

THE DYEING LABORATORY – OUR SOLUTIONS

DEVICES AND SYSTEMS FOR LABORATORIES AND PRODUCTION PLANTS



DISCONTINUOUS DYEING

EXHAUST DYEING

CONTINUOUS DYEING

TESTING AND INSPECTION UNITS

SPECIALITIES

MATHIS AG – COMPETENCE FOR THE DYEING LABORATORY

MATHIS AG is the world's leading manufacturer of exceptionally high quality machines and finishings for the dyeing laboratory. Many years of experience and close contact to renowned companies in the textiles sector are the prerequisites for the development and construction of practice-oriented laboratory machines. MATHIS AG has been cultivating these contacts since it was formed. The global application of Mathis laboratory machines in the textiles, chemical and dyeing industries, as well as exceptional customer loyalty, provide MATHIS AG with further credentials as regards their high level of technical competence.

INNOVATIVE AND PRACTICE-ORIENTED

Our engineers and technicians also stay in close contact with research institutes and development departments. This way they are aware of the latest innovations in the various industries and can introduce them in the construction of new laboratory machines. Together with our customers we look for the best solution for the optimum application of our machines in the dyeing laboratory.

COSMOPOLITAN AND TRULY SWISS

MATHIS AG, headquartered in Oberhasli, Switzerland, has enjoyed a presence in dyeing laboratories since 1968. We also manufacture production plants for dyeing textile ribbons. In a second area of production we develop and build machines and installations for coating a wide range of materials. As well as a factory and sales office in São Paulo, Brazil, sales and service subsidiaries in the USA and India, MATHIS AG has a worldwide network of representatives.



Mathis AG in Oberhasli,
Switzerland



Mathis U.S.A. Inc. in Concord N.C.



Mathis Ltda in São Paulo,
Brazil

«UNIVISION» - THE PROCESS CONTROLLER OF THE MATHIS MACHINE



OPTIONS

Process programmer

Up to 99 recurrent processes consisting of several treating intervals can be saved and retrieved when necessary.

Auto start

A starting time can be preselected if required. The process start is automatic and the process selected is performed.

Daily and weekly programmer

Apart from recurrent individual processes, complete daily and weekly programs can also be predefined and started.

Process control using PC

It is possible to connect the «UNIVISION» with a LAN network using an RS232C or Ethernet TCP/IP interface connection. Process data as well as complete programs are thus created centrally and transferred to the «UNIVISION». Even a running process can be changed this way. Over a connected PC, e.g. reports of the processes of the «UNIVISION» can be created for ISO 9001.

TECHNICAL INFORMATION

«UNIVISION Touch S»

Operating system: Windows CE

Memory capacity: 16 MB RAM

Touchscreen: 5.7" TFT

Interfaces: TCP/IP connection (Ethernet interface), USB, MMC drive

The programmable «UNIVISION» process controller is matched to the needs of its users and the functions on the Mathis machines.

It is very simple in operation, thanks to:

- ☐ Clearly laid out graphic illustration of the process with all functions
- ☐ Simple and easily remembered function pictograms
- ☐ Menu-driven parameter entry
- ☐ Updating and display of all process data during the operation
- ☐ Information displays (errors and fault displays) in plain text
- ☐ Call up of a comprehensive help file
- ☐ Update-capable software
- ☐ Import and export of process data to other «UNIVISION» systems or to a PC.

With the «UNIVISION» process controller you are ready for the present as well as future processes in your business.

LABDRYER TYPE «LTE»

LABDRYER type «LTE», for all drying, setting and thermolising processes.

Owing to its minimal space requirement, the «LTE» can be used both in mill laboratories and in research institutes.

ACCESSORIES

- ☐ Adjustable pin frame
- ☐ Pin frame adjustable in length and width, both to stretch textile materials
- ☐ Sieve frame, for placing loose material in

OPTIONS

- ☐ Infrared radiation pyrometer, for the contactless measurement of the surface temperature of the material sample
- ☐ Exhaust air fan
- ☐ Automatic cover lifting
- ☐ Motorised air flap control

TECHNICAL INFORMATION

Temperature range:	Up to 250 °C / 300 °C
Dwell time:	5 s to 999 min
Circulation air regulation:	infinitely variable
Feed and delivery:	automatic
Sample size:	max. 33 x 43 cm
Operation:	Univision
Dimensions w x d x h:	875 x 990 x 930 mm (d = 1450 mm, transport frame extended)
Weight:	~260 kg

LABCOATER TYPE «LTE-S»

LABCOATER type «LTE-S», the optimum combination of dryer and laboratory coating table. Various kinds of material samples are coated in the same run and heat treated. The coating is applied either by floating, roller or rubber blanket knife. Multiple coatings which do not require re-loading are also possible.

ACCESSORIES

- ☐ Adjustable pin frame
- ☐ Pin frame adjustable in length and width, both to stretch textile materials
- ☐ Reversing pin frame
- ☐ Paper and foil frame
- ☐ Sieve frame, for placing loose material in

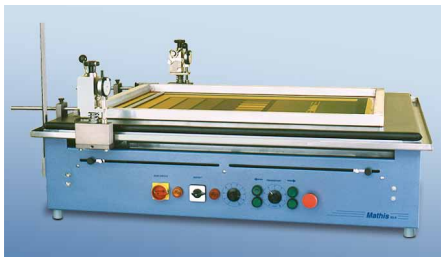
OPTIONS

- ☐ Infrared radiation pyrometer, for the contactless measurement of the surface temperature of the material sample
- ☐ Exhaust air fan
- ☐ Automatic cover lifting
- ☐ Driven air flap control
- ☐ Laminating device type SV-K, for laminating PVC in the reversing method
- ☐ Fast laminating device type K-SK, for laminating PU immediately after coating
- ☐ Coating device with motor drive
- ☐ Smartview for data recording

TECHNICAL INFORMATION

Temperature range:	Up to 250 °C / 300 °C
Dwell time:	5 s to 999 min
Air circulation:	infinitely variable
Feed and delivery:	automatic
Sample sizes:	max. 33 x 43 cm (only drying) max. 28 x 30 cm (coating and drying)
Coating speed:	0.2 – 4 m/min (coating device with motor drive)
Setting accuracy of the coat thickness:	0.01 mm
Operation:	Univision
Dimensions w x d x h:	875 x 1135 x 930 mm (d = 1450 mm, transport frame extended)
Weight:	~280 kg

PRINTING TABLE TYPE «SILK»



Printing table type «SILK» for use in the research and development of colour recipes and printing chemicals. Suitable for flatbed and rotary screens with electronically controllable electromagnets.

ACCESSORIES

- ☐ Flatbed with electromagnetic bar or rubber squeegee

TECHNICAL INFORMATION

	«SILK» 480	«SILK» 800
Printing width:	max. 460 mm	max. 760 mm
Printing length:	max. 470 mm	max. 800 mm
Printing speed:	1 – 8 m/min	
Electromagnet strength:	variable 1 – 100 %	
Dimensions w x d x h:	830 x 710 x 310 mm	1200 x 920 x 310 mm
Weight:	~100 kg	~135 kg

UNIVERSAL STEAMER TYPE «DH» / «DHe»



ACCESSORIES

- ☐ Adjustable pin frame
- ☐ Pin frame adjustable in length and width, both to stretch textile materials
- ☐ Sieve frame for placing loose material in

OPTIONS

- ☐ E-control
- ☐ Infrared radiation pyrometer, for the contactless measurement of the surface temperature of the material sample
- ☐ Electric steam generator external
- ☐ Exhaust steam cooler

TECHNICAL INFORMATION

Temperature range:	20 °C – 250 °C
Moisture regulation:	20 – 100 %
Dwell time:	5 s to 999 min
Steam consumption:	~8 kg/h
Feed and delivery:	automatic
Sample size:	max. 33 x 43 cm
Operation:	Univision
Dimensions w x d x h:	865 x 1160 x 1620 mm
Weight:	~280 kg / ~320 kg

Universal steamer type «DH» / «DHe» for:

- ☐ high-temperature steaming
- ☐ steaming with saturated steam
- ☐ drying, curing and setting.

Owing to its minimal space requirement, the «DH» or «DHe» can be used both in mill laboratories and in research institutes.

The «DHe» also has an integrated steam generator.

HIGH-TEMPERATURE LABORATORY STEAMER TYPE «GD»



The high-temperature laboratory steamer type «GD» is used specially for steaming printed fabrics or dyed carpets in saturated steam up to 100 °C or superheated steam up to 200 °C. The «GD» is also suitable for recipe setting and setting textile printing.

TECHNICAL INFORMATION

Temperature range:	20 °C – 200 °C
Moisture regulation:	20 – 100%
Dwell time:	5 s to 999 min
Steam consumption:	~15 kg/h
Fresh air dryer:	2 step
Feed and delivery:	automatic
Sample size:	max. 70 x 150 cm
Operation:	Univision
Dimensions w x d x h:	1330* x 1135 x 1800 mm
	* 1750 with removed footboard
Weight:	~280 kg

2-ROLL VERTICAL PADDER TYPE «VFM»



2-roll vertical padder type «VFM», for dyeing and finishing material samples. The pressure transmission is applied pneumatically.

OPTIONS

- ☐ Infinitely variable fabric speed
0.2 – 8 m/min
- ☐ Gear wheels for driving of both rollers
- ☐ Economic trough 200 ml
- ☐ Liquor displacement body
- ☐ Distance adjusting device 0 – 5 mm
- ☐ Unwinding and upwinding device
- ☐ Automatic pressure release at roller stop
- ☐ Special roller materials
- ☐ Sub-frame

TECHNICAL INFORMATION

Roller width:	350 mm
Roller diameter:	110 mm
Roller rubber hardness:	approx. 70° Shore
Liquor trough content:	~1.2 l (economic trough 200 ml)
Pressure system:	pneumatic
Fabric speed:	4 m/min
Dimensions w x d x h:	680 x 160 x 503 mm
Weight:	~80 kg

2-ROLL HORIZONTAL PADDER TYPE «HF»



2-roll horizontal padder type «HF», for dyeing and finishing material samples in the nip. The pressure transmission is applied pneumatically.

OPTIONS

- ☐ Gear wheels for driving of both rollers
- ☐ Distance adjusting device 0 – 5 mm
- ☐ Unwinding and upwinding device
- ☐ Automatic pressure release at roller stop
- ☐ Special roller materials
- ☐ Sub-frame undercarriage

TECHNICAL INFORMATION

Roller width:	350 mm
Roller diameter:	110 mm
Roller rubber hardness:	approx. 70° Shore
Nip:	max. 280 ml
Nip immersion distance:	40 mm
Pressure system:	pneumatic
Fabric speed:	2 – 12 m/min
Dimensions w x d x h:	715 x 720 x 500 mm
Weight:	~150 kg

HORIZONTAL, VERTICAL PADDER TYPE «HVF»



The horizontal, vertical padder type «HVF» can be used for dyeing and finishing small material samples through to whole batches. Its versatility also means that it can be used in combination with other Mathis units.

OPTIONS

- ☐ Gear wheels for driving of both rollers
- ☐ Distance adjusting device 0 – 5 mm
- ☐ Unwinding and upwinding device
- ☐ Liquor trough with integrated heating and temperature regulator
- ☐ Special roller materials
- ☐ Sub-frame undercarriage

TECHNICAL INFORMATION

	«HVF» 350	«HVF» 500
Roller width:	350 mm	500 mm
Roller diameter:	110 mm	
Roller rubber hardness:	approx. 70° Shore	
Nip (horizontal):	max. 250 ml	max. 350 ml
Trough content (vertical):	max. 1200 ml	max. 1700 ml
Pressure system:	pneumatic	
Fabric speed	0.2 – 10 m/min	
Dimensions w x d x h:	685 x 700 x 780 mm	835 x 700 x 780 mm
Weight:	~220 kg	~250 kg



2-ROLL LABORATORY CALENDER TYPE «KAL»



The 2-roll laboratory calender type «KAL» is used for treating the surfaces of material samples.

Under pressure and through the use of heated rollers, material surfaces are calendered in various ways.

OPTIONS

- ☐ Steel roller with engraving
- ☐ Heater for heating the steel roller

TECHNICAL INFORMATION

	«KAL» 350	«KAL» 500
Roller width:	350 mm	500 mm
Fabric width:	300 mm	450 mm
Linear pressure:	max. 400 daN/cm	
Fabric speed:	0.3 – 3 m/min infinitely variable	
Roller temperature:	30 °C – 180 °C	
Distance adjusting:	0 – 5 mm	
Dimensions w x d x h:	1520 x 1000 x 1570 mm	
Weight:	~570 kg	

JIG TYPE «WJ»



Jig type «WJ» for dyeing textile materials and their blends. The «WJ» is closed which also allows the use of reduction products.

OPTIONS

- ☐ Dosing pump

TECHNICAL INFORMATION

	«WJ» 350	«WJ» 500
Roller width:	350 mm	500 mm
Batching diameter:	150 mm	
Fabric speed:	0.5 – 10 m/min	
Fabric tension:	infinitely adjustable	
Temperature range:	20 – 95 °C	
Liquor content min.:	400 ml	600 ml
Liquor ratio:	up to 1:3	
Cooling:	cold water	
Program selection:	time-controlled, endless, passage counter	
Dimensions w x d x h:	890 x 600 x 620 mm	1040 x 600 x 620 mm
Weight:	~105 kg	~115 kg



BEAKER DYEING APPARATUS LABOMAT TYPE «BFA»



Textile materials and their blends can be dyed in various make-ups in the LABOMAT type «BFA». Configured accordingly, the LABOMAT is used for the following operating procedures:

- ☐ Beaker dyeing of knit goods, yarns and loose material
- ☐ Beaker dyeing of fully fashioned articles like socks, shorts, sweatshirts and T-shirts
- ☐ For liquor ratios of 1:6 to 1:50
- ☐ For extra short liquor ratios of 1:5 to 1:2 with special liquor displacement body
- ☐ Carrying out washability checks

OPTIONS

- ☐ Several LABOMATs controlled and monitored by a «UNIVISION Touch S» process controller
- ☐ Adding of chemicals directly into the dye liquor using a hand syringe
- ☐ SMART LIQUOR®

TECHNICAL INFORMATION

	«BFA-12»	«BFA-24»
Number of beakers:	12	24
Volume in ml:	50, 100, 150, 200, 300, 400	
Number of beakers:	8	16 / 32
Volume in ml:	500, 1000	500, 1000 / 50, 100
Number of «large» beakers:	2 units of 3 l each 1 5 l unit	3 units of 3 l each 5 units of 3 l each 1 5 l unit
Temperature range:	20 – 140 °C	
Temperature gradient:	0.3 – 4 °C/min	
Infrared radiator:	3	6
Cooling:	water/air heat exchanger circulation air fan	
Revolving disc speed:	5 – 65 rpm reversing	
Operation:	Univision	
Dimensions		
w	675 mm	675 mm
d	550 mm	820 mm
h	730 mm	1065 mm
Weight with-out beakers:	~100 kg	~180 kg

POLYCOLOR BEAKER DYEING APPARATUS TYPE «P»



The Polycolor beaker dyeing apparatus type «P» is a universal laboratory dyeing apparatus for developing production recipes. Textile, yarns in hank form and knitted goods are treated in the Polycolor type «P».

OPTIONS

- ☐ Adding of chemicals directly into the dye liquor using a hand syringe

TECHNICAL INFORMATION

Temperature range:	up to 135 °C
Temperature gradient:	0.3 – 4 °C/min
Number / sizes of dye beakers:	12 x 150 ml 24 x 150 ml 8 x 300 ml 16 x 300 ml 8 x 500 ml (washing test) 1 x 10'000 ml
Revolving disc speed:	8 – 45 rpm
Liquor ratio:	1:8
Operation:	Univision
Dimensions w x d x h:	650 x 700 x 790 mm
Weight:	~85 kg

TURBY TYPE «T»



ACCESSORIES

- ☐ 12-channel dosing pump
- ☐ Dye beam for piece goods
Dyeing principle: inside - out
- ☐ Dye beam for bobbin
Dyeing principle: inside - out
- ☐ Dye basket for loose material
Dyeing principle: above - below

TECHNICAL INFORMATION

Number of dye beakers:	12
Beaker content:	300 ml
Material content:	10 – 40 g
Liquor ratio:	1:5 and higher
Temperature range:	up to 135 °C
Operation:	Univision
Dimensions w x d x h:	900 x 300 x 800 mm
Weight:	~90 kg ~130 kg (with dosing pump)

The Turby type «T» is a 12-position magnetic stirrer dyeing system working on the winding/ package beam principle. The pump effect in the dye beaker is caused by the rapid rotation of the stirrer. Adding of chemicals directly into the dye liquor using a hand syringe or via a 12-channel dosing pump. Linear, progressive or degressive dosing curves are possible.

TURBYBOBBY TYPE «TB»



Turbybobby type «TB», for sample dyeings under open or HT conditions for small liquor ratios and manual dosing.

Centrifugal pumps in the dye vessels pump the liquor from the outside to the inside through the material holder.

The «TB» can be used for the following processes:

- ☐ Woven and knit goods treated as a beam
- ☐ Yarn as a bobbin or in hank form
- ☐ Loose material, fibres and worsted tops in the dye basket

ACCESSORIES

- ☐ Dosing pump
- ☐ 1 litre dye basket
- ☐ 1 litre loose material holder

TECHNICAL INFORMATION

Number of dye vessels:	4 or 6
Dye vessel volume:	1 l
Temperature range:	up to 135 °C
Liquor ratio:	approx. 1:8 to 1:20
Liquor circulation:	outside / inside
Operation:	Univision
Dimensions w x d x h:	850 x 670 x 940 mm («TB4»)
Weight:	~150 kg («TB4»)

COLORSTAR TYPE «CB»



The colorstar type «CB» is a universal dyeing apparatus with 2, 4 or 6 dye vessels. Each dye vessel can be operated independently. The «CB» is used for exhaust dyeing under normal and HT conditions.

The dye liquor is pumped through the non-moving textile material.

The «CB» can be used for the following processes:

- ☐ Woven and knit goods treated as a beam
- ☐ Yarn as a bobbin or in hank form
- ☐ Loose material, fibres and worsted tops in the dye basket

ACCESSORIES

- ☐ Regulating device for flow rate and differential pressure
- ☐ Dosing pump
- ☐ 1 litre spindle with closure
- ☐ Use of bobbin for 20 – 40 g

TECHNICAL INFORMATION

Number of dye vessels:	2, 4 or 6
Dye vessel volume:	1 l
Temperature range:	up to 135 °C
Liquor ratio:	approx. 1:8 to 1:20
Liquor circulation:	outside / inside and inside / outside
Operation:	Univision
Dimensions w x d x h:	1500 x 1000 x 1555 mm («CB6»)
Weight:	~150 kg («CB6»)

COLORSTAR TYPE «CJ»



The Colorstar type «CJ» is a 1-position dyeing apparatus for use both in mill laboratories and research institutes. The vast selection of machine versions and versatile accessories means that the «CJ» can be tailored to customer requirements. The dyeing principle works according to the bobbin and beam principle and the exhaust dyeing method, whereby the dye liquor is guided through the non-moving material sample, reversing inside – outside or outside

– inside. The integrated vacuum pressure pump creates the required atmosphere in the treatment room.

The «CJ» is particularly suited for the dyeing of:

- ☐ Woven and knit goods treated as a beam
- ☐ Yarns as a bobbin
- ☐ Loose material, fibres and worsted tops in the dye basket

ACCESSORIES

The following is a selection of the various «CJ» accessories. Further accessories on request.

- ☐ Regulating device for flow rate and differential pressure including special reversing device
- ☐ pH measuring and regulating device
- ☐ Feeding chamber for additions
- ☐ Hand syringe or dosing pump
- ☐ PC visualisation software for recording and registration of four parameters (°C, l/min, bar, pH)
- ☐ SMART LIQUOR®
- ☐ Dye beam for piece goods
- ☐ Dye beam for bobbin
- ☐ Dye basket for loose material

TECHNICAL INFORMATION

	«CJ 1000»	«CJ 2000»
Temperature range:	up to 135 °C	
Operation:	Univision	
Dimensions w x d x h:	500 x 620 x 820 mm	350 x 670 x 900 mm
Weight:	~65 kg	~70 kg

COLORSTAR FOAMY TYPE «CF»



The Colorstar Foamy type «CF» corresponds basically to the principle of the Colorstar, however the liquor does not pass through

the dye sample but is led through a special nozzle where foam is generated inside of the glass container. The formation of foam and its following destruction after the addition of chemicals can be observed optically and evaluated together with the corresponding temperature curve. The formation of foam can be observed by means of the automatic foam height evaluation system «FoamTron». Here, a camera transfers images and data to a PC. The change in the foam images can be observed online on the PC and the corresponding data displayed.

TECHNICAL INFORMATION

Temperature range:	up to 135 °C
Operation:	Univision
Dimensions w x d x h:	500 x 620 x 980 mm
Weight:	~65 kg

BEAKER DYEING APPARATUS AIR BOY TYPE «AB»



Beaker dyeing apparatus Air boy type «AB» has two completely separate dye vessels with 6 or 12 beakers each. The unit is heated and cooled by air circulation without the use of a liquid heating medium. The temperature is measured directly in the dye bath, in one beaker per set. Both dye vessels are controlled and monitored independently of each other by the same Univision process controller.

OPTIONS

- ☐ «Twist Drive» for infinitely variable rotation of the material holders

TECHNICAL INFORMATION

Temperature range:	up to boiling temperature
Number / sizes of dye beakers 6 + 6:	12 x 100 ml 12 x 200 ml 12 x 400 ml 12 x 800 ml
Number / sizes of dye beakers 12 + 12:	24 x 100 ml 24 x 200 ml 24 x 400 ml
Operation:	Univision
Dimensions w x d x h:	1000 x 740 x 1300 mm
Weight:	~200 kg

1-POSITION APPARATUS FOR AFTER-TREATMENT SOAPY TYPE «S»



The SOAPY type «S» is a 1-position unit for after-treatment processes of dyed material samples (yarn or piece goods) as well as printed textiles. The material samples are agitated in the liquor from the jet nozzle which is circulated by pump.

OPTIONS

- ☐ The SOAPY is available as single unit or as a complete washing/dosing station.

TECHNICAL INFORMATION

Temperature range:	20 - 98 °C
Filling level:	2 l - 9 l
Dimensions w x d x h:	410 x 640 x 840 mm
Weight:	~40 kg

WASHING UNIT FOR TEXTILE SAMPLES TYPE «WU»



The washing unit for textile samples type «WU» is used to wash out textile material samples with water in washing containers of various sizes.

The washing containers can be heated with steam.

Each washing container is equipped with a separate circulation pump.

The textile samples are rotated and thus «washed out» by agitating the water in the washing container.

OPTIONS

- ☐ Dosing pump for adding chemicals
- ☐ Hand syringe

TECHNICAL INFORMATION

Number of washing containers:	2, 6, 8
Washing container volume:	2 - 5 l
Temperature range:	20 - 95 °C
Temperature gradient:	0.3 - 4 °C / min
Heating system:	indirect steam
Operation:	Univision
Dimensions w x d x h:	850 x 920 x 900 mm («WU 2»)
Weight:	~180 kg («WU 2»)

DRUM DYEING AND WASHING UNIT TYPE «TWA»



Drum dyeing and washing unit type «TWA» for dyeing and washing of larger material samples or «fully fashioned» textiles.

OPTIONS

- ☐ Dosing pumps for additions of dyes and alkalis
- ☐ Various adding containers, e.g. for after-treatment
- ☐ Hydro extracting device

TECHNICAL INFORMATION

	«TWA» 1.5 kg	«TWA» 5 kg
Temperature range:	up to boiling temperature (HT up to 140 °C)	
Number of drums:	1 (optionally 2)	
Drum drive:	alternating	
Loading capacity:	1.5 kg	5 kg
Heating system:	Steam* or electrical *no hydro extracting device	
Operation:	Univision	
Dimensions w x d x h:	700 x 700 x 1460 mm	850 x 700 x 1460 mm
Weight:	~280 kg	~350 kg

LABORATORY JET DYEING APPARATUS TYPE «JFL»



Laboratory jet dyeing apparatus type «JFL», multiple use HT dyeing apparatus. The «JFL» can be used for the following processes:

- ☐ Jet dyeing with different jet diameters
- ☐ HT-beaker dyeing with different volumes and quantities
- ☐ Treatment in the dyeing drum

OPTIONS

- ☐ Jets with different jet diameters
- ☐ HT-beakers in 100 ml, 150 ml or 200 ml sizes
- ☐ Flow measurement
- ☐ Dosing device

TECHNICAL INFORMATION

Fabric content jet:	40 – 100 g
Jet fabric speed:	1 – 30 m/min
Temperature range:	20 – 140 °C
Temperature gradient:	0.3 – 4 °C/min
Liquor content:	0.4 – 4 l
Jet liquor ratio:	approx. 1:5 and higher
Dyeing drum liquor ratio:	1:12 up to 1:50
Liquor circulation:	infinitely variable up to max. 15'000 l/h
Number of HT beakers:	6 pcs 100 ml 3 pcs 150 ml 3 pcs 200 ml
Preparing container volume:	6 l
Adding container volume:	0.5 l
Operation:	Univision
Dimensions w x d x h:	850 x 650 x 870 mm
Weight:	~190 kg

OVERFLOW JET DYEING APPARATUS TYPE «JFO»



Overflow jet dyeing apparatus type «JFO», multiple use HT dyeing apparatus. The «JFO» can be used for the following processes:

- ☐ Jet dyeing with different jet diameters.
Fabric width up to 1500 mm
- ☐ HT-beaker dyeing with different volumes and quantities
- ☐ Dyeing and washing using a drum
- ☐ Beam and bobbin dyeing
- ☐ Knitted tube dyeing

OPTIONS

- ☐ Jets with different jet diameters
- ☐ Different dyeing drums
- ☐ Knitted tube open vat and nozzle
- ☐ Bobbin dyeing device
- ☐ 200 ml HT beaker
- ☐ Flow measurement
- ☐ Dosing devices
- ☐ Measuring pH value

TECHNICAL INFORMATION

Fabric content jet:	100 – 1000 g
Jet fabric speed:	4 – 30 m/min
Temperature range:	20 – 140 °C
Temperature gradient:	0.3 – 4 °C/min
Liquor content:	6 – 20 l
Jet liquor ratio:	approx. 1:5 and higher
Dyeing drum liquor ratio:	1:12 up to 1:50
Liquor circulation:	infinitely variable up to max. 20'000 l/h
Number of HT beakers:	6 pcs 200 ml
Preparing container volume:	25 l
Adding container volume:	0.5 l
Operation:	Univision
Dimensions w x d x h:	1200 x 850 x 1565 mm
Weight:	~500 kg

JET DYEING APPARATUS TYPE «JFP»



Jet dyeing apparatus type «JFP», for dyeing and pretreatment of all kinds of material samples. The application results obtained with the «JFP» are directly transferable to large batches or production units thanks to modern recording technology.

OPTIONS

- ☐ Jets with different jet diameters
- ☐ Flow measurement
- ☐ Dosing devices

TECHNICAL INFORMATION

Material content:	approx. 3 kg
Fabric speed:	0 – 30 m/min
Liquor content:	10 – 60 l
Liquor ratio:	1:8 and higher
Liquor circulation:	infinitely variable up to max. 20'000 l/h
Temperature:	up to 140 °C
Heating gradient:	0.3 – 4 °C/min
Cooling gradient:	2 – 4.5 °C/min
Heating system:	steam 4 – 8 bar or electric 12 – 15 kW
Preparing container volume:	10 l
Operation:	Univision
Dimensions w x d x h:	800 x 1000 x 1760 mm
Weight:	~500 kg

THERMOLISING RANGE TYPE «HVF» - «KTF»



TECHNICAL INFORMATION

Working width:	300 mm or 450 mm
Fabric speed:	0.1 – 2 m/min
Circulation air speed «KTF»:	up to 6 m/s
Circulation air quantity «KTF»:	up to 1000 m³/h
Temperature range «KTF»:	up to 250 °C
Operation:	Univision
Dimensions l x w:	~3.1 x 1 m
Weight:	~450 kg

Thermolising range type «HVF» - «KTF», suitable for all applications where a certain sample length is required in a continuous process flow, for example, to produce sample collections or similar. «HVF» and «KTF» can both be used individually as well.

OPTIONS

- ☐ Infrared radiation pyrometer, for the contactless measurement of the surface temperature of the fabric feed
- ☐ Double field dryer for different treatment temperatures: for example, during drying - thermolising

THERMOLISING RANGE TYPE «HVF» – «TH» («THA» OR «THN»)



TECHNICAL INFORMATION

Working width:	300, 450 mm or 600 mm
Fabric speed:	0.2 – 10 m/min
Fabric tension:	infinitely variable
Circulation air speed:	4 – 15 m/s
Circulation air quantity:	900 – 3500 m³/h
Temperature range:	20 – 250 °C
Fresh air dryer:	multistep
Operation:	Univision
Dimensions l x w:	approx. 3.8 x 1.3 m

The thermolising range type «HVF» – «TH» is a combination of the padder type «HVF» and the nozzle box dryer type «TH». «HVF» and «THA» can both be used individually as well.

The nozzle box dryer type «THA» is used as a separate dryer unit with an unwinding device attached at the entrance of the dryer, float dryer, drawing out device and batching device.

The nozzle box dryer type «THN» also has a transport device for pin and foil frames. Max. sample size 50 x 50 cm

OPTIONS

- ☐ Infrared radiation pyrometer, for the contactless measurement of the surface temperature of the fabric feed
- ☐ Double field dryer for different treatment temperatures: for example, during drying - thermolising

STENTER FRAME TYPE «THS»



TECHNICAL INFORMATION

Fabric width:	250 – 550 mm
Fabric speed:	0.2 – 5 m/min
Fabric tension:	infinitely variable
Temperature:	max. 235 °C
Operation:	Univision
Dimensions l x w x h:	~4300 x 1600 x 1750 mm

The basic principle of the stenter frame type «THS» is to have a laboratory machine which has exactly the same possibilities and characteristics as a production machine with the exception of the smaller material width. In developing this unit, major consideration was given to the following points:

- ☐ Spreading devices
- ☐ Optical sensing devices for the control of the corresponding pinning up units
- ☐ Automatic pinning up devices by means of brushes
- ☐ Adjusting possibilities of overfeed and post feed
- ☐ 2 endless pin chains with corresponding guidings for entry and exit

OPTIONS

- ☐ Infrared radiation pyrometer, for the contactless measurement of the surface temperature of the fabric feed
- ☐ Double field dryer for different treatment temperatures: for example, during drying - thermolising

MINI PAD STEAM RANGE TYPE «TPS»



TECHNICAL INFORMATION

	«TPS» 350	«TPS» 500
Roller width:	350 mm	500 mm
Working width:	300 mm	450 mm
Steaming chamber material content:	1 – 3 m	
Fabric speed:	0.2 – 5 m/min	
Dwell time:	12 s – 15 min	
Liquor trough content:	1.2 l	1.7 l
Chemical trough content:	1 – 2 l	
Dimensions l x d:	~2500 x 950 mm	
in case of 4 wash troughs with 1 m content		
Weight:	~800 kg	

The mini pad steam range type «TPS», for continuous and practice-oriented operation of dyeing and bleaching processes. The «TPS» offers multiple configurations due to its modular construction.

OPTIONS

- ☐ Chemical trough for wet-on-wet impregnation
- ☐ Reverse roll coater
- ☐ Infrared pre dryer
- ☐ Wash troughs with material content of 1 m
- ☐ Wash troughs with material content of 2 m, wide format
- ☐ Temperature control for wash troughs

LABORATORY PAD STEAM RANGE TYPE «PSA-HTF»



TECHNICAL INFORMATION

	«PSA-HTF» 350	«PSA-HTF» 500
Roller width:	350 mm	500 mm
Working width:	300 mm	450 mm
Steaming chamber material content:	2 – 8 m	
Fabric speed:	0.2 – 10 m/min	
Dwell time:	10 s to 40 min	
Temperature range:	100 – 130 °C or 250 °C (HTF)	
Liquor trough content:	0.5 – 2 l	
Chemical trough content:	1 – 2 l	
Dimensions l x d x h:	~2100 x 1400 x 2100 mm	
in case of 4 wash troughs with 1 m content		
Weight:	~400 kg	~500 kg

Laboratory pad steam range type «PSA-HTF», for continuous and practice-oriented operation for steaming and after-treatment of a pad steam process. The «PSA» is used for steaming with saturated steam and slightly overheated steam up to 130 °C. The «PSA-HTF» with superheating aggregate can be used for HT steam up to 250 °C with regulated humidity and hot air drying up to 250 °C. For the after-treatment of the dyed goods, there are wash troughs with a material content of 1m, 2m, or 4m available. Steam heating units, with or without automatic temperature control, deliver the required temperature.

OPTIONS

- ☐ Chemical trough for wet-on-wet impregnation
- ☐ Reverse roll coater
- ☐ Infrared pre dryer
- ☐ HTF – superheating aggregate
- ☐ E-control
- ☐ Wash troughs with material content of 1 m
- ☐ Wash troughs with material content of 2 m, wide format
- ☐ Wash troughs with material content of 2 m, high format
- ☐ Wash troughs with material content of 4 m
- ☐ Temperature control for wash troughs

CONTINUOUS RIBBON DYEING AND FINISHING INSTALLATIONS



TECHNICAL INFORMATION

Working width:	170, 300 or 450 mm
Number of ribbons:	1 – 16
Fabric speed:	4 – 40 m/min

Continuous ribbon dyeing and finishing installations are configured to customer specific requirements. Several dryers and steamers with different material contents as well as combination units for drying, thermolising and steaming are available. There are also washing units with different troughs and individual drives, tension controls and compensators in the range.

Entry frame

- ☐ Preparation for entry.
Optionally with tension controls for each ribbon.

Padder

- ☐ Pneumatic load adjustment, dyeing or impregnating trough, content up to 20/26 litres.

Hot air dryer

- ☐ Material contents 29/35/48/60 m, temperatures up to 210 °C, large doors with double glazing for process observation and easy access to the inside.

Steamers

- ☐ Material contents 29/35/48/60 m, saturated steaming with superheating up to 105 °C, ceiling and lip heating, as combination dryers for steaming and thermolising up to 210 °C.

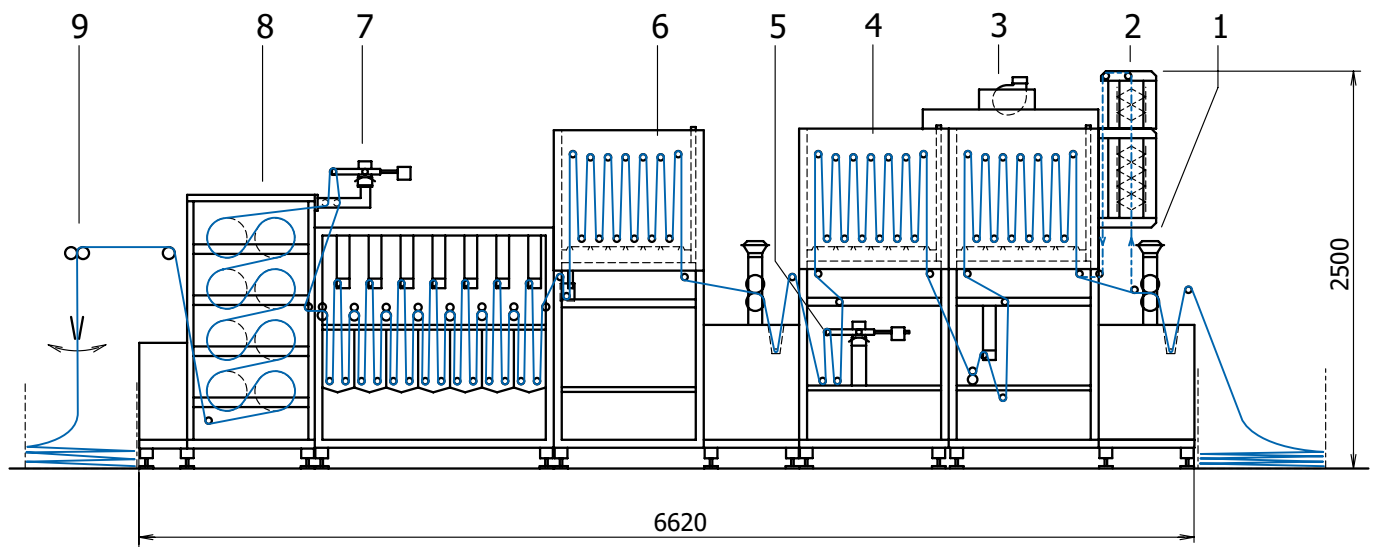
Washing units

- ☐ Material contents 2/12 m per trough, upper roller driven, heating with direct and/or indirect steam. Overflow or reverse flow optional.

Outlet frame

- ☐ Pick-up of ribbons and storage in several containers.

SPECIAL DYEING AND FINISHING INSTALLATIONS



- 1 Vertical squeezing device
- 2 Vertical infrared predryer
- 3 Hot flue dryer
- 4 Hot flue dryer
- 5 Compensator
- 6 Pad steam range «PSA»
- 7 Compensator
- 8 Drum dryer «TRT-8»
- 9 Draw-out device

You have exciting ideas, projects, products. MATHIS AG has the components and the know-how to support you in every aspect from development through to production. Together we can reach the optimum and in so doing, achieve ambitious objectives.

Get in touch with us. We'll show the best thing for dyeing. And which market leaders and world brands are already using Mathis technology – for developing textile colours and chemicals, and then transferring them to production.

SPECTROPHOTOMETRIC ANALYSIS OF THE DYE BATH «SMART LIQUOR®»



SMART LIQUOR®, for the analysis and optimisation of dyeing processes using the exhaust method.

It consists of a high quality spectrophotometer and accessories, both for continuous on-line and off-line measurement of individual solutions. The powerful soft-

ware allows monitoring of up to six dyestuffs at the same time. The system can in principle be connected to any dyeing machine in the laboratory and in production. The system can be configured in different ways according to requirements.

TECHNICAL INFORMATION

- ☐ Spectrophotometer with USB port for complete spectral analysis from 400 to 700 nm (unfiltered spectrum).
- ☐ Up to six dyestuffs can be monitored at the same time.
- ☐ Compensation of the lamp drift for high accuracy and good reproducibility.
- ☐ Concentration area: 0 to approximately 10 g/l.
- ☐ 2 calibration modes: relative and absolute.
- ☐ Data export for table calculation (e.g. MS Excel).
- ☐ Calculation of the average exhaust speed for each individual dye.
- ☐ Calculation of dye compatibility.
- ☐ Automatic registration and representation of the process parameters (temperature, flow rate, pH, differential pressure etc.) in conjunction with MATHIS AG «UNIVISION Touch S» controller.

CROCKMETER FOR FRICTION RESISTANCE / COLOUR FASTNESS TYPE «CRO-B»



Crockmeter type «CRO-B», to determine the abrasion resistance of colourings and printed textiles.

Tests are carried out on dry or wet textiles in accordance with internationally recognised standards (BS 1006D02, ISO 105-X12/D02, ATCC 8-1981 - 8/165).

TECHNICAL INFORMATION

Sample size:	min. 51 x 127 mm
Rubbing contact surface diameter:	16 mm
Rubbling cycles:	1 – 9999
Rubbing speed:	1 cycle / s
Dimensions w x d x h:	150 x 430 x 280 mm
Weight:	~12 kg

LIGHT BOOTH TYPE «LBM-B-700»



- ☐ «UV»
ultraviolet lamp for evaluating optical brighteners, whitening agents and fluorescent dyes / pigments.

TECHNICAL INFORMATION

Dimensions w x d x h:	650 x 590 x 480 mm
Weight:	~12 kg

A digital operation hours counter controls the number of hours that each of the four lamps is on. Consistent spectral light energy distribution is thus guaranteed.

OPTION

Fifth light source:

- ☐ «D50» artificial daylight, lamp with colour temperature of 5000 K.
- ☐ «D75» artificial daylight, lamp with colour temperature of 7500 K.
- ☐ «H» Horizon artificial daylight, lamp with colour temperature of 2300 K.
- ☐ «CWF» fluorescent light, lamp with colour temperature of 4150 K.

Light booth type «LBM-B-700» for visual assessment with four different, standard light sources.

The light sources:

- ☐ «D65»
artificial daylight - lamp with colour temperature of 6500 K.
- ☐ «TL84»
fluorescent light – lamp with colour temperature of 4000 K.
- ☐ «A»
home light (evening light) – lamp with colour temperature of 2856 K.



ABRASION AND PILLING TEST MACHINE TYPE «MAD-B»



Abrasion and pilling test machine type «MAD-B», with six test points to carry out abrasion and pilling tests on textile samples in accordance with the standard Martindale procedure (ATSM D 4970-05).

TECHNICAL INFORMATION

Number of samples:	6
Sample size:	Ø 41 / 140 mm
Test surface:	Ø 31 / 94.5 mm
Rubbling cycles:	1 – 9'999'999
Abrasion movement:	«Lissajous», pilling, straight line
Pressing lever:	9 kpa or 12 kpa
Rubbing speed:	44 rpm
Dimensions w x d x h:	780 x 480 x 390 mm
Weight:	~49 kg

PILLING TEST MACHINE TYPE «PILI-B»



Pilling test machine type «PILI-B», for testing the pilling behaviour of textile samples (woven or knitted goods) or development of fibre balls, known as pills, on the surface of textile samples.

The pill boxes lined with cork correspond to current standards (ISO 12045-1 or JIS I 1076).



TECHNICAL INFORMATION

	«PILI-B»	«PILI-II-B»
Content textile sample/in pill boxes:	8 / 2	16 / 4
Pill box chambers:	4 (Clariant procedure)	
Pill box dimensions w x d x h:	23.5 x 23.5 x 23.5 mm without chambers	
Running time:	1 min – 99 h 99 min	
Material holder:	polyurethane or rubber cylinder	
Dimensions w x d x h:	690 x 400 x 430 mm	690 x 400 x 820 mm
Weight:	~21 kg	~39 kg



RANDOM TUMBLE PILLING TEST MACHINE TYPE «RAN-B»



Random tumble pilling test machine type «RAN-B», for testing the pilling behaviour of textile samples (woven or knitted goods) or development of fibre balls, known as pills, on the surface of textile samples.

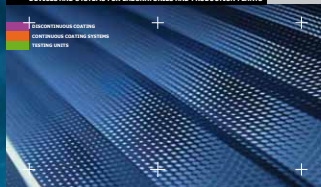
Testing is carried out in four lined testing chambers lined chambers in accordance with current ISO standards. The movement of the samples is increased with impellers made from stainless steel. Compressed air can also be used to increase the movement of the samples.

TECHNICAL INFORMATION

Chamber diameter:	146 mm
Number of chambers:	4
Flapping wing speed:	1200 rpm
Running time:	1 min – 99 h 99 min
Dimensions w x d x h:	460 x 370 x 520 mm
Weight:	~43 kg

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Werner Mathis AG

Rütisbergstrasse 3
CH-8156 Oberhasli/Zürich, Switzerland
Telefon: +41 44 852 50 50
Telefax: +41 44 850 67 07
E-mail info@mathisag.com
www.mathisag.com

Werner Mathis U.S.A. Inc.

2260 HWY 49 N.E./P.O. Box 1626
Concord N.C. 28026, U.S.A.
Phone: +1 704 786 6157
Fax: +1 704 786 6159
E-mail: usa@mathisag.com

Mathis (India) PVT. LTD.

203, Swastic plaza
Pokhran Road No. 2, Thane 400 601
Phone: +91 22 2173 1585
E-mail: india@mathisag.com

Aparelhos de laboratorio Mathis Ltda

Estrada dos Estudantes 261
CEP 06700-050 COTIA S.P., Brasil
Phone: +55 11 3883 6777
Fax: +55 11 3883 6750
E-mail: brasil@mathisag.com