

ISO 23553-1:2022-02 (E)

Safety and control devices for oil burners and oil-burning appliances - Particular requirements - Part 1: Automatic and semi-automatic valves

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Classification	6
4.1	Classes of control	6
4.2	Groups of control	6
4.3	Types of DC supplied controls	6
5	Test conditions	6
6	Construction	7
6.1	General	7
6.2	Construction requirements	7
6.2.1	Appearance	7
6.2.2	Holes	7
6.2.3	Flexible diaphragm, bellows or similar construction	7
6.2.4	Screwed fastenings	7
6.2.5	Jointing	8
6.2.6	Moving parts	8
6.2.7	Sealing caps	8
6.2.8	Dismantling and reassembling for servicing and/or adjustment	8
6.2.9	Auxiliary channels	9
6.2.10	Resistance against pressure	9
6.2.11	Connections	9
6.3	Materials	9
6.3.1	General material requirements	9
6.3.2	Springs	10
6.3.3	Resistance to corrosion and surface protection	10
6.3.4	Impregnation	10
6.3.5	Seals for glands for moving parts	10
6.3.6	Non-metallic sealing materials	10
6.3.7	Actuators	10
6.3.8	Enclosures	11
6.3.9	Extra low voltage terminals	11
6.4	Oil connections	11
6.4.1	Making connections	11
6.4.2	Connection sizes	11
6.4.3	Threads	11
6.4.4	Union Joints	12
6.4.5	Flanges	13
6.4.6	Compression fittings	13
6.4.7	Nipples for pressure tests	13
6.4.8	Welded connections	13
6.5	Strainers	13
6.6	Indicator	14
6.6.1	Position indicator	14
6.6.2	Closed position indicator switch	14

7	Performance	14
7.1	General.....	14
7.2	Leak-tightness.....	15
	7.2.1 Criteria.....	15
	7.2.2 Test for leak-tightness.....	15
7.3	Torsion and bending.....	16
	7.3.1 General.....	16
	7.3.2 Torsion.....	16
	7.3.3 Bending moment.....	16
	7.3.4 Torsion and bending tests.....	16
	7.3.5 Hydrostatic strength test.....	20
7.4	Rated oil flow.....	20
	7.4.1 Criteria.....	20
	7.4.2 Test of flow capacity.....	20
7.5	Durability.....	20
	7.5.1 Elastomers in contact with oil.....	20
	7.5.2 Resistance to oil.....	20
	7.5.3 Marking resistance.....	21
	7.5.4 Resistance to scratching.....	21
	7.5.5 Resistance to humidity.....	22
7.6	Functional requirements.....	23
	7.6.1 General.....	23
	7.6.2 Closing function.....	23
	7.6.3 Valve closing time.....	23
	7.6.4 Valve opening time.....	24
7.7	Endurance.....	24
	7.7.1 General.....	24
	7.7.2 Test of endurance.....	24
	7.7.3 Test of endurance of electrically operated valves.....	24
8	EMC/Electrical requirements	25
8.1	Protection against environmental influences.....	25
	8.1.1 Assessment Criterion I.....	25
	8.1.2 Assessment Criterion II.....	25
8.2	Surge immunity test.....	25
8.3	Electrical fast transient/burst.....	26
8.4	Immunity to conducted disturbances.....	26
8.5	Immunity to radiated fields.....	27
8.6	Electrostatic discharge immunity test.....	28
8.7	Test for immunity to power-frequency magnetic field.....	28
8.8	Electrical equipment.....	28
	8.8.1 General.....	28
	8.8.2 Heating of oil valves.....	28
	8.8.3 Heating for valves.....	30
	8.8.4 Burnout test for valves.....	30
	8.8.5 Blocking of valve mechanism.....	30
8.9	Electrical components.....	31
	8.9.1 Degree of protection.....	31
	8.9.2 Switches.....	31
	8.9.3 Plug connector.....	31
	8.9.4 Power-saving circuit.....	32
8.10	Ring wave.....	32
9	Marking, installation and operating instructions	32
9.1	Marking.....	32
9.2	Installation and operating instructions.....	33
9.3	Warning notice.....	33
	Annex A (normative) Test for immunity to power-frequency magnetic fields	35
	Annex B (normative) Specific regional requirements in European countries	36
	Annex C (normative) Specific regional requirements in Canada and USA	38
	Annex D (normative) Specific regional requirements in Japan	41
- 2 -	Bibliography	43