

Training Overview



Invest in your Future. Focus on Knowledge and Education.

One key to success is the appropriate education of your staff.

The YASKAWA ACADEMY offers you a broad range of courses tailored to the level of knowledge of the participants – from entry-level to expert.

Welcome to the YASKAWA ACADEMY



» *Our customers are the experts when it comes to solving concrete problems practically. Our products are tools that enable our customers to effectively realize the developed solutions.*

However, to get the most from the products, it is necessary to obtain accurate knowledge about the functionality of the components and – what gains more and more in importance – to recognise the interaction of the products in the group system and to exploit opportunities.

Exactly that is the task of our YASKAWA ACADEMY, namely imparting this knowledge to our customers. Our team is in the position to provide broad and detailed expert knowledge about our products – but also to discuss solutions in dialogue with our customers: from the product to the solution! Control technology, drive technology and robotics grow together more and more in concrete applications. It is therefore only logical that the YASKAWA ACADEMY now offers an integrated training approach, which embraces all YASKAWA product lines. – «
For the benefit of our customers!

Manfred Stern

Corporate Officer –
Regional Head YASKAWA Europe

Contents

Introduction	4
What to expect	5
Total Customer Support	6
YASKAWA ACADEMY Eschborn	8
Training Staff Eschborn	9
YASKAWA ACADEMY Allershausen	10
Training Staff Allershausen	11
YASKAWA ACADEMY Herzogenaurach.....	12
Qualification is your Key to Success	14
Structure and Basis of Training	15
Robot Application.....	16
Break the Code	17

Trainings

Trainings for everyone	18
-------------------------------------	----

YASKAWA Product Training	19
---------------------------------------	----

Robot Programming BASIC

Path-Related Programming	20
Point-Related Programming.....	21
SMART Pendant Programming.....	22
Collaborative Programming	23

Robot Programming ADVANCED

Training for Advanced	24
-----------------------------	----

Safety	28
---------------------	----

System Integration	30
---------------------------------	----

Maintenance

Service	31
Mechanical Maintenance	32
Mechatrical Maintenance.....	32
Electrical Maintenance	36

Robot Software	38
-----------------------------	----

Certification	42
----------------------------	----

Drive Technology (Drives & Motion)

Frequency Converter (Drives).....	44
Machine Control (Motion Controller IEC)	45
Servo-Drive Technology (Servo)	45

Control Technology (SPS)	46
---------------------------------------	----

On-site Training	48
Our mobile Training Cell.....	49

Open Training	50
E-Learning	51
Online-Shop	52
Registration	53
General Terms and Conditions Cancellation Hours Liability	54
How to find us	55

Investing in your Employees pays off!

SUCCESS depends on the Performance of your Staff

Take advantage of our proven training concept. For almost 30 years we have provided professional trainings. Over the last years we extended our offer to all product areas of the YASKAWA group.

The trainings in robotics, drive and control technology have been restructured in order to provide you with an easier selection. Safety technology is becoming more and more important. This is why we put particular emphasis on the topic.

Our modular course program offers trainings for various applications and for any level of knowledge.

Many participants praise our balanced approach in which we place special emphasis on the practical application without therefore neglecting the theoretical aspects of the course. In this manner, we can guarantee efficient and practice-oriented learning and ensure that the acquired knowledge can be applied directly upon return to the company.

Thanks to continuing education, our team of trainers is always at the current state of knowledge concerning automation. Upon request, we will be glad to create a customised training concept based on your needs and requirements.

In addition to our on-site trainings, we also launched an e-learning program which can be used in combination or as addition to the traditional training to refresh, complete and strengthen your knowledge.

Motivate your employees, increase user safety and reduce downtimes through targeted training at YASKAWA ACADEMY.



»» *Be patient – every beginning is difficult ... but not with YASKAWA.*

Automation with YASKAWA is much easier and intuitive than you think. Our training is the fastest and best way for a successful start and will help you move into gear and target the right direction. Over 20 years of experience with an awesome customer feedback are the proof of it.

Enjoy your visit with us. We are sure that you will be excited. ««

Torben Schäfer
Manager of YASKAWA ACADEMY;
YASKAWA Europe GmbH

With our training programme we want to:

- Impart them with knowledge to enable proper action
- Give you security and confidence in your facility
- Provide you and your employees with further qualifications through training for facility availability to secure your robotic systems at a high level
- To support you at an early sDays so that problems find no foothold
- Assist you with your processes and thus help to optimize and secure the productivity of your facility
- With increasing yield from your facility
- To guarantee your success
Because YOUR SUCCESS is our MOTIVATION!

What to expect.

All-Round Learning Experience with highest Standards.

Since we have started to offer separate training courses, we have always set great value upon making the whole experience as “nice” as possible. In the past, a pot of coffee was sufficient. A lot has happened since then. Nowadays we know that intense learning processes involve all the senses of the learner and that emotions play an important role in knowledge acquisition.

Always striving for the highest quality standards, our experience has been sustainably evaluated and has, ultimately led us to where we are today. Yet we are not stopping here, we consider the point we have reached so far as a starting point to get to the next level. There is no end in sight, so over the years you will experience continuous positive changes at YASKAWA ACADEMY.

What to expect at YASKAWA?

Only if you feel comfortable and don't have to worry about anything, you can fully focus on your training. During the training – even during breaks – everything is taken care of.

Our quality requirements towards our training:

- Limited number of participants in the course so that you get the most out of your training
- 1 robot system for a maximum of 2 participants so that everyone gets to practice
- Elaborate training materials
- Targeted exercises and tasks to make sure that the penny drops quickly

Our quality requirements towards our learning environment:

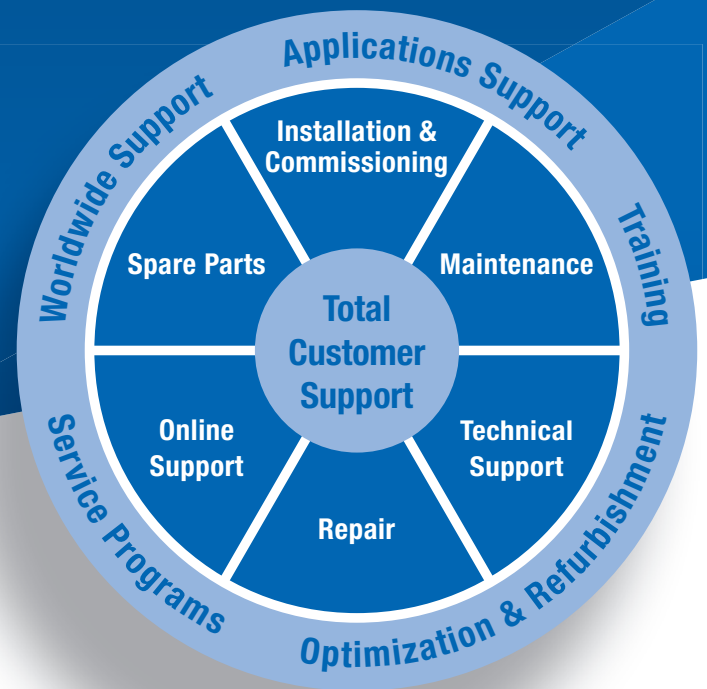
- Air-conditioned rooms
- Versatile robot technology with different applications
- Large selection of hot and cold drinks
- A training lobby where you can clear your mind during breaks
- A canteen with fresh and healthy food
- A fruit basket for a between-meal snack

Our quality requirements towards our staff:

- Polite, friendly, helpful and patient
- Prepared for your training
- Always ready to help with upcoming problems
- We take our time – if you need more time, we won't look at the watch too closely



Total Customer Support



Customer satisfaction is our top priority!

As soon as you consider acquiring an automation solution or robot for your company, that is where we come in.

With many years of expertise in this field, and in-house coverage of all areas, we are able to offer comprehensive service that truly deserves the name "Total Customer Support".



Service is a matter of attitude

The objective of our range of customer support services is:

- To give you a sense of security and confidence in your system
- To train your employees and offer them further qualifications for the purpose of maximizing the availability of your robot systems
- To provide you with timely support, preventing problems before they can arise
- To provide you with process support, thereby optimising and ensuring the productivity of your system
- To ensure that you enjoy high levels of system availability and quality
- To ensure your success

Retrofitted dependability:
Transforming the old into the new

In automated production, industrial robots are taking over key tasks at a wide range of different areas. This means that operational interruptions due to technical factors must be reliably avoided – even if the manipulators and controllers involved have been in use for many years or even for multiple decades. In light of these requirements, systematic retrofitting programmes ensure the highest levels of operational reliability and superior security of investment.

Retrofit means that an aging robot undergoes a scheduled overhaul or is replaced. YASKAWA offers both options. In the case of a complete overhaul, the robot is completely disassembled at the Allershausen robotics plant, where it is refurbished to its original condition. The robot is then returned to the customer. We recommend this programme if the robot is already expected to be out of service for a certain period of time, for example in the case of a product changeover.

However, sometimes things need to move a bit faster. In this situation, we recommend replacing the robot using a fully refurbished version of the same model with identical specifications. The only requirement for this type of replacement is a readjustment of the work plans, which can be done in just a few hours.

tcs-sales@yaskawa.eu.com
Tel. +49 (0) 81 66 / 90 – 20 02



Only an operational system earns money



Although YASKAWA MOTOMAN robots and systems are known for their low maintenance requirements, the value of continuous servicing and preventive maintenance must not be underestimated.

Throughout the service life of its products, YASKAWA offers optimal all-round support in the form of regular preventive maintenance, customer support, spare parts support, optimization and modernization. This also refers to your applications and processes, ensuring that the availability of your system remains high.

With our global service network and 360° comprehensive support service, YASKAWA is always in your vicinity to ensure your success.

Your success is our motivation!

High availability guaranteed

Rapid help is on hand at all times with our unique stock of parts for all controller and robot types.



Expert advice regarding which spare parts to select or what components to keep in store ensures maximum production reliability.

Spare-parts-sales@yaskawa.eu.com
Tel. +49 (0) 81 66 / 90 - 20 00

Service agreements for peace of mind

YASKAWA MOTOMAN service agreements minimize the risk of system downtime and thus reduce service costs.

To find out more, simply call us for a personal consultation.

Our telephone support is there for you when help is needed fast

Our experienced technicians are only a phone call away to provide you with fast and competent advice on every aspect of your robot system.

Technical Support*



+49 1805-762683

tcs@yaskawa.eu.com

Call us!

* 14 ct/min. from landlines, mobile phones charges can vary.

You can be certain that our experts are thoroughly familiar with the systems and can quickly recommend the solution you need.

Rarely needed – always appreciated

It is always good to have a partner who can help you in an emergency. For instance, the staff at our repair centers where we can repair all controller and robot components.

Since YASKAWA produces robots, controller components and servomotors in house, we can offer servicing for the entire system.

This includes repairs to:

- Servomotors
- Servo packs
- Teach pendants (loan of teach pendants during repairs)
- CPU and I/O boards
- In-house repair and overhaul of complete robots, controllers and robot systems

In order to minimize production downtime of your systems, we offer overhauled exchange robots in the case of major, more complicated robot repairs.



We would be happy to advise you individually on this matter.

repair.de@yaskawa.eu.com
Tel. +49 (0) 81 66 / 90 - 20 05

YASKAWA ACADEMY Eschborn

Robotertechnik



The courses of the YASKAWA ACADEMY in Eschborn near Frankfurt are presented using the latest technology and teaching methods. As European headquarters we set the highest standards for the quality of the execution and performance of our international training.

Our courses are held routinely in English or German. Interpreters can be arranged for courses in other languages upon request. All training sessions are organised and coordinated at our headquarters in Eschborn. The proximity to the international Frankfurt Airport offers the advantage of being able to reach us quickly and easily – worldwide.

Our YASKAWA ACADEMY in Eschborn is equipped with:

- A 1700 m² training area
- 7 training rooms with the latest presentation technology
- Over 60 robots of different controller generations
- Almost all applications and various application examples
- 9 technical trainers, 3 training coordinators
- A canteen – free catering with food and drinks included in the course price

In addition to all basic training courses, Eschborn is the competence centre for:

- Maintenance
- Painting
- Vision and sensor technology
- Safety training
- Drive technology
- HRC applications



Trainer overview

YASKAWA ACADEMY Eschborn

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 Manager Training



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 Technical Trainer



Martin Fuchs
 Technical Trainer



Jürgen Rother
 Technical Trainer



Andreas Kähler
 Technical Trainer



Jens Borchardt
 Technical Trainer



Arne Tiemer
 Technical Trainer



Nadine Walter
 Technical Trainer



André Yamazaki
 Technical Trainer



André Köhler
 Technical Trainer

YASKAWA ACADEMY Allershausen – Robotics



Especially for our customers from Switzerland, southern Germany and Austria, we offer training at the location of Allershausen and, subsequently, we create shorter journeys and move a bit closer to our customers. The close proximity to the Production, Maintenance and Development Department allows you to consult our experts or even to visit your facility during commissioning. In Allershausen we also teach in English and German. Interpreters can be arranged for courses in other languages upon request.

Our YASKAWA ACADEMY in Allershausen is equipped with:

- A 380 m² training area
- 3 training rooms with the latest presentation technology
- 16 robots in different applications and application examples
- 2 technical trainers
- A canteen mit kostenfreier Versorgung

In addition to all basic training courses, Allershausen is the competence centre for:

- Spot welding
- Arc welding
- Pallet Solver
- Twin-Synchron programming



Trainer overview

YASKAWA ACADEMY Allershausen

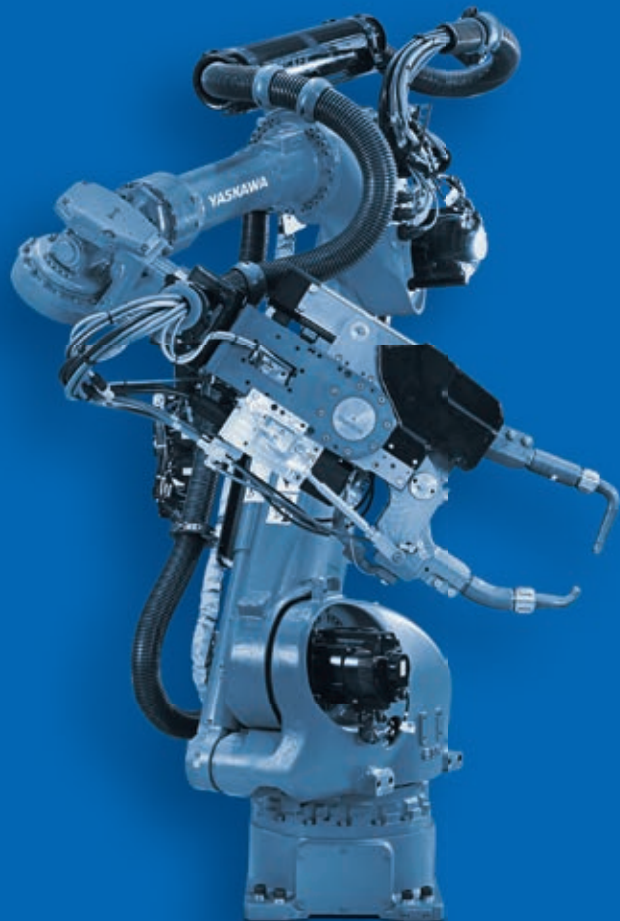
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Roland Drehsen
Training Leader Allershausen



Thomas Purm
Technical Trainer



YASKAWA ACADEMY Herzogenaurach – Control Technology (VIPA)



Due to the central geographical position, the way to innovative training to almost all points in Germany is easily accessible.

The close proximity to the Production, Maintenance and Development Department allows you to consult our experts or even to visit your facility during commissioning.

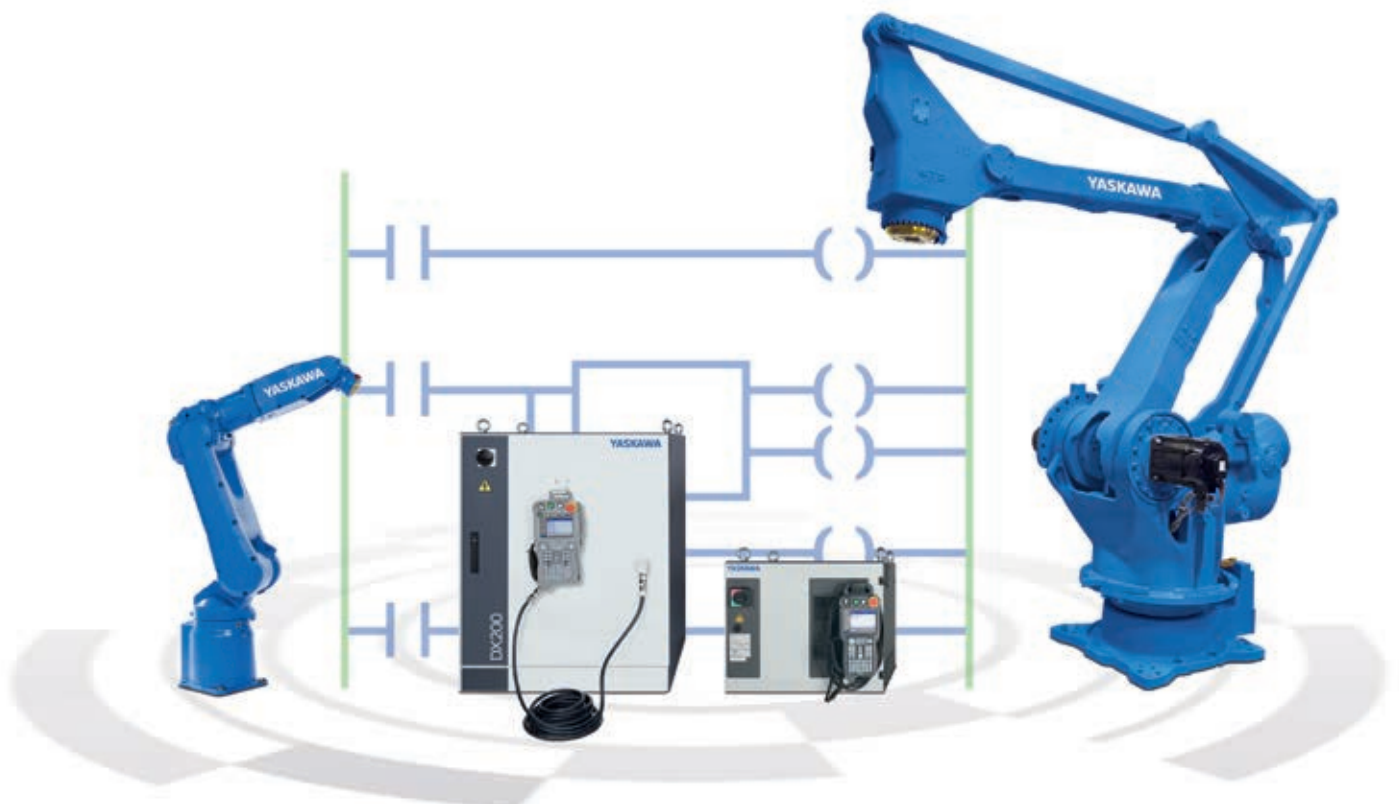
In Herzogenaurach, Germany, we also teach in German and English.

Our VIPA ACADEMY in Herzogenaurach has:

- A 150 m² training area
- 4 training rooms with the latest presentation technology
- A canteen – free catering with food and drinks included in the course price

MOTOLOGIX – INTERFACE FOR MOTOMAN ROBOT PROGRAMMING AND CONTROL VIA PLC

You can program PLC, VIPA, Siemens,
Beckhoff, Allen-Bradley, B&R, Rockwell?
...then you can also program a MOTOMAN Robot.



Supported
platforms:

YASKAWA
PROFINET

SIEMENS
TIA S7-300
PROFINET

SIEMENS
TIA S7-1500
PROFINET

SIEMENS
SIMOTION
PROFINET

Beckhoff
EtherCAT

B&R
POWERLINK

Rockwell
EtherNet/IP

Qualification is your Key to Success.

In addition to our standard courses we offer upon request customised training, in which we can cater for customerspecific requirements and equipment, and specialised functions. The possibility also exists – upon request – to conduct a variety of courses at customers' facilities.

Our "Training Overview" on the following pages will assist you in finding a suitable training course(s).

For more information, events, and current training courses please look in the field of YASKAWA ACADEMY under:

<http://academy.yaskawa.eu.com/yaskawa/>

A detailed description of the training courses, the training dates and prices can be found online.

Our Training Programme Offering is divided into the following twelve colour-coded Areas:

Structure and Basis of Training			Page
	Trainings for everyone	Here you will find the basics for interested people who have not yet had any contact with this technology and would like to gain an insight	18
	YASKAWA Product Training	Overview of all current products and of the application areas and opportunities they offer	19
	Robot Programming BASIC	Basics path-related programming Basics point-related programming Basics SMART Pendant programming Basics collaborative programming	20 21 22 23
	Robot Programming ADVANCED	Depending on your programming requirements, you will find various advanced topics that will provide you with the necessary knowledge for your robot application	24–27
	Safety	All training courses, from machine guidelines to functional safety, can be found here	28–29
	System Integration	For all those who build systems and machines themselves and integrate robots	30
	Maintenance	From data backup, greasing, battery replacement to mechanical or electrical repair, you will find the ideal training your product	31–37
	Robot Software	Data backup, data exchange, calibration or off-line programming – our software training will provide you with all the knowledge you need	38–40
	Certification	You want a YASKAWA Robotic bachelor- or master's degree? Here you can find out more about the certification	42–43
	Drive Technology (Drives & Motion)	Training for Drives & Motion products, from frequency converters via machine control and servo drives	44–45
	Control Technology	PLC programming, Visualization of touch panels and HMI	46–47
	On-site Training	On-site training at your company	48

A few Words about your Robot Application. Are you interested in the Journey or the Reward?

Each customer application is, in its own way, customised and unique. However, for didactic reasons the training must be based on a golden thread. By dividing the training into four different areas, we always keep your solution in mind without losing the golden thread.

Classification into four different programming areas:

- Path-related programming
- Point-related programming
- Collaborative programming
- SMART Pendant programming

If you are not sure which area you belong to, please get in touch.

What is your generation?

YASKAWA is known for never introducing a complete make-over for new controller generations. Reliable components are maintained. We only work on those areas where there is room for further optimisation or technical improvement. The advantage for you is that once

you have learned how to program, you can handle different controller generations. Each generation group uses the same programming pendant – that's why we divide our controllers into controller groups. Within a generation group, differences are quite marginal.

Generation NX		Generation DX			Generation YRC		SMART Pendant
							
NX100	NXC100	DX100	FS100	DX200	YRC1000	YRC1000 micro	
							

Do you still work with an “oldie” of generation ERC, MRC or XRC?
Contact us, we will be glad to help.

Break the Code.

What is the Meaning behind the Training Code and the Signs?

Explanation of the tables on the following pages

Training code and name	RB1M Path-Related Operator Training	RB2M Path-Related
Duration (days)	2	4
Number of participants (min./max.)	2-8	2-8
Target group	Robot operator	Programmer
Prerequisites	None	None
Controller	Generation NX, DX, YRC	Generation NX
Training location	Allershausen, Eschborn, on-site	Allershausen, Eschborn, on-site

RB1MDGB

YASKAWA Division	Training Level	Number	Related specification	Controller Generation	Language
R = Robotic	B = Basic	Current Training Number	M = Mechanic	M = MRC or MRC2	DE = German
D = Drive	A = Advanced		E = Electronic	X = XRC	GB = English
MC = Motion Control	E = Expert		MT = Mechatronic	N = NX100 or NXC100	FR = French
C = Control	S = Safety		M = Movement	J = JRC	ES = Spanish
S = Servo	R = Repair		P = Position	D = DX100 or FS100 or DX200	
G = General YASKAWA	I = Integrator		C = Colaboration	Y = YRC1000 or YRC1000 micro	
	O = On Site			S = SMART Pendant	
	SO = Software				
	FT = Free Training				
	CT = Customized Training				



Training for everyone

Automation for Beginners.

You have no special knowledge of automation technology and would like to get a first impression of the world of automation? Then our **“for everyone”** courses are just perfect for you.

Regardless of whether you use robots, servo drives, frequency converters or PLC – we will introduce you to the fantastic world of automation in just one day.

You will get a basic insight into how everything works. At the end of the training, you will be able to create a simple robot program and understand the basic concept of drive technology, no matter whether you have a frequency inverter or servo motor. Or you will finally know why technicians need a PLC and what possibilities it offers.

RBO	Newcomer Robotics
1	We offer an insight into the world of YASKAWA robotics for anyone who has not yet worked with industrial robots, but finds the topic exciting and interesting. You will get to know different robot types, get an overview of their use and areas of application. We will show you how to manually control a robot and create your first small robot program.
4–12	
	Anyone curious or interested
	None
	Allershausen, Eschborn

CBO	Newcomer PLC
1	Understanding the basics of the technology and application areas of PLC (programmable logic controller). Product overview.
4–12	
	Anyone curious or interested
	None
	Eschborn, Herzogenaurach

DBO	Newcomer Frequency Converter
1	Understanding the basics of the technology and application areas of automation modules. Product overview.
4–8	
	System and machine builders, system integrators
	Technical understanding
	Eschborn

SBO	Newcomer Servo-Drive Technology
0,5	Understanding the basics of the technology and application areas of servo drives. Product overview.
4–8	
	System and machine builders, system integrators
	Technical understanding
	Eschborn





YASKAWA Product Training

What does YASKAWA do?

You are a system integrator or YASKAWA representative?

Our product trainings give you an overview of the current product portfolio.

RB1 Product Training Robotics	
1	Overview of the current robot portfolio, positioners, tracks, accessories, extensions as well as software and services. Basics for the selection and correct use of the products.
4-8	
	System and machine builders, system integrators
	Newcomer Robotics
	Allershausen, Eschborn

CB1 Product Training Control	
1	Understanding the basics of the technology and application areas of automation modules. Being able to make the right selection of products and the appropriate options.
4-8	
	System and machine builders, system integrators
	Technical understanding
	Eschborn, Herzogenaurach

DB1 Product Training Frequency Converter	
2	Product information of the current product portfolio. Being able to make the right selection of products and the corresponding options. Standard commissioning.
4-8	
	System and machine builders, system integrators
	Newcomer frequency converters
	Eschborn

MC1 Product Training Machine Control IEC	
1	Understanding the basics and application fields of the IEC machine control. After this training you will be able to make the right choice of servo products.
4-8	
	System and machine builders, system integrators
	Technical understanding
	Eschborn

SB1 Product Training Servo-Drive Technology	
1	After this training you will be able to make the right choice of servo products.
4-8	
	System and machine builders, system integrators
	Newcomer Servo-Drive Technology
	Eschborn





Path-Related Programming

The Journey is the Reward!

Arc Welding • Cutting • Spot Welding • Painting • Bonding • Dosing • Sealing • Deburring • Grinding • Polishing • Milling • Engraving and much more

Trainings for **Path-related Programming** cover all robot applications where the application is a movement and therefore a programmed path is required.

As far as possible, special commands that activate the tool will be treated individually during the training.

RB1M	Path-Related Operator Training
2	Safe and proper operation of a robot. Basic knowledge of robotics.
2-8	From creating a simple program via "re-teaching" up to data backup.
	Robot operator
	None
	Generation NX, DX, YRC
	Allershausen, Eschborn, on-site

RB2M	Path-Related Basic Training
4	Basic knowledge of robotics. Safe and proper programming and operation of a path-related robot.
2-8	Understanding and using robot applications with path-related standard instructions.
	Programmers, system integrators
	None
	Generation NX, DX, YRC
	Allershausen, Eschborn, on-site

RB3M	Path-Related Crossover Training
2,5	Application of the knowledge of and experience with other industrial robots to MOTOMAN robots.
2-6	The contents of the basic training course are taught in less time.
	System operators, programmers, maintenance and service staff, system integrators
	Basic training for other industrial robots
	Generation NX, DX, YRC
	Allershausen, Eschborn, on-site

RB4	Path-Related Upgrade Training
2	Existing knowledge of older controllers is updated to the current generation and new functions of the standard settings are explained.
2-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training for older YASKAWA controllers (generation NX or DX)
	DX200, YRC1000
	Allershausen, Eschborn, on-site





Point-Related Programming

Get to the Point!

Handling • Assembly • Machine Operator • Loading and Unloading • Picking, Packing, Palletising • Commissioning and more

Trainings for **Path-related Programming** cover all robot applications that require position-related programming.

As far as possible, special commands for tool activation will be treated individually during the training.

RB1P	Point-Related Operator Training
2	Safe and proper operation of a robot. Basic knowledge of robotics.
2-8	From creating a simple program via "re-teaching" up to data backup.
	Robot operator
	None
	Generation NX, DX, YRC
	Allershausen, Eschborn, on-site

RB2P	Point-Related Basic Training
4	Basic knowledge of robotics. Safe and proper programming and operation of a point-related robot.
2-8	Understanding and using robot applications with path-related standard instructions.
	Programmers, system integrators
	None
	Generation NX, DX, YRC
	Allershausen, Eschborn, on-site

RB3P	Point-Related Crossover Training
2,5	Application of the knowledge of and experience with other industrial robots to MOTOMAN robots.
2-6	The contents of the basic training course are taught in less time.
	System operators, programmers, maintenance and service staff, system integrators
	Basic training for other industrial robots
	Generation NX, DX, YRC
	Allershausen, Eschborn, on-site

RB4	Point-Related Upgrade Training
2	Existing knowledge of older controllers is updated to the current generation and new functions of the standard settings are explained.
2-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training for older YASKAWA controllers (generation NX or DX)
	DX200, YRC1000
	Allershausen, Eschborn, on-site

RB5P	Training PalletSolver
3	Proper operation and use of the "PalletSolver" application for palletising and an easy situation overview.
2-4	Fault diagnosis and troubleshooting.
	Operation with PalletSolver application
	Upgrade, crossover or basic training
	Generation DX, YRC
	Allershausen, Eschborn





SMART Pendant Programming

Pretty SMART

Our **SMART Pendant Programming** training differs from the other variants by the use of the SMART Pendant.

The operation and programming language is very simple and intuitive. With the training, you will achieve the desired success much faster and easier. During the training, the application will be explained using various examples.

RB1S	Operator Training SMART Pendant
2	Safe and proper operation of a robot by using SMART Pendant. Basic knowledge of robotics. From creating a simple program via "re-teaching" up to data backup.
2-8	
	Programmers, system integrators
	None
	Generation YRC
	Allershausen, Eschborn, on-site

RB2S	Basic Training SMART Pendant
4	Basic knowledge of robotics. Safe and proper operation and programming of a robot by using SMART Pendant. Understanding and using robot applications with standard instructions.
2-4	
	Programmers, system integrators
	None
	Generation YRC
	Allershausen, Eschborn

RB3S	Crossover Training SMART Pendant
2,5	Existing knowledge and experience with other industrial robots is applied to MOTOMAN robots with SMART Pendant. The contents of the SMART Pendant basic training are taught in less time.
2-6	
	System operators, programmers, system integrators
	Basic training for other industrial robots
	Generation YRC
	Allershausen, Eschborn, on-site

RB4S	Upgrade Training SMART Pendant
2	Existing knowledge of older YASKAWA controllers is applied to the generation with SMART Pendant.
2-6	
	Programmers, system integrators
	Basic training of generation NX or DX
	Generation YRC with SMART Pendant
	Allershausen, Eschborn





Collaborative programming

Hand in Hand

HRC applications

Trainings for **Collaborative Programming** cover all robot applications that are collaborative or coexisting.

The special kinematics of the industrial robot and its human-robot application are trained during the course. The manually operated or conventionally programmed application is taught with due regard to safety and compliance with all regulations. Special work commands that activate the tool are taken into account in the training as far as possible.

RB1CY	Collaborative Operator Training
2	Use robots with collaborative applications properly and safely. Basic knowledge of robotics.
2-8	
	Robot operator
	None
	Generation YRC
	Eschborn

RB2CY	Collaborative Basic Training
4	Basic knowledge of robotics. Safe and proper operation of a collaborative robot. Understanding and using collaborative robot applications with standard instructions.
2-8	
	Programmers, system integrators
	None
	Generation YRC
	Eschborn

RB3CY	Collaborative Crossover Training
2,5	Application of the knowledge of and experience with other industrial robots to MOTOMAN HC robots. The contents of the basic training course are taught in less time.
2-6	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training for other industrial robots
	Generation YRC
	Eschborn

Human-robot related applications are subject to legal safety regulations.

Please note training RS5 or RS6 on page 29.

RB4CY	Upgrade Training HC
1	Existing knowledge of standard YRC1000 controllers is extended to the requirements of collaborative robot technology.
2-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training for older YASKAWA controllers (generation NX or DX)
	Generation YRC
	Eschborn





Advanced Training

Want more?

Depending on your robot application, in this section you will find time-proven standards trainings. These courses will allow you to master and optimise your application in no time.

RA1	Advanced Programming Training 1
4	Program robot applications with extended instructions and functions. Setting menus and robot-specific files are explained. High level instructions, JOB processing, moments of inertia for tools, Interrupt Job and file attachments are explained.
2-6	
	Programmers, machine setters, maintenance staff and system integrators
	Upgrade, crossover or basic training
	FS100, DX100, DX200, YRC1000, YRC1000micro
	Allershausen, Eschborn

RA2	Advanced Programming Training 2
4	Program applications with extended instructions and functions. Makro Job, System Job, anticipator function, TCP ON/OFF, Relative Job, Multitask with axis group and Express (SET) will be explained.
2-6	
	Experienced programmers and machine setters, maintenance staff and system integrators
	Advanced programming training 1
	FS100, DX100, DX200, YRC1000, YRC1000micro
	Allershausen, Eschborn

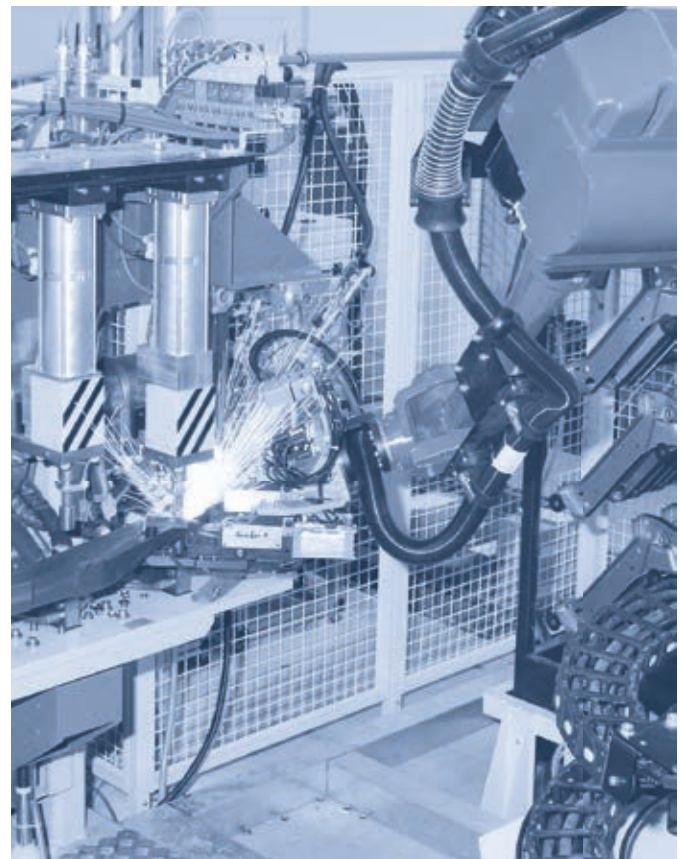
RA3	Advanced Programming Training 3
3	Program applications with extended instructions and functions. External TCP Servo Float, Special Shift (e.g.3D Shift), Master Tool coordinates, endless rotation, speed control and further programming with MULMAT, INVMAT etc. will be explained.
2-6	
	Experienced programmers and machine setters, maintenance staff and system integrators
	Advanced programming training 1 and 2
	DX200, YRC1000, YRC1000micro
	Allershausen, Eschborn

RA5	Advanced Training Digital Power Sources
2	Operation of already existing welding power sources. Organisation in the weld controller. Working with the welding power sources software. The training is conducted with the following manufacturers: SKS, Fronius, EWM and BINZEL. Upon request additional manufacturers are possible.
2-6	
	Experienced programmers and system operators
	Basic arc welding knowledge, upgrade, crossover or basic training
	NX100, DX100, DX200
	Allershausen, Eschborn, on-site





RA6 Advanced Training WELDCOM	
2	Using and programming with WELDCOM interface. Setting of welding parameters and control of the PP.
2-6	
	Experienced programmers and system operators
	Basic arc welding knowledge, upgrade, crossover or basic training
	DX100, DX200
	Eschborn



RA7 Advanced Training Analogue Power Sources	
2	The calibration of analogue welding power sources. Defining and using the welding data and special welding functions.
2-6	
	Experienced programmers and system operators
	Basic arc welding knowledge, upgrade, crossover or basic training
	NX100, DX100, DX200
	Allershausen

RA8 Training TCP Control Check (Q-Set)	
2	Technical basics of the TCP Control Check System (Q-Set). Set up and calibration of the systems. Application of TCP Control Check.
2-6	
	Q-Set-experienced programmers
	Upgrade, crossover or basic training
	NX100, DX100, DX200
	Eschborn

RA9 Training COMARC	
3	Getting to know, using and applying welding seam tracking with the COMARC function.
2-6	
	Experienced programmers and system operators
	Upgrade, crossover or basic training
	NX100, DX100, DX200
	Allershausen, on-site

RA10 Training Multilayer	
1	Getting to know, using and applying multilayer welding. Importance of Euler angles.
2-6	
	Experienced programmers and system operators
	Training COMARC
	NX100, DX100, DX200
	Allershausen, on-site

RA11 Training Search Function	
2	Technical basics for a proper use of the search function. Fault diagnosis and troubleshooting. The aim of the search function is to successfully find what you are looking for.
2-4	
	Operators using the search function
	Upgrade, crossover or basic training
	NX100, FS100, DX100, DX200, YRC1000
	Allershausen, Eschborn, on-site



RA12 Training Basics Sensoric	
1	Technical basics for a proper use of sensor systems. Fault diagnosis and troubleshooting.
2-4	
	Experienced programmers and system operators
	Upgrade, crossover or basic training
	NX100, FS100, DX100, DX200, YRC1000
	Allershausen, Eschborn, on-site



RA13 Training Multirobot	
2	Programming parallel and simultaneously working robot systems with two or more robots.
2-6	
	System operators, programmers, maintenance and service staff, system integrators
	Upgrade, crossover or basic training
	NX100, FS100, DX100, DX200
	Allershausen, on-site

RA14 Training Multirobot Synchron	
3	Programming robot systems with two or more robots and synchronous movements.
2-6	
	System operators, programmers, maintenance and service staff, system integrators
	Upgrade, crossover or basic training
	NX100, FS100, DX100, DX200
	Allershausen, on-site

RA15 Training Dual Arm Robot	
3	Programming dual-arm robots with parallel and synchronous movements.
2-6	
	System operators, programmers, maintenance and service staff, system integrators
	Upgrade, crossover or basic training
	FS100, DX100, DX200
	Eschborn, on-site

RA16 Advanced Training Spot Welding	
2	Application of MOTOMAN spot welding. Application and use of data with servo guns.
2-4	
	Experienced programmers and system integrators
	Basic spot welding knowledge, upgrade, crossover or basic training
	DX100, DX200
	Allershausen

RA17 Advanced Training Painting	
2	Application of application-related instructions for painting applications. Use of painting data. Conveyor synchronization with different options.
2-4	
	Experienced programmers and system integrators
	Basic painting technology knowledge, upgrade, crossover or basic training
	NX100, DX200
	Eschborn



RA18		Training VISION General
2	Technical basics of camera systems. Set up and calibrate the camera. Application of the system, receive and convert data in the robot programme.	
2-6		
	Experienced programmers	
	Basics of camera systems, upgrade, crossover or basic training	
	NX100, FS100, DX100, DX200, YRC1000	
	Eschborn	

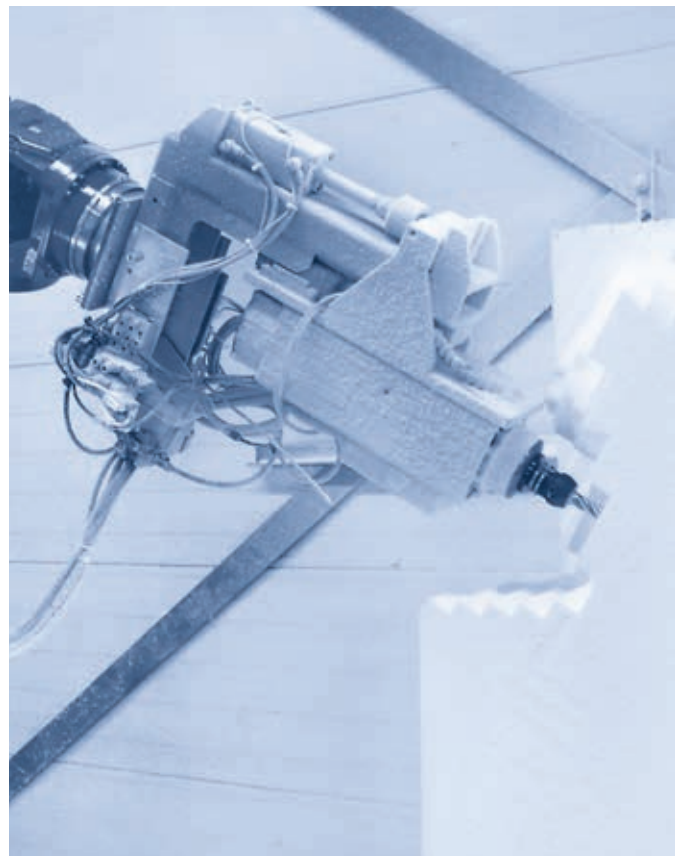
RA19		Training VISION MotoSight 2D
3	Technical basics of the YASKAWA camera system MotoSight 2D. Set up and calibrate the camera. Application of the system, receive and convert data in the robot programme.	
2-6		
	Experienced programmers	
	Basics of camera systems, upgrade, crossover or basic training	
	FS100, DX100, DX200, YRC1000, YRC1000micro	
	Eschborn	

RA20		Training Conveyor
2	Technical basics of the Conveyor Function. Configure conveyor, synchronize motion. Start Shift, Overlimits.	
2-6		
	Experienced programmers and system operators	
	Upgrade, crossover or basic training	
	NX100, FS100, DX100, DX200, YRC1000	
	Eschborn	

RA21		Training Conveyor with Shift Function
3	Technical basics of the Conveyor Function. Configure conveyor, synchronize motion. Start Shift, Overlimits and Conveyor Shift function.	
2-6		
	Experienced programmers	
	Upgrade, crossover or basic training	
	NX100, FS100, DX100, DX200, YRC1000	
	Eschborn	

RA22		Training MotoFit
2	Technical basics of the MotoFit function. Set up of torque/force sensor, integration of related command line.	
2-4		
	Experienced programmers	
	Upgrade, crossover or basic training	
	DX200	
	Allershausen, Eschborn	

RA23		Training Internal PLC and Fieldbus Systems
2	Basics for integration of the robot into a manufacturing cell with focus on communication/integration with a host controller, tooling and safety technology. Configuration of fieldbus systems.	
2-5		
	Experienced programmers and system integrators	
	Upgrade, crossover or basic training	
	-	
	Eschborn	





All about Safety Technology

Safety first!

Safety is of top priority and increasingly important in the industrial sector. Finding your way through the jungle of regulations, standards and directives or applying a YASKAWA safety solution is not easy, as no mistakes are allowed.

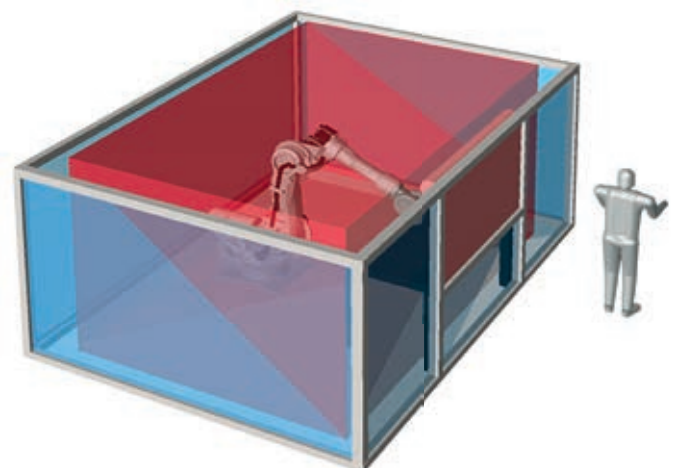
We put you on the safe track to make sure you thoroughly understand safety.

GS1	Legal Framework for Executives
1	Legal framework, regulations, directives and standards for a proper use and operation of safety devices.
2-12	
	Executives with planning and implementation responsibility
	None
	—
	Eschborn

GS2	Legal Framework for Users
1	Legal and technical principles for proper use and operation of safety devices.
2-12	
	Programmers, machine setters, maintenance staff and system integrators
	None
	—
	Eschborn

GS3	ATEX Basics for Robot Applikations
0,5	Basics explosion protection ATEX.
2-8	
	MOTOMAN customers with use in explosion protection
	None
	independent
	Eschborn

GS4	Legal Framework for Gas Balancer
0,5	Legal and technical principles for proper handling, maintenance and replacement of gas balancers.
2-4	
	Maintenance staff, robot operators with gas balancers
	None
	DX200
	Eschborn





RS1 Training FSU Safety Controller DX100	
3	Technical basics for proper operation of the safety controller.
2-8	
	MOTOMAN customers using a safety controller FSU
	Upgrade, crossover or basic training
	DX100
	Allershausen, Eschborn

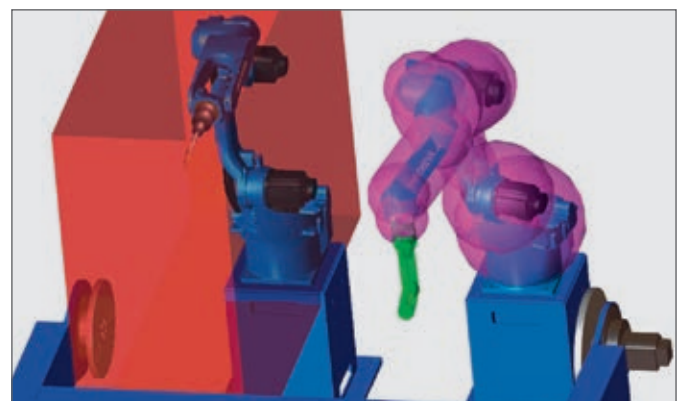
RS2 Training FSU Safety Controller DX200	
4	Technical basics for proper operation of the safety controller.
2-8	
	MOTOMAN customers using a safety controller FSU
	Upgrade, crossover or basic training
	DX200
	Allershausen, Eschborn

RS3 Training FSU Safety Controller YRC1000	
4	Technical basics for proper operation of the safety controller.
2-8	
	MOTOMAN customers using a safety controller FSU
	Upgrade, crossover or basic training
	YRC1000
	Allershausen, Eschborn

RS4 Upgrade Training FSU Safety DX200 > YRC1000	
1	Update to new FSU functions of the YRC1000 controller.
2-8	
	MOTOMAN customers using a safety controller FSU with YRC1000
	Schulung FSU Safety Controller DX200
	YRC1000
	Allershausen, Eschborn

RS6 Upgrade Training FSU Safety > HC-Roboter	
2	You've already attended a standard FSU training. This training provides the legally required information needed for HRC applications.
2-8	
	MOTOMAN customers using a safety controller FSU
	Training FSU Safety Controller RS3 or RS4 for YRC1000
	YRC1000
	Eschborn

RS7 Training Profisafe (CP1616) & SCL	
3	Basics for integration of the robot into a manufacturing cell with focus on communication/integration with a host controller, tooling and safety technology. Configuration of fieldbus systems. Programming of the fail-safe internal PLC Safety Circuit Logic.
2-6	
	Experienced programmers and system integrators
	Basic training SIMATIC S7, upgrade, crossover or basic training
	DX200, YRC1000
	Eschborn





System Integration

Do it yourself!

Are you a system manufacturer or system integrator who works with industrial robots and equipment by YASKAWA? On this page you will find the perfect training to implement the solutions of your choice.

We give you an overview of how MOTOMAN robots, tracks, external axes, tools or the integration into your superordinate controller work.

Use our knowledge and experience to quickly find your system solution.

RI1	Training System Integration
3	Assembly, connection and installation of a robot system. Connection of external axes, tracks, safety devices and tools. Installation and wiring.
2-6	
	System integrators
	Upgrade, crossover or basic training, general knowledge of PLCs, electronics, mechanics
	Generation NX, DX100, DX200, YRC1000
	Eschborn

RI2	Training System Integration & PLC
5	The training is a combination of the course „System Integrators“ + „Internal PLC and Fieldbus Systems“ at a discounted price. Content and duration result from the respective training courses.
2-6	
	System integrators
	Upgrade, crossover or basic training, general knowledge of PLCs, electronics, mechanics
	DX200, YRC1000
	Eschborn

RI3	Training MotoLogix
5	Assembly, connection and installation of a robot system with MotoLogix with SIMATIC S7.
2-6	
	System integrators
	Good PLC skills, general knowledge of electronics and mechanics, operator training, TIA Portal skills
	DX200, YRC1000
	Eschborn

RI4	Training PalletSolver Commissioning
2	Technical basics for a proper set up of PalletSolver. Fault diagnosis and troubleshooting.
2-4	
	System integrators set up and commission the PalletSolver.
	PalletSolver training, PLC and feldbussystems, system integration training
	DX- and YRC-Generation
	Allershausen, Eschborn





Maintenance

It runs like a Clockwork!

We train your maintenance and repair skills so that your robot solution “runs like clockwork” and failures of the system – if there are any – can be eliminated as quickly as possible.

No matter whether you only carry out the “simple” daily maintenance or you do the entire robot repairs yourself: we show you every lubricating nipple, every screw that you have to turn or electrical contacts so that you don’t get your wires crossed.



Operation and Maintenance

All robots of the selected controller

RRO	Basic Training Service
2	Basic knowledge of robotics for maintenance staff. Operation and maintenance of industrial robots. Safe and proper operation of a robot. Technical basics for proper maintenance and understanding of the existing maintenance diagnostics are trained.
4-8	
	Maintenance and service staff, system managers
	None
	Generation NX, DX or YRC
	Eschborn

Every maintenance and service technician needs this training. Only if you know how a machine works and runs correctly, you can find out why an error occurred or what is not working. Therefore, it is essential that your maintenance staff masters the basics of robot operation. Only then the creation of test programs and calibration jobs will no longer be a problem. In addition, this course teaches the basics of daily maintenance, from visual inspections to “re-greasing” and battery replacement according to the maintenance schedule. This course is a prerequisite for the repair training courses. Now it depends on what you need.

Maintenance for programmers

For all programmers doing day-to-day maintenance

RRW	Training Maintenance
1	Technical basics for proper maintenance work for everyone robot programming skills. This course covers exclusively maintenance-related topics. Mediation of maintenance diagnostics and explanation of maintenance.
4-8	
	Programmers and plant operators with maintenance tasks
	Operator, basic or crossover training
	Generation NX, DX or YRC
	Eschborn



Picking Robots **MPK2 • YM series • MPP3**

RR1M	Training Mechanic Maintenance
2	Technical basic for proper mechanical mending work for each robot category. Fault diagnostic and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR1M	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn



Robots < 5 kg **MH5S • MH5L • MH5 • HP3 • HP3L**

RR2M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR2MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn





Robots 6 – 30 kg **MH6 • MH6S • MH6-10 • HP20D • MH50-20**

RR3M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

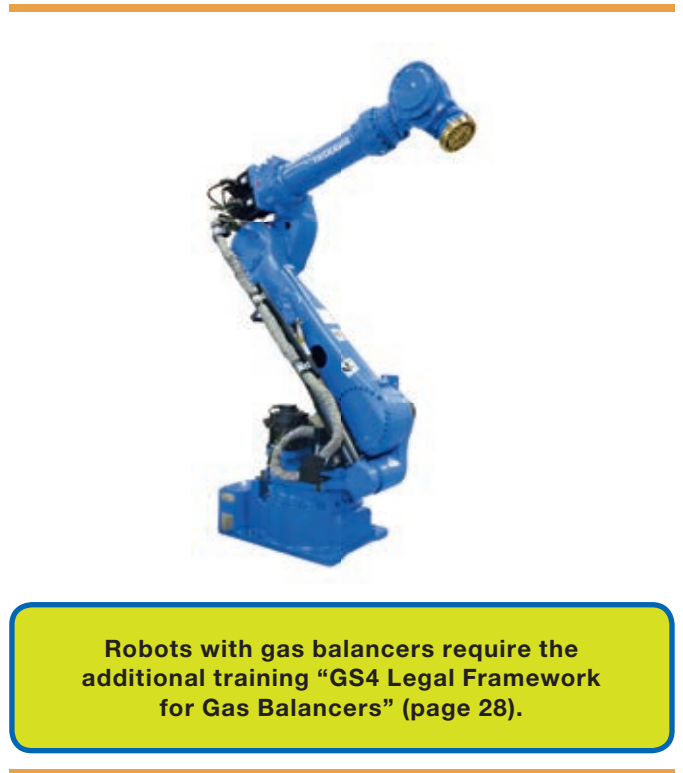
RR3MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn



Robots 35 – 600 kg **MH50-35 • MH50 • MS80 • ES165 – ES280D • UP350D – UP350-600D • MPL80 • MH180**

RR4M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR4MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn



Robots with gas balancers require the additional training “GS4 Legal Framework for Gas Balancers” (page 28).



Palettising Robots MPK50 • MPL100 – MPL800

RR5M	Training Mechanic Maintenance
2	Technical basics for proper maintenance work Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR5MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn



7 and 15 Axis Robots SIA10 • SIA20 • SIA50D • VS50 • SDA10 • SDA20

RR6M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR6MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn





Robots with Hollow Shaft NX100 and DX100

EA1400 • EA1900 • EA1800 • MA1400

RR7M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR7MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians, mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

Robots with Hollow Shaft DX200 and YRC1000

MA1440 • MA2010 • MH12 • MH24 • GP12 • GP25

RR8M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR8MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians, mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

Painting Robots

EPX1450 • EPX2050 • EPX2800 • EPX2900 •
MPX3500 • MPX2600 • MPX1150

RR9M	Training Mechanic Maintenance
2	Technical basics for proper mechanical mending work for each robot category. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians mechanic
	Basic Training Service (training for operators and maintenance staff)
	Eschborn

RR9MT	Training Mechatronic Maintenance
2,5	Technical basics for proper mechanical and electrical mending work for each robot category. Fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians, mechanic and electricians
	Basic Training Service (training for operators and maintenance staff)
	Eschborn



Basics of explosion protection ATEX is a prerequisite for the painting robot training



Controller NX100

RR1E	Training Electric Maintenance
2	Technical basics for proper electrical mending work for each control generation. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians electric
	Basic Training Service (training for operators and maintenance staff)
	NX100
	Eschborn



Controller DX100

RR2E	Training Electric Maintenance
2	Technical basics for proper electrical mending work for each control generation. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians electric
	Basic Training Service (training for operators and maintenance staff)
	DX100
	Eschborn









Controller DX200

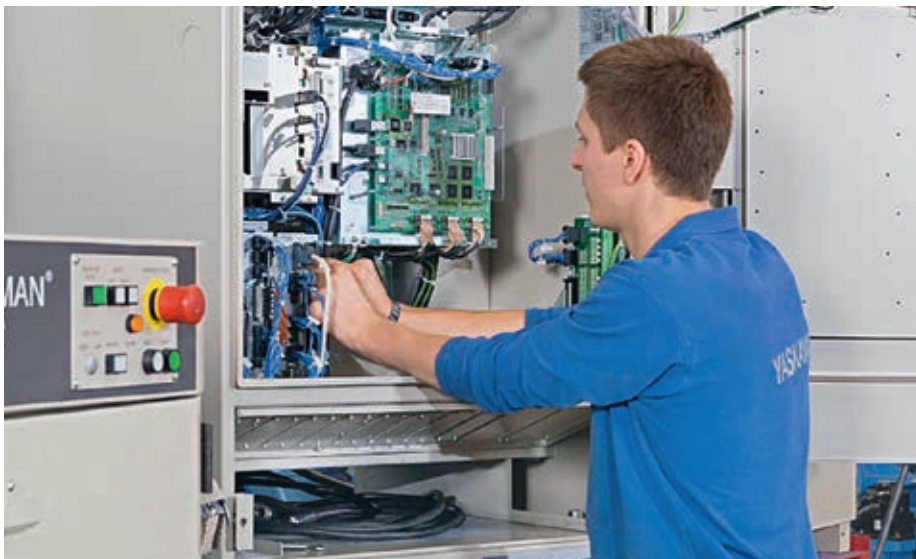
RR3E	Training Electric Maintenance
2	Technical basics for proper electrical mending work for each control generation. Basics for successful fault diagnosis and troubleshooting.
2-6	
	Maintenance technicians electric
	Basic Training Service (training for operators and maintenance staff)
	DX200
	Eschborn





Controller YRC1000

RR4E Training Electric Maintenance	
2 	Technical basics for proper electrical mending work for each control generation. Basics for successful fault diagnosis and troubleshooting.
2-6 	
	Maintenance technicians electric
	Basic Training Service (training for operators and maintenance staff)
	YRC1000
	Eschborn





Robot Software

Your Software doesn't have to be a tough Nut!

A software solution can only be useful and make your work easier if you master the application.

We will be glad to show you how our software works.

FDDWin32

RS01		Training FDDWin32	
0,5		Function and application of the backup software FDDWin32.	
4-8			
		System operators, programmers, maintenance and service staff, system integrators	
		Upgrade, crossover or basic training, PC experience and English knowledge	
		Eschborn	

FTP-Option

RS02		Training FTP-Option	
1		Function and application of the FTP option.	
4-8			
		System operators, programmers, maintenance and service staff, system integrators	
		Upgrade, crossover or basic training, PC experience and English knowledge	
		Eschborn	

JobEditor

RS03		Training JobEditor	
0,5		Function and application of the software JOBEditor.	
4-8			
		System operators, programmers, maintenance and service staff, system integrators	
		Basic training, PC experience and English knowledge	
		Eschborn	

JobExchanger32

RS04		Training JobExchanger32	
0,5		Function and application of the software JobExchanger32.	
4-8			
		System operators, programmers, maintenance and service staff, system integrators	
		Basic training, PC experience and English knowledge	
		Eschborn	

LadderEditor32

RS05		Training LadderEditor32	
0,5		Function and application of the software LadderEditor32.	
4-8			
		System operators, programmers, maintenance and service staff, system integrators	
		Basic training, MOTOMAN PLC training, PC experience and English knowledge	
		Eschborn	

MotoAdmin / MotoWeb

RS06		Training MotoAdmin / MotoWeb	
1		Function and application of the software MotoAdmin / MotoWeb.	
4-8			
		System operators, programmers, maintenance and service staff, system integrators	
		Basic training, PC experience and English knowledge	
		Eschborn	



MotoCalvEG

RS07 Training MotoCalvEG	
0,5	Function and application of the software MotoCalvEG.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training, PC experience and English knowledge
	Eschborn

MotoCom32

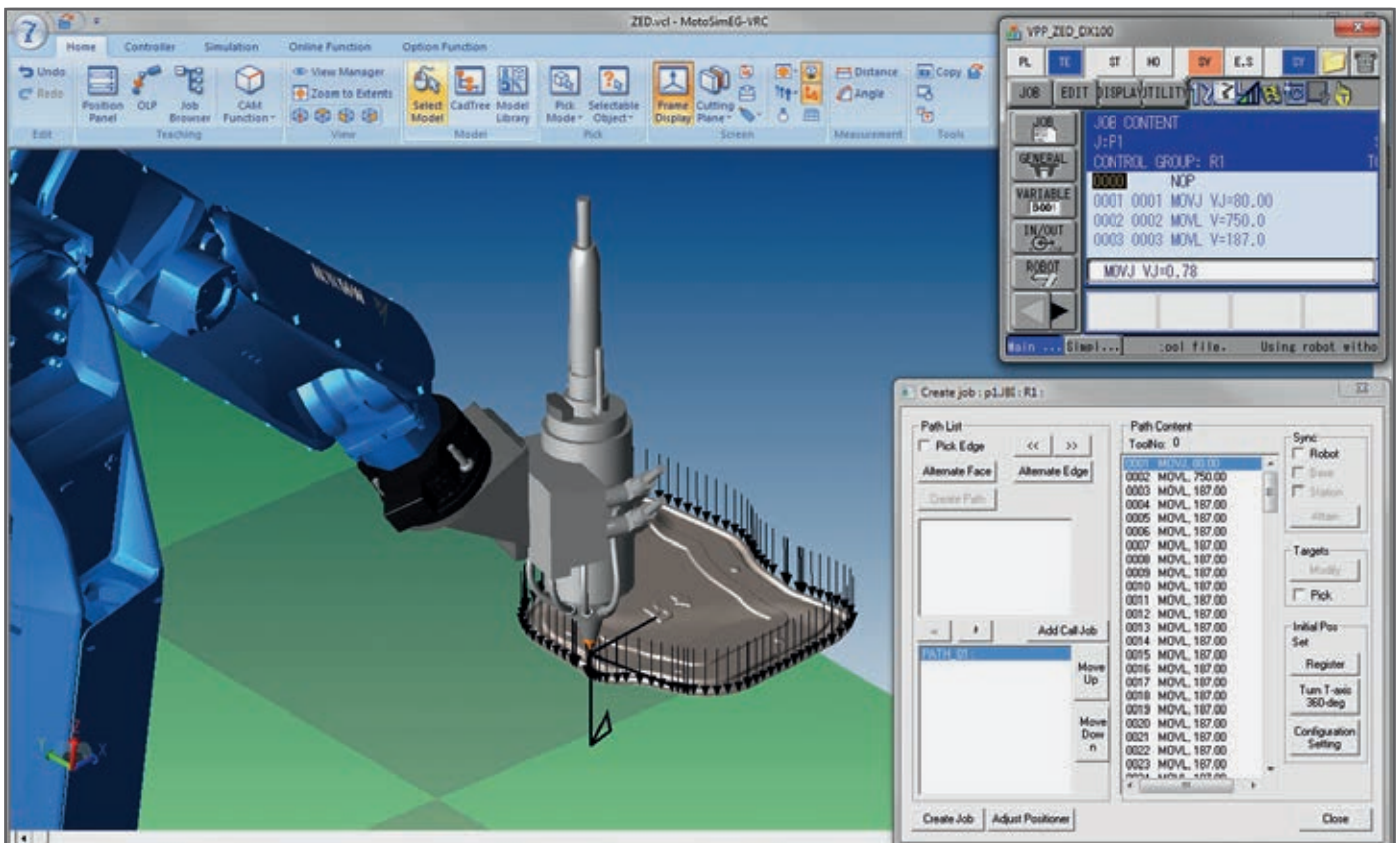
RS08 Training MotoCom32	
1	Function and application of the software MotoCom32.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training, knowledge of Windows, programming and English knowledge
	Eschborn

MotoDCI32

RS09 Training MotoDCI32	
0,5	Function and application of the software MotoDCI32.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training, PC experience and English knowledge
	Eschborn

MotoOPCServer

RS010 Training MotoOPCServer	
0,5	Function and application of the software MotoOPCServer.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training, PC experience and English knowledge
	Eschborn





MotoSimEG

RS011	Basic Training MotoSimEG	
3	Fundamentals in MotoSim32. Integration of models, cells and simple robot programmes.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Basic training, PC experience and English knowledge	
	Eschborn	

MotoSimVRC

RS012	Basic Training MotoSimVRC	
3	Fundamentals in MotoVRC32. Integration of models, cells and simple robot programmes.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Basic training, PC experience and English knowledge	
	Eschborn	

VRC Module 1

RS013	Training External Axes and Base Axes	
1	Advanced training to create external axes and basic axes and their integration, configuration and programming.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Basic training MotoVRC, good PC and English knowledge	
	Eschborn	

VRC Module 2

RS014	Training Conveyor	
1	Advanced training to create conveyors and their integration, configuration and programming.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Basic training MotoVRC, good PC and English knowledge, conveyor training RA20 or RA21	
	Eschborn	

VRC Module 3

RS015	Training Twin Cells	
1	Advanced training to create multirobot cells (2 or more robots) and their integration, configuration and programming.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Basic training MotoVRC, good PC and English knowledge, Multirobot Synchron training RA14	
	Eschborn	

VRC Module 4

RS016	Training Offline Programming	
1,5	Extension training on the correct implementation and application of off-line programming. Matching virtual and real robot systems.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Basic training MotoVRC, good PC and English knowledge	
	Eschborn	

VRC Module 5

RS017	"Open" Training using a Practical Example	
1	Independent creation of a training system or system for the customer and their programming. Temporary trainer support.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Advanced training MotoVRC, good PC and English knowledge	
	Eschborn	

VRC Module 6

RS018	Training CAD/CAM	
1	In this module you will learn how to automatically generate a robot programme. Based on CAD workpiece data, motion paths, motion types and basic preparations are explained and programmed in MotoSim.	
2-6		
	Experienced programmers, machine setters, system integrators, work preparation	
	Advanced training MotoVRC, good PC and English knowledge	
	Eschborn	

MotoMINI

SMALL – LIGHTWEIGHT – FAST

The MotoMINI 6-axis robot was especially designed for handling and assembly of small work pieces. It reduces the size of your production line and helps to increase productivity.

This light weight high-speed robot provides a payload of 500 g and a maximum reach of 350 mm. The high repeatability of 0.02 mm offers superior performance in small part handling and assembly. It is easy to change the location of MotoMINI according to the line's operating condition or the work piece being manufactured.

This robot is driven by the also small and compact MOTOMAN YRC1000micro controller, which is especially suited to operate small robots.



KEY BENEFITS

- Small and fast
- Lightweight and portable
- Superior performance in small part handling & assembly
- Minimum footprint
- Flexible positioning

Controlled by
**YRC1000
micro**

Specifications MotoMINI

Axes	Maximum motion range [°]	Maximum speed [°/sec.]	Allowable moment [Nm]	Allowable moment of inertia [kg · m ²]	Controlled axes	
S	±170	315	–	–	Max. payload [kg]	6
L	+90/–85	315	–	–	Repeatability [mm]	0.5
U	+90/–50	420	–	–	Max. working range R [mm]	±0.02
R	±140	600	0.43	0.00378	Temperature [°C]	350
B	+210/–30	600	0.43	0.00378	Humidity [%]	0 to +40
T	±360	600	0.38	0.00299	Weight [kg]	20 – 80
					Power supply, average [KVA]	7
						0.5



Certification Program Robotics

Do you have what it takes to become a YASKAWA Bachelor or Master?

The use of the YASKAWA industrial robot is progressing quite well in all industrial branches and applications. Accordingly, the technology has evolved in its variety of possibilities and options.

The YASKAWA certification program stays abreast of this development, by qualifying programmers and maintenance staff and to build up the necessary expertise. By qualifying

your employees, you are able to independently implement problem solutions professionally and expertly.

Upon successful completion of the appropriate training for BACHELOR or MASTER, this qualification degree is certified with a certificate.

Accurate information to the Bachelor and Master courses can be obtained from employees of YASKAWA ACADEMY.



RE1 Training System Setup	
3	Overview of the organization and the product range of YASKAWA. Overview of all functions of the robot controller. Main configurations of the robot controls, initialization, parameter settings, expanding with external axes, basic axes and/or other robots of a control system.
4-8	
	System integrators and participants of Bachelor and/or Master of the certification programme
	Upgrade, crossover or basic training, PC experience and English knowledge
	Eschborn

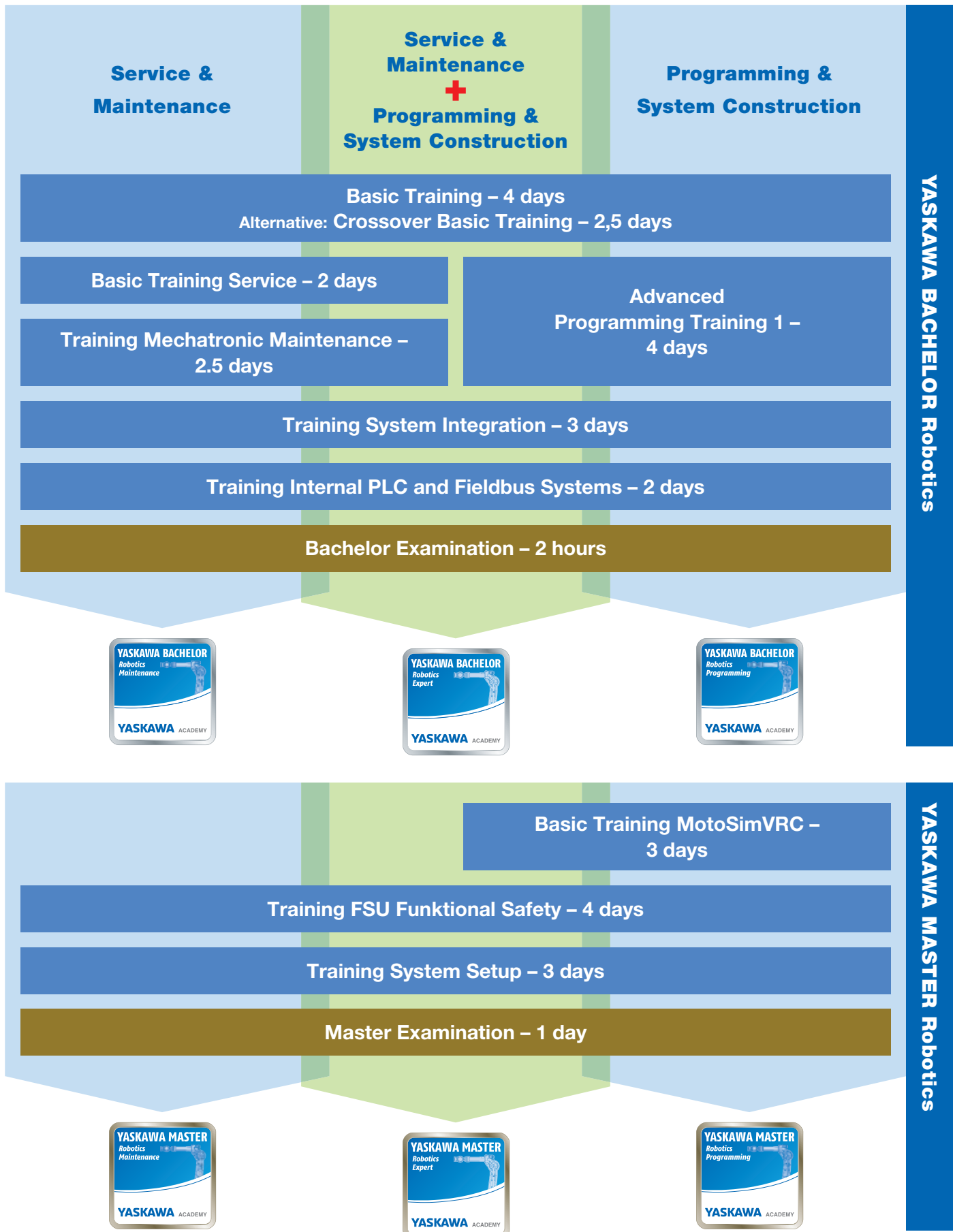
RE2 Bachelor Examination Programming	
0,5	Theoretical and practical verification of levels of understanding and knowledge of previous training modules.
4-8	The degree is YASKAWA Bachelor of Programming.
	Graduates of bachelor degree course
	Basic or crossover training as well as advanced programming training 1, system integration, internal PLC and fieldbus systems
	Eschborn

RE3 Bachelor Examination Maintenance	
0,5	Theoretical and practical verification of levels of understanding and knowledge of previous training modules.
4-8	The degree is YASKAWA Bachelor of Maintenance.
	Graduates of bachelor degree course
	Basic training + maintenance training, maintenance diagnostic, service training mechatronic, system integration, internal PLC and fieldbus systems
	Eschborn

RE4 Master Examination Programming	
1	Theoretical and practical verification of levels of understanding and knowledge of previous training modules.
4-8	The focus is on complex, technical system configurations and problem solving.
	Graduates of master degree course
	Successful bachelor examination and all training modules of the master degree course
	Eschborn

RE5 Master Examination Maintenance	
1	Theoretische und praktische Überprüfung des Wissens- und Kenntnisstandes der vorausgegangenen Schulungsmodulare.
4-8	Schwerpunkt sind komplexe, technische Anlagenkonfigurationen und Lösung von Problemstellungen.
	Graduates of master degree course
	Successful bachelor examination and all training modules of the master degree course
	Eschborn

Three Ways to Certification





Drives, Motion & Control

Drive Technology

Frequency Converter (Drives)

DB0 Newcomer Frequency Converter	
1	Understanding the basics of the technology and application areas of automation modules. Product overview.
4-8	
	System and machine builders, system integrators
	Technical understanding
	Eschborn

DB1 Product Training Frequency Converter	
2	Product information of the current product portfolio. Being able to make the right selection of products and the corresponding options. Standard commissioning.
4-8	
	System and machine builders, system integrators
	Newcomer frequency converters
	Eschborn

DB2 Technical Training Frequency Converter	
3	Commissioning and independent creation of complex configurations. Optimization of the drive functions.
4-8	
	System and machine builders, system integrators
	Product Training Drives
	Eschborn

DB3 Training DriveWorksEZ Pro	
1	Function and application of the software for graphical project planning of functional extensions DriveWorksEZ Pro.
4-8	
	System and machine builders, system integrators
	Technical Training Drives
	Eschborn

DB4 Customer-specific Training – on request	
1-5	You didn't find the right training among our standard courses? Are there other contents and topic ideas you would like to include in your training? Please talk to us, we will be glad to meet your requirements.
4-7	
	System and machine builders, system integrators
	Technical Training Drives
	Eschborn, on-site

DB5 Maintenance Training Frequency Converter	
2	Design of the inverter. Replacing maintenance parts. Parameter backup. Troubleshooting.
4-8	
	Maintenance staff
	Electronic basics
	Eschborn

DB6 User Training Frequency Converter	
2	Design of the inverter. Configure the required parameters. Connection and wiring. DriveWizardPlus.
4-8	
	System and machine builders, system integrators
	Electronic basics
	Eschborn





Machine Control (Motion Controller IEC)

MC1		Product Training Machine Control IEC
1		Understanding the basics and application fields of the IEC machine control. After this training you will be able to make the right choice of servo products.
4-8		
		System and machine builders, system integrators
		Technical understanding
		Eschborn

MC2		Basic Training Machine Control
2		Commissioning and independent creation of more complex programmes and optimization of IEC machine controllers.
4-8		
		System and machine builders, system integrators
		Newcomer Training
		Eschborn

MC3		Advanced Training Machine Control
3		Commissioning and independent creation of more complex programmes and optimization of IEC machine controllers. Obtain in-depth knowledge. Parametrization and optimization of servo drives in connection with IEC machine controls.
4-8		
		System and machine builders, system integrators
		Product Training, Technical Training Basic
		Eschborn

Servo-Drive Technology (Servo)

SB0		Newcomer Servo-Drive Technology
0,5		Understanding the basics of the technology and application areas of servo drives. Product overview.
4-8		
		System and machine builders, system integrators
		Technical understanding
		Eschborn

SB1		Product Training Servo-Drive Technology
1		After this training you will be able to make the right choice of servo products.
4-8		
		System and machine builders, system integrators
		Newcomer Servo-Drive Technology
		Eschborn

SB2		Technical Training Servo-Drive Technology
3		Commissioning and independent creation of complex configurations and optimization of servo drives.
4-8		
		System and machine builders, system integrators
		Newcomer Training Servo, Product Training Servo
		Eschborn





Drives, Motion & Control

Control Technology

CB1 Product Training Control	
1	Understanding the basics of the technology and application areas of automation modules.
4-8	Being able to make the right selection of products and the appropriate options.
	System and machine builders, system integrators
	Technical understanding
	Eschborn, Herzogenaurach



SIMATIC S7

CB2 Basic Training SIMATIC S7	
3	Basics of PLC in application of SIMATIC S7.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	None
	Eschborn, Herzogenaurach

CB3 Advanced Training SIMATIC S7	
4	Extension of knowledge of troubleshooting, commissioning in more complex PLC programmes for SIMATIC-S7 controllers.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training SIMATIC S7 or comparable basic knowledge
	Eschborn, Herzogenaurach

CB4 Service Training SIMATIC S7	
4	Skills for locating and fixing errors in systems and programmes. Use of diagnostic possibilities for systematic troubleshooting.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training SIMATIC S7 or comparable basic knowledge
	Eschborn, Herzogenaurach

CB5 Communication Training SIMATIC S7	
3	Learning skills for configuration, troubleshooting and testing of different bus systems such as MPI, PROFIBUS, PROFINET and industrial ethernet.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training SIMATIC S7 or comparable basic knowledge
	Eschborn, Herzogenaurach



TIA-Portal

CB6 Basic Training TIA-Portal	
3	Basics of PLC in application of TIA Portal.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	None
	Eschborn, Herzogenaurach

SIMATIC S7 / DriveWizzard

CB7 Training SIMATIC S7 / DriveWizzard	
1	Combination of VIPA and YASKAWA components. Project planning and application possibilities. Examples with MODBUS RTU / PROFIBUS / PROFINET.
4-8	
	Programmers, maintenance and service staff, system integrators
	None
	Eschborn, Herzogenaurach

MOVICON

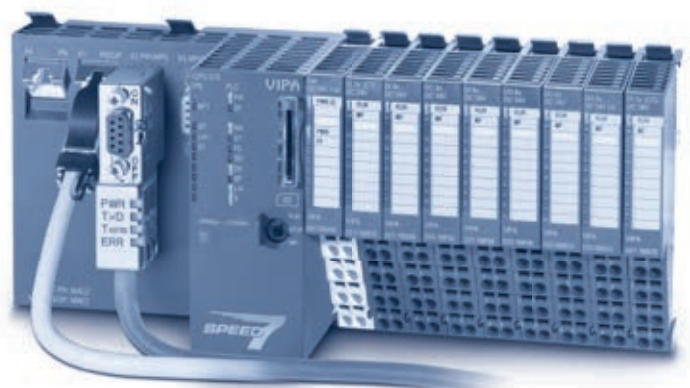
CB8 Basic Training MOVICON	
1	HMI product presentation and functions. Basics of Scada software MOVICON. Please bring your notebook with the pre-installed MOVICON software to the training session.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	None
	Eschborn, Herzogenaurach

CA8 Advanced Training MOVICON	
2	Advanced applications and programming of Scada software MOVICON. Please bring your notebook with the pre-installed MOVICON software to the training session.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic training MOVICON
	Eschborn, Herzogenaurach

VIPA-Teleservice

CB9 Basic Training VIPA-Teleservice	
1	Product presentation, operational applications, fundamentals/ teleservice prerequisites, basic device functions, basic project planning TM-C/H.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	None
	Eschborn, Herzogenaurach

CA9 Advanced Training VIPA-Teleservice	
1	Advanced application possibilities and device functions, examples of script programming, creating your own, simple web sites.
4-8	
	System operators, programmers, maintenance and service staff, system integrators
	Basic programming VIPA Teleservice
	Eschborn, Herzogenaurach





Something very special. On-site Training.

At our place or yours?

Are there reasons why you prefer training at home? Then we gladly come to you on location of your factory. Our offer is world-wide; we offer the possibility that our experienced trainers train and teach your employees in their familiar environment.

We will advise you on the possibilities and together with you weigh up the advantages and possible disadvantages.

Should the training-technical equipment not be available on location of your facility, we will bring everything along. Should the required number of training robots not be available, you have the additional option to book our mobile training robot "Training in motion".

Contact the staff of our YASKAWA ACADEMY for more details.

CT1	Individual Customer Training as desired
1-5	You didn't find the right training among our standard courses? Are there other contents and topic ideas you would like to include in your training? Please talk to us, we will be glad to meet your requirements.
max. 6	
	Your employees
	Depends on training contents
	Your controller
	Eschborn, Allershausen, on-site

01-05	On-site Training
1-5	We can also conduct the training at your premises. We offer this opportunity for many of our training courses. In consultation with you, we will examine the technical and spatial requirements to ensure a successful knowledge transfer.
?	
	Experienced programmers and system integrators
	Basic Training SIMATIC S7, upgrade, crossover or basic training
	Your controller
	On-site



“You teach me”-Robot. Our mobile Training Cell.

To conduct training sessions with the same quality also outside of the YASKAWA ACADEMY, we designed this training cell. It is important to us, that, taking into consideration the safety procedures, a less complicated and faster assembly at the construction site is accomplished.

The training cell is easy to move, fits through a “normal” door width and can thus be used in almost any classroom. Apart from electricity, no other media are required. The controls are integrated and meet our training standards. All necessary consumables, such as tools and equipment will be supplied.



You will be surprised at how quickly you will perform the first robot movements after delivery.

Please refer to YASKAWA ACADEMY for details on shipping and availability.



»» *The trend towards flexible production, i.e. handling by using robots, has grown into a decisive economic factor.*

Apart from purely technical problems, particularly elements of ecology have led to new insights. Subsequently, it no longer is the goal of automation to completely replace humans by technology, but rather to teach employees new skills and competences.

WIFI OÖ as early as already 1988 grappled with this task and started with seminars in the field of robotics. Today, the WIFI in Linz is just one of many certified training centres for YASKAWA. We're always keen on behalf of our customers to keep the technical equipment on the latest level. Thus, WIFI course participants acquire future-oriented competences and qualifications for YASKAWA robot technologies. ««

**Doz. Ing. Dipl.-Wirt.-Ing.
Gerhard Michlbauer EUR Ing.**
WIFI OÖ GmbH
Head of Robot Competence Centre

Open Training.

The Freedom to work intensively on your own.

You, as a user would like to:

- Practise on a YASKAWA MOTOMAN robot without interrupting production of your plant.
- Strengthen and deepen the knowledge and skills acquired in a training course with further practical exercises.
- Refresh and deepen your knowledge and skills you obtained in one of our training courses that you attended some time ago.
- Test and try functions and applications for which you do not have the opportunity in your company due to the absence of available robots.



Extensive training programme in a professional environment.

The YASKAWA ACADEMY offers a highly differentiated and extensive range of training courses for the widest range of interests and skill levels. The equipment is technically very modern and geared towards a positive learning atmosphere.

The high proportion of practical teaching content and exercises on the robot convey the acquired knowledge with an excellent connection to real application in place. We are pleased that our SUMO automation system Flexiplex contributes further to the intensification of the practical experience aspect.

Heiko Röhrig

Head of sales and marketing
EGS Automatisierungstechnik GmbH

FT1	Open Training
1	<p>We offer you the opportunity to perform exercises and tasks on a MOTOMAN robot completely on your own. Industrial robots of the control generations MRC, XRC, NX100, NXC100, DX100, FS100, DX200 and YRC1000 are available for independent training sessions</p> <p>Please refer to YASKAWA ACADEMY to find out more about available robot types and their applications.</p> <p>If you have any problems, one of the available trainers will be happy to assist you.</p> <p>What to bring: your training materials from previous training courses</p>
	Customers with no exercising opportunities at the company
	Operator training
	Allershausen, Eschborn



E-Learning.

Do you want to study few Contents at a Time?

E-learning cannot replace a basic, practice-oriented product training. You have to really get in touch with new contents by touching the things, you want to learn and understand with your hands. 80% of the information is conveyed better if touched by hand and thus remains stored for a longer period of time.

However, this shouldn't be a reason to relinquish the possibilities of e-learning at home, on the go or at work to expand and deepen your knowledge.

Or you can repeat contents to refresh knowledge that has not been in use for a long time.

Have a look at our new e-learning offer. We are constantly expanding our range of courses to help you make your daily work quick, easy and cost-effective.



Book training online!

Book your training easily online at our new online shop at:

<http://www.yaskawa.eu.com/en/training/training-program/>

Here, you will find all courses for the areas of robotics, drive technology or control technology.

Academy		
<p>Robotic Technology – MOTOMAN</p>  <p>Are you interested? Learn more >></p>	<p>Drive Technology</p>  <p>Are you interested? Learn more >></p>	<p>Control Technology (VIPA)</p>  <p>Are you interested? Learn more >></p>
<p>YASKAWA – Producttraining</p>  <p>Are you interested? Learn more >></p>	<p>Training for everybody – newcomer</p>  <p>Are you interested? Learn more >></p>	<p>Training on Side</p>  <p>Are you interested? Learn more >></p>

Find what you are looking for in our new online course catalog!

Catalogs

Last Minute Training

Training Search

This is where you will find our course schedule overview and detailed course descriptions for all training types and areas.

Just book the training you want with a click on the shopping cart function or use our waiting list if there are no dates that are currently scheduled.

The ACADEMY team will be happy to assist you with any questions about the new functions of our shops you may have!

You are welcome to request your personal login information from us and manage your training progress under “My Training”. Register today!

<http://academy.yaskawa.eu.com/yaskawa/index.jsp>

<http://academy.yaskawa.eu.com/yaskawa/lastminutetraining.jsp>

<http://academy.yaskawa.eu.com/yaskawa/result.jsp?newsearch=>

Log in now!

Profit from your
personal account!

> Login

REGISTRATION

YASKAWA Europe GmbH · Robotics Division · YASKAWA ACADEMY

Hauptstraße 185 · D-65760 Eschborn/Ts. · Germany · Tel. 0 61 96 / 777 25 - 70 and -80 · Fax 0 61 96 / 777 25 - 79 · Email: academy@yaskawa.eu.com

Sender:

Company

Contact

Department

Street/No.

Postal code/City

Tel.

Fax

Email

Value added tax identification number

Invoicing address if different from sender:

Company

Street/No.

Postal code/City

Please indicate your desired training location:

- Eschborn/Frankfurt am Main
 Allershausen / Munich
 Herzogenaurach (VIPA)

New customer: ja / nein

If "No", please enter your customer number:

Please enter your order number, if your training has already been purchased in another order (e.g. robot order):

Registration for the following training course(s) **Controller:** XRC NX100 DX100 FS100 DX200 YRC1000 others

Drive technology (Drives & Motion): _____

Controll technology (VIPA): _____

Code	Training course	Duration (days)	Costs in €

Registration of your staff for the desired time period

	First name	Last name	Date/Calendar week
1			
2			
3			
4			
5			
6			

I have read the General Standard Terms and Conditions of the YASKAWA ACADEMY of the YASKAWA Europe GmbH and agree to them. I hereby accept your offer.

Place, Date

Stamp / Signature

General Terms and Conditions

Registration

Registration and deregistration will only be made at the following address:

YASKAWA Europe GmbH

YASKAWA ACADEMY
Hauptstraße 185, D-65760 Eschborn/Ts.
Tel. 06196 777 25-70
Tel. 06196 777 25-80
Fax 06196 777 25-79
Email: academy@yaskawa.eu.com

Only originals of training checks and/or training coupons that have been approved in advance by YASKAWA ACADEMY will be accepted.

Dates

The course dates will be communicated upon request. Please contact us well in advance so that the dates you have requested can be taken into consideration.

Courses can only be reserved after submission of the completed registration form. YASKAWA ACADEMY reserves the right to reschedule the courses offered if the number of participants is too low or for other special reasons – if necessary, also after confirmation of course registration.

Accommodation

Due to the wide range of hotels available as well as individual preferences and company guidelines, we cannot make hotel reservations for Frankfurt and Allershausen. We appreciate your kind understanding. For courses during trade fairs, please make your hotel reservations well in advance as the hotels are booked out quickly.

Completion

Upon successful completion of a course, participants receive a certificate indicating the topics covered during the course. A confirmation of participation is given to participants who have not been able to follow the course content due to insufficient previous knowledge or communication problems.

Cancellation

After YASKAWA ACADEMY confirms the registration, requests for cancellation will only be accepted in writing. The processing fee for cancellation up to 14 days prior to commencement of the course is 10 % of the course fee. The processing fee for cancellation up to 7 days prior to commencement of the course is 50 % of the course fee. After this period or if the participant does not attend the course, the full course fee will be charged. Should a registered participant be unable to attend the course, he/she may name a different participant as substitute.

Hours

Training schedule

The YASKAWA ACADEMY is open on training days from 8.00 to 17.00 hours.

For the exact course times, refer to your order confirmation, as these can vary depending on the booked course.

Training material

All course documents will only be handed out during the training course. Manuals cannot be sent to prospective participants in advance.

Catering

Refreshments and lunch on training days are included in the course fees.

Liability

At our premises

YASKAWA Europe GmbH is not liable for damage caused due to accidents at our plant or due to loss of personal property. Furthermore, we are not liable for damage caused by the customer at his or her facility when applying the knowledge imparted in the training course.

At your premises (on-site)

We strongly recommend that the training of your personnel takes place at our Training Centre(s). It is our experience that a training session is more effective and of a higher quality when the training takes place at one of our training centres rather than in your facility due to the fact that our training personnel is better able to address the individual needs of the participants. In addition, distractions of day-to-day business are avoided.

In addition, please be aware that a maximum of 3 participants can be trained simultaneously on a single piece of equipment. Furthermore, there is a risk to the operational safety of your equipment due to operator/programming errors made by the participants during the training. Please be aware that YASKAWA Europe GmbH does not in any way accept any responsibility or liability for damage incurred during or as a result of the training nor their resulting costs.

Data protection

The protection of your data is important to us. How we handle it can be found below

<https://www.yaskawa.eu.com/en/privacy-policy/>



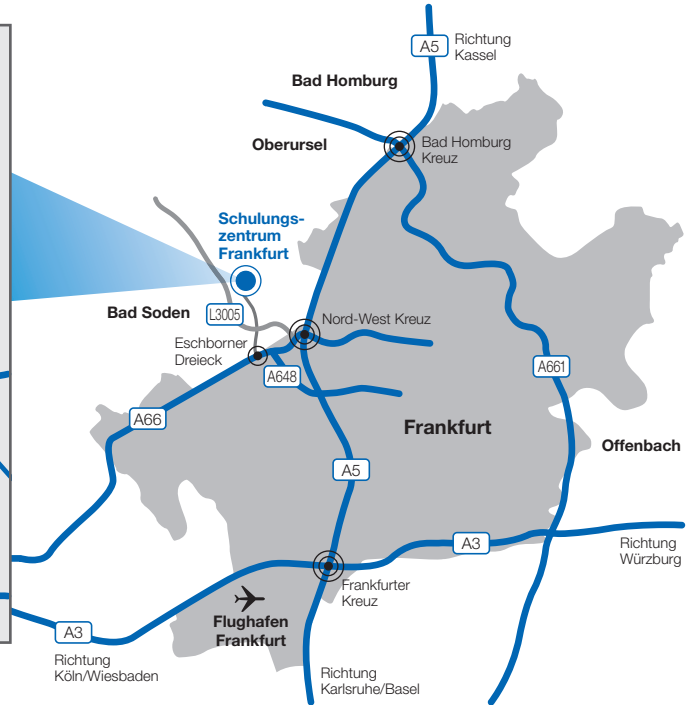
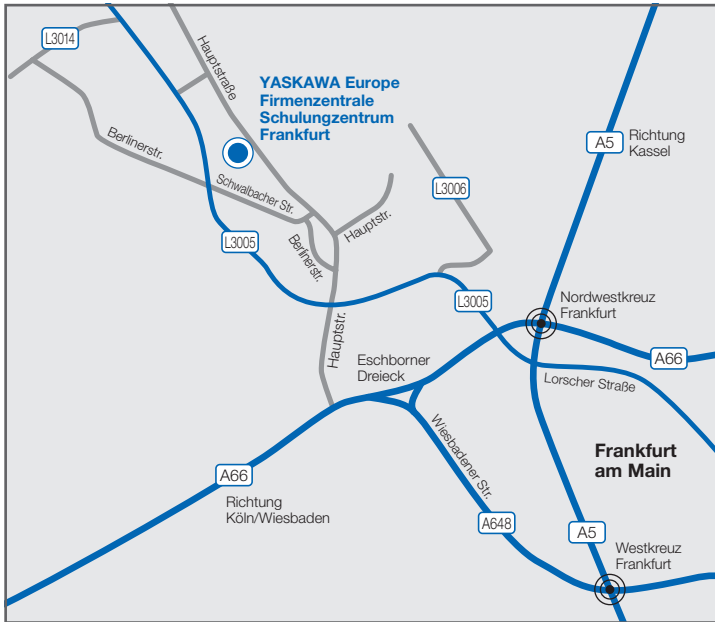
YASKAWA

YASKAWA

YASKAWA

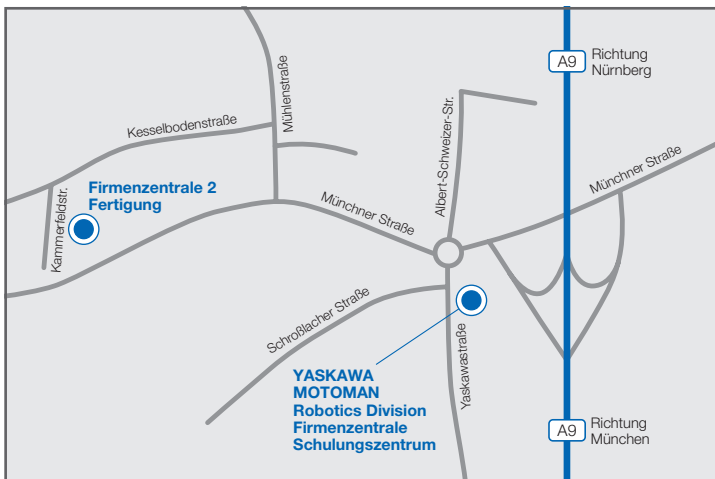
YASKAWA

This is how you can find our Training Center



**YASKAWA Europe GmbH · Robotics Division
Eschborn near Frankfurt**

Hauptstraße 185
65760 Eschborn/Taunus, Germany
Tel. 06196 777 25-70 and 06196 777 25-80
Fax 06196 777 25-79



**YASKAWA Europe GmbH · Robotics Division
Allershausen near Munich**

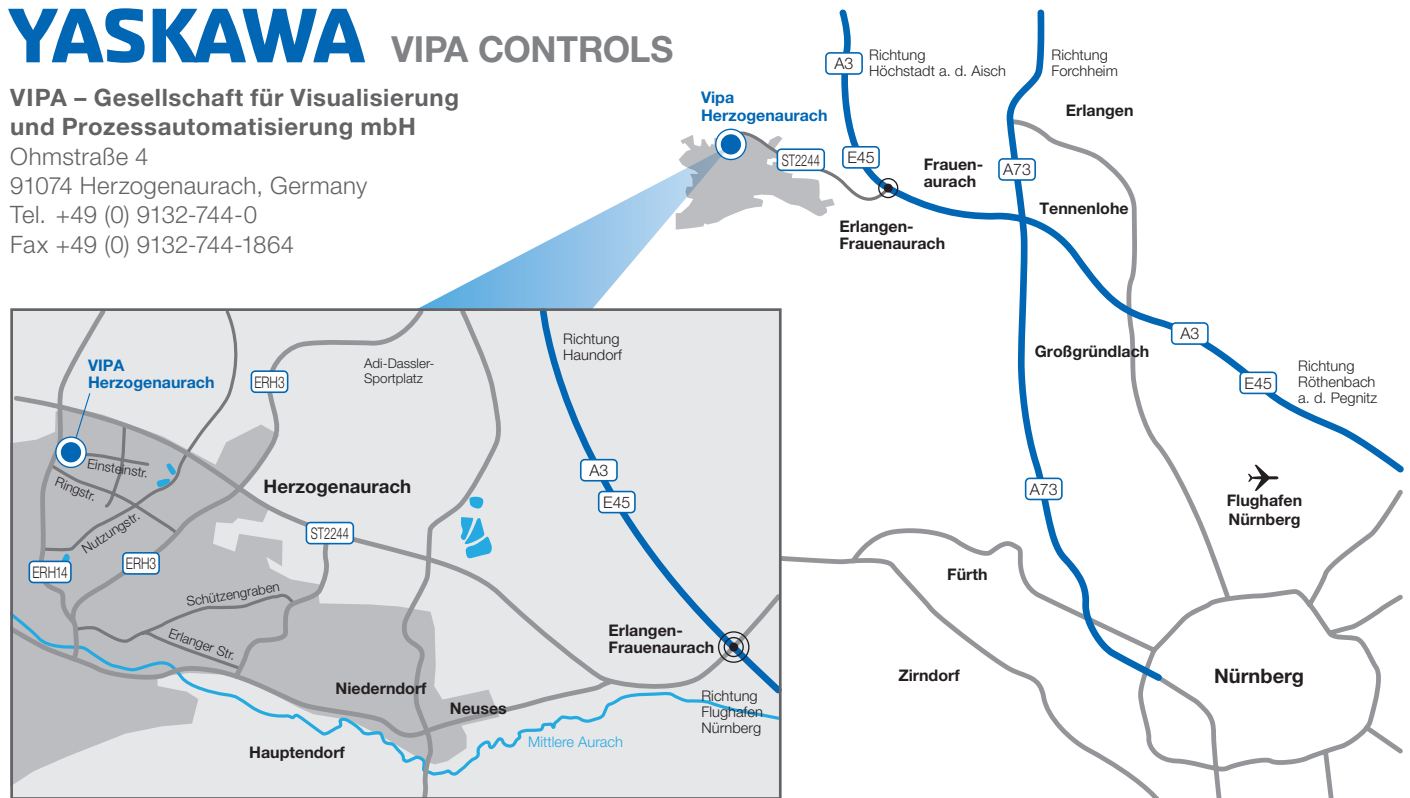
Yaskawastraße 1
85391 Allershausen, Germany
Tel. 06196 777 25-70 and 06196 777 25-80
Fax 06196 777 25-79

This is how you can find our Training Center

YASKAWA VIPA CONTROLS

VIPA – Gesellschaft für Visualisierung und Prozessautomatisierung mbH

Ohmstraße 4
 91074 Herzogenaurach, Germany
 Tel. +49 (0) 9132-744-0
 Fax +49 (0) 9132-744-1864



WIFI – Wirtschaftsförderungsinstitut der Wirtschaftskammer Oberösterreich
 Wiener Straße 150
 4021 Linz, Austria
 Tel. +43(0)5 7000-77
 Fax +43(0)5 7000-7609



More information about the courses and training events in the WIFI Linz can be found under:
<https://online.wkoee.at/web/wifi-ooe/pht-startseite>



MOTOMAN HC10, HC10DT

Human-Collaborative Robot 6 integrated Torque Sensors

MOTOMAN HC10 is a 6 axes human-collaborative robot with a payload of up to 10 kg. Operator's safety is assured by a Power and Force Limit technology that stops the robot in case of contact with an operator.

The robot arm can be hand guided by an operator and robot positions and gripper operation can be registered via so called "Easy Teaching Switch Box". These features offer time saving during the robot programming. The robots arm geometry was designed to avoid pinch points (finger).

The MOTOMAN HC10 robot can operate without additional protective measures like a safety fence, depending on the risk assessment. This saves space and costs. Its installation area is very flexible and therefore able to operate at different workplaces.

KEY BENEFITS

Controller

- Fully industrial robot controller
 - YRC1000 for HC10 and HC10DT
 - YRC1000micro for HC10DT

High safety

- Contact force between operator and robot is limited to a safe level
- Arm geometry designed to avoid pinch points (finger protection)
- Safety standards – applications for Industrial robots: ISO 10218-1 (5.10.5 Power and Force limiting)
- Complies to ISO TS 15066
- Safety functions industrial robot controller: ISO 13849-1, PLd, Cat. 3
- Functional Safety Unit included

Easy teaching

- Move the robot arm directly via hand guiding function: easy teaching mode with a switch box

No safety fence

- Depending on the application, the HC10 can be used without a safety fence

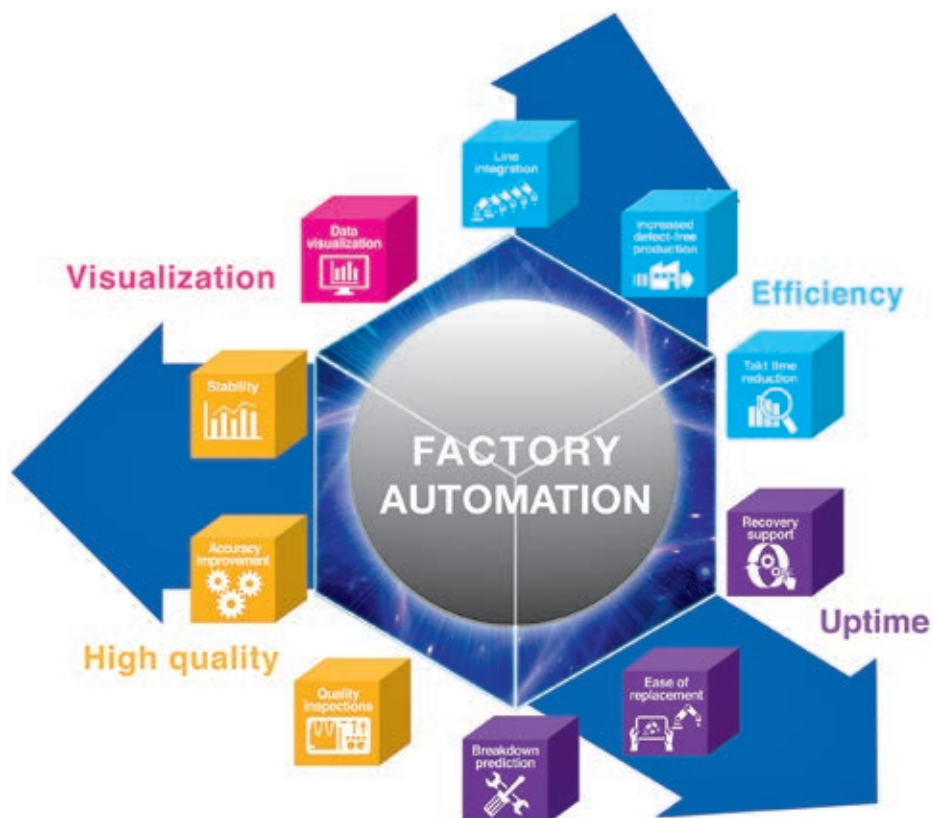


Controlled by
YRC1000

Controlled by
**YRC1000
micro**

i³-Mechatronics

INTEGRATED • INTELLIGENT • INNOVATIVE



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- ES YASKAWA Ibérica, S.L.
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Torsås +46-480-417-800
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- TR YASKAWA Turkey Elektrik
Ticaret Ltd. Sti.
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- ZA YASKAWA Southern Africa (PTY) Ltd
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We reserve the right to technical changes and error.

Training Overview
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