Lifespan tests

Lifespan tests are performed with electrical load and without electrical load on the main circuit of the device being tested.

The tests run automatically controlled and monitored continuously in 24-hour operation. The electromechanical devices to be tested are switched either electrically or pneumatically. The switching frequency is up to 10.000 operations per hour.

The electrical life span is determined with electrical loads. Here, I²PS has an extremely powerful test facility that enables life span tests of up to 9.600 A to be carried out at test voltages of up to 1.000 V.

IEC / EN 60947-2
Circuit breaker

IEC / EN 60947-3
Switches, disconnectors, switch-disconnectors and fuse-combination units

IEC / EN 60947-4-1
Electromechanical contactors and motor starters

IEC / EN 60947-5-1
Electromechanical control circuit devices

IEC / EN 60947-5-4
Method of assessing the performance of low-energy contacts

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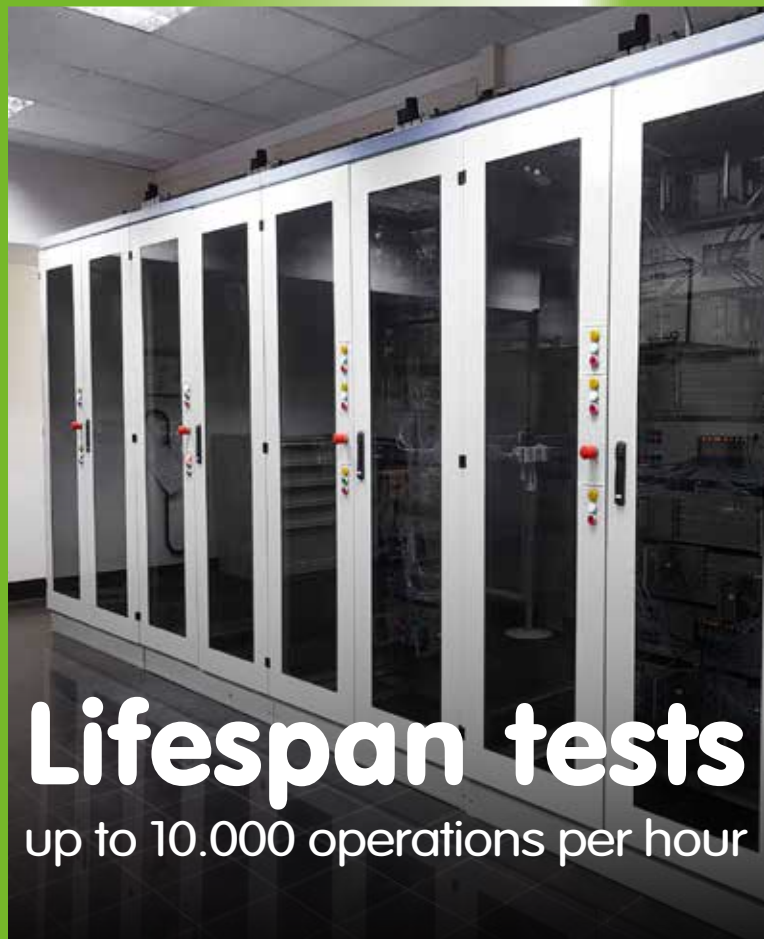
More than testing



Electircal lifespan

The electrical life span is determined under load of the main current paths. For this purpose, I²PS has powerful equipment that enables life span tests of up to 9.600 A at test voltages of up to 1.000 V to be carried out around the clock with a high number of switching cycles (up to 1.000 ops/h).

Test equipment meets the requirements of the utilization categories:

AC-1, AC-2, AC-3, AC-4, AC-15 as well as DC-1, DC-3, DC-5 & D-13

They can be equipped with up to 8 devices together to form a group and are equipped with automated control and monitoring.

Performance overview

We test:

- mechanical life up to 10.000 ops/h
- electrical life span AC/DC up to 1.000 V
- continuous contact monitoring
- control with linear drives (on request)
- additional measurements (on request)

Examples of common test values:

Devices	Quantity	Values:
Connector	6	Ie=125 A, AC-1, Up=400 V Ipmax=125 A, 800 ops/h
Motor protection switch	6	Ie=12 A, AC-3, Up=400 V, Ipmax=72 A, 240 ops/h
Position switch	8	Ie=2 A, DC-13, Up=24 V, Ip=2 A, 600 ops/h
Auxiliary switch	8	mechanical life span 600 ops/h
Contactor	8	mechanical life span 3000 ops/h

B10 Values

Life span tests are additionally used to determine B10 values. This is relevant for the preparation of a risk and hazard analysis and for the evaluation of the safety of a machine. The B10 value corresponds to the statistical nominal service life at 90% probability of survival, i.e. the number of switching cycles at which a maximum of 10% of failures can be expected.

For the determination the results of the tests under defined conditions are used whereby parameters current, voltage, utilization category and load type play an essential role.

I²PS offers such tests with modern techniques as endurance tests at customized, individual conditions.

Mechanical lifespan

The mechanical life span is determined without electrical load on the main current paths. I²PS provides test equipment with which various manually driven electro-mechanical devices can be actuated.

In addition to the usual mechanical electrical and pneumatic actuation, it is also possible to use electrical linear actuators in order to make the control flexible and to obtain additional information through measurements and to obtain additional information through measurements during the actuation.

Please contact us to clarify the details for distance, speed and, if necessary, acceleration for the device control clarify.

In addition, there are possibilities for different types of mounting and monitoring that we can implement according to individual customer requirements.