

## Bare Stranded copper conductor

**Specification:** SANS 1411-1, SANS 182-1, BS 7884.

**Application:** Bare earth conductor.

**Construction:** Bare copper, stranded.

Conductor size	No. of Strands / wires	Wire diameter (d)	Overall diameter (D)	Area	Conductor weight	Gross mass (500m)	Bending radius	Resistance dc @ 20 °C (Annealed)		Resistance dc @ 20 °C (Hard drawn)			UTS Hard Drawn	**Current Rating		*Fault Rating kA-1sec	
								Calc. from kg/km	SANS 1411-1	Calc. from kg/km	SANS 1411-1	SANS 182-1		SANS 182-1	Estimated Operating @75°C	@90-250°C	@90-400°C
1.5	7	0.51	1.53	1.37	12.949	66	12.24	11.837	12.100	12.200	12.474		0.622*	60.73	0.215	0.278	
	3	0.82	1.64	1.58	15.023	68	13.12	10.202		10.515							
2.5	7	0.65	2.07	2.62	20.880	70	16.56	7.341	7.410	7.566	7.639		1.036*	77.12	0.358	0.463	
	3	1.06	2.12	2.65	25.105	73	16.96	6.105		6.293							
4	7	0.85	2.61	4.61	35.969	78	20.88	4.261	4.610	4.392	4.753		1.658*	101.22	0.572	0.740	
6	7	1.06	3.18	6.18	55.938	88	25.44	2.740	3.08	2.824	3.175		2.486*	126.23	0.859	1.110	
10	7	1.34	3.99	9.73	89.393	105	31.92	1.715	1.830	1.767	1.887		4.144*	159.57	1.431	1.851	
14	7	1.63	4.89	14.61	132.272	126	39.12	1.159	-	1.194	-		5.801*	194.11	2.003	2.591	
	7	1.68	5.04	15.52	140.512	130	40.32	1.091	-	1.124	-		-	-	-	-	
16	7	1.70	5.10	15.89	143.877	132	40.80	1.065	1.150	1.098	1.150		6.630	200.06	2.289	2.961	
	7	1.72	5.16	16.26	147.282	134	41.28	1.041		1.073	1.186						
	37	0.75	5.25	16.35	150.633	135	42.00	1.018		1.049	-						
	3	2.65	5.30	16.55	156.904	138	42.40	0.977		1.007	-						
18	7	1.80	5.40	17.81	161.301	141	43.20	0.950	-	0.979	-		7.459*	-	2.576	3.331	
	7	2.12	6.36	24.71	223.751	172	50.88	0.685	-	0.706	-		-	-	-	-	
25	19	1.32	6.60	26.00	239.909	180	52.80	0.639	0.727	0.658	0.749		10.240	252.46	3.577	4.627	
	37	0.90	6.30	23.54	216.912	168	50.40	0.707		0.728	0.740						
	3	3.37	6.74	26.76	253.747	187	53.92	0.604		0.623	-						
32	7	2.48	7.44	33.81	306.194	253	59.52	0.501	-	0.516	-		12.568*	295.33	4.579	5.922	
	3	3.73	7.46	32.78	310.856	215	59.68	0.493	-	0.508	-		-	-	-	-	
35	7	2.50	7.50	34.36	311.153	216	60.00	0.493	0.524	0.508	0.540		13.746*	297.57	5.008	6.477	
	19	1.55	7.75	35.85	330.797	225	62.00	0.463		0.478	-						
	37	1.10	7.70	35.16	324.028	222	61.60	0.473		0.488	-						
40	7	2.65	7.95	38.61	349.611	235	63.60	0.438	-	0.452	0.473		15.710	315.58	5.723	7.403	
	19	1.72	8.60	44.15	407.338	264	68.80	0.376	0.388	-							
50	7	3.00	9.00	49.48	448.060	284	72.00	0.342	0.387	0.353	0.399		20.212*	357.26	7.154	9.253	
	19	1.80	9.00	48.35	446.112	283	72.00	0.344		0.354	-						
63	7	3.35	10.05	61.70	558.706	339	80.40	0.274	-	0.283	0.296		24.660	398.94	9.014	11.659	
	19	2.13	10.65	67.70	624.680	372	85.20	0.245	0.253	-							
70	7	3.55	10.65	69.29	627.408	414	85.20	0.244	-	0.252	-		27.348*	422.75	10.160	12.955	
	19	2.12	10.60	67.07	618.828	409	84.80	0.263	0.268	0.276							
	19	2.18	10.90	70.92	654.352	427	87.20	0.234	0.241	-							
80	7	3.75	11.25	77.31	700.093	450	90.00	0.219	-	0.226	0.236		30.530	446.57	11.447	14.805	
95	19	2.52	12.60	94.76	874.379	557	100.80	0.175	0.193	0.181	0.199		36.254*	499.07	13.593	17.581	
	37	1.86	13.02	100.54	926.454	583	104.16	0.165	-	0.171	-		41.720	513.72	14.308	18.507	
19	2.65	13.25	104.79	966.919	603	106.00	0.159	-	0.163	0.175							
120	19	2.82	14.10	118.67	1094.956	667	112.80	0.140	0.153	0.144	0.158		48.953*	558.48	17.170	22.208	
	37	2.06	14.42	123.32	1136.403	688	115.36	0.135		0.139	-						
150	37	2.30	16.10	153.73	1416.620	828	128.80	0.108	0.124	0.112	0.128		61.191*	635.24	21.463	27.760	
	37	2.36	16.52	161.85	1491.495	866	132.16	0.103	-	0.106	0.114		65.270	651.81	22.893	29.610	
61	1.80	16.69	155.23	1430.996	835	133.52	0.107	-	0.110	-							
185	37	2.50	17.50	181.62	1673.701	1087	140.00	0.092	0.099	0.094	0.102		76.390*	690.48	26.470	34.237	
240	37	3.00	21.00	261.54	2410.129	1455	168.00	0.064	0.075	0.066	0.078		99.101*	828.57	26.470	34.237	
	37	2.93	20.51	249.47	2298.968	1499	164.08	0.067	-	0.069	-		103.230	809.24	35.771	46.266	
	37	3.00	21.00	261.54	2410.129	1555	168.00	0.064	-	0.066	0.071						
61	2.36	21.21	266.84	2459.900	1580	169.68	0.062	-	0.064	-							
315	61	2.65	55.65	336.44	3101.595	2001	445.20	0.049	-	0.051	0.055		130.940	939.95	45.071	58.295	
400	61	3.00	63.00	431.18	3974.989	2537	504.00	0.039	0.047	0.040	0.048		166.410	1064.09	57.234	74.026	

**Note:** \* Nominal calculated values; not given in specifications  
 \*\* Nominal calculated values; Calculation based on conductor operating temperature rise of 30°C to 75°C

Standard installation conditions for South Africa	
Ambient temperature	30.5°C
Maximum permissible temperature	75°C
Solar absorption coefficient	10
Thermal emissivity of conductor surface	10
Highest monthly mean solar radiation	0.1 watts/cm <sup>2</sup>
Minimum mean wind velocity over 15min periods	44.7 cm.s <sup>-1</sup>

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