



UPGRADE SOLUTIONS

PRO-UP®

upgrade & modification
Modernisierung
modifikasyon çözümleri
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UPGRADE & MODERNISATION

The limiting factor for the live time of machines nowadays is very often driven by the technical progress and new developments, mainly of electronical components. With our upgrade, we offer you a significant extension of the machine runtime, which goes hand in hand with increased efficiency and productivity as a result of a higher production speed.

With our upgrades, we pay particular attention to sustainable solutions that of course meet all CE and ISO safety regulations. The newly installed software also fully meets the requirements for Industry 4.0.

Our system enables a return on investment in the shortest possible time by reducing production costs as well as expenses for maintenance, service and spare parts consumption. Thanks to improved tension control, all types of yarn can be processed with significantly higher operational reliability. Among other things, this is achieved through the use of highly dynamic and energy-efficient servomotors with feedback signal, which ensures perfect tension control not only at production speed but also when accelerating and deceleration. This also enables operation with less elongation, which means that yarns of lower quality can also be processed without problems too.

Thanks to decades of experience with Sucker-Müller products, we can carry out any conversion in the shortest possible time, ensuring that your production is not affected any longer than absolutely necessary. This is also due to the fact that we maintain the system of the original software and thus avoid complex adjustments.

After commissioning, you will receive all necessary documentation such as operating and maintenance instructions, wiring drawings and a spare parts catalog. During the commissioning work, of course, extensive training is given to your personnel with regard to operation, maintenance as well as the necessary safety training.

After commissioning, a team of highly qualified service staff is available to you at any time. This also includes online help via our tele-service system with VPN access over Internet. When needed, this system enables us to access all control and drive systems to provide quick and effective assistance.

MODIFICATION OF OLD SIZING MACHINE: SMH SUCKER-MÜLLER, BENNINGER KARL MAYER, TSUDAKOMA

- upgrade to S7 PLC system with HMI control for "SMH SUCKER-MÜLLER" sizing machine



By upgrading the machine we provide increased efficiency and productivity as a result of a higher production speed.

- modification from PIV to single drive system at "SMH SUCKER-MÜLLER" sizing machine



- modification of size-box at a "BENNINGER" sizing machine



- modification of headstock at a "KARL MAYER" sizing machine



- modification of headstock at a "TSUDAKOMA" sizing machine



WHY UPGRADE OF OLD MACHINES IS NECESSARY

Conversion from Siemens S5 to S7

Nowadays, operators of machines with S5 controls are very often confronted with problems which hardly can be solved. This is not only due to a lack of operational safety, but increasingly also with regard to extremely high spare parts costs. We replace all programmable units and the associated modules and transfer their functionality to modern S7 technology as we use it today for our new machines.

Upgrading software:

Our machine software fully meets the requirements of Industry 4.0 and has a very sophisticated fault management system with over 3.000 messages. The very strong diagnostic system is providing all details about all PLC and drive input/output signals, digital as well as analogue ones. The status of the individual modules and other elements are also given and recorded. Even broken wires can be detected and notice will be given.

Despite the fact that the HMI devices today have a high level of operational reliability and are classified as extremely durable the main HMI of our machines does contain back-up files of all other units so that the machine can run even when one of these unit is failing. Vis versa also an back-up for the main HMI is available in the system.

Software updates as well as replacement of PLC models is possible whilst the machine is running.

Auto speed synchronization:

The production quality depends on even and clean surface of the rollers, the right set-up as well as perfect tension control. After grinding or recoating of the rollers normally the synchronization has to be done manually which only can be done by highly qualified technicians. In our system you only have to set the new diameter of the roller and all synchronization settings are calculated by software and provided to the PLC. When using this system we can guarantee that the machine will be kept perfectly synchronized throughout the entire life time.

Washing function:

With this function, the service time of the rubberized rollers in the size box can be significantly extended, since the rubber surface of the rollers remains soft due to the intensive cleaning.

WHY UPGRADE OF OLD MACHINES IS NECESSARY

Adding positive drive system for negative driven cylinders (optionally):

We will install new geared motor and chain tensioning system for adding new positive drive system for negative driven cylinders.

Remote Access & Service:

A very strong and efficient system for tele-service with VPN access over Internet will be provided. The system does allow access to all controlling units as well as to the entire drive this. Thus, our experts can provide prompt and efficient online help whenever it is needed.

Safety requirements:

Our software includes all required and necessary safety precautions for covers, doors, catwalks, pressure loss etc. meeting all standards with CE and ISO norms. If necessary due to local requirements special additional safeguards can be integrated upon request.

Documentation & Training:

Necessary documentation & training will be provided after commissioning, including:

- User manual, explaining all points in HMI and control points
- Wiring diagrams
- Maintenance instructions
- Spare part catalogue
- Training of operators

WHY UPGRADE OF OLD MACHINES IS NECESSARY

Replacement of old controlling and driving system:

As spares for old driving systems very often are no longer available the system will be replaced with new recent Lenze 8400 Topline series control units.

Conversion to PROFINET:

The old communication system including the associated devices will be replaced by the most efficient PROFINET SYSTEM. Each PLC and HMI will be linked with appropriate connectors accordingly. Also each drive will be linked to PROFINET, replacing the old hardware based Lecom communication system by a pure software control system.

Tension & Drive control:

All tension zones will be controlled via PLC & HMI by means of servo controlled motor feedback. The new system increases the resolution of analogue data processing by 13,5 times compared to the old system. This enables a far more stable and precise tension regulation and the number of yarn breaks will be reduced radically.

New HMI for size box:

All functions of the size box (size charge/discharge, circulation, squeezing on/off etc.) will be controlled via PLC & HMI and the old control panel will be uninstalled completely. The new display is attached to the size box in a housing using a swivel arm.



WHY UPGRADE OF OLD MACHINES IS NECESSARY

Converting tension measuring system to new calibration free loadcell:

The existing system will be completely removed and replaced by a new calibration free loadcell measuring system which provides a very long service life. In contrast to the old system which needs calibration every 3 months the new system does not require calibration during the entire service life. This is giving a huge benefit taking into account that the calibration of the old system takes a very long time and very often is not done in time and/or in the right way.

Material quality:

Material quality determines the lifespan of the components used. We are only using material from first class brands like Siemens for PLC and HMI, Lenze for motors and gearboxes and numerous other big names for pumps, cables, pneumatics and so on.

Temperature control:

All temperature zones of dryer are controlled via PLC & HMI by means of most efficient analogue proportional system ensuring lowest possible steam consumption. Our competitors are mostly only offering a very basic on/off control system which only offers poor regulation and thus leads to very high steam consumption.

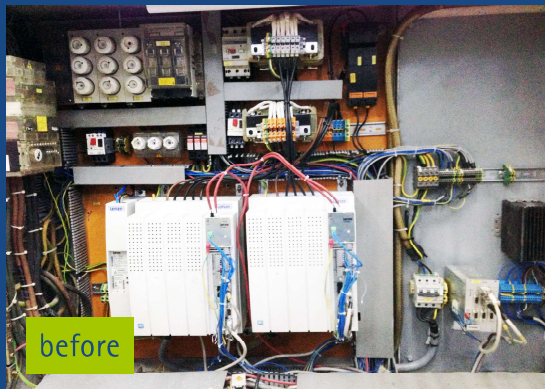
New emergency stop monitoring system:

After upgrading the control system the emergency stops on the machine are divided into individual zones. The main HMI will record each and every zone emergency stop which remains trackable on HMI. In contrast, the old system has a long ring circuit with many NC contacts and occasional voltage drops causing unintentional emergency shutdowns. The new system prevent such failures by regularly refreshing the voltage and also preventing miss-contacts (such as NC contact is not operated and waiting for a long period of time) or wrong-contacts (operator just touched by mistake, but not press).

REPLACEMENT OF OLD ELECTRICAL PANELS TO NEW ONES

We are providing compact and combined electrical control panels to be placed at wall side for PLC, driving system and related controls whereas others are having decentralized cabins at the machine body. At the machine body we are only having small special protected panels for each zone for pneumatic system, loadcell amplifier and connectors. The new electric cabinet will be equipped with powerful A/C main connector. All programs of HMI, the renewing of the wiring of all switch cabinets, the replacing resp. adding of some electronic control components (some Siemens modules, new encoder feedback, Lecom bus modules etc.) will be done according the system we are using for our new machines too.

■ upgrade of the switch-board



CONVERSION OF IPC & OPERATOR PANELS TO NEW HMI OP PANELS

The existing IPC as well as all operator panels will be deinstalled and replaced by a new 15" new HMI Siemens Comfort Panel with touch screen.

The new graphic very user friendly Windows-based touch screen interface (instead of old and outdated system) allows easy and safe operation of the machine. It also provides information about all digital and analogue input and output signals from PLC and drive system, reporting of module faults, broken cables etc.

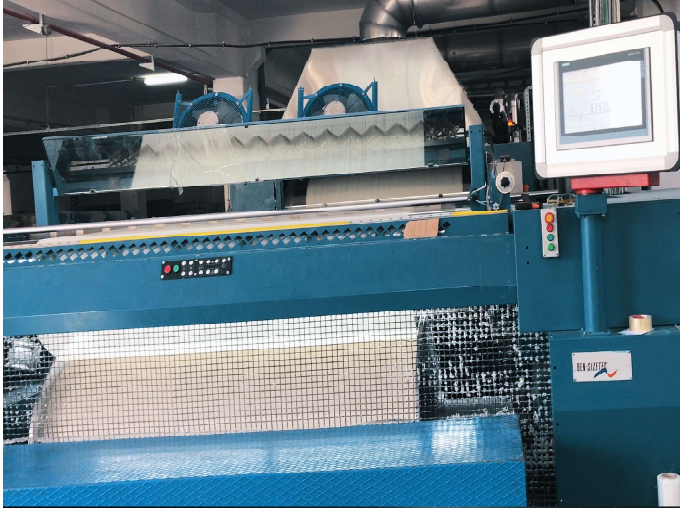


view of visualisation



modification of the IPC & operator panel

MODIFICATION OF SIZING-RANGE, MADE "BENNINGER"



■ modification of "BENNINGER"



■ modification of the size box



■ modification of drive system of the cylinder dryer

INCREASING PRODUCTION CAPACITY BY DOUBLE HEADSTOCK

We are also offering a solution for increasing the production capacity of the machine by approx. 50 % by means of converting to double headstock system. The costs for producing the second beam can be considered with max. 30 % of the costs for just one beam. Precondition for working with double head stock system is a working width not less than 2.000 mm. After upgradation, we are assuring production with highest efficiency, consistent warp quality (A grade), high productivity, substantial annual costs savings, more pick-up, better penetration, uniformity and color



- upgrade from single to double headstock system for a higher production capacity

fastness, less stripe effect & problems and dyeing darker.

WHY UPGRADE OF OLD MACHINES IS NECESSARY

Wastage Saving System:

By adding our flying change compensating system we are able to realize production minimizing the wastage close to zero. Recently, new orders are coming with very short length but more variety of batches. The average batch length now very often is even under 6.000 m and with a standard configuration of the machine this will cause a huge amount of wastage at the beginning and end of the batch. Our flying change system consists of two compensators before the headstock for saving the waste at the end and a third one to be installed at the entry end of the machine for saving the waste at the beginning.

■ wastage saving with flying change system



Upgrading hydraulic compensator unit:

The hydraulic compensator is a very important part of the machine. As soon as the machine is powered ON standard systems as used by our competitors are running continuously under power. Keeping the system under power means that continuously some tension is applied to the yarn and furthermore gives a permanent burden to the whole mechanical and hydraulic system leading to a much shorter service life.

In contrast to this our system is at resting position (without power) during most of the production time. The system is only starting if necessary in case of yarn break or beam change. Our system furthermore is build up mostly by two or three separate units coming only into work position if needed whereas others are using just one big unit to achieve the same accumulating capacity.

■ upgrading of hydraulic compensator



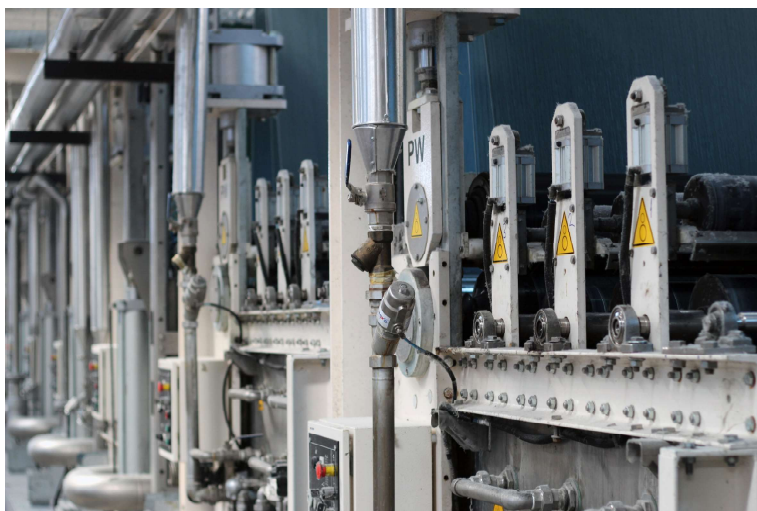
MODIFICATION OF INDIGO SLASHER-RANGES



■ modification of dye-boxes



■ modification of slasher indigo dyeing-range



■ modification of wash-boxes

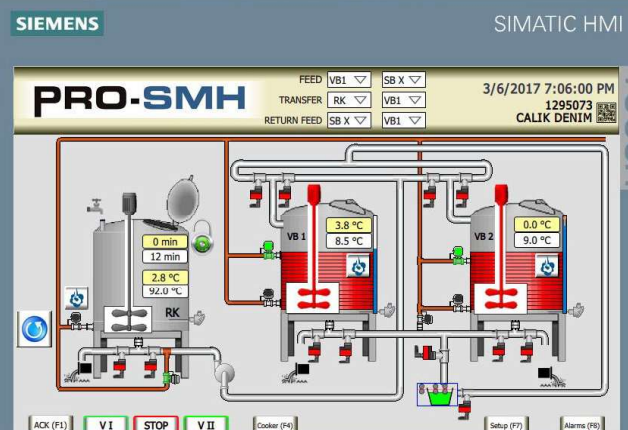
SUSTAINABLE SOLUTIONS

By upgrading the available old system its our aim to provide tailor made solutions with regard to increased sustainability: Energy savings with new high efficient drive system, Saving of water, dye stuff and auxiliary chemicals by adding special Ultrasonic boxes, Saving of size chemicals by installing new developed size boxes, Wet-in-Wet application system, Wastage saving system by flying change with compensator systems, Magazine creel for saving batch installation time, Steamer, Adding second head stock for running double batches at a time, Adding second size box, H&R German automatic dosing system for dye stuff and chemicals, Nitrogen boxes, Plasma units.

- upgrade of dye kitchen and dosing system of a slasher-dyeing-range



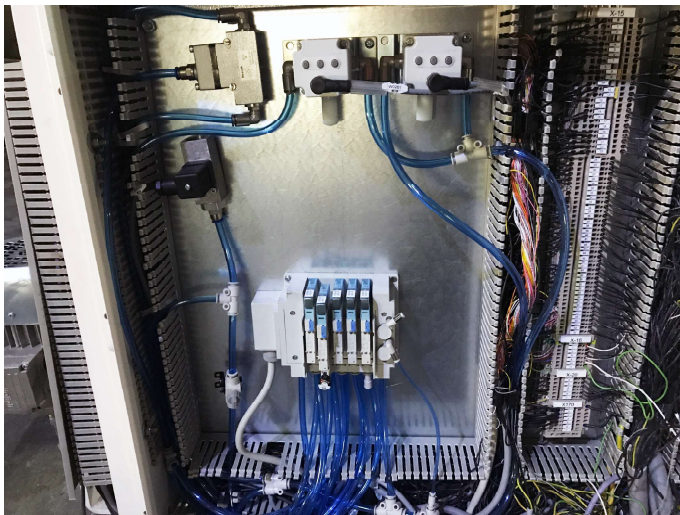
- upgrade of a size kitchen including visualisation with HMI



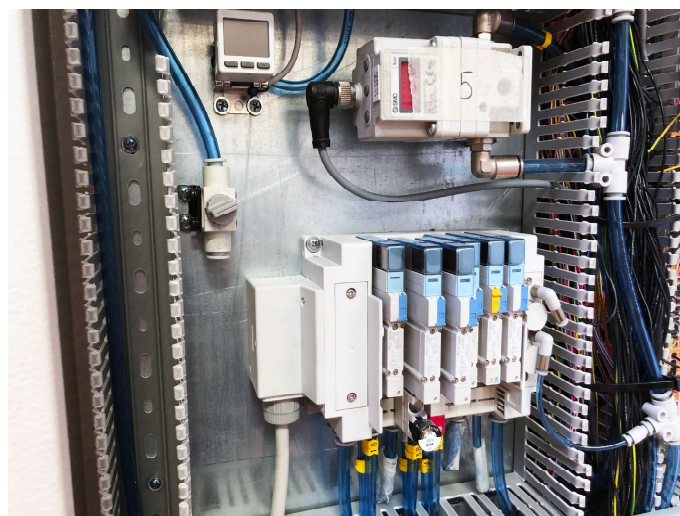
UPGRADING OF PNEUMATIC CONTROL SYSTEM

Head stock as well as size boxes will be equipped with a new pneumatic control system with new group and proportional valves:

The entire old valve system will be deinstalled. Installed of the old and obsolete system a system with latest generation electro-group valves including proportional valves will be installed. The new valves will be placed into a sealed housing for achieving a long service life.



■ replacement of the pneumatic system of the size box

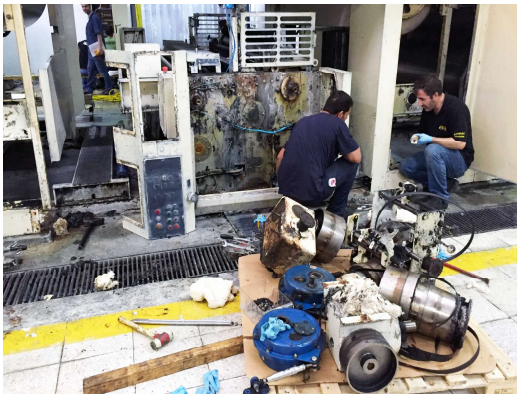


■ replacement of the pneumatic system of the headstock

REPLACING AVAILABLE OLD DRIVE SYSTEM WITH MOST EFFICIENCY GEARED MOTORS

This modification is done by installing a new AC single drive system with servo feedback motors and related control components. Thus, all obsolete parts such as old gearboxes, belts and pulleys, conical wheels, DC drives and motors, old PIV gearboxes, old diameter controller components, electro-mechanic speed controller etc. will be uninstalled. If the existing system does have drive shafts from headstock to size box it will be trashed as well.

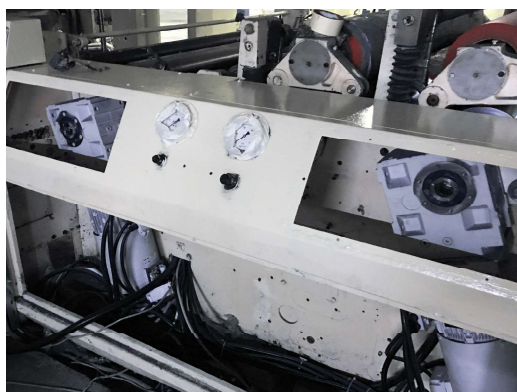
As with new machines new geared motors for transport, beaming, dryer groups, size box inlet and outlet will be installed. The power consumption also will be reduced up to 25 – 30 % by using most efficient geared motors.



■ modification of the size box



■ modification of the control system of the sizing-range



■ motorising of size-box

MODIFICATION OF DIRECT WARPER

■ modification of direct warper



■ modification of creel



MODIFICATION OF REBEAMER & BALLWARPER

- upgrade of electrical and operation system as well as mechanical unit



- modification of tension device



MODIFICATION OF WET FINISHING MACHINES

■ modification of sanforizing-range



■ modification of open-width washing-range



■ modification of mercerizing-range



■ modification of drum washing-range



■ modification of continuous bleaching-range



