
**Straight cylindrical involute splines —
Metric module, side fit —**

**Part 2:
Dimensions**

*Cannelures cylindriques droites à flancs en développante — Module
métrique, à centrage sur flancs —
Partie 2: Dimensions*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 4156-2:2005](https://standards.iteh.ai/catalog/standards/sist/f50fa19-ee7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005)

<https://standards.iteh.ai/catalog/standards/sist/f50fa19-ee7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 4156-2:2005

<https://standards.iteh.ai/catalog/standards/sist/f50fa19-ee7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005>

© ISO 2005

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	2
5 Geometry and inspection dimensions	3
5.1 30° pressure angle, module 0,5	3
5.2 30° pressure angle, module 0,75	7
5.3 30° pressure angle, module 1	11
5.4 30° pressure angle, module 1,25	15
5.5 30° pressure angle, module 1,5	19
5.6 30° pressure angle, module 1,75	23
5.7 30° pressure angle, module 2	27
5.8 30° pressure angle, module 2,5	31
5.9 30° pressure angle, module 3	35
5.10 30° pressure angle, module 4	39
5.11 30° pressure angle, module 5	43
5.12 30° pressure angle, module 6	47
5.13 30° pressure angle, module 8	51
5.14 30° pressure angle, module 10	55
5.15 37,5° pressure angle, module 0,5	59
5.16 37,5° pressure angle, module 0,75	63
5.17 37,5° pressure angle, module 1	67
5.18 37,5° pressure angle, module 1,25	71
5.19 37,5° pressure angle, module 1,5	75
5.20 37,5° pressure angle, module 1,75	79
5.21 37,5° pressure angle, module 2	83
5.22 37,5° pressure angle, module 2,5	87
5.23 37,5° pressure angle, module 3	91
5.24 37,5° pressure angle, module 4	95
5.25 37,5° pressure angle, module 5	99
5.26 37,5° pressure angle, module 6	103
5.27 37,5° pressure angle, module 8	107
5.28 37,5° pressure angle, module 10	111
5.29 45° pressure angle, module 0,25	115
5.30 45° pressure angle, module 0,5	119
5.31 45° pressure angle, module 0,75	123
5.32 45° pressure angle, module 1	127
5.33 45° pressure angle, module 1,25	131
5.34 45° pressure angle, module 1,5	135
5.35 45° pressure angle, module 1,75	139
5.36 45° pressure angle, module 2	143
5.37 45° pressure angle, module 2,5	147
Annex A (informative) Inspection dimensions for span measurement	151

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4156-2 was prepared by Technical Committee ISO/TC 14, *Shafts for machinery and accessories*.

This first edition of ISO 4156-2, together with ISO 4156-1 and ISO 4156-3, cancels and replaces ISO 4156:1981 and ISO 4156:1981/Amd 1:1992, of which it constitutes a technical revision. The values and tables are the same as in ISO 4156:1981; however, some explanations and definitions have been clarified.

ISO 4156 consists of the following parts, under the general title *Straight cylindrical involute splines — Metric module, side fit*:

- *Part 1: Generalities*
- *Part 2: Dimensions*
- *Part 3: Inspection*

<https://standards.iteh.ai/catalog/standards/sist/f50fa19-ec7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005>

Introduction

ISO 4156 provides the data and indications necessary for the design, manufacture and inspection of straight (non-helical) side-fitting cylindrical involute splines.

Straight cylindrical involute splines manufactured in accordance with ISO 4156 are used for clearance, sliding and interference connections of shafts and hubs. They contain all the necessary characteristics for the assembly, transmission of torque, and economic production.

The nominal pressure angles are 30° , $37,5^\circ$ and 45° . For electronic data processing purposes, the form of expression $37,5^\circ$ has been adopted instead of $37^\circ 30'$. ISO 4156 establishes a specification based on the following modules:

— for pressure angles of 30° and $37,5^\circ$ the module increments are

0,5; 0,75; 1; 1,25; 1,5; 1,75; 2; 2,5; 3; 4; 5; 6; 8; 10

— for pressure angle of 45° the module increments are

0,25; 0,5; 0,75; 1; 1,25; 1,5; 1,75; 2; 2,5

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO 4156-2:2005](https://standards.iteh.ai/catalog/standards/sist/f50fa19-ee7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005)

<https://standards.iteh.ai/catalog/standards/sist/f50fa19-ee7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO 4156-2:2005

<https://standards.iteh.ai/catalog/standards/sist/f50fa19-ee7c-4af9-b6ad-cc4e6431949d/iso-4156-2-2005>

Straight cylindrical involute splines — Metric module, side fit —

Part 2: Dimensions

1 Scope

This part of ISO 4156 specifies geometry and inspection dimensions for the design and manufacture of straight (non-helical) side-fitting cylindrical involute splines.

Limiting dimensions, tolerances, manufacturing errors and their effects on the fit between connecting coaxial spline elements are defined and tabulated. Linear dimensions are expressed in millimetres and angular dimensions in degrees.

The specified diameters for external splines in the geometry tables and the values in the inspection dimension tables are only valid for fundamental deviation “h”.

For fundamental deviations other than “h” diameters and tooth thicknesses are calculated for external splines according to the formulae in ISO 4156-1 and inspection dimensions according to the formulae in ISO 4156-3.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4156-1:2005, *Straight cylindrical involute splines — Metric module, side fit — Part 1: Generalities*

ISO 4156-3:2005, *Straight cylindrical involute splines — Metric module, side fit — Part 3: Inspection*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 4156-1 apply.

4 Symbols and abbreviated terms

D	Pitch diameter	mm
$D_{Fe\ max}$	Maximum form diameter, external spline	mm
$D_{Fi\ min}$	Minimum form diameter, internal spline	mm
D_{Re}	Diameter of measuring ball or pin for external spline	mm
D_{Ri}	Diameter of measuring ball or pin for internal spline	mm
D_b	Base diameter	mm
$D_{ee\ max}$	Maximum major diameter, external spline	mm
$D_{ei\ max}$	Maximum major diameter, internal spline	mm
$D_{ie\ min}$	Minimum major diameter, external spline	mm
$D_{ii\ min}$	Minimum diameter, internal spline	mm
E_{max}	Maximum actual space width	mm
E_{min}	Minimum actual space width	mm
$E_{v\ min}$	Minimum effective space width	mm
K_e	Approximation factor for external spline	—
K_i	Approximation factor for internal spline	—
M_{Re}	Measurement over two balls or pins, external spline	mm
M_{Ri}	Measurement between two balls or pins, internal spline	mm
S_{max}	Maximum actual tooth thickness	mm
S_{min}	Minimum actual tooth thickness	mm
$S_{v\ max}$	Maximum effective tooth thickness	mm
W	Measurement over k teeth, external spline	mm
z	Number of teeth	—
k	Number of measured teeth	—

5 Geometry and inspection dimensions

5.1 30° pressure angle, module 0,5

Table 1 — Geometry internal spline, $\alpha = 30^\circ$, $m = 0,5$, flat and fillet root, $E_{V \min} = 0,785$

z	D	D _b	D _{ei} max Fillet root	D _{ei} max Flat	D _{Fi} min	D _{ii} min	E _{max}			
							4H	5H	6H	7H
6	3,00	2,5981	4,06	3,91	3,60	2,72	0,808	0,822	0,843	0,878
7	3,50	3,0311	4,56	4,41	4,10	3,18	0,809	0,823	0,844	0,879
8	4,00	3,4641	5,07	4,92	4,60	3,66	0,809	0,823	0,845	0,880
9	4,50	3,8971	5,57	5,42	5,10	4,14	0,809	0,824	0,845	0,881
10	5,00	4,3301	6,07	5,92	5,60	4,62	0,809	0,824	0,846	0,883
11	5,50	4,7631	6,57	6,42	6,10	5,11	0,810	0,824	0,847	0,884
12	6,00	5,1962	7,07	6,92	6,60	5,60	0,810	0,825	0,847	0,884
13	6,50	5,6292	7,57	7,42	7,10	6,09	0,810	0,825	0,848	0,885
14	7,00	6,0622	8,08	7,93	7,60	6,58	0,810	0,826	0,848	0,886
15	7,50	6,4952	8,58	8,43	8,10	7,08	0,811	0,826	0,849	0,887
16	8,00	6,9282	9,08	8,93	8,60	7,57	0,811	0,826	0,849	0,888
17	8,50	7,3612	9,58	9,43	9,10	8,07	0,811	0,826	0,850	0,889
18	9,00	7,7942	10,08	9,93	9,60	8,56	0,811	0,827	0,850	0,889
19	9,50	8,2272	10,58	10,43	10,10	9,06	0,811	0,827	0,851	0,890
20	10,00	8,6603	11,08	10,93	10,60	9,56	0,811	0,827	0,851	0,891
21	10,50	9,0933	11,58	11,43	11,10	10,05	0,812	0,828	0,851	0,891
22	11,00	9,5263	12,09	11,94	11,60	10,55	0,812	0,828	0,852	0,892
23	11,50	9,9593	12,59	12,44	12,10	11,05	0,812	0,828	0,852	0,893
24	12,00	10,3923	13,09	12,94	12,60	11,55	0,812	0,828	0,853	0,893
25	12,50	10,8253	13,59	13,44	13,10	12,05	0,812	0,829	0,853	0,894
26	13,00	11,2583	14,09	13,94	13,60	12,54	0,812	0,829	0,853	0,894
27	13,50	11,6913	14,59	14,44	14,10	13,04	0,812	0,829	0,854	0,895
28	14,00	12,1244	15,09	14,94	14,60	13,54	0,813	0,829	0,854	0,895
29	14,50	12,5574	15,59	15,44	15,10	14,04	0,813	0,829	0,854	0,896
30	15,00	12,9904	16,09	15,94	15,60	14,54	0,813	0,830	0,855	0,897
31	15,50	13,4234	16,59	16,44	16,10	15,04	0,813	0,830	0,855	0,897
32	16,00	13,8564	17,09	16,94	16,60	15,54	0,813	0,830	0,855	0,898
33	16,50	14,2894	17,60	17,45	17,10	16,03	0,813	0,830	0,856	0,898
34	17,00	14,7224	18,10	17,95	17,60	16,53	0,813	0,830	0,856	0,899
35	17,50	15,1554	18,60	18,45	18,10	17,03	0,813	0,831	0,856	0,899
36	18,00	15,5884	19,10	18,95	18,60	17,53	0,814	0,831	0,857	0,899
37	18,50	16,0214	19,60	19,45	19,10	18,03	0,814	0,831	0,857	0,900
38	19,00	16,4544	20,10	19,95	19,60	18,53	0,814	0,831	0,857	0,900
39	19,50	16,8874	20,60	20,45	20,10	19,03	0,814	0,831	0,857	0,901
40	20,00	17,3205	21,10	20,95	20,60	19,53	0,814	0,831	0,858	0,901
41	20,50	17,7535	21,60	21,45	21,10	20,03	0,814	0,832	0,858	0,902
42	21,00	18,1865	22,10	21,95	21,60	20,53	0,814	0,832	0,858	0,902
43	21,50	18,6195	22,60	22,45	22,10	21,03	0,814	0,832	0,858	0,902
44	22,00	19,0526	23,10	22,95	22,60	21,53	0,814	0,832	0,859	0,903
45	22,50	19,4856	23,60	23,45	23,10	22,02	0,815	0,832	0,859	0,903
46	23,00	19,9186	24,11	23,96	23,60	22,52	0,815	0,832	0,859	0,904
47	23,50	20,3516	24,61	24,46	24,10	23,02	0,815	0,833	0,859	0,904
48	24,00	20,7846	25,11	24,96	24,60	23,52	0,815	0,833	0,860	0,904
49	24,50	21,2176	25,61	25,46	25,10	24,02	0,815	0,833	0,860	0,905
50	25,00	21,6506	26,11	25,96	25,60	24,52	0,815	0,833	0,860	0,905
51	25,50	22,0836	26,61	26,46	26,10	25,02	0,815	0,833	0,860	0,906
52	26,00	22,5167	27,11	26,96	26,60	25,52	0,815	0,833	0,861	0,906
53	26,50	22,9497	27,61	27,46	27,10	26,02	0,815	0,834	0,861	0,906
54	27,00	23,3827	28,11	27,96	27,60	26,52	0,815	0,834	0,861	0,907
55	27,50	23,8157	28,61	28,46	28,10	27,02	0,815	0,834	0,861	0,907
56	28,00	24,2487	29,11	28,96	28,60	27,52	0,816	0,834	0,861	0,907
57	28,50	24,6817	29,61	29,46	29,10	28,02	0,816	0,834	0,862	0,908
58	29,00	25,1147	30,11	29,96	29,60	28,52	0,816	0,834	0,862	0,908
59	29,50	25,5477	30,61	30,46	30,10	29,02	0,816	0,834	0,862	0,908
60	30,00	25,9808	31,11	30,96	30,60	29,52	0,816	0,834	0,862	0,909
61	30,50	26,4138	31,61	31,46	31,10	30,02	0,816	0,835	0,863	0,909
62	31,00	26,8468	32,12	31,97	31,60	30,52	0,816	0,835	0,863	0,909
63	31,50	27,2798	32,62	32,47	32,10	31,02	0,816	0,835	0,863	0,910
64	32,00	27,7128	33,12	32,97	32,60	31,52	0,816	0,835	0,863	0,910
65	32,50	28,1458	33,62	33,47	33,10	32,02	0,816	0,835	0,863	0,910
66	33,00	28,5788	34,12	33,97	33,60	32,52	0,816	0,835	0,863	0,911
67	33,50	29,0119	34,62	34,47	34,10	33,02	0,816	0,835	0,864	0,911
68	34,00	29,4449	35,12	34,97	34,60	33,52	0,817	0,835	0,864	0,911
69	34,50	29,8779	35,62	35,47	35,10	34,02	0,817	0,836	0,864	0,912
70	35,00	30,3109	36,12	35,97	35,60	34,52	0,817	0,836	0,864	0,912
71	35,50	30,7439	36,62	36,47	36,10	35,02	0,817	0,836	0,864	0,912
72	36,00	31,1769	37,12	36,97	36,60	35,52	0,817	0,836	0,865	0,912
73	36,50	31,6099	37,62	37,47	37,10	36,02	0,817	0,836	0,865	0,913
74	37,00	32,0429	38,12	37,97	37,60	36,51	0,817	0,836	0,865	0,913
75	37,50	32,4760	38,62	38,47	38,10	37,01	0,817	0,836	0,865	0,913
76	38,00	32,9090	39,12	38,97	38,60	37,51	0,817	0,836	0,865	0,914
77	38,50	33,3420	39,62	39,47	39,10	38,01	0,817	0,837	0,866	0,914
78	39,00	33,7750	40,12	39,97	39,60	38,51	0,817	0,837	0,866	0,914
79	39,50	34,2080	40,62	40,47	40,10	39,01	0,817	0,837	0,866	0,914
80	40,00	34,6410	41,12	40,97	40,60	39,51	0,817	0,837	0,866	0,915
81	40,50	35,0740	41,63	41,48	41,10	40,01	0,817	0,837	0,866	0,915
82	41,00	35,5070	42,13	41,98	41,60	40,51	0,818	0,837	0,866	0,915
83	41,50	35,9401	42,63	42,48	42,10	41,01	0,818	0,837	0,867	0,916
84	42,00	36,3731	43,13	42,98	42,60	41,51	0,818	0,837	0,867	0,916
85	42,50	36,8061	43,63	43,48	43,10	42,01	0,818	0,837	0,867	0,916
86	43,00	37,2391	44,13	43,98	43,60	42,51	0,818	0,838	0,867	0,916
87	43,50	37,6721	44,63	44,48	44,10	43,01	0,818	0,838	0,867	0,917
88	44,00	38,1051	45,13	44,98	44,60	43,51	0,818	0,838	0,867	0,917
89	44,50	38,5381	45,63	45,48	45,10	44,01	0,818	0,838	0,868	0,917
90	45,00	38,9711	46,13	45,98	45,60	44,51	0,818	0,838	0,868	0,917
91	45,50	39,4042	46,63	46,48	46,10	45,01	0,818	0,838	0,868	0,918
92	46,00	39,8372	47,13	46,98	46,60	45,51	0,818	0,838	0,868	0,918
93	46,50	40,2702	47,63	47,48	47,10	46,01	0,818	0,838	0,868	0,918
94	47,00	40,7032	48,13	47,98	47,60	46,51	0,818	0,838	0,868	0,918
95	47,50	41,1362	48,63	48,48	48,10	47,01	0,818	0,838	0,869	0,919
96	48,00	41,5692	49,13	48,98	48,60	47,51	0,818	0,839	0,869	0,919
97	48,50	42,0022	49,63	49,48	49,10	48,01	0,819	0,839	0,869	0,919
98	49,00	42,4352	50,13	49,98	49,60	48,51	0,819	0,839	0,869	0,919
99	49,50	42,8683	50,63	50,48	50,10	49,01	0,819	0,839	0,869	0,920
100	50,00	43,3013	51,13	50,98	50,60	49,51	0,819	0,839	0,869	0,920

Table 2 — Geometry external spline, $\alpha = 30^\circ$, $m = 0,5$, flat and fillet root, $S_{V \max} = 0,785$

z	D	D _b	D _{ee max}	D _{Fe max}	D _{ie min} Fillet root	D _{ie min} Flat	S _{min}			
							4h	5h	6h	7h
6	3,00	2,5981	3,50	2,62	1,94	2,09	0,762	0,748	0,727	0,692
7	3,50	3,0311	4,00	3,08	2,44	2,59	0,761	0,747	0,726	0,691
8	4,00	3,4641	4,50	3,56	2,93	3,08	0,761	0,747	0,725	0,690
9	4,50	3,8971	5,00	4,04	3,43	3,58	0,761	0,746	0,725	0,689
10	5,00	4,3301	5,50	4,52	3,93	4,08	0,761	0,746	0,724	0,687
11	5,50	4,7631	6,00	5,01	4,43	4,58	0,760	0,746	0,723	0,686
12	6,00	5,1962	6,50	5,50	4,93	5,08	0,760	0,745	0,723	0,686
13	6,50	5,6292	7,00	5,99	5,43	5,58	0,760	0,745	0,722	0,685
14	7,00	6,0622	7,50	6,48	5,92	6,07	0,760	0,744	0,722	0,684
15	7,50	6,4952	8,00	6,98	6,42	6,57	0,759	0,744	0,721	0,683
16	8,00	6,9282	8,50	7,47	6,92	7,07	0,759	0,744	0,721	0,682
17	8,50	7,3612	9,00	7,97	7,42	7,57	0,759	0,744	0,720	0,681
18	9,00	7,7942	9,50	8,46	7,92	8,07	0,759	0,743	0,720	0,681
19	9,50	8,2272	10,00	8,96	8,42	8,57	0,759	0,743	0,719	0,680
20	10,00	8,6603	10,50	9,46	8,92	9,07	0,759	0,743	0,719	0,679
21	10,50	9,0933	11,00	9,95	9,42	9,57	0,758	0,742	0,719	0,679
22	11,00	9,5263	11,50	10,45	9,91	10,06	0,758	0,742	0,718	0,678
23	11,50	9,9593	12,00	10,95	10,41	10,56	0,758	0,742	0,718	0,677
24	12,00	10,3923	12,50	11,45	10,91	11,06	0,758	0,742	0,717	0,677
25	12,50	10,8253	13,00	11,95	11,41	11,56	0,758	0,741	0,717	0,676
26	13,00	11,2583	13,50	12,44	11,91	12,06	0,758	0,741	0,717	0,676
27	13,50	11,6913	14,00	12,94	12,41	12,56	0,758	0,741	0,716	0,675
28	14,00	12,1244	14,50	13,44	12,91	13,06	0,757	0,741	0,716	0,675
29	14,50	12,5574	15,00	13,94	13,41	13,56	0,757	0,741	0,716	0,674
30	15,00	12,9904	15,50	14,44	13,91	14,06	0,757	0,740	0,715	0,673
31	15,50	13,4234	16,00	14,94	14,41	14,56	0,757	0,740	0,715	0,673
32	16,00	13,8564	16,50	15,44	14,91	15,06	0,757	0,740	0,715	0,672
33	16,50	14,2894	17,00	15,93	15,40	15,55	0,757	0,740	0,714	0,672
34	17,00	14,7224	17,50	16,43	15,90	16,05	0,757	0,740	0,714	0,671
35	17,50	15,1554	18,00	16,93	16,40	16,55	0,757	0,739	0,714	0,671
36	18,00	15,5885	18,50	17,43	16,90	17,05	0,756	0,739	0,713	0,671
37	18,50	16,0215	19,00	17,93	17,40	17,55	0,756	0,739	0,713	0,670
38	19,00	16,4545	19,50	18,43	17,90	18,05	0,756	0,739	0,713	0,670
39	19,50	16,8875	20,00	18,93	18,40	18,55	0,756	0,739	0,713	0,669
40	20,00	17,3205	20,50	19,43	18,90	19,05	0,756	0,739	0,712	0,669
41	20,50	17,7535	21,00	19,93	19,40	19,55	0,756	0,738	0,712	0,668
42	21,00	18,1865	21,50	20,43	19,90	20,05	0,756	0,738	0,712	0,668
43	21,50	18,6195	22,00	20,93	20,40	20,55	0,756	0,738	0,712	0,668
44	22,00	19,0525	22,50	21,43	20,90	21,05	0,756	0,738	0,711	0,667
45	22,50	19,4855	23,00	21,92	21,40	21,55	0,755	0,738	0,711	0,667
46	23,00	19,9185	23,50	22,42	21,89	22,04	0,755	0,738	0,711	0,666
47	23,50	20,3515	24,00	22,92	22,39	22,54	0,755	0,737	0,711	0,666
48	24,00	20,7845	24,50	23,42	22,89	23,04	0,755	0,737	0,710	0,666
49	24,50	21,2175	25,00	23,92	23,39	23,54	0,755	0,737	0,710	0,665
50	25,00	21,6505	25,50	24,42	23,89	24,04	0,755	0,737	0,710	0,665
51	25,50	22,0835	26,00	24,92	24,38	24,54	0,755	0,737	0,710	0,664
52	26,00	22,5165	26,50	25,42	24,89	25,04	0,755	0,737	0,709	0,664
53	26,50	22,9495	27,00	25,92	25,39	25,54	0,755	0,736	0,709	0,664
54	27,00	23,3825	27,50	26,42	25,89	26,04	0,755	0,736	0,709	0,663
55	27,50	23,8155	28,00	26,92	26,39	26,54	0,755	0,736	0,709	0,663
56	28,00	24,2485	28,50	27,42	26,89	27,04	0,754	0,736	0,709	0,663
57	28,50	24,6815	29,00	27,92	27,39	27,54	0,754	0,736	0,708	0,662
58	29,00	25,1145	29,50	28,42	27,89	28,04	0,754	0,736	0,708	0,662
59	29,50	25,5475	30,00	28,92	28,39	28,54	0,754	0,736	0,708	0,662
60	30,00	25,9805	30,50	29,42	28,89	29,04	0,754	0,736	0,708	0,661
61	30,50	26,4135	31,00	29,92	29,39	29,54	0,754	0,735	0,707	0,661
62	31,00	26,8465	31,50	30,42	29,88	30,03	0,754	0,735	0,707	0,661
63	31,50	27,2795	32,00	30,92	30,38	30,53	0,754	0,735	0,707	0,660
64	32,00	27,7125	32,50	31,42	30,88	31,03	0,754	0,735	0,707	0,660
65	32,50	28,1455	33,00	31,92	31,38	31,53	0,754	0,735	0,707	0,660
66	33,00	28,5785	33,50	32,42	31,88	32,03	0,754	0,735	0,707	0,659
67	33,50	29,0115	34,00	32,92	32,38	32,53	0,754	0,735	0,706	0,659
68	34,00	29,4445	34,50	33,42	32,88	33,03	0,753	0,735	0,706	0,659
69	34,50	29,8775	35,00	33,92	33,38	33,53	0,753	0,734	0,706	0,658
70	35,00	30,3105	35,50	34,42	33,88	34,03	0,753	0,734	0,706	0,658
71	35,50	30,7435	36,00	34,92	34,38	34,53	0,753	0,734	0,706	0,658
72	36,00	31,1765	36,50	35,42	34,88	35,03	0,753	0,734	0,705	0,658
73	36,50	31,6095	37,00	35,92	35,38	35,53	0,753	0,734	0,705	0,657
74	37,00	32,0425	37,50	36,41	35,88	36,03	0,753	0,734	0,705	0,657
75	37,50	32,4755	38,00	36,91	36,38	36,53	0,753	0,734	0,705	0,657
76	38,00	32,9085	38,50	37,41	36,88	37,03	0,753	0,734	0,705	0,656
77	38,50	33,3415	39,00	37,91	37,38	37,53	0,753	0,733	0,704	0,656
78	39,00	33,7745	39,50	38,41	37,88	38,03	0,753	0,733	0,704	0,656
79	39,50	34,2075	40,00	38,91	38,38	38,53	0,753	0,733	0,704	0,656
80	40,00	34,6405	40,50	39,41	38,88	39,03	0,753	0,733	0,704	0,655
81	40,50	35,0735	41,00	39,91	39,37	39,52	0,753	0,733	0,704	0,655
82	41,00	35,5065	41,50	40,41	39,87	40,02	0,752	0,733	0,704	0,655
83	41,50	35,9401	42,00	40,91	40,37	40,52	0,752	0,733	0,703	0,654
84	42,00	36,3731	42,50	41,41	40,87	41,02	0,752	0,733	0,703	0,654
85	42,50	36,8061	43,00	41,91	41,37	41,52	0,752	0,733	0,703	0,654
86	43,00	37,2391	43,50	42,41	41,87	42,02	0,752	0,732	0,703	0,654
87	43,50	37,6721	44,00	42,91	42,37	42,52	0,752	0,732	0,703	0,653
88	44,00	38,1051	44,50	43,41	42,87	43,02	0,752	0,732	0,703	0,653
89	44,50	38,5381	45,00	43,91	43,37	43,52	0,752	0,732	0,702	0,653
90	45,00	38,9711	45,50	44,41	43,87	44,02	0,752	0,732	0,702	0,653
91	45,50	39,4042	46,00	44,91	44,37	44,52	0,752	0,732	0,702	0,652
92	46,00	39,8372	46,50	45,41	44,87	45,02	0,752	0,732	0,702	0,652
93	46,50	40,2702	47,00	45,91	45,37	45,52	0,752	0,732	0,702	0,652
94	47,00	40,7032	47,50	46,41	45,87	46,02	0,752	0,732	0,702	0,652
95	47,50	41,1362	48,00	46,91	46,37	46,52	0,752	0,732	0,701	0,651
96	48,00	41,5692	48,50	47,41	46,87	47,02	0,752	0,731	0,701	0,651
97	48,50	42,0022	49,00	47,91	47,37	47,52	0,751	0,731	0,701	0,651
98	49,00	42,4352	49,50	48,41	47,87	48,02	0,751	0,731	0,701	0,651
99	49,50	42,8683	50,00	48,91	48,37	48,52	0,751	0,731	0,701	0,650
100	50,00	43,3013	50,50	49,41	48,87	49,02	0,751	0,731	0,701	0,650

Table 3 — Inspection dimensions internal spline, $\alpha = 30^\circ$, $m = 0,5$, flat or fillet root, $E_{V \min} = 0,785$

z	D_{Ri}	Measurement over balls or pins, M_{Ri} (checking of dimensions E_{\min} and E_{\max}) for tolerance classes										K_i
		4H		5H		6H		7H				
		min. (aux.)	max.	min. (aux.)	max.	min. (aux.)	max.	min. (aux.)	max.			
6	—	—	—	—	—	—	—	—	—	—	—	
7	—	—	—	—	—	—	—	—	—	—	—	
8	0,85	2,752	2,791	2,767	2,830	2,788	2,882	2,821	2,960	2,079		
9	0,85	3,207	3,241	3,220	3,276	3,239	3,324	3,268	3,399	1,987		
10	0,85	3,780	3,813	3,793	3,846	3,810	3,894	3,838	3,969	1,974		
11	0,85	4,235	4,266	4,247	4,298	4,264	4,344	4,291	4,418	1,922		
12	0,85	4,793	4,823	4,805	4,855	4,821	4,901	4,848	4,975	1,917		
13	0,90	5,071	5,104	5,084	5,139	5,102	5,189	5,131	5,268	2,031		
14	0,90	5,623	5,655	5,636	5,689	5,653	5,739	5,682	5,817	2,011		
15	0,90	6,091	6,122	6,103	6,155	6,120	6,203	6,148	6,281	1,972		
16	0,90	6,634	6,665	6,646	6,698	6,663	6,746	6,691	6,823	1,960		
17	0,90	7,104	7,134	7,116	7,166	7,133	7,214	7,160	7,291	1,932		
18	0,90	7,642	7,672	7,654	7,704	7,670	7,751	7,697	7,828	1,924		
19	0,90	8,114	8,143	8,126	8,175	8,142	8,222	8,169	8,299	1,904		
20	0,90	8,648	8,677	8,659	8,709	8,676	8,756	8,702	8,832	1,896		
21	0,90	9,122	9,151	9,134	9,182	9,150	9,229	9,176	9,305	1,882		
22	0,90	9,652	9,681	9,664	9,712	9,680	9,759	9,707	9,836	1,878		
23	0,90	10,128	10,157	10,140	10,188	10,156	10,235	10,183	10,311	1,865		
24	0,90	10,656	10,684	10,667	10,716	10,684	10,762	10,710	10,839	1,862		
25	0,90	11,133	11,161	11,145	11,193	11,161	11,240	11,188	11,316	1,852		
26	0,90	11,659	11,687	11,670	11,718	11,687	11,765	11,713	11,842	1,849		
27	0,90	12,138	12,166	12,149	12,197	12,166	12,244	12,192	12,321	1,841		
28	0,90	12,661	12,689	12,673	12,721	12,689	12,768	12,716	12,844	1,839		
29	0,90	13,142	13,169	13,153	13,201	13,170	13,248	13,196	13,325	1,831		
30	0,90	13,663	13,691	13,675	13,723	13,692	13,770	13,718	13,847	1,830		
31	0,90	14,145	14,172	14,157	14,204	14,173	14,251	14,200	14,329	1,823		
32	0,90	14,665	14,693	14,677	14,724	14,694	14,772	14,720	14,849	1,822		
33	0,90	15,148	15,175	15,160	15,207	15,176	15,254	15,203	15,332	1,817		
34	0,90	15,667	15,694	15,679	15,726	15,695	15,773	15,722	15,851	1,815		
35	0,90	16,150	16,178	16,162	16,210	16,179	16,257	16,206	16,335	1,811		
36	0,90	16,668	16,696	16,680	16,728	16,697	16,775	16,724	16,853	1,810		
37	0,90	17,153	17,180	17,165	17,212	17,182	17,260	17,209	17,338	1,805		
38	0,90	17,670	17,697	17,682	17,729	17,699	17,777	17,726	17,855	1,805		
39	0,90	18,155	18,182	18,167	18,214	18,184	18,262	18,211	18,340	1,801		
40	0,90	18,671	18,698	18,683	18,730	18,700	18,778	18,727	18,857	1,800		
41	0,90	19,157	19,184	19,169	19,216	19,186	19,264	19,213	19,343	1,797		
42	0,90	19,672	19,699	19,684	19,731	19,701	19,779	19,729	19,859	1,796		
43	0,90	20,159	20,186	20,171	20,218	20,188	20,266	20,215	20,346	1,793		
44	0,90	20,673	20,700	20,685	20,732	20,703	20,781	20,730	20,861	1,793		
45	0,90	21,160	21,187	21,172	21,220	21,190	21,268	21,217	21,348	1,790		
46	0,90	21,674	21,701	21,686	21,734	21,704	21,782	21,732	21,862	1,789		
47	0,90	22,162	22,188	22,174	22,221	22,192	22,270	22,219	22,350	1,787		
48	0,90	22,675	22,702	22,687	22,734	22,705	22,783	22,733	22,864	1,786		
49	0,90	23,163	23,190	23,176	23,223	23,193	23,271	23,221	23,352	1,784		
50	0,90	23,676	23,703	23,688	23,735	23,706	23,784	23,734	23,865	1,784		
51	0,90	24,164	24,191	24,177	24,224	24,195	24,272	24,223	24,354	1,782		
52	0,90	24,677	24,703	24,689	24,736	24,707	24,785	24,735	24,867	1,781		
53	0,90	25,166	25,192	25,178	25,225	25,196	25,274	25,224	25,356	1,779		
54	0,90	25,677	25,704	25,690	25,737	25,708	25,786	25,736	25,868	1,779		
55	0,90	26,167	26,193	26,179	26,226	26,197	26,276	26,226	26,358	1,777		
56	0,90	26,678	26,705	26,691	26,738	26,709	26,787	26,738	26,869	1,777		
57	0,90	27,168	27,194	27,181	27,228	27,199	27,277	27,227	27,359	1,775		
58	0,90	27,679	27,705	27,692	27,739	27,710	27,788	27,739	27,871	1,775		
59	0,90	28,169	28,195	28,182	28,229	28,200	28,279	28,229	28,361	1,774		
60	0,90	28,679	28,706	28,692	28,739	28,711	28,789	28,740	28,872	1,773		
61	0,90	29,170	29,196	29,183	29,230	29,201	29,280	29,230	29,362	1,772		
62	0,90	29,680	29,707	29,693	29,740	29,712	29,790	29,741	29,873	1,772		
63	0,90	30,171	30,197	30,184	30,231	30,202	30,281	30,231	30,364	1,770		
64	0,90	30,681	30,707	30,694	30,741	30,712	30,791	30,742	30,874	1,770		
65	0,90	31,171	31,198	31,185	31,232	31,203	31,282	31,233	31,366	1,769		
66	0,90	31,681	31,708	31,694	31,741	31,713	31,792	31,743	31,876	1,769		
67	0,90	32,172	32,199	32,186	32,233	32,204	32,283	32,234	32,367	1,768		
68	0,90	32,682	32,708	32,695	32,742	32,714	32,793	32,744	32,877	1,768		
69	0,90	33,173	33,199	33,186	33,233	33,205	33,284	33,235	33,368	1,766		
70	0,90	33,682	33,709	33,696	33,743	33,715	33,794	33,744	33,878	1,766		
71	0,90	34,174	34,200	34,187	34,234	34,206	34,285	34,236	34,370	1,765		
72	0,90	34,683	34,709	34,696	34,743	34,715	34,794	34,745	34,879	1,765		
73	0,90	35,175	35,201	35,188	35,235	35,207	35,286	35,237	35,371	1,764		
74	0,90	35,683	35,709	35,697	35,744	35,716	35,795	35,746	35,880	1,764		
75	0,90	36,175	36,202	36,189	36,236	36,208	36,287	36,238	36,372	1,763		
76	0,90	36,684	36,710	36,697	36,744	36,717	36,796	36,747	36,881	1,763		
77	0,90	37,176	37,202	37,190	37,237	37,209	37,288	37,240	37,374	1,762		
78	0,90	37,684	37,710	37,698	37,745	37,717	37,797	37,748	37,882	1,762		
79	0,90	38,177	38,203	38,190	38,237	38,210	38,289	38,241	38,375	1,761		
80	0,90	38,684	38,711	38,698	38,745	38,718	38,797	38,749	38,883	1,761		
81	0,90	39,177	39,203	39,191	39,238	39,211	39,290	39,242	39,376	1,760		
82	0,90	39,685	39,711	39,699	39,746	39,719	39,798	39,750	39,884	1,760		
83	0,90	40,178	40,204	40,192	40,239	40,212	40,291	40,243	40,377	1,760		
84	0,90	40,685	40,711	40,699	40,746	40,719	40,799	40,750	40,885	1,759		
85	0,90	41,178	41,204	41,192	41,239	41,212	41,292	41,244	41,379	1,759		
86	0,90	41,686	41,712	41,700	41,747	41,720	41,799	41,751	41,886	1,759		
87	0,90	42,179	42,205	42,193	42,240	42,213	42,293	42,244	42,380	1,758		
88	0,90	42,686	42,712	42,700	42,747	42,720	42,800	42,752	42,887	1,758		
89	0,90	43,179	43,206	43,194	43,241	43,214	43,293	43,245	43,381	1,757		
90	0,90	43,686	43,713	43,701	43,748	43,721	43,801	43,753	43,888	1,757		
91	0,90	44,180	44,206	44,194	44,241	44,215	44,294	44,246	44,382	1,757		
92	0,90	44,687	44,713	44,701	44,748	44,722	44,801	44,753	44,889	1,757		
93	0,90	45,180	45,207	45,195	45,242	45,215	45,295	45,247	45,383	1,756		
94	0,90	45,687	45,713	45,702	45,749	45,722	45,802	45,754	45,890	1,756		
95	0,90	46,181	46,207	46,196	46,243	46,216	46,296	46,248	46,384	1,755		
96	0,90	46,688	46,714	46,702	46,749	46,723	46,802	46,755	46,891	1,755		
97	0,90	47,181	47,207	47,196	47,243	47,217	47,296	47,249	47,385	1,755		
98	0,90	47,688	47,714	47,703	47,750	47,723	47,803	47,756	47,892	1,755		
99	0,90	48,182	48,208	48,197	48,244	48,217	48,297	48,250	48,386	1,754		
100	0,90	48,688	48,714	48,703	48,750	48,724	48,804	48,756	48,893	1,754		

Table 4 — Inspection dimensions external spline, $\alpha = 30^\circ$, $m = 0,5$, flat or fillet root, $S_{v\max} = 0,785$

z	D _{Re}	Measurement over balls or pins, M _{Re} (checking of dimensions S _{min} and S _{max}) for tolerance classes								K _e
		4h		5h		6h		7h		
		min.	max. (aux.)	min.	max. (aux.)	min.	max. (aux.)	min.	max. (aux.)	
6	1,12	4,797	4,813	4,780	4,807	4,754	4,798	4,711	4,784	1,255
7	1,12	5,204	5,220	5,187	5,214	5,161	5,206	5,117	5,191	1,254
8	1,06	5,670	5,687	5,651	5,681	5,622	5,671	5,575	5,655	1,350
9	1,06	6,099	6,117	6,080	6,110	6,051	6,101	6,003	6,085	1,354
10	1,06	6,683	6,701	6,663	6,694	6,633	6,684	6,582	6,668	1,395
11	1,00	6,970	6,989	6,950	6,982	6,918	6,972	6,866	6,955	1,441
12	1,00	7,535	7,555	7,514	7,547	7,482	7,537	7,427	7,519	1,471
13	1,00	7,987	8,007	7,965	7,999	7,933	7,988	7,878	7,970	1,475
14	1,00	8,541	8,561	8,519	8,554	8,485	8,542	8,429	8,524	1,498
15	1,00	8,999	9,020	8,977	9,012	8,943	9,001	8,886	8,982	1,501
16	1,00	9,546	9,566	9,523	9,558	9,488	9,547	9,430	9,528	1,520
17	1,00	10,009	10,030	9,986	10,022	9,951	10,010	9,892	9,991	1,523
18	1,00	10,549	10,571	10,526	10,562	10,490	10,550	10,431	10,531	1,538
19	1,00	11,017	11,038	10,993	11,029	10,957	11,017	10,897	10,998	1,541
20	1,00	11,552	11,574	11,528	11,565	11,492	11,553	11,431	11,533	1,554
21	0,95	11,884	11,906	11,860	11,898	11,822	11,885	11,760	11,864	1,587
22	0,95	12,416	12,438	12,391	12,429	12,353	12,416	12,289	12,396	1,597
23	0,95	12,889	12,911	12,864	12,902	12,826	12,889	12,761	12,868	1,598
24	0,95	13,417	13,440	13,392	13,431	13,353	13,418	13,289	13,396	1,607
25	0,95	13,892	13,915	13,867	13,906	13,828	13,892	13,763	13,871	1,608
26	0,95	14,419	14,441	14,393	14,432	14,354	14,419	14,288	14,397	1,615
27	0,95	14,896	14,918	14,869	14,909	14,830	14,895	14,764	14,874	1,616
28	0,95	15,420	15,442	15,393	15,433	15,354	15,419	15,287	15,397	1,623
29	0,95	15,898	15,921	15,872	15,911	15,832	15,898	15,764	15,876	1,624
30	0,95	16,420	16,443	16,394	16,434	16,353	16,420	16,286	16,398	1,629
31	0,95	16,900	16,923	16,873	16,914	16,833	16,900	16,765	16,877	1,630
32	0,95	17,421	17,444	17,394	17,434	17,353	17,420	17,285	17,398	1,635
33	0,95	17,902	17,926	17,875	17,916	17,834	17,901	17,765	17,879	1,636
34	0,95	18,422	18,445	18,394	18,435	18,353	18,421	18,284	18,398	1,641
35	0,95	18,904	18,927	18,876	18,917	18,835	18,903	18,765	18,880	1,642
36	0,95	19,422	19,446	19,395	19,436	19,353	19,421	19,283	19,398	1,646
37	0,95	19,906	19,929	19,878	19,919	19,836	19,904	19,765	19,881	1,646
38	0,95	20,423	20,446	20,395	20,436	20,353	20,421	20,281	20,398	1,650
39	0,95	20,907	20,930	20,879	20,920	20,836	20,905	20,765	20,881	1,651
40	0,95	21,423	21,447	21,395	21,436	21,352	21,421	21,280	21,397	1,654
41	0,95	21,908	21,932	21,880	21,921	21,837	21,906	21,765	21,882	1,655
42	0,95	22,424	22,447	22,395	22,437	22,352	22,422	22,279	22,397	1,658
43	0,95	22,909	22,933	22,880	22,922	22,837	22,907	22,764	22,882	1,658
44	0,95	23,424	23,448	23,395	23,437	23,351	23,422	23,278	23,397	1,661
45	0,95	23,910	23,934	23,881	23,923	23,837	23,908	23,764	23,883	1,661
46	0,95	24,424	24,448	24,395	24,437	24,351	24,422	24,277	24,397	1,664
47	0,95	24,911	24,935	24,882	24,924	24,838	24,908	24,764	24,883	1,664
48	0,95	25,424	25,448	25,395	25,437	25,351	25,422	25,276	25,396	1,667
49	0,95	25,912	25,936	25,882	25,925	25,838	25,909	25,763	25,883	1,667
50	0,95	26,425	26,449	26,395	26,437	26,350	26,421	26,275	26,396	1,669
51	0,95	26,912	26,936	26,883	26,925	26,838	26,909	26,763	26,884	1,670
52	0,95	27,425	27,449	27,395	27,437	27,350	27,421	27,274	27,396	1,672
53	0,95	27,913	27,937	27,883	27,926	27,838	27,909	27,762	27,884	1,672
54	0,95	28,425	28,449	28,395	28,438	28,349	28,421	28,273	28,395	1,674
55	0,95	28,914	28,938	28,883	28,926	28,838	28,910	28,761	28,884	1,674
56	0,95	29,425	29,449	29,395	29,438	29,349	29,421	29,272	29,395	1,676
57	0,95	29,914	29,938	29,884	29,927	29,838	29,910	29,761	29,884	1,676
58	0,95	30,425	30,449	30,395	30,438	30,348	30,421	30,271	30,395	1,678
59	0,95	30,914	30,939	30,884	30,927	30,838	30,910	30,760	30,884	1,678
60	0,95	31,425	31,449	31,394	31,438	31,348	31,421	31,270	31,394	1,680
61	0,95	31,915	31,939	31,884	31,927	31,838	31,910	31,760	31,884	1,680
62	0,95	32,425	32,450	32,394	32,438	32,348	32,421	32,269	32,394	1,682
63	0,95	32,915	32,940	32,884	32,928	32,837	32,911	32,759	32,884	1,682
64	0,95	33,425	33,450	33,394	33,438	33,347	33,420	33,269	33,393	1,683
65	0,95	33,916	33,940	33,884	33,928	33,837	33,911	33,758	33,883	1,684
66	0,95	34,425	34,450	34,394	34,438	34,347	34,420	34,268	34,393	1,685
67	0,95	34,916	34,940	34,884	34,928	34,837	34,911	34,758	34,883	1,685
68	0,95	35,425	35,450	35,394	35,438	35,346	35,420	35,267	35,392	1,686
69	0,95	35,916	35,941	35,885	35,928	35,837	35,911	35,757	35,883	1,686
70	0,95	36,425	36,450	36,394	36,438	36,347	36,420	36,266	36,392	1,688
71	0,95	36,916	36,941	36,885	36,928	36,837	36,911	36,757	36,883	1,688
72	0,95	37,425	37,450	37,393	37,437	37,345	37,419	37,265	37,391	1,689
73	0,95	37,917	37,941	37,885	37,929	37,837	37,911	37,756	37,883	1,689
74	0,95	38,425	38,450	38,393	38,437	38,345	38,419	38,264	38,391	1,690
75	0,95	38,917	38,941	38,885	38,929	38,836	38,911	38,755	38,882	1,690
76	0,95	39,425	39,450	39,393	39,437	39,344	39,419	39,263	39,390	1,691
77	0,95	39,917	39,942	39,885	39,929	39,836	39,911	39,755	39,882	1,691
78	0,95	40,425	40,450	40,393	40,437	40,344	40,419	40,262	40,390	1,692
79	0,95	40,917	40,942	40,885	40,929	40,836	40,911	40,754	40,882	1,693
80	0,95	41,425	41,450	41,393	41,437	41,344	41,418	41,261	41,389	1,693
81	0,95	41,917	41,942	41,885	41,929	41,836	41,911	41,753	41,882	1,694
82	0,95	42,425	42,450	42,392	42,437	42,343	42,418	42,261	42,389	1,694
83	0,95	42,918	42,942	42,885	42,929	42,835	42,910	42,753	42,881	1,695
84	0,95	43,425	43,450	43,392	43,437	43,343	43,418	43,260	43,389	1,695
85	0,95	43,918	43,942	43,885	43,929	43,835	43,910	43,752	43,881	1,696
86	0,95	44,425	44,450	44,392	44,437	44,342	44,418	44,259	44,388	1,696
87	0,95	44,918	44,942	44,885	44,929	44,835	44,910	44,751	44,881	1,696
88	0,95	45,425	45,450	45,392	45,437	45,342	45,417	45,258	45,388	1,697
89	0,95	45,918	45,943	45,885	45,929	45,835	45,910	45,751	45,880	1,697
90	0,95	46,425	46,450	46,392	46,437	46,341	46,417	46,257	46,387	1,698
91	0,95	46,918	46,943	46,885	46,929	46,834	46,910	46,750	46,880	1,698
92	0,95	47,425	47,450	47,391	47,436	47,341	47,417	47,256	47,387	1,699
93	0,95	47,918	47,943	47,885	47,929	47,834	47,910	47,749	47,880	1,699
94	0,95	48,425	48,449	48,391	48,436	48,340	48,416	48,256	48,386	1,700
95	0,95	48,918	48,943	48,884	48,929	48,834	48,910	48,749	48,879	1,700
96	0,95	49,425	49,449	49,391	49,436	49,340	49,416	49,255	49,386	1,700
97	0,95	49,918	49,943	49,884	49,929	49,833	49,910	49,748	49,879	1,700
98	0,95	50,425	50,449	50,391	50,436	50,340	50,416	50,254	50,385	1,701
99	0,95	50,918	50,943	50,884	50,929	50,833	50,909	50,747	50,879	1,701
100	0,95	51,425	51,449	51,390	51,435	51,339	51,415	51,253	51,385	1,702

5.2 30° pressure angle, module 0,75

Table 5 — Geometry internal spline, $\alpha = 30^\circ$, $m = 0,75$, flat and fillet root, $E_{v \min} = 1,178$

z	D	D _b	D _{ei max} Fillet root	D _{ei max} Flat	D _{Fi min}	D _{li min}	E _{max}			
							4H	5H	6H	7H
6	4,50	3,8971	6,03	5,81	5,40	4,07	1,205	1,220	1,244	1,284
7	5,25	4,5466	6,79	6,56	6,15	4,77	1,205	1,221	1,245	1,286
8	6,00	5,1962	7,54	7,31	6,90	5,48	1,205	1,222	1,246	1,287
9	6,75	5,8457	8,29	8,07	7,65	6,20	1,206	1,222	1,247	1,289
10	7,50	6,4952	9,04	8,82	8,40	6,93	1,206	1,223	1,248	1,290
11	8,25	7,1447	9,80	9,57	9,15	7,66	1,206	1,223	1,249	1,291
12	9,00	7,7942	10,55	10,32	9,90	8,40	1,207	1,224	1,249	1,292
13	9,75	8,4437	11,30	11,07	10,65	9,14	1,207	1,224	1,250	1,293
14	10,50	9,0933	12,05	11,83	11,40	9,88	1,207	1,224	1,251	1,294
15	11,25	9,7428	12,80	12,58	12,15	10,62	1,207	1,225	1,251	1,295
16	12,00	10,3923	13,55	13,33	12,90	11,36	1,207	1,225	1,252	1,296
17	12,75	11,0418	14,31	14,08	13,65	12,10	1,208	1,226	1,252	1,297
18	13,50	11,6913	15,06	14,83	14,40	12,85	1,208	1,226	1,253	1,298
19	14,25	12,3409	15,81	15,58	15,15	13,59	1,208	1,226	1,253	1,298
20	15,00	12,9904	16,56	16,33	15,90	14,34	1,208	1,226	1,254	1,299
21	15,75	13,6399	17,31	17,09	16,65	15,08	1,208	1,227	1,254	1,300
22	16,50	14,2894	18,06	17,84	17,40	15,83	1,209	1,227	1,255	1,301
23	17,25	14,9389	18,81	18,59	18,15	16,57	1,209	1,227	1,255	1,301
24	18,00	15,5885	19,56	19,34	18,90	17,32	1,209	1,228	1,256	1,302
25	18,75	16,2380	20,32	20,09	19,65	18,07	1,209	1,228	1,256	1,303
26	19,50	16,8875	21,07	20,84	20,40	18,82	1,209	1,228	1,256	1,303
27	20,25	17,5370	21,82	21,59	21,15	19,56	1,210	1,228	1,257	1,304
28	21,00	18,1865	22,57	22,34	21,90	20,31	1,210	1,229	1,257	1,305
29	21,75	18,8361	23,32	23,10	22,65	21,06	1,210	1,229	1,258	1,305
30	22,50	19,4856	24,07	23,85	23,40	21,81	1,210	1,229	1,258	1,306
31	23,25	20,1351	24,82	24,60	24,15	22,55	1,210	1,229	1,258	1,307
32	24,00	20,7846	25,57	25,35	24,90	23,30	1,210	1,230	1,259	1,307
33	24,75	21,4341	26,32	26,10	25,65	24,05	1,210	1,230	1,259	1,308
34	25,50	22,0836	27,08	26,85	26,40	24,80	1,211	1,230	1,259	1,308
35	26,25	22,7332	27,83	27,60	27,15	25,55	1,211	1,230	1,260	1,309
36	27,00	23,3827	28,58	28,35	27,90	26,30	1,211	1,231	1,260	1,309
37	27,75	24,0322	29,33	29,10	28,65	27,05	1,211	1,231	1,260	1,310
38	28,50	24,6817	30,08	29,85	29,40	27,79	1,211	1,231	1,261	1,310
39	29,25	25,3312	30,83	30,61	30,15	28,54	1,211	1,231	1,261	1,311
40	30,00	25,9807	31,58	31,36	30,90	29,29	1,211	1,231	1,261	1,311
41	30,75	26,6303	32,33	32,11	31,65	30,04	1,211	1,232	1,262	1,312
42	31,50	27,2798	33,08	32,86	32,40	30,79	1,212	1,232	1,262	1,312
43	32,25	27,9293	33,83	33,61	33,15	31,54	1,212	1,232	1,262	1,313
44	33,00	28,5788	34,58	34,36	33,90	32,29	1,212	1,232	1,263	1,313
45	33,75	29,2284	35,34	35,11	34,65	33,04	1,212	1,232	1,263	1,314
46	34,50	29,8779	36,09	35,86	35,40	33,79	1,212	1,232	1,263	1,314
47	35,25	30,5274	36,84	36,61	36,15	34,54	1,212	1,233	1,263	1,315
48	36,00	31,1769	37,59	37,36	36,90	35,28	1,212	1,233	1,264	1,315
49	36,75	31,8264	38,34	38,11	37,65	36,03	1,212	1,233	1,264	1,316
50	37,50	32,4760	39,09	38,86	38,40	36,78	1,212	1,233	1,264	1,316
51	38,25	33,1255	39,84	39,61	39,15	37,53	1,213	1,233	1,265	1,316
52	39,00	33,7750	40,59	40,37	39,90	38,28	1,213	1,234	1,265	1,317
53	39,75	34,4245	41,34	41,12	40,65	39,03	1,213	1,234	1,265	1,317
54	40,50	35,0740	42,09	41,87	41,40	39,78	1,213	1,234	1,265	1,318
55	41,25	35,7235	42,84	42,62	42,15	40,53	1,213	1,234	1,266	1,318
56	42,00	36,3731	43,59	43,37	42,90	41,28	1,213	1,234	1,266	1,318
57	42,75	37,0226	44,34	44,12	43,65	42,03	1,213	1,234	1,266	1,319
58	43,50	37,6721	45,09	44,87	44,40	42,78	1,213	1,235	1,266	1,319
59	44,25	38,3216	45,85	45,62	45,15	43,53	1,213	1,235	1,267	1,320
60	45,00	38,9711	46,60	46,37	45,90	44,28	1,214	1,235	1,267	1,320
61	45,75	39,6207	47,35	47,12	46,65	45,03	1,214	1,235	1,267	1,320
62	46,50	40,2702	48,10	47,87	47,40	45,78	1,214	1,235	1,267	1,321
63	47,25	40,9197	48,85	48,62	48,15	46,53	1,214	1,235	1,267	1,321
64	48,00	41,5692	49,60	49,37	48,90	47,28	1,214	1,235	1,268	1,322
65	48,75	42,2187	50,35	50,12	49,65	48,03	1,214	1,236	1,268	1,322
66	49,50	42,8683	51,10	50,87	50,40	48,77	1,214	1,236	1,268	1,322
67	50,25	43,5178	51,85	51,63	51,15	49,52	1,214	1,236	1,268	1,323
68	51,00	44,1673	52,60	52,38	51,90	50,27	1,214	1,236	1,269	1,323
69	51,75	44,8168	53,35	53,13	52,65	51,02	1,214	1,236	1,269	1,323
70	52,50	45,4663	54,10	53,88	53,40	51,77	1,214	1,236	1,269	1,324
71	53,25	46,1159	54,85	54,63	54,15	52,52	1,215	1,236	1,269	1,324
72	54,00	46,7654	55,60	55,38	54,90	53,27	1,215	1,237	1,270	1,324
73	54,75	47,4149	56,35	56,13	55,65	54,02	1,215	1,237	1,270	1,325
74	55,50	48,0644	57,10	56,88	56,40	54,77	1,215	1,237	1,270	1,325
75	56,25	48,7139	57,86	57,63	57,15	55,52	1,215	1,237	1,270	1,325
76	57,00	49,3634	58,61	58,38	57,90	56,27	1,215	1,237	1,270	1,326
77	57,75	50,0130	59,36	59,13	58,65	57,02	1,215	1,237	1,271	1,326
78	58,50	50,6625	60,11	59,88	59,40	57,77	1,215	1,237	1,271	1,326
79	59,25	51,3120	60,86	60,63	60,15	58,52	1,215	1,238	1,271	1,327
80	60,00	51,9615	61,61	61,38	60,90	59,27	1,215	1,238	1,271	1,327
81	60,75	52,6110	62,36	62,13	61,65	60,02	1,215	1,238	1,271	1,327
82	61,50	53,2606	63,11	62,88	62,40	60,77	1,215	1,238	1,272	1,328
83	62,25	53,9101	63,86	63,63	63,15	61,52	1,216	1,238	1,272	1,328
84	63,00	54,5596	64,61	64,39	63,90	62,27	1,216	1,238	1,272	1,328
85	63,75	55,2091	65,36	65,14	64,65	63,02	1,216	1,238	1,272	1,329
86	64,50	55,8586	66,11	65,89	65,40	63,77	1,216	1,238	1,272	1,329
87	65,25	56,5082	66,86	66,64	66,15	64,52	1,216	1,239	1,273	1,329
88	66,00	57,1577	67,61	67,39	66,90	65,27	1,216	1,239	1,273	1,330
89	66,75	57,8072	68,36	68,14	67,65	66,02	1,216	1,239	1,273	1,330
90	67,50	58,4567	69,11	68,89	68,40	66,77	1,216	1,239	1,273	1,330
91	68,25	59,1062	69,86	69,64	69,15	67,52	1,216	1,239	1,273	1,331
92	69,00	59,7558	70,61	70,39	69,90	68,27	1,216	1,239	1,274	1,331
93	69,75	60,4053	71,37	71,14	70,65	69,02	1,216	1,239	1,274	1,331
94	70,50	61,0548	72,12	71,89	71,40	69,77	1,216	1,239	1,274	1,331
95	71,25	61,7043	72,87	72,64	72,15	70,52	1,216	1,239	1,274	1,332
96	72,00	62,3538	73,62	73,39	72,90	71,27	1,216	1,240	1,274	1,332
97	72,75	63,0033	74,37	74,14	73,65	72,02	1,217	1,240	1,274	1,332
98	73,50	63,6529	75,12	74,89	74,40	72,77	1,217	1,240	1,275	1,333
99	74,25	64,3024	75,87	75,64	75,15	73,52	1,217	1,240	1,275	1,333
100	75,00	64,9519	76,62	76,39	75,90	74,27	1,217	1,240	1,275	1,333

Table 6 — Geometry external spline, $\alpha = 30^\circ$, $m = 0,75$, flat and fillet root, $S_{v \max} = 1,178$

z	D	D _b	D _{ee max}	D _{Fe max}	D _{ie min} Fillet root	D _{ie min} Flat	S _{min}			
							4h	5h	6h	7h
6	4,50	3,8971	5,25	3,92	2,97	3,19	1,151	1,136	1,112	1,072
7	5,25	4,5466	6,00	4,62	3,71	3,94	1,151	1,135	1,111	1,070
8	6,00	5,1962	6,75	5,33	4,46	4,69	1,151	1,134	1,110	1,069
9	6,75	5,8457	7,50	6,05	5,21	5,43	1,150	1,134	1,109	1,067
10	7,50	6,4952	8,25	6,78	5,96	6,18	1,150	1,133	1,108	1,066
11	8,25	7,1447	9,00	7,51	6,70	6,93	1,150	1,133	1,107	1,065
12	9,00	7,7942	9,75	8,25	7,45	7,68	1,149	1,132	1,107	1,064
13	9,75	8,4437	10,50	8,99	8,20	8,43	1,149	1,132	1,106	1,063
14	10,50	9,0933	11,25	9,73	8,95	9,17	1,149	1,132	1,105	1,062
15	11,25	9,7428	12,00	10,47	9,70	9,92	1,149	1,131	1,105	1,061
16	12,00	10,3923	12,75	11,21	10,45	10,67	1,149	1,131	1,104	1,060
17	12,75	11,0418	13,50	11,95	11,19	11,42	1,148	1,130	1,104	1,059
18	13,50	11,6913	14,25	12,70	11,94	12,17	1,148	1,130	1,103	1,058
19	14,25	12,3409	15,00	13,44	12,69	12,92	1,148	1,130	1,103	1,058
20	15,00	12,9904	15,75	14,19	13,44	13,67	1,148	1,130	1,102	1,057
21	15,75	13,6399	16,50	14,93	14,19	14,41	1,148	1,129	1,102	1,056
22	16,50	14,2894	17,25	15,68	14,94	15,16	1,147	1,129	1,101	1,055
23	17,25	14,9389	18,00	16,42	15,69	15,91	1,147	1,129	1,101	1,055
24	18,00	15,5885	18,75	17,17	16,44	16,66	1,147	1,128	1,100	1,054
25	18,75	16,2380	19,50	17,92	17,18	17,41	1,147	1,128	1,100	1,053
26	19,50	16,8875	20,25	18,67	17,93	18,16	1,147	1,128	1,100	1,053
27	20,25	17,5370	21,00	19,41	18,68	18,91	1,146	1,128	1,099	1,052
28	21,00	18,1865	21,75	20,16	19,43	19,66	1,146	1,127	1,099	1,051
29	21,75	18,8361	22,50	20,91	20,18	20,40	1,146	1,127	1,098	1,051
30	22,50	19,4856	23,25	21,66	20,93	21,15	1,146	1,127	1,098	1,050
31	23,25	20,1351	24,00	22,40	21,68	21,90	1,146	1,127	1,098	1,049
32	24,00	20,7846	24,75	23,15	22,43	22,65	1,146	1,126	1,097	1,049
33	24,75	21,4341	25,50	23,90	23,18	23,40	1,146	1,126	1,097	1,048
34	25,50	22,0836	26,25	24,65	23,92	24,15	1,145	1,126	1,097	1,048
35	26,25	22,7332	27,00	25,40	24,67	24,90	1,145	1,126	1,096	1,047
36	27,00	23,3827	27,75	26,15	25,42	25,65	1,145	1,125	1,096	1,047
37	27,75	24,0322	28,50	26,90	26,17	26,40	1,145	1,125	1,096	1,046
38	28,50	24,6817	29,25	27,64	26,92	27,15	1,145	1,125	1,095	1,046
39	29,25	25,3312	30,00	28,39	27,67	27,89	1,145	1,125	1,095	1,045
40	30,00	25,9807	30,75	29,14	28,42	28,64	1,145	1,125	1,095	1,045
41	30,75	26,6303	31,50	29,89	29,17	29,39	1,145	1,124	1,094	1,044
42	31,50	27,2798	32,25	30,64	29,92	30,14	1,144	1,124	1,094	1,044
43	32,25	27,9293	33,00	31,39	30,67	30,89	1,144	1,124	1,094	1,043
44	33,00	28,5788	33,75	32,14	31,42	31,64	1,144	1,124	1,093	1,043
45	33,75	29,2284	34,50	32,89	32,16	32,39	1,144	1,124	1,093	1,042
46	34,50	29,8779	35,25	33,64	32,91	33,14	1,144	1,124	1,093	1,042
47	35,25	30,5274	36,00	34,39	33,66	33,89	1,144	1,123	1,093	1,041
48	36,00	31,1769	36,75	35,13	34,41	34,64	1,144	1,123	1,092	1,041
49	36,75	31,8264	37,50	35,88	35,16	35,39	1,144	1,123	1,092	1,040
50	37,50	32,4760	38,25	36,63	35,91	36,14	1,144	1,123	1,092	1,040
51	38,25	33,1255	39,00	37,38	36,66	36,89	1,143	1,123	1,091	1,040
52	39,00	33,7750	39,75	38,13	37,41	37,63	1,143	1,122	1,091	1,039
53	39,75	34,4245	40,50	38,88	38,16	38,38	1,143	1,122	1,091	1,039
54	40,50	35,0740	41,25	39,63	38,91	39,13	1,143	1,122	1,091	1,038
55	41,25	35,7235	42,00	40,38	39,66	39,88	1,143	1,122	1,090	1,038
56	42,00	36,3731	42,75	41,13	40,41	40,63	1,143	1,122	1,090	1,038
57	42,75	37,0226	43,50	41,88	41,16	41,38	1,143	1,122	1,090	1,037
58	43,50	37,6721	44,25	42,63	41,91	42,13	1,143	1,121	1,090	1,037
59	44,25	38,3216	45,00	43,38	42,65	42,88	1,143	1,121	1,089	1,036
60	45,00	38,9711	45,75	44,13	43,40	43,63	1,142	1,121	1,089	1,036
61	45,75	39,6207	46,50	44,88	44,15	44,38	1,142	1,121	1,089	1,036
62	46,50	40,2702	47,25	45,63	44,90	45,13	1,142	1,121	1,089	1,035
63	47,25	40,9197	48,00	46,38	45,65	45,88	1,142	1,121	1,089	1,035
64	48,00	41,5692	48,75	47,13	46,40	46,63	1,142	1,121	1,088	1,034
65	48,75	42,2187	49,50	47,88	47,15	47,38	1,142	1,120	1,088	1,034
66	49,50	42,8683	50,25	48,62	47,90	48,13	1,142	1,120	1,088	1,034
67	50,25	43,5178	51,00	49,37	48,65	48,87	1,142	1,120	1,088	1,033
68	51,00	44,1673	51,75	50,12	49,40	49,62	1,142	1,120	1,087	1,033
69	51,75	44,8168	52,50	50,87	50,15	50,37	1,142	1,120	1,087	1,033
70	52,50	45,4663	53,25	51,62	50,90	51,12	1,142	1,120	1,087	1,032
71	53,25	46,1159	54,00	52,37	51,65	51,87	1,141	1,120	1,087	1,032
72	54,00	46,7654	54,75	53,12	52,40	52,62	1,141	1,119	1,086	1,032
73	54,75	47,4149	55,50	53,87	53,15	53,37	1,141	1,119	1,086	1,031
74	55,50	48,0644	56,25	54,62	53,90	54,12	1,141	1,119	1,086	1,031
75	56,25	48,7139	57,00	55,37	54,64	54,87	1,141	1,119	1,086	1,031
76	57,00	49,3634	57,75	56,12	55,39	55,62	1,141	1,119	1,086	1,030
77	57,75	50,0130	58,50	56,87	56,14	56,37	1,141	1,119	1,085	1,030
78	58,50	50,6625	59,25	57,62	56,89	57,12	1,141	1,119	1,085	1,030
79	59,25	51,3120	60,00	58,37	57,64	57,87	1,141	1,118	1,085	1,029
80	60,00	51,9615	60,75	59,12	58,39	58,62	1,141	1,118	1,085	1,029
81	60,75	52,6110	61,50	59,87	59,14	59,37	1,141	1,118	1,085	1,029
82	61,50	53,2606	62,25	60,62	59,89	60,12	1,141	1,118	1,084	1,028
83	62,25	53,9101	63,00	61,37	60,64	60,87	1,140	1,118	1,084	1,028
84	63,00	54,5596	63,75	62,12	61,39	61,61	1,140	1,118	1,084	1,028
85	63,75	55,2091	64,50	62,87	62,14	62,36	1,140	1,118	1,084	1,027
86	64,50	55,8586	65,25	63,62	62,89	63,11	1,140	1,118	1,084	1,027
87	65,25	56,5082	66,00	64,37	63,64	63,86	1,140	1,117	1,083	1,027
88	66,00	57,1577	66,75	65,12	64,39	64,61	1,140	1,117	1,083	1,026
89	66,75	57,8072	67,50	65,87	65,14	65,36	1,140	1,117	1,083	1,026
90	67,50	58,4567	68,25	66,62	65,89	66,11	1,140	1,117	1,083	1,026
91	68,25	59,1062	69,00	67,37	66,64	66,86	1,140	1,117	1,083	1,025
92	69,00	59,7558	69,75	68,12	67,39	67,61	1,140	1,117	1,082	1,025
93	69,75	60,4053	70,50	68,87	68,13	68,36	1,140	1,117	1,082	1,025
94	70,50	61,0548	71,25	69,62	68,88	69,11	1,140	1,117	1,082	1,025
95	71,25	61,7043	72,00	70,37	69,63	69,86	1,140	1,117	1,082	1,024
96	72,00	62,3538	72,75	71,12	70,38	70,61	1,140	1,116	1,082	1,024
97	72,75	63,0033	73,50	71,87	71,13	71,36	1,139	1,116	1,082	1,024
98	73,50	63,6529	74,25	72,62	71,88	72,11	1,139	1,116	1,081	1,023
99	74,25	64,3024	75,00	73,37	72,63	72,86	1,139	1,116	1,081	1,023
100	75,00	64,9519	75,75	74,12	73,38	73,61	1,139	1,116	1,081	1,023

Table 7 — Inspection dimensions internal spline, $\alpha = 30^\circ$, $m = 0,75$, flat or fillet root, $E_{V \min} = 1,178$

z	D _{Ri}	Measurement over balls or pins, M _{Ri} (checking of dimensions E _{min} and E _{max}) for tolerance classes								K _i
		4H		5H		6H		7H		
		min. (aux.)	max.	min. (aux.)	max.	min. (aux.)	max.	min. (aux.)	max.	
6	—	—	—	—	—	—	—	—	—	—
7	—	—	—	—	—	—	—	—	—	—
8	1,25	4,224	4,267	4,239	4,308	4,260	4,366	4,292	4,455	2,097
9	1,25	4,897	4,936	4,910	4,973	4,923	5,028	4,958	5,114	2,001
10	1,32	5,475	5,521	5,491	5,566	5,514	5,630	5,549	5,727	2,232
11	1,32	6,171	6,212	6,185	6,254	6,206	6,313	6,238	6,406	2,129
12	1,32	7,013	7,053	7,027	7,093	7,047	7,151	7,078	7,243	2,032
13	1,32	7,708	7,746	7,722	7,784	7,740	7,841	7,770	7,930	2,033
14	1,32	8,534	8,570	8,547	8,608	8,565	8,664	8,595	8,753	2,013
15	1,32	9,232	9,268	9,245	9,305	9,263	9,360	9,292	9,448	1,974
16	1,32	10,046	10,082	10,059	10,119	10,077	10,173	10,106	10,261	1,962
17	1,32	10,750	10,784	10,762	10,821	10,780	10,874	10,808	10,962	1,935
18	1,32	11,555	11,590	11,568	11,626	11,586	11,680	11,614	11,768	1,927
19	1,32	12,263	12,296	12,275	12,332	12,293	12,386	12,321	12,473	1,906
20	1,32	13,062	13,096	13,075	13,132	13,093	13,186	13,121	13,273	1,901
21	1,32	13,773	13,806	13,785	13,842	13,803	13,895	13,831	13,982	1,885
22	1,32	14,568	14,601	14,580	14,637	14,598	14,690	14,626	14,778	1,881
23	1,32	15,281	15,314	15,294	15,350	15,311	15,403	15,340	15,490	1,868
24	1,32	16,072	16,105	16,085	16,141	16,102	16,194	16,131	16,282	1,865
25	1,32	16,788	16,821	16,801	16,856	16,818	16,910	16,847	16,997	1,854
26	1,32	17,576	17,608	17,588	17,644	17,606	17,697	17,635	17,785	1,852
27	1,32	18,294	18,326	18,307	18,362	18,325	18,416	18,353	18,503	1,843
28	1,32	19,079	19,111	19,091	19,147	19,109	19,200	19,138	19,289	1,841
29	1,40	19,540	19,574	19,554	19,611	19,572	19,666	19,602	19,757	1,888
30	1,40	20,323	20,356	20,337	20,394	20,355	20,449	20,385	20,540	1,884
31	1,40	21,046	21,079	21,060	21,116	21,078	21,172	21,108	21,263	1,876
32	1,40	21,827	21,860	21,840	21,897	21,859	21,953	21,889	22,044	1,872
33	1,40	22,552	22,584	22,565	22,621	22,584	22,677	22,614	22,768	1,865
34	1,40	23,330	23,363	23,344	23,400	23,363	23,456	23,393	23,547	1,862
35	1,40	24,056	24,089	24,070	24,126	24,089	24,181	24,119	24,273	1,855
36	1,40	24,833	24,866	24,847	24,903	24,866	24,959	24,896	25,050	1,853
37	1,40	25,560	25,593	25,574	25,630	25,593	25,686	25,623	25,777	1,847
38	1,40	26,336	26,368	26,349	26,406	26,369	26,461	26,399	26,553	1,845
39	1,40	27,064	27,096	27,078	27,134	27,097	27,189	27,127	27,282	1,840
40	1,40	27,838	27,870	27,852	27,908	27,871	27,964	27,902	28,056	1,838
41	1,40	28,567	28,599	28,581	28,637	28,600	28,693	28,631	28,785	1,833
42	1,40	29,340	29,372	29,354	29,410	29,374	29,466	29,404	29,559	1,832
43	1,40	30,070	30,102	30,084	30,140	30,104	30,196	30,135	30,289	1,828
44	1,40	30,842	30,874	30,856	30,912	30,876	30,968	30,907	31,061	1,826
45	1,40	31,573	31,605	31,587	31,643	31,607	31,699	31,638	31,792	1,823
46	1,40	32,344	32,376	32,358	32,414	32,378	32,470	32,409	32,564	1,821
47	1,40	33,076	33,107	33,090	33,145	33,110	33,202	33,141	33,295	1,818
48	1,40	33,846	33,877	33,860	33,915	33,880	33,972	33,911	34,066	1,817
49	1,40	34,578	34,609	34,592	34,647	34,612	34,704	34,644	34,798	1,814
50	1,40	35,347	35,378	35,361	35,417	35,382	35,474	35,413	35,568	1,813
51	1,40	36,080	36,111	36,094	36,150	36,115	36,207	36,146	36,301	1,810
52	1,40	36,849	36,880	36,863	36,918	36,883	36,975	36,915	37,070	1,809
53	1,40	37,582	37,613	37,597	37,652	37,617	37,709	37,649	37,804	1,806
54	1,40	38,350	38,381	38,364	38,420	38,385	38,477	38,417	38,572	1,806
55	1,40	39,084	39,115	39,099	39,154	39,119	39,211	39,151	39,306	1,803
56	1,40	39,851	39,882	39,866	39,921	39,886	39,978	39,919	40,074	1,802
57	1,40	40,586	40,617	40,600	40,655	40,621	40,713	40,653	40,808	1,800
58	1,40	41,352	41,383	41,367	41,422	41,388	41,480	41,420	41,575	1,800
59	1,40	42,087	42,118	42,102	42,157	42,123	42,215	42,156	42,311	1,798
60	1,40	42,853	42,884	42,868	42,923	42,889	42,981	42,922	43,077	1,797
61	1,40	43,589	43,620	43,604	43,659	43,625	43,717	43,658	43,813	1,795
62	1,40	44,354	44,385	44,369	44,424	44,390	44,482	44,423	44,579	1,794
63	1,40	45,090	45,121	45,106	45,160	45,127	45,219	45,160	45,315	1,793
64	1,40	45,855	45,886	45,871	45,925	45,892	45,984	45,925	46,081	1,792
65	1,40	46,592	46,623	46,607	46,662	46,628	46,720	46,662	46,817	1,791
66	1,40	47,356	47,387	47,372	47,426	47,393	47,485	47,426	47,582	1,790
67	1,40	48,093	48,124	48,108	48,163	48,130	48,222	48,163	48,319	1,789
68	1,40	48,857	48,888	48,873	48,927	48,894	48,986	48,928	49,084	1,788
69	1,40	49,594	49,625	49,610	49,665	49,631	49,723	49,665	49,821	1,787
70	1,40	50,358	50,389	50,374	50,428	50,395	50,487	50,429	50,585	1,786
71	1,40	51,096	51,126	51,111	51,166	51,133	51,225	51,167	51,323	1,785
72	1,40	51,859	51,890	51,875	51,929	51,896	51,988	51,930	52,087	1,784
73	1,40	52,597	52,627	52,612	52,667	52,634	52,726	52,669	52,825	1,783
74	1,40	53,360	53,390	53,375	53,430	53,397	53,489	53,432	53,588	1,783
75	1,40	54,098	54,128	54,114	54,168	54,136	54,228	54,170	54,327	1,782
76	1,40	54,860	54,891	54,876	54,931	54,898	54,991	54,933	55,090	1,781
77	1,40	55,599	55,629	55,615	55,669	55,637	55,729	55,672	55,828	1,780
78	1,40	56,361	56,392	56,377	56,432	56,399	56,492	56,434	56,591	1,780
79	1,40	57,100	57,130	57,116	57,170	57,138	57,230	57,173	57,330	1,779
80	1,40	57,862	57,892	57,878	57,932	57,900	57,993	57,935	58,092	1,778
81	1,40	58,601	58,631	58,617	58,672	58,640	58,732	58,675	58,832	1,777
82	1,40	59,363	59,393	59,379	59,433	59,401	59,493	59,437	59,594	1,777
83	1,40	60,102	60,132	60,118	60,173	60,141	60,233	60,176	60,333	1,776
84	1,40	60,863	60,893	60,880	60,934	60,902	60,994	60,938	61,095	1,776
85	1,40	61,603	61,633	61,619	61,673	61,642	61,734	61,678	61,835	1,775
86	1,40	62,364	62,394	62,380	62,435	62,403	62,495	62,439	62,596	1,775
87	1,40	63,104	63,134	63,120	63,174	63,143	63,235	63,179	63,336	1,774
88	1,40	63,865	63,895	63,881	63,935	63,904	63,996	63,940	64,097	1,774
89	1,40	64,605	64,635	64,621	64,675	64,644	64,736	64,680	64,838	1,773
90	1,40	65,365	65,395	65,382	65,436	65,405	65,497	65,441	65,599	1,772
91	1,40	66,105	66,135	66,122	66,176	66,145	66,237	66,181	66,339	1,772
92	1,40	66,866	66,896	66,882	66,937	66,906	66,998	66,942	67,100	1,771
93	1,40	67,606	67,636	67,623	67,677	67,646	67,738	67,683	67,840	1,771
94	1,40	68,366	68,396	68,383	68,437	68,407	68,499	68,443	68,601	1,770
95	1,40	69,107	69,137	69,124	69,178	69,147	69,240	69,184	69,342	1,770
96	1,40	69,867	69,897	69,884	69,938	69,907	70,000	69,944	70,102	1,770
97	1,40	70,608	70,637	70,625	70,679	70,648	70,741	70,685	70,843	1,769
98	1,40	71,367	71,397	71,384	71,439	71,408	71,500	71,445	71,603	1,769
99	1,40	72,108	72,138	72,125	72,180	72,149	72,242	72,186	72,344	1,768
100	1,40	72,868	72,898	72,885	72,939	72,909	73,001	72,946	73,104	1,768