

ISO 18955:2025-10 (E)

Railway applications - Suspension components - Rubber diaphragms for pneumatic suspension springs

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Symbols.....	3
5 Three-dimensional definition of characteristics.....	7
6 Definition documents.....	9
6.1 General.....	9
6.2 Documents to be provided by the customer.....	9
6.3 Documents to be provided by the supplier.....	9
7 Conditions of use.....	9
7.1 General.....	9
7.2 Operating temperatures.....	10
7.3 Environmental conditions.....	10
7.4 Operating loading conditions.....	10
7.5 Recycling.....	10
8 Definition of the product.....	10
8.1 General.....	10
8.1.1 Definition of characteristics.....	10
8.2 Resistance to operating conditions.....	11
8.2.1 Low temperature.....	11
8.2.2 Ozone.....	11
8.2.3 Cleaning product.....	12
8.2.4 Abrasion.....	12
8.2.5 Fire behaviour.....	12
8.2.6 Other conditions.....	12
8.3 Physical characteristics.....	12
8.3.1 Materials.....	12
8.3.2 Adherence between plies.....	12
8.3.3 Pressure resistance.....	12
8.3.4 Airtightness.....	12
8.3.5 Fatigue resistance.....	13
8.3.6 Burst resistance.....	13
8.4 Geometrical and dimensional characteristics.....	13
8.4.1 Mass.....	13
8.4.2 Space envelope and overall dimensions.....	13
8.4.3 Appearance of diaphragms in new condition.....	14
8.4.4 Appearance of diaphragms under extreme deformations.....	14
8.5 Functional characteristics.....	14
8.5.1 Stiffnesses.....	14
8.5.2 Characteristic "internal pressure versus axial static force".....	17
8.5.3 Axial isobar characteristic.....	18
9 Inspection and test methods.....	19
9.1 General.....	19
9.1.1 General test conditions.....	19

9.1.2	Instrumentation.....	20
9.1.3	Definition and preparation of test pieces.....	20
9.2	Resistance to operating conditions.....	20
9.2.1	Low temperature.....	20
9.2.2	Ozone.....	20
9.2.3	Cleaning product.....	21
9.2.4	Abrasion.....	21
9.2.5	Fire behaviour.....	21
9.2.6	Other conditions.....	21
9.3	Physical characteristics.....	21
9.3.1	Materials.....	21
9.3.2	Adherence between plies.....	22
9.3.3	Pressure resistance.....	22
9.3.4	Airtightness.....	22
9.3.5	Fatigue resistance.....	23
9.3.6	Burst resistance.....	24
9.4	Geometrical and dimensional characteristics.....	24
9.4.1	Mass.....	24
9.4.2	Space envelope and overall dimensions.....	24
9.4.3	Appearance of diaphragms in new condition.....	25
9.4.4	Appearance of diaphragms under extreme deformation.....	25
9.5	Functional characteristics.....	25
9.5.1	Stiffnesses.....	25
9.5.2	Characteristic "internal pressure versus axial static force".....	33
9.5.3	Axial isobar characteristic.....	33
10	Marking.....	34
11	Traceability.....	34
12	Supplier production plan qualification.....	34
13	Approval and qualification of the product.....	34
13.1	Approval.....	34
13.2	Qualification.....	34
13.2.1	General.....	34
13.2.2	Test pieces.....	35
13.2.3	Qualification procedure.....	35
13.2.4	Validity of the product qualification.....	35
14	Inspection and quality surveillance.....	35
Annex A (informative) Types of diaphragm.....		36
Annex B (informative) Example of fatigue test programme.....		38
Annex C (normative) Qualification procedure.....		40
Annex D (informative) Recommended tolerances for characteristics of diaphragms.....		42
Bibliography.....		43