ISO 3951-1:2005-04 (E)

Sampling procedures for inspe ction by variables - Part 1: Specification for single sampling plans indexed by acceptance quality limit (AQL) for lot-by-lot inspection for a single quality characteristic and a single AQL

Contents

Page

Foreword v

Introduction vii

1 Scope 1

2 Normative references 2

3 Terms and definitions 2

4 Symbols 5

5 Acceptance quality limit (AQL) 7
5.1 Principle 7
5.2 Use 7
5.3 Specifying AQLs 7
5.4 Preferred AQLs 7
5.5 Caution 7
5.6 Limitation 7

6 Switching rules for normal, tightened and reduced inspection 7

7 Relation to ISO 2859-1 8
7.1 Similarities 8
7.2 Differences 8

8 Limiting quality protection 9
8.1 Use of individual plans 9
8.2 Consumer's risk quality tables 9
8.3 Producer's risk tables 9
8.4 Operating characteristic curves 9

9 Planning 10

10 Choice between variables and attributes 10

11 Choice between the "s" and "" methods 11

12 Choice of inspection level and AQL 11

13 Choice of sampling plan 11
13.1 Standard plans 11
13.2 Special plans 12

14 Preliminary operations 12

15 Standard procedure for the "s" method 12
15.1 Obtaining a plan, sampling and preliminary calculations 12
15.2 Acceptability criteria for single specification limits 13

15.3 Graphical method for a single specification limit 14
15.4 Acceptability criterion for combined control of double specification limits 15

16 Standard procedure for the "" method 21
16.1 Obtaining a plan, sampling and preliminary calculations 21
16.2 Acceptability criteria for a single specification limit 21
16.3 Acceptability criterion for combined control of double specification limits 22

17 Procedure during continuing inspection 23

18 Normality and outliers 24
18.1 Normality 24
18.2 Outliers 24

19 Records 24
19.1 Control charts 24
19.2 Lots that are not accepted 24

20 Operation of switching rules 24

21 Discontinuation and resumption of inspection 25

22 Switching between the "s" and "" methods 25
22.1 Estimating the process standard deviation 25
22.2 State of statistical control 26
22.3 Switching from the "s" method to the "" method 26
22.4 Switching from the "" method to the "s" method 26

23 Chart A -- Sample-size code letters of standard single sampling plans for specified quality levels 26

24 Charts B to R (Figures 5 to 19) -- Operating characteristic curves and tabulated values for sample-size code letter B to R: "s" method 28

25 Charts s-D to s-R (Figures 20 to 32) -- Acceptance curves for combined control of double specification limits: "s" method 56

Annex A (normative) Tables for determining the appropriate sample size 69

Annex B (normative) Form k single sampling plans for the "s" method 71

Annex C (normative) Form k single sampling plans for the "" method 75

Annex D (normative) Values of fs for maximum sample standard deviation (MSSD) 79

Annex E (normative) Values of f for maximum process standard deviation (MPSD) 83

Annex F (normative) Estimating the process fraction nonconforming for sample size 3: "s" method 84

Annex G (normative) Type p* single sampling plans 87

Annex H (normative) Values of cu for upper control limit on the sample standard deviation 88

Annex I (normative) Supplementary acceptability constants for qualifying towards reduced inspection 89

Annex J (normative) Procedures for obtaining s and 90

Annex K (informative) Consumer's risk qualities 92

Annex L (informative) Producer's risks 96

Annex M (informative) Operating characteristics for the "" method 100

Annex N (informative) Estimating the process fraction nonconforming for sample sizes 3 and 4 -- "s" method 101

Bibliography 103