

ISO 7870-2:2013-04 (E)

Control charts - Part 2: Shewhart control charts

Contents		Page
Foreword		iv
Introduction		v
1 Scope		1
2 Normative references		1
3 Terms, definitions and symbols		1
3.1 General		1
3.2 Symbols		1
4 Nature of Shewhart control charts		3
5 Types of control charts		5
5.1 Control charts where no pre-specified values are given		5
5.2 Control charts with respect to given pre-specified values		6
5.3 Types of variables and attributes control charts		6
6 Variables control charts		7
6.1 Mean (\bar{X}) chart and range (R) chart or mean (\bar{X}) chart and standard deviation (s) chart		8
6.2 Control chart for individuals (X) and control chart for moving ranges (R_m)		9
6.3 Control charts for medians (\tilde{X})		10
7 Control procedure and interpretation for variables control charts		11
7.1 Collect preliminary data		11
7.2 Examine the s (or R) chart		11
7.3 Remove assignable causes and revise the chart		11
7.4 Examine the X chart		12
7.5 Ongoing monitoring of process		12
8 Pattern tests for assignable causes of variation		12
9 Process control, process capability, and process improvement		13
10 Attributes control charts		15
11 Preliminary considerations before starting a control chart		17
11.1 Choice of critical to quality (CTQ) characteristics describing the process to control		17
11.2 Analysis of the process		17
11.3 Choice of rational subgroups		17
11.4 Frequency and size of subgroups		18
11.5 Preliminary data collection		18
11.6 Out of control action plan		18
12 Steps in the construction of control charts		18
12.1 Determine data collection strategy		19
12.2 Data collection and computation		20
12.3 Plotting \bar{X} chart and R chart		20
13 Caution with Shewhart control charts		20
13.1 General caution		21
13.2 Correlated data		22
13.3 Use of alternative rule to the three-sigma rule		22
Annex A (informative) Illustrative examples		24
Annex B (informative) Practical notices on the pattern tests for assignable causes of variation		42
Bibliography		44