES



- Manufactured according to FEM-1001 and CMAA standard.
- Light, lower wheel loads transmitted to the bay structure.
- Box girder design
- Ideal when the clearance is small (distance from railway to ceiling)



2. DOUBLE GIRDER EOT CRANE

2.1. FEATURES AND ADVANTAGES



- Manufactured according to FEM-1001 and CMAA.
- Maximizes the crane lifting height due to flat hoist design.
- Box girder design.
- Improved load balance.
- Balanced load distribution along the crane structure.
- Easy access for maintenance.
- Allows 2 lifting movements on the same crab.





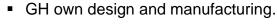
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3. STRUCTURE

3.1. DESIGN AND MANUFACTURING





- Manufactured according to FEM, EN and CMAA in specialized facilities developed with the expertise acquired over more than 50 years' experience.
- Manufactured and welded by certified personnel following specific procedures.





BAKAIKOA (fabricación de estructura de puente grúa)



3.2. CONTROL PROCESSES



- Tested by specialized technicians.
- Using state of the art dimensional control machines.
- Measurements carried out by laser tracker.







4. SURFACE TREATMENT

4.1. CLEANING BY SAND-BLASTING



- Surface cleaning following PTGH specific technical procedure.
- Suitable for outdoor services and special applications.

4.2. SURFACE TREATMENT

4.2.1. Indoors service



- RAL 1021 yellow color structure.
- RAL 5017 and 5015 blue color mechanisms and components
- Painted in specific facilities according to GH-PTGH-01method and following specific indoors painting scheme procedure.



4.2.2. Outdoors service



- RAL 1021 color yellow structure.
- RAL 5017 and 5015 blue color mechanisms and components
- Painted in specific facilities according to GH-PTGH-01method and following specific outdoors painting scheme procedure.





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4.2.3. Marine service



- RAL 5017 blue color structure.
- RAL 5017 blue color mechanisms and components.
- Painted in specific facilities according to GH-PTGH-01method and following specific painting scheme procedure suitable for marine environment.



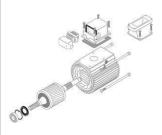
5. LIFTING MECHANISMS

5.1. MOTOR





- Squirrel cage cylindrical motor.
- Oversized widely.
- Two speeds. 1:6 Ratio
- Thermical protection using bimetal contact probes.
- GH DESIGN AND MANUFACTURING.
- F class insulation.
- Autoventilated
- IP55 protection.
- ED 60%.





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5.2. BRAKE (TWO SPEEDS LIFTING, DOUBLE WINDING)



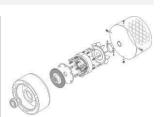


- Electromagnetic disc brake.
- GH DESIGN AND MANUFACTURING.
- Disc type, double brake disc lining.
- Lifting brake electromagnet including more than 5 springs, according to EN 14492-2 norm.
- Timer controlling slow-fast speed transition.
- Braking timer controlling fast-slow-stop transition.
- Minimum brake pad wear.

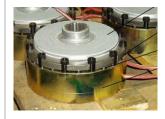
5.3. BRAKE (FREQUENCY INVERTER LIFTING)



- Electromagnetic disc brake.
- GH DESIGN AND MANUFACTURING.
- Disc type, double brake disc lining.
- Lifting brake electromagnet including more than 5 springs, according to EN 14492-2 norm.
- Braking timer.
- Minimum brake pad wear due to inverter control



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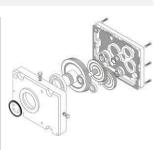
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5.4. GEAR BOX





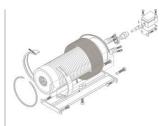
- Direct drive.
- Case hardened, helicoidal gears that ensure smooth movements.
- Gear in closed sump avoiding dirt
- Lubricated with semi fluid grease and/or ISO 220 oil as a minimum (40°C).



5.5. DRUM



- Manufactured using S355JR cold rolled steel.
- Oversized widely, according to FEM STD M6 working group related factor.
- GHB model sized according to FEM STD M5 working group.
- Direct drive gearbox-drum through splined shaft.
- Drum rolling on bearings lubricated for life (commercial parts).
- Grooving according DIN-15061 norm for 1 or 2 wire ropes exits and machined on CNC machining centers.
- Manufactured according Directive of machines 2006/42 CE, from subclause 4.1.2.4. to clause 4.2.3.





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5.6. WIRE ROPE

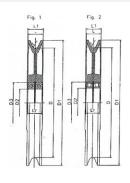


- 8 exterior strands. More fulcrums increasing the stability in curvature changes.
- Compacted exterior strands. Larger metal sections. Reduced specific tension working. Longer life span.
- Plastic infiltration. Bigger resistance against fatigue. Tension absortion reducing wire rope wear.
- Safety factor ≥5, complying with Directive of Machines 2006/42/CE 4.1.2.4

5.7. SHEAVES



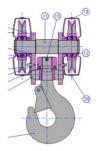
- Manufactured using cold rolled S275JR steel.
- No casting improving breach and wear resistance.
- Double bearing.
- Dimensioned following FEM9662.
- Machining following DIN-15061.



5.8. HOOK



- Material in compliance with DIN-15400.
- Design following DIN-15401 (single hook) and DIN-15402 (double hook).
- Robust design with cross brace and nut.
- Safety tab included according to Directive of Machines 2006/42/CE 4.1.2.6





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5.9. ROPE GUIDE

5.9.1. Metal



- Robust design. Long-lasting.
- Manufactured in GGG-40 spheroidal graphite
- Covering 360° and embracing several wire rope layers.
- Easy assembly.



5.9.2. Polymer



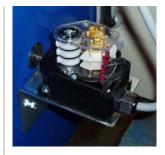
- Special plastics with glass fiber additives.
- Material that supports strong tension, fatigue, and high temperatures. Special resistance to high pressure and friction due to its low hardness and friction coefficient.



5.10. LIMIT SWITCH



- Load movements within Directive of Machines 2006/42 CE 4.1.2.6 limits
- Ensures safety against collisions.
- Geared for an easy regulation and precise and safe operation.
- 3 positions: upper, upper safety , and downer limits.
- Protection against phase switch.





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5.11. OVERLOAD ELECTRONIC DEVICE





- Overload control following Directive of Machines 2006/42/CE 4.1.2.
- Slack rope control (optional).
- Lifting device loading spectrum record.
- Lifting maneuver number and their total time record.
- Lifting maneuver by impulse record.
- Safety working period (SWP) control.
- Alarm activation for coming inspections (scheduled or based on total operation hours).
- Overloads' record.
- Lifting motor over-temperature control input /connection.
- Control of starting and braking lifting movement towards movement smoothness, avoiding abrupt movements and increasing lifespan of motor, brakes and contactors.



WEIGHING BOLT

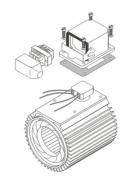


TRACTION CELL

5.12. MOTOR CONNECTORS



- Fast connection.
- Avoidance of any possible connection errors.
- Facilitates maintenance tasks and reparation.





5.13. FREQUENCY INVERTER IN LIFTING MOVEMENT

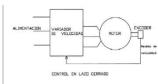


- Smooth start and brake operations.
- Starting up pick current reduction.
- Longer lifespan of different electric elements, mechanisms, motor, brake and gears ensured.
- Non-existent brake wear, due to electrical braking thanks to frequency inverter being activated afterwards the service brake.
- In case of 2 lifting at different speeds, synchronization is possible.

5.14. CLOSED LOOP CONTROL (ENCODER)

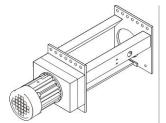


- The frequency inverter controls speed and motor turning direction.
- Safety against load slipping and braking blocks during lifting operations.

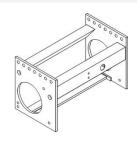


6. TYPES OF HOISTS

6.1. FIXED SUSPENDED HOIST



- Robust frame.
- Mechanical-welded structure construction and modular mechanism assembly on it.
- Specific suspended design.





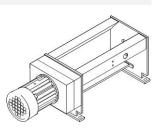
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6.2. FOOT MOUNTED HOIST



- Robust frame.
- Mechanical-welded structure construction and modular mechanism assembly on it.
- Specific foot mounted design.



6.3. SINGLE GIRDER HOIST

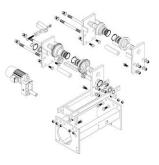


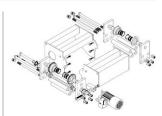
- Transmission thru shaft to wheel on opposite side of motor drive.
- Traction to wheels on both sides of the girder.
- Smooth start and stop movements
- Smooth response on adverse ambiance conditions (snow, ice, humidity).

6.4. LOW HEADROOM SINGLE GIRDER HOIST



- Designed to gain lifting height being suitable for low height installations.
- Transmission thru shaft to wheel on opposite side of motor drive.
- Traction to wheels on both sides of the girder.
- Smooth start and stop movements
- Smooth response on adverse ambiance conditions (snow, ice, humidity).







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6.5. STANDARD DOUBLE GIRDER HOIST (TUBES)

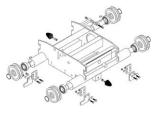


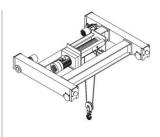
- Load uniform distribution along the girders.
- Articulated frame.
- Longer lifespan of wheels and bearings.
- Transmission thru shaft to wheel on opposite side of motor drive.

6.6. DOUBLE GIRDER CRAB WITH END CARRIAGES



- Suitable for large span trolleys.
- Allows mounting long drums for large lifting heights.
- Allows mounting two hoists in the same crab.





7. LONG TRAVEL MECHANISM

7.1. MOTOR GEARBOX

7.1.1. Motor





- Short-circuit.
- Oversized widely. Powers delivered: 0.84; 1.54; 2.5; 5 & 7.5 KW.
- Speed adjustment by frequency inverter.
- F type insulation.
- Built-in fan for motor refrigeration and increasing its lifespan.
- Cylindrical rotor.
- ED 60%.





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7.1.2. Brake



- Brake mounted on the motor.
- Electromagnetic disc brake.
- Oversized widely.
- No brake lining wear, as it only works as parking brake, once the motor is already stoped. Frequency inverter.



7.1.3. Gearbox

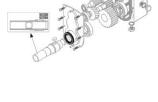


- Robust and compact, located outside for easy access.
- Straight and helicoidal toothed gears. High precision machining in case hardened steel assuring a silent and reliable work.
- Direct drive from shaft to gearbox, avoiding intermediate pieces predisposed to breakdowns.
- Gears lubricated in closed case oil bath and machined by high precision machinery.

7.2. SINGLE GIRDER WHEELS



- Transmission to wheel on opposite side of motor drive.
- Wheel traction on both sides of the girder.







7.3. STANDARD DOUBLE GIRDER HOIST WHEELS (TUBES)



- Manufactured in GGG-70 material.
- Machined in CNC centers.
- 2 wheel drive tracted by a sole cross travel motorgearbox.

7.4. HOIST WITH END CARRIAGES WHEELS

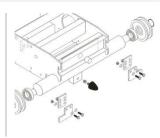


- Manufactured in GGG-70 material.
- Machined in CNC centers.
- Bearing on wheels supporting crane wheel load, whose shafts only work on torsion (not in flexion).

7.5. SAFETY ANTI-ROLL SYSTEM



- Safety against any wire rope breach due to fouling and "crossbow effect"
- Complying with Directive of Machines 2006/42. Chapters. 4.1.2.1 y 4.1.2.2.

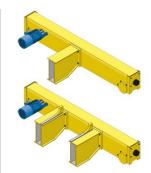


8. LONG TRAVEL MECHANISM

8.1. END CARRIAGE – TYPE OF STRUCTURE



- Tubular shaped machined structure.
- Front and top mounted connection plates, bolted.
- Easy maintenance.
- Optimal load distribution.
- Rubber buffers mounted at the extremes





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of the end carriage.

- Adjustable buffers as an option.
- Designed buffer plates for anti-derailment.

8.2. MACHINING

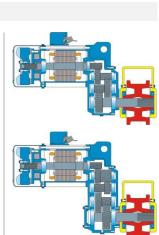


Precision machining on CNC machines, at once.

8.3. LONG TRAVEL MOTOR GEARBOX



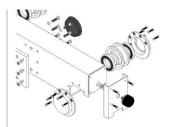
- Long travel motor gearboxes are specially designed and manufactured by GH for the actuation of mechanisms used at materials handling.
- The special conception of GH motors guarantees gradual movements in acceleration and braking, as well as silent work.
- Motor-gearboxes oversized widely.



8.4. WHEELS (BEARING - WHEEL SUPPORTING SYSTEM)



- Largely oversized.
- Manufactured in GGG-70 material (selflubricating).
- For special applications, F1252 material and induction hardening treatment available.
- Lower wheel wear in wheels channels.





8.5. MOTORS

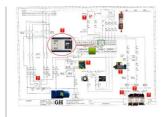
Diámetro de Rueda mm	Motor type	Gearbox type
125	VB1-60	RFS / 125-3T
160	VB2-60	RFS / 160-3T
	VB2-100	IXI 57 100-51
250	VC-85	RES / 250-3T
250	VC-110	107230-31
315	VC-85	RFS / 315-3T
515	VC-110	10/010-01
400	VD-110	RFS / 400-3T
500	VD-110	RES / 500-3T
500	VE-110	RF3/300-31
630	VE-110	RFS / 630-3T
100	VB0-60	RFS / 100-2T
100	VB1-60	RFS / 100-3T

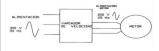
- Power calculation considering the load on one side.
- Lower wheel flaps wear due to crossings. Bigger effect on large spans.
- Largely oversized.

Reductora	Pot. Motor (Kw) F=50 Hz
tipo	3000 Var
RFS / 160-4T	0.85
RFS / 250-4T	1.5
RF3 / 200-41	2.5
RFS / 315-4T	1.5
KI3/ 313-41	2.5
RFS / 400-4T	5
RFS / 500-4T	5
RFS / 500-4T	7.5

8.6. FREQUENCY INVERTER IN LONG TRAVEL

- Speed and movement precision control.
- Crane acceleration and braking control.
- Smoothness, avoiding dangerous swinging.
- Motor protection, increasing its lifespan.
- Mechanisms lifespan increase.







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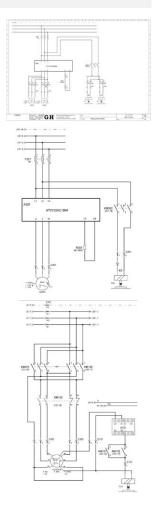
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9. CONTROL GEAR

9.1. ELECTRIC CABINET



- Design according to following standards:
 - FEM - EN 60204/32 and Directive of Machines 2006/42/CE
 - LV regulation
- High quality well known commercial electrics for protection, power and maneuver components
- Largely oversized.
- Cabinet distribution by functional blocks.
- Matching wiring diagram for easy maintenance.
- Outdoor cabinets protected against adverse weather conditions.
- Easy access for maintenance.







9.2. MAIN SWITCHES

9.2.1. Cabinet Switch



- Mandatory for maintenance, reparation or emergency stops, complying with EN60204-32 5.3.6 and REBT 4.1
- Mandatory when there's more than one crane on the same raceway, with same power supply
- Opening the cabinet resets the main switch. This switch is linkable in the power off position.

9.2.2. Power Switch



- Mandatory complying with Directive of Machines 1.6.3.
- Complying with EN 60204-32.

9.3. COMMERCIAL ELECTRIC ACCESSORIES



- Design complying with
 - FEM standard
 - EN 60204/32 and Directive of machines
 - □ LV regulation
- Commercial protection, power and maneuver well known electrical components.
- Largely oversized
- Cabinet distribution by functional blocks
- Matching cabling with electrical scheme for easy maintenance works.



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9.4. CABINET CONECTORS



- Fast connection
- Avoidance of any possible connection errors.
- Facilitates maintenance tasks and reparation.





9.5. ELECTRIC DRIVE



- Speed control and accuracy of translational operations.
- Hoist acceleration and parking control.
- Smooth movements in order to avoid dangerous swings.
- Motor protection, increasing its working life
- Increases mechanism's working life.

9.6 EARTHING SYSTEM



 Avoids electric hazard shock by keeping the exposed conductive surfaces between the trolley and the beam channeling them out of the crane to the earth complying to Machine Directive 95/63/CE clause 1.16

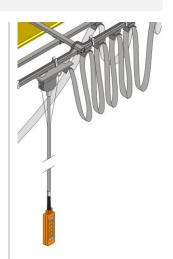


10. COMMUNICATION CONTROL

10.1. MOVEABLE PENDANT



- Allows the operator to move away of the load.
- Wired control signal (safe communication)
- Emergency stop wired according to EN 60204-32 sub clause 9.2.5.4.1.



10.2. RADIO REMOTE CONTROL





- Safe material handling assurance.
- Allowance of operation away from the load.
- Redundancy in case of failure as pendant is available too.
- Equiped with mandatory light signal complying with EN15011 standard clause 5.7.4.





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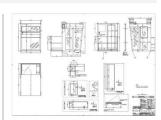
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10.3. FIXED CABIN





- Located in the side or the center of the beams.
- High working area visibility.
- Comfortable steering position.
- Ergonomical seat.
- Air conditioning.





10.4. CRAB UNITED CABIN



- Robust tightened hanging from the trolley
- Improves visibility and maneuver reach.
- Comfortable steering position.
- Ergonomical seat.
- Air conditioning.

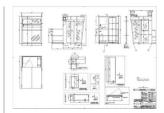




10.5. MOBILE CABIN



- Mobile to increase the visibility and maneuver reach.
- Comfortable steering position.
- Ergonomical seat.
- Air conditioning.







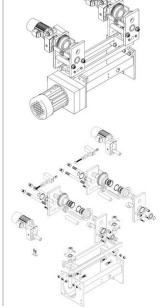
11. CRAB TYPE OPTIONS

11.1. SINGLE GIRDER SLEWING HOIST



- Suitable for curved thread raceway at single girder solutions.
- Double motor drive to ensure traction.
- Double articulation (reduced required turning radius).





11.2. LATERAL GIRDER RUNNING CRAB



 Special designed to obtain an optimized reach at one side of the building.

11.3. DOUBLE GIRDER TURNING CRAB WITH ONE HOIST AND 2 HOOKS



- Load handling with two hooks allowance.
- 300° turning able crab with buffers allowing a smooth and safe material handling.
- Higher load stability ensured
- Specially conceived to handle long length loads.



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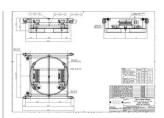
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11.4. DOUBLE GIRDER TURNING CRAB WITH TWO HOIST





- Load handling with two hooks allowance.
- 300° turning able crab with buffers allowing a smooth and safe material handling.
- Higher load stability ensured
- Specially conceived to handle long length loads.
- Bigger distance between hooks can be reached than the previous option.





12. STRUCTURE AND MECHANICAL OPTIONS

12.1. MOTOR PROTECTION ROOFS



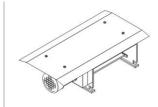
 Protects the mechanism against adverse weather conditions.



12.2. TROLLEY PROTECTING ROOF



 Protects lifting equipments' traslation mechanism against adverse weather conditions.





12.3. ELECTRICAL OUTLET PLATFORM



 Electrical outlet maintenance platform Access

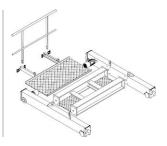
12.4. ACCESS PLATFORM FOR DOUBLE GIRDER STANDARD HOIST



 Access platform for maintenance and reparation of trolleys equipment ensuring operators' security

12.5. ACCESS PLATFORM FOR DOUBLE GIRDER CRAB WITH END CARRIAGES

 Access platform for maintenance and reparation of trolleys equipment ensuring operators' security



12.6. PLATFORM ACCESS DOOR



 Platform Access door including a safety system that stops the crane when open.



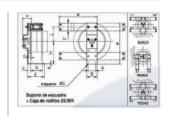
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12.7. SPRING WINDER



Electrical spring winder



12.8. SIGNS AND SENSE INDICATORS



- Pictograms pointing coherently movement directions according to the remote control or pendant.
 - Machine marking complying with 2006-42 1.7.3 Security Directive





12.9. EQUIPMENT LABELLING



- Equipment marked according to Machinery Directive chapter 1.7.3
- Pictograms pointing coherently directions according to the controls.

12.10. LOCKING DEVICES



 Security locking devices for outdoor cranes complying with 25/63 CE 3.2 norm and 2006/42 CE chapter 1.31



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12.11. HOOK WITH LOCK



Manual hook lock to avoid its rotation

12.12. SINGLE GIRDER DIVIDED CRANES

- Robust screw tightened union designed.
- Plays important role in suitability for transportation

12.13 DOUBLE GIRDER DIVIDED CRANES

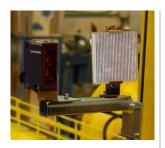
- Robust screw tightened union designed.
- Plays important role in suitability for transportation



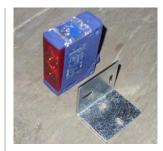
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13. ELECTRICAL OPTIONS

13.1. ANTI COLLISION CELL



- Safety measurement for cranes in the same raceway.
- Detection and full stop. Up to 14 m reach.
- Detection and slow speed approach when both cranes are close enough.
- According to 95/63 CE clause 3.2 standard and Directive of Machines 2006/42 CE clause 4.1.2.





13.2. WEIGHING INCLUDING DISPLAY



Visualization of the load handled by the crane.

13.3. WEIGHT SHEAVE



 Weight display on the hook showing the load handled by the crane.

13.4. SUMMING LOAD DEVICE



 Load control in two or more hooks to avoid exceeding crane's SWL.

13.5. FULL STOP LOAD DETECTOR



- Object detector by infrared optic system.
- Protection against mutual interferences
- Robust plastic housing.
- Adjustable timer
- Complying with 95/63CE 3.2 and 2006/42 CE Directive 4.1.2.6 Chapter.



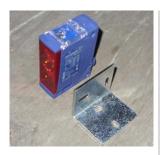


13.6. EMERGENCY BUTTON



- Emergency button guaranteed by wired cable.
- Complying with 95/63CE 3.2 and 2006/42 CE Directive 4.1.2.6 Chapter.

13.7. ZONE LIMITATION INCLUDING SHUNT FOR APPROACHING MANEUVER



- Infrared optical sensor area detector
- Protection against mutual interferences
- Robust plastic housing.
- Adjustable timer
- Complying with 95/63CE 3.2 and 2006/42 CE Directive 4.1.2.6 Chapter

13.8. RADIO REMOTE CONTROL





- Safe material handling assurance.
- Allowance of operation away from the load.
- Redundancy in case of failure as pendant is available too.
- Equiped with mandatory light signal complying with EN15011 standard clause 5.7.4.





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13.9. OUTDOOR SPOTLIGHT PROJECTORS



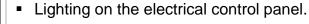


- 500 W Quartz lodine projector under the beam.
- 400 W Halide in the trolley.
- 400 W Halide in the beam.





13.10. CABINET LIGHTING



• Eases maintenance in dark areas.



13.11. MONOPHASE PLUG



 plug installed in the panel appropriate for maintenance work (220V)

13.12. HORN



 Compulsory according to 15011 norm chapter 5.7.5. To ensure the control of the load when the operator is away from it.





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13.13. TIME COUNTER



 Electronic hour counter, for safe working period and work maintenance.

13.14. ANEMOMETER WITH ACOUSTIC AND VISUAL ALARM



- Anemometer to measure the air speed on outdoor cranes.
- Acoustic and visual notice of control system activation.

13.15. ACOUSTIC BUZZER



Acoustic motion buzzer

13.16. FLASHING LIGHTS



Motion flashing light



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13.17. CONTACT THERMIC PROBES



Contact thermic probes protection as an option to prevent motor overheating.

13.18. PTC THERMIC PROBES



PTC thermic probes protection as an option to prevent motor overheating.

13.19. HEATER CABLES



 Avoids condensation in wed zones and prevents loss of insulation.





- For residual electrical current in the raceway avoiding damaging on other components such as wheels and bearings.
- Complying with Machine Directive 95/63/CE Chapter. 1.16

13.21. CRANE GROUND BRUSH



- For residual electrical current in the raceway avoiding damaging on other components such as wheels and bearings.
- Complying with Directive of Machines 95/63/CE Chapter. 1.16









13.22. CROSS TRAVELLING INVERTER CONTROLLED DRIVE



- Speed Control and movement accuracy
- Crane acceleration and braking control
- Smooth movements avoiding dangerous swinging.
- Protects the motor, increasing its working life
- Increases working life of the mechanism.



13.23. LONG TRAVELLING TROLLEY INVERTER CONTROLLED DRIVE



- Speed Control and movement accuracy
- Crane acceleration and braking control
- Smooth movements avoiding dangerous swinging.
- Protects the motor, increasing its working life
- Increases working life of the mechanism.



13.24. TURNING INVERTER CONTROLLED DRIVE



- Speed Control and movement accuracy
- Crane acceleration and braking control
- Smooth movements avoiding dangerous swinging.
- Protects the motor, increasing its working life
- Increases working life of the mechanism.





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13.25. COLLECTORS



- Feeding collectors for enclosed type power lines.
- Feeding collector for isolated type power lines.





13.26. ANTICOLLISION CELL FOR AN EXISTING CRANE



- Infrared optical sensor area detector
- Protection against mutual interferences
- Robust plastic housing.
- Adjustable timer
- Complying with 95/63CE 3.2 and 2006/42 CE Directive 4.1.2.6 Chapter

13.27. FLASHING LIGHT



Turning flashing light



13.28. VAHLE LINE



Enclosed type power line.





14. MANUFACTURING SITES

Industrias Electromecánicas GH, S.A. is a family owned business group (nowadays known as GH Cranes & Components), founded more than 50 years ago in Beasain, Gipuzkoa.

GH main business scope is manufacturing hoists, cranes, kits and its components covering a wide range of products such as Gantry Cranes, Semi Gantry Cranes, JIB Cranes among others including other lifting equipment.

GH main manufacturing facilities are located in Spain - Beasain (Gipuzkoa), Alsasua and Bakaikoa (Navarra)- and other it counts with manufacturing, sales, distribution and maintenance sites in more than 50 countries.

GH has more than 300 employees in Spain and more than 600 worldwide with a weekly production capacity of 50 standard cranes, 1 special crane, 2 gantry cranes, 40 kits, 0,5 travelifts, covering both standard and tailor made solutions.

