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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 17989.5-2022

**Statistical method of quality control in production process -
Control charts - Part 5: Specialized control charts**

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25 = 1.9776

25 = 1.9776

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents" drafted.

This document is part 5 of GB/T 17989. GB/T 17989 has released the following parts.

- Control Charts Part 1. General Guidelines;
- Control Charts Part 2. General Control Charts;
- Control Charts Part 3. Acceptance Control Charts;
- Control Charts Part 4. Cumulative and Control Charts;
- Statistical method control charts for quality control in production processes - Part 5. Special control charts;
- Statistical method control charts for quality control in production processes Part 6. Exponentially weighted moving average control charts
- Statistical method control chart for quality control in production process Part 7. Multivariate control chart;
- Statistical method control chart for quality control in production process Part 8. Control method for short cycle and small batch;
- Statistical methods for quality control of production process control charts Part 9. Stationary process control charts.

This document is modified and adopted ISO 7870-5:2014 "Control Charts - Part 5. Special Control Charts".

The structural differences between this document and ISO 7870-5:2014 and their reasons are as follows.

--- Increase the chapter number of the suspension section in Chapters 6 to 15, and adjust the number of other chapters to meet the requirements of national standards.

The technical differences between this document and ISO 7870-5:2014 and their reasons are as follows.

--- Added "7.5.2 Explanation From Figure 2, it can be seen that the points corresponding to the 11th, 24th, 26th, and 27th subgroups fall outside the control limits, and further investigations are required.

The reason for the out-of-control process", the original text lacks explanation;

---Added the description that the data does not obey the normal distribution (see 12.1), "If the data does not obey the normal distribution, you should first find out that the data does not obey the normal distribution.

If it is confirmed that the data obeys some other distribution, the upper and lower bounds are constructed according to its distribution", the original description

unclear;

--- Added Figure 7 (see 12.3.1) to test the normality of the data, indicating that it does not obey the normal distribution.

state test;

--- Added "Fig. 13 Mean Range Chart" (see 15.10.2), the original text lacks a diagram.

The following editorial changes have been made to this document.

--- Change the standard name to "Production Process Quality Control Statistical Methods Control Chart Part 5.Special Control Chart";

---In 10.5.3 " $\bar{x} =$

$i=1$

$\bar{x}_i$

$25 =$

49.440

$25 = 1.9776$

" to " $\bar{x} =$

$i=1$

$\bar{x}_i$

25 =

49.440

25 = 1.9776

”;

--- Change "variation coefficient nu" in Chapter 11 to "variation coefficient CV";

---Change "UCL= $\bar{x} - 99.865\text{percentilexsaverage}$ " in 12.2.3.3 to "UCL= $\bar{x} - z_{99.865}\text{xsaverage}$ ",
"LCL="

$\bar{x} - 0.135\text{percentilexsaverage}$ " is changed to "LCL= $\bar{x} - z_{0.135}\text{xsaverage}$ ";

---Change "B3=0.0284" in 12.3.2.1 to "B3=0.284";

--- The original z column data in Table 9 in 13.4.1 is incorrectly calculated, and all should be revised;

--- Put "ci=sum in 14.4

$j=1$

c_{ij} " to "ci=sum

$j=1$

c_{ij} ”;

--- Replace "UCL= $\bar{\bar{x}} - 3 \sum$ in 14.8.1

$i=1$

$w_2 i c_i$

$N n_j$

$1/2$

=1.203

4250x177

$1/2$

4.02 3.25=7.45" changed to

"UCL= $\bar{\bar{x}} - 3$

$i=1$

$w_2 i c_i$

Nn

=4.203

4250x177

=4.20 3.25=7.45";

--- Delete "these values of a and b are used to calculate the upper and lower measurement limits" in the original 15.1;

--- Modify the data "20.47" of the 18th subgroup of the average column of Table 12 in 15.10.1 to "20.32", the 18th of the range column

The data "2.49" of the subgroup is modified to "2.96".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Control charts are commonly used statistical tools in process control to monitor deviations in the process and keep the process stable. GB/T 17989 control

Figure series standards are divided into the following 9 parts.

--- Control Charts Part 1.General Guidelines. The purpose is to give the basic terms, principles and classification of control charts, as well as the selection of control charts. guide.

--- Control charts Part 2.General control charts. The purpose is to establish guidelines for process control using conventional control charts.

--- Control charts Part 3.Acceptance control charts. The purpose is to establish guidelines for the use of acceptance control charts for process control, and to specify

General procedure for determining subgroup sample sizes, action limits, and decision criteria.

--- Control Charts Part 4.Cumulative and Control Charts. The purpose is to establish the application of cumulative sum techniques for process monitoring, control and retrospective Statistical methods of analysis.

--- Statistical methods for quality control of production process control charts Part 5.Special control charts. The purpose is to establish the understanding and application of special

A guide to statistical process control with control charts.

--- Production process quality control statistical methods control charts Part 6.Exponentially