visomax

EP-CONTROLLER

Visomax

EP-Controller

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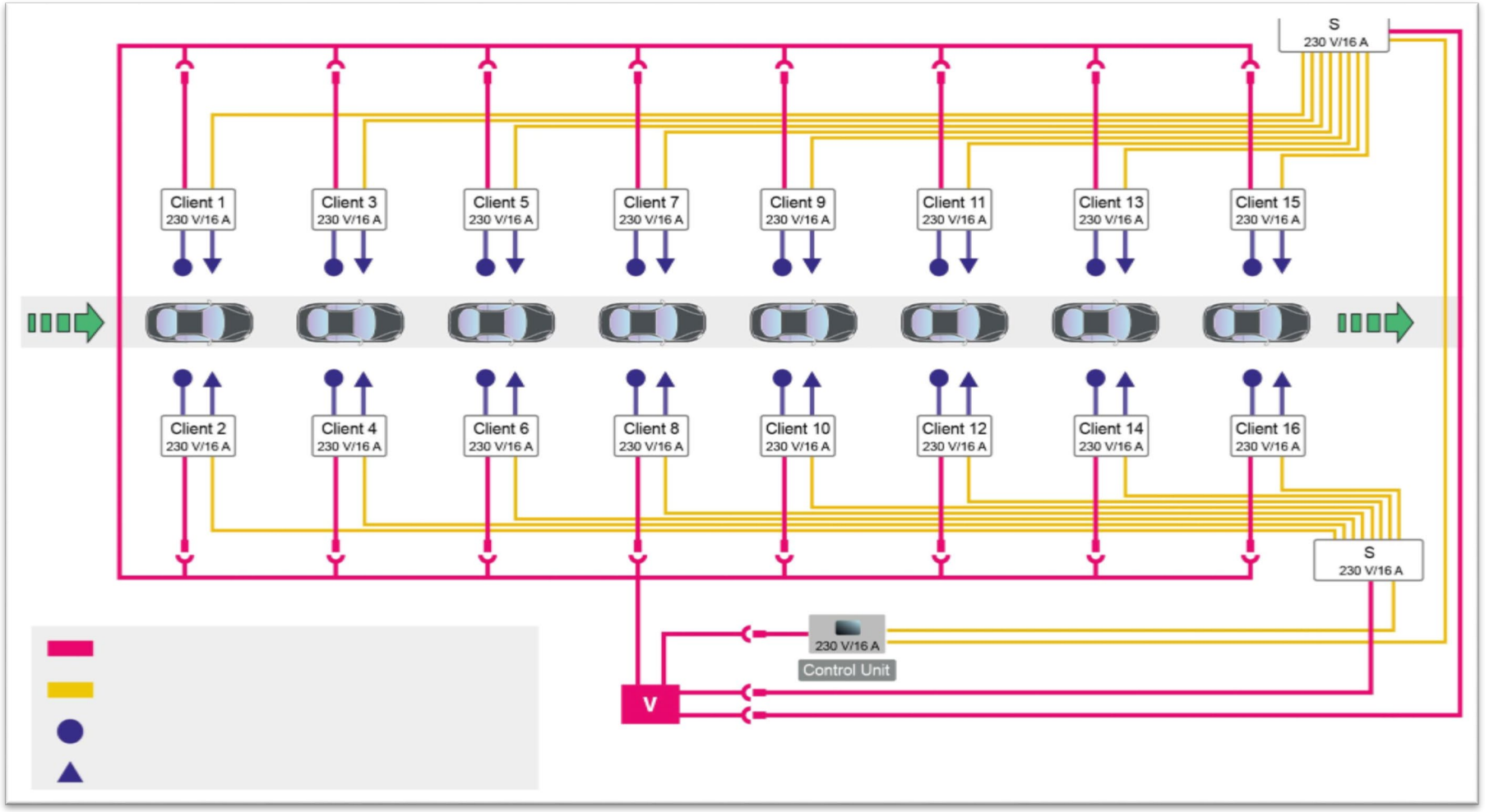
WHAT IS AN EP-CONTROLLER?

- The Visomax EP-Controller (EP= Electric Phase) is a computer controlled system for a measure-oriented process control of 24 V/DC sanding and polishing tools.
- The worker will be informed about the best cycle for the process by a synchronized interruption of power.
- The EP-Controller and numerous additional features support a precise control of conventional electric tools and a stabilization of the sanding and/or polishing process.

STRUCTURE OF AN EP-CONTROLLER SYSTEM

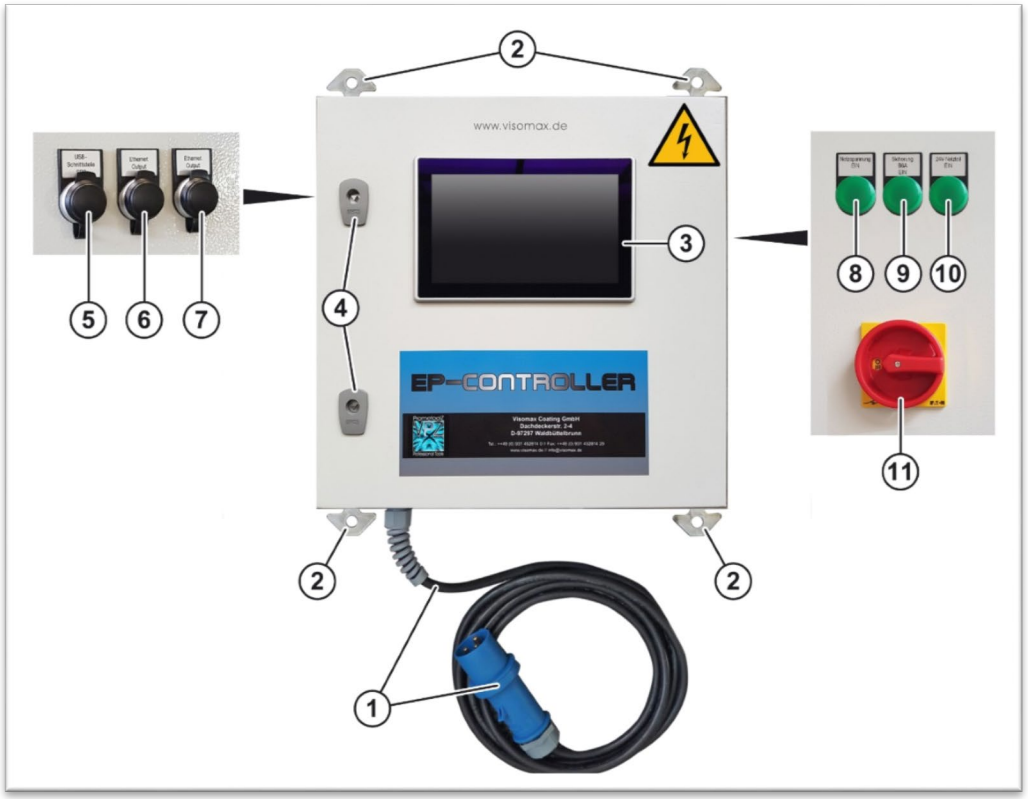
- Every EP-Controller System has a central control unit.
- The control unit is connected with one or more switches.
- The so-called Clients are connected to the switches.
- The electric tools are connected to the Clients and thereby are supplied with voltage and synchronized.
- The Clients also have optionally integrated visual and audible warning devices for the worker.
- Depending on the installation site and client requieremens the Clients can also be integrated in the control unit. So the work place is only equipped with the tool connections and the visual and audible warning devices.

EXAMPLES OF A PRODUCTION LINE



EXAMPLES OF THE PERIPHERAL DEVICES

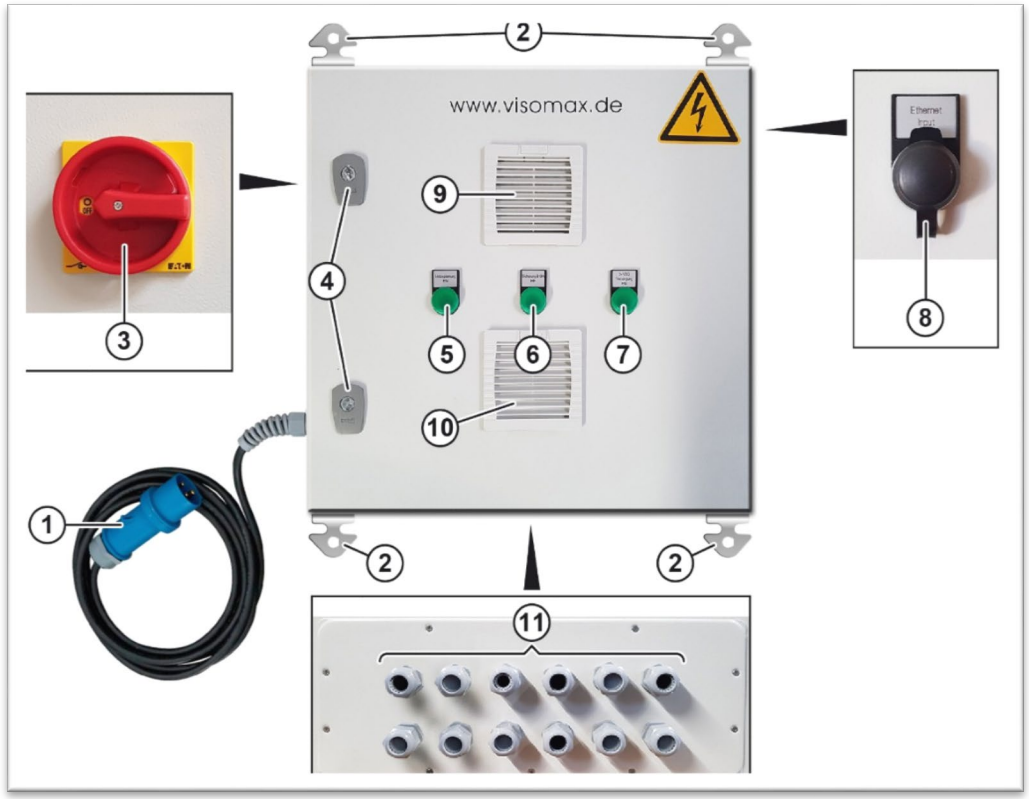
- Control Unit



Pos.	Description	Pos.	Description
1	Connection cable with main plug	7	Output Ethernet
2	Mounting lugs	8	Warning light Voltage ON (EIN)
3	Touch screen	9	Warning light Fuse ON (EIN)
4	Door lock	10	Warning light 24 V power supply ON (EIN)
5	USB connection SPS	11	Main switch
6	Output Ethernet		

EXAMPLES OF THE PERIPHERAL DEVICES

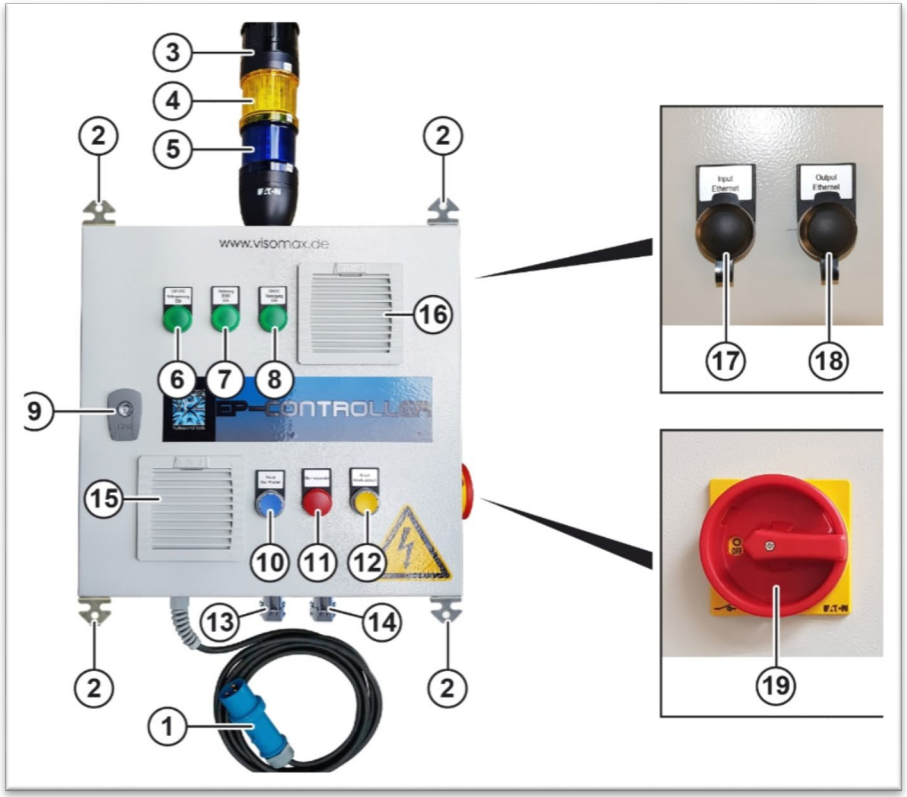
- Switch



Pos.	Description	Pos.	Description
1	Connection cable with main plug	7	Warning light 24 V power supply ON (EIN)
2	Mounting lugs	8	Ethernet Input
3	Main switch	9	Cover grid for air outlet filter
4	Door lock	10	Cover grid control cabinet fan
5	Warning light Voltage ON (EIN)	11	Ethernet Outputs
6	Warning light Fuse ON (EIN)		

EXAMPLES OF THE PERIPHERAL DEVICES

- Clients



Pos.	Description	Pos.	Description
1	Connection cable with main plug	11	Warning light „overtemperature“
2	Mounting lugs	12	Button „Reset work interruption“
3	Audible warning	13	Output Sander 24 V not synchronized
4	Warning device yellow	14	Output Polisher 24 V synchronized
5	Warning device blue	15	Cover grid fan
6	Warning light Voltage ON (EIN)	16	Cover grid for air outlet filter
7	Warning light Fuse ON (EIN)	17	Input Ethernet
8	Warning light 24 V power supply ON (EIN)	18	Output Ethernet
9	Door lock	19	Main switch
10	Button „Reset Pad Washer“		

EXAMPLES OF THE PERIPHERAL DEVICES

- Various Clients in one central control cabinet

Pos.	Description	Pos.	Description
1	Transport lugs	5	Cover grid for air outlet filter
2	Warning lights	6	Ethernet Input
3	Door lock	7	Ethernet Output
4	Cover grid fan	8	Main switch

COMMUNICATION OF THE PERIPHERAL DEVICES

- The communication between the peripheral devices is realized via Ethernet/IP.
- The control unit, the switch and the clients are interconnected by network lines (CAT7 / RJ45 plug).
- The standard version does not provide a connection between the EP-Controller System and the client's network.
- When the client requests the connection to the own network, it will be realized by the EP-Controller Control Unit.

ADDITIONAL FEATURES

Data recording:

- The EP-Controller offers the possibility to record all sanding and polishing processes.
- With this feature it is possible to record the following values/process parameters (in case the line model of the client supports it):

- Chassis number
- Colour code of the vehicle
- Workplace number
- Date/time stamp at shift start
- Working day
- Nominal Polishing cycle
- Date/time stamp at process start
- Time zone 1
- Time zone 2
- Time zone 3
- Real Polishing cycle
- Ø of the contact pressure
- Lighting settings cold light (light tunnel)
- Lighting settings warm light (light tunnel)

ADDITIONAL FEATURES

Data storage:

- The data storage can be realized as follows:
  - Data storage on SPS (internal SD card). The transmission of the data happens via USB stick.
  - Data transmission per OPC UA to the client.
  - Data storage in a SQL data base on a supplied and independent laptop.
  - Data storage in a SQL data base on the server of the client.

ADDITIONAL FEATURES

Data evaluation:

- The data evaluation can be realized with following methods:
  - Data evaluation with a supplied Excel sheet.
  - Data evaluation with a supplied SQL data base evaluation tool.
  - Data evaluation by the client.

ADDITIONAL FEATURES

Data evaluation:

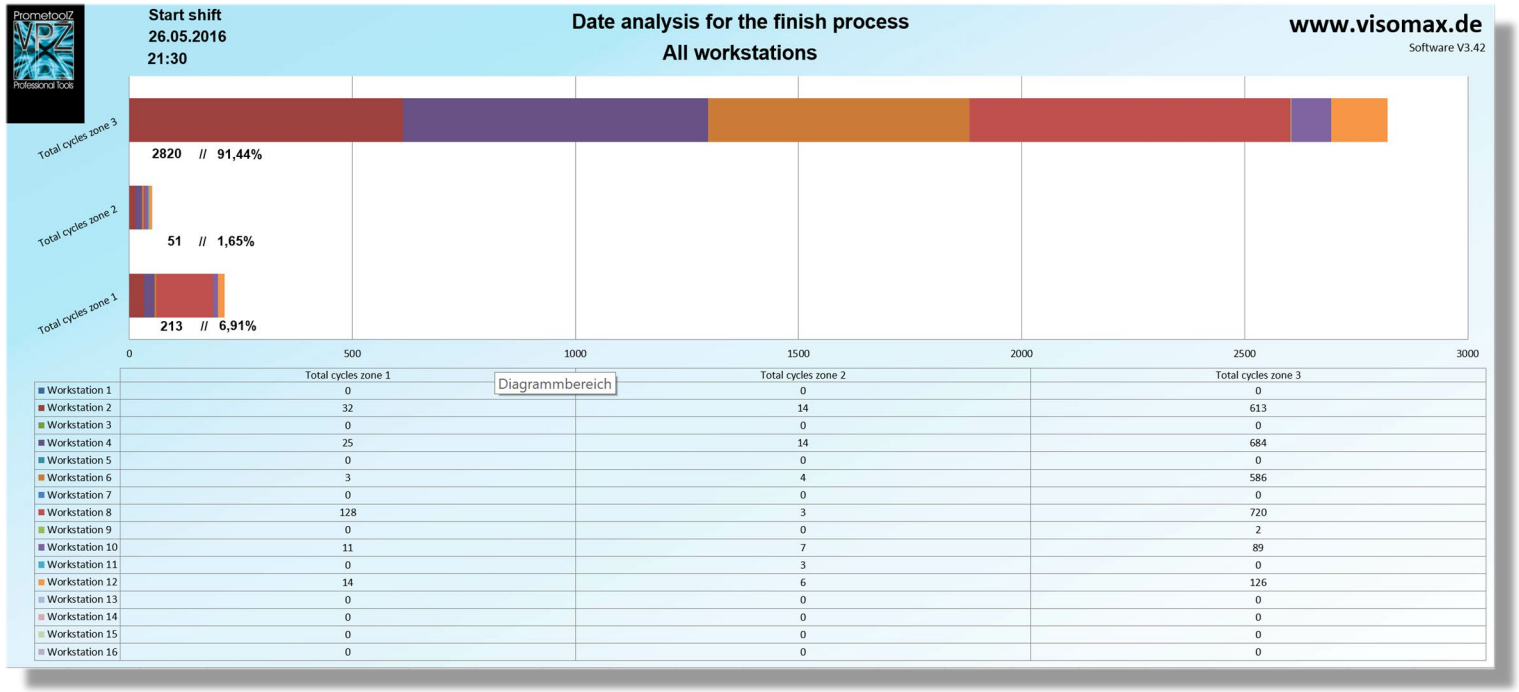
- Example for data evaluation with an Excel sheet:

Total cyles in this shift			
Total cyles in this shift - All zone 1	213		
Total cyles in this shift - All zone 2		51	
Total cyles in this shift - All zone 3			2820
Total cyles - All zones		3084	
Total cyles in this shift - All zone 1 - In percent	6,91%		
Total cyles in this shift - All zone 2 - In percent		1,65%	
Total cyles in this shift - All zone 3 - In percent			91,44%

ADDITIONAL FEATURES

Data evaluation:

- Example for data evaluation with an Excel sheet:

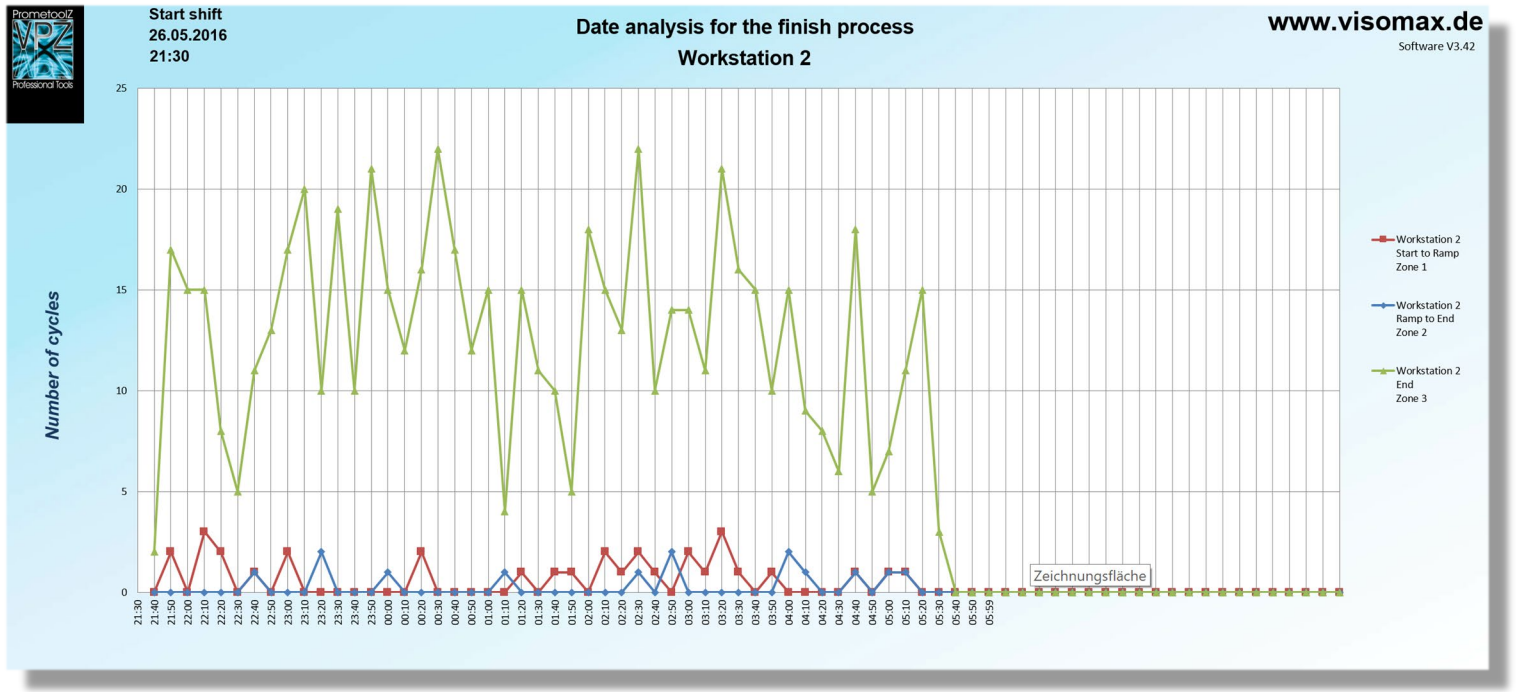


	Total cycles zone 1	Total cycles zone 2	Total cycles zone 3
Workstation 1	0	0	0
Workstation 2	32	14	613
Workstation 3	0	0	0
Workstation 4	25	14	684
Workstation 5	0	0	0
Workstation 6	3	4	586
Workstation 7	0	0	0
Workstation 8	128	3	720
Workstation 9	0	0	2
Workstation 10	11	7	89
Workstation 11	0	3	0
Workstation 12	14	6	126
Workstation 13	0	0	0
Workstation 14	0	0	0
Workstation 15	0	0	0
Workstation 16	0	0	0

ADDITIONAL FEATURES

Data evaluation:

- Example for data evaluation with an Excel sheet:



ADDITIONAL FEATURES

Visual and audible indication – work interruption:

- Visual and/or audible signal when the worker ends the polishing process too soon.
- To end a process to soon means that a worker ends it autonomously within the time table set by the shift manager/planner.
- The worker resets the warning light or horn by pushing the button.
- When the polishing process will be ended early again, the warning device is blinking or ringing again.

ADDITIONAL FEATURES

Visual indication – Pad Washer/Pad Changer:

- Visual indication when the foam pad should be cleaned or replaced.
- The worker confirms washing or changing the foam by pushing the button at the EP-Client/workplace.
- The life of the foam pad can be prolonged by a controlled cleaning cycle.
- The material consumption is controlled and reduced.

ADDITIONAL FEATURES

Evaluation of the contact pressure of the polisher:

- The contact pressure is an important factor in the polishing process.
- The contact pressure has a direct impact on the polishing result.
- Due to the EP-Controller the average contact pressure of the tool can be calculated and evaluated.
- Regarding requests of the client, the evaluation can be realized digitally or by warning devices.
- It is also possible to provide a combination of both evaluation methods.
- Due to the evaluation by the warning device, the worker gets a direct Feedback about the contact pressure of the polisher.

ADDITIONAL FEATURES

Automatic prolongation of the polishing cycle:

- The perfect polishing cycle depends on the status quo of the paint system.
- Differences of the status quo mostly occur in case of prolonged production shutdowns (e. g.: holidays, production free Sundays, vacation shutdown, short time)
- Due to the automatic prolongation of the polishing cycle certain time ranges can be programmed in advance in which the polishing period has to be modified.
- The workers do not have to be informed individually about the corresponding paint situation.

ADDITIONAL FEATURES

Operating hours counter of the polisher:

- The EP-Controller saves the operating hours of the connected 24 V/DC electric polisher.
- The maintenance plan integrated in the EP-Controller indicates when it is time to maintain the tool or replace spare parts.
- Thanks to the regular and precise maintenance of the electric tools the life of the tools will be extend and the maintenance periods are easier to coordinate.
- Tools which are rarely used will only be maintained when necessary.

ADDITIONAL FEATURES

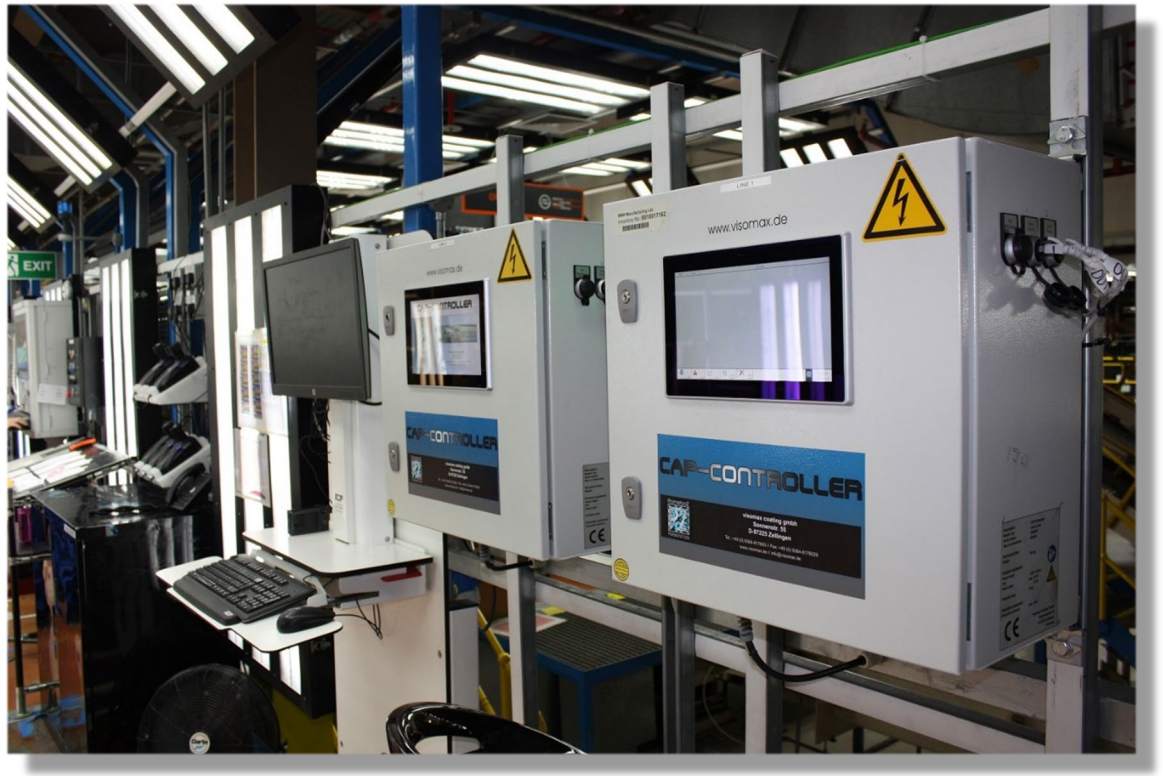
Recording of the energy demand:

- The EP-Controller saves the total energy consumption of the connected electric tools.
- This makes it easy to calculate energy costs and the costs of each polishing spot.
- The evaluation will be realized via SPS in the standard version.
- Due to the optional data recording the values can be indicated and/or processed by the named methods.

GENERAL INFORMATION:

- Generally, every EP-Controller system is customized and has to be adapted to the conditions of the client/plant.
- Of course, we consider requirements and ideas of the client.
- Within the considered aspects are:
  - Works regulations
  - Space requirements
  - Escape routes/emergency exits
  - Fire safety
  - Separate examination
  - Requirements and ideas of the client
- The implementation of an EP-Controller Systems only can be realized successfully when the client and the supplier are in close contact.

APPLICATION EXAMPLES:



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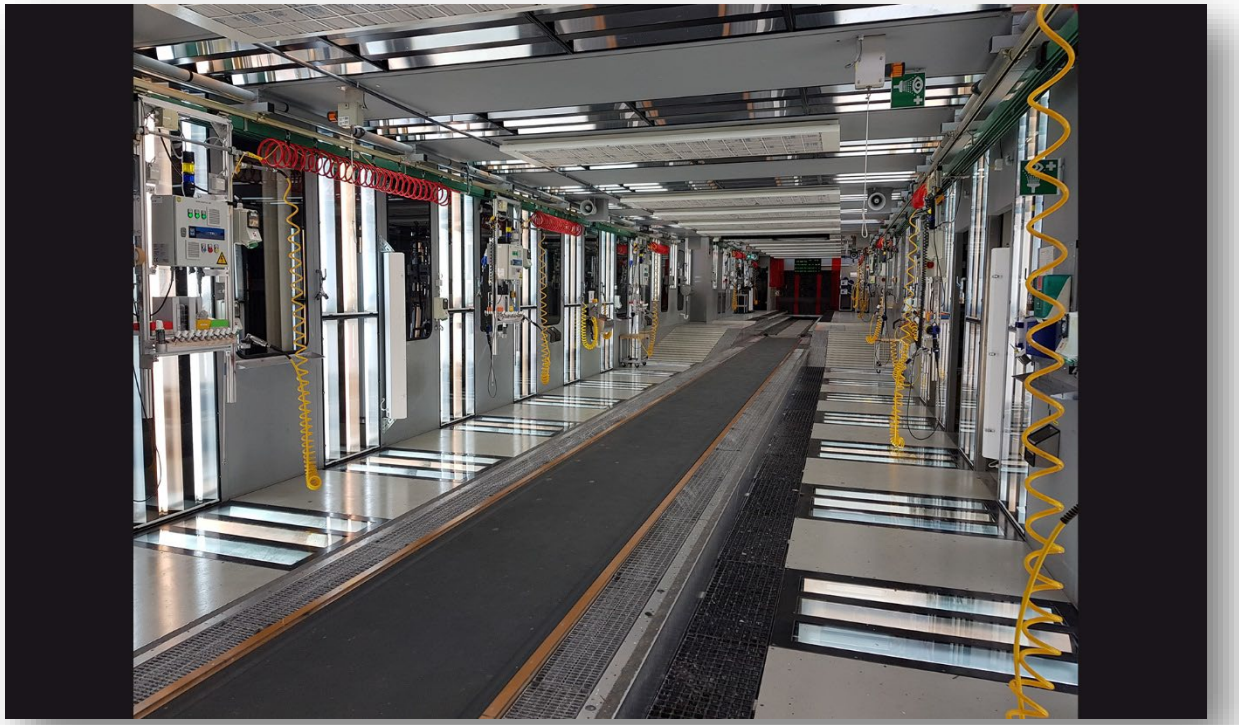

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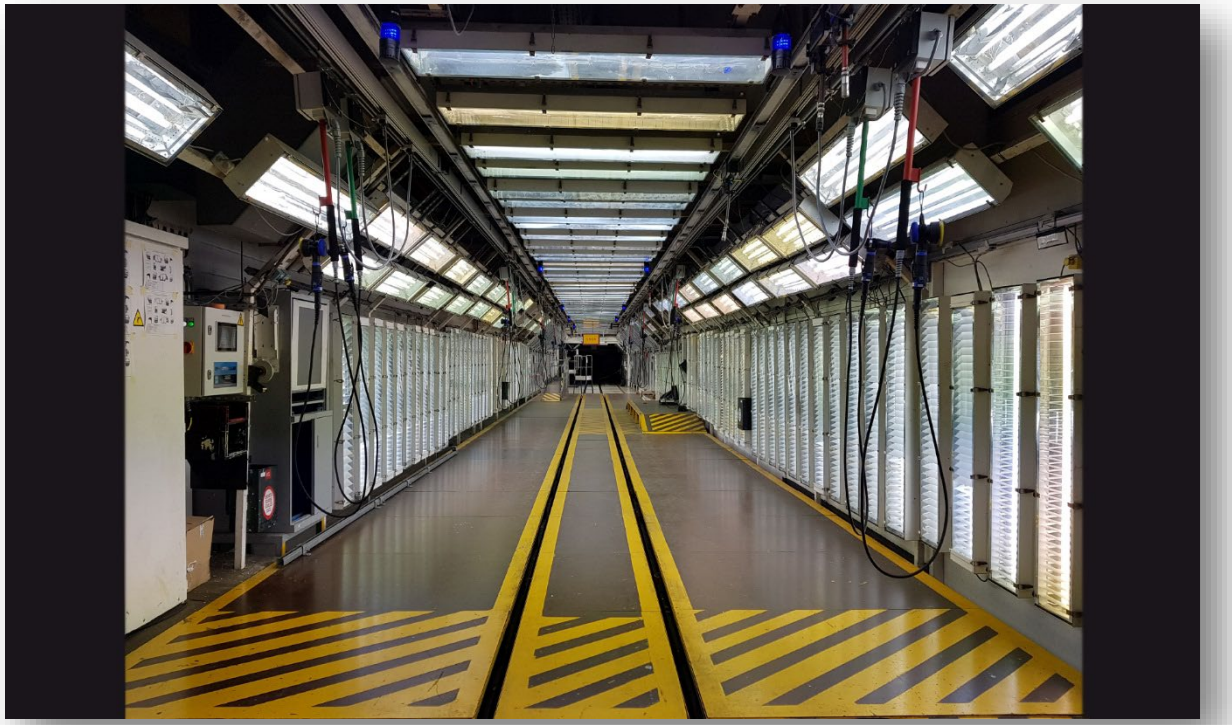

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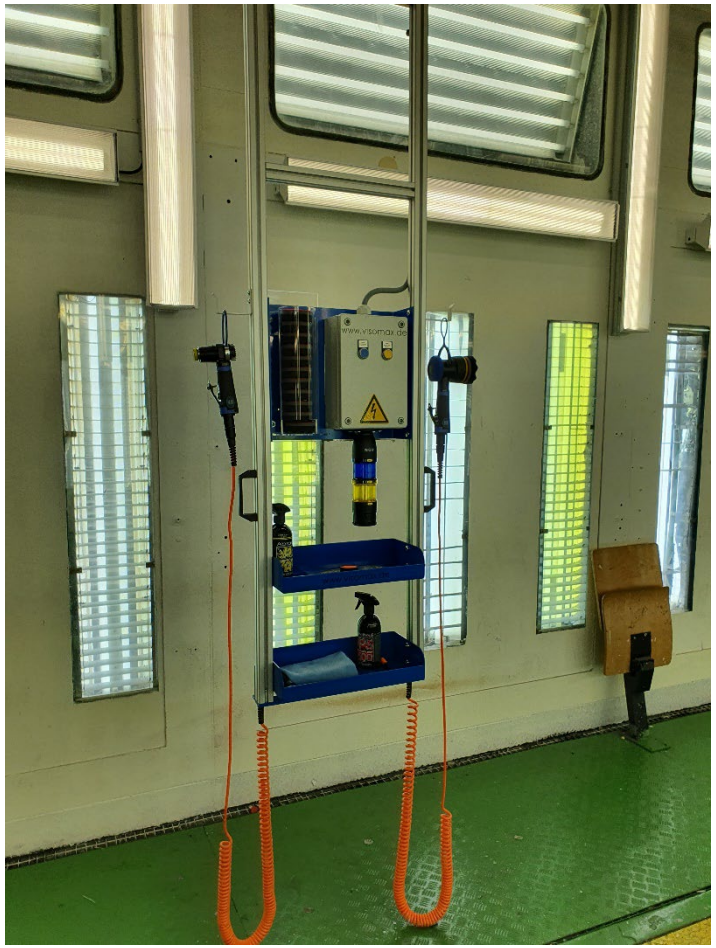

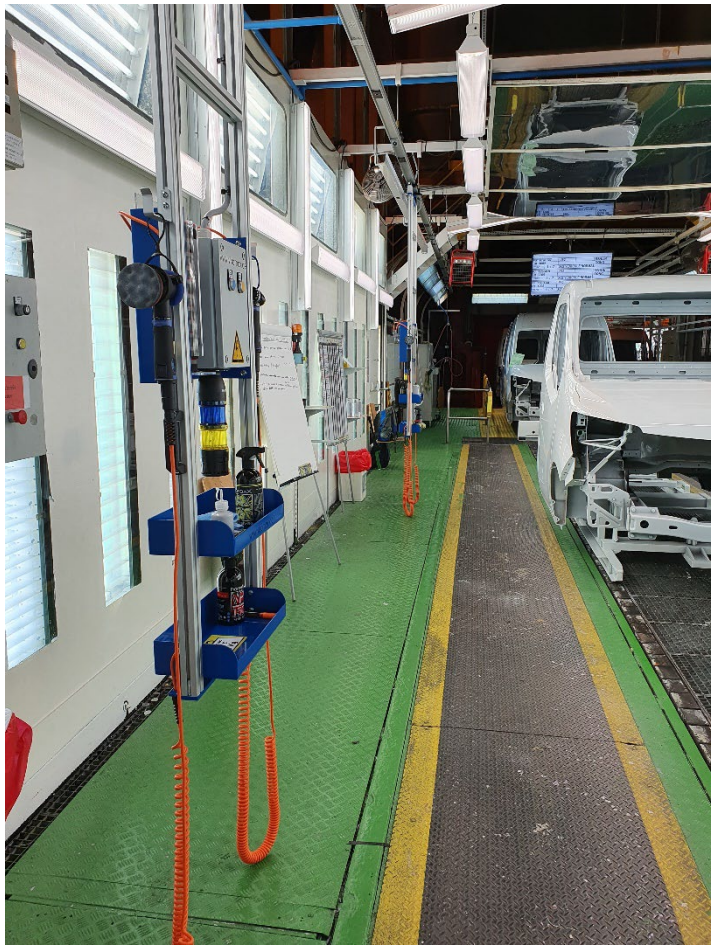

YOUR ADVANTAGES

- Strict compliance of the process periods
- Stabilization of the surface quality
- Cost registration per polishing spot
- Registration of the amount of work
- Homogeneous process standards
- Increase of the process discipline
- Saving of energy costs
- Reduction of consumables
- Reduction of post-processing and client's complaints

=> **Transparent and calculable Finish at the highest level**

CONTACT

If you have further questions, please get in contact with us, we would be pleased to help!

Visomax Coating GmbH

Dachdeckerstraße 2 - 4

D-97297 Waldbüttelbrunn

e-mail: info@visomax.de

phone : +49 931 4528140

fax : +49 931 452814-29