

The user of this spreadsheet shall input data into the relevant yellow boxes on this worksheet and on all of the other relevant worksheets

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

Rig Manufacturer :	TESCAR	Rig Type & Serial No.	CF6	#0051
Operation mode:	Hitachi ZX 130 / Supporto BASSO	Date:	23/07/2018	
Completed by:	AM	Checked by:	LF	

Main Components - Slewing:							
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)	
UPPER WORKS (Slewing)	Mast Assembly+ Extension	2,800	27	0.00	2.13	-59	0
	Cathead	200	2	0.00	2.10	-4	0
	Support	2,000	20	0.00	1.10	-22	0
	Hydraulic Cylinders	300	3	0.00	1.80	-5	0
	Hydraulic Cylinders	300	3	0.00	1.80	-5	0
LOWER WORKS (Slewing)	Base Machine	6,080	60	0.00	0.00	0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Kelly Drive Guide	120	1	0.00	2.90	-3	0
	Rotary Head	2,000	20	0.00	2.90	-57	0
	Kelly bar	2,200	22		2.90	-63	0
COUNTER-WEIGHT (Slewing)	Counterweight	3,000	29	0.00	-2.00	59	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)						0	0
						0	0
UPPER WORKS	5,600	55	0.00	1.73	-95	0	
LOWER WORKS	6,080	60	0.00	0.00	0	0	
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	4,320	42	0.00	2.90	-123	0	
COUNTERWEIGHT	3,000	29	0.00	-2.00	59	0	
OTHER	0	0	0.00	0.00	0	0	
SLEWING TOTAL/RESULTANT (with $\theta=0$)	19,000	186	0.00	0.85	-159	0	

Foot Pads - Slewing :							
Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension	
	m ²	kN	m	m			
Front Pad 1					None	None	
Front Pad 2					None	None	
Rear Pad 1					None	None	
Rear Pad 2					None	None	

Forces - Slewing					
	Force	X - Coordinate	Y - Coordinate		
	kN	m	m		
Crowd System - Maximum Extraction Force (kN)	70	0.00	2.90	Must be inline with suspended equip't.	
Crowd System - Maximum Penetration Force (kN)	-200	0.00	2.90	-ve Must be inline with suspended equip't.	
Maximum Auxilliary Force (kN)	35	0.00	2.90		

Main Components - Non-Slewing:							
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)	
Lower Works Non-Slewing (undercarriage/tracks etc)	Tracks & Undercarriage	4,000	39	0.00	0.00	0	0
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with $\theta=0$)	4,000	39	0.00	0.00	0	0	
TOTAL RIG MASS	23,000						

Foot Pads - Non-Slewing							
Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension	
	m ²	kN	m	m			
Front Pad 1							
Front Pad 2							
Rear Pad 1							
Rear Pad 2							

Tracks	Slewing
Track bearing length (m)	2.89
Track pad width (m)	0.50
Distance between centrelines of tracks (m)	1.99
	Can the rig slew?
	YES

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



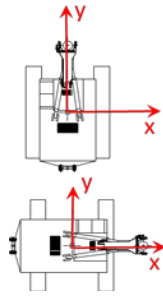
Notes
MAX WORKING RADIUS 2,9m.

TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.73	-95	0
Suspended Eqpt. on Crowd	42	0.00	2.90	-123	0
Counterweight (slewing)	29	0.00	-2.00	59	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	60	0.00	0.00	0	0
Net Extraction Force	0	0.00	2.90	0	0
Net Penetration Force	0	0.00	2.90	0	0
Applied Auxiliary Force	0	0.00	2.90	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	186	0.00	0.85	-159	0

Applied Force (kN)	Max. Allowable (kN)
0	70
0	-200
0	35

Applied Pressure (kPa)	Foot Pad Area (m ²)
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)	
Lower Works Non-Slewing	39	0.00	0.00	0	0					
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Summary of Non-slewing Actions	39	0.00	0.00	0	0	Max. Pad Pressure 0				
Total Rig Weight (kN)	226					Track Bearing Length (m)	2.89			
Resultant of all Actions (kN)	226	0.00	0.70	-159	0	Track pad width (m)	0.50			
						Track Centerline Dist. (m)	1.99			

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Notes on Using this Table

Auxiliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
 Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
 Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negative as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
 Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
 Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
 When applying Auxiliary or Extraction Line Pull, ensure that Penetration Force is zero.

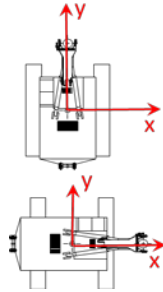
ONLY A COMPETENT PERSON MAY USE THIS TABLE !

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

Mode : Standing							Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid		
Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m ²)	Min bearing pressure L.H. track (kN/m ²)	Max bearing pressure R.H. track (kN/m ²)	Min bearing pressure R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
					ecc (m)	Bearing Len. (m)	L (m)	Q (kPa)	
0	203	0	203	0	0.704	2.223	1.482	152	
15	161	0	233	0	0.680	2.295	1.530	174	
30	116	0	244	0	0.610	2.506	1.671	183	
45	79	0	238	0	0.498	2.842	1.894	179	
60	52	8	218	34	0.352	2.890	2.186	166	
75	34	15	181	82	0.182	2.890	2.526	150	
90	23	23	133	133	0.000	2.890	2.890	133	
105	34	15	181	82	-0.182	2.890	2.526	150	
120	52	8	218	34	-0.352	2.890	2.186	166	
135	79	0	238	0	-0.498	2.842	1.894	179	
150	116	0	244	0	-0.610	2.506	1.671	183	
165	161	0	233	0	-0.680	2.295	1.530	174	
180	203	0	203	0	-0.704	2.223	1.482	152	
195	233	0	161	0	-0.680	2.295	1.530	174	
210	244	0	116	0	-0.610	2.506	1.671	183	
225	238	0	79	0	-0.498	2.842	1.894	179	
240	218	34	52	8	-0.352	2.890	2.186	166	
255	181	82	34	15	-0.182	2.890	2.526	150	
270	133	133	23	23	0.000	2.890	2.890	133	
285	181	82	34	15	0.182	2.890	2.526	150	
300	218	34	52	8	0.352	2.890	2.186	166	
315	238	0	79	0	0.498	2.842	1.894	179	
330	244	0	116	0	0.610	2.506	1.671	183	
345	233	0	161	0	0.680	2.295	1.530	174	
Maximum Track Values							1.671	183	
							Pad Area (m ²)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng							0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing							0.000	0.000	0
Maximum Equivalent Design Values							1.671	183	
Eccentricity index - X direction (sideways)							0.71		
Eccentricity index - Y direction (forwards/backwards)							0.49		
Track pressure distribution warning							Track(s) lifting		
Slewing foot pad message							Slewing Foot Pad Pressure OK		
Non-Slewing foot pad message							Non-Slewing Foot Pad Pressure OK		
BRE LOAD CASE (1 or 2)							1		



TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					



SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.73	-95	0
Suspended Eqpt. on Crowd	42	0.00	2.90	-123	0
Counterweight (slewing)	29	0.00	-2.00	59	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	60	0.00	0.00	0	0
Net Extraction Force	0	0.00	2.90	0	0
Net Penetration Force	0	0.00	2.90	0	0
Applied Auxiliary Force	0	0.00	2.90	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	186	0.00	0.85	-159	0

Applied Force (kN)	Max. Allowable (kN)
0	70
0	-200
0	35

Applied Pressure (kPa)	Foot Pad Area (m2)
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)	
Lower Works Non-Slewing	39	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Summary of Non-slewing Actions	39	0.00	0.00	0	0	Max. Pad Pressure 0				
Total Rig Weight (kN)	226					Track Bearing Length (m)	2.89			
Resultant of all Actions (kN)	226	0.00	0.70	-159	0	Track pad width (m)	0.50			
						Track Centerline Dist. (m)	1.99			

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Notes on Using this Table

Auxiliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
 Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
 Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negative as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
 Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
 Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -

Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
 When applying Auxiliary or Extraction Line Pull, ensure that Penetration Force is zero.

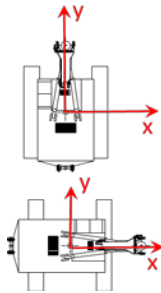
ONLY A COMPETENT PERSON MAY USE THIS TABLE !

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

Mode : Travelling								Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid	
Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m ²)	Min bearing pressure L.H. track (kN/m ²)	Max bearing pressure R.H. track (kN/m ²)	Min bearing pressure R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
					ecc (m)	Bearing Len. (m)	L (m)	Q (kPa)	
0	203	0	203	0	0.704	2.223	1.482	152	
15	161	0	233	0	0.680	2.295	1.530	174	
30	116	0	244	0	0.610	2.506	1.671	183	
45	79	0	238	0	0.498	2.842	1.894	179	
60	52	8	218	34	0.352	2.890	2.186	166	
75	34	15	181	82	0.182	2.890	2.526	150	
90	23	23	133	133	0.000	2.890	2.890	133	
105	34	15	181	82	-0.182	2.890	2.526	150	
120	52	8	218	34	-0.352	2.890	2.186	166	
135	79	0	238	0	-0.498	2.842	1.894	179	
150	116	0	244	0	-0.610	2.506	1.671	183	
165	161	0	233	0	-0.680	2.295	1.530	174	
180	203	0	203	0	-0.704	2.223	1.482	152	
195	233	0	161	0	-0.680	2.295	1.530	174	
210	244	0	116	0	-0.610	2.506	1.671	183	
225	238	0	79	0	-0.498	2.842	1.894	179	
240	218	34	52	8	-0.352	2.890	2.186	166	
255	181	82	34	15	-0.182	2.890	2.526	150	
270	133	133	23	23	0.000	2.890	2.890	133	
285	181	82	34	15	0.182	2.890	2.526	150	
300	218	34	52	8	0.352	2.890	2.186	166	
315	238	0	79	0	0.498	2.842	1.894	179	
330	244	0	116	0	0.610	2.506	1.671	183	
345	233	0	161	0	0.680	2.295	1.530	174	
						Maximum Track Values	1.671	183	
						Pad Area (m ²)			
						Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng	0.000	0.000	0
						Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing	0.000	0.000	0
						Maximum Equivalent Design Values	1.671	183	
						Eccentricity index - X direction (sideways)	0.71		
						Eccentricity index - Y direction (forwards/backwards)	0.49		
						Track pressure distribution warning	Track(s) lifting		
						Slewing foot pad message	Slewing Foot Pad Pressure OK		
						Non-Slewing foot pad message	Non-Slewing Foot Pad Pressure OK		
						BRE LOAD CASE (1 or 2)			1



TESCAR					
	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					



SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.73	-95	0
Suspended Eqpt. on Crowd	42	0.00	2.90	-123	0
Counterweight (slewing)	29	0.00	-2.00	59	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	60	0.00	0.00	0	0
Net Extraction Force	0	0.00	2.90	0	0
Net Penetration Force	0	0.00	2.90	0	0
Applied Auxiliary Force	34	0.00	2.90	-99	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	220	0.00	1.17	-257	0

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)
0	70	0	0.00
0	-200	0	0.00
34	35	0	0.00
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
0	0	0	0.00
Max. Pad Pressure 0			

NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)	
Lower Works Non-Slewing	39	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Summary of Non-slewing Actions	39	0.00	0.00	0	0	Max. Pad Pressure 0				
Total Rig Weight (kN)	226				Track Bearing Length (m)	2.89				
Resultant of all Actions (kN)	260	0.00	0.99	-257	0	Track pad width (m)	0.50			
						Track Centerline Dist. (m)	1.99			

Input Data Warning Messages	Notes
Auxiliary Line Force OK	USE 34 KN MAX IN HANDLING MODE
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Notes on Using this Table
 Auxiliary Line Pull -ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
 Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
 Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negative as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
 Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
 Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
 When applying Auxiliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE ! **Note: The disclaimer on the first worksheet applies to all tables in this workbook**

Mode : Handling							Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid		
Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m ²)	Min pressure L.H. track (kN/m ²)	Max bearing pressure R.H. track (kN/m ²)	Min bearing pressure R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
					ecc (m)	Bearing Len. (m)	L (m)	Q (kPa)	
0	382	0	382	0	0.992	1.360	0.907	286	
15	264	0	447	0	0.958	1.462	0.974	335	
30	148	0	442	0	0.859	1.759	1.173	332	
45	69	0	397	0	0.701	2.232	1.488	297	
60	25	0	340	0	0.496	2.848	1.898	255	
75	5	2	270	82	0.257	2.890	2.377	214	
90	0	0	179	179	0.000	2.890	2.890	179	
105	5	2	270	82	-0.257	2.890	2.377	214	
120	25	0	340	0	-0.496	2.848	1.898	255	
135	69	0	397	0	-0.701	2.232	1.488	297	
150	148	0	442	0	-0.859	1.759	1.173	332	
165	264	0	447	0	-0.958	1.462	0.974	335	
180	382	0	382	0	-0.992	1.360	0.907	286	
195	447	0	264	0	-0.958	1.462	0.974	335	
210	442	0	148	0	-0.859	1.759	1.173	332	
225	397	0	69	0	-0.701	2.232	1.488	297	
240	340	0	25	0	-0.496	2.848	1.898	255	
255	270	82	5	2	-0.257	2.890	2.377	214	
270	179	179	0	0	0.000	2.890	2.890	179	
285	270	82	5	2	0.257	2.890	2.377	214	
300	340	0	25	0	0.496	2.848	1.898	255	
315	397	0	69	0	0.701	2.232	1.488	297	
330	442	0	148	0	0.859	1.759	1.173	332	
345	447	0	264	0	0.958	1.462	0.974	335	
Maximum Track Values							0.974	335	
							Pad Area (m ²)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng							0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing							0.000	0.000	0
Maximum Equivalent Design Values							0.974	335	
Eccentricity index - X direction (sideways)							1.00		
Eccentricity index - Y direction (forwards/backwards)							0.69		
Track pressure distribution warning							Track(s) lifting		
Slewing foot pad message							Slewing Foot Pad Pressure OK		
Non-Slewing foot pad message							Non-Slewing Foot Pad Pressure OK		
BRE LOAD CASE (1 or 2)							1		

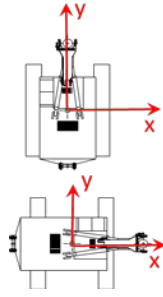


TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.73	-95	0
Suspended Eqpt. on Crowd	42	0.00	2.90	-123	0
Counterweight (slewing)	29	0.00	-2.00	59	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	60	0.00	0.00	0	0
Net Extraction Force	28	0.00	2.90	-80	0
Net Penetration Force	0	0.00	2.90	0	0
Applied Auxiliary Force	0	0.00	2.90	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	214	0.00	1.12	-239	0

Applied Force (kN)	Max. Allowable (kN)
70.00	70

Applied Pressure (kPa)	Foot Pad Area (m ²)
0.00	35
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)	
Lower Works Non-Slewing	39	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Summary of Non-slewing Actions	39	0.00	0.00	0	0	Max. Pad Pressure 0				
Total Rig Weight (kN)	226					Track Bearing Length (m)	2.89			
Resultant of all Actions (kN)	253	0.00	0.94	-239	0	Track pad width (m)	0.50			
						Track Centerline Dist. (m)	1.99			

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	EXTRACTING USING THE ROTARY IS NOT TAKE INTO ACCOUNT
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Notes on Using this Table

Auxiliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
 Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
 Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negative as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
 Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
 Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
 When applying Auxiliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

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

Mode : 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)	Max bearing pressure L.H. track (kN/m ²)	Min pressure L.H. track (kN/m ²)	Max bearing pressure R.H. track (kN/m ²)	Min bearing pressure R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
					ecc (m)	Bearing Len. (m)	L (m)	Q (kPa)	
0	337	0	337	0	0.944	1.504	1.003	252	
15	239	0	394	0	0.911	1.601	1.067	296	
30	141	0	396	0	0.817	1.884	1.256	297	
45	72	0	363	0	0.667	2.334	1.556	272	
60	31	0	316	3	0.472	2.890	1.946	237	
75	11	4	253	83	0.244	2.890	2.402	202	
90	5	5	171	171	0.000	2.890	2.890	171	
105	11	4	253	83	-0.244	2.890	2.402	202	
120	31	0	316	3	-0.472	2.890	1.946	237	
135	72	0	363	0	-0.667	2.334	1.556	272	
150	141	0	396	0	-0.817	1.884	1.256	297	
165	239	0	394	0	-0.911	1.601	1.067	296	
180	337	0	337	0	-0.944	1.504	1.003	252	
195	394	0	239	0	-0.911	1.601	1.067	296	
210	396	0	141	0	-0.817	1.884	1.256	297	
225	363	0	72	0	-0.667	2.334	1.556	272	
240	316	3	31	0	-0.472	2.890	1.946	237	
255	253	83	11	4	-0.244	2.890	2.402	202	
270	171	171	5	5	0.000	2.890	2.890	171	
285	253	83	11	4	0.244	2.890	2.402	202	
300	316	3	31	0	0.472	2.890	1.946	237	
315	363	0	72	0	0.667	2.334	1.556	272	
330	396	0	141	0	0.817	1.884	1.256	297	
345	394	0	239	0	0.911	1.601	1.067	296	
Maximum Track Values							1.256	297	
							Pad Area (m ²)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng							0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing							0.000	0.000	0
Maximum Equivalent Design Values							1.256	297	
Eccentricity index - X direction (sideways)							0.95		
Eccentricity index - Y direction (forwards/backwards)							0.65		
Track pressure distribution warning							Track(s) lifting		
Slewing foot pad message							Slewing Foot Pad Pressure OK		
Non-Slewing foot pad message							Non-Slewing Foot Pad Pressure OK		
BRE LOAD CASE (1 or 2)							2		

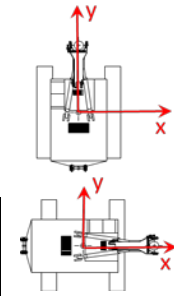


TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	55	0.00	1.73	-95	0
Suspended Eqpt. on Crowd	42	0.00	2.90	-123	0
Counterweight (slewing)	29	0.00	-2.00	59	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	60	0.00	0.00	0	0
Applied Extraction Force	0	0.00	2.90	0	0
Applied Penetration Force	0	0.00	2.90	0	0
Applied Auxiliary Force	0	0.00	2.90	0	0
Front Pad 1	0	0.00	0.00	0	0
Front Pad 2	0	0.00	0.00	0	0
Rear Pad 1	0	0.00	0.00	0	0
Rear Pad 2	0	0.00	0.00	0	0
Summary of Slewing Action	186	0.00	0.85	-159	0

Applied Force (kN)	Max. Allowable (kN)
0	70

Applied Pressure (kPa)	Foot Pad Area (m ²)
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00
0	0.00



NON-SLEWING ACTIONS						Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)	
Lower Works Non-Slewing	39	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Front Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 1	0	0.00	0.00	0	0	0	0	0	0.00	
Rear Pad 2	0	0.00	0.00	0	0	0	0	0	0.00	
Summary of Non-slewing Actions	39	0.00	0.00	0	0	Max. Pad Pressure 0				
Total Rig Weight (kN)	226					Track Bearing Length (m)	2.89			
Resultant of all Actions (kN)	226	0.00	0.70	-159	0	Track pad width (m)	0.50			
						Track Centreline Dist. (m)	1.99			

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	
Slewing Footpad Forces OK	
Non-Slewing Footpad Forces OK	

Notes on Using this Table

Auxiliary Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G11). Note the maximum design force in the adjacent box (H11).
 Extraction Line Pull +ve Z direction. Enter applied force (kN) in appropriate yellow box (G9). Note the maximum design force in the adjacent box (FH9).
 Penetration Force -ve Z direction. Enter applied force (kN) in appropriate yellow box (G10) - must be negative as it imposes an upwards resultant force. Note the maximum design force in the adjacent box (H10).
 Slewing Foot Pad Forces +ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G12 to G15). Note the maximum the machine can develop is given in the adjacent boxes.
 Non-Slewing Foot Pad Forces -ve Z direction. Enter applied total force (kN) in appropriate yellow boxes (G20 to G23). Note the maximum the machine can develop is given in the adjacent boxes.

Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
 When applying Auxiliary or Extraction Line Pull, ensure that Penetration Force is zero.

ONLY A COMPETENT PERSON MAY USE THIS TABLE !

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

Mode : Other								Transformation from triangular or trapezoidal to an equivalent rectangular pressure distribution under track maintaining the load centroid	
Relative Angle - Upper Body and Tracks (degrees)	Max bearing pressure L.H. track (kN/m ²)	Min pressure L.H. track (kN/m ²)	Max bearing pressure R.H. track (kN/m ²)	Min bearing pressure R.H. track (kN/m ²)	Max Track loading dimensions		Equivalent Bearing		
					ecc (m)	Bearing Len. (m)	L (m)	Q (kPa)	
0	203	0	203	0	0.704	2.223	1.482	152	
15	161	0	233	0	0.680	2.295	1.530	174	
30	116	0	244	0	0.610	2.506	1.671	183	
45	79	0	238	0	0.498	2.842	1.894	179	
60	52	8	218	34	0.352	2.890	2.186	166	
75	34	15	181	82	0.182	2.890	2.526	150	
90	23	23	133	133	0.000	2.890	2.890	133	
105	34	15	181	82	-0.182	2.890	2.526	150	
120	52	8	218	34	-0.352	2.890	2.186	166	
135	79	0	238	0	-0.498	2.842	1.894	179	
150	116	0	244	0	-0.610	2.506	1.671	183	
165	161	0	233	0	-0.680	2.295	1.530	174	
180	203	0	203	0	-0.704	2.223	1.482	152	
195	233	0	161	0	-0.680	2.295	1.530	174	
210	244	0	116	0	-0.610	2.506	1.671	183	
225	238	0	79	0	-0.498	2.842	1.894	179	
240	218	34	52	8	-0.352	2.890	2.186	166	
255	181	82	34	15	-0.182	2.890	2.526	150	
270	133	133	23	23	0.000	2.890	2.890	133	
285	181	82	34	15	0.182	2.890	2.526	150	
300	218	34	52	8	0.352	2.890	2.186	166	
315	238	0	79	0	0.498	2.842	1.894	179	
330	244	0	116	0	0.610	2.506	1.671	183	
345	233	0	161	0	0.680	2.295	1.530	174	
Maximum Track Values							1.671	183	
							Pad Area (m ²)		
Max. Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing Leng							0.000	0.000	0
Max. Non-Slewing Foot Pads Bearing Pressure (kPa) & Equivalent Bearing							0.000	0.000	0
Maximum Equivalent Design Values							1.671	183	
Eccentricity index - X direction (sideways)							0.71		
Eccentricity index - Y direction (forwards/backwards)							0.49		
Track pressure distribution warning							Track(s) lifting		
Slewing foot pad message							Slewing Foot Pad Pressure OK		
Non-Slewing foot pad message							Non-Slewing Foot Pad Pressure OK		
BRE LOAD CASE (1 or 2)							0		



Schedule of Piling Rig Component Weights, Dimensions, Forces and Pressures

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

Rig Manufacturer :	TESCAR	Rig Type & Serial No.	CF6 #0051
Operation mode:	Hitachi ZX 130 / Supporto BASSO	Date:	23/07/2018
Completed by:	AM	Checked by:	LF

Main Components - Slewing:						
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Slewing Components Totals/Resultant (with θ=0)						
UPPER WORKS	5,600	55	0.00	1.73	-95	0
LOWER WORKS	6,080	60	0.00	0.00	0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	4,320	42	0.00	2.90	-123	0
COUNTERWEIGHT	3,000	29	0.00	-2.00	59	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	19,000	186	0.00	0.85	-159	0

Foot Pads - Slewing :						
Description (Forces must be -ve)	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m ²	kN	m	m		
Front Pad 1	0.00	0	0.00	0.00	None	None
Front Pad 2	0.00	0.00	0.00	0.00	None	None
Rear Pad 1	0.00	0.00	0.00	0.00	None	None
Rear Pad 2	0.00	0.00	0.00	0.00	None	None

Forces - Slewing						
	Force	X - Coordinate	Y - Coordinate			
	kN	m	m			
Maximum Extraction Force (kN)	70	0.00	2.90	Must be inline with suspended equip't.		
Maximum Penetration Force (kN)	-200	0.00	2.90	-ve Must be inline with suspended equip't.		
Maximum Auxillary Force (kN)	35	0.00	2.90			

Main Components - Non-Slewing:						
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)
Lower Works Non-Slewing (undercarriage/tracks etc)	Tracks & Undercarriage	4000	39	0.00	0.00	
				0.00	0.00	
				0.00	0.00	
TOTAL/RESULTANT (with θ=0)	4,000	39	0.00	0.00	0	0
TOTAL RIG MASS	23,000					

Front Foot Pads - Non-Slewing						
Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension
	m ²	kN	m	m		
Front Pad 1						
Front Pad 2						
Rear Pad 1						
Rear Pad 2						

Tracks		Slewing	
Track bearing length (m)	2.89	Can the Rig Slew?	YES
Track pad width (m)	0.50		
Distance between centrelines of tracks (m)	1.99		

MODE	Pressure Summary for Platform Design (unfactored)			BRE LOAD CASE (1 or 2)	Eccentricity Index		Winch Forces
	Equiv. Track Length (m)	Equiv. Track Width (m)	Equiv. Uniform Bearing Pressure, q _{eq} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	
Standing	1.67	0.50	183	1	0.71	0.49	0
Travelling	1.67	0.50	183	1	0.71	0.49	0
Handling	0.97	0.50	335	1	1.00	0.69	34
Penetrating	1.03	0.50	156	2	0.97	0.67	-55
Extracting	1.26	0.50	297	2	0.95	0.65	70
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	Auxiliary Line	ERROR MESSAGES FOR LINE FORCES	
	Zero Pressure		Extraction Force	Penetration Force
Standing	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK
Other	Track(s) lifting	Auxiliary Line Force OK	Extraction Force OK	Penetration Force OK

MODE	ERROR MESSAGES FOR FOOT PAD FORCES		ERROR MESSAGES FOR FOOT PAD PRESSURES	
	INPUT DATA		OUTPUT DATA	
Standing	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Travelling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Handling	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Penetrating	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Extracting	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK
Other	Slewing Footpad Forces OK	Non-Slewing Footpad Forces OK	Slewing Foot Pad Pressure OK	Non-Slewing Foot Pad Pressure OK

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



Notes
MAX WORKING RADIUS 2.9m.