

DIN ISO 15654:2018-01 (E)

Fatigue test method for transmission precision roller chains and leaf chains (ISO 15654:2015)

Contents		Page
National foreword		4
National Annex NA (informative) Rectification with respect to ISO 15654:2015		5
Foreword		7
1	Scope	8
2	Normative references	8
3	Symbols	8
4	Principle	10
5	Apparatus	11
	5.1 Testing machine.....	11
	5.2 Test fixtures.....	11
6	Test specimens	11
7	Test procedure	12
	7.1 Test forces.....	12
	7.1.1 Minimum force.....	12
	7.1.2 Maximum force.....	12
	7.1.3 Test force.....	12
	7.1.4 Force application.....	13
	7.2 Conformity test.....	13
	7.2.1 Purpose.....	13
	7.2.2 Endurance.....	13
	7.2.3 Minimum test force.....	13
	7.2.4 Maximum test force.....	14
	7.2.5 Number of tests.....	14
	7.2.6 Acceptance.....	14
	7.3 Staircase test.....	14
	7.3.1 Purpose.....	14
	7.3.2 Description.....	14
	7.3.3 Endurance.....	14
	7.3.4 Rules for conducting a staircase test.....	14
	7.3.5 Determining step size.....	15
8	Staircase test data analysis	15
	8.1 Data.....	15
	8.2 Plotting staircase data.....	15
	8.3 Statistical calculations.....	16
	8.3.1 Mean fatigue strength: 0,50 probability of survival.....	16
	8.3.2 Standard deviations.....	16
	8.3.3 Fatigue limit: 0,998 65 probability of survival.....	16
9	Report of test results	16
	9.1 Test chain information.....	16
	9.2 Test equipment and procedures.....	17
	9.2.1 Test equipment.....	17
	9.2.2 Test procedures.....	17
	9.3 Test results for conformity and staircase tests.....	17

Annex A (informative) Survival test with abridged Probit analysis	18
Annex B (informative) Combined test methods	22
Annex C (informative) Justification for adding one step to fatigue limit in staircase analysis	28
Annex D (informative) Adding an additional “phantom” point at the end of staircase test	31
Annex E (informative) Reporting fatigue test results	32
Annex F (informative) Establishing chain application fatigue ratings	40
Annex G (informative) Extrapolating fatigue strength from 3×10^6 to 10^7 cycles	46
Annex H (informative) Finite life testing and data analysis	50
Bibliography	55