

PROJECT OFFICE ADDRESS.

AFCONS INFRASTRUCTURE LTD.

Kochi Naval Base Site Office
C/o Kochi Naval Base
Ernakulam - 682004, Kerala State
Email: afcons2951@afcons.com



PROJECT: RE-CONSTRUCTION OF NORTH JETTY AT NAVAL BASE, KOCHI, ON EPC CONTRACT BASIS.

Our Ref.: 2951/AFCONS/CoPT/L/1023

Your Ref: T10/T-1910/2020-C/5213(W)

Submission Date: 19th May 2023

Received Date: 22nd October 2020

To

The Chief Engineer

Cochin Port Authority,

Willingdon Island,

Cochin – 682009, KERALA, India

Tele: 91-0484-2666414/0484-2582400

Kind Attention: Shri Thuraipandian. V. Chief Mechanical Engineer (CoPA)

Subject : Submission of GAD and ITPs for Single Jib Crane and Double Jib Crane.

Reference: (Refer Annexure-A attached)

Dear Sir,

With reference to the meeting held between the Employer, Contractor and CoPA invited Third Party Inspection Agencies (i.e., NCGB, IR Class, BV and TUV) on 8th May 2023 for "Appointment of the Third-Party Inspection Agency by the CoPA for the inspection of 2 nos. ELL Cranes" and its discussions, Contractor herewith submits ITPs for Single Jib ELL crane MK600F and Double ELL crane K703V received from M/s. Kroll Cranes for Employer's review and approval.

And also, Contractor herewith enclosed General Alignment Drawings (GAD) for Single Jib Crane and Double Jib Crane for Employer's record.

AFCONS always assures of best attention and remains.

For **AFCONS Infrastructure Ltd**

V. V. Jaidev

Project Manager

Cc: Smt. Dr. Beena, Chairperson (CoPA)
Shri. Vikas Narwal, Deputy Chairperson (CoPA)
Smt. Rema. E, Chief Engineer (CoPA)
Capt. Anoop Kumar J, SSO (Projects)/HQSN
Capt. Manu Paliwal, DGM (TS), (NSRY),

Enclosures: As above.

PROJECT OFFICE ADDRESS.

AFCONS INFRASTRUCTURE LTD.
Kochi Naval Base Site Office
C/o Kochi Naval Base
Ernakulam - 682004, Kerala State
Email: afcons2951@afcons.com



Annexure-A

- Ref:**
1. LOA no T10/T-1910/2020-C/5213(W) dated 22-10-2020
 2. Agreement No. 1 of 2021-2022, dated 23rd June 2021
 3. 2951/AFCONS/CoPT/T/010 dated 17-02-2021
 4. 2951/AFCONS/CoPT/L/121 dated 26-03-2021
 5. 2951/AFCONS/CoPT/L/147 dated 21-04-2021
 6. 2951/AFCONS/CoPT/L/148 dated 21-04-2021
 7. 2951/AFCONS/CoPT/L/316 dated 23-09-2021
 8. AFCONS E-mail dated 27-10-2021
 9. AFCONS E-mail dated 03-11-2021
 10. Monthly Review Meeting dated 16-11-2021
 11. 2951/AFCONS/CoPT/L/413 dated 30-11-2021
 12. 3rd Half yearly progress review meeting dated 16-12-2021
 13. 2951/AFCONS/CoPT/L/444 dated 24-12-2021
 14. 2951/AFCONS/CoPT/L/469 dated 21-01-2022
 15. E-mail from CoPT on 25-01-2022
 16. E-Mail from AFCONS dated 01-02-2022
 17. E-Mail from NAVY dated 02-02-2022
 18. 2951/AFCONS/CoPT/L/526 dated 24-02-2022; sl. no. 19 of FDRM 13 & sl. no. 20 of FDRM 14
 19. 2951/AFCONS/CoPT/L/540 dated 05-03-2022; sl. no. 7 of SRM 05
 20. NAVY FAX ATWP/3480/21 dated 25-03-2022
 21. 2951/AFCONS/CoPT/L/566 dated 26-03-2022; sl. no. 13 of FDRM 15
 22. 2951/AFCONS/CoPT/L/601 dated 07-05-2022
 23. CoPT Email dated 10-05-2022
 24. AFCONS E-Mail dated 11-05-2022
 25. CoPT E-Mail dated 11-05-2022
 26. CoPT E-mail dated 12-05-2022
 27. AFCONS E-mail dated 12-05-2022
 28. CoPT E-mail dated 21-05-2022
 29. AFCONS E-Mail dated 25-05-2022
 30. CoPT E-Mail dated 26-05-2022
 31. CoPT E-mail 27-05-2022
 32. AFCONS E-mail dated 31-05-2022
 33. CoPT E-mail dated 31-05-2022
 34. NAVY E-mail dated 06-06-2022
 35. CoPT E-mail dated 08-06-2022
 36. 2951/AFCONS/CoPT/L/652 dated 13-06-2022
 37. 2951/AFCONS/CoPT/L/654 dated 15-06-2022
 38. CoPT's letter to NAVY (CoPA/ELL Crane/2022-M dated 17-06-2022)
 39. CoPT's E-mail dated 05-07-2022 with NAVY's letter PT/06/03/ATWP/NJ dated 01-07-2022
 40. 2951/AFCONS/CoPT/L/712 dated 27-07-2022

PROJECT OFFICE ADDRESS.

AFCONS INFRASTRUCTURE LTD.

Kochi Naval Base Site Office
C/o Kochi Naval Base
Ernakulam - 682004, Kerala State
Email: afcons2951@afcons.com



41. CoPT's Email dated 05-08-2022 with CoPT letter CoPA/ELL Crane/2022 dated 04/08/2022 and NAVY's Fax Message ATWP/3480/21 dated 13-May-22 and ATWP/3480/21(i) dated 01-Aug-2022.
42. 2951/AFCONS/CoPT/L/721 dated 05-08-2022
43. CoPT's E-mail dated 12-08-2022
44. 2951/AFCONS/CoPT/L/734 dated 17-08-2022
45. 2951/AFCONS/CoPT/L/766 dated 20-09-2022
46. 2951/AFCONS/CoPT/L/780 dated 30-09-2022
47. CoPT's email dated 3rd October 2022
48. 2951/AFCONS/CoPT/L/786 dated 06-10-2022
49. CoPT's email dated 12th October 2022
50. Employer's email dated 19th October 2022
51. 2951/AFCONS/CoPT/L/805 dated 21-10-2022
52. 2951/AFCONS/CoPT/L/817 dated 02-11-2022
53. Employer's email dated 7th November 2022
54. Employer's email dated 10th November 2022
55. 2951/AFCONS/CoPT/L/831 dated 12-11-2022
56. Employer's email dated 14th November 2022
57. 2951/AFCONS/CoPT/L/839 dated 18-11-2022
58. 2951/AFCONS/CoPT/L/854 dated 29-11-2022
59. 2951/AFCONS/CoPT/L/862 dated 02-12-2022
60. Employer E-mail dated 06-12-2022
61. Contractor E-mail dated 06-12-2022
62. 2951/AFCONS/CoPT/L/865 dated 07-12-2022
63. Employer's letter No. EE(Ele)P/North Jetty-Navy-ELL Crane/2022-variation-M/7909(W), date 23rd December 2022.
64. 2951/AFCONS/CoPT/L/895 dated 04-01-2023.
65. Employer's email dated 10th January 2023
66. 2951/AFCONS/CoPT/L/904 dated 13-01-2023
67. 2951/AFCONS/CoPT/L/913 dated 24-01-2023
68. Employer E-mail dated 24-01-2023
69. CoPT/AECOM/AFCONS meeting dated 25-01-2023
70. Contractor E-mail dated 27-01-2023 regarding meeting dated 25-01-2023
71. 2951/AFCONS/CoPT/L/917 dated 27-01-2023
72. Contractor E-mail dated 25-01-2023
73. 2951/AFCONS/CoPT/L/931 dated 09-02-2023
74. Employer's letter EE(Ele)P/North Jetty Navy-ELL Crane/2022-variation-M dated 10-02-2023
75. 2951/AFCONS/CoPT/L/938 dated 15-02-2023
76. 2951/AFCONS/CoPT/L/946 dated 20-02-2023
- 76.A Employer's email dated 24th February 2023
77. 2951/AFCONS/CoPT/L/953 dated 22-02-2023
78. 2951/AFCONS/CoPT/L/965 dated 10-03-2023

PROJECT OFFICE ADDRESS.

AFCONS INFRASTRUCTURE LTD.

Kochi Naval Base Site Office
C/o Kochi Naval Base
Ernakulam - 682004, Kerala State
Email: afcons2951@afcons.com



79. Indian Navy letter Ref. DY/8163/North Jetty, dated 20th March 2023 - MoM dated 17th March 2023 at Sena Bhavan - ACOM(MOD)
80. 2951/AFCONS/CoPT/L/974 dated 22-03-2023
81. 2951/AFCONS/CoPT/L/975 dated 23-03-2023
82. Employer's email dated 1st April 2023
83. Employer's letter EE(Ele)P/North Jetty Navy-ELL Crane/2022-M dated 05-04-2023
84. Employer's email dated 13th April 2023
85. 2951/AFCONS/CoPT/L/999 dated 17-04-2023
86. EE-P/Reconstruction of North Jetty-Navy/ELL crane/Variation2022, dated 19-04-2023
87. Employer's email dated 21st April 2023
88. 2951/AFCONS/CoPT/L/1010 dated 04-05-2023
89. 2951/AFCONS/CoPT/L/1014 dated 09-05-2023
90. 2951/AFCONS/CoPT/L/1021 dated 18-05-2023
91. 2951/AFCONS/CoPT/L/1022 dated 18-05-2023

A handwritten signature in blue ink, appearing to be "Afcons", written over a horizontal line.

KRØLL CRANES A/S – DENMARK					CLIENT		AFCONS INFRASTRUCTURE LIMITED				ITP No.					
END USER		MODEL	K703V			PROJECT						01				
		S/No.				LEGEND:		R = REVIEW		W = WITNESS		H = HOLD				
		PO No.						S = SIGNATURE		M = MONITOR						
PREPARED BY: Tor Larsen		Ref.:														
APPROVED BY: Henrik B. Nielsen		KC JOB														
ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS.	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
					IN MDR	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

ENGINEERING PRIOR TO FABRICATION – ALL ELEMENTS

1.	APPROVAL OF DESIGN CALCULATIONS	CALCULATIONS	F.E.M. 3 RD ED. EN 14439+A2	CALCULATIONS	-												
2.	APPROVAL OF DESIGN DRAWINGS	DRAWINGS	F.E.M. 3 RD ED. EN 14439+A2	DRAWINGS	-												

ELECTRICAL WORKSHOP PRIOR TO, AND DURING FABRICATION

3.	MOTORS & UNITS	MANUFACTURERS DOCUMENTS	SPECIFICATION / APPR. VENDOR	NAMEPLATES	YES	H		R		R		R		R			
4.	ELECTRICAL PARTS	PURCHASE ORDER	SPECIFICATION / APPR. VENDOR	MANUFACTURERS DOCUMENTS	-	H		R		R		R		R			

* Calculations and production drawings are sent to 3rd Party only.

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA / QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

STEEL WORKSHOP PRIOR TO, AND DURING FABRICATION – ALL ELEMENTS

5.	APPROVAL OF WPS, WPQR	WPS'es WPQR's	EN ISO 15609-1 EN ISO 15614-1 OR SIMILAR	WPS'es WPQR's	-	H		H		R		R		R		
6.	APPROVAL OF WELDERS QUALIFICATION	WELDERS CERTIFICATES	EN ISO 9606-1 OR SIMILAR	WELDERS CERTIFICATES	-	H		H		R		R		R		
7.	APPROVAL OF NDT PERSONNEL QUALIFICATIONS	NDT CERTIFICATES	EN 473 / ISO 9712 EWI / IWI OR SIMILAR	NDT CERTIFICATES	-	H		H		R		R		R		
8.	MATERIAL RECEIVING	MATERIAL CERTIFICATES	PRIMARY STEEL: ISO 10204 3.1	LIST OF CERTS. MATERIAL CERTIFICATES	-	H		H		R		R		R		
9.	GEARS	MANUFACTURERS DOCUMENTS	SPECIFICATION / APPR. VENDOR	NAMEPLATES	YES	H		H		R		R		R		

STEEL WORKSHOP DURING FABRICATION

CRANE BASE / UNDERCARRIAGE

10.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
11.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
12.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
13.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA / QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>STEEL WORKSHOP DURING FABRICATION (CONINUED)</u>																
PORTAL																
14.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
15.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
16.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
17.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		
MASTHEAD / SLEWING TOP TOWER																
18.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
19.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
20.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
21.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		



ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA / QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

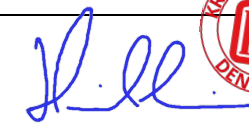

STEEL WORKSHOP DURING FABRICATION (CONINUED)

MACHINERY DECK

22.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
23.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
24.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
25.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		

BOOM UNITS

26.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
27.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
28.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
29.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>NDT INSPECTION</u>																
CRANE BASE / UNDERCARRIAGE																
30.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
31.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
32.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		
PORTAL																
33.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
34.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
35.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		



ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

NDT INSPECTION - CONTINUED

MASTHEAD / SLEWING / TOPTOWER

36.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
37.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
38.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		

MACHINERY DECK

39.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
40.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
41.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		




ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>NDT INSPECTION - CONTINUED</u>																
BOOM SECTIONS																
42.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
43.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
44.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		
<u>TEST ASSEMBLIES – STEEL CONSTRUCTION</u>																
45.	UNDERCARRIAGE / PORTAL ASSEMBLY			PHOTOS TEST ASSY. REPORT	MECH. FAT	H		H		R		R		R		
46.	SLEWING / TOPTOWER / MACHINERY DECK ASSEMBLY			PHOTOS TEST ASSY. REPORT	MECH. FAT	H		H		R		R		R		
47.	BOOM ASSEMBLY			PHOTOS TEST ASSY. REPORT	MECH. FAT	H		H		R		R		R		
<u>PAINT WORKSHOP – ALL ELEMENTS EXTERIOR SURFACES</u>																
48.	SANDBLASTING	SURFACE TREATMENT PROCEDURE	ISO 8501-1 SA 2½	-	-	H		H		R		R		R		
49.	METALLISATION	SURFACE TREATMENT PROCEDURE	1 X 60 µm	MESUREMENT REPORT	MECH. FAT	H		H		R		R		R		
50.	PAINT	SURFACE TREATMENT PROCEDURE	1 X 60 µm	MEASUREMEMENT REPORT	MECH. FAT	H		H		R		R		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

SURFACE TREATMENT INTERIOR SURFACES

51.	PRIMER COAT, ALKYD PRIMER	-	1 X 40 µm	MEASUREMENT REPORT	-			H		R		R		R		
52.	FINISH COAT, ALKYD FINISH PAINT	-	1 X 40 µm	MEASUREMENT REPORT	-			H		R		R		R		
53.	TOTAL DRY FILM THICKNESS	-	80 µm	MEASUREMENT REPORT	-			H		R		R		R		

ELECTRICAL WORKSHOP

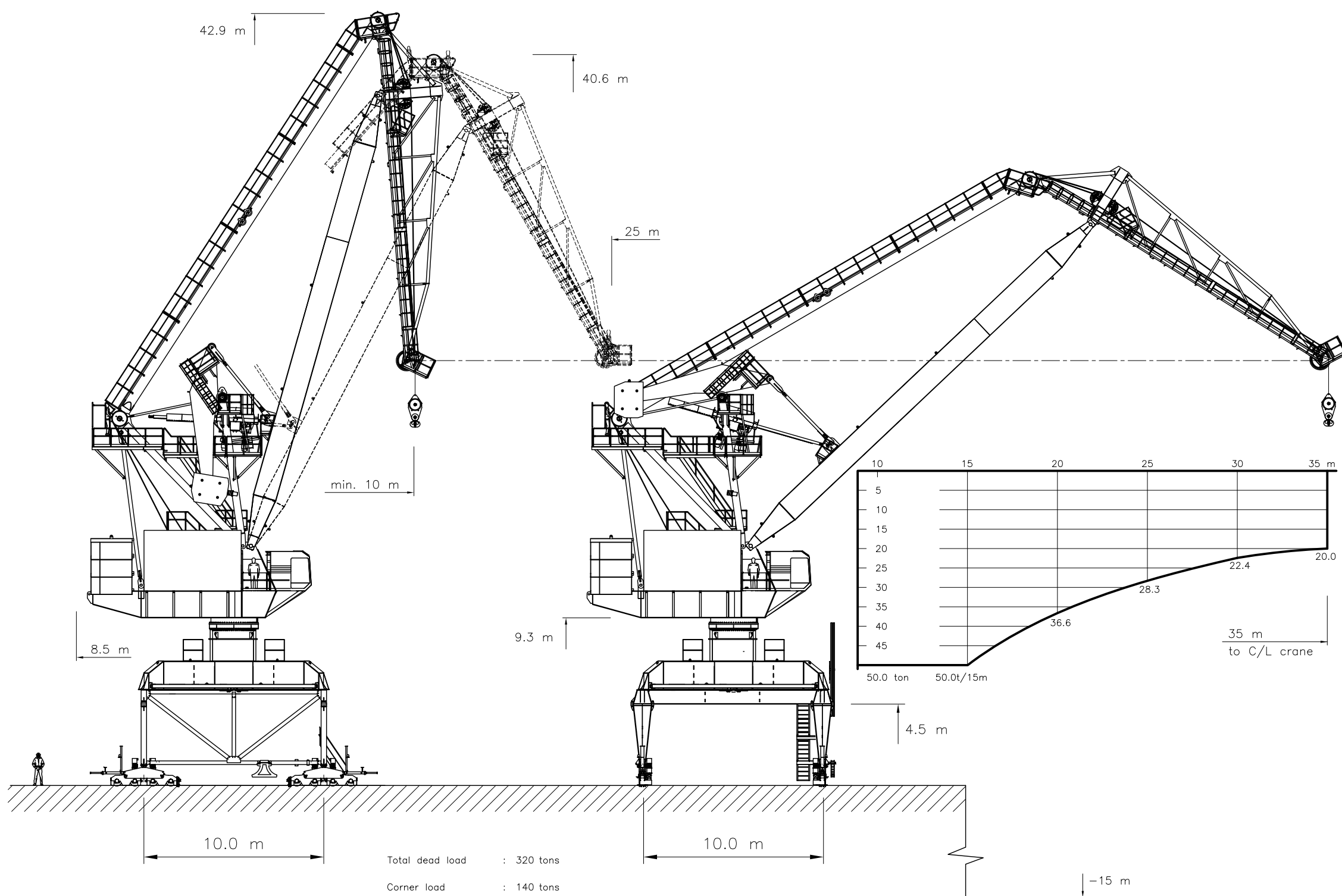
54.	MANUFACTURING OF POWER SYSTEM	ELECTRICAL DRAWINGS	EN 60204-1 / EN 60204-32	-	-	H		M		R		R		R		
55.	MANUFACTURING OF CONTROL- AND ALARM SYSTEM	ELECTRICAL DRAWINGS	EN 60204-1 / EN 60204-32 / EN 62061	-	-	H		M		R		R		R		
56.	PROGRAMMING	-	-	-	-	H		M		R		R		R		
57.	TEST ASSEMBLY OF SYSTEMS AND MOTORS / SAFETY DEVICES	ELECTRICAL DRAWINGS	EN 60204-1 / EN 60204-32 / EN 62061	-	-	H		M		R		R		R		
58.	EL – FAT	INF. REF 4752	EN 60204-1 / EN 60204-32	ELECTRICAL FAT REPORT	EL FAT	H		W		W		W		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>DOCUMENTATION</u>																
59.	OPERATION AND MAINTENANCE MANUALS (PREVENTIVE AND CORRECTIVE)	-	EN 14439	MANUALS	-			H		R		R		R		
60.	MANUAL: ERECTION, ELECTRICAL, EQUIPMENTS	-	EN 14439	MANUALS	-			H		R		R		R		
61.	JOB SAFETY ANALYSIS, ERECTION	-	CLIENT APPROVAL	ANALYSIS				H		R		R		R		
62.	COLLECTING DOCUMENTATION ACCORDING TO CONTRACT	-	CONTRACT	MDR				H		R		R		R		
63.	QUALITY AND CRANE CERTIFICATES	-	CONTRACT.	MDR				H		R		R		R		
<u>ON-SITE TESTS AFTER ERECTION</u>																
64.	FUNCTIONS TEST (NO-LOAD TEST)	SPECIFICATION REQUIREMENTS	CLIENT APPROVAL	CHECKLIST	-			H		W		W		W		
65.	LOAD TEST	SPECIFICATION REQUIREMENTS	CLIENT APPROVAL	CHECKLIST	-			H		W		W		W		



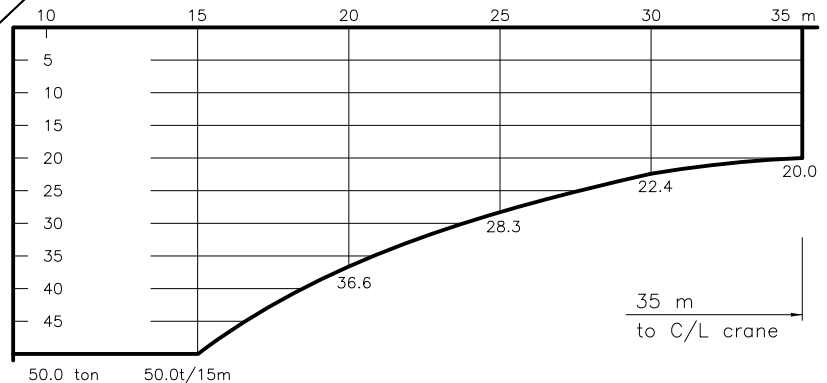

THIS DRAWING IS THE PROPERTY OF KRÖLL CRANES A/S AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT PERMISSION.

K703V



Total dead load : 320 tons
 Corner load : 140 tons
 Wheel load (4 pcs) : 35 tons
 Distributed load, avg. : 35 tons/meter

Horizontal wind load : 22 tons
 out of service (39 m/s)



PERFORMANCE

HOIST	: 120 kW	
MAIN 	0-12 t	0-36 m/min
	12-30 t	0-18 m/min
	30-50 t	0-12 m/min
LUFFING	0-50 t	0-30 m/min
SLEWING	0-50 t	0-0.6 rpm
TRAVELLING	0-50 t	0-20 m/min
	3 x 400-460 V 50 Hz	CONTROL VOLTAGE 24 VDC - 220 VAC

STRUCTURAL DESIGN

Design according to F.E.M, 3rd Edition
 Classification : A6, U5, Q3
 Fatigue design based on 80% load
 and 500.000 hoisting cycles

KONST.: 221111 JL	PROJ.	KRANTYPE	STK.	SAML. TEGN.
TEGN.: 221111 JL				
GODK.: 221111 JL				
ERSTATTER:	SKALA: 1:100	OVERF. AREAL: m ²	OVERFLADE-BEHANDLING:	MATR.:
ERSTATTET AF:	TOTALVEGT: kg	ANT. TEGNING.:	TITEL	DIM.:
OPRINDELSE:	TRANSPORTMÅL: m ³		K703V	ANT. STYKL.:
	KRÖLL CRANES A/S NORDKRANVEJ 2 · 3540 LYNGE · DENMARK PHONE: +45 48 187400 · FAX: +45 48 188807 www.kröllcranes.com			TEGN. NR.
				C1-00.00092189-02

KRØLL CRANES A/S – DENMARK					CLIENT		AFCONS INFRASTRUCTURE LIMITED				ITP No.						
END USER		MODEL	MK600F			PROJECT						01					
		S/No.				LEGEND:		R = REVIEW				W = WITNESS		H = HOLD			
		PO No.						S = SIGNATURE				M = MONITOR					
PREPARED BY: Tor Larsen		Ref.:															
APPROVED BY: Henrik B. Nielsen		KC JOB															
ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS.		PROD.		QA /QC		3 rd Party		AFCONS		End user		REMARKS
					IN MDR		ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

ENGINEERING PRIOR TO FABRICATION – ALL ELEMENTS

1.	APPROVAL OF DESIGN CALCULATIONS	CALCULATIONS	F.E.M. 3 RD ED. EN 14439+A2	CALCULATIONS	-												
2.	APPROVAL OF DESIGN DRAWINGS	DRAWINGS	F.E.M. 3 RD ED. EN 14439+A2	DRAWINGS	-												

ELECTRICAL WORKSHOP PRIOR TO, AND DURING FABRICATION

3.	MOTORS & UNITS	MANUFACTURERS DOCUMENTS	SPECIFICATION	NAMEPLATES	YES	H		R		R		R		R			
4.	ELECTRICAL PARTS	PURCHASE ORDER	SPECIFICATION	MANUFACTURERS DOCUMENTS	-	H		R		R		R		R			

* Calculations and production drawings are sent to 3rd Party only.

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

STEEL WORKSHOP PRIOR TO, AND DURING FABRICATION – ALL ELEMENTS

5.	APPROVAL OF WPS, WPQR	WPS'es WPQR's	EN ISO 15609-1 EN ISO 15614-1 OR SIMILAR	WPS'es WPQR's	-	H		H		R		R		R		
6.	APPROVAL OF WELDERS QUALIFICATION	WELDERS CERTIFICATES	EN ISO 9606-1 OR SIMILAR	WELDERS CERTIFICATES	-	H		H		R		R		R		
7.	APPROVAL OF NDT PERSONNEL QUALIFICATIONS	NDT CERTIFICATES	EN 473 / ISO 9712 EWI / IWI OR SIMILAR	NDT CERTIFICATES	-	H		H		R		R		R		
8.	MATERIAL RECEIVING	MATERIAL CERTIFICATES	PRIMARY STEEL: ISO 10204 3.1	LIST OF CERTS. MATERIAL CERTIFICATES	-	H		H		R		R		R		
9.	GEARS	MANUFACTURERS DOCUMENTS	SPECIFICATION	NAMEPLATES	YES	H		H		R		R		R		

STEEL WORKSHOP DURING FABRICATION

CRANE BASE / UNDERCARRIAGE

10.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
11.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
12.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
13.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		




ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA / QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>STEEL WORKSHOP DURING FABRICATION - CONTINUED</u>																
PORTAL																
14.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
15.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
16.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
17.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		
MASTHEAD / SLEWING / TOPTOWER																
18.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
19.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
20.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
21.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		



ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA / QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>STEEL WORKSHOP DURING FABRICATION - CONTINUED</u>																
MACINERY DECK																
22.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
23.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
24.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
25.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		
BOOM																
26.	VISUAL CHECK OF EDGE PREPARATIONS AND DIMENSIONS	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
27.	FIT UP	WELD PREP. PROCEDURE	ACC. TO DRAWINGS	-	-	H		R		R		R		R		
28.	SPOTCHECK OF WELDING PARAMETERS	NDT GENERAL PROCEDURE	ACC. TO WPS	-	-	M		M		R		R		R		
29.	CHECK NAMEPLATES ON SECTIONS	-	-	CHECKLIST	-			H		R		R		R		




ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

NDT INSPECTION

CRANE BASE / UNDERCARRIAGE

30.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
31.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
32.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		

PORTAL

33.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
34.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
35.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		




ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

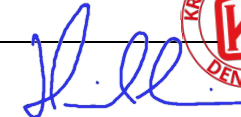

NDT INSPECTION - CONTINUED

MASTHEAD / SLEWING / TOPTOWER

36.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
37.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
38.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		

MACHINERY DECK

39.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
40.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
41.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>NDT INSPECTION - CONTINUED</u>																
BOOM																
42.	100% VT. ALL WELD SEAMS	VT PROCEDURE	EN ISO 5817 LEVEL C	VT REPORTS	MECH. FAT			H		R		R		R		
43.	20% MT. ALL WELD SEAMS	MT PROCEDURE	EN ISO 23278 LEVEL 2X	MT REPORTS	MECH. FAT			H		R		R		R		
44.	100% UT. ALL BUTTWELDS IF UT IS REQUIRED IN THE DRAWING. EXTERNAL COMPANY	EXTERNAL PROCEDURE	AS PER DRAWING	UT REPORTS	MECH. FAT			H		R		R		R		
<u>TEST ASSEMBLIES – STEEL CONSTRUCTION</u>																
45.	COUNTER JIB ASSEMBLY			PHOTOS TEST ASSY. REPORT	MECH. FAT	H		H		R		R		R		
46.	SLEWING / TOPTOWER / COUNTER JIB / JIB ASSEMBLY			PHOTOS TEST ASSY. REPORT	MECH. FAT	H		H		R		R		R		
47.	JIB ASSEMBLY – FULL LENGTH			PHOTOS TEST ASSY. REPORT	MECH. FAT	H		H		R		R		R		
<u>PAINT WORKSHOP – ALL ELEMENTS EXTERIOR SURFACES</u>																
48.	SANDBLASTING	SURFACE TREATMENT PROCEDURE	ISO 8501-1 SA 2½	-	-	H		H		R		R		R		
49.	METALLISATION	SURFACE TREATMENT PROCEDURE	1 X 60 µm	MESUREMENT REPORT	MECH. FAT	H		H		R		R		R		
50.	PAINT	SURFACE TREATMENT PROCEDURE	1 X 60 µm	MEASUREMEMENT REPORT	MECH. FAT	H		H		R		R		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	

SURFACE TREATMENT INTERIOR SURFACES

51.	PRIMER COAT, ALKYD PRIMER	-	1 X 40 µm	MEASUREMENT REPORT	-			H		R		R		R		
52.	FINISH COAT, ALKYD FINISH PAINT	-	1 X 40 µm	MEASUREMENT REPORT	-			H		R		R		R		
53.	TOTAL DRY FILM THICKNESS	-	80 µm	MEASUREMENT REPORT	-			H		R		R		R		

ELECTRICAL WORKSHOP

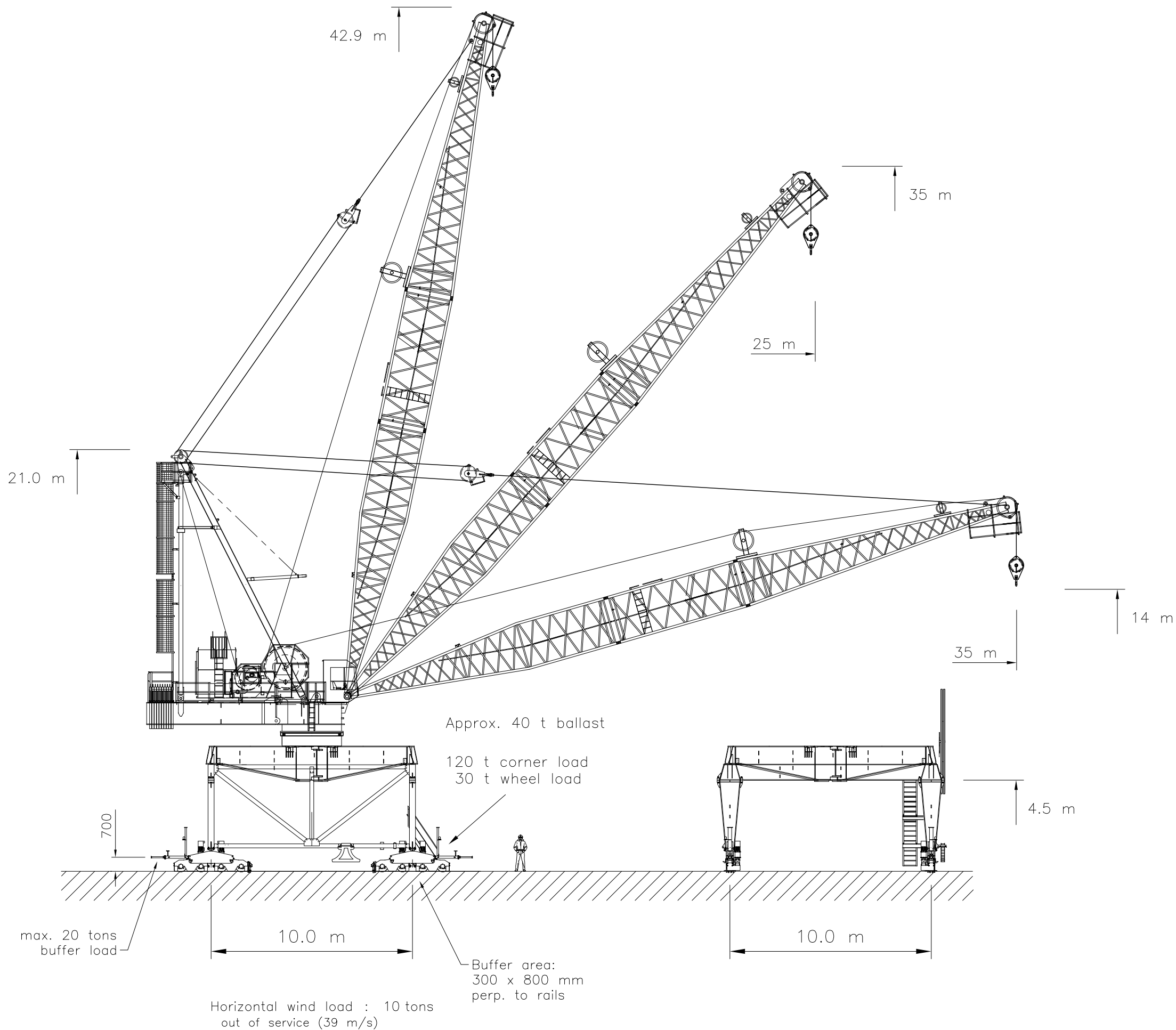
54.	MANUFACTURING OF POWER SYSTEM	ELECTRICAL DRAWINGS	EN 60204-1 / EN 60204-32	-	-	H		M		R		R		R		
55.	MANUFACTURING OF CONTROL- AND ALARM SYSTEM	ELECTRICAL DRAWINGS	EN 60204-1 / EN 60204-32 / EN 62061	-	-	H		M		R		R		R		
56.	PROGRAMMING	-	-	-	-	H		M		R		R		R		
57.	TEST ASSEMBLY OF SYSTEMS AND MOTORS / SAFETY DEVICES	ELECTRICAL DRAWINGS	EN 60204-1 / EN 60204-32 / EN 62061	-	-	H		W		R		R		R		
58.	EL – FAT	INF. REF 4752	EN 60204-1 / EN 60204-32	ELECTRICAL FAT REPORT	EL FAT	H		W		W		W		R		

ACT No.	DESCRIPTION OF EVENTS	CONTROL DOCUMENT	ACCEPTANCE CRITERIA	CERTIFY. / VERIFY. DOCS.	DOCS. IN MDR	PROD.		QA /QC		3 rd party		AFCONS		End user		REMARKS
						ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	ACT	SIGN	
<u>DOCUMENTATION</u>																
59.	OPERATION AND MAINTENANCE MANUALS (PREVENTIVE AND CORRECTIVE)	-	EN 14439	MANUALS	-			H		R		R		R		
60.	MANUAL: ERECTION, ELECTRICAL, EQUIPMENTS	-	EN 14439	MANUALS	-			H		R		R		R		
61.	JOB SAFETY ANALYSIS, ERECTION	-	CLIENT APPROVAL	ANALYSIS				H		R		R		R		
62.	COLLECTING DOCUMENTATION ACCORDING TO CONTRACT	-	CONTRACT	MDR				H		R		R		R		
63.	QUALITY AND CRANE CERTIFICATES	-	CONTRACT.	MDR				H		R		R		R		
<u>ON-SITE TESTS AFTER ERECTION</u>																
64.	FUNCTIONS TEST (NO-LOAD TEST)	SPECIFICATION REQUIREMENTS	CLIENT APPROVAL	CHECKLIST	-			H		W		W		W		
65.	LOAD TEST	SPECIFICATION REQUIREMENTS	CLIENT APPROVAL	CHECKLIST	-			H		W		W		W		



THIS DRAWING IS THE PROPERTY OF KRØLL CRANES A/S AND MAY NOT BE REPRODUCED IN WHOLE OR PART WITHOUT PERMISSION.

MK600F



Radius (m)	Boom Angle (°)	SWL
3,3	86,0	50,0
5,0	83,3	50,0
7,5	79,3	50,0
10,0	75,3	50,0
12,5	71,2	50,0
15,0	67,0	50,0
17,5	62,7	48,7
20,0	58,1	41,7
22,5	53,4	36,1
25,0	48,3	31,7
27,5	42,8	28,1
30,0	36,6	25,2
32,5	29,3	22,6
35,0	19,8	20,5
35,9	15,0	19,6

PERFORMANCE

HOIST WINCH	:	120 kW
3 LINE PARTS		
	0-12 t	0-36 m/min
	12-24 t	0-24 m/min
	24-50 t	0-12 m/min
	full load	2:00 min:sec
	9-35 m	0-0.6 rpm
	0-50 t	0-25 m/min
	3 x 400-440 V 50 Hz	CONTROL VOLTAGE 24 VDC - 220 VAC

KONST.: 230314 JL	PROJ.	KRANTYPE	STK.	SAML. TEGN.		
TEGN.: 230314 JL						
GODK.: 230314 JL						
ERSTATTER:	SKALA: 1:100	OVERF. AREAL: m ²	OVERFLADE-BEHANDLING:	MATR.:		
ERSTATTET AF:	TOTALVEGT: kg		ANT. TEGNING.:	ANT. STYKL.:		
OPRINDELSE:	TRANSPORTMÅL: m ³		MK600F			
			Naval Ship Repair Yard, indien			
KRØLL CRANES A/S NORDKRANVEJ 2, 3540 LYNØE, DENMARK PHONE: +45 48 187400 FAX: +45 48 188807 www.krollcranes.com				TEGN. NR.		
				C1-00.00092207-04		