# Crane Ground Pressure simulation manual

Ver.4.0 English July 6, 2022 Sumitomo Heavy Industries Construction Cranes Co., Ltd.

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1. Introduction

1.1. Usage environment

(1) PC

We have confirmed the operation of this system in the following environment at the time of creating this manual.

OS : Microsoft Windows 10 Web browser : Microsoft Edge(Chromium), Internet Explorer 11, Google Chrome, Firefox

(2) Communication environment

This service is available via the Internet.

1.2. Inquiries

If you have any questions or trouble in operating the service, please contact the following:

Sumitomo Heavy Industries Construction Cranes Co., Ltd. 9-3, Higashi-Ueno 6-chome, Taitou-ku, Tokyo, 110-0015 Japan URL: <u>http://www.hsc-cranes.com/e/</u>



## 2. Using the service

## 2.1. Start-up

Open web browser and access the website of Sumitomo Heavy Industries Construction Cranes Co., Ltd. (the following URL). <u>http://www.hsc-cranes.com/e/</u>

Click [Sales & Service] and select [Ground Pressure Simulator].

Summonio meny maaniner comb acaon chanes co., cio.		ELAZ 49X Owner's Site Login Inquines
HSC CRANES		Lineup V Sales & Service A Company V
Sales & Service		A REPORT OF A R
Head office	Distributor Network	Technical training center
Ground Pressure Simulator	Owner's Site (Global e-Service)	CAD Data Download
	le renamed to "Sumitomo Heavy Industries Construction	on Cranes Co., Ltd.".
V We deliver o	Verenamed to "Sumitomo Heavy Industries Construction our new brand "HSC CRANES" and the "True Satisfaction	on Cranes Co., Ltd." 1° to our customer worldwide.
We deliver o	Verenamed to Sumitomo Heavy Industries Construction	on Cranes Co., Ltd.", \$" to our customer worldwide.
V We deliver	Ferenamed to "sumitome Heavy Industries Constructs aur new brand "HSC CRANES" and the "True Satisfaction Sona	on Cranes Co., Ltd;" "'to our customer worldwide.
We deliver of	Ferenamed to "sumitomo Heavy Industries Construction are new brand "HSC CRANES" and the "True Satisfaction Sona	on Cranes Co., Ltd;. * to our customer worldwide.

## 2.2. Agreeing to the terms of use

Please read the terms of use and click [Accept & Start Simulation].

This pro	gram provides ground pressure simulation according to each working conditions. And the result of simulation can be printed
(For larg	pe models, please contact to our service dept)
Term	ns of use
The Gro	und Presure Simulator may be used to calculate the maximum ground contact pressure for cranes in the working position
under st	atic loading. To use the simulator, you must thoroughly ead and agree with the following terms of use. If you do not agree
with the	terms of use, you will not be permitted to use the simulator.
1. Pu	rpose
Th	rese terms of use are for use of the Ground Pressure Simulator (hereinafter referred to as the "Service") that is hereby
off	ered by Sumitomo Heavy Industries Construction Cranes Co., Ltd. (hereinafter referred to as the "Company").
2. Us	ers
On	iy individuals or organizations who agree with these terms of use (hereinafter referred to as "Users")shall be permitted to
US	e the Service.
3. Eq	uipment, etc.
Us	ers shall prepare telecommunications equipment, software and all and any other equipment incidental to those that are
ne	cessary to use the Service and shall conclude contracts with telecommunications companies for the provision of the
Int	ernet, bearing the liability and the cost.
4. Ca	iculation conditions
To	use the Service, Users shall input values of the capacity of the crane and the values listed in the rated lifting load chart
tha	the Company provides separately.
5. Ch	anges, suspension, etc., of the Service The Company, many mains and a shellow the whole or any part of the Comico or make addition to the Comico without prior
	Accept & Start Simulation >
How	to use

## Note:

Contact us with any questions about the service by clicking [Contact us] in the bottom left corner of the page.

## 2.3. Select model

Select a model for calculating ground pressure.

#### Note:

Please contact us for unlisted models.

Cranes based on Excavators with capacities below 30t are listed under the Hitachi and Sumitomo Excavator categories.

#### 2.4. Select specifications

When you select a model, the available specifications of that model will be displayed.

Select the items according to the model such as main body specifications, various weights, shoes, posture, etc. (Mandatory) For computable models, enter a swing angle you want to calculate. (Optional)

Select model		1
Model	SCX900-3 V Catalog	
(Note)Specifications and work Specification of base	ing conditions should be within parameters in the rated lifting load chart. Standard	
Counter weight	Standard(31.7t)	
Lower weight	Standard(7.5t)	
Shoes	Standard	
External weight	Without	
Condition	Working      Erection      Without front attachment	
Swing angle	[25(°)	
Front attachment	Crane Tower (Luffing)	

#### Note:

You can look up crane specifications and load charts by clicking on the specification catalog link provided next to the model name.

To view the catalog for tower (Luffing) cranes, please look under Lineup on our website.



- 2.5. Calculating ground pressure of the crane specification.
- 1) Select [Crane] as the front attachment specification and click [Confirm model and specification].

Select model	1 2
Model	SCX900-3 Catalog
(Note)Specifications and worki Specification of base machine	g conditions should be within parameters in the rated lifting load chart. Standard
Counter weight	Standard(31.7t)
Lower weight	Standard(7.5t)
Shoes	Standard
External weight	Without
Condition	Working      Erection      Without front attachment
Swing angle	[25 (*)
Front attachment	Crane      Tower (Luffing)
	Confirm model and specification >

2) Specify the working conditions by selecting boom mast, boom type, and boom length.

\*Working condition options for the specified model and specifications are automatically displayed.

Ground Fressure a	imulator					
Model and specificat	ion					
Model	SCX900-3 🖻 Catalog					
Specification of base machine	Standard					
Counter weight	Standard(31.7t)					
Lower weight	Standard(7.5t)					
Shoes	Standard					
External weight	Without					
Condition	Working					
Swing angle	25°					
Front attachment	Crane					
	O back to mode					
Input working condi Note)Specifications and work	tion ing conditions should be within parameters in the rated lifting load chart.					
Input working condi Note)Specifications and work	tion ing conditions should be within parameters in the rated lifting load chart.					
Input working condi Note)Specifications and work Seem Boom mast Boom type	tion ing conditions should be within parameters in the rated lifting load chart. Without Limited for crane					
Input working condi Note)Specifications and work Boom mast Boom type Boom length	tion ing conditions should be within parameters in the rated lifting load chart. Without Limited for crane					
Input working condi Note)Specifications and work Boom mast Boom type Boom length Ib	tion ing conditions should be within parameters in the rated lifting load chart. Without Limited for crane					
Input working condi Note)Specifications and work Boom mast Boom type Boom length Ib Jib type	tion ing conditions should be within parameters in the rated lifting load chart. Without Limited for crane 12.00m Without Without Without O Without Aux. Sheave (Short jib) Crane jib					

## Caution:

If you need to return to the model selection screen, click [Back to model selection]. Do not use the [Back] button on your browser, as this may clear all selections you have made up to this point.  Select jib type, with or without aux sheave, jib length, and jib offset angle.

\*Specifications will be automatically selected if no options exist for the selected jib type.

011060	STOLEN IN
External weight	Without
Condition	Working
Swing angle	25°
Front attachment	Crane
	👌 Back to r
	-
Input working conditi	on
vote)Specifications and workin	g conditions should be within parameters in the rated lifting load chart.
Boom mast	Without
Peem tune	
воот суре	
Boom length	12.00m V
b	
Jib type	○ Without ○ Aux. Sheave (Short jib)
Jib length	[16.00m V
Jib offset angle	[30° 🗸
ifting load	
	⊖ Boom lift ⊖ Jib lift
Lifting point	
Lifting point	(m)
Lifting point Working radius or boom angle	Working radius (m)     Gnom angle(°)     (e)
Lifting point Working radius or boom angle	Working radius (m)     (m)     Boom angle(°)     (°)
Lifting point Working radius or boom angle Number of falls	Working radius (m)     (m)     Boom angle(*)     (falls)
Lifting point Working radius or boom angle Number of falls	<ul></ul>
Lifting point Working radius or boom angle Number of falls Lifting load (including	Working radius (m)         (m)           Boom angle(*)         (*)           Boom         (falls)           Jib         (falls)           Boom(t)         0         (t)

 Enter the lifting point, working radius or boom angle, number of falls, lifting load (including hook), and click [Calculation].

Boom	ecilications and working	conditions should be within parameters in the rated lifting load thart.	
Boom	mast	Without	
Boom	type	Limited for crane	
Boom	length	12.00m 👻	
Jib			
Jib typ	e	○ Without ○ Aux. Sheave (Short jib)	
Jib ler	gth	16.00m 🗸	
Jib off	set angle	30' 🗸	
Lifting	bool		_
Lifting	point	Boom lift	
Worki angle	ng radius or boom	Working radius (m) 5 (m)     Boom angle(°) (°)	
Numb	er of falls	Boom 8 (falls) Jib 1 (falls)	
Lifting	load (including	Boom(t)         70         (t)           Jib(t)         0.9         (t)	

## Caution:

If you wish to calculate ground pressure based on a short jib or crane jib, refer to the specification catalog and select a corresponding boom length.

## Note:

In the calculation where the hook may not be hung, enter 0 for both the number of falls and Lifting load.

## Caution:

Enter either the working radius or boom angle. If you enter both, the program will use the item that is selected by the radio button.

#### Note:

The working radius or boom angle may be entered up to the first decimal place. Lifting load (including hook) may be entered up to the second decimal place.

## Caution:

Enter a boom angle that is within the crane's proper working conditions. 5) The calculation result appears.

If you wish to print it out, click [Print].

					HSC CF	RAN		
Ground Pressure Simu	llator							
Result							1	
Model and specification			Wo	rking conditi	nc			
Model	SCX900-3	🚵 Catalog	Bo	om mast		Without		
Specification of base machine	Standard			om type		Limited for crane		
Counter weight	Standard(31.7t)			om length		12.00m		
Lower weight	Standard(7.5t)			type		Crane jib		
Shoes	Standard			length		16.00m		
External weight	Without			offset angle		30°		
Condition	Working		Lif	ting point		Boom lift		
Swing angle	25°		w	orking radius		Working radius: 5.0m		
Front attachment	Crane			om or tower jit	angle	Angle: 73.9°		
	🕐 Back	k to model selec	tion Nu	mber of falls	Boom(falls): 8falls Jib(falls): 1falls			
	Liftir			Lifting load (including hook)		Boom(t): 70t Jib(t): 0.9t	Boom(t): 70t Jib(t): 0.9t	
						Change working cor		
Ground pressure						<b>O</b> change no	intering co	
The simulation is based on Jap	an Construc	ction Machiner	y and Cons	truction Associ	ation			
Boom direction	Front Diagonally S to the front		Side	Diagonally to the rear	Rear	Max. pressure	Spec swi direc	
Swing angle °	0	45	ç	0 135	1	80 156		
A Crawler reaction force	80.5 122.8		140	2 122.8	80	0.5 104.8	:	
(RA) t		3 Crawler reaction force 80.5 38.3 RB) t		0.8 38.3 80.5				
(RA) t B Crawler reaction force (RB) t	80.5	38.3	20	8 38.3	80	0.5 56.2		

#### Note:

If you wish to recalculate the result using different calculation conditions, click [Back to model selection] or [Change working condition].

 After the print screen appears, use your browser's print function to print the result.

Total: 2 sheets of paper			Model and specifi	ation		Wor	Working condition			
form. 2 sheets of puper			Model	5	CX900-3	Boo	Boom mast With			
		-	Specification of bas	machine	tandard	Boo	m type		Limited	for crane
Delastere			Counter weight	\$	tandard(31.7	t) Boo	m length		12.00m	
Printer			Lower weight	\$	tandard(7.5t)	Jibt	ype		Crane ji	ь
			Shoes	9	tandard	Jib I	ength		16.00m	
Microsoft Print to PDF	$\sim$		External weight		(ithout	Jib	offset angle		30*	
			Condition		/orking	Lifti	ng point		Boom li	t
			Swing angle	2	5°	Wor	king radius		Working	radius:
Copies			Front attachment		rane	Boo	m or tower	ib angle	5.0m	
									Angle: 1	3.9°
1						Nun	nber of falls		Boom(f	ills): 8falls
									JID(rais	: Irais
						Lifti	ng load (inc	luding hoo	k) Boom(t) 16(t): (	: 70t
Layout									Jud(c). C	
		1	Ground pressure							
Portrait		1	The simulation is ba	sed on Japa	n Constructio	on Machine	ry and Cons	truction As	sociation	
			Boom direction	Front	Diagonally	Side	Diagonally	Rear	Max.	Specified
Landscape					to the		to the		pressure	swing
0			Cudan anala		Tront		rear	100	150	direction
			Swing angle		45	90	135	180	155	25
Pages			reaction force	80.:	122.0	140.2	122.0	80.5	104.0	105.8
-9			(RA)	t						
O All			B Crawler	80.	38.3	20.8	38.3	80.5	56.2	55.3
-			reaction force							
			(RB)	t						
e.g. 1-5, 8, 11-13			A Crawler ground	56.0	61.7	30.5	0.0	0.0	0.0	65.5
			(OAF) t/	,2						
			A Crawler ground		0.0	33.0	65.4	60.7	70.4	0.0
Lolor			pressure rear				0.011	0011		
			(QAR) t/r	n <sup>2</sup>						
Color	$\sim$		B Crawler ground	56.	19.2	4.5	0.0	0.0	0.0	34.2
			pressure front							
			(QBF) t/i	1 <sup>4</sup>						
More settings 🗸			B Crawler ground	0.0	0.0	5.0	20.4	60.7	37.8	0.0
			(OBR) +/	2						
Print using system dialog (Ctrl+S	hift+P)		Length of ground	3.9	4.91	5.38	4.64	3.27	3.68	3.99
		1	pressure (L)	m						
Troubleshoot printer issues		1	Distribution of	Triangle	Triangle	Trapezoidal	Triangle	Triangle	Triangle	Triangle
			pressure							
			(Note) 1(KPa)=0.102(t/	$n^2$ ), $1(t/m^2)=$	9.8(KPa)					
			(Note) Theoretical groun	d area = Dista	nce between tu	umblers LT				
			(Note)This simulation charts.	loesn't judge	overload. Ple	ase confirm	load charts f	irst and inp	ut data acco	rding to
		1								
Print	Cancel	1								
		1								
I (OBF)	t/m4	1							1	
(401)	Vill-									
B Crawler g	round	0.0	0.0	5.0	20.4	60.7	37	.8	0.0	
Droccure re-										

- 2.6. Calculating ground pressure of a tower (Luffing) crane specification.
- Select [Tower (Luffing)] or [Tower (suspended load position)] as the front attachment specification and click [Confirm model and specification].

Ground Pressure Si	nulator
Select model	I
Model	SCX900-3 v da Catalog
Select specifications	of base machine
(Note)Specifications and worki	ng conditions should be within parameters in the rated lifting load chart.
Specification of base machine	Standard
Counter weight	Standard(31.7t)
Lower weight	Standard(7.5t)
Shoes	Standard
External weight	Without
Condition	Working      Erection      Without front attachment
Swing angle	25 (°)
Front attachment	○ Crane      ● Tower (Luffing)
	Confirm model and specification >

2) For working condition, select and enter the tower boom information corresponding to the selected model.

\*Specifications will be automatically selected if no options exist for the selected model.

<b>Ground Pressure Si</b>	mulator				
Model and specificat	ion	A			
Model	SCX900-3 🚵 Catalog	5CX900-3 🚵 Catalog			
Specification of base machine	Standard				
Counter weight	Standard(31.7t)				
Lower weight	Standard(7.5t)				
Shoes	Standard				
External weight	Without				
Condition	Working	Working			
Swing angle	25°				
Front attachment	Tower (Luffing)				
Front attachment	Tower (Luffing)	<b>U</b> Back to mode			
Front attachment	Tower (Luffing) tion ing conditions should be within parameters in the rated lifting lo	<b>O</b> Back to mode			
Front attachment Input working condit Note)Specifications and work Gener boom Tower boom mast	Tower (Luffing)	Back to mode ad chart.			
Front attachment Input working condit Note)Specifications and work Gener boom Tower boom mast Tower boom type	Tower (Luffing)	Back to mode			
Front attachment Input working condit Note)specifications and work Over- boom Tower boom mast Tower boom type Tower boom length	Tower (Luffing) tion ing conditions should be within parameters in the rated lifting lo Without Standard 41.50m	Back to mode			
Front attachment Input working condit Note)Specifications and work Over- boom Tower boom mast Tower boom type Tower boom length Tower boom Angle (°)	Tower (Luffing)	Back to mode			
Front attachment	Tower (Luffing) tion ing conditions should be within parameters in the rated lifting lo Without Standard (41.50m ) To (°)	Back to mode			
Front attachment Input working condit Note)Specifications and work work- boom Tower boom mast Tower boom length Tower boom Angle (°) Tower jib Tower jib length	Tower (Luffing) tion ing conditions should be within parameters in the rated lifting lo Without Standard (41.50m ) (70 (°) Select category )	Back to mode			

Note:	
For models with super lift	
specifications, specify the	
hook suspension position in	
the Tower.	

# Caution:

Enter a tower boom angle that is within the crane's proper working conditions. 3) Enter the jib information for the selected model.

\*Specifications will be automatically selected if no options exist for the selected jib type.

Condition         Working           Swing angle         25°           Front attachment         Tower (Luffing)           Input working condition         (Note)Specifications and working conditions should be volted by the standard           Tower boom         Tower boom mast         Without           Tower boom length         [41.50m]           Tower boom length         [41.50m]           Tower jib         [37.00m]	Back to model selectic within parameters in the rated lifting load chart.
Swing angle     25°       Front attachment     Tower (Luffing)       Input working condition     Input working conditions should be trained by the standard       Tower boom mast     Without       Tower boom length     [41:50m]       Tower boom Angle (*)     70       Tower jib     [37:00m]	Back to model selection     within parameters in the rated lifting load chart.
Imput working conditions should be working conditions.       Tower boom mast     Without       Tower boom length     [41:50m]       Tower boom Angle (°)     [70       Tower jib length     [37:00m]	Back to model selection Within parameters in the rated lifting load chart.
Front attachment     Tower (Lumg)       Input working condition       Note)Specifications and working conditions should be visual to the vist to the visual to the visual tott to the visual to the vi	Back to model selection     within parameters in the rated lifting load chart.
Input working conditions         (Note)Specifications and working conditions should be variable of the should be vari	Back to model selection     within parameters in the rated lifting load chart.
Input working conditions       (Note)Specifications and working conditions should be working conditions should be working conditions should be working conditions where working conditions and working conditions where working conditions where working conditions where we want working conditions where we working conditions where we want working conditing conditions where we want working conditions where we want	within parameters in the rated lifting load chart.
Note)Specifications and working conditions should be v       Tower boom       Tower boom mast     Without       Tower boom type     Standard       Tower boom length     (41.50m)       Tower boom Angle (°)     70       Tower jib     37.00m	within parameters in the roted lifting load chart.
Tower boom Tower boom mast Without Tower boom type Standard Tower boom length 41.50m Tower boom Angle (°) 70 Tower jib Tower jib length 37.00m	(°)
Tower boom mast     Without       Tower boom type     Standard       Tower boom length     [41:50m]       Tower boom Angle (°)     [70       Tower jib     [37:00m]	(°)
Tower boom type     Standard       Tower boom length     (41.50m       Tower boom Angle (*)     (70       Tower jib     (37.00m	(°)
Tower boom length     41.50m       Tower boom Angle (°)     70       Tower jib     37.00m	
Tower boom Angle (°) [70 Tower jib Tower jib length [37.00m	(°)
Tower jib Tower jib length 37.00m	
Tower jib length (37.00m	
	v
Short jib Without	
Lifting load	
Lifting point TowerJib lift	
Working radius or Tower jib    Working radius	s (m) (m)
angle O Tower jib angle	le (°) (°)
Number of falls Tower jib	(falls)
Lifting load (including Tower jib(t) hook)	0 (t)

 Enter the lifting point, tower angle, working radius or tower jib angle, number of falls, and lifting load (including hook), and click [Calculation].

Condition	Working				
Swing angle	25°				
Front attachment	Tower (Luffing)				
	1		U Back to model selection		
Turnet condition and data	_				
Input working conditio	n conditions should be within parameters in the rated lifting	load chart.			
ower boom					
Tower boom mast	Without				
Tower boom type	Standard				
Tower boom length	41.50m 🗸				
Tower boom Angle (°)	70 (°)	70 (°)			
ower jib	1				
Tower jib length	37.00m 🗸				
Short jib	Without				
ifting lead	3	_			
Lifting point	TowerJib lift				
Working radius or Tower jib angle	Working radius (m) 25     Tower jib angle (°)	(m) (°)			
Number of falls	Tower jib 1	(falls)			
	Tower tib(t) 5	(t)			

#### Note:

In the calculation where the hook may not be hung, enter 0 for both number of falls and lifting load.

## Caution:

Enter either the working radius or boom angle. If you enter both, the program will use the item that is selected by the radio button.

## Caution:

Enter a tower jib angle that is within the crane's proper working conditions.

## 5) The calculation result appears.

If you wish to print it out, click [Print].



6) After the print screen appears, use your browser's print function to print the result.

rinter Microsoft Print to PDF ~	Model Specification of base Counter weight Lower weight	S	CX900-3	Bog				
Printer Microsoft Print to PDF V	Specification of base Counter weight Lower weight	machine S			m mase		Without	
Printer Microsoft Print to PDF  V	Counter weight Lower weight	nacinite 15	tandard	Boo	m type		Limited	for crane
Microsoft Print to PDF V	Lower weight	s	tandard(31.7	t) Boo	m length		12.00m	1
Microsoft Print to PDF 🗸 🗸		s	tandard(7.5t	) Jib	type		Crane j	b
	Shoes	s	tandard	Jib	length		16.00m	
	External weight	v	lithout	Jib	offset angle		30°	
	Condition	v	lorking	Lifti	ing point		Boom li	ft
onies	Swing angle	2	59	Wor	king radius		Working	radius:
-opies	Front attachment	c	rane	Boo	m or tower	jib angle	5.0m	
							Angle:	73.9°
1				Nur	nber of falls		Boom(f	alls): 8falls
					an land (in	de allera hanal	JID(Tails	): Italis
avout				Life in the second seco	ng load (inc	Juding hoo	lib(t): (	): /ut
ayout								
Portrait	Ground pressure							
-	The simulation is base	d on Japa	Constructi	on Machine	ry and Cons	truction As	sociation	
Landerane	Boom direction	Front	Diagonally	Side	Diagonally	Rear	Max.	Specified
) canuscape			to the		to the		pressure	swing
	Curies each		Iront	00	rear	100	150	arecoon
lagar	Swing angle	00.0	40	90	135	100	104.0	105.0
ages	reaction force	00.5	122.0	140.2	122.0	00.5	104.0	105.6
	(RA) 1							
	B Crawler	80.5	38.3	20.8	38.3	80.5	56.2	55.3
	reaction force							
) e.g. 1-5, 8, 11-13	(RB) 1		<u> </u>					
	A Crawler ground	56.0	61.7	30.5	0.0	0.0	0.0	65.5
	(OAF) t/m <sup>2</sup>							
Color	A Crawler ground	0.0	0.0	33.0	65.4	60.7	70.4	0.0
	pressure rear	0.0		55.5	0.1	00.7	10.1	0.0
Color 🗸	(QAR) t/m <sup>2</sup>							
	B Crawler ground	56.0	19.2	4.5	0.0	0.0	0.0	34.2
	pressure front							
Nore settings ~	(QBF) t/m <sup>2</sup>							
	B Crawler ground	0.0	0.0	5.0	20.4	60.7	37.8	0.0
rint using system dialog (Ctrl+Shift+P)	(OBR) t/m <sup>2</sup>							
	Length of ground	3 60	4.01	5 20	4.64	3.27	3,60	3.00
roubleshoot printer issues	pressure (L) m	3.55	7.91	5.30	04	3.21	2.00	3.99
	Distribution of	Triangle	Triangle	Trapezoidal	Triangle	Triangle	Triangle	Triangle
	pressure						-	
	(Note) 1(KPa)=0,102(t/m)	), 1(t/m <sup>2</sup> )=	9.8(KPa)					
	(Note) Theoretical ground	area = Dista	nce between t	umblers LT				
	(Note)This simulation do charts	esn't judge	overload. Ple	ase confirm	load charts f	first and inpu	it data acco	ording to
	contra Cali							
Cancel								
(QBR) t/m <sup>2</sup>								
Length of ground 3.55	5 4.91 5.3	8	4.64	3.27	3.68	3 3	.99	

## Note:

If you wish to recalculate the result using different calculation conditions, click [Back to model selection] or [Change working condition].

- 2.7. Calculating ground pressure without a front attachment
- For the corresponding models, you can select the calculation with the main unit only. Select [Without a front attachment] as the condition and click [Calculation].

Select model	
Model	SCX900-3 🗸 🖬 Catalog
Select specifications of	base machine
Specification of base machine	Standard
Counter weight	Standard(31.7t)
Lower weight	Standard(7.5t)
Shoes	Standard
External weight	Without
Condition	○ Working ○ Erection
Swing angle	(*)
Front attachment	Crane Tower (Luffing)
Front attachment	Crane Tower (Luffing)

2) The calculation result appears.

If you wish to print it out, click [Print].

						ISC CF	RANE	
Ground Pressure Sim	ulator							
Result							1 2	
Model and specification								
Model	SCX900-3	🚵 Catalog						
Specification of base machine	Standard	andard						
Counter weight	Standard(3	1.7t)						
Lower weight	Standard(7	.5t)						
Shoes	Standard							
External weight	Without							
Condition	Without front attachment							
Swing angle	25°							
The simulation is based on Ja Boom direction	pan Construc Front	tion Machiner	ry and Constru Side	uction Associa Diagonally	tion Rear	Max.	Specified	
		to the front		to the rear		pressure	swing direction	
Swing angle °	0	45	90	135	180	22	2	
A Crawler reaction force (RA) t	42.4	18.5	8.6	18.5	42.4	29.8	28.	
B Crawler reaction force (RB) t	42.4	66.4	76.3	66.4	42.4	55.1	56.	
A Crawler ground pressure front (QAF) t/m <sup>2</sup>	0.0	0.0	1.9	9.7	32.5	0.0	0.	
A Crawler ground pressure rear (QAR) t/m <sup>2</sup>	36.1	10.5	2.1	0.0	0.0	22.5	20	
B Crawler ground	0.0	0.0	16.5	34.9	32.5	0.0	0.	

Note:						
"Without front attachment"						
refers to specifications						
excluding the boom and other						
front attachments, but						
includes the counterweight						
and crawler.						

## Note:

If you wish to recalculate the result using different calculation conditions, click [Back to model selection] or [Change working condition]. 3. Calculation result screen -Explanation of the chart-

The items of the calculation result chart mean the following.

The simulation is based on Japan Construction Machinery and Construction Association							
Boom direction	Front	Diagonally to the front	Side	Diagonally to the rear	Rear	Max. pressure	Specified swing direction
Swing angle °	0	45	90	135	180	22	25
A Crawler reaction force (RA) t	42.4	18.5	8.6	18.5	42.4	29.8	28.1
B Crawler reaction force (RB) t	42.4	66.4	76.3	66.4	42.4	55.1	56.7
A Crawler ground pressure front (QAF) t/m <sup>2</sup>	0.0	0.0	1.9	9.7	32.5	0.0	0.0
A Crawler ground pressure rear (QAR) t/m <sup>2</sup>	36.1	10.5	2.1	0.0	0.0	22.5	20.6
B Crawler ground pressure front (QBF) t/m <sup>2</sup>	0.0	0.0	16.5	34.9	32.5	0.0	0.0
B Crawler ground pressure rear (QBR) t/m <sup>2</sup>	36.1	37.5	18.6	0.0	0.0	41.7	41.6
Length of ground pressure (L) m	2.90	4.36	5.38	4.69	3.23	3.26	3.37
Distribution of pressure	Triangle	Triangle	Trapezoidal	Triangle	Triangle	Triangle	Triangle

 $\label{eq:stars} \begin{array}{l} (\text{Note}) \ _1(\text{KPa}) = 0.102(t/m^2), \ _1(t/m^2) = 9.8(\text{KPa}) \\ (\text{Note}) \ \text{Theoretical ground area} = \ \text{Distance between tumblers LT} \\ \textbf{(Note)This simulation doesn't judge overload. Please confirm load charts first and input data according to charts. \end{array}$ 



Item name	Explanation
Boom direction	Expresses the direction the boom is facing in reference to the crawler.
Swing angle	Shows the swing angle at maximum ground pressure.
A crawler reaction force (RA)	Shows the reaction force of A Crawler (right crawler).
B crawler reaction force (RB)	Shows the reaction force of B Crawler (left crawler).
A Crawler ground pressure front	Shows the front ground pressure of A Crawler (right crawler).
(QAF)	
A Crawler ground pressure rear	Shows the rear ground pressure of A Crawler (right crawler).
(QAR)	
B Crawler ground pressure front	Shows the front ground pressure of B Crawler (left crawler).

(QBF)	
B Crawler ground pressure rear	Shows the rear ground pressure of B Crawler (left crawler).
(QBR)	
Length of ground pressure(L)	Shows the length of ground pressure on the crawler.
Distribution of pressure	Shows the distribution of the ground pressure (triangular or
	trapezoidal).

# External weight ground pressure on firm supporting surface (Approximate value)

External counterweight ground pressure					
Tire ground pressure(QT)	t/m <sup>2</sup>	98.0			
Pontoon ground pressure(QP)	t/m <sup>2</sup>	15.0			

Item name	Explanation	
Tire ground pressure (QT)	Shows the tire ground pressure of the external weight.	
Pontoon ground pressure (QP)	Shows the pontoon ground pressure of the external weight.	

# Depending on the specifications, the calculation results will be displayed as follows.

Specifications of	Calculation results				
base machine					
Standard	Crawler Crane body (Method from Japan Construction Machinery and Construction				
	Association)				
Super Lift	When the Crawler Crane body is in the following states (Method from Japan				
	Construction Machinery and Construction Association)				
	External weight support pendant tension: large / Longmast support pendant				
	tension: small				
	External weight support pendant tension: small / Longmast support pendant				
	tension: large				
	External weight ground pressure on firm supporting surface (Approximate value)				
	External weight ground pressure on firm supporting surface.				

# Change history

No	Ver.	Date	Name	Description of the major changes
1	Ver. 1.0	11/15/ 2011	Akiko Matsui	First publication
2	Ver.2.0	4/6/ 2018	Akiko Matsui	Change of our Company Name
3	Ver.3.0	7/21/2021	Katsuyuki Satou	Input categories for arbitrary
				swing angle and number of falls
				has been added.
4	Ver.4.0	7/6/2022	Katsuyuki Satou	Additional entry of input/output
				items along with the addition of
				corresponding Super Lift models.