

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 :	Tonti Trading	Rig Type & Serial No.	CF6 Plus	#0106
Operation mode:		Date:	17/02/2020	
Completed by:	M.G.	Checked by:	M.G.	

Main Components - Slewing:							
Item	Mass (kg)	Weight (kN)	X - Coordinate	Y - Coordinate	Moment Mx (kNm)	Moment My (kNm)	
UPPER WORKS (Slewing)	Parallelogram	850	8	0.00	0.78	-7	0
	Mast	2,000	20	0.00	1.43	-28	0
	Rotary	1,900	19	0.00	1.92	-36	0
	Cat head	340	3	0.00	1.62	-5	0
				0.00	0.00	0	0
LOWER WORKS (Slewing)	Base Machine	7,000	69	0.00	-0.58	40	0
						0	0
						0	0
						0	0
						0	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM (Slewing)	Kelly bar	2,600	26	0.00	2.18	-56	0
	Kelly guide	250	2	0.00	2.18	-5	0
						0	0
COUNTER-WEIGHT (Slewing)						0	0
						0	0
						0	0
OTHER/OTHER SUSPENDED EQUIPMENT (Slewing)						0	0
						0	0
						0	0
UPPER WORKS	5,090	50	0.00	1.52	-76	0	
LOWER WORKS	7,000	69	0.00	-0.58	40	0	
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	2,850	28	0.00	2.18	-61	0	
COUNTERWEIGHT	0	0	0.00	0.00	0	0	
OTHER	0	0	0.00	0.00	0	0	
SLEWING TOTAL/RESULTANT (with θ=0)	14,940	147	0.00	0.66	-97	0	

Foot Pads - Slewing :							
Description	Bearing Area	Max. Pad Loading	X - Coordinate	Y - Coordinate	Actual Shape	Actual Dimension	
Front Pad 1	m ²	kN	m	m	1.2x1.25m	Rectangular	
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	2.18	Must be inline with suspended equip't.		
Crowd System - Maximum Penetration Force (kN)	-60	0.00	2.18	-ve Must be inline with suspended equip't.		
Maximum Auxiliary Force (kN)	30	0.00	2.00			

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	6,700	66	0.00	0.00	0	0
				0.00	0.00	0	0
				0.00	0.00	0	0
NON-SLEWING TOTAL/RESULTANT (with θ=0)	6,700	66	0.00	0.00	0	0	
TOTAL RIG MASS	21,640						

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

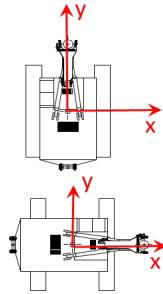
Tracks		Slewing	
Track bearing length (m)	3.05	Can the rig slew?	YES
Track pad width (m)	0.50		
Distance between centrelines of tracks (m)	2.90		

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



Notes
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Tonti Trading	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6 Plus					
SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.52	-76	0
Suspended Eqpt. on Crowd	28	0.00	2.18	-61	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	69	0.00	-0.58	40	0
Net Extraction Force	0	0.00	2.18	0	0
Net Penetration Force	0	0.00	2.18	0	0
Applied Auxiliary Force	0	0.00	2.00	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 Slewing Action	147	0.00	0.66	-97	0



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)
0	80	0	0.00
0	-60	0	0.00
0	30	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	66	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	66	0.00	0.00	0	0	Max. Pad Pressure	0		
Total Rig Weight (kN)	212					Track Bearing Length (m)			3.05
Resultant of all Actions (kN)	212	0.00	0.46	-97	0	Track pad width (m)			0.50
						Track Centerline Dist. (m)			2.90

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.

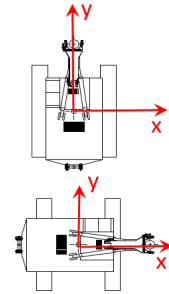
ONLY A COMPETENT PERSON MAY USE THIS TABLE !

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	132	7	132	7	0.457	3.045	2.131	100	
15	120	8	141	10	0.441	3.045	2.162	106	
30	105	13	144	18	0.396	3.045	2.254	109	
45	89	20	140	31	0.323	3.045	2.399	108	
60	74	28	129	49	0.228	3.045	2.588	104	
75	60	37	112	70	0.118	3.045	2.809	99	
90	48	48	92	92	0.000	3.045	3.045	92	
105	60	37	112	70	-0.118	3.045	2.809	99	
120	74	28	129	49	-0.228	3.045	2.588	104	
135	89	20	140	31	-0.323	3.045	2.399	108	
150	105	13	144	18	-0.396	3.045	2.254	109	
165	120	8	141	10	-0.441	3.045	2.162	106	
180	132	7	132	7	-0.457	3.045	2.131	100	
195	141	10	120	8	-0.441	3.045	2.162	106	
210	144	18	105	13	-0.396	3.045	2.254	109	
225	140	31	89	20	-0.323	3.045	2.399	108	
240	129	49	74	28	-0.228	3.045	2.588	104	
255	112	70	60	37	-0.118	3.045	2.809	99	
270	92	92	48	48	0.000	3.045	3.045	92	
285	112	70	60	37	0.118	3.045	2.809	99	
300	129	49	74	28	0.228	3.045	2.588	104	
315	140	31	89	20	0.323	3.045	2.399	108	
330	144	18	105	13	0.396	3.045	2.254	109	
345	141	10	120	8	0.441	3.045	2.162	106	
Maximum Track Values							2.254	109	
							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							2.254	109	
Eccentricity index - X direction (sideways)							0.32		
Eccentricity index - Y direction (forwards/backwards)							0.30		
Track pressure distribution warning							None		
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		



Tonti Trading	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6 Plus					
SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.52	-76	0
Suspended Eqpt. on Crowd	28	0.00	2.18	-61	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	69	0.00	-0.58	40	0
Net Extraction Force	0	0.00	2.18	0	0
Net Penetration Force	0	0.00	2.18	0	0
Applied Auxiliary Force	0	0.00	2.00	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 Slewing Action	147	0.00	0.66	-97	0



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	80	0	0.00
0	-60	0	0.00
0	30	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 (m2)
Lower Works Non-Slewing	66	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	66	0.00	0.00	0	0	Max. Pad Pressure	0		
Total Rig Weight (kN)	212					Track Bearing Length (m)			3.05
Resultant of all Actions (kN)	212	0.00	0.46	-97	0	Track pad width (m)			0.50
						Track Centerline Dist. (m)			2.90

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
 Auxilliary 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.

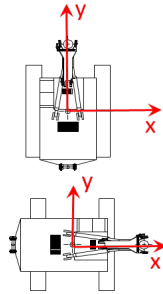
Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks and foot pads (highlighted in red boxes).
 When applying Auxilliary 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	132	7	132	7	0.457	3.045	2.131	100	
15	120	8	141	10	0.441	3.045	2.162	106	
30	105	13	144	18	0.396	3.045	2.254	109	
45	89	20	140	31	0.323	3.045	2.399	108	
60	74	28	129	49	0.228	3.045	2.588	104	
75	60	37	112	70	0.118	3.045	2.809	99	
90	48	48	92	92	0.000	3.045	3.045	92	
105	60	37	112	70	-0.118	3.045	2.809	99	
120	74	28	129	49	-0.228	3.045	2.588	104	
135	89	20	140	31	-0.323	3.045	2.399	108	
150	105	13	144	18	-0.396	3.045	2.254	109	
165	120	8	141	10	-0.441	3.045	2.162	106	
180	132	7	132	7	-0.457	3.045	2.131	100	
195	141	10	120	8	-0.441	3.045	2.162	106	
210	144	18	105	13	-0.396	3.045	2.254	109	
225	140	31	89	20	-0.323	3.045	2.399	108	
240	129	49	74	28	-0.228	3.045	2.588	104	
255	112	70	60	37	-0.118	3.045	2.809	99	
270	92	92	48	48	0.000	3.045	3.045	92	
285	112	70	60	37	0.118	3.045	2.809	99	
300	129	49	74	28	0.228	3.045	2.588	104	
315	140	31	89	20	0.323	3.045	2.399	108	
330	144	18	105	13	0.396	3.045	2.254	109	
345	141	10	120	8	0.441	3.045	2.162	106	
Maximum Track Values							2.254	109	
							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							2.254	109	
Eccentricity index - X direction (sideways)							0.32		
Eccentricity index - Y direction (forwards/backwards)							0.30		
Track pressure distribution warning							None		
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		



Tonti Trading	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6 Plus					
SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.52	-76	0
Suspended Eqpt. on Crowd	28	0.00	2.18	-61	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	69	0.00	-0.58	40	0
Net Extraction Force	0	0.00	2.18	0	0
Net Penetration Force	0	0.00	2.18	0	0
Applied Auxiliary Force	10	0.00	2.00	-20	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	0.75	-117	0



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m ²)
0	80	0	0.00
0	-60	0	0.00
10	30	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	66	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	66	0.00	0.00	0	0	Max. Pad Pressure	0		
Total Rig Weight (kN)	212					Track Bearing Length (m)			3.05
Resultant of all Actions (kN)	222	0.00	0.53	-117	0	Track pad width (m)			0.50
						Track Centerline Dist. (m)			2.90

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.

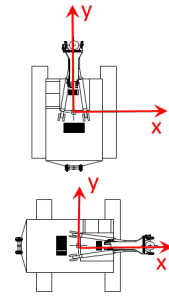
Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks 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 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	149	0	149	0	0.526	2.989	1.993	112	
15	132	0	160	0	0.508	3.043	2.028	120	
30	113	6	164	9	0.456	3.045	2.134	123	
45	94	14	159	24	0.372	3.045	2.301	121	
60	76	24	146	46	0.263	3.045	2.519	116	
75	60	35	125	72	0.136	3.045	2.773	108	
90	47	47	99	99	0.000	3.045	3.045	99	
105	60	35	125	72	-0.136	3.045	2.773	108	
120	76	24	146	46	-0.263	3.045	2.519	116	
135	94	14	159	24	-0.372	3.045	2.301	121	
150	113	6	164	9	-0.456	3.045	2.134	123	
165	132	0	160	0	-0.508	3.043	2.028	120	
180	149	0	149	0	-0.526	2.989	1.993	112	
195	160	0	132	0	-0.508	3.043	2.028	120	
210	164	9	113	6	-0.456	3.045	2.134	123	
225	159	24	94	14	-0.372	3.045	2.301	121	
240	146	46	76	24	-0.263	3.045	2.519	116	
255	125	72	60	35	-0.136	3.045	2.773	108	
270	99	99	47	47	0.000	3.045	3.045	99	
285	125	72	60	35	0.136	3.045	2.773	108	
300	146	46	76	24	0.263	3.045	2.519	116	
315	159	24	94	14	0.372	3.045	2.301	121	
330	164	9	113	6	0.456	3.045	2.134	123	
345	160	0	132	0	0.508	3.043	2.028	120	
Maximum Track Values							2.134	123	
							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							2.134	123	
Eccentricity index - X direction (sideways)							0.36		
Eccentricity index - Y direction (forwards/backwards)							0.35		
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		



Tonti Trading	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6 Plus					
SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.52	-76	0
Suspended Eqpt. on Crowd	28	0.00	2.18	-61	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	69	0.00	-0.58	40	0
Net Extraction Force	0	0.00	2.18	0	0
Net Penetration Force	-57	0.00	2.18	125	0
Applied Auxiliary Force	0	0.00	2.00	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 Slewing Actions	89	0.00	-0.32	28	-0



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0.00	80	0	0.00
-29.40	-60	0	0.00
0.00	30	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 (m2)
Lower Works Non-Slewing	66	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	66	0.00	0.00	0	0	Max. Pad Pressure	0		
Total Rig Weight (kN)	212				Track Bearing Length (m)	3.05			
Resultant of all Actions (kN)	155	0.00	-0.18	28	0	Track pad width (m)	0.50		
						Track Centerline Dist. (m)	2.90		

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		Equivalent Bearing		
					ecc (m)	Bearing Len. (m)	L (m)	Q (kPa)	
0	69	33	69	33	0.182	3.045	2.681	58	
15	66	32	71	34	0.176	3.045	2.693	59	
30	63	33	71	37	0.158	3.045	2.729	60	
45	58	35	69	41	0.129	3.045	2.787	61	
60	53	37	67	46	0.091	3.045	2.863	60	
75	49	41	62	52	0.047	3.045	2.951	59	
90	44	44	57	57	0.000	3.045	3.045	57	
105	49	41	62	52	-0.047	3.045	2.951	59	
120	53	37	67	46	-0.091	3.045	2.863	60	
135	58	35	69	41	-0.129	3.045	2.787	61	
150	63	33	71	37	-0.158	3.045	2.729	60	
165	66	32	71	34	-0.176	3.045	2.693	59	
180	69	33	69	33	-0.182	3.045	2.681	58	
195	71	34	66	32	-0.176	3.045	2.693	59	
210	71	37	63	33	-0.158	3.045	2.729	60	
225	69	41	58	35	-0.129	3.045	2.787	61	
240	67	46	53	37	-0.091	3.045	2.863	60	
255	62	52	49	41	-0.047	3.045	2.951	59	
270	57	57	44	44	0.000	3.045	3.045	57	
285	62	52	49	41	0.047	3.045	2.951	59	
300	67	46	53	37	0.091	3.045	2.863	60	
315	69	41	58	35	0.129	3.045	2.787	61	
330	71	37	63	33	0.158	3.045	2.729	60	
345	71	34	66	32	0.176	3.045	2.693	59	
							2.787	61	
Maximum Track Values							2.787	61	
							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							2.787	61	
Eccentricity index - X direction (sideways)							0.13		
Eccentricity index - Y direction (forwards/backwards)							0.12		
Track pressure distribution warning							None		
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	

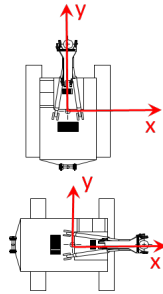


Tonti Trading	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6 Plus					

SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.52	-76	0
Suspended Eqpt. on Crowd	28	0.00	2.18	-61	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	69	0.00	-0.58	40	0
Net Extraction Force	0	0.00	2.18	0	0
Net Penetration Force	0	0.00	2.18	0	0
Applied Auxiliary Force	0	0.00	2.00	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 Slewing Action	147	0.00	0.66	-97	0

Applied Force (kN)	Max. Allowable (kN)
-46.00	80

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	66	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	66	0.00	0.00	0	0	Max. Pad Pressure 0				
Total Rig Weight (kN)	212					Track Bearing Length (m)	3.05			
Resultant of all Actions (kN)	212	0.00	0.46	-97	0	Track pad width (m)	0.50			
						Track Centerline Dist. (m)	2.90			

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.

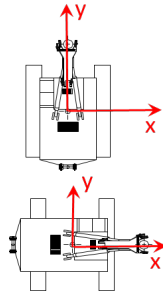
Fill in values in all yellow boxes appropriate for this mode -
 Net extraction or penetration force is the applied value minus the weight of any rope / kelly / chain suspended equipment.
 By trial and error, adjust Foot Pad Forces to eliminate "error" messages and equalise bearing pressures on both tracks 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 : 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	132	7	132	7	0.457	3.045	2.131	100	
15	120	8	141	10	0.441	3.045	2.162	106	
30	105	13	144	18	0.396	3.045	2.254	109	
45	89	20	140	31	0.323	3.045	2.399	108	
60	74	28	129	49	0.228	3.045	2.588	104	
75	60	37	112	70	0.118	3.045	2.809	99	
90	48	48	92	92	0.000	3.045	3.045	92	
105	60	37	112	70	-0.118	3.045	2.809	99	
120	74	28	129	49	-0.228	3.045	2.588	104	
135	89	20	140	31	-0.323	3.045	2.399	108	
150	105	13	144	18	-0.396	3.045	2.254	109	
165	120	8	141	10	-0.441	3.045	2.162	106	
180	132	7	132	7	-0.457	3.045	2.131	100	
195	141	10	120	8	-0.441	3.045	2.162	106	
210	144	18	105	13	-0.396	3.045	2.254	109	
225	140	31	89	20	-0.323	3.045	2.399	108	
240	129	49	74	28	-0.228	3.045	2.588	104	
255	112	70	60	37	-0.118	3.045	2.809	99	
270	92	92	48	48	0.000	3.045	3.045	92	
285	112	70	60	37	0.118	3.045	2.809	99	
300	129	49	74	28	0.228	3.045	2.588	104	
315	140	31	89	20	0.323	3.045	2.399	108	
330	144	18	105	13	0.396	3.045	2.254	109	
345	141	10	120	8	0.441	3.045	2.162	106	
Maximum Track Values							2.254	109	
							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							2.254	109	
Eccentricity index - X direction (sideways)							0.32		
Eccentricity index - Y direction (forwards/backwards)							0.30		
Track pressure distribution warning							None		
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		



Tonti Trading	Weight / Force Applied (kN)	X - Coordinate	Y - Coordinate	Moment Mx	Moment My
CF6 Plus					
SLEWING ACTIONS					
Upper Works (slewing)	50	0.00	1.52	-76	0
Suspended Eqpt. on Crowd	28	0.00	2.18	-61	0
Counterweight (slewing)	0	0.00	0.00	0	0
Other (slewing)	0	0.00	0.00	0	0
Lower Works (Slewing)	69	0.00	-0.58	40	0
Applied Extraction Force	0	0.00	2.18	0	0
Applied Penetration Force	0	0.00	2.18	0	0
Applied Auxiliary Force	0	0.00	2.00	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 Slewing Action	147	0.00	0.66	-97	0



Applied Force (kN)	Max. Allowable (kN)	Applied Pressure (kPa)	Foot Pad Area (m2)
0	80	0	0.00
0	-60	0	0.00
0	30	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 (m2)
Lower Works Non-Slewing	66	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	66	0.00	0.00	0	0	Max. Pad Pressure	0		
Total Rig Weight (kN)	212					Track Bearing Length (m)		3.05	
Resultant of all Actions (kN)	212	0.00	0.46	-97	0	Track pad width (m)		0.50	
						Track Centerline Dist. (m)		2.90	

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	132	7	132	7	0.457	3.045	2.131	100	
15	120	8	141	10	0.441	3.045	2.162	106	
30	105	13	144	18	0.396	3.045	2.254	109	
45	89	20	140	31	0.323	3.045	2.399	108	
60	74	28	129	49	0.228	3.045	2.588	104	
75	60	37	112	70	0.118	3.045	2.809	99	
90	48	48	92	92	0.000	3.045	3.045	92	
105	60	37	112	70	-0.118	3.045	2.809	99	
120	74	28	129	49	-0.228	3.045	2.588	104	
135	89	20	140	31	-0.323	3.045	2.399	108	
150	105	13	144	18	-0.396	3.045	2.254	109	
165	120	8	141	10	-0.441	3.045	2.162	106	
180	132	7	132	7	-0.457	3.045	2.131	100	
195	141	10	120	8	-0.441	3.045	2.162	106	
210	144	18	105	13	-0.396	3.045	2.254	109	
225	140	31	89	20	-0.323	3.045	2.399	108	
240	129	49	74	28	-0.228	3.045	2.588	104	
255	112	70	60	37	-0.118	3.045	2.809	99	
270	92	92	48	48	0.000	3.045	3.045	92	
285	112	70	60	37	0.118	3.045	2.809	99	
300	129	49	74	28	0.228	3.045	2.588	104	
315	140	31	89	20	0.323	3.045	2.399	108	
330	144	18	105	13	0.396	3.045	2.254	109	
345	141	10	120	8	0.441	3.045	2.162	106	
Maximum Track Values							2.254	109	
							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							2.254	109	
Eccentricity index - X direction (sideways)							0.32		
Eccentricity index - Y direction (forwards/backwards)							0.30		
Track pressure distribution warning							None		
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 :	Tonti Trading	Rig Type & Serial No.	CF6 Plus #0106
Operation mode:	0	Date:	17/02/2020
Completed by:	M.G.	Checked by:	M.G.

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	5,090	50	0.00	1.52	-76	0
LOWER WORKS	7,000	69	0.00	-0.58	40	0
SUSPENDED EQUIPMENT CONNECTED TO CROWD SYSTEM	2,850	28	0.00	2.18	-61	0
COUNTERWEIGHT	0	0	0.00	0.00	0	0
OTHER	0	0	0.00	0.00	0	0
TOTAL/RESULTANT (with θ=0)	14,940	147	0.00	0.66	-97	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	1.2x1.25m	Rectangular
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	2.18	Must be inline with suspended equip't.		
Maximum Penetration Force (kN)	-60	0.00	2.18	-ve Must be inline with suspended equip't.		
Maximum Auxillary Force (kN)	30	0.00	2.00			

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	6700	66	0.00	0.00	
				0.00	0.00	
				0.00	0.00	
TOTAL/RESULTANT (with θ=0)	6,700	66	0.00	0.00	0	0
TOTAL RIG MASS	21,640					

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)	3.05	Can the Rig Slew?	YES
Track pad width (m)	0.50		
Distance between centrelines of tracks (m)	2.90		

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 _{ba} (kPa)		Eccentricity index - X direction (sideways)	Eccentricity index - Y direction (forwards/backwards)	
Standing	2.25	0.50	109	1	0.32	0.30	0
Travelling	2.25	0.50	109	1	0.32	0.30	0
Handling	2.13	0.50	123	1	0.36	0.35	10
Penetrating	2.79	0.50	61	2	0.13	0.12	-29
Extracting	2.25	0.50	109	2	0.32	0.30	-46
Other	Not Used	-	-	0	-	-	0

MODE	ERROR FOR TRACK	Auxillary Line	Extraction Force	Penetration Force
Standing	Zero Pressure None	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Travelling	None	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	None	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Extracting	None	Auxillary Line Force OK	Extraction Force OK	Penetration Force OK
Other	None	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

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



Notes

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