Lamineries
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BRUSHWELLMAN
ENGINEERED MATERIALS

Métaux laminés à froid
Kaltgewalzte Metalle
Cold rolled metals

Cuivre au beryllium
Berylliumkupfer
Beryllium Copper

ISO-Toleranz-System
Auszug ISO/R 286-1962
und VSM 58402
Abmasse der Wellen µm

Système de tolérances ISO
Extrait de ISO/R 286-1962
et VSM 58402
Ecarts des arbres µm

ISO-Tolerance System
Extract from ISO/R 286-1962
and VSM 58402
Values of deviation µm

Qualität *Qualité* Quality	Nennmasse/Dimensions nominales/Nominal sizes mm															
	⩽ 3		> 3–6		> 6–10		> 10–18		> 18–30		> 30–50		> 50–80		> 80–120	
e 5	– 14	– 18	– 20	– 25	– 25	– 31	– 32	– 40	– 40	– 49	– 50	– 61	– 60	– 73	– 72	– 87
6	– 14	– 20	– 20	– 28	– 25	– 34	– 32	– 43	– 40	– 53	– 50	– 66	– 60	– 79	– 72	– 94
7	– 14	– 24	– 20	– 32	– 25	– 40	– 32	– 50	– 40	– 61	– 50	– 75	– 60	– 90	– 72	– 107
8	– 14	– 28	– 20	– 38	– 25	– 47	– 32	– 59	– 40	– 73	– 50	– 89	– 60	– 106	– 72	– 126
9	– 14	– 39	– 20	– 50	– 25	– 61	– 32	– 75	– 40	– 92	– 50	– 112	– 60	– 134	– 72	– 159
10	– 14	– 54	– 20	– 68	– 25	– 83	– 32	– 102	– 40	– 124	– 50	– 150	– 60	– 180	– 72	– 212
ef 5	– 10	– 14	– 14	– 19	– 18	– 24										
6	– 10	– 16	– 14	– 22	– 18	– 27										
7	– 10	– 20	– 14	– 26	– 18	– 33										
8	– 10	– 24	– 14	– 32	– 18	– 40										
9	– 10	– 35	– 14	– 44	– 18	– 54										
10	– 10	– 50	– 14	– 62	– 18	– 76										
f 5	– 6	– 10	– 10	– 15	– 13	– 19	– 16	– 24	– 20	– 29	– 25	– 36	– 30	– 43	– 36	– 51
6	– 6	– 12	– 10	– 18	– 13	– 22	– 16	– 27	– 20	– 33	– 25	– 41	– 30	– 49	– 36	– 58
7	– 6	– 16	– 10	– 22	– 13	– 28	– 16	– 34	– 20	– 41	– 25	– 50	– 30	– 60	– 36	– 71
8	– 6	– 20	– 10	– 28	– 13	– 35	– 16	– 43	– 20	– 53	– 25	– 64	– 30	– 76	– 36	– 90
9	– 6	– 31	– 10	– 40	– 13	– 49	– 16	– 59	– 20	– 72	– 25	– 87	– 30	– 104	– 36	– 123
10	– 6	– 46	– 10	– 58	– 13	– 71	– 16	– 86	– 20	– 104	– 25	– 125				
fg 5	– 4	– 8	– 6	– 11	– 8	– 14										
6	– 4	– 10	– 6	– 14	– 8	– 17										
7	– 4	– 14	– 6	– 18	– 8	– 23										
8	– 4	– 18	– 6	– 24	– 8	– 30										
9	– 4	– 29	– 6	– 36	– 8	– 44										
10	– 4	– 44	– 6	– 54	– 8	– 66										
g 5	– 2	– 6	– 4	– 9	– 5	– 11	– 6	– 14	– 7	– 16	– 9	– 20	– 10	– 23	– 12	– 27
6	– 2	– 8	– 4	– 12	– 5	– 14	– 6	– 17	– 7	– 20	– 9	– 25	– 10	– 29	– 12	– 34
7	– 2	– 12	– 4	– 16	– 5	– 20	– 6	– 24	– 7	– 28	– 9	– 34	– 10	– 40	– 12	– 47
8	– 2	– 16	– 4	– 22	– 5	– 27	– 6	– 33	– 7	– 40	– 9	– 48	– 10	– 56	– 12	– 66
9	– 2	– 27	– 4	– 34	– 5	– 41	– 6	– 49	– 7	– 59	– 9	– 71				
10	– 2	– 42	– 4	– 52	– 5	– 63	– 6	– 76	– 7	– 91	– 9	– 109				
h 5	0	– 4	0	– 5	0	– 6	0	– 8	0	– 9	0	– 11	0	– 13	0	– 15
6	0	– 6	0	– 8	0	– 9	0	– 11	0	– 13	0	– 16	0	– 19	0	– 22
7	0	– 10	0	– 12	0	– 15	0	– 18	0	– 21	0	– 25	0	– 30	0	– 35
8	0	– 14	0	– 18	0	– 22	0	– 27	0	– 33	0	– 39	0	– 46	0	– 54
9	0	– 25	0	– 30	0	– 36	0	– 43	0	– 52	0	– 62	0	– 74	0	– 87
10	0	– 40	0	– 48	0	– 58	0	– 70	0	– 84	0	– 100	0	– 120	0	– 140
11	0	– 60	0	– 75	0	– 90	0	– 110	0	– 130	0	– 160	0	– 190	0	– 220
js 8	+ 7	– 7	+ 9	– 9	+11	– 11	+ 13	– 13	+ 16	– 16	+ 19	– 19	+ 23	– 23	+ 27	– 27
9	+12	– 12	+15	– 15	+18	– 18	+ 21	– 21	+ 26	– 26	+ 31	– 31	+ 37	– 37	+ 43	– 43
10	+20	– 20	+24	– 24	+29	– 29	+ 35	– 35	+ 42	– 42	+ 50	– 50	+ 60	– 60	+ 70	– 70
11	+30	– 30	+37	– 37	+45	– 45	+ 55	– 55	+ 65	– 65	+ 80	– 80	+ 95	– 95	+110	– 110
12	+50	– 50	+60	– 60	+75	– 75	+ 90	– 90	+105	– 105	+125	– 125	+150	– 150	+175	– 175
j 5	+ 2	– 2	+ 3	– 2	+ 4	– 2	+ 5	– 3	+ 5	– 4	+ 6	– 5	+ 6	– 7	+ 6	– 9
6	+ 4	– 2	+ 6	– 2	+ 7	– 2	+ 8	– 3	+ 9	– 4	+ 11	– 5	+ 12	– 7	+ 13	– 9
7	+ 6	– 4	+ 8	– 4	+10	– 5	+ 12	– 6	+ 13	– 8	+ 15	– 10	+ 18	– 12	+ 20	– 15
8	+ 8	– 6														
k 5	+ 4	0	+ 6	+ 1	+ 7	+ 1	+ 9	+ 1	+ 11	+ 2	+ 13	+ 2	+ 15	+ 2	+ 18	+ 3
6	+ 6	0	+ 9	+ 1	+10	+ 1	+ 12	+ 1	+ 15	+ 2	+ 18	+ 2	+ 21	+ 2	+ 25	+ 3
7	+10	0	+13	+ 1	+16	+ 1	+ 19	+ 1	+ 23	+ 2	+ 27	+ 2	+ 32	+ 2	+ 38	+ 3
8	+14	0	+18	0	+22	0	+ 27	0	+ 33	0	+ 39	0	+ 46	0	+ 54	0
9	+25	0	+30	0	+36	0	+ 43	0	+ 52	0	+ 62	0	+ 74	0	+ 87	0
10	+40	0	+48	0	+58	0	+ 70	0	+ 84	0	+100	0	+120	0	+140	0
11	+60	0	+75	0	+90	0	+110	0	+130	0	+160	0	+190	0	+220	0
m 5	+ 6	+ 2	+ 9	+ 4	+12	+ 6	+ 15	+ 7	+ 17	+ 8	+ 20	+ 9	+ 24	+ 11	+ 28	+ 13
6	+ 8	+ 2	+12	+ 4	+15	+ 6	+ 18	+ 7	+ 21	+ 8	+ 25	+ 9	+ 30	+ 11	+ 35	+ 13
7	+12	+ 2	+16	+ 4	+21	+ 6	+ 25	+ 7	+ 29	+ 8	+ 34	+ 9	+ 41	+ 11	+ 48	+ 13
8	+16	+ 2	+22	+ 4	+28	+ 6	+ 34	+ 7	+ 41	+ 8	+ 48	+ 9				
9	+27	+ 2	+34	+ 4	+42	+ 6	+ 50	+ 7	+ 60	+ 8	+ 71	+ 9				
10	+42	+ 2	+52	+ 4	+64	+ 6	+ 77	+ 7	+ 92	+ 8	+109	+ 9				
n 5	+ 8	+ 4	+13	+ 8	+16	+ 10	+ 20	+ 12	+ 24	+ 15	+ 28	+ 17	+ 33	+ 20	+ 38	+ 23
6	+10	+ 4	+16	+ 8	+19	+ 10	+ 23	+ 12	+ 28	+ 15	+ 33	+ 17	+ 39	+ 20	+ 45	+ 23
7	+14	+ 4	+20	+ 8	+25	+ 10	+ 30	+ 12	+ 36	+ 15	+ 42	+ 17	+ 50	+ 20	+ 58	+ 23
8	+18	+ 4	+26	+ 8	+32	+ 10	+ 39	+ 12	+ 48	+ 15	+ 56	+ 17				
9	+29	+ 4	+38	+ 8	+46	+ 10	+ 55	+ 12	+ 67	+ 15	+ 79	+ 17				
10	+44	+ 4	+56	+ 8	+68	+ 10	+ 82	+ 12	+ 99	+ 15	+117	+ 17				