

Valk Welding Group  
Postbus 60  
2950 AB Alblasserdam

Tel +31 78 69 170 11  
info@valkwelding.com  
www.valkwelding.com



# Valk Welding training courses





*'By training your employees to be good robot programmers and good operators, both your company and your employees will be ready for the future.'*

The strong connection

## Valk Welding training courses

Valk Welding works with the advanced robots of Panasonic. In order to enable you as a customer to use the full potential of the Panasonic robot and its many options, Valk Welding offers various training courses. These training courses are given by a multidisciplinary team of specialised trainers. The training engineer is always aware of your installation(s) and will take this into account as much as possible during training. Valk Welding offers various training courses, which we can further adapt to your wishes. During the training, we utilise the manuals written by the trainers. The content of the advanced training will be determined together with you. Valk Welding has five advanced demonstration and training centres. You can follow training in France, Denmark, Sweden, the Czech Republic and the Netherlands.

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If you have any questions regarding one of our training courses, please contact us.

info@valkwelding.com  
+31 78 69 170 11



### Online training

#### Demonstration and training centres

Valk Welding has five different demonstration and training centres in five different countries: The Netherlands, France, Sweden, Denmark, and the Czech Republic. The demonstration and training centres are a link in “the strong connection” between the customer and Valk Welding. In the demonstration centre we show you the performance the robot installation is capable of. Your own product can be welded on a demo installation of Valk Welding. In our training centres we give the different training courses. We teach you to use all the possibilities of the robot installation to increase your production to the highest level.

#### Online and Offline training

Valk Welding offers so-called online and offline training courses for users of the Valk Welding robot systems. Online training courses are given at the robot whereby the trainee directly works with a welding robot. Learning how to program and operate the welding robot happens by means of the Teach Pendant controller at the robot. Valk Welding has various robots available for this in all its training centres. Including welding robots of several generations so that we can provide the students with the correct knowledge when it comes to using older types of robots.

Offline training is given using laptops and concerns a training that is based on our offline programming software DTPS, or related software. Just like in practice, these training courses can

deal with issues without involving the welding robot. For the offline training, Valk Welding has hardware such as laptops available when needed. Of course, it is also possible to bring your own laptop and possibly save programs for later use in practice.

#### Option and/or specialist training courses

Besides the basic and advanced training, Valk Welding also offers various option- and/or specialist training courses. The welding robot systems from Valk Welding can be equipped with various advanced hardware and software solutions that require additional knowledge. Of course, Valk Welding can ensure that your employees are fully trained to work with these options. These training courses are usually customer specific, depending on the available options and wishes of you as a customer.

#### Valk Welding helpdesk

If you have any questions, you can always contact our helpdesk. The helpdesk is available during office hours.

#### Help from your trainer

It is also possible to contact the trainer who provided your training afterwards, in many cases they will be able to help you further.

### Offline training

# Online operator training

Many installations supplied by Valk Welding are custom made installations. For these installations, in addition to the general procedures, certain procedures may also apply for their safe use.

## Target group

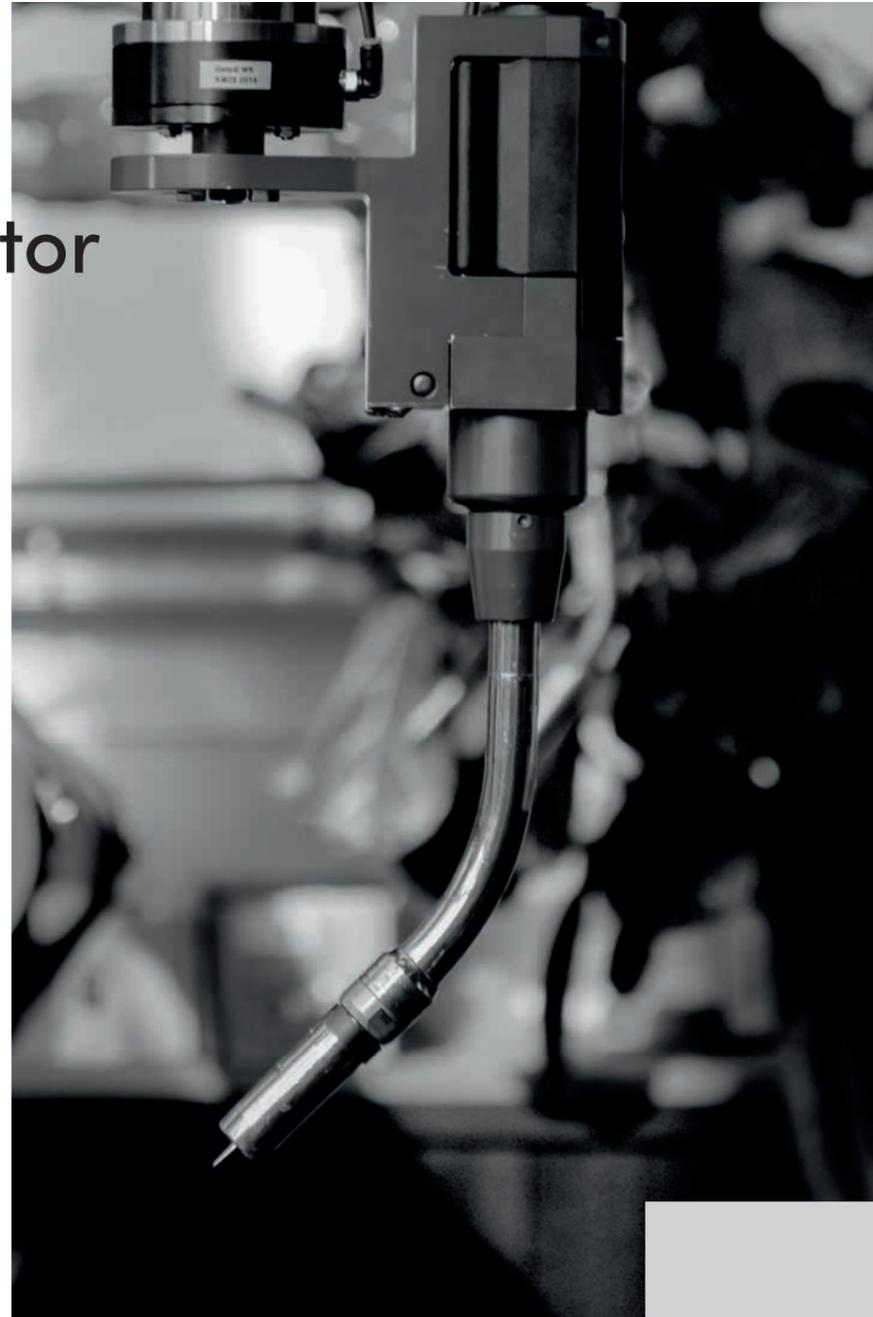
This training is meant for the operator of the welding robot installation. The operator is the one who will operate the installation, including inserting and removing products. The operator can also solve small breakdowns, change welding wire, and maintain the welding wire supply system.

## What the trainee learns

During the operator training the specific properties of the installation will be explained to the future operator. The operator will also learn to solve simple malfunctions to continue production independently. Safety and first line maintenance are also discussed. In addition, topics such as PPS (Program Protection System) and corrections to programs may also be covered.

## Duration of the training

The training takes one working day. The times are of your choice, from 7:15 to 15:45 or from 8:15 to 16:45.



# Online basic training

The quality of the result depends, among other things, on the skill of the programmer. A complete basic knowledge is therefore of great importance. A well-trained programmer will be able to fully utilise the extensive and advanced possibilities of the Valk Welding robot installation. Also, in the field of welding technology it is important that the programmer has the necessary knowledge. The basic training is therefore an essential training for any new user. It is possible that the training can be given in combination with students from other companies.

## Target group

The training is meant for people who will be programming the robot installation and who will be working with it on a daily basis in production. Even if the robot is delivered with ready-made programs, it is good that the programmer has knowledge of the structure and functioning of the supplied programs to be able to maintain them.

## What the trainee learns

During the training, all topics that are discussed are necessary when working with the installation: from creating new programs, starting up the installation to supporting the operator who works with the installation daily. Some of the topics covered during the basic training are:

- Using the robot installation (as an operator).
- Manually moving the robot.
- Writing welding programs.
- Testing programs.
- Starting programs in automatic mode.
- Optimising programs.
- Use of service programs.
- Program Protection System, PPS.
- Simple troubleshooting.

## Duration of the training

The training will last for three working days. The times are of your choice, from 7:15 to 15:45 or from 8:15 to 16:45.

**“ During the training, all topics that are discussed are necessary when working with the installation: from creating new programs, starting up the installation to supporting the operator who works with the installation daily. ”**

# Online training for advanced students

When putting the robot installation into operation, there may be situations that were not covered in the basic training. During the advanced training, these subjects will be discussed. The length of this training depends on the subjects to be taught. This training is therefore very customer-specific and will therefore be adapted to the questions of the customer. The training will therefore not be combined with students from other companies. Where necessary, this training will also be given by instructors from different disciplines, each with their own specialisation. The instructor giving the training therefore depends on the content of the training.

## Target group

This training is intended for programmers who encounter situations that have not been covered in the basic training. These can be both technical programming issues and technical welding issues.

In other words: where the basic training focuses on the basic possibilities of the welding robot installation, the advanced training is meant for the student who wants to get the most out of the machine and wants to achieve fast results as efficiently as possible. It is essential that the trainee has successfully completed the basic training and has experience with the robot since.

## What the trainee learns

The topics to be covered are customer specific. Before the start of this training, we will determine which instructor will be used for the training. If it is necessary to use more instructors with different disciplines for this training, they will be scheduled before the training starts.

Advanced training is mainly focused on further expanding knowledge of sequential commands, such as:

- Product detection based on searching
- Searching as a batch, so cycle time can be improved
- Clever design of program structures.

## Duration of the training

The duration of the training depends on the number of topics to be covered. The times are either from 7:15 to 15:45 or from 8:15 to 16:45.

# Online option training

Many advanced options are available as an extension to the standard robot system. If the programmer can master these options, you will be able to get the most out of them. To achieve this, Valk Welding provides the option training.

## Target group

This training is meant for students who have followed the basic training or have reached the same level through practical experience. And the robot installation is equipped with one or more of these advanced options.

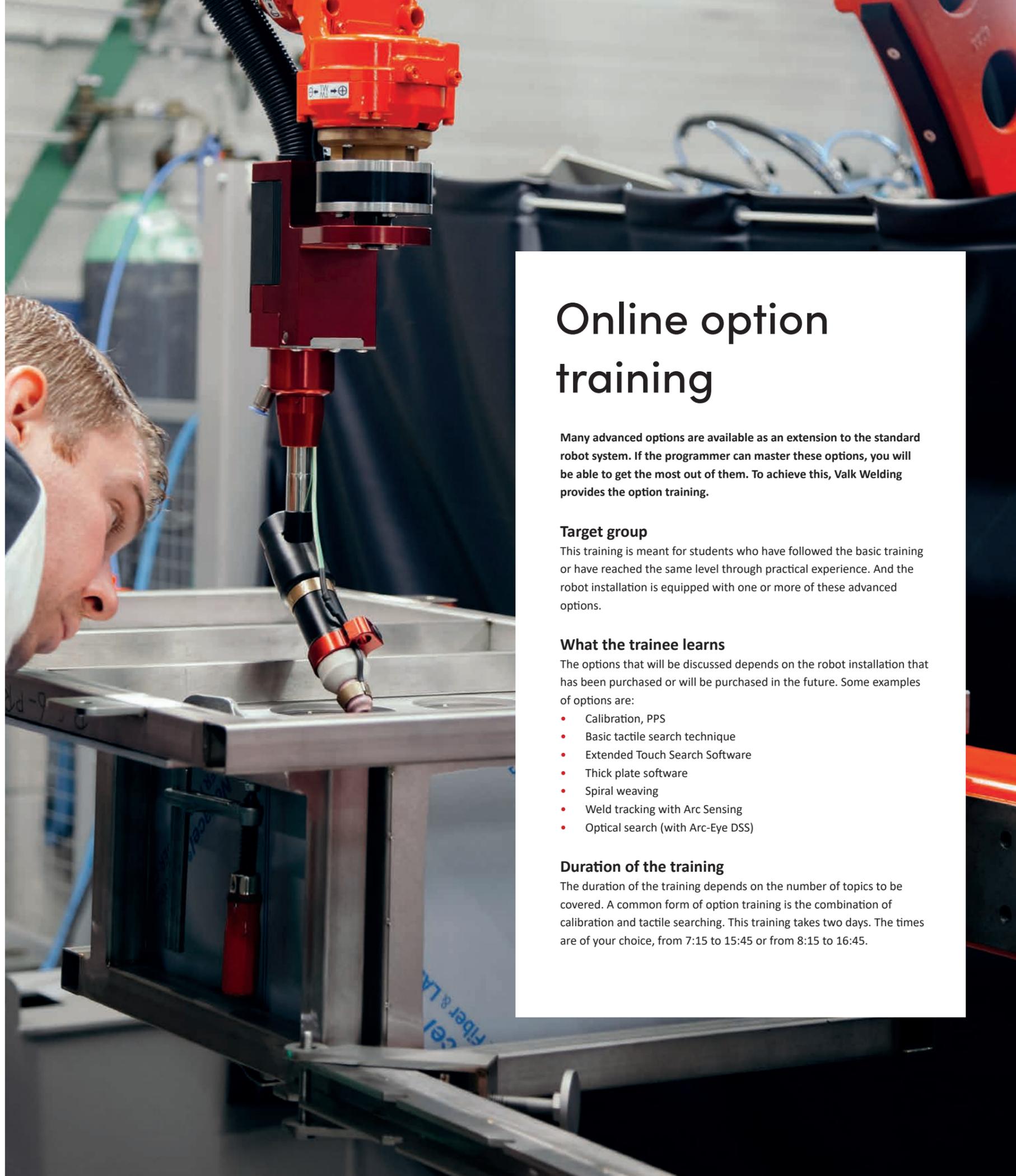
## What the trainee learns

The options that will be discussed depends on the robot installation that has been purchased or will be purchased in the future. Some examples of options are:

- Calibration, PPS
- Basic tactile search technique
- Extended Touch Search Software
- Thick plate software
- Spiral weaving
- Weld tracking with Arc Sensing
- Optical search (with Arc-Eye DSS)

## Duration of the training

The duration of the training depends on the number of topics to be covered. A common form of option training is the combination of calibration and tactile searching. This training takes two days. The times are of your choice, from 7:15 to 15:45 or from 8:15 to 16:45.



# Online welding training in practice

During the basic online training simple practice work pieces are used. In practice it is usually more complex, more insight will be needed to optimally approach and capture the welding positions. After completing the basic training, the student can be taken to the next level by one of our programmers. This involves programming in a more realistic environment, where matters such as parameters, welding sequences, cycle times and other welding-related issues are critical.

## Target group

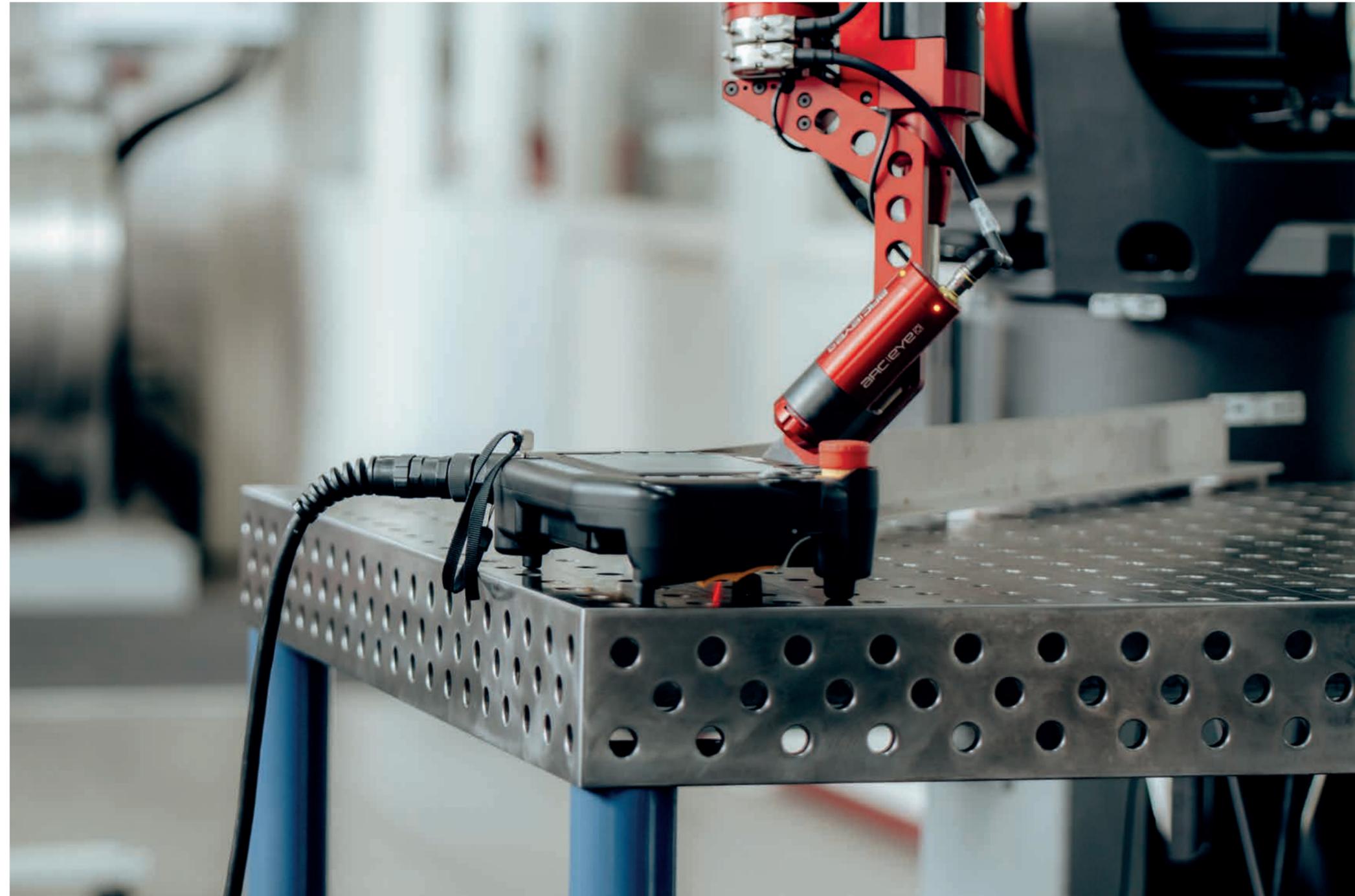
This training is meant for programmers who have followed the basic training and need to program a robot installation. It is very valuable to learn from the person who programs every day and who, based on knowledge and experience, knows what is important for making good welding programs.

## What the trainee learns

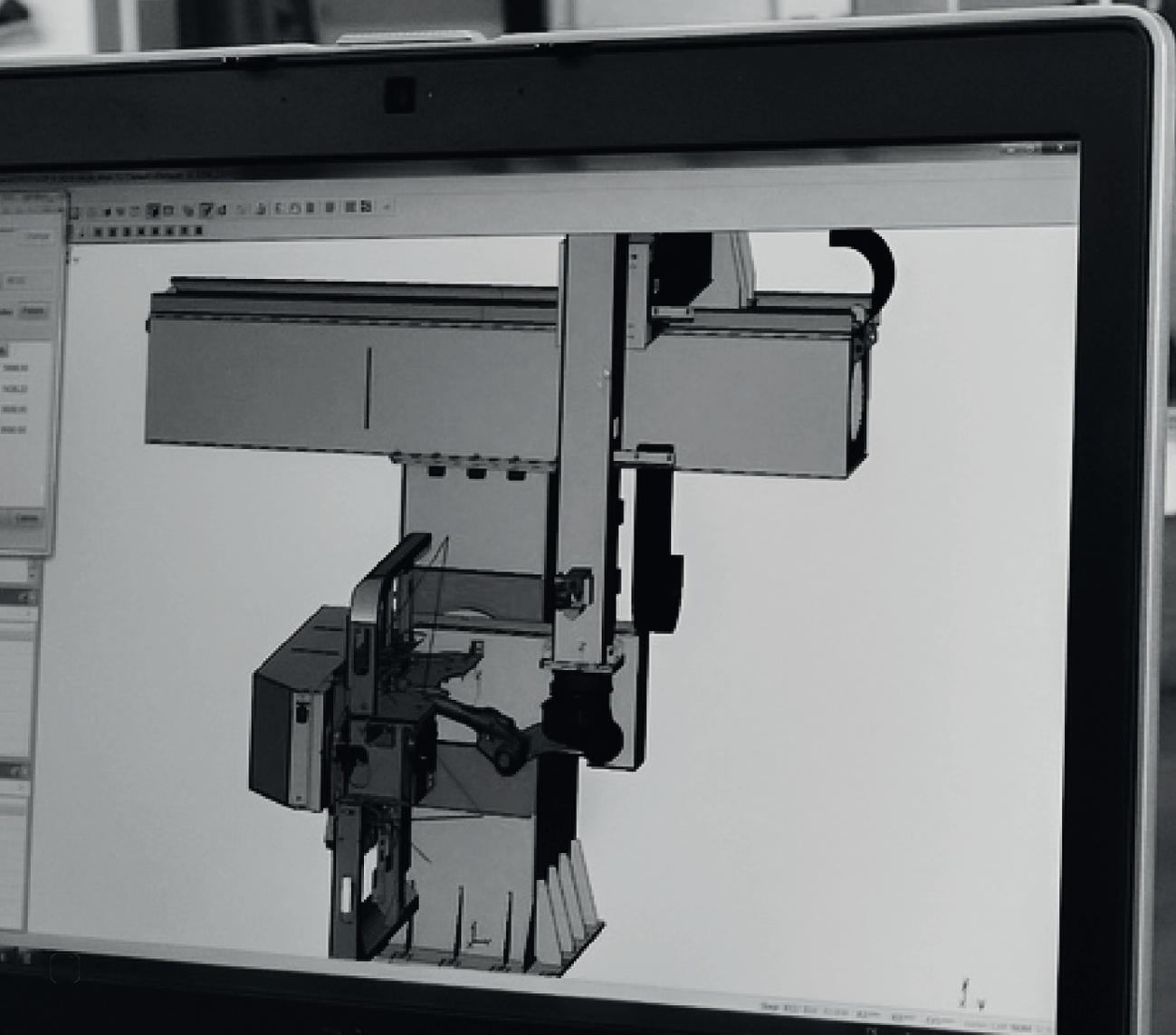
The student is guided by one of our programmers with regards to the welding of his/her own products. This can range from determining the structure of programs to deeper welding technical questions such as parameters, welding positions and efficiency. After completing this training, the student will have gained enough knowledge to confidently create and optimize robotic welding programs.

## Duration of the training

The duration of the training depends on the number of topics to be covered. The times are of your choice, from 7:15 to 15:45 or from 8:15 to 16:45.



Offline training is given using laptops



## DTPS

### DeskTop Programming and Simulation

DTPS is the bridge between the physical welding robot system and the 3D CAD environment. DTPS stands for DeskTop Programming and Simulation. Using DTPS, programming can be done offline while the robot continues production. The biggest advantage of offline programming is that no installation needs to be stopped to create new programs. New programs or maintenance of existing programs can be done on a computer or laptop.

For creating programs on a laptop or computer, we use DTPS. The DTPS package was developed by Panasonic



# Advanced offline DTSP training

Due to the many possibilities of the DTSP package, extra knowledge about these possibilities may be desirable. Valk Welding therefore offers the “offline DTSP training for advanced users”. During the training, the employees’ issues will be dealt with and thus obstacles will be removed to develop into a professional DTSP user.

The developments of offline programming are continuous. For the programmer it is essential to be and to remain informed about these developments. This ensures that the DTSP package is used optimally with all its possibilities.

## Target group

This training is meant for employees who have mastered the basics of DTSP, and need more depth because they encounter specific issues that were not discussed during the basic training. This gives employees the opportunity to use the full functionality of DTSP for optimal production efficiency. Participation in the DTSP basic training is a prerequisite for attending the advanced training. Furthermore, knowledge of and experience with welding and/or online programming is required, this increases the efficiency of the training.

## What the trainee learns

The trainees can send their own topics in advance to Valk Welding. This ensures that the students receive a tailor-made training and removes any obstacles. Some of the possible topics are:

- Questions resulting from the basic training
- Concrete programming questions, such as mirroring programs
- Tips and tricks on the use of programming support functions
- Explanation of new DTSP functions and possibilities
- Etc.

## Duration of the training

The duration of the training course is one to two days, depending on what needs to be covered. The times are of your choice, from 7:15 to 15:45 or from 8:15 to 16:45.

# Offline DTSP basic training

and is completely focused and optimized for use with Panasonic robots. It offers the possibility to create, simulate and optimize programs. A finished program can be sent to the robot via a network after which the production can be started immediately. The 3D drawings of the product, made with a CAD package, can be imported into DTSP. The 3D model of the installation is supplied by Valk Welding.

## Target group

The DTSP basic training is intended for people who have followed the online basic training and have an affinity with dealing with computers. Knowledge of the basic concepts of welding is recommended to be able to follow the DTSP training properly.

## What the trainee learns

During the training, the basic functionalities of the DTSP package will be covered. These will include importing the product, creating and optimizing a program for that product, and sending it to a robotic system.

## Duration of the training

The duration of the training is three days. The times are of your choice, from 7:15 to 15:45 or from 8:15 to 16:45.

# Offline macro programming



In DTPS it is possible to write your own functions using a special scripting language, comparable to Visual Basic. This allows many common operations to be automated. Almost all functions in DTPS can also be applied in the macro language. For example, the modification of parameters, use of the welding table, shift functions, copy and paste functions, etc.

## Target group

This training is intended for the DTPS programmer who often needs to perform the same procedures. A macro is a special program that can reduce or even eliminate repetitive actions. This reduces the chance of errors and saves time.

## What the student learns

In this course you will get to know the scripting language and you will be introduced to frequently used functions and routines. You will also learn how to test and correct macros. For writing the macros we will use Notepad++, a (free) text editor for programmers. For support, Panasonic has created an extensive reference book describing all the functions. In this course you will also learn how to use this document optimally.

## Duration of the training

The duration of the training is one to two days. The times are either from 7:15 to 15:45 or from 8:15 to 16:45.



# Offline QPT programming

## Quick Programming Tool

QPT (Quick Programming Tool) allows relatively easy creation of parametric programs. QPT is intended for product families, meaning that all programs are derived from a standard program. However, these programs may differ in length, width, etc. The toolkit consists of standard macros written by Valk Welding. Using these macros, basic programs can easily be converted to tailor-made programs.

## Target group

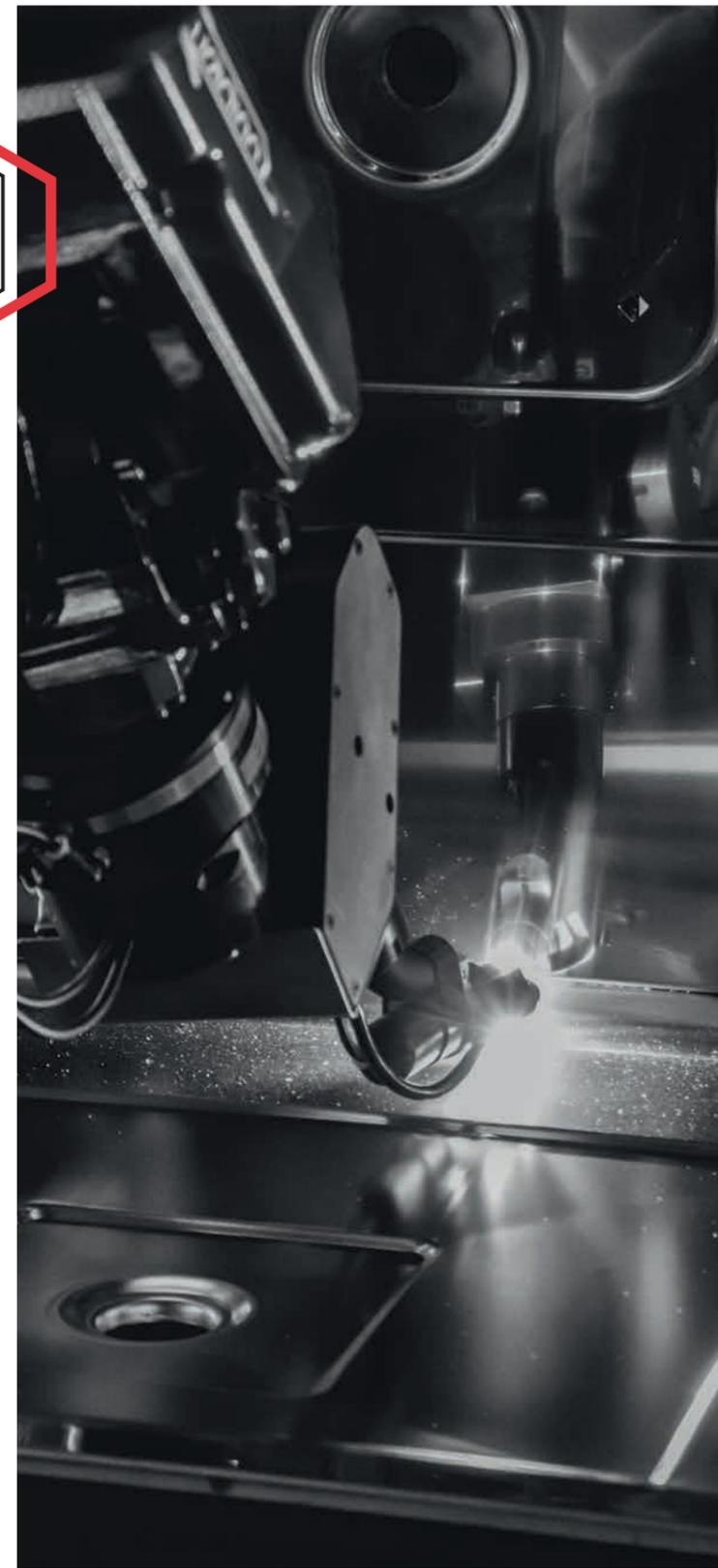
The DTPS QPT training is intended for people who have followed the offline basic training and have some knowledge of a programming language such as VBA or are already familiar with DTPS macros. Ensuring you are already somewhat familiar with concepts such as 'variables', 'IF-THEN-ELSE instructions', etc.

## What the student learns

In this course you will learn the basics of the macro language of DTPS, and you will get acquainted with frequently used functions and routines. You will also learn to create an input screen for entering the parameters for the program to be generated. You will also learn how to test and correct macros.

## Duration of the training

The duration of the training is two to three days. The times are your choice, from 7:15 to 15:45 or from 8:15 to 16:45.



# ARC-EYE CSS training

Where arc-controlled weld seam tracking is no longer sufficient, Valk Welding has developed the ARC-EYE CSS camera. Using this camera, the weld can be found and followed. If the Adaptive Welding plug-in is purchased, the welding parameters can also be adjusted in real time. There are four different training courses for different target groups.

## Target group

These training courses are intended for students who have successfully completed the basic training course. The four training courses to be followed are categorized as follows:

## What the student learns

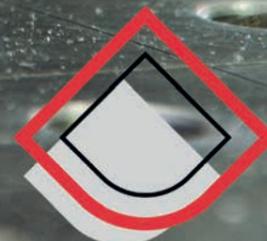
- Basic training  
*The programming of seam searches and seam following.*
- Advanced training  
*Basic training plus Adaptive Welding.*
- System integrator training  
*Advanced training extended with set-up and service training.*
- Programming Training  
*Developing your own camera applications using the C/C++ programming language.*

## Duration of the training

The duration of the training courses may vary depending on the choices made, especially the system integrator and programming training courses.

Basic training:	three days
Advanced Training:	two days
Integrator training:	five days minimum
Programming training:	three days minimum.

The times are by choice, from 7:15 to 15:45 or from 8:15 to 16:45.



# ARP

## Automatic Robot Programming



The ARP (Automatic Robot Programming) is a new advanced method for offline programming. It is a powerful tool used to reduce programming time. Programs are automatically generated and simulated to check for collisions and automatically corrected if necessary. They are then imported into DTSP for programmers with DTSP experience. Programs can then either be sent directly to the robot for production or programmers can still modify the programs manually or add additional parts if necessary.

### Target group

This training and software is intended for companies looking for automated programming solutions. The user is an existing offline programmer who wants to automate parts of their programming.

### What the trainee learns

During the course, the trainee will primarily learn how to handle the software package. This includes the preconditions that are given before the programs are generated and how adjustments can be made if necessary. You could describe the training as an operator training of the ARP programming package.

### Duration of the training

The duration of the training is one to two days, depending on the training needed and the complexity of the work pieces. The times are by choice, from 7:15 to 15:45 or from 8:15 to 16:45.



# VR programming

VR (Virtual Reality) programming is the next step in offline programming. The program is written entirely in a virtual environment where the robot installation and product can be seen. The generated programs can be sent directly to the real installation and executed. Also with VR programming, new programs can be created without interrupting production.

### Target group

This training is intended for the student whose installation is equipped with the VR software package and has successfully completed the basic training. Programming with VR is very quick to learn for people who need to have a “feel” for the process. They like to have the feeling of physically programming the product with a hand torch using the VR headset.

### What the trainee learns

The trainee will learn how to program products via an offline programming package. Where work is carried out in DTSP from behind a laptop. The programmer can use VR to put their ‘feeling’ into the welding program. For example, experienced manual welders with less affinity with computers, this is a very suitable programming method.

### Duration of the training

The duration of the training is 2 days. The times are by choice, from 7:15 to 15:45 or from 8:15 to 16:45.



## MIS

### Management Information System

With MIS, the production data of one or more robots is collected and stored. The status of the robot installations can also be read out via MIS in real time. MIS also has the ability to analyse and graphically display the collected data. MIS can also be used to assess the workload across various installations so that you can optimize your planning.

#### Target Group

This software is intended for companies that want to gain insight into the production of different robot installations and optimize the production planning. Robot knowledge is not essential for using this software.

Two training courses are available for the MIS software package, the installation training and programming training.

#### What the trainee learns

The student learns to interpret and analyse the available production information. MIS provides insight into where any errors in the program may be. With this information, changes can be made which will increase the efficiency of the welding robot installations.

#### Duration of the training

Both training courses take one day. The times are by choice, from 7:15 to 15:45 or from 8:15 to 16:45.



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## SFC Shop Floor Control

With SFC, a link is established between the robot installation, product, welding jig and robot program. The programs to be used are stored on a server and the operator can enter a new product via, for example, a barcode scanner or manual input. The correct programs are sent to the robot installation and production can begin. Work instructions can also be displayed, and a chat function is available for direct communication between operator and programmer. Version control of the robot programs is assured with SFC. SFC can be seen as an automatic bookkeeping system for your welding robot systems.

#### Target group

This software is especially suitable for so-called flexible automation, producing small numbers of different products. Two training courses are available for SFC. The SFC office

training, for the one who must manage the offline part. For this training, the online basic training and the offline DTPS training must be followed. For the operator who uses SFC there is the SFC operator training.

#### What the student learns

The student will learn how to handle the SFC package and how to maintain it in a production environment. Modifying, entering, and controlling versions are also some examples of the topics that are covered during the training.

#### Duration of the training

Duration of both training courses is one day. The times are by choice, from 7:15 to 15:45 or from 8:15 to 16:45.



# The strong connection



Valk Welding NL  
Staalindustrieweg 15  
Postbus 60  
2950 AB Alblasserdam  
Tel. +31 78 69 170 11

Valk Welding BE  
Tel. +32 3 685 14 77

Valk Welding FR  
Tél. +33 3 44 09 08 52

Valk Welding DK  
Tel. +45 64 42 12 01

Valk Welding CZ  
Tel. +420 556 73 0954

Valk Welding DE  
Tel. +49 152 29 109 708

Valk Welding PL  
Tel. +48 696 100 686

Valk Welding SE  
Tel. +46 510 48 88 80

[info@valkwelding.com](mailto:info@valkwelding.com)  
[www.valkwelding.com](http://www.valkwelding.com)

