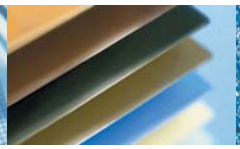
testing equipment for quality management

CORROSION TESTING

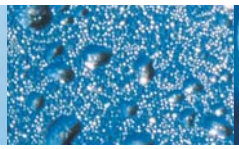
Specimen Preparation
Condensation Water and Salt Spray Test
Cyclic Corrosion Test
Weathering Test

Sheet metal testing

Surface testing



Corrosion testing

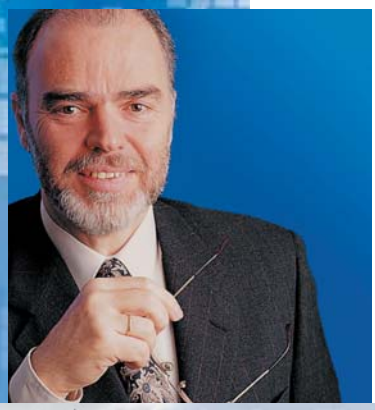


Materias testing

ERICHSEN
since 1910

ERICHSEN -

The absolute reliability of your test results is our top priority. All our research, planning, development, construction and production is geared to achieving this objective – not only in the past, but today and in the future.



Björn Erichsen

Björn Erichsen

1910

It was probably true Viking spirit and the urge for discovery that impelled the engineer A.M. Erichsen from Porsgrunn/ Norway to settle and set up business in Berlin-Reinickendorf. His first invention, a water-cooled ingot mould which to this day constitutes one of the most frequently used casting processes for semi-finished products in the foundry industry, enabled him to secure the financial position of his company. A.M. Erichsen's next invention . the cupping test – was just as significant. This was the very first test method for determining the quality grade of sheet and strip metal.

This test procedure was initially patented, but has since been adopted by all industrial countries within the framework of the International Standards Organisation (ISO). Just as temperatures are measured throughout the world in Celsius or Fahrenheit, the standard for sheet metal quality is the ERICHSEN deep-drawing index.

1920

A.M. Erichsen set up his first small factory in Teltow near Berlin. Research and experiments led to many further inventions.

1930

the German State Chemico-Technical Institute successfully applied the ERICHSEN deep-drawing method to measure the elasticity and adhesive properties of paints and lacquers. The results were so convincing that the procedure has since been adopted by the paint industry all over the world.

1932

the inventive Norseman A.M. Erichsen introduced tools for cupping test dies to the market, without which the batch production of deep-drawn parts made of sheet metal would hardly have been possible. Numerous innovations and improvements followed. A.M. Erichsen not only possessed a forward-looking inventive urge, he was also talented in commercial matters and soon enjoyed international renown. Satisfied customers were evidence of the quality of his products.

the name means commitment.

As the world's leading manufacturer of well-known and proven testing machines and instruments for the coatings industry, we ensure that our experience and knowledge is incorporated into the development of our products.

This results in perfect and innovative high quality products with excellent long term stability which only needs a minimum of maintenance. These products meet global requirements on testing technology and exceed international demands on accuracy. The ERICHSEN Reference Class is our answer to the control of measuring and test equipment described in the QM standards. All test instruments of the REFERENCE CLASS are supplied with a Manufacturer's Certificate M (in accordance with DIN 55 350, part 18)! Product identification ensures traceability.

The characteristics concerning the quality are determined by means of high precision measuring instruments calibrated with the help of measuring equipment calibrated and certified by DKD. This guarantees the supply of a precision measuring instrument in compliance with highest demands. An incoming inspection is no longer necessary – which means a reduction in costs for your company.

We are also in a position, upon request, to calibrate and certify your ERICHSEN test instruments already in use.

We would be delighted to welcome you in our showrooms, where we can convince you of our competence. Please consult us in all aspects concerning your testing problems – especially in the event of customised solutions. We will be glad to pass on our experience and our knowledge!

ISO 9001
BUREAU VERITAS
Certification

1949

Following the turmoils of the war and the loss of his company, A.M. Erichsen resolved to start up again in the west of Germany. His best partner – his son, Dr.-Ing. Per F. Erichsen – had studied mechanical engineering in Hanover, graduated at the Metallurgical Institute of the Technical High School in Aachen, and did his doctorate at the Coal Research Institute of Dortmund. Establishing the new company proved difficult – without machines, tools, or construction drawings – in a factory kitchen of the ironworks in Sundwig. Ideas and determination were the order of the day – initially the parts were made externally and assembled by themselves. The modern factory we operate today is located not far away.

1975

Björn Erichsen joined the company after completing his technical and business management studies at the Polytechnic in Munich and at the George Washington University in the U.S.A.. After taking over from his father – who entered well-earned retirement from the active management of the business in 1977 and died in 1988 – he is now the third generation to lead this company which has long since gained international renown. Under his management the range of instruments has been expanded, primarily by the addition of modern, non-destructive measuring devices for surface engineering applications.

1998

The decision was made to incorporate tensile and pressure testing machines, hydraulic and electronic load and pressure cells, as well as calibration equipment with extreme measuring accuracy into the production programme – reverting to the field of mechanical metrology earlier controlled by the company. Support was provided by a group of competent former employees from ERICHSEN Wuppertal whose knowledge and experience in conjunction with great insight into the latest in the field of hardware and software has resulted in a wide range of modern products.

2014

In the course of 100 years the extensive Erichsen product range has been built up based on the technical fields of metrology and test engineering. ERICHSEN pays stringent attention that their machines and equipment comply both with the testing regulations of national and international standards and with the acceptance terms of the industrial sector. These provide the basis for global understanding between the manufacturer and the user wherever the quality of raw materials, semi-finished and finished products is concerned. Design precision, perfect function and absolute fulfilment of purpose: these attributes have top priority at ERICHSEN.

ERICHSEN

Corrosion creeps under coatings and attacks the products. To reduce these costly failure effects ERICHSEN offer a wide range of testing instruments.

In times of global trading with industrial products the requirements concerning the corrosion resistance of goods in the various climatic zones have increased.

The environmental conditions in the coastal regions of South East Asia differ from those in the interior of Finland. Only in Central Europe there are already temperatures in the range of approx. –20 °C to approx. +38 °C while the relative air humidity is between approx. 30 % to approx. 100 %. This led to the establishment of many test specifications for cyclic corrosion tests in order to simulate these alternating climates under tightened-up conditions. Under accelerated laboratory conditions these cyclic corrosion tests provide much better information on the relative degree of corrosion than e. g. pure salt spray fog tests. The strain caused by natural environmental conditions is simulated in a comparable manner by the way of cyclic corrosion tests.

- Corrosion and Weathering Test Instruments

Some time or other almost every material will be attacked by corrosion. There are only a few materials, e. g. noble metals, that resist corrosion for a long time. Acid rain, exhaust emission and other influences of civilisation contribute to the caducity of values.

The aggressive influences of humidity, acids, alkaline solutions and gases act particularly corrosion inciting on metals. Weld and solder seams, rivets and screw fittings made from different metals occasion electrolytic reactions which stimulate the chemical corrosion.

Corrosion in plastics occurs among other things by dissolving out the softeners. UV light, heat and the capture of foreign matters accelerate this development. Plastics don't get rusty, but corrosion becomes noticeable by cracking, softening, brittleness and change of colour. Efforts are made to retard or to stop the corrosion by coatings and electroplating.

Using the ERICHSEN Corrosion Testing Equipment it is possible to make corrosion "measurable". Tests like the condensation water test and the salt spray fog test are the base for the determination of surface corrosion.

Our testing instruments comply with all common standards used in the industry (DIN, ISO, ASTM, BS). Special applications upon demand.

On the following pages you will find short descriptions of our products intended for corrosion tests. Detailed technical information will be sent immediately upon demand.

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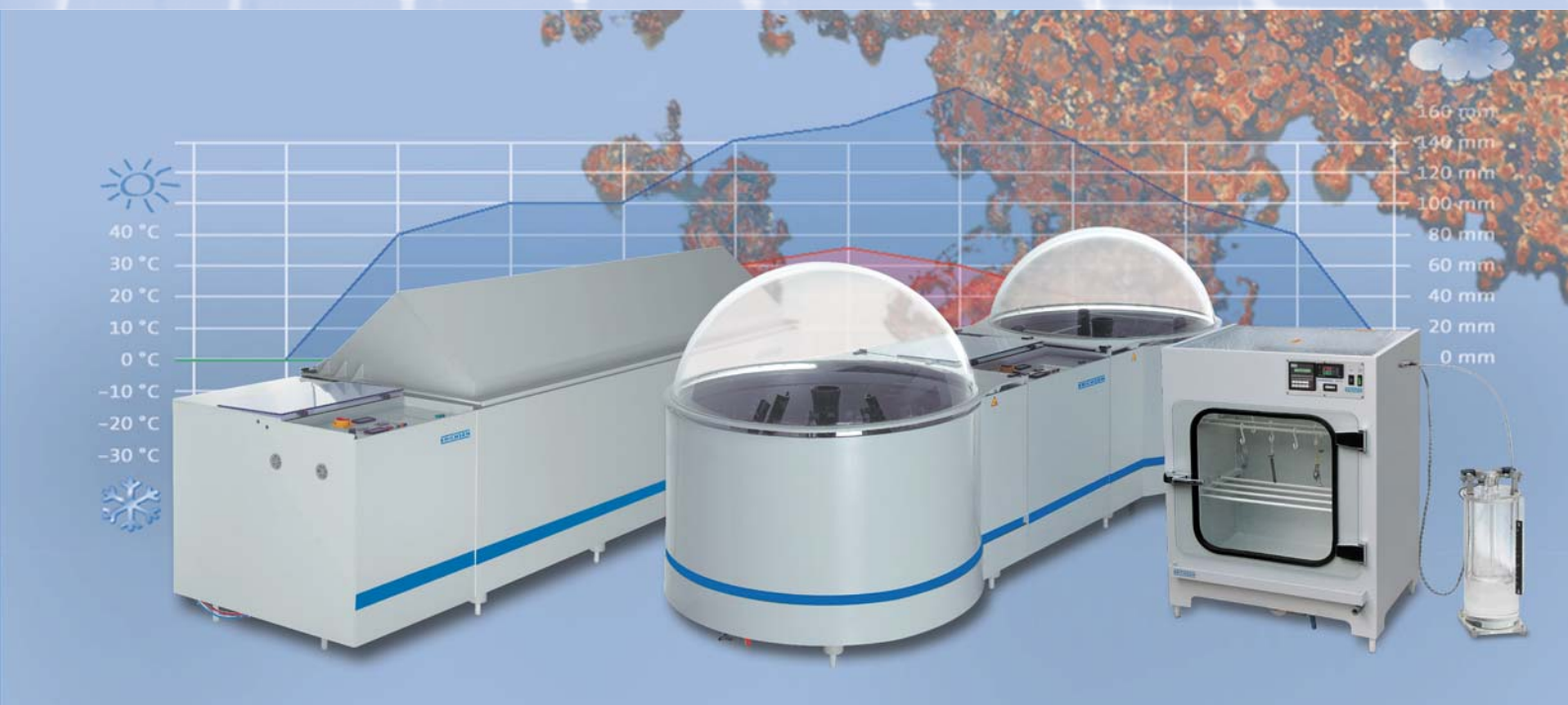
info@erichsen.de
www.erichsen.de

The ERICHSEN-production range:

Machines for testing the forming properties of coating materials I Viscometers and consistency measuring instruments I Density measuring devices I Equipment for determining the electrical properties of paints I Devices for ascertaining grain size and pigment dispersion I Instruments for determining opacity I Devices for producing films of defined thickness I Instruments for testing drying properties I Film thickness gauges I Flexibility testers I Adhesion testers I Instruments for testing adhesives I Impact resistance testers I Hardness testers I Abrasion resistance and scrubbability testers I Instruments for conducting chalking tests I Gloss measuring devices I Densimeters I Equipment for corrosion and weathering tests I Film applicators for printing ink I Special testing instruments I Torque measuring equipment I Calibrating equipment I Force and pressure gauges I Tensile and pressure testing machines I Deep Drawing test I Equipment for specimen preparation I Sheet metal marking



Specifications and Selection Table

Test Type / Model	519	519 FA	519 SA	529	606	608	610	610 E	613	615	617
	Humidity	Humidity	Humidity	Humidity	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic	Saltspray, Standard	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic (CCT)
Salt Spray (continuous spraying - ambient up to +50°C)					x	x	x	x	x	x	x
ASS/CASS (continuous spraying - ambient up to +50°C)					x	x	x	x	x	x	x
Prohesion (spray at ambient, dry at +35°C)								x			x
SWAAT/Intermittent (spray at +49C, wetting at +49°C)						x		x			x
Temp. Control Air Flush; (air flush/drying - ambient up to +35°C)								x			x
Temp. Control Air Flush; (fresh/warm air drying - ambient up to +70°C)											x
Cyclic/CCT (multi-modes of operation - ambient up to +60°C max)											x
Condensation Humidity/Wetting (constant 95-100% RH, ambient +10C up to +50°C)	x	x	x	x	x	x	x	x		x	x

Performance / Model	519	519 FA	519 SA	529	606	608	610	610 E	613	615	617
Cabinet temperature, adjustable ambient up to +50°C	x	x	x	x	x	x	x	x	x	x	x
Cabinet temperature, adjustable ambient up to +60°C											x
Air Saturator Temperature, adjustable ambient up to +63°C									x	x	x
Air Saturator Temperature, adjustable ambient up to +70°C					x	x	x	x			
≥2 set point temperature cycling, with programmable rates of change					x	x	x	x	x	x	x
Automatic test cycle repeat			x			x		x		x	x
Display: cabinet temperature/run time		x	x	x	x	x	x	x	x	x	x
Display; cabinet temp./saturator temp/pump speed/run time								x	x	x	x
Display; cabinet temp./saturator temp/pump speed/run time programs/steps/%RH										x	x
Temp. / RH logging, 72 h.										x	x
Alarms; low salt solution, low saturator water, over-temperature									x	x	x

Standard Equipment / Model	519	519 FA	519 SA	529	606	608	610	610 E	613	615	617
Bars with hooks	x	x	x	x	Option	Option	Option	Option	Option	Option	Option
Sample racks	Option	Option	Option	Option	x	x	x	x	x	X	x
Air Pressure gauge + regulator					x	x	x	x	x	x	x
Peristaltic pump					x	x	x	x	x	x	x
Alpha-numeric digital display	x	x	x	x	x		x	x			
Touch-screen, fully pixilated, graphical display						x			x		
Full color high resolution graphical Touch-screen display										x	x
Language menu						x				x	
Enlarged memory for up to 99 program storage										x	x
Pneumatic roof				x	x	x			x	x	x
Controlled humidity device for CCT cabinets (adjustable up to 95%RH - subject to test temperature)											x
Water auto-fill for humidity cabinets			x			x		x			x
Air saturator automatic filling					x	x	x	x	x	x	x
Integral 40-litre salt solution reservoir (for 120 l size)									x	x	
Internal salt solution reservoir (400l/1000l)					200	200	110/280	110/280			
External salt solution reservoir (for 450, 1000, 2000 l size)									x	x	x
Circulating Pump for mixing up salt solution in the storage vessel					x	x					

Optional Accessories / Model	519	519 FA	519 SA	529	606	608	610	610 E	613	615	617
Additional Second Test Chamber including specimen holders, dosing pump for optimum setting for the salt solution to be sprayed					x	x					
Additional salt spray reservoir									Option	Option	Option
Temp. chart recorder									x	x	x
Entry port 35/110 mm diameter	x	x	x	x	x	x			x	x	x
Trolley for 120 litre bench top cabinet									x	x	
Internal light									x	x	x
Additional Spares kit - Humidity Cabinet (1 supplied as standard)									x	x	x
Additional Spares kit - Salt Spray/CCT Cabinet (1 supplied as standard)									x	x	x
Reinforced false floor (for large/heavy samples)				x	x	x			x	x	x
Temp. & RH chart recorder										x	x
Logging software for CCT cabinets						x				x	x
Gas Injector (02 – 2l) for tests in SO2-containing atmospheres ISO 3231		x	x								
Mini Gas Injector (50 – 200ml) for tests in SO2-containing atmospheres ISO 3231		x	x								
SO2 –Valve to adjust the pressure between gas injector and gas bottle, ISO 3231		x	x								
Flexible Mist Extraction Tube		2m	2m		2m	2m					

Optional Accessories — Model	Humidity 519	Humidity 519 FA	Humidity 519 SA	Humidity 529	Humidity, Saltspray, Standard 606	Humidity, Saltspray, Cyclic 608	Humidity, Saltspray, Standard 610	Humidity, Saltspray, Cyclic 610 E	Saltspray, Standard 613	Humidity, Saltspray, Standard 615	Humidity, Saltspray, Cyclic (CCT) 617
Specimen Holder for Weathering Panels as supplement to the 3 panels included with the basic equipment				x	x	x	x	x	x	x	x
Specimen Holder for Bulky Parts for holding lager finished parts, consisting of 4 upright tubes with holes and 8 support rails				x	x	x			x	x	x
Specimen Holders for Weathering Panels with customer defined slot width and slot angle				x	x	x					
Provision of a second Air Humidifier for Double-chamber Instruments (separate preselection of air humidifier temperature),for the performance of salt spray tests and Cass Tests in different test chambers					x	x					
Multi-channel Data Acquisition and Recording System JUMO PCC/PCA for the acquisition of test chamber temperature,air humidifier temperature and spray pressure, data logger with < 14 bit resolution					x						
Multi-channel Data Acquisition and Recording System HOBO U12 for the acquisition of test chamber temperature, air humidifier temperature and spray pressure, data logger with 12 bit resolution, RS 232 interface via D-SUB-9F-base, memory space for 15,000 measured values						x					
Built in printer for acquisition of the test chamber temperature, the air humidifier temperature and the spray pressure								x			
Chart recorder a single pen, 100 mm wide, strip chart recorder, coupled to a temperature sensor,for continuously recording the cabinet air temperature									x	x	x
Refrigeration and Humidity Unit for refrigerating the test chamber to any temperature from ambient to -20 °C,and controlling the humidity from <. 30% to 95% relative humidity at +25 °C, for tests in altering climates, e.g. in accordance with KWTDC											x
Interface for the Refrigeration Unit (a subsequent installation of the refrigeration unit to the test chamber is not possible without this provision)											x
Chamber Wall Wash Facility											x
Air Chiller/Dehumidifier Unit free standing unit, supports the compliance with DIN 50014 in rooms without air condition.In connection with the output signal											x
Salt Solution Consumption and Display electronic liquid flow sensor to measure the flow of the salt solutionfrom the salt solution reservoir to the atomiser, the output from the sensor is displayed digitally on touch-screen display											x
Atomiser Airflow Optimiser measurement of the airflow using an anemometer for optimising the nozzle adjustment,especially for tests in accordance with Renault ECC-1 (homogeneous salt spray fog)											x
Test Chamber Interior Illumination to illuminate the cabinet interior via a push button switch on the control panel									x	x	x
Salt Spray Irrigation Unit in accordance with GM, SAE, Volvo etc. standards											x
CATCHPOTS® salt spray remote fall-out facility, allows salt spray fog to be continuously collected and measured withoutopening the chamber and interrupting the test									x	x	x

Specimen Preparation Tools
Scratching Tool acc. to van Laar, Model 426
SCRATCHMARKER 427, portable instrument to apply defined scratches through coatings on specimen panels used for corrosion tests
Scratch Stylus acc. to Sikkens, Model 463
Test Panel Scratcher CORROCUTTER, Model 639, to define scratches on coatings of corrosion testing panels, with manual drive,including test tip acc. to van Laar, relocatable supporting weight, spirit level and allen key SW 2

Test Standards Compliance

Test standard number	Country / Industry/ Company of origin	Humidity	Humidity	Humidity	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic	Saltspray, Standard	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic (CCT)
Condensation Humidity Test Standards	**Model**	**519/529**	**519 FA**	**519 SA**	**606**	**608**	**610**	**610 E**	**613**	**615**	**617**
AA-0213 (AA-P-224)	BMW									x	x
AA-0224 (AA-P-175)	BMW										x
ASTM D2247	USA	x	x	x	xx	x	x	x		x	x
BS 3900 Part F2	Great Britain	x	x	x	xx	x	x	x		x	x
DIN EN ISO 6270-2 CH (former DIN 50 017-KK)	Germany	x	x	x	xx	x	x	x		x	x
DIN EN ISO 6270-2 AHT (former DIN 50 017-KFW)	Germany		x	x		x		x		x	x
DIN EN ISO 6270-2 AT (former DIN 50 017-KTW)	Germany		x	x		x		x		x	x
DIN 55991	Germany	x	x	x	x	x	x	x		x	x
ISO 4541	Germany										x
ISO11503	Germany	x	x	x	x	x	x	x		x	x

Condensation Test in SO2 atmosphere	**Model**	**519/529**	**519 FA**	**519 SA**	**606**	**608**	**610**	**610 E**	**613**	**615**	**617**
ISO 3231	European		x	x							
ISO 6988	European		x	x							
DIN 50018	Germany		x	x							
DIN 53771	Germany		x	x							

Water FOG Humidity Test Standards	**Model**	**519/529**	**519 FA**	**519 SA**	**606**	**608**	**610**	**610 E**	**613**	**615**	**617**
ASTM D1735	USA				x	x	x	x	x	x	x
GM4465P	General Motors	x	x	x	xx	x	x	x	x	x	x

Salt Spray, Mist/Fog Test Standards	**Model**	**519/529**	**519 FA**	**519 SA**	**606**	**608**	**610**	**610 E**	**613**	**615**	**617**
50180 method A1	Fiat				x	x	x	x	x	x	x
50180 method A2	Fiat				x	x	x	x	x	x	x
50180 method A3	Fiat				x	x	x	x	x	x	x
AS 2331 method 3.1	Australia				x	x	x	x	x	x	x
AS 2331 method 3.2	Australia				x	x	x	x	x	x	x
AS 2331 method 3.3	Australia				x	x	x	x	x	x	x
ASTM B117	USA				x	x	x	x	x	x	x
ASTM B287	USA				x	x	x	x	x	x	x
ASTM B368	USA				x	x	x	x	x	x	x
ASTM G43	USA				x	x	x	x	x	x	x
ASTM G85 annex A1	USA				x	x	x	x	x	x	x
ASTM G85 annex A2	USA					x		x			x
ASTM G85 annex A3	USA					x		x			x
ASTM G85 annex A5	USA					x		x			x
ASTM G5894	USA					x		x			x
BS2011 Part2.1 Ka	Great Britain				x	x	x	x	x	x	x
BS2011 Part2.1 Kb	Great Britain				x	x	x	x	x	x	x
BS 3900 Part F4	Great Britain				x	x	x	x	x	x	x
BS 3900 Part F12	Great Britain				x	x	x	x	x	x	x
BS 5466 Part 1	Great Britain				x	x	x	x	x	x	x
BS 5466 Part 2	Great Britain				x	x	x	x	x	x	x
BS 5466 Part 3	Great Britain				x	x	x	x	x	x	x
BS 7479	Great Britain				x	x	x	x	x	x	x
FLTM BI 103-01	Ford				x	x	x	x	x	x	x
BS EN ISO 7253	Great Britain				x	x	x	x	x	x	x
BS EN 60068-2-11	Great Britain				x	x	x	x	x	x	x
BS EN 60068-2-52	Great Britain				x	x	x	x	x	x	x
D171058	Renault										x

Notes for Test Standards Compliance:
x= This Cabinet can fully comply with all requirements of this test standard.
xx= This Cabinet, together with optional accessories,
can fully comply with the requirements of this test standard.
The right of technical modifications is reserved

Test standard number	Country / Industry/ Company of origin	Humidity	Humidity	Humidity	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic	Saltspray, Standard	Humidity, Saltspray, Standard	Humidity, Saltspray, Cyclic (CCT)
Salt Spray, Mist/Fog Test Standards	**Model**	**519/529**	**519 FA**	**519 SA**	**606**	**608**	**610**	**610 E**	**613**	**615**	**617**
DEF STAN 00-35 Part 3 test CN2	Great Britain-Defence				x	x	x	x	x	x	x
DEF STAN 133 method 14	Great Britain-Defence				x	x	x	x	x	x	x
DEF STAN 1053 method 24	Great Britain-Defence				x	x	x	x	x	x	x
DEF STAN 1053 method 36	Great Britain-Defence					x		x			x
DIN EN ISO 9227 SS (former DIN 50021 SS)	Germany				x	x	x	x	x	x	x
DIN EN ISO 9227 ESS (former DIN 50021 ESS)	Germany				x	x	x	x	x	x	x
DIN EN ISO 9227 CASS (former DIN 50021 CASS)	Germany				x	x	x	x	x	x	x
BI 103-01	Ford				x	x	x	x	x	x	x
GM4298P	General Motors				x	x	x	x	x	x	x
IEC 68-2-11	Europe				x	x	x	x	x	x	x
IEC 68-2-52	Europe				x	x	x	x	x	x	x
IEC 60068-2-11	Europe				x	x	x	x	x	x	x
IEC 60068-2-52	Europe				x	x	x	x	x	x	x
ISO 3768	International				x	x	x	x	x	x	x
ISO 3769	International				x	x	x	x	x	x	x
ISO 3770	International				x	x	x	x	x	x	x
ISO 7253	International				x	x	x	x	x	x	x
ISO 9227	International				x	x	x	x	x	x	x
JIS H 8502 - Method 1	Japan				x	x	x	x	x	x	x
JIS H 8502 - Method 2	Japan				x	x	x	x	x	x	x
JIS H 8502 - Method 3	Japan				x	x	x	x	x	x	x
JIS Z 2371	Japan				x	x	x	x	x	x	x
JNS 30.16.03	Jagua				x	x	x	x	x	x	x
MIL-STD-202	USA - Military				x	x	x	x	x	x	x
MIL-STD-750	USA - Military										x
MIL-STD-810	USA – Military				x	x	x	x	x	x	x
NFX 41-002	France				x	x	x	x	x	x	x
RTCA/DO-160	RTCA Inc.				x	x	x	x	x	x	x
VG 95 210	Germany				x	x	x	x	x	x	x

Cyclic Corrosion (CCT) Test Standards	**Model**	**519/529**	**519 FA**	**519 SA**	**606**	**608**	**610**	**610 E**	**613**	**615**	**617**
AS 2331 M 3.13 Cycle A	Australien										xx
AS 2331 M 3.13 Cycle B	Australien										xx
AS 2331 M 3.13 Cycle C	Australien										xx
AS 2331 M 3.13 Cycle E	Australien										xx
ASTM G44	USA										xx
CCT 1 and 2	Japan - Automotive										xx
CCT 4	Japan - Automotive										xx
ECC 1	Renault										xx
D17 2028	Renault										xx
GM9540P	General Motors										xx
ISO11997-1	International										xx
ISO14993	International										xx
JASO M 609	Japan – Automotive										xx
JASO M 610	Japan – Automotive										xx
JIS H 8502 M4	Japan										x
JIS H 8502 M5	Japan										xx
P-VW 1209	VW/Audi										xx
P-VW 1210	VW/Audi					x		x			xx
SAE J 2334	USA – Automotive										xx
VDA 233-102	Deutschland - Automotive										xx

Short-term Corrosion Test	
Bac Ford Bath	RNUR 1327
	AFNOR T30-054
	EN ISO 28122
	ISO 1521
	PSA D27 1327

Short-term Corrosion Test	
Machu-Test-Bath	according to QUALICOAT

Model 426

Scratching Tool acc. to van Laar

A practical instrument with tungsten carbide tip 0.5 mm in diameter. The instrument is used for standardised scratching of corrosion test samples.

SCRATCHMARKER 427

Scratching Tool

Portable instrument to apply defined scratches through coatings on specimen panels used for corrosion tests. Compact construction for fatigue-free operation. Scratch tool with van Laar geometry. Defined adjustment of the depth of the scratch in increments of 25 µm.

HANDCUTTER 428

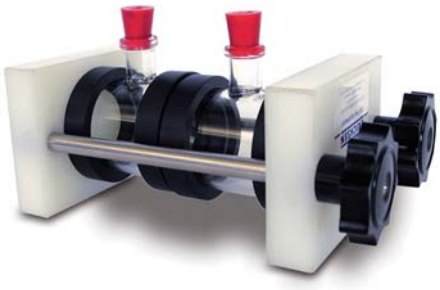
Scratching Tool acc. to Clemen

A practical instrument with tungsten carbide tip acc. to Clemen. The instrument is used for standardised scratching of corrosion test samples. A test tip acc. to van Laar is additionally available.

SOLVENTCHECKER 434

Corrosion Test Instrument

Simple and practical instrument for testing paints and plastics for their resistance to chemicals under static conditions giving results simultaneously for the effects of liquids and vapours as well as in the threshold area. 4 tests can be performed in parallel.



Model 463

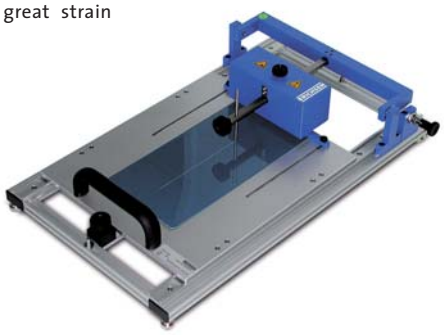
Scratch Stylus acc. to Sikkens

This hand operated instrument complete with carbide cutting tip provides a convenient means of scoring a 1 mm (optional 0.3, 0.5 mm or 2 mm) wide rectangular track in a surface coating - for corrosion tests.

CORROCUTTER 639

Test Panel Scratcher

Comfortable, manual instrument for fatigue-free application of defined scratches on coated specimen panels intended for corrosion tests. Provided for use of scratching tools in accordance with Clemen, van Laar and Sikkens frequently used in practice. Avoids the great strain usually put to fingers and wrists when scratching specimen in large series. Using adequate scratch templates available as accessories, it is possible to apply 90° cross scratches as well as 60°/120° St. Andrew's cross scratches.



HYGROTHERM 519

Humidity Cabinet
DIN, EN , EN ISO, ISO, ASTM, BS, ECCA, NF, VDA

Inexpensive apparatus for testing the corrosion resistance of specimens in condensation water climate in accordance with different standards. Robust 300 l plastic chamber with front door loading.

Capacity of the test chamber: 300 l

Dimensions, approx. (WxDxH): 750 x 600 x 1100 mm

HYGROTHERM 519 FA/SA

Humidity Cabinet
DIN, EN, EN ISO, ISO, ASTM, BS, ECCA, NF, VDA

Fully automatic corrosion test apparatus for standardised tests in condensation water climate with and without SO_2 addition, using a programmable logic control (PLC) for the automatic sequence, i.e. control of heating, acid feeding and draining, filling and draining of the bottom trough water tank as well as evacuation and replacement of air (manual operation also possible). Test chamber volume 300 l. Model 519 SA equipped with a semi-automatic control system, i. e. acid draining, evacuation and replacement of air as well as the control of the heating system are executed automatically.

Capacity of the test chamber: 300 l

Dimensions, approx. (WxDxH): 750 x 600 x 1100 mm

HYGROTHERM 529

Humidity Cabinet
DIN, EN, EN ISO, ISO, ASTM, BS, ECCA, NF, VDA

For tests of bulky parts in condensation water climate (without addition of gas), e. g. in accordance with DIN EN ISO 6270–2, this instrument with a test chamber capacity of 1000 l or 2000 l is available. The instrument consists of a control unit and a separate test chamber, hemispherical or rectangular design at choice (Model 529/2000 l only rectangular version).

Capacity of the test chamber: 1000, 2000 l, special size on request
Dimensions, approx. (W x D x H mm): 1800 x 1000 x 1350 (1000 l), 3000 x 1000 x 1350 (2000 l)

SANAL® P 607

Salt for Corrosion Tests in Salt-Fog-Atmosphere

For the production of sodium chloride solutions for corrosion testing special requirements are imposed on the salt quality. The NaCl must have a high purity and contain only small amounts of impurities. These specifications are described in national- and international standards such as DIN EN ISO 9227 and ASTM B 117

SANAL® P meets these requirements and is supplied with an appropriate certificate in packs of 25 kg bags.

Model 606-Basic

Corrosion Test Apparatus for Salt Spray and Condensation Tests
DIN, EN, EN ISO, ISO, ASTM, BS, DEF, ECCA, JIS, NF, SIS

The compact Corrosion Testing Instrument, Model 606-Basic, to perform salt spray and condensation tests, is made of impact resistant, ecofriendly polypropylene material and is delivered in a rectangular design. It consists of a test chamber, available either of 400 l or 1000 l capacity with a built-in control unit and built-in storage tank for the spray solution as well as the necessary control instruments. The test chamber can be opened manually. A dosing pump serves for an infinitely variable adjustment to achieve optimum consumption of spray solution. The storage tank for approx. 125 l salt solution allows continuous testing without attention over a period of up to a week.

Capacity of the test chamber: 400, 1000 l
Volume of the solution tank: 125 l
Dimensions, approx. (W x D x H mm): 1400 x 1450 x 1000 (400 l), 2250 x 1450 x 1000 (1000 l)

Model 606

Corrosion Test Apparatus for Salt Spray Tests DIN, EN, EN ISO, ISO, ASTM, BS, DEF, ECCA, JIS, NF, SIS

To carry out the mostly required salt spray tests and condensation water tests in accordance with the current standards. Corrosion resisting test chamber with circular dome or rectangular chamber, of plastic construction. Special dimensions upon request. Operator friendly controls for up to 2 test chambers with volumes of 400 l, 1000 l and /or 2000 l.

Capacity of the test chamber:	400, 1000 l, **2000 l**
Volume of the solution tank:	200 l
Dimensions, approx. (W x D x H mm):	1100 x 1000 x 1400 (400 l, circular), 1000 x 1000 x 1350 (400 l, rectangular), 1400 x 1300 x 1600 (1000 l, circular) 1800 x 1000 x 1350 (1000 l, rectangular) 3000 x 1000 x 1350 (2000 l, rectangular)

Model 608

Corrosion Test Apparatus for Cyclic Corrosion Test DIN, EN , ASTM, VDA, VW

For testing with cycles of changing corrosive effects by salt spray, humidity test and room klimate. Basic concept, design details and dimensions as for Model 606. With touch screen, for the display of the present projected and the actual states and for the input of the test conditions. The control and adjustment of the test instrument is effected by a Siemens S7–200 SPC (stored program control).

Capacity of the test chamber:	400, 1000 l, **2000 l**
Volume of the solution tank:	200 l
Dimensions, approx. (W x D x H mm):	1100 x 1000 x 1400 (400 l, circular), 1000 x 1000 x 1350 (400 l, rectangular), 1400 x 1300 x 1600 (1000 l, circular) 1800 x 1000 x 1350 (1000 l, rectangular) 3000 x 1000 x 1350 (2000 l, rectangular)

CORROTHERM 610/610e

Corrosion Test Instrument DIN, ISO, ASTM, BS, DEF, FTMS, NF, SIS

Cabinet-type instrument for salt spray fog tests and condensation water tests conforming to the standards. The test instruments CORROTHERM 610/610e are available with two different chamber capacities each (400 l or 1000 l). The version 610 is equipped with a key control for test selection. The more sophisticated CORROTHERM 610e is provided with a micro controller offering the possibility of programming individual test sequences. All relevant test parameters are displayed on a multiline LCD.

Capacity of the test chamber:	400, 1000 l
Volume of the solution tank:	100, 280 l
Dimensions, approx. (W x D x H mm):	1320 x 1450 x 720 (400 l), 1640 x 1750 x 820 (1000 l)

CORROCOMPACT 613

Corrosion Test Instrument
DIN, EN, EN ISO, ISO, ASTM, BS, IEC, JIS, Mil-STD

The CORROCOMPACT 613 is manufactured in an unconventional chest/cabinet design facilitating the placing of the test panels. The standard version of the instrument is available in three different sizes (120 l, 450 l and 1000 l). It is made of resistant plastic material and is suitable for continuous salt spray tests. The 120 l desk top version complies, among other standards with, the ASTM B 117 Standard. The 450 l and 1000 l versions fulfil all current salt spray testing standards.

Capacity of the test chamber:	120, 450, 1000 l
Volume of the solution tank:	40, 100 l
Dimensions, approx. (W x D x H mm):	1350 x 680 x 780 (120 l), 1600 x 800 x 1508 (450 l), 2100 x 1350 x 1670 (1000 l)

CORROCOMPACT 615

Corrosion Test Instrument
DIN, EN, EN ISO, ISO, ASTM, BS, IEC, JIS, Mil-STD

The CORROCOMPACT 615 is designed like Model 613, however, in a more sophisticated version enabling an operation via full color touch screen. This allows to fetch all relevant instrument parameters and to enter programme sequences as well. The test instrument, available in four different sizes (120 l, 450 l, 1000 l and 2000 l), is made of resistant plastic material and is suitable for all salt spray and condensation water tests. Each one is equipped with a humidity sensor which registers the humidity continuously.

Capacity of the test chamber:	120, 450, 1000, 2000 l
Volume of the solution tank:	40, 100 l
Dimensions, approx. (W x D x H mm):	1350 x 680 x 780 (120 l), 1600 x 800 x 1508 (450 l), 2100 x 1350 x 1670 (1000 l), 2950 x 1350 x 1670 (2000 l)

CORROCOMPACT 617

Corrosion Test Instrument
DIN, EN, EN ISO, ISO, ASTM, BS, IEC, JIS, Mil-STD

The CORROCOMPACT 617 is designed like Model 615, however, in a universal version, allowing the performance of cyclic corrosion tests (e.g VDA specification) or freely programmed test cycles. The test instrument, available in three different sizes (450 l, 1000 l and 2000 l), is provided for fully automatic operation. All instrument parameters can be fetched and the freely programmable test sequences can be entered using a full color touch screen. A humidity sensor is situated in the test chamber which is connected to the processor unit. Consequently, Model 617 is in a position of undertaking complicated test sequences with regulated chamber humidity, e.g. ECC 1.

Capacity of the test chamber:	450, 1000, 2000 l
Volume of the solution tank:	40, 100 l
Dimensions, approx. (W x D x H mm):	1600 x 800 x 1508 (450 l), 2100 x 1350 x 1670 (1000 l), 2950 x 1350 x 1670 (2000 l)

SOLARBOX 522/522 RH

Light Exposure Test Apparatus DIN, ISO, ASTM, UNI

Compact instrument to determine the resistance to exposure to sun light using a Xenon high pressure lamp (1.5 kW or 2.5 kW). Adjustable level of irradiance, uniform illumination by special mirror system, exchangeable filters for variable UV fraction. Four versions available:
- SOLARBOX 522/1500, 522/3000
- SOLARBOX 522/1500e, 522/3000e
(each without and with microprocessor controls)

Light Exposure Test Apparatus
- SOLARBOX 522/1500e RH
- SOLARBOX 522/3000e RH
are extended versions of Model 522/1500e and 522/3000e with additional control/monitoring of relative humidity in the test chamber during the test.

Optional: Programmable flooding system for periodic wetting of specimens.

Exposure area (W x D mm):	280 x 200	(Mod. **522/1500**)
	420 x 200	(Mod. **522/3000**)

Machu-Test-Bath 530

Machu-Test-Bath QUALICOAT

Test instrument for the execution of a short-term corrosion test which lasts over a period of 48 hours. This test is used to obtain the QUALICOAT labels (quality community for industrial coating). The cross-cut of the coating is applied with Mod. 463, Sikkens scratching tool.

Bac Ford-Bath 531

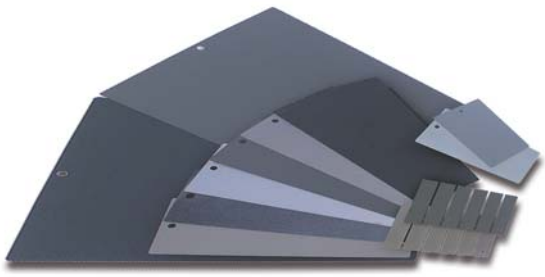
Bac Ford-Bath AFNOR, EN ISO, ISO, Renault, PSA

Immersion-Test to determine the resistance of a coating to the immersion in deionised water thermostated to 40 °C +/- 1 °C. The test plates are immersed under an angle of 15° during several days.

Test Panels

Test Panels for Performance Checks of Salt Spray Cabinets

To verify the reproducibility of test results of a testing unit or the possibility of comparison between test results achieved by different testing units, it is necessary to carry out performance tests. The test panels are particularly suitable to determine the wear rate during salt spray fog tests in accordance with DIN EN ISO 9227.



Dimensions, approx. (W x D x H mm):	150 x 70 x 1	Test panel
	150 x 100 x 1	Test panel

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- Stretch Draw Test
- Deep Draw Test
- Specimen Preparation
- Sheet Metal Marking

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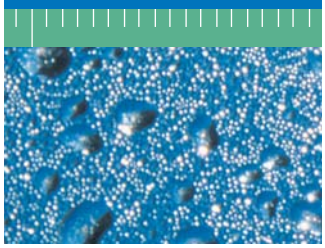
- Viscosity and Consistency
- Density
- Electrical Properties of Paints
- Grain Size and Pigment Dispersion
- Opacity and Hiding Power
- Film Application
- Drying
- Film Thickness
- Flexibility
- Adhesion
- Impact Resistance
- Hardness
- Abrasion Resistance and Scrubbability
- Chalking
- Gloss
- Colorimetry
- Brightness
- Porosity
- Print Coat Instruments
- Special Test Instruments

Corrosion testing



- Specimen Preparation
- Condensation Water and Salt Spray Test
- Cyclic Corrosion Test
- Weathering Test

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- Load Cells
- Tension and Compression Testing Machines
- Torque Measuring Devices
- Calibration Devices

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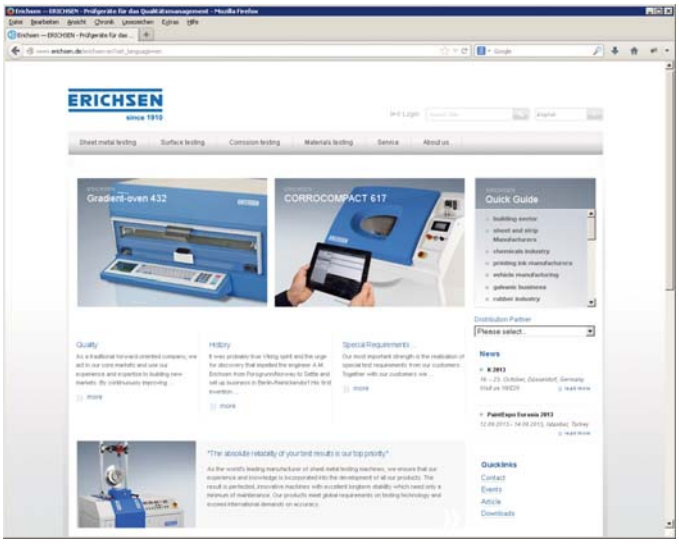

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