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SDJ_Z

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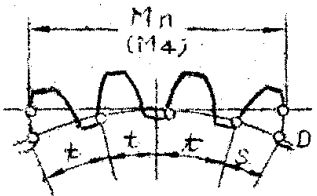
正、斜齿轮公法线 长度计算表

上海第一机床厂资料室

1972.5

根据“Wildheber”法证明，两个无侧隙啮合齿轮的齿厚，可由测量公法线长度 M_n 值确定（见下图）

在左图示例中，测量的间隔齿数为4个，所以：



$$M_n = M_4 = 3t + S$$

如果当测量的间隔齿数为 n 个时，则应按下式表示：

$$M_n = (n-1)t + S$$

$$M_n = m_H \left\{ (n-1)t_1 + \cos \varepsilon_H \left[\frac{\pi}{2} + z(t_g \varepsilon_H - \varepsilon_H) \right] \right\}$$

其中：

- n = 测量的间隔齿数
- M_n = 标准齿在 n 齿上的距离
- m_H = 滚刀模数（分度元上模数）
- m = 节元上模数
- z = 齿轮齿数
- t_1 = 基元齿距（当 $m_H = 1$ 时， $t_1 = \pi \cdot \cos \varepsilon_H$ ）
- ε_H = 刀具压力角（分度元上压力角）

如果上列公式中的括弧值以 M_{n1} 代替时，

则：（标准齿） $M_n = m_H \cdot M_{n1}$ (1)

M_{n1} 可自附表中查得，附表的应用范围为：齿数 = 4-300，压力角 $\varepsilon_H = 14^\circ 30'$ ， 15° ， 20° 。表内除列有被测量齿轮的齿数外，并列有测量间隔齿数 n 值，以供查表及测量之用。

例：

$$z/Z = 73/73 \quad m_H = m = 4.5 \quad \varepsilon_H = 15^\circ \quad M_n = m_H \cdot M_{n1}$$

根据上列齿轮参数，在“ $\varepsilon_H = 15^\circ$ ”栏， $z = 73$ 项内查得

$$M_{n1} = 20.1582$$

$n = 7$ ，根据公式(1)

$$M_7 = m_H \cdot M_{n1} = 4.5 \times 20.1582 = 90.712 \text{ mm}$$

所以，上例中的测量值应为 90.712 mm

如果齿轮在无侧隙情况下啮合时，则其中心距为：

$$73 \times 4.5 = 328.50 \text{ mm}$$

修正齿：

当齿轮为修正齿时，因 $m \geq m_H$ 故应以下列公式计算：

$$M'_n = m_H \cdot m_{n1} + \Delta M = M_n + \Delta M$$

M'_n = 当修正齿时在 n 齿上的测量值

M_n = 当标准齿时在 n 齿上的测量值

ΔM = 当修正齿时， M_n 值的修正量 $\{\Delta M = (D_{fk} - D_{fn}) \sin \epsilon_H\}$ (D_{fk} = 修正齿的根元直径， D_{fn} = 假定标准齿的根元直径)

$$D_{fn} = m_H (Z - 2f)$$

当 $m_H = 1$, $f = 7/6 = 1.1667$ 时； $D_{fn} = m_H (Z - 2.3333)$

当 $m_H = 1$, $f = 6/5 = 1.2000$ 时 (DIN)；

$$D_{fn} = m_H (Z - 2.4000)$$

所以： $M'_n = M_n + \Delta M$

$$\text{或 } M'_n = m_H \cdot M_{n1} + (D_{fk} - D_{fn}) \sin \epsilon_H \quad \dots\dots\dots(2)$$

例：

$$z/Z = 21/37 \quad m = 4.098 \quad \epsilon_H = 15^\circ \quad (\text{刀具齿顶高})$$

$$m_H = 4.000 \quad f = 7/6 m_H$$

根据式(2)： $M'_n = m_H \cdot M_{n1} + (D_{fk} - D_{fn}) \sin \epsilon_H$

小齿轮计算

查表：当： $z = 21$ $\epsilon_H = 15^\circ$ 时 $M_{n1} = 4.6766$ $n = 2$

$$\text{所以：} M_2 = m_H \cdot M_{n1} = 4 \times 4.6766 = 18.706 \text{ mm}$$

根据工作图规定： $D_{fk} = 78.800 \text{ mm}$

$$\text{当：} f = 7/6 m_H \text{ 时，} D_{fn} = 4(21 - 2.333) = 74.667 \text{ mm}$$

$$\begin{aligned} \text{所以：} \Delta M &= (D_{fk} - D_{fn}) \sin 15^\circ = 4.133 \times 0.2588 = \\ &= 1.070 \text{ mm} \end{aligned}$$

$$M'_2 = \underbrace{m_H \cdot M_{n1}}_{M_2} + \underbrace{(D_{fk} - D_{fn}) \sin \epsilon_H}_{\Delta M} = 18.706 + 1.070$$

$$= 19.776 \text{ mm}$$

大齿轮计算：

查表：当： $Z=37$ $\epsilon_H=15^\circ$ 时， $M_{n1}=10.8407$ $n=4$

所以： $M_4 = m_H \times M_{n1} = 4 \times 10.8407 = 43.363 \text{ mm}$

根据工作图规定： $D_{fk} = 142.000 \text{ mm}$

当： $f = 7/6 m_H$ 时， $D_{fn} = 4(37 - 2.333) =$
 $= 138.667 \text{ mm}$

所以： $\Delta M = (D_{fk} - D_{fn}) \sin 15^\circ = 3.333 \times 0.2588$
 $= 0.863 \text{ mm}$

$M'_4 = m_H \cdot M_{n1} + (D_{fk} - D_{fn}) \sin 15^\circ = 43.363 + 0.863$
 $= 44.226 \text{ mm}$

在上述参数下，齿轮付的中心距：（无侧隙啮合）

$$\frac{z+z}{2} \cdot m = \frac{21+37}{2} \times 4.098 = 118.84 \text{ mm}$$

为了适应测量，因此当修正值 ΔM 较大时， M'_n 值需比表内所规定的增加或减少一个齿，在这种情况下，应根据表列的 M_{n1} 值增加或减少一个基元齿距 t_1

下表为各常用压力角 (ϵ_H) 的基距 t_1 值 ($t_1 = \pi \cdot \cos \epsilon_H$)

ϵ_H	t_1 (mm)	$\sin \epsilon_H$
$14^\circ 30'$	3.0415	0.2504
15°	3.0345	0.2588
20°	2.9521	0.3420

$\sin \epsilon_H$ 值应采用表列位数以上。

刀具与齿坯间进刀深度的调整：

当计算刀具与齿坯间的径向位移（调整进刀）下值时，必须具有实际测量值 (M_n 测量) 与计算值 (M_n 计算)。

$$T = \frac{1}{2 \sin \epsilon_H} (M_{n\text{测量}} - M_{n\text{计算}})$$

(当修正齿时 M_n 应由 M'_n 代替)

如果括弧中的计算值，以 λ 代表时，则可列为下列公式：

$$T = \frac{1}{2 \cdot \sin \epsilon_H} \lambda$$

.....(3)

当	$\epsilon_H = 14^\circ 30'$	$T = 1.997 \lambda$
	$\epsilon_H = 15^\circ$	$T = 1.932 \lambda$
	$\epsilon_H = 20^\circ$	$T = 1.462 \lambda$

ϵ_H	$14^\circ 30'$		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
4	—	—	—	—	2	4,4842
5	2	4,5891	2	4,5815	2	4,4982
6	2	4,5945	2	4,5875	2	4,5122
7	2	4,5999	2	4,5934	2	4,5263
8	2	4,6052	2	4,5993	2	4,5403
9	2	4,6106	2	4,6053	2	4,5543
10	2	4,6160	2	4,6112	2	4,5683
11	2	4,6214	2	4,6172	2	4,5823
12	2	4,6267	2	4,6231	2	4,5963
13	2	4,6321	2	4,6290	2	4,6103
14	2	4,6374	2	4,6350	2	4,6243
15	2	4,6428	2	4,6409	2	4,6383
16	2	4,6482	2	4,6469	2	4,6523
17	2	4,6535	2	4,6528	3	7,6184
18	2	4,6589	2	4,6587	3	7,6324
19	2	4,6643	2	4,6647	3	7,6464
20	2	4,6697	2	4,6706	3	7,6605

ϵ_H	14° 30'		15°		20°	
Z	n	M _{n1}	n	M _{n1}	n	M _{n1}
21	2	4,6750	2	4,6766	3	7,6745
22	2	4,6804	2	4,6825	3	7,6885
23	2	4,6858	3	7,7230	3	7,7025
24	3	7,7327	3	7,7289	3	7,7165
25	3	7,7380	3	7,7349	3	7,7305
26	3	7,7434	3	7,7408	4	10,6966
27	3	7,7488	3	7,7467	4	10,7106
28	3	7,7541	3	7,7527	4	10,7246
29	3	7,7595	3	7,7586	4	10,7386
30	3	7,7649	3	7,7646	4	10,7526
31	3	7,7702	3	7,7705	4	10,7666
32	3	7,7756	3	7,7765	4	10,7806
33	3	7,7810	3	7,7824	4	10,7946
34	3	7,7864	3	7,7883	4	10,8086
35	3	7,7917	4	10,8288	5	13,7748
36	4	10,8386	4	10,8348	5	13,7888
37	4	10,8439	4	10,8407	5	13,8028
38	4	10,8493	4	10,8466	5	13,8168
39	4	10,8547	4	10,8526	5	13,8308
40	4	10,8601	4	10,8585	5	13,8448
41	4	10,8655	4	10,8645	5	13,8588
42	4	10,8708	4	10,8704	5	13,8728
43	4	10,8762	4	10,8763	5	13,8868
44	4	10,8816	4	10,8823	6	16,8530
45	4	10,8869	4	10,8882	6	16,8669
46	4	10,8923	4	10,8942	6	16,8810
47	4	10,8977	5	13,9346	6	16,8950
48	5	13,9445	5	13,9406	6	16,9090
49	5	13,9499	5	13,9465	6	16,9230

ϵ_H	$14^{\circ}30'$		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
50	5	13,9553	5	13,9525	6	16,9370
51	5	13,9607	5	13,9584	6	16,9510
52	5	13,9660	5	13,9643	7	19,9171
53	5	13,9714	5	13,9703	7	19,9311
54	5	13,9768	5	13,9762	7	19,9451
55	5	13,9821	5	13,9822	7	19,9592
56	5	13,9875	5	13,9881	7	19,9732
57	5	13,9929	5	13,9940	7	19,9872
58	5	13,9982	5	14,0000	7	20,0012
59	5	14,0036	6	17,0405	7	20,0152
60	6	17,0505	6	17,0464	7	20,0292
61	6	17,0559	6	17,0524	8	22,9953
62	6	17,0612	6	17,0583	8	23,0093
63	6	17,0666	6	17,0642	8	23,0233
64	6	17,0720	6	17,0702	8	23,0373
65	6	17,0773	6	17,0761	8	23,0513
66	6	17,0827	6	17,0821	8	23,0654
67	6	17,0881	6	17,0880	8	23,0794
68	6	17,0935	6	17,0939	8	23,0934
69	6	17,0988	6	17,0999	8	23,1074
70	6	17,1042	6	17,1058	9	26,0735
71	6	17,1095	7	20,1463	9	26,0875
72	7	20,1564	7	20,1522	9	26,1015
73	7	20,1618	7	20,1582	9	26,1155
74	7	20,1672	7	20,1641	9	26,1295
75	7	20,1725	7	20,1701	9	26,1435
76	7	20,1779	7	20,1760	9	26,1575

E_H	$14^{\circ}30'$		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
77	7	20,1833	7	20,1819	9	26,1715
78	7	20,1886	7	20,1879	10	29,1377
79	7	20,1940	7	20,1938	10	29,1517
80	7	20,1994	7	20,1998	10	29,1657
81	7	20,2047	7	20,2057	10	29,1797
82	7	20,2101	7	20,2116	10	29,1937
83	7	20,2155	8	23,2521	10	29,2077
84	8	33,2624	8	23,2581	10	29,2217
85	8	23,2677	8	23,2640	10	29,2357
86	8	23,2731	8	23,2700	10	29,2497
87	8	23,2785	8	23,2759	11	32,2159
88	8	23,2839	8	23,2818	11	32,2299
89	8	23,2892	8	23,2878	11	32,2439
90	8	23,2946	8	23,2937	11	32,2579
91	8	23,3000	8	23,2997	11	32,2719
92	8	23,3053	8	23,3056	11	32,2859
93	8	23,3107	8	23,3115	11	32,2999
94	8	23,3161	9	26,3520	11	32,3139
95	8	23,3214	9	26,3580	11	32,3279
96	9	26,3683	9	26,3639	12	35,2940
97	9	26,3737	9	26,3698	12	35,3080
98	9	26,3791	9	26,3758	12	35,3220
99	9	26,3844	9	26,3817	12	35,3361
100	9	26,3898	9	26,3877	12	35,3501
101	9	26,3952	9	26,3936	12	35,3641
102	9	26,4005	9	26,3995	12	35,3781
103	9	26,4059	9	26,4055	12	35,3921

ϵ_H Z	14° 30'		15°		20°	
	n	M _{n1}	n	M _{n1}	n	M _{n1}
104	9	26,4113	9	26,4114	13	38,3582
105	9	26,4167	9	26,4174	13	38,3722
106	9	26,4220	10	29,4579	13	38,3862
107	9	26,4274	10	29,4638	13	38,4002
108	10	29,4743	10	29,4697	13	38,4143
109	10	29,4796	10	29,4757	13	38,4283
110	10	29,4850	10	29,4816	13	38,4423
111	10	29,4904	10	29,4875	13	38,4563
112	10	29,4957	10	29,4935	13	38,4703
113	10	29,5011	10	29,4994	14	41,4364
114	10	29,5065	10	29,5054	14	41,4504
115	10	29,5119	10	29,5113	14	41,4644
116	10	29,5172	10	29,5173	14	41,4784
117	10	29,5226	10	29,5232	14	41,4924
118	10	29,5280	11	32,5637	14	41,5064
119	10	29,5333	11	32,5696	14	41,5204
120	11	32,5802	11	32,5755	14	41,5344
121	11	32,5856	11	32,5815	14	41,5485
122	11	32,5910	11	32,5874	15	44,5146
123	11	32,5963	11	32,5934	15	44,5286
124	11	32,6017	11	32,5993	15	44,5426
125	11	32,6071	11	32,6053	15	44,5566
126	11	32,6124	11	32,6112	15	44,5706
127	11	32,6178	11	32,6171	15	44,5846
128	11	32,6232	11	32,6231	15	44,5986
129	11	32,6285	12	35,6636	15	44,6126
130	11	32,6339	12	35,6695	16	47,5788

ε_H	14° 30'		15°		20°	
Z	n	M _{n1}	n	M _{n1}	n	M _{n1}
131	11	32,6393	12	35,6754	16	47,5928
132	11	32,6447	12	35,6814	16	47,6068
133	12	35,6915	12	35,6873	16	47,6208
134	12	35,6969	12	35,6933	16	47,6348
135	12	35,7023	12	35,6992	16	47,6488
136	12	35,7076	12	35,7051	16	47,6628
137	12	35,7130	12	35,7111	16	47,6768
138	12	35,7184	12	35,7170	16	47,6908
139	12	35,7237	12	35,7229	17	50,6569
140	12	35,7291	12	35,7289	17	50,6709
141	12	35,7345	13	38,7694	17	50,6849
142	12	35,7399	13	38,7753	17	50,6989
143	12	35,7452	13	38,7813	17	50,7129
144	12	35,7506	13	38,7872	17	50,7270
145	13	38,7975	13	38,7932	17	50,7410
146	13	38,8028	13	38,7991	17	50,7550
147	13	38,8082	13	38,8050	17	50,7690
148	13	38,8136	13	38,8110	18	53,7351
149	13	38,8189	13	38,8169	18	53,7491
150	13	38,8243	13	38,8229	18	53,7631
151	13	38,8297	13	38,8288	18	53,7771
152	13	38,8350	13	38,8347	18	53,7911
153	13	38,8404	14	41,8752	18	53,8051
154	13	38,8458	14	41,8812	18	53,8192
155	13	38,8512	14	41,8871	18	53,8332
156	13	38,8565	14	41,8930	19	56,7993
157	14	41,9034	14	41,8990	19	56,8133
158	14	41,9088	14	41,9049	19	56,8273
159	14	41,9142	14	41,9109	19	56,8413

ϵ_H Z	14° 30'		15°		20°	
	n	M_{n1}	n	M_{n1}	n	M_{n1}
160	14	41,9195	14	41,9168	19	56,8553
161	14	41,9249	14	41,9227	19	56,8693
162	14	41,9303	14	41,9287	19	56,8833
163	14	41,9356	14	41,9346	19	56,8973
164	14	41,9410	15	44,9751	19,	56,9113
165	14	41,9464	15	44,9810	20	59,8775
166	14	41,9517	15	44,9870	20	59,8915
167	14	41,9571	15	44,9929	20	59,9055
168	14	41,9625	15	44,9989	20	59,9195
169	15	45,0094	15	45,0048	20	59,9335
170	15	45,0147	15	45,0107	20	59,9475
171	15	45,0201	15	45,0167	20	59,9615
172	15	45,0255	15	45,0226	20	59,9755
173	15	45,0308	15	45,0286	20	59,9895
174	15	45,0362	15	45,0345	21	62,9557
175	15	45,0416	15	45,0404	21	62,9697
176	15	45,0469	16	48,0809	21	62,9837
177	15	45,0523	16	48,0869	21	62,9977
178	15	45,0577	16	48,0928	21	63,0117
179	15	45,0630	16	48,0988	21	63,0257
180	15	45,0684	16	48,1047	21	63,0397
181	16	48,1153	16	48,1106	21	63,0537
182	16	48,1207	16	48,1166	21	63,0677
183	16	48,1260	16	48,1225	22	66,0338
184	16	48,1314	16	48,1285	22	66,0479
185	16	48,1368	16	48,1344	22	66,0619
186	16	48,1422	16	48,1403	22	66,0759

ε_H	14°30'		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
187	16	48,1475	16	48,1463	22	66,0899
188	16	48,1529	17	51,1868	22	66,1039
189	16	48,1583	17	51,1927	22	66,1179
190	16	48,1636	17	51,1986	22	66,1319
191	16	48,1690	17	51,2046	23	69,0980
192	16	48,1744	17	51,2105	23	69,1120
193	17	51,2212	17	51,2165	23	69,1260
194	17	51,2266	17	51,2224	23	69,1400
195	17	51,2320	17	51,2283	23	69,1540
196	17	51,2374	17	51,2343	23	69,1680
197	17	51,2427	17	51,2402	23	69,1820
198	17	51,2481	17	51,2462	23	69,1961
199	17	51,2535	17	51,2521	24	72,1622
200	17	51,2588	18	54,2926	24	72,1762
201	17	51,2642	18	54,2985	24	72,1902
202	17	51,2696	18	54,3045	24	72,2042
203	17	51,2749	18	54,3104	24	72,2182
204	17	51,2803	18	54,3164	24	72,2322
205	18	54,3272	18	54,3223	24	72,2462
206	18	54,3326	18	54,3282	24	72,2602
207	18	54,3379	18	54,3342	24	72,2742
208	18	54,3433	18	54,3401	25	75,2404
209	18	54,3487	18	54,3461	25	75,2544
210	18	54,3540	18	54,3520	25	75,2684
211	18	54,3594	19	57,3925	25	75,2824
212	18	54,3648	19	57,3984	25	75,2964
213	18	54,3702	19	57,4044	25	75,3104

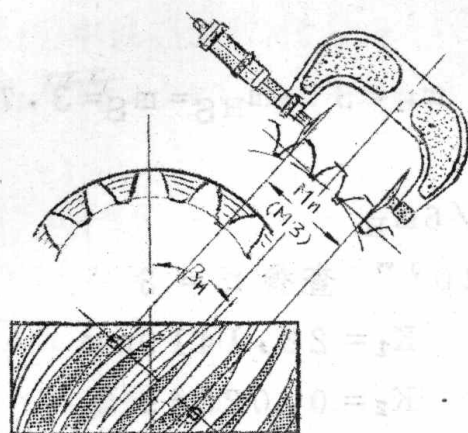
ε_H	14° 30'		15°		20°	
Z	n	M _{n1}	n	M _{n1}	n	M _{n1}
214	18	54,3755	19	57,4103	25	75,3244
215	18	54,3809	19	57,4162	25	75,3384
216	18	54,3862	19	57,4222	25	75,3524
217	19	57,4331	19	57,4281	26	78,3186
218	19	57,4385	19	57,4341	26	78,3326
219	19	57,4439	19	57,4400	26	78,3466
220	19	57,4492	19	57,4459	26	78,3606
221	19	57,4546	19	57,4519	26	78,3746
222	19	57,4600	19	57,4578	26	78,3886
223	19	57,4654	20	60,4983	26	78,4026
224	19	57,4707	20	60,5043	26	78,4166
225	19	57,4761	20	60,5102	26	78,4306
226	19	57,4815	20	60,5161	27	81,3967
227	19	57,4868	20	60,5221	27	81,4107
228	19	57,4922	20	60,5280	27	81,4247
229	20	60,5391	20	60,5340	27	81,4388
230	20	60,5445	20	60,5399	27	81,4528
231	20	60,5498	20	60,5458	27	81,4668
232	20	60,5552	20	60,5518	27	81,4808
233	20	60,5606	20	60,5577	27	81,4948
234	20	60,5659	20	60,5637	27	81,5088
235	20	60,5713	21	63,6041	28	84,4749
236	20	60,5767	21	63,6101	28	84,4889
237	20	60,5820	21	63,6160	28	84,5029
238	20	60,5874	21	63,6220	28	84,5169
239	20	60,5928	21	63,6279	28	84,5309
240	20	60,5981	21	63,6338	28	84,5449

ϵ_H	14° 30'		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
241	21	63,6450	21	63,6398	28	84,5589
242	21	63,6504	21	63,6457	28	84,5730
243	21	63,6558	21	63,6517	29	87,5391
244	21	63,6611	21	63,6576	29	87,5531
245	21	63,6665	21	63,6635	29	87,5671
246	21	63,6719	21	63,6695	29	87,5811
247	21	63,6772	22	66,7100	29	87,5951
248	21	63,6826	22	66,7159	29	87,6091
249	21	63,6880	22	66,7218	29	87,6231
250	21	63,6934	22	66,7278	29	87,6371
251	21	63,6987	22	66,7337	30	90,6033
252	21	63,7041	22	66,7397	30	90,6173
253	22	66,7510	22	66,7456	30	90,6313
254	22	66,7563	22	66,7515	30	90,6453
255	22	66,7617	22	66,7575	30	90,6593
256	22	66,7671	22	66,7634	30	90,6733
257	22	66,7724	22	66,7694	30	90,6873
258	22	66,7778	23	69,8099	30	90,7013
259	22	66,7832	23	69,8158	30	90,7153
260	22	66,7886	23	69,8217	31	93,6814
261	22	66,7939	23	69,8277	31	93,6955
262	22	66,7993	23	69,8336	31	93,7095
263	22	66,8047	23	69,8396	31	93,7235
264	22	66,8100	23	69,8455	31	93,7375
265	23	69,8569	23	69,8514	31	93,7515
266	23	69,8623	23	69,8574	31	93,7655
267	23	69,8677	23	69,8633	31	93,7795
268	23	69,8730	23	69,8693	31	93,7935
269	23	69,8784	23	69,8752	32	96,7596

ϵ_H	$14^{\circ}30'$		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
270	23	69,8838	24	72,9157	32	96,7736
271	23	69,8891	24	72,9216	32	96,7876
272	23	69,8945	24	72,9276	32	96,8016
273	23	69,8999	24	72,9335	32	96,8157
274	23	69,9052	24	72,9394	32	96,8297
275	23	69,9106	24	72,9454	32	96,8437
276	23	69,9160	24	72,9513	32	96,8577
277	24	72,9629	24	72,9573	32	96,8717
278	24	72,9682	24	72,9632	33	99,8378
279	24	72,9736	24	72,9691	33	99,8518
280	24	72,9790	24	72,9751	33	99,8658
281	24	72,9843	24	72,9810	33	99,8798
282	24	72,9897	25	76,0215	33	99,8938
283	24	72,9951	25	76,0275	33	99,9078
284	24	73,0004	25	76,0334	33	99,9218
285	24	73,0058	25	76,0393	33	99,9358
286	24	73,0112	25	76,0453	34	102,9020
287	24	73,0166	25	76,0512	34	102,9160
288	24	73,0219	25	76,0572	34	102,9300
289	25	76,0688	25	76,0631	34	102,9440
290	25	76,0742	25	76,0690	34	102,9580
291	25	76,0795	25	76,0750	34	102,9720
292	25	76,0849	25	76,0809	34	102,9860
293	25	76,0903	26	79,1214	34	103,0000
294	25	76,0957	26	79,1273	34	103,0140
295	25	76,1010	26	79,1333	35	105,9802
296	25	76,1064	26	79,1392	35	105,9942

ϵ_H	$14^{\circ}30'$		15°		20°	
Z	n	M_{n1}	n	M_{n1}	n	M_{n1}
297	25	76,1118	26	79,1452	35	106,0082
298	25	76,1171	26	79,1511	35	106,0222
299	25	76,1225	26	79,1570	35	106,0362
300	25	76,1279	26	79,1630	35	106,0502

齿轮付的无侧隙啮合检验 (斜齿轮)



正常齿

$$M_n = m_H (K_1 + K_2 \cdot z)$$

n —测量齿数

M_n —在齿的垂直方向上 n 齿的测量值

m_{HS} —分度元上的端面模数

m_H —法向模数

m_S —节元上的端面模数 (对于正常齿 $m_S = m_{HS}$)

z —小轮齿数

Z —大轮齿数

ϵ_H —刀具压力角

β_H —刀具螺旋角

$K_1 K_2$ —表中所列系数

M_n 值的计算系根据下列图表中的 $n \cdot K_1 \cdot K_2$ 各项参数和上列