



TESTING AND MEASURING EQUIPMENT/ALLOWED SUBCONTRACTING

IEC 60730-2-17:2007-11, Edition 1.2

Automatic electrical controls for household and similar use

Part 2-17: Particular requirements for electrically operated gas valves, including mechanical requirements

R = Required by Lab

S = May be subcontracted

3PPS = Three Phase Power Supply required

NA = Not applicable

| Clause | Measurement/testing | Testing / measuring equipment / material needed | Subcontracting |
|--------|-----------------------------------|---|----------------|
| 3 | General requirements | None | - |
| 4 | General notes on tests | None | - |
| 5 | Rating | None | - |
| 6 | Classification | None | - |
| 7 | Information | None | - |
| 8 | Protection against electric shock | Test finger (Fig. 2 of IEC 60730-1), force gauge, test pin (Fig. 1 of IEC 60730-1), milliampmeter, voltmeter, ruler, micrometer | R |
| 9 | Provision of protective earthing | Ammeter, voltmeter, corrosion resistance analysis materials | R |
| 10 | Terminals and terminations | According to IEC60998, Torque tester, force gauge tester, screwdriver, micrometer, ruler, flexing tester | R |



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|--------|---|---|----------------|
| 11 | Construction requirements | Electric strength tester, HV test supply, isolation transformer, insulation tester, DC voltage supply, flexing tester, voltmeter, ammeter, freezer chamber, temperature recorder, torque tester, force gauge, time clock, test fingernail, vernier callipers or suitable measuring instrument, micrometer, pressure gauge | R |
| 12 | Moisture and dust resistance | According to IEC60529, electric strength tester, conditioning chambers: heater humidity, leakage current meter | R |
| 13 | Electric strength and insulation resistance | Insulation tester, electric strength tester, leakage current tester | R |
| 14 | Heating | Temperature meter/recorder, fine wire thermocouples, winding resistance measurement system, environmental chambers (heat, freeze), current loads per ratings, voltmeter, ammeter | R |
| 15 | Manufacturing deviation and drift | Environmental chamber (heat, cold, humidity), voltmeter, ammeter, temperature meter/recorder, humidity meter, pressure meter, recorders, oscilloscope. | R |
| 16 | Environmental stress | Environmental chambers – heat, freeze, humidity | R |
| 17 | Endurance | Environmental chambers – heat, freeze, humidity. Voltmeter, ammeter, power analyzer meter, oscilloscope, inductive loads, resistive loads, pilot duty loads, motor loads. | R 3PPS |
| 18 | Mechanical strength | Apparatus in IEC60068-2-75, impact tester (Fig. 4 of IEC 60730-1), tumbling barrel (Fig. 5 of IEC 60730-1), force tester, torque tester, pull tester. | R |
| 19 | Threaded parts and connections | Screwdrivers, torque tester | R |
| 20 | Creepage distances, clearances and distances through solid insulation | Measuring ruler, force tester, test finger (Fig. 2), impulse voltage tester, electric voltage tester, insulation resistance meter, oscilloscope, electric strength tester, micrometer, vernier callipers | R |
| 21 | Resistance to heat, fire and tracking | Ball pressure test apparatus in accordance with figure 6 of IEC 60730-1, horizontal burning test apparatus (Annex G of IEC 60730-1) and needle flame apparatus, glow wire test apparatus, environmental chamber or heating cabinet, tracking test apparatus, voltmeter, ammeter | R |



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|--------------------------|--|--|----------------|
| 22 | Resistance to corrosion | Humidity chamber, heating cabinet | R |
| 23 | EMC requirements – emission | Apparatus in accordance with CISPR14-1. Equipment in accordance with Clause 17 of IEC 60730-1, oscilloscope | S |
| 24 | Components | Test apparatus in accordance with IEC60742 and other IEC component standards | S |
| 25 | Normal operation | Refer to Annex H of IEC 60730-1 | - |
| 26 | EMC requirements – immunity | Refer to Annex H of IEC 60730-1 | - |
| 27 | Abnormal operation | Voltmeter, ammeter, electric strength tester | R |
| 28 | Guide of the use of electronic disconnection | Refer to Annex H of IEC 60730-1 | - |
| | | | |
| Annex A | Indelibility of Marking | Refer to IEC 60730-1 | R |
| Annex B | Measurement Guide | None | - |
| Annex C | Cotton for Mercury Switch Test | Common as described in Annex C of IEC 60730-1 | R |
| Annex D (informative) | Heat, fire, and tracking | Arc-tracking resistance apparatus High voltage-arc resistance apparatus Aging chambers, tensile tester, electric strength tester, flexural strength tester, izod impact tester, flame test burner, insulation resistance measuring apparatus, CTI testing apparatus, apparatus for tests in Table D2 of IEC 60730-1. | R |
| Annex E | Circuit for measurement leakage current | Circuit apparatus according to Figure E1 of IEC 60730-1. | R |
| Annex F (informative) | Heat-Fire-Resistance categories | None | - |
| Annex G | Heat-Fire-Resistance tests | Needle flame apparatus, glow-wire test apparatus, PTI Test apparatus | R |
| Annex H | Requirements for Electronic Controls | Refer to Annex H, sub-clauses below: | - |
| H8 | Protection against electric shock | Leakage current meter, capacitance measuring instrument | R |
| H11 | Constructional requirements | Ammeter, voltmeter, chart recorder | R |
| H13 | Electric strength and insulation resistance | Same as Clause 13 above | R |



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|-----------------------|--|--|----------------|
| H17 | Endurance | Thermal cycling test apparatus | R |
| H18 | Mechanical Strength | Refer to Clause 18 above | R |
| H20 | Creepage distance, clearance and distance through insulation | Refer to Clause 20 above | R |
| H21 | Resistance to heat, fire and tracking | Refer to Clause 21 above | R |
| H22 | EMC requirements – emission | Refer to Clause 23 above | S |
| H23 | Normal Operation | Oscilloscope, ammeter, voltmeter | R |
| H26 | EMC requirements – immunity | Environmental chamber, voltage dips and short voltage interruption apparatus, variable voltage supply, 3-phase auto-transformer, surge test apparatus, fast transient/burst test apparatus, ring wave surge test apparatus, conducted radiofrequency test apparatus radiated EM field test apparatus, programmable logic controllers or similar equipment. | S |
| H27 | Abnormal Operation | Voltmeter, ammeter, oscilloscope, temperature meter | R |
| H28 | Guide on use of electronic disconnection | None | - |
| Annex J | Requirements for controls using thermistors | Same which are used for clauses 8 through 28 | R |
| Annex K (informative) | Nominal voltages | None | - |
| Annex L | Overvoltage categories | None | - |
| Annex M (informative) | Typical usage | None | - |
| Annex N | Pollution degree | None | - |
| Annex P | Printed circuit board coating performance test | Heating chamber, humidity chamber, environmental cycling chamber, electric strength tester. | R |
| Annex Q | Printed circuit board coating performance test | Freezing chamber, environmental cycling chamber, electric strength tester, freezing chamber | R |
| Annex R (informative) | Explanatory notes for surge immunity test | None | - |



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| Annex S (informative) | Guidance for applying Clause 20 | None | - |
| Annex T | Requirements for SELV and PELV | None | - |
| Annex U | Requirements for relays when used as controls in IEC 60335 appliances | Same which are used for clauses 7 through 28 | R 3PPS |