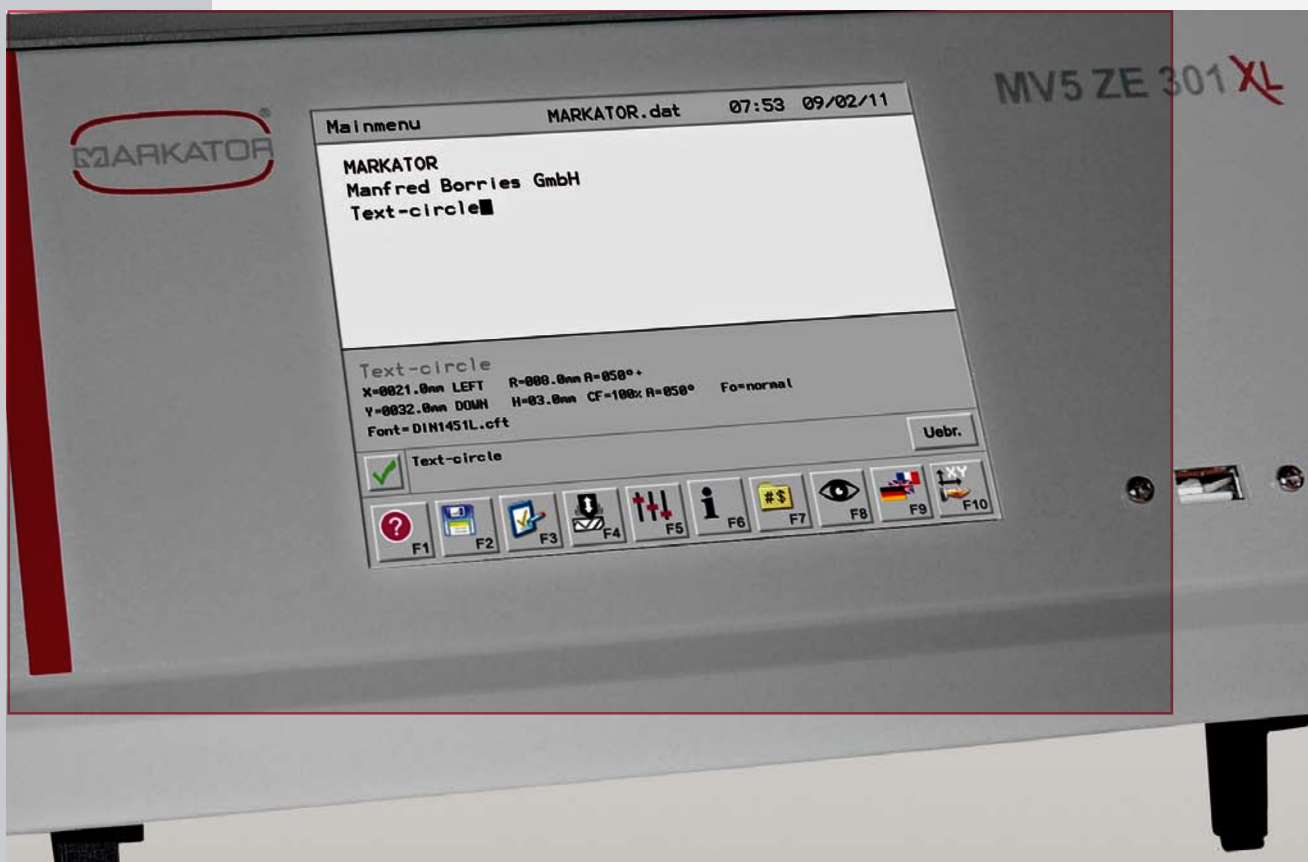


MARKATOR®-PRODUCT RANGE

# MARKING SYSTEMS MV5 ZE 301 XL



# MARKATOR®

## ABOUT US

We are experts in durable and economic marking of industrial parts to help eliminate forgery.

MARKATOR® have been developing and manufacturing high-quality systems for dot peen and scribe marking for over 30 years. We also produce hand-held and machine-operated marking tools. We can meet our customers needs individually and precisely.

Our aim is to achieve the highest quality possible. We attach importance to solid consulting, customer-related development and user-friendly marking systems.

We maintain a constant dialogue with our customers and their applications which help us maintain a continual development, optimisation and innovations within our product range.

Our benefits are completed with a committed and professional service manned by our highly-qualified employees.

See for yourself! We look forward to getting to know you!



# FUNCTIONALITY OF DOT PEEN AND SCRIBE MARKING

## Dot peen marking

A solid carbide pin oscillates by pneumatic and electronic means. It is moved by two carriages in the x and y direction and strikes the material by an up and down movement.

Depending on the impact frequency the marking either becomes a continuous or a single dotted line – perfect for characters, logos or two-dimensional codes, e.g. Data Matrix Code. The force produced by the single dot marks is negligible.

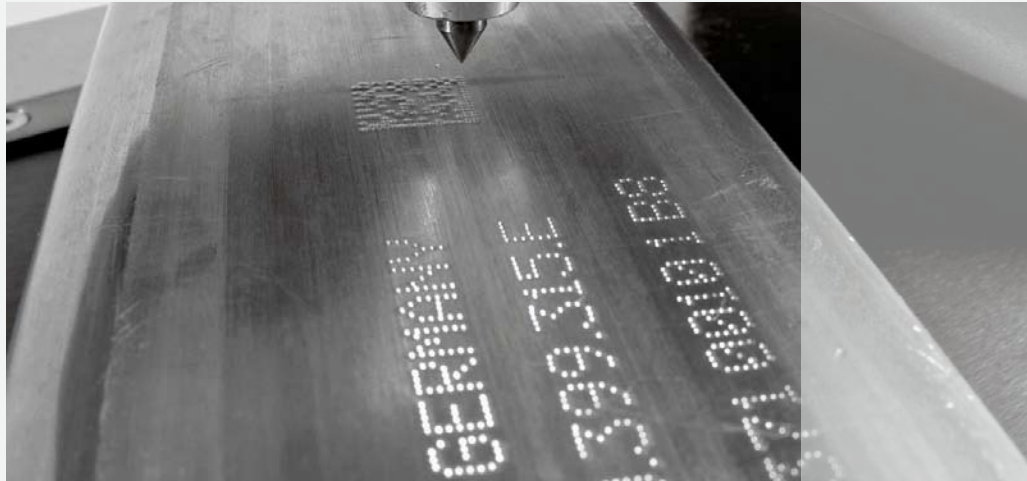


## Scribe marking

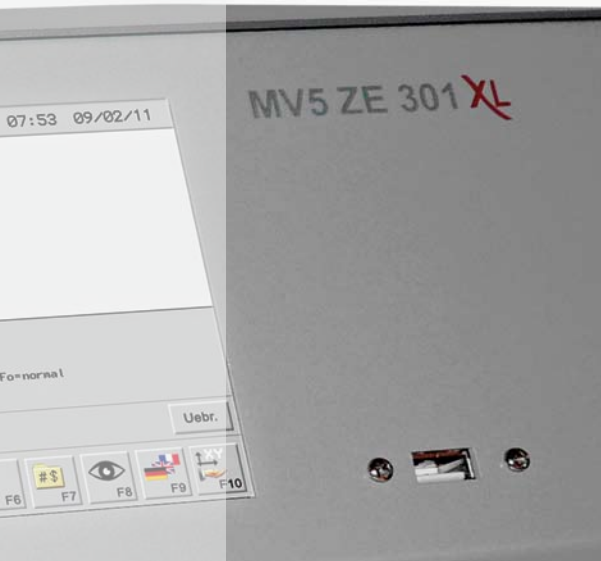
Compared to dot peen marking the scribe pin does not strike into the material with an up and down movement. It is pressed into the material. In this position the carbide or diamond scribe pin is moved by two carriages in x and y direction. The MARKATOR® scribe marking system offers optimal adaptability and high quality at a maximum marking speed. The marking system is suitable for almost all materials – from hardened steel to pressure-sensitive finished products.

## Single dot marking

As an alternative variation of the dot peen marking, the marking of single dot characters works also through a carbide marking pin which works pneumatic or electric. Single dots are achieved by the defined up and down movement of the marking pin. Through to the exact definition of the dots, the matrix fonts are produced in the uniform size of 5 x 7 or 9 x 13. The technology of the single dot marking also allows to mark accurate 2D-Codes.







# CENTRAL CONTROL UNIT MV5 ZE 301 XL

Our marking systems are part of a consistent modular conception. They are expandable with different additional components. The development of the central control unit MV5 ZE 301 XL was based on this consistent modular design system. Both the hand-held and table marking systems can be controlled with this central control unit.

The central control unit MV5 ZE 301 XL in the space-saving housing is equipped with integrated PC functions for the stand-alone use. The front panel integrates a colour LC-display with a resolution of 640 x 480 pixels. This display shows all information at a glance.

The central control unit MV5 ZE 301 XL can be expanded by optional accessories, e.g. a rotating axis for marking round pieces. Also a USB-barcode scanner for an easy data transfer can be connected.



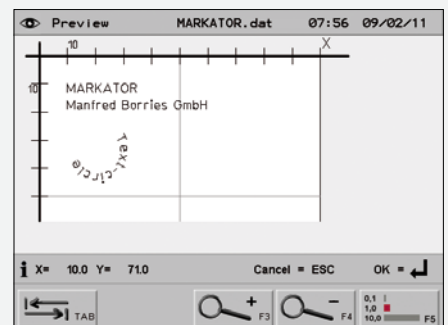
## Software

The software of the central control unit MV5 ZE 301 XL is 100% operator prompted, clearly represented and well structured. It offers high flexibility and comfort for fast creation of marking files. Due to the logical and self-explanatory user surface, the user of the central control unit does not need any programming skills. The software is available in several languages. Individual functions are protected by different password levels.

The coloured icons help to identify the different functions of the software and the preview function enables to check the created marking file directly on the colour LC-display of the central control unit. Incorrect markings can be prevented.

Due to the big internal memory of the central control unit MV5 ZE 301 XL it is possible to save several hundred marking files, logos and fonts directly on the controller.

The substitutes time, date, auto-numbering, shift identification and wait time are included in the standard scope of supply. Many other software options are available. From the program package HPGL, which enables to mark logos, to the program package DMC which allows to mark a Data Matrix Code. The option PC-software XL CONTROL enables to create, modify and administer the marking files directly on the PC.



## Connections

### 3 x USB-A

- Easy transfer of marking files, logos and fonts
- Data transfer through e.g. a USB-Barcode-Scanner
- Connection of a USB-Keyboard
- For even better ease of use a USB slot is mounted at the front plate of the central control unit.

### 1x USB-B

- Connection to the PC-Software XL CONTROL

### 1x Ethernet

- Connection to the PC-Software XL CONTROL
- Easy transfer of marking files, logos and fonts

### • Optional I/O-card:

#### Inputs

START, STOP,  
ERROR ACKNOWLEDGEMENT

#### Outputs

ERROR, BASIC POSITION,  
READY

#### A note on energy efficiency:

Power without process approx. 26 W



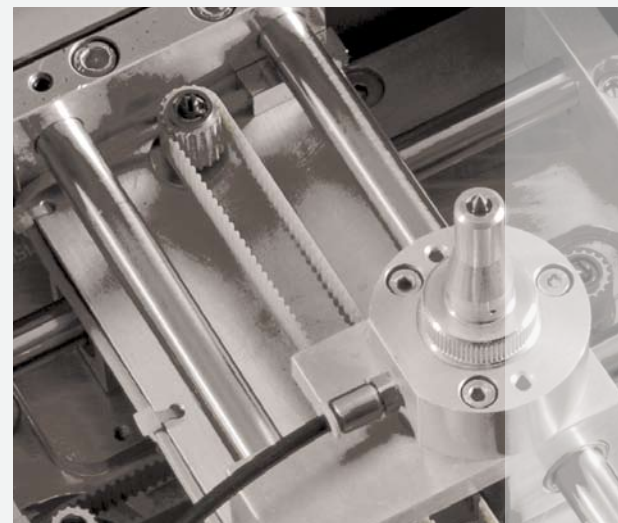
1. USB-A-interface
2. USB-B-interface
3. Ethernet-interface
4. Optional Digital I/O-card
5. Optional motor control card for a rotating axis
6. Sub-D (25-pole) marking head connection

## Technology

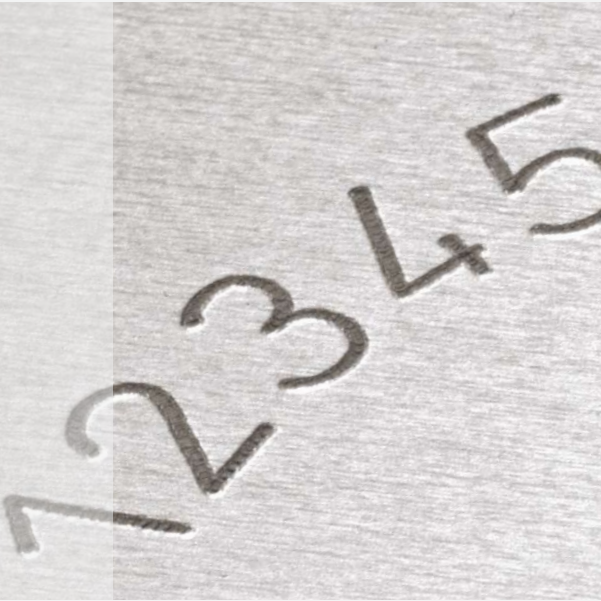
MARKATOR® is a manufacturer of rugged marking systems, insensitive to dirt, which are appreciated for their reliability. Our products are suitable for the permanent implementation in a 3-shift production.

Our marking heads are equipped with rigid guide bars for maximum stability and production safety. Our marking systems are equipped exclusively with high-class marking pins which can be resharpened, which guarantee a high tool life. With our scribe marker we get highest precision also at maximum speed.

Design and production occur exclusively in Germany. Thereby we assure a continuous high quality "Made in Germany". Due to our modular design system, which is permanent further developed, we are able to solve the most marking tasks with our standard marking systems.



# TABLE DOT-PEEN MARKING SYSTEMS



The flexible table marking systems MV5 T0 und MV5 T1 are offered in the marking areas 100 x 100 mm (MV5 T0) and 200 x 100 mm (MV5 T1).

The marking head with high-class guidance in connection with a combination of self-lubricating bearings is maintenance free. It offers optimal wear properties!

The marking system is equipped with a maintenance free stylus. The solid carbide pin is break-proof and can be reground.

The machine table has solid tracks and ensures a high stability. The marking head can be adjusted in height with a hand wheel. Long cranking is avoided by precise and smooth-running mechanics. The adjustment of the height is four times faster than conventional machine tables. The respective adjusted height is shown by a digital display on the machine column. It can be simply fixed by two clamp levers. The high class cover protects the spindles from dust and obviates injuries.

For an easier adjustment of the marking file and for a simpler positioning of the work piece, the marking head MV5 T0 is equipped with an energy saving LED-lighting rail.

## Technical data

### Marking area (x/y):

MV5 T0 (x/y) 100 x 100 mm

MV5 T1 (x/y) 200 x 100 mm

### Available character heights

1,0 to 99,9 mm,  
continuously adjustable in 1/10-steps

### Marking direction

Any, from 0° to 360°

### Fonts

Standard, similar to DIN 1451 in a continuous line or in single dot characters, size 5 x 7 and 9 x 13

### Available characters

Capital and small letters A to Z,  
figures 0 to 9, various punctuation marks

### Resolution of the stepping motors:

0,05 mm for a very high marking quality

### Required space of the table marking system:

342 x 515 mm



# TABLE SCRIBE MARKING SYSTEMS

The machine type MV5 VT0 is designed as a scribe marking system with a marking area of 100 x 100 mm. The system features are very high quality and a very low noise emission at marking.

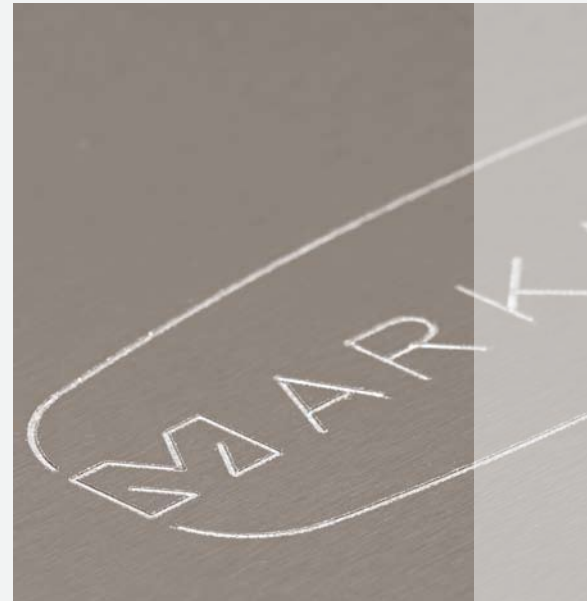
High value linear guides in connection with ball bearing screws guarantee highest marking repeat accuracy and assure high stability of the marking head. Two brushless stepping motors drive the marking axis. The marking head is maintenance free and offers optimal wear properties.

Due to the robust mechanics, the marking head MV5 VT0 is particularly suitable to mark high-precision Data Matrix Codes – also in small sizes.

The different marking forces are infinitely adjustable by the pressure controller of the filter regulator.

The marking system is equipped with the strongest scribe stylus size F and a low-wear diamond-equipped marking pin with a radius of 0,2 mm.

The marking pin works pneumatically. Depending on the customer's application, other pin sizes and radii are available. The scribe stylus is maintenance free.



## Technical data

### Marking area (x/y):

MV5 VT0 (x/y) 100 x 100 mm

### Available character heights

1,0 to 99,9 mm,  
continuously adjustable in 1/10-steps

### Marking direction

Any, from 0° to 360°

### Fonts

Standard, similar to DIN 1451 in a continuous line or in single dot characters, size 5 x 7 and 9 x 13

### Available characters

Capital and small letters A to Z,  
figures 0 to 9, various punctuation marks

### Resolution of the stepping motors:

0,0125 mm for an extremely high marking quality

### Required space of the table marking system:

342 x 515 mm



# TOTAL OVERVIEW OF DOT PEEN- AND SCRIBE-MARKER

## MV5 VT0

Scribe marker

Marking area (x/y):  
100 x 100 mm



## MV5 T0

Dot peen marker

Marking area (x/y):  
100 x 100 mm



## MV5 M50/25

Dot peen marker

Marking area (x/y):  
50 x 25 mm  
Optional 50 x 45 mm



## MV5 M80/25

Dot peen marker

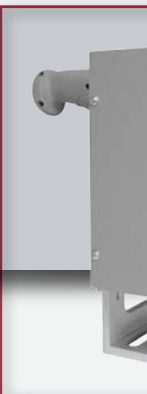
Marking area (x/y):  
80 x 25 mm  
Optional 80 x 45 mm



## MV5 M120/25

Dot peen marker

Marking area (x/y):  
120 x 25 mm  
Optional 120 x 45 mm





# RS WITH THE CENTRAL CONTROL UNIT MV5 ZE 301 XL

**MV5 T1**  
Dot peen marker

Marking area (x/y):  
200 x 100 mm



**MV5 M0 / MT0**  
Dot peen marker

Marking area (x/y):  
100 x 100 mm



**MV5 M1 / MT1**  
Dot peen marker

Marking area (x/y):  
200 x 100 mm



**MV5 M2**  
Dot peen marker

Marking area (x/y):  
30 x 65 mm



# HAND-HELD AND COMBI DOT PEEN MARKERS

The flexible combi marking systems MV5 MT0 (100 x 100 mm) and MV5 MT1 (200 x 100 mm) are developed as a combination of a table and a hand held marking system.

The marking head is equipped with a handheld and a robust start button. It works in all positions. A hoop guard against unintended operation is attached for safety reasons.

Fixing the marking head to the column frame, you can adjust the height by the hand wheel on the column. The relative adjusted height is shown by a digital display.

The hand held marker can be mounted on individual supporting feet or prisms as fast and simple as to the column frame. The handheld must not be taken off. An optional prism stop provides superior gripping when marking round pieces.

The marking head with high class guidance in connection with a combination of self-lubricating bearings is maintenance free. It offers optimal wear properties.

The mobile, hand operated marking systems are also available separate with marking areas 100 x 100 mm, 200 x 100 mm and 30 x 65 mm.



## Technical data

### Marking area (x/y):

MV5 MT0/M0 (x/y) 100 x 100 mm

MV5 MT1/M1 (x/y) 200 x 100 mm

MV5 M2 (x/y) 30 x 65 mm

### Available character heights

1,0 to 99,9 mm, 1,0 to 64,9 mm (MV5 M2)  
continuously adjustable in 1/10-steps

### Marking direction

Any, from 0° to 360°

### Fonts

Standard, similar to DIN 1451 in a continuous line  
or in single dot characters, size 5 x 7 and 9 x 13

### Available characters

Capital and small letters A to Z,  
figures 0 to 9, various punctuation marks

### Resolution of the stepping motors:

0,05 mm for a very high marking quality

### Required space of the table marking system:

342 x 515 mm



# HAND-HELD DOT PEEN MARKERS

The marking heads MV5 M50, MV5 M80 and MV5 M120 are ideal for the self independent marking of heavy, bulky and stationary work pieces on site.

Latest control technologies allow high speed marking. The precise and stable mechanism and the high quality, double guided linear guides in x- and y-direction guarantee a very high repeat accuracy and an extremely precise and warp-free marking result. This meets the high requirements of the quality of 2D-Codes (optional) in various branches of industry.

All marking heads are solidly guided and in connection with the high performance stepping motors they can be used in any position.

The marking itself is produced by a solid carbide-marking pin. The marking pins are available in several sizes and can be selected in accordance to the material to be marked. The shatter proof marking pin oscillates pneumatically and can be reground several times. The stylus for the seating of the marking pin is maintenance free.

As an option the unit can be mounted into a column frame for stationary.

This compact generation of marking heads convinces by its durability, an optimal wear behaviour and a very good price performance ratio.

#### Available marking areas:

MV5 M50/25 (50 x 25 mm)  
MV5 M80/25 (80 x 25 mm)  
MV5 M120/25 (120 x 25 mm)  
MV5 M50/45 (50 x 45 mm)  
MV5 M80/45 (80 x 45 mm)  
MV5 M120/45 (120 x 45 mm)

Latest generation of marking heads!



#### Technical data

##### Marking area (x/y):

50 x 25 mm (MV5 M50/25)  
80 x 25 mm (MV5 M80/25)  
120 x 25 mm (MV5 M120/25)  
(optional 45 mm in y-direction)

##### Available character heights

1,0 to 24,9 mm or 1,0 to 44,9 mm  
continuously adjustable in 1/10-steps

##### Marking direction

Any, from 0° to 360°

##### Fonts

Standard, similar to DIN 1451 in a continuous line  
or in single dot characters, size 5 x 7 and 9 x 13

##### Available characters

Capital and small letters A to Z,  
figures 0 to 9, various punctuation marks

##### Resolution of the stepping motors:

0,05 mm for a very high marking quality

##### Required space of the column:

200 x 300 mm

# OPTIONS



## Rapid column frame

Due to the easy handling and the exact positioning by a multifunctional hand wheel, the rapid column frame is an efficient way to mark individual parts quickly and with a good solution. It has a z-stroke of 300 mm and will be delivered with a height holding fixture and optional with a laser pointer for an even quicker operation. Because of the quick adjustment tool on the column frame, extremely short setup times and therefore time savings of up to 70%, compared to the standard column with crank handle, can be reached.

A short movie to this option can be found using following link:  
<http://www.markator.de/videos.html>



## Height adjustment with electrical motor

The height of the marking head can be set automatically with the help of the motorized z-axis. Because of the existing teach in function of the software, the coordinates can be adjusted and saved easily using the arrow-keys. Especially while marking work pieces with interference contours, this option shortens the marking times enormously. A constant distance between marking pin and work piece can be ensured.

A short movie to this option can be found using following link:  
<http://www.markator.de/videos.html>



## Rotating axis RKM

The optional rotating axis RKM is used for the radial and axial marking of round pieces. Wherever the automatic height tolerance adjustment of the marking pin is not sufficient, this option is perfect. The optional rotating axis RKM includes in the standard scope of delivery a three-jaw chuck out of steel with jaws for clamping and a flange, a mounting plate RKM including identification tag holding fixture and magnets.

A short movie to this option can be found using following link:  
<http://www.markator.de/videos.html>



## Electric safety foot switch

Fast and efficient operation! Using the electric safety foot switch offers two major advantages. First your hands are free to do the positioning of the work piece to be marked. This means the work piece is even more surely correctly positioned. Secondly it is possible to reach faster marking times by a quicker positioning and by triggering the marking using the foot switch.



## USB-Barcode hand scanner

Using the USB-interface of the central control unit it is possible to connect our USB-Barcode hand scanner by plug and play. Thereby reading barcodes is fast and simple and the content of the code can be transferred directly to the central control unit MV5 ZE 301 XL. The transferred data can be marked afterwards in characters or as a 2D-code onto the work piece. If your work piece for example has a job card with a printed barcode, the code can be read and the data will be transferred to the central control unit and can be marked onto your work piece immediately.



## Digital I/O-card

When installing the digital I/O-card, three In- and Outputs each will be allocated as standard.

Inputs: START, STOP, ERROR ACKNOWLEDGEMENT

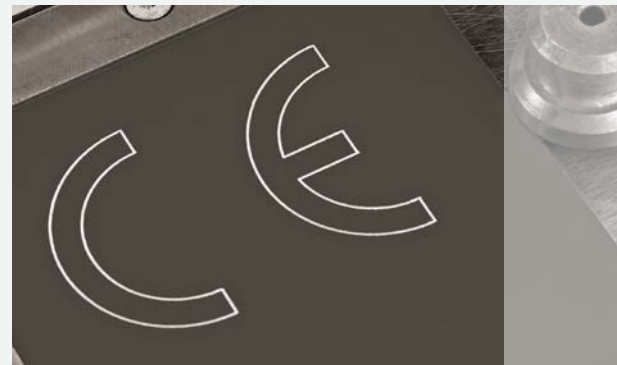
Outputs: ERROR, BASIC POSITION, READY

The digital I/O-card is for example required for the use of a START-STOP switch or for the use of an electric safety foot switch.



## Software option HPGL

To mark the own company logo or as required by the product liability standards for example the CE sign on the work pieces has become indispensable for a lot of companies. To mark logo-files, the activation of the software option HPGL on the central control unit MV5 ZE 301 XL is necessary. This activation enables to scale, turn and position a logo file within a marking file.

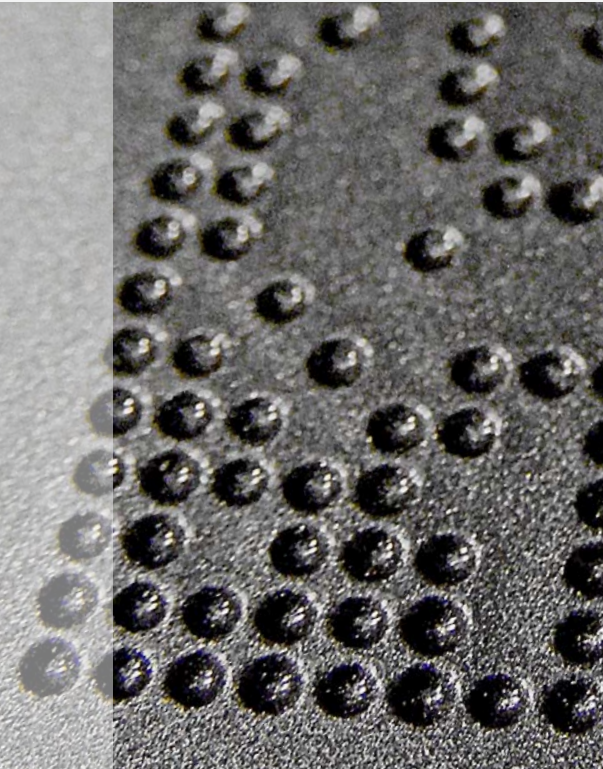


## PC-Software XL CONTROL

The PC-Software XL CONTROL allows you to operate the central control unit MV5 ZE 301 XL online, directly from your PC. With the aid of network integration via Ethernet or USB it is possible to monitor all marking operations easily online on your PC. A direct intervention in the marking process or in the programming is also possible. Using the simulation surface of the software you can offline create, modify and save marking files in advance. These files can be transferred to the central control unit via an USB-stick or via the network. It is simple to administrate and archive marking files with the internal file manager of the PC-Software XL CONTROL!



# TYPICAL APPLICATIONS



## Data Matrix Code

For all applications relating to fast production lines, difficult interfaces, a small marking area or safe codes, a 2D-Code is the perfect solution.

The Data Matrix Code is one of the most important representatives in the range of two-dimensional codes. It is already the standard coding of the future. This modern and machine readable marking, provides a high information density and an omnidirectional readability.

The reconstruction of the data content by the Reed-Solomon error correction is even possible in cases where the code is destroyed by up to 25%.

Benefits of the Data Matrix Code:

- High information density on small areas
- Memory capacity from 1 to 2300 characters
- Readable with low contrast
- Reduction and increasing of the data content without changing the physical size of the code
- Readable with every angle of vision
- Registration of fast moving objects



## Identity Tags

To mark products for future identification and to guarantee traceability, identity tags are a good solution. Manufacturing numbers, serial numbers, etc can be marked on the identity tag which can be attached to the particular product.

We offer different solutions depending on style and size of the identity tag. With our central control units it is very easy to prepare and modify marking files. If a high number of identity tags is required, we can offer automatic solutions in form of an automatic type plate machine. Please ask us for further information if this is of interest!



## Logos

Beside alphanumeric characters, it is also possible to mark your company logo, the logo of your customer or a certification mark (for example the CE-mark) on your product. The central control units offer a certain amount of memory space to save these logo-files. The logos itself will be created by MARKATOR® and we will save them on your central control unit before delivery. Optionally it is possible to buy the HPGL-software to administer, convert and transfer the logo and graphic files by yourself. With this you can create as many logos as you want and transfer them onto your central control unit as required.

## MORE PRODUCTS



**Marking head MV5 VU4**

The scribe marking head MV5 VU4 (marking area 80 x 50 mm) is featured by a very low noise emission and an extremely high marking quality! With the option SPRINT you will achieve an even shorter marking time.



**Marking head MV5 U50/25**

The compact marking head MV5 U50 (50 x 25 mm) is developed to be integrated in any kind of production line. In connection with the central control unit ZE 101 XL, a fast and easy integration in automatic production processes is possible.



**FlyMarker® PRO**

Battery operated handy and compact hand-held marking system to mark unmovable and large parts directly on site. In the STATION version also suitable for the marking of small work pieces.



**Central control units MV5 ZE 100/101 XL**

Especially developed for the use in integration plants. The central control unit MV5 ZE 100 XL is convincing due to just 6 LED lights as control function to its simplicity. The central control unit MV5 ZE 101 XL is equipped with the option TOUCH and enables with a colour LC-display and a capacitive keyboard an efficient setup.



**Central control unit MV5 ZE 401 XL**

The central control unit MV5 ZE 401 XL meets the highest requirements. It is available as front- or rear panel installation as well as 19" rack- or table top option. Special features: type of protection IP54, high-resolution colour LC-display, diagnostic function.



**Conventional Marking**

In addition to the CNC controlled marking systems we also offer products in the range of conventional marking – e.g. impact marking systems, numbering heads, interchangeable steel types, marking tools and every kind of special stamps.

**MARKATOR®**

Bunsenstraße 15  
71642 Ludwigsburg  
Germany

Telefon +49 (0) 7144 - 8575 - 0  
Telefax +49 (0) 7144 - 8575 - 600

[info@markator.de](mailto:info@markator.de)  
[www.markator.de](http://www.markator.de)

