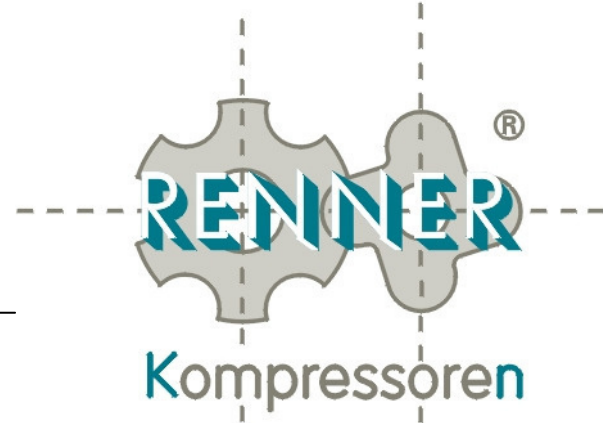


Operating Manual

SCROLL^{line}

SLM-S, SLKM-S



Please read this operation manual carefully before start of operations and follow the instructions.

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Chapter 0

General Information

Contents

In this chapter you will find general information on

- the use of this operating and maintenance manual
 - the machine and
 - personnel requirements.
-

Overview

This chapter is subdivided into the following sections:

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0.1 General points

Contents

Here you can find some general information on the operating manual.

Applicability

This operating manual applies to the following machine:

Characteristic	Description
Model	Multiple scroll compressor
Year of manufacture	
Serial no.	
Plant no.	
Location	

Manufacturer

RENNER Compressors
Emil-Weber-Strasse 32
D-74363 Göglingen

Version date

May 2012

Safekeeping and completeness

- This operating manual is a component of the machine and must be available for consultation by authorised persons at any time.
 - Under no circumstances may any chapters be removed from this manual. In the event of loss, the missing operating manual or missing pages - in particular the chapter "Safety Instructions" - must be replaced immediately.
-

Continued overleaf

0.1 General (continued)

Copyright

This documentation contains information protected by copyright law. It may not be photocopied, duplicated, translated or stored on data carriers, in full or extracts thereof, without the prior written consent of
RENNER Kompressoren GmbH.

We reserve all other rights.

Modifications to the compressor

Any modifications and changes are only permitted after consultation with the manufacturer for safety reasons.

Once a machine has been modified it may be necessary to change the conformity or manufacturer declaration. This may also invalidate the operating permit of the machine.

In these cases, the process for conformity evaluation pursuant to 2006/42/EC for all components may need to be carried out again.

Supplier Documents

(for optional accessories)

The documents supplied form part of this Operating Manual and must be stored and observed together with the Operating Manual:

Documentation for	Manufacturer
Operating manual Compressed air drier RKT 0035 – RKT 0105	RENNER GmbH D-74363 Güglingen

0.2 Layout and use of the operating manual

Contents

Here you can find information on the layout and use of the operating manual.

Chapter

This operating manual contains the following chapters:

Chapter	Contents
0	● General Information – about the operating manual – the use, and – personnel requirements.
1	● Explanation of the symbols used ● Basic safety instructions
2	● Description and functioning of the machine
3	● Operation of the machine
4	● Maintenance instructions
A(xy)	● Appendix / Appendices

Page numbering

The pages are numbered consecutively per chapter.

Example: 3-2

means: Chapter 3, *Page 2*

Example: AS-1

means: Appendix - Control, *Page 1*

Continued overleaf

0.2 Layout and use of the Operating Manual (continued)

Abbreviations

The following abbreviations are used in the operating manual :
verwendet:

Abbreviation	Meaning
Fig.	Figure
O.K.	Okay
Chap.	Chapter
n.O.K.	not okay
Tab.	Table
Exp.	Explanation
s.a.	stated above
No.	Number
Item	Item
u. C.	under certain circumstances

0.3 Proper and improper use

Contents

The proper use of the compressor is described here.

Definitions

Authorised person

A person is an authorised person if you have assigned certain work on or with the compressor to that person and given instructions. The key to the safety guards may be made accessible to authorised persons only.

Proper use

The compressor shall be deemed to be used properly once the following points have been observed:

- The compressor may only be used to compress technically pure air without harmful or explosive admixtures or impurities at ambient temperatures below 40° C.
 - Only authorised persons may work at the machine.
 - The machine may only be operated with the installed safety devices.
 - The safety instructions as well as the instructions for use of this manual must be observed.
 - The operating instructions of the operator must be observed.
 - The statutory accident prevention regulations must be observed.
-

Improper use

Improper use is deemed to include the following:

- Operation by persons not authorised to do so.
 - Operation while disregarding the safety regulations.
 - Operation without additional preparation / cleaning of the compressed air in areas where there are foodstuffs or breathing air.
 - Use that is not proper (see above) □□ and
 - operation with deactivated, modified or defective safety devices.
-

0.4 Operator's duty of care

Contents

This section outlines the tasks and duties of the operator when handling the machine.

Safety of the plant

The operator must ensure that

- the machine is only used for proper use,
 - the machine is operated only in a fault-free, properly functioning condition,
 - integrated safety devices are maintained regularly and checked to ensure that they are functioning properly and
 - only qualified and authorised personnel operate, maintain and repair the machine.
-

Protection for personnel

The operator must in particular ensure that the required personal protective equipment for

- operating personnel,
- maintenance personnel and
- repair personnel

is available and used.

Education and training

The operator must ensure that

- the personnel is educated in all the pertinent issues relating to occupational safety and environmental protection before taking up work for the first time and also at least once per year thereafter,
 - the operating manual is always in a legible condition and available in full at the installation location of the machine.
 - the personnel is familiar with the operating manual and in particular the safety instructions contained therein and
 - the safety and warning instructions affixed to the machine are not removed and remain legible.
-

0.5 Personnel requirements

Contents

The requirements of operating and maintenance personnel are set out below:

Tasks of the operating personnel

The operating personnel must fulfil the following tasks:

- Check the compressor for fault-free and safe functioning.
 - Operate the compressor at the permitted operating locations (see Chap. 2.1).
 - Identify and - to the extent possible and permitted - rectify or report any faults or irregularities.
-

Requirements of the operating personnel

In order to be able to fulfil the tasks, the operating personnel must meet the following requirements:

- The operator must have received an orientation to the machine in accordance with the German Labour Protection Act.
 - The operator must have sufficiently understood the orientation and follow the work instructions of the operator.
-

Tasks of the maintenance personnel

The maintenance and repair personnel must fulfil the following tasks:

- Undertake cyclical inspections and maintenance work on the compressor.
 - Carry out repair work
 - Conduct test runs on and with the machine, and
 - check the integrated safety devices
-

Requirements of the maintenance personnel

Only specialists or persons properly instructed may conduct any maintenance work.

- For conducting the "large SCROLL maintenance" the specialist must attend a special technical course at RENNER.
 - The personnel must follow the maintenance documentation.
-

Chapter 1

Safety Instructions

Contents

This chapter covers the following:

- Explanation of the symbols used
- basic instructions for the safe handling of the compressor as well as
- instructions for conduct in the event of accidents.



Important Note!

The following safety instructions are to be regarded as a supplement to the already applicable national accident prevention regulations and laws.

Any existing accident prevention regulations and laws must in all cases be adhered to.

Overview

This chapter is subdivided into the following sections:

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1.3	Conduct in case of accidents	1-6

1.1 Symbols

Contents

This section explains the symbols used.



Danger!

This symbol indicates that the life and health of persons is in danger.

For any danger to life, the words
Danger to Life will be used.



Danger!

This symbol indicates that the life and health of persons is in danger due to electrical voltage.



Warning!

This symbol indicates that there is danger to the machine, material or environment.



Note!

This symbol denotes important instructions and information which contribute to your safety as well as a better understanding of the machine processes.



Disposal!

This symbol indicates instructions for the disposal of machine components or operating materials.

1.2 Basic safety instructions

Contents

This section details the basic safety instructions for safe handling of the machine



Danger!

You must follow the safety instructions below in order to avoid the following dangers:

Possible Threat	Preventive Measures
Residual hazards The SCROLL compressor is constructed in accordance with state of the art technology and recognised safety regulations and is furnished with safety devices. Despite this, residual hazards cannot be excluded. The dangers are explained in this chapter. Persons can be put into danger due to lacking qualifications and/or operating errors made by the operating personnel. Explanation: Operating errors can cause damage to persons or property.	You may operate the machine only if you ● have the necessary qualification - and ● have received a full orientation to the machine from the operator - and ● have fully read and understood this operating manual. ● Before all maintenance / cleaning work, press the switch off button , switch off the machine and protect the machine from being switched on again by a third party.



Protective gloves and glasses must be worn for some maintenance work - please follow the respective instructions!

1.2 Basic safety instructions (cont.)



Danger!

You must without fail follow the safety instructions below in order to avoid the hazards associated with electric voltage:

Possible Threat	Preventive Measures
Danger to Life! Danger to persons due to electric shock Explanation: The machine operates at a voltage of 400 V at correspondingly high current. As currents from 44 mA can be fatal, it is necessary to take relevant safety precautions.	● Do not touch any live parts. ● Report any damaged lines immediately to the maintenance personnel. ● Keep all the access doors to the electrical devices closed. ● Maintenance work may only be carried out by trained personnel. ● Wear isolating safety shoes for maintenance work. ● Secure the main switch during maintenance work against switching on of the machine again by third parties.



There may be no open flames and no sparks at the installation site.

1.2 Basic safety instructions (cont.)



Warning!

Follow the instructions below in order to prevent threats to personnel and/or damage to the machine.

Possible Damage	Preventive Measures
Injury to personnel and damage to the compressor by removing or circumventing safety devices	- Do not remove safety devices and do not make them ineffective! - Remedy any identified defects of the devices immediately. - Repairs to the electrical equipment may only be carried out by a qualified electrician!
Damages to the compressor because of overload	Never exceed the permitted technical thresholds
Burns due to hot compressor components	Do not touch any compressor components directly after opening the casing walls
Burns to the eyes and/or skin due to possible hot, oily condensate water spurts	Wear safety glasses when removing the compressed air system. Allow the compressor to cool sufficiently or carry out these activities with the utmost caution.
Danger from compressed air Danger to Life! Compressed air can severely injure or kill people and house pets.	Never direct compressed air at living beings!

1.3 Conduct in case of accidents

Contents

This section explains which measures need to be taken in the event of accidents or disasters (e.g. fire, explosions).

Preparation for professional first aid

Carry out the following measures at regular intervals to ensure that you are prepared in the event of an accident:

- Attend a first aid course on a regular basis to refresh your knowledge.
 - Regularly inform yourself of which first aid options and rescue institutions are available in your industry.
 - Keep a list of the necessary telephone numbers and contact persons at your workplace.
-

Conduct in case of accidents

Proceed as follows (in this order) in the event of an accident:

Step	If	Then
1	People are injured	always administer first aid in the first instance.
2	there is injury to life or damage to property	state the degree of severity of the injury of persons or damage to property for the targeted use of emergency vehicles.
3	A disaster (fire) has occurred	● immediately leave the machine ● use only the designated escape facilities and routes. ● Do not use the elevators!
4	People are injured or buildings or equipment are damaged	immediately inform your superior or a contact person from the list of first aides (this list is easily visible in the work area).

Chapter 2

Machine Description

Contents

This chapter covers the following:

- Definition of the safe access points for operating the compressor
 - Overview of the compressor and its control instrumentation
 - Technical data.
-

Overview

This chapter is subdivided as follows:

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2.4	Overview of compressor unit	2-6
2.5	Overview of control panel	2-9
2.6	Overview of refrigerant drier (optional)	2-10

2.0 Operating conditions

The SCROLL compressor must be set up in a cool, frost-free, well ventilated room on an even foundation.

The permitted ambient temperatures range from 0° to 40 °C

The optimum operating temperature for a multiple SCROLL system, models SLM-S and SLKM-S 7,5 to 22,0 is up to 220 °C.

2.1 Authorised access points

Contents

This section defines the safe access points for operating the compressor and for carrying out minor inspection and maintenance work.

Important Note!

Other access points are not intended for operating the compressor and are therefore not permitted as operator stations! Safe operation can only be guaranteed from the operator terminals specified. Work on the switch box and electrical installations may only be carried out by qualified electricians.

Figure
Access points



Continued overleaf

2.1 Authorised access points (contd.)

Description of the access points

Only the following access points are provided for the operation of the machine:

No.	Operation ...	Actions permitted
1	... of the control panel	● Check working pressure ● Check operating temperature ● Read operating hours ● Switch compressor on ● Emergency stop or shut-down of compressor
2	... of the safety devices	● Carry out inspection and minor maintenance work

2.2 Overview of safety devices

Contents

This section provides an overview of the major compressor elements and their functions.

Figure:
Safety devices



Description of the safety devices

The following safety devices are fitted to the outside of the compressor:

Item	Description	Function
1	Emergency off button	Stops compressor immediately in emergency
2	E-box door	Guard door on switch box. To be opened by qualified electricians only Access to the pressure switch, the electrical components and the refrigerant drier. CAUTION: Danger to life! Electrical voltage!
3	Control panel	RENNERtronic Plus
4	Doors (front and rear)	Access to the air filter, motor, drive belt, relief valve.

2.3 Overview of and instructions for pull-out drawers

Contents

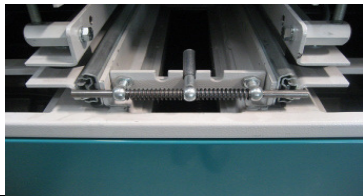
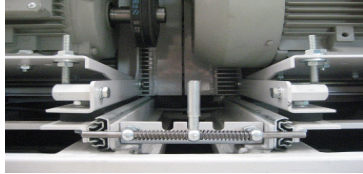
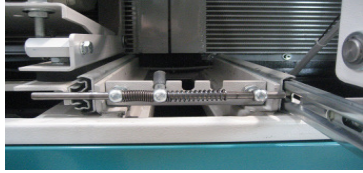
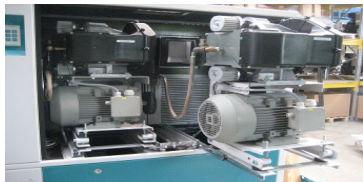
This section provides an overview of the pull-out options of the individual components for various maintenance work.

Figure:
Pulling out of a unit



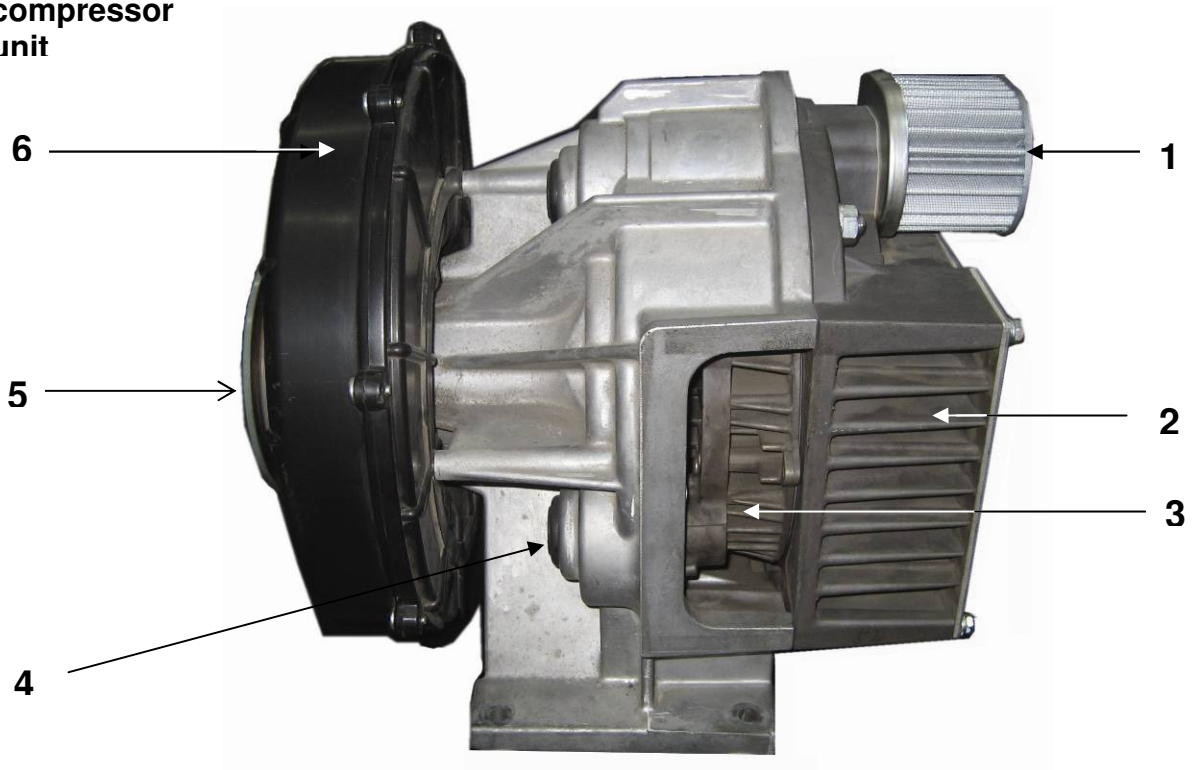
Description of the pulling out of a unit

Proceed as follows to pull the unit out of the casing for carrying out maintenance work:

No components can be pulled out when the casing is closed and locked.	
Lift the lever of the lock up to release the lock.	
Move the lever in the relevant direction and place it in the notch provided.	
The opposite unit can now be moved out of the casing.	

2.4 Overview of compressor unit

Figure
compressor
unit



Description of the
compressor unit

Item	Description	Function
1	Suction air filters (for compressor unit SRL 5,5 - two)	Is used to filter suction air
2	Cooling air outlet	Cooling the SCROLL spiral
3	Rotating SCROLL worm	Generates air pressure
4	Supports for "maintenance base frame"	Maintenance
5	Drive belt pulley	Power transfer
6	Cooling air ventilator (positioned inside)	Sucks in cooling air

2.4 Overview of compressor unit (contd.)

Description of the components of the compressor unit



Compressor unit (Fig. compressor unit)

RENNER SCROLL compressors are oil-free sealing, stationary, electrically driven compressors.

The SCROLL principle consists of two scrolls, in which the moving scroll continuously seals the sucked-in air through a rotational movement against the fixed scroll. This creates a constant oil-free compressed air flow up to 10 bar excess pressure. The SCROLL compressors withdraw the control air needed for operation directly from the installed cooler.

Suction Air Filter (item 1)

The suction air filter filters rough dirt particles from the ambient air that is needed for the compressed air processing. For the service life of a SCROLL compressor best suction quality is of utmost significance.

Cooling air outlet (item 2)

From the cooling air outlet on the compressor unit, the sucked-in cooling air will travel through the after-cooler and this way cools the compressed air.

Please note: always keep the cooling fins clean.

Rotating SCROLL-worms (Item 3)

These are moving scrolls that ensure a continuous build-up of compressed air.

Openings for the maintenance base frame (item 4)

One of the three openings (with cover) for the maintenance base frame (special tool) that is needed to replace the SCROLL seals (maintenance at 5000 operating hours 10 bar and 10000 operating hours for 8 bar systems) is needed.

Drive belt pulley (item 5)

Power transfer from the electric motor to the compressor in the respective design using one or two drive belt(s).

2.4 Overview of compressor unit (contd.)

Cooling air ventilator (item 6)

The cooling air ventilator is used to suck in the required quantity of air needed for cooling the compressor and compressed air, and is delivered through the compressor and cooler.

Electric motor

The electric motor (from 3.7 to 5.5 kW) drives the compressor using the corresponding speed increase and one or two drive belt(s).

Discharge pressure switch (electric)

The discharge pressure switch is connected to the compressed air outlet of the system. It controls switching the compressor on and off, depending on the set end pressure. The values for $p_{\max}$ and $p_{\min}$ are set at the discharge pressure switch:

$p_{\max}$: upper limit of operating pressure at which the unit cuts out in normal mode

$p_{\min}$: lower limit of operating pressure at which the unit cuts in again in normal mode.



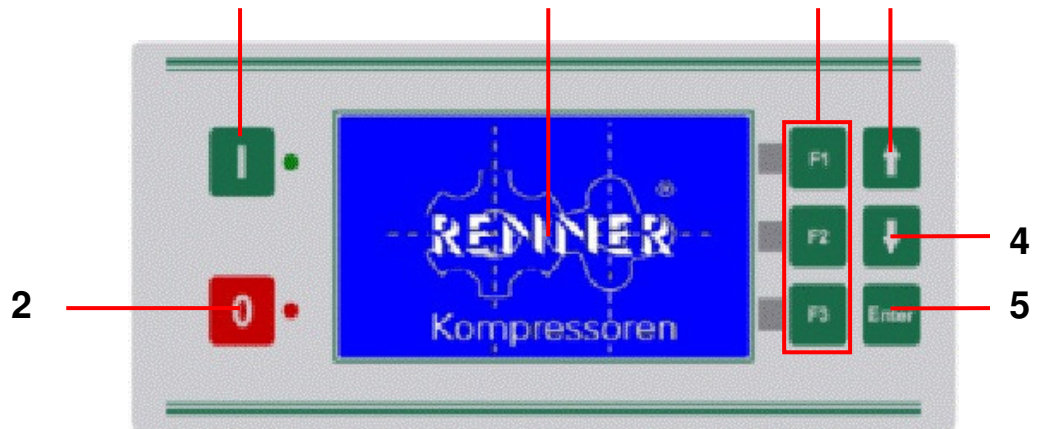
The discharge pressure switch is adjusted to the correct setting at the factory. The discharge pressure switch may only be adjusted by personnel authorised by the manufacturer!

Safety valve

The safety valve is installed after the cooler. It limits the maximum pressure occurring in the unit to 1-2 bar above the relevant operating pressure (end pressure). The safety valve blows off if the end pressure is exceeded due to a fault in the system.

2.5 Overview of control panel

Figure
Control panel



Description of the control panel

The following controls are found on the control panel:

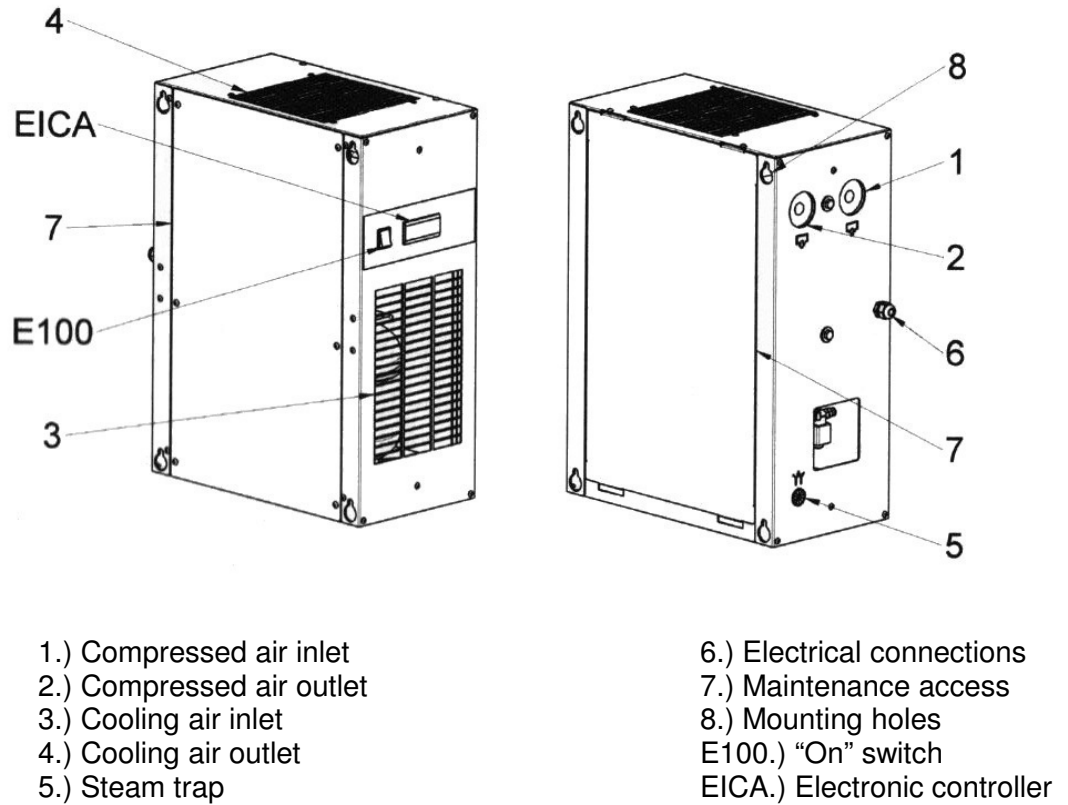
Item	Description	Function
1	Start button	Switches the compressor on
2	Stop button	Switches the compressor off
3	Arrow key UP	Jumps to the previous point / increases values
4	Arrow key DOWN	Jumps to the next point / reduces values
5	Enter	Confirms a menu point / saves
6	F1 – F3	Function keys
7	Display	Displays the parameters (temperature, operating overpressure, etc) as well as warning and fault messages

2.6 Overview of refrigerant drier (optional - model SLKM-S)

Contents

This chapter provides a brief overview of the optionally installed refrigerant drier.

Figure
Refrigerant drier



Description of the refrigerant drier

The refrigerant drier contains a cooling system for cooling the compressed air. The compressed air is also de-humidified. The condensate created here is discharged through a condensate separator.



Danger!

Please follow the refrigerant drier safety instructions found in the separate operating manual. It is particularly dangerous to inhale the cooling steam or get in contact with the cooling agents. Smoking when working on the refrigerant drier is prohibited, as the cooling agent will develop poisonous vapours when coming into contact with the glowing end of a cigarette or other open flame (e.g. welding work).



Note!

Please see the explanations in Chapter 4 and Appendix KT and also the supplied manufacturer's operating manual.

Chapter 3

Installation and Commissioning

Contents

This chapter contains the most important information on transporting, installing and storing the compressor.

General Information

The installation plan and the technical data of this specific compressor model can be ordered from RENNER GmbH.
The compressor is delivered on a wooden pallet, packaged in a carton and labelled.



Danger of tipping!

The machine can tip over at an inclination of more than 10°! Use suitable transport means such as a forklift, lifting gear or loading harness. Support it from the side.

Unpacking the machine has no special requirements and the (interim) storage in the transport packaging is also not problematic. Protect the compressor against tilting over by storing it on level, firm ground.



Dispose of the packaging material (carton / marked sheets) separately.

This chapter is subdivided into the following sections:

Overview

No.	Subject	Page
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3.2	Connections	3-3
3.3	Compressor start-up	3-5

3.1 Compressor installation

Contents

This section contains important instructions which you need to observe in order to safely install the compressor and to prevent damage or malfunction.



Compressor installation

Warning

Follow the safety instructions!

Always remain outside the danger zone of a raised load!

Key word	Ensure that
Installation site	• Surface: Flat, level, firm • Building ceilings: Check load bearing capacity • Air: Cool, clean, frost-free with as little humidity as possible. Temp: +0°C (32°F) - +40°C (104°F)* • Sufficient ventilation in the room • Air intake must be sufficiently unobstructed • Arrange the air intake opening in such a way that no loose items can be sucked in • The installation site is illuminated (to read off the instruments, carry out maintenance work...)
Lifting work	• Secure any loose, swinging or pivoting parts before lifting the compressor • Use suitable lifting gear (weight acc. to data sheet) • Always remain outside the danger zone of a raised load
Conduits, pressure pipes	• Remove all protective stoppers - covers and possible bags with drying agents before mounting conduits • Please note that the connection from the aftercooler to the compressed air system can expand as a result of heat and must be connected by means of a flexible hose.
Exhaust air	• Exhaust ducts must have a diameter at least equal to that of the cooler surface and should be 3m in max. length with one bow of 90°; for longer ducts, use an additional fan with a capacity 20% greater than the compressor ventilator • When installing several compressors please ensure that no compressor sucks in the heated exhaust air from another compressor

* Please ask your retailer in the event of higher temperatures.

3.2 Connections

Contents

This section covers important instructions which you need to observe in order to safely connect the compressor to the compressed air system as well as the electrical supply.



Warning!

Before connecting the machine to the compressed air system, all conduits and hose connections inside the compressor must be checked and, if necessary, retraced.

For compressor units with pressure vessels, an acceptance test of the air reservoir must be carried out by the pressure vessel specialist before commissioning.
Start an inspection log!

A compressed air connection

The system has all the required conduits and is ready for operation.

The following must be observed when connecting to the compressed air system:

Compressed air connection

Key word	Ensure that
Pressure	- Suitable screws and conduits are used for the operating pressure - The end pressure of the system is not higher than stated on the rating plate. - A non-return valve between the machine and the compressed air system is not required as it has already been integrated in the machine.
Connection	Connect the machine without voltage and isolated against vibrations to the compressed air system e.g. by using a flexible hose
Shut-off valve	The additional installation of a shut-off valve is recommended to facilitate maintenance tasks at the compressor without de-pressurising the compressed air system.
Condensate	An automatic steam trap can be integrated behind the after cooler for improved condensate separation from the compressed air

3.2 Connections (contd.)

B Electrical connection

Only the connection to the electricity supply is now required for the machine which is now ready to use with all conduits installed.

The machine must only be connected by an electrician!

The following must be observed when connecting to the mains supply:

Electrical connection

Key word	Ensure that
Voltage	The machine is only connected to the voltage stated on the engine rating plate
Rotation	The rotational direction is observed under all circumstances! See corresponding direction of arrows.
Fuses	- Customer to install the fuse and separator with the EMERGENCY OFF function; these must be able to switch at least 1.1 times the motor output and must be clearly allocated to the machine - Make sure that the system has an adequately dimensioned power supply available (selection of the supplies and fuses, see also system data sheet).
Connection	- The power cable must be arranged mechanically without voltage so that there is no risk of tripping - Connect the cable with the individual wires according to the valid VDE guidelines to the connection box provided customer side.

3.3 Compressor start-up

Contents

This section covers important information which you need to observe in order to start up the compressor safely.

General points

Each component of the machine is tested at the factory in continuous operation after the final assembly. The test ensures that the components indicate the data given and operate fault-free. During the initial hours of operation the machine must be watched to determine any possible malfunctions.



Important!

The respective operating manuals must be read and observed for machines with additional optionally installed components (e.g. refrigerant driers).

Preparation

The following points must be observed and carried out before the first start-up:



Step	Task to be carried out / Points to be observed:
1	Have an electrician tighten all screw and terminal connections in the control cabinet
2	The motor bearings of compressors, without permanent greased motor bearings, that are unused longer than 6 month have to be regreased before putting into operation
3	A clearly visible sign must be affixed to machines with remote control with the following wording: Warning! This machine is remote controlled and may start without warning! During remote control of the system, safety precautions must be followed that prevent the system from starting when it is being checked or maintained. (Main switch of the system must be turned off!)

3.3 Compressor start-up (contd.)

Checking the rotational direction INFO

When first starting up the machine, as well as after each change to the electrical feed line, the rotation of the SCROLL compressor must be checked.

Rotation is anticlockwise seen from the shaft. The rotation of the V-belt pulleys must be in the direction of the attached arrow! If necessary, reconnect the connecting cable (qualified electrician).



Fig. Rotational direction arrow



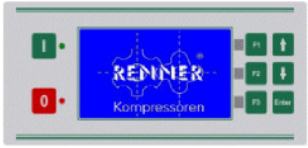
WARNING!

There is a danger from moving parts when checking the rotation with the cover open!

Checking the rotational direction Procedure

Proceed as follows when checking the rotation:

Step	Operation:	Figure / Expl.
1	Open and the maintenance doors. Place them on one side.	
2	Enter the RENNERtronic Plus menu with the service code and set the operating mode to "manual" under operating parameters	
3	Go back to the basic display and press the on-button so that "On" is displayed to the left at the bottom	
4	With the down arrow key select the first compressor	

5	Start the compressor by tapping the green start button once with the one hand; immediately let go of the button	
6	Within 2 seconds stop the compressor by pressing the red stop button with the other hand.	
7	Carry out the procedure in steps 4 - 6 for the other compressors	
8	Enter the RENNERtronic Plus menu with the service code and set the operating mode to "Auto" under operating parameters.	

Once you have determined the correct rotational direction, you are ready to operate the compressor. The phase must be replaced if the rotational direction is incorrect.

Chapter 4

Normal Mode Operation

Contents

This chapter covers the information required for normal operation of the compressor.

Overview

This chapter is subdivided into the following sections:

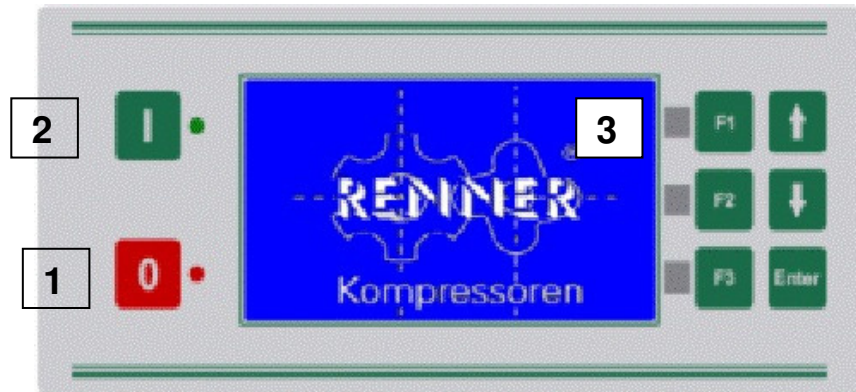
No.	Subject	Page
4.1	Getting to know the control instrumentation	4-2
4.2	Starting normal operation	4-3
4.3	Switching off the compressor	4-4
4.4	Remedying malfunctions in normal operation	4-5

4.1 Getting to know the control instrumentation

Contents

This section provides an overview of the control instrumentation.

Figure
Control components



Function Control components

The control components have the following function(s):

Item	Description	Function/Use
1	Pushbutton (red) <i>Stop</i>	Switches compressor off
2	Pushbutton (green) <i>Start</i>	Starts the compressor Note: The main switch must be switched on. The main switch is installed by the customer.
3	Temperature display - working pressure Operating hour meter	Displays the operating temperature. Switches off when the permitted maximum temperature is exceeded. Displays the current working pressure Counts the number of hours the compressor has actually run

4.2 Starting normal operation

Contents

The following section explains how to start the compressor and contains essential points for normal operation.



Danger!

There are moving parts inside the compressor housing which can cause serious injuries.
Never operate the compressor with the housing open!

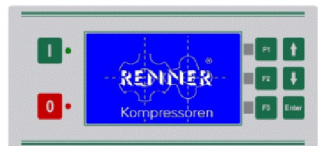
Before starting the compressor

Check the following points before starting the compressor:

- Was the rotational direction checked?
- Is the main switch on?
- Are any existing shut-off valves open?

Starting the compressor and monitoring normal mode

Press the *Start* button to start the compressor.

Step	Operation	Figure / Expl.
1	Press the <i>Start</i> button to start the compressor.	
2	Monitor the following points at regular intervals during operation:	
2a	Working pressure The working pressure displayed must not exceed the maximum permissible value specified on the type plate. If this is the case, switch off the compressor immediately.	
2b	Operating temperature For SLM-S and SLKM-S 7,5 kW – 22,0 kW, the operating temperature may not exceed 220 °C. The compressor is automatically shut off if there is an excess temperature.	

4.2 Starting normal operation (contd.)

Monitor normal operation (contd.)

Step	Operation	Figure / Expl.
2b (contd.)	Important! Should the compressor fail to cut out automatically it must be switched off immediately by hand!	
2c	Operating hour meter Various maintenance work must be carried out after a specified number of operating hours. The exact maintenance intervals and relevant servicing work are listed in the maintenance schedule. Appendix W 1	

4.3 Switching off the compressor

Contents

This section explains how to switch off the compressor in normal operation and/or at the end of operations.

Stopping normal operation

If you want to shut off the compressor:

	Press the <i>Stop</i> button	
--	------------------------------	---

Shutting off completely

If you want to shut off the compressor completely: (e.g. after completing the work), then in addition to the above steps, you must also turn off the main switch.

4.4 Remediating malfunctions in normal operation

Contents

This section contains advice on remediating malfunctions.



Danger!

Human error in remediating faults or lack of professional training can lead to serious damage to property or physical injury. It is therefore essential that faults are rectified by duly qualified persons.

Before remediating faults

Always take the following steps before starting any work:

- Switch the compressor and main switch off!
- Discharge all the compressed air from the compressor and air vessel!

Malfunctions

The following faults may occur during operation:

Fault	Possible Cause	Remedy
System does not start	• No power • Loose cables or fuses • Motor protection switch has cut out • Controller has cut out / is defective • The connecting lines to the controller are kinked	➤ Establish power supply ➤ Retighten cables or fuses ➤ Unlock motor protection switch (switch cabinet) ➤ Ensure correct cooling; install new controller if defective ➤ Ensure correct guiding of connection cables

Continued overleaf

4.4 Remedying malfunctions in normal operation (contd.)

Malfunctions (contd.)

Fault	Possible Cause	Remedy
System starts with difficulty	• Time for star-delta connection is too long or too short (only for systems with star-delta connection) • The non-return valve on after-cooler is defective (only for Y-Δ connection) • Voltage fluctuations in the grid	➤ Check and adjust time setting, correct setting is 3 seconds on relay K 1T ➤ Check solenoid valve and relief valve and change if necessary ➤ Change non-return valve
Compressor cuts out before reaching discharge pressure	• Motor overload tripping • Controller cuts out due to excessively high temperature	➤ Check and adjust overload setting; check and adjust discharge pressure switch setting; check supply lead for phase failure. ➤ Ensure correct cooling; install new controller if defective
Motor overload switch (therm. overcurrent relay) has stopped the system	• Seized air end • Phase failure • Motor overloaded • Ambient temperature too high	➤ Eliminate reason for seizure ➤ Check supply line ➤ Check and adjust overload setting; check and adjust discharge pressure switch setting ➤ Ensure adequate ventilation

Continued overleaf

4.4 Remedying malfunctions in normal operation (contd.)

Fault	Possible Cause	Remedy
Controller cuts out due to excessively high temperature	- Compressor incorrectly installed - Controller set incorrectly	➤ Refer to recommendations for installation ➤ Set controller
System does not cut out during intermittent operation	Upper trigger point of discharge pressure switch set too high	➤ Reset discharge pressure switch
Low discharge capacity	- SCROLL seals are worn - Intake filter clogged - Leaks in the system	➤ Conduct maintenance according to maintenance plan ➤ Clean the air filter
System runs noisily	- V-belts not correctly tensioned - V-belt sets not compatible - V-belt pulleys not aligned with each other - Screw connections on compressor and/or motor are loose.	➤ Check V-belt tension and tighten if necessary ➤ Replace with matching set of belts ➤ Check alignment of pulleys and adjust if necessary ➤ Tighten screw connections.
After turning off the system runs in reverse	Non-return valve on compressor outlet is defective.	➤ Replace non-return valve.

Chapter 5

Maintenance Instructions

Contents

This chapter contains information on the maintenance work required.

Overview

This chapter is subdivided as follows:

No.	Subject	Page
5.1	Essential points....	5-2
5.2	Rectifying faults	5-5
5.3	Cleaning work	5-6
5.3.1	Cleaning the air filter	5-6
5.3.2	Cleaning the cooler	5-7
5.3.3	Cleaning the ventilator	5-7
5.3.4	Cleaning the cooling air fins	5-9
5.4	Tensioning / changing the V-belts	5-10

5.1 Essential points

Contents

This section contains general information to be heeded during servicing and maintenance work.

Personnel requirements

Only specialists or persons properly instructed may conduct any maintenance and repair work. The "major service" (5,000 hours at 10 bar SCROLL and 10,000 hours at 8 bar SCROLL systems) may only be completed by authorised* persons.
(* The corresponding qualifications can be obtained from RENNER in special technical courses)

An overview of the personnel requirements are found in Chapter 0.



Danger!

It is essential to adhere to the following safety instructions in order to avoid all risks of personal injury or death:

Potential Source of Danger	Preventive Measures
Crushing from moving parts	Always maintain a safe distance from all moving parts when carrying out test runs
Electrical shock.	- Switch off all voltage sources before starting work. - Take measures to prevent power sources from being switched on again by accident
Inappropriate spare parts	- Always replace self-locking nuts and screws - Only use spare parts included in the approved lists
Unauthorised/premature approval of unit for operation	Do not release the unit for operation until the safety devices are fully functional. The work is not finished until this is the case!

5.1 Essential points (continued)

Before starting the work

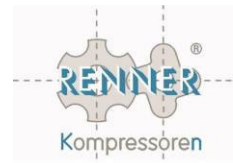
Please note the following before starting the work:

- SCROLL systems of type SL-S 5,5 are equipped with a non-return valve. However, it is still recommended to depressurize the system and block the system's access to the compressed air network before carrying out any maintenance work.
- For the "major service" (see Chapter 5.5), the SCROLL compressor must be entirely cooled before starting the maintenance work (at least 12 hours).

Once work has been completed

The following steps must be carried out after completing the work:

Step	Operation
1	Follow the maintenance schedule and complete the inspection sheets, activity logs, etc. (see Appendix W "Maintenance Check").
2	Check that the safety devices are working correctly. Do not release the machine for operation if the safety devices are not in perfect working order.
3	Reinstall and secure any safety devices that have been removed.
4	Remove any tools, foreign objects and materials left lying around.
5	Carry out a test run and check the function of the serviced components.
6	Store and secure the key from unauthorised access if leaving the machine unattended.



**Spare parts,
accessories**

Only original spare parts may be used for the replacement components such as air filter, drive belts, etc.

Repairs

Only allow authorised dealers to carry out repair work.
A list of other persons authorised by the manufacturer to carry out repairs can be obtained from the manufacturer on request.

Do not allow repairs to be carried out by any persons other than those authorised by the manufacturer!

Servicing is carried out as agreed with the authorised dealer.

General Notes

Take the standard safety precautions and proceed with great care when carrying out any servicing work.
Please follow especially the points below:

- Servicing work to be carried out by qualified personnel only.
 - Correct tools only to be used for servicing work.
 - Unit and power supply to be switched off before any servicing work is carried out. Take measures to ensure that the unit cannot be switched on accidentally!
 - Unit must be allowed to cool before carrying out servicing work to avoid risk of burns!
 - Unit to be disconnected from all sources of pressure and all pressure removed before dismantling pressurised parts.
 - Scrupulous standards of cleanliness to be maintained during servicing work; parts and exposed openings to be covered with a clean cloth, paper or masking tape.
 - Motor, air filter, electrical components, control equipment, etc. to be protected from ingress of moisture, e.g. when being wiped.
 - No tools, loose parts or rags to be left in or on the unit.
 - Operating pressures, temperatures, time settings, control equipment and cut-out devices to be checked for perfect working order before unit is released for operation after servicing work.
 - Doors on unit to be closed before switching on the unit (including for test run)!
 - Sound-absorbing materials to be left in place and retained.
-

5.2 Rectifying faults

Contents

This section covers general points on troubleshooting and contains references to relevant sources of information.



Danger!

- Always take measures to ensure that the machine can be shut off in an emergency by a second person.
 - You may only remove faults or carry out complete checks if you have the respective technical qualification.
 - Adhere to the general safety instructions contained in this operating manual for handling the machine.
 - Follow the instructions given in this chapter and all other maintenance instructions issued by the operator and pay due regard to the documentation relating to the components included in the unit (e.g. pressure vessel, refrigerant drier).
-

List of faults

The necessary action to be taken in the event of faults is outlined ...

... in Chapter 4.4. "Remedying malfunctions in normal operation" and
... in the operator's internal servicing documents.

5.3 Cleaning work

Contents

The following section contains information on cleaning the compressor and the air filter.

General points

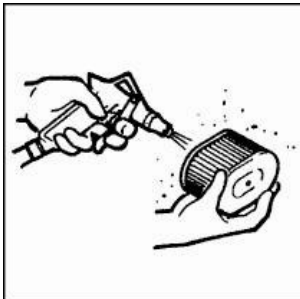
In terms of general cleaning, vacuum the unit or wipe it with a damp cloth. Check the intake passage regularly, where necessary removing any leaves, dust, dirt or similar matter in the interests of an efficient air supply.



Never direct compressed air at living beings!
Misuse of the compressed air unit can cause serious tissue damage or even fatal injuries.

5.3.1 Cleaning the air filter

Cleaning the air filter



Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart.
2	Remove doors and set aside.
3	Loosen winged nut of air filter.
4	Remove air filter and carefully blow out.
5	Reinstall filter in reverse order and tighten winged nut.
6	Carry out test run and functional check.
	Every 2500 operating hours or once a year completely replace the air filter.

5.3.2 Cleaning the cooler

Contents

This section outlines the procedure for cleaning the cooler.

General points

If the cooler is not very dirty it can be left in the unit and blown with compressed air while the unit is switched off.
If the cooler is very dirty proceed as outlined below.

Cleaning the cooler

Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart. Allow the system to sufficiently cool.
2	Remove cooler.
3	Steam clean the cooler.
4	Install cooler.
5	Complete a test run and function test and check system for leaks.

5.3.3 Cleaning the cooling air ventilator (in scroll compressor)

Contents

This section outlines the procedure for cleaning the cooler ventilator in the scroll compressor.

Cleaning the ventilator

Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart. Allow the system to sufficiently cool.
2	Remove doors and set aside.
3	Remove drive belt (see also 5.3.5)
4	Loosen screws of ventilator cover and remove cover (Fig. ventilator cover)
5	Check ventilator and clean, if necessary.
6	Reassemble in reverse order
7	Carry out test run and functional check.

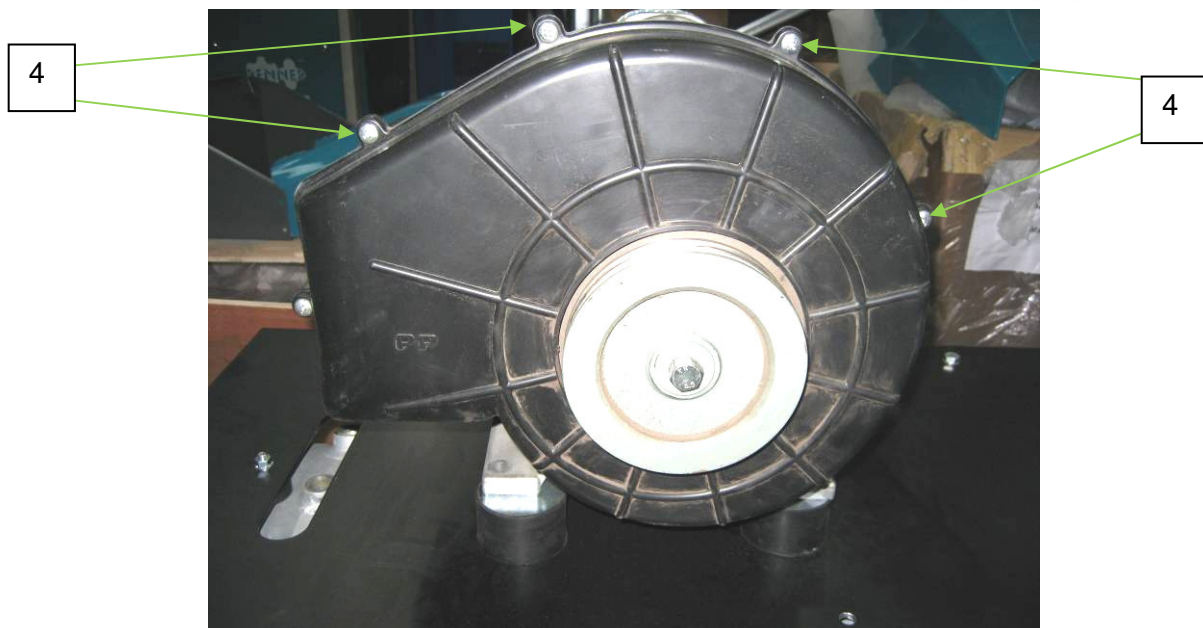


Fig. Screws - ventilator cover



Fig. Ventilator / fan wheel

5.3.4 Cleaning the SCROLL cooling fins

Contents

This chapter provides information about cleaning the cooling fins in the SCROLL compressor

General points

The cooling fins of the SCROLL compressor are an integral part of cooling the compressor and must be checked and cleaned regularly. (see maintenance plan)

Cleaning the cooler fins

Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart. Allow the system to sufficiently cool.
2	Remove the copper pipe connection between the compressor and cooler
3	Loosen the screws of the cooler fin cover and then remove the cover (fig. 3).
4	Loosen the lateral cover of the cooling fins (fig. 4) from the compressor block.
5	Thereafter, carefully blow out the cooling fins (fig. 5) or clean with a cloth.
6	Complete assembly in reverse order.
7	Carry out test run and functional check.

Step 3

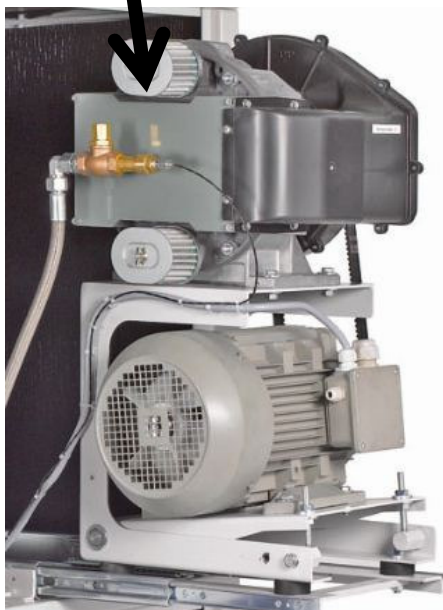


Fig. 3

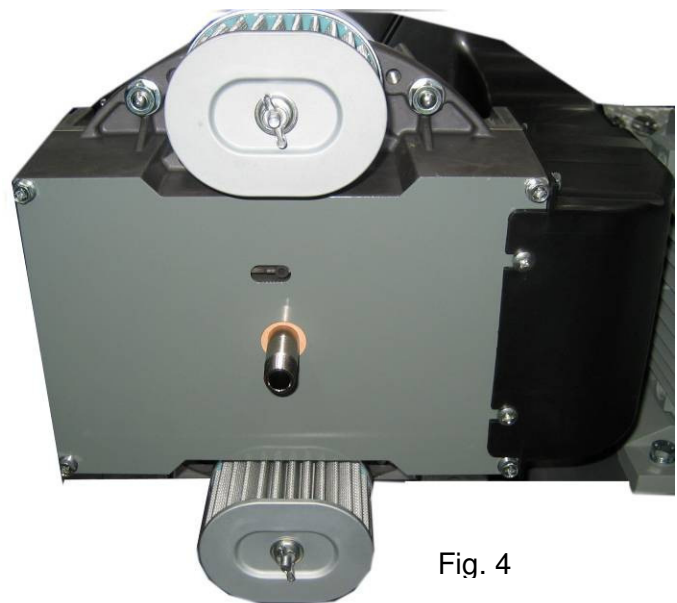


Fig. 4

5.3.4 Cleaning the SCROLL cooling fins (contd.)

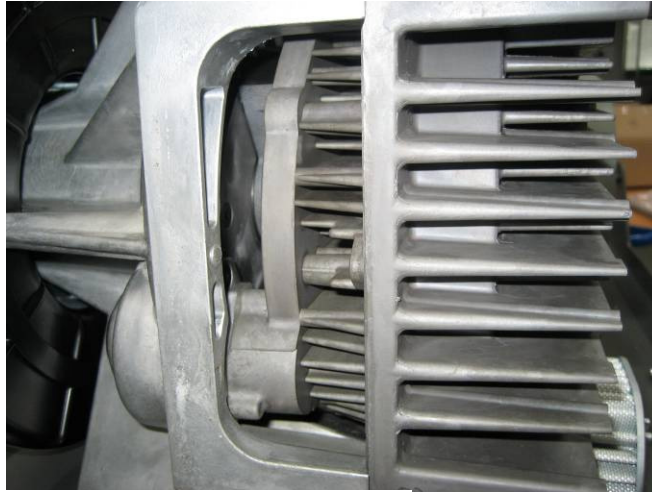


Fig. 5 Cooling fins

5.4 Tensioning / changing the V-belts

Contents

This section outlines the procedure for tensioning and/or changing the V-belt.

General points

The optimum tension of the V-belt has a significant influence on the operating characteristic and the noise level of the system. Additionally, the service life of the V-belt depends on the correct alignment. For SCROLL compressors with 2 belts care must be taken to ensure that they are always replaced as a set.

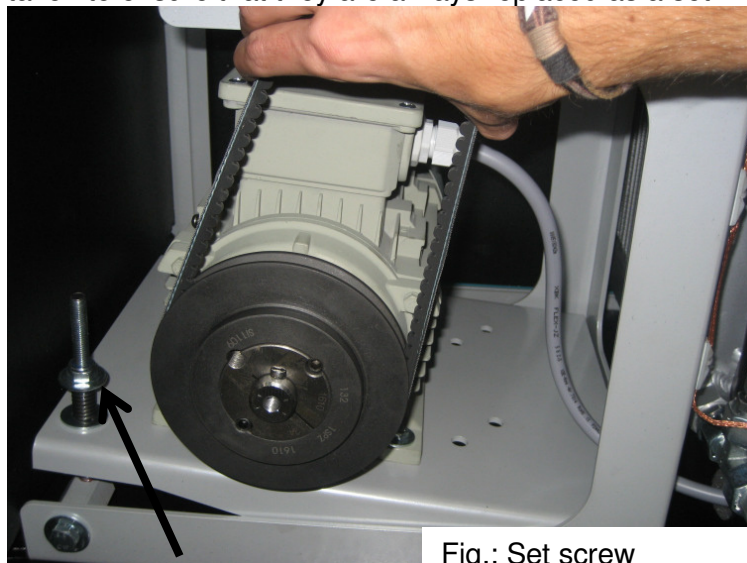


Fig.: Set screw

5.4 Tensioning / changing the V-belts (contd.)

Tighten belts

Step	Operation
1	Disconnect system from power and compressed air system. Secure from unintentional restart. Allow the system to sufficiently cool.
2	Using the adjustment screw, bring belts to the correct tension *
3	Carry out test run and functional check.

Replace belts

Step	Operation
1	Loosen adjustment screw, remove old belts, attach new belts, replace lock nuts.
2	Tighten belt, see above.

* The belt tension is correct if the belt(s) is/are pressed-in about 5-7 mm in the centre between the two pulleys with a weight of 2.5 kg.

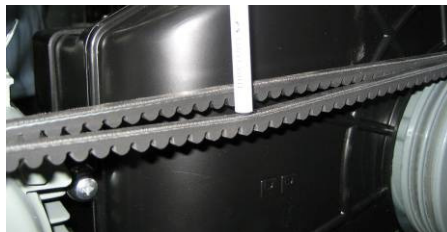


Fig. Check V-belt tension

Chapter 6

Decommissioning and disposal

Contents

This chapter provides important information on (temporarily) decommissioning or disposing of the compressor.

Overview

This chapter is subdivided as follows:

No.	Subject	Page
6.1	Decommissioning the plant	6-2
6.2	Re-commissioning after storage	6-3
6.3	Shut-down and disposal	6-4

6.1 Decommissioning the system

Contents

Here you will find information which you will need to observe if you need to decommission the compressor for a longer period of time and the points you need to observe when re-commissioning the compressor after this period.

For longer periods of decommissioning the system prepare as follows:

Decommissioning the plant

Step	Operation
1	Disconnect the system from the power supply to prevent accidental switching on of the machine by third parties (e.g. lock the power cable in the machine).
2	Relax the tension on the V-belt (see Chap.5 S-10 "Tighten/replace V-belt").
3	Do <u>not</u> cover the unit in such a way so that there is no ventilation - this will expedite corrosion of various parts.

6.2 Re-commissioning after storage

Re-commissioning INFO

Compressor units, which have been switched off, decommissioned or stored for longer than 3 months, must only be re-commissioned once the following measures have been taken.

Re-commissioning after storage

Proceed as follows to re-commission the compressor after a longer period of decommissioning:

Step	Operation
1	Manually rotate the SCROLL compressor several times in the rotational direction.
2	Relax the tension on the V-belt (see Chap.5 S-10 "Tighten/replace V-belt").
3	Connect the unit: see Chap. 3 S-3 "Connections".
4	Commission system.

6.3 Shut-down and disposal

Contents

This section covers the measures you need to take when decommissioning and disposing.



Danger!

- Follow the safety instructions of this operating manual as well as the relevant instructions contained in the supplied documentation and the accident prevention regulations.

Danger to Life!

There is danger to life from swinging loads when lifting the compressor. Never remain in the danger zone and check on persons present.

Danger!

There is also a possible danger of injuries due to cuts from sharp corners and edges of the compressor in the following dismantling work. Always wear work gloves for this work.

Environment

- The following instructions must be followed exactly to prevent possible environmental pollution. Even if disposal is carried out by an authorised specialist company, the operator of the compressor must ensure proper execution!



Dismantling the compressor

Proceed as follows to dismantle the compressor and observe the following points:

Step	Operation
1	Find out how the individual components or the entire machine must be disposed of. Ask your environmental officer, if available.
2	Remove all system connections.

6.3 Shut-down and disposal (cont.)

Material INFO

The following materials were primarily used when manufacturing the compressor:

Material	Used for / in
Batteries, NiCad / Li	Control
Copper	Motor / electr. supply lines
Steel	- Machine frame - Side walls and doors - Motor and components
Plastic, rubber, PVC	- Seals and gaskets - Hoses - Cables
Tin	Boards
Polyester	Boards

Toxic waste INFO

The following parts and materials must be disposed of separately:

Description	Applies to
LCD displays Note: LCD displays contain highly toxic liquids	Display devices
Electronic scrap	- Electrical supply - Controls (PLCs, etc.) - Boards with electronic components

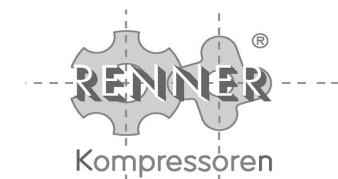


Environment:

Dispose of all parts of the compressor so that health and environmental damages are excluded.

Anhang T: Technische Daten

Betriebsanleitung RENNER Kompressoren



Typ	Free air delivery		Power	Controller	Sound level	Nominal current	Voltage	Operation temperature	Cooling air required	Air outlet	HRC fuse	Section of elect. Cable	Dimensions in mm	Weight
	m³/min		kW		db(A)	A	V	°C	m³/h	"	A	mm²	L x W x H	kg
	8 bar	10 bar						max.						
SLM-S 7,5	0,794	-	2 x 3,7	RT+	58	2 x 7,7	400	220	1560	½"	25	5 x 4	1400 x 920 x 1020	320
SLM-S 9,0	-	0,810	2 x 4,5	RT+	59	2 x 10,5	400	220	1560	½"	35	5 x 6	1400 x 920 x 1020	350
SLM-S 11,0	1,254	1,040	2 x 5,5	RT+	61 / 60*	2 x 10,5	400	220	1560	½"	35	5 x 6	1400 x 920 x 1020	350
SLM-S 13,5	-	1,215	3 x 4,5	RT+	63 / 62*	3 x 10,5	400	220	2340	1 ¼"	50	5 x 10	1400 x 920 x 1890	525
SLM-S 16,5	1,880	1,560	3 x 5,5	RT+	64 / 63*	3 x 10,5	400	220	2340	1 ¼"	50	5 x 10	1400 x 920 x 1890	525
SLM-S 22,0	2,510	2,080	4 x 5,5	RT+	66 / 65*	4 x 10,5	400	220	3120	1 ¼"	50	5 x 10	1400 x 920 x 1890	700
SLKM-S 7,5	0,794	-	2 x 3,7	RT+	58	2 x 7,7	400	220	1560	½"	25	5 x 4	1400 x 920 x 1020	351
SLKM-S 9,0	-	0,810	2 x 4,5	RT+	59	2 x 10,5	400	220	1560	½"	35	5 x 6	1400 x 920 x 1020	381
SLKM-S 11,0	1,254	1,040	2 x 5,5	RT+	61 / 60*	2 x 10,5	400	220	1560	½"	35	5 x 6	1400 x 920 x 1020	392
SLKM-S 13,5	-	1,215	3 x 4,5	RT+	63 / 62*	3 x 10,5	400	220	2340	1 ¼"	50	5 x 10	1400 x 920 x 1890	597
SLKM-S 16,5	1,880	1,560	3 x 5,5	RT+	64 / 63*	3 x 10,5	400	220	2340	1 ¼"	50	5 x 10	1400 x 920 x 1890	597
SLKM-S 22,0	2,510	2,080	4 x 5,5	RT+	66 / 65*	4 x 10,5	400	220	3120	1 ¼"	50	5 x 10	1400 x 920 x 1890	784

* at 8 bar / 10 bar

SLKM-S - Compressore with reffridgeration dryer

Appendix St

Wiring Diagrams



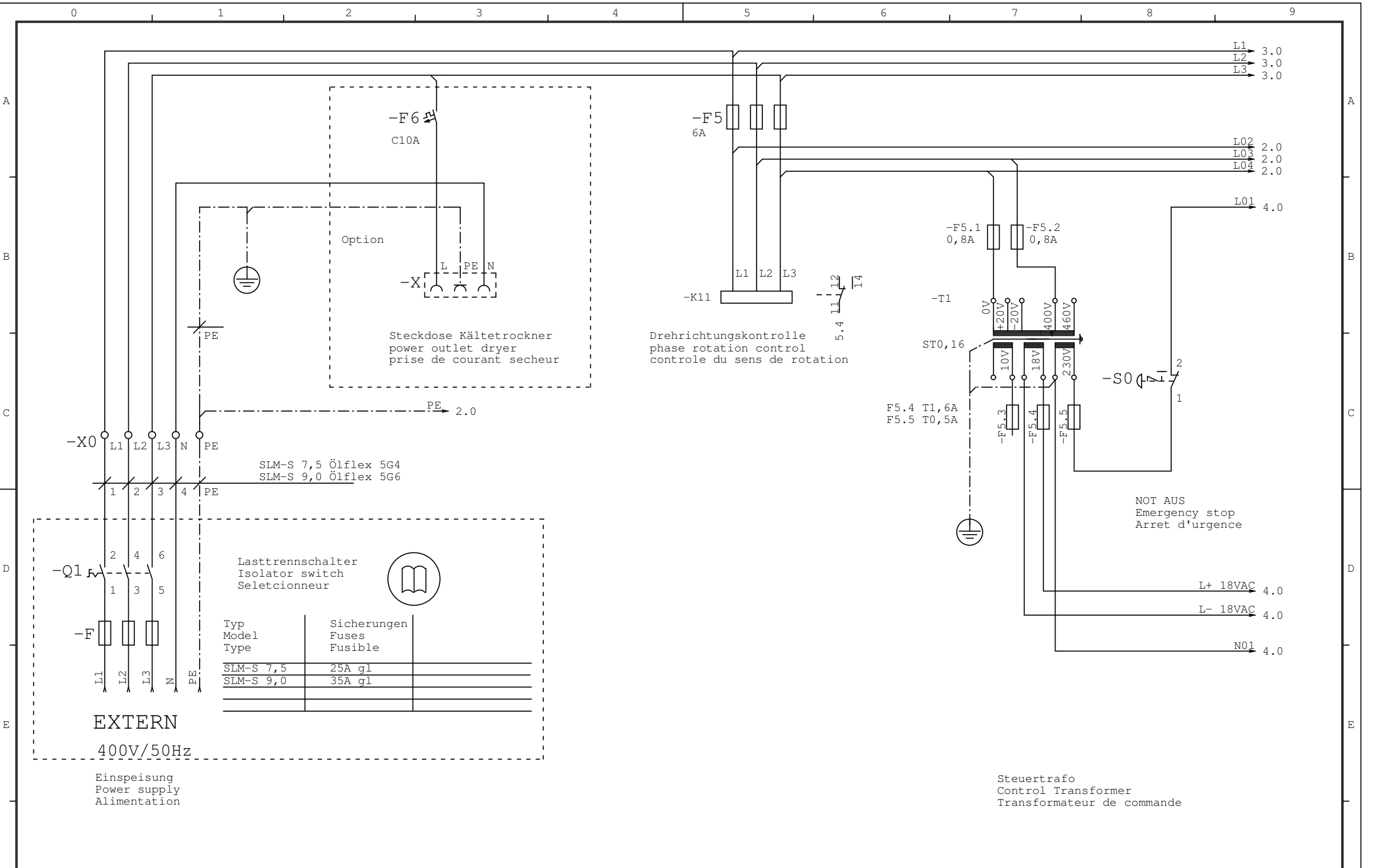
RENNER Scroll Compressors

SLM-S / SLKM-S 7,5 – 11,0 kW

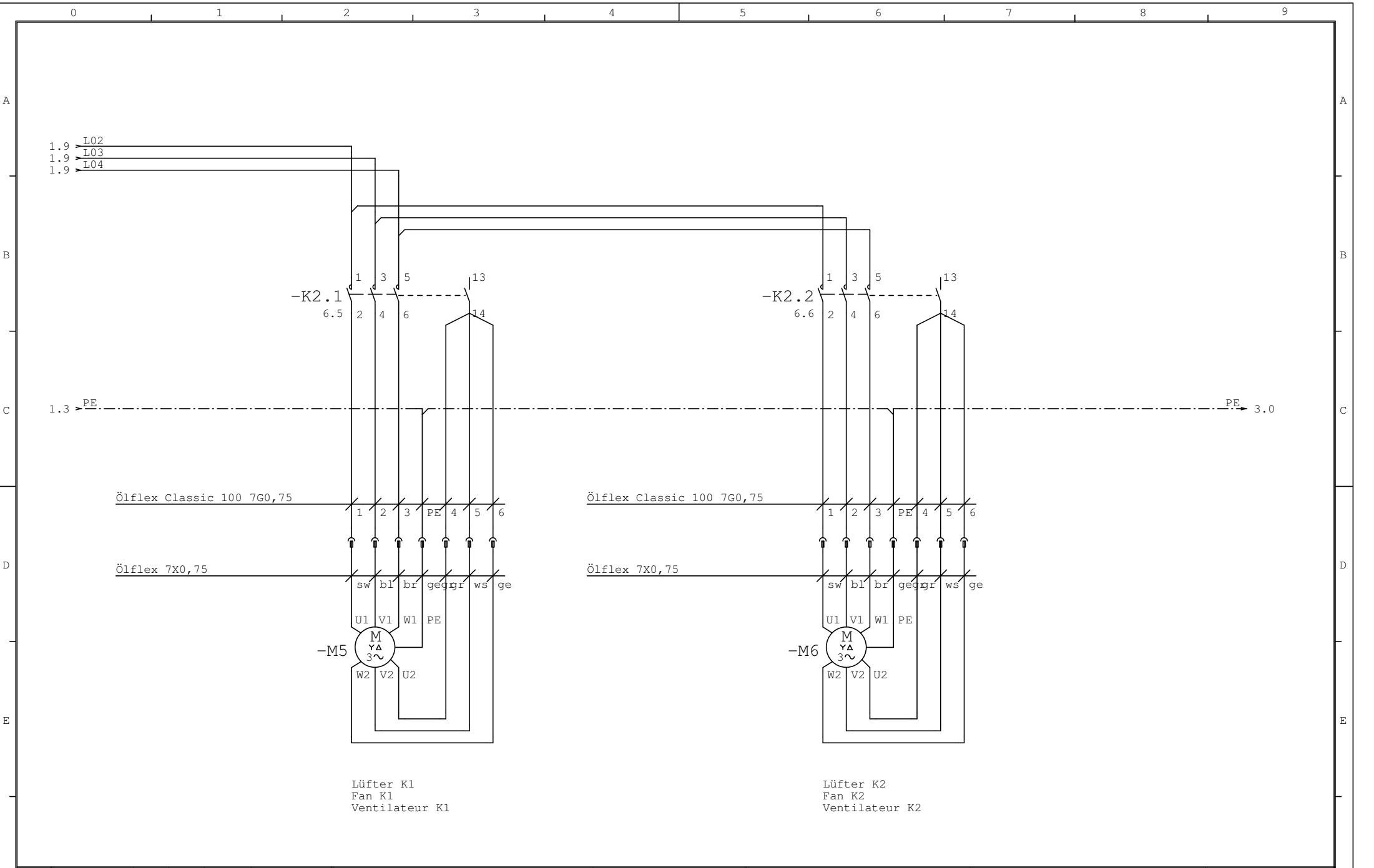
SLM-S / SLKM-S 13,5 – 16,5 kW – following

SLM-S / SLKM-S 22,0 kW - following

Wiring diagrams



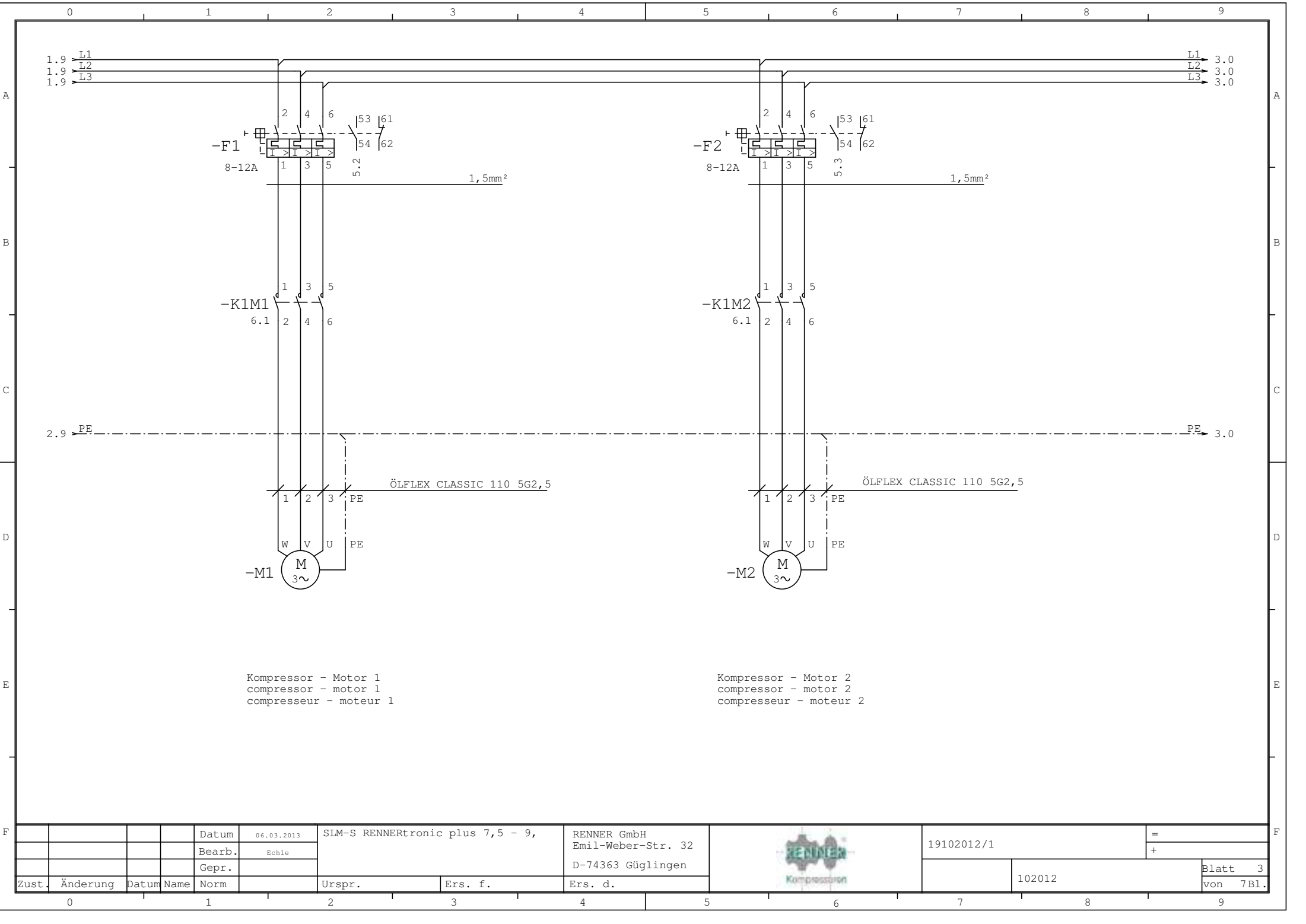
				Datum	06.03.2013	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH		19102012/1		=	
				Bearb.	Echle			Emil-Weber-Str. 32				+	
				Gepr.				D-74363 Güglingen					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		102012		Blatt 1	
												von 7Bl.	



Lüfter K1
Fan K1
Ventilateur K1

Lüfter K2
Fan K2
Ventilateur K2

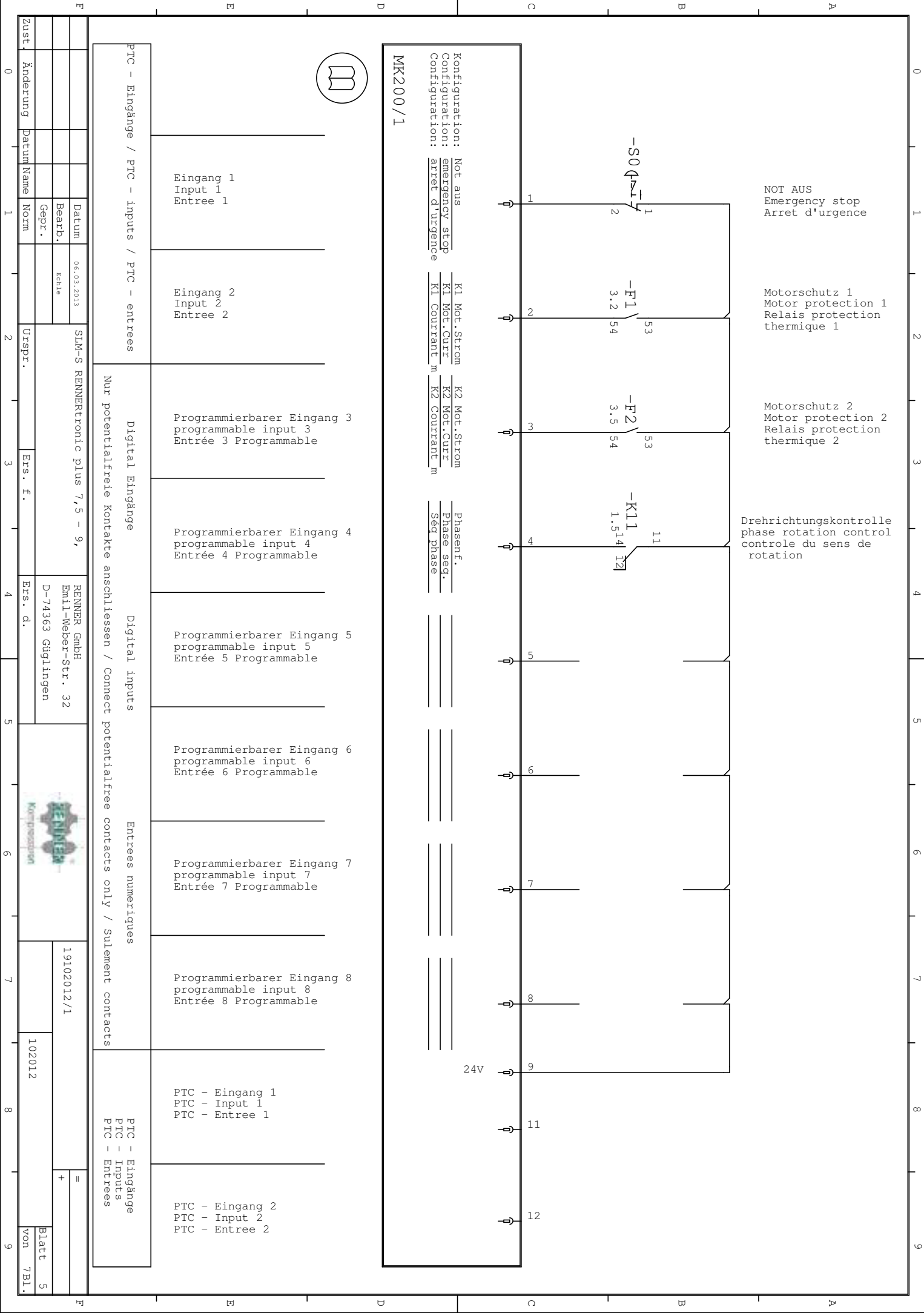
F				Datum	06.03.2013	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH		19102012/1		=		F
				Bearb.	Echle			Emil-Weber-Str. 32				+		
				Gepr.				D-74363 Güglingen						
	Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.		Ers. d.				
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											102012		Blatt 2 von 7Bl.	

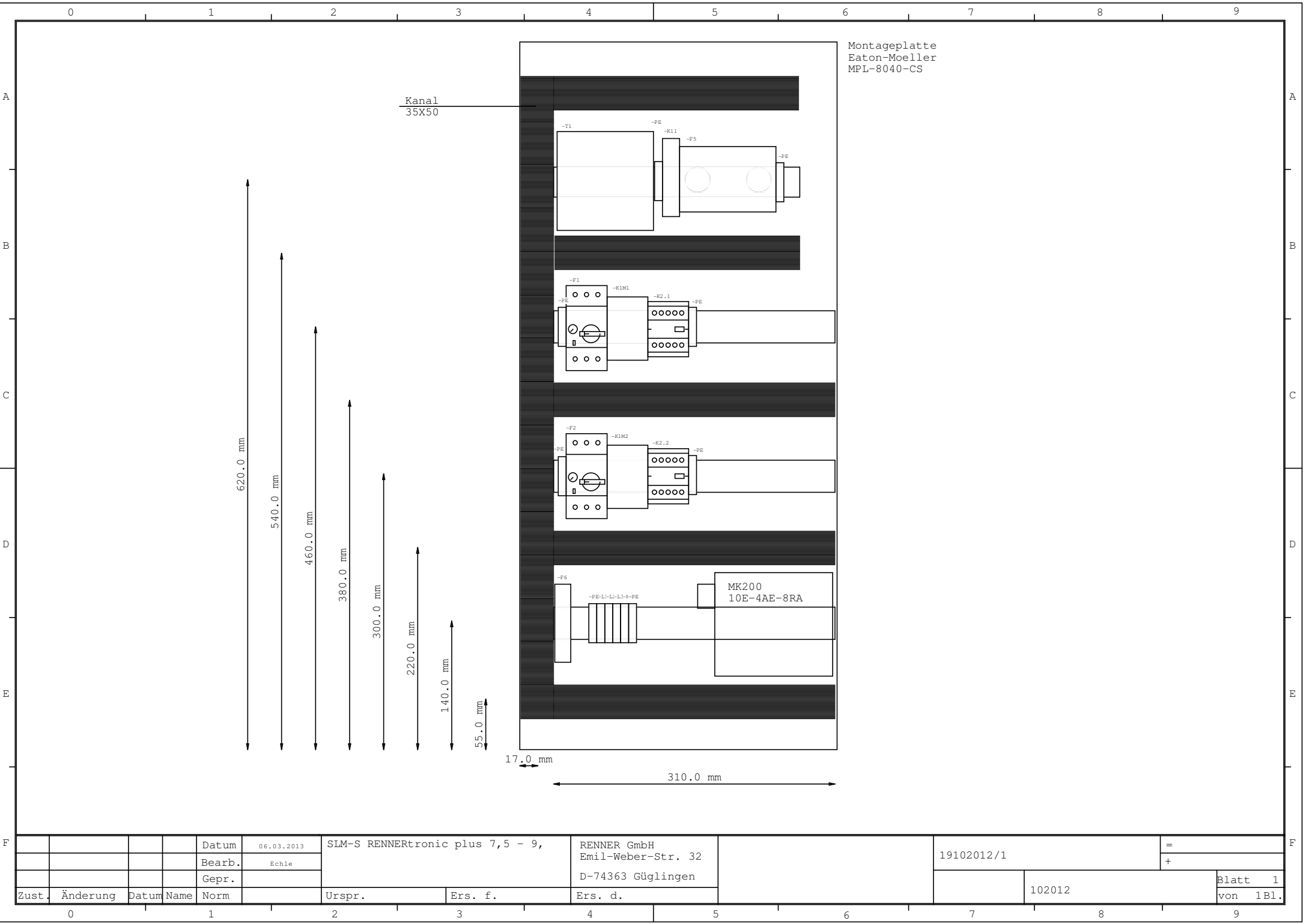


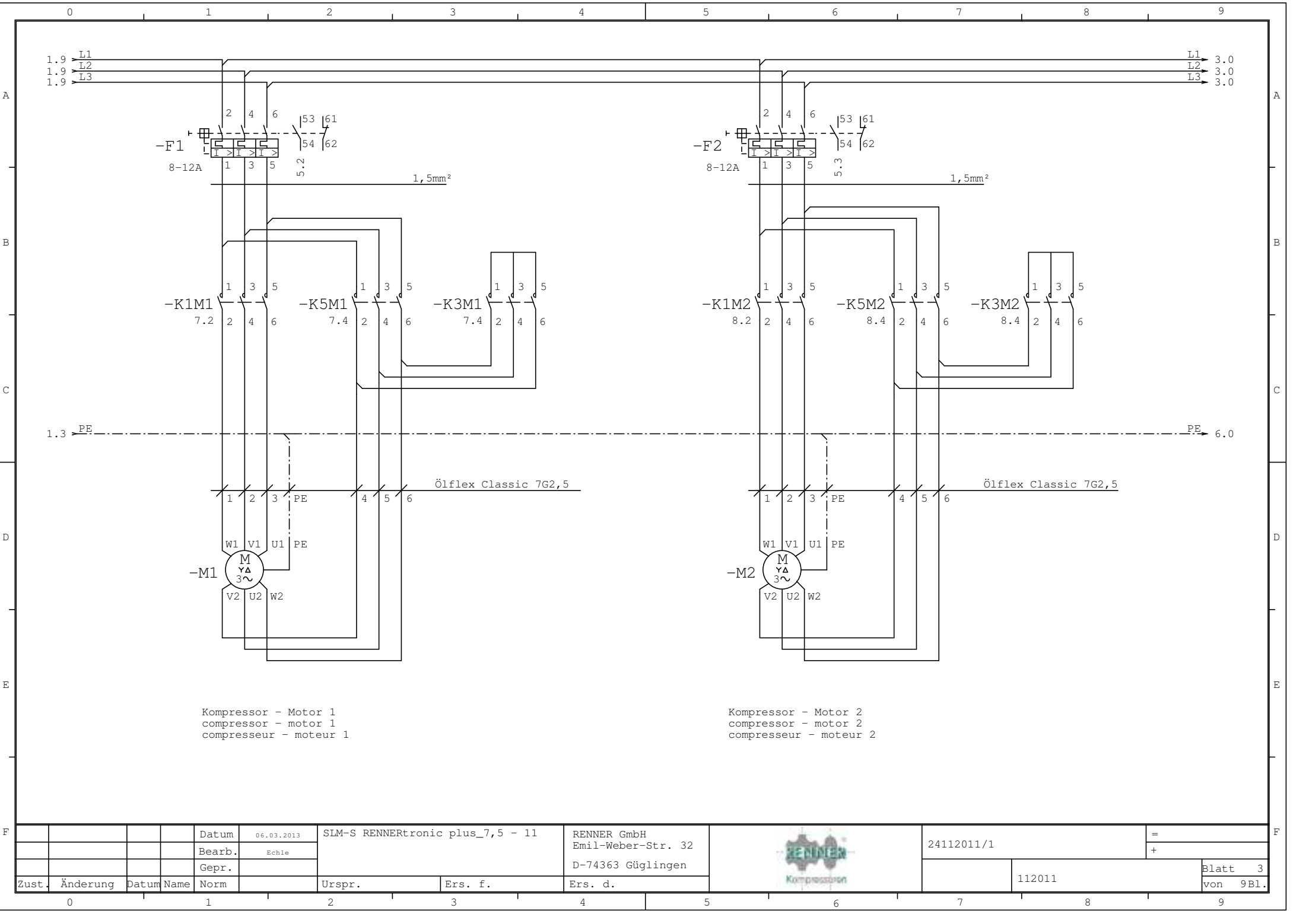
Kompressor - Motor 1
compressor - motor 1
compresseur - moteur 1

Kompressor - Motor 2
compressor - motor 2
compresseur - moteur 2

				Datum	06.03.2013	SLM-S RENNERtronic plus 7,5 - 9,		RENNER GmbH				19102012/1		=		F							
				Bearb.	Echle	Emil-Weber-Str. 32		D-74363 Güglingen						+									
				Gepr.																			
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.				102012			Blatt 3								
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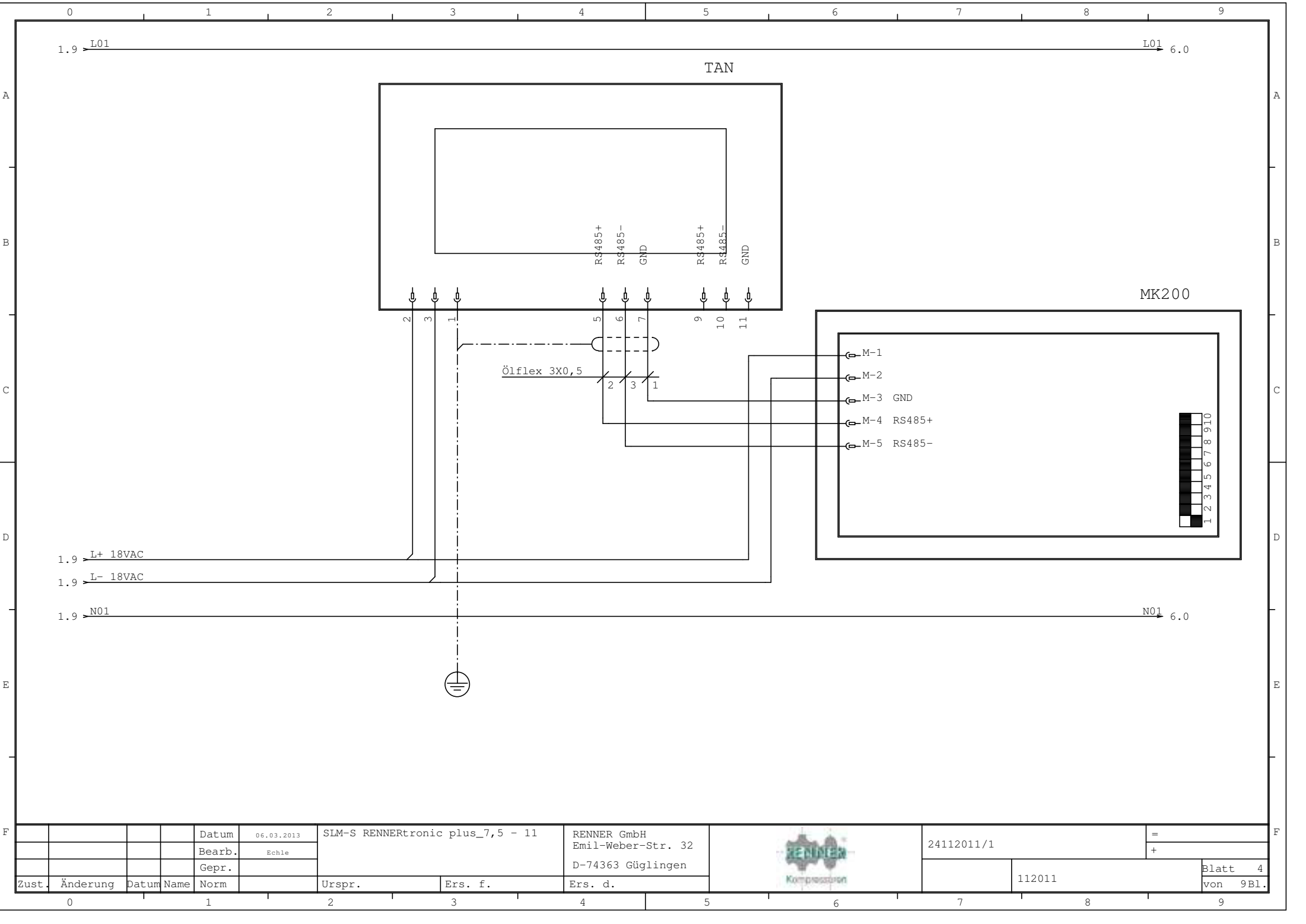




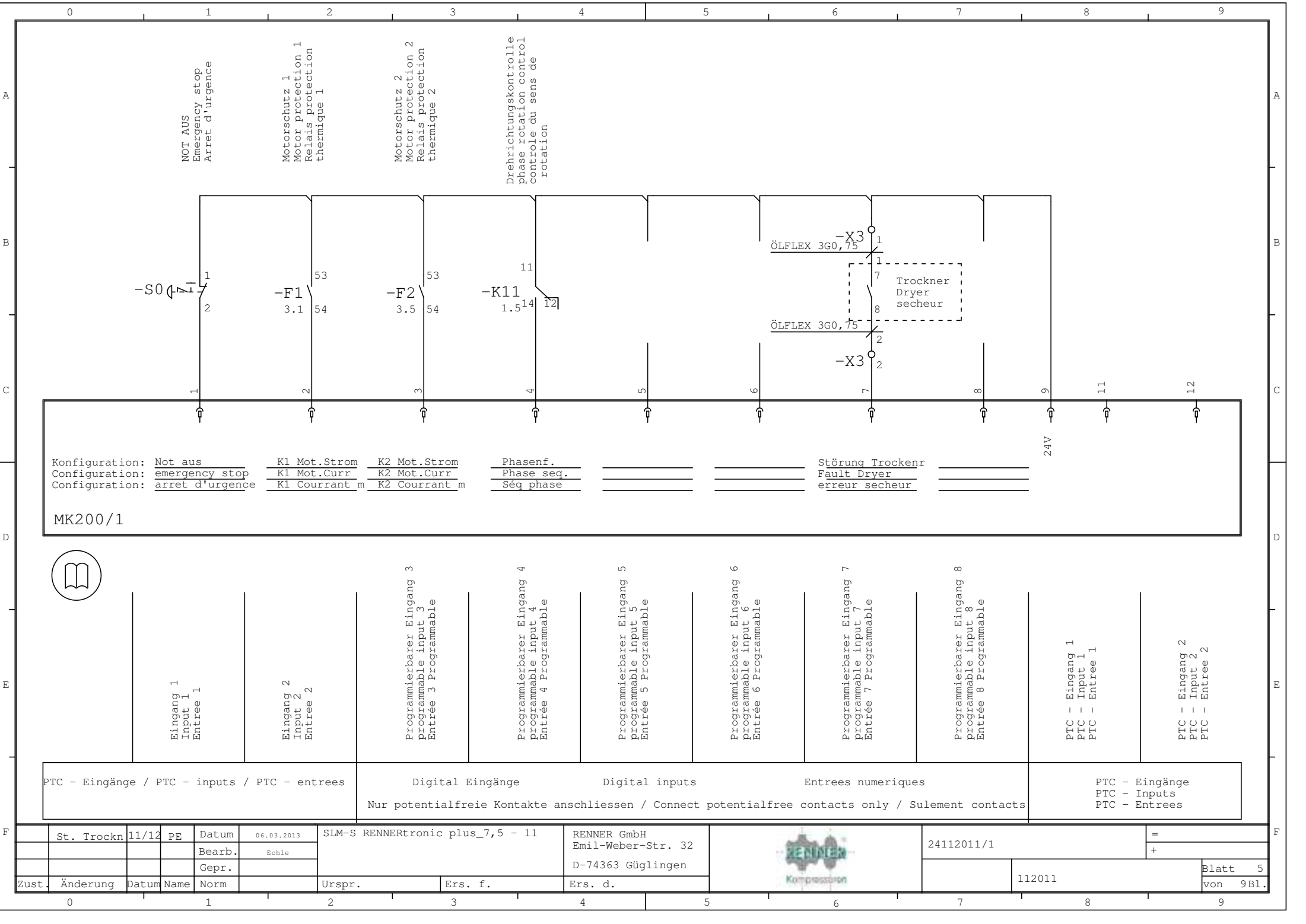
Kompressor - Motor 1
compressor - motor 1
compresseur - moteur 1

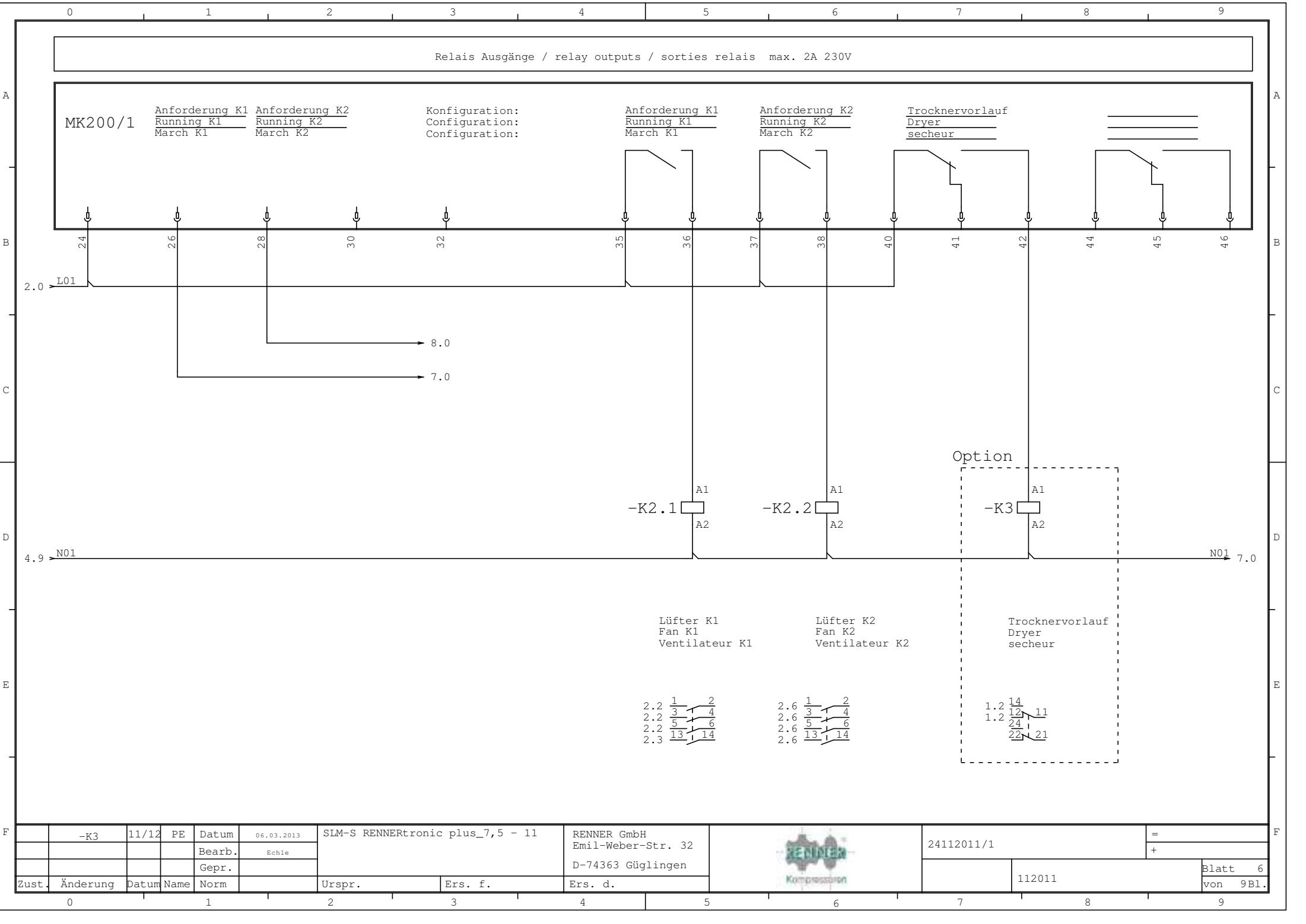
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compressor - motor 2
compresseur - moteur 2

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				Gepr.									
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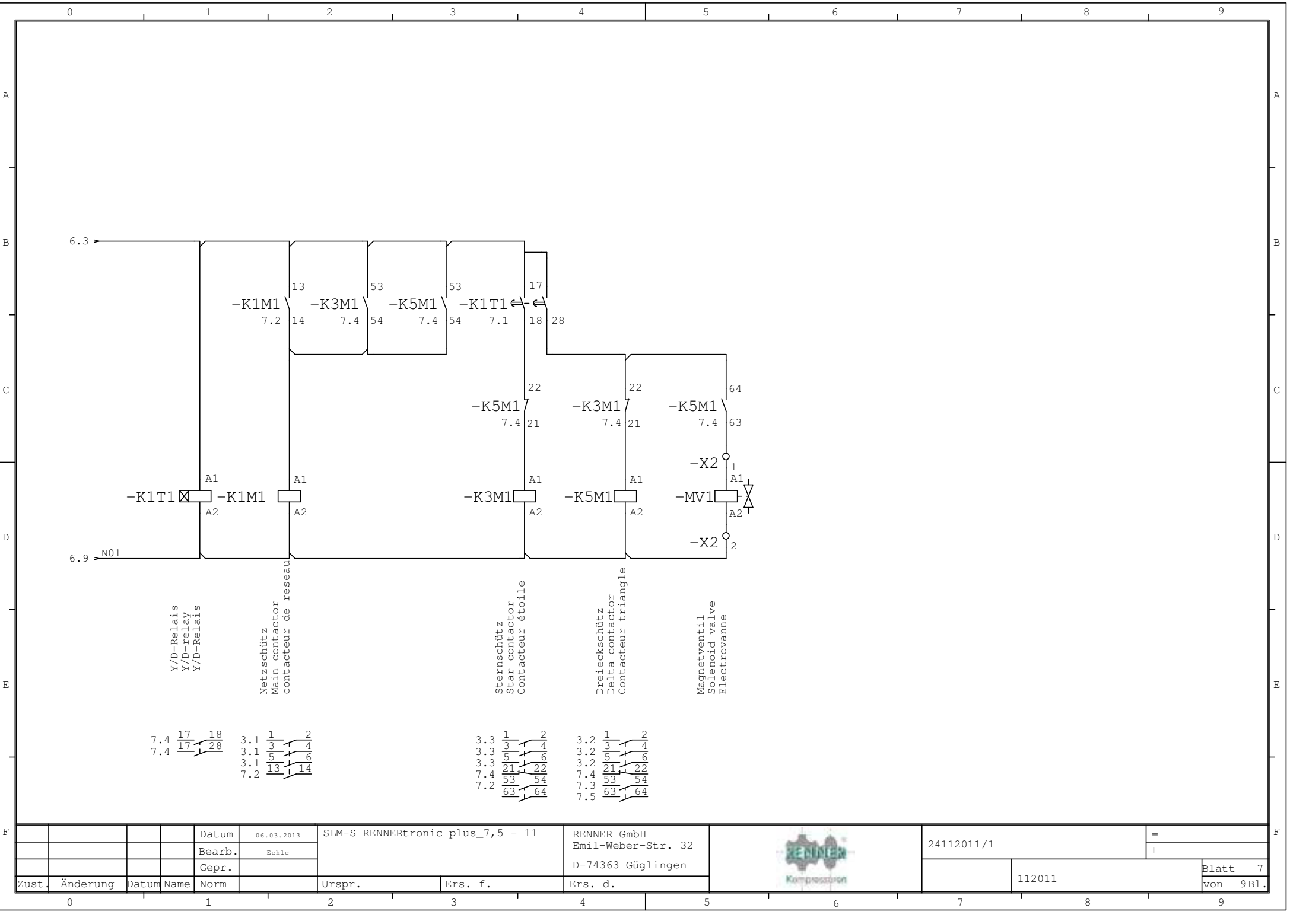


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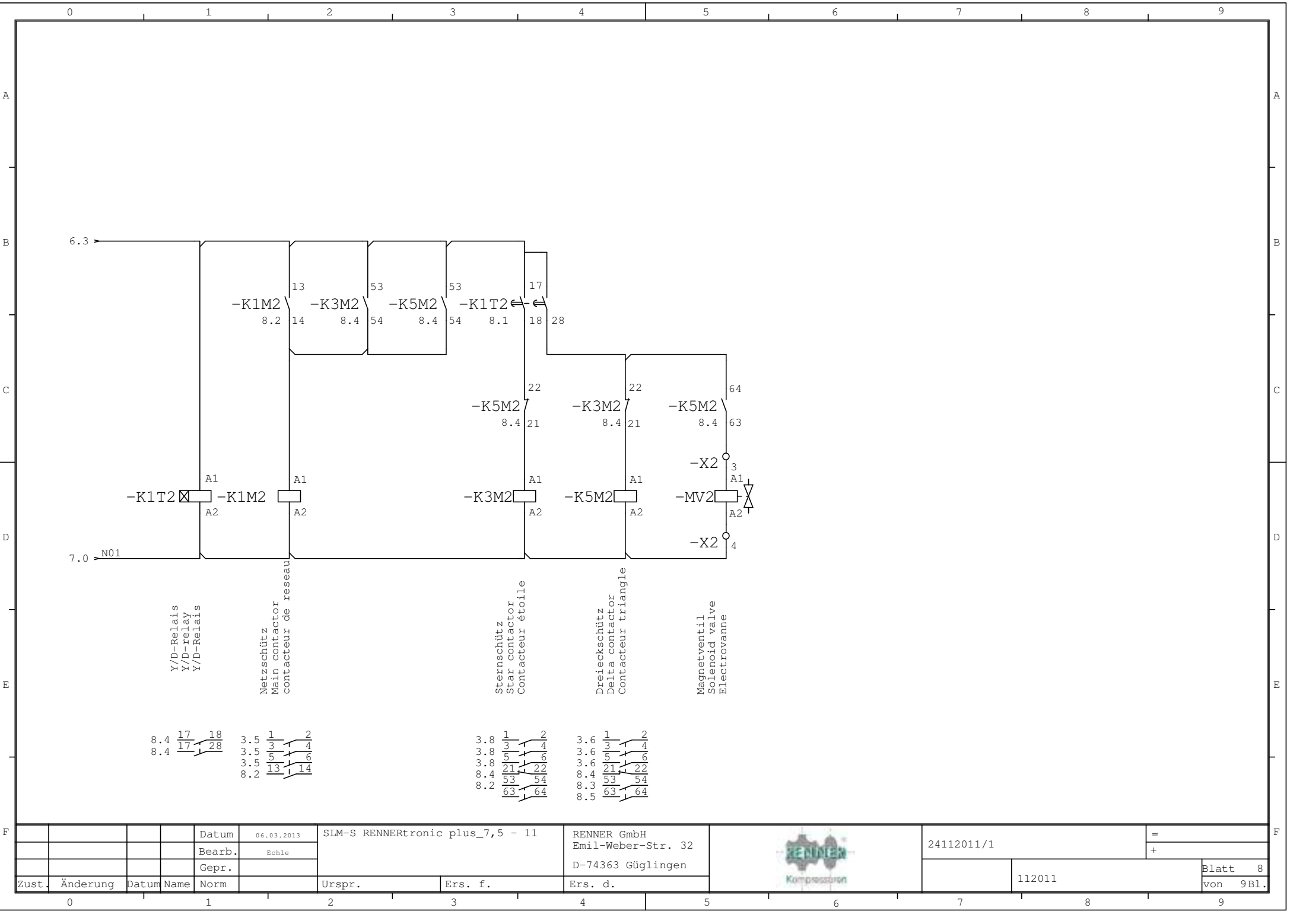


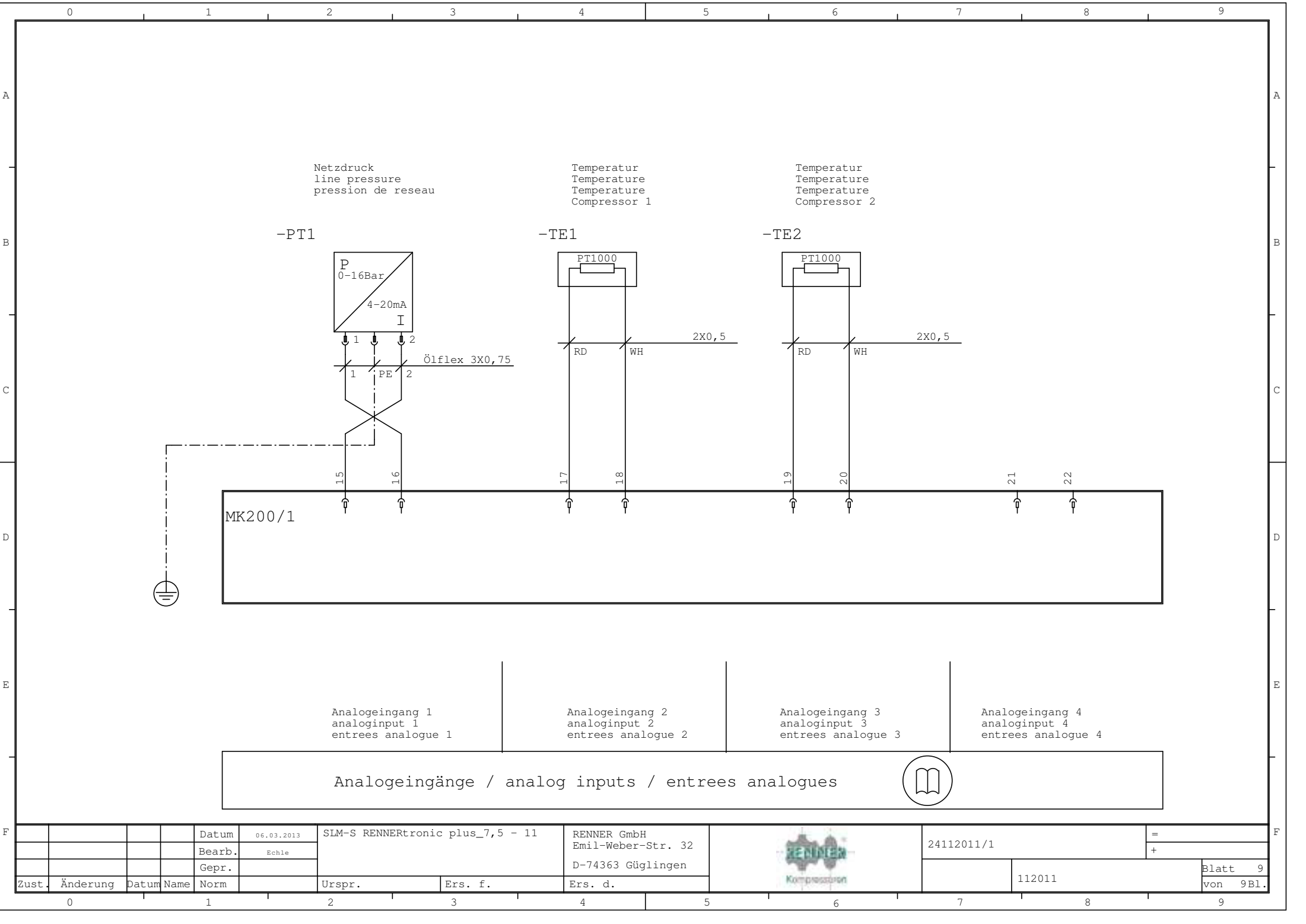


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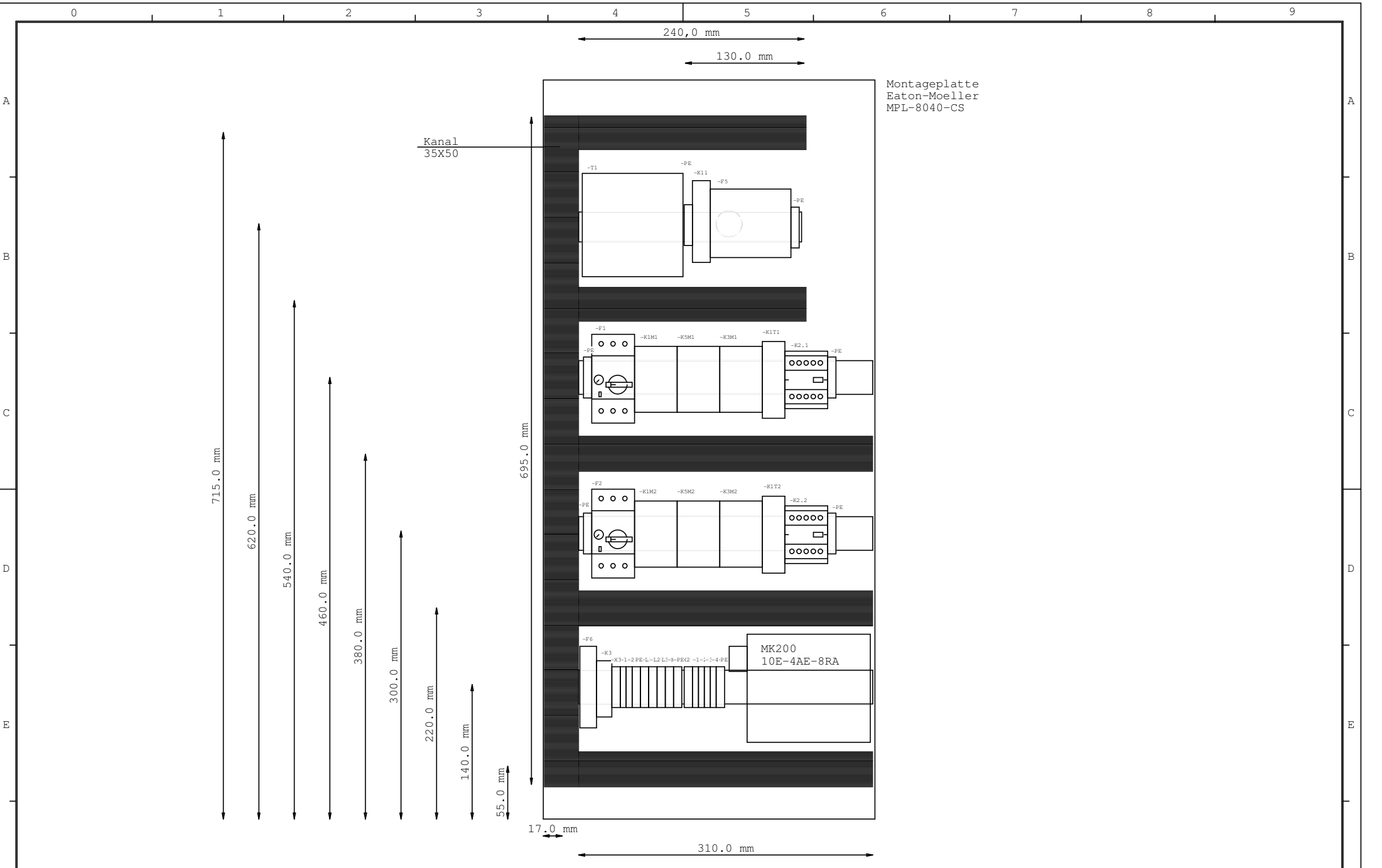


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				Gepr.				D-74363 Güglingen						
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														von 9Bl.

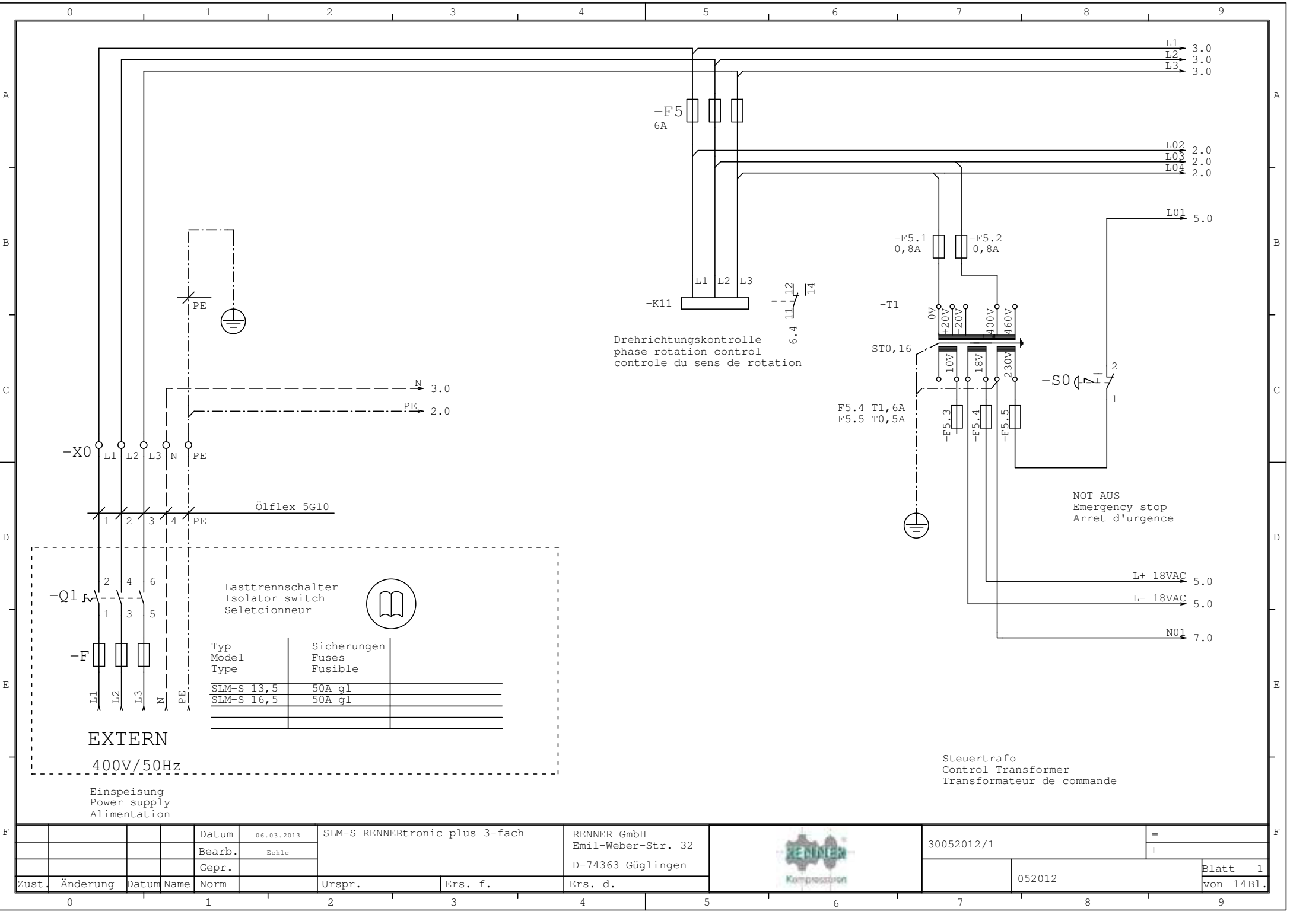


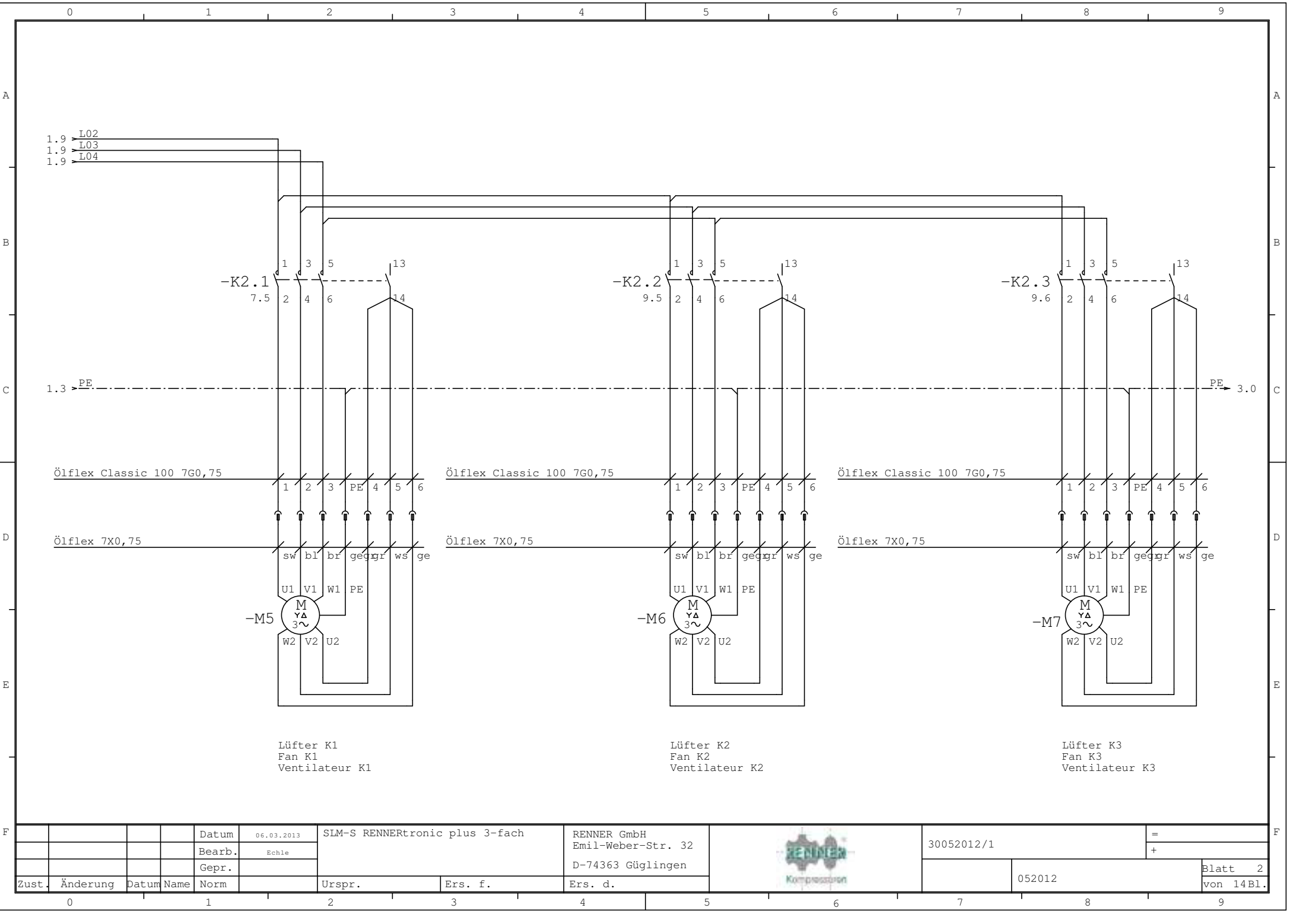


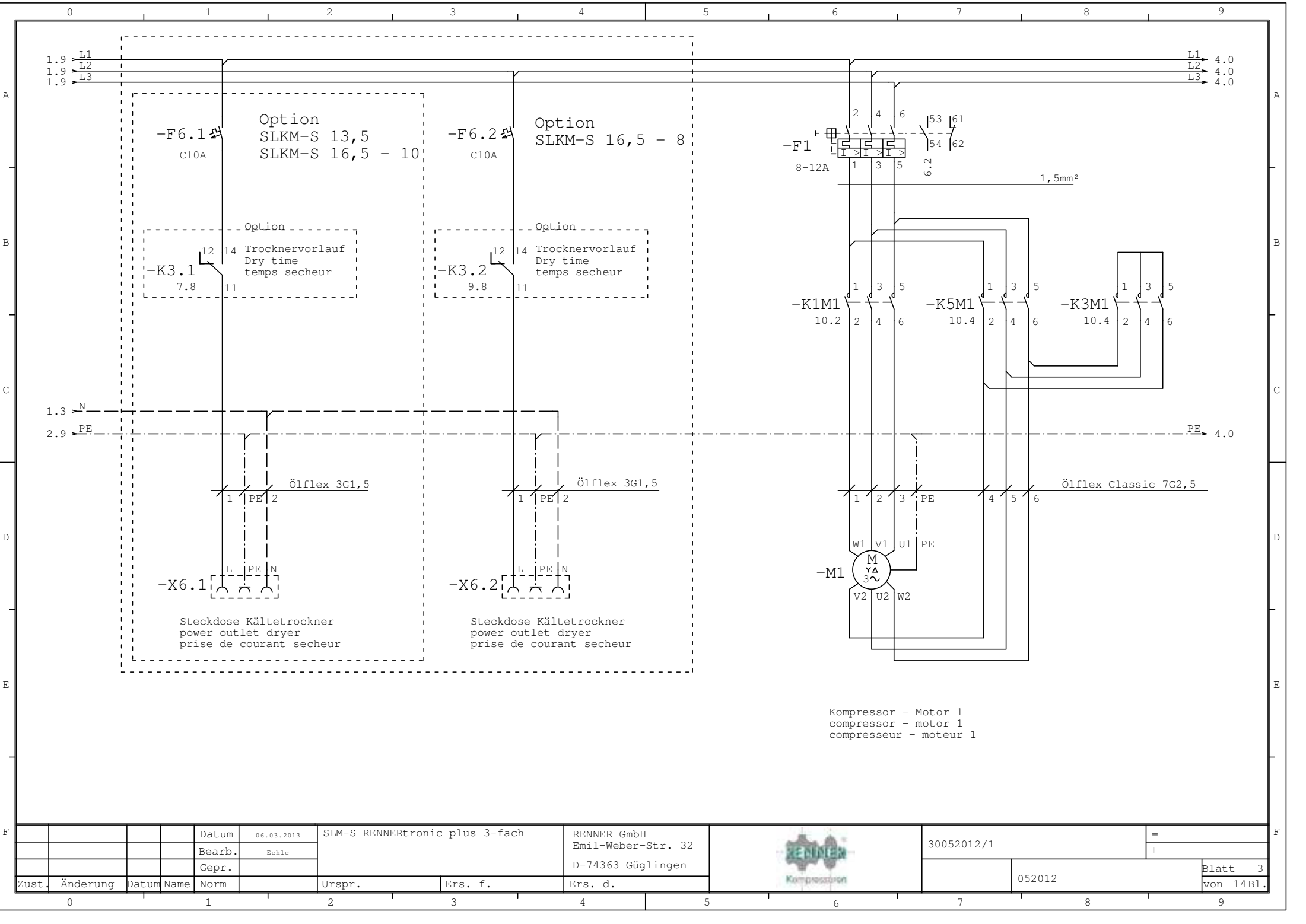
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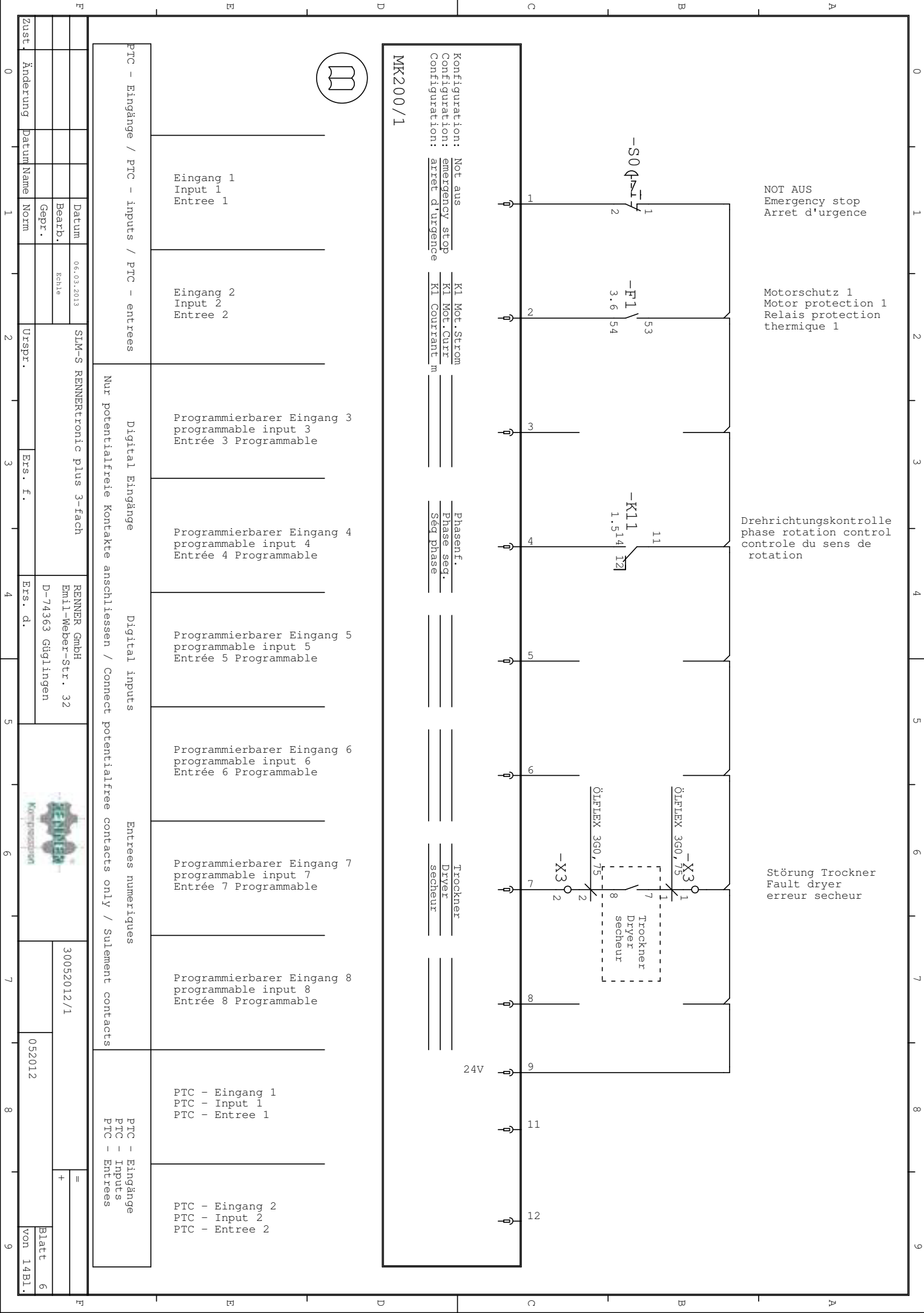


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				Gepr.				D-74363 Güglingen					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			112011	Blatt 1 von 1Bl.	
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NOT AUS
Emergency stop
Arrêt d'urgence

Motorschutz 1
Motor protection 1
Relais protection
thermique 1

Drehrichtungskontrolle
phase rotation control
contrôle du sens de
rotation

Störung Trockner
Fault dryer
erreur secheur

Konfiguration: Not aus
Configuration: emergency stop
Configuration: arrêt d'urgence

K1 Mot.Strom
K1 Mot.Curr
K1 Courant m

Phasenf.
Phase seq.
Seq phase

Trockner
Dryer
secheur

MK200/1

PTC - Eingänge / PTC - inputs / PTC - entrees		Digital Eingänge		Digital inputs		Entrees numeriques		PTC - Eingänge PTC - Inputs PTC - Entrees	
Nur potentialfreie Kontakte anschliessen / Connect potentialfree contacts only / Sulement contacts									

Eingang 1
Input 1
Entree 1

Eingang 2
Input 2
Entree 2

Programmierbarer Eingang 3
programmable input 3
Entrée 3 Programmable

Programmierbarer Eingang 4
programmable input 4
Entrée 4 Programmable

Programmierbarer Eingang 5
programmable input 5
Entrée 5 Programmable

Programmierbarer Eingang 6
programmable input 6
Entrée 6 Programmable

Programmierbarer Eingang 7
programmable input 7
Entrée 7 Programmable

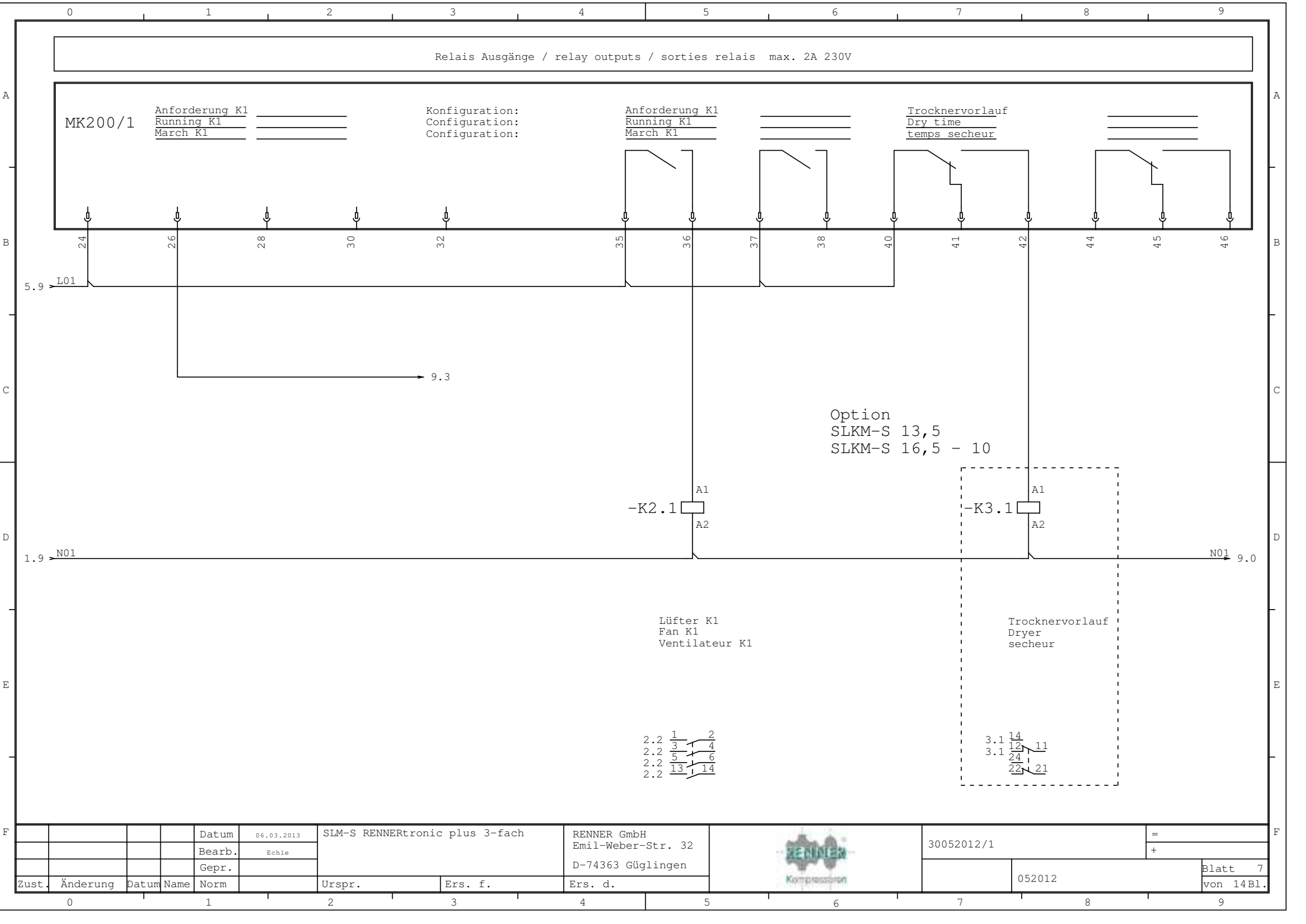
Programmierbarer Eingang 8
programmable input 8
Entrée 8 Programmable

PTC - Eingang 1
PTC - Input 1
PTC - Entree 1

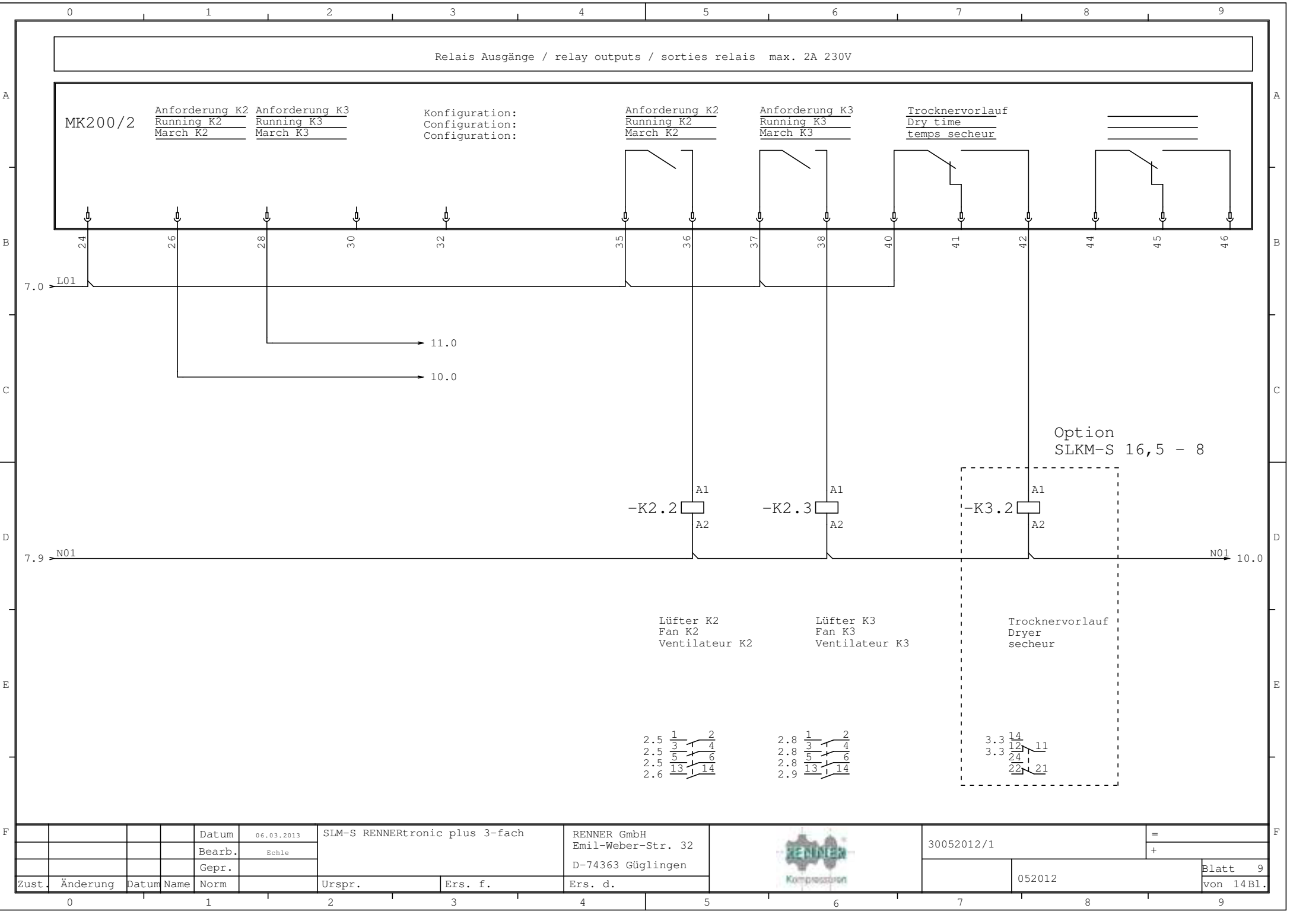
PTC - Eingang 2
PTC - Input 2
PTC - Entree 2



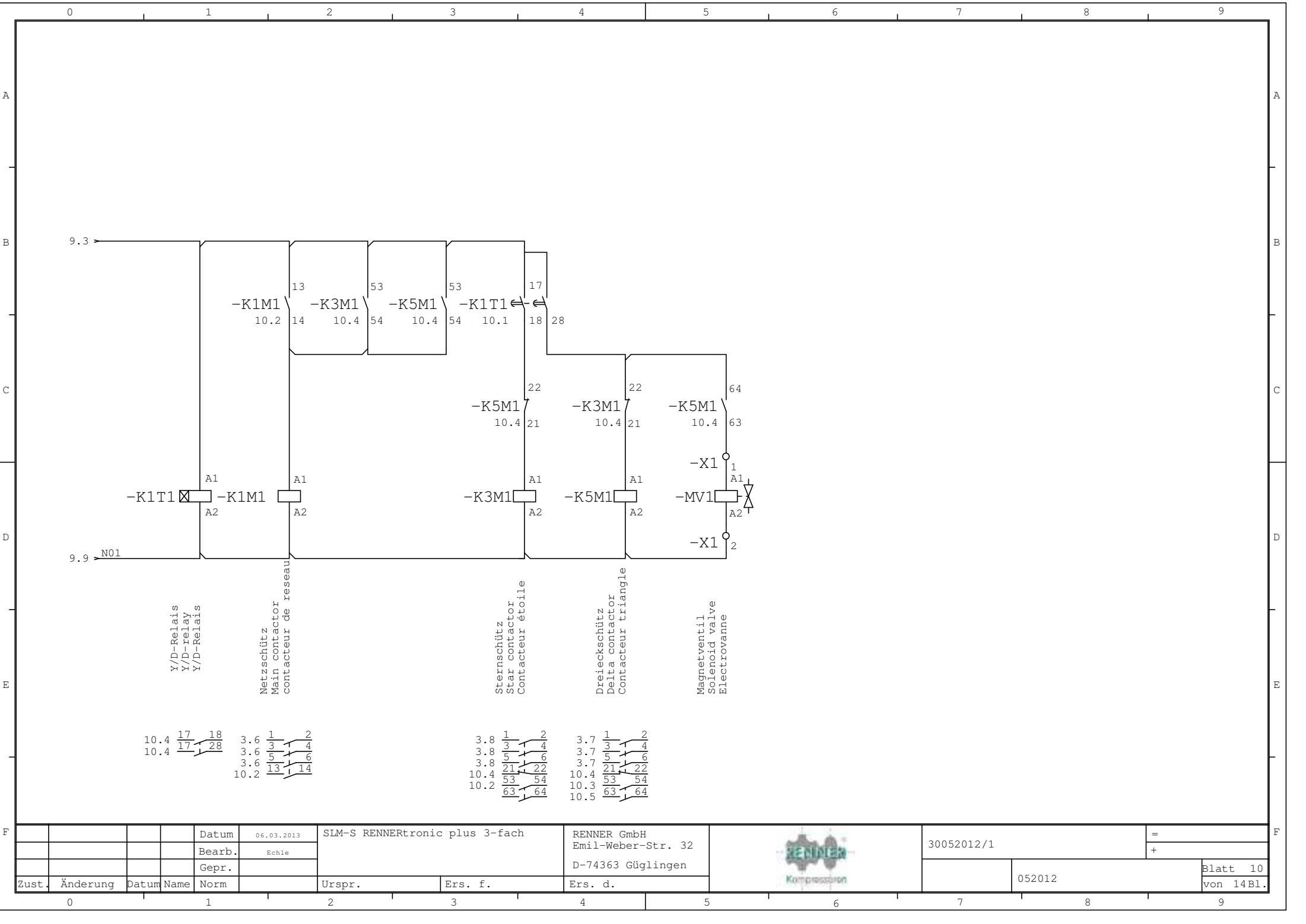
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0		1		2		3		4	
Datum		Bearb.		Echle		Ers. f.		Ers. d.	
06.03.2013		Gepr.		Urspr.		Ers. f.		Ers. d.	
SLM-S RENNERtronic plus 3-fach		RENNER GmbH		Emil-Weber-Str. 32		D-74363 Göglingen		30052012/1	
Nur potentialfreie Kontakte anschliessen / Connect potentialfree contacts only / Sulement contacts		RENNER		Kompression		052012		Blatt 6	
von 14Bl.									



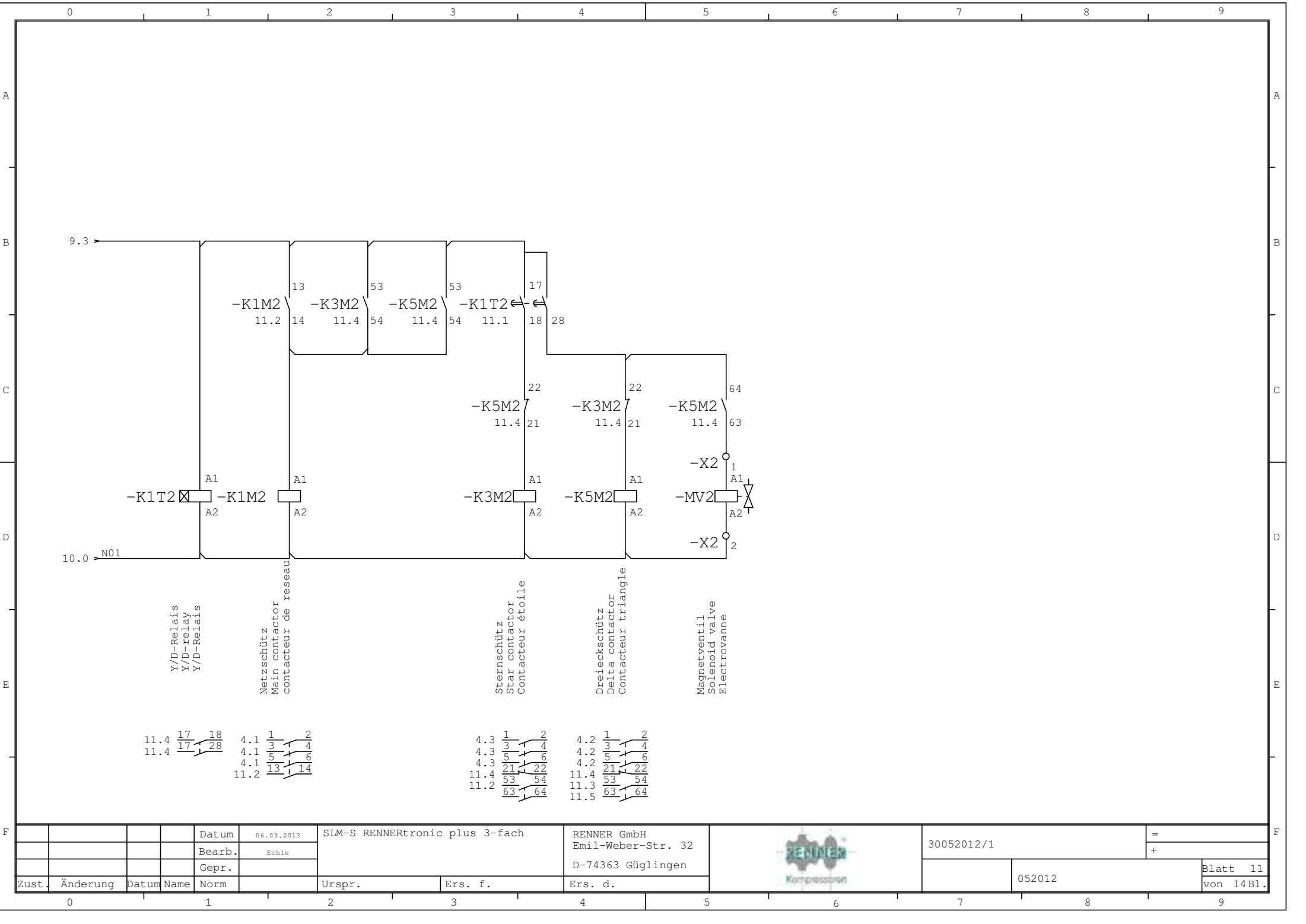
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				Gepr.									
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			052012	Blatt 7 von 14Bl.	



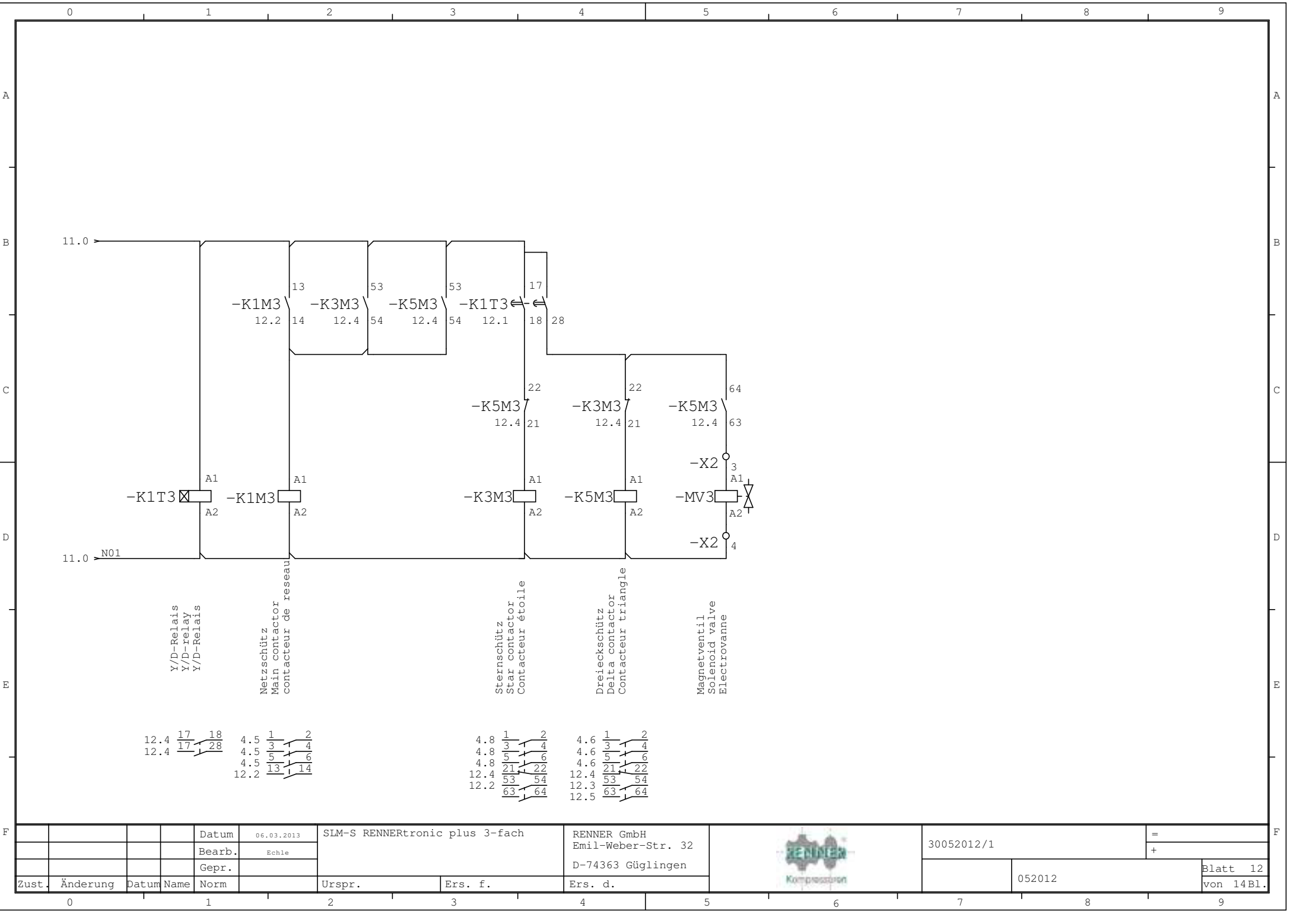
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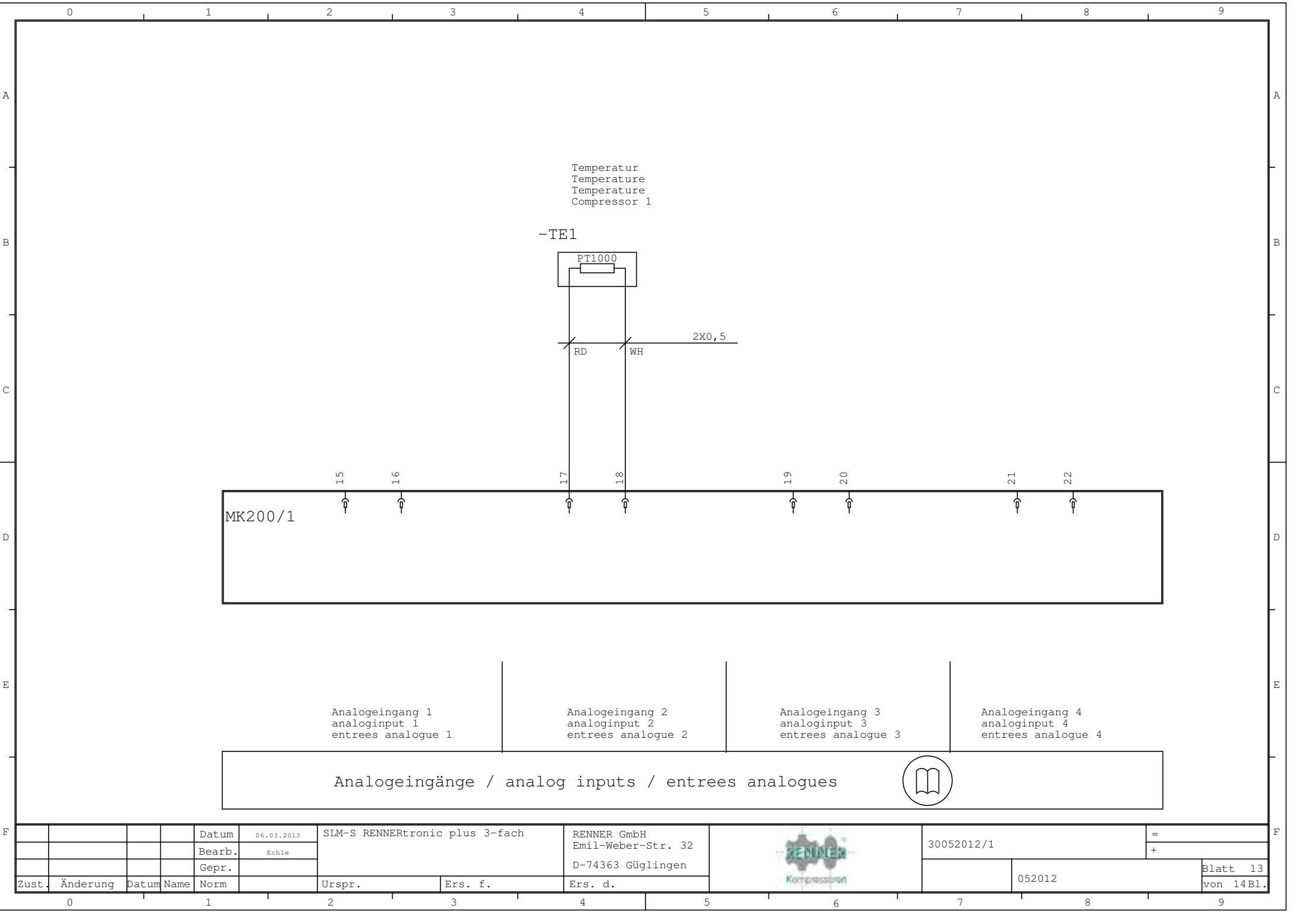
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				Gepr.				D-74363 Güglingen						
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			052012			Blatt 10 von 14Bl.
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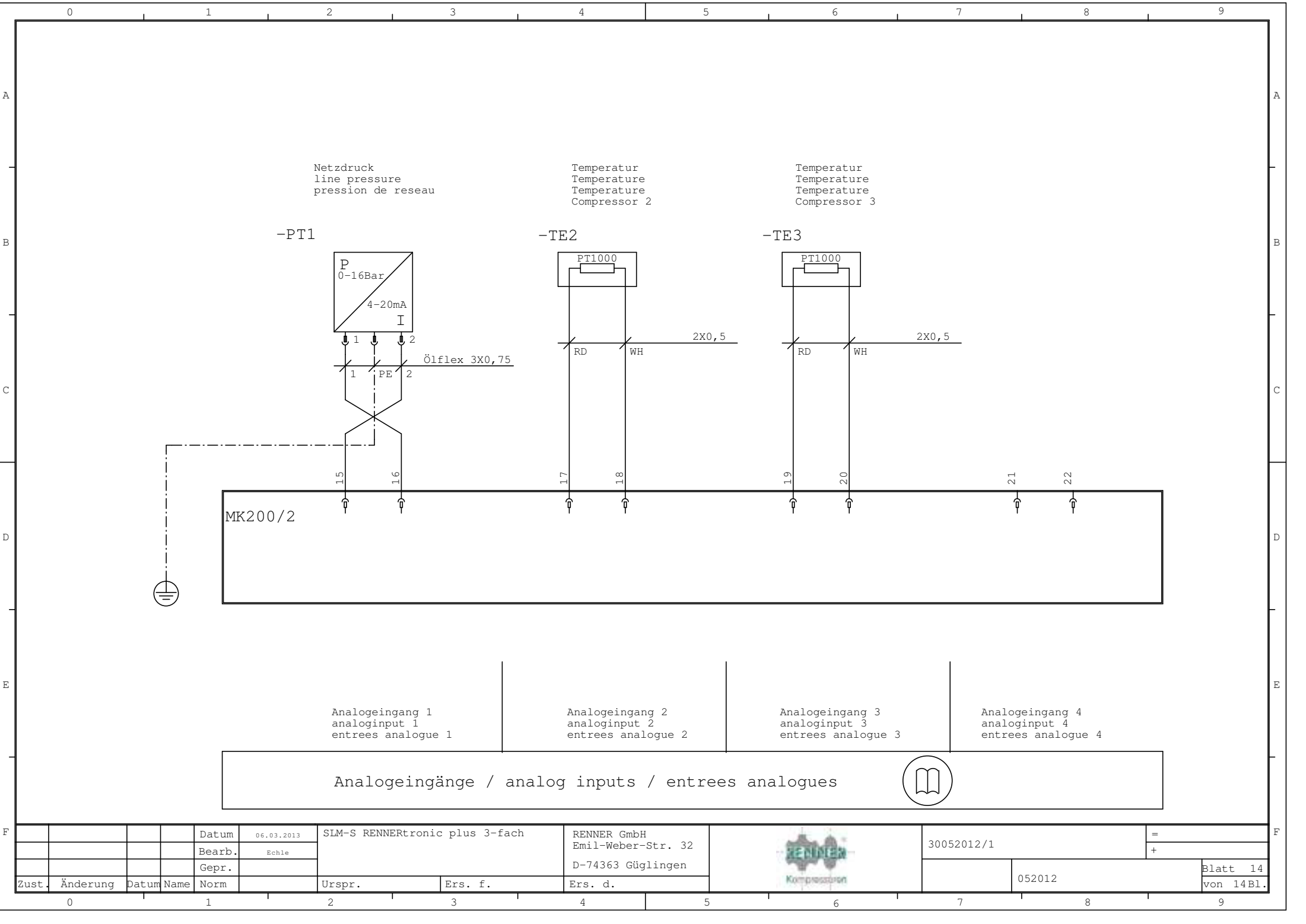
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				Gepr.				D-74363 Güglingen						
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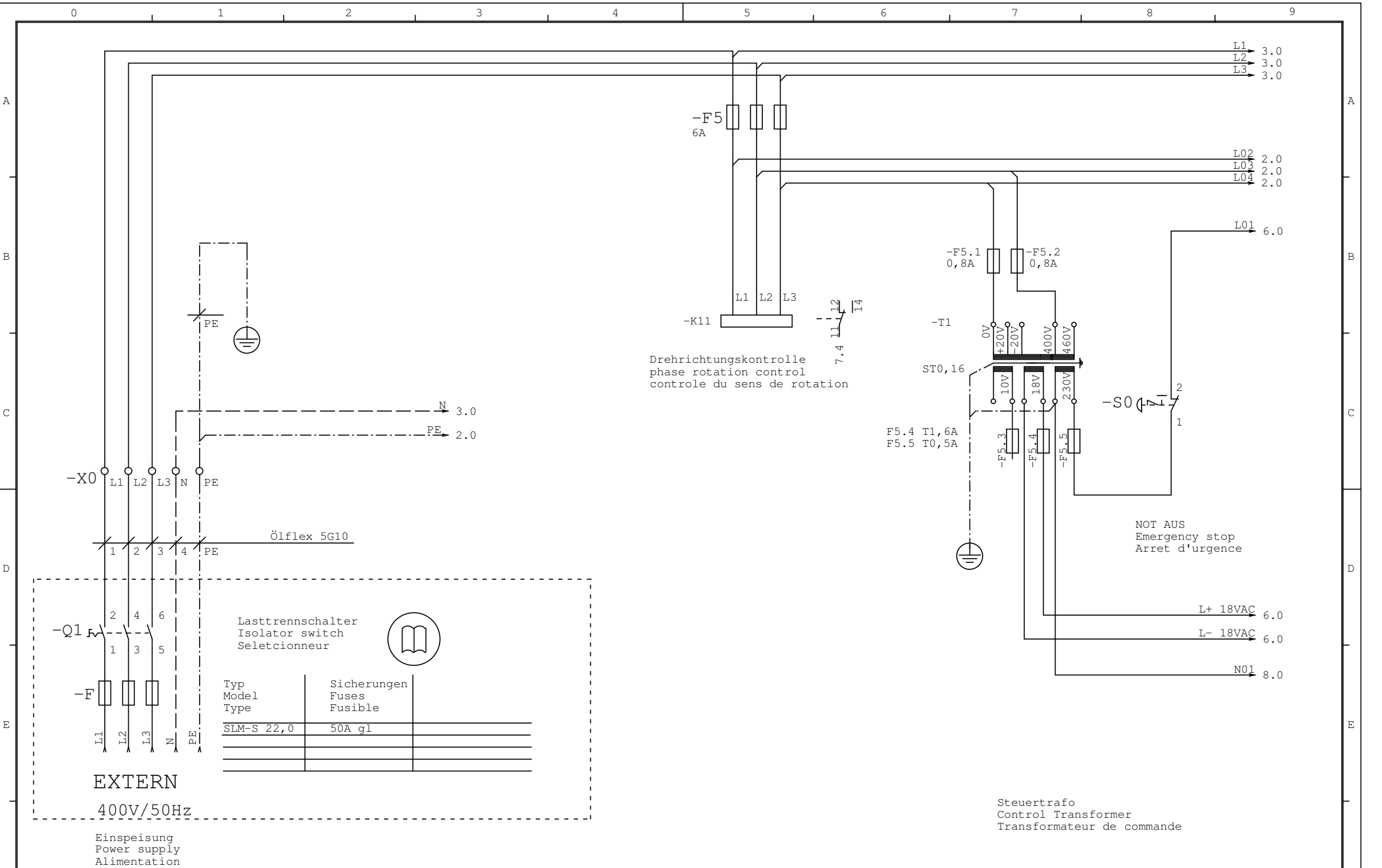
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				Gepr.				D-74363 Güglingen					
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			052012	Blatt 12 von 14Bl.	
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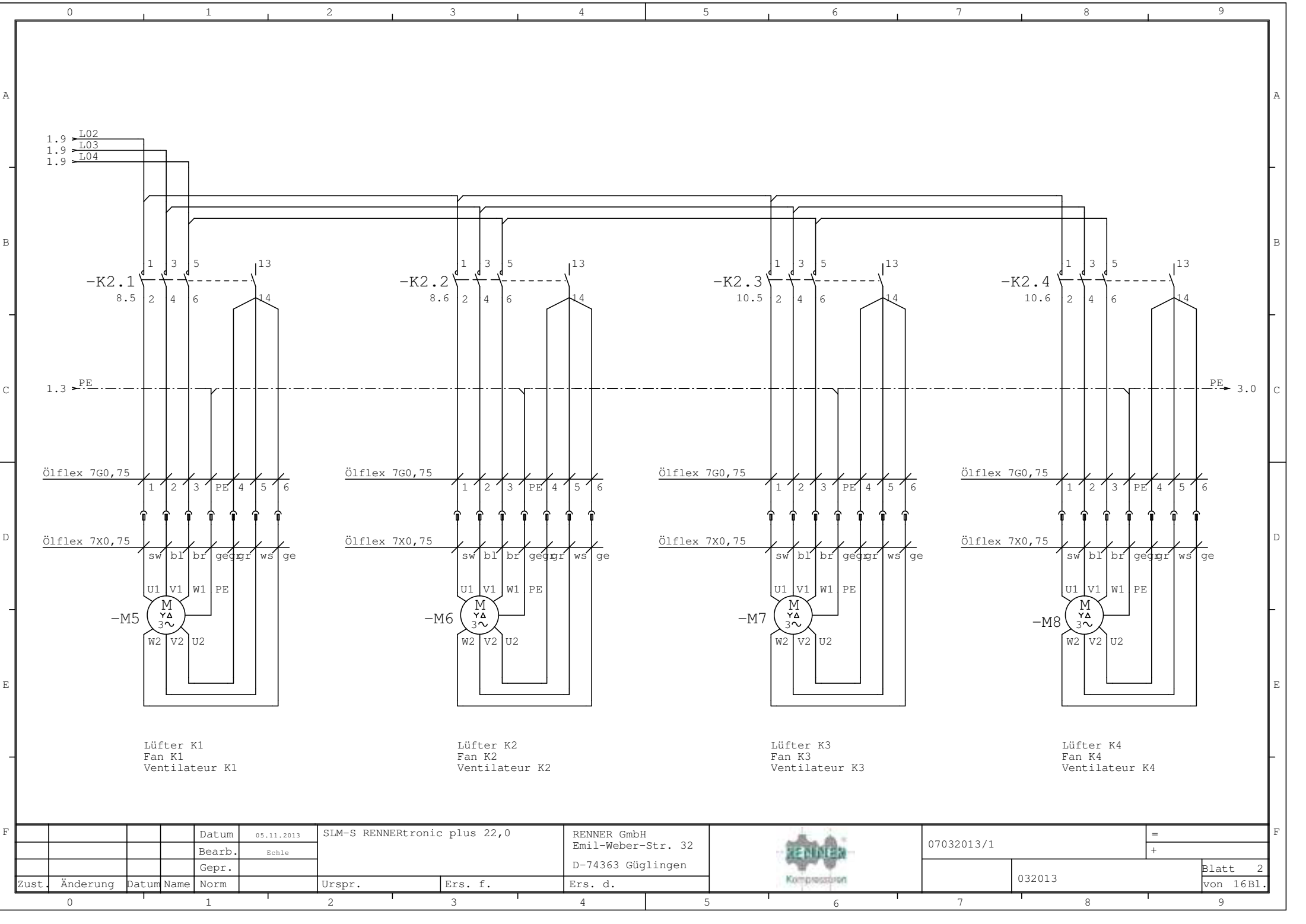
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				Gepr.				D-74363 Güglingen			
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		052012	Blatt 13 von 14Bl.



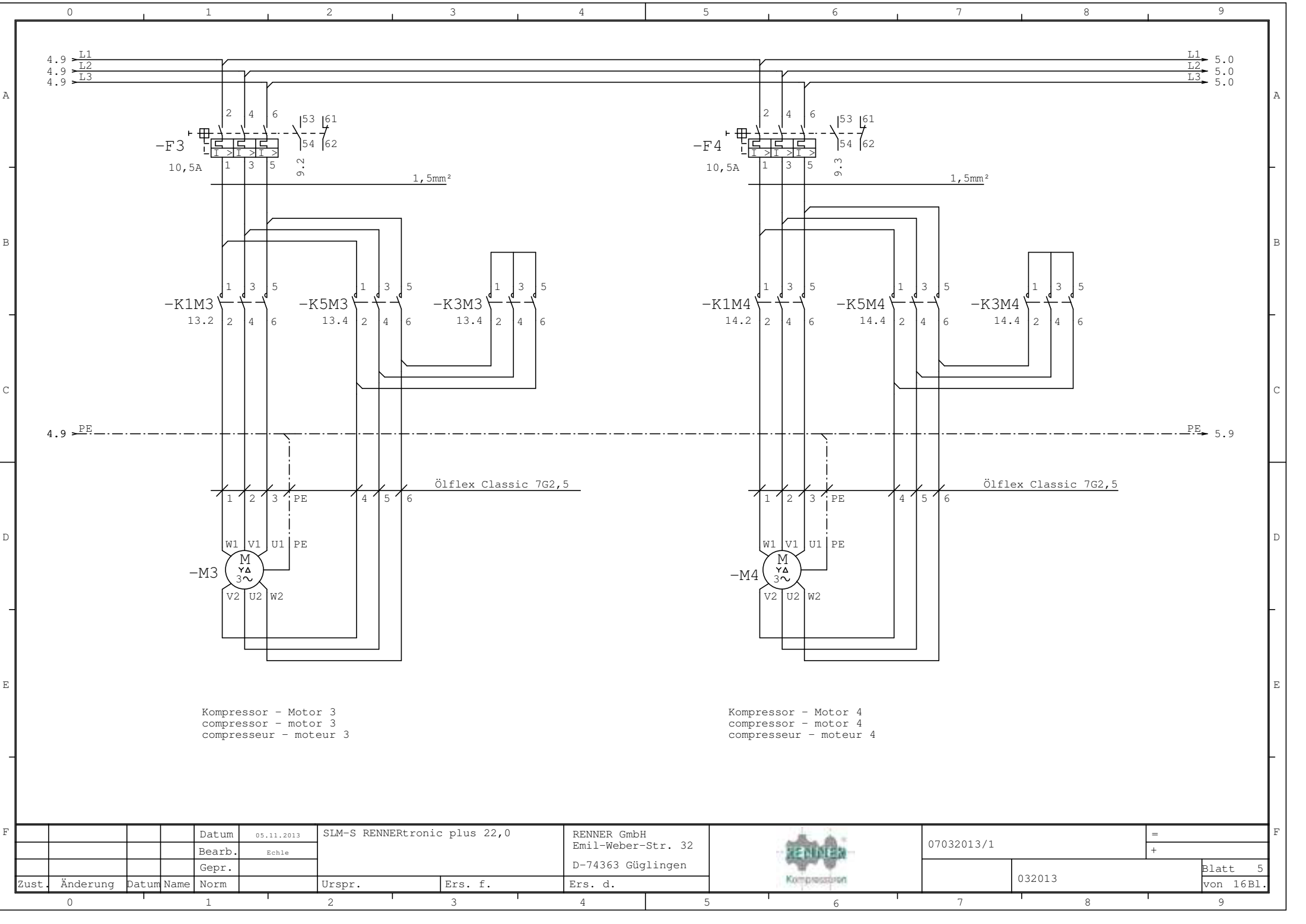
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				Gepr.								
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		052012		Blatt 14 von 14Bl.



Zust.		Änderung	Datum	Name	Norm	Urspr.	Ers. f.	Ers. d.	07032013/1		Blatt 1	
									032013		von 16Bl.	



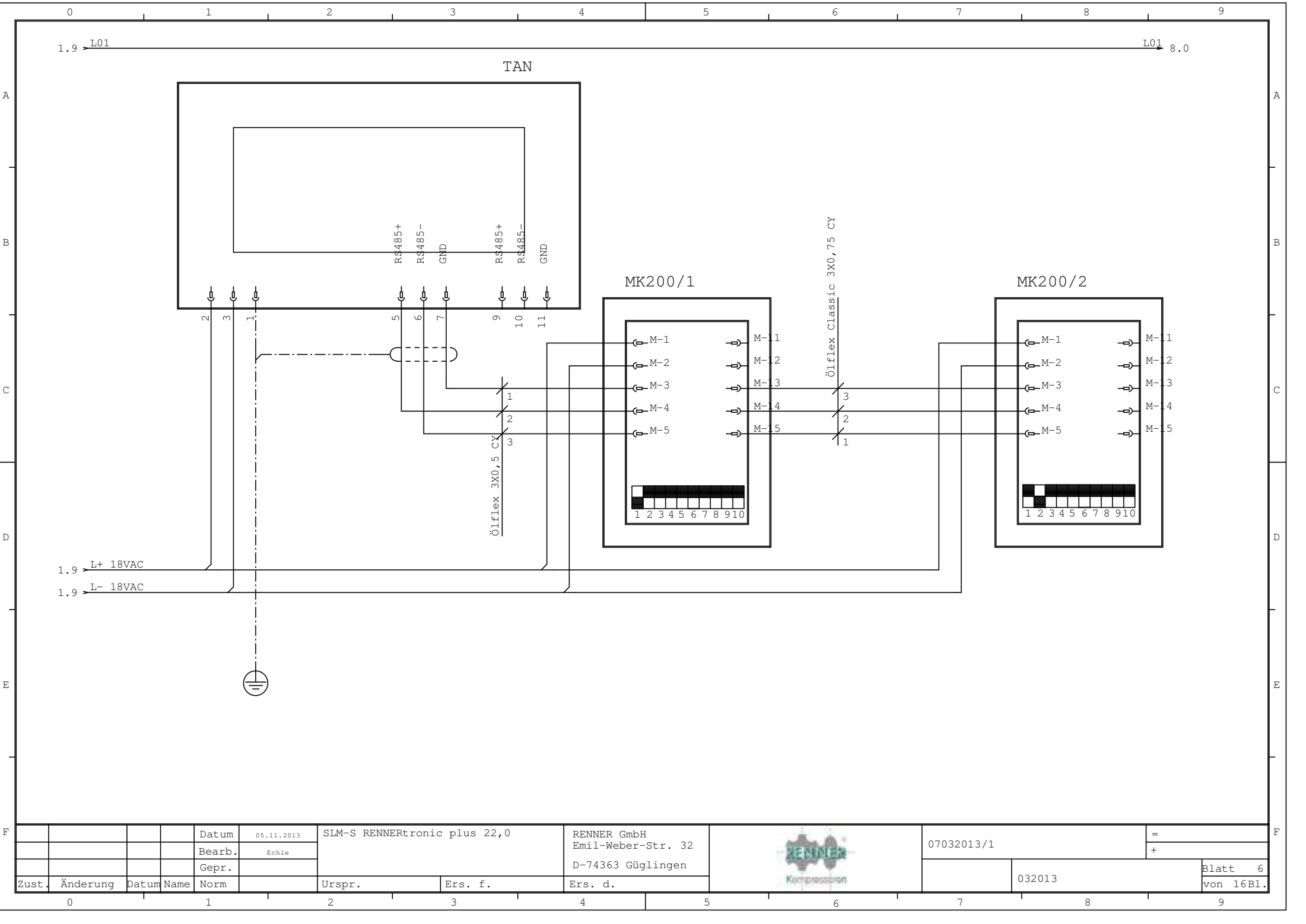
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Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.		032013		Blatt 2 von 16Bl.



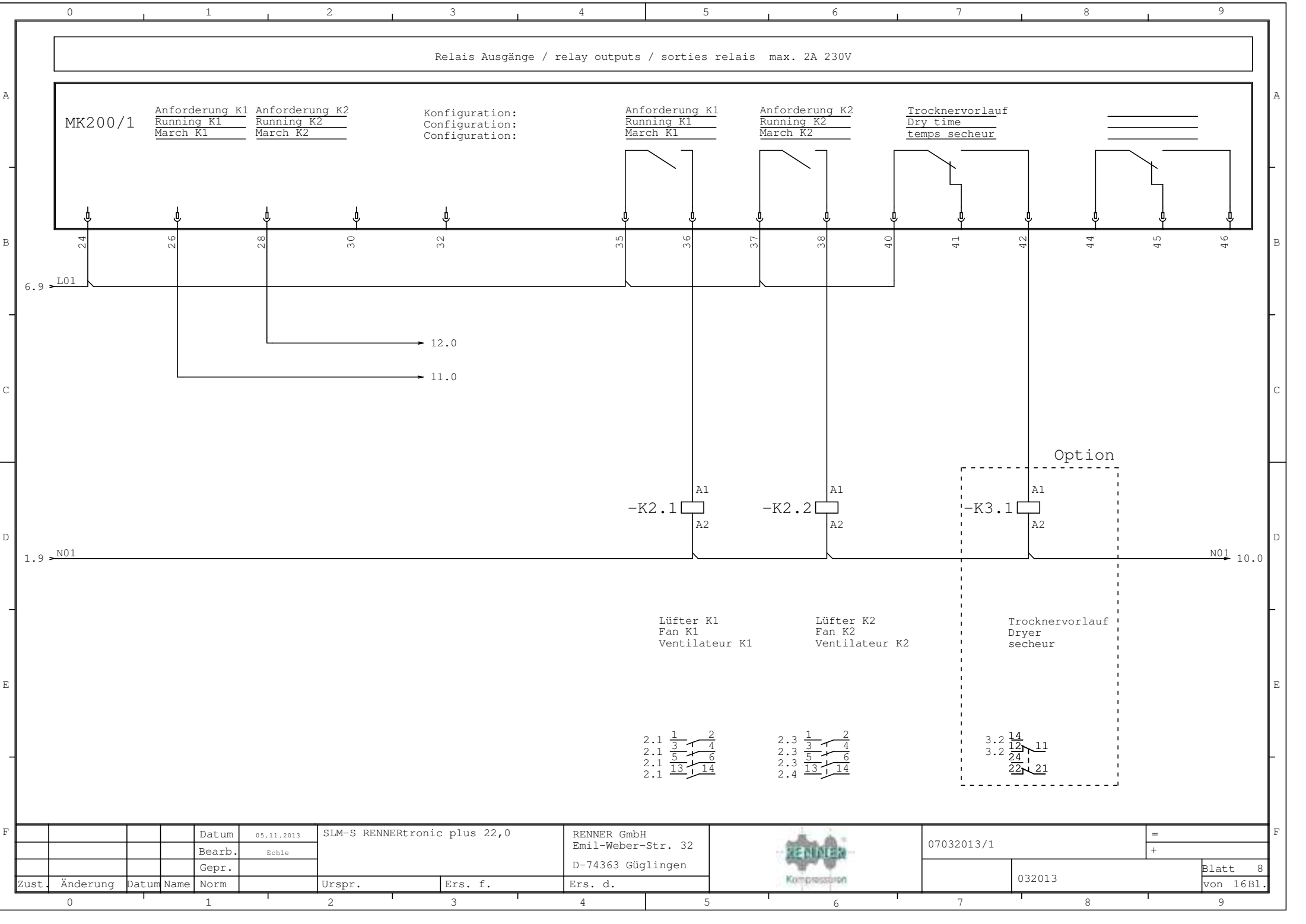
Kompressor - Motor 3
compressor - motor 3
compresseur - moteur 3

Kompressor - Motor 4
compressor - motor 4
compresseur - moteur 4

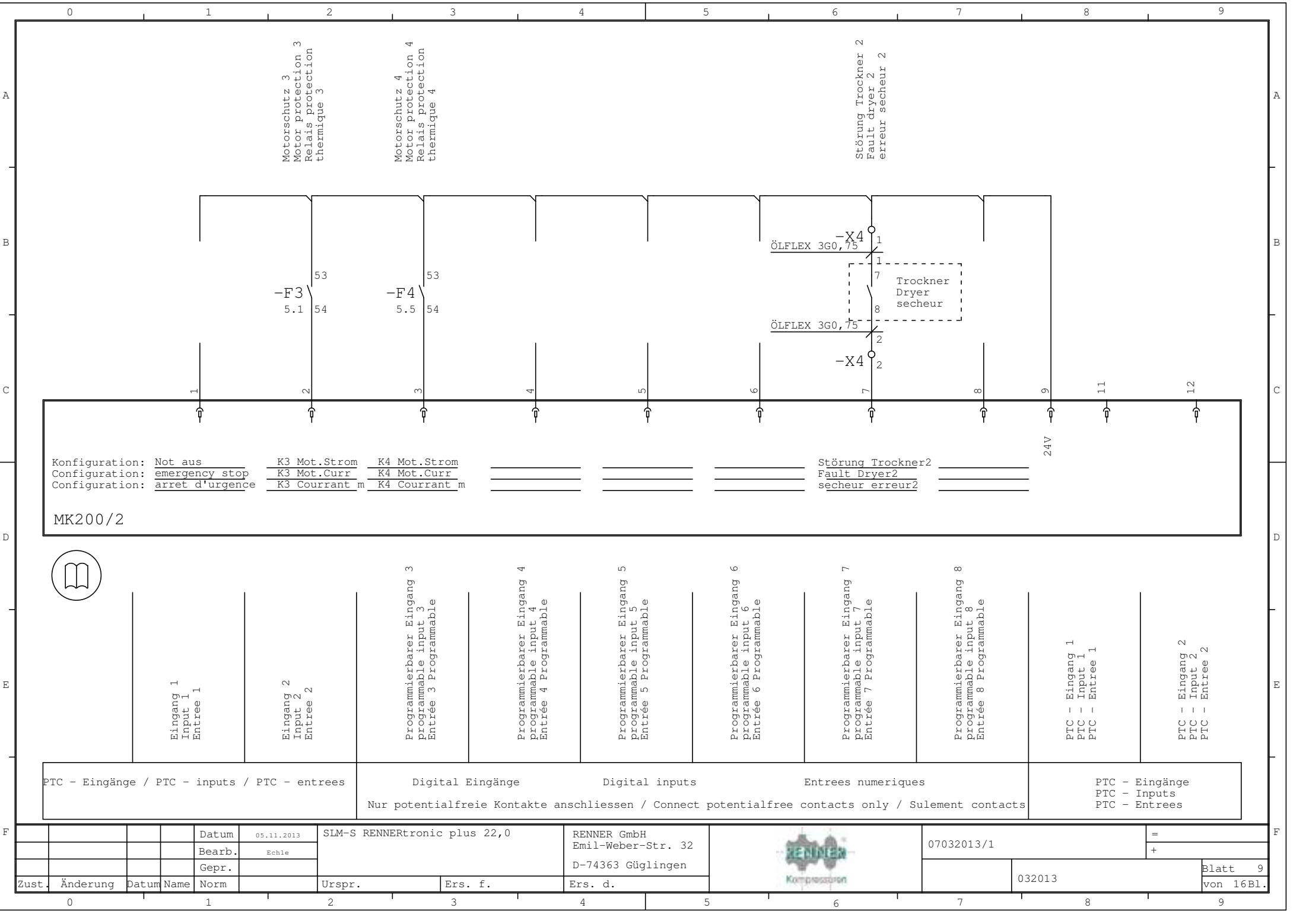
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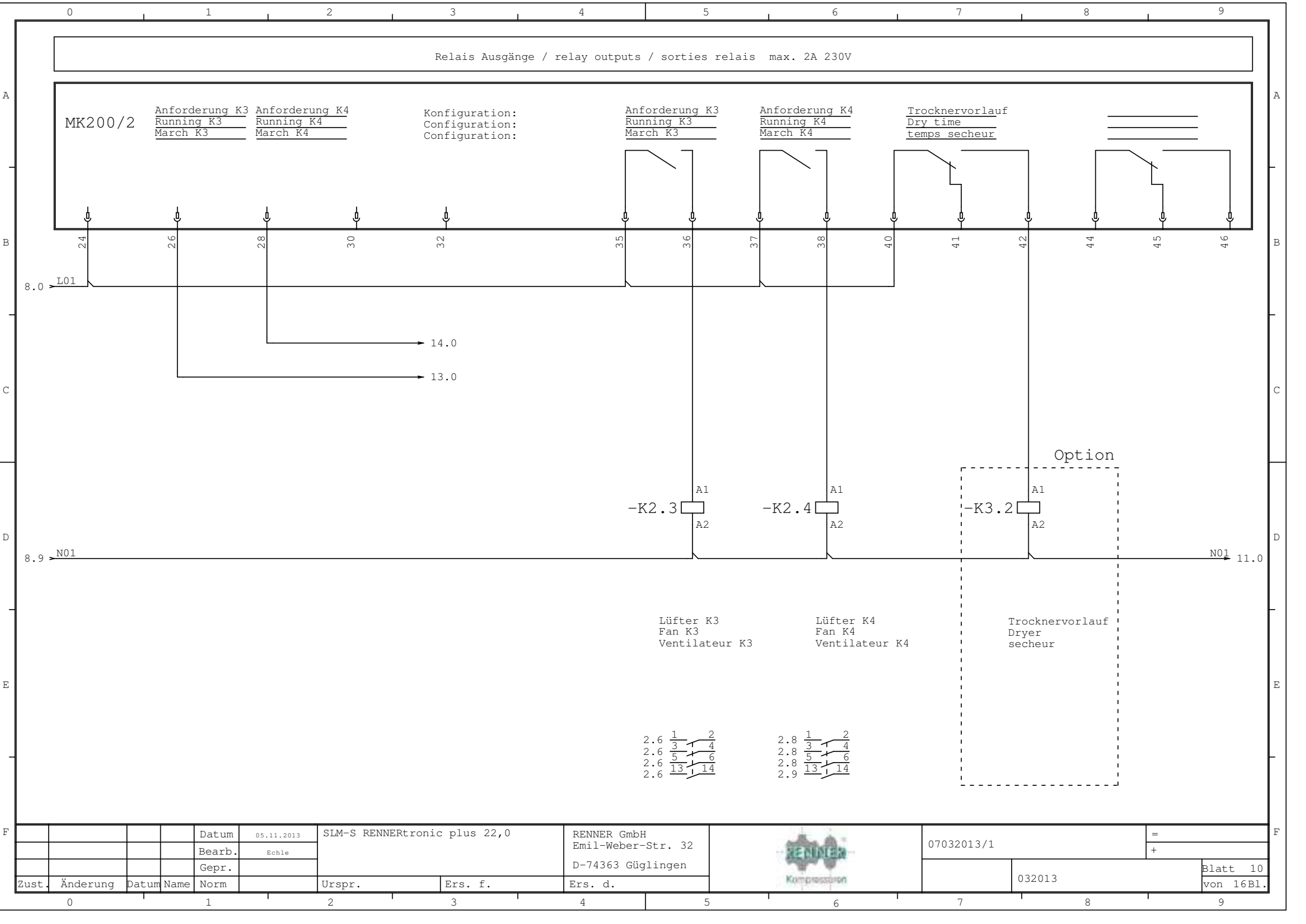


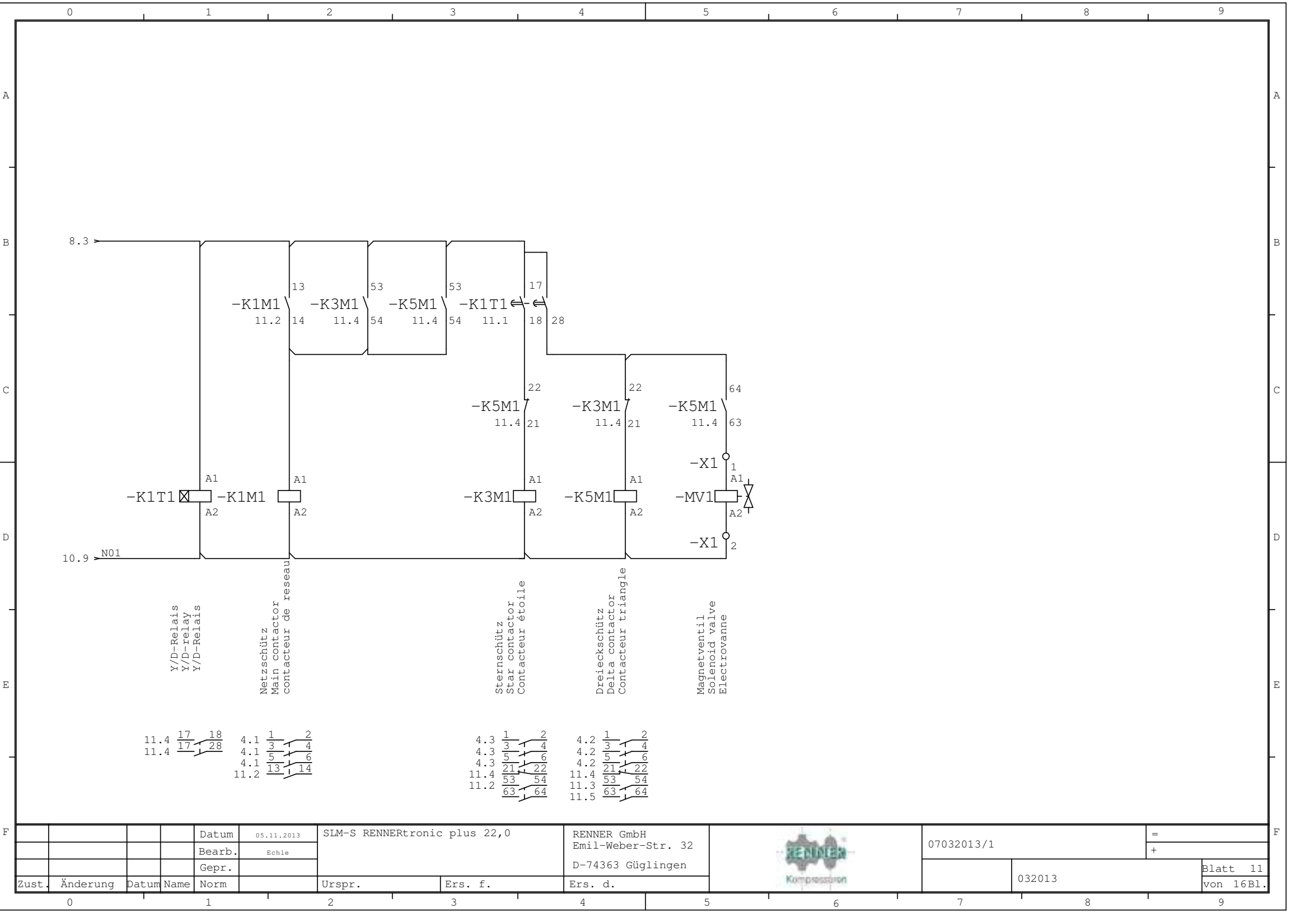
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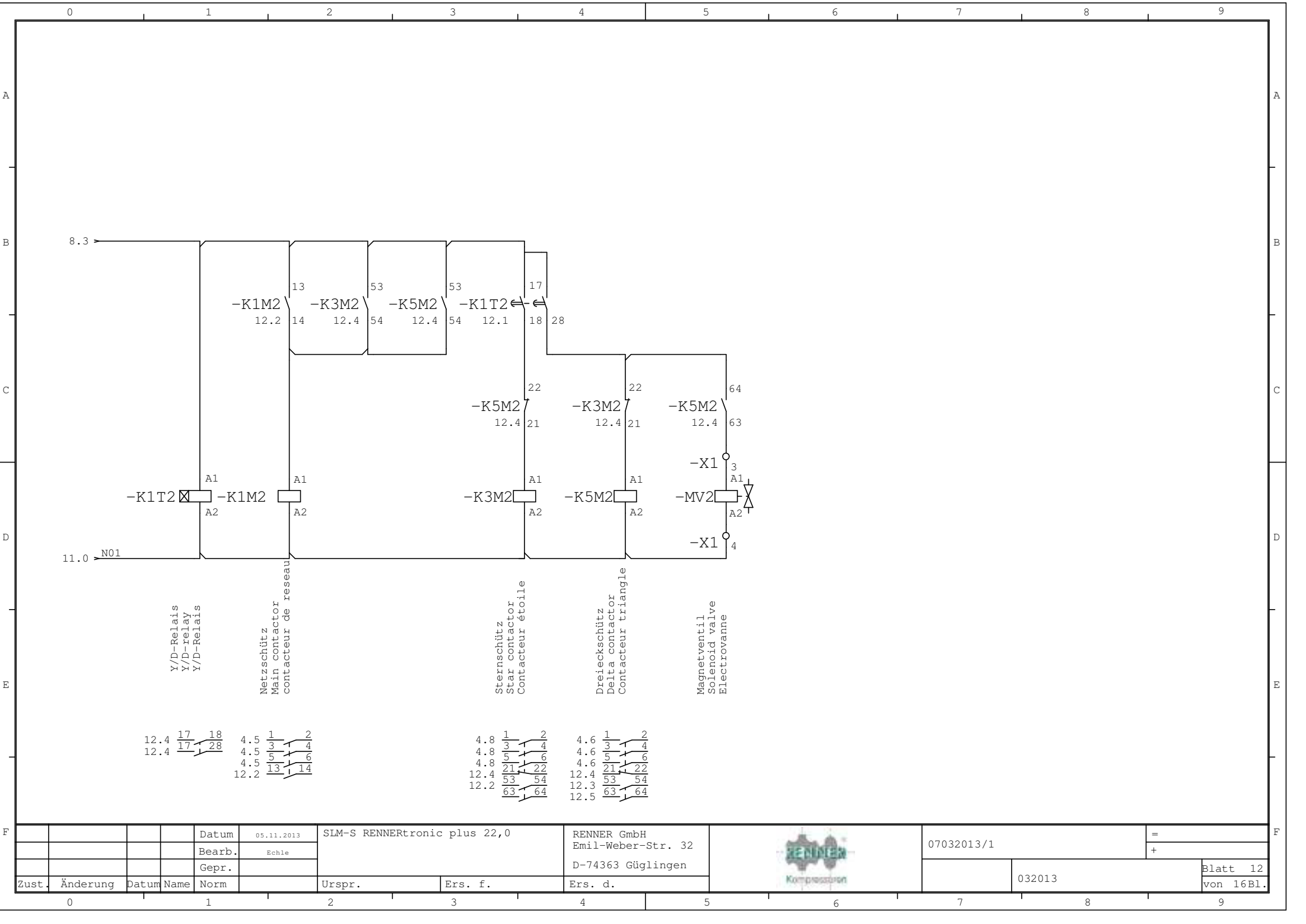
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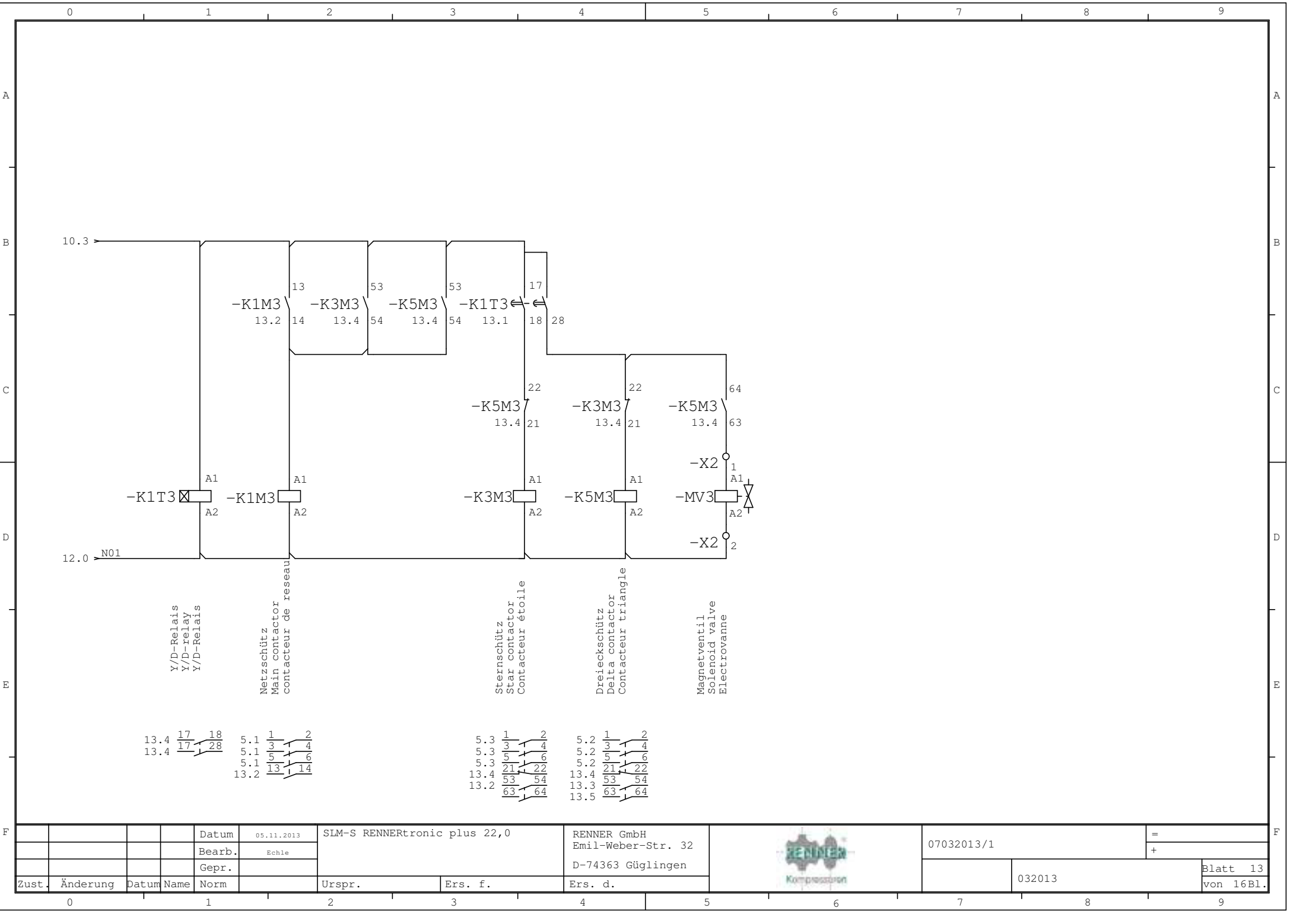




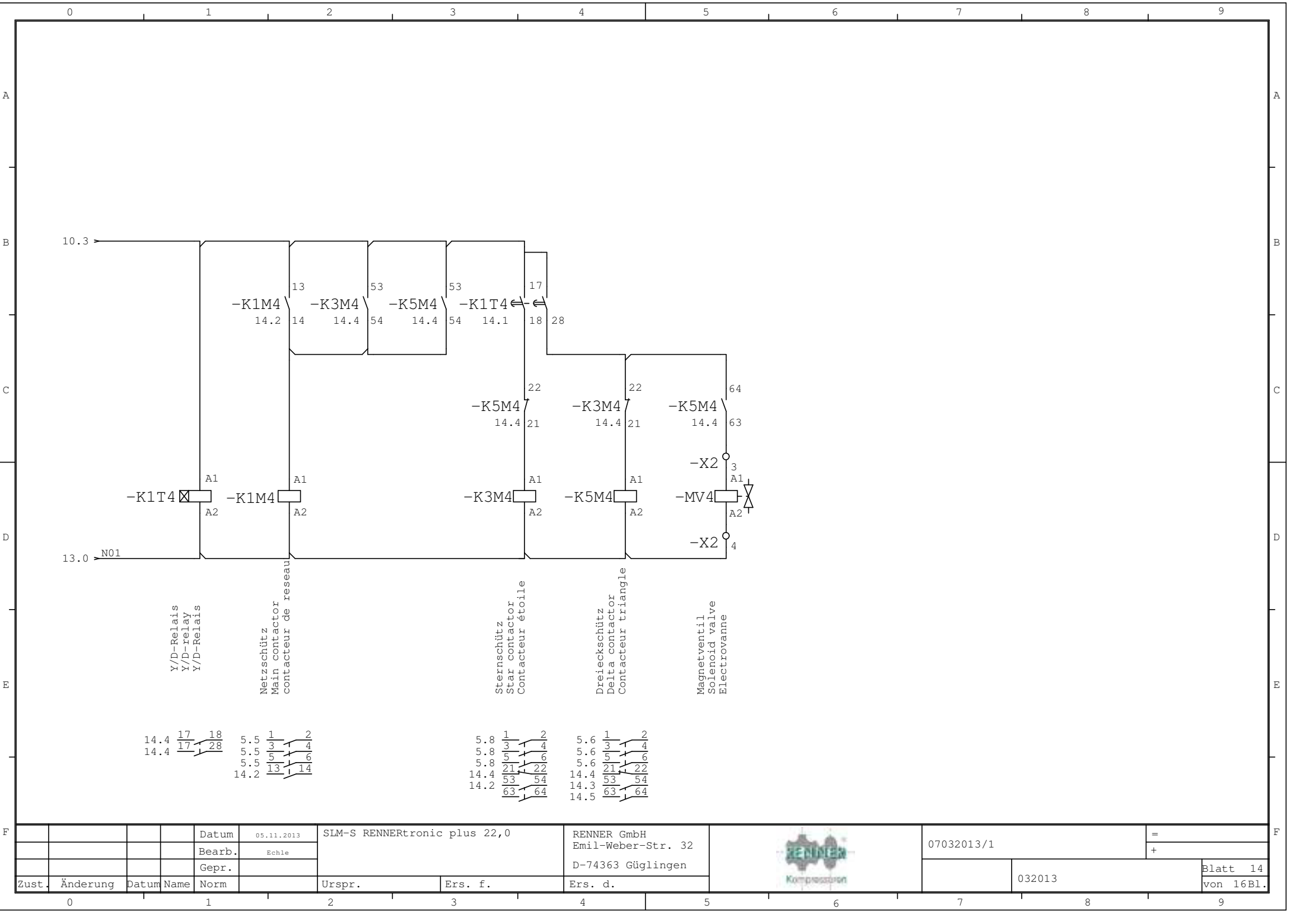
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				Gepr.				D-74363 Güglingen					
	Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.		Ers. d.		032013	
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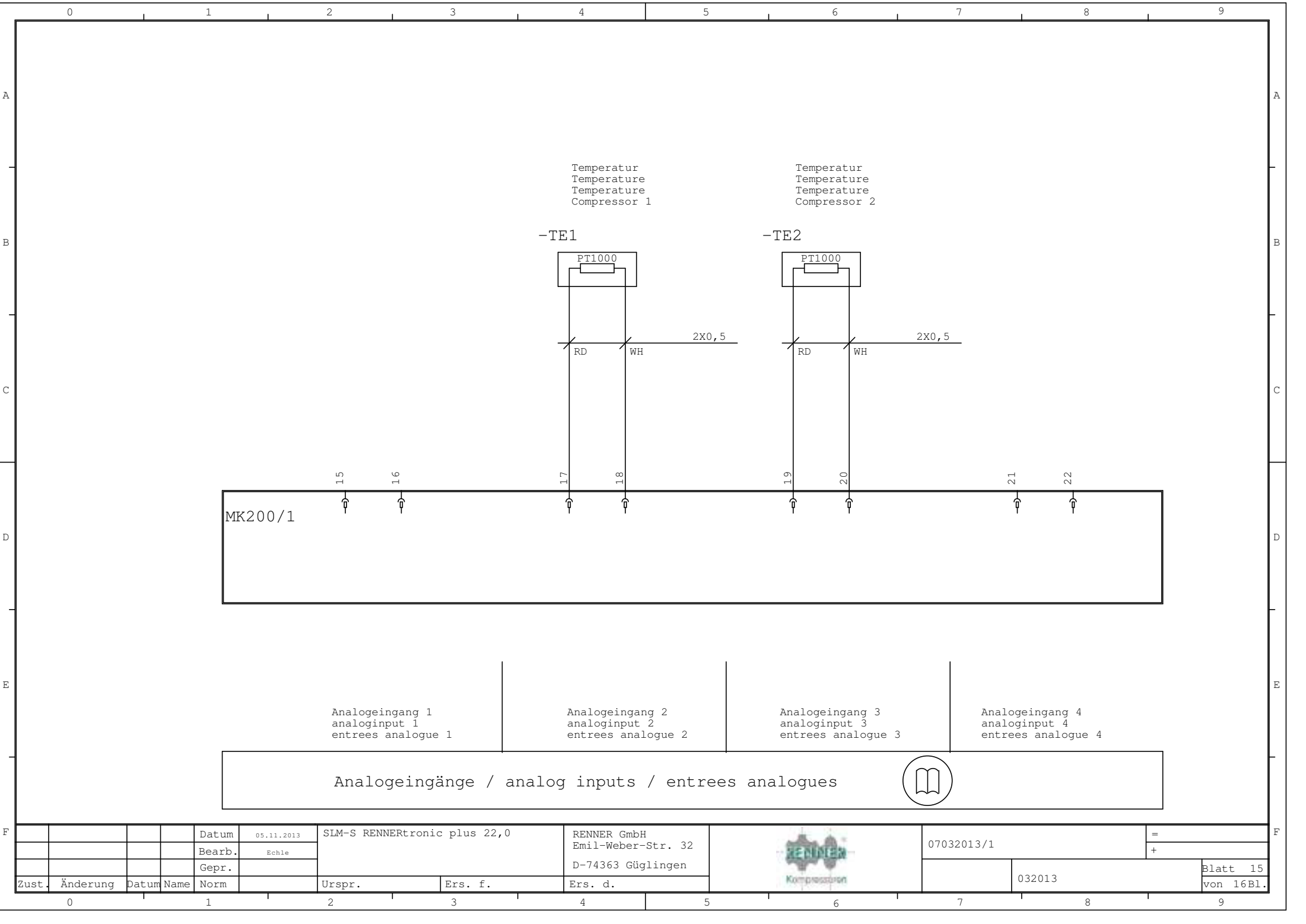
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				Gepr.				D-74363 Güglingen						
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			032013			Blatt 12 von 16Bl.
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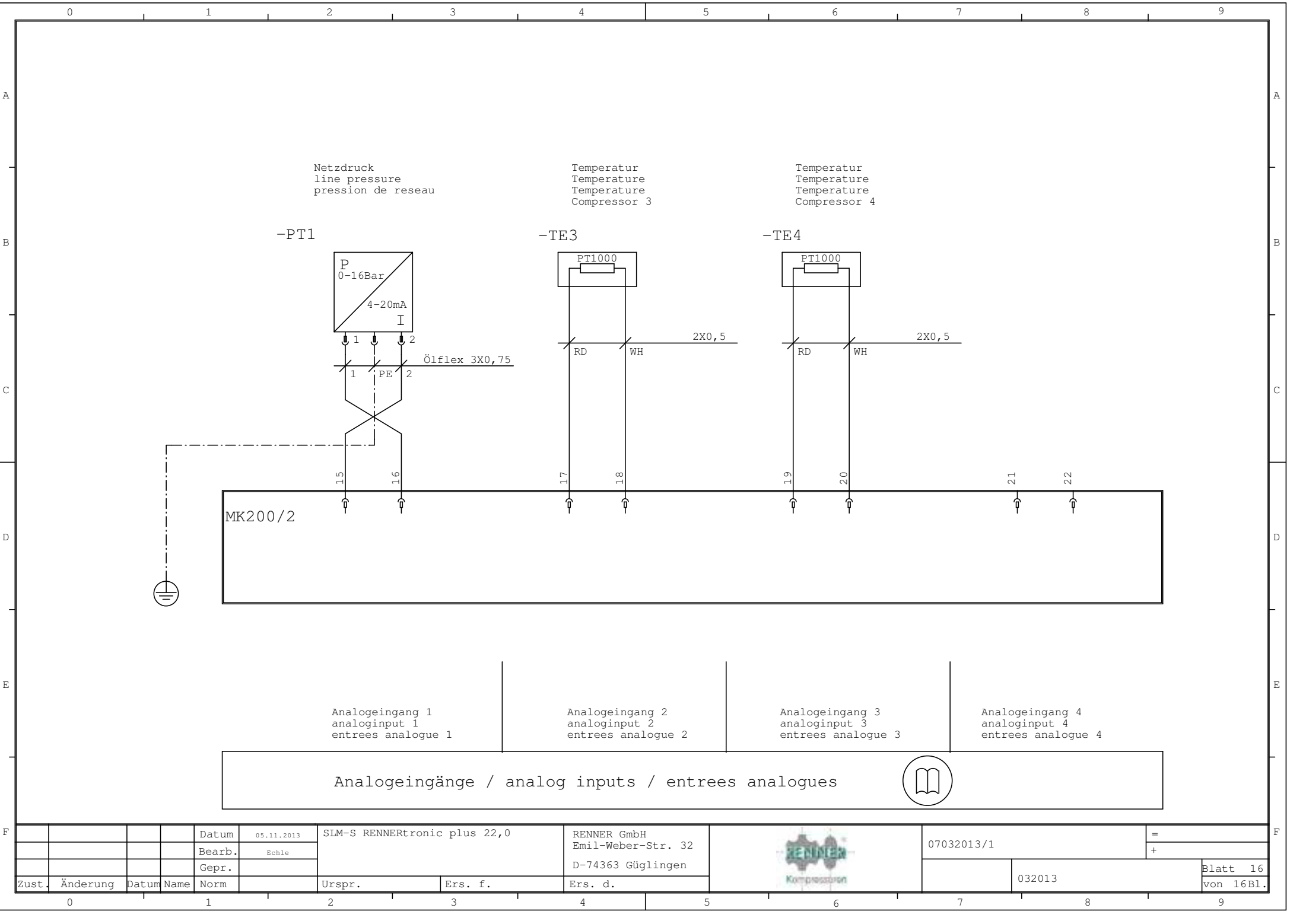
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				Gepr.				D-74363 Güglingen					Blatt 13
Zust.	Änderung	Datum	Name	Norm		Ers. f.	Ers. d.				von 16Bl.		



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Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			032013	Blatt 14 von 16Bl.	



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Zust.	Änderung	Datum	Name	Norm	Urspr.	Ers. f.	Ers. d.			032013	Blatt 15 von 16Bl.



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				Gepr.									
Zust.	Änderung	Datum	Name	Norm		Urspr.	Ers. f.	Ers. d.			032013		Blatt 16 von 16Bl.

Appendix W - Maintenance Check SLM-S 7,5 - 9,0 - 13,5

When due	8 bar	10 bar	Maintenance work	Parts required
Start-up	x	x	Tighten electric terminals	
			Control/tighten/hose connections	
			Control direction of rotation	
			Check v-belt tension	
every 250 h or monthly	x	x	Control / clean air intake filter	
every 1000 h or once every 6 months	x	x	Check condition of hoses for leaks, cracks etc.	
after 2500 h or once a year	x	x	Tighten electric terminals	
	x	x	Check v-belt for wear and replace if necessary	v-belt
	x	x	Check alignment of pulleys and tension and adjust if required	
	x	x	Check all pipes, if well fitted and tight	
	x	x	Change suction filter cartridge	Cartridge
	x	x	Check correct settings of pressure switch and adjust if required	
after 5.000 h or every two years	x		Clean suction fan	
	x		Clean cooling fins	
		x	SCROLL Maintenance I a (<i>Seal kit</i>) or SCROLL Maintenance I b (<i>reconditioned block</i>)	Mk
	x		SCROLL Maintenance (<i>non-return valves</i>)	Mk
after 10.000 h or every four years		x	Clean suction fan	
		x	Clean cooling fins	
	x		SCROLL Maintenance I a (<i>Seal kit</i>) or SCROLL Maintenance I b (<i>reconditioned block</i>)	Mk
		x	SCROLL Maintenance II (<i>contact your distributor or the manufacturer</i>)	Mk II
after 15.000 h	x		Clean suction fan	
	x		Clean cooling fins	
nach 20.000 h	x		SCROLL Maintenance II (<i>contact your distributor or the manufacturer</i>)	Mk II

* Only authorized and certified dealers by RENNER are allowed to carry through a "major maintenance"..
Follow the separate maintenance manual!

Only original RENNER parts and components must be used

Please go to the chapter "Maintenance kits" in the spare parts list to see which parts are included in the kits.

Appendix W - Maintenance check SLM-S 11,0 - 16,5 - 22,0 kW

When due	8 bar	10 bar	Maintenance work	Parts required
Start-up	x	x	Tighten electric terminals	
			Control/tighten/hose connections	
			Control direction of rotation	
			Check v-belt tension	
every 250 h or monthly	x	x	Control / clean air intake filter	
every 1000 h or once every 6 months	x	x	Check condition of hoses for leaks, cracks etc.	
every 2500 h or once a year	x	x	Tighten electric terminals	
	x	x	Check v-belt for wear and replace if necessary	v-belt
	x	x	Check alignment of pulleys and tension and adjust if required	
	x	x	Check all pipes, if well fitted and tight	
	x	x	SCROLL Maintenance (silencer, non-return valve, air filter)	Mk
	x	x	Check correct settings of pressure switch and adjust if required	
after 5.000 h or every two years	x		Clean suction fan	
	x		Clean cooling fins	
		x	SCROLL Maintenance I a (Seal kit) or SCROLL Maintenance I b (reconditioned clock)	Mk Mk
	x		SCROLL Maintenance (non-return valves)	Mk
after 10.000 h or every four years		x	Clean suction fan	
		x	Clean cooling fins	
	x		SCROLL Maintenance I a (Seal kit) or SCROLL Maintenance I b (reconditioned block)	Mk Mk
		x	SCROLL Maintenance II (contact your distributor or the manufacturer)	Mk II
after 15.000 h	x		Clean suction fan	
	x		Clean cooling fins	
after 20.000 h	x		SCROLL Maintenance II (contact your distributor or the manufacturer)	Mk II

* Only authorized and certified dealers by RENNER are allowed to carry through a "major maintenance".
Follow the separate maintenance manual!

Only original RENNER parts and components must be used

Please go to the chapter "Maintenance kits" in the spare parts list to see which parts are included in the kits.

Appendix AW2

Motor Bearings

All SCROLL Compressor motors are equipped with so called continuously lubricated or closed motor bearings - calculated service life during level operation is between 10,000 and 20,000 operating hours (Oh).

The bearing may be replaced during other maintenance or service work.

The type descriptions of the bearings are listed in the below table

Please note the following under all circumstances: High ambient temperatures, dusty air or other adverse operating conditions markedly compromise the service life of the grease and the bearings. In this case, the re-lubrication intervals must, if necessary, be shortened. Watch for visual and acoustic (bearing noise) changes.

Here the details of the installed bearing:

Model	Output kW	A side	B side
112 M	3,7 / 4,5	6307	6206
132S	5,5	6308	6207

[illegible]

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D- E - F

EC Declaration of Conformity according to machine guideline 2006/42/EC Appendix II 1.A

The manufacturer / distributor

RENNER GmbH Kompressoren
Emil-Weber-Straße 32
74363 Güglingen

hereby declares that the following product

Product description: **RENNER SCROLL Compressor**
Manufacturer: **RENNER**
Serial no.:
Series / type description: **SLM-S 7,5 – 22,0 kW, SLKM-S 7,5 – 22,0 kW**
Description:
SCROLL Compressor for generating compressed air of 8 and 10 bar

meets all relevant provisions of the above stated guideline and the other applied guidelines (to follow) - including the changes applicable at the time of the declaration.

The following further EC guidelines were applied:

EMC guideline 2004/108/EC
Low tension guideline 2006/95/EC
Guideline 2009/105/EC.

The following harmonised standards were applied:

EN 1012-1:1996	Compressors and vacuum pumps - Safety requirements - Part 1: Compressors
EN 286-1:1998/A2:2005	Simple unfired pressure vessels designed to contain air or nitrogen - Part 1: Pressure vessels for general purposes
EN 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1: General requirements (IEC 60204-1:2005 (modified))
EN ISO 12100-1:2003	Safety of machinery - Basic concepts - General principles for design - Part 1: General terminology, methodology (ISO 12100-1:2003)
EN ISO 12100-2:2003	Safety of machinery - Basic concepts - General principles for design - Part 2: Technical leading records (ISO 12100-2:2003)
EN ISO 13849-1:2008	Safety of machinery - Safety relevant parts of controls - Part 1: General principles for design (ISO 13849-1:2006)
EN ISO 13849-2:2008	Safety of machinery - Safety relevant parts of controls - Part 2: Validation (ISO 13849-2:2003)

Name and address of person who is authorised to compile the technical documentation:

Daniel Hallner
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(Signature)
Managing Director



(Signature)
Contractor for documentation

Appendix KT

Operating instructions for the refrigerant drier

Content

In this chapter you receive a brief overview for the optionally installed refrigerant drier.

Please follow the refrigerant drier safety instructions found in the separate operating manual. It is particularly dangerous to breath-in the cooling steam or get in contact with the cooling agents. Smoking when working on the refrigerant drier is prohibited, since the cooling agent will develop poisonous vapours when getting in touch with the glowing end of a cigarette or other open flame (e.g. welding work).

Function

The refrigerant air drier contains a cooling system for cooling the compressed air. The compressed air is also de-humidified. The condensate created here is discharged through a condensate separator.

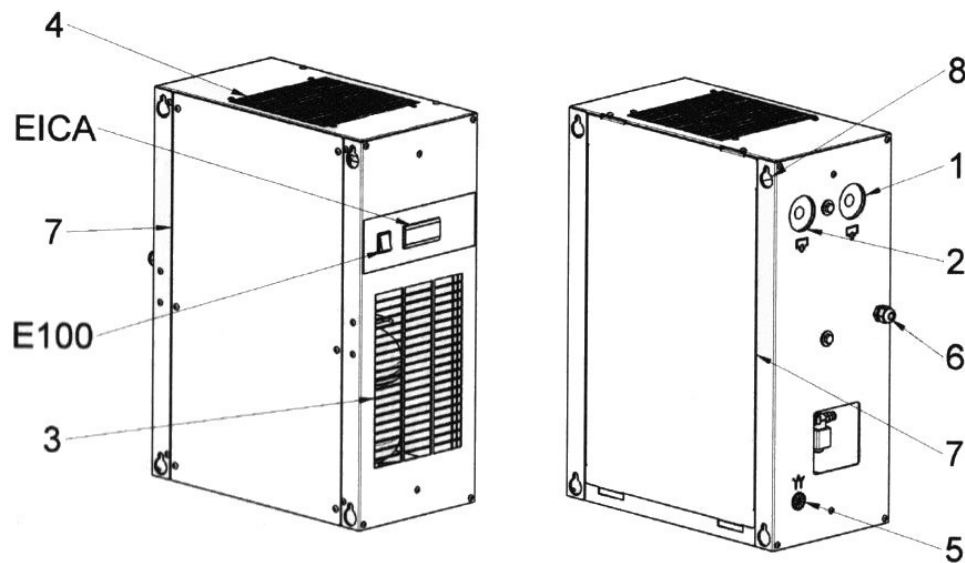


Make sure that the air inlet and outlet is never impaired or blocked. Adequate distance must be maintained between the ventilation grids and room walls. Please follow the figure in Chapter 2.3 and the information in Chapter 2.3.1 of the Operating Manual of the refrigerant drier supplier.

After turning on the refrigerant drier, wait 5 minutes until the pressure has equalised. Only then, start the compressor.

Appendix KT refrigerant drier (cont'd)

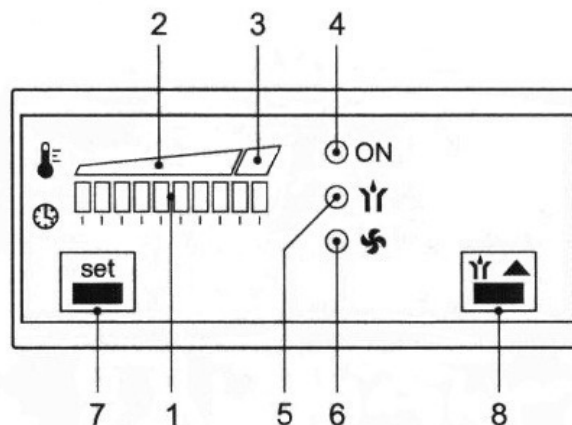
Figure
Refrigerant Drier



- 1.) Compressed air inlet
- 2.) Compressed air outlet
- 3.) Cooling air inlet
- 4.) Cooling air outlet
- 5.) Steam trap

- 6.) Electrical connections
- 7.) Maintenance access
- 8.) Fixing holes
- E100.) Switch-on
- EICA.) Electronic regulator

Figure
control panel



Appendix KT refrigerant drier (cont'd)

Electronic Regulator

Item	Description	Function
1	10 x green LED	Pressure dew point indicator
2	Green area	Pressure dew point normal
3	Red area	Pressure dew point is too high
4	Green LED	Compressed air drier is turned on In the setting mode the blinking LED shows which data will be displayed.
5	Yellow LED	Condensate magnetic valve is active
6	Yellow LED	Ventilator is turned on
7	Setting switch	Multi-function key for editing the parameter. Press the button for 2 seconds: Switch from display to setting mode Briefly press the button: Switch between menus Press button together with up key: Current setting is changed
8	Up key	Up / deflector test Pressing the up key will exit the setting mode

Appendix KT refrigerant drier (cont'd)

Maintenance



Before completing any maintenance work, please follow all safety provisions for electrical systems and electrical devices (see Chapter 1 of the original operating manual).

The compressed air refrigerant drier must be maintained at different intervals. The maintenance intervals heavily depend on the utilisation type and the conditions of the installation site. The following maintenance work must be completed daily:

1. Check the function of the steam trap; check if water is drained; valve test (manual drain condensation).
2. Check the pressure dew point display; for deviations from the normal range, see chapter 5.2.2 and 5.2.3 in the original operating manual
3. Check the compressor for contamination

Specific notes about other maintenance intervals and work can be found in the manufacturer original operating manual under Point 5 Maintenance.