

**RESISTANCE OF ENAMELLED ROUND ALUMINIUM**

**WINDING WIRES - SWG SIZES (BASIS :IEC 60317-0-3 AND IS 13730-0-3)**

Nominal Conductor diameter		Conductor Resistance at nominal resistivity of $1/35,85$ $\Omega \text{ mm}^2 \text{ m}^{-1}$ $\Omega/\text{m}$		
(mm)	SWG	Minimum	Nominal	Maximum
0,250		0,5452	0,5683	0,5927
0,280		0,4361	0,4530	0,4708
0,315		0,3456	0,3579	0,3708
0,355		0,2729	0,2818	0,2911
0,400		0,2144	0,2220	0,2299
0,450		0,1699	0,1754	0,1811
0,500		0,1379	0,1421	0,1464
0,560		0,1098	0,1133	0,1169
0,630		0,08695	0,08948	0,09211
0,710		0,06842	0,07045	0,07257
0,800		0,05387	0,05549	0,05718
0,900		0,04257	0,04385	0,04518
1,000		0,03448	0,03552	0,03659
1,120			0,02831	0,0292
1,250			0,02273	0,0234
1,400			0,01812	0,0187
1,600			0,01387	0,0143
1,800			0,01096	0,0113
2,000			0,008879	0,0091
2,240			0,007078	0,0073
2,500			0,005683	0,0059
2,800			0,004530	0,0047
3,150			0,003579	0,0037
3,550			0,002818	0,0029
4,000			0,002220	0,0023
4,500			0,001754	0,0018
5,000			0,001421	0,0015

**RESISTANCE TO ABRASION (UNIDIRECTIONAL SCRAPE) TEST FOR ENAMELLED ROUND ALUMINIUM WINDING WIRES (BASIS: IS 13730-.. and IS 13778 – 3 AND IEC 60317-..)**

Nominal Conductor Diameter		Requirements for											
		IS 13730 Part 9 Polyester Wires Class 130				IEC 60317 Part 15 Polyesterimide Wires Class 180				IEC 60317 Part 25 Polyesterimide Wires + PAI dc wires Class 200			
		Grade 1		Grade 2		Grade 1		Grade 2		Grade 1		Grade 2	
		Avg. (N)	Min (N)	Avg. (N)	Min. (N)	Avg. (N)	Min. (N)	Avg. (n)	MIN. (n)	Avg. (N)	Min. (N)	Avg. (N)	Min. (N)
(mm)	SWG												
0.25	-	1.35	1.15	-	-	-	-	-	-	-	-	-	-
0.28	33 & 32	1.45	1.25	-	-	-	-	-	-	-	-	-	-
0.315	31 & 30	1.6	1.35	-	-	-	-	-	-	-	-	-	-
0.4	28	1.85	1.55	3	2.55	1,95	1,65	3,15	2,65	1,95	1,65	3,15	2,65
0.45	27	1.95	1.65	3.25	2.75	2,10	1,75	3,40	2,85	2,10	1,75	3,40	2,85
0.5	26	2.1	1.8	3.45	2.95	2,25	1,90	3,60	3,05	2,25	1,90	3,60	3,05
0.56	25 & 24	2.25	1.9	3.7	3.15	2,40	2,05	3,85	3,25	2,40	2,05	3,85	3,25
0.63	23	2.45	2.05	3.95	3.35	2,55	2,20	4,15	3,50	2,55	2,20	4,15	3,50
0.71	-	2.6	2.2	4.25	3.6	2,75	2,35	4,45	3,75	2,75	2,35	4,45	3,75
0.8	22	2.8	2.35	4.55	3.85	2,95	2,50	4,75	4,05	2,95	2,50	4,75	4,05
0.9	21	3	2.55	4.85	4.1	3,15	2,70	5,10	4,30	3,15	2,70	5,10	4,30
1	20	3.3	2.8	5.2	4.4	3,40	2,90	5,45	4,60	3,40	2,90	5,45	4,60
1.12	19	3.5	3	5.5	4.7	3,70	3,10	5,80	4,90	3,70	3,10	5,80	4,90
1.25	18	3.8	3.25	5.95	5	3,95	3,35	6,25	5,25	3,95	3,35	6,25	5,25
1.4	-	4.1	3.5	6.35	5.4	4,25	3,60	6,65	5,45	4,25	3,60	6,65	5,45
1.6	17	4.45	3.8	6.85	5.8	4,60	3,90	7,15	5,85	4,60	3,90	7,15	5,85
1.8	16	4.8	4.1	7.35	6.2	-	-	7,70	6,50	5,00	4,20	7,70	6,50
2	15	5.15	4.4	7.85	6.65	-	-	8,20	6,95	5,30	4,50	8,20	6,95
2.24	14	5.55	4.75	8.35	7.1	-	-	8,75	7,40	5,70	4,80	8,75	7,40
2.5		5.95	5.05	8.9	7.55	-	-	9,30	7,90	6,10	5,15	9,30	7,90

Notes :

- For intermediate nominal conductor diameters, the resistance to abrasion figure of the next largest nominal diameter shall be taken.
- 1 N = 0.102 kg