SETEX

Product Info

Innovative automation solutions for textile finishing

SECOM Controller

Universally applicable solutions for tomorrows textile dyeing and finishing

Many textile machine manufacturers around the world are finding their ways to reduce carbon emission and the use of energy. The complexity in textile production is growing constantly. SECOM controls are adding accessibility and efficiency into this workflow.

Simply advanced

The entire family of SECOM CE controls is built on state-of-the-art technology and provides innovative tools for daily production. Examples of interesting features out of the portfolio are RFID extensions for smart login, a clearly structured process visualization and customized information possibilities for e.g. next operator call.

Universally applicable solutions

Considering the complexity of yarn, fabric and other kind of dyeing machines, the high degree of parallel processing of SECOM controls provides endless process possibilities.

The combination with the modular SETEX PLC concept allows a performance and cost effective adaptation to all kind of dyeing machines. Many leading textile machinery makers worldwide use these utilities for a new crop of opportunities.

Intelligent flow

Fabric, machine and product correlations are used by the integrated formula management to calculate the optimal dyeing contacts, the best rinsing type, water temperature and quantity. Using our innovative functions helps to keep the number of program steps slim but powerful.

Advanced features as conductivity, article carry over and critical step lights can easily be added on top of the standard functionality.

Multilingual

Various languages and fonts can simply be selected, e.g. chinese, vietnamese, spanish ….

Durable and robust

Development and selection of components based on characteristics like extended temperature ranges, rugged environments, unstable power supply and corrosive conditions.

Communicative

The key to success in improving operational efficiency leads to streamline the workflow. For continuously optimizing production processes with minimize risk there's no way around integration with OrgaTEX software. All SECOM CE controls have built in standard Ethernet network functionality.

Effective integration

SECOM controls take care that your automatic dye kitchens and dispensing systems work precisely in sync with machine calls. The logistics for charge-tanks and preparation-tanks provide features for "batch overlapping" dye lot preparation with "look ahead" functions.

The entire production data acquisition and collecting, even values (e.g. pH) entered directly on the controller, are provided to MES, ERP and energy management systems for up-to-the-minute information for immediate actions.

Safe and protected

Unforeseen incidents as electrical power failure may happen frequently. All SECOM CE controls have functions for auto-sync, UPS and snapshot recovery. Instead of downtimes you can proceed with your production exactly where it stopped right before the power failure without any loss of data and time.

The USB port connects external devices as backup, barcode and RFID reader.

Professional internet service

The more complex a technology, the more perfect and flexible its service has to be. SECOM CE controls provide internet remote access possibilities with individual customized security gateways and saving of service-expenses. If desired a 24/7 professional support availability serves to minimize downtimes.

SECOM 848TCE

SECOM 575c

SECOM 777CE

Controller

For discontinuous processes

SECOM controller technology for discontinuous processes is designed for a great production experience through maximum flexibility and highest industrial suitability.

SECOM 777CE – 777TCE

Companies which expect the unexpected want to preserve some margin in the machine management. Even very sophisticated automation tasks can be realized without problems. Integrating to an automatic dye kitchen system is nowadays standard.

Complex machines can easily and directly be operated by using the integrated touch screen. Interaction with process diagrams and manual switches profit from the SECOM 777TCE 10.4" TFT screen. Users in rough environment might choose the SECOM 777CE model for simultaneously keyboard and touch operation.

The 777 controller family is the first choice of SETEX's textile machine manufacturer business partners.

SECOM 737CE

Projects which prioritize an adequate solution over an optimal solution will consider a controller with outstanding technical capabilities and lower priority to representation.

As successor of SECOM 737XL, the SECOM 737CE is based on the 777 controller family techniques with differences in screen size and touch capability. With the modular Compact PLC concept there are no limits in customizing the desired configuration.

SECOM 575c

SECOM 575c is the controller with the smallest form factor and expands the SECOM 5 controller family with newest CE technology, providing a touch control color display in a new design.

Plug'n play with predefined standard configurations for fabric and yarn dyeing machines.

Fitted with a 7" WVGA-TFT display it possesses all functionalities for a fully automatic dyeing operation.

SECOM X40

The SECOM X40 group controller is the SETEX solution for specific applications.

The functional upgrades and enhancements to the SECOM 777 family of controllers allow up to four PLC connections and therefore up to four dyeing machines being controlled simultaneously by the CPU.

Multiple, compact dyeing machines profit from the space saving economical concept.

Automatic dye kitchens manage dispensing, bucket conveyer and multiple dissolving units with this controller.

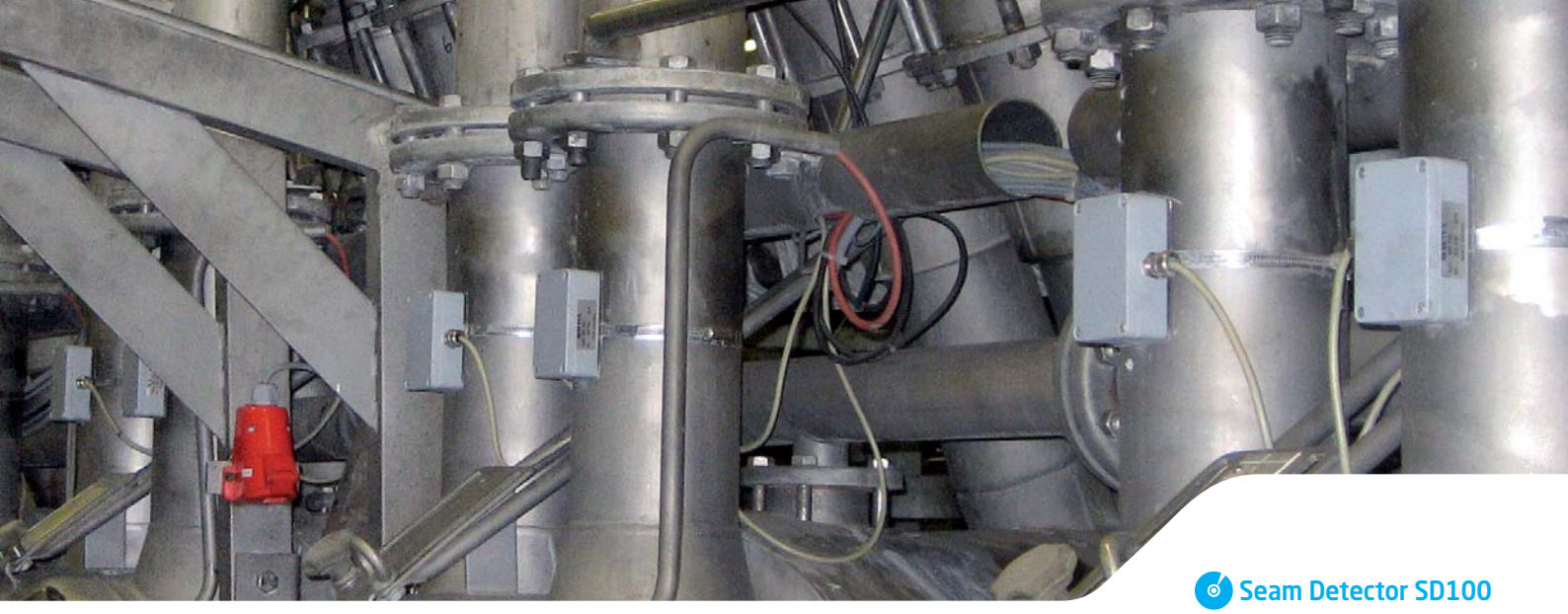
New innovations as the industrial dyeing machine that uses supercritical carbon dioxide (CO_2) as a replacement for water can use the SECOM X40 configured to drive one preparation plant with three dyeing tubes. The information, even when complex, is displayed clearly and profits from the large 15" TFT screen display.

Controller for discontinuous processes
(yarn, fabric or other dyeing machines)





SECOM	575c	737CE	777CE	777TCE	X40
TFT display	7"	5,7"	8.4"	10.4"	15"
Keyboard	–	•	•	–	–
Touch control	•	–	•	•	•
Functionality					
Parallel functions	4	12	12	12	12
Maximum no. of functions	50	200	200	200	200
Look ahead/batch overlapping	–	•	•	•	•
Statistics	•	•	•	•	•
Integrated formula/time management	•	•	•	•	•
Short intervention/manual functions	•	•	•	•	•
User management	•	•	•	•	•
Production data acquisition (PDA)	•	•	•	•	•
Internet service portal	•	•	•	•	•
Multi machine controller	–	–	–	–	•
Data transfer and backup	USB stick	USB stick	USB stick	USB stick	USB stick



Sensors

Performance tools for daily business

Fabric seam detector SD100

Instant sampling and unloading with the fabric seam at your fingertips

Fabric circulation control

In addition to quickly locating the seam, the precise SD100 control of fabric circulation in a running machine is a quality key-number.

Smooth mount

The detector is mounted on the outside of fabric dyeing machines without alignment problems. The sensor is sewn into the fabric seam and works independent of fabric speed.

Best available technology

The GMR-techniques with excellent temperature stability and very strong signals allow environment temperatures up to 135 °C at todays used high process speed.

RFID sensor TR20

Contactless data transfer for user login

Data transparency requires an end-to-end monitoring. The TR20 RFID sensor integrates a smart user login to the SECOM CE controller family.

Secure and operator friendly

Unique user tags enable individually-enabled actions on the controller.

Industrial strength

The installation on a control panel is suitable for industrial applications with type-IP64 protection. The reader is connected via USB.

RFID sensor TR20

OptiWeigh

For a controlled weighing workflow: Integrated, precise, reproducible and documented

The SETEX OptiWeigh solution includes a stand-alone job ticket and weighing module software, a SECOM WT2010 with weighing terminal, including two scales and auxiliary equipment.

Free standing compact housing

Free standing ergonomic housing for weighing equipment and efficiency items. The entire interior work of the system is designed to provide flexible choice of components in a dye kitchen production environment.

WT2010

SECOM technology with touch control

The SETEX applications run with robust, silent and fast industrial flash storage media in a fanless controller.

Industrial strength

WT2010 is designed for industrial applications with type-IP64 protection. To ensure touch control on the 15" display on a permanent basis the WT2010 provides exchangeable protective foils.

Scales

A standard “Mettler” and economical “A&D” line of scales are supported: typically two scales with 3 kg and 32 kg.

SETEX BatchTool software

The software contains an easy-to-use recipe editor that manages all production relevant products and quantities to build the production recipe. The root data management supplies chemical and dyestuff administration with comfortable product exchange functions. The workflow roundup is completed by the stock management option.

7 reasons pro SETEX OptiWeigh

- Avoid human errors
- Production-geared routines with tolerance ranges as a function of quantity
- Repeatability through correlating product quantities with the job ticket software
- Easy traceability with selectable reports
- Reduce expensive re-dyeing
- Product consumption feedback to stock control software module
- **Best used with SETEX OrgaTEX software**

Ergonomic designed housing for PC and equipment

Compact PLC

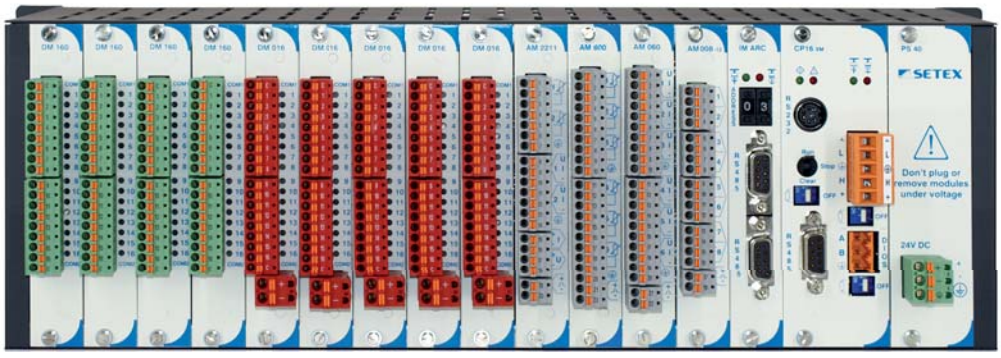
Modular PLC system for an effective customized architecture

The automation of textile dyeing and finishing machines up to highest performance ranges is the main field of SETEX Compact PLC applications.

Using the modular principle, any machine and application is made to measure with this flexible and future-proof automation solution. The individual system potential is maximized, existing machinery is utilized more efficiently and existing processes are optimized.

Graphical programming language according to IEC 61131-3 (CoDeSys) and extensive program libraries allows a fast and clear implementation of given automation requirements.

A tiny form factor plus flexible connectivity allow the superb installation of the Compact racks CR 8 and CR 16 in any control panel. With 8 or 16 available slots, small and large process control systems can easily be realized. If necessary the Compact system can always be extended via the SETEX own DIOS bus or via the standardized CAN fieldbus by using additional Compact racks and SETEX fieldbus modules.



Compact PLC

CPU boards

	CPU	Program memory	Fieldbus interfaces		Programming tool
			DIOS (Master)	CAN (Master)	CoDeSys
CP 14XM	16 Bit	512K	–	–	•
CP 16XM	16 Bit	512K	•	•	•

For more information see "Compact PLC" data sheets.

Decentralization boards

	Field of application	Interfaces
CI 16D	Interface module for decentralization	DIOS (Slave)
IM ARC	PLC - PLC communication	Arcnet (RS485)

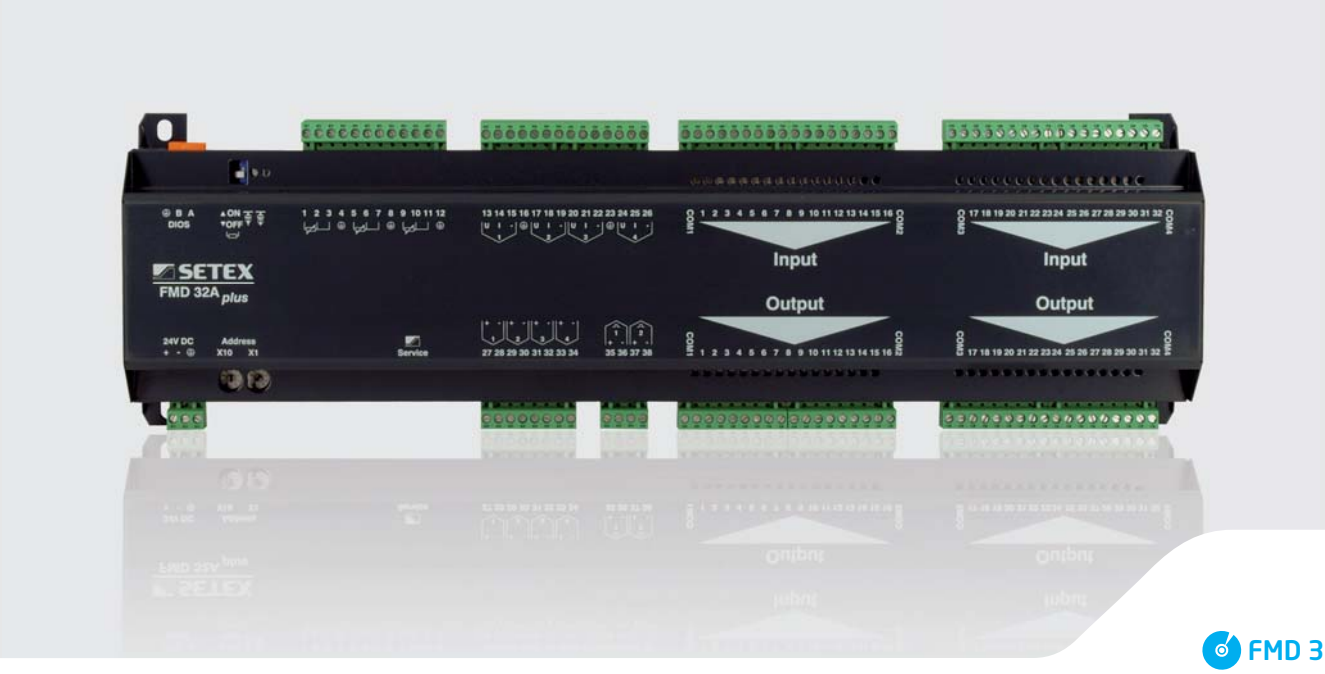
For more information see "Compact PLC" data sheets.

I/O boards

	Digital inputs/outputs			Analog inputs/outputs						
	Inputs →	Relays ←	Transistor ←	PT100 →	Current/ voltage →	Counter 2 kHz →	Counter 1 MHz →	Encoder →	Current ←	Voltage ←
AM 008-12	–	–	–	–	–	–	–	–	8	–
AM 060	–	–	–	–	6	1	–	–	–	–
AM 222	–	–	–	2	2	1	–	–	2	–
AM 2211	–	–	–	2	2	1	–	–	1	1
AM 600	–	–	–	6	–	1	–	–	–	–
DM 016	–	16	–	–	–	–	–	–	–	–
DM 016-T	–	–	16	–	–	–	–	–	–	–
DM 160	16	–	–	–	–	–	–	–	–	–
EM2	–	–	–	–	–	–	2*	2*	–	–

* Channel can optionally be used either as counter or as encoder input.

For more information see "Compact PLC" data sheets.



Fieldbus Modules

Remote I/O's for flexible connections

The SETEX family of fieldbus modules provides an extensive selection of compact input/output modules with digital and analog I/O's for decentralized automation solutions.

The modules can be used as I/O extensions of the PLC or directly as I/O units for selected SECOM controllers. They are equipped with the SETEX DIOS interface.

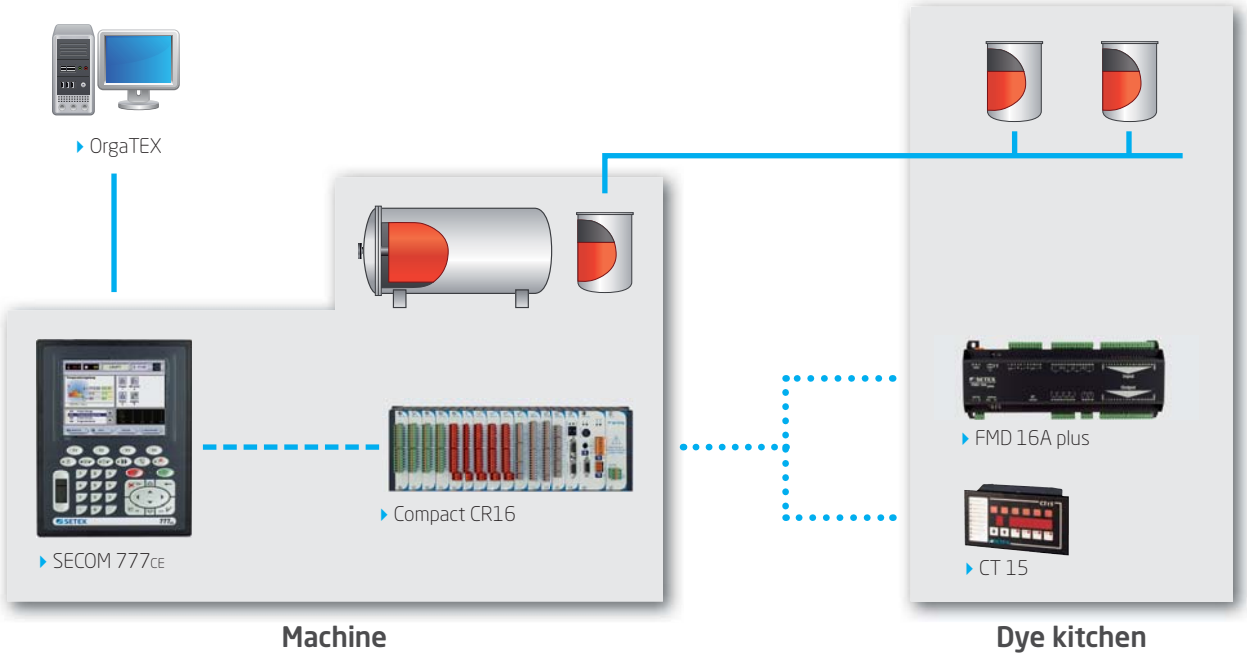
Features

- All inputs and outputs are opto-insulated
- LED indication for all inputs and outputs

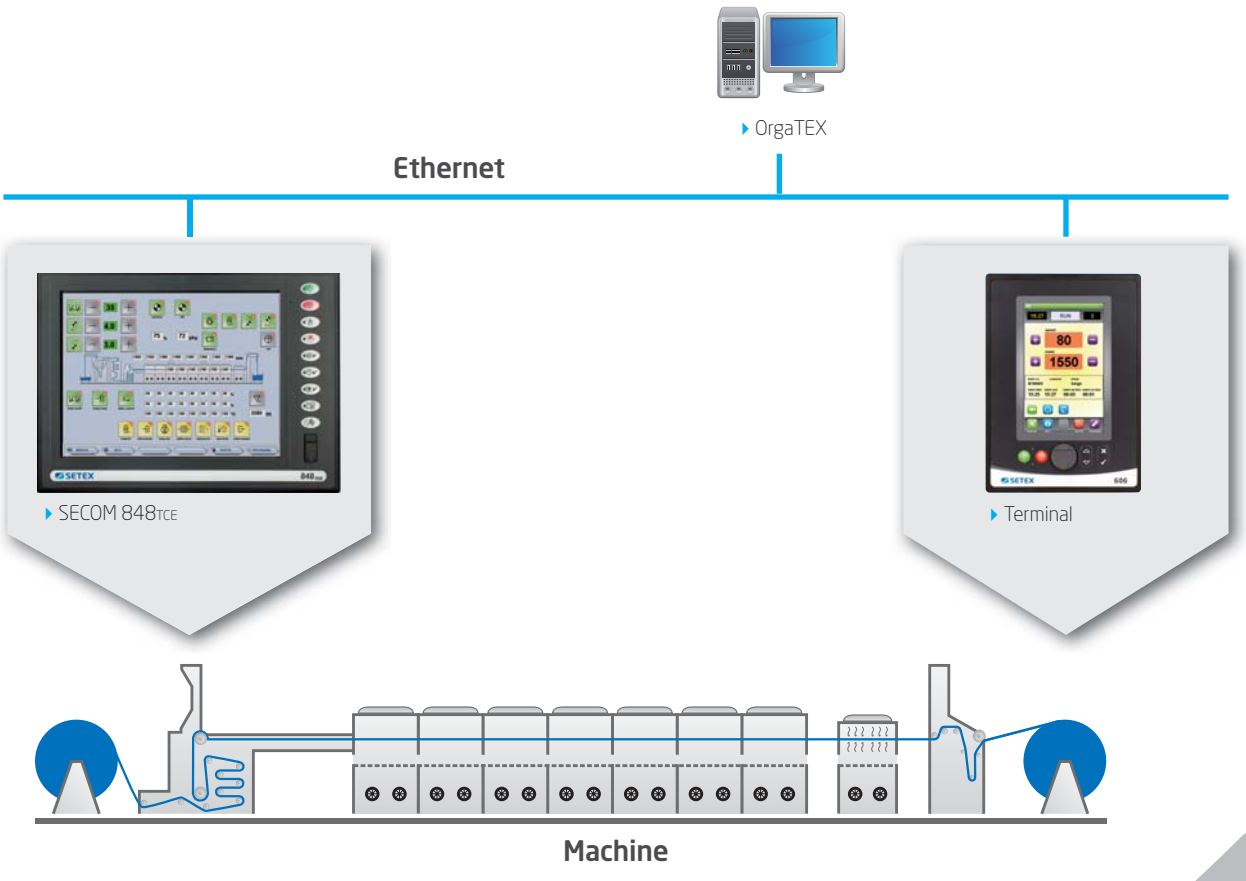
	Fieldbus	Digital inputs/outputs		Analog inputs/outputs			
	DIOS	Inputs →	Relays ←	PT100 →	Current/ voltage →	Counter 2 kHz →	Current ←
FMD 8A	•	8	8	1	1	1	2
FMD 16	•	16	16	–	–	–	–
FMD 16A	•	16	16	2	3	2	3
FMD 16A plus	•	16	16	3	4	2	4
FMD 24A	•	24	24	1	1	1	2
FMD 32	•	32	32	–	–	–	–
FMD 32A	•	32	32	2	3	2	3
FMD 32A plus	•	32	32	3	4	2	4

Applications

Dyeing machine with dye kitchen



Stenter application with exit terminal



SECOM 848TCE

Controller

For continuous processes

A particular attention is paid to finishing machines because most time and cost intensive treatments in textile production are already completed upon arriving at the finishing process. Quality issues at the end of the value chain are the most expensive element.

SECOM controller for continuous processes provide online production planning, resource management and data transparency with the machine control.

Developed and designed for best use with stenter frames, dryers, compactors and dyeing machines, SECOM controllers allow a sustainable production with optimized use of the five resources material, water, energy, time and workforce.

SECOM 606 – 646TCE – 848TCE

Innovative function and entire integration

A smart data management includes centralized production planning and control, data logging during individual process steps and immediate actions for resource productivity and energy management specifications. The SECOM controller allow efficient usage and operation by clear and actionable process visualization.

Complex machines can easily and directly be operated by using the integrated touch screen. Interaction via process visualization and possibility of manual intervention benefit from the SECOM 848TCE 15" TFT screen.

SECOM controllers for continuous processes allow the operation of specific sensors such as SETEX WTM fabric temperature and SETEX EH80 exhaust air humidity as part of a machine system or control entire finishing machines. The controllers also bridge the gap to integrate 3rd party machines to the central OrgaTEX software.

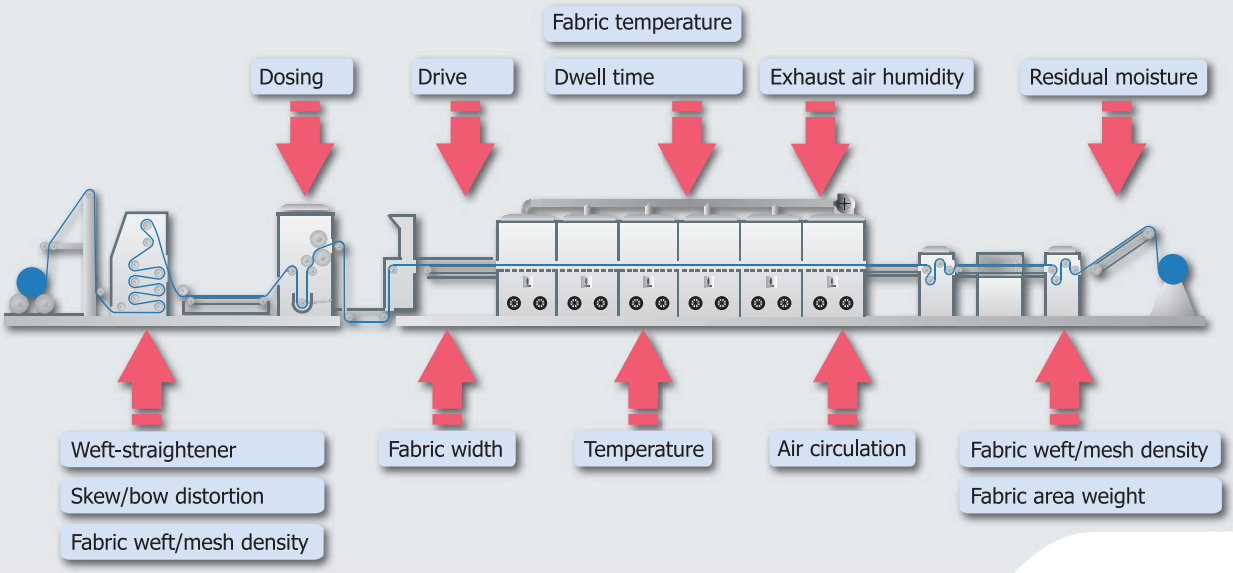
SECOM 606 | SECOM 848TCE | SECOM 646TCE

Chemical dispensing systems offer a big potential for savings. With SECOM 606, 646TCE and 848TCE, SETEX provides a range of solutions either to connect separate request terminals and/or to control the entire machine. In connection with OrgaTEX each solution provides all required functionalities for a fully automatic bath preparation. This method allows low liquor content, precise volume request and reproducibility according to the foulard´s dosage and article pickup.

Controller for continuous processes
(stenter frames, dryers, compactors, ...)



SECOM	606	646TCE	848TCE
TFT display	7"	10.4"	15"
Keyboard	–	–	–
Touch control	•	•	•
Functionality			
Statistics	•	•	•
Integrated formula/time management	•	•	•
Automatic dispensing requests	•	•	•
User management	•	•	•
Production data acquisition (PDA)	•	•	•
Internet service portal	•	•	•
Data transfer and backup	USB stick	USB stick	USB stick



SEMATIC

Modular process control system for continuous textile machinery automation

A SEMATIC solution is composed of SECOM controls with innovative applications, sensors that will make sure that process quality and efficient resource management is possible and complex networking tasks which profit from the real-time data transparency.

A particular attention is paid to finishing machines as stenter frames, compactors and foulards, dryers, washing as well as bleaching machines.

Automatic foulard dosage

Chemical dispensing systems and automatic foulard dosage in combination with automated bath analysis will significantly reduce the volume of pollutant in your plants effluent.

To prevent the discharge of residual chemical bath volumes, the system is analyzing the foulard liquor level during batch processing. The combination foulard/ OrgaTEX software allows immediate article pick up adjustment. Several parameters as minimum pad box volume, refill call level and residual quantity allow low liquor content with precise refill-volume request and reproducibility, even with batch overlapping.

Fabric width control

Textile fabric orders are based upon final width, thread/mesh per cm and weight per m^2.

A substantial quality improvement and cost reduction on new stenter frames and retrofit machines can be achieved with the combination SETEX fabric width control and SECOM controller.

The precise width control through “width profiles” is applied to individually driven spindles and improves the shrinkage process/width ratio.

HeatSET Control: The display shows the actual temperature profile and the preset dwell time.

HeatSET Control

Precise dwell time control using SECOM controller and the fabric temperature sensors WTM

Fabrics touch-and-feel and color fastness are just two parameters depending on precise fabric temperature control in the drying and thermofixation process. Also drying, condensation reaction, reactive auxiliaries (flame retardant finishing or wash-and-wear) – the key to success for all thermic processes in textile finishing is the article temperature maintained per set time.

The combination WTM sensor and SECOM controller automatically adjusts the fabric speed of a stenter frame to the optimum (fastest) speed possible whilst simultaneously applying the required quality values and energy consumption.

1 SETEX EH80

Sensor for exhaust air humidity measurement

Drying and thermofixation of textile fabric is a very energy consuming process step. Precise exhaust control with SETEX EH80 manages the task to extract exactly that amount of air humidity needed to manage a high quality drying process but avoiding energy waste.

The analyzing unit monitors the sensor as well for errors and provides an automatic calibration feature.

2 WTM

Sensor for fabric temperature measurement

The fabric temperature sensors WTM V11, V21 and V41 are designed for the measurement of fabric temperature in dryers and stenters.

The WTM V11 and V21 contactless measuring units detect the fabric temperature precisely and with a high repetitive accuracy. The sensors are resistant for a wide range of environmental temperature and installed inside the dryer. The resistance against contamination is given by an integrated dust guard.

The WTM V41 sensor with its rugged housing is located outside the dryer cabinet. Owing to measurement characteristics it can be positioned at a larger distance to the fabric.

Sensor type	Measurement range	Application area
WTM V11	0…250 °C/32…482 °F	drying cotton
WTM V21	0…250 °C/32…482 °F	universal
WTM V41	0…250 °C/32…482 °F	universal

CamCOUNT

Fabric density/shrinkage measurement and control of knitted and woven fabric

CamCOUNT V3 is the improved SETEX CMOS non-contact camera system to control and monitor thread density of fabrics by justifying the overfeed on stenter frames, compacting on tubular or open width units and shrinkage on sanforizing machines.

Range of application

Stenter overfeed control with two cameras

The overfeed speed will be adjusted with special control algorithms according to the measured fabric density at stenter inlet. With the exit camera the final uniform fabric with feedback signal is measured.

- Fabric produced to exact density
- Better colour and pattern uniformity of printed fabrics
- Higher production of fabric – more meters, more garments
- Improved fabric quality
- Increase of 1.5 – 3 % in length of fabric

Compaction control on compactors with one camera

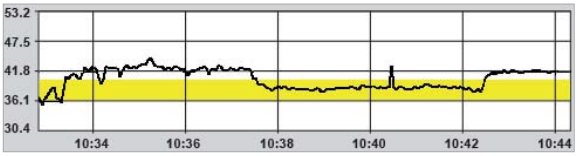
With one camera installed close behind the retard unit, the system controls course count (CPI) on the length shrinkage according to the target density.

- Reduces the variations of over- and under-weight fabrics
- Eliminates the punch weight measurement
- Results in uniform fabric, piece by piece
- For tubular and open width operation
- Course count with shrinkage that only varies in a range of 2 %

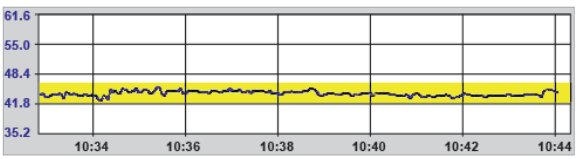
Density and shrinkage control on sanforizing machines with two cameras

By comparing the measured values of the camera at machine inlet and exit, the speed of the rubber belt will be adjusted according to the required shrinkage.

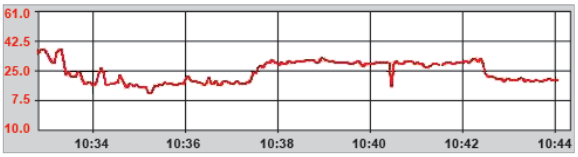
- Uniform fabric weight
- Residual shrinkage for fabric density as an offset parameter
- Reduction of wash test required to check residual shrinkage
- Eliminate operator measurement and adjustment errors
- Uniform printing pattern and colours



Inlet camera



Exit camera



Speed overfeed

FabricINSPECTOR

Course count system for finishing lab

The SETEX FabricINSPECTOR system reports courses of knitted fabrics and picks of woven fabrics by measuring fabric density. For the automotive industry, protective wear or meditech industry, quality means providing constant course count, on target value, with every batch and meter. Adding value in textile finishing means reducing unnecessary delays and costs for manual inspection and counting. Built on the technical platform of the SETEX production system CamCOUNT, information may be shared to provide critical data on your finishing operation.

Features

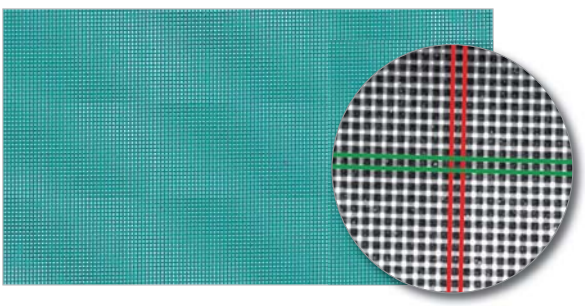
FabricINSPECTOR provides continuous measurements of course and wales or weft and warp density. A clever and strong image processing technique performs automatic thread analysis for woven and knitted fabrics.

To suit special requirements FabricINSPECTOR can be expanded with additional software presets to realize new fabric constructions. The system performs immediate results with no operator skill:

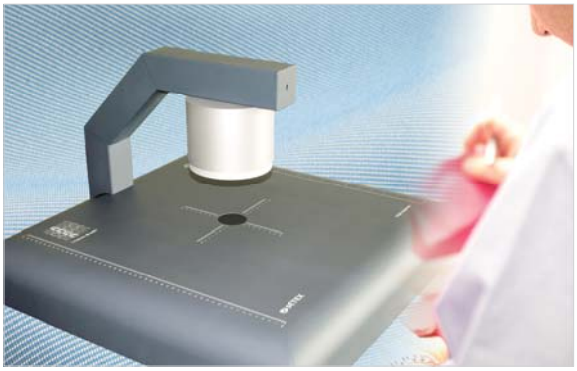
- The measurement is not affected by color, fabric thickness or moisture.
- Quality control results are managed with root data as stored batch, reference, article attributes, image and tolerances.
- Detailed visualization and comprehensive reporting tools add value to your process-tracing.

Information explored by FabricINSPECTOR can instantly be used for SETEX CamCOUNT systems on production machines:

- Article-specific configuration of your shrinkage/ overfeed control system
- Shrinkage/overfeed towards specific fabric weight (g/m²)



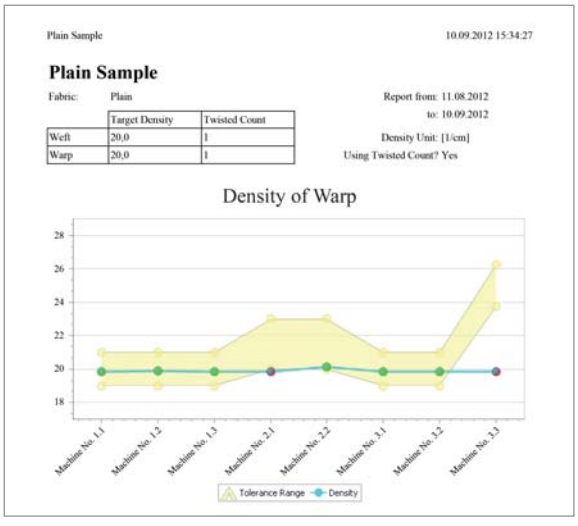
Imaging of plain woven semitransparent green technical textile with 23.1/cm weft and 24.4/cm warp



Technical advantages

Visualized in the office and on the machine controller

- Fast and simple fabric inspection at various sections of the production process
- High accuracy in the detection of thread/mesh density based on digital image processing
- Color neutral evaluation
- Flexible operational area
- Interface to OrgaTEX



Tolerance report

OrgaTEX

OrgaTEX Software

Production and performance management software for textile finishing

Production machine supervisor or Manufacturing Execution System – OrgaTEX can cover both. The software suite is composed of scalable modules. Start low and built as you grow to suit continuously the desired level. With SETEX you have one supplier for MES software and machine control hardware.

Safe and secure

All important production information is stored in the system. Whether products, production processes or batch history: the information management is safe to the company.

Up to date production processes

Use of centralized guided production process creation for all machines. Add more flexibility with intelligent treatment parameters, look-up tables and rules, which interconnect the data for the actual requirement. Make practical process optimization through real-time batch analysis.

Everything under control

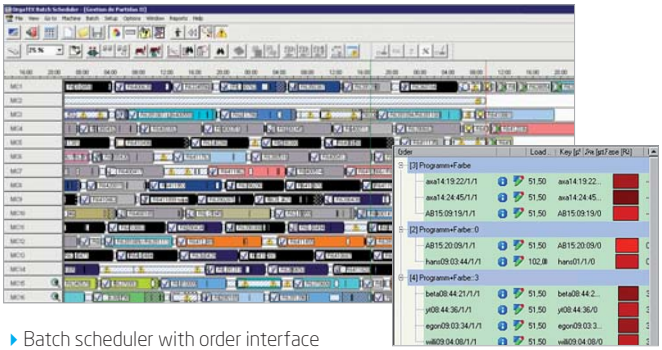
The permanent online connection to the production machines allows supervision and control of quality, times, consumption values, costs and personnel.

Add features to dyeing and finishing machines

Add efficiency to your production process through anticipated chemical calls with “look ahead” functions, “batch overlapping”, bath preparation and online production data acquisition.

Cost management

OrgaTEX in connection with SECOM controls demonstrates the production performance by machine, batch, article, process and so on. Machine, batch, alarm and dispensing information is transformed into business information.



Batch scheduler with order interface

Entire integration

The information exchange between ERP system, color laboratory, dye kitchen, dyeing and finishing machines is the vital nerve for any information for fast-acting strategically decisions.

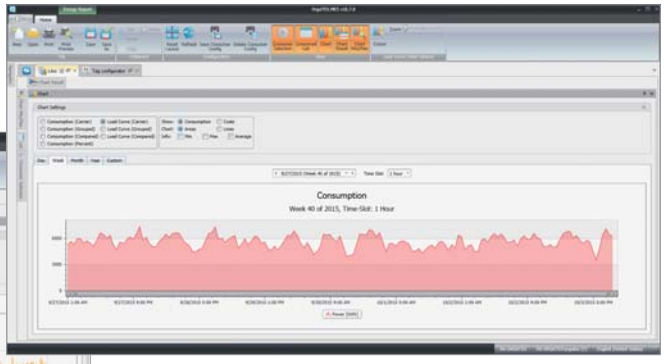
OrgaTEX solves this with customized solutions which seamless fit in the master plan.

The detailed real-time fine planning enables an economic, efficient and versatile production with high speed and quality.

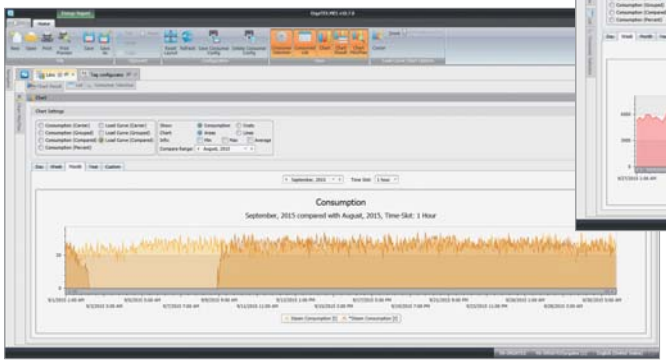
Lab2Bulk

The SETEX Lab2Bulk module integrates the color laboratory to production in textile dyeing and finishing mills, providing better processes for maintaining accuracy, transparency and standards from laboratory to production.

The interface contains root data import, seamless laboratory recipe synchronization with the corresponding OrgaTEX production process and production correction integration for measurement supported additions.



Consumption of electricity



Comparison of steam consumption

Energy management

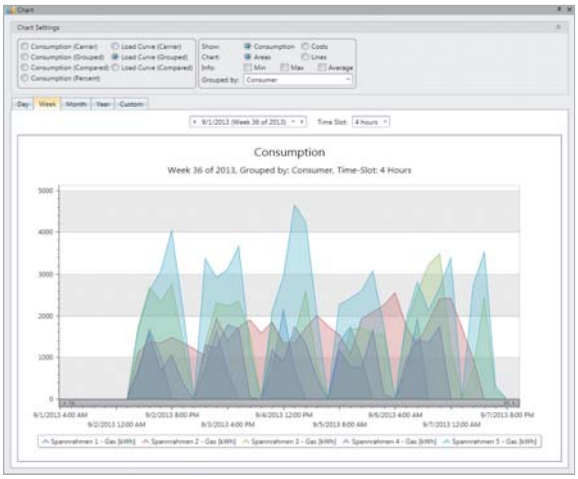
Sustainable production means optimization of water emission, energy consumption and resource productivity. With the new energy and utility management SETEX covers this area with innovative product variants.

Energy management workflow

The actual energy situation of each involved production machine is used to calculate the consumption. For a generic approach on energy management, it is possible to include the company own power plant, warm/hot water and water discharge management to the scenario.

Active actions

Balancing energy load to avoid energy peaks without influencing the volume and quality of production is the target. Power and gas consumption is projected by trend analyses based on up-to-the-minute information of all linked machines. Customized equations automatize the decision making process.



Consumption report

SETEX

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