

ferrum

**FERRUM PACKAGING
TRAINING PROGRAM**



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DEAR CUSTOMERS,

Ferrum machines reliably seam up to 150,000 cans per hour, 24 hours a day, 7 days a week, under permanent compliance with the highest hygiene and safety standards. Thanks to ongoing optimization and continuous development, the seaming machines from Ferrum Packaging meet the extremely demanding requirements of the food and beverage industry, without reservation. More than 2,000 can seamers from Ferrum Packaging are used in production operations around the world. With its headquarters based in Switzerland, Ferrum Packaging has an international network of subsidiaries, service points and representatives, so that you can count on their prompt support all over the world – day and night, if needed. Long-term service assignments, deliveries of spare parts at short notice, well-founded technical advice and customer training are among the core competences of our customer service offering.

Thanks to the simplicity and increased readability, people are referred to in the plural. These references apply equally to female and male trainees and employees in the organizations.

We look forward to hearing from you.



Roland Gredig

Head of ferruPractice⁺

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WORLDWIDE TRAINING ON YOUR SEAMING MACHINES

Whether an operator on the line, a lab technician in quality assurance, a service mechanic, industrial electrician or line manager at a filling company, with Ferrum you will learn how to use your seaming machine and seaming process in precisely the way you need it for your day-to-day work. Ferrum offers training courses for individuals or groups of up to six participants, tailored to their individual needs.

Our instructors are professionals with extremely extensive specialist knowledge and many years of experience with the entire range of Ferrum seaming machines. They have excellent understanding of how to train a target group on an individual and practice-oriented basis, with the necessary flexibility. The training courses are carried out on your premises upon request or at one of our subsidiaries. You can choose between the following options:

ROAMING CUSTOMER

- + Training at one of our Ferrum Packaging training centers:
 - Schafisheim, Switzerland
 - Waukesha, USA
 - Sao Paulo, Brazil
 - Kunshan, P.R. China

Your production remains uninterrupted and there is zero risk of damaging your seamer during the training. The training is held on a seaming machine that is as similar as possible to the one used in your production facility.

ROAMING INSTRUCTOR

- + Training on your premises on your can seamer (60% of the training time requires production downtime due to the practical element of the training)

Your employees are trained on the exact can seamer for which they will ensure uninterrupted production over many years. No expenses are incurred for your employees. Your production will be interrupted at times and there is a minimal risk of damage to one or more components on the can seamer as a result of the training.

ROAMING CAN SEAMER AND INSTRUCTOR

- + Training by our instructor on your premises on a training can seamer provided separately (not possible in all countries for customs reason)

Your production remains uninterrupted and there is zero risk of damaging your seamer during the training. The training is held on a training seaming machine that is as similar as possible to the one used in your production facility. As rental and transport costs are incurred at the expense of the customer for the training can seamer, and we require your support for the delivery and return of the can seamer, this is the most time-consuming and costly form of training. However, this option optimizes the benefits of the first two offerings and minimizes the risks.

Ferrum Packaging has already delivered the first two training options countless times and successfully delivered the third option many times, to the satisfaction of the customers.



STANDARD TRAINING COURSES WITH CONFIRMATION OF ATTENDANCE

If the Mechanic 1 and 2 training courses are not delivered on your can seamer, they take place on can seamers that are as similar as possible to those used in your production facility. To take part in the Mechanic 2 training course, the Mechanic 1 course must first be completed, unless the participants can prove they already have the Mechanic 1 qualification.

Mechanic 2 training courses are only carried out on your can seamer if immediately afterwards one of our service technicians performs an overhaul on the can seamer. At the end of the training, the trainer must travel to their next training assignment and therefore cannot help you with resuming your production. During the training, any seals and bearings that are removed and re-fitted may have incurred damaged and must be replaced in order to guarantee trouble-free production again.

All other standard training courses are carried out regardless of the can seamer model.



BEGINNER'S COURSE

3 days

SEAMING SEMINAR

3 days

MECHANIC 1

5 days

MECHANIC 2 (based on Mechanic 1)

5 days

ELECTRICAL ENGINEERING AND AUTOMATION

2 days



PRICING AND SCHEDULE

You may contact Ferrum at any time, by whatever means of communication. With each request and registration, always state your machine number C10-XXXXXX to ensure best possible service.

Participation fees, in addition to the training, include the training documentation, lunch, refreshments during breaks and transportation between Zurich Airport, Ferrum and the hotel. The day rates according to the offer are exclusive of accommodation and additional subsistence costs, travel to and from the place of assignment and any possible interpreting fees. Appointments exclusively by agreement.

Pick-up and drop-off at the airport and/or the hotel after consultation with the trainees.

TRAINING AND DOCUMENTATION LANGUAGES

German, English, French, Spanish, Portuguese (documentation also in Italian). Additional languages upon request, with an interpreter if necessary, arranged by agreement.

The training documentation contains the detailed training documents and the operating instructions for your can seamer in the language of the training course.

The instructors will provide the trainees with the spare parts catalog and the operating instructions for your can seamer in electronic format on a USB stick. In individual cases, the documentation can or may need to also be provided in a language different to that of the training. Please promptly inform us of your preferences to that effect.

TRAINING PROGRAM

Day 1

Morning	9.00 a.m. – 12.00 p.m.
Lunch break	12.00 p.m. – 1.30 p.m.
Afternoon	1.30 p.m. – 4.30 p.m.

Following days

Morning	8.00 a.m. – 12.00 p.m.
Lunch break	12.00 p.m. – 1.30 p.m.
Afternoon	1.30 p.m. – 4.30 p.m.

(Unless agreed otherwise)

CUSTOMER-SPECIFIC TRAINING

Our training courses are developed on a modular basis around a specific theme. You define your training objectives and we will put together a tailored training course for you. Customer-specific training courses are especially worthwhile for refresher and advanced training too, or for learning how to use a new can seamer if another can seamer type from Ferrum is already deployed within the same organization.



Standard training courses in detail

BEGINNER'S COURSE

WITH CONFIRMATION OF ATTENDANCE

3 DAYS

On the Beginner's Course, the operator learns all the necessary competences for safe and fault-free production with the can seamer. If you and your employees want to learn more about the can seamer before it is delivered, this course is also ideal for you.

TARGET AUDIENCE

- + Lab technicians, line and production managers
- + Operators and service mechanics prior to receiving the machine

INTRODUCTION AND SAFETY INSTRUCTIONS

- + Prevention of accidents and conduct during the training
- + Outer wear and personal protective equipment
- + Hazardous zones and safety at the seamer

DOUBLE SEAM TECHNOLOGY

- + Process for forming double seams
- + Short history of the can seamer
- + Non-round seamers and round seamers
- + Overview of the Ferrum seamer portfolio

CANS AND ENDS

- + Short history of the food can
- + Common can types and formats
- + Can manufacturing process
- + Common end types and formats
- + End manufacturing process

SEAMING THEORY AND CRITICAL PARAMETERS (OVERVIEW)

- + Seam formation 1st operation and 2nd operation
- + Common seam dimensions
- + Double seam specification
- + Creasing and crease-free operation
- + Reading the double seam log
- + Common errors and troubleshooting on the double seam

SEAMER DESIGN AND FUNCTION (OVERVIEW)

- + Safety devices
- + Main assembly groups of the seamer
- + Process sequence from the view of the can and end
- + Gassing or steaming and cleaning
- + Compressed air system and centralized oil lubrication
- + Synchronization with the filler
- + Electric cabinet and touch panel

OPERATION (OVERVIEW)

- + Start and stop
- + Jog mode
- + Slow motion
- + Operation components
- + Touch panel level operator

SEAMING ELEMENTS

- + Seaming rolls (setup, material, coating)
- + Seaming roll profiles (1st OP, 2nd OP, Clinch, V, X)
- + Seaming roll bearings, seals and lubrication
- + Seaming chucks (material, coating, marking)

SETTING SEAMING ROLLS

- + Removing and refitting seaming rolls
- + Setting the seaming roll height above the seaming chuck
- + Setting the seaming roll opening for 1st OP and 2nd OP
- + Reading and interpreting the double seam control

BASE PLATE SPRING PRESSURE

- + Setup and function of the lifting station
- + Base plate spring pressure measurement device and how to use it
- + Standard setting for the base plate spring pressure

SEAMING CAMS

- + Rigid seaming cams
- + Disengageable seaming cams for 1st OP check
- + Checking the 1st OP in enabling mode
- + Quick-set seaming cams to correct 2nd OP
- + Immediate check of seaming cam adjustment via seam thickness
- + Basic setting of the quick-set seaming cam
- + Production setting of the quick-set seaming cam

HEIGHT ADJUSTMENT OF THE SEAMING LEVEL

- + Adjusting the seaming level to the new can height
- + Measuring the can height
- + Determining the average can height
- + Calculating the pin height
- + Adjusting the pin height gauge
- + Checking the pin height with gauge
- + Correcting the pin height with height adjustment
- + Re-referencing the display of the can height

DAMAGE TO CANS AND ENDS

- + Common damage and damage repair for cans
- + Common damage and damage repair for ends

BUBBLE BREAKER AND UNDERCOVER GASSING

- + Preparation and control valve (CO₂, N₂)
- + Setting and optimization options
- + TPO (Total Package Oxygen)

END AND UNDERCOVER STEAM INJECTION

- + Preparation and control valve
- + Setting and optimization options
- + Residual vacuum (measurement and limit values)

CLEANING AND FLUSHING (OVERVIEW)

- + Technical equipment and function
- + Cleaning plan (Ferrum recommendation)
- + Permissible cleaning and disinfecting agents

MAINTENANCE AND SERVICING (OVERVIEW)

- + Identification of locations for maintenance
- + Maintenance work and intervals
- + Permissible lubricants (oils and greases)



Standard training courses in detail

SEAMING SEMINAR

WITH CONFIRMATION OF ATTENDANCE
3 DAYS

On the Seaming Seminar, the employees learn how to competently assess the quality of the double seam and the TPO (Total Packaging Oxygen), ensure this remains safe during production operation and respond to any deviations appropriately.

TARGET AUDIENCE

- + Lab technicians, quality managers, service mechanics
- + Advisory specialists, employees at can/end manufacturers

INTRODUCTION AND SAFETY INSTRUCTIONS

- + Prevention of accidents and conduct during the training
- + Outer wear and personal protective equipment
- + Hazardous zones and safety at the seamer

DOUBLE SEAM TECHNOLOGY

- + Process for forming double seams
- + Short history of the can seamer
- + Non-round seamers and round seamers
- + Overview of the Ferrum seamer portfolio

CANS AND ENDS

- + Short history of the food can
- + Common can types and formats
- + Can manufacturing process
- + Common end types and formats
- + End manufacturing process

SEAMER DESIGN AND FUNCTION (OVERVIEW)

- + Safety devices
- + Main assembly groups of the seamer
- + Process sequence from the view of the can and end
- + Gassing or steaming and cleaning
- + Compressed air system and centralized oil lubrication
- + Synchronization with the filler
- + Electric cabinet and touch panel

OPERATION (OVERVIEW)

- + Start and stop
- + Jog mode
- + Slow motion
- + Operation components
- + Touch panel level operator

SEAMING ELEMENTS

- + Seaming rolls (setup, material, coating)
- + Seaming roll profiles (1st OP, 2nd OP, Clinch, V, X)
- + Seaming roll bearings, seals and lubrication
- + Seaming chucks (material, coating, marking)

SETTING SEAMING ROLLS

- + Removing and refitting seaming rolls
- + Setting the seaming roll height above the seaming chuck
- + Setting the seaming roll opening for 1st OP and 2nd OP
- + Reading and interpreting the double seam control

BASE PLATE SPRING PRESSURE

- + Setup and function of the lifting station
- + Base plate spring pressure measurement device and how to use it
- + Standard setting for the base plate spring pressure

SEAMING CAMS

- + Rigid seaming cams
- + Disengageable seaming cams for 1st OP check
- + Checking the 1st OP in enabling mode
- + Quick-set seaming cams to correct 2nd OP
- + Immediate check of seaming cam adjustment via seam thickness
- + Basic setting of the quick-set seaming cam
- + Production setting of the quick-set seaming cam

HEIGHT ADJUSTMENT OF THE SEAMING LEVEL

- + Adjusting the seaming level to the new can height
- + Measuring the can height
- + Determining the average can height
- + Calculating the pin height
- + Adjusting the pin height gauge
- + Checking the pin height with gauge
- + Correcting the pin height with height adjustment
- + Re-referencing the display of the can height

SEAMING THEORY AND CRITICAL PARAMETERS (ADVANCED)

- + Seam formation and importance 1st operation
- + Seam formation and importance 2nd operation
- + External and internal seam dimensions
- + Measuring the can and end thickness
- + Double seam specification and determination of seam thickness
- + Creasing and crease-free operation or tightness
- + Measurement of crease-free operation or tightness
- + Reading and interpreting the double seam log
- + Errors and troubleshooting on the double seam
- + Precision setting of the base plate spring pressure
- + Assessment of double seam with can and end sample

MEASURING DOUBLE SEAMS

- + Manual seam measurement (tear down method)
- + Automated seam measurement with CMC Kuhnke
- + Additional measurement options and their use

BUBBLE BREAKER AND UNDERCOVER GASSING

- + Preparation and control valve (CO₂, N₂)
- + Setting and optimization options
- + TPO (Total Package Oxygen)

END AND UNDERCOVER STEAM INJECTION

- + Preparation and control valve
- + Setting and optimization options
- + Residual vacuum (measurement and limit values)

OPERATION (ADVANCED)

- + Operation components and touch panel
- + Password structure on the touch panel
- + Adjusting the parameters for gassing
- + Setting the parameters for separate gassing cams
- + Adjusting the parameters for the seamer
- + Editing the format part-dependent entries



Standard training courses in detail

MECHANIC 1

WITH CONFIRMATION OF ATTENDANCE

5 DAYS

The Mechanic 1 training is aimed at employees who are responsible for servicing the seamer. The focus of the training is on preventive maintenance and all the basic settings of the seamer as well as changing the format in reasonable time.



TARGET AUDIENCE

- + Operators, service mechanics and line managers

INTRODUCTION AND SAFETY INSTRUCTIONS

- + Prevention of accidents and conduct during the training
- + Outer wear and personal protective equipment
- + Hazardous zones and safety at the seamer

CANS AND ENDS

- + Short history of the food can
- + Common can types and formats
- + Can manufacturing process
- + Common end types and formats
- + End manufacturing process

SEAMING THEORY AND CRITICAL PARAMETERS (OVERVIEW)

- + Seam formation 1st operation and 2nd operation
- + Common seam dimensions
- + Double seam specification
- + Creasing and crease-free operation
- + Reading the double seam log
- + Common errors and troubleshooting on the double seam

SEAMER DESIGN AND FUNCTION (OVERVIEW)

- + Safety devices
- + Main assembly groups of the seamer
- + Process sequence from the view of the can and end
- + Gassing or steaming and cleaning
- + Compressed air system and centralized oil lubrication
- + Synchronization with the filler
- + Electric cabinet and touch panel

OPERATION (OVERVIEW)

- + Start and stop
- + Jog mode
- + Slow motion
- + Operation components
- + Touch panel level operator

DAMAGE TO CANS AND ENDS

- + Common damage and damage repair for cans
- + Common damage and damage repair for ends

SETTING SEAMING ROLLS

- + Removing and refitting seaming rolls
- + Setting the seaming roll height above the seaming chuck
- + Setting the seaming roll opening for 1st OP and 2nd OP
- + Reading and interpreting the double seam control

BASE PLATE SPRING PRESSURE

- + Setup and function of the lifting station
- + Base plate spring pressure measurement device and how to use it
- + Standard setting for the base plate spring pressure

SEAMING CAMS

- + Rigid seaming cams
- + Disengageable seaming cams for 1st OP check
- + Checking the 1st OP in enabling mode
- + Quick-set seaming cams to correct 2nd OP
- + Immediate check of seaming cam adjustment via seam thickness
- + Basic setting of the quick-set seaming cam
- + Production setting of the quick-set seaming cam

HEIGHT ADJUSTMENT OF THE SEAMING LEVEL

- + Adjusting the seaming level to the new can height
- + Measuring the can height
- + Determining the average can height
- + Calculating the pin height
- + Adjusting the pin height gauge
- + Checking the pin height with gauge
- + Correcting the pin height with height adjustment
- + Re-referencing the display of the can height

MEASURING DOUBLE SEAMS

- + Manual seam measurement (tear down method)
- + Automated seam measurement with CMC Kuhnke
- + Additional measurement options and their use

BUBBLE BREAKER AND UNDERCOVER GASSING

- + Preparation and control valve (CO₂, N₂)
- + Setting and optimization options
- + TPO (Total Package Oxygen)

END AND UNDERCOVER STEAM INJECTION

- + Preparation and control valve
- + Setting and optimization options
- + Residual vacuum (measurement and limit values)

OPERATION (ADVANCED)

- + Operation components and touch panel
- + Password structure on the touch panel
- + Adjusting the parameters for gassing
- + Setting the parameters for separate gassing cams
- + Adjusting the parameters for the seamer
- + Editing the format part-dependent entries

CLEANING AND FLUSHING (OVERVIEW)

- + Technical equipment and function
- + Cleaning plan (Ferrum recommendation)
- + Permissible cleaning and disinfecting agents

MAINTENANCE AND SERVICING (OVERVIEW)

- + Identification of locations for maintenance
- + Maintenance work and intervals
- + Permissible lubricants (oils and greases)

BASIC MACHINE SETTINGS

- + Setup and commissioning
- + Can and end guides
 - Marks and labeling
 - Setting transport elements with setting gauge
 - Setting the end guides
- + End feed
 - Setting the end support
 - Setting the end feed magazine ring
 - Setting the feed screw
 - Setting the retaining knife
- + End release
 - Release process
 - Can detecting sensor
 - Setting the cycle signal
- + Setting the pin height and referencing the height adjustment
- + Setting the knock-out or the knock-down and knock-out cam
- + Subsequent function check with empty can

CHANGE PARTS AND FORMAT CHANGE

- + Distinguishing change parts for cans and ends
- + Dismantling change parts and correctly re-fitting them
- + Procedure, tips and tricks, quick tool changeover
- + Setting the can height or seam level
- + Setting the infeed table guides and bubble breaker height

MALFUNCTIONS AND TROUBLESHOOTING (OVERVIEW)

- + Mechanical malfunctions and troubleshooting
- + Electrical malfunctions and troubleshooting
- + Process malfunctions and troubleshooting



Standard training courses in detail

MECHANIC 2

BASED ON MECHANIC 1

WITH CONFIRMATION OF ATTENDANCE

5 DAYS

On the Mechanic 2 training course, the trainees completely dismantle the seamer. If you are planning to carry out in-depth repairs or overhauls in-house, this training will optimally prepare your employees.



TARGET AUDIENCE

- + Lab technicians, line and production managers
- + Operators and service mechanics

INTRODUCTION AND SAFETY INSTRUCTIONS

- + Prevention of accidents and conduct during the training
- + Outer wear and personal protective equipment
- + Hazardous zones and safety at the seamer

SEAMER DESIGN AND FUNCTION (ADVANCED)

- + Safety devices
- + Adjusting the height
- + Upper part, rotor, round cycle and 2nd OP seaming cam
- + Center part, lifting stations and lifting cam
- + Lower part, main drive and auxiliary drives
- + Can discharge and end feed turret bearing
- + Chain drive and infeed table
- + End feed and end separator
- + Compressed air preparation and distribution
- + Sealing air inside the seamer
- + Progressive centralized oil lubrication and lubrication points
- + Synchronization and timing with the filler
- + Run-up and run-out ramps
- + Noise and accident prevention

SEAMER INSPECTION

- + Checking change parts for wear and damage
- + Checking drive elements for wear and fatigue
- + Checking play and true running on bearings and shafts
- + Checking the oil circuit
- + Determining the spare parts required for the next overhaul
- + Ordering the spare parts catalog and spare parts

LIFTING HEAVY LOADS SAFELY

- + Focus areas and balances
- + Removal of 2nd OP seaming cam and rotor
- + Fitting 2nd OP seaming cam and rotor

PARTIAL DISMANTLING AND ASSEMBLY OF THE SEAMER

- + Adjusting the height
- + Upper part
 - Separating the 2nd OP seaming cam and rotor
 - Seaming chuck shaft and seaming lever shaft
 - Knock-down and knock-out cam
 - Quick-fit seaming cam
- + Center part
 - Central shaft
 - Lifting station and lifting cam
- + Lower part
 - Main drive and auxiliary drives
- + Re-commissioning and function check

CLEANING AND FLUSHING (ADVANCED)

- + Technical equipment
- + Foam cleaning and water cleaning
- + Flushing
- + Manual cleaning
- + Spray shadow test
- + ClO₂ and ECA

MAINTENANCE AND SERVICING (ADVANCED)

- + Preventive maintenance
- + Condition and damage assessment
 - Seals
 - Rolling and sliding bearings
 - Toothed belt
 - Roll chains
 - Toothed wheels and gears
 - Overload clutches

MALFUNCTION CAUSES AND TROUBLESHOOTING (ADVANCED)

- + Infrequent can damage and troubleshooting
- + Infrequent end damage and troubleshooting
- + Mechanical and electrical malfunctions
- + Malfunctions in can transport and end line

Standard training courses in detail

ELECTRICAL ENGINEERING AND AUTOMATION

WITH CONFIRMATION OF ATTENDANCE
2 DAYS

The Electrical Engineering and Automation training gives an overview of the electrical documents and assemblies used. This includes the safety elements used, the sensors and actuators used as well as checking their safe function and correct setting.



TARGET AUDIENCE

- + Service mechanics, industrial electricians and line managers

INTRODUCTION AND SAFETY INSTRUCTIONS

- + Prevention of accidents and conduct during the training
- + Outer wear and personal protective equipment
- + Hazardous zones and safety at the seamer

SEAMER DESIGN AND FUNCTION (OVERVIEW)

- + Safety devices
- + Main assembly groups of the seamer
- + Process sequence from the view of the can and end
- + Gassing or steaming and cleaning
- + Compressed air system and centralized oil lubrication
- + Synchronization with the filler
- + Electric cabinet and touch panel

OPERATION (OVERVIEW)

- + Start and stop
- + Jog mode
- + Slow motion
- + Operation components
- + Touch panel level operator

OPERATION (ADVANCED)

- + Operation components and touch panel
- + Password structure on the touch panel
- + Adjusting the parameters for gassing
- + Setting the parameters for separate gassing cams
- + Adjusting the parameters for the seamer
- + Editing the format part-dependent entries

ELECTRICITY AND SAFETY

- + Electrical and drive technology basics
- + Protective measures against electrical dangers
- + Electrical measurement devices and their use

ELECTRICAL SAFETY EQUIPMENT

- + Emergency stop function and its triggering points
- + Door closer and zero speed monitoring
- + Light column and how to understand it
- + Safety clutches

ELECTRICAL ASSEMBLIES AND THEIR FUNCTION

- + Complete electrical documentation
- + Understanding the electrical documentation
- + Control panels and their use
- + Digital display of height adjustment
- + Programmable logic controller and touch panel
- + Safety components, mushroom button or built-in components
- + Servo drives or frequency converters and braking resistors
- + Process controllers, process valves for gas and steam
- + Sensors, actuators and electrical motors

FAULT FINDING AND TROUBLESHOOTING ELECTRICAL

- + Function check of sensors and actuators
- + Setting the sensors
- + Safety clutches
 - 2nd OP seaming cam
 - Can cycle
 - End release
 - Round cycle
- + Troubleshooting in circuit wiring and cabling



WORLDWIDE



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