



Alabama Port Authority
Requisition and Proposal

Project Name 2022 Pinto Crane Buckets

Project No. 10986 Task No. 02

To: **Prospective Bidders**

Date: July 2022

Please procure the following and deliver to the address below:

<u>Delivery of Proposal:</u> Alabama State Port Authority (ASPA) Location identified below in Note #1	<u>Delivery of Performance of Work:</u> Alabama State Port Authority Pinto Island Terminal 910 Dunlap Dr. Mobile, AL 36602
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Description of Work
<p>This Requisition solicits proposals to provide materials, labor and supervision necessary to manufacture two (2) self-contained hydraulically powered material handling buckets for gantry slab handling cranes, at the Alabama State Port Authority (ASPA) Pinto Island Facility located in Mobile, Alabama. All work shall be in accordance with the requirements stated herein, Scope of Work Specifications, Reference documents and drawings, Insurance Requirements and applicable State of Alabama and Federal Laws.</p> <p>The intent of the Contract is to provide for the manufacture, supply and delivery, complete in every detail, of whole, fully operational and functional units. The work consists principally of providing bonds, labor, materials, tools, equipment, transportation, insurance, supervision and incidentals required to completely manufacture and deliver two (2) self-contained hydraulically powered material handling buckets. The buckets will be installed on existing gantry cranes which currently unload steel slabs from ships utilizing magnetic beam spreaders. The existing gantry cranes operate on a near continuous basis. It is the Contractor's responsibility to verify all dimensions and site conditions essential for the successful completion of the work. The Contractor shall not be entitled to any additional compensation for any work or expense resulting from the neglect of verifying all existing site conditions.</p> <p>All Contractors submitting bids are to carefully examine the site of the proposed work and thoroughly review the contract requirements prior to submission of a bid proposal. Each Bidder shall satisfy oneself as to the character, quality, and quantities of work to be performed, and as to the requirements of the proposed contract. The submission of a proposal shall be proof that the bidding Contractor has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed Contract.</p> <p>The bidder is required to submit a delivery schedule with the bid. All items as shown on the referenced drawings, and as specified, shall be completely delivered to the project site by the supplier in an area to be determined by the Owner. The successful bidder will be required to complete the delivery under the contract per the dates outlined in their submitted delivery schedule. Failure to deliver according to the submitted delivery schedule may, at the discretion of the Owner, initiate liquidated damages in the amount of \$1,000.00 per calendar day, exclusive of Sundays and National holidays.</p> <p>Contractors are encouraged to visit the site prior to bidding. All bidders without proper access credentials must contact the project manager at least 24 hours in advance to set up an escort into the facility. Electing to not visit the site before bidding will not relieve the prospective bidders from the previously stated requirements regarding the submission of a proposal.</p>



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The work performed under this contract shall not commence until the Contractor has submitted a Performance Bond and Certificate of Insurance in an acceptable form. Performance Bond shall be in an amount equal to 100% of the contract price; Certificate of Insurance shall be as per the attached requirements and countersigned by a licensed resident agent in the State of Alabama.

Bids can be accepted only from Manufacturers exhibiting a minimum of ten (10) years of experience in the design, fabrication, and assembly of **high-quality self-contained hydraulically powered material handling** buckets for industrial cranes. All bidders shall include in their proposal evidence of meeting this requirement.

The Contractor shall comply with all Federal and State laws, local ordinances and regulations, and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work.

IMPORTANT NOTICE TO BIDDERS REGARDING ACCESS TO ASPA RESTRICTED FACILITIES:

ALL individuals doing any work on this project, including operators, supervisors, maintenance personnel, providing fuel, truck drivers, etc., must have a TWIC Card, ASPA Badge, and an ASPA Vehicle Decal with no exceptions. For information, ASPA's access policy is provided on the ASPA website and in the link below.

<https://www.alports.com/port-access/>

IMPORTANT NOTICE TO BIDDERS REGARDING EMPLOYMENT PRACTICES:

Effective October 1, 2011, the Beason-Hammon Alabama Taxpayer and Citizen Protection Act ("the Act") requires that any business entity contracting with or providing any grant or incentives to the state, including the Alabama State Port Authority, certify compliance with the Act. All Bidders must certify such compliance by executing the enclosed Certificate of Compliance and returning it to the Alabama State Port Authority with your bid package along with proof of the contractor's enrollment in the e-verify program. The following E-Verify website link is provided for convenience:

<https://www.e-verify.gov/>.



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ALL BID PROPOSALS SHALL INCLUDE THE FOLLOWING :

Bucket Technical Details:

Bucket General Arrangement

Bucket Volumetric Capacity (Heaped Material)

Bucket Self Weight (Operational)

Power Requirements

Closing Time (in free air – no material)

Closing Time (digging through material)

Opening Time (to full open position)

Opening Time (to achieve bucket empty)

Spillplate available reductions in capacity (partial steps – total reduction) Provide details/description

Interface Beam:

Self-Weight

Beam General Arrangement

Interface Beam Stand

Self-Weight

Beam General Arrangement

Interchangeable Bowls 200lbs/ft³ - GA and Change-out description (Section 3.11)

Interchangeable Bowls 300lbs/ft³ - GA and Change-out description (Section 3.11)

Supplier recommendation on the replaceable lip feature (Section 3.10)

Provide listing of parts/components that must be purchased from the Bucket Supplier (Section 3.15)

Provide recommended Spare parts List (Section 3.15)

Detail any proposed or recommended deviations (Section 3.16)

List /describe any additional / special features of the buckets proposed (Section 3.16)

Supplier Reference projects / buckets (Section 3.2)



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Contractor's Proposal				
The Contractor hereby agrees to perform the specified work for the prices outlined in the following schedule. All items listed shall be performed in accordance with this requisition and proposal and all referenced documents. Each Item (including Options) shall include FOB delivery to ASPA Pinto Terminal in Mobile Alabama.				
Description	Est Qty	UOM	Unit Price	Total
1. Two self-contained hydraulically powered material handling buckets	2	LS	\$_____Ea.	\$ _____
2. Two Interface Beams (Section 3.8)	2	LS	\$_____Ea.	\$ _____
3. Spare Parts (Section 3.15)	1	LS	\$_____Ea.	\$ _____
<u>TOTAL BASE BID</u>				\$ _____
BID OPTIONS (FOB to Site included)				
4. Bid Option 1 - Replaceable Lips (Section 3.10)	2	LS	\$_____Ea.	\$ _____
5. Bid Option 2 - Replaceable Bowls for 200#/ft3 material (Section 3.11)	1	LS	\$_____Ea.	\$ _____
6. Bid Option 3 - Replaceable Bowls for 300#/Ft3 material (Section 3.11)	1	LS	\$_____Ea.	\$ _____
7. Bid Option 4 - Two Interface Beam Stands (Section 3.9)	2	LS	\$_____Ea.	\$ _____
<u>TOTAL BID OPTIONS 1 THRU 4</u>				\$ _____

BID ADDITIVE NOTE:

At the discretion of ASPA, Bid Options 1 thru 4 will be considered based on budgetary constraints.

NOTES:

1. Sealed bid proposals will be received via courier to the Alabama State Port Authority, 1400 Alabama State Docks Blvd, Suite 216, Administration Building, Mobile, AL 36602 by 1:30 P.M. on Tuesday, August 9, 2022. Sealed bid proposals can also be hand delivered starting at 15 minutes prior to the official bid opening at 2:00 P.M. on Tuesday, August 9, 2022 at the Alabama State Port Authority in the International Trade Center building, 250 North Water Street, 4th floor – Banquet Room, Mobile, AL. No bids will be accepted after 2:00 P.M. No faxed or electronic bids will be accepted. Conditional bids will not be accepted.



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2. Bid proposals must be submitted in sealed envelopes with the words **"Bid Document Enclosed"** clearly marked on the outside of the envelope. Sealed bids shall have the bidder's name, project name, and time and date of bid opening shown on the outside of the envelope.
3. A Bid Bond or Certified Check made payable to the Alabama State Port Authority and equal to five percent (5%) of the amount bid, not to exceed \$10,000, must accompany the Bid Proposal.
4. The proposals shall be filled in ink on the form provided herein and all blank spaces in the form shall be fully filled. The Contractor's signature shall be in long hand and the complete form shall be without interlineations, alteration or erasure.
5. All questions about the meaning or intent of the Contract documents shall be submitted to the ASPA Project Manager in writing before 2:00pm on August 2, 2022. Replies will be issued by Addenda to all parties recorded as having received the bidding documents. All addenda so issued shall become part of the Contract documents. Only questions answered by formal written addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.
6. Authority reserves the right to refuse to issue a proposal form or a contract to a prospective bidder for any of the following reasons:
 - a) Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contract in force with the Authority.
 - b) Contractor default under previous Contract with the Authority.
 - c) Proposal withdrawal or Bid Bond forfeiture on previous project with the Authority.
 - d) Unsatisfactory work on previous contract with the Authority.
 - e) Lack of competency, past experience, adequate machinery or lack of personnel.
7. Authority may make such investigations as deemed necessary to determine the ability of the bidder to perform the work, and the bidder shall furnish all such information and data for this purpose as the Authority may request. The Authority reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Authority that such bidder is properly qualified to carry out the obligations of the Contract.
8. The Owner may terminate the contract, or any portion thereof, for just cause by written notice to the Contractor. If the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed or started. No claims for loss of anticipated profits will be considered.
9. If the Contractor to whom this contract is awarded does not provide adequate service or workmanship, ASPA reserves the right to cancel the contract and re-bid this work excluding that Contractor from consideration.
10. Any questions regarding the procurement should be directed to David Wallace APTIM Port Services 251-380-1209 or email david.wallace@aptim.com or Tom Alvarez, ASPA Project Manager, at phone number (251) 441-7534 or email tom.alvarez@alports.com.
11. The right is reserved, as the interest of the Alabama State Port Authority may require, to reject any and all bids and to waive informalities in bids received.
12. The cost of all items ancillary to the project shall be absorbed into the cost of the bid items. No separate payment shall be made for these items.



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SIGNATURES

Receipt of following addendums is acknowledged:

Addendum No. _____

Addendum No. _____

Addendum No. _____

Addendum No. _____

REFERENCED DOCUMENTS

- Specifications for Two (2) Self-Contained Hydraulically Powered Material Handling Buckets – Project No.: 10986 Task No. 002 – Revision 0
- Reference Drawings
- Alabama State Port Authority – Insurance Requirements for Contract Work
- Certificate of Compliance with the Beason-Hammon Alabama Taxpayer & Citizen Protection Act

Contractor's Signature:

Contractor Company _____

Name

Title

Date

Signature of Party Originating Requisition:

Tom Alvarez
Project Manager

Date

SPECIFICATIONS
FOR
TWO (2) SELF-CONTAINED HYDRAULICALLY
POWERED MATERIAL HANDLING BUCKETS
AT
PINTO TERMINAL
MOBILE, ALABAMA
FOR
ALABAMA STATE PORT AUTHORITY



PORT OF MOBILE
ALABAMA PORT AUTHORITY

Project No.: 10986

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SECTION 3 - CRANE AND BUCKET CHARACTERISTICS (MIN. REQUIREMENTS)

3.1 GENERAL DESCRIPTION AND PERFORMANCE

The scope of these Specifications shall include but not necessarily be limited to, the design, manufacture, testing, transport, and commissioning of two (2) self-contained hydraulically powered material handling buckets complete with all necessary ancillary equipment as described in these Specifications, ready for installation on the existing slab handling cranes at Pinto Terminal in Mobile, Alabama, USA for the Alabama Port Authority, hereinafter APA.

The APA Cranes currently operate with an electro-permanent magnet system to handle steel slabs. The cranes were designed to have a “bucket mode” which can provide power (150hp at 480v) and control (110v controls for bucket open and close) through a vertical cable reel to the headblock of the crane.

The scope of supply for these specifications shall include turnkey supply of two (2) self-contained hydraulically powered material handling buckets that properly interface with the existing power supply and crane controls to permit the cranes to handle bulk materials.

The bucket volumetric sizing shall be maximized for coal handling - material density of 60 pounds/ft³.

The mechanical and electrical interface point shall be the existing headblock of the crane. A reference drawing of the existing headblock has been attached to these specifications.

3.2 SUPPLIER EXPERIENCE AND QUALIFICATIONS

The bucket supplier shall be experienced in the supply of high-quality self-contained hydraulically powered material handling buckets for a minimum of 10 years.

The proposal shall include references of similar buckets provided and points of contact.

3.3 BUCKET CAPACITY

Bucket sizing shall maximize the lifting capacity of the existing cranes – which is **65 metric tons under the headblock**. This lifting capacity includes the interface beam, bucket self-weight and heaped material.

The proposal shall provide general arrangements of the proposed bucket and interface beam which include related weights and dimensions.

3.4 REFERENCE DIMENSIONS OF EXISTING CRANES

Distance Between Rail Centers (Rail Gage)	36.576m	(120.0 ft.)
Operating Outreach From Waterside Rail to waterside normal end of travel position	45.72m	(150.0 ft.)
Height of Lift Above Rail to Underside of Headblock	31.3m	102.7 ft.)
Min. Longitudinal Clearance Between Cranes Legs	18.3m	(60.0 ft.)

3.5 PERFORMANCE AND DUTY CYCLE

The buckets and all components thereof shall be of the highest quality materials and designed / selected to meet the most rugged, uninterrupted, bulk material handling applications in extreme climatic and atmospheric conditions. The buckets are expected to be operated continuously with material handling cycles of 80-90 seconds for up to 20 hours per day during bulk material loading and unloading operations.

The proposal shall include details of the bucket performance data including closing times (with and without material) and opening times (to both fully open position and the estimated time to empty the bucket).

3.6 GENERAL OPERATING ENVIRONMENT AND CONDITION

The Supplier shall study the onerous climatic conditions at the delivery site. The site of the works in Mobile, Alabama is in an area of low and high temperatures and high humidity, which in conjunction with a salty dust-laden marine environment produces very severe corrosive conditions. The design features, all material and equipment supplied and the protective treatment of steelwork must be designed for the following conditions:

<u>Item</u>	<u>Low</u>	<u>High</u>
Electrical	-10°C	40°C
Mechanical	-10°C	40°C
Structural	-10°C	40°C

Relative humidity	Up to 99%
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The Buckets shall be designed to operate with minimum maintenance in the defined conditions, and care must be taken to ensure against overheating of the electrical and mechanical equipment, especially where exposed to direct sunlight.

3.7 BUCKET FEATURES

The bucket shall open and close in the direction perpendicular to the trolley travel motion of the crane. This is the north-south direction at Pinto Terminal and the long direction of the headblock/interface beam.

The bucket shall not rotate.

While designed to maximize volumetric capacity for 60 pounds/ft³, the bucket shall be designed to handle bulk material densities between 60 pounds/ft³ and 100 pounds/ft³ - such as coal, sand, grain, clinker or similar material.

The bucket shall include spillways/removeable spill plates that reduce the effective bucket volume in steps down to approximately 60% of the maximum capacity. The proposal shall include details/descriptions of the method proposed and the available step percentages.

Buckets shall include design features / hydraulic system interlocks/safety system(s) that inhibit bucket movement in the case of power loss or hydraulic hose failure (or similar).

All bucket lubrication points shall be easily accessible / accomplished.

Buckets shall be required to have 45 degree corners on all edges of the bucket in order to minimize sharp edges contacting the vessel/barge surfaces.

The buckets shall be equipped with four (4) lifting lugs to which shackles may be attached for suspension of clean-up bulldozers which will be placed on a barge or in a ship's hold. The assumed weight of the bulldozer shall be at least 10 LT.

3.8 INTERFACE BEAMS

Two (2) interface beams shall be provided as part of the supply of the buckets that attach to the existing headblock and include all necessary mechanical connections (likely chains) to support the bucket.

The electrical connection for power and control shall also be provided via the interface beams to the bucket from the existing connection at the headblock.

Arrangement drawings of the existing cargo beam has been provided for reference.

3.9 OPTIONAL INTERFACE BEAM STANDS

Proposal shall include optional pricing to provide self-supporting storage stands for the Interface Beams.

The stands shall be designed such that the stand will support one interface beam and will allow the stand to be transported by forklift (with and without the interface beam present).

The stand shall be arranged to support the interface beam at a comfortable working height for any maintenance work and so that all auxiliary components of the beams are supported and kept off of the ground.

The structure of the stands shall be of the same quality and meet the same general requirements for fabrication as the buckets (but regular A709 Grade 50 steel is acceptable). The protective coating shall be the same system as provided on the buckets.

3.10 OPTIONAL REPLACEABLE LIPS

Proposal shall include optional pricing to incorporate replaceable lips into the Buckets.

Supplier shall also provide recommendation on whether replaceable lips are optimal for the proposed APA operations considering the additional digging force required by this design feature.

3.11 OPTIONAL REPLACEMENT BOWLS

APA envisions heavier materials to be handled at Pinto Terminal in the future.

If feasible for the bucket being proposed, the supplier is requested to provide details on the availability and pricing for two separate sets of bowls (and any required components/hardware) that can be installed on the buckets to replace the original bowls in case heavier materials will be handled.

For purposes of the proposal, please provide details on bowls to handle both material densities of 200 pounds/ft³ and 300 pounds/ft³ based on the same bucket capacity as the base buckets.

Proposal shall provide a GA drawing and brief description of procedure required to change the bowls and any available references for such similar use of replaceable bowls.

3.12 EXISTING CONDITIONS ACCEPTANCE

The Supplier shall ascertain, by visiting and inspecting the existing Cranes at Pinto Terminal, that the existing electrical and mechanical crane interface has been considered in the design of the Buckets and that the Buckets can operate effectively and meet performance levels as intended.

3.13 BUCKET MODE OPERATION / COMMISSIONING

The Supplier shall design the buckets to interface with the power and controls of the existing APA slab handling cranes as described above.

In addition, the Supplier shall assist APA in confirming all required control interface for the buckets has been included in the Bucket Mode on the existing Cranes and shall be available to assist in the initial start-up commissioning of the buckets.

3.14 OPERATING AND MAINTENANCE MANUALS

The Supplier shall provide comprehensive operating and maintenance manuals for the buckets as part of the deliverables of the buckets.

3.15 PARTS SUPPLY - RECOMMENDED SPARE PARTS

The proposal shall include a list of any/all bucket parts/components that must be obtained from the bucket supplier directly.

The proposal shall also include a recommended spare parts list that includes a minimum of one of each part of the bucket that is not typically immediately commercially available.

The lists shall include current purchase price, lead time and whether the supplier typically maintains a supply of such component for purchase.

3.16 SPECIFICATION COMPLIANCE

While APA prefers a compliant proposal / bucket, APA also desires the benefit of the supplier's expertise. The proposal shall specifically identify any areas of proposed or recommended deviations from these specifications.

The proposal shall also identify and describe any special or additional design features that are part of the bucket proposed.

3.17 WARRANTY

The Supplier warrants that the Bucket(s) and each component thereof (including the interface beams) will be free from all defects in design, materials, equipment and workmanship, for a period of one year (this time limit does not apply to defects in design) from the delivery date of the bucket(s) to Pinto Terminal. The applicable warranty period for any replacement occurring during the warranty period will last until the later of (i) six (6) months after such replacement occurs and (ii) the remaining unused warranty period.

In the event that any part of the Bucket(s) or its components appears to be defective in design, manufacture, materials, equipment, fabrication, or workmanship within the period of

warranty, Owner will immediately notify the Supplier in writing or by email of the alleged defect or failure. The Supplier will thereupon promptly correct any defect or failure without cost to Owner, or will authorize Owner to make, for the Supplier's account, such repairs or replacements as may be necessary to correct the defect or failure. No allowance will be made for any repairs or replacements made by Owner, or others, unless and until Owner has given the Supplier notice of the alleged defect or failure prior to the commencement of such repairs or replacements. However, if the defect is such as to interfere with Owner's operation and use of the Bucket(s), Owner may, after notification, proceed forthwith to repair the same at the expense of the Supplier.

For this warranty to be enforceable by Owner against Supplier, with respect to any repair or replacement, such repair or replacement must not have been necessitated as a result of the Bucket(s): (i) not having been maintained by Owner to the reasonable standards provided by Supplier to Owner in writing, (ii) not having been operated and maintained by competent personnel of Owner, (iii) having been overloaded or stressed beyond Specifications or (iv) having suffered casualty by force majeure, negligence of any party, or wanton, military or unlawful act. This warranty does not extend to consumables.

In the event later inspection demonstrates that any defect of failure was not due to the Supplier's design, or to any work performed, or to any materials or equipment furnished, pursuant to this Agreement, the costs of such repairs, or replacements, whether made by the Supplier or others, will be for Owner's account, and Owner will further reimburse the Supplier for its substantiated necessary costs incurred by the Supplier in making its inspection.

SECTION 4 - TECHNICAL REQUIREMENTS

4.1 STANDARD SPECIFICATIONS

Reference to Standards or any other Mandatory Documents in these Specifications relates to their latest issue current at the time Contract Execution.

All work shall conform to the current requirements of the American Welding Society AWS D1.1, "structural welding code" (latest edition) and the American Institute of Steel Construction (AISC) "specification for structural steel for buildings" including applicable sections of both for dynamically loaded structures. All work shall be performed in accordance with all applicable local and state codes and regulations as well as the latest edition of OSHA Safety & Health Regulations.

Hydraulic work shall comply with National Fluid Power Association (NFIPA), Joint Industrial Conference (JIC), and Society of Automotive Engineers (SAE) standards and practices.

Electrical work shall comply with NEC and other applicable local codes, agencies or bodies having jurisdiction at the Delivery Site.

If there are no standards specifically prescribed in this Specification for the fabrication, installation, or commissioning of a particular system, component or equipment, the highest industry standards shall apply as typically provided by internationally recognized and reputable Supplier(s) supplying equipment equivalent to those set out in this Contract. This includes the incorporation or application of any design work, materials, mechanical parts, hydraulic parts, structural steel, electrical parts and workmanship.

In cases of conflict between the referenced standards, the more stringent requirements shall govern.

4.2 WORKMANSHIP

All work shall be done in a thorough workmanlike manner and shall follow the best modern engineering and manufacturing practices used in the design and manufacture of high-grade machinery. All work shall be performed by workmen skilled in their particular trades.

All welders, welding operators and tackers shall be certified and qualified for the materials, processes and type of weld being performed, by an independent testing laboratory within six (6) months prior to performing any work. The qualifying standard shall be AWS. The certifying laboratory shall be approved by APA.

Certification of the qualifications of each individual welder, tacker and welding operator, and each procedure shall be furnished to APA's Engineer upon request. Welds installed using unqualified procedures or welding performed by non-certified welders shall be subject

4.4 INSPECTION

Quality control shall be the responsibility of the supplier and he shall be capable of performing all necessary inspections. The suppliers' inspection reports shall be furnished to APA upon request.

The supplier shall permit inspection visit(s) by APA or APA's representatives during the course of fabrication/manufacturing upon request by APA.

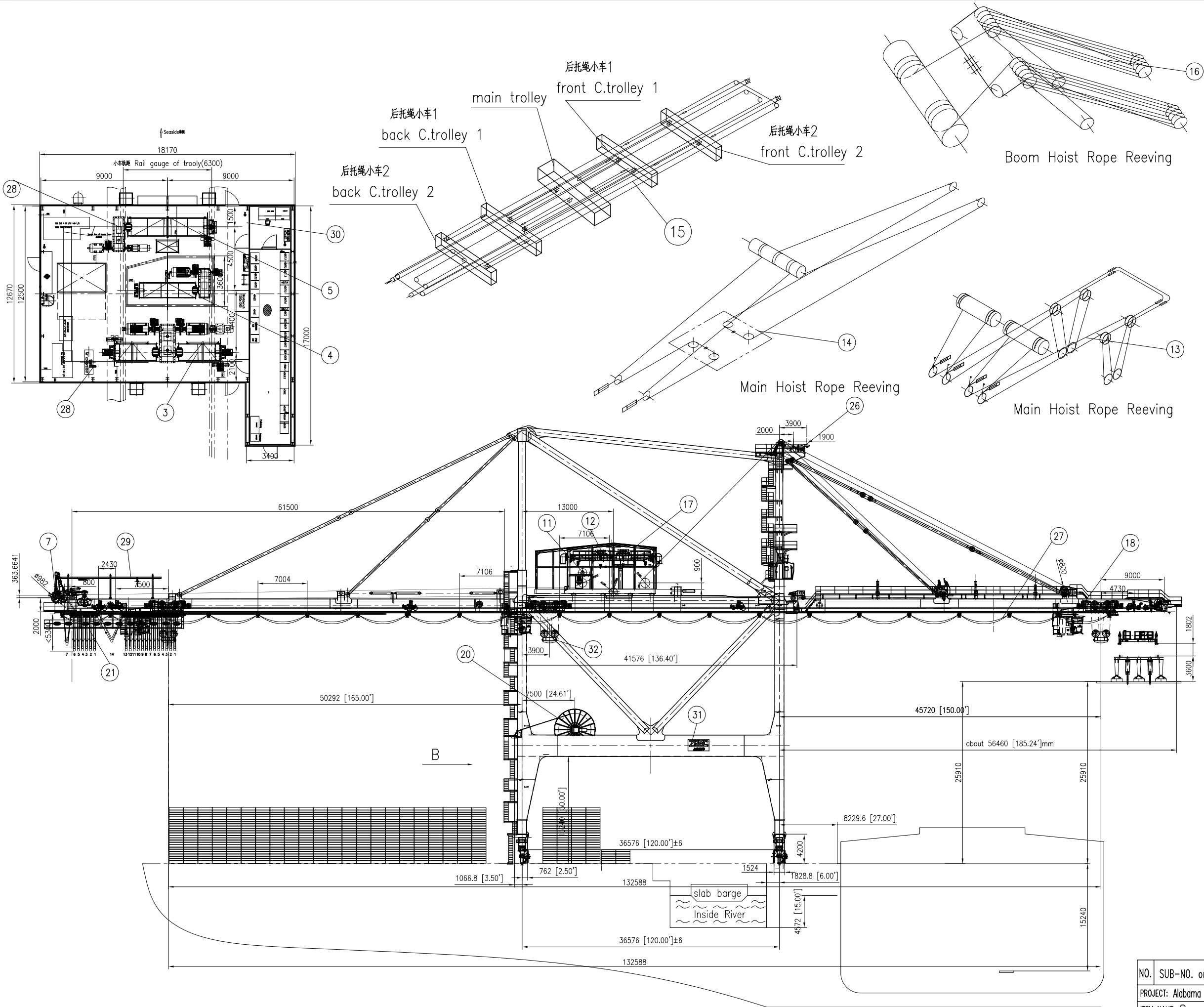
Weld inspection shall be the responsibility of the supplier and procedures shall be submitted to APA for approval upon request.

All visual and non-destructive weld inspections shall be performed by qualified inspectors and in accordance with AWS D1.1 (or APA approved equivalent) including provisions for dynamic structures.

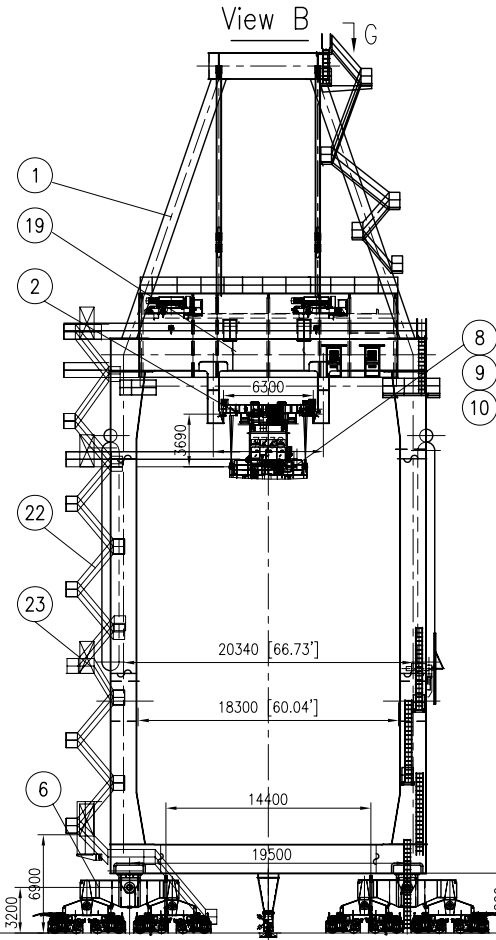
4.5 MINIMUM SUBMITTAL REQUIREMENTS

The supplier shall provide updated project status schedules not later than the 5th of each month from beginning of the project until delivery of the buckets and any optional items to APA.

Sufficient arrangement drawings and supporting calculations for the buckets and any optional items shall be provided to permit APA to confirm compliance of the proposed buckets to these specifications, proper bucket system operation (structural, mechanical, hydraulic and electrical) and proper interface with the existing slab handling cranes and proposed Pinto operations.



	Rated Load		
Speed 速度	Main Hoist 主起升	Hoisting 起升	Rated Load 36t 80m/min
			Empty Spreader(空吊具) 160m/min
		Lowering 下降	Rated Load 36t 80m/min
			Empty Spreader(空吊具) 160m/min
	Load under hook		51MT
	© Intermittent Loads: The trolley travel limited between landside rail and 100ft waterside of the rail.		
	Intermittent Loads:		Cargo Beam 78 MT
			Fork lift load 62 MT
	Trolley © Rated Load		240m/min
	Gantry (大车)		45m/min
Boom Hoisting Time 俯仰时间		0°~80° =<5min	
Magnet Beam Turning Device		0° to 90 ° and 90° to 0° 90° in 15 seconds	
Motors 电机	Main Hoist (主起升)	2x535kw 900/1800rpm	
	Trolley (小车)	355kw 1750rpm	
	Gantry (大车)	16x20kw 1750rpm	
	Boom Hoist (俯仰)	200kw 1750rpm	
Rail Gauge (轨距)		35.67m	
Out reach (外伸距)		53.34m	
Back reach (后伸距)		59.43m	
Height of lift 起升高度		Above rail (轨上)	25.91m
		Total (总高)	41.15m



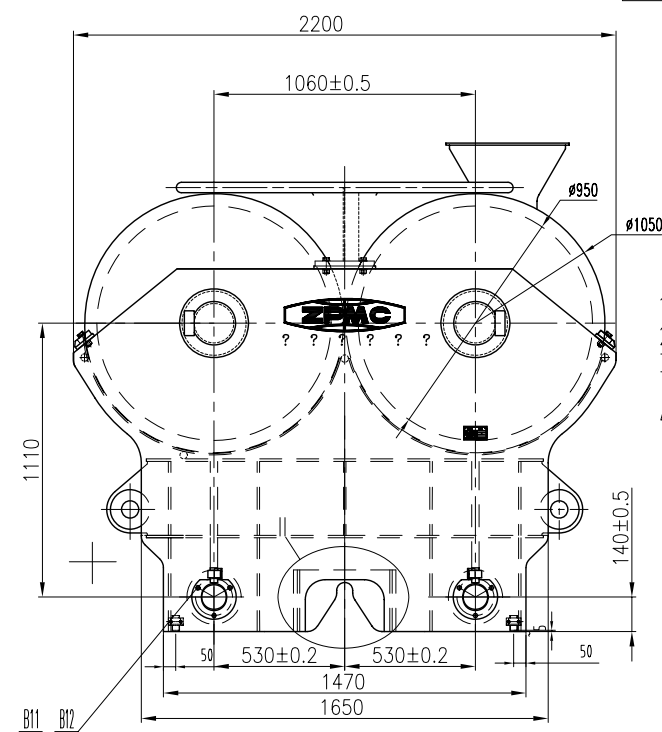
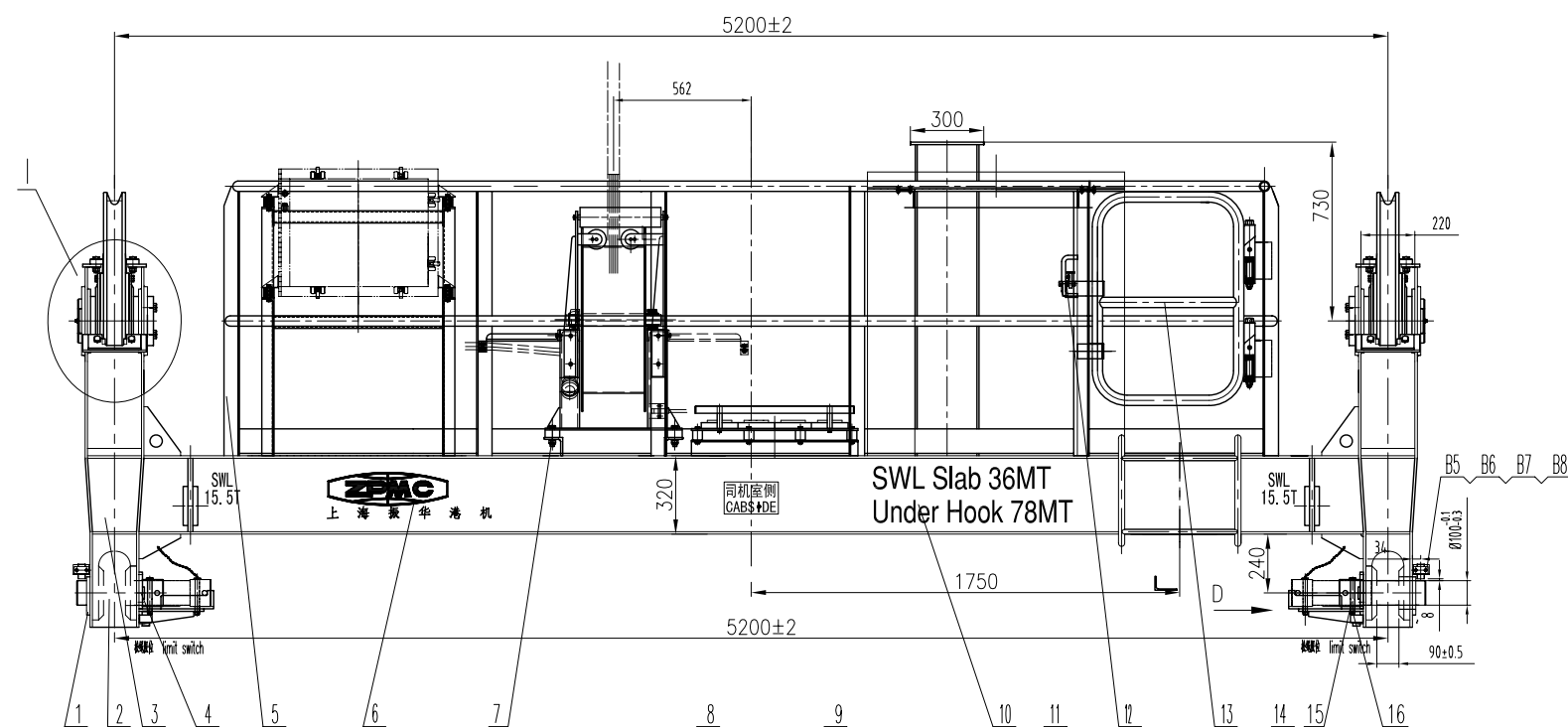
allowable wheelload	operating	stowed
landside(T)/per wheel	66.06	89.3
waterside(T)/per wheel	89.28	129.4

Tie down load	
landside(T)/per corner	100T
waterside(T)/per corner	200T

Stowage pin load	
landside(T)/per rail	270T
waterside(T)/per rail	205T

NO.	SUB-NO. or STDD	NAME & SIZE		MTRL or STYLE	QTY/set	each total		NOTE
						WEIGHT		
PROJECT: Alabama ASAP 36T Steel Slab Crane				DESIGN STAGE:		SCALE: 1:250		
ITEM NAME: General arrangement 总图布置				DRAW NO: SM04A00				
ZPMC	DSGN			TRACE			APP.	
	DRAW			CHCK			Q'TY/SET	
	CHCK						SET/CRANE	

Rev. No.	description	date	sign
01		2008.08.15	chenwei
02		2008.09.16	chenwei
03		2008.10.08	chenwei
04		2008.11.13	chenwei
05		2008.11.17	chenwei

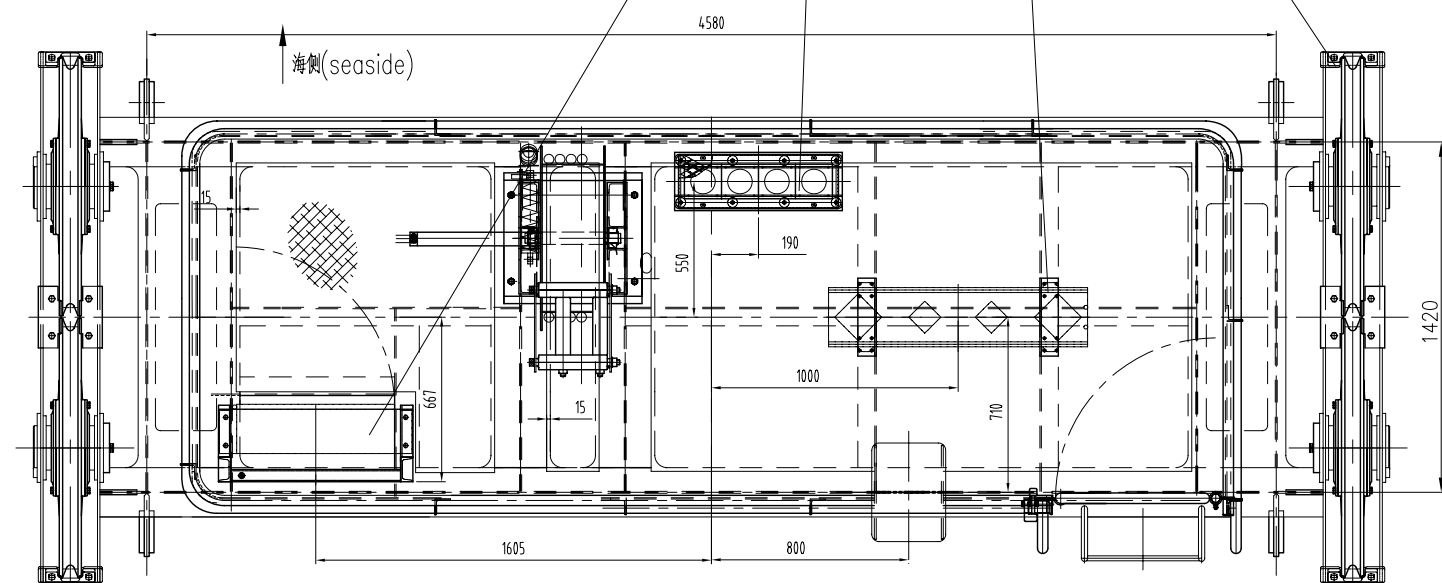
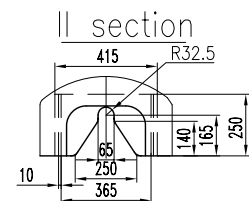


技术要求

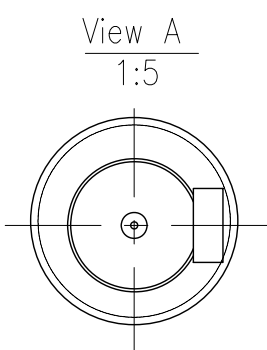
1. 按公司规定的本项目油漆工艺进行油漆处理。
2. 紧固件安装紧固后涂油漆保护, 颜色同所在部位构件。
3. 安装时, 应保证滑轮罩内径与滑轮外径之间 2.5mm 的间隙。
4. 各转动部件在需要润滑处加注足量的润滑脂。

Technical Requirements

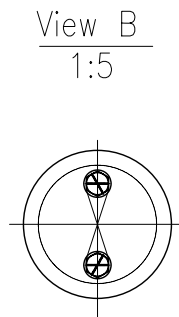
- 1.The headblock shall be painted according to ZPMC painting
- 2.The fixed parts shall be painted.
- 3.After assembly,there was a clearance of only 2.5mm between sheave guard side and sheave side.
4. All running components shall be filled with grease oil.



司机室侧(cabside)

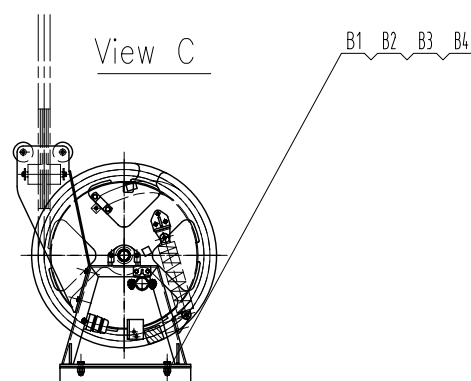


View A
1:5

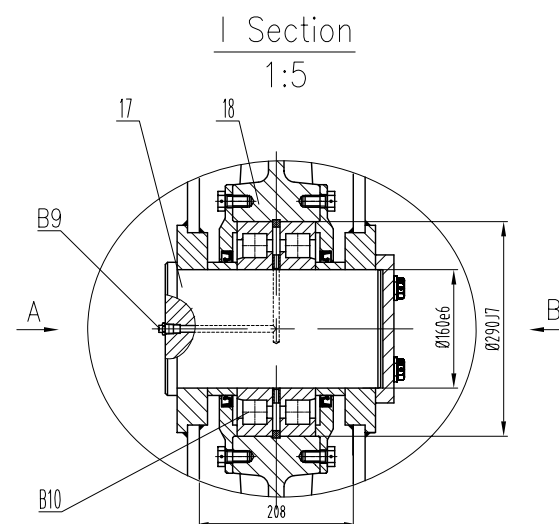


View B

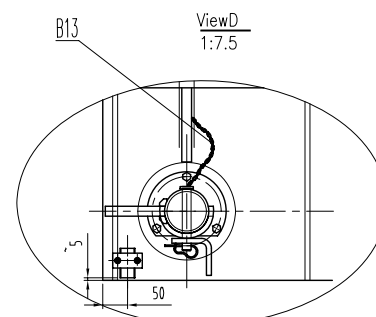
1:5



View C




1 Section
1:5

ViewD
1:7.5

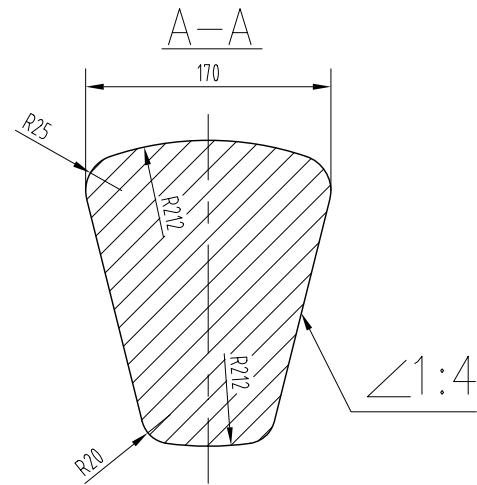
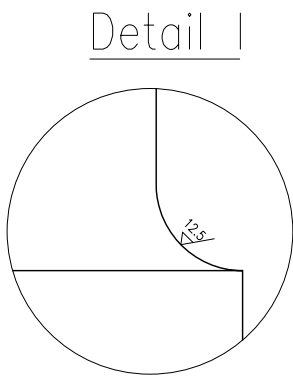
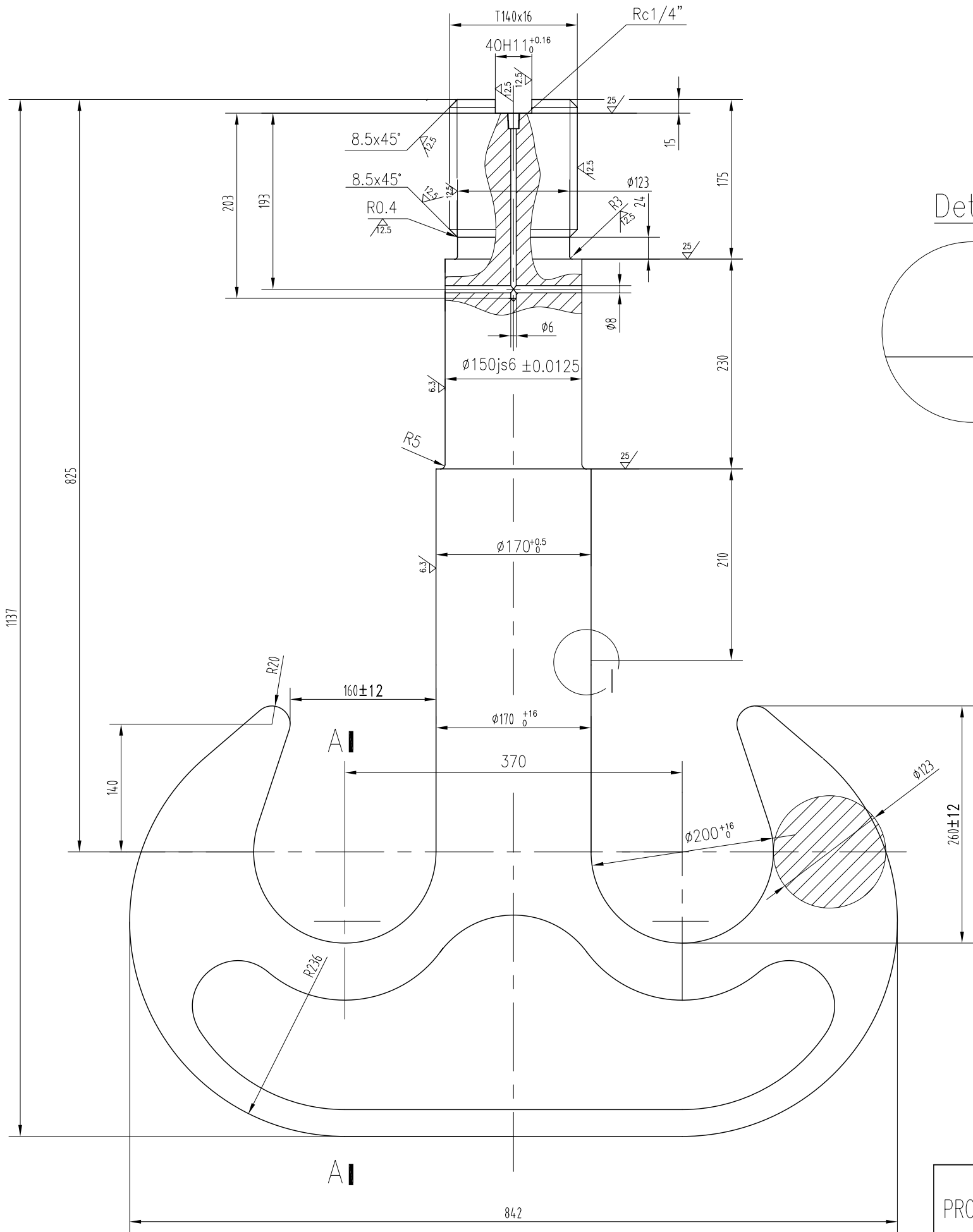
推荐扭矩表(N
recommend
torque tabl

B11	50
B8	12
B1与B3	248

B13		ø6不锈钢小链条 chain		4	3	12	L=400mm
B12	GB97.2-85	垫圈 10 washer	A140	46	0.01	0.46	
B11	GB5782-86	螺栓 M10x50 bolt	A4-70	32	0.03	0.96	
B10	GB/T284-94	轴承 NJ232E Bearing		8			ø160mm/20048
B9	JIS B0203	耐压机 T1/4" Grease fitting		4			材质 Stainless
B8	GB70-85	Bolt M6x55 螺栓 M6x55	A4-70	12			
B7		开闭锁限位		6			Provide by electric
B6		螺栓 SP430-PP-DP-ASclamp		6			
B5	Nord-Lock	耐磨垫圈 NL6D washer		24枚			
B4		ø1.5不锈钢丝 Steel wire		若干			
B3	GB32.1-88	六角螺栓 Bolt M16x75	10.9级 Class 10.9	4			达克罗 dacromet
B2	NORDLOCK	垫圈 washer NL16D		8对			达克罗 dacromet
B1	SPL6177.1	施必牢螺母 Nut M16	10级 Class 10	4			达克罗 dacromet
20	SM04A9611	电气原理图 Principle of Electric					Provide by electric
19	SM04A9610	ELECTRIC AND HYDRAULIC WIRE LAYOUT 电气综合布置图	组合件 Assembly	1	12.9	12.9	
18	ZMHL950-Ab	sheave assembly 滑车装配	组合件 Assembly	4	278	1112	材质 Borron
17	HLZP-Ac	shaft assembly 滑轴装配图	组合件 Assembly	4	53.5	214.0	材质 Borron
16	TL0113a	Spring latch 弹簧锁头	1Cr18Ni9Ti	4	0.04	0.16	材质 Borron
15	SM04A9609	Lockpin 销轴	2Cr13	4	0.3	1.2	
14	HLDB950-H	Sheave guard 滑轮罩	焊接件 Weldment	2	8	16	材质 Borron
13	Men-LGa	Door 门	组合件 Assembly	1	16	16	材质 Borron
12	Lock-00-Ra	Lock 右锁	组合件 Assembly	1	2	2	材质 Borron
11	SM04A9608	Anti-sway detection 防误装位置	组合件 Assembly	1	4.2	4.2	硬皮
10	SM04A9607	Sign 标识	组合件 Assembly	1			
9	LAMP00-00	LAMP 指示灯装配	Assy's	1	27	27	材质 Borron
8	DQ0100	junction box 电气接线箱	组合件 Assembly	1	61	61	材质 Borron
7		Cable attachment 电缆固定夹或成	组合件 Assembly	1	150	150	Provide by sterman
6	SM04A9606	structure 上夹结构	焊接件 Weldment	1	1113.2	1113.2	
5	SM04A9605	handrail 护栏	焊接件 Weldment	1	191	191	
4	SM04A9604	bushing II 衬套II	焊接件 Weldment	4	3.44	13.8	
3	SM04A9603	Sheave box 滑车箱	焊接件 Weldment	2	756.6	513.2	
2	SM04A9602	Shaft 轴销	组合件 Assembly	4	21.5	86	
1	SM04A9601	bushing I 衬套I	45	4	3.4	13.6	

NO.	SUB-NO. or STDD	NAME & SIZE	MTRL or STYLE	QTY/set	each	total	NOTE
						WEIGHT	
PROJECT: Alabama ASPA 36T Steel Slab Crane			DESIGN STAGE:		SCALE: 1:15		
ITEM NAME: Headblock吊具上架			DRAW NO: SMO4A9600			PROJ. 	
ZPMC	DSGN		TRACE		APP.	Assy's	
	DRAW		CHKC		SET/CRANE	1	
	CHCK		VER.		WEIGHT	4.55T	

Rev. No.	description	date	sign
01	Concept design	2008.10.25	Gu Feng



other

技术要求

- 吊钩表面应光洁,不得有裂纹,折叠,过烧等缺陷.
- 吊钩正火至硬度:HB123~156.
- 锻造时于吊钩尾部应留试棒,在试棒横截面内,距外表面三分之一半径处切取纵向样坯,并应提交化学成份报告.
- 每件作拉力试验,拉力为156T,拉力试验后,应于钩头部位(锻造成形部分)进行100%磁粉探伤,不得有裂纹及其他缺陷.
- 拉力试验后,吊钩柄部机加工部位应进行100%超声波探伤,不得有裂纹,白点,夹杂物等缺陷,对于允许存在的夹杂物等缺陷,应符合下列规定:单个缺陷,其当量直径应不大于5mm;分散缺陷,其当量直径应不大于3mm,且分布长度不超过30mm.

Technical requirements:

- The surface be smooth and has no flaw.
- Normalize:HB123~156.
- When forging, a test bar should be kept,where a sample piece(1/3 radius from the surface and) should be obtained and its chemical component should be submitted.
- The test load should be 156T ,after test, the hook (where it is forged) should be MT100%, and has no flaw.
- After test load, the handle(where it is machined) should be 100%UT and has no flaw. As to some permissible mixing, if it is single, the equivalent diameter should be no more than 5mm. if the mixing is dispersed, the equivalent diameter should be no more then 3mm,the dispersed diameter should be no more than 30mm.

PROJ.	NO.	SUB-NO. or STDD		NAME & SIZE		MTL or STYLE	WEIGHT	Q'TY/SET	SCALE	
		SM04A1301		ramshorn hook 双钩		DG20Mn	260	1	1:5	
	ZPMC		DRAW		TECH.		TRACE			
			CHCK		STDD		CHCK			

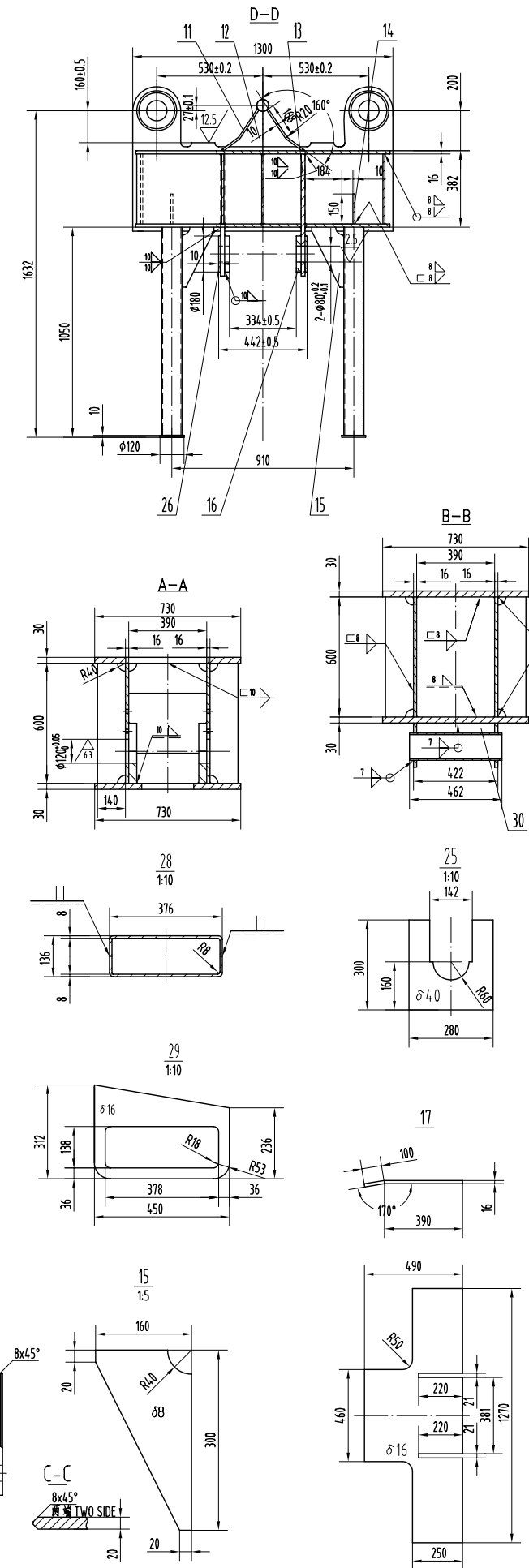
Technical drawing of a mechanical part, showing three detail views (Detail I, Detail II, and Detail III) and a main cross-sectional view (F-F).

Detail I (1:3): Shows a cross-section of a tapered part with a fillet. Dimensions: 30 (top radius), 16 (bottom radius).

Detail II (1:3): Shows a cross-section of a tapered part with a fillet. Dimensions: 16 (top radius), 16 (bottom radius), 56 (total width), 30 (bottom radius).

Detail III (1:3): Shows a cross-section of a tapered part with a fillet. Dimensions: 24 (top radius), 16 (bottom radius), 10 (bottom radius).

Main View (F-F): Shows the cross-section of the part. Dimensions: 80 (total width), 12.5 (fillet radius), $\phi 10_{-0.12}^{+0.11}$ (hole diameter), 200 (total height), 350 (total height), 220 (bottom width), 16 (bottom radius), 155 (fillet radius), 10 (fillet radius), 30 (fillet radius), 150 (fillet radius), 20 (fillet radius).




技术要求

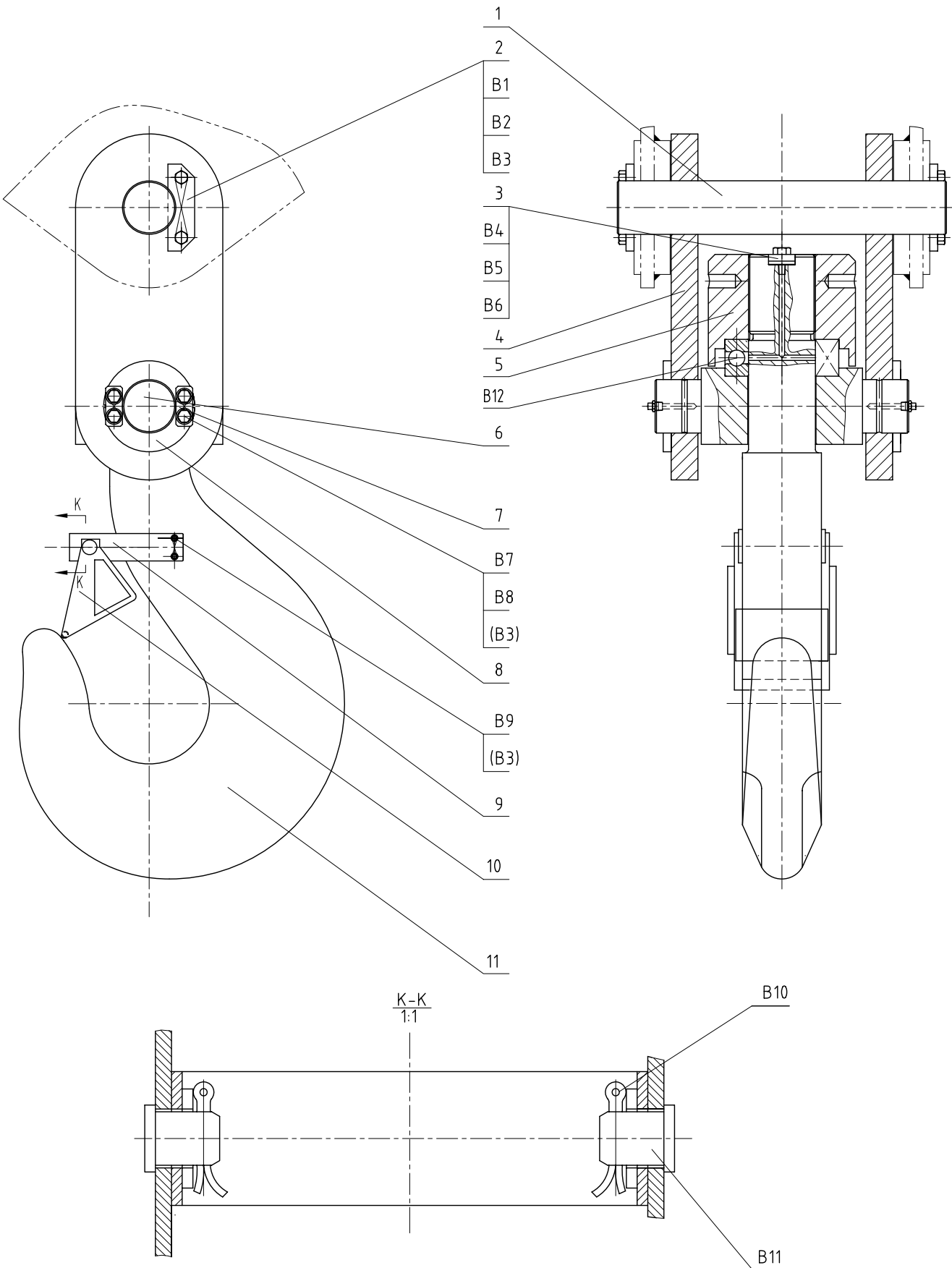
1. 所有对接焊缝除根部外必须做100%UT+10%RT探伤,焊缝质量应符合GB3323-82中的II类
2. 箱体表面平整,在1米内不得凸出或凹进5毫米,全长不得超过3毫米
3. 所有外廓切面应打磨,棱边倒R2的圆角,粗糙度为:
4. 未注焊缝按高按较盖板厚度的0.8
5. 焊缝包角
6. 上部四角4-φ102孔中心线需平行,高低差不得超过±0.5
7. 制作时底盖严格保证2个之间的中心距离S200±1

Technical Requirement:

1. All welding seam(except View II) must be under 100%UT+10%RT check, according to GB3323-82 II.
2. Surface should be flat, inequality 15mm in 1m, no more than 3mm all.
3. All cutting surface should be burnished, fillet R2, coarseness should be:
4. The height of the no-labeled welded seam is the 0.8 times of the connecting plate thickness.
5. All welding seam continue
6. The center of upper four φ102 holes should be parallel, tolerance in ±0.5.
7. Ensure the key dimension S200±1 when fabricating.

30		φ60x100	Q235	2	222	4.4	
30		-8x102x390	A709-50-2	2	2.5	5	
29		-16x312x450	A709-50-2	4	6	24	缺断 this drawn
28		-8x462x486	A709-50-2	4	14	56	缺断 this drawn
27		-10xφ120	A709-50-2	4	0.5	2	
26		-10xφ100/φ80	A709-50-2	8	4	32	
25		-40x280x300	A709-50-2	2	18	36	缺断 this drawn
24		-12x150x390	A709-50-2	4	4	16	
23		-16x600x1140	A709-50-2	2	80	160	
22		-12x390x600	A709-50-2	2	22	44	
21		-12x390x500	A709-50-2	2	18	36	
20		-10x150x390	A709-50-2	4	4.5	18	
19	GB8162-87	φ102x5-1040	Q235	2	16	32	
18		-10x350x1260	A709-50-2	2	34.6	70.2	
17		-16x490x1270	A709-50-2	2	53	106	
16		-24xφ100/φ80	A709-50-2	8	4	32	
15		-8x160x300	A709-50-2	4	2	8	
14		-10x150x220	A709-50-2	4	2.5	10	
13		-20x385x616	A709-50-2	4	8.5	106	
12		-8x204x360	A709-50-2	4	2.9	116	缺断 this drawn
11		-10x88x273	A709-50-2	4	24	8.56	
10		-10x220x350	A709-50-2	4	6	24	缺断 this drawn
9		-10x350x370	A709-50-2	4	10	40	缺断 this drawn
8		-30x730x1400	A709-50-2	1	190	190	
7		-12x140x600	A709-50-2	8	7	56	
6		-30x730x1400	A709-50-2	1	179	179	
5		-16x730x1413	A709-50-2	2	107	214	缺断 this drawn
4		-10x600x2015	A709-50-2	4	94	376	缺断 this drawn
3		-16x1270x1885	A709-50-2	2	163	326	缺断 this drawn
2		-25xφ200	A709-50-2	8	4.5	36	
1		-30x722x1300	A709-50-2	2	17.8	34.3	缺断 this drawn
NO. SUB-NO. or STDD		NAME & SIZE	MTRL or STYLE	QTY/set	each WEIGHT	total	NOTE
PROJECT: Alabama ASAP 36T Steel Slab Crane			DESIGN STAGE:		SCALE: 1:15		
ITEM NAME: cargo beam stru 横梁结构			DRAW NO: SM04A1302		PROJ. 		
ZPMC	DSGN		TRACE		APP.		
	DRAW		CHKC		SET/CRANE	1	
	CHCK		VER.		WEIGHT	2610	

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01	Concept design	2008.10.27	Gu Feng



B12	GB301-84	轴承 bearing 8320		1			
B11	GB882-86	销 Pin 20x30 B型		2			
B10	GB91-86	开口销 Pin 5x40		2			
B9	GB32.1-88	螺钉 screw M10x25	A2-70	4			stainless不锈钢
B8	GB97.1-85	垫圈 12	A2-70	8			stainless不锈钢
B7	GB32.1-88	螺栓 BoltM12x20	A2-70	8			stainless不锈钢
B6	JISB0203	油嘴 Grease fitting PT1/4"		3			stainless不锈钢
B5	GB855-88	垫圈 washer 16	200HV	2			dacro达克罗
B4	GB5783-86	螺栓 bolt M16X25	grade 10	2			dacro达克罗
B3		不锈钢丝φ1 stainless steel					
B2	GB97.1-85	垫圈 wagher 16	200HV	4			dacro达克罗
B1	GB32.1-88	螺栓 Bolt M16x40	grade 10.9	4			dacro达克罗
11	SM04A130601	吊钩 hook	20	1	150	150	
10	DG30T-10a	封口板 Cover	Weldment	1	0.125	0.5	借用borrow
9	DG30T-09a	支座 Support	Welder	1	2	2	借用borrow
8	DG30T-08	挡圈 Stop ring	Q235	4	0.5	2	借用borrow
7	DG30T-07	垫片 Pad	Q235	4	0.125	0.5	借用borrow
6	DG30T-06a	悬梁 Hanging beam	45	1	20	20	借用borrow
5	DG30T-05	吊钩螺母 Hook nut	20	1	25	25	借用borrow
4	DG30T-04a	拉板 Link plate	Q345	2	40	80	借用borrow
3	DG30T-03	卡板 Baffle	Q235	1	0.5	0.5	借用borrow
2	DG30T-02	卡轴板 Stop plate	Q235	2	0.5	1	借用borrow
1	DG30T-01a	连接轴 I Link shaft I	35CrMo	1	18	18	借用borrow
NO.	SUB-NO. or STDD	NAME & SIZE	MTRL or STYLE	QTY/set	each	total	NOTE
					WEIGHT		
PROJECT: Alabama ASAP 36T Steel Slab Crane			DESIGN STAGE: SCALE: 1:8				
ITEM NAME: hook II ass. 副钩装配			DRAW NO: SM04A1306				
ZPMC	DSGN			TRACE			APP.
	DRAW			CHCK			Q'TY/SET 300kg
	CHCK			VER.			SET/CRANE

ALABAMA STATE PORT AUTHORITY **INSURANCE REQUIREMENTS FOR CONTRACT WORK**

INDEMNIFICATION

The Contractor shall assume all liability for and shall indemnify and save harmless the State of Alabama and the Alabama State Port Authority, doing business as Alabama State Docks (ASD), and its officers and employees from all damages and liability for injury to any person or persons, and injury to or destruction of property, including the loss of use thereof, by reason of an accident or occurrence arising from operations under the contract, whether such operations are performed by himself or by any subcontractor or by anyone directly or indirectly employed by either of them occurring on or about the premises, or the ways and means adjacent during the term of the contract, or any extension thereof, and shall also assume the liability for injury and/or damages to adjacent or neighboring property by reason of work done under the contract.

INSURANCE REQUIREMENTS

The Contractor shall not commence work under the contract until he has obtained all insurance required under the following paragraphs and until such insurance has been approved by ASD, nor shall the Contractor allow any subcontractor to commence work until all similar applicable insurance has been obtained by the subcontractor or the Contractor has provided coverage for the subcontractor. The Contractor shall provide, at his expense, insurance in accordance with the following:

General Requirements (applicable to all policies)

All policies of insurance must be written with companies acceptable to ASD. The Contractor shall furnish to ASD certificates of insurance, signed by the licensed agent evidencing required coverages. ASD reserves the right to require certified copies of any and all policies. Each policy of insurance shall provide, either in body of the policy or by endorsement, that such policy cannot be substantially altered or cancelled without thirty (30) days' written notice to ASD and to the insured. Except for Workers Compensation, said policies will identify Alabama State Port Authority, its officers, officials, agents, servants and employees as Primary and Non-contributory Additional Insureds in connection with work performed for, on behalf of, or on the property of ASD.

General Liability

The Contractor shall take out and maintain during the life of the contract Commercial General Liability insurance, including Blanket Contractual and Completed Operations coverages, in an amount not less than \$3,000,000 for any one occurrence for bodily injury, including death, and property damage liability.

Automobile Liability

The Contractor shall take out and maintain during the life of the contract Business Automobile Liability insurance covering any auto in an amount not less than \$1,000,000 for any one occurrence for bodily injury, including death, and property damage liability.

Workers Compensation

The Contractor shall take out and maintain during the life of the contract Workers Compensation and Employers Liability insurance providing coverage under the Alabama Workers Compensation Act in an amount not less than that required by Alabama law.

Where applicable, Contractor shall take out and maintain during the life of the contract insurance providing coverage as required by Federal statute, including but not limited to U.S. Longshoremen and Harborworkers' Compensation Act (USL&H), Jones Act, and Railroad Federal Employers Liability Act (FELA).

State of _____

County of _____

CERTIFICATE OF COMPLIANCE WITH THE BEASON-HAMMON ALABAMA TAXPAYER AND CITIZEN PROTECTION ACT (ACT 2011-535, as amended by Act 2012-491)

DATE: _____

RE Contract/Grant/Incentive (describe by number or subject):

_____ by and between
_____(Contractor/Grantee) and
_____(State Agency, Department or Public Entity)

The undersigned hereby certifies to the State of Alabama as follows:

1. The undersigned holds the position of _____ with the Contractor/Grantee named above, and is authorized to provide representations set out in this Certificate as the official and binding act of that entity, and has knowledge of the provisions of THE BEASON-HAMMON ALABAMA TAXPAYER AND CITIZEN PROTECTION ACT (ACT 2011-535 of the Alabama Legislature, as amended by Act 2012-491) which is described herein as "the Act".
2. Using the following definitions from Section 3 of the Act, select and initial either (a) or (b), below, to describe the Contractor/Grantee's business structure.

BUSINESS ENTITY. Any person or group of persons employing one or more persons performing or engaging in any activity, enterprise, profession, or occupation for gain, benefit, advantage, or livelihood, whether for profit or not for profit. "Business entity" shall include, but not be limited to the following:

a. Self-employed individuals, business entities filing articles of incorporation, partnerships, limited partnerships, limited liability companies, foreign corporations, foreign limited partnerships, foreign limited liability companies authorized to transact business in this state, business trusts, and any business entity that registers with the Secretary of State.

b. Any business entity that possesses a business license, permit, certificate, approval, registration, charter, or similar form of authorization issued by the state, any business entity that is exempt by law from obtaining such a business license and any business entity that is operating unlawfully without a business license.

EMPLOYER. Any person, firm, corporation, partnership, joint stock association, agent, manager, representative, foreman, or other person having control or custody of any employment, place of employment, or of any employee, including any person or entity employing any person for hire within the State of Alabama, including a public employer. This term shall not include the occupant of a household contracting with another person to perform casual domestic labor within the household.

____ (a) The Contractor/Grantee is a business entity or employer as those terms are defined in Section 3 of the Act.

____ (b) The Contractor/Grantee is not a business entity or employer as those terms are defined in Section 3 of the Act.

3. As of the date of this Certificate, Contractor/Grantee does not knowingly employ an unauthorized alien within the State of Alabama and hereafter it will not knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama;
4. Contractor/Grantee is enrolled in E-Verify unless it is not eligible to enroll because of the rules of that program or other factors beyond its control.

Certified this _____ day of _____ 20 _____

Name of Contractor/Grantee/Recipient

By: _____

Its _____

The above Certification was signed in my presence by the person whose name appears above, on

this _____ day of _____ 20 _____.

WITNESS: _____

Printed Name of Witness