

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

Rig Manufacturer :	CASAGRANDE SPA	Rig Type :	HBR203 sn.HB203ZX0108
Completed by:	3/11/2010	Operation mode:	W.R. 2,025 m
Checked by:			

Main Components :

	Item	Mass (kg)	Moment arm (m)	Moment (kNm)
UPPER WORKS				0.00
	Mast assembly+cat head+winch+clamps	2800	1.83	50.21
				0.00
				0.00
	Mast assembly in travel (20° tilted backward and upperstructure +0 mm)	0	0.81	0.00
	cages (20° backward and +0mm)	0	1.01	0.00
LOWER WORKS				0.00
	undercarriage	2300	-0.30	-6.72
	upperstructure (forward +300mm)	1000	0.42	4.12
	upperstructure (forward +0mm)	0	0.12	0.00
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT				0.00
	tools (augers,rods...) (zero if extracting)	450	2.03	8.94
	tools (augers, rods etc..) 20°back,+0mm	0	1.31	0.00
	input to use properly the spreadsheet	1	0.00	0.00
COUNT.	counterweight			0.00
				0.00
				0.00
OTHER	None	0	0.00	0.00
				0.00
				0.00

Main Components Totals

UPPER WORKS	2800	1.83	50.21
LOWER WORKS	3300	-0.08	-2.60
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT	451	2.02	8.94
COUNTERWEIGHT	0	0.00	0.00
OTHER	0	0.00	0.00
TOTAL	6551	0.88	56.55

Tracks

Track bearing length (m)	1.43		
Track pad width (m)	0.22		
Distance between centrelines of tracks (m)	0.98		

Front Foot Pads

Pad Bearing Area (m ²)	0.06	Actual Dimensions	170 mm
Pad Maximum Loading (kN)	160.00	Actual Shape	2 square
Pad Moment Arm (m)	1.32		

Rear Foot Pads

Pad Bearing Area (m ²)	0.06	Actual Dimensions	170 mm
Pad Maximum Loading (kN)	160.00	Actual Shape	square
Pad Moment Arm (m)	-1.16		

Forces

Maximum Extraction Force (kN)	60.00		
Maximum Penetration Force (kN)	38.00		
Maximum Auxillary Force (kN)	11.50	Auxillary Force Moment Arm (m)	2.03

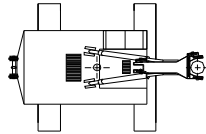
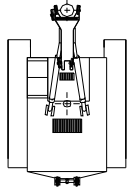
Notes

No limits on working practice
INPUT PAGE FOR STANDING-HANDLING-
PENETRATING

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CASAGRANDE SPA sn.HB203ZX0108		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			Mode : W.R. 2,025 m Standing					Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid			
						Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m ²)	Bearing pressure at rear of L.H. track (kN/m ²)	Bearing pressure at front of R.H. track (kN/m ²)	Bearing pressure at rear of R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
											ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)	
Lower Works	3300	-0.080	-3			0	316	0	316	0	0.541	0.522	0.348	237	
Counterweight	0	0.000	0			0	316	0	316	0	0.541	0.522	0.348	237	
Upper Works	2800	1.828	50			0	316	0	316	0	0.541	0.522	0.348	237	
Other	0	0.000	0			0	316	0	316	0	0.541	0.522	0.348	237	
Rope / Kelly / Chain Suspended	451	2.021	9			0	316	0	316	0	0.541	0.522	0.348	237	
Machine Weight (kg)	6551	0.880	57			0	316	0	316	0	0.541	0.522	0.348	237	
				Force (kN)	Max. (kN)										
Auxiliary Line (kgf)	0	2.025	0	0.00	11.50	Foot Pad Area (m ²)	0	0	0	0	0.541	0.522	0.348	237	
Net Extraction Force (kgf)	0	2.021	0	0.00	60.00		0	0	0	0	0.541	0.522	0.348	237	
Net Penetration Force (kgf)	0	2.021	0	0.00	38.00		0	0	0	0	0.541	0.522	0.348	237	
Front Foot Pads Loading (kgf)	-2854	1.319	-37	28.00	160.00		0	0	0	0	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)		0.263	484	
Rear Foot Pads Loading (kgf)	0	-1.160	0	0.00	160.00		0	0	0	0	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)		0.263	0	
Others	0	0.000	0	Track Bearing Length (m)		1.430						Maximum Equivalent Design Values		0.263	484
Track Total Loading (kgf)	3697	0.541	20	Track Width Centres (m)		0.980	FOOT PAD PRESSURE EXCEEDS MAXIMUM TRACK PRESSURE					BRE LOAD CASE (1 or 2)		1	
				Track pad width (m)		0.220									

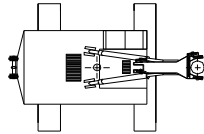
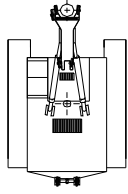


Auxiliary Line Force OK
 Extraction Force OK
 Penetration Force OK
 Front Foot Pad Force OK
 Rear Foot Pad Force OK

Stabilizers in intermediate position (45°) shape 170x170



CASAGRANDE SPA sn.HB203ZX0108		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			Mode : W.R. 2,025 m Handling					Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid			
						Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m ²)	Bearing pressure at rear of L.H. track (kN/m ²)	Bearing pressure at front of R.H. track (kN/m ²)	Bearing pressure at rear of R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
											ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)	
Lower Works	3300	-0.080	-3			0	1040	0	1040	0	0.670	0.135	0.090	780	
Counterweight	0	0.000	0			0	1040	0	1040	0	0.670	0.135	0.090	780	
Upper Works	2800	1.828	50			0	1040	0	1040	0	0.670	0.135	0.090	780	
Other	0	0.000	0			0	1040	0	1040	0	0.670	0.135	0.090	780	
Rope / Kelly / Chain Suspended	451	2.021	9			0	1040	0	1040	0	0.670	0.135	0.090	780	
Machine Weight (kg)	6551	0.880	57			0	1040	0	1040	0	0.670	0.135	0.090	780	
				Force (kN)	Max. (kN)										
Auxiliary Line (kgf)	1172	2.025	23	11.50	11.50	0	1040	0	1040	0	0.670	0.135	0.090	780	
Net Extraction Force (kgf)	0	2.021	0	0.00	60.00	0	1040	0	1040	0	0.670	0.135	0.090	780	
Net Penetration Force (kgf)	0	2.021	0	0.00	38.00	0	1040	0	1040	0	0.670	0.135	0.090	780	
Front Foot Pads Loading (kgf)	-4567	1.319	-59	44.80	160.00	0.058	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)					0.263	775		
Rear Foot Pads Loading (kgf)	0	-1.160	0	0.00	160.00	0.058	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)					0.263	0		
Others	0	0.000	0	Track Bearing Length (m)		1.430						Maximum Equivalent Design Values		0.090	780
Track Total Loading (kgf)	3157	0.670	21	Track Width Centres (m)		0.980						BRE LOAD CASE (1 or 2)		1	
				Track pad width (m)		0.220									

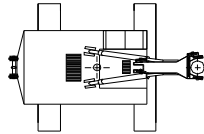
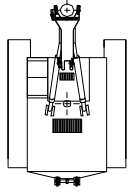


Stabilizers in intermediate position (45°) shape 170x170



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

CASAGRANDE SPA sn.HB203ZX0108		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			Mode : W.R. 2,025 m Penetrating					Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid		
						Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m ²)	Bearing pressure at rear of L.H. track (kN/m ²)	Bearing pressure at front of R.H. track (kN/m ²)	Bearing pressure at rear of R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing	
											ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)
Lower Works	3300	-0.080	-3			0	0	251	0	251	-0.616	0.296	0.198	188
Counterweight	0	0.000	0			0	0	251	0	251	-0.616	0.296	0.198	188
Upper Works	2800	1.828	50			0	0	251	0	251	-0.616	0.296	0.198	188
Other	0	0.000	0			0	0	251	0	251	-0.616	0.296	0.198	188
Rope / Kelly / Chain Suspended	451	2.021	9			0	0	251	0	251	-0.616	0.296	0.198	188
Machine Weight (kg)	6551	0.880	57			0	0	251	0	251	-0.616	0.296	0.198	188
				Force (kN)	Max. (kN)									
Auxiliary Line (kgf)	0	2.025	0	0.00	11.50	Foot Pad Area (m2)								
Net Extraction Force (kgf)	0	2.021	0	0.00	60.00									
Net Penetration Force (kgf)	-3917	2.021	-78	34.00	38.00									
Front Foot Pads Loading (kgf)	0	1.319	0	0.00	160.00	0.058	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)				0.263	0		
Rear Foot Pads Loading (kgf)	-968	-1.160	11	9.50	160.00	0.058	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)				0.263	164		
Others	0	0.000	0	Track Bearing Length (m)		1.430								
Track Total Loading (kgf)	1666	-0.616	-10	Track Width Centres (m)		0.980								
				Track pad width (m)		0.220								
											Maximum Equivalent Design Values		0.198	188
											BRE LOAD CASE (1 or 2)		2	



Force (kN) Max. (kN)

Foot Pad Area (m2)

Maximum Equivalent Design Values **0.198** **188**

BRE LOAD CASE (1 or 2) **2**



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

Stabilizers
 shape 170x170

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Rig Manufacturer :	CASAGRANDE SPA	Rig Type :	HBR203 sn.HB203ZX0108
Completed by:	3/11/2010	Operation mode:	W.R. 2,025 m
Checked by:			

Main Components :

	Item	Mass (kg)	Moment arm (m)	Moment (kNm)
UPPER WORKS				0.00
	Mast assembly+cat head+winch+clamps	2800	1.83	50.21
				0.00
				0.00
	Mast assembly in travel (20° tilted backward and upperstructure +0 mm)	0	0.81	0.00
	cages (20° backward and +0mm)	0	1.01	0.00
LOWER WORKS				0.00
	undercarriage	2300	-0.30	-6.72
	upperstructure (forward +300mm)	1000	0.42	4.12
	upperstructure (forward +0mm)	0	0.12	0.00
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT				0.00
	tools (augers, rods...) (zero if extracting)	0	2.03	0.00
	tools (augers, rods etc..) 20°back,+0mm	0	1.31	0.00
	input to use properly the spreadsheet	1	0.00	0.00
COUNT.	counterweight			0.00
				0.00
				0.00
OTHER	None	0	0.00	0.00
				0.00
				0.00

Main Components Totals

UPPER WORKS	2800	1.83	50.21
LOWER WORKS	3300	-0.08	-2.60
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT	1	0.00	0.00
COUNTERWEIGHT	0	0.00	0.00
OTHER	0	0.00	0.00
TOTAL	6101	0.80	47.61

Tracks

Track bearing length (m)	1.43		
Track pad width (m)	0.22		
Distance between centrelines of tracks (m)	0.98		

Front Foot Pads

Pad Bearing Area (m ²)	0.06	Actual Dimensions	170 mm
Pad Maximum Loading (kN)	160.00	Actual Shape	2 square
Pad Moment Arm (m)	1.32		

Rear Foot Pads

Pad Bearing Area (m ²)	0.06	Actual Dimensions	170 mm
Pad Maximum Loading (kN)	160.00	Actual Shape	square
Pad Moment Arm (m)	-1.16		

Forces

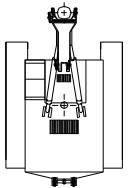
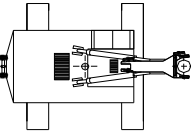
Maximum Extraction Force (kN)	60.00		
Maximum Penetration Force (kN)	38.00		
Maximum Auxillary Force (kN)	11.50	Auxillary Force Moment Arm (m)	2.03

Notes

No limits on working practice
INPUT PAGE FOR STANDING-HANDLING-
PENETRATING

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CASAGRANDE SPA sn.HB203ZX0108				Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)	 	Mode : W.R. 2,025 m Extracting								Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid
		Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m ²)					Bearing pressure at rear of L.H. track (kN/m ²)	Bearing pressure at front of R.H. track (kN/m ²)	Bearing pressure at rear of R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing			
								ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)					
Lower Works	3300	-0.080	-3													
Counterweight	0	0.000	0													
Upper Works	2800	1.828	50													
Other	0	0.000	0													
Rope / Kelly / Chain Suspended	1	0.000	0													
Machine Weight (kg)	6101	0.795	48													
				Force (kN)	Max. (kN)											
Auxiliary Line (kgf)	0	2.025	0	0.00	11.50											
Net Extraction Force (kgf)	6115	0.000	0	60.00	60.00	Foot Pad Area (m ²)										
Net Penetration Force (kgf)	0	0.000	0	0.00	38.00											
Front Foot Pads Loading (kgf)	-1529	1.319	-20	15.00	160.00	0.058	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)					0.263	260			
Rear Foot Pads Loading (kgf)	0	-1.160	0	0.00	160.00	0.058	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)					0.263	0			
Others	0	0.000	0	Track Bearing Length (m)		1.430	Maximum Equivalent Design Values					0.899	265			
Track Total Loading (kgf)	10687	0.265	28	Track Width Centres (m)		0.980										
				Track pad width (m)		0.220						BRE LOAD CASE (1 or 2)		2		



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

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Rig Manufacturer :	CASAGRANDE SPA	Rig Type :	HBR203 sn.HB203ZX0108
Completed by:	3/11/2010	Operation mode:	W.R. 2,025 m
Checked by:			

Main Components :

	Item	Mass (kg)	Moment arm (m)	Moment (kNm)
UPPER WORKS				0.00
	Mast assembly+cat head+winch+clamps	0	1.83	0.00
				0.00
				0.00
	Mast assembly in travel (20° tilted backward and upperstructure +0 mm)	2800	0.81	22.30
	cages (20° backward and +0mm)	0	1.01	0.00
LOWER WORKS				0.00
	undercarriage	2300	-0.30	-6.72
	upperstructure (forward +300mm)	0	0.42	0.00
	upperstructure (forward +0mm)	1000	0.12	1.18
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT				0.00
	tools (augers, rods...) (zero if extracting)	0	2.03	0.00
	tools (augers, rods etc..) 20°back,+0mm	450	1.31	5.78
	input to use properly the spreadsheet	1	0.00	0.00
COUNT.	counterweight			0.00
				0.00
				0.00
OTHER	None	0	0.00	0.00
				0.00
				0.00

Main Components Totals

UPPER WORKS	2800	0.81	22.30
LOWER WORKS	3300	-0.17	-5.55
ROPE / KELLY / CHAIN SUSPENDED EQUIPMENT	451	1.31	5.78
COUNTERWEIGHT	0	0.00	0.00
OTHER	0	0.00	0.00
TOTAL	6551	0.35	22.54

Tracks

Track bearing length (m)	1.43		
Track pad width (m)	0.22		
Distance between centrelines of tracks (m)	0.98		

Front Foot Pads

Pad Bearing Area (m ²)	0.06	Actual Dimensions	170 mm
Pad Maximum Loading (kN)	160.00	Actual Shape	2 square
Pad Moment Arm (m)	1.32		

Rear Foot Pads

Pad Bearing Area (m ²)	0.06	Actual Dimensions	170 mm
Pad Maximum Loading (kN)	160.00	Actual Shape	square
Pad Moment Arm (m)	-1.16		

Forces

Maximum Extraction Force (kN)	60.00		
Maximum Penetration Force (kN)	38.00		
Maximum Auxillary Force (kN)	11.50	Auxillary Force Moment Arm (m)	2.03

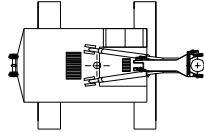
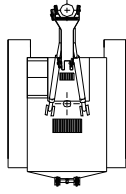
Notes

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



CASAGRANDE SPA sn.HB203ZX0108		Weight (kg) / Load (kgf)	Distance to CL rotation (m)	Horizontal moment (kNm)			Mode : W.R. 2,025 m Travelling					Transformation from triangular or trapizoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid			
						Relative Angle - Upper Body and Tracks (degrees)	Bearing pressure at front of L.H. track (kN/m ²)	Bearing pressure at rear of L.H. track (kN/m ²)	Bearing pressure at front of R.H. track (kN/m ²)	Bearing pressure at rear of R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
											ecc (m)	Bearing Len. (m)	L (m)	Q (KPa)	
Lower Works	3300	-0.171	-6			0	267	0	267	0	0.351	1.093	0.729	200	
Counterweight	0	0.000	0			0	267	0	267	0	0.351	1.093	0.729	200	
Upper Works	2800	0.812	22			0	267	0	267	0	0.351	1.093	0.729	200	
Other	0	0.000	0			0	267	0	267	0	0.351	1.093	0.729	200	
Rope / Kelly / Chain Suspended	451	1.306	6			0	267	0	267	0	0.351	1.093	0.729	200	
Machine Weight (kg)	6551	0.351	23			0	267	0	267	0	0.351	1.093	0.729	200	
				Force (kN)	Max. (kN)										
Auxiliary Line (kgf)	0	2.025	0	0.00	11.50	0	267	0	267	0	0.351	1.093	0.729	200	
Net Extraction Force (kgf)	0	1.306	0	0.00	60.00	0	267	0	267	0	0.351	1.093	0.729	200	
Net Penetration Force (kgf)	0	1.306	0	0.00	38.00	0	267	0	267	0	0.351	1.093	0.729	200	
Front Foot Pads Loading (kgf)	0	1.319	0	0.00	160.00	0.058	Front Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)					0.263	0		
Rear Foot Pads Loading (kgf)	0	-1.160	0	0.00	160.00	0.058	Rear Foot Pads Equivalent Length (m) and Bearing Pressure (kN/m ²)					0.263	0		
Others	0	0.000	0	Track Bearing Length (m)		1.430	Maximum Equivalent Design Values					0.729	200		
Track Total Loading (kgf)	6551	0.351	23	Track Width Centres (m)		0.980									
				Track pad width (m)		0.220									
											BRE LOAD CASE (1 or 2)		1		



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