

DIN EN 16678:2024-02 (E)

Safety and control devices for gas burners and gas burning appliances - Automatic shut-off valves for operating pressure of above 500 kPa up to and including 6300 kPa

Contents

	Page
European foreword	4
Introduction	5
1 Scope	7
2 Normative references	7
3 Terms and definitions	9
4 Classification	10
4.1 Classes of control	10
4.2 Groups of control	10
4.3 Classes of control functions	10
4.4 Types of DC supplied controls	10
5 Units of measurement and test conditions	10
6 Construction requirements	10
6.1 General	10
6.2 Mechanical parts of the control	10
6.3 Materials	12
6.4 Gas connections	13
6.5 Electrical parts of the control	14
6.6 Protection against internal faults for the purpose of functional safety	14
6.101 Pneumatic and hydraulic actuating mechanisms	14
7 Performance	15
7.1 General	15
7.2 Leak-tightness	15
7.3 Torsion and bending	15
7.4 Rated flow rate	16
7.5 Durability	16
7.6 Performance tests for electronic controls	17
7.7 Long-term performance for electronic controls	17
7.8 Data Exchange	17
7.101 Closing function	17
7.102 Closing force	18
7.103 Delay time and opening time	18
7.104 Closing time	18
7.105 Sealing force	19
7.106 Closed position indicator switch	19
7.107 Endurance	20
8 Electrical requirements	21
8.1 General	21
8.2 Protection by enclosure	21
8.101 Switches	21
8.102 Plug connections	22

8.103	Power saving circuits	22
9	Electromagnetic compatibility (EMC)	22
9.1	Protection against environmental influences	22
9.2	Supply voltage variations below 85 % of rated voltage	23
9.3	Voltage dips and interruptions	23
9.4	Supply frequency variations	23
9.5	Surge immunity tests	23
9.6	Electrical fast transient/burst	23
9.7	Immunity to conducted disturbances induced by radio frequency fields	23
9.8	Immunity to radiated disturbances induced by radio frequency fields	23
9.9	Electrostatic discharge tests	23
9.10	Power frequency magnetic field immunity tests	23
9.11	Harmonics and interharmonics including mains signalling at a. c. power port, low frequency immunity tests	23
10	Marking, instructions	23
10.1	Marking	23
10.2	Instructions	24
10.3	Warning notice	25
Annex A (informative) Abbreviations and Symbols		26
Annex B (informative) Leak-tightness test for gas controls - volumetric method		27
Annex C (informative) Leak-tightness test for gas controls - pressure loss method		28
Annex D (normative) Calculation of pressure loss into leakage rate		29
Annex E (normative) Electrical/electronic component fault modes		30
Annex F (normative) Additional requirements for safety accessories and pressure accessories as defined in EU Directive 2014/68/EU		31
Annex G (normative) Materials for pressurized parts		32
Annex H (normative) Additional materials for pressurized parts		33
Annex I (normative) Requirements for controls used in DC supplied gas burners and appliances burning gaseous or liquid fuels		34
Annex J (normative) Method for the determination of a Safety Integrity Level (SIL)		35
Annex K (normative) Method for the determination of a Performance Level (PL)		36
Annex L (informative) Relationship between Safety Integrity Level (SIL) and Performance Level (PL)		39
Annex M (normative) Reset functions		40
Annex N (informative) Guidance document on Environmental Aspects		41
Annex O (normative) Seals of elastomer, cork and synthetic fibre mixtures		42
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/426 aimed to be covered		43
Bibliography		46