

**OPERATION MANUAL**

**CONVENTIONAL POSITIONER**  
**Model AHVP10- CE**



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**Westermans International Ltd**

Unit 4 Midland Distribution Centre, Markfield Road

Groby, Leicestershire, LE6 0FS

www.westermans.com welding@westermans.com Tel:+44(0)116 2696941

## 1.0 PREFACE

This user's manual describes the everyday use and maintenance of our Welding Positioners. Any actions that are required to be carried out by the manufacturer have not been included in this manual.

This manual is part of the machine. Please keep this manual safe. Information in this manual could be useful at a later time or when a repair or maintenance is carried out. We suggest that a copy of the manual is made and kept with the machine; the original should be kept in a safe place. If necessary, replacement copies can be supplied. If the machine is sold at a later date then the manual should be also supplied with it to the new user.

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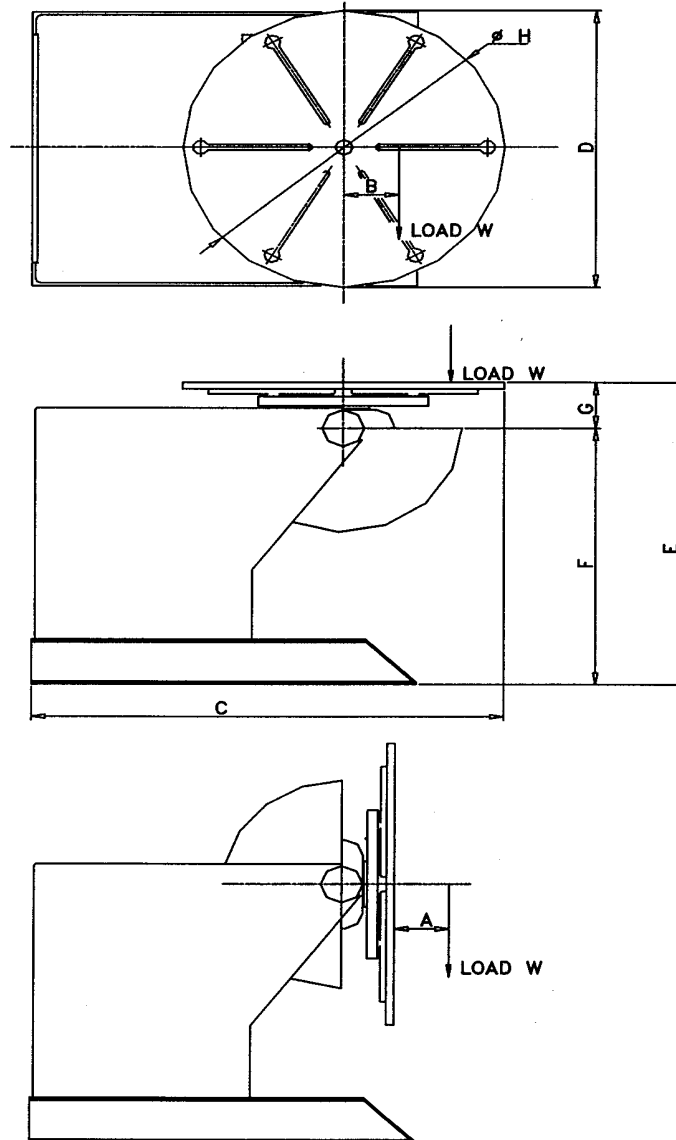
Groby, Leicestershire, LE6 0FS

[www.westermans.com](http://www.westermans.com) [welding@westermans.com](mailto:welding@westermans.com) Tel:+44(0)116 2696941

## 1.1 MACHINE SPECIFICATIONS

### 1.2 LOADING DATA

# CONVENTIONAL POSITIONERS LOADING DATA



ROTATION TORQUE (R) IS A STRAIGHT FORWARD CALCULATION OF LOAD (W) X ECCENTRICITY (B) BUT TO ENSURE AN ACCURATE FIGURE FOR TILT TORQUE (T) IT IS IMPORTANT TO USE THE FULL DISTANCE TO THE PIVOT POINT. THIS IS OBTAINED BY ADDING TOGETHER THE CENTRE OF GRAVITY (A) AND TABLE PIVOT DISTANCE (G). THEREFORE :-

ROTATION TORQUE (R) =  $W \times B$  Kg METRES  
 TILT TORQUE (T) =  $W \times (A + G)$  Kg METRES  
 MULTIPLY BY 9.81.

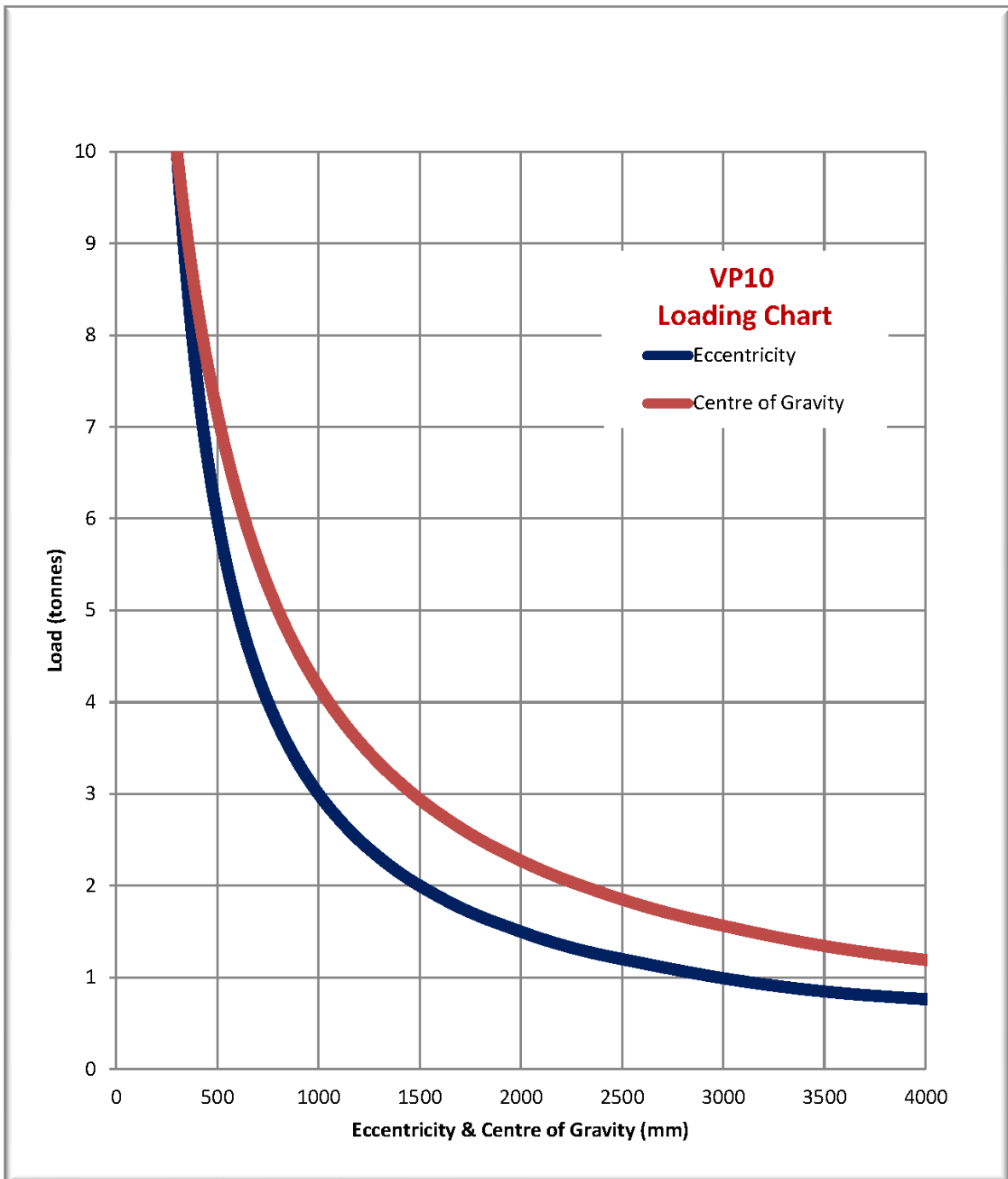
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Groby, Leicestershire, LE6 0FS

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### 1.3 LOADING CHART



**1.4 SPECIFICATION**

Safe Working Load	10,000kg
Centre of Gravity & Eccentricity (C of G & Ecc)	300mm / 300mm
Degree of Tilt	135°
Degree of Rotation	360°
Tilting Speed	120 secs
Rotation Speed	0.05 - 0.5 rpm
Height to Table Horizontal - min / max	1580mm - 2180mm
Height to Table Vertical CL – min / max	1380mm - 1980mm
Table Dimensions	1,800mm
Table Type	Round
Table Slots	4 x 28mm (M24)
Earthing	800 amps
Control Pendant	Yes
Incoming Supply	380/480V - 32 amp
Weight	5,250kg
Footprint (L x W x H)	2400mm x 1850mm x 2100mm


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**1.5 CE CERTIFICATE OF CONFORMITY**

	DESCRIPTION	Adjustable Height Conventional Positioner
	MODEL	AHVP10
	SERIAL No.	11356

**EC/EU DECLARATION OF CONFORMITY**

This EC declaration of conformity, certifies that the equipment delivered complies with the legislation in force, if it is used, and maintained in accordance with the enclosed instructions. Any different assembly or modification renders our certification void. It is therefore recommended that Westermans International Ltd be consulted about any possible modification. Failing that, the company which makes the modifications should issue their own certification. Should the latter occur, the new certification is not binding on us in anyway whatsoever.

**This equipment complies with European Directives.**

No. 2006/42/CE

No. 2014/30/UE

**Using the following harmonised standards:**

EN 12100:2010	EN 60974-1:2006
EN ISO13849-1:2008	EN 60974-2:2006
EN ISO13857:2008	EN 60974-3:2006
EN ISO13850:2008	EN 60974-5:2006
EN ISO349:1993+A1:2008	EN 60974-7:2006
EN ISO953:1997+A1:2009	EN 60974-8:2006
EN 1088:1995+A2:2008	EN 61439-1:2009
EN 60204-1:2006+AC:2010	EN 61439-2:2009

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## 2.0 INSTALLATION

Remove transport protection (if any) from the machine.

Locate the machine on a level floor that is capable of withstanding approximately 2.5 tonnes over the contact area.

Connect the electrical mains to the machine, 380-480 volts, 3 phase, 50/60Hz.

### 2.1 Electrical Phase Connection

When power is connected the white "Power On" lamp should illuminate.

Next press the blue "Reset" button. This should then illuminate also, and the system is then ready to operate.

If the Reset button does not illuminate, then first check that all of the Emergency Stop buttons on the control panels and pendants are released and press the reset button again.

If the reset button still does not illuminate, then the phase connection may be incorrect. Check the Phase Detector Relay inside the panel. This has a red LED light on it. If the phases are correct the red light will be on permanently, if they are incorrect the red LED will flash continuously. Swap over wires L1 and L3 from the incoming mains supply to the isolator inside the control panel.

Once this is complete, and the reset button is illuminated, the machine is ready to operate.

Connect the welding earth cable to the copper earthing strip on the machine. If this connection is NOT made the weld current will earth through the centre of the table assembly and damage the bearings and other transmission parts.

Before making the machine fully operational, remove any necessary covers and check that gearboxes have not lost any lubrication during transport.



## 2.2 PHASE CHECK

On first installation, the operator should check the main supply phases are connected in the correct order.

To do this, initially tilt the table to the mid position. Press TILT UP, the table should tilt up, lift the limit switch which would activate when the tilt up travel reaches its maximum position. The limit switch should stop the tilt up travel. If it does not, then reverse the phases of the power supply until the tilt up direction is stopped with the tilt up limit switch. Once this is done, check the Tilt down limit also.

Failure to do this may result in the tilt up / down axis over travelling and crashing. This can cause severe damage to the drive chain and gearing.

## 3.0 OPERATION

### 3.1 Control Panel

In the front of the main control panel Once the mains power has been connected the Power On lamp ① will be illuminated.

To prepare the rotators to start press the reset button ②, this will then illuminate to indicate that the rotators are ready to start rotating.

Please note that if the Emergency stop button is pressed, the reset button will not illuminate.

To restart after the Emergency Stop button (either on the panel or the pendant) has been activated;

First, release the emergency stop button (③ or button on pendant see the next page), by twisting the head in the direction of the arrows marked on it. It will then spring out.

Second, press the Reset button ②. This will illuminate to show that the machine is ready to operate again.

Each day before first operation, all the emergency stop buttons on the system should be activated and checked for correct operation.



Also, on the door of the control panel is an Electrical Isolation Switch ④. The switch must be turned to the off position, cutting power to the panel in order to open the door. The handle can also accept a padlock or similar, in order to lock out the panel and prevent it from being powered up.

3.2 Control Pendant Operation  
Once the machine has power connected and the “power on” light is illuminated. The machine will be ready to run. If the emergency stop button has been depressed then release this by twisting the cap, then press the emergency stop reset button on the control box.

It is imperative when loading the machine that the fabrication is held firmly on the table, using the table slots provided. It is also important that the machine is NOT OVERLOADED by placing on it fabrications which are heavy or are beyond the capacity of the machine in terms of Centre of Gravity or Eccentricity.

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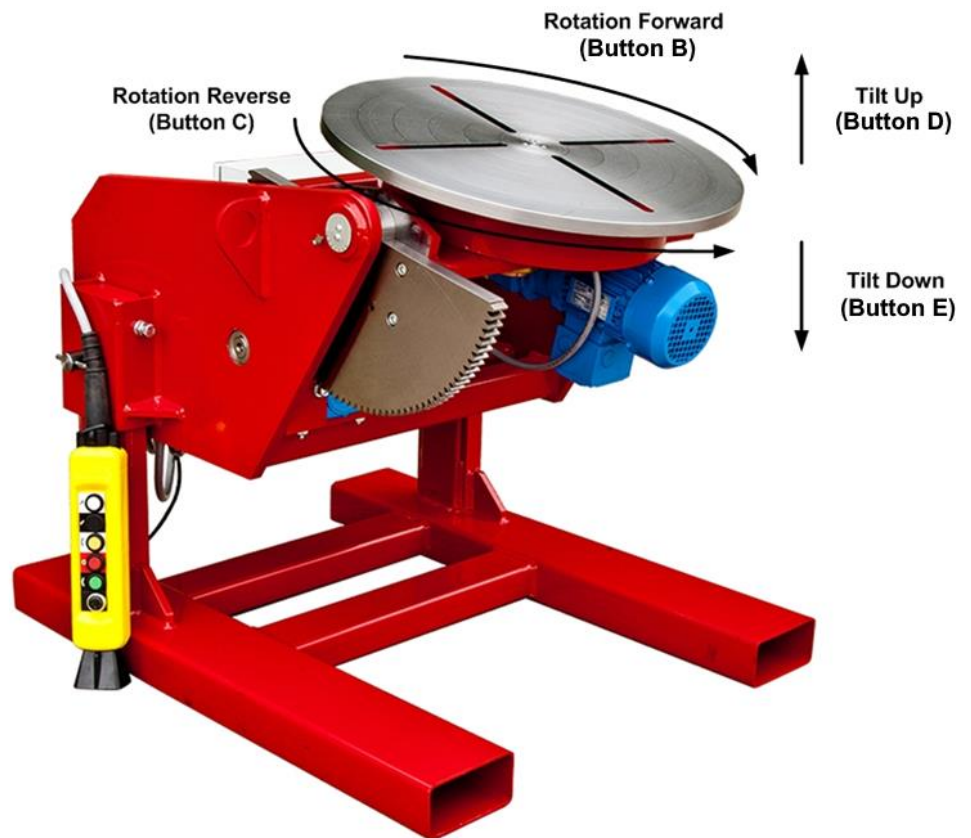
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Speed and movement of the positioner are controlled by the hand pendant, (see photo below).



The buttons on the pendant operate as follows

- Button A** Table Tilt Up
- Button B** Table Tilt Down
- Button C** Table Rotation Reverse (opposite direction to E)
- Button D** Table Rotation Stop
- Button E** Table Rotation Forward
- Dial F** Table Rotation Speed Control Potentiometer
- Button G** Pendant Emergency Stop Button



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## 4.0 MAINTENANCE

### 4.1 MAINTENANCE - OPEN GEARS

All gears are liberally coated with grease, CASTROL MS3 [molybdenum disulphide]. At 500 hour intervals remove safety guards and check coating, and if required replenish grease.

### 4.2 MAINTENANCE - ROTATION WORMBOX

The worm box fitted on this machine is factory filled with a synthetic lubricant SHELL TIVELA SA and should not require any further maintenance during its lifetime.

It is important however to check at regular intervals that there are no leaks. If any leaks are observed, the unit must be drained, new seals fitted and re-filled with the correct amount of lubricant.

### 4.3 MAINTENANCE - TILT WORM BOX

The worm box fitted on this machine is factory filled with a synthetic lubricant SHELL TIVELA SA and should not require any further maintenance during its lifetime.

It is important however to check at regular intervals that there are no leaks. If any leaks are observed, the unit must be drained, new seals fitted and re-filled with the correct amount of lubricant.

### 4.4 MAINTENANCE - EARTHING BRUSHES

All rotary tables that are used for manipulating components to be welded are fitted with Earthing Brush's to carry welding current away from the machines rotating axis to a suitable pickup point.

IT IS MOST IMPORTANT TO CONNECT AN EARTHING CABLE TO THE MACHINES PICKUP POINT AND NOT TO EXCEED THE MAXIMUM RATING STATED. OTHERWISE SERIOUS DAMAGE CAN OCCUR TO MACHINES ROTATING AND ELECTRICAL PARTS.

### 4.5 MAINTENANCE - ELECTRICAL MAINTENANCE

It is the responsibility of the user to ensure only competent personnel deal with the operation and maintenance of the equipment.

Operators should be conversant with the equipment and be able to recognise the symptoms maloperation and/or degraded performance. They should also be aware of what action to take in the event of a fault/emergency.

It is recommended that maintenance personnel have adequate training on the system and also the component parts. They should have a thorough knowledge of diagnosis and fault finding techniques and be conversant with identifying the first signs of maloperation.

During maintenance/fault finding etc, the following points should be observed

The equipment should be completely isolated whenever possible. If an element of live diagnosis is required the use of barriers/warning notices is a must.

The maintenance staff should be familiar with the appropriate factory and safety regulations that apply in the province and country that they are employed in, and work on the equipment in such a manner as to comply with them.

The period between specific maintenance tasks will vary dependant on such factors as type of equipment and environment of the equipment. These factors should be assessed by the respective maintenance staff and maintenance periods adjusted accordingly.

Maintenance should include attention to the points listed below:

#### 4.6 MAINTENANCE - CLEANLINESS / ENVIRONMENT

It is essential that the cubicle interior remains clean and dry. Any ingress of moisture or dirt should be cleaned with a lint free cloth or suitable suction device. Fans and filters should be checked regularly for blockages and dirty filter mats should be replaced with the correct grade of mat.

#### 4.7 MAINTENANCE - TIGHTNESS OF CONNECTIONS

It will be necessary to periodically check the tightness of terminals and busbar connections including earth connections, especially in areas where vibration is apparent. Check for any hot spots developing during running.

Checks should be performed with the power supply isolated.

#### 4.8 MAINTENANCE - INSULATION

A visual check of cable/control gear insulation should be performed at regular intervals. If this inspection reveals any change in appearance an insulation resistance measurement is recommended. For older equipment, these measurements should be taken on a more regular basis where successive lower readings would indicate a problem.

**NOTE:** It is important to use insulation testing equipment with care. Electronic components should be securely isolated before employing meggers or similar test methods.

#### 4.9 MAINTENANCE – CONTROL GEAR

A visual inspection should be performed at regular intervals. Movements should be checked for free and unobstructed operation. This is very important for critical safety components (Emergency Stop Pushbuttons and Relays).

#### 4.10 – INVERTER DRIVE PARAMETER SETTINGS

PARAMETER LEVEL	SETTING
00.001	2.5
00.002	72
00.003	3
00.004	3
00.005	AV
00.006	7.00
00.007	1500
00.008	400
00.009	0.85
00.010	ALL
00.011	0

*ALL OTHER PARAMETERS LEFT AS DEFAULT*

#### SAVING PARAMETERS

- SCROLL TO SETTING 00.000
- SET TO SAVE
- PRESS ENTER BUTTON
- PRESS RED BUTTON TO FINALISE SAVE

#### PENDANT FUNCTION (DIRECTIONS WHEN LOOKING AT TABLE FACE)

- |                      |                   |                                |
|----------------------|-------------------|--------------------------------|
| • GREEN PUSH BUTTON  | FORWARDS ROTATION | TABLE ROTATES CLOCKWISE        |
| • YELLOW PUSH BUTTON | REVERSE ROTATION  | TABLE ROTATES ANTI-CLOCKWISE   |
| • WHITE PUSH BUTTON  | TILT UP           | TABLE TILTS TOWARDS HORIZONTAL |
| • BLACK PUSH BUTTON  | TILT DOWN         | TABLE TILTS TOWARDS VERTICAL   |

#### OVERLOAD SETTING

- OL1 (TILT MOTOR OVERLOAD) SET TO 8.5Amps
- OL2 (FORCE VENT OVERLOAD) SET TO 0.4Amps

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## 5.0 REPLACEMENT PARTS

Use only parts as detailed by the supplier. Failure to do so could impair safety of equipment/personnel or impair machine operation or the design of the equipment.

### 5.1 MECHANICAL PARTS LIST

<b>Part Number</b>	<b>Description</b>	<b>Quantity</b>
KPVP1010151	Positioner Mainframe	1
KPVP1010102	Crosshead	1
KPVP1010103	Table	1
KPVP1010108	Trunnion Shaft	2
KPVP1010115	Rotation Box Pad	1
KPVP1010118	Rotation Spur Pinion Guard	1
KPVP1010117	Rotation Spur Pinion	1
KPVP1010204	4kW AC Tilt Geared Motor with Brake	1
KPVP1010206	Tilt Spur Pinion	1
KPVP1010205	Tilt Quadrant	1
KPVP1010220	Earthing Bracket	1
KPVP1010222	Earthing Strip	1
KPVP1010225	Trunion Flanged Bush	1
KPVP1010229	Crosshead Spacer	1
KPVP1010240	Slot Cover	6
KPVP1010245	Back Frame Guard	1
KPVP1010246	Front Frame Guard	1
KPVP1010203	4kW AC Rotation Motor	1
KPVP1010208	Rotation Gearbox	1
KPVP1010311	Earthing Brush Assembly	2
KPVP1010320	Control Panel Frame	1
KPVP1010350	Slewing Ring	1
KPVP1010260	Tilt Angle Indicator & Pointer	1
KPVP1010261	Tilt Pinion Guard	1
KPVP1010262	Tilt Box Pad & Gusset	1

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5.2 ELECTRICAL PARTS LIST

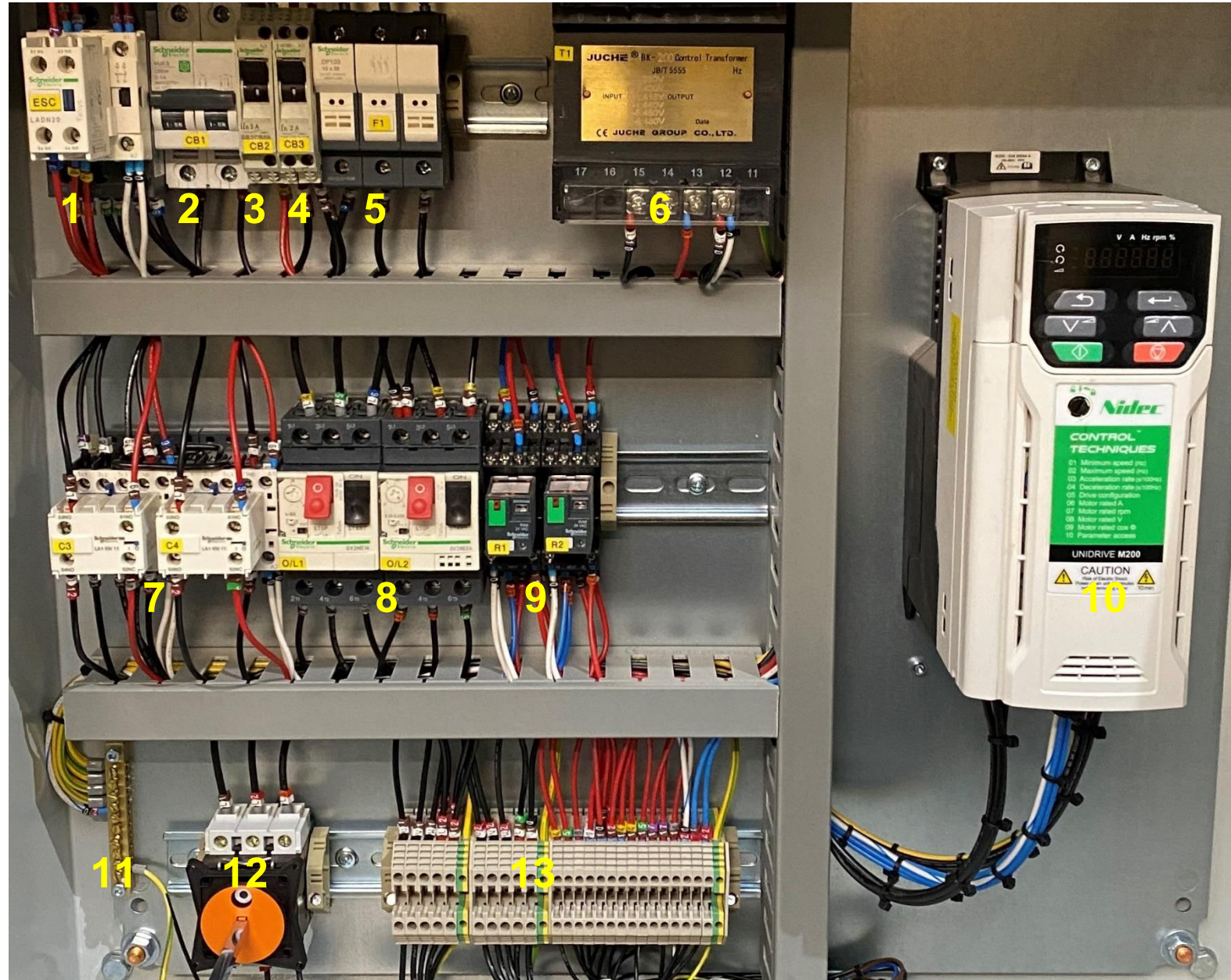
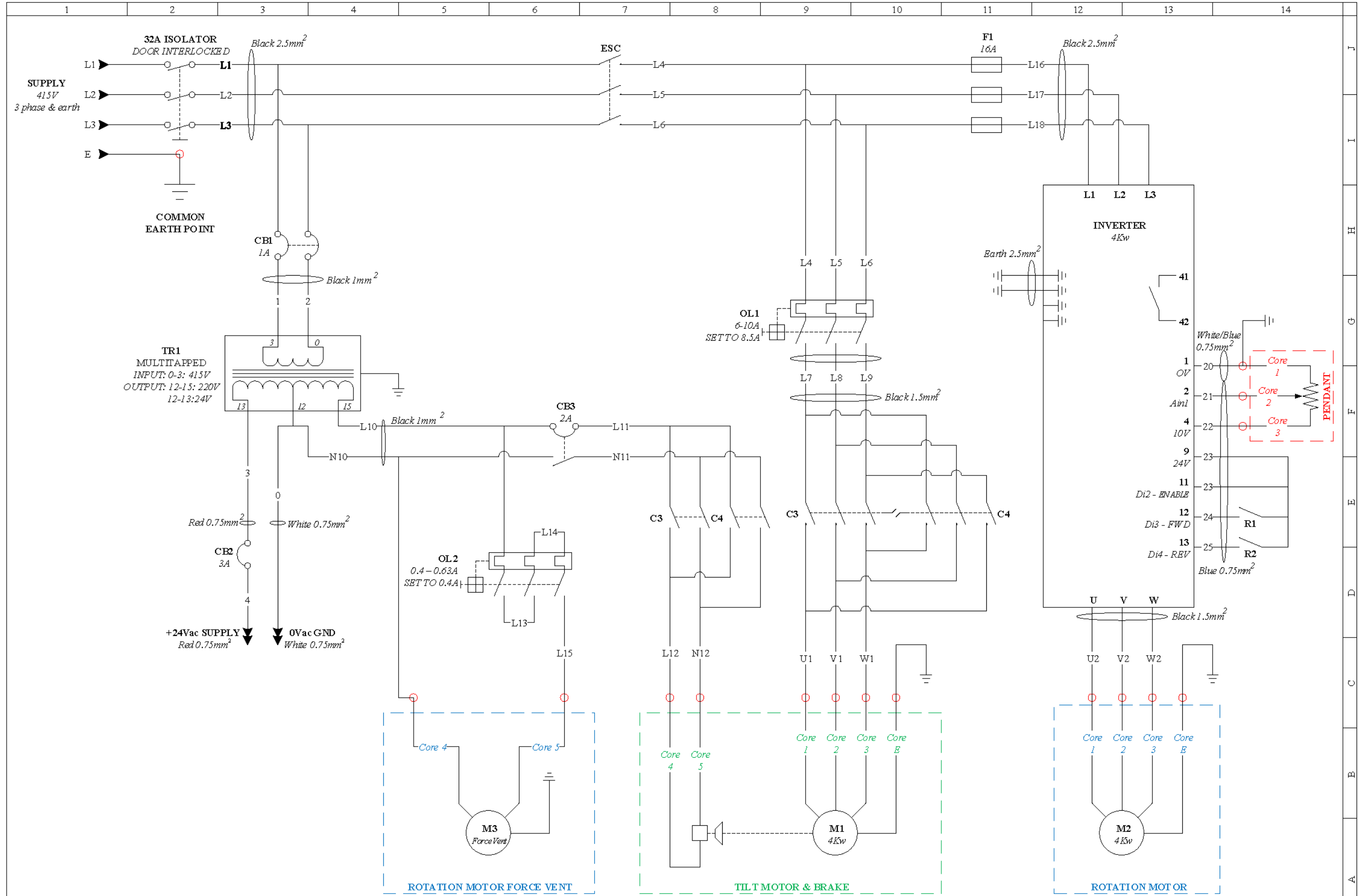


Photo No.	Part Number	Description	Quantity
1	KP4281	Emergency Stop Contactor	1
2	KP1020	2 Pole Circuit Breaker 1A	1
3	KP1010	1 Pole Circuit Breaker 3A	1
4	KP1017	1 Pole Circuit Breaker	1
5	KP1006	3 Phase Fuse Holder	1
6	KP202X	Transformer 415V:230V/24VAC	1
7	KP1049	Reversing Contactor	1
8	KP1029	Motor Circuit Breaker	2
9	KP1060	AC Relay and Base (14 Pin)	2
10	KP3012	Inverter Drive 3Ph 4 kW	1
11	KP2000	Earthing Bar	1
12	KP1062	Door Isolator	1
13	KP1001	Terminal Rail	1
14	KP1075	Pendant E-Stop Button	1
15	KP4001	Potentiometer	1
16	KP1070	Green Pushbutton	1
17	KP1071	Red Pushbutton	1
18	KP1072	Yellow Pushbutton	1
19	KP1069	Black Pushbutton	1
20	KP1038	White Pushbutton	1
21	KP1067	Pendant Body (6 Button)	1
22	KP4065	Door Isolator Handle	1
23	KP1091	Power On Lamp	1
24	KP1093	Reset Button	1
25	KP1090	Panel E-Stop Button	1





APPENDIX A - WIRING DIAGRAM



ELECTRICAL SCHEMATIC:  
Mains Distribution and Inverter

File KP\_VP10CE\_230V\_Brake&Forcevent\_Rev1.vsdw Dwg. No.:

Drawn By GB  
Approved

Created 05/05/2021  
Scale 1:1

Revised 05/05/2021  
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