KRONES Academy

Program

KRONES

KRONES

Table of contents

Important information in brief	7
Plastics technology	9
Filling technology	17
Process technology	29
Labelling technology	36
Inspection technology	53
Packing and palletising technology	75
KRONES competence audit	98
Individual documentation	99
KRONES on-site support and coaching	100
Electrical engineering	103
KRONES Automation Concept	121
KRONES online training	156
KRONES.shop	220
Contacts	225
KOSME	231

More room for knowledge

Dear reader,

Sensitive beverages, automated change-overs, new packaging, higher availabilities, reduced energy consumption, sustainable solutions or digitalisation. These are just a few of the technical changes that you and your employees are confronted with on a daily basis. In addition, factors such as the prevailing shortage of skilled workers, staff turnover and motivation, and organisational changes increase your challenges in terms of planning security, growth and innovation.

We see it as our task to support you in this environment as best we can. That's why the KRONES Academy is now focusing even more on flexibility and customer orientation. We have completely revised our 2022 training programme for you and summarised it in a catalogue. This provides you with a quick overview of our products, regardless of whether you require training on-site at your premises, in presence at our worldwide academy locations or virtually.

Your advantages in detail:

- Quick orientation: All courses are compactly summarised for you per technology
- No fixed dates: We plan our open catalogue courses adapted to your needs
- Individual courses: The modular structure enables us to provide you with maximum efficiency and customer orientation
- Hybrid solutions: The mixture of face-to-face and virtual training offers you the greatest possible flexibility.

If you have a specific or individual topic that is not shown in our catalogue, please feel free to contact us. We'll find a solution for you together. We will be happy to discuss the following questions with you:

- How can we support you in the efficient on-boarding of new employees?
- How can we make your team more independent and help it perform better in day-to-day business?
- Which training tools provide you with more flexibility?

Whether in presence or virtually: We look forward to a lively exchange and exciting discussions with you. Our aim is to share our wealth of knowledge on and experience with KRONES technology with you and to work with you to take the performance of your system to a new level.

Yours Andreas Müller
Director of the KRONES Academy

The Customer Academy at a glance

Line efficiency through competent technical staff

Facts & Figures

Resources
- 50 trainers in Germany
- 50 trainers worldwide

KAG Training volume
- 4,500 training hours per year
- 1,500 days in Neutraubling, Germany

Product portfolio
- Predefined catalogue courses
- Customer-specific adapted courses
- Consulting
- Training equipment
- Troubleshooting in IT equipment

Target groups
- Operators
- Maintenance personnel
- Automation engineers
- IT specialists
- Management
- Quality personnel

Forms of training
- Face-to-face training at the Academy
- On-site training at the customer's premises
- Virtual Training

Training schedule

Qualification levels

Login
Internet:
https://shop.krones.com/shop/de/de/Akademie/c/Academy
E-Mail: academy@krones.com

Course schedule
Start of course: 8 a.m.
(on first day 9 a.m.)
End of course: approx. 4 p.m.

Accommodation
Upon request, we'll be happy to help you book an accommodation. Please send us the names and travel dates of the participants at least ten days before the start of training. Please note that the hotel costs must be paid directly by the participants at the respective hotel.

Safety
Please familiarise yourself in advance with the most important safety rules and codes of conduct in our buildings.

Important information in brief

Transfer

In Germany, we can offer you a transfer between the airport or railway station, your hotel and the KRONES Academy. If you would like to make use of this service, simply let us know when you register.

Cancellations

Cancellations received in writing up to two weeks from the start of training are accepted free of charge. After this time the full course fees must be paid.

For this reason, the KRONES Academy reserves the right to cancel, postpone or change seminars. You will be informed about this.

Please note

Recording of the training sessions in any form is not permitted. KRONES AG reserves the right to claim corresponding damages in the event of infringement by the Customer or its employees.

Contact in Germany
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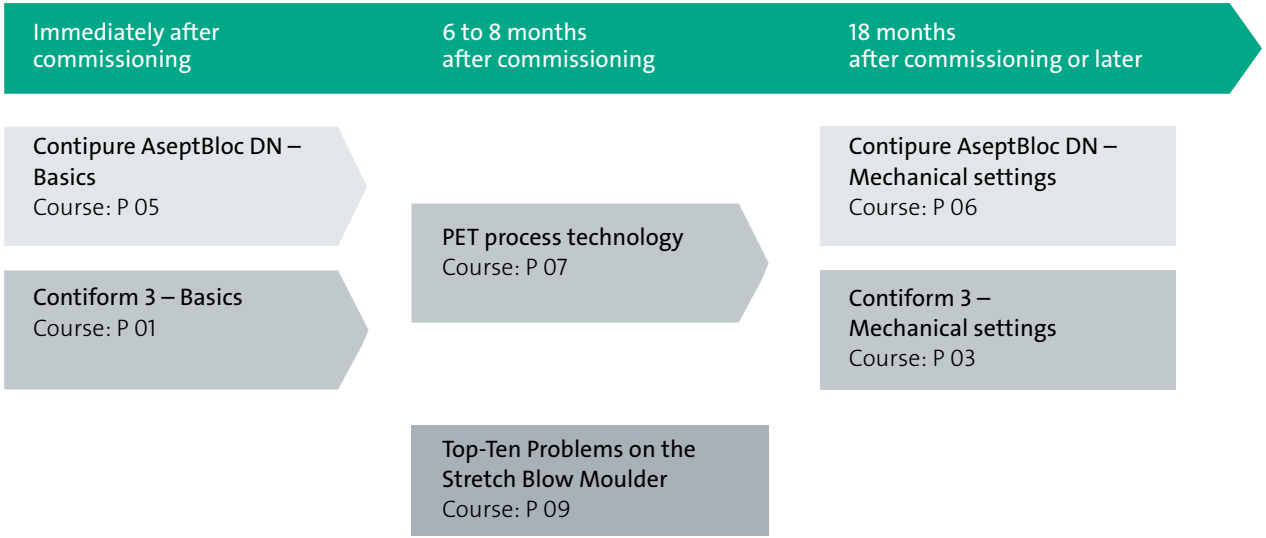
Having trouble finding the right training course? Simply contact us by sending an e-mail to academy@krones.com. We would be happy to prepare an individual package for you.

Plastics technology



Having trouble finding the right training course? Contact us!
We would be happy to draw up an individual quotation for your machine.

Contiform 3 – Basics

Course: P 01; duration: 3 days

Target group:
Operators, mechanical engineers, electrical engineers, line managers

Suitable for the following machine models: Contiform 3 (Pro/ Speed) (K44X-XXX)

Requirements: there

Topics:

Contiform general
- Contiform introduction
- Safety instructions

Assemblies and their function
- PPreform feed
- Heating module
- Blowing module
- Sensors/safety devices
- Introduction to heating/stretch blow moulding process
- Cooling and ventilation systems
- Media supply

Operation
- Production
- Type change-over

Basic Mechanical Settings
- Gripper settings
- Blowing nozzle height
- Performing maintenance on blowing valves
- Transfer/transfer units

Cleaning, lubrication, inspection
- Assemblies to be cleaned and intervals
- Central lubrication system, lubrication points and intervals
- Checking assemblies and acting with foresight with regard to maintenance intervals
- Tasks prior to, during and after production
  HMI – visualisation system/ touch-screen

A current Contiform 3 Pro is available for the practical training sessions.

Course objective:
How can malfunctions be quickly remedied and production stability permanently optimised? With the right amount of background knowledge and practical exercises, this seminar will enable you to operate the Contiform safely and to make basic settings independently.

PET process technology

Course: P 07; duration: 3 days

Target group:
Operators, process technicians, mechanical engineers, electrical engineers, quality managers

Suitable for the following machine models: Contiform 3 (Pro/Speed) (K44X-XXX) Contipure AseptBloc DN (K55X-XXX)

Requirements: You must have attended the course "Contiform/ Contipure AseptBloc DN Basics" (P 01/P 05) or have similar experience on the machine

Topics:
- Basic knowledge of PET
- Decisive process factors
- Setting and optimising parameters for "new" bottles
- Using and managing recipes on the touch-screen
- The importance of process parameters in relation to preform and bottle specification
- Practical exercises on the machine,especially for setting new bottles
- Optimising processes for low energy consumption
- Saving recipes

A current Contiform 3 Pro is available for the practical training sessions.

Course objective:
This training will help you obtain a consistently high bottle quality - even with very lightweight preforms and a tight process window. Moreover, you will learn how to adjust your machine to new bottle types and optimise the parameters.

Contiform 3 – Mechanical Settings

Course: P 03; duration: 3 days

Target group:
Operators with maintenance tasks, mechanical engineers, electrical engineers

Suitable for the following machine models: Contiform 3 (Pro/Speed) (K44X-XXX)

Requirements:
You must have attended the "Contiform Basics" (P 01) course or have proven experience on the machine.

Topics:

- Correct reaction to malfunctions
- Replace wear parts
- Wear parts strategy
- Practical adjustments on mould hangers, blowing/heating module, stretching unit, cams, etc.
- Synchronising the transfers
- Maintenance and lubrication
- Media supply
- HMI visualisation system/touchscreen

A current Contiform 3 available for the practical training sessions.

Course objective:
The aim of this seminar is to achieve trouble-free production with shorter downtimes. You will learn how to consistently prevent malfunctions by correctly adjusting the Contiform, therefore permanently increasing the efficiency of your machine. For this purpose, you will make your own settings on the training machine and learn how to further optimise them. The content "Recognising and troubleshooting mechanical malfunctions" rounds off your knowledge.

Top-10 Troubleshooting on the Stretch Blow Moulder

Course: P 09; duration: 3 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers, maintenance managers

Suitable for the following machine models: Contiform 3 (Pro/Speed) (K44X-XXX); Contipure AseptBloc DN (K55X-XXX)

Requirements:
You must have attended the course "Contiform/Contipure AseptBloc DN Basics" (P 01/P 05) or have similar experience on the machine

Topics:
- Rejected bottles
- Malfunction in the preform feed system
- Limit value for vibration measurement
- Faulty stretch blow moulding processes
- Adjusting transfer faults
- Servodrive control (settings/ diagnostics)
- Replacing faulty heating lamps
- Adjusting the Servo Drive Control (SDC)
- Defective radiators
- General fault
- Lack of cleaning
- Fault message on stretching motor

A current Contiform 3 Pro is available for the practical training sessions.

Course objective:
Learn how to solve problems quickly, prevent malfunctions and avoid downtimes: This compact seminar contains tried and tested analysis routines for the most common problems on the Contiform. You will learn in an illustrative way directly on the training machine how they can be troubleshot.

Contipure AseptBloc DN (Blow Moulder) – Basics

Course: P 05; duration: 4 days

Target group:
Operators, mechanical engineers, electrical engineers, line managers

Suitable for the following machine models: Contipure AseptBloc DN (K55X-XXX)

Requirements: there

Topics:

Contiform general
- Introduction to Contipure AseptBloc DN
- Safety instructions

Assemblies and their function
- Preform feed
- Heating module
- Intermediate module
- Blowing module
- Sensors/safety devices
- Introduction to heating/stretch blow moulding process
- Cooling and ventilation systems
- Media supply
- Preform rotary ionisation

Operation
- Production
- Type change-over

Basic mechanical settings
- Gripper settings
- Blowing nozzle height
- Performing maintenance on blowing valves
- Transfer/transfer units

Cleaning, lubrication, inspection
- Assemblies to be cleaned and intervals
- Central lubrication system, lubrication points and intervals
- Checking assemblies and acting with foresight with regard to maintenance intervals
- Tasks prior to, during and after production
  HMI – visualisation system/ touch-screen

Various mould hangers of the Contiform AseptBloc DN are available for the practical training sessions.

Course objective:
How can malfunctions be quickly remedied and production stability permanently optimised? With the right amount of background knowledge and practical exercises, this seminar will put you in a position to operate the Contiform safely and make important settings independently.

Contipure AseptBloc DN (Blow Moulder) – Mechanical Settings

Course: P 06; duration: 3 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following machine models: Contipure AseptBloc DN (K55X-XXX)

Requirements: You must have attended the course "Contipure AseptBloc DN Basics" (P 05) or have similar experience on the machine

Topics:

- Correct reaction to malfunctions
- Replace wear parts
- Wear parts strategy
- Practical and theoretical adjustments on mould hangers, blowing/heating module, stretching unit, cams, etc.
- Synchronising the transfers
- Maintenance and lubrication
- Media supply
- HMI – visualisation system/ touch-screen
- Waterlocks, extraction system devices
- Preform rotary ionisation

Various mould hangers of the Contiform AseptBloc DN are available for the practical training sessions.

Course objective:
The aim of this seminar is to achieve trouble-free production with shorter downtimes. You will learn how to consistently prevent malfunctions by correctly adjusting Contipure Asept, therefore permanently increasing the efficiency of your machine. For this purpose, you will make your own settings on the training machine and learn how to further optimise them. The content "Recognising and troubleshooting mechanical malfunctions" rounds off your knowledge.

Filling technology

Immediately after commissioning	6 – 8 months after commissioning
Filler Volumetric VODM/Modulfill VFS, VFJ – Mechanical Components of the Filler Course: F 01	**Top-Ten problems with the filling technology** Course: F 05 Filler VK, VKP (HRS) Course: F 06 Modulfill VFS, HES
Filler Mecafill VKP, Modulfill HRS – Mechanical Components of the Filler Course: F 02	**Filler Sensometic VPI/VPL, Modulfill HES/ HEL – Mechanical Components of Filler** Course: F 07
Aseptic Filling with PET-Asept D (H_2O_2) – Process Technology Course: F 03	**Optimisation of Filling Process for Carbonated Beverages** Course: F 08
Aseptic Filling with PET-Asept L (Peracetic Acid) – Process Technology Course: F 04	

Having trouble finding the right training course? Contact us!
We would be happy to draw up an individual quotation for your machine.

Filler Volumetic VODM/Modulfill VFS, VFJ – Mechanical Components of the Filler

Course: F 01; duration: 4 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following machine models: Volumetric VODM and Variants, Modulfill VFS, VFJ

Requirements:
Experience with the machine is an advantage, but not absolutely necessary.

Topics:

- Construction and method of operation of the filler
- Troubleshooting on the filler valve
- Piping and instrumentation diagrams
- Operating and cleaning programs
- Control and visualisation on the touch-screen
- Pneumatic system
- Cleaning, lubricating, and maintaining the machine
- Maintenance of the most important assemblies

Course objective:
In four days, you will become familiar with the construction and the method of operation of the filler. After the course, you will be able to overhaul a filling valve on your own and maintain the most important assemblies. You will know how to systematically spot malfunctions and you will be familiar with maintaining and lubricating the machine.

Filler Mecafill VKP, Modulfill HRS – Mechanical Components of the Filler

Course: F 02; duration: 4 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following machine models: Mecafill VKP, Mecafill VKPV, Mecafill VKPV-CF, Mecafill VKP-PET, Mecafill VKP-DL and Modulfill HRS

Requirements:
Experience with the machine is an advantage, but not absolutely necessary.

Topics:

- Construction and method of operation of the filler
- Troubleshooting on the filler valve
- Piping and instrumentation diagrams
- Operating and cleaning programs
- Control and visualisation on the touch-screen
- Pneumatic system
- Cleaning, lubricating, and maintaining the machine
- Maintenance of the most important assemblies

Course objective:
In four days, you will become familiar with the construction and the method of operation of the filler. After the course, you will be able to overhaul a filling valve on your own and maintain the most important assemblies. You will know how to systematically spot malfunctions and you will be familiar with maintaining and lubricating the machine.

Sensometic VPI/VPL and Modulfill HES/HEL Fillers – Filler Mechanical Components

Course: F 07; duration: 4 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following machine models: Sensometic VPI, Sensometic VPVI, Sensometic VPL, Sensometic VPGL, Modulfill HES and Modulfill HEL

Requirements:
Experience with the machine is an advantage, but not absolutely necessary.

Topics:

- Construction and method of operation of the filler
- Troubleshooting on the filler valve
- Piping and instrumentation diagrams
- Operating and cleaning programs
- Control and visualisation on the touch-screen
- Pneumatic system
- Cleaning, lubricating, and maintaining the machine
- Maintenance of the most important assemblies

Course objective:
In four days, you will become familiar with the construction and the method of operation of the filler. After the course, you will be able to overhaul a filling valve on your own and maintain the most important assemblies. You will know how to systematically spot malfunctions and you will be familiar with maintaining and lubricating the machine.

Dynafill Filler

Course: F 18; duration: 4 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following machine models: Dynafill

Requirements:
Experience with the machine is an advantage, but not absolutely necessary.

Topics:

- Construction and method of operation of the filler
- Troubleshooting on the filler valve
- Piping and instrumentation diagrams
- Operating and cleaning programs
- Control and visualisation on the touch-screen
- Pneumatic system
- Cleaning, lubricating and maintaining the machine
- Maintenance of the most important assemblies

Course objective:
In four days, you will become familiar with the construction and the method of operation of the filler. After the course, you will be able to overhaul a filling valve on your own and maintain the most important assemblies. You will know how to systematically spot malfunctions and you will be familiar with maintaining and lubricating the machine.

Filling technology

Optimisation of Filling Process for Carbonated Beverages

Course: F 08; duration: 3 days on site at the customer´s plant/2 days at KRONES

Target group:
Operators with maintenance tasks, engineers

Suitable for the following machine models: All KRONES filling systems suitable for carbonated beverages.

Requirements:
Basic knowledge of the operation and mechanical components of the corresponding fillers

Topics:
Basics and backgrounds of following points and regulating screws

- Process steps
- LCT3/filling valve controller filling programme
- Level regulating system and pressure control system
- Type parameters
- Systematic trouble-shooting

Course objective:
The participants are familiarised with the filling process in theory (and practice during on-site training sessions), the parameters which influence it and how to use them to optimise the filling process.

Aseptic Filling with PET-Asept D (H_2O_2) – Process Technology

Course: F 03; duration: 5 days

Target group:
Operators, line managers

Suitable for the following machine models: PET-Asept D (H_2O_2)

Requirements: there

Topics:

- Process sequence and control via programs
- Method of operation of the system
- Hygienic standards
- Troubleshooting principle
- Basics of the process master controller

Course objective:
How is an aseptic plant constructed and what processes take place in it? You will be able to answer questions like these confidently after the course. This is because you are able to explain the importance of the system components and the hygienic measures to others. In five intensive days, you will acquire a sound basis for operating the system. At the end of the course, it will be routine for you to put an existing system into aseptic condition and to eliminate simple malfunctions in a targeted manner.

Aseptic Filling with PET-Asept L (Peracetic Acid) – Process Technology

Course: F 04; duration: 5 days

Target group:
Operators, line managers

Suitable for the following machine models: PET-Asept L (PES)

Requirements: there

Topics:

- Process sequence and control via programs
- Method of operation of the system
- Hygienic standards
- Troubleshooting principle
- Basics of the process master controller

Course objective:
How is an aseptic plant constructed and what processes take place in it? You will be able to answer questions like these confidently after the course. This is because you are able to explain the importance of the system components and the hygienic measures to others. In five intensive days, you will acquire a sound basis for operating the system. At the end of the course, it will be routine for you to put an existing system into aseptic condition and to eliminate simple malfunctions in a targeted manner

Top-Ten Problems with Filling Technology

Course: F 05, F 06; duration: 4 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers, maintenance managers

Suitable for the following machine models: Mecafill VK, VKP or Modulfill HRS (F 05), Modulfill VFS and HES (F 06)

Requirements:
Basic knowledge of the operation and mechanical components of the corresponding fillers

Topics:
Fillers
- Foaming
- Wrong product concentration
- Overfilled Bottles
- Underfilled bottles
- Bad oxygen values for beer
- Damage to the rotary media manifold
- Damage to the lift cylinders for glass fillers

Capper
- Canted caps
- Caps that are too tight
- Caps that are too loose

Course objective:
KRONES Service Line offers our customers fast hotline support for all questions relating to production. To ensure that you also benefit from the questions asked and the answers given, a compact seminar is now being compiled on the basis of the most frequent problems associated with analysis routines and on all subjects relating to the filler – and of course you will also be shown how to eliminate problems quickly on the training machines. This way, the participants will learn how to solve problems quickly, prevent malfunctions and avoid downtimes.

Filling technology

Modulseam

Course: F 19; duration: 3 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following machine models: Modulseam 6, 8, 12 and 18

Requirements:
Experience with the machine is an advantage, but not absolutely necessary.

Topics:

- Construction and method of operation of the seamer
- Troubleshooting on seaming process and settings
- Control and visualisation on the touch-screen
- Cleaning, lubricating and maintaining the machine
- Changing over can size and converting can material
- Maintenance of the most important assemblies

Course objective:
In three days, you will become familiar with the construction and the method of operation of the seamer. After the course, you will be able to change over the machine and maintain the most important assemblies. You will know how to systematically spot malfunctions and you will be familiar with maintaining and lubricating the machine.

Process Technology

Immediately after commissioning	6 – 8 months after commissioning	18 months after commissioning or later
Brewing Technology – Botec F1 – basic course Course: B 13	Botec F1 – Recipe Management Course: B 12	Brewing Technology – Botec F1 System Administrator Course: B 11 and B 14
Twin Flow System (TFS) – Operator Training Course: B 10	EVOGUARD Valve Technology Course: B 09	

Having trouble finding the right training course? Contact us!
We would be happy to draw up an individual quotation for your machine.

Brewing Technology BOTEC F1 – basic course

Course: B 13; duration: 1.5 days

Target group:
Operator (personnel charged with production and CIP)

Requirements: Basic knowledge in the handling of computers and of the production process

Topics:
Basics
- Brewing as batch process
- The automation concept
- Generation of alarms and messages
- EMERGENCY STOP
- Power failures
- Interlocks

Components
- Hardware
- Software

AUTO production
- Recipe structure
- Recipe sequence

Using the BOTEC system
- Authorisation levels
- Order system
- Recipe monitoring
- Trend monitoring
- Batch report
- Online help
- SCADA objects
- Manual mode

Practical exercises on the simulated system (optional)
- Loading, starting and monitoring a recipe on a simulated line in- dustrial PC
  - Production recipe
  - CIP recipe

Course objective:
How can commands be created and executed for automatic production? How can parameters be checked and changed during automatic mode? And how do you execute manual interventions? You will be given the answers to these questions in this course. You will also learn how to detect the causes of alarms and messages, have access to batch reports and trend graphs and learn how to execute a restart, for example after a power failure.

EVOGUARD Valve Technology

Course: B 09; duration: 1,5 days

Target group:
Operators with maintenance tasks, mechanical engineers

Suitable for the following components: EVOGUARD valve series

Requirements: none

Recommendation:
Can be combined with the courses

- Filler Volumetic VODM, Modulfill VFS, VFJ – Mechanical Components of the Filler (F 01)
- Filler Mecafill VKP, Modulfill HRS – Mechanical Components of the Filler (F 02)
- Twin Flow System (TFS) – Operator Training (B 10)

Topics:

- Method of operation of the individual valves (using models)
- Process engineering basics
- Pneumatic components
- Disassembling and assembling individual valves using training components
- PLC
- Maintenance and service

Course objective:
On this course you will acquire a basic understanding of the process and control technology of the EvOguaRd valves. You will learn everything necessary to overhaul and maintain the valves on your own – from replacing the seals and ordering spare parts to technical documentation. At the end of the course you feel quite at home in the world of valves: You will know which valve is suitable for which application. And you will be able to match the type of seal and seal material to the different applications.

Botec F1 – Recipe Management

Course: B 12; duration: 1 day

Target group:
Master brewer, brewing engineer

Suitable for the following software:
Botec F1

Requirements:
Basic knowledge on using a PC and on the Botec F1 system

Recommendation:
Can be combined with the courses »EVOGUARD Valve Technology" (B 09) and "Twin Flow System (TFS) – Operator Training" (B 10)

Topics:

- Software modules
  - Order system
  - Recipe management
  - Plant configuration
  - Batch report
  - Access reports
- Other topics
  - Troubleshooting, tips and tricks
  - Handling of/accessing:
    - Online help
    - Technical documentation
    - Botec Helpline

Course objective:
For safe and independent use of Botec F1, you will learn how to change and edit the most important data and settings of the system: including the recipe parameters, their recording and the associated access rights. You deal with batch numbers and ranges. And you'll learn how to copy recipes and change their structures. Logging alarms, messages and settings rounds off your knowledge. If desired, the course also covers the editing of batch record data.

Twin Flow System (TFS) – Operator Training

Course: B 10; duration: 1 day

Target group:
Operators

Suitable for the following machine types: Candle filter, Twin Flow System (TFS)

Requirements:
Basic knowledge of filtration

Recommendation:
Can be combined with course "Botec F1 – Recipe Management" (B 12)

Topics:

- Production process (special TFS parameters, optimisation options)
- Cleaning process (special TFS cleaning parameters, ensuring successful cleaning, visual inspection of the candles)
- Malfunctions during the process (troubleshooting, analysing and preventing malfunctions in the ongoing process)
- Process monitoring and analysis based on parameters, trends and batch logs
- Inspection and maintenance of mechanical components
- Clarifying individual problems

Course objective:
On this course, you will acquire a sound basis for your daily work with the Twin Flow System. Not only will you gain insight into the construction and method of operation of the filter, you will also learn how to manipulate and optimise the process yourself. You will master trends and batch protocols analysis as confidently as defining maintenance intervals and inspecting mechanical components. Last but not least, we will reveal tips and tricks for efficiently saving water.

Brewing Technology – Botec F1 System Administrator, Part 1

Course: B 11; duration: 4 days

Target group:
Software developers, system administrators

Maximum of three participants per course

Requirements:
Well-founded knowledge of Windows, basic knowledge of Botec F1 (operator training), well-founded knowledge of electrical components and PLC software

Topics:
- Creating new step phases for a unit with recipe parameters (SFMs)
- Creation of new unit procedures
- Creation of locking devices for final control elements
- Changing and creating function sequences in the PLC code for individual final control elements and entire units.
- Creation of a new recipe and order behaviour for a unit
- Testing of changed systems with simulation
- Troubleshooting and tricks
- Handling of/accessing:
  - Online help
  - Technical documentation
  - Botec Helpline
- Botec programs and tools:
  - stem configuration
  - Plant configuration
  - Recipe management
  - Order system
  - GcLD (optional)

Course objective:
The course participants learn how to make minor changes to the PLC programme independently. In addition, they become familiar with the system architecture of Botec F1. Systematic troubleshooting of the software is one of the main parts of this course. With an understanding of the automation system and the PLC code structure, the Botec system administrator can actively support the process technician (brewmaster) - both in creating new and changing existing production and CIP recipes.

Brewing Technology – Botec F1 System Administrator, Part 2

Course: B 14; duration: 4 days

Target group:
Software developers, system administrators

Maximum of three participants per course

Requirements:
Sound knowledge of Windows, participation in part 1, sound knowledge of the SQL server tools and sound knowledge of electrical engineering

Topics:
- Update of the hardware list
- Addition of an actuator or the unit in the plant configuration
- Creation of a process image in the visualisation system
- Addition of the necessary control blocks to the PLC code
- Troubleshooting and tricks
- Handling of/accessing:
  - Online help
  - Technical Documentation
  - Botec Helpline
- IST WPF (optional)
- Botec programmes and tools:
  - System configuration
  - Plant configuration
  - Recipe management
  - Order system
  - GcLD (optional)

Course objective:
In this course, which is built on part 1, you will find out how to make minor changes to your line by yourself. In addition to repeating and deepening the content from part 1, this course will focus particularly on the ILTIS visualisation programme from IST. Maintenance tasks such as the creation and editing of user profiles, backups and system restoration will be practised so that by the end you will be able to master the automation system safely and permanently.

Labelling technology

Immediately after commissioning

Ergomodul - Basics and Setting Work
Course: L 01

Ergomodul - Basics and Operation
Course: L 02

Module II - Basics and Setting Work
Course: L 03

Module II - Basics and Operation
Course: L 04

Table Machines - Basics and Setting Work
Course: L 05

Table Machines - Basics and Operation
Course: L 06

Sleevematic - Basics and Setting Work
Course: L
Course: L 07

Sleevematic - Basics and Operation
Course: L 08

6 – 8 months after commissioning	18 months after commissioning or later
Top-Ten Troubleshooting of Labellers Course: L 13	Contiroll: Expert Training Course: L 11
Change-Over of Labellers – Workshop Course: L 09	Cold-glue technology: Expert Training Course: L 10
	Autocol: Expert Training Course: L 12

Having trouble finding the right training course? Contact us!
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Cold-Glue Technology: Expert Training

Course: L10; duration: 5 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers, maintenance managers

Suitable for the following machine models: All KRONES cold glue, table and modular machines

Requirements:
Course L01, 03 or 05 Basic knowledge of the operation and mechanical components of the cold glue machines

Practice topics:
- Removing, repairing, assembling and adjusting
  - Infeed worm drive, toothed belt and universal joint shaft
  - Guidance handling parts and dead plates
  - Bottle table, servo motor seal kit, rotary plate
  - Pulse sensor, setting zero point
- On the labelling station
  - Glue roller bearing, glue scraper
  - Pallet handling
  - Label magazine
  - Gripper cylinder

Course objective:
The best health program for a machine? Preventive maintenance! With this course you pave the way for your cold glue machine to run stably and trouble-free. Under the guidance of a KRONES trainer, you will independently repair all the important assemblies and practise the individual steps at your leisure. After five days you will be so experienced that you can pass on your knowledge to others.

Change-Over of Labellers – Workshop

Course: L09; duration: 2 days

Target group:
Operators, mechanical engineers, electrical engineers, line managers

Suitable for the following machine models: All KRONES labellers

Requirements: Basic knowledge of operation and mechanical components of the Contiroll

Topics:
- Analysis of the actual situation
- Specification of your objective together with operators and managers
- Optimising the process with the help of the experience of the team members
- Developing a new process
- Recording the new process in a checklist
- Changing over with the help of the newly defined processes
- Measuring the time savings

Course objective:
Efficiency is frequently neglected during change-overs. To counteract this problem, the participants in this workshop will work out together methods for a more productive change-over, The workshop takes into account the individual situation of your line. The new process will be described in a checklist and can be implemented immediately in your plant. Our trainers work according to the SMED method, which is also used within the framework of TPM.

Contiroll: Expert Training

Course: L11; duration: 3 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers, maintenance managers

Suitable for the following machine models: All Contiroll table and modular machines

Requirements:
Course L01, 03 or 05 Basic knowledge of the operation and mechanical components of the Contiroll

Topics:

- Repair and adjustment in
- practice: Rolling-on station, rotary plate, container centring unit, gluing unit, cutting unit, vacuum-grip cylinder, label film buffer system, label feed roller
- Inspection of the main assemblies
- Routine maintenance and lubrication work
- Working with the special tools

Course objective:
Fewer downtimes, fewer malfunctions, longer service life - this training course teaches you how to permanently increase the productivity of the labeller. You will discover how to correct any machine failures quickly and how to perform preventive maintenance. A training machine and special training modules give you the opportunity to try out and practise the methods presented with the help of the trainer.

Top-Ten Troubleshooting for Contiroll Labellers

Course: L 13; duration: 3 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers, maintenance managers

Suitable for the following machine models: All Contiroll table and modular machines

Requirements: Basic knowledge of operation and mechanical components of the Contiroll

Topics:

- Poor label quality (seat too high or too low, overlapping, etc.)
- Cutting mark control and incorrect label lengths
- Gluing (too much, too little, uneven)
- Label crooked on the container
- Problem with cutting unit and cutting position
- Fault during automatic splicing
- Problems that can be caused by container through passage
- Handling fault messages "Gripper monitoring 2 & 3"
- Changing parameters or adjusting mechanically – finding the right way

Course objective:
Learn how to solve problems quickly, prevent malfunctions and avoid downtimes: This compact seminar contains tested analysis routines for the most frequent problems on the Contiroll labeller. You will learn in an illustrative way directly on the training machine how they can be troubleshot.

Labelling technology

Ergomodul – Basics and Setting Work

Course: L 01; duration: 3 to 5 days, depending on the labelling technology

Target group:
Operators with maintenance tasks, mechanical engineers, line managers

Suitable for the following machine models: All ERGOMODUL machines with the labelling stations:
Ergomatic
Contiroll
Autocol

Requirements:
there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Pneumatic and electrical components
- Explanation of the most important type parameters
- Mechanical settings on the main machine and the labelling station depending on the labelling technology
- Quality of labels and containers
- Maintenance and lubrication

Course objective:
Labelling at high speed and in perfect quality? With the right amount of background knowledge and practical exercises, this seminar puts you in a position to ensure perfect product quality and to quickly remedy any malfunctions.

Ergomodul – Basics and Operation

Course: L 02; duration: 2 to 3 days, depending on the labelling technology

Target group:
Operators, line managers

Suitable for the following machine models: All ERGOMODUL machines with the labelling stations:
Ergomatic
Contiroll
Autocol

Requirements: there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Control elements, touch-screen
- Tasks prior to, during and after production
- Practical work
- – Changing over handling parts, docking/undocking labelling stations
- Maintenance and lubrication
- Elementary processes for troubleshooting

Course objective:
This course provides you with insights into your labeller, its controller functions and the navigation on the touch-screen. Practical exercises will give you the necessary confidence to operate your machine efficiently at a high production level.

KRONES

Labelling technology

Module II – Basics and Operation

Course: L 04; duration: 2 to 3 days, depending on the labelling technology

Target group:
Operators, line managers

Suitable for the following machine models: All module II machines with the labelling stations:
Cold Glue
Contiroll
Autocol

Requirements: there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Control elements, touch-screen
- Tasks prior to, during and after production
- Practical work
- – Converting handling parts, docking/undocking labelling stations
- Maintenance and lubrication
- Elementary processes for troubleshooting

Course objective:
This course provides you with insights into your labeller, its controller functions and the navigation on the touch-screen. Practical exercises will give you the necessary confidence to operate your machine efficiently at a high production level.

Table Machines – Basics and Setting Work

Course: L 05; duration: 3 to 5 days, depending on the labelling technology

Target group:
Operators with maintenance tasks, mechanical engineers, line managers

Suitable for the following machine models: All table machines with the labelling stations:
Cold Glue
Contiroll
Autocol

Requirements: there

Topics:
- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Pneumatic and electrical components
- Explanation of the most important type parameters
- Mechanical settings on the main machine and the labelling station depending on the labelling technology
- Quality of labels and containers
- Maintenance and lubrication

Course objective:
Labelling at high speed and in perfect quality? With the right amount of background knowledge and practical exercises, this seminar puts you in a position to ensure perfect product quality and to quickly remedy any malfunctions.

Table Machines – Basics and Operation

Course: L 06; duration: 2 to 3 days, depending on the labelling technology

Target group:
Operators, line managers

Suitable for the following machine models: All table machines with the labelling stations:
Cold Glue
Contiroll
Autocol

Requirements: there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Control elements, touch-screen
- Tasks prior to, during and after production
- Practical work
  – Changing over handling parts
- Maintenance and lubrication
- Elementary processes for troubleshooting

Course objective:
This course provides you with insights into your labeller, its controller functions and the navigation on the touch-screen. Practical exercises will give you the necessary confidence to operate your machine efficiently at a high production level.

Sleevematic: Basics and Setting Work

Course: L 07; duration: 2 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers

Suitable for the following machine models: Sleevematic TS, Sleevematic

Requirements: there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Pneumatic and electrical components
- Explanation of the most important parameters
- Mechanical adjustments: Machine infeed,
- Mandrel
- Cutting or perforation unit
- Feed and transfer rollers
- Quality of labels and containers
- Maintenance and lubrication

Course objective:
This course familiarises you with the various Sleevematic modules and their functions. After only two days, you will be able to set all the important type parameters. For safe, efficient day-to-day production, you will also learn how to make all mechanical adjustments - from the infeed to the discharge of the machine.

Module II – Basics and Setting Work

Course: L 03; duration: 3 to 5 days, depending on the labelling technology

Target group:
Operators with maintenance tasks, mechanical engineers, line managers

Suitable for the following machine models: All module II machines with the labelling stations:
Cold Glue
Contiroll
Autocol

Requirements: there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Pneumatic and electrical components
- Explanation of the most important type parameters
- Mechanical settings on the main machine and the labelling station depending on the labelling technology
- Quality of labels and containers
- Maintenance and lubrication

Course objective:
Labelling at high speed and in perfect quality? With the right amount of background knowledge and practical exercises, this seminar puts you in a position to ensure perfect product quality and to quickly remedy any malfunctions.

Sleevematic – Basics and Operation

Course: L 08; duration: 2 days

Target group:
Operators, line managers

Suitable for the following machine models: Sleevematic TS, Sleevematic M

Requirements: there

Topics:

- Overview of the machine functions
- Label and container path
- Operation of the machine and touch-screen
- Control elements, touch-screen
- Tasks prior to, during and after production
- Practical work
  - Converting handling parts, docking/undocking labelling stations
- Maintenance and lubrication
- Elementary processes for troubleshooting

Course objective:
This course provides you with insights into the Ergomodul, its controller functions and the navigation on the touch-screen. Practical exercises will give you the necessary confidence to operate your Ergomodul efficiently at a high production level.

Autocol: Expert Training
Course: L 12; duration: 2 days

Target group:
Operators with maintenance tasks, mechanical engineers, line managers, maintenance managers

Suitable for the following machine models: All APS
table and modular machines

Requirements:
Course L01, 03 or 05 Basic knowledge of the operation and mechanical components of the Autocol

Topics:
- Overview of the machine functions
- Pneumatic and electrical components
- Operation of the machine and touch-screen
- Troubleshooting
- Adjustment (approx. 50 percent of the course duration)
  - Container table, container head
  - Machine infeed and discharge
  - Band drive
  - application arm, application wedge
  - Peeled label carrier film disposal unit
  - Label transfer to the container
  - Rolling-on station
- Lubrication and Maintenance
- Requirements for labels and container quality
- Use of important parameters

Course objective:
Fewer downtimes, fewer malfunctions, longer service life - this training course teaches you how to permanently increase the productivity of the labeller. You will discover how to correct any machine failures quickly and how to perform preventive maintenance. A training machine and special training modules give you the opportunity to try out and practise the methods presented with the help of the trainer.

Inspection Technology

Immediately after commissioning	18 months after commissioning or later
KRONES Checkmat DART 4.0 - Basics and Operation Course: I 04	
Linatronic M2 Series - Basic Course Course: I 01	Linatronic Baureihe M2 – Advanced Course Course: I 02
Modular Linatronic 735 – Basic Course Course: I 08	Modular Linatronic DART PLUS 735 – Advanced Course Course: I 09
Checkmat 731 and 752 DART Plus Course: I 05	
Checkmat 707/708 Course: I 06	

Having trouble finding the right training course? Contact us!
We would be happy to draw up an individual quotation for your machine.

Linatronic M2 Series - Basic Course

Course: I 01; duration: 4 days

Target group:
Electrical engineers

Suitable for the following machine models: Linatronic 735 M2, 712 M2

Requirements:
Basic knowledge of electrical equipment

Topics:
- Layout and function
- Overview of the electrical and electronic components
- Hardware diagram
- Bus systems
- Operation
- Format change-over
- Inspection units: parameterisation of the
  - High-frequency caustic detection
  - Infrared residual liquid detection unit
  - Base
  - Neck finish
  - Side panel
- Explanation and parameterisation of the test container program
- Data back-up
- Creating new users

Course objective:
In this course you will learn how to save unnecessary material costs for new glass: With the right machine settings, you can reduce the rejection rate while maintaining the same high quality standard. Practical exercises on the Linatronic training machine offer the opportunity to put the acquired knowledge into practice.

Linatronic M2 Series - Advanced Course

Course: I 02; duration: 4 days

Target group:
Mechanical engineers, electrical engineers

Suitable for the following machine models: Linatronic 735 M2, 712 M2

Requirements:
Participation in the "Linatronic M2 Series - Basic Course" (I 01) or equivalent knowledge

Topics:

- Brief repetition of the basic principles of inspection technology
- Creating and parameterising a new container type
- Troubleshooting
- Adjusting the shift register
- Fault diagnostics using the oscilloscope
- Replacement of faulty components

Course objective:
This course enables you to independently manage malfunctions and other tasks on the machine. Learn how to increase inspection accuracy. Setting up new container types and efficient troubleshooting are practised directly on the training machine.

Checkmat DART4.0 – Basics of Operation and Hardware

Course: I 03; duration: 2.5 day

Target group:
Technicians, electricians

Suitable for the following machine models: Checkmat, PET-View, Cantronic, Sekamat

Requirements:
Basic knowledge of electrical equipment

Topics:
- Operating principle of inspection units
- Overview of sensor technology
- Transponder levels
- Operation of HMI
- Malfunction warnings
- Analysis tools
- Statistics
- Type change-over
- Mechanical adjustments
- Instructions for cleaning and lubrication
- Interval schedule with operating manual
- User management in Dart 4.0
- Creating and restoring backup
- Description of all electronic and electrical components as well as the network topology.

Course objective:
Meeting, overview of the control equipment,
Description of the sensor technology HMI structure and operation Change-over
CILT + Q&A
User and data management
Hardware overview and network topology
Electrical drawing Diagnostics
Rejection system Possible faults
Practical work

Checkmat DART4.0 – Basics of Operation

Course: I 04; duration: 0.5 day

Target group:
Operator

Suitable for the following machine models: Checkmat, PET-View, Cantronic, Sekamat

Requirements:
No

Topics:

- Operating principle of inspection units
- Overview of sensor technology
- Transponder levels
- Operation of HMI
- Malfunction warnings
- Analysis tools
- Statistics
- Type change-over
- Mechanical adjustments
- Instructions for cleaning and lubrication
- Interval schedule with operating manual

Course objective:
Meeting, overview of the inspection units, description of sensor technology
HMI structure and operation
Change-over
CILT + Q&A

Checkmat 731 and 752 DART Plus

Course: I 05; duration: 3 days

Target group:
Electrical engineers

Suitable for the following machine models: Checkmat 731 und 752, Sekamat, Cantronic, ModulCheck

Requirements:
Basic knowledge of electrical equipment

Topics:

- Construction and method of operation of the inspection unit
- Overview of the electrical and electronic components
- Operation
- Function and parameterisation of the inspection units
- Setting up a new container type
- Identifying and eliminating malfunctions
- Data back-up

Course objective:
To safeguard the quality of your products with a Checkmat. In this course you will learn how to optimally work with the monitoring system and how to prevent the rejection of fault-free products. In order to simulate a realistic learning environment, a training machine will be provided at all times during the course.

Checkmat 707/708

Course: I 06; duration: 1 day

Target group:
Electrical engineers

Suitable for the following machine models: Checkmat 707/708 with LCT3 controller

Requirements:
Basic knowledge of electrical equipment

Topics:

- Mechanical construction of the inspection unit
- Adjustment, operation, maintenance and cleaning
- Introduction to the machine documentation
- Parameterisation of inspection units
- Identifying and eliminating malfunctions
- Data back-up

Course objective:
To safeguard the quality of your products with a Checkmat. In this course you will learn how to optimally work with the inspection system and how to prevent the rejection of fault-free products. In order to simulate a realistic learning environment, a training machine will be provided at all times during the course.

Linatronic DART4.0 – Basics of Operation

Course: I 07; duration: 1 days

Target group:
Operators, Quality Control

Suitable for the following machine models: K735 Linatronic

Requirements:
none

Topics:

- Method of operation of inspection units
- Overview of sensor technology (safety switches, P.E. sensors)
- Description of control components of the machine
- Transponder levels
- Operation of HMI
- Malfunction warnings
- Analysis tools
- Statistics
- Test bottle programme
- Type change-over
- Mechanical adjustments
- Instructions for cleaning and lubrication
- Interval schedule with operating manual

Course objective:
Introduction, overview of the inspection units, description of sensor technology
Control components
HMI structure and operation
Change-over
CILT + Q&A

Modular Linatronic 735 – Basic Course

Course: I 08; duration: 5 days

Target group:
Electrical engineers

Suitable for the following machine models: Linatronic 735

Requirements:
Basic knowledge of electrical equipment

Topics:
- Layout and function
- Overview of the electrical and electronic components
- Hardware diagram
- Bus systems
- Operation
- Format change-over
- Inspection units: parameterisation of the
  - High-frequency caustic detection
  - Infrared residual liquid detection unit
  - Base
  - Neck finish
  - Side panel
- Explanation and parameterisation of the test container program
- Data back-up
- Creating new users

Course objective:
In this course you will learn how to save unnecessary material costs for new glass: With the right machine settings, you can reduce the rejection rate while maintaining the same high quality standard. Practical exercises on the Linatronic training machine offer the opportunity to put the acquired knowledge into practice.

Modular Linatronic DARTplus 735 – Advanced Course

Course: I 09; duration: 5 days

Target group
Electrical engineers

Suitable for the following machine models: Linatronic 735

Requirements:
Participation in the "Linatronic 735 - Basic Course" (I 08) or equivalent knowledge

Topics:

- Brief repetition of the basic principles of inspection technology
- Creating and parameterising a new container type
- Troubleshooting
- Adjusting the shift register
- Fault diagnostics using the oscilloscope
- Replacement of faulty components
- Calibrating servo drives

Course objective:
This course offers you the opportunity to deepen your knowledge from the basic course. You will learn how to set up new container types and how to use the diagnostic functions efficiently. Practical exercises on a training machine ensure that you can immediately implement what you have learned at your own company.

KRONES Checkmat DART 4.0 – Aligning System

Course: I 10; duration: 3 days

Target group:
Electrical engineers

Suitable for the following machine models:
KRONES labellers with rotary plate control system

Requirements:
Basic knowledge of electrical components

Topics:
- Layout and function
- Electrical components
- Bus systems
- Production
- Inspections
- Zenon type management
- Troubleshooting
- Data back-up
- Image processing tools

Course objective:
This seminar will familiarise you with the components of the KRONES aligning system. After this practice-oriented training, you will be able to independently perform all important procedures when creating the product grades and when parametrising the alignment unit.

Linatronic DART4.0 – Advanced Course

Course: I 11; duration: 4 days

Target group:
Technicians, electricians

Suitable for the following machine models: K735 Linatronic

Requirements:
Linatronic DART4.0 – Basics of Operation and Hardware Design

Topics:

- Repetition of Linatronic construction from Basic course
- Construction, function, parameterisation of the caustic solution and residual liquid detection units
- Operation of a camera system
- Function and parameterisation of the default cameras
- Base, neck finish, side wall without thread, contour Function and parameterisation of an additional inspection unit
- Construction, function and parameterisation of the rejection assemblies
- Parameterisation of the test container program
- Questions and answers
- Optional additional day for further inspection units

Course objective:
Knowing: Functionality of the inspection units, camera analyses and rejection units
Being able to carry out:
Analysis parameterisation
Adjusting discharge assemblies
Fault analysis in the inspections and setting sensitivities

DART PET-View System DART 4.0

Course: I 12; duration: 4 days

Target group:
Technicians, electricians

Suitable for the following machine models:
KRONES Contiform
with PET-View K776

Requirements:
Basic knowledge of electrical components, networking and visualisation systems

Topics:
- Layout and function
- Overview of the electrical and electronic components
- Overview of the BUS systems
- Basics of KRONES SHR
- Cameras and parameters
  – Preform side wall
  – Neck finish
  – Base
- Create new recipe
- Troubleshooting
- Maintenance

Course objective:
This seminar deals with the external factors which influence the inspection efficiency. Setting up new container types and efficient troubleshooting are practised directly on the labeller.

Linatronic DART4.0 – Individual Course

Course: I 13; duration: Modular available upon request

Target group:
Technicians, electricians

Suitable for the following machine models: K735 Linatronic

Requirements:
On agreement

Topics:

- Modular available upon request. Topics can be individually selected from the three Linatronic courses.

Checkmat DART4.0 – Individual Course

Course: I 14; duration: Modular available upon request

Target group:
Technicians, electricians

Suitable for the following machine models: Checkmat, PET-View, Cantronic, Sekamat

Requirements:
On agreement

Topics:

- Modular available upon request. Topics can be individually selected from the Checkmat courses

Checkmat DARTmini 707/708 – Basics of Operation

Course: I 15; duration: 0.5 days

Target group:
Operator

Suitable for the following machine models: K707 Checkmat DART mini, K708 VKK DART mini

Requirements:
No

Topics:

- Operating principle of inspection units
- Overview of sensor technology
- Transponder levels
- Operation of HMI
- Malfunction warnings
- Analysis tools
- Statistics
- Type change-over
- Mechanical adjustments
- Instructions for cleaning and lubrication
- Interval schedule with operating manual

Course objective:
Meeting, overview of the inspection units, description of sensor technology
HMI structure and operation
Change-over
CILT + Q&A

Checkmat DARTmini 707/708 – Basics of Operation and Hardware

Course: I 16; duration: 1 days

Target group:
Technicians, electricians

Suitable for the following machine models: K707 Checkmat DART mini, K708 VKK DART mini

Requirements:
Basic knowledge of electrical equipment

Topics:
- Operating principle of inspection units
- Overview of sensor technology
- Transponder levels
- Operation of HMI
- Malfunction warnings
- Analysis tools
- Statistics
- Type change-over
- Mechanical adjustments
- Instructions for cleaning and lubrication
- Interval schedule with operating manual
- User management in Dart mini
- Creating and restoring backup
- Description of all electronic and electrical components as well as the network topology.
- Structure of the electrical drawing
- Input/output, Ethernet, CanBus and x2x bus
- Replacement of a touch-screen PC
- Construction of a rejection unit
- Tips and tricks
- Exercises
- Operator view, teaching assistant (wizard)

Course objective:
Meeting, overview of the inspection units, description of sensor technology
HMI structure and operation
Change-over
CILT + Q&A
User and data management
Hardware overview and network topology
Electrical drawing Diagnostics
Rejection system Possible faults
Practical work

Linatronic DART4.0 – Basics of Operation and Hardware Design

Course: I 17; duration: 3 days

Target group:
Technicians, electricians

Suitable for the following machine models: K735 Linatronic

Requirements:
Basic knowledge of electrical equipment

Topics:

- Method of operation of control units
- Overview of sensor technology (safety switches, P.E. sensors)
- Description of control components of the machine
- Operation of HMI
- Malfunction warnings
- Analysis tools
- Statistics
- Test bottle programme
- Type change-over
- Mechanical adjustments
- Description of all electronic and electrical components
- Diagnostic tools (input/output, counters)
- Replacing defective parts (frequency inverter, camera CPU, etc.)
- Discharge assemblies
- Description of the network topology (bus structure)
- Diagnostic tools (CAN bus, Ethercat, Ethernet, Profinet, Profibus)
- Creating and restoring backups
- Instructions for cleaning and lubrication
- Interval schedule with operating manual

Course objective:
Introduction, overview of the inspection units, description of sensor technology
Control components
HMI structure and operation
Change-over
Hardware design
Network topology
Data management
CILT + Q&A

Linatronic DART4.0 – Expert Course

Course: I 18; duration: 3 day

Target group:
Technicians, electricians

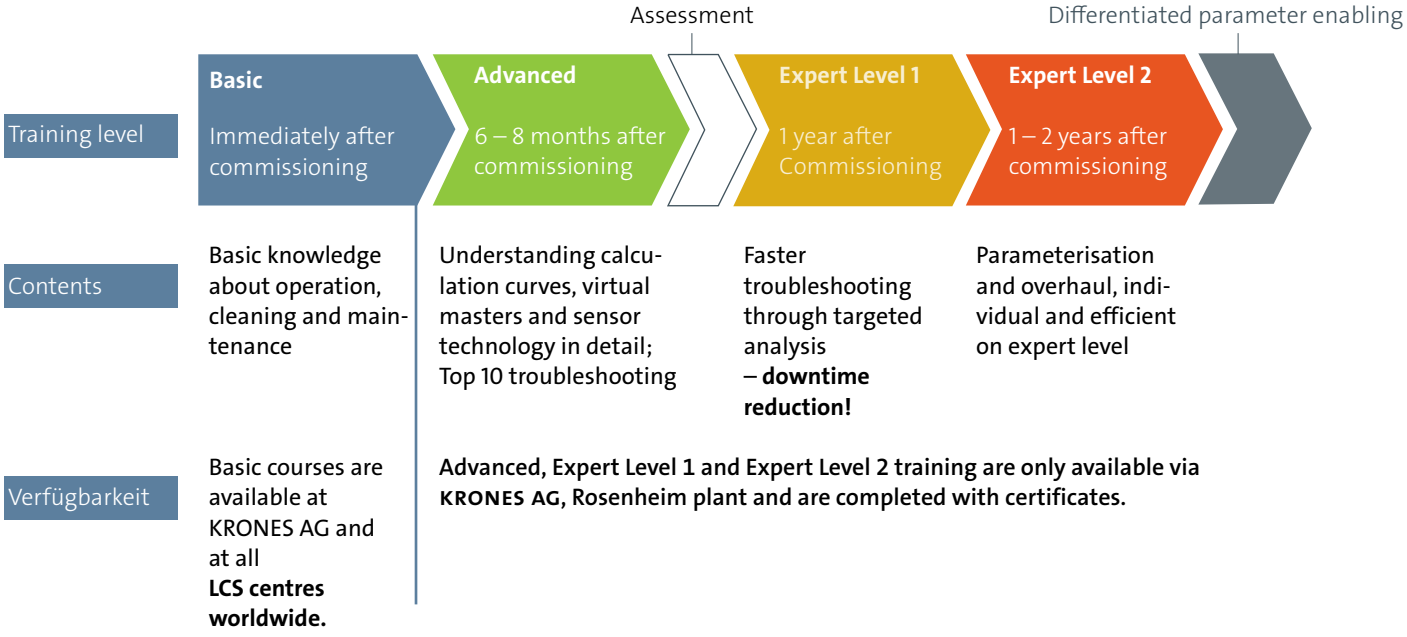
Suitable for the following machine models: K735 Linatronic

Requirements:
Linatronic DART4.0 – Advanced Course

Topics:
- Repetition from advanced course
- Creating and parameterising a new bottle type
- Operation of the oscilloscope
- Checking and adjusting the shift register
- Questions and answers

Course objective:
Knowing:
Method of operation of shift register Components of a container type Being able to carry out:
Creating and setting a new container type Shift register diagnostics, checking and adjustment

Packing and palletising technology – custom tailored training concept



»Basic, Advanced and Expert Level 1« are obligatory modules and cannot be skipped to reach Expert Level 2.

Packing and palletising technology

Basic

Operation
Duration and content
machine-specific

Mechanical components
Duration and content
machine-specific

Electrical System
Duration and content
machine-specific

Advanced

Variopac Pro
Technical and
Top-Ten Troubleshooting
Course: D 11

Robobox/Modulpal
Technical and
Top-Ten Troubleshooting
Course: D 12

Varioline
Technical and
Top-Ten Troubleshooting
Course: D 13

Maschinenspezifisch
Technical and
Top-Ten Troubleshooting
Course: D 14

Assessment

Assessment centres from KRONES prove your knowledge and ensure that you are always up-to-date.

We identify your training needs and plan appropriate training for you.

Expert level 1

- Dry Part Software and Troubleshooting Experts Part A – Theory
  Course: D 21
- Dry Part Software and Troubleshooting Experts Part B – Practice
  Course: D 21
- Dry Part Mechanical Components and Troubleshooting Experts
  Course: D 22
- Dry Part Operation and Troubleshooting Experts
  Course: D 23

Expert level 2

- Parameter Training – Varioline
  Course: D 31
- Parameter Training – Variopac Pro
  Course: D 32
- Parameter Training – Modulpal/Robobox
  Course: D 33
- Overhaul – Varioline
  Course: D 34
- Overhaul – Variopac Pro
  Course: D 35
- Overhauling – Modulpal/Robobox
  Course: D 36

Differentiated parameter enabling

- Differentiated parameter enabling

  For details, see page 78

Management

- Dry Part Technology for Decision-Makers, Course: D 42

Packing and palletising technology

Basic

Duration: 2 – 3 days per machine model (machine-specific)

Target group: Operators, mechanics, electricians

Suitable for the following machine models: All machines of packaging and palletising technology

Requirements: there

Topics:
- Machine safety
- HMI operating concept and structure
- Alarm system, fault analysis
- Basics of maintenance and cleaning
- Operation documentation, sensor systems
- Method of operation of the machine
- Tasks prior to, during and after production
- Production parameters
- Machine conversion

Supplement for mechanics:
- Spare parts documentation
- Data structure
- Calibration basics
- User administration
- Data back-up
- Type management
- Lubrication systems
- Pneumatic system
- Screws/bolts, belts, chains, bearings, gears

Supplement for Electricians:
- Servo technology
- Diagnostic tools
- B&R and Acopos
- Safety PLC, Profinet, ASi Safety, Powerlink, X2X Link

Course objective:

Knowing
- Functional principle
- Machine modules
- Tasks in the respective field of work

Being able to
- Machine operation
- Using the required tools and aids
- Operate machine efficiently and fault-free

Advanced

Duration: 2 – 3 days per machine model (machine-specific)

Target group: Operators, mechanics, electricians

Suitable for the following machine models: All machines of packaging and palletising technology

Requirements: there

Topics for operator:
- Repeating basic contents
- Lubrication systems
- Overview of the modules in detail
- Technical basics
- Pneumatic system
- Maintenance
- Process optimisation
- Specific troubleshooting
- Production support

Topics for mechanic:
- Repeating basic contents
- Configuration of assemblies
- Analyse CAD drawings
- Virtual master axes
- Collision monitoring
- Pneumatic components
- Maintenance schedules and tasks
- Calibrating all axes in detail
- Mechanical adjustments

Topics for electrician:
- Repeating basic contents
- Configuration of assemblies
- Administration tools
- Virtual master axes
- Collision monitoring
- Electrical components and their replacement
- Diagnostic tools
- Calibrating all axes in detail
- Advanced servo technology

Course objective:
Knowing:
- Machine modules in detail
- Configuration of assemblies

Being able to
- Analyse and troubleshoot complex faults independently
- Reducing downtimes

In addition to these topics, the specific contents for each machine are covered in the courses D 11 - D 14.

Advanced

Variopac Technology and Top-10 Troubleshooting

Course: D 11; duration: 3 days

Target group:
Engineers, mechanics, electricians, operators

Suitable for the following machine models: Variopac

Requirements: Completed basic course

The following machine modules are covered in detail (machine-specific):

- Variopac infeed conveyors:
- Bottle separator
- Pusher chain and wrapping rods
- Wrapping chain and hotmelt glue units
- Carton modules, conveyor belts and chains
- Wrapping module
- Film module with control
- Cutting module
- Shrinking tunnel

A Variopac and individual modules are available in our new training hall for the practical training units.

Course objective:
These courses provide you with the know-how for identifying the causes of faults and avoiding downtimes. Because you will learn to assess calculation curves, virtual masters and all machine functions with the background knowledge of a service engineer. You will understand how specific changes affect the operation of the machine. For your daily work routine, this means: You cannot only effectively counteract problems when they occur, you can even prevent them from the outset.

Advanced

Robobox/Modulpal – Technology and Top-10 Troubleshooting

Course: D 12; duration: 3 days

Target group:
Engineers, mechanics, electricians, operators

Suitable for the following machine models: Robobox, Modulpal

Requirements: Completed basic course

The following machine modules are covered in detail (machine-specific):

- Palletiser infeed conveyors
- Gripper modules 1 and 2
- Grouping station
- Gripper head and louvre gripper
- Intermediate layer handling
- Pallet conveyor
- Liftting unit column

A Modulpal with a Robobox are available in our new training hall for the practical training units.

Course objective:
These courses provide you with the know-how for identifying the causes of faults and avoiding downtimes. Because you will learn to assess calculation curves, virtual masters and all machine functions with the background knowledge of a service engineer. You will understand how specific changes affect the operation of the machine. For your daily work routine, this means: You cannot only effectively counteract problems when they occur, you can even prevent them from the outset.

Advanced

Varioline – Technology and Top-10 Troubleshooting

Course: D 13; duration: 3 days

Target group:
Engineers, mechanics, electricians, operators

Suitable for the following machine models: Varioline

Requirements: Completed basic course

The following machine modules are covered in detail (machine-specific):

- Varioline infeed conveyors
- Continuous infeed bar
- Pusher chain and hotmelt glue units
- Carton magazine
- Folding dies
- Gripper heads
- Crossed-belt kinematics

A Varioline is available in our new training hall for the practical training units.

Course objective:
In this course you will be provided with the know-how for recognising fault causes and avoiding down-times. Because you will learn to assess calculation curves, virtual masters and all machine functions with the background knowledge of a service engineer. You will understand how specific changes affect the operation of the machine. For your daily work routine, this means: You cannot only effectively counteract problems when they occur, you can even prevent them from the outset.

Advanced

Machine-Specific Technology and Top-10 Troubleshooting

Course: D 14; duration: 3 days

Target group:
Engineers, mechanics, electricians, operators

Suitable for the following machine models: Machine-specific

Requirements: Completed basic course

The following machine modules are covered in detail (machine-specific):

- Depending on the machine model

Five different dry parts machines are available in our new training hall for the practical training units.

Course objective:
In this course you will be provided with the know-how for recognising fault causes and avoiding down-times. Because you will learn to assess calculation curves, virtual masters and all machine functions with the background knowledge of a service engineer. You will understand how specific changes affect the operation of the machine. For your daily work routine, this means: You cannot only effectively counteract problems when they occur, you can even prevent them from the outset.

Expert level 1

Dry part software expert

Course: D 21, part A – theory; duration: 5 days

Target group:
Electricians, automation engineers

Suitable for the following software:
S7-300, S7-1500 TIA, B&R, SEW, Zenon, VisiWin

Requirements: Basic IT and PC technical knowledge

Topics:
- Introduction to the hardware configuration
- Addressing of the hardware components
- KRONES machine software
- B&R systems
  - B&R-Automation-Studio-Diagnostics
  - System Diagnostics Manager (SDM)
- Working with the diagnostics tools in theory and practice
  - Diagnostics pages on the touch-screen
  - PVI manager (B&R)
- Tactical approach to troubleshooting
  - Step-by-step instructions
  - Troubleshooting in the software
- Replacing components
  - Siemens monitoring
  - Localising and replacing defective components
- Network plan (Profibus, Profinet, ASi, Ethernet, Powerlink, X2X Link)
- Zenon visualisation system (Zenon Manager, Zenon Explorer and Zenon Editor on the PC), VisiWin
- Final inspection

Course objective:
How can faults be located and eliminated more quickly? How can downtimes be avoided and a complete data backup be created? Answers to this question and concrete solution strategies are provided by this course, which takes place in an excellently equipped PLC laboratory. It teaches you the programming basics of the machine software and creates a general understanding of how the PLC works.

Expert level 1

Dry Part Software and Troubleshooting Experts

Course: D 21, Part B – Practice; duration: 5 days

Target group:
Electricians, automation engineers

Suitable for the following software:
S7-300, C-1500 TIA, B&R, SEW, Zenon, Connected HMI

Requirements: Basic IT and PC technical knowledge

Topics:
Apply all the topics learned from our software theory course in practice. Work on a different one of our five dry parts machines every day and therefore skilfully learn how to deal with a wide variety of faults and situations. We confront you with tasks on our training machines and accompany you specifically in the analysis, recognition and correction of faults. The priority here is to proceed more efficiently and minimise downtimes.

Five different dry parts machines are available in our new training hall for the practical training units.

Course objective:
How can faults be located and eliminated more quickly? How can downtimes be avoided and a complete data backup be created? Answers to this question and concrete solution strategies are provided by this course, which takes place in an excellently equipped training hall.

KRONES Modulpal

KRONES Varioline

KRONES Pressant

KRONES Variopac

KRONES Robobox

Packing and palletising technology

Expert level 1

Dry-end mechanics and troubleshooting experts

Course: D 22; duration: 3 days

Target group:
Mechanical engineers

Requirements: Completed basic and advanced courses

Topics:
- Tools for troubleshooting in detail
- Machine-specific troubleshooting on a high level
- Overview of measurement methods
- Time optimisation during maintenance
- Function of motors, encoders
- Acopos/Danfoss frequency inverter
- Servo technology basics
- Diagnostics and troubleshooting
- Connection diagrams
- General information on terminal diagrams
- Using and applying symbols on a machine
- Safety systems
- Getting to know the network system
- Maintenance optimisation

Five different dry parts machines are available in our new training hall for the practical training units.

Course objective:
You come into contact with mechanical and electrical components almost every day when overhauling KRONES filling and packaging lines. To obtain a better understanding of this technology and to provide you with tools for a quicker fault analysis, we have developed this training course for maintenance teams. Benefit from our new training hall with machines to improve your expert knowledge on the various machines. Become more efficient in troubleshooting by understanding the many available tools.

Expert level 1

Dry-end operators and troubleshooting experts

Course: D 23; duration: 3 days

Target group:
Operators with maintenance tasks

Requirements: Completed basic and advanced courses

Topics:
- Tools for troubleshooting in detail
- Machine-specific troubleshooting on a high level
- Material analysis
- Function of motors, pulse sensors
- Servo technology basics
- Connection diagrams
- General information on terminal diagrams
- Safety systems
- Safety of the PLC
- Replacement of mechanical components, basics of mechanical components and details of components used (machine-specific)

Five different dry parts machines are available in our new training hall for the practical training units.

Course objective:
You come into contact with mechanical and electrical components almost every day when operating KRONES filling and packaging lines. To obtain a better understanding of this technology and to provide you with tools for a quicker fault analysis, we have developed this training course for operating personnel. Through targeted material analysis, you can counteract problems and learn to avoid them permanently.

Expert level 2

Parameter Training – Varioline

Course: D 31; duration: 2 days

Target group:
Electrical engineers

Suitable for the following machine models: Varioline

Requirements: there

Topics:
- Type parameters in detail
- Correct setting of the calibration functions
- Understanding of product parameters, detailed understanding of the virtual master axis
- Adjustment and correction of the X, Y and Z-axis
- Creating a new customer type - admin offset
- Fine adjustment of bottle or pack infeed, correction of the monitoring cams
- DAS (Digital Adjustment System) admin offset
- Coding of X2X link boxes
- Correct adjustment of handrails, guides, gluing unit settings, infeed spacer admin offset

A Varioline is available in our new training hall for the practical training units.

Course objective:
In the course "Parameter settings: Expert Level 2" we cover the details of your machine parameters. You will learn how to correctly adjust the machine so that your production will run without interruptions.

Expert level 2

Parameter Training – Variopac

Course: D 32; duration: 3 – 4 days

Target group:
Electrical engineers

Suitable for the following machine models: Variopac

Requirements: there

Topics:

- Machine parameters in detail
- Correct setting of the calibration functions
- Understanding of product parameters, detailed understanding of the virtual master axis
- Adjustment and correction of the X, Y and Z-axis
- Creating a new customer type - admin offset
- Fine adjustment of bottle/pack infeed, correction of the monitoring cams
- Adjusting the heating process, DAS (Digital Adjustment System) admin offset
- Adjustment of railings, guides, cutting stations, wrapping stations, glue settings
- Heating process settings, etc.
- Tensioning device parameters, film settings, blank settings, infeed divider admin offset

A Variopac is available in our new training hall for the practical training units.

Course objective:
In the course "Parameter settings: Expert Level 2" we cover the details of your machine parameters. You will learn how to set the machine correctly so that your production runs without interruptions.

Expert level 2

Parameter Training – Robobox/Modulpal

Course: D 33; duration: 2 days

Target group:
Electrical engineers

Suitable for the following machine models: Robobox, Modulpal

Requirements: there

Topics:
- Machine parameters in detail
- Correct setting of the calibration functions
- Understanding of product parameters, detailed understanding of the virtual master axis
- Adjustment and correction of the X, Y and Z-axis
- Creating a new customer type - admin offset
- Fine adjustment of bottle or pack infeed, correction of the monitoring cams
- Correct adjustment of railings, guides, gripper head, centring unit, pallet conveyor
- Release point for linear movement, correction of pallet and pack height

A Robobox is available in our new training hall for the practical training units.

Course objective:
In the course «Parameter settings: Expert Level 2» we cover the details of your machine parameters. You will learn how to set the machine correctly so that your production runs without interruptions.

Expert level 2

Overhaul – Varioline

Course: D 34; duration: 2 days

Target group:
Mechanical engineers

Requirements: Basic technical knowledge

Topics:

- Correct setting of the calibration positions
- Settings and corrections of the X, Y and Z axes (cross-belt kinematics)
- Overhauling the linear units X, Y and Z axes (cross-belt kinematics)
- Overhauling the linear units, folding station, container infeed stopper and robot magazine
- Overhauling the gripper head (tools)
- Recalibration of all servo axes
- P.E. sensor offset positions and their definitions
- Overhaul of all modules
- Parts replacement and mechanical settings on the blank magazine
- Changing the chain on the transport unit and the magazine
- Overhauling all suction cups and the vacuum pump

A Varioline is available in our new training hall for the practical training units.

Course objective:
Gear and axis system precision can only be achieved with comprehensive product know-how. Custom tailored training at the KRONES AAcademy in Rosenheim, Germany, provides precisely this knowledge. It covers the design, function, maintenance and operation of the various components, with particular attention to professional assembly and dismantling.

Expert level 2

Overhaul – Variopac

Course: D 35; duration: 3 – 4 days

Target group:
Mechanical engineers

Requirements: Basic technical knowledge

Topics:
- Overhauling the film cutting station
- Replacing belts on the film cutting station
- Replacing and adjusting the knife
- Calibrating the film cutting station and tensioning device
- Overhauling a cycloid separator if used
- Parts replacement and mechanical settings on the blank magazine
- Replacing the chain on the wrapping station
- Overhauling the container separator
- Overhauling the complete wrapping station
- Tensioning all belts and chains
- Overhaul of the vacuum pumps
- Overhauling the complete

A Variopac and individual modules are available in our new training hall for the practical training units.

Course objective:
Gear and axis system precision can only be achieved with comprehensive product know-how. Custom tailored training at the KRONES Academy in Rosenheim, Germany, provides precisely this knowledge. It covers the design, function, maintenance and operation of the various components, with particular attention to professional assembly and dismantling.

Expert level 2

Overhaul – Robobox/Modulpal

Course: D 36; duration: 3 days

Target group:
Mechanical engineers

Requirements: Basic technical knowledge

Topics:
- Overhauling of X, Y and Z-linear units
- Replacement of belts of Module 1 and 2/Pre-grouping station 1 and 2
- Replacing and adjusting the Modulpal bearings
- Adjusting the motor units on the infeed conveyors (accelerating, stopping and spacing conveyors)
- Overhauling of gripper head
- Replacing the conveyors of the gripper head and the horizontal pusher
- Overhauling the pallet-handling module and all bearings
- Recalibrating the Robobox modules and the palletiser
- P.E. sensor offset positions and their definitions
- Tensioning all conveyor and belts

A Modulpal with a Robobox are available in our new training hall for the practical training units.

Course objective:
Gear and axis system precision can only be achieved with comprehensive product know-how. Custom tailored training at the KRONES Academy in Rosenheim, Germany, provides precisely this knowledge. It covers the design, function, maintenance and operation of the various components, with particular attention to professional assembly and dismantling.

Differentiated parameter enabling

LCS Editing Duration – Customer-Specific

Geeignet für folgende Maschinentypen: alle Palettierer, Einweg- und Mehrweg-Packer mit Zenon 6.20 – 6.22

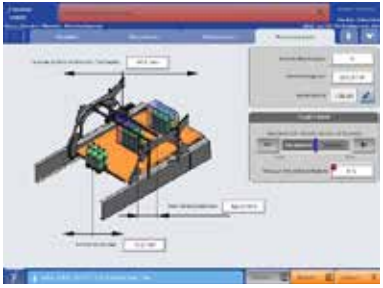
Suitable for the following machine models:

- The following customer parameters, for example, can be changed depending on the type by means of the enable: Correction values, variety-dependent preselections, mechanical setting values
- The parameters can be saved in an existing program.
- To ensure that parameter changes are processed safely, type copies can be created which always provide the original parameters for each type in case mistakes are made during parameter selection.

However, it is not possible for the customer to create additional types or new layer designs on-site. Individual (differentiated) type parameters can be activated. Not machine parameters!

Requirements:
Completion of all training levels offered by the KRONES AG Rosenheim plant with certificate. The differentiated parameters to be enabled must be specified with the customer in advance.

The availability of differentiated parameter enabling must be specifically checked depending on the customer and the machine type.



Management

Dry part technology for decision-makers

Course: D 42; duration: 2 days

Target group:
Line managers, shift supervisors, plant managers, quality managers, production managers

Suitable for the following machine models: All dry part machines

Requirements: there

Topics:

- Overview of the individual machines of the packing and palletising machines)
- Meaning of incidentals
- Practical training and production visits
- Avoiding malfunctions
- Limits of the process
- Future trends

Course objective:
The aim of our management courses is to provide a sound insight into the most important machines in packaging technology in the shortest possible time. Become familiarised with the critical points of your system, the mastering of which ensures great efficiency on a sustained basis.

KRONES competence audit

How well does your operating team cope with the complex systems technology? Is there still a need for training and if so, where? Our «Competence Audit» provides you with objective answers to these questions. For this purpose, we test during ongoing production how safely and professionally the system is started up, operated, shut down and changed over.

The competence audit combines theoretical questions with practical exercises and takes approximately two to four hours for each participant.

We recommend that you conduct this assessment about six months after training or in cases where performance is below your expectations and you need a status and development plan.

We will be happy to answer any questions you may have about the scheduling, organisation and implementation of the competence audit.

Please contact us.

KRONES Embedded Staff – Academy Coach

Course suggested duration: 3 days

Target group:
operators, mechanics, electricians

Suitable for the following machine models: All KRONES

Requirements:
Basic knowledge of KRONES machines

Topics:

Operator

- Coaching through operator procedures
- Coaching through set-up procedures
- Coaching through process steps
- Coaching through material adaptation
- Coaching through systematic troubleshooting

Maintenance, electricians

- Coaching through maintenance tasks
- Coaching through timing procedures
- Coaching through message alarms
- Coaching through data backups
- Coaching through the replacement of components
- Coaching through circuit diagrams

Course objective:
Imagine never having to wait long for a KRONES sspecialist when you have production queries or problems. Embedded staff is the KRONES solution for immediate support from our machine experts. Over an agreed period, a KRONES specialist supports you in your daily tasks in the bottling line and provides coaching and assistance when you need it. Whether it be troubleshooting, maintenance planning or machine operation: Customer staff continuously receive further support, in line with the motto «learning by doing» and working together enables significant improvements to be made locally.

Electrical engineering

Very often, mechanical sequences and interrelationships can be identified and understood just through intent observation. In the world of electrical systems, sound knowledge which has been acquired on training courses is indispensable. Targeted training on all electrical components, connection diagram systems, controllers and drives as well as software and touch-screen management convey confidence for your daily production routine using the KRONES system. No matter whether a mechanic wants to familiarise himself with the basics of electrical engineering, or a maintenance manager wants to increase the quality and efficiency of your line by means of targeted electrical engineering training – on the following pages you will find the suitable training package.

KRONES Electrical Engineering – for Mechanical Maintenance Staff

Course: E 01; duration: 2 days

Target group:
Maintenance personnel

Suitable for the following machine models: All KRONES fillers and labellers

Requirements:
Basic knowledge of the mechanical components of KRONES machines

Topics:
- Safety instructions
- RACOS hardware plan/Eplan
- AS-i bus, safety (RFID)
- Profibus/Profinet
- Danfoss FC300, Danfoss MCT10 – backup
- Visualisation system/HMI: Basic functions, type management, user management
- B&R/X20

Course objective:
This course offers you the opportunity to acquire a basic knowledge of the electrical engineering used at KRONES. This included reading and understanding connection diagrams, identifying electrical components and navigating on the touch-screen. On conclusion of the seminar, you will be able to eliminate malfunctions on your own and thus to reduce the downtimes.

Stretch Blow Moulder – Electrical Components

Kurs: E 02; Dauer: 3 Tage

Target group:
Electrical engineers

Suitable for the following machine models: Contiform 3 / Contiform 3 Pro/ Speed (K44X-XXX) Contipure AseptBloc DN (K55X-XXX)

Requirements:
there

Topics:
- RACOS hardware plan/wiring diagram
- Overview of the network structure
- AS interface and safety (RFID)
- Profibus/net
- Danfoss FC300, Danfoss MCT10 - backup
- Visualisation system: Type management, user management, basic functions
- B&R/X20, backup/image
- Diagnosis and replacement of components, data backup
- SDC, functions, servo exchange and settings
- Sequence control: Signals, pulses for machine position
- Networking of bus systems (Profinet, Powerlink, ASi)
- Overview of assemblies, sensors and safety devices
- Contifeed, controller
- Heating module, heating controller
- Blowing module, servo/linear motors

Course objective:
You will acquire valuable knowledge about the circuit diagram as well as about the various electrical components of the machine. So that you can react quickly and specifically in everyday production, the various modules and their functions are explained and malfunctions are simulated and eliminated.

Filler – Electrical System (LCT3/KFS3 Controller)

Course: E 03; duration: 3 days

Target group:
Electrical engineers

Suitable for the following machine models: Filler with LCT3 controller

Requirements: there

Topics:

- RACOS hardware plan
- Overview of the network structure
- Basic principles of AS interface and Profibus
- Danfoss FC300/VLT5000; Danfoss MCT10 - backup
- Visualisation system: Type management, user management, basic functions, parameters
- KRONES standard pulse sensors and sensors
- Diagnosing and replacing components
- KFS3 filling valve controller, LCT3 operation, hardware construction, filling program, parameters
- Operation and parameterisation on the LCT3
- Filling valve and sensor diagnostics
- Backing up parameters (software contained in scope of supply from KRONES)
- Diagnostics and troubleshooting

Course objective:
Knowledge of the process within the machine is fundamental for effective diagnosis and troubleshooting. To ensure reliable functionality, this course will teach you how to understand, diagnose, repair and replace critical electrical parts.

Filler – Electrical System (FVC Controller)

Course: E 04; duration: 3 days

Target group:
Electrical engineers

Suitable for the following machine models: Filler with LCT3 controller, filling valve controller (B&R)

Requirements:
FVC controller (B&R)

Topics:
- RACOS hardware plan/wiring diagram
- Overview of the network structure
- AS interface and safety (RFID)
- Profibus/net
- Danfoss FC300, Danfoss MCT10 - backup
- Visualisation system: Type management, user management, basic functions
- B&R/X20, backup/image
- SDC, functions, servo exchange and settings
- Sequence control: Signals, pulses for machine position
- FVC filling valve controller Hardware construction,
- network structure and diagnostics
- Filling program, parameters, filling valve diagnostics
- Replacing control components
- Diagnostics and troubleshooting

Course objective:
Understanding the filling and control process is the basis for effective troubleshooting. You will learn how to use the various diagnostic options, eliminate malfunctions, carry out repairs, adjust the machine and resume production after failures. So that you can track your training success at any time, you always have the opportunity to test your newly acquired knowledge interactively.

Cold Glue Labeller – Electrical System

Course: E 05; duration: 2.5 days

Target group:
Electrical engineers

Suitable for the following machine models: Vinetta, Universella, Bonomatic, Starmatic, Solomatic, Topmatic, Multimatic

Requirements: there

Topics:

- KRONES connection diagram system
- AS Interface and Safety
- Profibus
- Danfoss frequency inverter FC300/VLT5000; Software MCT10
- Visualisation system: Basic functions, type management, user management, parameters
- KRONES standard pulse sensors and sensors
- Diagnostics, replacement of components

Course objective:
In this course you will be provided with a complete overview of the electrical components and functions of the labeller. What you have learned will enable you to carry out quick diagnoses and rectify malfunctions in a professional manner.

Contiroll and Contiroll HS (B&R Controllers) – Electrical System

Course: E 06; duration: 3 days

Target group:
Electrical engineers

Suitable for the following machine models: Contiroll Classic, Contiroll HS, Contiroll Module, Contiroll HS Module (B&R controller)

Requirements: there

Topics:
- RACOS hardware plan/wiring diagram
- Overview of the network structure
- AS interface and safety (RFID)
- Profibus/net
- Danfoss FC300, Danfoss MCT10 - backup
- Visualisation system: Type management, user management, basic functions
- B&R/X20, backup/image
- Contiroll network structure, representation of functional groups in connection diagram
- Structure and method of operation
- Hardware components, their use and settings
- Servo exchange, setting zero points (vacuum-grip cylinder, cutting unit, rotor)
- Label transfer, parameters
- Diagnostic options (servos, components) on the HMI
- Setting type parameters, register mark sensor, editing/optimising analysis

Course objective:
In this seminar, you will deal with the labelling process as well as the control options and fine adjustment of the servo drives. You will receive valuable tips on how to adjust and optimise label parameters. Exercises on the training machine give you the opportunity to deepen your newly acquired knowledge about settings.

Contiroll 745 with LCT 3 Controller – Electrical System

Course: E 07; duration: 3 days

Target group:
Electrical engineers

Suitable for the following machine models: Contiroll 745 with LCT3 controller

Requirements:
Basic knowledge of the mechanical components of KRONES machines would be advantageous

Topics:
- RACOS hardware plan
- Overview of the network structure
- Basic principles of AS interface and Profibus
- Danfoss FC300/VLT5000; Danfoss MCT10 - backup
- Visualisation system: Type management, user management, basic functions, parameters
- Replacing and adjusting the pulse sensor
- Function and adjustment of all sensors
- Operation and parameterisation on the LCT3
- Practical exercises on the training machine
- Creating and adjusting a new label type
- Diagnostics, troubleshooting and replacement of components
- Data back-up (LCT 3)

Course objective:
This course provides you with the necessary knowledge to repair and parameterise the machine professionally. Learned fine adjustments for better product quality and shorter downtimes make this training a worthwhile investment.

Modular Labeller Generation 2 – Electrical System

Course: E 09; duration: 4 days

Target group:
Electrical engineers

Suitable for the following machine models: Modular labellers manufactured from 2009

Requirements:
Basic knowledge of mechanical components

Topics:
- RACOS hardware plan
- Overview of the network structure
- Basic principles of AS interface and Profibus
- Danfoss FC300/VLT5000; Danfoss MCT10 - backup
- Visualisation system: Type management, user management, basic functions, parameters
- B&R/X20, backup/image
- Replacing and adjusting the pulse sensor
- Diagnostics, replacement of components, data backup
- Rotary plate control network structure, representation of functional groups in connection diagram
- Hardware components and their use
- Replacing servo drive, cassette seals
- Edit/optimise type parameters, rotation cam
- Labelling stations (cold glue, Autocol, APS 3, CAN module)
- Function, diagnostics and troubleshooting
- Data back-up

Course objective:
In this course you will gain a comprehensive insight into the labelling process, positioning, label transfer to the bottle and parameterisation on the touch-screen.
With this knowledge, you are then in a position to search for and rectify faults in a targeted manner.
So that you can track your training success at any time, you always have the opportunity to test your newly acquired knowledge interactively.

Basics of KRONES Electrical System – Fundamentals of Electrical System

Course: E 12; duration: 5 – 10 days

Target group:
Electrical engineers, line managers

Suitable for the following machine models: KRONES machines

Requirements:
We recommend basic Siemens S7 knowledge.

Topics:
- Details of the KRONES circuit diagram system
- Basics of bus system AS interface
- Basics of the Profibus system
- Danfoss frequency inverter FC300/software MCT10 (uploading/ downloading parameters)
- Zenon 6.22/7.10: Ghost/user management/data backup/type management
- KRONES standard pulse sensors
- Hardware and filling program KFS3/LCT3/KFS5
- Siemens PLC Step 7 software and hardware configuration/ uploading or downloading programs
- Fault diagnostics and replacement of components
- Data backup and recovery after malfunctions

Locations:
Johannesburg (ZA), Nairobi (KE)

Course objective:
In this course you will learn how to quickly rectify any malfunctions, how to back up data, identify faults and replace electrical components. As a supplement, you will also receive an introduction to the user management system and tips on how to work properly with the touch-screen.

KRONES Electrical System – System Technology

Course: E 14; duration: 2 days

Target group:
Electrical engineers

Suitable for the following machine models: All KRONES machines equipped with suitable software

Requirements:
Basic technical knowledge; basic IT and PC knowledge

Recommendation:
KRONES Automation Notebook

Topics:
- General safety instructions
- RACOS hardware plan/wiring diagram
- Overview of the network structure
- Basic information on ASi bus. AS interface and safety (RFID)
- Profibus/Profinet
- Danfoss FC300, Danfoss MCT10 – backup
- Visualisation system: Type management, user management, basic functions
- B&R/X20, backup/image
- Replacing components

Course objective:
This course offers you the opportunity to expand your knowledge to include the KRONES systems technology. You will gain a comprehensive understanding of the networking and control technology in the systems of KRONES filling and packaging machines. The newly acquired knowledge makes it easier for you to diagnose faults and perform outstanding maintenance tasks systematically and safely.

Electrical System Training in the Laboratory

Course: E 15; duration: 4 days

Target group:
Electrical engineers

Suitable for the following machine models: All KRONES machines

Requirements: there

Topics:

- RACOS, hardware diagrams
- Allen-Bradley ControlLogix or Siemens S7
  - Establishing communication with the processor
  - Flashing firmware for the components
  - Hardware configuration
  - Bus systems: AS-i bus, Profibus, Ethernet, Devicenet
  - Diagnostics
- Zenon touch-screen
  - Type/recipe structure
  - User administration
  - Zenon Explorer
- B&R-Automation
  - Hardware overview
  - Acopos drive diagnostics
  - Runtime Utility Center software, K-Dot Utility software
- Data back-up
  - Save parameters
  - KRONES image backup and recovery utility

Course objective:
In this course you will be provided with a complete overview of the electrical engineering used in the KRONES equipment. If required, we will also be happy to tailor the content specifically to your requirements or your machines.

AS-i-Bus Safety

Course: E 16; duration: 0.5 days

Target group:
Electrical engineers

Suitable for the following machine models: All KRONES machines with Siemens S7

Requirements:
Basic knowledge of electrical components

Notice:
This course is a supplement to the course "Electrical Training in the Laboratory"
(E 15).

Topics:
- AS-i-Bus and safety function structure
- Code sequences and RFID-coded safety elements
- Safe handling of the SIM card and configuration on the SIM card
- Safe component replacement
- Fault simulation and diagnostics

Course objective:
This training specifically addresses the safety devices on the machine's AS-i bus. Especially suitable as a supplement to the course "Electrical System Training in the Laboratory (E 15)".

Mechatronics Technology - Targeted Diagnostics

Course: E 17; duration: 2.5 days

Target group:
Maintenance personnel

Suitable for the following machine models: All KRONES machines

Requirements:
Basic knowledge of operating KRONES machines and mechanical maintenance

Topics:
- General machine safety practice
- Zenon HMI Tools
- Basics of electrical components,
- HMI diagnostics MMA
- Basics of pneumatic components
- Basics of KRONES pulse sensor
- Data back-up
- Troubleshooting/Workshop
- Assessment
- Review of topics and discussion

Course objective:
This seminar will provide you with an overview of the electrical components used in most KRONES machines. You will learn how to quickly restore the production readiness of your machines in the event of malfunctions.
Special emphasis is placed on the topics of data security, effective fault diagnosis and replacement of faulty electrical components.

Servo Drive Technology

Course: E 18; duration: 3 days

Target group:
Electrical engineers

Requirements: there

Topics:
- Safety procedures
- Controller, touch-screen, set-point and actual values
- Communication between basic and control machine, frequency inverter and operating materials
- Principles of electronics
- Definitions of terms
- Structure of the menu(s) or menu selection
- Display values
- Machine product parameters
- Diagnostic functions on the main operating station
- Machine messages and diagnostics
- Malfunctions
- Procedures for troubleshooting
- Adjustment of the components – fine adjustment after troubleshooting
- Lubrication and maintenance
- Monitoring components for training on the electronics
- KRONES symbol diagram
- Functional group

Course objective:
How can the overheating of gears and servo drives be avoided? By synchronising of infeed and discharge starwheels.
This course will provide you with the required knowledge as well as the practical skills.

Profibus & Profinet

Course: E 19; duration: 5 days

Target group:
Electrical engineers, automation engineers

Suitable for the following machine models: All KRONES machines

Requirements:
Basic knowledge of the electrical components in KRONES machines, Siemens S7 basic knowledge, IT knowledge

Topics:
- Overview of the Profibus/ Profinet
- Grounding and shielding
- Network components
- Profinet protocol
- Troubleshooting strategy
- DP/PA couplers, repeaters and OLMs
- Measuring tools

Course objective:
In this course you will learn how to analyse Profibus and Profinet connections and perform troubleshooting. You learn how different software tools are used for malfunction analysis, how the affected positions can be found and the problem can be eliminated. After the training you will be capable of analysing and eliminating malfunctions.

KRONES Automation Concept
The all-round package for the best training concepts

Nothing happens by magic in your production. This requires precise knowledge of automation technology, fast intervention options in the software and suitable tools for safe programming of the processes.

With the Automation Concept, KRONES has the ideal all-round package for you. Together with you, we develop your individual overall concept for all automation technology tasks, perfectly tailored to your needs.

Your success is based on three elements:

- Automation engineers
- Automation equipment
- Automation notebook

Whether racks, machine simulation units, notebooks or training courses, the following pages will provide you with detailed information on all the services offered by the KRONES Automation Concept.

Contact:
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E-Mail: Markus.Wilhelm@krones.com

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DELL

KRONES PLC Systems – Understanding and Applying Relationships (SIMATIC S7-300); Course: A 01; duration: 4 days

Target group: Engineers, service engineers, mechatronics engineers, electricians, line managers

Suitable for the following software: Siemens Step 7 V5.5, Zenon 6.22/7.10, Runtime Utility Center (B&R)

Requirements: Basic technical knowledge, basic PC knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:

- System relationships:
  - General overview of the control system and consideration of the individual components
  - Insight into data communication within the machine/system
- Control technology maintenance:
  - Backup of system-relevant data of the entire system (CPU, subcontroller, HMI etc.)
  - Replacement of Components
  - Preventive maintenance (e.g. imaging)
- Troubleshooting:
  - Targeted troubleshooting from general HMI fault reporting to PLC diagnostics
  - Bus and network diagnostics (AS-i, Profinet, Profibus, Ethernet, etc.)
  - Diagnostic options on the touch-screen
  - PLC diagnostics with/without programming unit

Course objective:
Avoiding downtimes, diagnosing errors quickly and backing up data without gaps are the be-all and end-all of machine maintenance. In this course you will learn about the interaction of all control components, thereby gaining a better understanding of the system control. For new KRONES lines in particular, the course offers a quick introduction, and with it a smooth transition from commissioning to production operation.

Siemens SIMATIC S7-300 for KRONES Machines – Basic Course

Course: A 08; duration: 4 days

Target group: Engineers, service engineers, mechatronics engineers

Suitable for the following software:
Siemens Step 7, V5.5

Requirements:
Basic technical knowledge; basic IT and PC knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:

- Basics and method of operation of the S7-300
- Configuration
  - Hardware and peripherals of a KRONES machine
  - Subnet-Profibus configuration
  - Subnet-Ethernet configuration (optional)
  - AS-i gateway using example of Bihl & Wiedemann
- Modular software architecture
- KRONES
- Program data block types and editor (KOP/FUP/AWL)
- Communication to subcontrollers or subsystems
- Data back-up
- Diagnostics
- Profinet configuration and diagnostics
- Deepening of the learning material with practical exercises
- Practical learning assessment

Course objective:
How can faults be identified and eliminated quicker? How can downtimes be avoided and a complete data backup be created? Answers to these questions and concrete solution strategies are provided by this course, which takes place in a top-equipped PLC laboratory. It teaches you the basics of programming Siemens SIMATIC S7-300 for KRONES machines and creates a general understanding of how the PLC works.

Siemens SIMATIC S7-300 for KRONES Machines – Advanced Course

Course: A 09; duration: 4 days

Target group: Engineers, service engineers, mechatronics engineers

Suitable for the following software:
Siemens Step 7, V5.5

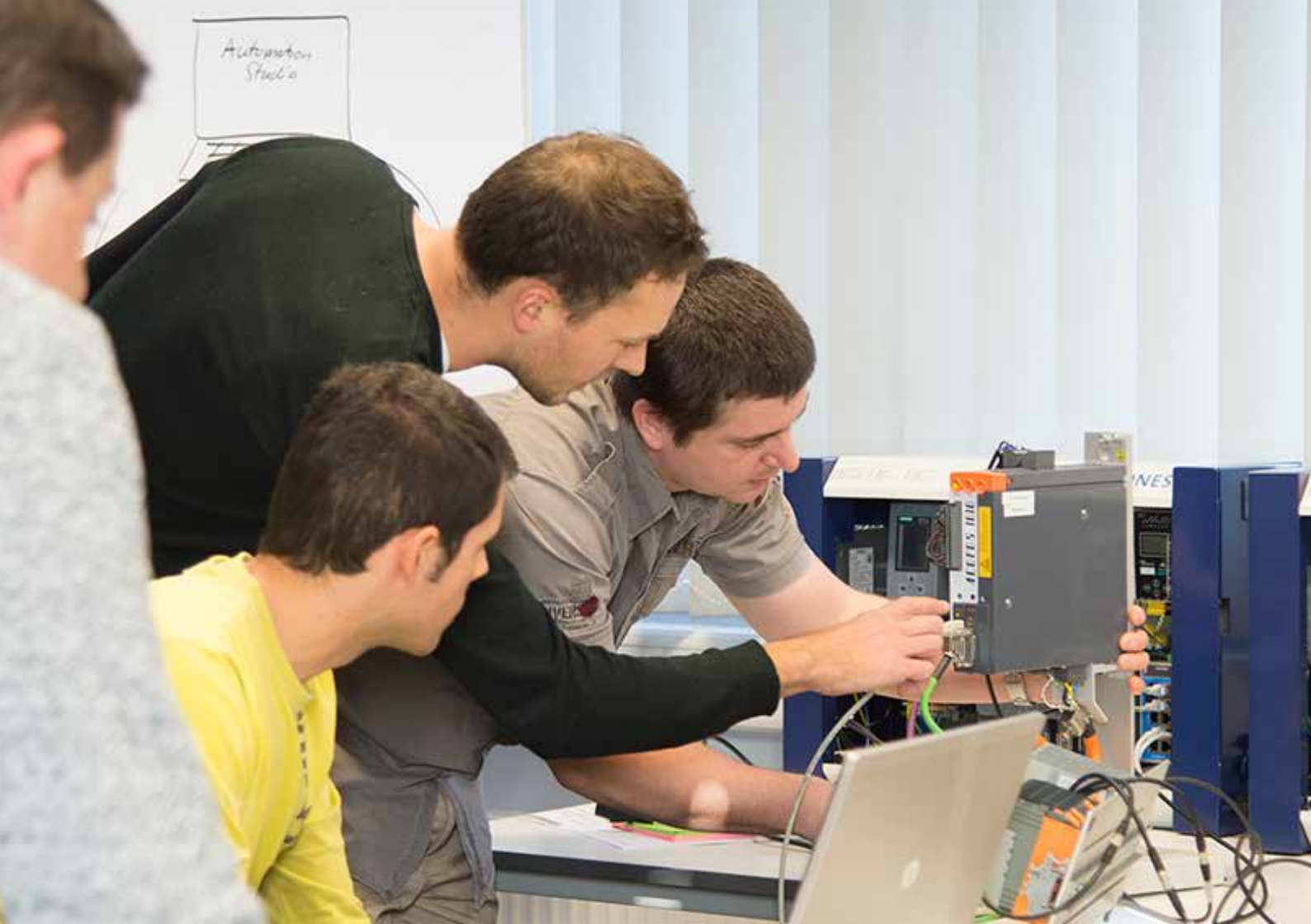
Requirements:
»Siemens SIMATIC S7-300 for KRONES Machines – Basic Course« (A 08) or corresponding prior knowledge.

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:

- Refreshing basics and method of operation of the S7-300
- Configuration
  - Hardware and peripherals of a KRONES machine
  - Subnet-Profibus configuration, Profibus components
  - Subnet-Ethernet configuration (TCP/IP protocol)
  - AS-i gateway using example of Bihl & Wiedemann
- Ethernet communication of the PLC
- Deepening of the text-based programming used at KRONES
- Interaction between PLC and HMI in theory and practice
- KRONES shift register – structure and method of operation
- Data backup/diagnostics
- KRONES program control (Indirect addressing/pointer)
- Deepening of the learning material in practical exercises
- Practical learning assessment

Course objective:
You would like to intensify your knowledge of the Siemens SIMATIC S7-300? This course is the ideal opportunity: You will learn programming from scratch and also become familiar with the advanced functions of the software. Clear examples and targeted exercises ensure that you can confidently apply what you have learned in practice after the course.



KRONES PLC Systems – Understanding and Applying Relationships (Siemens SIMATIC S7-1500); Course: A 02; duration: 4 days

Target group: Engineers, service engineers, mechatronics engineers, line managers

Requirements: Basic technical knowledge, basic PC knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:

- System relationships:
  - General overview of the control system and consideration of the individual components
  - Insight into data communication within the machine/system
- Control technology maintenance:
  - Backup of system-relevant data of the entire system (CPU, subcontroller, HMI, etc.)
  - Replacement of Components
  - Preventive maintenance (e.g. imaging)
- Troubleshooting:
  - Targeted troubleshooting from general HMI fault reporting to PLC diagnostics
  - Bus and network diagnostics (AS-i, Profinet, Profibus, Ethernet, etc.)
  - Diagnostic options on the touch-screen
  - PLC diagnostics with/without programming unit

Course objective:
Avoiding downtimes, quickly diagnosing faults and backing up data completely are the be-all and end-all of machine maintenance. In this course you will learn about the interaction of all control components, thereby gaining a better understanding of system control. Especially for new KRONES systems, the course offers a quick introduction, and with it a smooth transition from commissioning to production.

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Siemens S7-1500 PLC and Siemens STEP 7 in the TIA portal

TIA-Portal Schulung
KRONES Akademie

Innovations in the field of machine control: On machines of the latest generation, the Siemens-S7-1500 PLC and the current engineering software »Siemens STEP 7 in the TIA portal« are used.

So that you can use this software structure ideally, KRONES Academy now also offers courses on this system. Please note: The SIMATIC S7-1500 Rack/TIA is not included in the course.

Your route to becoming a TIA expert in 8 days

TIA basics
- SPLC system
- Variables and addressing
- Communications

TIA system set-up
- PLC configuration
- Bus systems
- Hardware configuration

Program basics
- TIA portal handling
- Diagnostics options
- Bit programming
- Profibus communications

KRONES TIA
- Programming
- Communications
- Documentation
- State machine

Siemens Step 7/ TIA basic course

TIA System Advanced
- TIA basics
- System set-up

Program modules
- KRONES shift register
- Signal transmission
- TIA block functions

Interaction with machine
- Touch-screen/ HMI communication
- Working with KRONES shift register
- Program modifications

Programming
- SCL and S7 graph
- Basics
- Programming structure
- Commands

Siemens Step 7/ TIA advanced course

Siemens SIMATIC S7-1500 for KRONES Machines – Basic Course

Course: A 06; duration: 4 days

Target group:
Electrical engineers, automation engineers

Suitable for the following software:
Siemens Step 7 Professional in the TIA Portal

Requirements:
Basic technical knowledge; basic IT and PC knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:
- Basic principles of S7
  - System structure of the PLC
  - Storage areas, data types
  - Addressing and variable management
- Construction, configuration and parameterisation of the automation systems
- Familiarisation with programming options, functions and function blocks
- Interfaces and bus systems (AS-i bus, Profibus, decentralised peripherals with Profinet IO)
- Overview of programming languages SCL
- Data back-up
- Operating/diagnostic options
- Theoretical and practical final test

Course objective:
How can faults be identified and eliminated quicker? How can downtimes be avoided and a complete data backup be created? A hands-on and directly applicable service and programming training course will answer all these questions.
On an S7 Rack you can work hands-on in our training centre, under the guidance of a professional instructor. The newly acquired skills and knowledge can be immediately applied to your system.

Siemens SIMATIC S7-1500 for KRONES Machines – Advanced Course

Course: A 07; duration: 4 days

Target group:
Electrical engineers, automation engineers

Suitable for the following software:
Siemens Step 7 Professional in the TIA Portal

Requirements:
Basic course: Siemens SIMATIC S7-1500 for KRONESMachines (A06) or corresponding prior knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:

- Refreshing the skills and knowledge from the basic course »SIMATIC S7-1500«
- Construction, configuration and parameterisation of the automation systems
- Familiarisation with service options
- Decentralised peripherals with Profinet IO
- Expanded and complex programming options
- Overview of programming languages SCL and S7-Graph
- Fault analysis and
- treatment
- Networking technology (Ethernet, PN/PN coupler)
- Hardware and software diagnostics functions
- Communication with HMI
- Theoretical and practical final test

Course objective:
You would like to intensify your knowledge of the Siemens SIMATIC S7-1500? This course is the ideal opportunity: The skills and knowledge already acquired from the SIMATIC S7-1500 basic course are deepened and consolidated. Under the supervision of our professional trainers, you will learn about complex issues in an understandable way. This enables you to achieve state-of-the-art training results.

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KRONES Visualisation Technology – Zenon Touch-Screen Software

Course: A 10; duration: 2 days

Target group:
Electrical engineers, automation engineers

Suitable for the following software:
Zenon 6.22/7.10

Requirements: there

Recommendation:
KRONES Automation Notebook or
KRONES Automation Field PG

Topics:

KRONES Visualisation Philosophy

- Configuration of the hardware and communications assemblies
- File structures, project backup and installation
- Using the Zenon tools
- KRONES Emergency Package Solution
- Alarm handling, diagnostics and interpretation of faults

Zenon Editor (project planning environment)

- Handling and functions of the Zenon Explorer
- Functions and menu structure of the Zenon Editor, SQL-DB
- Editing and adding malfunction texts and warnings

Course objective:
How does the KRONES visualisation technology work? With illustrative examples and hands-on exercises, you will quickly gain confidence and experience. In our training lab you will work on simulations in the current Zenon 6.22/7.10 development environment.
After the seminar, you will be able to perform modifications to the visualisation system, to efficiently eliminate faults, thereby reducing downtimes.

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B&R Automation (Electrical System) – Workshop

Course: A 14; duration: 2 days

Target group:
Electrical engineers, automation engineers

Suitable for the following machine models: All KRONES machines equipped with suitable software

Requirements:
Basic technical knowledge; basic IT and PC knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

A licence for B&R Automation Studio can be purchased as an option.

Topics:

- B&R components used at KRONES
- (system 2003/'05/X20 etc.)
- Basics of drive technology: SDC module, Acopos
- Integrated B&R help system
- CF creation according to KRONES
- standard (Create Image)
- Diagnosis of B&R hardware components
- B&R Runtime Utility Center

Course objective:
Well-versed knowledge of the IT system significantly reduces machine downtimes. Because it helps not only to solve problems more quickly, but also to prevent them occurring in the first place. This workshop provides you with a comprehensive knowledge of network and control technology. Practical devices and training machines create a realistic learning environment.

ControlLogix and DeviceNet Control Technology – Basic Course

Course: A 15; duration: 4 days

Target group:
Electrical engineers, automation engineers

Suitable for the following software:
RSLogix 500

Requirements:
Basic technical knowledge; basic IT and PC knowledge

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:

- Communication with the controller
  - Network addresses and assignment
  - Establishing communication with RSLinx
- Project structure
  - Memory organisation
  - Tags and tasks
  - Hardware and peripherals
- Configuration
  - Point I/O
  - Flex I/O

Memory organisation

- Configuration
  - Project structure
  - Hardware and peripherals
  - Tags and tasks
- Optional: DeviceNet – Settings and configuration
- Data back-up
- Diagnostics

Course objective:
In a laboratory specially designed for training purposes, you will learn how to handle hardware and software programming on test racks and training machines. You will also be familiarised with the diagnostic functions for efficient troubleshooting.

Network Technology – Configuration and Structure

Course: A 16; duration: 1 day

Target group:
Automation engineers, IT specialists, electrical engineers

Requirements:
PC skills

Topics:
- OSI reference model
- IP addresses and classes
- IP structure in the network
- Network topologies
- Hub/Switch/Router
- Server architecture
- (DNS, DHCP, data servers)
- Troubleshooting with utility lectern

Course objective:
This seminar will familiarise you with the basics of network technology: You will learn to understand how networks are built and how to navigate their structure. The newly acquired knowledge finally puts you in a position to find and eliminate the causes of faults.

Connected HMI Editor Training

Course: E 20; duration: 5 days

Target group:
Electrical engineers, automation engineers

Suitable for the following machine models:
All KRONES machines with the new Connected HMI visualisation system

Requirements:
TIA Training

Topics:

- Hardware: Overview of important cHMI hardware
- Functions and working with the HMI Studio and restoring the system
- Signal exchange between machines in the TIA software and cHMI
- Finding messages in the TIA software and creating new messages
- Use prefabricated plug-ins and configure customer plug-ins
- Programming your own plug-ins based on data from the TIA software
- EPlan
- Using the cHMI Emergency Package on the Laptop

Course objective:
In this course you will become acquainted with the new visualisation technology from KRONES. You will install and set up different software components and learn about their functions. You will also gain an insight into the connections between Connected HMI and the TIA data blocks. After the training you will be able to create your own plug-ins with your own topics and widgets.

KRONES Systems Technology – Workshop and Assessment

Course: A 13; duration: 1 day

Target group:
Electrical engineers, automation engineers

Requirements:
Basic course and workshops on KRONES systems technology

Recommendation:
KRONES Automation Notebook or KRONES Automation Field PG

Topics:
Practical workshop or assessment on the training machine

- Exercises in a realistic learning environment
- Fault diagnostics for minimising sources of faults in the system
  - KRONES Emergency Package:
  - Solution for visualisation of malfunctions (Zenon)
  - Data security and backup of control elements and subcontrollers
  - Practical exercises for programming on the machine
  - Theoretical and practical final test

The practical training units take place in our newly equipped training and technology centre or at simulation units.

Course objective:
Have you already participated in IT or automation courses at the KRONES Academy? Then this workshop offers you the ideal opportunity to deepen your knowledge in practice and put it to the test. Test yourself and close any last gaps in your knowledge - and you will be awarded the «KRONES Automation Engineer» certificate upon successful completion.

On-Site Coaching for KRONES Automation Engineers – Advanced Course

Course: A 17; duration: 3 days

Target group:
Electrical engineers, automation engineers

Suitable for the following software:
Siemens Step 7 V5.5, Zenon 6.20/6.22/7.10, ASiMon software, Danfoss MCT 10 set-up software, B&R Automation Studio maint-enance set

Requirements:
Participation in the course programme KRONES Automation Engineer

Topics

- Targeted troubleshooting from general HMI fault reporting to PLC diagnostics
- Efficient use of S7 program structures for fault diagnosis as an alternative to the use of Racos connection diagrams
- Replacement of hardware components including firmware up-dates
- Safe handling of the PLC diagnostic tools
- Use of the ASI safety diagnostics system and backups using ASiMon software
- Editing the HMI interface with the aid of Zenon Supervisor Edition software
- Effective use of B&R tools for the diagnosis of B&R controllers

Course objective:
Would you like to expand the knowledge you have already acquired as an automation engineer? This course is the ideal next step: You are provided with valuable solution approaches in order to skilfully respond to fault messages on the machine and efficiently eliminate the malfunctions in question. Supported by your trainer, you work through situations which have already occurred directly on the machine and therefore become quicker and more confident in fault diagnostics with an aim to reducing downtimes.

KRONES Automation Concept

Our Automation Concept is the formula for your electronics and automation specialists for unerring diagnosis and optimisation of the complete automation technology.

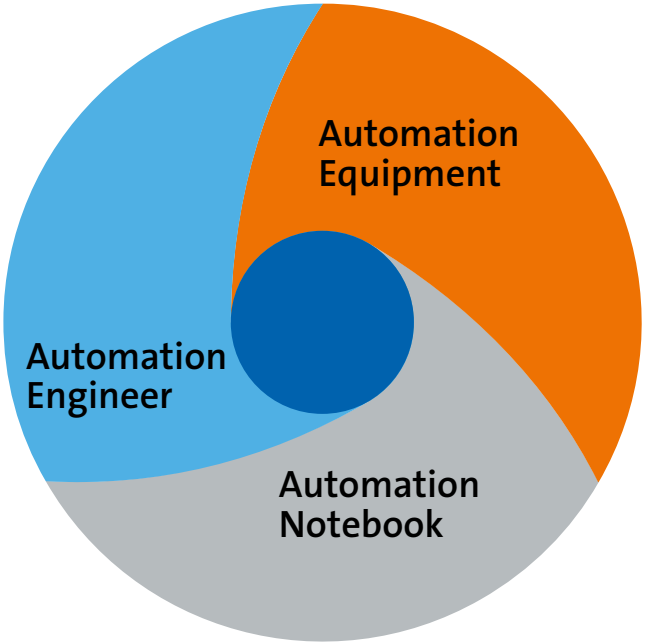
One concept, three components

- **KRONES Automation Equipment**
  With the aid of various racks and machine simulations, all employees can learn and deepen their knowledge of the ideal handling of the machines, and develop and test their own programmes - without any downtime during ongoing production.
- **KRONES Automation Notebook**
  It contains the necessary software as well as all adapters required for the diagnosis and data backup of your system.
- **KRONES Automation Engineer**
  We offer modular basic courses and workshops on IT systems technology, the line documentation system, the visualisation system and the automation and network concept.

Benefits to you

- **Modules attuned with each other**
  The three elements of the KRONES Automation Concept can each be used on their own, as individual modules in the automation system, or as interlocking components.
- **Maximum efficiency for all automation tasks**
  Whether training your own staff or troubleshooting: The KRONES Automation Concept is an asset to your production in daily operation on the machine and in simulation processes.

Automation Concept



You will find a digital brochure on the topic at:
www.krones.com > Products > Service > Academy > Automation Concept

KRONES
KRONES
KRONES iPanel
KRONES

KRONES Automation Racks

You want to get the most out of your automation training? The various KRONES automation racks are the ideal equipment for further intensifying your knowledge after training and for developing your own programs.

Example: Our professional filler simulation
The basic module that is also used in our training courses.
With the help of this hardware and the Siemens Step 7 software, you can practice with the specific technologies without having to intervene in production.

- Develop and test your own programs
- Accompany automation courses
- Practise component replacement

Touch-Screen Rack
The extension with which you also simulate your technologies on your rack.

- Import and simulate existing training projects
- Conduct machine training for all employees
- Conduct training for the Zenon touch-screen
- Processing your own projects

AS-i Safety Rack
The rack with which you prepare your technicians in the field of safety technology.

- Practise and test with AS-i safety components
- Replacing the components
- Display and simulate faults on the touch-screen rack
- Evaluation and diagnosis on the touch-screen

Each of the three IT racks is delivered fully installed, tested and in a specially designed enclosure. Our racks offer absolute added value, especially in online training, as they make practical exercises possible at any time.

Price: upon request

Notice:
The following pages provide a complete overview of our automation racks.

KRONES Automation Racks
Overview

KRONES
SIMATIC S7-300 Rack

KRONES
Touchscreen Rack

KRONES
Touchscreen/SIMATIC S7 Rack

KRONES
AS-i Safety Rack

KRONES
Frequenzumformer-Rack für Danfoss

KRONES
B&R Rack (FVC)

KRONES
B&R Rack (SDC)

KRONES Automation Racks
Training opportunities and possible combinations

Filler simulation basis
- S7 basic and advanced course
- Zenon course
- Filler operator training

Filler simulation - basic (FVC)
- Zenon course
- B&R Workshop
- Advanced filler operator training

Filler simulation - technician
- AS-i safety workshop
- S7 basic and advanced course
- Zenon course
- Filler operator training

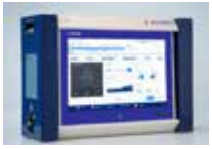
Filler simulation - professional
- AS-i safety workshop
- Zenon course
- B&R Workshop
- Advanced filler operator training

Bestseller

Filler simulation - automation engineer training
- AS-i safety workshop
- S7 basic and advanced course
- Zenon course
- B&R Workshop
- Expert filler operator training

Profibus
Ethernet

KRONES Automation Racks 2.0
Overview



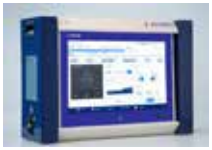
KRONES
Connected HMI-Rack

KRONES
SIMATIC S7-1500 Rack/
TIA

KRONES
SIMATIC S7-1500 Rack/
TIA Pro

KRONES Automation Racks
Training Options

Filler simulation – basic principles
- S7 basics and for advanced students
- VisiWin course
- Filler operator training



Control technology – PLC simulation
- S7 course basics for advanced students
- Workshop on AS-i safety

Control technology – PLC simulation
- S7 course basics and for advanced students
- Workshop on AS-i safety, Profinet, signal transmission and analog processing
- Service training Electric Basic Part 1 & 2

MICROPRO

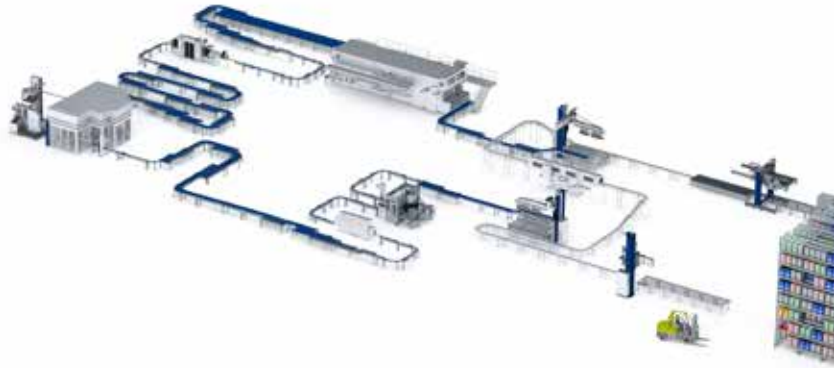
Digital KRONES Academy

Your direct line to KRONES Know-how
All machine information stored at a central place and available for calling up by a range of different devices? The Digital KRONES Academy makes it possible. The concept is simple yet ingenious:

Among other things, you will receive training videos from the KRONES video library as well as training documentation. At the same time, the Digital KRONES Academy can also provide content produced individually for you.

Benefits to you:
- Use as an individual or additional medium for training purposes
- Visual representation of practical knowledge and instructions
- Promotion of independent and self-regulated learning
- Securing and archiving knowledge

Do you have any questions about our digital products? Contact us:
digital.academy@krones.com



KRONES Automation Engineer

Your expert from our own ranks
KRONES supports you in all matters relating to automation technology. Our aim is to ensure that your employees are always up to date with the latest technology. With certification as a KRONES Automation Engineer, we guarantee high-quality further training, so you always have your personal expert on hand.

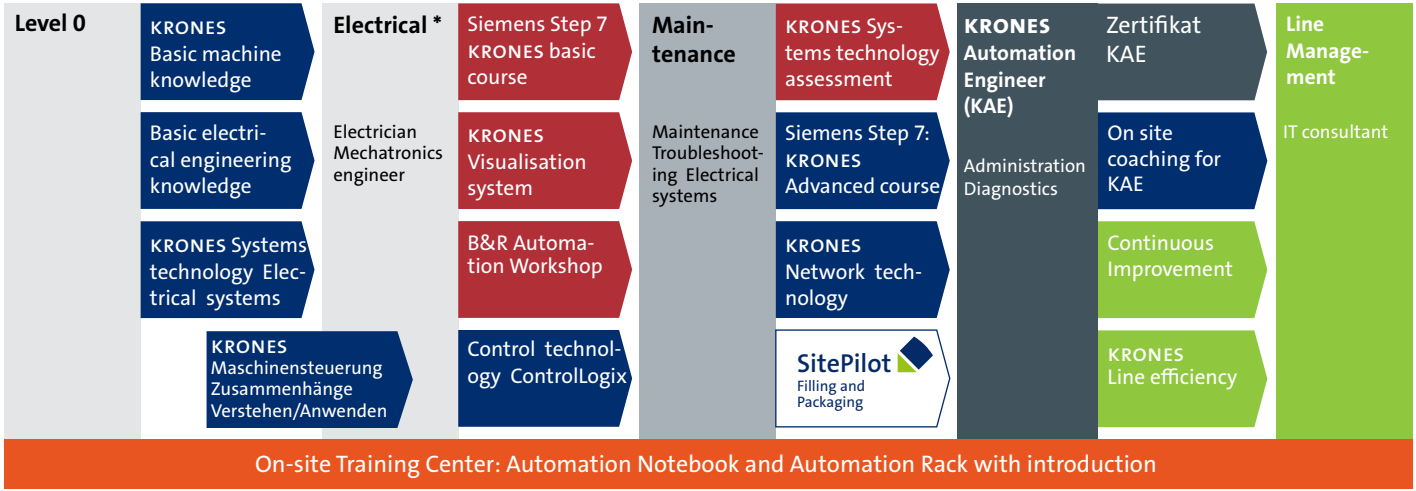
Modular design
In theoretical and practical units, the following topics will be conveyed to the future KRONES Automation Engineers

- The technology of KRONES
- components.
- The optimal interaction of networking and control technology.
- Performing maintenance and malfunction diagnostics without any problems.
- Minimising sources of trouble in the system.
- Making program changes.
- Performing quick, safe data backups.

Individual and efficient
On their way to becoming a KRONES Automation Engineer, participants only take the courses they actually need for successful certification. The KRONES course navigator helps you to select the right courses from our extensive range.

Always up to date
At the end of the course, the participant receives the KRONES certificate, which is valid for two years. KRONES therefore guarantees that the qualification of the holder of the certificate corresponds to latest technology.

Your route to becoming a KRONES Automation Engineer



Compulsory modules – your learning path to KRONES Automation Engineer in 9 days:

4 days: Siemens Step 7 basic course → 2 days: Visualisation system → 2 days: B&R → 1 day: Assessment → KAE certificate

* Electrical components level is the prerequisite for the KAE

KRONES Automation Notebook

Description
Whether for training support in automation training or for diagnostics and troubleshooting in the line area – with the KRONES Automation Notebook you can get started right away. The KRONES Automation Notebook already contains the most important KRONES software applications, and all the necessary cables and adapters are also included in the scope of delivery.

Technical data, scope of supply
- Dell Latitude Series 5500 with adequate equipment
- Alternatively: SIMATIC Field PG M6 Advanced
- SIMATIC S7
- SIMATIC Step7 in TIA Portal
- S7_PLCS in the simulation software
- Zenon emergency package
- Danfoss MCT 10 Setup Software, B&R-CPU diagnostics, DCopy, EasyConfig. MOVITOOLS, DbaMGR2k and more.
- ASiMon software
- Acronis® Backup & Recovery™
- Cables and adapters for communication and online connection

Optional additional equipment
- Allen Bradley Studio 5000 Pro
- B&R Automation Studio Maintenance Set
- Zenon Supervisor Edition 6.20/6.22, 7.10 and 8.0
- Connected HMI Emergency Package

Possible applications
- Suitable for all training modules from the field of automation and electrical systems
- Develop and test your own programs (Siemens Step7, Zenon HMI, etc.)
- Data backup with KRONES
- Backup and diagnostic tools

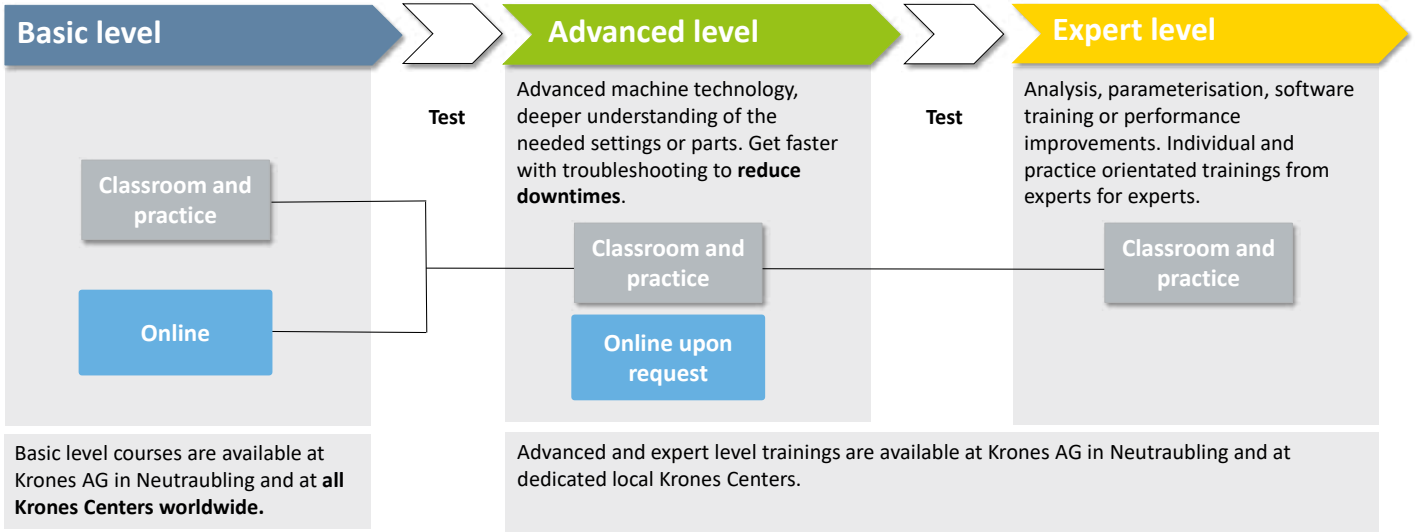
Benefits to you
- Expanded fault diagnostics for quick troubleshooting
- All tools for data backup are already installed
- Simply turn it ON and you can start immediately
- Zenon emergency package included: Machine control using the KRONES Automation Notebook if system-relevant hardware fails

KRONES Academy
Online Training

Table of contents

	Training concept	158
	How does the online training work?	160
	Electrical engineering	161
	Automation	164
	IT solutions	168
	Inspection technology	171
	Plastics technology	176
	Labelling technology	183
	Filling technology	194
	Brewing technology	199
	Packaging and palletising technology	204
	Technicalrequirements.	219

Training concept Krones Academy



In addition to the usual classroom training, the Krones Academy offers online training as a complimentary way to achieve knowledge.
To finish the online course with an equally good result as in the classroom and practise courses, It is important to show self-initiative for practical experience.
After both online and classroom training at the basic level, we carry out a test to verify the gained knowledge and to release the next training level.
Basic and advanced are obligatory modules and cannot be skipped to reach expert Level.

More room and state-of-the-art equipment to transfer knowledge online

Even in our virtual classrooms we use the possiblities our modern Academy offers and show you practical examples on our equipment.

How does the online training work?

With our new online training, you can gain knowledge about your Krones machines without even leaving the house. Our trainer will not only send you a video with instructions, but will be available live at our training machines to answer your questions and show what he is doing in real time.

Necessary technical equipment:
Internet connection min. 6 Mbit/s download and 1.5 Mbit/s upload,
Up to date browser e.g. Google Chrome, Microsoft Edge Chromium
(please see page 52 for specific hardware requirements)

Training frame:
Between 07:00 am – 06:00 pm (Berlin, UTC+01:00)

Duration:
1 day training = 8 session, each session lasting 45 minutes (excl. breaks)
0.5 days training = 4 session, each session lasting 45 minutes (excl. breaks)

Number of participants:
Max. 6 participants per session

Language (for trainings conducted by trainer based at Krones Academy Germany): English, German

Krones system technology

Target group:
Electrical engineers

Course no.:
EOT1

Duration:
2 days

Necessary prior knowledge:
None

Modules	Topics
Krones system technology	
Introduction electric online training	– Introduction and explanation
Krones system technology – hardware diagram RACOS	– Theory training on basic information, first steps for trainee to read Krones hardware diagrams – Hands-on practice
Krones system technology – ASI	– Theory training on basic information ASI-Standard – Master Modes, ASI-adressing and S7 connectability – Exchange participants in the ASI-system and touch messages – Difference standard/safety, code-sequence – Safety components, exceptions/special cases – Backups through chip cards, SLS, Safelink, ASI-Mon-Software
Krones system technology – Profibus/-net	– Structure, functionality, characteristics, clarifying differences and similarities – Components – Step by step instruction on how to exchange and address a device on corresponding pages on touchscreen
Krones system technology – Danfoss FC 300 Series	– Structure, functionality, characteristics – How to address, create and restore backups (LCP and MCT-10)
Krones system technology – ZENON/Touch	– Structure, functionality, characteristics, how to exchange components – basics and diagnostic (overall) touch functions including message structure with its editability – How to create, copy, edit types and how to create, copy, edit users including user levels and transponder assignment – How create and restore backups as well as import and export Information within the system (through USB-Drive) and/or B&R Flashcards (optional)
Krones system technology – B&R-X20	– Structure, functionality, characteristics, how to exchange device/components, necessary maintenance and diagnostic possibilities, how to create and restore backups with B&R Flashcards (optional)

Krones machine electrical technology

Target group:
Electrical engineers

Course no.:
EOT2

Necessary prior knowledge:
Participation in Krones system electrical technology required

Modules	Topics
SDC	
Servo drive control	– Signals and pulses for position and speed, processing of the pulses – Signal flow, function and position of "container present" sensor, touchscreen diagnostics for signals – More detailed information about the system itself and used hardware – Powerlink-Hub, Emergency-power-supply – How to exchange a servo drive or an ACOPOS-Multi device – How to do necessary adjustments and change settings – Find, interpret and use multiple diagnostics and function pages on the touchscreen – Optional: specific topics/questions attachable by customer
FVC	
Filling valve control	– Knowledge about FVC – Identify problems with the system (filling process) for quick troubleshooting and reduced downtimes – Necessary adjustments after device exchange
Mixer	
Mixer	– Basic insight into the mixers process steps – Necessary adjustments and calibrations after valve/device exchange
Labeller	
MMA modular labeller	– Knowledge about MMA modular machine – Identify problems and learn fine adjustments for quick troubleshooting and reduced downtimes – Necessary adjustments after device exchange
RPC labeller	– Knowledge about RPC-Module – Identify Problems and learn fine adjustments for quick troubleshooting and reduced downtime – Necessary adjustments after device exchange
Contiroll	– Gain knowledge about the Contiroll aggregate – Identification of problems with the system for quick troubleshooting and reduced downtimes – Necessary adjustments after device exchange
APS	– APS aggregate – Identification of problems with the system for quick troubleshooting and reduced downtimes – Necessary adjustments after device exchange
Blowmoulder	
Contiform 3	– Basic knowledge about the Contiform 3 blow molder – Identification of problems with the system for quick troubleshooting and reduced downtimes – Necessary adjustments after device exchange

KRONES

Krones SIMATIC S7-300

Target group:
Electrical engineers

Course no.:
AOT1

Duration:
3 days

Necessary prior knowledge:
Graduation in electrical basic training (non Krones)

Modules	Topics
Krones SIMATIC S7-300 for Krones machines	
Basic principles of the S7	– Basic information about structure, working principles of the S7-300
Basic programming and help system	– Introduction to different tools of STEP 7 in combination with simple programming exercises
Functions – function blocs	– Differences between functions and function blocs, handling and usage at Krones programming
Data blocks	– Structure, system and usage of data blocks
S7 Timers, S7 Counters	– Use of S7 standard functions
STL	– Introduction into the programming language STL and the use in Krones programme
Modular software	– Introduction of the modular software structure of Krones

Target group:
Electrical engineers

Course no.:
AOT2

Duration:
4 days

Necessary prior knowledge:
Graduation in electrical basic training (non Krones)

Modules	Topics
Krones SIMATIC S7-1500 for Krones machines	
Basic principles of the S7-1500	– Basic information about structure, working principles of the S7-1500 and information about differences to the S7-300
Basic programming and help system	– Introduction to different basic tools of TIA in combination with simple programming exercises
Functions – function blocks – PLC data types – data blocks	– Differences between functions and function blocks, handling and usage in Krones programming – Creating and usage of PLC data types in context of the Krones programming principles – Structure, types, system and usage of data blocks in S7-1500
TIA diagnostic	– Use of the different diagnostic tools in the TIA Software (diagnosis, tracing, comparison) – Use of the display of the S7-1500 Series – Use of the webserver
IEC – standard functions	– Introduction into the system of the IEC Timer and IEC Counter functions – Programming example with timer functionality
SCL – structured language	– Introduction into the use of the programming language SCL and the usage in the Krones programming
Krones TIA software structure	– Introduction of the software structure of Krones machines with S7-1500

Introduction into the Krones Automation Notebook

Target group:
Maintenance, technicians, mechatronics technicians, electricians, line managers

Course no.:
AOT03

Duration:
1 day

Necessary prior knowledge:
Basic technical knowledge, basic PC knowledge, Automation Notebook

Requirements:

- Krones Automation Notebook or Krones Automation FieldPG;
- Video conferencing equipment with sufficient internet connection

Modules	Topics
Hardware	– Presentation of the notebook and its basic functions
Software	– Presentation of the software equipment
zenOn emergency package	– Use and areas of application ZenOn Emergency Package
Backups control components	– System backups of the control components (S7, visualisation, B&R components)
Backups drive systems	– Parameter protection of drive systems
Diagnostis	– Diagnostic functionalities

Target group:
Electrical maintenance staff, shift supervisors, production managers

Course no.:
ITOT2

Duration:
0.5 days

Necessary prior knowledge:
none

Modules	Topics
Digital Krones Academy – iOS App	– Introduction, basic explanation of: ▪ Start page ▪ Academy live trainer ▪ Machine related documentation ▪ Scan QR-code ▪ Produce training documents/video ▪ Krones.shop ▪ Search functions
Practical	– Practice with participant
Web frontend	– Basic explanation of: ▪ Start page ▪ Academy live trainer ▪ Machine related documentation ▪ Scan QR-code ▪ Produce training documents/video ▪ Krones.shop ▪ Searching functions
Practical	– Practice with participant

Target group:
Electrical maintenance staff, shift supervisors, production managers

Course no.:
ITOT3

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
iPad setup for Digital Krones Academy	– Downloading the Digital Krones Academy iOS app – Settings – Finding the IP address – Checking the connection
QR code printer setup	– General settings – Margin settings – Printer selection
Practical	– Practice with participants
Digital Krones Academy manual web frontend administrator	– Produce and approve documents – Edit document – Device management – Change categories – Export
Practical	– Practice with participants
How to import data	– Necessary folders and files for the data exchange – Interface – what data is necessary for the import? – How to prepare if you want to create new categories (machine, modules, activity) – Document related information
Practical	– Practice with participants

Checkmat – basics of operation

Target group:
Operators

Course no.:
IOT1

Duration:
0.5 days

Suitable for the following Dart 4.0 machine types:
Checkmat, PET-View, Cantronic, Sekamat

Necessary prior knowledge:
None

Modules	Topics
Introduction, control units overview, sensorics description.	– Principle of operation of the control units – Overview of the sensorics
HMI structure and operation	– Transponder levels – Operation of the HMI – Error messages – Analysis tools – Statistics
Change-over	– Type change – Mechanical adjustments
CILT + Q&A	– Cleaning and lubrication instructions – Interval´s plan with operation manual

Checkmat – basics of operation and hardware construction

Target group:
Electrical engineers

Course no.:
IOT2

Duration:
2.5 days

Necessary prior knowledge:
Graduation in electrical basic training (non Krones)

Modules	Topics
Get together, control units overview, sensorics description	– Principle of operation of the control units – Overview of the sensorics
HMI structure and operation	– Transponder levels – Operation of the HMI – Error messages – Analysis tools – Statistics
Change-over	– Type change – Mechanical adjustments
CILT + Q&A	– Cleaning and lubrication instructions – Interval's plan with operation manual
User and data management	– User management in Dart 4.0 – Create and restore backup
Hardware overview and network topology	– Description of all electronic, electrical components and network topology
Electrical drawing	– Structure of electrical drawing
Diagnostic	– In-/Output, Ethernet, CanBus and Ethercat – How to replace a CPU
Rejection system	– Construction of rejection system
Possible errors	– Tips and tricks – Exercises
Practical work	– Operator view, learn wizard

Linatronic – basics of operation

Target group:
Operators

Course no.:
IOT3

Duration:
1 day

Suitable for the following Dart 4.0 machine type:
Linatronic

Necessary prior knowledge:
None

Modules	Topics
Get together, control units overview, sensorics description.	– Principle of operation of the control units – Overview of the sensorics (safety switches, photo-eyes)
Operating controls	– Description of the operating controls of the machine
HMI structure and operation	– Transponder levels – Operation of the HMI – Error messages – Analysis tools – Statistics – Test bottles programme
Change-over	– Type change – Mechanical adjustments
CILT + Q&A	– Cleaning and lubrication instructions – Interval´s plan with operation manual

Linatronic – basics of operation and hardware construction

Target group:
Engineers, technicians

Course no.:
IOT4

Duration:
3 days

Suitable for the following Dart 4.0 machine types:
Linatronic

Necessary prior knowledge:
Electrical and electronical basic knowledge (non Krones)

Modules	Topics
Get together, control units overview, sensorics description	– Principle of operation of the control units – Overview of the sensorics (safety switches, photo-eyes)
Operating controls	– Description of the operating controls of the machine
HMI structure and operation	– Operation of the HMI – Error messages – Analysis tools – Statistics – Test bottles programme
Change-over	– Type change – Mechanical adjustments
Hardware construction	– Description of all electronic and electrical components – Diagnostic tools (input/output, counter) – Replacement of defective parts (frequency inverters, camera CPU, …) – Description of the rejection systems
Network topology	– Description of the network topology (bus structure) – Diagnostic tools (Can bus, Ethercat, Ethernet, Profinet, Profibus)
Data management	– Create and restore backups
CILT + Q&A	– Cleaning and lubrication instructions – Interval´s plan with operation manual

Contiform 3 – basics of operation

Target group:
Operators, mechanical/electrical engineers

Course no.:
POT1

Suitable for the following machine types:
Contiform 3 (K44X-XXX)

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Get together, safety instructions, overview of the entire machine	– Safety instructions – Safeties/interlocks/media – Overview preform conveyor – Overview heating and blowing module
Overview Contifeed	– Assemblies – Sensors and control devices
Heating module part 1	– Infeed – Height adjustment of the base thermal shield – Servo drives – Belt drive
Heating module part 2	– Heating system – Sensors and control devices
Blowing module part 1	– Platform – Transfer starwheels – Blowing wheel and blowing station
Blowing module part 2 Lubrication	– Blowing procedure – Sensors and control devices – Central lubrication and lubrication points
HMI	– Transponder Levels – Operation of the HMI – Error messages – Analysis tools
Process basics and bottle quality	– Check of the first bottle round – Bottle and preform specification – Quality check – measuring devices

Contipure AseptBloc DN – basics of operation

Target group:
Operators, mechanical/electrical engineers

Course no.:
POT2

Suitable for the following machine types:
Contipure AseptBloc DN (K55X-XXX)

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Get together, safety instructions, overview of the entire machine	– Safety instructions – Safeties/interlocks/media – Overview preform conveyor – Overview heating and blowing module
Overview Contifeed	– Assemblies – Sensors and control devices
Heating module part 1	– Infeed – Height adjustment of the base thermal shield – Servo drives – Belt drive
Heating module part 2	– Heating system – Sensors and control devices
Blowing module part 1	– Platform – Transfer starwheels – Blowing wheel and blowing station
Blowing module part 2 Lubrication	– Blowing procedure – Sensors and control devices – Central lubrication and lubrication points
HMI	– Transponder Levels – Operation of the HMI – Error messages – Analysis tools
Process basics and bottle quality	– Check of the first bottle round – Bottle and preform specification – Quality check – measuring devices

Contiform 3 – General operation tasks and procedures

Target group:
Operators

Course no.:
POT3

Suitable for the following machine types:
Contiform 3 (K44X-XXX)

Duration:
0.5 days

Necessary prior knowledge:
Contiform 3 – basics of operation

Modules	Topics
Get together, safety instructions, overview of the entire machine	– Safety instructions – Safeties/interlocks/media – Overview preform conveyor – Overview heating and blowing module
Operator tasks	– Prepare for production – During production – End of production
Change-over	– Type change – Handling parts – Emptying the system
Cleaning and hygienic basics	– Cleaning parts, basics of hygiene – Basic understanding of hygiene

Contipure AseptBloc DN – general operation tasks and procedures

Target group:
Operators

Course no.:
POT4

Suitable for the following machine types:
Contipure AseptBloc DN (K55X-XXX)

Duration:
0.5 days

Necessary prior knowledge:
Contipure AseptBloc DN – basics of operation

Modules	Topics
Get together, safety instructions, overview of the entire machine	– Safety instructions – Safeties/interlocks/media – Overview preform conveyor – Overview heating and blowing module
Operator tasks	– Prepare for production – During production – End of production
Change-over	– Type change – Handling parts – Emptying the system
Cleaning and hygienic basics	– Cleaning parts, basics of hygiene – Basic understanding of hygiene

Contiform 3 – mechanical basics

Target group:
Mechanical engineers

Course no.:
POT5

Suitable for the following machine types:
Contiform 3 (K44X-XXX)

Duration:
0.5 days

Necessary prior knowledge:
Contiform 3 – basics of operation

Modules	Topics
Introduction, safety instructions, controlled clamps	– Safety instructions – Safeties/interlocks/media – Parts of the controlled clamps and special tools
Controlled clamps Centering of the stretch rod	– Adjusting the gap of the controlled clamps – Adjusting the height of the controlled clamps – Centering the stretch rod
Height of the blowing nozzle and pneumatic leakage check	– Adjusting the height of the blowing nozzle – Correct disassembling of the blowing nozzle – Blowing station diagnostics – Cleaning of the pistons
Timing and syncronising the transfer	– How to check the timing – How to optimize the timing – Mechanical and electrical tools

Contipure AseptBloc DN – mechanical basics

Target group:
Mechanical engineers

Course no.:
POT6

Suitable for the following machine types:
Contipure AseptBloc DN (K55X-XXX)

Duration:
0.5 days

Necessary prior knowledge:
Contipure AseptBloc DN – basics of operation

Modules	Topics
Get together, safety instructions, controlled clamps	– Safety instructions – Safeties/interlocks/media – Parts of the controlled clamps and special tools
Controlled clamps Centering of the stretch rod	– Adjusting the gap of the controlled clamps – Adjusting the height of the controlled clamps – Centering the stretch rod
Height of the blowing nozzle and pneumatic leakage check	– Adjusting the height of the blowing nozzle – Correct disassembling of the blowing nozzle – Blowing station diagnostics – Cleaning of the pistons
Timing and synchronizing the transfer	– How to check the timing – How to optimize the timing – Mechanical and electrical tools

Modular Contiroll ED – general basics

Target group:
Operators,mechanical/electrical engineers

Course no.:
LOT1

Suitable for the following machine types:
Modular Contiroll ED (K40x-xxx; K607-xxx)

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Get together, safety instructions, overview of the training	– Safety instructions – Machine layout
Overview of the entire machine	– Main machine K40X-XXX – Labelling station K607-XXX
Main machine – bottle passage	– Infeed – Carrousel – Docking station – Discharge
Labelling station – label passage	– Aggregate – Reel holder – Buffer system – Label web guider – Register mark sensor – Cutting unit – Vacuum cylinder – Gluing unit – Transfer points
HMI – basics	– Overview – Transponder – Operation of the HMI – Message system – Type management

Contiroll – general basics

Target group:
Operators, mechanical/electrical engineers

Course no.:
LOT2

Suitable for the following machine types:
Contiroll ED/HS (K810-xxx)
Contiroll TS (K893-xxx)

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Get together, safety instructions, overview of the training	– Safety instructions – Machine layout
Overview of the entire machine	– Contiroll K810-XX – Table – Aggregate
Main machine – bottle passage	– Infeed – Bottle present sensor – Carrousel – Discharge – Transfer points
Labelling station – label passage	– Reel holder – Buffer system – Label web guider – Register mark sensor – Cutting unit – Vacuum cylinder – Gluing unit – Transfer points
HMI – basics	– Overview – Transponder – Operation of the HMI – Message system – Type management

Contiroll – basics of operation

Target group:
Operators

Course no.:
LOT3

Suitable for the following machine types:
Contiroll ED/HS (K810-xxx)
Contiroll TS (K893-xxx)

Modul mit Contiroll ED
(K40x-xxx; K607-xxx)

Duration:
0.5 days

Necessary prior knowledge:
LOT1 or LOT2

Modules	Topics
HMI – basics	– Overview – Transponders – Operation of the HMI – Message system – Type management
Operation – basics 1	– preparations for production – During production – End of production
Operation – basics 2	– Type changes on the touchscreen – Change-over of the machine
Operation – lubrication and cleaning	– Cleaning the most important components – Lubrication according to the lubrication schedule

Contiroll – mechanical basics

Target group:
Mechanical engineers

Course no.:
LOT4

Suitable for the following machine types:
Contiroll ED/HS (K810-xxx)
Contiroll TS (K893-xxx)

Modular machine with Contiroll ED (K40x-xxx; K607-xxx)

Duration:
0.5 days

Necessary prior knowledge:
LOT1 or LOT2

Modules	Topics
Mechanical adjustments – vacuum-grip cylinder	– Working with the setting gauge – Adjustment of the vacuum-grip cylinder – Adjustment of D-points
Mechanical adjustments – cutting unit	– Checking the knifes – Exchange of knifes – Adjustment of the knifes – Adjustment of the O-points
Mechanical settings – gluing unit	– Adjustment of the gluing unit – Change of the plates in the glue scraper
Maintenance	– Lubrication according to the lubrication schedule

Sleevematic M – general basics

Target group:
Operators, mechanical/electrical engineers

Course no.:
LOT5

Suitable for the following machine types:
Sleevematic M/M2/MD2 (K795-xxx)

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Get together, safety instructions, overview of the training	– Safety instructions – Machine layout
Overview of the entire machine	– Sleevematic M
Main machine – bottle passage	– Infeed – Bottle present sensor – Carrousel – Discharge – Transfer points
Labelling station – label passage	– Reel holder – Buffer system – Label web guider – Register mark sensor – Cutting unit – Feed and transfer rollers – Mandrel
HMI – basics	– Overview – Transponder – Operation of the HMI – Message system – Type management

Sleevematic M – general operation

Target group:
Operators

Course no.:
LOT6

Suitable for the following machine types:
Sleevematic M/M2/MD2 (K795-xxx)

Duration:
0.5 days

Necessary prior knowledge:
Sleevematic M general basics

Modules	Topics
HMI – basics	– Overview – Transponders – Operation of the HMI – Message system – Type management
Operation – basics 1	– preparations for production – During production – End of production
Operation – basics 2	– Type changes on the touchscreen – Change-over of the machine
Operation – lubrication and cleaning	– Cleaning the most important components – Lubrication according to the lubrication schedule

Sleevematic M – mechanical basics

Target group:
Mechanical engineers

Course no.:
LOT7

Suitable for the following machine types:
Sleevematic M/M2/MD2 (K795-xxx)

Duration:
0.5 days

Necessary prior knowledge:
Sleevematic M general basics

Modules	Topics
Mechanical adjustments - mandrel	– Adjustment of the rollers – Adjustment of the height
Mechanical adjustments – cutting disk	– Checking the knifes – Exchange of knifes – Adjustment of the knifes
Mechanical adjustments – feed and transfer rollers	– Exchange of rollers – Working with the setting gauge – Adjustment of the rollers
Maintenance	– Lubrication according to lubrication schedule

Sleevematic TS – general basics

Target group:
Operators, mechanical/electrical engineers

Course no.:
LOT8

Suitable for the following machine types:
Sleevematic TS (K815-xxx)

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Get together, safety instructions, overview of the training	– Safety instructions – Machine layout
Overview of the entire machine	– Contiroll K810-XX – Table – Aggregate
Main machine – bottle passage	– Infeed – Bottle present sensor – Carrousel – Discharge – Transfer points
Labelling station – label passage	– Reel holder – Buffer system – Label web guider – Register mark sensor – Cutting unit – Vacuum cylinder – Gluing unit – Transfer points
HMI – basics	– Overview – Transponder – Operation of the HMI – Message system – Type management

Sleevematic TS – general operation

Target group:
Operators

Course no.:
LOT9

Suitable for the following machine types:
Sleevematic M/M2/MD2 (K795-xxx)

Duration:
0.5 days

Necessary prior knowledge:
Sleevematic TS general basics

Modules	Topics
HMI – basics	– Overview – Transponders – Operation of the HMI – Message system – Type management
Operation – basics 1	– preparations for production – During production – End of production
Operation – basics 2	– Type changes on the touchscreen – Change-over of the machine
Operation – lubrication and cleaning	– Cleaning the most important components – Lubrication according to the lubrication schedule

Sleevematic TS – mechanical basics

Target group:
Mechanical engineers

Course no.:
LOT10

Suitable for the following machine types:
Sleevematic TS (K815-xxx)

Duration:
0.5 days

Necessary prior knowledge:
Sleevematic TS general basics

Modules	Topics
Mechanical adjustments – mandrel	– Adjustment of the rollers – Adjustment of the height
Mechanical adjustments – cutting disk	– Checking the knifes – Exchange of knifes – Adjustment of the knifes
Mechanical adjustments – feed and transfer rollers	– Exchange of rollers – Working with the setting gauge – Adjustment of the rollers
Maintenance	– Lubrication according to lubrication schedule

Basics of operation

Target group:
Operators, technicians

Course no.:
FOT1

Suitable for the following machine types:
Specified on serial number

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Introduction, type of machine, safety instructions	– Training agenda – Filling valve type – Why this particular filling type – Safety instructions
Filler principle of operation and structure	– Information (manuals) with machine – HMI structure – Path of container – Components
Controlling the filling procedure	– Filling phases – Operational sequence diagram – Filling valve controller (LCT3, FVC)
Pipe system plans	– Symbols – Media channels through the system – Functions of the individual valves and sensors – Introduction to the pressure and level regulation
Programmes of the filler operating procedure	– List of programmes – Machine control with programmes (examples) – Elaboration of the programme description (examples) – sequence of programmes on the machine – Tasks prior to, during and after production – Interaction of the filler with other machines – Change-over in theory
Cleaning, lubrication and maintenance, final discussion	– External CIP start – Cleaning parameters – Cleaning intervals – Maintenance and lubrication schedule

Basics of operation

Target group:
Operators, technicians

Course no.:
FOT2

Suitable for the following machine types:
All types of rinser

Duration:
0.5 days

Necessary prior knowledge:
none

Modules	Topics
Rinsing technology	– Understanding of rinsing technology of customer´s machine
Construction of machine Passage of bottles	– Understanding of construction of machine and how the bottles are handled by the rinser
HMI basics	– Learning about basic pages of the HMI which are necessary to operate the machine
Operation basics	– Preparation for production – Running the production – Change-over to a different bottle – Change-over to cleaning – End of production

Basics of operation

Target group:
Operators, technicians, electricians

Course no.:
FOT3

Suitable for the following machine types:
Mixer Contiflow

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Construction of mixer Contiflow	– Functional units deaeration, dosing, carbonation – Pipe diagramm – Tanks, pumps, measuring technology
HMI basics	– Learning about basic pages of the HMI which are necessary to operate the machine
Operation basics	– Preparation for production – Running the production – Change-over to a different product – Change-over to cleaning – End of production – Running the production in combination with the filler
Settings for production	– Recipe – Setting CO_2-content – Brix control for sugar products – Concentration control for non-suger products
Quality control	– Alarms – Automatic quality measurement for CO_2, Brix – Sampling valves
Trouble shooting	– Faulty messages, warnings, alarms, taking samples, physical checks

General overview

Target group:
Management

Course no.:
FOT4

Suitable for the following machine types:
All types of aseptic filling lines

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Construction and organization of aseptic filling line	– Integrated machine modules – Line control by process control system (PCS) – Line protocol by line data system (LDS)
Aseptic filling systems	– Filling by volume or weight – Filling of still products, slurry products, carbonated products
Protection of product by aseptic processes	– Sterilization of preforms (or bottles) and caps – Cleaning and sterilization processes of aseptic line
Protection of product organized by customer	– Hygiene around aseptic line – Ambient conditions around aseptic line
Krones tasks for success of aseptic filling	– Installation, validation, – Catalogue of hygiene measures – Training of staff
Operational processes	– Starting a process (e.g. production, CIP) – Supervising a process on HMI
Aseptic processes	– Brief introduction to interaction of machine modules during aseptic filling, cleaning, sterilization
Check of sterile filters on regular base	– Type and location of sterile filters on P&ID – Lifetime and conditions for change
Troubleshooting	– Basic understanding how to troubleshoot with the help of HMI and process knowledge
Safety	– Safety regulations for handling H_2O_2 – PPE

Brewhouse basics

Target group:
Operators, brewery staff

Course no.:
BOT1

Suitable for the following STEINECKER portfolio:
CombiCube, One2Brew, MicroCube and all STEINECKER brewhouse solutions

Duration:
5 days

Necessary prior knowledge:
none

Modules	Topics
Overview of the training	- Introduction of individual trainees - Tools and techniques for online training
Wet-milling system Variomill/Powermill	- Influence of the milling on the brewing process - Important components and their role in the process - Basic knowledge of the production sequence
Mashing system ShakesBeer	- Role and importance of enzymes in the brewing process - Important components and their role in the process
Lautering system Pegasus	- Principle of the lautering process - Important components and their role in the process - Automated control of lautering and trending - Basic knowledge of the production sequence
Wortboiling system Stromboli	- Importance of the wort boiling in the brewing process - Important components and their role in the process - Basic knowledge of the production sequence
Wort treatment	- Trub separation by Whirlpool - Wort cooling - Wort aeration
Energy recovery system EquiTherm	- Working principle of the energy recovery - Important components and their role in the process - Basic knowledge of the operation sequence
Brewhouse CIP	- Cleaning parameters: how to manage and control them - Important components and their role in the process

Fermenting/Maturation and yeast management basics

Target group:
Operators, brewery staff

Course no.:
BOT2

Suitable for the following STEINECKER portfolio:
TwinPro System, One2Brew, MicroCube and all STEINECKER cellar solutions

Duration:
3.5 days

Necessary prior knowledge:
none

Modules	Topics
Overview of the training	- Introduction of individual trainees - Tools and techniques for online training
Yeast cellar	- Basic knowledge of the production processes in the yeast cellar: propagation and yeast harvest/storage - Process units in the yeast cellar - Important components and their role in the process
Fermenting cellar	- Basic knowledge of the production processes in the fermenting cellar - Process units in the fermenting cellar - Important components and their role in the process
Bright Beer Cellar (BBT)	- Basic knowledge of the production processes in the fermenting cellar - Process units in the fermenting cellar - Important components and their role in the process
Cellar CIP	- Cleaning parameters: how to manage and control them - Important components and their role in the process - CIP procedures for the process units in the cellar

Bright beer filtration and stabilisation basics

Target group:
Operators, brewery staff

Course no.:
BOT3

Suitable for the following STEINECKER portfolio:
Twin Flow System (TFS) and CombiCube F

Duration:
1.5 days

Necessary prior knowledge:
none

Modules	Topics
Overview of the training	– Introduction of individual trainees – Tools and techniques for online training
Candle filter system Twin Flow System TFS	– Principle of DE (Kieselgur) filtration – Purpose and possibilities of product stabilisation – Process aids, their application and calculation – Important components and their role in the process – Basic knowledge of the production and CIP processes of the TFS
Carbo blender	– Purpose and basic working principle – Important components and their role in the process
Periphery	– Process units in the filter cellar – Basic knowledge of their production processes

Botec F1 (ILTIS WPF) basics and operation

Target group:
Operators, brewery staff

Course no.:
BOT4

Suitable for the following SYSKRON portfolio:
Botec F1 with ILTIS WPF visualisation

Duration:
1 day

Necessary prior knowledge:
none

Modules	Topics
Overview of the training	– Introduction of individual trainees – Tools and techniques for online training
Basics	– The brewing process as a batch process – The concept of automation – Alarm and message generation – Emergency stops – Power cuts – Interlocks
Components	– Hardware – Software
Automatic production	– Recipe structure – Recipe sequence
Use of the Botec F1 system and learnings	– Log on to and navigate the system – Create and execute orders for automatic production – Check and amend parameters during automatic operation – How to carry out manual operations – Identify the cause for an alarm and/or message – Access the batch protocol and trend pictures – How to restart after power cut/e-stop

Modulpal Pro and Robobox – basics of operation

Target group:
Operators

Course no.:
DOT1

Suitable for the following machine types:
Modulpal Pro (KR68-xxx)
Robobox (KR63-xxx)

Duration:
1.5 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions

Modulpal Pro and Robobox – basics of mechanics

Target group:
Mechanics

Course no.:
DOT2

Suitable for the following machine types:
Modulpal Pro (KR68-xxx)
Robobox (KR63-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Mechanic Part	– How to order spare parts, touch navigation – How to calibrate the axes, basic mechanics knowledge – How lubrication systems work, different kind of lubricants, replace toothed belts, general mechanical dry end explanation

Modulpal Pro and Robobox – basics of electrics

Target group:
Electrical engineers

Course no.:
DOT3

Suitable for the following machine types:
Modulpal Pro (KR68-xxx)
Robobox (KR63-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explain the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Electric part	– Spare parts, Krones.shop, – General electrics dry end, calibration, touch – Hardware/Software, type management, backup, user management, S7, S7 safety, bus systems, B&R, motor types, servo technology

Variopac Pro – basics of operation

Target group:
Operators

Course no.:
DOT4

Suitable for the following machine types:
Variopac Pro (KR96-xxx)

Duration:
1.5 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions

Variopac Pro – basics of mechanics

Target group:
Mechanics

Course no.:
DOT5

Suitable for the following machine types:
Variopac Pro (KR96-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Mechanic part	– How to order spare parts, touch navigation – How to calibrate the axes, basic mechanics knowledge – How lubrication systems work, different kind of lubricants, replace toothed belts, general mechanical dry end explanation

Variopac Pro – basics of electrics

Target group:
Electrical engineers

Course no.:
DOT6

Suitable for the following machine types:
Variopac Pro (KR96-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Electric part	– Spare parts, Krones.shop, – General electrics dry end, calibration, touch – Hardware/Software, type management, backup, user management, S7, S7 safety, bus systems, B&R, motor types, servo technology

Varioline – basics of operation

Target group:
Operators

Course no.:
DOT7

Suitable for the following machine types:
Varioline (KR40-xxx)

Duration:
1.5 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions

Varioline – basics of mechanics

Target group:
Mechanics

Course no.:
DOT8

Suitable for the following machine types:
Varioline (KR40-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Mechanic part	– How to order spare parts, touch navigation – How to calibrate the axes, basic mechanics knowledge – How lubrication systems work, different kind of lubricants, replace toothed belts, general mechanical dry end explanation

Varioline – basics of electrics

Target group:
Electrical engineers

Course no.:
DOT9

Suitable for the following machine types:
Varioline (KR40-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Electric part	– Spare parts, Krones.shop, – General electrics dry end, calibration, touch – Hardware/Software, type management, backup, user management, S7, S7 safety, bus systems, B&R, motor types, servo technology

Pressant – basics of operation

Target group:
Operators

Course no.:
DOT10

Suitable for the following machine types:
Pressant (KR74-xxx)

Duration:
1.5 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions

Pressant – basics of mechanics

Target group:
Mechanics

Course no.:
DOT11

Suitable for the following machine types:
Pressant (KR74-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Mechanic part	– How to order spare parts, touch navigation – How to calibrate the axes, basic mechanics knowledge – How lubrication systems work, different kind of lubricants, replace toothed belts, general mechanical dry end explanation

Pressant – basics of electrics

Target group:
Electrical engineers

Course no.:
DOT12

Suitable for the following machine types:
Pressant (KR74-xxx)

Duration:
2 days

Necessary prior knowledge:
none

Modules	Topics
Basic safety dry end	– Machine safety – General information – Machine-specific safety devices
Basic HMI dry end	– Presentation of control panel – Explanation of the control buttons – Explanation of user levels, registration with transponder – Explanation of the individual areas of the touchscreen
Machine in detail	– Machine presentation – Machine sensors – Machine-specific touch functions
Electric part	– Spare parts, Krones.shop, – General electrics dry end, calibration, touch – Hardware/Software, type management, backup, user management, S7, S7 safety, bus systems, B&R, motor types, servo technology

How to contact us

Would you like to book a training or are you having trouble finding the right training course?
Just contact us by sending an email to academy@krones.com.
We would be happy to prepare an individual package for you.

Cancellations:

Once training dates are confirmed, the following cancellation fees will occur if the courses are cancelled/postponed on short notice:

If you cancel/postpone your participation in a training three weeks or less prior to its starting date, 50% of the training fee must be paid. For cancellations/postponements within two weeks or less before the starting date, 100% of the training fee must be paid.

Krones Academy also reserves the right to cancel seminars or to delay or change them.
You will be informed in this case.

We trust in your understanding.

Please note:

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Technical requirements MS Teams

Hardware requirements for online training with MS Teams on a Windows PC

Component	Requirement
Computer and processor	Minimum 1.6 GHz (or higher) (32-bit or 64-bit).
Memory	2.0 GB RAM
Hard disk	3.0 GB of available disk space
Display	1024 x 768 screen resolution
Graphics hardware	Minimum of 128 MB graphics memory
Operating system	Windows Server 2012 R2+, Windows 10 or Windows 8.1 in 32-bit and 64-bit. For the best experience, use the latest version of your operating system.
.NET version	Requires .NET 4.5 CLR or later
Video	USB 2.0 video camera
Devices	Standard laptop camera, microphone, and speakers
Video calls and meetings	For a better experience with video calls and online meetings, we recommend using a computer that has a 2.0 GHz processor and 4.0 GB RAM (or higher). The optional **blur my background** video effect requires a processor with Advanced Vector Extensions 2 (AVX2) support. See Hardware decoder and encoder driver recommendations for a list of unsupported decoders and encoders. Joining a meeting using proximity detection in a Microsoft Teams Room requires Bluetooth LE, which requires Bluetooth to be enabled on the client device, and for Windows clients requires the 64-bit Teams client. It's not available on 32-bit Teams clients.

Source: Microsoft.com

Hardware requirements for online training with MS Teams on a Mac

Component	Requirement
Processor	Minimum Intel processor, Core 2 Duo or higher
Memory	2.0 GB RAM
Hard disk	1.5 GB of available disk space
Display	1280 x 800 or higher resolution
Operating system	Mac OS X 10.11 El Capitan or later
Video	Compatible webcam
Voice	Compatible microphone and speakers, headset with microphone, or equivalent device
Video calls and meetings	For better experience with video calls and online meetings, we recommend using a computer that has a 2.0 GHz processor and 4.0 GB RAM (or higher).The optional **blur my background** video effect requires a processor with Advanced Vector Extensions 2 (AVX2) support, supported on most late 2013 Mac devices and later. See Hardware decoder and encoder driver recommendations for a list of unsupported decoders and encoders. Joining a meeting using proximity detection in a Microsoft Teams Room is not available on Mac OS.

Hardware requirements for Online-Training with Teams on mobile devices

You can use Teams on these mobile platforms:

- Android: Compatible with Android phones and tablets.
- Support is limited to the last four major versions of Android. When a new major version of Android is released, the new version and the previous three versions are officially supported.
- iOS: Compatible with iPhone, iPad, and iPod touch.
- Support is limited to the two most recent major versions of iOS. When a new major version of iOS is released, the new version of iOS and the previous version are officially supported.

For the best experience with Teams, use the latest version of iOS and Android.

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KRONES

Where do we come from?

Facts and figures about the KRONES Academy

The KRONES Academy offers a wide range of training courses for operating and maintenance personnel, as well as for management. We also design individual training plans.

CONTIROLL

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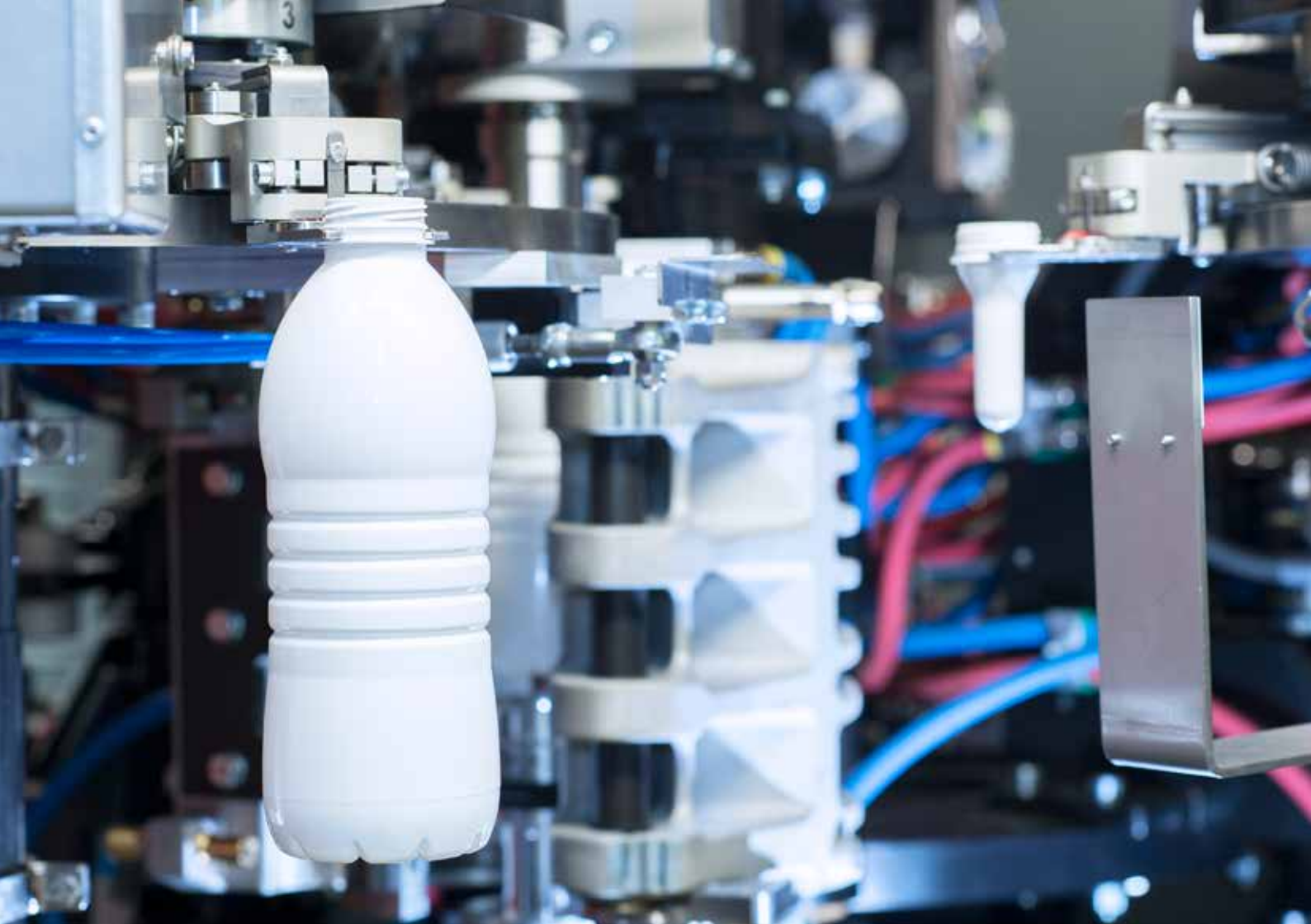

KOSME

KOSME designs and implements customised filling lines for the international beverage, food, pharmaceutical and cosmetics industries in the medium and low output segments.

KOSME – consisting of the Austrian KOSME GmbH and the Italian KOSME S.R.L. – with its complete line programme, complements the portfolio of its parent company KRONES, a global leader in the high-performance segment of beverage filling and packaging technology.

While KOSME Italy focuses on labelling and filling technology and bundles its sales activities, the Austrian branch of KOSME is responsible for the development and production of stretch blow-moulding technology.

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Social media
KRONES uses social media to communicate with business partners, employees and anyone else who is interested in the company and its products.

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