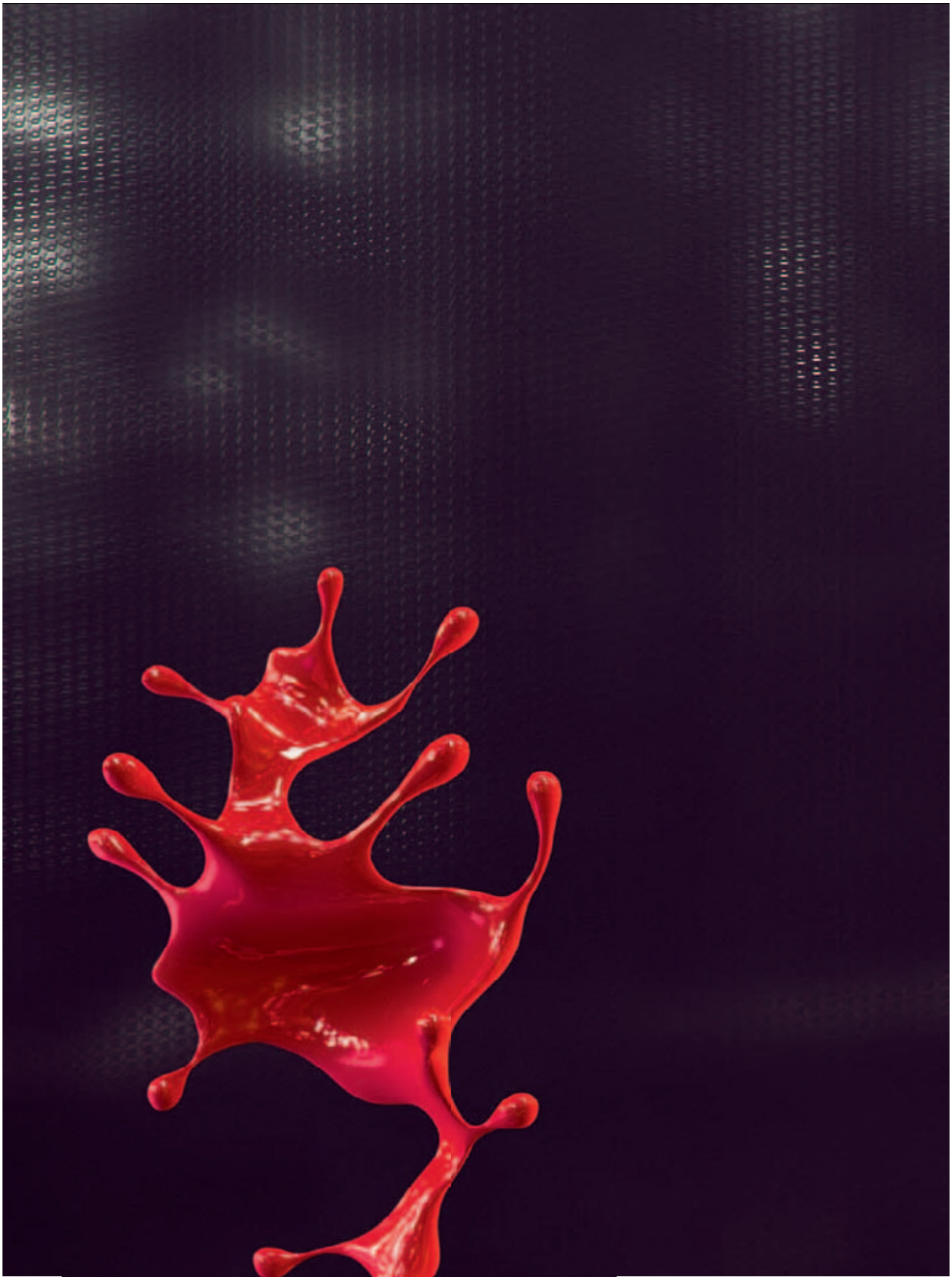
TQC

Developers and manufacturers
of paint test equipment



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TQC's production facility is located in The Netherlands

TQC has distributors in more than 60 countries

TQC, DEVELOPERS AND MANUFACTURERS OF PAINT TEST EQUIPMENT

Dutch company TQC designs and produces field measuring instruments and lab equipment for testing paint and coatings and general surface treatment.

Production facility

TQC's objective is to create and offer solutions for every possible QC-application in surface technology. TQC products are known for their ergonomic features and user friendliness. The production facility is located in The Netherlands. In order to complete the TQC range the company works closely together with reknowned manufacturers from all over the world.

Global distribution

TQC has offices in the Netherlands, Germany, Italy, United Kingdom, Norway and North America, and works closely together with a global network of distributors in more than 60 countries. The TQC product range focuses mainly on three different market sectors; Paint Research and Development Laboratories and Quality Control, Protective and Marine Coatings Applications, Surface Finishing Industry.

Products are developed using Hi-tech 3D engineering software

ISO meeting in the TQC office. TQC actively contributes to the development of new international paint standards

Unique products

Driven by either marker signals or by customer requests, TQC designs and develops many unique products and concepts. In conjunction with customers and agents TQC strives to find the most efficient options and possibilities to meet the specific application requirements. Products are developed using Hi-tech 3D engineering software and the latest state of the art technologies.

Sharing knowledge

TQC believes it is important to reinvest in the market by sharing its knowledge. TQC provides technical articles for professional journals and provides training courses and lectures. Both for students, people from the field and TQC distributors

As chairman of the Dutch standard organization board, NEN, TQC has an important role in representing the Dutch coating industry globally. As engaged participating member of ISO, DIN and ASTM we actively contribute to the development of new international paint standards.

A BRIEF HISTORY

Mister George S.F. Moonen founded Thermimport Quality Control in 1977. After working for large paint companies in Europe, Africa and the United States he decided to put his know-how into his own business. Since its foundation TQC has established a strong position in the coatings industry based upon know-how and an extensive customer service.

TQC's scope contains instruments and equipment to test or measure properties like adhesion, film thickness, condensation and climate, corrosion, coating elasticity, impact resistance, hardness, washability and scrub resistance, cure profile, drying time, surface pre-treatment, gloss and appearance, viscosity, etc..

When Mister George S.F. Moonen retired, his son George N. Moonen followed him as general manager. George N. Moonen had a strong belief that TQC had all it took to become a producer instead of solely a distributor. In 1994 the DewCheck Dewpoint meter was released, followed by the CurveX Oven Profiler in 1998.

The acquisition of Simex, a German company specialized in viscosity cups and film applicators, was the next step. Simex nowadays operates as TQC GmbH and is TQC's German office. The production of the cups and applicators has moved to The Netherlands.

Meanwhile in the Netherlands George N. Moonen started forming TQC's own R&D team. The first project of TQC's R&D Team was the Pendulum Hardness Tester. This large lab apparatus was the first of a series of lab equipment that is still expanding. Each and every by TQC designed product uses the latest state of the art technologies and components. And TQC continues to develop, innovate and improve new test equipment.

1994 The first DewCheck dewpoint gauge is released

1998 Birth of CurveX Oven Profiler

The production of the cups and applicators has moved to The Netherlands

The first project of TQC's R & D Team was the Pendulum Hardness Tester

TQC tries to find an affordable solution

Repair and calibration work is carried out under the scope of TQC's ISO 9001 certificate

Special Applications
For special applications TQC has established the "Special Products Service". The close cooperation between the Technical Sales department and the Research & Development department makes it possible to develop special products according to customer specification; special products with which specific measuring problems can be solved. In case a standard product doesn't comply, TQC tries to find an affordable solution by either adjusting a standard product or designing a new product.

Repairs and calibrations
Practically all instruments purchased at TQC can be maintained, repaired, and reset or calibrated (certificate included).

In our headquarters at Capelle a/d IJssel we have the disposal of highly experienced mechanical and electrical engineers as well as the state of the art traceable calibration equipment and setups. Repair and calibration work is carried out under the scope of TQC's ISO 9001 certificate. TQC's everything under one roof approach offers you the advantage of a faster return of your instrument and reduced handling costs. After consulting TQC it is also possible to maintain, repair or equipment not purchased at TQC.

Quality
In TQC's line of business where quality is the keyword for the customers, TQC decided to have their organisation certified according the ISO 9001 standards by "Det Norske Veritas". High quality products are supplied and maintained by an efficient organization following well-structured procedures but always keeping the customers wishes in the first place!

www.tqc.eu is available in English, German,Dutch, Italian, Norwegian and Chinese

DIGITAL MEDIA

TQC not only innovates their products but also their ways to communicate. Digital media are these days just as important as paper media. The newsletters and website are already well-known, but TQC is also active on LinkedIn, Facebook, Twitter and YouTube. Not only providing the most up-to-date information but providing also new ways to ask questions to TQC and, for TQC, new ways to interact with you as a customer.

WHAT DO ALL THESE MEDIA BRING?

LinkedIn
This professional network site allows an exchange of know-ledge in your field of experience. The site houses multiple communities on various topics. TQC started the group "Coating Inspection Methods", where all intrigues of the performed tests are discussed. Looking for information on performing a test, no matter if it is lab or field? Then join the group.

Facebook
This well-known social network provides a good way to connect to colleagues and relatives. Join in and become a friend of TQC.

Twitter
This micro blog provides you twice a week with short and interesting articles and news about TQC and what is happening in the industry. Giving you a head start when it comes to being informed on the coating industry.

YouTube
The best known video media in the world just got better when you are into the coating industry. Product video's about TQC products show how to use the products and help you make a choice.

When you want to join one of our digital media visit www.tqc.eu and click on the link correlating to the media you want to follow.

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TQC makes every effort to maintain the accuracy and quality of the information provided in this Catalogue. However, TQC cannot guarantee and assumes no legal liability or responsibility for the accuracy or completeness of the information provided. The information contained in this catalogue is for general guidance only. You should neither act, nor refrain from action, on the basis of any such information. You should take appropriate professional advice on your particular circumstances because the application of our equipment may vary depending on particular circumstances.

Because of TQC's policy of continuous improvement, TQC reserves the right to change specifications without notice.

In case of any questions or remarks, feel free to contact us.

QR-Code:
The QR codes in this brochure refer to the dedicated product movies on TQC's YouTube channel. If you don't have a QR-reader, just visit http://www.youtube.com/user/TQCBV. All product movies are gathered here.

TQC ThermoKinetics
The TQC ThermoKinetics range is a new range within TQC's product line.
The TQC ThermoKinetics range focuses on the effect of temperature on paint related chemistry.

TABLE OF CONTENTS

VISCOSITY

Viscosity is a fluid's property for resistance to flow or deformation. The higher the viscosity of a product the more it will resist to flow. Using or modifying viscosity is becoming a hot item. Paints are engineered to be non-Newtonian these days and often chemically modified. Additives react to the force that is exerted to the paint, thus making paint almost solid when it is in the pot and very fluid when stroke onto the surface.

Newtonian Fluids

Newtonian fluids are the easiest to measure.
Their viscosity only differs when the fluid's temperature changes. Non Newtonian fluids are also time and force dependant. When the amount of force influences viscosity special equipment will be required.

Non-Newtonian Fluids

Flow cups and capillary are mainly used in production environments where the non-Newtonian properties of a product are not required to be known exactly. However in research, where these values are a must-have, there will be bigger challenges. In these cases more advanced rotary viscosity meters are required. They allow the user to exactly determine the amount of force that is applied on the fluid.

VISCOSITY CUP ISO 2431

The TQC Viscosity Cup ISO 2431 is a range of titanium anodized aluminium or stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity). Laboratory type, to be used with stand, to measure the viscosity of lacquers, paint and other liquids. Cups with orifice 3, 4, 5 6 according to EN-ISO 2431. Other cups similar to EN ISO-2431.

FEATURES

- A relatively deep well surrounding the top of the cup serves to catch any overflow
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS	EN ISO 2431
	ГОСТ 8420

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP ISO 2431

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2048*	3	3 mm / 0,12 inch	7-42 cSt	Aluminium	337 g / 11,89 oz	92x92x85 mm / 3,62x3,62x3,35 inch
VF2049*	4	4 mm / 0,16 inch	34-135 cSt	Aluminium	337 g / 11,89 oz	92x92x85 mm / 3,62x3,62x3,35 inch
VF2183*	5	5 mm / 0,2 inch	91-326 cSt	Aluminium	337 g / 11,89 oz	92x92x85 mm / 3,62x3,62x3,35 inch
VF2050*	6	6 mm / 0,24 inch	188-684 cSt	Aluminium	337 g / 11,89 oz	92x92x85 mm / 3,62x3,62x3,35 inch
VF2051*	8	8 mm / 0,31 inch	600-2000 cSt	Aluminium	337 g / 11,89 oz	92x92x85 mm / 3,62x3,62x3,35 inch

* Calibration certificate optional

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

VF2061	TQC Tripod Stand for Viscosity Cup	VF2063	Glass plate GP20
VF2062	TQC Ring Stand For Viscosity Cup	DI0076	TQC Stopwatch
VF2068	TQC Temperature Control Jacket for ISO and	CL0030	Calibration Certificate (if applicable)
	AFNOR Viscosity Cup; With tripod	VF2053	Viscosity conversion disc
TE0027	TQC Precision Thermometer		

VISCOSITY CUP DIN 53211

The TQC Viscosity Cup DIN 53211 is a range of titanium anodized aluminium or stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity). Laboratory type, to be used with stand, to measure the viscosity of lacquers, paint and other liquids. Cups with orifice 4 according to DIN 53211. Other cups similar to DIN 53211.

FEATURES

- A relatively deep well surrounding the top of the cup serves to catch any overflow
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS DIN 53211

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP DIN 53211

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2000	2	2 mm / 0,08 inch	-	Aluminium	212 g / 7,48 oz	92x92x75 mm / 3,62x3,62x2,95inch
VF2001	3	3 mm / 0,12 inch	-	Aluminium	212 g / 7,48 oz	92x92x75 mm / 3,62x3,62x2,95inch
VF1999*	4	4 mm / 0,16 inch	96-683 cSt	Aluminium	212 g / 7,48 oz	92x92x75 mm / 3,62x3,62x2,95inch
VF2003	6	6 mm / 0,24 inch	-	Aluminium	212 g / 7,48 oz	92x92x75 mm / 3,62x3,62x2,95inch
VF2004	8	8 mm / 0,31 inch	-	Aluminium	212 g / 7,48 oz	92x92x75 mm / 3,62x3,62x2,95inch
VF2015*	4	4 mm / 0,16 inch	96-683 cSt	St. Steel	605 g / 21,34 oz	92x92x75 mm / 3,62x3,62x2,95inch

* Calibration certificate optional

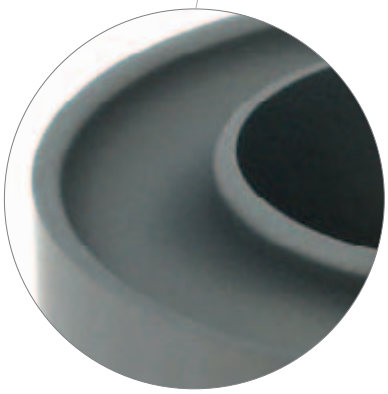
Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

VF2061	TQC Tripod Stand for Viscosity Cup	**VF2063**	Glass plate GP20
VF2062	TQC Ring Stand For Viscosity Cup	**DI0076**	TQC Stopwatch
VF2067	TQC Temperature Control Jacket for Viscosity DIN and	**CL0030**	Calibration Certificate (if applicable)
	ASTM Cup; with tripod	**VF2053**	Viscosity conversion disc
TE0027	TQC Precision Thermometer		

VISCOSITY CUP ASTM D1200 'FORD'

The TQC Viscosity Cup ASTM D1200 'Ford' is a range of titanium anodized aluminium or stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity). Laboratory type, to be used with stand, to measure the viscosity of lacquers, paint and other liquids. All cups according to ASTM D1200.



FEATURES

- A relatively deep well surrounding the top of the cup serves to catch any overflow
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS ASTM D1200

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP ASTM D1200 'FORD'

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2030*	2	2,53 mm / 0,1 inch	25-120 cSt	Aluminium	195 g / 6,88 oz	92x92x77 mm / 3,62x3,62x 3,03 inch
VF2031*	3	3,40 mm / 0,13 inch	49-220 cSt	Aluminium	195 g / 6,88 oz	92x92x77 mm / 3,62x3,62x 3,03 inch
VF2032*	4	4,12 mm / 0,16 inch	70-370 cSt	Aluminium	195 g / 6,88 oz	92x92x77 mm / 3,62x3,62x 3,03 inch
VF2033*	5	5,2 mm / 0,2 inch	200-1200 cSt	Aluminium	195 g / 6,88 oz	92x92x77 mm / 3,62x3,62x 3,03 inch
* Calibration certificate optional						

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

VF2061	TQC Tripod Stand for Viscosity Cup	**VF2063**	Glass plate GP20
VF2062	TQC Ring Stand For Viscosity Cup	**DI0076**	TQC Stopwatch
VF2067	TQC Temperature Control Jacket for DIN and ASTM Viscosity Cup; with tripod	**CL0030**	Calibration Certificate (if applicable)
		VF2053	Viscosity conversion disc
TE0027	TQC Precision Thermometer		

VISCOSITY CUP AFNOR

The TQC Viscosity Cup AFNOR is a range of titanium anodized aluminium viscosity cups with fixed stainless steel nozzle (inner cavity). Laboratory type, to be used with stand, to measure the viscosity of lacquers, paint and other liquids. All cups according to AFNOR.

FEATURES

- A relatively deep well surrounding the top of the cup serves to catch any overflow
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS NF T030-014

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP AFNOR

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2195	2,5	2,46 mm / 0,1 inch	5-140 cSt	Aluminium	271 g / 9,56 oz	86x86x75 mm / 3,39x3,39x2,95 inch
VF2196	4	4 mm / 0,16 inch	50-1100 cSt	Aluminium	271 g / 9,56 oz	86x86x75 mm / 3,39x3,39x2,95 inch
VF2197	6	6 mm / 0.24 inch	510-5100 cSt	Aluminium	271 g / 9,56 oz	86x86x75 mm / 3,39x3,39x2,95 inch
VF2198	8	8 mm / 0,31 inch	-	Aluminium	271 g / 9,56 oz	86x86x75 mm / 3,39x3,39x2,95 inch

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

VF2061	TQC Tripod Stand for Viscosity Cup	**TE0027**	TQC Precision Thermometer
VF2062	TQC Ring Stand For Viscosity Cup	**VF2063**	Glass plate GP20
VF2068	TQC Temperature Control Jacket for ISO and AFNOR	**DI0076**	TQC Stopwatch
	Viscosity Cup; With tripod	**VF2053**	Viscosity conversion disc

VISCOSITY CUP DIN 53211 WITH INTERCHANGEABLE NOZZLES

The TQC Viscosity Cup DIN 53211 with interchangeable nozzle consists of a viscosity cup with a range of inter-changeable nozzles. The special aluminium cup is fitted with a stainless steel nozzle container. Stainless steel nozzles are available from orifice 1 mm to orifice 8 mm, to be ordered separately. Laboratory type, to be used with stand, to measure the viscosity of lacquers, paint and other liquids. Inner dimensions similar to DIN 53211.

FEATURES

- Nozzles available with orifices from 1 to 8 mm
- A relatively deep well surrounding the top of the cup serves to catch any overflow
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

For
VISCOSITY OILS
please check **www.tqc.eu**

STANDARDS According/similar to DIN 53211

ORDERING INFORMATION VISCOSITY CUP DIN 53211 WITH INTERCHANGEABLE NOZZLES

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2020*	-	-	-	Aluminium cup / St. steel retainer	215 g / 7,58 oz	92x92x75 mm / 3,62x3,62x2,95inch
VF2181	1	1 mm / 0,04 inch	-	St. steel	5 g / 0,18 oz	18 x 18 x 4 mm / 0,63x0,63x0,14 inch
VF2022	2	2 mm / 0,08 inch	-	St. steel	5 g / 0,18 oz	18 x 18 x 4 mm / 0,63x0,63x0,14 inch
VF2023	3	3 mm / 0,12 inch	-	St. steel	5 g / 0,18 oz	18 x 18 x 4 mm / 0,63x0,63x0,14 inch
VF2024*	4	4 mm / 0,16 inch	96-683 cSt	St. steel	5 g / 0,18 oz	18 x 18 x 4 mm / 0,63x0,63x0,14 inch
VF2025	5	5 mm / 0,2 inch	-	St. steel	5 g / 0,18 oz	18 x 18 x 4 mm / 0,63x0,63x0,14 inch
VF2026	6	6 mm / 0,24 inch	-	St. steel	5 g / 0,18 oz	18 x 18 x 4 mm / 0,63x0,63x0,14 inch

* Calibration certificate optional

Viscosity cup in protective storage case with foam inlay. Nozzles to be ordered separately

ACCESSORIES / SPARES

VF2061	TQC Tripod Stand for Viscosity Cup	VF2063	Glass plate GP20
VF2062	TQC Ring Stand For Viscosity Cup	DI0076	TQC Stopwatch
VF2067	TQC Temperature Control Jacket for DIN and ASTM	CL0030	Calibration Certificate (if applicable)
	Viscosity Cup; with tripod	VF2053	Viscosity conversion disc
TE0027	TQC Precision Thermometer		

VISCOSITY CUP ISO 2431 DIP-TYPE

The TQC Viscosity Cup ISO 2431 Immersion is a range of titanium anodized aluminium or stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity) and handle. Inner dimensions similar to ISO 2431. Ideal for measuring coatings and other fluids during application or production. Cups with orifice 3, 4, 5 6 according to EN-ISO 2431. Other cups similar to EN-ISO 2431.

FEATURES

- Easy way of checking and adjusting the viscosity of many different type of liquids
- Long loop handle to allow the cup to be dipped by hand into a liquid container
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

For
VISCOSITY OILS
please check **www.tqc.eu**

STANDARDS	EN-ISO 2431
	ГОСТ 8420

ORDERING INFORMATION VISCOSITY CUP ISO 2431 IMMERSION

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2090*	3	3 mm / 0,12 inch	7-42 cSt	Aluminium	283 g / 9,98 oz	63x102x256 mm / 2,48x4,02x10,08 inch
VF2091*	4	4 mm / 0,16 inch	34-135 cSt	Aluminium	283 g / 9,98 oz	63x102x256 mm / 2,48x4,02x10,08 inch
VF2185*	5	5 mm / 0,2 inch	91-326 cSt	Aluminium	283 g / 9,98 oz	63x102x256 mm / 2,48x4,02x10,08 inch
VF2092*	6	6 mm / 0,24 inch	188-684 cSt	Aluminium	283 g / 9,98 oz	63x102x256 mm / 2,48x4,02x10,08 inch
VF2093*	8	8 mm / 0,31 inch	600-2000 cSt	Aluminium	283 g / 9,98 oz	63x102x256 mm / 2,48x4,02x10,08 inch
VF2222*	4	4 mm / 0,16 inch	34-135 cSt	St. steel	756 g / 26,67 oz	63x102x256 mm / 2,48x4,02x10,08 inch

* Calibration certificate optional

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

TE0027	TQC Precision Thermometer	CL0030	Calibration Certificate (if applicable)
DI0076	TQC Stopwatch	VF2053	Viscosity conversion disc

VISCOSITY CUP DIN 53211 DIP-TYPE

The TQC Viscosity Cup DIN 53211 Immersion is a range of titanium anodized aluminium or stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity) and handle. Inner dimensions similar to DIN 53211. Ideal for measuring coatings and other fluids during application or production. Cups with orifice 4 according to DIN 53211. Other cups similar to DIN 53211.

FEATURES

- Easy way of checking and adjusting the viscosity of many different type of liquids
- Long loop handle to allow the cup to be dipped by hand into a liquid container
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS DIN 53211

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP DIN 53211 IMMERSION

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2071	2	2 mm / 0,08 inch	-	Aluminium	180 g / 6,35 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2072	3	3 mm / 0,12 inch	-	Aluminium	180 g / 6,35 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2073*	4	4 mm / 0,16 inch	96-683 cSt	Aluminium	180 g / 6,35 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2074	5	5 mm / 0,2 inch	-	Aluminium	180 g / 6,35 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2075	6	6 mm / 0,24 inch	-	Aluminium	180 g / 6,35 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2077	8	8 mm / 0,31 inch	-	Aluminium	180 g / 6,35 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2213	2	2 mm / 0,08 inch	-	St. Steel	455 g / 16,05 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2215*	4	4 mm / 0,16 inch	96-683 cSt	St. Steel	455 g / 16,05 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2216	5	5 mm / 0,2 inch	-	St. Steel	455 g / 16,05 oz	63x74x256 mm / 2,48x2,91x10,08 inch
VF2217	6	6 mm / 0,24 inch	-	St. Steel	455 g / 16,05 oz	63x74x256 mm / 2,48x2,91x10,08 inch

* Calibration certificate optional

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

TE0027	TQC Precision Thermometer	CL0030	Calibration Certificate (if applicable)
DI0076	TQC Stopwatch	VF2053	Viscosity conversion disc

VISCOSITY CUP ASTM D1200 'FORD' DIP-TYPE

The TQC Viscosity cup ASTM D1200 Immersion 'Ford' is a range of titanium anodized aluminium or stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity) and handle. Ideal for measuring coatings and other fluids during application or production. All cups according to ASTM D1200.

FEATURES

- Easy way of checking and adjusting the viscosity of many different type of liquids
- Long loop handle to allow the cup to be dipped by hand into a liquid container
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS ASTM D1200

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP ASTM D1200 IMMERSION 'FORD'

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2087*	4	4,12 mm / 0,16 inch	70-370 cSt	Aluminium	174 g / 6,14 oz	63x90x255 mm / 2,48x3,54x10,04 inch

* Calibration certificate optional

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

TE0027	TQC Precision Thermometer	**CL0030**	Calibration Certificate (if applicable)
DI0076	TQC Stopwatch	**VF2053**	Viscosity conversion disc

VISCOSITY CUP ASTM D1084 / D4212 'ZAHN' DIP-TYPE

The TQC Viscosity cup ASTM D1084 / D4212 Immersion 'Zahn' is a range stainless steel viscosity cups with fixed stainless steel nozzle (inner cavity) and handle. Ideal for measuring coatings and other fluids during application or production. All cups according to ASTM D1084 and ASTM D4212.

FEATURES

- Easy way of checking and adjusting the viscosity of many different type of liquids
- Long loop handle to allow the cup to be dipped by hand into a liquid container
- Cup and orifice design eliminate hard to clean recesses
- The outer dimensions have been chosen to support the TQC stands
- Produced under continuous quality control procedures
- Each cup is provided with an engraved unique serial number

STANDARDS	ASTM D1084
	ASTM D4212

For
VISCOSITY OILS
please check **www.tqc.eu**

ORDERING INFORMATION VISCOSITY CUP ASTM D1084 / D4212 IMMERSION 'ZAHN'

Art. No	Orifice	Ø	Range	Material	Weight	DxWxH
VF2226*	1	1,80 mm / 0,07 inch	0-60 cSt	St. Steel	127 g / 4,48 oz	53x53x328 mm / 2,09x2,09x12,91 inch
VF2227*	2	2,70 mm / 0,11 inch	20-250 cSt	St. Steel	127 g / 4,48 oz	53x53x328 mm / 2,09x2,09x12,91 inch
VF2228*	3	3,80 mm / 0,15 inch	100-800 cSt	St. Steel	127 g / 4,48 oz	53x53x328 mm / 2,09x2,09x12,91 inch
VF2229*	4	4,30 mm / 0,17 inch	200-1200 cSt	St. Steel	127 g / 4,48 oz	53x53x328 mm / 2,09x2,09x12,91 inch
VF2230*	5	5,30 mm / 0,21 inch	400-1800 cSt	St. Steel	127 g / 4,48 oz	53x53x328 mm / 2,09x2,09x12,91 inch

* Calibration certificate optional

Scope of supply: Viscosity cup in protective storage case with foam inlay

ACCESSORIES / SPARES

TE0027	TQC Precision Thermometer	VF2053	Viscosity conversion disc
DI0076	TQC Stopwatch	CL0030	Calibration Certificate (if applicable)

LORY CUP

The TQC Lory Cup is designed for quick measurements on location or during production processes. The bottom of this cup is provided with a small gap as well as a needle point. The product measured will flow out of the small gap and as soon as the needle point appears during this process, the flow time is determined.

For
VISCOSITY OILS
please check **www.tqc.eu**

FEATURES

- Ideal for quick testing
- Each cup is provided with a unique serial number
- Easy to clean

TECHNICAL SPECIFICATIONS LORY CUP

Material legs	steel
Material cup	brass zinc plate
Dimensions (DxWxH)	170x49 mm / 6,69x1,92 inch
Weight	130 g / 5,99 oz

ORDERING INFORMATION LORY CUP

Art. No	
VF2199	TQC Lory Cup

RING STAND FOR VISCOSITY CUP

The TQC Ring Stand for Viscosity Cup is a ring stand made of galvanized steel, suitable for all TQC Viscosity Cups according DIN, ISO and ASTM.

FEATURES

- Non-slip base
- Suitable for all TQC viscosity cups according Din, ISO and ASTM
- Easy to clean

TECHNICAL SPECIFICATIONS TRIPOD STAND FOR VISCOSITY CUP

Material legs	stainless steel
Material	galvanized steel
Dimensions (DxWxH)	150x150x253 mm / 5,91x5,91x9,96 inch
Weight	188 g / 6,63 oz

ORDERING INFORMATION TRIPOD STAND FOR VISCOSITY CUP

Art. No	
VF2062	TQC Ring stand for viscosity cup

Scope of supply: TQC Ring stand

TRIPOD STAND FOR VISCOSITY CUP

The TQC Tripod Stand for Viscosity Cup is a stand that is easy to level with the adjustable feet of the unit and the built-in spirit level. The ring is made of stainless steel, the legs are made of stainless steel and the feet PVC. Suitable for all DIN, ISO and ASTM viscosity beakers.

FEATURES

- All stainless steel
- Built-in spirit level
- Adjustable feet for easy leveling
- Non-slip base
- Suitable for all DIN, ISO, ASTM beakers

TECHNICAL SPECIFICATIONS TRIPOD STAND FOR VISCOSITY CUP

Material legs	stainless steel
Material ring	stainless steel
Material feet	PVC
Dimensions(DxWxH)	95x95x262mm / 3,74x3,74x10,31 inch
Weight	694 g / 24,48 oz

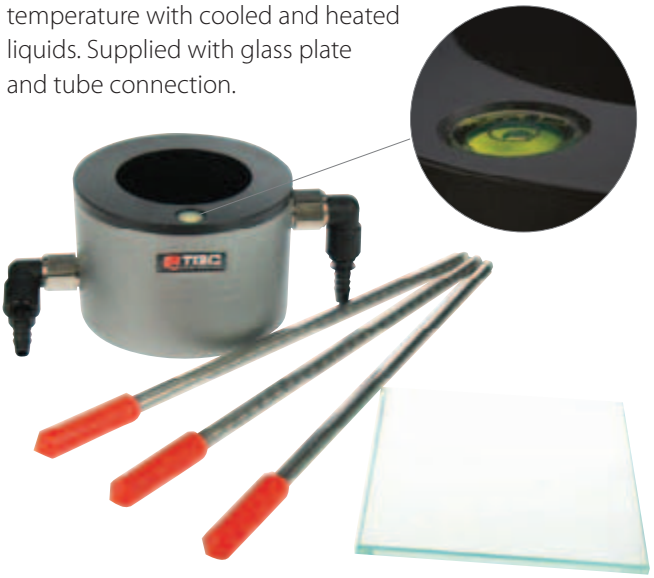
ORDERING INFORMATION TRIPOD STAND FOR VISCOSITY CUP

Art. No	
VF2061	Tripod stand for viscosity cup

Scope of supply: Tripod stand. Built-in level indicator

TEMPERATURE CONTROL JACKET FOR VISCOSITY CUP

The TQC Temperature control Jacket for viscosity cup is a double jacketed casing of anodised aluminium with built-in spirit level to bring the viscosity beaker to the required temperature with cooled and heated liquids. Supplied with glass plate and tube connection.



FEATURES

- Made of titanium anodized aluminium
- Adjustable feet for easy leveling
- Built-in spirit level to set jacket exactly horizontal.
- Glass plate to prevent dripping before measurement
- Elbow-type Quick release couplings

TECHNICAL SPECIFICATIONS TEMPERATURE CONTROL JACKET FOR VISCOSITY CUP

Material	hard anodized aluminium, stainless steel

ORDERING INFORMATION TEMPERATURE CONTROL JACKET FOR VISCOSITY CUP

Art. No	Weight	Dimensions	Suitable for TQC Viscosity cups
VF2067	837 g / 29,52 oz	170x170x305 mm / 6,69x6,69x12,01 inch	DIN, ASTM
VF2068	904 g / 31.89 oz	170x170x325 mm / 6,69x6,69x12,8 inch	ISO, AFNOR

Scope of supply: Jacket with built-in spirit level, glass plate and tube connection

DIGITAL STOPWATCH

Simple yet accurate digital TQC stopwatch, resolution to 1/100th of a second. Split times, built-in alarm. Clear display with large digits. Ultra flat and robust water- and shockproof design, complete with carrying cord.

Indispensable for viscosity measurements.

FEATURES

- Ergonomic flat design
- Resolution to 1/100th of a second
- Time, calendar, weekday, alarm, hourly alarm functions
- Complete with carrying cord
- 30 m Water resistant
- Shock-proof

TECHNICAL SPECIFICATIONS DIGITAL STOPWATCH

Material	plastic
Dimensions	80x18x60 mm / 3,1x0,7x2,4 inch
Weight	46g / 1,6oz
Functions	stopwatch, split, time, calendar, weekday, alarm, hourly alarm
Water resistant	30 meter / 1181 inch
Power	1x CR2032 - 3V

ORDERING INFORMATION DIGITAL STOPWATCH

Art. No	
DI0076	digital stopwatch

Scope of supply: Digital stopwatch, carrying strap

PRECISION THERMOMETER

The TQC Precision Thermometer is a handy pocketsize thermometer with foldable stainless steel probe. Suitable for measurements in liquids and semisolids.

FEATURES

- Large clear display,
- Ergonomic design
- Easy to clean.
- MAX/MIN switch
- °C / °F switch

TECHNICAL SPECIFICATIONS THERMOMETER

Temperature Range:	-49,9 to +149,9°C / -58°F to +300°F
Resolution:	0.1°C / 32,2°F (C°/°F alterable)
Accuracy:	+/- 0.5°C between -49,9 to 99,9°C,
	+/-1°C above 100°C
Battery:	1xMN2400 (AAA)
Battery lifetime:	8000 hours
Display:	15mm LCD
Dimensions:	19x52x155mm / 0,75x2,05x6,1inch
Weight:	76 g / 2,68 oz

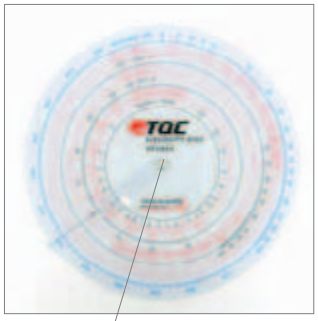
ORDERING INFORMATION DIGITAL STOPWATCH

Art. No	
TE0027	Precision thermometer

Scope of supply: Precision thermometer

VISCOSITY CALCULATOR

The TQC Viscosity Calculator is an indicative conversion table relating viscosity (in cSt) to flow time of different cups. Printed on the front is the No.4 complying with BS NF ASTM DIN and Zahn 2, on the back ISO no.'s 3-4-5-6 and Zahn 3 as well as the Gardner viscosimeter



FEATURES

- Easy to use
- Easy to clean

STANDARDS

ISO 2431	NF T 030-014
ISO 2431	ASTM D2100
ISO 2431	DIN 53211
ISO 2431	ASTM D4212 ZAHN
BS 3900	

ORDERING INFORMATION VISCOSITY CALCULATOR

Art. No	
VF2053	Viscosity calculator

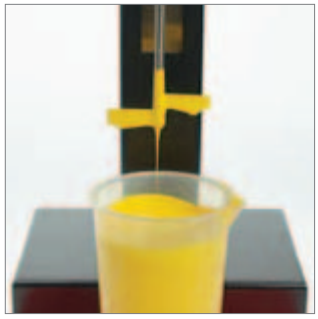
Scope of supply: Viscosity calculator

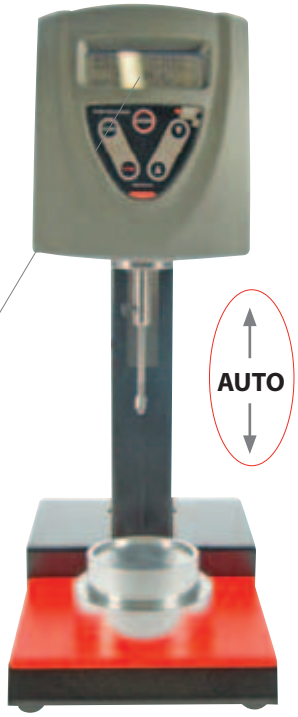
AUTOMATIC KREBS VISCOMETER

The TQC Automatic Krebs Viscometer is widely used for determination of the viscosity according to Krebs KU, as used in the paint, coating and ink industry. The TQC Automatic Krebs Viscometer is equipped with a clear display and easy user interface that ensure highly reproducible results in fully automatic measuring cycles.

The TQC Automatic Krebs Viscosity can be used automatic and manually. In both modes waiting and measuring time can be pre-set by the user between 0 and 99 seconds. Results can be printed by means of a thermal printer and serial communication RS232.

The meter is both highly accurate and simple to use, making it suitable for research as well as production environment.





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FEATURES

- Easy to use
- Automatic or manual mode
- Automatic up/down spindle positioning
- Electrically driven
- Digital readout
- Auto stop

STANDARDS	ASTM D562 ASTM D1131 ASTM D856

TECHNICAL SPECIFICATIONS AUTOMATIC KREBS VISCOMETER

Measurement range	40.2 – 141 KU; 27 – 5274 cP	Display	yes
Accuracy	1% of full scale	IP class	IP20
Repeatability	+/ 0.2%		
Resolution	0.1 KU; 5cP	Material	sheet metal, stainless steel
Operating temperature	10-40°C / 50-104°F	Weight	8500 g / 18,74 lbs
Rotation speed	200 min-1	Dimensions	325x190x500 mm / 12,8x7,48x19,69 inch
Memory	-	Power	100 – 240V 50 – 60 Hz
Languages	EN		

ORDERING INFORMATION AUTOMATIC KREBS VISCOMETER

Art. No	
DV1300	Automatic Krebs viscometer

Scope of supply: Main unit, spindle, power cord, pint can adapter, ½ pint can adapter, glass beaker, Allen key, Certificate

ROTATIONAL VISCOMETER VR3000

TQC rotational viscosity meter VR3000 V1 and V2 are both accurate rotation viscosity meters (Brookfield method) with all the comforts and easy of being according to all used standards. The availability of both a version with (V2) and without (V1) memory there is always a suitable model for both the basic and advanced user. Both viscosity meters are available in three ranges, from low viscosity to high viscosity. By connecting the optional thermal printer compliance to any quality control requirements is a piece of cake.

Standard all models are equipped with:
RS232 interface for data gathering, Viscosoft Basic software, temperature probe, digital display, under and over range warnings and 2 year warranty

Additionally the V2 is equipped with these extra's:
2 extra speeds, bi-directional RS232 communication for computer control, by means of the optional Viscosoft Plus software.

FEATURES

- Robust design
- Simple operation
- Under- and over range warnings
- Available in three ranges
- Optional software available

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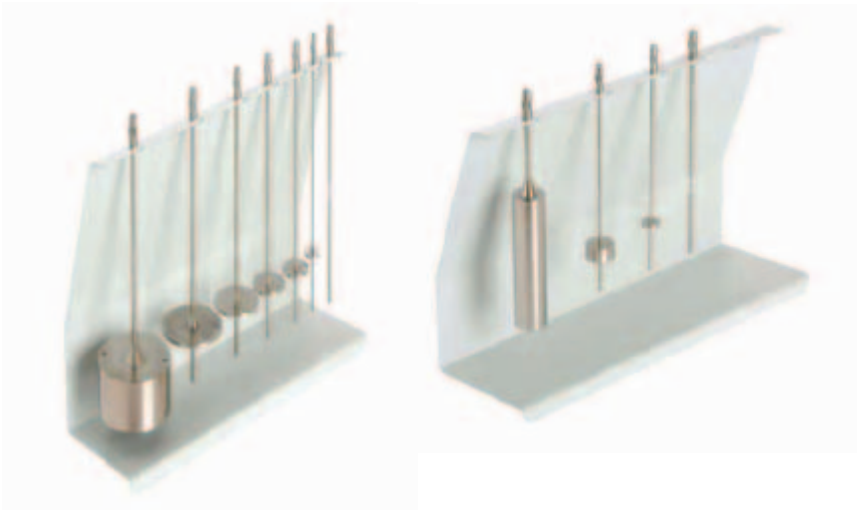
INCLUDED

TECHNICAL SPECIFICATIONS ROTATIONAL VISCOMETER VR3000

Accuracy visc	+/- 1% of full scale
Repeatability visc	+/- 0.2%
Resolution visc.	depending on range
Temperature Range	-15°C – 180°C / 5°F – 356°F
Temperature Resolution	0,1°C / 32,18°F
Temperature Accuracy	+/- 0,1°C / +/- 32,18°F
Languages	EN
Display	4 line display
Material	sheet metal, stainless steel
Power	110 – 240V / 50-60Hz

STANDARDS

ISO 2555	ISO 1652
BS 6075	BS 5350
ASTM 115	ASTM 789
ASTM 1084	ASTM 1286
ASTM 1417	ASTM 1439
ASTM 1638	ASTM 1824
ASTM 2196	ASTM 2336
ASTM 2364	ASTM 2393
ASTM 2556	ASTM 2669
ASTM 2849	ASTM 2983
ASTM 2994	ASTM 3232
ASTM 3236	ASTM 3716



ORDERING INFORMATION ROTATIONAL VISCOMETER VR3000

Art. No	DV1305	DV1306	DV1307	DV1308	DV1309	DV1310
Model	V1	V1	V1	V2	V2	V2
Type	L	R	H	L	R	H
Supplied Spindles	L1 – L4	R2 – R7	R2 – R7	L1 – L4	R2 – R7	R2 – R7
Speeds	0.3, 0.5, 0.6, 1, 1.5, 2, 2.5, 3, 4, 5, 6, 10, 12, 20, 30, 50, 60, 100, 200 rpm (19 speeds)			0.1, 0.2, 0.3, 0.5, 0.6, 1, 1.5, 2, 2.5, 3, 4, 5, 6, 10, 12, 20, 30, 50, 60, 100, 200 rpm (21 speeds)		
Range With standard spindles	3 – 2000000 mPas	20 – 13000000 mPas	1.6 – 106660 dPas	3 – 6000000 mPas	20 – 40000000 mPas	1.6 – 3200000 dPas
Displayable units	mPas, cP, %,	mPas, cP, %	dPas, P, %	mPas, cP, %	mPas, cP, %	dPas, P, %
Shearrate (SR)	-	-	-	1/s		
Shear Stress	-	-	-	N/m^2, $dyne/cm^2$		
Suitable software (optional)	ViscoBasic			ViscoPlus		
Max per Spindle	mPas	mPas	dPas	mPas	mPas	dPas
L1	20000	-	-	60000	-	-
L2		-	-	300000	-	-
L3	400000	-	-	1200000	-	-
L4	2000000	-	-	6000000	-	-
R1 (optional)	-	33300	2660	-	100000	8000
R2	-	133300	10600	-	400000	32000
R3	-	333300	26600	-	1000000	80000
R4	-	666600	53300	-	2000000	160000
R5	-	1300000	106000	-	3900000	320000
R6	-	3330000	266000	-	10000000	800000
R7	-	13300000	1060000	-	40000000	3200000
Range with Small	1.5 – 200000	25 – 3300000	2 – 266000	1.5 – 600000	25 – 10000000	2 – 800000
Sample Adapter	mPas	mPas	dPas	mPas	mPas	dPas
(optional)						
Max per Spindle	mPas	mPas	dPas	mPas	mPas	dPas
TL5	10000	-	-	30000	-	-
increment	0.1	-	-	0.1	-	-
Sample vol	8.0 ml	-	-	8.0 ml	-	-
TL6	100000	-	-	300000	-	-
Increment	1	-	-	1	-	-
Sample vol	10.0 ml	-	-	10.0 ml	-	-
TL7	200000	-	-	600000	-	-
Increment	1	-	-	1	-	-
Sample vol	9.5 ml	-	-	9.5 ml	-	-

ORDERING INFORMATION ROTATIONAL VISCOMETER VR3000

Art. No	DV1305	DV1306	DV1307	DV1308	DV1309	DV1310
TR8	-	166600	13000	-	500000	40000
Increment	-	10	-	-	10	-
Sample vol	-	8.0 ml	-	8.0 ml		
TR9	-	833300	66600	-	2500000	200000
Increment	-	100	-	-	100	-
Sample vol	-	10.5 ml	-	10.5 ml		
TR10	-	1600000	133000	-	5000000	400000
Increment	-	100	-	-	100	-
Sample vol	-	11.5 ml	-	11.5 ml		
TR11	-	3300000	266000	-	10000000	800000
Increment	-	100	-		100	-
Sample vol	-	13.0 ml	-	13.0 ml		
Range with Low Adapter (optional)	0.3 – 2000 mPas	3.2 – 21333 mPas	0.25 – 1700 dPas	0.3 – 6000 mPas	3.2 – 64000 mPas	0.25 – 5120 Viscosity dPas
Increments with Low Viscosity Adapter	0.01 mPas	0.16 Mpas	-	0.01 mPas	0.16 mPas	-
Sample Volume	18 ml					
Range with Adapter for Helicoidal movement	156 – 3120000 mPas	1660 – 33300000 mPas	133 – 2660000 dPas	156 - 9400000	1660 – 100000000 mPas	133 – 8000000 dPas
Supplied Spindles	PA, PB, PC, PD, PE, PF					

Scope of supply: Visco meter, Stand for viscometer, Set of spindles (see specifications), Rack for spindles, Spindle guard, Temperature probe, Power cord, Manual, Certificate

ACCESSORIES / SPARES

DV1311	R1 spindle

Optionally available: Helicodial drive unit. (DV1124); Small Sample, Adapter; Low Viscosity Adapter, Software available on request

ROTATIONAL VISCOMETER DV1400

TQC Rotational Viscometer according to Brookfield Method, allows quick determination of viscosity in laboratory, research centers, and during production. The intuitive, easy functionality. light weight, and the fact they are battery operated provide great versatility. TQC Rotational Viscometer can even be used as a portable instrument.

Its main feature, compatibility to the Brookfield method, allows comparative measurements with results obtained in quality control laboratories using standard rotational viscometers. (when used with the same spindle type and the same rotational speed)

Two different models are available, one with a fixed speed of 60rpm, the other one with a fixed speed of 20rpm.

FEATURES

- Portable
- Battery driven
- Full spindle set
- Results compatible with standard rotational Viscometers
- Suitcase included

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ORDERING INFORMATION ROTATIONAL VISCOMETER DV1400

Art. No	DV1401	DV1402
Rotation speed	60 min-1	20 min-1
Range	66 – 66600 mPas	200 – 200000 mPas
R1 max (optional)	166 mPas	500 mPas
R2 max	660 mPas	2000 mPas
R3 max	1600 mPas	5000 mPas
R4 max	3300 mPas	10000 mPas
R5 max	6600 mPas	20000 mPas
R6 max	16600 mPas	50000 mPas
R7 max	66600 mPas	200000 mPas

ACCESSORIES / SPARES

DV1311	R1 spindle

Optionally available: Helicodial drive unit. (DV1124); Small Sample, Adapter; Low Viscosity Adapter, Software available on request

TECHNICAL SPECIFICATIONS ROTATIONAL VISCOMETER DV1400

Measurement range	mPas
Accuracy	+/- 2% of full scale
Repeatability	+/- 1 %
Resolution R1,R2	1 mPas
Resolution R3, R4, R5	10 mPas
Resolution R6, R7	100 mPas
Memory	none
Languages	EN
Display	2 lines display
Material	Sheet metal and aluminium
Weight	1800 g / 63,5 oz
Dimensions	170x110x410 mm / 6,7x4,33x16,14 inch (Without suitcase)
Power	4x AA battery
Autonomy	24 – 30 hours under continuous operation
Operation temperature	10 – 40°C / 50 – 122°F

VISCO THINNER

The TQC ViscoThinner offers a two instruments in one option for material testing.

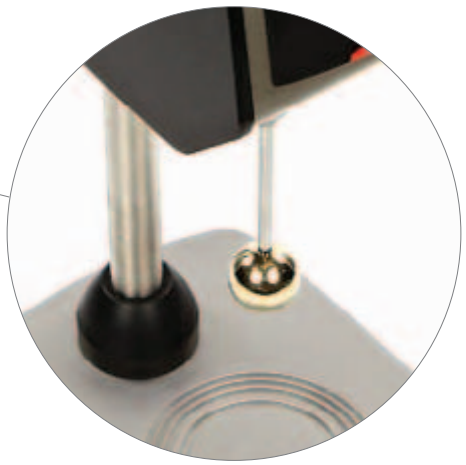
Easy continuous monitoring of the material viscosity during the addition of solvents and thinners to create supply or RFU viscosity. However uniquely the instrument also allows definitive viscosity analysis at times pre-selected by the user, providing excellent data relating to shear performance and perfect for laboratory and factory applications.

The flexibility of this instrument allows the user the ultimate control during the viscosity reduction process whilst also providing very useful stability analysis.

Operating based on a 3 spindle process the standard lower spindle range has been increased to allow testing levels of up to 25P, alternative spindles can be added simply to test beyond 25P.

Conforming to ISO 2884 and BS 3900 A7 can be purchased as a single spindle option with additional spindles and verifiable calibration oil kits.

coming soon



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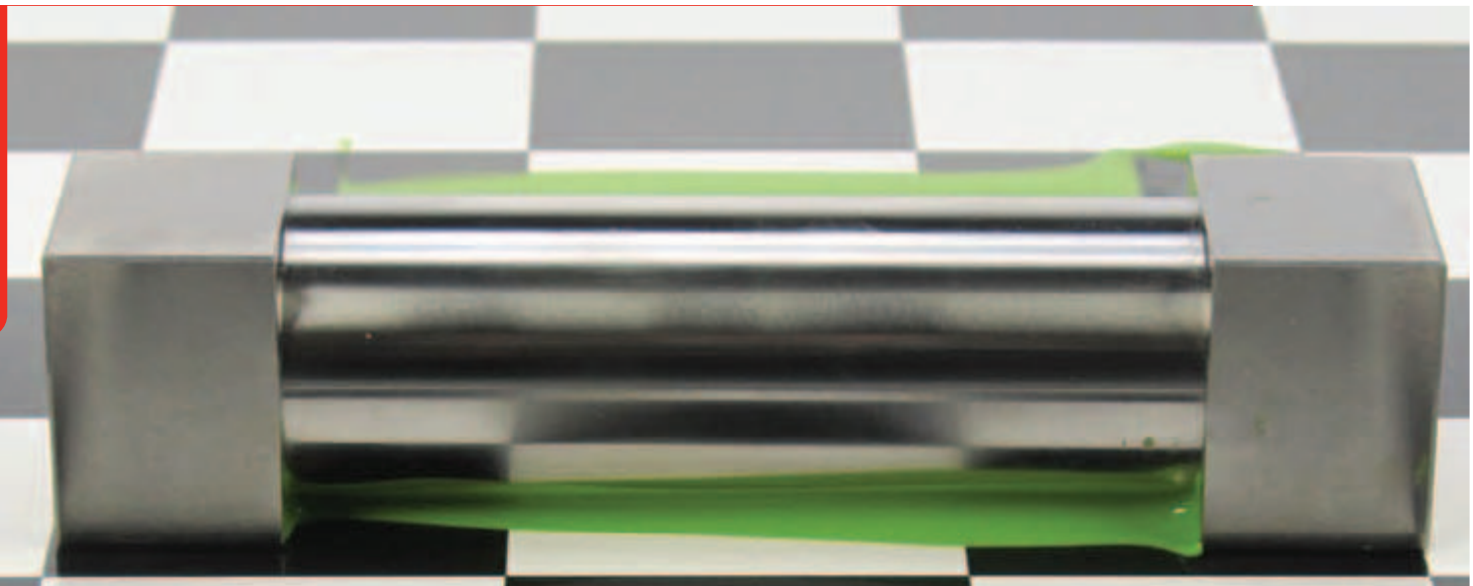
STANDARDS

ISO 2884
BS 3900 A7

ORDERING INFORMATION VISCO THINNER

Art. No	
DV2000	Visco Thinner



FILM APPLICATION

Film application in coating industry includes a broad range of different devices and instruments which are an absolute necessity for testing or evaluation. Only in this way the quality-related properties required can be tested, compared, documented and communicated in compliance with the requirements.

Film application covers a range of instruments that can be divided in four groups:

- Applicators
- Application tables
- Application machines
- Test charts

Applicators

Applicator types come as Bird, Baker, Wire Bar, Micrometer Casting Knife, Sag and Leveling, Stap Gap, Quadruplex, Octoplex, Hand Proofer etc.. The choice depends on specification or what one is accustomed to. Applicators vary in width, single or multiple gap, clearance in either microns or mils, hight adjustable or not, or wired in different sizes. The theoretical wet film thickness is etched onto every drawdown bar. The theoretical applied wet film thickness is roughly one-half the actual gap clearance. If you have a gap clearance of 60 micron, the theoretical wet film thickness etched on the bar applicator is 30 micron. Due to the many variables the drawdown is not guaranteed to the theoretical film thickness. Actual a variation of 50 to 90% in film thickness is possible depending on gap clearance. If the applicator is used manually variables in speed and movement can cause an uneven drawdown. In these cases we recommend an automatic film applicator.

Application tables

To apply a uniform film for examination a stable hard surface is needed to make a good drawdown on test charts with a high degree of reproducibility. The glass application tables are equipped with a strong clamp to hold down the charts and supplied with rubber top cover for use with specific applicators.

Application machines

To prepare samples for testing rheological properties, abrasion resistance, hiding power and gloss the TQC Automatic film applicator is a must have. To apply a uniform and reliable coating film onto test charts, panels or foils in order to eliminate variations caused by human factors a automatic film applicator is needed. Variations in speed, pressure and direction of draw down cause irregularities, those are elimminated by use of this type of applicator. Other factors that may influence the result are the shear rate and the weight of the applicator. With the automatic film applicator these variable factors are being stabilized. Over the complete surface the film thickness is even. The TQC automatic film applicator has all capabilities to use any kind of applicators on any kind of test panel on chart sizes A4, A5 and A6. A choice of glass table, vacuum table perforated or canaled table, speed and length adjustments are just a few features.

Test charts

For different kind of tests on physical properties of paints, lacquers or inks a wide range of consistent test charts are developed. Those are suitable for determining hiding power, opacity, spreading rate etc. They come in a variety of dimensions from DIN A6 up to and including DIN A4. Most charts are film laminated for an excellent solvent and chemical resistance and an even film spread. Others are uncoated for brushout to simulate wood or wallboard and plastic polyester films for wash and scrub testing.

Vision on quality
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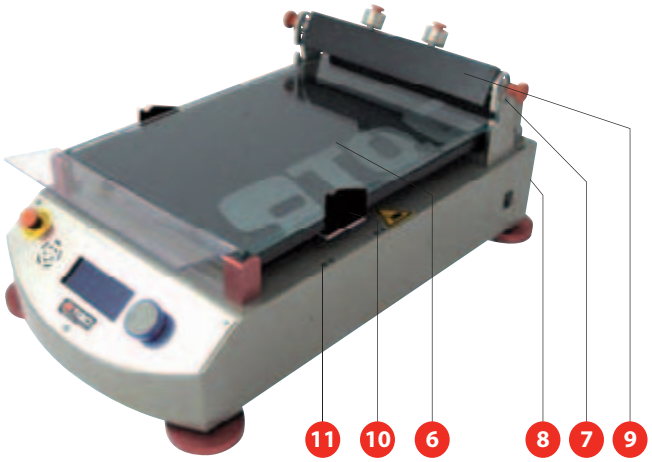
AUTOMATIC FILM APPLICATORS

The TQC Motorized Automatic film applicator or drawdown machine provides a reliable basis to apply coating films to test charts, panels or foils in a uniform and reproducible way in order to eliminate variations caused by human factors. Variations in speed, pressure and direction of draw down cause irregularities. Other factors that may influence the result are the shear rate and the weight of the applicator. With the TQC Automatic film applicator these variable factors are being stabilised. Over the complete surface the film thickness is even.

To prepare samples for testing rheological properties, abrasion resistance, hiding power and gloss the TQC Motorized Automatic film applicator is a must have. Motorized Film Applicators are also used in the adhesives industry.

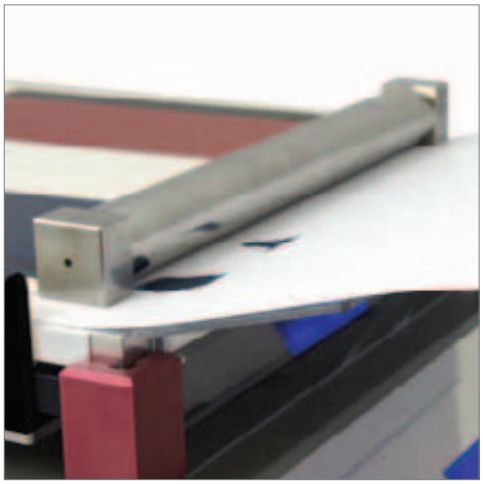
FEATURES

- Digital setting of speed, start position, stop position and stroke length
- Wide speed range of 0-500 mm/s
- Silent built-in vacuum pump with selected models with vacuum bed
- Electronic vacuum area (A4/A3) selection eliminates the need for taping holes
- Tool carrier height can be increased to allow coating of thicker panels / samples
- Vacuum bed or glass bed can removed without tools for cleaning
- Automatic spiral bar-coater retriever
- Extensive safety measures through emergency stop and proximity sensors complies with all relevant standards
- Optional drying time recorder to convert into a drying time recorder
- Also available with electrically heated vacuumbed



1. Display with process information
2. Jog Shuttle
3. Emergency button
4. Acoustic alarm / Buzzer
5. Levelling supports
6. Glass plate or Vacuum table
7. Automated clamping device for test charts
8. Mains connection
9. Applicator tool carrier
10. Spiral bar release device
11. Hand protection device

AUTOMATIC FILM APPLICATORS



TECHNICAL SPECIFICATIONS AUTOMATIC FILM APPLICATOR

Traverse Speed	2 – 500 mm/s ; 0,08-19,7 inch/s	Number of vacuum holes	14 (h) x 18 (v) = 252
Traverse Speed accuracy	+/- 1% of set speed	Dimensions (DxWxH)	650x 350 x 240 mm / 25,59x13,78x9,45 inch
Stroke length	50 – 359 mm ; 2-14,1 inch	Net weight	app. 36 kg / 79,37 lbs dependent on
Stroke length accuracy	+/- 2 mm ; +/- 0,08 inch		model
Max test chart size	DIN A3	Power consumption	max. 80 Watt
Max test substrate thickness	35mm / 1,38 inch including	Display	Blue Illuminated, graphic
	applied coating		100x35 mm / 3,94x1,38 inch, 193x64px
Max. Width alternative film applicators	max. 300 mm / 11,81 inch	Menu languages	English, German, Spanish, French, Italian
Max. Height alternative film applicators	max. 80 mm / 3,15 inch	Safety	Emergency button and intelligent
Wire bar length	max. 325 mm/ 12,8 inch		proximity switches, integrated Acoustic
	spiral area in 364 mm/		Alarm
	14,33 inch length at	Function	Jog Shuttle knob by Rotation / Pushing
	fixation points	Drawn down Speeds	12 steps selectable from 2 - 500 mm/s
Wire bar diameter	max. Ø10 mm/ 0,39 inch at the		and free selectable (custom)
	fixation points.	Drawn down Lengths	A5 / A4 / A3 and free selectable (custom
Max vacuüm	-178 mbar		with variable starting/stopping point)
Diameter vacuum holes	1,4 mm / 0,06 inch		
Distance between vacuum holes	19 mm / 0,75 inch horizontal,		
	20 mm / 0,79 inch vertical		

HEATED PERFORATED VACUUM BED

Minimum temperature	Ambient + 5°C / 41°F	Resolution of readout temperature	0.1°C
Maximum temperature	Ambient + 100°C / 212°F	Temperature controller	Separate
	(Absolute max 140°C)	Power consumption heating	450 Watt
Resolution of set temperature	1°C	Menu language	English

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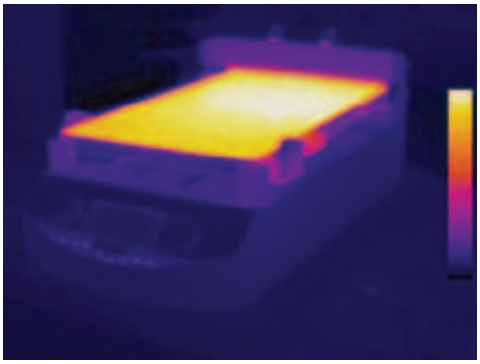
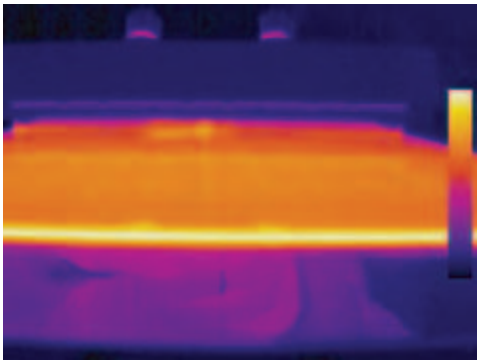
Heated Vacuumbed
The TQC Automatic film applicator is also available with an electrically heated vacuumbed. The temperature can be set digitally from ambient +5°C to ambient + 100°C . Heat-up time is short and temperature is uniform over the entire bed.





ORDERING INFORMATION AUTOMATIC FILM APPLICATORS

Art. No	Power	Bed
AB3120	230 V | 50 Hz	Glass
AB3125	110 V-120V | 50/60 Hz	Glass
AB3320	230 V | 50 Hz	Perforated vacuum
AB3225	110 V-120V | 50/60 Hz	Perforated vacuum
AB3220	230 V | 50 Hz	Double channelled vacuum
AB3325	110 V-120V | 50/60 Hz	Double channelled vacuum
AB3400	230 V | 50 Hz	Heated vacuum
AB3405	110 V-120V | 50/60 Hz	Heated vacuum

ACCESSORIES / SPARES

AB3500	TQC Drying time recorder tool (Only suitable for models with firmware version 2.01 or above)
AB3000	Rubber placemat for TQC automatic film applicator
AB3100	Glass table for automatic film applicator
AB3200	Perforated vacuum plate
AB3300	Double channelled vacuum plate
AB3028	Flexible LED light

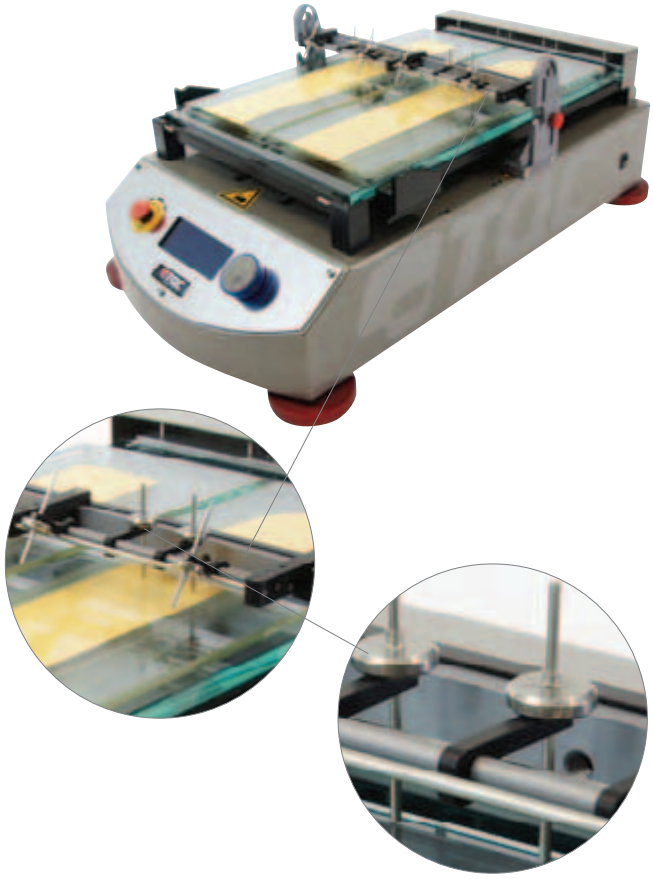
All types and styles of applicators can be used such as wire wound rods or spiral bar coaters, doctor blades. Bird-, or Baker type applicators, Quadruplex, or film casting knife applicators.

Scope of supply: Motorized automatic film applicator, Rubber mat (only with glass plate), Certificate of Conformance, Flexible LED light, English manual, Power cord

DRYING TIME RECORDER ATTACHMENT

Drying Time Recorder tool to be used as an optional test tool for the TQC Automatic Film Applicators. This device allows the user to accurately define the drying time of various types of coatings within the time range of 1 minute to 48 hours.

The drying time recorder option can be easily clamped on any standard TQC Automatic film applicator with firmware 2.01 and above.



FEATURES

- Digital indication of the drying stages;
- From hand dry to dry in 10 seconds accurately displayed
- "Intelligent recording", which significantly improves the resolution of a longer drying process.

TECHNICAL SPECIFICATIONS DRYING TIME RECORDER

Material	aluminium, stainless steel
Dimensions	60,5x315x50 mm /
	2,38x12,4x1,97 inch
Weight	280 g / 9,88 oz
Drying time range	1 min. – 2880 min (48 hours)
Time accuracy	≤ 1% of set time.
Maximum test length	350mm / 13,78 inch
Maximum number of tracks	8

STANDARDS ISO 9117-4

ORDERING INFORMATION DRYING TIME RECORDER OPTION

Art. No	
AB3500	Drying time recorder option for TQC Automatic Film Applicators

Scope of supply: Drying time recorder option (without TQC Automatic Film Applicator)

ACCESSORIES / SPARES

AB3120	TQC motorized automatic film applicator 230V with glass bed
AB3220	TQC motorized automatic film applicator 230V with perforated vacuum bed, built-in vacuum pump
AB3320	TQC motorized automatic film applicator 230V with double channelled vacuum bed, built-in vacuum pump
AB3125	TQC motorized automatic film applicator 110V with glass bed
AB3225	TQC motorized automatic film applicator 110V with perforated vacuum bed, built-in vacuum pump
AB3325	TQC motorized automatic film applicator 110V with double channelled vacuum bed, built-in vacuum pump
AB3400	TQC motorized automatic film applicator 230V with heated vacuum bed, built-in vacuum pump
AB3405	TQC motorized automatic film applicator 100V with heated vacuum bed, built-in vacuum pump

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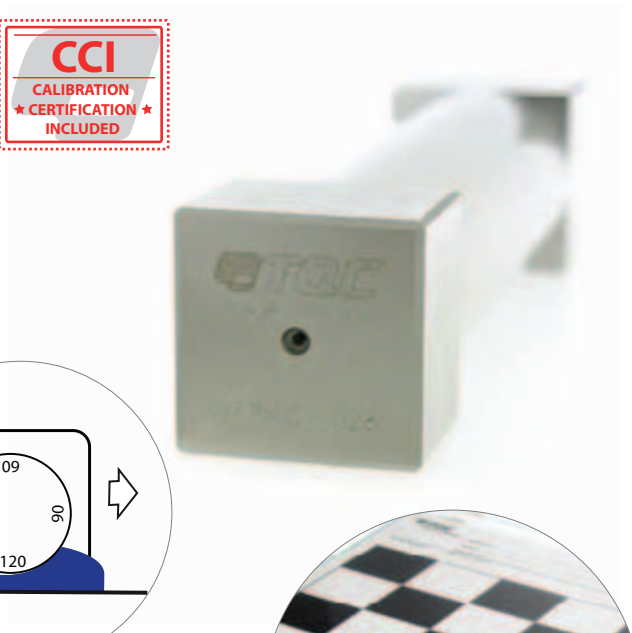
BAKER FILM APPLICATORS

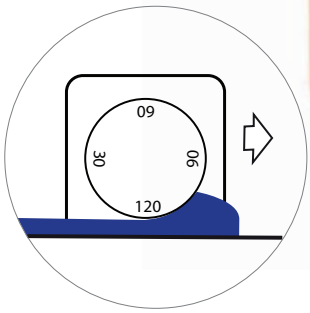
Cylindrical film applicator with 4 application sides for the application of paint-films with 4 different pre-defined thicknesses. The Baker applicator's are available in film width 60 mm and 80 mm and are suitable for the application of a host of different products onto flat and relatively solid substrates. Since it's made out of high-grade stainless steel, the Baker Film Applicator will not be affected by acid or base elements.

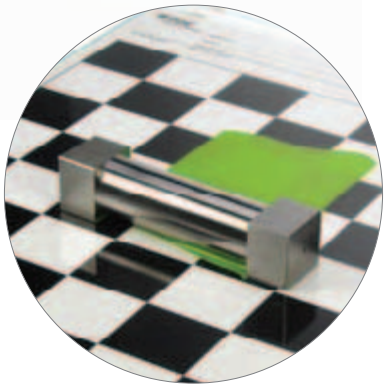
CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED



FEATURES

- Cylindrical application body
- Corrosion-resistant
- Easy to clean
- Width also available with customer specification (min. width 20mm/0,80inch – max. width 400mm/18,8inch)
- Supplied with calibration certificate





Also available: 100 mm Baker film applicators

STANDARDS

ASTM D3022
ASTM D 823

ORDERING INFORMATION BAKER FILM APPLICATORS

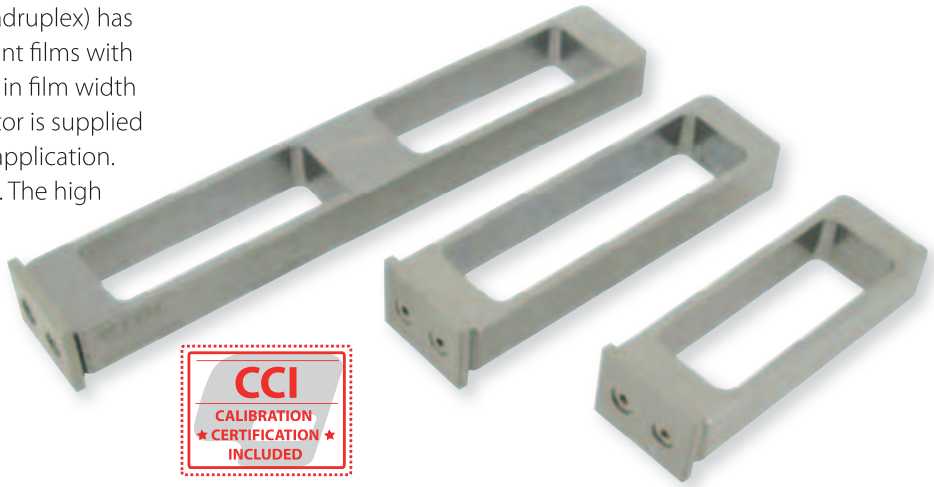
Art. No	Film width	Gapsizes	Weight	Material	Outer dimensions	Accuracy
VF2145	60mm / 2,40 inch	15/30/60/90 µm	488 g / 17,2 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF2146	60mm / 2,40 inch	30/60/90/120 µm	488 g / 17,2 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF2147	60mm / 2,40 inch	50/100/150/200 µm	488 g / 17,2 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF1510	60mm / 2,40 inch	4 gaps as desired*	488 g / 17,2 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF1500	80mm / 3,15 inch	15/30/60/90 µm	575 g / 20,3 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF1501	80mm / 3,15 inch	30/60/90/120 µm	575 g / 20,3 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF1502	80mm / 3,15 inch	50/100/150/200 µm	575 g / 20,3 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF1515	80mm / 3,15 inch	4 gaps as desired*	575 g / 20,3 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF1560	80mm / 3,15 inch	90/90/150/150 µm	207 g /7,3 oz.	st. steel	100x18x18 mm / 3,94x0,71x0,71 inch	better than 3µm

* max. gap size 3000 µm

Scope of supply: TQC Baker Film Applicator, Protective plastic case, Calibration certificate

4-SIDED FILM APPLICATORS (QUADRUPLEX)

The TQC 4-Sided Film Applicator (Quadruplex) has four application sides for applying paint films with four different predefined thicknesses, in film width 60 or 80 mm. One side of the applicator is supplied with a guidance support for straight application. This support may be removed as well. The high grade stainless steel will not be affected by acid or base elements.



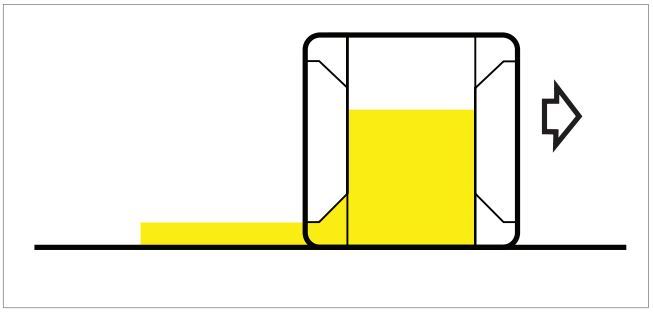
CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

ASTM D1084

FEATURES

- 4 application sides
- Corrosion-resistant
- Easy to clean
- Width also available with customer specification (min. width 1mm/0,04inch – max. width 130mm/5,12inch)
- Supplied with calibration certificate



ORDERING INFORMATION 4-SIDED FILM APPLICATORS (QUADRUPLEX)

Art. No	Film width	Gapsizes	Weight	Material	Outer dimensions	Accuracy
VF2167	60mm / 2,40 inch	Gaps as desired*	100 g / 3,5 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF2168	60mm / 2,40 inch	15/30/60/90 µm	100 g / 3,5 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF2169	60mm / 2,40 inch	30/60/90/120 µm	100 g / 3,5 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF2170	60mm / 2,40 inch	50/100/150/200µm	100 g / 3,5 oz.	st. steel	100x22x22 mm / 3,94x0,8x0,87 inch	better than 3µm
VF2172	80mm / 3,15 inch	Gaps as desired*	130 g / 4,6 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF2173	80mm / 3,15 inch	15/30/60/90 µm	130 g / 4,6 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF2174	80mm / 3,15 inch	30/60/90/120 µm	130 g / 4,6 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF2175	80mm / 3,15 inch	50/100/150/200 µm	130 g / 4,6 oz.	st. steel	120x22x22 mm / 4,72x0,87x0,87 inch	better than 3µm
VF2179	2 x 60mm / 2,40 inch	2 x 100/200/300/400 µm	214 g / 7,5 oz.	st. steel	20x27x167 mm / 0,79x1,06x6,57 inch	better than 3µm

* max. gap size 3000 µm

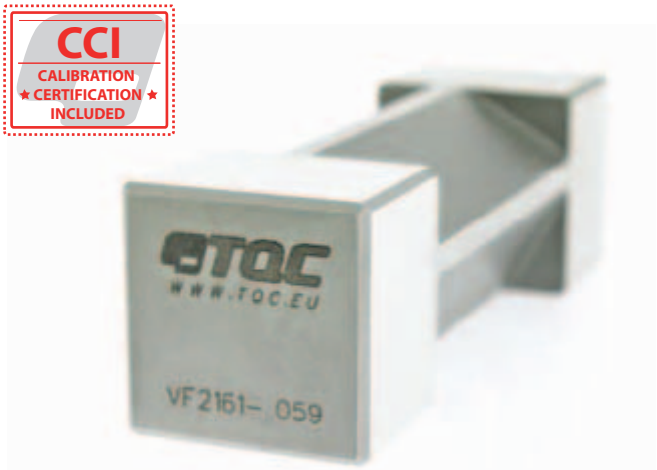
Scope of supply: TQC 4-sided Film Applicator (quadruplex), Protective plastic case, Calibration certificate

PRISM FILM APPLICATORS

TQC Prism film applicator with flat edges. Four application sides for applying 4 different pre-defined thicknesses. The TQC Prism applicator is available in film width 50, 75 and 100mm and suitable for applying a host of different products onto flat and relatively solid substrates. The high-grade stainless steel will not be affected by acid or base elements.

We can give no guarantee of the wet thickness that will be obtained. The wet thickness is dependent upon the solids and vehicle content of the wet material as well as other factors. Film thickness deposited may vary from 40% to 80% of the actual gate clearance of the TQC Prism applicator.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

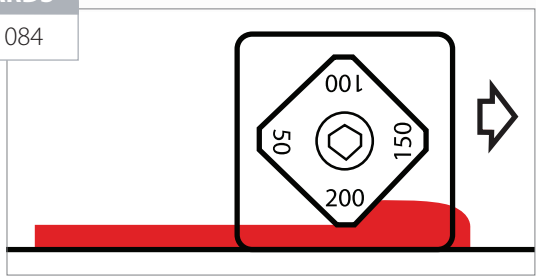


FEATURES

- Either 1 or 4 clearances
- Flat edged prism body
- Corrosion-resistant
- Easy to clean
- Width also available with customer specification

STANDARDS

ASTM D1084



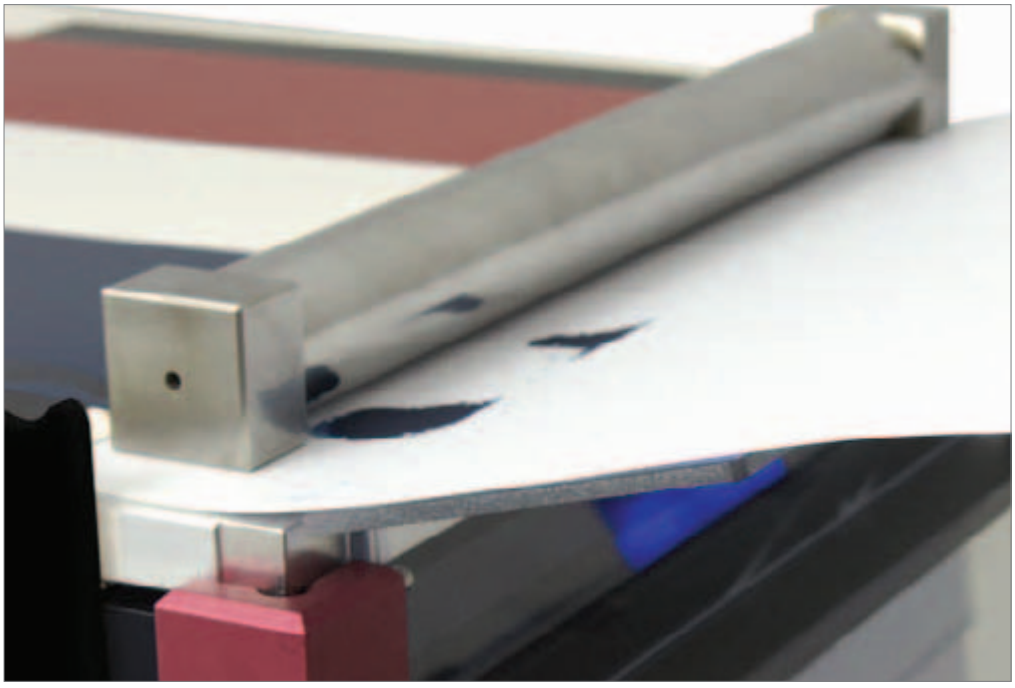
ORDERING INFORMATION PRISM FILM APPLICATORS

Art. No	Film width	Gapsizes	Weight	Material	Outer dimensions	Accuracy
VF2161	50 mm / 2,0 inch	50/100/150/200 µm	410 g / 14,5 oz.	st. steel	90x28x28 mm / 3,54x1,1x1,1 inch	better than 3 µm
VF1837	50 mm / 2,0 inch	4 gaps as desired	410 g / 14,5 oz.	st. steel	90x28x28 mm / 3,54x1,1x1,1 inch	better than 3 µm
VF1540	50 mm / 2,0 inch	1 gap as desired	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF1541	50 mm / 2,0 inch	50 µm	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF1542	50 mm / 2,0 inch	75 µm	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF1543	50 mm / 2,0 inch	100 µm	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF1544	50 mm / 2,0 inch	125 µm	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF1545	50 mm / 2,0 inch	150 µm	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF1546	50 mm / 2,0 inch	200 µm	212 g / 7,48 oz	st. steel	80x25x15 mm / 3,15x0,98x0,59 inch	better than 3 µm
VF2164	60 mm / 2,36 inch	4 gaps as desired	352 g /12,42 oz	st. steel	75x28x28 mm / 2,95x1,1x1,1 inch	better than 3 µm
VF2162	75 mm / 3,0 inch	50/100/150/200 µm	495 g / 17,4 oz.	st. steel	90x28x28 mm / 3,54x1,1x1,1 inch	better than 3 µm

ORDERING INFORMATION PRISM FILM APPLICATORS

Art. No	Film width	Gapsizes	Weight	Material	Outer dimensions	Accuracy
VF1530	75 mm / 3,0 inch	4 gaps as desired	495 g / 17,4 oz.	st. steel	90x28x28 mm / 3,54x1,1x1,1 inch	better than 3 µm
VF1570	75 mm / 3,0 inch	1 gap as desired	275 g / 9,7 oz	st. steel	105x25x15 mm / 4,13x0,98x0,59 inch	better than 3 µm
VF1571	75 mm / 3,0 inch	50 µm	275 g / 9,7 oz	st. steel	105x25x15 mm / 4,13x0,98x0,59 inch	better than 3 µm
VF1572	75 mm / 3,0 inch	75 µm	275 g / 9,7 oz	st. steel	105x25x15 mm / 4,13x0,98x0,59 inch	better than 3 µm
VF1573	75 mm / 3,0 inch	100 µm	275 g / 9,7 oz	st. steel	105x25x15 mm / 4,13x0,98x0,59 inch	better than 3 µm
VF1574	75 mm / 3,0 inch	125 µm	275 g / 9,7 oz	st. steel	105x25x15 mm / 4,13x0,98x0,59 inch	better than 3 µm
VF1575	75 mm / 3,0 inch	150 µm	275 g / 9,7 oz	st. steel	105x25x15 mm / 4,13x0,98x0,59 inch	better than 3 µm
VF1576	75 mm / 3,0 inch	200 µm	275 g / 9,7 oz	st. steel	105x25x15 mm /	better than 3 µm 4,13x0,98x0,59 inch
VF1536	80 mm / 3,15 inch	4 gaps as desired	514 g / 18,13 oz	st. steel	95x28x28 mm / 3,74x1,1x1,1 inch	better than 3 µm
VF2163	100 mm / 4,0 inch	50/100/150/200 µm	585 g / 20,6 oz	st. steel	140x28x28 mm / 5,51x1,1x1,1 inch	better than 3 µm
VF1535	100 mm / 4,0 inch	4 gaps as desired	585 g / 20,6 oz	st. steel	140x28x28 mm/ 5,51x1,1x1,1 inch	better than 3 µm
VF1580	150 mm	4 gaps as desired		st. steel		better than 3 mm
VF1581	150 mm	50/100/150/200µm		st. steel		better than 3 mm

Scope of supply: TQC Prism film applicators single gap 50mm or 75mm, Plastic Protective Case, Calibration certificate



8-SIDED FILM APPLICATOR OCTOPLEX

Multifunctional film applicator with 8 application sides for application paint-films of 8 different pre-defined thicknesses. Since it's made out of high-grade stainless steel, the Octoplex will not be affected by acid or base elements

TECHNICAL SPECIFICATIONS 8-SIDED FILM APPLICATOR OCTOPLEX

Clearance height / gaps	25,50,75,100,125,150,175,200µm
Clearance width	60 mm
Accuracy	better than 3 micron
Material	high grade stainless steel
Weight	147 g / 5,19 oz
Dimensions	85x85x11 mm / 3,35x3,35x0,43 inch

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

ASTM D 3022
ASTM D 823
FMTS 141a
FMTS 2161
FMTS 2162
FMTS 4255
FMTS 6226

ORDERING INFORMATION 8-SIDED FILM APPLICATOR OCTOPLEX

Art. No		
VF1550	8-sided film applicator octoplex	

Scope of supply: TQC Octoplex film applicator, protective case, calibration certificate

MICROMETER FILM APPLICATORS

Adjustable Micrometer Film Applicator with stainless steel blade, aluminum frame and chrome thimbles and barrels. The detachable blade makes cleaning easy. Also, this Micrometric Film Applicator isn't supplied with springs which can break, rust or get clogged.

STANDARDS

ASTM D 823

FEATURES

- No springs to break, rust or get clogged
- Detachable blades for easy cleaning
- Enhanced accuracy
- Ergonomic design facilitates fast, accurate draw downs
- Replacement blades are easy to install & calibrate

TECHNICAL SPECIFICATIONS MICROMETER FILM APPLICATORS

Material	Stainless Steel, Aluminium and Chrome
Weight	933 g / 33oz
Dimensions	21,6x10x10,8 mm/ 8.5x3.9x4.3 inch
Film thickness	Adjustable between 0-6,35 mm
Increment	0,01 mm

ORDERING INFORMATION MICROMETER FILM APPLICATORS

Art. No		Art. No	
LD3570	Micrometric film applicator 75 mm / 2,95 inch wide	LD3573	Micrometric film applicator 150 mm / 5,9 inch wide
LD3571	Micrometric film applicator 100 mm / 3,94 inch wide	LD3572	Micrometric film applicator 200 mm / 7,87 inch wide

TQC TRIPLE RESERVOIR APPLICATOR

TQC Film Applicator with 3 reservoirs. Ideal for applying paint with use of a TQC Automatic Film Applicator or Drying Time Recorder. This applicator can apply 2 pre-defined thicknesses, 90 and 150µm.

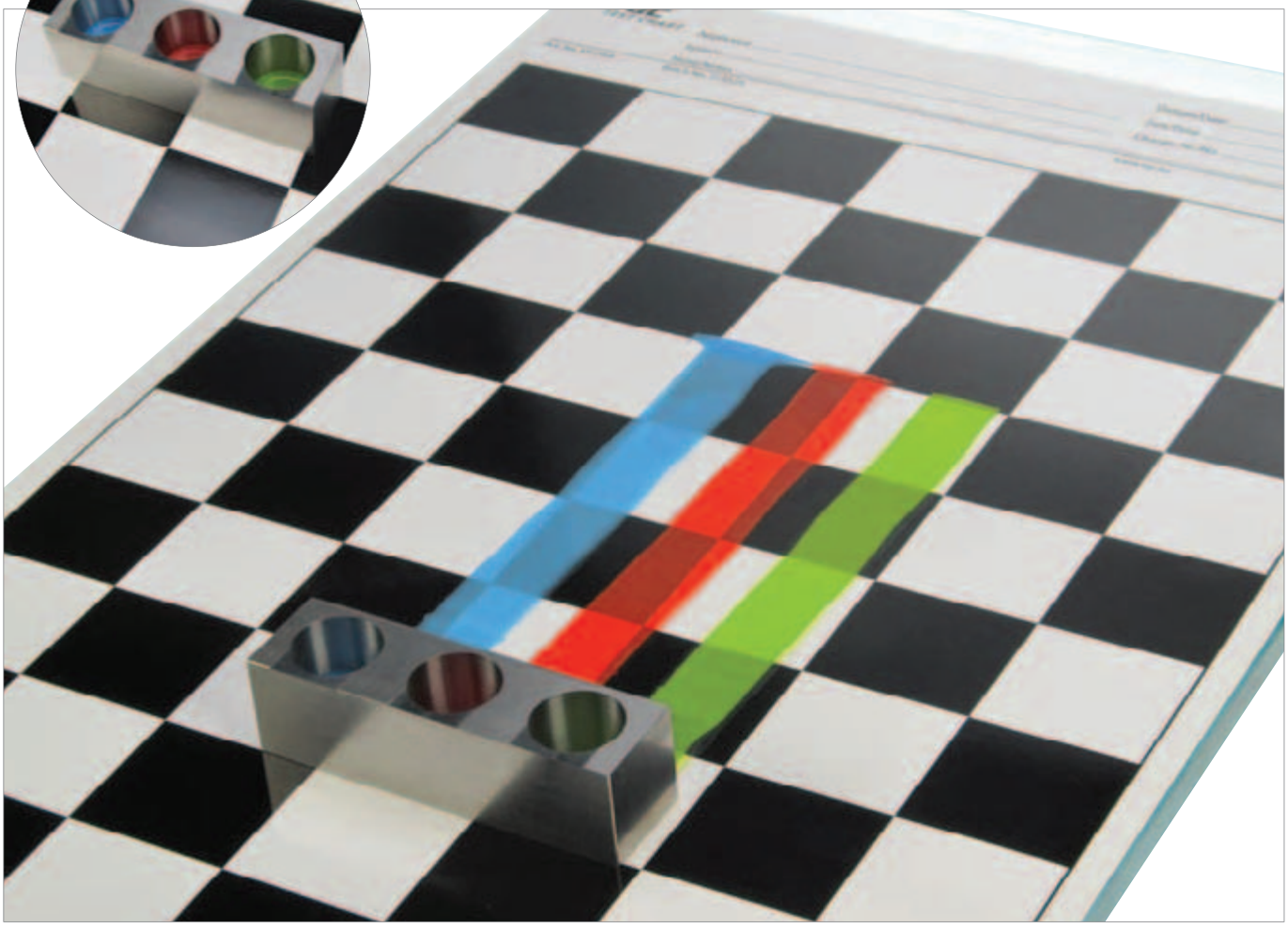
TECHNICAL SPECIFICATIONS TQC TRIPLE RESERVOIR APPLICATOR

Film thicknesses	90µm, 150µm
Reservoir diameter	20 mm / 0,79 inch
Dimensions	25x25x90 mm/0,98x0,98x3,54 inch
Weight	247 g / 8,71 oz

ORDERING INFORMATION TQC TRIPLE RESERVOIR APPLICATOR

Art. No	
VF1590	TQC Triple Reservoir Film Applicator

Scope of supply: TQC Triple Reservoir Film Applicator, 90µm/150µm



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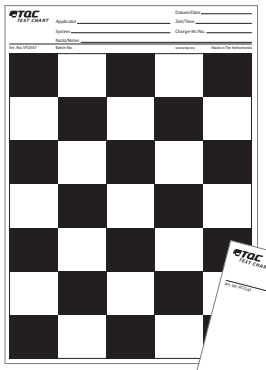
TEST CHARTS

A wide range of consistent test charts for testing physical properties of coating, lacquers and inks. Suitable for determining hiding power, opacity and spreading rate. They come in a variety of dimensions from DIN A6 up to and including DIN A3. All charts are film laminated for an excellent solvent and chemical resistance and an even film spread.
On each chart there is a section for filling out the date, time and test number.

Special designs are possible with quantities over 10.000 pieces per design.



CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

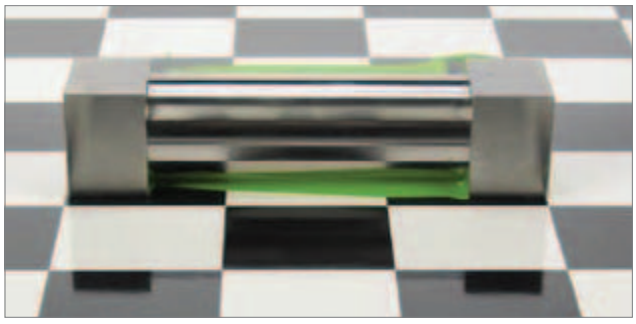
ORDERING INFORMATION TEST CHARTS

Art. No	size	Optical brightener	Pieces per set	Design
VF2354	A3 297x420mm / 16,54x11,69 inch	yes *	250	
VF2345	A4 210x297 mm / 11,69x8,27 inch	yes *	250	
VF2347	A4 210x297 mm / 11,69x8,27 inch	yes *	250	
VF2321	A4 210x297 mm / 11,69x8,27 inch	no	250	
VF2325	A4 210x297 mm / 11,69x8,27 inch	no	250	
VF2344	A5 148x210 mm / 8,27x5,83 inch	yes *	250	
VF2346	A5 148x210 mm / 8,27x5,83 inch	yes *	250	
VF2319	A5 148x210 mm / 8,27x5,83 inch	no	250	
VF2323	A5 148x210 mm / 8,27x5,83 inch	no	250	
VF2343	A6 105x148 mm / 5,83x4,13 inch	yes *	250	
VF2317	A6 105x148 mm / 5,83x4,13 inch	no	250	

Scope of supply: Set of 250 pieces, with certificate
* Certificate only available for charts with optical brightner

FEATURES

- With certificate *
- Excellent solvent
- Chemical resistant
- Even film spread
- Note section



ORDERING INFORMATION TEST CHARTS

ACCESSORIES / SPARES

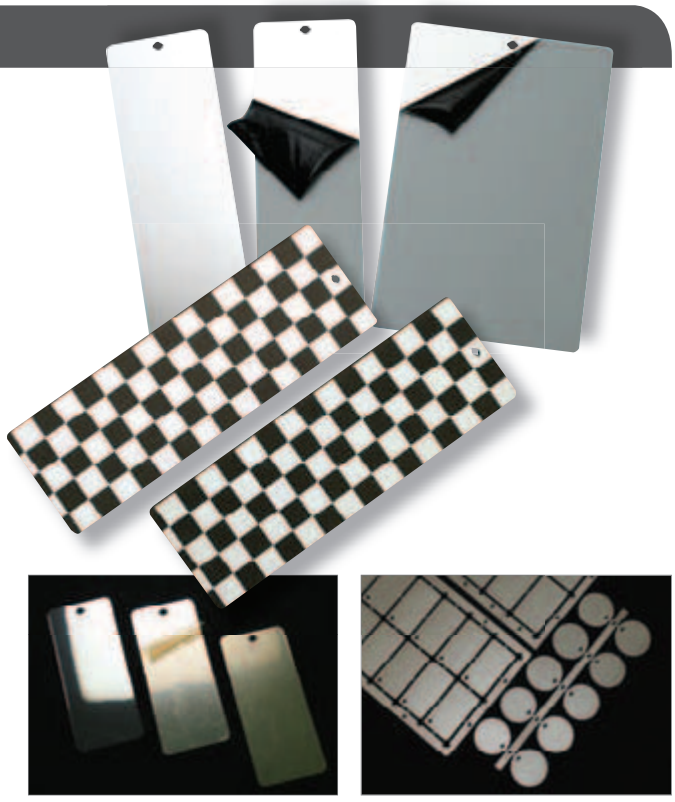
VF1602	TQC Glass Film Application Table, 230 x 160 mm / 9,06x6,3 inch
VF1603	TQC Glass Film Application Table, 300 x 100 mm / 11,81x3,94 inch
VF1601	TQC Glass Film Application Table, 380 x 230 mm / 14,96x9,06 inch

TEST PANELS

TQC Panels are available in a large variety of dimensions, materials and thicknesses. Use of TQC Test panels enhances reproducibility of physical and chemical tests.

Each panel is equipped with a hole for hanging and handling.

Not only standard test panels are available. Special dimensions to customers specifications are possible as well.



FEATURES

- Available in large varieties of dimensions, materials and thickness
- Each panel equipped with hole for hanging and handling

ORDERING INFORMATION TEST PANELS

Art. No	Material	Type	Dimensions	Qty
VF8523	Aluminium	degreased & cleaned	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	500
VF8522	Aluminium	degreased & cleaned	50 x 100 x 0,8 mm / 1,97 x 3,94 x 0,032 inch	1800
VF8518	Aluminium	degreased & cleaned	100 x 300 x 0,5 mm / 3,94 x 11,81 inch	300
VF8517	Steel	degreased & cleaned	150 x 250 x 0,15 mm/ 5,9 x 9,84 x 0,006 inch	450
VF8516	Steel	degreased & cleaned	60 x 140 x 0,5 mm/ 2,36 x 5,5 x 0,02 inch	600
VF8515	Steel	Harmonic degreased & cleaned	120 x 200 x 0,15 mm / 4,7 x 7,87 x 0,006 inch	700
VF8533	Aluminium	degreased & cleaned	60 x 140 x 0,6 mm / 2,36 x 5,5 x 0,02 inch	900
VF8525	Aluminium	chromated Alodine 1000	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	500
VF8524	Aluminium	chromated Alodine 1200	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	500
VF8521	Aluminium	degreased & cleaned	200 x 300 x 0,6 mm / 7,87 x 11,81 x 2,36 inch	150
VF8520	Aluminium	PVC protection	200 x 300 x 0,6 mm / 7,87 x 11,81 x 2,36 inch	150
VF8519	Aluminium	mirror polished-PVC protect	60 x 140 x 0,5 mm / 2,36 x 5,5 x 0,02 inch	500
VF8511	Steel Smooth	degreased & cleaned	75 x 150 x 0,5 mm / 2,95 x 5,9 x 0,02 inch	400
VF8510	Steel Smooth	degreased & cleaned	60 x 200 x 0,5 mm / 2,36 x 7,87 x 0,02 inch	400
VF8513	Steel Matt	degreased & cleaned	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	300
VF8512	Steel Smooth	degreased & cleaned	100 x 200 x 0,5 mm / 3,94 x 7,87 x 0,02 inch	250
VF8526	Aluminium	chromo-free	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	500
VF8527	Aluminium	degreased & cleaned	75 x 200 x 0,8 mm / 2,5 x 7,87 x 0,032 inch	300
VF8529	Aluminium	degreased & cleaned	100 x 200 x 0,6 mm / 3,94 x 7,87 x 0,024 inch	400
VF8530	Aluminium	degreased & cleaned	60 x 140 x 0,6 mm / 2,36 x 5,5 x 0,024 inch	900
VF8531	Aluminium	undegreased	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	500
VF8532	Aluminium	undegreased	75x150x1,0 mm / 2,95 x 5,9 x 0,039 inch	400

Scope of supply: Set panel set, Sturdy box

SAG AND LEVELLING APPLICATOR

The TQC Sag and Levelling Film Applicator is a special film applicator with dual function. One side with 10 gaps from 75 to 300 micron to test the tendency to sag in relation to the film thickness. At the counter side 5 pairs of notches of increasing depth are made to create sets of two film stripes. The merging of the stripes can be evaluated to define the levelling ability. The high-grade stainless steel will not be affected by acid or base elements.

FEATURES

- Dual function: both sag - and leveling
- High-grade stainless steel will not be affected by acid or base elements

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

ASTM D 4400
ASTM D 2801

ORDERING INFORMATION SAG AND LEVELLING APPLICATOR

Art. No	Sagging	Leveling	Material	Dimensions	Weight
VF2246	300, 275, 250, 225, 200, 175, 150, 125, 100, 75 µm	0,25, 0,5, 1, 2 and 4 mm	st. steel	15x28x100 mm/ 0,59x1,1x3,94 inch	72 g / 2,54 oz
VF2247	475, 450, 425, 400, 375, 350, 325, 300, 275, 250 µm	0,25, 0,5, 1, 2 and 4 mm	st. steel	15x28x100 mm / 0,59x1,1x3,94 inch	72 g / 2,54 oz

Scope of supply: TQC Sag and levelling applicator, protective plastic case, calibration certificate

SPIRAL BAR COATER

Stainless steel Spiral applicators with a film width of 320 mm, are round bars, tightly wound with stainless steel wire. The diameter of the wire, in the wound form, regulates the thickness of the coating. The Spiral applicator is ideal for application of (thin) film of thin materials such as sheet of paper or plastic. Also to be used with automatic film applicators.

FEATURES

- Ideal for both manual and automatic application
- Wide range of film thicknesses available
- Corrosion-resistant
- Easy to clean
- Film thickness also available with customer specification

ORDERING INFORMATION SPIRAL BAR COATER

Art. No	Clearance height /gap	Clearance width	Total width	Material
AB3070	plain polished	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3050	4 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3051	6 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3052	8 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3053	10 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3054	12 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3055	14 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3056	16 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3057	20 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3058	24 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3059	30 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3060	34 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3061	38 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3062	40 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3063	50 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3064	56 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3065	60 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3066	76 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3067	100 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3068	120 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3072	150µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3069	200 µm	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel
AB3071	microns on request	320 mm / 12,6 inch	440 mm / 17,32 inch	st. steel

Scope of supply: Spiral bar coater, tube type case

GLASS FILM APPLICATION TABLE

A series of ultra-flat TQC Glass Film Application Tables, designed to draw down sample coatings on test charts with a high degree of reproducibility.

The glass application tables are equipped with a strong clamp to hold down the charts and four rubber feet at the bottom to prevent the glass application table from slipping.

Supplied with rubber top cover for use with specific applicators. To be used with Bird Applicator, Baker Applicator, Quadruplex Applicator, Bar Applicator, and any other type film applicator.

FEATURES

- Ultra flat
- Strong clamp
- Rubber feet prevent slipping
- Rubber top cover included

ORDERING INFORMATION GLASS FILM APPLICATION TABLE

Art. No	Dimensions	Weight
VF1601	380x230x15 mm / 14,96x9,06x0,59 inch	3800 g / 8,38 lbs
VF1602	230x160x15 mm / 9,06x6,3x0,59 inch	1600 g / 3,53 lbs
VF1603	300x100x15 mm / 11,81x3,94x0,59 inch	1300 g / 2,87 lbs

Scope of supply: Glass application table, rubber top cover

ACCESSORIES / SPARES

VF2343	TQC Test charts A6, White/Black B+, with optical brightener, 250pcs	VF2317	TQC Test charts A6, White/Black B-, without optical brightener, 250pcs
VF2344	TQC Test charts A5, White/Black B+, with optical brightener, 250pcs		
VF2345	TQC Test charts A4, White/Black B+, with optical brightener, 250pcs	VF2321	TQC Test charts A4, White/Black B-, without optical brightener, 250pcs
VF2346	TQC Test charts A5, White/Black chequered B+, with optical brightener, 250pcs		
VF2347	TQC Test charts A4, White/Black chequered B+, with optical brightener, 250pcs	VF2325	TQC Test charts A4, Black/White chequered B-, without optical brightener, 250pcs
VF2354	TQC Test charts A3, White/Black chequered B+, with optical brightener, 250pcs		

DISPERSION

Examples are Colloïds, a substance microscopically dispersed evenly throughout another substance, Emulsions, a mixture of two or more immiscible (un-blendable) liquids and Suspensions, a heterogeneous fluid containing solid particles that are sufficiently large for sedimentation. The making of a dispersion is called dispersing.

Paint

In paint technology a dispersion is a mixture of binding materials with a solid or liquid in an other liquid. This fluid is mostly water, while the dispersed substance is divided into very small balls, but not resolved. Dispersion by light scattering is usually milky in color. The dispersions are often used in latex wall paints, which can thus be diluted with water.

Latex

Dispersions are often used in latex wall paints, which can thus be diluted with water.

The homogenity of a dispersion depends on size and weight of particles. To determine the size of particles the use of a Fineness of Grind gauge or grindometer is needed. .

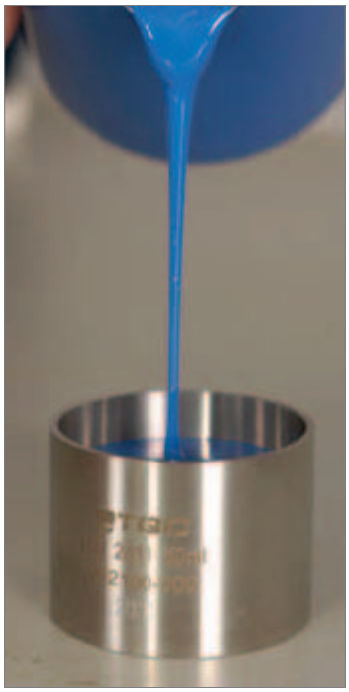
For proper mixing and / or stirring a variety of laboratory and industrial tools are available depending on volume or capacity.

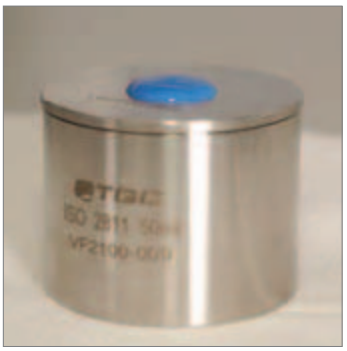
Vision on quality
www.tqc.eu

SPECIFIC GRAVITY CUP / SG-CUP

Specific Gravity Cup for determining the specific gravity or density (or weight per gallon wpg) of coatings, pastes or similar liquids.
Density is defined as weight per unit volume at a specified temperature.
Specific Gravity Cups (or Pyknometers) are available in anodized aluminium and stainless steel, 100 ml and 50 ml.

All models are supplied with a calibration certificate.





FEATURES

- Available in high grade aluminum or stainless steel in
- 100 ml / 3,38 fl. oz and 50 ml / 1,69 fl. oz.
- Easy to clean
- Chemical resistant

STANDARDS

ISO 2811
ASTM D1475
DIN 53 217

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

ORDERING INFORMATION SPECIFIC GRAVITY CUP ISO 2811 DIN 53 217 ASTM D 1475

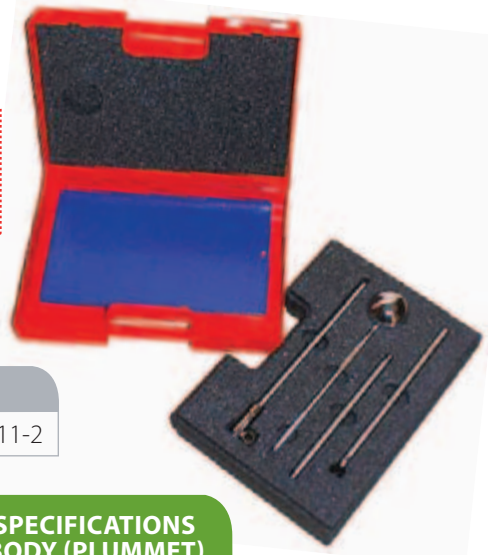
Art. No	VF2098	VF2097	VF2100	VF2099
Volume	50 ml / 1,69 fl. oz	100 ml / 3,38 fl. oz	50 ml / 1,69 fl. oz	100 ml / 3,38 fl. oz
Material	Aluminium	Aluminium	Stainless Steel	Stainless Steel
Weight +/-	61 g / 2,15 oz.	70 g / 2,47 oz.	146 g / 5,15 oz.	198 g / 6,98 oz.

Scope of supply: Specific Gravity Cup, Calibration Certificate

DENSITY BALL

The Plummet method (Immersed body or Density ball) is a universal instrument to determine the density of paints or related products. The method is based on 'Archimedes' principle.
The upward force caused by immersing the plummet into the liquid is read from a laboratory balance and expressed in grams/ml.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED



STANDARDS

DIN EN ISO-2811-2

TECHNICAL SPECIFICATIONS IMMERSED BODY (PLUMMET)

	DV5000	DV5001
Diameter Ball	26 mm	57 mm
Volume	10 ml	100 ml
Diameter neck	1 mm	3 mm
Overall length	260 mm	260 mm
Material	Stainless steel, material No. 1.4035	
Operation temperature	23°C	

ORDERING INFORMATION IMMERSED BODY (PLUMMET)

Art. No	
DV5000	Immersed body (plummet), 10ml
DV5001	Immersed body (plummet), 100ml

Scope of supply:

DV5000 Immersed body (plummet) 10ml, type X incl. certificate and case

DV5001 Immersed body (plummet), 100ml, type C incl. certificate and case

ACCESSORIES / SPARES

DV5002	Stand for immersed body (plummet)

PRESSURE DENSITY CUP (PYKNOMETER)

Density or specific gravity (SG) is affected by entrapped air bubbles in the liquid under test. The TQC VF2095 SG-cup has a fixed internal volume of 100 ml. which is to be compressed by the mechanism of the density cup.
Aerated samples like paint after a process of mixing of shaking have a certain level of entrapped air or gas. Under pressure the air will dissolve better into the liquid and any bubbles that are left undissolved will be compressed to a fraction of their original size.

Density of the liquid is defined at a very high level of repeatability by weighing.

The TQC VF2095 can easily be taken apart in pieces to allow easy cleaning.

TQC Pressure density cup will be available early 2015.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

coming soon

FEATURES

- Minimizes the effect of entrapped air bubbles
- High level of repeatability
- Easy to clean

ORDERING INFORMATION PRESSURE DENSITY CUP (PYKNOMETER)

Art. No	
VF2095	Pressure density cup

GRINDOMETERS – FINENESS OF GRIND GAUGES

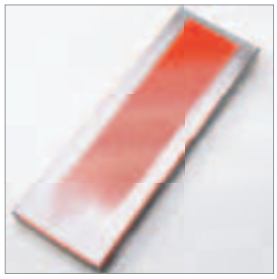
CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

The TQC Grindometers or Fineness of grind gauges are precision instruments to determine particle size and fineness of many materials like paints, lacquers, pigments, filler, chocolate etc.. The TQC Grindometers are available in 2 models, double grooves and wide groove with graded slopes graduated in three different parameters: µm (microns), Hegman (NS)) and North (PCU).

Gauge and bevelled scraper are made of hardened stainless steel and have an accuracy of 2 µm.

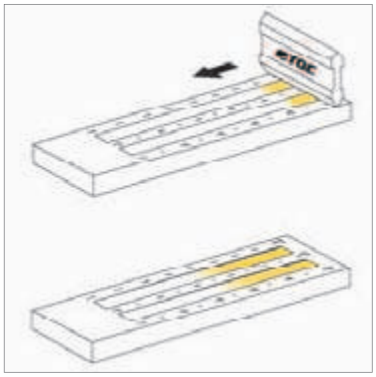
FEATURES

- Available in double groove and wide groove
- Hardened stainless steel
- Corrosion-resistant
- Precision instrument
- Ergonomic shaped scraper, for an easy grip.
- Many models available
- Standard supplied with certificate of calibration



TECHNICAL SPECIFICATIONS GRINDOMETERS – FINENESS OF GRIND GAUGES

Material	Hardened Stainless Steel
Dimensions Base	175x60x12 mm / 6,90x2,36x0,47 inch
Groove length	120 mm / 4,7 inch
Scraper	75x38x8 mm / 2,95x1,50x0,31 inch
Tolerance	+/-2µm / 0,079 mils
Weight Base	968,3 g / 34,16 oz.
Weight Scraper	126 g / 4,45 oz.



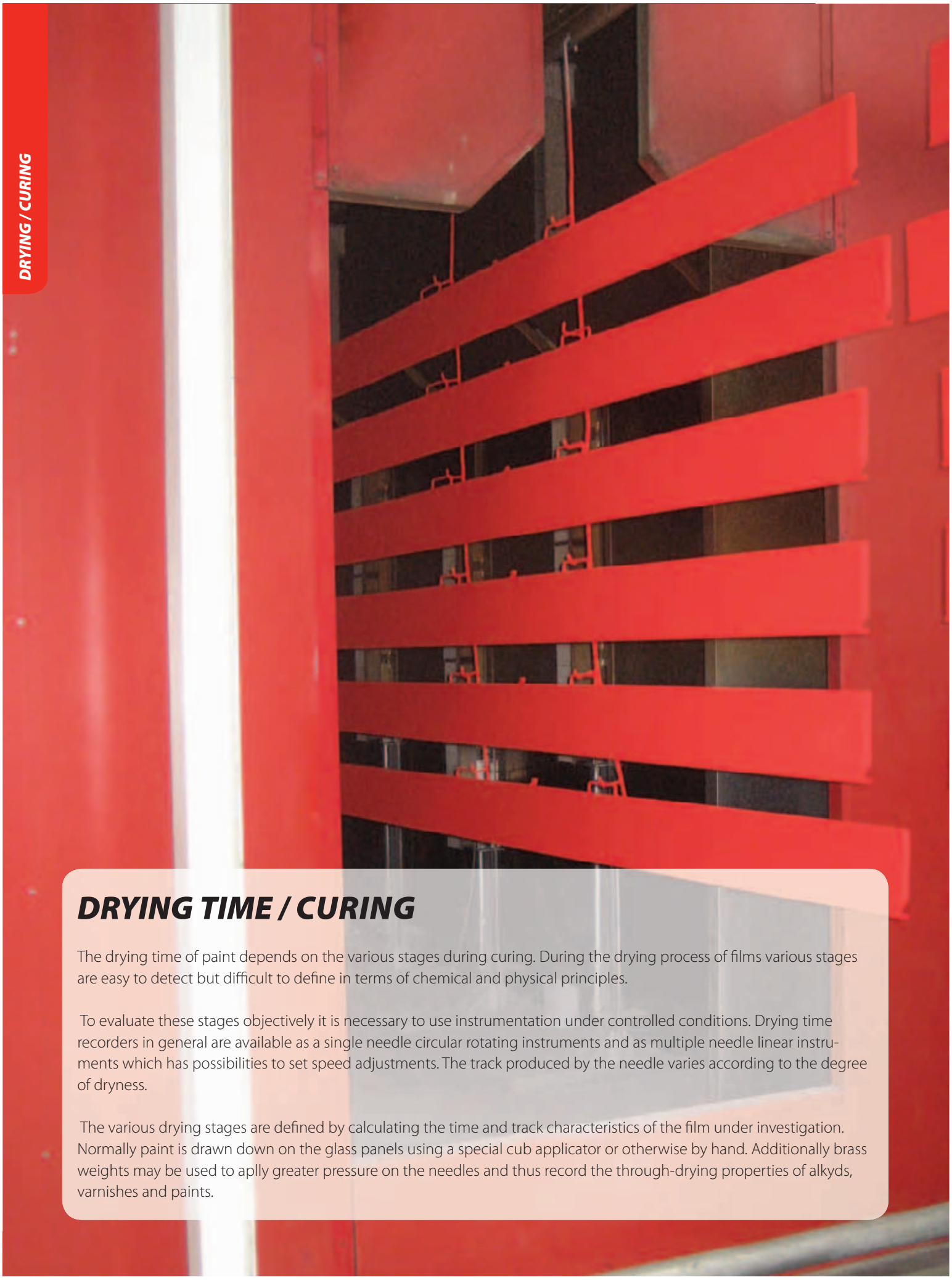
STANDARDS

ASTM D1210
ASTM D1316
DIN 53203
DIN EN ISO
NF21524
FTMS 141 a
M.4411.1
ISO1524
NFT 30 046

ORDERING INFORMATION GRINDOMETERS – FINENESS OF GRIND GAUGES

Art. No	Range µm / mils	Groove	Range PCU (North)	Range NS (Hegman)	Graduation µm / mils
VF2110	0-15 / 0-0,59	Double	10-8,5	8-6,8	1,5 / 0,06
VF2111	0-25 / 0-0,98	Double	10-7,5	8-6	2,5 / 0,1
VF2112	0-50 / 0-1,97	Double	10-05	8-4	5 / 0,2
VF2113	0-100 / 0-3,94	Double	10-0	8-0	10 / 0,4
VF2120	0-15 / 0-0,59	Wide	-	8-6,8	1,5 / 0,06
VF2121	0-25 / 0-0,98	Wide	-	8-6	2,5 / 0,1
VF2122	0-50 / 0-1,97	Wide	-	8-4	5 / 0,2
VF2123	0-100 / 0-3,94	Wide	-	8-0	10 / 0,4

Scope of supply: Pouch, Grindometer, Scraper, Manual, Calibration certificate



DRYING TIME / CURING

The drying time of paint depends on the various stages during curing. During the drying process of films various stages are easy to detect but difficult to define in terms of chemical and physical principles.

To evaluate these stages objectively it is necessary to use instrumentation under controlled conditions. Drying time recorders in general are available as a single needle circular rotating instruments and as multiple needle linear instruments which has possibilities to set speed adjustments. The track produced by the needle varies according to the degree of dryness.

The various drying stages are defined by calculating the time and track characteristics of the film under investigation. Normally paint is drawn down on the glass panels using a special cub applicator or otherwise by hand. Additionally brass weights may be used to aplly greater pressure on the needles and thus record the through-drying properties of alkyds, varnishes and paints.

BK DRYING TIME RECORDER

The BK 3 speed Drying Recorder (Beck Koller method) is used widely in the coatings industry throughout the world for several decades. A needle carrier holding six hemispherical ended needles travels the length of the six 305 x 25 mm test strips in 6, 12 or 24 hours. Other speeds are available to special order. A time scale on the side cover is graduated to suit the three different travel times.

The BK 6 and BK 10 Recorders have independently operating tracks allowing tests to be made at different start times. Pairs of tracks operate at the same speed, and a wide range of travel times are available. A time scale on the front cover is graduated to suit the instrument's drying time ranges. Each pair of tracks has its own individual operating switch.

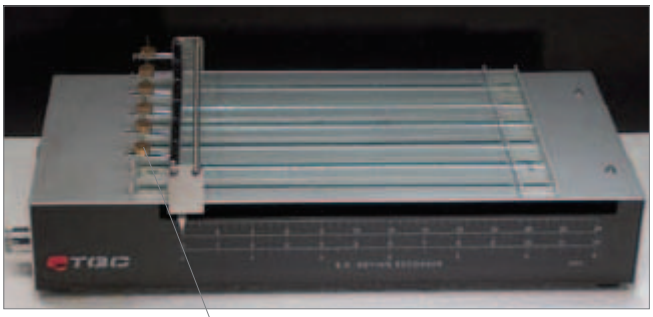
The Recorders define stages in the drying process as:

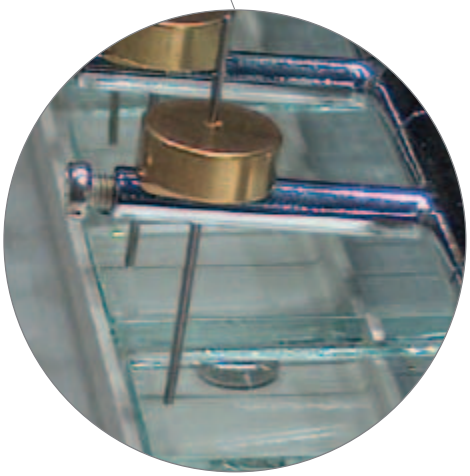
Stage 1 A pear shaped impression corresponding to the time taken for evaporation of solvent.

Stage 2 The cutting of a continuous track, corresponding to a sol-gel transition.

Stage 3 An interrupted track corresponding to the surface-dry time.

Stage 4 The needle no longer penetrates the film, corresponding to the final drying time





FEATURES

- Six hemispherical ended needles
- Length of strips 305 x 25 mm / 12,01 x 0,98 inch graduated front cover
- Travel times of 6, 12, 24 and 48 hours for BK 6 and BK10
- Travel times has to be specified up front
- Customer isn't able to change it themself
- Independently operating tracks for BK6 and BK10

TECHNICAL SPECIFICATIONS BK DRYING TIME RECORDER

Power	220-240 Volts 50 Hz or 100-115 Volts 60 Hz
Material	Metal housing

Applicator

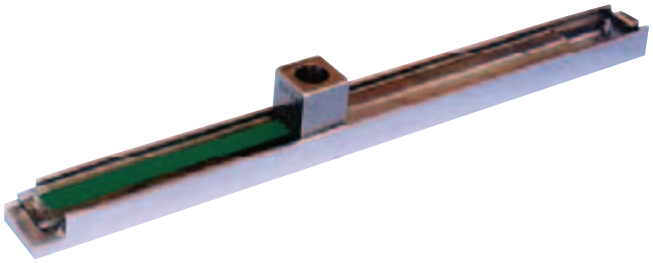
The Applicator is a 25 mm stainless steel cube with a hole drilled centrally from one face through to the opposite face. From each end of this hole a gap 12 mm wide is ground from the hole to one side of the applicator, thus providing 2 gaps per applicator. The applicator is placed at one end of the glass strip with the ground gap facing the end. Paint is poured into the hole and the applicator steadily drawn down the glass strip and off the other end, the gap being the trailing end of the applicator. Paint will flow through the gap depositing a 12 mm wide film on the glass strip.

The standard applicator has a gap depth of 38 microns one end and 76 microns the other, applying a paint film thickness of approximately half the gap size. Any gap depth between 10 and 650 mu can be supplied to suit customer requirements.

Casterguide

The Casterguide is a device for simplifying and "tidying-up" the process of applying the paint film to the glass strip. It consists of a cast aluminium trough with a ledge on each side to carry the glass strip and a step one end to allow the user to hold the strip in place. The applicator is then positioned on the glass strip at the step end and filled with paint as described above. When using the applicator the casterguide ensures that the film is applied centrally and, as the applicator is drawn off the end of the glass strip, the surplus paint is collected in the trough underneath.

This operation may be repeated several times before cleaning is necessary. For this purpose use only suitable solvents, do not use caustic alkali or caustic detergents since these will attack the aluminium metal.



SEE ALSO PAGE 42

STANDARDS ASTM D5895

ORDERING INFORMATION BK DRYING TIME RECORDER

Art. No	VF8000	VF8005	VF8010
Model	BK 3	BK 6	BK 10
Dimensions	470x220x120 mm / 18,5x8,6x4,7 inch	460x350x150 mm / 18,1x13,8x5,9 inch	460x530x150 mm / 18,1x20,8x5,9 inch
Running speed (h)	6, 12 or 24*	12*	12*
Weight	3,4 kg / 7,5 lbs	7,1 kg / 15,6 lbs	11,4 kg, 25,1 lbs
Motor / Speed	1 motor - 3 speeds (speeds from 2 to 72 h)	3 motors 1-speed each (speeds from 2 to 72 h)	5 motors 1-speed each

Scope of Supply: Instrument, 1 set of needles, 1 set of glass strips. *Different speeds are available from 1 to 96 (h)

ACCESSORIES / SPARES

VF8101	Cubic Film Applicator 25 mm, 1 inch (film width 13mm, 5 inch)	VF8105	Needles (standard, pair of 12)
		VF8106	Needles (stainless steel, pair of 12)
VF8102	Caster guide, for use in conjunction with the paint film applicator	VF8107	Needles (Teflon coated, pair of 6), for specialist applications (coated one end).
VF8103	Set of 6 brass weights (5 g, 0.17 oz each), to increase needle load	VF8108	Needles (5mm PTFE ball ended, pair of 6), for specialist applications agnifier 2.5x
VF8104	Glass strips (pair of 12) length 305 x 25 mm, 12.6 x 0.98 inch		

MFFT-MINIMUM FILM FORMING TEMPERATURE BAR

Temperature gradient plate for determining the minimum film forming temperature.
The minimum film forming temperature is the lowest temperature at which an emulsion, latex or adhesive will uniformly coalesce when applied on a substrate as a thin film.

Knowing the MFFT temperature allows formulators to create a product that cures correctly under the required application conditions. The instrument can also be used to define the white point/glass transition temperature of dispersion materials, synthetic resins, enamels etc. and the blocking power and stacking capability of coated papers, foils, prints...

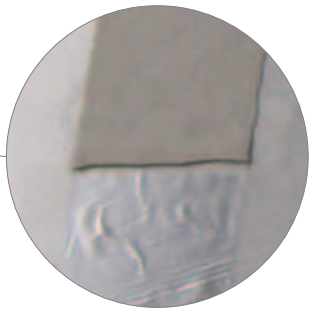
The TQC MFFT TEST is a sophisticated test instrument with a ground hard-chrome plated metal plate as to deposit the specimen. By heating and cooling the plate any variable temperature gradient within the range of -30 to +250 °C (22 to 482°F) can be produced and kept constant for any given period. The platen is equipped with 10 or 20 evenly spread temperature sensors. The temperature is controlled through an integrated digital controller with a digital display and measuring-point selector that covers the whole range. To define the MFFT the specimen is applied on the platen with a film-applicator and protected from ambient conditions through a transparent cover in which a flow of dried air is created to prevent condensation and to assure repeatability. To determine the blocking power the specimens on the platen are weighed by defined loads to simulate the stacking capability.

TECHNICAL SPECIFICATIONS MFFT-MINIMUM FILM FORMING TEMPERATURE BAR

Measurement range	MFFT 10: -5…+80°C / 23 to 176°F with a maximum gradient on the surface of 20°C/68°F MFFT 20: -30…+250°C / -22 to 482°F with a maximum gradient on the surface of 100°C/212°F	Material	SST housing
		Dimensions (L x W x H)	800x350x320 mm, 31,5x13,78 x12,6 inch (with closed cover)
		Plate dimensions (L x W)	Measuring length: 500 mm / 19,68 inch, Measuring width: 180 mm / 7,08 inch
		Power supply	230 V, 50 Hz, 1,5 kW
Accuracy	0,1°C / 32,18°F	Weight	50 kg / 110 lbs
Display	Digital		

FEATURES

- Built in temperature sensors
- Temperature Gradient, 20 K or 100 K depending on Kryostate used
- High precision chromium measuring plate
- Equispaced temperature sensors beneath the surface
- Microprocessor electronic temperature controller
- Digital temperature display and temperature preselection
- Excess temperature protection.
- Display of nominal value and actual value of the temperature of the hot and cold side
- Scroll function to request the temperature measuring stations
- Manual selection of the single temperature measuring stations
- Integrated membrane drying unit with flowmeter
- Hinged open table hood made of PMMA - Poly Methylmethacrylaat, max. working temp. 80°C / 176°F
- Hinged transparent cover
- Stainless Steel and safety glass for temperatures up to 250°C / 482°F



ORDERING INFORMATION MFFT-MINIMUM FILM FORMING TEMPERATURE BAR

Art. No	VF9600	VF9700
Model	MFFT 10	MFFT 20
No. of temperature stations	10	20
Temperature range	-5…+80°C / 23 to 176°F	-30…+250°C / -22 to 482°F
Flow meter	Analog	Digital
Max Gradient	20°C	100°C

Scope of supply: Instrument

ACCESSORIES / SPARES

VF9800	Stainless Steel dripping border for TQC MFFT
VF9801	Low temperature bath for TQC MFFT 20
VF9802	Low temperature bath for TQC MFFT 10
VF0000	Film caster 100 µm, made of plastics, 6 parallel strips each of 20 mm

STANDARDS

DIN ISO 2115
DIN 53366
ASTM D2354
ASTM D1465
ISO 2115
ISO/DIS 4622

CURVEX-2 USB OVEN LOGGER WITH IDEAL FINISH ANALYSIS

The CurveX-2 USB offers easy-to-use, high quality temperature data logging for paint curing ovens. The data logger is fitted with a large display for easy menu-driven operation and quick display of measurement results.

TQC's Ideal Finish Analysis software allows you to analyse the logged data and create detailed reports. These advanced features, together with a wide range of display and printing options, makes CurveX-2 USB the most flexible temperature data logging solution available, excellently suited for both field use and laboratory conditions.

FEATURES

- Easy to use
- Large display
- Menu-driven operation
- Accurate high quality multi-channel temperature data logging
- Measurements, analysis levels and report options fully customizable

STANDARDS ISO 2115

- Plastics
- Polymer dispersions
- Determination of white point temperature and minimum film-forming temperature

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

TECHNICAL SPECIFICATIONS CURVEX-2 USB OVEN LOGGER

Measuring range	-50°C to +1.200°C / -58°F to +2.200°F	Display	Monochrome with backlight
Operating temperature	0°C to 55°C / 32°F to 131°F	Interface	USB
Accuracy	+/-0.3°C / 0.6°F	Housing material	Plastic
Resolution	0.1°C / 0.2°F	Dimensions (L x W x H)	105 x 85 x 30 mm
Channels	6	Power supply	battery 3 x 1,5V, Type AA
Sample interval time	1s to 60 min.	Battery life time	1200 hour continuous use, 10.000 hour in stand-by
Memory	10 batches with 25300, or 1 batch with 253000 readings	Weight	285 g
Languages	English, French, German, Italian, Spanish		

TQC IDEAL FINISH ANALYSIS SOFTWARE

Supported Operating Systems	Windows Vista, Windows 7 and Windows 8 / 8.1	Memory	32MB
		Required Hard Disk space	128 MB
Platform	32b or 64b		

ORDERING INFORMATION CURVE-X2 USB OVEN LOGGER WITH IDEAL FINISH ANALYSIS (OEM)

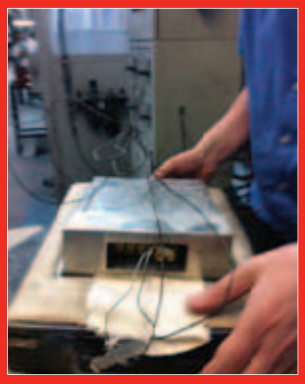
Art. No	
CX1002	CurveX-2 datalogger with software and datacable

Scope of Supply: CurveX-2 USB Oven Logger with Ideal Finish Analysis Software

ACCESSORIES / SPARES

CL0018	Factory calibrated, calibration certificate incl.
CX5010	Ideal Finish Analysis License Key
CM1105	USB cable
CX2100	Probe Identification KIT (Tags numbered 1-6)
CX2110	Hexagonal wrench 2mm

CASE STUDY CURVEX SYSTEM



AGA Rangemaster is a leading international premium consumer which manufactures and distributes some of the best known and loved kitchen appliances and interiors furnishings in the world. Lately they experienced a problem with colour match on one of their enamels.

The Speedometer of the Oven

The CurveX system gives the necessary information on the activities inside the furnace. With the information gathered by the CurveX Datalogger combined with Ideal Finish Analysis software adjustments can be made and money saved.

"We have used it already 50 times to study and balance our furnace. We have before and after curves where we have adjusted a 20 degree difference between the top and bottom of our furnace to 6 degrees. but also evened out cure index and time at temperature, we have found the software very useful for comparing data. We made adjustment to the burners to change the flame lengths to overcome this problem."

Besides changing the temperature and time AGA Rangemaster found out that if the furnace was heavily loaded the temperature curve was affected. This problem was gone un-noticed until they used the CurveX system.

"We are now more self sufficient on setting the furnace burners and much better understanding of the things that can affect the furnace balance. Even to the point where we have calculated the Kg of enamel ware that the furnace can cope with from the Joules available in the gas imput. We could reduce our track rate slightly to ensure we never had a net loss of energy imput to load but have at the moment not made a decision, as it is only under certain circumstance now that the load can exceed the gas."

Now the issue is resolved they will use the datalogger once a week to check the furnace is not drifting back to where they had a problem.

AGA RANGEmaster Group

CURVEX-2 USB OVEN LOGGER STANDARD KIT

Profiling an industrial powder coating oven starts right here with the CurveX-2 USB oven logger standard KIT. It contains all necessary items, just add the desired magnetic or clamp-type probes to make the oven logger KIT complete. The Curve-X2 USB offers easy-to-use, high quality temperature logging for industrial paint and powder coat cure ovens. The oven data tracker is fitted with a large display for easy menu-driven operation and quick display of measurement results.

The main component of the KIT is the CurveX-2 USB an oven temperature data logger that allows the conditions in the oven to be monitored regularly for each substrate. The oven temperature data logger is placed in an insulated box and as it passes through the oven with the work piece and it can measure the temperature in several places on the surface of the product simultaneously. Several probes for measuring the ambient temperature and the temperature of the product can be connected to the data logger. These include magnet, clamp, ring-type and wire probes. In addition to the most common temperature probes, special infrared probes can also be used. The measurements are offloaded to a PC via the oven temperature data logger's USB port and analysed using the Ideal Finish software program.

The included Ideal Finish Analysis software allows you to analyse the logged temperature data and create detailed reports. Advanced oven profiling features like cure data analysis, ideal cure and tolerance bands, together with a wide range of display, report and printing options, make CurveX-2 USB oven logger the most flexible temperature logging solution available.

STANDARDS ISO 2115

FEATURES

- KIT configured to start oven temperature data logging in paint and powder coating curing oven applications, just add your probes to make it complete
- Insulation box with degassed silicone materials suitable for powder coating applications.
- For absolutely silicone free or high temperature applications select your insulation box.
- Document and prove process quality following Qualicoat, GSB, ISO9000, QIB etc. and create outstanding quality, reports with the included advanced analysis software.

Excellent suited for industrial oven and laboratory oven temperature profiling. Mandatory test in Qualicoat, QIB and GSB accredited laboratories.

ORDERING INFORMATION CURVEX-2 USB OVEN LOGGER STANDARD KIT

Art. No	
CX1500	CurveX-2 USB Oven Logger Standard Kit

Scope of supply:

CX1002	CurveX-2 USB Oven Logger with TQC Ideal Finish Analysis Software
CL0018	Factory calibrated, calibration certificate included
CX5010	Ideal Finish Analysis License Key
CX2005	CurveX-2 Stainless Insulation Box
CX2011	Energy Absorber for Insulation Box
CX2100	Probe Identification KIT (Tags numbered 1 to 6)
CX2110	Hexagonal wrench 2mm for CurveX-2
CM1105	USB Cable.
CX4003	Plastic Carrying Case

ACCESSORIES / SPARES

CX2077	Ideal Finish Analysis Software
CM1105	USB Cable
CX2110	Hexagonal wrench 2mm for CurveX-2
CX2100	CurveX probe identification kit (1-6)
CX2101	CurveX probe identification kit (7-12)

CURVEX 3 BASIC OVEN LOGGER KIT

Profiling an industrial powder coating oven starts right here with the CurveX 3 Basic oven logger KIT. It contains all necessary items, just add the desired magnetic or clamp-type probes to make the oven logger KIT complete. The CurveX 3 Basic oven data logger that offers easy-to-use, high quality temperature logging for industrial paint and powder coat cure ovens. The oven data tracker is fitted with three large buttons for easy operation and three LED giving power, paint type, logging and cure information.

The main component of the KIT is the CurveX 3 Basic an oven temperature data logger that allows the conditions in the oven to be monitored regularly for each substrate. The oven temperature data logger is placed in an insulated box and as it passes through the oven with the work piece and it can measure the temperature in several places on the surface of the product simultaneously. Several probes for measuring the ambient temperature and the temperature of the product can be connected to the data logger. These include magnet, clamp, ring-type and wire probes. In addition to the most common temperature probes, special infrared probes can also be used. The measurements are offloaded to a PC via the oven temperature data logger's USB port and analysed using the Ideal Finish software program.

The included Ideal Finish Analysis software allows you to analyse the logged temperature data and create detailed reports. Advanced oven profiling features like cure data analysis, ideal cure and tolerance bands, together with a wide range of display, report and printing options, make CurveX 3 Basic oven logger the most flexible temperature logging solution available.

Excellent suited for industrial oven and laboratory oven temperature profiling. Mandatory test in Qualicoat, QIB and GSB accredited laboratories.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

IDEAL FINISH ANALYSIS Ready

STANDARDS ISO 2115

ORDERING INFORMATION CURVEX-3 BASIC OVEN LOGGER KIT

Art. No	
CX3010	CurveX-3 Basic Oven Logger Kit

Scope of supply:

CX3005	CurveX 3 Basic Oven Logger with TQC Ideal Finish Analysis Software
CL0018	Factory calibrated, calibration certificate included
CX5010	Ideal Finish Analysis License Key
CX2005	CurveX Stainless Insulation Box
CX3050	Insulation Box Logger Bracket
CM1105	USB Cable
GL0103	USB Memory Stick
CX3060	Plastic Carrying Case

ACCESSORIES / SPARES

CX2077	Ideal Finish Analysis Software
CM1105	USB Cable
CX2100	CurveX probe identification kit (1-6)

FEATURES

- KIT configured to start oven temperature data logging in paint and powder coating curing oven applications, just add your probes to make it complete.
- Insulation box with degassed silicone materials suitable for powder coating applications.
- For absolutely silicone free or high temperature applications select your insulation box.
- Document and prove process quality following Qualicoat, GSB, ISO9000, QIB etc. and create outstanding quality reports with the included advanced analysis software.

Vision on quality
www.tqc.eu

CURVEX 3 BASIC OVEN LOGGER WITH IDEAL FINISH ANALYSIS (OEM)

The CurveX 3 Basic oven logger offers easy-to-use, high quality temperature data logging for paint curing ovens. The oven data tracker is fitted with three large buttons for easy operation and three LED giving power, paint type, logging and cure information.

The included Ideal Finish Analysis software allows you to analyse the logged temperature data and create detailed reports. Advanced oven profiling features like cure data analysis, ideal cure and tolerance bands, together with a wide range of display, report and printing options, make CurveX 3 Basic oven logger the most flexible temperature logging solution available.

IDEAL FINISH ANALYSIS Ready

FEATURES

- Operate through only 3 large buttons
- Meaningful feedback of multi coloured LED's
- Factory calibrated for immediate use
- Downloads data through a standard USB port
- Rechargeable battery pack through USB connector
- Large memory of max. 160.000 readings
- Memory for 10 different batches, automatically overwrites the oldest results
- Programmable "paint type" memory for immediate "pass / fail" result
- Flat design, only 16 mm, for use in low clearance ovens
- Compatible with Ideal Finish Analysis software

ORDERING INFORMATION CURVEX 3 BASIC OVEN LOGGER WITH IDEAL FINISH ANALYSIS (OEM)

Art. No	
CX3005	CurveX-3 Basic Oven Logger

Scope of supply: CurveX-3 USB Oven Logger with Ideal Finish Analysis Software, Factory calibrated, calibration certificate included, Ideal Finish Analysis License Key, USB cable

STANDARDS ISO 2115

TECHNICAL SPECIFICATIONS CURVE-X2 USB OVEN LOGGER

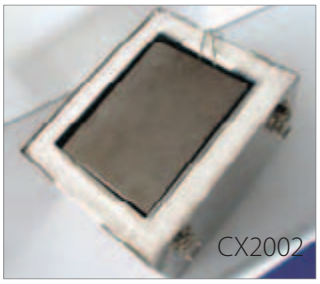
Measuring range	0°C to +500°C / -58°F to +932°F	Interface	USB
Operating temperature:	-20°C to 60°C / -4°F to 140°F	Housing material	Aluminium
Accuracy	+/-1°C / 1.8°F	Dimensions (D x W x H)	100x85x16 mm / 3,94x3,35x0,63 inch
Channels	4	Power supply	rechargeable battery
Sample interval time	1s to 60 min	Battery life time	1200 hour continuous use, 27 years in
Memory	10 batches with 16.000, or 1 batch		stand-by
	with 160.000 readings	Weight	190 g / 6,7 oz
Display	Three multi-colour LED's		

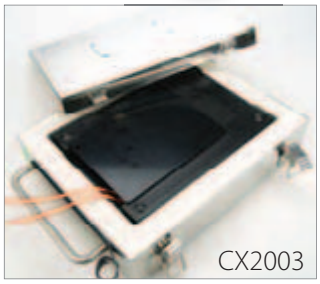
TQC IDEAL FINISH ANALYSIS SOFTWARE

Supported Operating	Windows Vista	Memory	32MB
Systems	Windows 7 and Windows 8 / 8.1	Required Hard Disk space	128 MB
Platform	32b or 64b		

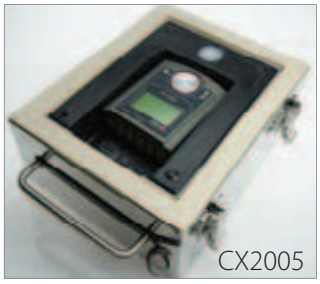
INSULATION BOXES FOR CURVEX

CurveX insulation boxes are specifically designed to protect the CurveX loggers against the harsh environment in industrial ovens. All insulation boxes are made of a polished stainless steel outer box filled with micro porous insulation material to prevent the oven heat to penetrate the aluminium inner box. Inside the aluminium inner box a high density media heat sink collects any excess of heat and keeps the CurveX logger at an acceptable operating temperature for a long period of time. The heat sink thermo energy collecting capacity can be restored by cooling it down after use. This physical process is endless and does not require exchange of the heat sink after a certain period of time.


CX2002


CX2003


CX2004


CX2005

FEATURES

- Excellent logger protection against oven heat.
- Ferro plate for holding the magnet probes when not in use.
- Mounted cable hook allows the storage of surplus cable length.

ORDERING INFORMATION INSULATION BOXES FOR CURVEX-STANDARD

Art. No	Dimensions Depth	Dimensions Width	Dimensions Height	Approximate Weight	Insulation Curve	Heat Sink	Max Temperature
CX2004	240 mm / 9,45 inch	105 mm / 4,13 inch	50 mm / 1,97 inch	1600 g / 3,53 lbs	A	Included	300°C / 572°F
CX2009	240 mm / 9,45 inch	105 mm / 4,13 inch	60 mm / 2,36 inch	1700 g / 3,75 lbs	B	Included	300°C / 572°F
CX2003	255 mm / 10,04 inch	225 mm / 8,86 inch	70 mm / 2,76 inch	2650 g / 5,85 lbs	C	CX2014 *	300°C / 572°F
CX2005	255 mm / 10,04 inch	225 mm / 8,86 inch	140 mm / 5,51 inch	4200 g / 9,26 lbs	D	CX2011 *	300°C / 572°F

* to be ordered separately

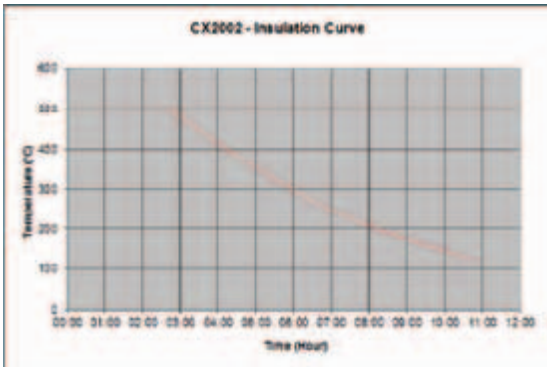
ORDERING INFORMATION INSULATION BOXES FOR CURVEX-ABSOLUTE SILICONE FREE INSULATION BOXES

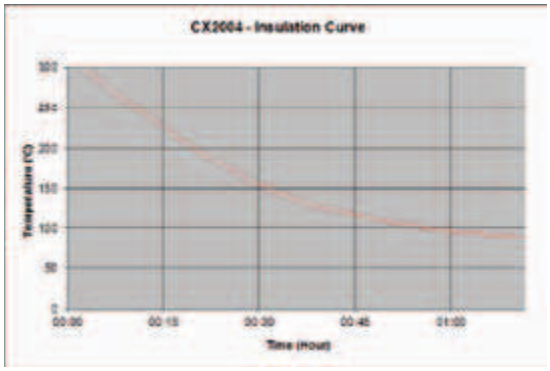
Art. No	Dimensions Depth	Dimensions Width	Dimensions Height	Approximate Weight	Insulation Curve	Heat Sink	Max Temperature
CX2300	240 mm / 9,45 inch	225 mm / 8,86 inch	140 mm / 5,51 inch	4200 g / 9,26 lbs	E	CX2011 *	180°C / 356°F
CX2017	240 mm / 9,45 inch	225 mm / 8,86 inch	140 mm / 5,51 inch	4200 g / 9,26 lbs	F	CX2011 *	500°C / 932°F
CX2002	280 mm / 11,02 inch	230 mm / 9,06 inch	180 mm / 7,09 inch	8000 g / 17,64 lbs	G	CX2011 * CX2012 *	500°C / 932°F

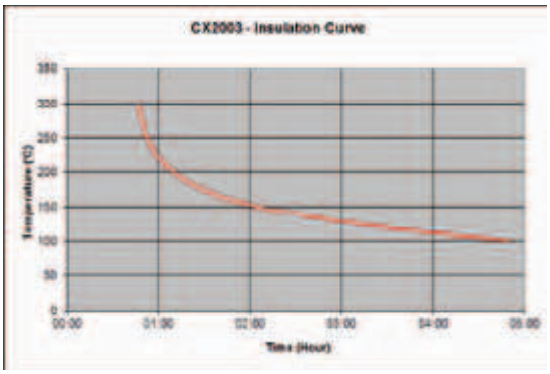
* to be ordered separately

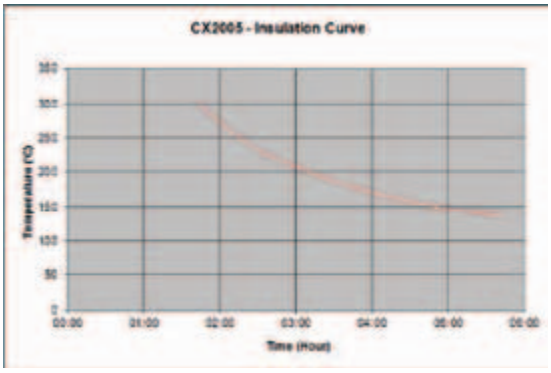
ACCESSORIES / SPARES INSULATION BOXES FOR CURVEX-STANDARD / ABSOLUTE SILICONE FREE

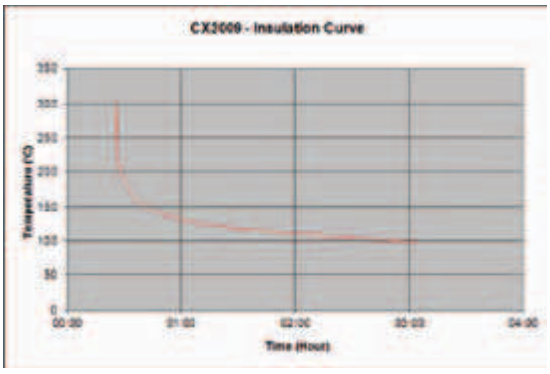
CX2011	Heat sink LDPE for insulation box CX2002, CX2017 and CX2005	CX2013	Heat sink LDPE Add-on module for insulation box CX2002, CX2017 and 2005
CX2012	Extra heat sink for insulation box CX2002	CX2014	Heat sink U-shaped for insulation box CX2003

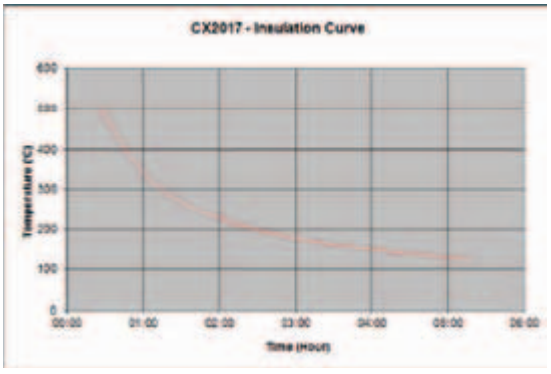


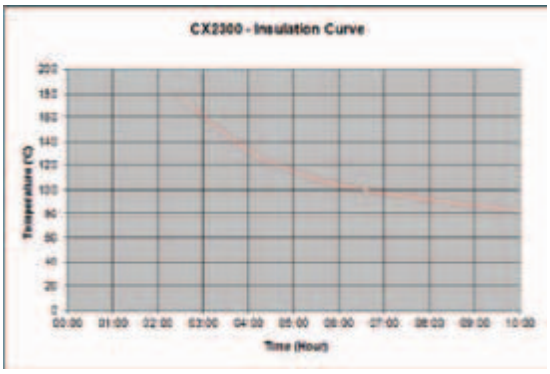












TECHNICAL SPECIFICATIONS ORDERING INFORMATION INSULATION BOXES

Outer box material	Polished Stainless steel
Insulation material	Micro porous silicon dioxide
Inner box material	Anodised aluminium

TEMPERATURE PROBES FOR CURVEX

CurveX temperature probes are specifically designed to measure oven air temperature and the part surface temperature in an oven. All probes are made of premium grade thermo couple K wire, which guarantees the highest accuracy available. High class magnet and springs are used that do not disintegrate or lose force at high temperatures. The various probe types allow measuring on every part regardless of its shape or size.

TECHNICAL SPECIFICATIONS TEMPERATURE PROBES FOR CURVEX

Probe type	Thermo couple K
Connector	K type miniature plug
Material	Nickel-Aluminium Nickel-Chromium
Accuracy	Class I Premium grade

Range	Accuracy	Range	Accuracy
-40°C to 375°C	+/-1.5°C	-40°F to 707°F	+/-0,8°F
375°C to 1000°C	+/-0.4%	707°F to 1832°F	0,4%

ORDERING INFORMATION TEMPERATURE PROBES FOR CURVEX

Art. No	Application	Probe Mounting	Cable Type	Cable Length	Max Temperature
CX2020	Air	Spring clamp	Coiled polyurethane	1500 mm / 59,06 inch	300°C / 572°F
CX2021	Air	Spring clamp	Coiled polyurethane	3000 mm / 118,11 inch	300°C / 572°F
CX2022	Air	Spring clamp	Coiled polyurethane	5000 mm / 196,85 inch	300°C / 572°F
CX2026	Air	Spring clamp	Coiled polyurethane	10500 mm / 34,45 ft	300°C / 572°F
CX2023	Air	Spring clamp	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2024	Air	Spring clamp	Stainless steel braided lead	3000 mm / 118,11 inch	480°C / 896°F
CX2069	Air	Magnet	Coiled polyurethane	1500 mm / 59,06 inch	300°C / 572°F
CX2068	Air	Magnet	Coiled polyurethane	3000 mm / 118,11 inch	300°C / 572°F
CX2073	Air	Magnet	Coiled polyurethane	5000 mm / 196,85 inch	300°C / 572°F

ORDERING INFORMATION PROBES TO MEASURE OBJECT SURFACE TEMPERATURE

Art. No	Application	Probe Mounting	Cable Type	Cable Length	Max Temperature
CX2030	Surface	Spring clamp	Coiled polyurethane sheath	1500 mm / 59,06 inch	300°C / 572°F
CX2040	Surface	Spring clamp	Coiled polyurethane	3000 mm / 118,11 inch	300°C / 572°F
CX2041	Surface	Spring clamp	Coiled polyurethane	5000 mm / 196,85 inch	300°C / 572°F
CX2045	Surface	Spring clamp	Coiled polyurethane	10500 mm / 34,45 ft	300°C / 572°F
CX2046	Surface	Vice clamp	Coiled polyurethane	10500 mm / 34,45 ft	300°C / 572°F
CX2048	Surface	Spring clamp	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2049	Surface	Spring clamp	Stainless steel braided lead	3000 mm / 118,11 inch	480°C / 896°F
CX2050	Surface	Magnet	Coiled polyurethane	1500 mm / 59,06 inch	300°C / 572°F
CX2060	Surface	Magnet	Coiled polyurethane	3000 mm / 118,11 inch	300°C / 572°F
CX2062	Surface	Magnet	Coiled polyurethane	5000 mm / 196,85 inch	300°C / 572°F
CX2061	Air	Magnet	Coiled polyurethane	10500 mm / 34,45 ft	300°C / 572°F
CX2055	Surface	Magnet	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2056	Surface	Magnet	Stainless steel braided lead	3000 mm / 118,11 inch	480°C / 896°F
CX2065	Universal	Ring	Coiled polyurethane	1500 mm / 59,06 inch	300°C / 572°F
CX2066	Universal	Ring	Coiled polyurethane	3000 mm / 118,11 inch	300°C / 572°F
CX2072	Universal	Ring	Coiled polyurethane	5000 mm / 196,85 inch	300°C / 572°F
CX2085	Universal	Ring	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2086	Universal	Ring	Stainless steel braided lead	3000 mm / 118,11 inch	480°C / 896°F
CX2090	Universal	Ring	Inconel tube	1500 mm / 59,06 inch	1000°C / 1832°F
CX2091	Universal	Ring	Inconel tube	3000 mm / 118,11 inch	1000°C / 1832°F
CX2092	Universal	Ring	Inconel tube	5000 mm / 196,85 inch	1000°C / 1832°F
CX2063	Air/Surface	Wire	Coiled polyurethane	1500 mm / 59,06 inch	300°C / 572°F
CX2064	Air/Surface	Wire	Coiled polyurethane	3000 mm / 118,11 inch	300°C / 572°F
CX2067	Air/Surface	Wire	Coiled polyurethane	5000 mm / 196,85 inch	300°C / 572°F
CX2087	Air/Surface	Wire	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2088	Air/Surface	Wire	Stainless steel braided lead	3000 mm / 118,11 inch	480°C / 896°F
CX2093	Air/Surface	Wire	Inconel tube	1500 mm / 59,06 inch	1000°C / 1832°F
CX2094	Air/Surface	Wire	Inconel tube	3000 mm / 118,11 inch	1000°C / 1832°F

ORDERING INFORMATION PROBES TO MEASURE OVEN INFRA-RED AIR TEMPERATURE

Art. No	Application	Probe Mounting	Cable Type	Cable Length	Max Temperature
CX2097	Air	Spring clamp	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2098	Air	Spring clamp	Stainless steel braided lead	5000 mm / 196,85 inch	480°C / 896°F

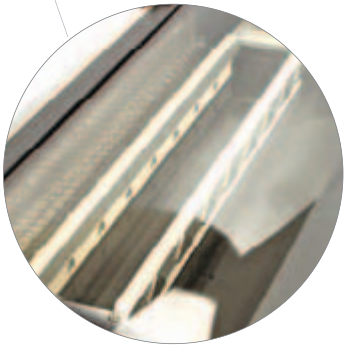
ORDERING INFORMATION PROBES TO MEASURE OVEN INFRA-RED SURFACE TEMPERATURE

Art. No	Application	Probe Mounting	Cable Type	Cable Length	Max Temperature
CX2095	Surface	Spring clamp	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2096	Surface	Magnet	Stainless steel braided lead	1500 mm / 59,06 inch	480°C / 896°F
CX2099	Surface	Magnet	Stainless steel braided lead	5000 mm / 196,85 inch	480°C / 896°F

CUREVIEW - TEST CENTER FOR THERMAL SET CHEMISTRY

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

IDEAL FINISH ANALYSIS Ready



CureView is a test panel gradient oven equipped with 32 individually controlled IR-heaters.

The system makes it possible for researchers and qc-personnel to test coatings, raw materials and chemicals at different temperature levels in one step.

A duplicate of an actual production process (box- or conveyor oven) can be made on a lab-scale. Full flexibility of temperature settings makes it possible to program any form of temperature template varying from a perfect parabolic shaped gradient, an ascending or descending slope or a number of temperature blocks.

The basis

A series of 32 specially developed Quartz tube IR-heaters is positioned under a plate of Schott Nextrema® glass. The customised wavelength combined with a special gold reflector coating results in pinpointed heating. The transmittance spectrum of the Nextrema® forces IR-waves to travel only in vertical direction. This enhances the already pinpointed

FEATURES

- Active cooling zone. Cools down the test panel through peltier elements to optimise turnaround time
- Variable exhaust system removes unwanted vapours and fumes
- Transparent cover allows the operator to visually observe any chemical reactions at different temperatures
- Extremely fast heating up time. Elevated temperatures are virtually instantly generated
- Smooth horizontal panel loaders allow liquids to stay in position during the entire process
- Easy to clean glass work bed

heating pattern of the Quartz tubes allowing large temperature jumps between two adjacent elements.

The test panel is positioned on the glass bed outside the transparent cover and smoothly slides automatically in position. Once arrived in the heating zone a special yoke applies down force on the panel securing a perfect thermal contact between panel and heating zone.

Accurate

IR-heaters can be controlled very precise. However the transition of the IR-heat towards the test panel itself is an uncertain factor. This is addressed by integrating the temperature sensors that control each heater inside the yoke. The reference temperature is now taken at the test panel itself. This guarantees true and reliable test results unaffected by the shape or material of the test panel itself.

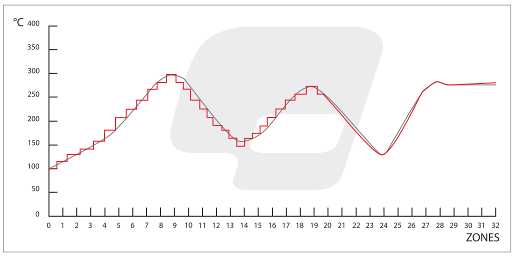
Versatile

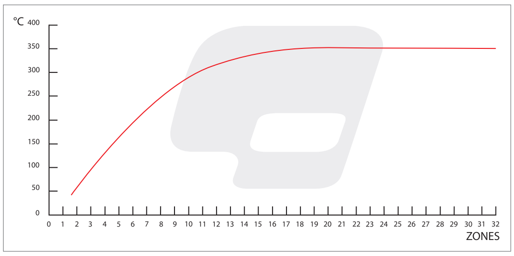
TQC CureView has a wide temperature range varying from ambient to approx. 400°C, to be programmed in up to 32 separate zones. The wide range combined with flexible programming and extreme fast heat-up makes it suitable for a wide variety of testing processes.

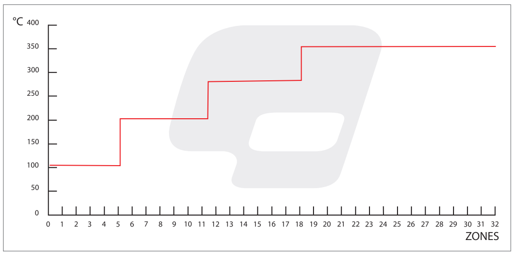
>>>

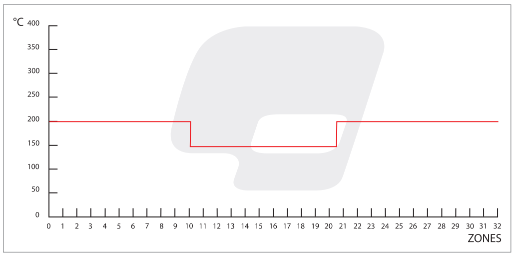
R & D working on the prototype in TQC's Dutch headquarters

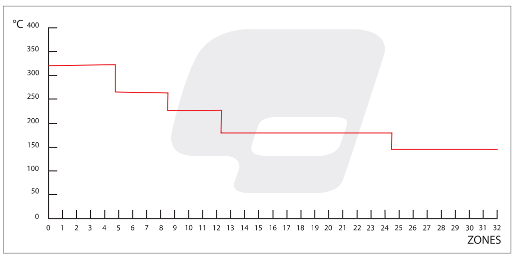
Gradient profiles

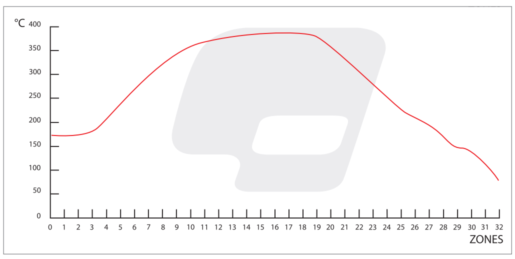












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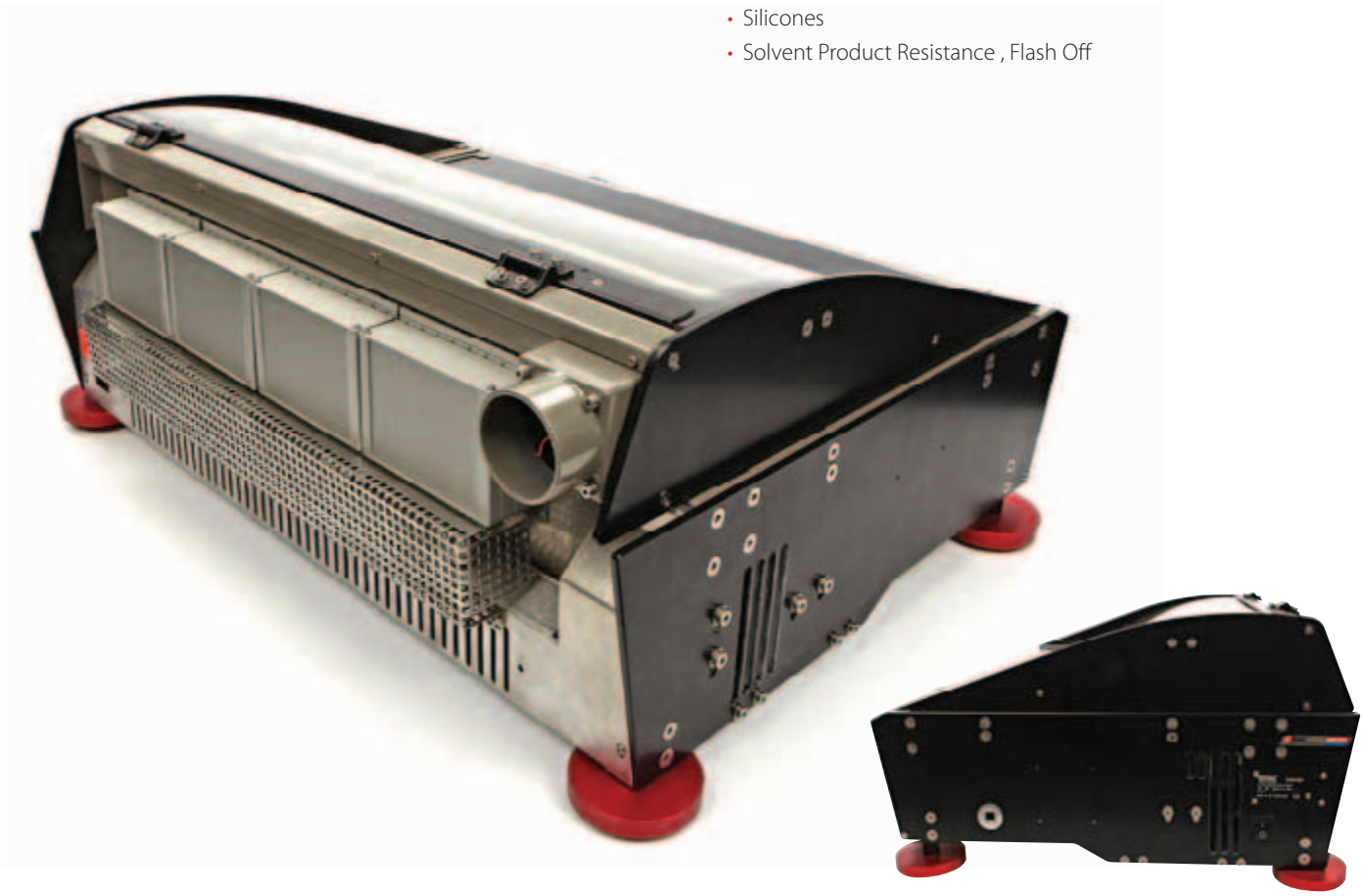
Typical applications of TQC CureView

- Test Heat Exposure
- Test Thermal set cure
- Test Thermal Stability
- Test Chemical Resistivity at elevated temperatures.

Of Resins, additives, pigments, powder coatings, paint & lacquers, silicones etc..

Target Markets and applications :

- Resins Temperature tolerance , performance , stability
- Coatings Cure Process analysis, chemical performance , temperature stability
- Pigments and additives Temperature Stability.
- Catalysts Reaction at Temperature Range , Temperature stability & reaction
- Surface Additives Flow , Levelling and Surface Wetting at temperature ranges
- Flow Initiators Flow , Covering at temperature ranges
- Silicones
- Solvent Product Resistance , Flash Off



ORDERING INFORMATION CUREVIEW - TEST CENTER FOR THERMAL SET CHEMISTRY

Art. No	
AB8000	CureView Test Center for thermal set chemistry

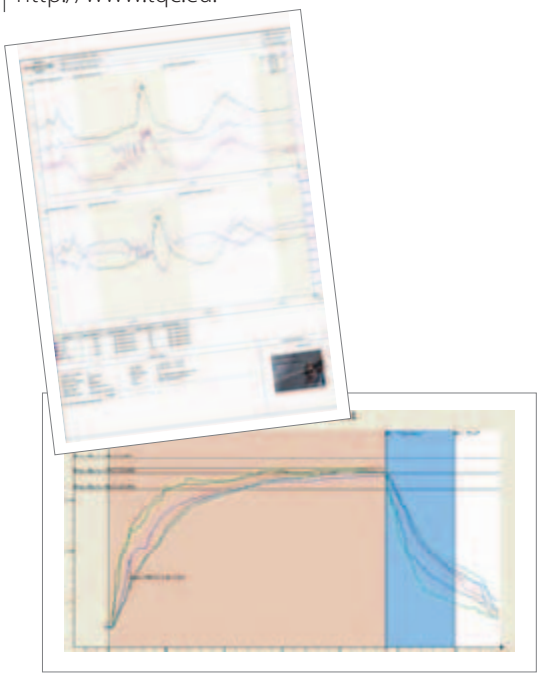
IDEAL FINISH ANALYSIS SOFTWARE

The TQC Ideal Finish Analysis Software is the most advanced coating climate, coating cure and coating thickness monitoring software package available today. With two user levels Ideal Finish Analysis offers user friendly reporting functions for standard production work as well as advanced calculations for in depth analysis of the climate parameters prior to coating, the curing process and oven performance during coating and the thickness after coating. Detailed graphic representations and customizable reports help you to make the right decisions to optimize your production process.

Ideal Finish Analysis is updated frequently to keep up with the latest developments in the coating and corrosion prevention industry and to comply with new operating systems like Windows 7 and Windows 8. The latest version of the software is available for free on our website http://www.tqc.eu.

IDEAL FINISH ANALYSIS Ready

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED



FEATURES

- Windows feel and look
- Integrated context sensitive help
- Easy user settings and download wizards
- Advanced reporting functionality
- 20+ pre-defined calculation on results
- Data export to Excel
- Various graphs and statistics analysis
- Extended's to Visual Basic for Applications
- Advanced reporting in Word and Excel

TIP

The temperature of the different areas of curing ovens can be separately adjusted. However, it is not easy to identify whether the temperature of the product itself and the exposure time will produce the desired results. In the case of powder coatings, if the curing time is too short or the temperature too low, the coating will not crosslink properly.

Other results include orange peel and a lack of adhesion, because the powder crystals have not fused effectively. In the case of paints, under baking leads to poor distribution and cross-linking. Over baking can cause unwanted flow and lack of adhesion or even the disintegration of the coating.

ORDERING INFORMATION IDEAL FINISH ANALYSIS SOFTWARE

Art. No	
CX2077	TQC Ideal Finish Analysis Software on CD with printed manual in box
DC7400	TQC Ideal Finish Analyses Software on CD

ACCESSORIES / SPARES

CX5010	TQC Ideal Finish Analysis License Key

TECHNICAL SPECIFICATIONS IDEAL FINISH ANALYSIS SOFTWARE

Supported Operating Systems	Windows Vista, Windows 7 and Windows 8 / 8.1
Platform	32b or 64b
Memory	32MB
Required Hard Disk space	128 MB

SUPPORTED INSTRUMENTS

Cure	TQC CureView, TQC Curve-X, TQC CurveX-2, TQC CurveX-2 USB, TQC CurveX 3 Basic, Elcometer 215/1 and Elcometer 215/2
Climate	TQC DewCheck 4 and Elcometer 319/2
Thickness	Defelsko PosiTector 6000
Gloss	TQC SoloGloss, TQC DuoGloss, TQC PolyGloss

The TQC Ideal Finish Analysis License Key is free of charge for everyone who purchased one of the Supported Instruments listed above at TQC or through one of TQC's distributors.

PERMEABILITY CUP

Permeability cups for determining the water-vapour transmission of paints, varnishes, coatings, coating systems and related products.

The Permeability cup consists of a cup, seal ring and cover ring. The seal ring is designed to prevent turning when closing the cover.

The Permeability cup is suitable for testing both self-supporting coating and non-self-supporting coatings. Water-vapour transmission is of interest for high humidity conditions. The wet cup method is thus the reference method for determining water-vapour transmission, if agreed up on otherwise, other procedures or conditions the dry cup method may be used.

SEE ALSO PAGE 178

STANDARDS

ISO 7783
ASTM D1653
ASTM E95

FEATURES

- With extra seal
- Easy to clean
- Engraved serial number

ORDERING INFORMATION PERMEABILITY CUP

Art. No	VF2200	VF2201
Area	10cm² / 1,55 inch²	25cm2 / 3,88 inch²
Volume	16cm³ / 0,98 inch³	40cm3 / 2,44 inch³
Material	Anodized aluminium	Anodized aluminium

HARDNESS / SCRATCH / ELASTICITY

Deformation Resistance
Physical properties of paint and coatings play an important role in the quality control. Depending on the application a coating is supposed to be extremely hard and rigid such as for example the coating on the hull of an ice-breaker. Automotive coatings however require a certain flexibility since the thin sheet metal of a car body is not fully rigid and a slamming hood should not cause the paint to break. Coil coated steel that is to be formed into products such as white goods or cladding should have excellent forming properties.

Several empirical tests
There are a number of different empirical tests that are used to deform test panels and so assess the deformation resistance or flexibility. Coatings that fail such a test will crack and/or detach from the substrate. Also there is quite some overlap between different test systems and their results. Many tests provide information about similar parameters such as elasticity / forming resistance, adhesion, hardness, brittleness, stress resistance etc..

Although some tests overlap there is no cross-reference for their results.

Commonly used tests
Common tests used in the paint and coatings industry are:

- *Bend test*
  With this system a coated test panel or lacquered sheet metal is bent over a defined mandrel. Cylindrical mandrels in different diameters or conical mandrels are used.

  The smaller the diameter the sharper the forming of the test panel which leads to elongation of the panel including the coating. A sharper deforming causes more stress to the coating which may lead to cracks or adhesion failure.

  Cylindrical bend test are recognised to be more precise in comparison to conical bend tests which have the advantage that a range of mandrel diameters can be checked on just one panel.

- *Impact Test, or tubular impact test*
  With an impact test a rapid deformation of a painted test panel is generated. A specified weight with a specified punch is dropped on a test panel from different heights. The damage on the sample is observed after the test and provides information about physical properties of the coating such as elasticity, hardness and adhesion.

  For the paint industry there are different tests according ISO 6272 , ASTM D2794 and others. Each standard has its own specifics such as weight, punch shape, direct or indirect impact etc..

- *Cupping test*
  Cupping testers generate, in contradiction to impact testers, a gradual deformation of the sample. An indenter with a specified shape is slowly forced through the test panel under standardised conditions. During the deformation the panel is visually observed. The cupping value of a coating is the deformation point at which the coating starts to crack.
  To perform this test correctly it is of utmost importance that the deformation is made gradually without any interruptions.

Scratch Resistance

The property of a substance that is resistant to repeated rubbing or scratching. In general, it meant the resistance of a (coating) layer or surface against mechanical friction. Abrasion of products is a concept that can't be handled in general. One must explicitly specify the conditions under which the product must be durable.

Any change in wear conditions, the assessment of the wear thoroughly change. In general we distinguish wear as single or repetitive. In the former case, a small contamination in the long run leads to serious damage. By repeating is meant the resistance of a surface under prolonged load. The lowering of the coefficient of friction can give a significant improvement. For the determination of the abrasion resistance it should be practical to approach conditions as much as possible.

Forms of wear or scratch resistance are e.g. brush abrasion testing, rotating abrasion testing, rub testing, sand fall testing and or shear tests.

Hardness

The determination of the reactive resistance, the hardness of a surface of which a coating or alternative protective layer is provided. As with abrasion and scratch resistance there should be an explicit reference given to the hardness meant. Under the hardness of the coatings is in general understood the impression value at which a deformation of the coating occurs. This is determined by pressing sharp or blunt stylus, depending on the material or coating, into the surface.

Another method to measure hardness is the determination of rolling resistance of a coated surface. The equipment required is using spheres that find resistance during the rolling movement on the test surface i.e. Pendulum hardness. The degree of hardness determines on the number of movements by a pendulum roller experiencing resistance during this process.

Other types of hardness tests are, Barcol Impression, Shore A-D, Sclerometer and Wolf-Wilburn pencil scratch resistance determination and Persoz or Konig pendulum hardness testers.

TQC AUTOMATIC PENDULUM HARDNESS TESTER

The TQC Automatic Pendulum Hardness Tester has a lot of unique features that ease defining hardness by the König and/or Persoz method as described in ISO 1522. Both methods work on the principle that the damping time of a pendulum oscillating on a sample indicates the hardness.

The instrument has an easy menu-driven interface with jog dial. The automated electronic counting mechanism is not affected by reflections from the surrounding area. The water-level is located on the test specimen, rather than on the instrument's base. Once the instrument is leveled further calibration is not required. The gas-spring supported transparent draft cover allows easy access to all parts of the instrument.

TQC's Pendulum Hardness Tester is a modular system. The instrument itself can be used for both the König and- Persoz method. Both pendulums should be ordered separately. After placing the correct pendulum, switching between the two measuring methods only takes a push of a button. The Pendulum is positioned fully automatically by means of a stepper motor. Also the release of the Pendulum is automated through electro-magnetic system. The end of a test is indicated by a visual and acoustic signal.

The TQC Pendulum Hardness Tester base device is available as a 100 Volt and a 230 Volt model.

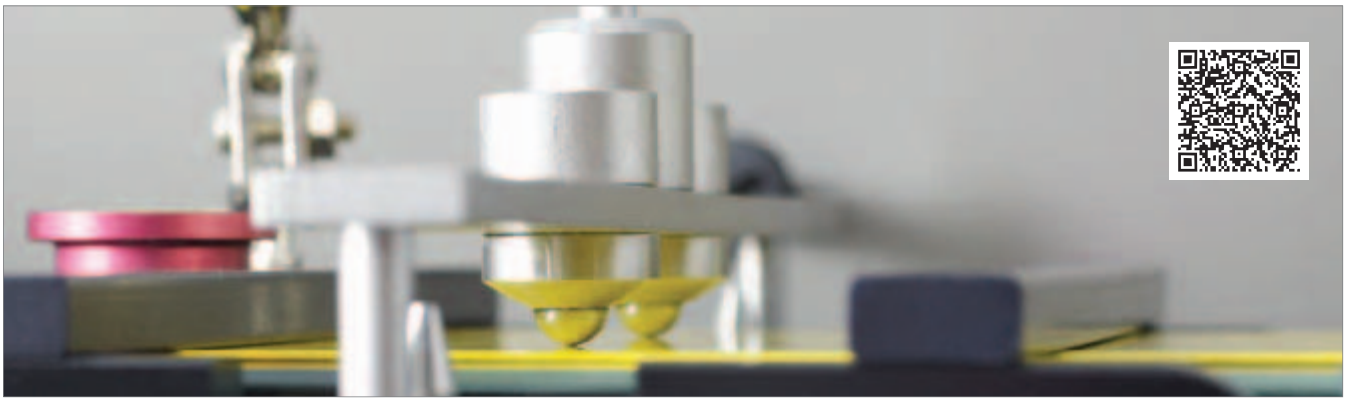
TECHNICAL SPECIFICATIONS TQC PENDULUM HARDNESS TESTER

	SP0500 Base Instrument
Menu language	English, German, French, Spanish, Italian
Display	Blue Illuminated, graphic 100x35 mm / 3,94x1,38 inch, 193x64 pixels
Thickness glass plate	6 mm / 0,24 inch
Material	Stainless steel (front plate and small parts) Powdercoated steel (housing) Anodized aluminum (left panel) Perspex (draft cover)
Dimensions (DxWxH)	430x430x740 mm / 29,1x16,9x16,9 inch (closed cover) 650x430x960 mm / 37,8x16,9x25,6 inch (open cover)
Weight	26 kg / 57,3 lbs

FEATURES

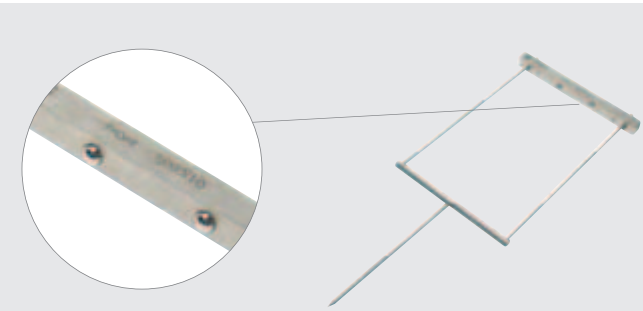
- Suitable for both Persoz and König Tests.
- Switching between methods only takes a push of a button.
- Automatic pendulum positioning
- Easy menu-driven interface with jog-dial.
- The gas-spring supported transparent draft cover allows easy access to all parts
- The spirit level is located on the test specimen. Once leveled further calibration is not required.
  Visual and acoustic signal when test is performed.
- Design 'Solid Supports' to level the instrument.
- Integrated storage of glass plate and pendulum
- To eliminate human errors the release of the pendulum is automated through an electro-magnetic system.
- Easy panel access
- Menu-driven calibration menu eases both Persoz- and König calibration.

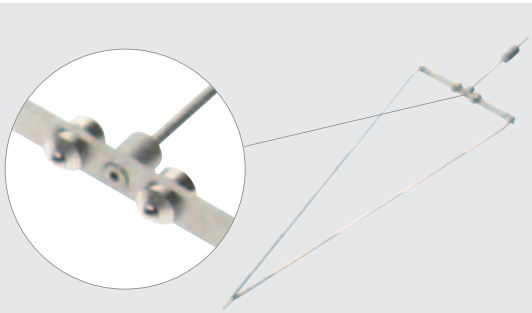
CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED



ORDERING INFORMATION TQC PENDULUM HARDNESS TESTER

Art. No	
SP0500	TQC Pendulum Hardness Tester - Base - power supply 230 V / 50 Hz
SP0501	TQC Pendulum Hardness Tester - Base - power supply 110-120 V / 50/60 Hz





Art. No	SP0510	SP0505
Product description	Stainless steel Persoz pendulum	Stainless steel König pendulum with adjustable weight
Weight	500 g / 17,64 oz.	200 g / 7,05 oz.
Pivot balls	2, made of tungsten carbide, diameter 8 mm / 0,32 inch	2, made of tungsten carbide, diameter 5 mm / 0,2 inch
Distance between pivot balls	50 mm / 1,97 inch	30 mm / 1,18 inch
Oscillation period	1 second	1,4 seconds
Deflections	From 12° to 4°	From 6° to 3°
Damping time (on glass)	Minimum 430 +/- 15 seconds	250 +/- 10 seconds
Counting method	Oscillations = time	Oscillations and time
Number of oscillations		179 +/- 7
Max. sample dimensions	105x200x11 mm / 4,13x7,87x0,43 inch	105x200x8,3 mm / 4,13x7,87x 0,33 inch

Scope of supply: SP0500 Pendulum Tester (base device 230V without pendulums, see accessories) or; **SP0501** Pendulum Tester (base device 100V without pendulums, see accessories) **VF2063** Glass plate panel, Power Cord

ACCESSORIES / SPARES

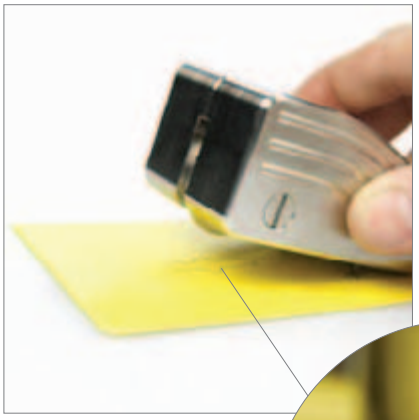
VF2063	Glass plate GP20

BUCHHOLZ HARDNESS INDENTATION TEST

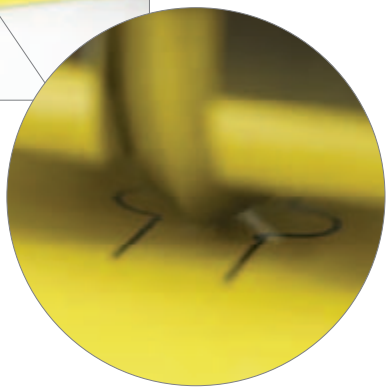
The TQC Buchholz Hardness Indentation Test provides a method for carrying out an indentation test on coatings in comliance with the ISO 2815-2003 standard. The TQC Buchholz Hardness Indentation Test consists of a calibrated slip-on weight with a sharp-edged metal wheel, an illuminated microscope, a level gauge, a digital dual timer, and two markers with template.
The calibrated slip-on weight with specified-edged metal wheel is positioned on the test specimen for a set period of time. The length of the indentation mark in the coating is an indication of the hardness of the surface.
The Buchholz Hardness Indentation Test is a mandatory test in Qualicoat, QIB and GSB accredited laboratories.

FEATURES

- Buchholz indenter is equipped with functional grips allowing gentle placing and lifting of the instrument
- Pins and cutting part of indenter are made of hardened steel preventing wear
- High quality microscope with precision glass optical lenses and strong illuminator allows a clear visibility of the, often hard to see, indentation mark
- Dual timer can be pre-set for both “in-position“ time and “recovering” time
- Separate level gauge allows checking the correct level of the test panel before the test is performed



CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED



ORDERING INFORMATION BUCHHOLZ HARDNESS INDENTATION TEST

Art. No	
SP1900	Buchholz indentation test

Scope of supply: Buchholz Indentation Test, Calibrated slip-on weight with a special cutter, Illuminated microscope with 20x magnification, Level gauge, Digital dual timer, Two markers with template, 3 x AAA batteries

ACCESSORIES / SPARES

SP1935	Template
SP1930	Black marker
SP1931	White marker
LD6170	Surface Microscope 20X
DI0085	Digital Dual Clock Timer

STANDARDS

ISO 2815
BS 30900 E 9
ECCA T12
NF T30-052

TECHNICAL SPECIFICATION S BUCHHOLZ HARDNESS INDENTATION TEST

Material	Stainless Steel
Weight	complete apparatus 1000 +/-5 g / 35.27 +/-0,18 oz. (load upon indentor 500 +/-5 g / 17,63 +/- 0,18 oz.)
Magnification microscope	20 X
Dimensions	78x45x51 mm / 3,07x1,77x2,01 inch

TQC PENCIL HARDNESS TEST ACC. WOLFF-WILBORN

The TQC Pencil Hardness Test according Wolff Wilborn provides in a simple method to test the scratch hardness of coatings. In this test, pencils in a range of 6B to 8H hardness-grade are used. The pencil is moved scratching over the surface under a 45° angle with a constant pressure. Then an optical assessment is carried out to see which pencil hardness damages the surface. Delivered with a set of 20 Koh-i-noor pencils and a pencil sharpener.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Ergonomic design
- Pencil lead at constant angle
- Integrated level indicator
- Available in 3 models

STANDARDS

ISO 15184	BS 3900-E19	NEN 5350
ASTM D3363	SNV 37113	MIL C 27 227
JIS K-5600	SIS 184187	JIS K-5400
ECCA-T4-1		

TECHNICAL SPECIFICATIONS TQC HARDNESS TEST ACC. WOLFF-WILBORN

Art. No	Weight g / oz.	Standard	Calibration certificate	Pencils
VF2377	750 g + 1000 g / 26,5 oz. + 35,3 oz.	ISO 15184, ASTM D3363, JIS K-5400, JIS K-5600, ECCA-T4-1, BS 3900-E19, SNV 37113, SIS 184187, NEN 5350, MIL C 27 227	Included	8B, 7B, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H
VF2378	750 g / 26,5 oz.	ISO 15184, ASTM D3363, JIS K-5600, ECCA-T4-1, BS 3900-E19, SNV 37113, SIS 184187, NEN 5350, MIL C 27 227	Included	8B, 7B, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H
VF2379	500 g / 17,64 oz.	JIS-K5600 (ISO 15184)	Included	8B, 7B, 6B, 5B, 4B, 3B, 2B, B, HB, F, H, 2H, 3H, 4H, 5H, 6H, 7H, 8H, 9H, 10H

ORDERING INFORMATION TQC HARDNESS TEST ACC. WOLFF-WILBORN

VF2377	TQC Pencil Hardness Test according Wolff Wilborn (750 + 1000 g)
VF2378	TQC Pencil Hardness Test according Wolff Wilborn (750 g)
VF2379	TQC Pencil Hardness Test according Wolff Wilborn (500 g)

Scope of supply: TQC Hardness Test acc. Wolff-Wilborn, Set of 20 Koh-I-Noor pencils , Pencil sharpener, Calibration certificate

ACCESSORIES / SPARES

VF1000	Pencil set for Wolff-Wilborn in alu box, 20 pcs 8B - 10H.	VF1003	Pencil sharpener for Wolff-Wilborn

HARDNESS PEN

The TQC Hardness Pen is a pocket instrument for testing the hardness and wear/scratch resistance of materials such as coatings, lacquers, plastics or related products. A tungsten carbide tip is drawn over the surface with a defined constant pressure. The pressure on the tip can be changed using the slide or by changing the spring. A visual mark on the surface after use of the TQC Hardness Pen indicates a fail of the surface hardness or wear/scratch resistance. Can be used on flat and curved surfaces.

The laser-engraved scale is clearly visible on the grey background. The diameter of the tips are Ø1 mm, Ø 0.75 mm (Bosch) and Ø 0.5 mm (van Laar).
The TQC Hardness pen is available in 2 models, the Basic and Pro version. The pro version is supplied with a pen holder guided by two ball bearings and includes all 3 tips. The Basic version is only supplied with the 1mm tip and without pen holder.

TECHNICAL SPECIFICATIONS HARDNESS PEN

Range	0-3 N, 0-10 N and 0-30 N
Material	Anodized aluminium enclosure Probe made of tungsten carbide
Dimensions	Ø 14 to 19 mm, length 175 mm / Ø 0,55 to 0,75 inch, length 6,89 inch
Weight	60 g / 2,12 oz.

FEATURES

- Ergonomic design with anti-slip texture on the holding point
- Made of maintenance-free anodized aluminium, tips in tungsten carbide

STANDARDS	CORPORATED STANDARDS:
ISO 1518	• Bosch
AS 3894.4	• Volvo
EN 438-2	• Opel
SIS 184188	• van Laar

ORDERING INFORMATION HARDNESS PEN

Art. No	
SP0010	TQC Hardness Test Basic
SP0015	TQC Hardness Test Pro

ACCESSORIES / SPARES

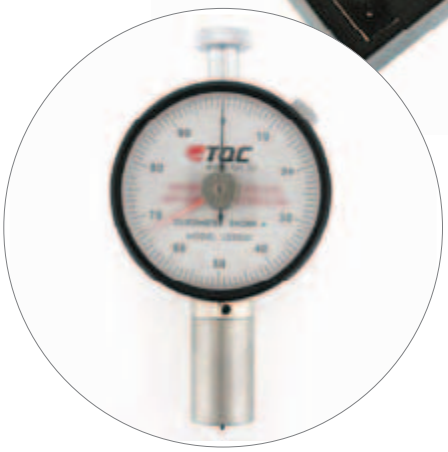
SP0012	Tip for hardness test Diameter 0.5 mm / R=0.25 (acc. to Opel, Volvo, van Laar)
SP0013	Tip for hardness test Diameter 0.75 mm / R=0.375 (acc. to Bosch, Volvo)
SP0014	Tip for hardness test Diameter 1mm/ R=0,5

Scope of supply SP0010: TQC Hardness pen, 3 springs, 1 mm tip, sturdy case

Scope of supply SP0015: TQC Hardness pen, 3 springs, 1 mm tip, 0.5 mm tip, 0,75 mm tip, pen holder with guidance wheels, sturdy case

SHORE HARDNESS GAUGE DIN 53505 ISO 868 ASTM D2240

The TQC Shore Hardness Gauge is a reliable instrument for measuring the impression hardness of soft materials such as coatings, plastics and rubber. Equipped with a drag indicator, which holds the highest measured value. Delivery includes a simple test block.



STANDARDS

ISO 868
ASTM D2240
DIN 53505

FEATURES

- Made of anodized aluminum and stainless steel
- Easy to use
- Versatile, applicable for variety of materials
- Drag pointer gives the maximum reading of the hardness
- Revolving graduation scale
- Test Block included

TECHNICAL SPECIFICATIONS SHORE HARDNESS GAUGE DIN 53505 ISO 868 ASTM D2240

Art. No	LD0550	LD0551
Type	Shore A	Shore D
Application	elastomers, vinyl, rubber, leather, pvc, silicone, teflon, neopreen, etc..	polyester, ABS, nylon, polyurethane, kevlar, acryl, wood, polystyrene etc..
Test Block	25, 50, 75 shore hardness	10 shore hardness
Range	0-100	0-100
Accuracy	0,006	0,006
Material	Stainless steel, anodized aluminium	Stainless steel, anodized aluminium
Dimensions	25x110x60 mm / 0,98x4,33x2,36 inch	25x110x60 mm / 0,98x4,33x2,36 inch
Weight	230 g / 8,11 oz	230 g / 8,11 oz

ORDERING INFORMATION SHORE HARDNESS GAUGE DIN 53505 ISO 868 ASTM D2240

Art. No		Art. No	
LD0550	Shore hardness gauge - Shore A	LD0551	Shore hardness gauge - Shore D
	DIN 53505 ISO 868 ASTM D2240		DIN 53505 ISO 868 ASTM D2240

Scope of supply: Hardtop box, Durometer, Manual, testblock

ACCESSORIES / SPARES

LD0559*	Durometer Test Stand	LD0555	TQC Shore Hardness Testblock Kit, 7 test blocks for Durometer A
LD0554	Weight 4000g Shore D for TQC Stand	LD0556	TQC Shore Hardness Testblock Kit, 3 test blocks for Durometer D

*When test stand is used with the shore D the weight of 4000gr (LD0554) is necessary

SHORE HARDNESS TESTBLOCK KIT

Shore Hardness Testblock Kit with different values of hardness. As a reference check it will indicate if a durometer is operating within tolerances. The indivual test blocks are provided with serial numbers to guarantee incontestable identification. Comes with custom made carrying case.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

ISO 868
ASTM D2240
DIN 53505

FEATURES

- Supplied with certificate
- Every block provided with unique serial number

ORDERING INFORMATION SHORE HARDNESS TESTBLOCK KIT

Art. No	
LD0555	Shore hardness testblock kit (for Durometer A)
LD0556	Shore hardness testblock kit (for Durometer D)

Scope of supply: Test Block, Calibration Certificate, Custom made carrying case

TECHNICAL SPECIFICATIONS SHORE HARDNESS TESTBLOCK KIT

LD0555	TQC Shore Hardness Testblock Kit, 7 test blocks for Durometer A
Range	30, 40, 50, 60, 70, 80 and 90 shore hardness
Dimensions	54 mm x 54 mm x 8 mm / 2,13 x 2,13 x 0,32 inch
Calibration Certificate	included

LD0556	TQC Shore Hardness Testblock Kit, 3 test blocks for Durometer D
Range	60, 75, and 85 shore hardness
Dimensions	51 mm x 51 mm x 9,5 mm / 2,01 x 2,01 x 0,37 inch
Calibration Certificate	included

SHORE HARDNESS GAUGE TEST STAND

The TQC Shore Hardness Gauge Test Stand is suitable for Shore A, C, and D* type Durometer. The test stand construction includes operating handle, adjustable glass stage, (height) adjustable Durometer fixture. With this test stand hardness tests of rubber or plastics with a Durometer can be performed more accurately and reproducibly.

When this Test stand is used with TQC Shore D meter an extra weight of 4000 g / 141,1 oz. is necessary.

STANDARDS

ISO 868
ASTM D2240
DIN 53505

FEATURES

- Suitable for use with LD0550 (Shore A) and LD0551 (Shore D) Shore gauges
- Adjustable Glass test bed.

TECHNICAL SPECIFICATIONS SHORE HARDNESS GAUGE TEST STAND

Material	Nickel plated steel, glass, aluminium
Dimensions	160x114x290 mm / 6,3x4,5x11,4 inch
Weight	5720 g / 201,77 oz.

ORDERING INFORMATION SHORE HARDNESS GAUGE TEST STAND

Art. No	
LD0559	TQC Shore Hardness Gauge Test Stand (for Durometer shore A + D)

ACCESSORIES / SPARES

LD0554	Extra weight 4000 g / 141,1 oz. Necessary when test stand is used with TQC Shore D meter
LD0550	Shore Durometer A
LD0551	Shore Durometer D

BARCOL HARDNESS TESTER

Simple, portable instrument for testing the hardness of materials acc. to ASTM D2583.

When pressure is applied to the device, a point penetrates the material and the degree of hardness is displayed on a dial, which is graduated from 0 to 100.

FEATURES

- Easy-to-use
- Portable
- For metals, hard plastics etc
- With conversion table into Brinell, Vickers & Rockwell B, E, F, H

TECHNICAL SPECIFICATIONS BARCOL HARDNESS TESTER

Material	Aluminium
Dimensions	14 x 8mm / 0,55 x 0,31 inch
Weight	496 g / 17,5 oz

STANDARDS

ASTM D2583

ORDERING INFORMATION BARCOL HARDNESS TESTER

Art. No	
VF6500	Barcol Hardness Tester

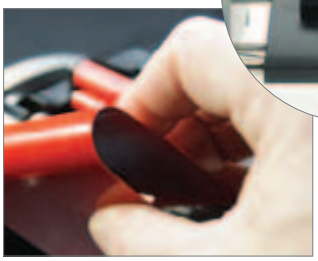
Scope of supply: Barcol Hardness Tester

ACCESSORIES / SPARES

VF6505	Test Disc tbv Barcol tester (43-48)
VF6506	Test Disc tbv Barcol tester (87-89)

TQC CYLINDRICAL BEND TEST 100 MM / 3,94 INCH INCL MANDREL SET

The TQC Cylindrical Bend Test is used to determine the elasticity adhesion and elongation of paint on sheet metal in accordance with ISO 1519. A test panel (max. size 150x100 mm / 5,91x3,94 inch) is bent over a cylindrical mandrel. The smaller the diameter of the mandrel, the larger the tension on the coating. The test panel is then checked for cracks or damage in the coating. The luxurious desktop holder with 14 mandrels can also be wall mounted. Mandatory test in Qualicoat, QIB and GSB accredited laboratories



FEATURES

- Sturdy apparatus made of a combination of anodized aluminium and stainless steel.
- Ergonomic clamping device for test panels and large knob on bending arm easy and smooth bending.
- Large test panel size: max. 150x100 mm / 5,90x3,94 inch
- Luxurious wall mounted / desktop mandrel holder

STANDARDS

ISO 1519
ASTM D522

TECHNICAL SPECIFICATIONS TQC CYLINDRICAL BEND TEST 100 MM / 3,94 INCH INCL MANDREL SET

Art. No	SP1820	SP1822
	Metric	Imperial
Mandrels	14	7
Mandrel size	2, 3, 4, 5, 6, 8, 10, 12, 13, 16, 19, 20, 25 and 32 mm	1/8, 1/4, 3/8, 1/2, 5/8, 3,4, 1 inch
Min. testpanel size	105 mm on a 2 mm mandrel 120 mm on a 32 mm mandrel	(4,1 inch on a 1/8 inch mandrel) (4,7 inch on a 1 inch mandrel)
Max. testpanel size	150 mm on a 2 mm mandrel 190 mm on a 32 mm mandrel	(5,90 inch on a 1/8 inch mandrel) (7,4 inch on a 1 inch mandrel)
Max. testpanel thickness	1 mm	0,04 inch
Material	aluminium, stainless steel	aluminium, stainless steel
Weight	4150 g	146,39 oz.
Dimensions	140x170x340 mm	5,51x6,69x13,39 inch
Mandrel Holder	100x130x160 mm	3,94x5,12x6,3 inch

ORDERING INFORMATION TQC CYLINDRICAL BEND TEST 100 MM / 3,94 INCH INCL MANDREL SET

SP1820	TQC Cylindrical bend test - Metric	SP1835	Mandrel set (14 pcs) metric
SP1822	TQC Cylindrical bend test - Imperial	SP1833	Mandrel set (7 pcs) imperial

Scope of supply: TQC Cylindrical Bend Test 100 mm / 3,94 inch, Holder with set of mandrels

ACCESSORIES / SPARES

TQC Panels are available in a large variety of dimensions, materials and thicknesses. Use of TQC Test panels enhances reproducibility of physical and chemical tests. Each panel is equipped with a hole for hanging and handling.
Both standard test panels and special dimensions to customers specifications are available.

CONICAL BEND TEST

The TQC Bend Test Conical Mandrel is a laboratory apparatus to bend coated test panels over a conical shaped mandrel in order to assess the elasticity or resistance of a coating-, paint or varnish to cracking, elongation and/or detachment from a metal test panel in accordance with ISO 6860 and ASTM D522. The conical shap of the bending area allows the deformation of the test panel and examination of the elasticity range of a coating over any diameter between 3.1 and 38 mm / 0,12 to 1,50 inch in one single test.

The TQC Bend Test Conical Mandrel is available in two types, the Pro and Basic. The Basic edition is a simplified version of the TQC Conical Bend Test "Pro". The sample panel of the Pro is secured to the apparatus by means of a quick lever handle that lock and unlocks the panel in a split second using just hand. The sample panel of the Basic is secured by means of two clamping knobs which has to be tightened and untightened by turning respectively clockwise or anti-clockwise.

SP1830

SP1831

FEATURES

- Sturdy apparatus made of a combination of anodized aluminium and stainless steel
- Large knob on bending arm for easy and smooth bending
- Quick lock panel clamp (SP1830 only)

STANDARDS

ISO 6860
ASTM D522

TECHNICAL SPECIFICATIONS CONICAL BEND TEST

	SP1830 - Pro	SP1831- Basic
Material	Aluminium and Stainless Steel	Aluminium and Stainless Steel
Mandrel range	3,1 to 38 mm / 0,12 to 1,50 inch	3,1 to 38 mm / 0,12 to 1,50 inch
Test panel size	100x180 mm / 3,94x7,09 inch	100x180 mm /3,94x7,09 inch
Max. panel thickness	0,8 mm / 0,03 inch	0,8 mm / 0,03 inch
Sample panel securement	quick lever handle	Two clamping knobs (turn to (un)tighten
Apparatus dimensions	110x250x150 mm / 4,33x9,84x5,91 inch	110x270x100 mm / 4,33x10,63x3,94 inch
Weight	4200 g / 148,15 oz.	3300 g / 116,4 oz.

ORDERING INFORMATION CONICAL BEND TEST

SP1830	Conical bend test - Pro	**SP1831**	Conical bend test - Basic

Scope of supply: Conical Bend Test Pro or Basic

TQC AUTOMATIC CUPPING TESTER

TQC Automatic cupping tester to perform a cupping (Erichsen / Dent) test on coated steel panels to define the resistance of paint, varnish or related products to cracking and/or detachment from a metal substrate when subjected to gradual deformation by indentation under standard conditions.

The test is either used as a "pass / fail" test by testing to a specified depth or defining the minimum depth at which a coating fails by gradually increasing the indentation.

The ISO1520 standard requires panels to be slowly deformed at a steady rate between 0,1 mm/s and 0,3 mm/s without interruption. Especially with thicker steel panels hand-operated testers not always allow an uninterrupted deformation.

The TQC Automatic cupping tester is driven by a micro-step controlled electro motor which allows precise and steady deformation with 0,01 mm steps. Operation is intuitive by means of a jog-dial switch and a multi-lingual operating menu on a large illuminated display.

An integrated LED powered sample illumination system comforts examining the coating under test. To guarantee maximum visibility of all possible types of surface including high gloss, matte or coloured samples the angle of the LED light can be set. Choose light from just one or all directions. The strength of the LED's is adjustable but also the colours can be changed to achieve maximum contrast.

Mandatory test in Qualicoat and QIB accredited laboratories.

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

FEATURES

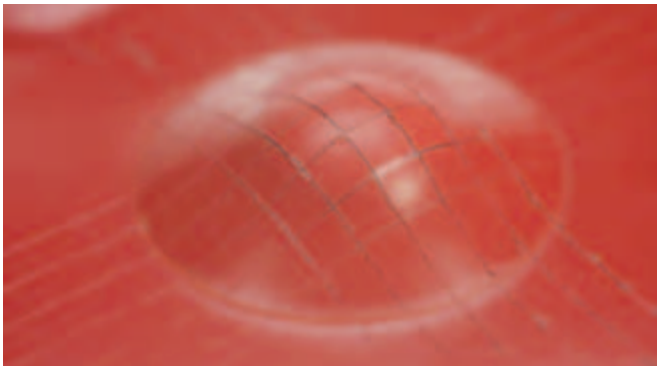
- Easy-to-use
- Motor driven punch
- Adjustable instrument orientation to ensure an ergonomic work position
- Manual- or preset deformation
- Flexible LED sample illumination. Set direction, intensity and color.
- Automatic zero-point calibration
- Acoustic and visual alarms
- Optional USB microscope with automatic focusing bracket
- Multiple languages

STANDARDS

ISO 1520
DIN 1520
DIN 53156
DIN 53232
BS 3900-E4
NBN T22-104
NFT 30 019

TECHNICAL SPECIFICATIONS TQC AUTOMATIC CUPPING TESTER

Art. No	SP4300	SP4305
Indenter Speed	0,01 – 0,70 mm/s	0,0004 - 0,028 inch/s
Stroke length	0 - 12 mm	0 - 0,47 inch
Max. panel width	max. 100 mm	max. 3,94 inch
Max. panel thickness steel	max. 0,8 mm	max. 0,03 inch
Max. panel thickness aluminium	max. 1,2 mm	max. 0,05 inch
Safety	Emergency Button, integrated Acoustic Alarm	Emergency Button, integrated Acoustic Alarm
Function	Jog Shuttle knob by Rotation / Pushing	Jog Shuttle knob by Rotation / Pushing
Material	Powder coated sheet metal, stainless steel, aluminium	Powder coated sheet metal, stainless steel, aluminium
Indenter Speed accuracy	+/- 1% of set speed	+/- 1% of set speed
Stroke length accuracy	+/- 0.01 mm	0,0004 inch
Menu languages	English, German, French, Italian and Spanish	English, German, French, Italian and Spanish
Power Supply	230V | 50 Hz	110 – 120 V | 50/60 Hz
Power consumption	max. 80 Watt	max. 80 Watt
Display	Blue Illuminated, graphic 100 x 35 mm, 193 x 64 pixels	Blue Illuminated, graphic 3,94 x 1,38 inch, 193 x 64 pixels
Dimensions	450 x 350 x 600 mm	17,72 x 13,78 x 23,62 inch
Net weight	31 kg	68,5 lbs



ORDERING INFORMATION TQC AUTOMATIC CUPPING TESTER

Art. No	
SP4300	TQC Automatic Cupping Test 230V/50Hz
SP4305	TQC Automatic Cupping Test 110V/50/60Hz

Scope of supply: Automatic cupping test, reference panel, optical tool support rod, optical tool mount, power cord, manual

ACCESSORIES / SPARES

Art. No	
SP4330	Reference panel for TQC Auto Cupping Test 100mm
SP4331	Reference panel for TQC Auto Cupping Test 105mm

Scope of supply: Automatic cupping test, reference panel, optical tool support rod, optical tool mount, power cord, manual

MANUAL CUPPING TEST

Revolutionary apparatus for testing the resistivity of coatings at various stages of deformation in accordance with ISO 1520. The built-in gearbox minimizes the manual force which is required to deform the test panel, allowing to perform a smooth deformation. The degree or deformation is digitally displayed at a resolution of 0.01 mm.

Mandatory test in Qualicoat, QIB and GSB accredited laboratories.

FEATURES

- Low effort operation
- Minimal manual force required due to built-in gearbox
- Digital indicator
- Ergonomic and compact design
- Small Footprint
- On request left hand model available

STANDARDS

ISO 1520
BS 3900 E4

ORDERING INFORMATION MANUAL CUPPING TEST

Art. No	
SP4400	Manual Cupping Test

Scope of supply: TQC Manual cupping test, Digital micro meter, Calibration plate, 1mm Allen key, User manual

ACCESSORIES / SPARES

SP4410	digital indicator
SP4420	calibration plate

TECHNICAL SPECIFICATIONS MANUAL CUPPING TEST

Materials	Anodized aluminum, Stainless steel, Powdercoated steel, Tungsten Carbide steel
Max. sample thickness	2 mm / 0,08 inch(steel or aluminum)
Max. sample width	95 mm / 3,74 inch
Max sample length	infinite
Punch diameter	20 mm / 0,78 inch hardened steel
Die diameter	27 mm / 1,04 inch hardened steel
Gauge resolution	0,01 mm / 0,0039 inch
Cupping Range/Stroke	15 mm / 0,59 inch
Displacement per revolution	0,48 mm / 0,02 inch per handle revolution
Instrument Height	370 mm / 14,57 inch (excl. lamp/magnifier)
Instrument diameter	230 mm / 9,06 inch (excl. lamp holder)
Cylinder Diameter	236 mm / 9,29 inch
Base diameter	300 mm / 11,8 inch
Total weight	1600 g / 56,44 oz.

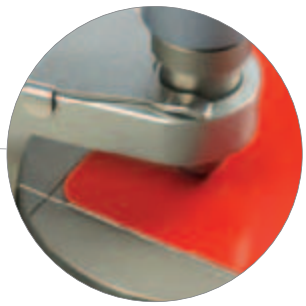
ORDERING INFORMATION TEST PANELS

Art. No	Material	Type	Dimensions	Qty
VF8523	Aluminium	degreased & cleaned	75 x 150 x 0,8 mm / 2,95 x 5,9 x 0,032 inch	500
VF8522	Aluminium	degreased & cleaned	50 x 100 x 0,8 mm / 1,97 x 3,94 x 0,032 inch	1800
VF8518	Aluminium	degreased & cleaned	100 x 300 x 0,5 mm / 3,94 x 11,81 inch	300
VF8517	Steel	degreased & cleaned	150 x 250 x 0,15 mm/ 5,9 x 9,84 x 0,006 inch	450

For more Test panels see page 46..

IMPACT TEST

The TQC Impact Test is used to determine the impact resistivity and flexibility of coatings. The three scale instrument is equipped with a special guidance which assures that the distance between each impact is always according to the standard. For correct positioning a spirit-level is built-in. Each Impact test comes as a complete set (instrument and accessoires) to perform a test.
Mandatory test in Qualicoat, QIB and GSB accredited laboratories.



FEATURES

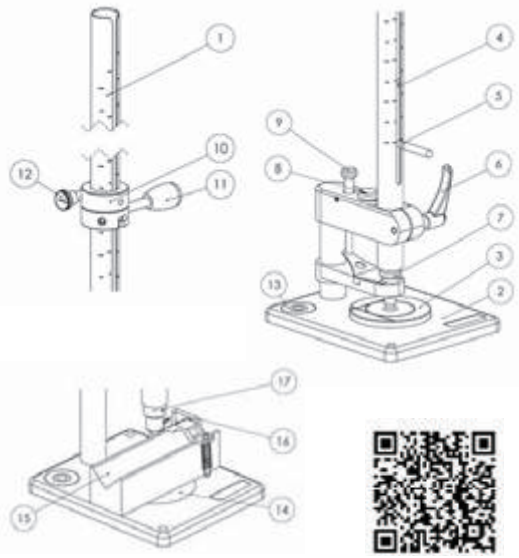
- The triple scale instrument is equipped with a special guidance which assures that the distance between each impact is always according to the standard.
- For correct positioning a spirit-level is built-in.

STANDARDS

DIN-EN-ISO 6272
ASTM D2794
ASTM G14

TECHNICAL SPECIFICATIONS IMPACT TEST

		SP1880	SP1890	SP1891	SP1895
1	Guide tube	•	•	•	•
2, 6, 13	Base plate assembly with bubble level	•	•	•	•
3	Die 16.3 mm	•		•	
3	Die 27.0 mm		•	•	
4	Weight 1 kg	•		•	
5	Weight Lifting Pin	•	•	•	•
7	Punch 15.9 mm	•		•	•
8	Punch 12.7 mm	•			
9	Lifting pin to release punch	•			
10, 11, 12	Release collar	•	•	•	•
14, 15, 16	V shaped notch vise with spring clamp				•
17	Weight with punch 20 mm		•	•	



ORDERING INFORMATION IMPACT TEST

Art. No	
SP1880	TQC Impact Test according to ISO 6272-2 and ASTM D2794, Type: Indirect Impact Tester, Content: Base plate assembly, guide tube, release collar, punch Ø12.7 mm / 0.5 inch , punch Ø15.9 mm / 0.625 inch, weight 1 kg, die Ø16.3 mm / 0.63 inch
SP1895	TQC Impact Test according to ASTM G14, Type: Direct Impact Tester, Content: Base plate assembly, guide tube, release collar, punch Ø15.9 mm / 0.625 inch weight 1.361 kg and a V-notch vise with spring clamp to hold the pipe
SP1890	TQC Impact Test according to ISO 6272-1, Type: Direct Impact Tester, Content: Base plate assembly, guide tube, release collar, clamp device, ball Ø20 mm, die 27mm, weight 1 kg / 2.2 lbs
SP1891	TQC Impact Test according to ISO 6272-1 and ASTM D2794 (before 1993), Type: Direct Impact Tester, Content: Base plate assembly, guide tube, release collar, clamp device, ball Ø20 mm, die 27mm, weight 1 kg / 2.2 lbs, ball Ø15.9 mm / 0.62 inch, die 16.3mm / 0.63 inch, weight 0.9 kg / 2 lbs

WET ABRASION SCRUB | WASHABILITY TEST

TQC Automatic Washability Test to perform an Abrasion and washability scrub test on coated panels to define the resistance of paint, varnish or related products to scratching, wear and colour- and gloss loss due to wet or dry scrub abrasion. Simulating every day wear from cleaning actions or general use. Also suitable for testing plastics, woodpanels, kitchentops, white goods etc..

The test is either used as a "pass / fail" test by testing to a specified number of strokes or defining the minimum number of strokes at which a coating fails by checking at regular intervals.

The TQC wet abrasion scrub testers are also suitable to test the performance of cleaning agents and compounds.

Many standards require dry or wet abrasion and scrub test to be performed to determine the quality of coating. Like the EN 13300 for example. This standard defines a quality ranking for interior coatings to wet abrasion.

The TQC Automatic Washability Tester is driven by a micro-step controlled electro motor which allows precise and steady speed and sinus wave form control. Operation is intuitive by means of a jog-dial switch and a multi-lingual operating menu on a large illuminated display.

The two integrated pumps allow the user to test two fluids simultaneously. Per pump two test beds are fed and can be controlled separately. This allows the TQC Automatic Washability Tester to be used both in coating industry and detergent industry. The adjustable tool carrier allows the user to safely perform test on a wide array of samples.

STANDARDS

ISO 11998
ASTM F1319
ASTM D2486
ASTM D3450
ASTM D4213
ASTM D4828
ASTM D4213-96

FEATURES

- Easy intuitive operation
- Digital setting of liquid dosing, speed, stroke length and test duration
- Multiple stroke speeds
- Four test stations
- Two integrated fluid pumps incl. ramping
- Two separate trays to prevent cross-contamination
- Eight user programmable default settings
- High adjustable yoke
- Variety of tools to address a wide selection of standards
- Multiple languages
- Adjustable tool carrier
- Adjustable stroke length

TECHNICAL SPECIFICATIONS WET ABRASION SCRUB | WASHABILITY TEST

Basic Unit			
Power Supply	110-120 V | 50/60 Hz 230 V| 50 Hz	Stroke speed	1 – 60 strokes / minute*
Power consumption	max. 80 Watt	Stroke length	20 - 300 mm / 0,8 - 11,8 inch*
Display	Blue Illuminated, graphic 100x35 mm / 0,22x0,08 inch, 193x64 pixels	Max. panel width	max. 80 mm per channel
Safety	Emergency Button, integrated Acoustic Alarm	Max. panel length	max. 350 mm / 3,15 inch
Function	Jog Shuttle knob by Rotation / Pushing	Max. panel thickness	max. 35 mm / 1,4 inch in the middle of the sample track
Indenter Speed accuracy	+/- 1% of set speed	Stroke speed and Length achievable	depend on the tools used.
Pump Speed accuracy	+/- 1% of set speed	Dimensions	350x350x650 mm / 25,6x13,8x13,8 inch
Stroke length accuracy	+/- 0.01 mm / 4 mil	Net weight	approx. 3,5 kg / 7,72 lbs

AB5010

AB5011

AB5012

AB5013

ORDERING INFORMATION WET ABRASION SCRUB | WASHABILITY TEST

Art. No	AB5000	AB5005
Power Supply	230 V | 50 Hz	110-120 V | 50/60 Hz

Scope of supply: Automatic washability test, Two test beds, Two sample clamps, Tubing and fluid container set, Power cord, Manual

ACCESSORIES / SPARES

Art. No	Standard	Description
AB5010	DIN 53778	Wild Boar Brush, with Weight 60g / 0.13 lbs
AB5011	ASTM D2486	Nylon Brush, with Weight 60g / 0.13 lbs and Weight 100g / 0.22 lbs
AB5012	ASTM D4213-92 / D4828	Sponge with Weight 60g / 0.13 lbs and Weight 100g / 0.22 lbs
AB5013	ISO 11998	Abrasive pad (without weights)
AB5020	-	Universal material clamp tool
AB5014	-	Weight 60g / 0.13 lbs
AB5015	-	Weight 100g / 0.22 lbs
AB5016	-	Set of 5 spare abrasives for Tool AB5013
AB5017	-	Spare wild boar brush for tool AB5010
AB5018	-	Spare Nylon brush for tool AB5011
AB5019	-	Set of 5 spare sponges for Tool AB5012
AB5025	ASTM D2486	Metal Shims for ASTM D2486 small (set of 4)
AB5027	ASTM D2486	Metal Shims for ASTM D2486 large (set of 4)

SHEAR SCRATCH TESTER - TABER

Motorised instrument for testing the resistance to scratching of materials. A sample plate rotates while a conical diamond point is pressed on the sample plate. The relation between the depth of the scratch and the applied (pre-set) pressure indicates the hardness.

FEATURES

- Constant speed motor
- Balanced, calibrated scale beam
- Variable load from 0 - 1000 g / 0 - 35,27 oz.
- Adjustable gage block tests up to 12,5 mm / 0,5 inch thick specimens
- Soft touch ON/OFF switch
  Interchangeable tools

TECHNICAL SPECIFICATIONS TABER SHEAR SCRATCH TESTER

Material	Aluminium, Stainless Steel
Weight	13 kg

ORDERING INFORMATIONTABER SHEAR SCRATCH TESTER

Art. No	
TB2000	Taber 551 Shear/Scratch Tester–5 rpm (230V,50Hz)

Scope of supply: 500 g / 17,6 oz. Calibrated Weight (2 each), S-20 Precision Ground Tungsten Carbide Tool, Conical Diamond Tool, 10 x Measuring Magnifier, Spirit Bubble Level, Hex Wrench

ACCESSORIES / SPARES

Contour Shear Tool (Honda and Toyota requirements), Diamond Scratch Tool (converging point 3 sides of cube), Scratch Tip, 1,0 mm / 0,039 inch diameter hemisphere, Diamond Standardization Plates, Scale Beam Height Extension Kit, 15N Scale Beam Fixed Weight

ABRASER - TABER

Taber Abrasion is used to determine relative resistance to abrasion defined as 'the ability of a material to withstand mechanical damage' such as rubbing, scraping or erosion.

The Taber Abraser is an industry standard used in the wear and durability testing of parquet, metals, leather, textiles, rubber, lacquered surfaces, carpets, coatings etc..
Single or dual versions available. A wide range of accessories and options is available.

Complies with virtually all relevant international standards such as Normen.

FEATURES

- Platform speeds 60 and 72 rpm
- Quick Release Wheel Hub
- Balanced, calibrated arms and wheel mounts
- Vacuum system with precision height adjustment
- Rugged aluminium housing
- Membrane control panel with digital display
- Precision stainless steel weights
- Accessory electrical receptacle

STANDARDS

EN 438-2	ASTM D3884	BS 3900
EN 660-2	ASTM D4060	DIN 52347
EN 13329:E	ASTM D4685	DIN 53109
EN 13672	ASTM D4712	DIN 53754
EN 13696	ASTM D5146	DIN 53799
EN 14431	ASTM D5324	DIN 68861 T2
EN 14864	ASTM D6037	ISO 7784-2
EN-ISO 5470-1	ASTM D7255	ISO 9352
ASTM D1044	ASTM F362	TAPPI T476
ASTM D3389	ASTM F510	NEN 1857
ASTM D3730	ASTM F1478	

TECHNICAL SPECIFICATIONS TABER ABRASER

Material	Aluminium, Stainless Steel

ORDERING INFORMATION TABER ABRASER

Art. No	T80156	T80157
	Taber 5135 Single Head Abraser Set	Taber 5155 Dual Head Abraser Set

Scope of supply: Taber Abraser, Auxiliary weights 500 g load and 1000 g load, Specimen holder (E100-125), Hold down ring (E-100-101)
Refacing Discs (S-11), Specimen mounting card sample package (S-36), Calibrade Abrading wheel set (CS-10), Calibrade Abrading wheel set (H-18)

ACCESSORIES / SPARES

Calibration / Verification kit, Sample cutter, Wheel refacer, Quiet cabinet, Grit feeder, Scuffing head attachment, Multi-media attachment
Interchangeable specimen tables, Arm height extension kit, Selection of abrading wheel sets, Test accessories, Haze kit

LINEAR ABRASER - TABER

The TABER® Linear Abraser is designed to test virtually any size or shape specimen, the Linear Abraser is ideal for material properties of contoured surfaces and finished products.

Initially developed to evaluate wear resistance, this instrument can also be used to evaluate scratch resistance (single or multiple pass), color transfer (commonly referred to as crocking or a crockmeter), and perform coin scrape tests. Plus, with the universal or a custom attachment, 'real world' testing and other forms of material durability can be performed. The Linear Abraser can be used for both wet and dry testing.

FEATURES

- Eleven stroke lengths (5 to 100 mm / 0,2 to 4,0 inch)
- Variable stroke speed from 2 - 75 cycles per minute
- Preset stroke speed buttons for 2, 15, 25, 30, 40, 60 cycles per minute
- Variable load from 350 - 2100 g / 12,35 - 74,1 oz. with optional weight discs
- Stainless Steel Wearaser Collet for use with virtified or resilient Wearsers
- Laser alignment guide
- Programmable up to 999,999 cycles
- 115 V / 230 V switchable

TECHNICAL SPECIFICATIONS TABER LINEAR ABRASER

Material	Aluminium, Stainless Steel

ORDERING INFORMATION TABER LINEAR ABRASER

Art. No	
TB0165	Taber 5750 Linear wear resistance tester

Scope of supply: Wearaser collet and spline shaft (350 g / 12,35 oz.), 250 g / 8,82 oz. weight discs (3 ea.), CS-10 wearasers (pkg. 10), H-18 wearasers (pkg. 5) Power cords (115 V & 230 V), Hex L-key tool, Wearaser depth gauge tool, S-14 refacing strips (pkg. 50), Hand brush

ACCESSORIES / SPARES

Wide selection of abradants:, Calibrase CS-8, CS-10F, CS-10, CS-17, Calibrade H-10, H-18, H-22, H-38, T-slot universal table, Auxiliary weight discs (10, 20, 50, 75, 100, 150, 250 g / 0,35, 0,70, 1,76, 2,65, 3,53, 5,29, 8,82 oz.), Light weight spline kit, Jumbo wearaser collet, Universal attachment, Scotchbrite Abrasive pad kit, Brass brush holder, Wire/cable scrape, Magnetic stripe abrasion kit, Scratch tips (call for additional information), Coin holder attachment, Pencil hardness scratch kit, Multi-mar scratch attachment

OSCILLATING ABRASION TESTER ABRASION - TABER

The Taber® Oscillating Abrasion Tester – Model 6160 is also known as an "oscillating sand tester".
Described in ASTM F735, The Taber® Oscillating Abrasion Tester is used to measure the resistance of a material to surface abrasion and scratching. Its primary application is for transparent materials and coatings in lenses and windows. However it can also be used to evaluate materials such as organic coatings, plastics, metals etc.

FEATURES

- Adjustable stroke lengths 0.25" to 6.0"
- Variable stroke speed from 100 – 200 cycles per minute
- Stainless steel specimen tray (9 1⁄2" x 12" x 2 1⁄2" deep)
- Vibration isolator mounts 115V/230V switchable

ORDERING INFORMATION OSCILLATING ABRASION TESTER ABRASION - TABER

Art. No	
TB0180	Taber 6160 Oscillating Abrasion Tester

CONCRETE INSPECTION HAMMER (MECHANICAL)

Instrument for testing the quality of concrete and other construction materials.

The recoil-force of the automatic hammer is displayed on the scale and indicates the strength of the concrete.
For analysing concretes with a minimum resistance of 10 N/mm2 to values as high as 110 N/mm2, which are now achievable with the ingredients and mixes available today.

FEATURES

- For materials acc. To UNI EN-12504-2 and ASTM C805

TECHNICAL SPECIFICATIONS CONCRETE INSPECTION HAMMER (MECHANICAL)

Impact energy	2,207 Nm
Measuring range	10-110 N/mm2
Limitations: Sp.	>100mm
Weight	1800 gr.

ORDERING INFORMATION CONCRETE INSPECTION HAMMER (MECHANICAL)

Art. No	
LD0500	Concrete Inspection Hammer (Mechanical)

Scope of supply: Concrete test hammer equipped with instruction manual with MpA –psi curves, notepad, pencil, abrasive grindstone, position template, Phenolphthalein atomizer, Phenolphthalein label precautions, padded case with shoulder-strap, calibration and TQC certificate and transport safety cap.

APPEARANCE

Appearance is the common situation where surface influences meet visual differences in perception of gloss and color. The impact of different gloss levels does have a great influence on a product as well on its color. The surface quality of a coated surface is often assessed by measuring gloss. Poorly applied coatings or cured paints will show a variety of gloss levels.

Different focuses

Gloss terms are divided in two different groups: •focus on the reflected image of an object on the surface
- focus on the illuminated surface of an object

Focus on reflected image is further divided in	*Focus on surface is related to*
• specular gloss • haze • image clarity • DOI (Distinctness of Image)	• long-term waviness • short-term waviness

Focus on the reflected image obtains information on how distinct the object is reflected and may appear brilliant or diffuse depending on the specular gloss of the surface. If a surface has a high gloss level but seems milky or has a halo around the image of the reflected object than this is an indication of haze. These terms are defined in ASTM E 284 Terminology of Appearance. Gloss measuring instruments are identified by reference to the incidence angles, most 20, 60 and 85° respectively high, medium and low gloss surfaces and expressed in GU (Gloss Units). Alternatively angles of 45 and 75° are used in specific markets.

Visual Perception

The visual perception of color changes under influence of gloss. In order to match the color of a product has to be:
- compared by visual means like RAL, NCS or similar standards, or
- viewed under different light sources in a color-matching booth, or
- measured using spectrophotometers.

Color depends on three objective aspects: •spectral composition (light)
- spectral reflectance (reflection)
- spectral response of the eye.

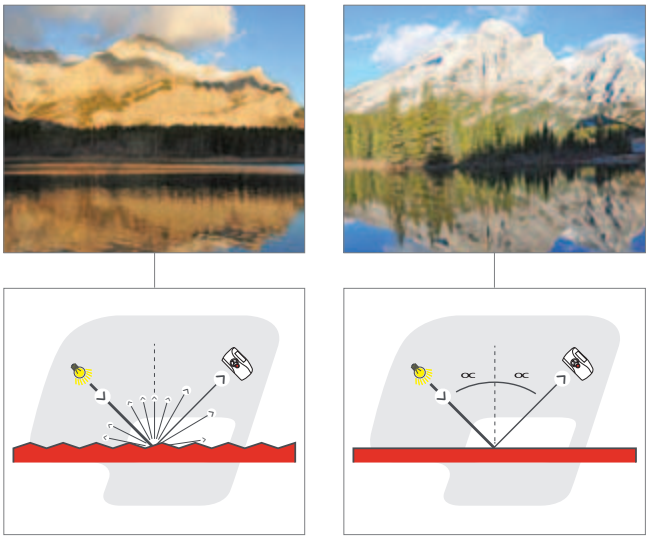
Light is a portion of the electromagnetic spectrum in wavelength between 400 and 700 nm. The lower than 400 nm wavelength is UV and higher than 700 nm wavelength becomes IR. The spectrum colors runs from Blue at 400 nm to Red at 700 nm. The perception of color depends on different light sources and is standardized under CIE Standard Sources and Illuminants. Generally in terms of D(daylight), A(artificial), TL(fluorescent) and UV(ultra violet). Color measurements are performed using portable systems in field or desktop models in a laboratory situation. Conform CIE values are expressed in Lab and compared Standard against Sample. The visual color difference in DeltaE is a measure to check running color differences during production.

TQC GLOSS METERS

A NEW LEVEL OF CONFIDENCE

In an economy where production efficiency is key there is no room for errors. Quality has to be perfect as consumers tend to be more demanding than ever and will accept nothing less than perfection. Production is moving all over the planet. Traditional high performance products are now often manufactured in less traditional countries in order to retain competitive production costs.
To safeguard the quality "cutting edge" inspection instruments are crucial to maintain consumer confidence.

The TQC Gloss meter allows the user to measure fast and simple accurate gloss levels on any flat surface. Whether it be paper, paint, plastic, wood or any other material. No special training or skills are required. Just place the gauge, press the scan button and read the values. Template options can also provide the flexibility for use with curved surfaces or small test areas.



Diffusely scattered *Directly reflected*

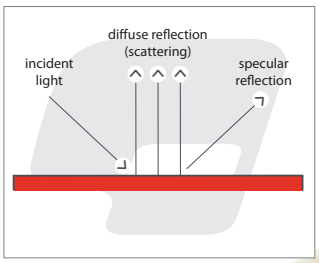
GLOSS

The visual perception of a surface is strongly influenced by the proportion of light with specular reflection from that surface. As an inspection criterion it is equally as important as colour.
The optical properties of gloss analysis depend on a range of variables. Gloss itself is based on the interaction / reflection of light and the physical characteristics of a surface.

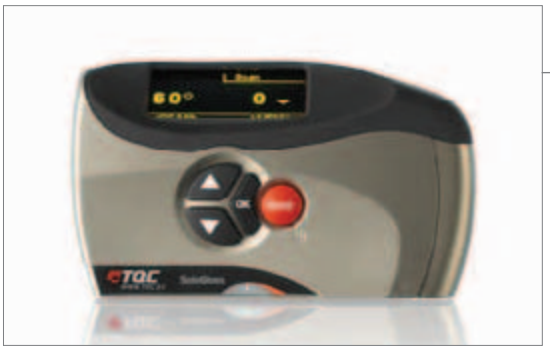
In definition gloss is a measure of the proportion of light which has a specular reflection from the surface. The variables that affect gloss are the refractive index of the material, the angle of incident light and the surface topography (structure / smoothness / roughness) Materials with smooth surfaces appear glossy, while rough surfaces reflect no or little specular light and therefore appear matt or flat.

In daily life different levels of gloss are recognized. Without knowing specific numerical values we define surfaces as glossy or shiny, semi-glossy, satin or matt (flat, dull). By using a gloss meter you are able to provide numerical data to back up visual perception.

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED



THE RANGE

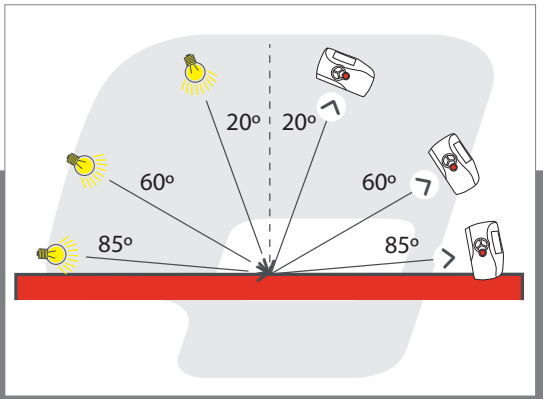


TQC SOLOGloss®
The 60° singe-angle instrument of the TQC Gloss meter range. Preferred instrument for measurements in the semi-gloss range. Suitable for most applications. Light source and detector are positioned under an angle of 60° of the surface to be measured.

TQC DUOGloss®
The TQC Duo Gloss meter is a versatile instrument that combines the 20° and 60° angle into one gloss meter. The 20° angle is ideal for measurements in the high-gloss area while the 60° covers the semi-gloss range.

TQC POLYGloss®
The top of the TQC Gloss meter range is the triple angle instrument PolyGloss. Besides a 20° and 60° measuring angle the TQC PolyGloss is also equipped with a 85° measuring angle thus covering the entire gloss-spectrum. The 85° is for low gloss levels (high diffuse reflection) or mat surfaces.*

(Depending on the model the instrument can be set to measure and display just one or several measurement angles simultaneously)
**The TQC Polygloss will be available Q1/2013*



GEOMETRY | different measuring angles for different applications
It is common practice to use a 60° angle gloss meter for almost every application. Most specifications specify a gloss level measured at 60° which often deviates from international standards.

ISO 2813 advises to use the following geometries to obtain improved differentiation on high-gloss or low-gloss surfaces:
- 20° measuring angle for high-gloss surfaces where a 60° gloss meter typically indicates values higher than 70 GU.
- 85° measuring angle for low-gloss surfaces where a 60° gloss meter typically indicates values lower than 10 GU.

The measuring angle should always be mentioned in combination with a gloss value.

IDEAL FINISH ANALYSIS SOFTWARE

TQC Gloss meters are supplied as standard with the powerful TQC IDEAL FINISH ANALYSIS evaluation and analysis software. Without any extra costs a user can utilise the software to create reports including graphs and tables, comprehensive statistics and SP-calculations. Trend, Gaus and many other statistical data sets are possible within the software.

TQC IDEAL FINISH ANALYSIS is TQC's master data handling program that works with an array of TQC instruments such as CurveX oven profiling dataloggers, DewCheck climate gauges and various coating thickness gauges.

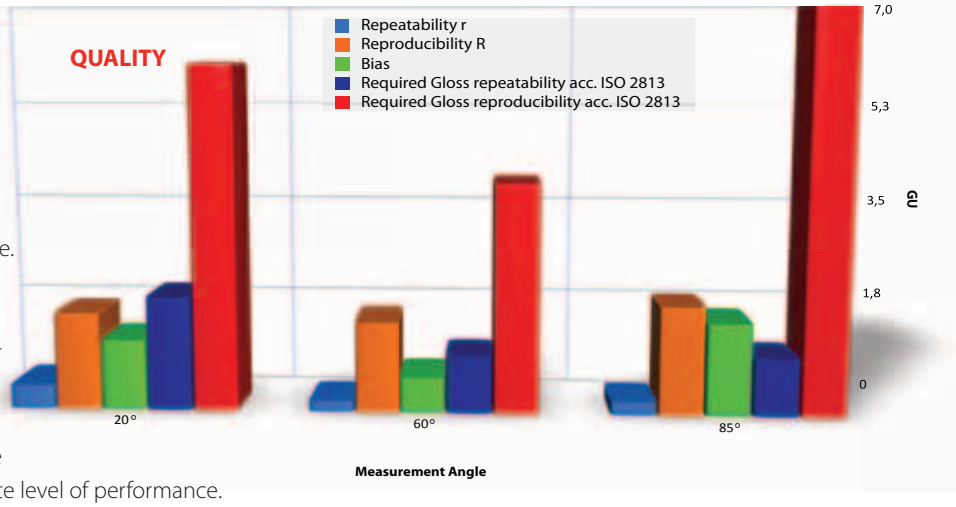
RESEARCH

The science behind the Gloss meter
Gloss meter development started with an understanding of the basic principles of Gloss. Surface textures, translucency and colour all influence the visual perception of a surface , but also influence the fine optics of the gloss meter. Micro scale surface deformations cause scattering of light and divide it into specular and non-specular. This is the fine threshold where the TQC Gloss meter is able to determine the gloss at the highest accuracy level.

Sending and receiving
To determine the best light source and detector setup components from suppliers all over the world have been tested. Spectral sensitivity, stability and linearity all proved to be exceptionally stable using the TQC Gloss meter.

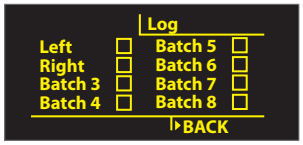
Standardization
In order to guarantee the TQC Gloss meter to be one of the most stabile meters available and fullfills all the demands of the ASTM, DIN and ISO standards. TQC joined all of the standardization bodies and are actively involved in testing criteria relating to the standards. Ensuring the highest level of conformity .

Precision engineering
In order to get the best stability the TQC Gloss meter's unique double frame system has been engineered with the hig hest precision. Carefully controlling the interior of the light patch helps to give the TQC Gloss meter robust and stabile structure.

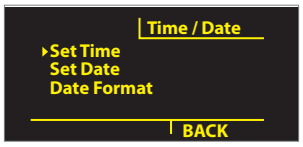


Ten thousands of readings
To assess the quality of the TQC Gloss meter we took thousands of readings on certified substrates to test stability, reliability and durability. With or without shock testing the TQC Gloss meter proved to have the ultimate level of performance.

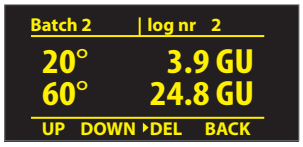
FEATURES



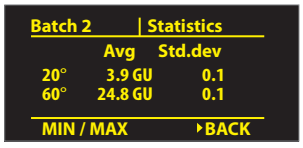
Data logging All TQC Gloss meters are equipped with an extensive memory of max. 2000 measurements which can be organised in 8 different batches. The name of each batch can be programmed into the instrument in order to allow data retrieval at a later stage.



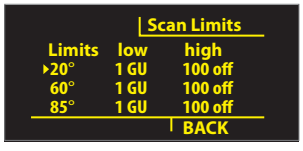
Date Time stamp The internal clock and calendar provides each stored measurement with a date/time stamp. A choice of four different date formats is available.



Data handling Via a "plug and play" USB interface the measuring data can be downloaded to your PC. Scrolling through a batch with the Up and Down function shows individual data directly on the instrument's display. It is possible to delete individual false measurements directly from the instrument's database. Batches can be cleared one by one or the entire memory can be emptied in one action. See also the section TQC Ideal Finish Analysis Software.



Statistics Of each batch statistical data can be observed on the Gloss meter's display. The instrument shows minimum- and maximum values, average and standard deviation.



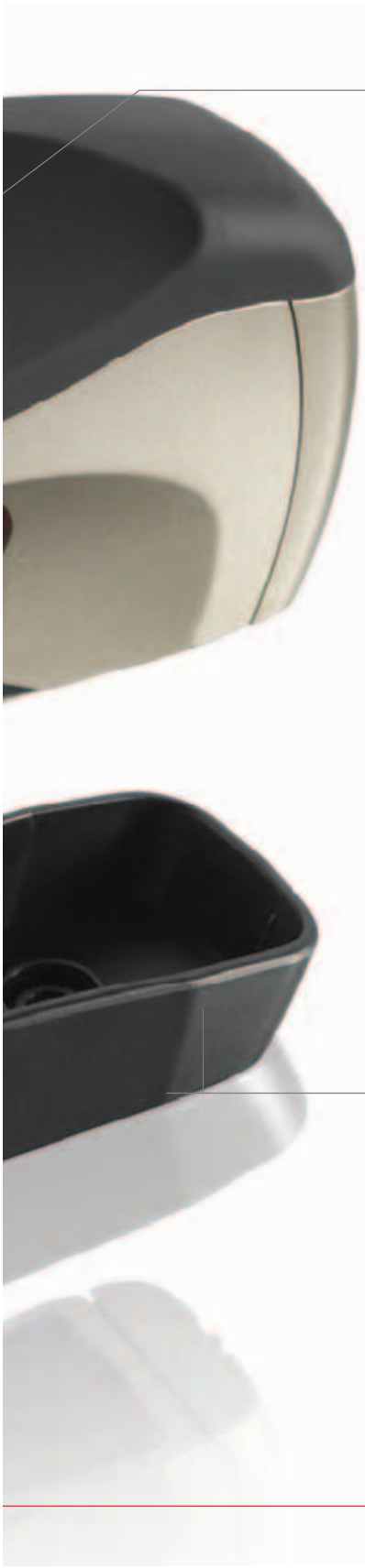
Limits / Thresholds When measurements have a specific specification to meet, it is possible to set High and Low limits. An audible and visual alarm indicates when measurements are off limits
operating as a pass/fail option. Depending on the type of TQC Gloss meter individual limits can be set for each measuring angle.

MECHANICS

Optical stability The optical components are mounted on an extremely stable chassis made from a combination of precision milled aircraft-grade aluminium and a special injection moulded hi-tech plastic. The rock solid base assures measurements to be accurate under all circumstances and conditions.

USB-B Port
TQC Gloss meters are equipped with a USB-B port for quick data transfer

Light source TQC Gloss meters utilise LED (Light Emitting Diode) as light source to guarantee long term stability. Unlike tungsten light bulbs LED does not generate heat. Drifting measurements caused by temperature changes are therefore eliminated. Accuracy remains optimal for many years and lamp replacements are no longer required.



ERGONOMICS

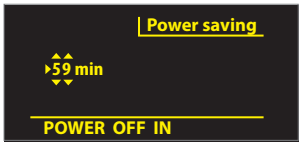
OLED Display TQC Gloss meters are equipped with the latest OLED (Organic Light Emitting Display). This new type of display offers extremely high visibility and contrast at a range of viewing angles. The innovative OLED display is positioned at an angle of 35 degrees which ensures excellent readability in all conditions. When measuring on horizontal or vertical surfaces or any angle in between.

Operation Menu driven operation allows new users to benefit from all the features of the instrument without having to refer to the user's manual. The intuitive structure guides the user through the different screens to change the settings of the instrument.

Shape The case of the instrument is designed to comfort both right- and left handed users. The upper part is "soft touch" coated for ultimate grip and the wrist strap prevents accidental drops. The rubber operating buttons offer a pleasant feel and user friendly operation.

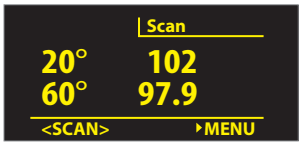
CALIBRATION

In production TQC Gloss meters are calibrated against a series of reference tiles certified by the German BAM (Bundesanstalt für Material-forschung und -prüfung). Each Gloss meter comes with a protective holder with integrated calibration standard for field calibration.



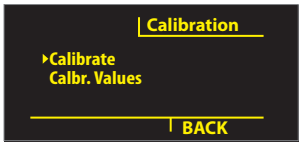
Power saving The instrument utilises low power consuming LED light sources and a battery friendly OLED display. A full set of batteries has a 10.000 reading life expectancy. However, in order to get the maximum operational life from the batteries the instrument is equipped with an adjustable "auto power off" function which can be set by the user between 1 and 59 minutes. Power is provided by two standard AA-batteries.

Languages The instrument is designed for optimal user comfort. Use of a manual is hardly required due to the intuitive menu driven user interface . To make life even easier the TQC Gloss meter comes in a wide selection of languages. Standard languages are English, German, French, Spanish and Italian but the number of languages will grow over time. Check our website for the latest status.



Scan mode Keeping the "Scan button" pressed down allows the gloss meter to measure continuously at a rate of approximately 70 readings per minute. If selected the readings will be stored in the instrument's memory.

Login Protection To prevent unwanted change of settings by unauthorised users certain functions can be protected with a Login Code. The protection can be activated or de-activated by choice. This code is user programmable. Instrument setup, limit changes, delete readings, or clear memory are all protected by the selected code.



Calibration The protective holder has an integrated calibration standard for field calibration.

TECHNICAL SPECIFICATIONS TQC GLOSS METERS

Operational

Calibration standard:	Integrated tile in dust cover
Display	High Contrast OLED display
Light source	Extreme low drift LED light source
Power source	2x AA alkaline batteries
Batches	max 8
Readings per batch	max 500, non-dependant of number of angles
Total max Readings	2000 readings with time stamp
Scan function	Yes
Statistics	Min. / Max. / Avg. / Std.dev / number of measurements
Security	Password protection
Software	TQC Ideal Finish Analysis

Dimensions

Size	90 x 140 x 45 mm (h x w x d) 3,5 x 5,6 x 1,7" (h x w x d)
Weight	398 g / 13,7 oz

Measurement

Base dimensions	45 x 130mm / 1,7x5,1"
Orifice size	10 x 50mm / 0,4x2,0"
Spot size	≈ 5 x 5 mm / 0,2x0,2" @ 20° ≈ 20 x 9 mm / 0,8x0,35" @ 60° ≈ 40 x 9mm / 1,5x0,35" @ 85°
Measurement speed	70 measurements per minute at 3 angles
Simultaneous measurement	3 geometries
Power saver option	User selectable
Units	Gloss Units (GU)
Resolutions	0,1 GU (0-100GU) / 1GU (>100GU)

	20°	60°	85°
Range	0-2000 GU	0-2000 GU	0-2000 GU
Repeatability r*	0,4 GU	0,2 GU	0,2 GU
Reproducibility R*	1,7 GU	1,6 GU	1,9 GU
Bias*	1,2 GU	0,6 GU	1,6 GU

**Acc. ISO 2813 (range 0-100 GU)*

WARRANTY

TQC will grant a warranty for a period of 12 months for TQC Gloss meter and 12 months for all related equipment from the date of delivery in respect of any evidence of faulty workmanship and materials. TQC will extend the warranty for TQC Gloss meter to a period of 24 months from the date of delivery if TQC Gloss meter is licensed via the TQC Ideal Finish Analysis software.

STANDARDS

ISO 2813	DIN 67530
ASTM D523	JIS Z 8741
ASTM D2457	ISO 7668
ASTM C584	MFT 30064 (exception 45° angle)
AS 1580 (602.2)	
BS 3900 D5	

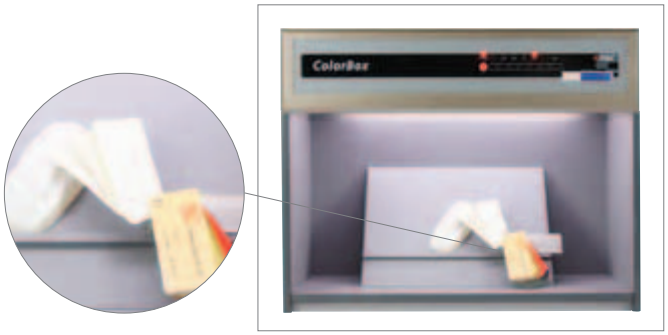
ORDERING INFORMATION TQC GLOSS METERS

Art. N	
GL0010	TQC SoloGloss 60°
GL0020	TQC DuoGloss 20°/60°
GL0030	TQC PolyGloss 20°/60°/85°

Scope of supply: 2 AA type batteries, Plastic protective case, Screwdriver, USB stick with TQC Ideal Finish Analysis software, Micro fibre cleaning towel, USB cable, Calibration certificate

COLORBOX - ILLUMINATED ASSESSMENT CABINETS

TQC Colorboxes offer an extensive range of illumination conditions for any visual inspection. The multiple selectable light sources allow assessment of gloss, structure, damages and metamerism. The Colorboxes are available in 60 and 120cm width. All are supplied with removable viewing table and runtime counter. Both interior and exterior are finished to the highest quality standard. The ability to switch between light sources without flickering makes the cabinet extremely stable. TQC Colorboxes are equipped with a 110 / 220 V switch.



FEATURES

- Strong MDF
- Flicker free "instant on"
- 5 different lightsources
- Inside painted in neutral Munsell N5,5 gray
- 110 / 220 V switch

STANDARDS

ISO 3664
ISO 3668
ASTM D1729

TECHNICAL SPECIFICATIONS COLORBOX - ILLUMINATED ASSESSMENT CABINETS

Material Cabinet	MDF
Material Light box	Metal
Power Supply	AC 110/220V, 50/60Hz
Power	Less than 300W

ORDERING INFORMATION COLORBOX - ILLUMINATED ASSESSMENT CABINETS

Model	VF0600	VF1200
Inner dimensions	680x360x380 mm,	1280x590x590 mm,
	26.7x4.2x15 inch	50.4x23.2x23.2 inch
Outer dimensions	710x405x570 mm,	1310x610x800 mm,
	27.9x15.9x22.4 inch	51.6x24.0x31.5 inch
Weight	28 kg / 61.8 lbs.	60 Kg / 132.3 lbs
Light sources	4 x light bulb type "A" 40 W E 27	6 x light bulb type "A" 40 W E 27
	2 x light tube "shop light" TL84 (F11) 60 cm	2 x light tube "shop light" TL84 (F11) 120 cm
	2 x light tube "day light" D65, 60 cm	2 x light tube "day light" D65, 120 cm
	2 x light tube "day light" D5000 (D50) 60 cm	2 x light tube "day light" D5000 (D50) 120 cm
	1 x light tube "black light" UV 60 cm	1 x light tube "black light" UV 60cm

ACCESSORIES / SPARES

	Art.no	Description	Description on the lamp
Light sources	VF0605	light tube type "A" 40 W E 27	E27
VF0600	VF0606	light tube "shop light" TL84 (F11) 60cm/23.6 inch	TL84 18W / 940
	VF0607	light tube "day light" D65, 60 cm/23.6 inch	D65 18W / 965
	VF0610	light tube "day light" D5000 (D50) 60cm/23.6 inch	D50 18W / 950
	VF0609	light tube "black light" UV 60cm/23.6 inch	UV 18W / BLB
Light sources	VF0605	light tube type "A" 40 W E 27	E27
VF1200	VF1205	light tube "shop light" TL84 (F11) 120cm/27.24 inch	TL84 36W / 940
	VF1206	light tube "day light" D65, 120 cm/27.24 inch	D65 36W / 965
	VF1209	light tube "day light" D5000 (D50) 120cm/27.24 inch	D50 36W / 950
	VF1208	light tube "black light" UV 120 cm/27.24 inch	UV 36W / BLB
	VF0603	45° viewing table	

X-RITE RM200QC SPECTROCOLORIMETER

The X-Rite RM200QC Imaging Spectrocolorimeter bridges the gap between color appearance and material color - from incoming material batches to outgoing product shipments - in an elegant, portable unit that fits comfortably in your hand.

The RM200QC is designed to provide stable color comparisons for materials and products wherever color control Is important.

FEATURES

- Using 8 different visible illuminations and 1 UV LED (9 bands)
- 45/0 optical geometry
- Proprietary image capture technology
- Graphical Pass/Fail indicator
- Display of dE for all common methods i.e. CIELAB, CMC, CIE 94, 2000
- Display of measured and delta differences with L*a*b*C*h° for standard and sample
- Graphical L*a*b* plot
- Verbal color difference description
- 20 reference standards to store
- 350 sample measurements to store
- Creates PDF and CSV files
- USB Report Mode to PC
- Increased quality control

TECHNICAL SPECIFICATIONS X-RITE RM200QC SPECTROCOLORIMETER

Measuring Geometrics	45/0 Image Capture	Display	45 mm / 1,77 inch Color TFT
Light Source	Independent tri-directional 25 LED,	Data Interface	USB (Mass Storage Device)
	(8* visible wavelengths; 1* UV)	Operating Temp	0° to 40°C / 50° to 104°F
Illuminant/Observer	D65/10 and A/10	Storage temp	-20° to 60°C / -4° to 140°F
Standards/Sample Storage	20/350	Humidity Range	20-80% RH (non-condensing)
Measurement time	1,8 seconds	Usage	Indoor use only
Measuring Area	4 & 8 mm	Altitude	2000 m / 78740 inch
Minimum recommended tolerance	1.0° (limited to 0.8° as smallest settable tolerance)	Pollution Degree	2
		Transient Overvoltage	Category II
Calibrationtile	Slide system integrated	Languages	English, German, France, Italian, Spanish
Short Term Repeatability	Typical 0,10 DE 94 on white (D65 /10)	Power	Internal Lithium-ion batteries

* Minimum recommended tolerance 1.0 ΔE (limited to 0.8 ΔE as smallest settable tolerance)

ORDERING INFORMATION X-RITE RM200QC SPECTROCOLORIMETER

Art. No	
VF0620	Spectrocolorimeter RM200QC

Scope of supply: Instrument, Carrying case, Pouch, USB cable, Software, Manual

STANDARDS	ASTM D2244
	ISO 7724

FAN DECK RAL K5 CLASSIC COLOUR

Colour fan deck containing all 213 RAL Classic colours.

FEATURES

- Semi matt or gloss
- U-shaped protective cover
- Well-suited for colour combination and colour comparison
- Personalized company imprint available

TECHNICAL SPECIFICATIONS FAN DECK RAL K5 CLASSIC COLOUR

Dimensions	57x57x155 mm / 2,24x2,24x6,1 inch
Weight	450 g / 15,87 oz
Colour illustration	50x150 mm / 1,97x5,91 inch
Colours per sheet	1
Colours	213

ORDERING INFORMATION FAN DECK RAL K5 CLASSIC COLOUR

Art. No	
VF6607	Fan deck RAL K5 Classic colour – semi matt
VF6607/1	Fan deck RAL K5 Classic colour – gloss

RAL K7 COLOUR FAN DECK

The classic RAL fan deck with all 213 RAL CLASSIC colours at a glance. Every page contains five colours, which makes the fan deck very convenient and practical.

FEATURES

- Gloss
- Five colours per page
- Personalized company imprint available

TECHNICAL SPECIFICATIONS RAL K7 COLOUR FAN

Fan deck size	50x150 mm / 1,97x5,91 inch
Colour illustration	20x 50 mm / 0,97x1,97 inch
Colours per sheet	5
Colours	213
Weight	150 g / 5,29 oz
Dimensions	150x50x15 mm / 5,91x1,97x0,59 inch

ORDERING INFORMATION RAL K7 COLOUR FAN

Art. No	
VF6606	RAL K7 classic colour fan deck

BOOKLET RAL K1

Booklet with 210 RAL Classic Colours.

FEATURES

- Gloss
- Available RAL K1 Individual full page corporate design on the front cover 14 colours per side
- Sheets divided in the middle for combining colours easily

TECHNICAL SPECIFICATIONS BOOKLET RAL K1

Dimensions	105 x 200 mm / 4,13x7,87 inch
Colour Illustrations	52x15 mm / 2,01x0,59 inch
Colours per page	14
Binding	Wire-O

ORDERING INFORMATION BOOKLET RAL K1

Art. No	
VF6608	Booklet RAL K1

Scope of supply: Booklet with 210 RAL CLASSIC colours

RING BINDER RAL K6

Ring binder with all 213 RAL CLASSIC colours.

FEATURES

- Semi-matt
- A4 size
- Sheets also individually available

TECHNICAL SPECIFICATIONS RING BINDER RAL K6

Dimensions	A4 (210x297 mm / 8,27x11,96 inch
Colours per sheet	1
Colours	213

ORDERING INFORMATIONBOX RING BINDER RAL K6

Art. No	
VF6609	Ring binder RAL K6

ACCESSORIES / SPARES

VF6610	Single sheet, please specify colour

BOX WITH RAL 840-HR CLASSIC SEMI MATT

Primary standards of all 213
RAL Classic colours.

FEATURES

- Semi matt
- Binding colour samples for colour matching and quality control
- Including X-Y-Z-values, colour distance from the original standard and Reflectance curve
- Cards are also individually available

TECHNICAL SPECIFICATIONS BOX WITH RAL 840-HR CLASSIC COLOURS

Cardsize	A5 (148x21 mm / 5,83x8,27 inch)
Colour illustration	A6-sized (105 x148 mm/ 4,13x5,83 inch)
Colours per card	1
Colours	213 single cards

ORDERING INFORMATION BOX WITH RAL 840-HR CLASSIC COLOURS

Art. No	
VF6600	Box with RAL 840-HR Classic Colour cards

ACCESSORIES / SPARES

VF6601	Box for RAL Classic 840-HR Classic Colours
VF6602	RAL-840-HR Single sheet, please specify colour

BOX WITH RAL 841-GL CLASSIC HIGH GLOSS

Primary standards of all 196
Ral classic colours

FEATURES

- High gloss
- Binding colour samples for colour matching and quality control
- Including X-Y-Z-values, colour distance from the original standard and reflectance curve
- Cards are also individually available

TECHNICAL SPECIFICATIONS BOX WITH RAL 841-GL

Cardsize	A5-sized (148 x 210 mm / 5,83x8,27 inch)
Colour illustration	A6-sized (105 x 148 mm / 4,13x5,83 inch)
Colours per sheet	1
Colours	196

ORDERING INFORMATION BOX WITH RAL 841-GL

Art. No	
VF6603	Box RAL 841-GL Classic colours box with 196 classic colour cards
VF6604	Box for RAL Classic 841-GL color register
VF6605	RAL 841-GL, Single sheet, please specify colour

FAN DECK RAL E3

The fan deck RAL E3 contains all 490 colours from the RAL EFFECT collection. The 420 solid colours (semi matt) are based on waterborne paint systems, the 70 metallic colours (high gloss) are based on acrylic paints. Each page displays the metallic colour that harmonises with the six solid colours.

FEATURES

- 420 solid colours and 70 metallic colours
- Solid colours are based on waterborne paint systems, metallic colours are based on acrylic paints
- Every page shows six solid colours and a matching metallic colour
- Solid colours semi matt, metallic colours high gloss

TECHNICALS SPECIFICATIONS RAL

Dimensions	210x50 mm / 8,27x1.97 inch
Solid Colour illustration	50x20 mm / 1,97x0,79 inch
Metallic Colour illustration	50x38 mm / 1,97x1,5 inch
Colours per sheet	7 (6 solid, 1 metallic)
Colours	490 (420 solid colours and 70 metallic colours)

ORDERING INFORMATION RAL E3

Art. No	
VF6615	Fan deck RAL E3

FAN DECK RAL E4

The fan deck RAL E4 contains all 70 metallic colours from RAL EFFECT. The colours are displayed on the full page and based on acrylic paints.

FEATURES

- 70 metallic colours
- Based on acrylic paints
- High gloss

TECHNICAL SPECIFICATIONS RAL E4

Dimensions	50x130 mm / 1,97x5,12 inch
Colour illustration	50x130 mm / 1,97x5,12 inch
Colours per sheet	1
Colours	70

ORDERING INFORMATION RAL E4

Art. No	
VF6616	Fan deck RAL E4

SINGLE SHEETS RAL EFFECT

Colour sample sheet of either one of the 70 metallic Effect colours, or one of the 420 RAL Effect solid colours.

FEATURES

- High gloss
- A6 size
- Single sheets

TECHNICAL SPECIFICATIONS SINGLE SHEETS RAL EFFECT

Dimensions	105x148 mm / 4,13x5,83 inch
Colour illustration	105x148 mm / 4,13x5,83 inch
Colours per sheet	1

ORDERING INFORMATION SINGLE SHEETS RAL EFFECT

Art. No	
VF6617	Single sheet RAL Effect Solid, please specify colour
VF6618	Single sheet RAL Effect Metallic, please specify colour

BOX WITH RAL E1 COLOURS

The primary standards in the box RAL E1 of all 490 RAL EFFECT colours serve as binding colour samples for colour matching and quality control. The 420 solid colours (semi matt) are based on waterborne paint systems, the 70 metallic colours (high gloss) are based on acrylic paints.

FEATURES

- 420 solid colours and 70 metallic colours in a high grade box
- Based on waterborne paint systems
- Solid colours semi matt, metallic colours high gloss

TECHNICAL SPECIFICATIONS BOX WITH RAL E1

Card size	A6 (105 x 148 mm / 4,13x5,83 inch)
Colour illustration	105x138mm / 4,13x5,43 inch
Colours per sheet	1
Colours	490 (420 solid colours, 70 metallic colours)

ORDERING INFORMATION BOX WITH RAL E1

Art. No	
VF6612	Box with RAL E1 Colours

ACCESSORIES / SPARES

VF6613	RAL E1 Single sheet, please specify colour

RAL D2 DESIGN IN BOX

Colour fan deck RAL D2 in box containing all 1625 RAL DESIGN colours.

FEATURES

- All 1625 RAL Design colors, incl. 26 new pastel colours
- New clear classification system, arrangement of colours by the criteria hue (H), lightness (L) and chroma (C)
- Semi matt

TECHNICAL SPECIFICATIONS COLOUR FAN DECK RAL D2 IN BOX

Dimensions	290x50 mm / 11,42x1.97 inch
Solid Colour illustration	50x25 mm / 1,97x0,98inch
Colours per sheet	9
Colours	1625

ORDERING INFORMATION COLOUR FAN DECK RAL D2 IN BOX

Art. No	
VF6619	Colour fan deck RAL D2 design in box

SINGLE SHEETS RAL DESIGN

Colour sample sheet of all RAL Design colours.

FEATURES

- A6-sized (105x148 mm / 4,13x5,83 inch)
- A4-sized (210x297 mm / 8,27 x11,69 inch)
- All 26 new pastel colours
- Spectrophotometrically documented upon request
- Complete set in a box

TECHNICAL SPECIFICATIONS SINGLE SHEETS RAL DESIGN

Dimensions	105x148 mm / 4,13x5,83 inch	A6
	210x297 mm / 8,27 x11,69 inch	A4
Colour illustration	105x148 mm / 4,13x5,83 inch	A6
	210x297 mm / 8,27 x11,69 inch	A4
Colours per sheet	1	

ORDERING INFORMATION SINGLE SHEETS RAL DESIGN

Art. No	Sheet size	spectro photometrically documented	Sheet
VF6620	105x148 mm / 4,13x5,83 inch A6	-	Single sheet, please specify colour
VF6621	105x148 mm / 4,13x5,83 inch A6	-	Complete set in box
VF6622	105x148 mm / 4,13x5,83 inch A6	yes	Complete set in box
VF6623	105x148 mm /	yes	Single sheet, please specify colour
VF6624*	210x297 mm / 8,27 x11,69 inch A4	-	Single sheet, please specify colour
VF6625*	210x297 mm / 8,27 x11,69 inch A4	-	Complete set in ringbinder

*The 89 dark shades which are no longer included in the revised RAL DESIGN system are still available as A4-sized single sheets

RAL PLASTICS

RAL P1 (100 classical colourplates) and RAL P2 (200 design colourplates) in plastic. 300 design options for precise colour communication and innovative products. RAL P2 contains 160 opaque and 40 special, transparent colours. Together with the 100 classic shades within RAL P1 the RAL PLASTICS colour standard now comprises 300 colour samples. Each colour is also available as a single plate. The RAL PLASTICS colour samples are multifunctional and offer many benefits in practice. Three different surface textures and three different material thicknesses give users a realistic impression of how the colours will look when used with different material applications.
With the introduction of RAL PLASTICS the inaccuracies, that were often unfortunate by-products of the old method of translating RAL paint samples into plastics colours, now belong to the past. This means that plastics manufacturers and plastics processors can now save time, costs and raw materials.

FEATURES

- Three levels of thickness – 3mm, 2mm and 1mm / 0,12, 0,08, 0,04 inch – show each colour at different levels of opacity
- Three different surface textures – high gloss polished, VDI 24 and VDI 42 – show users the colour dependent on surface roughness
- The protective sleeve for each RAL P1 PLASTICS sample contains masterbatch code,colormetric mea sures, absolute values, reflectance curve, distance to the plastics original standard

TECHNICAL SPECIFICATIONS RAL PLASTICS

Material	polypropylene
Colours P1	100
Colours P2	300
Dimensions Colour plate	105×148×3mm / 4,13x5,83x0,12 inch

ORDERING INFORMATION RAL PLASTICS

Art. No	RAL P1	RAL P2
VF6627	Complete set in box	-
VF6628	Single plate, please specify colour	-
VF6629	-	Complete set in box
VF6630	-	Single plate, please specify colour
VF6631	Complete set in box	Complete set In box

SOFTWARE RAL DIGITAL

Software on flash memory for designers, architects, interior designers and everyone else who works creatively with colour. RAL DIGITAL lets you navigate your way around the entire spec- trum and gamut of RAL colour space, quickly locating the perfect shade based on any and every criterion for locating the precise match or selecting beautiful harmonizing colours to almost any specification. It enables integration of all 2, 328 RAL colours into popular Graphics and CAD programs with simple import and export file formats.

FEATURES

- Contains all RAL EFFECT colours, RAL CLASSIC colours and RAL DESIGN colours for graphics and CAD programs
- Colour values include RGB, HEX, CMYK, LAB, HLC, XYZ colorimetric data
- Inspirational colour harmony recommendations based on monochromatic, adjacent, analogous and comple- mentary colour combinations
- Find the perfect colour set based on simple text descriptions of your colour needs
- Colour search: Find RAL colours based on matches to current commonly used colour collections or compared to colorimetric values
- Generate and store or export your own colour data for integration into most major design and CAD programs, or simple text format for document or spreadsheet analysis
- Colour harmony – calculates harmonious colour compositions based on an original colour
- Next RAL colour – converts the colours that correspond to an original colour into the RAL system (e.g. NCS -> RAL)
- Colour values – displays the exact Lab/HLC/RGB/HEX and CMYK colour values of all the RAL colours in RAL CLASSIC, RAL EFFECT and RAL DESIGN
- Colour designer – colourises images using the colours required
- Colour pipette – extracts the RGB colour values from any file type
- Colour overviews – verify the precision of the RAL colour palettes in individual systems
- Palette installer – easily integrates RAL colour palettes into approx. 30 software products in the architecture and graphic design areas (Photoshop, Corel, Nemetschek and many others)
- Complementary colours – calculates colour opposites, complementary contrasts and true harmonies

ORDERING INFORMATION SOFTWARE RAL DIGITAL

Art. No	
VF6632	Software RAL Digital

RAL COLOUR MASTER

Interactive design book for creative minds. Experiment with and combine colours, shapes, patterns and images.

Colour Master contains 328 pages of bulging colourfulness in shapes, patterns and images. Every single page of the book is an individual creative experimen-ting tool for the user. All colour displays are encoded in the 490 RAL EFFECT colours.

The fan deck shows the 490 RAL EFFECT colours – 420 solid colours and 70 metallic colours.

FEATURES

- Encoded in 490 RAL EFFECT colours
- For architects, designers, artists and other creative minds
- Attached stencils for colour combinations

TECHNICAL SPECIFICATIONS RAL BOOK COLOUR MASTER AND FAN DECK E3

Book	
Dimensions	300x340 mm / 11,81x13,39 inch
Pages	328
Language:	Bilingual: German/English

Fan deck	
Dimensions	210x50 mm / 8,27x1.97 inch
Solid Colour illustration:	50x20 mm / 1,97x0,79 inch
Metallic Colour illustration	50x38 mm / 1,97x1,5 inch
Colours per sheet:	7 (6 solid, 1 metallic)
Colours	490 (420 solid colours and 70 metallic colours)

ORDERING INFORMATION RAL BOOK COLOUR MASTER AND FAN DECK E3

Art. No	
VF6642	RAL Book Colour Master and Fan deck E3

Scope of supply: RAL Book Colour Master and RAL E3 Fan deck

RAL COLOURS OF HEALTH AND CARE

Colours of health and care presents 120 current terms from the health care sector and their colour translation into the RAL DESIGN System. On the one hand, the work considers the Colours of Health and Care regarding colour theoretical-artistic aspects, and on the other hand with an analytical-scientific approach and serves as planning aid for a patient-friendly, effective, humane-aesthetic colour design for all fields of the health care system: the practice, hospital or rehabilitation centre, the hotel, retirement home or living-at-home at old age.

FEATURES

- 120 adjectives related to the health care sector
- Coded in 340 RAL DESIGN System colours
- For architects, designers and advertisers in the health care sector
- With practically and relevant design examples
- Includes a template for colour combinations

TECHNICAL SPECIFICATIONS RAL BOOK AND FAN DECK COLOURS OF HEALTH AND CARE

Book	
Dimensions	240x260 mm / 9,45x10,24 inch
Pages	384
Language	Bilingual: German/English

Fan deck	
Dimensions	87x214 mm / 3,43x8,43 inch
Colours per page	4
Colours	120

ORDERING INFORMATION RAL BOOK AND FAN DECK COLOURS OF HEALTH AND CARE

Art. No	
VF6640	Book and Fan deck Colours of health and care

Scope of supply: Book and fan deck Colours of health and care

ACCESSORIES / SPARES

Vf6626	Fan deck Colours of health and care

RAL BOOK – THE COLOUR DICTIONARY

Which colours do people consider 'exotic', which seem 'glamorous' in their eyes and which colours are 'spirited'? The colour dictionary answers all these questions and translates 360 adjectives into colour compositions linked to the RAL DESIGN System.

The colour dictionary is an indispensable work tool for advertisers, architects, interior designers, designers, professional painters and all those who are fascinated by the world of colour. For each of the 360 adjectives, the book displays 49 colour images and the respective colour scale in RAL DESIGN System colours. This is what makes Professor Venn's colour dictionary different from other colour theory books, which usually only list one colour for each concept. The colour dictionary gives the user room to play with and opens up a whole range of possibilities for making colour statements.

FEATURES

- 360 adjectives expressed in colour compositions
- Displayed in RAL DESIGN System colours
- Based on a scientific study
- The standard work for advertising, interior design, design and teaching

TECHNICAL SPECIFICATIONS RAL BOOK – THE COLOUR DICTIONARY

Dimensions	240x260 mm / 9,45x10,24 inch
Pages	864
Language	Bilingual: German/English

ORDERING INFORMATION RAL BOOK – THE COLOUR DICTIONARY

Art. No	
VF6639	RAL Book – The colour dictionary

RAL BOOK COLOURS FOR HOTELS

Hotels want to be places of comfort and relaxation. Besides a top service, the hotel ambience and the right colour combinations create a welcoming and comforting atmosphere. To achieve this, the design book COLOURS FOR HOTELS has been published in Callwey publishing house.

FEATURES

- Coded in the RAL DESIGN system
- Based on a scientific study
- For architects, designers, investors, building owners, hotel managers and advertisers in the hotel industry
- With practically and relevant design examples
- Includes a template for colour combinations

TECHNICAL SPECIFICATIONS RAL BOOK COLOURS FOR HOTELS

Dimensions	240x260 mm / 9,45x10,24 inch
Pages	416
Language	Bilingual: German/English

ORDERING INFORMATION RAL BOOK COLOURS FOR HOTELS

Art. No	
VF6643	Book Colours for hotels

COLORCATCH 3

COLORCATCH 3 is the first colorimeter which measures and transmits via Bluetooth® the true colour directly to an iPod touch, an iPhone or an iPad. It allows to instantly apply the true colour directly to a picture (building, wall, dress, object etc.) taken by the iPhone. Thanks to COLORCATCH 3 and «Colorix.com Pro» App for iPhone it's all done in less than 2 minutes and in only 3 steps.

FEATURES

- Simply in use, only 1 button
- Standard delivered with RAL and NCS colors (more than 2100 colors), more color cards you can download from the internet.
- Suitable for measuring on rough surfaces
- Independent of color or paint manufacturers

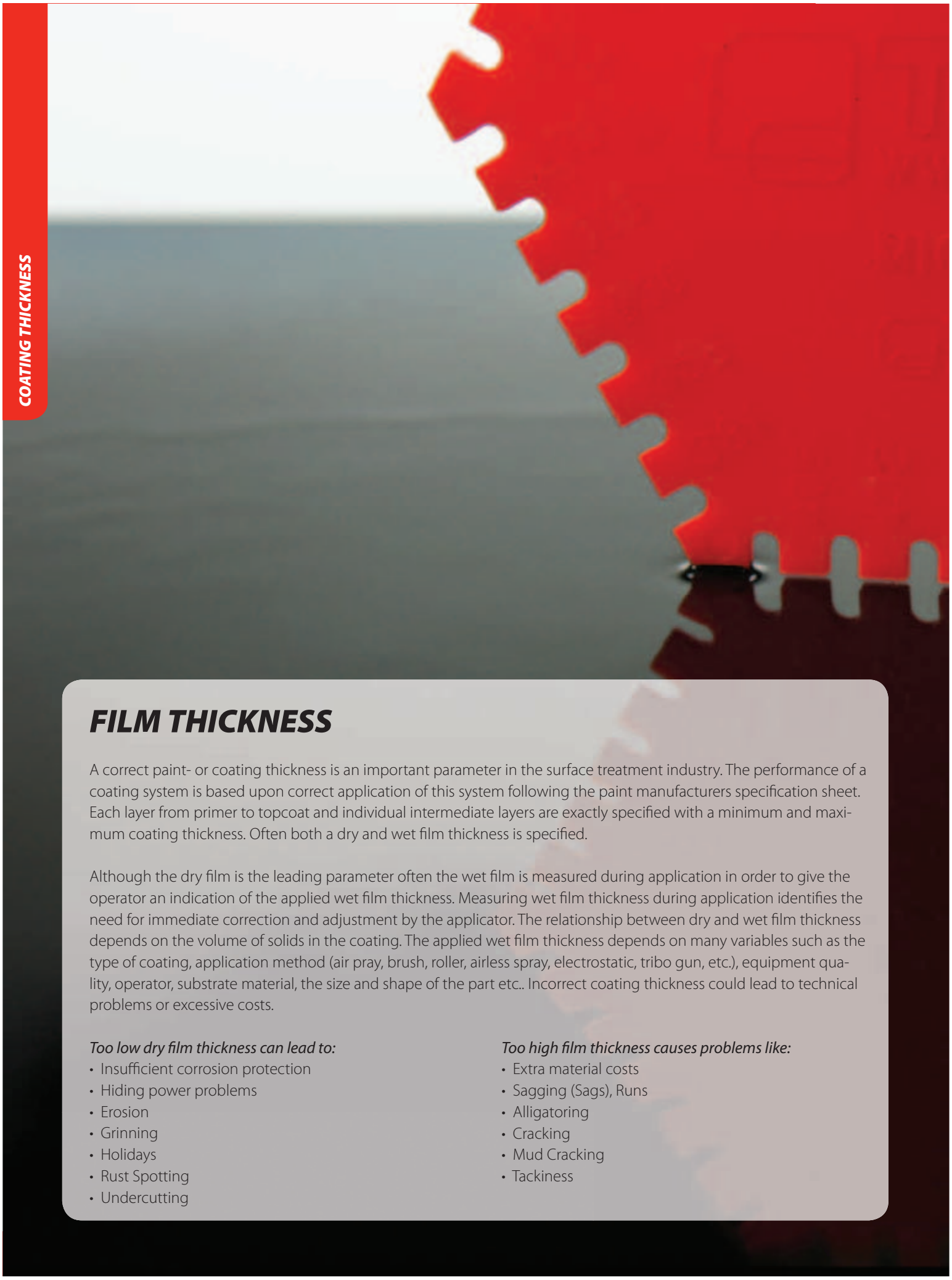
TECHNICAL SPECIFICATIONS X-RITE RM200QC SPECTROCOLORIMETER

Capacity	over 2000 measurements
Memory	over 100.000 colors
Languages	English, French, German, Italian, Spanish, Portuguese, Dutch, Turkish, Czech, Slovenian, Catalonian, Finish and Polish
PC communication	USB
Power supply	9V alkaline type 6LR61
Size	120 X 40 X 35 mm
Weight	99 gr

ORDERING INFORMATION X-RITE RM200QC SPECTROCOLORIMETER

Art. No	
VF0705	TQC Colorcatch 3, designed for iPod touch, iPhone, iPad and Android

Scope of supply: CorlorCatch3 incl. RAL and NCS colors, Nylon belt holder, Battery, Manual, 3 calibration plates, USB cable



FILM THICKNESS

A correct paint- or coating thickness is an important parameter in the surface treatment industry. The performance of a coating system is based upon correct application of this system following the paint manufacturers specification sheet. Each layer from primer to topcoat and individual intermediate layers are exactly specified with a minimum and maximum coating thickness. Often both a dry and wet film thickness is specified.

Although the dry film is the leading parameter often the wet film is measured during application in order to give the operator an indication of the applied wet film thickness. Measuring wet film thickness during application identifies the need for immediate correction and adjustment by the applicator. The relationship between dry and wet film thickness depends on the volume of solids in the coating. The applied wet film thickness depends on many variables such as the type of coating, application method (air pray, brush, roller, airless spray, electrostatic, tribo gun, etc.), equipment quality, operator, substrate material, the size and shape of the part etc.. Incorrect coating thickness could lead to technical problems or excessive costs.

Too low dry film thickness can lead to:

- Insufficient corrosion protection
- Hiding power problems
- Erosion
- Grinning
- Holidays
- Rust Spotting
- Undercutting

Too high film thickness causes problems like:

- Extra material costs
- Sagging (Sags), Runs
- Alligatoring
- Cracking
- Mud Cracking
- Tackiness

Multiple layer systems are often measured layer by layer. After cure of each layer a large number of measurements are made and stored so statistics of each following paint layer can be compared with the previous layer to define the thickness of each individual paint film. .

Techniques and systems

There are many different techniques and systems to measure coating thickness. The choice of coating thickness gauge type depends on type of application, substrate properties, budget and other requirements. The following type of instruments are common in today's coating and surface treatment industry:

Magnetic Pull-off

Magnetic pull-off gages are suitable for ferrous metal substrates only and use a permanent magnet combined with a calibrated spring which is linked to a graduated scale. The magnetic force between the magnet and ferrous steel substrate pulls the two together. The coating thickness separating the two makes it easier to pull the magnet away.
The more coating between magnet and steel the easier the pull. The actual coating thickness is determined by measuring this pull-off force. Testing with magnetic gages is sensitive to surface roughness, curvature, substrate thickness, and the make up of the metal alloy. Magnetic pull-off gages are rugged, simple, inexpensive, portable, and usually do not require any calibration adjustment. They are a good, low-cost alternative in situations where electronic gauges are not allowed due to explosion risk or when quality goals require only a few readings during production.

Eddy Current

Eddy current techniques are used to nondestructively measure the thickness of nonconductive coatings on nonferrous metal substrates. A coil of fine wire conducting a high-frequency alternating current (above 1 MHz) generates an alternating magnetic field at the surface of the instrument's probe. When the probe is near to a conductive surface, the alternating magnetic field will set up eddy currents on the surface. The characteristics of the substrate and the distance of the probe from the substrate (the coating/layer thickness) affect the level of the eddy currents. The eddy currents create their own opposing electromagnetic field that is sensed by the exciting coil or by a second, adjacent coil. Modern dry film thickness gauges often combine the magnetic induction and eddy current methods in one instrument. These instruments are basically suitable to measure each non-magnetic layer on a magnetic surface or each non-conductive layer on a conductive metal surface such a aluminum , copper, brass, stainless steel….

Magnetic and Electromagnetic Induction

These gauges are used to measure non-magnetic layers on magnetic (ferrous) surfaces. Magnetic induction instruments use a permanent magnet to generate a magnetic field. A magneto-resistor or Hall-effect generator is used to sense the magnetic flux density at a pole of the magnet. Electromagnetic induction instruments use an alternating magnetic field. A soft, ferromagnetic rod wound with a coil of fine wire is used to produce a magnetic field. A second coil of wire is used to detect changes in magnetic flux. These advanced electronic instruments measure the change in magnetic flux density at the surface of a magnetic probe as it comes close to a steel surface. The level of the flux density at the probe surface is directly related to the distance from the steel substrate. By measuring flux density the coating thickness or layer thickness can be determined.

Ultrasound or Ultrasonic

The ultrasonic pulse-echo technique is used to measure the thickness of coatings on nonmetal substrates (plastic, wood, concrete etc.) without damaging the coating. The probe of the instrument contains an ultrasonic transducer that sends a pulse through the coating. The pulse reflects back from the substrate to the transducer and is converted into a high frequency electrical signal. The echo waveform is digitized and analyzed to determine coating thickness. In some circumstances, individual layers in a multi-layer system can be measured.

PIG or Destructive measuring

This method is often used on reference panels or in forensic inspections with failing coating systems. With this system a precise incision is made with a special cutting tool perpendicular to the surface. An illuminated measuring microscope is used to measure the width of the cut. Depending on the type of cutting tool the width is multiplied with a factor which leads to the coating thickness. This system is ideal for those circumstances where electronic gauges cannot be used. The thickness of individual layers can be determined as well with this system.

Wet film thickness measuring

Wet-film is most often measured with a wet film comb or wheel. The wet-film comb is a flat precision plate with calibrated notches on the edge of each face. They are made of aluminum, plastic, or stainless steel. The gauges are placed squarely and firmly onto the surface to be measured immediately after coating application and then removed. The wet-film thickness lies between the highest notch that touched the coating and the next uncoated notch. Wet film thickness (WFT) combs measurements are neither accurate nor sensitive, but they are useful in determining approximate wet-film thickness in an early stage of application of coatings on articles where size and shape prohibit the use of more precise methods. A wet film thickness wheel is a high precision, accurate and easy to use instrument which consists of a set of three wheels. The central wheel is of a smaller diameter and is eccentric relative to the two outer wheels. The wheel is rolled through the wet coating and the interface of where the inner wheel starts touching the paint indicates the wet film thickness. Better wet film thickness wheels are equipped with roller bearings for smooth rolling and knurled outer wheels to allow measurements to be taken on slippery coatings or on fast moving substrates such as coil coating.

Air Ultrasound

An air-ultrasonic device can be used non-destructively / non-contact on uncured powder coatings on smooth metal surfaces to predict the thickness of the cured film before the powder coating is cured in the oven.

WET FILM THICKNESS GAUGE STAINLESS STEEL

The TQC Wet Film Thickness Gauge WG is a hexagonal/octagonal precision measuring comb made of heavy stainless steel. The high-grade stainless steel will not be affected by acid or base elements. Models available for several different applications.

STANDARDS

JIS Z2371	ISO 2808	ГОСТ Р 51694

FEATURES

- Models available for several different applications: • 20 to 370 microns for decorative paints and primers • 25 to 2000 microns for protective coatings and high solids. With edge grinding check (2mm). • 50 to 10.000 microns for extremely thick films such as floor coatings, fillers, fire proofing, plaster, adhesives etc.

ORDERING INFORMATION WET FILM THICKNESS GAUGE STAINLESS STEEL

Art. No	SP4000	SP4010	SP4020	SP4050
Total range	20-370 µm	2000 µm	50-10000 µm	1-80 mils
Sides	6	6	8	6
Total steps	24	36	71	36
Side 1	20, 30 40,50 µm	25, 50, 75, 100, 125, 150 µm	50, 100, 150, 200, 250, 300, 350, 400, 450 µm	1, 2, 3, 4, 5, 6 mils
Side 2	60, 70, 80, 90 µm	175, 200, 225, 250, 275, 300 µm	500, 550, 600, 650, 700, 750, 800, 850, 900 µm	7, 8, 9, 10, 12, 14 mils
Side 3	100, 110, 120, 130 µm	350, 400, 450, 500, 550, 600 µm	1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800 µm	16, 18, 20, 22, 24, 26 mils
Side 4	150, 170, 190, 210 µm	650, 700, 750, 800, 850, 900 µm	1900, 2000, 2100, 2200, 2300, 2400, 2500, 2600, 2700 µm	28, 30, 32, 34, 36, 38 mils
Side 5	230, 250, 270, 290 µm	950, 1000, 1100, 1200, 1300, 1400 µm	2800, 2900, 3000, 3100, 3200, 3300, 3400, 3500, 3600 µm	40, 42, 44, 46, 48, 50 mils
Side 6	310, 330, 350, 370 µm	1500, 1600, 1700, 1800, 1900, 2000 µm	3700, 3800, 3900, 4000, 4100, 4200, 4300, 4400, 4500 µm	55, 60, 65, 70, 75, 80 mils
Side 7	-	-	4600, 4700, 4800, 4900, 5000, 5100, 5200, 5300, 5400 µm	-
Side 8	-	-	5500, 6000, 6500, 7000, 7500, 8000, 8500, 9000, 10000 µm	-
Add. information	For decorative paints and primers	For protective coatings and high solids. With edge radius check (2 mm / 0,08 inch)	For extremely thick films such as floor coatings, fillers, fire proofing, plaster, adhesives etc.	For protective coatings and high solids. With edge radius check (2 mm / 0,08 inch)
Weight	15 g / 0,53 oz	35 g / 1,23 oz	65 g / 2,29 oz	35 g / 1,23 oz
Dimensions	50x57x1 mm / 1,97x2,24x0,04 inch	76x90x1 mm / 2,99x3,54x0,04 inch	105x115x1 mm / 4,13x4,53x0,04 inch	76x90x1 mm / 2,99x3,54x0,04 inch
Material	st. steel	st. steel	st. steel	st. steel

Scope of supply: Wet film thickness gauge, Protective pouch

PLASTIC WET FILM COMB

The TQC Wet Film Comb made of plastic, to measure wet film thickness between 25 and 900µm. The TQC Wet Film Comb is designed as a disposable thickness gauge. It can be kept as a record of wet film thickness measurement for ISO or customer requirements.

One side of the comb measures the wet film thickness in µm (30 steps between 25 and 900µm), the other side measures in mills (30 steps between 1 and 35 mils)

One set TQC Wet Film Combs contains 500 pieces.

FEATURES

- Ideal for record keeping
- In µm and mils

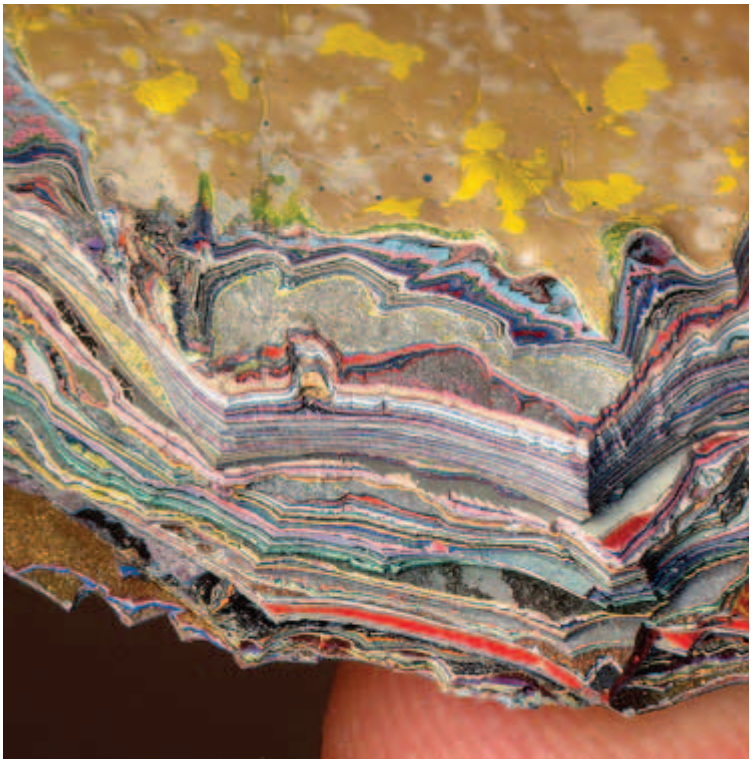
TECHNICAL SPECIFICATIONS PLASTIC WET FILM COMB

Total range	25 to 900 µm
Sides	6
Total steps	30
Side 1	25, 51,76, 102, 127 µm 1, 2, 3, 4, 5 mils
Side 2	152, 178, 203, 229, 254 µm 6, 7, 8, 9, 10 mils
Side 3	279, 305, 330, 356, 381 µm 11, 12, 13, 14, 15 mils
Side 4	406, 432, 457, 483, 508 µm 16, 17, 18, 19, 20 mils
Side 5	533, 559, 584, 610, 635 µm 21, 22, 23, 24, 25 mils
Side 6	660, 737, 787, 832, 900 µm 27, 29, 31, 33, 35 mils
Weight	4 g / 0,14 oz
Dimensions	58x58x0,8 mm / 2,28x2,28x0,03 inch
Material	Plastic

ORDERING INFORMATION WET FILM MEASURING COMB

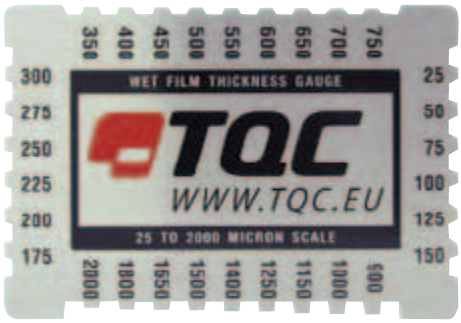
Art. No	
LD2020	Plastic wet film comb, 500 pieces

Scope of supply: TQC Wet Film Combs 500 pieces



WET FILM MEASURING COMB

Rectangular promotion measuring comb with a range of 25 to 2000 µm. Made of top-quality, weather-resistant aluminum. Special printing possible with larger orders.



FEATURES

- Weather-resistant aluminium
- Special printing possible

STANDARDS

ISO 2808
ASTM D4414
ГОСТ Р 51694

TECHNICAL SPECIFICATIONS WET FILM MEASURING COMB

Total range	25 to 2000 µm
Sides	4
Total steps	30
Side 1	25, 50, 75, 100, 125, 150 µm
Side 2	175, 200, 225, 250, 275, 300 µm
Side 3	350, 400, 450, 500, 550, 600, 650, 700, 750 µm
Side 4	900, 1000, 1150, 1250, 1400, 1500, 1650, 1800, 2000 µm
Weight	10 g
Dimensions	82x55x0,8 mm / 3,23x2,17x0,03 inch
Material	Aluminium

ORDERING INFORMATION WET FILM MEASURING COMB

Art. No	
LD2030	Aluminium measuring comb, 25-2000 µm in 30 steps

WET FILM THICKNESS WHEEL

Specially by TQC developed instrument for use on wet lacquers, paint and coil coated surfaces. Equipped with a precision roller-bearing for smooth rolling over the surface . The wheel has three rims, the inner rim being eccentric to the two outer rims. The outer rings are notched for a firm grip in the surface to prevent slipping. Made of stainless steel and with an aluminum grip.

FEATURES

- Precision roller bearing
- Slipping prevention
- Stainless steel with aluminum grip

STANDARDS

JIS Z2371	ISO 2808	ГОСТ Р 51694

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

ORDERING INFORMATION WET FILM THICKNESS WHEEL

Art. No	VF2255	VF2256	VF2257
Measuring range	0-100 µm	0-300 µm	0-600 µm
Accuracy	better than 3 micron	better than 3 micron	better than 3 micron
Division	10 µm	30 µm	60 µm
Dimensions	90x22x22 mm / 3,54x0,87x0,87 inch	115x22x22 mm / 4,52x0,87x0,87 inch	140x22x22 mm / 5,51x0,87x0,87 inch
Weight	148 g / 5,22 oz	148 g / 5,22 oz	150 g / 5,29 oz
Material	st. steel / aluminum	st. steel / aluminum	st. steel / aluminum

Scope of supply: Wet film thickness wheel , Calibration certificate, Leather pouch

CROSS CUT ADHESION TEST KIT (MASTER PAINT PLATE)

The TQC Cross Cut Adhesion Test KIT (Master Paint Plate) is a stainless steel measuring tool that features: a 1 mm, 1.5 mm, 2 mm and 3 mm cross cut adhesion test according NEN-EN-ISO 2409:2003 and ASTM D 3359 (X-cut) andreas cross, wet film thickness gauge from 50 up to 160 microns, edge grind checker for correct roundness of edges, wet film applicator ranging from 0 to 180 µm as well as leveling test providing an indication of the viscosity of the coating. Delivery includes cutting tool and tape.

SEE ALSO PAGE 145

FEATURES

- Multifunctional tool:
  - Viscosity indicator
  - Cross cut adhesion test
  - Wet-film applicator
  - St. Andrew's cross adhesion test
  - Edge-rounding check
  - Wet film thickness gauge

STANDARDS

ISO 2409
ASTM D 3359
ГОСТ 15140

ORDERING INFORMATION CROSS CUT ADHESION TEST KIT (MASTER PAINT PLATE)

Art. No	
SP3000	Cross Cut Adhesion Test Kit Master Paint Plate

Scope of supply: Master Paint Plate, rubber grip knife, standardized tape, manual, sturdy case

ACCESSORIES / SPARES

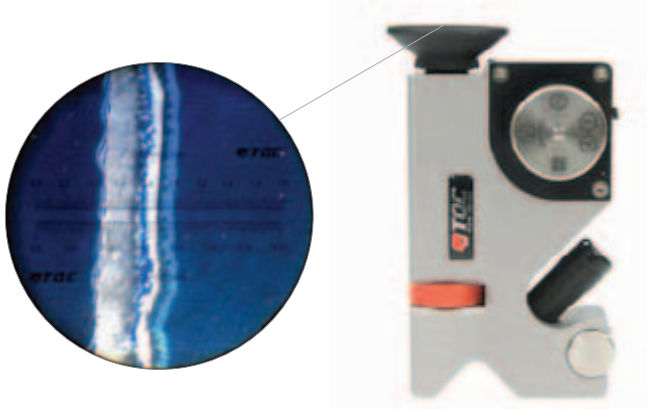
SP3008	Rubber grip knife
SP3007	Tape for TQC Cross Cut Adhesion Test, 1 roll acc. EN ISO 2409:2003.
SP3010	Tape for TQC Cross Cut Adhesion Test, 3 rolls acc. EN ISO 2409:2003.

TECHNICAL SPECIFICATIONS CROSS CUT ADHESION TEST KIT (MASTER PAINT PLATE)

Material	Stainless Steel
Dimensions	100x55 mm / 3,94x2,17 inch
Adhesion test	Cross cut (ISO), Andreas(ASTM)
Wet film thickness test	50-160µ, in steps of 10µ
Levelling test	1, 1.5 and 2 mm
Film applicator	0-180µ, in steps of 20µ
Edge radius	2, 3, 4 and 5 mm

SUPER PIG III DESTRUCTIVE PAINT INSPECTION GAUGE

The TQC SP1100 SuperPIG is a destructive precision tool for inspection and thickness measurement on single or multiple coats on virtually all substrates, including wood, plastics, metals etc. Also observes and measures substrate and film defects. Applies a small incision in the layer of paint, and uses an integrated microscope reticle. The SP1100 is a very stable instrument, also the integrated microscope has an excellent focus. The microscope is provided with a double scale (mm and inch) which allows you to calculate to micrometers and mils. Reduce of ambient light because of a rubber end cap on the microscope so when observing through the microscope you will have a better focus upon the specimen.



STANDARDS ISO 2808

FEATURES

- Compact ergonomic design made of Titanium anodized aluminium and stainless steel
- Revolver-type tool holder for quick tool changes
- Three knife sizes and one crosscut knife in one holder
- Measurement of single or multiple coats on virtually any substrate
- Small size eases use in corners
- Engraved scaling (D-factor) for easy calculations
- Ultra clear microscope with rubber protective eye cup
- Bright white LED lights ensure clear vision through the microscope

TECHNICAL SPECIFICATIONS SUPER PIG III DESTRUCTIVE PAINT INSPECTION GAUGE

Range	2 to 1800 microns / 0,1 to 70 mils
Microscope	Magnification 50X (with graduation-scale)
Scale range	0,00 – 1,8 mm / 0,00 – 0,07 inch
	(rectilinear measured)
Variation	Accuracy depends on chisel cut angle
	and users reading
Battery	4 x AG13/LR44
Material	Titanium anodised aluminium and
	stainless steel
Dimensions	40x72x120 mm / 1,57x2,83x4,72 inch
Weight	554 g / 19,54 oz

ORDERING INFORMATION SUPER PIG III DESTRUCTIVE PAINT INSPECTION GAUGE

Art. No	
SP1100	TQC Super Pig III Paint Inspection Gauge

Scope of supply: Super Pig III destructive paint inspection gauge, Wrist strap, Black marker, Cutters 1, 2 and 3, Hex diagonal wrench, Black leather case with belt clip

ACCESSORIES / SPARES

SP1111	Cutter No. 1 for Superpig II + III	**SP1113**	Cutter No. 3 for Superpig II + III
SP1112	Cutter No. 2 for Superpig II + III	**SP1114**	Cutter No. 4 for Superpig II + III
SP1702	Cutter for TQC Cross Cut Adhesion Test, 1 mm acc. to EN ISO	**SP1705**	Cutter for TQC Cross Cut Adhesion Test, 1 mm acc. to ASTM
SP1703	Cutter for TQC Cross Cut Adhesion Test, 2 mm acc. to EN ISO	**SP1706**	Cutter for TQC Cross Cut Adhesion Test, 1.5 mm acc. to ASTM
SP1704	Cutter for TQC Cross Cut Adhesion Test, 3 mm acc. to EN ISO	**SP1062**	LED light for Superpig III

TQC FE|NFE COATING THICKNESS GAUGE

This handy, robust and easy to use TQC coating thickness gauge is ideal for measurement tasks in various industries and paint applications. This compact meter allows measurement of painted objects, or other corrosion protective layer thicknesses, with accuracy measured in both Fe (iron or steel) and NFe (aluminum, copper, brass or non-magnetic steel)

FEATURES

- 128x128 dot matrix display
- Two measuring modes: Single and continuously
- Two group modes: direct (DIR) and general (GEN)
- Zero point calibration and multi-point calibration (up to 4 points) for each group
- Possibility to recall and delete specific readings or delete whole group readings
- Three different probe modes; auto, magnetic and eddy current
- Possibility to set high or low limit alarm for each group
- Power off automatically
- USB interface for data transfer
- Low battery and error indicatior

STANDARDS ISO 2808

ORDERING INFORMATION TQC FE|NFE COATING THICKNESS GAUGE

Art. No	
LD0800	TQC FE|NFE Coating thickness gauge

Scope of supply: TQC Fe/NFe Coating thickness gauge, USB cable, Software, 2 x batteries 1.5V AAA, Foil set, NFe zero plate, Fe zero plate, Carrying Case

TECHNICAL SPECIFICATIONS TQC FE|NFE COATING THICKNESS GAUGE

Measuring method	F probe = magnetic induction / N probe = eddy currents
Measuring range	0-1300µm / 0 to 51.2 mils
Accuracy	+/-3% + 2µm (0.078 mils)
Resolution	0µm – 999µm (1µm) / 0 mils – 39.39 mils (0.01 mils) 1000µm – 1300µm (0.01mm) / 39.4 mils – 51.2 mils (0.1 mils)
Calibration	One point to four points calibration, zero point calibration, basic
Data group	One direct group (readings not stored in memory) Four general groups (readings will be stored automatically) NOTE: each group has individual statistics, alarm limit settings and calibration
Statistics	No. of readings, mean, minimum, maximum and standard deviation
Units	µm, mm and mils
Alarm	User can set high/low alarm limit, alarm icon displayed on LCD when over limit
Min. curvature radius convex	1.5mm / 0,04inch
Min. curvature radius concave	25mm / 0,98inch
Min. measuring area	Diameter 6mm / 0,24inch
Min. thickness of substrate	Fe - 0.5mm (0.02") / NFe – 0.3mm (0.012")
Max. Measuring range	2 readings p/s
Computer interface	download data via USB
Power supply	2 x 1.5V AAA battery
Operation environment Temp	0 to 40°C (32 to 104°F) / Humidity: 20% to 90%
Storage environment Temp	-20 to 70°C (-4 to 158°F)
Standard Compliance	ROHS WEEE
Size	110mm x 53mm x 24mm (4.33"x 2.09"x 0.94")
Case material	ABS 92g (3.24oz)

COATING THICKNESS GAUGE QNIX®4200 FE / QNIX® 4500 FE NFE

QNix® 4500 - a handy, fast and robust coating thickness gauge. QNix® 4500 was developed particularly for measuring tasks in the automobile industries. This compact gauge permits extremely precise measurements of lacquer and anti - corrosion protection coating thicknesses, both on steel and iron as well as on non-ferrous metals such as aluminum, zinc and copper. The automatic substrate recognition, extended measuring range, and increased measuring speed is what make this gauge special.

For measurements on steel and iron, the identically designed Qnix®4200 is available.

With the practice-oriented product properties, professionals immediately recognize the handwriting of QNix® gauges

STANDARDS	+ QNIX4500
ISO 2808	ASTM D1400
ISO 2178	DIN 50984
ASTM D1186	ISO 2360
ASTM D7091	
DIN 50981	

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

FEATURES

- Gauge for standard applications - simple, fast measurements
- One-hand operation. Only one button
- No calibration
- Automatic On/Off switching
- High precision over the entire measuring range
- Broad spectrum of use for non-destructive measurements
- Compact design with integrated probe
- Innovative, proven technology: Hall sensor and Eddy Current technology
- Acoustic signal for confirmation that measurement has been taken
- Non wearing ruby probe tip for long term use

ORDERING INFORMATION COATING THICKNESS GAUGE QNIX®4200 FE / QNIX® 4500 FE NFE

Art. No	
LD0411	QNix 4500 coating thickness gauge (with integrated Fe 3000 µm/NFe 3000 µm probe)
LD0410	QNix 4200 coating thickness gauge Ferro (with integrated Fe 3000 µm probe)

Scope of supply: Coating thickness gauge, Gauge carrying case with reference plates, 2 x 1,5 V AA Batteries, Test Certificate, Instruction and manual

TECHNICAL SPECIFICATIONS COATING THICKNESS GAUGE QNIX®4200 FE / QNIX® 4500 FE NFE

Measuring range	Fe 0 - 3000 µm / 0.00 - 120 mil NFe 0 - 3000 µm / 0.00 - 120 mil	Minimum curvature	convex 5 mm / 0.02 inch concave 25 mm / 1 inch
Resolution	Range 0-999 µm: 1 µm Range ≥ 1 mm : 0.01 mm 0.01 mil up to 9.99 mil 0.1 mil from 10 to 99.9 mil 1 mil from 100 to 120 mil	Minimum substrate thickness	Fe 0.20 mm / 8 mil NFe 0.05 mm / 2 mil
		Temperature range	Storage -10°C to 60°C / 14°F to 140°F Operation 0°C to 60°C / 32°F to 140°F
		Probe	One-point
Accuracy	+/- (2 µm + 3%*) / +/- (0.08 mil + 3 %*) (*) of reading	Power supply	2 x AA alkaline batteries
		Material	Plastic
Minimum object size	Fe 10x10 mm^2 / 0.4x0.4 inch NFe 6x6 mm^2 / 0.24x0.24 inch	Dimensions	100x62x27 mm / 3.9x2.4x1.1 inch
		Weight	100 g / 3,5 oz (incl. batteries)

QNIX 8500 COATING THICKNESS GAUGE FERRO NON-FERRO

QNix® 8500: A modular precision measuring system for maximum flexibility. In close collaboration with practitioners from the handwork, industry and service sectors a new generation of a modular measuring system resulted that belongs to the best of its class.

Simply place and read. Like other QNix® coating thickness gauges, the modular system of the QNix® 8500 is a perfect example of extremely simple and easy-to-use, durable and reliable gauge with variable and versatile applications. Whether on lacquer or corrosion protection on metals. Whether on iron, aluminum, copper, zinc or steel. With a simple probe change, all non-magnetic coatings on steel and iron and all isolating coatings on non-ferrous metals are measured accurately and non-destructively

Although QNix® thickness gauges and systems are generally easy and handy, our ambition is to gain even more access to hardly reachable measuring points. QNix® 8500 - in collaboration with the radio control probe QNix® sat - offers new applications for the measuring of coating thickness.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

Fe – NFe
Fe/NFe

FEATURES

- Wireless communication between PC and body gauge.
- View memorized readings from the body gauge.
- Export readings into Excel sheet.
- Configure the body gauge.
- Online measurement.
- Adaptable to individual evaluation system.

ORDERING INFORMATION QNIX 8500 COATING THICKNESS GAUGE FERRO NON-FERRO

Art. No	
LD0412	QNix 8500 Basic Coating Thickness Gauge Ferro / Non-Ferro with probe cable (1m), without probe.
LD0413	QNix 8500 Premium coating thickness gauge, with USB dongle, software version 7.0 and probe cable (1m), without probe.
LD0420	Ferro probe 2000µm for QNix 8500
LD0421	Ferro probe 5000µm for QNix 8500
LD0427	Ferro probe (wireless - Qnix Sat) 2000µm for QNix 8500
LD0428	Ferro probe (wireless - Qnix Sat) 5000µm for QNix 8500

Scope of supply: Body gauge QNix® 8500 with optional probe. 2 Mignon batteries 1.5 V (AA)(Alkaline). Adaptor cable for external probe (not for radio control probe). Instruction manual. Test certificate for optional probe. Reference plates. Suit case belt clip. Gauge carrying case for safe transportation and storage.

TECHNICAL SPECIFICATIONS COATING QNIX 8500 COATING THICKNESS GAUGE FERRO NON-FERRO

Resolution	0.1 µm	0 to 99.9 µm	0.01 mil	0 to 9.99 mil
	1 µm	100 to 999 µm	0.1 mil	10 to 100 mil
	0.01 mm	≥ 1.00 mm	1 mil	> 100 mil
Accuracy	(factory calibration on zero reference plates supplied with the gauge) +/- (1 µm + 2%*) 0 to 2000 µm +/- (0.04 mil + 2%*) 0 to 80 mil +/- 3.5%* > 2000 µm (80 mil) (* of reading) With the one-point or two-point calibration the accuracy can still be improved using the optionally available test shims.			
Minimum Area	Fe-Probe	10 x 10 mm² (0.4" x 0.4")		
	NFe-Probe	6 x 6 mm² (0.24" x 0.24")		

Minimum Curvature	convex	5 mm (0.2")
	concave	30 mm (1.2")
Minimum Substrate Thickness	Fe-Probe	0.2 mm (8 mil)
	NFe-Probe	0.05 mm (2 mil)
Temperature Range		
Storage	-10°C to 60°C (14°F to 140°F)	
Operation	0°C to 50°C (32°F to 122°F)	
Power Supply	2 x batteries (AA) 1.5V Alkali, or 2 x rechargeable batteries (AA) 1.2V	
Dimensions	124 mm x 67 mm x 33 mm (4.9" x 2.6" x 1.3")	
Weight	ca. 120 g (4.3 oz) gauge with batteries and probe	

POSITEST DFT FOR METAL

The DeFelsko PosiTest DFT electronic thickness gauge measures coating layers on almost all metals. This instrument is an inexpensive alternative without uncompromising the quality as advised by DeFelsko. Two models are available: Ferrous and Combo

PosiTest DFT Ferrous — Measures non-magnetic coatings on Steel/Iron

PosiTest DFT Combo — Measures both non-magnetic coatings on Steel and non-conductive coatings on Aluminium, Brass, etc. Automatically recognizes the substrate and takes a measurement.

STANDARDS

ISO 2178	ASTM D1186
ISO 2360	ASTM D1400
ISO 2808	ASTM E376
ISO 19840	ASTM G12
ASTM B244	BS3900-C5
ASTM B49	SSPC-PA2
ASTM B659	

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Fast, repeatable measurements
- Ready to measure—no calibration required for most applications
- ZERO feature for rough or curved surfaces
- 1 Point Calibration Adjustment feature for adjusting to a known thickness
- Displays the moving average for up to the last 10 mea surements
- Handy RESET feature when no zero reference is available
- Strong, wear-resistant, ruby-tipped probe
- FLIP Display enables right-side-up viewing in any position
- V-groove in probe for positioning on cylindrical parts
- Basic instructions on the back of each gage
- Audible and visible measurement indication
- Mils/Microns switchable
- Built-in wrist strap for added convenience and safety
- Two year warranty on gauge body AND probe

TECHNICAL SPECIFICATIONS POSITEST DFT FOR METAL

Measurement range	0-1000µm / 0-40 mills
Accuracy	+/-(2µm + 3%) / +/-(0.1 mils + 3%)
Power	AAA batteries
Weight	70 g / 2.5 oz.
Dimensions	100x38x23mm / 4x1,5x0,9 inch

ORDERING INFORMATION POSITEST DFT FOR METAL

Art. No	
LD6011	DFT Ferrous
LD6012	DFT Combo

Gauge with built-in probe, wrist strap, precision plastic shims, hard shell storage case, AAA alkaline battery, instructions, protective lens shield, long form Certificate of Calibration traceable to NIST and two (2) year warranty.

POWDER COMB

This simple, easy-to-use gage measures the thickness of applied dry coating powder ...before it's been cured! Check Powder thickness with Powder Comb before curing to help ensure correct cured film thickness the first time through the line. Avoid stripping and re-coating which can cause problems with adhesion and coating integrity. Ideal for set-up and quality control. Works on a variety of part sizes, shapes and substrates such as metal, plastic, wood, glass, and more. Easy to carry; convenient shirt pocketsize Available in microns (metric) or mils (inch)

ORDERING INFORMATION POWDER COMB

Art. No	
SP7309	Powder Comb

COATING THICKNESS CALIBRATION STANDARDS

LD5400-LD5417-LD5418
Plastic foils and plates. Certificates available upon request. Available in the range of 12 to 20.000 µm / 0,5 to 785 mils. These foils can be applied to all ferrous- or non-ferrous metal substrates.

LD5401-02-03-04-05-06
Coated metal calibration standards consisting of a set of 4 calibration plates with epoxy coating on steel (S1-S2-S3) or aluminium (A1-A2-A3)

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ORDERING INFORMATION COATING THICKNESS CALIBRATION STANDARDS

Art. No	
LD5400	Coating thickness calibration standard, set of 5 Plastic Shims, Non-Certified 25 µm (1 mil) Orange +/- 20%, 50 µm (2 mil) Red +/- 10%, 125 µm (5 mil) Blue +/- 5%, 250 µm (10 mil) Brown +/- 5%, 500 µm (20 mil) Yellow +/- 5%
LD5417	Coating thickness calibration standard, set of 8 Plastic Shims, Certified, accuracy +/-2 µm (+/-0.08 mil) 25 µm (1 mil) Orange, 50 µm (2 mil) Red, 75 µm (3 mil) Green, 125 µm (5 mil) Blue, 250 µm (10 mil) Brown, 500 µm (20 mil) Yellow, 1000 µm (40 mil) White, 1500 µm (60 mil) Black
LD5418	Coating thickness calibration standard, single Plastic Shim, Certified, +/-2 µm (+/-0.08 mil) Select one from: LD5417
LD5401	Coating Thickness Calibration Standard S1 FE 0/75/250/1500 µm
LD5402	Coating Thickness Calibration Standard S2 FE, 0/75/250/1000 µm
LD5403	Coating Thickness Calibration Standard S3 FE, 0/15/ 40/ 100 µm
LD5404	Coating Thickness Calibration Standard A1 Al, 0/75/250/1500 µm
LD5405	Coating Thickness Calibration Standard A2 Al, 0/75/250/ 500 µm
LD5406	Coating Thickness Calibration Standard A3 Al, 75/125/250/500 µm

COATING THICKNESS GAUGE FOR ALL SUBSTRATES

The Defelsko Positector 200 measures non-destructively a wide variety of applications using proven ultrasound technology. Measures coating thickness over wood, concrete, plastics, composites and more. Advanced models measure up to 3 individual layer thicknesses in a multi-layer system and features a graphic readout for detailed analysis of the coating system.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Enhanced one-handed menu navigation
- No adjustment required to measure most coatings
- Solvent, acid, oil, water, and dust resistant – weatherproof
- Fast, accurate readings

SEE ALSO PAGE 132-135

STANDARDS

ISO 2808
ГОСТ Р 51694
ASTM D6132

ORDERING INFORMATION COATING THICKNESS GAUGE FOR ALL SUBSTRATES

Art. No	LD0210	LD0211	LD0212	LD0213	LD0214	LD0215
Measures	total thickness and individual layers	total thickness	total thickness and individual layers	total thickness	total thickness and individual layers	total thickness
Graphic Display	No	Yes	No	Yes	No	Yes
Typical applications	polymer coatings on wood, plastic etc.	polymer coatings on wood, plastic etc.	thicker coatings on concrete, fiberglass, etc.	thicker coatings on concrete, fiberglass, etc.	thick, soft coatings like polyurea, asphaltic neoprene, very thick polymers, etc.	thick, soft coatings like polyurea, asphaltic neoprene, very thick polymers, etc.
Range	13 - 1000 microns; 0,5 - 40 mils	13 - 1000 microns; 0,5 - 40 mils	50 - 3800 microns; 2 - 150 mils	50 - 3800 microns; 2 - 150 mils	50 - 7600 microns; 2 - 300 mils	50 - 7600 microns; 2 - 300 mils
Accuracy	+/- (2microns = 3% of reading); +/- 0,1 mils +3% of reading)	+/- (2microns = 3% of reading); +/- 0,1 mils +3% of reading)	+/- (2microns = 3% of reading); +/- 0,1 mills + 3% of reading)	+/- (2microns = 3% of reading); +/- 0,1 mills + 3% of reading)	+/- (20microns = 3% of reading); +/- 1 mils + 3% of reading)	+/- (20microns = 3% of reading); +/- 1 mils + 3% of reading)
Min. Individual layer thickness*		13 microns; 0,5 mils		50 microns; 2 mils		500 microns; 20 mils

*For multiple layer applications only. Dependent on material being measured.

Scope of supply: Body, probe, couplant (ultrasonic gel), precision plastic shim(s), protective rubber holster with belt clip, wrist strap, 3 AAA alkaline batteries, instructions, nylon carrying case with shoulder strap, protective lens shield, Long Form Certificate of Calibration traceable to NIST, USB cable, two (2) year warranty.

POWDERTAG THICKNESS ANALYSING GAUGE

PowderTAG measures powder coating thickness before and after cure, non-contact and non-destructive.
A sophisticated combination of specific powder-, infrared- and photo-thermal techniques measures the thickness of powder coatings in pre-cured and cured status, precize and reproducible.

- Save on powder consumption!
- Save on rework and reject!
- Improve efficiency!
- Improve quality!

PowderTAG is a non-contact production tool, developed for use at the paint-line.

NEW
Expected early 2015

The instrument is equipped with a clear full colour TFT display and substantial memory capacity for storage of Ideal Finish Analysis measurements and settings. PowderTag communicates with IFA, TQC's powerful analysis and reporting software.

IDEAL FINISH ANALYSIS Ready

FEATURES

- Easy to operate. Just point the probe at the surface at the right distance (LED-Pointers will indicate the correct distance / location) and press the "measure" button.
- Measures any form, shape and dimension. Including wire frames or edges.
- Large measuring range combined with a very high accuracy level.
- Measures on any metal substrate such as steel, aluminium and MDF
- Large measuring range. 150 µm and over.*
- Extremely accurate. Accuracy ± 2 µm or better*.
- Suitable for uncured and cured powder coatings.

* Depending on coating type and substrate.

Vision on quality
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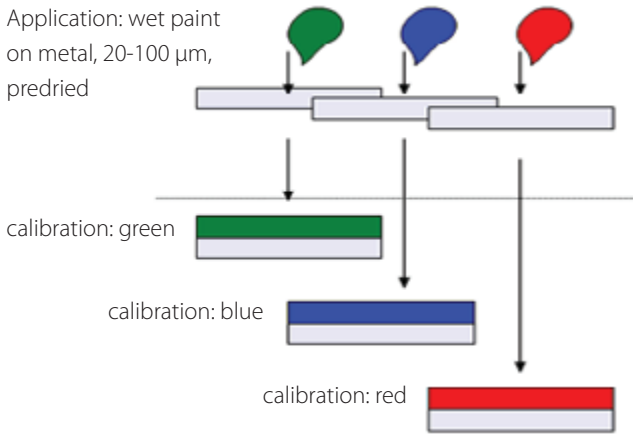
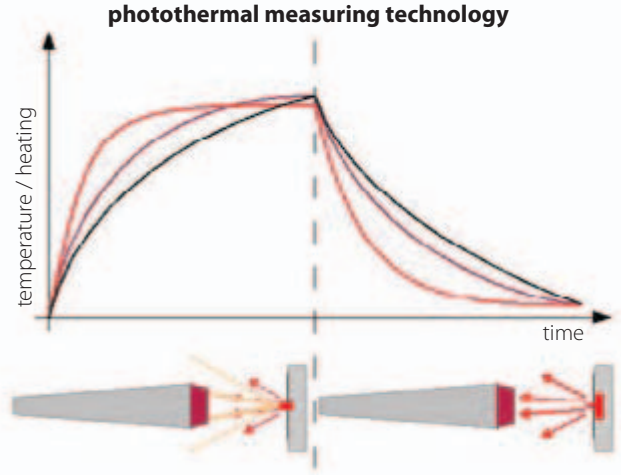
ORDERING INFORMATION
POWDERTAG THICKNESS ANALYSING GAUGE

Art. No	
LD5850	PowderTAG Thickness Analysing Gauge





PRELIMINARY TECHNICAL SPECIFICATIONS POWDERTAG THICKNESS ANALYSING GAUGE
(subject to changes without prior information)

Measuring Range	0 - >150 µm*	Weight sensor	150 g
Accuracy	+/- < 2 µm*	Dimensions instrument	L x W x H: 80 x 180 x 42,4 mm
Resolution	approx. 0,1 µm	Weight instrument	750 g
Measuring distance	≈ 15 mm	Battery type	2X Li-Ion AA
Measuring spot	0,25 mm	Battery lifetime	10 hours of continuous use
Measuring speed	100 ms tot 2 S	Interface	USB
Dimensions sensor	L = 110 mm, D = 25 mm	Substrates	All metals and MDF (Medium Density Fibreboard)

* Depending on coating type and substrate.

POWDER COATING METER POWDERCHECKER XP

The TQC PowderChecker XP optimizes the powder application by measuring the output of the cabin. The TQC PowderChecker XP measures uncured powder coatings using ultrasonic technology to automatically calculate a predicted cured thickness. This is sent by Bluetooth® to the recorder, where the value is shown in the large display. Taking a measurement is fast and accurate (3%) in the range of 30 to 110 microns. Using the TQC PowderChecker XP saves on powder and reduces loss of products. For most powders no calibration adjustment is required.

FEATURES

- Hi Contrast reversible color LCD
- Storage of 100,000 readings in up to 1,000 batches
- Batch annotation - add notes and change batch names with onscreen QWERTY keyboard
- WiFi technology wirelessly synchronizes with PosiSoft.net, downloads software updates and connects with mobile devices for expanded functionality
- PosiTector PC accepts all PosiTector probes easily converting from measuring uncured powder to cured dry film thickness, surface profile, and more.
- PosiSoft solutions for viewing analyzing and reporting data include PosiSoft USB, PosiSoft.net, PosiSoft 3.0
- Desktop software and PosiSoft Mobile

TECHNICAL SPECIFICATIONS POWDER COATING METER POWDERCHECKER XP

Range	20-110 µm / 0,8-4,3 mils
Resolution	1 µm / 0.05 mils
Accuracy	+/- 5 µm / +/- 0,2 mils
Measurement Time	2 -5 seconds
Measurement Distance to Powder	18 mm / 0,75 inch
Measurement Area	2 mm / 0,08 inch
Material	Plastic
Size Base Unit	146x64x31 mm / 5,75x2,5x1,2 inch
Weight Base Unit	165 g / 5,8 oz. without batteries
Probe Size	222 x Ø50 mm / 8,75x Ø2,0 inch
Weight Probe	272 g / 9,6 oz. without batteries

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

ISO 2808
ASTM D7378
ГОСТ Р 51694

ORDERING INFORMATION POWDER COATING METER POWDERCHECKER X

Art. No	
LD5820	TQC PowderChecker XP

Scope of supply: base unit and probe, protective rubber holster with belt loop and magnetic mount, probe fixture, 3 AAA batteries (base unit), 3 AA batteries (probe), instructions, instructional video, replacement probe screen, USB cable, carabiner and wrist strap, durable carrying case, two (2) year warranty.

POSITEST FOR STEEL

PosiTest magnetic pull-off thickness gauge for the non-destructive measurement of non-magnetic coatings on steel. Easily measures small parts of almost any shape.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Highly wear resistant Carbide Probe for longest life and continuous accuracy
- Not affected by mechanical shock, water, acid or solvents
- No batteries/electronics
- 2 year warranty
- Easy-to-use
- "V" grooves in probe housing and gauge base allow correct positioning on cylindrical objects
- Probe contact and dial rotation all in a one-finger operation

ORDERING INFORMATION POSITEST FOR STEEL

Art. No	LD5003	LD5004
Scale	0-200 µm	0-2000 µm
Accuracy	+/-1 µm up to 20 µm +/-5% of the reading over 20 µm	+/-5 µm up to 100 µm +/-5% of the reading over 100 µm
Application	Hot dip galvanizing, hard chrome metalizing, paint, enamel coatings on steel	Electroplating, thin paint films, phosphating on steel

Scope of supply: Postitest

• Certificate of Calibration showing traceability to N.I.S.T.

POSIPEN FOR STEEL

PosiPen has a very small, unique magnet which can be placed with pin-point accuracy on extremely small parts, and on peaks and valleys. Ideal for measuring non-magnetic coatings such as paint, enamel, plating, hot-dip galvanizing on steel.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Easy-to-Use
- Lightweight - easy to carry, just like a ball point pen
- No batteries
- Rugged - not affected by mechanical shock, acid, oil, water and dust
- No user adjustment required
- Certificate of Calibration traceable to NIST included
- Highly wear resistant probe tip for long life and continuous accuracy
- Each PosiPen has two scales mils (inch) and microns (metric)

TECHNICAL SPECIFICATIONS POSIPEN FOR STEEL

Range	5 to 500 µm / 0,25 to 20 mils
Tolerance	+/- -10 % and 2,5 µm / +/- -10 % and 0,1 mil
Temperature	-100°C to +230°C / -150°F to +450°F

ORDERING INFORMATION POSIPEN FOR STEEL

Art. No	
LD6000	Posipen for Steel

Scope of supply: Posipen, leather pouch, Certificate of Calibration traceable to NIST, Instructions

DEFELSKO POSITECTOR 6000

The DeFelsko PosiTector 6000 is a rugged fully electronic gauge body which has the capability to complement it with different optional modules for various functions depending on the specific work to be performed. Two models are available: Standard and Advanced

The Standard models are equipped with a monochrome display and a memory for 250 measure points.

The Advanced models are equipped with a Hi contrast reversible color display, onscreen help, real time graphing, picture prompting and batch notes. Memory can store 100,000 readings in up to 1000 (sub-) batches. Data transfer via USB or Wi-Fi to a PC or via Bluetooth Wireless Technology to a PC or printer. Also available are several extra measuring modes: scan mode for continuous readings, SSPC PA2 and PSPC 90/10.

Both models come without functional modules (probes) which have to be ordered separately. In combination with the probes the PosiTector 6000 can be used as a Coating thickness gauge, Surface profile gauge, Ultrasonic thickness gauge and a Replica tape reader

IDEAL FINISH ANALYSIS Ready

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

SEE ALSO PAGE 127

FEATURES

- Continually displays/updates average, standard deviation, min/max thickness and number of readings while measuring
- HiLo alarm audibly and visibly alerts when measurements exceed user-specified limits
- FAST mode—faster measurement speed for quick inspection
- USB port for fast, simple connection to a PC and to supply continuous power.
- USB mass storage—stored readings and graphs can be accessed using universal PC/Mac web browsers or file explorers. No software required
- Every stored measurement is date and time stamped
- Software updates via web keep your gage current
- Connects to PosiTector.net
- TQC also supplies Ideal Finish Analysis software. With two user levels Ideal Finish Analysis offers user friendly reporting functions for standard production work as well as advanced calculations for in depth analysis.

STANDARDS	
Thickness	ISO 2808, ISO 2360, ГОСТ Р 51694, BS 5411, BS 3900 – C5, DIN 50981, DIN 50984, ASTM B 499, ASTM D 1400
SPG	ASTM D4417-B, AS 3894.5-C (with optional 30° tip angle), U.S. Navy NSI 009-32, SANS 5772 and others.
RTR	ASTM D4417, ISO 8503-5, NACE RP287, SSPC-PA 17, SP6, SP10, SP11-87T and others
UTG	ASTM E797

TECHNICAL SPECIFICATIONS DEFELSKO POSITECTOR 6000

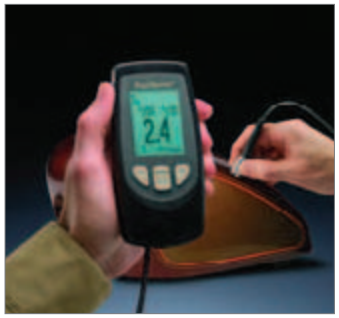
PosiTector 6000 body	
Gage Size	152 x 61 x 28 mm / 6" x 2.4" x 1.1"
Weight (without batteries)	140 g / 4.9 oz
Power	"Alkaline", "Lithium" or "NiMH" (Nickel-metal hydride rechargeable)
Languages	English, French, German, Spanish, Chinese, Japanese, Portugese, Italian, Norwegian Russian, Czech, Polish, Korean, Dutch

Replica Tape Reader RTR	
Measuring Range	20 – 115 um / 0.8 – 4.5 mils
Accuracy	+/- 5 um / +/- 0.2 mils
Resolution	1 um /0.1 mil
Anvil Pressure	110 grams-force / 1.1 Newtons
Anvil Size	Ø 6.25 mm / Ø 0.25 inch
Temperature Range	0° to 40°C / +32° to +104°F

Surface Profile SPG			
Range	0 – 500 µm (0 – 20 mils)	Probe tip	60° angle with a 50µm radius tip
Accuracy	+/- (5 µm + 5%) of reading, +/- (0.2 mils + 5%) of reading	Measurement speed	>40 readings per minute
Resolution	1 µm (0.1 mils)	Weight	140 g (4.9 oz.) without batteries
		Dimensions	137x61x28 mm (5.4" x 2.4" x 1.1")

Ultrasonic Thickness Probes		
	Corrosion probe	Multi Echo probe
Measurement range	1.0 to 125.0 mm / 0.040" to 5.000" for carbon steel and depends on surface conditions	2.5 to 60.0 mm / 0.100" to 2.500"
Measurement Rate – Normal	6 readings/sec.	4 readings/sec.
Measurement Rate – Scan	20 readings/sec.	4 readings/sec.
Resolution	+/-0.01mm / 0.001"	+/-0.01mm / 0.001"
Accuracy	+/-0.03 mm / 0.001"	+/-0.03 mm / 0.001"
Probe type	5 MHz Dual Element	5 MHz Contact
Mode	Single Echo	Multi Echo

Scope of supply: Instrument body, protective rubber holster with belt clip, wrist strap, 3 AAA alkaline batteries, instruction manual, protective lens shield, convenient carrying case, USB cable, PosiSoft.net account, Long Form Certificate of Calibration traceable to NIST and two (2) year warranty



ORDERING INFORMATION DEFELSKO POSITECTOR 6000 BODY

Art. No	
LD6057	Positector 6000 Standard model measuring gauge without probe
LD6058	Positector 6000 Advanced model measuring gauge without probe

ORDERING INFORMATION COATING THICKNESS PROBES

Art. No.	Probe Model	Substrates	Probe Style	Measuring Range
LD6025	F	ferrous	removable built-in	0 - 60 mils (0 - 1500 um)
LD6099	FS	ferrous	regular separate	0 - 60 mils (0 - 1500 um)
LD6017	FRS	ferrous	90° regular separate	0 - 60 mils (0 - 1500 um)
LD6100	F0S	ferrous	0° microprobe	0 - 45 mils (0 - 1150 um)
LD6101	F45S	ferrous	45° microprobe	0 - 45 mils (0 - 1150 um)
LD6102	F90S	ferrous	90° microprobe	0 - 45 mils (0 - 1150 um)
LD6026	FT	ferrous	removable built-in	0 - 250 mils (0 - 6 mm)
LD6018	FTS	ferrous	high-range separate	0 - 250 mils (0 - 6 mm)
LD6020	FKS	ferrous	high-range separate	0 - 500 mils (0 - 13 mm)
LD6014	FHXS Xtreme™	ferrous	high-range separate	0 - 400 mils (0 - 10000 um)
LD6033	FLS	ferrous	high-range separate	0 - 1.5 inches (0 - 38 mm)
LD6027	N	non-ferrous	removable built-in	0 - 60 mils (0 - 1500 um)
LD6104	NS	non-ferrous	regular separate	0 - 60 mils (0 - 1500 um)
LD6019	NRS	non-ferrous	90° regular separate	0 - 60 mils (0 - 1500 um)
LD6105	NAS	non-ferrous	regular separate	0 - 25 mils (0 - 625 um)
LD6106	N0S	non-ferrous	0° microprobe	0 - 25 mils (0 - 625 um)
LD6107	N45S	non-ferrous	45° microprobe	0 - 25 mils (0 - 625 um)
LD6108	N90S	non-ferrous	90° microprobe	0 - 25 mils (0 - 625 um)
LD6024	NKS	non-ferrous	high-range separate	0 - 500 mils (0 - 13 mm)
LD6028	FN	ferrous / non-ferrous combo	removable built-in	0 - 60 mils (0 - 1500 um)
LD6109	FNS	ferrous / non-ferrous combo	regular separate	0 - 60 mils (0 - 1500 um)
LD6022	FNRS	ferrous / non-ferrous combo	90° regular separate	0 - 60 mils (0 - 1500 um)
LD6023	FNTS	ferrous / non-ferrous combo	high-range separate	0 - 250 mils (0 - 6 mm)
LD6034	FNGS	ferrous / non-ferrous	high-range separate	0 - 2.5 inches (0 - 63.5 mm)

F for ferrous metals (steel and cast iron)

N for non-ferrous metals (aluminum, copper, titanium, etc.)

FN for all metal substrates - Automatically recognizes the substrate and takes a measurement

ORDERING INFORMATION SURFACE PROFILE PROBE

Art. No.	Probe Model	Substrates	Probe Style	Measuring Range	Accuracy
LD6029	SPG 60	(Roughness)	Tungsten Carbide tip 60°	0 - 20 mils (0 - 500 um)	+/- (5 µm + 5%) +/- (0.2 mil + 5%)
LD6032	SPG 30	(Roughness)	Tungsten Carbide tip 30°	0 - 20 mils (0 - 500 um)	+/- (5 µm + 5%) +/- (0.2 mil + 5%)

ORDERING INFORMATION REPLICA TAPE PROBE

Art. No.	Probe Model	Substrates	Anvil Pressure	Measuring range	Accuracy
LD5432	RTR sensor	(Roughness)	110 grams-force (1.1 N)	20 to 115 µm (0.8 to 4.5 mils)	+ 5 µm (+ 0.2 mils)

ORDERING INFORMATION ULTRASONIC THICKNESS PROBE

Art. No.	Probe Model	Substrates
LD7109	UTG C Corrosion Probe	Uncoated Steel, Cast Iron, SS, Aluminium, PVC, Plexiglas, Polystyrene
LD7110	UTG M Multiple Echo Probe	True paint

MATERIAL THICKNESS

Material thickness is often confused with coating- or layer thickness. With layer thickness we speak about one or multiple layers attached to a substrate. With material thickness we speak about the actual thickness of the substrate itself.
Sometimes the material thickness can be measured easily using mechanical measuring tools like callipers or other simple means. However in certain situations the accessibility of the measuring spot is not suitable to use mechanical tools. Think about a wall of a ship or vessel or the mid section of large (steel) plates. In these situations ultrasonic measuring devices or wall thickness gauges are used to accurately determine material thickness.

Ultrasonic gauges

Ultrasonic gauges send out an ultrasound pulse through the material from one side only.
Converting the time of flight of the pulse of sound energy reflecting back of the opposite surface results in the material thickness in millimetres or fractions of an inch.
The system of measuring thickness by ultrasound pulses works on a variety of materials:

- Important is that the material has a higher density like for example metal or plastics. Materials with lower densities like wood or concrete are hard- or impossible to measure with these instruments.
- Also the material has to be homogeneous.
  Plastic or epoxy can be measured without any problems and so can glass. However glass fibre reinforced epoxies are impos sible to measure since these are two different materials with different densities.
- The third criteria is that probe and material have to make a very good contact. Very rough surface may cause problems in that respect. The aid of couplant gel is a must in most application.
  Most ultrasonic gauges allow the user to set the ultra sound speed of the instrument. The ultrasound speed of many materials is known and can be retrieved from the table hereunder.

Material / Sound velocity (M/S)

Aluminum	6260	Steel	5900
Gold	3240	Glycerin	1920
Copper	4700	Brass	4640
Polypropylene	2730	Silver	3600
Water at 20°C	1480	Water-glass	2350
Zinc	4170	Tin	3230

When the ultrasound speed of the material is unknown and it meets the earlier mentioned requirements an ultrasonic wall thickness gauge can be calibrated in a simple way. Just take a piece of the material to be measured with a known thickness. Place the instrument on the material and adjust the thickness reading to meet the actual thickness of the sample. The instrument will automatically calculate the corresponding ultrasound speed of the material so that speed setting can be used for future measurements on the same material.

ULTRASONIC WALL THICKNESS GAUGE

Ultrasonic thickness gauge specifically designed to measure the thickness of metallic and non-metallic materials e.g. aluminium, titanium, plastics, ceramics, glass and plastics. It can also be used to monitor all types of pipes and pressure vessels for loss of thickness due to corrosion or erosion. The gauge is easy to use and will give accurate readings to an accuracy of 1%. This unit is not suitable for cast iron due to its big crystalloid composition.

Available in 2 models, Basic and Pro. The Pro version allows you to store data and perform a sound velocity measurement (with a known material thickness), this model is also supplied with an extra probe (5.0MHz). The Basic version has 10 preset sound velocities and does not have the possibility to store data.

FEATURES

- Large LCD screen
- Battery indicator
- Automatic power shut down
- Coupling indicator
- Small in size; light in weight; easy to use
- Simple calibration procedure
- 10 preset sound velocities (model LD7015)
- 10 data storage units (model LD7016)
- Sound velocity measurement (with a known thickness of material) (model LD7016)

TECHNICAL SPECIFICATIONS ULTRASONIC WALL THICKNESS GAUGE

Measuring method	Ultrasonic pulse echo
Display:	LCD
Resolution:	0.1mm
Accuracy	+/- (1%H + 0.1) mm (H denotes the measured thickness)
Operation temperature	0 ºC ~ 40 ºC / 32 ~ 104 °F
Power supply	3x AAA alkaline batteries (total 5V)
Size	70x135x38 mm / 2,76x5,31x1,5 inch

STANDARDS ASTM E797

ORDERING INFORMATION ULTRASONIC WALL THICKNESS GAUGE

Art. No	LD7015	LD7016*
Measuring frequency	5MHz	5MHz / 2.5MHz
Measuring range	1,20 - 220 mm (steel); (deviation possible with use of other materials)	1.20 - 220 mm / 0,05x8,66 inch (steel); Actual range varies with the type of material measured
Measuring tubes	20x3 mm / 0,79x0,12 inch (steel)	
Accuracy	+/- (1%H + 0.1) mm	+/- (1%H + 0.1) mm, H denotes the measured thickness
Sound velocity	10 presets	1000 - 9999 m/s.
Data storage	-	10 units

* Measuring sound velocity with a given thickness: Measuring range: 1000 to 9999 m/s. When the given thickness is over 20mm, the accuracy is +/-5%; when the given thickness is less than 20mm, the accuracy is +/- 1 mm/H*100%

Scope of supply:

LD7015 TQC Ultrasonic Thickness Gauge Basic, Ultrasonic gel 60 ml / 2,03 oz, Probe 10 mm / 0,39 inch - 5.0 MHz, Calibration block, Manual

LD7016 TQC Ultrasonic Thickness Gauge Pro, Ultrasonic gel 60ml / 2,03 oz, Probe 10 mm / 0,39 inch - 5.0 MHz, Probe 10 mm / 0,39 inch – 2.5 MHz , Calibration block, Manual

ACCESSORIES / SPARES

LD7025	TQC ultrasonic gel 50ml / 1,69 oz	**LD7030**	TQC ultrasonic gel 250ml / 8,45 oz

POROSITY

Coatings applied can have irregularities due to different circumstances. Surface uncleanness, paint differences and dust or air bubbles enclosed can cause pinholes, thin spots, cracks etc. To prevent an early breakdown of the coating system causing corrosion underneath, tests has to be made to find the weak spots and action can be taken before problems occur over time. For these kind of tests High Voltage Holiday Detectors provide an accurate way for locating faults in non-conductive coatings and linings and detection of pinholes, flaws, inclusions, thin spots and bubbles in a coating.

High voltage testing of coatings

A High Voltage Holiday Detector is specifically designed to revolutionize high voltage DC testing of coatings, making it safer, easier and more reliable than previously possible. The gauge can only be used to find flaws in coatings whose substrate is made from a conductive material (metal, concrete etc.). The units have variable sensitivity and are fitted with audible and visual fault alarms.

The high voltage technique can be used to test coatings up to 36 mm thick. This method is ideal for inspecting paint on pipelines, tank bottoms and other protective coatings. Coatings on concrete can also be tested using this method.

The instrument has a lot of unique features. A current limiting to avoid coating damage and a safety hand grip without sensitive electronics. Extended ribbing on the handle provides an effective barrier between the high voltage and the user. Accurate sensitivity adjustment allows use on metalized or slightly damp coatings.

As most instruments are portable there is no need to swap power supplies or change probes to change voltage. The Detectors have clip-on battery packs that can be charged separately. Applied voltage and battery condition are continuously shown on the Liquid Crystal Display.

Nace regulations

To perform tests without damaging the coating Test Voltages need to be limited and set according to regulations according to NACE.

a. The Nace RP-0490-2001 calculates the voltage in the formula: Voltage in kV = square root of the layer thickness in microns * 125. For example, when a coating thickness of 400Î¼m: Root 400 = 20 * 125 = 2500V (2.5 kV). NB. The rule is a directive and cannot be seen as an absolute value.

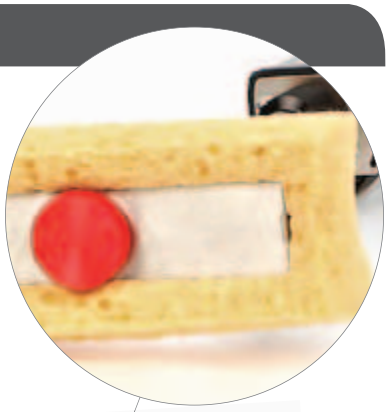
b. The Nace RP-0274-98 calculates the voltage in the formula: Voltage in kV = square root of the layer thickness in microns * 250. For example, when a coating thickness of 3200Î¼m:
Root 3200 = 56.5 * 250 = 14140V (14.1 kV). NB. The rule is a directive and cannot be seen as an absolute value.

Low voltage testing of coatings

In those cases where high voltage testing is not desirable or possible due to thin coating thicknesses up to 500 micron, another test system should be used. For these a Low Voltage Pinhole Detector is used with selectable voltages of 9, 67.5 and 90 volts. Depending on the coating thickness under test use 9 volt for coatings up to 300 micron, 67.5 volt for coatings up to 400 micron and 90 volt for coatings until 500 micron. The system consists of a battery operated instrument with earth lead and a wet sponge as electrode. By moving the slightly wetted sponge over the test area moisture will pass the pinhole due to capillary absorption making contact with the base substrate causing an alarm to indicate a pinhole.

LOW VOLTAGE PINHOLE DETECTOR

Low voltage pinhole detector to detect defects on several types of coatings on ferrous substrates by using the wet sponge technique.



Inspector's accessory-kit coming soon

FEATURES

- Color Display with battery indicator and menu based user interface
- Intuitive single button controls
- Visual, audible and tactile feedback*
- Return cable connectivity detection*
- Smart power saving features (screen dimming, standby, auto power-off)
- Detected pinhole counter
- Automated self-diagnostics

* Depending on model

SEE ALSO PAGE 196

TECHNICAL SPECIFICATIONS LOW VOLTAGE PINHOLE DETECTOR

Sensitivity	100 kΩ +/-5% (all voltages)
Maximum coat	500µm / 20mils
Batteries	3x AA Penlight (Alkaline / NiCd / NiMH)
Battery life	Up to 150 hours (depending on battery type and operating conditions)
Dimensions	237x47x47 mm / 9,33x1,85x1,85 inch (without wand)
Weight	~350 gr (without wand) ~600 gr (with wand)

STANDARDS

ISO 8289-A
ISO 14654
BS 7793
ASTM D 5162-A
JIS K 6766
TM0384

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

ORDERING INFORMATION LOW VOLTAGE PINHOLE DETECTOR

Art. No	LD8100	LD8105
Voltage	9V, 90V	9V, 24V, 67,5V, 90V
Accuracy	9V	+/- 2% +/- 2%
24V	-	+/- 2%
67,5V	-	+/- 2%
90V	+/- 5%	+/- 5%

Scope of supply: TQC low voltage pinhole detector , Handle with sponge, Earth lead with clip, Calibration certificate

HIGH VOLTAGE HOLIDAY DETECTOR

The TQC High Voltage Holiday Detector or porosity test provides accurate detection of pinholes, flaws, inclusions, thin spots and bubbles in a coating. The gauge has been specifically designed to revolutionise high voltage DC testing of coatings, making it safer, easier and more reliable than previously possible.

The high voltage technique can be used to test coatings up to 36 mm thick. This method is ideal for inspecting paint on pipelines, tankbottoms and other protective coatings. Coatings on concrete can also be tested using this method.

The instrument has a lot of unique features. A current limiting to avoid coating damage, , and a safety hand grip without sensitive electronics. Extended ribbing on the handle provides an effective barrier between the high voltage and the user. Accurate sensitivity adjustment allows use on metallised or slightly damp coatings.

Controls

1 LCD display (including battery condition indicator)
2 Voltage control (10 turn)
3 Visual alarm indicates when fault is found
4 On switch
5 Off/test switch
6 Sensitivity control for the alarm
7 Audible alarm when fault is found
8 High Voltage probe connector
9 Fuse (1.6A slow blow) 5 x 20mm
10 Earth connection point
11 Charge connector - alows operation while charging is in progress
12 Clip-on battery pack
13 Earphone (connected on opposite side)

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Lightweight with ABS case
- Momentary on switch allows auto shut-off
- Digital display of applied voltage with integral battery condition indicator
- Regulated DC voltage
- Voltage ranges of 0-15Kv or 0-30Kv, fully adjustable
- Clip-on battery pack
- Constant test current
- Sensitivity control
- Overcharge protection
- Single power supply
- Earphones for noisy environments
- Optional on/off switch in handle

ORDERING INFORMATION HIGH VOLTAGE HOLIDAY DETECTOR

Art. No	
LD8503	TQC High Voltage Holiday Detector 30kV
LD8504	TQC High Voltage Holiday Detector 15kV

TECHNICAL SPECIFICATIONS HIGH VOLTAGE HOLIDAY DETECTOR

	DC15	DC30
Unit Weight	2.2 Kg.	2.2 Kg.
Packed weight	6.0 Kg.	6.0 Kg.
Display	LCD 3¾ digits	LCD 3¾ digits
Voltage	0 to 15kv	0 to 30kv
Resolution	10v	10v
Short circuit	Test current 0.5mA max	
Power supply	Gel cell 3Ah slide-off	
Dimensions	260 x 160 x 70 mm	
Alarm	Audible and visual	
Probe handle	2m high-voltage silicon-rubber lead	
Battery condition	LCD Display	

ADHESION

Adhesion is the tendency of dissimilar particles and/or surfaces to cling to one another. The adhesive strength of paint and coatings are of crucial importance to enable the material to meet the basic functions of protection and decoration.

Adhesion testing in the paint and coating industries is necessary to ensure the paint or coating will adhere properly to the substrates to which they are applied. Adhesion testing after the coating process will quantify the strength of the bond between substrate and coating, or between different coating layers or the cohesive strength of materials.

The adhesive strength of applied coatings depends heavily on the quality of the pre-treatment process prior to the coating application. Also compatibility between coatings or coating and substrate is a key factor.

Adhesion testing is used as part of inspection and maintenance procedures to help detecting potential coating failures, control the quality of a coating job or to define if an existing coating system has to be removed before applying new paint.

There are three different tests to measure the resistance of paints and coatings from substrates: cross-cut test, scrape adhesion, and pull-off test.

Cross-Cut or Cross Hatch Test

A right angle lattice pattern is used to measure the resistance of paints and coatings to separation from substrates. The pattern is cut into the coating and penetrates through the substrate. A specified pressure sensitive tape is applied to the sample and pulled off. This testing method is often used as a fast pass or fail test. If this test is used on a multi-coated sample, assessment of the resistance to separation of individual layers of the coating from each other can be made.

Scrape Adhesion

The scrape adhesion test measures the determination of the adhesion of organic coatings when applied to smooth, flat panel surfaces. It is helpful in giving relative ratings for a number of coated panels showing significant differences in adhesion. The materials being tested are applied at uniform thickness to flat panels, mainly some sort of sheet metal. When the materials have dried the adhesion is determined by pressing panels under a rounded stylus that is loaded with increasing amounts of weight until the coating is removed from the substrate surface.

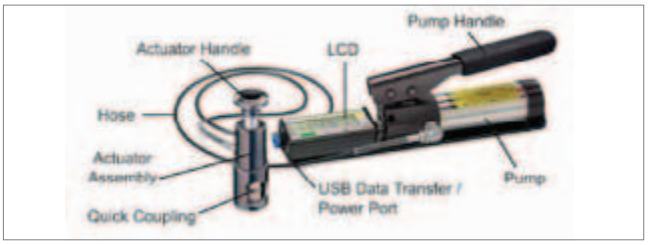
Pull-Off Test

The adhesion of a coating or several coated samples of any paint product is measured by assessing the minimum tensile stress needed to detach or rupture the coating perpendicular to the substrate. Unlike the other methods, this method maximizes the tensile stress, therefore results may not be comparable to the others. The test is done by adhering a dolly perpendicular to the surface of a coating with an adhesive. Then the testing apparatus is attached to the loading fixture and is aligned to apply tension perpendicular to the test surface. The force that is applied gradually increases and is monitored until a plug of coating is detached, or a previously specified value is reached.

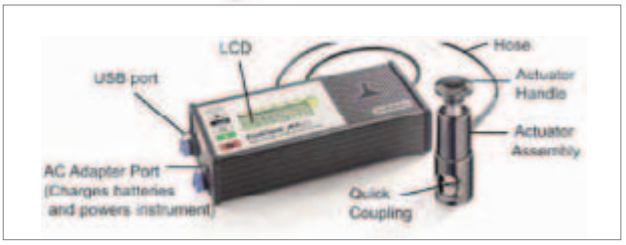
TESTER POSITEST AT-A (AT)

The new PosiTest AT-A Automatic Adhesion Tester measures adhesion of coatings applied on metal, wood, concrete and similar substrates.The system is equipped with an electronically controlled hydraulic pump and measures according to ISO4624 and ASTM D 4541. The unit is equipped with a self aligning quick coupling which secures the dollies tight. Tests are performed by a simple press on the button. Preset values like psi or MPa, Dollie size, adhesion force according international test methods and storing results into memory. Big display with Hold function for indication of max. values. Evaluating measured values on PC is possible by using an adapter and PC-software.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED



Defelsko PosiTest AT-A Adhesiontester, Automatic controlled



Defelsko PosiTest AT Adhesiontester, Manually controlled

FEATURES

- PosiTest Pull-Off Adhesion Tester comes with an environmentally sealed, metal enclosure, heavy duty hydraulic pump and a hi-grade industrial pressure sensor. Both the Manual and Automatic PosiTest AT are built to last and can be used indoors and outdoors in all types of weather. The unit has an unique revolutionary "self-alignment feature" and pull rate indicator.

TECHNICAL SPECIFICATIONS TESTER POSITEST AT-A (AT)

Resolution	1 psi (0.01 MPa)
Accuracy	+/- 1% Full Scale
Weight of Kit (with case)	2 lbs / 5.5 kg
Carrying Case Dimensions	L – 17 in / 43 cm, W – 13 in / 33 cm, H – 6 in / 15 cm
Power	AT Manual – 2 AAA batteries

ORDERING INFORMATION TESTER POSITEST AT-A (AT)

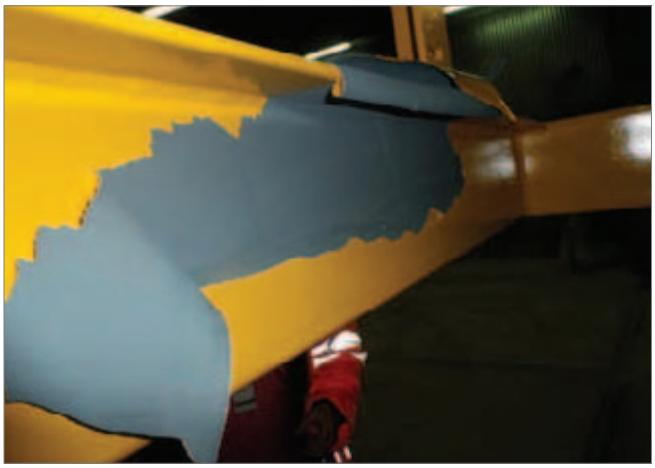
Art. No	
LD9300	Defelsko PosiTest AT-A Adhesiontester, Automatic controlled hydraulic Pull-Off Adhesion Tester with large display.
LD9301	Defelsko PosiTest AT Adhesiontester, Manually controlled hydraulic Pull-Off tester with large display.

ACCESSORIES / SPARES

LD9250	Dolly Drill for Adhesio tests	LD9310	Dollies 20 mm (set of 50 pieces)
LD9022	Araldit Epoxy Glue	LD9313	Dollies 10 mm (set of 10 pieces)
LD9306	Dollies 20 mm(set of 10 pcs)	LD9314	Dollies 14 mm (set of 10 pieces)
LD9307	Dollies 50 mm(set of 4 pcs)	LD9308	Adhesive kit for Defelsko Pull-Off Adhesion Tester

ADHESION TEST PAT HANDY

The TQC Adhesion Test Pat Handy is an easy to use, light-weight hydraulic adhesion tester that applies an increasing level of pull off force to a dolly adhered to the surface under test simply by turning the handle. The adhesion test head has self adjusting legs, which ensure that the pull off force is always applied 90º to the coating even on uneven substrate surfaces. The self adjusting feature results in extremely accurate and reproducable adhesion test results. The TQC Adhesion Test Pat Handy weighs only 1250 gram and comes complete with an A4-size carrying 80 mm height case.



FEATURES

- Palm-held, light alloy pull-off tester
- Case fits easily in the hand luggage (size of an A4 paper and only 80mm thick)
- DFD® technology for true recording of coating strength
- All types of coatings on all substrates
- Any coating thickness
- Internal and external curved surfaces
- No test operator bias
- Precision gauge for accurate measurements
- Built-in hydraulic safety devices for smooth and drift-proof accuracy

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

STANDARDS

ISO 4624
EN24624,
ASTM D4541
etc.

ORDERING INFORMATION ADHESION TEST PAT HANDY

Art. No	
LD9200	TQC Adhesion Test Pat Handy

Scope of supply: PAThandy™ crank driven hydraulic pull-force pump, Hydraulic cable, PAT testing head 6.3kN, 5 test elements size Ø20mm, HSS cutting tool for Ø20mm test element, Carry-case with protective interior and Calibration Certificate

TECHNICAL SPECIFICATIONS ADHESION TEST PAT HANDY

Maximum pull force	6.3 kN
Accuracy	+/- 1% of full scale
Weight of tester	1.25 kg
Weight complete in case	1.9 kg
Case Dimensions (Wx L xH)	330x 260x80mm

DOLLY DRILL FOR ADHESION TEST

The TQC Dolly Drill is the perfect tool to remove the excess of glue and cut through the coating around dollies in order to prepare the dolly for the adhesion test. Fixed positioning is assured with the three strong magnets, allowing the drill to remove the coating around the dolly without putting any force on the dolly. Manually removing the access of glue and cutting through the coating is a hard job for inspectors that have to do many tests a day, which results in wrist and arm pains. The TQC Dolly Drill eases their work considerably, and increases the accuracy of the pull off adhesion tests because of a perfect vertical cutting movement down to the metal.

For the best reproducible results use the Adhesion tester AT, with the hydraulics and auto positioning feature of the pull-off head.

FEATURES

- Three strong magnets hold the TQC Dolly Drill secure in place
- The vertical placed circular drill cuts the dolly free from the substrate by means of angled rotating mechanism
- Accuracy is improved due to the exactly 90° angled cut made by TQC Dolly Drill

STANDARDS

44 - ASTM D4541

TECHNICAL SPECIFICATIONS DOLLY DRILL FOR ADHESION TEST

Material	Aluminium
Height	1500 mm / 59,1 inch
Feet diameter approx.	1600 mm / 63 inch with magnets
Drill diameter	2000 mm / 78,7 inch inner

(Drill with inner diameters of 10, 14 and 50 mm / 0,39, 0,55 and 1,97 inch on request.)

ORDERING INFORMATION DOLLY DRILL FOR ADHESION TEST

Art. No	
LD9250	TQC Dolly Drill for Adhesion Test

Scope of supply: TQC Dolly Drill 20mm

ACCESSORIES / SPARES

LD9301	Defelsko PosiTest AT Adhesiontester, Manually controlled hydraulic Pull-Off tester with large display.
LD9300	Defelsko PosiTest AT-A Adhesiontester, Automatic controlled hydraulic Pull-Off Adhesion Tester with large display.

CROSS CUT ADHESION TEST BASIC CUTTER

The TQC Cross Cut Adhesion Test Basic Cutter is used to test the adhesion of dry coats of paint on their substrate by means of a series of cuts through the coating. Two series of parallel cuts cross angled to each other to obtain a pattern of 25 or 100 similar squares. The ruled area is evaluated by using a table chart after a short treatment with a stiff brush, or adhesive tape for hard substrates.

The cutting knife of the TQC Cross Cut Adhesion Test Basic Cutter is easy to exchange without the use of extra tools. The self positioning knife bracket of the TQC Cross Cut Adhesion Test Basic Cutter ensures equal pressure on the cutting knife.

SEE ALSO PAGE 120

STANDARDS

ASTM D3359
ISO 2409
ГОСТ 15140

FEATURES

- Self-adjusting knife-holder ensures equal pressure on the cutting knife
- With trailing edge acc. ISO 2409: 2013
- Ergonomically shaped handle
- Easy to change cutting knife, no extra key needed
- Wide range of knife sizes available for different coating thicknesses and substrates and according to different standards.

TECHNICAL SPECIFICATIONS CROSS CUT ADHESION TEST BASIC CUTTER

Material	Vacuum Hardened Stainless Steel, Aluminium, Rubber
Dimensions	32 x173x42 mm / 1,26x6,81x1,65 inch
Weight	238g / 8,4 oz

TECHNICAL SPECIFICATION CROSS CUT ADHESION TEST BASIC CUTTER

Art. No	SP1660	SP1661	SP1662	SP1663	SP1664
Blades	6	6	6	11	11
Teeth distance	1 mm / 0,039 inch	2 mm / 0,079 inch	3 mm / 0,12 inch	1 mm / 0,039 inch	1,5 mm / 0,059 inch
Acc. to	ISO 2409	ISO 2409	ISO 2409	ASTM D3359	ASTM D3359
Coating thickness on hard substrates	0-60 µm / 0- 2,4 mils	61-120 µm/ 9.8 mills	121µm to 250µm/ 4.7-9.8 mills	0-50µm/ 0-2 mills	50-125µm/ 2-4.9 mills
Coating thickness on soft substrates	-	0-60 µm / 0- 2,4 mils	121 µm to 250 µm / 4,7-9,8 mills	0-50 µm / 0-2 mills	50-125µm / 2-4,9 mills
Spare knife	SP1702	SP1703	SP1704	SP1705	SP1706

Scope of supply: Box with soft grip handle incl. knife holder, hardened steel cutter (type may vary)

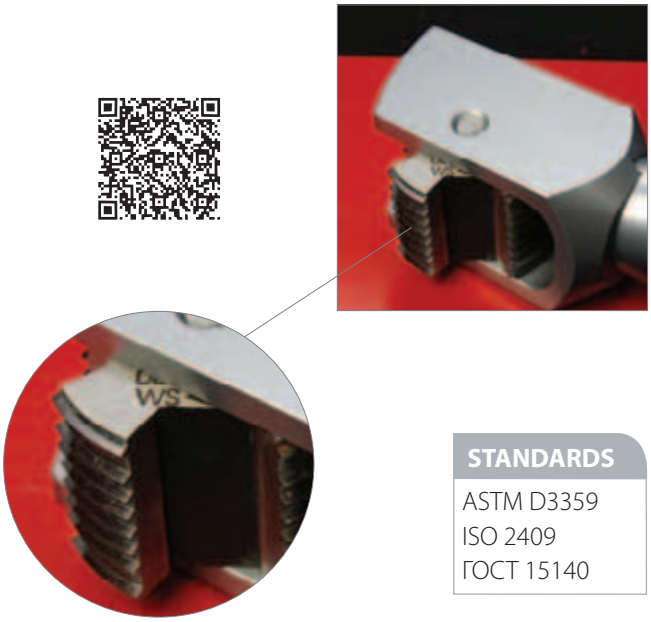
ACCESSORIES / SPARES

SP3007	Adhesive tape, single roll, adhesion to steel 4.3 N/cm	**SP1710**	Nylon Brush for Cross Cut Adhesion Test
SP3010	Adhesive tape, set of 3 rolls, adhesion to steel 4.3 N/cm	**SP9700**	Lighted Magnifier 2.5x
SP3020	Adhesive tape, single roll, adhesion to steel 7.6 N/cm		

CROSS CUT ADHESION TEST CC1000

The TQC Cross Cut Adhesion Test KIT CC1000 is used to test the adhesion of dry coats of paint on their substrate by means of a series of cuts through the coating. Two series of parallel cuts cross angled to each other to obtain a pattern of 25 or 100 similar squares. The ruled area is evaluated by using a table chart after a short treatment with a stiff brush, or adhesive tape for hard substrates.

The round cutting knife of the TQC Cross Cut Adhesion Test KIT CC1000 has eight cutting edges that can be changed easily by rotating the knife. The self-positioning knife bracket of the TQC Cross Cut Adhesion Test KIT CC1000) ensures equal pressure on the cutting knife.



FEATURES

- Self-adjusting knife-holder ensures equal pressure on the cutting knife
- Round cutting knife with eight cutting edges for longer lifetime
- Ergonomically shaped handle
- Easy to change round cutting knife
- Wide range of knife sizes available for different coating thicknesses and substrates and according to different standards.

STANDARDS

ASTM D3359
ISO 2409
ГОСТ 15140

TECHNICAL SPECIFICATIONS CROSS CUT ADHESION TEST CC1000

Material	Vacuum Hardened Stainless Steel, Aluminium, Rubber
Dimensions	32 x210x42 mm / 1,26x8,27x1,65 inch
Weight	331 g / 11,68 oz

TECHNICAL SPECIFICATION CROSS CUT ADHESION TEST CC1000

Art. No	VF1839	VF1842	VF1844	VF1846	VF1847
Blades	6	6	6	11	11
Teeth distance	1 mm / 0,039 inch	2 mm / 0,079 inch	3 mm / 0,12 inch	1 mm / 0,039 inch	1,5 mm / 0,059 inch
Acc. to	ISO 2409	ISO 2409	ISO 2409	ASTM D3359	ASTM D3359
Coating thickness on hard substrates	0-60 µm / 0- 2,4 mils	61-120 µm / 4,7-9,8 mills	121 µm to 250 µm / 4,7-9,8 mills	0-50 µm / 0-2 mills	50-125µm / 2-4,9 mills
Coating thickness on soft substrates	-	0-60 µm / 0- 2,4 mils	121 µm to 250 µm / 4,7-9,8 mills	0-50 µm / 0-2 mills	50-125µm / 2-4,9 mills
Spare knife	VF2355	VF2357	VF2358	VF2359	VF1861

Scope of supply: Suitcase with soft grip handle incl. CC1000 holder, hardened steel cutter (type may vary), nylon brush, illuminated magnifier, roll of adhesive tape (adhesion to steel 4,3N/cm), 4 mm Allen key.

ACCESSORIES / SPARES

SP3007	Adhesive tape, single roll, adhesion to steel 4.3 N/cm	SP1710	Nylon Brush for Cross Cut Adhesion Test
SP3010	Adhesive tape, set of 3 rolls, adhesion to steel 4.3 N/cm	SP9700	Lighted Magnifier 2.5x
SP3020	Adhesive tape, single roll, adhesion to steel 7.6 N/cm		

CROSS CUT ADHESION TEST CC2000

The TQC CC2000 Cross Cut Adhesion Test KIT is used to test the adhesion of dry coats of paint on their substrate by means of a series of cuts through the coating. Two series of parallel cuts cross angled to each other to obtain a pattern of 25 or 100 similar squares. The ruled area is evaluated by using a table chart after a short treatment with a stiff brush, or adhesive tape for hard substrates.

The cutting knife of the TQC Cross Cut Adhesion Test CC2000 is easy to exchange without the use of extra tools. The self-positioning knife bracket of the TQC Cross Cut Adhesion Test CC2000 ensures equal pressure on the cutting knife.

STANDARDS

ASTM D3359
ISO 2409
ГОСТ 15140

FEATURES

- Self-adjusting knife-holder ensures equal pressure on the cutting knife
- With trailing edge acc. ISO 2409: 2013
- Ergonomically shaped handle
- Easy to change cutting knife, no extra key needed
- Wide range of knife sizes available for different coating thicknesses and substrates and according to different standards.

TECHNICAL SPECIFICATIONS CROSS CUT ADHESION TEST CC2000

Material	Vacuum Hardened Stainless Steel, Aluminium, Rubber
Dimensions	32 x1173x42 mm / 1,26x6,81x1,65 inch
Weight	238 g / 8,4 oz

TECHNICAL SPECIFICATION CROSS CUT ADHESION TEST CC2000

Art. No	SP1690	SP1691	SP1692	SP1699	SP1700	SP1693
Blades	6	6	6	11	11	No knife, kit only
Teeth distance	1 mm / 0,039 inch	2 mm / 0,079 inch	3 mm / 0,12 inch	1 mm / 0,039 inch	1,5 mm / 0,059 inch	
Acc. to Coating thickness on hard substrates	ISO 2409 0-60 µm / 0- 2,4 mils	ISO 2409 61-120 µm / 4,7-9,8 mills	ISO 2409 121 µm to 250 µm / 4,7-9,8 mills	ASTM D3359 0-50 µm / 0-2 mills	ASTM D3359 50-125µm / 2-4,9 mills	
Coating thickness on soft substrates	-	0-60 µm / 0- 2,4 mils	121 µm to 250 µm / 4,7-9,8 mills	0-50 µm / 0-2 mills	50-125µm / 2-4,9 mills	
Spare knife	SP1702	SP1703	SP1704	SP1705	SP1706	

Scope of supply: Suitcase with soft grip handle incl. CC2000 holder, hardened steel cutter (type may vary), nylon brush, illuminated magnifier, roll of adhesive tape (adhesion to steel 4,3N/cm)

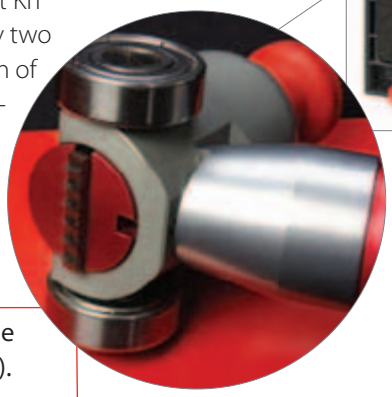
ACCESSORIES / SPARES

SP3007	Adhesive tape, single roll, adhesion to steel 4.3 N/cm	SP1710	Nylon Brush for Cross Cut Adhesion Test
SP3010	Adhesive tape, set of 3 rolls, adhesion to steel 4.3 N/cm	SP9700	Lighted Magnifier 2.5x
SP3020	Adhesive tape, single roll, adhesion to steel 7.6 N/cm		

CROSS CUT ADHESION TEST CC3000

The TQC Cross Cut Adhesion Test KIT CC3000 is used to test the adhesion of dry coats of paint on their substrate by means of a series of cuts through the coating. Two series of parallel cuts cross angled to each other to obtain a pattern of 25 or 100 similar squares. The ruled area is evaluated by using a table chart after a short treatment with a stiff brush, or adhesive tape for hard substrates.

The cutting depth of the TQC Cross Cut Adhesion Test KIT CC3000 can be adjusted while the cutter is guided by two ball bearings to assure reproducible results. The depth of the TQC Cross Cut Adhesion Test KIT CC3000 is adjustable to measure coatings up to 250 µm thick.



FEATURES

- The blade holder is kept at a set distance from the surface with the aid of two wheels (ball bearings).
- Reproducible results guaranteed.
- With trailing edge acc. ISO 2409: 2013
- Ergonomically shaped handle
- Easy to change cutting knife.
- Wide range of knife sizes available for different coating thicknesses and substrates and according to different standards.

STANDARDS

ASTM D3359
ISO 2409
ГОСТ 15140

TECHNICAL SPECIFICATIONS CROSS CUT ADHESION TEST CC3000

Material	Vacuum Hardened Stainless Steel, Aluminium, Rubber
Dimensions	32 x190x42 mm / 1,26x7,48x1,65 inch
Weight	352 g / 12,42 oz

TECHNICAL SPECIFICATION CROSS CUT ADHESION TEST CC3000

Art. No	SP1680	SP1681	SP1682	SP1683	SP1684	SP1695
Blades	6	6	6	11	11	No knife, kit only
Teeth distance	1 mm / 0,039 inch	2 mm / 0,079 inch	3 mm / 0,12 inch	1 mm / 0,039 inch	1,5 mm / 0,059 inch	
Acc. to	ISO 2409	ISO 2409	ISO 2409	ASTM D3359	ASTM D3359	
Coating thickness	0-60 µm /	61-120 µm /	121 µm to 250 µm /	0-50 µm /	50-125µm /	
on hard substrates	0- 2,4 mils	4,7-9,8 mills	4,7-9,8 mills	0-2 mills	2-4,9 mills	
Coating thickness on	-	0-60 µm /	121 µm to 250 µm /	0-50 µm /	50-125µm /	
soft substrates		0- 2,4 mils	4,7-9,8 mills	0-2 mills	2-4,9 mills	
Spare knife	SP1702	SP1703	SP1704	SP1705	SP1706	

Scope of supply: Suitcase with soft grip handle incl. CC3000 holder, hardened steel cutter (type may vary), nylon brush, illuminated magnifier, roll of adhesive tape (adhesion to steel 4,3N/cm), 2 mm Allen key.

ACCESSORIES / SPARES

SP3007	Adhesive tape, single roll, adhesion to steel 4.3 N/cm	SP1710	Nylon Brush for Cross Cut Adhesion Test
SP3010	Adhesive tape, set of 3 rolls, adhesion to steel 4.3 N/cm	SP9700	Lighted Magnifier 2.5x
SP3020	Adhesive tape, single roll, adhesion to steel 7.6 N/cm		

SURFACE CLEANLINESS, -PROFILE, -ROUGHNESS

A clean and well prepared surface is crucial for a successful coating performance.

The pre-treatment process of an industrial coating job often consumes more time and budget than the actual paint application itself.

Surface preparation
There are various methods and systems to prepare a surface prior to the coating application. Depending on the project and job specifications one could choose for hand cleaning like brushing, grinding or using needle hammers. Often grit blasting is utilised or shot blasting in automatic line for example. If no anchor pattern is required or already in place (ultra) high pressure water jetting, chemical cleaning or a simple wash down might be the solution.

Although it seems quite obvious often the parameters cleanliness and profile are mixed up.

Cleanliness
Cleanliness is providing information about the level of contaminants which are left on the surface. This contamination could be (blast) dust, soluble salts like chlorides, old paint residues, oil and fat, (flash) rust, mil scale, condensation and moisture, amines, etc..

Surface contamination can be caused in many different ways like insufficient cleaning, residue left after (acid) rain showers, sea salt left on the surface in maritime environments, soluble salts introduced by contaminated recycled blasting media and many others.

Therefore it is important to check for surface cleanliness at the right moment in the process. It is necessary to check the levels of cleanliness after the surface prep but keep in mind during the "open time" (which varies from hours to days) of the steel new contaminations can be introduced when the work is insufficiently shielded.

Golden rule: Always inspect for surface cleanliness just prior to paint application!

Surface profile
Surface profile, also addressed as surface roughness or anchor pattern is another parameter that plays an important role in the surface prep process. Besides a clean surface a certain roughness may be required to assure proper adhesion of the paint or coating to the surface.

By creating a rough surface with "peaks and valleys" one is more or less increasing the total surface area thus creating a larger bonding area for the paint to stick. Paint specifications often require a certain surface roughness or anchor profile in order to guarantee the performance of coating system. A surface profile which is too low may cause adhesion problems. However a surface profile which is too coarse could effect that the primer coating is not covering the "peaks" of the anchor pattern which may lead to premature corrosion or other problems with the intermediate or top coat. A coarse surface also leads to an increase of the paint
consumption.

Creating a specified surface profile is not an easy job. The profile is determined by the size, type and hardiness of the abrasive being used, the air pressure, and by the distance and angle of the nozzle to the surface.

SURFACE PROFILE AND COATING THICKNESS GAUGE

The TQC Surface Profile & Coating Thickness gauge is a combination gauge that can be equipped with two different tips, one for surface roughness and another for coating thickness.

STANDARDS

ISO 2808
ASTM D4417-B
JIS K 5600-1-7
BS-EN-ISO 2808
BS 3900-C5
IMO MSC.215(82)

SEE ALSO PAGE 135

TECHNICAL SPECIFICATIONS SURFACE PROFILE AND COATING THICKNESS GAUGE

Measurement range	0~3,4 mm / 0~0,13 inch
Accuracy	+/- 5µm / 0,2 mil
Resolution	1 µm / 0,04 mil
Display	digital
Battery	1,5V Type SR44
Material	Metal
Dimensions	150x100x 35mm / 5,90x3,93x1,37 inch
Weight	220 g / 7,76 oz

ORDERING INFORMATION SURFACE PROFILE AND COATING THICKNESS GAUGE

Art. No	
SP1560	Surface profile and Coating thickness gauge

Scope of supply: TQC Roughness thickness gauge, reference glass plate, sharp tungsten carbide replaceable tip, hardened round tip, leather carry pouch, allen key

ACCESSORIES / SPARES

CL0010	Calibration certificate

SURFACE ROUGHNESS GAUGE

The TQC surface profile roughness gauge is a simple instrument for ultrafast measuring of the point peak-to-valley height of a surface. The shape of the base makes this instrument ideal to measure the height of welds.

STANDARDS

ASTM D4417

FEATURES

- Especially designed for measuring the height of welds
- Ultrafast measurements
- Easy-to-use

SEE ALSO PAGE 135

TECHNICAL SPECIFICATIONS SURFACE ROUGHNESS GAUGE

Measurement range	0~3,4 mm / 0~0.13 inch
Accuracy	+/- 5µm / 0.2 mil
Resolution	1µm / 0.04 mil
Thread	M2.5 x 0,45
Display	digital
Battery	Type LR44 1.5 V
Material	Metal
Dimensions	150x100x 35 mm / 5.90x3.93x1.37 inch
Weight	220 g / 7.76 oz

ORDERING INFORMATION SURFACE ROUGHNESS GAUGE

Art. No	
SP1562	Surface roughness gauge

Scope of supply: Instrument SP1562 comes in leather pouch with reference glass plate, allen key, extra battery

FOIL THICKNESS GAUGE

The TQC foil thickness gauge is a high precision film and foil thickness gauge, especially developed for measuring so-called "replica tapes" as Testex®, used mainly to measure the surface profile. The large clear display makes it easy to read the measurement under all conditions. Values can be displayed in either microns or inches.

FEATURES

- Large displayed values
- Microns – inches switchable
- Construction minimizes the influence of body/hand temperature
- Closing force 1,5N acc ISO 8503-5

SEE ALSO PAGE 135

STANDARDS

ISO 8503-5

ORDERING INFORMATION FOIL THICKNESS GAUGE

Art. No	
SP1570	Foil thickness gauge

Scope of supply: Instrument SP1570 comes in hard plastic case

ACCESSORIES / SPARES

LD2070	Testex-tape X-COARSE range:1.5 to 4.5 mils / 38 to 115 µm
LD2071	Testex-tape COARSE range: 0.8 to 2.5 mils / 20 to 64 µm
LD2066	Testex-tape coarse Minus, range 0.5 to 1.0 mils/ 12 to 25 µm
LD2067	Testex-tape X-coarse Plus, range 4.6 to 5.0 mils / 116 to 127 µm

TECHNICAL SPECIFICATIONS FOIL THICKNESS GAUGE

Measurement range	0-1000 micron
Measurement Range	0~3,4 mm / 0~0.13 inch
Accuracy	+/- 5µm / 0.2 mil
Resolution	1µm / 0.04 mil
Closing Force	1,5 N
Display	digital
Battery	1,5V Type SR44
Material	Metal
Dimensions	150x100x35 mm / 5.90x3.93x1.37 inch
Weight	220 g / 7.76 oz

TESTEX REPLICA TAPE PRESS O-FILM

Replica tape for measuring blasted surface profiles. By placing the Tqc replica tape on the surface and rubbing over it, the Rt (total roughness) or peak-to-valley height of the profile can be taken and then measured with a film thickness meter.

STANDARDS

ASTM D1477 - 03

FEATURES

- High purity nickel reference plates
- Electro formed profile
- Each profile copied from a certified mild steel master
- Sturdy leather wallet to protect the test surfaces when not in use
- Available for shot- and grit blasting

ORDERING INFORMATION SURFACE PROFILE AND COATING THICKNESS / ROUGHNESS GAUGE

Art. No	Range
LD2065	Medium, Layer thickness 0.4 mills/10µm
LD2066	Coarse Minus, range 0.5 to 1.0 mils/ 12 to 25 µm
LD2067	COARSE range: 0.8 to 2.5 mils / 20 to 64 µm
LD2070	X-COARSE range:1.5 to 4.5 mils / 38 to 115 µm
LD2071	X-coarse Plus, range 4.6 to 5.0 mils / 116 to 127 µm

Scope of supply: Each box of Testex contains tape for 50 measurements.

ACCESSORIES / SPARES

SP1570	Foil Thickness Gauge
LD5432	Defelsko PosiTector RTR probe
LD5430	Defelsko PosiTector RTR H1 Replica Tape Reader Standard
LD5431	Defelsko PosiTector RTR H3 Replica Tape Reader Advanced

STEEL SURFACE ROUGHNESS COMPARATOR

Comparison standard according to ISO 8503 part 1 made of quality steel. Indicates the surface condition of blasted steel according to ISO 8503 in grades of fine, medium, and coarse.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

STANDARDS

ISO 8503-1
ISO 8501-2
ASTM D4417
Method A

FEATURES

- High purity nickel reference plates
- Electro formed profile
- Each profile copied from a certified mild steel master
- Sturdy leather wallet to protect the test surfaces when not in use
- Available for shot- and grit blasting

ORDERING INFORMATION STEEL SURFACE ROUGHNESS COMPARATOR

Art. No	LD2040	LD2050
Blasting method	Grit	Shot
Section profiles	25, 60, 100, 150	25, 40, 70, 100
Dimensions	87x87x2,5 mm / 3,43x3,43x0,1 inch	87x87x2,5 mm / 3,43x3,43x0,1 inch
Weight	60 g / 2,12 oz	60 g / 2,12 oz

Scope of supply: Surface roughness comparator, sturdy leather pouch

KTA KEANE-TATOR SURFACE PROFILE COMPARATOR

Comparators for determining surface roughness by touch and sight. Conforms to ASTM D4417. The KTA standard has 5 different grades of roughness and is available in three different versions. Available in Imperial units only.

STANDARDS

ASTM D 4417
Method A

FEATURES

- Three versions: sand, grit and shot
- Five different grades of roughness in each comparator
- Designed to be used with the illuminated magnifier
- Available in Imperial units only

ORDERING INFORMATION KTA KEANE-TATOR SURFACE PROFILE COMPARATOR

Art. No	Description	Section Profiles	Profile disc
LD2051	Surface profile comparator	0.5-4 mils	Sand
LD2052	Surface profile comparator	1.5-5.5 mils	Grit
LD2053	Surface profile comparator	2-5.5 mils	Shot
LD2054	Surface Profile Disc Holder and x5 Magnifier	-	-

RUGOTEST 3

Rugotest no. 3 comparison standard for blasted surfaces consisting of 6 examples of grit-blasting and 6 examples of shot-blasting. The method complies with ASTM D 4417/A.

STANDARDS

INF/E05-051
ISO 2632
ISO 2632

FEATURES

- High quality metal reference plate
- Sturdy leather pouch to protect the standard when not in use
- With Grit and Shot-range scales in N6 - N11

TECHNICAL SPECIFICATIONS RUGOTEST 3

Material	High-nickel test plate
Width	90 mm / 3,54 inch
Length	118 mm / 4,65 inch

ORDERING INFORMATION RUGOTEST 3

Art. No	
LD6010	Rugotest no.3

Scope of supply: Surface roughness comparison standard, Table, Manual, Leather pouch

HULL ROUGHNESS GAUGE / GENERAL PURPOSE PROFILOMETER

TQC has made the next evolutionary step in hull roughness surveys. Surpassing the industrial standards with an easy to operate 4-way directional push button, graphical representations, storage of data in multiple batches and survey reports in Microsoft Excel®. The whole system fits into a small sized waterproof rugged casing that is allowed as carry on travel luggage and benefits your overseas travel plans.

Controlling the roughness of a ship's hull plays an important role in the operating costs of a vessel. The roughness of a ship's hull increases mainly due to corrosion, pitting, plate undulation, mechanical damage, dry spray and above all bio fouling. Proper maintenance and the correct application of high-end anti-fouling coatings reduce the hydrodynamic effects and will lead to significant savings on fuel consumption and CO2 emissions.

The hull roughness is measured during in-docking and out-docking. The Hull Roughness Gauge measures the AHR value (Average Hull Roughness) of sea going vessels. AHR is the 'mean' of all the vessel's hull roughness readings and is the measure against which ship's performance is correlated.

All profile measurements
The new adjustable RT parameter suits all general purpose profile measurements like windmill blades, aircraft wings etc.

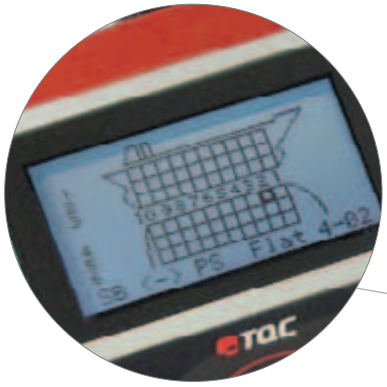
FEATURES

- Easy to operate 4-way directional push button
- Storage of data in multiple batches
- Survey reports in Microsoft Excel®
- Rugged casing
- Suits all general purpose profile measurements

Significant savings
The TQC Hull roughness Gauge consists of a Control unit and a Sensor unit.
The Hull Roughness Control unit can be operated with just one hand, a 4-way directional push button operates an intuitive menu on a large illuminated display. The neck strap keeps the users' hands free when required.

The Sensor unit is equipped with three non-slip wheels and a carbide tipped stylus and is moved over the ship's hull in a horizontal way collecting series of measurements. A set of LED's indicate the status of the instrument so operation is possible without observing the control unit.

Statistics, time/date and location of each series and the average hull roughness are automatically calculated and stored in the Control unit. Using the supplied USB-cable and software you instantly create inspection reports in Microsoft Excel. Your own company logo and or -details can be incorporated to restyle your reports.



STANDARDS

NACE TG461
Measuring Hull Roughness of Vessels While in Dry-dock (Draft standard)

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

TECHNICAL SPECIFICATIONS HULL ROUGHNESS GAUGE / GENERAL PURPOSE PROFILOMETER

Accuracy	+/- 5 microns or <2%, whichever is greater
Memory	Enough for 4 complete surveys done both in- and out-docking, totally over 10.000 readings
Location storage	Simply point and click the hull location in the displayed graphical representation of the ship's hull
Units	Microns
Speed	50 mm/s, with speed indication LED in the Sensor unit
Interface	USB serial to PC connection
Power supply	AA type Alkaline Cells, available worldwide
Material	ABS, aluminium
Dimensions	Sensor: 205x80x50 mm / 8,07x3,15x1,97 inch Control Unit: 200x115x40 mm / 7,87x4,53x1,47
Weight	Sensor: 630 g / 22,22 oz Control unit:350 g / 12,35 oz

ORDERING INFORMATION HULL ROUGHNESS GAUGE / GENERAL PURPOSE PROFILOMETER

Art. No	
DC9000	Hull Roughness gauge and general Profilometer

Scope of supply: Hull Roughness control unit, sensor unit, calibration reference plate, USB flash drive with software, USB data cable, neck strap, batteries and waterproof rugged casing & traceable calibration certificate.

ACCESSORIES / SPARES

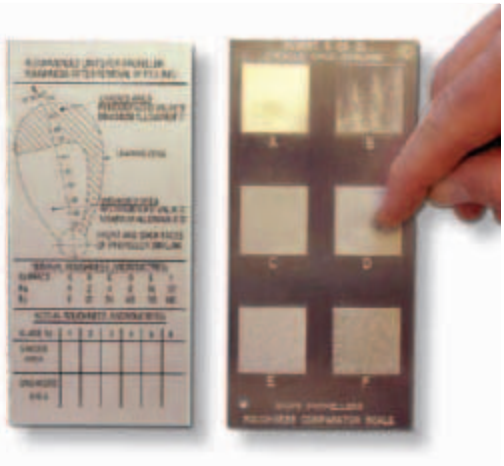
DC9015	Calibration plate for TQC Hull Roughness Gauge	DC9025	Protective pouch for Hull Roughness Gauge

SHIP PROPELLER ROUGHNESS COMPARATORS

TQC Ship Propeller Roughness Comparators to the estimate the surface roughness by both touch and sight. The TQC Ship Propeller Roughness Comparators are developed for the specific profiles related to the condition of ships propellers over the life of the propeller.

The TQC Ship Propeller Roughness Comparators are available in two models. Model LD2041 is the superintendent's version for use in drydock or office. LD2042 is the Diver's version for underwater use. Each Ship Propeller Roughness Comparator have 6 specimens of Ship Propeller Blade surfaces in various conditions, Each Ship Propeller Roughness Comparator have 6 specimens of Ship Propeller Blade surfaces with profiles varying from Ra 1-30 µm, Rz 6-180 µm.

TQC Ship Propeller Roughness Comparators are also supplied with guidance on the report for Propeller Blades.



FEATURES

- Developed for the specific profiles related to the condition of ships propellers over the life of the propeller
- Two versions available, one for use above, one for use under water
- 6 Ship propeller blade specimens on each comparator

ORDERING INFORMATION SHIP PROPELLER ROUGHNESS COMPARATORS

Art. No	Model	Application
LD2041	Superintendent version	use above water (e.g. drydock or office)
LD2042	Divers version	use under water

Scope of supply: Ship propeller roughness comparator in plastic folder

AMINE BLUSH KIT

The TQC Amine Blush Kit is a multi step amine blush indicator. Due to advanced research on suitable media the TQC Amine Blush Kit is the most advanced kit on the market. Based on a double colour change the indicator is the first to implement this multi step colour change.

FEATURES

- Multi step colour change
- Easy to use

ORDERING INFORMATION AMINE BLUSH KIT

Art. No	
SP7500	TQC Amine Blush kit

Scope of supply: Hardcase for storage and transport, 50ml Nebulizer bottle, Set of visualisation papers, Tweezers

ACCESSORIES / SPARES

SP7505	Test fluid 50ml for TQC Amine blush test
SP7503	Spare tweezers
SP7504	Spare set of visualisation papers

SURFACE ROUGHNESS GAUGE SJ-210 WITH SJ-TOOLS

Surface Roughness Meter SJ-210 offers a choice of 39 roughness parameters (according to DIN EN ISO, VDA, JIS, ANSI, MOTIF and freely selectable variables) and a probe geometry according to DIN EN ISO 3274: 2 ìm / 60 ° (recommended). The device has an incredibly simple intuitive menu navigation on a 2.4 "high resolution TFT color display. The screen is rotated electronically. The integrated drive unit can be removed or used.

Surface Roughness Meter SJ-210 has an internal memory for ten measurements. This can be extended with external storage in the form of a Micro SD card. The SJ-210 Surface Roughness Meter provides interfaces for USB, RS232, SPC and connection for footswitch. Included are USB data analysis software tools and cable-SJ.

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ORDERING INFORMATION SURFACE ROUGHNESS GAUGE SJ-210 WITH SJ-TOOLS

Art. No	
LD0015	Surface roughness meter Mitutoyo SJ210

Scope of supply: with SJ-tools Data analysis software

DUST TEST KIT

The TQC Dust test kit according to ISO 8502-3 allows assessment of the quantity and size of dust particles on surfaces prepared for painting. Dust on blast cleaned surfaces can reduce coating adhesion, leading to premature coating failure and sub-standard coating finish. The dust test kit can be used in accordance with the recommendations of BS EN ISO 8502-3 either as a pass/fail test or as a permanent record of the presence of dust.

STANDARDS

ISO 8502-3
JIS Z 0313
BS-EN-ISO 8502-3

FEATURES

- Strong binder suitable for field use
- No loose items! Binder holds all forms and accessories, locked by a Velcro strip
- Illuminated magnifier with real glass optics for a clear view
- Complete and valid reports. All the information that the ISO8502-3 standard requires can be filled in through check boxes or in pre-defined areas. Space for 5 different test results
- Display board with different quantity ratings, unique size-comparator for light and dark dust particles, black and white contrast file
- Sample transfer sheet of scratch resistant, high transparent plastic with pre-printed positions
- Clear pictorial manual

ORDERING INFORMATION DUST TEST KIT

Art. No	
SP3200	TQC Dust test kit

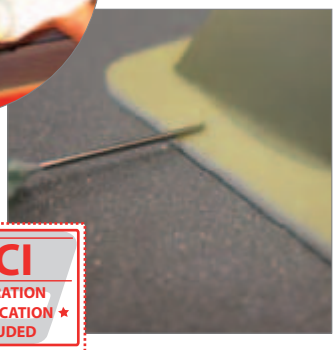
Scope of supply: Strong binder with: Battery powered (2xAA) portable 10x magnifier with glass lens and integrated light source, adhesive tape to specification BS EN ISO 8502-3, pair of scissors, pictorial manual, comparator display board, sample transfer sheet, report forms (25 pieces)

ACCESSORIES / SPARES

SP3600	Spring loaded roller for dust tape test
SP3220	Display Board (set of 2 pieces)
SP3209	Roll of adhesive tape
SP3221	Sample Transfer Sheet (set of 10 pieces)
SP3222	Report Form Block à 125 pages
SP7940	Loupe magnifier 10x

BRESLE KIT - CHLORIDE TEST KIT

The TQC Bresle Kit - Chloride Test Kit complies with the ISO 8502-6 and ISO 8502-9 standards that describe the Bresle Method to assess the level of soluble salts using a Bresle patch or Bresle sampler, distilled water and a conductivity gauge. The conductivity is mainly directly proportional to the concentration of dissolved chloride ions in the solution. The kit includes all the necessary equipment to execute a bresle test that will indicate the contamination of soluble salts on blast-cleaned surfaces prior to coating. Inside the TQC Bresle Kit - Chloride Test Kit is a conductivity gauge used for the assessment of soluble salt ions as chlorides, sulphates and nitrates.



Contamination of blast-media

The TQC Bresle Kit - Chloride Test Kit is also suitable to determine the contamination of blast-media in use. This important test described in the ISO 11127-6 and ISO 11127-7 standards helps to prevent that the dissolved salts in the recycled abrasive media or water will not re-contaminate the surface being cleaned.

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STANDARDS

ISO 8502-6
ISO 8502-9
ISO 11127-6
ISO 11127-7

FEATURES

- Test conform ISO 8502-6 and ISO 8502-9
- TQC DSP-procedure eliminates user-errors and saves time
- Compact and complete kit in sturdy case
- Unique Direct Sampling Procedure (DSP) to ensure high speed and accuracy. Up to 60 times more accurate than other test kits available.

TECHNICAL SPECIFICATIONS BRESLE KIT - CHLORIDE TEST KIT

Range	0,1 – 20.000 mg/m2 (with DSP method)
Resolution	0,1 mg/m2 (with DSP method)
Accuracy	1% accuracy of gauge
Temperature range	0-50 °C
ATC	0-50 °C
Normalization temperature	25 °C
Auto off	8,5 minutes after last key pressed
IP class:	IP67
Auto calibration	at 84 µS/cm
Patch area	1250 mm2
Patch type	Latex membrane
Material	Plastic

ORDERING INFORMATION BRESLE KIT - CHLORIDE TEST KIT

Art. No	
SP7310	TQC Bresle Kit

Scope of supply: Case, digital conductivity meter, 25 bresle patches, distilled water, calibration solution, cleansing solution, cups, syringes, waste bottle, pictorial manual

ACCESSORIES / SPARES

HI0017	TQC Conductivity Meter waterproof Multi Range Tester
LD6504	TQC Bresle Patch (box of 25 pieces)
SP7001	Plastic cups (20x) for Bresle KIT 30ml
SP7100	Plastic cups (25x) for Bresle KIT 30ml
SP7105	Plastic cups (100x) for Bresle KIT 30ml
SP7932	Waste bottle for Bresle KIT
SP7320	TQC Calibration Solution 84 µS, bottle of 50 ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50 ml
SP7330	TQC Distilled water 200ml
SP7933	Magnetic Bresle Test spot marker

PRETREATMENT TEST KIT (PTK)

The TQC Pretreatment Test Kit is especially composed to control all relevant parameters during the pretreatment of steel prior to painting. The PTK is available as BASIC KIT and FULL KIT.
The strong double walled suitcase holds a smart selection of inspection tools and measuring devices to assist the paint inspector on a survey to inspect blast cleaned steelwork.

The BASIC KIT contains a Bresle Test for surface and blast media measurements, a Dust Test kit and Telescopic inspection mirror. The FULL KIT has a large number of extra items: DewCheck 4 dew point gauge, Coating Adhesion Tester MasterPaintPlate, TQC Surface Profile / Coating Thickness Gauge, TQC Spring Loaded Roller, ISO8501-1:2007 Blast Cleanliness Standard Book, Grit profile Comparator, UV Inspection Flashlight. It is also possible to make a selection out of the optional items.
The quality of correct pretreatment of a surface prior to application of the coating is essential to ensure the quality of the coating and that its optimum lifetime is achieved.

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FEATURES

- Smart selection of inspection and measuring tools
- Many optional items possible
- Strong double walled suitcase

STANDARDS

ISO 8502-6 and 9	ISO 2808-3
IMO MSC.215(82)	ASTM D4138
IMO MSC.244(83)	ISO 8501-1:2007
ISO 8502-3	ISO 8503-1- 2
ISO 8502-4	ASTM D 4417 Method A
BS 7079-B4	ASTM E2501
US Navy NSI 009-32	ISO 2409
US Navy PPI 63101-000	ASTM D3359
ASTM D4417 – B	

ORDERING INFORMATION PRETREATMENT TEST KIT (PTK)

Art. No	SP7315 PTK Pretreatment Test Kit - BASIC	SP7316 PTK Pretreatment Test Kit - FULL
Basic content	TQC Bresle test Paint inspection mirror TQC Dust test kit	TQC Bresle test Paint inspection mirror TQC Dust test kit
Optional items		DewCheck dew point gauge Profile Gauge SP1560 Spring Loaded Roller Rust grade book TQC Surface Roughness comparator UV Inspection flashlight Master paint plate multi tester

Scope of supply:

TQC **SP7310** TQC Bresle test: Kit complete with conductivity meter and 25 Bresle Patches and necessary accessories. Extra accessories are included to determine the level of contamination of the used blast media. Standards: ISO8502-6 and 9

TQC **SP3200** Dust Test Kit: Binder complete with dust comparator display board, dust assessment plate, illuminated magnifier adhesive tape, scissors and a set of test record sheets. Standards: ISO8502-3, IMO MSC.215(82), IMO MSC.244(83)

TQC **LD3025** Paint Inspectors Mirror: A simple and robust tool for visual inspection of hard to reach places for example behind stiffeners or "mouse holes". Hard to see spots are difficult to reach to the blaster / painter as well. Inspection (visually) of these places is essential.

Vision on quality
www.tqc.eu

ACCESSORIES / SPARES - OPTIONAL ITEMS FOR THE SP7315 (ALL FIT IN THE CASE PROTECTED BY A PRE-CUT FOAM LINING)

DC7100
DewCheck
The world's first dewmeter dedicated to protective coatings work. Dewcheck incorporates all the features required for climate condition monitoring in a single gauge including relative humidity, air temperature, dew point, surface temperate and delta T, complete with memory.

Standards: ISO 8502-4, BS 7079-B4, US Navy NSI 009-32, US Navy PPI 63101-000, IMO MSC.215(82), IMO MSC.244(83)

Incorrect climate parameter may lead to condensation on the surface resulting in undercoat corrosion and poor adhesion. High or low temperature and/or humidity will affect the curing process and inter-coat adhesion and performance of the coating system.

SP1560
Profile gauge
An easy to use gauge that measures the peak-to-valley height of blast cleaned surfaces providing an indication of the surface roughness / anchor pattern. Clear digital display for easy interpretation. The needle shaped tip of the instrument can be exchanged for the ball shaped tip that comes with the instrument converting the instrument into a coating thickness gauge

Standards: ASTM D4417 – B, ISO 2808-3, ASTM D4138

A surface profile that meets the specified parameters is essential. The surface profile increases the total surface creat-ing a larger are of the coating to adhere. If the profile / anchor pattern is too low, the adhesion between the coating and the surface will be reduced. If peaks are too high they may not be covered by the first layer of primer creating possible weak spots in the coating system.

SP3600
Spring Loaded Roller
The Spring Loaded Roller is used to perform objective dust tape tests, as mentioned in ISO 8502-3, and eliminates the human factor. The roller guarantees reproducible pressure on the tape used with the SP3200 Dust Test Kit.

Standards: ISO 8502-3, , IMO MSC.215(82), IMO MSC.244(83)

LD3020
ISO8501-1:2007 The Rust Grade Book,
Pictorial standard book with rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings. Also called "Swedish Blast Degrees" or "Sa-standards). The original visual standard. It shows the degree of cleanliness of four different levels of rusted steel cleaned by grit blasting, hand/power tool- and flame cleaning.

Standards: ISO8501-1:2007

Cleanliness is often confused with roughness. Apart from a sufficient profile it is critical that all contaminations such as old layers of paint, rust, mill scale, shop primers etc. are sufficiently removed resulting in the desired cleanliness grade such as Sa 2½ (near white metal).

DC7100	DewCheck
SP1560	Profile gauge
SP3600	Spring Loaded Roller
LD3020	ISO8501-1:2007 The Rust Grade Book
LD2040	Grit comparator
LD7290	Pocket UV inspection light
SP3000	Master Pain Plate
CX2079	USB to serial RS232 cable

ISO 8501-1 2007 THE RUST GRADE BOOK

In 2007 updated version of the standard measure for the visual evaluation of rust and purity levels of non-coated steel. Also known as the "Swedish steel blasting grades" SS 05 59 00 (Sa).
Contains high-quality colour photographs for estimating the rust levels and purity levels after cleaning manually or by machine (also with blasting).

Target audience: Blasting and painting companies and their clients, paint technicians, advice bureaus and industrial coating businesses.

SEE ALSO PAGE 206

TECHNICAL SPECIFICATIONS ISO 8501-1 2007 - THE RUST GRADE BOOK

Dimensions	220x170x25 mm / 8,66x6,69x0,98 inch
No. Pages	88
Color	Yes
Binding	Spiral
Language	English, French
Weight	525 g / 18,5 oz.

ORDERING INFORMATION ISO 8501-1 2007 - THE RUST GRADE BOOK

Art. No	
LD3020	Illustrated book ISO 8501-1

ISO 8501-2 - GRADES OF REMOVAL PREVIOUS COATINGS

Purity levels of painted steel surfaces from which the paint layer has been weathered in places. Indispensable when repairing damage to corrosion-resistant paint systems and in the conservation or, for example, welding joints after construction.

SEE ALSO PAGE 206

TECHNICAL SPECIFICATIONS ISO 8501-2 - GRADES OF REMOVAL PREVIOUS COATINGS

Dimensions	217x159x15 mm / 8,54x6,26x0,59 inch
No. Pages	151
Color	Yes
Binding	Spiral
Language	English
Weight	410 g / 14,46 oz.

ORDERING INFORMATION ISO 8501-2 - GRADES OF REMOVAL PREVIOUS COATINGS

Art. No	
LD3027	ISO 8501-2 grades of removal previous coatings

ISO 8501-4 ILLUSTRATED EDITION

ISO 8501-4:2006 is a hardback A5-format book in three languages (English, French and German) which specifies a series of preparation grades for steel surfaces after removal/partial removal of water-soluble contaminants, rust, previous paint coatings and foreign matter by high-pressure water jetting.

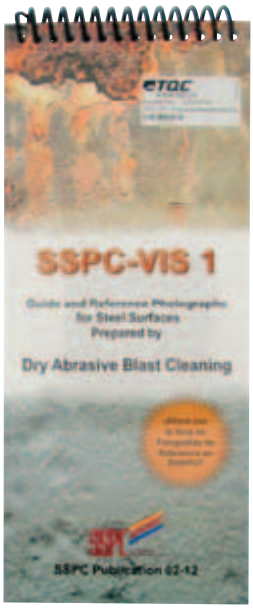
The various grades are defined by written descriptions together with photographs that are representative examples within the tolerances for each grade as described in words.

In addition, this part of ISO 8501 specifies both initial surface conditions and after-cleaning flash rust grades, also defined by written descriptions together with representative photographic examples.

ORDERING INFORMATION ISO 8501-4 2006 ILLUSTRATED EDITION

Art. No	
LD3045	ISO 8501-4 illustrated edition

SSPC-VIS 1 PICTORIAL SURFACE STANDARD DRY BLAST CLEANING



Guide and Reference Photographs for Steel Surfaces Prepared by Dry Abrasive Blast Cleaning.

SSPC's most widely used visual reference features over 50 full-color photos of previously coated and uncoated, rusted steel surfaces before and after dry abrasive blast cleaning. Similar to the Swedish and British standards, but the pictures of the required final appearances match the written descriptions in the USA standards. Cleanliness requirements for conditions depicted are defined by the SSPC surface preparation specifications for white metal (SP 5), near-white (SP 10), commercial (SP 6), industrial (SP 14), and brush-off (SP 7) blast finishes. Appendix photographs show variations in white metal surfaces caused by different metallic and non-metallic abrasives, profile depth, angle of view, and lighting. Now with guides in both English and Spanish!

ORDERING INFORMATION SSPC-VIS 1 PICTORIAL SURFACE STANDARD DRY BLAST CLEANING

Art. No	
LD3055	SSPC-VIS 1 American photographic performance of the Swedish Cleanliness by Dry Blasting

SSPC-VIS 2
PICTORIAL RUST STANDARD

Standard method of evaluating degree of rusting on painted steel surfaces.

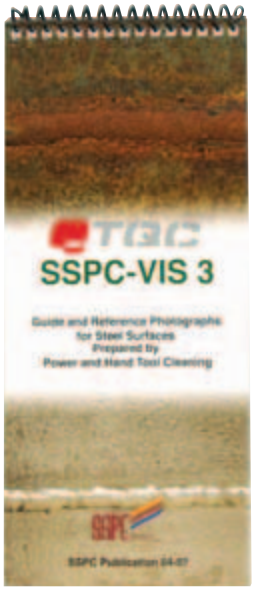
SSPC's popular rust standard features a series of 27 full color images and 27 black and white diagrams representing various degrees of spot, general, and pinpoint rusting on painted steel surfaces. Text and tables provide a guide to the use of the reference photographs; a scale and description of standard rust grades; a comparison of SSPC, ASTM, ISO, and other rust grade scales; and other useful information.

ORDERING INFORMATION SSPC-VIS 2 PICTORIAL RUST STANDARD

Art. No	
LD3056	SSPC-VIS 2 Standard Method of Evaluating Degree of Rusting on Painted Steel Surface

SSPC-VIS 3 PICTORIAL SURFACE STANDARD HAND | POWER TOOL

Guide and reference photographs for steel surfaces prepared by hand and power tool Cleaning



Contains a series of 43 full-color reference photographs to be used as a supplement to the SSPC standards for hand and power tool cleaned steel. Shows a total of seven different steel surfaces (four uncoated and three previously coated) before and after hand tool cleaning (SP 2), power tool cleaning with power wire brushes and sanding discs (SP 3), power tool cleaning to bare metal (SP 11), and commercial grade power tool cleaning (SP 15). Also contains photos of SP 11 surfaces with a restored profile, a revised guide to the use of reference photographs, a new table of standards and conditions depicted, and additional explanatory notes.

ORDERING INFORMATION SSPC-VIS 3 PICTORIAL SURFACE STANDARD HAND | POWER TOOL

Art. No	
LD3057	SSPC-VIS 3 Guide and Reference Photographs for Steel Surfaces Prepared by Hand and Power Tool Cleaning

SSPC-VIS 4 | NACE VIS 7 PICTORIAL STANDARD WATERJETTING

Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting

Shows a total of six different steel surfaces (two uncoated and four previously coated) before and after waterjetting. Photographs illustrate four separate degrees of cleaning (WJ 1, WJ 2, WJ 3, and WJ 4) for each initial condition, with additional photos that depict the appearance light, moderate, and heavy flash rust after cleaning. Also contains a written guide to the use of reference photographs and additional explanatory notes. Cleanliness requirements for conditions depicted are defined by the joint SSPC/NACE surface preparation specification for high- and ultrahigh-pressure water jetting (SP 12/NACE 5).

ORDERING INFORMATION SSPC-VIS 4 | NACE VIS 7 PICTORIAL STANDARD WATERJETTING

Art. No	
LD3058	SSPC-VIS 4/NACE VIS 7 Guide and Reference Photographs for Steel Surfaces Prepared by Waterjetting

SSPC-VIS 5 | PICTORIAL STANDARD WET ABRASIVE BLAST CLEANING

Guide and Reference Photographs for Steel Surfaces Prepared by Wet Abrasive Blast Cleaning

Pictorial Standard shows two uncoated, rusted steel surfaces (Conditions C and D) before and after wet abrasive blast cleaning. Photographs illustrate two degrees of cleaning (WAB 6 and WAB 10) for each initial condition, with additional photos that depict the appearance of light, moderate, and heavy flash rust after cleaning. Also contains a written guide to the use of reference photographs and additional explanatory notes. Cleanliness requirements for conditions depicted are defined by the joint SSPC/NACE surface preparation specifications for commercial (SP 6/NACE 3) and near-white blast cleaning (SP 10/NACE 2). Photos of commercial and near-white surfaces achieved by dry abrasive blast cleaning can be found in SSPC-VIS 1.

ORDERING INFORMATION SSPC-VIS 5 | PICTORIAL STANDARD WET ABRASIVE BLAST CLEANING

Art. No	
LD3059	SSPC-VIS 5/NACE VIS 9 Guide and reference photographs for steel surfaces prepared by Waterjetting

CLIMATE

Temperature, humidity and related climatic parameters are important to many industrial processes. The application of paint /coatings is no exception. Measuring and controlling climatic parameters such as relative humidity, air-temperature, dewpoint and moisture is vital to a successful application of high-end coating systems. Incorrect climatic conditions during pre-treatment and application often lead to premature failing of coating systems.

Almost each coating has its own requirements regarding climatic conditions. Most two component epoxies require a relatively high temperature (often more than 15°C) combined with a low relative humidity. Moisture curing coatings need a high humidity level in order to cure. Water based coatings cannot be applied at very low temperatures and too low humidity causes the paint to dry too fast while a high humidity slows the curing process down. Surface tolerant coatings accept a wider range of climatic conditions and some coatings can even be applied underwater.

Each paint manufacturer will mention in its application guidelines or MDS (material datasheet) specifically what type of climatic conditions are required. Wrong environmental conditions can lead to problems and defect such as:

- Blistering
- Bloom
- Cheesiness
- Cissing
- Cratering
- Crowsfooting
- Dryspray
- Tackiness
- Solvent Popping
- Solvent detention

DewPoint

A special, highly important parameter in the coating industry is DewPoint. Wikipedia describes Dewpoint as " The temperature to which a given parcel of humid air must be cooled, at constant barometric pressure, for water vapour to condense into water. The condensed water is called dew. The dew point is a saturation temperature.

The dew point is associated with relative humidity. A high relative humidity indicates that the dew point is closer to the current air temperature. Relative humidity of 100% indicates the dew point is equal to the current temperature and the air is maximally saturated with water. When the dew point remains constant and temperature increases, relative humidity will decrease."

In the surface treatment dewpoint is one of the most critical climatic parameters. Dewpoint always has to be observed in combination with the surface temperature. A surface temperature that is below the dewpoint temperature of its surrounding air will immediately show condensation. On a rough, blast cleaned surface, the small water drops of dew are hardly visible. However when this moisture is trapped under a paint film severe problems will arise over time. Corrosion under the paint, poor adhesion of insufficient curing are some of the possibilities.

Since the dewpoint temperature (Td) depends on the relative humidity (RH) and air temperature (Ta) it is quite unstable. Also the surface temperature may vary. This is why most paint manufacturers specify a Delta T (difference between Surface temperature and Dewpoint) of +3°C (+5°F).

Picture for example the complex micro climate inside a ship's ballast tank that carries a warm cargo (eg. crude oil), sailing in a cold sea in humid air. One wall of the tank might be degrees above dewpoint while the other could be well below.

Dewpoint under 0°C is not possible. As soon as that temperature is reached we speak about a "Frost Point".

When should you measure the climatic conditions?

Basically the conditions should be observed prior to the pre treatment process until the coating reached a full cure. When the surface temperature of steel is below dewpoint temperature the bare steel will corrode instantly after blast cleaning.

Temperature of the coating or substrate

The coating temperature is important during application but also during storage. Most coatings will loose their performance once they have been frozen before/during their shelf life. Viscosity of paint is in direct relationship with the temperature of the paint which affects the application.

Extreme substrate temperatures also cause their share of problems. High substrate temperatures may cause the paint to dry too fast which could lead to pinholes or pores for example. Low surface temperature may prevent the paint to form a film as many coatings know a so called "Minimum Film Forming Temperature" or "MFFT" value.

Moisture in substrate

The moisture content of substrates to be coated is a critical factor as well. Fresh moist concrete will not hold any paint or applying a powder coating to a damp wooden panel will cause steam to be created when the panel passes through the curing oven, thus causing damage to the coating.

DEWCHECK 4 SERIES 2 – DEWPOINT METER

The TQC DewCheck 4 - Dewpoint Meter (DPM)/ Dewmeter is an extremely versatile dewpoint meter to measure and record all climate parameters required to treat surfaces.

This easy to use and robust dewmeter conforms to ISO 8502-4 & ASTM D3276-07 and measures the relative humidity (%RH), ambient temperature (Ta) and surface temperature (Ts) and calculates the dewpoint temperature (Td) and the difference between the dewpoint temperature and the surface temperature (T-delta).
The difference between the surface temperature and dewpoint temperature indicates the optimal climate conditions for painting.
All parameters can be stored in the dewmeter's memory, tagged with a date and time. Once the measured data has been stored in memory in one of the eight custom pre-named batches, the climate conditions can be downloaded and analyzed within TQC Ideal Finish Analysis.

Reports can include the measured ambient, surface and dew point temperature that in combination with the relative humidity parameter prove the coatings have been applied according to their specifications.

STANDARDS

ISO 8502-4
ASTM D3276
BS 7079-B4
NACE RP prop 97

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Hysteresis
Wiki states: "Hysteresis is the dependence of a system not only on its current environment but also on its past environment."

Especially after condensation many RH-sensors "memorize" the high humidity level and introduce a false (too high) reading.

The new ISO 8502-4 standards states the following:
Due to the sensitivity to hysteresis electronic dewpoint gauges should be handled acc. to manufacturer specifications and the probability for hysteresis should be prevented to maintain correct results. Hysteresis can give offset reading up to 10% and last depending on probe type up to multiple weeks. To prevent hysteresis the probe should not be exposed to extreme temperature / humidity shocks in both directions.

DewCheck's RH-probe is virtually immune for the hysteresis effect.

FEATURES

- Large illuminated graphic display
- One-hand operation
  Simple menu-driven user interface
- Extensive data-logging capabilities, readings are time and date stamped and stored on the gauge
- USB-Interface connects the unit to the PC for programming and downloading data.
- To be used as "on the spot" inspectors tool or "stand-alone" data logger
- Heavy duty ergonomic case
- Set limits for each parameter
- Acoustic and visual alarms
- Select Celsius / Fahrenheit
- Automatic trend indicator shows the trend of climatic conditions (rising, falling, stable)
- High-end industrial sensors and built- in probes
- Integrated 'back-up' LED flashlight
- DewLog temperature and humidity monitoring software included
- Two year valid calibration certificate!

TECHNICAL SPECIFICATIONS DEWCHECK 4 SERIES 2 – DEWPOINT METER

Humidity

Accuracy	(0…80 °C, 0…176 °F) +/- 3 % RH
Measurement resolution	0.1 %
Measurement range	0…100 % RH

Temperature

Temperature Ta (Air)

Accuracy	+/- 0.5 °C, +/- 1 °F (over the full measurement range)
Measurement resolution	0.1 °C, 0.1 °F
Measurement range	- 20…+ 80 °C, - 4…+ 176 °F

Temperature Ts (Surface)

Accuracy	+/- 0.5 °C, +/- 1°F (over the full measurement range)
Measurement resolution	0.1 °C, 0.1 °F
Measurement range	- 30…+ 60 °C, - 22…+ 140 °F

Temperature Ts (Surface External)

Accuracy	+/- 0.5 °C, +/- 1 °F (over the full measurement range)
Measurement resolution	0.1 °C, 0.1 °F
Measurement range	- 30…+ 60 °C, - 22...+ 140 °F

Display

Graphical presentation with backlight

Operating temperature range	- 20 °C…60 °C, - 4...+ 140 °F
Keys	Menu 3 On / off, 1 (electronic), LED flashlight 1 (electronic)

Memory

Type	Dynamic
Memory size manual logging	6000 records
Record content manual logging	time/date, humidity,Ta, Ts, Td,Tdelta, status byte for alarm
Memory size interval logging	12000 records
Record content interval logging	Humidity, Ta and Ts. Other parameters and date and time are calculated
Batches	8 Batches max.

Measurement / features

Limits	Adjustable for each parameter
Lo-Hi Alarms	Beep sound , symbol in display and RED Led
Hold/freeze function	Yes
Data storage	Two modes: Manual and interval (auto)
Data recall	Gauge displays average, min/max of each batch. Downloading to PC possible via optional adapter
Battery indicator	Yes, detailed
Trend indicator	Yes
User interface	Menu driven through up/down/enter key.
Languages	4 languages, English, German, French, Spanish
Extra	Built-in bright white LED orientation flashlight

ORDERING INFORMATION DEWCHECK 4 SERIES 2 – DEWPOINT METER

Art. No	
DC7100	DewCheck 4 Series 2

Scope of supply: TQC Dewcheck 4 dewpoint gauge, leather pouch, wrist strap, USB cable, calibration certificate, batteries, manual

ACCESSORIES / SPARES

DC7520	Docking Station for DewCheck Series 2
DC7510	USB communication cable
DC7010	Spare leather pouch

IDEAL FINISH ANALYSIS Ready

DEWCHECK 4 DOCKING STATION

For optimal use of the data logging facilities of the instrument the TQC Dew-Check 4 Docking Station is available.
The Docking Station is provided with 3 strong Neodymium magnets which hold instrument and dock firmly against ferrous steel surfaces. The delivery of the Docking Station includes a magnetic surface temperature sensor which overrides the instrument's integrated surface temperature sensor in order to guarantee correct TS-readings.

FEATURES

- Optimizes DewCheck 4's data logging facilities
- Strong neodymium magnets
- Magnets lined with rubber to prevent to prevent damaging and sliding
- Magnetic surface temperature sensor for correct TS-readings

TECHNICAL SPECIFICATIONS DEWCHECK 4 DOCKING STATION

Material	plastic
Weight	81 g / 2,86 oz
Dimensions	41x18x50 mm / 1,61x0,71x1,97 inch
Connections	thermocouple, USB

ORDERING INFORMATION DEWCHECK 4 DOCKING STATION

Art. No	
DC7520	DewCheck 4 Docking Station

Scope of supply: Dock unit, magnetic surface temperature probe, USB cable, allen key2,5 mm, TQC Ideal Finish Analysis evaluation software (download)

SLING PSYCHROMETER

Bacharach type sling Psychrometer for indicating percent relative humidity on the basis of the wet bulb-dry bulb thermometer principle. The plastic case of the instrument is equipped with conversion scale for calculating the percent relative humidity.

FEATURES

- Universal application
- Fast response
- Compact size
- High accuracy

TECHNICAL SPECIFICATIONS SLING PSYCHROMETER

Material	Plastic
Dimensions	30x30x205 mm / 1,18x1,18x8,07 inch
Weight	100 g / 3,53 oz.

ORDERING INFORMATION SLING PSYCHROMETER

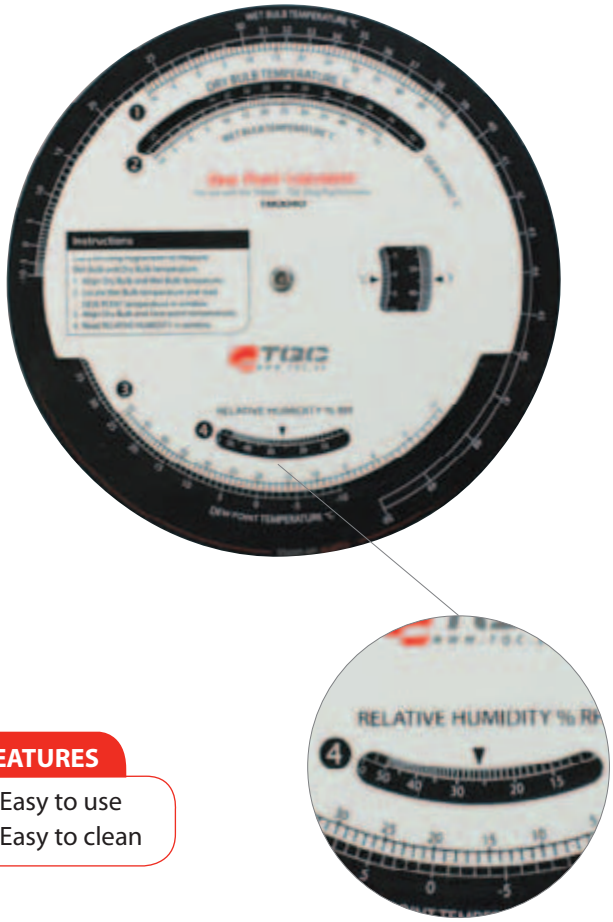
Art. No	
TM0081	Sling Psychrometer

Scope of supply: Sling Psychrometer

DEWPOINT CALCULATOR

The TQC Dewpoint calculator is a handy tool to determine dewpoint temperature based upon the measurements from the sling psychrometer.

Includes a Celsius / Fahrenheit converter.



FEATURES

- Easy to use
- Easy to clean

TECHNICAL SPECIFICATIONS DEWPOINT CALCULATOR

Material	Plastic
Dimensions	140x140x6 mm / 5,51x5,61x0,24 inch
Weight	80 g / 2,82 oz.

ORDERING INFORMATION DEWPOINT CALCULATOR

Art. No	
TM0040	TQC Dewpoint Calculator

MAGNETIC THERMOMETER FOR SURFACE TEMPERATURE

The TQC Magnetic Thermometer measures surface temperature. The thermometer can easily be placed on ferrous substrates with the strong magnet on the back. Surface temperature can be read out in both °C and °F. Measuring Range is -10°C to + 70°C; +14°F to +60 °F. The diameter of the thermometer is 65 mm / 2,56 inch.

The TQC Magnetic Thermometer for surface temperature comes in a genuine leather pouch with belt-clip.

FEATURES

- Readings in °C and °F
- Can be used in vacuum
- No plastic parts on the outside of the thermometer

TECHNICAL SPECIFICATIONS MAGNETIC THERMOMETER FOR SURFACE TEMPERATURE

Measuring range	-10°C..+70°C/+14°F to +160 °F
Material Dimensions	60 x 60 x 25 mm 2,36 x 2,36 x 0,98 inch
Diameter Thermometer	65 mm / 2,56 inch
Weight	100 g / 3,53 oz.

ORDERING INFORMATION MAGNETIC THERMOMETER FOR SURFACE TEMPERATURE

Art. No	
TM0015	TQC Magnetic Thermometer for surface temperature

Scope of supply: Magnetic Thermometer for surface temperature leather pouch with belt-clip

THERMO-HYGROMETER

The TQC Thermo hygrometer is a simple hand-held digital thermo/ hygrometer. Temperature and air humidity are displayed simultaneously. Equipped with MIN/MAX memory, °C/°F selection, HOLD function and dewpoint indication.

The TQC Thermo hygrometer operates 10.000(!) hours on 3 batteries type AAA and switches itself off after 10 min.

FEATURES

- Hold function
- Max and min values are stored
- Display with backlight
- Dewpoint indication
- Battery indication
- Integral probe

TECHNICAL SPECIFICATIONS THERMO-HYGROMETER

	temperature	Rel. humidity
Range	-20 to 70°C / -4°F to 158°F	0 to 100% rv
Resolution	0.1°C/°F	0.1%rh
Accuracy	+/-1°C +/-1 digit	+/-2% (10 to 90 %RV)
Sensor type	silicone bandgap	capacitance polymer
Battery	3 x 1.5 volt AAA	
Battery lifetime	minimum of 5 years (10000 hours)	
Display	12mm LCD / 0,47 inch LCD	
Dimensions	25x56x128 mm / 0,98x2,2x5,04 inch	
Weight	130 g / 4,6 oz.	

ORDERING INFORMATION THERMO-HYGROMETER

Art. No	
RV2100	Thermo-hygrometer

Scope of supply: TQC Thermo hygrometer, soft pouch, manual , batteries

DIGITAL THERMO HYGROMETER

Digital thermo hygrometer for indoor use, to be used as bench top or wall model.

Very large display (56x40 mm / 2,2x1,57 inch), readable up to a distance of approximately 10 m / 32,8 ft.

Memory for minimum and maximum values and humidity readings, toggle between °C/ °F; time display; alarm function.

FEATURES

- Large display
- Time, temperature and humidity at a glance
- Toggle between °C/ °F
- Alarm function
- Bench top and wall model in one

TECHNICAL SPECIFICATIONS DIGITAL THERMO HYGROMETER

Temperature range	0°C to 50°C / 32°F to 122°F
Temperature resolution	0.1°C / 0.1°F
Temperature accuracy	+/-1.0°C / 0.1°F
Humidity range	10 % RH - 90 % RH
Humidity Accuracy	+/- 5 %
Battery	AAA
Material	Plastic
Dimensions	105 x 60 x 10 mm / 4,13 x 2,12 x 0,35 inch
Dimensions display	56 x 40 mm / 2,2 x 1,57 inch

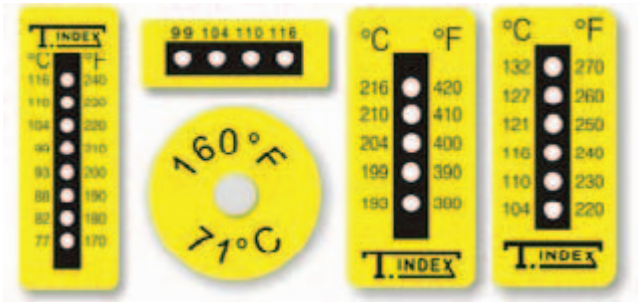
ORDERING INFORMATION DIGITAL THERMO HYGROMETER

Art. No	
RV1610	TQC Digital Thermo Hygrometer

Scope of supply: Digital Thermo-Hygrometer Wall mount clip

TEMPERATURE INDICATION STICKERS

Are available in different series with 1, 5, 6, 8 or 10 temperatures per sticker. The indicators are irreversible: the highest measured temperature always remains visible, for many months. This makes the indication stickers ideal for control purposes. Applications can be found, among others, in electronics, food, and pharmaceutical industries, and also in the oven and engine construction businesses.



ORDERING INFORMATION TEMPERATURE INDICATION STICKERS

Art. No		Art. No	
TC5020	Temperature indication stickers, Series 5 range 1 10 strips with 40°C, 43°C, 46°C, 49°C, 54°C	TC9000	Temperature indication stickers, 1000 stickers (sheets) serie 1
TC5025	Temperature indication stickers, Series 5, Range 2 10 strips with 60°C, 66°C, 71°C, 77°C, 82°C	TC9040 *	Temperature indication stickers, thermindex serie 1 range 40°C
TC5030	Temperature indication stickers, Series 5, Range 3 10 strips with 88°C, 93°C, 99°C, 104°C, 110°C	TC9044 *	Temperature indication stickers, thermindex serie 1 range 44°C
TC5035	Temperature indication stickers, Series 5, Range 4 10 strips with 116°C, 121°C, 127°C, 132°C, 138°C	TC9046 *	Temperature indication stickers, thermindex serie 1 range 46°C
TC5040	Temperature indication stickers, Series 5, range 5 10 strips with 143°C, 149°C, 154°C, 160°C, 166°C	TC9049 *	Temperature indication stickers, thermindex serie 1 range 49°C
TC5045	Temperature indication stickers, Series 5, range 6 10 strips with 171°C, 177°C, 182°C, 188°C, 193°C	TC9054	Temperature indication stickers, thermindex serie 1 range 54°C
TC5050	Temperature indication stickers, Series 5, range 7 10 strips with 199°C, 204°C, 210°C, 216°C, 224°C	TC9060 *	Temperature indication stickers, thermindex serie 1 range 60°C
TC5055	Temperature indication stickers, Series 5, Range 8 10 strips with 232°C, 241°C, 249°C, 254°C, 260°C	TC9065 *	Temperature indication stickers, thermindex serie 1 range 65°C
TC6010	Temperature indication sticker, Series 6, Range A 10 strips with 60°C, 65°C, 71°C, 77°C, 82°C, 88°C	TC9071 *	Temperature indication stickers, thermindex serie 1 range 71°C
TC6030	Temperature indication stickers, thermindex serie 6 range C 10 strips with 149°C, 154°C, 160°C, 166°C, 171°C and 177°C	TC9077 *	Temperature indication stickers, thermindex serie 1 range 77°C
TC8010	Temperature indication stickers, thermindex serie 8 range A 10 strips with 40°C, 43°C, 46°C, 49°C, 54°C, 60°C, 66°C, 71°C	TC9082 *	Temperature indication stickers, thermindex serie 1 range 82°C
TC8020	Temperature indication stickers, thermindex serie 8 range B 10 strips with 77°C, 82°C, 88°C, 93°C, 99°C, 104°C, 110°C, 116°C	TC9088 *	Temperature indication stickers, thermindex serie 1 range 88°C
TC8030	Temperature indication stickers, thermindex serie 8 range C 10 strips with 121°C, 127°C, 132°C, 138°C, 143°C, 149°C, 154°C, 160°C	TC9093 *	Temperature indication stickers, thermindex serie 1 range 93°C
TC8040	Temperature indication stickers, thermindex serie 8 range D 10 strips with 166°C, 171°C, 177°C, 182°C, 188°C, 193°C, 199°C, 204°C	TC9099 *	Temperature indication stickers, thermindex serie 1 range 99°C
TC8050	Temperature indication stickers, thermindex serie 8 range E10 strips with 210°C, 216°C, 224°C, 232°C, 241°C, 249°C, 254°C, 260°C	TC9104 *	Temperature indication stickers, thermindex serie 1 range 104°C
		TC9110 *	Temperature indication stickers, thermindex serie 1 range 110°C
		TC9116 *	Temperature indication stickers, thermindex serie 1 range 116°C
		TC9121 *	Temperature indication stickers, thermindex serie 1 range 121°C

Art. No	
TC9132 *	Temperature indication stickers, thermindex serie 1 range 132°C
TC9143 *	Temperature indication stickers, thermindex serie 1 range 143°C
TC9149 *	Temperature indication stickers, thermindex serie 1 range 149°C
TC9160 *	Temperature indication stickers, thermindex serie 1 range 160°C
TC9171 *	Temperature indication stickers, thermindex serie 1 range 171°C
TC9177 *	Temperature indication stickers, thermindex serie 1 range 177°C
TC9182 *	Temperature indication stickers, thermindex serie 1 range 182°C
TC9199 *	Temperature indication stickers, thermindex serie 1 range 199°C
TC9204 *	Temperature indication stickers, thermindex serie 1 range 204°C
TC9210 *	Temperature indication stickers, thermindex serie 1 range 210°C
TC9216 *	Temperature indication stickers, thermindex serie 1 range 216°C
TC9224 *	Temperature indication stickers, thermindex serie 1 range 224°C
TC9241 *	Temperature indication stickers, thermindex serie 1 range 241°C
TC9249 *	Temperature indication stickers, thermindex serie 1 range 249°C
TC9254 *	Temperature indication stickers, thermindex serie 1 range 254°C
TC9260 *	Temperature indication stickers, thermindex serie 1 range 260°C

* 50pcs per item

FOLDABLE THERMOMETER

A handy pocketsize fast response Thermapen with foldable stainless steel probe.

FEATURES

- Large display
- Handy pocketsize
- Power saving: auto-off
- Battery indicator
- Water/dust resistance: IP65 protection

TECHNICAL SPECIFICATION FOLDABLE THERMOMETER

Measuring method	
Display	14.3 mm LCD Digital
Resolution	0.1°C/°F or 1°C - user selectable
Accuracy	+/-0.4°C (-49.9 to 199.9°C) +/-1°C (200 to 300°C)
Operation temperature	
Power supply	2 x 3 volt CR2032 lithium coin cell
Size	19 x 47 x 153mm
Weight	97 grams

ORDERING INFORMATION FOLDABLE THERMOMETER

Art. No	
TE0030	foldable thermometer - Penetration probe
TE0035	foldable thermometer - Surface Probe

Scope of supply: Traceable certificate of calibration

USB DATA LOGGER FOR TEMPERATURE AND RH

USB data logger for temperature and relative humidity. The USB data logger has a memory for 32.000 readings (16000 temperature- and 16000 humidity readings), a dewpoint indication, a user-selectable alarm. The measuring interval can be set to 2, 5, 10 or 30 seconds; 1, 5, 10 or 30 minutes; 1, 2, 3, 6, 12 or 24 hours. Supplied with analysis software.

FEATURES

- Memory for 32.000 readings (16000 temperature- and 16000 humidity readings)
- Dew point indication
- Status indication
- Multi-mode to start logging
- Selectable measuring interval (2, 5, 10 or 30 seconds; 1, 5, 10 or 30 minutes; 1, 2, 3, 6, 12 or 24 hours)
- User-selectable alarm
- USB interface
- Analysis software
- Long battery life

ORDERING INFORMATION USB DATA LOGGER FOR TEMPERATURE AND RH

Art. No	
HM9000	USB datalogger for temperature and relative humidity

TECHNICAL SPECIFICATIONS USB DATA LOGGER FOR TEMPERATURE AND RH

Relative Humidity		
Range	0-100%	
	Accuracy (0 to 20% and 80 to 100%)	+/- 5.0%
	Accuracy (20 to 40% and 60 to 80%)	+/- 3.5%
	Accuracy (40 to 60%)	+/- 3.0%
Temperature		
Range	-40°C to 70 °C	
	Accuracy (-40°C to -10°C and +40°C to +70°C)	+/- 2 °C
	Accuracy (-10°C to +40°C)	+/- 1°C
	Accuracy (-40°F to +14°F and 104°F to 158°F)	+/- 3.6°F
	Accuracy (+14°F to 104°F)	+/-1.8°F
Dew Point temperature		
Range	-40°C to 70°C (-40°F to 158°F)	
	Accuracy (25°C, 40% to 100% Relative Humidity)	+/- 2.0°C (+/- 4.0°F)
Logging rate	Selectable sampling interval: 2, 5, 10 or 30 seconds; 1, 5, 10 or 30 minutes; 1, 2, 3, 6, 12 or 24 hour	
Operating temperature	-35°C to 80°C (-31°F to 176°F)	
Battery type	3.6V Lithium (1/2AA) (SAFT LS14250, Tadiran TL-5101 or equivalent)	
Battery life	1 year(typ.) depending on logging rate, ambient temperature & use of Alarm LED's	
Dimensions, weight	101x25x23 mm (4x1x0.9") / 172 g (6oz)	

MOISTURE

The term "Moisture" is often confused with "humidity". Humidity or better relative humidity is defined as "the ratio of the partial pressure of water vapour in the mixture to the saturated vapour pressure of water at a prescribed temperature."

Products to define humidity and other climatic parameters are presented in our section Climatic Conditions. Moisture refers to the presence of a liquid, especially water, often in trace amounts. The moisture content of materials to be coated is an important parameter. Fresh concrete for example has a very high moisture content. The moisture evaporates through the surface of that concrete. If the surface is closed off with a non-permeable coating layer the moisture is trapped and will cause damage to the coating over time. The same goes for timber which is not kiln- or air dried. Coating of moist materials often leads to adhesion failures. The moisture of a substrate is not just critical for coatings also (wooden) flooring, wall paper or other materials that cover a substrate will demand a certain moisture content of that substrate. Further moisture can be found in powder or grain-like materials such a cereals, pigments, powder coatings etc.. There various systems to define the moisture content of a material.

Electrical conductivity / resistance and impedance
These instruments measure the resistance of an electrical signal between points at the material to be measured. Various techniques are being used to enhance accuracy. There a simple instruments that just provide an indication of the moisture content but also sophisticated gauge that provide accurate readings. This kind of meters are often used to measure in solid materials like timber, concrete, masonry etc..

Reagent pressure test or carbide test
This system is based upon a chemical reaction of water with carbide. A defined quantity of material to be measured and carbide is placed in a special closed container and then mixed. The reaction of the water in the material and the carbide creates a pressure which can be read on the pressure gauge which is integrated in the container. There is a direct ration between the pressure and the water content. This type of test are not so easy to perform but the results are very accurate. Often these test are done on concrete or stone.

Gravimetric or moisture balance
This method is based upon the loss of weight of a material after it is dried. A special analytic balance is used to measure the total weight of the sample. Than the sample is dried with a special device which is integrated in the balance. The evaporation of the moisture will reduce the weight of the sample. When the weight of the sample remains stabile it indicates all moisture has been taken out of the material and the drying process stops. The difference between "wet" and "dry" sample is an accurate indication of the moisture content. This type of test is mainly used for grain- shaped materials or powders.

CONCRETE MOISTURE METER

The TQC Concrete moisture meter is a non-destructive moisture meter for concrete. By means of measuring the electrical impedance the moisture content of concrete can easily be determined by just pressing the instrument against the concrete surface.

The electrical impedance is measured through generating a low frequency electric field between 8 electrodes at the bottom of the instrument. Depending on the moisture content the measurements are made to a depth of several centimetres.

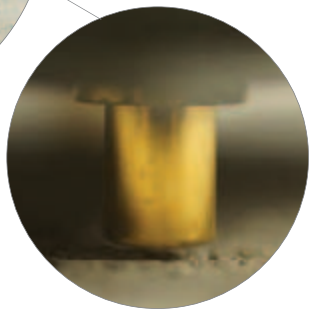
This system is not suitable to measure through electrically conductive materials like metal or rubber linings or wet surfaces.

TQC Concrete Moisture meters are ideal to quickly test large concrete floors or constructions which have to be painted or where (wooden) floorings are being installed.

Four scales allow flexible use of the instrument as an accurate measuring device or just as a detector to find moisture traces or leakage.

1. Concrete 0-6% H2O
2. ~ Carbide Method 0-6% H2O
3. Relative Scale 0-100%
4. ~ 15. Scale 0.3-15.3 m

Convenient features such as a "max-hold" for hard to reach places and "auto-switch off" are integrated.



FEATURES

- Easy-to-use
- Ideal for a quick test
- Non-destructive
- Normal and max. hold-mode
- 4 Available scales
- Auto switch-off

ORDERING INFORMATION CONCRETE MOISTURE METER

Art. No	
LI9200	TQC Concrete moisture meter

Scope of supply: Concrete moisture meter, soft pouch, manual

TECHNICAL SPECIFICATIONS CONCRETE MOISTURE METER

Material	Plastic
Dimensions	147x89x33 mm / 5,79x3,5x1,3 inch
Power supply	2x AA battery
Battery lifetime	20 hours
Display monochrome	128 x 64 pixels, size 61 x 33mm with backlight
Operating temperature range	5°- 40°C / 42-104°F
Accuracy	+/-0.5%
Scales	Concrete, Carbide Method, Relative Scale, 15. Scale

CARBIDE - METHOD HYGROMETER

High precision destructive S2000 measuring system for detecting moisture in concrete, sand cement and other bricky material. The water present in the sample reacts (chemically) with calcium carbide. This produces pressure in the vessel, which is proportional to the residual moisture content. Insensitive to external influences, always displays the right value. Complete set in carrying case with balance, pressure cylinder, calcium carbide and cleaning tools.

TECHNICAL SPECIFICATIONS CARBIDE - METHOD HYGROMETER

Model	Classic (B)
Pressure measurement principle	Relative
Dependence of indicated pressure on ambient pressure	Correlated
Splashproof/dustproof	Standard
Online check	No
Measurement duration indication	No
Logging option on site	No
Measured value storage	No
Individual company logo	No
Maintenance effort	Check regularly
Pressure gauge accuracy	class 1,6
Measuring range	0 to 1,6 bar
Overload protection	Moderate
Typ. error (mbar)	+/- 25,4
Direct read-off of CM% moisture	20 g, 50 g, 100 g
Other weights	No
Electrical power supply	None

ORDERING INFORMATION CARBIDE - METHOD HYGROMETER

Art. No	
LI0055	CM Carbide method Hygrometer, Model "Classic"

Scope of supply: Precision spring balance up to 100 g, Weighing beakers, Full tool kit for sample conditionin, Ball set with 4 steel balls, 20 carbide ampoules, 3 test ampoules with 1.00 g water for checking pressure gauge and checking for leaks, 3 spare seals, both for pressure gauge and for pressurised cylinder + spoon and cleaning brush, Clear Instructions for Use in addition to Quick-Start-Guide, Metal carrying case

ACCESSORIES / SPARES

LI0056	Calcium carbid ampoules, 100 pcs

KARSTEN TUBE PENETRATION TEST

The TQC Karsten Tube Penetration Test is a simple test for measuring the degree or water penetration into building materials such as concrete, stone and plaster. The test consists of a glass tube filled with water, bonded to the test material with plastiline. Water pressure is then exerted on the surface. A graduated scale indicates, over time, the amount or water penetrated into the surface.
The TQC Karsten Tube Penetration Test contains 3 tubes for horizontal surfaces, 3 tubes for vertical surfaces (or at choice any other combination of total 6 tubes), a water bottle, market and putty to place the tubes leak-tight on the surface. Additional vertical or horizontal tubes are available on request.

SEE ALSO PAGE 71

FEATURES

- Simple
- For both horizontal and vertical surfaces

ORDERING INFORMATION KARSTEN TUBE PENETRATION

Art. No	
LI7500	Moisture Karsten Penetration Test

Scope of supply: 3 tubes for horizontal surfaces, 3 tubes for vertical surfaces, 1 water bottle, Market and putty to place the tubes leak-tight on the surfacel

ACCESSORIES / SPARES

LI7505	Karsten tube vertical
LI7506	Karsten tube horizontal
LI7507	Plasticine 250 gr for Karsten-tube penetration test

WOOD MOISTURE GAUGE

Non-destructive instrument for measuring moisture levels in wood. Measures up to a depth of approx. 20 mm. The instrument contains the calibration lines of 25 different types of wood, guaranteeing a high degree of accuracy.
The selected wood type and the measuring results are immediately displayed.

The instrument is also capable of detecting the moisture content of concrete.

FEATURES

- Measures up to a depth of approx. 20 mm
- Calibration lines of 25 different types of wood
- High degree of accuracy
- Auto Power Off

TECHNICAL SPECIFICATIONS WOOD MOISTURE GAUGE

Measuring method	Non-Destructive
Display	Dot Matrix LCD display
Range	7 – 40%
Resolution	0.1%
Power supply	9V Battery
Size	150 x 80 x 30 mm

ORDERING INFORMATION WOOD MOISTURE GAUGE

Art. No	
LI7000	Caisson Wood Moisture Detection meter VID6

Scope of supply: Pouch

MINI-LIGNO 'CLASSIC PLUS' WOOD MOISTURE METER

Wood moisture meter in pocket size format. The Mini LIGNO classic+ is the succession model of the mini LIGNO X. With the mini LIGNO classic+ you have the option between four wooden groups, 16 single species of wood and an reference scale. Because of the wide range of options, the Classic+ is suited particularly for wood buyers, wood traders, wood processors, saw companies and for the dry masters.

FEATURES

- Pocket size format
- 4 wood groups, 16 species of wood and one reference scale
- 2 sets of pins

TECHNICAL SPECIFICATIONS MINI-LIGNO 'CLASSIC PLUS' WOOD MOISTURE METER

Measuring method	Destructive
Display	LCD
Measuring area	6 – 75%
Temperature area	20°C
Pins	5.5 mm and 9 mm
Power supply	9V battery
Size	129 x 63 x 27.5 mm
Weight	200 g

ORDERING INFORMATION MINI-LIGNO 'CLASSIC PLUS' WOOD MOISTURE METER

Art. No	
LI0007	MINI-LIGNO "CLASSIC+" Wood Moisture Meter

Scope of supply: Mini Ligno Classic+ with 2 sets of pins and pouch

WOOD MOISTURE TESTER WITH TEMPERATURE COMPENSATION

This instrument is a conductivity moisture meter specifically designed for the timber industry. The instrument has eight calibration scales, enabling the user to take accurate moisture measurements in 150 wood species. Moisture measurements can be taken using the integral pin electrodes, or using the heavy duty moisture probe. When used with the temperature probe, the moisture measurements are automatically corrected with respect to temperature. A calibration tester is integrated into the protective cap.

FEATURES

- Wood moisture tester
- Pin electrode
- Temperature probe
- 2 AAA batteries
- Manual

TECHNICAL SPECIFICATIONS SWOOD MOISTURE TESTER WITH TEMPERATURE COMPENSATION

Measuring principle	Electrical resistance
Elektrode length	8mm
Elektrodes	Integrared, replaceable
Measuring range	Wood: 6- 99,9%
Display Resolution	Wood: 0,1%
Battery	2x AAA
Housing	Impact-proof plastic housing
Ambient temperature	0- 40C°
Ambient moisture	0- 85%
Size	180mm x 50mm x31mm
Weight	175 g

ORDERING INFORMATION WOOD MOISTURE TESTER WITH TEMPERATURE COMPENSATION

Art. No	
LI9050	wood moisture tester + temperature compenstion ST-129 Wood moisture tester

Scope of supply: Mini Ligno Classic+ with 2 sets of pins and pouch

TEMPERATURE

Temperature is one of the most important parameters in about every process. It is a physical property of matter that quantitatively expresses the common notions of hot and cold. Objects of low temperature are cold, while various degrees of higher temperatures are referred to as warm or hot. Quantitatively, temperature is measured with thermometers, which may be calibrated to a variety of temperature scales.

Temperature scales

Worldwide the majority uses the Celsius scale (°C) for most temperature measurements. It has the same incremental scaling as the Kelvin scale used by scientists, but fixes its null point, at 0°C = 273.15K, the freezing point of water. A few countries, most notably the United States, use the Fahrenheit scale for common purposes, a historical scale on which water freezes at 32 °F and boils at 212 °F.

For practical purposes of scientific temperature measurement, the International System of Units (SI) defines a scale and unit for the thermodynamic temperature by using the easily reproducible temperature of the triple point of water as a second reference point. For historical reasons, the triple point is fixed at 273.16 units of the measurement increment, which has been named the kelvin in honor of the Scottish physicist who first defined the scale. The unit symbol of the kelvin is K.

Thermodynamics

Temperature is one of the principal properties studied in the field of thermodynamics. Particularly important in this field are the differences in temperature between regions of matter, because such differences are the driving force for heat,[1] which is the transfer of thermal energy. Spontaneously, heat flows only from regions of higher temperature to regions of lower temperature. If no heat is transferred between two objects, the objects have the same temperature. Source: Wikipedia

Temperature in the paint and coatings industry

In the paint and coatings industry there are many examples and applications where temperature plays a key role.To name a few:

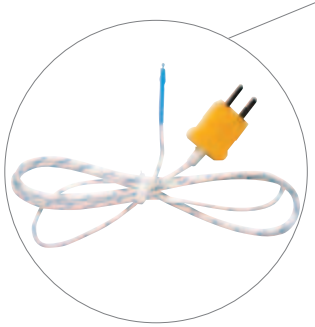
- DewPoint Temperature related to surface temperature during pre-treatment and paint application.
- Baking temperature of thermosetting (powder) coatings.
- Air temperature during application of more or less any type of coatings and water based coatings in particular.
- Profiling of oven temperatures in finishing lines.
- Viscosity and flow characteristics from liquid paint.
- Coating temperature during application and storage.
- Etc....

For some applications single spot measurements are sufficient. Other situations require a complete temperature registration during the entire production process.

Many different methods and instruments are available varying from simple bi-metal thermometers, contact- or non contact (infrared) meters to advanced thermo graphic cameras or sophisticated dataloggers.

THERMOMETER TE1000

A tough, high-quality thermometer suitable for use with the interchangeable type 'K' thermocouple probes.
The practical design, robust casing, large push buttons and the protective holster supplied with the instrument make the TE1000 suitable for use in heavy-duty conditions.
The large display panel enables readability at a distance.
Equipped with functions for holding the current value as well as the maximum value.



FEATURES

- User selectable °C or °F
- User selectable 0.1°C or 1°C(0.1°F or 1°F) resolution
- K-type thermocouples
- Wide variety of interchangeable thermocouple probes
- Max hold and data hold
- LCD display with backlight
- Accessories: 9V battery, holster with stand and temperature probe.

TECHNICAL SPECIFICATIONS THERMOMETER TE1000

Function	Temperature
Range	-50~1300°C +/-(0.5%+/-1°C) -58~2000°F +/-(0.5%+/-2°F)
Basic Accuracy	Resolution 0.1° or 1°
Reading rate	2.5 times per second
Input connector	Accepts standard miniature thermocouple connectors
	(flat blades spaced 7,9 mm centre to centre)
Dimensions	175x76x 43 mm / 6,89x2,99x1,69 inch
Weight	320 g / 11,29 oz.

ORDERING INFORMATION THERMOMETER TE1000

Art. No	
TE1000	TQC Thermometer for thermocouples

Scope of supply: Thermometer, Pouch, wire probe

ACCESSORIES / SPARES

TE5103	Temperature probe, type 80111, right angle surface probe, max.200°C / 392°F
TE5104	Temperature probe, type 80104, Liquid probe, max. 1100°C / 2012°F
TE5105	Temperature probe, type 80105, Liquid probe, max. 900°C / 1652°F
TE5106	Temperature probe, type 80106, Sharp needle probe, 130x3 mm, max.600°C / 1112°F
TE5107	Temperature probe, type 80107, Sharp needle probe, 130x1,5 mm, max.600°C / 1112°F
TE5108	Temperature probe, type 80108, Air and gas probe, max. 600°C / 1112°F
TE5109	Temperature probe, type 80109, Pipe clamp < Ø35 mm, max. 200°C / 392°F
TE5110	Temperature probe, type 80110, Surface probe, max. 900 °C / 1652°F
TE5112	Temperature probe, type 133-080, Pipe probe < Ø150 mm with velcro fastening, max. 100°C / 212°F
TE5120	Temperature probe, type 333-175, Deep freeze probe, max. 260°C / 500°F min. -180°C / -292°F
TE5125	Temperature probe, type133-130 ETI Heavy Duty asphalt probe, max. 300 °C / 572°F

TEMPERATURE PROBES

Probes for instruments suited for changeable probes (type 'K') using a plug connection.
Can also be manufactured according to customer specifications. Contact us for further details.

TECHNICAL SPECIFICATION TEMPERATURE PROBES

Art. No	Probe model	Probe type	Max. temp	Dimensions	Additional info
TE5103	Right angle surface probe	type 80111	max.200°C /392°F	130x8 mm / 5,12x0,31 inch	point 15x30 mm / 0,59x1,18 inch
TE5104	Liquid probe	Type 80104	max. 1100°C /2010°F	130x3 mm / 5,12x0,12 inch	
TE5105	Liquid probe,	Type 80105	max. 900°C /1652°F	130x1.5 mm / 5,12x0,59 inch	
TE5106	Sharp needle probe	Type 80106	max.600°C /1112°F	130x3 mm / 5,12x0,12 inch	
TE5107	Sharp needle probe	Type 80107	max.600°C /1112°F	130x1,5 mm / 5,12x0,59 inch	
TE5108	Air and gas probe	Type 80108	max. 600°C /1112°F	130x6 mm / 5,12x0,24 inch	
TE5109	Pipe clamp	Type 80109	max. 200°C /392°F		< Ø35 mm / 1,42 inch
TE5110	Surface probe	Type 80110	max. 900°C /1652°F	130x8 mm / 5,12x0,31 inch	
TE5112	Pipe probe with velcro fastening	Type 133-080	max. 100°C /212°F		< Ø150 mm / 5,91 inch
TE5120	Deep freeze probe	Type 333-175	max. 260°C /500°F	160x8mm / 6,3x0,31 inch	min. -180°C /-292°F
TE5125	ETI Heavy Duty asphalt probe	Type133-130	max. 300°C /572°F	500x8 mm / 19,69x0,31 inch	with sturdy T-shaped hand-grip

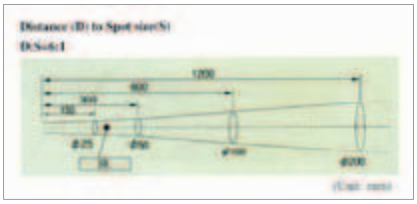
ACCESSORIES / SPARES

TE1000	TQC Thermometer for thermocouples

INFRARED THERMOMETER POCKET SIZE

A pocket size infrared thermometer to measure surface temperature without making contact. The laser pointer identifies the target area easily. An illuminated display allows working in dark or poorly lit environments.

Fast and simple operation, just point and shoot and the surface temperature is shown immediately. Typical applications are with surfaces that are hard to reach, moving objects or electrical parts.



FEATURES

- Pocket size
- Fast and simple operation
- Laser pointer

TECHNICAL SPECIFICATIONS INFRARED THERMOMETER POCKET SIZE

Range	-30 to 270°C / -22 to 518°F
Response time	less than 1 second
Resolution	1°C/°F
Distance to Spot size	6:1
Emissivity	fixed at 0.95
Material	plastic
Dimensions	97x57x28mm / 3,82x2,24x1,1 inch
Weight	82 g / 2,89 oz

ORDERING INFORMATION MAGNETIC INFRARED THERMOMETER POCKET SIZE

Art. No	
TE1004	Infrared thermometer pocket size with laser pointer

Scope of supply: Infrared thermometer, lanyard

INFRARED THERMOMETER

User-friendly TQC Infrared Thermometers to measure surface temperature without making contact under harsh industrial circumstances. The laser pointer identifies the target area while rubber parts on the housing protect the instrument against mechanical damage. An illuminated display allows working in dark or poorly lit environments.

Fast and simple operation, just point and shoot and the surface temperature is shown on the display within 500 mSec.

Typical applications are with surfaces that are hard to reach, moving objects or electrical parts. It is used to measure parts in curing ovens, bearings, electrical junctions boxes, coolants, engines, plastic moulding, asphalt etc.

FEATURES

- Automatic data hold
- Auto power off
- Backlit display
- Laser targeting
- Over range indication
- °C/°F selectable
- Low battery indication

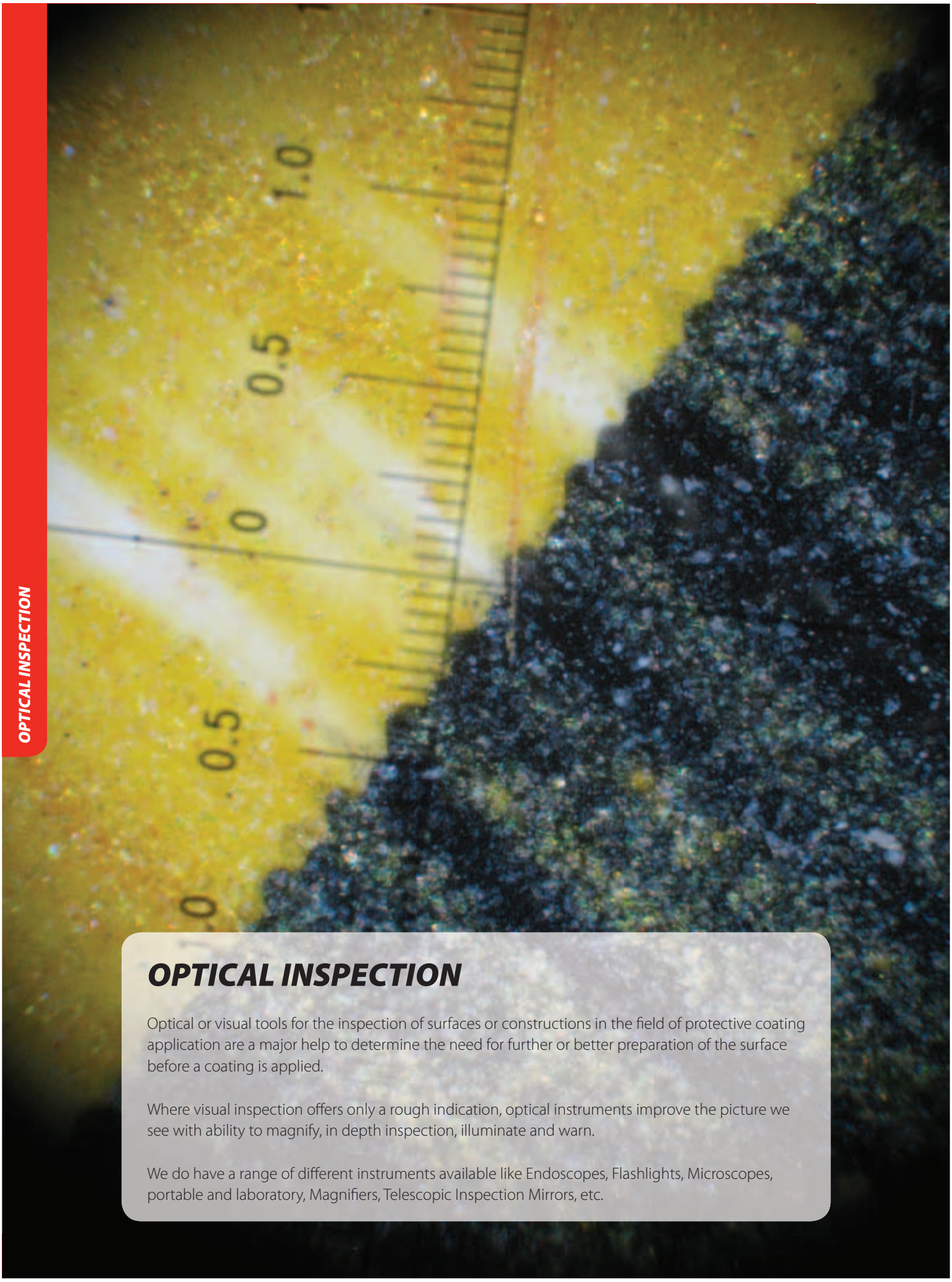
TECHNICAL SPECIFICATIONS INFRARED THERMOMETER

Temperature range	-50 to +750°C/-58 to 1382°F
Resolution	0.1°C up to 200°C, 1°C over 200°C
Basic Accuracy	+/- 1.5% of reading or +/- 2°C (whichever is greater)
Distance to spot size	12:1
Emissivity	fixed at 0.95
Power supply	9V battery type 1604A or IEC 6LR61
Material	Plastic
Weight	290 g / 10,23 oz
Dimensions	100x56x230 mm / 3,94x2,2x9,1 inch

ORDERING INFORMATION INFRARED THERMOMETER

Art. No	
TE1005	TQC Infrared Thermometer Standard

Scope of supply: Infrared thermometer, manual, battery, case



OPTICAL INSPECTION

Optical or visual tools for the inspection of surfaces or constructions in the field of protective coating application are a major help to determine the need for further or better preparation of the surface before a coating is applied.

Where visual inspection offers only a rough indication, optical instruments improve the picture we see with ability to magnify, in depth inspection, illuminate and warn.

We do have a range of different instruments available like Endoscopes, Flashlights, Microscopes, portable and laboratory, Magnifiers, Telescopic Inspection Mirrors, etc.

ILLUMINATED MAGNIFYING GLASS (2,5X)

Robust and comfortable to hold magnifying glass. The 2.5x magnification, combined with the strong LED illumination it's an ideal tool for optical inspection of surfaces.
The illumination is adjustable.

TECHNICAL SPECIFICATIONS ILLUMINATED MAGNIFYING GLASS (2,5X)

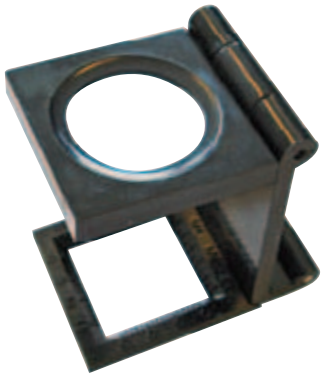
Dimensions	55x177x40 mm
Dimensions magnifying glass	55x50 mm

ORDERING INFORMATION ILLUMINATED MAGNIFYING GLASS (2,5X)

Art. No	
SP9700	Lighted Magnifier 2.5 x

FOLDING MAGNIFIER

Magnifier (magnification 2x) with metric and imperial scale. Folded size: 45x30x17mm. Ideal for inspecting, tracking, and measuring small cracks etc.



ORDERING INFORMATION FOLDING MAGNIFIER

Art. No	
LD6201	Folding magnifier

LED POCKET FLASHLIGHT

This powerful TQC LED pocket flashlight produces a very impressive 200 lumens and provides a projection distance of 250 meters. Small (26 x 118mm), portable and light weighted (73gr).

ORDERING INFORMATION FOLDING MAGNIFIER

Art. No	
DI0035	TQC LED pocket flashlight

Scope of supply: holster, wriststrap, 3xAAA alkaline batteries and giftbox.

SURFACE MICROSCOPES

Surface cleanliness, marks, pinholes, fish-eyes, delaminating, cracks and many other coating defects require further investigation to find their cause. A portable microscope allows the inspector to examine coating defects right on the spot. Some microscopes are equipped with a reticle so direct measurements can be made.

ORDERING INFORMATION SURFACE MICROSCOPES

Art. No	LD6170 Surface Microscope	LD6172 Surface Microscope	LD6174 Surface Microscope
Magnification	20x	60x	100x
Field of view (mm)	10	2	0.6
Measuring scale/reticle	Yes 0.1 mm	Yes 0.02 mm	Yes 0.01 mm
Illuminated	Yes	Yes	Yes
Focusable	Yes	Yes	Yes
Optical material	Glass	Glass	Glass
Body material	Aluminum	Aluminum	Aluminum
Dimensions (mm) / (inch)	175 x 90 x 55 / 6.9 x 3.5 x 2.2	175 x 90 x 55 / 6.9 x 3.5 x 2.2	175 x 90 x 55 / 6.9 x 3.5 x 2.2
Weight (gr) / (LBS)	370 / 0.82	370 / 0.82	370 / 0.82
Supplied with accessories	Hardcase	Hardcase	Hardcase

LD6169

LD6205

LD6152
LD6154

ORDERING INFORMATION SURFACE MICROSCOPES

Art. No	LD6169 Surface Microscope	LD6205 Surface Microscope	LD6152 Surface Microscope	LD6154 Surface Microscope
Magnification	10x	40x	20x	50x
Field of view (mm)	20	2	9	3.6
Measuring scale/reticle	Yes 0.1 mm	Yes 0.05 mm	Yes 0.05 mm	Yes 0.02 mm
Illuminated	No	Yes	Yes	Yes
Focusable	Yes	Yes	Yes	Yes
Optical material	Glass	Plastic	Glass	Glass
Body material	Plastic	Plastic	Plastic / Aluminum	Plastic / Aluminum
Dimensions (mm) / (inch)	45 x 45 x 45 / 1.8 x 1.8 x1.8	135 x 50 x 25 / 5.3 x 2 x 1	194 x 60 x 40 / 7.6 x 2.4 x 1.6	180 x 60 x 40 / 7.1 x 2.4 x 1.6
Weight (gr) / (LBS)	100 / 0.22	110 / 0.24	300 / 0.66	300 / 0.66
Supplied with accessories	Soft cover	Soft cover	Soft cover	Soft cover
	-	-	Digital camera adapter (LD6155)	Digital camera adapter (LD6155)

ILLUMINATED MICROSCOPE WITH GRADUATION SCALE

The portable illuminated surface microscopes are ideal to investigate coating defects right on the spot.
Thanks to the built-in reticle direct measurements can be made.

FEATURES

- Illuminated
- Focusable

ORDERING INFORMATION ILLUMINATED MICROSCOPE WITH GRADUATION SCALE

Art. No	
LD6156	Lighted microscope 25x (3 x LED)

Scope of supply: Soft cover

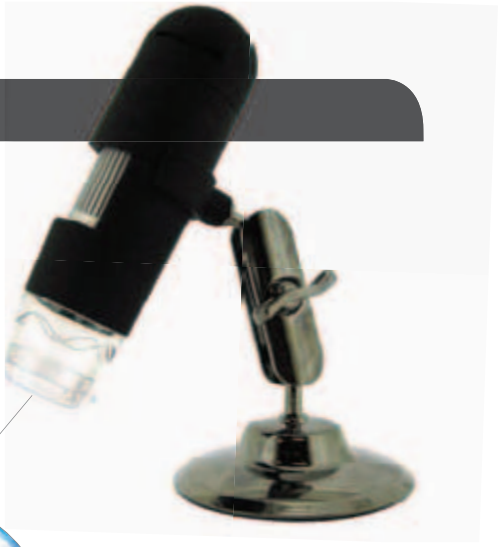
ACCESSORIES / SPARES

LD6157	Digital camera adapter for 25x model

TECHNICAL SPECIFICATIONS ILLUMINATED MICROSCOPE WITH GRADUATION SCALE

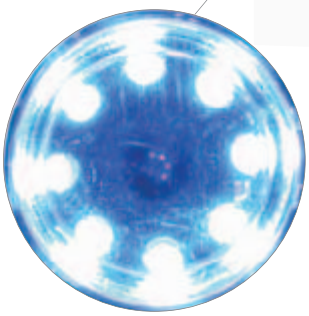
Art. No	**LD6156**
Magnification	25x
Field of View (mm)	7.2
Measuring Scale/reticle	Yes 0.05 mm
Illuminated	Yes 3x LED Dimmable and switchable
Focusable	Yes
Optical Material	Glass
Body Material	Plastic/Aluminium
Dimensions (mm)	220 x 50 x 40
Weight (gr)	340
Power supply	4x AAA Battery
Options	Digital Camera adapter (LD6157)

USB MEASURING MICROSCOPE



Small, portable, inexpensive and easy microscope that can be connected directly to a PC. Supplied with software for immediate inspection and measuring.

The unique optical design combines the advantages of a USB-microscope digital camera to the precision optics of a microscope illuminated with LED lights. With the 20-200-times magnification, you can determine the fine structure of surfaces or each other very visible object. This compact digital microscope is ideal for analyzing coating failures, imperfections, pre-treatment quality etc. The microscope can be used in direct contact to the surface or at larger distances. The 8 integrated White Light LED's are adjustable in strength guaranteeing a clear view without causing reflections.



Special software for editing and making videos comes with this USB microscope. With this software, you can determine the length, width, height and angle to the radius of the objects.

The USB microscope will also be supplied with a magnetic microscope holder, which gives the microscope a steady and straight position. Also enables the microscope to be used in a vertical position on Fe material due to its 3 very strong magnets.

FEATURES

- Easy-to-use
- Magnification between 20X and 200X
- Clear view without reflections
- 2.0 Mega Pixel pictures which can be interpolated to 5.0 Mega Pixel pictures
- File formats: jpg, AVI
- Advanced, yet easy-to-use software to edit and measure

TECHNICAL SPECIFICATIONS USB MEASURING MICROSCOPE

Material	Plastic; Holder: stainless steel, magnet
Resolution	2.0 Mega Pixel (1600x1280) Interpolated to 5.0 Mega Pixel (2560x2048)
Photo format	JPG, BMP
Video format	AVI
Magnification	20x ~ 200x
Light source	8 LED (adjustable by control wheel)
Dimensions	110x33x 33 mm / 4,33x1,3x1,3 inch
System requirements	Windows 2000/XP/Vista/Win7/ Mac 10,5 and up
OSD language	English, German, Spanish, Korean, French, ussian R

ORDERING INFORMATION USB MEASURING MICROSCOPE

Art. No	
LD6182	USB microscope

Scope of supply: USB microscope, CD with full manual and software, microscope stand, magnetic microscope holder, quick start guide

ACCESSORIES / SPARES

LD6183	Magnetic Microscope holder

LOUPE MAGNIFIER 10X WITH ILLUMINATION

Loupe magnifier designed to be held close to the eye. Ideal to observe defects in painting, carefully analyze how ink lays on paper, register film separations to one another, check registration of colors, estimate dot-gain, and diagnose issues with roller pressure and chemistry based on the shape of individual dots and rosettes.

FEATURES

- Viewing angle of 21°
- Illumination

TECHNICAL SPECIFICATIONS LOUPE MAGNIFIER 10X WITH ILLUMINATION

Measuring method	Visual
Magnification	10x
Dimensions magnifying glass	20 mm Ø alt 0216 Ø
Power supply	2x AA Battery
Size	115 x 40 x 30 mm

ORDERING INFORMATIONLOUPE MAGNIFIER 10X WITH ILLUMINATION

Art. No	
SP7940	Loupe magnifier 10x with illumination

Scope of supply: Loupe delivered in a soft Pouch

INSPECTOR FLASHLIGHT

The TQC Inspector Flashlight is a robust and handy flashlight with extremely powerful Power LED. The adjustable light beam makes this flashlight very suitable for most kinds of inspections. This Powerful light produces an impressive 600 Lumens and has a beam distance of 300 meters. The Li-ion batteries can be charged in the external charger.

FEATURES

- Adjustable beam
- LED
- Bulb free
- AC rechargeable
- Lanyard hole
- Weatherproof
- Tailcap E-switch
- Automatic voltage
- IC protection
- 300 meters beam distance

TECHNICAL SPECIFICATIONS INSPECTOR FLASHLIGHT

Light Source	Ultra high-output Cree T6 10W LED
Light Output	max. 600 Lumen
Effective reach	100 – 300 meter / 328 – 984 ft
IP Grade	IPX6 dust and waterproof
Power	2 pcs Li-Ion battery
Runtime	3 hours
Dimensions	40.5x26x198 mm / 1,57x1x7,8 inch
Weight	213 g / 7,5oz
Material	CNC machined and titanium hard-anodized aerospace-grade aluminium

ORDERING INFORMATION INSPECTOR FLASHLIGHT

Art. No	
DI0065	TQC Inspector Flashlight

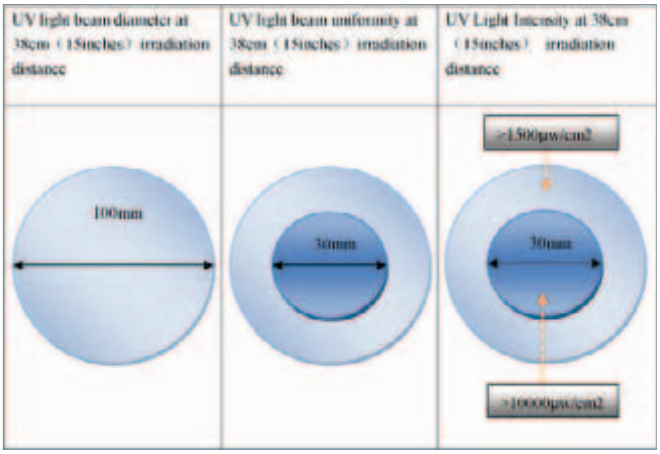
Scope of supply: TQC Inspector flashlight, Wrist strap, 2pcs Li-ion batteries 18650, Pouch, Charger

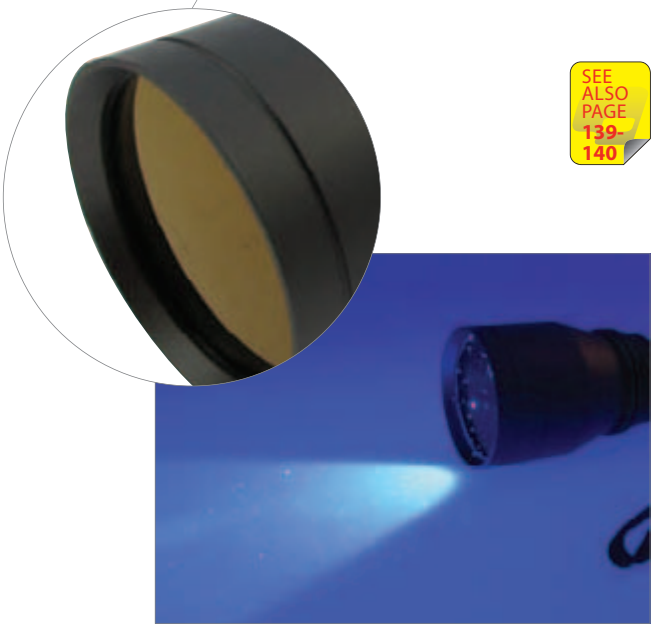
UV INSPECTION SPOTLIGHT

Robust, handheld rechargeable inspection spotlight with a power density at the hot spot of 10,000uW/cm2 and 1500uW/cm2 at 38cm (15") The TQC UV inspection lantern is used to detect contaminations that react under UV-illumination and cannot be seen with naked eye such as some organic fats, alkaline contaminants etc. Ideal to inspect the cleanliness of steel prior to painting.
Delivered in a sturdy plastic suitcase complete with yellow safety glasses for optimal contrast. Recharger included.

Largely used as UV detective light in different areas, including:

- Mineral detection
- Metal cracks detection
- Non-destructive testing





SEE ALSO PAGE 139-140

FEATURES

- Equipped with latest high power UV LED 450 mW at 365nm wavelength
- Output UV light intensity > 1500μW/cm² at 38cm / 15"
- Supplied with rechargeable Li-ion battery which provides 180 minutes continuous inspection
- Use life > 20000hours
- Single wavelength, no heat but deep UV light
- Anodized aluminum lamp body, resistant to corrosion.
- Stands up to years of heavy use

TECHNICAL SPECIFICATION UV INSPECTION SPOTLIGHT

Art. No	
LD7220	UV Inspection spotlight

Scope of supply: UV lantern, UV protective glasses, Li-ion battery, Battery charger, Carrying case

TECHNICAL SPECIFICATIONS UV INSPECTION SPOTLIGHT

Wavelength	365 mm / 14,37
Length	160 mm / 6,3 inch
Lamp head diameter	45 mm / 1,77 inch
Lamp handle diameter	25 mm / 0,98 inch
Power supply	one cell 3,7 V 260 mAh rechargeable Li-ion battery
Run time	180 min
Charge time	3,5 - 4 hours
LED lifetime	20.000 hours
Material	Anodized Aluminium
Weight (without battery)	190 g / 6,7 oz

UV POCKET FLASHLIGHT

Small, light weight, UV pocket flashlight powered by an ultra-high output 390-410nm UV LED. This TQC UV pocket flashlight is used to detect contaminations that react under UV-illumination and cannot be seen with naked eye such as some organic fats, alkaline contaminants etc.. Ideal to inspect the cleanliness of steel prior to painting.

FEATURES

- LED
- Bulb free
- Aluminium casing
- Waterproof and shockproof housing
- Light weight
- Dynamic switch

TECHNICAL SPECIFICATIONS UV POCKET FLASHLIGHT

Light Source	LED
Chip	1x Edixeon UV LED
Batteries	3xAAA alkaline batteries
Net. weight	76 grams excl. Batteries / 2,68oz
Wavelength	395-410 NM
Beam distance	50 meters / 164ft
Burning time	170 hours
IP No.	P67
Contacts	Hard gold-plated contacts
Size	32x32x126mm / 1,26x1,26x4,96 inch

TECHNICAL SPECIFICATION UV POCKET FLASHLIGHT

Art. No	
LD7290	UV pocket flashlight

Scope of supply: UV flashlight, Wrist strap, 3 x AAA alkaline batteries,Pouch

INSPECTION MIRROR TELESCOPIC *(ANTENNA-TYPE)* - ROUND

Perfect tool to use for inspection of professional coating jobs on large structures, ships, tanks, buildings etc.
The inspection mirrors offers a clear view on hard-to-reach places and ideal for a visual inspection for "holy-days" and general quality control for matters as coverage, cleanliness of blasted steel etc

FEATURES

- With telescopic handle
- Pocket size

LD3004

LD3025

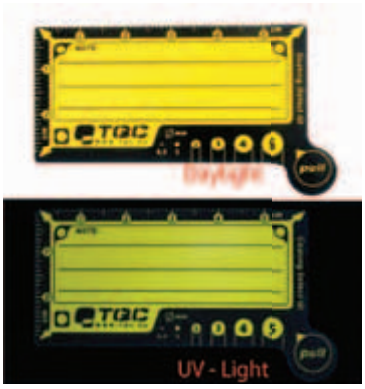
ORDERING INFORMATION INSPECTION MIRROR TELESCOPIC (ANTENNA-TYPE) - ROUND

Art. No	LD3004	LD3025
Diameter mirror	31 mm / 1,22 inch	56 mm / 2,2 inch
Min Length	130 mm / 5,12 inch	254 mm / 10 inch
Max Length	455 mm / 17,19 inch	375 mm / 14,76 inch
Material	Glass/ Nickel plated steel	Glass/ Nickel plated steel
Weight	40 g / 1,41 oz.	100 g / 3,53 oz.

Scope of supply: Round Inspection mirror telescopic (Antenna-type)

COATING DEFECT IDENTIFICATION LABEL

Imperfections or problems found during inspections of coating work usually require attention of second or third parties after they have been found.
A second opinion of the paint supplier, witnessing of counter parties or just the attention of a repair crew. In each case it is important the above mentioned spots are easily found back, also when the original inspector is not around anymore.
Large structures like a ships, bridges and steel construction but also poorly lit area's such as tanks can cause problems in that respect. How, for example, would you describe the exact location of a number of small pinholes, hardly visible (or even non-visible) with the naked eye in a 5000 square meter tank bottom?



For recordkeeping often pictures of the problems found are being taken. Including the TQC CDI label in the photograph retrieves immediately the dimensions of the defects and the writable area on the label offers the possibility to add extra information to the photograph.

In a serial production environment the CDI labels can be used to identify parts for rework or scrap.

FEATURES

- Easily removable, semi-permanent stick back and non-stick pull tab
- No adhesives residue
- Writable yet water-repellent surface
- Hi-visible color scheme on both dark and light surfaces
- Illuminant yellow ink, lights up under UV light
- Neutral surface for digital camera's automatic white balancer
- Measuring scale clarifies dimensions of imperfections on photographs
- Diameter scale shows size of pin holes, fish eyes etc.
- Writable surface to add extra information to the picture/report

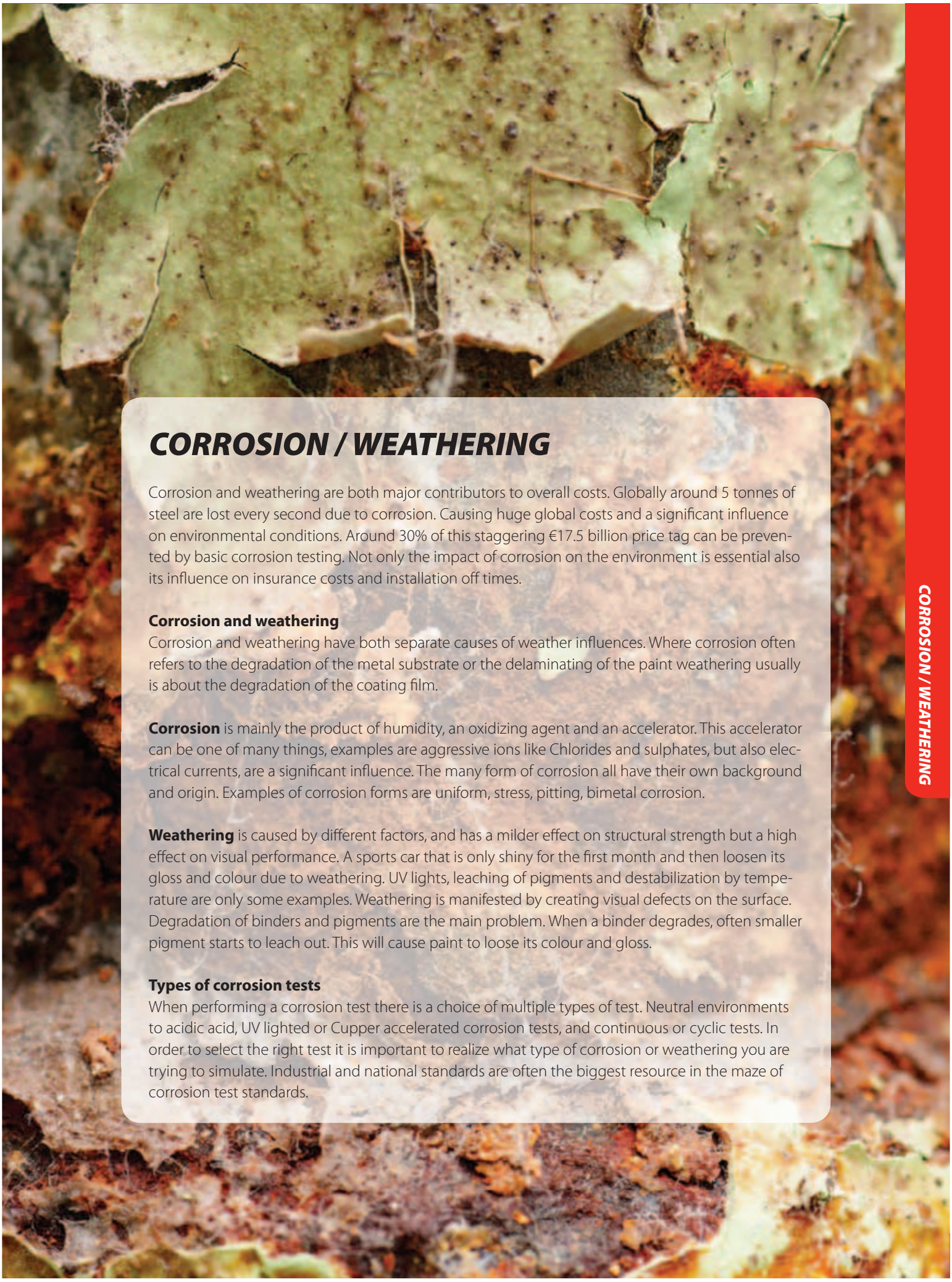
TECHNICAL SPECIFICATIONS COATING DEFECT IDENTIFICATION LABEL

Material	Fluorescerent yellow semipermanent adhesive with non-stick pulltab
Dimensions sticker	30x63 mm / 1,18x2,5 inch
Dimensions box	50x105x105 mm / 1,97x4,13x4,13 inch
Stickers in box	250 pieces

ORDERING INFORMATION COATING DEFECT IDENTIFICATION LABEL

Art. No	
SP0050	TQC Coating Defect Identification label, 250 pieces

Scope of supply: TQC Coating Defect Identification label, 250 pieces in box



CORROSION / WEATHERING

Corrosion and weathering are both major contributors to overall costs. Globally around 5 tonnes of steel are lost every second due to corrosion. Causing huge global costs and a significant influence on environmental conditions. Around 30% of this staggering €17.5 billion price tag can be prevented by basic corrosion testing. Not only the impact of corrosion on the environment is essential also its influence on insurance costs and installation off times.

Corrosion and weathering

Corrosion and weathering have both separate causes of weather influences. Where corrosion often refers to the degradation of the metal substrate or the delaminating of the paint weathering usually is about the degradation of the coating film.

Corrosion is mainly the product of humidity, an oxidizing agent and an accelerator. This accelerator can be one of many things, examples are aggressive ions like Chlorides and sulphates, but also electrical currents, are a significant influence. The many form of corrosion all have their own background and origin. Examples of corrosion forms are uniform, stress, pitting, bimetal corrosion.

Weathering is caused by different factors, and has a milder effect on structural strength but a high effect on visual performance. A sports car that is only shiny for the first month and then loosen its gloss and colour due to weathering. UV lights, leaching of pigments and destabilization by temperature are only some examples. Weathering is manifested by creating visual defects on the surface. Degradation of binders and pigments are the main problem. When a binder degrades, often smaller pigment starts to leach out. This will cause paint to loose its colour and gloss.

Types of corrosion tests

When performing a corrosion test there is a choice of multiple types of test. Neutral environments to acidic acid, UV lighted or Cupper accelerated corrosion tests, and continuous or cyclic tests. In order to select the right test it is important to realize what type of corrosion or weathering you are trying to simulate. Industrial and national standards are often the biggest resource in the maze of corrosion test standards.

MACHU TEST BATH

TQC Machu test, accelerated corrosion test on test panels and construction parts according to Qualicoat specifications.

The test is made in a warm environment. To create this environment the test panels are placed in the plastic container, which is placed in the Machu Test Bath.

The test panels need to be scratched crosswise with a 1mm cutting tool before placing them in the warm moisture test chamber. The fluid content, temperature and remain time are specified.

FEATURES

- Simplest operating by patented combination of MODE button and jog-shuttle knob
- Fast commissioning
- Long life by simple and solid construction
  Highest temperature accuracy by digital fuzzy controller
- Turn-off and turn-on delay time from one minute to over 99 hours in one minute steps adjustable
- Signal sound after end of turn-off delay
- Key lock against inadvertent changing of set speed and timer values
- Over temperature protection by safety switch

TECHNICAL SPECIFICATIONS MACHU TEST BATH

Dimensions Bath	302x240x150 mm / 11,89x9,45x5,91 inch
Dimensions External	338x280x260 mm / 13,31x11,02x10,24 inch
Capacity	11 l
Heater	1,2 kW
Temperature range	ambient + 5°C up to 100°C / ambient + 41°F up to 212°F
Temperature accuracy	+/- 0,1°C
Controller	Digital Fuzzy controller with jog-shuttle knob
Display	Illuminated LCD
Timer	99hr 59 min for turn-off and -on delay
Safety Device	Over temperature and over current protector, sensor control
Sensor	PT100
Lid	stainless steel, lit
Power Supply	AC 220/230 V, 50/60 Hz

ORDERING INFORMATION MACHU TEST BATH

Art. No	
VF8700	TQC Machu test bath

Scope of supply: Machu Test Bath (11 l), power cord (European plug), SST top lid, perforated base plate, plastic container (4 l), panel holder

ACCESSORIES / SPARES

VF8620	Spare Plastic box for test panels
VF8625	Test panel holder for Machu bath 11 litres
VF8600	TQC Machu Scratching Tool Basic (type CC2000)
VF8605	TQC Machu Scratching Tool Professional (type CC3000)
VF8610	Spare TQC Machu knife CC2000 - 1mm
VF8611	Spare TQC Machu knife CC3000 - 1mm

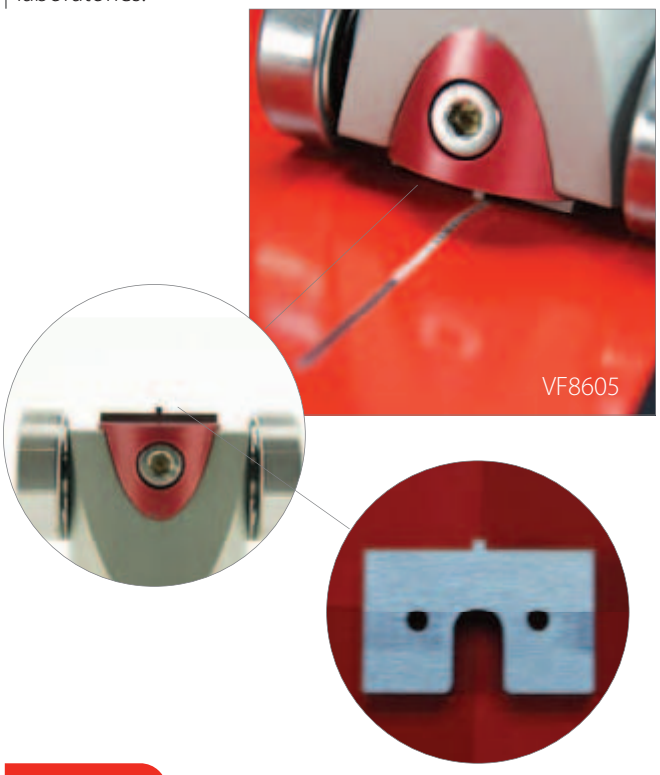
MACHU SCRATCHING TOOL

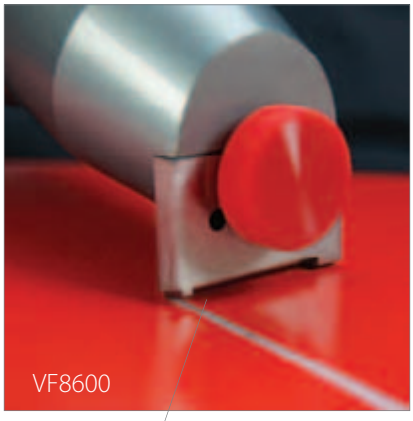
TQC Machu Scratching Tool to perform a Machu test (corrosion test) with. Each tool is provided with a 1mm width cutter to cut the coating down to the metal, complying with ISO 17872.

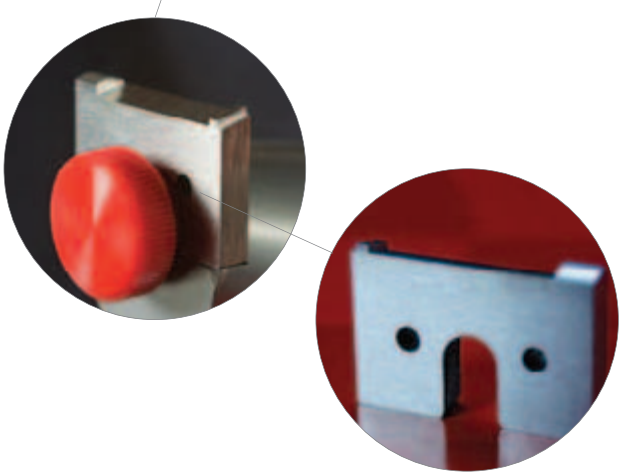
Two models are available:
The TQC Machu Scratching Tool Basic is based on the CC2000 model. with a self positioning knife bracket to expose the substrate with a perpendicular cut through the coating.

The TQC Machu Scratching Tool Professional is based on the CC3000 model with adjustable cutting depth and two ball bearings to guide the cut. This guarantees reproducible results.

Mandatory test in Qualicoat and QIB accredited laboratories.


VF8605


VF8600



STANDARDS

ISO 17872

FEATURES

- Basic: Self aligning head to keep the cutter straight and controlled pressure to the surface
- Professional: Adjustable cutting depth. Two wheel bearings keep the distance to the surface always as set causing a reproducible pattern
- Ergonomic shaped grip
- Easy to replace cutter

ORDERING INFORMATION MACHU SCRATCHING TOOL

Art. No	VF8600	VF8605
Model	Basic (CC2000)	Professional (CC3000)
Cutter	1 mm with sliding shoe set approx 80 mm	1mm with two ball bearings
Cutting depth	-	adjustable
Material tool	1.2379 Vacuum hardened steel	1.2379 Vacuum hardened steel
Material knife	55.60 Hcr	55.60 Hcr
Material handle	Rubber	Rubber
Dimensions	32 x1173x42 mm / 1,26x6,81x1,65 inch	32 x1173x42 mm / 1,26x6,81x1,65 inch
Weight	238 g / 8,4 oz	238 g / 8,4 oz

Scope of supply: Machu-Scratch instrument according to ISO, 1 mm cutter

ACCESSORIES / SPARES

VF8610	Spare cutter 1mm for type CC2000
VF8611	Spare cutter 1mm for type CC3000

PH / CONDUCTIVITY

Acidity and conductivity are two of the most measured parameters. From simply checking the quality of a fishpond to testing medicine, foodstuff or the composition of paint; Both parameters are these days the basics of Quality control.

pH

pH is the abbreviation of Hydrogen potential in an aqueous solution. The pH scale for pH measurement runs practically from 0 to 14. Pure water has a pH value of 7. Everything lower is acidic and all higher values are basic. The acidity is caused by the detaching of a Hydrogen ion (H+) from its salt. Basicicity is caused by the detaching of a hydrogen oxide ion (OH-) from its salt. The pH-value is a measure of the dissolved and active amount of either H+ or OH- ions. It doesn't directly relate to the concentration of the acid. Inhibitors and other compounds can severely influence the correlation between pH-value and acid or base concentration.

pH measurements

To measure pH there are many possibilities, from a simple pH-indicator to elaborate electrode systems. The most commonly used pH- electrode is the Glass calomel electrode since 1906. This type of electrode has proven its stability and reliability over many years. The electrode is most reliable between -1 and 12. For higher basicicity other electrodes should be used. A pH-electrode is basically an ion-selective electrode reacting to the H+ ion. This electrode is also sensitive to several other interferences. The matrix of a sample influences the reliability of an electrode. Glass is also sensitive to the presence of Fluoride ion in a solution. This affects the stability of the glass membrane in the electrode. Also fine pigments can cause the membrane to get blocked. For measuring in paint ISO is now working on the acceptance of ISFET electrodes for measuring the pH-value in paint products.

Conductivity

Where pH is an ion selective method, conductivity is a non-selective method. Any salt that dissolves into water and forms an electrolyte will result in an increase in conductivity of that sample. This conductivity is measured in technically the same way that conductivity is measured in an electric wire. The more dissolved salt a solution contains the better it conducts electricity. Conductivity measurement can be influenced by a few parameters. One of these is static electricity that is caused by measuring in small volumes.

CONDUCTIVITY GAUGE ECOSCAN COND 6+ KIT

Powerful portable conductivity gauge with large measuring range. Equipped with cable electrode and integrated temperature probe for automatic temperature compensation. The high accuracy and robust protective casing make this gauge ideal for use in the field and laboratory.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

ORDERING INFORMATION CONDUCTIVITY GAUGE ECOSCAN COND 6+ KIT

Art. No	
HI0040	Conductivity meter Ecoscan COND 6+ Kit

Scope of supply: Eutech Cond 6+ conductivity meter with electrode ECCONSEN91B & conductivity carrying kit (includes 1 x 1413 uS, 12.88 mS, 84 uS KCl standard solution and 1x deionised (rinse) water (60ml each)

ACCESSORIES / SPARES

HI0013	Spare pH electrode
HI0009	TQC Calibration Solution 10.01 pH, bottle of 100ml
HI0015	TQC Calibration Solution 1.68 pH, bottle of 100ml
HI0023	TQC Calibration Solution 4.01 pH, bottle of 500ml
HI0024	TQC Calibration Solution 7.00 pH, bottle of 500ml
HI0025	TQC Calibration Solution 10.01 pH, bottle of 500ml
HI0027	TQC Calibration Solution 12880 µS, bottle of 100ml
HI0031	TQC Calibration Solution 1413 µS, bottle of 500ml
HI0032	TQC Calibration Solution 12880 µS, bottle of 500ml
HI0034	TQC Maintenance Storage Solution, bottle of 100ml
HI0035	TQC Maintenance Storage Solution, bottle of 500ml
SP7320	TQC Calibration Solution 84 µS, bottle of 50ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50ml

FEATURES

- Multi-point push-button calibration with +/-1% full scale accuracy
- Option of quick, easy automatic calibration or customized, near-to-sample manual calibration
- Auto-ranging for conductivity measurements for fast response and best resolution over wide measurement range
- Automatic Temperature Compensation (ATC) for the optimum accuracy under fluctuating temperatures
- Hold Function momentarily freezes reading for easy viewing
- Auto power-off saves battery power after non-use
- Self-Diagnostic with message codes for easy trouble shooting
- Large custom LCD provides optimum viewing even at a distance
- Electrode with built-in ATC designed for minimal air bubble entrapment during measurement
- Protective rubber boot shields meter from drops and features a sturdy built-in stand for easy bench-top operation

TECHNICAL SPECIFICATIONS PH-METER PH 6+

Conductivity Range	.. to 19.99 uS/cm	Temperature Compensation	Automatic / Manual (0 to 80 °C)
	19.9 uS/cm to 199.9 uS/cm	Temperature Coefficient	0.0% to 3.0%
	199.9 uS/cm to 1999 µS/cm	Temperature Normalisation	20.0 to 25.0 °C
	2.00 mS/cm to 19.99 mS/cm	No. of Calibration Points	Up to 5 max. (1 per range)
	20.0 mS/cm to 199.9 mS/cm	Special Functions	Auto Power-off after 17 minutes;
Resolution & Accuracy	0.05% full scale & +/-1% full scale + 1 LSD		
Temperature Range	0 to 80.0 °C (32 to 176 °F)	Hold & Self-diagnostic messages	
Resolution & Accuracy Temp.	0.1 °C (0.1 °F) & +/-0.5 °C (+/-0.9 °F)	Power	4 'AAA' x 1.4V batteries; >100 hours

PH-METER PH 5+

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

Easy to use, robust pH meter. Equipped with automatic temperature compensation, buffer recognition and calibration memory. Splash proof key pad. Rubber protecting case included as standard.

FEATURES

- Auto-buffer recognition
- Hold function
- Auto shutt off
- Low battery indication 500 hours battery life

TECHNICAL SPECIFICATIONS PH-METER PH 5+

pH range	0,00 to 14,00 pH
Resolution	0,01 pH
Accuracy	+/- 0,01 pH
pH slope range	80 to 120%
No of calibration pts	1-3 points (push-button)
Buffer options	pH 4,01, 7,00, 10,01 (USA) pH 4,01, 6,86, 9,18 (NIST) pH 4,10, 6,97 (Pb)
Temperature Range	0,0 to 100,0°C
Resolution	0,1°C
Accuracy	+/- 0,5°C
Temperature Comp.	Automatic/Manual (0,0 to 100,0°C)
Material	Plastic
Dimensions	1570x85x42 mm / 61,8x3,35x1,65 inch
Weight	255 g / 8,99 oz.

ORDERING INFORMATION PH-METER PH 5+

Art. No	
HI0045	pH 5+ pH meter

Scope of supply: PH502PLUSK pH 5+ pH meter, single junction pH electrode , ATC probe, pH carrying kit set

ACCESSORIES / SPARES

HI0013	Spare pH electrode
HI0009	TQC Calibration Solution 10.01 pH, bottle of 100ml
HI0015	TQC Calibration Solution 1.68 pH, bottle of 100ml
HI0023	TQC Calibration Solution 4.01 pH, bottle of 500ml
HI0024	TQC Calibration Solution 7.00 pH, bottle of 500ml
HI0025	TQC Calibration Solution 10.01 pH, bottle of 500ml
HI0027	TQC Calibration Solution 12880 µS, bottle of 100ml
HI0031	TQC Calibration Solution 1413 µS, bottle of 500ml
HI0032	TQC Calibration Solution 12880 µS, bottle of 500ml
HI0034	TQC Maintenance Storage Solution, bottle of 100ml
HI0035	TQC Maintenance Storage Solution, bottle of 500ml
SP7320	TQC Calibration Solution 84 µS, bottle of 50ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50ml

PALMTOP SALINITY METER ECOSCAN SALT 6

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

Palmtop salinity meter EcoScan Salt TDS6 in kit for quick, accurate salinity measurementsBresle KIT. A protective rubber boot shields the meter fram drops and features a sturdy built-in stand for easy bench top operation.

FEATURES

- Push-button calibration with +/-1% full scale accuracy.
- Automatic Temperature Compensation (ATC) for the optimum accuracy under fluctuating temperatures.
- Self-diagnosis with message codes for easy trouble-shooting.
- Electrode with built-in ATC designed for minimal air bubble entrapment during measurement.
- Low battery indication
- Auto power-off after 17 minutes
- Special functions: hold; self-diagnostic messages
- Protective rubber boot
- Sturdy built-in stand for easy bench-top operation.

TECHNICAL SPECIFICATIONS PALMTOP SALINITY METER ECOSCAN SALT 6

Display	LCD
Salinity Range	1 to 50.0 ppt; 0.1 to 5.00 %
Resolution	0.1 ppt; 0.01%
Accuracy	+/-1% Full Scale
TDS Factor	Non-linear compensation
Temperature Range	0 to 100.0 °C
Temperature Resolution & Accuracy	0.1 °C & +/- 0.5 °C
Temperature Compensation	Automatic / Manual (0 to 80 °C)
Temperature Coefficient	2%/°C
No. of Calibration Points	1 point
Power Supply	4 'AAA' x 1.4V batteries
Size Meter	140 x 70 x 35 mm
Weight Meter	200 g
Size total kit	170 x 350 x 75 mm
Weight total kit	1700 g

ORDERING INFORMATION PALMTOP SALINITY METER ECOSCAN SALT 6

Art. No	
HI0050	Palmtop salinity meter Ecoscan salt 6 TDS6/03K EcoScan TDS 6 in kit

Scope of supply: EcoScan SALT 6 Palmtop Salinity Meter with electrode (EC-CONSEN91B) and Salinity carrying kit set

ACCESSORIES / SPARES

HI0013	Spare pH electrode
HI0009	TQC Calibration Solution 10.01 pH, bottle of 100ml
HI0015	TQC Calibration Solution 1.68 pH, bottle of 100ml
HI0023	TQC Calibration Solution 4.01 pH, bottle of 500ml
HI0024	TQC Calibration Solution 7.00 pH, bottle of 500ml
HI0025	TQC Calibration Solution 10.01 pH, bottle of 500ml
HI0027	TQC Calibration Solution 12880 µS, bottle of 100ml
HI0031	TQC Calibration Solution 1413 µS, bottle of 500ml
HI0032	TQC Calibration Solution 12880 µS, bottle of 500ml
HI0034	TQC Maintenance Storage Solution, bottle of 100ml
HI0035	TQC Maintenance Storage Solution, bottle of 500ml
SP7320	TQC Calibration Solution 84 µS, bottle of 50ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50ml

CONDUCTIVITY METER

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

The TQC Conductivity Meter now measures a wider conductivity range from pure water to waste water and and comes with simultaneous temperature display, auto-ranging capabilities. Signature designs such as automatic temperature compensation and manual calibrations are retained, giving you accurate, reliable readings over a broad conductivity range every time you measure.

The TQC Conductivity Meter is rugged and waterproof to IP67 standards and is a standard item in the TQC Bresle KIT.

FEATURES

- +/- 1% full scale accuracy
- Automatic temperature compensation (ATC)
- User friendly
- Easy-to-read large display
- Rugged waterproof anti-roll design
- User-replaceable sensors
- Innovative Sensor housing design
- Auto Power-Off
- °C / °F

TECHNICAL SPECIFICATIONS CONDUCTIVITY METER

Range	0 to 200.0 uS/cm 0 to 2000 uS/cm, 0 to 20.00 mS/cm
Resolution	0.1 uS/cm; 1 uS/cm 0.01 mS/cm
Accuracy	+/- 1% Full scale
Calibration Points	(Auto) 3 (84,0 uS/cm, 1413 uS/cm, 12,88 mS/cm) (Manual) 3 (One per range)
Temperature Display	Yes
Operating Temperature	0 to 50 °C / 32 to 122°F
ATC	0 to 50 °C / 32 to 122°F
Temperature Coefficient	2% per °C / 77.0°F
Normalization Temperature	25.0 °C
Auto-Off	8.5 Minutes after last key pressed
Non-Volatile Memory	Yes
Power	4 x 1.5 V "A76" Micro alkaline battery > 150 Hours
LCD Display	Custom dual display 27 mm x 21 mm / 1,06 x 0,8 inch
Dimensions	1650x38 mm / 65x1,5 inch
Weight	90 g / 31,8 oz.
Dimensions Boxed	2200x60x50 mm / 86,6x2,36x1,97 inch
Weight Boxed	170 g / 6 oz.

ORDERING INFORMATION CONDUCTIVITY METER

Art. No	
HI0017	TQC Conductivity Meter waterproof Multi Range Tester

Scope of supply: TQC Conductivity Meter

ACCESSORIES / SPARES

HI0013	Spare pH electrode
HI0009	TQC Calibration Solution 10.01 pH, bottle of 100ml
HI0015	TQC Calibration Solution 1.68 pH, bottle of 100ml
HI0023	TQC Calibration Solution 4.01 pH, bottle of 500ml
HI0024	TQC Calibration Solution 7.00 pH, bottle of 500ml
HI0025	TQC Calibration Solution 10.01 pH, bottle of 500ml
HI0027	TQC Calibration Solution 12880 µS, bottle of 100ml
HI0031	TQC Calibration Solution 1413 µS, bottle of 500ml
HI0032	TQC Calibration Solution 12880 µS, bottle of 500ml
HI0034	TQC Maintenance Storage Solution, bottle of 100ml
HI0035	TQC Maintenance Storage Solution, bottle of 500ml
SP7320	TQC Calibration Solution 84 µS, bottle of 50ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50ml
HI0055	Spare probe for the ECTestr11+

PH-METER PH TESTR 10

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

Easy-to-use, fully waterproof, pH meter with large display. Floats. The modular design makes it extremely easy to change electrodes. The PH meter is equipped with automatic calibration with buffer recognition. The accuracy of the meter is 0,1 Ph. With automatic temperature compensation.

FEATURES

- Waterproof
- Large display screen
- Up to +/-0.01 pH accuracy
- Microprocessor Based
- User replaceable double junction, polymer sensor
- 3-point (USA or NIST) push button calibration with buffer recognition
- Simultaneous temperature
- Display in °C or °F (pH Tester 30)
- Automatic temperature compensation
- Self-diagnostic messages
- Non-volatile memory
- Hold and auto-off functions

TECHNICAL SPECIFICATIONS PH-METER PH TESTR 10

pH Range	-1.0 to 15.0
Resolution	0.1 pH
Relative Accuracy	+/-0.1
Calibration	Up to 3 points Yes
Calibration Buffer option	USA- 4.01/7.00/10.01 NIST- 4.01/6.86/9.18
Automatic Temperature	Compensation (ATC) Yes
Sensor	Double-junction, Ag/AgCl system with polymer gel
Auto Off	After 8.5 minutes from last key press
User reset	Yes
Non Volatile Memory Backup	Yes
LCD Display	Dual
Power Requirement	4 x 1.5V "A 76" micro Alkaline Batteries
Battery life	More than 500 hrs
Operating Temperature	0-50 °C / 32-122 °F
Dimensions	1650x38 mm / 65x1,5 inch
Weight	90 g / 31,8 oz.
Dimensions Boxed	2200x60x50 mm / 86,6x2,36x1,97 inch
Weight Boxed	170 g / 6 oz.

ORDERING INFORMATION PH-METER PH TESTR 10

Art. No	
HI0019	PHTEST10 Waterproof pHTestr10

Scope of supply: PHTEST10 Waterproof pHTestr10

ACCESSORIES / SPARES

HI0013	Spare pH electrode
HI0009	TQC Calibration Solution 10.01 pH, bottle of 100ml
HI0015	TQC Calibration Solution 1.68 pH, bottle of 100ml
HI0023	TQC Calibration Solution 4.01 pH, bottle of 500ml
HI0024	TQC Calibration Solution 7.00 pH, bottle of 500ml
HI0025	TQC Calibration Solution 10.01 pH, bottle of 500ml
HI0027	TQC Calibration Solution 12880 µS, bottle of 100ml
HI0031	TQC Calibration Solution 1413 µS, bottle of 500ml
HI0032	TQC Calibration Solution 12880 µS, bottle of 500ml
HI0034	TQC Maintenance Storage Solution, bottle of 100ml
HI0035	TQC Maintenance Storage Solution, bottle of 500ml
SP7320	TQC Calibration Solution 84 µS, bottle of 50ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50ml

COMBOTESTER PH EC TDS EMPERATURE (WATERPROOF)

This Combo waterproof tester offers high accuracy pH, EC/TDS and temperature measurements in a single tester. pH and EC/TDS readings are automatically compensated for the effects of temperature (ATC).

This technologically advanced tester has a replaceable pH electrode cartridge with an extendable cloth junction as well as an EC/TDS graphite electrode that resists contamination by salts and other substances. This gives these meters a greatly extended life. Your tester no longer needs to be thrown away when the pH sensor is exhausted.

FEATURES

- Waterproof
- Auto-off after 8 minutes
- The EC/TDS conversion factor is user selectable as is the temperature compensation coefficient (ß)
- Fast, efficient, accurate and portable

TECHNICAL SPECIFICATIONS COMBOTESTER PH EC TDS TEMPERATURE

Display	Dual-level LCD
Range	pH 0.00 to 14.00 EC 0.00 to 20.00 mS/cm TDS 0.00 to 10.00 ppt Temperature 0.0 to 60.0°C
Resolution	0.01 pH 0.01mS / cm EC 0.01 ppt TDS 0.1°C
Accuracy	+/-0.05 pH +/-2% F.S. EC/TDS +/-0.5°C
Calibration	pH Automatic EC/TDS Automatic
Power Supply	4x 1.5V
Size	163 x 40 x 26 mm
Weight Meter	85 g

ORDERING INFORMATION COMBOTESTER PH EC TDS TEMPERATURE

Art. No	
HI9813	Combo tester

Scope of supply: Combo tester with manual

ACCESSORIES / SPARES

HI0013	Spare pH electrode
HI0009	TQC Calibration Solution 10.01 pH, bottle of 100ml
HI0015	TQC Calibration Solution 1.68 pH, bottle of 100ml
HI0023	TQC Calibration Solution 4.01 pH, bottle of 500ml
HI0024	TQC Calibration Solution 7.00 pH, bottle of 500ml
HI0025	TQC Calibration Solution 10.01 pH, bottle of 500ml
HI0027	TQC Calibration Solution 12880 µS, bottle of 100ml
HI0031	TQC Calibration Solution 1413 µS, bottle of 500ml
HI0032	TQC Calibration Solution 12880 µS, bottle of 500ml
HI0034	TQC Maintenance Storage Solution, bottle of 100ml
HI0035	TQC Maintenance Storage Solution, bottle of 500ml
SP7320	TQC Calibration Solution 84 µS, bottle of 50ml
SP7321	TQC Maintenance Cleansing Solution, bottle of 50ml

CALIBRATION AND MAINTENANCE SOLUTION *(WATERPROOF)*

TQC Calibration and Maintenance Solutions are essential for calibrating and maintaining the pH and/or conductivity gauge. A wide range of liquid measuring systems is available, in addition to acidity (pH), conductivity (S) and temperature (T), we also have instruments measuring levels of dissolved oxygen and TDS (Total Dissolved Solids), as well as Ion-selective meters. Portable versions and desktop models for use in laboratories.

ORDERING INFORMATION CALIBRATION AND MAINTENANCE SOLUTION

Art No	Type	pH / µS	ml
HI0009	Calibration Solution	10.01 pH	bottle of 100ml
HI0015	Calibration Solution	1.68 pH	bottle of 100ml
HI0023	Calibration Solution	4.01 pH	bottle of 500ml
HI0024	Calibration Solution	7.00 pH	bottle of 500ml
HI0025	Calibration Solution	10.01 pH	bottle of 500ml
SP7320	Calibration Solution	84 µS	bottle of 50ml
HI0027	Calibration Solution	12880 µS	bottle of 100ml
HI0031	Calibration Solution	1413 µS	bottle of 500ml
HI0032	Calibration Solution	12880 µS	bottle of 500ml
HI0034	Maintenance Storage Solution		bottle of 100ml
HI0035	Maintenance Storage Solution		bottle of 500ml
SP7321	Maintenance Cleansing Solution		bottle of 50ml

PH INDICATOR PAPER UNIVERSAL - PH 1-14

Indicator paper on a roll for acid and base (alkaline) test.

FEATURES

- Fast response time within a minute
- Easy to read, accurate color charts
- High contrast for easy color chart comparisons

TECHNICAL SPECIFICATIONS PH INDICATOR PAPER UNIVERSAL - PH 1-14

Range	1-14 pH
Length	5 m

ORDERING INFORMATION PH INDICATOR PAPER UNIVERSAL - PH 1-14

Art. no	
SP2000	Universal PH indicator paper

PH CONDUCTIVITY-METER CYBERSCAN PC10

Extremely handy gauge for determining pH (acidity), conductivity and temperature of liquids. The different probes are combined in a waterproor casing, equipped with a 3-meter long waterproof cable. Large display shows various parameters simultaneously.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

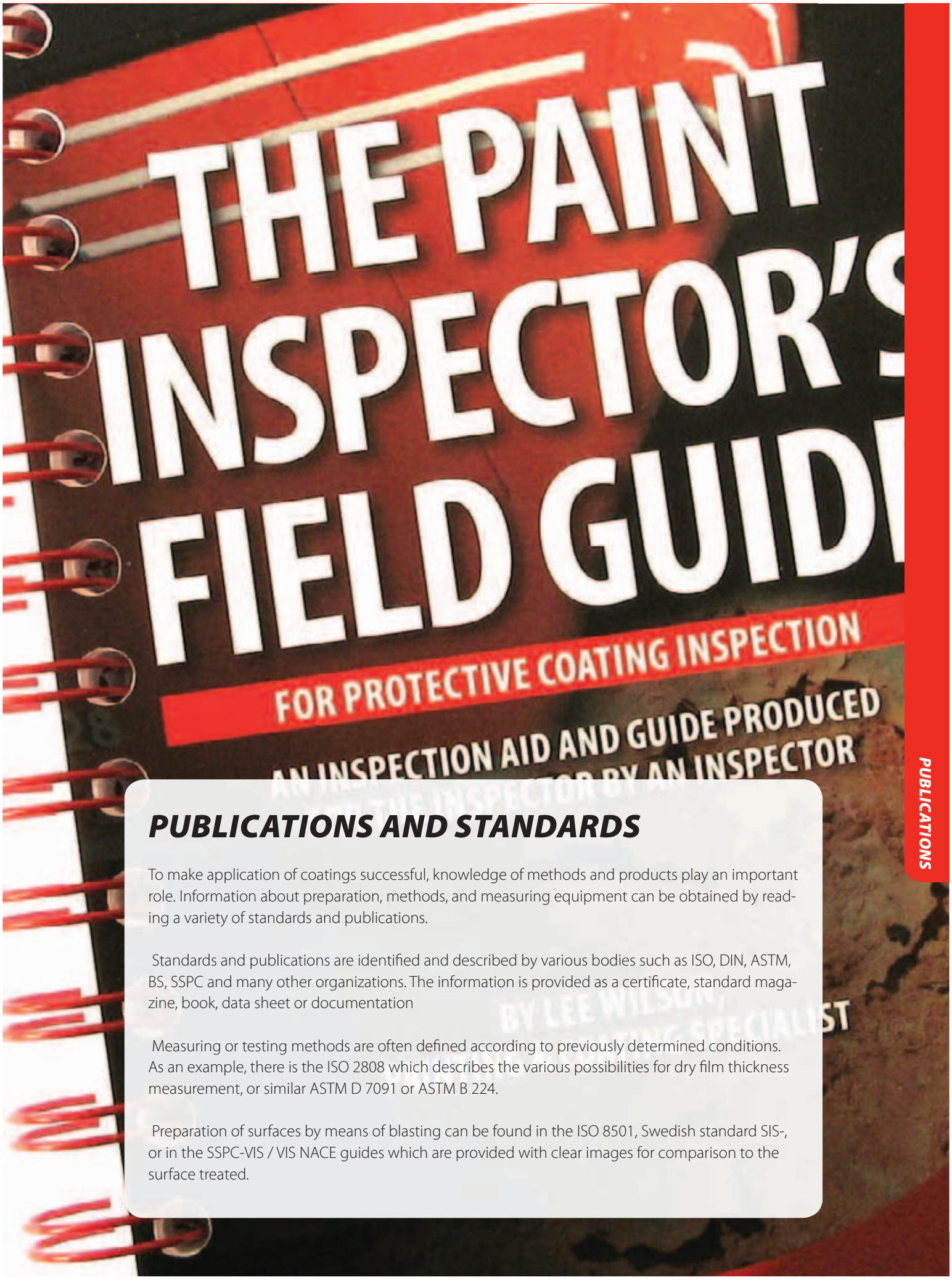
- Microprocessor based pH/Conductivity/ °C meter
- High accuracy
- Easy push-button calibration
- Single-button switch between pH & conductivity
- Rugged multi-parameter submersible probe

TECHNICAL SPECIFICATIONS CYBERSCAN PC 10 METER

pH	Range	0.00 to 14.00 pH
	Resolution	0.01 pH
	Accuracy	+/-0.01 pH
	Calibration	Up to 3 points (pH 4.01, 7.00, 10.01) with automatic buffer recognition
Conductivity	Range	0 to 19.99, 199.9, 1999 µS/cm 0 to 19.99 mS/cm
	Resolution	0.01, 0.1, 1 µS/cm 0.01 mS/cm
	Accuracy	+/-1% Full scale +1 digit
	Calibration	Up to 4 points (1 point per range)
Temperature	Range	0.0 to 100.0 °C
	Resolution	0.1 °C
	Accuracy	+/- 0.5 °C
	Calibration	Offset in 0.1 °C increments
Conductivity Cell Constant (k)	1.0	
Conductivity Temperature	2.00% per °C	
Temperature Compensation	Automatic from 0 to 50 °C	
Operating Temperature	0 to 50 oC	
Power Requirements	4 'AAA' Batteries AC/DC Adapter 9V, 500 mA	
Battery Life	> 50 hours	
Dimension / Weight	Meter	18 x 9 x 4cm ; 220g
	Boxed	24 x 23 x 7cm ; 600g
	Probe	19 x 5cm, with 3-metre cable

ORDERING INFORMATION CYBERSCAN PC 10 METER

Art. No	
HI0022	CyberScan PC 10 Meter



PUBLICATIONS AND STANDARDS

To make application of coatings successful, knowledge of methods and products play an important role. Information about preparation, methods, and measuring equipment can be obtained by reading a variety of standards and publications.

Standards and publications are identified and described by various bodies such as ISO, DIN, ASTM, BS, SSPC and many other organizations. The information is provided as a certificate, standard magazine, book, data sheet or documentation

Measuring or testing methods are often defined according to previously determined conditions. As an example, there is the ISO 2808 which describes the various possibilities for dry film thickness measurement, or similar ASTM D 7091 or ASTM B 224.

Preparation of surfaces by means of blasting can be found in the ISO 8501, Swedish standard SIS-, or in the SSPC-VIS / VIS NACE guides which are provided with clear images for comparison to the surface treated.

FITZ S ATLAS 2 OF COATING

The Fitz's Atlas 2 of coating defects is a reference manual with over 300 colour images, providing a clear and concise description of all problems that could occur, as well as their possible causes.

The book is divided into the following sections:

- Welding faults
- Presurface conditions
- Coating defects
- Microscopy
- Marine fouling

TECHNICAL SPECIFICATIONS FITZ S ATLAS 2 OF COATING

Paper size	120x190 mm / 4,75x7,5 inch
No pages	200
Binding	ring binder
	Over 300 colour pictures

ORDERING INFORMATION FITZ S ATLAS 2 OF COATING

Art. No	
LD3061	Fitz's Atlas 2 of coating defects

TANK COATINGS CONDITION GUIDE

A guide to assist ship's staff in the assessment of tank, hold and space coatings of existing ships for the purpose of determining compliance with the Rules and Regulations for the Classification of Ships. The guide handles the definition of the tank coating condition in Good / Fair / Poor classification. It also contains the IACS methodology to divide tanks into a number of smaller "areas under consideration" which can easily be identified. Further are included schematics to help defining area determination, percentage of coatings breakdown for specific ship structures and a comparison of common rust scales. A series of full color pictures of tank coatings in various conditions and a section that describes and shows the hotspots for corrosion and other common defects is also part of the guide.

SEE ALSO PAGE 162-165

The last section contains sketched indicating common nomenclature and terminology applied to typical structure of major ship types.

TECHNICAL SPECIFICATIONS TANK COATINGS CONDITION GUIDE

Papersize	135x95 mm / 5,3x3,7 inch
No pages	110
Binding	spiral

ORDERING INFORMATION TANK COATINGS CONDITION GUIDE

Art. No	
LD3075	Tank Coatings Condition Guide

THE PAINT INSPECTOR'S FIELD GUIDE

The Inspection of protective coating systems for corrosion control includes a wide range of test methods and techniques. In the Paint Inspector's Field Guide(PIFG) a wide range of these inspection methods are covered in an effort to aid individuals with the basic fundamentals of protective coating inspection whilst in the field.

Lee Wilson, who is a highly qualified and well respected inspector with many years of field experience, provides an excellent description of the actions performed by an inspector and the tools they use. The Paint Inspector's Field Guide covers all aspects from specification review and surface preparation works all the way through to application and final reporting.

The Paint Inspector's Field Guide is complemented by a wide range of inspection and experience notes making it easy to solve those special problems which are commonly encountered in the field. Besides the textual support, the rich graphics provide clear visual reference to inspection techniques, standards and defects. The years of experience and the editing by Brian Goldie makes the Paint Inspector's Field Guide a pleasure to read and the best reference book available.

The Paint Inspector's Field Guide is a must have tool for any individual involved or interested in corrosion control by protective coatings and the inspections required to achieve this.

FEATURES

- Wide range of inspection and experience notes
- Rich graphics provide clear visual reference to inspection techniques, standards and defects

TECHNICAL SPECIFICATIONS THE PAINT INSPECTORS

Papersize	120 x 180 mm / 4,72 x 7,09 inch
No pages	198
Binding	wire-o-binding
Price	110.- EUR ex. works

ORDERING INFORMATION THE PAINT INSPECTORS

Art. No	
LD3080	The Paint Inspector's Field Guide

ISO HANDBOOKS PAINTS & VARNISHES

A collection of more than 280 ISO International Standards covering the best methods for performance of paints and varnishes, as well as for the main groups of raw materials used in their manufacture. Standards for terminology and preparation and protection of steel substrates. Bound into four volumes.

All standards are written in English language. Pictures are printed in black and white.

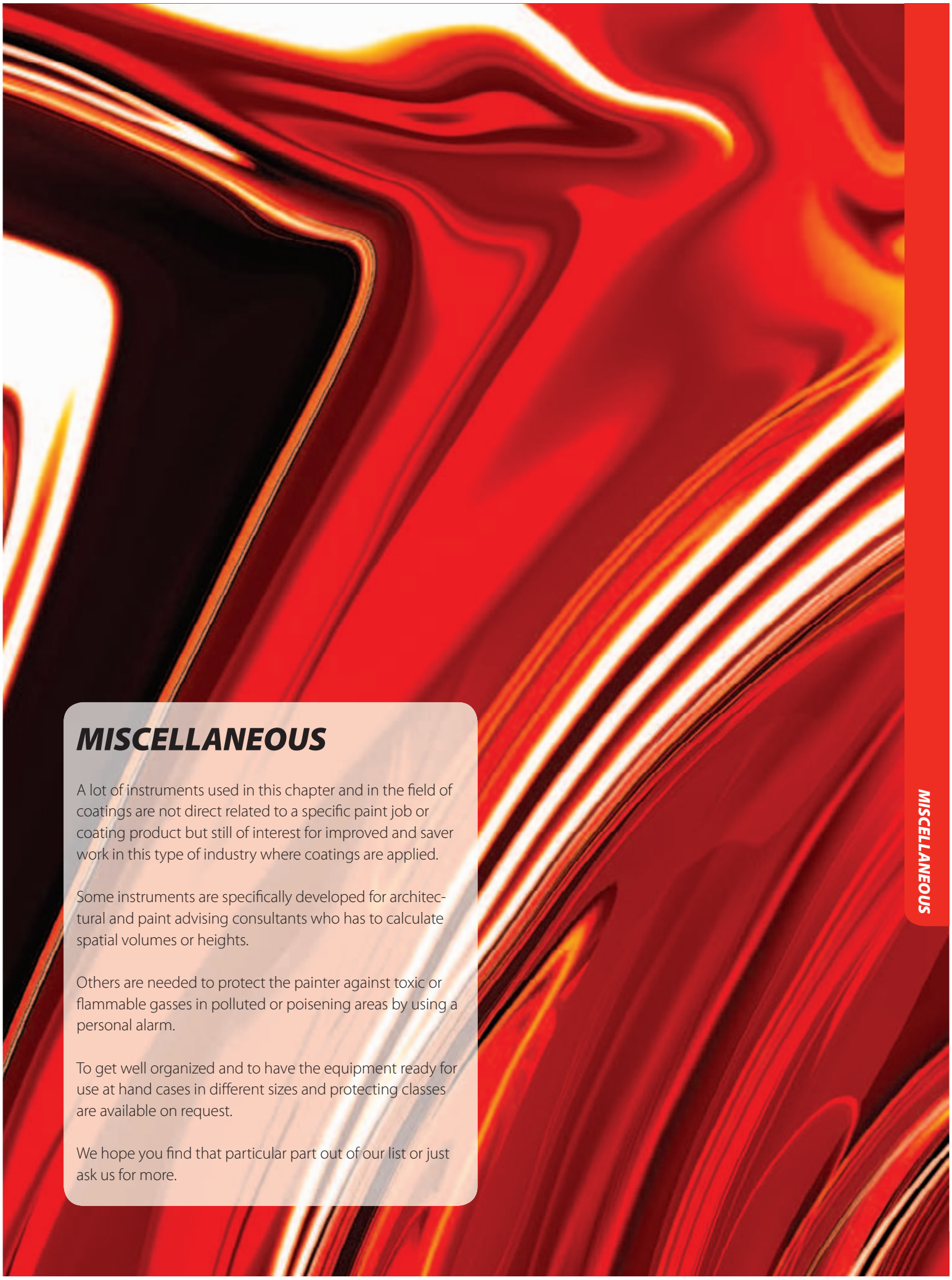
SEE ALSO PAGE 162-165

TECHNICAL SPECIFICATIONS ISO HANDBOOKS PAINTS & VARNISHES

Art. No	LD3015	LD3019	LD3016	LD3017
Binding	Glued	Glued	Glued	Glued
Colour	Black/White	Black/White	Black/White	Black/White
Images	Yes	Yes	Yes	Yes
Pages	1056	1062	552	1036
Dimensions	210 x 150 x 24 mm / 8,27 x 5,91 x 0,94 inch	210 x 150 x 24 mm / 8,27 x 5,91 x 0,94 inch	210 x 150 x 23 mm / 8,27 x 5,91 x 0,91 inch	210 x 150 x 33 mm / 8,27 x 5,91 x 1,3 inch
Weight	690 g / 24,3 oz.	690 g / 24,3 oz.	680 g / 24 oz.	990 g / 34,9 oz.

ORDERING INFORMATION ISO HANDBOOKS PAINTS & VARNISHES

Art. No	
LD3015	Paint & Varnishes Vol 1. General test methods part 1
LD3019	Paint & Varnishes Vol 1. General test methods part 2
LD3016	Paint & Varnishes part 2. Raw materials
LD3017	Paint & Varnishes part 3. Preparation and protection of steel substrates



MISCELLANEOUS

A lot of instruments used in this chapter and in the field of coatings are not direct related to a specific paint job or coating product but still of interest for improved and saver work in this type of industry where coatings are applied.

Some instruments are specifically developed for architectural and paint advising consultants who has to calculate spatial volumes or heights.

Others are needed to protect the painter against toxic or flammable gasses in polluted or poisening areas by using a personal alarm.

To get well organized and to have the equipment ready for use at hand cases in different sizes and protecting classes are available on request.

We hope you find that particular part out of our list or just ask us for more.

SOUND LEVEL METER

The Sound level meter has a wide dynamic range from 30 to 130 decibel. Frequency range is 31,5H to 8 KHz.
Frequency weighting A and C to respond to human sense or machine monitoring purposes.
For different sound patterns, it also supplies Fast and Slow time constant setting. The digital display with 4 digits is illuminated, resolution 0,1 db. Hold function for maximum values.
Microphone: Electret condenser microphone.

FEATURES

- Dynamic range from 30 to 130 decibel
- Illuminated display
- Hold function for maximum values
- Auto power off

TECHNICAL SPECIFICATIONS SOUND LEVEL METER

Display	4 digit LCD
Frequency Range	31.5 Hz - 8 KHz
Measuring level range	30 – 130 dB.
Accuracy	+/- 1.5dB
Frequency	A/C
Operation temperature	0 to 40°C / 32°F to 104°F
Microphone	½ inch electric condenser microphone
Calibration	Electrical calibration with the internal oscillator
Power supply	9V battery, 006P or IEC 6F22 or NEDA 1604
Size	210 x 55 x 32 mm / 8,3 x 2,2 x 1,3 inch
Weight	230g / 8,1 oz

ORDERING INFORMATION SOUND LEVEL METER

Art. No	
LU0115	Digital Sound Level Meter

Scope of supply: 9v Battery, Carrying case, manual

MULTI-GAS DETECTOR

The GasAlertMicroClip offers simultaneous monitoring of two gasses (O^2, LEL) in a rugged, ultra compact housing perfectly suited for confined space entry, HAZMAT response and a wide range of other applications requiring gas monitoring.

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Simple one-button operation
- Audible, visual and vibrating alarm in the event of Low, High, TWA and STEL alarm conditions
- Records and transmits up to 10 gas alarm events
- Auto zero
- Automatic calibration

TECHNICAL SPECIFICATIONS MULTI-GAS DETECTOR

Measuring method	Detection of gas
Detects	O2, LEL
Display	Large high-contrast LCD
Operation temperature	-20 to 58°C / -4°F to 136°F
Humidity	0% to 95% RH (non-condensing)
Power supply	Rechargeable lithium battery
Battery run-time	Up to 12 Hours
Size	107 x 60 x 27 mm / 4,2 x 2,4 x 1,1 inch
Weight	160 g / 5,6 oz

ORDERING INFORMATION MULTI-GAS DETECTOR

Art. No	
DM6000	Gasalertmicroclip Gasdetector

Scope of supply: Delivered ready to use with sensors, lithium battery, stainless steel alligator belt clip, calibration hose/cap and manual.

SINGLE-GAS DETECTOR *2 YEAR VERSION*

The GasAlertClipExtreme Oxygen (O^2) offers continuous, reliable protection.

CCI
CALIBRATION
★ CERTIFICATION ★
INCLUDED

FEATURES

- Audible, visual and vibrating alarm in the event of Low and High
- Auto zero
- Automatic calibration
- No battery replacement or battery charging required.
- 2 year version: 2 years of continuous maintenance-free protection

TECHNICAL SPECIFICATIONS SINGLE-GAS DETECTOR 2 YEAR VERSION

Measuring method	Detection
Display	Large high-contrast LCD
Operation temperature	-20 to 50°C / -4°F to 122°F
Humidity:	0% to 95% RH (non-condensing)
Size	28 x 50 x 81 mm / 1,1 x 2 x 3,2 inch
Weight	76 g / 2,7 oz

ORDERING INFORMATION SINGLE-GAS DETECTOR 2 YEAR VERSION

Art. No	
DM6010	Single-Gas Detector 2 Year Version

Scope of supply: Delivered ready to use with sensors, stainless steel alligator belt clip and concussion proof housing, test cap and manual.

ANALYTICAL BALANCE MARK 124A

The TQC Analytical Balance Mark 124A is a top quality weighing scale that combines elegance with highly reliable measuring performance. The accuracy and range perfectly matches the specifications of the machu test that is a mandatory test in Qualicoat, QIB and GSB accredited laboratories.

FEATURES

- Selectable filter level
- Selectable measure units
- Piece counting function
- Calibration weight
- Serial interface RS232

TECHNICAL SPECIFICATIONS ANALYTICAL BALANCE MARK 124A

Measuring method	Balance
Display	LCD display with backlight
Weighing capacity	120 g / 4,2 oz
Readability	0.1 mg
Reproducibility (standard deviation)	0.1 mg
Linearity	+/- 0.3 mg
Sensitivity drift (10...30 °C)	+/- 3 ppm / °C
Auto zero	ON-OFF from Menu
Pan size	80mm
Housing dimensions (W x D x H)	205 x 325 x 315 mm / 8,1 x 12,8 x 12,4 inch
Net weight	7400 g / 16,31 Lbs
Calibration weight	100 g (E2) / 3,5 oz

ORDERING INFORMATION ANALYTICAL BALANCE MARK 124A

Art. No	
DI7050	Analytical Balance Mark 124A

Scope of supply: Balance, Adapter and Manual

DIGITAL LUX METER

TQC Handheld digital Lux meter with large display.
Light can be quantified in many ways, i.e., Lux, Lumens, Foot-candles, candle power, candelas, and so on.

The two most common scales are Lux used in Europe, and Foot-candles used in the U.S.

FEATURES

- High accuracy and rapid response.
- Peak-hold function for tracing peak signals of light pulse with least duration 10µs and keep it
- Capable of selecting measuring mode in Lux or FC scale alternatively
- Maximum and minimum measurements
- Relative reading and reset function
- Easy to read large backlit display
- Auto Power-Off

ORDERING INFORMATION DIGITAL LUX METER

Art. No	
LU8500	Digital lux meter

Scope of supply: Carrying case with ready to use digital meter, instruction manual and battery

TECHNICAL SPECIFICATIONS DIGITAL LUX METER

Display	3-3/4 digit 3-3/4 digit LCD with high speed 41 segment bar graph	Photo Detector	One silicon photo diode and spectral response filter
Readings	Lux and Fc	Operating temperature	0°C to 40°C (32°F to 104°F)& 0% to 80% RH and humidity
MAX measurement	400.0Klux / 40.00 kFc	Storage temperature	-10°C to 50°C (14°F to 140°F) & 0% to 70% RH and humidity
Over range Display	LCD with "OL" symbol	Photo Detector Lead length	+/- 1500mm / 59,1 inch
Spectral response	CIE photopic	Photo Detector dimensions (LxWxH)	115 x 60 x 20 mm / 4,5 x 2,4 x 0,8 inch
Spectral accuracy	CIE Vλ function f1' smaller than or equal to 6%	Meter dimensions (LxWxH)	203 x 75 x 50 mm / 8 x 2,9 x 2 inch
Cosine response	f2' smaller than or equal to 2%	Weight	280 gr / 9,88 oz
Accuracy	+/- 5% rdg +/- 10d. (>10,000 Lux); +/- 10% rdg +/-10d. (> 10,000 Lux)		
Repeatability	+/- 3%		
Sampling rate	1.5 times of analog bar-graph indication; 1.5 times of digital display		

SPRAYSHOP ANALYSER

Complete measuring set for checking electrostatic (powder) lacquer coating installations. Both the earth of the object as the spray tip voltage can be measured. Proper inspection of the spraying installation improves the quality of the coating work and reduces over-spraying. Complete with 3GÙ HT probe without temperature measurement.

FEATURES

- Audible signal for earth / ground detection
- Digital high voltage meter
- Digital thermometer
- Auto power down backlight
- Auto power-off

TECHNICAL SPECIFICATIONS SPRAYSHOP ANALYSER

Display	LCD
High voltage measurement range	1.0kv to 150 kV
Accuracy	3%
Resolution	100V
Leakage resistance	Up to 30GΩ
Temperature measurement range	0° to 1250°C / 32°F to 228,2 °F
Accuracy	+/- 3%
Resolution	1°C
Power supply	9V PP3
Size	170 x 82 x 30 mm / 6,7 x 3,2 x 1,2 inch
Weight	330 g / 11,64 oz

ORDERING INFORMATION SPRAYSHOP ANALYSER

Art. No	
LD0080	Sprayshop meter

Scope of supply: Instrument comes in a protective case including surface temperature probe, 3GÙ HT probe, Continuity test leads and manual.

RESISTIVITY METER

Simple instrument for measuring the surface resistivity of electrostatically sprayed coatings. The probe is easy to clean and is immersed in the coating. The measured value is recorded on an analogue scale.

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CALIBRATION ★ CERTIFICATION ★ INCLUDED

FEATURES

- Scale in Ohmic Values – 10K – 5 mega ohms
- Simple scale identifying electrostatic sprayability
- Easy to clean probe
- Built-in battery test

TECHNICAL SPECIFICATIONS RESISTIVITY ANALYSER

Scale	Ohmic values
Power supply	2x PP3 Battery
Weight	1500 g / 52,9 oz

ORDERING INFORMATION RESISTIVITY ANALYSER

Art. No	
LD0085	Resisivity Gauge, incl probe and case

Scope of supply: Instrument comes in a protective case with manual.

DIGITAL RESISTIVITY METER FOR COATINGS

Digital instrument for the measurement of surface resistivity of coatings which are sprayed electrostatically. The instrument has an inside Auto scaling, which allow to measure all ranges of resistivity without changing the reading procedure. The probe is immersed in the coating and the measured value is displayed on screen.

FEATURES

- Inside Auto scaling
- Readout is displayed in Mega ohm (M).
- Low battery indicator
- Easy to clean probe

TECHNICAL SPECIFICATIONS DIGITAL RESISTIVITY METER FOR COATINGS

Display	LCD
Range	100 Kohm – 20.000 Kohm (20 Mohm)
Precision	0.1 – 0.5 MΩ = ± 3%
	0.5 – 5.0 MΩ = ± 1 %
	5.0 – 10.0 MΩ = ± 2 %
	10.0 – 20.0 MΩ = ± 3%
Measuring signal	45 v
Power supply	1 x 9 v battery
Size	100 x 200 x 30 mm / 3,9 x 7,9 x 1,2 inch
Probe size	230 mm Ø 42 mm / 9,1 inch Ø 1,7 inch
Weight	280 g

STANDARDS

ASTM D 5682

CCI CALIBRATION ★ CERTIFICATION ★ INCLUDED

ORDERING INFORMATION DIGITAL RESISTIVITY METER FOR COATINGS

Art. No	
LD5950	Digital resistivity meter for coatings

Scope of supply: Instrument comes in a protective case including verification certificate and manual.

CONVEYOR GROUND TEST

New conveyor ground test with five steps which informs you whether items to be painted are sufficiently grounded. Especially designed for electrostatic coating applications.

A poor ground of the pieces to be coated may result in a poor quality of the electrostatic coating work. Coating thickness may not be sufficient or the pieces may not be even covered.

Consult your paint manufacturer or the supplier of your spray equipment for correct values.

The LD5900 is a low cost, easy to use ground check that is battery operated.

FEATURES

- Simple and easy to use
- Low cost device for ground test

TECHNICAL SPECIFICATIONS CONVEYOR GROUND TEST

Measurement range	0 – 0,01	MΩ One green LED
	0,01 – 0,1	MΩ Two green LED's
	0,1 – 1,0	MΩ One yellow LED
	1,0 – 20	MΩ One red LED
	20	MΩ Two red LED's
Material	Plastic	
Dimensions	208 x 50 x 25 mm / 8,19 x 1,97 x 0,98 inch	
Earth lead	200mm / 7,87 inch	
Weight	120 g / 4,23 oz.	
Power One	9V Alkaline battery	

ORDERING INFORMATION CONVEYOR GROUND TEST

Art. No	
LD5900	Conveyor Ground tester

Scope of supply: Coating Conveyor Ground Tester, Cable with crocodile clip, Batteries

THERMO-ANEMO METER

Digital ore wheel anemometer with a built-in thermometer for measuring air velocity in for example ventilation ducts, air conditioning, etc. The meter has a 'Hold' function for holding the measured values.

FEATURES

- Hold-function for holding the measured values.
- Simultaneous display of Air Flow or Air Velocity plus Ambient Temperature
- Easy to set Area dimensions (cm^2) are stored in the meters internal memory for the next power on
  20 point average for Air flow

TECHNICAL SPECIFICATIONS THERMO-ANEMO METER

Measuring method	Digital One Wheel Fan
Display	Super large (9999 count) LCD Backlight
Range	0.40 - 30.00
Resolution	0.01 m/sec
Accuracy	+/-3% +/-0.20m/s
Km/h	1.4 -108.0
Air temperature	-10 + 60°C
Power supply	9V Battery
Size	203 x 75 x 50 mm / 8 x 2,9 x 2,0 inch
Weight	280 g

ORDERING INFORMATION THERMO-ANEMO METER

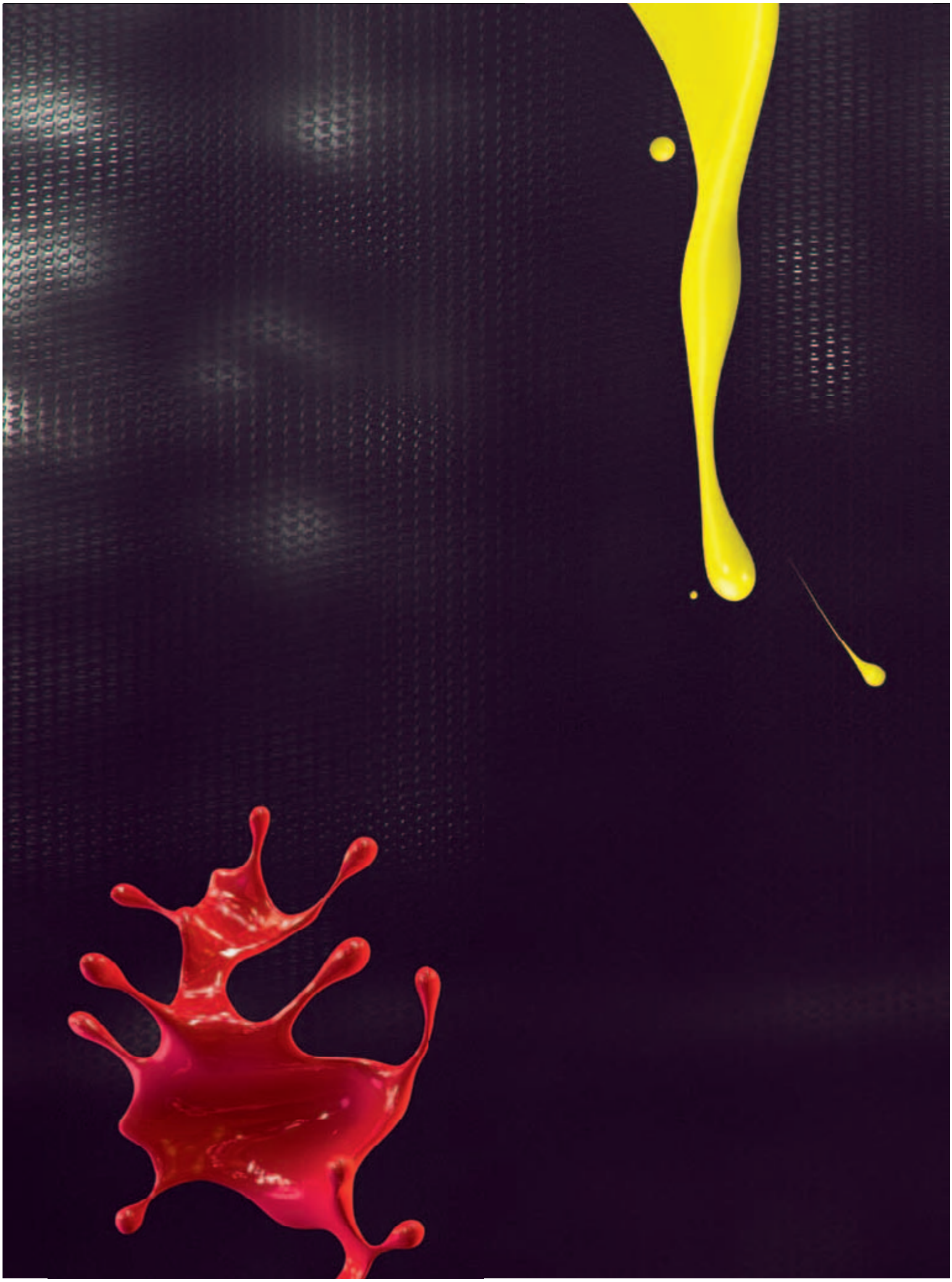
Art. No	
LU8000	Digital Anemometer st-8893

Scope of supply: Fan sensor with cable, 9V battery and protective rubber holster

PRODUCT INDEX

PRODUCT INDEX

PRODUCT INDEX



TQC

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