

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.	CF3	#3166
Operation mode:	Hitachi 70 LC-3 / Supporto BASSO	Date:	23/07/2018	
Completed by:	LG	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	1,150	11	0.00	1.73	-20	0
	Cathead	150	1	0.00	1.73	-3	0
	Support	450	4	0.00	0.85	-4	0
	Winches	300	3	0.00	0.42	-1	0
	Hydraulic cylinder	350	3	0.00	1.50	-5	0
	Pull down	100	1	0.00	1.73	-2	0
LOWER WORKS (Slewing)	Base Machine	2,300	23	0.00	-1.12	25	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Kelly	1,600	16	0.00	2.43	-38	0
	Rotary Head	400	4	0.00	2.73	-11	0
						0	0
COUNTER-WEIGHT (Slewing)	Counterweight	700	7	0.00	-1.50	10	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)						0	0
						0	0
UPPER WORKS	2,500	25	0.00	1.38	-34	0	
LOWER WORKS	2,300	23	0.00	-1.12	25	0	
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	2,000	20	0.00	2.49	-49	0	
COUNTERWEIGHT	700	7	0.00	-1.50	10	0	
OTHER	0	0	0.00	0.00	0	0	
SLEWING TOTAL/RESULTANT (with $\theta=0$)	7,500	74	0.00	0.64	-47	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)	48	0.00	2.49	Must be inline with suspended equip't.	
Crowd System - Maximum Penetration Force (kN)	-130	0.00	2.49	-ve Must be inline with suspended equip't.	
Maximum Auxilliary Force (kN)	1	0.00	1.80		

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	3,500	34	0.00	-0.08	3	0
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with $\theta=0$)	3,500	34	0.00	-0.08	3	0	
TOTAL RIG MASS	11,000						

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)	2.60
Track pad width (m)	0.45
Distance between centrelines of tracks (m)	1.87
	Can the rig slew?
	YES

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



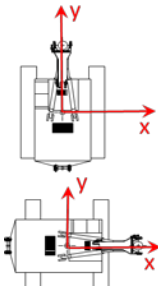
Notes
MAX WORKING RADIUS 2,15m.

TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF3					

SLEWING ACTIONS					
Upper Works (slewing)	25	0.00	1.38	-34	0
Suspended Eqpt. on Crowd	20	0.00	2.49	-49	0
Counterweight (slewing)	7	0.00	-1.50	10	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	23	0.00	-1.12	25	0
Net Extraction Force	0	0.00	2.49	0	0
Net Penetration Force	0	0.00	2.49	0	0
Applied Auxiliary Force	1	0.00	1.80	-2	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	75	0.00	0.66	-49	0

Applied Force (kN)	Max. Allowable (kN)
0	48
0	-130
1	1

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					
Lower Works Non-Slewing	34	0.00	-0.08	3	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	34	0.00	-0.08	3	0
Total Rig Weight (kN)	108				
Resultant of all Actions (kN)	109	0.00	0.42	-46	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
Max. Pad Pressure	0		
Track Bearing Length (m)	2.60		
Track pad width (m)	0.45		
Track Centerline Dist. (m)	1.87		

Handling

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 ecc (m) Bearing Len. (m)		Equivalent Bearing L (m) Q (KPa)		
0	92	1	92	1	0.425	2.600	1.751	69	
15	79	2	102	3	0.409	2.600	1.782	76	
30	65	6	106	9	0.364	2.600	1.871	80	
45	51	10	105	20	0.293	2.600	2.014	81	
60	40	15	96	36	0.200	2.600	2.201	78	
75	30	20	83	54	0.091	2.600	2.418	73	
90	26	23	73	65	-0.025	2.600	2.550	70	
105	33	17	90	46	-0.142	2.600	2.317	77	
120	43	11	104	28	-0.250	2.600	2.100	82	
135	55	6	112	13	-0.343	2.600	1.914	85	
150	69	2	113	2	-0.415	2.600	1.771	85	
165	84	0	108	0	-0.460	2.521	1.681	81	
180	98	0	98	0	-0.475	2.475	1.650	73	
195	108	0	84	0	-0.460	2.521	1.681	81	
210	113	2	69	2	-0.415	2.600	1.771	85	
225	112	13	55	6	-0.343	2.600	1.914	85	
240	104	28	43	11	-0.250	2.600	2.100	82	
255	90	46	33	17	-0.142	2.600	2.317	77	
270	73	65	26	23	-0.025	2.600	2.550	70	
285	83	54	30	20	0.091	2.600	2.418	73	
300	96	36	40	15	0.200	2.600	2.201	78	
315	105	20	51	10	0.293	2.600	2.014	81	
330	106	9	65	6	0.364	2.600	1.871	80	
345	102	3	79	2	0.409	2.600	1.782	76	
Maximum Track Values							1.771	85	
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							1.771	85	
Eccentricity index - X direction (sideways)							0.48		
Eccentricity index - Y direction (forwards/backwards)							0.37		
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	

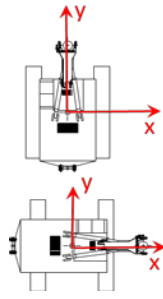


TESCAR	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF3					

SLEWING ACTIONS					
Upper Works (slewing)	25	0.00	1.38	-34	0
Suspended Eqpt. on Crowd	20	0.00	2.49	-49	0
Counterweight (slewing)	7	0.00	-1.50	10	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	23	0.00	-1.12	25	0
Net Extraction Force	0	0.00	2.49	0	0
Net Penetration Force	-42	0.00	2.49	104	0
Applied Auxiliary Force	0	0.00	1.80	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 Actions	32	0.00	-1.77	56	-0

Applied Force (kN)	Max. Allowable (kN)
0.00	48
-22.00	-130
0.00	1

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					
Lower Works Non-Slewing	34	0.00	-0.08	3	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	34	0.00	-0.08	3	0
Total Rig Weight (kN)	108				
Resultant of all Actions (kN)	66	0.00	-0.89	59	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)			2.60
Track pad width (m)			0.45
Track Centerline Dist. (m)			1.87

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 : 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 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 ecc (m)	Bearing Len. (m)	Equivalent Bearing L (m)	Q (kPa)	
0	100	0	100	0	0.810	1.470	0.980	75	
15	72	0	117	0	0.781	1.557	1.038	88	
30	44	0	118	0	0.696	1.812	1.208	89	
45	24	0	109	0	0.561	2.218	1.479	82	
60	11	1	96	6	0.384	2.600	1.831	72	
75	5	2	75	31	0.179	2.600	2.242	62	
90	3	2	59	49	-0.041	2.600	2.517	56	
105	5	1	85	21	-0.262	2.600	2.076	67	
120	12	0	105	0	-0.467	2.498	1.666	79	
135	27	0	123	0	-0.644	1.969	1.313	92	
150	51	0	137	0	-0.779	1.563	1.042	103	
165	86	0	139	0	-0.864	1.308	0.872	104	
180	121	0	121	0	-0.893	1.221	0.814	90	
195	139	0	86	0	-0.864	1.308	0.872	104	
210	137	0	51	0	-0.779	1.563	1.042	103	
225	123	0	27	0	-0.644	1.969	1.313	92	
240	105	0	12	0	-0.467	2.498	1.666	79	
255	85	21	5	1	-0.262	2.600	2.076	67	
270	59	49	3	2	-0.041	2.600	2.517	56	
285	75	31	5	2	0.179	2.600	2.242	62	
300	96	6	11	1	0.384	2.600	1.831	72	
315	109	0	24	0	0.561	2.218	1.479	82	
330	118	0	44	0	0.696	1.812	1.208	89	
345	117	0	72	0	0.781	1.557	1.038	88	
Maximum Track Values							0.872	104	
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							0.872	104	
Eccentricity index - X direction (sideways)							0.91		
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)							2		



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.	CF3 #3166
Operation mode:	Hitachi 70 LC-3 / Supporto BASSO	Date:	23/07/2018
Completed by:	LG	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	2,500	25	0.00	1.38	-34	0
LOWER WORKS	2,300	23	0.00	-1.12	25	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	2,000	20	0.00	2.49	-49	0
COUNTERWEIGHT	700	7	0.00	-1.50	10	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	7,500	74	0.00	0.64	-47	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)	48	0.00	2.49	Must be inline with suspended equip't.		
Maximum Penetration Force (kN)	-130	0.00	2.49	-ve Must be inline with suspended equip't.		
Maximum Auxillary Force (kN)	1	0.00	1.80			

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	3500	34	0.00	-0.08	3
				0.00	0.00	
				0.00	0.00	
TOTAL/RESULTANT (with θ=0)	3,500	34	0.00	-0.08	3	0
TOTAL RIG MASS	11,000					


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)	2.60	Can the Rig Slew?	YES
Track pad width (m)	0.45		
Distance between centrelines of tracks (m)	1.87		

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	1.93	0.45	83	1	0.47	0.36	0
Travelling	1.93	0.45	83	1	0.47	0.36	0
Handling	1.77	0.45	85	1	0.48	0.37	1
Penetrating	0.87	0.45	104	2	0.91	0.69	-22
Extracting	0.89	0.45	210	2	0.92	0.68	48
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	Auxillary Line	Extraction Force	Penetration Force
Standing	Zero Pressure Track(s) lifting	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	Track(s) lifting	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Handling	Track(s) lifting	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Penetrating	Track(s) lifting	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	Track(s) lifting	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Other	Track(s) lifting	Auxillary 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 2,15m.</p>
---	--