

ISO 15654:2015-09 (E)

Fatigue test method for transmission precision roller chains and leaf chains

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

Annex B (informative) Combined test methods	15
Annex C (informative) Justification for adding one step to fatigue limit in staircase analysis	21
Annex D (informative) Adding an additional "phantom" point at the end of staircase test	24
Annex E (informative) Reporting fatigue test results	25
Annex F (informative) Establishing chain application fatigue ratings	33
Annex G (informative) Extrapolating fatigue strength from 3×10^6 to 10^7 cycles	39
Annex H (informative) Finite life testing and data analysis	43
Bibliography	48