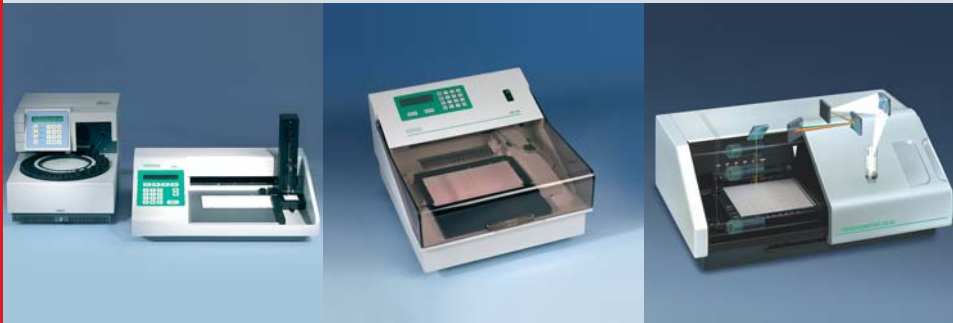


DESAGA Product Range

Instrument Technology



TLC Catalogue

Thin-layer Chromatography

SARSTEDT

*- Your competent partner
in chemical analysis*



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115 V versions of all instruments are available on request!

TLC-Plate Cutter

For scoring and cutting of glass TLC-plates

The scoring and cutting of glass TLC-plates is a routine in many chromatography laboratories either to economise on plate usage, or to cut the plate following separation for further quantitation. The TLC-plate cutter consists of a high quality carbide scriber mounted into a movable plastic head.

It is designed to cut glassbacked TLC-plates up to a size of 20 x 20 cm.

Ordering Information:	Order No.
TLC-Plate Cutter, incl. Carbide Scriber and Template	90.121.200
Carbide Scriber	90.121.205



Drying Rack

This is a handy space-economizing light alloy rack for 10 TLC-plates with the formats 200 x 200, 200 x 100 and 200 x 50 mm. After prewashing the TLC-plates are pushed into a horizontally standing drying rack. The TLC-plates are dried in vertical orientation so that the moisture can easily escape upwards.

The Drying Rack fits into DESAGA special desiccators to protect the plates against environmental influences.

Ordering Information:	Order No.
Drying Rack	90.120.180

Simultan Separating Chamber

This chamber is commonly used to wash TLC-plates before use and then to store them in protected manner. This procedure is used in particular for quantitative trace analysis. The vertical grooves in the transverse walls will hold five 200 x 200 mm TLC-plates. Specific features of this separating chamber are its plain ground flange edge and the flat chamber floor.

The glass-lid can be used for covering during the prewash of TLC-plates.

Ordering Information:	Order No.
Simultan Separating Chamber with knob-lid	90.120.167
Simultan Separating Chamber with glass-lid	90.120.174



Special Desiccator/Desiccator Opener

This Desiccator is manufactured specially for DESAGA, conforming to stipulated dimensions and tolerances.

The internal dimensions have been chosen to fit DESAGA drying racks with coated carrier plates.

Desiccator lids which have become stuck can be pulled off with this desiccator opener safely and without any need to exert force. This opener is suitable for all sizes of desiccators.

The desiccator and the tube lid have plain ground seatings. A standard stop-cock is inserted in the tubes.

Ordering Information:	Order No.
Special Desiccator	90.124.050
Desiccator Opener	90.124.058



Capillary Dispensing Pipettes

These pipettes fill automatically when they are dipped into the sample liquid. By virtue of the capillary widening, the liquid column automatically adjusts itself to the nominal volume. The short filling and run-out times permit very quick working.

Micro-Capillaries

These capillaries are intended for use once only. They automatically fill themselves right from one end to the other. Their accuracy is better than 1%. A capillary holder is provided with each pack of these capillaries. This holder consists of the guide for the capillary and a small bulb with an opening which must be mounted on the capillary. Pressing on this bulb is an effective means for assisting filling and emptying of the capillary.

Short Capillaries

These capillaries have a length of only 5 mm. They fill in about a second and empty equally quickly when spotting. The holder grips the capillary with its spring, without any need to touch the capillary by hand. The stop on the holder ensures a constant distance of 15 mm between the plate edge and the application position.



DESAGA Application Pipettes and Capillaries

a = Short Capillaries with holder · b = Micro-Capillary 0.5 µl with holder
c = Capillary Dispensing Pipettes

Ordering Information:

Order No.

Capillary Dispensing Pipette	1 µl	92.130.080
Capillary Dispensing Pipette	2 µl	92.130.081
Capillary Dispensing Pipette	5 µl	92.130.082
Capillary Dispensing Pipette	10 µl	92.130.083
Capillary Dispensing Pipette	20 µl	92.130.084
Capillary Dispensing Pipette	Set	92.130.085
Micro-Capillary	0.5 µl, 100 pieces, 1 holder	91.120.192
Micro-Capillary	1 µl, 100 pieces, 1 holder	91.120.193
Micro-Capillary	2 µl, 100 pieces, 1 holder	91.120.194
Micro-Capillary	5 µl, 100 pieces, 1 holder	91.120.195
Micro-Capillary	10 µl, 100 pieces, 1 holder	91.120.196
Short Capillary	2 µl, 100 pieces	92.130.145
Holder for Short Capillary		92.130.146

Spotting Templates

DESAGA spotting templates ensure exact positioning of the samples on the TLC-plate.

Application and Evaluation Template

This template can be used with TLC-plates up to 200 x 200 mm.

It has 19 markings with 10 mm spacing. Holes are provided for marking the starting line and the standard separation distance of 100 mm.

The good hand rest permits spotting, writing and line ruling with minimum required effort.

The Rf-values can be read-off directly on the template.

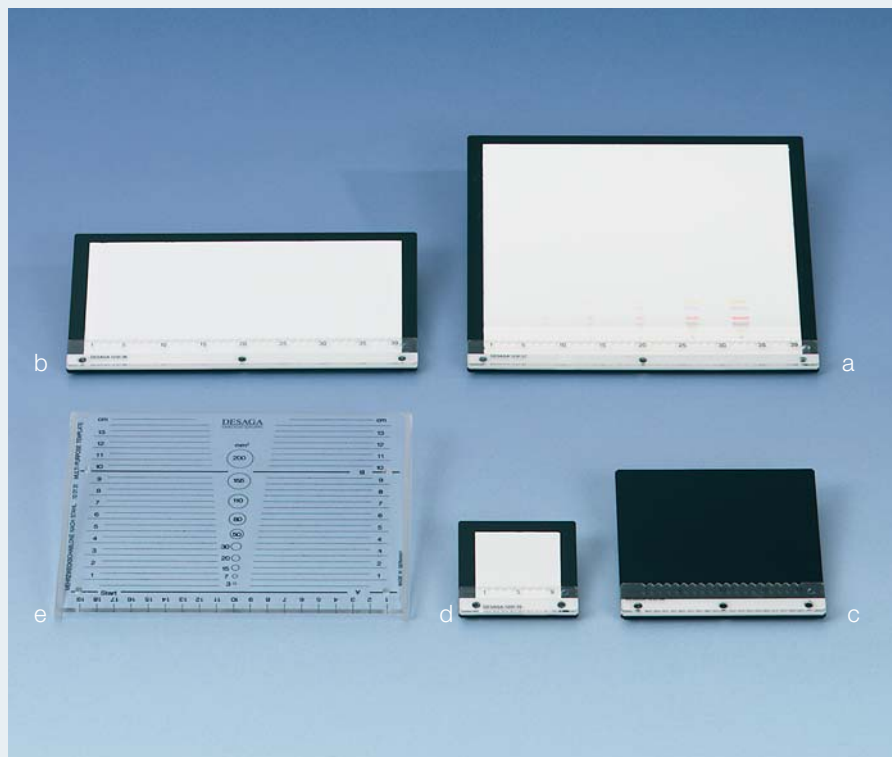
The marked circular areas ranging from 3 to 200 mm² permit immediate comparison of spot sizes without further aids.

Application Template

This template is available for TLC-plates having the formats 50 x 50, 100 x 100, 200 x 100 and 200 x 200.

The numbered triangular cut-outs at 5 mm intervals provide exact guidance for the pipette.

This gives 9, 19 or 39 spotting positions, depending on the size of the template. The non-slip underside prevents unintentional displacement on the table.



DESAGA Application Templates for all formats of plates

a = for 200 x 200 mm · b = for 200 x 100 mm · c = for 100 x 100 mm

d = for 50 x 50 mm · e = Application and Evaluation Template 200 x 200 mm

Ordering Information:

Order No.

Application and Evaluation Template	200 x 200	92.120.131
Application Template	50 x 50	92.120.135
Application Template	100 x 100	92.120.134
Application Template	200 x 100	92.120.136
Application Template	200 x 200	92.120.137



HPTLC-Applicator AS 30

The DESAGA HPTLC-Applicator AS 30 is a decisive contribution towards modern GxP-conform thin-layer chromatography and works according to the spray-on-technique.

A stream of gas carries the sample from the cannula tip onto the HPTLC-plate.

This proven principle prevents damage to the layer and allows the application tower to be moved during sample ejection. The samples can be applied up to the size of 20 x 20 cm on TLC-plates, HPTLC-plates or foils as dot or line.

During the filling process the dosing syringe is positioned over the tray which collects rinsing and flushing solvent and excess sample.

The sample is injected into the body of the syringe through a lateral opening. After the syringe has been filled, a stepping motor moves the piston downwards to close the fill port.

A second stepping motor moves the tower sideways across the TLC-plate. The microprocessor controls the two stepping motors and the gas valve for accurate application, as a dot or as a line. All parameters for the application of up to 30 samples are entered via the keyboard. The user is guided through the clearly structured menu by the 2-line LCD display.

After entering all parameters the data will be checked for plausibility, such as compliance of limit, clear assignment of lane or clear assignment of name.

One method contains the plate size, number, length and distance of the path, the volume applied, as well as the rate of application. The sample number and volume factor can be indicated for each path.

The battery-buffered memory holds ten different methods, which can be loaded, edited and printed out at any time.

Comprehensive documentation is available on request!

Ordering Information:	Order No.
HPTLC-Applicator AS 30 230 V, incl. 10 µl dosing syringe, 25 µl filling syringe, fillport, 2.5 m pressure tubing ø 4 mm, filter cardboard 40 x 40, 25 pieces	90.130.500
Dosing syringe 10 µl for AS 30	92.130.550
Filling syringe 25 µl for AS 30	92.130.555
Dosing syringe 100 µl for AS 30	92.130.560
Filling syringe 250 µl for AS 30	92.130.565
Filter cardboard 40 x 40, 25 pcs.	91.130.580
Autosampler for AS 30 230 V, incl. Teflon hose connection, connecting cable to HPTLC-Applicator AS 30 and 144 sample containers 1.5 ml	90.130.510
Software for HPTLC-Applicator AS 30, incl. connecting cable	92.130.532
IQ/OQ for HPTLC-Applicator AS 30	92.130.525
Compressor 230 V, max. 8 bar, 17 l / min	90.130.540
HPTLC Densitometer CD 60 230 V, incl. interface, cable and Software Pro Quant	90.131.800

Standard Separating Chamber

This is a separating chamber which has accompanied thin-layer chromatography worldwide since its introduction. A DESAGA development which has been proven a hundred thousand times. The standard separating chamber is used for TLC-plates up to format 200 x 200 mm.

Specific features of this separating chamber are its plain ground flange edge and the flat chamber floor. The heavy knob-lid with plain ground surface ensure a gastight seal of the separating space. The standard separating chamber is also available with glass cover disk.



Ordering Information:	Order No.
Standard Separating Chamber with knob-lid	90.120.160
Standard Separating Chamber with glass-lid	90.120.173

Simultan Separating Chamber

The simultan separating chamber has all the advantages of the standard separating chamber. It has the same dimensions. The lids are interchangeable. The additional vertical grooves in the transverse walls will hold five 200 x 200 mm TLC-plates.

This chamber is commonly used to wash TLC-plates before use and then to store them in protected manner. This procedure is used in particular for quantitative trace analysis.



Ordering Information:	Order No.
Simultan Separating Chamber with knob-lid	90.120.167
Simultan Separating Chamber with glass-lid	90.120.174

Accessories for Standard and Simultan Separating Chambers:

Filter Paper for gas space saturation, 460 x 190 mm, 25 sheets	91.120.179
Knob-lid	92.120.163
Glass-lid	92.120.177



Ordering Information:	Order No.
TLC Thermo Box 230 V incl. illumination and insulated lid	90.120.030

TLC Thermo Box

Partition processes between two phases are temperature-dependent. The separation efficiency of thin-layer chromatography can be optimized by selection of the optimum separation temperature. The newly developed TLC Thermo Box guarantees reproducible results under controlled conditions. The temperature constancy of $\pm 0.5^\circ\text{C}$ is maintained by a Peltier element with integrated temperature control for the desired temperature in the

range 10°C below to 20°C above room temperature. At the same time the efficient air circulation plant ensures even temperature distribution. The illuminated interior allows observation of the development process through the insulated glass window set into the front.

Nano-Separating Chamber

Nano and HPTLC layers are being used to an increasing extent for quantitative TLC. The nano separating chamber has been developed for the preferred plate format of 100 x 100 and 100 x 200 mm. This separating chamber has all the advantages of the DESAGA standard separating chamber.



Ordering Information:	Order No.
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Nano-Separating Chamber 200 x 100 with stainless steel-lid	90.120.112
Nano-Separating Chamber 100 x 100 with knob-lid	90.120.210
Nano-Separating Chamber 100 x 100 with stainless steel-lid	90.120.212

Accessories:

Nano-Stainless steel-lid 200 x 100	92.120.117
Nano-Knob-lid 100 x 100	92.120.211
Nano-Stainless steel-lid 100 x 100	92.120.213
Nano-Filter Paper for gas space saturation, 230 x 105 mm, 25 sheets	91.120.214

Twin-Trough Chamber

The DESAGA twin-trough chambers have all advantages for the chromatographic development of TLC/HPTLC plates. The low solvent consumption makes the chromatography extremely economical and reduces the solvent waste. Reproducible chromatography by means of calculated pre-equilibration.



Ordering Information:	Order No.
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Twin-trough chamber 200 x 100, with stainless steel-lid	90.120.505
Twin-trough chamber 100 x 100, with stainless steel-lid	90.120.510

Separating Chamber, round

These inexpensive cylindrical separating chambers with overhanging lid are available in two sizes. They are used for the TLC-plate formats of 200 x 100 and 200 x 50 mm. They are widely used for paper-chromatographic work too.

These separating chambers are very easy to use. Complete gas space saturation is easily and quick achieved by standing a rolled-up piece of filter paper in the

chamber. Only a very small quantity of flow medium is required, by virtue of the plain floor.

Ordering Information:	Order No.
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Separating Chamber, round, 200 x 100, with lid	90.120.170
Separating Chamber, round, 200 x 50, with lid	90.120.171



H-Separating Chamber and TLC-Quicktest Set

The H-separating chamber exploits the advantages of the high performance TLC-layer in optimum manner: small grain size of 5 µm, improved packing and greater number of theoretical plates. This separating chamber is price-worthy and intended for the time and cost saving TLC-plate format of 50 x 50 mm and the common format of 100 x 100 mm. Optimum separation is obtained on shortest possible runs.

As horizontal S-Separating chamber, this chamber permits good control of developing conditions, optionally with flow medium vapour saturated atmosphere or without pre-expose vapour.

The H-separating chamber is ideal for all kinds of work, particularly where little time is available yet clear results must be obtained: In the laboratory, in the dispensing chemist shop, in tuition and for student practicals. Experiments can be repeated still within the time allowed for the practical session and each person obtains an evaluable result. Ambient atmospheric pollution with solvent vapours is minimized, even under congested working conditions.

The chambers are made of solvent-resistant PTFE, precision milled to the required dimensions. It is closed with a 4 mm thick glass cover disk. An easily cleaned glass frit rod brings the flow medium to the layer. Frit rods and one cover disk are provided together with the chamber.

TLC-Quicktest Set

The TLC-quicktest set has been designed not only for thin-layer chromatographic work in schools, but also for practicals, drug store laboratories, etc. The advantages of the H-separating chamber for time and cost saving work have been exploited for this set.



Literature regarding H-Separating Chamber

The H-separating chamber was developed by Prof. Dr. Lj. Kraus of Hamburg University, who has also written a guide for practicals containing many working examples and suggestions. This book aims to introduce the practical person to a time saving separation method which can be mastered very quickly even by the beginner.

The separating examples have been chosen in order to make this subject readily accessible even to inexperienced persons, who are thereafter able to separate complicated mixtures of substances such as natural products, synthetic drugs, conservation agents and herbicide residues.

A further chapter deals with the techniques with which chemical reactions are performed with the substances on the layer or with which the course of the reaction (methylation, acetylation, etc.) can be monitored with the aid of chromatography.

A series of coloured illustration documents the good reproducibility of the separation results.

Ordering Information:

	Order No.
TLC-Quicktest Set	90.120.090
Consisting of 1 H-separating chamber 50 x 50 mm, 1 application template 50 x 50 mm, 100 micro capillaries 0.5 µl with holder, 10 ml each of lipophylic and hydrophylic test solution, 100 HPTLC-ready-to-use plates K 60 F 254 50 x 50 mm and the Concise Practical Book of TLC	
H-Separating Chamber 50 x 50	90.120.150
H-Separating Chamber 100 x 100	90.120.151
Frit Rod, 50 mm, 5 pieces	92.120.155
Glass-lid for H-Separating Chamber 50 x 50	92.120.156
Glass-lid for H-Separating Chamber 100 x 100	92.120.157
Application Template 50 x 50	92.120.135
Application Template 100 x 100	92.120.134

TLC-MAT

Automatic Separating Chamber for TLC and HPTLC

The TLC-MAT is suitable for glass plates in a height of 10 and 20 cm, resp. translucent foils. The device makes it possible to develop TLC chromatograms reproducible and GxP-conform without supervision with extremely low solvent consumption and simple operation.

The TLC-MAT operates with a sensor to recognize the front and reports the exact development time. Chromatography takes place in a chamber that is protected from the atmosphere and from light. The solvent vapours are removed by an integrated fan after development is completed.

The simple operation, extremely reduced mobile phase and a microprocessor controlled system guarantee the necessary certainty for the analyzer. The following parameters can be programmed:

Preconditioning

The dry plate can be conditioned in the vapour without contact to mobile phase.

Maximum time

Safety parameter, serves to terminate chromatography if the front height is not reached because of too little mobile phase.

Height of front

Programmable between 2 and 18 cm in steps of 0.1 cm. The sensor recognizes the front as a result of the differing reflection properties of dry and wet areas of the TLC-plates.

Drying time

An integrated fan removes the mobile phase vapour after chromatography. The fan operates at room temperature with air cleaned by a filter.



Acoustic Signal

The end of the chromatographic separation is reported by an acoustic signal.

Program

A battery buffered memory holds up to 10 individual developing methods, in order to ensure reproducible work.

Ordering Information:

	Order No.
TLC-MAT, 230 V	90.120.000
incl. Plate holder, developing trough 200 and water-level	
Developing trough 100	92.120.010
Developing trough 200	92.120.011
Plate holder for 1 TLC-plate	92.120.015
Plate holder for 2 TLC-plates of 100 mm each	92.120.016
Gasket for front lid, 4 pieces	92.120.020
Filter paper for chamber saturation, 10 pieces	91.120.021

TLC-Plate Cutter

For scoring and cutting of glass TLC-plates

The scoring and cutting of glass TLC-plates is a routine in many chromatography laboratories either to economise on plate usage, or to cut the plate following separation for further quantitation. The TLC-plate cutter consists of a high quality carbide scriber mounted into a movable plastic head.

It is designed to cut glassbacked TLC-plates up to a size of 20 x 20 cm.

Ordering Information:	Order No.
TLC-Plate Cutter, incl. Carbide Scriber and Template	90.121.200
Carbide Scriber	92.121.205



Sprayer SG 1

Spraying without CFC - an alternative for the environmental conscious laboratory.

The Sprayer SG 1 works with a built in, quietly operating, high performance pump. Independent of mains ultrafine spray mist is generated. Liquids with viscosities up to those of light oils are atomized simply by pressing a button. The droplet diameter is 5 -10 µm.

The closable container for the spray reagents is made of borosilicate glass and will hold 50 ml.

It is screwed into the spray head which is made out of high quality PTFE and can be replaced within seconds.

The handy and modern form of the Sprayer SG 1 was designed under ergonomic aspects, its low weight enables a non stress operation.

Ordering Information:	Order No.
Sprayer SG 1 B, battery operated	90.130.600
Sprayer SG 1 incl. accu and charging unit	90.130.605
Reagent Reservoir, 50 ml, 10 pieces	92.130.610



Special Atomizer

The glass spraying device with rubber bellows for producing reagent mists.

In this atomizer the spray reagent comes into contact only with glass. The atomizer insert is fitted in a conical flask with ground joint and secured with springs. The capacity of the flask is 100 ml. The provided rubber bellows can be replaced by other compressed air sources whenever desired.

Ordering Information:	Order No.
Special Atomizer with rubber bellow	90.124.000



Test Tube Atomizer

Glass spraying device for spraying very small reagent quantities.

The atomizer insert is fitted in a 12 ml test tube with standard taper and secured with springs.

Ordering Information:	Order No.
Test Tube Atomizer, 12 ml	90.123.990

Dipping Chamber

The dipping chamber developed by DESAGA is an alternative to spraying in thin-layer chromatography, in order to avoid environmental pollution. Dipping chambers fulfil the established requirement: rapid and uniform implementation of a precise detection reaction.

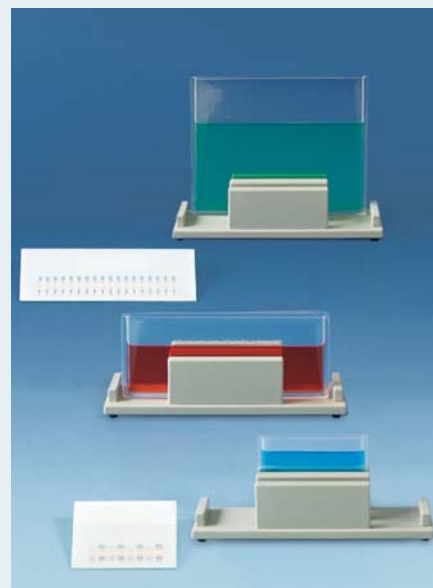
Special advantages of the dipping method are the improved uniformity of reagent distribution and the quick and reliable operation. The reagent is brought onto the plate, not into the air.

Dipping chambers are made of highly inert glass and are manufactured in three sizes for thin-layer chromatography plate formats of 200 x 200 mm, 200 x 100 mm and 100 x 100 mm.

The glasschambers have a clear width of 5 mm. This allows manual immersion without difficulty and requires only small volumes of reagent; 100 ml for 200 x 200 mm, 50 ml for 200 x 100 mm and 25 ml for 100 x 100 mm plate format. All familiar spray reagents can also be used for dipping.

An optional rack made of polypropylene enables safe holding during dipping and easy storage.

Ordering Information:	Order No.
Dipping chamber 100 x 100	92.124.160
Dipping chamber 100 x 200	92.124.161
Dipping chamber 200 x 200	92.124.162
PP-Rack for 2 Dipping chambers	92.124.210



TLC Dip-Fix

The advantage of the TLC Dip-fix is the uniformity of dipping chromatograms. That ensures uniform and reproducible reagent transfer, improved detection limits and increased specificity and reproducibility. Subjective instructions like "quick" or "carefull" are not any longer a question of interpretation. The adjustable dipping time is a further important step for standardization in modern thin-layer chromatography.

Dipping chambers are primarily suitable

- For detection of substances which have no or only weak UV-absorption, such as lipids, phospholipids, sugars, etc.
- For quick detection when a spraying equipment is not available, in particular for toxicological investigations.

- To generate fluorescent derivatives of substances, in particular for high sensitivity quantitative evaluations in the picogram range
- For impregnating thin-layer chromatography plates with silver nitrate, ammonium bisulfite and for RP-thin-layer chromatography
- For prewashing TLC-plates

The TLC Dip-Fix holds dipping chambers in the common size. They are available for plate formats of 200 x 200 mm, 200 x 100 mm and 100 x 100 mm. A rack made of polypropylene enables easy and safe storage



Ordering Information:	Order No.
TLC-Dip-Fix 200 incl. power pack 230/6 without dipping chamber	90.124.205
PP-Rack for 2 Dipping chambers	92.124.210



Spray Box

Protective device for spraying TLC-plates with aggressive reagents.

This spray box is ideal for operation inside an existing fume cupboard. It protects the lining of the fume cupboard against aggressive spray mist. But it can also be used for safe operation on the laboratory table.

In this application, the spray mist is led into a fume cupboard via the pipe connector on the rear. Dripping reagent collects in a separate catch dish.

Technical Data

Dimensions: 620 x 580 x 510 mm
(W x H x D)
Pipe adapter: NW 100
Weight: 5 kg

Ordering Information: Order No.

Spray Box 90.124.102

Spray Box with Ventilator

Same design as the spray box, but with built-in low noise ventilator. This converts the spray box into a small exhaust cupboard on the laboratory table.

The air feed rate is 400 m³/h.

The pipe adapter of the ventilator leads upwards. It can be connected to standard NW 100 installation piping.

Technical Data

Dimensions: 620 x 580 x 610 mm
(W x H x D)
Pipe adapter: NW 100
Weight: 7 kg

Ordering Information: Order No.

Spray Box with Ventilator 90.124.105
230 V, 50 Hz



Thermoplate S

Thermoplate S is an electronically controlled hotplate for detection reactions in thin-layer chromatography and for precision heating and drying operations in the laboratory.

The set nominal temperature of the Thermoplate S is held constant to within 2 K. The operating range lies between 25 and 199 °C but the lowest possible controlled temperature lies 10 K above ambient temperature. The unit operates with a platinum resistance thermometer. Temperature readout is on a large 2.5 digit numerical display. The nominal temperature which has been set with the control knob is displayed after pressing the key. When the nominal temperature has been reached, the controller switches the heater on and off as required to maintain the temperature. A symbol in the display indicates when the heater is working. The heating surface is made of high conductivity aluminium which, together with the large area of the heating element, ensure uniform temperature distribution.

Technical Data

Temperature range: 25-199° C
Heating area: 240 x 240 mm
Heating rate: 10 K/min
(at 50° C)
Fluctuation range of controlled temperature: 2 K
Power Supply: 230 V, 50-60 Hz, 500 W
Dimensions: 340 x 245 x 110 mm
(W x H x D)
Weight: 4.6 kg

Ordering Information: Order No.

Thermoplate S 90.121.840

ChromaJet DS 20

DESAGA presents a completely new derivatization concept with the ChromaJet DS 20. Reagents are sprayed on thin-layer plates or foils with the highest precision under microprocessor or computer control. The distinction from manual spraying lies in the great reduction in the quantity of reagent required, the almost complete absence of aerosol formation and the evenness of the spray pattern.



It is possible to create and store up to 4 spray methods specifically adapted to individual chromatography schemes and call them up as required.

The integrated software has been specifically developed for Windows 2000/XP.

The individual work steps of the spraying procedure, including date and running number, are stored with the spray method and permit operation in conformity with GxP for the first time in the field of documentation, as a result of the exact reproducibility and documentation.

The spray methods define all important parameters, such as spray rate, volume to be sprayed and reagent selected. The free selection of X-Y coordinate direction means that it is possible to spray evenly, either individual tracks or areas of any size up to 20 x 20 cm.

The integrated reagent changer selects from 4 possible reservoirs of the desired spray medium depending on the spray program. An integrated rinsing process stops any carry-over.

Ordering Information:	Order No.
ChromaJet DS 20 reagent spraying apparatus, 230 V, 50 Hz	90.130.700
Exhaust hose, Viton, with connector, 250 cm	92.130.732
Screw tubes with closures PP, 40 ml, 50 pieces	62.555
Filter for ChromaJet DS 20	91.130.720
IQ/OQ for ChromaJet DS 20	92.130.725

The transparent protective cover permits close inspection during the spray process and prevents the escape of aerosols. Excess spray mists are evacuated continuously and lead, for instance, into a fume cupboard, via an optional exhaust hose.

The spray protocol includes all the individual parameters of the spray program and is issued complete with the date, time, the user name, a plate designation assigned to the chromatogram and any commentary, that might have been entered.

Comprehensive documentation is available on request!

UV Viewing Systems

The UV-detection methods are amongst the most sensitive methods for detection in thin-layer chromatography. Under long-wavelength UV light at 366 nm substances fluoresce brightly on a dark background. This method increases in sensitivity as the light intensity is increased. In order to increase the contrast it is important that the visible light is filtered out with a special filter. At 254 nm, when using TLC plates containing a fluorescent indicator, the substances reveal themselves as dark spots on a bright fluorescent background. Light intensity and the filtering out visible light are less critical for this form of detection.

CabUVIS

The CabUVIS UV-lamp is the standard apparatus for the observation and documentation of thin-layer chromatograms in UV light at 254 nm and 366 nm and in white light, even when the room is not darkened.

Two daylight tubes, two 8 Watt low pressure Hg tubes for 254 nm and four 8 Watt low pressure Hg tubes for 366 nm, are symmetrically arranged in the CabUVIS for incident illumination purposes and guarantee the uniform illumination so necessary for documentation.

The visible light emitted by the low pressure tubes is interrupted by special UV filters. The measurements and electrical specifications of the tubes are identical and they are interchangeable with each other.

The observation plate of polyacrylate glass provides adequate protection from reflected short-wavelength UV light. However, the protective goggles included with each unit should be worn for your own safety.

For transmitted light illumination the CabUVIS has built into its base a special daylight tube with a power of 8 Watt. It is covered by a matt polyacrylate glass plate and allows the uniform illumination of objects up to 200 x 200 mm in size.

Documentation top

It is possible to combine the CabUVIS analyzing lamp with digital and CCD cameras.

The interface here is a documentation top. This is composed of a cover plate with camera mounting and can easily be interchanged with the polyacrylate glass plate. The documentation top completely excludes stray light from the system. The special filter for UV work, supplied with the system, can be mounted in the integrated filter magazine or is implemented into the camera, depending on the system.

For details on documentation see pages 18 and 19.



Technical data:

Illumination from above:	
Daylight	2 x 1 Daylight Tube
366 nm	2 x 2 Hg Low Pressure Tube
254 nm	2 x 1 Hg Low Pressure Tube
Illumination from below:	
Daylight	1 Daylight Tube
Light scattering window	200 x 200 mm
Illumination strength (Distance 10 cm)	
254 nm	2.0 mW / cm ²
366 nm	4.8 mW / cm ²
Power Supply:	230 V, 50 - 60 Hz
Power Consumption:	110 W
Dimensions: (W x D x H)	395 x 390 x 280 mm
Weight:	11.3 kg

Ordering Information:

	Order No.
CabUVIS Analyzing Lamp, 230 V with daylight transmission, incl. UV-safety goggles	90.131.305
Documentation Top VD 60	92.131.315
DigiDoc Top DD 50 with UV filter 420 nm	90.131.325
Daylight Tube, 8 W	96.131.120
Daylight Tube, 8 W, Transmission	96.131.123
Hg-Low Pressure Tube 366 nm, 8 W	96.131.121
Hg-Low Pressure Tube 254 nm, 8 W	96.131.122
UV-Filter 254 nm for CabUVIS	96.131.144

HP-UVIS

Cabinet for UV analysis without dark-room.

The HP-UVIS combines two UV-lamps for 254 and 366 nm in one unit. Two inclined plate tables with non-slip surface are positioned one above the other. Incident stray light is minimized by the cabinet which is closed on three sides, so that observation is possible without requiring a darkroom.

Through the use of a high pressure mercury vapour discharge lamp, the HP-UVIS provides a very high radiation intensity at 366 nm for fluorescence evaluation of thin-layer chromatograms.

In this respect it is superior to all analyzing lamps with cold light tubes. Fluorescent substances can still be detected on the chromatogram in nanogram quantities.

A selected SCHOTT filter and an 8 Watt low pressure mercury discharge tube give optimum contrast at 254 nm.

Ordering Information:	Order No.
HP-UVIS UV-Cabinet, 230 V incl. UV-blocking goggles	90.131.220
Hg-High Pressure Tube 366 nm, 125 W	96.131.020
Hg-Low Pressure Tube 254 nm, 8 W	96.131.122



MinUVIS

The swivel arm of the MinUVIS contains one 8 Watt low pressure mercury discharge tube each for 254 nm and for 366 nm. Visible light components are held back by selected special filter from SCHOTT. The dimensions and electrical ratings of the lamp tubes are identical to those of the CabUVIS, thus the tubes are mutually interchangeable. The swivel arm can be fitted with daylight tubes for surface illumination with visible light.

Ordering Information:	Order No.
MinUVIS Analyzing Lamp, 230 V incl. UV-blocking goggles	90.131.200
Hg-Low Pressure Tube 366 nm, 8 W	96.131.121
Hg-Low Pressure Tube 254 nm, 8 W	96.131.121
UV-Filter 254 nm, for MinUVIS	96.131.143



UV-Box

The UV-Box combines two UV-lamps for 254 and 366 nm in one unit and allows inspecting thin-layer chromatograms in an undarkened room. Visible light compounds being held back by a selected special filter from SCHOTT.

The viewing window is made of polyacrylate glass and provides adequate protection from reflected short-wavelength UV-light. However, the protective goggles included with each unit should be worn for your own safety.

Ordering Information:	Order No.
UV-Box, 230 V incl. UV-blocking goggles	90.131.210



ProViDoc®-System VD 60

For perfect Documentation and Evaluation in Thin-layer Chromatography and Electrophoresis with high Resolution 12 bit CCD Camera

The documentation of thin-layer chromatograms, electropherograms, DNA/RNA fragments and many other objects in visible and UV light has entered a new dimension with the video system from DESAGA. It is easily possible to record specimens in their true colours and in an environmentally friendly manner.

The advantages of this advanced alternative to instant photography lie in its rapidity and favourable price/performance relationship.



This top version employs for image recording a high-resolution 12 bit CCD-camera with a 12 mm lens for objects up to 200 x 200 mm. For imaging small objects up to 100 x 100 mm in high resolution serves a 24 mm lens as alternative. The camera is connected via IEEE 1394a (fireWire) interface and achieves problem-free image transfer. The camera with a resolution of 3.2 million pixels produces accurately detailed images of real evidential value in excellent colour brilliance. The high light sensitivity and maximum exposure time of 67 s makes it possible to record weak fluorescences.

The preliminary assessment on the control monitor avoids unnecessary print-outs. You get the image you see.

The documentation program ProViDoc® developed by DESAGA, makes it possible to process the images recorded, in conformity with GxP, and to archive them without problems. This extraordinarily powerful 32 bit software running under Windows 2000/XP can be readily operated also by users who are not familiar with computers and its functions can be learned in a very short time.

Each image is automatically allotted an unequivocal identification number together with the date, time and user name and so saved in accordance with GxP - if necessary, it can also be password-protected.

The ProViDoc® document is a file format specially developed by DESAGA for image, comments and other information.

The integral file manager allows the assignment of meaningful file names, the search function makes it possible to find the stored images rapidly.

A modern computer-supported system must fulfil the following requirements:

- An image-recording model with the best possible resolution, high replay quality and adequate speed, which can operate on all types of subjects.
- Easily operated and rapidly mastered software which is adapted to scientific requirements, but avoids all unnecessary programmatic embellishments.
- A uniform illumination with visible and UV-light at 254 and 366 nm.
- A documentation module that reproduces even the finest nuances correctly, without loss of detail and in true colour.

Comprehensive documentation is available on request!

ProViDoc®-System DD 50

Up-to-date Imaging in Thin-layer Chromatography and Electrophoresis

A modern "digital documentation" work station is made up of the following components:

Illumination

Two daylight tubes, two 8 W low pres-

sure Hg tubes for 366 nm are arranged symmetrically in the CabUVIS for incident light applications and guarantee the uniform illumination, that is so important for documentation. The visible light component of the low pressure tubes is kept back by means of selected UV filters.

A special daylight fluorescent tube with a power of 8 W is fitted in the base for transmitted light applications. It is covered by a means of an acrylic sheet and, thus, allows the observation of objects up to 200 x 200 mm.

Documentation head

Our digital camera can be attached to the CabUVIS without difficulty. Here the "DigiDoc" head serves as the interface. This consists of a cover plate with camera mounting and completely protects the system from stray light.

The special filter for UV work that is supplied, can be mounted in the integrated filter magazine. This special filter of high quality optical glass suited to digital imaging yields stable colour results with high resolving power.

Digital camera

The core of the image collection system consists of high resolution digital camera equipped with a high-performance objective, motor zoom and autofocus over the whole focal range for needle sharp images.

This camera with a resolution of 5 million pixels produces accurately detailed images of real evidential value in excellent colour brilliance. The high light sensitivity makes it possible to record weak fluorescence. Once the desired detail of the object has been selected, the camera settings follow with stored standardized parameters. The image can be assessed on the fold-out LCD monitor of the camera. A high quality objective glass filter, specially selected for the requirements of digital image processing, yields stable colour results with the highest resolution. The image is either taken manually or without contact via an IR shutter. The images so obtained are stored on the memory card provided. Image output can either be direct using a suitable printer or by downloading via the USB interface onto a computer using the camera-specific software.

This makes it possible to edit, save and print out in the simplest possible manner using the DESAGA ProViDoc® software.



ProViDoc® Program

The ProViDoc® software supports the GxP editing and problem-free archiving of the images, that have been recorded. This extraordinarily high performance 32 bit software operating under MS Windows 2000/XP can easily be operated, even by users, who have no computer experience, and, hence, is easy to learn to use in a short time. The image displayed on the monitor can be edited, labelled and marked. Here there is a free choice of type size and font. A zoom function is available to increase the image format. Any desired number of windows with images can be opened at the same time. The arrangement of the images is a matter of choice. They can automatically be superimposed, overlapped or, for purposes of comparison the images can be displayed next to each other.

Each image is automatically labelled with the date, user name and an unequivocal identification number and thus it is stored in conformity with GxP guidelines - it can even be protected by means of a password if desired. The ProViDoc® document so generated is a file format specially developed by DESAGA for image, commentary and other information. The user can append a commentary of any desired length to each image. This is stored directly with the image and can be printed out with ever laser or inkjet printer that is supported by Windows.

Comprehensive documentation is available on request!

ProResult®

Program for quantitative evaluation

The images saved in the files of the program ProViDoc® can be subjected to quantitative evaluation at any time using the supplementary software ProResult®.

Before the calculation is carried out the pixel noise can be smoothed out using various filters, disturbances in the image can be corrected and the edges can be emphasized. The palette function allows the grey tones to be spread, the contrast increased and the image to be inverted or presented in false colours.

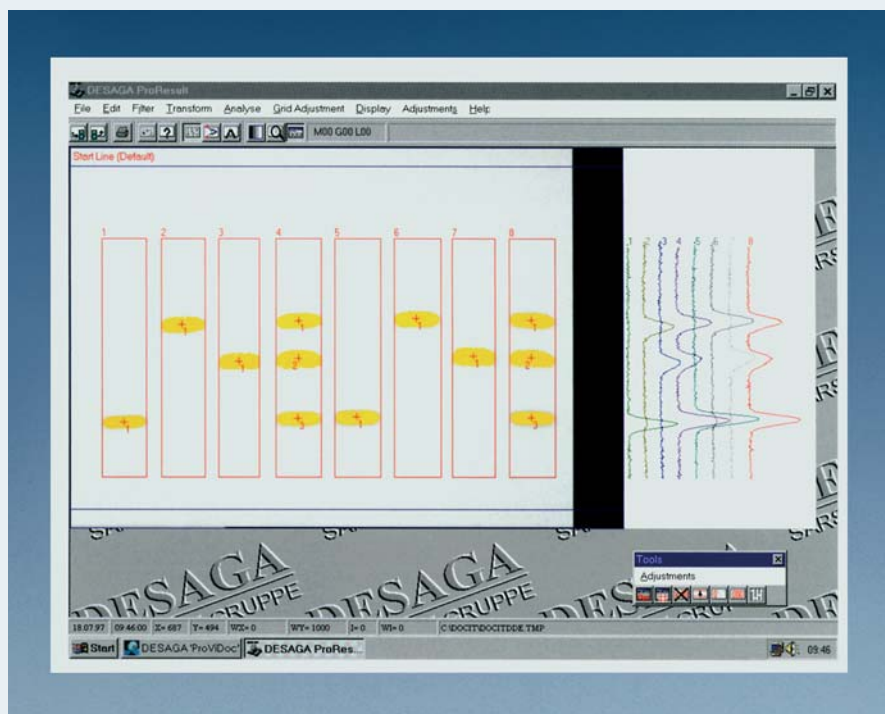
The next stages are to define automatically or manually the starting and finishing lines, corresponding to the positions of application and the solvent front, the tracks to be measured on the TLC-plate and the method to be used later in calibration.

In the tracks there is a flexibly adjustable algorithm for object recognition of the individual peaks according to the procedure selected. This procedure for peak detection and the methods used later for calibration can be saved and rapidly loaded for routine measurements and

applied without problem for repeat evaluations.

The result provided by ProResult® is a histogram of the freely definable measurement window, peak lists with all necessary parameters for each individual track and result tables with the calculated sample results and calibration curves.

All results, lists and graphics with or without text can be printed out and documented. The preview of the documents to be printed makes it easier to select the printing parameters.



ProViBase

Archiving and Data Base

This program simplifies the location, archiving and administration of image files, that have been created using the DESAGA documentation system.

It is used to find ProViDoc® documents in one or more freely selected directories in any data. All documents found are analysed according to particular search criteria.

The results of the search are presented in the form of lists and tables and as a graphical preview, such as you are familiar with from graphics programs accessible to browsers.

Ordering Information: Order No.

Video-Documentation-System VD 60 90.140.020
incl. CabUVIS, documentation top,
digital camera with 12 mm lens and
UV-filter, ProViDoc® software

25 mm Lens 92.140.026
for objects smaller than 100 x 100 mm

ProViDoc®-System DD50 90.140.060
incl. CabUVIS, DigiDoc top with UV-filter,
digital camera with zoom and Autofocus,
ProViDoc® software

ProViDoc®, 2-fold license 92.140.081

ProViBase 92.140.092
Archiving and data base

ProViBase 92.140.096
Archiving and data base,
2-fold license

ProResult® 92.140.095
Program for quantitative evaluation

Validation Plate 92.140.085
for Documentation-System

Ethidium bromide filter 92.140.086

Video Printer 900DW 90.140.087

CK 900S Thermopaper 91.140.031
with ink jet, 200 sheets

IQ/OQ für ProViDoc®-System VD 60 92.140.075
incl. Validation plate

IQ/OQ für ProViDoc®-System DD 50 92.140.065
incl. Validation plate

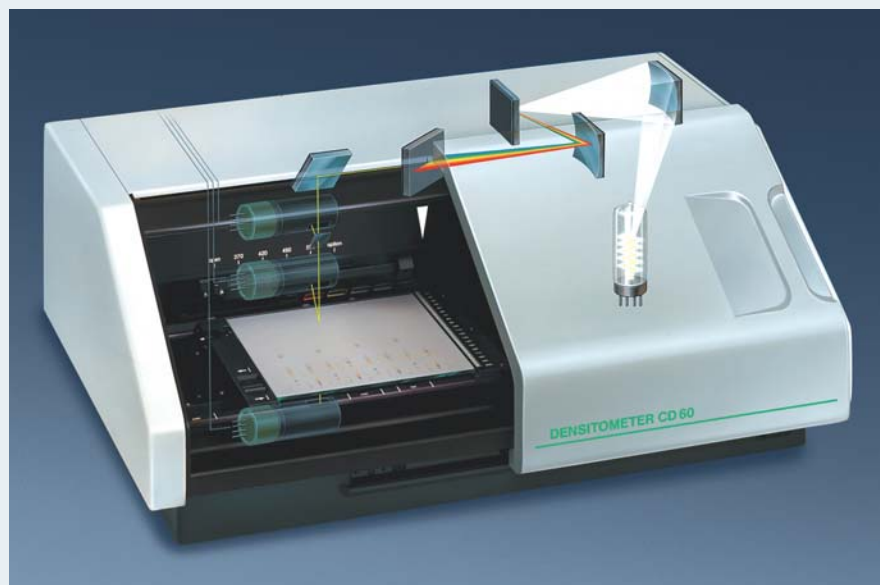
Personal Computer Pentium 90.131.780

HPTLC Densitometer CD 60

DESAGA has been active in the field of quantitative thin-layer chromatography for more than 20 years.

The newly developed measurement station incorporates this know-how and the current state of the art.

The computer serves as interface between the user and the measuring instrument and controls all of the functions of the densitometer, even the basic version is equipped for absorbency and fluorescence measurements in reflectance and transmittance on objects with dimensions up to 265 x 200 x 4 mm.



Software options:

ProValid

Program for automatic validation

The scanner validation program provides an automatic check on and, if necessary, re-adjustment of the mechanical, optical and electronic systems of the densitometer. The following are individually checked:

- The accuracy of the wavelength adjustment of the monochromator
- The positioning of the plate table
- The condition and adjustment of the lamps and the lamp mirror
- Tests on the slit module
- The condition and adjustment of the electronic system

The results are evaluated, printed out and stored.

SpectraCalc

Program for the compilation of spectral libraries

A special working library is easily compiled.

It is possible to identify the spectra unequivocally, even when the intensity is very low and the noise level high.

This software can be used to compare spectra, that have been measured on different plates.

ProQuant EC

Program for extended calculation

This program has been written especially for the Quality Control in pharmaceutical industry. Automatic calculation of results is made taking into account the amounts of inweights and dilution steps. The contents per reference unit are determined, e.g. mg/tablet. This program also outputs statistical parameters as average and the formula, used to calculate the final result. Further the columns in the printouts are freely editable according individual requirements.

Absorbency and fluorescence can be determined in reflectance or transmittance.

Three light sources are provided, a deuterium lamp, an incandescent halogen lamp and a mercury vapour lamp.

The usable spectral range extends from 190 to 900 nm, whereby the monochromator, the lamps and the filters are automatically switched over. The size of the scanning light beam can also be adjusted from the computer.

Slit widths from 0.4 to 10 mm and slit heights from 20 µm to 2 mm are possible.

There are many application possibilities in conjunction with the DESAGA ProQuant program. This extraordinary 32 bit software operating under Windows 2000/XP is also easy to use by those without computer experience, so that its use can be learned in a very short time.

This combination of densitometer and computer can be used to process chromatograms and compile result and peak lists in a simple, reliable manner, that conforms with GxP. You rapidly acquire reproducible results and data of real evidential worth.

Ordering Information:

Order No.

HPTLC Densitometer CD 60, 230 V incl. interface, cable and control and evaluation software	90.131.800
ProQuant EC Program for Extended Calculation	92.131.815
ProValid Program for Automatic Validation	92.131.816
SpectraCalc Program for the Compilation of Spectral Libraries	92.131.830
Carrier plate with magnetic strips for foils up to 265 x 200 mm	92.131.742
Densitometer Cuvette for flat gels and films up to 250 x 170 mm	92.131.741
Personal Computer Pentium incl. inkjet printer	90.131.780
IQ/OQ for HPTLC Densitometer CD 60	92.131.825

Comprehensive documentation is available on request!

TLC-Spreading Device

This spreading device for quick and low-cost production of analytical and preparative layers is proven by tens of thousands of satisfied users.

This chrome-plated device can be set to produce layer thickness ranging from 100 to 2000 µm.

The cost effective spreading template permits simultaneous coating of five TLC-plates with format 200 x 200 or ten TLC-plates with format 200 x 100 mm.

The spreading table can be levelled and produces uniform layer thickness even when the working surface is not flat.



Ordering Information:	Order No.
TLC-Spreading Device	90.120.305
TLC-Spreading Table with levelling device	90.120.315
TLC-Spreading Template	92.120.130
TLC-Silica Gel 60 GF 254 finely grained 15 µm, 500 g	91.125.035

Carrier Plates for Thin-layer Chromatography

The condition for a good separation is a good separation layer. When the layers are produced by the user in the laboratory, carrier plates which are absolutely flat and of uniform thickness are required. DESAGA carrier plates are therefore made of special 4 mm thick glass. Their corners and edges are ground.

Ordering Information:	Order No.
Carrier Plate 200 x 200, 10 pcs.	92.120.140
Carrier Plate 200 x 100, 20 pcs.	92.120.142
Carrier Plate 200 x 50, 20 pcs.	92.120.144
Carrier Plate 150 x 100, 20 pcs.	92.120.420
Carrier Plate 100 x 50, 20 pcs.	92.120.421

Drying Rack

This is a handy space-economizing light alloy rack for 10 TLC-plates with the formats 200 x 200, 200 x 100 and 200 x 50 mm.

It fits into conventional drying cabinets and into the DESAGA desiccators for activating TLC-plates on which the layers have been spread by the user and to protect these plates against environmental influences.

The TLC-plates are dried in vertical orientation so that the moisture can easily escape upwards.

Plate Draining Rack

Before coating them, the carrier plates must be cleaned thoroughly and freed from water spots. The plate draining rack is an important aid for this purpose. It can hold 23 plates of all sizes ranging from 200 x 50 to 200 x 400 mm. It fits into most drying cabinets.

Ordering Information:	Order No.
Plate Draining Rack	90.124.045
Drying Rack	90.120.180

Desiccator Opener

Desiccator lids which have become stuck can be pulled off with this desiccator opener safely and without any need to exert force. This opener is suitable for all sizes of desiccators.

Special Desiccator

This desiccator is manufactured specially for DESAGA, conforming to stipulated dimensions and tolerances.

The internal dimensions have been chosen to fit DESAGA drying racks with coated carrier plates. The desiccator and the tube lid have plain ground seatings. A standard stop-cock is inserted in the tubes.



Ordering Information:	Order No.
Special Desiccator	90.124.050
Desiccator Opener	92.124.058

TLC-Basic Set

For thin-layer chromatography on carrier plates coated by the user.

Not all types of layers can be bought ready-to-use. In many cases the binder in ready-to-use plates causes interference. For five decades, the DESAGA TLC-basic set has set a standard in laboratories throughout the world, for quick and low-cost coating of carrier plates. This equipment set contains all parts required for producing TLC-layers with thickness from 100 to 2000 µm, for drying, spotting the samples, separation and for evaluation.

Ordering Information:	Order No.
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TLC-Basic Set	90.120.300
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Consisting of:

Chrome-plated TLC-spreading device
 Spreading template
 10 carrier plates 200 x 200 mm
 2 carrier plates 200 x 50 mm
 500 g TLC-silica gel 60 G F 254
 Drying Rack
 Spotting and evaluation template
 Capillary pipette 10 µl
 10 ml each of lipophilic and hydrophilic dyestuff test solution
 Standard separating chamber with knob-lid
 Test tube atomizer and rubber bellow

TLC-Quicktest Set

The TLC-Quicktest set has been designed not only for thin-layer chromatographic work in schools, but also for practicals, drug store laboratories, etc.

The advantages of the H-separating chamber for time and cost saving work have been exploited for this set.

Ordering Information:	Order No.
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TLC-Quicktest Set	90.120.090
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Consisting of:

H-Separating chamber 50 x 50
 Application template 50 x 50
 100 micro capillaries 0.5 µl with holder
 10 ml each of lipophilic and hydrophilic dyestuff test solution
 100 HPTLC ready-to-use plates K 60 F 254, 50 x 50 mm
 Concise Practical Book for TLC

Dyestuff Test Solutions

The functions of the mobile phase and the stationary phase can be checked and demonstrated impressively for tuition and practical work using the multidye test solutions. In order to check the development conditions, it is useful to run a test mixture together with every thin-layer chromatographic separation.

The lipophilic test solution contains three dyes. 4-dimethylaminoazobenzene/butter yellow, which changes colour from yellow to red in the acidic pH-range, Sudan G and indophenol blue, which changes colour from blue to yellow in the acidic pH-range. The dyes are dissolved in toluene.

The hydrophilic test solution contains four dyes. Fluoresceine which fluoresces with an intense light green colour when excited with long wavelength ultraviolet light, methyl red whose colour changes from red to yellow in the alkaline pH-range, methylene blue and emerald green. The dyes are dissolved in isopropanol.

Ordering Information:	Order No.
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3-Dyestuff Test Solution lipophilic, 10 ml	91.125.000
4-Dyestuff Test Solution hydrophilic, 10 ml	91.125.005

*Please call if you require
more information!*



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