

CANNELURES CARACTERISTIQUES DES CANNELURES COURANTES

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SANS RESTRICTION D'UTILISATION

1.OBJET

La présente norme définit, dans les tableaux ci-après, les caractéristiques des cannelures courantes en développante de cercle :

- **Tableau N° 1** : angle de pression : 30° module : 0,50
- **Tableau N° 2** : angle de pression : 30° module : 0,75
- **Tableau N° 3** : angle de pression : 30° module : 1,00
- **Tableau N° 4** : angle de pression : 30° module : 1,25
- **Tableau N° 5** : angle de pression : 30° module : 1,50
- **Tableau N° 6** : angle de pression : 37°30' module : 0,50
- **Tableau N° 7** : angle de pression : 37°30' module : 0,75
- **Tableau N° 8** : angle de pression : 37°30' module : 1,00
- **Tableau N° 9** : angle de pression : 37°30' module : 1,25
- **Tableau N° 10** : angle de pression : 37°30' module : 1,50
- **Tableau N° 11** : angle de pression : 45° module : 0,50
- **Tableau N° 12** : angle de pression : 45° module : 0,75
- **Tableau N° 13** : angle de pression : 45° module : 1,00
- **Tableau N° 14** : angle de pression : 45° module : 1,25
- **Tableau N° 15** : angle de pression : 45° module : 1,50

Elle complète la norme B18 1157 "CANNELURES EN DEVELOPPANTE DE CERCLE ET LEURS DERIVEES - DEFINITIONS - VERIFICATIONS".

TABLEAU N° 1			ANGLE DE PRESSION : ALPD = 30°			MODULE : M = 0,50		
CANNELURE INTERNE CLA = H			Z	D	DB	CANNELURE EXTERNE CLA = LH		
EV MIN = 0.785						SV MAX = 0.785		
ER MAX (CLT 4) = 0.835						SR MIN (CLT 4) = 0.735		
ER MAX (CLT 5) = 0.855						SR MIN (CLT 5) = 0.715		
ER MAX (CLT 6) = 0.885						SR MIN (CLT 6) = 0.685		
ER MAX (CLT 7) = 0.935						SR MIN (CLT 7) = 0.635		
DEI MIN + 0.25 + 0.0	DFI MIN	DII MIN + 0.08 + 0.0				DEE MAX - 0.0 - 0.15	DFF MAX	DIE MAX - 0.0 - 0.20
6.40	6.10	5.11	11	5.50	4.7631	6.00	5.01	4.60
6.90	6.60	5.60	12	6.00	5.1962	6.50	5.50	5.10
7.40	7.10	6.09	13	6.50	5.6292	7.00	5.99	5.60
7.90	7.60	6.58	14	7.00	6.0622	7.50	6.48	6.10
8.40	8.10	7.08	15	7.50	6.4952	8.00	6.98	6.60
8.90	8.60	7.57	16	8.00	6.9282	8.50	7.47	7.10
9.40	9.10	8.07	17	8.50	7.3612	9.00	7.97	7.60
9.90	9.60	8.56	18	9.00	7.7942	9.50	8.46	8.10
10.40	10.10	9.06	19	9.50	8.2272	10.00	8.96	8.60
10.90	10.60	9.56	20	10.00	8.6603	10.50	9.46	9.10
11.40	11.10	10.05	21	10.50	9.0933	11.00	9.95	9.60
11.90	11.60	10.55	22	11.00	9.5263	11.50	10.45	10.10
12.40	12.10	11.05	23	11.50	9.9593	12.00	10.95	10.60
12.90	12.60	11.55	24	12.00	10.3923	12.50	11.45	11.10
13.40	13.10	12.05	25	12.50	10.8253	13.00	11.95	11.60
13.90	13.60	12.54	26	13.00	11.2583	13.50	12.44	12.10
14.40	14.10	13.04	27	13.50	11.6913	14.00	12.94	12.60
14.90	14.60	13.54	28	14.00	12.1244	14.50	13.44	13.10
15.40	15.10	14.04	29	14.50	12.5574	15.00	13.94	13.60
15.90	15.60	14.54	30	15.00	12.9904	15.50	14.44	14.10
16.40	16.10	15.04	31	15.50	13.4234	16.00	14.94	14.60
16.90	16.60	15.54	32	16.00	13.8564	16.50	15.44	15.10
17.40	17.10	16.03	33	16.50	14.2894	17.00	15.93	15.60
17.90	17.60	16.53	34	17.00	14.7224	17.50	16.43	16.10
18.40	18.10	17.03	35	17.50	15.1554	18.00	16.93	16.60
18.90	18.60	17.53	36	18.00	15.5885	18.50	17.43	17.10
19.40	19.10	18.03	37	18.50	16.0215	19.00	17.93	17.60
19.90	19.60	18.53	38	19.00	16.4545	19.50	18.43	18.10
20.40	20.10	19.03	39	19.50	16.8875	20.00	18.93	18.60
20.90	20.60	19.53	40	20.00	17.3205	20.50	19.43	19.10
21.40	21.10	20.03	41	20.50	17.7535	21.00	19.93	19.60
21.90	21.60	20.53	42	21.00	18.1865	21.50	20.43	20.10
22.40	22.10	21.03	43	21.50	18.6195	22.00	20.93	20.60
22.90	22.60	21.53	44	22.00	19.0526	22.50	21.43	21.10
23.40	23.10	22.02	45	22.50	19.4856	23.00	21.92	21.60
23.90	23.60	22.52	46	23.00	19.9186	23.50	22.42	22.10
24.40	24.10	23.02	47	23.50	20.3516	24.00	22.92	22.60
24.90	24.60	23.52	48	24.00	20.7846	24.50	23.42	23.10
25.40	25.10	24.02	49	24.50	21.2176	25.00	23.92	23.60
25.90	25.60	24.52	50	25.00	21.6506	25.50	24.42	24.10
26.40	26.10	25.02	51	25.50	22.0836	26.00	24.92	24.60
26.90	26.60	25.52	52	26.00	22.5167	26.50	25.42	25.10
27.40	27.10	26.02	53	26.50	22.9497	27.00	25.92	25.60
27.90	27.60	26.52	54	27.00	23.3827	27.50	26.42	26.10
28.40	28.10	27.02	55	27.50	23.8157	28.00	26.92	26.60
28.90	28.60	27.52	56	28.00	24.2487	28.50	27.42	27.10
29.40	29.10	28.02	57	28.50	24.6817	29.00	27.92	27.60
29.90	29.60	28.52	58	29.00	25.1147	29.50	28.42	28.10

TABLEAU N° 2			ANGLE DE PRESSION : ALPD = 30°			MODULE : M = 0,75		
CANNELURE INTERNE CLA = H			Z	D	DB	CANNELURE EXTERNE CLA = LH		
EV MIN = 1.178						SV MAX = 1.178		
ER MAX (CLT 4) = 1.228						SR MIN (CLT 4) = 1.128		
ER MAX (CLT 5) = 1.248						SR MIN (CLT 5) = 1.108		
ER MAX (CLT 6) = 1.278						SR MIN (CLT 6) = 1.078		
ER MAX (CLT 7) = 1.328						SR MIN (CLT 7) = 1.028		
DEI MIN + 0.25 + 0.0	DFI MIN	DII MIN + 0.10 + 0.0				DEE MAX - 0.0 - 0.25	DFF MAX	DIE MAX - 0.0 - 0.20
9.60	9.15	7.66	11	8.25	7.1447	9.00	7.51	6.90
10.35	9.90	8.40	12	9.00	7.7942	9.75	8.25	7.65
11.10	10.65	9.14	13	9.75	8.4437	10.50	8.99	8.40
11.85	11.40	9.88	14	10.50	9.0933	11.25	9.73	9.15
12.60	12.15	10.62	15	11.25	9.7428	12.00	10.47	9.90
13.35	12.90	11.36	16	12.00	10.3923	12.75	11.21	10.65
14.10	13.65	12.10	17	12.75	11.0418	13.50	11.95	11.40
14.85	14.40	12.85	18	13.50	11.6913	14.25	12.70	12.15
15.60	15.15	13.59	19	14.25	12.3409	15.00	13.44	12.90
16.35	15.90	14.34	20	15.00	12.9904	15.75	14.19	13.65
17.10	16.65	15.08	21	15.75	13.6399	16.50	14.93	14.40
17.85	17.40	15.83	22	16.50	14.2894	17.25	15.68	15.15
18.60	18.15	16.57	23	17.25	14.9389	18.00	16.42	15.90
19.35	18.90	17.32	24	18.00	15.5885	18.75	17.17	16.65
20.10	19.65	18.07	25	18.75	16.2380	19.50	17.92	17.40
20.85	20.40	18.82	26	19.50	16.8875	20.25	18.67	18.15
21.60	21.15	19.56	27	20.25	17.5370	21.00	19.41	18.90
22.35	21.90	20.31	28	21.00	18.1865	21.75	20.16	19.65
23.10	22.65	21.06	29	21.75	18.8360	22.50	20.91	20.40
23.85	23.40	21.81	30	22.50	19.4856	23.25	21.66	21.15
24.60	24.15	22.55	31	23.25	20.1351	24.00	22.40	21.90
25.35	24.90	23.30	32	24.00	20.7846	24.75	23.15	22.65
26.10	25.65	24.05	33	24.75	21.4341	25.50	23.90	23.40
26.85	26.40	24.80	34	25.50	22.0836	26.25	24.65	24.15
27.60	27.15	25.55	35	26.25	22.7332	27.00	25.40	24.90
28.35	27.90	26.30	36	27.00	23.3827	27.75	26.15	25.65
29.10	28.65	27.05	37	27.75	24.0322	28.50	26.90	26.40
29.85	29.40	27.79	38	28.50	24.6817	29.25	27.64	27.15
30.60	30.15	28.54	39	29.25	25.3312	30.00	28.39	27.90
31.35	30.90	29.29	40	30.00	25.9808	30.75	29.14	28.65
32.10	31.65	30.04	41	30.75	26.6303	31.50	29.89	29.40
32.85	32.40	30.79	42	31.50	27.2798	32.25	30.64	30.15
33.60	33.15	31.54	43	32.25	27.9293	33.00	31.39	30.90
34.35	33.90	32.29	44	33.00	28.5788	33.75	32.14	31.65
35.10	34.65	33.04	45	33.75	29.2283	34.50	32.89	32.40
35.85	35.40	33.79	46	34.50	29.8779	35.25	33.64	33.15
36.60	36.15	34.54	47	35.25	30.5274	36.00	34.39	33.90
37.35	36.90	35.28	48	36.00	31.1769	36.75	35.13	34.65
38.10	37.65	36.03	49	36.75	31.8264	37.50	35.88	35.40
38.85	38.40	36.78	50	37.50	32.4760	38.25	36.63	36.15
39.60	39.15	37.53	51	38.25	33.1255	39.00	37.38	36.90
40.35	39.90	38.28	52	39.00	33.7750	39.75	38.13	37.65
41.10	40.65	39.03	53	39.75	34.4245	40.50	38.88	38.40
41.85	41.40	39.78	54	40.50	35.0740	41.25	39.63	39.15
42.60	42.15	40.53	55	41.25	35.7235	42.00	40.38	39.90
43.35	42.90	41.28	56	42.00	36.3731	42.75	41.13	40.65
44.10	43.65	42.03	57	42.75	37.0226	43.50	41.88	41.40
44.85	44.40	42.78	58	43.50	37.6721	44.25	42.63	42.15

TABLEAU N° 3			ANGLE DE PRESSION : ALPD = 30°			MODULE : M = 1,00		
CANNELURE INTERNE CLA = H			Z	D	DB	CANNELURE EXTERNE CLA = LH		
EV MIN = 1.571						SV MAX = 1.571		
ER MAX (CLT 4) = 1.621						SR MIN (CLT 4) = 1.521		
ER MAX (CLT 5) = 1.641						SR MIN (CLT 5) = 1.501		
ER MAX (CLT 6) = 1.671						SR MIN (CLT 6) = 1.471		
ER MAX (CLT 7) = 1.721						SR MIN (CLT 7) = 1.421		
DEI MIN + 0.25 + 0.0	DFI MIN	DII MIN + 0.10 + 0.0				DEE MAX - 0.0 - 0.25	DFF MAX	DIE MAX - 0.0 - 0.20
12.80	12.20	10.22	11	11.00	9.5263	12.00	10.02	9.20
13.80	13.20	11.20	12	12.00	10.3923	13.00	11.00	10.20
14.80	14.20	12.18	13	13.00	11.2583	14.00	11.98	11.20
15.80	15.20	13.17	14	14.00	12.1244	15.00	12.97	12.20
16.80	16.20	14.16	15	15.00	12.9904	16.00	13.96	13.20
17.80	17.20	15.15	16	16.00	13.8564	17.00	14.95	14.20
18.80	18.20	16.14	17	17.00	14.7224	18.00	15.94	15.20
19.80	19.20	17.13	18	18.00	15.5885	19.00	16.93	16.20
20.80	20.20	18.12	19	19.00	16.4545	20.00	17.92	17.20
21.80	21.20	19.11	20	20.00	17.3205	21.00	18.91	18.20
22.80	22.20	20.11	21	21.00	18.1865	22.00	19.91	19.20
23.80	23.20	21.10	22	22.00	19.0526	23.00	20.90	20.20
24.80	24.20	22.10	23	23.00	19.9186	24.00	21.90	21.20
25.80	25.20	23.09	24	24.00	20.7846	25.00	22.89	22.20
26.80	26.20	24.09	25	25.00	21.6506	26.00	23.89	23.20
27.80	27.20	25.09	26	26.00	22.5167	27.00	24.89	24.20
28.80	28.20	26.08	27	27.00	23.3827	28.00	25.88	25.20
29.80	29.20	27.08	28	28.00	24.2487	29.00	26.88	26.20
30.80	30.20	28.08	29	29.00	25.1147	30.00	27.88	27.20
31.80	31.20	29.07	30	30.00	25.9808	31.00	28.87	28.20
32.80	32.20	30.07	31	31.00	26.8468	32.00	29.87	29.20
33.80	33.20	31.07	32	32.00	27.7128	33.00	30.87	30.20
34.80	34.20	32.07	33	33.00	28.5788	34.00	31.87	31.20
35.80	35.20	33.07	34	34.00	29.4449	35.00	32.87	32.20
36.80	36.20	34.06	35	35.00	30.3109	36.00	33.86	33.20
37.80	37.20	35.06	36	36.00	31.1769	37.00	34.86	34.20
38.80	38.20	36.06	37	37.00	32.0429	38.00	35.86	35.20
39.80	39.20	37.06	38	38.00	32.9090	39.00	36.86	36.20
40.80	40.20	38.06	39	39.00	33.7750	40.00	37.86	37.20
41.80	41.20	39.06	40	40.00	34.6410	41.00	38.86	38.20
42.80	42.20	40.05	41	41.00	35.5070	42.00	39.85	39.20
43.80	43.20	41.05	42	42.00	36.3731	43.00	40.85	40.20
44.80	44.20	42.05	43	43.00	37.2391	44.00	41.85	41.20
45.80	45.20	43.05	44	44.00	38.1051	45.00	42.85	42.20
46.80	46.20	44.05	45	45.00	38.9711	46.00	43.85	43.20
47.80	47.20	45.05	46	46.00	39.8372	47.00	44.85	44.20
48.80	48.20	46.05	47	47.00	40.7032	48.00	45.85	45.20
49.80	49.20	47.05	48	48.00	41.5692	49.00	46.85	46.20
50.80	50.20	48.05	49	49.00	42.4352	50.00	47.85	47.20
51.80	51.20	49.04	50	50.00	43.3013	51.00	48.84	48.20
52.80	52.20	50.04	51	51.00	44.1673	52.00	49.84	49.20
53.80	53.20	51.04	52	52.00	45.0333	53.00	50.84	50.20
54.80	54.20	52.04	53	53.00	45.8993	54.00	51.84	51.20
55.80	55.20	53.04	54	54.00	46.7654	55.00	52.84	52.20
56.80	56.20	54.04	55	55.00	47.6314	56.00	53.84	53.20
57.80	57.20	55.04	56	56.00	48.4974	57.00	54.84	54.20
58.80	58.20	56.04	57	57.00	49.3634	58.00	55.84	55.20
59.80	59.20	57.04	58	58.00	50.2295	59.00	56.84	56.20

TABLEAU N° 4			ANGLE DE PRESSION : ALPD = 30°			MODULE : M = 1,25		
CANNELURE INTERNE CLA = H			Z	D	DB	CANNELURE EXTERNE CLA = LH		
EV MIN = 1.963						SV MAX = 1.963		
ER MAX (CLT 4) = 2.013						SR MIN (CLT 4) = 1.913		
ER MAX (CLT 5) = 2.033						SR MIN (CLT 5) = 1.893		
ER MAX (CLT 6) = 2.063						SR MIN (CLT 6) = 1.863		
ER MAX (CLT 7) = 2.113						SR MIN (CLT 7) = 1.813		
DEI MIN + 0.25 + 0.0	DFI MIN	DII MIN + 0.15 + 0.0				DEE MAX - 0.0 - 0.25	DFF MAX	DIE MAX - 0.0 - 0.20
16.00	15.25	12.77	11	13.75	11.9079	15.00	12.52	11.50
17.25	16.50	14.00	12	15.00	12.9904	16.25	13.75	12.75
18.50	17.75	15.23	13	16.25	14.0729	17.50	14.98	14.00
19.75	19.00	16.46	14	17.50	15.1554	18.75	16.21	15.25
21.00	20.25	17.69	15	18.75	16.2380	20.00	17.44	16.50
22.25	21.50	18.93	16	20.00	17.3205	21.25	18.68	17.75
23.50	22.75	20.17	17	21.25	18.4030	22.50	19.92	19.00
24.75	24.00	21.41	18	22.50	19.4856	23.75	21.16	20.25
26.00	25.25	22.65	19	23.75	20.5681	25.00	22.40	21.50
27.25	26.50	23.89	20	25.00	21.6506	26.25	23.64	22.75
28.50	27.75	25.14	21	26.25	22.7332	27.50	24.89	24.00
29.75	29.00	26.38	22	27.50	23.8157	28.75	26.13	25.25
31.00	30.25	27.62	23	28.75	24.8982	30.00	27.37	26.50
32.25	31.50	28.87	24	30.00	25.9808	31.25	28.62	27.75
33.50	32.75	30.11	25	31.25	27.0633	32.50	29.86	29.00
34.75	34.00	31.36	26	32.50	28.1458	33.75	31.11	30.25
36.00	35.25	32.60	27	33.75	29.2283	35.00	32.35	31.50
37.25	36.50	33.85	28	35.00	30.3109	36.25	33.60	32.75
38.50	37.75	35.10	29	36.25	31.3934	37.50	34.85	34.00
39.75	39.00	36.34	30	37.50	32.4760	38.75	36.09	35.25
41.00	40.25	37.59	31	38.75	33.5585	40.00	37.34	36.50
42.25	41.50	38.84	32	40.00	34.6410	41.25	38.59	37.75
43.50	42.75	40.08	33	41.25	35.7235	42.50	39.83	39.00
44.75	44.00	41.33	34	42.50	36.8061	43.75	41.08	40.25
46.00	45.25	42.58	35	43.75	37.8886	45.00	42.33	41.50
47.25	46.50	43.83	36	45.00	38.9711	46.25	43.58	42.75
48.50	47.75	45.08	37	46.25	40.0537	47.50	44.83	44.00
49.75	49.00	46.32	38	47.50	41.1362	48.75	46.07	45.25
51.00	50.25	47.57	39	48.75	42.2187	50.00	47.32	46.50
52.25	51.50	48.82	40	50.00	43.3013	51.25	48.57	47.75
53.50	52.75	50.07	41	51.25	44.3838	52.50	49.82	49.00
54.75	54.00	51.32	42	52.50	45.4663	53.75	51.07	50.25
56.00	55.25	52.56	43	53.75	46.5489	55.00	52.31	51.50
57.25	56.50	53.81	44	55.00	47.6314	56.25	53.56	52.75
58.50	57.75	55.06	45	56.25	48.7139	57.50	54.81	54.00
59.75	59.00	56.31	46	57.50	49.7965	58.75	56.06	55.25
61.00	60.25	57.56	47	58.75	50.8790	60.00	57.31	56.50
62.25	61.50	58.81	48	60.00	51.9615	61.25	58.56	57.75
63.50	62.75	60.06	49	61.25	53.0441	62.50	59.81	59.00
64.75	64.00	61.31	50	62.50	54.1266	63.75	61.06	60.25
66.00	65.25	62.55	51	63.75	55.2091	65.00	62.30	61.50
67.25	66.50	63.80	52	65.00	56.2917	66.25	63.55	62.75
68.50	67.75	65.05	53	66.25	57.3742	67.50	64.80	64.00
69.75	69.00	66.30	54	67.50	58.4567	68.75	66.05	65.25
71.00	70.25	67.55	55	68.75	59.5392	70.00	67.30	66.50
72.25	71.50	68.80	56	70.00	60.6218	71.25	68.55	67.75
73.50	72.75	70.05	57	71.25	61.7043	72.50	69.80	69.00
74.75	74.00	71.30	58	72.50	62.7868	73.75	71.05	70.25

TABLEAU N° 5			ANGLE DE PRESSION : ALPD = 30°			MODULE : M = 1,50		
CANNELURE INTERNE CLA = H			Z	D	DB	CANNELURE EXTERNE CLA = LH		
EV MIN = 2.356						SV MAX = 2.356		
ER MAX (CLT 4) = 2.406						SR MIN (CLT 4) = 2.306		
ER MAX (CLT 5) = 2.426						SR MIN (CLT 5) = 2.286		
ER MAX (CLT 6) = 2.456						SR MIN (CLT 6) = 2.256		
ER MAX (CLT 7) = 2.506						SR MIN (CLT 7) = 2.206		
DEI MIN + 0.25 + 0.0	DFI MIN	DII MIN + 0.15 + 0.0				DEE MAX - 0.0 - 0.25	D FE MAX	D IE MAX - 0.0 - 0.20
19.20	18.30	15.33	11	16.50	14.2894	18.00	15.03	13.80
20.70	19.80	16.80	12	18.00	15.5885	19.50	16.50	15.30
22.20	21.30	18.27	13	19.50	16.8875	21.00	17.97	16.80
23.70	22.80	19.75	14	21.00	18.1865	22.50	19.45	18.30
25.20	24.30	21.23	15	22.50	19.4856	24.00	20.93	19.80
26.70	25.80	22.72	16	24.00	20.7846	25.50	22.42	21.30
28.20	27.30	24.20	17	25.50	22.0836	27.00	23.90	22.80
29.70	28.80	25.69	18	27.00	23.3827	28.50	25.39	24.30
31.20	30.30	27.18	19	28.50	24.6817	30.00	26.88	25.80
32.70	31.80	28.67	20	30.00	25.9808	31.50	28.37	27.30
34.20	33.30	30.16	21	31.50	27.2798	33.00	29.86	28.80
35.70	34.80	31.66	22	33.00	28.5788	34.50	31.36	30.30
37.20	36.30	33.15	23	34.50	29.8779	36.00	32.85	31.80
38.70	37.80	34.64	24	36.00	31.1769	37.50	34.34	33.30
40.20	39.30	36.14	25	37.50	32.4760	39.00	35.84	34.80
41.70	40.80	37.63	26	39.00	33.7750	40.50	37.33	36.30
43.20	42.30	39.13	27	40.50	35.0740	42.00	38.83	37.80
44.70	43.80	40.62	28	42.00	36.3731	43.50	40.32	39.30
46.20	45.30	42.12	29	43.50	37.6721	45.00	41.82	40.80
47.70	46.80	43.61	30	45.00	38.9711	46.50	43.31	42.30
49.20	48.30	45.11	31	46.50	40.2702	48.00	44.81	43.80
50.70	49.80	46.61	32	48.00	41.5692	49.50	46.31	45.30
52.20	51.30	48.10	33	49.50	42.8683	51.00	47.80	46.80
53.70	52.80	49.60	34	51.00	44.1673	52.50	49.30	48.30
55.20	54.30	51.10	35	52.50	45.4663	54.00	50.80	49.80
56.70	55.80	52.59	36	54.00	46.7654	55.50	52.29	51.30
58.20	57.30	54.09	37	55.50	48.0644	57.00	53.79	52.80
59.70	58.80	55.59	38	57.00	49.3634	58.50	55.29	54.30
61.20	60.30	57.09	39	58.50	50.6625	60.00	56.79	55.80
62.70	61.80	58.58	40	60.00	51.9615	61.50	58.28	57.30
64.20	63.30	60.08	41	61.50	53.2606	63.00	59.78	58.80
65.70	64.80	61.58	42	63.00	54.5596	64.50	61.28	60.30
67.20	66.30	63.08	43	64.50	55.8586	66.00	62.78	61.80
68.70	67.80	64.58	44	66.00	57.1577	67.50	64.28	63.30
70.20	69.30	66.07	45	67.50	58.4567	69.00	65.77	64.80
71.70	70.80	67.57	46	69.00	59.7558	70.50	67.27	66.30
73.20	72.30	69.07	47	70.50	61.0548	72.00	68.77	67.80
74.70	73.80	70.57	48	72.00	62.3538	73.50	70.27	69.30
76.20	75.30	72.07	49	73.50	63.6529	75.00	71.77	70.80
77.70	76.80	73.57	50	75.00	64.9519	76.50	73.27	72.30
79.20	78.30	75.06	51	76.50	66.2509	78.00	74.76	73.80
80.70	79.80	76.56	52	78.00	67.5500	79.50	76.26	75.30
82.20	81.30	78.06	53	79.50	68.8490	81.00	77.76	76.80
83.70	82.80	79.56	54	81.00	70.1481	82.50	79.26	78.30
85.20	84.30	81.06	55	82.50	71.4471	84.00	80.76	79.80
86.70	85.80	82.56	56	84.00	72.7461	85.50	82.26	81.30
88.20	87.30	84.06	57	85.50	74.0452	87.00	83.76	82.80
89.70	88.80	85.56	58	87.00	75.3442	88.50	85.26	84.30