



Winding a promising future

RR Shramik part of RR Global, is one of the leading conglomerates in the electrical and copper industry. For over 25 years, we have enjoyed unflinching patronage of our valued customers and are an established name in the Indian electrical industries, particularly known for our quality and commitment.

RR Shramik offers a wide range of high quality products to address the need of the ever evolving industry.

Being customer driven, we are constantly committed to keep powering ahead with the spirit of innovation to significantly enhance our abilities and optimize our potential to offer only the best to our customers.

Fine and Ultra-Fine Enamelled Copper Wire

Product Name / Code	SSFC 155°C	SSFC+N 155°C
General Description	Modified Polyurethane	Modified Polyurethane with Polyamide Overcoat
Standards: IEC (Including the following norms)	IEC 60317-20	IEC 60317-19 / IEC 60317-21
NEMA (Including the following norms)	MW 79-C	MW 80-C
JIS (Including the following norms)	JIS 3202	-
Diameters Available	0.010 mm - 1.6 mm	0.010 mm - 0.700 mm
Properties	Very Good Solderability and High Thermal Properties	Very Good Solderability with High Thermal Properties
Applications	Small Transformers, Linear Motors, Relays, Solenoids, Small Motors, Clock Coils, Watch Coils, Transformers, Magnetic Heads, Instruments	Appliance Motors, Encapsulated Coils, Solenoids, Transformers, Toroids
UL Approved	Yes	Yes
Thermal Values of Sole Coat		
Temperature Index 20,000 h acc. to IEC 60172		
Cut Through Temperature	157.9°C	157.9°C
0.05 mm: acc. to 0.250 mm IEC 60851-6.4	≥ 200°C	≥ 200°C
Typical Value (RR Shramik)	225°C	225°C
0.25 mm: acc. to 0.450 mm IEC 60851-6.4	≥ 200°C	≥ 200°C
Typical Value (RR Shramik)	230°C	230°C
Heat Shock		
0.050 mm: acc. to 0.250 mm IEC 60851-6.3	≥ 175°C	≥ 175°C
Typical Value (RR Shramik)	190°C	190°C
0.251 mm: acc. to 0.450 mm IEC 60851-6.3	≥ 175°C	≥ 175°C
Typical Value (RR Shramik)	180°C	180°C
Electrical Values		
High Voltage Continuity for Grade 1 Wires		
0.050 mm: acc. to 0.080 mm IEC 60851-5.1	≤ 40	≤ 40
Typical Value (RR Shramik)	0	0
0.081mm: acc. to 0.125 mm IEC 60851-5.2	≤ 40	≤ 40
Typical Value (RR Shramik)	1	1
0.125 mm: acc. to 1.600 mm IEC 60851-5.2	≤ 25	≤ 25
Typical Value (RR Shramik)	1	1
Break Down Voltage (at 20°C, 35% Humidity)		
0.050 mm: acc. to 0.080 mm IEC 60851-5.1 Typical Value (RR Shramik)	220 V/μm	210 V/μm
0.081 mm: acc. to 0.125 mm IEC 60851-5.2 Typical Value (RR Shramik)	210 V/μm	200 V/μm
0.125 mm: acc. to 1.600 mm IEC 60851-5.2 Typical Value (RR Shramik)	180 V/μm	180 V/μm
Pinholes acc. to JIS 3003.6 with 0.45 mm: 0% Elongation	Good	Good
Mechanical Values		
Elongation for Grade 1 Wires		
0.05 mm: acc. to IEC 60851-3 Part 3.1	≥ 14%	≥ 14%
Typical Value (RR Shramik)	22%	22%
0.800 mm: acc. to IEC 60851-3 Part 3.1	≥ 29%	≥ 29%
Typical Value (RR Shramik)	38%	38%
Solderability		
Solderability for Grade 1 Wires		
0.05 mm: max. acc. to IEC 60851 - 4.5	2.0s / 390°C	2.0s / 390°C
Typical Value (RR Shramik)	0.9s / 390°C	0.9s / 390°C
0.800 mm: max. acc. to IEC 60851 - 4.5	8.0s / 390°C	8.0s / 390°C
Typical Value (RR Shramik)	5.0s / 390°C	5.0s / 390°C
Chemical Compatibility		
Compatibility to Standard Solution		
Pencil Hardness acc. to IEC 60851 - 4.3 with Treatment	4H	4H
Pencil Hardness acc. to IEC 60851 - 4.3 without Treatment	4H	4H

Fine and Ultra-Fine Enamelled Copper Wire

SSFCP 155°C	SSHC 180°C	SSHC+N 180°C	SSPEI 180°C
Modified Polyurethane	Modified Polyurethane	Modified Polyurethane with Polyamide Overcoat	Self Solderable Polyesterimide
IEC 60317-20	IEC 60317-51	IEC 60317-19 / IEC 60317-51	IEC 60317-23
MW 79-C	MW 82-C	MW 83-C	MW 77-C
JIS 3202	JIS 3202	JIS 3202	-
0.010 mm - 1.60 mm	0.010 mm - 1.60 mm	0.010 mm - 0.700 mm	0.010 mm - 0.700 mm
Very Good Solderability and High Thermal Properties. No Elongation Pinholes	Good Solderability at 395°C, High Thermal Properties	Very Good Solderability With High Thermal Properties	Solderable at High Temperatures, High Thermal Properties and Good Chemical Resistance
Small Transformers, Timers, Relays, Small Motors, Solenoids, Clock Coils, Watch Coils, Magnetic Head	Automotive Coils as Relays, Ignition Coils, Transformers and Solenoids	Automotive Coils as Relays, Ignition Coils, Transformers and Solenoids	Small Motors, Small Transformers, Automotive Coils
Yes	Yes	Yes	No
165°C	200°C	200°C	200°C
≥ 200°C	≥ 230°C	≥ 230°C	≥ 265°C
225°C	260°C	260°C	280°C
≥ 200°C	≥ 230°C	≥ 230°C	≥ 265°C
230°C	265°C	265°C	290°C
≥ 175°C	≥ 200°C	≥ 200°C	≥ 200°C
190°C	210°C	210°C	260°C
≥ 175°C	≥ 200°C	≥ 200°C	≥ 200°C
180°C	200°C	200°C	250°C
≤ 40	≤ 40	≤ 40	≤ 40
0	0	0	0
≤ 40	≤ 40	≤ 40	≤ 40
1	1	1	1
≤25	≤25	≤25	≤25
1	1	1	1
220 V/μm	220 V/μm	220 V/μm	220 V/μm
210 V/μm	210 V/μm	210 V/μm	210 V/μm
180 V/μm	180 V/μm	180 V/μm	180 V/μm
Very Good	Very Good	Very Good	Very Good
≥ 14%	≥ 14%	≥ 14%	≥ 14%
22%	22%	22%	22%
≥ 29%	≥ 29%	≥ 29%	≥ 29%
38%	38%	38%	38%
2.0s / 390°C	2.0s / 390°C	2.0s / 390°C	2.0s / 470°C
0.9s / 390°C	0.9s / 390°C	0.9s / 390°C	1.8s / 470°C
8.0s / 390°C	8.0s / 390°C	8.0s / 390°C	8.0s / 470°C
5.0s / 390°C	5.0s / 390°C	5.0s / 390°C	5.0s / 470°C
4H	4H	4H	4H
4H	4H	4H	4H

Dimensions and Technical Data of Enamelled Copper Wire Based on IEC 60317

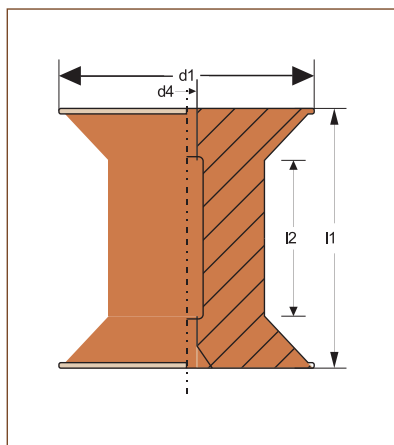
Nominal Diameter	Conductor (Bare Wire)		Enamelled Copper Wire (Overall Diameter)						Resistance at 20°C			Elongation acc. to IEC
			Grade 1		Grade 2		Grade 3					
	[mm]	Tolerance [mm]	Section [mm²]	Min. [mm]	Max. [mm]	Min. [mm]	Max. [mm]	Min. [mm]	Max. [mm]	Nom. [Ohm/m]	Min. [Ohm/m]	
0.010	*	0.000078540	0.0111	0.0120	0.0121	0.0130	0.0131	0.0140	217.65	195.88	239.41	3
0.012	*	0.000113097	0.0132	0.0143	0.0144	0.0155	0.0156	0.0170	151.14	136.03	166.26	3
0.014	*	0.000153938	0.0154	0.0167	0.0168	0.0180	0.0181	0.0200	111.04	99.94	122.15	4
0.016	*	0.000201062	0.0175	0.0190	0.0191	0.0210	0.0211	0.0230	85.02	76.52	93.52	5
0.018	*	0.000254469	0.020	0.022	0.023	0.024	0.025	0.026	67.18	60.46	73.89	5
0.019	*	0.000283529	0.021	0.023	0.024	0.026	0.027	0.029	60.29	54.26	66.32	6
0.020	*	0.000314159	0.022	0.024	0.025	0.027	0.028	0.030	54.41	48.97	59.85	6
0.021	*	0.000346361	0.023	0.026	0.027	0.028	0.029	0.031	49.35	44.42	54.29	6
0.022	*	0.000380133	0.024	0.027	0.028	0.030	0.031	0.033	44.97	40.47	49.47	6
0.023	*	0.000417476	0.025	0.028	0.029	0.031	0.032	0.035	41.14	37.03	45.26	7
0.024	*	0.000452389	0.026	0.029	0.030	0.032	0.033	0.036	37.79	34.01	41.56	7
0.025	*	0.000490874	0.028	0.031	0.032	0.034	0.035	0.038	34.82	31.34	37.31	7
0.027	*	0.000572555	0.030	0.033	0.034	0.036	0.037	0.041	29.86	26.87	32.84	7
0.028	*	0.000615752	0.031	0.034	0.035	0.038	0.039	0.043	27.76	24.99	30.54	7
0.030	*	0.000706858	0.033	0.037	0.038	0.041	0.042	0.046	24.18	21.76	26.60	8
0.032	*	0.000804248	0.035	0.039	0.040	0.043	0.044	0.048	21.25	19.13	23.38	8
0.034	*	0.000907920	0.037	0.041	0.042	0.046	0.047	0.051	18.83	17.13	20.52	8
0.036	*	0.001017880	0.040	0.044	0.045	0.049	0.050	0.054	16.79	15.282	18.305	8
0.038	*	0.001134000	0.042	0.046	0.047	0.051	0.052	0.056	15.07	13.716	16.429	10
0.040	*	0.001257000	0.044	0.049	0.050	0.054	0.055	0.059	13.60	12.379	14.827	10
0.043	*	0.001452	0.047	0.052	0.053	0.058	0.059	0.063	11.770	10.712	12.831	12
0.045	*	0.001590	0.050	0.055	0.056	0.061	0.062	0.067	10.750	9.781	11.715	12
0.048	*	0.001810	0.053	0.059	0.060	0.065	0.066	0.070	9.447	8.596	10.297	14
0.050	*	0.001963	0.055	0.060	0.061	0.066	0.067	0.072	8.706	7.922	9.489	14
0.053	*	0.002206	0.058	0.064	0.065	0.070	0.071	0.076	7.748	7.051	8.446	15
0.056	*	0.002463	0.062	0.067	0.068	0.074	0.075	0.080	6.940	6.316	7.565	15
0.060	*	0.002827	0.066	0.072	0.073	0.079	0.080	0.085	6.046	5.502	6.590	16
0.063	*	0.003117	0.069	0.076	0.077	0.083	0.084	0.089	5.484	4.990	5.977	16
0.067	*	0.003526	0.074	0.080	0.081	0.088	0.089	0.093	4.848	4.412	5.285	17
0.070	*	0.003848	0.077	0.083	0.084	0.090	0.091	0.096	4.442	4.042	4.842	17
0.071	*	0.003959	0.078	0.084	0.085	0.091	0.092	0.097	4.318	3.929	4.706	17
0.075	*	0.004418	0.082	0.089	0.090	0.095	0.096	0.102	3.869	3.547	4.235	17
0.080	±0.003	0.005027	0.087	0.094	0.095	0.101	0.102	0.108	3.401	3.133	3.703	17
0.085	±0.003	0.005675	0.093	0.100	0.101	0.107	0.108	0.114	3.012	2.787	3.265	18
0.090	±0.003	0.006362	0.098	0.105	0.106	0.113	0.114	0.120	2.687	2.495	2.900	18
0.095	±0.003	0.007088	0.103	0.111	0.112	0.119	0.120	0.126	2.412	2.247	2.594	19
0.100	±0.003	0.007854	0.108	0.117	0.118	0.125	0.126	0.132	2.176	2.034	2.333	19
0.106	±0.003	0.008825	0.115	0.123	0.124	0.132	0.133	0.140	1.937	1.816	2.069	20
0.110	±0.003	0.009503	0.119	0.128	0.129	0.137	0.138	0.145	1.799	1.690	1.917	20
0.112	±0.003	0.009852	0.121	0.130	0.131	0.139	0.140	0.147	1.735	1.632	1.848	20
0.118	±0.003	0.010936	0.128	0.136	0.137	0.145	0.146	0.154	1.563	1.474	1.660	20
0.120	±0.003	0.011310	0.130	0.138	0.139	0.148	0.149	0.157	1.511	1.426	1.604	20
0.125	±0.003	0.012272	0.135	0.144	0.145	0.154	0.155	0.163	1.393	1.317	1.475	20
0.130	±0.003	0.013273	0.141	0.150	0.151	0.160	0.161	0.169	1.288	1.220	1.361	21
0.132	±0.003	0.013685	0.143	0.152	0.153	0.162	0.163	0.171	1.249	1.184	1.319	21
0.140	±0.003	0.015394	0.151	0.160	0.161	0.171	0.172	0.181	1.110	1.055	1.170	21
0.150	±0.003	0.017671	0.162	0.171	0.172	0.182	0.183	0.193	0.9673	0.9219	1.0159	22
0.160	±0.003	0.020106	0.172	0.182	0.183	0.194	0.195	0.205	0.8502	0.8122	0.8906	22
0.170	±0.003	0.022698	0.183	0.194	0.195	0.205	0.206	0.217	0.7531	0.7211	0.7871	23
0.180	±0.003	0.025447	0.193	0.204	0.205	0.217	0.218	0.229	0.6718	0.6444	0.7007	23
0.190	±0.003	0.028353	0.204	0.216	0.217	0.228	0.229	0.240	0.6029	0.5794	0.6278	24
0.200	±0.003	0.031416	0.214	0.226	0.227	0.239	0.240	0.252	0.5441	0.5237	0.5657	24
0.212	±0.003	0.035299	0.227	0.240	0.241	0.254	0.255	0.268	0.4843	0.4669	0.5026	24
0.224	±0.003	0.039408	0.239	0.252	0.253	0.266	0.267	0.280	0.4338	0.4188	0.4495	24
0.236	±0.004	0.043744	0.253	0.267	0.268	0.283	0.284	0.298	0.3908	0.3747	0.4079	25
0.250	±0.004	0.049087	0.267	0.281	0.282	0.297	0.298	0.312	0.3482	0.3345	0.3628	25
0.265	±0.004	0.055155	0.283	0.297	0.298	0.314	0.315	0.330	0.3099	0.2982	0.3223	26
0.280	±0.004	0.061575	0.298	0.312	0.313	0.329	0.330	0.345	0.2776	0.2676	0.2882	26
0.300	±0.004	0.070686	0.319	0.334	0.335	0.352	0.353	0.369	0.2418	0.2335	0.2506	26
0.315	±0.004	0.077931	0.334	0.349	0.350	0.367	0.368	0.384	0.2193	0.2121	0.2270	26
0.335	±0.004	0.088141	0.355	0.372	0.373	0.391	0.392	0.408	0.1939	0.1878	0.2004	27
0.355	±0.004	0.098980	0.375	0.392	0.393	0.411	0.412	0.428	0.1727	0.1674	0.1782	27
0.375	±0.005	0.110447	0.396	0.414	0.415	0.434	0.435	0.453	0.1548	0.1494	0.1604	27
0.400	±0.005	0.125664	0.421	0.439	0.440	0.459	0.460	0.478	0.1360	0.1316	0.1407	27
0.425	±0.005	0.141863	0.447	0.466	0.467	0.488	0.489	0.508	0.1205	0.1167	0.1244	28
0.450	±0.005	0.159403	0.472	0.491	0.492	0.513	0.514	0.533	0.1075	0.1042	0.1109	28
0.475	±0.005	0.177205	0.499	0.519	0.520	0.541	0.542	0.562	0.09646	0.09366	0.09938	28
0.500	±0.005	0.196350	0.524	0.544	0.545	0.566	0.567	0.587	0.08706	0.08462	0.08959	28
0.560	±0.006	0.246176	0.585	0.606	0.607	0.630	0.631	0.653	0.06938	0.06734	0.07150	27
0.630	±0.006	0.311567	0.657	0.679	0.680	0.704	0.705	0.728	0.05482	0.05333	0.05540	28
0.710	±0.007	0.395719	0.738	0.762	0.763	0.789	0.790	0.814	0.04316	0.04196	0.04365	29
0.800	±0.008	0.502400	0.830	0.855	0.856	0.884	0.885	0.911	0.03399	0.03304	0.03439	29
0.900	±0.009	0.635850	0.932	0.959	0.960	0.989	0.990	1.018	0.02686	0.02611	0.02717	30
1.000	±0.01	0.785000	1.034	1.062	1.063	1.094	1.095	1.124	0.02176	0.02115	0.02201	30
1.120	±0.011	0.984704	1.154	1.184	1.185	1.217	1.218	1.248	0.01734	0.01686	0.01754	31
1.250	±0.013	1.226563	1.285	1.316	1.317	1.349	1.350	1.381	0.01392	0.01352	0.01410	32
1.400	±0.014	1.538600	1.436	1.468	1.469	1.502	1.503	1.535	0.01110	0.01079	0.01123	32
1.600	±0.016	2.009600	1.638	1.670	1.671	1.706	1.707	1.740	0.00850	0.00826	0.00860	32

Dimensions and Technical Data of Enamelled Copper Wire Based on IEC 60317

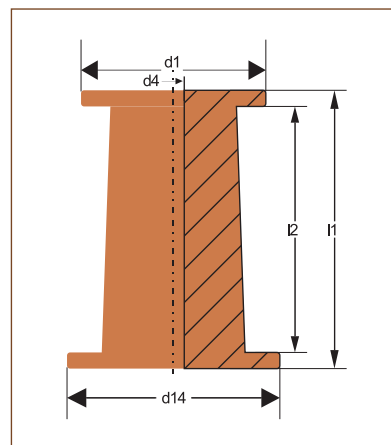
Nominal Diameter	Breakdown Voltage acc. to IEC			Length of 1 kg of Enamelled Wire			Filling Factor Number of Enamelled			Tension	Nominal Diameter
	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2	Grade 3		
[mm]	Min. [V]	Min. [V]	Min. [V]	Approx. [km]	Approx. [km]	Approx. [km]	[n]	[n]	[n]	Max. [cN]	[mm]
0.010	70	125	170	1358.2	1313.3	1267.9	865576	733132	628913	1.4	0.010
0.012	80	150	190	946.0	914.9	879.5	610751	516639	434604	2.0	0.012
0.014	90	175	230	694.9	672.9	645.6	448249	381391	318185	2.5	0.014
0.016	100	200	290	533.1	513.3	491.2	346692	287237	237494	3.2	0.016
0.018	115	240	380	417.6	398.3	382.7	261837	209090	177578	3.9	0.018
0.019	120	250	410	375.9	356.2	336.3	238574	184752	147283	4.3	0.019
0.020	120	250	410	340.1	323.2	306.2	218280	170814	137301	4.7	0.020
0.021	125	265	440	306.8	292.2	279.9	192370	152688	128300	5.1	0.021
0.022	130	275	470	280.2	265.4	252.6	177578	137301	112764	5.5	0.022
0.023	145	290	470	257.0	244.0	231.0	164429	128300	102892	6.0	0.023
0.024	150	300	470	236.5	225.1	213.6	152688	120156	97013	6.5	0.024
0.025	150	300	470	215.5	205.4	195.2	132686	106033	86673	7.0	0.025
0.027	165	315	510	185.6	177.6	168.3	116372	94261	75917	8.0	0.027
0.028	170	325	530	172.9	164.7	155.4	109321	86673	68691	8.5	0.028
0.030	180	350	560	150.3	142.8	135.2	94261	74007	59644	9.6	0.030
0.032	190	375	590	132.6	126.4	120.2	84346	67046	54570	10.8	0.032
0.034	210	400	620	117.8	112.1	106.3	75917	59644	48092	12.0	0.034
0.036	225	425	650	104.4	99.57	94.69	65459	52273	42703	13.2	0.036
0.038	240	450	680	93.97	89.87	85.72	59644	48092	39599	14.5	0.038
0.040	250	475	710	84.68	80.81	77.25	53403	42703	35540	15.9	0.040
0.043	265	520	710	73.55	70.15	67.01	47126	37487	31032	18.0	0.043
0.045	275	550	710	66.82	63.85	60.85	41894	33741	27756	19.4	0.045
0.048	290	580	780	58.73	56.08	53.81	36821	29560	24972	21.7	0.048
0.050	300	600	830	54.42	52.26	50.08	34925	28637	23906	23.2	0.050
0.053	315	625	860	48.42	46.45	44.62	31032	25343	21374	25.6	0.053
0.056	325	650	890	43.36	41.69	40.01	27756	22906	19225	28.2	0.056
0.060	355	680	960	37.79	36.33	34.97	24253	19991	16965	31.7	0.060
0.063	375	700	1020	34.27	32.92	31.74	21968	18042	15433	34.4	0.063
0.067	400	700	1060	30.31	29.19	28.21	19475	16172	13944	38.0	0.067
0.070	425	700	1020	27.83	26.91	26.06	18042	15256	13208	41.0	0.070
0.071	425	700	1100	27.07	26.19	25.37	17599	14911	12930	42.0	0.071
0.075	425	765	1140	24.26	23.52	22.82	15796	13495	11781	46.0	0.075
0.080	425	850	1200	21.39	20.73	20.11	14093	12023	10473	52.0	0.080
0.085	465	875	1250	18.92	18.37	17.86	12400	10676	9372	57.0	0.085
0.090	500	900	1300	16.92	16.43	15.96	11208	9630	8435	63.0	0.090
0.095	500	925	1350	15.19	14.75	14.35	10086	8656	7632	69.0	0.095
0.100	500	950	1400	13.72	13.31	12.97	9124	7822	6939	75.0	0.100
0.106	1200	2650	3800	12.22	11.88	11.56	8154	7048	6197	83.0	0.106
0.110	1300	2700	3900	11.34	11.03	10.74	7571	6528	5767	88.0	0.110
0.112	1300	2700	3900	10.95	10.65	10.37	7331	6336	5607	91.0	0.112
0.118	1400	2750	4000	9.870	9.626	9.379	6627	5808	5132	99	0.118
0.120	1500	2800	4100	9.550	9.305	9.057	6431	5607	4933	102	0.120
0.125	1500	2800	4100	8.803	8.575	8.356	5934	5166	4567	110	0.125
0.130	1550	2900	4150	8.131	7.928	7.733	5454	4775	4241	118	0.130
0.132	1550	2900	4150	7.891	7.697	7.511	5307	4655	4140	121	0.132
0.140	1600	3000	4200	7.030	6.860	6.687	4775	4190	3707	133	0.140
0.150	1650	3100	4300	6.125	5.987	5.840	4165	3686	3267	150	0.150
0.160	1700	3200	4400	5.390	5.265	5.139	3686	3250	2887	168	0.160
0.170	1700	3300	4700	4.771	4.667	4.561	3250	2887	2581	186	0.170
0.180	1700	3300	4700	4.263	4.168	4.072	2931	2594	2312	206	0.180
0.190	1750	3400	4900	3.823	3.743	3.664	2618	2332	2100	226	0.190
0.200	1800	3500	5100	3.456	3.384	3.312	2386	2127	1908	247	0.200
0.212	1850	3600	5150	3.075	3.010	2.944	2118	1885	1689	274	0.212
0.224	1900	3700	5200	2.759	2.704	2.648	1916	1715	1544	302	0.224
0.236	2000	3800	5350	2.481	2.429	2.376	1708	1521	1364	331	0.236
0.250	2100	3900	5500	2.215	2.171	2.127	1538	1378	1241	366	0.250
0.265	2150	3950	5650	1.972	1.934	1.895	1373	1233	1110	406	0.265
0.280	2200	4000	5800	1.769	1.737	1.704	1241	1121	1014	448	0.280
0.300	2200	4050	5950	1.542	1.514	1.485	1083	979	886	507	0.300
0.315	2200	4100	6100	1.400	1.376	1.351	990	898	817	553	0.315
0.335	2250	4200	6250	1.238	1.216	1.195	874	791	722	618	0.335
0.355	2300	4300	6400	1.104	1.086	1.068	785	715	655	687	0.355
0.375	2300	4350	6500	0.989	0.973	0.957	704	641	586	759	0.375
0.400	2300	4400	6600	0.871	0.858	0.844	625	571	525	854	0.400
0.425	2300	4400	6700	0.772	0.760	0.748	554	506	465	954	0.425
0.450	2300	4400	6800	0.689	0.679	0.669	498	457	421	1060	0.450
0.475	2350	4500	6900	0.618	0.609	0.601	446	410	379	1170	0.475
0.500	2400	4600	7000	0.559	0.551	0.543	405	374	347	1287	0.500
0.560	2.600	4600	7100	0.450	0.444	0.438	292.21	271.41	251.15	1681	0.560
0.630	2.600	4800	7200	0.356	0.352	0.347	231.67	216.26	201.2	2070	0.630
0.710	2.600	4800	7400	0.280	0.277	0.274	183.61	171.77	160.23	2556	0.710
0.800	2.700	4900	7600	0.221	0.219	0.216	145.16	136.47	127.68	3156	0.800
0.900	2.700	5000	7600	0.175	0.173	0.171	115.12	108.51	102.03	3886	0.900
1.000	2.700	5000	7600	0.142	0.140	0.139	93.532	88.498	83.401	4681	1.000
1.120	2.700	5000	7600	0.113	0.112	0.111	75.091	71.214	67.407	5719	1.120
1.250	2.700	5000	7600	0.091	0.090	0.089	60.561	57.654	54.87	6943	1.250
1.400	2.700	5000	7600	0.072	0.072	0.071	48.494	46.34	44.267	8481	1.400
1.600	2.700	5000	7600	0.056	0.055	0.055	37.271	35.814	34.319	10737	1.600

Spools and Packaging

Spool types	Graph	Wire sizes	Characteristics
Biconical	1	0.010 mm - 0.15 mm	Biconical spool for fine and ultrafine wire, superb de-reeling capability, ideal for high speed winding machines.
Tapered	2	0.070 mm - 1.60 mm	Stable winding due to tapered barrel spool for heavier sizes.



Graph 1: Biconical Spool



Graph 2: Tapered Spool

Spool types	d1 [mm]	d4 [mm]	l1 [mm]	l2 [mm]	d14 [mm]	Spool weight [g]	Nom. net wire weight [kg]	Recommended for wires sizes [mm]	Spools per box	Boxes per pallet
Biconical										
76/45	63.4	16	86.3	60	-	70	0.3	0.010 - 0.019	6	120
79/45	80	16	100	70	-	70	0.7	0.020 - 0.024	4	72
PL1S	80	16	100	72	-	70	1.0	0.018 - 0.035	8	72
PL2S	100	16	100	47	-	130	1.2	0.025 - 0.040	8	24
124/45R	125	16	125	57	-	160	2.5	0.040 - 0.080	4/9	20
PL4-S	135	20	175	110	-	260	4.2	0.040 - 0.132	4	24
159/45R	160	22	160	73	-	315	5.5	0.040 - 0.132	4	18
199/45R	200	22	200	92.5	-	600	11.0	0.050 - 0.150	1	21
Tapered										
PT 4	124	22	200	170	140	340	5.5	0.070 - 0.100	4	24
PT 10	160	22	230	200	180	620	10	0.100 - 0.600	2	36
PT 15	180	22	230	200	200	740	15	0.100 - 0.600	2	45
PT 25	215	32	280	250	230	1000	26	0.160 - 0.500	1	36
PT 45	236	100	400	335	250	2150	45	0.120 - 1.600	Container	8
PT 60	270	45	400	350	300	2400	60	0.280 - 1.600	Container	12
PT 90	300	100	500	425	3900	3900	90	0.200 - 1.600	Container	6

Although every effort has been made to ensure accuracy in the compilation of the technical detail within this publication, specifications and performance data are constantly changing. Current details should therefore be checked with RR Global.



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