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Sampling procedures for inspection by attributes —

Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection

Règles d'échantillonnage pour les contrôles par attributs —

Partie 2: Plans d'échantillonnage pour les contrôles de lots isolés, indexés d'après la qualité limite (QL)

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 69, *Application of statistical methods*, Subcommittee SC 5, *Acceptance sampling*.

This second edition cancels and replaces the first edition (ISO 2859-2:1985), which has been technically revised.

The main changes compared to the previous edition are as follows:

— inclusion of a sampling plan for the number of nonconformities per item in the lot;

— extension of the range of preferred LQ values from the original range "0,5 0,8 1,25 2 3,15 5 8 12,5 20 31,5 to the new one "0,05 0,008 0,125 0,2 0,315 0,5 0,8 1,25 2 3,15 5 8 12,5 20 31,5 50 80 125 200 315 500 800 1 250 2 000 3 150";

— tables of shortest length confidence intervals for lot proportion nonconforming under confidence levels 0,95 and 0,99;

— new technical annexes: Annex A on "Statistical properties of single sampling plans", Annex B on "Calculation of the statistical indices" and Annex C on "Information on technical background of confidence intervals".

A list of all parts in the ISO 2859 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Sampling procedures for inspection by attributes —

Part 2: Sampling plans indexed by limiting quality (LQ) for isolated lot inspection

1 Scope

This document specifies an acceptance sampling system for inspection by attributes indexed by limiting quality (LQ). The sampling system is used for lots in isolation (isolated sequences of lots, an isolated lot, a unique lot or a short series of lots), where switching rules, such as those of ISO 2859-1, are not applicable. Inspection levels, as provided by ISO 2859-1 to control the relative amount of inspection, are not provided in this document. In many industrial situations, in which switching rules might be used, they are not applied for a number of reasons, not all of which might be valid:

a) production is intermittent (not continuous);

b) production is from several different sources in varying quantities, i.e. "job lots";

c) lots are isolated;

d) lots are resubmitted after inspection.

The sampling plans in this document are indexed by a series of specified values of limiting quality (LQ), where the consumer's risk (the probability of acceptance at the LQ) is usually below 0,10 (10 %), except in some instances.

This document is intended both for inspection for nonconforming items and for inspection for nonconformities per 100 items.

It is intended to be used when the supplier and the consumer both regard the lot to be in isolation. That is, the lot is unique in that it is the only one of its type produced. It can also be used when there is a series of lots too short for switching rules to be applied.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 2859-1, *Sampling procedures for inspection by attributes — Part 1: Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection*

ISO 3534-1, *Statistics — Vocabulary and symbols — Part 1: General statistical terms and terms used in probability*

ISO 3534-2, *Statistics — Vocabulary and symbols — Part 2: Applied statistics*

3 Terms and definitions, and symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2859-1, ISO 3534-1 and ISO 3534-2 apply. For ease of reference, some terms are quoted from these standards.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1.1
consumer´s risk
CR
probability of acceptance when the quality level has a value stated by the acceptance sampling plan as unsatisfactory

Note 1 to entry: For the purposes of this document, the consumer's risk is approximately 0,10 or 10 % in percent scale.

[SOURCE: ISO 3534-2:2006, 4.6.2, modified — The symbol has been deleted; the original Note has been deleted; and the new Note 1 to entry has been added.]

3.1.2
consumer's risk quality
CRQ
quality of a lot or process which, in the acceptance sampling plan, corresponds to a specified *consumer's risk* (3.1.1)

Note 1 to entry: For the purposes of this document, the consumer's risk quality is mostly equated to the *limiting quality (LQ)* (3.1.3).

[SOURCE: ISO 3534-2:2006, 4.6.9, modified — The symbol has been deleted; in the definition, "quality level of a lot or process" has been replaced with "quality of a lot or process"; the original Note has been deleted; and the new Note 1 to entry has been added.]

3.1.3
limiting quality
LQ
quality level, when a lot is considered in isolation, which, for the purposes of acceptance sampling inspection, is limited to a low probability of acceptance

[SOURCE: ISO 3534-2:2006, 4.6.13]

3.1.4
producer´s risk
PR
probability of non-acceptance when the quality level has a value stated by the plan as acceptable

Note 1 to entry: For the purposes of this document, the producer's risk is approximately 0,05 (5 %), and never exceeds 0,05 (5 %).

[SOURCE: ISO 3534-2:2006, 4.6.4, modified — The symbol has been deleted; the original Note 1 and Note 2 have been deleted; and the new Note 1 to entry has been added.]

3.1.5
producer´s risk quality
PRQ
quality level of a lot or process which, in the acceptance sampling plan, corresponds to a specified *producer´s risk* (3.1.4)

[SOURCE: ISO 3534-2:2006, 4.6.10, modified — The symbol has been deleted; the original Note 1 and Note 2 have been deleted; and the new Note 1 to entry has been added.]

3.2 Symbols and abbreviated terms

Ac	acceptance number
CR (β)	consumer´s risk
CRQ	consumer's risk quality
D	number of nonconforming items (or nonconformities) in the population or lot
d	number of nonconforming items (or nonconformities) found in a sample from a lot
LQ	limiting quality
N	lot size
n	sample size
OC	operating characteristic
p	lot proportion nonconforming or average number of nonconformities per item in the lot
P	probability
P_a	probability of acceptance
PR (α)	producer´s risk
PRQ	producer´s risk quality
σ^2	variance of a statistical distribution
μ	mean of a statistical distribution

4 Choice of sampling plan

4.1 General

The following procedures shall be followed in advance of acceptance sampling.

a) The value of the limiting quality (LQ) shall be specified in accordance with 4.2.

b) The lot size shall be determined.

The sampling plan to be used shall be found in accordance with 4.3.

By reference to Tables 1 to 4, an applicable sampling plan is identified from the lot size (*N*) and the limiting quality (LQ).

With the specified lot size and the limiting quality as indexing values, the sample size *n* and the acceptance number Ac are given in Tables 1 to 4.

Although the primary index to Tables 1 to 4 is the limiting quality (LQ), the producer/supplier needs guidance on the quality level required if lots are to have a high probability of acceptance.

Table 1 — Table of sampling plans — LQ from 0,05 to 0,8

Lot size		Limiting quality LQ in percentage nonconforming or average number of nonconformities per 100 items						
		0,05	0,08	0,125	0,2	0,315	0,5	0,8
16 to 25	*n*, Ac	→	→	→	→	→	→	→
26 to 50	*n*, Ac	→	→	→	→	→	→	→
51 to 90	*n*, Ac	→	→	→	→	→	→	→
91 to 150	*n*, Ac	→	→	→	→	→	→	150, 0
151 to 280	*n*, Ac	→	→	→	252, 0	252, 0	200, 0	170, 0
281 to 500	*n*, Ac	→	→	450, 0	450, 0	287, 0	280, 0	220, 0
501 to 1 200	*n*, Ac	1 080, 0	1 080, 0	720, 0	684, 0	510, 0	380, 0	255, 0
1 201 to 3 200	*n*, Ac	1 800, 0	1 710, 0	1 400, 0	956, 0	653, 0	430, 0	280, 0
3 201 to 10 000	*n*, Ac	3 690, 0	2 501, 0	1 676, 0	1 087, 0	699, 0	450, 0	315, 0
10 001 to 35 000	*n*, Ac	4 306, 0	2 762, 0	1 793, 0	1 132, 0	717, 0	500, 0	500, 1
35 001 to 150 000	*n*, Ac	4 535, 0	2 850, 0	1 830, 0	1 146, 0	800, 0	800, 1	500, 1
150 001 to 500 000	*n*, Ac	4 583, 0	2 869, 0	1 838, 0	1 250, 0	1 250, 1	800, 1	800, 3
>500 000	*n*, Ac	4 601, 0	2 876, 0	2 000, 0	2 000, 1	1 250, 1	1 250, 3	1 250, 5

Table 2 — Table of sampling plans — LQ from 1,25 to 31,5

Lot size		Limiting quality LQ in percentage nonconforming or average number of nonconformities per 100 items							
		1,25	2	3,15	5	8	12,5	20	31,5
16 to 25	*n*, Ac	→	→	→	25, 0	17, 0	13, 0	9, 0	6, 0
26 to 50	*n*, Ac	→	50, 0	50, 0	28, 0	22, 0	15, 0	10, 0	6, 0
51 to 90	*n*, Ac	90, 0	50, 0	44, 0	34, 0	24, 0	16, 0	10, 0	8, 0
91 to 150	*n*, Ac	90, 0	80, 0	55, 0	38, 0	26, 0	18, 0	13, 0	13, 1
151 to 280	*n*, Ac	130, 0	95, 0	65, 0	42, 0	28, 0	20, 0	20, 1	13, 1
281 to 500	*n*, Ac	155, 0	105, 0	80, 0	50, 0	32, 0	32, 1	20, 1	20, 3
501 to 1 200	*n*, Ac	170, 0	125, 0	125, 1	80, 1	50, 1	32, 1	32, 3	32, 5
1 201 to 3 200	*n*, Ac	200, 0	200, 1	125, 1	125, 3	80, 3	50, 3	50, 5	50, 10
3 201 to 10 000	*n*, Ac	315, 1	200, 1	200, 3	200, 5	125, 5	80, 5	80, 10	80, 18
10 001 to 35 000	*n*, Ac	315, 1	315, 3	315, 5	315, 10	200, 10	125, 10	125, 18	80, 18
35 001 to 150 000	*n*, Ac	500, 3	500, 5	500, 10	500, 18	315, 18	200, 18	125, 18	80, 18
150 001 to 500 000	*n*, Ac	800, 5	800, 10	800, 18	500, 18	315, 18	200, 18	125, 18	80, 18
>500 000	*n*, Ac	1 250, 5	1 250, 10	1 250, 18	800, 18	500, 18	315, 18	200, 18	125, 18

Table 3 — Table of sampling plans — LQ from 50 to 3 150, without correlation of nonconformities

Lot size		Limiting quality LQ in average number of nonconformities per 100 items (model without correlation of the nonconformities)									
		50	80	125	200	315	500	800	1 250	2 000	3 150
16 to 25	*n*, Ac	4, 0	3, 0	3, 1	2, 1	2, 3	2, 5	2, 10	2, 17	2, 29	2, 50
26 to 50	*n*, Ac	5, 0	5, 1	3, 1	3, 3	3, 5	3, 10	3, 17	2, 18	2, 29	2, 50
51 to 90	*n*, Ac	8, 1	5, 1	5, 3	5, 5	5, 10	5, 18	3, 18	2, 18	2, 29	2, 50
91 to 150	*n*, Ac	8, 1	8, 3	8, 5	8, 10	8, 18	5, 18	3, 18	2, 18	2, 29	2, 50
151 to 280	*n*, Ac	13, 3	13, 5	13, 10	13, 18	8, 18	5, 18	3, 18	2, 18	2, 29	2, 50
281 to 500	*n*, Ac	20, 5	20, 10	20, 18	13, 18	8, 18	5, 18	3, 18	3, 29	3, 50	3, 82

Table 3 *(continued)*

Lot size		Limiting quality LQ in average number of nonconformities per 100 items (model without correlation of the nonconformities)									
		50	80	125	200	315	500	800	1 250	2 000	3 150
501 to 1 200	*n*, Ac	32, 10	32, 18	20, 18	13, 18	8, 18	5, 18	5, 31	5, 51	5, 84	5, 141
1 201 to 3 200	*n*, Ac	50, 18	32, 18	20, 18	13, 18	8, 18	8, 31	8, 51	8, 84	8, 141	8, 229
3 201 to 10 000	*n*, Ac	50, 18	32, 18	20, 18	13, 18	13, 31	13, 51	13, 84	13, 141	13, 229	13, 374
10 001 to 35 000	*n*, Ac	50, 18	32, 18	20, 18	20, 31	20, 51	20, 84	20, 141	20, 229	20, 374	20, 593
35 001 to 150 000	*n*, Ac	50, 18	32, 18	32, 31	32, 51	32, 84	32, 242	32, 229	32, 374	32, 593	32, 959
150 001 to 500 000	*n*, Ac	50, 18	50, 31	50, 51	50, 84	50, 141	50, 229	50, 374	50, 593	50, 959	50, 1 524
>500 000	*n*, Ac	80, 31	80, 51	80, 84	80, 143	80, 231	80, 374	80, 607	80, 959	80, 1548	80, 2 455

Table 4 — Table of sampling plans — LQ from 50 to 3 150, with correlation of nonconformities

Lot size		Limiting quality LQ in average number of nonconformities per 100 items (model with correlation of the nonconformities)									
		50	80	125	200	315	500	800	1 250	2 000	3 150
16 to 25	*n*, Ac	5, 0	4, 0	3, 0	2, 0	2, 1	2, 2	2, 3	2, 6	2, 10	2, 16
26 to 50	*n*, Ac	5, 0	5, 1	4, 1	3, 1	3, 2	3, 4	3, 8	3, 13	3, 18	2, 18
51 to 90	*n*, Ac	8, 1	6, 1	5, 2	5, 3	5, 6	5, 11	4, 13	3, 13	3, 18	2, 18
91 to 150	*n*, Ac	9, 1	8, 2	8, 4	8, 7	8, 13	6, 14	4, 14	3, 14	3, 18	2, 18
151 to 280	*n*, Ac	13, 2	13, 5	13, 9	13, 15	9, 15	6, 15	5, 17	4, 18	3, 18	2, 18
281 to 500	*n*, Ac	20, 5	20, 9	20, 15	13, 15	9, 15	7, 17	5, 18	4, 18	3, 21	3, 33
501 to 1 200	*n*, Ac	32, 10	32, 17	22, 17	14, 17	10, 17	7, 18	5, 18	5, 29	5, 47	5, 75
1 201 to 3 200	*n*, Ac	50, 17	32, 17	22, 17	15, 18	10, 18	8, 21	8, 35	8, 56	8, 91	8, 145
3 201 to 10 000	*n*, Ac	53, 18	34, 18	23, 18	15, 18	13, 25	13, 41	13, 67	13, 105	13, 170	13, 270
10 001 to 35 000	*n*, Ac	53, 18	34, 18	23, 18	20, 26	20, 43	20, 70	20, 113	20, 178	20, 287	20, 454
35 001 to 150 000	*n*, Ac	53, 18	34, 18	32, 28	32, 46	32, 75	32, 121	32, 196	32, 309	32, 496	32, 783
150 001 to 500 000	*n*, Ac	53, 18	50, 29	50, 47	50, 78	50, 125	50, 201	50, 325	50, 510	50, 819	50, 1 292
>500 000	*n*, Ac	80, 30	80, 50	80, 81	80, 132	80, 211	80, 338	80, 544	80, 854	80, 136 9	80, 2 160

4.2 Choice of limiting quality (LQ)

The purpose of this document is to guard against unsatisfactory quality. In this document, the limiting quality (LQ) is the parameter used to protect against unsatisfactory quality. The sampling plans in this document have a probability of accepting the lot at the LQ at approximately 10 %. In this document, the sampling tables are indexed by a set of specified limiting quality values. If the user's chosen LQ value is not among the specified ones, then an applicable LQ value can be found as the lower bound of the intervals provided in Tables 5 to 7, as the use of a higher standard LQ than the user specified LQ would lead to a probability of acceptance higher than 10 %. (See EXAMPLE 1.)

Table 5 — Ranges of LQ values, from 0,00 (lower) 0,05 (upper) to 0,8 (lower) 1,25 (upper)

Value type	Limiting quality (LQ) in percentage nonconforming or average number of nonconformities per 100 items							
Lower bound	0,00	0,05	0,08	0,125	0,2	0,315	0,5	0,8
Upper bound	0,05	0,08	0,125	0,2	0,315	0,5	0,8	1,25

**Table 6 — Ranges of LQ values,
from 1,25 (lower) 2 (upper) to 31,5 (lower) 50 (upper)**

Value type	Limiting quality (LQ) in percentage nonconforming or average number of nonconformities per 100 items							
Lower bound	1,25	2	3,15	5	8	12,5	20	31,5
Upper bound	2	3,15	5	8	12,5	20	31,5	50

**Table 7 — Ranges of LQ values,
from 50 (lower) 80 (upper) to 2 000 (lower) 3 150 (upper)**

Value type	Limiting quality (LQ) in percentage nonconforming or average number of nonconformities per 100 items								
Lower bound	50	80	125	200	315	500	800	1 250	2 000
Upper bound	80	125	200	315	500	800	1 250	2 000	3 150

EXAMPLE 1

For a product, the limiting quality has been set at 3,5 percentage nonconforming (3,5 %). This is a nonspecified value and it shall be converted to the specified value of 3,15, since 3,5 lies in the interval of 3,15 < LQ < 5 in Table 6.

EXAMPLE 2

For a product, the limiting quality has been set at 12 nonconformities per 100 items. This a nonspecified value and it shall be converted to the specified value of 8, since 12 lies in the interval of 8 < LQ < 12,5 in Table 6.

4.3 Obtaining a sampling plan

A sampling plan is identified by:

a) the inspection context;

b) the lot size;

c) the limiting quality; and

d) the consumer´s risk.

The inspection context shall distinguish between:

1) inspection for nonconforming items; and

2) inspection for nonconformities.

In the case of inspection for nonconformities, distinguish between the cases where the lot is considered as a lot:

i) with correlation of the nonconformities (see 6.1); or

ii) without correlation of the nonconformities (see 6.2).

The applicable sample size *n* and acceptance number Ac shall be found in the appropriate table using the lot size, the specified limiting quality (LQ) and the consumer's risk (0,10).

5 Acceptance and non-acceptance

5.1 Drawing of samples

The items selected for the sample shall be drawn from the lot by simple random sampling. When the lot consists of sub-lots or strata, identified by some rational criterion, stratified sampling shall be used in such a way that the number of items sampled is proportional to the number of items in the sub-lot or stratum.

5.2 Acceptance of lots

All items in the sample shall be inspected and the number of nonconforming items (or the total number of nonconformities) shall be counted.

Acceptability of a lot shall be determined by the use of the obtained sampling plan. If the number of nonconforming items (or the total number of nonconformities) found in the sample is less than or equal to the acceptance number Ac, the lot shall be accepted, otherwise the lot shall not be accepted.

5.3 Disposition of non-accepted lots

The disposition of lots not accepted shall be agreed in advance by all interested parties.

5.4 Accepted lots with one or more nonconforming units or nonconformities

If a lot has been accepted, the right is reserved not to accept any item found nonconforming or having nonconformities during the acceptance sampling inspection that led to lot acceptance.

5.5 Resubmitted lots

A lot that has been inspected but not accepted shall only be resubmitted for re-inspection if:

a) the purchaser is satisfied that the number of nonconforming items or the total number of nonconformities is sufficiently low, e.g., by reworking; and

b) all interested parties agree.

The responsible authority shall determine the method of re-inspection to be applied (i.e. the LQ and the associated consumer's risk) and whether re-inspection shall include all types or classes of nonconformities or only those that caused the initial non-acceptance.

6 Sampling for nonconformities

This document is also applicable for sampling for nonconformities, which will be distinguished depending on the respective dispersion structure.

6.1 Sampling for nonconformities for lots with correlation of the nonconformities

Nonconformities tend to cluster on particular items. This means:

— the occurrence of a nonconformity on an item increases the likelihood of finding further nonconformities on that item;

— the total number of nonconformities in a lot is rather unevenly distributed over the items in the lots (see example in 7.2).

For further information on the sampling distribution, see Annex A.

6.2 Sampling for nonconformities for lots without correlation of the nonconformities

Nonconformities do not cluster on particular items. This means:

— the number of nonconformities on individual items in the lot deviates from the mean number p of nonconformities per item in the lot with an average square deviation of the order of magnitude of p or smaller;

— the total number of nonconformities in a lot is rather evenly distributed over the items in the lot (see example in 7.3).

For further information on the sampling distribution, see Annex A.

6.3 General advice on sampling for nonconformities

Different from sampling for nonconforming items, there is not a unique distribution model for sampling for nonconformities. Neither of the two competing models can claim exclusive validity. The f-binomial noncorrelation model leads to lower sample size and higher acceptance numbers than the negative hypergeometric correlation model. To protect against the worst case, it is recommended to the user to consider the correlation model, as long as there is no sufficient evidence to support the noncorrelation assumption.

7 Examples

7.1 Example of sampling for nonconforming items

A consumer wishes to purchase packages of 10 screws to include in the self-assembly bookcase kits. He/she plans to produce 5 000 kits in lots of 1 250. While he/she prefers each package to contain exactly 10 screws, he/she can tolerate a few packages with fewer screws, but does not want to risk accepting a high percentage of nonconforming packages.

The supplier agrees to use this document with preferred value of limiting quality 3,15 (in percentage nonconforming). For lot size 1 250, the selected sampling plan is n = 125, Ac = 1. (See Tables 1 to 4.)

The supplier offers to provide the packs needed for all 5 000 kits as a single lot. The new sampling plan is n = 200, Ac = 3. (See Tables 1 to 4.)

By Tables 8 and 9, the consumer incurs a consumer´s risk (CR) of 0,085 7 at the LQ of 0,031 5 for lot size N = 1 250, whereas he/she incurs a CR of 0,119 9 for lot size N = 5 000 at the same LQ.

Furthermore, Tables 8 and 9 provide the respective producer´s risk quality (PRQ) and producer´s risk (PR). While at the LQ of 3,15 (in percentage nonconforming) and for lot size N = 1 250, the PRQ is 0,003 13 (0,313 %) with a PR of 0,05, at the same LQ and for lot size N = 5 000, the PRQ amounts to 0,007 0 (0,7 %) with a PR of 0,05, too. That is, a feasible lot proportion nonconforming less or equal to 0,003 1 and 0,007, respectively, is rejected with a maximum probability of 5 %.

7.2 Example of sampling for nonconformities for lots with correlation

An auditor inspects the supplier accounts of a medium size retailer of steel products. The retailer has 125 suppliers and each supplier account contains a large number of journal entries. The auditor assumes the tolerable misstatement in average number of nonconformities per item is 0,05, i.e., on the average each account should have at most 5 misstated journal entries, i.e., the average number of nonconformities per item is 0,05. Auditing proceeds by sampling inspection according to this document with limiting quality 5 (in nonconformities per 100 items).

For lot size N = 125, Tables 1 to 4 prescribe the sampling plan with sample size n = 38 and acceptance number Ac = 0. From previous auditing experience, the auditor knows that the auditee's accounting system tends to generate correlated errors, i.e., the error numbers of the individual account entries *vary strongly* around their average. Thus, by Tables 13 to 15, the auditor incurs a consumer's risk of 0,115 01

at the LQ 5 (in nonconformities per 100 items). Furthermore, Tables 13 to 15 provide a producer´s risk quality (PRQ) of 0,000 00 (0 %) and a producer´s risk (PR) of 0,000 00, i.e., by the occurrence of one single nonconformity in the lot the PR bound of 0,05 probability of acceptance would already be exceeded.

7.3 Example of sampling for nonconformities for lots without correlation

This is the same situation as in the example in 7.2 but without correlation. An auditor inspects the supplier accounts of a medium size retailer of steel products. The retailer has 125 suppliers and each supplier account contains a large number of journal entries. The auditor assumes p = 5 as the rate of tolerable misstatement, i.e., on the average each account should have at most 5 misstated journal entries. Auditing proceeds by sampling inspection according to this document with limiting quality 5 (in nonconformities per 100 items).

For lot size N = 125, Tables 1 to 4 prescribe the sampling plan with sample size n = 38 and acceptance number Ac = 0. From previous auditing experience, the auditor knows that the auditee's accounting system tends to generate noncorrelated errors, i.e., the error numbers of the individual account entries *vary slightly* around their average. Thus, by Tables 10 to 12, the auditor incurs a consumer's risk of 0,109 0 at the LQ of 5 (in nonconformities per 100 items). Furthermore, Tables 10 to 12 provide a producer´s risk quality (PRQ) of 0,000 0 (0 %) and a producer´s risk (PR) of 0,000 0. I.e., by the occurrence of one single nonconformity in the lot, the PR bound of 0,05 probability of acceptance would already be exceeded.

8 Additional information about the tables

8.1 Tables 8 to 15

Tables 8 to 15 are all named as "Consumer´s risk and producer´s risk quality for sampling plans". The difference is between the underlying distributions.

Tables 8 and 9 address CR and PRQ for sampling plans for nonconforming units.

Tables 10 to 12 address CR and PRQ for sampling plans for nonconformities under the model without correlation of the nonconformities.

Tables 13 to 15 address CR and PRQ for sampling plans for nonconformities under the model with correlation of the nonconformities.

The cell entries in the Tables 8 to 15 display:

a) upper line: sampling plan (n, Ac)

b) second line: representative CR´s (one or two values)

c) third line, left: PRQ

d) third line, right: PR

NOTE The representative CR´s and PR are expressed as a probability, whereas the PRQ is expressed as proportion nonconforming or average number of nonconformities per item.

8.2 Tables 16 and 17

Tables 16 and 17 give the shortest length confidence intervals for lot quality p (lot proportion nonconforming or average number of nonconformities per item in the lot), under confidence levels 0,95 and 0,99 for each sampling plan (n, Ac) for x = 0, … , Ac + 1, where x denotes the number of nonconforming units found in the sample or the number of nonconformities counted in the sample.

Since Ac is the acceptance number, x = 0,..., Ac covers all situations which lead to acceptance, whereas x = Ac + 1 is the first case leading to rejection.

(For further information on technical background of confidence intervals, see Annex C.)

Table 8 — Consumer's risk and producer's risk quality for sampling plans under hypergeometric sampling distribution, used for sampling for nonconforming units — LQ from 0,05 to 0,8

Lot size	Limiting quality (LQ) in percentage nonconforming						
	0,05	**0,08**	**0,125**	**0,2**	**0,315**	**0,5**	**0,8**
16 to 25	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
26 to 50	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
51 to 90	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
91 to 150	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
151 to 280	100 % inspection	100 % inspection	100 % inspection	(252, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(252, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(200, 0) 0,0000 0,000 0 0,0000	(170, 0) 0,101 5 0,000 0 0,000 0
281 to 500	100 % inspection	100 % inspection	(450, 0) 0,000 0 0,1000 0,000 0 0,0000	(450, 0) 0,100 0 0,000 0 0,000 0	(287, 0) 0,097 5 0,094 6 0,000 0 0,000 0	(280, 0) 0,089 5 0,000 0 0,000 0	(220, 0) 0,097 4 0,000 0 0,000 0
501 to 1 200	(1 080, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(1 080, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(720, 0) 0,100 0 0,000 0 0,000 0	(684, 0) 0,099 6 0,000 0 0,000 0	(510, 0) 0,038 5 0,099 7 0,000 0 0,000 0	(380, 0) 0,101 2 0,000 0 0,000 0	(255, 0) 0,098 0 0,000 0 0,000 0
1 201 to 3 200	(1 800, 0) 0,100 0 0,000 0 0,000 0	(1 710, 0) 0,099 8 0,000 0 0,000 0	(1 400, 0) 0,100 0 0,000 0 0,0000	(956, 0) 0,099 0 0,000 0 0,000 0	(653, 0) 0,099 6 0,096 4 0,000 0 0,000 0	(430, 0) 0,098 8 0,000 0 0,000 0	(280, 0) 0,094 8 0,000 0 0,000 0
3 201 to 10 000	(3 690, 0) 0,100 0 0,000 0 0,000 0	(2 501, 0) 0,099 9 0,000 0 0,000 0	(1 676, 0) 0,099 9 0,000 0 0,000 0	(1 087, 0) 0,099 9 0,000 0 0,000 0	(699, 0) 0,099 8 0,098 9 0,000 0 0,000 0	(450, 0) 0,099 5 0,000 1 0,050 0	(315, 0) 0,076 5 0,000 2 0,050 0
10 001 to 35 000	(4 306, 0) 0,100 0 0,000 0 0,000 0	(2 762, 0) 0,100 0 0,000 0 0,000 0	(1 793, 0) 0,099 9 0,000 0 0,000 0	(1 132, 0) 0,099 9 0,000 0 0,032 3	(717, 0) 0,099 9 0,000 0 0,000 0	(500, 0) 0,080 1 0,000 1 0,050 0	(500, 1) 0,089 1 0,000 7 0,050 0

Table 9 — Consumer's risk and producer's risk quality for sampling plans in under hypergeometric sampling distribution, used for sampling for nonconforming units — LQ from 1,25 to 31,5

Lot size	Limiting quality (LQ) in percentage nonconforming							
	1,25	2	3,15	5	8	12,5	20	31,5
16 to 25	100 % inspection	100 % inspection	100 % inspection	100 % inspection	(17, 0) 0,093 3 0,000 0 0,000 0	(13, 0) 0,081 5 0,000 0 0,000 0	(9, 0) 0,082 21 0,000 0 0,000 0	(6, 0) 0,057 7 0,063 3 0,000 0 0,000 0
26 to 50	100 % inspection	100 % inspection	100 % inspection	(28, 0) 0,084 6 0,000 0 0,000 0	(22, 0) 0,088 9 0,000 0 0,000 0	(15, 0) 0,090 3 0,000 0 0,000 0	(10, 0) 0,082 5 0,000 0 0,000 0	(6, 0) 0,082 9 0,0834 0,000 0 0,000 0
51 to 90	100 % inspection	(50, 0) 0,019 6 0,194 8 0,000 0 0,000 0	(44, 0) 0,094 3 0,087 6 0,000 0 0,000 0	(34, 0) 0,103 2 0,000 0 0,000 0	(24, 0) 0,089 4 0,000 0 0,000 0	(16, 0) 0,094 4 0,000 0 0,000 0	(10, 0) 0,093 7 0,000 0 0,000 0	(8, 0) 0,037 1 0,039 9 0,000 0 0,000 0
91 to 150	(90, 0) 0,011 0 0,158 4 0,000 0 0,000 0	(80, 0) 0,099 3 0,000 0 0,000 0	(55, 0) 0,099 6 0,071 4 0,000 0 0,000 0	(38, 0) 0,102 8 0,000 0 0,000 0	(26, 0) 0,092 4 0,000 0 0,000 0	(18, 0) 0,076 5 0,000 0 0,000 0	(13, 0) 0,047 9 0,000 0 0,000 0	(13, 1) 0,042 7 0,043 7 0,030 8 0,049 6
151 to 280	(130, 0) 0,094 9 0,000 0 0,000 0	(95, 0) 0,089 4 0,000 0 0,000 0	(65, 0) 0,090 4 0,085 0 0,000 0 0,000 0	(42, 0) 0,096 8 0,000 0 0,000 0	(28, 0) 0,085 2 0,000 0 0,000 0	(20, 0) 0,062 5 0,000 0 0,000 0	(20, 1) 0,062 3 0,019 4 0,049 7	(13, 1) 0,045 7 0,029 3 0,049 9
281 to 500	(155, 0) 0,094 9 0,000 0 0,000 0	(105, 0) 0,092 4 0,000 0 0,000 0	(80, 0) 0,056 4 0,060 5 0,000 0 0,000 0	(50, 0) 0,067 0 0,000 0 0,000 0	(32, 0) 0,063 4 0,000 0 0,000 0	(32, 1) 0,071 1 0,012 1 0,049 8	(20, 1) 0,065 3 0,018 9 0,049 9	(20, 3) 0,078 1 0,073 0 0,049 9
501 to 1 200	(170, 0) 0,099 7 0,000 0 0,000 0	(125, 0) 0,069 5 0,000 0 0,000 0	(125, 1) 0,080 5 0,080 1 0,003 3 0,045 0	(80, 1) 0,078 9 0,004 9 0,045 0	(50, 1) 0,078 3 0,007 5 0,045 0	(32, 1) 0,075 0 0,011 6 0,050 0	(32, 3) 0,090 1 0,044 6 0,050 0	(32, 5) 0,033 3 0,086 3 0,050 0
1 201 to 3 200	(200, 0) 0,074 4 0,000 0 0,000 0	(200, 1) 0,082 5 0,002 03 0,050 00	(125, 1) 0,085 7 0,003 13 0,050 00	(125, 3) 0,118 9 0,011 3 0,050 0	(80, 3) 0,105 9 0,017 52 0,050 0	(50, 3) 0,111 9 0,028 0 0,050 0	(50, 5) 0,046 8 0,054 0 0,050 0	(50, 10) 0,049 6 0,129 3 0,050 0

Table 9 *(continued)*

Lot size	Limiting quality (LQ) in percentage nonconforming							
	1,25	**2**	**3,15**	**5**	**8**	**12,5**	**20**	**31,5**
3 201 to 10 000	(315, 1) 0,091 3 0,001 2 0,050 0	(200, 1) 0,087 2 0,001 8 0,050 0	(200, 3) 0,119 9 0,007 0 0,050 0	(200, 5) 0,060 5 0,013 30 0,050 0	(125, 5) 0,058 4 0,021 3 0,050 0	(80, 5) 0,054 5 0,033 3 0,050 0	(80, 10) 0,055 8 0,079 5 0,050 0	(80, 18) 0,049 7 0,162 0 0,050 0
10 001 to 35 000	(315, 1) 0,093 8 0,001 2 0,050 0	(315, 3) 0,122 7 0,004 4 0,050 0	(315, 5) 0,066 1 0,0084 0,050 0	(315, 10) 0,080 0 0,019 8 0,050 0	(200, 10) 0,068 6 0,031 2 0,050 0	(125, 10) 0,076 7 0,050 3 0,050 0	(125, 18) 0,068 7 0,102 1 0,050 0	(80, 18) 0,050 1 0,161 5 0,050 0

Table 10 — Consumer's risk and producer's risk quality for sampling plans under f-binomial sampling distribution, used for sampling for nonconformities under the model without correlation of the nonconformities — LQ from 0,05 to 0,8

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items						
	0,05	**0,08**	**0,125**	**0,2**	**0,315**	**0,5**	**0,8**
16 to 25	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
26 to 50	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
51 to 90	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
91 to 150	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
151 to 280	100 % inspection	100 % inspection	100 % inspection	(252, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(252, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(200, 0) 0,000 0 0,000 0 0,000 0	(170, 0) 0,102 4 0,000 0 0,000 0
281 to 500	100 % inspection	100 % inspection	(450, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(450, 0) 0,100 0 0,000 0 0,000 0	(287, 0) 0,097 5 0,094 6 0,000 0 0,000 0	(280, 0) 0,090 0 0,000 0 0,000 0	(220, 0) 0,098 3 0,000 0 0,000 0
501 to 1 200	(1 080, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(1 080, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(720, 0) 0,100 0 0,000 0 0,000 0	(684, 0) 0,099 9 0,000 0 0,000 0	(510, 0) 0,038 8 0,100 1 0,000 0 0,000 0	(380, 0) 0,101 8 0,000 0 0,000 0	(255, 0) 0,098 9 0,000 0 0,000 0
1 201 to 3 200	(1 800, *0)* 0,100 0 0,000 0 0,000 0	(1 710, 0) 0,099 9 0,000 0 0,000 0	(1 400, 0) 0,100 1 0,000 0 0,000 0	(956, 0) 0,100 0 0,000 0 0,000 0	(653, 0) 0,100 0 0,096 8 0,000 0 0,000 0	(430, 0) 0,099 4 0,000 0 0,000 0	(280, 0) 0,095 7 0,000 0 0,000 0
3 201 to 10 000	(3 690, 0) 0,100 0 0,000 0 0,000 0	(2 501, 0) 0,100 0 0,000 0 0,000 0	(1 676, 0) 0,100 0 0,000 0 0,000 0	(1 087, 0) 0,100 1 0,000 0 0,000 0	(699, 0) 0,100 2 0,099 3 0,000 0 0,000 0	(450, 0) 0,100 0 0,000 1 0,050 0	(315, 0) 0,077 3 0,000 2 0,050 0
10 001 to 35 000	(4 306, 0) 0,100 1 0,000 0 0,000 0	(2 762, 0) 0,100 1 0,000 0 0,000 0	(1 793, 0) 0,100 1 0,000 0 0,000 0	(1 132, 0) 0,100 1 0,000 0 0,032 3	(717, 0) 0,100 3 0,000 1 0,040 6	(500, 0) 0,080 6 0,000 1 0,050 0	(500, 1) 0,090 0 0,000 7 0,050 0

Table 11 — Consumer's risk and producer's risk quality for sampling plans under f-binomial sampling distribution, used for sampling for nonconformities under the model without correlation of the nonconformities — LQ from 1,25 to 31,5

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items							
	1,25	2	3,15	5	8	12,5	20	31,5
16 to 25	100 % inspection	100 % inspection	100 % inspection	100 % inspection	(17, 0) 0,102 4 0,000 0 0,000 0	(13, 0) 0,096 3 0,000 0 0,000 0	(9, 0) 0,107 4 0,000 0 0,000 0	(6, 0) 0,095 4 0,102 6 0,000 0 0,000 0
26 to 50	100 % inspection	100 % inspection	100 % inspection	(28, 0) 0,090 0 0,000 0 0,000 0	(22, 0) 0,098 3 0,000 0 0,000 0	(15, 0) 0,105 6 0,000 0 0,000 0	(10, 0) 0,107 4 0,000 0 0,000 0	(6, 0) 0,126 4 0,127 2 0,000 0 0,000 0
51 to 90	100 % inspection	(50, 0) 0,019 6 0,197 5 0,000 0 0,000 0	(44, 0) 0,097 7 0,091 0 0,000 0 0,000 0	(34, 0) 0,109 3 0,000 0 0,000 0	(24, 0) 0,098 9 0,000 0 0,000 0	(16, 0) 0,110 0 0,000 0 0,000 0	(10, 0) 0,120 0 0,000 0 0,000 0	(8, 0) 0,065 5 0,069 3 0,000 0 0,000 0
91 to 150	(90, 0) 0,011 0 0,160 0 0,000 0 0,000 0	(80, 0) 0,101 6 0,000 0 0,000 0	(55, 0) 0,103 3 0,074 7 0,000 0 0,000 0	(38, 0) 0,109 0 0,000 0 0,000 0	(26, 0) 0,101 9 0,000 0 0,000 0	(18, 0) 0,090 4 0,000 0 0,000 0	(13, 0) 0,065 9 0,000 0 0,000 0	(13, 1) 0,074 0 0,075 3 0,029 9 0,049 4
151 to 280	(130, 0) 0,096 3 0,000 0 0,000 0	(95, 0) 0,091 6 0,000 0 0,000 0	(65, 0) 0,094 0 0,088 5 0,000 0 0,000 0	(42, 0) 0,102 8 0,000 0 0,000 0	(28, 0) 0,094 2 0,000 0 0,000 0	(20, 0) 0,074 7 0,000 0 0,000 0	(20, 1) 0,083 7 0,019 5 0,045 0	(13, 1) 0,078 0 0,029 0 0,049 9
281 to 500	(155, 0) 0,096 4 0,000 0 0,000 0	(105, 0) 0,094 7 0,000 0 0,000 0	(80, 0) 0,059 1 0,063 3 0,000 0 0,000 0	(50, 0) 0,071 8 0,000 0 0,000 0	(32, 0) 0,071 0 0,000 0 0,000 0	(32, 1) 0,084 4 0,012 2 0,045 0	(20, 1) 0,087 2 0,018 7 0,049 9	(20, 3) 0,120 0 0,071 2 0,050 0
501 to 1 200	(170, 0) 0,101 1 0,000 0 0,000 0	(125, 0) 0,071 4 0,000 0 0,000 0	(125, 1) 0,083 8 0,083 4 0,003 3 0,050 0	(80, 1) 0,084 2 0,004 8 0,050 0	(50, 1) 0,087 0 0,007 4 0,050 0	(32, 1) 0,088 6 0,011 6 0,050 0	(32, 3) 0,115 6 0,043 9 0,050 0	(32, 5) 0,061 7 0,082 7 0,050 0
1 201 to 3 200	(200, 0) 0,075 7 0,000 0 0,000 0	(200, 1) 0,084 7 0,002 0 0,050 0	(125, 1) 0,089 2 0,003 0 0,050 0	(125, 3) 0,125 2 0,011 3 0,050 0	(80, 3) 0,115 8 0,017 6 0,050 0	(50, 3) 0,128 3 0,027 7 0,050 0	(50, 5) 0,065 6 0,052 7 0,050 0	(50, 10) 0,084 6 0,124 5 0,050 0

Table 11 *(continued)*

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items							
	1,25	**2**	**3,15**	**5**	**8**	**12,5**	**20**	**31,5**
3 201 to 10 000	(315, 1)	(200, 1)	(200, 3)	(200, 5)	(125, 5)	(80, 5)	(80, 10)	(80, 18)
	0,092 7	0,089 4	0,123 8	0,065 2	0,065 9	0,066 3	0,076 6	0,085 0
	0,001 2 0,050 0	0,001 8 0,050 0	0,007 0 0,050 0	0,013 2 0,050 0	0,021 1 0,050 0	0,032 8 0,050 0	0,077 3 0,050 0	0,156 0 0,050 0
10 001 to 35 000	(315, 1)	(315, 3)	(315, 5)	(315, 10)	(200, 10)	(125, 10)	(125, 18)	(80, 18)
	0,095 3	0,125 2	0,069 2	0,085 4	0,076 9	0,090 7	0,091 7	0,085 7
	0,001 1 0,050 0	0,004 4 0,050 0	0,008 4 0,050 0	0,019 7 0,050 0	0,030 9 0,050 0	0,049 5 0,050 0	0,099 6 0,050 0	0,155 6 0,050 0

Table 12 — Consumer's risk and producer's risk quality for sampling plans under f-binomial sampling distribution, used for sampling for nonconformities under the model without correlation of the nonconformities — LQ from 50 to 3 150

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items									
	50	**80**	**125**	**200**	**315**	**500**	**800**	**1 250**	**2 000**	**3 150**
16 to 25	(4, 0) 0,112 2 0,000 0 0,000 0	(3, 0) 0,077 6 0,000 0 0,000 0	(3, 1) 0,096 2 0,130 4 0,046 6	(2, 1) 0,082 7 0,190 5 0,047 8	(2, 3) 0,113 4 0,722 2 0,047 9	(2, 5) 0,059 5 1,368 4 0,049 4	(2, 10) 0,069 1 3,166 7 0,050 0	(2, 17) 0,052 9 5,950 0 0,049 6	(2, 29) 0,037 2 10,956 5 0,049 7	(2, 50) 0,046 5 20,250 0 0,049 9
26 to 50	(5, 0) 0,071 8 0,000 0 0,000 0	(5, 1) 0,080 5 0,081 1 0,049 8	(3, 1) 0,104 1 0,125 0 0,049 5	(3, 3) 0,143 0 0,475 0 0,049 4	(3, 5) 0,082 6 0,895 8 0,049 8	(3, 10) 0,111 0 2,111 1 0,050 0	(3, 17) 0,080 6 3,948 7 0,050 0	(2, 18) 0,087 6 6,297 3 0,050 0	(2, 29) 0,040 2 10,875 0 0,050 0	(2, 50) 0,050 2 20,048 8 0,050 0
51 to 90	(8 1) 0,081 7 0,048 8 0,050 0	(5, 1) 0,085 4 0,075 0 0,049 5	(5, 3) 0,122 9 0,282 4 0,049 5	(5, 5) 0,061 8 0,537 5 0,049 8	(5, 10) 0,079 5 1,266 7 0,050 0	(5, 18) 0,085 8 2,527 8 0,050 0	(2, 18) 0,089 6 6,252 9 0,050 0	(2, 18) 0,089 6 6,252 9 0,050 0	(2, 29) 0,041 5 10,839 1 0,050 0	(2, 50) 0,051 8 19,987 5 0,050 0
91 to 150	(8, 1) 0,085 7 0,046 7 0,049 9	(8, 3) 0,112 3 0,178 0 0,050 0	(8, 5) 0,062 0 0,335 9 0,049 9	(8, 10) 0,071 9 0,791 7 0,050 0	(8, 18) 0,079 7 1,574 3 0,050 0	(5, 18) 0,088 3 2,513 3 0,050 0	(3, 18) 0,125 8 4,166 7 0,050 0	(2, 18) 0,090 6 6,250 0 0,050 0	(2, 29) 0,042 2 10,831 8 0,050 0	(2, 50) 0,052 6 19,972 0 0,050 0
151 to 280	(13, 3) 0,106 2 0,108 2 0,050 0	(13, 5) 0,049 5 0,208 6 0,050 0	(13, 10) 0,064 7 0,487 2 0,050 0	(13, 18) 0,060 2 0,969 4 0,050 0	(8, 18) 0,082 8 1,573 2 0,050 0	(5, 18) 0,090 1 2,500 0 0,050 0	(3, 18) 0,127 0 4,157 5 0,050 0	(2, 18) 0,091 3 6,231 3 0,050 0	(2, 29) 0,042 7 10,818 7 0,050 0	(2, 50) 0,053 1 19,953 8 0,050 0
281 to 500	(20, 5) 0,063 3 0,133 9 0,050 0	(20, 10) 0,073 3 0,312 5 0,050 0	(20, 18) 0,087 6 0,629 7 0,050 0	(13, 18) 0,062 2 0,963 5 0,050 0	(8, 18) 0,084 2 1,562 0 0,050 0	(5, 18) 0,090 9 2,494 0 0,050 0	(3, 18) 0,127 5 4,152 9 0,050 0	(3, 29) 0,091 2 7,208 5 0,050 0	(3, 50) 0,107 0 13,294 5 0,050 0	(3,82) 0,106 0 22,887 9 0,050 0
501 to 1 200	(32, 10) 0,074 7 0,194 2 0,049 7	(32, 18) 0,071 9 0,390 8 0,049 7	(20, 18) 0,090 2 0,624 2 0,049 8	(13, 18) 0,063 6 0,959 2 0,049 9	(8, 18) 0,085 2 1,557 5 0,050 0	(5, 18) 0,091 6 2,490 0 0,049 9	(5, 31) 0,085 1 4,662 5 0,050 0	(5, 51) 0,078 3 8,150 8 0,050 0	(5, 84) 0,057 2 14,090 0 0,050 0	(5, 141) 0,099 1 24,604 2 0,050 0
1 201 to 3 200	(50, 18) 0,090 3 0,249 7 0,050 0	(32, 18) 0,073 6 0,389 4 0,049 7	(20, 18) 0,091 3 0,622 8 0,049 9	(13, 18) 0,064 2 0,957 8 0,049 9	(8, 18) 0,085 6 1,555 9 0,050 0	(8, 31) 0,085 3 2,913 1 0,050 0	(8, 51) 0,055 0 5,093 1 0,050 0	(8, 84) 0,057 3 8,805 0 0,050 0	(8, 141) 0,069 4 15,375 6 0,050 0	(8 ,229) 0,076 3 25,708 1 0,050 0
3 201 to 10 000	(50, 18) 0,091 5 0,249 1 0,050 0	(32, 18) 0,074 3 0,389 0 0,049 9	(20, 18) 0,091 8 0,622 3 0,050 0	(13, 18) 0,064 5 0,957 3 0,050 0	(13, 31) 0,065 1 1,792 4 0,050 0	(13, 51) 0,042 9 3,133 8 0,050 0	(13, 84) 0,024 9 5,417 9 0,050 0	(13, 141) 0,047 2 9,461 2 0,050 0	(13,229) 0,027 4 15,819 3 0,050 0	(13 ,374) 0,040 2 26,441 9 0,050 0
10 001 to 35 000	(50, 18) 0,091 9 0,248 9 0,050 0	(32, 18) 0,074 5 0,388 9 0,050 0	(20, 18) 0,092 0 0,622 2 0,050 0	(20, 31) 0,085 5 1,165 0 0,050 0	(20, 51) 0,070 1 2,036 8 0,050 0	(20, 84) 0,057 5 3,521 4 0,050 0	(20, 141) 0,069 5 6,149 5 0,050 0	(20, 229) 0,096 0 10,282 1 0,050 0	(20, 374) 0,100 1 17,186 7 0,050 0	(20, 593) 0,071 8 27,724 9 0,050 0

Table 13 — Consumer's risk and producer's risk quality for sampling plans under negative hypergeometric sampling distribution, used for sampling for nonconformities under the model with correlation of the nonconformities — LQ from 0,05 to 0,8

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items						
	0,05	0,08	0,125	0,2	0,315	0,5	0,8
16 to 25	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
26 to 50	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
51 to 90	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
91 to 150	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection	100 % inspection
151 to 280	100 % inspection	100 % inspection	100 % inspection	(252, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(252, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(200, 0) 0,000 0 0,000 0 0,000 0	(170, 0) 0,103 3 0,000 0 0,000 0
281 to 500	100 % inspection	100 % inspection	(450, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(450, 0) 0,1000 0,000 0 0,000 0	(287, 0) 0,097 5 0,094 6 0,000 0 0,000 0	(280, 0) 0,090 5 0,000 0 0,000 0	(220, 0) 0,099 3 0,000 0 0,000 0
501 to 1 200	(1 080, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(1 080, 0) 0,000 0 0,100 0 0,000 0 0,000 0	(720, 0) 0,100 0 0,000 0 0,000 0	(684, 0) 0,100 1 0,000 0 0,000 0	(510, 0) 0,039 0 0,100 4 0,000 0 0,000 0	(380, 0) 0,102 4 0,000 0 0,000 0	(255, 0) 0,099 9 0,000 0 0,000 0
1 201 to 3 200	(1 800, 0) 0,100 0 0,000 0 0,000 0	(1 710, 0) 0,099 9 0,000 0 0,000 0	(1 400, 0) 0,100 3 0,000 0 0,000 0	(956, 0) 0,100 3 0,000 0 0,000 0	(653, 0) 0,100 4 0,097 1 0,000 0 0,000 0	(430, 0) 0,100 0 0,000 0 0,000 0	(280, 0) 0,096 6 0,000 0 0,000 0
3 201 to 10 000	(3 690, 0) 0,100 1 0,000 0 0,000 0	(2 501, 0) 0,100 1 0,000 0 0,000 0	(1 676, 0) 0,100 2 0,000 0 0,000 0	(1 087, 0) 0,100 3 0,000 0 0,000 0	(699, 0) 0,100 6 0,099 7 0,000 0 0,000 0	(450, 0) 0,100 6 0,000 1 0,050 0	(315, 0) 0,078 1 0,000 2 0,050 0
10 001 to 35 000	(4 306, 0) 0,100 1 0,000 0 0,000 0	(2 762, 0) 0,100 2 0,000 0 0,000 0	(1 793, 0) 0,100 2 0,000 0 0,000 0	(1 132, 0) 0,100 3 0,000 0 0,032 3	(717, 0) 0,100 6 0,000 1 0,040 6	(500, 0) 0,081 1 0,000 1 0,050 0	(500, 1) 0,090 9 0,000 7 0,050 0

Table 14 — Consumer's risk and producer's risk quality for sampling plans under negative hypergeometric sampling distribution, used for sampling for nonconformities under the model with correlation of the nonconformities — LQ from 1,25 to 31,5

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items							
	1,25	2	3,15	5	8	12,5	20	31,5
16 to 25	100 % inspection	100 % inspection	100 % inspection	100 % inspection	(17, 0) 0,110 7 0,000 0 0,000 0	(13, 0) 0,110 0 0,000 0 0,000 0	(9, 0) 0,130 6 0,000 0 0,000 0	(6, 0) 0,129 1 0,137 9 0,000 0 0,000 0
26 to 50	100 % inspection	100 % inspection	100 % inspection	(28, 0) 0,095 1 0,000 0 0,000 0	(22, 0) 0,107 5 0,000 0 0,000 0	(15, 0) 0,120 3 0,000 0 0,000 0	(10, 0) 0,130 8 0,000 0 0,000 0	(6, 0) 0,165 1 0,166 3 0,000 0 0,000 0
51 to 90	100 % inspection	(50, 0) 0,019 6 0,200 2 0,000 0 0,000 0	(44, 0) 0,101 0 0,094 3 0,000 0 0,000 0	(34, 0) 0,115 3 0,000 0 0,000 0	(24, 0) 0,108 1 0,000 0 0,000 0	(16, 0) 0,125 0 0,000 0 0,000 0	(10, 0) 0,144 7 0,000 0 0,000 0	(8, 0) 0,093 9 0,098 5 0,000 0 0,000 0
91 to 150	(90, 0) 0,011 0 0,161 6 0,000 0 0,000 0	(80, 0) 0,103 9 0,000 0 0,000 0	(55, 0) 0,107 0 0,077 9 0,000 0 0,000 0	(38, 0) 0,115 0 0,000 0 0,000 0	(26, 0) 0,111 2 0,000 0 0,000 0	(18, 0) 0,104 0 0,000 0 0,000 0	(13, 0) 0,083 9 0,000 0 0,000 0	(13, 1) 0,104 2 0,105 8 0,029 2 0,049 8
151 to 280	(130, 0) 0,097 7 0,000 0 0,000 0	(95, 0) 0,093 9 0,000 0 0,000 0	(65, 0) 0,097 5 0,091 9 0,000 0 0,000 0	(42, 0) 0,108 6 0,000 0 0,000 0	(28, 0) 0,103 1 0,000 0 0,000 0	(20, 0) 0,086 9 0,000 0 0,000 0	(20, 1) 0,104 3 0,019 1 0,049 8	(13, 1) 0,108 9 0,028 0 0,049 9
281 to 500	(155, 0) 0,097 8 0,000 0 0,000 0	(105, 0) 0,096 9 0,000 0 0,000 0	(80, 0) 0,061 8 0,066 1 0,000 0 0,000 0	(50, 0) 0,076 6 0,000 0 0,000 0	(32, 0) 0,078 5 0,000 0 0,000 0	(32, 1) 0,097 5 0,012 1 0,049 8	(20, 1) 0,108 1 0,018 4 0,050 0	(20, 3) 0,156 1 0,067 5 0,050 0
501 to 1 200	(170, 0) 0,102 6 0,000 0 0,000 0	(125, 0) 0,073 3 0,000 0 0,000 0	(125, 1) 0,087 1 0,086 7 0,003 6 0,050 0	(80, 1) 0,089 5 0,005 1 0,050 0	(50, 1) 0,095 5 0,007 5 0,050 0	(32, 1) 0,102 0 0,011 6 0,050 0	(32, 3) 0,138 9 0,043 0 0,050 0	(32, 5) 0,089 5 0,080 5 0,050 0
1 201 to 3 200	(200, 0) 0,076 9 0,000 0 0,000 0	(200, 1) 0,086 8 0,001 9 0,050 0	(125, 1) 0,092 6 0,003 0 0,050 0	(125, 3) 0,131 4 0,011 3 0,050 0	(80, 3) 0,125 4 0,017 5 0,050 0	(50, 3) 0,143 6 0,027 3 0,050 0	(50, 5) 0,084 0 0,052 0 0,050 0	(50, 10) 0,116 3 0,119 7 0,050 0

Table 14 *(continued)*

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items							
	1,25	**2**	**3,15**	**5**	**8**	**12,5**	**20**	**31,5**
3 201 to 10 000	(315, 1)	(200, 1)	(200, 3)	(200, 5)	(125, 5)	(80, 5)	(80, 10)	(80, 18)
	0,094 1	0,091 5	0,127 8	0,069 8	0,073 4	0,078 0	0,096 3	0,116 6
	0,001 2 0,050 0	0,001 8 0,050 0	0,007 0 0,050 0	0,013 2 0,050 0	0,020 9 0,050 0	0,032 3 0,050 0	0,075 7 0,050 0	0,151 0 0,050 0
10 001 to 35 000	(315, 1)	(315, 3)	(315, 5)	(315, 10)	(200, 10)	(125, 10)	(125, 18)	(80, 18)
	0,096 7	0,127 7	0,072 2	0,090 7	0,084 9	0,104 1	0,112 7	0,117 3
	0,001 2 0,050 0	0,004 4 0,050 0	0,008 3 0,050 0	0,019 6 0,050 0	0,030 7 0,050 0	0,048 7 0,050 0	0,097 7 0,050 0	0,150 7 0,050 0

Table 15 — Consumer's risk and producer's risk quality for sampling plans under negative hypergeometric sampling distribution, used for sampling for nonconformities under the model with correlation of the nonconformities — LQ from 50 to 3 150

Lot size	Limiting quality (LQ) in average number of nonconformities per 100 items									
	50	**80**	**125**	**200**	**315**	**500**	**800**	**1 250**	**2 000**	**3 150**
16 to 25	(5, 0) 0,103 7 0,000 0 0,000 0	(4, 0) 0,078 3 0,000 0 0,000 0	(3, 0) 0,075 6 0,000 0 0,000 0	(2, 0) 0,102 2 0,000 0 0,000 0	(2, 1) 0,132 6 0,1667 0,0485	(2, 2) 0,121 8 0,3478 0,0475	(2, 3) 0,090 1 0,5625 0,0474	(2, 6) 0,104 5 1,1905 0,0496	(2, 10) 0,100 3 2,040 0 0,049 8	(2, 16) 0,095 8 3,363 6 0,049 9
26 to 50	(5, 0) 0,118 4 0,000 0 0,000 0	(5, 1) 0,155 3 0,075 0 0,048 8	(4, 1) 0,115 1 0,088 9 0,048 6	(3, 1) 0,104 2 0,117 6 0,050 0	(3, 2) 0,086 5 0,244 9 0,049 9	(3, 4) 0,089 5 0,555 6 0,049 5	(3, 8) 0,107 6 1,163 3 0,049 8	(3, 13) 0,103 4 2,000 0 0,049 8	(3, 18) 0,070 4 2,785 7 0,049 9	(2, 18) 0,120 1 3,700 0 0,049 9
51 to 90	(8, 1) 0,130 7 0,048 4 0,049 5	(6, 1) 0,100 0 0,061 5 0,049 9	(5, 2) 0,137 9 0,154 8 0,050 0	(5, 3) 0,082 2 0,250 0 0,049 7	(5, 6) 0,093 6 0,555 6 0,049 9	(5, 11) 0,106 7 1,097 2 0,049 9	(4, 13) 0,106 6 1,561 0 0,050 0	(3, 13) 0,106 5 1,952 4 0,050 0	(3, 18) 0,072 8 2,743 6 0,050 0	(2, 18) 0,122 2 3,675 7 0,050 0
91 to 150	(9, 1) 0,097 1 0,041 7 0,049 7	(8, 2) 0,099 6 0,100 0 0,049 7	(8, 4) 0,098 1 0,229 0 0,050 0	(8, 7) 0,082 6 0,439 2 0,049 9	(8, 13) 0,102 8 0,888 9 0,050 0	(6, 14) 0,097 3 1,216 4 0,050 0	(4, 14) 0,128 3 1,676 7 0,050 0	(3, 14) 0,124 4 2,092 6 0,050 0	(3, 18) 0,074 0 2,722 6 0,050 0	(2, 18) 0,123 3 3,660 6 0,050 0
151 to 280	(13, 2) 0,074 7 0,063 5 0,050 0	(13, 5) 0,111 0 0,189 8 0,050 0	(13, 9) 0,115 8 0,381 4 0,050 0	(13, 15) 0,098 5 0,676 3 0,049 6	(9, 15) 0,097 1 0,929 4 0,050 0	(6, 15) 0,120 7 1,304 1 0,050 0	(5, 17) 0,087 5 1,726 4 0,050 0	(4, 18) 0,074 1 2,181 0 0,050 0	(3, 18) 0,074 8 2,715 0 0,050 0	(2, 18) 0,124 1 3,647 7 0,050 0
281 to 500	(20, 5) 0,107 1 0,126 4 0,050 0	(20, 9) 0,096 9 0,255 0 0,050 0	(20, 15) 0,085 9 0,459 8 0,050 0	(13, 15) 0,100 9 0,672 0 0,049 8	(9, 15) 0,098 8 0,923 9 0,050 0	(7, 17) 0,089 7 1,309 9 0,050 0	(5, 18) 0,103 1 1,826 3 0,050 0	(4, 18) 0,074 6 2,175 5 0,050 0	(3, 21) 0,103 2 3,181 1 0,050 0	(3, 33) 0,097 6 5,083 3 0,050 0
501 to 1 200	(32, 10) 0,121 1 0,184 2 0,049 9	(32, 17) 0,105 5 0,340 0 0,049 6	(22, 17) 0,088 1 0,480 0 0,049 6	(14, 17) 0,113 8 0,720 0 0,049 7	(10, 17) 0,091 8 0,965 0 0,049 9	(7, 18) 0,108 5 1,385 8 0,049 9	(5, 18) 0,103 8 1,820 0 0,049 9	(5, 29) 0,103 0 3,015 0 0,049 9	(5, 47) 0,100 2 4,979 2 0,050 0	(5, 75) 0,100 1 8,038 3 0,050 0
1 201 to 3 200	(50, 17) 0,101 6 0,222 2 0,049 5	(32, 17) 0,107 5 0,338 7 0,049 9	(22, 17) 0,089 3 0,478 7 0,049 8	(15, 18) 0,099 4 0,720 6 0,049 9	(10, 18) 0,114 0 1,025 9 0,049 9	(8, 21) 0,096 6 1,464 4 0,050 0	(8, 35) 0,098 3 2,521 3 0,050 0	(8, 56) 0,099 3 4,114 4 0,050 0	(8, 91) 0,099 8 6,774 4 0,050 0	(8, 145) 0,101 1 10,881 6 0,050 0
3 201 to 10 000	(53, 18) 0,094 1 0,224 0 0,049 8	(34, 18) 0,097 8 0,341 0 0,049 9	(23, 18) 0,089 5 0,489 8 0,049 9	(15, 18) 0,099 7 0,720 1 0,050 0	(13, 25) 0,104 9 1,170 2 0,050 0	(13, 41) 0,103 9 1,985 3 0,050 0	(13, 67) 0,103 2 3,317 4 0,050 0	(13, 105) 0,097 7 5,268 9 0,050 0	(13, 170) 0,099 0 8,610 5 0,050 0	(13, 270) 0,100 5 13,753 7 0,050 0
10 001 to 35 000	(53, 18) 0,094 5 0,223 9 0,050 0	(34, 18) 0,098 1 0,340 9 0,050 0	(23, 18) 0,089 7 0,489 7 0,050 0	(20, 26) 0,097 8 0,835 4 0,050 0	(20, 43) 0,103 8 1,436 8 0,050 0	(20, 70) 0,104 2 2,399 4 0,050 0	(20, 113) 0,099 6 3,937 8 0,050 0	(20, 178) 0,098 5 6,266 9 0,050 0	(20, 287) 0,099 2 10,175 2 0,050 0	(20, 454) 0,099 4 16,164 0,050 0

Table 16 — Shortest length confidence intervals for lot quality *p* (proportion nonconforming), under confidence levels 0,95 and 0,99 for each sampling plan (*n*, Ac) for nonconforming units found in the sample

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
6	**0**	0	0	0	0,411 359	0	0,535 841
		1	0,166 667	0,008 512	0,588 641	0,001 674	0,705 686
8	**0**	0	0	0	0,364 620	0	0,450 597
		1	0,125	0,006 391	0,500 000	0,001 256	0,589 942
9	**0**	0	0	0	0,323 339	0	0,431 765
		1	0,111 111	0,005 683	0,443 489	0,001 116	0,568 235
10	**0**	0	0	0	0,290 865	0	0,383 237
		1	0,1	0,005 116	0,446 489	0,001 005	0,512 321
13	**0**	0	0	0	0,225 117	0	0,325 139
	1	1	0,076 923	0,003 938	0,341 538	0,000 773	0,428 927
		2	0,153 846	0,028 053	0,433 929	0,011 824	0,523 386
15	**0**	0	0	0	0,222 218	0	0,279 596
		1	0,066 667	0,003 414	0,302 067	0,000 67	0,389 103
16	**0**	0	0	0	0,208 337	0	0,263 822
		1	0,062 5	0,003 201	0,305 438	0,000 628	0,363 328
17	**0**	0	0	0	0,196 110	0	0,271 396
		1	0,058 824	0,003 013	0,287 373	0,000 591	0,346 210
18	**0**	0	0	0	0,185 255	0	0,255 661
		1	0,055 556	0,002 846	0,271 371	0,000 558	0,347 333
20	**0**	0	0	0	0,166 821	0	0,229 227
		1	0,05	0,002 561	0,244 259	0,000 502	0,311 036
	1	2	0,10	0,018 065	0,319 988	0,007 592	0,374 702
	3	3	0,15	0,042 169	0,372 203	0,022 711	0,445 837
		4	0,20	0,071 354	0,423 587	0,043 615	0,500 000
22	**0**	0	0	0	0,151 747	0	0,207 846
		1	0,045 455	0,002 329	0,222 135	0,000 457	0,281 847
24	**0**	0	0	0	0,139 186	0	0,190 169
		1	0,041 667	0,002 135	0,203 721	0,000 419	0,258 992
25	**0**	0	0	0	0,133 657	0	0,182 427
		1	0,04	0,002 05	0,195 623	0,000 402	0,264 941
26	**0**	0	0	0	0,128 554	0	0,175 297
		1	0,038 462	0,001 971	0,188 148	0,000 386	0,254 465
28	**0**	0	0	0	0,119 436	0	0,177 298
		1	0,035 714	0,001 83	0,174 801	0,000 359	0,235 861

Table 16 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
32	**0** **1** **3** **5**	0	0	0	0,104 609	0	0,154 756
		1	0,031 25	0,001 602	0,166 178	0,000 314	0,205 868
		2	0,062 50	0,011 219	0,200 137	0,004 706	0,254 862
		3	0,093 75	0,026 043	0,246 814	0,013 973	0,303 276
		4	0,125 00	0,043 845	0,281 487	0,026 651	0,336 881
		5	0,156 25	0,063 653	0,325 767	0,041 796	0,374 117
		6	0,187 50	0,084 955	0,357 749	0,058 844	0,418 103
34	**0**	0	0	0	0,098 499	0	0,145 521
		1	0,029 412	0,001 507	0,156 430	0,000 296	0,193 590
38	**0**	0	0	0	0,088 199	0	0,130 023
		1	0,026 316	0,001 349	0,140 015	0,000 264	0,172 992
42	**0**	0	0	0	0,089 211	0	0,117 521
		1	0,023 81	0,001 221	0,126 728	0,000 239	0,166 340
44	**0**	0	0	0	0,085 167	0	0,112 133
		1	0,022 727	0,001 165	0,120 989	0,000 228	0,158 695
50	**0** **1** **3** **5** **10**	0	0	0	0,074 975	0	0,098 583
		1	0,02	0,001 025	0,106 525	0,000 201	0,139 482
		2	0,04	0,007 154	0,136 913	0,002 997	0,170 852
		3	0,06	0,016 552	0,166 923	0,008 861	0,201 641
		4	0,08	0,027 788	0,187 979	0,016 836	0,232 179
		5	0,10	0,040 237	0,217 665	0,026 310	0,253 574
		6	0,12	0,053 571	0,238 317	0,036 917	0,283 853
		7	0,14	0,067 147	0,267 969	0,048 425	0,304 868
		8	0,16	0,074 975	0,288 430	0,060 679	0,335 146
		9	0,18	0,094 553	0,308 791	0,073 566	0,355 975
		10	0,20	0,106 525	0,338 519	0,087 004	0,376 704
		11	0,22	0,123 462	0,358 820	0,098 583	0,397 356
55	**0**	0	0	0	0,068 178	0	0,089 570
		1	0,018182	0,000 932	0,096 877	0,000 183	0,126 711
65	**0**	0	0	0	0,057 716	0	0,075 730
		1	0,015 385	0,000 789	0,082 025	0,000 155	0,107 114

Table 16 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
80	**0**	0	0	0	0,046 919	0	0,066 352
		1	0,012 5	0,000 641	0,066 693	0,000 126	0,086 958
		2	0,025 0	0,004 460	0,085 715	0,001 867	0,111 713
		3	0,037 5	0,010 298	0,104 474	0,005 505	0,130 976
		4	0,050 0	0,017 257	0,123 115	0,010 434	0,150 022
		5	0,062 5	0,024 947	0,141 699	0,016 268	0,168 952
		6	0,075 0	0,033 165	0,154 734	0,022 779	0,182 304
	0	7	0,087 5	0,041 789	0,173 237	0,029 822	0,201 075
	1	8	0,100 0	0,046 919	0,186 124	0,037 298	0,214 215
	3	9	0,112 5	0,057 871	0,204 609	0,045 136	0,232 929
	5	10	0,125 0	0,066 693	0,217 409	0,053 287	0,245 942
	10	11	0,137 5	0,074 468	0,230 161	0,061 487	0,264 648
	18	12	0,150 0	0,085 715	0,248 651	0,066 352	0,277 580
		13	0,162 5	0,092 873	0,261 361	0,077 575	0,290 465
		14	0,175 0	0,104 474	0,274 041	0,086 958	0,309 185
		15	0,187 5	0,113 604	0,286 694	0,092 170	0,322 029
		16	0,200 0	0,123 115	0,305 229	0,105 233	0,334 843
		17	0,212 5	0,135 535	0,317 868	0,111 713	0,347 630
		18	0,225 0	0,141 699	0,330 490	0,123 583	0,366 413
		19	0,237 5	0,154 734	0,343 096	0,130 976	0,379 189
90	**0**	0	0	0	0,041 718	0	0,058 950
		1	0,011 111	0,000 57	0,059 305	0,000 112	0,081 751
95	**0**	0	0	0	0,039 527	0	0,055 835
		1	0,010 526	0,000 54	0,056 193	0,000 106	0,077 431
105	**0**	0	0	0	0,035 770	0	0,050 500
		1	0,009 524	0,000 488	0,050 856	0,000 096	0,070 032

Table 16 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
125	**0**	0	0	0	0,030 056	0	0,042 399
		1	0,008	0,000 410	0,042 738	0,000 080	0,058 798
		2	0,016	0,002 850	0,058 242	0,001 193	0,071 396
		3	0,024	0,006 573	0,070 317	0,003 510	0,083 708
		4	0,032	0,011 003	0,078 879	0,006 644	0,095 871
		5	0,040	0,015 891	0,090 769	0,010 346	0,107 948
		6	0,048	0,021 108	0,102 635	0,014 470	0,119 972
		7	0,056	0,026 574	0,110 970	0,018 922	0,131 963
	1	8	0,064	0,030 056	0,122 794	0,023 640	0,143 932
	3	9	0,072	0,036 559	0,131 051	0,028 580	0,152 354
	5	10	0,080	0,042 738	0,142 860	0,033 708	0,164 280
	10	11	0,088	0,046 379	0,151 067	0,038 999	0,172 625
	18	12	0,096	0,054 929	0,162 874	0,042 399	0,184 532
		13	0,104	0,058 242	0,171 048	0,048 617	0,192 825
		14	0,112	0,066 946	0,179 187	0,055 081	0,204 725
		15	0,120	0,070 317	0,191 010	0,058 798	0,212 980
		16	0,128	0,078 879	0,199 143	0,065 678	0,221 211
		17	0,136	0,083 806	0,207 262	0,071 396	0,233 109
		18	0,144	0,090 769	0,219 082	0,076 360	0,241 316
		19	0,152	0,098 194	0,227 189	0,083 708	0,249 507
130	**0**	0	0	0	0,028 902	0	0,040 765
		1	0,007 692	0,000 394	0,041 098	0,000 077	0,056 532
150	**0**	0	0	0	0,025 054	0	0,035 318
		1	0,006 667	0,000 342	0,038 315	0,000 067	0,048 979
155	**0**	0	0	0	0,024 247	0	0,034 177
		1	0,006 452	0,000 331	0,037 080	0,000 065	0,047 397
170	**0**	0	0	0	0,022 084	0	0,031 156
		1	0,005 882	0,000 302	0,033 813	0,000 059	0,043 208

Table 16 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
200	**0** **1** **3** **5** **10** **18**	0	0	0	0,018 799	0	0,026 477
		1	0,005	0,000 256	0,028 746	0,000 050	0,036 718
		2	0,010	0,001 780	0,036 426	0,000 744	0,046 621
		3	0,015	0,004 101	0,043 977	0,002 189	0,054 347
		4	0,020	0,006 860	0,051 459	0,004 139	0,062 040
		5	0,025	0,009 901	0,056 778	0,006 440	0,069 534
		6	0,030	0,013 144	0,064 194	0,008 999	0,077 057
		7	0,035	0,016 540	0,071 597	0,011 760	0,084 551
		8	0,040	0,018 799	0,076 801	0,014 682	0,089 867
		9	0,045	0,022 647	0,084 186	0,017 738	0,097 320
		10	0,050	0,026 735	0,089 351	0,020 908	0,104 763
		11	0,055	0,028 746	0,096 724	0,024 175	0,110 002
		12	0,060	0,034 017	0,101 860	0,026 477	0,117 426
		13	0,065	0,036 426	0,109 232	0,029 940	0,122 630
		14	0,070	0,041 457	0,114 351	0,034 016	0,130 044
		15	0,075	0,043 977	0,121 721	0,036 718	0,135 221
		16	0,080	0,049 301	0,126 824	0,040 296	0,142 629
		17	0,085	0,051 459	0,132 059	0,044 527	0,147 899
		18	0,090	0,056 778	0,139 290	0,046 621	0,155 192
		19	0,095	0,059 770	0,144 375	0,051 761	0,160 334
220	**0**	0	0	0	0,017 093	0	0,024 067
		1	0,004 545	0,000 233	0,026 134	0,000 046	0,033 376
255	**0**	0	0	0	0,014 748	0	0,020 757
		1	0,003 922	0,000 201	0,022 549	0,000 039	0,028 794
280	**0**	0	0	0	0,013 427	0	0,018 901
		1	0,003 571	0,000 183	0,020 542	0,000 036	0,026 222

Table 16 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
315	**0**	0	0	0	0,011 929	0	0,016 807
		1	0,003 175	0,000 163	0,018 271	0,000 032	0,023 296
		2	0,006 349	0,001 129	0,023 132	0,000 472	0,029 595
		3	0,009 524	0,002 601	0,027 926	0,001 388	0,034 487
		4	0,012 698	0,004 349	0,032 719	0,002 623	0,039 334
		5	0,015 873	0,006 275	0,037 419	0,004 078	0,044 121
		6	0,019 048	0,008 327	0,040 753	0,005 697	0,048 894
	1	7	0,022 222	0,010 475	0,045 472	0,007 441	0,053 660
	3	8	0,025 397	0,011 929	0,050 204	0,009 286	0,058 408
	5	9	0,028 571	0,014 299	0,053 502	0,011 215	0,063 138
	10	10	0,031 746	0,016 993	0,057 735	0,013 214	0,066 475
	18	11	0,034 921	0,018 271	0,061 417	0,015 274	0,071 188
		12	0,038 095	0,021 463	0,066 097	0,016 807	0,075 903
		13	0,041 270	0,023 132	0,069 384	0,018 831	0,079 230
		14	0,044 444	0,026 110	0,074 090	0,021 440	0,083 936
		15	0,047 619	0,027 926	0,077 344	0,023 296	0,087 230
		16	0,050 794	0,031 015	0,080 574	0,025 268	0,091 921
		17	0,053 968	0,032 719	0,085 225	0,028 145	0,095 197
		18	0,057 143	0,036 070	0,088 452	0,029 595	0,099 892
		19	0,060 317	0,037 419	0,093 131	0,032 490	0,103 171
380	**0**	0	0	0	0,009 648	0	0,013 940
		1	0,002 632	0,000 135	0,015 132	0,000 026	0,019 312
430	**0**	0	0	0	0,008 779	0	0,012 291
		1	0,002 326	0,000 119	0,013 336	0,000 023	0,017 102
450	**0**	0	0	0	0,008 400	0	0,011 729
		1	0,002 222	0,000 114	0,012 734	0,000 022	0,016 350

Table 16 *(continued)*

Sampling plans		Confidence intervals					
				Level: 0,95		Level: 0,99	
n	Ac	*x*	Estimate (x/n)	Lower	Upper	Lower	Upper
		0	0	0	0,007 571	0	0,010 533
		1	0,002	0,000 103	0,011 474	0,000 020	0,014 696
		2	0,004	0,000 711	0,014 514	0,000 297	0,018 676
		3	0,006	0,001 637	0,017 631	0,000 873	0,021 694
		4	0,008	0,002 737	0,020 673	0,001 650	0,024 693
		5	0,010	0,003 948	0,023 682	0,002 565	0,027 845
		6	0,012	0,005 239	0,025 742	0,003 582	0,030 922
	0	7	0,014	0,006 589	0,028 556	0,004 678	0,033 855
	1	8	0,016	0,007 571	0,031 497	0,005 836	0,036 716
	3	9	0,018	0,008 976	0,033 620	0,007 047	0,039 619
500	**5**	10	0,020	0,010 697	0,036 711	0,008 301	0,042 630
	10	11	0,022	0,011 474	0,039 729	0,009 593	0,044 834
	18	12	0,024	0,013 467	0,041 817	0,010 533	0,047 921
		13	0,026	0,014 514	0,043 817	0,011 789	0,050 935
		14	0,028	0,016 361	0,046 619	0,013 444	0,052 977
		15	0,030	0,017 631	0,048 574	0,014 696	0,055 834
		16	0,032	0,019 418	0,051 521	0,015 780	0,057 825
		17	0,034	0,020 673	0,053 597	0,017 629	0,060 697
		18	0,036	0,022 626	0,056 659	0,018 676	0,062 767
		19	0,038	0,023 682	0,058 791	0,020 309	0,065 775

Table 16 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
800	**0**	0	0	0	0,004 585	0	0,006 679
		1	0,001 25	0,000 064	0,007 196	0,000 013	0,009 265
		2	0,002 50	0,000 444	0,009 268	0,000 186	0,011 528
		3	0,003 75	0,001 023	0,011 186	0,000 546	0,013 435
		4	0,005 00	0,001 710	0,012 704	0,001 030	0,015 294
		5	0,006 25	0,002 466	0,014 336	0,001 602	0,017 868
		6	0,007 50	0,003 271	0,015 710	0,002 236	0,019 867
	1	7	0,008 75	0,004 114	0,017 888	0,002 919	0,021 827
	3	8	0,010 00	0,004 585	0,020 119	0,003 642	0,023 210
	5	9	0,011 25	0,005 597	0,022 126	0,004 397	0,024 965
	10	10	0,012 50	0,006 674	0,023 337	0,005 179	0,026 616
	18	11	0,013 75	0,007 196	0,024 904	0,005 984	0,028 345
		12	0,015 00	0,008 395	0,025 944	0,006 679	0,029 577
		13	0,016 25	0,009 268	0,027 472	0,007 338	0,031 509
		14	0,017 50	0,010 189	0,028 637	0,008 377	0,033 489
		15	0,018 75	0,011 186	0,030 480	0,009 265	0,034 895
		16	0,020 00	0,012 086	0,031 922	0,009 803	0,036 882
		17	0,021 25	0,012 704	0,034 121	0,010 977	0,038 248
		18	0,022 50	0,014 079	0,035 683	0,011 528	0,040 188
		19	0,023 75	0,014 336	0,037 826	0,012 627	0,041 968

Table 17 — Shortest length confidence intervals for lot quality *p* (average number of nonconformities per item), under confidence levels 0,95 and 0,99 for each sampling plan (*n*, Ac) for total number of nonconformities counted in the sample

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
6	**0**	0	0	0	0,614 813	0	0,883 053
		1	0,166 667	0,004 22	0,928 607	0,000 835	1,238 355
8	**0**	0	0	0	0,461 110	0	0,662 290
		1	0,125	0,003 165	0,696 455	0,000 627	0,928 766
9	**0**	0	0	0	0,409 875	0	0,588 702
		1	0,111 111	0,002 813	0,619 071	0,000 557	0,825 570
10	**0**	0	0	0	0,368 888	0	0,529 832
		1	0,1	0,002 532	0,557 164	0,000 501	0,743 013
13	**0**	0	0	0	0,283 760	0	0,407 563
	1	1	0,076 923	0,001 948	0,428 588	0,000 386	0,571 548
		2	0,153 846	0,018 631	0,555 745	0,007 961	0,713 369

Table 17 *(continued)*

Sampling plans		Confidence intervals					
				Level: 0,95		Level: 0,99	
n	Ac	*x*	Estimate (*x*/*n*)	Lower	Upper	Lower	Upper
15	**0**	0	0	0	0,245 925	0	0,353 221
		1	0,066 667	0,001 688	0,371 443	0,000 334	0,495 342
16	**0**	0	0	0	0,230 555	0	0,331 145
		1	0,062 5	0,001 582	0,348 228	0,000 313	0,464 383
17	**0**	0	0	0	0,216 993	0	0,311 666
		1	0,058 824	0,001 489	0,327 744	0,000 295	0,437 066
18	**0**	0	0	0	0,204 938	0	0,294 351
		1	0,055 556	0,001 407	0,309 536	0,000 278	0,412 785
20	**0**	0	0	0	0,184 444	0	0,264 916
	1	1	0,05	0,001 266	0,278 582	0,000 251	0,371 506
	3	2	0,10	0,012 110	0,361 234	0,005 175	0,463 690
		3	0,15	0,030 934	0,438 364	0,016 893	0,548 874
		4	0,20	0,054 493	0,512 079	0,033 610	0,629 704
22	**0**	0	0	0	0,167 676	0	0,240 833
		1	0,045 455	0,001 151	0,253 257	0,000 228	0,337 733
24	**0**	0	0	0	0,153 703	0	0,220 763
		1	0,041 667	0,001 055	0,232 152	0,000 209	0,309 589
25	**0**	0	0	0	0,147 555	0	0,211 933
		1	0,04	0,001 013	0,222 866	0,000 201	0,297 205
26	**0**	0	0	0	0,141 880	0	0,203 781
		1	0,038 462	0,000 974	0,214 294	0,000 193	0,285 774
28	**0**	0	0	0	0,131 746	0	0,189 226
		1	0,035 714	0,000 904	0,198 987	0,000 179	0,265 362
32	**0**	0	0	0	0,115 277	0	0,165 572
	1	1	0,031 25	0,000 791	0,174 114	0,000 157	0,232 192
	3	2	0,062 50	0,007 569	0,225 771	0,003 234	0,289 806
	5	3	0,093 75	0,019 334	0,273 977	0,010 558	0,343 046
		4	0,125 00	0,034 058	0,320 050	0,021 006	0,393 565
		5	0,156 25	0,050 734	0,364 635	0,033 685	0,442 180
		6	0,187 50	0,068 809	0,408 109	0,048 028	0,489 365
34	**0**	0	0	0	0,108 496	0	0,155 833
		1	0,029 412	0,000 745	0,163 872	0,000 147	0,218 533
38	**0**	0	0	0	0,097 076	0	0,139 429
		1	0,026 316	0,000 666	0,146 622	0,000 132	0,195 530
42	**0**	0	0	0	0,087 830	0	0,126 150
		1	0,023 81	0,000 603	0,132 658	0,000 119	0,176 908
44	**0**	0	0	0	0,083 838	0	0,120 416
		1	0,022 727	0,000 575	0,126 628	0,000 114	0,168 867

Table 17 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
50	**0** **1** **3** **5** **10**	0	0	0	0,073 778	0	0,105 966
		1	0,02	0,000 506	0,111 433	0,000 100	0,148 603
		2	0,04	0,004 844	0,144 494	0,002 070	0,185 476
		3	0,06	0,012 373	0,175 345	0,006 757	0,219 550
		4	0,08	0,021 797	0,204 832	0,013 444	0,251 882
		5	0,10	0,032 470	0,233 367	0,021 559	0,282 995
		6	0,12	0,044 038	0,261 189	0,030 738	0,313 193
		7	0,14	0,056 287	0,288 454	0,040 747	0,342 672
		8	0,16	0,069 077	0,315 264	0,051 422	0,371 565
		9	0,18	0,082 307	0,341 696	0,062 648	0,399 968
		10	0,20	0,095 908	0,367 807	0,074 338	0,427 957
		11	0,22	0,109 823	0,393 641	0,086 427	0,455 585
55	**0**	0	0	0	0,067 071	0	0,096 333
		1	0,018 182	0,000 46	0,101 303	0,000 091	0,135 093
65	**0**	0	0	0	0,056 752	0	0,081 513
		1	0,015 385	0,000 39	0,085 718	0,000 077	0,114 310
80	**0** **1** **3** **5** **10** **18**	0	0	0	0,046 111	0	0,066 229
		1	0,012 5	0,000 316	0,069 646	0,000 063	0,092 877
		2	0,025 0	0,003 028	0,090 309	0,001 294	0,115 922
		3	0,037 5	0,007 733	0,109 591	0,004 223	0,137 218
		4	0,050 0	0,013 623	0,128 020	0,008 403	0,157 426
		5	0,062 5	0,020 294	0,145 854	0,013 474	0,176 872
		6	0,075 0	0,027 524	0,163 243	0,019 211	0,195 746
		7	0,087 5	0,035 180	0,180 283	0,025 467	0,214 170
		8	0,100 0	0,043 173	0,197 040	0,032 139	0,232 228
		9	0,112 5	0,051 442	0,213 560	0,039 155	0,249 980
		10	0,125 0	0,059 942	0,229 879	0,046 462	0,267 473
		11	0,137 5	0,068 640	0,246 025	0,054 017	0,284 741
		12	0,150 0	0,077 507	0,262 020	0,061 789	0,301 812
		13	0,162 5	0,086 524	0,277 880	0,069 751	0,318 709
		14	0,175 0	0,095 674	0,293 620	0,077 883	0,335 450
		15	0,187 5	0,104 942	0,309 253	0,086 167	0,352 051
		16	0,200 0	0,114 317	0,324 787	0,094 588	0,368 525
		17	0,212 5	0,123 789	0,340 233	0,103 133	0,384 882
		18	0,225 0	0,133 349	0,355 597	0,111 792	0,401 134
		19	0,237 5	0,142 991	0,370 886	0,120 556	0,417 287
90	**0**	0	0	0	0,040 988	0	0,058 870
		1	0,011 111	0,000 281	0,061 907	0,000 056	0,082 557

Table 17 *(continued)*

Sampling plans		Confidence intervals					
				Level: 0,95		Level: 0,99	
n	Ac	*x*	Estimate (*x*/*n*)	Lower	Upper	Lower	Upper
95	**0**	0	0	0	0,038 830	0	0,055 772
		1	0,010 526	0,000 267	0,058 649	0,000 053	0,078 212
105	**0**	0	0	0	0,035 132	0	0,050 460
		1	0,009 524	0,000 241	0,053 063	0,000 048	0,070 763
125	**0**	0	0	0	0,029 511	0	0,042 387
	1	1	0,008	0,000 203	0,044 573	0,000 040	0,059 441
		2	0,016	0,001 938	0,057 798	0,000 828	0,074 190
		3	0,024	0,004 949	0,070 138	0,002 703	0,087 820
		4	0,032	0,008 719	0,081 933	0,005 378	0,100 753
		5	0,040	0,012 988	0,093 347	0,008 623	0,113 198
		6	0,048	0,017 615	0,104 476	0,012 295	0,125 277
	3	7	0,056	0,022 515	0,115 381	0,016 299	0,137 069
	5	8	0,064	0,027 631	0,126 106	0,020 569	0,148 626
	10	9	0,072	0,032 923	0,136 678	0,025 059	0,159 987
	18	10	0,080	0,038 363	0,147 123	0,029 735	0,171 183
		11	0,088	0,043 929	0,157 456	0,034 571	0,182 234
		12	0,096	0,049 605	0,167 693	0,039 545	0,193 160
		13	0,104	0,055 376	0,177 843	0,044 641	0,203 974
		14	0,112	0,061 231	0,187 917	0,049 845	0,214 688
		15	0,120	0,067 163	0,197 922	0,055 147	0,225 312
		16	0,128	0,073 163	0,207 864	0,060 536	0,235 856
		17	0,136	0,079 225	0,217 749	0,066 005	0,246 325
		18	0,144	0,085 344	0,227 582	0,071 547	0,256 726
		19	0,152	0,091 514	0,237 367	0,077 156	0,267 064
130	**0**	0	0	0	0,028 376	0	0,040 756
		1	0,007 692	0,000 195	0,042 859	0,000 039	0,057 155
150	**0**	0	0	0	0,024 593	0	0,035 322
		1	0,006 667	0,000 169	0,037 144	0,000 033	0,049 534
155	**0**	0	0	0	0,023 799	0	0,034 183
		1	0,006 452	0,000 163	0,035 946	0,000 032	0,047 936
170	**0**	0	0	0	0,021 699	0	0,031 167
		1	0,005 882	0,000 149	0,032 774	0,000 029	0,043 707

Table 17 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
200	**0**	0	0	0	0,018 444	0	0,026 492
	1	1	0,005	0,000 127	0,027 858	0,000 025	0,037 151
	3	2	0,010	0,001 211	0,036 123	0,000 517	0,046 369
	5	3	0,015	0,003 093	0,043 836	0,001 689	0,054 887
	10	4	0,020	0,005 449	0,051 208	0,003 361	0,062 970
	18	5	0,025	0,008 117	0,058 342	0,005 390	0,070 749
		6	0,030	0,011 009	0,065 297	0,007 685	0,078 298
		7	0,035	0,014 072	0,072 113	0,010 187	0,085 668
		8	0,040	0,017 269	0,078 816	0,012 856	0,092 891
		9	0,045	0,020 577	0,085 424	0,015 662	0,099 992
		10	0,050	0,023 977	0,091 952	0,018 585	0,106 989
		11	0,055	0,027 456	0,098 410	0,021 607	0,113 896
		12	0,060	0,031 003	0,104 808	0,024 716	0,120 725
		13	0,065	0,034 610	0,111 152	0,027 901	0,127 483
		14	0,070	0,038 270	0,117 448	0,031 153	0,134 180
		15	0,075	0,041 977	0,123 701	0,034 467	0,140 820
		16	0,080	0,045 727	0,129 915	0,037 835	0,147 410
		17	0,085	0,049 516	0,136 093	0,041 253	0,153 953
		18	0,090	0,053 340	0,142 239	0,044 717	0,160 454
		19	0,095	0,057 196	0,148 354	0,048 222	0,166 915
220	**0**	0	0	0	0,016 768	0	0,024 083
		1	0,004 545	0,000 115	0,025 326	0,000 023	0,033 773
255	**0**	0	0	0	0,014 466	0	0,020 778
		1	0,003 922	0,000 099	0,021 850	0,000 020	0,029 138
280	**0**	0	0	0	0,013 175	0	0,018 923
		1	0,003 571	0,000 090	0,019 899	0,000 018	0,026 536

Table 17 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	x	Estimate (x/n)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
315	**0**	0	0	0	0,011 711	0	0,016 820
		1	0,003 175	0,000 080	0,017 688	0,000 016	0,023 588
		2	0,006 349	0,000 769	0,022 936	0,000 329	0,029 441
		3	0,009 524	0,001 964	0,027 833	0,001 073	0,034 849
		4	0,012 698	0,003 460	0,032 513	0,002 134	0,039 981
		5	0,015 873	0,005 154	0,037 042	0,003 422	0,044 920
		6	0,019 048	0,006 990	0,041 459	0,004 879	0,049 713
	0	7	0,022 222	0,008 934	0,045 786	0,006 468	0,054 392
	1	8	0,025 397	0,010 965	0,050 042	0,008 162	0,058 978
	3	9	0,028 571	0,013 065	0,054 237	0,009 944	0,063 487
	5	10	0,031 746	0,015 223	0,058 382	0,011 800	0,067 930
	10	11	0,034 921	0,017 432	0,062 483	0,013 719	0,072 315
	18	12	0,038 095	0,019 684	0,066 545	0,015 692	0,076 651
		13	0,041 270	0,021 974	0,070 573	0,017 715	0,080 942
		14	0,044 444	0,024 298	0,074 570	0,019 780	0,085 194
		15	0,047 619	0,026 652	0,078 540	0,021 884	0,089 410
		16	0,050 794	0,029 033	0,082 486	0,024 022	0,093 594
		17	0,053 968	0,031 438	0,086 408	0,026 192	0,097 748
		18	0,057 143	0,033 866	0,090 310	0,028 392	0,101 875
		19	0,060 317	0,036 315	0,094 193	0,030 617	0,105 978
380	**0**	0	0	0	0,009 708	0	0,013 943
		1	0,002 632	0,000 067	0,014 662	0,000 013	0,019 553
430	**0**	0	0	0	0,008 579	0	0,012 322
		1	0,002 326	0,000 059	0,012 957	0,000 012	0,017 279
450	**0**	0	0	0	0,008 198	0	0,011 774
		1	0,002 222	0,000 056	0,012 381	0,000 011	0,016 511

Table 17 *(continued)*

Sampling plans		Confidence intervals					
n	Ac	*x*	Estimate (*x*/*n*)	Level: 0,95		Level: 0,99	
				Lower	Upper	Lower	Upper
500		0	0	0	0,007 378	0	0,010 597
		1	0,002	0,000 051	0,011 143	0,000 010	0,014 860
		2	0,004	0,000 484	0,014 449	0,000 207	0,018 548
		3	0,006	0,001 237	0,017 535	0,000 676	0,021 955
		4	0,008	0,002 180	0,020 483	0,001 344	0,025 188
		5	0,010	0,003 247	0,023 337	0,002 156	0,028 300
		6	0,012	0,004 404	0,026 119	0,003 074	0,031 319
	0	7	0,014	0,005 629	0,028 845	0,004 075	0,034 267
	1	8	0,016	0,006 908	0,031 526	0,005 142	0,037 156
	3	9	0,018	0,008 231	0,034 170	0,006 265	0,039 997
	5	10	0,020	0,009 591	0,036 781	0,007 434	0,042 796
	10	11	0,022	0,010 982	0,039 364	0,008 643	0,045 559
	18	12	0,024	0,012 401	0,041 923	0,009 886	0,048 290
		13	0,026	0,013 844	0,044 461	0,011 160	0,050 993
		14	0,028	0,015 308	0,046 979	0,012 461	0,053 672
		15	0,030	0,016 791	0,049 480	0,013 787	0,056 328
		16	0,032	0,018 291	0,051 966	0,015 134	0,058 964
		17	0,034	0,019 806	0,054 437	0,016 501	0,061 581
		18	0,036	0,021 336	0,056 896	0,017 887	0,064 181
		19	0,038	0,022 878	0,059 342	0,019 289	0,066 766

Table 17 *(continued)*

Sampling plans		Confidence intervals					
				Level: 0,95		Level: 0,99	
n	Ac	*x*	Estimate (x/n)	Lower	Upper	Lower	Upper
800	**0**	0	0	0	0,004 611	0	0,006 623
		1	0,001 25	0,000 032	0,006 965	0,000 006	0,009 288
		2	0,002 50	0,000 303	0,009 031	0,000 129	0,011 592
		3	0,003 75	0,000 773	0,010 959	0,000 422	0,013 722
		4	0,005 00	0,001 362	0,012 802	0,000 840	0,015 743
		5	0,006 25	0,002 029	0,014 585	0,001 347	0,017 687
		6	0,007 50	0,002 752	0,016 324	0,001 921	0,019 575
	0	7	0,008 75	0,003 518	0,018 028	0,002 547	0,021 417
	1	8	0,010 00	0,004 317	0,019 704	0,003 214	0,023 223
	3	9	0,011 25	0,005 144	0,021 356	0,003 916	0,024 998
	5	10	0,012 50	0,005 994	0,022 988	0,004 646	0,026 747
	10	11	0,013 75	0,006 864	0,024 603	0,005 402	0,028 474
	18	12	0,015 00	0,007 751	0,026 202	0,006 179	0,030 181
		13	0,016 25	0,008 652	0,027 788	0,006 975	0,031 871
		14	0,017 50	0,009 567	0,029 362	0,007 788	0,033 545
		15	0,018 75	0,010 494	0,030 925	0,008 617	0,035 205
		16	0,020 00	0,011 432	0,032 479	0,009 459	0,036 852
		17	0,021 25	0,012 379	0,034 023	0,010 313	0,038 488
		18	0,022 50	0,013 335	0,035 560	0,011 179	0,040 113
		19	0,023 75	0,014 299	0,037 089	0,012 056	0,041 729

Annex A
(informative)

Statistical properties of single sampling plans

It is crucial to understand the meaning of the quality indicator, in particular the differences between the 'conforming-nonconforming model' and the 'nonconformities model'.

Conforming-nonconforming model

The quality indicator X_i of item i is binary, where $X_i = 0$ means that item i is classified as conforming (nondefective), and $X_i = 1$ means that item i is classified as nonconforming (defective). The quality indicator θ of a lot of items 1,...,N is the proportion $\theta = p = \sum_{i=1}^{N} X_i / N$ of nonconforming items in the lot, and the quality indicator of the underlying process is the proportion $\pi = E[X]$ of nonconforming items in the process.

Nonconformities model

The quality indicator X_i of item i counts the nonconformities (defects) on item i. The quality indicator θ of a lot of items 1,..,N is the average number $\theta = p = \sum_{i=1}^{N} X_i / N$ of nonconformities per item, and the quality indicator of the underlying process is the expected number $\lambda = E[X]$ of nonconformities per item in the process.

Operation of single sampling plans

The sampling scheme in this document is restricted to single sampling plans. A single sampling plan is defined by a pair (n, Ac) consisting of the sample size n and acceptance number Ac, and the operational rule:

a) take a sample without replacement of n items from the lot of N items;

b) calculate a statistic T from the item quality indicators in the sample;

c) if $T \leq$ Ac, accept the lot; otherwise reject the lot.

The essential statistical characteristic of a sampling plan (n, Ac) is its operating characteristic function (OC function) which provides the probability:

$$P_a(\theta) = P(T \leq \text{Ac})$$

of accepting a lot of size N with a value θ of the lot quality indicator.

There are two different types of the relevant statistics T:

— T is the number of nonconforming items in the sample.

— T is the number of nonconformities counted in the sample of size n.

Depending on the inspection context, the distributions used in this document are as follows:

— hypergeometric distribution (sampling for nonconforming items);

— f-binomial distribution (sampling for nonconformities, model without correlation of the nonconformities, see 6.2);