

OWNER'S MANUAL
RED LINE
ALPHA Portable
100 kV electrostatic
powder spray system

RED LINE INDUSTRIES LIMITED

- Sales Office: 408 Abhishek, Behind Kuber, Off New Link Road, Andheri (W), Mumbai 400053, INDIA
- Tel: (91 22) 26736380 or 26736387 ➤ Fax: (91 22) 56466936
- Website: www.redlineltd.com ➤ e-mail: info@redlineltd.com

INTRODUCTION

Congratulations on your purchase of the **RED LINE ALPHA Portable** powder coating machine. You have purchased one of the finest and cost-effective 100 kV electrostatic powder coating spray systems.

The **RED LINE ALPHA Portable** is designed to give you many, many years of uninterrupted trouble-free performance.

It is built tough to give your products uniform high quality powder coats consistently, piece after piece, year after year.

Before using this equipment, please read this Owner's Manual completely. It will save you time, money and unnecessary effort in the future.

We know you will be thoroughly satisfied with your **RED LINE ALPHA Portable**. In case you ever require any assistance or information on this machine at any time, please do not hesitate to contact us directly or your nearest **Authorized RED LINE Sales & Service Center**. It will be our pleasure to be of assistance to you.

For further information on the full range of RED LINE powder coating equipments, systems and complete plants, do visit our website or write us or contact your nearest Authorized RED LINE Sales & Service Center.

We wish you all success.

With regards,

Himanshu Shah, Director
RED LINE INDUSTRIES LIMITED

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CAUTION AND CARE:



First and foremost, it is very important for you, as the user, to understand that although a great deal of attention has been given to various safety factors and considerations, the ultimate responsibility of using and treating this machine responsibly and with care lies with you. This machine generates 100kV (100,000 volts) for electrostatic use. Always treat this machine with the respect it deserves.

ALWAYS ...

- ✓ Read this manual completely before starting and every time you need to refer for additional information
- ✓ Wear leather footwear and non-insulating gloves (if any)
- ✓ Ensure that the equipment, the coating booth/cabin and everything within a 3 meter radius of the machine is properly earthed.
- ✓ Use jigs and jig holders which are clean and bare at their contact points which are properly earthed to ensure proper dissipation of electrostatic charge build-up.
- ✓ Avoid extended triggering of the gun without powder flow. Powder flow assists in dissipation of charge from near the gun tip.
- ✓ Use only compressed air and a clean dry lint-free cloth, to clean the gun or machine or any parts
- ✓ In case of doubt, contact your local dealer or service centre or us directly

NEVER ...

- ☒ Touch the charging electrodes at the tip of the gun with your bare hands when the machine is on. If required to handle the electrodes, always earth the electrodes first to dissipate any electrostatic charge build-up that may have taken place.
- ☒ Inhale the powder that is sprayed. If the powder recovery system is not efficient to suck away all oversprayed powder, either get that handled or at least ensure that an appropriate air-filter is made available for the workers to breath in clean air.
- ☒ Use any kind of solvents to clean any gun or machine parts.

AVOID ...

- ☒ Using locally produced replacement parts – this may prove to be cheaper in the short term but may damage the machine and force higher expenditure later

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FIRST START UP

INFRASTRUCTURAL REQUIREMENTS:

Electrical power connection:	110/120 V ac , 60Hz, Single phase with earthing (Other voltage if specified at the time of purchasing)
Pneumatic connection:	Clean & dry compressed air at a pressure between 1kg/cm ² (14psi) and 2 kg/cm ² (28psi)

THE RED LINE ALPHA PORTABLE IS SUPPLIED READY-TO-OPERATE. ALL YOU NEED TO DO TO START WORK IS ...

1. CHECK YOUR POWER SUPPLY VOLTAGE MATCHES THE REQUIREMENT OF THE MACHINE (LABEL ON POWER CORD SHOULD GIVE YOU THIS INFORMATION)
2. CONNECT A POWER PLUG (IF NOT PROVIDED OR THE ONE PROVIDED DOES NOT MATCH YOUR COUNTRY'S PLUG-SOCKET SYSTEM) TO THE END OF THE POWER CORD. PLEASE NOTE THAT 3 WIRES ARE PROVIDED – NORMALLY RED FOR PHASE (OR LIVE), BLACK FOR NEUTRAL AND GREEN FOR EARTHING (OR GROUND).
3. UNSCREW THE POWDER CUP FROM THE SPRAY GUN TO FILL IT WITH POWDER COATING.
4. PLUG THE POWER CORD TO YOUR AVAILABLE POWER SUPPLY.
5. CONNECT THE BLUE TUBING PROVIDED BETWEEN THE MACHINE ('TO GUN') AND THE BASE OF THE GUN HANDLE.
6. CONNECT THE OUTPUT FROM YOUR AIR COMPRESSOR TO THE 'AIR IN' NOZZLE PROVIDED IN YOUR MACHINE. IT IS CRITICALLY IMPORTANT THAT THE COMPRESSED AIR AVAILABLE TO THE MACHINE IS DRY AND CLEAN. MOIST AND 'DIRTY' COMPRESSED AIR WILL NOT ONLY DAMAGE YOUR SPRAY GUN, BUT WILL NOT PROVIDE YOU WITH SMOOTH AND TROUBLE-FREE POWDER COATING. LIKE WITH ANY POWDER COATING EQUIPMENT, MOISTURE PARTICULARLY, IN THE COMPRESSED AIR COULD COAGULATE THE FREE-FLOWING POWDER COATING AFFECTING UNIFORM AND CONSISTENT POWDER FLOW FROM THE GUN.

THE RED LINE ALPHA PORTABLE IS NOW CONNECTED FOR STARTING POWDER COATING WORK



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START UP:

1. Fill the powder cup with as much powder as is required and screw on back to the top of the gun
2. Hang the article(s) to be coated in the spray booth (or enclosure), ensuring that they are properly earthed through the jig holder (holding the articles to be coated).
3. Switch on the mains power supply to the machine from the power outlet
4. Switch on the compressed air supply to the machine
5. Turn the HV control knob at least a quarter of a circle from the minimum. The system is designed to remain OFF in case the HV control is set at the minimum position.
6. Toggle the power switch to the '1' position
7. Point the gun into the booth and press the trigger on the spray gun (the kV meter will now show the electrostatic charge available at the gun nozzle)
8. Set the compressed air pressure (usually around 1.0 unit on the pressure gauge in the machine) till you get a suitable powder flow through the spray gun
9. Increase the High Voltage (HV) control to get an electrostatic charging voltage of around 90 to 100 kV - normally it is recommended that you maintain this setting at the highest – 90-100 kV - level as this is the optimum charging voltage for powder coatings
10. Keeping the nozzle of the gun about 10 to 20 cms (4" to 8") from the articles being coated, spray powder in smooth horizontal arm sweeps. Normally one or two passes of the gun over the surface are sufficient to get a uniform powder coat.
11. Cup-guns normally require some movement of the gun to ensure smooth and continuous powder flow. Your ALPHA Portable cup-gun uses the **ForceFeed** technology to get uniform and smooth powder flow even with virtually no movement of the spray gun. In case powder flow is a little erratic, please shake the gun – often this is caused by moist powder or moisture in the compressed air which affects the free-flowing characteristics of the powder.
12. Releasing the trigger of the gun switches OFF the high voltage generator as well as the powder flow from the gun. When the equipment is not in use, please switch OFF ('0' position) the entire machine.
13. Refill the cup with fresh powder as required
14. for quick color changes, it is suggested that you stock different powders in different cups.

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ROUTINE CLEANING & MAINTENANCE

Always keep your RED LINE ALPHA Portable system clean. Regular cleaning of the powder spray gun and the powder cup is normally all that is required to ensure that your system always operates at peak performance levels.

At the end of every color run or every shift or whenever work is done for the day,

1. Empty out the cup and, with compressed air jet clean the insides of the cup and then wipe clean with a dry clean cloth.
2. Unscrew the front of the gun and remove the muzzle assembly (the white plastic part that houses the 4 charging electrodes or one in the center).
3. Pass compressed air through the spray gun via the top where the cup fits through the tall and curved pipe to remove all remnants of powder from inside the spray gun. Use the compressed air spray to thoroughly clean the gun.

**DO NOT USE ANY PETROCHEMICAL SOLVENTS OR OTHER CLEANING AGENTS
TO CLEAN THE GUN OR ANY PART OF THE MACHINE AS THIS MIGHT DAMAGE
THE GUN OR OTHER COMPONENTS.**

Once a week, check for worn out parts. If any such parts need to be replaced, please call for only genuine parts from your nearest RED LINE Service Center. Using locally procured or unauthorized parts may not only affect the performance of the system, but may also damage the delicate parts and components of the machine leading to unnecessary additional heavy expenditures ahead.

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TROUBLE SHOOTING

FAULT:	REMEDY:
ELECTROSTATIC:	
The spray gun is charging the powder, but the powder adhesion to the article is poor, taking more time to coat	EARTHING IS IMPROPER: Check that the article (through the jig-holder) and the gun panel (through the 'earth' point of your power cable) are correctly and properly earthed
When the trigger is pressed, there is no powder flow and the kV meter also does not indicate any charging voltage	FUSE BLOWN: Check fuse F2 and replace with a 5x20mm 1.5amp fuse
During coating, the system switches OFF and the red warning light comes on	This is a safety-designed electronic cutout which has taken place due to an electrostatic current overload. Reset the system (switch off and switch on again) and start work. In case of repeated tripping, call your Authorized Service Center
When switched ON ('1' position), the system does not switch ON (green light remains off)	NO MAINS SUPPLY: Check the availability of the mains supply through the power plug and cable FUSE BLOWN: Check fuse F1 and replace with 5x20mm 500mA (0.5amp) fuse
POWDER FLOW:	
Everything appears normal, including high voltage except there is no powder flow	A: NO COMPRESSED AIR Check inlet compressed air (minimum 14 psi / 1 kg/cm ²) is available at the input to the machine B: POWDER INSUFFICIENT: Ensure there is sufficient powder in the hopper. If not, add C: PRESSURES SET AT ZERO: Check and suitably adjust the air pressure setting to at least 1 unit on the machine's pressure gauge D: SOLENOID #1 NOT OPERATING: If the pressure gauge reads zero even for non-zero settings, the solenoid valve in the panel may not be functioning. Please remove the fibre-glass housing to access the solenoid valve below. Test and replace if necessary (this is a 24 V AC solenoid valve) F: ONE OR BOTH POWDER CUP OPENINGS AT ITS BASE ARE BLOCKED: Dismantle and check the powder cup for blockages. Clean and resume work
Powder flow is erratic and often comes in fits and bursts	A: POWDER INSUFFICIENT IN CUP Add more powder B: MOISTURE IN THE COMPRESSED AIR OR IN POWDER - check quality of air drying system and quality of powder. - shake the gun a little while spraying D: POWDER SPRAY GUN PARTIALLY CLOGGED: thoroughly clean the powder spray gun to ensure the opening is clear

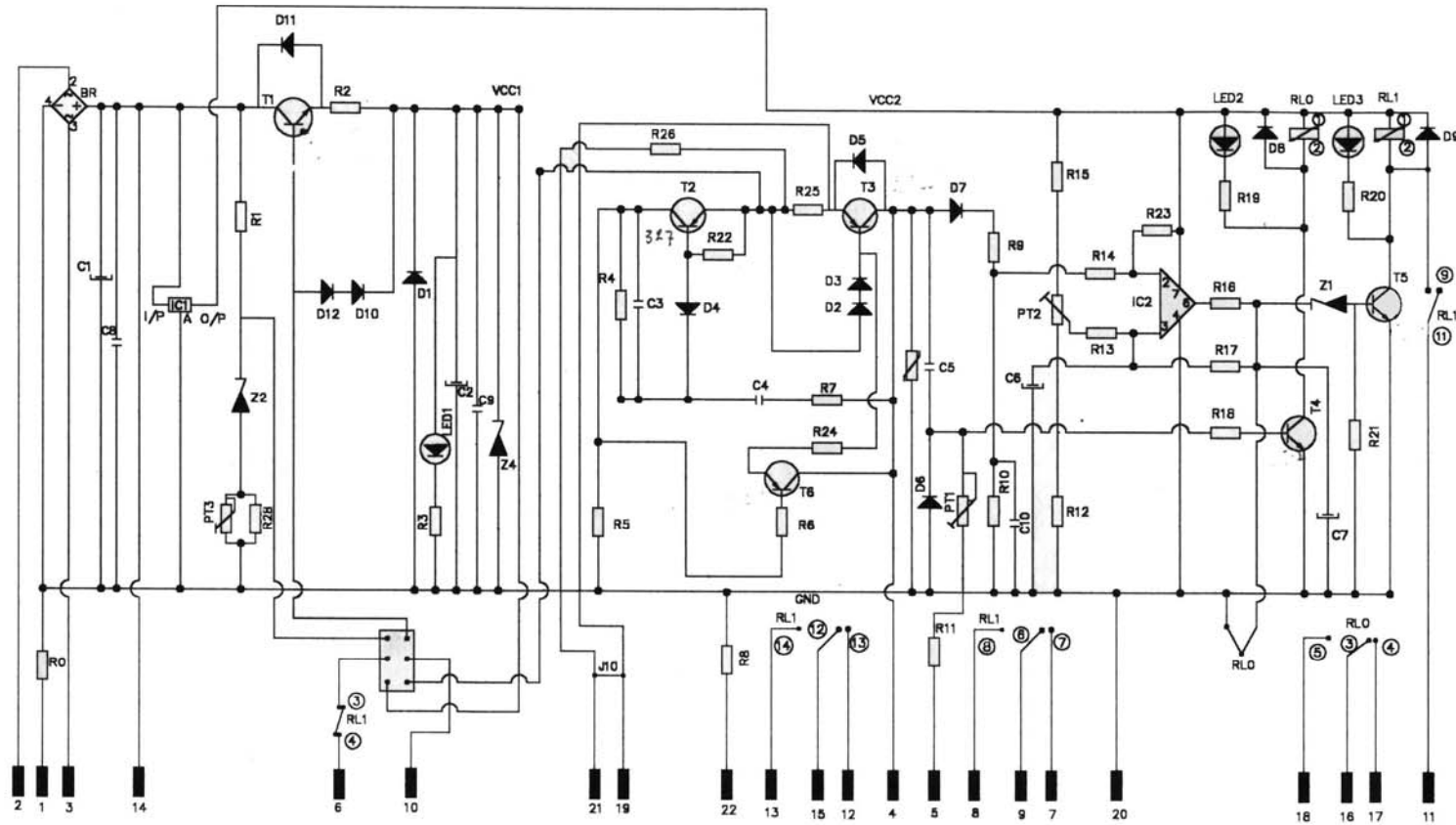
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COATING FINISH:	
Craters in films	<p>A: IMPROPER PRETREATMENT (RESIDUAL OIL ON SURFACE) check the quality of pretreatment - chemical salts or grease/oil may be left behind</p> <p>B: POWDERS FROM DIFFERENT MANUFACTURERS HAVE BEEN MIXED AND THEY MAY NOT BE COMPATIBLE use powders of only one company at a time</p>
Pin-holes on the film	<p>POWDERS MAY BE EXCESSIVELY MOIST. Change the powder with fresh powder of a recent batch</p>
Bubbles in film	<p>RUST OR WATER WAS NOT CLEANED OFF BEFORE POWDER COATING. Look into the quality of your pretreatment</p>
Orange peel effect is excessive	<p>A: CURING HEATING PROCESS IS TOO SLOW Have your oven checked out. The heat source (heaters) may not be good enough or adequate in quantity</p> <p>B: COATING TOO THIN</p> <p>C: POWDERS OF DIFFERENT BRANDS HAVE BEEN MIXED AND THEY ARE NOT COMPATIBLE. Use powders of only one brand at a time</p>
Film is discolored (yellowed)	<p>OVERBURNING/OVERCURING HAS TAKEN PLACE IN THE OVEN Cure your powder coatings as per curing schedule provided by the powder manufacturer at the recommended temperature</p>
Deviation in color	<p>IMPROPER AIR FLOWS IN OVEN CREATING VARYING TEMPERATURES INSIDE THE OVEN. Have your oven checked out by a qualified oven manufacturer</p>

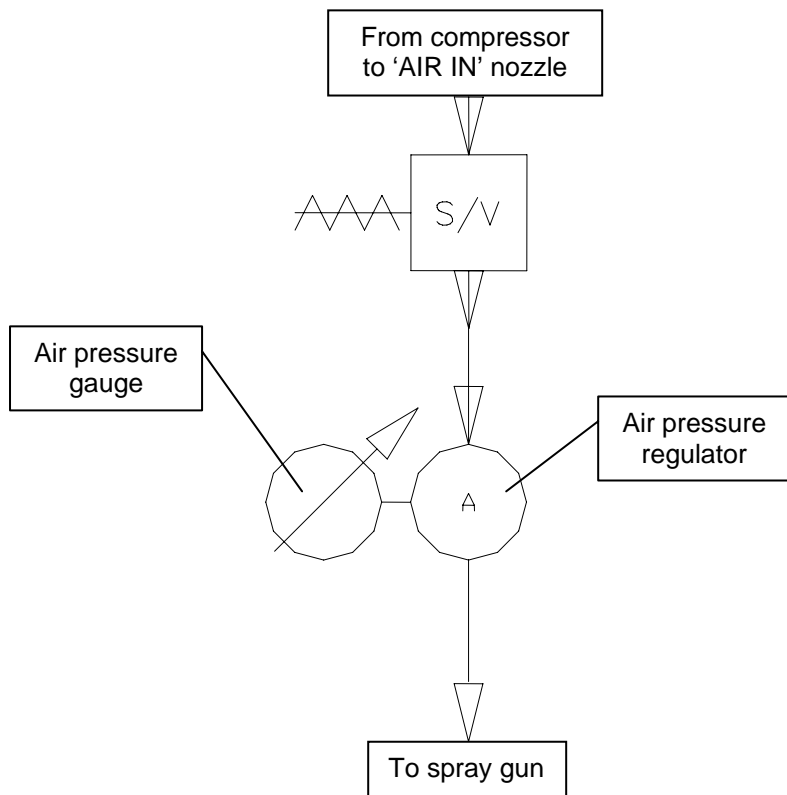
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Printed Circuit Board details ... Model: KK-300
Machine model: **ALPHA Portable**

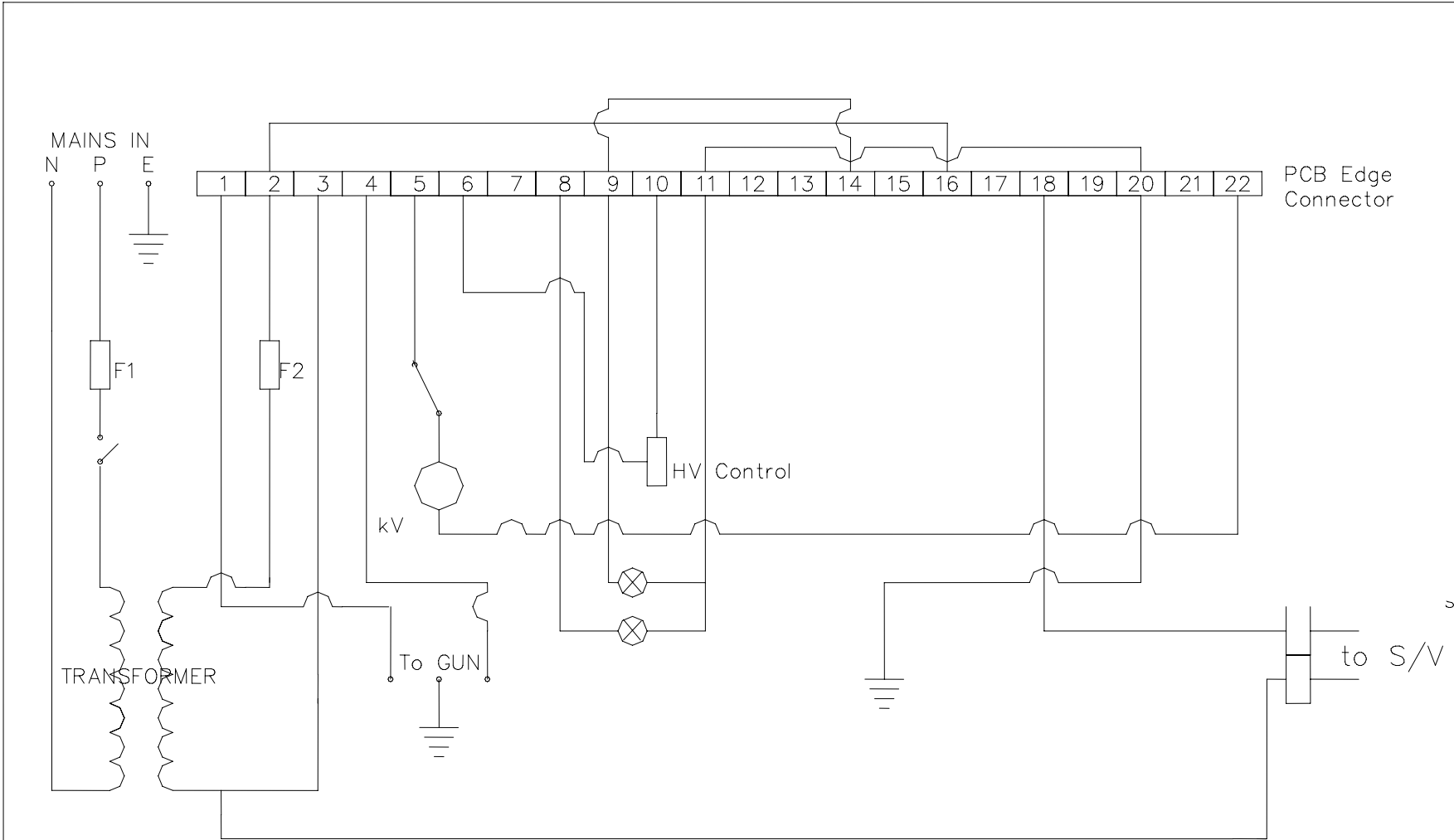
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Pneumatic connections
Machine model: ALPHA Portable

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Wiring diagram of control panel
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