# DIN EN ISO 21805:2023-07 (E)

**Guidance and recommendations on design, selection and installation of vents to safeguard the structural integrity of enclosures protected by gaseous fire-extinguishing systems (ISO 21805:2023)**

## Contents

Page


**European foreword** ... **3**

**Foreword** ... **4**

**Introduction** ... **5**

**1 Scope** ... **7**

**2 Normative references** ... **7**

**3 Terms and definitions** ... **7**

**4 Symbols and abbreviated terms** ... **8**

**5 Use and limitations** ... **9**

**6 Safety** ... **10**

6.1 Structural safety ... 10

6.2 Personnel safety ... 10

**7 System design — Pressure-relief venting** ... **10**

7.1 General ... 10

7.2 Extinguishant characteristics ... 11

7.2.1 Positive and negative pressurization ... 11

7.2.2 Pressure graphs ... 11

7.3 Enclosure characteristics ... 12

7.4 Pressure-relief vent paths ... 12

7.5 Types of pressure-relief vents ... 13

7.5.1 General ... 13

7.5.2 Gravity vents ... 13

7.5.3 Counterweighted flap vent ... 13

7.5.4 Electrically-operated vents ... 14

7.5.5 Pneumatically-operated vent ... 14

7.5.6 Vent accessories ... 14

7.6 Pressure-relief vent characteristics ... 15

7.6.1 Vent efficiency ... 15

7.6.2 Minimum opening pressure ... 16

7.6.3 Minimum closing pressure ... 16

7.6.4 Fire rating ... 16

7.7 Vent location and mounting ... 16

7.7.1 Vent location ... 16

7.7.2 Vent mounting ... 17

7.8 Pressure-relief vent area calculations ... 18

7.8.1 Use of agent-specific formulae ... 18

7.8.2 Vent area requirement (non-liquefiable gases) ... 19

7.8.3 Vent area requirement carbon dioxide ... 22

7.8.4 Vent area requirements (liquefiable gases) ... 22

7.8.5 Leakage ... 28

7.9 Cascade venting calculations ... 28

7.9.1 Example calculation 3: Cascade venting calculations for IG-541 (peak discharge) ... 29

7.9.2 Cascade vent arrangements ... 30

7.9.3 Venting into adjacent enclosures ... 31

**8 System design — Post-discharge venting** ..... **33**
**9 Acceptance** ..... **33**
**10 Service and maintenance** ..... **33**
**Annex A** (informative) **Development of agent-specific formulae for liquefiable gases** ..... **35**
**Annex B** (informative) **Method for development of agent-specific formulae for liquefiable gases** ..... **40**
**Bibliographie** ..... **42**