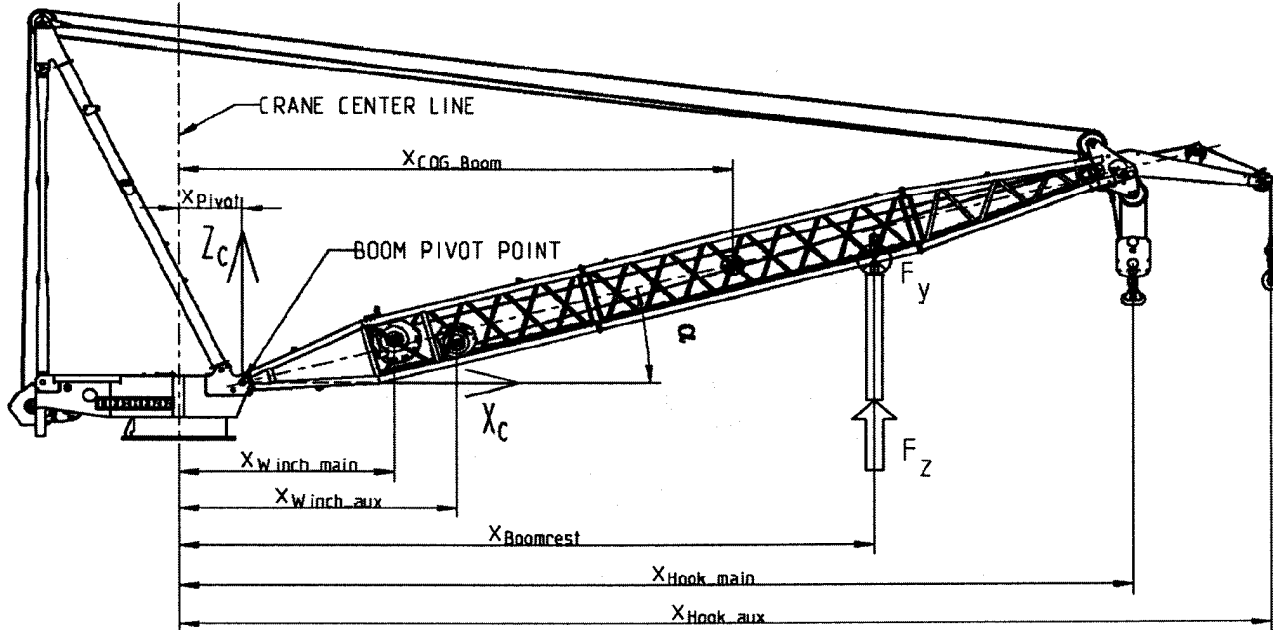


LIEBHERR - Reaction to foundation (RTF)

Item Code: 984272414
Revision: 00

Crane: BOS 4200 - 40 LITRONIC
Order: 170358

The following force are final REACTIONS TO FOUNDATION (RTF) at boom re t in towed condition.



Environmental condition :

Boom angle in towed condition:	α	0 [°]	
Location of boom rest:	x_{Boomrest}	41000 [mm]	
max. Wind speed in towed condition:		63 [m/]	
Wind pressure q :		2.43 [kN/m ²]	
Ice load:	Ice thickness :	10 [mm]	
	Density:	900 [kg/m ³]	
Snow load:	Snow thickness :	250 [mm]	
	Density:	200 [kg/m ³]	
Static heel:		20 [°]	
Acceleration :	Acceleration normal to deck (z)	0.51 [g]	5.00 [m/ ²]
	Acceleration transverse to deck (y)	0.25 [g]	2.50 [m/ ²]
	Acceleration longitudinal to deck (x)	0.25 [g]	2.50 [m/ ²]
Force at boom rest:	Vertical Force F_z	425.4 [kN]	
	Horizontal Force F_y	243.1 [kN]	

Crane Data:

Boom length:		48000 [mm]
Crane Center Line - Boom Pivot Point:	x_{Pivot}	2300 [mm]
Wind area boom (inkl. cw factor):	A_{W_x}	64.73 [m ²]
	A_{W_y}	55.24 [m ²]
Ice and snow area boom:	A_{I+S_x}	88.93 [m ²]
Boom weight (excl. rope):	excl. ice and snow	41.11 [t]
	incl. ice and snow	46.36 [t]
COG Boom (boom in towed condition):	$x_{\text{COG_Boom}}$	23869 [mm]
Rope weight:	$m_{\text{Rope_main}}$	2.75 [t]
	$m_{\text{Rope_aux}}$	0.00 [t]
Winch position (boom in towed condition):	$x_{\text{Winch_main}}$	8030 [mm]
	$x_{\text{Winch_aux}}$	0 [mm]
Hook weight:	$m_{\text{Hook_main}}$	2 [t]
	$m_{\text{Hook_aux}}$	0 [t]
Hook position (boom in towed condition):	$x_{\text{Hook_main}}$	50300 [mm]
	$x_{\text{Hook_aux}}$	0 [mm]

14.09.07	LWN	Reaction to Foundation	Burcher	Fi cher
Date	Work	Description	Prepared	Approved

No copying or duplication of this document without the permission of Liebherr.
This document has been issued electronically and is valid without signature.

Crane System Calculation.xl

LIEBHERR - Reaction to foundation (RTF)

Item Code: 984272414
 Revi ion: 00

Crane: BOS 4200 - 40 LITRONIC
 Order: 170358

Load Case :	LC1	LC2	LC3	LC4
Static heel	20	20	0	0
Acceleration normal to deck (z)	[g]	0.51	0.51	0.51
Acceleration transverse to deck (y)	[g]	0	0.25	0
Acceleration longitudinal to deck (x)	[g]	0	0.25	0.25
Wind direction	[°]	y	x	y
Vertical load Fz:				
Static load due to boom weight (incl. ice and now)	[kN]	427.34	454.76	454.76
Dynamic load due to boom weight (incl. ice and now)	[kN]	231.79	231.79	231.79
Wind load	[kN]	0.00	0.00	0.00
Static load due to main hoist rope	[kN]	25.34	26.96	26.96
Dynamic load due to main hoist rope	[kN]	13.74	13.74	13.74
Static load due to aux. hoist rope	[kN]	0.00	0.00	0.00
Dynamic load due to aux. hoist rope	[kN]	0.00	0.00	0.00
Static load due to main hoist hook	[kN]	18.44	18.44	19.62
Dynamic load due to main hoist hook	[kN]	10.00	10.00	10.00
Static load due to aux. hoist hook	[kN]	0.00	0.00	0.00
Dynamic load due to aux. hoist hook	[kN]	0.00	0.00	0.00
Force at boom rest	[kN]	408.41	425.40	425.40
			max:	425.4 [kN]
Horizontal load Fy:				
Static load due to boom weight (incl. ice and now)	[kN]	155.54	0.00	0.00
Dynamic load due to boom weight (incl. ice and now)	[kN]	115.89	115.89	0.00
Wind load	[kN]	134.41	0.00	0.00
Static load due to main hoist rope	[kN]	9.22	9.22	0.00
Dynamic load due to main hoist rope	[kN]	6.87	0.00	6.87
Static load due to aux. hoist rope	[kN]	0.00	0.00	0.00
Dynamic load due to aux. hoist rope	[kN]	0.00	0.00	0.00
Static load due to main hoist hook	[kN]	6.71	6.71	0.00
Dynamic load due to main hoist hook	[kN]	5.00	0.00	5.00
Static load due to aux. hoist hook	[kN]	0.00	0.00	0.00
Dynamic load due to aux. hoist hook	[kN]	0.00	0.00	0.00
Force at boom rest	[kN]	243.10	96.38	0.00
			max:	243.1 [kN]

Remark:

- Wind load is applied as a single force on boom center of gravity (COG)
- Force and moment have been calculated according to the "allowable stress method".