







Practice Makes Perfect.

INDUSTRIAL SOLUTIONS A user experience center to maximize your talent. share your experience. optimize your knowledge.

Introduction

This center is not

center, but also a

where people with

place of collaboration

only a training

The site

We welcome our trainees into an environment equipped with both the latest equipment, and our legacy systems. This allows us to provide them with an optimal and more immersive experience.

The goal

Our priority is to ensure that people working on IBA equipment achieve a high level of technical skills. We want to help them to be as empowered as possible so that they can make the right decisions and take the right actions.



Efficient coaching through learning alongside technical experts.

TNEUX

Objectives

Optimizing Field Service Engineer (FSE) time for continuous improvement while at the IBA factory.

 \rightarrow 100% FSE have started their training

Striving for technical excellence for employees and customers.

 → In-depth training plan has been established
→ Remote and hands-on training with experienced trainers

Helping customers to improve uptime thanks to well-trained operators.



03

01

02

Providing remote support for customers.



Developing new features for R&D.

Iba





You will have the opportunity to practice on a **real cavity** and visualize all the elements composing it.

- → Measuring the resonance frequency of the cavity with a network analyser
- → Adjusting electro-magnetic magnets
- ightarrow Purging the cooling system
- → Checking the flowswitch state



E-Source

The **E-source is under high vacuum** as on real installation.



- → Replacing the cathode
- → Using leak detection device and solving the problem
- → Restoring the high vacuum
- → Degassing, HV conditioning, reactivating the cathode
- → Calibrating the Bergoz and the Fil/Grid power supply

Available Modules.

RF

You will work with a **powered RF chain** from the LLRF to the cavity.



- → Measuring the RF signals and checking the frequency matching with a network analyzer
- parameters to adjust the gain and the rest current5

 Performing a dielectric test on a vacuum tube and tuning the vacuum tube power supply



→ Starting the LLRF in continuous or pulsed mode, measuring the signals with the multimeter and observing them with oscilloscope

Water Group

You will operate **a real water group** controlled by the PLC.



- → Controlling and troubleshooting the deionized water group with the user interface
- → Testing the deionized water properties

lba



Beagle®

The **Beagle® Station** is linked the ACS and working with a simulated PHS.



- → Navigating in the Beagle[®] Control, MES and the loading and unloading stations softwares
- → Creating recipes in Beagle[®] MES
- → Understanding the communication between the ACS, the PCS and the PHS
- → Starting a production with a real ACS and a simulated PHS

HMI & Remote Support

You will use the HMI to interact with the ACS through the PLC.

- → Navigating in the different views
- → Understanding the PLC hardware links by measuring signal on cable
- → Troubleshooting a real fault with HMI first interlock and beam history
- → Learning to be efficient with remote help with IBA FSE



Available Modules.



1ba



INDUX Center offers a series of training courses, some of which are available in 2 levels.

In order to guarantee the most successful outcome of the sessions, it is strongly recommended that the **participants have previously trained and fulfilled the prerequisites** described in the 3 manuals received with the Rhodotron[®], namely the operating, maintenance and description guides.

It is also strongly recommended that participants have good electrical and mechanical skills.

Safety First: All safety aspects will be reminded during the training week.

At the end of the training session an attendance certificate will be given to the participants.

Training catalog.

Rhodotron[®] Cavity

TOPICS	BASIC	ADVANCED	THEORY	PRACTICE
Power supplies basics	X	-	Х	-
Overview	x	-	Х	-
E-beam and X-ray physics basics	x	-	Х	-
Wiring list theory	x	-	Х	-
BOM theory	x	-	Х	-
Electrical system - Basic material and tools	x	-	-	Х
Mechanical tools, connectors and use	x	-	-	Х
General tasks training for a preventive maintenance	x	-	-	Х
Magnetic circuit	-	x	Х	-
Deflection magnets tuning	-	x	-	Х

E-SOURCE

TOPICS	BASIC	ADVANCED	THEORY	PRACTICE
Vacuum theory	x	-	Х	-
Vacuum pump replacement	x	-	-	Х
E-Source cathode replacement	x	-	-	Х
Bergoz calibration	x	-	-	Х
E-Source magnet tuning	x	-	-	Х
TPG parameters setting	x	-	-	Х
Pulsed mode- Theoretical training	-	x	Х	-
E-source - Theoretical training	-	x	Х	-
E-source, PS and control boards replacement/ calibration	-	x	-	Х
E-source oil capacitor replacement	-	x	-	Х
E-source resonator PCB replacement/tuning	-	x	-	Х

RF

TOPICS	BASIC	ADVANCED	THEORY	PRACTICE
Radio Frequency (RF) - Introduction	x	-	Х	-
Driver tetrode replacement	X	-	-	Х
Tetrode replacement of the FPA	x	-	-	Х
Network analyzer and oscilloscope practical training	X	-	-	Х
LLRF theoretical training	-	x	Х	-
RF chain	x	x	Х	-
Pre-driver replacement and tuning	X	-	-	Х
Pulsed mode practical training	-	x	-	Х
Pick up tuning (LLRF and E-Source)	-	x	-	Х
FPA kapton replacement	X	-	-	Х
Electron vacuum tube testing	X	-	-	Х

Water group

TOPICS	BASIC	ADVANCED	THEORY	PRACTICE
Circuit purging of the cooling system	X	-	-	х
Troubleshooting water group with HMI	X	-	-	х
Testing the deionized water properties	X	-	-	х

HMI

TOPICS	BASIC	ADVANCED	THEORY	PRACTICE
Software – User interface training	x	-	-	Х
Advanced HMI use	-	x	-	Х

Beagle®

TOPICS	BASIC	ADVANCED	THEORY	PRACTICE
Starting a production with Beagle® MES, Beagle® control	x	-	-	Х
Advanced Beagle® use	-	x	-	Х

A Typical training week. Basic level.



Life, Science.

ABOUT IBA

IBA (Ion Beam Applications) is a global medical technology company focused on bringing integrated and innovative solutions for the diagnosis and treatment of cancer. The company's expertise lies in the development of next-generation proton therapy technologies and radiopharmaceuticals that provide oncology care providers with premium quality services and equipment, including IBA's leading fully-integrated IntegraLab® system.

ABOUT IBA INDUSTRIAL

IBA INDUSTRIAL is the world leader in electron and proton accelerators for industrial applications and supplies end-to-end irradiation solutions.

IBA's unique E-beam, X-ray and Proton treatment solutions are used across the world in many different applications such as medical device sterilization, food pasteurization, property enhancement for various materials, etc.

IBA Industrial supplies end-to-end irradiation solutions from site planning and optimization, engineering and integration of all operational sub-systems to assistance in operation.

Over 250 IBA Industrial accelerators are used in the world today, some for more than 50 years.

IBA GROUP

IBA delivers solutions of unprecedented precision in the fields of cancer diagnosis and therapy. The company also offers sterilization and ionization solutions to improve the hygiene and safety of everyday life.

IBA, a Belgian company, is listed on the Paneuropean stock exchange EURONEXT.



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