Flat Wire

NiCr & Fe-Cr-Al · ten grades · GB/T 1234-2012

Rolled-flat resistance wire in ten grades, for elements that have to run cooler or fit where round wire cannot.

0.2 – 6.0 mm	0.08 – 1.0 mm	10	50
WIDTH RANGE	THICKNESS RANGE	GRADES · NICR AND FE-CR-AL	SIZES PER GRADE

PRODUCT OVERVIEW

Flat wire is the rolled-flat form of our resistance heating alloys, supplied bright and soft annealed in widths from 0.2 to 6.0 mm and thicknesses from 0.08 to 1.0 mm. Ten grades are tabulated: four nickel-chromium and six iron-chromium-aluminium, five grade pairs to a table.

Against round wire of equal cross-section a flat section exposes more surface per unit length, so for the same power the element works at a lower surface load and runs cooler. It also seats neatly in grooves and around bends and keeps a tight coil pitch without springing open.

The tables give resistance per metre, yield length per kilogram and weight per metre for every standard combination, calculated at 20 °C from the nominal section and the resistivity of the grade.

GRADES COVERED

Grade	Family	Resistivity at 20 °C (μΩ·m)
Cr20Ni80	Nickel-chromium	1.09–1.14 ± 0.05
Cr15Ni60	Nickel-chromium	1.11–1.15 ± 0.05
Cr30Ni70	Nickel-chromium	1.18–1.20 ± 0.05
Cr20Ni35/Cr20Ni30	Nickel-chromium	1.04 ± 0.05
0Cr25Al5	Iron-chromium-aluminium	1.42 ± 0.07
Cr21Al6Nb	Iron-chromium-aluminium	1.45 ± 0.07
0Cr23Al5	Iron-chromium-aluminium	1.35 ± 0.07
0Cr20Al6RE	Iron-chromium-aluminium	1.40 ± 0.07
0Cr20Al3	Iron-chromium-aluminium	1.23 ± 0.07
0Cr24Al6RE	Iron-chromium-aluminium	1.48 ± 0.07

SUPPLY RANGE

Item	Available
Finish	Bright, soft annealed
Width	0.2 – 6.0 mm (tabulated 0.2 – 4.0 mm)
Thickness	0.08 – 1.0 mm
Supply form	Coils, spools, cut lengths

CR20NI80 AND CR15NI60

Resistance, yield length and weight per metre at 20 °C for each width × thickness combination.

NICKEL-CHROMIUM		CR20NI80			CR15NI60		
Width × thickness (mm)	Section (mm²)	Ω/m at 20 °C	m/kg	g/m	Ω/m at 20 °C	m/kg	g/m
0.2 × 0.08	0.0152	71.711	7832.08	0.1277	73.026	8023.11	0.1246
0.4 × 0.08	0.0304	35.855	3916.04	0.2554	36.513	4011.55	0.2493
0.6 × 0.08	0.0456	23.904	2610.69	0.3830	24.342	2674.37	0.3739
0.8 × 0.08	0.0608	17.928	1958.02	0.5107	18.257	2005.78	0.4986
1.0 × 0.08	0.076	14.342	1566.42	0.6384	14.605	1604.62	0.6232
1.2 × 0.08	0.0912	11.952	1305.35	0.7661	12.171	1337.18	0.7478
1.5 × 0.08	0.114	9.561	1044.28	0.9576	9.737	1069.75	0.9348
0.2 × 0.1	0.019	57.368	6265.66	0.1596	58.421	6418.49	0.1558
0.4 × 0.1	0.038	28.684	3132.83	0.3192	29.211	3209.24	0.3116
0.6 × 0.1	0.057	19.123	2088.55	0.4788	19.474	2139.50	0.4674
0.8 × 0.1	0.076	14.342	1566.42	0.6384	14.605	1604.62	0.6232
1.0 × 0.1	0.095	11.474	1253.13	0.7980	11.684	1283.70	0.7790
1.5 × 0.1	0.143	7.649	835.42	1.1970	7.789	855.80	1.1685
2.0 × 0.1	0.19	5.737	626.57	1.5960	5.842	641.85	1.5580
0.2 × 0.15	0.0285	38.246	4177.11	0.2394	38.947	4278.99	0.2337
0.4 × 0.15	0.057	19.123	2088.55	0.4788	19.474	2139.50	0.4674
0.6 × 0.15	0.0855	12.749	1392.37	0.7182	12.982	1426.33	0.7011
0.8 × 0.15	0.114	9.561	1044.28	0.9576	9.737	1069.75	0.9348
1.0 × 0.15	0.143	7.649	835.42	1.1970	7.789	855.80	1.1685
1.5 × 0.15	0.214	5.099	556.95	1.7955	5.193	570.53	1.7528
2.0 × 0.15	0.285	3.825	417.71	2.3940	3.895	427.90	2.3370
0.4 × 0.2	0.076	14.342	1566.42	0.6384	14.605	1604.62	0.6232
0.6 × 0.2	0.114	9.561	1044.28	0.9576	9.737	1069.75	0.9348
0.8 × 0.2	0.152	7.171	783.21	1.2768	7.303	802.31	1.2464
1.0 × 0.2	0.19	5.737	626.57	1.5960	5.842	641.85	1.5580
1.5 × 0.2	0.285	3.825	417.71	2.3940	3.895	427.90	2.3370
2.0 × 0.2	0.38	2.868	313.28	3.1920	2.921	320.92	3.1160
3.0 × 0.2	0.57	1.912	208.86	4.7880	1.947	213.95	4.6740
0.6 × 0.4	0.228	4.781	522.14	1.9152	4.868	534.87	1.8696
0.8 × 0.4	0.304	3.586	391.60	2.5536	3.651	401.16	2.4928
1.0 × 0.4	0.38	2.868	313.28	3.1920	2.921	320.92	3.1160
1.5 × 0.4	0.57	1.912	208.86	4.7880	1.947	213.95	4.6740
2.0 × 0.4	0.76	1.434	156.64	6.3840	1.461	160.46	6.2320
3.0 × 0.4	1.14	0.956	104.43	9.5760	0.974	106.97	9.3480
4.0 × 0.4	1.52	0.717	78.32	12.7680	0.730	80.23	12.4640
0.8 × 0.6	0.456	2.390	261.07	3.8304	2.434	267.44	3.7392
1.0 × 0.6	0.57	1.912	208.86	4.788	1.947	213.95	4.674
1.5 × 0.6	0.855	1.275	139.24	7.182	1.298	142.63	7.011
2.0 × 0.6	1.14	0.956	104.43	9.576	0.974	106.97	9.348
3.0 × 0.6	1.71	0.637	69.62	14.364	0.649	71.32	14.022
4.0 × 0.6	2.28	0.478	52.21	19.152	0.487	53.49	18.696
1.0 × 0.8	0.76	1.434	156.64	6.384	1.461	160.46	6.232
1.5 × 0.8	1.14	0.956	104.43	9.576	0.974	106.97	9.348
2.0 × 0.8	1.52	0.717	78.32	12.768	0.730	80.23	12.464
3.0 × 0.8	2.28	0.478	52.21	19.152	0.487	53.49	18.696
4.0 × 0.8	3.04	0.359	39.16	25.536	0.365	40.12	24.928
1.5 × 1.0	1.425	0.793	83.54	11.97	0.800	85.58	11.685
2.0 × 1.0	1.9	0.595	62.66	15.96	0.600	64.18	15.580
3.0 × 1.0	2.85	0.396	41.77	23.94	0.400	42.79	23.370
4.0 × 1.0	3.8	0.297	31.33	31.92	0.300	32.09	31.160

CR30NI70 AND CR20NI35/CR20NI30

Resistance, yield length and weight per metre at 20 °C for each width × thickness combination.

NICKEL-CHROMIUM		CR30NI70			CR20NI35/CR20NI30		
Width × thickness (mm)	Section (mm²)	Ω/m at 20 °C	m/kg	g/m	Ω/m at 20 °C	m/kg	g/m
0.2 × 0.08	0.0152	77.632	8122.16	0.1231	68.421	8327.78	0.1201
0.4 × 0.08	0.0304	38.816	4061.08	0.2462	34.211	4163.89	0.2402
0.6 × 0.08	0.0456	25.877	2707.39	0.3694	22.807	2775.93	0.3602
0.8 × 0.08	0.0608	19.408	2030.54	0.4925	17.105	2081.95	0.4803
1.0 × 0.08	0.076	15.526	1624.43	0.6156	13.684	1665.56	0.6004
1.2 × 0.08	0.0912	12.939	1353.69	0.7387	11.404	1387.96	0.7205
1.5 × 0.08	0.114	10.351	1082.95	0.9234	9.123	1110.37	0.9006
0.2 × 0.1	0.019	62.105	6497.73	0.1539	54.737	6662.23	0.1501
0.4 × 0.1	0.038	31.053	3248.86	0.3078	27.368	3331.11	0.3002
0.6 × 0.1	0.057	20.702	2165.91	0.4617	18.246	2220.74	0.4503
0.8 × 0.1	0.076	15.526	1624.43	0.6156	13.684	1665.56	0.6004
1.0 × 0.1	0.095	12.421	1299.55	0.7695	10.947	1332.45	0.7505
1.5 × 0.1	0.143	8.281	866.36	1.1543	7.298	888.30	1.1258
2.0 × 0.1	0.19	6.211	649.77	1.5390	5.474	666.22	1.5010
0.2 × 0.15	0.0285	41.404	4331.82	0.2309	36.491	4441.48	0.2252
0.4 × 0.15	0.057	20.702	2165.91	0.4617	18.246	2220.74	0.4503
0.6 × 0.15	0.0855	13.801	1443.94	0.6926	12.164	1480.49	0.6755
0.8 × 0.15	0.114	10.351	1082.95	0.9234	9.123	1110.37	0.9006
1.0 × 0.15	0.143	8.281	866.36	1.1543	7.298	888.30	1.1258
1.5 × 0.15	0.214	5.520	577.58	1.7314	4.865	592.20	1.6886
2.0 × 0.15	0.285	4.140	433.18	2.3085	3.649	444.15	2.2515
0.4 × 0.2	0.076	15.526	1624.43	0.6156	13.684	1665.56	0.6004
0.6 × 0.2	0.114	10.351	1082.95	0.9234	9.123	1110.37	0.9006
0.8 × 0.2	0.152	7.763	812.22	1.2312	6.842	832.78	1.2008
1.0 × 0.2	0.19	6.211	649.77	1.5390	5.474	666.22	1.5010
1.5 × 0.2	0.285	4.140	433.18	2.3085	3.649	444.15	2.2515
2.0 × 0.2	0.38	3.105	324.89	3.0780	2.737	333.11	3.0020
3.0 × 0.2	0.57	2.070	216.59	4.6170	1.825	222.07	4.5030
0.6 × 0.4	0.228	5.175	541.48	1.8468	4.561	555.19	1.8012
0.8 × 0.4	0.304	3.882	406.11	2.4624	3.421	416.39	2.4016
1.0 × 0.4	0.38	3.105	324.89	3.0780	2.737	333.11	3.0020
1.5 × 0.4	0.57	2.070	216.59	4.6170	1.825	222.07	4.5030
2.0 × 0.4	0.76	1.553	162.44	6.1560	1.368	166.56	6.0040
3.0 × 0.4	1.14	1.035	108.30	9.2340	0.912	111.04	9.0060
4.0 × 0.4	1.52	0.776	81.22	12.3120	0.684	83.28	12.0080
0.8 × 0.6	0.456	2.588	270.74	3.6936	2.281	277.59	3.6024
1.0 × 0.6	0.57	2.070	216.59	4.617	1.825	222.07	4.503
1.5 × 0.6	0.855	1.380	144.39	6.926	1.216	148.05	6.755
2.0 × 0.6	1.14	1.035	108.30	9.234	0.912	111.04	9.006
3.0 × 0.6	1.71	0.690	72.20	13.851	0.608	74.02	13.509
4.0 × 0.6	2.28	0.518	54.15	18.468	0.456	55.52	18.012
1.0 × 0.8	0.76	1.553	162.44	6.156	1.368	166.56	6.004
1.5 × 0.8	1.14	1.035	108.30	9.234	0.912	111.04	9.006
2.0 × 0.8	1.52	0.776	81.22	12.312	0.684	83.28	12.008
3.0 × 0.8	2.28	0.518	54.15	18.468	0.456	55.52	18.012
4.0 × 0.8	3.04	0.388	40.61	24.624	0.342	41.64	24.016
1.5 × 1.0	1.425	0.835	86.64	11.54	0.730	88.83	11.258
2.0 × 1.0	1.9	0.626	64.98	15.39	0.547	66.62	15.010
3.0 × 1.0	2.85	0.418	43.32	23.09	0.365	44.41	22.515
4.0 × 1.0	3.8	0.313	32.49	30.78	0.274	33.31	30.020

0CR25AL5 AND CR21AL6NB

Resistance, yield length and weight per metre at 20 °C for each width × thickness combination.

IRON-CHROMIUM-ALUMINIUM		0CR25AL5			CR21AL6NB		
Width × thickness (mm)	Section (mm²)	Ω/m at 20 °C	m/kg	g/m	Ω/m at 20 °C	m/kg	g/m
0.2 × 0.08	0.0152	93.421	9266.12	0.1079	95.395	9266.12	0.1079
0.4 × 0.08	0.0304	46.711	4633.06	0.2158	47.697	4633.06	0.2158
0.6 × 0.08	0.0456	31.140	3088.71	0.3238	31.798	3088.71	0.3238
0.8 × 0.08	0.0608	23.355	2316.53	0.4317	23.849	2316.53	0.4317
1.0 × 0.08	0.076	18.684	1853.22	0.5396	19.079	1853.22	0.5396
1.2 × 0.08	0.0912	15.570	1544.35	0.6475	15.899	1544.35	0.6475
1.5 × 0.08	0.114	12.456	1235.48	0.8094	12.719	1235.48	0.8094
0.2 × 0.1	0.019	74.737	7412.90	0.1349	76.316	7412.90	0.1349
0.4 × 0.1	0.038	37.368	3706.45	0.2698	38.158	3706.45	0.2698
0.6 × 0.1	0.057	24.912	2470.97	0.4047	25.439	2470.97	0.4047
0.8 × 0.1	0.076	18.684	1853.22	0.5396	19.079	1853.22	0.5396
1.0 × 0.1	0.095	14.947	1482.58	0.6745	15.263	1482.58	0.6745
1.5 × 0.1	0.143	9.965	988.39	1.0118	10.175	988.39	1.0118
2.0 × 0.1	0.19	7.474	741.29	1.3490	7.632	741.29	1.3490
0.2 × 0.15	0.0285	49.825	4941.93	0.2024	50.877	4941.93	0.2024
0.4 × 0.15	0.057	24.912	2470.97	0.4047	25.439	2470.97	0.4047
0.6 × 0.15	0.0855	16.608	1647.31	0.6071	16.959	1647.31	0.6071
0.8 × 0.15	0.114	12.456	1235.48	0.8094	12.719	1235.48	0.8094
1.0 × 0.15	0.143	9.965	988.39	1.0118	10.175	988.39	1.0118
1.5 × 0.15	0.214	6.643	658.92	1.5176	6.784	658.92	1.5176
2.0 × 0.15	0.285	4.982	494.19	2.0235	5.088	494.19	2.0235
0.4 × 0.2	0.076	18.684	1853.22	0.5396	19.079	1853.22	0.5396
0.6 × 0.2	0.114	12.456	1235.48	0.8094	12.719	1235.48	0.8094
0.8 × 0.2	0.152	9.342	926.61	1.0792	9.539	926.61	1.0792
1.0 × 0.2	0.19	7.474	741.29	1.3490	7.632	741.29	1.3490
1.5 × 0.2	0.285	4.982	494.19	2.0235	5.088	494.19	2.0235
2.0 × 0.2	0.38	3.737	370.64	2.6980	3.816	370.64	2.6980
3.0 × 0.2	0.57	2.491	247.10	4.0470	2.544	247.10	4.0470
0.6 × 0.4	0.228	6.228	617.74	1.6188	6.360	617.74	1.6188
0.8 × 0.4	0.304	4.671	463.31	2.1584	4.770	463.31	2.1584
1.0 × 0.4	0.38	3.737	370.64	2.6980	3.816	370.64	2.6980
1.5 × 0.4	0.57	2.491	247.10	4.0470	2.544	247.10	4.0470
2.0 × 0.4	0.76	1.868	185.32	5.3960	1.908	185.32	5.3960
3.0 × 0.4	1.14	1.246	123.55	8.0940	1.272	123.55	8.0940
4.0 × 0.4	1.52	0.934	92.66	10.7920	0.954	92.66	10.7920
0.8 × 0.6	0.456	3.114	308.87	3.2376	3.180	308.87	3.2376
1.0 × 0.6	0.57	2.491	247.10	4.047	2.544	247.10	4.047
1.5 × 0.6	0.855	1.661	164.73	6.071	1.696	164.73	6.071
2.0 × 0.6	1.14	1.246	123.55	8.094	1.272	123.55	8.094
3.0 × 0.6	1.71	0.830	82.37	12.141	0.848	82.37	12.141
4.0 × 0.6	2.28	0.623	61.77	16.188	0.636	61.77	16.188
1.0 × 0.8	0.76	1.868	185.32	5.396	1.908	185.32	5.396
1.5 × 0.8	1.14	1.246	123.55	8.094	1.272	123.55	8.094
2.0 × 0.8	1.52	0.934	92.66	10.792	0.954	92.66	10.792
3.0 × 0.8	2.28	0.623	61.77	16.188	0.636	61.77	16.188
4.0 × 0.8	3.04	0.467	46.33	21.584	0.477	46.33	21.584
1.5 × 1.0	1.425	0.996	98.84	10.118	1.018	98.84	10.118
2.0 × 1.0	1.9	0.747	74.13	13.490	0.763	74.13	13.490
3.0 × 1.0	2.85	0.498	49.42	20.235	0.509	49.42	20.235
4.0 × 1.0	3.8	0.374	37.06	26.980	0.382	37.06	26.980

0CR23AL5 AND 0CR20AL6RE

Resistance, yield length and weight per metre at 20 °C for each width × thickness combination.

IRON-CHROMIUM-ALUMINIUM		0CR23AL5			0CR20AL6RE		
Width × thickness (mm)	Section (mm²)	Ω/m at 20 °C	m/kg	g/m	Ω/m at 20 °C	m/kg	g/m
0.2 × 0.08	0.0152	88.816	9074.41	0.1102	92.105	9137.43	0.1094
0.4 × 0.08	0.0304	44.408	4537.21	0.2204	46.053	4568.71	0.2189
0.6 × 0.08	0.0456	29.605	3024.80	0.3306	30.702	3045.81	0.3283
0.8 × 0.08	0.0608	22.204	2268.60	0.4408	23.026	2284.36	0.4378
1.0 × 0.08	0.076	17.763	1814.88	0.5510	18.421	1827.49	0.5472
1.2 × 0.08	0.0912	14.803	1512.40	0.6612	15.351	1522.90	0.6566
1.5 × 0.08	0.114	11.842	1209.92	0.8265	12.281	1218.32	0.8208
0.2 × 0.1	0.019	71.053	7259.53	0.1378	73.684	7309.94	0.1368
0.4 × 0.1	0.038	35.526	3629.76	0.2755	36.842	3654.97	0.2736
0.6 × 0.1	0.057	23.684	2419.84	0.4133	24.561	2436.65	0.4104
0.8 × 0.1	0.076	17.763	1814.88	0.5510	18.421	1827.49	0.5472
1.0 × 0.1	0.095	14.211	1451.91	0.6888	14.737	1461.99	0.6840
1.5 × 0.1	0.143	9.474	967.94	1.0331	9.825	974.66	1.0260
2.0 × 0.1	0.19	7.105	725.95	1.3775	7.368	730.99	1.3680
0.2 × 0.15	0.0285	47.368	4839.69	0.2066	49.123	4873.29	0.2052
0.4 × 0.15	0.057	23.684	2419.84	0.4133	24.561	2436.65	0.4104
0.6 × 0.15	0.0855	15.789	1613.23	0.6199	16.374	1624.43	0.6156
0.8 × 0.15	0.114	11.842	1209.92	0.8265	12.281	1218.32	0.8208
1.0 × 0.15	0.143	9.474	967.94	1.0331	9.825	974.66	1.0260
1.5 × 0.15	0.214	6.316	645.29	1.5497	6.550	649.77	1.5390
2.0 × 0.15	0.285	4.737	483.97	2.0663	4.912	487.33	2.0520
0.4 × 0.2	0.076	17.763	1814.88	0.5510	18.421	1827.49	0.5472
0.6 × 0.2	0.114	11.842	1209.92	0.8265	12.281	1218.32	0.8208
0.8 × 0.2	0.152	8.882	907.44	1.1020	9.211	913.74	1.0944
1.0 × 0.2	0.19	7.105	725.95	1.3775	7.368	730.99	1.3680
1.5 × 0.2	0.285	4.737	483.97	2.0663	4.912	487.33	2.0520
2.0 × 0.2	0.38	3.553	362.98	2.7550	3.684	365.50	2.7360
3.0 × 0.2	0.57	2.368	241.98	4.1325	2.456	243.66	4.1040
0.6 × 0.4	0.228	5.921	604.96	1.6530	6.140	609.16	1.6416
0.8 × 0.4	0.304	4.441	453.72	2.2040	4.605	456.87	2.1888
1.0 × 0.4	0.38	3.553	362.98	2.7550	3.684	365.50	2.7360
1.5 × 0.4	0.57	2.368	241.98	4.1325	2.456	243.66	4.1040
2.0 × 0.4	0.76	1.776	181.49	5.5100	1.842	182.75	5.4720
3.0 × 0.4	1.14	1.184	120.99	8.2650	1.228	121.83	8.2080
4.0 × 0.4	1.52	0.888	90.74	11.0200	0.921	91.37	10.9440
0.8 × 0.6	0.456	2.961	302.48	3.3060	3.070	304.58	3.2832
1.0 × 0.6	0.57	2.368	241.98	4.133	2.456	243.66	4.104
1.5 × 0.6	0.855	1.579	161.32	6.199	1.637	162.44	6.156
2.0 × 0.6	1.14	1.184	120.99	8.265	1.228	121.83	8.208
3.0 × 0.6	1.71	0.789	80.66	12.398	0.819	81.22	12.312
4.0 × 0.6	2.28	0.592	60.50	16.530	0.614	60.92	16.416
1.0 × 0.8	0.76	1.776	181.49	5.510	1.842	182.75	5.472
1.5 × 0.8	1.14	1.184	120.99	8.265	1.228	121.83	8.208
2.0 × 0.8	1.52	0.888	90.74	11.020	0.921	91.37	10.944
3.0 × 0.8	2.28	0.592	60.50	16.530	0.614	60.92	16.416
4.0 × 0.8	3.04	0.444	45.37	22.040	0.461	45.69	21.888
1.5 × 1.0	1.425	0.947	96.79	10.331	0.982	97.47	10.260
2.0 × 1.0	1.9	0.711	72.60	13.775	0.737	73.10	13.680
3.0 × 1.0	2.85	0.474	48.40	20.663	0.491	48.73	20.520
4.0 × 1.0	3.8	0.355	36.30	27.550	0.368	36.55	27.360

0CR20AL3 AND 0CR24AL6RE

Resistance, yield length and weight per metre at 20 °C for each width × thickness combination.

IRON-CHROMIUM-ALUMINIUM		0CR20AL3			0CR24AL6RE		
Width × thickness (mm)	Section (mm²)	Ω/m at 20 °C	m/kg	g/m	Ω/m at 20 °C	m/kg	g/m
0.2 × 0.08	0.0152	80.921	8950.95	0.1117	97.368	9266.12	0.1079
0.4 × 0.08	0.0304	40.461	4475.47	0.2234	48.684	4633.06	0.2158
0.6 × 0.08	0.0456	26.974	2983.65	0.3352	32.456	3088.71	0.3238
0.8 × 0.08	0.0608	20.230	2237.74	0.4469	24.342	2316.53	0.4317
1.0 × 0.08	0.076	16.184	1790.19	0.5586	19.474	1853.22	0.5396
1.2 × 0.08	0.0912	13.487	1491.82	0.6703	16.228	1544.35	0.6475
1.5 × 0.08	0.114	10.789	1193.46	0.8379	12.982	1235.48	0.8094
0.2 × 0.1	0.019	64.737	7160.76	0.1397	77.895	7412.90	0.1349
0.4 × 0.1	0.038	32.368	3580.38	0.2793	38.947	3706.45	0.2698
0.6 × 0.1	0.057	21.579	2386.92	0.4190	25.965	2470.97	0.4047
0.8 × 0.1	0.076	16.184	1790.19	0.5586	19.474	1853.22	0.5396
1.0 × 0.1	0.095	12.947	1432.15	0.6983	15.579	1482.58	0.6745
1.5 × 0.1	0.143	8.632	954.77	1.0474	10.386	988.39	1.0118
2.0 × 0.1	0.19	6.474	716.08	1.3965	7.789	741.29	1.3490
0.2 × 0.15	0.0285	43.158	4773.84	0.2095	51.930	4941.93	0.2024
0.4 × 0.15	0.057	21.579	2386.92	0.4190	25.965	2470.97	0.4047
0.6 × 0.15	0.0855	14.386	1591.28	0.6284	17.310	1647.31	0.6071
0.8 × 0.15	0.114	10.789	1193.46	0.8379	12.982	1235.48	0.8094
1.0 × 0.15	0.143	8.632	954.77	1.0474	10.386	988.39	1.0118
1.5 × 0.15	0.214	5.754	636.51	1.5711	6.924	658.92	1.5176
2.0 × 0.15	0.285	4.316	477.38	2.0948	5.193	494.19	2.0235
0.4 × 0.2	0.076	16.184	1790.19	0.5586	19.474	1853.22	0.5396
0.6 × 0.2	0.114	10.789	1193.46	0.8379	12.982	1235.48	0.8094
0.8 × 0.2	0.152	8.092	895.09	1.1172	9.737	926.61	1.0792
1.0 × 0.2	0.19	6.474	716.08	1.3965	7.789	741.29	1.3490
1.5 × 0.2	0.285	4.316	477.38	2.0948	5.193	494.19	2.0235
2.0 × 0.2	0.38	3.237	358.04	2.7930	3.895	370.64	2.6980
3.0 × 0.2	0.57	2.158	238.69	4.1895	2.596	247.10	4.0470
0.6 × 0.4	0.228	5.395	596.73	1.6758	6.491	617.74	1.6188
0.8 × 0.4	0.304	4.046	447.55	2.2344	4.868	463.31	2.1584
1.0 × 0.4	0.38	3.237	358.04	2.7930	3.895	370.64	2.6980
1.5 × 0.4	0.57	2.158	238.69	4.1895	2.596	247.10	4.0470
2.0 × 0.4	0.76	1.618	179.02	5.5860	1.947	185.32	5.3960
3.0 × 0.4	1.14	1.079	119.35	8.3790	1.298	123.55	8.0940
4.0 × 0.4	1.52	0.809	89.51	11.1720	0.974	92.66	10.7920
0.8 × 0.6	0.456	2.697	298.36	3.3516	3.246	308.87	3.2376
1.0 × 0.6	0.57	2.158	238.69	4.190	2.596	247.10	4.047
1.5 × 0.6	0.855	1.439	159.13	6.284	1.731	164.73	6.071
2.0 × 0.6	1.14	1.079	119.35	8.379	1.298	123.55	8.094
3.0 × 0.6	1.71	0.719	79.56	12.569	0.865	82.37	12.141
4.0 × 0.6	2.28	0.539	59.67	16.758	0.649	61.77	16.188
1.0 × 0.8	0.76	1.618	179.02	5.586	1.947	185.32	5.396
1.5 × 0.8	1.14	1.079	119.35	8.379	1.298	123.55	8.094
2.0 × 0.8	1.52	0.809	89.51	11.172	0.974	92.66	10.792
3.0 × 0.8	2.28	0.539	59.67	16.758	0.649	61.77	16.188
4.0 × 0.8	3.04	0.405	44.75	22.344	0.487	46.33	21.584
1.5 × 1.0	1.425	0.863	95.48	10.474	1.039	98.84	10.118
2.0 × 1.0	1.9	0.647	71.61	13.965	0.779	74.13	13.490
3.0 × 1.0	2.85	0.432	47.74	20.948	0.519	49.42	20.235
4.0 × 1.0	3.8	0.324	35.80	27.930	0.389	37.06	26.980

NOTICE

Recommendations are given for guidance only. Suitability of the material can only be confirmed once the actual service conditions are known. Continuous technical development may lead to changes in these data without notice. Issued October 2026.