Technical Data

ELMED ISO-Automat P2

1. Control Unit

Operation
All necessary settings can be made at the control unit using a four keys pad and an alphanumeric LED display ("plain- text display").
Operating at “Standard mode” it is possible to set up test voltage and pipe type. Changing to "Technician mode", further adjustments can be made for adaptation to individual testing conditions without opening the unit. In addition, a number of monitored values, which can be of use during adaptation, can be read off.

Testing Voltage
The test voltage can be set at the control unit (0.5 kV steps) from 5 to 35 kV. (option: up to 40kV)
During operation the distance between the spheres is adjusted automatically on the basis of a table memorised the microprocessor. This considerably simplifies operation compared with conventional units where the gap (in mm) between the spheres has to be set manually according to a value shown in a table.

Monitoring System
The distance between the spheres in the spark gap is set again automatically each time the unit is switched on and for any change of the test voltage. At the same time, the correct function of the adjustment mechanism is tested. The wear of the spheres is determined and - if possible - compensated. If the spheres exhibit an impermissibly state of erosion, a fault message is displayed.

High Voltage Monitoring
The high voltage is monitored constantly during operation. If the voltage drops below the pre-set - voltage level, an optical message is displayed at the control unit and a floating changeover contact for external evaluation is tripped..

Pore Recognition
The correct detection of pores is assured by the microprocessor allowing for factors such as type of earthing and test electrodes, pipe diameter, etc. If necessary, programmed parameter sets can be called up when required simply by entering the pipe diameter.

Pore Alarm
Several types of pore detection signals are possible:
Optical display on the unit,
Floating changeover contact, e.g. for connection to PLC,
Non-floating NO contact, e.g. for connection of acoustic signalling devices.
In addition, different types of signal can be selected:
- Continuous signal until cancelled at the unit,
- Pulsed signal of variable duration.

External Control
The test unit can be controlled externally via
-Switching contact, e.g. limit switch,
-DC voltage signal approx. 24 V, e.g. from PLC.

Pore Counter
The integrated pore counter supports the requirements of quality assurance systems and facilitates continuous process monitoring..

Installation and Assembly
Service-friendly, modular design of the individual components of the unit (high voltage generator and control) allow an easy and fast installation of the equipment . Well defined plugged connections of industrial quality again considerably support assembly and service .

Housing and Connection Data
Sturdy sheet steel housing with window:

Colour :	RAL 7032
Dimensions :	380x300x220mm
Protection class :	IP 54
Type of mounting :	wall mouning
Mounting dimensions :	(410 x 242) mm
Weight :	11 kg net
Supply voltage :	230 V / 50 Hz
Power consumption :	max. 70 VA
Ambient temperature limit:	0 - 45° C

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2. High - Voltage Generator

Housing and Operating Data

Sturdy sheet steel housing with window:

Colour :	RAL 7032
Dimensions :	380x300x220mm
Protection class :	IP 54
Type of mounting :	wall mounting
Mounting dimensions :	(410 x 242) mm
Weight :	12 kg net
Supply voltage :	230 V / 50 Hz
Power consumption :	max. 70 VA
Ambient temperature limit:	0 - 45° C
(Heat timing constant:	> 10 K/h)

Testing Voltage

Unipolar short - time voltage pulses
- testing voltage 5,0 – 35kV
- Pulse duration :approx. 20 µs,
- Pulse repetition frequency : variable up to 25 Hz
- Maximum test speed : 300 mm
  (higher speed possible upon request)

The necessary value of the test voltage depends on the thickness of the coating to be tested and is defined in test specifications - e.g. DIN 30 674 - or according to manufacturer's instructions.
The test voltage is set by means of an integrated spark gap in accordance with VDE 0433 (voltage as a function of the flashover distance)
The test voltage is tracked and monitored by the control electronics of the control unit.
The components of the sphere gap are of wear-resistant stainless steel for low – maintenance continuous operation.

Safeguard against Electromagnetic Disturbances (EMC)

Protection against electric interference (EMC) is achieved by the screening effect of the sheet steel housing.. The connection between the testing unit and the monitoring PC is realised by an interference proof optical fibre.

Testing Capacities

The max. pipe diameter which can be tested is defined by the maximum allowed electrical load of the testing equipment.

Following factors have to be taken into account:
- Coating material
- Thickness of coating
- Remaining humidity on the surface
- Testing velocity
- Contact area of the testing electrode

By experience for the testing of three-layer PE coating a testing electrode up to a total length of 1600mm can be used. (diameter app. 500mm). For the handling of bigger diameters several ISO- Automat testing system can be synchronised . The application of segmented testing electrodes leads to a further reduction of the critical electric load and at the same time allows an exact localisation of faults and pores.

Assembly and Installation

Installation and service-friendly, modular design of the individual components of the testing equipment (high voltage generator and control unit) allow an easy and fast installation. Well defined plugged connections of industrial quality again support assembly and service .
To ensure a low-loss operation the generator should be mounted in the vicinity of the testing station. Length of the high voltage cable 1,5m.