

ISO 23551-4:2018-04 (E)

Safety and control devices for gas burners and gas-burning appliances - Particular requirements - Part 4: Valve-proving systems for automatic shut-off valves

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	Classification	3
4.1	Classes of control	3
4.2	Groups of controls	3
4.3	Types of DC supplied controls	3
4.4	Classes of control functions	3
5	Test conditions and tolerances	3
6	Construction	3
6.1	General	3
6.2	Construction requirements	3
6.3	Materials	4
6.4	Gas connections	4
6.5	Gas controls employing electrical components in the gas way	4
6.6	Electronic parts of the control	4
6.7	Additional constructional requirements for VPS systems	4
6.7.1	Signal for indication	4
6.7.2	VPS setting	4
7	Performance	4
7.1	General	4
7.2	Leak tightness	4
7.2.1	General	4
7.2.2	Requirements	4
7.2.3	Test	5
7.3	Torsion and bending	5
7.4	Rated flow rate	5
7.5	Durability	6
7.6	Functional requirements	6
7.6.1	Manufacturer information	6
7.6.2	Detection limit	6
7.6.3	Programme sequence	6
7.6.4	Timing	6
7.6.5	Test of the programme sequence and timing	7
7.6.6	Self-checking	7
7.6.7	Lock-out function	7
7.6.8	Mains power interruption	8
7.7	Endurance	8
7.7.1	General	8
7.7.2	Stress test	8
7.8	Vibration test	9

7.9	Performance tests for electronic controls	9
7.9.1	At ambient temperature	10
7.9.2	At low temperature	10
7.9.3	At high temperature	10
8	Electrical equipment	10
8.1	General	10
8.2	Requirements	10
8.3	Test	10
8.4	Protection by enclosure	10
8.5	Protection against internal faults for the purpose of functional safety	10
8.5.1	Design and construction requirements	11
8.5.2	Class A	12
8.5.3	Class B	12
8.5.4	Class C	13
8.5.5	Circuit and construction evaluation	15
9	Electromagnetic compatibility (EMC)	16
9.1	Protection against environmental influences	16
9.2	Harmonics and inter harmonics including mains signalling at a.c. power port, low frequency immunity	16
9.3	Voltage dips, voltage interruptions and voltage variations in the power supply network 16 9.3.1 Voltage dips and voltage interruptions	16
9.3.2	Test	16
9.3.3	Voltage variation	16
9.4	Test of influence of voltage unbalance	16
9.5	Surge immunity tests	16
9.5.1	General	16
9.5.2	Requirements	17
9.5.3	Test	17
9.6	Electrical fast transient/burst	18
9.6.1	General	18
9.6.2	Requirements	18
9.6.3	Test	18
9.7	Ring wave immunity	18
9.8	Electrostatic discharge	18
9.8.1	General	18
9.8.2	Requirements	18
9.8.3	Test	18
9.9	Radio-frequency electromagnetic field immunity	19
9.10	Test of influence of supply frequency variations	19
9.11	Power frequency magnetic field immunity	19
10	Marking, installation and operating instructions	19
10.1	Marking	19
10.2	Installation and operating instructions	19
10.3	Warning notice	20
Annex A (informative)	Leak-tightness test -- Volumetric method	21
Annex B (informative)	Leak-tightness test -- Pressure-loss method	22
Annex C (normative)	Conversion of pressure loss into leakage rate	23
Annex D (informative)	Gas quick connector (GQC)	24
Annex E (normative)	Elastomers/requirements resistance to lubricants and gas	25
Annex F (normative)	Specific regional requirements in European countries	26
Annex G (normative)	Specific regional requirements in Canada and USA	27

Annex H (normative) Specific regional requirements in Japan 29
Annex I (informative) Application guide 30
Bibliography 31