



**casagrande**

**Hydraulic equipment for piles and diaphragms**

**B1 25**

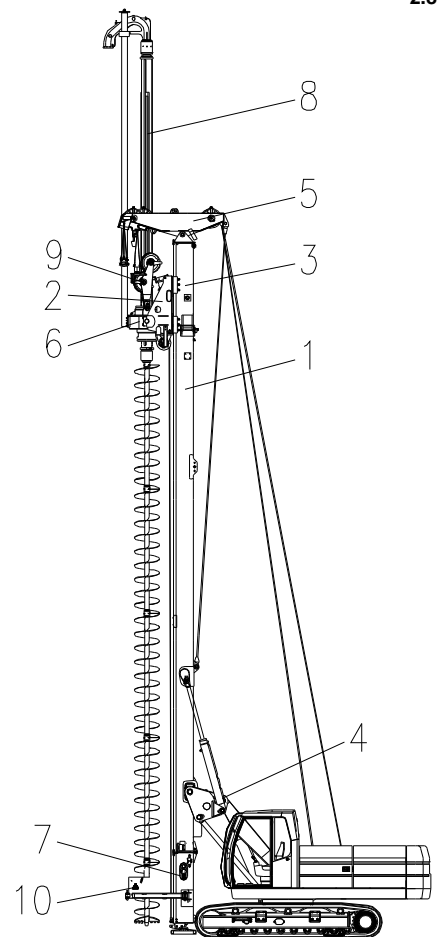
**Operation and maintenance  
instruction manual**

**(Translation of the original instructions)**

## 2.16.CFA equipment

### Description

1. Mast
2. Slide
3. Mast element
4. Parallelogram type support
5. Jib
6. Rotary
7. Mast foot
8. Cement feed pipe
9. Sheave block
10. Positioner / auger cleaner



Note: The disclaimer on the first worksheet applies to all tables in this workbook

Rig Manufacturer :	<b>CASAGRANDE SPA</b>	Rig Type :	<b>B125 sn B125 UU0446</b>
Completed by:	<b>eng. M. Pitton</b>	Operation mode:	<b>CFA</b>
		4/14/2011	Checked by: <b>eng. G. Michelazzo</b>

Main Components :

	Item	Mass (kg)	Moment arm (m)	Moment (kNm)
<b>UPPER WORKS</b>	Mast Assembly+pantograph	8200	2.20	176.97
	at maximum working radius 3400mm			0.00
				0.00
				0.00
				0.00
				0.00
				0.00
<b>LOWER WORKS</b>	Upperstructure	7020	-0.87	-59.91
	Undercarriage	10000	0.00	0.00
				0.00
				0.00
<b>ROPE / KELLY / CHAIN / SUSPENDED EQUIPMENT</b>	Auger [max=3,4m]	3200	3.00	94.18
	Rotary head+accessories [max=3,4m]	5090	3.00	149.80
				0.00
				0.00
<b>COUNT.</b>	Counterweight	4500	-3.14	-138.79
	extra counterweight	940	-3.00	-27.66
				0.00
<b>OTHER</b>	None	0	0.00	0.00
				0.00
				0.00

Main Components Totals

<b>UPPER WORKS</b>	<b>8200</b>	<b>2.20</b>	<b>176.97</b>
<b>LOWER WORKS</b>	<b>17020</b>	<b>-0.36</b>	<b>-59.91</b>
<b>ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT</b>	<b>8290</b>	<b>3.00</b>	<b>243.97</b>
<b>COUNTERWEIGHT</b>	<b>5440</b>	<b>-3.12</b>	<b>-166.46</b>
<b>OTHER</b>	<b>0</b>	<b>0.00</b>	<b>0.00</b>
<b>TOTAL</b>	<b>38950</b>	<b>0.51</b>	<b>194.58</b>

Tracks

Track bearing length (m)	3.71		
Track pad width (m)	0.6		
Distance between centrelines of tracks (m)	3.10		

Front Foot Pads

Pad Bearing Area (m <sup>2</sup> )	0.60	Actual Dimensions	1.0 x 0,6m
Pad Maximum Loading (kN)	460.00	Actual Shape	Rectangular
Pad Moment Arm (m)	2.31		

Rear Foot Pads

Pad Bearing Area (m <sup>2</sup> )	0.00	Actual Dimensions	None
Pad Maximum Loading (kN)	0.00	Actual Shape	None
Pad Moment Arm (m)	0.00		

Forces

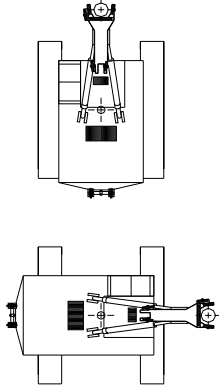
Maximum Extraction Force (kN)	340.00		
Maximum Penetration Force (kN)	24.50		
Maximum Auxillary Force (kN)	70.00	Auxillary Force Moment Arm (m)	3.95

Notes

INPUT PAGE FOR HANDLING, PENETRATING AND EXTRACTING

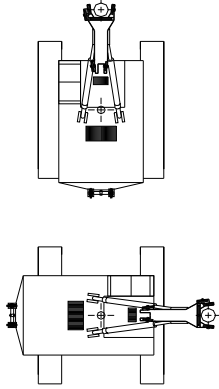
Note: The disclaimer on the first worksheet applies to all tables in this workbook



<b>CASAGRANDE SPA</b>		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			<b>Mode : CFA Standing</b>							Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid
<b>UU0446</b>							Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at front of R.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of R.H. track (kN/m <sup>2</sup> )	Max Track loading dimensions		
		ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)									
Lower Works	<b>17020</b>	<b>-0.359</b>	-60											
Counterweight	<b>5440</b>	<b>-3.119</b>	-166											
Upper Works	<b>8200</b>	<b>2.200</b>	177											
Other	<b>0</b>	<b>0.000</b>	0											
Rope / Kelly / Chain Suspended	<b>8290</b>	<b>3.000</b>	244											
<b>Machine Weight (kg)</b>	38950	0.509	195											
				Force (kN)	Max. (kN)									
Auxiliary Line (kgf)	0	<b>3.950</b>	0	<b>0.00</b>	<b>70.00</b>	Foot Pad Area (m <sup>2</sup> )								
Net Extraction Force (kgf)	0	<b>3.000</b>	0	<b>0.00</b>	<b>340.00</b>									
Net Penetration Force (kgf)	0	<b>3.000</b>	0	<b>0.00</b>	<b>24.50</b>									
Front Foot Pads Loading (kgf)	0	<b>2.313</b>	0	<b>0.00</b>	<b>460.00</b>	<b>0.600</b>	Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m <sup>2</sup> )				1.000	<b>0</b>		
Rear Foot Pads Loading (kgf)	0	<b>0.000</b>	0	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>	Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m <sup>2</sup> )				0.000	<b>0</b>		
Others	<b>0</b>	<b>0.000</b>	0	Track Bearing Length (m)		<b>3.710</b>	<b>Maximum Equivalent Design Values</b>					<b>2.990</b>	<b>131</b>	
<b>Track Total Loading (kgf)</b>	38950	0.509	195	Track Width Centres (m)		<b>3.100</b>								
				Track pad width (m)		<b>0.600</b>						<b>BRE LOAD CASE ( 1 or 2 )</b>		<b>1</b>

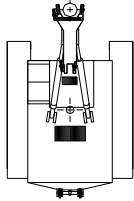
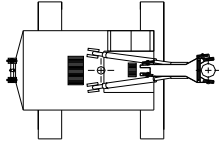


**Auxiliary Line Force OK**  
**Extraction Force OK**  
**Penetration Force OK**  
**Front Foot Pad Force OK**  
**Rear Foot Pad Force OK**

<b>CASAGRANDE SPA</b>		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			<b>Mode : CFA Travelling</b>							Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid
<b>UU0446</b>							Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at front of R.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of R.H. track (kN/m <sup>2</sup> )	Max Track loading dimensions		
		ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)									
Lower Works	<b>17020</b>	<b>-0.359</b>	-60											
Counterweight	<b>5440</b>	<b>-3.119</b>	-166											
Upper Works	<b>8200</b>	<b>2.200</b>	177											
Other	<b>0</b>	<b>0.000</b>	0											
Rope / Kelly / Chain Suspended	<b>8290</b>	<b>3.000</b>	244											
<b>Machine Weight (kg)</b>	38950	0.509	195											
				Force (kN)	Max. (kN)									
Auxiliary Line (kgf)	0	<b>3.950</b>	0	<b>0.00</b>	<b>70.00</b>	Foot Pad Area (m <sup>2</sup> )								
Net Extraction Force (kgf)	0	<b>3.000</b>	0	<b>0.00</b>	<b>340.00</b>									
Net Penetration Force (kgf)	0	<b>3.000</b>	0	<b>0.00</b>	<b>24.50</b>									
Front Foot Pads Loading (kgf)	0	<b>2.313</b>	0	<b>0.00</b>	<b>460.00</b>	<b>0.600</b>	Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m <sup>2</sup> )				1.000	<b>0</b>		
Rear Foot Pads Loading (kgf)	0	<b>0.000</b>	0	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>	Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m <sup>2</sup> )				0.000	<b>0</b>		
Others	<b>0</b>	<b>0.000</b>	0	Track Bearing Length (m)		<b>3.710</b>	<b>Maximum Equivalent Design Values</b>				<b>2.990</b>	<b>131</b>		
<b>Track Total Loading (kgf)</b>	38950	0.509	195	Track Width Centres (m)		<b>3.100</b>								
				Track pad width (m)		<b>0.600</b>					<b>BRE LOAD CASE ( 1 or 2 )</b>		<b>1</b>	

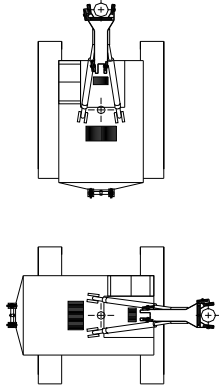


Auxiliary Line Force OK  
 Extraction Force OK  
 Penetration Force OK  
 Front Foot Pad Force OK  
 Rear Foot Pad Force OK

<b>CASAGRANDE SPA</b>		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)	 		<b>Mode : CFA Handling</b>					Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid			
<b>UU0446</b>							Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at front of R.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of R.H. track (kN/m <sup>2</sup> )			Max Track loading dimensions	
Lower Works		17020	-0.359	-60											
Counterweight		5440	-3.119	-166											
Upper Works		8200	2.200	177											
Other		0	0.000	0											
Rope / Kelly / Chain Suspended		8290	3.000	244											
<b>Machine Weight (kg)</b>		38950	0.509	195											
					Force (kN)	Max. (kN)									
Auxiliary Line (kgf)	7136	3.950	277	70.00	70.00	Foot Pad Area (m <sup>2</sup> )	0	340.00							
Net Extraction Force (kgf)	0	3.000	0	0.00	24.50		0.00	340.00							
Net Penetration Force (kgf)	0	3.000	0	0.00	24.50	0.00	24.50								
Front Foot Pads Loading (kgf)	0	2.313	0	0.00	460.00	0.600	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m <sup>2</sup> )					1.000	0		
Rear Foot Pads Loading (kgf)	0	0.000	0	0.00	0.00	0.000	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m <sup>2</sup> )					0.000	0		
Others	0	0.000	0	Track Bearing Length (m)		3.710	<b>Maximum Equivalent Design Values</b>					1.905	264		
<b>Track Total Loading (kgf)</b>	46086	1.042	471	Track Width Centres (m)		3.100									
					Track pad width (m)		0.600						<b>BRE LOAD CASE ( 1 or 2 )</b>		<b>1</b>

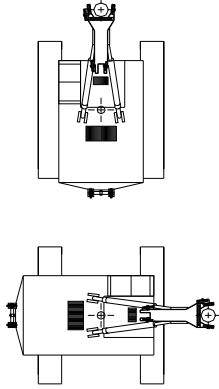


Auxiliary Line Force OK  
 Extraction Force OK  
 Penetration Force OK  
 Front Foot Pad Force OK  
 Rear Foot Pad Force OK

<b>CASAGRANDE SPA</b>		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			<b>Mode : CFA Penetrating</b>							Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid
<b>UU0446</b>							Max Track loading dimensions		Equivalent Bearing L (m)	Q (KPa)				
				Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at front of R.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of R.H. track (kN/m <sup>2</sup> )			ecc (m)	Bearing Len. (m)		
Lower Works	<b>17020</b>	<b>-0.359</b>	-60											
Counterweight	<b>5440</b>	<b>-3.119</b>	-166											
Upper Works	<b>8200</b>	<b>2.200</b>	177											
Other	<b>0</b>	<b>0.000</b>	0											
Rope / Kelly / Chain Suspended	<b>8290</b>	<b>3.000</b>	244											
<b>Machine Weight (kg)</b>	38950	0.509	195											
				Force (kN)	Max. (kN)									
Auxiliary Line (kgf)	0	<b>3.950</b>	0	<b>0.00</b>	<b>70.00</b>	Foot Pad Area (m <sup>2</sup> )								
Net Extraction Force (kgf)	0	<b>3.000</b>	0	<b>0.00</b>	<b>340.00</b>									
Net Penetration Force (kgf)	-10787	<b>3.000</b>	-317	<b>24.50</b>	<b>24.50</b>									
Front Foot Pads Loading (kgf)	0	<b>2.313</b>	0	<b>0.00</b>	<b>460.00</b>	<b>0.600</b>	Front Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m <sup>2</sup> )				1.000	<b>0</b>		
Rear Foot Pads Loading (kgf)	0	<b>0.000</b>	0	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>	Rear Foot Pads Equivalent Length (m)and Bearing Pressure (kN/m <sup>2</sup> )				0.000	<b>0</b>		
Others	<b>0</b>	<b>0.000</b>	0	Track Bearing Length (m)		<b>3.710</b>			<b>Maximum Equivalent Design Values</b>		<b>3.081</b>	<b>90</b>		
<b>Track Total Loading (kgf)</b>	28163	-0.445	-123	Track Width Centres (m)		<b>3.100</b>								
				Track pad width (m)		<b>0.600</b>								
										<b>BRE LOAD CASE ( 1 or 2 )</b>		<b>2</b>		



**Auxiliary Line Force OK**  
**Extraction Force OK**  
**Penetration Force OK**  
**Front Foot Pad Force OK**  
**Rear Foot Pad Force OK**

<b>CASAGRANDE SPA</b>		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			<b>Mode : CFA Extracting</b>							Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid
<b>UU0446</b>							Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of L.H. track (kN/m <sup>2</sup> )	Bearing pressure at front of R.H. track (kN/m <sup>2</sup> )	Bearing pressure at rear of R.H. track (kN/m <sup>2</sup> )	Max Track loading dimensions		
		ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)									
Lower Works	<b>17020</b>	<b>-0.359</b>	-60											
Counterweight	<b>5440</b>	<b>-3.119</b>	-166											
Upper Works	<b>8200</b>	<b>2.200</b>	177											
Other	<b>0</b>	<b>0.000</b>	0											
Rope / Kelly / Chain Suspended	<b>8290</b>	<b>3.000</b>	244											
<b>Machine Weight (kg)</b>	38950	0.509	195											
				Force (kN)	Max. (kN)									
Auxiliary Line (kgf)	0	<b>3.950</b>	0	<b>0.00</b>	<b>70.00</b>	Foot Pad Area (m <sup>2</sup> )								
Net Extraction Force (kgf)	26369	<b>3.000</b>	776	<b>340.00</b>	<b>340.00</b>									
Net Penetration Force (kgf)	0	<b>3.000</b>	0	<b>0.00</b>	<b>24.50</b>									
Front Foot Pads Loading (kgf)	-19266	<b>2.313</b>	-437	<b>189.00</b>	<b>460.00</b>	<b>0.600</b>	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m <sup>2</sup> )				1.000	<b>315</b>		
Rear Foot Pads Loading (kgf)	0	<b>0.000</b>	0	<b>0.00</b>	<b>0.00</b>	<b>0.000</b>	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m <sup>2</sup> )				0.000	<b>0</b>		
Others	<b>0</b>	<b>0.000</b>	0	Track Bearing Length (m)		<b>3.710</b>	<b>Maximum Equivalent Design Values</b>					<b>1.429</b>	<b>316</b>	
<b>Track Total Loading (kgf)</b>	46052	1.181	534	Track Width Centres (m)		<b>3.100</b>								
				Track pad width (m)		<b>0.600</b>						<b>BRE LOAD CASE ( 1 or 2 )</b>	<b>2</b>	



Auxiliary Line Force OK  
 Extraction Force OK  
 Penetration Force OK  
 Front Foot Pad Force OK  
 Rear Foot Pad Force OK