Milkplan

MPV & MPVC

MAINTENANCE MANUAL

EN

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1. Introduction

MILKPLAN S.A. sincerely thanks you for selecting one of its products.

The open-type milk cooling tank MP Vertitank (MPV) provides fast and consistent cooling, preserving the quality of the milk at the highest level. Its carefully engineered design and high-quality construction materials ensure long-term operation and energy efficiency.

The MP Vertitank Closed (MPVC) series consists of closed-type tanks and offers an intelligent combination of the MPV series layout and the advantages of the MP Powertank series. The MPVC is designed as a vertical tank with a manhole and includes the MPP Standard cooling and washing control system.

The MPV & MPVC models are available in various capacities to meet the needs of every customer.

By choosing a milk cooling tank from MILKPLAN S.A., you have selected a premium product manufactured by a company with long-standing experience in milk cooling and milk processing.

This manual has been prepared to guide the user through the necessary preventive and corrective maintenance procedures for the milk cooling tank (MCT). Its purpose is to ensure the long-term reliability of the equipment, prevent technical failures, and maintain its safe operation through regular inspections and procedures specified by MILKPLAN S.A..

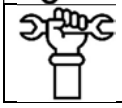
The manual includes:

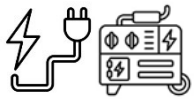
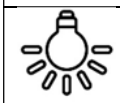
- Safety Rules
- Maintenance Instructions
- Troubleshooting Guide
- Spare Parts List

The user is requested to read this manual carefully before operating the MCT.

Reading the manual in advance ensures maximum performance and longevity of the investment.

1.1. Symbol Definitions

Symbol	Description	Explanation
	Consult the instruction manual	Provides additional information.
	Caution!/Mandatory Action	Failure to follow the instructions precisely may result in: - Damage to the tank (such damage is not covered by the warranty). - Deterioration of milk quality.
	Safety Glasses / Gloves / Safety Shoes	The use of personal protective equipment is mandatory.
	Ventilation	Ventilation / exhaust system is required.
	Warning!	Hazard (risk of injury or irreversible equipment damage).
	Crane / Forklift	Use of a crane and/or forklift truck is required.
	Moving Parts	Warning! Moving / rotating parts.
	Electrical Load	Warning! Electrical load / risk of electric shock.
	Flammable	Warning! Contains flammable material.
	Explosive	Warning! Contains explosive material.
	Ignition Source	Use of ignition sources is prohibited.
	Water Spray	Use of water is prohibited.
	Fire Extinguisher	
	Alignment / Measurement	Alignment (leveling) is required.
	Tools	Work must be carried out by qualified personnel / professional.

	Electricity	Power supply from the grid and/or generator.
	Water	Connection to the water supply network.
	Drainage	Wastewater / drainage network.
	Light Source	Adequate lighting required.
	Weather Protection	Shelter / protection from external environmental conditions is required.
	Technical Support	Contact the supplier's Technical Support department.
	Information / Recommendations	Additional information & recommendations.

1.2. Safety Instructions

Safety instructions are preventive in nature and aim to ensure safe and healthy working conditions for workers/users. They are designed to protect against potential hazards in the workplace, such as preventing injuries and illnesses, by minimizing or eliminating risks to health and safety. At the same time, these instructions aim to prevent actions that, in addition to posing a risk of accidents, may also cause material damage to the equipment.

1.3. Maintenance Instructions

These instructions aim to inform the user about the proper maintenance of the milk cooling tank. Compliance with these rules ensures that the product will fully serve its purpose—the cooling and preservation of milk—while simultaneously ensuring its long-term operation.

1.4. Environmental Compliance

MILKPLAN S.A. is committed to conducting its business operations with a focus on environmental sustainability throughout the stages of development, design, manufacturing, operation, and distribution of its products.

Maintenance

Waste may be generated during the maintenance of the product.

All metal and plastic parts should be sent for material recycling, provided that the relevant requirements are met.

Materials that do not fall into the above category (refrigerant, rubber/elastic plastics) must be managed in accordance with existing waste management regulations.

1.5. Amendments

MILKPLAN S.A. reserves the right to make changes or updates to this manual at any time without prior notice.

2. Safety Regulations

2.1. General Information

This manual constitutes an integral part of the Milk Cooling Tank (MCT) and must be stored in a secure location near the unit, protected from rain and moisture. It is mandatory that all users are aware of its location and familiar with its contents. The user is required to study this manual thoroughly, regardless of any prior experience with similar equipment. A few moments of careful reading will save time and prevent future operational issues.

Unauthorized personnel must not come into contact with any part of the device!

The operation manual must be studied carefully before proceeding with the maintenance operation of the equipment!
All recommendations, warnings, and guidelines for proper maintenance operation provided in this manual must be strictly observed.
Maintenance operations must be performed exclusively by qualified personnel.
MILKPLAN S.A. is liable only for the equipment it has supplied.
MILKPLAN S.A. bears no responsibility for any damages resulting from Improper transportation and unloading, misuse or incorrect operation or faulty installation or inadequate maintenance.

2.2. Maintenance and Repairs

Maintenance and repairs must be carried out exclusively by qualified personnel.
In the event of electrical or mechanical failure, the installation supervisor must be notified immediately.

2.3. Electrical Works and Power Supply

Before performing any of the following tasks, it is essential to isolate the tank from the electrical power supply. Disconnection can be achieved either by turning the main switch to the OFF/0 position on the central panel or by unplugging the tank from the power outlet.

All electrical work must be carried out exclusively by a certified Electrician.

Application of electrical works:

1. Opening of electrical panels/junction boxes.
2. Maintenance of milk cooling tank components.
3. Inspection of the agitator, the spray ball system, and the interior of the tank.
4. Execution of works on the cooling unit.

WARNING: Operating the device with wet hands is strictly prohibited, as there is a risk of electric shock.

2.4. Tank Entry Procedures

In the event that entry into the tank is required, the task must be performed strictly under continuous supervision and only after a complete electrical power isolation. It is mandatory to ensure that the agitator cannot be activated. Although the agitator motor is equipped with a gravity-fed safety switch, this does not eliminate the possibility of mechanical or electrical failure. Only the designated, factory-provided ladder must be used for entering the tank.

The lid must be operated (opening/closing) exclusively via the specially designed handle. The lid must be opened to its full extent to ensure it is securely stabilized during operations. Avoid leaving the lid in an intermediate or partially open position, as there is a significant risk of accidental closure, which may lead to serious injury.

SAFETY RESTRICTION: It is strictly prohibited to open the lid or the Ø200 manhole while the milk cooling tank is in operation.

In cases where frequent access to the tank interior is required, it is recommended to install a fixed work platform around the perimeter of the tank. The height and design of the platform must ensure the safe and unobstructed entry and exit of personnel. The platform must comply with local industrial safety standards regarding fall protection and ergonomic access.

2.5. Cleaning Procedure

Before starting the equipment cleaning process, the operating manual must be studied carefully!
All recommendations, warnings, and rules for proper equipment cleaning must be taken into account.

3. Electrical Connections

3.1. Introduction

All internal electrical connections for MPV & MPVC models have been performed by MILKPLAN S.A. The electrical diagrams for MPV are presented in Figure 1 through Figure 20, while the electrical diagrams for MPVC are presented in Figure 21 through Figure 30.

3.2. Regulations

Always adhere to electrical installation regulations and safety standards. Any intervention in the electrical panel or the power supply line must comply with the official electrical diagrams and ensure the grounding and protection of the equipment.

3.3. Electrical Line / Panel

For a detailed description of the product's electrical requirements, the installation manual must be studied carefully!

3.4. MPV Electrical Diagrams

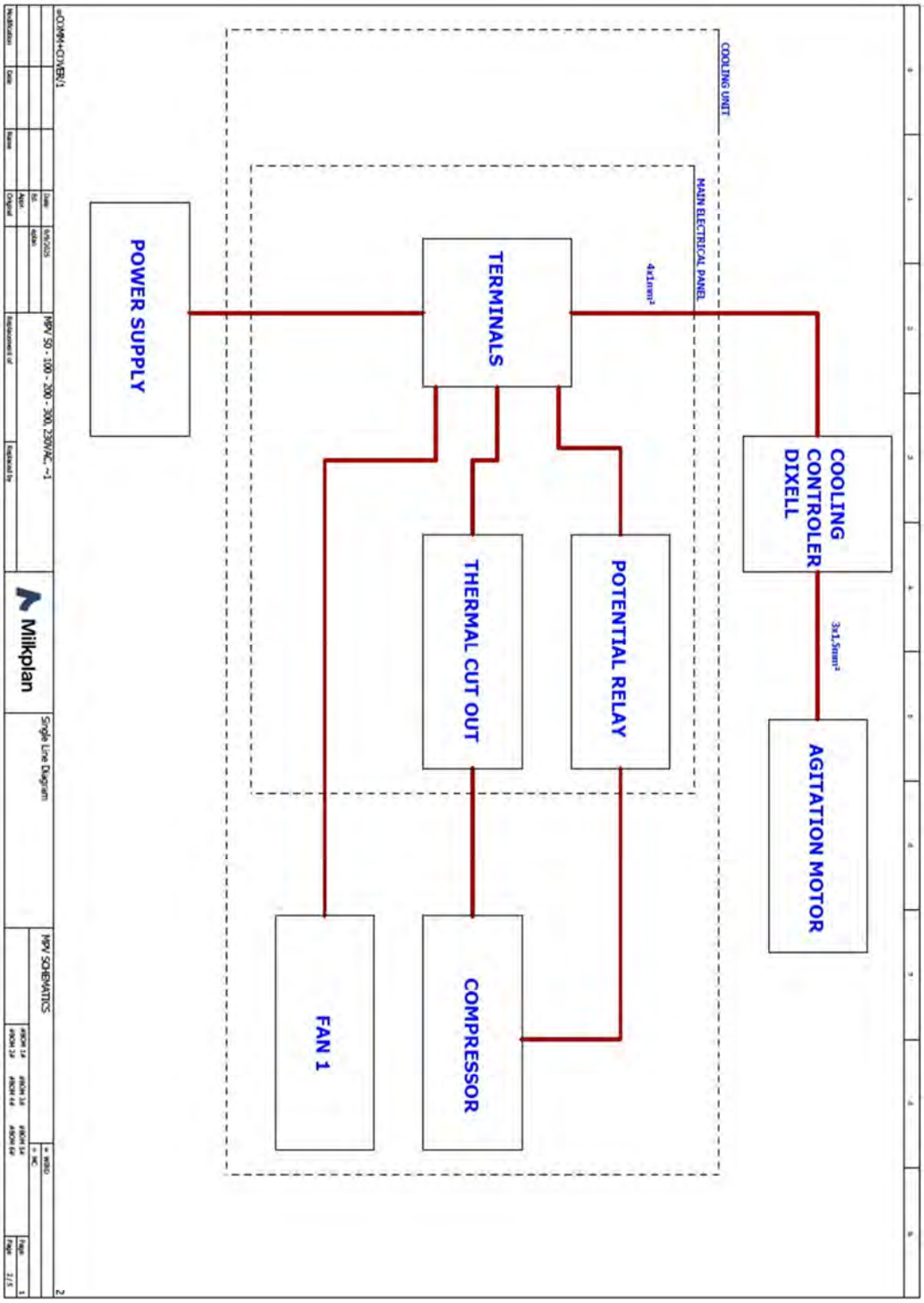


Figure 1: Electrical Diagrams MPV50-MPV300 230VAC, ~1/ Single Line

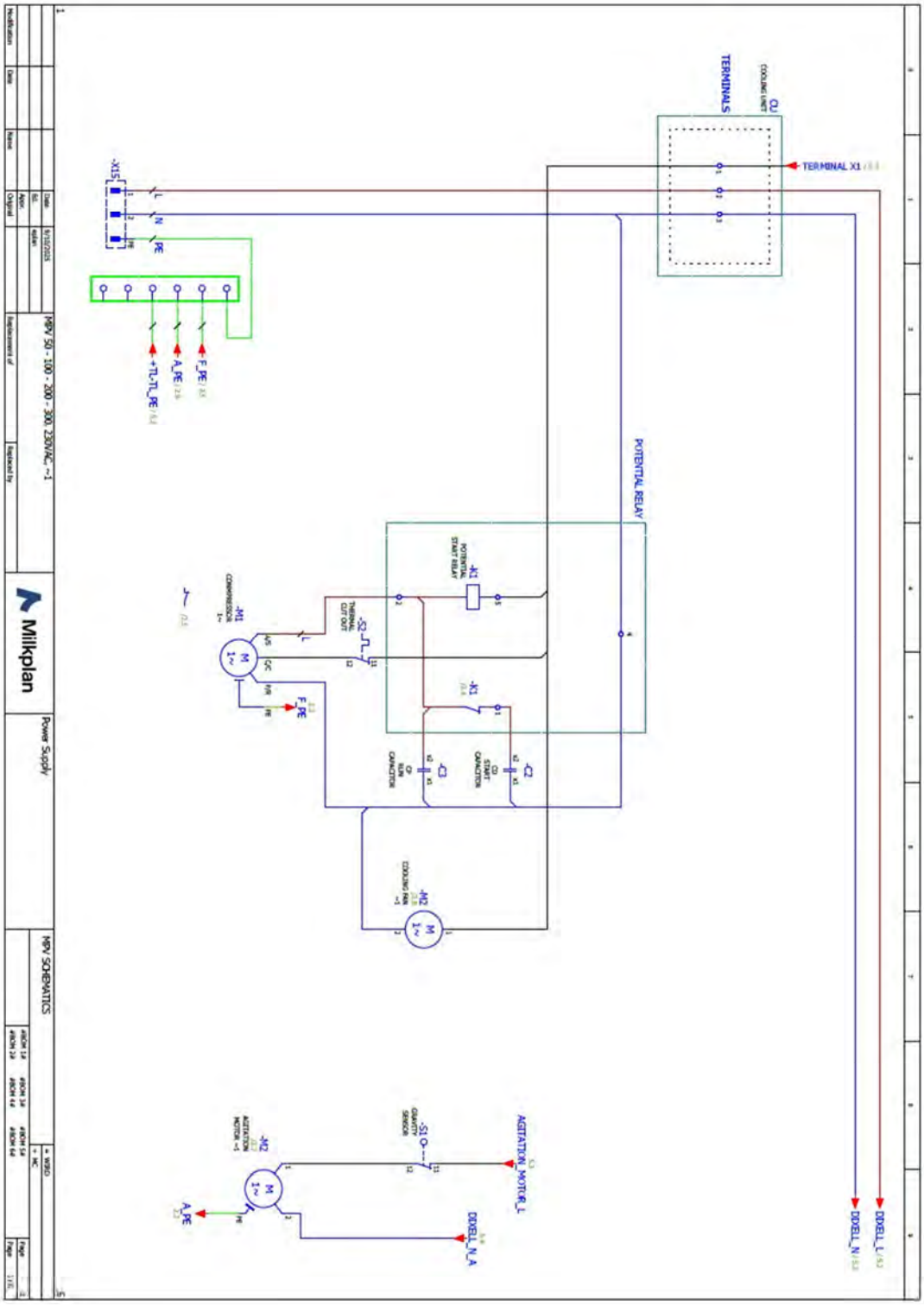


Figure 2: Electrical Diagrams MPV50-MPV300 230VAC, ~1/ Power Supply

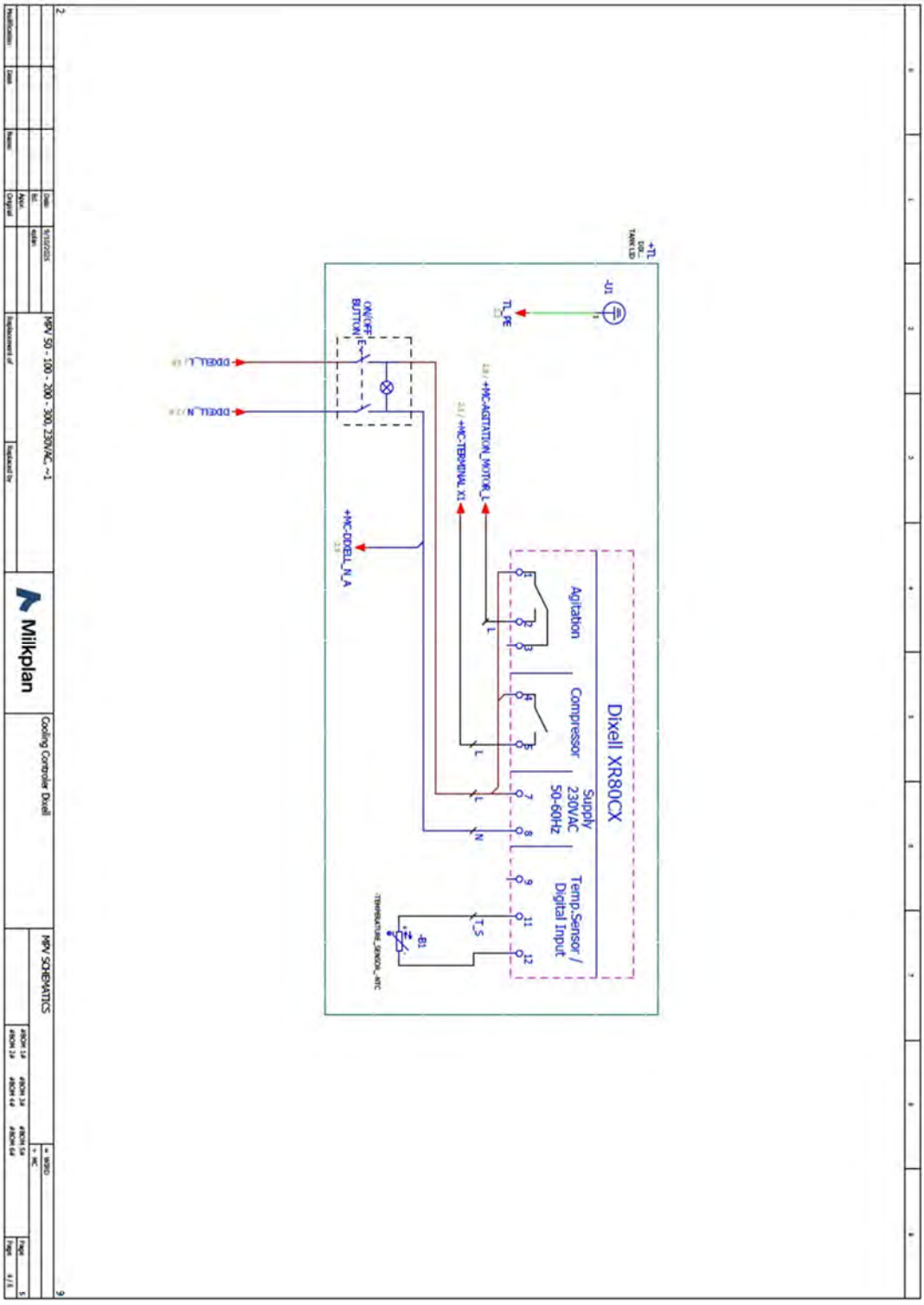


Figure 3: Electrical Diagrams MPV50-MPV300 230VAC, ~1/ Cooling Controller Dixell

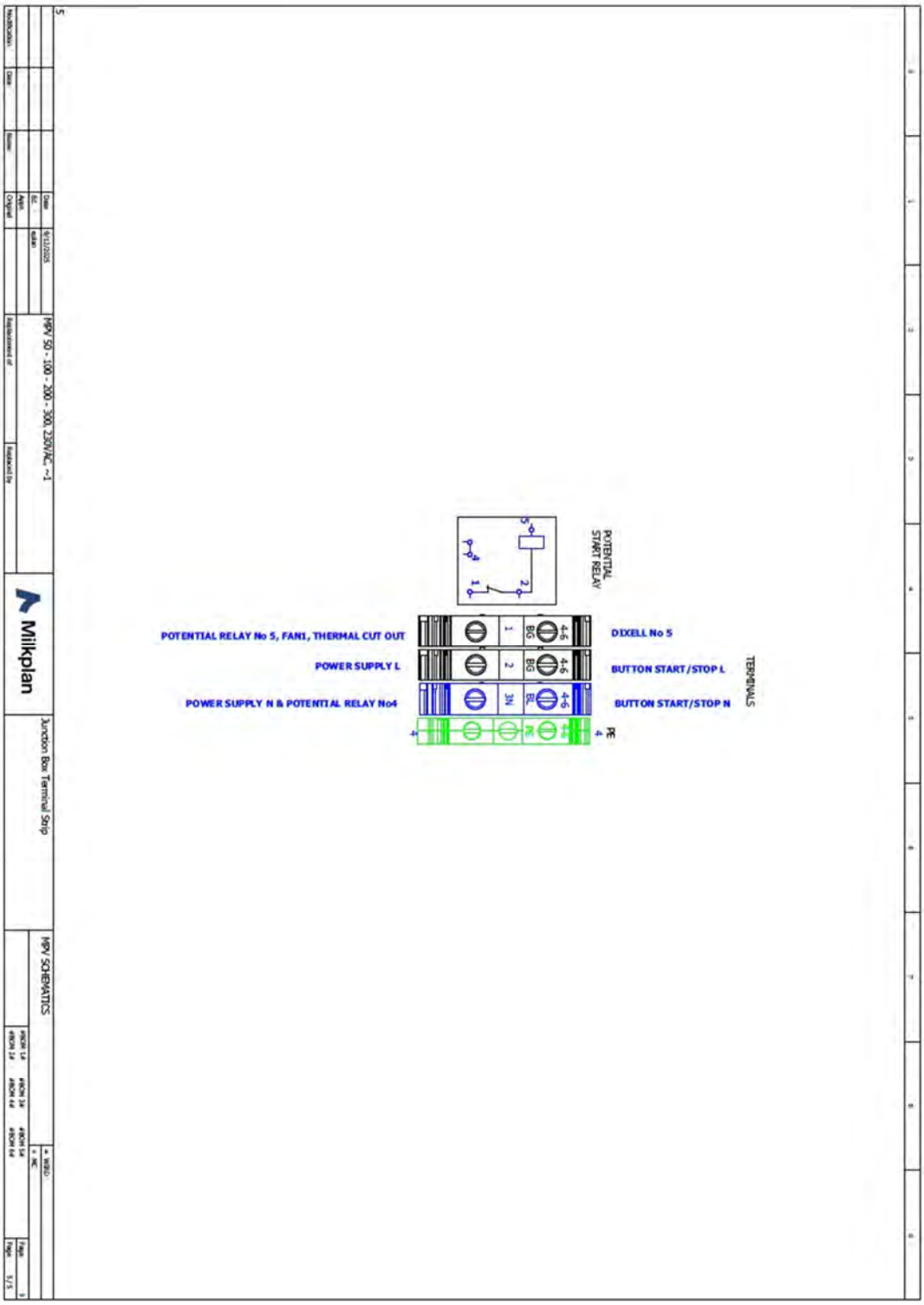


Figure 4: Electrical Diagrams MPV50-MPV300 230VAC, ~1/ Junction Box Terminal Strip

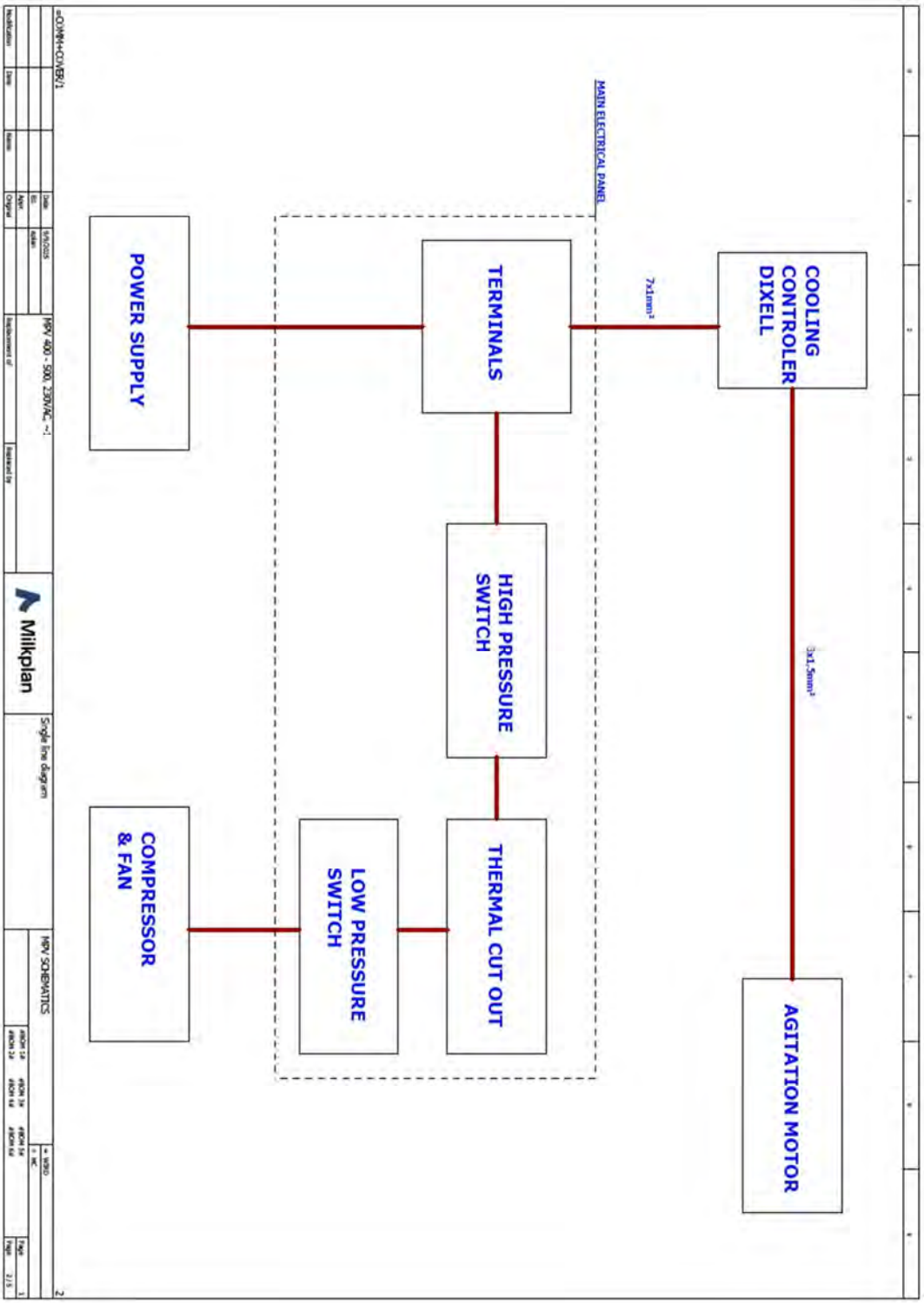


Figure 5: Electrical Diagrams MPV400/MPV500 230VAC, ~1/ Single Line

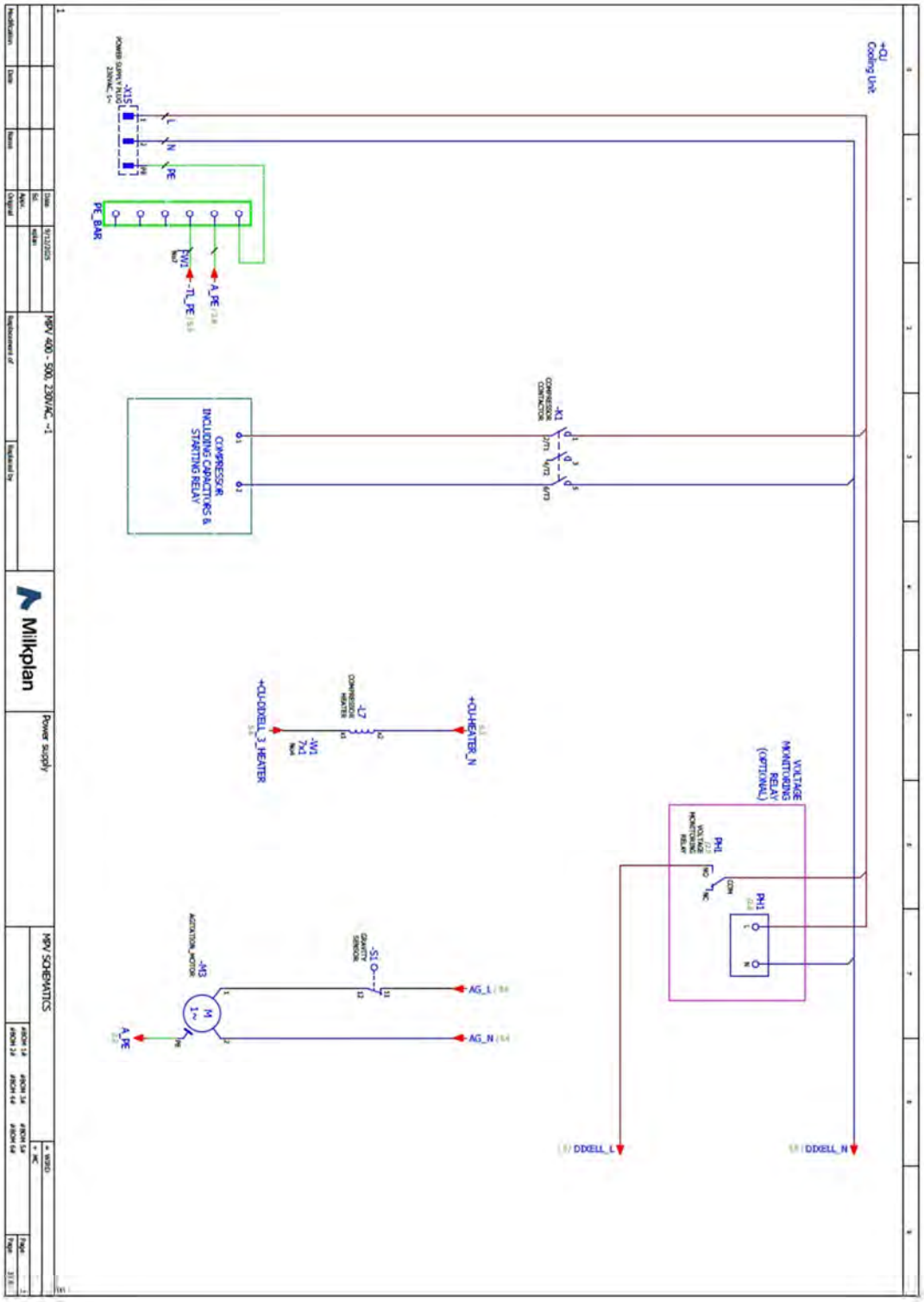


Figure 6: Electrical Diagrams MPV400/MPV500 230VAC, ~1/ Power Supply

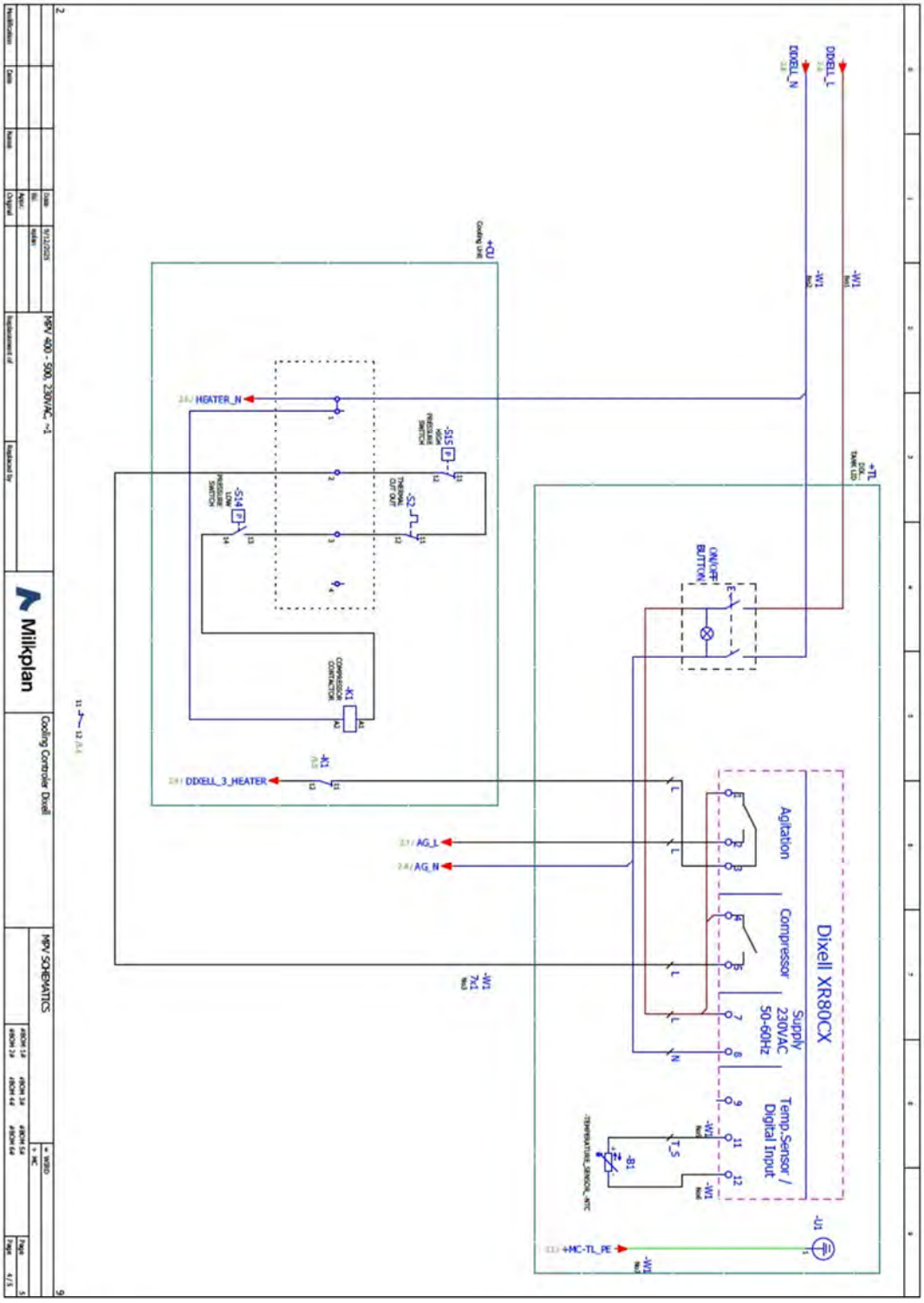


Figure 7: Electrical Diagrams MPV400/MPV500 230VAC, ~1/ Cooling Controller Dixell

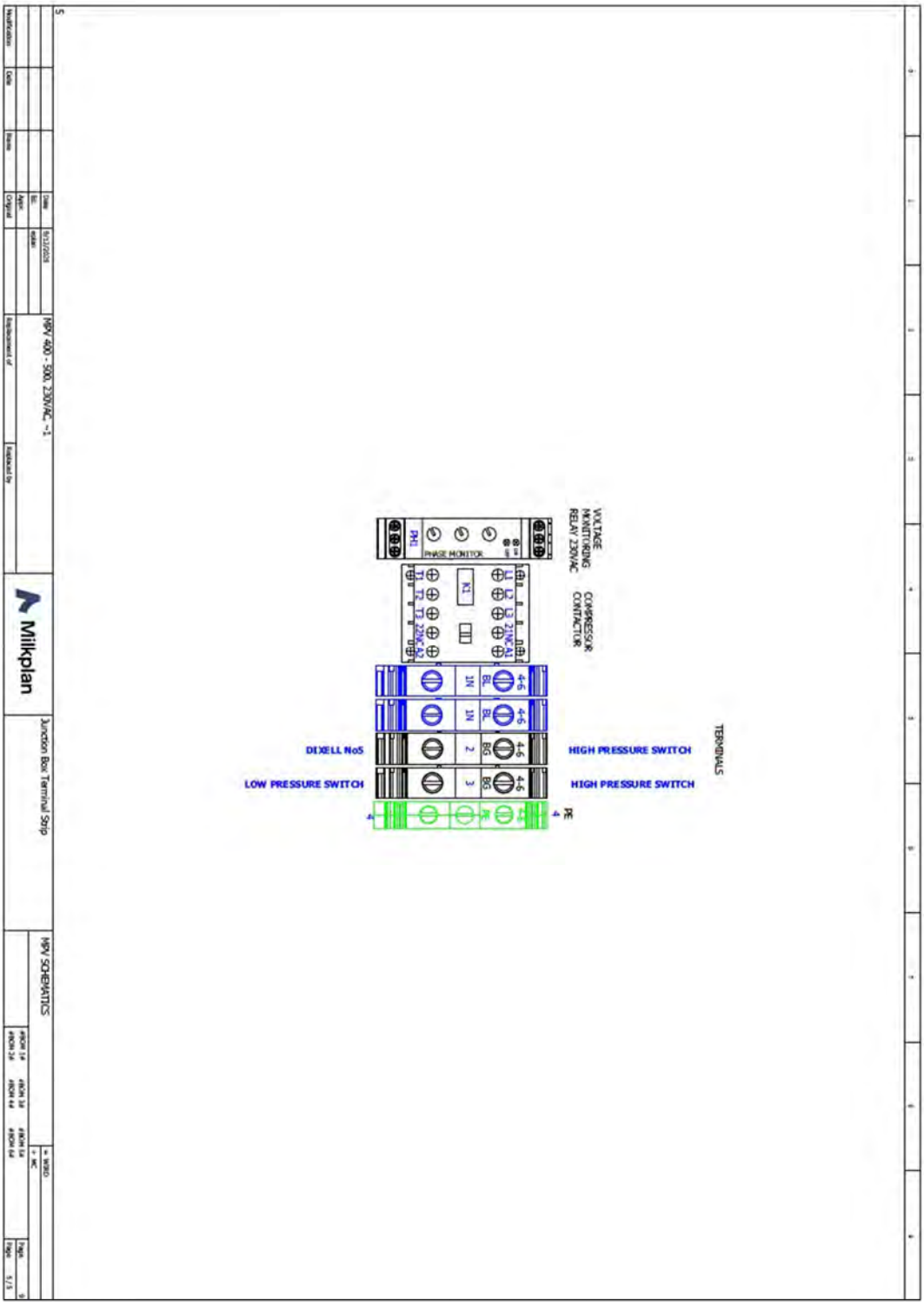


Figure 8: Electrical Diagrams MPV400/MPV500 230VAC, ~1/ Junction Box Terminal Strip

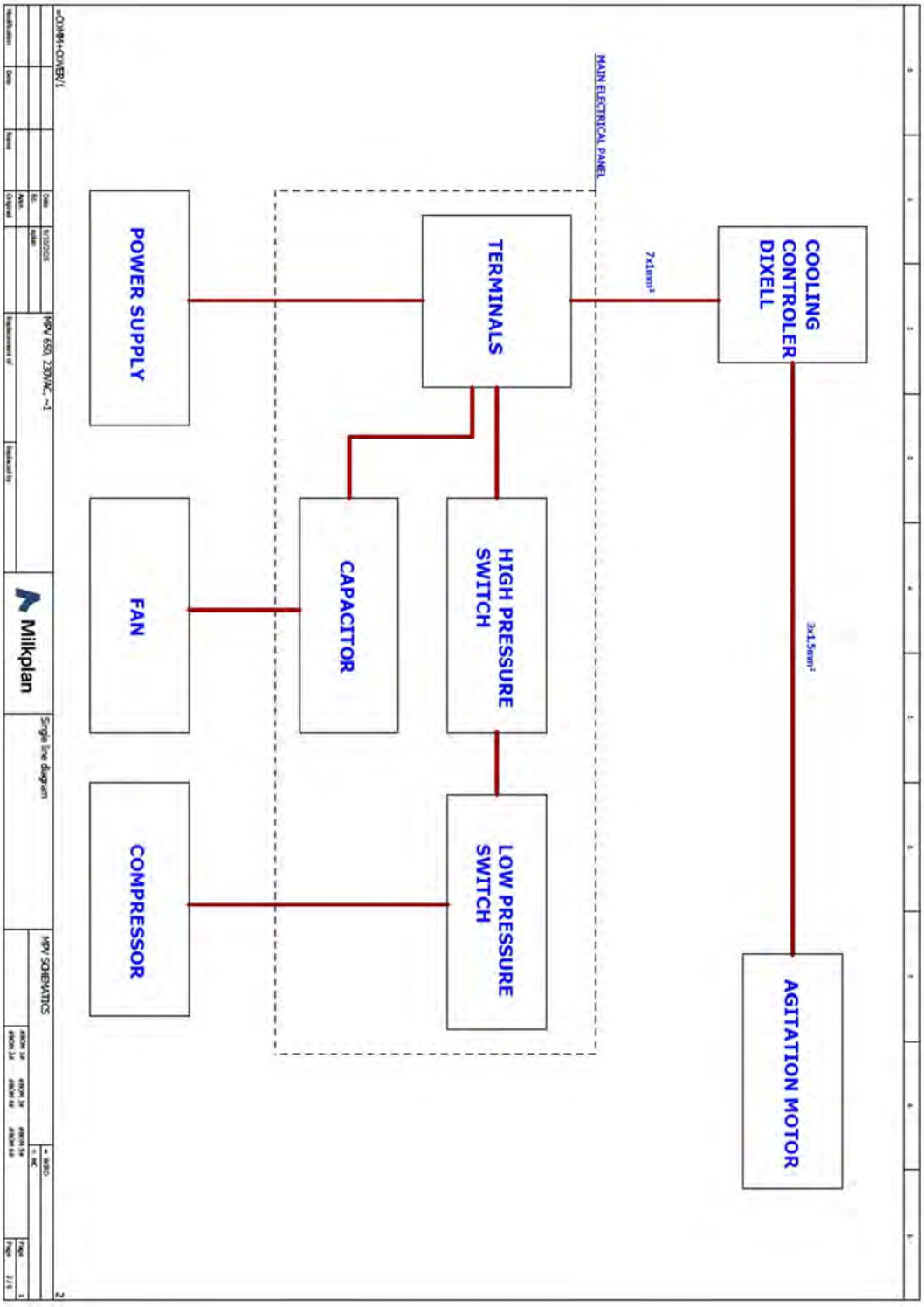


Figure 9: Electrical Diagrams MPV650 230VAC, ~1/ Single Line

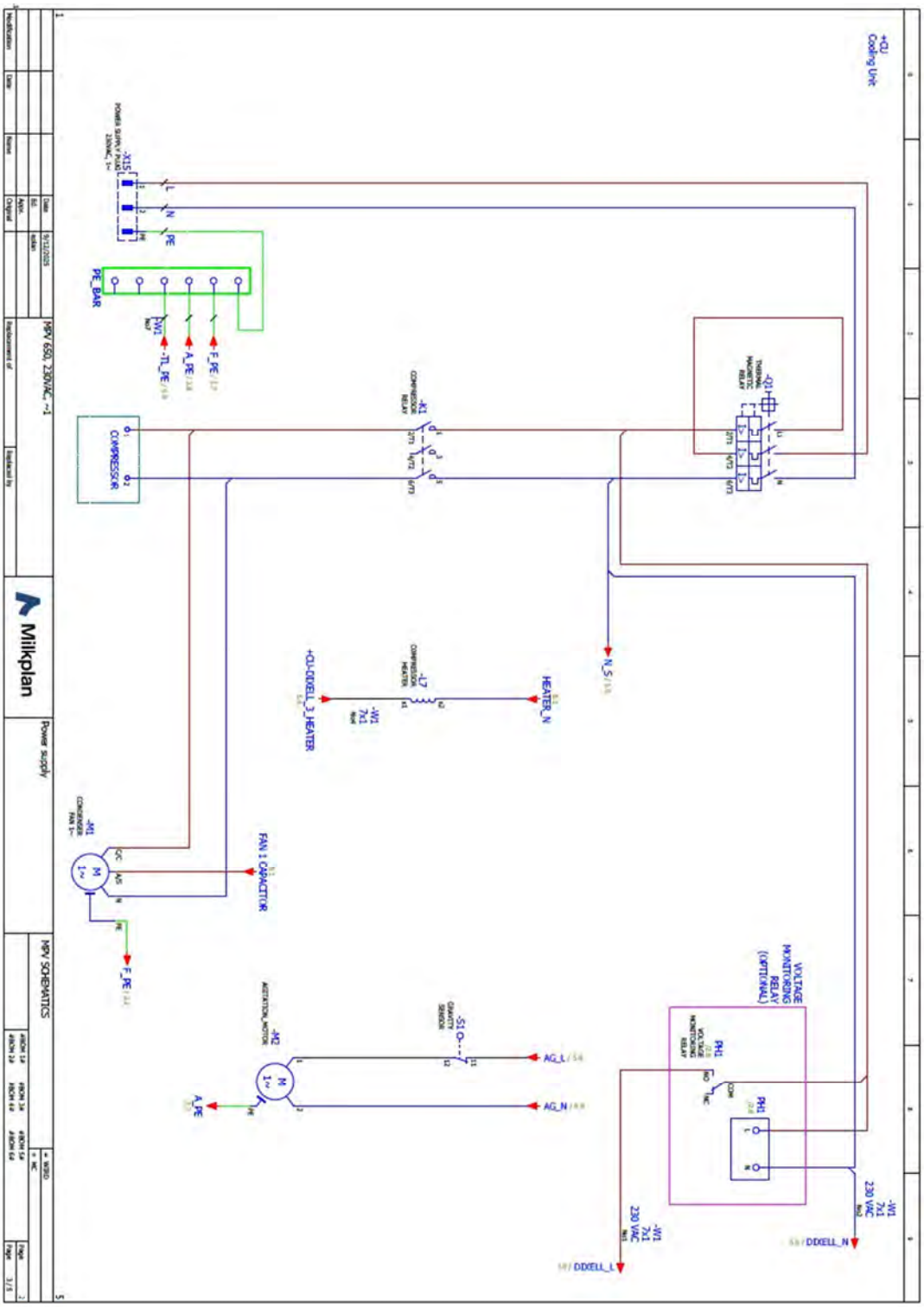


Figure 10: Electrical Diagrams MPV650 230VAC, ~1/ Power Supply

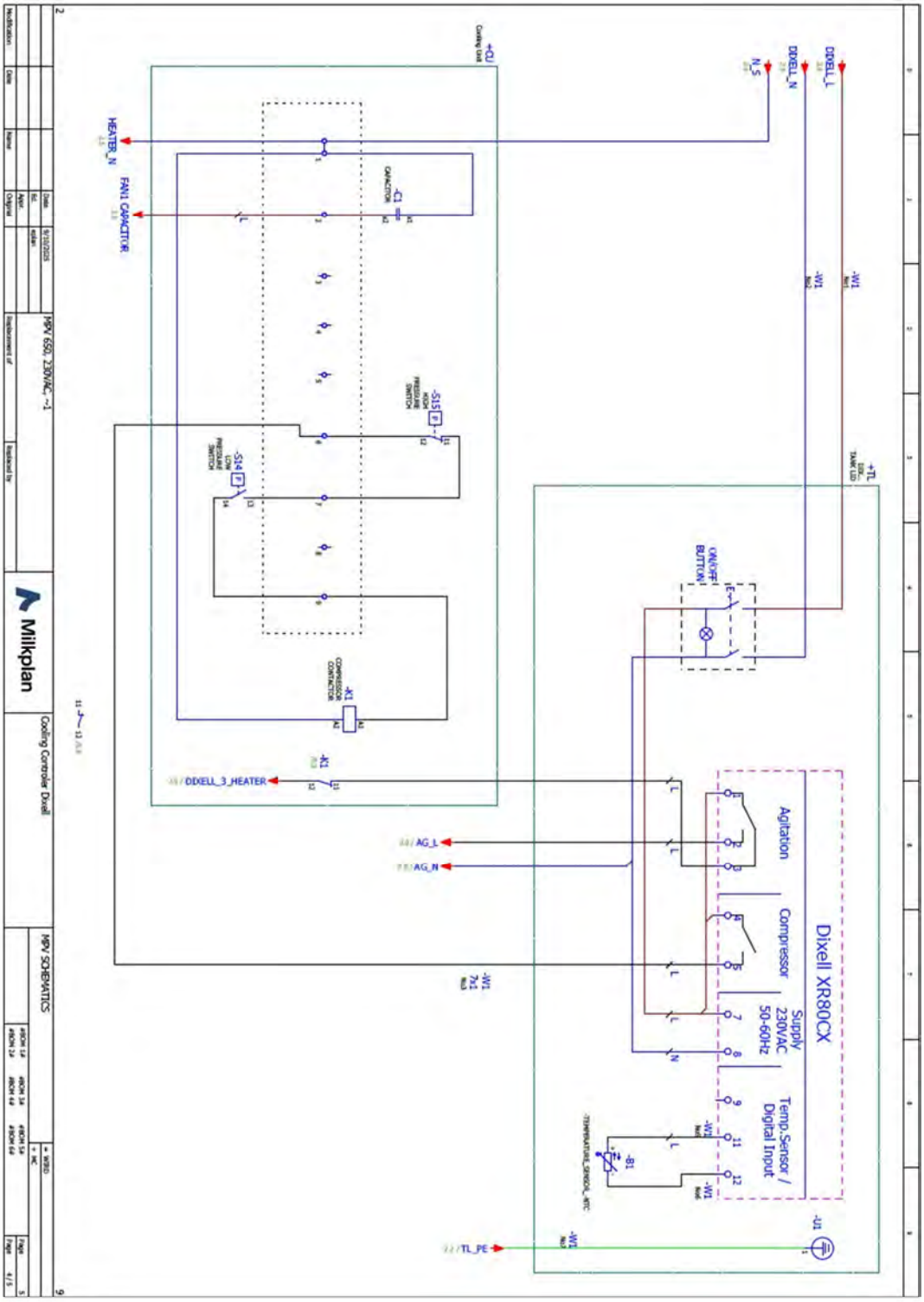


Figure 11: Electrical Diagrams MPV650 230VAC, ~1/ Cooling Controller Dixell

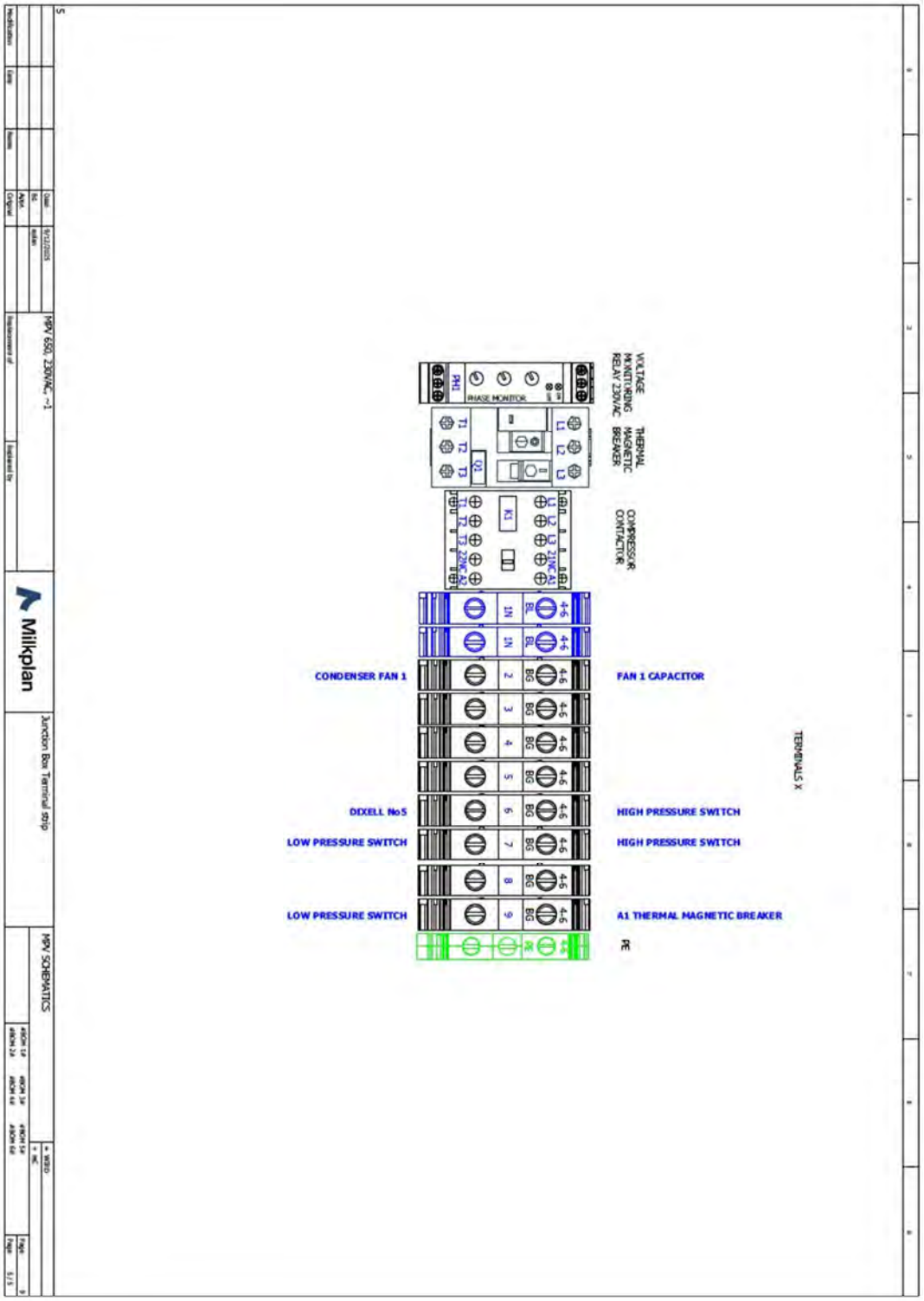


Figure 12: Electrical Diagrams MPV650 230VAC, ~1/ Junction Box Terminal Strip

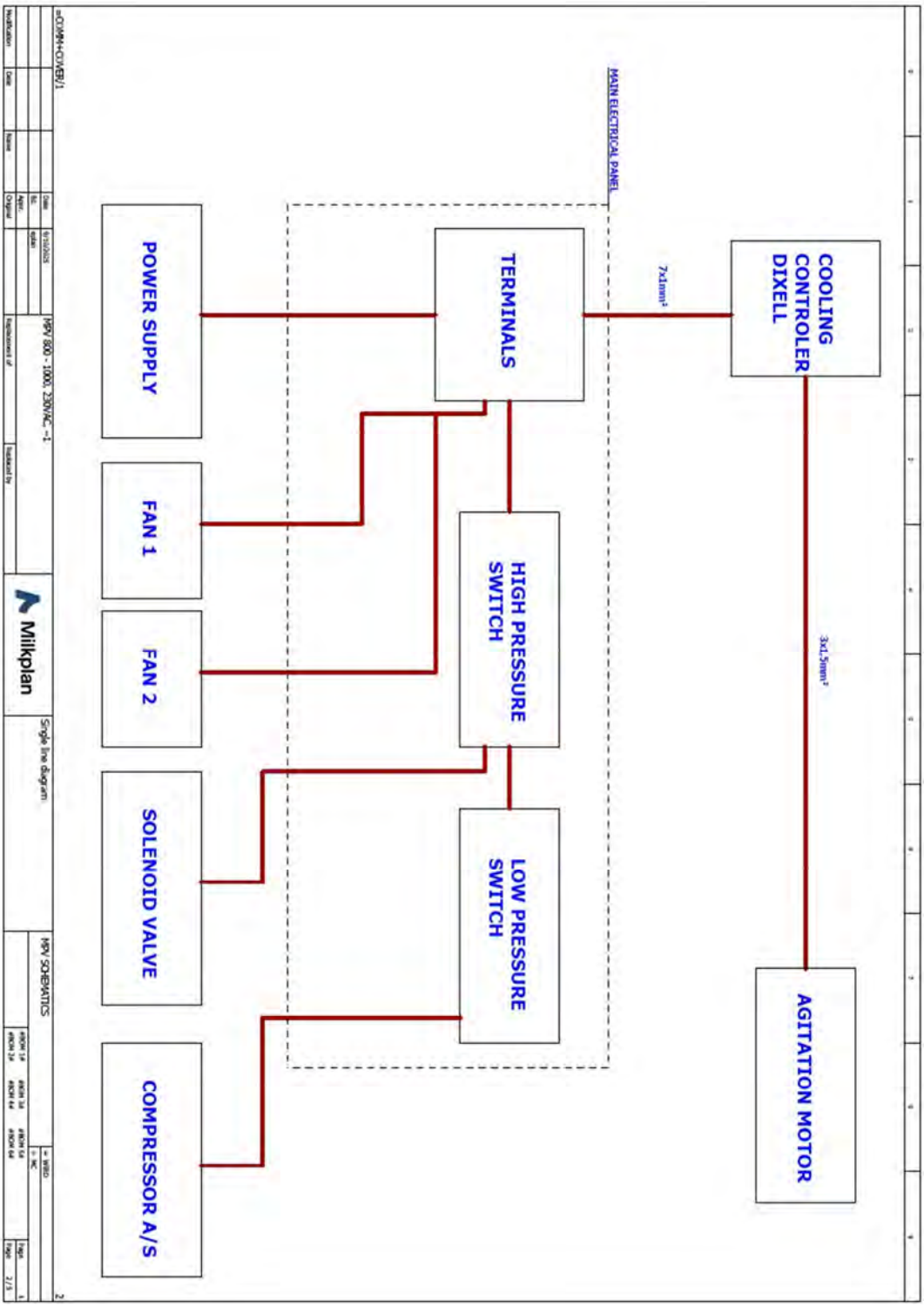


Figure 13: Electrical Diagrams MPV800/MPV1000 230VAC, ~1/ Single Line

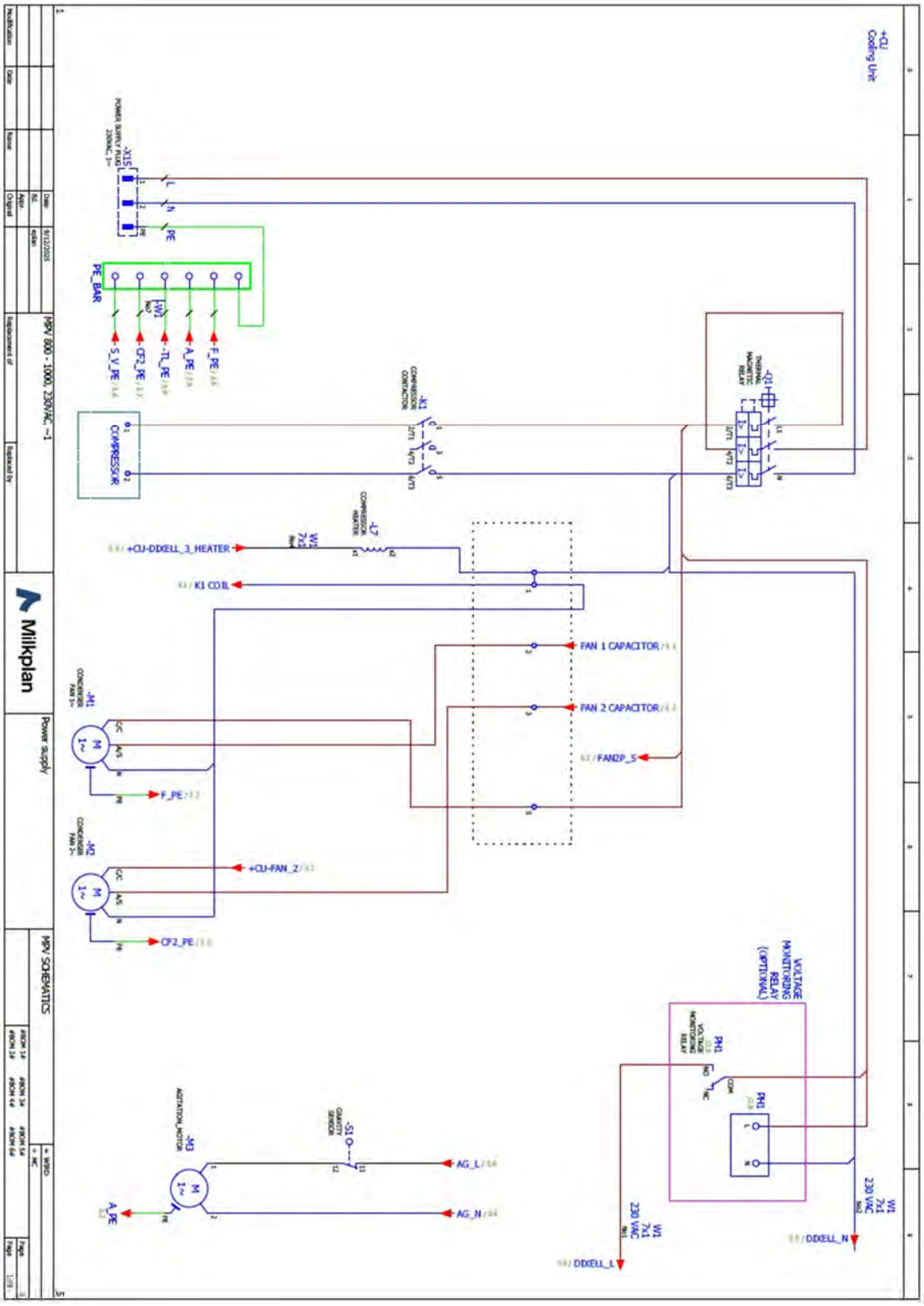


Figure 14: Electrical Diagrams MPV800/MPV1000 230VAC, ~1/ Power Supply

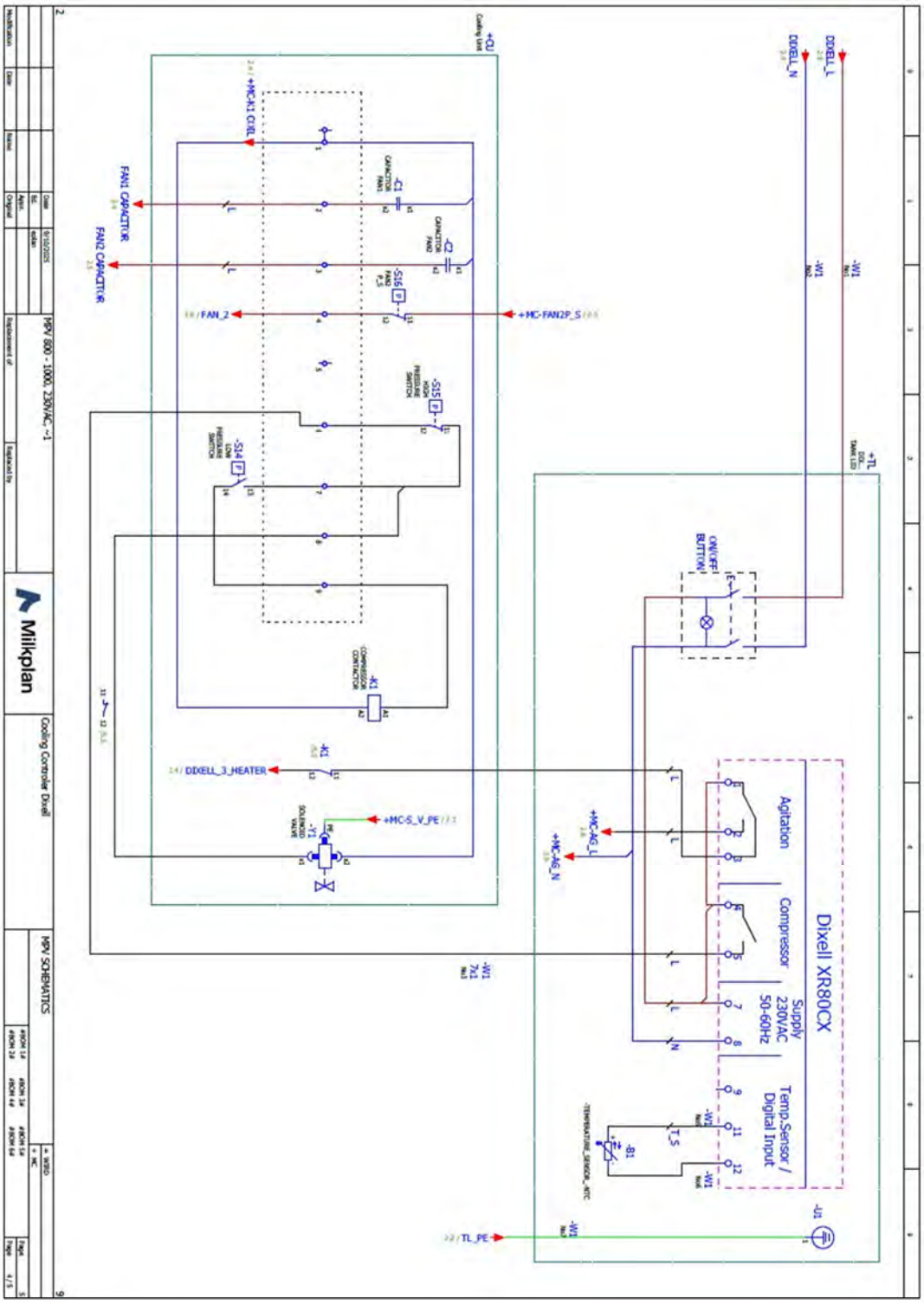


Figure 15: Electrical Diagrams MPV800/MPV1000 230VAC, ~1/ Cooling Controller Dixell

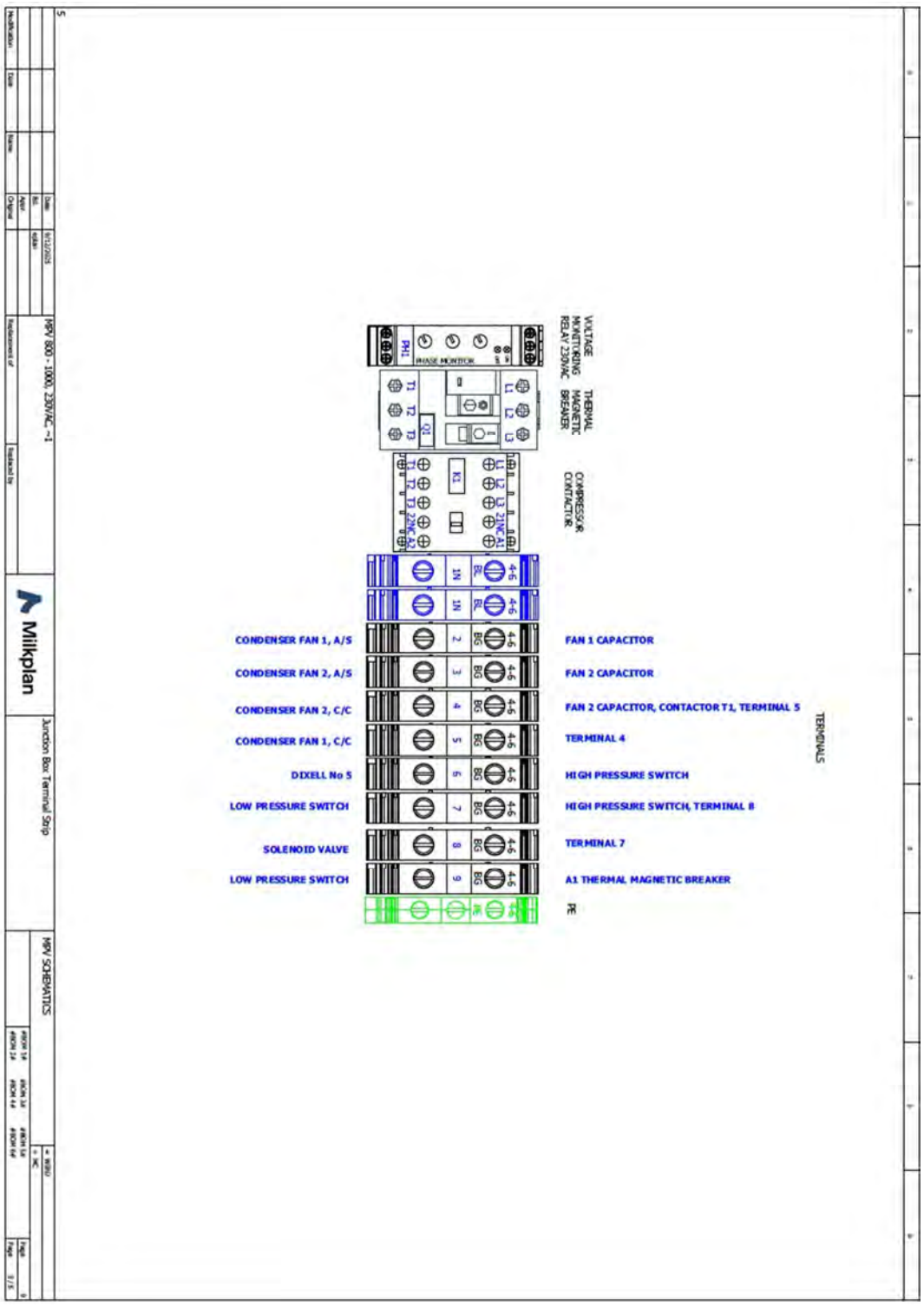


Figure 16: Electrical Diagrams MPV800/MPV1000 230VAC, ~1/ Junction Box Terminal Strip

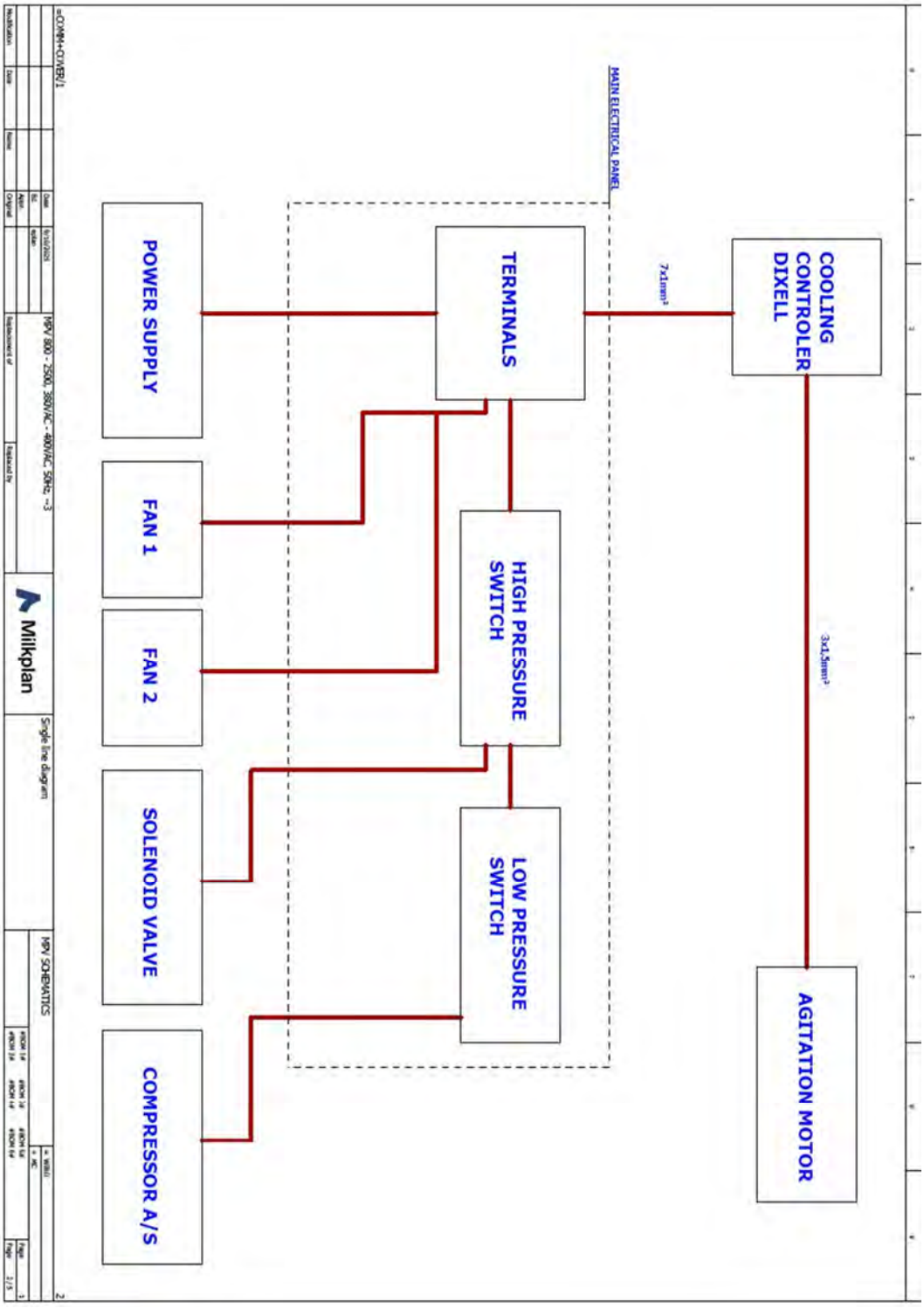


Figure 17: Electrical Diagrams MPV800-MPV2500 400VAC, ~3/ Single Line

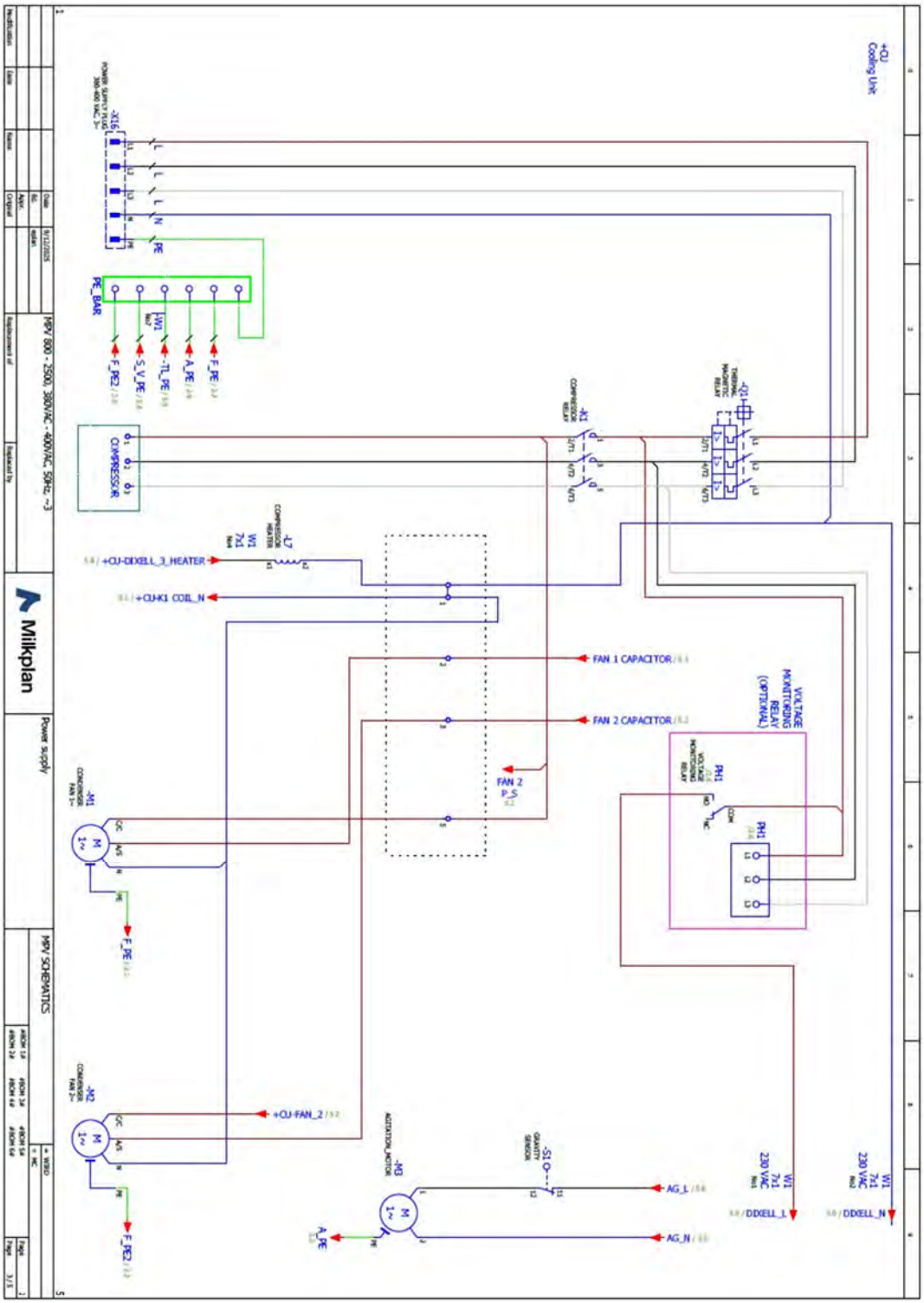


Figure 18: Electrical Diagrams MPV800-MPV2500 400VAC, ~3/ Power Supply

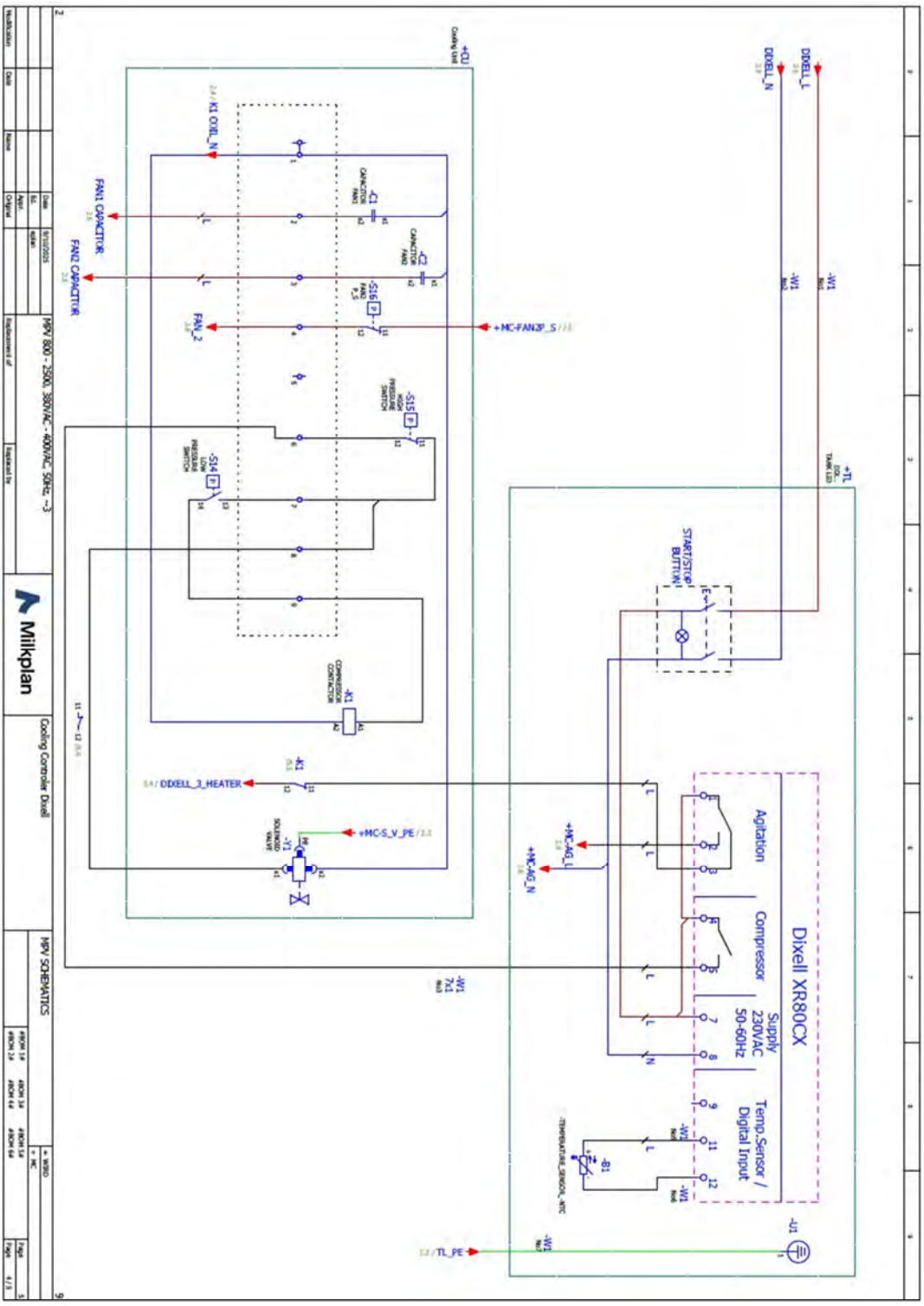


Figure 19: Electrical Diagrams MPV800-MPV2500 400VAC, ~3/ Cooling Controller Dixell

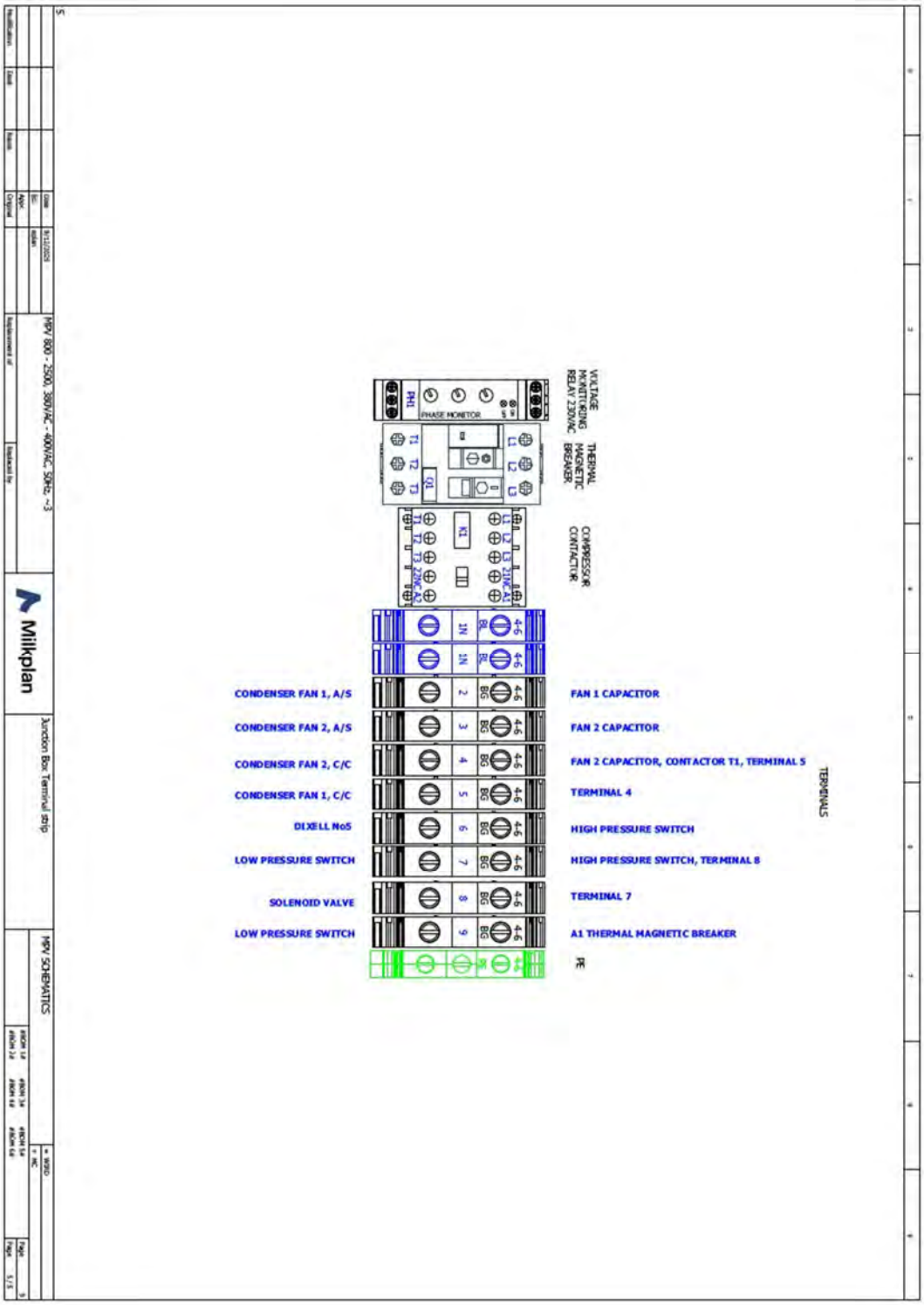


Figure 20: Electrical Diagrams MPV800-MPV2500 400VAC, ~3/ Junction Box Terminal Strip

3.5. Electrical Diagrams MPVC

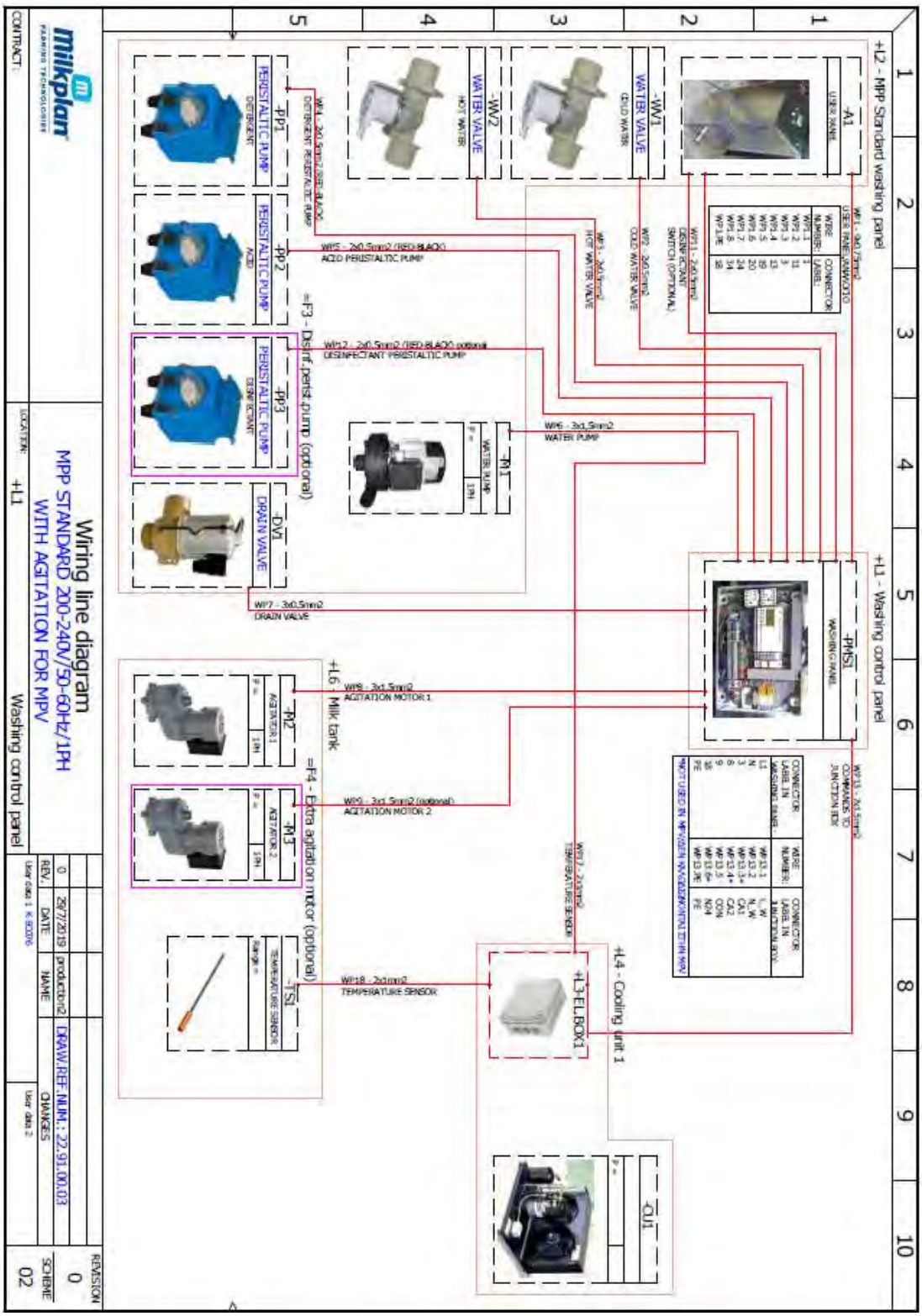


Figure 21: MPP STANDARD Electrical connection #1

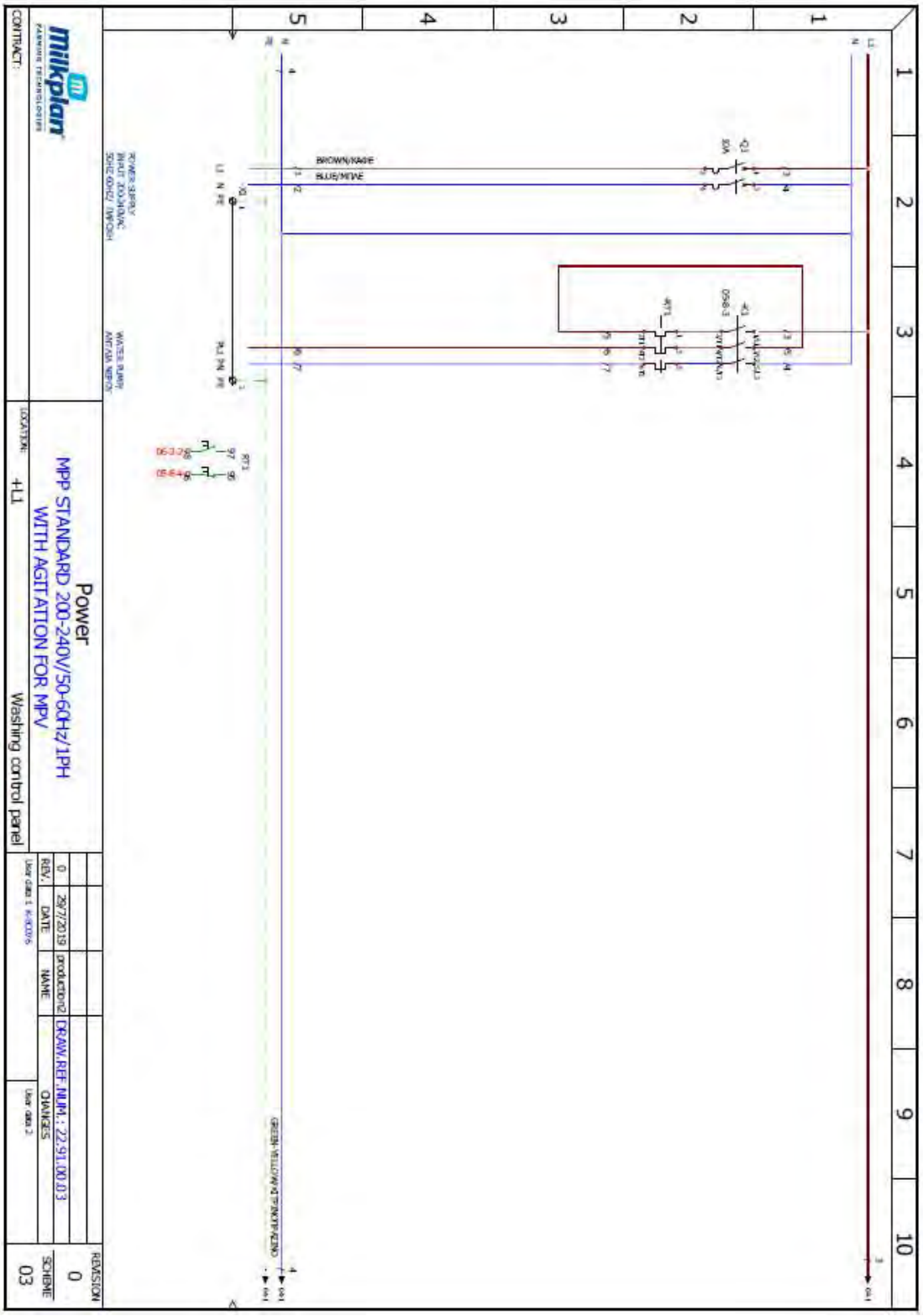


Figure 22: MPP STANDARD Electrical connection #2

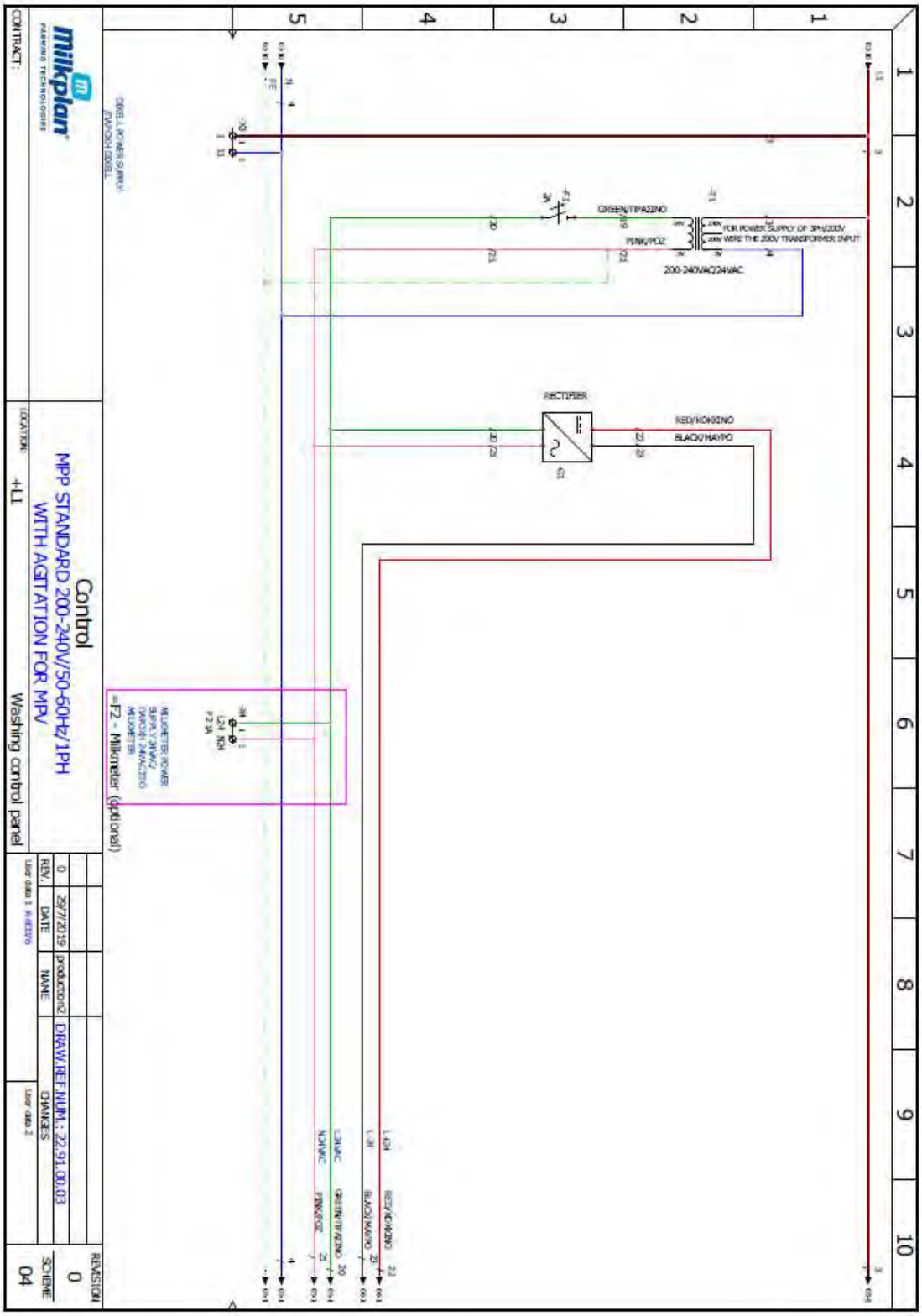


Figure 23: MPP STANDARD Electrical connection #3

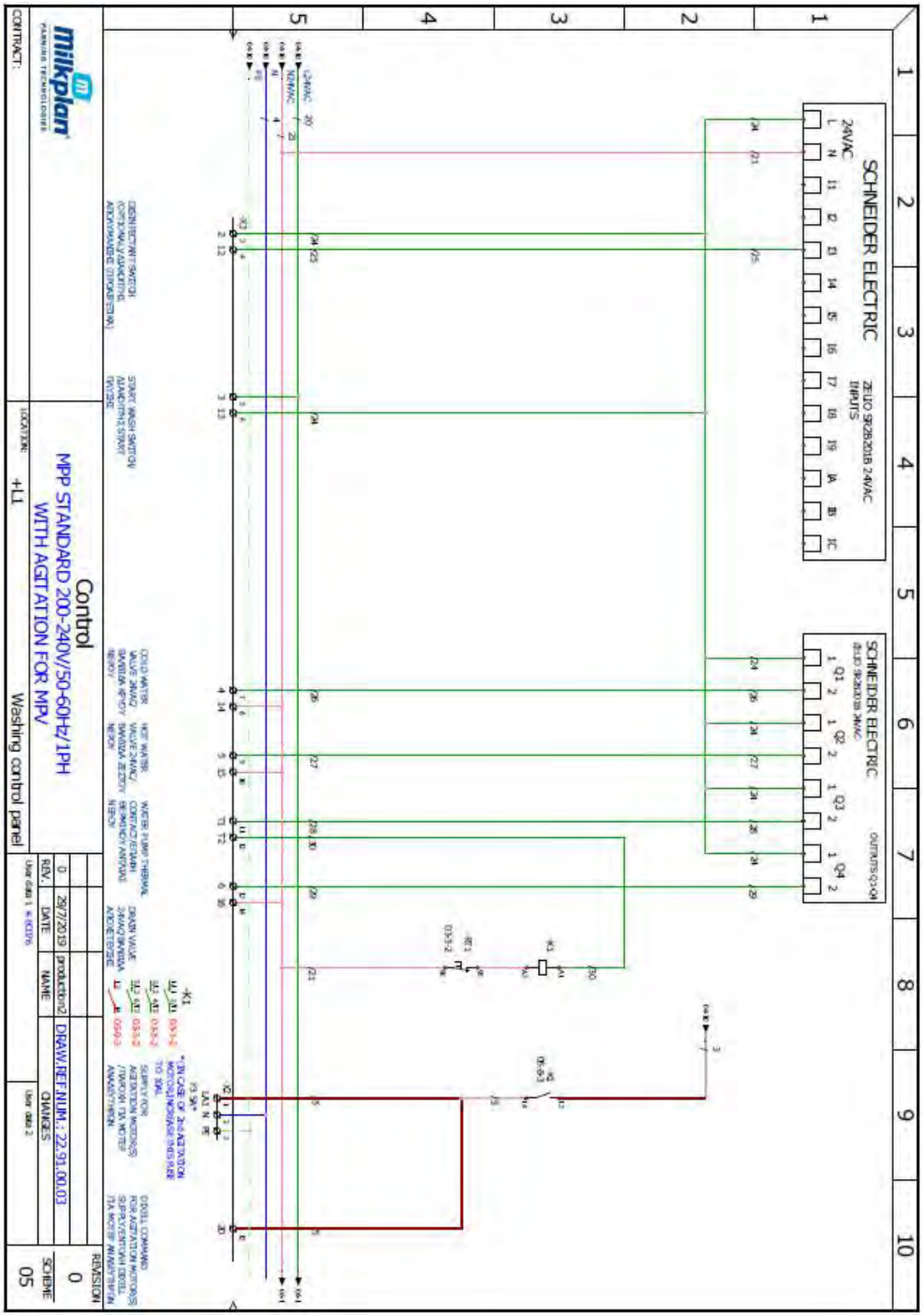


Figure 24: MPP STANDARD Electrical connection #4

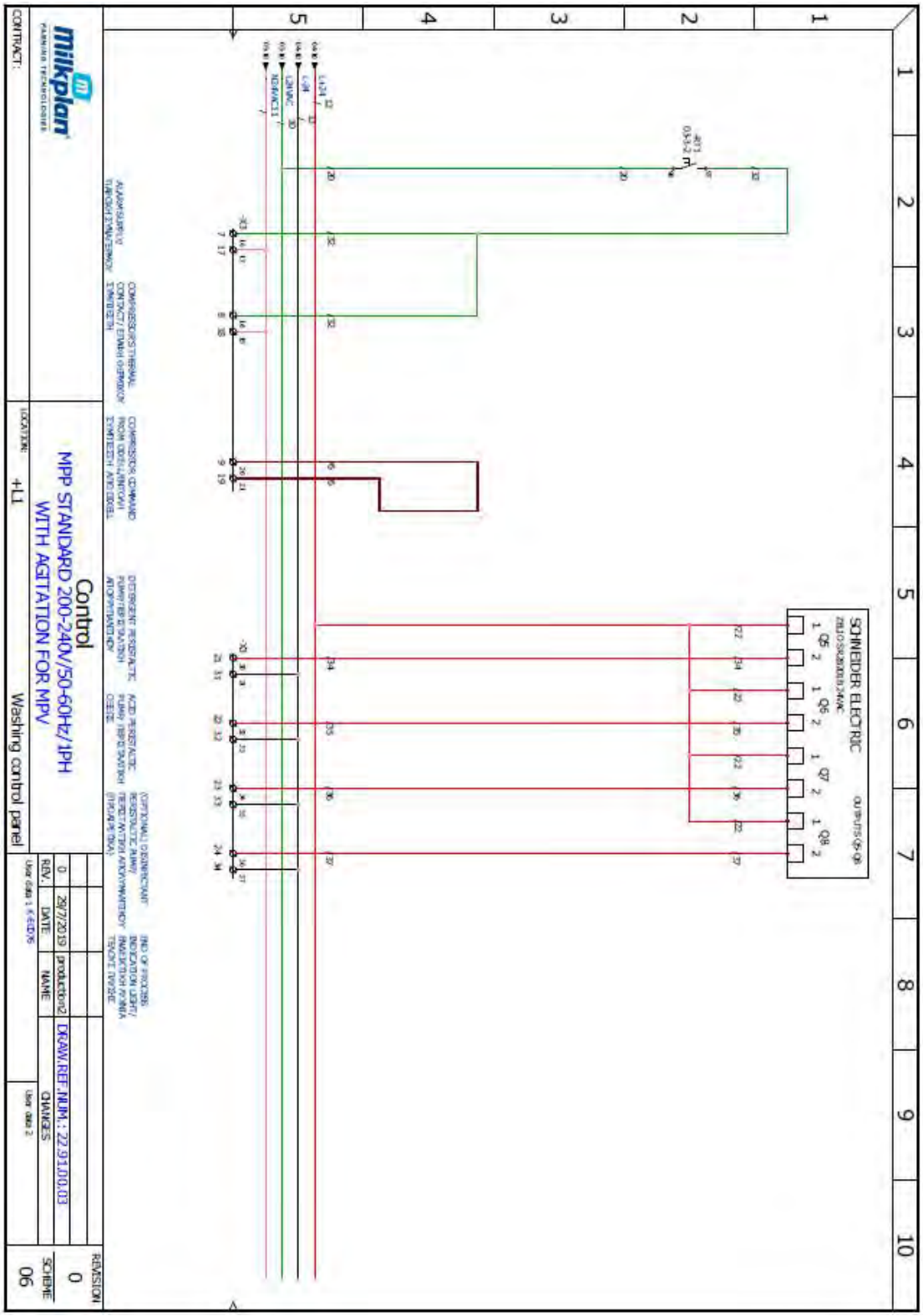


Figure 25: MPP STANDARD Electrical connection #5

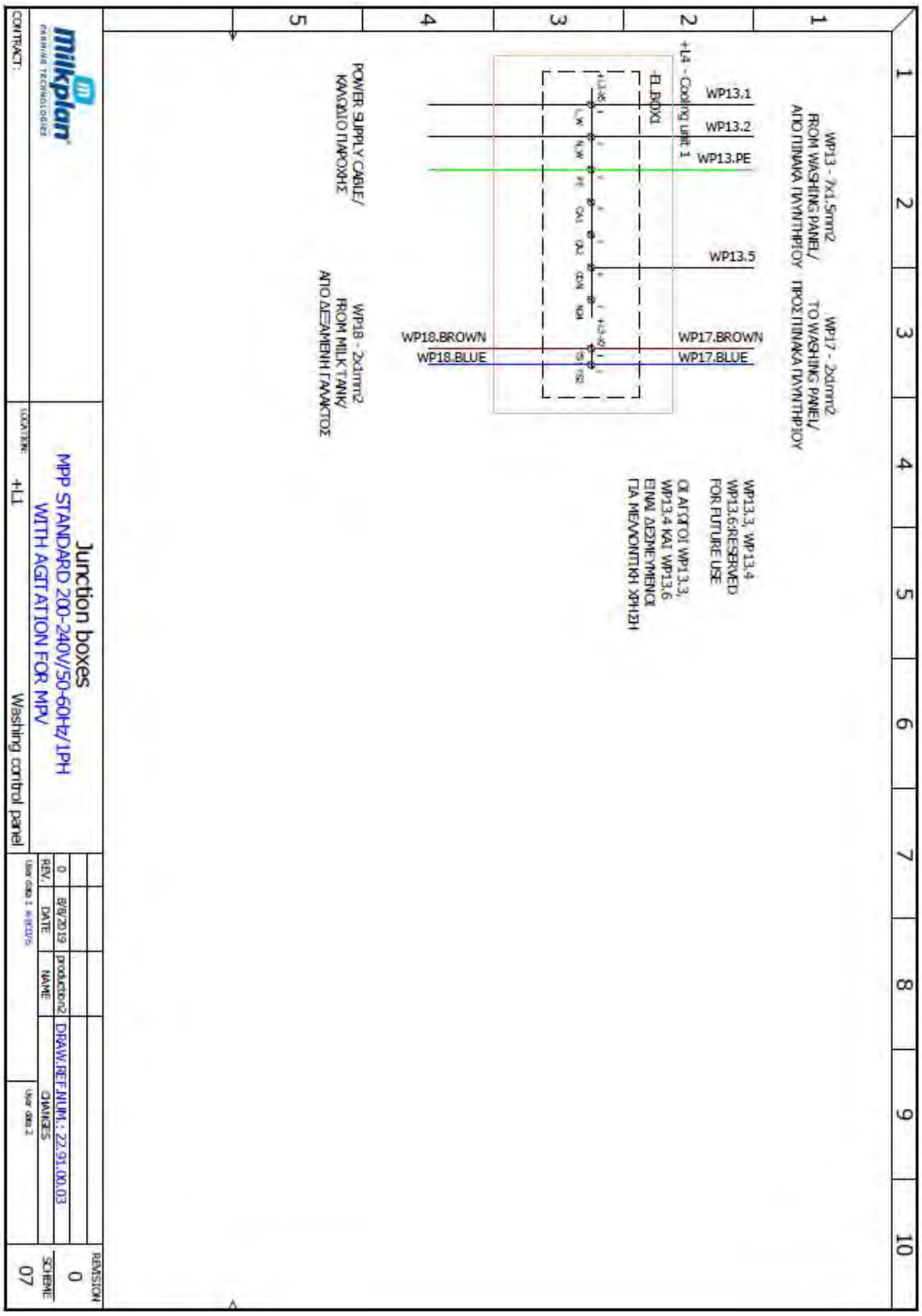


Figure 26: MPP STANDARD Electrical connection #6

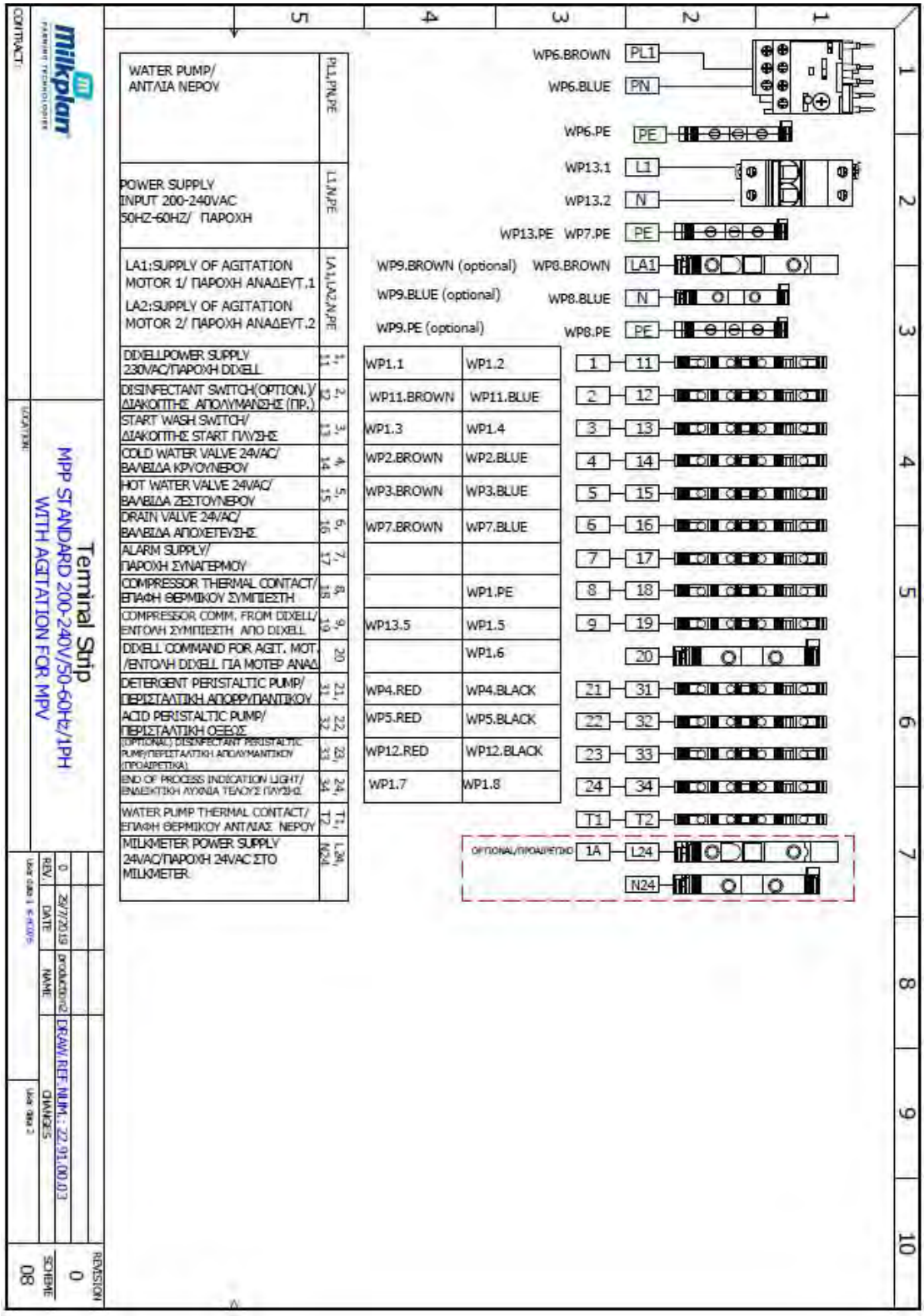


Figure 27: MPP STANDARD Electrical connection #7

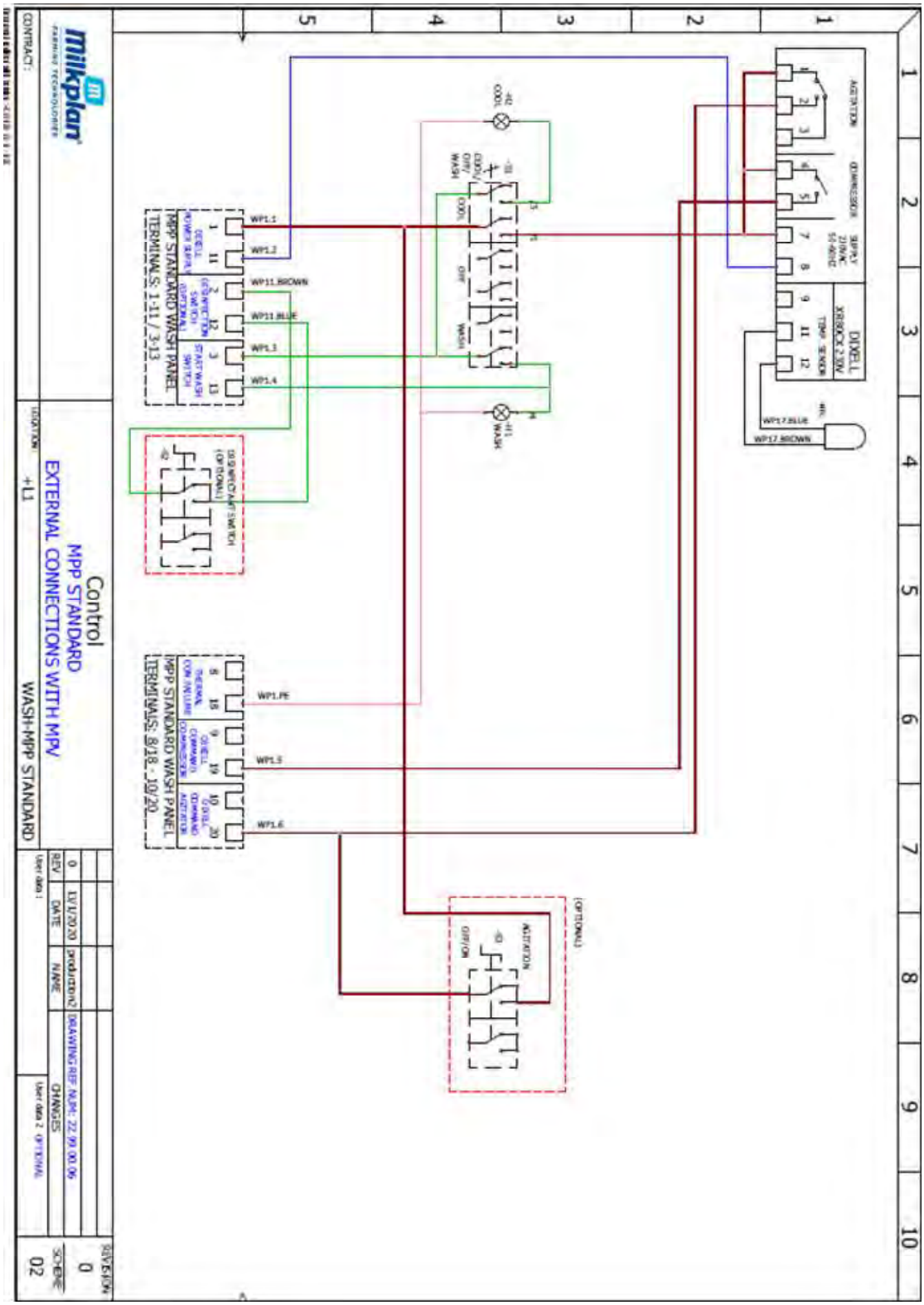


Figure 28: External Electrical connections MPV #1

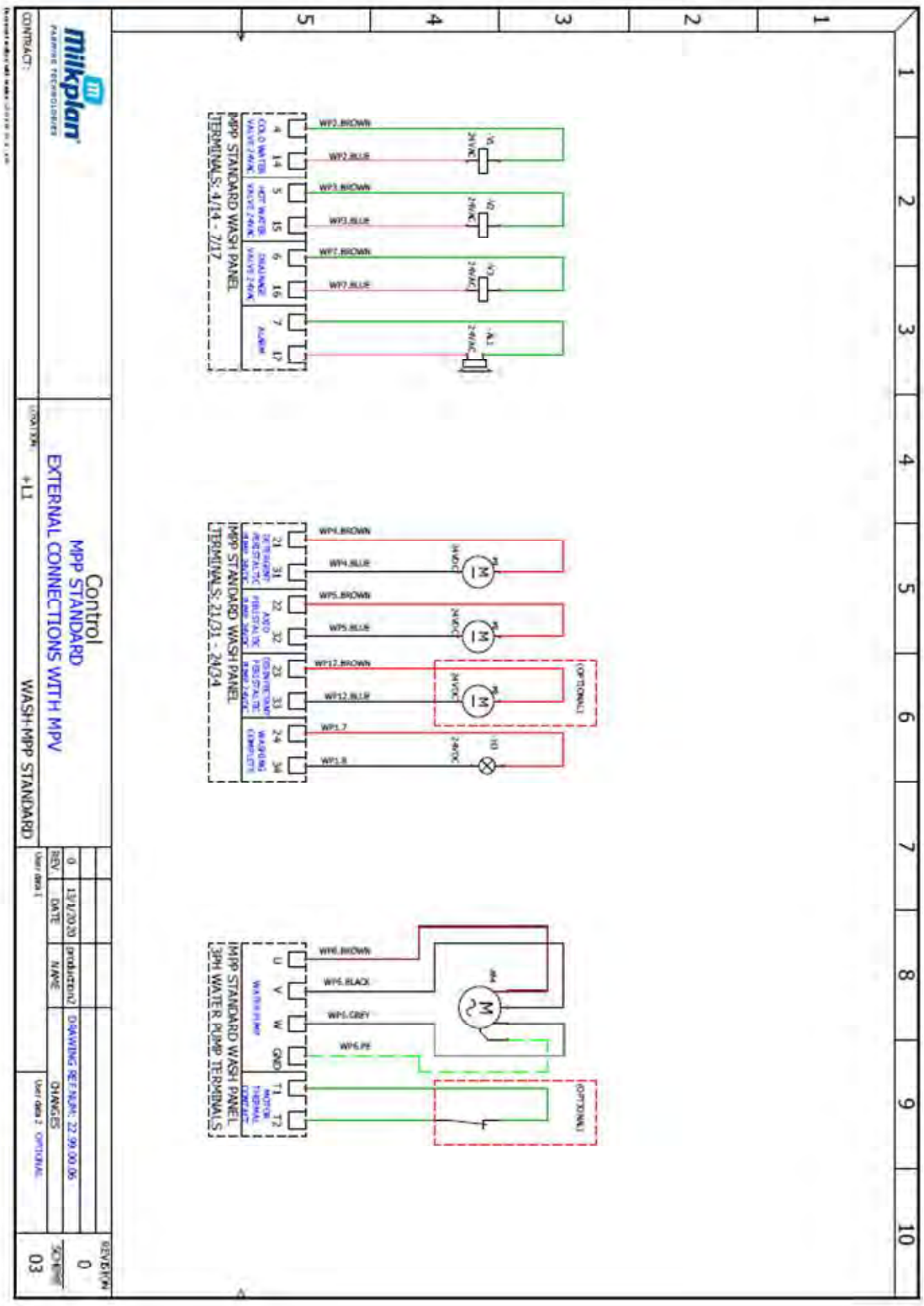


Figure 29: External Electrical connections MPV #2

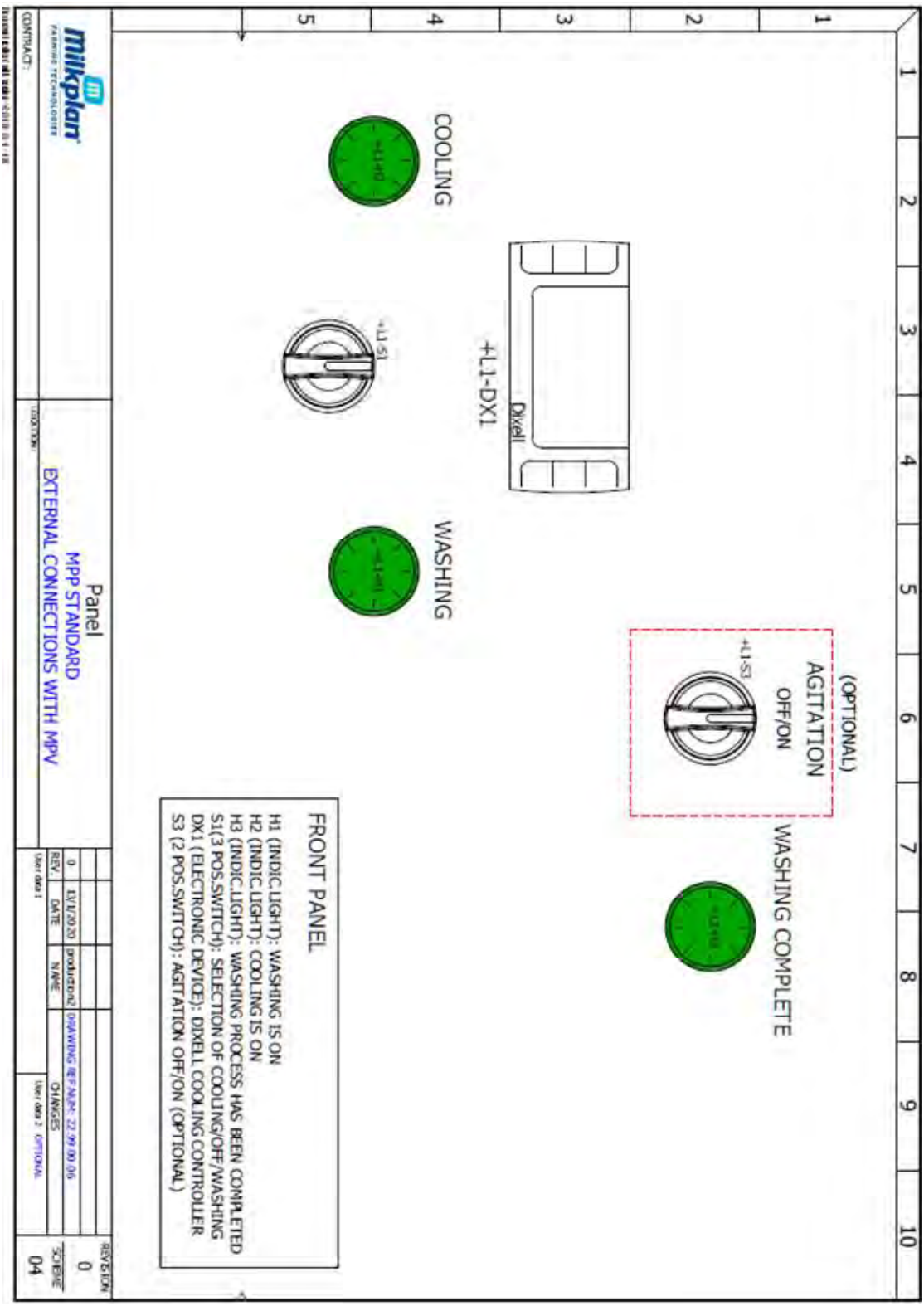


Figure 30: External Electrical connections #3

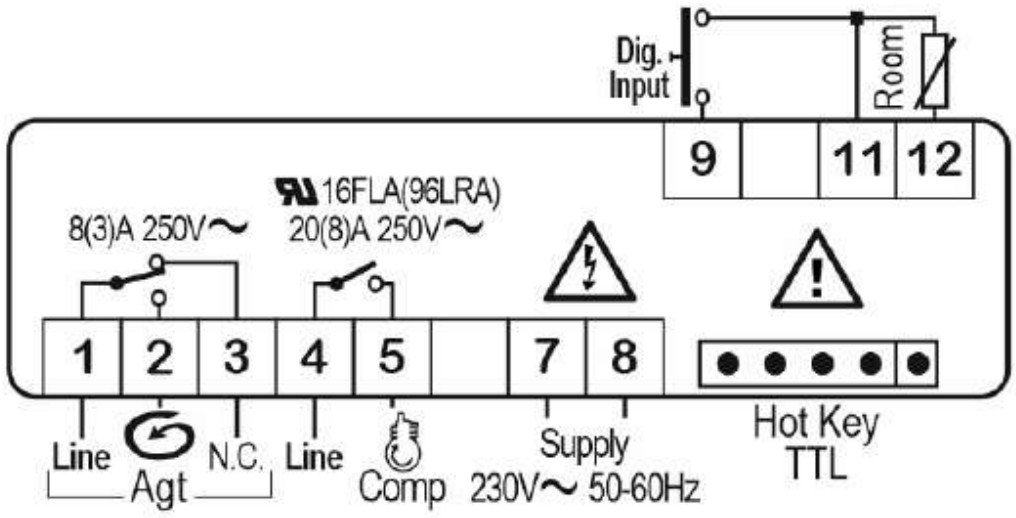


Figure 31: DIXELL- XR80CX Electrical Connections – 230V ή 110V

4. Refrigeration Unit

The refrigeration unit is integrated into the **MPV & MPVC** models. Consequently, all necessary connections and settings of the cooling system have been completed at the factory by **MILKPLAN S.A.**

In compliance with European Directives 2015/1094 & 2015/1095, MILKPLAN S.A. utilizes R290 for cooling tanks with a capacity of up to 300L and R454C for capacities ranging from 400L to 2500L. Due to the flammable and explosive nature of these refrigerants, the following instructions must be studied carefully. Failure to adhere to safety protocols may result in severe injury or equipment damage.

All individuals involved in installation, maintenance, or any intervention in the refrigerant circuit must hold a valid certificate from an industry-accredited authority. This certification must verify their competence in handling refrigerants safely, in accordance with recognized industry assessment standards.

Maintenance of the cooling unit must be performed by a certified professional (Refrigeration Technician).

WARNING: Never spray water on the cooling unit.
Cleaning must be performed using compressed air. If this is not possible, the condenser should be carefully cleaned with a small brush, removing dust and other foreign objects from its surface.
Do not touch the cooling unit or its cover with bare hands, even when it is not in operation. There are hot parts/components and a risk of burns.
Never step on the cooling unit or the piping.
Do not place any objects on the cooling unit cover.
Do not cover the condenser, as this will reduce air circulation and negatively affect cooling performance.
The cooling unit must not be exposed to weather elements. It is the responsibility of the owner/user to take all necessary protective measures.

In compliance with European Directives 2015/1094 & 2015/1095, MILKPLAN S.A. utilizes R290 for cooling tanks with a capacity of up to 300L, while R454C is used for capacities ranging from 400L to 2500L. Due to the flammable and explosive nature of these refrigerants, additional Safety Instructions are provided for the installation and maintenance of the cooling unit.

4.1. Supplementary Safety Rules for R290 & R454C

Before proceeding with the installation or operation of the unit, please familiarize yourself with the safety symbols and warning signs used throughout this manual.

Please read all safety precautions carefully prior to installation and operation.

ATTENTION: Incorrect installation due to disregard of instructions may cause serious damage or injury.

5. MPV & MPVC Operating Instructions

For a detailed review of the product's operating instructions and parameters, the operating manual must be studied carefully!

6. Maintenance

6.1. General

Regular and preventive maintenance guarantees:

- Hygienic storage for the preservation of high-quality milk.
- Optimization of the cooling system.
- Longer service life of the system.
- Minimization of failures and wear.
-

Tank maintenance must be performed by specialized or trained personnel.

6.2. Maintenance Schedule

	Tank Cleaning		Refrigeration Unit Cleaning		Professional Refrigeration Unit Inspection
	Internal	**External**	**Louvers/Fins**	**Compressor**	**Refrigeration Circuit**
Daily	X[1]				
Weekly		X	X		
Monthly				X	
Every 2 Years					X[2]

	Wash System				
Daily	X				
Weekly		X	X		
Monthly				X	
Every 2 Years					X

1 Clean the tank at least once a week with an **acidic cleaner** to remove milk stone (solid milk residues).

2 If reduced cooling performance is observed, the **refrigeration circuit** must be inspected by a certified professional (refrigeration technician), taking into account the **Safe Maintenance Instructions for Cooling Units** containing **R290 & R449**.

6.3. Tank Cleaning

External Tank Cleaning

Clean the exterior of the milk cooling tank every week. A general-purpose commercial cleaner may be used, such as a surface and kitchenware cleaning cream. Always rinse thoroughly with clean water and wipe dry.

Never use cleaners containing chlorine or products intended for cleaning the interior of the tank, as they may cause damage to the tank's exterior surfaces.

Wear protective gloves and safety goggles while using cleaning agents.

Internal MPV Tank Cleaning

The tank must be clean before each use. The tank should be cleaned after every collection and whenever it has remained uncleaned for a period exceeding one week.

Clean the tank at least once a week with an **acidic cleaner** to remove milk stone (solid milk residues).

Water Quality
The cleaning water must be of **potable (drinking) quality**, as defined in **European Directive 80/778/EEC**. You can have the water analyzed at a recognized laboratory to verify its quality!

For open-type tanks (MPV), the cleaning process is performed by following these steps:

1. Pre-rinse: Immediately after emptying the tank, rinse it with cold water to remove any milk residues remaining inside the vessel.
2. Main Cleaning: Subsequently, clean the vessel carefully using warm water at a temperature of approximately 45°C and a disinfectant.
3. Rinsing & Scrubbing: Rinse with plenty of cold water while scrubbing the interior of the vessel with a soft, food-grade brush until it is completely clean.
4. Drying: After cleaning the tank, dry it thoroughly with absorbent paper or a lint-free cloth to prevent microbial growth and the risk of electric shock.

Agitator & Volume Measurement Dipstick
The internal cleaning of the tank must not be limited only to the walls, but must include all parts that come into contact with the milk, such as the **agitator** and the **metal dipstick**!

Internal MPVC Tank Cleaning

In closed-type tanks (MPVC), manual cleaning is difficult or impossible. For this reason, closed tanks are always equipped with automatic cleaning systems. The MPVC Standard ECO CIP cleaning system:

- Removes all traces of milk from the tank.
- Removes milk stone (solid milk residues) from the tank walls (using an acidic cleaner).
- Disinfects the tank.

Cleaning Water Requirements for the MPVC Standard ECO CIP System

Water Quality
The cleaning water must be of potable (drinking) quality, as defined in European Directive 80/778/EEC. You can have the water analyzed at a recognized laboratory to verify its quality!
Water Pressure and Flow

- Water Pressure: Minimum 1.5 bar / Maximum 5 bar.
- Flow Rate: At least 20 liters/minute.

Cleaning Agents

There are two types of cleaning products for the interior of the milk cooling tank:

- Alkaline: Cleans, degreases, and disinfects.
- Acidic: Cleans and removes milk stone (solid milk residues).

WARNING: Never mix alkaline products with acids or products containing chlorine. Mixing them will cause a chemical reaction resulting in the emission of poisonous gases!

Never use an alkaline cleaner that is older than 6 months from the date of purchase. Never use a product that generates foam.

6.4. Refrigeration Unit Cleaning

The cleaning of the refrigeration unit's side covers must be performed on a daily basis, using a soft-bristled brush.

It is absolutely essential to clean the condenser of the cooling unit at regular intervals (e.g., every month) to ensure the long-term and trouble-free operation of your tank.

Cleaning is performed after first removing the side cover (louver) from the condenser side by unscrewing the retaining screws.

Cleaning must be performed exclusively with compressed air. If this is not possible, the condenser should be carefully cleaned with a small brush or paintbrush, removing dust and other foreign objects from its surface.

Never spray water on the cooling unit.

6.5. Inspections

The following list provides an overview of all inspections that must be carried out regularly:

1. Check the milk temperature at the end of each milking.
2. Inspect the milk outlet (pipe and valve) as well as the tank after every cleaning.
3. Check all water supply pipes and all hydraulic connections for leaks (MPVC).
4. Check the compressor oil level using the sight glass. The level must be at least 1/4 of the sight glass.
5. Check the operation of the agitator.

6.6. Safe Maintenance Instructions for Cooling Units containing R290 & R454C

1. **Site Inspection**:

Prior to beginning maintenance work on systems containing flammable refrigerants, safety checks are mandatory to minimize the risk of ignition.

2. **Work Procedures**:

Work must be conducted under controlled procedures to minimize the leakage of flammable gas or vapor during the operations.

Technical personnel assigned to the operation, supervision, and maintenance of refrigeration systems must have received adequate instructions and be competent in their duties.

Work should only be performed using appropriate tools specifically designed for use with flammable refrigerants.

3. **General Work Area**:

All maintenance staff and others working in the area must be informed about the nature of the work being carried out. Working in confined spaces should be avoided. The area around the workspace must be isolated.

4. **Presence of Refrigerant Check**:

The area must be checked with a suitable refrigerant detector before and during work to ensure the technician is aware of potentially flammable atmospheres. Ensure that the leak detection equipment used is suitable for use with flammable refrigerants (e.g., non-sparking).

5. **Fire Extinguishing Equipment**:

If any "hot work" (brazing, welding, etc.) is to be conducted on the refrigeration equipment or associated parts, suitable fire extinguishing equipment must be available on hand. A dry powder or **CO2** fire extinguisher must be located near the charging area.

6. **Ignition Sources**:

No person carrying out work involving a refrigeration system which includes exposing any pipework that contains or has contained flammable refrigerant shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including smoking, should be kept sufficiently far away from the site of installation, repair, removal, or disposal. Prior to work, the area around the equipment must be surveyed to ensure there are no flammable hazards or ignition risks. **"NO SMOKING"** signs must be displayed.

7. **Ventilation**:

Ensure the area is in the open or adequately ventilated before any work is performed. Ventilation should safely disperse any released refrigerant and ideally expel it to the atmosphere.

8. **Checks on Refrigeration Equipment**:

Where electrical components are being changed, they must be fit for purpose and meet the correct specifications. The manufacturer's maintenance and service guidelines must always be followed. If in doubt, consult the manufacturer's technical support. The following checks must be applied to installations using flammable refrigerants:

- The charge size is in accordance with the room size within which the refrigerant-containing parts are installed.
- Ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is being used, secondary circuits shall be checked for the presence of refrigerant.
- Markings on the equipment remain visible and legible; illegible markings must be replaced.
- Refrigeration pipes or components are installed in a position where they are unlikely to be exposed to any substance which may corrode them, unless they are constructed of materials inherently resistant to corrosion or are suitably protected.

9. **Checks on Electrical Systems**:

Repair and maintenance of electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This must be reported to the owner of the equipment so all parties are informed.

Initial safety checks shall include:

- Capacitor discharge: This must be done in a safe manner to avoid the possibility of sparking.
- No exposure of live components: Ensure that no live electrical components or wiring are exposed while charging, recovering, or purging the system.
- Continuity of earth bonding: Confirmation of continuous grounding.

10. **Repairs to Sealed Components**:

During repairs to **sealed components**, all electrical supplies must be disconnected from the equipment prior to any removal of sealed covers, etc. If it is absolutely necessary to have an electrical supply to the equipment during servicing, then a permanently operating **leak detection device** must be located at the most critical point to warn of a potentially hazardous situation.

Particular attention shall be paid to the following to ensure that by working on electrical components, the casing is not altered in such a way that the level of protection is affected. This includes damage to cables, excessive number of connections, terminals not made to original specifications, damage to seals, incorrect fitting of glands, etc.

- Ensure that the apparatus is mounted securely.
- Ensure that seals or sealing materials have not degraded such that they no longer serve the purpose of preventing the ingress of flammable atmospheres. Replacement parts shall be in accordance with the manufacturer's specifications.

The use of silicon sealant may inhibit the effectiveness of certain types of leak detection equipment. Intrinsically safe components do not have to be isolated prior to working on them.

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11. **Repair of Intrinsically Safe Components**:

Do not apply any permanent inductive or capacitive loads to the circuit without ensuring that they will not exceed the permissible voltage and current limits for the equipment in use. Intrinsically safe components are the only types upon which work can be carried out while in the presence of a flammable atmosphere. The test apparatus must be at the correct rating.

Replace components only with spare parts specified by the manufacturer. The use of non-approved parts may result in the ignition of refrigerant in the atmosphere following a leak.

12. **Wiring**:

Check that wiring will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges, or any other adverse environmental effects. The check shall also take into account the effects of **aging** or continuous **vibration** from sources such as compressors or fans.

13. **Detection of Flammable Refrigerants**:

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

14. **Leak Detection Methods**:

The following leak detection methods are deemed acceptable for systems containing flammable refrigerants. Electronic leak detectors shall be used to detect flammable refrigerants, but the sensitivity may not be adequate, or may require re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area). Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL (Lower Flammable Limit) of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25% maximum) is confirmed. Leak detection fluids are suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipework.

If a leak is suspected, all naked flames shall be removed/extinguished. If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut-off valves) in a part of the system remote from the leak. For appliances containing FLAMMABLE REFRIGERANTS, Oxygen-Free Nitrogen (OFN) shall then be purged through the system both before and during the brazing process.

15. **Removal and Evacuation**:

When breaking into the refrigerant circuit to make repairs – or for any other purpose – conventional procedures shall be used. However, for FLAMMABLE REFRIGERANTS, it is important that best practice is followed since flammability is a consideration. Opening of the refrigeration systems shall not be done by brazing.

The following procedure shall be adhered to:

- Remove refrigerant
- Purge the circuit with inert gas
- Evacuate
- Purge again with inert gas
- Open the circuit by cutting or brazing.

The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing FLAMMABLE REFRIGERANTS, the system shall be flushed with OFN (Oxygen-Free Nitrogen) to render the unit safe. This process may need to be repeated several times. Compressed air or oxygen shall not be used for purging refrigerant systems.

For appliances containing FLAMMABLE REFRIGERANTS, flushing shall be achieved by breaking the vacuum in the system with OFN and continuing to fill until the working pressure is achieved, then venting to the atmosphere, and finally pulling down to a vacuum. This process shall be repeated until no refrigerant is within the system. When the final OFN charge is used, the system shall be vented down to atmospheric pressure to enable work to take place. This operation is absolutely vital if brazing operations on the pipework are to take place.

Ensure that the outlet for the vacuum pump is not close to any ignition sources and that there is adequate ventilation available.

16. **Charging Procedures**:

In addition to conventional charging procedures, the following requirements shall be followed:

- Proper Tooling: Ensure that only appropriate tools are used for the task. In case of uncertainty, consult the tool manufacturer to confirm their suitability for use with flammable refrigerants.
- Contamination Avoidance: Ensure that contamination of different refrigerants does not occur when using charging equipment. Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinder Orientation: Cylinders shall be kept in an upright position.
- System Grounding: Ensure that the refrigeration system is properly earthed (grounded) prior to charging the system with refrigerant.

17. **Decommissioning**:

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its components. It is recommended practice that all refrigerants are recovered or vented safely (specifically for R290 models). Prior to the procedure, an oil and refrigerant sample shall be taken.

In case analysis is required before the re-use of recovered refrigerant, it is essential that electrical power is available before the process begins.

- Familiarize yourself with the equipment and its operation.
- Isolate the system electrically.
- Before commencing the procedure, ensure that:
  - Mechanical handling equipment is available, if required, for handling refrigerant cylinders.
  - All Personal Protective Equipment (PPE) is available and being used correctly.
  - The recovery process is supervised at all times by a competent person.
  - Recovery equipment and cylinders conform to the appropriate standards.
- Evacuate the refrigerant system, if possible.
- If a vacuum is not attainable, use a manifold so that refrigerant can be removed from various parts of the system.

- Ensure that the cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with the manufacturer's instructions.
- Do not overfill cylinders. (No more than 70% liquid volume. Refrigerant liquid density based on a reference temperature of 50°C).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- Completion: When the cylinders have been filled correctly and the process is completed, ensure that the cylinders and the equipment are removed from the site promptly and all isolation valves on the equipment are closed.
- Recovered refrigerant shall not be charged into another refrigeration system unless it has been cleaned and checked.

18. **Labelling**:

The equipment shall be labelled stating that it has been decommissioned and is void of refrigerant. The label shall be dated and signed. Ensure that there are labels on the equipment stating that the equipment contains flammable refrigerant.

19. **Recovery**:

When removing refrigerant from a system, either for servicing or decommissioning, it is recommended practice that all refrigerants are removed safely. When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed.

Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used shall be designated for the recovered refrigerant and labelled for that specific refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with a pressure relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.

The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of flammable refrigerants. In addition, a set of calibrated weighing scales shall be available and in good working order.

Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained, and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult the manufacturer if in doubt.

The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant Waste Transfer Note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that flammable refrigerant does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

20. **Venting of HC Refrigerants**:

Venting may be carried out as an alternative to refrigerant recovery. Since HC (Hydrocarbon) refrigerants have zero ODP and negligible GWP, under certain conditions, venting may be considered acceptable. However, if venting is considered, it shall be carried out in accordance with relevant national rules or regulations, where permitted.

In particular, before venting a system, it is essential to:

- Ensure that waste legislation has been taken into account.
- Ensure that environmental legislation has been taken into account.
- Ensure that legislation regarding the safety of hazardous substances is observed.
- Venting is only carried out with systems containing a small amount of refrigerant, typically less than 500 g.
- Venting into a building is strictly prohibited under any circumstances.
- Venting shall not be directed towards a public area or an area where people are unaware of the procedure.
- Venting should only be performed if it is certain that the refrigerant will not be directed towards neighboring buildings and will not migrate to locations below ground level (e.g., basements, drains).
- There should be no restrictions or sharp bends within the vent line that would impede the flow.
- The flexible hose must have sufficient length and diameter to extend at least 3 m beyond the exterior of the building.
- The flexible hose must be constructed of material compatible for use with HC refrigerants and oils.
- A device must be used to raise the discharge orifice of the hose at least 1 m above ground level, with the orifice pointing upwards (to assist in dilution). This allows the end of the hose to discharge and disperse flammable fumes into the ambient air.
- There must be no ignition sources near the discharge orifice of the hose.
- The hose should be checked regularly to ensure there are no holes or kinks that could lead to leakage or blockage of the flow path.

During the venting process, the refrigerant flow should be measured using a manifold gauge set at a low flow rate to ensure the refrigerant is well diluted. Once the refrigerant stops flowing, the system should be purged with OFN, if possible. Otherwise, the system should be pressurized with OFN and the venting process should be carried out two or more times to ensure that minimal HC refrigerant remains within the system.

7. Troubleshooting & Problem Solving

7.1. What to do in case of a problem

Many common issues can be resolved independently by using the information provided in this chapter.

Technical Repairs: In cases where a fault cannot be repaired by the user—specifically regarding electrical or refrigeration repairs—these actions must be performed ONLY by trained and certified personnel.

Technical Support: If a fault cannot be resolved by the user or a professional technician, please contact the company's Customer Service Department.

Customer Support Department

For your convenience and to ensure the fastest possible resolution of any issues, please have the following information ready before contacting our Technical Support Team:

- **Serial Number (S/N)**: Located on the manufacturer’s identification plate (usually found on the cooling unit or near the electrical panel).
- **Detailed Problem Description**: A clear explanation of the symptoms or any error codes (e.g., P1, HA) displayed on the thermostat.
- **Occurrence Log**: Details on when the problem started, its duration, and how frequently it occurs.

7.2. Common Faults & Troubleshooting

Fault / Problem	Possible Cause	Corrective Actions by the User	Corrective Actions by a Professional
The device does not operate at all. No voltage indication on the controller.	No power supply.	1. Check that the power button is in the ON position (the indicator light should be lit). 2. Check if there is power in the main electrical line supplying the tank. 3. Check the circuit breaker/fuse of the electrical line supplying the tank.	1. Inspect the connections inside the electrical panel and the device's power plug. 2. Check all terminal blocks and connection points for looseness or damage.
The agitator and the condenser fan operate normally, but the compressor does not start.	Trip of the compressor's thermal overload protector, possibly due to low network voltage or compressor failure.	1. Wait for 120 seconds for the thermal protector to reset automatically. 2. If the trip recurs, contact a professional to check the network voltage.	1. Check the network voltage and measure any voltage drop within the installation. 2. If the voltage supplied to the device is sufficient but the problem persists, contact the authorized service department for compressor inspection.
Excessive cooling time.	1. Restricted airflow to the condensing unit. 2. Refrigerant shortage or other technical fault.	Clean the louvers and the condenser fins.	If cooling performance remains low after cleaning, contact a refrigeration technician to check pressures and refrigerant levels.
Milk temperature is higher than the Set Point, but the condensing unit is not operating.	1. Blown fuses. 2. Thermal overload protector is tripped. 3. Low-pressure switch is open due to refrigerant loss. 4. Low ambient temperature and incorrectly set pressure switch.	1. Replace the fuses. 2. Reset the thermal protector.	1. Recharge the system with refrigerant (after leak detection). 2. Inspect and calibrate the pressure switch settings.

The temperature reading on the controller deviates from the actual temperature.	Incorrect Temperature Offset.	Temperature Offset Adjustment: 1. Press and hold the **"Set"** button and the **Down Arrow** simultaneously for **3 seconds**. 2. Use the **Up Arrow** repeatedly until the parameter **"ot"** (Probe 1 Calibration) appears on the display. 3. Press the **"Set"** button once to view the current offset value. 4. Use the **Up and Down Arrows** to adjust the temperature difference between the displayed value and the actual measured value.	Press the **"Set"** button again to confirm the new value and exit (or wait for the display to timeout).
	Incorrect Unit of Measurement.	Checking the Unit of Measurement: 1. Press and hold the **"Set"** button and the **Down Arrow** simultaneously for **3 seconds**. 2. Press the **Up Arrow** repeatedly until the parameter **"CF"** (Configuration of Unit) appears on the display. 3. Press the **"Set"** button to view the current selection. 4. Use the **Arrows** to choose the correct unit of measurement (**°C** for Celsius or **°F** for Fahrenheit).	Press the **"Set"** button again to confirm the new value and exit (or wait for the display to timeout).
	The temperature sensor is not in the correct position.	**Check** if the sensor is located in its correct position within the chamber/housing. **If it has moved**, re-position it firmly at the correct designated point.	Sensor Wiring & Replacement Check: - Incorrect connections. - Loose contacts. - Wear or damage (cuts/kinks) along the conductor wires. - Sensor Replacement - If the wiring is intact and the sensor is new, but the problem persists, replace the Dixell controller entirely, as the internal circuitry may be faulty.

In the event that a thermal overload protector trips (falls), you must open the electrical panel of the condensing unit and manually reset (lift) the thermal switches.

Always replace a blown safety fuse with a new one of exactly the same type and rating (Amperes/Voltage).

NEVER bypass fuses. Using wires or other materials to bridge a fuse is extremely dangerous and can lead to electrical fire or total destruction of the equipment.

Agitator / Motor Rotation

After any electrical work has been performed, **always check the direction of rotation** of all motors (agitator and fan). The correct direction is indicated by an **arrow** on the motor housing or the tank. If the direction of rotation does not correspond to the arrow, contact the customer service department immediately.

8. Spare Parts List

Table 1: Spare Parts List - Motors

Code	Description	Unit
$BA151	AGITATOR MOTOR SIREM R225F2B 0118000241 230V/50Hz	Pcs
$BA152	AGITATOR MOTOR SIREM R245D2B 0116000125 230V/50Hz	Pcs

Table 2: Spare Parts List – Lid & Motor Base

Code	Description	Unit
$AA177	TEFLON BEARING Φ32/27 L19	Pcs
$BA297	STAINLESS STEEL SPRING D5x30x190	Pcs
$BA299	SPRING FOR LID INOX D6x40x225 M FOR MPV2000-2500	Pcs
$AA112	STAINLESS STEEL EYEBOLT M8X80 WITH NUT AND WASHER	Pcs
$BA108-4	STAINLESS STEEL LID D200 WITH HANDLE	Pcs
$BA276	PLASTIC SPACER OPEN TYPE TANK	Pcs

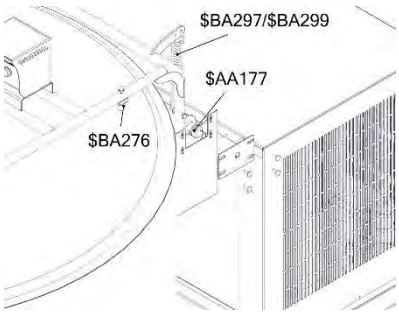


Table 3: Spare Parts List – Electronics & Controller

Code	Description	Unit
$BA238	S.S. CONTROL PANEL INNER COVER	Pcs
$BA239	PROTECTION BOX FOR DIXELL	Pcs
$BA240	MILK COOLING TANK CONTROLLER DIXELL XR80CX 230V/50-60Hz	Pcs
$BA242	SWITCH ON/OFF 2 CONTACTS 16A/250V RED INDICATION	Pcs
$BA243	CLEAR COVER FOR ON/OFF SWITCH	Pcs
$BA241	SILICON COVER FOR MILK CONTROLLER DIXELL	Pcs
$BA240-1	BRACKET FOR CONTROLLER DIXELL XR80CX	Pcs
$BA263	TEMPERATURE PROBE FOR DIXELL CONTROLLERS NTC NG6P IP68	Pcs
$BA245	SEALING TAPE (ORANGE)	Pcs

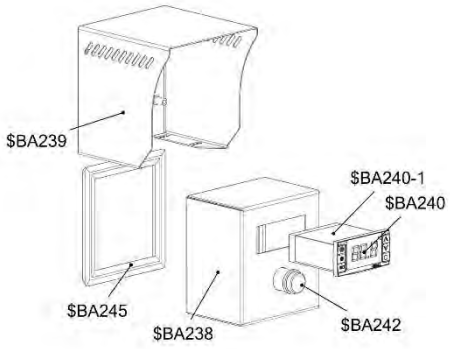
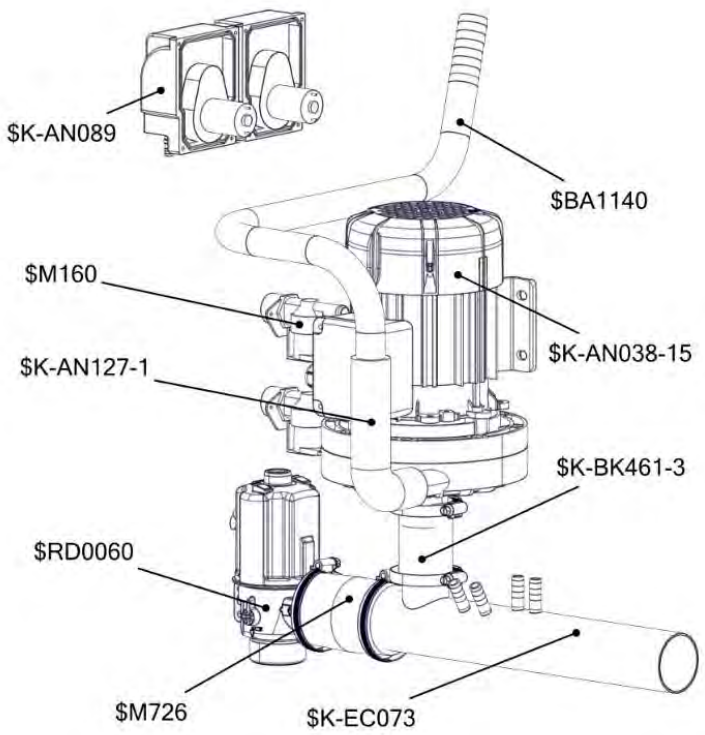


Table 4: Spare Parts List – MPVC STANDARD ECO (~1, 230, 50-60Hz)

	Code	Description	Unit
1	$BA1136	WASHING SYSTEM MPVC STANDARD ECO	Pcs
2	$BA1137	COVER MPVC STANDARD ECO	Pcs
3	$BA1138	LEFT BRACKET MPVC STANDARD	Pcs
4	$BA1139	RIGHT BRACKET MPVC STANDARD	Pcs
5	B000-A	YDRAULICS SET FOR MPVC STANDARD	Pcs
5.1	$K-EC073	WATER TUBE (CONTROL/ECO) WITH TUBE NECK MPP STANDARD	Pcs
5.2	$BA1140	WASHING TUBE MPVC STANDARD	Pcs
5.3	$K-BK461-3	WATER HOSE 1/2" (38x46) 7 BAR	Pcs
5.4	$K-AN079	S/S CLAMP 40-60MM	Pcs
5.5	$K-BK461-1	WATER HOSE D50 2"	Pcs
5.6	$K-AN043	S/S CLAMP D50-70mm DIN3017	Pcs
5.7	$K-BK2260-1	MILK HOSE 2" - 10 BAR - 1m	Pcs
5.8	$K-BK157	MILK HOSE 2" - 10 BAR	Pcs
5.9	$K-AN079	S/S CLAMP 40-60MM	Pcs
5.10	$K-AN038-15	WATER PUMP SIREM (PB1C270H4B 0307000002) 230/50/1	Pcs
5.11	$RD0060	DRAINAGE VALVE MULLER NC DN40 24V AC/DC 1.5m cable injected coil (059801)	Pcs
5.12	$M160	WATER INTAKE VALVE 180o 24VAC 3/4" D13,5 (SM160)	Pcs
5.13	$K-AN089	PERISTALTIC PUMP MP2-P 24VDC 30l/h SANTOPRENE(DETERGENT/ACID)	Pcs
5.14	$K-BK1013-1	TEKNOPRENE TUBE 8x12	M
5.15	$K-AN127-1	RUBBER ELBOW BLACK D25	Pcs
5.16	$M726	RUBBER COUPLING D50-D40 (0000/0368)	Pcs

5.17	$BA772-5	WELDING END PIPE 304 D25	Pcs
6	B000-B	ELECTRICAL COMPONENTS SET MPVC STANDARD	Pcs
6.1	$K-H256	GREEN SIGNAL LED BUTTON HJ-14 24V AC/DC	Pcs
6.2	$K-H094	BLACK SELECTOR SWITCH HEAD D22 3-POSITION ZB4BD3	Pcs
6.3	$K-H092	SINGLE CONTACT BLOCK WITH BODY/FIXING COLLAR, METAL, SCREW CLAMP TERMINAL, 1NO ZB4BZ101	Pcs
6.4	$K-H093	CONTANCT BLOCK ZBE101 NO	Pcs
6.5	$BA240	MILK COOLING TANK CONTROLLER DIXELL XR80CX 230V/50-60Hz	Pcs
6.6	$BA241	SILICON COVER FOR MILK CONTROLLER DIXELL	Pcs
6.7	$M163	Self-Adhesive Washer Ø30/45 Blue	Pcs
6.8	$M164	Self-Adhesive Washer Ø30/45 RED	Pcs
6.9	$BA423	SELF-ADHESIVE DANGER LABEL 400 VOLT (6 LANGUAGES)	Pcs
6.10	$BA423-1	SELF-ADHESIVE DANGER LABEL 230 VOLT (6 LANGUAGES)	Pcs
6.11	$BA889-7	ADHESIVE TAPE LOGO MILKPLAN + MPP STANDARD" 32cm	Pcs
7	$K-EC076	MPP STANDARD CONTROL PANEL (1/200-240V/50-60Hz) WITH AGITATION FOR MPV	Pcs
7.1	$K-H201	ELECTRICAL COMPONENT BOX 300x220x120	Pcs
7.2	$HA134-2	MICROAUTOMATIC SWITCH A9F74210	Pcs
7.3	$K-H202	RELAY SCHNEIDER TESYS K LC1K0610B7	Pcs
7.4	$K-H259	THERMAL OVERLOAD RELAY LR2K0312 3.7-5.5A	Pcs
7.5	$K-H244-8	OPEN TYPE TRANSFORMER 60VA 0-200-230V/0-24V	Pcs
7.6	$K-H010	BRIDGE RECTIFIER 35A/1000V	Pcs
7.7	$K-H189-3	PLC CONTROLLER SCHNEIDER ZELIO SR2B201B 24VAC	Pcs
8	$K-EC106	DETERGENT / ACID KIT MPP STANDARD/TOUCH	Pcs
8.1	$K-A232	FLEXIM TUBE D16 BLACK	MET
8.2	$K-BK1014-1	TEKNOPRENE TUBE 4.8x8 FOR DETERGENT & ACID	MET
8.3	$K-H041	FITTING D16 PG16 BLACK	Pcs
8.4	$K-AN084	SET COVER-FRAME-HOLDERS BLACK	Pcs
8.5	$K-EC106-1	DETERGENT / ACID KIT MPP STANDARD/TOUCH	Pcs
9	$K-H269-9	Male Plug 3P 16A 230V IP67 PKE16M723	Pcs
10	$M116	NYAF CABLE 3x1.5	MET
11	$K-BK192	OUTLET VALVE / WASHING PANEL CONNECTOR DN50	Pcs
12	$K-H089	BUZZER 24DC ALARM	Pcs
13	$K-EC026	CONTROL PANEL BRACKET 130X15X1,2 MM INOX	Pcs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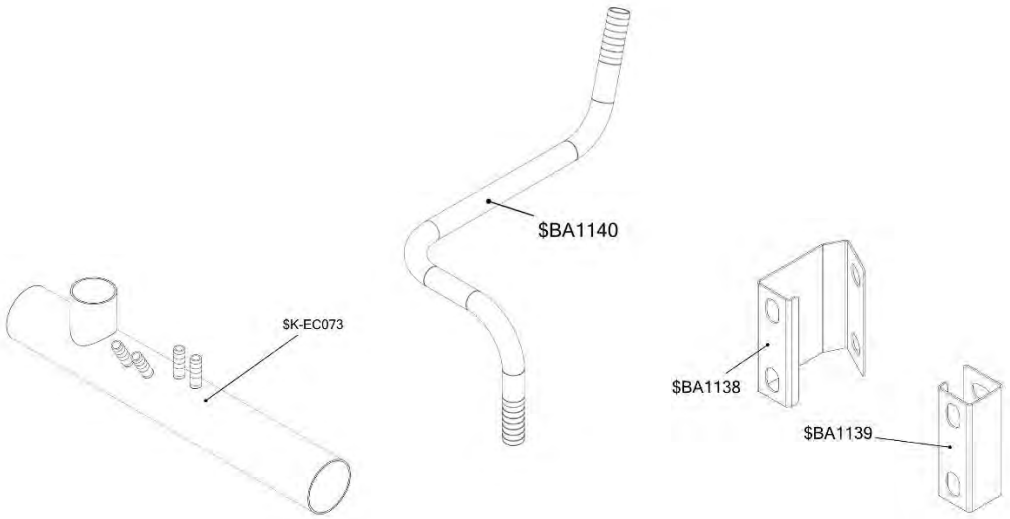
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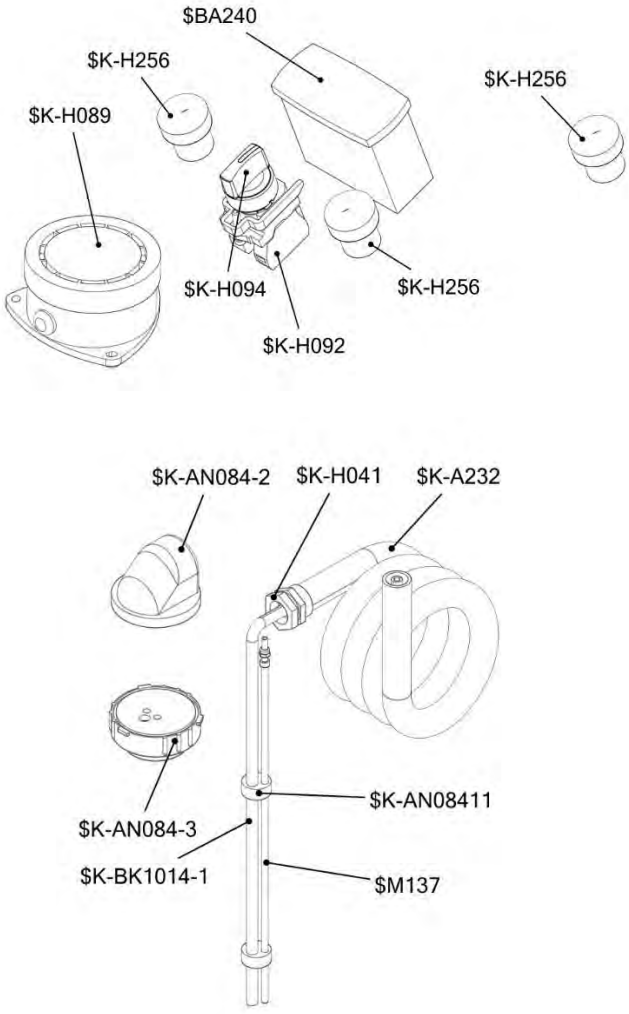

Table 5: Spare Parts List - Agitator

Code	Description	Unit
$BA162	PVC AGITATION SHAFT COVER	Pcs
$BA136	AGITATOR COMPLETE MPV200	Pcs
$BA146	AGITATOR COMPLETE MPV50	Pcs
$BA146-3	AGITATOR COMPLETE MPV50 (INOX 316)	Pcs
$BA146-4	DOUBLE BLADE PADDLE AGITATOR MPV50 - DETACHED	Pcs
$BA135-2	AGITATOR COMPLETE L466 MPV100	Pcs
$BA135-3	AGITATOR COMPLETE L466 MPV100 (INOX 316)	Pcs
$BA135-7	AGITATOR COMPLETE L466 MPV100 (INOX 316) DETACHED	Pcs
$BA135-4	AGITATOR COMPLETE MPV150	Pcs
$BA136-6	AGITATOR COMPLETE MPV200 (INOX 316)	Pcs
$BA136	AGITATOR COMPLETE MPV200	Pcs
$BA136-2	AGITATOR COMPLETE L520 MPV200 DETACHED	Pcs
$BA136-4	DOUBLE BLADE PADDLE AGITATOR MPV200 - DETACHED	Pcs
$BA137-4	AGITATOR COMPLETE MPV300 (INOX 316)	Pcs
$BA137-2	AGITATOR COMPLETE MPV300 DETACHED	Pcs
$BA137-3	DOUBLE BLADE PADDLE AGITATOR MPV300 - DETACHED	Pcs

$BA138	AGITATOR COMPLETE MPV400	Pcs
$BA138-2	AGITATOR COMPLETE MPV400 DETACHED	Pcs
$BA138-4	DOUBLE BLADE PADDLE AGITATOR MPV400 - DETACHED	Pcs
$BA139	AGITATOR COMPLETE MPV500	Pcs
$BA139-7	AGITATOR COMPLETE MPV500 (INOX 316)	Pcs
$BA139-2	AGITATOR COMPLETE MPV500 DETACHED	Pcs
$BA139-6	DOUBLE BLADE PADDLE AGITATOR MPV500 - DETACHED	Pcs
$BA140	AGITATOR COMPLETE MPV650	Pcs
$BA140-6	AGITATOR COMPLETE MPV650 (INOX 316)	Pcs
$BA140-2	AGITATOR COMPLETE MPV650 DETACHED	Pcs
$BA140-5	DOUBLE BLADE PADDLE AGITATOR MPV650 - DETACHED	Pcs
$BA141-3	AGITATOR COMPLETE MPV800	Pcs
$BA141-4	AGITATOR COMPLETE MPV800 (INOX 316)	Pcs
$BA142	AGITATOR COMPLETE MPV1000	Pcs
$BA142-4	AGITATOR COMPLETE MPV1000 (BLADE 620mm)	Pcs
$BA142-2	AGITATOR COMPLETE MPV1000 (INOX 316)	Pcs
$BA143	AGITATOR COMPLETE MPV1250	Pcs
$BA144	AGITATOR COMPLETE MPV1500	Pcs
$BA144-3	AGITATOR COMPLETE MPV1500 (INOX 316)	Pcs
$BA145	AGITATOR COMPLETE MPV1600	Pcs
$BA147	AGITATOR COMPLETE MPV2000	Pcs
$BA148	AGITATOR COMPLETE MPV2200	Pcs
$BA149	AGITATOR COMPLETE MPV2500	Pcs
$BA149-3	AGITATOR COMPLETE MPV2500 (INOX 316)	Pcs
$BA1349	AGITATOR COMPLETE MPV2800	Pcs
$BA1358	AGITATOR COMPLETE MPV3000	Pcs
$BA146-2	DOUBLE BLADE PADDLE AGITATOR MPV50	Pcs
$BA135-5	DOUBLE BLADE PADDLE AGITATOR MPV100	Pcs
$BA135-6	DOUBLE BLADE PADDLE AGITATOR MPV150	Pcs
$BA136-3	DOUBLE BLADE PADDLE AGITATOR MPV200	Pcs
$BA137-5	DOUBLE BLADE PADDLE AGITATOR MPV300	Pcs
$BA138-3	DOUBLE BLADE PADDLE AGITATOR MPV400	Pcs
$BA139-4	DOUBLE BLADE PADDLE AGITATOR MPV500	Pcs
$BA140-3	DOUBLE BLADE PADDLE AGITATOR MPV650	Pcs
$BA141-2	DOUBLE BLADE PADDLE AGITATOR MPV800	Pcs
$BA142-3	DOUBLE BLADE PADDLE AGITATOR MPV1000	Pcs
$BA143-2	DOUBLE BLADE PADDLE AGITATOR MPV1250	Pcs
$BA144-2	DOUBLE BLADE PADDLE AGITATOR MPV1500	Pcs
$BA145-2	DOUBLE BLADE PADDLE AGITATOR MPV1600	Pcs
$BA147-2	DOUBLE BLADE PADDLE AGITATOR MPV2000	Pcs
$BA148-2	DOUBLE BLADE PADDLE AGITATOR MPV2200	Pcs
$BA149-2	DOUBLE BLADE PADDLE AGITATOR MPV2500	Pcs

Table 6: Spare Parts – Dipstck

Code	Description	Unit
$BA312	DIP STICK FOR MPV50 L(294) WITH KEYHOLE	Pcs
$BA312-1	DIP STICK FOR MPV50 L(294) WITH SN	Pcs
$BA312-2	DIP STICK FOR MPV50 L(298) HANGING WITHOUT KEYHOLE	Pcs
$BA312-3	DIP STICK FOR MPV50 L(294) WITH KEYHOLE(Indication in liters)	Pcs
$BA313	DIP STICK FOR MPV100 L(414) WITH KEYHOLE	Pcs
$BA313-1	DIP STICK FOR MPV100 L(414) WITH SN	Pcs
$BA313-3	DIP STICK FOR MPV100 L(418) HANGING WITHOUT KEYHOLE	Pcs

$BA313-5	DIP STICK FOR MPV100 L(414) WITH KEYHOLE (Indication in liters)	Pcs
$BA313-2	DIP STICK FOR MPV150 L(514) WITH KEYHOLE	Pcs
$BA313-4	DIP STICK FOR MPV150 L(518) HANGING WITHOUT KEYHOLE	Pcs
$BA313-6	DIPSTICK FOR MPV150 L(514) WITH KEYHOLE (Indication in liters)	Pcs
$BA314	DIP STICK FOR MPV200 L(451) WITH KEYHOLE	Pcs
$BA314-1	DIP STICK FOR MPV200 L(451) WITH SN	Pcs
$BA314-2	DIP STICK FOR MPV200 L(455) HANGING WITHOUT KEYHOLE	Pcs
$BA314-3	DIP STICK FOR MPV200 L(451) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA315	DIP STICK FOR MPV300 L(480) WITH KEYHOLE	Pcs
$BA315-1	DIP STICK FOR MPV300 L(480) WITH SN	Pcs
$BA315-2	DIP STICK FOR MPV300 L(484) HANGING WITHOUT KEYHOLE	Pcs
$BA315-3	DIP STICK FOR MPV300 L(480) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA316	DIP STICK FOR MPV400 L(488) WITH KEYHOLE	Pcs
$BA316-1	DIP STICK FOR MPV400 L(488) WITH SN	Pcs
$BA316-2	DIP STICK FOR MPV400 L(492) HANGING WITHOUT KEYHOLE	Pcs
$BA316-3	DIP STICK FOR MPV400 L(517) WITH KEYHOLE (+7%LENGTH)	Pcs
$BA316-4	DIP STICK FOR MPV400 L(488) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA317	DIP STICK FOR MPV500 L(612) WITH KEYHOLE	Pcs
$BA317-1	DIP STICK FOR MPV500 L(612) WITH SN	Pcs
$BA317-2	DIP STICK FOR MPV500 L(616) HANGING WITHOUT KEYHOLE	Pcs
$BA317-3	DIP STICK FOR MPV500 L(612) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA318	DIP STICK FOR MPV650 L(775) WITH KEYHOLE	Pcs
$BA318-1	DIP STICK FOR MPV650 L(775) WITH SN	Pcs
$BA318-2	DIP STICK FOR MPV650 L(779) HANGING WITHOUT KEYHOLE	Pcs
$BA318-4	DIP STICK FOR MPV650 L(775) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA318-5	DIP STICK FOR MPV650 L(775) WITH KEYHOLE (INOX316)	Pcs
$BA319	DIP STICK FOR MPV800 L(700) WITH KEYHOLE	Pcs
$BA319-1	DIP STICK FOR MPV800 L(700) WITH SN	Pcs
$BA319-2	DIP STICK FOR MPV800 L(704) HANGING WITHOUT KEYHOLE	Pcs
$BA319-3	DIP STICK FOR MPV800 L(700) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA320	DIP STICK FOR MPV1000 L(634) WITH KEYHOLE	Pcs
$BA320-1	DIP STICK FOR MPV1000 L(634) WITH SN	Pcs
$BA320-2	DIP STICK FOR MPV1000 L(634) INOX 316	Pcs
$BA320-3	DIP STICK FOR MPV1000 L(638) HANGING WITHOUT KEYHOLE	Pcs
$BA320-4	DIP STICK FOR MPV1000 L(634) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA321	DIP STICK FOR MPV1250 L(774) WITH KEYHOLE	Pcs
$BA321-1	DIP STICK FOR MPV1250 L(774) WITH SN	Pcs
$BA321-2	DIP STICK FOR MPV1250 L(774) HANGING WITHOUT KEYHOLE	Pcs
$BA321-3	DIP STICK FOR MPV1250 L(774) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA322	DIP STICK FOR MPV1500 L(928) WITH KEYHOLE	Pcs
$BA322-1	DIP STICK FOR MPV1500 L(728) WITH SN	Pcs
$BA322-2	DIP STICK FOR MPV1500 L(932) HANGING WITHOUT KEYHOLE	Pcs
$BA322-3	DIP STICK FOR MPV1500 L(928) WITH KEYHOLE (INDICATION IN LITERS)	Pcs
$BA322-4	DIP STICK FOR MPV1500 L(928) WITH KEYHOLE (INOX 316)	Pcs
$BA324	DIP STICK FOR MPV2000 L(761) WITH KEYHOLE	Pcs
$BA324-1	DIP STICK FOR MPV2000 L(761) WITH SN	Pcs
$BA324-2	DIP STICK FOR MPV2000 L(765) HANGING WITHOUT KEYHOLE	Pcs

Table 7: Spare Parts List – Measurement Sheet

Code	Description	Unit
$BA907	MEASUREMENT SHEET FOR MPV 0050	Pcs

$BA907-2	MEASUREMENT SHEET FOR MPV 0050 (WITHOUT LOGO)	Pcs
$BA907-1	MEASUREMENT SHEET FOR MPV 0050 WITH SN	Pcs
$BA908	MEASUREMENT SHEET FOR MPV 0100	Pcs
$BA908-1	MEASUREMENT SHEET FOR MPV 0100 WITH SN	Pcs
$BA908-2	MEASUREMENT SHEET FOR MPV 0100 (WITHOUT LOGO)	Pcs
$BA1019	MEASUREMENT SHEET FOR MPV 0150	Pcs
$BA1019-2	MEASUREMENT SHEET FOR MPV 0150 (WITHOUT LOGO)	Pcs
$BA1019-1	MEASUREMENT SHEET FOR MPV 0150 WITH SN	Pcs
$BA909	MEASUREMENT SHEET FOR MPV 0200	Pcs
$BA909-2	MEASUREMENT SHEET FOR MPV 0200 (WITHOUT LOGO)	Pcs
$BA909-1	MEASUREMENT SHEET FOR MPV 0200 WITH SN	Pcs
$BA910	MEASUREMENT SHEET FOR MPV 0300	Pcs
$BA910-2	MEASUREMENT SHEET FOR MPV 0300 (WITHOUT LOGO)	Pcs
$BA910-1	MEASUREMENT SHEET FOR MPV 0300 WITH SN	Pcs
$BA911	MEASUREMENT SHEET FOR MPV 0400	Pcs
$BA911-2	MEASUREMENT SHEET FOR MPV 0400 (WITHOUT LOGO)	Pcs
$BA911-1	MEASUREMENT SHEET FOR MPV 0400 WITH SN	Pcs
$BA912	MEASUREMENT SHEET FOR MPV 0500	Pcs
$BA912-3	MEASUREMENT SHEET FOR MPV 0500 (WITH UNITED LOGO)	Pcs
$BA912-2	MEASUREMENT SHEET FOR MPV 0500 (WITHOUT LOGO)	Pcs
$BA912-1	MEASUREMENT SHEET FOR MPV 0500 WITH SN	Pcs
$BA912-4	MEASUREMENT SHEET FOR MPV 0500 (WITH DANONE LOGO)	Pcs
$BA913	MEASUREMENT SHEET FOR MPV 0650	Pcs
$BA913-2	MEASUREMENT SHEET FOR MPV 0650 (WITHOUT LOGO)	Pcs
$BA913-1	MEASUREMENT SHEET FOR MPV 0650 WITH SN	Pcs
$BA914	MEASUREMENT SHEET FOR MPV800	Pcs
$BA914-2	MEASUREMENT SHEET FOR MPV 0800 (WITHOUT LOGO)	Pcs
$BA914-1	MEASUREMENT SHEET FOR MPV 0800 WITH SN	Pcs
$BA915	MEASUREMENT SHEET FOR MPV 1000	Pcs
$BA915-2	MEASUREMENT SHEET FOR MPV 1000 (WITHOUT LOGO)	Pcs
$BA915-1	MEASUREMENT SHEET FOR MPV 1000 WITH SN	Pcs
$BA916	MEASUREMENT SHEET FOR MPV1250	Pcs
$BA916-2	MEASUREMENT SHEET FOR MPV 1250 (WITHOUT LOGO)	Pcs
$BA916-1	MEASUREMENT SHEET FOR MPV 1250 WITH SN	Pcs
$BA916-3	MEASUREMENT SHEET FOR MPV 1250 (WITH DANONE LOGO)	Pcs
$BA917	MEASUREMENT SHEET FOR MPV1500	Pcs
$BA917-2	MEASUREMENT SHEET FOR MPV 1500 (WITHOUT LOGO)	Pcs
$BA917-1	MEASUREMENT SHEET FOR MPV 1500 WITH SN	Pcs
$BA1020	MEASUREMENT SHEET FOR MPV1600	Pcs
$BA1020-2	MEASUREMENT SHEET FOR MPV 1600 (WITHOUT LOGO)	Pcs
$BA1020-1	MEASUREMENT SHEET FOR MPV 1600 WITH SN	Pcs
$BA918	MEASUREMENT SHEET FOR MPV2000	Pcs
$BA918-2	MEASUREMENT SHEET FOR MPV 2000 (WITHOUT LOGO)	Pcs
$BA918-1	MEASUREMENT SHEET FOR MPV 2000 WITH SN	Pcs
$BA1021	MEASUREMENT SHEET FOR MPV2200	Pcs
$BA1021-1	MEASUREMENT SHEET FOR MPV 2200 WITH SN	Pcs
$BA1021-2	MEASUREMENT SHEET FOR MPV 2200 (WITHOUT LOGO)	Pcs
$BA919	MEASUREMENT SHEET FOR MPV2500	Pcs
$BA919-2	MEASUREMENT SHEET FOR MPV 2500 (WITHOUT LOGO)	Pcs
$BA919-1	MEASUREMENT SHEET FOR MPV2500 WITH SN	Pcs