

DIN ISO 7870-2:2021-04 (E)

Control charts - Part 2: Shewhart control charts (ISO 7870-2:2013)

Contents	Page
National foreword	4
National Annex NA (informative) Bibliography	6
Foreword	7
Introduction	8
1 Scope	9
2 Normative references	9
3 Terms, definitions and symbols	9
3.1 General	9
3.2 Symbols	9
4 Nature of Shewhart control charts	11
5 Types of control charts	13
5.1 Control charts where no pre-specified values are given	13
5.2 Control charts with respect to given pre-specified values	14
5.3 Types of variables and attributes control charts	14
6 Variables control charts	15
6.1 Mean ($\bar{X}$) chart and range (R) chart or mean ($\bar{X}$) chart and standard deviation (s) chart ..	16
6.2 Control chart for individuals (X) and control chart for moving ranges (Rm)	17
6.3 Control charts for medians ($\bar{X}$)	18
7 Control procedure and interpretation for variables control charts	19
7.1 Collect preliminary data	19
7.2 Examine the s (or R) chart	19
7.3 Remove assignable causes and revise the chart	19
7.4 Examine the X chart	20
7.5 Ongoing monitoring of process	20
8 Pattern tests for assignable causes of variation	20
9 Process control, process capability, and process improvement	21
10 Attributes control charts	23
11 Preliminary considerations before starting a control chart	25
11.1 Choice of critical to quality (CTQ) characteristics describing the process to control	25
11.2 Analysis of the process	25
11.3 Choice of rational subgroups	25
11.4 Frequency and size of subgroups	26
11.5 Preliminary data collection	26
11.6 Out of control action plan	26
12 Steps in the construction of control charts	26
12.1 Determine data collection strategy	27
12.2 Data collection and computation	28

12.3	Plotting X chart and R chart	28
DIN ISO 7870-2:2021-04 13 Caution with Shewhart control charts		28
13.1	General caution	29
13.2	Correlated data	30
13.3	Use of alternative rule to the three-sigma rule	30
Annex A (informative) Illustrative examples		32
Annex B (informative) Practical notices on the pattern tests for assignable causes of variation		50
Bibliography		52