DIN EN 1491:2022-09 (E)

Building valves - Expansion valves - Tests and requirements

Contents

Page

European foreword 4

Introduction 5

1 Scope 6

2 Normative references 6

3 Terms and definitions 7

4 Materials and surface finishes 8
4.1 General 8
4.2 Materials 9
4.3 Detection of residual stress 9
4.3.1 General 9
4.3.2 Test 9
4.3.3 Test method (Procedure) 9
4.3.4 Requirements 10
4.4 Corrosion resistance test 10
4.4.1 General 10
4.4.2 Test method 10
4.4.3 Requirements 10
4.5 Coating adherence test 10
4.5.1 General 10
4.5.2 Test method 10
4.5.3 Requirements 11
4.6 Compatibility with the products used for shock disinfection of the networks 11
4.6.1 General 11
4.6.2 Test method 11
4.6.3 Requirements 11

5 Design, dimensional and pressure requirements 12
5.1 General guidance 12
5.2 Dimensional characteristics 12
5.2.1 Nominal outlet diameter 12
5.2.2 End connections 12
5.3 Expansion valve outlet connection to air break to drain 12
5.4 Expansion valve discharge connection to drain service 12
5.5 Connections 12
5.6 Pressures 13
5.6.1 General 13
5.6.2 Nominal set pressure (Pnr) 13
5.6.3 Water tightness pressure (Pe) 13
5.6.4 Opening pressure (Po) 13
5.6.5 Rating pressure (Pdn) 13
5.6.6 Clossing pressure (Pf) 13
5.6.7 Initial opening pressure (Pdc) 13

6 Apparatus 13
6.1 General 13
6.2 Tolerances of parameters and accuracy of measure instruments 14
6.2.1 Tolerances on set parameters 14

6.2.2 Accuracy of measuring instruments 14
6.2.3 Test media 14

7 Hydraulic tests and requirements 14
7.1 Cold water pressure tests 14
7.1.1 General 14
7.1.2 Water tightness pressure (Pe) test 14
7.1.3 Repeat tests 15
7.2 Endurance test 15
7.2.1 Procedure 15
7.2.2 Requirement 16
7.3 Easing gear (manual control device) 16
7.3.1 Operation of the easing gear 16
7.3.2 Easing gear endurance test 16

8 Mechanical tests and requirements 16
8.1 Mechanical strength 16
8.1.1 Pressure test of the body of the expansion valve 16
8.1.2 Bending moment test of the body of the expansion valve 17
8.2 Mechanical strength of the easing gear 18
8.2.1 Procedure 18
8.2.2 Requirement 18
8.3 Torsional strength of the expansion valve's body 18
8.3.1 General 18
8.3.2 Procedure 18
8.3.3 Requirement 19
8.4 Torque test of the captive rotating nuts/tail pieces 19
8.4.1 General 19
8.4.2 Procedure 19
8.4.3 Requirement 19

9 Classification 19

10 Designation 20

11 Marking 20

12 Technical documents and presentation at delivery 21

Annex A (informative) Classification of water heaters according to heating method 22

A.1 Indirect heating 22
A.2 Classification of water heaters according to heating method 22
A.2.1 Indirect heating 22
A.2.2 Direct heating 23

Bibliography 24