



2 Safety



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2.1 Safety information

The following safety information and warnings are designed to avoid danger to the life and health of the machine users or maintenance personnel, as well as to avoid material damages.

The terms have the meanings listed below when used in these operating instructions :



DANGER

In these operating instructions this means a **direct threat of danger**. If the situation is not avoided then death, serious injuries or extensive material damage will follow.

The following symbol is used for situations which are not acutely life-threatening:



WARNING

This signals a **possibly dangerous** situation when used in these operating instructions. If not avoided then death, serious injuries or extensive material damages can result.



NOTICE

This signals a **harmful or dangerous** situation when used in these operating instructions. If not avoided then injuries or material damages can result.



IMPORTANT

Used in these operating instructions to signal user advice and useful tips.



2.2 Safety technical Information



DANGER

Items of clothing and jewellery can be caught by the moving components and their parts.

Serious injuries, death or material damages can result. For reasons of safety, all scarves, ties and necklaces should be discarded before working on the machine. In order to avoid short-circuits and getting caught on the machine, jewellery such as rings and bracelets should also be taken off !

Welding or soldering near to pressure pipes or live cables will result in heat development and lead to danger of explosion and fire, serious injuries or material damages.



WARNING

When operating electrical or electronic systems and appliances certain components are live. Unqualified handling or disregard of warning notices and the appropriate regulations can cause serious bodily harm or material damage. Only qualified and trained personnel should carry out necessary work on the machine.!

Only qualified personnel should operate, maintain and service the machine. This includes people who:

- are operating personnel trained in handling the machine equipment or the system and who are familiar with the contents of the operating instructions.
 - are maintenance personnel training in handling the machine and automation equipment and who are familiar with the contents of the operating instructions.
-



WARNING

Warning signs which are missing, unreadable or damaged must be replaced immediately.

2.3 Machine danger

The machine has been developed, manufactured, checked and documented according to the technical standard in existence at the time of manufacture, and taking the appropriate safety regulations into consideration.



WARNING

Consequences of inappropriate machine use:

Danger for life and limb of the operator and/or other people.

Material damage to the machine/system and other material assets.

THEREFORE:

- Keep strictly to the maximum values of the machine !
- Use only original parts or other products authorised by Wollin for repairs !

The manufacturer or supplier accepts no responsibility for products not authorised or for modifications to the equipment !

Pay attention to the operating instructions in this manual !



IMPORTANT

You can obtain original parts, additional equipment and other WOLLIN products from:

WOLLIN - Spare parts / Service

Telephone: 07172-9105-0

Telefax: 07172-9105-11

2.4 Use

The machine has been developed, manufactured, checked and documented according to the technical standard in existence at the time of manufacture. and taking the appropriate safety regulations into consideration.

The diespraying machine was designed exclusively for spraying forging or diecasting dies. Any other use is to be considered inappropriate.



WARNING

Serious injuries or extensive material damage can be caused by inappropriate handling of the machine.

If the machine is used for other than the purposes mentioned above or if modifications are made to the machine which influence machine safety then the **manufacturer or the supplier will not accept liability** for any material damage, personal injuries or for resulting damages.

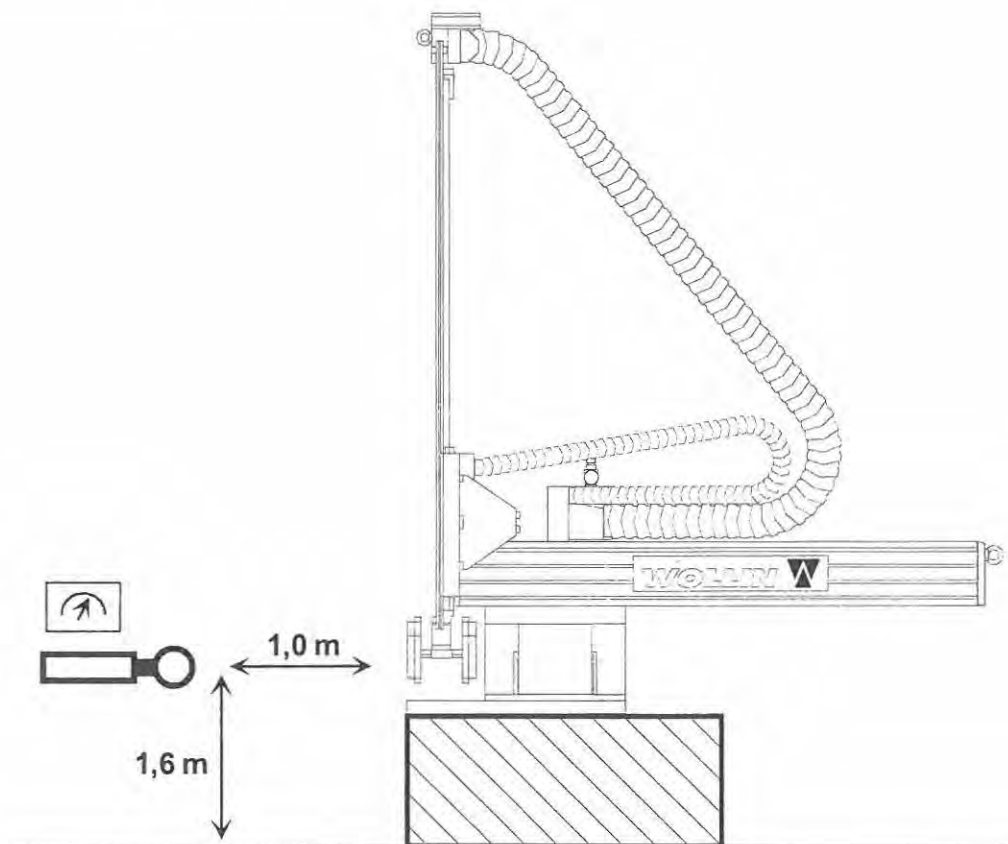
The information contained in these operating instructions is to be followed for operating the machine and its maintenance. The **manufacturer or the supplier will not accept liability** for any material damage, personal injuries or for resulting damages caused by inappropriate operation thereof.



2.5 Emissions

Measurement directive and conditions

Measurement according to DIN 45 635



Measurement value: < 80dB (A)

mediated Pulse generator

Measuring level: 1,6 m

Measuring appliance: Precision Sound Level Meter Type 2206
from Fa. Brüel & Kjaer
evaluation according to curve „A“



2.6 Work places

2.6.1 Commissioning and maintenance personnel

The work place is the complete machine.



WARNING

Serious injuries or extensive material damage can be caused by inappropriate handling of the machine.

Special attention should be paid when carrying out maintenance or commissioning work.

All necessary activities should only be carried out by qualified personnel and taking into consideration all appropriate safety notices in these operating instructions.



Aufenthalt unter Werkzeug verboten

You must not stay under the tool

Interdire un séjour sous l'outil

Prohibir una estancia bajo la herramienta

Proibire un soggiorno sotto l'attrezzo



2.7 Information on personnel qualifications

- The machine should only be operation by trained or qualified personnel (see our training program).
- The legal minimum age and other legal requirements should be adhered to.
- Trainees should be supervised by a trained and qualified person.
- The responsibilities of the machine personnel are to be clearly defined (transport, commissioning, operating and maintenance).

2.8 Personal safety equipment

- Safety gloves for handling parts with sharp edges.
- Safety glasses
- ear muffs



IMPORTANT

The necessary equipment should be kept near to the machine.

2.9 Safety measures at place of assembly

- The work space in front of the machine should be kept clear.
- The work place should have good lighting.
- All doors and covers should be easily accessible
- The control cabinet area should be easily accessible



NOTICE

The above mentioned safety measures should be adhered to in order to facilitate rapid help in case of emergency.

2.10 What to do in case of emergency

In the event of an emergency activate the EMERGENCY STOP button on the diecasting machine or on control panel. This stops all machine movements. If people have been injured then FIRST AID should be applied immediately and the works doctor should be notified.

3 Safety Equipment

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3.1	EMERGENCY-STOP-BUTTON (Emergency switch)	3-3

8.3.1.4 Spraying tool

Parallel to the programme sequence the spray tool must be co-ordinated with the die. The adapter is fitted with a fast changeover system i.e. rapid removal from the die spraying machine. The adapter and the spraying plates can be extended on both sides. The spray plates have a high spray head density when fully equipped with spray nozzles. This enables wide spraying of large areas and also spot spraying.

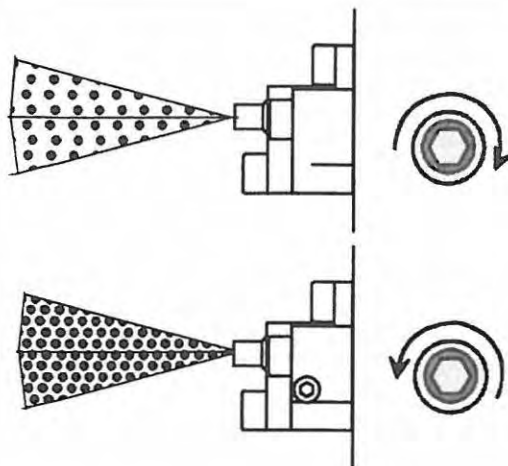
8.3.1.5 Practical Procedure when Setting up the Spray Nozzles

1. Only attach as many spray nozzles for each circuit as will presumably be required. If more spray nozzles are already fitted than will be required then the dosing inserts on the spraying nozzle SD 2 can be replaced by a seal screw. On the SD 3 the dosing insert can be closed. These spray nozzles will then blast air during the spraying phase. If this is not desired, the spray nozzles must be removed and replaced with cover plates
2. Entry of the spraying tool into the die. How to reach the desired spraying positions is described in chapter 6.
3. Set medium pressure on TOP tank and spray air pressure on pressure reductor (two-stage). Press manual button for spraying 1 or 2 and adapt spray jet for quantity and direction.
4. Run entire spray program in "manual" program sequence. Modify positions, times, number of spray nozzles, direction of spray jets and metering volume as required.
5. Run casting operation and optimise spray process where required.



IMPORTANTE

To the easier adjust the nozzle adjustment unit can be used, which can be referred by WOLLIN



SD3 / SD13



SD1 / SD2 / SD12

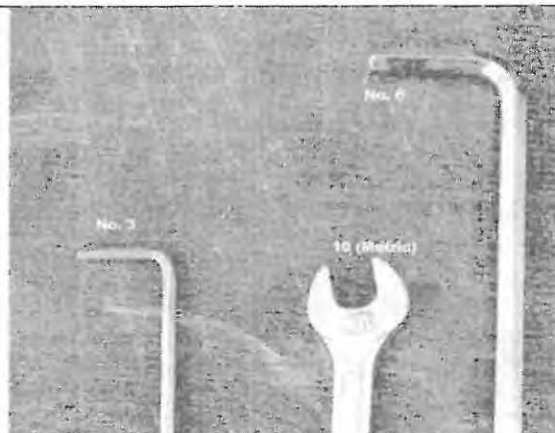
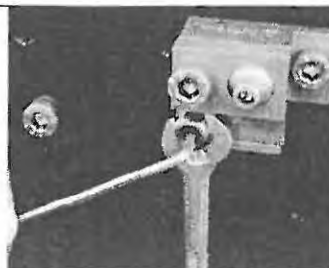


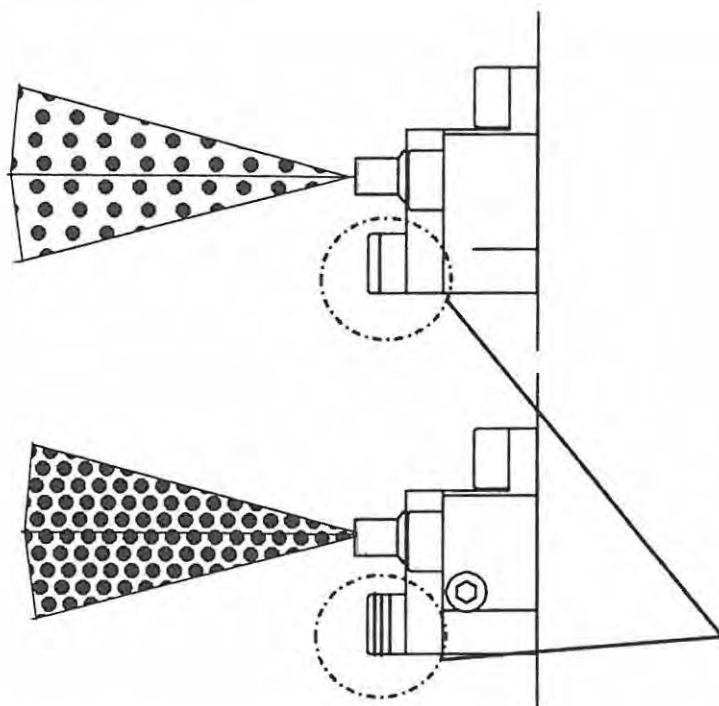
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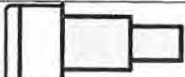
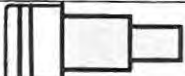
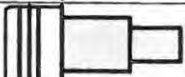
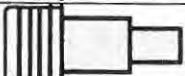
Dosierblende einstellbar / Adjustable dosing insert / Diaphragme de dosage réglable / Diafragma dosificadora ajustable



No. 3





	Ø 0,4	ID.Nr. 135.939
	Ø 0,6	ID.Nr. 135.913
	Ø 0,8	ID.Nr. 135.954
	Ø 1,0	ID.Nr. 135.970
	Ø 1,2	ID.Nr. 135.996
	Ø 1,6	ID.Nr. 138.073
	Ø 2,0	ID.Nr. 136.150

8.3.1.6 Archiving Spray data in Parts Program Memory

The spray data of the completed, optimised spraying program are entered in the parts program memory (NC-Program).

When changing dies the spray tool especially set for this die is removed from the unit by means of the fast changeover system and stored with the die.

8.3.1.7 Reproduction - Fast Changeover

The spray system can be retooled in approx. 2-3 minutes if production is to be resumed:

- Input (NC)-Program-number
- set spray pressures on TOP tank
- Fix spray head to unit with

The spraying system is now ready for operation.

5 Commissioning

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5.2.2 Laying the supply, connection and interface cables.....	Fehler! Textmarke nicht definiert.
5.2.3 Connecting the interface cable to the DCM control.....	Fehler! Textmarke nicht definiert.
5.3 General Prerequisites	Fehler! Textmarke nicht definiert.



5.1 Machine connection

5.1.1 Electrical prerequisites

Attend to rating plate at control cabinet

WOLLIN 		Kiesäckerstr. 23 D 73547 Lorch	
Baujahr		Leistungsaufnahme	kVA
Geräte-Nr.		Nennspannung	V
Geräte-Typ		Nennstrom	A
Steuerung		Sicherung	A
Schaltplan-Nr.		Vorsicherung	A
Verkettungsspannung		Frequenz	Hz
Steuerspannungen			

- Supply voltage 3x400 V/PE net forms N, TT; IT -net with possibly adjustment
- Frequency 50 Hz / 60 Hz
- Control voltage 24 V DC
- If the supply voltage differs from the line voltage then a transformer can be delivered in most cases.



DANGER

Serious injuries, death or material damages can be caused by work incorrectly carried out. ONLY trained personnel with the appropriate qualifications should be charged with the work!

5.1.2 Assembly of control cabinet

- The control unit must be positioned so that the maximum possible heat dissipation surface area is available (should be positioned on its own if possible). Control units which are operated in an environment with an ambient temperature occasionally over 40°C must be fitted with a cooling system (or retrofitted if necessary).
- Control units which are equipped with a cooling system in the control unit housing may only be switched on 30 minutes after installation (the cooling medium must be allowed to flow back to the compressor).
- The control panel should not be exposed to high humidity and/or strong vibrations.
- The installation should avoid penetration of cooling, or lubricating agents, shavings, dust, mud, waste water and the like as well as preventing building up of condensation.
- The control panel must be so installed that it is also possible to monitor the machine from the control panel.
- A control cabinet was longer than one year out of operation, so the intermediate circuit condensers of the frequency changer must be formed new. For this, the static frequency changers are to be put for approximately 30 minutes at tension. The static frequency changer may not be loaded with forming.



DANGER

The orange wires in the spraying machine terminal box signal external voltage. In most cases this is a voltage from the diecasting machine. Caution ! These cables could still carry life-threatening voltage after switching off the control cabinet.

The interfacing should always be carried out with great care otherwise serious injuries or even death, as well as extensive material damage can result.

5.1.3 Laying the supply, connection and interface cables

- A maximum of space between load lines and signal lines should be adhered to. Signal and load lines can cross but should not run parallel close to one another. If a spatial separation is not possible, then the signal lines should be laid separately from the load lines in a protected cable canal (metal).
- Peak current and / or high-voltage lines (e.g. induction ovens, output transformers) should always be laid separately to all other lines.
- Protect the connection cables from heat and mechanical damage with addition protection tubes and covers (a cable damaged by hot metal or a fork-lift truck can cause faults which are very hard to find.)
- All cables should be kept as short as possible. We recommend shortening cables which are too long during commissioning.

5.1.4 Connecting the supply voltage to the control cabinet

- The connection should be carried out with an oil and heat-proof cable. The cross-section should comply with the installed power. The line must be secured with a fuse.
- The distribution voltage must lie in a tension span between +/- 10% of the nominal voltage, permitted frequency span 50-60 Hz. The VDE directives are in force for the distribution voltage and frequency deviations.
- After connecting to the power supply and switching on the diespraying machine control unit via the master switch, the distribution voltage to the drives and control units must be checked. The 24V DC power supply must not exceed the maximum limit of 28V. The power supply to the servo control unit must not exceed the maximum limit of 480V during "idling".
- WOLLIN urgently recommends the installation of a lockable master switch in the control to prevent an accidental switching on of the machine, spraying system, extraction robot and other peripheral equipment. We also refer to the appropriate accident avoidance regulation of the employer's liability insurance associations.
- The connection of additional loads (motors, valves, contactors, end switches etc.) which are not defined as an option in the electrical diagrams to the internal distribution voltage of the spraying machine is only allowed with written permission from Wollin.

5.1.5 Connecting the interface cable to the DCM control



DANGER

The orange wires in the spraying machine terminal box signal external voltage. In most cases this is a voltage from the diecasting machine. Caution ! These cables could still carry life-threatening voltage after switching off the control cabinet.

The interfacing should always be carried out with great care otherwise serious injuries or even death, as well as extensive material damage can result.

-
- The connection must be accomplished according to the electrical linkage diagram, if the connection for the Wollin spraying system on the DCM control is not yet accomplished, then the interface signals must be carried out by the commissioning technician of the DCM manufacturer, either by internal wiring in the DCM control cabinet, and /or by software modification in the DCM control. In this case, the technician must read and understand the interface description, in case of any doubt, please consult the development department at Wollin. If interface plans are required in advance for projects, then these are to be requested from Wollin.
 - The cable via which command signals are exchanged is located at the control unit end of the diespraying machine. The other end of the cable is supplied with a 64 pin Harting connector type Han-DD-64M as standard. If the DCM control unit is already equipped with a diespraying machine connection point (e.g. Bühler control system), then the connecting cable with the correct connector will be supplied by Wollin on delivery. In special versions of Wollin diespraying machines the connection to the DCM control unit can be made via 2 cables and / or other pin-and-socket connectors.

- No-volt contacts with a current-carrying capacity of 0.5A must be available in the DCM control unit for the diespraying machine input signals. Input signals queue if the make contacts are closed. A power supply for the no-volt contacts is provided in the form of the 24V operational voltage of the diespraying machine via the appropriate pin on the connector (see connection plan).
- Beckhoff type KL2408 digital output terminals are provided in the diespraying machine control unit for the diespraying machine output signals. The DCM – voltage is connected via these terminals. The terminals have a maximum current carrying capacity of 0.5A
- Up to 240V AC can be applied to the emergency stop circuit. The instructions laid down in DIN EN 418 must always be followed.
- The 0-volt potential of the spraying machine +24 Volt electrical circuit (terminal no. 19) is earthed in the spraying machine control cabinet. Due to a possible accidental earth control in the DCM control cabinet, the 0-volt potential of the DCM should not be interlinked with the spraying machine 0-volt potential.

5.1.6 Description of interlink interfaces

Interlinking provides a means of communication between diecasting machine and diespraying machine in the form of electronic signals. It controls the casting cycle and signals to other peripheral equipment when to start and stop. Further, interlinking ensure the safety of the operating personnel and prevent damage to machines, provided it is carried out correctly.

5.1.6.1 Power supply to the diespraying machine input signals

A power supply for the diespraying machine input signals is provided in the form of the +24 / 0V operational voltage of the diespraying machine for the no-volt contacts or photocouplers in the DCM control unit. Normally the +24V power supply is available immediately on turning the master switch of the diespraying machine control unit. This power supply is only to be used for signal interlinking purposes.

5.1.6.1.1 Diespraying machine input signal "**Diespraying machine selected / deselected**" (with / without diespraying machine)

During normal operation of the entire diespraying machine, this diespraying machine input must be at logic "1". If the user wishes a casting process without use of the diespraying machine (deselection of the diespraying machine) then this input must be at logic "0". If the diespraying machine function is deselected then the power supply to the diespraying machine drives is switched off (the axes cannot be moved and the user program cannot be run), the DCM enabling signals "die open" and "start program" and the "manual mode" button are locked by the software, the diespraying machine drives cannot be switched on.

The diespraying machine function should only be deselected when the diespraying machine is in its starting position. If this function is not actively used, i.e. if the DCM is always used "with diespraying machine", then this diespraying machine input should be bridged at the DCM with +24V to logic "1".

5.1.6.2 Diespraying machine input signals "**die open 1**" and "**die open 2**"

This diespraying machine input signal is the most important enable signal of the diespraying machine, from a safety point of view, and is continuously queried in all operating modes. Without this signal (logic "0") the axes cannot be moved using the directional keys, the diespraying machine axes cannot be referenced and the user program cannot be run by the control unit. The input signal "die open" is not to be taken literally! The signal should rather be understood as "enable diespraying machine" or "die ready". The "die open" signal not only monitors the open DCM die, but must also be locked by all other peripheral equipment which may be located in or over the die area (e.g. part removal robot, part insertion robot, ventilation system, protective gratings or operator doors on larger machines). For safety reasons this is a two-channel signal, if the "die open" signals do not agree then any movement of the axes will be halted immediately.

When a user program is running in AUTOMATIC mode, the diespraying machine input signal "die open" must not be interrupted until the end of the user program has been reached (until the output signal "program end"), except in an emergency.

If however a user program contains the command "**horizontal axis back without "die open" signal**", then the DCM control unit may, when running a user program, cancel the input signal "die open" by closing the DCM die upon reaching the limit switch "vertical axis in starting position" and following output of the diespraying machine signal "program end".

If a part removal device or a robot is in use, it can be practical to signal the diespraying machine an early spray-cycle start before the part removal device or robot has confirmed that

the part has been removed from the die. This is achieved by inserting the command "start program with die open" (in plain English: Move horizontal axis forward

into waiting position with DCM "die open" signal) into the current user program and switching the diespraying machine input signal "die open" while the part is being removed from the die. In this case the user program will only be run up to the first command instructing the vertical axis to move and will only be continued after the input signal "program start" has been received.

5.1.6.3 Diespraying machine input signal "**DCM in SET-UP mode**"

Fundamentals: The diespraying machine automatically adopts the same operational mode as the DCM. There is no switch on the diespraying machine control unit to select operation modes specifically for the diespraying machine. Only one (single) operational mode can be signalled to the diespraying machine control unit (plausibility check).

In SET-UP mode, the diespraying machine axes can only be moved and the user program run (run "spray program") only after the "acknowledge" switch has been activated and with reduced speed.

The user program cannot be run by pressing the "Manual mode" or "automatic return to starting position" keys on the DCM control unit.

The SET-UP mode is useful for maintenance and setting-up and for entering a user program and testing.

5.1.6.4 Diespraying machine input signal "DCM in MANUAL mode"

Fundamentals: The diespraying machine automatically adopts the same operational mode as the DCM. There is no switch on the diespraying machine control unit to select operation modes specifically for the diespraying machine. Only one (single) operational mode can be signalled to the diespraying machine control unit (plausibility check).

Only in MANUAL mode can the user program be run ("run spray program") at full speed without activating the "acknowledge" switch. The vertical axis can only be moved if the danger area is closed off .

Pressing the "manual program" or "automatic return to starting position" pushbuttons on the DCM control panel will run the user program only if the machine is in MANUAL mode.

5.1.6.5 Diespraying machine input signal "DCM in AUTOMATIC mode"

Fundamentals: The diespraying machine automatically adopts the same operational mode as the DCM. There is no switch on the diespraying machine control unit to select operation modes specifically for the diespraying machine. Only one (single) operational mode can be signalled to the diespraying machine control unit (plausibility check).

The AUTOMATIC mode is reserved for full automatic operation of the diespraying machine. Movement of the diespraying machine axes using the directional keys or via user-program entry and correction is not possible. The functions "manual program" and "automatic return to starting position" are also blocked. The danger area must remain continuously closed off. Switching from AUTOMATIC mode to MANUAL or SET-Up mode must only be carried out after the diespraying machine has returned to its starting position, otherwise the automatic running of the user program (run "spray program") will be interrupted unnecessarily by an error or operation signal.

5.1.6.6 Diespraying machine input signal **“enable horizontal axis move to waiting position”**

This signal is only interpreted in AUTOMATIC mode and when the command “move horizontal axis” is in the first line of the user program. The signal must be a dynamic signal with a pulse width of at least 0.5 seconds and should be cancelled by the DCM control unit after the diespraying machine output signal “program end” at the latest. The rising edge of the impulse must arrive no later than 0.2 seconds after the arrival of the input signal “die open”. The signal is only used to optimise cycle time. If a part removal device or robot is in use in the casting cell, it can be practical to signal the diespraying machine an early spray-cycle start in order to bring the horizontal axis into a waiting position above the die. In this case, the user program is continued following the “program start” signal.

Note: A similar early spray-cycle start can also be programmed using the command “start program with die open” (see also sections titled “die open” and “program start”).

5.1.6.7 Diespraying machine input signal "**Program start**"

This diespraying machine input signal is only interpreted if the AUTOMATIC mode has been selected for the DCM. It is used to run the user program fully automatically. „Program start“ must be a dynamic signal with a pulse width of at least 0.5 seconds. The rising edge of the impulse must arrive no later than 0.2 seconds after the arrival of the input signal “die open”. If the impulse width of the input signal “program start” is larger, it must be ensured that this signal is cancelled by the DCM control unit before the outputting the signal “spray end”. If more than one “program start” impulses arrive one after the other within one diespraying machine cycle, then the first signal is interpreted, later signals are ignored.

The diespraying machine input signal “program start” must only be outputted by the DCM control unit when both halves of the die are completely open, the danger area is closed off and the die area is completely free for the application of lubricant or cooling.

The exception is for diecasting machines with a locking force over approx. 2000 tonnes. Under certain circumstances parallel operation of the part removal robot and the diespraying machine (in the die gap) is possible in this case.

If the command “program start with die open” (horizontal axis forwards with DCM die open signal) is included in a user program, then, when the program is run in DCM AUTOMATIC mode, the machine begins with the input signal “die open” and the horizontal axis is moved into a waiting position above the die. In this case, the user program is continued following the “program start” signal. This command is used only to optimise the cycle time and should only be used if no part removal device reaches into the die from above (danger collision).

Experience has shown that the signal “program start” is derived from tele monitoring or fault monitoring or from the part removal device / robot following successful removal of the cast part.

5.1.6.8 Diespraying machine input signal "**manual program**"

This input signal is only interpreted in MANUAL mode. The signal "manual program" offers the DCM operator the possibility of manually influencing the start and running of the user program by activating a pushbutton on the DCM control panel. If the diespraying machine function "manual program" is activated by a logic "1" signal (+24 V) and the diespraying machine is at its starting position then the selected user program will be started and run. If the "manual program" pushbutton is released before the end of the user program is reached then the program will immediately be interrupted. If the "manual program" pushbutton is reactivated, then the user program will recommence at the point at which it was previously interrupted (but only if the axes have not been moved using the directional keys). The program may be interrupted any number of times before the end of the user program is reached. It is possible to manually influence the running of the user program using this diespraying machine input signal in both MANUAL and AUTOMATIC modes. In MANUAL mode the complete user program can be run as often as required. In AUTOMATIC mode however, the user program can only be run once, unless the DCM "die open" signal is changed (without the die closing).

If this diespraying machine input signal is not required, then it must simply be left unswitched (logic "0"). A continuous bridging of this diespraying machine input with +24V is not permitted.

5.1.6.9 Diespraying machine input signal **“automatic return to starting position”**

This input signal is only interpreted in the MANUAL mode. This input signal offers the DCM operator the possibility of starting and running the “automatic return to starting position” function manually by activating a pushbutton on the DCM control panel. If the diespraying machine function “automatic return to start position” is activated by a logic “1” signal (+24 V) and the diespraying machine is not at its starting position then:

- the horizontal axis will move into the centre of the die delimitation area
- the vertical axis will then be moved to its starting position
- and finally the horizontal axis will be moved to its starting position.

The function is classed as run and completed when the position of both axes is 0 mm and the diespraying machine signals its start position to the DCM control unit. Following this the input signal should be returned to logic “0” (the pushbutton should be released). The “automatic return to starting position” function can be interrupted and restarted as often as required.

If this diespraying machine input signal is not required, then it must simply be left unswitched (logic “0”). A continuous bridging of this diespraying machine input with +24V is not permitted.

5.1.6.10 Diespraying machine input signals

“Enable machine power / (DCM in emergency stop) 1”

“Enable machine power / (DCM in emergency stop) 2”

This is a system with two loops and a total of four lines. Two of these lines must be supplied with the +24V working voltage of the diespraying machine to switch these functions. This operating voltage is tapped off by the “Wollin” safety module.

A logic “1” on the other wire means that the enable switch-on for the diespraying machine drives is no longer blocked by the DCM control unit. The diespraying machine drives cannot be switched on without this signal.

A logic “0” signal means that the DCM control unit is currently experiencing an emergency stop or, possibly, that the DCM control unit is not switched on. If the emergency stop of the automated casting cell is activated (emergency stop circuit is broken), then the DCM control unit must immediately respond by interrupting this loop (switch from logic “1” to logic “0”) so that the power supply to the diespraying machine drives can be switched off.

In most cases this diespraying machine input signal is controlled via a free make contact in the emergency stop device or (in older DCMs) the DCM master protect switch or the pump

motor protect switch. In order to prevent reciprocal locking, the DCM control unit is designated as the master. (Observe safety standards EN 418 and EN 60204).

5.1.6.10.1 Diespraying machine input signals **PROTECTIVE DEVICE** (monitoring of danger area))

These input signals are intended to monitor the danger area in front of and behind the die space of the DCM (operator safety). According to current safety standards, the danger area must be monitored with non-contact safety devices (light barriers, light curtains, infra-red sensors, movement sensors or similar). The logic "1" status of the "PROTECTIVE DEVICE" signals is continuously queried only in MANUAL and AUTOMATIC modes. Do not change the status of this signal from logic "1" to logic "0" in these operating modes (except in emergency).

During logic "0" status the horizontal axis can always be moved if the vertical axis is in its starting position ("vertical axis in starting position" limit switch is activated). Monitoring of the danger area is only active once the vertical axis has left its starting position. If, in AUTOMATIC or MANUAL mode and when running a user program or during the function "automatic return to starting position", the danger area is breached (both or one of the "PROTECTIVE DEVICE" input signals goes to logic "0");

- any current movement of the diespraying machine axes will be halted mechanically (motor stop brakes are activated)
- simultaneously, the user program is interrupted with an error message.
- it is impossible to restart the program after closing off the danger area again (the user program can only be started when the diespraying machine is in its starting position).

Please note that for safety monitoring reasons

both "PROTECTIVE DEVICE" input signals must always change their logic status at the same time (simultaneously). Any possible time delay must be less than 0.3 seconds.

In casting cells which do not have a danger area monitoring system, the "DCM operator gates shut" signal may be used (however only under certain conditions and with corresponding disadvantages). In accordance with EN50100, the "PROTECTIVE DEVICE" signals must not be bridged with +24 V. (Please note that local safety regulations always apply).

5.1.6.11 Diespraying machine **“field programmable auxiliary inputs 1 – 8”** (1 – 16 as an option)

The “field programmable auxiliary inputs” can be used to enable additional communication with the DCM control unit and/or the DCM peripheral equipment. These inputs are most commonly used to query the following DCM functions:

- Ejector pin position (back/front)
- multiple core puller positions (pulled/closed)
- Injection pistol position (extended / retracted)
- querying of other optional DCM or peripheral equipment functions

Querying of field programmable auxiliary inputs occurs only when the user program is running (during “run spray program”). The logic “1” status is always queried.

- If a logic “0” signal is found at the auxiliary input then the user program is interrupted at the command line corresponding to this auxiliary input. The diespraying machine control unit interrupts the user program only for as long as a logic “1” signal (+24 V) is not found at the auxiliary input in question. The program is subsequently continued.
- The user program is not interrupted if the auxiliary input is at logic “1” in the moment the relevant command line is read.

The number of diespraying machine auxiliary inputs (8 as standard) can be increased as an option. The specific signal definition is set in advance depending on the type of interlinking, or at start-up at the latest (see connection plan).

5.1.6.12 **Power supply to the diespraying machine output signals**

A power supply for the diespraying machine output signals is provided in the form of the +24 / 0V operational voltage of the diespraying machine for the no-volt contacts or photocouplers in the DCM control unit. This external power supply is used only for signal connection purposes. The line voltage must never exceed the +30V maximum limit (leads to destruction of the semiconductors in the photocoupler). The maximum admissible current is 500mA per output signal.

5.1.6.13 Diespraying machine output signal "diespraying machine in AUTOMATIC mode"

This output signal signals to the DCM control unit that the diespraying machine has adopted automatic mode.

Note: The diespraying machine automatically adopts the same operational mode as the DCM.

5.1.6.14 Diespraying machine output signal "horizontal axis in starting position"

This diespraying machine output signal is always transmitted when the limit switch "horizontal axis in starting position" of the diespraying machine is activated: the horizontal axis is in its starting position.

In order to achieve shorter cycle times in the automatic casting cell, the commands

"horizontal axis back without die open" or **"without horizontal axis"** can be included in the program. In this case these signals are simulated.

If the command "horizontal axis back without die open" back without DCM-signal "die open" is included in the user program:

- This last movement of the horizontal axis can also be carried out without the DCM signal "die open". To do this, the diespraying machine output signal "horizontal axis in starting position" is simulated by the diespraying machine control unit when the "vertical axis in starting position" limit switch and the last movement command (horizontal axis to position [=]0.0mm) are reached. This causes the DCM die to close sooner.
- The signal "horizontal axis at back" is simulated until the "horizontal axis back" limit switch is reached. The "horizontal axis at back" signal is only signalled after the end of the user program or the return of the diespraying machine to the starting position if the limit switch "horizontal axis at back" has really been activated.

If the special command "without horizontal axis" (starting position without horizontal axis) in the diespraying machine control unit is activated by a user program,

- then the diespraying machine output signal “horizontal axis in starting position” will be coupled in parallel via software with the output signal “vertical axis in starting position”. This simultaneous action of the output signal “horizontal axis in starting position” with the “vertical axis in start position” signal remains active until the command **“without horizontal axis”** is deleted in the user program and the modified program is read by the diespraying machine control unit.

Please note that a simulated output signal “horizontal axis in starting position” must never be

- used to enable die closing when the core pullers are up
- or to enable a part insertion robot which enters the die space from above.

Danger of collision!

Diespraying machine output signal **“vertical axis in starting position 1”**
“vertical axis in starting position 2”

This diespraying machine output signal is always transmitted when the diespraying machine limit switch “vertical axis in starting position” is activated. This signals to the DCM control unit that the diespraying machine has left the potential collision zone of the die. For safety reasons this diespraying machine output signal is signalled on two channels.

5.1.6.15 Diespraying machine output signal “Program end”

This diespraying machine output signal signals to the DCM control unit that the diespraying machine has lubricated and/ or cooled the die by running a user program (“spray program”). In AUTOMATIC mode, this output signal is automatically switched to logic “1” when the last command of the user program is read by the diespraying machine control unit (in normal operation after reaching the “horizontal axis in starting position” limit switch).

The output signal “program end” is switched to logic “0” only after the diespraying machine input signal “open die” has fallen off (the die is closed) or until the DCM mode of operation is changed from AUTOMATIC to MANUAL or SET-UP. For DGM control units which also require the diespraying machine output signal “spraying ended” before the first casting cycle in AUTOMATIC mode, the program must be run once in MANUAL mode by activating the pushbutton “manual program” on the DCM control board or the “manual program” key on the control screen of the spraying machine.

In the MANUAL or SET-UP modes the diespraying machine output signal "spraying ended" continues to be transmitted after the user program has been run until the "manual program" pushbutton on the DCM control panel or the "manual program" key on the control screen of the diespraying machine is released.

5.1.6.16 Diespraying machine output signal "diespraying machine error"

This diespraying machine output signal signals a diespraying machine error to the DCM control unit which should lead to the casting cycle being interrupted at a suitable point in time (e.g. at the end of the cycle). Therefore in response to this signal the DCM mode should switch from AUTOMATIC to a lower mode.

5.1.7 **diespraying machine emergency stop circuit 1** **diespraying machine emergency stop circuit 2**

The two diespraying machine emergency stop circuits must be integrated into the existing emergency stop circuit of the DCM and other peripheral equipment. Their maximum admissible current is 1 A at max. 240 V AC/DC. According to current valid safety standards the interpretation of the emergency stop circuit in the DCM control unit must occur via emergency stop safety devices. If the emergency stop circuit is interrupted then the safety device must immediately switch off the diespraying machine input signal "enable equipment power / DCM during emergency stop". (Observe safety standards EN 418 and EN 60204).

5.1.8 Diespraying machine output signal “**emergency stop message**”

By querying this diespraying machine output signal, the DCM control unit can display the relevant diespraying machine emergency stop in plain text. If the diespraying machine is in emergency stop, this output must have a potential of +24-30V.

5.1.9 Diespraying machine “field programmable auxiliary outputs 1 – 8” (1 – 16 as an option)

The field programmable auxiliary outputs can be used to enable additional communication with the DCM control unit and/or the DCM peripheral equipment. These outputs are most commonly used for the following DCM functions:

- Movement of the ejector pin (forwards / backwards)
- Movement of the core pullers or complex core spraying programs
- Movement of injection piston (extend/retract)
- To control external lubrication modules or other optional DCM or peripheral equipment.

Switching of the field programmable auxiliary outputs to logic “1” or “0” only occurs during running of the user program (during “spray program running”).

The number of diespraying machine auxiliary outputs can be increased as an option. The specific signal definition is set in advance depending on the type of interlinking, or at start-up at the latest (see connection plan).

5.1.10 Checklist: making the electrical connections

These lists are not exhaustive but rather contain the most important points.

All points should be followed in the order that they are given here. The regulations laid down in DIN-EN 60204 must also be followed here.

- Power supply sufficient for the demand voltage (DIN EN60204). ☐
- Power supply cable connected through opening in control unit housing (power off!) ☐
- Electrical connections made according to current valid connection plan. ☐
- The electrical power supply has been checked ☐
- Switch on machine by main switch ☐
- Check that all fuses are correctly seated ☐
- switch off all motor safety switches and overload cut-outs ☐
- Connect the power supply to the master switch ☐
 - Outer conductor to: L1 (R); L2 (S) L3 (T) ☐
 - ground to: PE – terminal, earth wire terminal ☐
- switch on all motor safety switches and overload cut-outs ☐
- Check that all connector screws are tight. ☐
- Plug in the connectors of auxiliary equipment. ☐
- Electrical cables are laid in such a way that undisturbed operation is possible. ☐

5.2 Procedure for Commissioning

5.2.1 Checkliste – Machine

- All chapters of the operating instructions have been carefully read ☐
- Preserving agent has been removed ☐
- The spraying system is correctly and safely assembled ☐
- The spraying system and the spray agent container are connected correctly ☐
- Stage pressure adjuster in the compressed air line (min. 6 bar) ☐
- Pneumatic lines are in such a way shifted that more troublefree operated is possible ☐

5.3 Procedure for Commissioning

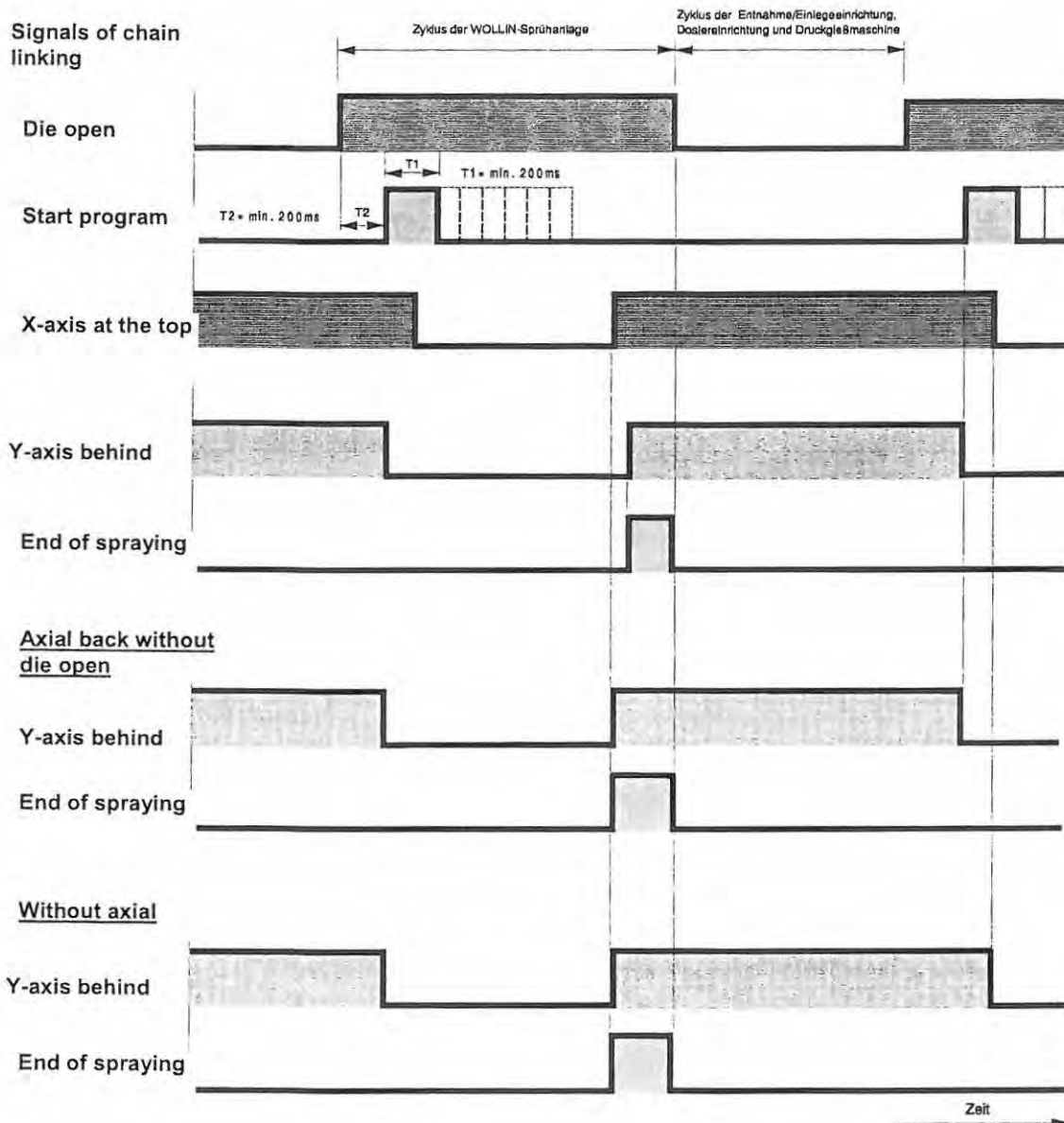
After all the necessary requirements for the commissioning have been accomplished, then the commissioning can be carried out.



WARNING

The spraying machine may only enter the machine after the „die open“ status signal has been received. The pressure diecasting machine and spraying appliance must be set when carrying out the locking test so that no damage can occur to the spraying appliance in the event of faults.

1. The spray system should be checked for transport damage. In the event of damage claims these should be confirmed by the forwarding agent and sent to Wollin.
2. Set working pressure to 6 bar min.
3. Switch on machine (first main switch !).
4. Check electrical locking system
5. Move in manual mode and check interlock.
6. Check all locking functions and connections in all modes of machine operation as per linkage diagram.
7. Operate spray sequence manually
8. Set spray pattern
9. Program spraying sequence



Cycle of Wollin
Spraying system

Cycle of extraction/insert
system, doser and DCM

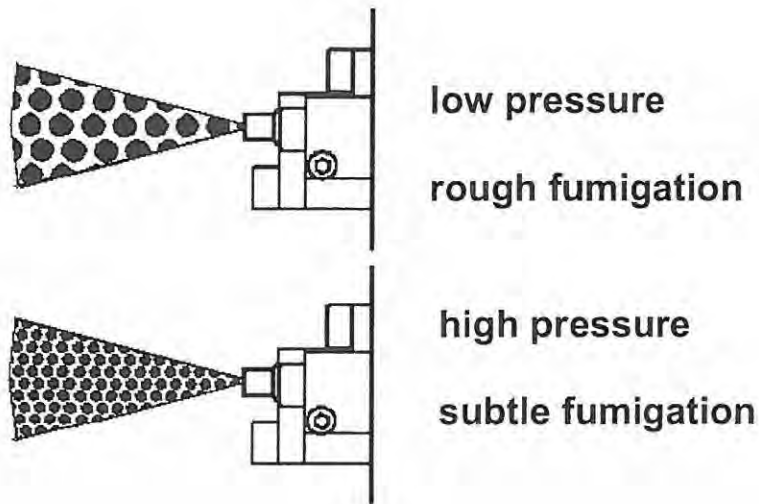
Process of signals

Symbolic process of signals of the most important input- and output signals of spraying machine when user program processing in DCM automatic mode with/without special function axial back without die open and without axial.



5.3.1 Adjustment of spraying pressure

Strictly applies:



For **external mixing systems** only:

Air pressure $\geq 0,5$ bar

Otherwise a satisfyingly atomisation of separating agent is not effected.

For **internal mixing systems** only:

Air pressure $\geq 0,5$ bar

(Atomisation of separating agent) and

air pressure $\leq$ pressure of separating agent

(otherwise the agent will be pressed back into the conductor per air)



Commissioning protocol		☐ Advance-Inspection		☐ End-Inspection	
Address of customer: (place of installation)					
Telephone:				Telefax:	
Person to contact at end customer's:				e-mail:	
Diecasting machine fabrication of DCM:					
Type of DCM/ control				Year of construction	
WOLLIN – System ☐ SM ☐ PSM ☐ KZP ☐ Automation ☐ Special machine					
Order no:				Machine no:	
Type of control:				Year of construction:	
				Delivered:	
Commissioning:				Yes	No
All components and parts are delivered according the order ?				☐	☐
The machine / system is built up completely ?				☐	☐
All contacts are made and are functioning ?				☐	☐
All modes and the run of mode Automatic are tested ?				☐	☐
The documentation is complete and handed it over to the customer				☐	☐
The team of the customer is instructed in operating the machine				☐	☐
Name of instructed staff					
The ordered size of delivery and performance is carried out by Wollin				☐	☐
If No: Still to do...				from WOLLIN ?	until
				☐ Yes / ☐ No	
				☐ Yes / ☐ No	
				☐ Yes / ☐ No	
				☐ Yes / ☐ No	
				☐ Yes / ☐ No	
				☐ Yes / ☐ No	
Attention Important !!					
In order to provide a guarantee it is a vital that the protocol is filled out, signed and returned immediately after commissioning to Wollin, Lorch, Germany. Beginning of guarantee comes after hand over this protocol. Shouldn't sign this protocol, so the guarantee comes after delivery. Collateral agreements needs written form.					
Commissioning carried out on:				By:	
Place:				Date:	
Signature customer:		Name of the undersigned:			
Rejection by the customer, he is not allowed to start the machine.					



Commissioning protocol → copy for the customer			
End customer:			
Address:			
Country:		Telex:	
Telephone:		Telefax:	
Person to contact at end customer's:			
WOLLIN - system			
Machine type:		Machine no.:	
Type of control:		Control no.:	
Year of construction:		Delivered:	
Diecasting machine			
DCM make:		DCM type:	
DCM control:		Year of construction:	
Noteworthy events during commissioning:			
Commissioning carried out on:		by:	



5.4 Checks at first start-up or new start-up



DANGER

- **Attention:** If the machine is dismantled by customer's or operator's personnel and later reinstalled and started up then the following checks must be carried out and documented.
The machine may only be used after it has been completely tested.
- If the instructions for this machine are changed or added to and this results in further testing or new test methods being prescribed, then the company operating the machine is responsible for ensuring that these tests are carried out and documented.
- Work must be carried out in accordance with the current valid DIN/EN regulations or professional trade organisation guidelines.

If these guidelines are not followed then serious injury or material damage can result.

Carrier
Adress:
Name of machine

1) Documentation		Short mark
Operating instructions of single machine existent ?	☐	
Warning signs / pictograms are existent in national language and visibly fixed	☐	
2) Machine (Gener. demand)		
A manufacturer's declaration of machine is available ?	☐	
3) General check		
3.1 Mechanically check		
Coverings and protective grating are mounted ?	☐	
Locations of entrainment are protected (e.g. conveyor belt) ?	☐	
No locations of clamps existent ?	☐	
Spraying tool safely mounted ?	☐	
All default fixing locations used ?	☐	
Type plate mounted ?	☐	
3.2 Power supply (electrically, pneumatically, hydraulically...)		
Maintenance unit is connected at a central air supply ?	☐	
At the maintenance unit, there is adjusted a pressure $\leq$ max. operating pressure	☐	
The supply of spraying agent is ensured ?	☐	
General demands		
Riskless supplying of power ;sight check: isolation, tubing... (Isolation of cables is o.k. ; tubes and cables do not build stumble traps etc.)	☐	
External conductor at: L1 (R); L2 (S) L3(T)	☐	
Ground wire at : PE – clamps, grounded conductor clamp	☐	
Neutral wire at: N – clamps	☐	
Rotating field clockwise adhered to ! (control by rotating field gauger)	☐	
All motor protection switches and circuit breakers are switched on ?	☐	
All connectors for auxiliary aggregates are connected ?	☐	


Examinations as per EN 60204 / VDE 113
20.2 Ground wire / assayer:

Check fall of voltage:

The measured fall of voltage is: ____ . ____ V when ____ mm cross section

☐

Sight check: All ground wires are attached securely ➤ OK ?

☐
Excepted circuits / Assayer:

labelled (yellow excepted red) and marked

☐
20.3 Leakage resistance / Assayer:

 Check: 500V DC ; resistance $\geq 1\text{M}\Omega$ ➤ OK ?

☐
20.4 Voltage test / Assayer:

 Check: min. 1000V ~ [or $2 \times U_n$] time 1s

☐
20.5 Guard against residual voltage / Assayer:

Check: no dangerous residual voltage after 1s or warning (with date)

☐

Connector parts with residual voltage min. protection class IP2x

20.6 EMV Check / Assayer:

Check: Assembly groups are integrated as per allowance of manufacturer or there is an appropriate declaration.

☐
20.7 Functional test / Assayer:
Emergency Stop button

Functions of emergency Stop are checked

☐
Main switch

„switch zero potential“ checked

☐



3.3 Spraying technology

Test as far as available at the machine (partially only option)		
Spraying agent circuit 1 tested for functions and leaks ?	☐	
After blowing 1 tested for function ?	☐	
Spraying agent circuit 2 tested for function and leaks ?	☐	
After blowing 2 tested for function ?	☐	
Spraying agent circuit 3 tested for function and leaks ?	☐	
After blowing circuit 3 tested for function ?	☐	
Spraying agent circuit 4 tested for function and leaks ?	☐	
After blowing 4 tested for function ?	☐	
Spraying agent circuit 5 tested for function and leaks ?	☐	
After blowing 5 tested for function ?	☐	
Spraying agent circuit 6 tested for function and leaks ?	☐	
After blowing 6 tested for function ?	☐	
Rinsing circuit tested for function ?	☐	
High pressure blowing circuits tested for function ?	☐	

Checked on: ____ 19__

Assayer: _____ short mark: _____

Assayer: _____ short mark: _____

Assayer: _____ short mark: _____

7 Maintenance

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7.1 Servicing

Continuous preventive servicing guarantees an optimal use of the spraying system.



NOTICE

Reference with disregard of the service instructions, which are described as follows, the warranty and/or guarantee can be reduced or be void-being void one complete logging is necessary.



DANGER

Items of clothing and jewellery can be caught by the moving components and their parts.

Serious injuries, death or material damages can result. For reasons of safety, all scarves, ties and necklaces should be discarded before working n the machine. Only wear close-fitting items of clothing! In order to avoid short circuits and getting caught in the machine, jewellery such as rings and bracelets should also be removed!

Hair should be covered with a hair net or similar in order to ensure that it cannot caught in the machine.

Disconnect the machine from the mains current when servicing or performing maintenance work. If this is done by switching off at the mains, then this should be secured against switching on. In any case, a method should be used, in which there is sufficient security, that the current cannot be accidentally switched on.

7.2 Servicing plan

Which component	What should be done?	How often?	Comments	Reference
Separating agent dirt trap	remove and clean	w	Do not damage wire mesh!	
Spray nozzles	clean	w		
Monitoring elements	clean	w		
Display instruments	clean	w		
Diesprayer	clean	w		
Electric cables	clean and Visual check	m		
Hoses	clean and Visual check	m		
Valves	clean	m		
Connections	Visual check	m		
Silencers	check	m		
Limit switches	check	m		
Security switch	check	m		
Dirt strippers	check	m		
Reservoir interior	check, clean if necessary	m		
Fastenings	check	m		
Guide rails	check	m		
Guide rails	lubricate and clean if necessary	m	by using a brush	PSM 112
Racks Gear wheels	check	m		
Central lubrication, Lube distributor	check	m		
Gear lubrication	change	2000h / 1J	Lubrication recommendation	

w = weekly / m = monthly / 2000h = 2000 hours / 1J = 1 year

7.3 Servicing the electrical components

7.3.1 Cleaning the operating panel

The surface of the LCD-screen and the operating device surface can be cleaned. If not especially dirty, then a normal washing-up liquid can be used. When the panel has been soiled with oil or graphite then cleaning agents which contain one or more of the following can be used for a short time: alcohol, organic carbon hydrides or soluble detergents.

7.3.2 Servicing the control cabinet

In order to avoid the greasy, humid foundry air penetrating the control components, as well as for safety reasons, the control cabinet door should always be kept shut. High internal control cabinet temperatures caused by too little heat radiating surface on the control cabinet should not be solved by opening the control cabinet door. Control cabinets, which are periodically used during the summer in an environmental temperature over 40°C should have a cooling unit attached.

The outside of the control cabinet should be wiped over monthly.

7.3.3 Servicing the control cabinet cooling unit

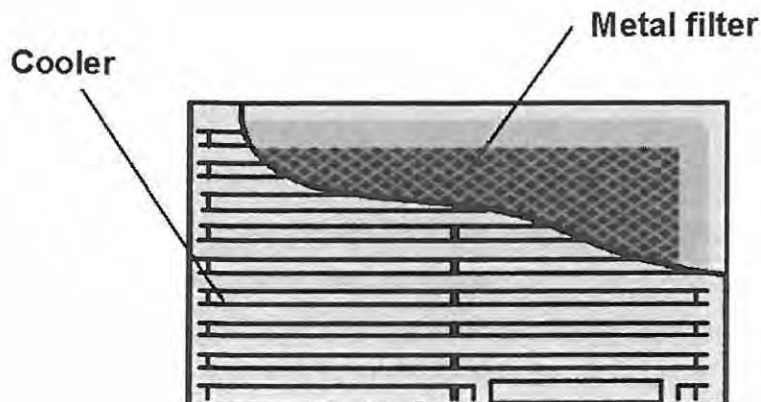
The cooling unit is practically maintenance free. From time to time the components of the outer air circuit should be cleaned using compressed air. If necessary, metal filters (7.3.3.1) can be used. **Using filter mats causes heating up of the control cabinet and the cooling unit** and can lead to malfunctions and a reduction in the working life of the unit.

Building a lot of condensation water, you have to connect a hose to the condensat water outlet.

7.3.3.1 Option: Metal filter

When using cooling equipment in particularly dusty or moist environments, washable metal filters can be adopted. When condensation from the air or vapours remain on the metal surfaces, any particles that are present will adhere to the metal. After removing the part, the particles can be easily washed off using water or grease-releasing cleaning agents and the part installed again (see diagram).

Item number for metal filter: Wollin ID No. 300 965



7.3.4 Maintenance of the diesprayer electrical components

Electric cables, valves, limit switches (emergency end switch) and connections must be cleaned monthly. In order to avoid a possible jamming of the limit switches these must be controlled that they are functioning properly. Please be advised, that a possible jamming of the diesprayer axes due to soiling can influence the reproducibility of the diesprayer.



NOTICE

Dividing of the engines is inadmissible

7.4 Servicing the mechanical components



NOTICE

The screws for supporting elements has to be checked each 6 months



NOTICE

diverse agents can cause deposits in the spraying system if the machine stands still for any length of time or due to heat influence then. We recommend rinsing the complete system before beginning lengthy stoppages.

7.4.1 Changing the gear lubricant

The gears are delivered operational filled with lubricant. The first lubricant change should take place after approx. 2000 hours of operation or at least once a year.

The best way to change the lubricant is while still warm and then rinsing out the gear afterwards with a suitable rinsing oil.

Refill the gear with lubricant according to the lubricant recommendation.

Quantity: approx. 0.7 Litre

7.4.2 Servicing the central lubrication

Check the level of liquid grease and refill promptly. Contents of container 1600 ccm. It is imperative that the lubricant is clean. After the machine has run for some time tighten all screwed tube joints and activate the pump to check that liquid grease exits all lubrication points.

The level in the lubricant container of the central lubrication should always be between the indicated marks (Min / Max).



WARNING

- **The central lubrication should only be transported and stocked upright. When assembling, it should only be mounted upright !**
- Only approved grease types should be used !

Breaching these regulations can cause considerable damage to the central lubrication system !

Only use liquid greases with the consistency number 00 and 000 !

7.4.2.1 Suitable types of liquid grease:

Supplier	Type designation NLGI-class 00 / 000
ARAL	Aralub BAB 000
AVIA	AVIALITH 000 EP
AUTOL	Autol-Fließfett ZSA
BP	Energrease ZS 00
BP	Biogrease EP 00/000
CASTROL	Castrol CLS Grease
DEA	Dealit EP 00
ELF	MULTI BT 000
Lubrication Engineers	LE Monolec 4700
MOBIL OIL	Chassis Grease LBZ
Klüber	Centoplex GLP 500
Reiner Chemische Fabrik	Gearmaster ZSA
WINTERSHALL	Wiolub LFK 00
ZELLER & GMELIN	Divinol Fett Central 00

7.4.2.2 Suitable gear oil:

Supplier	Type designation	Viscosity DIN5119 (mm ² /s) 40°C
Texaco	Synlube CLP 460	460
DEA	Polydea CLP 460	460
Klüber	Syntheso D 460 EP	460
Fa. Reiner	PGP 460	460

The lubricants filled in our works are in **bold**. Subject to change

7.4.3 Lubrication diagram

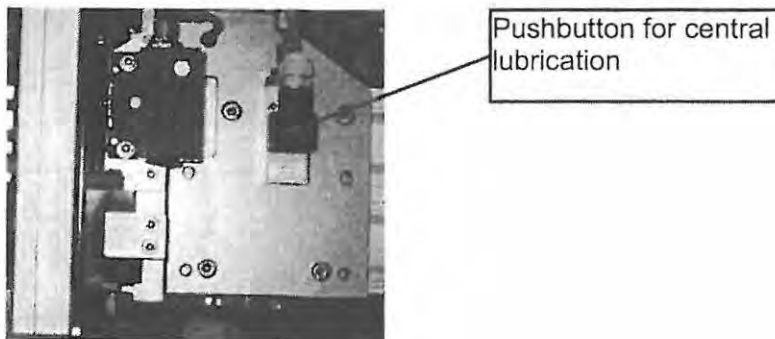
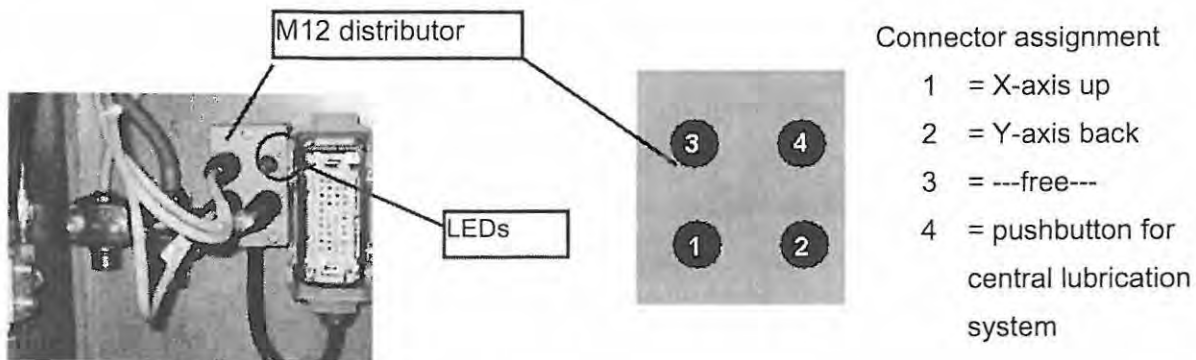
See following page !

7.4.4 Checklist - Servicing

1. General visual check	☐				
2. Gear wheel/Rack vertical	☐	tightened, greased	☐		
3. gear wheel/Rack axial	☐	tightened, greased	☐		
4. Guide rails	☐	checked	☐		
5. Screw seat	☐	tightened	☐		
6. Cable conduit	☐	cleaned	☐	repaired	☐
7. Gear vertical	☐	changed	☐		
8. Gear horizontal	☐	changed	☐		
9. Hoses	☐	changed	☐		
10. Silencers	☐	changed	☐		
11. Spraying nozzles	☐	not i. O.	☐		
12. Control valves	☐	not i. O.	☐		
13. Seals, O-Rings	☐	changed	☐		
14. Gear oil	☐	Oil change	☐		
15. Central lubrication	☐	checked	☐		

7.5 Monitoring at the M12 distributor

To monitor the position of the axes and the lubrication, the PSM is fitted with a M12 distributor with LEDs and a pushbutton.



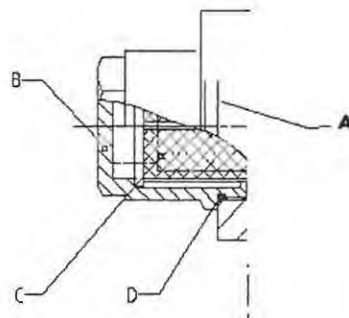
LEDs lit when:

- 1 X-axis in upper position
- 2 Y-axis in rear position
- 4 Lubrication is complete, lubricating pressure is reached

7.6 Filter body

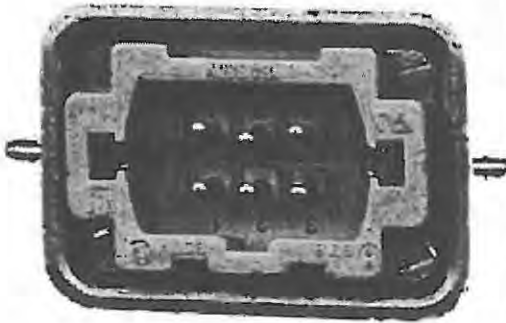
The filters of filter body must be cleaned regularly. Only then can we guarantee that they function properly.

Approx. every 4 weeks or as needed:
Unscrew the filter lid (B) anti-clockwise. You may need to use a screwdriver NW 30.
Remove the lid (B) and carefully remove the filter which is now visible from the lid (C) (the filter is pressed lightly into the filter lid when screwing in).
Inspect the seal (D) of the filter lid for damage. Replace defect seals after cleaning the filter.
Clean the filter lid with compressed air or water. Do not use solvents !
If necessary, clean the thread in the control valve housing and the filter lid thread with water and a cloth.
Clean the filter carefully with water or compressed air and inspect for damage.
Replace defect seals and filters.
Place the clean filter neck down in the filter lid and press in lightly.
IMPORTANT ! Put in the filter lid (with filter) and screw in by hand ! DO NOT USE ANY TOOLS !



7.7 Annex1: Circuit diagram electrical central lubrication BEKA

Connector assignment central lubrication pump / electronic connection central lubrication



(D)

An der Zentralschmierung ist eine 6-pol Steckverbindung in schwerer Ausführung angebracht.

(GB)

A heavy duty 6-pole plug is located on the central lubrication

PIN	(D) - Beschreibung:	(GB) - Description
1	24 V DC	24 V DC
2	Pumpe Start	pump start
3	0 V DC	0 V DC
4	x	x
5	Mangel - Schmiermittel	lubrication low
6	x	x

(D)

Richtwert für automatische Zentralschmierung:

PSM2, PSM3 alle 40 Zyklen

PSM4T, alle 20 Zyklen

[Intervall von 10 bis 1000]

Die Frequenz wird bei Auslieferung eingestellt und muss nicht korrigiert werden.

(GB)

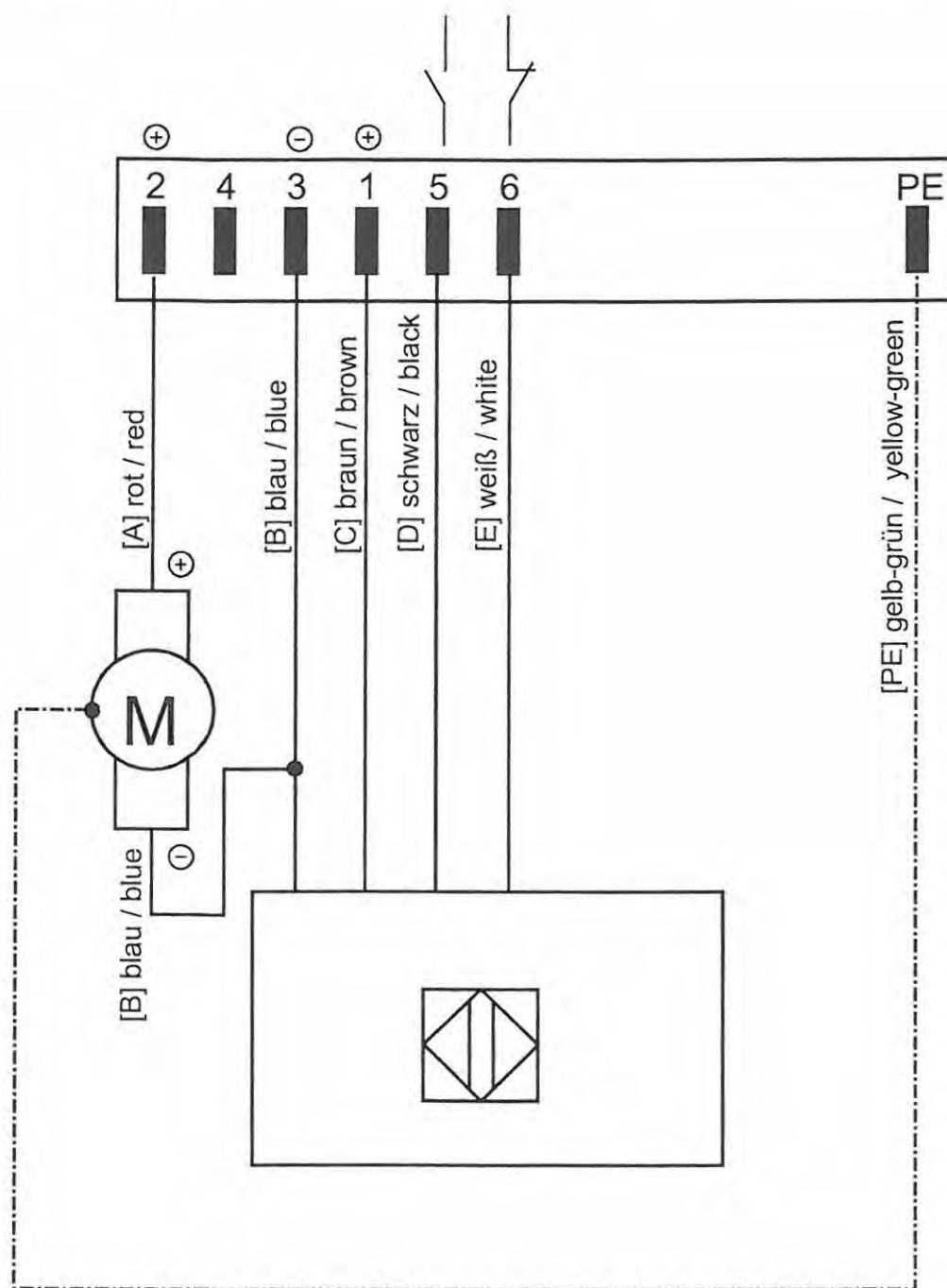
Recommended frequency for automatic central lubrication:

PSM2, PSM3 every 40 cycles

PSM4T, every 20 cycles

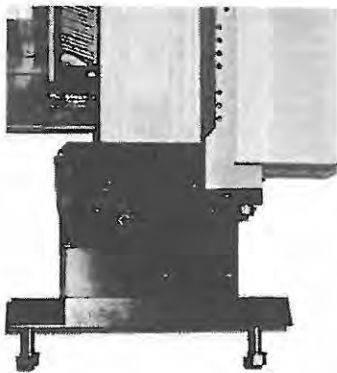
[interval 10 - 1000]

The frequency is adjusted before delivery and does not have to be corrected.



Electrical connection central lubrication (internal pump)

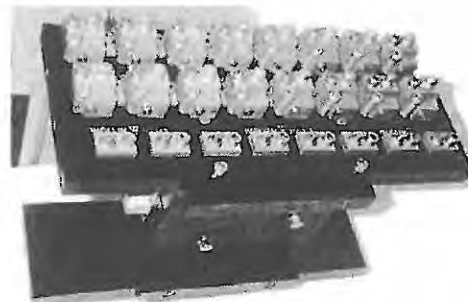
7.8 Annex Spray head assembly



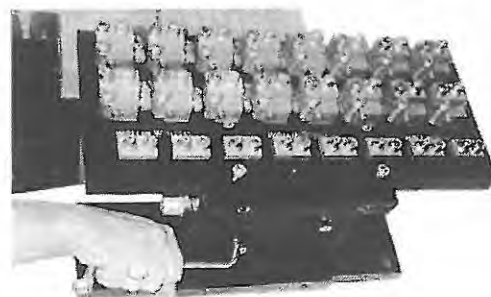
The screws for the mounting of the spray head are screwed into the distributor block.

The spray head is then hung in the screws.
Attention! orientation as in the photo !

Movable side



Afterwards the screws should be tightened.
The screws should be tightened by hand (see photo).



7.9 Maintenance log

Machine (p.ex. PSM 3006)				
Serial number:				
Date:		Examiner:		
Which component	What should be done?	How often?	Comments	
Separating agent dirt trap	remove and clean	w	Do not damage wire mesh!	☐
Spray nozzles	clean	w		☐
Monitoring elements	clean	w		☐
Display instruments	clean	w		☐
Diesprayer	clean	w		☐
Electric cables	clean and Visual check	m		☐
Hoses	clean and Visual check	m		☐
Valves	clean	m		☐
Connections	Visual check	m		☐
Silencers	check	m		☐
Limit switches	check	m		☐
Security switch	check	m		☐
Dirt strippers	check	m		☐
Reservoir interior	check, clean if necessary	m		☐
Fastenings	check	m		☐
Guide rails	check	m		☐
Guide rails	lubricate and clean if necessary	m	by using a brush	☐
Racks Gear wheels	check	m	by using a brush	☐
Central lubrication, Lube distributor	check	m		☐
Gear lubrication	change	2000h / 1J	Lubrication recommendation	☐

w = weekly / m = monthly / 2000h = 2000 hours / 1J = 1 year

Which component	What should be done?	How often?	Comments	
General visual check				☐
Gear wheel/Rack vertical	tightened, greased			☐
Gear wheel/Rack axial	tightened, greased			☐
Guide rails	checked			☐
Screw seat	tightened			☐
Cable conduit	cleaned		repaired	☐
Gear vertical	changed			☐
Gear horizontal	changed			☐
Hoses	changed			☐
Silencers	changed			☐
Spraying nozzles	not i. O.			☐
Control valves	not i. O.			☐
Seals, O-Rings	changed			☐
Gear oil	Oil change			☐
Central lubrication	checked			☐

What should be done?	How often ?	
Unscrew the filter lid (B) anti-clockwise. You may need to use a screwdriver NW 30.	Approx. every 4 weeks or as needed:	☐
Remove the lid (B) and carefully remove the filter which is now visible from the lid (C) (the filter is pressed lightly into the filter lid when screwing in).		☐
Inspect the seal (D) of the filter lid for damage. Replace defect seals after cleaning the filter.		☐
Clean the filter lid with compressed air or water. Do not use solvents !		☐
If necessary, clean the thread in the control valve housing and the filter lid thread with water and a cloth.		☐
Clean the filter carefully with water or compressed air and inspect for damage.		☐
Replace defect seals and filters.		☐
Place the clean filter neck down in the filter lid and press in lightly.		☐
IMPORTANT ! Put in the filter lid (with filter) and screw in by hand ! DO NOT USE ANY TOOLS !		☐

Date:.....Signature examiner :.....

NOTICE



All protocols must be completely present. They are to be collected if necessary in a file. Otherwise no warranty can be carried out.

Request for a service engineer

Request for a service engineer

We ask for the sending of a service engineer for:



Client _____	Phone _____
Contact person _____	Mobile _____
Operation date _____	Fax _____

Please fill in the form completely !

Machine N°: _____

Control: ☐ Z-control ☐ Neo-Z ☐ NC10 ☐ NC20 ☐ NC60 ☐ NC84 ☐ PC1

☐ others: _____

Activity to be done:

☐ general service activity

Description: _____

☐ Repair

Description: _____

☐ durable breakdown

☐ temporary breakdown

Date/Signature

The service/repair will get calculated in conformity with the real effort according to our actual valid outdoor-service guidelines.

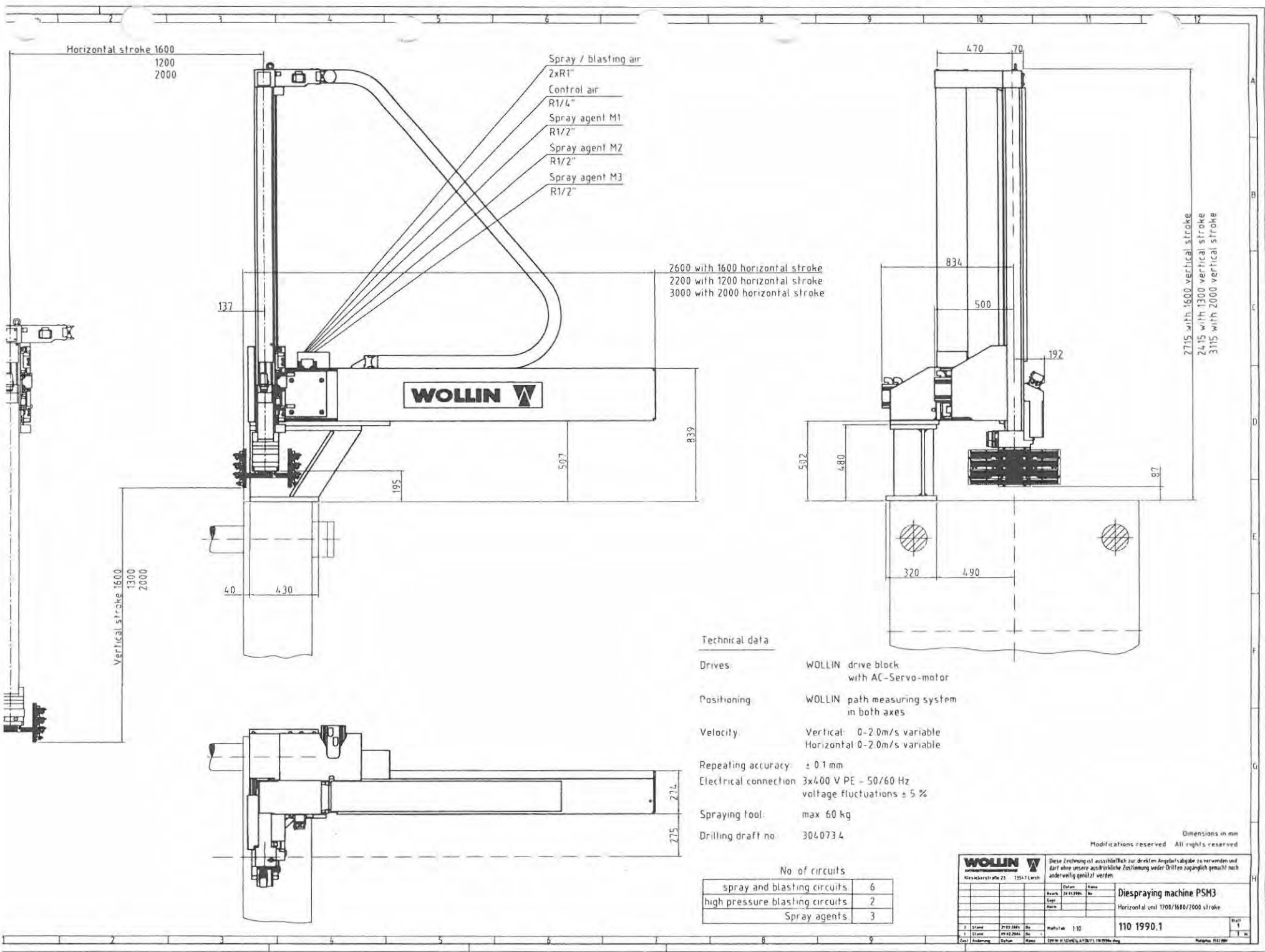
Kiesäckerstr. 23 D-73547 Lorch

 0049 / (0) 71 72 / 91 05 - 77 / 78

Fax

0049 / 71 72 / 91 05 - 55

11 PNEUMATIC DIAGRAMS, PROTOCOLS,...



Technical data

- Drives: WOLLIN drive block with AC-Servo-motor
- Positioning: WOLLIN path measuring system in both axes
- Velocity: Vertical: 0-2.0m/s variable
Horizontal 0-2.0m/s variable
- Repeating accuracy: ± 0.1 mm
- Electrical connection: 3x400 V PE - 50/60 Hz
voltage fluctuations ± 5 %
- Spraying tool: max 60 kg
- Drilling draft no: 304 073 4

No. of circuits

spray and blasting circuits	6
high pressure blasting circuits	2
Spray agents	3

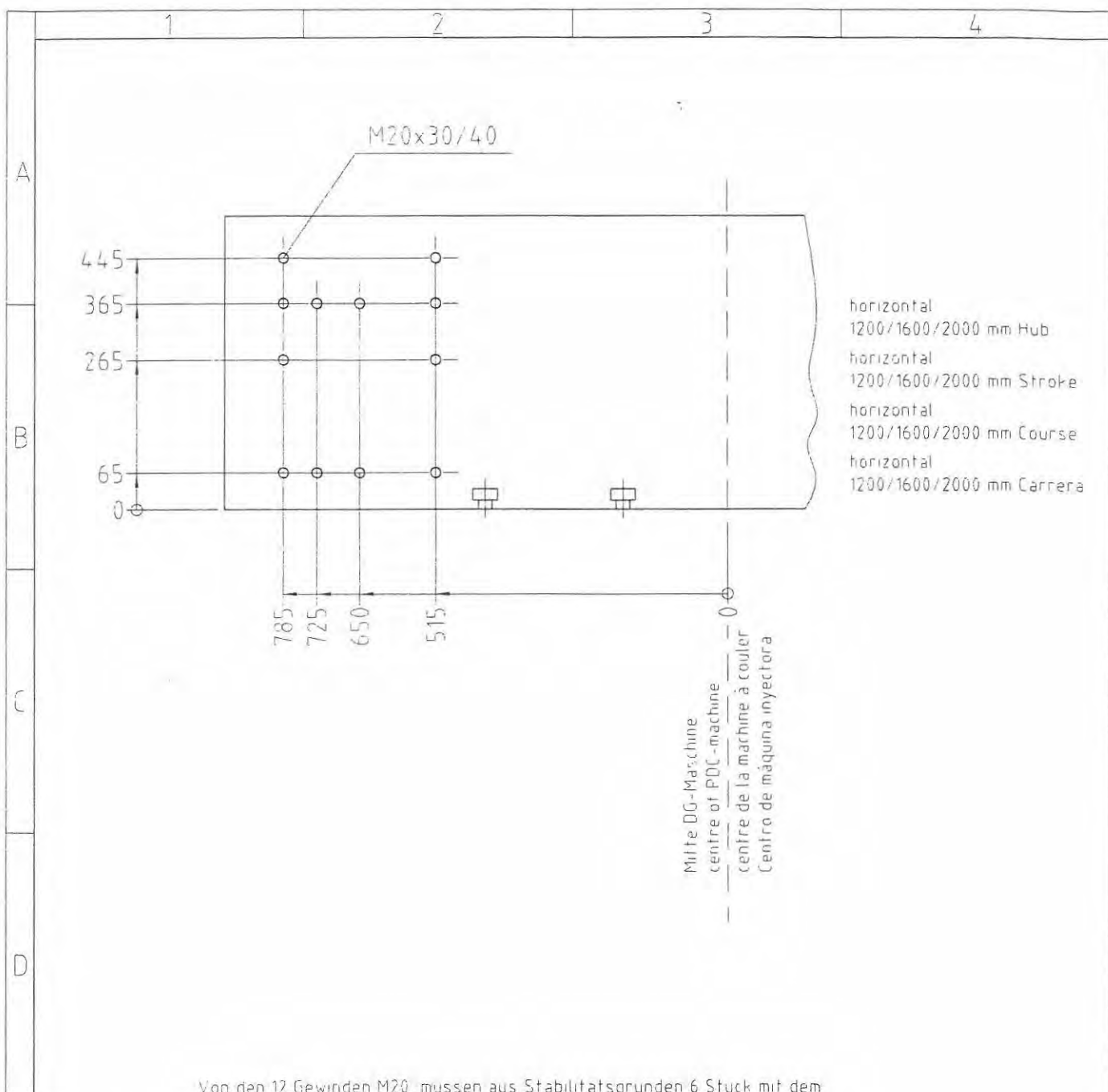
Dimensions in mm
Modifications reserved All rights reserved

WOLLIN
Königsplatz 23 72547 Leinfelden

Diese Zeichnung ist ausschließlich zur direkten Angebotsabgabe zu verwenden und darf ohne unsere ausdrückliche Zustimmung weder Drillo noch zugänglich gemacht noch anderweitig genutzt werden.

Rev.	Änderung	Datum	Ursache	Gepr.	Zeichn.	Druck	Druck	Druck	Druck	Druck	Druck
1	Stand	01.01.2000	Dr								
2	Stand	01.02.2000	Dr								

Name: **Diespraying machine PSM3**
 Horizontal und 1200/1600/2000 stroke
 110 1990.1



Von den 12 Gewinden M20, müssen aus Stabilitätsgründen 6 Stück mit dem größt möglichen Lochabstand gebohrt werden

For reasons of stability, 6 holes out of the 12 threaded holes M20 have to be trapped with maximal interspace

Pour des raisons de stabilité 6 ouvertures taraudées parmi les 12 trous M20 sont à prévoir, en couvrant un espace maximal

De las 12 rosas M20, se tienen que taladrar 6 unidades con la máxima separación posible por motivos de estabilidad

WOLLIN
AUTOMATISIERUNGSTECHNIK
Kiesackerstraße 23 73547 Lorch

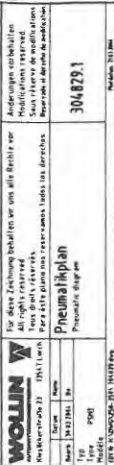
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Modifications reserved
Sous réserve de modifications
Reservado el derecho de modificación

	Datum	Name
Bearb	05.11.2003	Be
Typ		

Bohrbild auf fester Platte
Drawing for drill-holes on fixed machine-shild
Dessin de trous taraudés sur plateforme fixe

304073.4



12. Comfort control display screen and system analysis

Alarm no.	System message	Cause	Remedy
A01	Open the enclosure door	Door open or door limit switch not correctly positioned	Close door, position door limit switch correctly, check connection if necessary
A02	Internal temperature of enclosure too high	Cooling capacity too low/unit undersize Sequence errors in messages A03 to A17	Check cooling capacity
A03	Filter monitoring	Filter mat soiled	Clean or exchange
A04	Ambient temperature too high/too low	Ambient temperature outside the permissible operating range (+10°C to +60°C)	Raise or lower the ambient temperature (e.g. heat or ventilate the room)
A05	Icing hazard	Icing hazard display according to operating mode	Increase the nominal value of the internal enclosure temperature
A06	HD monitor	Ambient temperature too high	Unit operating limits exceeded
		Condenser soiled	Clean
		Filter mat soiled	Clean or exchange
		Condenser fan defective	Exchange
		E-valve defective	Repair by refrigeration engineer
		HD monitor defective	Refrigeration engineer to exchange
A07	Evaporator	Refrigerant fault	Repair by refrigeration engineer
A08	Condensate warning	Condensate drainage does not work	Check condensate drainage; repair kinks or blockages in the hose as necessary
A09	Condenser fan	Blocked or defective	Clear the blockage; exchange if necessary
A10	Condenser fan	Blocked or defective	Clear the blockage; exchange if necessary
A11	Compressor	Compressor overloaded (internal winding protection)	Unit switches in again independently
		Defective (check by measuring the winding resistance)	Refrigeration engineer to exchange
A12	Condenser temperature sensor	Open or short circuit	Exchange
A13	Ambient temperature sensor	Open or short circuit	Exchange
A14	Icing temperature sensor	Open or short circuit	Exchange
A15	Condensate warning temperature	Open or short circuit	Exchange
A16	Internal temperature sensor	Open or short circuit	Exchange
A17	Phase monitoring	Incorrect rotary field/phase absent	Exchange two phases
A18	EPROM error		
A19	LAN/Master-Slave	Master and slave not linked	Setting or check cable
A20	Voltage drop	Fault display is not illustrated	Event is saved in the log file

The fault displays A03, A06 and A07 are to be reset manually. To do this, hold down the ▲ and ▼ keys simultaneously for 5 seconds.

13. Comfort control programming

Level	Display screen	changeable parameter	min. value	max. value	Factory setting	Explanation
1	St	Nominal value of the internal enclosure	20	55	35	The nominal value of the internal enclosure temperature is set at the factory to 35°C and is variable over a 20°C range to 55°C.
2	Fi	Filter mat monitoring	10	60 (99=off)	99	For activation of filter mat monitoring, the display is to be set to a minimum of 10 K above the temperature difference shown in programming mode "Fi"; filter mat monitoring is switched off at the factory. (Display 99 = off).
3	Ad	Master-slave programming	0	19	0	see 8.3 "Cooling unit programming"
4	CF	Temperature conversion	0	1	0	The temperature display can be switched from °C (0) to °F (1). The corresponding LED displays the current unit of temperature.
5	H1	Temperature switching	2	10	5	The cooling unit is set in the factory for a switching cycle of 5 K. This parameter should only be changed after agreement with the manufacturer.
6	H2	Difference for error message 2	3	15	5	If the internal enclosure temperature exceeds the set value by more than 5 K, then error message 2 (internal enclosure temperature too high) appears on the display terminal. The difference of 5 K can be changed if required over the range 3 K to 15 K.
7	A1	Relay connection	0	2	0	The fault messages (1 to 19) depicted in the display can also be evaluated using two potential-free fault message relays. Comfort control provides the option to group fault messages accordingly and assign them to both fault message relays. The value "1" is to be programmed for assignment and evaluation of the relevant fault message via relay 1. If the fault is to be evaluated via relay 2, then the value "2" is to be programmed accordingly. If the value is set to "0", the system message appears only in the display. This accordingly enables the user to define the system weighting himself, by apportioning between relays 1 and 2.
8	A2	Relay connection	0	2	0	
9	A3	Relay connection	0	2	0	
10	A4	Relay connection	0	2	0	
11	A5	Relay connection	0	2	0	
12	A6	Relay connection	0	2	1	
13	A7	Relay connection	0	2	2	
14	A8	Relay connection	0	2	1	
15	A9	Relay connection	0	2	1	
16	A10	Relay connection	0	2	1	
17	A11	Relay connection	0	2	2	
18	A12	Relay connection	0	2	1	
19	A13	Relay connection	0	2	1	
20	A14	Relay connection	0	2	1	
21	A15	Relay connection	0	2	1	
22	A16	Relay connection	0	2	1	
23	A17	Relay connection	0	2	1	
24	A18	Relay connection	0	2	0	

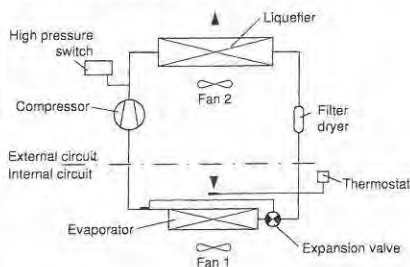
English

9. Technical information

The cooling unit (compressor refrigeration unit) consists of four main components: the coolant compressor, evaporator, condenser, and the control or expansion valve, which are connected by suitable pipework. This circuit is filled with a readily boiling substance, the refrigerant. The R134a (CH_2FCF_3) refrigerant is free from chlorine. It has an ozone destroying potential (ODP) of 0 and is therefore environmentally friendly. A filter dryer which is integrated in the hermetically sealed cooling circuit, provides effective protection against moisture, acid, dirt particles, and foreign bodies within the cooling circuit.

9.1 Operation of the cooling unit

Fig. 9.1 Operation of the cooling unit



The compressor takes the gaseous refrigerant from the evaporator and compresses it to a higher pressure in the condenser. During this process the temperature of the refrigerant rises above the ambient temperature and heat can be dissipated to the environment via the surface of the condenser. Then the refrigerant is liquefied and, by means of a thermostatically controlled expansion valve, returned to the evaporator, where it evaporates at low pressure. The heat required for complete evaporation is drawn from the enclosure interior causing it to cool down. The cooling cycle is thus completed, the aforementioned process of the heat transfer starts afresh.

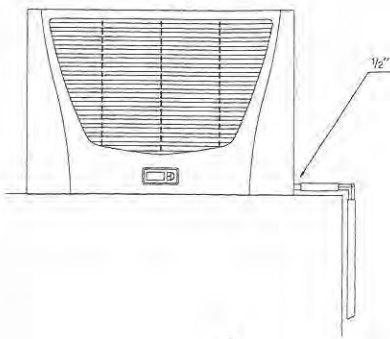
9.2 Safety equipment

The cooling circuit of the cooling unit embodies component tested high-pressure monitor to BGV D 4 which is set to maximum operating pressure and operates via an automatic reset device at recurring pressure drop. Temperature monitoring will prevent the evaporator from icing up. If there is a risk of icing up, the compressor is switched off and automatically switched on again at higher temperatures. The refrigerant compressor and the fans are equipped with thermal winding protection switches against excess current and excess temperatures.

9.3 Condensate discharge

A cast gutter in the evaporator tray ensures that any condensate which may form on the evaporator (at high air humidity, low temperatures inside the enclosure), is drained away to the right or rear of the unit. For this purpose, a length of hose should be fitted to one of the two condensate pipe connection pieces (see fig. 9.3). The other drain that is not used has to be sealed accordingly. The condensate must be able to run off freely. If the condensate is to be drained off over a greater distance, then care must be taken that the hose is free from kinks and a check for correct drainage made. Units with a comfort controller have an additional condensate alarm.

Fig. 9.3 Condensate discharge



9.4 General

Storage temperature: The cooling units must not be exposed to temperatures above +70°C.

Transport position: The cooling units must always be transported upright.

Waste disposal: The closed cooling circuit contains refrigerant and oil which must be correctly disposed of for the protection of the environment.

Disposal can be carried out at Rittal-Werk.

Technical modifications reserved.

10. Maintenance

As a maintenance-free, hermetically sealed system, the cooling circuit has been filled in the factory with the required amount of refrigerant, and tested for leaks and subjected to a function trial run.

The installed maintenance-free fans use ball bearings, they are protected against moisture and dust, and are fitted with a temperature monitor. The life expectancy is at least 30,000 operating hours. The cooling unit is thus largely maintenance free. All that may be required from time to time is that the components of the external air circuit are cleaned by compressed air. The use of a filter mat is recommended only if large particles of lint are present in the air, so that blockage of the condenser is prevented. (Filter mat replacement, fig. 7.1). Note: Prior to any maintenance work, the power to the cooling unit must be disconnected.

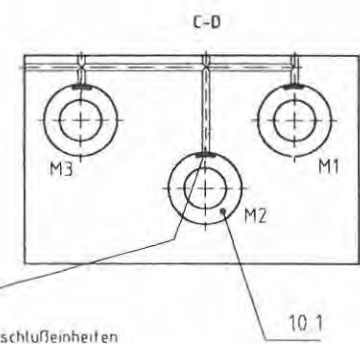
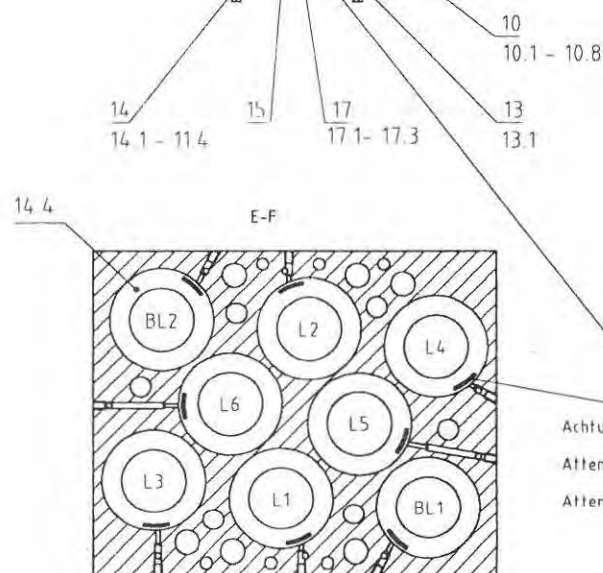
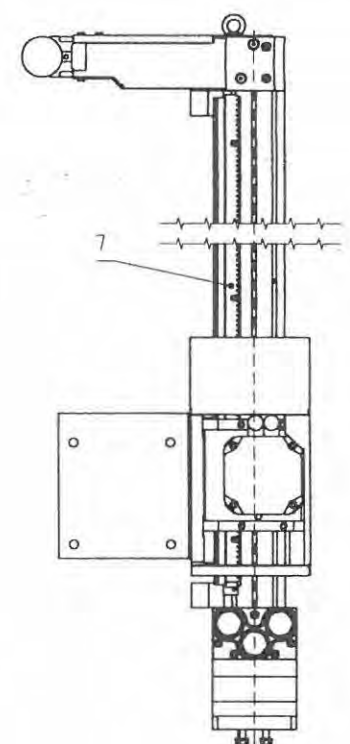
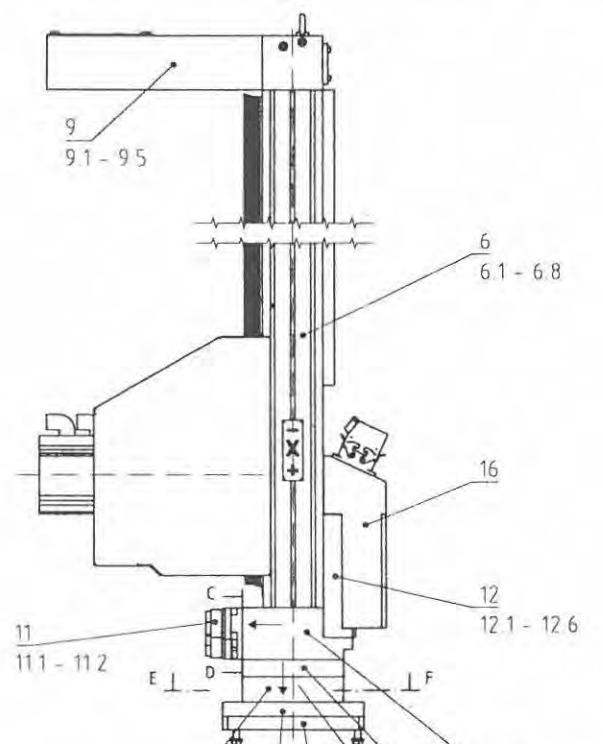
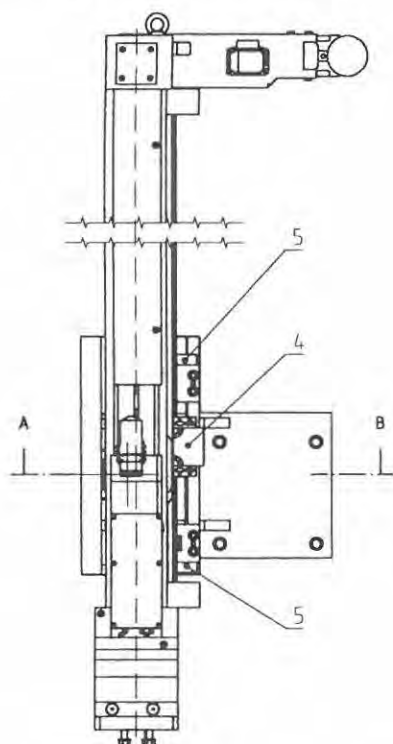
11. Scope of supply and guarantee

- 1 cooling unit, ready for connection
- 1 drilling template
- 1 sealing plate
- 1 sealing frame
- 1 set of mounting and operating instructions
- 1 plug-in terminal strip

Guarantee:

This unit is covered by a 1-year guarantee from the date of supply, subject to correct usage (see also Safety notices under heading 4.). Within this period, the returned unit will be repaired in the factory or replaced free of charge. The cooling unit is to be used for the cooling of enclosures only. If it is connected or handled improperly the manufacturer's guarantee does not apply and in this case we are not liable for any damage caused.

11 PNEUMATIC DIAGRAMS, PROTOCOLS,...



Achtung! Bei Montage der Verschluss-einheiten auf Einbaulage achten.
 Attention! When fitting the cut-off components, check the direction of the arrow is correct.
 Attention! en installant les unités de fermeture, vérifiez si la direction de la flèche est correcte.

WOLIN Maschinenbau Maschinenstraße 21 73617 Leinfelden Tel. 07141 2011-11 Fax 07141 2011-12 E-Mail: info@wol.de		Für diese Zeichnung behalten wir uns alle Rechte vor. All rights reserved. Tous droits réservés. Para este plano nos reservamos todos los derechos.	Änderungen vorbehalten. Modifications reserved. Sous réserve de modifications. Reservados el derecho de modificación.
Serie: 10.01.2011 Typ: PSM3 Modifikation:	Vertikaleinheit Vertical unit Courbe verticale Unidad vertical	Stand: 13.09.2011 304719.1 Änderungen: 13.09.2011	

Information from the manufacturer					User's Information		
2	3	4	5	6	7	8	
Quantity	Unit	Designation	Additional information	Identification Number	Additional notes	Commission quantity	

1		servo motor AC 1FK7083-5AF71-1GH0 16Nm 100K 3000U/min.		302617	Siemens		
1		planetary gear	PH501F0070M i=7	302669	Stöber		
1		toothed wheel	m=3 z=30	302721	Esco		
1		Limit switch Standard	SN02R12-502AM-M	302982	Wollin/Euchner		
1		Limit switch symmetric version	SN02R12-502AM-M	304768	Wollin/Euchner		
2		Buffer	D=40mm	302909	Wagner+Wagner		
1		Vertical pipe stroke 1300mm	complete	304318	Wollin		
1		Vertical pipe	stroke 1300mm	304307	Wollin		
4		Pipe ø18	stroke 1300mm	304515	Wollin		
1		Pipe ø14	stroke 1300mm	304516	Wollin		
9		o-ring	16x1 Viton	29520	IDG		
3		o-ring	12x1 Viton	29470	IDG		
1		Vertical pipe stroke 1600mm	complete	304224	Wollin		
1		Vertical pipe	stroke 1600mm	302918	Wollin		
4		Pipe ø18	stroke 1600mm	304225	Wollin		
1		Pipe ø14	stroke 1600mm	304480	Wollin		
9		o-ring	16x1 Viton	29520	IDG		
3		o-ring	12x1 Viton	29470	IDG		
1		Vertical pipe stroke 2000mm	complete	304321	Wollin		
1		Vertical pipe	stroke 2000mm	304322	Wollin		
4		Pipe ø18	stroke 2000mm	304513	Wollin		
1		Pipe ø14	stroke 2000mm	304514	Wollin		
9		o-ring	16x1 Viton	29520	IDG		
3		o-ring	12x1 Viton	29470	IDG		

LLIN cerstraße 23 7 Lorch (07172) 9105-0 (07172) 9105-11	Product name	Type and size	Drawing number	Spare parts list number	Version	Date: 11.05.2004
	Vertical unit	PSM3	304719.1	304720	1.02	Page: 1
						From: 4

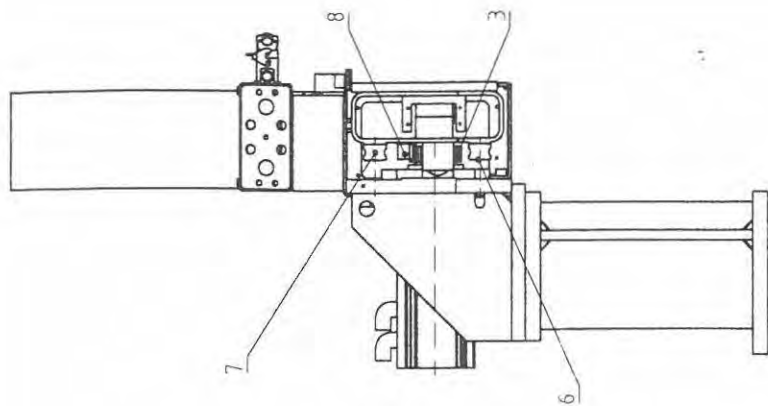
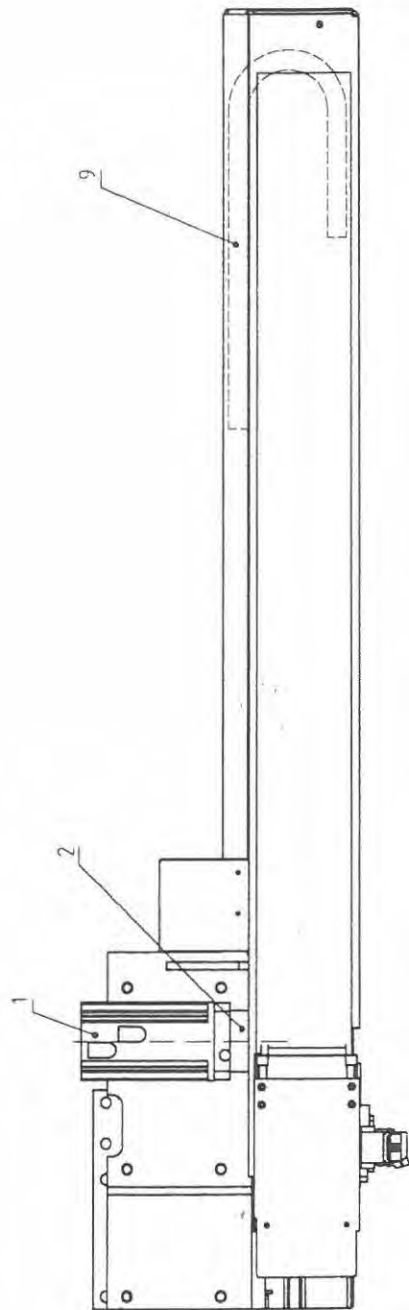
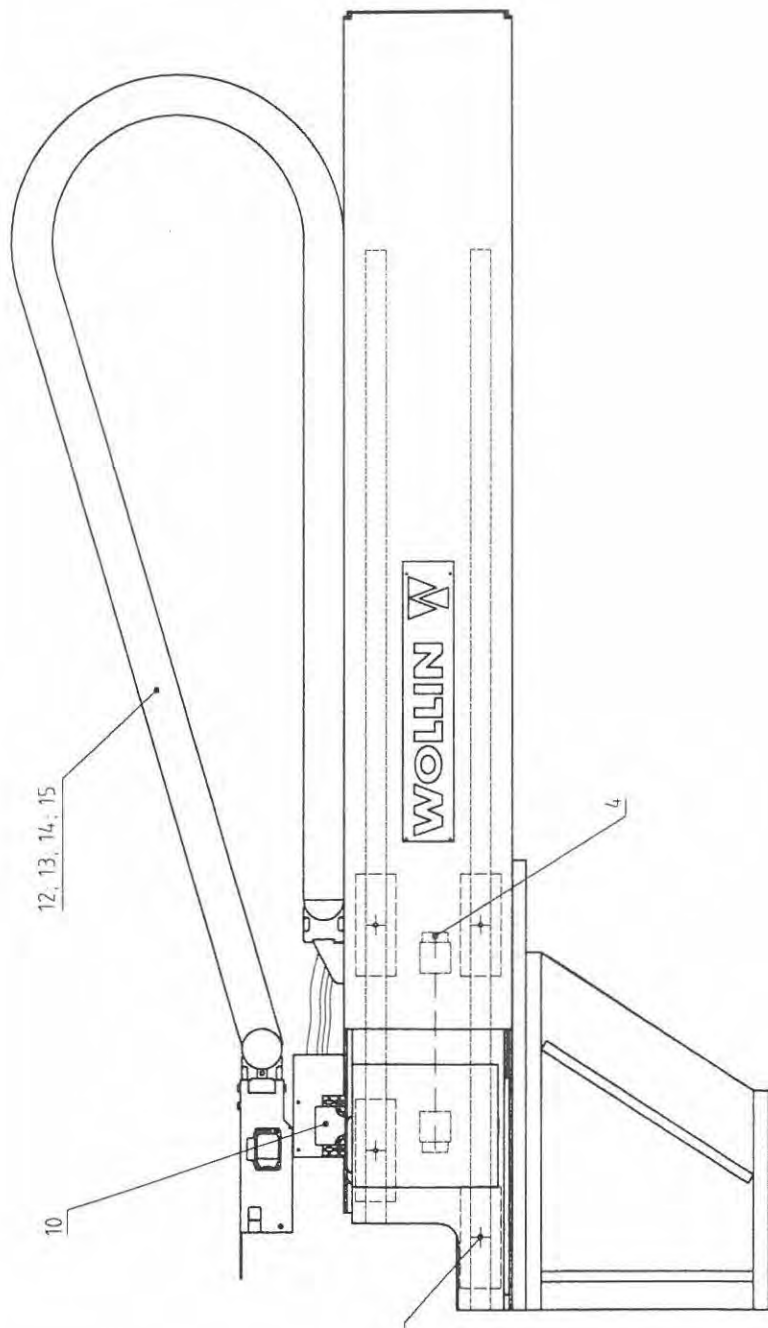
Information from the manufacturer					User's Information		
	2	3	4	5	6	7	8
n	Quantity	Unit	Designation	Additional information	Identification Number	Additional notes	Commission quantity

1		Toothed rack stroke 1300mm	m=3 L=1800	302742	Esco	
1		Toothed rack stroke 1600mm	m=3 L=2100	302743	Esco	
1		Toothed rack stroke 2000mm	m=3 L=2500	302726	Esco	
1		Rail guidance stroke 1300mm	SHS30/1800	304241	THK	
1		Rail guidance stroke 1600mm	SHS30/2100	303042	THK	
1		Rail guidance stroke 2000mm	SHS30/2500	304242	THK	
1		Turn-around block Standard	complete	302954	Wollin	
2		o-ring	60.05x1.78 Viton	5512	IDG	
2		o-ring	36x2 Viton	29777	IDG	
4		o-ring	22x2 Viton	132191	IDG	
3		o-ring	17.13x2.62 Viton	136044	IDG	
1		o-ring	15x2.5 Viton	128751	IDG	
1		Turn-around block symmetric version	complete	304450	Wollin	
2		o-ring	60.05x1.78 Viton	5512	IDG	
2		o-ring	36x2 Viton	29777	IDG	
4		o-ring	22x2 Viton	132191	IDG	
3		o-ring	17.13x2.62 Viton	136044	IDG	
1		o-ring	15x2.5 Viton	128751	IDG	
1		valve plate 1	complete	304487	Wollin	
3		Cut-off component	DN20 Chloropren	238659	AVS Römer	
1		o-ring	62x2 Viton	305459	IDG	
1		o-ring	63.22x1.78 Viton	303205	IDG	
12		o-ring	12x2 Viton	29389	IDG	

LLIN erstraße 23 Lorch 07172) 9105-0 07172) 9105-11	Product name	Type and size	Drawing number	Spare parts list number	Version	Date: 11.05.2004
	Vertical unit	PSM3	304719.1	304720	1.02	Page: 2
						From: 4

Information from the manufacturer					User's Information		
	2	3	4	5	6	7	8
	Quantity	Unit	Designation	Additional information	Identification Number	Additional notes	Commission quantity
	1		o-ring	8x2 Viton	29322	IDG	
	14		o-ring	3x2 Viton	29173	IDG	
	3		o-ring	17.13x2.62 Viton	136044	IDG	
	1		o-ring	15x2.5 Viton	128751	IDG	
	1		Filter plate	complete	304429	Wollin	
	3		Sieve	1"	303172		
	3		o-ring	50x3 Viton	10025	IDG	
	1		Connecting strip	complete	304454	Wollin	
	48		o-ring	3x2 Viton	29173	IDG	
	3		o-ring	6x2 Viton	29280	IDG	
	2		o-ring	10x2 Viton	29421	IDG	
	2		o-ring	4x2 Vtion	29223	IDG	
	5		Seal	A5x9x1 DIN7603	303887		
	1		Silencer	G3/8a	304833		
	1		Distribution plate 1	complete	304476	Wollin	
	1		o-ring	205x2 Viton	305491	IDG	
	1		Valve plate 2	complete	304489	Wollin	
	12		o-ring	6x2 Viton	29280	IDG	
	12		o-ring	12x2 Viton	29389	IDG	
	8		o-ring	3x2 Viton	29173	IDG	
	8		Cut-off component	DN32 Chloropren	304505	AVS Römer	

LLIN erstraße 23 Lorch 07172) 9105-0 07172) 9105-11	Product name	Type and size	Drawing number	Spare parts list number	Version	Date: 11.05.2004
	Vertical unit	PSM3	304719.1	304720	1.02	Page: 3
						From: 4



WOLLIN W
 Ce dessin est une vue partielle de l'ensemble de la machine.
 Les dimensions sont indiquées en millimètres.
 Les tolérances sont indiquées en millimètres.
 Les dimensions sont indiquées en millimètres.
 Les dimensions sont indiquées en millimètres.

Design	304.717.1
Version	
Etat	
Projet	
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Modifié	

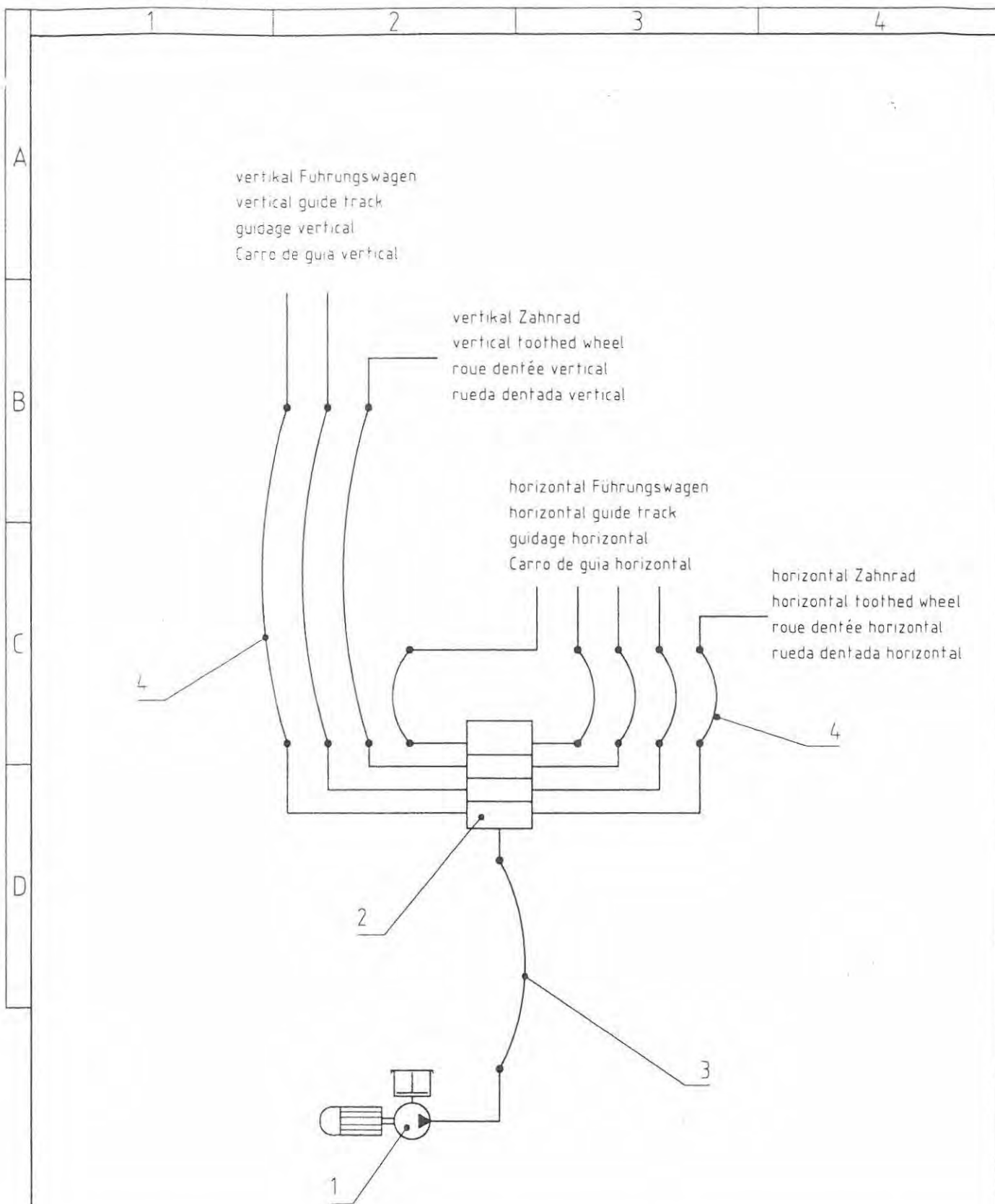
Horizontale
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Information from the manufacturer					User's Information		
	2	3	4	5	6	7	8
n	Quantity	Unit	Designation	Additional information	Identification Number	Additional notes	Commission quantity
r							
	1		servo motor AC 1FK7083-5AF71-1GH0	16Nm 100K 3000U/min.	302617	Siemens	
	1		planetary gear	PH501F0070M i=7	302669	Stöber	
	1		toothed wheel	m=3 z=32	302724	Esco	
	2		Buffer	D=50mm	15578	Wagner+Wagner	
	1		Rail guidance stroke 1200mm	SHS45/2085	304089	THK	
	1		Rail guidance stroke 1600mm	SHS45/2485	302881	THK	
	1		Rail guidance stroke 2000mm	SHS45/2885	304243	THK	
	1		Rail guidance stroke 1200mm	SHS45/1915	304090	THK	
	1		Rail guidance stroke 1600mm	SHS45/2315	302880	THK	
	1		Rail guidance stroke 2000mm	SHS45/2715	304244	THK	
	1		Toothed rack stroke 1200mm	m=3 L=1300	302732	Esco	
	1		Toothed rack stroke 1600mm	m=3 L=1700	302733	Esco	
	1		Toothed rack stroke 2000mm	m=3 L=2100	302728	Esco	
	1		Energy chain 1200mm	MT0475.01 L=1045	303177	Schmidberger	
	1		Energy chain 1600mm	MT0475.01 L=1380	303181	Schmidberger	
	1		Energy chain 2000mm	MT0475.01 L=1568	304333	Schmidberger	
	1		Limit switch Standard	SN02R12-502AM-M	302982	Wollin/Euchner	
	1		Limit switch symmetric version	SN02R12-502AM-M	304768	WollinEuchner	
	4		o-ring	6.75x1.78 Viton	86009	IHG	

WOLLIN  kerstraße 23 7 Lorch (07172) 9105-0 (07172) 9105-11	Product name	Type and size	Drawing number	Spare parts list number	Version	Date: 11.05.2004
	Horizontal unit	PSM3	304717.1	304718	1.01	Page: 1
						From: 2

[illegible]

 LLIN kerstraße 23 7 Lorch (07172) 9105-0 (07172) 9105-11	Product name	Type and size	Drawing number	Spare parts list number	Version	Date: 11.05.2004
	Horizontal unit	PSM3	304717.1	304718	1.01	Page: 2
						From: 2



WOLLIN 
AUTOMATISIERUNGSTECHNIK
Kiesackerstraße 23 73547 Lorch

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Datum	Name
Bearb. 04.05.2004	Be

Zentralschmierung
Central lubrication

305026 L

[illegible]

 DILLIN ckerstraße 23 47 Lorch n (07172) 9105-0 x (07172) 9105-11	Product name	Type and size	Drawing number	Spare parts list number	Version	Date: 11.05.2004
	Central lubrication	PSM3	305026.4	305028	1.00	Page: 1
						From: 1

PowerSpray PS16/PS16-8

Modulares Formsprühwerkzeug
Modular spraying tool
Outil de poteyage modulaire
Herramienta modular de pulverización

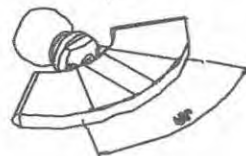
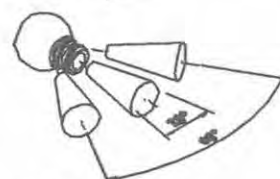
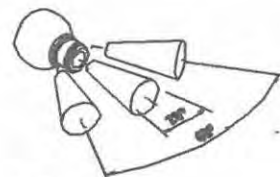
WOLLIN
AUTOMATISIERUNGSTECHNIK



Kugeldüse

Ball nozzle
Buse sphérique
Boquilla
x

- 177.709 Kugeldüse 11 (Ø0.6)
- 177.824 Kugeldüse 12 (Ø0.8)
- 177.832 Kugeldüse 13 (Ø1.0)
- 177.717 Kugeldüse 14 Breitstrahl
- 177.725 Kugeldüse 15 Flachstrahl

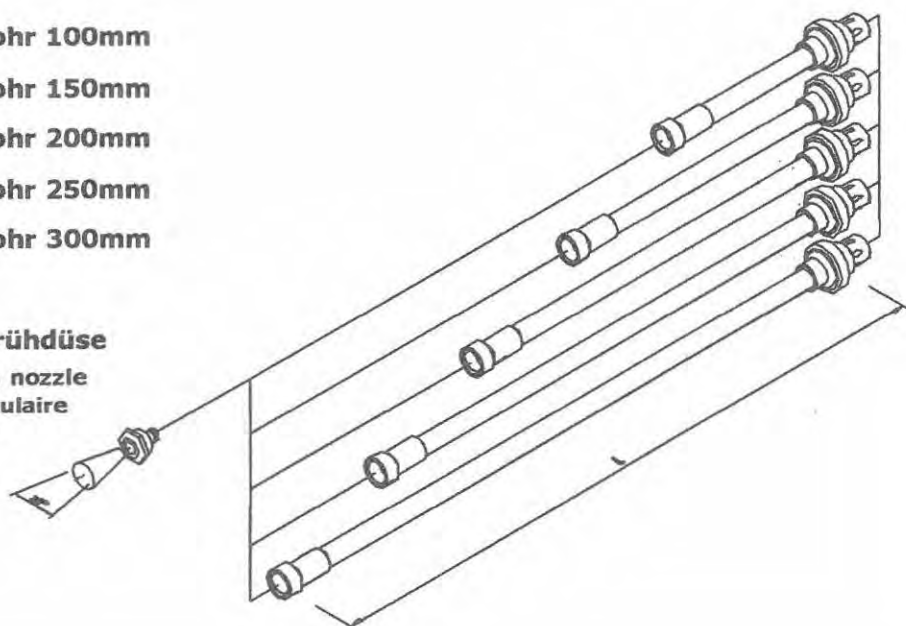


Sprührohr

Spraying tube
Tube de poteyage
Tubo de prolongación pulverizador
Tubo di lubrificazione

- 177.733 Sprührohr 100mm
- 177.741 Sprührohr 150mm
- 177.758 Sprührohr 200mm
- 177.766 Sprührohr 250mm
- 177.774 Sprührohr 300mm

- 179.077 Rohrsprühdüse
Spraying nozzle
Buse tubulaire
Boquilla
x





Modulares Formsprühwerkzeug
Modular spraying tool
Outil de poteyage modulaire
Herramienta modular de pulverización

5. Zubehör allgemein

Accessory

Divers

x

x

Dosierblende

Dosing insert

Diaphragme de dosage

Diafragma dosificadora

Vite di dosaggio

135.939 Dosierblende 0 (Ø0.4mm)



135.913 Dosierblende 1 (Ø0.6mm)



135.954 Dosierblende 2 (Ø0.8mm)



135.970 Dosierblende 3 (Ø1.0mm)



135.996 Dosierblende 4 (Ø1.2mm)



138.073 Dosierblende 5 (Ø1.6mm)



136.150 Dosierblende 6 (Ø2.0mm)



Sprühkreise

Aussenmisch-System

Innenmisch-System

stufenlose Dosierung

Dosierung mit Dosierblende

Dosierung mit Dosierblende

stufenlose Dosierung

Sprühkopf SP3
Standard mit
Kugelhahn 11
117.697

Sprühkopf SP3
Standard mit
Kugelhahn 11
117.697

Sprühkopf SP1L
23.100 mit
Kugelhahn 11 und
Dosierblende Ø 6
117.698

Sprühkopf SP1L
23.100 mit
Kugelhahn 11
117.698

Sprühkopf SP3
23.100 mit
Kugelhahn 1 und
Dosierblende Ø 6
117.697

Sprühkopf SP3
23.100 mit
Kugelhahn 11
117.697

Sprühkopf SP3
Standard mit
Kugelhahn 1
117.711

Sprühkopf SP3
Standard mit
Kugelhahn 1
117.711

Heizplatte für Sprühkopf
Ø 1.804

Heizplatte für Sprühkopf
Ø 1.804

Kugelhahn 11
117.711

Kugelhahn 12
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PowerSpray PS16/PS16-8

Modulares Formsprühwerkzeug

Modular spraying tool

Outil de poteyage modulaire

Herramienta modular de pulverización

WOLLIN
AUTOMATISIERUNGSTECHNIK



Kugeldüse

Ball nozzle

Buse sphérique

Boquilla

x

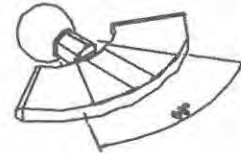
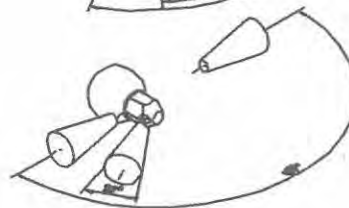
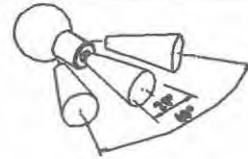
129.643 Kugeldüse 1

144.113 Kugeldüse 2

144.121 Kugeldüse 3

144.139 Kugeldüse 4 - Breitstrahl

143.768 Kugeldüse 5 - Flachstrahl



Sprüh- u. Blasrohr

Spraying tube

Tube de poteyage et de soufflage

Tubo de prolongación pulverizador

x

137.273 Sprüh- u. Blasrohr 100mm

129.650 Sprüh- u. Blasrohr 150mm

138.701 Sprüh- u. Blasrohr 200mm

138.719 Sprüh- u. Blasrohr 250mm

138.727 Sprüh- u. Blasrohr 300mm

Rohrsprühdüse

Spraying nozzle

Buse tubulaire

Boquilla

x

144.097 Rohrsprühdüse 1

137.703 Rohrsprühdüse 2

137.695 Rohrsprühdüse 3

