

Cold-rolled strip

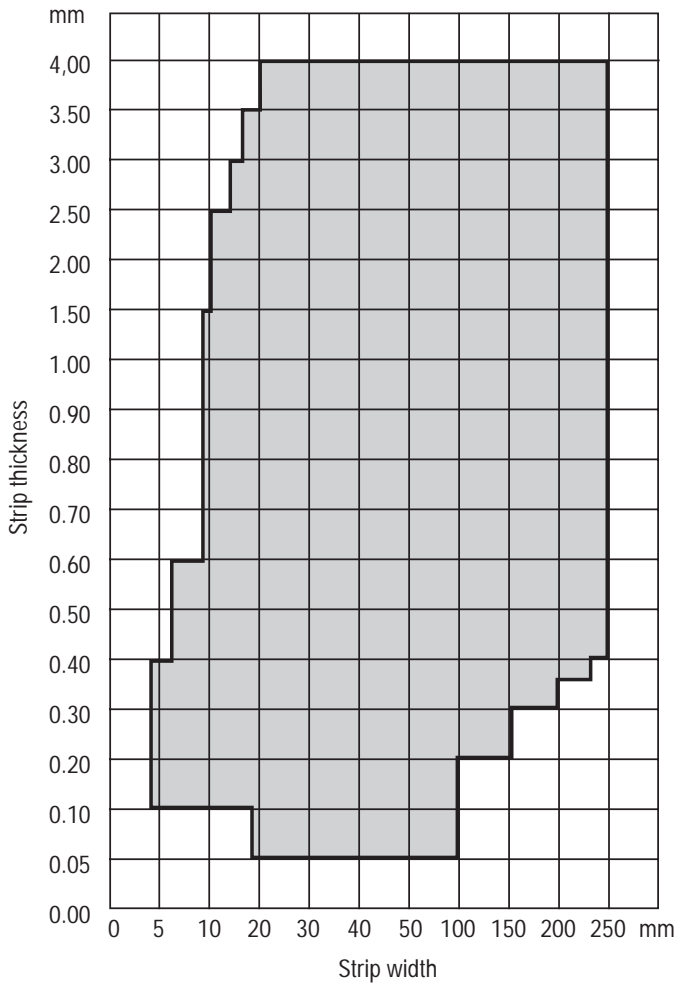


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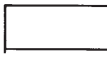
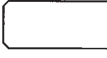
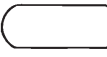
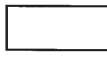
Cold-rolled strip



SIZE RANGE



EDGES

- Slitted 
- Deburred 
- Round 
- Straight 

FINISHES

- Blue
- Bright
- Extra bright*
- *according to agreement

DELIVERY FORM

- Coils.
- Oscillated coils*
- Straightend and cut to lengths – max. 6000 mm
- * see special product sheet

COIL SIZES

- Coil weight: according to agreement, max 9 kg/mm strip width
- Inside diameter: 200 mm to 500 mm
- Outside diameter: according to agreement

PACKING

- Coils are supplied slightly oiled on EUR pallets. Straight lengths are supplied slightly oiled in bundles. Packing and pallet type according to agreement.

GRADES

BURAB	Typical analysis %					Application/Properties
	C	Si	Mn	Cr	B	
1150	max. 0.03		0.25			For extreme deep drawing. Excellent weldability. Cu max. 0.10%. Age-resistant.
1160	max. 0.08		0.25			For standard deep drawing. Excellent weldability.
1232	max. 0.15		max. 0.80			For pressings that require high strength and elongation. Good weldability.
1265	0.05-0.10	max. 0.30	0.25-0.45			Suitable for parts that are to be case-hardened. Excellent weldability. Silicon fully killed.
1357	0.17-0.23	0.15-0.35	0.45-0.65			Suitable for parts that are to be case-hardened. Where strength requirements are higher than grade 1265. Good weldability.
02B	0.20-0.25	0.20-0.35	1.00-1.30	0.15-0.25	approx. 0.003	Boron steel. Used where wear resistance, hardness and toughness are required. Good hardenability. Excellent weldability. Good formability.
Galvanized strip	—	—	—			Hot-dip galvanized and aluzink-galvanized steel. Cold-rolled where strength requirement is higher than usual. Permits a finer surface and closer tolerances.

Mechanical properties



TENSILE STRENGTH – ELONGATION

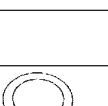
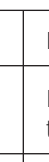
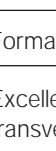
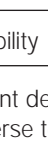




Typical tensile strength (Rm) in N/mm² (1 N/mm² = 1 MPa). Elongation A 10 in %.

Permissible variation in tensile strength ± 60 N/mm².

BURAB	02 annealed	11 special soft-rolled	12 soft-rolled	53 1/4- cold-rolled	14 1/2- cold-rolled	55 3/4- cold-rolled	16 cold-rolled	58 special cold-rolled
1150	320/45	340/40	380/25	450/15	500/5			
1160	330/40	350/32	390/22	460/12	510/6	610/4	640/3	
1232	380/37	390/28	410/18	510/10	550/7	620/4	650/3	740/3
1265	370/40	390/30	410/20	510/12	560/8	630/5	660/4	750/3
1357	420/35	440/28	480/18	540/11	600/7	660/5	720/4	780/3
02B	500/25	550/11						

Galvanized strip – according to agreement.

EFFECT OF ROLLING ON FORMABILITY OF STRIP (C 0.10%)

Hardness		Formability
Annealed		Excellent deep drawing ability. Tolerates sharp 180° bend both transverse to and parallel with rolling direction.
Special hot-rolled		Excellent deep drawing ability. Tolerates sharp 180° bend both transverse to and parallel with rolling direction.
Hot-rolled		Tolerates sharp 180° bend transverse to rolling direction, and 120° bend over a sharp edge parallel with rolling direction.
1/4-cold-rolled		Tolerates sharp 180° bend transverse to rolling direction, and almost 90° bend over a sharp edge parallel with rolling direction.
1/2-cold-rolled		Tolerates sharp 180° bend transverse to rolling direction, and around 75° bend over a sharp edge parallel with rolling direction.
3/4-cold-rolled		Tolerates around 120° bend over sharp edge transverse to rolling direction and around 45° parallel with rolling direction.
Cold-rolled		Tolerates around 90° bend over sharp edge transverse to rolling direction and around 20° parallel with rolling direction.
Special cold-rolled		Does not tolerate bending in either direction.

BENDING RADIUS

The table is based on a test in a V-bend tool with a die opening of 20 mm. The edges of the test samples are punched and the resulting burr is turned inwards during bending. Strip thickness max. 2.0 mm.

Bending 90°. Minimum bend radius for various degrees of rolling. a = strip thickness.

BURAB	Bending orientation*	02 annealed	11 special soft-rolled	12 soft-rolled	14 1/2- cold-rolled	16 cold-rolled
1150	11/1	0/0	0/0	0.5a/0	a/0	
1160	11/1	0/0	0/0	0.5a/0	a/0	10a/0
1232	11/1	0/0	0/0	0.5a/0	5a/0	10a/0
1265	11/1	0/0	0/0	0.6a/0	5a/0	10a/0.5a
1357	11/1	0/0	0/0	0.5a/0	5a/0	10a/0.5a
02B	11/1	1.5a/1a	2,5a/1,5a			

Galvanized strip – according to agreement.

*11 – bending parallel with rolling direction. 1 – bending transverse to rolling direction.

Tolerances



THICKNESS

Thickness mm	Width mm under 80	80-124.9	125-250
-0.39	+/-0.013	+/-0.015	+/-0.017
0.40-0.49	+/-0.015	+/-0.017	+/-0.020
0.50-0.59	+/-0.017	+/-0.020	+/-0.023
0.60-0.79	+/-0.020	+/-0.023	+/-0.026
0.80-0.99	+/-0.023	+/-0.026	+/-0.030
1.00-1.24	+/-0.026	+/-0.030	+/-0.035
1.25-1.59	+/-0.030	+/-0.035	+/-0.040
1.60-1.99	+/-0.035	+/-0.040	+/-0.045
2.00-2.49	+/-0.040	+/-0.045	+/-0.050
2.50-2.99	+/-0.045	+/-0.050	+/-0.055
3.00-3.49	+/-0.050	+/-0.055	+/-0.060
3.50-4.00	+/-0.055	+/-0.060	+/-0.065

Closer tolerances available according to agreement.

WIDTH

Thickness mm	Width mm 4.0-19.9	20.0-49.9	50.0-124.9	125-250
-0.24	+/-0.10	+/-0.10	+/-0.15	+/-0.20
0.25-0.49	+/-0.10	+/-0.15	+/-0.20	+/-0.25
0.50-0.99	+/-0.15	+/-0.20	+/-0.25	+/-0.30
1.00-1.59	+/-0.20	+/-0.25	+/-0.30	+/-0.35
1.60-1.99	+/-0.25	+/-0.30	+/-0.35	+/-0.40
2.00-2.49	+/-0.30	+/-0.35	+/-0.40	+/-0.45
2.50-2.99	+/-0.35	+/-0.40	+/-0.45	+/-0.50
3.00-3.49	+/-0.35	+/-0.40	+/-0.45	+/-0.50
3.50-4.00	+/-0.35	+/-0.40	+/-0.45	+/-0.50

Closer tolerances available according to agreement.

LENGTH

Length mm	Tolerance mm
-1000	-0.0 + 4.0
1001-2000	-0.0 + 4.0
2001-6000	-0.0 + 4.0

Closer tolerances available according to agreement.

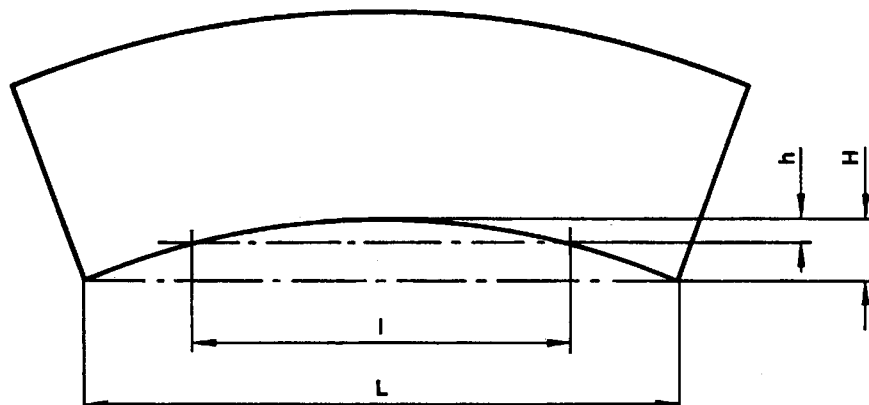
STRAIGHTNESS

Measured length mm	Strip width mm		
	10-(40)	40-(125)	≥125
Permissible deviation from straight mm			
1000	2.5	2.0	1.5

Calculation:

Lateral deviation from straightness for different measured lengths is calculated using the formula:

$$H = \frac{L^2 h}{l^2}$$



Conversion table



VICKERS - BRINELL TENSILE STRENGTH OF COLD-ROLLED STRIP (typical values)

Vickers HV	Brinell HB	Tensile strength N/mm ²
85	80	270
90	85	285
95	90	305
100	95	320
105	100	335
110	105	350
115	110	370
120	115	385
125	120	400
130	125	415
135	130	430
140	135	450
145	140	470
150	145	490
160	150	510
165	155	530
170	160	550
175	165	560
180	170	580
185	175	600
190	180	620
195	185	630
200	190	650
205	195	670
210	200	680
215	205	700
220	210	720
225	215	730
230	220	750
235	225	770
240	230	780
245	235	800
250	240	820
260	245	840
265	250	850

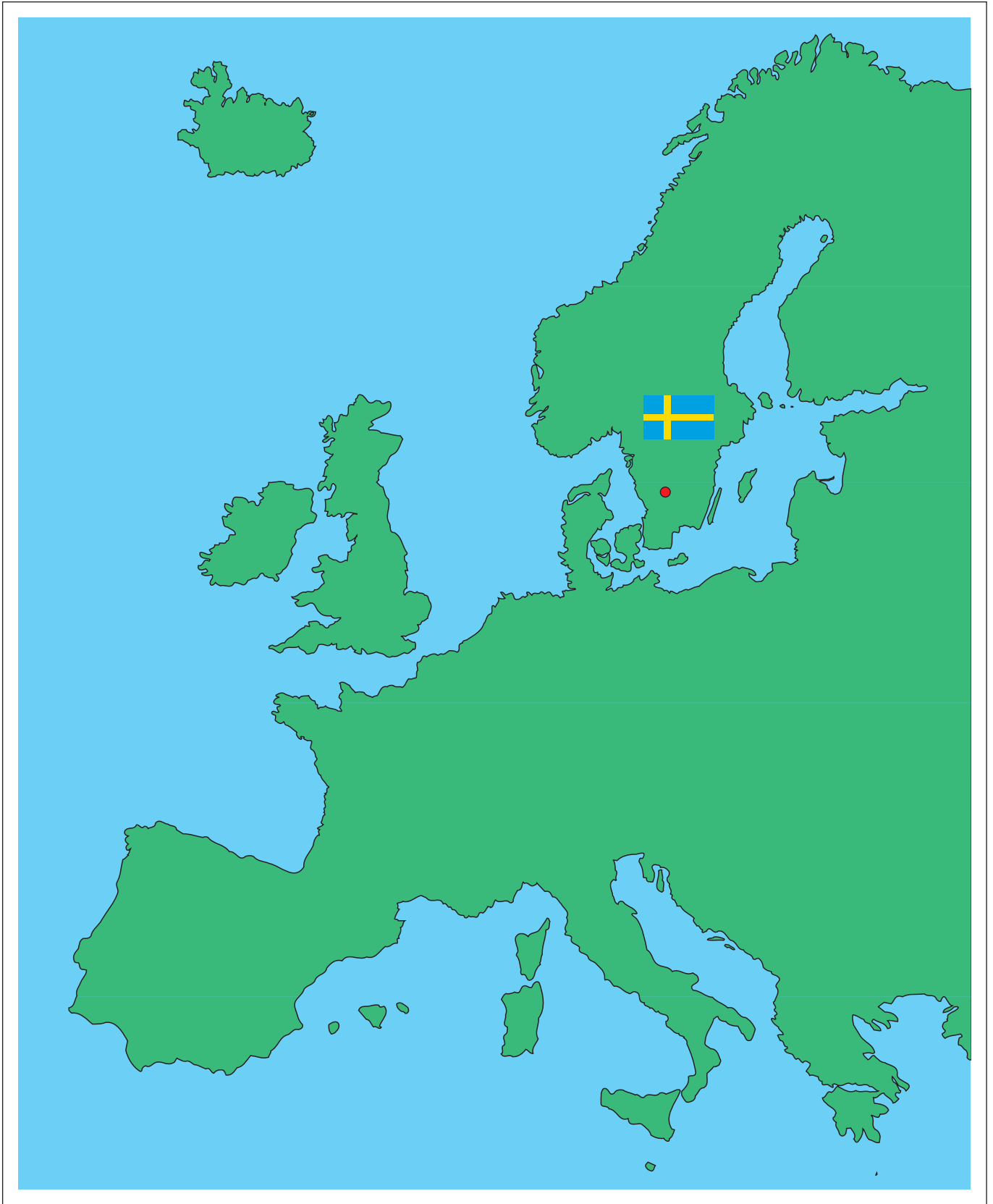
Metre weights



THEORETICAL WEIGHTS FOR STRIP (kg/metre) DENSITY: 7850 kg/m³.

Width mm	Thickness mm																
	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95	1.00
56	0.088	0.110	0.132	0.154	0.176	0.198	0.220	0.242	0.264	0.286	0.308	0.330	0.352	0.374	0.396	0.418	0.440
57	0.090	0.112	0.134	0.157	0.179	0.201	0.224	0.246	0.269	0.291	0.313	0.336	0.358	0.380	0.403	0.425	0.448
58	0.091	0.114	0.137	0.159	0.182	0.205	0.228	0.250	0.273	0.296	0.319	0.342	0.364	0.387	0.410	0.433	0.455
59	0.093	0.116	0.139	0.162	0.185	0.208	0.232	0.255	0.278	0.301	0.324	0.347	0.371	0.394	0.417	0.440	0.463
60	0.094	0.118	0.141	0.165	0.188	0.212	0.236	0.259	0.283	0.306	0.330	0.353	0.377	0.400	0.424	0.448	0.471
61	0.096	0.120	0.144	0.168	0.192	0.216	0.239	0.263	0.287	0.311	0.335	0.359	0.383	0.407	0.431	0.455	0.479
62	0.097	0.122	0.146	0.170	0.195	0.219	0.243	0.268	0.292	0.316	0.341	0.365	0.389	0.414	0.438	0.462	0.487
63	0.099	0.124	0.148	0.173	0.198	0.223	0.247	0.272	0.297	0.322	0.346	0.371	0.396	0.420	0.445	0.470	0.495
64	0.101	0.126	0.151	0.176	0.201	0.226	0.251	0.276	0.301	0.327	0.352	0.377	0.402	0.427	0.452	0.477	0.502
65	0.102	0.128	0.153	0.179	0.204	0.230	0.255	0.281	0.306	0.332	0.357	0.383	0.408	0.434	0.459	0.485	0.510
66	0.104	0.130	0.155	0.181	0.207	0.233	0.259	0.285	0.311	0.337	0.363	0.389	0.415	0.440	0.466	0.492	0.518
67	0.105	0.132	0.158	0.184	0.210	0.237	0.263	0.289	0.316	0.342	0.368	0.395	0.421	0.447	0.473	0.500	0.526
68	0.107	0.134	0.160	0.187	0.214	0.240	0.267	0.294	0.320	0.347	0.374	0.400	0.427	0.454	0.480	0.507	0.534
69	0.108	0.135	0.163	0.190	0.217	0.244	0.271	0.298	0.325	0.352	0.379	0.406	0.433	0.460	0.488	0.515	0.542
70	0.110	0.137	0.165	0.192	0.220	0.247	0.275	0.302	0.330	0.357	0.385	0.412	0.440	0.467	0.495	0.522	0.550
71	0.112	0.139	0.167	0.195	0.223	0.251	0.279	0.307	0.334	0.362	0.390	0.418	0.446	0.474	0.502	0.530	0.557
72	0.113	0.141	0.170	0.198	0.226	0.254	0.283	0.311	0.339	0.367	0.398	0.424	0.452	0.480	0.509	0.537	0.565
73	0.115	0.143	0.172	0.201	0.229	0.258	0.287	0.315	0.344	0.373	0.401	0.430	0.458	0.487	0.516	0.544	0.573
74	0.116	0.145	0.174	0.203	0.232	0.261	0.291	0.320	0.349	0.378	0.407	0.436	0.465	0.494	0.523	0.552	0.581
75	0.118	0.147	0.177	0.206	0.236	0.265	0.294	0.324	0.353	0.383	0.412	0.442	0.471	0.500	0.530	0.559	0.589
76	0.119	0.149	0.179	0.209	0.209	0.239	0.298	0.328	0.358	0.388	0.418	0.448	0.477	0.507	0.537	0.567	0.597
77	0.121	0.151	0.181	0.212	0.242	0.272	0.302	0.332	0.363	0.393	0.423	0.453	0.484	0.514	0.544	0.574	0.605
78	0.123	0.153	0.184	0.214	0.245	0.276	0.306	0.337	0.367	0.398	0.428	0.459	0.490	0.521	0.551	0.582	0.612
79	0.124	0.155	0.186	0.217	0.248	0.279	0.310	0.341	0.372	0.403	0.434	0.465	0.496	0.527	0.558	0.589	0.620
80	0.126	0.157	0.188	0.220	0.251	0.283	0.314	0.345	0.377	0.408	0.440	0.471	0.502	0.534	0.565	0.597	0.628
81	0.127	0.159	0.191	0.223	0.254	0.286	0.318	0.350	0.382	0.413	0.445	0.477	0.509	0.541	0.572	0.604	0.636
82	0.129	0.161	0.193	0.225	0.258	0.290	0.322	0.354	0.386	0.418	0.451	0.483	0.515	0.547	0.579	0.612	0.644
83	0.130	0.163	0.196	0.228	0.261	0.293	0.326	0.358	0.391	0.424	0.456	0.489	0.521	0.554	0.586	0.619	0.652
84	0.132	0.165	0.198	0.231	0.264	0.297	0.330	0.363	0.396	0.429	0.462	0.495	0.528	0.561	0.594	0.626	0.659
85	0.134	0.167	0.200	0.234	0.267	0.300	0.334	0.367	0.400	0.434	0.467	0.500	0.534	0.567	0.601	0.634	0.667
86	0.135	0.169	0.203	0.236	0.270	0.304	0.338	0.371	0.405	0.439	0.473	0.506	0.540	0.574	0.608	0.641	0.675
87	0.137	0.171	0.205	0.239	0.273	0.307	0.342	0.376	0.410	0.444	0.478	0.512	0.546	0.581	0.615	0.649	0.683
88	0.138	0.173	0.207	0.242	0.276	0.311	0.349	0.380	0.415	0.449	0.484	0.518	0.553	0.587	0.622	0.656	0.691
89	0.140	0.175	0.210	0.245	0.280	0.314	0.345	0.384	0.419	0.454	0.488	0.524	0.559	0.594	0.629	0.664	0.699
90	0.141	0.177	0.212	0.247	0.283	0.318	0.353	0.389	0.424	0.459	0.495	0.530	0.565	0.601	0.636	0.671	0.707
91	0.143	0.179	0.214	0.250	0.286	0.322	0.357	0.393	0.429	0.464	0.500	0.536	0.572	0.607	0.643	0.679	0.714
92	0.144	0.181	0.217	0.253	0.289	0.325	0.361	0.397	0.433	0.469	0.506	0.542	0.578	0.614	0.650	0.686	0.722
93	0.146	0.183	0.219	0.256	0.292	0.329	0.365	0.402	0.438	0.475	0.511	0.548	0.584	0.621	0.657	0.694	0.730
94	0.148	0.185	0.221	0.258	0.295	0.332	0.369	0.406	0.443	0.480	0.517	0.553	0.590	0.627	0.664	0.701	0.738
95	0.149	0.186	0.224	0.261	0.298	0.336	0.373	0.410	0.448	0.485	0.520	0.559	0.597	0.634	0.671	0.709	0.746
96	0.151	0.188	0.226	0.264	0.301	0.339	0.377	0.415	0.452	0.490	0.522	0.565	0.603	0.641	0.678	0.716	0.754
97	0.152	0.190	0.228	0.267	0.305	0.343	0.381	0.419	0.457	0.495	0.533	0.571	0.608	0.647	0.685	0.723	0.762
98	0.154	0.192	0.231	0.269	0.308	0.346	0.385	0.423	0.462	0.500	0.539	0.577	0.615	0.654	0.692	0.731	0.769
99	0.155	0.194	0.233	0.272	0.311	0.350	0.389	0.427	0.466	0.505	0.544	0.583	0.622	0.661	0.699	0.738	0.777
100	0.157	0.196	0.236	0.275	0.314	0.353	0.393	0.432	0.471	0.510	0.550	0.589	0.628	0.667	0.707	0.746	0.785
200	0.314	0.393	0.471	0.550	0.628	0.707	0.785	0.864	0.942	1.021	1.099	1.178	1.256	1.335	1.413	1.492	1.570

Width mm	Thickness mm															
	0.20	0.25	0.30	0.35	0.40	0.45	0.50	0.55	0.60	0.65	0.70	0.75	0.80	0.85	0.90	0.95



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