

# DIN EN 17450-2:2024-12 (E)

## Fixed firefighting systems - Water mist systems - Part 2: Product characteristics and test methods for nozzles

---

<b>Contents</b>		<b>Page</b>
European foreword .....		5
1	Scope .....	6
2	Normative references .....	6
3	Terms and definitions .....	6
4	Product characteristics .....	7
4.1	General .....	7
4.2	Nominal operating temperature for automatic nozzles .....	8
4.3	Thermal response of automatic nozzles .....	8
4.4	K-factor .....	8
4.5	Function of nozzles .....	9
4.5.1	Automatic nozzles .....	9
4.5.2	Open nozzles .....	9
4.6	Strength of nozzle body and deflector .....	9
4.6.1	Mechanical strength test .....	9
4.6.2	Hydrostatic strength test .....	9
4.6.3	Strength of nozzle deflector and its supporting or moving parts .....	9
4.7	Strength of release element of automatic nozzles .....	9
4.7.1	General .....	9
4.7.2	Automatic nozzles using glass-bulbs .....	9
4.7.3	Automatic nozzles using fusible links .....	9
4.8	Leak resistance .....	10
4.9	Heat exposure for automatic nozzles using glass bulbs .....	10
4.10	Resistance against thermal shock for automatic nozzles using glass bulbs .....	10
4.11	Resistance against corrosion .....	10
4.11.1	Stress corrosion for nozzles with brass parts .....	10
4.11.2	Sulphur dioxide corrosion .....	10
4.11.3	Salt mist corrosion .....	10
4.11.4	Moist air exposure .....	11
4.12	Aging test (by heat exposure) for automatic nozzles (optional) .....	11
4.13	Resistance against water hammer for automatic nozzles .....	11
4.14	Resistance to heat .....	11
4.15	Resistance to low temperature for automatic nozzles (optional) .....	11
4.16	Resistance to vibration .....	11
4.17	Resistance to impact .....	11
5	Testing, assessment and sampling methods .....	12
5.1	General .....	12
5.2	Operational tests .....	12
5.2.1	Comparison of fire test nozzles with the one used for component testing .....	12
5.2.2	Operating temperature of automatic nozzles .....	12
5.3	Thermal response tests .....	12
5.4	Water flow test .....	12
5.5	Function test of nozzles .....	12
5.5.1	Function of release element for automatic nozzles .....	12
5.5.2	Functional test for open nozzles with blow-off caps .....	13
5.5.3	Verification functional test .....	13
5.6	Strength of nozzle body and deflector tests .....	14

5.6.1	Mechanical strength test .....	14
5.6.2	Hydrostatic strength test .....	14
5.6.3	Strength of nozzle deflector and its supporting or moving parts test .....	14
5.7	Strength of release elements test for automatic nozzles .....	14
5.7.1	General .....	14
5.7.2	Automatic nozzles using glass bulbs .....	15
5.7.3	Automatic nozzles using fusible links .....	15
5.8	Leak resistance test .....	15
5.9	Heat exposure for automatic nozzles using glass bulbs .....	15
5.10	Thermal shock test .....	16
5.11	Corrosion tests .....	16
5.11.1	General .....	16
5.11.2	Stress corrosion .....	16
5.11.3	Sulphur dioxide corrosion .....	16
5.11.4	Salt mist corrosion .....	16
5.11.5	Moist air exposure .....	16
5.12	Aging test (by heat exposure) for automatic nozzles (optional) .....	17
5.13	Water hammer test .....	17
5.14	Heat-resistance test .....	18
5.15	Low temperature resistance test for automatic nozzles (optional) .....	18
5.16	Vibration test .....	18
5.17	Resistance to impact test .....	19
6	Documentation and marking .....	20
6.1	Product documentation .....	20
6.2	Marking .....	20
7	Test facilities .....	21
7.1	Test facility .....	21
7.2	Test report .....	21
Annex A (normative)	Test apparatus for water flow test .....	22
A.1	Single inlet pipe nozzle .....	22
A.2	Calculation .....	22
Annex B (informative)	Water distribution test .....	24
B.1	Apparatus .....	24
B.2	Procedure .....	24
Annex C (normative)	Corrosion tests .....	26
C.1	Stress corrosion test for brass nozzles .....	26
C.1.1	Reagents .....	26
C.1.2	Apparatus .....	26
C.1.3	Procedure .....	26
C.2	Post exposure flowing test (if required) .....	26
C.2.1	Automatic nozzles .....	26
C.2.2	Open nozzles .....	26
C.3	Sulphur dioxide corrosion test .....	26
C.3.1	General .....	26
C.3.2	Reagents .....	27
C.3.3	Apparatus .....	27
C.3.4	Procedure .....	27
C.3.4.1	General .....	27
C.3.4.2	Automatic nozzles .....	27
C.3.4.3	Open nozzles .....	27
C.4	Salt mist corrosion test .....	28
C.4.1	Reagents .....	28
C.4.2	Apparatus .....	28
C.4.3	Procedure .....	29

<b>C.5</b>	<b>Moist air atmosphere test .....</b>	<b>29</b>
	<b>Annex D (normative) Thermal response tests .....</b>	<b>30</b>
<b>D.1</b>	<b>Test setup .....</b>	<b>30</b>
<b>D.2</b>	<b>Prolonged exposure ramp test .....</b>	<b>30</b>
<b>D.3</b>	<b>Plunge test .....</b>	<b>31</b>
	<b>Annex E (normative) Strength of water mist body and deflector tests .....</b>	<b>33</b>
	<b>Annex F (normative) Test to determine operating temperatures .....</b>	<b>35</b>
<b>F.1</b>	<b>Apparatus .....</b>	<b>35</b>
<b>F.2</b>	<b>Procedure .....</b>	<b>35</b>
	<b>Bibliography .....</b>	<b>37</b>