

BUCKNER

HEAVYLIFT CRANES

Build Package – Liebherr LR 1400– CR4401

Contents	
Sheet	Description
001	Title Page
002	Build Sheet
003	Rod Plan
004	CWT Arrangement
005	Hookblock
006	Main Reeving
007	Aux Reeving
008	Boom Erection
009	Load Charts

Note: Crane technician MUST verify all information contained in this document matches what is provided by the manufacturer for the specific crane being used. Contact Andy Moore with questions: andym@bucknerheavylift.com Cell: 713 705 5726

PRELIMINARY

PROJECT: CP Chem
 LOCATION: Orange, TX
 BUCKNER CONTACT: Andy Moore, P.E.
 AndyM@BucknerHeavyLift.com
 LIFT PLAN BY: Andy Moore, P.E.
 AndyM@BucknerHeavyLift.com

DRAWING NOTES:
 Title Page

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A



FILE: D:\Andy Moore\OneDrive – Buckner HeavyLift Cranes\Documents – Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 – SL 56m (184') – (Rev.004).dwg

CREATED: 04.26.2024 @ 6:54:25 AM
 EDITING TIME: 13h32m FILE SIZE: 4783.47Kb
 PAPER SIZE: ANSI full bleed B (11.00 x 17.00)
 SAVED: 04.26.2024 @ 17:00:55 (AM)
 PLOTTED: 04.26.2024 @ 7:00:10 AM

Revisions		
All Sheets Same Revision Level		
Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 001 OF 009



PROJECT: CP Chem
 LOCATION: Orange, TX
 BUCKNER CONTACT: Andy Moore, P.E.
 AndyM@BucknerHeavyLift.com
 LIFT PLAN BY: Andy Moore, P.E.
 AndyM@BucknerHeavyLift.com

DRAWING NOTES:
 Build Sheet

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A

PRELIMINARY

FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

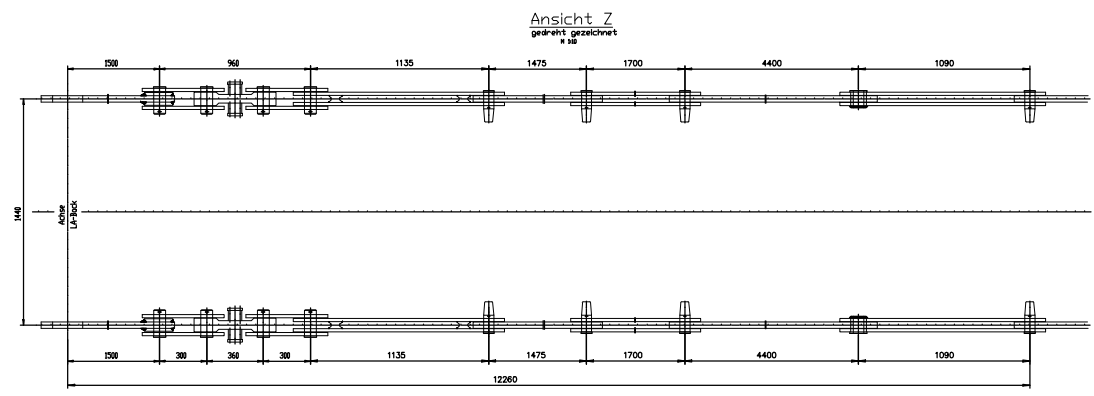
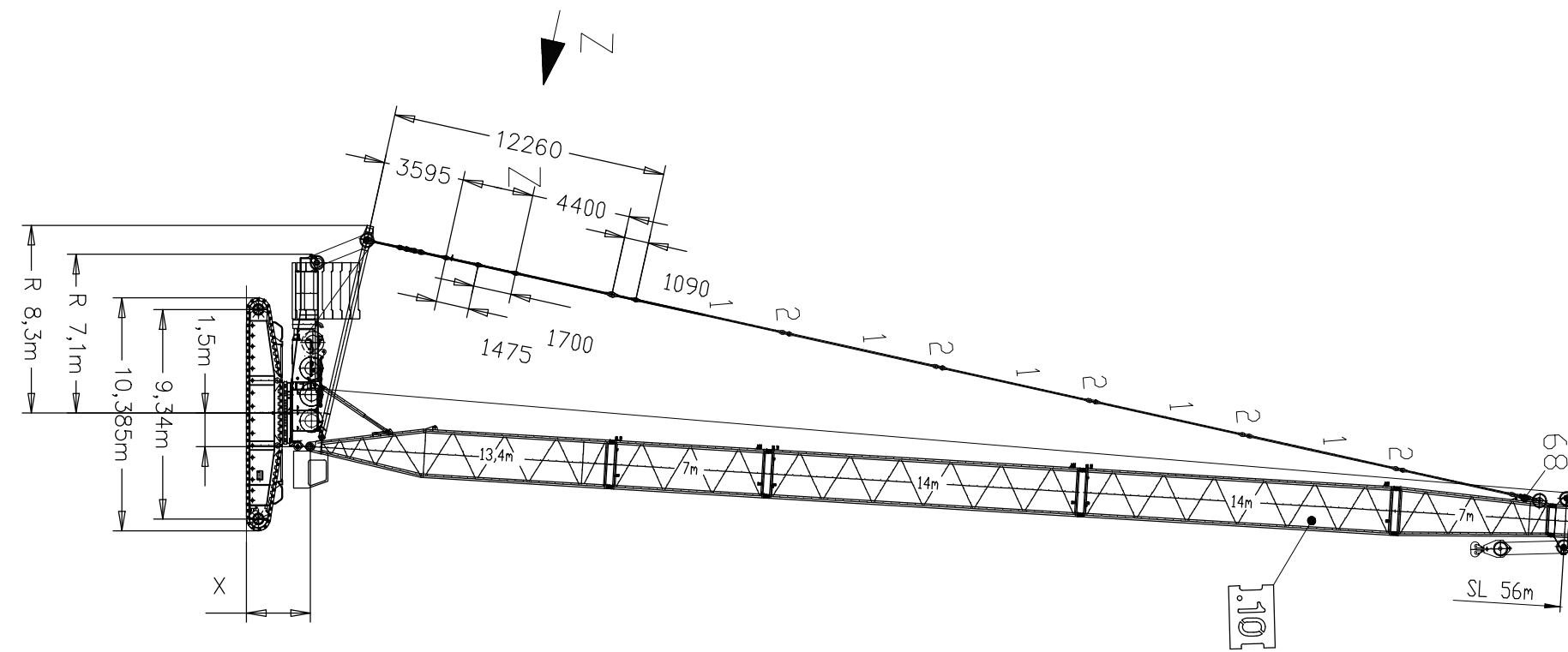
CREATED: 04.26.2024 @ 6:54:25 AM
 EDITING TIME: 13h32m FILE SIZE: 4783.47Kb
 PAPER SIZE: ANSI full bleed B (11.00 x 17.00)
 SAVED: 04.26.2024 @ 17:00:05 (AM)
 PLOTTED: 04.26.2024 @ 7:00:10 AM

Revisions

All Sheets Same Revision Level

Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 002 OF 009



Pos. Artikel	Bezeichnung	Description
1 963497808	STANGE MIT SCHILD	ROD WITH BOARD
2 925173308	LASCHE KPL.	BRACKET COMPL.
3 963493508	STANGE	ROD
4 925173008	LASCHE KPL.	BRACKET COMPL.
9 925184408	SCHWINGE SCHWK.	ROCKER WELDED
16 921344408	STANGE KPL.	ROD CPL.
23 773424508	SEIL	ROPE
25 954383508	BOLZEN	PIN
27 921137508	STANGE KPL.	ROD CPL.
28 954385708	BOLZEN	PIN
29 433105008	SICHERUNGSFEDER	RETAINING SPRING
32 921129608	STANGE KPL.	ROD CPL.
35 948638308	BOLZEN	PIN
36 773386108	SEIL	ROPE
44 948359608	BOLZEN	PIN
51 529001508	AUFSTELLWAGEN	SET-UP CARRIAGE
52 963490108	STANGE MIT SCHILD	ROD WITH BOARD
68 692307908	ZUGMESSLASCHE	TENSION DYNAMOMETER
76 921406808	STANGE KPL.	ROD CPL.
77 921406908	LASCHE KPL.	BRACKET COMPL.
78 921407008	STANGE KPL.	ROD CPL.
79 921407208	STANGE KPL.	ROD CPL.
80 921407308	SCHWINGE SCHWK.	ROCKER WELDED
82 921425408	STANGE MIT SCHILD	ROD WITH BOARD
83 921425508	STANGE KPL.	ROD CPL.
86 923626908	LASCHE SCHWK.	CONNECTING LINK WELDED
87 923627008	LASCHE SCHWK.	CONNECTING LINK WELDED
88 923627108	LASCHE SCHWK.	CONNECTING LINK WELDED
89 773433908	SEIL	ROPE
90 773434008	SEIL	ROPE
91 956097408	BOLZEN	PIN
92 421202408	SCHEIBE	WASHER
93 955998208	BOLZEN	PIN
94 421102808	SCHEIBE	WASHER
95 433102508	SICHERUNGSFEDER	RETAINING SPRING
96 740023808	KETTE	CHAIN
98 921125208	TRAVERSE SCHWK.	CROSS-MEMBER
99 921129208	STANGE KPL.	ROD CPL.
103 970079008	BOLZEN	PIN
104 921137308	STANGE KPL.	ROD CPL.

27.4.2009	LIEBHERR LR 1400/2 (074257) STANGEN RODS / PULL RODS	910536008 _ 002 Seite: 12
-----------	---	------------------------------

Pos. Artikel	Bezeichnung	Description
106 433010308	SPLINT	SPLIT PIN
1000 983017408	STANGEN	RODS / PULL RODS

27.4.2009	LIEBHERR LR 1400/2 (074257) STANGEN RODS / PULL RODS	910536008 _ 002 Seite: 13
-----------	---	------------------------------

PROJECT: CP Chem
LOCATION: Orange, TX
BUCKNER CONTACT: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com
LIFT PLAN BY: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

DRAWING NOTES:
Rod Plan

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A



FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

CREATED: 04.26.2024 @ 6:54:25 AM
EDITING TIME: 13h32m FILE SIZE: 4783.47Kb
PAPER SIZE: ANSI full bleed B (11.00 x 17.00)
SAVED: 04.26.2024 @ 17:00:05 (AM)
PLOTTED: 04.26.2024 @ 7:00:10 AM

Revisions

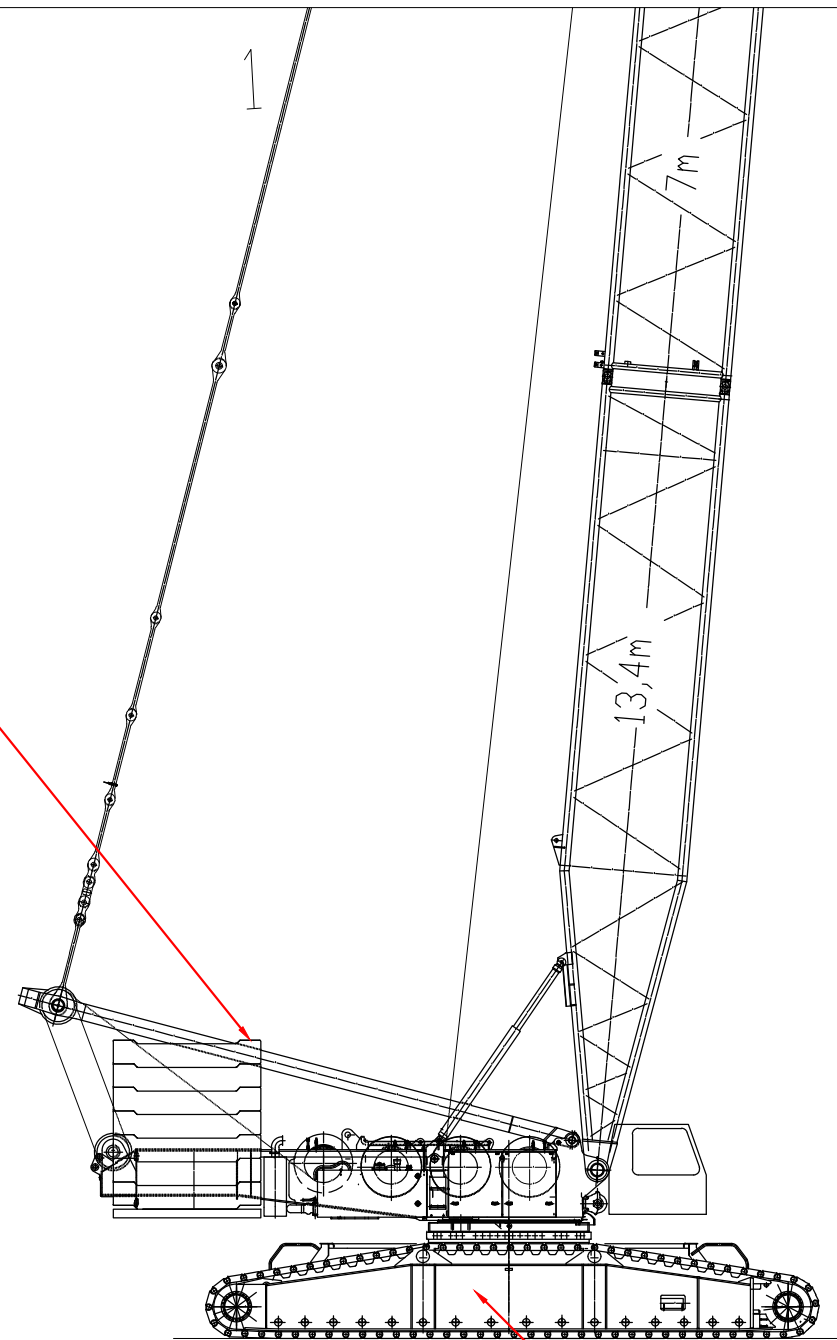
All Sheets Same Revision Level

Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 003 OF 009



UPPER CWT: 15t BASE SLAB + (x14) 10t = 155t



CARBODY CWT: (x4) 8t + (x2) 5.5t = 43t

PROJECT:

CP Chem

LOCATION: Orange, TX

BUCKNER CONTACT: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

LIFT PLAN BY: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

DRAWING NOTES:

CWT Arrangement

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A

PRELIMINARY

FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

CREATED: 04.26.2024 @ 6:54:25 AM

EDITING TIME: 13h32m FILE SIZE: 4783.47Kb

PAPER SIZE: ANSI full bleed B (11.00 x

SAVED: 04.26.2024 @ 12:00:05 AM

PLOTTED: 04.26.2024 @ 7:00:12 AM

Revisions

All Sheets Same Revision Level

Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 004 OF 009

BUCKNER
HEAVYLIFT CRANES

7.3.2 Hook block 36 EM (1 rope pulleys / 79.4 kips (36 t) load)

Number of rope runs	Maximum possible overall jib length [ft] with hook block weight [lbs]
	3.3 kips
3	390
2	551
1	551

7.4.4 Hook block 200 DM (7 rope pulleys / 374.1 kips (169.7 t) load)

Number of rope runs	Maximum possible overall jib length [ft] with hook block weight [lbs]			
	6.0 kips without additional weight	7.3 kips with 2 additional weights (0.15 ft wide)	8.6 kips with 2 additional weights (0.30 ft wide)	9.9 kips with 4 additional weights
15	92	138	161	184
14	115	138	161	207

9. Load capacity reductions

9.1 Load capacity reduction with mounted boom nose

9.1.1 The loads specified in the load charts for crane operation on the lattice boom or on the lattice jib apply for operation without mounted boom nose.



9.1.2 If the boom nose is still mounted on the boom head when carrying out operating modes without boom nose, the possible load for these operating modes are reduced by:

- the weight of the boom nose
- the weight of the hoist rope reeved on the boom nose
- the weight of the load carrying gear used on the boom nose

Max. load capacity of the boom nose/ auxiliary jib [kips]	Number of rope pulleys	For boom head	Weight of the boom nose/ auxiliary jib [kips]
26.5	1	S, L, N	0.474
79.4	2	S, L, W, N	0.926

7.4 Load hook and hook block for crane operation with 1 hoist rope winch in single operation
Hoist rope lengths: 3280 ft (1000 m)

Crane data		
Rope diameter:	0.0820 ft	[25 mm]
Rope weight:	2.08	[lbs/ft]
Boom sections:	23	[ft]
Boom length min.:	69	[ft]
Boom length max.:	551	[ft]
Number of hoist winches:	1	
Hoist rope length:	3280	[ft]
Derrick to hoist rope deflection:	65.6	[ft]
Min. height above ground:	0.0	[ft]

	 x 1000 lb
1x	27.8
2x	54.9
3x	81.8
4x	108.3
5x	134.3
6x	159.8
7x	185.2
8x	210.1
9x	234.6
10x	258.8
11x	282.6
12x	306.0
13x	329.2
14x	351.9
15x	374.1
16x	396.2
17x	418.0
18x	439.4
19x	460.6
20x	481.3
21x	501.6
22x	521.9
23x	541.7
24x	561.3
25x	580.5
26x	599.5
27x	618.2
28x	636.5
29x	654.6
30x	672.4
31x	690.1
32x	707.5
33x	726.0
34x	741.2
35x	757.8
36x	771.6

Main Hook Block (Winch 1)	
Hook Block 200DM (7 Sheave) 25mmø	
Parts of Line	14
Reeving Cap. (EN 13000)	351 900 lb
Block Wt.	((x4) Chk. Wts.) 9 900 lb

Aux. Hook Block (Winch 2)	
Hook Block 36EM (1 Sheave) 25mmø	
Parts of Line	2
Reeving Cap. (EN 13000)	54 900 lb
Block Wt.	3 300 lb

MAIN HOOK BLOCK WEIGHT CALC:

G=L x M x N x F
 L=184 ft
 M=2.08 lb/ft
 N=14
 F=1.65

G=184 ft x 2.08 lb/ft x 14 x 1.65 = 8 841 lb min. block weight < 9 900 lb so O.K.

ROPE LENGTH CHECK:

Hoist Rope Length: 3 280'
 Boom Length: 184'

3280 / (184*15) = 1.19 > 1 so O.K.

PROJECT:

CP Chem

LOCATION: Orange, TX

BUCKNER CONTACT: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

LIFT PLAN BY: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

DRAWING NOTES:

Hookblock

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A



FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

CREATED: 04.26.2024 @ 6:54:25 AM

EDITING TIME: 13h32m FILE SIZE: 4783.47Kb

PAPER SIZE: ANSI full bleed B (11.00 x

SAVED: 04.26.2024 @ 17:00:05 (AM)

PLOTTED: 04.26.2024 @ 7:00:12 AM

Revisions

All Sheets Same Revision Level

Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 005 OF 009



PROJECT:

CP Chem

LOCATION: Orange, TX

BUCKNER CONTACT: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

LIFT PLAN BY: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

DRAWING NOTES:

Main Reeving

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A

PRELIMINARY

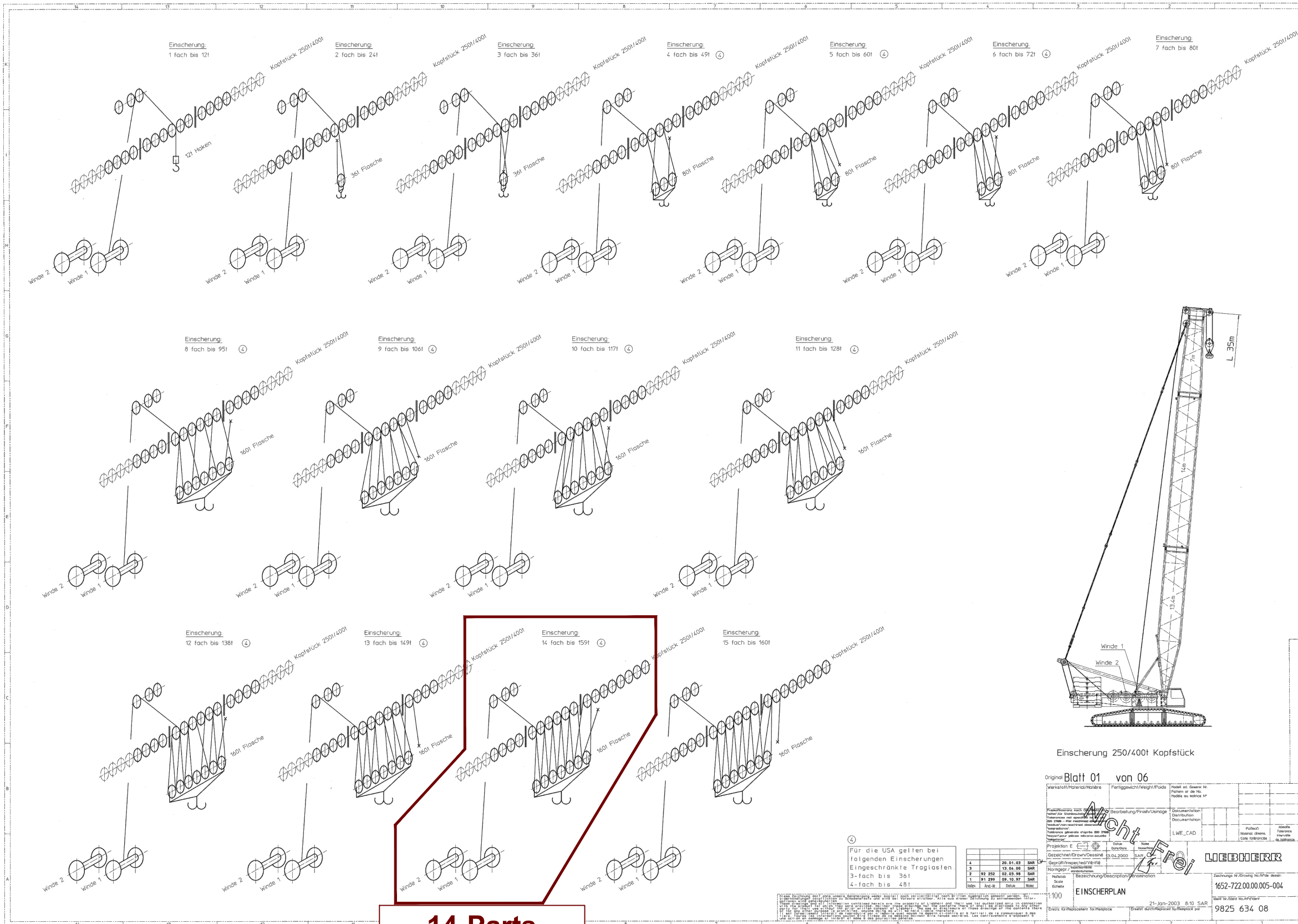
FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

CREATED: 04.26.2024 @ 6:54:25 AM
 EDITING TIME: 13h32m FILE SIZE: 4783.47Kb
 PAPER SIZE: ANSI full bleed B (11.00 x 17.00)
 SAVED: 04.26.2024 @ 17:00:55 AM
 PLOTTED: 04.26.2024 @ 7:00:16 AM

Revisions

All Sheets Same Revision Level

Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----



14-Parts
Use Winch 1

Original Blatt 01 von 06

Werkstoff/Material/Material	Fertiggewicht/Weight/ Poids	Hubel mit Gewicht in Prozenten der Hublast
1	13,24,00 SAR	
2	92,253 02,03,98 SAR	
3	91,299 02,10,97 SAR	

Wicht Frei

PROJEKTION E

Gezeichnet/Drawn/Desiné: 23.04.2000 SAR

Geprüft/Inspected/Verifié: 21.01.2003 8:10 SAR

Scale: 1:1

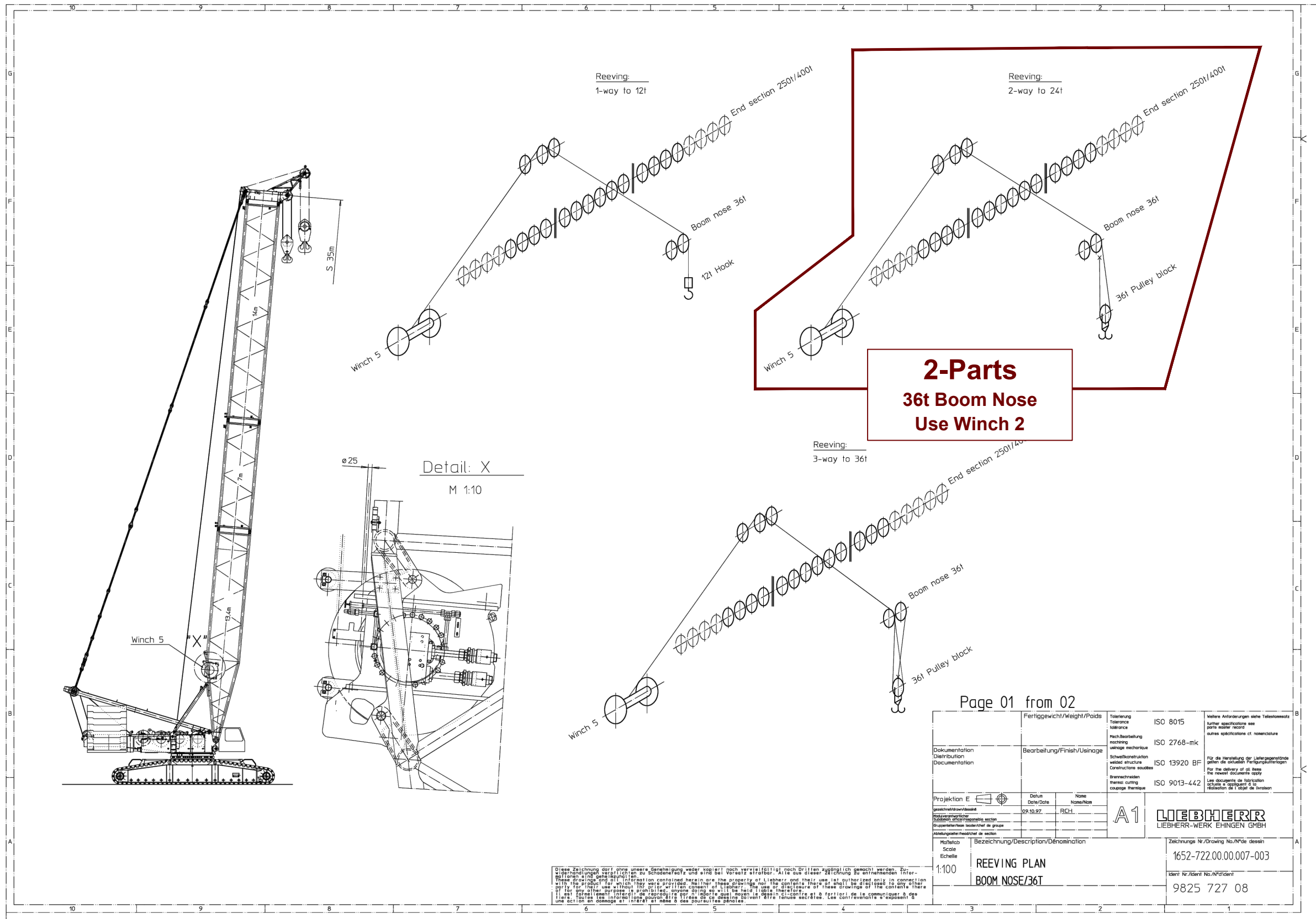
100 EINSICHERPLAN

1652-722.00.005-004

9825 634 08

SHEET: 006 OF 009





PROJECT: CP Chem
 LOCATION: Orange, TX
 BUCKNER CONTACT: Andy Moore, P.E.
 AndyM@BucknerHeavyLift.com
 LIFT PLAN BY: Andy Moore, P.E.
 AndyM@BucknerHeavyLift.com

DRAWING NOTES:
 Aux Reeving

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A

PRELIMINARY

FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

CREATED:	04.26.2024 @ 6:54:25 AM
EDITING TIME:	13h32m FILE SIZE: 4783.47Kb
PAPER SIZE:	ANSI full bleed B (11.00 x 17.00)
SAVED:	04.26.2024 @ 17:00:05 (AM)
PLOTTED:	04.26.2024 @ 7:00:15 AM

Revisions		
All Sheets Same Revision Level		
Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 007 OF 009



RAISING - AND LOWERING CHARTS

SL - mode
with 350 t head section

TAB: 12400067
System: S 2620.20
L 2620.10

Note: raising, lowering 360°
Supporting base 7,80 m×7,50 m×1,20 m **without** additional supports

Operating mode	Slewing platform- / central ballast [t] / [t]	Boom combination SL (m)	max. permissible hook block weight on main boom [t]
SL	155 / 43	21 - 70	8,0
		77	6,1
		84	2,7
	135 / 43	21 - 63	8,0
		70	7,0
		77	4,1
		84	0,9
	95 / 43	21 - 56	8,0
		63	5,7
		70	2,6
	55 / 43	21 - 42	8,0
		49	7,3
		56	3,6
		63	0,7
	0 / 43	21 - 28	8,0
		35	4,3
		42	0,9
	95 / 11	21 - 49	8,0
56		7,5	
63		4,1	
70		1,2	
55 / 11	21 - 42	8,0	
	49	5,3	
	56	1,9	

RAISING - AND LOWERING CHARTS

SL - mode
with 350 t head section

TAB: 12400068
System: S 2620.20
L 2620.10

Note: raising, lowering side ways
Supporting base 7,80 m×7,50 m×1,20 m **with** additional supports
(Supporting point 7.00 m from center of slewing ring)

Operating mode	Slewing platform- / central ballast [t] / [t]	Boom combination SL (m)	max. permissible hook block weight on main boom [t]
SL	155 / 43	21 - 77	8,0
		84	6,6
		91	3,3
	135 / 43	21 - 77	8,0
		84	6,6
		91	3,3
	95 / 43	21 - 77	8,0
		84	5,6
		91	2,7
	55 / 43	21 - 63	8,0
		70	6,6
		77	3,7
	0 / 43	21 - 42	8,0
		49	7,4
		56	3,7
	95 / 11	21 - 70	8,0
		77	6,9
		84	3,5
55 / 11	21 - 56	8,0	
	63	7,3	
	70	4,0	
		77	1,4

PROJECT:

CP Chem

LOCATION: Orange, TX

BUCKNER CONTACT: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

LIFT PLAN BY: Andy Moore, P.E.
AndyM@BucknerHeavyLift.com

DRAWING NOTES:

Boom Erection

LR1400	
Operating Mode	SL
Main Boom Length	56m (184')
Luffing Jib Length	N/A
Derrick Length	N/A
Superstructure CWT	155t (342k)
Carbody CWT	43t (95k)
Ballast Tray CWT	N/A



FILE: D:\Andy Moore\OneDrive - Buckner HeavyLift Cranes\Documents - Engineering\Drawings\BHL\Buckner\Build Sheets\LR 1400\LR 1400 - SL 56m (184') - (Rev.004).dwg

CREATED: 04.26.2024 @ 6:54:25 AM

EDITING TIME: 13h32m FILE SIZE: 4783.47Kb

PAPER SIZE: ANSI full bleed B (11.00 x 17.00)

SAVED: 04.26.2024 @ 17:00:05 (AM)

PLOTTED: 04.26.2024 @ 7:00:14 AM

Revisions

All Sheets Same Revision Level

Rev.	Date	Description
000	02.26.2024	Preliminary Planning & Initial Layout
001	02.26.2024	Boom Length Reduction
002	02.26.2024	Parts Of Line Increased
003	03.05.2024	Swapped 14m Boom Section For (x2) 7m Sections
004	04.26.2024	Reduced Boom Length/Changed HB
005	----	----
006	----	----
007	----	----
008	----	----
009	----	----

SHEET: 008 OF 009



