

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	#0104
Operation mode:	CASE CX 130	Date:	09/05/2019	
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	2,450	24	0.00	1.99	-48	0
	Cathead	235	2	0.00	2.14	-5	0
	Support + cylinders	2,200	22	0.00	1.12	-24	0
	Hydraulic Cylinders	115	1	0.00	1.52	-2	0
	Hydraulic Cylinders	115	1	0.00	1.52	-2	0
LOWER WORKS (Slewing)	Base Machine	5,036	49	0.00	0.00	0	0
						0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Kelly	2,300	23	0.00	2.70	-61	0
	Rotary Head	1,550	15	0.00	2.45	-37	0
						0	0
COUNTER-WEIGHT (Slewing)	Counterweight	1,988	20	0.00	-1.92	37	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)			0	0.00	0.00	0	0
						0	0
UPPER WORKS	5,115	50	0.00	1.60	-80	0	
LOWER WORKS	5,036	49	0.00	0.00	0	0	
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	3,850	38	0.00	2.60	-98	0	
COUNTERWEIGHT	1,988	20	0.00	-1.92	37	0	
OTHER	0	0	0.00	0.00	0	0	
SLEWING TOTAL/RESULTANT (with $\theta=0$)	15,989	157	0.00	0.90	-141	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)	80	0.00	2.60	Must be inline with suspended equip't.	
Crowd System - Maximum Penetration Force (kN)	-196	0.00	2.60	-ve Must be inline with suspended equip't.	
Maximum Auxiliary Force (kN)	35	0.00	2.50		

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	5,011	49	0.00	0.00	0	0
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with $\theta=0$)	5,011	49	0.00	0.00	0	0	
TOTAL RIG MASS	21,000						

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)	2.80
Track pad width (m)	0.50
Distance between centrelines of tracks (m)	1.98
Can the rig slew?	
YES	

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



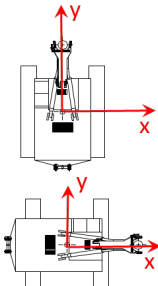
Notes
MAX WORKING RADIUS 3 m

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

SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.60	-80	0
Suspended Eqpt. on Crowd	38	0.00	2.60	-98	0
Counterweight (slewing)	20	0.00	-1.92	37	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	49	0.00	0.00	0	0
Net Extraction Force	0	0.00	2.60	0	0
Net Penetration Force	0	0.00	2.60	0	0
Applied Auxiliary Force	0	0.00	2.50	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	157	0.00	0.90	-141	0

Applied Force (kN)	Max. Allowable (kN)
0	80
0	-196
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
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	49	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	49	0.00	0.00	0	0	Max. Pad Pressure		0	
Total Rig Weight (kN)	206				Track Bearing Length (m)		2.80		
Resultant of all Actions (kN)	206	0.00	0.68	-141	0	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		1.98	

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	192	0	192	0	0.684	2.147	1.431	144	
15	153	0	219	0	0.661	2.217	1.478	164	
30	111	0	229	0	0.593	2.422	1.615	172	
45	77	0	223	0	0.484	2.748	1.832	167	
60	51	8	204	31	0.342	2.800	2.116	156	
75	34	15	169	76	0.177	2.800	2.446	140	
90	23	23	124	124	0.000	2.800	2.800	124	
105	34	15	169	76	-0.177	2.800	2.446	140	
120	51	8	204	31	-0.342	2.800	2.116	156	
135	77	0	223	0	-0.484	2.748	1.832	167	
150	111	0	229	0	-0.593	2.422	1.615	172	
165	153	0	219	0	-0.661	2.217	1.478	164	
180	192	0	192	0	-0.684	2.147	1.431	144	
195	219	0	153	0	-0.661	2.217	1.478	164	
210	229	0	111	0	-0.593	2.422	1.615	172	
225	223	0	77	0	-0.484	2.748	1.832	167	
240	204	31	51	8	-0.342	2.800	2.116	156	
255	169	76	34	15	-0.177	2.800	2.446	140	
270	124	124	23	23	0.000	2.800	2.800	124	
285	169	76	34	15	0.177	2.800	2.446	140	
300	204	31	51	8	0.342	2.800	2.116	156	
315	223	0	77	0	0.484	2.748	1.832	167	
330	229	0	111	0	0.593	2.422	1.615	172	
345	219	0	153	0	0.661	2.217	1.478	164	
						Maximum Track Values	1.615	172	
						Pad Area (m²)			
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								1.615	172
Eccentricity index - X direction (sideways)							0.69		
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	



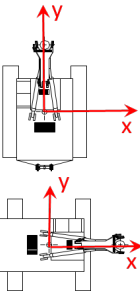
TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.60	-80	0
Suspended Eqpt. on Crowd	38	0.00	2.60	-98	0
Counterweight (slewing)	20	0.00	-1.92	37	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	49	0.00	0.00	0	0
Net Extraction Force	0	0.00	2.60	0	0
Net Penetration Force	0	0.00	2.60	0	0
Applied Auxiliary Force	0	0.00	2.50	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	157	0.00	0.90	-141	0

Applied Force (kN)	Max. Allowable (kN)
0	80
0	-196
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

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					
Lower Works Non-Slewing	49	0.00	0.00	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 Non-slewing Actions	49	0.00	0.00	0	0
Total Rig Weight (kN)	206				
Resultant of all Actions (kN)	206	0.00	0.68	-141	0

Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)
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
Track Bearing Length (m)			2.80
Track pad width (m)			0.50
Track Centerline Dist. (m)			1.98

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	192	0	192	0	0.684	2.147	1.431	144	
15	153	0	219	0	0.661	2.217	1.478	164	
30	111	0	229	0	0.593	2.422	1.615	172	
45	77	0	223	0	0.484	2.748	1.832	167	
60	51	8	204	31	0.342	2.800	2.116	156	
75	34	15	169	76	0.177	2.800	2.446	140	
90	23	23	124	124	0.000	2.800	2.800	124	
105	34	15	169	76	-0.177	2.800	2.446	140	
120	51	8	204	31	-0.342	2.800	2.116	156	
135	77	0	223	0	-0.484	2.748	1.832	167	
150	111	0	229	0	-0.593	2.422	1.615	172	
165	153	0	219	0	-0.661	2.217	1.478	164	
180	192	0	192	0	-0.684	2.147	1.431	144	
195	219	0	153	0	-0.661	2.217	1.478	164	
210	229	0	111	0	-0.593	2.422	1.615	172	
225	223	0	77	0	-0.484	2.748	1.832	167	
240	204	31	51	8	-0.342	2.800	2.116	156	
255	169	76	34	15	-0.177	2.800	2.446	140	
270	124	124	23	23	0.000	2.800	2.800	124	
285	169	76	34	15	0.177	2.800	2.446	140	
300	204	31	51	8	0.342	2.800	2.116	156	
315	223	0	77	0	0.484	2.748	1.832	167	
330	229	0	111	0	0.593	2.422	1.615	172	
345	219	0	153	0	0.661	2.217	1.478	164	
Maximum Track Values							1.615	172	
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							1.615	172	
Eccentricity index - X direction (sideways)							0.69		
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	

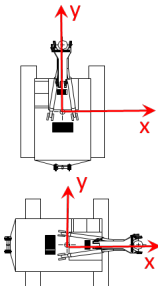


TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.60	-80	0
Suspended Eqpt. on Crowd	38	0.00	2.60	-98	0
Counterweight (slewing)	20	0.00	-1.92	37	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	49	0.00	0.00	0	0
Net Extraction Force	0	0.00	2.60	0	0
Net Penetration Force	0	0.00	2.60	0	0
Applied Auxiliary Force	35	0.00	2.50	-88	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	192	0.00	1.19	-228	0

Applied Force (kN)	Max. Allowable (kN)
0	80
0	-196
35	35

Applied Pressure (kPa)	Foot Pad Area (m ²)
0	0.00
0	0.00
0	0.00
0	0.00
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	49	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	49	0.00	0.00	0	0	Max. Pad Pressure	0		
Total Rig Weight (kN)	206					Track Bearing Length (m)		2.80	
Resultant of all Actions (kN)	241	0.00	0.95	-228	0	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		1.98	

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.

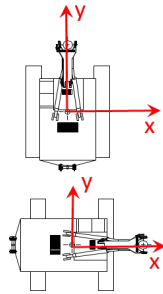
ONLY A COMPETENT PERSON MAY USE THIS TABLE !

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

Mode : 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	355	0	355	0	0.948	1.356	0.904	267	
15	250	0	414	0	0.916	1.453	0.969	310	
30	145	0	410	0	0.821	1.737	1.158	308	
45	71	0	369	0	0.670	2.189	1.459	277	
60	30	0	317	0	0.474	2.778	1.852	238	
75	10	3	253	79	0.245	2.800	2.309	201	
90	4	4	168	168	0.000	2.800	2.800	168	
105	10	3	253	79	-0.245	2.800	2.309	201	
120	30	0	317	0	-0.474	2.778	1.852	238	
135	71	0	369	0	-0.670	2.189	1.459	277	
150	145	0	410	0	-0.821	1.737	1.158	308	
165	250	0	414	0	-0.916	1.453	0.969	310	
180	355	0	355	0	-0.948	1.356	0.904	267	
195	414	0	250	0	-0.916	1.453	0.969	310	
210	410	0	145	0	-0.821	1.737	1.158	308	
225	369	0	71	0	-0.670	2.189	1.459	277	
240	317	0	30	0	-0.474	2.778	1.852	238	
255	253	79	10	3	-0.245	2.800	2.309	201	
270	168	168	4	4	0.000	2.800	2.800	168	
285	253	79	10	3	0.245	2.800	2.309	201	
300	317	0	30	0	0.474	2.778	1.852	238	
315	369	0	71	0	0.670	2.189	1.459	277	
330	410	0	145	0	0.821	1.737	1.158	308	
345	414	0	250	0	0.916	1.453	0.969	310	
Maximum Track Values							0.969	310	
							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							0.969	310	
Eccentricity index - X direction (sideways)							0.96		
Eccentricity index - Y direction (forwards/backwards)							0.68		
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)	50	0.00	1.60	-80	0					
Suspended Eqpt. on Crowd	38	0.00	2.60	-98	0					
Counterweight (slewing)	20	0.00	-1.92	37	0					
Other (slewing)	0	0.00	0.00	0	0					
Lower Works (Slewing)	49	0.00	0.00	0	0					
Net Extraction Force	0	0.00	2.60	0	0	0.00	80			
Net Penetration Force	-88	0.00	2.60	228	0	-50.00	-196			
Applied Auxiliary Force	0	0.00	2.50	0	0	0.00	35			
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 Slewing Actions	69	0.00	-1.26	87	-0	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	49	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	49	0.00	0.00	0	0	Max. Pad Pressure		0		
Total Rig Weight (kN)	206					Track Bearing Length (m)	2.80			
Resultant of all Actions (kN)	118	0.00	-0.74	87	0	Track pad width (m)	0.50			
						Track Centerline Dist. (m)	1.98			

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	
Penetration Force OK	USE 50KN MAX IN PENETRATING MODE
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 : Penetrating								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	119	0	119	0	0.737	1.989	1.326	89	
15	93	0	137	0	0.712	2.064	1.376	102	
30	65	0	142	0	0.638	2.285	1.523	107	
45	42	0	137	0	0.521	2.636	1.757	103	
60	27	3	124	15	0.369	2.800	2.063	94	
75	17	7	102	43	0.191	2.800	2.418	84	
90	11	11	74	74	0.000	2.800	2.800	74	
105	17	7	102	43	-0.191	2.800	2.418	84	
120	27	3	124	15	-0.369	2.800	2.063	94	
135	42	0	137	0	-0.521	2.636	1.757	103	
150	65	0	142	0	-0.638	2.285	1.523	107	
165	93	0	137	0	-0.712	2.064	1.376	102	
180	119	0	119	0	-0.737	1.989	1.326	89	
195	137	0	93	0	-0.712	2.064	1.376	102	
210	142	0	65	0	-0.638	2.285	1.523	107	
225	137	0	42	0	-0.521	2.636	1.757	103	
240	124	15	27	3	-0.369	2.800	2.063	94	
255	102	43	17	7	-0.191	2.800	2.418	84	
270	74	74	11	11	0.000	2.800	2.800	74	
285	102	43	17	7	0.191	2.800	2.418	84	
300	124	15	27	3	0.369	2.800	2.063	94	
315	137	0	42	0	0.521	2.636	1.757	103	
330	142	0	65	0	0.638	2.285	1.523	107	
345	137	0	93	0	0.712	2.064	1.376	102	
Maximum Track Values							1.523	107	
							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							1.523	107	
Eccentricity index - X direction (sideways)						0.74			
Eccentricity index - Y direction (forwards/backwards)						0.53			
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	

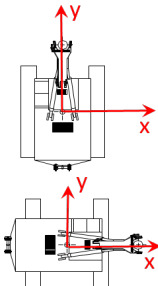


TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.60	-80	0
Suspended Eqpt. on Crowd	38	0.00	2.60	-98	0
Counterweight (slewing)	20	0.00	-1.92	37	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	49	0.00	0.00	0	0
Net Extraction Force	32	0.00	2.60	-84	0
Net Penetration Force	0	0.00	2.60	0	0
Applied Auxiliary Force	0	0.00	2.50	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	189	0.00	1.19	-225	0

Applied Force (kN)	Max. Allowable (kN)
70.00	80
0.00	-196
0.00	35

Applied Pressure (kPa)	Foot Pad Area (m ²)
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	49	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	49	0.00	0.00	0	0	Max. Pad Pressure 0			
Total Rig Weight (kN)	206					Track Bearing Length (m)		2.80	
Resultant of all Actions (kN)	238	0.00	0.94	-225	0	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		1.98	

Input Data Warning Messages	Notes
Auxiliary Line Force OK	
Extraction Force OK	USE 70kN MAX IN EXTRACTION MODE
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 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	348	0	348	0	0.943	1.370	0.913	261	
15	245	0	405	0	0.911	1.466	0.977	304	
30	143	0	402	0	0.817	1.749	1.166	302	
45	71	0	363	0	0.667	2.199	1.466	272	
60	30	0	312	0	0.472	2.785	1.857	234	
75	10	3	249	78	0.244	2.800	2.312	198	
90	4	4	166	166	0.000	2.800	2.800	166	
105	10	3	249	78	-0.244	2.800	2.312	198	
120	30	0	312	0	-0.472	2.785	1.857	234	
135	71	0	363	0	-0.667	2.199	1.466	272	
150	143	0	402	0	-0.817	1.749	1.166	302	
165	245	0	405	0	-0.911	1.466	0.977	304	
180	348	0	348	0	-0.943	1.370	0.913	261	
195	405	0	245	0	-0.911	1.466	0.977	304	
210	402	0	143	0	-0.817	1.749	1.166	302	
225	363	0	71	0	-0.667	2.199	1.466	272	
240	312	0	30	0	-0.472	2.785	1.857	234	
255	249	78	10	3	-0.244	2.800	2.312	198	
270	166	166	4	4	0.000	2.800	2.800	166	
285	249	78	10	3	0.244	2.800	2.312	198	
300	312	0	30	0	0.472	2.785	1.857	234	
315	363	0	71	0	0.667	2.199	1.466	272	
330	402	0	143	0	0.817	1.749	1.166	302	
345	405	0	245	0	0.911	1.466	0.977	304	
Maximum Track Values							0.977	304	
							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							0.977	304	
Eccentricity index - X direction (sideways)							0.95		
Eccentricity index - Y direction (forwards/backwards)							0.67		
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		

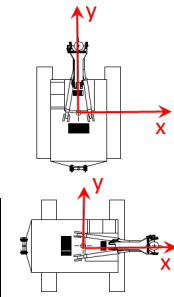


TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6					

SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.60	-80	0
Suspended Eqpt. on Crowd	38	0.00	2.60	-98	0
Counterweight (slewing)	20	0.00	-1.92	37	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	49	0.00	0.00	0	0
Applied Extraction Force	0	0.00	2.60	0	0
Applied Penetration Force	0	0.00	2.60	0	0
Applied Auxiliary Force	0	0.00	2.50	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	157	0.00	0.90	-141	0

Applied Force (kN)	Max. Allowable (kN)
0	80
0	-196
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	49	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	49	0.00	0.00	0	0	Max. Pad Pressure		0		
Total Rig Weight (kN)	206					Track Bearing Length (m)	2.80			
Resultant of all Actions (kN)	206	0.00	0.68	-141	0	Track pad width (m)	0.50			
						Track Centreline Dist. (m)	1.98			

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 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	192	0	192	0	0.684	2.147	1.431	144	
15	153	0	219	0	0.661	2.217	1.478	164	
30	111	0	229	0	0.593	2.422	1.615	172	
45	77	0	223	0	0.484	2.748	1.832	167	
60	51	8	204	31	0.342	2.800	2.116	156	
75	34	15	169	76	0.177	2.800	2.446	140	
90	23	23	124	124	0.000	2.800	2.800	124	
105	34	15	169	76	-0.177	2.800	2.446	140	
120	51	8	204	31	-0.342	2.800	2.116	156	
135	77	0	223	0	-0.484	2.748	1.832	167	
150	111	0	229	0	-0.593	2.422	1.615	172	
165	153	0	219	0	-0.661	2.217	1.478	164	
180	192	0	192	0	-0.684	2.147	1.431	144	
195	219	0	153	0	-0.661	2.217	1.478	164	
210	229	0	111	0	-0.593	2.422	1.615	172	
225	223	0	77	0	-0.484	2.748	1.832	167	
240	204	31	51	8	-0.342	2.800	2.116	156	
255	169	76	34	15	-0.177	2.800	2.446	140	
270	124	124	23	23	0.000	2.800	2.800	124	
285	169	76	34	15	0.177	2.800	2.446	140	
300	204	31	51	8	0.342	2.800	2.116	156	
315	223	0	77	0	0.484	2.748	1.832	167	
330	229	0	111	0	0.593	2.422	1.615	172	
345	219	0	153	0	0.661	2.217	1.478	164	
Maximum Track Values							1.615	172	
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							1.615	172	
Eccentricity index - X direction (sideways)							0.69		
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	#0104
Operation mode:	CASE CX 130	Date:	09/05/2019	
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	5,115	50	0.00	1.60	-80	0
LOWER WORKS	5,036	49	0.00	0.00	0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	3,850	38	0.00	2.60	-98	0
COUNTERWEIGHT	1,988	20	0.00	-1.92	37	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	15,989	157	0.00	0.90	-141	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)	80	0.00	2.60	Must be inline with suspended equip't.	
Maximum Penetration Force (kN)	-196	0.00	2.60	-ve Must be inline with suspended equip't.	
Maximum Auxiliary Force (kN)	35	0.00	2.50		

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	5011	49	0.00	0.00	
				0.00	0.00	
				0.00	0.00	
TOTAL/RESULTANT (with θ=0)	5,011	49	0.00	0.00	0	0
TOTAL RIG MASS	21,000					

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)	2.80	Can the Rig Slew?	YES
Track pad width (m)	0.50		
Distance between centrelines of tracks (m)	1.98		

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	1.61	0.50	172	1	0.69	0.49	0
Travelling	1.61	0.50	172	1	0.69	0.49	0
Handling	0.97	0.50	310	1	0.96	0.68	35
Penetrating	1.52	0.50	107	2	0.74	0.53	-50
Extracting	0.98	0.50	304	2	0.95	0.67	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

<p>Note: The disclaimer on the first worksheet applies to all tables in this workbook</p> 	<p>Notes</p> <p>MAX WORKING RADIUS 3 m</p>
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