STS
global.sensor.excellence

STS Italia s.r.l.
Via Lambro, 36 - 20090 Opera (MI)
Tel: +39 02 57 60 70 73
Fax: +39 02 57 60 71 10
Cod. Fisc e P. IVA 10621530152

Capitale sociale € 26.000,00
interamente versato
Registro Imprese di Milano
n° 10621530152
R.E.A. n° 1392932

info-italia@stssensors.com

www.sts-italia.it
www.stssensors.com

UNION Instruments

## Applications

- Test of coated pipes, tanks and containers for pores and cracks
- Test of coated work pieces and machine arts for damage
- Test of isolating layers on conductive substrate




# Isolation Tester

Non-destructive testing of non-conductive jackets and coating for defects

STS Italia s.r.l.
Via Lambro, 36 - 20090 Opera (MI)
Tel: +39 02 57 60 70 73
Fax: +39 02 57 60 71 10
Cod. Fisc e P. IVA 10621530152

Capitale sociale € 26.000,00
interamente versato
Registro Imprese di Milano
n° 10621530152
R.E.A. n° 1392932

info-italia@stssensors.com

www.sts-italia.it
www.stssensors.com



## Passive corrosion protection by isolation test

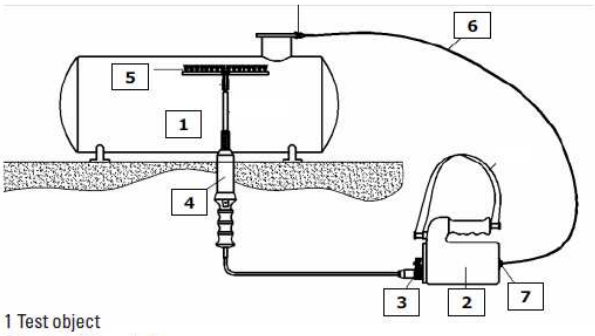
Metallic gas and water pipelines as well as underground or free-standing containers of all kinds are almost always subject to corrosive influences which can impede the service life of the system significantly. A remedy can be found by careful isolation of the system parts which must be checked on a case by case basis for absolute tightness. This type of preventive measure is also referred to as passive corrosion protection. The measurement principle applied in such measures bases on a measurable disruptive discharge of a high voltage due to flaws (pores, cracks) in the non-conductive, isolating coating on a conductive surface.

Possible applications range from testing pipes and containers of all kinds, coated on the inside and/or the outside, up to checking rubber coatings or structural waterproofing of buildings for flaws.

## UNION Isolation tester

For leak tests of isolating layers, the UNION Isolation Tester is available in different versions - adapted to the respectice application. The Isolation Tester can be used anywhere where coatings on a conductive surface are to be tested for tightness. Even wet concrete can act as conductive surface, also roofing paper seals on wet wood or varnish paintings on surfaces of different kinds.

An Isolation test on construction sites should in general be done directly after applying the isolating layer on the respective surfaces, i.e. before covering the containers or pipelines with soil. The damaged spots can then be closed with isolating material directly after finding them. The UNION Isolation tester generates a low-frequency high voltage up to max. 30 kV in a coil. The voltage is transmitted to a brush or ring electrode which is guided over the plastic-coated test object. The device is operated without mains supply by an integrated NiMH (metal hydride) battery.




1 Test object
2 Tester (PU coated)
3 On/Off potentiometer
4 High voltage coil
5 Test brush
6 Earth cable
7 Earth connection

Figure 1: UNION Isolation Tester Measurement Layout

### Typical fields of application

- plumbing construction
- pipeline construction
- tank and container construction
- isolated valves and fittings
- all fields of corrosion protection
- construction engineering (building isolation)

### Typical scenarios of application

- quality monitoring
- plant/system handing over to operator
- delivery control by the operator
- service and damage repair

## Device variants

### Device with freely adjustable test voltage (type V)

from 5 kV to 30 kV for test objects with small to medium diameter. Adjustment is done with an additional peak spark gap calibrated with a ball spark gap. This standard device is used for testing tanks and pipelines when using test brushes and wire coils with small and medium diameter.

### Device with fixed readjustment of the test voltage for larger specimens (type NR)

This device has a fixed test voltage of e.g. 20 kV which is constantly readjusted, even if a voltage drop occurs at the test electrode with large wire coils and humid weather. This voltage drop can be 5% and more for devices without readjustment. Adjusting the device before start of the test is not required. Instead of a selector switch it has an on/off switch. It is constantly controlled to the voltage which limits the high voltage coil by a ball spark gap.

For every voltage level, a separate high voltage coil is required (e.g. 10 kV, 15 kV, 20 kV, 30 kV). Plugging in the high voltage coil with the desired voltage automatically adjusts the control system. This effectively prevents testing with incorrect voltage.

### Device with adjustable re-adjustment of the test voltage for large test objects (type VNR)

By a robust mechanic system within the high voltage coil, 6 different readjusted voltages (from 5 kV to 30 kV in steps of 5 kV) can be set manually.

Figure 2: UNION Isolation Tester type V with semi-circular test brush

STS Italia s.r.l.
Via Lambro, 36 - 20090 Opera (MI)
Tel: +39 02 57 60 70 73
Fax: +39 02 57 60 71 10
Cod. Fisc e P. IVA 10621530152

Capitale sociale € 26.000,00
interamente versato
Registro Imprese di Milano
n° 10621530152
R.E.A. n° 1392932

info-italia@stssensors.com

www.sts-italia.it
www.stssensors.com



## Technical data

| | |
|---|---|
| Weight electronics | 3.2 kg |
| Dimensions electronics | W x H x D [mm] 240 x 200 x 145 |
| Weight high voltage coil | 0.7 kg |
| Dimensions high voltage coil | 700 mm (L) x 60 mm (diameter) |
| Cable length high voltage coil | 1.6 m |
| Mains voltage to charger | 220 V, 50/60 Hz |
| Mains current / mains power | 8 – 11 mA / approx. 2 Watt |
| Battery voltage | 12 – 13.5 V |
| Battery charging current | approx. 110 – 180 mA |
| Battery voltage with overload protection | 14.5 V |
| Rared battery capacity | 3 Ah |
| Discharge current | 50 – 300 mA |
| Operating time without re-charging | 8 – 30 hours |
| Test high voltage | 5 – 30 kV |
| Test current | 1.5 – 2 mA (peak value)<br>2 µA effective value |
| Test sound | 2800 Hz / 90 dB |

Table 1: Technical data UNION Isolation Tester

Figure 3: Measurement kit case

Figutre 4: Application at isolated pipeline

### Accessories

Due to the variety of possible applications, UNION Instruments offers a large range of accessories, especially test electrodes of different types and dimensions.

## Accessories

| | | |
|---|---|---|
| Test brushes | For outside Isolation | straight 200 mm … 600 mm |
| | | semi-circular ID 50 ... ID 300 |
| | | Segment ID 350 ... ID 1400 |
| | For inside Isolation | semi-circular ID 50 ... ID 300 |
| | | Segment ID 350 ... ID 1400 |
| | Made of conductive rubber | straight 50 mm ... 300 mm |
| | Made as brush electrode | Fan-shaped |
| Wire coils | | ID 80 … ID 700 - one-piece<br>ID 750 … ID 1800 - two-pieces |
| Carrying case (Dimensions) | | W x H x D [mm] approx. 290 x 650 x 250 |
| Other accessories | | High voltage coils, spark test track, charger cable, earth cable, peg, trailing earth |

Table 2: Accessories Isolation Tester

Figure 5: Accessories